

Manufacturing

Flexible scheduling allows us to meet our customer's needs from quick turn around to monthly long-term deliveries. New machining capability allows parts to be made without having to be routed to secondary operations. This results in a high-quality product, reduced lead times and an accuracy never possible in the past.

Quality standard and precision drive and automation components have been produced for over forty years at SDP/SI. We are now taking our engineering and manufacturing expertise a step further with new technology and producing a wide range of products fabricated on our state-of-the-art CNC multi-axis and CNC swiss style turning machines.

Engineering

Our engineering experts can assist in design and development of your application.

We are dedicated to meeting our customer's needs by using our experience to work efficiently and effectively and to provide innovative solutions.

Machining Capabilities:

- Turning
- Milling
- Cross Drilling
- Knurling
- Broaching
- Slotting
- Countersinking
- Internal/External Threading
- Thread Rolling
- Worm Forming
- Pulley and Gear Hobbing



SDP/SI

Stock Drive Products

ISO Registered

Sterling Instrument

ISO and AS9100
Registered



Handbook of METRIC Drive Components D805

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INTRODUCTION

Our first metric catalog was released in 1995. Between then and now we have revised, expanded existing product groups and introduced thousands of new products, many being RoHS compliant, which we felt would be of benefit to you.

Again, you were first in our thoughts when planning our new catalog which resulted in the following improvements.

1. **The catalog is a new larger size** – easier to read and handle.
2. **New page layout** – better organization of material allowing you to easily locate the specific component you require.
3. **More product technical data** – providing you with the information needed to make the correct choice for your application.
4. **Detailed indexes** – to give you an instant overview of what is contained in each section and where it can be located.
5. **Updated technical section on gearing.**
6. **And many new items** – over 40,000 metric components contained in one source – some are listed below:

Miniature Timing Belts and Timing Belt Pulleys – 1 mm Pitch

Wider Timing Belt width and new lengths have been added to the various profiles

Timing Belt Clamps and Clamp Kits

Conidrive® System – Belts and Pulleys built with the patented Fairloc® Hub

Bearings, including:
Miniature Pillow Block-Mounted Ball Bearings
Shaftloc® – new styles and additional sizes are now offered

PRX and RTX Planetary Gearheads

Linear Motion Components

Couplings – a few are:
Miniature Helical Couplings, Silicone Insert Couplings and the powerful Magnetic Disk Couplings

Vibration Mounts and Pads including the Silicone Gel components.

And much more –

We hope that you find the new format of the catalog, the new and expanded product groups and the additional technical information an indispensable source for all your metric component requirements.

All product catalogs and design and application data, including 3D models, can be easily accessed online for viewing or downloading to your desktop by visiting our Web site: www.sdp-si.com.

We supply off-the-shelf availability of our metric and inch components, can modify standards to your specifications and provide complete custom-designed components and/or assemblies.

"We are waiting to hear from you"

Call for technical assistance, to place an order or visit our Web site to shop online.

SETTING IDEAS INTO MOTION

The SDP/SI Engineering Department is highly regarded as among the best in the industry. Renowned for their expertise in various design, production and application engineering disciplines, SDP/SI engineers are regularly solicited for problem-solving assistance by customers and peers alike. They also work closely with clients' product development teams to achieve mutually beneficial design and cost efficiencies.

A wealth of experience and knowledge accumulated by the SDP/SI engineers through the years is contained in a design handbook regularly published by the company. Copies of this extremely popular reference source are widely disseminated to technical schools and engineering institutions throughout the world.

If engineering is the company's driving force, manufacturing is its life blood.

Over 65% of the SDP/SI ready-to-deliver components are produced in-house. This unusually broad manufacturing capability translates into tighter control over product quality and production costs. It also facilitates just-in-time deliveries of customer orders while improving overall project management operations.

The manufacturing division represents more than half of the company's total workforce.

Obligated to comply with exacting standards and rigid quality requirements, SDP/SI manufacturing personnel hone their exceptional skills through an effective educational process of ongoing knowledge transfer, supplemented by on-the-job training.



To produce its diverse line of drive and automation components, SDP/SI maintains an impressive array of metal and plastic fabricating equipment ranging from conventional engine lathes to precision gear cutting machinery to highly sophisticated 11-axis CNC milling machines. Most of the manufacturing tooling and fixtures are produced in-house as are the programs that control the CNC-equipped machinery.

Never known to rest on its laurels, SDP/SI continues to probe the future for improved designs, new products...and innovative ways for setting ideas into motion.



SDP/SI

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| S60SFXM03..... | 6-17 | S9123M..... | 14-74 | S99GNRM17..... | 9-19 |
| S61GPBM..... | 5-77 | S9123M-...HT..... | 14-72 | S99GNRM27..... | 9-20 |
| S61PPCM..... | 5-82 | S9134M..... | 14-78 | S99GNRM40..... | 9-21 |
| S61PPZM..... | 5-83 | S9134M-...HT..... | 14-76 | S99GNRM80..... | 9-22 |
| S61PSCM..... | 5-82 | S9142M..... | 14-80 | S99GSPM..... | 5-23 |
| S61PSZM..... | 5-83 | S9160AMPX..... | 11-22 | S99GTFM..... | 5-40 |
| S61SFAM..... | 4-25 | S9160AMRTX..... | 11-23 | S99GTPM..... | 5-39 |
| S62GFRM..... | 5-75 | S9160RMR..... | 11-30 | S99GTTM..... | 5-73 |
| S62GMRM..... | 5-74 | S9160TM..... | 11-28 | S99GWCM40..... | 9-25 |
| S64AMRM..... | 9-16 | S9190AMPX..... | 11-24 | S99GWCM80..... | 9-26 |
| S64SBAM..... | 4-25 | S9190AMRTX..... | 11-25 | S99GWRM40..... | 9-25 |
| S6513HM..... | 4-28 | S9190RMR..... | 11-34 | S99GWRM80..... | 9-26 |
| S6652HM..... | 4-29 | S9190TM..... | 11-32 | S99HDPM..... | 5-13 |
| S6653HM..... | 4-30 | S91B5RMR..... | 11-38 | S99LBCM..... | 5-14 |
| S6900YMH..... | 10-47 | S91B5TM..... | 11-36 | S99LBOM..... | 5-16 |
| S705CBM..... | 10-19 | S97A05M...T08..... | 1-135 | S99LHCM..... | 5-15 |
| S705CDM..... | 10-20 | S97A08M...T08..... | 1-135 | S99LHZM..... | 5-17 |
| S705CFM..... | 10-21 | S97A10M...T10..... | 1-135 | S99LSAM..... | 5-18 |
| S705YBM..... | 10-19 | S97S05M...T08..... | 1-134 | S99LSCM..... | 5-15 |
| S705YDM..... | 10-20 | S97S08M...T08..... | 1-134 | S99LSZM..... | 5-17 |
| S705YFM..... | 10-21 | S97S08M...T08..... | 1-135 | S99NH2MBN..... | 5-60 |
| S706Y3M..... | 10-3 | S97S10M...T10..... | 1-134 | S99NH3MURC..... | 5-62 |
| S7270YM..... | 10-53 | S97S10M...T10..... | 1-135 | S99NH3MURC..... | 13-19 |
| S73NW2MGR555..... | 10-38 | S98CA6MM..... | 13-3 | S99NH4MURC..... | 5-63 |
| S77RY1M..... | 4-14 | S9901YM..... | 6-12 | S99NH4MURC..... | 13-20 |
| S77RY1ML..... | 4-15 | S9901YMG..... | 6-11 | S99NH4MURC..... | 13-21 |
| S78CSYM..... | 10-50 | S9909YM..... | 10-46 | S99RD1MBE..... | 12-2 |
| S78ESYM..... | 10-48 | S9912YM...FS..... | 5-7 | S99RH2MBNR..... | 5-61 |
| S78TSYM..... | 10-52 | S9912YM...PS..... | 5-6 | S99TBSM..... | 4-7 |
| S7912YM32..... | 2-198 | S991LYM..... | 12-9 | | |



The idea for developing metric standards worldwide comes from a preferred numbering system. Its first known application was in the 1870's by Charles Renard, a French army captain who reduced the different diameters of rope for military balloons from 425 to 17.

Nominal metric sizes are identical where the metric systems have been in use for several years. These reflect preferred sizes for components such as threaded fasteners, steel plates, sheets, and bars used throughout the world. The accompanying table, *Selecting a Preferred Size* shows how the general system works.

For example, if a designer was choosing a hydraulic cylinder, bolt, or plate thickness, the sizes in the First-choice column would be preferred. Second- and Third-choice columns are self-explanatory. The table extends to smaller and larger sizes. For instance, 60-mm

sizes would be a preferred choice as would 2.5-mm devices.

The three columns to the far right are the originating Renard numbers. In the First-choice column, each succeeding number is 1.6 times the previous, with some rounding. These three columns provide the basis for the values on the left side of the table. The inch values show close corresponding English units.

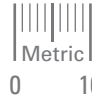
The form of the first table carries through to other tables in the standard. The number series shown are recommended to reduce the number of standard sizes for items such as screw threads, steel plates, steel sheets, round steel bars, lifting capacities, and hydraulic cylinder diameters.

| Preferred Sizes (mm) | | | Customary Sizes | | | Preferred Numbers | | |
|----------------------|---------------|--------------|-----------------|---------------|--------------|-------------------|---------------|--------------|
| First Choice | Second Choice | Third Choice | mm | in. Fractions | in. Decimals | First Choice | Second Choice | Third Choice |
| 4 | | 4.5 | 3.97 | 5/32 | .156 | 4 | | 4.5 |
| | 5 | | 4.37 | 11/64 | .172 | | 5 | |
| | | 5.5 | 4.76 | 3/16 | .188 | | | 5.6 |
| 6 | | | 5.56 | 7/32 | .219 | 6.3 | | |
| | 8 | 7 | 6.35 | 1/4 | .250 | | | 7.1 |
| | | 7 | 7.14 | 9/32 | .281 | | 8 | |
| | | 8 | 7.94 | 5/16 | .313 | | | 9 |
| 10 | | 9 | 8.73 | 11/32 | .344 | 10 | | |
| | | 11 | 9.53 | 3/8 | .375 | | | 11.2 |
| | 12 | | 11.11 | 7/16 | .438 | | 12.5 | |
| | | 14 | 12.7 | 1/2 | .500 | | | 14 |
| 16 | | 18 | 14.29 | 9/16 | .563 | 16 | | |
| | | 18 | 15.88 | 5/8 | .625 | | | 18 |
| | 20 | | 17.46 | 11/16 | .688 | | 20 | |
| | | 22 | 19.05 | 3/4 | .750 | | | 22.4 |
| 25 | | | 22.23 | 7/8 | .875 | 25 | | |
| | | 28 | 25.4 | 1 | — | | | 28 |
| | 30 | | 28.58 | 1-1/8 | 1.125 | | | 31.5 |
| | | 35 | 30.16 | 1-3/16 | 1.188 | | 31.5 | |
| | | 35 | 34.93 | 1-3/8 | 1.375 | | | 35.5 |
| 40 | | | 39.69 | 1-9/16 | 1.563 | 40 | | |

The values in the first three columns of the table may be extended to cover smaller or larger sizes by multiplying or dividing sizes by 10.

Reprinted from Kverneland, K.O., "How ISO Standards Cut Manufacturing Costs," Machine Design, pp 126-130, November 5, 1998.

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A FEW WORLD STANDARDS FOR ROUND COLD-FINISHED STEEL BARS*

| Country | National Standard | ISO Product Tolerance | | | | Other ISO Shaft Tolerance |
|-----------|--------------------------|-----------------------|----|----|----|---------------------------|
| | | h11 | h9 | h7 | h6 | |
| Global | ISO 1829 | h11 | h9 | h7 | h6 | h5, h8 (second choice) |
| USA | ANSI B4.2 | h11 | h9 | h7 | h6 | |
| Japan | JIS G3 123 | h11 | h9 | h7 | h6 | h13, h12, h10, h8 |
| Germany | DIN 668 59360.1 | h11 | h9 | h7 | h6 | |
| France | NF A47-411 | h11 | h9 | | | h10 |
| U.K. | BS 4500 | h11 | h9 | h7 | h6 | |
| Italy | UNI 468, 469 UNI 5953 | h11 | h9 | h7 | | |
| Australia | AS 1654 | h11 | h9 | h7 | h6 | |

ISO 1829, ANSI B4.2, BS 4500 and AS 1654 are preferred tolerance standards.

PREFERRED FITS FOR SHAFTS AND HOLES*

| Hole Basis | Shaft Basis | Description |
|------------|-------------|---|
| H11/c11 | C11/h11 | Loose running fits are for wide commercial tolerances or allowances on external members |
| H9/d9 | D9/h9 | Free running fits are good for large temperature variations, high running speeds, or heavy journal pressure, but not where accuracy is essential. |
| H8/f7 | F8/h7 | Close running fits are for running on accurate machines and for accurate locations at moderate speeds. |
| H7/g6 | G7/h6 | Sliding fits are not intended to run freely, but to move and turn freely and locate accurately. |
| H7/h6 | H7/h6 | Location clearance provides snug fits for locating stationary parts, but can be freely assembled and disassembled. |
| H7/k6 | K7/h6 | Location transition fits are for accurate locations, a compromise between clearance and interference. |
| H7/n6 | N7/h6 | Location transition fits are for more accurate locations where greater interference is permissible. |
| H7/p6 | P7/h6 | Location interference fits are for parts requiring rigidity and alignment with prime accuracy of location but without special bore-pressure requirements. |
| H7/s6 | S7/h6 | Medium drive fits are for ordinary steel parts or shrink fits on light sections. these provide the tightest usable fit with cast iron. |
| H7/u6 | U7/h6 | Force fits are suitable for parts which can be highly stressed or for shrink fits where the heavy pressing forces required are impractical. |

*Reprinted from Kverneland, K.O., "How ISO Standards Cut Manufacturing Costs," Machine Design, pp 126-130, November 5, 1998.



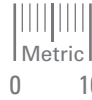
0 10

FOR EXTERNAL MEASUREMENTS (SHAFTS)*

Measurements in μm (1 μm = 0.001 mm)

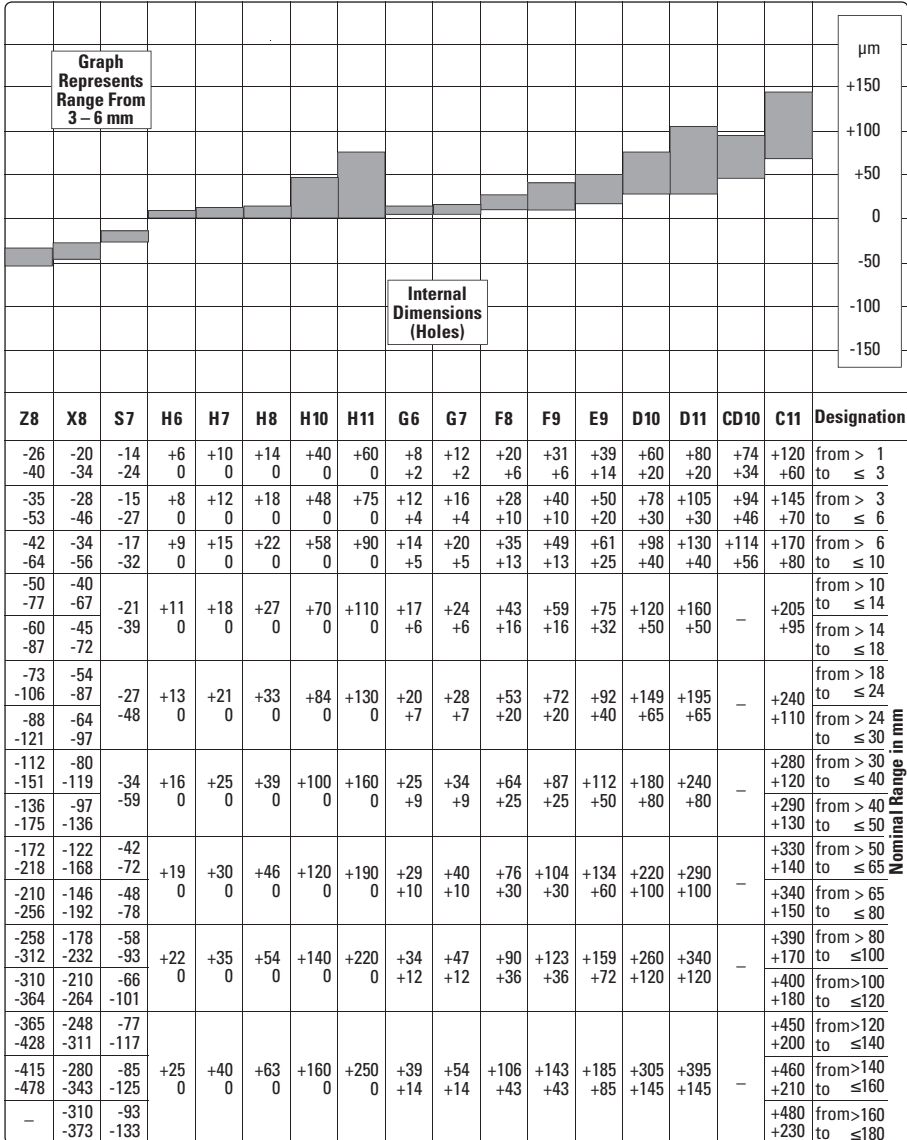
| Designation | s6 | r6 | n6 | m6 | j6 | h5 | h6 | h8 | h9 | h11 | g5 | g6 | f7 | f8 | e8 | d11 | |
|--------------------------|------------------------|------------|------------|------------|------------|-----------|----------|----------|-----------|-----------|------------|------------|------------|-------------|-------------|--------------|-------------|
| from > 1 to \leq 3 | +20 +14 | +16 +10 | +10 +4 | +8 +2 | +4 -2 | 0 -4 | 0 -6 | 0 -14 | 0 -25 | 0 -60 | -2 -6 | -2 -8 | -6 -16 | -6 -20 | -14 -28 | -20 -80 | |
| from > 3 to \leq 6 | +27 +19 | +23 +15 | +16 +8 | +12 +4 | +6 -2 | 0 -5 | 0 -8 | 0 -18 | 0 -30 | 0 -75 | -4 -9 | -4 -12 | -10 -22 | -10 -28 | -20 -38 | -30 -105 | |
| from > 6 to \leq 10 | +32 +23 | +28 +19 | +19 +10 | +15 +6 | +7 -2 | 0 -6 | 0 -9 | 0 -22 | 0 -36 | 0 -90 | -5 -11 | -5 -14 | -13 -28 | -13 -35 | -25 -47 | -40 -130 | |
| from > 10 to \leq 14 | +39 +28 | +34 +23 | +23 +12 | +18 +7 | +8 -3 | 0 -8 | 0 -11 | 0 -27 | 0 -43 | 0 -110 | -6 -14 | -6 -17 | -16 -34 | -16 -43 | -32 -59 | -50 -160 | |
| Nominal Range in mm | from > 18 to \leq 24 | +48 +35 | +41 +28 | +28 +15 | +21 +8 | +9 -4 | 0 -9 | 0 -13 | 0 -33 | 0 -52 | 0 -130 | -7 -16 | -7 -20 | -20 -41 | -20 -53 | -40 -73 | -65 -195 |
| | from > 24 to \leq 30 | | | | | | | | | | | | | | | | |
| | from > 30 to \leq 40 | +59 +43 | +50 +34 | +33 +17 | +25 +9 | +11 -5 | 0 -11 | 0 -16 | 0 -39 | 0 -62 | 0 -160 | -9 -20 | -9 -25 | -25 -50 | -25 -64 | -50 -89 | -80 -240 |
| | from > 40 to \leq 50 | | | | | | | | | | | | | | | | |
| from > 50 to \leq 65 | +72 +53 | +60 +41 | | | | | | | | | | | | | | | |
| from > 65 to \leq 80 | +78 +59 | +62 +43 | +39 +20 | +30 +11 | +12 -7 | 0 -13 | 0 -19 | 0 -46 | 0 -74 | 0 -190 | -10 -23 | -10 -29 | -30 -60 | -30 -76 | -60 -106 | -100 -290 | |
| from > 80 to \leq 100 | +93 +71 | +73 +51 | +45 +23 | +35 +13 | +13 -9 | 0 -15 | 0 -22 | 0 -54 | 0 -87 | 0 -220 | -12 -27 | -12 -34 | -36 -71 | -36 -90 | -72 -126 | -120 -340 | |
| from > 100 to \leq 120 | +101 +79 | +76 +54 | | | | | | | | | | | | | | | |
| from > 120 to \leq 140 | +117 +92 | +88 +63 | | | | | | | | | | | | | | | |
| from > 140 to \leq 160 | +125 +100 | +90 +65 | +52 +27 | +40 +15 | +14 -11 | 0 -18 | 0 -25 | 0 -63 | 0 -100 | 0 -250 | -14 -32 | -14 -39 | -43 -83 | -43 -106 | -85 -148 | -145 -395 | |
| from > 160 to \leq 180 | +133 +108 | +93 +68 | | | | | | | | | | | | | | | |

*Per DIN 58700 sheet 1 p. 2.



FOR INTERNAL MEASUREMENTS (HOLES)*

Measurements in μm ($1 \mu\text{m} = 0.001 \text{mm}$)



*Per DIN 58700 sheet 1 p. 3.



Expressed in thousandths of a millimeter

| RUNNING & SLIDING FITS | | d, e — LOOSE CLEARANCE | | | | | f — AVERAGE RUNNING | | | | | | | | | | | | | | |
|------------------------|------|--|-------------|---------------------|-------------|---------------------|---------------------------|---------------------|--------------|----------------------|--|-----------------------|--|-----------------------|--|-----------------------|--|-----------------------|--|--|--|
| LOCATIONAL FITS | | g — LOCATIONAL CLEARANCE | | | | | h — LOCATIONAL TRANSITION | | | | | | | | | | | | | | |
| FORCE FITS | | k — LIGHT DRIVE | | | | | p, s — MEDIUM DRIVE | | | | | | | | | | | | | | |
| DIA. | FITS | NOMINAL SIZE RANGE IN INCHES & MILLIMETERS | | | | | | | | | | | | | | | | | | | |
| | | .039 to .118 in. | | .118 to .236 in. | | .236 to .394 in. | | .394 to .709 in. | | .709 to 1.181 in. | | 1.181 to 1.969 in. | | 1.969 to 3.150 in. | | 3.150 to 4.724 in. | | 4.724 to 7.087 in. | | | |
| | | 1 to 3 mm | | 3 to 6 mm | | 6 to 10 mm | | 10 to 18 mm | | 18 to 30 mm | | 30 to 50 mm | | 50 to 80 mm | | 80 to 120 mm | | 120 to 180 mm | | | |
| | | VALUES (From / To) IN THOUSANDTHS OF A mm | | | | | | | | | | | | | | | | | | | |
| Hole | H6 | +6 0 | +8 0 | +9 0 | +11 0 | +13 0 | +16 0 | +19 0 | +22 0 | +25 0 | | | | | | | | | | | |
| Shaft | g5 | -2 -6 | -4 -9 | -5 -11 | -6 -14 | -7 -16 | -9 -20 | -10 -23 | -12 -27 | -14 -32 | | | | | | | | | | | |
| | h5 | 0 -4 | 0 -5 | 0 -6 | 0 -8 | 0 -9 | 0 -11 | 0 -13 | 0 -15 | 0 -18 | | | | | | | | | | | |
| | k5 | +4 0 | +6 +1 | +7 +1 | +9 +1 | +11 +2 | +13 +2 | +15 +2 | +18 +3 | +21 +3 | | | | | | | | | | | |
| | p5 | +10 +6 | +17 +12 | +21 +15 | +26 +18 | +31 +22 | +37 +26 | +45 +32 | +52 +37 | +61 +43 | | | | | | | | | | | |
| Hole | H7 | +10 0 | +12 0 | +15 0 | +18 0 | +21 0 | +25 0 | +30 0 | +35 0 | +40 0 | | | | | | | | | | | |
| Shaft | f6 | -6 -12 | -10 -18 | -13 -22 | -16 -27 | -20 -33 | -25 -41 | -30 -49 | -36 -58 | -43 -68 | | | | | | | | | | | |
| | g6 | -2 -8 | -4 -12 | -5 -14 | -6 -17 | -7 -20 | -9 -25 | -10 -29 | -12 -34 | -14 -39 | | | | | | | | | | | |
| | h6 | 0 -6 | 0 -8 | 0 -9 | 0 -11 | 0 -13 | 0 -16 | 0 -19 | 0 -22 | 0 -25 | | | | | | | | | | | |
| | k6 | +6 0 | +9 +1 | +10 +1 | +12 +1 | +15 +2 | +18 +2 | +21 +2 | +25 +3 | +28 +3 | | | | | | | | | | | |
| Hole | p6 | +12 +6 | +20 +12 | +24 +15 | +29 +18 | +35 +22 | +42 +26 | +51 +32 | +59 +37 | +68 +43 | | | | | | | | | | | |
| | H8 | +14 0 | +18 0 | +22 0 | +27 0 | +33 0 | +39 0 | +46 0 | +54 0 | +63 0 | | | | | | | | | | | |
| Shaft | e8 | -14 -28 | -20 -38 | -25 -47 | -32 -59 | -40 -73 | -50 -89 | -60 -106 | -72 -126 | -85 -148 | | | | | | | | | | | |
| | f8 | -6 -20 | -10 -28 | -13 -35 | -16 -43 | -20 -53 | -25 -64 | -30 -76 | -36 -90 | -43 -106 | | | | | | | | | | | |
| | h8 | 0 -14 | 0 -18 | 0 -22 | 0 -27 | 0 -33 | 0 -39 | 0 -46 | 0 -54 | 0 -63 | | | | | | | | | | | |
| | s8 | +29 +15 | +37 +19 | +45 +23 | +55 +28 | +68 +35 | +82 +43 | +99 +53 | +125 +71 | +155 +92 | | | | | | | | | | | |
| Hole | H9 | +25 0 | +30 0 | +36 0 | +43 0 | +52 0 | +62 0 | +74 0 | +87 0 | +100 0 | | | | | | | | | | | |
| Shaft | e9 | -14 -39 | -20 -50 | -25 -61 | -32 -75 | -40 -92 | -50 -112 | -60 -134 | -72 -159 | -85 -185 | | | | | | | | | | | |
| | h9 | 0 -25 | 0 -30 | 0 -36 | 0 -43 | 0 -52 | 0 -62 | 0 -74 | 0 -87 | 0 -100 | | | | | | | | | | | |
| Hole | H11 | +60 0 | +75 0 | +90 0 | +110 0 | +130 0 | +160 0 | +190 0 | +220 0 | +250 0 | | | | | | | | | | | |
| Shaft | d11 | -20 -80 | -30 -105 | -40 -130 | -50 -160 | -65 -195 | -80 -240 | -100 -290 | -120 -340 | -145 -395 | | | | | | | | | | | |
| | h11 | 0 -60 | 0 -75 | 0 -90 | 0 -110 | 0 -130 | 0 -160 | 0 -190 | 0 -220 | 0 -250 | | | | | | | | | | | |



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Expressed in inches

| RUNNING & SLIDING FITS | | d, e — LOOSE CLEARANCE | | | | | f — AVERAGE RUNNING | | | | |
|------------------------|--------------------|--|---------------------|---------------------|---------------------|---------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| LOCATIONAL FITS | | g — LOCATIONAL CLEARANCE | | | | | h — LOCATIONAL TRANSITION | | | | |
| FORCE FITS | | k — LIGHT DRIVE | | | | | p, s — MEDIUM DRIVE | | | | |
| DIA. | FITS | NOMINAL SIZE RANGE IN INCHES & MILLIMETERS | | | | | | | | | |
| | | > | .039 to .118 in. | .118 to .236 in. | .236 to .394 in. | .394 to .709 in. | .709 to 1.181 in. | 1.181 to 1.969 in. | 1.969 to 3.150 in. | 3.150 to 4.724 in. | 4.724 to 7.087 in. |
| | | ≤ | 1 to 3 mm | 3 to 6 mm | 6 to 10 mm | 10 to 18 mm | 18 to 30 mm | 30 to 50 mm | 50 to 80 mm | 80 to 120 mm | 120 to 180 mm |
| | | VALUES (From / To) IN INCHES | | | | | | | | | |
| Hole | H6 | +0.0024 -0.0000 | +0.0031 -0.0000 | +0.0035 -0.0000 | +0.0043 -0.0000 | +0.0051 -0.0000 | +0.0063 -0.0000 | +0.0075 -0.0000 | +0.0087 -0.0000 | +0.0098 -0.0000 | |
| Shaft | g5 | -0.0008 -0.0024 | -0.0016 -0.0035 | -0.0020 -0.0043 | -0.0024 -0.0055 | -0.0028 -0.0063 | -0.0035 -0.0079 | -0.0039 -0.0091 | -0.0047 -0.0106 | -0.0055 -0.0126 | |
| | h5 | +0.0000 -0.0016 | +0.0000 -0.0020 | +0.0000 -0.0024 | +0.0000 -0.0031 | +0.0000 -0.0035 | +0.0000 -0.0043 | +0.0000 -0.0051 | +0.0000 -0.0059 | +0.0000 -0.0071 | |
| | k5 | +0.0016 -0.0000 | +0.0024 +0.0004 | +0.0028 +0.0008 | +0.0035 +0.0008 | +0.0043 +0.0008 | +0.0051 +0.0008 | +0.0059 +0.0012 | +0.0071 +0.0012 | +0.0083 +0.0016 | |
| | p5 | +0.0039 +0.0024 | +0.0067 +0.0047 | +0.0083 +0.0059 | +0.0102 +0.0071 | +0.0122 +0.0087 | +0.0146 +0.0102 | +0.0177 +0.0126 | +0.0205 +0.0146 | +0.0240 +0.0169 | |
| Hole | H7 | +0.0039 -0.0000 | +0.0047 -0.0000 | +0.0059 -0.0000 | +0.0071 -0.0000 | +0.0083 -0.0000 | +0.0098 -0.0000 | +0.0118 -0.0000 | +0.0138 -0.0000 | +0.0157 -0.0000 | |
| Shaft | f6 | -0.0024 -0.0047 | -0.0039 -0.0071 | -0.0051 -0.0087 | -0.0063 -0.0106 | -0.0079 -0.0130 | -0.0098 -0.0161 | -0.0118 -0.0193 | -0.0142 -0.0228 | -0.0169 -0.0268 | |
| | g6 | -0.0008 -0.0031 | -0.0016 -0.0047 | -0.0020 -0.0055 | -0.0024 -0.0067 | -0.0028 -0.0079 | -0.0035 -0.0098 | -0.0039 -0.0114 | -0.0047 -0.0134 | -0.0055 -0.0154 | |
| | h6 | +0.0000 -0.0028 | +0.0000 -0.0031 | +0.0000 -0.0035 | +0.0000 -0.0043 | +0.0000 -0.0051 | +0.0000 -0.0063 | +0.0000 -0.0075 | +0.0000 -0.0087 | +0.0000 -0.0098 | |
| | k6 | +0.0024 +0.0000 | +0.0035 +0.0004 | +0.0039 +0.0004 | +0.0047 +0.0004 | +0.0059 +0.0008 | +0.0071 +0.0008 | +0.0083 +0.0008 | +0.0098 +0.0012 | +0.0110 +0.0012 | |
| p6 | +0.0047 +0.0024 | +0.0079 +0.0047 | +0.0094 +0.0059 | +0.0114 +0.0071 | +0.0138 +0.0087 | +0.0165 +0.0102 | +0.0201 +0.0126 | +0.0232 +0.0146 | +0.0268 +0.0169 | | |
| Hole | H8 | +0.0055 -0.0000 | +0.0071 -0.0000 | +0.0087 -0.0000 | +0.0106 -0.0000 | +0.0130 -0.0000 | +0.0154 -0.0000 | +0.0181 -0.0000 | +0.0213 -0.0000 | +0.0248 -0.0000 | |
| Shaft | e8 | -0.0055 -0.0110 | -0.0079 -0.0150 | -0.0098 -0.0185 | -0.0126 -0.0232 | -0.0157 -0.0287 | -0.0197 -0.0350 | -0.0236 -0.0417 | -0.0283 -0.0496 | -0.0335 -0.0583 | |
| | f8 | -0.0024 -0.0079 | -0.0039 -0.0110 | -0.0051 -0.0138 | -0.0063 -0.0169 | -0.0079 -0.0209 | -0.0098 -0.0252 | -0.0118 -0.0299 | -0.0142 -0.0354 | -0.0169 -0.0417 | |
| | h8 | +0.0000 -0.0055 | +0.0000 -0.0071 | +0.0000 -0.0087 | +0.0000 -0.0106 | +0.0000 -0.0130 | +0.0000 -0.0154 | +0.0000 -0.0181 | +0.0000 -0.0213 | +0.0000 -0.0248 | |
| | s8 | +0.0114 +0.0059 | +0.0146 +0.0075 | +0.0177 +0.0091 | +0.0217 +0.0110 | +0.0268 +0.0138 | +0.0323 +0.0169 | +0.0390 +0.0209 | +0.0492 +0.0280 | +0.0610 +0.0362 | |
| Hole | H9 | +0.0098 -0.0000 | +0.0118 -0.0000 | +0.0142 -0.0000 | +0.0169 -0.0000 | +0.0205 -0.0000 | +0.0244 -0.0000 | +0.0291 -0.0000 | +0.0343 -0.0000 | +0.0394 -0.0000 | |
| Shaft | e9 | -0.0055 -0.0154 | -0.0079 -0.0197 | -0.0098 -0.0240 | -0.0126 -0.0295 | -0.0157 -0.0362 | -0.0197 -0.0441 | -0.0236 -0.0528 | -0.0283 -0.0626 | -0.0335 -0.0728 | |
| | h9 | +0.0000 -0.0098 | +0.0000 -0.0118 | +0.0000 -0.0142 | +0.0000 -0.0169 | +0.0000 -0.0205 | +0.0000 -0.0244 | +0.0000 -0.0291 | +0.0000 -0.0343 | +0.0000 -0.0394 | |
| Hole | H11 | +0.0236 -0.0000 | +0.0295 -0.0000 | +0.0354 -0.0000 | +0.0433 -0.0000 | +0.0512 -0.0000 | +0.0630 -0.0000 | +0.0748 -0.0000 | +0.0866 -0.0000 | +0.0984 -0.0000 | |
| Shaft | d11 | -0.0079 -0.0315 | -0.0118 -0.0413 | -0.0157 -0.0512 | -0.0197 -0.0630 | -0.0256 -0.0768 | -0.0315 -0.0945 | -0.0394 -0.1142 | -0.0472 -0.1339 | -0.0571 -0.1555 | |
| | h11 | +0.0000 -0.0236 | +0.0000 -0.0295 | +0.0000 -0.0354 | +0.0000 -0.0433 | +0.0000 -0.0512 | +0.0000 -0.0630 | +0.0000 -0.0748 | +0.0000 -0.0866 | +0.0000 -0.0984 | |

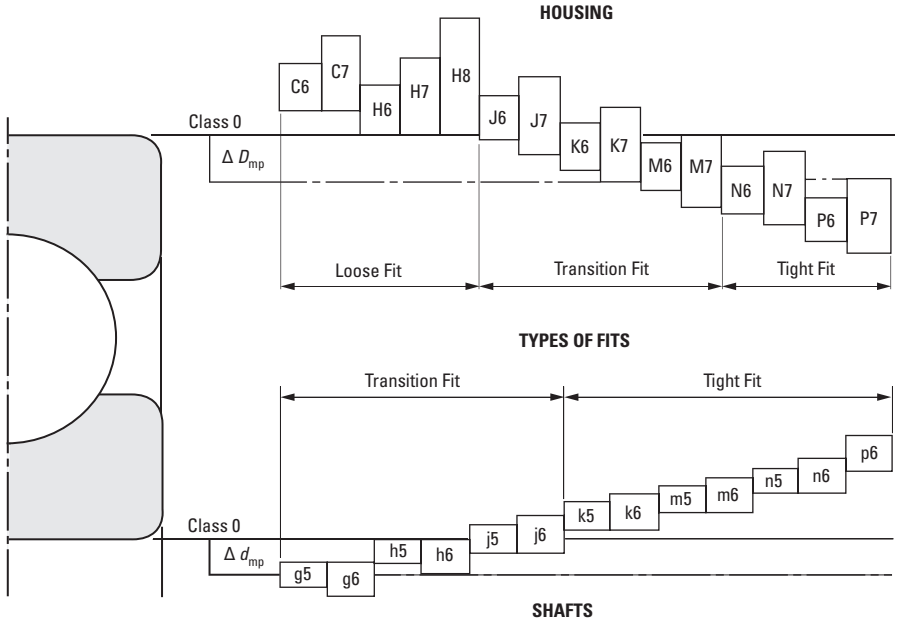


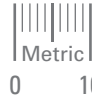
Comparison of Tolerance Classifications of Various National Standards

| Standard | | Tolerance Class | | | | |
|---|---------------------------|--------------------------|------------------|------------------|---------|---------|
| International Organization for Standardization | ISO 492 | Normal class Class 6X | Class 6 | Class 5 | Class 4 | Class 2 |
| American National Standards Institute (ANSI) | ANSI/AFBMA Std.20* | ABEC-1 RBEC-1 | ABEC-3 RBEC-3 | ABEC-5 RBEC-5 | ABEC-7 | ABEC-9 |
| Deutsches Institut für Normung | DIN 620 | P0 | P6 | P5 | P4 | P2 |
| Japanese Industrial Standard | JIS B 1514 | Class 0 Class 6X | Class 6 | Class 5 | Class 4 | Class 2 |

* "ABEC" is applied for ball bearings and "RBEC" for roller bearings.

- NOTES:** 1. ISO 492 and 199, DIN 620 and JIS B 1514 have the same specification level.
 2. The tolerance and allowance of JIS B 1514 are a little different from those of AFBMA standards.





APPROXIMATE EQUIVALENCE OF GEAR PRECISION CLASSES

| International ISO | Germany DIN | Japan JIS | U.S.A. AGMA |
|-------------------|-------------|-----------|-------------|
| 4 | 4 | 0 | 13 |
| 5 | 5 | 1 | 12 |
| 6 | 6 | 2 | 11 |
| 7 | 7 | 3 | 10 |
| 8 | 8 | 4 | 9 |
| 9 | 9 | 5 | 8 |

PREFERRED STANDARD SIZES OF METRIC GEARS

| Small Module | Medium Module | Large Module |
|--------------|---------------|--------------|
| 0.1 | 1 | 8 |
| 0.2 | 1.25 | 10 |
| 0.3 | 1.5 | 12 |
| 0.4 | 2 | 16 |
| 0.5 | 2.5 | 20 |
| 0.6 | 3 | 25 |
| 0.8 | 4 | 32 |
| | 5 | 40 |
| | 6 | 50 |



| P Diametral Pitch | m Module | Circular Pitch | | Circular Tooth Thickness | | Addendum | |
|-------------------------|-------------|----------------|-------------|-----------------------------|-------------|----------|-------------|
| | | inches | millimeters | inches | millimeters | inches | millimeters |
| .5000 | 50.8 | 6.2832 | 159.593 | 3.1416 | 79.796 | 2.0000 | 50.800 |
| .5080 | 50 | 6.1842 | 157.080 | 3.0921 | 78.540 | 1.9685 | 50.000 |
| .5644 | 45 | 5.5658 | 141.372 | 2.7829 | 70.686 | 1.7717 | 45.000 |
| .6048 | 42 | 5.1948 | 131.947 | 2.5974 | 65.973 | 1.6535 | 42.000 |
| .6350 | 40 | 4.9474 | 125.664 | 2.4737 | 62.832 | 1.5748 | 40.000 |
| .6513 | 39 | 4.8237 | 122.522 | 2.4119 | 61.261 | 1.5354 | 39.000 |
| .7056 | 36 | 4.4527 | 113.097 | 2.2263 | 56.549 | 1.4173 | 36.000 |
| .7500 | 33.8667 | 4.1888 | 106.395 | 2.0944 | 53.198 | 1.3333 | 33.867 |
| .7697 | 33 | 4.0816 | 103.673 | 2.0408 | 51.836 | 1.2992 | 33.000 |
| .7938 | 32 | 3.9579 | 100.531 | 1.9790 | 50.265 | 1.2598 | 32.000 |
| .8467 | 30 | 3.7105 | 94.248 | 1.8553 | 47.124 | 1.1811 | 30.000 |
| .9071 | 28 | 3.4632 | 87.965 | 1.7316 | 43.982 | 1.1024 | 28.000 |
| .9407 | 27 | 3.3395 | 84.823 | 1.6697 | 42.412 | 1.0630 | 27.000 |
| 1 | 25.4000 | 3.1416 | 79.796 | 1.5708 | 39.898 | 1.0000 | 25.400 |
| 1.0160 | 25 | 3.0921 | 78.540 | 1.5461 | 39.270 | .9843 | 25.000 |
| 1.0583 | 24 | 2.9684 | 75.398 | 1.4842 | 37.699 | .9449 | 24.000 |
| 1.1545 | 22 | 2.7211 | 69.115 | 1.3605 | 34.558 | .8661 | 22.000 |
| 1.2700 | 20 | 2.4737 | 62.832 | 1.2368 | 31.416 | .7874 | 20.000 |
| 1.4111 | 18 | 2.2263 | 56.549 | 1.1132 | 28.274 | .7087 | 18.000 |
| 1.5000 | 16.9333 | 2.0944 | 53.198 | 1.0472 | 26.599 | .6667 | 16.933 |
| 1.5875 | 16 | 1.9790 | 50.265 | .9895 | 25.133 | .6299 | 16.000 |
| 1.8143 | 14 | 1.7316 | 43.982 | .8658 | 21.991 | .5512 | 14.000 |
| 2 | 12.7000 | 1.5708 | 39.898 | .7854 | 19.949 | .5000 | 12.700 |
| 2.1167 | 12 | 1.4842 | 37.699 | .7421 | 18.850 | .4724 | 12.000 |
| 2.3091 | 11 | 1.3605 | 34.558 | .6803 | 17.279 | .4331 | 11.000 |
| 2.5000 | 10.1600 | 1.2566 | 31.919 | .6283 | 15.959 | .4000 | 10.160 |
| 2.5400 | 10 | 1.2368 | 31.416 | .6184 | 15.708 | .3937 | 10.000 |
| 2.8222 | 9 | 1.1132 | 28.274 | .5566 | 14.137 | .3543 | 9.000 |
| 3 | 8.4667 | 1.0472 | 26.599 | .5236 | 13.299 | .3333 | 8.467 |
| 3.1416 | 8.0851 | 1.0000 | 25.400 | .5000 | 12.700 | .3183 | 8.085 |
| 3.1750 | 8 | .9895 | 25.133 | .4947 | 12.566 | .3150 | 8.000 |
| 3.5000 | 7.2571 | .8976 | 22.799 | .4488 | 11.399 | .2857 | 7.257 |
| 3.6286 | 7 | .8658 | 21.991 | .4329 | 10.996 | .2756 | 7.000 |
| 3.9077 | 6.5000 | .8040 | 20.420 | .4020 | 10.210 | .2559 | 6.500 |
| 4 | 6.3500 | .7854 | 19.949 | .3927 | 9.975 | .2500 | 6.350 |
| 4.2333 | 6 | .7421 | 18.850 | .3711 | 9.425 | .2362 | 6.000 |
| 4.6182 | 5.5000 | .6803 | 17.279 | .3401 | 8.639 | .2165 | 5.500 |
| 5 | 5.08 | .6283 | 15.959 | .3142 | 7.980 | .2000 | 5.080 |
| 5.0800 | 5 | .6184 | 15.708 | .3092 | 7.854 | .1969 | 5.000 |
| 5.3474 | 4.75 | .5875 | 14.923 | .2938 | 7.461 | .1870 | 4.750 |
| 5.6444 | 4.5 | .5566 | 14.137 | .2783 | 7.069 | .1772 | 4.500 |
| 6 | 4.2333 | .5236 | 13.299 | .2618 | 6.650 | .1667 | 4.233 |
| 6.3500 | 4 | .4947 | 12.566 | .2474 | 6.283 | .1575 | 4.000 |
| 6.7733 | 3.75 | .4638 | 11.781 | .2319 | 5.890 | .1476 | 3.750 |
| 7 | 3.6286 | .4488 | 11.399 | .2244 | 5.700 | .1429 | 3.629 |
| 7.2571 | 3.5 | .4329 | 10.996 | .2164 | 5.498 | .1378 | 3.500 |
| 7.8154 | 3.25 | .4020 | 10.210 | .2010 | 5.105 | .1280 | 3.250 |
| 8 | 3.1750 | .3927 | 9.975 | .1963 | 4.987 | .1250 | 3.175 |
| 8.4667 | 3 | .3711 | 9.425 | .1855 | 4.712 | .1181 | 3.000 |
| 9 | 2.8222 | .3491 | 8.866 | .1745 | 4.433 | .1111 | 2.822 |
| 9.2364 | 2.75 | .3401 | 8.639 | .1701 | 4.320 | .1083 | 2.750 |

NOTE: Bold face diametral pitches and modules designate preferred values.

Continued on the next page

DIAMETRAL PITCH TO METRIC GEAR EQUIVALENCE

SDP/SI

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



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| P Diametral Pitch | m Module | Circular Pitch | | Circular Tooth Thickness | | Addendum | |
|-------------------------|-------------|----------------|-------------|-----------------------------|-------------|----------|-------------|
| | | inches | millimeters | inches | millimeters | inches | millimeters |
| 10 | 2.5400 | .3142 | 7.980 | .1571 | 3.990 | .1000 | 2.540 |
| 10.1600 | 2.50 | .3092 | 7.854 | .1546 | 3.927 | .0984 | 2.500 |
| 11 | 2.3091 | .2856 | 7.254 | .1428 | 3.627 | .0909 | 2.309 |
| 11.2889 | 2.25 | .2783 | 7.069 | .1391 | 3.534 | .0886 | 2.250 |
| 12 | 2.1167 | .2618 | 6.650 | .1309 | 3.325 | .0833 | 2.117 |
| 12.7000 | 2 | .2474 | 6.283 | .1237 | 3.142 | .0787 | 2.000 |
| 13 | 1.9538 | .2417 | 6.138 | .1208 | 3.069 | .0769 | 1.954 |
| 14 | 1.8143 | .2244 | 5.700 | .1122 | 2.850 | .0714 | 1.814 |
| 14.5143 | 1.75 | .2164 | 5.498 | .1082 | 2.749 | .0689 | 1.750 |
| 15 | 1.6933 | .2094 | 5.320 | .1047 | 2.660 | .0667 | 1.693 |
| 16 | 1.5875 | .1963 | 4.987 | .0982 | 2.494 | .0625 | 1.588 |
| 16.9333 | 1.5 | .1855 | 4.712 | .0928 | 2.356 | .0591 | 1.500 |
| 18 | 1.4111 | .1745 | 4.433 | .0873 | 2.217 | .0556 | 1.411 |
| 20 | 1.2700 | .1571 | 3.990 | .0785 | 1.995 | .0500 | 1.270 |
| 20.3200 | 1.25 | .1546 | 3.927 | .0773 | 1.963 | .0492 | 1.250 |
| 22 | 1.1545 | .1428 | 3.627 | .0714 | 1.814 | .0455 | 1.155 |
| 24 | 1.05833 | .1309 | 3.325 | .0654 | 1.662 | .0417 | 1.058 |
| 25.4000 | 1 | .1237 | 3.142 | .0618 | 1.571 | .0394 | 1.000 |
| 28 | 0.90714 | .1122 | 2.850 | .0561 | 1.425 | .0357 | .907 |
| 28.2222 | 0.9 | .1113 | 2.827 | .0557 | 1.414 | .0354 | .900 |
| 30 | 0.84667 | .1047 | 2.660 | .0524 | 1.330 | .0333 | .847 |
| 31.7500 | 0.8 | .0989 | 2.513 | .0495 | 1.257 | .0315 | .800 |
| 32 | 0.79375 | .0982 | 2.494 | .0491 | 1.247 | .0313 | .794 |
| 33.8667 | 0.75 | .0928 | 2.356 | .0464 | 1.178 | .0295 | .750 |
| 36 | 0.70556 | .0873 | 2.217 | .0436 | 1.108 | .0278 | .706 |
| 36.2857 | 0.7 | .0866 | 2.199 | .0433 | 1.100 | .0276 | .700 |
| 40 | 0.63500 | .0785 | 1.995 | .0393 | .997 | .0250 | .635 |
| 42.333 | 0.6 | .0742 | 1.885 | .0371 | .942 | .0236 | .600 |
| 44 | 0.57727 | .0714 | 1.814 | .0357 | .907 | .0227 | .577 |
| 48 | 0.52917 | .0654 | 1.662 | .0327 | .831 | .0208 | .529 |
| 50 | 0.5080 | .0628 | 1.596 | .0314 | .798 | .0200 | .508 |
| 50.800 | 0.5 | .0618 | 1.571 | .0309 | .785 | .0197 | .500 |
| 63.500 | 0.4 | .0495 | 1.257 | .0247 | .628 | .0157 | .400 |
| 64 | 0.39688 | .0491 | 1.247 | .0245 | .623 | .0156 | .397 |
| 67.733 | 0.375 | .0464 | 1.178 | .0232 | .589 | .0148 | .375 |
| 72 | 0.35278 | .0436 | 1.108 | .0218 | .554 | .0139 | .353 |
| 72.5714 | 0.35 | .0433 | 1.100 | .0216 | .550 | .0138 | .350 |
| 78.1538 | 0.325 | .0402 | 1.021 | .0201 | .511 | .0128 | .325 |
| 80 | 0.31750 | .0393 | .997 | .0196 | .499 | .0125 | .318 |
| 84.6667 | 0.3 | .0371 | .942 | .0186 | .471 | .0118 | .300 |
| 92.3636 | 0.275 | .0340 | .864 | .0170 | .432 | .0108 | .275 |
| 96 | 0.26458 | .0327 | .831 | .0164 | .416 | .0104 | .265 |
| 101.600 | 0.25 | .0309 | .785 | .0155 | .393 | .0098 | .250 |
| 120 | 0.21167 | .0262 | .665 | .0131 | .332 | .0083 | .212 |
| 125 | 0.20320 | .0251 | .638 | .0126 | .319 | .0080 | .203 |
| 127.000 | 0.2 | .0247 | .628 | .0124 | .314 | .0079 | .200 |
| 150 | 0.16933 | .0209 | .532 | .0105 | .266 | .0067 | .169 |
| 169.333 | 0.15 | .0186 | .471 | .0093 | .236 | .0059 | .150 |
| 180 | 0.14111 | .0175 | .443 | .0087 | .222 | .0056 | .141 |
| 200 | 0.12700 | .0157 | .399 | .0079 | .199 | .0050 | .127 |
| 203.200 | 0.125 | .0155 | .393 | .0077 | .196 | .0049 | .125 |

NOTE: Bold face diametral pitches and modules designate preferred values.

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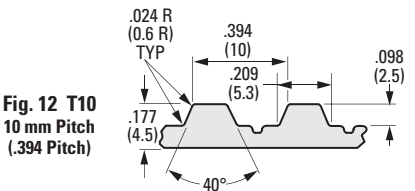
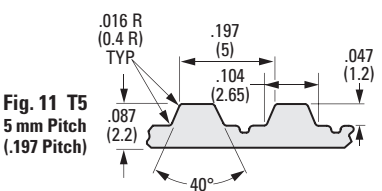
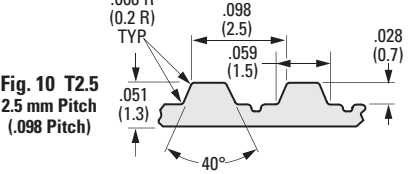
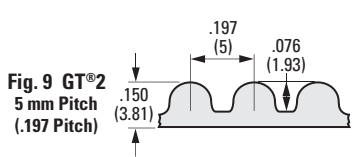
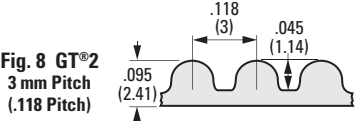
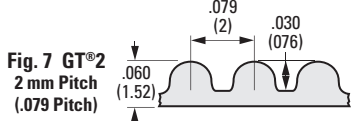
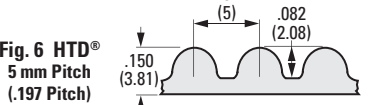
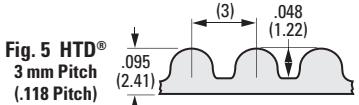
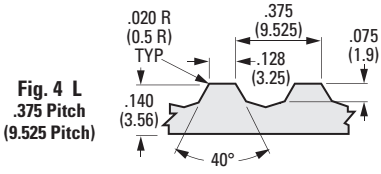
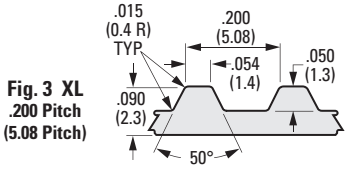
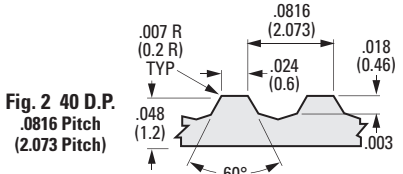
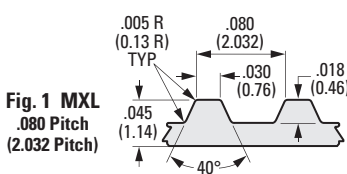
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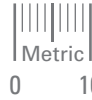
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Allowable Working Tension of Different Belt Constructions Dimensions in () are mm.

| Fig No. | Belt Type | Pitch | | Allowable Working Tension Per 1 Inch of Belt Width | | | | | |
|---------|-----------|--------|-------|--|------|--------------------|-----------|-----------------|------------|
| | | Inch | mm | Neoprene | | Urethane/Polyester | | Urethane/Kevlar | |
| | | | | lbs | N | lbs | N | lbs | N |
| 1 | MXL | 0.080 | 2.03 | 18 | 80 | 20 to 32 | 89 to 142 | 32 to 70 | 142 to 311 |
| 2 | 40DP | 0.0816 | 2.07 | — | — | 20 to 32 | 89 to 142 | 32 to 70 | 142 to 311 |
| 3 | XL | 0.200 | 5.08 | 28 | 125 | 32 | 142 | 40 | 178 |
| 4 | L | 0.375 | 9.525 | 49 | 218 | — | — | — | — |
| — | H | 0.500 | 12.7 | 135 | 601 | — | — | — | — |
| 5 | HTD® | 0.118 | 3 | 64 | 285 | — | — | — | — |
| 6 | HTD® | 0.197 | 5 | 102 | 454 | — | — | — | — |
| — | HTD® | 0.315 | 8 | 178 | 792 | — | — | — | — |
| 7 | GT®2 | 0.079 | 2 | 25 | 111 | — | — | — | — |
| 8 | GT®2 | 0.118 | 3 | 114 | 507 | — | — | — | — |
| 9 | GT®2 | 0.197 | 5 | 160 | 712 | — | — | — | — |
| — | GT®2 | 0.315 | 8 | 380 | 1690 | — | — | — | — |
| — | GT®2 | 0.511 | 14 | 650 | 2891 | — | — | — | — |
| 10 | T | 0.098 | 2.5* | 70 | 312 | — | — | — | — |
| 11 | T | 0.197 | 5* | 209 | 930 | — | — | — | — |
| 12 | T | 0.394 | 10* | 405 | 1800 | — | — | — | — |

*Urethane w/Steel Cords NOTE: For thinner belt widths, less than 1", the tension must be derated since the tension cords on the sides are not complete loops.



| Belt Requirements | Cord Material | | | | | | | | |
|---------------------------------|---------------|---------------------------|---------------------|----------------------|------------------------|------------------|-------|-----------------|---------------------------|
| | Nylon | Polyester Cont. Fil. Yarn | Polyester Spun Yarn | Kevlar-Polyester Mix | Kevlar Cont. Fil. Yarn | Kevlar Spun Yarn | Glass | Stainless Steel | Polyester Film Reinforce. |
| Operate Over Small pulley | E | G | E | F | P | F | P | P | G |
| High Pulley Speed | E | E | E | F | P | F | P | P | G |
| High Intermittent Shock Loading | F | G | G | E | E | E | P | G | F |
| Vibration Absorption | E | G | E | G | F | F | P | P | F |
| High Torque Low Speed | P | P | P | F | G | F | E | E | F |
| Low Belt Stretch | P | P | P | P | G | F | E | E | G |
| Dimensional Stability | P | P | P | F | G | G | E | E | G |
| High Temperature 200°F | P | P | P | P | E | E | E | E | F |
| Low Temperature | F | G | G | G | G | E | E | E | G |
| Good Belt Tracking | E | G | E | G | F | G | F | P | E |
| Rapid Start Stop Operation | F | G | E | G | P | G | P | E | G |
| Close Center-Distance Tolerance | P | P | P | P | G | F | E | E | G |
| Elasticity Required in Belt | E | G | E | G | P | P | P | P | P |

*Courtesy of Chemiflex Inc.

- E = Excellent
- G = Good
- F = Fair
- P = Poor



Allowable Working Tension for Different Belt Widths
(in kgf, not corrected for centrifugal force loss)

| Belt Type | MXL | 40 D.P. | XL | L | H | True Metric® GT®2 | | | True Metric® HTD® | | True Metric® "T" Series | | |
|-----------------------|-------|---------|-------|-------|-------|----------------------|-------|-------|----------------------|-------|----------------------------|------|-------|
| | | | | | | Inch Pitch | .080 | .0816 | .200 | .375 | .500 | 2 | 3 |
| Metric Pitch | 2.032 | 2.073 | 5.08 | 9.525 | 12.7 | 2 | 3 | 5 | 3 | 5 | 2.5 | 5 | 10 |
| 3 mm (1/8") | 1.13 | 0.77 | | | | 1.10 | | | | | | | |
| 4 mm (.157) | | | | | | | | | | | 1.59 | | |
| 4.5 mm (3/16") | 2.04 | 1.36 | 2.27 | | | | | | | | | | |
| 5 mm (.197) | | | | | | | | | 3.63 | | | | |
| 6 mm (.236) | | | | | | 2.19 | 10.1 | | | | 2.95 | 3.4 | |
| 6 mm (1/4") | 3.18 | 2.13 | 3.63 | | | | | | 5.44 | | | | |
| 8 mm (5/16") | 3.9 | 2.63 | 4.54 | | | | | | | | | | |
| 9 mm (.354") | | | | | | 3.61 | 16.48 | 23.15 | | | | | |
| 9.5 mm (3/8") | 4.63 | 3.08 | 5.44 | 7.26 | | | | | 7.94 | 14.74 | | | |
| 10 mm (.394) | | | | | | | | | 8.62 | 15.42 | 4.94 | 5.94 | |
| 11 mm (7/16") | 5.49 | 3.67 | 6.8 | 9.07 | | | | | | | | | |
| 12.5 mm (1/2") | 6.67 | 4.45 | 8.16 | 10.89 | 26.76 | | | | 11.79 | 21.09 | | | |
| 14 mm (9/16") | 7.8 | 5.22 | 9.53 | 12.7 | 31.75 | | | | | | | | |
| 15 mm (.591) | | | | | | | | 42.86 | 14.06 | 24.95 | | | |
| 16 mm (5/8") | 8.57 | | 10.89 | 14.06 | 36.29 | | | | | | | | |
| 16 mm (.630) | | | | | | | | | | | | 9.98 | 12.93 |
| 19 mm (3/4") | 10.16 | 6.8 | 13.15 | 17.7 | 44.91 | | | | 19.5 | 32.66 | | | |
| 20 mm (.787) | | | | | | | | | 20.4 | 34.47 | | | |
| 22 mm (7/8") | 12.47 | 8.26 | 15.88 | 21.32 | 54.43 | | | | 23.13 | 39.01 | | | |
| 25 mm (.984) | | | | | | | | | 26.76 | 44.45 | | | 24.95 |
| 25 mm (1") | 14.52 | 9.71 | 18.6 | 24.95 | 63.5 | | | | 27.22 | 45.36 | | | |
| 32 mm (1.26) | | | | | | | | | | | | | 32.66 |

Dimensions in () are for reference.



0 10

Minimum Pulley Diameters

| Belt Type | Pitch | | rpm Max. | Suggested Minimum* | | |
|-----------|-------|-------|----------|--------------------|----------------|-------|
| | Inch | mm | | No. of Grooves | Pitch Diameter | |
| | | | | | Inch | mm |
| MXL | .080 | 2.03 | 10000 | 14 | .357 | 9.07 |
| | .080 | 2.03 | 7500 | 12 | .306 | 7.77 |
| | .080 | 2.03 | 5000 | 11 | .280 | 7.11 |
| | .080 | 2.03 | 3500 | 10 | .255 | 6.48 |
| XL | .200 | 5.08 | 3500 | 12 | .764 | 19.41 |
| | .200 | 5.08 | 1750 | 11 | .700 | 17.78 |
| | .200 | 5.08 | 1160 | 10 | .637 | 16.18 |
| L | .375 | 9.525 | 3500 | 16 | 1.910 | 48.51 |
| | .375 | 9.525 | 1750 | 14 | 1.671 | 42.44 |
| | .375 | 9.525 | 1160 | 12 | 1.432 | 36.37 |
| H | .500 | 12.7 | 3500 | 20 | 3.182 | 80.82 |
| | .500 | 12.7 | 1750 | 18 | 2.865 | 72.77 |
| | .500 | 12.7 | 1160 | 16 | 2.546 | 64.67 |
| HTD® | .118 | 3 | 3500 | 20 | .752 | 19.1 |
| | .118 | 3 | 1750 | 18 | .677 | 17.2 |
| | .118 | 3 | 1160 | 17 | .639 | 16.23 |
| | .197 | 5 | 3500 | 30 | 1.880 | 47.75 |
| | .197 | 5 | 1750 | 26 | 1.629 | 41.38 |
| | .197 | 5 | 1160 | 22 | 1.379 | 35.03 |
| | .315 | 8 | 3500 | 32 | 3.208 | 81.48 |
| | .315 | 8 | 1750 | 28 | 2.807 | 71.3 |
| GT®2 | .079 | 2 | 14000 | 16 | .401 | 10.19 |
| | .079 | 2 | 7500 | 14 | .351 | 8.92 |
| | .079 | 2 | 5000 | 12 | .301 | 7.65 |
| | .118 | 3 | 5000 | 20 | .752 | 19.1 |
| | .118 | 3 | 2800 | 18 | .677 | 17.2 |
| | .118 | 3 | 1600 | 16 | .602 | 15.29 |
| | .197 | 5 | 2000 | 22 | 1.379 | 35.03 |
| | .197 | 5 | 1400 | 20 | 1.253 | 31.83 |
| | .197 | 5 | 1000 | 18 | 1.128 | 28.65 |
| T | .098 | 2.5 | 3600 | 14 | .417 | 10.6 |
| | .098 | 2.5 | 1800 | 14 | .417 | 10.6 |
| | .098 | 2.5 | 1200 | 14 | .417 | 10.6 |
| | .098 | 2.5 | <1200 | 16 | .480 | 12.2 |
| | .197 | 5 | 3600 | 14 | .844 | 21.45 |
| | .197 | 5 | 1800 | 14 | .844 | 21.45 |
| | .197 | 5 | 1200 | 14 | .844 | 21.45 |
| | .197 | 5 | <1200 | 16 | .969 | 24.6 |
| | .394 | 10 | 3600 | 16 | 1.931 | 49.05 |
| | .394 | 10 | 1800 | 16 | 1.931 | 49.05 |
| | .394 | 10 | <1200 | 18 | 2.183 | 55.45 |

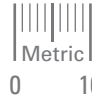
*Smaller pulleys than shown under "Suggested Minimum" may be used if a corresponding reduction in belt life is satisfactory. Use of pulleys smaller than those shown will be at customers' own responsibility for performance and belt life.



0 10

| INCH | | METRIC | |
|------------|---------|---------|--|
| Fractional | Decimal | mm | |
| | .00394 | 0.1 | |
| | .00787 | 0.2 | |
| | .01181 | 0.3 | |
| 1/64 | .015625 | 0.3969 | |
| | .01575 | 0.4 | |
| | .01969 | 0.5 | |
| | .02362 | 0.6 | |
| | .02756 | 0.7 | |
| 1/32 | .03125 | 0.7938 | |
| | .0315 | 0.8 | |
| | .03543 | 0.9 | |
| | .03937 | 1.00 | |
| 1/16 | .046875 | 1.1906 | |
| | .0625 | 1.5875 | |
| 5/64 | .078125 | 1.9844 | |
| | .07874 | 2.00 | |
| 3/32 | .09375 | 2.3813 | |
| | .109375 | 2.7781 | |
| | .11811 | 3.00 | |
| 1/8 | .125 | 3.175 | |
| | .140625 | 3.5719 | |
| 5/32 | .15625 | 3.9688 | |
| | .15748 | 4.00 | |
| 3/16 | .171875 | 4.3656 | |
| | .1875 | 4.7625 | |
| | .19685 | 5.00 | |
| 7/32 | .203125 | 5.1594 | |
| | .21875 | 5.5563 | |
| 15/64 | .234375 | 5.9531 | |
| | .23622 | 6.00 | |
| 1/4 | .2500 | 6.35 | |
| | .265625 | 6.7469 | |
| | .27559 | 7.00 | |
| 9/32 | .28125 | 7.1438 | |
| 5/16 | .296875 | 7.5406 | |
| | .3125 | 7.9375 | |
| | .31496 | 8.00 | |
| 11/32 | .328125 | 8.3344 | |
| | .34375 | 8.7313 | |
| | .35433 | 9.00 | |
| 3/8 | .359375 | 9.1281 | |
| | .375 | 9.525 | |
| | .390625 | 9.9219 | |
| | .3937 | 10.00 | |
| 13/32 | .40625 | 10.3188 | |
| | .421875 | 10.7156 | |
| | .43307 | 11.00 | |
| 7/16 | .4375 | 11.1125 | |
| | .453125 | 11.5094 | |

| INCH | | METRIC | |
|------------|---------|---------|--|
| Fractional | Decimal | mm | |
| | .46875 | 11.9063 | |
| 15/32 | .47244 | 12.00 | |
| | .484374 | 12.3031 | |
| 1/2 | .5000 | 12.70 | |
| | .51181 | 13.00 | |
| | .515625 | 13.0969 | |
| 17/32 | .53125 | 13.4938 | |
| | .546875 | 13.8907 | |
| 9/16 | .55118 | 14.00 | |
| | .5625 | 14.2875 | |
| | .578125 | 14.6844 | |
| | .59055 | 15.00 | |
| 19/32 | .59375 | 15.0813 | |
| 5/8 | .609375 | 15.4782 | |
| | .625 | 15.875 | |
| | .62992 | 16.00 | |
| 21/32 | .640625 | 16.2719 | |
| | .65625 | 16.6688 | |
| | .66929 | 17.00 | |
| 11/16 | .671875 | 17.0657 | |
| | .6875 | 17.4625 | |
| | .703125 | 17.8594 | |
| | .70866 | 18.00 | |
| 23/32 | .71875 | 18.2563 | |
| | .734375 | 18.6532 | |
| 3/4 | .74803 | 19.00 | |
| | .7500 | 19.05 | |
| | .765625 | 19.4469 | |
| | .78125 | 19.8438 | |
| | .7874 | 20.00 | |
| 13/16 | .796875 | 20.2407 | |
| | .8125 | 20.6375 | |
| | .82677 | 21.00 | |
| | .828125 | 21.0344 | |
| 27/32 | .84375 | 21.4313 | |
| | .859375 | 21.8282 | |
| | .86614 | 22.00 | |
| 7/8 | .875 | 22.225 | |
| | .890625 | 22.6219 | |
| | .90551 | 23.00 | |
| | .90625 | 23.0188 | |
| | .921875 | 23.4157 | |
| 15/16 | .9375 | 23.8125 | |
| | .94488 | 24.00 | |
| | .953125 | 24.2094 | |
| | .96875 | 24.6063 | |
| | .98425 | 25.00 | |
| | .984375 | 25.0032 | |
| 1 | 1.0000 | 25.4000 | |



| Quantity | Conventional | | SI Unit | Conversion Factors |
|------------------------|---|---|--|---|
| | Inch Unit | Metric Unit | | |
| Length | Inch inch | Meter m | Metre m | 1 inch = 25.4 mm 1 mm = 0.03937 inch 1 m = 3.2808 ft 1 ft = 0.3048 m |
| Area | Square Inch inch ² | Square Centimeter cm ² | Square Metre m ² | 1 inch ² = 6.4516 cm ² 1 cm ² = 0.155 inch ² 1 m ² = 10.764 ft ² 1 ft ² = 0.092903 m ² |
| Mass | Pound Mass lb | Kilogram Mass kg | Kilogram Mass kg | 1 lb = 0.45359237 kg 1 kg = 2.2046 lb |
| Force | Pound Force lbf | Kilogram Force kgf | Newton N | 1 lbf = 0.45359237 kgf 1 lbf = 4.44822 N 1 kgf = 2.2046 lbf 1 kgf = 9.80665 N 1 N = 0.1019716 kgf 1 N = 0.224809 lbf |
| Stress Pressure | Pounds Per Square Inch lbf/inch ² | Kilogram Per Square Centimeter kgf/cm ² | Pascal N/m ² (Pa) | 1 MPa (megapascal) = 10 ⁶ N/m ² = N/mm ² 1 kPa (kilopascal) = 10 ³ N/m ² 1 lbf/inch ² = 0.070307 kgf/cm ² 1 lbf/inch ² = 7.0307 • 10 ⁻⁴ kgf/mm ² 1 lbf/inch ² = 6.8947 • 10 ⁻³ N/mm ² (MPa) 1 kgf/cm ² = 14.2233 lbf/inch ² 1 kgf/cm ² = 9.80665 • 10 ⁻² N/mm ² (MPa) |
| Torque Work | Inch • Pounds lbf • inch | Kilogram Meters kgf • m | Newton Metres N • m | 1 lbf • inch = 1.1521 kgf • cm 1 kgf • cm = 0.8679 lbf • inch 1 lbf • inch = 0.1129848 N • m 1 kgf • m = 9.80665 N • m 1 kgf • cm = 9.80665 • 10 ⁻² N • m 1 N • m = 8.85 lbf • inch 1 N • m = 10.19716 kgf • cm |
| Power | lbf • ft/min | kgf • m/s | N • m/s | 1 kW = 1000 N • m/s 1 kW = 60,000 N • m/min 1 kW = 44,220 lbf • ft/min 1 kW = 1.34 hp 1 hp = 75 kgf • m/s 1 hp = 44,741 N • m/min 1 hp = 33,000 lbf • ft/min 1 hp = 0.7457 kW |
| Velocity | Feet Per Second ft/sec | Meters Per Second m/sec | Metres Per Second m/s | 1 ft/sec = 0.3048 m/sec 1 inch/sec = 2.54 cm/sec 1 ft/min = 0.00508 m/sec 1 mile/hr = 0.44704 m/sec 1 km/hr = 0.27777 m/sec 1 mile/hr = 1.609344 km/hr |
| Acceleration | Feet Per Second Square ft/sec ² | Meters Per Second Square m/sec ² | Metres Per Second Square m/sec ² | 1 ft/sec ² = 0.3048 m/sec ² |



► Elements of Metric Gear Technology

The Technical Section of this catalog is the result of close cooperation of Stock Drive Products / Sterling Instrument (**SDP/SI**) staff with experts in the fields of gear design and manufacturing. We wish, therefore, to recognize the contribution of the following company and individuals:

KHK - Kohara Gear Company of Japan, that provided the material previously published in this catalog.

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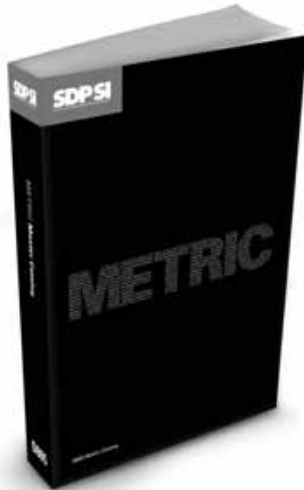
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Gears are some of the most important elements used in machinery. There are few mechanical devices that do not have the need to transmit power and motion between rotating shafts. Gears not only do this most satisfactorily, but can do so with uniform motion and reliability. In addition, they span the entire range of applications from large to small. To summarize:



1. Gears offer positive transmission of power.
2. Gears range in size from small miniature instrument installations, that measure in only several millimeters in diameter, to huge powerful gears in turbine drives that are several meters in diameter.
3. Gears can provide position transmission with very high angular or linear accuracy; such as used in servomechanisms and military equipment.
4. Gears can couple power and motion between shafts whose axes are parallel, intersecting or skew.
5. Gear designs are standardized in accordance with size and shape which provides for widespread interchangeability.

This technical manual is written as an aid for the designer who is a beginner or only superficially knowledgeable about gearing. It provides fundamental theoretical and practical information. Admittedly, it is not intended for experts.

Those who wish to obtain further information and special details should refer to the reference list at the end of this text and other literature on mechanical machinery and components.

SECTION 1 INTRODUCTION TO METRIC GEARS

This technical section is dedicated to details of metric gearing because of its increasing importance. Currently, much gearing in the United States is still based upon the inch system. However, with most of the world metricated, the use of metric gearing in the United States is definitely on the increase, and inevitably at some future date it will be the exclusive system.

It should be appreciated that in the United States there is a growing amount of metric gearing due to increasing machinery and other equipment imports. This is particularly true of manufacturing equipment, such as printing presses, paper machines and machine tools. Automobiles are another major example, and one that impacts tens of millions of individuals. Further spread of metric gearing is inevitable since the world that surrounds the United States is rapidly approaching complete conformance. England and Canada, once bastions of the inch system, are well down the road of metrication, leaving the United States as the only significant exception.

Thus, it becomes prudent for engineers and designers to not only become familiar with metric gears, but also to incorporate them in their designs. Certainly, for export products it is imperative; and for domestic products it is a serious consideration. The U.S. Government, and in particular the military, is increasingly insisting upon metric based equipment designs.

Recognizing that most engineers and designers have been reared in an environment of heavy use of the inch system and that the amount of literature about metric gears is limited, we are offering this technical gear section as an aid to understanding and use of metric gears. In the following pages, metric gear standards are introduced along with information about interchangeability and noninterchangeability. Although gear theory is the same for both the inch and metric systems, the formulae for metric gearing take on a different set of symbols. These equations are fully defined in the metric system. The coverage is thorough and complete with the intention that this be a source for all information about gearing with definition in a metric format.



1.1 Comparison Of Metric Gears With American Inch Gears

1.1.1 Comparison of Basic Racks

In all modern gear systems, the rack is the basis for tooth design and manufacturing tooling. Thus, the similarities and differences between the two systems can be put into proper perspective with comparison of the metric and inch basic racks.

In both systems, the basic rack is normalized for a unit size. For the metric rack it is 1 module, and for the inch rack it is 1 diametral pitch.

1.1.2 Metric ISO Basic Rack

The standard ISO metric rack is detailed in **Figure 1-1**. It is now the accepted standard for the international community, it having eliminated a number of minor differences that existed between the earlier versions of Japanese, German and Russian modules. For comparison, the standard inch rack is detailed in **Figure 1-2**. Note that there are many similarities. The principal factors are the same for both racks. Both are normalized for unity; that is, the metric rack is specified in terms of 1 module, and the inch rack in terms of 1 diametral pitch.

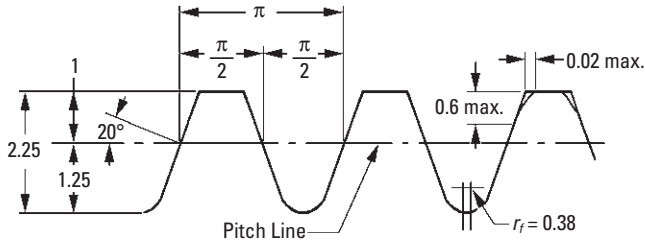


Fig. 1-1 The Basic Metric Rack From ISO 53 Normalized For Module 1

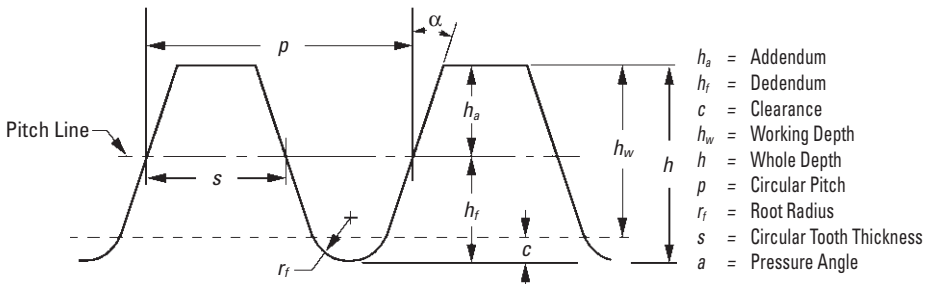


Fig. 1-2 The Basic Inch Diametral Pitch Rack Normalized For 1 Diametral Pitch

From the normalized metric rack, corresponding dimensions for any module are obtained by multiplying each rack dimension by the value of the specific module m . The major tooth parameters are defined by the standard, as:



| | |
|------------------------|--|
| Tooth Form: | Straight-sided full depth, forming the basis of a family of full depth interchangeable gears. |
| Pressure Angle: | A 20° pressure angle, which conforms to worldwide acceptance of this as the most versatile pressure angle. |
| Addendum: | This is equal to the module m , which is similar to the inch value that becomes $1/p$. |
| Deaddendum: | This is $1.25 m$; again similar to the inch rack value. |
| Root Radius: | The metric rack value is slightly greater than the American inch rack value. |
| Tip Radius: | A maximum value is specified. This is a deviation from the American inch rack which does not specify a rounding. |

1.1.3 Comparison of Gear Calculation Equations

Most gear equations that are used for diametral pitch inch gears are equally applicable to metric gears if the module m is substituted for diametral pitch. However, there are exceptions when it is necessary to use dedicated metric equations. Thus, to avoid confusion and errors, it is most effective to work entirely with and within the metric system.

1.2 Metric Standards Worldwide

1.2.1 ISO Standards

Metric standards have been coordinated and standardized by the International Standards Organization (ISO). A listing of the most pertinent standards is given in **Table 1-1**.

1.2.2 Foreign Metric Standards

Most major industrialized countries have been using metric gears for a long time and consequently had developed their own standards prior to the establishment of ISO and SI units. In general, they are very similar to the ISO standards. The key foreign metric standards are listed in **Table 1-2** for reference.

1.3 Japanese Metric Standards In This Text

1.3.1 Application of JIS Standards

Japanese Industrial Standards (JIS) define numerous engineering subjects including gearing. The originals are generated in Japanese, but they are translated and published in English by the Japanese Standards Association.

Considering that many metric gears are produced in Japan, the JIS standards may apply. These essentially conform to all aspects of the ISO standards.

Table 1-1 ISO Metric Gearing Standards

| | |
|----------------------------|--|
| ISO 53:1974 | Cylindrical gears for general and heavy engineering – Basic rack |
| ISO 54:1977 | Cylindrical gears for general and heavy engineering – Modules and diametral pitches |
| ISO 677:1976 | Straight bevel gears for general and heavy engineering – Basic rack |
| ISO 678:1976 | Straight bevel gears for general and heavy engineering – Modules and diametral pitches |
| ISO 701:1976 | International gear notation – symbols for geometrical data |
| ISO 1122-1:1983 | Glossary of gear terms – Part 1: Geometrical definitions |
| ISO 1328:1975 | Parallel involute gears – ISO system of accuracy |
| ISO 1340:1976 | Cylindrical gears – Information to be given to the manufacturer by the purchaser in order to obtain the gear required |
| ISO 1341:1976 | Straight bevel gears – Information to be given to the manufacturer by the purchaser in order to obtain the gear required |
| ISO 2203:1973 | Technical drawings – Conventional representation of gears |
| ISO 2490:1975 | Single-start solid (monobloc) gear hobs with axial keyway, 1 to 20 module and 1 to 20 diametral pitch – Nominal dimensions |
| ISO/TR 4467:1982 | Addendum modification of the teeth of cylindrical gears for speed-reducing and speed-increasing gear pairs |
| ISO 4468:1982 | Gear hobs – Single-start – Accuracy requirements |
| ISO 8579-1:1993 | Acceptance code for gears – Part 1: Determination of airborne sound power levels emitted by gear units |
| ISO 8579-2:1993 | Acceptance code for gears – Part 2: Determination of mechanical vibrations of gear units during acceptance testing |
| ISO/TR 10064-1:1992 | Cylindrical gears – Code of inspection practice – Part 1: Inspection of corresponding flanks of gear teeth |

Table 1-1 FOREIGN Metric Gearing Standards

| AUSTRALIA | | |
|-----------|------|---|
| AS B 62 | 1965 | Bevel gears |
| AS B 66 | 1969 | Worm gears (inch series) |
| AS B 214 | 1966 | Geometrical dimensions for worm gears – Units |
| AS B 217 | 1966 | Glossary for gearing |
| AS 1637 | | International gear notation symbols for geometric data (similar to ISO 701) |

| FRANCE | | |
|-------------|------|--|
| NF E 23-001 | 1972 | Glossary of gears (similar to ISO 1122) |
| NF E 23-002 | 1972 | Glossary of worm gears |
| NF E 23-005 | 1965 | Gearing – Symbols (similar to ISO 701) |
| NF E 23-006 | 1967 | Tolerances for spur gears with involute teeth (similar to ISO 1328) |
| NF E 23-011 | 1972 | Cylindrical gears for general and heavy engineering – Basic rack and modules (similar to ISO 467 and ISO 53) |
| NF E 23-012 | 1972 | Cylindrical gears – Information to be given to the manufacturer by the purchaser |
| NF L 32-611 | 1955 | Calculating spur gears to NF L 32-610 |

Continued on the next page

Table 1-2 (Cont.) Foreign Metric Gearing Standards

| GERMANY – DIN (Deutsches Institut für Normung) | | |
|--|-------|--|
| DIN 37 | 12.61 | Conventional and simplified representation of gears and gear pairs [4] |
| DIN 780 Pt 1 | 05.77 | Series of modules for gears – Modules for spur gears [4] |
| DIN 780 Pt 2 | 05.77 | Series of modules for gears – Modules for cylindrical worm gear transmissions [4] |
| DIN 867 | 02.86 | Basic rack tooth profiles for involute teeth of cylindrical gears for general and heavy engineering [5] |
| DIN 868 | 12.76 | General definitions and specification factors for gears, gear pairs and gear trains [11] |
| DIN 3961 | 08.78 | Tolerances for cylindrical gear teeth – Bases [8] |
| DIN 3962 Pt 1 | 08.78 | Tolerances for cylindrical gear teeth – Tolerances for deviations of individual parameters [11] |
| DIN 3962 Pt 2 | 08.78 | Tolerances for cylindrical gear teeth – Tolerances for tooth trace deviations [4] |
| DIN 3962 Pt 3 | 08.78 | Tolerances for cylindrical gear teeth – Tolerances for pitch-span deviations [4] |
| DIN 3963 | 08.78 | Tolerances for cylindrical gear teeth – Tolerances for working deviations [11] |
| DIN 3964 | 11.80 | Deviations of shaft center distances and shaft position tolerances of casings for cylindrical gears [4] |
| DIN 3965 Pt 1 | 08.86 | Tolerancing of bevel gears – Basic concepts [5] |
| DIN 3965 Pt 2 | 08.86 | Tolerancing of bevel gears – Tolerances for individual parameters [11] |
| DIN 3965 Pt 3 | 08.86 | Tolerancing of bevel gears – Tolerances for tangential composite errors [11] |
| DIN 3965 Pt 4 | 08.86 | Tolerancing of bevel gears – Tolerances for shaft angle errors and axes intersection point deviations [5] |
| DIN 3966 Pt 1 | 08.78 | Information on gear teeth in drawings – Information on involute teeth for cylindrical gears [7] |
| DIN 3966 Pt 2 | 08.78 | Information on gear teeth in drawings – Information on straight bevel gear teeth [6] |
| DIN 3967 | 08.78 | System of gear fits – Backlash, tooth thickness allowances, tooth thickness tolerances – Principles [12] |
| DIN 3970 Pt 1 | 11.74 | Master gears for checking spur gears – Gear blank and tooth system [8] |
| DIN 3970 Pt 2 | 11.74 | Master gears for checking spur gears – Receiving arbors [4] |
| DIN 3971 | 07.80 | Definitions and parameters for bevel gears and bevel gear pairs [12] |
| DIN 3972 | 02.52 | Reference profiles of gear-cutting tools for involute tooth systems according to DIN 867 [4] |
| DIN 3975 | 10.76 | Terms and definitions for cylindrical worm gears with shaft angle 90° [9] |
| DIN 3976 | 11.80 | Cylindrical worms – Dimensions, correlation of shaft center distances and gear ratios of worm gear drives [6] |
| DIN 3977 | 02.81 | Measuring element diameters for the radial or diametral dimension for testing tooth thickness of cylindrical gears [8] |
| DIN 3978 | 08.76 | Helix angles for cylindrical gear teeth [5] |
| DIN 3979 | 07.79 | Tooth damage on gear trains – Designation, characteristics, causes [11] |
| DIN 3993 Pt 1 | 08.81 | Geometrical design of cylindrical internal involute gear pairs – Basic rules [17] |
| DIN 3993 Pt 2 | 08.81 | Geometrical design of cylindrical internal involute gear pairs – Diagrams for geometrical limits of internal gear-pinion matings [15] |
| DIN 3993 Pt 3 | 08.81 | Geometrical design of cylindrical internal involute gear pairs – Diagrams for the determination of addendum modification coefficients [15] |
| DIN 3993 Pt 4 | 08.81 | Geometrical design of cylindrical internal involute gear pairs – Diagrams for limits of internal gear-pinion type cutter matings [10] |
| DIN 3998 | 09.76 | Denominations on gear and gear pairs – Alphabetical index of equivalent terms [10] |
| Suppl 1 | | |
| DIN 3998 Pt 1 | 09.76 | Denominations on gears and gear pairs – General definitions [11] |
| DIN 3998 Pt 2 | 09.76 | Denominations on gears and gear pairs – Cylindrical gears and gear pairs [11] |
| DIN 3998 Pt 3 | 09.76 | Denominations on gears and gear pairs – Bevel and hypoid gears and gear pairs [9] |
| DIN 3998 Pt 4 | 09.76 | Denominations on gears and gear pairs – Worm gear pairs [8] |
| DIN 58405 Pt 1 | 05.72 | Spur gear drives for fine mechanics – Scope, definitions, principal design data, classification [7] |
| DIN 58405 Pt 2 | 05.72 | Spur gear drives for fine mechanics – Gear fit selection, tolerances, allowances [9] |
| DIN 58405 Pt 3 | 05.72 | Spur gear drives for fine mechanics – Indication in drawings, examples for calculation [12] |
| DIN 58405 Pt 4 | 05.72 | Spur gear drives for fine mechanics – Tables [15] |
| DIN ISO 2203 | 06.76 | Technical Drawings – Conventional representation of gears |

NOTES:

- Standards available in English from: ANSI, 1430 Broadway, New York, NY 10018; or Beuth Verlag GmbH, Burggrafenstrasse 6, D-10772 Berlin, Germany; or Global Engineering Documents, Inverness Way East, Englewood, CO 80112-5704
- Above data was taken from: DIN Catalogue of Technical Rules 1994, Supplement, Volume 3, Translations

Continued on the next page

Table 1-2 (Cont.) Foreign Metric Gearing Standards

| ITALY | | |
|---|------|---|
| UNI 3521 | 1954 | Gearing – Module series |
| UNI 3522 | 1954 | Gearing – Basic rack |
| UNI 4430 | 1960 | Spur gear – Order information for straight and bevel gear |
| UNI 4760 | 1961 | Gearing – Glossary and geometrical definitions |
| UNI 6586 | 1969 | Modules and diametral pitches of cylindrical and straight bevel gears for general and heavy engineering (corresponds to ISO 54 and 678) |
| UNI 6587 | 1969 | Basic rack of cylindrical gears for standard engineering (corresponds to ISO 53) |
| UNI 6588 | 1969 | Basic rack of straight bevel gears for general and heavy engineering (corresponds to ISO 677) |
| UNI 6773 | 1970 | International gear notation – Symbols for geometrical data (corresponds to ISO 701) |
| JAPAN – JIS (Japanese Industrial Standards) | | |
| B 0003 | 1989 | Drawing office practice for gears |
| B 0102 | 1988 | Glossary of gear terms |
| B 1701 | 1973 | Involute gear tooth profile and dimensions |
| B 1702 | 1976 | Accuracy for spur and helical gears |
| B 1703 | 1976 | Backlash for spur and helical gears |
| B 1704 | 1978 | Accuracy for bevel gears |
| B 1705 | 1973 | Backlash for bevel gears |
| B 1721 | 1973 | Shapes and dimensions of spur gears for general engineering |
| B 1722 | 1974 | Shape and dimensions of helical gears for general use |
| B 1723 | 1977 | Dimensions of cylindrical worm gears |
| B 1741 | 1977 | Tooth contact marking of gears |
| B 1751 | 1976 | Master cylindrical gears |
| B 1752 | 1989 | Methods of measurement of spur and helical gears |
| B 1753 | 1976 | Measuring method of noise of gears |
| B 4350 | 1991 | Gear cutter tooth profile and dimensions |
| B 4351 | 1985 | Straight bevel gear generating cutters |
| B 4354 | 1988 | Single thread hobs |
| B 4355 | 1988 | Single thread fine pitch hobs |
| B 4356 | 1985 | Pinion type cutters |
| B 4357 | 1988 | Rotary gear shaving cutters |
| B 4358 | 1991 | Rack type cutters |

NOTE:

Standards available in English from: ANSI, 1430 Broadway, New York, NY 10018; or International Standardization Cooperation Center, Japanese Standards Association, 4-1-24 Akasaka, Minato-ku, Tokyo 107

Continued on the next page

Table 1-2 (Cont.) Foreign Metric Gearing Standards

| UNITED KINGDOM – BSI (British Standards Institute) | | |
|--|------|--|
| BS 235 | 1972 | Specification of gears for electric traction |
| BS 436 Pt 1 | 1987 | Spur and helical gears – Basic rack form, pitches and accuracy (diametral pitch series) |
| BS 436 Pt 2 | 1984 | Spur and helical gears – Basic rack form, modules and accuracy (1 to 50 metric module) |
| BS 436 Pt 3 | 1986 | (Parts 1 & 2 related but not equivalent with ISO 53, 54, 1328, 1340 & 1341) Spur gear and helical gears – Method for calculation of contact and root bending stresses, limitations for metallic involute gears (Related but not equivalent with ISO / DIS 6336 / 1, 2 & 3) |
| BS 721 Pt 1 | 1984 | Specification for worm gearing – Imperial units |
| BS 721 Pt 2 | 1983 | Specification for worm gearing – Metric units |
| BS 978 Pt 1 | 1984 | Specification for fine pitch gears – Involute spur and helical gears |
| BS 978 Pt 2 | 1984 | Specification for fine pitch gears – Cycloidal type gears |
| BS 978 Pt 3 | 1984 | Specification for fine pitch gears – Bevel gears |
| BS 978 Pt 4 | 1965 | Specification for fine pitch gears – Hobs and cutters |
| BS 1807 | 1981 | Specification for marine propulsion gears and similar drives: metric module |
| BS 2007 | 1983 | Specification for circular gear shaving cutters, 1 to 8 metric module, accuracy requirements |
| BS 2062 Pt 1 | 1985 | Specification for gear hobs – Hobs for general purpose: 1 to 20 d.p., inclusive |
| BS 2062 Pt 2 | 1985 | Specification for gear hobs – Hobs for gears for turbine reduction and similar drives |
| BS 2518 Pt 1 | 1983 | Specification for rotary form relieved gear cutters – Diametral pitch |
| BS 2518 Pt 2 | 1983 | Specification for rotary relieved gear cutters – Metric module |
| BS 2519 Pt 1 | 1976 | Glossary for gears – Geometrical definitions |
| BS 2519 Pt 2 | 1976 | Glossary for gears – Notation (symbols for geometrical data for use in gear rotation) |
| BS 2697 | 1976 | Specification for rack type gear cutters |
| BS 3027 | 1968 | Specification for dimensions of worm gear units |
| BS 3696 Pt 1 | 1984 | Specification for master gears – Spur and helical gears (metric module) |
| BS 4517 | 1984 | Dimensions of spur and helical geared motor units (metric series) |
| BS 4582 Pt 1 | 1984 | Fine pitch gears (metric module) – Involute spur and helical gears |
| BS 4582 Pt 2 | 1986 | Fine pitch gears (metric module) – Hobs and cutters |
| BS 5221 | 1987 | Specifications for general purpose, metric module gear hobs |
| BS 5246 | 1984 | Specifications for pinion type cutters for spur gears – 1 to 8 metric module |
| BS 6168 | 1987 | Specification for nonmetallic spur gears |

NOTE:

Standards available from: ANSI, 1430 Broadway, New York, NY 10018; or BSI, Linford Wood, Milton Keynes MK146LE, United Kingdom

1.3.2 Symbols

Gear parameters are defined by a set of standardized symbols that are defined in JIS B 0121 (1983). These are reproduced in **Table 1-3**.

The JIS symbols are consistent with the equations given in this text and are consistent with JIS standards. Most differ from typical American symbols, which can be confusing to the first time metric user. To assist, **Table 1-4** is offered as a cross list.

Table 1-3A The Linear Dimensions and Circular Dimensions

| Terms | Symbols |
|---------------------------|-----------------|
| Center Distance | a |
| Circular Pitch (General) | p |
| Standard Circular Pitch | p |
| Radial Circular Pitch | p_t |
| Circular Pitch | |
| Perpendicular to Tooth | p_n |
| Axial Pitch | p_x |
| Normal Pitch | p_b |
| Radial Normal Pitch | p_{bt} |
| Normal Pitch | |
| Perpendicular to Tooth | p_{bn} |
| Whole Depth | h |
| Addendum | h_a |
| Dedendum | h_f |
| Caliper Tooth Height | \bar{h} |
| Working Depth | $h' h_w$ |
| Tooth Thickness (General) | s |
| Circular Tooth Thickness | s |
| Base Circle Circular | |
| Tooth Thickness | $\frac{s_b}{z}$ |
| Chordal Tooth Thickness | \bar{s} |
| Span Measurement | W |
| Root Width | e |
| Top Clearance | c |
| Circular Backlash | j_t |
| Normal Backlash | j_n |
| Blank Width | b |
| Working Face Width | $b' b_w$ |

| Terms | Symbols |
|----------------------------|----------|
| Lead | p_z |
| Contact Length | g_a |
| Contact Length of Approach | g_f |
| Contact Length of Recess | g_a |
| Contact Length of Overlap | g_b |
| Diameter (General) | d |
| Standard Pitch Diameter | d |
| Working Pitch Diameter | $d' d_w$ |
| Outside Diameter | d_a |
| Base Diameter | d_b |
| Root Diameter | d_f |
| Radius (General) | r |
| Standard Pitch Radius | r |
| Working Pitch Radius | $r' r_w$ |
| Outside Radius | r_a |
| Base Radius | r_b |
| Root Radius | r_f |
| Radius of Curvature | ρ |
| Cone Distance (General) | R |
| Cone Distance | R_a |
| Mean Cone Distance | R_m |
| Inner Cone Distance | R_i |
| Back Cone Distance | R_v |
| Mounting Distance | $*A$ |
| Offset Distance | $*E$ |

* These terms and symbols are specific to JIS Standard

Table 1-3B Angular Dimensions

| Terms | Symbols |
|-------------------------------------|-------------------------|
| Pressure Angle (General) | α |
| Standard Pressure Angle | α |
| Working Pressure Angle | α' or α_w |
| Cutter Pressure Angle | α_0 |
| Radial Pressure Angle | α_t |
| Pressure Angle Normal to Tooth | α_n |
| Axial Pressure Angle | α_x |
| Helix Angle (General) | β |
| Standard Pitch Cylinder Helix Angle | β |
| Outside Cylinder Helix Angle | β_a |
| Base Cylinder Helix Angle | β_b |
| Lead Angle (General) | γ |
| Standard Pitch Cylinder Lead Angle | γ |
| Outside Cylinder Lead Angle | γ_a |
| Base Cylinder Lead Angle | γ_b |

| Terms | Symbols |
|-----------------------------|----------------------|
| Shaft Angle | Σ |
| Cone Angle (General) | δ |
| Pitch Cone Angle | δ |
| Outside Cone Angle | δ_a |
| Root Cone Angle | δ_f |
| Addendum Angle | θ_a |
| Dedendum Angle | θ_f |
| Radial Contact Angle | ϕ_a |
| Overlap Contact Angle | ϕ_β |
| Overall Contact Angle | ϕ_r |
| Angular Pitch of Crown Gear | τ |
| Involute Function | $\text{inv } \alpha$ |

Continued on the next page

Table 1-3C Size Number, Ratios & Speed Terms

| Terms | Symbols | Terms | Symbols |
|--------------------------------------|---------|---|-------------------|
| Number of Teeth | Z | Contact Ratio | ϵ |
| Equivalent Spur Gear Number of Teeth | Z_v | Radial Contact Ratio | ϵ_α |
| Number of Threads in Worm | z_w | Overlap Contact Ratio | ϵ_β |
| Number of Teeth in Pinion | Z_i | Total Contact Ratio | ϵ_γ |
| Number of Teeth Ratio | u | Specific Slide | $^*\sigma$ |
| Speed Ratio | i | Angular Speed | ω |
| Module | m | Linear or Tangential Speed | v |
| Radial Module | m_t | Revolutions per Minute | n |
| Normal Module | m_n | Coefficient of Profile Shift | x |
| Axial Module | m_x | Coefficient of Center Distance Increase | y |

NOTE: The term "Radial" is used to denote parameters in the plane of rotation perpendicular to the axis.

Table 1-3D Accuracy / Error Terms

| Terms | Symbols | Terms | Symbols |
|---|---------------------|------------------------|----------|
| Single Pitch Error | f_{pt} | Normal Pitch Error | f_{pb} |
| Pitch Variation | *f_u or f_{pu} | Involute Profile Error | f_f |
| Partial Accumulating Error (Over Integral k teeth) | F_{pk} | Runout Error | F_r |
| Total Accumulated Pitch Error | F_p | Lead Error | F_b |

*These terms and symbols are specific to JIS Standards

Table 1-4 Equivalence Of American And Japanese Symbols

| American Symbol | Japanese Symbol | Nomenclature | American Symbol | Japanese Symbol | Nomenclature |
|-----------------|-----------------|---|-----------------|-----------------|--|
| B | j | backlash, linear measure along pitch circle | N_v | z_v | virtual number of teeth for helical gear |
| B_{LA} | j_t | backlash, linear measure along line-of-action | P_d | p | diametral pitch |
| B_a | j_n | backlash in arc minutes | P_{dn} | p_n | normal diametral pitch |
| C | a | center distance | P_t | | horsepower, transmitted |
| ΔC | Δa | change in center distance | R | r | pitch radius, gear or general use |
| C_o | a_w | operating center distance | R_b | r_b | base circle radius, gear |
| C_{std} | | standard center distance | R_o | r_a | outside radius, gear |
| D | d | pitch diameter | R_T | s | testing radius |
| D_b | d_b | base circle diameter | T | | tooth thickness, gear |
| D_o | d_a | outside diameter | W_b | | beam tooth strength |
| D_R | d_f | root diameter | Y | i | Lewis factor, diametral pitch |
| F | b | face width | Z | | mesh velocity ratio |
| K | K | factor, general | a | h_a | addendum |
| L | L | length, general; also lead of worm | b | h_f | dedendum |
| M | | measurement over-pins | c | c | clearance |
| N | z | number of teeth, usually gear | d | d | pitch diameter, pinion |
| N_c | z_c | critical number of teeth for no undercutting | d_w | d_p | pin diameter, for over-pins measurement |
| | | | e | | eccentricity |
| | | | h_k | h_w | working depth |

Continued on the next page

Table 1-4 (Cont.) Equivalence of American and Japanese Symbols

| American Symbol | Japanese Symbol | Nomenclature | American Symbol | Japanese Symbol | Nomenclature |
|-----------------|-----------------|---|--------------------|----------------------|---|
| h_t | h | whole depth | y_c | | Lewis factor, circular pitch |
| m_p | e | contact ratio | γ | δ | pitch angle, bevel gear |
| n | Z_1 | number of teeth, pinion | θ | | rotation angle, general |
| n_w | Z_w | number of threads in worm | λ | γ | lead angle, worm gearing |
| p_a | p_x | axial pitch | μ | | mean value |
| p_b | p_b | base pitch | v | | gear stage velocity ratio |
| p_c | p | circular pitch | ϕ | α | pressure angle |
| p_{cn} | p_n | normal circular pitch | ϕ_o | α_w | operating pressure angle |
| r | r | pitch radius, pinion | Ψ | β | helix angle (b_o =base helix angle; b_w = operating helix angle) |
| r_b | r_b | base circle radius, pinion | | | angular velocity |
| r_f | r_f | fillet radius | ω | | involute function |
| r_o | r_a | outside radius, pinion | $\text{inv } \phi$ | $\text{inv } \alpha$ | |
| t | s | tooth thickness, and for general use, for tolerance | | | |

1.3.3 Terminology

Terms used in metric gearing are identical or are parallel to those used for inch gearing. The one major exception is that metric gears are based upon the module, which for reference may be considered as the inversion of a metric unit diametral pitch.

Terminology will be appropriately introduced and defined throughout the text.

There are some terminology difficulties with a few of the descriptive words used by the Japanese JIS standards when translated into English. One particular example is the Japanese use of the term "radial" to describe measures such as what Americans term circular pitch. This also crops up with contact ratio. What Americans refer to as contact ratio in the plane of rotation, the Japanese equivalent is called "radial contact ratio". This can be both confusing and annoying. Therefore, since this technical section is being used outside Japan, and the American term is more realistically descriptive, in this text we will use the American term "circular" where it is meaningful. However, the applicable Japanese symbol will be used. Other examples of giving preference to the American terminology will be identified where it occurs.

1.3.4 Conversion

For those wishing to ease themselves into working with metric gears by looking at them in terms of familiar inch gearing relationships and mathematics, Table 1-5 is offered as a means to make a quick comparison.

Table 1-5 Spur Gear Design Formulas

| To Obtain | From Known | Use This Formula* |
|-----------------|---------------------------|--------------------------------|
| Pitch Diameter | Module | $D = mN$ |
| Circular Pitch | Module | $p_c = m\pi = \frac{D}{N} \pi$ |
| Module | Diametral Pitch | $m = \frac{25.4}{P_d}$ |
| Number of Teeth | Module and Pitch Diameter | $N = \frac{D}{m}$ |
| Addendum | Module | $a = m$ |

* All linear dimensions in millimeters
 Symbols per Table 1-4

Table 1-5 (Cont.) Spur Gear Design Formulas

| To Obtain | From Known | Use This Formula* |
|--|---|---|
| Dedendum | Module | $b = 1.25m$ |
| Outside Diameter | Module and Pitch Diameter or Number of Teeth | $D_o = D + 2m = m(N + 2)$ |
| Root Diameter | Pitch Diameter and Module | $D_r = D - 2.5m$ |
| Base Circle Diameter | Pitch Diameter and Pressure Angle | $D_b = D \cos \phi$ |
| Base Pitch | Module and Pressure Angle | $p_b = m \pi \cos \phi$ |
| Tooth Thickness at Standard Pitch Diameter | Module | $T_{std} = \frac{\pi}{2} m$ |
| Center Distance | Module and Number of Teeth | $C = \frac{m(N_1 + N_2)}{2}$ |
| Contact Ratio | Outside Radii, Base Circle Radii, Center Distance, Pressure Angle | $m_p = \frac{\sqrt{r_o - r_b} + \sqrt{r_o - r_b} - C \sin \phi}{m \pi \cos \phi}$ |
| Backlash (linear) | Change in Center Distance | $B = 2(\Delta C) \tan \phi$ |
| Backlash (linear) | Change in Tooth Thickness | $B = \Delta T$ |
| Backlash (linear) Along Line-of-action | Linear Backlash Along Pitch Circle | $B_{LA} = B \cos \phi$ |
| Backlash, Angular | Linear Backlash | $B_a = 6880 \frac{B}{D} \text{ (arc minutes)}$ |
| Min. No. of Teeth for No Undercutting | Pressure Angle | $N_c = \frac{2}{\sin^2 \phi}$ |

*All linear dimensions in millimeters

Symbols per **Table 1-4**

SECTION 2 INTRODUCTION TO GEAR TECHNOLOGY

This section presents a technical coverage of gear fundamentals. It is intended as a broad coverage written in a manner that is easy to follow and to understand by anyone interested in knowing how gear systems function. Since gearing involves specialty components, it is expected that not all designers and engineers possess or have been exposed to every aspect of this subject. However, for proper use of gear components and design of gear systems it is essential to have a minimum understanding of gear basics and a reference source for details.

For those to whom this is their first encounter with gear components, it is suggested this technical treatise be read in the order presented so as to obtain a logical development of the subject. Subsequently, and for those already familiar with gears, this material can be used selectively in random access as a design reference.

2.1 Basic Geometry Of Spur Gears

The fundamentals of gearing are illustrated through the spur gear tooth, both because it is the simplest, and hence most comprehensible, and because it is the form most widely used, particularly for instruments and control systems.

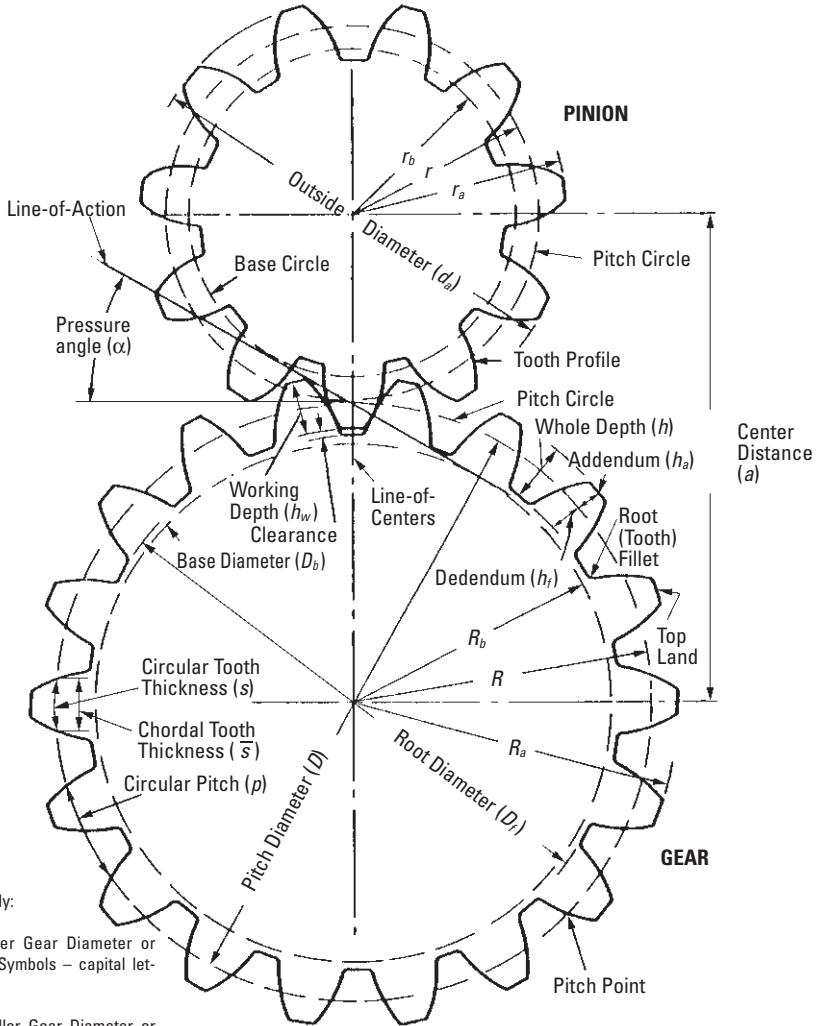
The basic geometry and nomenclature of a spur gear mesh is shown in **Figure 2-1**. The essential features of a gear mesh are:

1. Center distance.



2. The pitch circle diameters (or pitch diameters).
3. Size of teeth (or module).
4. Number of teeth.
5. Pressure angle of the contacting involutes.

Details of these items along with their interdependence and definitions are covered in subsequent paragraphs.



Generally:

Larger Gear Diameter or Radius Symbols – capital letters

Smaller Gear Diameter or Radius Symbols – lower case letters

Fig. 2-1 Basic Gear Geometry

2.2 The Law Of Gearing

A primary requirement of gears is the constancy of angular velocities or proportionality of position transmission. Precision instruments require positioning fidelity. High-speed and/or high-power gear trains also require transmission at constant angular velocities in order to avoid severe dynamic problems.

Constant velocity (i.e., constant ratio) motion transmission is defined as "conjugate action" of the gear tooth profiles. A geometric relationship can be derived (2, 12)* for the form of the tooth profiles to provide conjugate action, which is summarized as the Law of Gearing as follows:

"A common normal to the tooth profiles at their point of contact must, in all positions of the contacting teeth, pass through a fixed point on the line-of-centers called the pitch point."

Any two curves or profiles engaging each other and satisfying the law of gearing are conjugate curves.

2.3 The Involute Curve

There is almost an infinite number of curves that can be developed to satisfy the law of gearing, and many different curve forms have been tried in the past. Modern gearing (except for clock gears) is based on involute teeth. This is due to three major advantages of the involute curve:

1. Conjugate action is independent of changes in center distance.
2. The form of the basic rack tooth is straight-sided, and therefore is relatively simple and can be accurately made; as a generating tool it imparts high accuracy to the cut gear tooth.
3. One cutter can generate all gear teeth numbers of the same pitch.

The involute curve is most easily understood as the trace of a point at the end of a taut string that unwinds from a cylinder. It is imagined that a point on a string, which is pulled taut in a fixed direction, projects its trace onto a plane that rotates with the base circle. See **Figure 2-2**. The base cylinder, or base circle as referred to in gear literature, fully defines the form of the involute and in a gear it is an inherent parameter, though invisible.

The development and action of mating teeth can be visualized by imagining the taut string as being unwound from one base circle and wound on to the other, as shown in **Figure 2-3a**. Thus, a single point on the string simultaneously traces an involute on each base circle's rotating plane. This pair of involutes is conjugate, since at all points of contact the common normal is the common tangent which passes through a fixed point on the line-of-centers. If a second winding/unwinding taut string is wound around the base circles in the opposite direction, **Figure 2-3b**, oppositely curved involutes are generated which can accommodate motion reversal. When the involute pairs are properly spaced, the result is the involute gear tooth, **Figure 2-3c**.

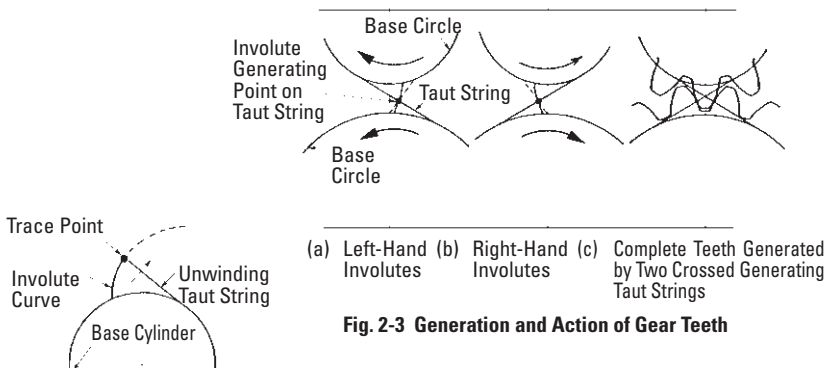


Fig. 2-3 Generation and Action of Gear Teeth

Fig. 2-2 Generation of an Involute by a Taut String

*Numbers in parentheses refer to references at end of text.



2.4 Pitch Circles

Referring to **Figure 2-4**, the tangent to the two base circles is the line of contact, or line-of-action in gear vernacular. Where this line crosses the line-of-centers establishes the pitch point, *P*. This in turn sets the size of the pitch circles, or as commonly called, the pitch diameters. The ratio of the pitch diameters gives the velocity ratio:

Velocity ratio of gear 2 to gear 1 is:

$$i = \frac{d_1}{d_2} \tag{2-1}$$

2.5 Pitch And Module

Essential to prescribing gear geometry is the size, or spacing of the teeth along the pitch circle. This is termed pitch, and there are two basic forms.

Circular pitch — A naturally conceived linear measure along the pitch circle of the tooth spacing. Referring to **Figure 2-5**, it is the linear distance (measured along the pitch circle arc) between corresponding points of adjacent teeth. It is equal to the pitch-circle circumference divided by the number of teeth:

$$p = \text{circular pitch} = \frac{\text{pitch circle circumference}}{\text{number of teeth}} = \frac{\pi d}{z} \tag{2-2}$$

Module — Metric gearing uses the quantity module *m* in place of the American inch unit, diametral pitch. The module is the length of pitch diameter per tooth. Thus:

$$m = \frac{d}{z} \tag{2-3}$$

Relation of pitches: From the geometry that defines the two pitches, it can be shown that module and circular pitch are related by the expression:

$$\frac{p}{m} = \pi \tag{2-4}$$

This relationship is simple to remember and permits an easy transformation from one to the other.

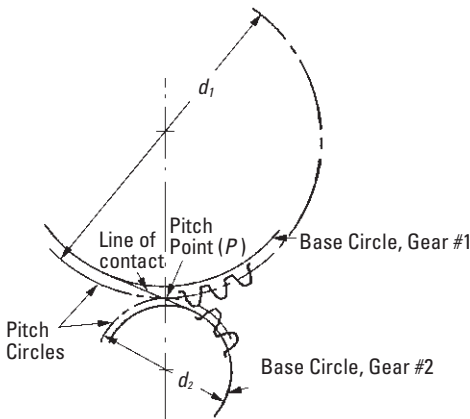


Fig. 2-4 Definition of Pitch Circle and Pitch Point

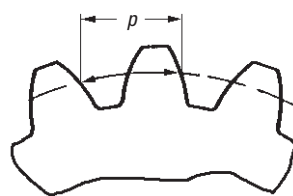


Fig. 2-5 Definition of Circular Pitch

Diametral pitch (P_d) is widely used in England and America to represent the tooth size. The relation between diametral pitch and module is as follows:

$$m = \frac{25.4}{P_d}$$



(2-5) 0 10

2.6 Module Sizes And Standards

Module m represents the size of involute gear tooth. The unit of module is mm. Module is converted to circular pitch p , by the factor π .

$$p = \pi m \tag{2-6}$$

Table 2-1 is extracted from JIS B 1701-1973 which defines the tooth profile and dimensions of involute gears. It divides the standard module into three series. Figure 2-6 shows the comparative size of various rack teeth.

Table 2-1 Standard Values of Module unit: mm

| Series 1 | Series 2 | Series 3 | Series 1 | Series 2 | Series 3 |
|----------|----------|----------|----------|----------|----------|
| 0.1 | | | | 3.5 | |
| 0.2 | 0.15 | | 4 | | 3.75 |
| 0.3 | 0.25 | | 5 | 4.5 | |
| 0.4 | 0.35 | | 6 | 5.5 | |
| 0.5 | 0.45 | | | | 6.5 |
| 0.6 | 0.55 | | 8 | 9 | |
| | | 0.65 | 10 | 11 | |
| 0.8 | 0.7 | | 12 | 14 | |
| | 0.75 | | 16 | 18 | |
| 1 | 0.9 | | 20 | 22 | |
| 1.25 | | | 25 | 28 | |
| 1.5 | 1.75 | | 32 | 36 | |
| 2 | 2.25 | | 40 | 45 | |
| 2.5 | 2.75 | | | | |
| 3 | | 3.25 | 50 | | |

Note: The preferred choices are in the series order beginning with 1.

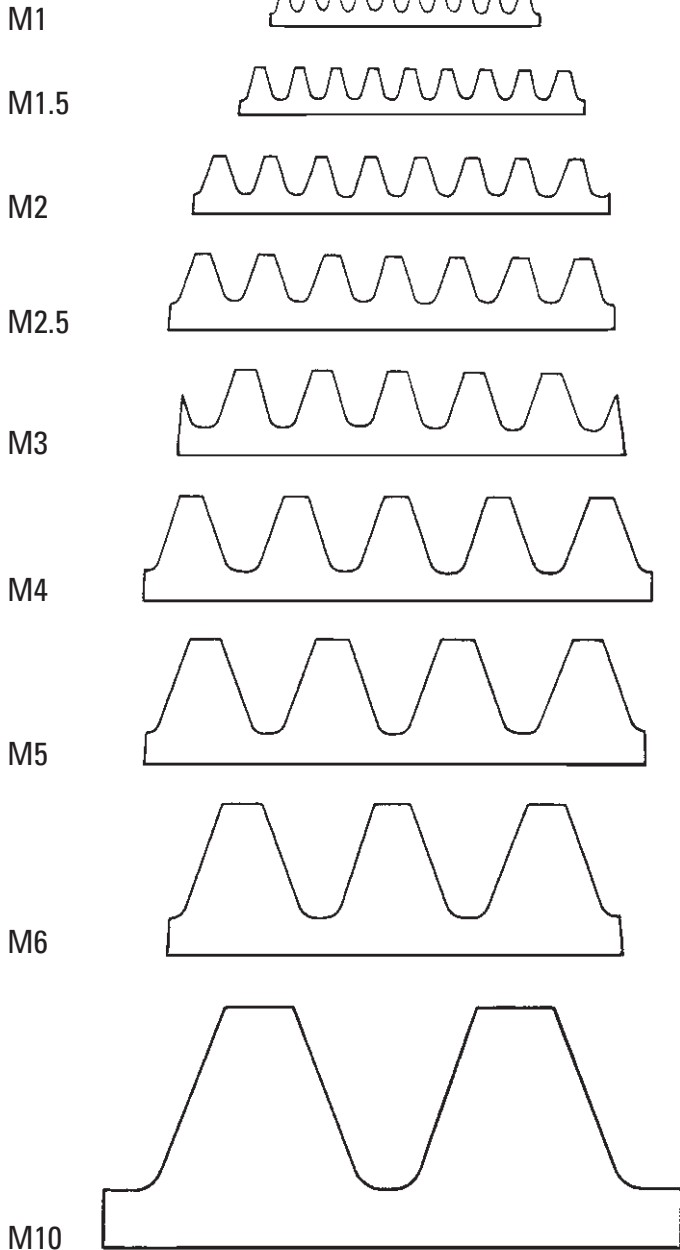


Fig. 2-6 Comparative Size of Various Rack Teeth

Circular pitch, p , is also used to represent tooth size when a special desired spacing is wanted, such as to get an integral feed in a mechanism. In this case, a circular pitch is chosen that is an integer or a special fractional value. This is often the choice in designing position control systems. Another particular usage is the drive of printing plates to provide a given feed.



Most involute gear teeth have the standard whole depth and a standard pressure angle $\alpha = 20^\circ$. **Figure 2-7** shows the tooth profile of a whole depth standard rack tooth and mating gear. It has an addendum of $h_a = 1m$ and dedendum $h_f \geq 1.25m$. If tooth depth is shorter than whole depth it is called a “stub” tooth; and if deeper than whole depth it is a “high” depth tooth.

The most widely used stub tooth has an addendum $h_a = 0.8m$ and dedendum $h_f = 1m$. Stub teeth have more strength than a whole depth gear, but contact ratio is reduced. On the other hand, a high depth tooth can increase contact ratio, but weakens the tooth.

In the standard involute gear, pitch p times the number of teeth becomes the length of pitch circle:

$$d \pi = \pi m z$$

Pitch diameter (d) is then:

$$d = mz$$

(2-7)

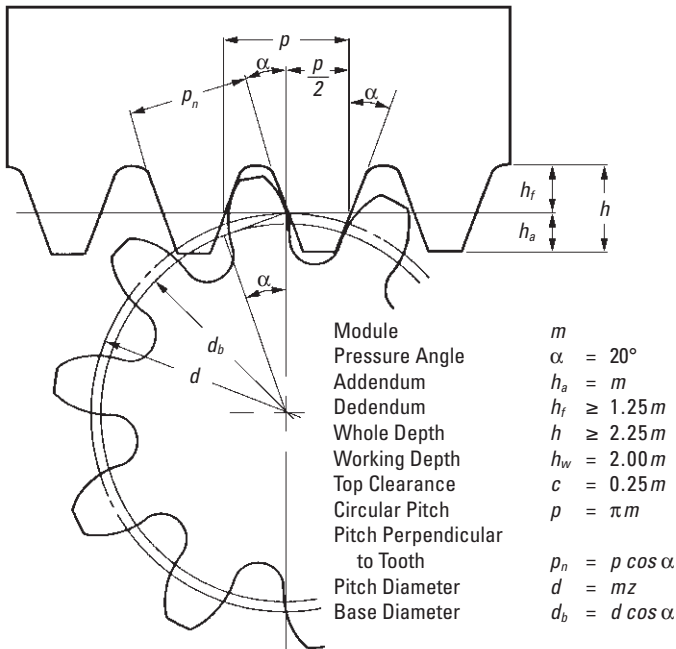


Fig. 2-7 The Tooth Profile and Dimension of Standard Rack

Metric Module and Inch Gear Preferences: Because there is no direct equivalence between the pitches in metric and inch systems, it is not possible to make direct substitutions. Further, there are preferred modules in the metric system. As an aid in using metric gears, **Table 2-2** presents nearest equivalents for both systems, with the preferred sizes in bold type.



Table 2-2 Metric/American Gear Equivalents

| Diametral Pitch, <i>P</i> | Module, <i>m</i> | Circular Pitch | | Circular Tooth Thickness | | Addendum | |
|------------------------------|---------------------|----------------|-------|--------------------------|-------|----------|-------|
| | | in | mm | in | mm | in | mm |
| 203.2000 | 0.125 | 0.0155 | 0.393 | 0.0077 | 0.196 | 0.0049 | 0.125 |
| 200 | 0.12700 | 0.0157 | 0.399 | 0.0079 | 0.199 | 0.0050 | 0.127 |
| 180 | 0.14111 | 0.0175 | 0.443 | 0.0087 | 0.222 | 0.0056 | 0.141 |
| 169.333 | 0.15 | 0.0186 | 0.471 | 0.0093 | 0.236 | 0.0059 | 0.150 |
| 150 | 0.16933 | 0.0209 | 0.532 | 0.0105 | 0.266 | 0.0067 | 0.169 |
| 127.000 | 0.2 | 0.0247 | 0.628 | 0.0124 | 0.314 | 0.0079 | 0.200 |
| 125 | 0.20320 | 0.0251 | 0.638 | 0.0126 | 0.319 | 0.0080 | 0.203 |
| 120 | 0.21167 | 0.0262 | 0.665 | 0.0131 | 0.332 | 0.0083 | 0.212 |
| 101.600 | 0.25 | 0.0309 | 0.785 | 0.0155 | 0.393 | 0.0098 | 0.250 |
| 96 | 0.26458 | 0.0327 | 0.831 | 0.0164 | 0.416 | 0.0104 | 0.265 |
| 92.3636 | 0.275 | 0.0340 | 0.864 | 0.0170 | 0.432 | 0.0108 | 0.275 |
| 84.6667 | 0.3 | 0.0371 | 0.942 | 0.0186 | 0.471 | 0.0118 | 0.300 |
| 80 | 0.31750 | 0.0393 | 0.997 | 0.0196 | 0.499 | 0.0125 | 0.318 |
| 78.1538 | 0.325 | 0.0402 | 1.021 | 0.0201 | 0.511 | 0.0128 | 0.325 |
| 72.5714 | 0.35 | 0.0433 | 1.100 | 0.0216 | 0.550 | 0.0138 | 0.350 |
| 72 | 0.35278 | 0.0436 | 1.108 | 0.0218 | 0.554 | 0.0139 | 0.353 |
| 67.733 | 0.375 | 0.0464 | 1.178 | 0.0232 | 0.589 | 0.0148 | 0.375 |
| 64 | 0.39688 | 0.0491 | 1.247 | 0.0245 | 0.623 | 0.0156 | 0.397 |
| 63.500 | 0.4 | 0.0495 | 1.257 | 0.0247 | 0.628 | 0.0157 | 0.400 |
| 50.800 | 0.5 | 0.0618 | 1.571 | 0.0309 | 0.785 | 0.0197 | 0.500 |
| 50 | 0.50800 | 0.0628 | 1.596 | 0.0314 | 0.798 | 0.0200 | 0.508 |
| 48 | 0.52917 | 0.0655 | 1.662 | 0.0327 | 0.831 | 0.0208 | 0.529 |
| 44 | 0.57727 | 0.0714 | 1.814 | 0.0357 | 0.907 | 0.0227 | 0.577 |
| 42.333 | 0.6 | 0.0742 | 1.885 | 0.0371 | 0.942 | 0.0236 | 0.600 |
| 40 | 0.63500 | 0.0785 | 1.995 | 0.0393 | 0.997 | 0.0250 | 0.635 |
| 36.2857 | 0.7 | 0.0866 | 2.199 | 0.0433 | 1.100 | 0.0276 | 0.700 |
| 36 | 0.70556 | 0.0873 | 2.217 | 0.0436 | 1.108 | 0.0278 | 0.706 |
| 33.8667 | 0.75 | 0.0928 | 2.356 | 0.0464 | 1.178 | 0.0295 | 0.750 |
| 32 | 0.79375 | 0.0982 | 2.494 | 0.0491 | 1.247 | 0.0313 | 0.794 |
| 31.7500 | 0.8 | 0.0989 | 2.513 | 0.0495 | 1.257 | 0.0315 | 0.800 |
| 30 | 0.84667 | 0.1047 | 2.660 | 0.0524 | 1.330 | 0.0333 | 0.847 |
| 28.2222 | 0.9 | 0.1113 | 2.827 | 0.0557 | 1.414 | 0.0354 | 0.900 |
| 28 | 0.90714 | 0.1122 | 2.850 | 0.0561 | 1.425 | 0.0357 | 0.907 |
| 25.4000 | 1 | 0.1237 | 3.142 | 0.0618 | 1.571 | 0.0394 | 1.000 |
| 24 | 1.0583 | 0.1309 | 3.325 | 0.0654 | 1.662 | 0.0417 | 1.058 |
| 22 | 1.1545 | 0.1428 | 3.627 | 0.0714 | 1.813 | 0.0455 | 1.155 |
| 20.3200 | 1.25 | 0.1546 | 3.927 | 0.0773 | 1.963 | 0.0492 | 1.250 |
| 20 | 1.2700 | 0.1571 | 3.990 | 0.0785 | 1.995 | 0.0500 | 1.270 |
| 18 | 1.4111 | 0.1745 | 4.433 | 0.0873 | 2.217 | 0.0556 | 1.411 |
| 16.9333 | 1.5 | 0.1855 | 4.712 | 0.0928 | 2.356 | 0.0591 | 1.500 |
| 16 | 1.5875 | 0.1963 | 4.987 | 0.0982 | 2.494 | 0.0625 | 1.588 |
| 15 | 1.6933 | 0.2094 | 5.320 | 0.1047 | 2.660 | 0.0667 | 1.693 |
| 14.5143 | 1.75 | 0.2164 | 5.498 | 0.1082 | 2.749 | 0.0689 | 1.750 |
| 14 | 1.8143 | 0.2244 | 5.700 | 0.1122 | 2.850 | 0.0714 | 1.814 |
| 13 | 1.9538 | 0.2417 | 6.138 | 0.1208 | 3.069 | 0.0769 | 1.954 |
| 12.7000 | 2 | 0.2474 | 6.283 | 0.1237 | 3.142 | 0.0787 | 2.000 |
| 12 | 2.1167 | 0.2618 | 6.650 | 0.1309 | 3.325 | 0.0833 | 2.117 |
| 11.2889 | 2.25 | 0.2783 | 7.069 | 0.1391 | 3.534 | 0.0886 | 2.250 |
| 11 | 2.3091 | 0.2856 | 7.254 | 0.1428 | 3.627 | 0.0909 | 2.309 |
| 10.1600 | 2.50 | 0.3092 | 7.854 | 0.1546 | 3.927 | 0.0984 | 2.500 |
| 10 | 2.5400 | 0.3142 | 7.980 | 0.1571 | 3.990 | 0.1000 | 2.540 |

NOTE: Bold face diametral pitches and modules designate preferred values.

Continued on the next page



0 10

Table 2-2 (Cont.) Metric/American Gear Equivalents

| Diametral Pitch, <i>P</i> | Module, <i>m</i> | Circular Pitch | | Circular Tooth Thickness | | Addendum | |
|---------------------------|------------------|----------------|---------|--------------------------|--------|----------|--------|
| | | in | mm | in | mm | in | mm |
| 9.2364 | 2.75 | 0.3401 | 8.639 | 0.1701 | 4.320 | 0.1083 | 2.750 |
| 9 | 2.8222 | 0.3491 | 8.866 | 0.1745 | 4.433 | 0.1111 | 2.822 |
| 8.4667 | 3 | 0.3711 | 9.425 | 0.1855 | 4.712 | 0.1181 | 3.000 |
| 8 | 3.1750 | 0.3927 | 9.975 | 0.1963 | 4.987 | 0.1250 | 3.175 |
| 7.8154 | 3.25 | 0.4020 | 10.210 | 0.2010 | 5.105 | 0.1280 | 3.250 |
| 7.2571 | 3.5 | 0.4329 | 10.996 | 0.2164 | 5.498 | 0.1378 | 3.500 |
| 7 | 3.6286 | 0.4488 | 11.400 | 0.2244 | 5.700 | 0.1429 | 3.629 |
| 6.7733 | 3.75 | 0.4638 | 11.781 | 0.2319 | 5.890 | 0.1476 | 3.750 |
| 6.3500 | 4 | 0.4947 | 12.566 | 0.2474 | 6.283 | 0.1575 | 4.000 |
| 6 | 4.2333 | 0.5236 | 13.299 | 0.2618 | 6.650 | 0.1667 | 4.233 |
| 5.6444 | 4.5 | 0.5566 | 14.137 | 0.2783 | 7.069 | 0.1772 | 4.500 |
| 5.3474 | 4.75 | 0.5875 | 14.923 | 0.2938 | 7.461 | 0.1870 | 4.750 |
| 5.0800 | 5 | 0.6184 | 15.708 | 0.3092 | 7.854 | 0.1969 | 5.000 |
| 5 | 5.0800 | 0.6283 | 15.959 | 0.3142 | 7.980 | 0.2000 | 5.080 |
| 4.6182 | 5.5000 | 0.6803 | 17.279 | 0.3401 | 8.639 | 0.2165 | 5.500 |
| 4.2333 | 6 | 0.7421 | 18.850 | 0.3711 | 9.425 | 0.2362 | 6.000 |
| 4 | 6.3500 | 0.7854 | 19.949 | 0.3927 | 9.975 | 0.2500 | 6.350 |
| 3.9077 | 6.5000 | 0.8040 | 20.420 | 0.4020 | 10.210 | 0.2559 | 6.500 |
| 3.6286 | 7 | 0.8658 | 21.991 | 0.4329 | 10.996 | 0.2756 | 7.000 |
| 3.5000 | 7.2571 | 0.8976 | 22.799 | 0.4488 | 11.399 | 0.2857 | 7.257 |
| 3.1750 | 8 | 0.9895 | 25.133 | 0.4947 | 12.566 | 0.3150 | 8.000 |
| 3.1416 | 8.0851 | 1.0000 | 25.400 | 0.5000 | 12.700 | 0.3183 | 8.085 |
| 3 | 8.4667 | 1.0472 | 26.599 | 0.5236 | 13.299 | 0.3333 | 8.467 |
| 2.8222 | 9 | 1.1132 | 28.274 | 0.5566 | 14.137 | 0.3543 | 9.000 |
| 2.5400 | 10 | 1.2368 | 31.416 | 0.6184 | 15.708 | 0.3937 | 10.000 |
| 2.5000 | 10.160 | 1.2566 | 31.919 | 0.6283 | 15.959 | 0.4000 | 10.160 |
| 2.3091 | 11 | 1.3605 | 34.558 | 0.6803 | 17.279 | 0.4331 | 11.000 |
| 2.1167 | 12 | 1.4842 | 37.699 | 0.7421 | 18.850 | 0.4724 | 12.000 |
| 2 | 12.700 | 1.5708 | 39.898 | 0.7854 | 19.949 | 0.5000 | 12.700 |
| 1.8143 | 14 | 1.7316 | 43.982 | 0.8658 | 21.991 | 0.5512 | 14.000 |
| 1.5875 | 16 | 1.9790 | 50.265 | 0.9895 | 25.133 | 0.6299 | 16.000 |
| 1.5000 | 16.933 | 2.0944 | 53.198 | 1.0472 | 26.599 | 0.6667 | 16.933 |
| 1.4111 | 18 | 2.2263 | 56.549 | 1.1132 | 28.274 | 0.7087 | 18.000 |
| 1.2700 | 20 | 2.4737 | 62.832 | 1.2368 | 31.416 | 0.7874 | 20.000 |
| 1.1545 | 22 | 2.7211 | 69.115 | 1.3605 | 34.558 | 0.8661 | 22.000 |
| 1.0583 | 24 | 2.9684 | 75.398 | 1.4842 | 37.699 | 0.9449 | 24.000 |
| 1.0160 | 25 | 3.0921 | 78.540 | 1.5461 | 39.270 | 0.9843 | 25.000 |
| 1 | 25.400 | 3.1416 | 79.796 | 1.5708 | 39.898 | 1.0000 | 25.400 |
| 0.9407 | 27 | 3.3395 | 84.823 | 1.6697 | 42.412 | 1.0630 | 27.000 |
| 0.9071 | 28 | 3.4632 | 87.965 | 1.7316 | 43.982 | 1.1024 | 28.000 |
| 0.8467 | 30 | 3.7105 | 94.248 | 1.8553 | 47.124 | 1.1811 | 30.000 |
| 0.7938 | 32 | 3.9579 | 100.531 | 1.9790 | 50.265 | 1.2598 | 32.000 |
| 0.7697 | 33 | 4.0816 | 103.673 | 2.0408 | 51.836 | 1.2992 | 33.000 |
| 0.7500 | 33.867 | 4.1888 | 106.395 | 2.0944 | 53.198 | 1.3333 | 33.867 |
| 0.7056 | 36 | 4.4527 | 113.097 | 2.2263 | 56.549 | 1.4173 | 36.000 |
| 0.6513 | 39 | 4.8237 | 122.522 | 2.4119 | 61.261 | 1.5354 | 39.000 |
| 0.6350 | 40 | 4.9474 | 125.664 | 2.4737 | 62.832 | 1.5748 | 40.000 |
| 0.6048 | 42 | 5.1948 | 131.947 | 2.5974 | 65.973 | 1.6535 | 42.000 |
| 0.5644 | 45 | 5.5658 | 141.372 | 2.7829 | 70.686 | 1.7717 | 45.000 |
| 0.5080 | 50 | 6.1842 | 157.080 | 3.0921 | 78.540 | 1.9685 | 50.000 |
| 0.5000 | 50.800 | 6.2832 | 159.593 | 3.1416 | 79.796 | 2.0000 | 50.800 |

NOTE: Bold face diametral pitches and modules designate preferred values.



2.7 Gear Types And Axial Arrangements

In accordance with the orientation of axes, there are three categories of gears:

1. **Parallel Axes Gears**
2. **Intersecting Axes Gears**
3. **Nonparallel and Nonintersecting Axes Gears**

Spur and helical gears are the parallel axes gears. Bevel gears are the intersecting axes gears. Screw or crossed helical, worm and hypoid gears handle the third category. **Table 2-3** lists the gear types per axes orientation.

Also, included in **Table 2-3** is the theoretical efficiency range of the various gear types. These figures do not include bearing and lubricant losses. Also, they assume ideal mounting in regard to axis orientation and center distance. Inclusion of these realistic considerations will downgrade the efficiency numbers.

Table 2-3 Types of Gears and Their Categories

| Categories of Gears | Types of Gears | Efficiency (%) |
|---|---------------------|----------------|
| Parallel Axes Gears | Spur Gear | 98 ... 99.5 |
| | Spur Rack | |
| | Internal Gear | |
| | Helical Gear | |
| | Helical Rack | |
| Double Helical Gear | | |
| Intersecting Axes Gears | Straight Bevel Gear | 98 ... 99 |
| | Spiral Bevel Gear | |
| | Zerol Gear | |
| Nonparallel and Nonintersecting Axes Gears | Worm Gear | 30 ... 90 |
| | Screw Gear | 70 ... 95 |
| | Hypoid Gear | 96 ... 98 |

2.7.1 Parallel Axes Gears

1. Spur Gear

This is a cylindrical shaped gear in which the teeth are parallel to the axis. It has the largest applications and, also, it is the easiest to manufacture.

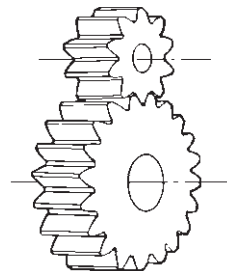


Fig. 2-8 Spur Gear

2. Spur Rack

This is a linear shaped gear which can mesh with a spur gear with any number of teeth. The spur rack is a portion of a spur gear with an infinite radius.

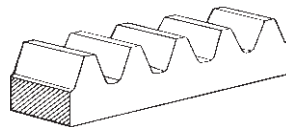


Fig. 2-9 Spur Rack



3. Internal Gear

This is a cylindrical shaped gear but with the teeth inside the circular ring. It can mesh with a spur gear. Internal gears are often used in planetary gear systems.

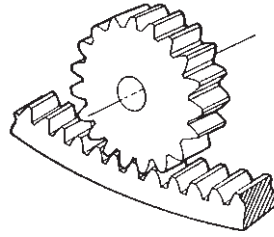


Fig. 2-10 Internal Gear and Spur Gear

4. Helical Gear

This is a cylindrical shaped gear with helicoid teeth. Helical gears can bear more load than spur gears, and work more quietly. They are widely used in industry. A disadvantage is the axial thrust force the helix form causes.

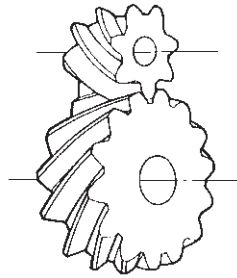


Fig. 2-11 Helical Gear

5. Helical Rack

This is a linear shaped gear which meshes with a helical gear. Again, it can be regarded as a portion of a helical gear with infinite radius.

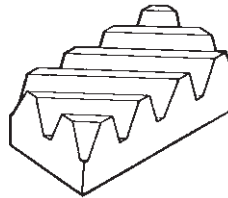


Fig. 2-12 Helical Rack

6. Double Helical Gear

This is a gear with both left-hand and right-hand helical teeth. The double helical form balances the inherent thrust forces.

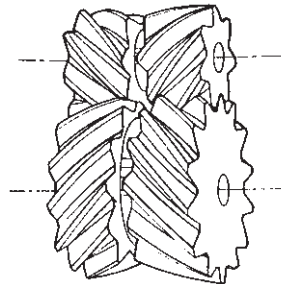


Fig. 2-13 Double Helical Gear

I

R

T

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

A



2.7.2 Intersecting Axes Gears

1. Straight Bevel Gear

This is a gear in which the teeth have tapered conical elements that have the same direction as the pitch cone base line (generatrix). The straight bevel gear is both the simplest to produce and the most widely applied in the bevel gear family.

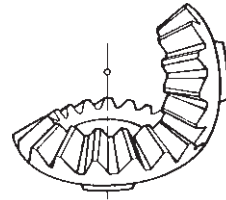


Fig. 2-14 Straight Bevel Gear

2. Spiral Bevel Gear

This is a bevel gear with a helical angle of spiral teeth. It is much more complex to manufacture, but offers a higher strength and lower noise.

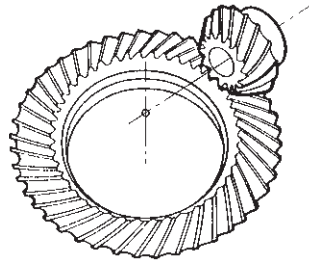


Fig. 2-15 Spiral Bevel Gear

3. Zerol Gear

Zerol gear is a special case of spiral bevel gear. It is a spiral bevel with zero degree of spiral angle tooth advance. It has the characteristics of both the straight and spiral bevel gears. The forces acting upon the tooth are the same as for a straight bevel gear.

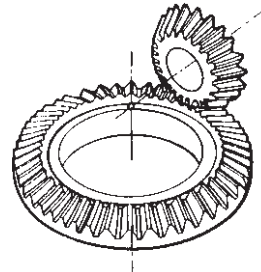


Fig. 2-16 Zerol Gear

2.7.3 Nonparallel And Nonintersecting Axes Gears

1. Worm And Worm Gear

Worm set is the name for a meshed worm and worm gear. The worm resembles a screw thread; and the mating worm gear a helical gear, except that it is made to envelope the worm as seen along the worm's axis. The outstanding feature is that the worm offers a very large gear ratio in a single mesh. However, transmission efficiency is very poor due to a great amount of sliding as the worm tooth engages with its mating worm gear tooth and forces rotation by pushing and sliding. With proper choices of materials and lubrication, wear can be contained and noise is reduced.

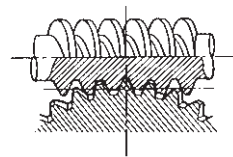


Fig. 2-17 Worm Gear

2. Screw Gear (Crossed Helical Gear)

Two helical gears of opposite helix angle will mesh if their axes are crossed. As separate gear components, they are merely conventional helical gears. Installation on crossed axes converts them to screw gears. They offer a simple means of gearing skew axes at any angle. Because they have point contact, their load carrying capacity is very limited.

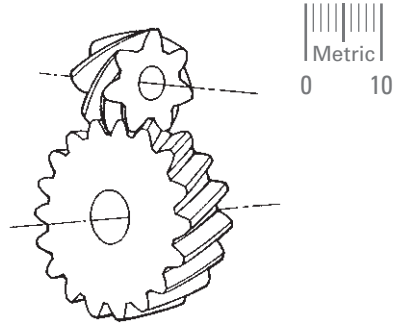


Fig. 2-18 Screw Gear

2.7.4 Other Special Gears

1. Face Gear

This is a pseudobevel gear that is limited to 90° intersecting axes. The face gear is a circular disc with a ring of teeth cut in its side face; hence the name face gear. Tooth elements are tapered towards its center. The mate is an ordinary spur gear. It offers no advantages over the standard bevel gear, except that it can be fabricated on an ordinary shaper gear generating machine.

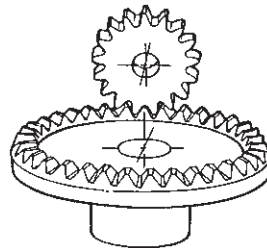


Fig. 2-19 Face Gear

2. Double Enveloping Worm Gear

This worm set uses a special worm shape in that it partially envelops the worm gear as viewed in the direction of the worm gear axis. Its big advantage over the standard worm is much higher load capacity. However, the worm gear is very complicated to design and produce, and sources for manufacture are few.

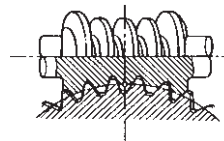


Fig. 2-20 Double Enveloping Worm Gear

3. Hypoid Gear

This is a deviation from a bevel gear that originated as a special development for the automobile industry. This permitted the drive to the rear axle to be nonintersecting, and thus allowed the auto body to be lowered. It looks very much like the spiral bevel gear. However, it is complicated to design and is the most difficult to produce on a bevel gear generator.

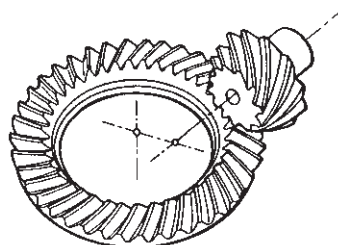


Fig. 2-21 Hypoid Gear



0 10

SECTION 3 DETAILS OF INVOLUTE GEARING

3.1 Pressure Angle

The pressure angle is defined as the angle between the line-of-action (common tangent to the base circles in **Figures 2-3** and **2-4**) and a perpendicular to the line-of-centers. See **Figure 3-1**. From the geometry of these figures, it is obvious that the pressure angle varies (slightly) as the center distance of a gear pair is altered. The base circle is related to the pressure angle and pitch diameter by the equation:

$$d_b = d \cos \alpha \quad (3-1)$$

where d and α are the standard values, or alternately:

$$d_b = d' \cos \alpha' \quad (3-2)$$

where d' and α' are the exact operating values.

The basic formula shows that the larger the pressure angle the smaller the base circle. Thus, for standard gears, 14.5° pressure angle gears have base circles much nearer to the roots of teeth than 20° gears. It is for this reason that 14.5° gears encounter greater undercutting problems than 20° gears. This is further elaborated on in **SECTION 4.3**.

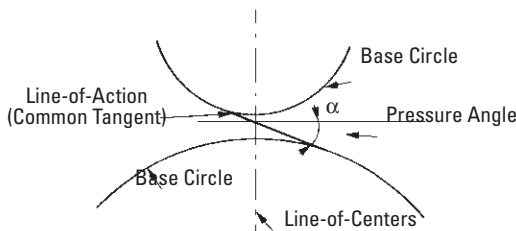


Fig. 3-1 Definition of Pressure Angle

3.2 Proper Meshing And Contact Ratio

Figure 3-2 shows a pair of standard gears meshing together. The contact point of the two involutes, as **Figure 3-2** shows, slides along the common tangent of the two base circles as rotation occurs. The common tangent is called the line-of-contact, or line-of-action.

A pair of gears can only mesh correctly if the pitches and the pressure angles are the same. Pitch comparison can be module (m), circular (p), or base (p_b).

That the pressure angles must be identical becomes obvious from the following equation for base pitch:

$$p_b = \pi m \cos \alpha \quad (3-3)$$

Thus, if the pressure angles are different, the base pitches cannot be identical.

The length of the line-of-action is shown as ab in **Figure 3-2**.

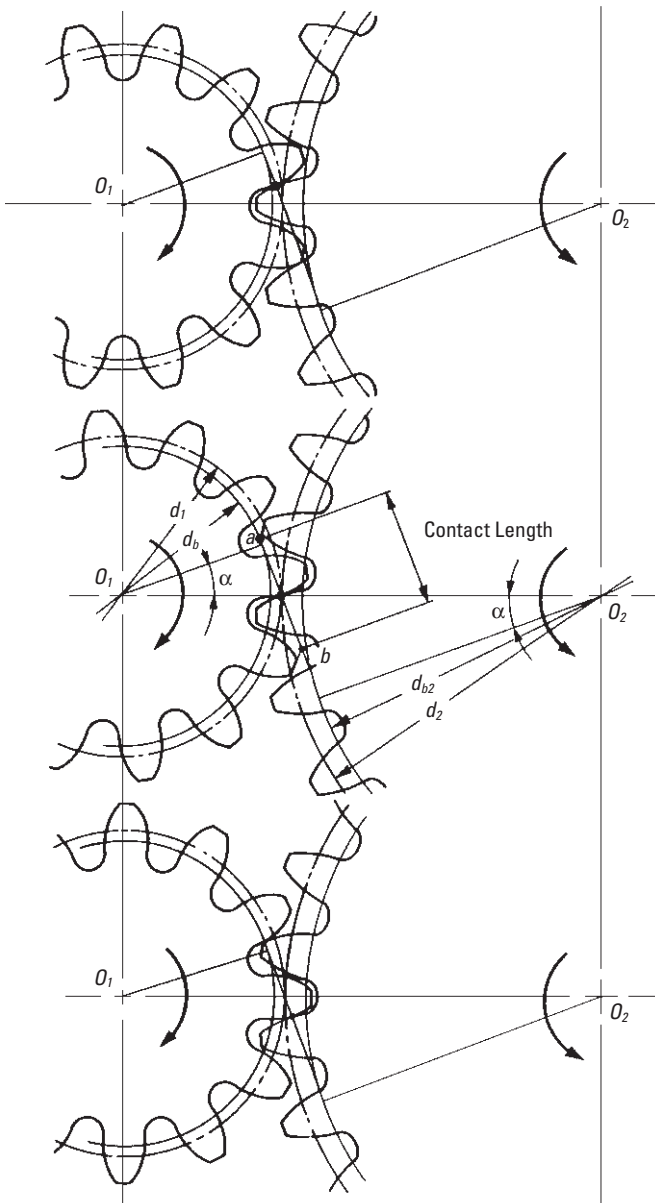


Fig. 3-2 The Meshing of Involute Gear

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15



3.2.1 Contact Ratio

To assure smooth continuous tooth action, as one pair of teeth ceases contact a succeeding pair of teeth must already have come into engagement. It is desirable to have as much overlap as possible. The measure of this overlapping is the contact ratio. This is a ratio of the length of the line-of-action to the base pitch. **Figure 3-3** shows the geometry. The length-of-action is determined from the intersection of the line-of-action and the outside radii. For the simple case of a pair of spur gears, the ratio of the length-of-action to the base pitch is determined from:

$$\epsilon_v = \frac{\sqrt{(R_a^2 - R_b^2)} + \sqrt{(r_a^2 - r_b^2)} - a \sin \alpha}{p \cos \alpha} \tag{3-4}$$

It is good practice to maintain a contact ratio of 1.2 or greater. Under no circumstances should the ratio drop below 1.1, calculated for all tolerances at their worst-case values.

A contact ratio between 1 and 2 means that part of the time two pairs of teeth are in contact and during the remaining time one pair is in contact. A ratio between 2 and 3 means 2 or 3 pairs of teeth are always in contact. Such a high contact ratio generally is not obtained with external spur gears, but can be developed in the meshing of an internal and external spur gear pair or specially designed nonstandard external spur gears.

More detail is presented about contact ratio, including calculation equations for specific gear types, in **SECTION 11**.

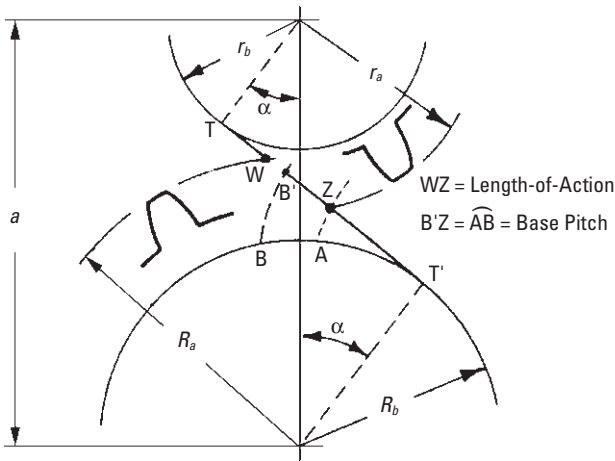


Fig. 3-3 Geometry of Contact Ratio

3.3 The Involute Function

Figure 3-4 shows an element of involute curve. The definition of involute curve is the curve traced by a point on a straight line which rolls without slipping on the circle.

The circle is called the base circle of the involutes. Two opposite hand involute curves meeting at a cusp form a gear tooth curve. We can see, from **Figure 3-4**, the length of base circle arc ac equals the length of straight line bc .



$$\tan \alpha = \frac{bc}{Oc} = \frac{r_b \theta}{r_b} = \theta \text{ (radian)} \tag{3-5}$$

The θ in **Figure 3-4** can be expressed as $\text{inv } \alpha + \alpha$, then **Formula (3-5)** will become:

$$\text{inv } \alpha = \tan \alpha - \alpha \tag{3-6}$$

Function of α , or $\text{inv } \alpha$, is known as involute function. Involute function is very important in gear design. Involute function values can be obtained from appropriate tables. With the center of the base circle O at the origin of a coordinate system, the involute curve can be expressed by values of x and y as follows:

$$\left. \begin{aligned} x &= r \cos (\text{inv } \alpha) = \frac{r_b}{\cos \alpha} \cos (\text{inv } \alpha) \\ y &= r \sin (\text{inv } \alpha) = \frac{r_b}{\cos \alpha} \sin (\text{inv } \alpha) \end{aligned} \right\} \tag{3-7}$$

where, $r = \frac{r_b}{\cos \alpha}$

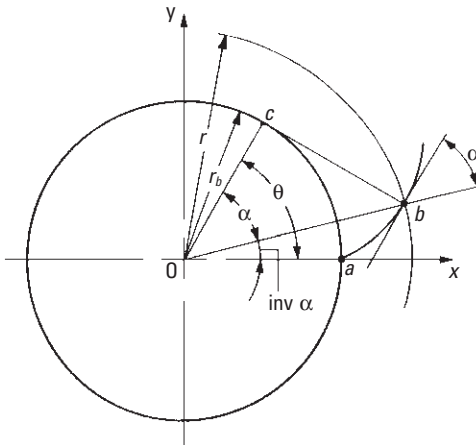


Fig. 3-4 The Involute Curve

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

SECTION 4 SPUR GEAR CALCULATIONS



0 10

4.1 Standard Spur Gear

Figure 4-1 shows the meshing of standard spur gears. The meshing of standard spur gears means pitch circles of two gears contact and roll with each other. The calculation formulas are in Table 4-1.

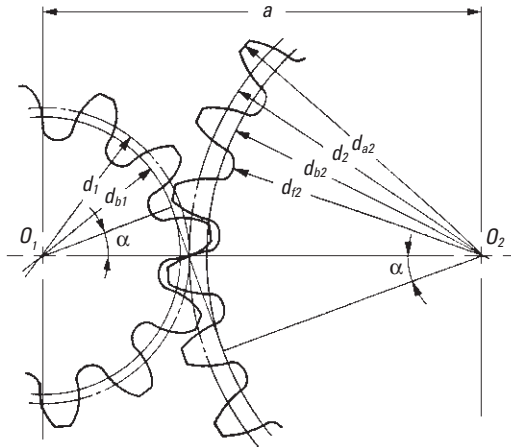


Fig. 4-1 The Meshing of Standard Spur Gears

($\alpha = 20^\circ$, $z_1 = 12$, $z_2 = 24$, $x_1 = x_2 = 0$)

Table 4-1 The Calculation of Standard Spur Gears

| No. | Item | Symbol | Formula | Example | |
|-----|------------------|--------------|----------------------------|------------|--------|
| | | | | Pinion | Gear |
| 1 | Module | m | | 3 | |
| 2 | Pressure Angle | α | | 20° | |
| 3 | Number of Teeth | z_1, z_2^* | | 12 | 24 |
| 4 | Center Distance | a | $\frac{(z_1 + z_2)m^*}{2}$ | 54.000 | |
| 5 | Pitch Diameter | d | zm | 36.000 | 72.000 |
| 6 | Base Diameter | d_b | $d \cos \alpha$ | 33.829 | 67.658 |
| 7 | Addendum | h_a | $1.00m$ | 3.000 | |
| 8 | Dedendum | h_f | $1.25m$ | 3.750 | |
| 9 | Outside Diameter | d_a | $d + 2m$ | 42.000 | 78.000 |
| 10 | Root Diameter | d_f | $d - 2.5m$ | 28.500 | 64.500 |

*The subscripts 1 and 2 of z_1 and z_2 denote pinion and gear.

All calculated values in Table 4-1 are based upon given module (m) and number of teeth (z_1 and z_2). If instead module (m), center distance (a) and speed ratio (i) are given, then the number of teeth, z_1 and z_2 , would be calculated with the formulas as shown in Table 4-2.



Table 4-2 The Calculation of Teeth Number

| No. | Item | Symbol | Formula | Example |
|-----|---------------------|-------------|--|----------|
| 1 | Module | m | | 3 |
| 2 | Center Distance | a | | 54.000 |
| 3 | Speed Ratio | i | | 0.8 |
| 4 | Sum of No. of Teeth | $z_1 + z_2$ | $\frac{2a}{m}$ | 36 |
| 5 | Number of Teeth | z_1, z_2 | $\frac{i(z_1 + z_2)}{i + 1}$ $\frac{(z_1 + z_2)}{i + 1}$ | 16 20 |

Note that the numbers of teeth probably will not be integer values by calculation with the formulas in **Table 4-2**. Then it is incumbent upon the designer to choose a set of integer numbers of teeth that are as close as possible to the theoretical values. This will likely result in both slightly changed gear ratio and center distance. Should the center distance be inviolable, it will then be necessary to resort to profile shifting. This will be discussed later in this section.

4.2 The Generating Of A Spur Gear

Involute gears can be readily generated by rack type cutters. The hob is in effect a rack cutter. Gear generation is also accomplished with gear type cutters using a shaper or planer machine.

Figure 4-2 illustrates how an involute gear tooth profile is generated. It shows how the pitch line of a rack cutter rolling on a pitch circle generates a spur gear.

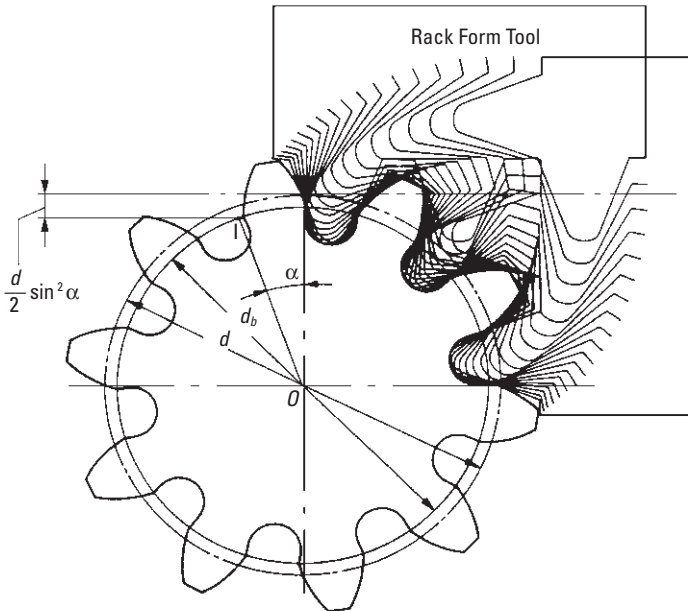


Fig. 4-2 The Generating of a Standard Spur Gear
($\alpha = 20^\circ, z = 10, x = 0$)



4.3 Undercutting

From **Figure 4-3**, it can be seen that the maximum length of the line-of-contact is limited to the length of the common tangent. Any tooth addendum that extends beyond the tangent points (T and T') is not only useless, but interferes with the root fillet area of the mating tooth. This results in the typical undercut tooth, shown in **Figure 4-4**. The undercut not only weakens the tooth with a wasp-like waist, but also removes some of the useful involute adjacent to the base circle.

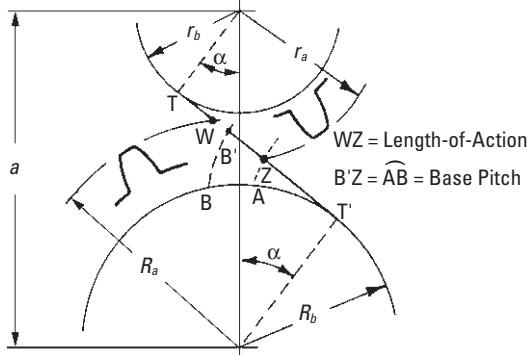


Fig. 4-3 Geometry of Contact Ratio

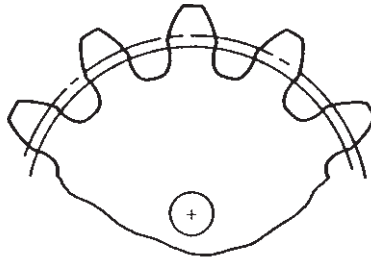


Fig. 4-4 Example of Undercut Standard Design Gear
(12 Teeth, 20° Pressure Angle)

From the geometry of the limiting length-of-contact (T-T', **Figure 4-3**), it is evident that interference is first encountered by the addenda of the gear teeth digging into the mating-pinion tooth flanks. Since addenda are standardized by a fixed value ($h_a = m$), the interference condition becomes more severe as the number of teeth on the mating gear increases. The limit is reached when the gear becomes a rack. This is a realistic case since the hob is a rack-type cutter. The result is that standard gears with teeth numbers below a critical value are automatically undercut in the generating process. The condition for no undercutting in a standard spur gear is given by the expression:

$$\left. \begin{aligned} \text{Max addendum} = h_a &\leq \frac{mz}{2} \sin^2 \alpha \\ \text{and the minimum number of teeth is:} & \\ z_c &\geq \frac{2}{\sin^2 \alpha} \end{aligned} \right\} \quad (4-1)$$

This indicates that the minimum number of teeth free of undercutting decreases with increasing pressure angle. For 14.5° the value of z_c is 32, and for 20° it is 18. Thus, 20° pressure angle gears with low numbers of teeth have the advantage of much less undercutting and, therefore, are both stronger and smoother acting.

4.4 Enlarged Pinions

Undercutting of pinion teeth is undesirable because of losses of strength, contact ratio and smoothness of action. The severity of these faults depends upon how far below z_c the teeth number is. Undercutting for the first few numbers is small and in many applications its adverse effects can be neglected.

For very small numbers of teeth, such as ten and smaller, and for high-precision applications, undercutting should be avoided. This is achieved by pinion enlargement (or correction as often termed), wherein the pinion teeth, still generated with a standard cutter, are shifted radially outward to form a full involute tooth free of undercut. The tooth is enlarged both radially and circumferentially. Comparison of a tooth form before and after enlargement is shown in Figure 4-5.

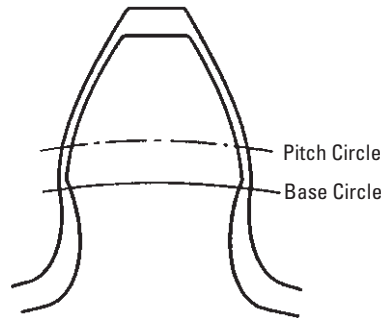


Fig. 4-5 Comparison of Enlarged and Undercut Standard Pinion
(13 Teeth, 20° Pressure Angle, Fine Pitch Standard)

4.5 Profile Shifting

As Figure 4-2 shows, a gear with 20 degrees of pressure angle and 10 teeth will have a huge undercut volume. To prevent undercut, a positive correction must be introduced. A positive correction, as in Figure 4-6, can prevent undercut.

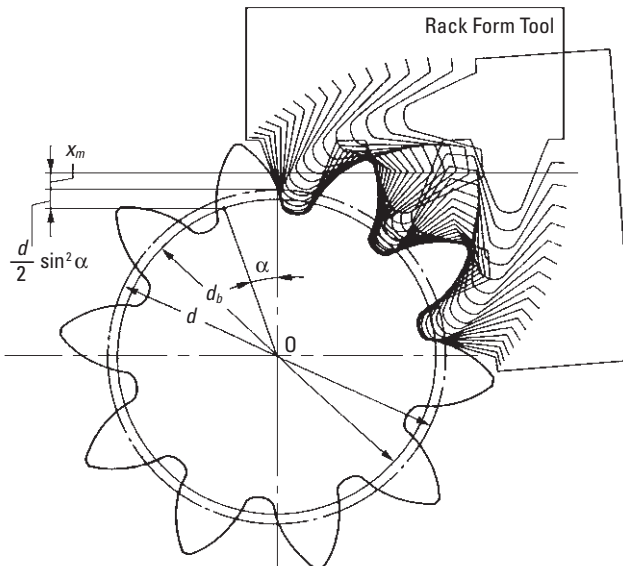


Fig. 4-6 Generating of Positive Shifted Spur Gear
($\alpha = 20^\circ, z = 10, x = +0.5$)



Undercutting will get worse if a negative correction is applied. See **Figure 4-7**. The extra feed of gear cutter (xm) in **Figures 4-6** and **4-7** is the amount of shift or correction. And x is the shift coefficient.

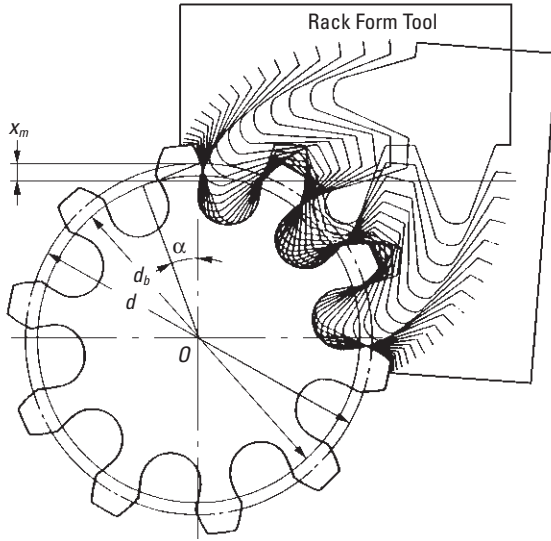


Fig. 4-7 The Generating of Negative Shifted Spur Gear
 ($\alpha = 20^\circ, z = 10, x = -0.5$)

The condition to prevent undercut in a spur gear is:

$$m - xm \leq \frac{zm}{2} \sin^2 \alpha \tag{4-2}$$

The number of teeth without undercut will be:

$$z_c = \frac{2(1-x)}{\sin^2 \alpha} \tag{4-3}$$

The coefficient without undercut is:

$$x = 1 - \frac{z_c}{2} \sin^2 \alpha \tag{4-4}$$

Profile shift is not merely used to prevent undercut. It can be used to adjust center distance between two gears.

If a positive correction is applied, such as to prevent undercut in a pinion, the tooth thickness at top is thinner.

Table 4-3 presents the calculation of top land thickness.



Table 4-3 The Calculations of Top Land Thickness

| No. | Item | Symbol | Formula | Example |
|-----|--|------------|---|---|
| 1 | Pressure angle at outside circle of gear | α_a | $\cos^{-1}\left(\frac{d_b}{d_a}\right)$ | $m = 2, \alpha = 20^\circ,$ $z = 16,$ $x = +0.3, d = 32,$ $d_b = 30.07016$ |
| 2 | Half of top land angle of outside circle | θ | $\frac{\pi}{2z} + \frac{2x \tan \alpha}{z} + (\text{inv } \alpha - \text{inv } \alpha_a)$ (radian) | $d_a = 37.2$ $\alpha_a = 36.06616^\circ$ $\text{inv } \alpha_a = 0.098835$ $\text{inv } \alpha = 0.014904$ |
| 3 | Top land thickness | s_a | θd_a | $\theta = 1.59815^\circ$ (0.027893 radian) $s_a = 1.03762$ |

4.6 Profile Shifted Spur Gear

Figure 4-8 shows the meshing of a pair of profile shifted gears. The key items in profile shifted gears are the operating (working) pitch diameters (d_w) and the working (operating) pressure angle (α_w). These values are obtainable from the operating (or i.e., actual) center distance and the following formulas:

$$\left. \begin{aligned} d_{w1} &= 2a_x \frac{z_1}{z_1 + z_2} \\ d_{w2} &= 2a_x \frac{z_2}{z_1 + z_2} \\ \alpha_w &= \cos^{-1}\left(\frac{d_{b1} + d_{b2}}{2a_x}\right) \end{aligned} \right\} \quad (4-5)$$

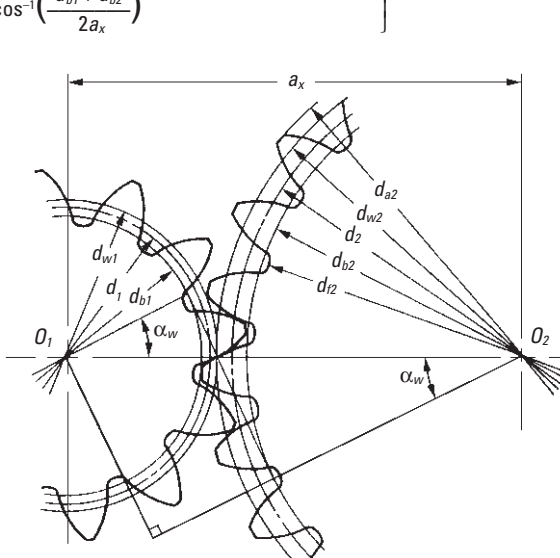


Fig. 4-8 The Meshing of Profile Shifted Gears
($\alpha = 20^\circ, z_1 = 12, z_2 = 24, x_1 = +0.6, x_2 = +0.36$)



In the meshing of profile shifted gears, it is the operating pitch circles that are in contact and roll on each other that portrays gear action. The standard pitch circles no longer are of significance; and the operating pressure angle is what matters.

A standard spur gear is, according to **Table 4-4**, a profile shifted gear with 0 coefficient of shift; that is, $x_1 = x_2 = 0$.

Table 4-4 The Calculation of Positive Shifted Gear (1)

| No. | Item | Symbol | Formula | Example | |
|-----|----------------------------------|------------------------|---|----------|---------|
| | | | | Pinion | Gear |
| 1 | Module | m | | 3 | |
| 2 | Pressure Angle | α | | 20° | |
| 3 | Number of Teeth | Z_1, Z_2 | | 12 | 24 |
| 4 | Coefficient of Profile Shift | x_1, x_2 | | 0.6 | 0.36 |
| 5 | Involute Function α_w | $\text{inv } \alpha_w$ | $2 \tan \alpha \left(\frac{x_1 + x_2}{Z_1 + Z_2} \right) + \text{inv } \alpha$ | 0.034316 | |
| 6 | Working Pressure Angle | α_w | Find from Involute Function Table | 26.0886° | |
| 7 | Center Distance Increment Factor | y | $\frac{Z_1 + Z_2}{2} \left(\frac{\cos \alpha}{\cos \alpha_w} - 1 \right)$ | 0.83329 | |
| 8 | Center Distance | a_x | $\left(\frac{Z_1 + Z_2}{2} + y \right) m$ | 56.4999 | |
| 9 | Pitch Diameter | d | zm | 36.000 | 72.000 |
| 10 | Base Diameter | d_b | $d \cos \alpha$ | 33.8289 | 67.6579 |
| 11 | Working Pitch Diameter | d_w | $\frac{d_b}{\cos \alpha_w}$ | 37.667 | 75.333 |
| 12 | Addendum | h_{a1} h_{a2} | $(1 + y - x_2)m$ $(1 + y - x_1)m$ | 4.420 | 3.700 |
| 13 | Whole Depth | h | $[2.25 + y - (x_1 + x_2)]m$ | 6.370 | |
| 14 | Outside Diameter | d_a | $d + 2h_a$ | 44.840 | 79.400 |
| 15 | Root Diameter | d_f | $d_a - 2h$ | 32.100 | 66.660 |

Table 4-5 is the inverse formula of items from 4 to 8 of **Table 4-4**.

Table 4-5 The Calculation of Positive Shifted Gear (2)

| No. | Item | Symbol | Formula | Example |
|-----|-------------------------------------|-------------|---|--------------------|
| 1 | Center Distance | a_x | | 56.4999 |
| 2 | Center Distance Increment Factor | y | $\frac{a_x}{m} - \frac{Z_1 + Z_2}{2}$ | 0.8333 |
| 3 | Working Pressure Angle | α_w | $\cos^{-1} \left[\frac{(Z_1 + Z_2) \cos \alpha}{2y + Z_1 + Z_2} \right]$ | 26.0886° |
| 4 | Sum of Coefficient of Profile Shift | $x_1 + x_2$ | $\frac{(Z_1 + Z_2) (\text{inv } \alpha_w - \text{inv } \alpha)}{2 \tan \alpha}$ | 0.9600 |
| 5 | Coefficient of Profile Shift | x_1, x_2 | | 0.6000 0.3600 |



There are several theories concerning how to distribute the sum of coefficient of profile shift, $(x_1 + x_2)$ into pinion, (x_1) and gear, (x_2) separately. BSS (British) and DIN (German) standards are the most often used. In the example above, the 12 tooth pinion was given sufficient correction to prevent undercut, and the residual profile shift was given to the mating gear.

4.7 Rack And Spur Gear

Table 4-6 presents the method for calculating the mesh of a rack and spur gear. Figure 4-9a shows the pitch circle of a standard gear and the pitch line of the rack.

One rotation of the spur gear will displace the rack (l) one circumferential length of the gear's pitch circle, per the formula:

$$l = \pi m z \tag{4-6}$$

Figure 4-9b shows a profile shifted spur gear, with positive correction xm , meshed with a rack. The spur gear has a larger pitch radius than standard, by the amount xm . Also, the pitch line of the rack has shifted outward by the amount xm .

Table 4-6 presents the calculation of a meshed profile shifted spur gear and rack. If the correction factor x_j is 0, then it is the case of a standard gear meshed with the rack.

The rack displacement, l , is not changed in any way by the profile shifting. Equation (4-6) remains applicable for any amount of profile shift.

Table 4-6 The Calculation of Dimensions of a Profile Shifted Spur Gear and a Rack

| No. | Item | Symbol | Formula | Example | |
|-----|------------------------------|------------|-----------------------------|-----------|--------|
| | | | | Spur Gear | Rack |
| 1 | Module | m | | 3 | |
| 2 | Pressure Angle | α | | 20° | |
| 3 | Number of Teeth | z | | 12 | — |
| 4 | Coefficient of Profile Shift | x | | 0.6 | |
| 5 | Height of Pitch Line | H | | — | 32.000 |
| 6 | Working Pressure Angle | α_w | | 20° | |
| 7 | Center Distance | a_x | $\frac{zm}{2} + H + xm$ | 51.800 | |
| 8 | Pitch Diameter | d | zm | 36.000 | — |
| 9 | Base Diameter | d_b | $d \cos \alpha$ | 33.829 | |
| 10 | Working Pitch Diameter | d_w | $\frac{d_b}{\cos \alpha_w}$ | 36.000 | |
| 11 | Addendum | h_a | $m(1 + x)$ | 4.800 | 3.000 |
| 12 | Whole Depth | h | $2.25m$ | 6.750 | |
| 13 | Outside Diameter | d_a | $d + 2h_a$ | 45.600 | — |
| 14 | Root Diameter | d_f | $d_a - 2h$ | 32.100 | |

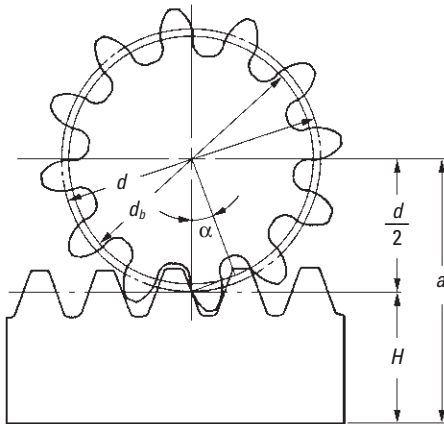


Fig. 4-9a The Meshing of Standard Spur Gear and Rack
 ($\alpha = 20^\circ, z_1 = 12, x_1 = 0$)

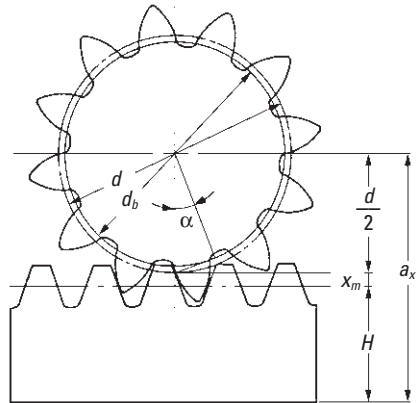


Fig. 4-9b The Meshing of Profile Shifted Spur Gear and Rack
 ($\alpha = 20^\circ, z_1 = 12, x_1 = +0.6$)

SECTION 5 INTERNAL GEARS

5.1 Internal Gear Calculations

Calculation of a Profile Shifted Internal Gear

Figure 5-1 presents the mesh of an internal gear and external gear. Of vital importance is the operating (working) pitch diameters, d_w , and operating (working) pressure angle, α_w . They can be derived from center distance, a_x and **Equations (5-1)**.

$$\left. \begin{aligned}
 d_{w1} &= 2a_x \left(\frac{z_1}{z_2 - z_1} \right) \\
 d_{w2} &= 2a_x \left(\frac{z_2}{z_2 - z_1} \right) \\
 \alpha_w &= \cos^{-1} \left(\frac{d_{b2} - d_{b1}}{2a_x} \right)
 \end{aligned} \right\} \quad (5-1)$$

Table 5-1 shows the calculation steps. It will become a standard gear calculation if $x_1 = x_2 = 0$.

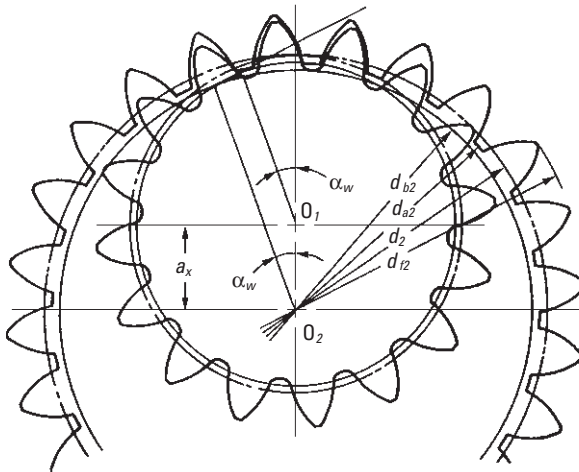


Fig. 5-1 The Meshing of Internal Gear and External Gear
 ($\alpha = 20^\circ$, $z_1 = 16$, $z_2 = 24$, $x_1 = x_2 = 0.5$)

Table 5-1 The Calculation of a Profile Shifted Internal Gear and External Gear (1)

| No. | Item | Symbol | Formula | Example | |
|-----|----------------------------------|------------------------|---|-------------------|-------------------|
| | | | | External Gear (1) | Internal Gear (2) |
| 1 | Module | m | | 3 | |
| 2 | Pressure Angle | α | | 20° | |
| 3 | Number of Teeth | z_1, z_2 | | 16 | 24 |
| 4 | Coefficient of Profile Shift | x_1, x_2 | | 0 | 0.5 |
| 5 | Involute Function α_w | $\text{inv } \alpha_w$ | $2 \tan \alpha \left(\frac{x_2 - x_1}{z_2 - z_1} \right) + \text{inv } \alpha$ | 0.060401 | |
| 6 | Working Pressure Angle | α_w | Find from Involute Function Table | 31.0937° | |
| 7 | Center Distance Increment Factor | y | $\frac{z_2 - z_1}{2} \left(\frac{\cos \alpha}{\cos \alpha_w} - 1 \right)$ | 0.389426 | |
| 8 | Center Distance | a_x | $\left(\frac{z_2 - z_1}{2} + y \right) m$ | 13.1683 | |
| 9 | Pitch Diameter | d | zm | 48.000 | 72.000 |
| 10 | Base Circle Diameter | d_b | $d \cos \alpha$ | 45.105 | 67.658 |
| 11 | Working Pitch Diameter | d_w | $\frac{d_b}{\cos \alpha_w}$ | 52.673 | 79.010 |
| 12 | Addendum | h_{a1} h_{a2} | $(1 + x_1)m$ $(1 - x_2)m$ | 3.000 | 1.500 |
| 13 | Whole Depth | h | $2.25m$ | 6.75 | |
| 14 | Outside Diameter | d_{a1} d_{a2} | $d_1 + 2h_{a1}$ $d_2 - 2h_{a2}$ | 54.000 | 69.000 |
| 15 | Root Diameter | d_{f1} d_{f2} | $d_{a1} - 2h$ $d_{a2} + 2h$ | 40.500 | 82.500 |



If the center distance, a_x , is given, x_1 and x_2 would be obtained from the inverse calculation from item 4 to item 8 of **Table 5-1**. These inverse formulas are in **Table 5-2**.

Pinion cutters are often used in cutting internal gears and external gears. The actual value of tooth depth and root diameter, after cutting, will be slightly different from the calculation. That is because the cutter has a coefficient of shifted profile. In order to get a correct tooth profile, the coefficient of cutter should be taken into consideration.

Table 5-2 The Calculation of Shifted Internal Gear and External Gear (2)

| No. | Item | Symbol | Formula | Example |
|-----|---|-------------|---|----------|
| 1 | Center Distance | a_x | | 13.1683 |
| 2 | Center Distance Increment Factor | y | $\frac{a_x}{m} - \frac{z_2 - z_1}{2}$ | 0.38943 |
| 3 | Working Pressure Angle | α_w | $\cos^{-1} \left[\frac{(z_2 - z_1) \cos \alpha}{2y + z_2 - z_1} \right]$ | 31.0937° |
| 4 | Difference of Coefficients of Profile Shift | $x_2 - x_1$ | $\frac{(z_2 - z_1) (\text{inv } \alpha_w - \text{inv } \alpha)}{2 \tan \alpha}$ | 0.5 |
| 5 | Coefficient of Profile Shift | x_1, x_2 | | 0 0.5 |

5.2 Interference In Internal Gears

Three different types of interference can occur with internal gears:

- (a) Involute Interference
- (b) Trochoid Interference
- (c) Trimming Interference

(a) Involute Interference

This occurs between the dedendum of the external gear and the addendum of the internal gear. It is prevalent when the number of teeth of the external gear is small. Involute interference can be avoided by the conditions cited below:

$$\frac{z_1}{z_2} \geq 1 - \frac{\tan \alpha_{a2}}{\tan \alpha_w} \quad (5-2)$$

where α_{a2} is the pressure angle seen at a tip of the internal gear tooth.

$$\alpha_{a2} = \cos^{-1} \left(\frac{d_{b2}}{d_{a2}} \right) \quad (5-3)$$

and α_w is working pressure angle:

$$\alpha_w = \cos^{-1} \left[\frac{(z_2 - z_1) m \cos \alpha}{2a_x} \right] \quad (5-4)$$

Equation (5-3) is true only if the outside diameter of the internal gear is bigger than the base circle:

$$d_{a2} \geq d_{b2} \quad (5-5)$$

For a standard internal gear, where $\alpha = 20^\circ$, **Equation (5-5)** is valid only if the number of teeth is $z_2 > 34$.



(b) Trochoid Interference

This refers to an interference occurring at the addendum of the external gear and the dedendum of the internal gear during recess tooth action. It tends to happen when the difference between the numbers of teeth of the two gears is small. **Equation (5-6)** presents the condition for avoiding trochoidal interference.

$$\theta_1 \frac{z_1}{z_2} + \text{inv } \alpha_w - \text{inv } \alpha_{a2} \geq \theta_2 \tag{5-6}$$

Here

$$\left. \begin{aligned} \theta_1 &= \cos^{-1} \left(\frac{r_{a2}^2 - r_{a1}^2 - a^2}{2ar_{a1}} \right) + \text{inv } \alpha_{a1} - \text{inv } \alpha_w \\ \theta_2 &= \cos^{-1} \left(\frac{a^2 + r_{a2}^2 - r_a^2}{2ar_{a2}} \right) \end{aligned} \right\} \tag{5-7}$$

where α_{a1} is the pressure angle of the spur gear tooth tip:

$$\alpha_{a1} = \cos^{-1} \left(\frac{d_{b1}}{d_{a1}} \right) \tag{5-8}$$

In the meshing of an external gear and a standard internal gear $\alpha = 20^\circ$, trochoid interference is avoided if the difference of the number of teeth, $z_1 - z_2$, is larger than 9.

(c) Trimming Interference

This occurs in the radial direction in that it prevents pulling the gears apart. Thus, the mesh must be assembled by sliding the gears together with an axial motion. It tends to happen when the numbers of teeth of the two gears are very close. **Equation (5-9)** indicates how to prevent this type of interference.

$$\theta_1 + \text{inv } \alpha_{a1} - \text{inv } \alpha_w \geq \frac{z_2}{z_1} (\theta_2 + \text{inv } \alpha_{a2} - \text{inv } \alpha_w) \tag{5-9}$$

Here

$$\left. \begin{aligned} \theta_1 &= \sin^{-1} \sqrt{\frac{1 - (\cos \alpha_{a1} / \cos \alpha_{a2})^2}{1 - (z_1/z_2)^2}} \\ \theta_2 &= \sin^{-1} \sqrt{\frac{(\cos \alpha_{a2} / \cos \alpha_{a1})^2 - 1}{(z_2/z_1)^2 - 1}} \end{aligned} \right\} \tag{5-10}$$

This type of interference can occur in the process of cutting an internal gear with a pinion cutter. Should that happen, there is danger of breaking the tooling. **Table 5-3a** shows the limit for the pinion cutter to prevent trimming interference when cutting a standard internal gear, with pressure angle 20° , and no profile shift, i.e., $x_c = 0$.

Table 5-3a The Limit to Prevent an Internal Gear from Trimming Interference

$(\alpha = 20^\circ, x_c = x_2 = 0)$

| | | | | | | | | | | | |
|-------|----|----|----|----|----|----|----|----|-----|-----|----|
| z_c | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 24 | 25 | 27 |
| z_2 | 34 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 42 | 43 | 45 |
| z_c | 28 | 30 | 31 | 32 | 33 | 34 | 35 | 38 | 40 | 42 | |
| z_2 | 46 | 48 | 49 | 50 | 51 | 52 | 53 | 56 | 58 | 60 | |
| z_c | 44 | 48 | 50 | 56 | 60 | 64 | 66 | 80 | 96 | 100 | |
| z_2 | 62 | 66 | 68 | 74 | 78 | 82 | 84 | 98 | 114 | 118 | |



There will be an involute interference between the internal gear and the pinion cutter if the number of teeth of the pinion cutter ranges from 15 to 22 ($z_c = 15$ to 22). **Table 5-3b** shows the limit for a profile shifted pinion cutter to prevent trimming interference while cutting a standard internal gear. The correction, x_c , is the magnitude of shift which was assumed to be: $x_c = 0.0075 z_c + 0.05$.

Table 5-3b The Limit to Prevent an Internal Gear from Trimming Interference
($\alpha = 20^\circ, x_2 = 0$)

| | | | | | | | | | | | |
|-------|--------|-------|--------|-------|--------|-------|--------|-------|------|--------|--------|
| z_c | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 24 | 25 | 27 |
| x_c | 0.1625 | 0.17 | 0.1775 | 0.185 | 0.1925 | 0.2 | 0.2075 | 0.215 | 0.23 | 0.2375 | 0.2525 |
| z_2 | 36 | 38 | 39 | 40 | 41 | 42 | 43 | 45 | 47 | 48 | 50 |
| z_c | 28 | 30 | 31 | 32 | 33 | 34 | 35 | 38 | 40 | 42 | |
| x_c | 0.26 | 0.275 | 0.2825 | 0.29 | 0.2975 | 0.305 | 0.3125 | 0.335 | 0.35 | 0.365 | |
| z_2 | 52 | 54 | 55 | 56 | 58 | 59 | 60 | 64 | 66 | 68 | |
| z_c | 44 | 48 | 50 | 56 | 60 | 64 | 66 | 80 | 96 | 100 | |
| x_c | 0.38 | 0.41 | 0.425 | 0.47 | 0.5 | 0.53 | 0.545 | 0.65 | 0.77 | 0.8 | |
| z_2 | 71 | 76 | 78 | 86 | 90 | 95 | 98 | 115 | 136 | 141 | |

There will be an involute interference between the internal gear and the pinion cutter if the number of teeth of the pinion cutter ranges from 15 to 19 ($z_c = 15$ to 19).

5.3 Internal Gear With Small Differences In Numbers Of Teeth

In the meshing of an internal gear and an external gear, if the difference in numbers of teeth of two gears is quite small, a profile shifted gear could prevent the interference. **Table 5-4** is an example of how to prevent interference under the conditions of $z_2 = 50$ and the difference of numbers of teeth of two gears ranges from 1 to 8.

Table 5-4 The Meshing of Internal and External Gears of Small Difference of Numbers of Teeth ($m = 1, \alpha = 20^\circ$)

| | | | | | | | | |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|
| z_1 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 |
| x_1 | 0 | | | | | | | |
| z_2 | 50 | | | | | | | |
| x_2 | 1.00 | 0.60 | 0.40 | 0.30 | 0.20 | 0.11 | 0.06 | 0.01 |
| α_w | 61.0605° | 46.0324° | 37.4155° | 32.4521° | 28.2019° | 24.5356° | 22.3755° | 20.3854° |
| a | 0.971 | 1.354 | 1.775 | 2.227 | 2.666 | 3.099 | 3.557 | 4.010 |
| ϵ | 1.105 | 1.512 | 1.726 | 1.835 | 1.933 | 2.014 | 2.053 | 2.088 |

All combinations above will not cause involute interference or trochoid interference, but trimming interference is still there. In order to assemble successfully, the external gear should be assembled by inserting in the axial direction.

A profile shifted internal gear and external gear, in which the difference of numbers of teeth is small, belong to the field of hypocyclic mechanism, which can produce a large reduction ratio in one step, such as 1/100.

$$\text{Speed Ratio} = \frac{z_2 - z_1}{z_1} \quad (5-11)$$

In **Figure 5-2** the gear train has a difference of numbers of teeth of only 1; $z_1 = 30$ and $z_2 = 31$. This results in a reduction ratio of $1/30$.

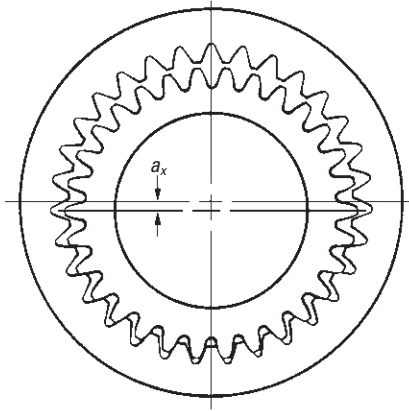


Fig. 5-2 The Meshing of Internal Gear and External Gear in which the Numbers of Teeth Difference is 1
($z_2 - z_1 = 1$)

SECTION 6 HELICAL GEARS

The helical gear differs from the spur gear in that its teeth are twisted along a helical path in the axial direction. It resembles the spur gear in the plane of rotation, but in the axial direction it is as if there were a series of staggered spur gears. See **Figure 6-1**. This design brings forth a number of different features relative to the spur gear, two of the most important being as follows:

1. Tooth strength is improved because of the elongated helical wraparound tooth base support.
2. Contact ratio is increased due to the axial tooth overlap. Helical gears thus tend to have greater load carrying capacity than spur gears of the same size. Spur gears, on the other hand, have a somewhat higher efficiency.

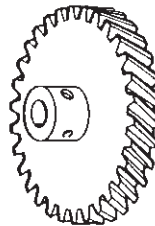


Fig. 6-1 Helical Gear

Helical gears are used in two forms:

1. Parallel shaft applications, which is the largest usage.
2. Crossed-helicals (also called spiral or screw gears) for connecting skew shafts, usually at right angles.



6.1 Generation Of The Helical Tooth

The helical tooth form is involute in the plane of rotation and can be developed in a manner similar to that of the spur gear. However, unlike the spur gear which can be viewed essentially as two dimensional, the helical gear must be portrayed in three dimensions to show changing axial features.

Referring to **Figure 6-2**, there is a base cylinder from which a taut plane is unwrapped, analogous to the unwinding taut string of the spur gear in **Figure 2-2**. On the plane there is a straight line AB, which when wrapped on the base cylinder has a helical trace A_0B_0 . As the taut plane is unwrapped, any point on the line AB can be visualized as tracing an involute from the base cylinder. Thus, there is an infinite series of involutes generated by line AB, all alike, but displaced in phase along a helix on the base cylinder.

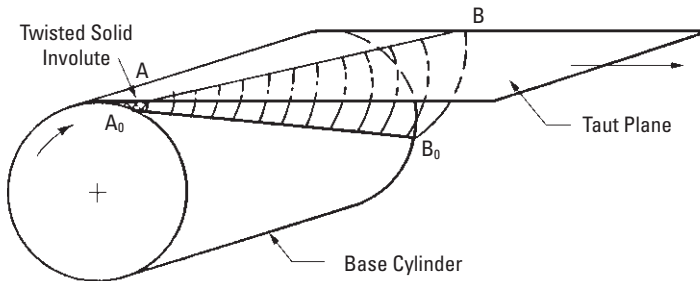


Fig. 6-2 Generation of the Helical Tooth Profile

Again, a concept analogous to the spur gear tooth development is to imagine the taut plane being wound from one base cylinder on to another as the base cylinders rotate in opposite directions. The result is the generation of a pair of conjugate helical involutes. If a reverse direction of rotation is assumed and a second tangent plane is arranged so that it crosses the first, a complete involute helicoid tooth is formed.

6.2 Fundamentals Of Helical Teeth

In the plane of rotation, the helical gear tooth is involute and all of the relationships governing spur gears apply to the helical. However, the axial twist of the teeth introduces a helix angle. Since the helix angle varies from the base of the tooth to the outside radius, the helix angle β is defined as the angle between the tangent to the helicoidal tooth at the intersection of the pitch cylinder and the tooth profile, and an element of the pitch cylinder. See **Figure 6-3**.

The direction of the helical twist is designated as either left or right. The direction is defined by the right-hand rule.

For helical gears, there are two related pitches – one in the plane of rotation and the other in a plane normal to the tooth. In addition, there is an axial pitch.

Referring to **Figure 6-4**, the two circular pitches are defined and related as follows:

$$p_n = p_t \cos \beta = \text{normal circular pitch} \quad (6-1)$$

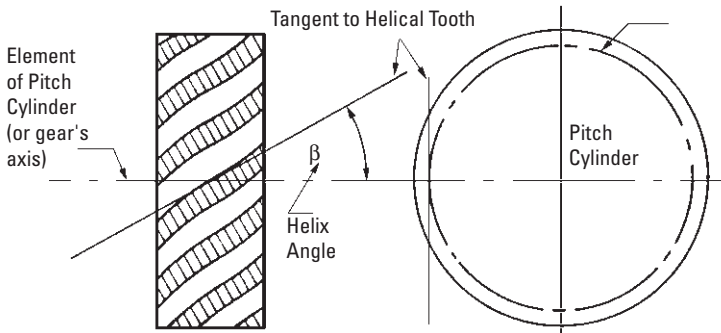


Fig. 6-3 Definition of Helix Angle

The normal circular pitch is less than the transverse radial pitch, p_t , in the plane of rotation; the ratio between the two being equal to the cosine of the helix angle. Consistent with this, the normal module is less than the transverse (radial) module.

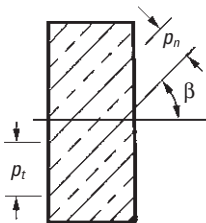


Fig. 6-4 Relationship of Circular Pitches

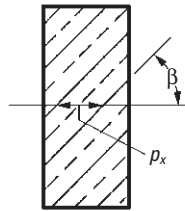


Fig. 6-5 Axial Pitch of a Helical Gear

The axial pitch of a helical gear, p_x , is the distance between corresponding points of adjacent teeth measured parallel to the gear's axis – see **Figure 6-5**. Axial pitch is related to circular pitch by the expressions:

$$p_x = p_t \cot \beta = \frac{p_n}{\sin \beta} = \text{axial pitch} \quad (6-2)$$

A helical gear such as shown in **Figure 6-6** is a cylindrical gear in which the teeth flank are helicoid. The helix angle in standard pitch circle cylinder is β , and the displacement of one rotation is the lead, L .

The tooth profile of a helical gear is an involute curve from an axial view, or in the plane perpendicular to the axis. The helical gear has two kinds of tooth profiles – one is based on a normal system, the other is based on an axial system.

Circular pitch measured perpendicular to teeth is called normal circular pitch, p_n . And p_n divided by π is then a normal module, m_n .

$$m_n = \frac{p_n}{\pi} \quad (6-3)$$

The tooth profile of a helical gear with applied normal module, m_n , and normal pressure angle α_n belongs to a normal system.

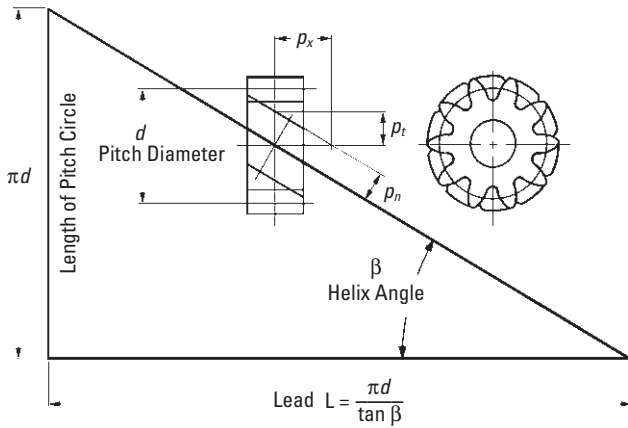


Fig. 6-6 Fundamental Relationship of a Helical Gear (Right-Hand)

In the axial view, the circular pitch on the standard pitch circle is called the radial circular pitch, p_t . And p_t divided by π is the radial module, m_t .

$$m_t = \frac{p_t}{\pi} \tag{6-4}$$

6.3 Equivalent Spur Gear

The true involute pitch and involute geometry of a helical gear is in the plane of rotation. However, in the normal plane, looking at one tooth, there is a resemblance to an involute tooth of a pitch corresponding to the normal pitch. However, the shape of the tooth corresponds to a spur gear of a larger number of teeth, the exact value depending on the magnitude of the helix angle.

The geometric basis of deriving the number of teeth in this equivalent tooth form spur gear is given in **Figure 6-7**. The result of the transposed geometry is an equivalent number of teeth, given as:

$$z_v = \frac{z}{\cos^3 \beta} \tag{6-5}$$

This equivalent number is also called a virtual number because this spur gear is imaginary. The value of this number is used in determining helical tooth strength.

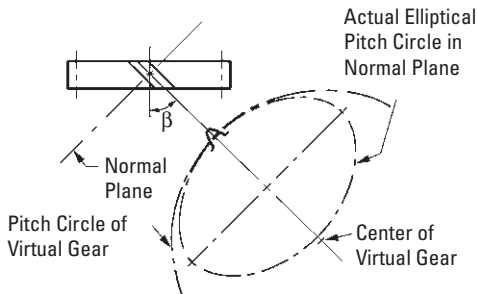


Fig. 6-7 Geometry of Helical Gear's Virtual Number of Teeth

6.4 Helical Gear Pressure Angle

Although, strictly speaking, pressure angle exists only for a gear pair, a nominal pressure angle can be considered for an individual gear. For the helical gear there is a normal pressure, α_n , angle as well as the usual pressure angle in the plane of rotation, α . Figure 6-8 shows their relationship, which is expressed as:

$$\tan \alpha = \frac{\tan \alpha_n}{\cos \beta} \quad (6-6)$$

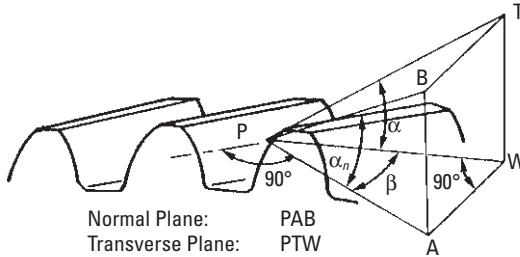


Fig. 6-8 Geometry of Two Pressure Angles

6.5 Importance Of Normal Plane Geometry

Because of the nature of tooth generation with a rack-type hob, a single tool can generate helical gears at all helix angles as well as spur gears. However, this means the normal pitch is the common denominator, and usually is taken as a standard value. Since the true involute features are in the transverse plane, they will differ from the standard normal values. Hence, there is a real need for relating parameters in the two reference planes.

6.6 Helical Tooth Proportions

These follow the same standards as those for spur gears. Addendum, dedendum, whole depth and clearance are the same regardless of whether measured in the plane of rotation or the normal plane. Pressure angle and pitch are usually specified as standard values in the normal plane, but there are times when they are specified as standard in the transverse plane.

6.7 Parallel Shaft Helical Gear Meshes

Fundamental information for the design of gear meshes is as follows:

Helix angle – Both gears of a meshed pair must have the same helix angle. However, the helix direction must be opposite; i.e., a left-hand mates with a right-hand helix.

Pitch diameter – This is given by the same expression as for spur gears, but if the normal module is involved it is a function of the helix angle. The expressions are:

$$d = z m_t = \frac{z}{m_n \cos \beta} \quad (6-7)$$



Center distance – Utilizing **Equation (6-7)**, the center distance of a helical gear mesh is:

$$a = \frac{z_1 + z_2}{2 m_n \cos \beta} \quad (6-8)$$

Note that for standard parameters in the normal plane, the center distance will not be a standard value compared to standard spur gears. Further, by manipulating the helix angle, β , the center distance can be adjusted over a wide range of values. Conversely, it is possible:

1. to compensate for significant center distance changes (or errors) without changing the speed ratio between parallel geared shafts; and
2. to alter the speed ratio between parallel geared shafts, without changing the center distance, by manipulating the helix angle along with the numbers of teeth.

6.8 Helical Gear Contact Ratio

The contact ratio of helical gears is enhanced by the axial overlap of the teeth. Thus, the contact ratio is the sum of the transverse contact ratio, calculated in the same manner as for spur gears, and a term involving the axial pitch.

$$\left. \begin{aligned} (\epsilon)_{\text{total}} &= (\epsilon)_{\text{trans}} + (\epsilon)_{\text{axial}} \\ \text{or} \\ \epsilon_r &= \epsilon_\alpha + \epsilon_\beta \end{aligned} \right\} \quad (6-9)$$

Details of contact ratio of helical gearing are given later in a general coverage of the subject; see **SECTION 11.1**.

6.9 Design Considerations

6.9.1 Involute Interference

Helical gears cut with standard normal pressure angles can have considerably higher pressure angles in the plane of rotation – see **Equation (6-6)** – depending on the helix angle. Therefore, the minimum number of teeth without undercutting can be significantly reduced, and helical gears having very low numbers of teeth without undercutting are feasible.

6.9.2 Normal Vs. Radial Module (Pitch)

In the normal system, helical gears can be cut by the same gear hob if module m_n and pressure angle α_n are constant, no matter what the value of helix angle β .

It is not that simple in the radial system. The gear hob design must be altered in accordance with the changing of helix angle β , even when the module m_t and the pressure angle α_t are the same.

Obviously, the manufacturing of helical gears is easier with the normal system than with the radial system in the plane perpendicular to the axis.

6.10 Helical Gear Calculations

6.10.1 Normal System Helical Gear



In the normal system, the calculation of a profile shifted helical gear, the working pitch diameter d_w and working pressure angle α_{wt} in the axial system is done per **Equations (6-10)**. That is because meshing of the helical gears in the axial direction is just like spur gears and the calculation is similar.

$$\left. \begin{aligned} d_{w1} &= 2a_x \frac{z_1}{z_1 + z_2} \\ d_{w2} &= 2a_x \frac{z_2}{z_1 + z_2} \\ \alpha_{wt} &= \cos^{-1} \left(\frac{d_{b1} + d_{b2}}{2a_x} \right) \end{aligned} \right\} \quad (6-10)$$

Table 6-1 shows the calculation of profile shifted helical gears in the normal system. If normal coefficients of profile shift x_{n1} , x_{n2} are zero, they become standard gears.

Table 6-1 The Calculation of a Profile Shifted Helical Gear in the Normal System (1)

| No. | Item | Symbol | Formula | Example | |
|-----|-------------------------------------|---------------------------|--|-----------|---------|
| | | | | Pinion | Gear |
| 1 | Normal Module | m_n | | 3 | |
| 2 | Normal Pressure Angle | α_n | | 20° | |
| 3 | Helix Angle | β | | 30° | |
| 4 | Number of Teeth & Helical Hand | z_1, z_2 | | 12 (L) | 60 (R) |
| 5 | Radial Pressure Angle | α_t | $\tan^{-1} \left(\frac{\tan \alpha_n}{\cos \beta} \right)$ | 22.79588° | |
| 6 | Normal Coefficient of Profile Shift | x_{n1}, x_{n2} | | 0.09809 | 0 |
| 7 | Involute Function α_{wt} | $\text{inv } \alpha_{wt}$ | $2 \tan \alpha_n \left(\frac{x_{n1} + x_{n2}}{z_1 + z_2} \right) + \text{inv } \alpha_t$ | 0.023405 | |
| 8 | Radial Working Pressure Angle | α_{wt} | Find from Involute Function Table | 23.1126° | |
| 9 | Center Distance Increment Factor | y | $\frac{z_1 + z_2}{2 \cos \beta} \left(\frac{\cos \alpha_t}{\cos \alpha_{wt}} - 1 \right)$ | 0.09744 | |
| 10 | Center Distance | a_x | $\left(\frac{z_1 + z_2}{2 \cos \beta} + y \right) m_n$ | 125.000 | |
| 11 | Standard Pitch Diameter | d | $\frac{zm_n}{\cos \beta}$ | 41.569 | 207.846 |
| 12 | Base Diameter | d_b | $d \cos \alpha_t$ | 38.322 | 191.611 |
| 13 | Working Pitch Diameter | h_{a1} | $\frac{d_b}{\cos \alpha_{wt}}$ | 41.667 | 208.333 |
| 14 | Addendum | h_{a2} | $\frac{(1 + y - x_{n2}) m_n}{(1 + y - x_{n1}) m}$ | 3.292 | 2.998 |
| 15 | Whole Depth | h | $[2.25 + y - (x_{n1} + x_{n2})] m_n$ | 6.748 | |
| 16 | Outside Diameter | d_a | $d + 2 h_a$ | 48.153 | 213.842 |
| 17 | Root Diameter | d_f | $d_b - 2 h$ | 34.657 | 200.346 |

If center distance, a_x , is given, the normal coefficient of profile shift x_{n1} and x_{n2} can be calculated from **Table 6-2**. These are the inverse equations from items 4 to 10 of **Table 6-1**.

Table 6-2 The Calculations of a Profile Shifted Helical Gear in the Normal System (2)

| No. | Item | Symbol | Formula | Example |
|-----|-------------------------------------|-------------------|---|-------------|
| 1 | Center Distance | a_x | | 125 |
| 2 | Center Distance Increment Factor | y | $\frac{a_x}{m_n} - \frac{z_1 + z_2}{2 \cos \beta}$ | 0.097447 |
| 3 | Radial Working Pressure Angle | α_{wt} | $\cos^{-1} \left[\frac{(z_1 + z_2) \cos \alpha_t}{(z_1 + z_2) + 2 y \cos \beta} \right]$ | 23.1126° |
| 4 | Sum of Coefficient of Profile Shift | $x_{n1} + x_{n2}$ | $\frac{(z_1 + z_2)(\text{inv } \alpha_{wt} - \text{inv } \alpha_t)}{2 \tan \alpha_n}$ | 0.09809 |
| 5 | Normal Coefficient of Profile Shift | $x_{n1} + x_{n2}$ | | 0.09809 0 |

The transformation from a normal system to a radial system is accomplished by the following equations:

$$\left. \begin{aligned} x_t &= x_n \cos \beta \\ m_t &= \frac{m_n}{\cos \beta} \\ \alpha_t &= \tan^{-1} \left(\frac{\tan \alpha_n}{\cos \beta} \right) \end{aligned} \right\} \quad (6-11)$$

6.10.2 Radial System Helical Gear

Table 6-3 shows the calculation of profile shifted helical gears in a radial system. They become standard if $x_{t1} = x_{t2} = 0$.

Table 6-3 The Calculation of a Profile Shifted Helical Gear in the Radial System (1)

| No. | Item | Symbol | Formula | Example | |
|-----|-------------------------------------|---------------------------|---|-----------|----------|
| | | | | Pinion | Gear |
| 1 | Radial Module | m_t | | 3 | |
| 2 | Radial Pressure Angle | α_t | | 20° | |
| 3 | Helix Angle | β | | 30° | |
| 4 | Number of Teeth & Helical Hand | z_1, z_2 | | 12 (L) | 60 (R) |
| 5 | Radial Coefficient of Profile Shift | x_{t1}, x_{t2} | | 0.34462 | 0 |
| 6 | Involute Function α_{wt} | $\text{inv } \alpha_{wt}$ | $2 \tan \alpha_t \left(\frac{x_{t1} + x_{t2}}{z_1 + z_2} \right) + \text{inv } \alpha_t$ | 0.0183886 | |
| 7 | Radial Working Pressure Angle | α_{wt} | Find from Involute Function Table | 21.3975° | |
| 8 | Center Distance Increment Factor | y | $\frac{z_1 + z_2}{2} \left(\frac{\cos \alpha_t}{\cos \alpha_{wt}} - 1 \right)$ | 0.33333 | |
| 9 | Center Distance | a_x | $\left(\frac{z_1 + z_2}{2} + y \right) m_t$ | 109.0000 | |
| 10 | Standard Pitch Diameter | d | $z m_t$ | 36.000 | 180.000 |
| 11 | Base Diameter | d_b | $d \cos \alpha_t$ | 33.8289 | 169.1447 |
| 12 | Working Pitch Diameter | d_w | $\frac{d_b}{\cos \alpha_{wt}}$ | 36.3333 | 181.6667 |
| 13 | Addendum | h_{a1} h_{a2} | $(1 + y - x_{t2}) m_t$ $(1 + y - x_{t1}) m_t$ | 4.000 | 2.966 |
| 14 | Whole Depth | h | $[2.25 + y - (x_{t1} + x_{t2})] m_t$ | 6.716 | |
| 15 | Outside Diameter | d_o | $d + 2 h_a$ | 44.000 | 185.932 |
| 16 | Root Diameter | d_f | $d_o - 2 h$ | 30.568 | 172.500 |

Table 6-4 presents the inverse calculation of items 5 to 9 of Table 6-3.

Table 6-4 The Calculation of a Shifted Helical Gear in the Radial System (2)

| No. | Item | Symbol | Formula | Example |
|-----|-------------------------------------|-------------------|---|-------------|
| 1 | Center Distance | a_x | | 109 |
| 2 | Center Distance Increment Factor | y | $\frac{a_x}{m_t} - \frac{z_1 + z_2}{2}$ | 0.33333 |
| 3 | Radial Working Pressure Angle | α_{wt} | $\cos^{-1} \left[\frac{(z_1 + z_2) \cos \alpha_t}{(z_1 + z_2) + 2y} \right]$ | 21.39752° |
| 4 | Sum of Coefficient of Profile Shift | $x_{t1} + x_{t2}$ | $\frac{(z_1 + z_2)(\text{inv } \alpha_{wt} - \text{inv } \alpha_t)}{2 \tan \alpha_n}$ | 0.34462 |
| 5 | Normal Coefficient of Profile Shift | x_{t1}, x_{t2} | | 0.34462 0 |

The transformation from a radial to a normal system is described by the following equations:

$$\left. \begin{aligned} x_n &= \frac{x_t}{\cos \beta} \\ m_n &= m_t \cos \beta \\ \alpha_n &= \tan^{-1} (\tan \alpha_t \cos \beta) \end{aligned} \right\} \quad (6-12)$$

6.10.3 Sunderland Double Helical Gear

A representative application of radial system is a double helical gear, or herringbone gear, made with the Sunderland machine. The radial pressure angle, α_t , and helix angle, β , are specified as 20° and 22.5°, respectively. The only differences from the radial system equations of Table 6-3 are those for addendum and whole depth. Table 6-5 presents equations for a Sunderland gear.

Table 6-5 The Calculation of a Double Helical Gear of SUNDERLAND Tooth Profile

| No. | Item | Symbol | Formula | Example | |
|-----|-------------------------------------|---------------------------|---|-----------|----------|
| | | | | Pinion | Gear |
| 1 | Radial Module | m_t | | 3 | |
| 2 | Radial Pressure Angle | α_t | | 20° | |
| 3 | Helix Angle | β | | 22.5° | |
| 4 | Number of Teeth | z_1, z_2 | | 12 | 60 |
| 5 | Radial Coefficient of Profile Shift | x_{t1}, x_{t2} | | 0.34462 | 0 |
| 6 | Involute Function α_{wt} | $\text{inv } \alpha_{wt}$ | $2 \tan \alpha_t \left(\frac{x_{t1} + x_{t2}}{z_1 + z_2} \right) + \text{inv } \alpha_t$ | 0.0183886 | |
| 7 | Radial Working Pressure Angle | α_{wt} | Find from Involute Function Table | 21.3975° | |
| 8 | Center Distance Increment Factor | y | $\frac{z_1 + z_2}{2} \left(\frac{\cos \alpha_t}{\cos \alpha_{wt}} - 1 \right)$ | 0.33333 | |
| 9 | Center Distance | a_x | $\left(\frac{z_1 + z_2}{2} + y \right) m_t$ | 109.0000 | |
| 10 | Standard Pitch Diameter | d | $z m_t$ | 36.000 | 180.000 |
| 11 | Base Diameter | d_b | $d \cos \alpha_t$ | 33.8289 | 169.1447 |
| 12 | Working Pitch Diameter | d_w | $\frac{d_b}{\cos \alpha_{wt}}$ | 36.3333 | 181.6667 |
| 13 | Addendum | h_{a1} h_{a2} | $(0.8796 + y - x_{t2}) m_t$ $(0.8796 + y - x_{t1}) m_t$ | 3.639 | 2.605 |
| 14 | Whole Depth | h | $[1.8849 + y - (x_{t1} + x_{t2})] m_t$ | 5.621 | |
| 15 | Outside Diameter | d_a | $d + 2 h_a$ | 43.278 | 185.210 |
| 16 | Root Diameter | d_f | $d_a - 2 h$ | 32.036 | 173.968 |



6.10.4 Helical Rack

Viewed in the normal direction, the meshing of a helical rack and gear is the same as a spur gear and rack. **Table 6-6** presents the calculation examples for a mated helical rack with normal module and normal pressure angle standard values. Similarly, **Table 6-7** presents examples for a helical rack in the radial system (i.e., perpendicular to gear axis).

Table 6-6 The Calculation of a Helical Rack in the Normal System

| No. | Item | Symbol | Formula | Example | |
|-----|-------------------------------------|------------|--|-------------|-------|
| | | | | Gear | Rack |
| 1 | Normal Module | m_n | | 2.5 | |
| 2 | Normal Pressure Angle | α_n | | 20° | |
| 3 | Helix Angle | β | | 10° 57' 49" | |
| 4 | Number of Teeth & Helical Hand | z | | 20 (R) | – (L) |
| 5 | Normal Coefficient of Profile Shift | x_n | | 0 | – |
| 6 | Pitch Line Height | H | | – | 27.5 |
| 7 | Radial Pressure Angle | α_t | $\tan^{-1}\left(\frac{\tan \alpha_n}{\cos \beta}\right)$ | 20.34160° | |
| 8 | Mounting Distance | a_x | $\frac{zm_n}{2 \cos \beta} + H + x_n m_n$ | 52.965 | |
| 9 | Pitch Diameter | d | $\frac{zm_n}{\cos \beta}$ | 50.92956 | – |
| 10 | Base Diameter | d_b | $d \cos \alpha_t$ | 47.75343 | |
| 11 | Addendum | h_a | $m_n(1 + x_n)$ | 2.500 | 2.500 |
| 12 | Whole Depth | h | $2.25 m_n$ | 5.625 | |
| 13 | Outside Diameter | d_a | $d + 2 h_a$ | 55.929 | – |
| 14 | Root Diameter | d_f | $d_a - 2 h$ | 44.679 | |

Table 6-7 The Calculation of a Helical Rack in the Radial System

| No. | Item | Symbol | Formula | Example | |
|-----|-------------------------------------|------------|--------------------------------|-------------|-------|
| | | | | Gear | Rack |
| 1 | Radial Module | m_t | | 2.5 | |
| 2 | Radial Pressure Angle | α_t | | 20° | |
| 3 | Helix Angle | β | | 10° 57' 49" | |
| 4 | Number of Teeth & Helical Hand | z | | 20 (R) | – (L) |
| 5 | Radial Coefficient of Profile Shift | x_t | | 0 | – |
| 6 | Pitch Line Height | H | | – | 27.5 |
| 7 | Mounting Distance | a_x | $\frac{zm_t}{2} + H + x_t m_t$ | 52.500 | |
| 8 | Pitch Diameter | d | zm_t | 50.000 | – |
| 9 | Base Diameter | d_b | $d \cos \alpha_t$ | 46.98463 | |
| 10 | Addendum | h_a | $m_t(1 + x_t)$ | 2.500 | 2.500 |
| 11 | Whole Depth | h | $2.25 m_t$ | 5.625 | |
| 12 | Outside Diameter | d_a | $d + 2 h_a$ | 55.000 | – |
| 13 | Root Diameter | d_f | $d_a - 2 h$ | 43.750 | |

The formulas of a standard helical rack are similar to those of **Table 6-6** with only the normal coefficient of profile shift $x_n = 0$. To mesh a helical gear to a helical rack, they must have the same helix angle but with opposite hands.

The displacement of the helical rack, l , for one rotation of the mating gear is the product of the radial pitch, p_r , and number of teeth.

$$l = \frac{\pi m_n}{\cos \beta} z = p_r z \tag{6-13}$$

According to the equations of **Table 6-7**, let radial pitch $p_r = 8$ mm and displacement $l = 160$ mm. The radial pitch and the displacement could be modified into integers, if the helix angle were chosen properly.

In the axial system, the linear displacement of the helical rack, l , for one turn of the helical gear equals the integral multiple of radial pitch.

$$l = \pi z m_t \tag{6-14}$$



SECTION 7 SCREW GEAR OR CROSSED HELICAL GEAR MESHES

These helical gears are also known as spiral gears. They are true helical gears and only differ in their application for interconnecting skew shafts, such as in **Figure 7-1**. Screw gears can be designed to connect shafts at any angle, but in most applications the shafts are at right angles.

7.1 Features

7.1.1 Helix Angle And Hands

The helix angles need not be the same. However, their sum must equal the shaft angle:

$$\beta_1 + \beta_2 = \Sigma \tag{7-1}$$

where β_1 and β_2 are the respective helix angles of the two gears, and Σ is the shaft angle (the acute angle between the two shafts when viewed in a direction paralleling a common perpendicular between the shafts).

Except for very small shaft angles, the helix hands are the same.

7.1.2 Module

Because of the possibility of different helix angles for the gear pair, the radial modules may not be the same. However, the normal modules must always be identical.

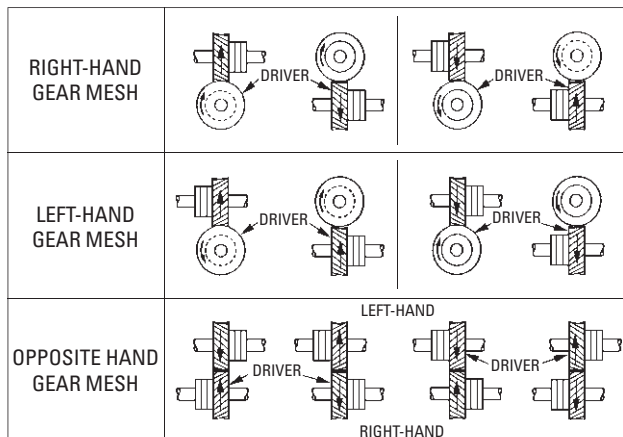


Fig. 7-1 Types of Helical Gear Meshes

NOTES:

1. Helical gears of the same hand operate at right angles.
2. Helical gears of opposite hand operate on parallel shafts.
3. Bearing location indicates the direction of thrust.



7.1.3 Center Distance

The pitch diameter of a crossed-helical gear is given by Equation (6-7), and the center distance becomes:

$$a = \frac{m_n}{2} \left(\frac{z_1}{\cos \beta_1} + \frac{z_2}{\cos \beta_2} \right) \tag{7-2}$$

Again, it is possible to adjust the center distance by manipulating the helix angle. However, helix angles of both gears must be altered consistently in accordance with Equation (7-1).

7.1.4 Velocity Ratio

Unlike spur and parallel shaft helical meshes, the velocity ratio (gear ratio) cannot be determined from the ratio of pitch diameters, since these can be altered by juggling of helix angles. The speed ratio can be determined only from the number of teeth, as follows:

$$\text{velocity ratio} = i = \frac{z_1}{z_2} \tag{7-3}$$

or, if pitch diameters are introduced, the relationship is:

$$i = \frac{z_1 \cos \beta_2}{z_2 \cos \beta_1} \tag{7-4}$$

7.2 Screw Gear Calculations

Two screw gears can only mesh together under the conditions that normal modules, m_{n1} , and m_{n2} , and normal pressure angles, α_{n1} , α_{n2} , are the same. Let a pair of screw gears have the shaft angle Σ and helical angles β_1 and β_2 :

- If they have the same hands, then: $\Sigma = \beta_1 + \beta_2$
- If they have the opposite hands, then: $\Sigma = \beta_1 - \beta_2$, or $\Sigma = \beta_2 - \beta_1$

If the screw gears were profile shifted, the meshing would become a little more complex. Let β_{w1} , β_{w2} represent the working pitch cylinder;

- If they have the same hands, then: $\Sigma = \beta_{w1} + \beta_{w2}$
- If they have the opposite hands, then: $\Sigma = \beta_{w1} - \beta_{w2}$, or $\Sigma = \beta_{w2} - \beta_{w1}$

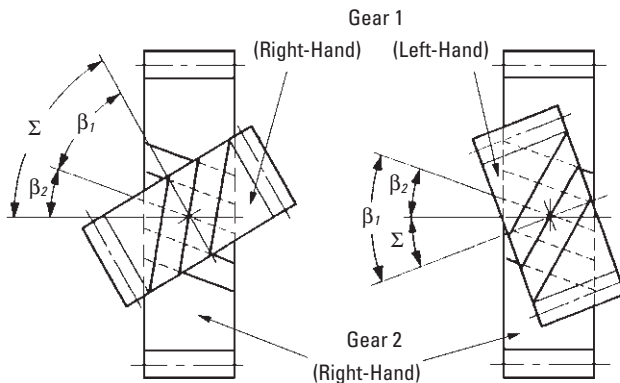


Fig. 7-2 Screw Gears of Nonparallel and Nonintersecting Axes



Table 7-1 presents equations for a profile shifted screw gear pair. When the normal coefficients of profile shift $x_{n1} = x_{n2} = 0$, the equations and calculations are the same as for standard gears.

Table 7-1 The Equations for a Screw Gear Pair on Nonparallel and Nonintersecting Axes in the Normal System

| No. | Item | Symbol | Formula | Example | |
|-----|--|---------------------------|---|-----------|----------|
| | | | | Pinion | Gear |
| 1 | Normal Module | m_n | | 3 | |
| 2 | Normal Pressure Angle | α_n | | 20° | |
| 3 | Helix Angle | β | | 20° | 30° |
| 4 | Number of Teeth & Helical Hand | Z_1, Z_2 | | 15 (R) | 24 (L) |
| 5 | Number of Teeth of an Equivalent Spur Gear | Z_v | $\frac{Z}{\cos^3 \beta}$ | 18.0773 | 36.9504 |
| 6 | Radial Pressure Angle | α_t | $\tan^{-1} \left(\frac{\tan \alpha_n}{\cos \beta} \right)$ | 21.1728° | 22.7959° |
| 7 | Normal Coefficient of Profile Shift | x_n | | 0.4 | 0.2 |
| 8 | Involute Function α_{wn} | $\text{inv } \alpha_{wn}$ | $2 \tan \alpha_n \left(\frac{x_{n1} + x_{n2}}{Z_{v1} + Z_{v2}} \right) + \text{inv } \alpha_n$ | 0.0228415 | |
| 9 | Normal Working Pressure Angle | α_{wn} | Find from Involute Function Table | 22.9338° | |
| 10 | Radial Working Pressure Angle | α_{wt} | $\tan^{-1} \left(\frac{\tan \alpha_{wn}}{\cos \beta} \right)$ | 24.2404° | 26.0386° |
| 11 | Center Distance Increment Factor | y | $\frac{1}{2} (Z_{v1} + Z_{v2}) \left(\frac{\cos \alpha_n}{\cos \alpha_{wn}} - 1 \right)$ | 0.55977 | |
| 12 | Center Distance | a_x | $\left(\frac{Z_1}{2 \cos \beta_1} + \frac{Z_2}{2 \cos \beta_2} + y \right) m_n$ | 67.1925 | |
| 13 | Pitch Diameter | d | $\frac{Z m_n}{\cos \beta}$ | 47.8880 | 83.1384 |
| 14 | Base Diameter | d_b | $d \cos \alpha_t$ | 44.6553 | 76.6445 |
| 15 | Working Pitch Diameter | d_{w1} | $2 a_x \frac{d_1}{d_1 + d_2}$ | 49.1155 | 85.2695 |
| | | d_{w2} | $2 a_x \frac{d_2}{d_1 + d_2}$ | | |
| 16 | Working Helix Angle | β_w | $\tan^{-1} \left(\frac{d_w}{d} \tan \beta \right)$ | 20.4706° | 30.6319° |
| 17 | Shaft Angle | Σ | $\beta_{w1} + \beta_{w2}$ or $\beta_{w1} - \beta_{w2}$ | 51.1025° | |
| 18 | Addendum | h_{a1} | $(1 + y - x_{n2}) m_n$ | 4.0793 | 3.4793 |
| | | h_{a2} | $(1 + y - x_{n1}) m_n$ | | |
| 19 | Whole Depth | h | $[2.25 + y - (x_{n1} + x_{n2})] m_n$ | 6.6293 | |
| 20 | Outside Diameter | d_a | $d + 2 h_a$ | 56.0466 | 90.0970 |
| 21 | Root Diameter | d_f | $d_a - 2 h$ | 42.7880 | 76.8384 |



Standard screw gears have relations as follows:

$$\left. \begin{aligned} d_{w1} &= d_1, d_{w2} = d_2 \\ \beta_{w1} &= \beta_1, \beta_{w2} = \beta_2 \end{aligned} \right\} \quad (7-7)$$

7.3 Axial Thrust Of Helical Gears

In both parallel-shaft and crossed-shaft applications, helical gears develop an axial thrust load. This is a useless force that loads gear teeth and bearings and must accordingly be considered in the housing and bearing design. In some special instrument designs, this thrust load can be utilized to actuate face clutches, provide a friction drag, or other special purpose. The magnitude of the thrust load depends on the helix angle and is given by the expression:

$$W_T = W' \tan \beta \quad (7-8)$$

where

W_T = axial thrust load, and
 W' = transmitted load.

The direction of the thrust load is related to the hand of the gear and the direction of rotation. This is depicted in **Figure 7-1**. When the helix angle is larger than about 20°, the use of double helical gears with opposite hands (**Figure 7-3a**) or herringbone gears (**Figure 7-3b**) is worth considering.

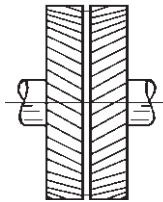


Figure 7-3a

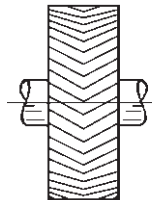


Figure 7-3b

More detail on thrust force of helical gears is presented in **SECTION 16**.

SECTION 8 BEVEL GEARING

For intersecting shafts, bevel gears offer a good means of transmitting motion and power. Most transmissions occur at right angles, **Figure 8-1**, but the shaft angle can be any value. Ratios up to 4:1 are common, although higher ratios are possible as well.

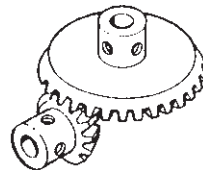


Fig. 8-1 Typical Right Angle Bevel Gear



8.1 Development And Geometry Of Bevel Gears

Bevel gears have tapered elements because they are generated and operate, in theory, on the surface of a sphere. Pitch diameters of mating bevel gears belong to frusta of cones, as shown in **Figure 8-2a**. In the full development on the surface of a sphere, a pair of meshed bevel gears are in conjugate engagement as shown in **Figure 8-2b**.

The crown gear, which is a bevel gear having the largest possible pitch angle (defined in **Figure 8-3**), is analogous to the rack of spur gearing, and is the basic tool for generating bevel gears. However, for practical reasons, the tooth form is not that of a spherical involute, and instead, the crown gear profile assumes a slightly simplified form. Although the deviation from a true spherical involute is minor, it results in a line-of-action having a figure-8 trace in its extreme extension; see **Figure 8-4**. This shape gives rise to the name "octoid" for the tooth form of modern bevel gears.

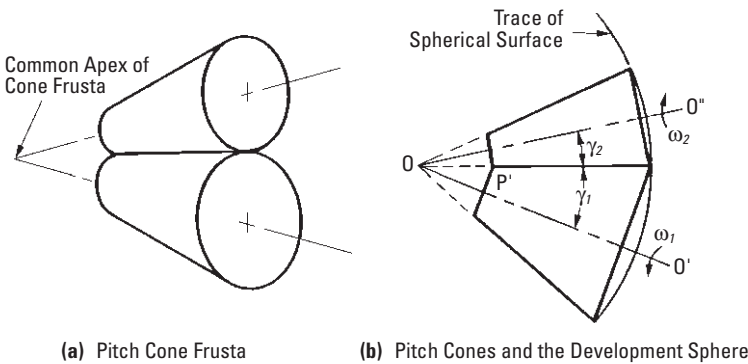


Fig. 8-2 Pitch Cones of Bevel Gears

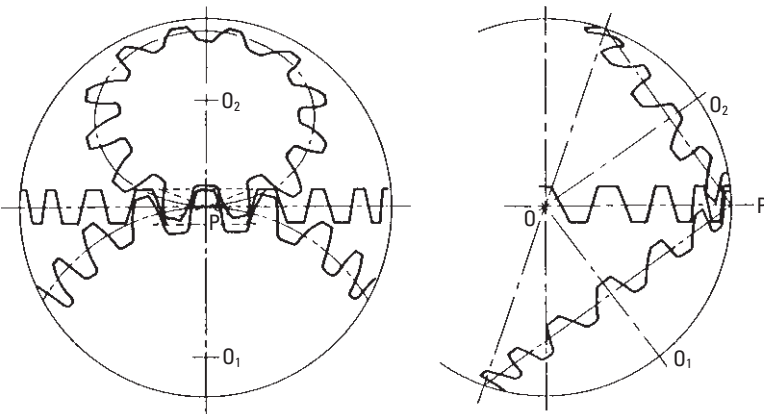


Fig. 8-3 Meshing Bevel Gear Pair with Conjugate Crown Gear

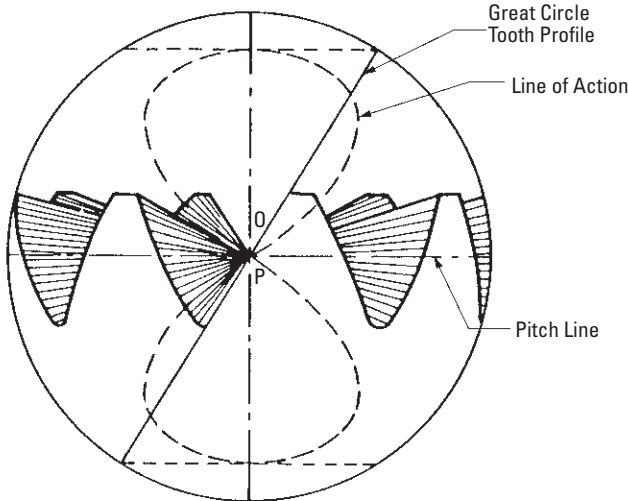


Fig. 8-4 Spherical Basis of Octoid Bevel Crown Gear

8.2 Bevel Gear Tooth Proportions

Bevel gear teeth are proportioned in accordance with the standard system of tooth proportions used for spur gears. However, the pressure angle of all standard design bevel gears is limited to 20° . Pinions with a small number of teeth are enlarged automatically when the design follows the Gleason system.

Since bevel-tooth elements are tapered, tooth dimensions and pitch diameter are referenced to the outer end (heel). Since the narrow end of the teeth (toe) vanishes at the pitch apex (center of reference generating sphere), there is a practical limit to the length (face) of a bevel gear. The geometry and identification of bevel gear parts is given in **Figure 8-5**.

8.3 Velocity Ratio

The velocity ratio, i , can be derived from the ratio of several parameters:

$$i = \frac{z_1}{z_2} = \frac{d_1}{d_2} = \frac{\sin \delta_1}{\sin \delta_2} \quad (8-1)$$

where: δ = pitch angle (see **Figure 8-5**)

8.4 Forms Of Bevel Teeth *

In the simplest design, the tooth elements are straight radial, converging at the cone apex. However, it is possible to have the teeth curve along a spiral as they converge on the cone apex, resulting in greater tooth overlap, analogous to the overlapping action of helical

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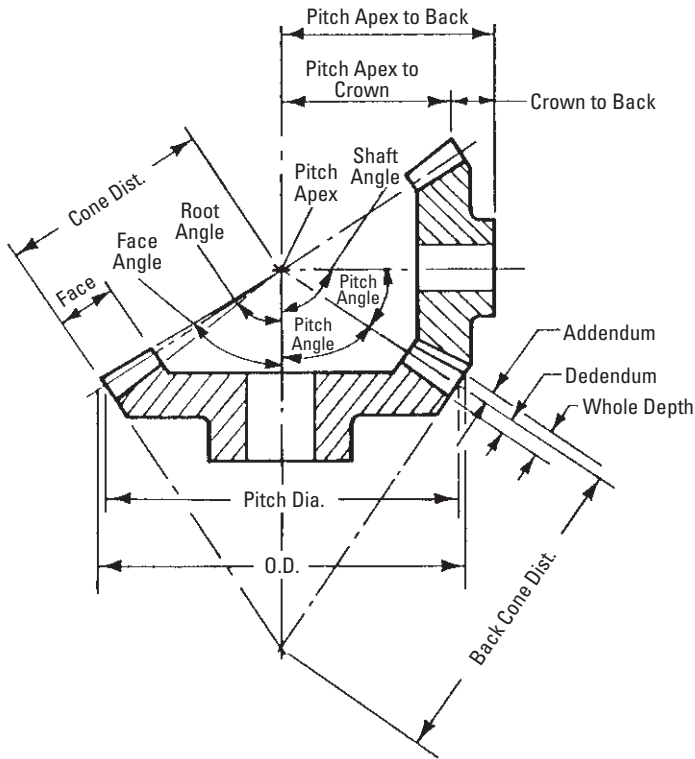


Fig. 8-5 Bevel Gear Pair Design Parameters

teeth. The result is a spiral bevel tooth. In addition, there are other possible variations. One is the zero bevel, which is a curved tooth having elements that start and end on the same radial line.

Straight bevel gears come in two variations depending upon the fabrication equipment. All current Gleason straight bevel generators are of the Coniflex form which gives an almost imperceptible convexity to the tooth surfaces. Older machines produce true straight elements. See **Figure 8-6a**.

Straight bevel gears are the simplest and most widely used type of bevel gears for the transmission of power and/or motion between intersecting shafts. Straight bevel gears are recommended:

1. When speeds are less than 300 meters/min (1000 feet/min) – at higher speeds, straight bevel gears may be noisy.
2. When loads are light, or for high static loads when surface wear is not a critical factor.
3. When space, gear weight, and mountings are a premium. This includes planetary gear sets, where space does not permit the inclusion of rolling-element bearings.



Other forms of bevel gearing include the following:

- Coniflex gears (**Figure 8-6b**) are produced by current Gleason straight bevel gear generating machines that crown the sides of the teeth in their lengthwise direction. The teeth, therefore, tolerate small amounts of misalignment in the assembly of the gears and some displacement of the gears under load without concentrating the tooth contact at the ends of the teeth. Thus, for the operating conditions, Coniflex gears are capable of transmitting larger loads than the predecessor Gleason straight bevel gears.

- Spiral bevels (**Figure 8-6c**) have curved oblique teeth which contact each other gradually and smoothly from one end to the other. Imagine cutting a straight bevel into an infinite number of short face width sections, angularly displace one relative to the other, and one has a spiral bevel gear. Well-designed spiral bevels have two or more teeth in contact at all times. The overlapping tooth action transmits motion more smoothly and quietly than with straight bevel gears.

- Zerol bevels (**Figure 8-6d**) have curved teeth similar to those of the spiral bevels, but with zero spiral angle at the middle of the face width; and they have little end thrust.

Both spiral and Zerol gears can be cut on the same machines with the same circular face-mill cutters or ground on the same grinding machines. Both are produced with localized tooth contact which can be controlled for length, width, and shape.

Functionally, however, Zerol bevels are similar to the straight bevels and thus carry the same ratings. In fact, Zerols can be used in the place of straight bevels without mounting changes.

Zerol bevels are widely employed in the aircraft industry, where ground-tooth precision gears are generally required. Most hypoid cutting machines can cut spiral bevel, Zerol or hypoid gears.

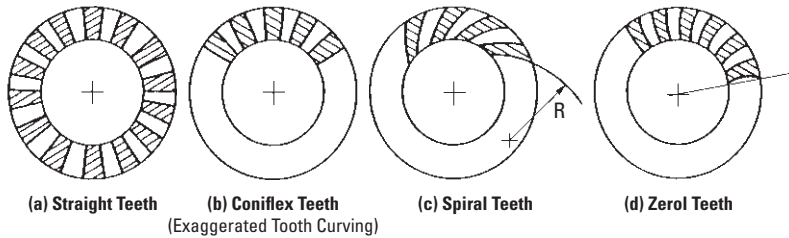


Fig. 8-6 Forms of Bevel Gear Teeth

8.5 Bevel Gear Calculations

Let z_1 and z_2 be pinion and gear tooth numbers; shaft angle Σ ; and pitch cone angles δ_1 and δ_2 ; then:

$$\left. \begin{aligned} \tan \delta_1 &= \frac{\sin \Sigma}{\frac{z_2}{z_1} + \cos \Sigma} \\ \tan \delta_2 &= \frac{\sin \Sigma}{\frac{z_1}{z_2} + \cos \Sigma} \end{aligned} \right\} \quad (8-2)$$

Generally, shaft angle $\Sigma = 90^\circ$ is most used. Other angles (Figure 8-7) are sometimes used. Then, it is called "bevel gear in nonright angle drive". The 90° case is called "bevel gear in right angle drive".

When $\Sigma = 90^\circ$, Equation (8-2) becomes:

$$\delta_1 = \tan^{-1}\left(\frac{z_1}{z_2}\right)$$

$$\delta_2 = \tan^{-1}\left(\frac{z_2}{z_1}\right)$$



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Miter gears are bevel gears with $\Sigma = 90^\circ$ and $z_1 = z_2$. Their speed ratio $z_1 / z_2 = 1$. They only change the direction of the shaft, but do not change the speed.

Figure 8-8 depicts the meshing of bevel gears. The meshing must be considered in pairs. It is because the pitch cone angles δ_1 and δ_2 are restricted by the gear ratio z_1 / z_2 . In the facial view, which is normal to the contact line of pitch cones, the meshing of bevel gears appears to be similar to the meshing of spur gears.

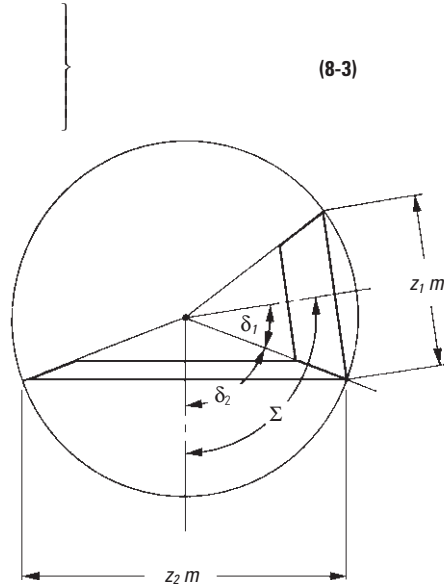


Fig. 8-7 The Pitch Cone Angle of Bevel Gear

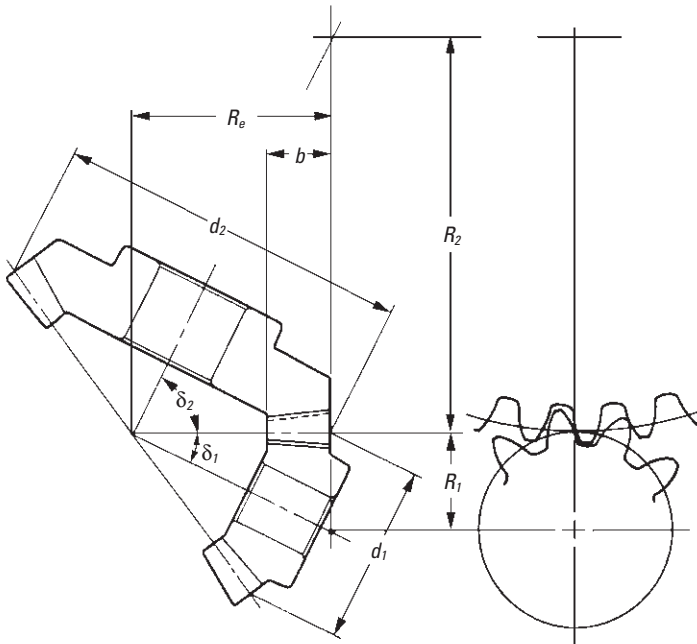


Fig. 8-8 The Meshing of Bevel Gears



8.5.1 Gleason Straight Bevel Gears

The straight bevel gear has straight teeth flanks which are along the surface of the pitch cone from the bottom to the apex. Straight bevel gears can be grouped into the Gleason type and the standard type.

In this section, we discuss the Gleason straight bevel gear. The Gleason Company defined the tooth profile as: whole depth $h=2.188 m$; top clearance $c_a = 0.188 m$; and working depth $h_w = 2.000 m$.

The characteristics are:

- Design specified profile shifted gears:

In the Gleason system, the pinion is positive shifted and the gear is negative shifted. The reason is to distribute the proper strength between the two gears. Miter gears, thus, do not need any shifted tooth profile.

- The top clearance is designed to be parallel

The outer cone elements of two paired bevel gears are parallel. That is to ensure that the top clearance along the whole tooth is the same. For the standard bevel gears, top clearance is variable. It is smaller at the toe and bigger at the heel.

Table 8-1 shows the minimum number of teeth to prevent undercut in the Gleason system at the shaft angle $\Sigma = 90^\circ$.

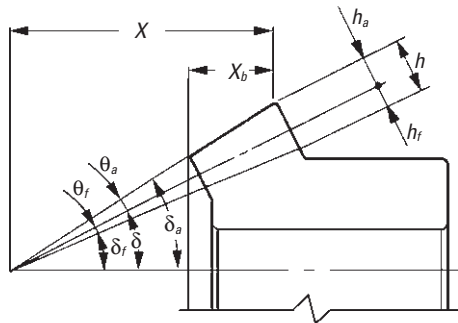
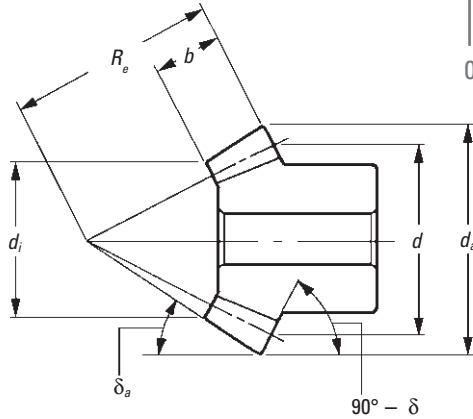


Fig. 8-9 Dimensions and Angles of Bevel Gears

Table 8-1 The Minimum Numbers of Teeth to Prevent Undercut

| Pressure Angle | Combination of Numbers of Teeth | | | | | | $\frac{Z_1}{Z_2}$ |
|----------------|---------------------------------|--------------|--------------|--------------|--------------|--------------|-------------------|
| (14.5°) | 29 / Over 29 | 28 / Over 29 | 27 / Over 31 | 26 / Over 35 | 25 / Over 40 | 24 / Over 57 | |
| 20° | 16 / Over 16 | 15 / Over 17 | 14 / Over 20 | 13 / Over 30 | — | — | |
| (25°) | 13 / Over 13 | — | — | — | — | — | |

Table 8-2 presents equations for designing straight bevel gears in the Gleason system. The meanings of the dimensions and angles are shown in Figure 8-9. All the equations in Table 8-2 can also be applied to bevel gears with any shaft angle.

Table 8-2 The Calculations of Straight Bevel Gears of the Gleason System

| No. | Item | Symbol | Formula | Example | |
|-----|------------------------|--------------------------------|---|-----------|-----------|
| | | | | Pinion | Gear |
| 1 | Shaft Angle | Σ | | 90° | |
| 2 | Module | m | | 3 | |
| 3 | Pressure Angle | α | | 20° | |
| 4 | Number of Teeth | z_1, z_2 | | 20 | 40 |
| 5 | Pitch Diameter | d | zm | 60 | 120 |
| 6 | Pitch Cone Angle | δ_1 δ_2 | $\tan^{-1} \left(\frac{\sin \Sigma}{\frac{z_2}{z_1} + \cos \Sigma} \right)$ $\Sigma - \delta_1$ | 26.56505° | 63.43495° |
| 7 | Cone Distance | R_e | $\frac{d_2}{2 \sin \delta_2}$ | 67.08204 | |
| 8 | Face Width | b | It should be less than $R_e/3$ or $10m$ | 22 | |
| 9 | Addendum | h_{a1} h_{a2} | $2.000m - h_{a2}$ $0.540m + \frac{0.460m}{\left(\frac{z_2 \cos \delta_1}{z_1 \cos \delta_2} \right)}$ | 4.035 | 1.965 |
| 10 | Dedendum | h_f | $2.188m - h_a$ | 2.529 | 4.599 |
| 11 | Dedendum Angle | θ_f | $\tan^{-1}(h_f/R_e)$ | 2.15903° | 3.92194° |
| 12 | Addendum Angle | θ_{a1} θ_{a2} | θ_{a2} θ_{a1} | 3.92194° | 2.15903° |
| 13 | Outer Cone Angle | δ_a | $\delta + \theta_a$ | 30.48699° | 65.59398° |
| 14 | Root Cone Angle | δ_r | $\delta - \theta_r$ | 24.40602° | 59.51301° |
| 15 | Outside Diameter | d_a | $d + 2h_a \cos \delta$ | 67.2180 | 121.7575 |
| 16 | Pitch Apex to Crown | X | $R_e \cos \delta - h_a \sin \delta$ | 58.1955 | 28.2425 |
| 17 | Axial Face Width | X_b | $\frac{b \cos \delta_a}{\cos \theta_a}$ | 19.0029 | 9.0969 |
| 18 | Inner Outside Diameter | d_i | $d_a - \frac{2b \sin \delta_a}{\cos \theta_a}$ | 44.8425 | 81.6609 |

The straight bevel gear with crowning in the Gleason system is called a Coniflex gear. It is manufactured by a special Gleason "Coniflex" machine. It can successfully eliminate poor tooth wear due to improper mounting and assembly.

The first characteristic of a Gleason straight bevel gear is its profile shifted tooth. From **Figure 8-10**, we can see the positive tooth profile shift in the pinion. The tooth thickness at the root diameter of a Gleason pinion is larger than that of a standard straight bevel gear.

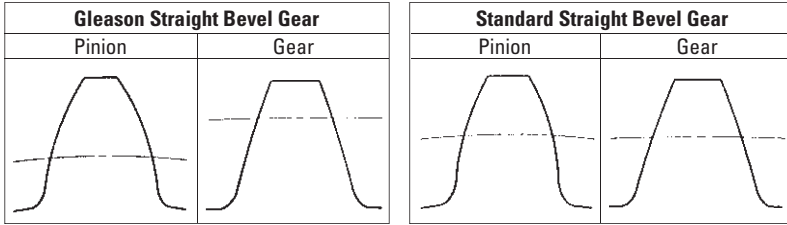


Fig. 8-10 The Tooth Profile of Straight Bevel Gears

8.5.2. Standard Straight Bevel Gears

A bevel gear with no profile shifted tooth is a standard straight bevel gear. The applicable equations are in **Table 8-3**.

Table 8-3 Calculation of a Standard Straight Bevel Gears

| No. | Item | Symbol | Formula | Example | |
|-----|------------------------|--------------------------|---|-----------|-----------|
| | | | | Pinion | Gear |
| 1 | Shaft Angle | Σ | | 90° | |
| 2 | Module | m | | 3 | |
| 3 | Pressure Angle | α | | 20° | |
| 4 | Number of Teeth | z_1, z_2 | | 20 | 40 |
| 5 | Pitch Diameter | d | zm | 60 | 120 |
| 6 | Pitch Cone Angle | δ_1 δ_2 | $\tan^{-1} \left(\frac{\sin \Sigma}{\frac{z_2}{z_1} + \cos \Sigma} \right)$ $\Sigma - \delta_1$ | 26.56505° | 63.43495° |
| 7 | Cone Distance | R_a | $\frac{d_2}{2 \sin \delta_2}$ | 67.08204 | |
| 8 | Face Width | b | It should be less than $R_a/3$ or $10 m$ | 22 | |
| 9 | Addendum | h_a | $1.00 m$ | 3.00 | |
| 10 | Dedendum | h_f | $1.25 m$ | 3.75 | |
| 11 | Dedendum Angle | θ_f | $\tan^{-1} (h_f / R_a)$ | 3.19960° | |
| 12 | Addendum Angle | θ_a | $\tan^{-1} (h_a / R_a)$ | 2.56064° | |
| 13 | Outer Cone Angle | δ_a | $\delta + \theta_a$ | 29.12569° | 65.99559° |
| 14 | Root Cone Angle | δ_f | $\delta - \theta_f$ | 23.36545° | 60.23535° |
| 15 | Outside Diameter | d_o | $d + 2 h_a \cos \delta$ | 65.3666 | 122.6833 |
| 16 | Pitch Apex to Crown | X | $R_a \cos \delta - h_a \sin \delta$ | 58.6584 | 27.3167 |
| 17 | Axial Face Width | X_b | $\frac{b \cos \delta_a}{\cos \theta_a}$ | 19.2374 | 8.9587 |
| 18 | Inner Outside Diameter | d_i | $d_o - \frac{2 b \sin \delta_a}{\cos \theta_a}$ | 43.9292 | 82.4485 |

These equations can also be applied to bevel gear sets with other than 90° shaft angle.



8.5.3 Gleason Spiral Bevel Gears

A spiral bevel gear is one with a spiral tooth flank as in **Figure 8-11**. The spiral is generally consistent with the curve of a cutter with the diameter d_c . The spiral angle β is the angle between a generatrix element of the pitch cone and the tooth flank. The spiral angle just at the tooth flank center is called central spiral angle β_m . In practice, spiral angle means central spiral angle.

All equations in **Table 8-6** are dedicated for the manufacturing method of Spread Blade or of Single Side from Gleason. If a gear is not cut per the Gleason system, the equations will be different from these.

The tooth profile of a Gleason spiral bevel gear shown here has the whole depth $h = 1.888 m$; top clearance $c_s = 0.188 m$; and working depth $h_w = 1.700 m$. These Gleason spiral bevel gears belong to a stub gear system. This is applicable to gears with modules $m > 2.1$.

Table 8-4 shows the minimum number of teeth to avoid undercut in the Gleason system with shaft angle $\Sigma = 90^\circ$ and pressure angle $\alpha_n = 20^\circ$.

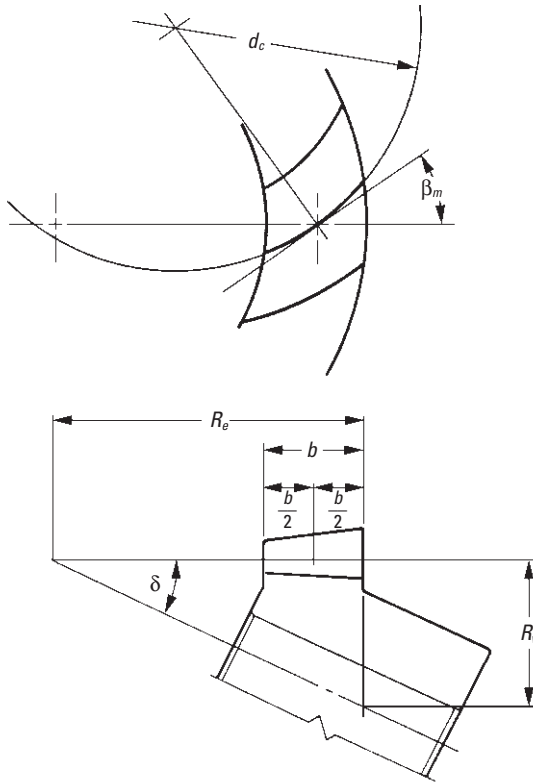


Fig. 8-11 Spiral Bevel Gear (Left-Hand)

Table 8-4 The Minimum Numbers of Teeth to Prevent Undercut $\beta_m = 35^\circ$

| Pressure Angle | Combination of Numbers of Teeth $\frac{Z_1}{Z_2}$ | | | | | |
|----------------|---|--------------|--------------|--------------|--------------|--------------|
| 20° | 17 / Over 17 | 16 / Over 18 | 15 / Over 19 | 14 / Over 20 | 13 / Over 22 | 12 / Over 26 |

If the number of teeth is less than 12, **Table 8-5** is used to determine the gear sizes.



Table 8-5 Dimensions for Pinions with Numbers of Teeth Less than 12

| Number of Teeth in Pinion | z_1 | 6 | 7 | 8 | 9 | 10 | 11 | |
|----------------------------------|------------|------------|---------|---------|---------|---------|---------|-------|
| Number of Teeth in Gear | z_2 | Over 34 | Over 33 | Over 32 | Over 31 | Over 30 | Over 29 | |
| Working Depth | h_w | 1.500 | 1.560 | 1.610 | 1.650 | 1.680 | 1.695 | |
| Whole Depth | h | 1.666 | 1.733 | 1.788 | 1.832 | 1.865 | 1.882 | |
| Gear Addendum | h_{a2} | 0.215 | 0.270 | 0.325 | 0.380 | 0.435 | 0.490 | |
| Pinion Addendum | h_{a1} | 1.285 | 1.290 | 1.285 | 1.270 | 1.245 | 1.205 | |
| Circular Tooth Thickness of Gear | s_2 | 30 | 0.911 | 0.957 | 0.975 | 0.997 | 1.023 | 1.053 |
| | | 40 | 0.803 | 0.818 | 0.837 | 0.860 | 0.888 | 0.948 |
| | | 50 | — | 0.757 | 0.777 | 0.828 | 0.884 | 0.946 |
| | | 60 | — | — | 0.777 | 0.828 | 0.883 | 0.945 |
| Pressure Angle | α_n | 20° | | | | | | |
| Spiral Angle | β_m | 35°... 40° | | | | | | |
| Shaft Angle | Σ | 90° | | | | | | |

NOTE: All values in the table are based on $m = 1$.

All equations in **Table 8-6** are also applicable to Gleason bevel gears with any shaft angle. A spiral bevel gear set requires matching of hands; left-hand and right-hand as a pair.

8.5.4 Gleason Zerol Spiral Bevel Gears

When the spiral angle $\beta_m = 0$, the bevel gear is called a Zerol bevel gear. The calculation equations of **Table 8-2** for Gleason straight bevel gears are applicable. They also should take care again of the rule of hands; left and right of a pair must be matched. **Figure 8-12** is a left-hand Zerol bevel gear.

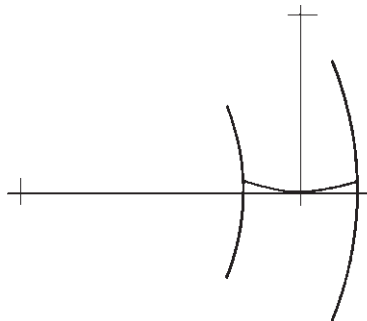


Fig. 8-12 Left-Hand Zerol Bevel Gear

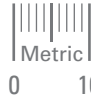


Table 8-6 The Calculations of Spiral Bevel Gears of the Gleason System

| No. | Item | Symbol | Formula | Example | |
|-----|------------------------------|--------------------------------|---|-----------|-----------|
| | | | | Pinion | Gear |
| 1 | Shaft Angle | Σ | | 90° | |
| 2 | Outside Radial Module | m | | 3 | |
| 3 | Normal Pressure Angle | α_n | | 20° | |
| 4 | Spiral Angle | β_m | | 35° | |
| 5 | No. of Teeth and Spiral Hand | z_1, z_2 | | 20 (L) | 40 (R) |
| 6 | Radial Pressure Angle | α_t | $\tan^{-1}\left(\frac{\tan \alpha_n}{\cos \beta_m}\right)$ | 23.95680 | |
| 7 | Pitch Diameter | d | zm | 60 | 120 |
| 8 | Pitch Cone Angle | δ_1 δ_2 | $\tan^{-1}\left(\frac{\sin \Sigma}{\frac{z_2}{z_1} + \cos \Sigma}\right)$ $\Sigma - \delta_1$ | 26.56505° | 63.43495° |
| 9 | Cone Distance | R_e | $\frac{d_2}{2 \sin \delta_2}$ | 67.08204 | |
| 10 | Face Width | b | It should be less than $R_e / 3$ or 10m | 20 | |
| 11 | Addendum | h_{a1} h_{a2} | $1.700m - h_{a2}$ $0.460m + \frac{0.390m}{\left(\frac{z_2 \cos \delta_1}{z_1 \cos \delta_2}\right)}$ | 3.4275 | 1.6725 |
| 12 | Dedendum | h_f | $1.888m - h_a$ | 2.2365 | 3.9915 |
| 13 | Dedendum Angle | θ_f | $\tan^{-1}(h_f / R_e)$ | 1.90952° | 3.40519° |
| 14 | Addendum Angle | θ_{a1} θ_{a2} | θ_{f2} θ_{f1} | 3.40519° | 1.90952° |
| 15 | Outer Cone Angle | δ_a | $\delta + \theta_a$ | 29.97024° | 65.34447° |
| 16 | Root Cone Angle | δ_r | $\delta - \theta_r$ | 24.65553° | 60.02976° |
| 17 | Outside Diameter | d_a | $d + 2h_a \cos \delta$ | 66.1313 | 121.4959 |
| 18 | Pitch Apex to Crown | χ | $R_e \cos \delta - h_a \sin \delta$ | 58.4672 | 28.5041 |
| 19 | Axial Face Width | X_b | $\frac{b \cos \delta_a}{\cos \theta_a}$ | 17.3563 | 8.3479 |
| 20 | Inner Outside Diameter | d_i | $d_a - \frac{2b \sin \delta_a}{\cos \theta_a}$ | 46.1140 | 85.1224 |



0 10

SECTION 9 WORM MESH

The worm mesh is another gear type used for connecting skew shafts, usually 90° . See **Figure 9-1**. Worm meshes are characterized by high velocity ratios. Also, they offer the advantage of higher load capacity associated with their line contact in contrast to the point contact of the crossed-helical mesh.

9.1 Worm Mesh Geometry

Although the worm tooth form can be of a variety, the most popular is equivalent to a V-type screw thread, as in **Figure 9-1**. The mating worm gear teeth have a helical lead. (**Note:** The name “worm wheel” is often used interchangeably with “worm gear”.) A central section of the mesh, taken through the worm’s axis and perpendicular to the worm gear’s axis, as shown in **Figure 9-2**, reveals a rack-type tooth of the worm, and a curved involute tooth form for the worm gear. However, the involute features are only true for the central section. Sections on either side of the worm axis reveal nonsymmetric and noninvolute tooth profiles. Thus, a worm gear mesh is not a true involute mesh. Also, for conjugate action, the center distance of the mesh must be an exact duplicate of that used in generating the worm gear.

To increase the length-of-action, the worm gear is made of a throated shape to wrap around the worm.

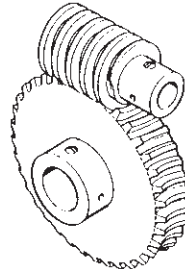


Fig. 9-1 Typical Worm Mesh

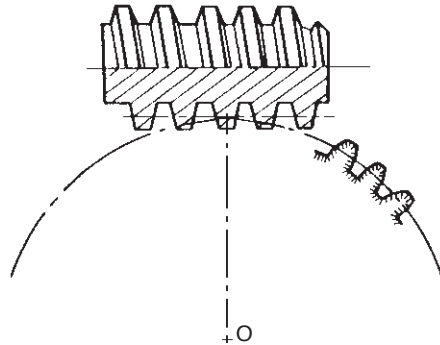


Fig. 9-2 Central Section of a Worm and Worm Gear

9.1.1 Worm Tooth Proportions

Worm tooth dimensions, such as addendum, dedendum, pressure angle, etc., follow the same standards as those for spur and helical gears. The standard values apply to the central section of the mesh. See **Figure 9-3a**. A high pressure angle is favored and in some applications values as high as 25° and 30° are used.

9.1.2 Number Of Threads

The worm can be considered resembling a helical gear with a high helix angle.

For extremely high helix angles, there is one continuous tooth or thread. For slightly smaller angles, there can be two, three or even more threads. Thus, a worm is characterized by the number of threads, z_w .



9.1.3 Pitch Diameters, Lead and Lead Angle

Referring to Figure 9-3:

$$\text{Pitch diameter of worm} = d_w = \frac{z_w p_n}{\pi \sin \gamma} \tag{9-1}$$

$$\text{Pitch diameter of worm gear} = d_g = \frac{z_g p_n}{\pi \cos \gamma} \tag{9-2}$$

where:

z_w = number of threads of worm; z_g = number of teeth in worm gear

$$L = \text{lead of worm} = z_w p_x = \frac{z_w p_n}{\cos \gamma}$$

$$\gamma = \text{lead angle} = \tan^{-1} \left(\frac{z_w m}{d_w} \right) = \sin^{-1} \left(\frac{z_w p_n}{\pi d_w} \right)$$

$$p_n = p_x \cos \gamma$$

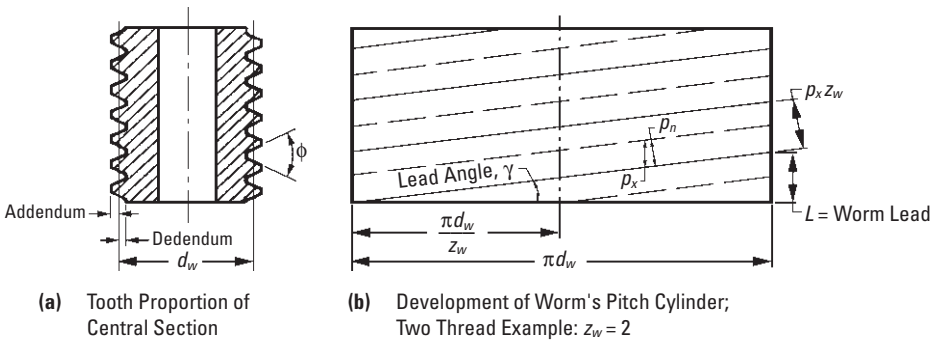


Fig. 9-3 Worm Tooth Proportions and Geometric Relationships

9.1.4 Center Distance

$$C = \frac{d_w + D_g}{2} = \frac{p_n}{2\pi} \left(\frac{z_g}{\cos \gamma} + \frac{z_w}{\sin \gamma} \right) \tag{9-3}$$

9.2 Cylindrical Worm Gear Calculations

Cylindrical worms may be considered cylindrical type gears with screw threads. Generally, the mesh has a 90° shaft angle. The number of threads in the worm is equivalent to the number of teeth in a gear of a screw type gear mesh.



Thus, a one-thread worm is equivalent to a one-tooth gear; and two-threads equivalent to two-teeth, etc. Referring to **Figure 9-4**, for a lead angle γ , measured on the pitch cylinder, each rotation of the worm makes the thread advance one lead.

There are four worm tooth profiles in JIS B 1723, as defined below.

Type I Worm: This worm tooth profile is trapezoid in the radial or axial plane.

Type II Worm: This tooth profile is trapezoid viewed in the normal surface.

Type III Worm: This worm is formed by a cutter in which the tooth profile is trapezoid form viewed from the radial surface or axial plane set at the lead angle. Examples are milling and grinding profile cutters.

Type IV Worm: This tooth profile is involute as viewed from the radial surface or at the lead angle. It is an involute helicoid, and is known by that name.

Type III worm is the most popular. In this type, the normal pressure angle α_n has the tendency to become smaller than that of the cutter, α_c .

Per JIS, Type III worm uses a radial module m_t and cutter pressure angle $\alpha_c = 20^\circ$ as the module and pressure angle. A special worm hob is required to cut a Type III worm gear.

Standard values of radial module, m_t , are presented in **Table 9-1**.

Table 9-1 Radial Module of Cylindrical Worm Gears

| | | | | | | | |
|------|------|-------|-------|-------|-------|-------|------|
| 1 | 1.25 | 1.60 | 2.00 | 2.50 | 3.15 | 4.00 | 5.00 |
| 6.30 | 8.00 | 10.00 | 12.50 | 16.00 | 20.00 | 25.00 | — |

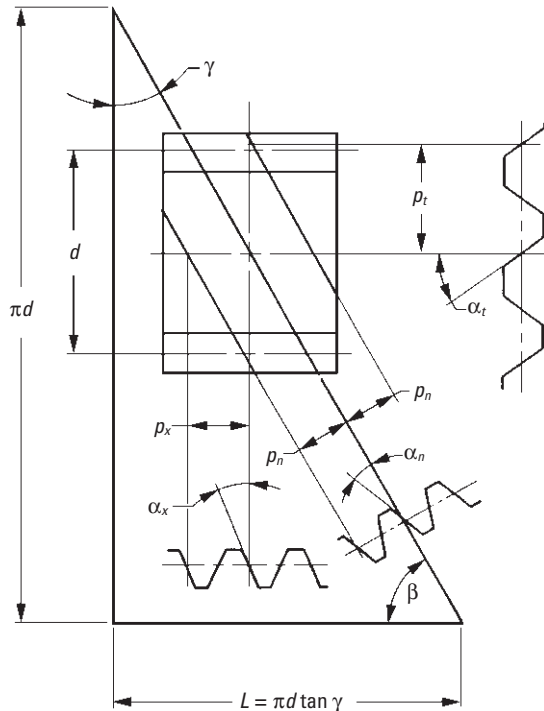


Fig. 9-4 Cylindrical Worm (Right-Hand)



Because the worm mesh couples nonparallel and nonintersecting axes, the radial surface of the worm, or radial cross section, is the same as the normal surface of the worm gear. Similarly, the normal surface of the worm is the radial surface of the worm gear. The common surface of the worm and worm gear is the normal surface. Using the normal module, m_n , is most popular. Then, an ordinary hob can be used to cut the worm gear.

Table 9-2 presents the relationships among worm and worm gear radial surfaces, normal surfaces, axial surfaces, module, pressure angle, pitch and lead.

Table 9-2 The Relations of Cross Sections of Worm Gears

| Worm | | |
|---|---------------------------------------|---|
| Axial Surface | Normal Surface | Radial Surface |
| $m_x = \frac{m_n}{\cos \gamma}$ | m_n | $m_t = \frac{m_n}{\sin \gamma}$ |
| $\alpha_x = \tan^{-1} \left(\frac{\tan \alpha_n}{\cos \gamma} \right)$ | α_n | $\alpha_t = \tan^{-1} \left(\frac{\tan \alpha_n}{\sin \gamma} \right)$ |
| $p_x = \pi m_x$ | $p_n = \pi m_n$ | $p_t = \pi m_t$ |
| $L = \pi m_x z_w$ | $L = \frac{\pi m_n z_w}{\cos \gamma}$ | $L = \pi m_t z_w \tan \gamma$ |
| Radial Surface | Normal Surface | Axial Surface |
| Worm Gear | | |

NOTE: The Radial Surface is the plane perpendicular to the axis.

Reference to **Figure 9-4** can help the understanding of the relationships in **Table 9-2**. They are similar to the relations in **Formulas (6-11)** and **(6-12)** that the helix angle β be substituted by $(90^\circ - \gamma)$. We can consider that a worm with lead angle γ is almost the same as a screw gear with helix angle $(90^\circ - \gamma)$.

9.2.1 Axial Module Worm Gears

Table 9-3 presents the equations, for dimensions shown in **Figure 9-5**, for worm gears with axial module, m_x , and normal pressure angle $\alpha_n = 20^\circ$.

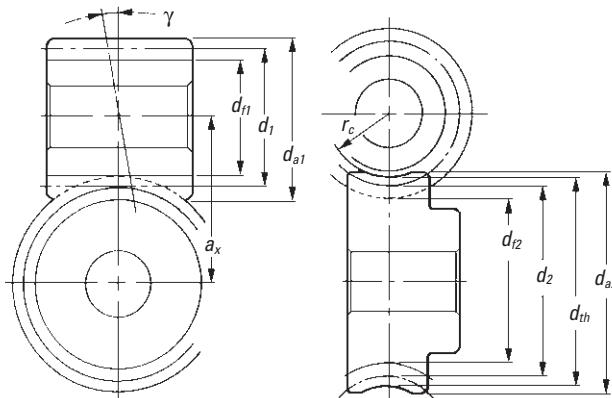


Fig. 9-5 Dimensions of Cylindrical Worm Gears

Table 9-3 The Calculations of Axial Module System Worm Gears (See Figure 9-5)

| No. | Item | Symbol | Formula | Example | |
|-----|------------------------------|----------------------|--|----------|--------|
| | | | | Worm | Wheel |
| 1 | Axial Module | m_x | | 3 | |
| 2 | Normal Pressure Angle | α_n | | 20° | |
| 3 | No. of Threads, No. of Teeth | z_w, z_2 | | ∇ | 30 (R) |
| 4 | Standard Pitch Diameter | d_1 d_2 | $Q m_x$ $z_2 m_x$ Note 1 | 44.000 | 90.000 |
| 5 | Lead Angle | γ | $\tan^{-1}\left(\frac{m_x z_w}{d_1}\right)$ | 7.76517° | |
| 6 | Coefficient of Profile Shift | x_{a2} | | – | 0 |
| 7 | Center Distance | a_x | $\frac{d_1 + d_2}{2} + x_{a2} m_x$ | 67.000 | |
| 8 | Addendum | h_{a1} h_{a2} | $1.00 m_x$ $(1.00 + x_{a2}) m_x$ | 3.000 | 3.000 |
| 9 | Whole Depth | h | $2.25 m_x$ | 6.750 | |
| 10 | Outside Diameter | d_{a1} d_{a2} | $d_1 + 2h_{a1}$ $d_2 + 2h_{a2} + m_x$ Note 2 | 50.000 | 99.000 |
| 11 | Throat Diameter | d_{th} | $d_2 + 2h_{a2}$ | – | 96.000 |
| 12 | Throat Surface Radius | r_i | $\frac{d_1}{2} - h_{a1}$ | – | 19.000 |
| 13 | Root Diameter | d_{f1} d_{f2} | $d_{a1} - 2h$ $d_{th} - 2h$ | 36.500 | 82.500 |

∇ Double-Threaded Right-Hand Worm

Note 1: Diameter Factor, Q , means pitch diameter of worm, d_1 , over axial module, m_x .

$$Q = \frac{d_1}{m_x}$$

Note 2: There are several calculation methods of worm outside diameter d_{a2} besides those in **Table 9-3**.

Note 3: The length of worm with teeth, b_1 , would be sufficient if: $b_1 = \pi m_x (4.5 + 0.02 z_2)$

Note 4: Working blank width of worm gear $b_e = 2 m_x \sqrt{(Q + 1)}$. So the actual blank width of $b \geq b_e + 1.5 m_x$ would be enough.

9.2.2 Normal Module System Worm Gears

The equations for normal module system worm gears are based on a normal module, m_n , and normal pressure angle, $\alpha_n = 20^\circ$. See **Table 9-4**, on the following page.

Table 9-4 The Calculations of Normal Module System Worm Gears

| No. | Item | Symbol | Formula | Example | |
|-----|------------------------------|----------------------|---|----------|-----------|
| | | | | Worm | Worm Gear |
| 1 | Normal Module | m_n | | 3 | |
| 2 | Normal Pressure Angle | α_n | | 20° | |
| 3 | No. of Threads, No. of Teeth | z_w, z_2 | | ∇ | 30 (R) |
| 4 | Pitch Diameter of Worm | d_1 | | 44.000 | – |
| 5 | Lead Angle | γ | $\sin^{-1}\left(\frac{m_n z_w}{d_1}\right)$ | 7.83748° | |
| 6 | Pitch Diameter of Worm Gear | d_2 | $\frac{z_2 m_n}{\cos \gamma}$ | – | 90.8486 |
| 7 | Coefficient of Profile Shift | x_{n2} | | – | -0.1414 |
| 8 | Center Distance | a_x | $\frac{d_1 + d_2}{2} + x_{n2} m_n$ | 67.000 | |
| 9 | Addendum | h_{a1} h_{a2} | $1.00 m_n$ $(1.00 + x_{n2}) m_n$ | 3.000 | 2.5758 |
| 10 | Whole Depth | h | $2.25 m_n$ | 6.75 | |
| 11 | Outside Diameter | d_{a1} d_{a2} | $d_1 + 2h_{a1}$ $d_2 + 2h_{a2} + m_n$ | 50.000 | 99.000 |
| 12 | Throat Diameter | d_{th} | $d_2 + 2h_{a2}$ | – | 96.000 |
| 13 | Throat Surface Radius | r_i | $\frac{d_1}{2} - h_{a1}$ | – | 19.000 |
| 14 | Root Diameter | d_{f1} d_{f2} | $d_{a1} - 2h$ $d_{th} - 2h$ | 36.500 | 82.500 |

∇ Double-Threaded Right-Hand Worm

Note: All notes are the same as those of Table 9-3.

9.3 Crowning Of The Worm Gear Tooth

Crowning is critically important to worm gears (worm wheels). Not only can it eliminate abnormal tooth contact due to incorrect assembly, but it also provides for the forming of an oil film, which enhances the lubrication effect of the mesh. This can favorably impact endurance and transmission efficiency of the worm mesh. There are four methods of crowning worm gears:

1. Cut Worm Gear With A Hob Cutter Of Greater Pitch Diameter Than The Worm.

A crownless worm gear results when it is made by using a hob that has an identical pitch diameter as that of the worm. This crownless worm gear is very difficult to assemble correctly. Proper tooth contact and a complete oil film are usually not possible.

However, it is relatively easy to obtain a crowned worm gear by cutting it with a hob whose pitch diameter is slightly larger than that of the worm. This is shown in Figure 9-6. This creates teeth contact in the center region with space for oil film formation.



2. Recut With Hob Center Distance Adjustment.

The first step is to cut the worm gear at standard center distance. This results in no crowning. Then the worm gear is finished with the same hob by recutting with the hob axis shifted parallel to the worm gear axis by $\pm \Delta h$. This results in a crowning effect, shown in **Figure 9-7**.

3. Hob Axis Inclining $\Delta\theta$ From Standard Position.

In standard cutting, the hob axis is oriented at the proper angle to the worm gear axis. After that, the hob axis is shifted slightly left and then right, $\Delta\theta$, in a plane parallel to the worm gear axis, to cut a crown effect on the worm gear tooth. This is shown in **Figure 9-8**.

Only method 1 is popular. Methods 2 and 3 are seldom used.

4. Use A Worm With A Larger Pressure Angle Than The Worm Gear.

This is a very complex method, both theoretically and practically. Usually, the crowning is done to the worm gear, but in this method the modification is on the worm. That is, to change the pressure angle and pitch of the worm without changing the pitch line parallel to the axis, in accordance with the relationships shown in **Equations 9-4**:

$$p_x \cos \alpha_x = p_x' \cos \alpha_x' \tag{9-4}$$

In order to raise the pressure angle from before change, α_x' , to after change, α_x , it is necessary to increase the axial pitch, p_x' , to a new value, p_x , per **Equation (9-4)**. The amount of crowning is represented as the space between the worm and worm gear at the meshing point A in **Figure 9-9**.

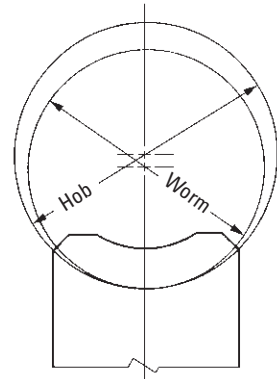


Fig. 9-6 The Method of Using a Greater Diameter Hob

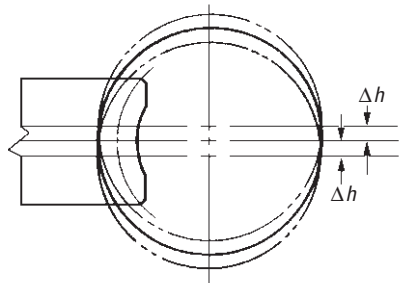


Fig. 9-7 Offsetting Up or Down

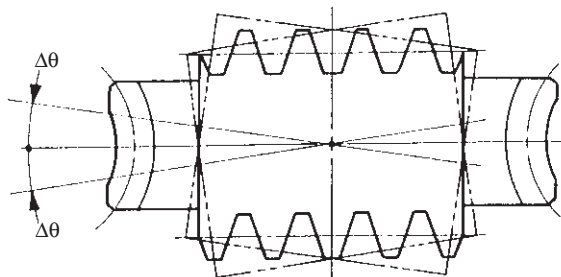


Fig. 9-8 Inclining Right or Left



This amount may be approximated by the following equation:

$$\text{Amount of Crowning} = k \frac{p_x - p_x'}{p_x'} \frac{d_f}{2} \tag{9-5}$$

where:

- d_f = Pitch diameter of worm
- k = Factor from **Table 9-5** and **Figure 9-10**
- p_x = Axial pitch after change
- p_x' = Axial pitch before change

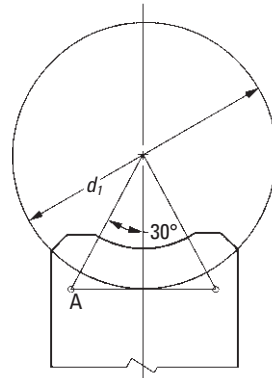


Fig. 9-9 Position A is the Point of Determining Crowning Amount

Table 9-5 The Value of Factor k

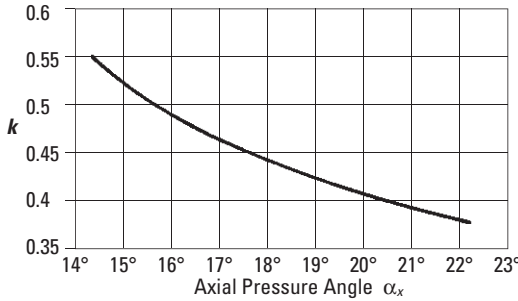
| | | | | |
|------------|-------|-------|------|-------|
| α_x | 14.5° | 17.5° | 20° | 22.5° |
| k | 0.55 | 0.46 | 0.41 | 0.375 |

An example of calculating worm crowning is shown in **Table 9-6**.

Table 9-6 The Calculation of Worm Crowning

| No. | Item | Symbol | Formula | Example |
|------------------------|---------------------------|-------------|---|------------|
| Before Crowning | | | | |
| 1 | Axial Module | m_x' | | 3 |
| 2 | Normal Pressure Angle | α_n' | | 20° |
| 3 | Number of Threads of Worm | z_w | | 2 |
| 4 | Pitch Diameter of Worm | d_f | | 44.000 |
| 5 | Lead Angle | γ' | $\tan^{-1}\left(\frac{m_x' z_w}{d_f}\right)$ | 7.765166° |
| 6 | Axial Pressure Angle | α_x' | $\tan^{-1}\left(\frac{\tan \alpha_n'}{\cos \gamma'}\right)$ | 20.170236° |
| 7 | Axial Pitch | p_x' | $\pi m_x'$ | 9.424778 |
| 8 | Lead | L' | $\pi m_x' z_v$ | 18.849556 |
| 9 | Amount of Crowning | C_R' | * | 0.04 |
| 10 | Factor (k) | k | From Table 9-5 | 0.41 |
| After Crowning | | | | |
| 11 | Axial Pitch | t_x | $t_x' \left(\frac{2C_R}{kd_f} + 1\right)$ | 9.466573 |
| 12 | Axial Pressure Angle | α_x | $\cos^{-1}\left(\frac{p_x'}{p_x} \cos \alpha_x'\right)$ | 20.847973° |
| 13 | Axial Module | m_x | $\frac{p_x}{\pi}$ | 3.013304 |
| 14 | Lead Angle | γ | $\tan^{-1}\left(\frac{m_x z_w}{d_f}\right)$ | 7.799179° |
| 15 | Normal Pressure Angle | α_n | $\tan^{-1}(\tan \alpha_x \cos \gamma)$ | 20.671494° |
| 16 | Lead | L | $\pi m_x z_w$ | 18.933146 |

*It should be determined by considering the size of tooth contact surface.



Because the theory and equations of these methods are so complicated, they are beyond the scope of this treatment. Usually, all stock worm gears are produced with crowning.

Fig. 9-10 The Value of Factor (k)

9.4 Self-Locking Of Worm Mesh

Self-locking is a unique characteristic of worm meshes that can be put to advantage. It is the feature that a worm cannot be driven by the worm gear. It is very useful in the design of some equipment, such as lifting, in that the drive can stop at any position without concern that it can slip in reverse. However, in some situations it can be detrimental if the system requires reverse sensitivity, such as a servomechanism.

Self-locking does not occur in all worm meshes, since it requires special conditions as outlined here. In this analysis, only the driving force acting upon the tooth surfaces is considered without any regard to losses due to bearing friction, lubricant agitation, etc. The governing conditions are as follows:

Let F_{ut} = tangential driving force of worm

Then, $F_{ut} = F_n (\cos \alpha_n \sin \gamma - \mu \cos \gamma)$ (9-6)

where:

- α_n = normal pressure angle
- γ = lead angle of worm
- μ = coefficient of friction
- F_n = normal driving force of worm

If $F_{ut} > 0$ then there is no self-locking effect at all. Therefore, $F_{ut} \leq 0$ is the critical limit of self-locking.

Let α_n in **Equation (9-6)** be 20° , then the condition:

$F_{ut} \leq 0$ will become:

$(\cos 20^\circ \sin \gamma - \mu \cos \gamma) \leq 0$

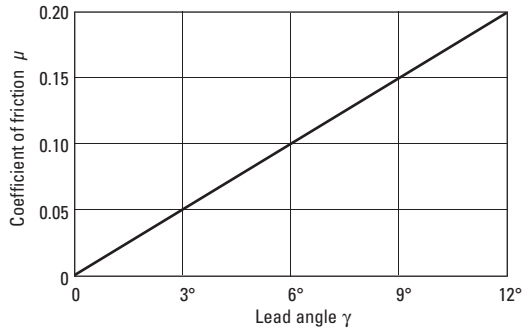


Fig. 9-11 The Critical Limit of Self-locking of Lead Angle γ and Coefficient of Friction μ

Figure 9-11 shows the critical limit of self-locking for lead angle γ and coefficient of friction μ . Practically, it is very hard to assess the exact value of coefficient of friction μ . Further, the bearing loss, lubricant agitation loss, etc. can add many side effects. Therefore, it is not easy to establish precise self-locking conditions. However, it is true that the smaller the lead angle γ , the more likely the self-locking condition will occur.

SECTION 10 TOOTH THICKNESS



There are direct and indirect methods for measuring tooth thickness. In general, there are three methods:

- Chordal Thickness Measurement
- Span Measurement
- Over Pin or Ball Measurement

10.1 Chordal Thickness Measurement

This method employs a tooth caliper that is referenced from the gear's outside diameter. Thickness is measured at the pitch circle. See Figure 10-1.

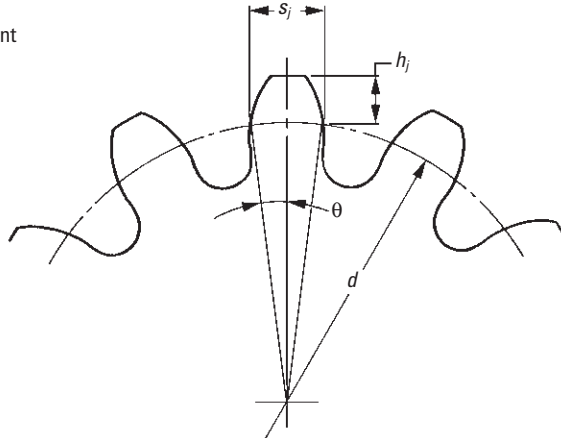


Fig. 10-1 Chordal Thickness Method

10.1.1 Spur Gears

Table 10-1 presents equations for each chordal thickness measurement.

Table 10-1 Equations for Spur Gear Chordal Thickness

| No. | Item | Symbol | Formula | Example |
|-----|-------------------------------------|----------|--|---|
| 1 | Circular Tooth Thickness | s | $\left(\frac{\pi}{2} + 2x \tan \alpha\right)m$ | $m = 10$ $\alpha = 20^\circ$ $z = 12$ $x = +0.3$ $h_a = 13.000$ |
| 2 | Half of Tooth Angle at Pitch Circle | θ | $\frac{90}{z} + \frac{360 x \tan \alpha}{\pi z}$ | $s = 17.8918$ $\theta = 8.54270^\circ$ |
| 3 | Chordal Thickness | s_j | $zm \sin \theta$ | $s_j = 17.8256$ |
| 4 | Chordal Addendum | h_j | $\frac{zm}{2} (1 - \cos \theta) + h_a$ | $h_j = 13.6657$ |

10.1.2 Spur Racks And Helical Racks

The governing equations become simple since the rack tooth profile is trapezoid, as shown in Table 10-2.

Table 10-2 Chordal Thickness of Racks

| No. | Item | Symbol | Formula | Example |
|-----|-------------------|--------|--|--|
| 1 | Chordal Thickness | s_j | $\frac{\pi m}{2}$ or $\frac{\pi m_n}{2}$ | $m = 3$ $\alpha = 20^\circ$ $s_j = 4.7124$ |
| 2 | Chordal Addendum | h_j | h_a | $h_a = 3.0000$ |

NOTE: These equations are also applicable to helical racks.



10.1.3 Helical Gears

The chordal thickness of helical gears should be measured on the normal surface basis as shown in **Table 10-3**. **Table 10-4** presents the equations for chordal thickness of helical gears in the radial system.

Table 10-3 Equations for Chordal Thickness of Helical Gears in the Normal System

| No. | Item | Symbol | Formula | Example |
|-----|--|------------|---|--|
| 1 | Normal Circular Tooth Thickness | s_n | $\left(\frac{\pi}{2} + 2x_n \tan \alpha_n\right) m_n$ | $m_n = 5$ $\alpha_n = 20^\circ$ |
| 2 | Number of Teeth of an Equivalent Spur Gear | z_v | $\frac{z}{\cos^3 \beta}$ | $\beta = 25^\circ 00' 00''$ $z = 16$ |
| 3 | Half of Tooth Angle at Pitch Circle | θ_v | $\frac{90}{z_v} + \frac{360x_n \tan \alpha_n}{\pi z_v}$ | $x_n = +0.2$ $h_a = 6.0000$ $s_n = 8.5819$ |
| 4 | Chordal Thickness | s_j | $z_v m_n \sin \theta_v$ | $z_v = 21.4928$ $\theta_v = 4.57556^\circ$ |
| 5 | Chordal Addendum | h_j | $\frac{z_v m_n}{2} (1 - \cos \theta_v) + h_a$ | $s_j = 8.5728$ $h_j = 6.1712$ |

Table 10-4 Equations for Chordal Thickness of Helical Gears in the Radial System

| No. | Item | Symbol | Formula | Example |
|-----|--|------------|--|--|
| 1 | Normal Circular Tooth Thickness | s_n | $\left(\frac{\pi}{2} + 2x_t \tan \alpha_t\right) m_t \cos \beta$ | $m = 4$ $\alpha_t = 20^\circ$ |
| 2 | Number of Teeth in an Equivalent Spur Gear | z_v | $\frac{z}{\cos^3 \beta}$ | $\beta = 22^\circ 30' 00''$ $z = 20$ |
| 3 | Half of Tooth Angle at Pitch Circle | θ_v | $\frac{90}{z_v} + \frac{360x_t \tan \alpha_t}{\pi z_v}$ | $x_t = +0.3$ $h_a = 4.7184$ $s_n = 6.6119$ |
| 4 | Chordal Thickness | s_j | $z_v m_t \cos \beta \sin \theta_v$ | $z_v = 25.3620$ $\theta_v = 4.04196^\circ$ |
| 5 | Chordal Addendum | h_j | $\frac{z_v m_t \cos \beta}{2} (1 - \cos \theta_v) + h_a$ | $s_j = 6.6065$ $h_j = 4.8350$ |

NOTE: **Table 10-4** equations are also for the tooth profile of a Sunderland gear.

Table 10-5 Equations for Chordal Thickness of Gleason Straight Bevel Gears

| No. | Item | Symbol | Formula | Example |
|-----|---|----------------|---|--|
| 1 | Circular Tooth Thickness Factor (Coefficient of Horizontal Profile Shift) | K | Obtain from Figure 10-2 (on the following page) | $m = 4$ $\alpha = 20^\circ$ |
| 2 | Circular Tooth Thickness | s_1 s_2 | $\pi m - s_2$ $\frac{\pi m}{2} - (h_{a1} - h_{a2}) \tan \alpha - Km$ | $\Sigma = 90^\circ$ $Z_1 = 16$ $Z_2 = 40$ |
| 4 | Chordal Thickness | s_j | $s - \frac{s^3}{6d^2}$ | $\frac{Z_1}{Z_2} = 0.4$ $K = 0.0259$ |
| 5 | Chordal Addendum | h_j | $h_a + \frac{s^2 \cos \delta}{4d}$ | $h_{a1} = 5.5456$ $h_{a2} = 2.4544$ $\delta_1 = 21.8014^\circ$ $\delta_2 = 68.1986^\circ$ $s_1 = 7.5119$ $s_2 = 5.0545$ $s_{j1} = 7.4946$ $s_{j2} = 5.0536$ $h_{j1} = 5.7502$ $h_{j2} = 2.4692$ |

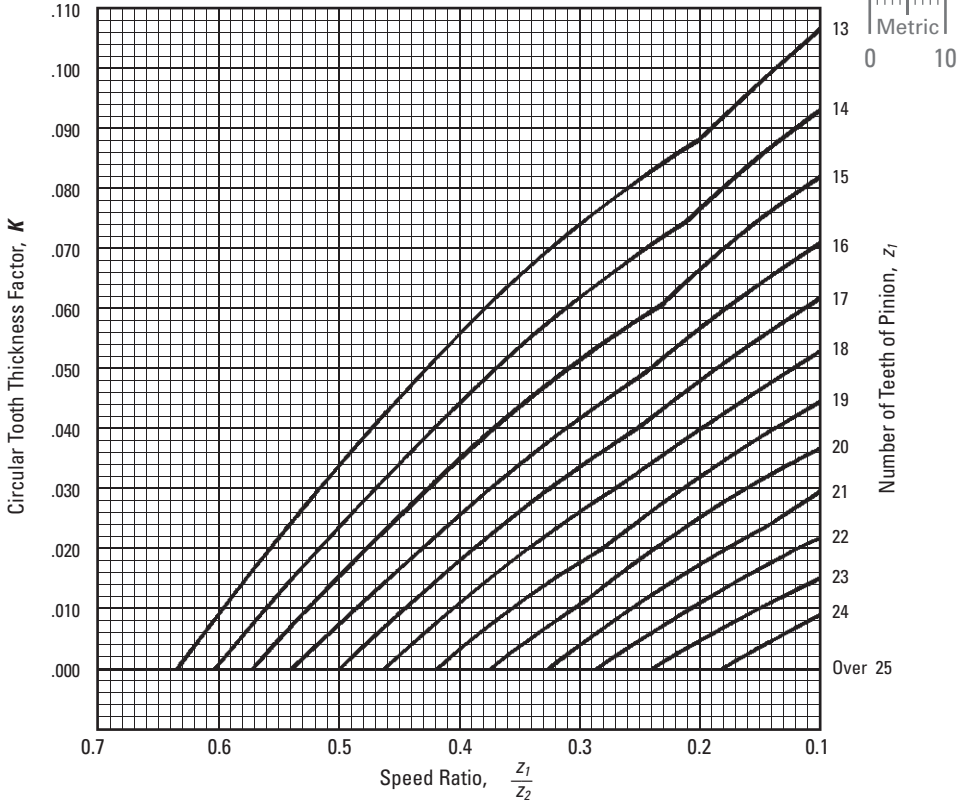


Fig. 10-2 Chart to Determine the Circular Tooth Thickness Factor *K* for Gleason Straight Bevel Gear (See Table 10-5)

Table 10-6 presents equations for chordal thickness of a standard straight bevel gear.

Table 10-6 Equations for Chordal Thickness of Standard Straight Bevel Gears

| No. | Item | Symbol | Formula | Example |
|-----|--|------------|---------------------------------|---|
| 1 | Circular Tooth Thickness | s | $\frac{\pi m}{2}$ | $m = 4$ |
| 2 | Number of Teeth of an Equivalent Spur Gear | z_v | $\frac{z}{\cos \delta}$ | $\alpha = 20^\circ$ $z_1 = 16$ $d_1 = 64$ |
| 3 | Back Cone Distance | R_v | $\frac{d}{2 \cos \delta}$ | $\Sigma = 90^\circ$ $z_2 = 40$ $d_2 = 160$ |
| 4 | Half of Tooth Angle at Pitch Circle | θ_v | $\frac{90}{z_v}$ | $h_a = 4.0000$ $\delta_1 = 21.8014^\circ$ $s = 6.2832$ |
| 5 | Chordal Thickness | s_j | $z_v m \sin \theta_v$ | $\delta_2 = 68.1986^\circ$ $z_{v1} = 17.2325$ $R_{v1} = 34.4650$ $\theta_{v1} = 5.2227^\circ$ $s_{j1} = 6.2745$ |
| 6 | Chordal Addendum | h_j | $h_a + R_v (1 - \cos \theta_v)$ | $z_{v2} = 107.7033$ $R_{v2} = 215.4066$ $\theta_{v2} = 0.83563^\circ$ $s_{j2} = 6.2830$ $h_{j2} = 4.0229$ |

If a standard straight bevel gear is cut by a Gleason straight bevel cutter, the tooth angle should be adjusted according to:

$$\text{tooth angle } (^\circ) = \frac{180^\circ}{\pi R_e} \left(\frac{s}{2} + h_r \tan \alpha \right) \quad (10-1)$$



This angle is used as a reference in determining the circular tooth thickness, s , in setting up the gear cutting machine.

Table 10-7 presents equations for chordal thickness of a Gleason spiral bevel gear.

| No. | Item | Symbol | Formula | Example |
|-----|---------------------------------|----------------|--|---|
| 1 | Circular Tooth Thickness Factor | K | Obtain from Figure 10-3 | $\Sigma = 90^\circ$ $m = 3$ $\alpha_n = 20^\circ$ $Z_1 = 20$ $Z_2 = 40$ $\beta_m = 35^\circ$ |
| 2 | Circular Tooth Thickness | s_1 s_2 | $p - s_2$ $\frac{p}{2} - (h_{a1} - h_{a2}) \frac{\tan \alpha_n}{\cos \beta_m} - Km$ | $h_{a1} = 3.4275$ $h_{a2} = 1.6725$ $K = 0.060$ $p = 9.4248$ $s_1 = 5.6722$ $s_2 = 3.7526$ |

Figure 10-3 is shown on the following page.

The calculations of circular thickness of a Gleason spiral bevel gear are so complicated that we do not intend to go further in this presentation.

10.1.5 Worms And Worm Gears

Table 10-8 presents equations for chordal thickness of axial module worms and worm gears.

Table 10-8 Equations for Chordal Thickness of Axial Module Worms and Worm Gears

| No. | Item | Symbol | Formula | Example |
|-----|--|----------------------|--|--|
| 1 | Axial Circular Tooth Thickness of Worm Radial Circular Tooth Thickness of Worm Gear | s_{x1} s_{x2} | $\frac{\pi m_x}{2}$ $(-\frac{\pi}{2} + 2x_{x2} \tan \alpha_x) m_x$ | $m_x = 3$ $\alpha_n = 20^\circ$ $Z_w = 2$ $Z_2 = 30$ $d_1 = 38$ $d_2 = 90$ $a_x = 65$ |
| 2 | No. of Teeth in an Equivalent Spur Gear (Worm Gear) | Z_{v2} | $\frac{Z_2}{\cos^3 \gamma}$ | $x_{x2} = +0.33333$ $h_{a2} = 4.0000$ |
| 3 | Half of Tooth Angle at Pitch Circle (Worm Gear) | θ_{v2} | $\frac{90}{Z_{v2}} + \frac{360 x_{x2} \tan \alpha_x}{\pi Z_{v2}}$ | $\gamma = 8.97263^\circ$ $\alpha_x = 20.22780^\circ$ $s_{x1} = 4.71239$ $s_{x2} = 5.44934$ $Z_{v2} = 31.12885$ $\theta_{v2} = 3.34335^\circ$ |
| 4 | Chordal Thickness | s_{j1} s_{j2} | $s_{x1} \cos \gamma$ $Z_v m_x \cos \gamma \sin \theta_{v2}$ | $s_{j1} = 4.6547$ $h_{j1} = 3.0035$ $s_{j2} = 5.3796$ $h_{j2} = 4.0785$ |
| 5 | Chordal Addendum | h_{j1} h_{j2} | $h_{a1} + \frac{(s_{x1} \sin \gamma \cos \gamma)^2}{4 d_1}$ $h_{a2} + \frac{Z_v m_x \cos \gamma}{2} (1 - \cos \theta_{v2})$ | |

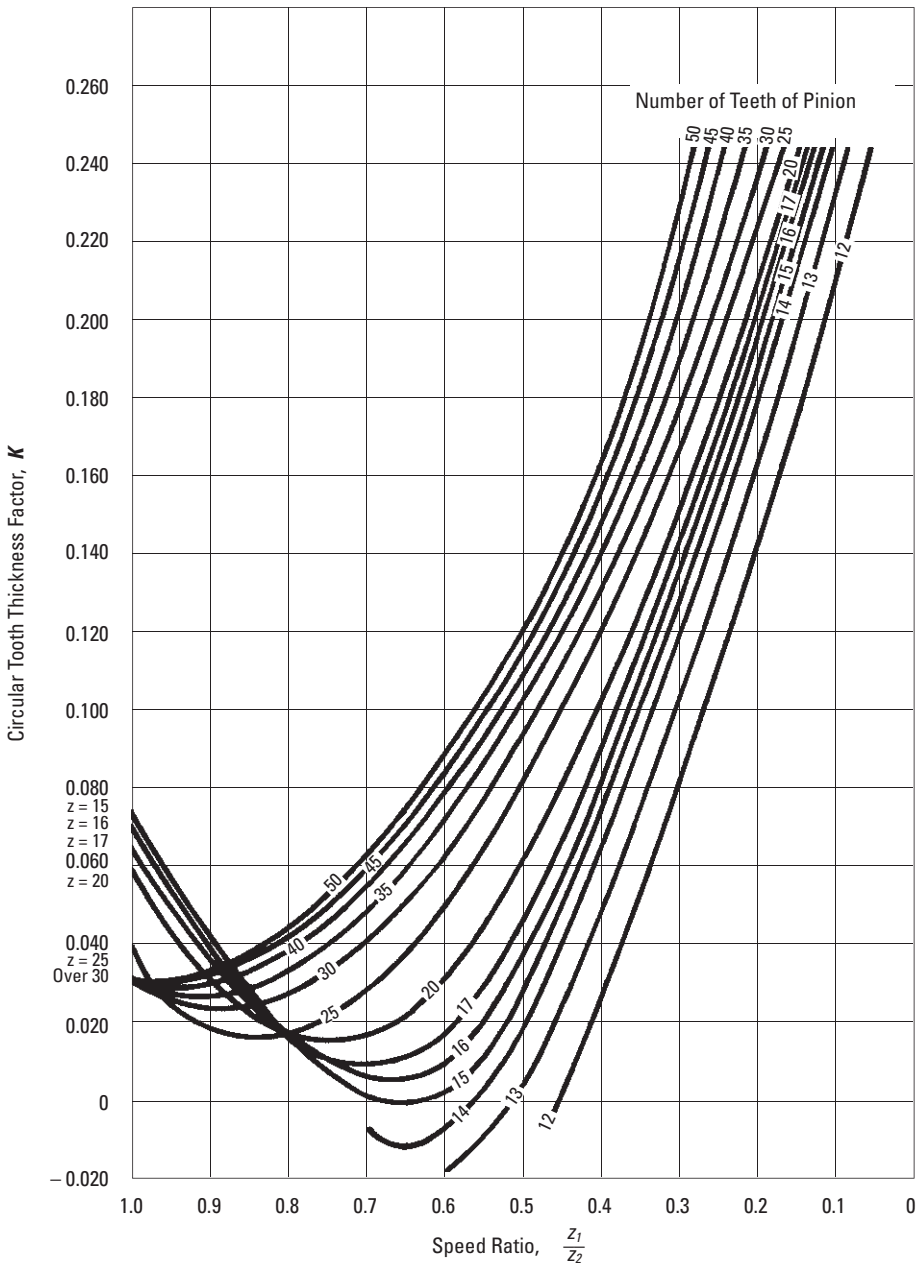


Fig. 10-3 Chart to Determine the Circular Tooth Thickness Factor K for Gleason Spiral Bevel Gears



Table 10-9 contains the equations for chordal thickness of normal module worms and worm gears.

Table 10-9 Equations for Chordal Thickness of Normal Module Worms and Worm Gears

| No. | Item | Symbol | Formula | Example |
|-----|---|---------------|---|--|
| 1 | Axial Circular Tooth Thickness of Worm | s_{n1} | $\frac{\pi m_n}{2}$ | $m_n = 3$ $\alpha_n = 20^\circ$ |
| | Radial Circular Tooth Thickness of Worm Gear | s_{n2} | $(\frac{\pi}{2} + 2X_{n2} \tan \alpha_n) m_n$ | $Z_w = 2$ $d_1 = 38$ $a_x = 65$ $Z_2 = 30$ $d_2 = 91.1433$ |
| 2 | No. of Teeth in an Equivalent Spur Gear (Worm Gear) | Z_{v2} | $\frac{Z_2}{\cos^3 \gamma}$ | $X_{n2} = 0.14278$ $h_{a1} = 3.0000$ $\gamma = 9.08472^\circ$ $h_{a2} = 3.42835$ |
| 3 | Half of Tooth Angle at Pitch Circle (Worm Gear) | θ_{v2} | $\frac{90}{Z_{v2}} + \frac{360 X_{n2} \tan \alpha_n}{\pi Z_{v2}}$ | $s_{n1} = 4.71239$ $s_{n2} = 5.02419$ $Z_{v2} = 31.15789$ $\theta_{v2} = 3.07964^\circ$ |
| 4 | Chordal Thickness | s_{j1} | $s_{n1} \cos \gamma$ | $s_{j1} = 4.7124$ |
| | | s_{j2} | $Z_v m_n \cos \gamma \sin \theta_{v2}$ | $h_{j1} = 3.0036$ $s_{j2} = 5.0218$ $h_{j2} = 3.4958$ |
| 5 | Chordal Addendum | h_{j1} | $h_{a1} + \frac{(s_{n1} \sin \gamma)^2}{4d_1}$ | |
| | | h_{j2} | $h_{a2} + \frac{Z_v m_n \cos \gamma}{2} (1 - \cos \theta_{v2})$ | |

10.2 Span Measurement Of Teeth

Span measurement of teeth, s_m , is a measure over a number of teeth, Z_m , made by means of a special tooth thickness micrometer. The value measured is the sum of normal circular tooth thickness on the base circle, s_{bn} , and normal pitch, $p_{en} (Z_m - 1)$.

10.2.1 Spur And Internal Gears

The applicable equations are presented in Table 10-10.

Table 10-10 Span Measurement of Spur and Internal Gear Teeth

| No. | Item | Symbol | Formula | Example |
|-----|----------------------|--------|---|---|
| 1 | Span Number of Teeth | Z_m | $Z_{mth} = zK(f) + 0.5$ See NOTE Select the nearest natural number of Z_{mth} as Z_m . | $m = 3$ $\alpha = 20^\circ$ $Z = 24$ $X = +0.4$ $Z_{mth} = 3.78787$ |
| 2 | Span Measurement | s_m | $m \cos \alpha [\pi (Z_m - 0.5) + z \operatorname{inv} \alpha] + 2Xm \sin \alpha$ | $Z_m = 4$ $s_m = 32.8266$ |

NOTE:

$$K(f) = \frac{1}{\pi} [\sec \alpha \sqrt{(1 + 2f)^2 - \cos^2 \alpha} - \operatorname{inv} \alpha - 2f \tan \alpha] \tag{10-2}$$

where $f = \frac{X}{Z}$

Figure 10-4 shows the span measurement of a spur gear. This measurement is on the outside of the teeth.

For internal gears the tooth profile is opposite to that of the external spur gear. Therefore, the measurement is between the inside of the tooth profiles.

10.2.2 Helical Gears

Tables 10-11 and 10-12 present equations for span measurement of the normal and the radial systems, respectively, of helical gears.

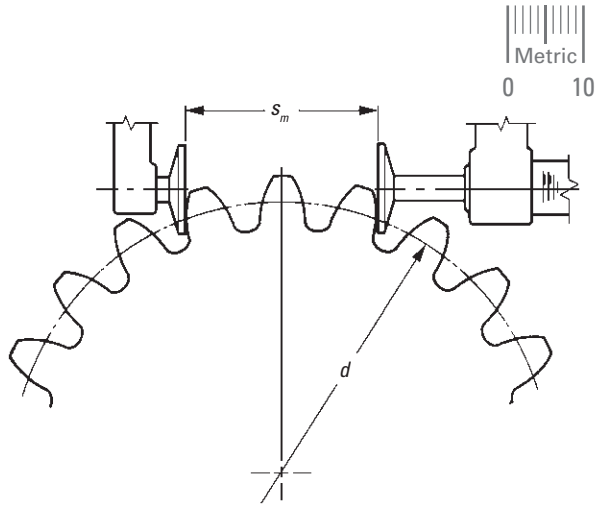


Fig. 10-4 Span Measurement of Teeth (Spur Gear)

Table 10-11 Equations for Span Measurement of the Normal System Helical Gears

| No. | Item | Symbol | Formula | Example |
|-----|----------------------|--------|--|--|
| 1 | Span Number of Teeth | z_m | $z_{mth} = zK(f, \beta) + 0.5$ See NOTE Select the nearest natural number of z_{mth} as z_m . | $m_n = 3, \alpha_n = 20^\circ, z = 24$ $\beta = 25^\circ 00' 00''$ $x_n = +0.4$ $\alpha_s = 21.88023^\circ$ |
| 2 | Span Measurement | s_m | $m_n \cos \alpha_n [\pi (z_m - 0.5) + z \operatorname{inv} \alpha_t]$ $+ 2x_n m_n \sin \alpha_n$ | $z_{mth} = 4.63009$ $z_m = 5$ $s_m = 42.0085$ |

NOTE:

$$K(f, \beta) = \frac{1}{\pi} \left[\left(1 + \frac{\sin^2 \beta}{\cos^2 \beta + \tan^2 \alpha_n} \right) \sqrt{(\cos^2 \beta + \tan^2 \alpha_n)(\sec \beta + 2f)^2 - 1} - \operatorname{inv} \alpha_t - 2f \tan \alpha_n \right] \quad (10-3)$$

where $f = \frac{x_n}{z}$

Table 10-12 Equations for Span Measurement of the Radial System Helical Gears

| No. | Item | Symbol | Formula | Example |
|-----|----------------------|--------|--|--|
| 1 | Span Number of Teeth | z_m | $z_{mth} = zK(f, \beta) + 0.5$ See NOTE Select the nearest natural number of z_{mth} as z_m . | $m_t = 3, \alpha_t = 20^\circ, z = 24$ $\beta = 22^\circ 30' 00''$ $x_t = +0.4$ $\alpha_n = 18.58597^\circ$ |
| 2 | Span Measurement | s_m | $m_t \cos \beta \cos \alpha_n [\pi (z_m - 0.5) + z \operatorname{inv} \alpha_t]$ $+ 2x_t m_t \sin \alpha_n$ | $z_{mth} = 4.31728$ $z_m = 4$ $s_m = 30.5910$ |

NOTE:

$$K(f, \beta) = \frac{1}{\pi} \left[\left(1 + \frac{\sin^2 \beta}{\cos^2 \beta + \tan^2 \alpha_n} \right) \sqrt{(\cos^2 \beta + \tan^2 \alpha_n)(\sec \beta + 2f)^2 - 1} - \operatorname{inv} \alpha_t - 2f \tan \alpha_n \right] \quad (10-4)$$

where $f = \frac{x_t}{z \cos \beta}$

There is a requirement of a minimum blank width to make a helical gear span measurement. Let b_{min} be the minimum value for blank width. Then

$$b_{min} = s_m \sin \beta_b + \Delta b \tag{10-5}$$

where β_b is the helix angle at the base cylinder,

$$\begin{aligned} \beta_b &= \tan^{-1}(\tan \beta \cos \alpha_n) \\ &= \sin^{-1}(\sin \beta \cos \alpha_n) \end{aligned} \tag{10-6}$$

From the above, we can determine that at least 3mm of Δb is required to make a stable measurement of s_m .

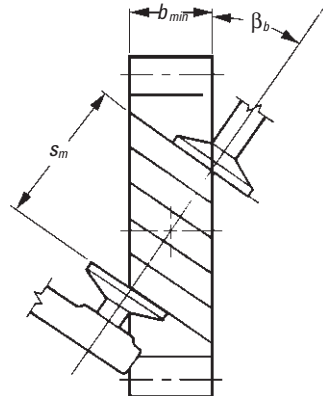


Fig. 10-5 Blank Width of Helical Gear

10.3 Over Pin (Ball) Measurement

As shown in **Figures 10-6 and 10-7**, measurement is made over the outside of two pins that are inserted in diametrically opposite tooth spaces, for even tooth number gears; and as close as possible for odd tooth number gears.

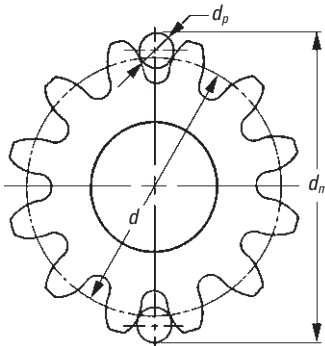


Fig. 10-6 Even Number of Teeth

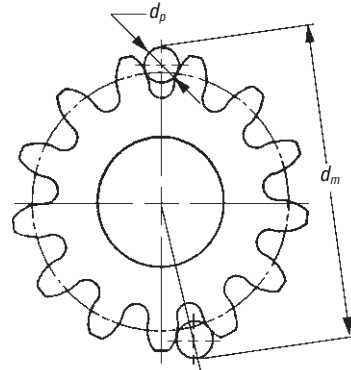


Fig. 10-7 Odd Number of Teeth

The procedure for measuring a rack with a pin or a ball is as shown in **Figure 10-9** by putting pin or ball in the tooth space and using a micrometer between it and a reference surface. Internal gears are similarly measured, except that the measurement is between the pins. See **Figure 10-10**. Helical gears can only be measured with balls. In the case of a worm, three pins are used, as shown in **Figure 10-11**. This is similar to the procedure of measuring a screw thread. All these cases are discussed in detail in the following sections.

Note that gear literature uses "over pins" and "over wires" terminology interchangeably. The "over wires" term is often associated with very fine pitch gears because the diameters are accordingly small.



The ideal diameters of pins when calculated from the equations of **Table 10-13** may not be practical. So, in practice, we select a standard pin diameter close to the ideal value. After the actual diameter of pin d_p is determined, the over pin measurement d_m can be calculated from **Table 10-14**.

Table 10-13 Equations for Calculating Ideal Pin Diameters

| No. | Item | Symbol | Formula | Example |
|-----|---|------------------|---|---|
| 1 | Half Tooth Space Angle at Base Circle | $\frac{\psi}{2}$ | $\left(\frac{\pi}{2z} - \text{inv } \alpha\right) - \frac{2x \tan \alpha}{z}$ | $m = 1$ $\alpha = 20^\circ$ |
| 2 | The Pressure Angle at the Point Pin is Tangent to Tooth Surface | α_p | $\cos^{-1} \left[\frac{zm \cos \alpha}{(z + 2x)m} \right]$ | $z = 20$ $x = 0$ |
| 3 | The Pressure Angle at Pin Center | ϕ | $\tan \alpha_p + \frac{\psi}{2}$ | $\frac{\psi}{2} = 0.0636354$ $\alpha_p = 20^\circ$ |
| 4 | Ideal Pin Diameter | d_p | $zm \cos \alpha (\text{inv } \phi + \frac{\psi}{2})$ | $\phi = 0.4276057$ $d_p = 1.7245$ |

NOTE: The units of angles $\psi/2$ and ϕ are radians.

Table 10-14 Equations for Over Pins Measurement for Spur Gears

| No. | Item | Symbol | Formula | Example |
|-----|----------------------------------|--------------------|---|--|
| 1 | Actual Diameter of Pin | d_p | See NOTE | Let $d_p = 1.7$, then: $\text{inv } \phi = 0.0268197$ $\phi = 24.1350^\circ$ $d_m = 22.2941$ |
| 2 | Involute Function ϕ | $\text{inv } \phi$ | $\frac{d_p}{mz \cos \alpha} - \frac{\pi}{2z} + \text{inv } \alpha + \frac{2x \tan \alpha}{z}$ | |
| 3 | The Pressure Angle at Pin Center | ϕ | Find from Involute Function Table | |
| 4 | Over Pins Measurement | d_m | Even Teeth $\frac{zm \cos \alpha}{\cos \phi} + d_p$ Odd Teeth $\frac{zm \cos \alpha}{\cos \phi} \cos \frac{90^\circ}{z} + d_p$ | |

NOTE: The value of the ideal pin diameter from **Table 10-13**, or its approximate value, is applied as the actual diameter of pin d_p here.

Table 10-15 is a dimensional table under the condition of module $m = 1$ and pressure angle $\alpha = 20^\circ$ with which the pin has the tangent point at $d + 2xm$ circle.

Table 10-15 The Size of Pin which Has the Tangent Point at $d + 2xm$ Circle of Spur Gears

| Number of Teeth z | Coefficient of Profile Shift, x $m = 1, \alpha = 20^\circ$ | | | | | | | |
|------------------------|--|--------|--------|--------|--------|--------|--------|--------|
| | -0.4 | -0.2 | 0 | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 |
| 10 | — | 1.6348 | 1.7886 | 1.9979 | 2.2687 | 2.6079 | 3.0248 | 3.5315 |
| 20 | 1.6231 | 1.6599 | 1.7245 | 1.8149 | 1.9306 | 2.0718 | 2.3389 | 2.4329 |
| 30 | 1.6418 | 1.6649 | 1.7057 | 1.7632 | 1.8369 | 1.9267 | 2.0324 | 2.1542 |
| 40 | 1.6500 | 1.6669 | 1.6967 | 1.7389 | 1.7930 | 1.8589 | 1.9365 | 2.0257 |
| 50 | 1.6547 | 1.6680 | 1.6915 | 1.7248 | 1.7675 | 1.8196 | 1.8810 | 1.9516 |
| 60 | 1.6577 | 1.6687 | 1.6881 | 1.7155 | 1.7509 | 1.7940 | 1.8448 | 1.9032 |
| 70 | 1.6598 | 1.6692 | 1.6857 | 1.7090 | 1.7392 | 1.7759 | 1.8193 | 1.8691 |
| 80 | 1.6614 | 1.6695 | 1.6839 | 1.7042 | 1.7305 | 1.7625 | 1.8003 | 1.8438 |
| 90 | 1.6625 | 1.6698 | 1.6825 | 1.7005 | 1.7237 | 1.7521 | 1.7857 | 1.8242 |
| 100 | 1.6635 | 1.6700 | 1.6814 | 1.6975 | 1.7184 | 1.7439 | 1.7740 | 1.8087 |
| 110 | 1.6642 | 1.6701 | 1.6805 | 1.6951 | 1.7140 | 1.7372 | 1.7645 | 1.7960 |
| 120 | 1.6649 | 1.6703 | 1.6797 | 1.6931 | 1.7104 | 1.7316 | 1.7567 | 1.7855 |
| 130 | 1.6654 | 1.6704 | 1.6791 | 1.6914 | 1.7074 | 1.7269 | 1.7500 | 1.7766 |
| 140 | 1.6659 | 1.6705 | 1.6785 | 1.6900 | 1.7048 | 1.7229 | 1.7444 | 1.7690 |
| 150 | 1.6663 | 1.6706 | 1.6781 | 1.6887 | 1.7025 | 1.7195 | 1.7394 | 1.7625 |
| 160 | 1.6666 | 1.6706 | 1.6777 | 1.6877 | 1.7006 | 1.7164 | 1.7351 | 1.7567 |
| 170 | 1.6669 | 1.6707 | 1.6773 | 1.6867 | 1.6989 | 1.7138 | 1.7314 | 1.7517 |
| 180 | 1.6672 | 1.6708 | 1.6770 | 1.6858 | 1.6973 | 1.7114 | 1.7280 | 1.7472 |
| 190 | 1.6674 | 1.6708 | 1.6767 | 1.6851 | 1.6960 | 1.7093 | 1.7250 | 1.7432 |
| 200 | 1.6676 | 1.6708 | 1.6764 | 1.6844 | 1.6947 | 1.7074 | 1.7223 | 1.7396 |

10.3.2 Spur Racks And Helical Racks

In measuring a rack, the pin is ideally tangent with the tooth flank at the pitch line. The equations in Table 10-16 can, thus, be derived. In the case of a helical rack, module m , and pressure angle α , in Table 10-16, can be substituted by normal module, m_n , and normal pressure angle, α_n , resulting in Table 10-16A.

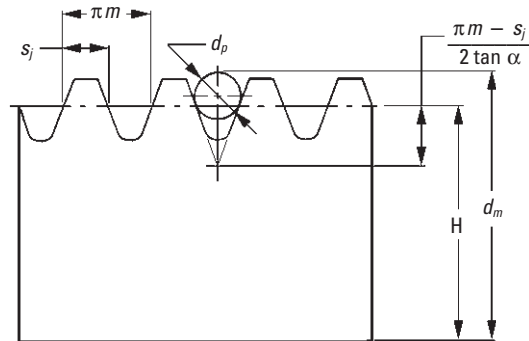


Fig. 10-9 Over Pins Measurement for a Rack Using a Pin or a Ball

Table 10-16 Equations for Over Pins Measurement of Spur Racks

| No. | Item | Symbol | Formula | Example |
|-----|-----------------------|--------|--|--|
| 1 | Ideal Pin Diameter | d_p' | $\frac{\pi m - s_j}{\cos \alpha}$ | $m = 1$ $s_j = 1.5708$ $\alpha = 20^\circ$ |
| 2 | Over Pins Measurement | d_m | $H - \frac{\pi m - s_j}{2 \tan \alpha} + \frac{d_p}{2} \left(1 + \frac{1}{\sin \alpha} \right)$ | Ideal Pin Diameter $d_p' = 1.6716$ Actual Pin Diameter $d_p = 1.7$ $H = 14.0000$ $d_m = 15.1774$ |

Table 10-16A Equations for Over Pins Measurement of Helical Racks

| No. | Item | Symbol | Formula | Example |
|-----|-----------------------|--------|--|--|
| 1 | Ideal Pin Diameter | d_p' | $\frac{\pi m_n - s_j}{\cos \alpha_n}$ | $m_n = 1$ $s_j = 1.5708$ Ideal Pin Diameter Actual Pin Diameter $H = 14.0000$ |
| 2 | Over Pins Measurement | d_m | $H - \frac{\pi m_n - s_j}{2 \tan \alpha_n} + \frac{d_p}{2} \left(1 + \frac{1}{\sin \alpha_n} \right)$ | $\alpha_n = 20^\circ$ $\beta = 15^\circ$ $d_p' = 1.6716$ $d_p = 1.7$ $d_m = 15.1774$ |

10.3.3 Internal Gears

As shown in **Figure 10-10**, measuring an internal gear needs a proper pin which has its tangent point at $d + 2xm$ circle. The equations are in **Table 10-17** for obtaining the ideal pin diameter. The equations for calculating the between pin measurement, d_m , are given in **Table 10-18**.

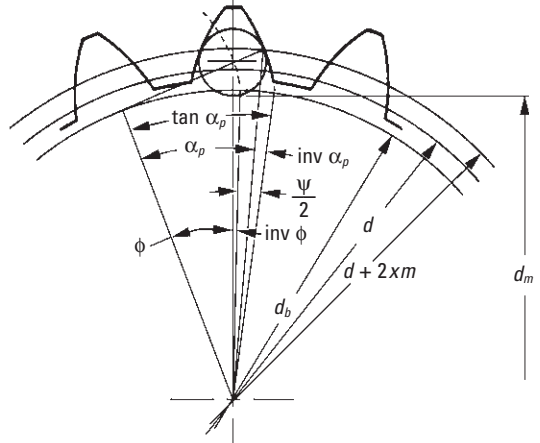


Fig. 10-10 Between Pin Dimension of Internal Gears

Table 10-17 Equations for Calculating Pin Size for Internal Gears

| No. | Item | Symbol | Formula | Example |
|-----|---|------------------|---|--|
| 1 | Half of Tooth Space Angle at Base Circle | $\frac{\Psi}{2}$ | $\left(\frac{\pi}{2z} + \text{inv } \alpha \right) + \frac{2x \tan \alpha}{z}$ | $m = 1$ $\alpha = 20^\circ$ $z = 40$ $x = 0$ $\frac{\Psi}{2} = 0.054174$ |
| 2 | The Pressure Angle at the Point Pin is Tangent to Tooth Surface | α_p | $\cos^{-1} \left[\frac{zm \cos \alpha}{(z + 2x)m} \right]$ | $\alpha_p = 20^\circ$ |
| 3 | The Pressure Angle at Pin Center | ϕ | $\tan \alpha_p - \frac{\Psi}{2}$ | $\phi = 0.309796$ |
| 4 | Ideal Pin Diameter | d_p | $zm \cos \alpha \left(\frac{\Psi}{2} - \text{inv } \phi \right)$ | $d_p = 1.6489$ |

NOTE: The units of angles $\Psi/2$ and ϕ are radians.

Table 10-18 Equations for Between Pins Measurement of Internal Gears

| No. | Item | Symbol | Formula | Example |
|-----|----------------------------------|--------------------|---|--|
| 1 | Actual Diameter of Pin | d_p | See NOTE | Let $d_p = 1.7$, then: $\text{inv } \phi = 0.0089467$ $\phi = 16.9521^\circ$ $d_m = 37.5951$ |
| 2 | Involute Function ϕ | $\text{inv } \phi$ | $\left(\frac{\pi}{2z} + \text{inv } \alpha\right) - \frac{d_p}{zm \cos \alpha} + \frac{2x \tan \alpha}{z}$ | |
| 3 | The Pressure Angle at Pin Center | ϕ | Find from Involute Function Table | |
| 4 | Between Pins Measurement | d_m | Even Teeth $\frac{zm \cos \alpha}{\cos \phi} - d_p$ Odd Teeth $\frac{zm \cos \alpha}{\cos \phi} \cos \frac{90^\circ}{z} - d_p$ | |

NOTE: First, calculate the ideal pin diameter. Then, choose the nearest practical actual pin size.

Table 10-19 lists ideal pin diameters for standard and profile shifted gears under the condition of module $m = 1$ and pressure angle $\alpha = 20^\circ$, which makes the pin tangent to the pitch circle $d + 2xm$.

Table 10-19 The Size of Pin that is Tangent at Pitch Circle $d + 2xm$ of Internal Gears

| Number of Teeth z | Coefficient of Profile Shift, x $m = 1, \alpha = 20^\circ$ | | | | | | | |
|------------------------|--|--------|--------|--------|--------|--------|--------|--------|
| | -0.4 | -0.2 | 0 | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 |
| 10 | — | 1.4789 | 1.5936 | 1.6758 | 1.7283 | 1.7519 | 1.7460 | 1.7092 |
| 20 | 1.4687 | 1.5604 | 1.6284 | 1.6759 | 1.7047 | 1.7154 | 1.7084 | 1.6837 |
| 30 | 1.5309 | 1.5942 | 1.6418 | 1.6751 | 1.6949 | 1.7016 | 1.6956 | 1.6771 |
| 40 | 1.5640 | 1.6123 | 1.6489 | 1.6745 | 1.6895 | 1.6944 | 1.6893 | 1.6744 |
| 50 | 1.5845 | 1.6236 | 1.6533 | 1.6740 | 1.6862 | 1.6900 | 1.6856 | 1.6732 |
| 60 | 1.5985 | 1.6312 | 1.6562 | 1.6737 | 1.6839 | 1.6870 | 1.6832 | 1.6725 |
| 70 | 1.6086 | 1.6368 | 1.6583 | 1.6734 | 1.6822 | 1.6849 | 1.6815 | 1.6721 |
| 80 | 1.6162 | 1.6410 | 1.6600 | 1.6732 | 1.6810 | 1.6833 | 1.6802 | 1.6718 |
| 90 | 1.6222 | 1.6443 | 1.6612 | 1.6731 | 1.6800 | 1.6820 | 1.6792 | 1.6717 |
| 100 | 1.6270 | 1.6470 | 1.6622 | 1.6729 | 1.6792 | 1.6810 | 1.6784 | 1.6716 |
| 110 | 1.6310 | 1.6492 | 1.6631 | 1.6728 | 1.6785 | 1.6801 | 1.6778 | 1.6715 |
| 120 | 1.6343 | 1.6510 | 1.6638 | 1.6727 | 1.6779 | 1.6794 | 1.6772 | 1.6714 |
| 130 | 1.6371 | 1.6525 | 1.6644 | 1.6727 | 1.6775 | 1.6788 | 1.6768 | 1.6714 |
| 140 | 1.6396 | 1.6539 | 1.6649 | 1.6726 | 1.6771 | 1.6783 | 1.6764 | 1.6714 |
| 150 | 1.6417 | 1.6550 | 1.6653 | 1.6725 | 1.6767 | 1.6779 | 1.6761 | 1.6713 |
| 160 | 1.6435 | 1.6561 | 1.6657 | 1.6725 | 1.6764 | 1.6775 | 1.6758 | 1.6713 |
| 170 | 1.6451 | 1.6570 | 1.6661 | 1.6724 | 1.6761 | 1.6772 | 1.6755 | 1.6713 |
| 180 | 1.6466 | 1.6578 | 1.6664 | 1.6724 | 1.6759 | 1.6768 | 1.6753 | 1.6713 |
| 190 | 1.6479 | 1.6585 | 1.6666 | 1.6724 | 1.6757 | 1.6766 | 1.6751 | 1.6713 |
| 200 | 1.6491 | 1.6591 | 1.6669 | 1.6723 | 1.6755 | 1.6763 | 1.6749 | 1.6713 |



10.3.4 Helical Gears

The ideal pin that makes contact at the $d + 2x_n m_n$ pitch circle of a helical gear can be obtained from the same above equations, but with the teeth number z substituted by the equivalent (virtual) teeth number z_v .

Table 10-20 presents equations for deriving over pin diameters.

Table 10-20 Equations for Calculating Pin Size for Helical Gears in the Normal System

| No. | Item | Symbol | Formula | Example |
|-----|---|--------------------|--|---|
| 1 | Number of Teeth of an Equivalent Spur Gear | z_v | $\frac{z}{\cos^3 \beta}$ | $m_n = 1$ $\alpha_n = 20^\circ$ $z = 20$ |
| 2 | Half Tooth Space Angle at Base Circle | $\frac{\Psi_v}{2}$ | $\frac{\pi}{2z_v} - \text{inv } \alpha_n - \frac{2x_n \tan \alpha_n}{z_v}$ | $\beta = 15^\circ 00' 00''$ $x_n = +0.4$ $z_v = 22.19211$ |
| 3 | Pressure Angle at the Point Pin is Tangent to Tooth Surface | α_v | $\cos^{-1} \left(\frac{z_v \cos \alpha_n}{z_v + 2x_n} \right)$ | $\frac{\Psi_v}{2} = 0.0427566$ |
| 4 | Pressure Angle at Pin Center | ϕ_v | $\tan \alpha_v + \frac{\Psi_v}{2}$ | $\alpha_v = 24.90647^\circ$ |
| 5 | Ideal Pin Diameter | d_p | $z_v m_n \cos \alpha_n \left(\text{inv } \phi_v + \frac{\Psi_v}{2} \right)$ | $\phi_v = 0.507078$ $d_p = 1.9020$ |

NOTE: The units of angles $\Psi_v/2$ and ϕ_v are radians.

Table 10-21 presents equations for calculating over pin measurements for helical gears in the normal system.

Table 10-21 Equations for Calculating Over Pins Measurement for Helical Gears in the Normal System

| No. | Item | Symbol | Formula | Example |
|-----|------------------------------|--------------------|---|--|
| 1 | Actual Pin Diameter | d_p | See NOTE | Let $d_p = 2$, then $\alpha_t = 20.646896^\circ$ $\text{inv } \phi = 0.058890$ $\phi = 30.8534$ $d_m = 24.5696$ |
| 2 | Involute Function ϕ | $\text{inv } \phi$ | $\frac{d_p}{m_n z \cos \alpha_n} - \frac{\pi}{2z} + \text{inv } \alpha_t + \frac{2x_n \tan \alpha_n}{z}$ | |
| 3 | Pressure Angle at Pin Center | ϕ | Find from Involute Function Table | |
| 4 | Over Pins Measurement | d_m | Even Teeth: $\frac{zm_n \cos \alpha_t}{\cos \beta \cos \phi} + d_p$ Odd Teeth: $\frac{zm_n \cos \alpha_t}{\cos \beta \cos \phi} \cos \frac{90^\circ}{z} + d_p$ | |

NOTE: The ideal pin diameter of Table 10-20, or its approximate value, is entered as the actual diameter of d_p .

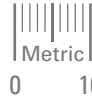


Table 10-22 and Table 10-23 present equations for calculating pin measurements for helical gears in the radial (perpendicular to axis) system.

Table 10-22 Equations for Calculating Pin Size for Helical Gears in the Radial System

| No. | Item | Symbol | Formula | Example |
|-----|---|--------------------|---|--|
| 1 | Number of Teeth of an Equivalent Spur Gear | z_v | $\frac{z}{\cos^3 \beta}$ | $m_t = 3$ $\alpha_t = 20^\circ$ |
| 2 | Half Tooth Space Angle at Base Circle | $\frac{\Psi_v}{2}$ | $\frac{\pi}{2z_v} - \text{inv } \alpha_n - \frac{2x_t \tan \alpha_t}{z_v}$ | $z = 36$ $\beta = 33^\circ 33' 26.3''$ $\alpha_n = 16.87300^\circ$ |
| 3 | Pressure Angle at the Point Pin is tangent to Tooth Surface | α_v | $\cos^{-1} \left(\frac{z_v \cos \alpha_n}{z_v + 2 \frac{x_t}{\cos \beta}} \right)$ | $X_t = +0.2$ $z_v = 62.20800$ $\frac{\Psi_v}{2} = 0.014091$ |
| 4 | Pressure Angle at Pin Center | ϕ_v | $\tan \alpha_v + \frac{\Psi_v}{2}$ | $\alpha_v = 18.26390$ $\phi_v = 0.34411$ $\text{inv } \phi_v = 0.014258$ |
| 5 | Ideal Pin Diameter | d_p | $z_v m_t \cos \beta \cos \alpha_n \left(\text{inv } \phi_v + \frac{\Psi_v}{2} \right)$ | $d_p = 4.2190$ |

NOTE: The units of angles $\Psi_v/2$ and ϕ_v are radians.

Table 10-23 Equations for Calculating Over Pins Measurement for Helical Gears in the Radial System

| No. | Item | Symbol | Formula | Example |
|-----|------------------------------|--------------------|---|--|
| 1 | Actual Pin Diameter | d_p | See NOTE | $d_p = 4.2190$ $\text{inv } \phi = 0.024302$ $\phi = 23.3910$ $d_m = 114.793$ |
| 2 | Involute Function ϕ | $\text{inv } \phi$ | $\frac{d_p}{m_t z \cos \beta \cos \alpha_n} - \frac{\pi}{2z} + \text{inv } \alpha_t + \frac{2x_t \tan \alpha_t}{z}$ | |
| 3 | Pressure Angle at Pin Center | ϕ | Find from Involute Function Table | |
| 4 | Over Pins Measurement | d_m | Even Teeth: $\frac{z m_t \cos \alpha_t}{\cos \phi} + d_p$ Odd Teeth: $\frac{z m_t \cos \alpha_t}{\cos \phi} \cos \frac{90^\circ}{z} + d_p$ | |

NOTE: The ideal pin diameter of Table 10-22, or its approximate value, is applied as the actual diameter of pin d_p here.



10.3.5 Three Wire Method Of Worm Measurement

The teeth profile of Type III worms which are most popular are cut by standard cutters with a pressure angle $\alpha_c = 20^\circ$. This results in the normal pressure angle of the worm being a bit smaller than 20° . The equation below shows how to calculate a Type III worm in an AGMA system.

$$\alpha_n = \alpha_c - \frac{90^\circ}{Z_w} \frac{r}{r_c \cos^2 \gamma + r} \sin^3 \gamma \tag{10-14}$$

where:

- r = Worm Pitch Radius
- r_c = Cutter Radius
- Z_w = Number of Threads
- γ = Lead Angle of Worm

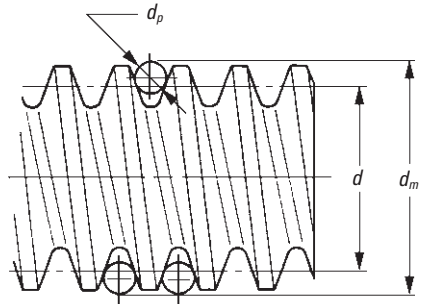


Fig. 10-11 Three Wire Method of a Worm

The exact equation for a three wire method of Type III worm is not only difficult to comprehend, but also hard to calculate precisely. We will introduce two approximate calculation methods here:

- (a) Regard the tooth profile of the worm as a linear tooth profile of a rack and apply its equations. Using this system, the three wire method of a worm can be calculated by **Table 10-24**.

Table 10-24 Equations for Three Wire Method of Worm Measurement, (a)-1

| No. | Item | Symbol | Formula | Example |
|-----|------------------------|--------|--|--|
| 1 | Ideal Pin Diameter | d_p' | $\frac{\pi m_x}{2 \cos \alpha_x}$ | $m_x = 2$ $\alpha_x = 20^\circ$ $Z_w = 1$ $d_f = 31$ $\gamma = 3.691386^\circ$ $\alpha_x = 20.03827^\circ$ |
| 2 | Three Wire Measurement | d_m | $d_f - \frac{\pi m_x}{2 \tan \alpha_x} + d_p \left(1 + \frac{1}{\sin \alpha_x} \right)$ | $d_p' = 3.3440$; let $d_p = 3.3$ $d_m = 35.3173$ |

These equations presume the worm lead angle to be very small and can be neglected. Of course, as the lead angle gets larger, the equations' error gets correspondingly larger. If the lead angle is considered as a factor, the equations are as in **Table 10-25**.

Table 10-25 Equations for Three Wire Method of Worm Measurement, (a)-2

| No. | Item | Symbol | Formula | Example |
|-----|------------------------|--------|---|---|
| 1 | Ideal Pin Diameter | d_p' | $\frac{\pi m_n}{2 \cos \alpha_n}$ | $m_x = 2$ $\alpha_n = 20^\circ$ $Z_w = 1$ $d_f = 31$ |
| 2 | Three Wire Measurement | d_m | $d_f - \frac{\pi m_n}{2 \tan \alpha_n} + d_p \left(1 + \frac{1}{\sin \alpha_n} \right) - \frac{(d_p \cos \alpha_n \sin \gamma)^2}{2d_f}$ | $m_n = 1.99585$ $d_p' = 3.3363$; let $d_p = 3.3$ $d_m = 35.3344$ |



(b) Consider a worm to be a helical gear.

This means applying the equations for calculating over pins measurement of helical gears to the case of three wire method of a worm. Because the tooth profile of Type III worm is not an involute curve, the method yields an approximation. However, the accuracy is adequate in practice.

Tables 10-26 and 10-27 contain equations based on the axial system. Tables 10-28 and 10-29 are based on the normal system.

Table 10-26 Equation for Calculating Pin Size for Worms in the Axial System, (b)-1

| No. | Item | Symbol | Formula | Example |
|-----|---|--------------------|--|--|
| 1 | Number of Teeth of an Equivalent Spur Gear | z_v | $\frac{z_w}{\cos^3(90 - \gamma)}$ | $m_x = 2$ $\alpha_n = 20^\circ$ |
| 2 | Half Tooth Space Angle at Base Circle | $\frac{\psi_v}{2}$ | $\frac{\pi}{2z_v} - \text{inv } \alpha_n$ | $z_w = 1$ $d_f = 31$ $\gamma = 3.691386^\circ$ |
| 3 | Pressure Angle at the Point Pin is Tangent to Tooth Surface | α_v | $\cos^{-1}\left(\frac{z_v \cos \alpha_n}{z_v}\right)$ | $z_v = 3747.1491$ $\frac{\psi_v}{2} = -0.014485$ |
| 4 | Pressure Angle at Pin Center | ϕ_v | $\tan \alpha_v + \frac{\psi_v}{2}$ | $\alpha_v = 20^\circ$ $\phi_v = 0.349485$ |
| 5 | Ideal Pin Diameter | d_p | $z_v m_x \cos \gamma \cos \alpha_n \left(\text{inv } \phi_v + \frac{\psi_v}{2}\right)$ | $\text{inv } \phi_v = 0.014960$ $d_p = 3.3382$ |

NOTE: The units of angles $\psi_v/2$ and ϕ_v are radians.

Table 10-27 Equation for Three Wire Method for Worms in the Axial System, (b)-2

| No. | Item | Symbol | Formula | Example |
|-----|------------------------------|--------------------|---|--|
| 1 | Actual Pin Size | d_p | See NOTE 1 | Let $d_p = 3.3$ |
| 2 | Involute Function ϕ | $\text{inv } \phi$ | $\frac{d_p}{m_x z_w \cos \gamma \cos \alpha_n} - \frac{\pi}{2z_w} + \text{inv } \alpha_t$ | $\alpha_t = 79.96878^\circ$ $\text{inv } \alpha_t = 4.257549$ |
| 3 | Pressure Angle at Pin Center | ϕ | Find from Involute Function Table | $\text{inv } \phi = 4.446297$ $\phi = 80.2959^\circ$ |
| 4 | Three Wire Measurement | d_m | $\frac{z_w m_x \cos \alpha_t}{\tan \gamma \cos \phi} + d_p$ | $d_m = 35.3345$ |

NOTE: 1. The value of ideal pin diameter from Table 10-26, or its approximate value, is to be used as the actual pin diameter, d_p .

2. $\alpha_t = \tan^{-1}\left(\frac{\tan \alpha_n}{\sin \gamma}\right)$



Table 10-28 shows the calculation of a worm in the normal module system. Basically, the normal module system and the axial module system have the same form of equations. Only the notations of module make them different.

Table 10-28 Equation for Calculating Pin Size for Worms in the Normal System, (b)-3

| No. | Item | Symbol | Formula | Example |
|-----|---|--------------------|--|--|
| 1 | Number of Teeth of an Equivalent Spur Gear | Z_v | $\frac{Z_w}{\cos^3(90 - \gamma)}$ | $m_n = 2.5$ $\alpha_n = 20^\circ$ |
| 2 | Half of Tooth Space Angle at Base Circle | $\frac{\Psi_v}{2}$ | $\frac{\pi}{2Z_v} - \text{inv } \alpha_n$ | $Z_w = 1$ $d_f = 37$ $\gamma = 3.874288^\circ$ |
| 3 | Pressure Angle at the Point Pin is Tangent to Tooth Surface | α_v | $\cos^{-1}\left(\frac{Z_v \cos \alpha_n}{Z_v}\right)$ | $Z_v = 3241.792$ $\frac{\Psi_v}{2} = -0.014420$ |
| 4 | Pressure Angle at Pin Center | ϕ_v | $\tan \alpha_v + \frac{\Psi_v}{2}$ | $\alpha_v = 20^\circ$ $\phi_v = 0.349550$ |
| 5 | Ideal Pin Diameter | d_p | $Z_v m_n \cos \alpha_n \left(\text{inv } \phi_v + \frac{\Psi_v}{2}\right)$ | $\text{inv } \phi_v = 0.0149687$ $d_p = 4.1785$ |

NOTE: The units of angles $\Psi_v/2$ and ϕ_v are radians.

Table 10-29 Equations for Three Wire Method for Worms in the Normal System, (b)-4

| No. | Item | Symbol | Formula | Example |
|-----|------------------------------|--------------------|--|--|
| 1 | Actual Pin Size | d_p | See NOTE 1 | $d_p = 4.2$ |
| 2 | Involute Function ϕ | $\text{inv } \phi$ | $\frac{d_p}{m_n Z_w \cos \alpha_n} - \frac{\pi}{2 Z_w} + \text{inv } \alpha_t$ | $\alpha_t = 79.48331^\circ$ $\text{inv } \alpha_t = 3.999514$ |
| 3 | Pressure Angle at Pin Center | ϕ | Find from Involute Function Table | $\text{inv } \phi = 4.216536$ $\phi = 79.8947^\circ$ |
| 4 | Three Wire Measurement | d_m | $\frac{Z_w m_n \cos \alpha_t}{\sin \gamma \cos \phi} + d_p$ | $d_m = 42.6897$ |

NOTE: 1. The value of ideal pin diameter from **Table 10-28**, or its approximate value, is to be used as the actual pin diameter, d_p .

2. $\alpha_t = \tan^{-1}\left(\frac{\tan \alpha_n}{\sin \gamma}\right)$

10.4 Over Pins Measurements For Fine Pitch Gears With Specific Numbers Of Teeth

Table 10-30 presents measurements for metric gears. These are for standard ideal tooth thicknesses. Measurements can be adjusted accordingly to backlash allowance and tolerance; i.e., tooth thinning.

TABLE 10-30 METRIC GEAR OVER PINS MEASUREMENT

Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.30 | | | | Module 0.40 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------------------------|--------|----------------|--------|-----------------|--------|--------------|
| | Wire Size = 0.5184mm; 0.0204 Inch | | Wire Size = 0.6912mm; 0.0272 Inch | | Pitch Diameter | | Meas. Over Wire | | |
| | Pitch Diameter | | Meas. Over Wire | | mm | | Inch | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 5 | 1.500 | 0.0591 | | | 2.000 | 0.0787 | | | 5 |
| 6 | 1.800 | 0.0709 | | | 2.400 | 0.0945 | | | 6 |
| 7 | 2.100 | 0.0827 | | | 2.800 | 0.1102 | | | 7 |
| 8 | 2.400 | 0.0945 | | | 3.200 | 0.1260 | | | 8 |
| 9 | 2.700 | 0.1063 | | | 3.600 | 0.1417 | | | 9 |
| 10 | 3.000 | 0.1181 | | | 4.000 | 0.1575 | | | 10 |
| 11 | 3.300 | 0.1299 | | | 4.400 | 0.1732 | | | 11 |
| 12 | 3.600 | 0.1417 | | | 4.800 | 0.1890 | | | 12 |
| 13 | 3.900 | 0.1535 | | | 5.200 | 0.2047 | | | 13 |
| 14 | 4.200 | 0.1654 | | | 5.600 | 0.2205 | | | 14 |
| 15 | 4.500 | 0.1772 | | | 6.000 | 0.2362 | | | 15 |
| 16 | 4.800 | 0.1890 | | | 6.400 | 0.2520 | | | 16 |
| 17 | 5.100 | 0.2008 | | | 6.800 | 0.2677 | | | 17 |
| 18 | 5.400 | 0.2126 | 6.115 | 0.2408 | 7.200 | 0.2835 | 8.154 | 0.3210 | 18 |
| 19 | 5.700 | 0.2244 | 6.396 | 0.2518 | 7.600 | 0.2992 | 8.528 | 0.3357 | 19 |
| 20 | 6.000 | 0.2362 | 6.717 | 0.2644 | 8.000 | 0.3150 | 9.956 | 0.3526 | 20 |
| 21 | 6.300 | 0.2480 | 7.000 | 0.2756 | 8.400 | 0.3307 | 9.333 | 0.3674 | 21 |
| 22 | 6.600 | 0.2598 | 7.319 | 0.2881 | 8.800 | 0.3465 | 9.758 | 0.3842 | 22 |
| 23 | 6.900 | 0.2717 | 7.603 | 0.2993 | 9.200 | 0.3622 | 10.137 | 0.3991 | 23 |
| 24 | 7.200 | 0.2835 | 7.920 | 0.3118 | 9.600 | 0.3780 | 10.560 | 0.4157 | 24 |
| 25 | 7.500 | 0.2953 | 8.205 | 0.3230 | 10.000 | 0.3937 | 10.940 | 0.4307 | 25 |
| 26 | 7.800 | 0.3071 | 8.521 | 0.3355 | 10.400 | 0.4094 | 11.361 | 0.4473 | 26 |
| 27 | 8.100 | 0.3189 | 8.808 | 0.3468 | 10.800 | 0.4252 | 11.743 | 0.4623 | 27 |
| 28 | 8.400 | 0.3307 | 9.122 | 0.3591 | 11.200 | 0.4409 | 12.163 | 0.4789 | 28 |
| 29 | 8.700 | 0.3425 | 9.410 | 0.3705 | 11.600 | 0.4567 | 12.546 | 0.4939 | 29 |
| 30 | 9.000 | 0.3543 | 9.723 | 0.3828 | 12.000 | 0.4724 | 12.964 | 0.5104 | 30 |
| 31 | 9.300 | 0.3661 | 10.011 | 0.3941 | 12.400 | 0.4882 | 13.348 | 0.5255 | 31 |
| 32 | 9.600 | 0.3780 | 10.324 | 0.4065 | 12.800 | 0.5039 | 13.765 | 0.5419 | 32 |
| 33 | 9.900 | 0.3898 | 10.613 | 0.4178 | 13.200 | 0.5197 | 14.150 | 0.5571 | 33 |
| 34 | 10.200 | 0.4016 | 10.925 | 0.4301 | 13.600 | 0.5354 | 14.566 | 0.5735 | 34 |
| 35 | 10.500 | 0.4134 | 11.214 | 0.4415 | 14.000 | 0.5512 | 14.952 | 0.5887 | 35 |
| 36 | 10.800 | 0.4252 | 11.525 | 0.4538 | 14.400 | 0.5669 | 15.367 | 0.6050 | 36 |
| 37 | 11.100 | 0.4370 | 11.815 | 0.4652 | 14.800 | 0.5827 | 15.754 | 0.6202 | 37 |
| 38 | 11.400 | 0.4488 | 12.126 | 0.4774 | 15.200 | 0.5984 | 16.168 | 0.6365 | 38 |
| 39 | 11.700 | 0.4606 | 12.417 | 0.4888 | 15.600 | 0.6142 | 16.555 | 0.6518 | 39 |
| 40 | 12.000 | 0.4724 | 12.727 | 0.5010 | 16.000 | 0.6299 | 16.969 | 0.6681 | 40 |
| 41 | 12.300 | 0.4843 | 13.018 | 0.5125 | 16.400 | 0.6457 | 17.357 | 0.6833 | 41 |
| 42 | 12.600 | 0.4961 | 13.327 | 0.5247 | 16.800 | 0.6614 | 17.769 | 0.6996 | 42 |
| 43 | 12.900 | 0.5079 | 13.619 | 0.5362 | 17.200 | 0.6772 | 18.158 | 0.7149 | 43 |
| 44 | 13.200 | 0.5197 | 13.927 | 0.5483 | 17.600 | 0.6929 | 18.570 | 0.7311 | 44 |
| 45 | 13.500 | 0.5315 | 14.219 | 0.5598 | 18.000 | 0.7087 | 18.959 | 0.7464 | 45 |
| 46 | 13.800 | 0.5433 | 14.528 | 0.5720 | 18.400 | 0.7244 | 19.371 | 0.7626 | 46 |
| 47 | 14.100 | 0.5551 | 14.820 | 0.5835 | 18.800 | 0.7402 | 19.760 | 0.7780 | 47 |
| 48 | 14.400 | 0.5669 | 15.128 | 0.5956 | 19.200 | 0.7559 | 20.171 | 0.7941 | 48 |
| 49 | 14.700 | 0.5787 | 15.421 | 0.6071 | 19.600 | 0.7717 | 20.561 | 0.8095 | 49 |
| 50 | 15.000 | 0.5906 | 15.729 | 0.6192 | 20.000 | 0.7874 | 20.972 | 0.8257 | 50 |
| 51 | 15.300 | 0.6024 | 16.022 | 0.6308 | 20.400 | 0.8031 | 21.362 | 0.8410 | 51 |
| 52 | 15.600 | 0.6142 | 16.329 | 0.6429 | 20.800 | 0.8189 | 21.772 | 0.8572 | 52 |
| 53 | 15.900 | 0.6260 | 16.622 | 0.6544 | 21.200 | 0.8346 | 22.163 | 0.8726 | 53 |
| 54 | 16.200 | 0.6378 | 16.929 | 0.6665 | 21.600 | 0.8504 | 22.573 | 0.8887 | 54 |
| 55 | 16.500 | 0.6496 | 17.223 | 0.6781 | 22.000 | 0.8661 | 22.964 | 0.9041 | 55 |
| 56 | 16.800 | 0.6614 | 17.530 | 0.6901 | 22.400 | 0.8819 | 23.373 | 0.9202 | 56 |
| 57 | 17.100 | 0.6732 | 17.823 | 0.7017 | 22.800 | 0.8976 | 23.764 | 0.9356 | 57 |
| 58 | 17.400 | 0.6850 | 18.130 | 0.7138 | 23.200 | 0.9134 | 24.173 | 0.9517 | 58 |
| 59 | 17.700 | 0.6969 | 18.424 | 0.7253 | 23.600 | 0.9291 | 24.565 | 0.9671 | 59 |
| 60 | 18.000 | 0.7087 | 18.730 | 0.7374 | 24.000 | 0.9449 | 24.974 | 0.9832 | 60 |
| 61 | 18.300 | 0.7205 | 19.024 | 0.7490 | 24.400 | 0.9606 | 25.366 | 0.9987 | 61 |
| 62 | 18.600 | 0.7323 | 19.331 | 0.7610 | 24.800 | 0.9764 | 25.774 | 1.0147 | 62 |
| 63 | 18.900 | 0.7441 | 19.625 | 0.7726 | 25.200 | 0.9921 | 26.166 | 1.0302 | 63 |
| 64 | 19.200 | 0.7559 | 19.931 | 0.7847 | 25.600 | 1.0079 | 26.574 | 1.0462 | 64 |
| 65 | 19.500 | 0.7677 | 20.225 | 0.7963 | 26.000 | 1.0236 | 26.967 | 1.0617 | 65 |
| 66 | 19.800 | 0.7795 | 20.531 | 0.8083 | 26.400 | 1.0394 | 27.375 | 1.0777 | 66 |
| 67 | 20.100 | 0.7913 | 20.826 | 0.8199 | 26.800 | 1.0551 | 27.767 | 1.0932 | 67 |
| 68 | 20.400 | 0.8031 | 21.131 | 0.8319 | 27.200 | 1.0709 | 28.175 | 1.1093 | 68 |
| 69 | 20.700 | 0.8150 | 21.426 | 0.8435 | 27.600 | 1.0866 | 28.568 | 1.1247 | 69 |
| 70 | 21.000 | 0.8268 | 21.731 | 0.8556 | 28.000 | 1.1024 | 28.975 | 1.1408 | 70 |
| 71 | 21.300 | 0.8386 | 22.026 | 0.8672 | 28.400 | 1.1181 | 29.368 | 1.1562 | 71 |
| 72 | 21.600 | 0.8504 | 22.332 | 0.8792 | 28.800 | 1.1339 | 29.776 | 1.1723 | 72 |
| 73 | 21.900 | 0.8622 | 22.627 | 0.8908 | 29.200 | 1.1496 | 30.169 | 1.1877 | 73 |
| 74 | 22.200 | 0.8740 | 22.932 | 0.9028 | 29.600 | 1.1654 | 30.576 | 1.2038 | 74 |

Continued on the next page

TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT

Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.30 | | | | Module 0.40 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------|--------|-----------------------------------|--------|-----------------|--------|--------------|
| | Wire Size = 0.5184mm; 0.0204 Inch | | | | Wire Size = 0.6912mm; 0.0272 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 75 | 22.500 | 0.8858 | 23.227 | 0.9144 | 30.000 | 1.1811 | 30.969 | 1.2193 | 75 |
| 76 | 22.800 | 0.8976 | 23.532 | 0.9265 | 30.400 | 1.1969 | 31.376 | 1.2353 | 76 |
| 77 | 23.100 | 0.9094 | 23.827 | 0.9381 | 30.800 | 1.2126 | 31.770 | 1.2508 | 77 |
| 78 | 23.400 | 0.9213 | 24.132 | 0.9501 | 31.200 | 1.2283 | 32.176 | 1.2668 | 78 |
| 79 | 23.700 | 0.9331 | 24.428 | 0.9617 | 31.600 | 1.2441 | 32.570 | 1.2823 | 79 |
| 80 | 24.000 | 0.9449 | 24.732 | 0.9737 | 32.000 | 1.2598 | 32.977 | 1.2983 | 80 |
| 81 | 24.300 | 0.9567 | 25.028 | 0.9853 | 32.400 | 1.2756 | 33.370 | 1.3138 | 81 |
| 82 | 24.600 | 0.9685 | 25.333 | 0.9973 | 32.800 | 1.2913 | 33.777 | 1.3298 | 82 |
| 83 | 24.900 | 0.9803 | 25.628 | 1.0090 | 33.200 | 1.3071 | 34.171 | 1.3453 | 83 |
| 84 | 25.200 | 0.9921 | 25.933 | 1.0210 | 33.600 | 1.3228 | 34.577 | 1.3613 | 84 |
| 85 | 25.500 | 1.0039 | 26.228 | 1.0326 | 34.000 | 1.3386 | 34.971 | 1.3768 | 85 |
| 86 | 25.800 | 1.0157 | 26.533 | 1.0446 | 34.400 | 1.3543 | 35.377 | 1.3928 | 86 |
| 87 | 26.100 | 1.0276 | 26.829 | 1.0562 | 34.800 | 1.3701 | 35.771 | 1.4083 | 87 |
| 88 | 26.400 | 1.0394 | 27.133 | 1.0682 | 35.200 | 1.3858 | 36.177 | 1.4243 | 88 |
| 89 | 26.700 | 1.0512 | 27.429 | 1.0799 | 35.600 | 1.4016 | 36.572 | 1.4398 | 89 |
| 90 | 27.000 | 1.0630 | 27.733 | 1.0919 | 36.000 | 1.4173 | 36.977 | 1.4558 | 90 |
| 91 | 27.300 | 1.0748 | 28.029 | 1.1035 | 36.400 | 1.4331 | 37.372 | 1.4713 | 91 |
| 92 | 27.600 | 1.0866 | 28.333 | 1.1155 | 36.800 | 1.4488 | 37.778 | 1.4873 | 92 |
| 93 | 27.900 | 1.0984 | 28.629 | 1.1271 | 37.200 | 1.4646 | 38.172 | 1.5029 | 93 |
| 94 | 28.200 | 1.1102 | 28.933 | 1.1391 | 37.600 | 1.4803 | 38.578 | 1.5188 | 94 |
| 95 | 28.500 | 1.1220 | 29.230 | 1.1508 | 38.000 | 1.4961 | 38.973 | 1.5344 | 95 |
| 96 | 28.800 | 1.1339 | 29.533 | 1.1627 | 38.400 | 1.5118 | 39.378 | 1.5503 | 96 |
| 97 | 29.100 | 1.1457 | 29.830 | 1.1744 | 38.800 | 1.5276 | 39.773 | 1.5659 | 97 |
| 98 | 29.400 | 1.1575 | 30.134 | 1.1864 | 39.200 | 1.5433 | 40.178 | 1.5818 | 98 |
| 99 | 29.700 | 1.1693 | 30.430 | 1.1980 | 39.600 | 1.5591 | 40.573 | 1.5974 | 99 |
| 100 | 30.000 | 1.1811 | 30.734 | 1.2100 | 40.000 | 1.5748 | 40.978 | 1.6133 | 100 |
| 101 | 30.300 | 1.1929 | 31.030 | 1.2217 | 40.400 | 1.5906 | 41.373 | 1.6289 | 101 |
| 102 | 30.600 | 1.2047 | 31.334 | 1.2336 | 40.800 | 1.6063 | 41.778 | 1.6448 | 102 |
| 103 | 30.900 | 1.2165 | 31.630 | 1.2453 | 41.200 | 1.6220 | 42.174 | 1.6604 | 103 |
| 104 | 31.200 | 1.2283 | 31.934 | 1.2572 | 41.600 | 1.6378 | 42.579 | 1.6763 | 104 |
| 105 | 31.500 | 1.2402 | 32.230 | 1.2689 | 42.000 | 1.6535 | 42.974 | 1.6919 | 105 |
| 106 | 31.800 | 1.2520 | 32.534 | 1.2809 | 42.400 | 1.6693 | 43.379 | 1.7078 | 106 |
| 107 | 32.100 | 1.2638 | 32.831 | 1.2925 | 42.800 | 1.6850 | 43.774 | 1.7234 | 107 |
| 108 | 32.400 | 1.2756 | 33.134 | 1.3045 | 43.200 | 1.7008 | 44.179 | 1.7393 | 108 |
| 109 | 32.700 | 1.2874 | 33.431 | 1.3162 | 43.600 | 1.7165 | 44.574 | 1.7549 | 109 |
| 110 | 33.000 | 1.2992 | 33.734 | 1.3281 | 44.000 | 1.7323 | 44.979 | 1.7708 | 110 |
| 111 | 33.300 | 1.3110 | 34.031 | 1.3398 | 44.400 | 1.7480 | 45.374 | 1.7864 | 111 |
| 112 | 33.600 | 1.3228 | 34.334 | 1.3517 | 44.800 | 1.7638 | 45.779 | 1.8023 | 112 |
| 113 | 33.900 | 1.3346 | 34.631 | 1.3634 | 45.200 | 1.7795 | 46.175 | 1.8179 | 113 |
| 114 | 34.200 | 1.3465 | 34.934 | 1.3754 | 45.600 | 1.7953 | 46.579 | 1.8338 | 114 |
| 115 | 34.500 | 1.3583 | 35.231 | 1.3871 | 46.000 | 1.8110 | 46.975 | 1.8494 | 115 |
| 116 | 34.800 | 1.3701 | 35.534 | 1.3990 | 46.400 | 1.8268 | 47.379 | 1.8653 | 116 |
| 117 | 35.100 | 1.3819 | 35.831 | 1.4107 | 46.800 | 1.8425 | 47.773 | 1.8809 | 117 |
| 118 | 35.400 | 1.3937 | 36.135 | 1.4226 | 47.200 | 1.8583 | 48.178 | 1.8968 | 118 |
| 119 | 35.700 | 1.4055 | 36.431 | 1.4343 | 47.600 | 1.8740 | 48.573 | 1.9124 | 119 |
| 120 | 36.000 | 1.4173 | 36.735 | 1.4462 | 48.000 | 1.8898 | 48.979 | 1.9283 | 120 |
| 121 | 36.300 | 1.4291 | 37.032 | 1.4579 | 48.400 | 1.9055 | 49.373 | 1.9439 | 121 |
| 122 | 36.600 | 1.4409 | 37.335 | 1.4699 | 48.800 | 1.9213 | 49.780 | 1.9598 | 122 |
| 123 | 36.900 | 1.4528 | 37.632 | 1.4816 | 49.200 | 1.9370 | 50.176 | 1.9754 | 123 |
| 124 | 37.200 | 1.4646 | 37.935 | 1.4935 | 49.600 | 1.9528 | 50.580 | 1.9913 | 124 |
| 125 | 37.500 | 1.4764 | 38.232 | 1.5052 | 50.000 | 1.9685 | 50.976 | 2.0069 | 125 |
| 126 | 37.800 | 1.4882 | 38.535 | 1.5171 | 50.400 | 1.9843 | 51.380 | 2.0228 | 126 |
| 127 | 38.100 | 1.5000 | 38.832 | 1.5288 | 50.800 | 2.0000 | 51.776 | 2.0384 | 127 |
| 128 | 38.400 | 1.5118 | 39.135 | 1.5407 | 51.200 | 2.0157 | 52.180 | 2.0543 | 128 |
| 129 | 38.700 | 1.5236 | 39.432 | 1.5524 | 51.600 | 2.0315 | 52.576 | 2.0699 | 129 |
| 130 | 39.000 | 1.5354 | 39.735 | 1.5644 | 52.000 | 2.0472 | 52.980 | 2.0858 | 130 |
| 131 | 39.300 | 1.5472 | 40.032 | 1.5761 | 52.400 | 2.0630 | 53.376 | 2.1014 | 131 |
| 132 | 39.600 | 1.5591 | 40.335 | 1.5880 | 52.800 | 2.0787 | 53.780 | 2.1173 | 132 |
| 133 | 39.900 | 1.5709 | 40.632 | 1.5997 | 53.200 | 2.0945 | 54.176 | 2.1329 | 133 |
| 134 | 40.200 | 1.5827 | 40.935 | 1.6116 | 53.600 | 2.1102 | 54.580 | 2.1488 | 134 |
| 135 | 40.500 | 1.5945 | 41.232 | 1.6233 | 54.000 | 2.1260 | 54.976 | 2.1644 | 135 |
| 136 | 40.800 | 1.6063 | 41.535 | 1.6352 | 54.400 | 2.1417 | 55.380 | 2.1803 | 136 |
| 137 | 41.100 | 1.6181 | 41.832 | 1.6469 | 54.800 | 2.1575 | 55.777 | 2.1959 | 137 |
| 138 | 41.400 | 1.6299 | 42.135 | 1.6589 | 55.200 | 2.1732 | 56.180 | 2.2118 | 138 |
| 139 | 41.700 | 1.6417 | 42.433 | 1.6706 | 55.600 | 2.1890 | 56.577 | 2.2274 | 139 |
| 140 | 42.000 | 1.6535 | 42.735 | 1.6825 | 56.000 | 2.2047 | 56.980 | 2.2433 | 140 |
| 141 | 42.300 | 1.6654 | 43.033 | 1.6942 | 56.400 | 2.2205 | 57.377 | 2.2589 | 141 |
| 142 | 42.600 | 1.6772 | 43.335 | 1.7061 | 56.800 | 2.2362 | 57.780 | 2.2748 | 142 |
| 143 | 42.900 | 1.6890 | 43.633 | 1.7178 | 57.200 | 2.2520 | 58.177 | 2.2904 | 143 |
| 144 | 43.200 | 1.7008 | 43.935 | 1.7297 | 57.600 | 2.2677 | 58.580 | 2.3063 | 144 |

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TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT

Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.30 | | | | Module 0.40 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------|--------|-----------------------------------|--------|-----------------|--------|--------------|
| | Wire Size = 0.5184mm; 0.0204 Inch | | | | Wire Size = 0.6912mm; 0.0272 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 145 | 43.500 | 1.7126 | 44.233 | 1.7414 | 58.000 | 2.2835 | 58.977 | 2.3219 | 145 |
| 146 | 43.800 | 1.7244 | 44.535 | 1.7534 | 58.400 | 2.2992 | 59.381 | 2.3378 | 146 |
| 147 | 44.100 | 1.7362 | 44.833 | 1.7651 | 58.800 | 2.3150 | 59.777 | 2.3534 | 147 |
| 148 | 44.400 | 1.7480 | 45.135 | 1.7770 | 59.200 | 2.3307 | 60.181 | 2.3693 | 148 |
| 149 | 44.700 | 1.7598 | 45.433 | 1.7887 | 59.600 | 2.3465 | 60.577 | 2.3849 | 149 |
| 150 | 45.000 | 1.7717 | 45.735 | 1.8006 | 60.000 | 2.3622 | 60.981 | 2.4008 | 150 |
| 151 | 45.300 | 1.7835 | 46.033 | 1.8123 | 60.400 | 2.3780 | 61.377 | 2.4164 | 151 |
| 152 | 45.600 | 1.7953 | 46.336 | 1.8242 | 60.800 | 2.3937 | 61.781 | 2.4323 | 152 |
| 153 | 45.900 | 1.8071 | 46.633 | 1.8360 | 61.200 | 2.4094 | 62.181 | 2.4479 | 153 |
| 154 | 46.200 | 1.8189 | 46.936 | 1.8479 | 61.600 | 2.4252 | 62.581 | 2.4638 | 154 |
| 155 | 46.500 | 1.8307 | 47.233 | 1.8596 | 62.000 | 2.4409 | 62.978 | 2.4794 | 155 |
| 156 | 46.800 | 1.8425 | 47.536 | 1.8715 | 62.400 | 2.4567 | 63.381 | 2.4953 | 156 |
| 157 | 47.100 | 1.8543 | 47.833 | 1.8832 | 62.800 | 2.4724 | 63.778 | 2.5109 | 157 |
| 158 | 47.400 | 1.8661 | 48.136 | 1.8951 | 63.200 | 2.4882 | 64.181 | 2.5268 | 158 |
| 159 | 47.700 | 1.8780 | 48.433 | 1.9068 | 63.600 | 2.5039 | 64.578 | 2.5424 | 159 |
| 160 | 48.000 | 1.8898 | 48.736 | 1.9187 | 64.000 | 2.5197 | 64.981 | 2.5583 | 160 |
| 161 | 48.300 | 1.9016 | 49.033 | 1.9305 | 64.400 | 2.5354 | 65.378 | 2.5739 | 161 |
| 162 | 48.600 | 1.9134 | 49.336 | 1.9424 | 64.800 | 2.5512 | 65.781 | 2.5898 | 162 |
| 163 | 48.900 | 1.9252 | 49.633 | 1.9541 | 65.200 | 2.5669 | 66.178 | 2.6054 | 163 |
| 164 | 49.200 | 1.9370 | 49.936 | 1.9660 | 65.600 | 2.5827 | 66.581 | 2.6213 | 164 |
| 165 | 49.500 | 1.9488 | 50.234 | 1.9777 | 66.000 | 2.5984 | 66.978 | 2.6369 | 165 |
| 166 | 49.800 | 1.9606 | 50.536 | 1.9896 | 66.400 | 2.6142 | 67.381 | 2.6528 | 166 |
| 167 | 50.100 | 1.9724 | 50.834 | 2.0013 | 66.800 | 2.6299 | 67.778 | 2.6684 | 167 |
| 168 | 50.400 | 1.9843 | 51.136 | 2.0132 | 67.200 | 2.6457 | 68.181 | 2.6843 | 168 |
| 169 | 50.700 | 1.9961 | 51.434 | 2.0249 | 67.600 | 2.6614 | 68.578 | 2.6999 | 169 |
| 170 | 51.000 | 2.0079 | 51.736 | 2.0368 | 68.000 | 2.6772 | 68.981 | 2.7158 | 170 |
| 171 | 51.300 | 2.0197 | 52.034 | 2.0486 | 68.400 | 2.6929 | 69.378 | 2.7314 | 171 |
| 172 | 51.600 | 2.0315 | 52.336 | 2.0605 | 68.800 | 2.7087 | 69.781 | 2.7473 | 172 |
| 173 | 51.900 | 2.0433 | 52.634 | 2.0722 | 69.200 | 2.7244 | 70.178 | 2.7629 | 173 |
| 174 | 52.200 | 2.0551 | 52.936 | 2.0841 | 69.600 | 2.7402 | 70.581 | 2.7788 | 174 |
| 175 | 52.500 | 2.0669 | 53.234 | 2.0958 | 70.000 | 2.7559 | 70.979 | 2.7944 | 175 |
| 176 | 52.800 | 2.0787 | 53.536 | 2.1077 | 70.400 | 2.7717 | 71.381 | 2.8103 | 176 |
| 177 | 53.100 | 2.0906 | 53.834 | 2.1194 | 70.800 | 2.7874 | 71.779 | 2.8259 | 177 |
| 178 | 53.400 | 2.1024 | 54.136 | 2.1313 | 71.200 | 2.8031 | 72.181 | 2.8418 | 178 |
| 179 | 53.700 | 2.1142 | 54.434 | 2.1431 | 71.600 | 2.8189 | 72.579 | 2.8574 | 179 |
| 180 | 54.000 | 2.1260 | 54.736 | 2.1550 | 72.000 | 2.8346 | 72.981 | 2.8733 | 180 |
| 181 | 54.300 | 2.1378 | 55.034 | 2.1667 | 72.400 | 2.8504 | 73.379 | 2.8889 | 181 |
| 182 | 54.600 | 2.1496 | 55.336 | 2.1786 | 72.800 | 2.8661 | 73.781 | 2.9048 | 182 |
| 183 | 54.900 | 2.1614 | 55.634 | 2.1903 | 73.200 | 2.8819 | 74.179 | 2.9204 | 183 |
| 184 | 55.200 | 2.1732 | 55.936 | 2.2022 | 73.600 | 2.8976 | 74.581 | 2.9363 | 184 |
| 185 | 55.500 | 2.1850 | 56.234 | 2.2139 | 74.000 | 2.9134 | 74.979 | 2.9519 | 185 |
| 186 | 55.800 | 2.1969 | 56.536 | 2.2258 | 74.400 | 2.9291 | 75.381 | 2.9678 | 186 |
| 187 | 56.100 | 2.2087 | 56.834 | 2.2376 | 74.800 | 2.9449 | 75.779 | 2.9834 | 187 |
| 188 | 56.400 | 2.2205 | 57.136 | 2.2495 | 75.200 | 2.9606 | 76.181 | 2.9993 | 188 |
| 189 | 56.700 | 2.2323 | 57.434 | 2.2612 | 75.600 | 2.9764 | 76.579 | 3.0149 | 189 |
| 190 | 57.000 | 2.2441 | 57.736 | 2.2731 | 76.000 | 2.9921 | 76.981 | 3.0308 | 190 |
| 191 | 57.300 | 2.2559 | 58.036 | 2.2849 | 76.400 | 3.0079 | 77.381 | 3.0465 | 191 |
| 192 | 57.600 | 2.2677 | 58.336 | 2.2967 | 76.800 | 3.0236 | 77.781 | 3.0623 | 192 |
| 193 | 57.900 | 2.2795 | 58.636 | 2.3085 | 77.200 | 3.0394 | 78.181 | 3.0780 | 193 |
| 194 | 58.200 | 2.2913 | 58.936 | 2.3203 | 77.600 | 3.0551 | 78.581 | 3.0938 | 194 |
| 195 | 58.500 | 2.3031 | 59.236 | 2.3321 | 78.000 | 3.0709 | 78.981 | 3.1095 | 195 |
| 196 | 58.800 | 2.3150 | 59.536 | 2.3440 | 78.400 | 3.0866 | 79.381 | 3.1253 | 196 |
| 197 | 59.100 | 2.3268 | 59.836 | 2.3558 | 78.800 | 3.1024 | 79.781 | 3.1410 | 197 |
| 198 | 59.400 | 2.3386 | 60.136 | 2.3676 | 79.200 | 3.1181 | 80.181 | 3.1568 | 198 |
| 199 | 59.700 | 2.3504 | 60.436 | 2.3794 | 79.600 | 3.1339 | 80.581 | 3.1725 | 199 |
| 200 | 60.000 | 2.3622 | 60.736 | 2.3912 | 80.000 | 3.1496 | 80.981 | 3.1883 | 200 |
| 201 | 60.300 | 2.3740 | 61.036 | 2.4029 | 80.400 | 3.1654 | 81.379 | 3.2039 | 201 |
| 202 | 60.600 | 2.3858 | 61.336 | 2.4147 | 80.800 | 3.1811 | 81.781 | 3.2197 | 202 |
| 203 | 60.900 | 2.3976 | 61.636 | 2.4266 | 81.200 | 3.1969 | 82.181 | 3.2354 | 203 |
| 204 | 61.200 | 2.4094 | 61.936 | 2.4384 | 81.600 | 3.2126 | 82.581 | 3.2512 | 204 |
| 205 | 61.500 | 2.4213 | 62.236 | 2.4502 | 82.000 | 3.2283 | 82.980 | 3.2669 | 205 |
| 240 | 72.000 | 2.8346 | 72.737 | 2.8637 | 96.000 | 3.7795 | 96.982 | 3.8182 | 240 |
| 280 | 84.000 | 3.3071 | 84.737 | 3.3361 | 112.000 | 4.4094 | 112.983 | 4.4481 | 280 |
| 300 | 90.000 | 3.5433 | 90.737 | 3.5723 | 120.000 | 4.7244 | 120.983 | 4.7631 | 300 |
| 340 | 102.000 | 4.0157 | 102.738 | 4.0448 | 136.000 | 5.3543 | 136.983 | 5.3930 | 340 |
| 380 | 114.000 | 4.4882 | 114.738 | 4.5172 | 152.000 | 5.9843 | 152.984 | 6.0230 | 380 |
| 400 | 120.000 | 4.7244 | 120.738 | 4.7535 | 160.000 | 6.2992 | 160.984 | 6.3379 | 400 |
| 440 | 132.000 | 5.1969 | 132.738 | 5.2259 | 176.000 | 6.9291 | 176.984 | 6.9679 | 440 |
| 480 | 144.000 | 5.6693 | 144.738 | 5.6984 | 192.000 | 7.5591 | 192.984 | 7.5978 | 480 |
| 500 | 150.000 | 5.9055 | 150.738 | 5.9346 | 200.000 | 7.8740 | 200.984 | 7.9128 | 500 |

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TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT

Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.50 | | | | Module 0.75 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------|--------|-----------------------------------|--------|-----------------|--------|--------------|
| | Wire Size = 0.8640mm; 0.0340 Inch | | | | Wire Size = 1.2960mm; 0.0510 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 5 | 2.500 | 0.0984 | | | 3.750 | 0.1476 | | | 5 |
| 6 | 3.000 | 0.1181 | | | 4.500 | 0.1772 | | | 6 |
| 7 | 3.500 | 0.1378 | | | 5.250 | 0.2067 | | | 7 |
| 8 | 4.000 | 0.1575 | | | 6.000 | 0.2362 | | | 8 |
| 9 | 4.500 | 0.1772 | | | 6.750 | 0.2657 | | | 9 |
| 10 | 5.000 | 0.1969 | | | 7.500 | 0.2953 | | | 10 |
| 11 | 5.500 | 0.2165 | | | 8.250 | 0.3248 | | | 11 |
| 12 | 6.000 | 0.2362 | | | 9.000 | 0.3543 | | | 12 |
| 13 | 6.500 | 0.2559 | | | 9.750 | 0.3839 | | | 13 |
| 14 | 7.000 | 0.2756 | | | 10.500 | 0.4134 | | | 14 |
| 15 | 7.500 | 0.2953 | | | 11.250 | 0.4429 | | | 15 |
| 16 | 8.000 | 0.3150 | | | 12.000 | 0.4724 | | | 16 |
| 17 | 8.500 | 0.3346 | | | 12.750 | 0.5020 | | | 17 |
| 18 | 9.000 | 0.3543 | 10.192 | 0.4013 | 13.500 | 0.5315 | 15.288 | 0.6019 | 18 |
| 19 | 9.500 | 0.3740 | 10.660 | 0.4197 | 14.250 | 0.5610 | 15.990 | 0.6295 | 19 |
| 20 | 10.000 | 0.3937 | 11.195 | 0.4407 | 15.000 | 0.5906 | 16.792 | 0.6611 | 20 |
| 21 | 10.500 | 0.4134 | 11.666 | 0.4593 | 15.750 | 0.6201 | 17.499 | 0.6889 | 21 |
| 22 | 11.000 | 0.4331 | 12.198 | 0.4802 | 16.500 | 0.6496 | 18.296 | 0.7203 | 22 |
| 23 | 11.500 | 0.4528 | 12.671 | 0.4989 | 17.250 | 0.6791 | 19.007 | 0.7483 | 23 |
| 24 | 12.000 | 0.4724 | 13.200 | 0.5197 | 18.000 | 0.7087 | 19.800 | 0.7795 | 24 |
| 25 | 12.500 | 0.4921 | 13.676 | 0.5384 | 18.750 | 0.7382 | 20.513 | 0.8076 | 25 |
| 26 | 13.000 | 0.5118 | 14.202 | 0.5591 | 19.500 | 0.7677 | 21.303 | 0.8387 | 26 |
| 27 | 13.500 | 0.5315 | 14.679 | 0.5799 | 20.250 | 0.7972 | 22.019 | 0.8669 | 27 |
| 28 | 14.000 | 0.5512 | 15.204 | 0.5986 | 21.000 | 0.8268 | 22.805 | 0.8978 | 28 |
| 29 | 14.500 | 0.5709 | 15.683 | 0.6174 | 21.750 | 0.8563 | 23.524 | 0.9261 | 29 |
| 30 | 15.000 | 0.5906 | 16.205 | 0.6380 | 22.500 | 0.8858 | 24.308 | 0.9570 | 30 |
| 31 | 15.500 | 0.6102 | 16.685 | 0.6569 | 23.250 | 0.9154 | 25.028 | 0.9854 | 31 |
| 32 | 16.000 | 0.6299 | 17.206 | 0.6774 | 24.000 | 0.9449 | 25.810 | 1.0161 | 32 |
| 33 | 16.500 | 0.6496 | 17.688 | 0.6964 | 24.750 | 0.9744 | 26.532 | 1.0446 | 33 |
| 34 | 17.000 | 0.6693 | 18.208 | 0.7168 | 25.500 | 1.0039 | 27.312 | 1.0753 | 34 |
| 35 | 17.500 | 0.6890 | 18.690 | 0.7358 | 26.250 | 1.0335 | 28.036 | 1.1038 | 35 |
| 36 | 18.000 | 0.7087 | 19.209 | 0.7563 | 27.000 | 1.0630 | 28.813 | 1.1344 | 36 |
| 37 | 18.500 | 0.7283 | 19.692 | 0.7753 | 27.750 | 1.0925 | 29.539 | 1.1629 | 37 |
| 38 | 19.000 | 0.7480 | 20.210 | 0.7957 | 28.500 | 1.1220 | 30.315 | 1.1935 | 38 |
| 39 | 19.500 | 0.7677 | 20.694 | 0.8147 | 29.250 | 1.1516 | 31.041 | 1.2221 | 39 |
| 40 | 20.000 | 0.7874 | 21.211 | 0.8351 | 30.000 | 1.1811 | 31.816 | 1.2526 | 40 |
| 41 | 20.500 | 0.8071 | 21.696 | 0.8542 | 30.750 | 1.2106 | 32.544 | 1.2813 | 41 |
| 42 | 21.000 | 0.8268 | 22.212 | 0.8745 | 31.500 | 1.2402 | 33.318 | 1.3117 | 42 |
| 43 | 21.500 | 0.8465 | 22.698 | 0.8936 | 32.250 | 1.2697 | 34.046 | 1.3404 | 43 |
| 44 | 22.000 | 0.8661 | 23.212 | 0.9139 | 33.000 | 1.2992 | 34.819 | 1.3708 | 44 |
| 45 | 22.500 | 0.8858 | 23.699 | 0.9330 | 33.750 | 1.3287 | 35.548 | 1.3995 | 45 |
| 46 | 23.000 | 0.9055 | 24.213 | 0.9533 | 34.500 | 1.3583 | 36.320 | 1.4299 | 46 |
| 47 | 23.500 | 0.9252 | 24.700 | 0.9725 | 35.250 | 1.3878 | 37.051 | 1.4587 | 47 |
| 48 | 24.000 | 0.9449 | 25.214 | 0.9927 | 36.000 | 1.4173 | 37.821 | 1.4890 | 48 |
| 49 | 24.500 | 0.9646 | 25.702 | 1.0119 | 36.750 | 1.4469 | 38.552 | 1.5178 | 49 |
| 50 | 25.000 | 0.9843 | 26.215 | 1.0321 | 37.500 | 1.4764 | 39.322 | 1.5481 | 50 |
| 51 | 25.500 | 1.0039 | 26.703 | 1.0513 | 38.250 | 1.5059 | 40.054 | 1.5769 | 51 |
| 52 | 26.000 | 1.0236 | 27.215 | 1.0715 | 39.000 | 1.5354 | 40.823 | 1.6072 | 52 |
| 53 | 26.500 | 1.0433 | 27.704 | 1.0907 | 39.750 | 1.5650 | 41.556 | 1.6360 | 53 |
| 54 | 27.000 | 1.0630 | 28.216 | 1.1109 | 40.500 | 1.5945 | 42.324 | 1.6663 | 54 |
| 55 | 27.500 | 1.0827 | 28.705 | 1.1301 | 41.250 | 1.6240 | 43.057 | 1.6952 | 55 |
| 56 | 28.000 | 1.1024 | 29.216 | 1.1502 | 42.000 | 1.6535 | 43.824 | 1.7254 | 56 |
| 57 | 28.500 | 1.1220 | 29.706 | 1.1695 | 42.750 | 1.6831 | 44.558 | 1.7543 | 57 |
| 58 | 29.000 | 1.1417 | 30.217 | 1.1896 | 43.500 | 1.7126 | 45.325 | 1.7845 | 58 |
| 59 | 29.500 | 1.1614 | 30.706 | 1.2089 | 44.250 | 1.7421 | 46.060 | 1.8134 | 59 |
| 60 | 30.000 | 1.1811 | 31.217 | 1.2290 | 45.000 | 1.7717 | 46.826 | 1.8435 | 60 |
| 61 | 30.500 | 1.2008 | 31.707 | 1.2483 | 45.750 | 1.8012 | 47.561 | 1.8725 | 61 |
| 62 | 31.000 | 1.2205 | 32.218 | 1.2684 | 46.500 | 1.8307 | 48.326 | 1.9026 | 62 |
| 63 | 31.500 | 1.2402 | 32.708 | 1.2877 | 47.250 | 1.8602 | 49.062 | 1.9316 | 63 |
| 64 | 32.000 | 1.2598 | 33.218 | 1.3078 | 48.000 | 1.8898 | 49.827 | 1.9617 | 64 |
| 65 | 32.500 | 1.2795 | 33.709 | 1.3271 | 48.750 | 1.9193 | 50.563 | 1.9907 | 65 |
| 66 | 33.000 | 1.2992 | 34.218 | 1.3472 | 49.500 | 1.9488 | 51.328 | 2.0208 | 66 |
| 67 | 33.500 | 1.3189 | 34.709 | 1.3665 | 50.250 | 1.9783 | 52.064 | 2.0498 | 67 |
| 68 | 34.000 | 1.3386 | 35.219 | 1.3866 | 51.000 | 2.0079 | 52.828 | 2.0799 | 68 |
| 69 | 34.500 | 1.3583 | 35.710 | 1.4059 | 51.750 | 2.0374 | 53.565 | 2.1089 | 69 |
| 70 | 35.000 | 1.3780 | 36.219 | 1.4260 | 52.500 | 2.0669 | 54.329 | 2.1389 | 70 |
| 71 | 35.500 | 1.3976 | 36.710 | 1.4453 | 53.250 | 2.0965 | 55.066 | 2.1679 | 71 |
| 72 | 36.000 | 1.4173 | 37.219 | 1.4653 | 54.000 | 2.1260 | 55.829 | 2.1980 | 72 |
| 73 | 36.500 | 1.4370 | 37.711 | 1.4847 | 54.750 | 2.1555 | 56.567 | 2.2270 | 73 |
| 74 | 37.000 | 1.4567 | 38.220 | 1.5047 | 55.500 | 2.1850 | 57.330 | 2.2571 | 74 |

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TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT

Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.50 | | | | Module 0.75 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------|--------|-----------------------------------|--------|-----------------|--------|--------------|
| | Wire Size = 0.8640mm; 0.0340 Inch | | | | Wire Size = 1.2960mm; 0.0510 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 75 | 37.500 | 1.4764 | 38.712 | 1.5241 | 56.250 | 2.2146 | 58.067 | 2.2861 | 75 |
| 76 | 38.000 | 1.4961 | 39.220 | 1.5441 | 57.000 | 2.2441 | 58.830 | 2.3161 | 76 |
| 77 | 38.500 | 1.5157 | 39.712 | 1.5635 | 57.750 | 2.2736 | 59.568 | 2.3452 | 77 |
| 78 | 39.000 | 1.5354 | 40.220 | 1.5835 | 58.500 | 2.3031 | 60.331 | 2.3752 | 78 |
| 79 | 39.500 | 1.5551 | 40.713 | 1.6029 | 59.250 | 2.3327 | 61.069 | 2.4043 | 79 |
| 80 | 40.000 | 1.5748 | 41.221 | 1.6229 | 60.000 | 2.3622 | 61.831 | 2.4343 | 80 |
| 81 | 40.500 | 1.5945 | 41.713 | 1.6422 | 60.750 | 2.3917 | 62.570 | 2.4634 | 81 |
| 82 | 41.000 | 1.6142 | 42.221 | 1.6622 | 61.500 | 2.4213 | 63.331 | 2.4934 | 82 |
| 83 | 41.500 | 1.6339 | 42.714 | 1.6816 | 62.250 | 2.4508 | 64.070 | 2.5225 | 83 |
| 84 | 42.000 | 1.6535 | 43.221 | 1.7016 | 63.000 | 2.4803 | 64.832 | 2.5524 | 84 |
| 85 | 42.500 | 1.6732 | 43.714 | 1.7210 | 63.750 | 2.5098 | 65.571 | 2.5815 | 85 |
| 86 | 43.000 | 1.6929 | 44.221 | 1.7410 | 64.500 | 2.5394 | 66.332 | 2.6115 | 86 |
| 87 | 43.500 | 1.7126 | 44.714 | 1.7604 | 65.250 | 2.5689 | 67.072 | 2.6406 | 87 |
| 88 | 44.000 | 1.7323 | 45.222 | 1.7804 | 66.000 | 2.5984 | 67.833 | 2.6706 | 88 |
| 89 | 44.500 | 1.7520 | 45.715 | 1.7998 | 66.750 | 2.6280 | 68.572 | 2.6997 | 89 |
| 90 | 45.000 | 1.7717 | 46.222 | 1.8198 | 67.500 | 2.6575 | 69.333 | 2.7296 | 90 |
| 91 | 45.500 | 1.7913 | 46.715 | 1.8392 | 68.250 | 2.6870 | 70.073 | 2.7588 | 91 |
| 92 | 46.000 | 1.8110 | 47.222 | 1.8591 | 69.000 | 2.7165 | 70.833 | 2.7887 | 92 |
| 93 | 46.500 | 1.8307 | 47.715 | 1.8786 | 69.750 | 2.7461 | 71.573 | 2.8178 | 93 |
| 94 | 47.000 | 1.8504 | 48.222 | 1.8985 | 70.500 | 2.7756 | 72.333 | 2.8476 | 94 |
| 95 | 47.500 | 1.8701 | 48.716 | 1.9179 | 71.250 | 2.8051 | 73.074 | 2.8769 | 95 |
| 96 | 48.000 | 1.8898 | 49.222 | 1.9379 | 72.000 | 2.8346 | 73.834 | 2.9068 | 96 |
| 97 | 48.500 | 1.9094 | 49.716 | 1.9573 | 72.750 | 2.8642 | 74.574 | 2.9360 | 97 |
| 98 | 49.000 | 1.9291 | 50.223 | 1.9773 | 73.500 | 2.8937 | 75.334 | 2.9659 | 98 |
| 99 | 49.500 | 1.9488 | 50.716 | 1.9967 | 74.250 | 2.9232 | 76.075 | 2.9951 | 99 |
| 100 | 50.000 | 1.9685 | 51.223 | 2.0166 | 75.000 | 2.9528 | 76.834 | 3.0250 | 100 |
| 101 | 50.500 | 1.9882 | 51.717 | 2.0361 | 75.750 | 2.9823 | 77.575 | 3.0541 | 101 |
| 102 | 51.000 | 2.0079 | 52.223 | 2.0560 | 76.500 | 3.0118 | 78.334 | 3.0840 | 102 |
| 103 | 51.500 | 2.0276 | 52.717 | 2.0755 | 77.250 | 3.0413 | 79.076 | 3.1132 | 103 |
| 104 | 52.000 | 2.0472 | 53.223 | 2.0954 | 78.000 | 3.0709 | 79.835 | 3.1431 | 104 |
| 105 | 52.500 | 2.0669 | 53.717 | 2.1149 | 78.750 | 3.1004 | 80.576 | 3.1723 | 105 |
| 106 | 53.000 | 2.0866 | 54.223 | 2.1348 | 79.500 | 3.1299 | 81.335 | 3.2022 | 106 |
| 107 | 53.500 | 2.1063 | 54.718 | 2.1542 | 80.250 | 3.1594 | 82.076 | 3.2314 | 107 |
| 108 | 54.000 | 2.1260 | 55.223 | 2.1742 | 81.000 | 3.1890 | 82.835 | 3.2612 | 108 |
| 109 | 54.500 | 2.1457 | 55.718 | 2.1936 | 81.750 | 3.2185 | 83.577 | 3.2904 | 109 |
| 110 | 55.000 | 2.1654 | 56.224 | 2.2135 | 82.500 | 3.2480 | 84.335 | 3.3203 | 110 |
| 111 | 55.500 | 2.1850 | 56.718 | 2.2330 | 83.250 | 3.2776 | 85.077 | 3.3495 | 111 |
| 112 | 56.000 | 2.2047 | 57.224 | 2.2529 | 84.000 | 3.3071 | 85.836 | 3.3794 | 112 |
| 113 | 56.500 | 2.2244 | 57.718 | 2.2724 | 84.750 | 3.3366 | 86.578 | 3.4086 | 113 |
| 114 | 57.000 | 2.2441 | 58.224 | 2.2923 | 85.500 | 3.3661 | 87.336 | 3.4384 | 114 |
| 115 | 57.500 | 2.2638 | 58.719 | 2.3118 | 86.250 | 3.3957 | 88.078 | 3.4676 | 115 |
| 116 | 58.000 | 2.2835 | 59.224 | 2.3317 | 87.000 | 3.4252 | 88.836 | 3.4975 | 116 |
| 117 | 58.500 | 2.3031 | 59.719 | 2.3511 | 87.750 | 3.4547 | 89.578 | 3.5267 | 117 |
| 118 | 59.000 | 2.3228 | 60.224 | 2.3710 | 88.500 | 3.4843 | 90.336 | 3.5565 | 118 |
| 119 | 59.500 | 2.3425 | 60.719 | 2.3905 | 89.250 | 3.5138 | 91.078 | 3.5858 | 119 |
| 120 | 60.000 | 2.3622 | 61.224 | 2.4104 | 90.000 | 3.5433 | 91.836 | 3.6156 | 120 |
| 121 | 60.500 | 2.3819 | 61.719 | 2.4299 | 90.750 | 3.5728 | 92.579 | 3.6448 | 121 |
| 122 | 61.000 | 2.4016 | 62.224 | 2.4498 | 91.500 | 3.6024 | 93.337 | 3.6747 | 122 |
| 123 | 61.500 | 2.4213 | 62.719 | 2.4693 | 92.250 | 3.6319 | 94.079 | 3.7039 | 123 |
| 124 | 62.000 | 2.4409 | 63.225 | 2.4892 | 93.000 | 3.6614 | 94.837 | 3.7337 | 124 |
| 125 | 62.500 | 2.4606 | 63.720 | 2.5086 | 93.750 | 3.6909 | 95.579 | 3.7630 | 125 |
| 126 | 63.000 | 2.4803 | 64.225 | 2.5285 | 94.500 | 3.7205 | 96.337 | 3.7928 | 126 |
| 127 | 63.500 | 2.5000 | 64.720 | 2.5480 | 95.250 | 3.7500 | 97.080 | 3.8220 | 127 |
| 128 | 64.000 | 2.5197 | 65.225 | 2.5679 | 96.000 | 3.7795 | 97.837 | 3.8519 | 128 |
| 129 | 64.500 | 2.5394 | 65.720 | 2.5874 | 96.750 | 3.8091 | 98.580 | 3.8811 | 129 |
| 130 | 65.000 | 2.5591 | 66.225 | 2.6073 | 97.500 | 3.8386 | 99.337 | 3.9109 | 130 |
| 131 | 65.500 | 2.5787 | 66.720 | 2.6268 | 98.250 | 3.8681 | 100.080 | 3.9402 | 131 |
| 132 | 66.000 | 2.5984 | 67.225 | 2.6467 | 99.000 | 3.8976 | 100.837 | 3.9700 | 132 |
| 133 | 66.500 | 2.6181 | 67.720 | 2.6662 | 99.750 | 3.9272 | 101.581 | 3.9992 | 133 |
| 134 | 67.000 | 2.6378 | 68.225 | 2.6860 | 100.500 | 3.9567 | 102.338 | 4.0290 | 134 |
| 135 | 67.500 | 2.6575 | 68.721 | 2.7055 | 101.250 | 3.9862 | 103.081 | 4.0583 | 135 |
| 136 | 68.000 | 2.6772 | 69.225 | 2.7254 | 102.000 | 4.0157 | 103.838 | 4.0881 | 136 |
| 137 | 68.500 | 2.6969 | 69.721 | 2.7449 | 102.750 | 4.0453 | 104.581 | 4.1174 | 137 |
| 138 | 69.000 | 2.7165 | 70.225 | 2.7648 | 103.500 | 4.0748 | 105.338 | 4.1472 | 138 |
| 139 | 69.500 | 2.7362 | 70.721 | 2.7843 | 104.250 | 4.1043 | 106.081 | 4.1764 | 139 |
| 140 | 70.000 | 2.7559 | 71.225 | 2.8041 | 105.000 | 4.1339 | 106.838 | 4.2062 | 140 |
| 141 | 70.500 | 2.7756 | 71.721 | 2.8237 | 105.750 | 4.1634 | 107.582 | 4.2355 | 141 |
| 142 | 71.000 | 2.7953 | 72.225 | 2.8435 | 106.500 | 4.1929 | 108.338 | 4.2653 | 142 |
| 143 | 71.500 | 2.8150 | 72.721 | 2.8630 | 107.250 | 4.2224 | 109.082 | 4.2946 | 143 |
| 144 | 72.000 | 2.8346 | 73.226 | 2.8829 | 108.000 | 4.2520 | 109.838 | 4.3243 | 144 |

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TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT
Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.50 | | | | Module 0.75 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------|--------|-----------------------------------|---------|-----------------|---------|--------------|
| | Wire Size = 0.8640mm; 0.0340 Inch | | | | Wire Size = 1.2960mm; 0.0510 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 145 | 72.500 | 2.8543 | 73.721 | 2.9024 | 108.750 | 4.2815 | 110.582 | 4.3536 | 145 |
| 146 | 73.000 | 2.8740 | 74.226 | 2.9223 | 109.500 | 4.3110 | 111.338 | 4.3834 | 146 |
| 147 | 73.500 | 2.8937 | 74.721 | 2.9418 | 110.250 | 4.3406 | 112.082 | 4.4127 | 147 |
| 148 | 74.000 | 2.9134 | 75.226 | 2.9616 | 111.000 | 4.3701 | 112.839 | 4.4425 | 148 |
| 149 | 74.500 | 2.9331 | 75.722 | 2.9812 | 111.750 | 4.3996 | 113.582 | 4.4718 | 149 |
| 150 | 75.000 | 2.9528 | 76.226 | 3.0010 | 112.500 | 4.4291 | 114.339 | 4.5015 | 150 |
| 151 | 75.500 | 2.9724 | 76.722 | 3.0205 | 113.250 | 4.4587 | 115.083 | 4.5308 | 151 |
| 152 | 76.000 | 2.9921 | 77.226 | 3.0404 | 114.000 | 4.4882 | 115.839 | 4.5606 | 152 |
| 153 | 76.500 | 3.0118 | 77.722 | 3.0599 | 114.750 | 4.5177 | 116.583 | 4.5899 | 153 |
| 154 | 77.000 | 3.0315 | 78.226 | 3.0798 | 115.500 | 4.5472 | 117.339 | 4.6196 | 154 |
| 155 | 77.500 | 3.0512 | 78.722 | 3.0993 | 116.250 | 4.5768 | 118.083 | 4.6489 | 155 |
| 156 | 78.000 | 3.0709 | 79.226 | 3.1191 | 117.000 | 4.6063 | 118.839 | 4.6787 | 156 |
| 157 | 78.500 | 3.0906 | 79.722 | 3.1387 | 117.750 | 4.6358 | 119.583 | 4.7080 | 157 |
| 158 | 79.000 | 3.1102 | 80.226 | 3.1585 | 118.500 | 4.6654 | 120.339 | 4.7378 | 158 |
| 159 | 79.500 | 3.1299 | 80.722 | 3.1780 | 119.250 | 4.6949 | 121.083 | 4.7671 | 159 |
| 160 | 80.000 | 3.1496 | 81.226 | 3.1979 | 120.000 | 4.7244 | 121.839 | 4.7968 | 160 |
| 161 | 80.500 | 3.1693 | 81.722 | 3.2174 | 120.750 | 4.7539 | 122.584 | 4.8261 | 161 |
| 162 | 81.000 | 3.1890 | 82.226 | 3.2373 | 121.500 | 4.7835 | 123.339 | 4.8559 | 162 |
| 163 | 81.500 | 3.2087 | 82.722 | 3.2568 | 122.250 | 4.8130 | 124.084 | 4.8852 | 163 |
| 164 | 82.000 | 3.2283 | 83.226 | 3.2766 | 123.000 | 4.8425 | 124.840 | 4.9149 | 164 |
| 165 | 82.500 | 3.2480 | 83.723 | 3.2962 | 123.750 | 4.8720 | 125.584 | 4.9443 | 165 |
| 166 | 83.000 | 3.2677 | 84.226 | 3.3160 | 124.500 | 4.9016 | 126.340 | 4.9740 | 166 |
| 167 | 83.500 | 3.2874 | 84.723 | 3.3355 | 125.250 | 4.9311 | 127.084 | 5.0033 | 167 |
| 168 | 84.000 | 3.3071 | 85.226 | 3.3554 | 126.000 | 4.9606 | 127.840 | 5.0331 | 168 |
| 169 | 84.500 | 3.3268 | 85.723 | 3.3749 | 126.750 | 4.9902 | 128.584 | 5.0624 | 169 |
| 170 | 85.000 | 3.3465 | 86.227 | 3.3947 | 127.500 | 5.0197 | 129.340 | 5.0921 | 170 |
| 171 | 85.500 | 3.3661 | 86.723 | 3.4143 | 128.250 | 5.0492 | 130.084 | 5.1214 | 171 |
| 172 | 86.000 | 3.3858 | 87.227 | 3.4341 | 129.000 | 5.0787 | 130.840 | 5.1512 | 172 |
| 173 | 86.500 | 3.4055 | 87.723 | 3.4537 | 129.750 | 5.1083 | 131.585 | 5.1805 | 173 |
| 174 | 87.000 | 3.4252 | 88.227 | 3.4735 | 130.500 | 5.1378 | 132.340 | 5.2102 | 174 |
| 175 | 87.500 | 3.4449 | 88.723 | 3.4930 | 131.250 | 5.1673 | 133.085 | 5.2396 | 175 |
| 176 | 88.000 | 3.4646 | 89.227 | 3.5129 | 132.000 | 5.1969 | 133.840 | 5.2693 | 176 |
| 177 | 88.500 | 3.4843 | 89.723 | 3.5324 | 132.750 | 5.2264 | 134.585 | 5.2986 | 177 |
| 178 | 89.000 | 3.5039 | 90.227 | 3.5522 | 133.500 | 5.2559 | 135.340 | 5.3284 | 178 |
| 179 | 89.500 | 3.5236 | 90.723 | 3.5718 | 134.250 | 5.2854 | 136.085 | 5.3577 | 179 |
| 180 | 90.000 | 3.5433 | 91.227 | 3.5916 | 135.000 | 5.3150 | 136.840 | 5.3874 | 180 |
| 181 | 90.500 | 3.5630 | 91.723 | 3.6112 | 135.750 | 5.3445 | 137.585 | 5.4167 | 181 |
| 182 | 91.000 | 3.5827 | 92.227 | 3.6310 | 136.500 | 5.3740 | 138.340 | 5.4465 | 182 |
| 183 | 91.500 | 3.6024 | 92.724 | 3.6505 | 137.250 | 5.4035 | 139.085 | 5.4758 | 183 |
| 184 | 92.000 | 3.6220 | 93.227 | 3.6704 | 138.000 | 5.4331 | 139.840 | 5.5055 | 184 |
| 185 | 92.500 | 3.6417 | 93.724 | 3.6899 | 138.750 | 5.4626 | 140.585 | 5.5349 | 185 |
| 186 | 93.000 | 3.6614 | 94.227 | 3.7097 | 139.500 | 5.4921 | 141.340 | 5.5646 | 186 |
| 187 | 93.500 | 3.6811 | 94.724 | 3.7293 | 140.250 | 5.5217 | 142.086 | 5.5939 | 187 |
| 188 | 94.000 | 3.7008 | 95.227 | 3.7491 | 141.000 | 5.5512 | 142.841 | 5.6236 | 188 |
| 189 | 94.500 | 3.7205 | 95.724 | 3.7687 | 141.750 | 5.5807 | 143.586 | 5.6530 | 189 |
| 190 | 95.000 | 3.7402 | 96.227 | 3.7885 | 142.500 | 5.6102 | 144.341 | 5.6827 | 190 |
| 191 | 95.500 | 3.7598 | 96.727 | 3.8082 | 143.250 | 5.6398 | 145.091 | 5.7122 | 191 |
| 192 | 96.000 | 3.7795 | 97.227 | 3.8278 | 144.000 | 5.6693 | 145.841 | 5.7418 | 192 |
| 193 | 96.500 | 3.7992 | 97.727 | 3.8475 | 144.750 | 5.6988 | 146.591 | 5.7713 | 193 |
| 194 | 97.000 | 3.8189 | 98.227 | 3.8672 | 145.500 | 5.7283 | 147.341 | 5.8008 | 194 |
| 195 | 97.500 | 3.8386 | 98.727 | 3.8869 | 146.250 | 5.7579 | 148.091 | 5.8303 | 195 |
| 196 | 98.000 | 3.8583 | 99.227 | 3.9066 | 147.000 | 5.7874 | 148.841 | 5.8599 | 196 |
| 197 | 98.500 | 3.8780 | 99.727 | 3.9263 | 147.750 | 5.8169 | 149.591 | 5.8894 | 197 |
| 198 | 99.000 | 3.8976 | 100.227 | 3.9460 | 148.500 | 5.8465 | 150.341 | 5.9189 | 198 |
| 199 | 99.500 | 3.9173 | 100.727 | 3.9656 | 149.250 | 5.8760 | 151.091 | 5.9485 | 199 |
| 200 | 100.000 | 3.9370 | 101.227 | 3.9853 | 150.000 | 5.9055 | 151.841 | 5.9780 | 200 |
| 201 | 100.500 | 3.9567 | 101.724 | 4.0049 | 150.750 | 5.9350 | 152.587 | 6.0073 | 201 |
| 202 | 101.000 | 3.9764 | 102.224 | 4.0246 | 151.500 | 5.9646 | 153.337 | 6.0369 | 202 |
| 203 | 101.500 | 3.9961 | 102.724 | 4.0443 | 152.250 | 5.9941 | 154.087 | 6.0664 | 203 |
| 204 | 102.000 | 4.0157 | 103.224 | 4.0640 | 153.000 | 6.0236 | 154.837 | 6.0959 | 204 |
| 205 | 102.500 | 4.0354 | 103.725 | 4.0837 | 153.750 | 6.0531 | 155.587 | 6.1255 | 205 |
| 240 | 120.000 | 4.7244 | 121.228 | 4.7728 | 180.000 | 7.0866 | 181.842 | 7.1591 | 240 |
| 280 | 140.000 | 5.5118 | 141.229 | 5.5602 | 210.000 | 8.2677 | 211.843 | 8.3403 | 280 |
| 300 | 150.000 | 5.9055 | 151.229 | 5.9539 | 225.000 | 8.8583 | 226.843 | 8.9308 | 300 |
| 340 | 170.000 | 6.6929 | 171.229 | 6.7413 | 255.000 | 10.0394 | 256.844 | 10.1120 | 340 |
| 380 | 190.000 | 7.4803 | 191.230 | 7.5287 | 285.000 | 11.2205 | 286.844 | 11.2931 | 380 |
| 400 | 200.000 | 7.8740 | 201.230 | 7.9224 | 300.000 | 11.8110 | 301.845 | 11.8836 | 400 |
| 440 | 220.000 | 8.6614 | 221.230 | 8.7098 | 330.000 | 12.9921 | 331.845 | 13.0648 | 440 |
| 480 | 240.000 | 9.4488 | 241.230 | 9.4973 | 360.000 | 14.1732 | 361.845 | 14.2459 | 480 |
| 500 | 250.000 | 9.8425 | 251.230 | 9.8910 | 375.000 | 14.7638 | 376.845 | 14.8364 | 500 |

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TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT

Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.80 | | | | Module 1.00 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------|--------|-----------------------------------|--------|-----------------|--------|--------------|
| | Wire Size = 1.3824mm; 0.0544 Inch | | | | Wire Size = 1.7280mm; 0.0680 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 5 | 4.000 | 0.1575 | | | 5.000 | 0.1969 | | | 5 |
| 6 | 4.800 | 0.1890 | | | 6.000 | 0.2362 | | | 6 |
| 7 | 5.600 | 0.2205 | | | 7.000 | 0.2756 | | | 7 |
| 8 | 6.400 | 0.2520 | | | 8.000 | 0.3150 | | | 8 |
| 9 | 7.200 | 0.2835 | | | 9.000 | 0.3543 | | | 9 |
| 10 | 8.000 | 0.3150 | | | 10.000 | 0.3937 | | | 10 |
| 11 | 8.800 | 0.3465 | | | 11.000 | 0.4331 | | | 11 |
| 12 | 9.600 | 0.3780 | | | 12.000 | 0.4724 | | | 12 |
| 13 | 10.400 | 0.4094 | | | 13.000 | 0.5118 | | | 13 |
| 14 | 11.200 | 0.4409 | | | 14.000 | 0.5512 | | | 14 |
| 15 | 12.000 | 0.4724 | | | 15.000 | 0.5906 | | | 15 |
| 16 | 12.800 | 0.5039 | | | 16.000 | 0.6299 | | | 16 |
| 17 | 13.600 | 0.5354 | | | 17.000 | 0.6693 | | | 17 |
| 18 | 14.400 | 0.5669 | 16.307 | 0.6420 | 18.000 | 0.7087 | 20.384 | 0.8025 | 18 |
| 19 | 15.200 | 0.5984 | 17.056 | 0.6715 | 19.000 | 0.7480 | 21.320 | 0.8394 | 19 |
| 20 | 16.000 | 0.6299 | 17.912 | 0.7052 | 20.000 | 0.7874 | 22.390 | 0.8815 | 20 |
| 21 | 16.800 | 0.6614 | 18.666 | 0.7349 | 21.000 | 0.8268 | 23.332 | 0.9186 | 21 |
| 22 | 17.600 | 0.6929 | 19.516 | 0.7684 | 22.000 | 0.8661 | 24.395 | 0.9604 | 22 |
| 23 | 18.400 | 0.7244 | 20.274 | 0.7982 | 23.000 | 0.9055 | 25.342 | 0.9977 | 23 |
| 24 | 19.200 | 0.7559 | 21.120 | 0.8315 | 24.000 | 0.9449 | 26.400 | 1.0394 | 24 |
| 25 | 20.000 | 0.7874 | 21.881 | 0.8615 | 25.000 | 0.9843 | 27.351 | 1.0768 | 25 |
| 26 | 20.800 | 0.8189 | 22.723 | 0.8946 | 26.000 | 1.0236 | 28.404 | 1.1183 | 26 |
| 27 | 21.600 | 0.8504 | 23.487 | 0.9247 | 27.000 | 1.0630 | 29.359 | 1.1559 | 27 |
| 28 | 22.400 | 0.8819 | 24.326 | 0.9577 | 28.000 | 1.1024 | 30.407 | 1.1971 | 28 |
| 29 | 23.200 | 0.9134 | 25.092 | 0.9879 | 29.000 | 1.1417 | 31.365 | 1.2394 | 29 |
| 30 | 24.000 | 0.9449 | 25.928 | 1.0208 | 30.000 | 1.1811 | 32.410 | 1.2760 | 30 |
| 31 | 24.800 | 0.9764 | 26.697 | 1.0511 | 31.000 | 1.2205 | 33.371 | 1.3138 | 31 |
| 32 | 25.600 | 1.0079 | 27.530 | 1.0839 | 32.000 | 1.2598 | 34.413 | 1.3548 | 32 |
| 33 | 26.400 | 1.0394 | 28.301 | 1.1142 | 33.000 | 1.2992 | 35.376 | 1.3928 | 33 |
| 34 | 27.200 | 1.0709 | 29.132 | 1.1469 | 34.000 | 1.3386 | 36.415 | 1.4337 | 34 |
| 35 | 28.000 | 1.1024 | 29.905 | 1.1773 | 35.000 | 1.3780 | 37.381 | 1.4717 | 35 |
| 36 | 28.800 | 1.1339 | 30.734 | 1.2100 | 36.000 | 1.4173 | 38.418 | 1.5125 | 36 |
| 37 | 29.600 | 1.1654 | 31.508 | 1.2405 | 37.000 | 1.4567 | 39.385 | 1.5506 | 37 |
| 38 | 30.400 | 1.1969 | 32.311 | 1.2731 | 38.000 | 1.4961 | 40.420 | 1.5913 | 38 |
| 39 | 31.200 | 1.2283 | 33.111 | 1.3036 | 39.000 | 1.5354 | 41.389 | 1.6295 | 39 |
| 40 | 32.000 | 1.2598 | 33.937 | 1.3361 | 40.000 | 1.5748 | 42.422 | 1.6701 | 40 |
| 41 | 32.800 | 1.2913 | 34.714 | 1.3667 | 41.000 | 1.6142 | 43.392 | 1.7083 | 41 |
| 42 | 33.600 | 1.3228 | 35.539 | 1.3992 | 42.000 | 1.6535 | 44.423 | 1.7490 | 42 |
| 43 | 34.400 | 1.3543 | 36.316 | 1.4298 | 43.000 | 1.6929 | 45.395 | 1.7872 | 43 |
| 44 | 35.200 | 1.3858 | 37.140 | 1.4622 | 44.000 | 1.7323 | 46.425 | 1.8278 | 44 |
| 45 | 36.000 | 1.4173 | 37.918 | 1.4929 | 45.000 | 1.7717 | 47.398 | 1.8661 | 45 |
| 46 | 36.800 | 1.4488 | 38.741 | 1.5252 | 46.000 | 1.8110 | 48.426 | 1.9066 | 46 |
| 47 | 37.600 | 1.4803 | 39.521 | 1.5559 | 47.000 | 1.8504 | 49.401 | 1.9449 | 47 |
| 48 | 38.400 | 1.5118 | 40.342 | 1.5883 | 48.000 | 1.8898 | 50.428 | 1.9854 | 48 |
| 49 | 39.200 | 1.5433 | 41.122 | 1.6190 | 49.000 | 1.9291 | 51.403 | 2.0237 | 49 |
| 50 | 40.000 | 1.5748 | 41.943 | 1.6513 | 50.000 | 1.9685 | 52.429 | 2.0641 | 50 |
| 51 | 40.800 | 1.6063 | 42.724 | 1.6821 | 51.000 | 2.0079 | 53.405 | 2.1021 | 51 |
| 52 | 41.600 | 1.6378 | 43.544 | 1.7143 | 52.000 | 2.0472 | 54.430 | 2.1429 | 52 |
| 53 | 42.400 | 1.6693 | 44.326 | 1.7451 | 53.000 | 2.0866 | 55.407 | 2.1814 | 53 |
| 54 | 43.200 | 1.7008 | 45.145 | 1.7774 | 54.000 | 2.1260 | 56.431 | 2.2217 | 54 |
| 55 | 44.000 | 1.7323 | 45.927 | 1.8082 | 55.000 | 2.1654 | 57.409 | 2.2602 | 55 |
| 56 | 44.800 | 1.7638 | 46.746 | 1.8404 | 56.000 | 2.2047 | 58.432 | 2.3005 | 56 |
| 57 | 45.600 | 1.7953 | 47.529 | 1.8712 | 57.000 | 2.2441 | 59.411 | 2.3390 | 57 |
| 58 | 46.400 | 1.8268 | 48.347 | 1.9034 | 58.000 | 2.2835 | 60.433 | 2.3793 | 58 |
| 59 | 47.200 | 1.8583 | 49.130 | 1.9343 | 59.000 | 2.3228 | 61.413 | 2.4178 | 59 |
| 60 | 48.000 | 1.8898 | 49.948 | 1.9664 | 60.000 | 2.3622 | 62.434 | 2.4580 | 60 |
| 61 | 48.800 | 1.9213 | 50.732 | 1.9973 | 61.000 | 2.4016 | 63.414 | 2.4966 | 61 |
| 62 | 49.600 | 1.9528 | 51.548 | 2.0295 | 62.000 | 2.4409 | 64.435 | 2.5368 | 62 |
| 63 | 50.400 | 1.9843 | 52.333 | 2.0603 | 63.000 | 2.4803 | 65.416 | 2.5754 | 63 |
| 64 | 51.200 | 2.0157 | 53.149 | 2.0925 | 64.000 | 2.5197 | 66.436 | 2.6156 | 64 |
| 65 | 52.000 | 2.0472 | 53.934 | 2.1234 | 65.000 | 2.5591 | 67.417 | 2.6542 | 65 |
| 66 | 52.800 | 2.0787 | 54.750 | 2.1555 | 66.000 | 2.5984 | 68.437 | 2.6944 | 66 |
| 67 | 53.600 | 2.1102 | 55.535 | 2.1864 | 67.000 | 2.6378 | 69.419 | 2.7330 | 67 |
| 68 | 54.400 | 2.1417 | 56.350 | 2.2185 | 68.000 | 2.6772 | 70.438 | 2.7731 | 68 |
| 69 | 55.200 | 2.1732 | 57.136 | 2.2494 | 69.000 | 2.7165 | 71.420 | 2.8118 | 69 |
| 70 | 56.000 | 2.2047 | 57.951 | 2.2815 | 70.000 | 2.7559 | 72.438 | 2.8519 | 70 |
| 71 | 56.800 | 2.2362 | 58.737 | 2.3125 | 71.000 | 2.7953 | 73.421 | 2.8906 | 71 |
| 72 | 57.600 | 2.2677 | 59.551 | 2.3445 | 72.000 | 2.8346 | 74.439 | 2.9307 | 72 |
| 73 | 58.400 | 2.2992 | 60.338 | 2.3755 | 73.000 | 2.8740 | 75.422 | 2.9694 | 73 |
| 74 | 59.200 | 2.3307 | 61.152 | 2.4075 | 74.000 | 2.9134 | 76.440 | 3.0094 | 74 |

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TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT
Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.80 | | | | Module 1.00 | | | | No. of Teeth |
|--------------|-----------------------------------|--------|-----------------|--------|-----------------------------------|--------|-----------------|--------|--------------|
| | Wire Size = 1.3824mm; 0.0544 Inch | | | | Wire Size = 1.7280mm; 0.0680 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 75 | 60.00 | 2.3622 | 61.939 | 2.4385 | 75.000 | 2.9528 | 77.423 | 3.0482 | 75 |
| 76 | 60.80 | 2.3937 | 62.752 | 2.4706 | 76.000 | 2.9921 | 78.440 | 3.0882 | 76 |
| 77 | 61.600 | 2.4252 | 63.539 | 2.5015 | 77.000 | 3.0315 | 79.424 | 3.1269 | 77 |
| 78 | 62.400 | 2.4567 | 64.353 | 2.5336 | 78.000 | 3.0709 | 80.441 | 3.1670 | 78 |
| 79 | 63.200 | 2.4882 | 65.140 | 2.5646 | 79.000 | 3.1102 | 81.425 | 3.2057 | 79 |
| 80 | 64.000 | 2.5197 | 65.953 | 2.5966 | 80.000 | 3.1496 | 82.441 | 3.2457 | 80 |
| 81 | 64.800 | 2.5512 | 66.741 | 2.6276 | 81.000 | 3.1890 | 83.426 | 3.2845 | 81 |
| 82 | 65.600 | 2.5827 | 67.553 | 2.6596 | 82.000 | 3.2283 | 84.442 | 3.3245 | 82 |
| 83 | 66.400 | 2.6142 | 68.342 | 2.6906 | 83.000 | 3.2677 | 85.427 | 3.3633 | 83 |
| 84 | 67.200 | 2.6457 | 69.154 | 2.7226 | 84.000 | 3.3071 | 86.442 | 3.4032 | 84 |
| 85 | 68.000 | 2.6772 | 69.942 | 2.7536 | 85.000 | 3.3465 | 87.428 | 3.4420 | 85 |
| 86 | 68.800 | 2.7087 | 70.754 | 2.7856 | 86.000 | 3.3858 | 88.443 | 3.4820 | 86 |
| 87 | 69.600 | 2.7402 | 71.543 | 2.8167 | 87.000 | 3.4252 | 89.429 | 3.5208 | 87 |
| 88 | 70.400 | 2.7717 | 72.355 | 2.8486 | 88.000 | 3.4646 | 90.443 | 3.5608 | 88 |
| 89 | 71.200 | 2.8031 | 73.144 | 2.8797 | 89.000 | 3.5039 | 91.429 | 3.5996 | 89 |
| 90 | 72.000 | 2.8346 | 73.955 | 2.9116 | 90.000 | 3.5433 | 92.444 | 3.6395 | 90 |
| 91 | 72.800 | 2.8661 | 74.744 | 2.9427 | 91.000 | 3.5827 | 93.430 | 3.6784 | 91 |
| 92 | 73.600 | 2.8976 | 75.555 | 2.9746 | 92.000 | 3.6220 | 94.444 | 3.7183 | 92 |
| 93 | 74.400 | 2.9291 | 76.345 | 3.0057 | 93.000 | 3.6614 | 95.431 | 3.7571 | 93 |
| 94 | 75.200 | 2.9606 | 77.156 | 3.0376 | 94.000 | 3.7008 | 96.444 | 3.7970 | 94 |
| 95 | 76.000 | 2.9921 | 77.945 | 3.0687 | 95.000 | 3.7402 | 97.432 | 3.8359 | 95 |
| 96 | 76.800 | 3.0236 | 78.756 | 3.1006 | 96.000 | 3.7795 | 98.445 | 3.8758 | 96 |
| 97 | 77.600 | 3.0551 | 79.546 | 3.1317 | 97.000 | 3.8189 | 99.432 | 3.9147 | 97 |
| 98 | 78.400 | 3.0866 | 80.356 | 3.1636 | 98.000 | 3.8583 | 100.445 | 3.9545 | 98 |
| 99 | 79.200 | 3.1181 | 81.146 | 3.1947 | 99.000 | 3.8976 | 101.433 | 3.9934 | 99 |
| 100 | 80.000 | 3.1496 | 81.956 | 3.2266 | 100.000 | 3.9370 | 102.446 | 4.0333 | 100 |
| 101 | 80.800 | 3.1811 | 82.747 | 3.2577 | 101.000 | 3.9764 | 103.433 | 4.0722 | 101 |
| 102 | 81.600 | 3.2126 | 83.557 | 3.2896 | 102.000 | 4.0157 | 104.446 | 4.1120 | 102 |
| 103 | 82.400 | 3.2441 | 84.347 | 3.3208 | 103.000 | 4.0551 | 105.434 | 4.1509 | 103 |
| 104 | 83.200 | 3.2756 | 85.157 | 3.3526 | 104.000 | 4.0945 | 106.446 | 4.1908 | 104 |
| 105 | 84.000 | 3.3071 | 85.948 | 3.3838 | 105.000 | 4.1339 | 107.435 | 4.2297 | 105 |
| 106 | 84.800 | 3.3386 | 86.757 | 3.4156 | 106.000 | 4.1732 | 108.447 | 4.2696 | 106 |
| 107 | 85.600 | 3.3701 | 87.548 | 3.4468 | 107.000 | 4.2126 | 109.435 | 4.3085 | 107 |
| 108 | 86.400 | 3.4016 | 88.358 | 3.4786 | 108.000 | 4.2520 | 110.447 | 4.3483 | 108 |
| 109 | 87.200 | 3.4331 | 89.149 | 3.5098 | 109.000 | 4.2913 | 111.436 | 4.3872 | 109 |
| 110 | 88.000 | 3.4646 | 89.958 | 3.5416 | 110.000 | 4.3307 | 112.447 | 4.4271 | 110 |
| 111 | 88.800 | 3.4961 | 90.749 | 3.5728 | 111.000 | 4.3701 | 113.436 | 4.4660 | 111 |
| 112 | 89.600 | 3.5276 | 91.558 | 3.6046 | 112.000 | 4.4094 | 114.447 | 4.5058 | 112 |
| 113 | 90.400 | 3.5591 | 92.349 | 3.6358 | 113.000 | 4.4488 | 115.437 | 4.5448 | 113 |
| 114 | 91.200 | 3.5906 | 93.158 | 3.6676 | 114.000 | 4.4882 | 116.448 | 4.5846 | 114 |
| 115 | 92.000 | 3.6220 | 93.950 | 3.6988 | 115.000 | 4.5276 | 117.437 | 4.6235 | 115 |
| 116 | 92.800 | 3.6535 | 94.758 | 3.7306 | 116.000 | 4.5669 | 118.448 | 4.6633 | 116 |
| 117 | 93.600 | 3.6850 | 95.550 | 3.7618 | 117.000 | 4.6063 | 119.438 | 4.7023 | 117 |
| 118 | 94.400 | 3.7165 | 96.359 | 3.7937 | 118.000 | 4.6457 | 120.448 | 4.7421 | 118 |
| 119 | 95.200 | 3.7480 | 97.150 | 3.8248 | 119.000 | 4.6850 | 121.438 | 4.7810 | 119 |
| 120 | 96.000 | 3.7795 | 97.959 | 3.8566 | 120.000 | 4.7244 | 122.449 | 4.8208 | 120 |
| 121 | 96.800 | 3.8110 | 98.751 | 3.8878 | 121.000 | 4.7638 | 123.438 | 4.8598 | 121 |
| 122 | 97.600 | 3.8425 | 99.559 | 3.9197 | 122.000 | 4.8031 | 124.449 | 4.8996 | 122 |
| 123 | 98.400 | 3.8740 | 100.351 | 3.9508 | 123.000 | 4.8425 | 125.439 | 4.9385 | 123 |
| 124 | 99.200 | 3.9055 | 101.159 | 3.9826 | 124.000 | 4.8819 | 126.449 | 4.9783 | 124 |
| 125 | 100.000 | 3.9370 | 101.951 | 4.0138 | 125.000 | 4.9213 | 127.439 | 5.0173 | 125 |
| 126 | 100.800 | 3.9685 | 102.759 | 4.0456 | 126.000 | 4.9606 | 128.449 | 5.0571 | 126 |
| 127 | 101.600 | 4.0000 | 103.552 | 4.0768 | 127.000 | 5.0000 | 129.440 | 5.0960 | 127 |
| 128 | 102.400 | 4.0315 | 104.360 | 4.1086 | 128.000 | 5.0394 | 130.450 | 5.1358 | 128 |
| 129 | 103.200 | 4.0630 | 105.152 | 4.1398 | 129.000 | 5.0787 | 131.440 | 5.1748 | 129 |
| 130 | 104.000 | 4.0945 | 105.960 | 4.1716 | 130.000 | 5.1181 | 132.450 | 5.2146 | 130 |
| 131 | 104.800 | 4.1260 | 106.752 | 4.2028 | 131.000 | 5.1575 | 133.440 | 5.2536 | 131 |
| 132 | 105.600 | 4.1575 | 107.560 | 4.2346 | 132.000 | 5.1969 | 134.450 | 5.2933 | 132 |
| 133 | 106.400 | 4.1890 | 108.353 | 4.2659 | 133.000 | 5.2362 | 135.441 | 5.3323 | 133 |
| 134 | 107.200 | 4.2205 | 109.160 | 4.2976 | 134.000 | 5.2756 | 136.450 | 5.3711 | 134 |
| 135 | 108.000 | 4.2520 | 109.953 | 4.3289 | 135.000 | 5.3150 | 137.441 | 5.4111 | 135 |
| 136 | 108.800 | 4.2835 | 110.760 | 4.3606 | 136.000 | 5.3543 | 138.450 | 5.4508 | 136 |
| 137 | 109.600 | 4.3150 | 111.553 | 4.3919 | 137.000 | 5.3937 | 139.441 | 5.4898 | 137 |
| 138 | 110.400 | 4.3465 | 112.360 | 4.4236 | 138.000 | 5.4331 | 140.451 | 5.5296 | 138 |
| 139 | 111.200 | 4.3780 | 113.153 | 4.4549 | 139.000 | 5.4724 | 141.442 | 5.5686 | 139 |
| 140 | 112.000 | 4.4094 | 113.961 | 4.4866 | 140.000 | 5.5118 | 142.451 | 5.6083 | 140 |
| 141 | 112.800 | 4.4409 | 114.754 | 4.5179 | 141.000 | 5.5512 | 143.442 | 5.6473 | 141 |
| 142 | 113.600 | 4.4724 | 115.561 | 4.5496 | 142.000 | 5.5906 | 144.451 | 5.6870 | 142 |
| 143 | 114.400 | 4.5039 | 116.354 | 4.5809 | 143.000 | 5.6299 | 145.442 | 5.7261 | 143 |
| 144 | 115.200 | 4.5354 | 117.161 | 4.6126 | 144.000 | 5.6693 | 146.451 | 5.7658 | 144 |

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TABLE 10-30 (Cont.) METRIC GEAR OVER PINS MEASUREMENT

Pitch Diameter and Measurement Over Wires for External, Module Type Gears, 20-Degree Pressure Angle

| No. of Teeth | Module 0.80 | | | | Module 1.00 | | | | No. of Teeth |
|--------------|-----------------------------------|---------|-----------------|---------|-----------------------------------|---------|-----------------|---------|--------------|
| | Wire Size = 1.3824mm; 0.0544 Inch | | | | Wire Size = 1.7280mm; 0.0680 Inch | | | | |
| | Pitch Diameter | | Meas. Over Wire | | Pitch Diameter | | Meas. Over Wire | | |
| | mm | Inch | mm | Inch | mm | Inch | mm | Inch | |
| 145 | 116.000 | 4.5669 | 117.954 | 4.6439 | 145.000 | 5.7087 | 147.443 | 5.8048 | 145 |
| 146 | 116.800 | 4.5984 | 118.761 | 4.6756 | 146.000 | 5.7480 | 148.451 | 5.8445 | 146 |
| 147 | 117.600 | 4.6299 | 119.554 | 4.7069 | 147.000 | 5.7874 | 149.443 | 5.8836 | 147 |
| 148 | 118.400 | 4.6614 | 120.361 | 4.7386 | 148.000 | 5.8268 | 150.451 | 5.9233 | 148 |
| 149 | 119.200 | 4.6929 | 121.155 | 4.7699 | 149.000 | 5.8661 | 151.443 | 5.9623 | 149 |
| 150 | 120.000 | 4.7244 | 121.961 | 4.8016 | 150.000 | 5.9055 | 152.452 | 6.0020 | 150 |
| 151 | 120.800 | 4.7559 | 122.755 | 4.8329 | 151.000 | 5.9449 | 153.443 | 6.0411 | 151 |
| 152 | 121.600 | 4.7874 | 123.561 | 4.8646 | 152.000 | 5.9843 | 154.452 | 6.0808 | 152 |
| 153 | 122.400 | 4.8189 | 124.355 | 4.8959 | 153.000 | 6.0236 | 155.444 | 6.1198 | 153 |
| 154 | 123.200 | 4.8504 | 125.162 | 4.9276 | 154.000 | 6.0630 | 156.452 | 6.1595 | 154 |
| 155 | 124.000 | 4.8819 | 125.955 | 4.9589 | 155.000 | 6.1024 | 157.444 | 6.1986 | 155 |
| 156 | 124.800 | 4.9134 | 126.762 | 4.9906 | 156.000 | 6.1417 | 158.452 | 6.2383 | 156 |
| 157 | 125.600 | 4.9449 | 127.555 | 5.0219 | 157.000 | 6.1811 | 159.444 | 6.2773 | 157 |
| 158 | 126.400 | 4.9764 | 128.362 | 5.0536 | 158.000 | 6.2205 | 160.452 | 6.3170 | 158 |
| 159 | 127.200 | 5.0079 | 129.156 | 5.0849 | 159.000 | 6.2598 | 161.444 | 6.3561 | 159 |
| 160 | 128.000 | 5.0394 | 129.962 | 5.1166 | 160.000 | 6.2992 | 162.452 | 6.3958 | 160 |
| 161 | 128.800 | 5.0709 | 130.756 | 5.1479 | 161.000 | 6.3386 | 163.445 | 6.4348 | 161 |
| 162 | 129.600 | 5.1024 | 131.562 | 5.1796 | 162.000 | 6.3780 | 164.453 | 6.4745 | 162 |
| 163 | 130.400 | 5.1339 | 132.356 | 5.2109 | 163.000 | 6.4173 | 165.445 | 6.5136 | 163 |
| 164 | 131.200 | 5.1654 | 133.162 | 5.2426 | 164.000 | 6.4567 | 166.453 | 6.5533 | 164 |
| 165 | 132.000 | 5.1969 | 133.956 | 5.2739 | 165.000 | 6.4961 | 167.445 | 6.5923 | 165 |
| 166 | 132.800 | 5.2283 | 134.762 | 5.3056 | 166.000 | 6.5354 | 168.453 | 6.6320 | 166 |
| 167 | 133.600 | 5.2598 | 135.556 | 5.3369 | 167.000 | 6.5748 | 169.445 | 6.6711 | 167 |
| 168 | 134.400 | 5.2913 | 136.362 | 5.3686 | 168.000 | 6.6142 | 170.453 | 6.7107 | 168 |
| 169 | 135.200 | 5.3228 | 137.157 | 5.3999 | 169.000 | 6.6535 | 171.446 | 6.7498 | 169 |
| 170 | 136.000 | 5.3543 | 137.962 | 5.4316 | 170.000 | 6.6929 | 172.453 | 6.7895 | 170 |
| 171 | 136.800 | 5.3858 | 138.757 | 5.4629 | 171.000 | 6.7323 | 173.446 | 6.8286 | 171 |
| 172 | 137.600 | 5.4173 | 139.563 | 5.4946 | 172.000 | 6.7717 | 174.453 | 6.8682 | 172 |
| 173 | 138.400 | 5.4488 | 140.357 | 5.5259 | 173.000 | 6.8110 | 175.446 | 6.9073 | 173 |
| 174 | 139.200 | 5.4803 | 141.163 | 5.5576 | 174.000 | 6.8504 | 176.453 | 6.9470 | 174 |
| 175 | 140.000 | 5.5118 | 141.957 | 5.5889 | 175.000 | 6.8898 | 177.446 | 6.9861 | 175 |
| 176 | 140.800 | 5.5433 | 142.763 | 5.6206 | 176.000 | 6.9291 | 178.453 | 7.0257 | 176 |
| 177 | 141.600 | 5.5748 | 143.557 | 5.6519 | 177.000 | 6.9685 | 179.446 | 7.0648 | 177 |
| 178 | 142.400 | 5.6063 | 144.363 | 5.6836 | 178.000 | 7.0079 | 180.454 | 7.1045 | 178 |
| 179 | 143.200 | 5.6378 | 145.157 | 5.7149 | 179.000 | 7.0472 | 181.447 | 7.1436 | 179 |
| 180 | 144.000 | 5.6693 | 145.963 | 5.7466 | 180.000 | 7.0866 | 182.454 | 7.1832 | 180 |
| 181 | 144.800 | 5.7008 | 146.758 | 5.7779 | 181.000 | 7.1260 | 183.447 | 7.2223 | 181 |
| 182 | 145.600 | 5.7323 | 147.563 | 5.8096 | 182.000 | 7.1654 | 184.454 | 7.2620 | 182 |
| 183 | 146.400 | 5.7638 | 148.358 | 5.8409 | 183.000 | 7.2047 | 185.447 | 7.3011 | 183 |
| 184 | 147.200 | 5.7953 | 149.163 | 5.8726 | 184.000 | 7.2441 | 186.454 | 7.3407 | 184 |
| 185 | 148.000 | 5.8268 | 149.958 | 5.9039 | 185.000 | 7.2835 | 187.447 | 7.3798 | 185 |
| 186 | 148.800 | 5.8583 | 150.763 | 5.9356 | 186.000 | 7.3228 | 188.454 | 7.4194 | 186 |
| 187 | 149.600 | 5.8898 | 151.558 | 5.9668 | 187.000 | 7.3622 | 189.447 | 7.4586 | 187 |
| 188 | 150.400 | 5.9213 | 152.363 | 5.9986 | 188.000 | 7.4016 | 190.454 | 7.4982 | 188 |
| 189 | 151.200 | 5.9528 | 153.158 | 6.0298 | 189.000 | 7.4409 | 191.448 | 7.5373 | 189 |
| 190 | 152.000 | 5.9843 | 153.963 | 6.0615 | 190.000 | 7.4803 | 192.454 | 7.5769 | 190 |
| 191 | 152.800 | 6.0157 | 154.763 | 6.0930 | 191.000 | 7.5197 | 193.454 | 7.6163 | 191 |
| 192 | 153.600 | 6.0472 | 155.563 | 6.1245 | 192.000 | 7.5591 | 194.454 | 7.6557 | 192 |
| 193 | 154.400 | 6.0787 | 156.364 | 6.1560 | 193.000 | 7.5984 | 195.454 | 7.6951 | 193 |
| 194 | 155.200 | 6.1102 | 157.164 | 6.1875 | 194.000 | 7.6378 | 196.454 | 7.7344 | 194 |
| 195 | 156.000 | 6.1417 | 157.964 | 6.2190 | 195.000 | 7.6772 | 197.454 | 7.7738 | 195 |
| 196 | 156.800 | 6.1732 | 158.764 | 6.2505 | 196.000 | 7.7165 | 198.455 | 7.8132 | 196 |
| 197 | 157.600 | 6.2047 | 159.564 | 6.2820 | 197.000 | 7.7559 | 199.455 | 7.8525 | 197 |
| 198 | 158.400 | 6.2362 | 160.364 | 6.3135 | 198.000 | 7.7953 | 200.455 | 7.8919 | 198 |
| 199 | 159.200 | 6.2677 | 161.164 | 6.3450 | 199.000 | 7.8346 | 201.455 | 7.9313 | 199 |
| 200 | 160.000 | 6.2992 | 161.964 | 6.3765 | 200.000 | 7.8740 | 202.455 | 7.9707 | 200 |
| 201 | 160.800 | 6.3307 | 162.759 | 6.4078 | 201.000 | 7.9134 | 203.449 | 8.0098 | 201 |
| 202 | 161.600 | 6.3622 | 163.559 | 6.4393 | 202.000 | 7.9528 | 204.444 | 8.0492 | 202 |
| 203 | 162.400 | 6.3937 | 164.359 | 6.4708 | 203.000 | 7.9921 | 205.449 | 8.0885 | 203 |
| 204 | 163.200 | 6.4252 | 165.159 | 6.5023 | 204.000 | 8.0315 | 206.449 | 8.1279 | 204 |
| 205 | 164.000 | 6.4567 | 165.959 | 6.5338 | 205.000 | 8.0709 | 207.449 | 8.1673 | 205 |
| 240 | 192.000 | 7.5591 | 193.965 | 7.6364 | 240.000 | 9.4488 | 242.456 | 9.5455 | 240 |
| 280 | 224.000 | 8.8189 | 225.966 | 8.8963 | 280.000 | 11.0236 | 282.457 | 11.1204 | 280 |
| 300 | 240.000 | 9.4488 | 241.966 | 9.5262 | 300.000 | 11.8110 | 302.458 | 11.9078 | 300 |
| 340 | 272.000 | 10.7087 | 273.967 | 10.7861 | 340.000 | 13.3858 | 342.459 | 13.4826 | 340 |
| 380 | 304.000 | 11.9685 | 305.967 | 12.0460 | 380.000 | 14.9606 | 382.459 | 15.0575 | 380 |
| 400 | 320.000 | 12.5984 | 321.968 | 12.6759 | 400.000 | 15.7480 | 402.460 | 15.8449 | 400 |
| 440 | 352.000 | 13.8583 | 353.968 | 13.9357 | 440.000 | 17.3228 | 442.460 | 17.4197 | 440 |
| 480 | 384.000 | 15.1181 | 385.968 | 15.1956 | 480.000 | 18.8976 | 482.460 | 18.9945 | 480 |
| 500 | 400.000 | 15.7480 | 401.968 | 15.8255 | 500.000 | 19.6850 | 502.461 | 19.7819 | 500 |

Continued from the previous page



SECTION 11 CONTACT RATIO

To assure continuous smooth tooth action, as one pair of teeth ceases action a succeeding pair of teeth must already have come into engagement. It is desirable to have as much overlap as is possible. A measure of this overlap action is the contact ratio. This is a ratio of the length of the line-of-action to the base pitch. **Figure 11-1** shows the geometry for a spur gear pair, which is the simplest case, and is representative of the concept for all gear types. The length-of-action is determined from the intersection of the line-of-action and the outside radii. The ratio of the length-of-action to the base pitch is determined from:

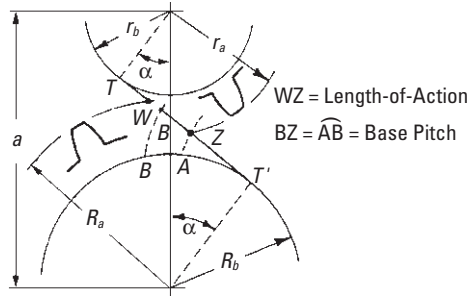


Fig. 11-1 Geometry of Contact Ratio

$$\epsilon_\gamma = \frac{\sqrt{(R_a^2 - R_b^2)} + \sqrt{(r_a^2 - r_b^2)} - a \sin \alpha}{\pi m \cos \alpha} \tag{11-1}$$

It is good practice to maintain a contact ratio of 1.2 or greater. Under no circumstances should the ratio drop below 1.1, calculated for all tolerances at their worst case values.

A contact ratio between 1 and 2 means that part of the time two pairs of teeth are in contact and during the remaining time one pair is in contact. A ratio between 2 and 3 means 2 or 3 pairs of teeth are always in contact. Such a high ratio is generally not obtained with external spur gears, but can be developed in the meshing of internal gears, helical gears, or specially designed nonstandard external spur gears.

When considering all types of gears, contact ratio is composed of two components:

1. Radial contact ratio (plane of rotation perpendicular to axes), ϵ_α
2. Overlap contact ratio (axial), ϵ_β

The sum is the total contact ratio, ϵ_γ .

The overlap contact ratio component exists only in gear pairs that have helical or spiral tooth forms.

11.1 Radial Contact Ratio Of Spur And Helical Gears, ϵ_α

The equations for radial (or plane of rotation) contact ratio for spur and helical gears are given in **Table 11-1**, with reference to **Figure 11-2**.

When the contact ratio is inadequate, there are three means to increase it. These are somewhat obvious from examination of **Equation (11-1)**.

1. Decrease the pressure angle. This makes a longer line-of-action as it extends through the region between the two outside radii.
2. Increase the number of teeth. As the number of teeth increases and the pitch diameter grows, again there is a longer line-of-action in the region between the outside radii.
3. Increase working tooth depth. This can be done by adding addendum to the tooth and thus increase the outside radius. However, this requires a larger dedendum, and requires a special tooth design.



Table 11-1 Equations of Radial Contact Ratio on Parallel Axes Gear, ϵ_α

| Type of Gear Mesh | | Formula of Radial Contact Ratio, ϵ_α | |
|----------------------------|---------------|--|--|
| Spur Pair | Gear | ① | $\frac{\sqrt{\left(\frac{d_{a1}}{2}\right)^2 - \left(\frac{d_{b1}}{2}\right)^2} + \sqrt{\left(\frac{d_{a2}}{2}\right)^2 - \left(\frac{d_{b2}}{2}\right)^2} - a_x \sin \alpha_w}{\pi m \cos \alpha}$ |
| | Gear | ② | |
| Spur Gear and Rack | Gear | ① | $\frac{\sqrt{\left(\frac{d_{a1}}{2}\right)^2 - \left(\frac{d_{b1}}{2}\right)^2} + \frac{h_{a2} - x_1 m}{\sin \alpha} - \frac{d_1}{2} \sin \alpha}{\pi m \cos \alpha}$ |
| | Rack | ② | |
| External and Internal Spur | External Gear | ① | $\frac{\sqrt{\left(\frac{d_{a1}}{2}\right)^2 - \left(\frac{d_{b1}}{2}\right)^2} - \sqrt{\left(\frac{d_{a2}}{2}\right)^2 - \left(\frac{d_{b2}}{2}\right)^2} + a_x \sin \alpha_w}{\pi m \cos \alpha}$ |
| | Internal Gear | ② | |
| Helical Pair | Gear | ① | $\frac{\sqrt{\left(\frac{d_{a1}}{2}\right)^2 - \left(\frac{d_{b1}}{2}\right)^2} + \sqrt{\left(\frac{d_{a2}}{2}\right)^2 - \left(\frac{d_{b2}}{2}\right)^2} - a_x \sin \alpha_{wt}}{\pi m_t \cos \alpha_t}$ |
| | Gear | ② | |

An example of helical gear:

| | | | |
|-----------------------------|-------------------------------|--------------------|----------------------------|
| $m_n = 3$ | $\alpha_n = 20^\circ$ | $\beta = 30^\circ$ | $z_1 = 12$ |
| $z_2 = 60$ | $x_1 = +0.09809$ | $x_2 = 0$ | $a_x = 125$ |
| $\alpha_t = 22.79588^\circ$ | $\alpha_{wt} = 23.1126^\circ$ | $m_t = 3.46410$ | $d_{a1} = 48.153$ |
| $d_{a2} = 213.842$ | $d_{b1} = 38.322$ | $d_{b2} = 191.611$ | $\epsilon_\alpha = 1.2939$ |

Note that in **Table 11-1** only the radial or circular (plane of rotation) contact ratio is considered. This is true of both the spur and helical gear equations. However, for helical gears this is only one component of two. For the helical gear's total contact ratio, ϵ_γ , the overlap (axial) contact ratio, ϵ_β , must be added. See **Paragraph 11.4**.

11.2 Contact Ratio Of Bevel Gears, ϵ_α

The contact ratio of a bevel gear pair can be derived from consideration of the equivalent spur gears, when viewed from the back cone. See **Figure 8-8**.

With this approach, the mesh can be treated as spur gears. **Table 11-2** presents equations calculating the contact ratio.

An example of spiral bevel gear (see **Table 11-2**):

| | | | |
|----------------------------|-----------------------------|----------------------|-----------------------|
| $m = 3$ | $\alpha_n = 20^\circ$ | $\beta = 35^\circ$ | $z_1 = 20$ |
| $z_2 = 40$ | $\alpha_t = 23.95680^\circ$ | $d_1 = 60$ | $d_2 = 120$ |
| $R_{v1} = 33.54102$ | $R_{v2} = 134.16408$ | $R_{vb1} = 30.65152$ | $R_{vb2} = 122.60610$ |
| $h_{a1} = 3.4275$ | $h_{a2} = 1.6725$ | $R_{vb1} = 36.9685$ | $R_{vb2} = 135.83658$ |
| $\epsilon_\alpha = 1.2825$ | | | |

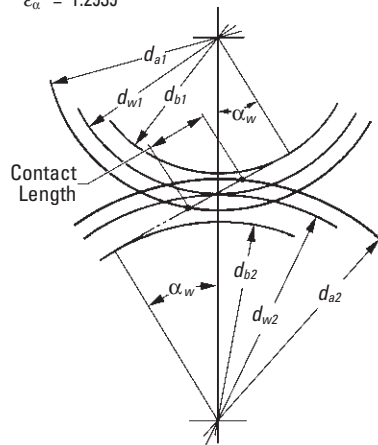


Fig. 11-2 Radial Contact Ratio of Parallel Axes Gear ϵ_α

Table 11-2 Equations for Contact Ratio for a Bevel Gear Pair

| Item | Symbol | Equation for Contact Ratio | |
|---|-------------------|--|--|
| Back Cone Distance | R_V | $\frac{d}{2 \cos \delta}$ | |
| Base Circle Radius of an Equivalent Spur Gear | R_{vb} | Straight Bevel Gear $R_V \cos \alpha$ | Spiral Bevel Gear $R_V \cos \alpha_t$ |
| Outside Radius of an Equivalent Spur Gear | R_{va} | $R_V + h_a$ | |
| Contact Ratio | ϵ_α | Straight Bevel Gear $\frac{\sqrt{R_{va1}^2 - R_{vb1}^2} + \sqrt{R_{va2}^2 - R_{vb2}^2} - (R_{v1} + R_V) \sin \alpha}{\pi m \cos \alpha}$ | |
| | | Spiral Bevel Gear $\frac{\sqrt{R_{va1}^2 - R_{vb1}^2} + \sqrt{R_{va2}^2 - R_{vb2}^2} - (R_{v1} + R_{v2}) \sin \alpha_t}{\pi m \cos \alpha_t}$ | |

11.3 Contact Ratio For Nonparallel And Nonintersecting Axes Pairs, ϵ

This group pertains to screw gearing and worm gearing. The equations are approximations by considering the worm and worm gear mesh in the plane perpendicular to worm gear axis and likening it to spur gear and rack mesh. **Table 11-3** presents these equations.

Table 11-3 Equations for Contact Ratio of Nonparallel and Nonintersecting Meshes

| Type of Gear Mesh | Equation of Contact Ratio, ϵ |
|-------------------|---|
| Screw Gear ① | $\frac{\sqrt{\left(\frac{d_{a1}}{2}\right)^2 - \left(\frac{d_{b1}}{2}\right)^2} + \sqrt{\left(\frac{d_{a2}}{2}\right)^2 - \left(\frac{d_{b2}}{2}\right)^2} - \frac{a - \frac{d_{b1} \cos \alpha_{t1}}{2} - \frac{d_{b1} \cos \alpha_{t2}}{2}}{\sin \alpha_n}}{\pi m_n \cos \alpha_n}$ |
| Screw Gear ② | |
| Worm ① | $\frac{h_{a1} - x_{x2} m_x + \sqrt{\left(\frac{d_{th}}{2}\right)^2 - \left(\frac{d_{b2}}{2}\right)^2} - \frac{d_2}{2} \sin \alpha_x}{\pi m_x \cos \alpha_x}$ |
| Worm Gear ② | |

Example of worm mesh:

| | | | |
|--------------|-----------------------|--------------------------|-----------------------------|
| $m_x = 3$ | $\alpha_n = 20^\circ$ | $z_w = 2$ | $z_2 = 30$ |
| $d_1 = 44$ | $d_2 = 90$ | $\gamma = 7.76517^\circ$ | $\alpha_x = 20.17024^\circ$ |
| $h_{a1} = 3$ | $d_m = 96$ | $d_{b2} = 84.48050$ | $\epsilon = 1.8066$ |

11.4 Axial (Overlap) Contact Ratio, ϵ_β

Helical gears and spiral bevel gears have an overlap of tooth action in the axial direction. This overlap adds to the contact ratio. This is in contrast to spur gears which have no tooth action in the axial direction.

Thus, for the same tooth proportions in the plane of rotation, helical and spiral bevel gears offer a significant increase in contact ratio. The magnitude of axial contact ratio is a direct function of the gear width, as illustrated in **Figure 11-3**. Equations for calculating axial contact ratio are presented in **Table 11-4**.

It is obvious that contact ratio can be increased by either increasing the gear width or increasing the helix angle.

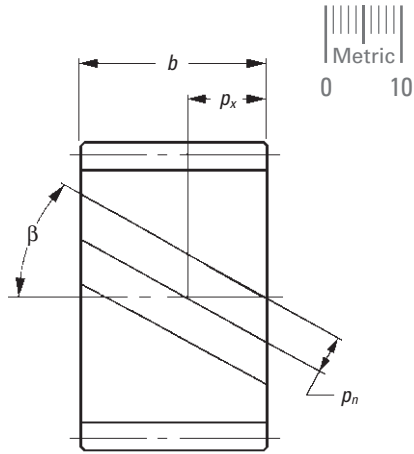


Fig. 11-3 Axial (Overlap) Contact Ratio

Table 11-4 Equations for Axial Contact Ratio of Helical and Spiral Bevel Gears, ϵ_β

| Type of Gear | Equation of Contact Ratio | Example |
|-------------------|---|---|
| Helical Gear | $\frac{b \sin \beta}{\pi m_n}$ | $b = 50, \beta = 30^\circ, m_n = 3$ $\epsilon_\beta = 2.6525$ |
| Spiral Bevel Gear | $\frac{R_e}{R_e - 0.5b} \frac{b \tan \beta_m}{\pi m}$ | From Table 8-6 : $R_e = 67.08204, b = 20,$ $\beta_m = 35^\circ, m = 3, \epsilon_\beta = 1.7462$ |

NOTE: The module m in spiral bevel gear equation is the normal module.

SECTION 12 GEAR TOOTH MODIFICATIONS

Intentional deviations from the involute tooth profile are used to avoid excessive tooth load deflection interference and thereby enhances load capacity. Also, the elimination of tip interference reduces meshing noise. Other modifications can accommodate assembly misalignment and thus preserve load capacity.

12.1 Tooth Tip Relief

There are two types of tooth tip relief. One modifies the addendum, and the other the dedendum. See **Figure 12-1**. Addendum relief is much more popular than dedendum modification.

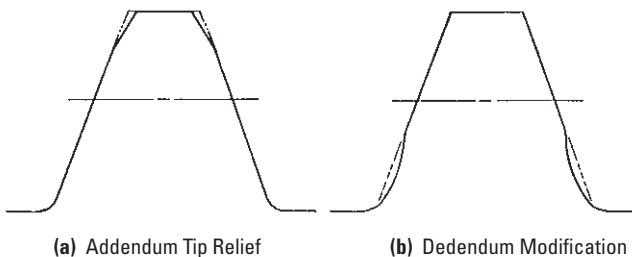


Fig. 12-1 Tip Relief

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A



12.2 Crowning And Side Relieving

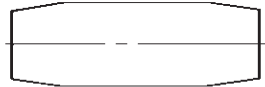
Crowning and side relieving are tooth surface modifications in the axial direction. See Figure 12-2.

Crowning is the removal of a slight amount of tooth from the center on out to reach edge, making the tooth surface slightly convex. This method allows the gear to maintain contact in the central region of the tooth and permits avoidance of edge contact with consequent lower load capacity. Crowning also allows a greater tolerance in the misalignment of gears in their assembly, maintaining central contact.

Relieving is a chamfering of the tooth surface. It is similar to crowning except that it is a simpler process and only an approximation to crowning. It is not as effective as crowning.



(a) Crowning



(b) Side Relieving

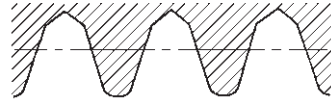
Fig. 12-2 Crowning and Relieving

12.3 Topping And Semitopping

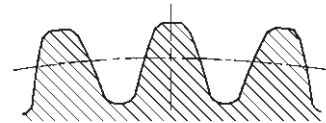
In topping, often referred to as top hobbing, the top or outside diameter of the gear is cut simultaneously with the generation of the teeth. An advantage is that there will be no burrs on the tooth top. Also, the outside diameter is highly concentric with the pitch circle. This permits secondary machining operations using this diameter for nesting.

Semitopping is the chamfering of the tooth's top corner, which is accomplished simultaneously with tooth generation. Figure 12-3 shows a semitopping cutter and the resultant generated semitopped gear. Such a tooth tends to prevent corner damage. Also, it has no burr. The magnitude of semitopping should not go beyond a proper limit as otherwise it would significantly shorten the addendum and contact ratio. Figure 12-4 specifies a recommended magnitude of semitopping.

Both modifications require special generating tools. They are independent modifications but, if desired, can be applied simultaneously.



(a) Teeth Form of Semitopping Cutter



(b) Semitopped Teeth Form

Fig. 12-3 Semitopping Cutter and the Gear Profile Generated

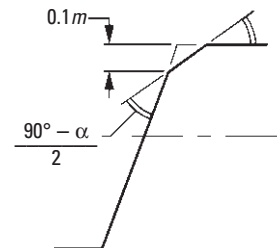


Fig. 12-4 Recommended Magnitude of Semitopping



SECTION 13 GEAR TRAINS

The objective of gears is to provide a desired motion, either rotation or linear. This is accomplished through either a simple gear pair or a more involved and complex system of several gear meshes. Also, related to this is the desired speed, direction of rotation and the shaft arrangement.

13.1 Single-Stage Gear Train

A meshed gear is the basic form of a single-stage gear train. It consists of z_1 and z_2 numbers of teeth on the driver and driven gears, and their respective rotations, n_1 & n_2 . The speed ratio is then:

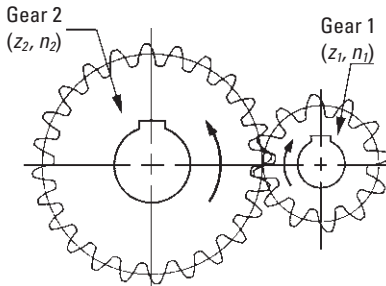
$$\text{speed ratio} = \frac{z_1}{z_2} = \frac{n_2}{n_1} \quad (13-1)$$

13.1.1 Types Of Single-Stage Gear Trains

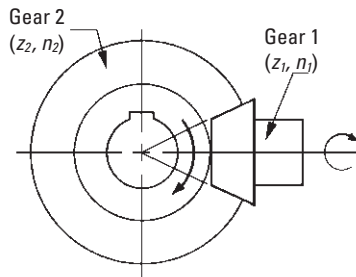
Gear trains can be classified into three types:

1. Speed ratio > 1, increasing: $n_1 < n_2$
2. Speed ratio = 1, equal speeds: $n_1 = n_2$
3. Speed ratio < 1, reducing: $n_1 > n_2$

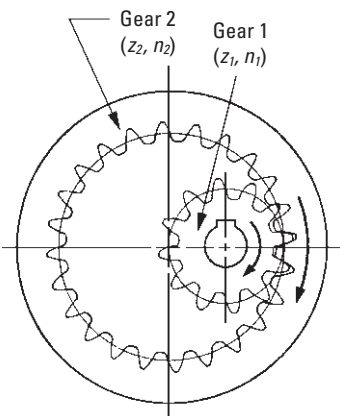
Figure 13-1 illustrates four basic types. For the very common cases of spur and bevel meshes, Figures 13-1(a) and 13-1(b), the direction of rotation of driver and driven gears are reversed. In the case of an internal gear mesh, Figure 13-1(c), both gears have the same direction of rotation. In the case of a worm mesh, Figure 13-1(d), the rotation direction of z_2 is determined by its helix hand.



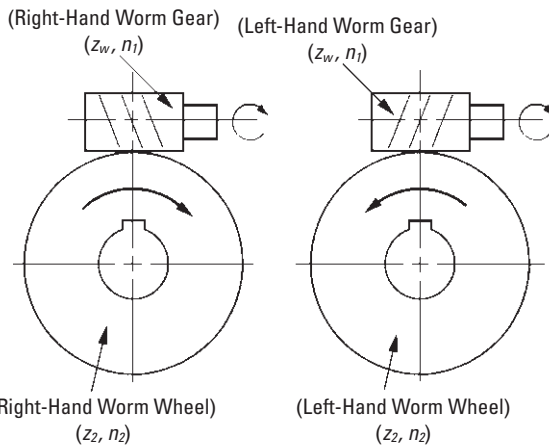
(a) A Pair of Spur Gears



(b) Bevel Gears



(c) Spur Gear and Internal Gear



(d) Worm Mesh

Fig. 13-1 Single-Stage Gear Trains

I
R
T
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2
3
4
5
6
7
8
9
10
11
12
13
14
15
A



In addition to these four basic forms, the combination of a rack and gear can be considered a specific type. The displacement of a rack, l , for rotation θ of the mating gear is:

$$l = \frac{\pi m z_1 \theta}{360} \tag{13-2}$$

where:

πm is the standard circular pitch
 z_1 is the number of teeth of the gear

13.2 Two-Stage Gear Train

A two-stage gear train uses two single-stages in a series. **Figure 13-2** represents the basic form of an external gear two-stage gear train.

Let the first gear in the first stage be the driver. Then the speed ratio of the two-stage train is:

$$\text{Speed Ratio} = \frac{z_1}{z_2} \frac{z_3}{z_4} = \frac{n_2}{n_1} \frac{n_4}{n_3} \tag{13-3}$$

In this arrangement, $n_2 = n_3$

In the two-stage gear train, **Figure 13-2**, gear 1 rotates in the same direction as gear 4. If gears 2 and 3 have the same number of teeth, then the train simplifies as in **Figure 13-3**. In this arrangement, gear 2 is known as an idler, which has no effect on the gear ratio. The speed ratio is then:

$$\text{Speed Ratio} = \frac{z_1}{z_2} \frac{z_2}{z_3} = \frac{z_1}{z_3} \tag{13-4}$$

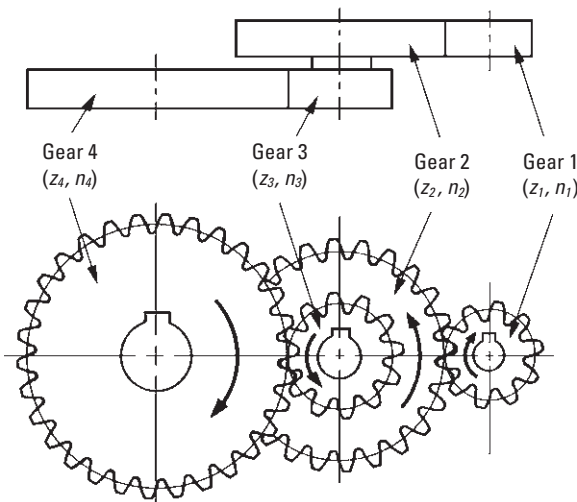


Fig. 13-2 Two-Stage Gear Train

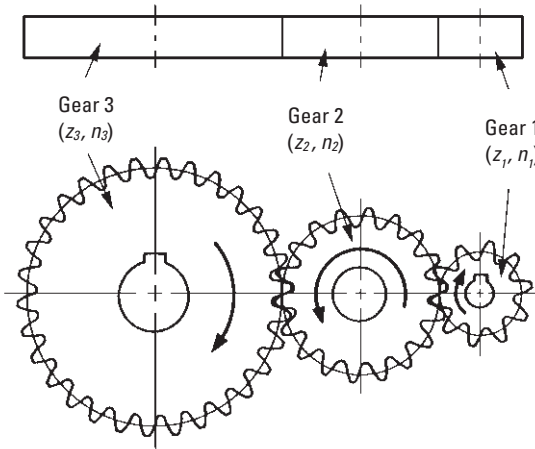


Fig. 13-3 Single-Stage Gear Train with an Idler

13.3 Planetary Gear System

The basic form of a planetary gear system is shown in **Figure 13-4**. It consists of a **Sun Gear (A)**, **Planet Gears (B)**, **Internal Gear (C)** and **Carrier (D)**. The input and output axes of a planetary gear system are on a same line. Usually, it uses two or more planet gears to balance the load evenly. It is compact in space, but complex in structure. Planetary gear systems need a high-quality manufacturing process. The load division between planet gears, the interference of the internal gear, the balance and vibration of the rotating carrier, and the hazard of jamming, etc. are inherent problems to be solved.

Figure 13-4 is a so called 2K-H type planetary gear system. The sun gear, internal gear, and the carrier have a common axis.

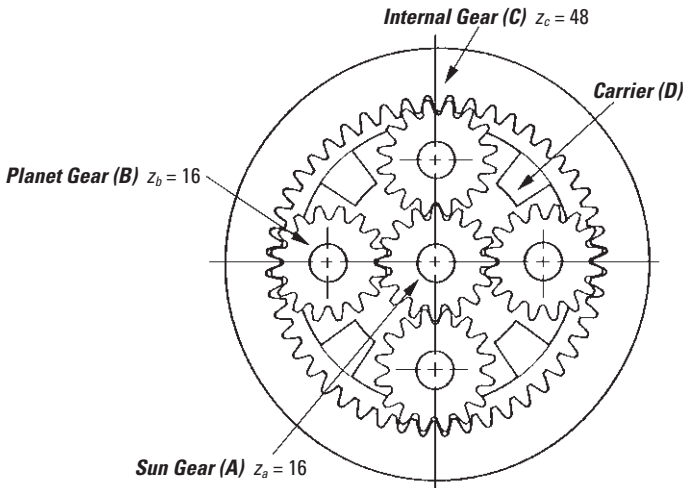


Fig. 13-4 An Example of a Planetary Gear System



13.3.1 Relationship Among The Gears In A Planetary Gear System

In order to determine the relationship among the numbers of teeth of the sun gear A, (Z_a), the planet gears B, (Z_b), and the internal gear C, (Z_c), and the number of planet gears, N, in the system, the parameters must satisfy the following three conditions:

Condition No. 1: $Z_c = Z_a + 2 Z_b$ (13-5)

This is the condition necessary for the center distances of the gears to match. Since the equation is true only for the standard gear system, it is possible to vary the numbers of teeth by using profile shifted gear designs.

To use profile shifted gears, it is necessary to match the center distance between the sun A and planet B gears, a_{x1} , and the center distance between the planet B and internal C gears, a_{x2} .

$a_{x1} = a_{x2}$ (13-6)

Condition No. 2: $\frac{(Z_a + Z_c)}{N} = \text{integer}$ (13-7)

This is the condition necessary for placing planet gears evenly spaced around the sun gear. If an uneven placement of planet gears is desired, then **Equation (13-8)** must be satisfied.

$\frac{(Z_a + Z_c) \theta}{180} = \text{integer}$ (13-8)

where:

θ = half the angle between adjacent planet gears

Condition No. 3:

$Z_b + 2 < (Z_a + Z_b) \sin \left(\frac{180}{N} \right)$ (13-9)

Satisfying this condition insures that adjacent planet gears can operate without interfering with each other. This is the condition that must be met for standard gear design with equal placement of planet gears. For other conditions, the system must satisfy the relationship:

$d_{ab} < 2 a_x \sin \theta$ (13-10)

where:

d_{ab} = outside diameter of the planet gears

a_x = center distance between the sun and planet gears

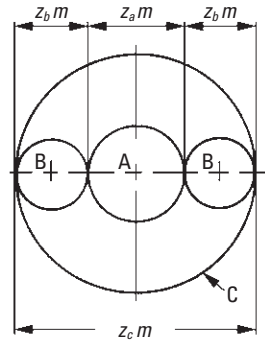


Fig. 13-5(a) Condition No. 1 of Planetary Gear System

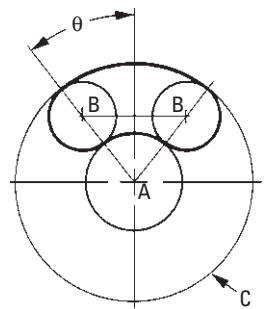


Fig. 13-5(b) Condition No. 2 of Planetary Gear System

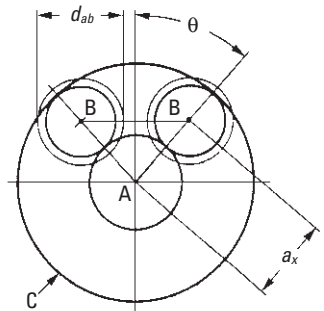


Fig. 13-5(c) Condition No. 3 of Planetary Gear System

Besides the above three basic conditions, there can be an interference problem between the internal gear C and the planet gear B. See SECTION 5 that discusses more about this problem.

13.3.2 Speed Ratio Of Planetary Gear System

In a planetary gear system, the speed ratio and the direction of rotation would be changed according to which member is fixed. Figures 13-6(a), 13-6(b) and 13-6(c) contain three typical types of planetary gear mechanisms, depending upon which member is locked.

(a) Planetary Type

In this type, the internal gear is fixed. The input is the sun gear and the output is carrier D. The speed ratio is calculated as in Table 13-1.

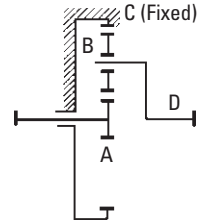


Fig. 13-6(a) Planetary Type Planetary Gear Mechanism

Table 13-1 Equations of Speed Ratio for a Planetary Type

| No. | Description | Sun Gear A Z_a | Planet Gear B Z_b | Internal Gear C Z_c | Carrier D |
|-----|--|-----------------------|-------------------------------------|--------------------------|--------------------|
| 1 | Rotate sun gear A once while holding carrier | +1 | $-\frac{Z_a}{Z_b}$ | $-\frac{Z_a}{Z_c}$ | 0 |
| 2 | System is fixed as a whole while rotating $+(Z_a/Z_c)$ | $+\frac{Z_a}{Z_c}$ | $+\frac{Z_a}{Z_c}$ | $+\frac{Z_a}{Z_c}$ | $+\frac{Z_a}{Z_c}$ |
| 3 | Sum of 1 and 2 | $1 + \frac{Z_a}{Z_c}$ | $\frac{Z_a}{Z_c} - \frac{Z_a}{Z_b}$ | 0 (fixed) | $+\frac{Z_a}{Z_c}$ |

$$\text{Speed Ratio} = \frac{\frac{Z_a}{Z_c}}{1 + \frac{Z_a}{Z_c}} = \frac{1}{\frac{Z_c}{Z_a} + 1} \tag{13-11}$$

Note that the direction of rotation of input and output axes are the same.

Example: $z_a = 16, z_b = 16, z_c = 48$, then speed ratio = 1/4.

(b) Solar Type

In this type, the sun gear is fixed. The internal gear C is the input, and carrier D axis is the output. The speed ratio is calculated as in Table 13-2, on the following page.

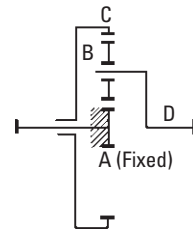


Fig. 13-6(b) Solar Type Planetary Gear Mechanism

Table 13-2 Equations of Speed Ratio for a Solar Type

| No. | Description | Sun Gear A Z_a | Planet Gear B Z_b | Internal Gear C Z_c | Carrier D |
|-----|--|---------------------|------------------------|--------------------------|-----------|
| 1 | Rotate sun gear A once while holding carrier | +1 | $-\frac{Z_a}{Z_b}$ | $-\frac{Z_a}{Z_c}$ | 0 |
| 2 | System is fixed as a whole while rotating $+(Z_a/Z_c)$ | -1 | -1 | -1 | -1 |
| 3 | Sum of 1 and 2 | 0 (fixed) | $-\frac{Z_a}{Z_b} - 1$ | $-\frac{Z_a}{Z_c} - 1$ | -1 |

$$\text{Speed Ratio} = \frac{-1}{-\frac{Z_a}{Z_c} - 1} = \frac{1}{\frac{Z_a}{Z_c} + 1} \tag{13-12}$$

Note that the directions of rotation of input and output axes are the same.
 Example: $z_a = 16, z_b = 16, z_c = 48$, then the speed ratio = 1/1.3333333.

(c) Star Type

This is the type in which Carrier D is fixed. The planet gears B rotate only on fixed axes. In a strict definition, this train loses the features of a planetary system and it becomes an ordinary gear train. The sun gear is an input axis and the internal gear is the output. The speed ratio is:

$$\text{Speed Ratio} = -\frac{Z_a}{Z_c} \tag{13-13}$$

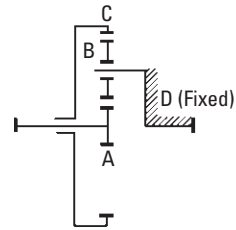


Fig. 13-6(c) Star Type Planetary Gear Mechanism

Referring to **Figure 13-6(c)**, the planet gears are merely idlers. Input and output axes have opposite rotations.

Example: $z_a = 16, z_b = 16, z_c = 48$;
 then speed ratio = -1/3.

13.4 Constrained Gear System

A planetary gear system which has four gears, as in **Figure 13-5**, is an example of a constrained gear system. It is a closed loop system in which the power is transmitted from the driving gear through other gears and eventually to the driven gear. A closed loop gear system will not work if the gears do not meet specific conditions.

Let z_1, z_2 and z_3 be the numbers of gear teeth, as in **Figure 13-7**. Meshing cannot function if the length of the heavy line (belt) does not divide evenly by circular pitch. **Equation (13-14)** defines this condition.

$$\frac{z_1 \theta_1}{180} + \frac{z_2(180 + \theta_1 + \theta_2)}{180} + \frac{z_3 \theta_2}{180} = \text{integer} \tag{13-14}$$

where θ_1 and θ_2 are in degrees.



Figure 13-8 shows a constrained gear system in which a rack is meshed. The heavy line in **Figure 13-8** corresponds to the belt in **Figure 13-7**. If the length of the belt cannot be evenly divided by circular pitch then the system does not work. It is described by **Equation (13-15)**.

$$\frac{z_1\theta_1}{180} + \frac{z_2(180 + \theta_1)}{180} + \frac{a}{\pi m} = \text{integer} \quad (13-15)$$

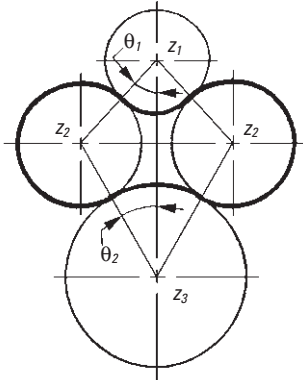


Fig. 13-7 Constrained Gear System

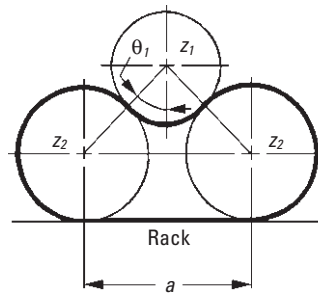


Fig. 13-8 Constrained Gear System Containing a Rack

SECTION 14 BACKLASH

Up to this point the discussion has implied that there is no backlash. If the gears are of standard tooth proportion design and operate on standard center distance they would function ideally with neither backlash nor jamming.

Backlash is provided for a variety of reasons and cannot be designated without consideration of machining conditions. The general purpose of backlash is to prevent gears from jamming by making contact on both sides of their teeth simultaneously. A small amount of backlash is also desirable to provide for lubricant space and differential expansion between the gear components and the housing. Any error in machining which tends to increase the possibility of jamming makes it necessary to increase the amount of backlash by at least as much as the possible cumulative errors. Consequently, the smaller the amount of backlash, the more accurate must be the machining of the gears. Runout of both gears, errors in profile, pitch, tooth thickness, helix angle and center distance – all are factors to consider in the specification of the amount of backlash. On the other hand, excessive backlash is objectionable, particularly if the drive is frequently reversing or if there is an overrunning load. The amount of backlash must not be excessive for the requirements of the job, but it should be sufficient so that machining costs are not higher than necessary.

In order to obtain the amount of backlash desired, it is necessary to decrease tooth thickness. See **Figure 14-1**. This decrease must almost always be greater than the desired backlash because of the errors in manufacturing and assembling. Since the amount of the decrease in tooth thickness depends upon the accuracy of machining, the allowance for a specified backlash will vary according to the manufacturing conditions.

It is customary to make half of the allowance for backlash on the tooth thickness of each gear of a pair, although there are exceptions. For example, on pinions having very low numbers of teeth, it is desirable to provide all of the allowance on the mating gear so as not to weaken the pinion teeth.

In spur and helical gearing, backlash allowance is usually obtained by sinking the hob deeper into the blank than the theoretically standard depth. Further, it is true that any increase or decrease in center distance of two gears in any mesh will cause an increase or decrease in backlash. Thus, this is an alternate way of designing backlash into the system.

In the following, we give the fundamental equations for the determination of backlash in a single gear mesh. For the determination of backlash in gear trains, it is necessary to sum the backlash of each mated gear pair. However, to obtain the total backlash for a series of meshes, it is necessary to take into account the gear ratio of each mesh relative to a chosen reference shaft in the gear train. For details, see Reference 10 at the end of the technical section.

14.1 Definition Of Backlash

Backlash is defined in **Figure 14-2(a)** as the excess thickness of tooth space over the thickness of the mating tooth. There are two basic ways in which backlash arises: tooth thickness is below the zero backlash value; and the operating center distance is greater than the zero backlash value.

If the tooth thickness of either or both mating gears is less than the zero backlash value, the amount of backlash introduced in the mesh is simply this numerical difference:

$$j = s_{std} - s_{act} = \Delta s \tag{14-1}$$

Linear Backlash = $j = s_s - s_2$

Angular Backlash of

Gear = $j_{\theta 1} = \frac{j}{R}$

Pinion = $j_{\theta 2} = \frac{j}{r}$

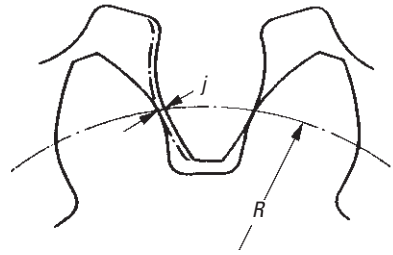


Figure 14-1 Backlash, (j) Between Two Gears

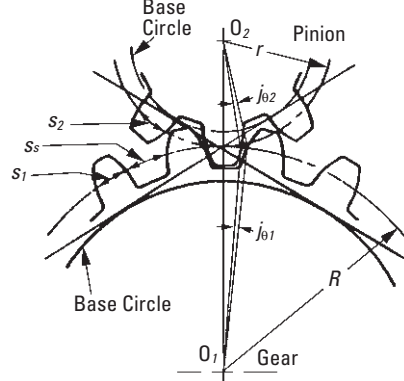


Fig. 14-2(a) Geometrical Definition of Angular Backlash

where:

j = linear backlash measured along the pitch circle
(Figure 14-2(b))

s_{std} = no backlash tooth thickness on the operating pitch circle, which is the standard tooth thickness for ideal gears

s_{act} = actual tooth thickness

When the center distance is increased by a relatively small amount, Δa , a backlash space develops between mating teeth, as in Figure 14-3. The relationship between center distance increase and linear backlash j_n along the line-of-action is:

$$j_n = 2 \Delta a \sin \alpha$$

(14-2)

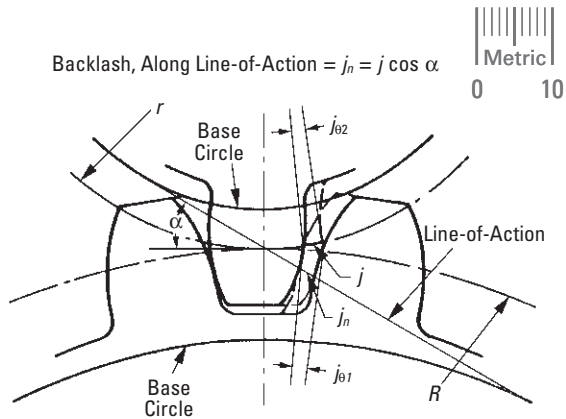


Fig. 14-2(b) Geometrical Definition of Linear Backlash

(a) Gear Teeth in Tight Mesh
No Backlash

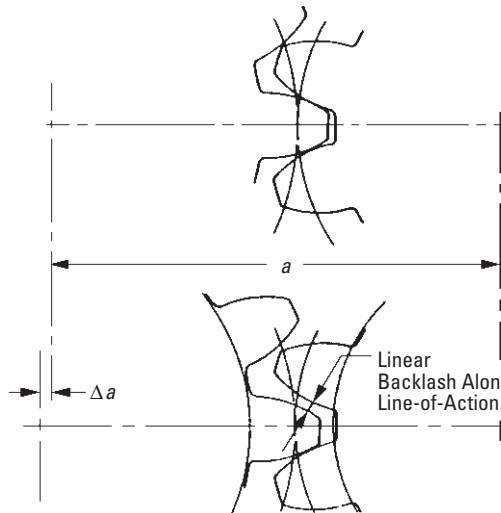


Figure 14-3 Backlash Caused by Opening of Center Distance



This measure along the line-of-action is useful when inserting a feeler gage between teeth to measure backlash. The equivalent linear backlash measured along the pitch circle is given by:

$$j = 2 \Delta a \tan \alpha \quad (14-3a)$$

where:

Δa = change in center distance

α = pressure angle

Hence, an approximate relationship between center distance change and change in backlash is:

$$\Delta a = 1.933 \Delta j \text{ for } 14.5^\circ \text{ pressure angle gears} \quad (14-3b)$$

$$\Delta a = 1.374 \Delta j \text{ for } 20^\circ \text{ pressure angle gears} \quad (14-3c)$$

Although these are approximate relationships, they are adequate for most uses. Their derivation, limitations, and correction factors are detailed in Reference 10.

Note that backlash due to center distance opening is dependent upon the tangent function of the pressure angle. Thus, 20° gears have 41% more backlash than 14.5° gears, and this constitutes one of the few advantages of the lower pressure angle.

Equations (14-3) are a useful relationship, particularly for converting to angular backlash. Also, for fine pitch gears the use of feeler gages for measurement is impractical, whereas an indicator at the pitch line gives a direct measure. The two linear backlashes are related by:

$$j = \frac{j_n}{\cos \alpha} \quad (14-4)$$

The angular backlash at the gear shaft is usually the critical factor in the gear application. As seen from **Figure 14-2(a)**, this is related to the gear's pitch radius as follows:

$$j_\theta = 3440 \frac{j}{R_t} \text{ (arc minutes)} \quad (14-5)$$

Obviously, angular backlash is inversely proportional to gear radius. Also, since the two meshing gears are usually of different pitch diameters, the linear backlash of the measure converts to different angular values for each gear. Thus, an angular backlash must be specified with reference to a particular shaft or gear center.

Details of backlash calculations and formulas for various gear types are given in the following sections.

14.2 Backlash Relationships

Expanding upon the previous definition, there are several kinds of backlash: circular backlash j_t , normal backlash j_n , center backlash j_r and angular backlash j_θ ($^\circ$), see **Figure 14-4**.

Table 14-1 reveals relationships among circular backlash j_t , normal backlash j_n and center backlash j_r . In this definition, j_r is equivalent to change in center distance, Δa , in **Section 14.1**.

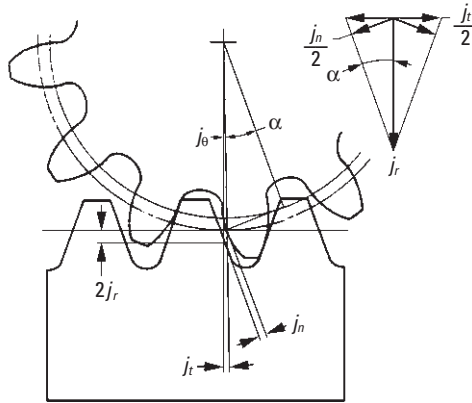


Fig. 14-4 Kinds of Backlash and Their Direction

Table 14-1 The Relationships among the Backlashes

| No. | Type of Gear Meshes | The Relation between Circular Backlash j_t and Normal Backlash j_n | The Relation between Circular Backlash j_t and Center Backlash j_r |
|-----|---------------------|--|--|
| 1 | Spur Gear | $j_n = j_t \cos \alpha$ | $j_r = \frac{j_t}{2 \tan \alpha}$ |
| 2 | Helical Gear | $j_{nn} = j_{nt} \cos \alpha_n \cos \beta$ | $j_r = \frac{j_{nt}}{2 \tan \alpha_t}$ |
| 3 | Straight Bevel Gear | $j_n = j_t \cos \alpha$ | $j_r = \frac{j_t}{2 \tan \alpha \sin \delta}$ |
| 4 | Spiral Bevel Gear | $j_{nn} = j_{nt} \cos \alpha_n \cos \beta_m$ | $j_r = \frac{j_{nt}}{2 \tan \alpha_t \sin \delta}$ |
| 5 | Worm Worm Gear | $j_{nn} = j_{nt1} \cos \alpha_n \cos \gamma$ $j_{nn} = j_{nt2} \cos \alpha_n \cos \gamma$ | $j_r = \frac{j_{nt2}}{2 \tan \alpha_x}$ |

Circular backlash j_t has a relation with angular backlash j_θ , as follows:

$$j_\theta = j_t \frac{360}{\pi d} \text{ (degrees)} \tag{14-6}$$

14.2.1 Backlash Of A Spur Gear Mesh

From **Figure 14-4** we can derive backlash of spur mesh as:

$$\left. \begin{aligned} j_n &= j_t \cos \alpha \\ j_r &= \frac{j_t}{2 \tan \alpha} \end{aligned} \right\} \tag{14-7}$$

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0 10

14.2.2 Backlash Of Helical Gear Mesh

The helical gear has two kinds of backlash when referring to the tooth space. There is a cross section in the normal direction of the tooth surface n , and a cross section in the radial direction perpendicular to the axis, t .

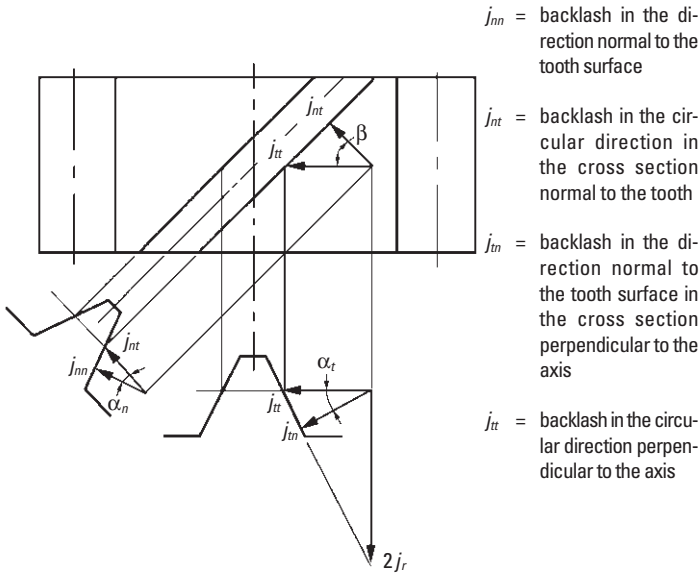


Fig. 14-5 Backlash of Helical Gear Mesh

These backlashes have relations as follows:

In the plane normal to the tooth:

$$j_{nn} = j_{nt} \cos \alpha_n \tag{14-8}$$

On the pitch surface:

$$j_{nt} = j_{tr} \cos \beta \tag{14-9}$$

In the plane perpendicular to the axis:

$$\left. \begin{aligned} j_{tr} &= j_r \cos \alpha_t \\ j_r &= \frac{j_{tr}}{2 \tan \alpha_t} \end{aligned} \right\} \tag{14-10}$$

14.2.3 Backlash Of Straight Bevel Gear Mesh

Figure 14-6 expresses backlash for a straight bevel gear mesh.

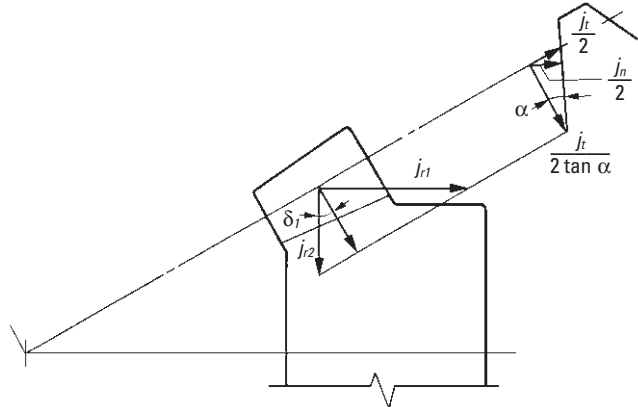


Fig. 14-6 Backlash of Straight Bevel Gear Mesh

In the cross section perpendicular to the tooth of a straight bevel gear, circular backlash at pitch line j_b , normal backlash j_n and radial backlash j_r' have the following relationships:

$$\left. \begin{aligned} j_n &= j_t \cos \alpha \\ j_r' &= \frac{j_t}{2 \tan \alpha} \end{aligned} \right\} \quad (14-11)$$

The radial backlash in the plane of axes can be broken down into the components in the direction of bevel pinion center axis, j_{r1} , and in the direction of bevel gear center axis, j_{r2} .

$$\left. \begin{aligned} j_{r1} &= \frac{j_t}{2 \tan \alpha \sin \delta_1} \\ j_{r2} &= \frac{j_t}{2 \tan \alpha \cos \delta_1} \end{aligned} \right\} \quad (14-12)$$

14.2.4 Backlash Of A Spiral Bevel Gear Mesh

Figure 14-7 delineates backlash for a spiral bevel gear mesh.

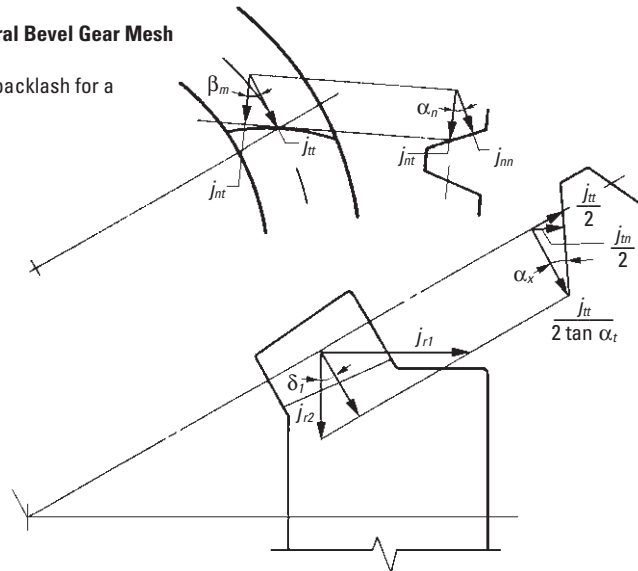


Fig. 14-7 Backlash of Spiral Bevel Gear Mesh



In the tooth space cross section normal to the tooth:

$$j_{nn} = j_{nt} \cos \alpha_n \tag{14-13}$$

On the pitch surface:

$$j_{nt} = j_t \cos \beta_m \tag{14-14}$$

In the plane perpendicular to the generatrix of the pitch cone:

$$\left. \begin{aligned} j_m &= j_t \cos \alpha_t \\ j_r' &= \frac{j_t}{2 \tan \alpha_t} \end{aligned} \right\} \tag{14-15}$$

The radial backlash in the plane of axes can be broken down into the components in the direction of bevel pinion center axis, j_{r1} , and in the direction of bevel gear center axis, j_{r2} .

$$\left. \begin{aligned} j_{r1} &= \frac{j_t}{2 \tan \alpha_t \sin \delta_1} \\ j_{r2} &= \frac{j_t}{2 \tan \alpha_t \cos \delta_1} \end{aligned} \right\} \tag{14-16}$$

14.2.5 Backlash Of Worm Gear Mesh

Figure 14-8 expresses backlash for a worm gear mesh. On the pitch surface of a worm:

$$\left. \begin{aligned} j_{nt} &= j_{tt1} \sin \gamma \\ j_{nt} &= j_{tt2} \cos \gamma \\ \tan \gamma &= \frac{j_{tt2}}{j_{tt1}} \end{aligned} \right\} \tag{14-17}$$

In the cross section of a worm perpendicular to its axis:

$$\left. \begin{aligned} j_{m1} &= j_{tt1} \cos \alpha_t \\ j_r &= \frac{j_{tt1}}{2 \tan \alpha_t} \end{aligned} \right\} \tag{14-18}$$

In the plane perpendicular to the axis of the worm gear:

$$\left. \begin{aligned} j_{m2} &= j_{tt2} \cos \alpha_x \\ j_r &= \frac{j_{tt2}}{2 \tan \alpha_x} \end{aligned} \right\} \tag{14-19}$$

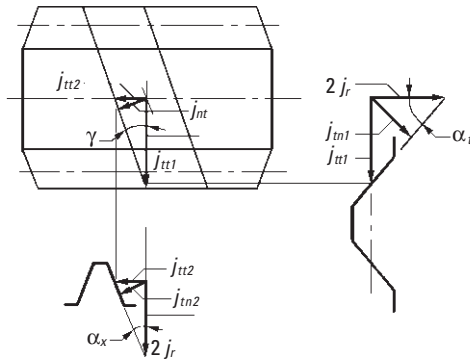


Fig. 14-8 Backlash of Worm Gear Mesh

14.3 Tooth Thickness And Backlash

There are two ways to produce backlash. One is to enlarge the center distance. The other is to reduce the tooth thickness. The latter is much more popular than the former. We are going to discuss more about the way of reducing the tooth thickness. In SECTION 10, we have discussed the standard tooth thickness s . In the meshing of a pair of gears, if the tooth thickness of pinion and gear were reduced by Δs_1 and Δs_2 , they would generate a backlash of $\Delta s_1 + \Delta s_2$ in the direction of the pitch circle.

Let the magnitude of $\Delta s_1, \Delta s_2$ be 0.1. We know that $\alpha = 20^\circ$, then:

$$j_t = \Delta s_1 + \Delta s_2 = 0.1 + 0.1 = 0.2$$

We can convert it into the backlash on normal direction:

$$j_n = j_t \cos \alpha = 0.2 \cos 20^\circ = 0.1879$$

Let the backlash on the center distance direction be j_o , then:

$$j_r = \frac{j_t}{2 \tan \alpha} = \frac{0.2}{2 \tan 20^\circ} = 0.2747$$

They express the relationship among several kinds of backlashes. In application, one should consult the JIS standard.

There are two JIS standards for backlash – one is JIS B 1703-76 for spur gears and helical gears, and the other is JIS B 1705-73 for bevel gears. All these standards regulate the standard backlashes in the direction of the pitch circle j_t or j_n . These standards can be applied directly, but the backlash beyond the standards may also be used for special purposes. When writing tooth thicknesses on a drawing, it is necessary to specify, in addition, the tolerances on the thicknesses as well as the backlash. For example:

Circular tooth thickness $3.141 \begin{smallmatrix} -0.050 \\ -0.100 \end{smallmatrix}$

Backlash $0.100 \dots 0.200$

14.4 Gear Train And Backlash

The discussions so far involved a single pair of gears. Now, we are going to discuss two stage gear trains and their backlash. In a two stage gear train, as Figure 14-9 shows, j_1 and j_4 represent the backlashes of first stage gear train and second stage gear train respectively.

If number one gear were fixed, then the accumulated backlash on number four gear j_{1r4} would be as follows:

$$j_{1r4} = j_1 \frac{d_3}{d_2} + j_4 \quad (14-20)$$

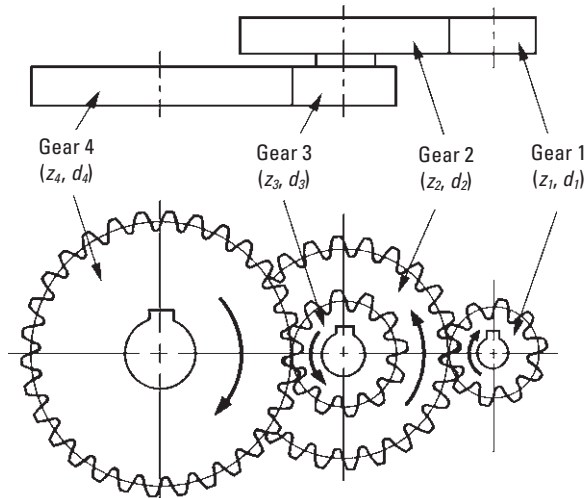


Fig. 14-9 Overall Accumulated Backlash of Two Stage Gear Train



This accumulated backlash can be converted into rotation in degrees:

$$j_0 = j_{iT4} \frac{360}{\pi d_4} \text{ (degrees)} \tag{14-21}$$

The reverse case is to fix number four gear and to examine the accumulated backlash on number one gear j_{iT1} .

$$j_{iT1} = j_4 \frac{d_2}{d_3} + j_1 \tag{14-22}$$

This accumulated backlash can be converted into rotation in degrees:

$$j_0 = j_{iT1} \frac{360}{\pi d_1} \text{ (degrees)} \tag{14-23}$$

14.5 Methods Of Controlling Backlash

In order to meet special needs, precision gears are used more frequently than ever before. Reducing backlash becomes an important issue. There are two methods of reducing or eliminating backlash – one a static, and the other a dynamic method.

The static method concerns means of assembling gears and then making proper adjustments to achieve the desired low backlash. The dynamic method introduces an external force which continually eliminates all backlash regardless of rotational position.

14.5.1 Static Method

This involves adjustment of either the gear's effective tooth thickness or the mesh center distance. These two independent adjustments can be used to produce four possible combinations as shown in **Table 14-2**.

Table 14-2

| | | Center Distance | |
|-----------|------------|-----------------|------------|
| | | Fixed | Adjustable |
| Gear Size | Fixed | I | III |
| | Adjustable | II | IV |

Case I

By design, center distance and tooth thickness are such that they yield the proper amount of desired minimum backlash. Center distance and tooth thickness size are fixed at correct values and require precision manufacturing.

Case II

With gears mounted on fixed centers, adjustment is made to the effective tooth thickness by axial movement or other means. Three main methods are:

1. Two identical gears are mounted so that one can be rotated relative to the other and fixed. See **Figure 14-10a**. In this way, the effective tooth thickness can be adjusted to yield the desired low backlash.
2. A gear with a helix angle such as a helical gear is made in two half thicknesses. One is shifted axially such that each makes contact with the mating gear on the opposite sides of the tooth. See **Figure 14-10b**.
3. The backlash of cone shaped gears, such as bevel and tapered tooth spur gears, can be adjusted with axial positioning. A duplex lead worm can be adjusted similarly. See **Figure 14-10c**.

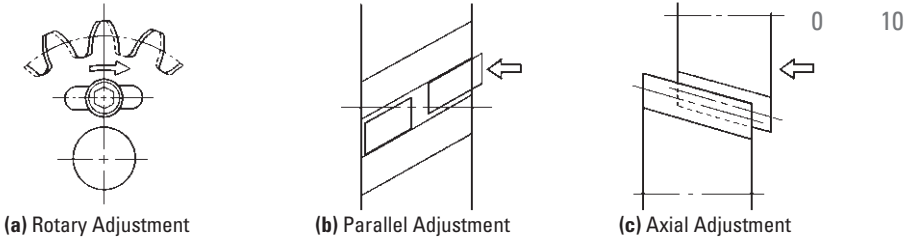


Fig. 14-10 Ways of Reducing Backlash in Case II

Case III

Center distance adjustment of backlash can be accomplished in two ways:

1. Linear Movement – **Figure 14-11a** shows adjustment along the line-of-centers in a straight or parallel axes manner. After setting to the desired value of backlash, the centers are locked in place.
2. Rotary Movement – **Figure 14-11b** shows an alternate way of achieving center distance adjustment by rotation of one of the gear centers by means of a swing arm on an eccentric bushing. Again, once the desired backlash setting is found, the positioning arm is locked.

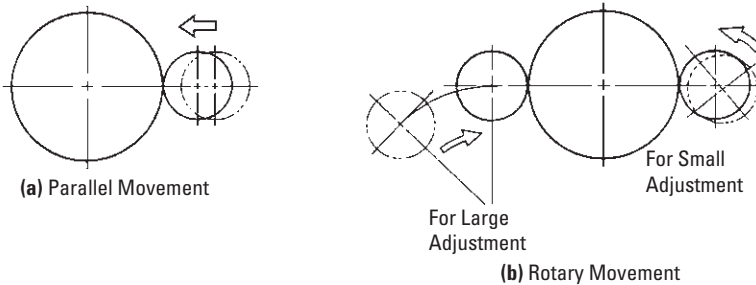


Fig. 14-11 Ways of Decreasing Backlash in Case III

Case IV

Adjustment of both center distance and tooth thickness is theoretically valid, but is not the usual practice. This would call for needless fabrication expense.

14.5.2 Dynamic Methods

Dynamic methods relate to the static techniques. However, they involve a forced adjustment of either the effective tooth thickness or the center distance.

1. Backlash Removal by Forced Tooth Contact

This is derived from static Case II. Referring to **Figure 14-10a**, a forcing spring rotates the two gear halves apart. This results in an effective tooth thickness that continually fills the entire tooth space in all mesh positions.

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2. Backlash Removal by Forced Center Distance Closing

This is derived from static Case III. A spring force is applied to close the center distance; in one case as a linear force along the line-of-centers, and in the other case as a torque applied to the swing arm.

In all of these dynamic methods, the applied external force should be known and properly specified. The theoretical relationship of the forces involved is as follows:

$$F > F_1 + F_2 \quad (14-24)$$

where:

F_1 = Transmission Load on Tooth Surface

F_2 = Friction Force on Tooth Surface

If $F < F_1 + F_2$, then it would be impossible to remove backlash. But if F is excessively greater than a proper level, the tooth surfaces would be needlessly loaded and could lead to premature wear and shortened life. Thus, in designing such gears, consideration must be given to not only the needed transmission load, but also the forces acting upon the tooth surfaces caused by the spring load. It is important to appreciate that the spring loading must be set to accommodate the largest expected transmission force, F_1 , and this maximum spring force is applied to the tooth surfaces continually and irrespective of the load being driven.

3. Duplex Lead Worm

A duplex lead worm mesh is a special design in which backlash can be adjusted by shifting the worm axially. It is useful for worm drives in high precision turntables and hobbing machines. **Figure 14-12** presents the basic concept of a duplex lead worm.

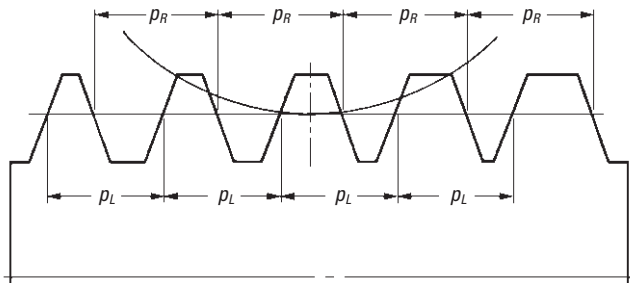


Fig. 14-12 Basic Concepts of Duplex Lead Worm

The lead or pitch, p_L and p_R , on the two sides of the worm thread are not identical. The example in **Figure 14-12** shows the case when $p_R > p_L$. To produce such a worm requires a special dual lead hob.

The intent of **Figure 14-12** is to indicate that the worm tooth thickness is progressively bigger towards the right end. Thus, it is convenient to adjust backlash by simply moving the duplex worm in the axial direction.

SECTION 15 GEAR ACCURACY



Gears are one of the basic elements used to transmit power and position. As designers, we desire them to meet various demands:

1. Minimum size.
2. Maximum power capability.
3. Minimum noise (silent operation).
4. Accurate rotation/position.

To meet various levels of these demands requires appropriate degrees of gear accuracy. This involves several gear features.

15.1 Accuracy Of Spur And Helical Gears

This discussion of spur and helical gear accuracy is based upon JIS B 1702 standard. This specification describes 9 grades of gear accuracy – grouped from 0 through 8 – and four types of pitch errors:

- Single pitch error.
- Pitch variation error.
- Accumulated pitch error.
- Normal pitch error.

Single pitch error, pitch variation and accumulated pitch errors are closely related with each other.

15.1.1 Pitch Errors of Gear Teeth

1. Single Pitch Error (f_{pt})
The deviation between actual measured pitch value between any adjacent tooth surface and theoretical circular pitch.
2. Pitch Variation Error (f_{pv})
Actual pitch variation between any two adjacent teeth. In the ideal case, the pitch variation error will be zero.
3. Accumulated Pitch Error (F_p)
Difference between theoretical summation over any number of teeth interval, and summation of actual pitch measurement over the same interval.
4. Normal Pitch Error (f_{pb})
It is the difference between theoretical normal pitch and its actual measured value.

The major element to influence the pitch errors is the runout of gear flank groove.

Table 15-1 contains the ranges of allowable pitch errors of spur gears and helical gears for each precision grade, as specified in JIS B 1702-1976.



Table 15-1 The Allowable Single Pitch Error, Accumulated Pitch Error and Normal Pitch Error, μm

| Grade | Single Pitch Error f_{pt} | Accumulated Pitch Error F_p | Normal Pitch Error f_{pb} |
|-------|--------------------------------|----------------------------------|--------------------------------|
| JIS 0 | $0.5W + 1.4$ | $2.0W + 5.6$ | $0.9W' + 1.4$ |
| 1 | $0.71W + 2.0$ | $2.8W + 8.0$ | $1.25W' + 2.0$ |
| 2 | $1.0W + 2.8$ | $4.0W + 11.2$ | $1.8W' + 2.8$ |
| 3 | $1.4W + 4.0$ | $5.6W + 16.0$ | $2.5W' + 4.0$ |
| 4 | $2.0W + 5.6$ | $8.0W + 22.4$ | $4.0W' + 6.3$ |
| 5 | $2.8W + 8.0$ | $11.2W + 31.5$ | $6.3W' + 10.0$ |
| 6 | $4.0W + 11.2$ | $16.0W + 45.0$ | $10.0W' + 16.0$ |
| 7 | $8.0W + 22.4$ | $32.0W + 90.0$ | $20.0W' + 32.0$ |
| 8 | $16.0W + 45.0$ | $64.0W + 180.0$ | $40.0W' + 64.0$ |

In the above table, W and W' are the tolerance units defined as:

$$W = \sqrt[3]{d} + 0.65m \quad (\mu m) \quad (15-1)$$

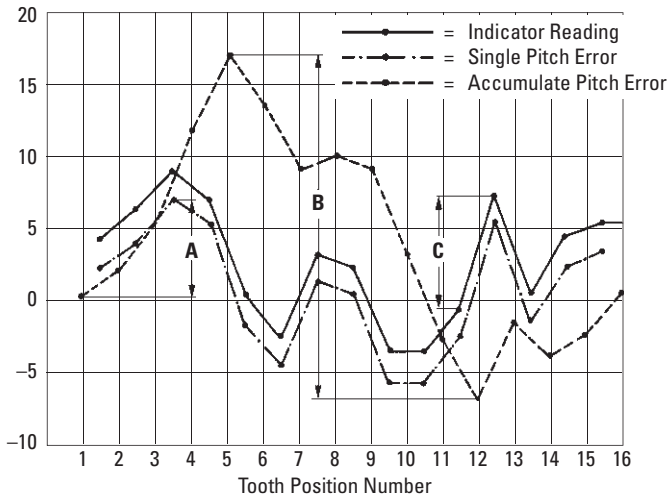
$$W' = 0.56W + 0.25m \quad (\mu m) \quad (15-2)$$

The value of allowable pitch variation error is k times the single pitch error. **Table 15-2** expresses the formula of the allowable pitch variation error.

Table 15-2 The Allowable Pitch Variation Error, μm

| Single Pitch Error, f_{pt} | Pitch Variation Error, f_{pv} |
|--------------------------------|---------------------------------|
| less than 5 | $1.00f_{pt}$ |
| 5 or more, but less than 10 | $1.06f_{pt}$ |
| 10 or more, but less than 20 | $1.12f_{pt}$ |
| 20 or more, but less than 30 | $1.18f_{pt}$ |
| 30 or more, but less than 50 | $1.25f_{pt}$ |
| 50 or more, but less than 70 | $1.32f_{pt}$ |
| 70 or more, but less than 100 | $1.40f_{pt}$ |
| 100 or more, but less than 150 | $1.50f_{pt}$ |
| more than 150 | $1.60f_{pt}$ |

Figure 15-1 is an example of pitch errors derived from data measurements made with a dial indicator on a 15 tooth gear. Pitch differences were measured between adjacent teeth and are plotted in the figure. From that plot, single pitch, pitch variation and accumulated pitch errors are extracted and plotted.



NOTE: **A** = Max. Single Pitch Error
B = Max. Accumulated Error
C = Max. Pitch Variation Error

Fig. 15-1 Examples of Pitch Errors for a 15 Tooth Gear

15.1.2 Tooth Profile Error, f_t

Tooth profile error is the summation of deviation between actual tooth profile and correct involute curve which passes through the pitch point measured perpendicular to the actual profile. The measured band is the actual effective working surface of the gear. However, the tooth modification area is not considered as part of profile error.

15.1.3 Runout Error Of Gear Teeth, F_r

This error defines the runout of the pitch circle. It is the error in radial position of the teeth. Most often it is measured by indicating the position of a pin or ball inserted in each tooth space around the gear and taking the largest difference. Alternately, particularly for fine pitch gears, the gear is rolled with a master gear on a variable center distance fixture, which records the change in the center distance as the measure of teeth or pitch circle runout. Runout causes a number of problems, one of which is noise. The source of this error is most often insufficient accuracy and ruggedness of the cutting arbor and tooling system.

15.1.4 Lead Error, f_p

Lead error is the deviation of the actual advance of the tooth profile from the ideal value or position. Lead error results in poor tooth contact, particularly concentrating contact to the tip area. Modifications, such as tooth crowning and relieving can alleviate this error to some degree.

Shown in **Figure 15-2** (on the following page) is an example of a chart measuring tooth profile error and lead error using a Zeiss UMC 550 tester.

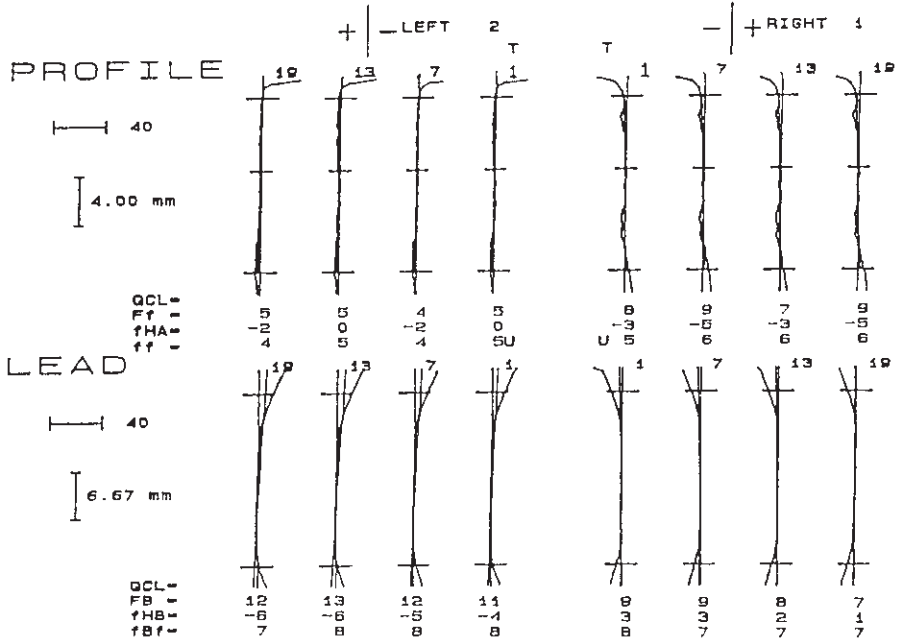


Fig. 15-2 A Sample Chart of Profile and Lead Error Measurement

Table 15-3 The Value of Allowable Tooth Profile Error, Runout Error and Lead Error, μm

| Grade | Tooth Profile Error f_t | Runout Error of Gear Groove F_r | Lead Error F_β |
|-------|------------------------------|--------------------------------------|-------------------------|
| JIS 0 | $0.71m + 2.24$ | $1.4W + 4.0$ | $0.63 (0.1b + 10)$ |
| 1 | $1.0m + 3.15$ | $2.0W + 5.6$ | $0.71 (0.1b + 10)$ |
| 2 | $1.4m + 4.5$ | $2.8W + 8.0$ | $0.80 (0.1b + 10)$ |
| 3 | $2.0m + 6.3$ | $4.0W + 11.2$ | $1.00 (0.1b + 10)$ |
| 4 | $2.8m + 9.0$ | $5.6W + 16.0$ | $1.25 (0.1b + 10)$ |
| 5 | $4.0m + 12.5$ | $8.0W + 22.4$ | $1.60 (0.1b + 10)$ |
| 6 | $5.6m + 18.0$ | $11.2W + 31.5$ | $2.00 (0.1b + 10)$ |
| 7 | $8.0m + 25.0$ | $22.4W + 63.0$ | $2.50 (0.1b + 10)$ |
| 8 | $11.2m + 35.5$ | $45.0W + 125.0$ | $3.15 (0.1b + 10)$ |

where: $W = \text{Tolerance unit} = \sqrt[3]{d + 0.65m}$ (μm)

$b = \text{Tooth width (mm)}$

$m = \text{Module (mm)}$

15.1.5. Outside Diameter Runout and Lateral Runout

To produce a high precision gear requires starting with an accurate gear blank. Two criteria are very important:

1. Outside diameter (OD) runout.
2. Lateral (side face) runout.

The lateral runout has a large impact on the gear tooth accuracy. Generally, the permissible runout error is related to the gear size. **Table 15-4** presents equations for allowable values of OD runout and lateral runout.

15.2 Accuracy Of Bevel Gears

JIS B 1704 regulates the specification of a bevel gear's accuracy. It also groups bevel gears into 9 grades, from 0 to 8.

There are 4 types of allowable errors:

1. Single Pitch Error.
2. Pitch Variation Error.
3. Accumulated Pitch Error.
4. Runout Error of Teeth (pitch circle).

These are similar to the spur gear errors.

1. Single Pitch Error, (f_{pt})

The deviation between actual measured pitch value between any adjacent teeth and the theoretical circular pitch at the central cone distance.

2. Pitch Variation Error, (f_{pv})

Absolute pitch variation between any two adjacent teeth at the central cone distance.

3. Accumulated Pitch Error, (F_p)

Difference between theoretical pitch sum of any teeth interval, and the summation of actual measured pitches for the same teeth interval at the central cone distance.

4. Runout Error of Teeth, (F_r)

This is the maximum amount of tooth runout in the radial direction, measured by indicating a pin or ball placed between two teeth at the central cone distance.

It is the pitch cone runout.

Table 15-5 presents equations for allowable values of these various errors.

Table 15-4 The Value of Allowable OD and Lateral Runout, μm

| Grade | OD Runout | Lateral Runout |
|-------|-----------|----------------|
| JIS 0 | $0.5j$ | $0.71q$ |
| 1 | $0.71j$ | $1.0q$ |
| 2 | $1.0j$ | $1.4q$ |
| 3 | $1.4j$ | $2.0q$ |
| 4 | $2.0j$ | $2.8q$ |
| 5 | $2.8j$ | $4.0q$ |
| 6 | $4.0j$ | $5.6q$ |
| 7 | $8.0j$ | $11.2q$ |
| 8 | $16.0j$ | $22.4q$ |

where: $j = 1.1\sqrt[3]{d_a} + 5.5$
 d_a = Outside diameter (mm)
 $q = \frac{6d}{b + 50} + 3$
 d = Pitch diameter (mm)
 b = Tooth width (mm)



Table 15-5 Equations for Allowable Single Pitch Error, Accumulated Pitch Error and Pitch Cone Runout Error, μm

| Grade | Single Pitch Error f_{pt} | Accumulated Pitch Error F_p | Runout Error of Pitch Cone F_r |
|-------|--------------------------------|-------------------------------------|--|
| JIS 0 | $0.4W + 2.65$ | $1.6W + 10.6$ | $2.36\sqrt{d}$ |
| 1 | $0.63W + 5.0$ | $2.5W + 20.0$ | $3.6\sqrt{d}$ |
| 2 | $1.0W + 9.5$ | $4.0W + 38.0$ | $5.3\sqrt{d}$ |
| 3 | $1.6W + 18.0$ | $6.4W + 72.0$ | $8.0\sqrt{d}$ |
| 4 | $2.5W + 33.5$ | $10.0W + 134.0$ | $12.0\sqrt{d}$ |
| 5 | $4.0W + 63.0$ | — | $18.0\sqrt{d}$ |
| 6 | $6.3W + 118.0$ | — | $27.0\sqrt{d}$ |
| 7 | — | — | $60.0\sqrt{d}$ |
| 8 | — | — | $130.0\sqrt{d}$ |

where: W = Tolerance unit = $\sqrt[3]{d} + 0.65m$ (μm),
 d = Pitch diameter (mm)

The equations of allowable pitch variations are in **Table 15-6**.

Table 15-6 The Formula of Allowable Pitch Variation Error (μm)

| Single Pitch Error, f_{pt} | Pitch Variation Error, f_{pv} |
|--------------------------------|---------------------------------|
| Less than 70 | $1.3f_{pt}$ |
| 70 or more, but less than 100 | $1.4f_{pt}$ |
| 100 or more, but less than 150 | $1.5f_{pt}$ |
| More than 150 | $1.6f_{pt}$ |

The equations of allowable pitch variations are in **Table 15-6**.

Besides the above errors, there are seven specifications for bevel gear blank dimensions and angles, plus an eighth that concerns the cut gear set:

1. The tolerance of the blank outside diameter and the crown to back surface distance.
2. The tolerance of the outer cone angle of the gear blank.
3. The tolerance of the cone surface runout of the gear blank.
4. The tolerance of the side surface runout of the gear blank.
5. The feeler gauge size to check the flatness of blank back surface.
6. The tolerance of the shaft runout of the gear blank.
7. The tolerance of the shaft bore dimension deviation of the gear blank.
8. The contact band of the tooth mesh.

Item 8 relates to cutting of the two mating gears' teeth. The meshing tooth contact area must be full and even across the profiles. This is an important criterion that supersedes all other blank requirements.



15.3 Running (Dynamic) Gear Testing

An alternate simple means of testing the general accuracy of a gear is to rotate it with a mate, preferably of known high quality, and measure characteristics during rotation. This kind of tester can be either single contact (fixed center distance method) or dual (variable center distance method). This refers to action on one side or simultaneously on both sides of the tooth. This is also commonly referred to as single and double flank testing. Because of simplicity, dual contact testing is more popular than single contact. JGMA has a specification on accuracy of running tests.

1. Dual Contact (Double Flank) Testing

In this technique, the gear is forced meshed with a master gear such that there is intimate tooth contact on both sides and, therefore, no backlash. The contact is forced by a loading spring. As the gears rotate, there is variation of center distance due to various errors, most notably runout. This variation is measured and is a criterion of gear quality. A full rotation presents the total gear error, while rotation through one pitch is a tooth-to-tooth error. **Figure 15-3** presents a typical plot for such a test.

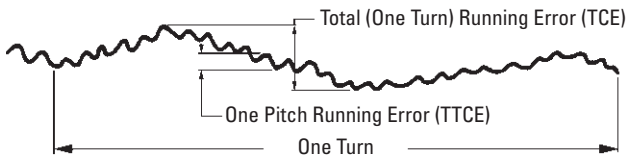


Fig. 15-3 Example of Dual Contact Running Testing Report

For American engineers, this measurement test is identical to what AGMA designates as Total Composite Tolerance (or error) and Tooth-to-Tooth Composite Tolerance. Both of these parameters are also referred to in American publications as "errors", which they truly are. Tolerance is a design value which is an inaccurate description of the parameter, since it is an error.

Allowable errors per JGMA 116-01 are presented on the next page, in **Table 15-7**.

2. Single Contact Testing

In this test, the gear is mated with a master gear on a fixed center distance and set in such a way that only one tooth side makes contact. The gears are rotated through this single flank contact action, and the angular transmission error of the driven gear is measured. This is a tedious testing method and is seldom used except for inspection of the very highest precision gears.

Table 15-7 Allowable Values of Running Errors, μm

| Grade | Tooth-to-Tooth Composite Error | Total Composite Error |
|-------|--------------------------------|--|
| 0 | $1.12m + 3.55$ | $(1.4W + 4.0) + 0.5 (1.12m + 3.55)$ |
| 1 | $1.6m + 5.0$ | $(2.0W + 5.6) + 0.5 (1.6m + 5.0)$ |
| 2 | $2.24m + 7.1$ | $(2.8W + 8.0) + 0.5 (2.24m + 7.1)$ |
| 3 | $3.15m + 10.0$ | $(4.0W + 11.2) + 0.5 (3.15m + 10.0)$ |
| 4 | $4.5m + 14.0$ | $(5.6W + 16.0) + 0.5 (4.5m + 14.0)$ |
| 5 | $6.3m + 20.0$ | $(8.0W + 22.4) + 0.5 (6.3m + 20.0)$ |
| 6 | $9.0m + 28.0$ | $(11.2W + 31.5) + 0.5 (9.0m + 28.0)$ |
| 7 | $12.5m + 40.0$ | $(22.4W + 63.0) + 0.5 (12.5m + 40.0)$ |
| 8 | $18.0m + 56.0$ | $(45.0W + 125.0) + 0.5 (18.0m + 56.0)$ |

where: $W =$ Tolerance unit $= \sqrt[3]{d} + 0.65m$ (μm)
 $d =$ Pitch diameter (mm)
 $m =$ Module

SECTION 16 GEAR FORCES

In designing a gear, it is important to analyze the magnitude and direction of the forces acting upon the gear teeth, shaft, bearings, etc. In analyzing these forces, an idealized assumption is made that the tooth forces are acting upon the central part of the tooth flank.

Table 16-1 Forces Acting Upon a Gear

| Types of Gears | | Tangential Force, F_u | Axial Force, F_a | Radial Force, F_r |
|--|----------------|---|---|---|
| Spur Gear | | $F_u = \frac{2000 T}{d}$ | ————— | $F_u \tan \alpha$ |
| Helical Gear | | | $F_u \tan \beta$ | $F_u \frac{\tan \alpha_n}{\cos \beta}$ |
| Straight Bevel Gear | | $F_u = \frac{2000 T}{d_m}$ d_m is the central pitch diameter $d_m = d - b \sin \delta$ | $F_u \tan \alpha \sin \delta$ | $F_u \tan \alpha \cos \delta$ |
| Spiral Bevel Gear | | | When convex surface is working: | |
| | | | $\frac{F_u}{\cos \beta_m} (\tan \alpha_n \sin \delta - \sin \beta_m \cos \delta)$ | $\frac{F_u}{\cos \beta_m} (\tan \alpha_n \cos \delta + \sin \beta_m \sin \delta)$ |
| | | | When concave surface is working: | |
| | | $\frac{F_u}{\cos \beta_m} (\tan \alpha_n \sin \delta + \sin \beta_m \cos \delta)$ | $\frac{F_u}{\cos \beta_m} (\tan \alpha_n \cos \delta - \sin \beta_m \sin \delta)$ | |
| Worm Drive | Worm (Driver) | $F_u = \frac{2000 T_f}{d_f}$ | $F_u \frac{\cos \alpha_n \cos \gamma - \mu \sin \gamma}{\cos \alpha_n \sin \gamma + \mu \cos \gamma}$ | $F_u \frac{\sin \alpha_n}{\cos \alpha_n \sin \gamma + \mu \cos \gamma}$ |
| | Wheel (Driven) | $F_u \frac{\cos \alpha_n \cos \gamma - \mu \sin \gamma}{\cos \alpha_n \cos \gamma + \mu \cos \gamma}$ | F_u | |
| Screw Gear ($\Sigma = 90^\circ$) ($\beta = 45^\circ$) | Driver Gear | $F_u = \frac{2000 T_f}{d_f}$ | $F_u \frac{\cos \alpha_n \sin \beta - \mu \cos \beta}{\cos \alpha_n \cos \beta + \mu \sin \beta}$ | $F_u \frac{\sin \alpha_n}{\cos \alpha_n \cos \beta + \mu \sin \beta}$ |
| | Driven Gear | $F_u \frac{\cos \alpha_n \sin \beta - \mu \cos \beta}{\cos \alpha_n \cos \beta + \mu \sin \beta}$ | F_u | |

16.1 Forces In A Spur Gear Mesh

The spur gear's transmission force F_n , which is normal to the tooth surface, as in **Figure 16-1**, can be resolved into a tangential component, F_u , and a radial component, F_r . Refer to **Equation (16-1)**.

The direction of the forces acting on the gears are shown in **Figure 16-2**. The tangential component of the drive gear, F_{u1} , is equal to the driven gear's tangential component, F_{u2} , but the directions are opposite. Similarly, the same is true of the radial components.

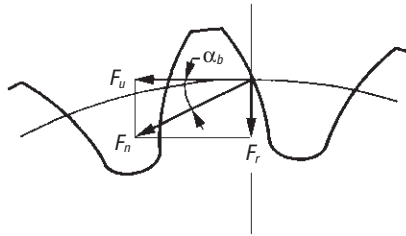


Fig. 16-1 Forces Acting on a Spur Gear Mesh

$$\left. \begin{aligned} F_u &= F_n \cos \alpha_b \\ F_r &= F_n \sin \alpha_b \end{aligned} \right\} \quad (16-1)$$

16.2 Forces In A Helical Gear Mesh

The helical gear's transmission force, F_n , which is normal to the tooth surface, can be resolved into a tangential component, F_t , and a radial component, F_r .

$$\left. \begin{aligned} F_t &= F_n \cos \alpha_n \\ F_r &= F_n \sin \alpha_n \end{aligned} \right\} \quad (16-2)$$

The tangential component, F_t , can be further resolved into circular subcomponent, F_u , and axial thrust subcomponent, F_a .

$$\left. \begin{aligned} F_u &= F_t \cos \beta \\ F_a &= F_t \sin \beta \end{aligned} \right\} \quad (16-3)$$

Substituting and manipulating the above equations result in:

$$\left. \begin{aligned} F_a &= F_u \tan \beta \\ F_r &= F_u \frac{\tan \alpha_n}{\cos \beta} \end{aligned} \right\} \quad (16-4)$$

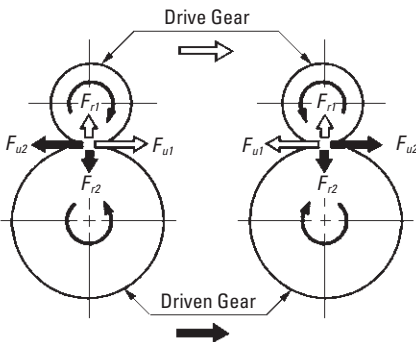


Fig. 16-2 Directions of Forces Acting on a Spur Gear Mesh

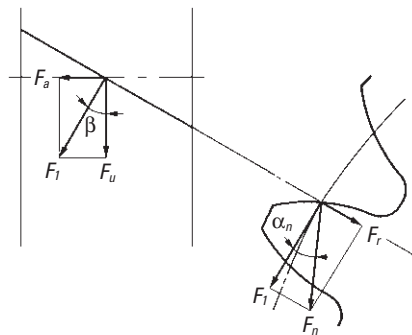


Fig. 16-3 Forces Acting on a Helical Gear Mesh



The directions of forces acting on a helical gear mesh are shown in **Figure 16-4**. The axial thrust sub-component from drive gear, F_{a1} , equals the driven gear's, F_{a2} , but their directions are opposite. Again, this case is the same as tangential components F_{u1} , F_{u2} and radial components F_{r1} , F_{r2} .

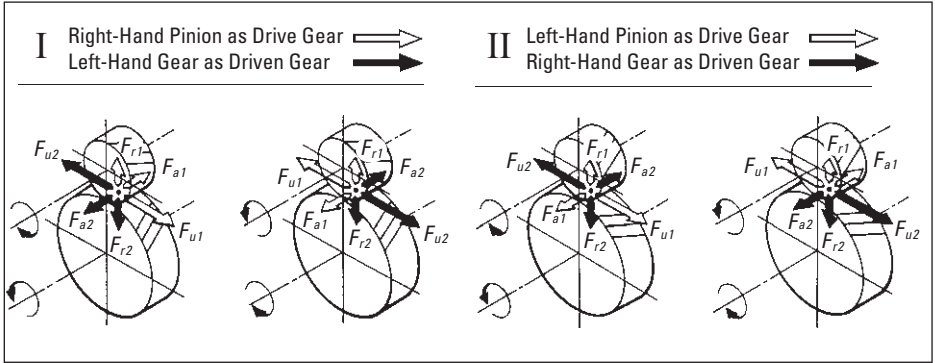


Fig. 16-4 Directions of Forces Acting on a Helical Gear Mesh

16.3 Forces On A Straight Bevel Gear Mesh

The forces acting on a straight bevel gear are shown in **Figure 16-5**. The force which is normal to the central part of the tooth face, F_n , can be split into tangential component, F_u , and radial component, F_r , in the normal plane of the tooth.

$$\left. \begin{aligned} F_u &= F_n \cos \alpha \\ F_r &= F_n \sin \alpha \end{aligned} \right\} \quad (16-5)$$

Again, the radial component, F_r , can be divided into an axial force, F_a , and a radial force, F_r , perpendicular to the axis.

$$\left. \begin{aligned} F_a &= F_r \sin \delta \\ F_r &= F_r \cos \delta \end{aligned} \right\} \quad (16-6)$$

And the following can be derived:

$$\left. \begin{aligned} F_a &= F_u \tan \alpha_n \sin \delta \\ F_r &= F_u \tan \alpha_n \cos \delta \end{aligned} \right\} \quad (16-7)$$

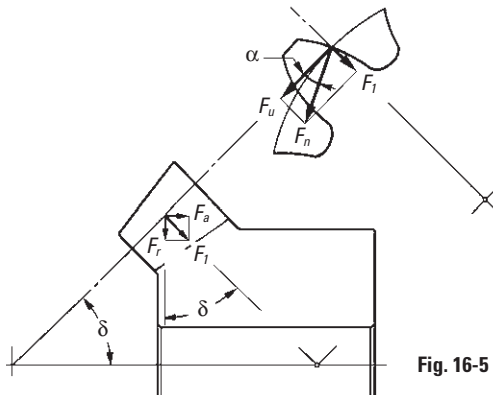


Fig. 16-5 Forces Acting on a Straight Bevel Gear Mesh

Let a pair of straight bevel gears with a shaft angle $\Sigma = 90^\circ$, a pressure angle $\alpha_n = 20^\circ$ and tangential force, F_{u1} , to the central part of tooth face be 100. Axial force, F_a , and radial force, F_r , will be as presented in **Table 16-2**.



Table 16-2 Values of Axial Force, F_a , and Radial Force, F_r

(1) Pinion

| Forces on the Gear Tooth | Ratio of Numbers of Teeth $\frac{z_2}{z_1}$ | | | | | | |
|--------------------------|---|------|------|------|------|------|------|
| | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 |
| Axial Force | 25.7 | 20.2 | 16.3 | 13.5 | 11.5 | 8.8 | 7.1 |
| Radial Force | 25.7 | 30.3 | 32.6 | 33.8 | 34.5 | 35.3 | 35.7 |

(2) Gear

| Forces on the Gear Tooth | Ratio of Numbers of Teeth $\frac{z_2}{z_1}$ | | | | | | |
|--------------------------|---|------|------|------|------|------|------|
| | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 |
| Axial Force | 25.7 | 30.3 | 32.6 | 33.8 | 34.5 | 35.3 | 35.7 |
| Radial Force | 25.7 | 20.2 | 16.3 | 13.5 | 11.5 | 8.8 | 7.1 |

Figure 16-6 contains the directions of forces acting on a straight bevel gear mesh. In the meshing of a pair of straight bevel gears with shaft angle $\Sigma = 90^\circ$, all the forces have relations as per **Equations (16-8)**.

$$\left. \begin{aligned}
 F_{u1} &= F_{u2} \\
 F_{r1} &= F_{a2} \\
 F_{a1} &= F_{r2}
 \end{aligned} \right\} \quad (16-8)$$

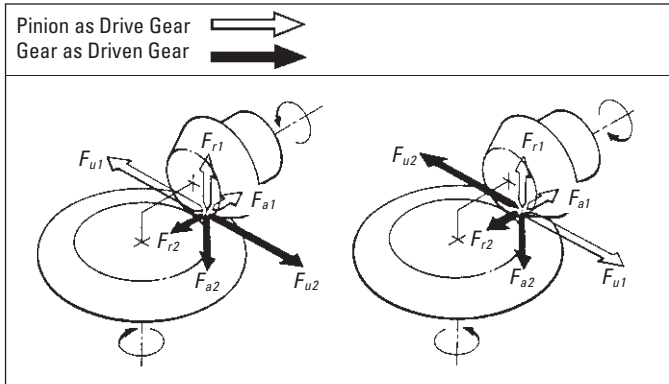


Fig. 16-6 Directions of Forces Acting on a Straight Bevel Gear Mesh



16.4 Forces In A Spiral Bevel Gear Mesh

Spiral gear teeth have convex and concave sides. Depending on which surface the force is acting on, the direction and magnitude changes. They differ depending upon which is the driver and which is the driven. **Figure 16-7** presents the profile orientations of right- and left-hand spiral teeth. If the profile of the driving gear is convex, then the profile of the driven gear must be concave. **Table 16-3** presents the concave/convex relationships.

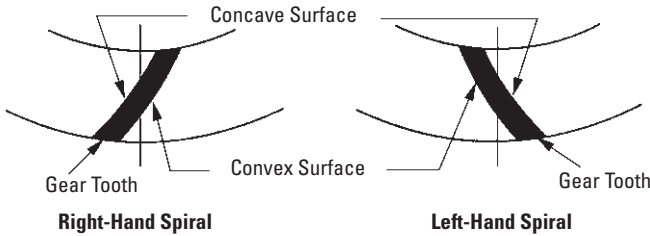


Fig. 16-7 Convex Surface and Concave Surface of a Spiral Bevel Gear

Table 16-3 Concave and Convex Sides of a Spiral Bevel Gear Mesh

Right-Hand Gear as Drive Gear

| Rotational Direction of Drive Gear | Meshing Tooth Face | |
|------------------------------------|-----------------------|-----------------------|
| | Right-Hand Drive Gear | Left-Hand Driven Gear |
| Clockwise | Convex | Concave |
| Counterclockwise | Concave | Convex |

Left-Hand Gear as Drive Gear

| Rotational Direction of Drive Gear | Meshing Tooth Face | |
|------------------------------------|----------------------|------------------------|
| | Left-Hand Drive Gear | Right-Hand Driven Gear |
| Clockwise | Concave | Convex |
| Counterclockwise | Convex | Concave |

NOTE: The rotational direction of a bevel gear is defined as the direction one sees viewed along the axis from the back cone to the apex.

16.4.1 Tooth Forces On A Convex Side Profile

The transmission force, F_n , can be resolved into components F_t and F_r as:

$$\left. \begin{aligned} F_t &= F_n \cos \alpha_n \\ F_r &= F_n \sin \alpha_n \end{aligned} \right\} \quad (16-9)$$

Then F_t can be resolved into components F_u and F_s :

$$\left. \begin{aligned} F_u &= F_t \cos \beta_m \\ F_s &= F_t \sin \beta_m \end{aligned} \right\} \quad (16-10)$$

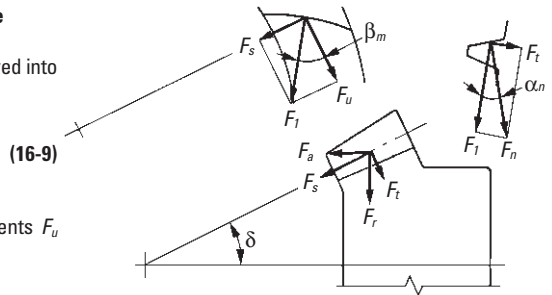


Fig. 16-8 When Meshing on the Convex Side of Tooth Face

On the axial surface, F_t and F_s can be resolved into axial and radial subcomponents.

$$\left. \begin{aligned} F_a &= F_t \sin \delta - F_s \cos \delta \\ F_r &= F_t \cos \delta + F_s \sin \delta \end{aligned} \right\} \quad (16-11)$$



By substitution and manipulation, we obtain:

$$\left. \begin{aligned} F_a &= \frac{F_u}{\cos \beta_m} (\tan \alpha_n \sin \delta - \sin \beta_m \cos \delta) \\ F_r &= \frac{F_u}{\cos \beta_m} (\tan \alpha_n \cos \delta + \sin \beta_m \sin \delta) \end{aligned} \right\} \quad (16-12)$$

16.4.2 Tooth Forces On A Concave Side Profile

On the surface which is normal to the tooth profile at the central portion of the tooth, the transmission force, F_n can be split into F_t and F_r as (see Figure 16-9):

$$\left. \begin{aligned} F_t &= F_n \cos \alpha_n \\ F_r &= F_n \sin \alpha_n \end{aligned} \right\} \quad (16-13)$$

And F_t can be separated into components F_u and F_s on the pitch surface:

$$\left. \begin{aligned} F_u &= F_t \cos \beta_m \\ F_s &= F_t \sin \beta_m \end{aligned} \right\} \quad (16-14)$$

So far, the equations are identical to the convex case. However, differences exist in the signs for equation terms. On the axial surface, F_t and F_s can be resolved into axial and radial subcomponents. Note the sign differences.

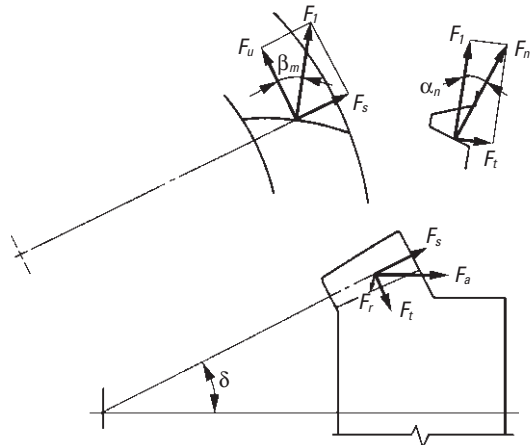


Fig. 16-9 When Meshing on the Concave Side of Tooth Face

$$\left. \begin{aligned} F_a &= F_t \sin \delta + F_s \cos \delta \\ F_r &= F_t \cos \delta - F_s \sin \delta \end{aligned} \right\} \quad (16-15)$$

The above can be manipulated to yield:

$$\left. \begin{aligned} F_a &= \frac{F_u}{\cos \beta_m} (\tan \alpha_n \sin \delta + \sin \beta_m \cos \delta) \\ F_r &= \frac{F_u}{\cos \beta_m} (\tan \alpha_n \cos \delta - \sin \beta_m \sin \delta) \end{aligned} \right\} \quad (16-16)$$



Let a pair of spiral bevel gears have a shaft angle $\Sigma = 90^\circ$, a pressure angle $\alpha_n = 20^\circ$, and a spiral angle $\beta_m = 35^\circ$. If the tangential force, F_t , to the central portion of the tooth face is 100, the axial thrust force, F_a , and radial force, F_r , have the relationship shown in **Table 16-4**.

Table 16-4 Values of Axial Thrust Force, F_a , and Radial Force, F_r

(1) Pinion

| Meshing Tooth Face | Ratio of Number of Teeth $\frac{z_2}{z_1}$ | | | | | | |
|-----------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 |
| Concave Side of Tooth | $\frac{80.9}{-18.1}$ | $\frac{82.9}{-1.9}$ | $\frac{82.5}{8.4}$ | $\frac{81.5}{15.2}$ | $\frac{80.5}{20.0}$ | $\frac{78.7}{26.1}$ | $\frac{77.4}{29.8}$ |
| Convex Side of Tooth | $\frac{-18.1}{80.9}$ | $\frac{-33.6}{75.8}$ | $\frac{-42.8}{71.1}$ | $\frac{-48.5}{67.3}$ | $\frac{-52.4}{64.3}$ | $\frac{-57.2}{60.1}$ | $\frac{-59.9}{57.3}$ |

(2) Gear

| Meshing Tooth Face | Ratio of Number of Teeth $\frac{z_2}{z_1}$ | | | | | | |
|-----------------------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 |
| Concave Side of Tooth | $\frac{80.9}{-18.1}$ | $\frac{75.8}{-33.6}$ | $\frac{71.1}{-42.8}$ | $\frac{67.3}{-48.5}$ | $\frac{64.3}{-52.4}$ | $\frac{60.1}{-57.2}$ | $\frac{57.3}{-59.9}$ |
| Convex Side of Tooth | $\frac{-18.1}{80.9}$ | $\frac{-1.9}{82.9}$ | $\frac{8.4}{82.5}$ | $\frac{15.2}{81.5}$ | $\frac{20.0}{80.5}$ | $\frac{26.1}{78.7}$ | $\frac{29.8}{77.4}$ |

The value of axial force, F_a , of a spiral bevel gear, from **Table 16-4**, could become negative. At that point, there are forces tending to push the two gears together. If there is any axial play in the bearing, it may lead to the undesirable condition of the mesh having no backlash. Therefore, it is important to pay particular attention to axial plays. From **Table 16-4(2)**, we understand that axial thrust force, F_a , changes from positive to negative in the range of teeth ratio from 1.5 to 2.0 when a gear carries force on the convex side. The precise turning point of axial thrust force, F_a , is at the teeth ratio $z_1/z_2 = 1.57357$.



Figure 16-10 describes the forces for a pair of spiral bevel gears with shaft angle $\Sigma = 90^\circ$, pressure angle $\alpha_n = 20^\circ$, spiral angle $\beta_m = 35^\circ$ and the teeth ratio, u , ranging from 1 to 1.57357.

$\Sigma = 90^\circ, \alpha_n = 20^\circ, \beta_m = 35^\circ, u < 1.57357.$

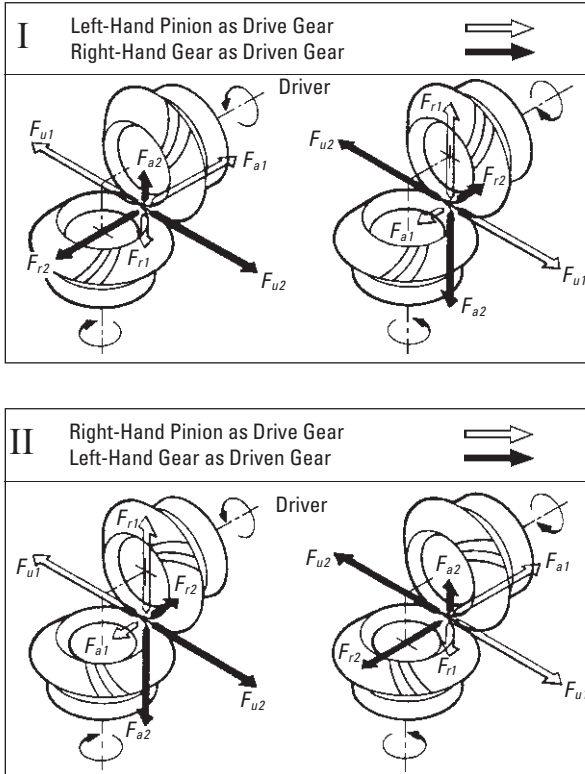


Fig. 16-10 The Direction of Forces Carried by Spiral Bevel Gears (1)

Figure 16-11 expresses the forces of another pair of spiral bevel gears taken with the teeth ratio equal to or larger than 1.57357.



$\Sigma = 90^\circ, \alpha_n = 20^\circ, \beta_m = 35^\circ, u \geq 1.57357$

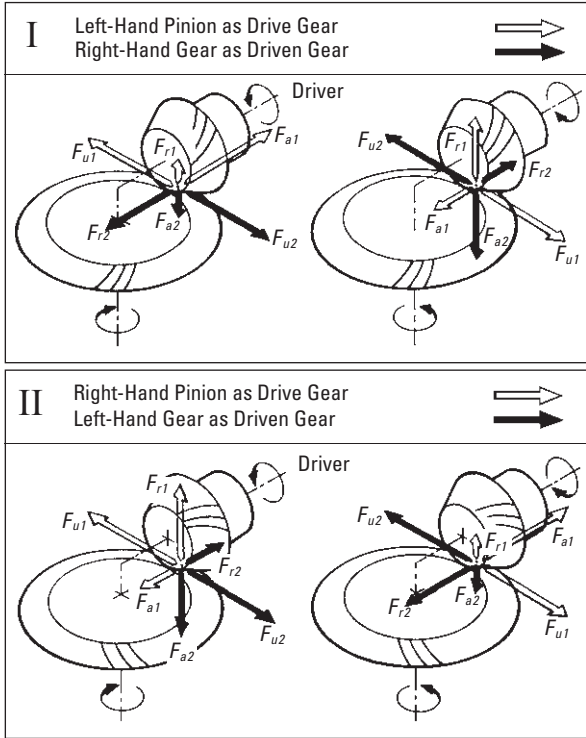


Fig. 16-11 The Direction of Forces Carried by Spiral Bevel Gears (2)

16.5 Forces In A Worm Gear Mesh

16.5.1 Worm as the Driver

For the case of a worm as the driver, **Figure 16-12**, the transmission force, F_n , which is normal to the tooth surface at the pitch circle can be resolved into components F_t and F_{r1} .

$$\left. \begin{aligned} F_t &= F_n \cos \alpha_n \\ F_{r1} &= F_n \sin \alpha_n \end{aligned} \right\} \quad (16-17)$$

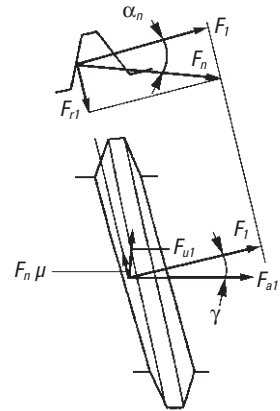


Fig. 16-12 Forces Acting on the Tooth Surface of a Worm



At the pitch surface of the worm, there is, in addition to the tangential component, F_t , a friction sliding force on the tooth surface, μF_n . These two forces can be resolved into the circular and axial directions as:

$$\left. \begin{aligned} F_{u1} &= F_t \sin \gamma + F_n \mu \cos \gamma \\ F_{a1} &= F_t \cos \gamma - F_n \mu \sin \gamma \end{aligned} \right\} \quad (16-18)$$

and by substitution, the result is:

$$\left. \begin{aligned} F_{u1} &= F_n (\cos \alpha_n \sin \gamma + \mu \cos \gamma) \\ F_{a1} &= F_n (\cos \alpha_n \cos \gamma - \mu \sin \gamma) \\ F_{r1} &= F_n \sin \alpha_n \end{aligned} \right\} \quad (16-19)$$

Figure 16-13 presents the direction of forces in a worm gear mesh with a shaft angle $\Sigma = 90^\circ$. These forces relate as follows:

$$\left. \begin{aligned} F_{a1} &= F_{u2} \\ F_{u1} &= F_{a2} \\ F_{r1} &= F_{r2} \end{aligned} \right\} \quad (16-20)$$

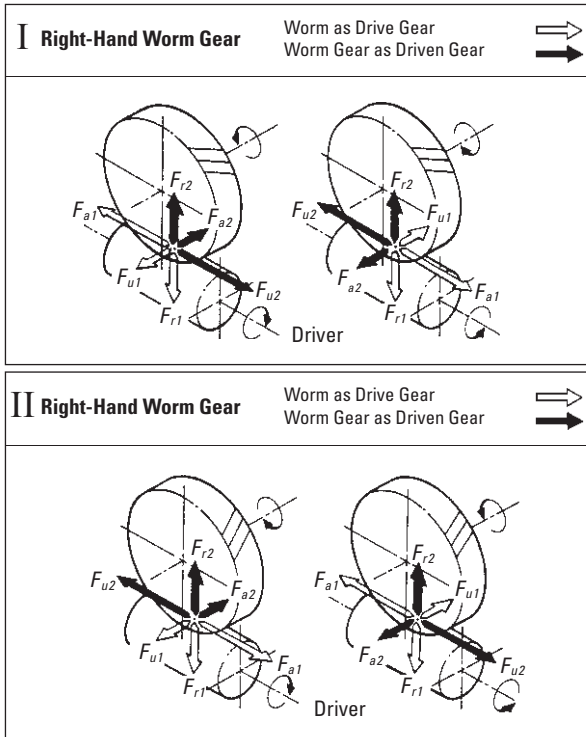


Figure 16-13 Direction of Forces in a Worm Gear Mesh



The coefficient of friction has a great effect on the transmission of a worm gear. **Equation (16-21)** presents the efficiency when the worm is the driver.

$$\eta_R = \frac{T_2}{T_1 i} = \frac{F_{u2}}{F_{u1}} \tan \gamma = \frac{\cos \alpha_n \cos \gamma - \mu \sin \gamma}{\cos \alpha_n \sin \gamma + \mu \cos \gamma} \tan \gamma \quad (16-21)$$

16.5.2 Worm Gear as the Driver

For the case of a worm gear as the driver, the forces are as in **Figure 16-14** and per **Equations (16-22)**.

$$\left. \begin{aligned} F_{u2} &= F_n (\cos \alpha_n \cos \gamma + \mu \sin \gamma) \\ F_{a2} &= F_n (\cos \alpha_n \sin \gamma - \mu \cos \gamma) \\ F_{r2} &= F_n \sin \alpha_n \end{aligned} \right\} \quad (16-22)$$

When the worm and worm gear are at 90° shaft angle, **Equations (16-20)** apply. Then, when the worm gear is the driver, the transmission efficiency η_I is expressed as per **Equation (16-23)**.

$$\eta_I = \frac{T_1 i}{T_2} = \frac{F_{u1}}{F_{u2} \tan \gamma} = \frac{\cos \alpha_n \sin \gamma - \mu \cos \gamma}{\cos \alpha_n \cos \gamma + \mu \sin \gamma} \frac{1}{\tan \gamma} \quad (16-23)$$

The equations concerning worm and worm gear forces contain the coefficient μ . This indicates the coefficient of friction is very important in the transmission of power.

16.6 Forces In A Screw Gear Mesh

The forces in a screw gear mesh are similar to those in a worm gear mesh. For screw gears that have a shaft angle $\Sigma = 90^\circ$, merely replace the worm's lead angle γ , in **Equation (16-22)**, with the screw gear's helix angle β_1 .

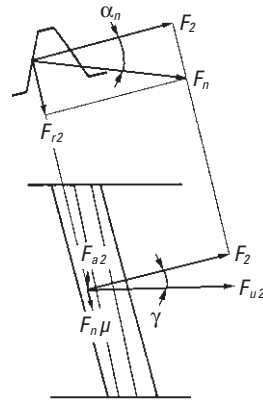


Fig. 16-14 Forces in a Worm Gear Mesh



In the general case when the shaft angle is not 90°, as in **Figure 16-15**, the driver screw gear has the same forces as for a worm mesh. These are expressed in **Equations (16-24)**.

$$\left. \begin{aligned} F_{u1} &= F_n (\cos \alpha_n \cos \beta_1 + \mu \sin \beta_1) \\ F_{a1} &= F_n (\cos \alpha_n \sin \beta_1 - \mu \cos \beta_1) \\ F_{r1} &= F_n \sin \alpha_n \end{aligned} \right\} \quad (16-24)$$

Forces acting on the driven gear can be calculated per **Equations (16-25)**.

$$\left. \begin{aligned} F_{u2} &= F_{a1} \sin \Sigma + F_{u1} \cos \Sigma \\ F_{a2} &= F_{u1} \sin \Sigma - F_{a1} \cos \Sigma \\ F_{r2} &= F_{r1} \end{aligned} \right\} \quad (16-25)$$

If the Σ term in **Equation (16-25)** is 90°, it becomes identical to **Equation (16-20)**. **Figure 16-16** presents the direction of forces in a screw gear mesh when the shaft angle $\Sigma = 90^\circ$ and $\beta_1 = \beta_2 = 45^\circ$.

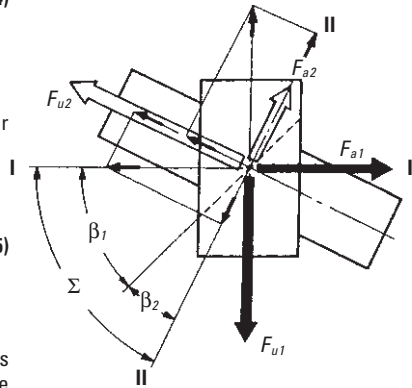


Fig. 16-15 The Forces in a Screw Gear Mesh

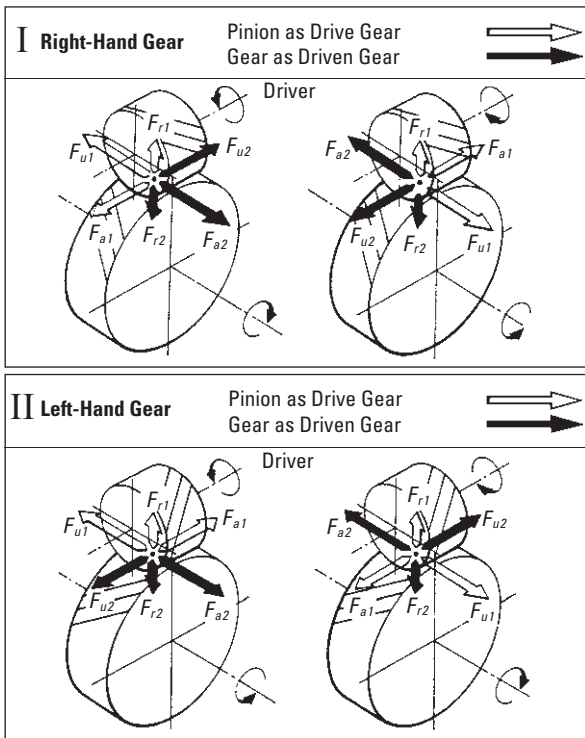


Fig. 16-16 Directions of Forces in a Screw Gear Mesh

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A



SECTION 17 STRENGTH AND DURABILITY OF GEARS

The strength of gears is generally expressed in terms of bending strength and surface durability. These are independent criteria which can have differing criticalness, although usually both are important.

Discussions in this section are based upon equations published in the literature of the Japanese Gear Manufacturer Association (JGMA). Reference is made to the following JGMA specifications:

Specifications of JGMA:

| | |
|-------------|--|
| JGMA 401-01 | Bending Strength Formula of Spur Gears and Helical Gears |
| JGMA 402-01 | Surface Durability Formula of Spur Gears and Helical Gears |
| JGMA 403-01 | Bending Strength Formula of Bevel Gears |
| JGMA 404-01 | Surface Durability Formula of Bevel Gears |
| JGMA 405-01 | The Strength Formula of Worm Gears |

Generally, bending strength and durability specifications are applied to spur and helical gears (including double helical and internal gears) used in industrial machines in the following range:

| | | |
|-------------------|-----|--------------------|
| Module: | m | 1.5 to 25 mm |
| Pitch Diameter: | d | 25 to 3200 mm |
| Tangential Speed: | v | less than 25 m/sec |
| Rotating Speed: | n | less than 3600 rpm |

Conversion Formulas: Power, Torque and Force

Gear strength and durability relate to the power and forces to be transmitted. Thus, the equations that relate tangential force at the pitch circle, F_t (kgf), power, P (kw), and torque, T (kgf • m) are basic to the calculations. The relations are as follows:

$$F_t = \frac{102 P}{v} = \frac{1.95 \times 10^6 P}{d_w n} = \frac{2000 T}{d_w} \quad (17-1)$$

$$P = \frac{F_t v}{102} = \frac{10^{-6}}{1.95} F_t d_w n \quad (17-2)$$

$$T = \frac{F_t d_w}{2000} = \frac{974 P}{n} \quad (17-3)$$

where: v : Tangential Speed of Working Pitch Circle (m/sec)

$$v = \frac{d_w n}{19100}$$

d_w : Working Pitch Diameter (mm)

n : Rotating Speed (rpm)

17.1 Bending Strength Of Spur And Helical Gears

In order to confirm an acceptable safe bending strength, it is necessary to analyze the applied tangential force at the working pitch circle, F_t , vs. allowable force, $F_{t \text{ lim}}$. This is stated as:

$$F_t \leq F_{t \text{ lim}} \quad (17-4)$$

It should be noted that the greatest bending stress is at the root of the flank or base of the dedendum. Thus, it can be stated:

σ_F = actual stress on dedendum at root
 $\sigma_{F \text{ lim}}$ = allowable stress

Then **Equation (17-4)** becomes **Equation (17-5)**

$$\sigma_F \leq \sigma_{F \text{ lim}} \quad (17-5)$$

Equation (17-6) presents the calculation of $F_t \text{ lim}$:

$$F_t \text{ lim} = \sigma_{F \text{ lim}} \frac{m_n b}{Y_F Y_\epsilon Y_\beta} \left(\frac{K_L K_{FX}}{K_V K_D} \right) \frac{1}{S_F} \quad (\text{kgf}) \quad (17-6)$$

Equation (17-6) can be converted into stress by **Equation (17-7)**:

$$\sigma_F = F_t \frac{Y_F Y_\epsilon Y_\beta}{m_n b} \left(\frac{K_V K_D}{K_L K_{FX}} \right) S_F \quad (\text{kgf/mm}^2) \quad (17-7)$$

17.1.1 Determination of Factors in the Bending Strength Equation

If the gears in a pair have different blank widths, let the wider one be b_w and the narrower one be b_s .

And if:

$b_w - b_s \leq m_n$, b_w and b_s can be put directly into **Equation (17-6)**.
 $b_w - b_s > m_n$, the wider one would be changed to $b_s + m_n$ and the narrower one, b_s , would be unchanged.

17.1.2 Tooth Profile Factor, Y_F

The factor Y_F is obtainable from **Figure 17-1** based on the equivalent number of teeth, z_w , and coefficient of profile shift, x , if the gear has a standard tooth profile with 20° pressure angle, per JIS B 1701. The theoretical limit of undercut is shown. Also, for profile shifted gears the limit of too narrow (sharp) a tooth top land is given. For internal gears, obtain the factor by considering the equivalent racks.

17.1.3 Load Distribution Factor, Y_ϵ

Load distribution factor is the reciprocal of radial contact ratio.

$$Y_\epsilon = \frac{1}{\epsilon_\alpha} \quad (17-8)$$

Table 17-1 shows the radial contact ratio of a standard spur gear.



I
R
T
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A



0 10

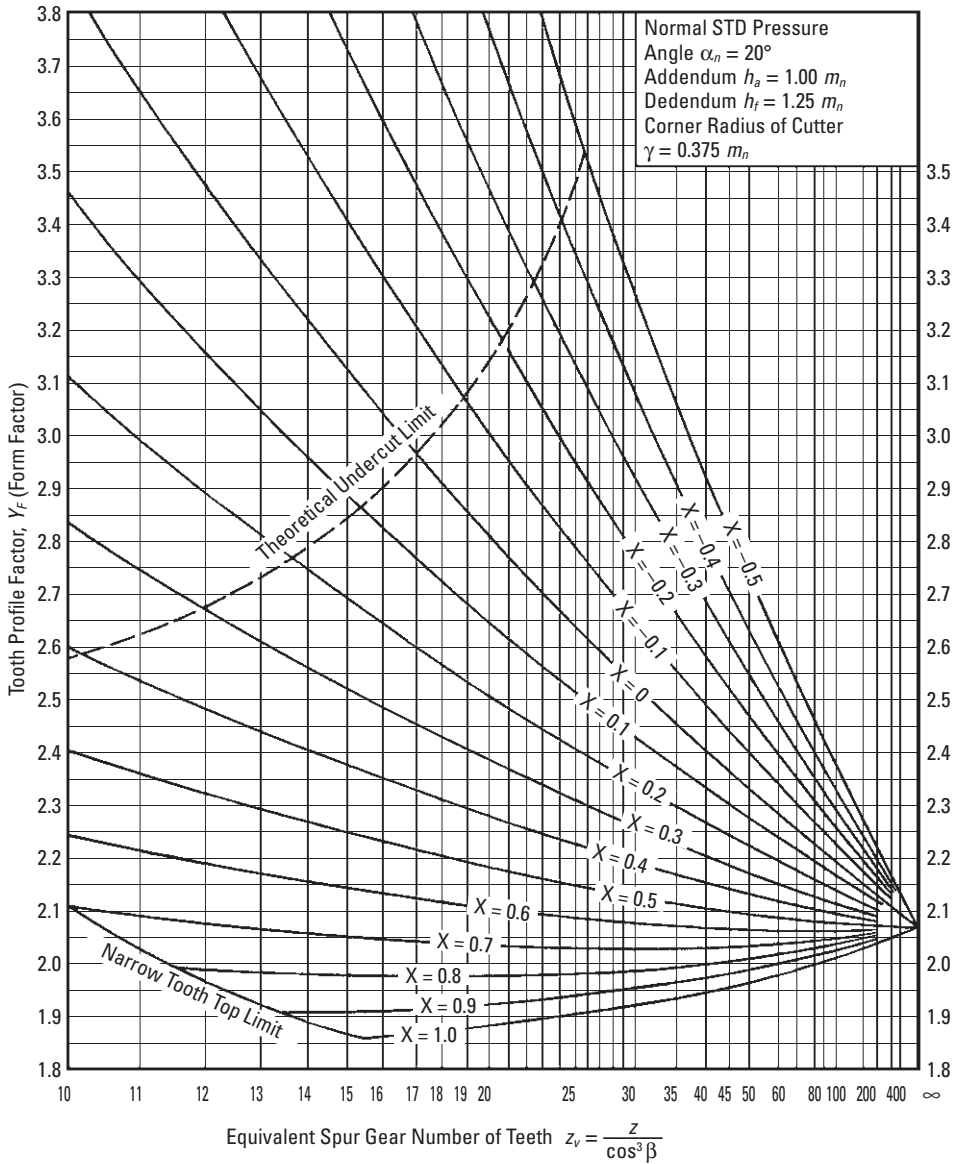


Fig. 17-1 Chart of Tooth Profile Factor, Y_F


Table 17-1 Radial Contact Ratio of Standard Spur Gears, ϵ_α ($\alpha = 20^\circ$)

| | 12 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 | 110 | 120 | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 12 | 1.420 | | | | | | | | | | | | | | | | | | | | | |
| 15 | 1.451 | 1.481 | | | | | | | | | | | | | | | | | | | | |
| 20 | 1.489 | 1.519 | 1.557 | | | | | | | | | | | | | | | | | | | |
| 25 | 1.516 | 1.547 | 1.584 | 1.612 | | | | | | | | | | | | | | | | | | |
| 30 | 1.537 | 1.567 | 1.605 | 1.633 | 1.654 | | | | | | | | | | | | | | | | | |
| 35 | 1.553 | 1.584 | 1.622 | 1.649 | 1.670 | 1.687 | | | | | | | | | | | | | | | | |
| 40 | 1.567 | 1.597 | 1.635 | 1.663 | 1.684 | 1.700 | 1.714 | | | | | | | | | | | | | | | |
| 45 | 1.578 | 1.609 | 1.646 | 1.674 | 1.695 | 1.711 | 1.725 | 1.736 | | | | | | | | | | | | | | |
| 50 | 1.588 | 1.618 | 1.656 | 1.683 | 1.704 | 1.721 | 1.734 | 1.745 | 1.755 | | | | | | | | | | | | | |
| 55 | 1.596 | 1.626 | 1.664 | 1.691 | 1.712 | 1.729 | 1.742 | 1.753 | 1.763 | 1.771 | | | | | | | | | | | | |
| 60 | 1.603 | 1.633 | 1.671 | 1.698 | 1.719 | 1.736 | 1.749 | 1.760 | 1.770 | 1.778 | 1.785 | | | | | | | | | | | |
| 65 | 1.609 | 1.639 | 1.677 | 1.704 | 1.725 | 1.742 | 1.755 | 1.766 | 1.776 | 1.784 | 1.791 | 1.797 | | | | | | | | | | |
| 70 | 1.614 | 1.645 | 1.682 | 1.710 | 1.731 | 1.747 | 1.761 | 1.772 | 1.781 | 1.789 | 1.796 | 1.802 | 1.808 | | | | | | | | | |
| 75 | 1.619 | 1.649 | 1.687 | 1.714 | 1.735 | 1.752 | 1.765 | 1.777 | 1.786 | 1.794 | 1.801 | 1.807 | 1.812 | 1.817 | | | | | | | | |
| 80 | 1.623 | 1.654 | 1.691 | 1.719 | 1.740 | 1.756 | 1.770 | 1.781 | 1.790 | 1.798 | 1.805 | 1.811 | 1.817 | 1.821 | 1.826 | | | | | | | |
| 85 | 1.627 | 1.657 | 1.695 | 1.723 | 1.743 | 1.760 | 1.773 | 1.785 | 1.794 | 1.802 | 1.809 | 1.815 | 1.821 | 1.825 | 1.830 | 1.833 | | | | | | |
| 90 | 1.630 | 1.661 | 1.699 | 1.726 | 1.747 | 1.764 | 1.777 | 1.788 | 1.798 | 1.806 | 1.813 | 1.819 | 1.824 | 1.829 | 1.833 | 1.837 | 1.840 | | | | | |
| 95 | 1.634 | 1.664 | 1.702 | 1.729 | 1.750 | 1.767 | 1.780 | 1.791 | 1.801 | 1.809 | 1.816 | 1.822 | 1.827 | 1.832 | 1.836 | 1.840 | 1.844 | 1.847 | | | | |
| 100 | 1.636 | 1.667 | 1.705 | 1.732 | 1.753 | 1.770 | 1.783 | 1.794 | 1.804 | 1.812 | 1.819 | 1.825 | 1.830 | 1.835 | 1.839 | 1.843 | 1.846 | 1.850 | 1.853 | | | |
| 110 | 1.642 | 1.672 | 1.710 | 1.737 | 1.758 | 1.775 | 1.788 | 1.799 | 1.809 | 1.817 | 1.824 | 1.830 | 1.835 | 1.840 | 1.844 | 1.848 | 1.852 | 1.855 | 1.858 | 1.863 | | |
| 120 | 1.646 | 1.676 | 1.714 | 1.742 | 1.762 | 1.779 | 1.792 | 1.804 | 1.813 | 1.821 | 1.828 | 1.834 | 1.840 | 1.844 | 1.849 | 1.852 | 1.856 | 1.859 | 1.862 | 1.867 | 1.871 | |
| RACK | 1.701 | 1.731 | 1.769 | 1.797 | 1.817 | 1.834 | 1.847 | 1.859 | 1.868 | 1.876 | 1.883 | 1.889 | 1.894 | 1.899 | 1.903 | 1.907 | 1.911 | 1.914 | 1.917 | 1.922 | 1.926 | |

17.1.4 Helix Angle Factor, Y_β

Helix angle factor can be obtained from Equation (17-9).

$$\text{When } 0 \leq \beta \leq 30^\circ, \text{ then } Y_\beta = 1 - \frac{\beta}{120}$$

When $\beta > 30^\circ$, then $Y_\beta = 0.75$

(17-9)



17.1.5 Life Factor, K_L

We can choose the proper life factor, K_L , from **Table 17-2**. The number of cyclic repetitions means the total loaded meshings during its lifetime.

Table 17-2 Life Factor, K_L

| Number of Cyclic Repetitions | Hardness ⁽¹⁾ HB 120 ... 220 | Hardness ⁽²⁾ Over HB 220 | Gears with Carburizing Gears with Nitriding |
|------------------------------|---|--|--|
| Under 10000 | 1.4 | 1.5 | 1.5 |
| Approx. 10^5 | 1.2 | 1.4 | 1.5 |
| Approx. 10^6 | 1.1 | 1.1 | 1.1 |
| Above 10^7 | 1.0 | 1.0 | 1.0 |

NOTES: ⁽¹⁾ Cast iron gears apply to this column.

⁽²⁾ For induction hardened gears, use the core hardness.

17.1.6 Dimension Factor of Root Stress, K_{FX}

Generally, this factor is unity.

$$K_{FX} = 1.00$$

(17-10)

17.1.7 Dynamic Load Factor, K_V

Dynamic load factor can be obtained from **Table 17-3** based on the precision of the gear and its pitch line linear speed.

Table 17-3 Dynamic Load Factor, K_V

| Precision Grade of Gears from JIS B 1702 | | Tangential Speed at Pitch Line (m/s) | | | | | | |
|---|----------|--------------------------------------|---------------------|---------------------|---------------------|----------------------|-----------------------|-----------------------|
| | | Under 1 | 1 to less than 3 | 3 to less than 5 | 5 to less than 8 | 8 to less than 12 | 12 to less than 18 | 18 to less than 25 |
| Tooth Profile | | | | | | | | |
| Unmodified | Modified | | | | | | | |
| | 1 | — | — | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 |
| 1 | 2 | — | 1.0 | 1.05 | 1.1 | 1.2 | 1.3 | 1.5 |
| 2 | 3 | 1.0 | 1.1 | 1.15 | 1.2 | 1.3 | 1.5 | |
| 3 | 4 | 1.0 | 1.2 | 1.3 | 1.4 | 1.5 | | |
| 4 | — | 1.0 | 1.3 | 1.4 | 1.5 | | | |
| 5 | — | 1.1 | 1.4 | 1.5 | | | | |
| 6 | — | 1.2 | 1.5 | | | | | |



17.1.8 Overload Factor, K_o

Overload factor, K_o , is the quotient of actual tangential force divided by nominal tangential force, F_t . If tangential force is unknown, **Table 17-4** provides guiding values.

$$K_o = \frac{\text{Actual tangential force}}{\text{Nominal tangential force, } F_t} \quad (17-11)$$

Table 17-4 Overload Factor, K_o

| Impact from Prime Mover | Impact from Load Side of Machine | | |
|--|----------------------------------|--------------------|-------------------|
| | Uniform Load | Medium Impact Load | Heavy Impact Load |
| Uniform Load (Motor, Turbine, Hydraulic Motor) | 1.0 | 1.25 | 1.75 |
| Light Impact Load (Multicylinder Engine) | 1.25 | 1.5 | 2.0 |
| Medium Impact Load (Single Cylinder Engine) | 1.5 | 1.75 | 2.25 |

17.1.9 Safety Factor for Bending Failure, S_F

Safety factor, S_F , is too complicated to be decided precisely. Usually, it is set to at least 1.2.

17.1.10 Allowable Bending Stress At Root, $\sigma_{F \text{ lim}}$

For the unidirectionally loaded gear, the allowable bending stresses at the root are shown in **Tables 17-5 to 17-8**. In these tables, the value of $\sigma_{F \text{ lim}}$ is the quotient of the tensile fatigue limit divided by the stress concentration factor 1.4. If the load is bidirectional, and both sides of the tooth are equally loaded, the value of allowable bending stress should be taken as 2/3 of the given value in the table. The core hardness means hardness at the center region of the root.

See **Table 17-5** for $\sigma_{F \text{ lim}}$ of gears without case hardening. **Table 17-6** gives $\sigma_{F \text{ lim}}$ of gears that are induction hardened; and **Tables 17-7** and **17-8** give the values for carburized and nitrided gears, respectively. In **Tables 17-8A** and **17-8B**, examples of calculations are given.



Table 17-5 Gears Without Case Hardening

| Material | Arrows indicate the ranges | Hardness | | Tensile Strength Lower limit kgf/mm ² (Reference) | σ_F lim kgf/mm ² | | |
|--|---|---|--------------------------------------|---|---------------------------------------|----|------|
| | | HB | HV | | | | |
| Cast Steel Gear | SC37 SC42 SC46 SC49 SCC3 | | | 37 | 10.4 | | |
| | | | | 42 | 12.0 | | |
| | | | | 46 | 13.2 | | |
| | | | | 49 | 14.2 | | |
| | | | | 55 | 15.8 | | |
| | | | | 60 | 17.2 | | |
| Normalized Carbon Steel Gear | S25C S35C S43C S48C S53C S58C | 120 | 126 | 39 | 13.8 | | |
| | | 130 | 136 | 42 | 14.8 | | |
| | | 140 | 147 | 45 | 15.8 | | |
| | | 150 | 157 | 48 | 16.8 | | |
| | | 160 | 167 | 51 | 17.6 | | |
| | | 170 | 178 | 55 | 18.4 | | |
| | | 180 | 189 | 58 | 19.0 | | |
| | | 190 | 200 | 61 | 19.5 | | |
| | | 200 | 210 | 64 | 20 | | |
| | | 210 | 221 | 68 | 20.5 | | |
| | | 220 | 231 | 71 | 21 | | |
| | | 230 | 242 | 74 | 21.5 | | |
| | | 240 | 252 | 77 | 22 | | |
| | | 250 | 263 | 81 | 22.5 | | |
| | | Quenched and Tempered Carbon Steel Gear | S35C S43C S48C S53C S58C | 160 | 167 | 51 | 18.2 |
| | | | | 170 | 178 | 55 | 19.4 |
| 180 | 189 | | | 58 | 20.2 | | |
| 190 | 200 | | | 61 | 21 | | |
| 200 | 210 | | | 64 | 22 | | |
| 210 | 221 | | | 68 | 23 | | |
| 220 | 231 | | | 71 | 23.5 | | |
| 230 | 242 | | | 74 | 24 | | |
| 240 | 252 | | | 77 | 24.5 | | |
| 250 | 263 | | | 81 | 25 | | |
| 260 | 273 | | | 84 | 25.5 | | |
| 270 | 284 | | | 87 | 26 | | |
| 280 | 295 | | | 90 | 26 | | |
| Quenched and Tempered Alloy Steel Gear | SMn443 SNC836 SCM435 SCM440 SNCM439 | | | 220 | 231 | 71 | 25 |
| | | 230 | 242 | 74 | 26 | | |
| | | 240 | 252 | 77 | 27.5 | | |
| | | 250 | 263 | 81 | 28.5 | | |
| | | 260 | 273 | 84 | 29.5 | | |
| | | 270 | 284 | 87 | 31 | | |
| | | 280 | 295 | 90 | 32 | | |
| | | 290 | 305 | 93 | 33 | | |
| | | 300 | 316 | 97 | 34 | | |
| | | 310 | 327 | 100 | 35 | | |
| | | 320 | 337 | 103 | 36.5 | | |
| | | 330 | 347 | 106 | 37.5 | | |
| | | 340 | 358 | 110 | 39 | | |
| | | 350 | 369 | 113 | 40 | | |
| 360 | 380 | 117 | 41 | | | | |



Table 17-6 Induction Hardened Gears

| Material | Arrows indicate the ranges | Heat Treatment Before Induction Hardening | Core Hardness | | Surface Hardness HV | $\sigma_{F \text{ lim}}$ kgf/mm ² |
|---|---|---|---------------|-----|---------------------|--|
| | | | HB | HV | | |
| Structural Carbon Steel Hardened Throughout | ↑ S48C ↓ ↑ S43C ↓ | Normalized | 160 | 167 | More than 550 | 21 |
| | | | 180 | 189 | " | 21 |
| | | | 220 | 231 | " | 21.5 |
| | | | 240 | 252 | " | 22 |
| | ↑ S48C ↓ ↑ S43C ↓ | Quenched and Tempered | 200 | 210 | More than 550 | 23 |
| | | | 210 | 221 | " | 23.5 |
| | | | 220 | 231 | " | 24 |
| | | | 230 | 242 | " | 24.5 |
| Structural Alloy Steel Hardened Throughout | ↑ SMn443 ↓ ↑ SCM440 ↓ ↑ SNC836 ↓ ↑ SNCM439 ↓ ↑ SCM435 ↓ | Quenched and Tempered | 240 | 252 | " | 25 |
| | | | 250 | 263 | " | 25 |
| | | | 230 | 242 | More than 550 | 27 |
| | | | 240 | 252 | " | 28 |
| | | | 250 | 263 | " | 29 |
| | | | 260 | 273 | " | 30 |
| | | | 270 | 284 | " | 31 |
| | | | 280 | 295 | " | 32 |
| | | | 290 | 305 | " | 33 |
| | | | 300 | 316 | " | 34 |
| | | | 310 | 327 | " | 35 |
| | | | 320 | 337 | " | 36.5 |
| Hardened Except Root Area | | | | | 75% of the above | |

- NOTES:**
1. If a gear is not quenched completely, or not evenly, or has quenching cracks, the $\sigma_{F \text{ lim}}$ will drop dramatically.
 2. If the hardness after quenching is relatively low, the value of $\sigma_{F \text{ lim}}$ should be that given in **Table 17-5**.



Table 17-7 Carburized Gears

| Material | Arrows indicate the ranges | Core Hardness | | σ_F lim kgf/mm ² |
|-------------------------|----------------------------|---------------|-----|---------------------------------------|
| | | HB | HV | |
| Structural Carbon Steel | S15C S15CK | 140 | 147 | 18.2 |
| | | 150 | 157 | 19.6 |
| | | 160 | 167 | 21 |
| | | 170 | 178 | 22 |
| | | 180 | 189 | 23 |
| | | 190 | 200 | 24 |
| Structural Alloy Steel | | 220 | 231 | 34 |
| | | 230 | 242 | 36 |
| | | 240 | 252 | 38 |
| | | 250 | 263 | 39 |
| | | 260 | 273 | 41 |
| | | 270 | 284 | 42.5 |
| | | 280 | 295 | 44 |
| | | 290 | 305 | 45 |
| | | 300 | 316 | 46 |
| | | 310 | 327 | 47 |
| | | 320 | 337 | 48 |
| | | 330 | 347 | 49 |
| | | 340 | 358 | 50 |
| | | 350 | 369 | 51 |
| | | 360 | 380 | 51.5 |
| | | 370 | 390 | 52 |

Table 17-8 Nitrided Gears

| Material | Surface Hardness (Reference) | Core Hardness | | σ_F lim kgf/mm ² |
|------------------------------------|------------------------------|---------------|-----|---------------------------------------|
| | | HB | HV | |
| Alloy Steel except Nitriding Steel | More than HV 650 | 220 | 231 | 30 |
| | | 240 | 252 | 33 |
| | | 260 | 273 | 36 |
| | | 280 | 295 | 38 |
| | | 300 | 316 | 40 |
| | | 320 | 337 | 42 |
| | | 340 | 358 | 44 |
| | | 360 | 380 | 46 |
| Nitriding Steel SACM645 | More than HV 650 | 220 | 231 | 32 |
| | | 240 | 252 | 35 |
| | | 260 | 273 | 38 |
| | | 280 | 295 | 41 |
| | | 300 | 316 | 44 |

NOTE: The above two tables apply only to those gears which have adequate depth of surface hardness. Otherwise, the gears should be rated according to **Table 17-5**.



17.1.11 Example of Bending Strength Calculation

Table 17-8A Spur Gear Design Details

| No. | Item | Symbol | Unit | Pinion | Gear |
|-----|-------------------------------|------------|--------|-----------------------------|-------------|
| 1 | Normal Module | m_n | mm | 2 | |
| 2 | Normal Pressure Angle | α_n | degree | 20° | |
| 3 | Helix Angle | β | | 0° | |
| 4 | Number of Teeth | z | | 20 | 40 |
| 5 | Center Distance | a_x | mm | 60 | |
| 6 | Coefficient of Profile Shift | x | | +0.15 | -0.15 |
| 7 | Pitch Circle Diameter | d | mm | 40.000 | 80.000 |
| 8 | Working Pitch Circle Diameter | d_w | | 40.000 | 80.000 |
| 9 | Tooth Width | b | | 20 | 20 |
| 10 | Precision Grade | | | JIS 5 | JIS 5 |
| 11 | Manufacturing Method | | | Hobbing | |
| 12 | Surface Roughness | | | 12.5 μ m | |
| 13 | Revolutions per Minute | n | rpm | 1500 | 750 |
| 14 | Linear Speed | v | m/s | 3.142 | |
| 15 | Direction of Load | | | Unidirectional | |
| 16 | Duty Cycle | | cycles | Over 10 ⁷ cycles | |
| 17 | Material | | | SCM 415 | |
| 18 | Heat Treatment | | | Carburizing | |
| 19 | Surface Hardness | | | HV 600 ... 640 | |
| 20 | Core Hardness | | | HB 260 ... 280 | |
| 21 | Effective Carburized Depth | | | mm | 0.3 ... 0.5 |

Table 17-8B Bending Strength Factors

| No. | Item | Symbol | Unit | Pinion | Gear |
|-----|--|--------------------------|---------------------|--------|-------|
| 1 | Allowable Bending Stress at Root | $\sigma_{F \text{ lim}}$ | kgf/mm ² | 42.5 | |
| 2 | Normal Module | m_n | mm | 2 | |
| 3 | Tooth Width | b | | 20 | |
| 4 | Tooth Profile Factor | Y_F | | 2.568 | 2.535 |
| 5 | Load Distribution Factor | Y_ϵ | | 0.619 | |
| 6 | Helix Angle Factor | Y_β | | 1.0 | |
| 7 | Life Factor | K_L | | 1.0 | |
| 8 | Dimension Factor of Root Stress | K_{FX} | | 1.0 | |
| 9 | Dynamic Load Factor | K_V | | 1.4 | |
| 10 | Overload Factor | K_O | | 1.0 | |
| 11 | Safety Factor | S_F | | 1.2 | |
| 12 | Allowable Tangential Force on Working Pitch Circle | $F_t \text{ lim}$ | | kgf | 636.5 |



17.2 Surface Strength Of Spur And Helical Gears

The following equations can be applied to both spur and helical gears, including double helical and internal gears, used in power transmission. The general range of application is:

| | | |
|-----------------|-----|--------------------|
| Module: | m | 1.5 to 25 mm |
| Pitch Circle: | d | 25 to 3200 mm |
| Linear Speed: | v | less than 25 m/sec |
| Rotating Speed: | n | less than 3600 rpm |

17.2.1 Conversion Formulas

To rate gears, the required transmitted power and torques must be converted to tooth forces. The same conversion formulas, **Equations (17-1), (17-2)** and **(17-3)**, of **SECTION 17** (page T-150) are applicable to surface strength calculations.

17.2.2 Surface Strength Equations

As stated in **SECTION 17.1**, the tangential force, F_t , is not to exceed the allowable tangential force, $F_{t \text{ lim}}$. The same is true for the allowable Hertz surface stress, $\sigma_{H \text{ lim}}$. The Hertz stress σ_H is calculated from the tangential force, F_t . For an acceptable design, it must be less than the allowable Hertz stress $\sigma_{H \text{ lim}}$. That is:

$$\sigma_H \leq \sigma_{H \text{ lim}} \quad (17-12)$$

The tangential force, $F_{t \text{ lim}}$, in kgf, at the standard pitch circle, can be calculated from **Equation (17-13)**.

$$F_{t \text{ lim}} = \sigma_{H \text{ lim}}^2 d_1 b_H \frac{u}{u \pm 1} \left(\frac{K_{HL} Z_L Z_R Z_V Z_W K_{HX}}{Z_H Z_M Z_\epsilon Z_\beta} \right)^2 \frac{1}{K_{H\beta} K_V K_O} \frac{1}{S_H^2} \quad (17-13)$$

The Hertz stress σ_H (kgf/mm²) is calculated from **Equation (17-14)**, where u is the ratio of numbers of teeth in the gear pair.

$$\sigma_H = \sqrt{\frac{F_t}{d_1 b_H} \frac{u \pm 1}{u} \frac{Z_H Z_M Z_\epsilon Z_\beta}{K_{HL} Z_L Z_R Z_V Z_W K_{HX}}} \sqrt{K_{H\beta} K_V K_O} S_H \quad (17-14)$$

The "+" symbol in **Equations (17-13)** and **(17-14)** applies to two external gears in mesh, whereas the "-" symbol is used for an internal gear and an external gear mesh. For the case of a rack and gear, the quantity $u/(u \pm 1)$ becomes 1.

17.2.3 Determination Of Factors In The Surface Strength Equations

17.2.3.A Effective Tooth Width, b_H (mm)

The narrower face width of the meshed gear pair is assumed to be the effective width for surface strength. However, if there are tooth modifications, such as chamfer, tip relief or crowning, an appropriate amount should be subtracted to obtain the effective tooth width.

17.2.3.B Zone Factor, Z_H

The zone factor is defined as:

$$Z_H = \sqrt{\frac{2 \cos \beta_b \cos \alpha_{wt}}{\cos^2 \alpha_t \sin \alpha_{wt}}} = \frac{1}{\cos \alpha_t} \sqrt{\frac{2 \cos \beta_b}{\tan \alpha_{wt}}} \quad (17-15)$$

where:

$$\beta_b = \tan^{-1}(\tan \beta \cos \alpha_t)$$



The zone factors are presented in **Figure 17-2** for tooth profiles per JIS B 1701, specified in terms of profile shift coefficients x_1 and x_2 , numbers of teeth z_1 and z_2 and helix angle β .

The "+" symbol in **Figure 17-2** applies to external gear meshes, whereas the "-" is used for internal gear and external gear meshes.

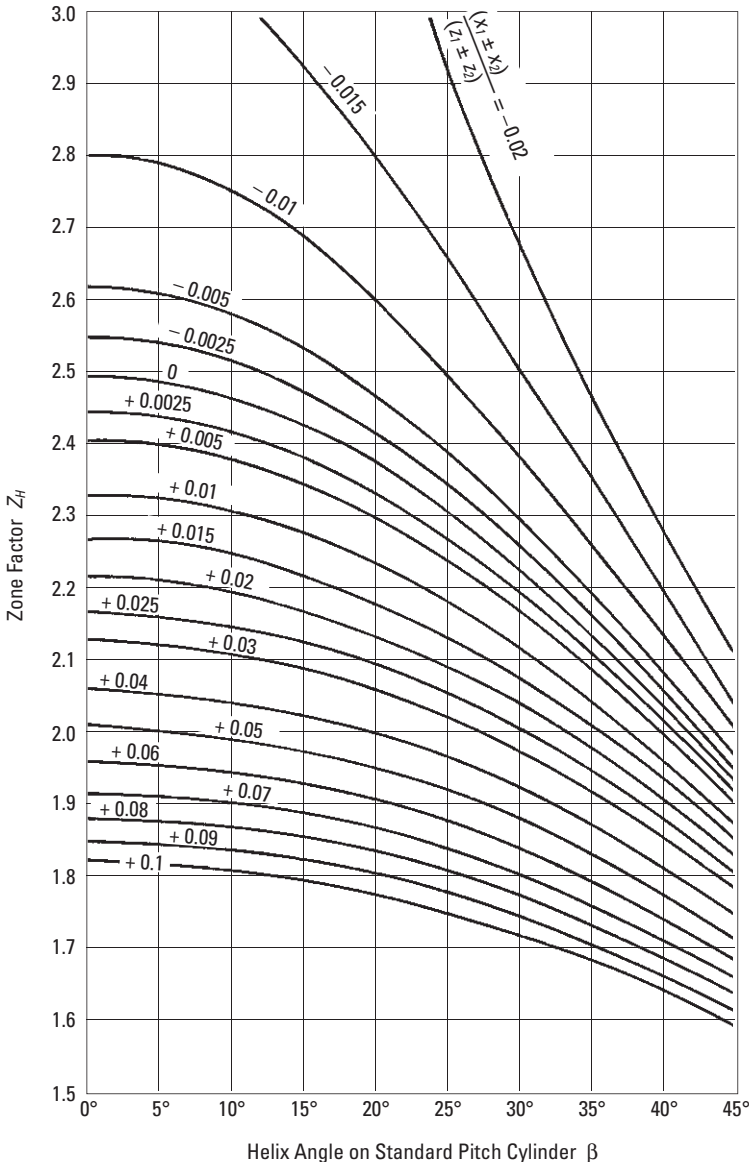


Fig. 17-2 Zone Factor Z_H



17.2.3.C Material Factor, Z_M

$$Z_M = \sqrt{\frac{1}{\pi \left(\frac{1 - \nu_1^2}{E_1} + \frac{1 - \nu_2^2}{E_2} \right)}} \tag{17-16}$$

where:

ν = Poisson's Ratio, and E = Young's Modulus

Table 17-9 contains several combinations of material and their material factor.

Table 17-9 Material Factor, Z_M

| Gear | | | | Meshing Gear | | | | Material Factor Z_M $(\text{kgf/mm}^2)^{0.5}$ | |
|-------------------|--------|---------------------------------------|-----------------|-------------------|----------------|---------------------------------------|-----------------|---|------|
| Material | Symbol | E Young's Modulus kgf/mm^2 | Poisson's Ratio | Material | Symbol | E Young's Modulus kgf/mm^2 | Poisson's Ratio | | |
| Structural Steel | * | 21000 | 0.3 | Structural Steel | * | 21000 | 0.3 | 60.6 | |
| | | | | Cast Steel | SC | 20500 | | 60.2 | |
| | | | | Ductile Cast Iron | FCD | 17600 | | 57.9 | |
| | | | | Gray Cast Iron | FC | 12000 | | 51.7 | |
| Cast Steel | SC | 20500 | | Cast Steel | SC | 20500 | | 59.9 | |
| | | | | Ductile Cast Iron | FCD | 17600 | | 57.6 | |
| | | | | Gray Cast Iron | FC | 12000 | | 51.5 | |
| | | | | Ductile Cast Iron | FCD | 17600 | | 55.5 | |
| Ductile Cast Iron | FCD | 17600 | | 0.3 | Gray Cast Iron | FC | | 12000 | 50.0 |
| Gray Cast Iron | FC | 12000 | | | Gray Cast Iron | FC | | 12000 | 45.8 |

*NOTE: Structural steels are S...C, SNC, SNCM, SCr, SCM, etc.

17.2.4 Contact Ratio Factor, Z_e

This factor is fixed at 1.0 for spur gears.

For helical gear meshes, Z_e is calculated as follows:

Helical gear:

When $\epsilon_\beta \leq 1$,

$$Z_e = \sqrt{1 - \epsilon_\beta + \frac{\epsilon_\beta}{\epsilon_\alpha}}$$

When $\epsilon_\beta > 1$,

$$Z_e = \sqrt{\frac{1}{\epsilon_\alpha}}$$

(17-17)

where: ϵ_α = Radial contact ratio

ϵ_β = Overlap ratio



17.2.5 Helix Angle Factor, Z_β

This is a difficult parameter to evaluate. Therefore, it is assumed to be 1.0 unless better information is available.

$$Z_\beta = 1.0 \quad (17-18)$$

17.2.6 Life Factor, K_{HL}

This factor reflects the number of repetitious stress cycles. Generally, it is taken as 1.0. Also, when the number of cycles is unknown, it is assumed to be 1.0.

When the number of stress cycles is below 10 million, the values of **Table 17-10** can be applied.

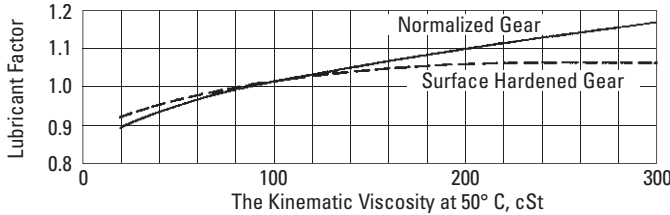
Table 17-10 Life Factor, K_{HL}

| Duty Cycles | Life Factor |
|------------------|-------------|
| less than 10^5 | 1.5 |
| approx. 10^5 | 1.3 |
| approx. 10^6 | 1.15 |
| above 10^7 | 1.0 |

- NOTES:**
1. The duty cycle is the meshing cycles during a lifetime.
 2. Although an idler has two meshing points in one cycle, it is still regarded as one repetition.
 3. For bidirectional gear drives, the larger loaded direction is taken as the number of cyclic loads.

17.2.7 Lubricant Factor, Z_L

The lubricant factor is based upon the lubricant's kinematic viscosity at 50°C . See **Figure 17-3**.



NOTE: Normalized gears include quenched and tempered gears

Fig. 17-3 Lubricant Factor, Z_L

17.2.8 Surface Roughness Factor, Z_R

This factor is obtained from **Figure 17-4** on the basis of the average roughness R_{maxm} (μm). The average roughness is calculated by **Equation (17-19)** using the surface roughness values of the pinion and gear, R_{max1} and R_{max2} , and the center distance, a , in mm.

$$R_{maxm} = \frac{R_{max1} + R_{max2}}{2} \sqrt{\frac{100}{a}} \quad (\mu\text{m}) \quad (17-19)$$

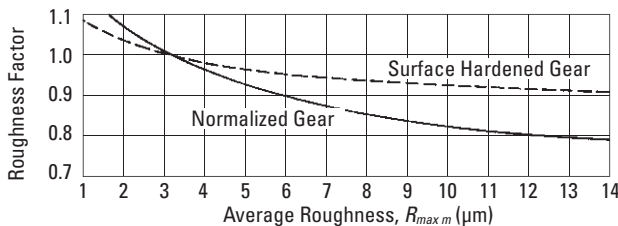


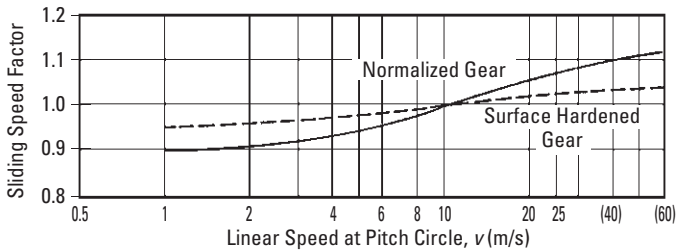
Fig. 17-4 Surface Roughness Factor, Z_R



0 10

17.2.9 Sliding Speed Factor, Z_V

This factor relates to the linear speed of the pitch line. See **Figure 17-5**.



NOTE: Normalized gears include quenched and tempered gears.

Fig. 17-5 Sliding Speed Factor, Z_V

17.2.10 Hardness Ratio Factor, Z_W

The hardness ratio factor applies only to the gear that is in mesh with a pinion which is quenched and ground. The ratio is calculated by **Equation (17-20)**.

$$Z_W = 1.2 - \frac{HB_2 - 130}{1700} \quad (17-20)$$

where: HB_2 = Brinell hardness of gear range: $130 \leq HB_2 \leq 470$

If a gear is out of this range, the Z_W is assumed to be 1.0.

17.2.11 Dimension Factor, K_{HX}

Because the conditions affecting this parameter are often unknown, the factor is usually set at 1.0.

$$K_{HX} = 1.0 \quad (17-21)$$

17.2.12 Tooth Flank Load Distribution Factor, $K_{H\beta}$

(a) When tooth contact under load is not predictable: This case relates the ratio of the gear face width to the pitch diameter, the shaft bearing mounting positions, and the shaft sturdiness. See **Table 17-11**. This attempts to take into account the case where the tooth contact under load is not good or known.

Table 17-11 Tooth Flank Load Distribution Factor for Surface Strength, $K_{H\beta}$

| $\frac{b}{d_f}$ | Method of Gear Shaft Support | | | |
|-----------------|--------------------------------|--------------------------------------|------------------------------------|--------------------|
| | Bearings on Both Ends | | | Bearing on One End |
| | Gear Equidistant from Bearings | Gear Close to One End (Rugged Shaft) | Gear Close to One End (Weak Shaft) | |
| 0.2 | 1.0 | 1.0 | 1.1 | 1.2 |
| 0.4 | 1.0 | 1.1 | 1.3 | 1.45 |
| 0.6 | 1.05 | 1.2 | 1.5 | 1.65 |
| 0.8 | 1.1 | 1.3 | 1.7 | 1.85 |
| 1.0 | 1.2 | 1.45 | 1.85 | 2.0 |
| 1.2 | 1.3 | 1.6 | 2.0 | 2.15 |
| 1.4 | 1.4 | 1.8 | 2.1 | — |
| 1.6 | 1.5 | 2.05 | 2.2 | — |
| 1.8 | 1.8 | — | — | — |
| 2.0 | 2.1 | — | — | — |

- NOTES:**
1. The b means effective face width of spur & helical gears. For double helical gears, b is face width including central groove.
 2. Tooth contact must be good under no load.
 3. The values in this table are not applicable to gears with two or more mesh points, such as an idler.

(b) When tooth contact under load is good: In this case, the shafts are rugged and the bearings are in good close proximity to the gears, resulting in good contact over the full width and working depth of the tooth flanks. Then the factor is in a narrow range, as specified below:

$$K_{H\beta} = 1.0 \dots 1.2 \quad (17-22)$$

17.2.13 Dynamic Load Factor, K_v

Dynamic load factor is obtainable from **Table 17-3** according to the gear's precision grade and pitch line linear speed.

17.2.14 Overload Factor, K_o

The overload factor is obtained from either **Equation (17-11)** or from **Table 17-4**.

17.2.15 Safety Factor For Pitting, S_H

The causes of pitting involves many environmental factors and usually is difficult to precisely define. Therefore, it is advised that a factor of at least 1.15 be used.

17.2.16 Allowable Hertz Stress, $\sigma_{H \text{ lim}}$

The values of allowable Hertz stress for various gear materials are listed in **Tables 17-12** through **17-16**. Values for hardness not listed can be estimated by interpolation. Surface hardness is defined as hardness in the pitch circle region.

Table 17-12 Gears without Case Hardening – Allowable Hertz Stress

| Material | Arrows indicate the ranges | Surface Hardness | | Lower Limit of Tensile Strength kgf/mm ² (Reference) | σ_H lim kgf/mm ² | | |
|-----------------------------|--------------------------------------|--|------|---|---------------------------------------|----|------|
| | | HB | HV | | | | |
| Cast Steel | SC37 SC42 SC46 SC49 SCC3 | | | 37 | 34 | | |
| | | | | 42 | 35 | | |
| | | | | 46 | 36 | | |
| | | | | 49 | 37 | | |
| | | | | 55 | 39 | | |
| | | | | 60 | 40 | | |
| Normalized Structural Steel | | 120 | 126 | 39 | 41.5 | | |
| | | 130 | 136 | 42 | 42.5 | | |
| | | 140 | 147 | 45 | 44 | | |
| | | 150 | 157 | 48 | 45 | | |
| | | 160 | 167 | 51 | 46.5 | | |
| | | 170 | 178 | 55 | 47.5 | | |
| | | 180 | 189 | 58 | 49 | | |
| | | 190 | 200 | 61 | 50 | | |
| | | 200 | 210 | 64 | 51.5 | | |
| | | 210 | 221 | 68 | 52.5 | | |
| | | 220 | 231 | 71 | 54 | | |
| | | 230 | 242 | 74 | 55 | | |
| | | 240 | 253 | 77 | 56.5 | | |
| | | 250 | 263 | 81 | 57.5 | | |
| | | Quenched and Tempered Structural Steel | | 160 | 167 | 51 | 51 |
| | | | | 170 | 178 | 55 | 52.5 |
| 180 | 189 | | | 58 | 54 | | |
| 190 | 200 | | | 61 | 55.5 | | |
| 200 | 210 | | | 64 | 57 | | |
| 210 | 221 | | | 68 | 58.5 | | |
| 220 | 231 | | | 71 | 60 | | |
| 230 | 242 | | | 74 | 61 | | |
| 240 | 252 | | | 77 | 62.5 | | |
| 250 | 263 | | | 81 | 64 | | |
| 260 | 273 | | | 84 | 65.5 | | |
| 270 | 284 | | | 87 | 67 | | |
| 280 | 295 | | | 90 | 68.5 | | |
| 290 | 305 | | | 93 | 70 | | |
| 300 | 316 | | | 97 | 71 | | |
| 310 | 327 | | | 100 | 72.5 | | |
| 320 | 337 | 103 | 74 | | | | |
| 330 | 347 | 106 | 75.5 | | | | |
| 340 | 358 | 110 | 77 | | | | |
| 350 | 369 | 113 | 78.5 | | | | |

Continued on the next page

Table 17-12 Gears without Case Hardening – Allowable Hertz Stress (continued)

| Material | Arrows indicate the ranges | Surface Hardness | | Lower Limit of Tensile Strength kgf/mm ² (Reference) | σ_H lim kgf/mm ² |
|-----------------------------------|----------------------------|------------------|-----|---|---------------------------------------|
| | | HB | HV | | |
| Quenched and Tempered Alloy Steel | | 220 | 231 | 71 | 70 |
| | | 230 | 242 | 74 | 71.5 |
| | | 240 | 252 | 77 | 73 |
| | | 250 | 263 | 81 | 74.5 |
| | | 260 | 273 | 84 | 76 |
| | | 270 | 284 | 87 | 77.5 |
| | | 280 | 295 | 90 | 79 |
| | | 290 | 305 | 93 | 81 |
| | | 300 | 316 | 97 | 82.5 |
| | | 310 | 327 | 100 | 84 |
| | | 320 | 337 | 103 | 85.5 |
| | | 330 | 347 | 106 | 87 |
| | | 340 | 358 | 110 | 88.5 |
| | | 350 | 369 | 113 | 90 |
| | | 360 | 380 | 117 | 92 |
| | | 370 | 391 | 121 | 93.5 |
| | | 380 | 402 | 126 | 95 |
| | | 390 | 413 | 130 | 96.5 |
| 400 | 424 | 135 | 98 | | |

Continued from the previous page

Table 17-13 Gears with Induction Hardening – Allowable Hertz Stress

| Material | | Heat Treatment before Induction Hardening | Surface Hardness HV (Quenched) | σ_H lim kgf/mm ² |
|-------------------------|---|---|--------------------------------|------------------------------------|
| Structural Carbon Steel | S43C | Normalized | 420 | 77 |
| | | | 440 | 80 |
| | | | 460 | 82 |
| | | | 480 | 85 |
| | | | 500 | 87 |
| | | | 520 | 90 |
| | | | 540 | 92 |
| | S48C | Quenched and Tempered | 560 | 93.5 |
| | | | 580 | 95 |
| | | | 600 and above | 96 |
| | | | 500 | 96 |
| | | | 520 | 99 |
| | | | 540 | 101 |
| | | | 560 | 103 |
| Structural Alloy Steel | SMn443 SCM435 SCM440 SNC836 SNCM439 | Quenched and Tempered | 580 | 105 |
| | | | 600 | 106.5 |
| | | | 620 | 107.5 |
| | | | 640 | 108.5 |
| | | | 660 | 109 |
| | | | 680 and above | 109.5 |
| | | | 500 | 109 |
| | | | 520 | 112 |
| | | | 540 | 115 |
| | | | 560 | 117 |
| 580 | 119 | | | |
| 600 | 121 | | | |
| 620 | 123 | | | |
| 640 | 124 | | | |
| 660 | 125 | | | |
| 680 and above | 126 | | | |

Table 17-14 Carburized Gears – Allowable Hertz Stress

| Material | | Effective Carburized Depth | Surface Hardness HV (Quenched) | $\sigma_{H \text{ lim}}$ kgf/mm ² | |
|-------------------------|--------|--|--------------------------------|--|-----|
| Structural Carbon Steel | S15C | Relatively Shallow (See Table 17-14A , row A) | 580 | 115 | |
| | | | 600 | 117 | |
| | | | 620 | 118 | |
| | | | 640 | 119 | |
| | | | 660 | 120 | |
| | S15CK | | 680 | 120 | |
| | | | 700 | 120 | |
| | | | 720 | 119 | |
| | | | 740 | 118 | |
| | | | 760 | 117 | |
| | | | 780 | 115 | |
| Structural Alloy Steel | SCM415 | Relatively Shallow (See Table 17-14A , row A) | 800 | 113 | |
| | | | 580 | 131 | |
| | | | 600 | 134 | |
| | | | 620 | 137 | |
| | | | 640 | 138 | |
| | | | 660 | 138 | |
| | | | 680 | 138 | |
| | | | 700 | 138 | |
| | | | 720 | 137 | |
| | | | 740 | 136 | |
| | SCM420 | | 760 | 134 | |
| | | | 780 | 132 | |
| | SNC420 | | 800 | 130 | |
| | | | SNC815 | Relatively Thick (See Table 17-14A , row B) | 580 |
| | 600 | | | | 160 |
| | 620 | | | | 164 |
| | 640 | | | | 166 |
| | 660 | | | | 166 |
| | 680 | | | | 166 |
| | 700 | | | | 164 |
| 720 | 161 | | | | |
| 740 | 158 | | | | |
| 760 | 154 | | | | |
| SNM420 | 780 | 150 | | | |
| | 800 | 146 | | | |

- NOTES:**
- Gears with thin effective carburized depth have "A" row values in the **Table 17-14A**. For thicker depths, use "B" values. The effective carburized depth is defined as the depth which has the hardness greater than HV 513 or HRC50.
 - The effective carburizing depth of ground gears is defined as the residual layer depth after grinding to final dimensions.



Table 17-14A

| Module | | 1.5 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 15 | 20 | 25 |
|-----------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Depth, mm | A | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.9 | 1.2 | 1.5 | 1.8 |
| | B | 0.3 | 0.3 | 0.5 | 0.7 | 0.8 | 0.9 | 1.1 | 1.4 | 2.0 | 2.5 | 3.4 |

NOTE: For two gears with large numbers of teeth in mesh, the maximum shear stress point occurs in the inner part of the tooth beyond the carburized depth. In such a case, a larger safety factor, S_H , should be used.

Table 17-15 Gears with Nitriding – Allowable Hertz Stress

| Material | | Surface Hardness (Reference) | $\sigma_{H \text{ lim}}$ kgf/mm ² | |
|-----------------|---------------|------------------------------|--|-------------|
| Nitriding Steel | SACM 645 etc. | Over HV 650 | Standard Processing Time | 120 |
| | | | Extra Long Processing Time | 130 ... 140 |

NOTE: In order to ensure the proper strength, this table applies only to those gears which have adequate depth of nitriding. Gears with insufficient nitriding or where the maximum shear stress point occurs much deeper than the nitriding depth should have a larger safety factor, S_H .

Table 17-16 Gears with Soft Nitriding⁽¹⁾ – Allowable Hertz Stress

| Material | Nitriding Time Hours | $\sigma_{H \text{ lim}}$ kgf/mm ² | | |
|---------------------------------|----------------------|--|----------|--------------|
| | | Relative Radius of Curvature mm ⁽²⁾ | | |
| | | less than 10 | 10 to 20 | more than 20 |
| Structural Steel or Alloy Steel | 2 | 100 | 90 | 80 |
| | 4 | 110 | 100 | 90 |
| | 6 | 120 | 110 | 100 |

NOTES: (1) Applicable to salt bath soft nitriding and gas soft nitriding gears.
 (2) Relative radius of curvature is obtained from Figure 17-6.

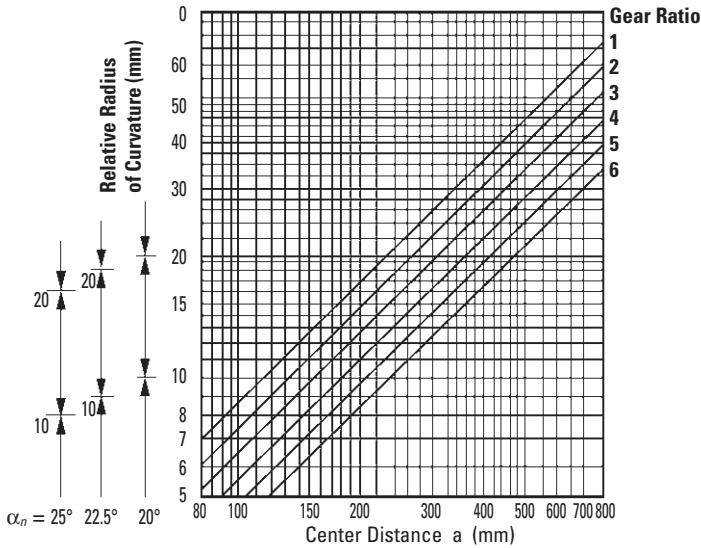


Fig. 17-6 Relative Radius of Curvature

17.2.17 Example Of Surface Strength Calculation

Table 17-16A Spur Gear Design Details

| No. | Item | Symbol | Unit | Pinion | Gear |
|-----|-------------------------------|------------|--------|-----------------|--------|
| 1 | Normal Module | m_n | mm | 2 | |
| 2 | Normal Pressure Angle | α_n | degree | 20° | |
| 3 | Helix Angle | β | | 0° | |
| 4 | Number of Teeth | z | | 20 | 40 |
| 5 | Center Distance | a_x | mm | 60 | |
| 6 | Coefficient of Profile Shift | x | | +0.15 | -0.15 |
| 7 | Pitch Circle Diameter | d | mm | 40.000 | 80.000 |
| 8 | Working Pitch Circle Diameter | d_w | | 40.000 | 80.000 |
| 9 | Tooth Width | b | | 20 | 20 |
| 10 | Precision Grade | | | JIS 5 | JIS 5 |
| 11 | Manufacturing Method | | | Hobbing | |
| 12 | Surface Roughness | | | 12.5 μ m | |
| 13 | Revolutions per Minute | n | rpm | 1500 | 750 |
| 14 | Linear Speed | v | m/s | 3.142 | |
| 15 | Direction of Load | | | Unidirectional | |
| 16 | Duty Cycle | | cycle | Over 107 Cycles | |
| 17 | Material | | | SCM 415 | |
| 18 | Heat Treatment | | | Carburizing | |
| 19 | Surface Hardness | | | HV 600 ... 640 | |
| 20 | Core Hardness | | | HB 260 ... 280 | |
| 21 | Effective Carburized Depth | | mm | 0.3 ... 0.5 | |

Table 17-16B Surface Strength Factors Calculation

| No. | Item | Symbol | Unit | Pinion | Gear |
|-----|---|--------------------------|---------------------------------------|--------|------|
| 1 | Allowable Hertz Stress | $\delta_{H \text{ lim}}$ | kgf/mm ² | 164 | |
| 2 | Pitch Diameter of Pinion | d_1 | mm | 40 | |
| 3 | Effective Tooth Width | b_H | | 20 | |
| 4 | Teeth Ratio (z_2/z_1) | u | (kgf/mm ²) ^{0.5} | 2 | |
| 5 | Zone Factor | Z_H | | 2.495 | |
| 6 | Material Factor | Z_M | | 60.6 | |
| 7 | Contact Ratio Factor | Z_e | | 1.0 | |
| 8 | Helix Angle Factor | Z_β | | 1.0 | |
| 9 | Life Factor | K_{HL} | 1.0 | | |
| 10 | Lubricant Factor | Z_L | 1.0 | | |
| 11 | Surface Roughness Factor | Z_R | 0.90 | | |
| 12 | Sliding Speed Factor | Z_V | 0.97 | | |
| 13 | Hardness Ratio Factor | Z_{HV} | 1.0 | | |
| 14 | Dimension Factor of Root Stress | K_{HX} | 1.0 | | |
| 15 | Load Distribution Factor | $K_{H\beta}$ | 1.025 | | |
| 16 | Dynamic Load Factor | K_V | 1.4 | | |
| 17 | Overload Factor | K_O | 1.0 | | |
| 18 | Safety Factor for Pitting | S_H | 1.15 | | |
| 19 | Allowable Tangential Force on Standard Pitch Circle | $F_{t \text{ lim}}$ | kgf | 251.9 | |

17.3 Bending Strength Of Bevel Gears

This information is valid for bevel gears which are used in power transmission in general industrial machines. The applicable ranges are:

| | | |
|-----------------|-----|--|
| Module: | m | 1.5 to 25 mm |
| Pitch Diameter: | d | less than 1600 mm for straight bevel gears less than 1000 mm for spiral bevel gears |
| Linear Speed: | v | less than 25 m/sec |
| Rotating Speed: | n | less than 3600 rpm |

17.3.1 Conversion Formulas

In calculating strength, tangential force at the pitch circle, F_{tm} , in kgf; power, P , in kW, and torque, T , in kgf • m, are the design criteria. Their basic relationships are expressed in **Equations (17-23)** through **(17-25)**.

$$F_{tm} = \frac{102 P}{v_m} = \frac{1.95 \times 10^6 P}{d_m n} = \frac{2000 T}{d_m} \quad (17-23)$$

$$P = \frac{F_{tm} v_m}{102} = 5.13 \times 10^{-7} F_{tm} d_m n \quad (17-24)$$

$$T = \frac{F_{tm} d_m}{2000} = \frac{974 P}{n} \quad (17-25)$$



17.3.2 Bending Strength Equations

The tangential force, F_{tm} , acting at the central pitch circle should be equal to or less than the allowable tangential force, $F_{tm \text{ lim}}$, which is based upon the allowable bending stress $\sigma_{F \text{ lim}}$. That is:

$$F_{tm} \leq F_{tm \text{ lim}} \quad (17-26)$$

The bending stress at the root, σ_F , which is derived from F_{tm} should be equal to or less than the allowable bending stress $\sigma_{F \text{ lim}}$.

$$\sigma_F \leq \sigma_{F \text{ lim}} \quad (17-27)$$

The tangential force at the central pitch circle, $F_{tm \text{ lim}}$ (kgf), is obtained from **Equation (17-28)**.

$$F_{tm \text{ lim}} = 0.85 \cos \beta_m \sigma_{F \text{ lim}} m b \frac{R_a - 0.5 b}{R_a} \frac{1}{Y_F Y_\epsilon Y_\beta Y_C} \left(\frac{K_L K_{FX}}{K_M K_V K_O} \right) \frac{1}{K_R} \quad (17-28)$$

where: β_m : Central spiral angle (degrees)
 m : Radial module (mm)
 R_a : Cone distance (mm)

And the bending strength σ_F (kgf/mm²) at the root of tooth is calculated from **Equation (17-29)**.

$$\sigma_F = F_{tm} \frac{Y_F Y_\epsilon Y_\beta Y_C}{0.85 \cos \beta_m m b} \frac{R_a}{R_a - 0.5 b} \left(\frac{K_M K_V K_O}{K_L K_{FX}} \right) K_R \quad (17-29)$$

17.3.3 Determination of Factors in Bending Strength Equations

17.3.3.A Tooth Width, b (mm)

The term b is defined as the tooth width on the pitch cone, analogous to face width of spur or helical gears. For the meshed pair, the narrower one is used for strength calculations.

17.3.3.B Tooth Profile Factor, Y_F

The tooth profile factor is a function of profile shift, in both the radial and axial directions. Using the equivalent (virtual) spur gear tooth number, the first step is to determine the radial tooth profile factor, Y_{F0} , from **Figure 17-8** for straight bevel gears and **Figure 17-9** for spiral bevel gears. Next, determine the axial shift factor, K , with **Equation (17-33)** from which the axial shift correction factor, C , can be obtained using **Figure 17-7**. Finally, calculate Y_F by **Equation (17-30)**.

$$Y_F = C Y_{F0} \quad (17-30)$$

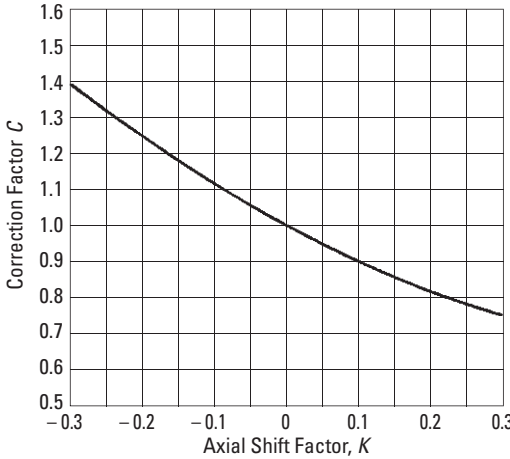


Fig. 17-7 Correction Factor for Axial Shift, C

Should the bevel gear pair not have any axial shift, then the coefficient C is 1, as per **Figure 17-7**. The tooth profile factor, Y_F , per **Equation (17-31)** is simply the Y_{F0} . This value is from **Figure 17-8** or **17-9**, depending upon whether it is a straight or spiral bevel gear pair. The graph entry parameter values are per **Equation (17-32)**.

$$Y_F = Y_{F0} \tag{17-31}$$

$$\left. \begin{aligned} z &= \frac{z}{\cos \delta \cos^3 \beta_m} \\ h_a - h_{a0} &= \frac{h_a - h_{a0}}{m} \end{aligned} \right\} \tag{17-32}$$

where: h_a = Addendum at outer end (mm)
 h_{a0} = Addendum of standard form (mm)
 m = Radial module (mm)

The axial shift factor, K, is computed from the formula:

$$K = \frac{1}{m} \left\{ s - 0.5 \pi m - \frac{2(h_a - h_{a0}) \tan \alpha_n}{\cos \beta_m} \right\} \tag{17-33}$$

17.3.3.C Load Distribution Factor, Y_ϵ

Load distribution factor is the reciprocal of radial contact ratio.

$$Y_\epsilon = \frac{1}{\epsilon_\alpha} \tag{17-34}$$

The radial contact ratio for a straight bevel gear mesh is:

$$\epsilon_\alpha = \frac{\sqrt{(R_{va1}^2 - R_{vb1}^2)} + \sqrt{(R_{va2}^2 - R_{vb2}^2)} - (R_{v1} + R_{v2}) \sin \alpha}{\pi m \cos \alpha} \tag{17-35}$$

And the radial contact ratio for spiral bevel gear is:

$$\epsilon_\alpha = \frac{\sqrt{(R_{va1}^2 - R_{vb1}^2)} + \sqrt{(R_{va2}^2 - R_{vb2}^2)} - (R_{v1} + R_{v2}) \sin \alpha_t}{\pi m \cos \alpha_t}$$

I
R
T
1
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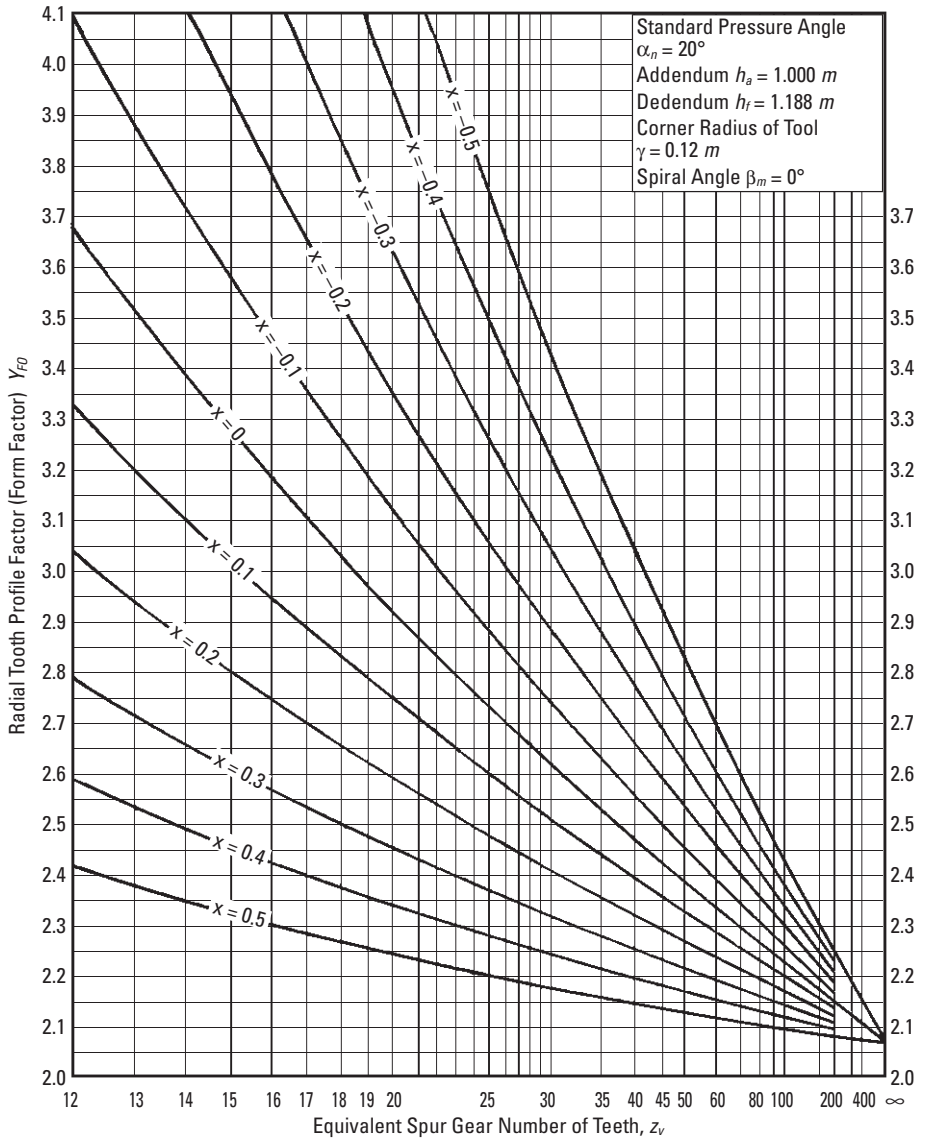


Fig. 17-8 Radial Tooth Profile Factor for Straight Bevel Gear



0 10

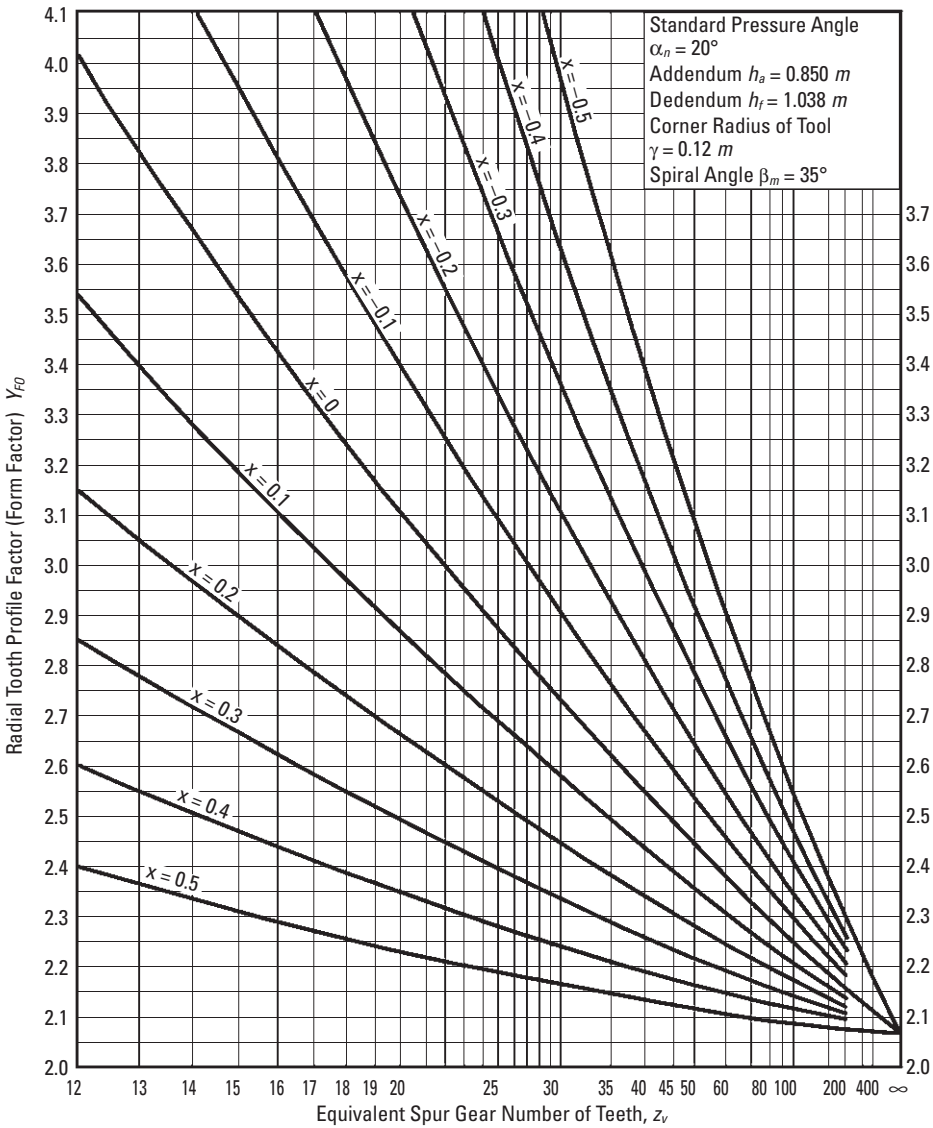


Fig. 17-9 Radial Tooth Profile Factor for Spiral Bevel Gear



See **Tables 17-17** through **17-19** for some calculating examples of radial contact ratio for various bevel gear pairs.

Table 17-17 The Radial Contact Ratio for Gleason's Straight Bevel Gear, ϵ_α

| $Z_2 \backslash Z_1$ | 12 | 15 | 16 | 18 | 20 | 25 | 30 | 36 | 40 | 45 | 60 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12 | 1.514 | | | | | | | | | | |
| 15 | 1.529 | 1.572 | | | | | | | | | |
| 16 | 1.529 | 1.578 | 1.588 | | | | | | | | |
| 18 | 1.528 | 1.584 | 1.597 | 1.616 | | | | | | | |
| 20 | 1.525 | 1.584 | 1.599 | 1.624 | 1.640 | | | | | | |
| 25 | 1.518 | 1.577 | 1.595 | 1.625 | 1.650 | 1.689 | | | | | |
| 30 | 1.512 | 1.570 | 1.587 | 1.618 | 1.645 | 1.697 | 1.725 | | | | |
| 36 | 1.508 | 1.563 | 1.579 | 1.609 | 1.637 | 1.692 | 1.732 | 1.758 | | | |
| 40 | 1.506 | 1.559 | 1.575 | 1.605 | 1.632 | 1.688 | 1.730 | 1.763 | 1.775 | | |
| 45 | 1.503 | 1.556 | 1.571 | 1.600 | 1.626 | 1.681 | 1.725 | 1.763 | 1.781 | 1.794 | |
| 60 | 1.500 | 1.549 | 1.564 | 1.591 | 1.615 | 1.668 | 1.710 | 1.751 | 1.773 | 1.796 | 1.833 |

$\Sigma = 90^\circ, \alpha = 20^\circ$

Table 17-18 The Radial Contact Ratio for Standard Bevel Gear, ϵ_α

| $Z_2 \backslash Z_1$ | 12 | 15 | 16 | 18 | 20 | 25 | 30 | 36 | 40 | 45 | 60 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12 | 1.514 | | | | | | | | | | |
| 15 | 1.545 | 1.572 | | | | | | | | | |
| 16 | 1.554 | 1.580 | 1.588 | | | | | | | | |
| 18 | 1.571 | 1.595 | 1.602 | 1.616 | | | | | | | |
| 20 | 1.585 | 1.608 | 1.615 | 1.628 | 1.640 | | | | | | |
| 25 | 1.614 | 1.636 | 1.643 | 1.655 | 1.666 | 1.689 | | | | | |
| 30 | 1.634 | 1.656 | 1.663 | 1.675 | 1.685 | 1.707 | 1.725 | | | | |
| 36 | 1.651 | 1.674 | 1.681 | 1.692 | 1.703 | 1.725 | 1.742 | 1.758 | | | |
| 40 | 1.659 | 1.683 | 1.689 | 1.702 | 1.712 | 1.734 | 1.751 | 1.767 | 1.775 | | |
| 45 | 1.666 | 1.691 | 1.698 | 1.711 | 1.721 | 1.743 | 1.760 | 1.776 | 1.785 | 1.794 | |
| 60 | 1.680 | 1.707 | 1.714 | 1.728 | 1.739 | 1.762 | 1.780 | 1.796 | 1.804 | 1.813 | 1.833 |

$\Sigma = 90^\circ, \alpha = 20^\circ$

Table 17-19 The Radial Contact Ratio for Gleason's Spiral Bevel Gear, ϵ_α

| $Z_2 \backslash Z_1$ | 12 | 15 | 16 | 18 | 20 | 25 | 30 | 36 | 40 | 45 | 60 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12 | 1.221 | | | | | | | | | | |
| 15 | 1.228 | 1.254 | | | | | | | | | |
| 16 | 1.227 | 1.258 | 1.264 | | | | | | | | |
| 18 | 1.225 | 1.260 | 1.269 | 1.280 | | | | | | | |
| 20 | 1.221 | 1.259 | 1.269 | 1.284 | 1.293 | | | | | | |
| 25 | 1.214 | 1.253 | 1.263 | 1.282 | 1.297 | 1.319 | | | | | |
| 30 | 1.209 | 1.246 | 1.257 | 1.276 | 1.293 | 1.323 | 1.338 | | | | |
| 36 | 1.204 | 1.240 | 1.251 | 1.270 | 1.286 | 1.319 | 1.341 | 1.355 | | | |
| 40 | 1.202 | 1.238 | 1.248 | 1.266 | 1.283 | 1.316 | 1.340 | 1.358 | 1.364 | | |
| 45 | 1.201 | 1.235 | 1.245 | 1.263 | 1.279 | 1.312 | 1.336 | 1.357 | 1.366 | 1.373 | |
| 60 | 1.197 | 1.230 | 1.239 | 1.256 | 1.271 | 1.303 | 1.327 | 1.349 | 1.361 | 1.373 | 1.392 |

$\Sigma = 90^\circ, \alpha_n = 20^\circ, \beta_m = 35^\circ$



17.3.3.D Spiral Angle Factor, Y_β

The spiral angle factor is a function of the spiral angle. The value is arbitrarily set by the following conditions:

$$\left. \begin{aligned} \text{When } 0 \leq \beta_m \leq 30^\circ, \quad Y_\beta &= 1 - \frac{\beta_m}{120} \\ \text{When } \beta_m \geq 30^\circ, \quad Y_\beta &= 0.75 \end{aligned} \right\} \quad (17-36)$$

17.3.3.E Cutter Diameter Effect Factor, Y_C

This factor of cutter diameter, Y_C , can be obtained from **Table 17-20** by the value of tooth flank length, $b / \cos \beta_m$ (mm), over cutter diameter. If cutter diameter is not known, assume $Y_C = 1.00$.

Table 17-20 Cutter Diameter Effect Factor, Y_C

| Types of Bevel Gears | Relative Size of Cutter Diameter | | | |
|------------------------------|----------------------------------|---------------------|---------------------|---------------------|
| | ∞ | 6 Times Tooth Width | 5 Times Tooth Width | 4 Times Tooth Width |
| Straight Bevel Gears | 1.15 | — | — | — |
| Spiral and Zerol Bevel Gears | — | 1.00 | 0.95 | 0.90 |

17.3.3.F Life Factor, K_L

We can choose a proper life factor, K_L , from **Table 17-2** similarly to calculating the bending strength of spur and helical gears.

17.3.3.G Dimension Factor Of Root Bending Stress, K_{Fx}

This is a size factor that is a function of the radial module, m . Refer to **Table 17-21** for values.

Table 17-21 Dimension Factor for Bending Strength, K_{Fx}

| Radial Module at Outside Diameter, m | Gears Without Hardened Surface | Gears With Hardened Surface |
|--|--------------------------------|-----------------------------|
| 1.5 to 5 | 1.0 | 1.0 |
| above 5 to 7 | 0.99 | 0.98 |
| above 7 to 9 | 0.98 | 0.96 |
| above 9 to 11 | 0.97 | 0.94 |
| above 11 to 13 | 0.96 | 0.92 |
| above 13 to 15 | 0.94 | 0.90 |
| above 15 to 17 | 0.93 | 0.88 |
| above 17 to 19 | 0.92 | 0.86 |
| above 19 to 22 | 0.90 | 0.83 |
| above 22 to 25 | 0.88 | 0.80 |



17.3.3.H Tooth Flank Load Distribution Factor, K_M

Tooth flank load distribution factor, K_M , is obtained from **Table 17-22** or **Table 17-23**.

Table 17-22 Tooth Flank Load Distribution, K_M , for Spiral Bevel Gears, Zerol Bevel Gears and Straight Bevel Gears with Crowning

| Stiffness of Shaft, Gear Box, etc. | Both Gears Supported on Two Sides | One Gear Supported on One End | Both Gears Supported on One End |
|------------------------------------|-----------------------------------|-------------------------------|---------------------------------|
| Very Stiff | 1.2 | 1.35 | 1.5 |
| Average | 1.4 | 1.6 | 1.8 |
| Somewhat Weak | 1.55 | 1.75 | 2.0 |

Table 17-23 Tooth Flank Load Distribution Factor, K_M , for Straight Bevel Gears without Crowning

| Stiffness of Shaft, Gear Box, etc. | Both Gears Supported on Two Sides | One Gear Supported on One End | Both Gears Supported on One End |
|------------------------------------|-----------------------------------|-------------------------------|---------------------------------|
| Very Stiff | 1.05 | 1.15 | 1.35 |
| Average | 1.6 | 1.8 | 2.1 |
| Somewhat Weak | 2.2 | 2.5 | 2.8 |

17.3.3.I Dynamic Load Factor, K_V

Dynamic load factor, K_V , is a function of the precision grade of the gear and the tangential speed at the outer pitch circle, as shown in **Table 17-24**.

Table 17-24 Dynamic Load Factor, K_V

| Precision Grade of Gears from JIS B 1702 | Tangential Speed at Outer Pitch Circle (m/s) | | | | | | |
|--|--|--------------|--------------|--------------|---------------|----------------|----------------|
| | Up to 1 | Above 1 to 3 | Above 3 to 5 | Above 5 to 8 | Above 8 to 12 | Above 12 to 18 | Above 18 to 25 |
| 1 | 1.0 | 1.1 | 1.15 | 1.2 | 1.3 | 1.5 | 1.7 |
| 2 | 1.0 | 1.2 | 1.3 | 1.4 | 1.5 | 1.7 | |
| 3 | 1.0 | 1.3 | 1.4 | 1.5 | 1.7 | | |
| 4 | 1.1 | 1.4 | 1.5 | 1.7 | | | |
| 5 | 1.2 | 1.5 | 1.7 | | | | |
| 6 | 1.4 | 1.7 | | | | | |

**17.3.3.K Reliability Factor, K_R**

The reliability factor should be assumed to be as follows:

1. General case: $K_R = 1.2$
2. When all other factors can be determined accurately:
 $K_R = 1.0$
3. When all or some of the factors cannot be known with certainty:
 $K_R = 1.4$

17.3.3.L Allowable Bending Stress at Root, $\sigma_{F \text{ lim}}$

The allowable stress at root $\sigma_{F \text{ lim}}$ can be obtained from **Tables 17-5** through **17-8**, similar to the case of spur and helical gears.

17.3.4 Examples of Bevel Gear Bending Strength Calculations**Table 17-24A Gleason Straight Bevel Gear Design Details**

| No. | Item | Symbol | Unit | Pinion | Gear |
|-----|-------------------------------|-----------|--------|----------------------------------|--------------------|
| 1 | Shaft Angle | Σ | degree | 90° | |
| 2 | Module | m | mm | 2 | |
| 3 | Pressure Angle | α | degree | 20° | |
| 4 | Central Spiral Angle | β_m | | 0° | |
| 5 | Number of Teeth | z | | 20 | 40 |
| 6 | Pitch Circle Diameter | d | mm | 40.000 | 80.000 |
| 7 | Pitch Cone Angle | δ | degree | 26.56505° | 63.43495° |
| 8 | Cone Distance | R_e | mm | 44.721 | |
| 9 | Tooth Width | b | | 15 | |
| 10 | Central Pitch Circle Diameter | d_m | | 33.292 | 66.584 |
| 11 | Precision Grade | | | JIS 3 | JIS 3 |
| 12 | Manufacturing Method | | | Gleason No. 104 | |
| 13 | Surface Roughness | | | 12.5 μm | 12.5 μm |
| 14 | Revolutions per Minute | n | rpm | 1500 | 750 |
| 15 | Linear Speed | v | m/s | 3.142 | |
| 16 | Direction of Load | | | Unidirectional | |
| 17 | Duty Cycle | | cycle | More than 10 ⁷ cycles | |
| 18 | Material | | | SCM 415 | |
| 19 | Heat Treatment | | | Carburized | |
| 20 | Surface Hardness | | | HV 600 ... 640 | |
| 21 | Core Hardness | | | HB 260 ... 280 | |
| 22 | Effective Carburized Depth | | mm | 0.3 ... 0.5 | |

Table 17-24B Bending Strength Factors for Gleason Straight Bevel Gear

| No. | Item | Symbol | Unit | Pinion | Gear | |
|-----|--|--------------------------|---------------------|--------|-------|-------|
| 1 | Central Spiral Angle | β_m | degree | 0° | | |
| 2 | Allowable Bending Stress at Root | $\sigma_{F \text{ lim}}$ | kgf/mm ² | 42.5 | 42.5 | |
| 3 | Module | m | mm | 2 | | |
| 4 | Tooth Width | b | | 15 | | |
| 5 | Cone Distance | R_e | | 44.721 | | |
| 6 | Tooth Profile Factor | Y_F | | 2.369 | 2.387 | |
| 7 | Load Distribution Factor | Y_e | | 0.613 | | |
| 8 | Spiral Angle Factor | Y_β | | 1.0 | | |
| 9 | Cutter Diameter Effect Factor | Y_c | | 1.15 | | |
| 10 | Life Factor | K_L | | 1.0 | | |
| 11 | Dimension Factor | K_{FX} | | 1.0 | | |
| 12 | Tooth Flank Load Distribution Factor | K_M | | 1.8 | 1.8 | |
| 13 | Dynamic Load Factor | K_V | | 1.4 | | |
| 14 | Overload Factor | K_O | | 1.0 | | |
| 15 | Reliability Factor | K_R | | 1.2 | | |
| 16 | Allowable Tangential Force at Central Pitch Circle | $F_{t \text{ lim}}$ | | kgf | 178.6 | 177.3 |

17.4 Surface Strength Of Bevel Gears

This information is valid for bevel gears which are used in power transmission in general industrial machines. The applicable ranges are:

| | | |
|-----------------|-----|--|
| Radial Module: | m | 1.5 to 25 mm |
| Pitch Diameter: | d | Straight bevel gear under 1600 mm Spiral bevel gear under 1000 mm |
| Linear Speed: | v | less than 25 m/sec |
| Rotating Speed: | n | less than 3600 rpm |

17.4.1 Basic Conversion Formulas

The same formulas of SECTION 17.3 apply. (See page T-171).

17.4.2 Surface Strength Equations

In order to obtain a proper surface strength, the tangential force at the central pitch circle, F_{tm} , must remain below the allowable tangential force at the central pitch circle, $F_{tm \text{ lim}}$, based on the allowable Hertz stress $\sigma_{H \text{ lim}}$.

$$F_{tm} \leq F_{tm \text{ lim}} \quad (17-37)$$

Alternately, the Hertz stress σ_H , which is derived from the tangential force at the central pitch circle must be smaller than the allowable Hertz stress $\sigma_{H \text{ lim}}$.

$$\sigma_H \leq \sigma_{H \text{ lim}} \quad (17-38)$$

The allowable tangential force at the central pitch circle, $F_{tm \text{ lim}}$, in kgf can be calculated from Equation (17-39).



$$F_{tm \text{ lim}} = \left[\left(\frac{\sigma_H \text{ lim}}{Z_M} \right)^2 \frac{d_1}{\cos \delta_1} \frac{R_e - 0.5 b}{R_e} b \frac{u^2}{u^2 + 1} \right] \cdot \left[\left(\frac{K_{HL} Z_L Z_R Z_V Z_W K_{HX}}{Z_H Z_\epsilon Z_\beta} \right)^2 \frac{1}{K_{H\beta} K_V K_O} \frac{1}{C_R^2} \right] \quad (17-39)$$

The Hertz stress, σ_H (kgf/mm²) is calculated from Equation (17-40).

$$\sigma_H = \sqrt{\frac{\cos \delta_1 F_{tm}}{d_1 b} \frac{u^2 + 1}{u^2} \frac{R_e}{R_e - 0.5 b}} \cdot \left[\frac{Z_H Z_M Z_\epsilon Z_\beta}{K_{HL} Z_L Z_R Z_V Z_W K_{HX}} \sqrt{K_{H\beta} K_V K_O} C_R \right] \quad (17-40)$$

17.4.3 Determination of Factors In Surface Strength Equations

17.4.3.A Tooth Width, b (mm)

This term is defined as the tooth width on the pitch cone. For a meshed pair, the narrower gear's "b" is used for strength calculations.

17.4.3.B Zone Factor, Z_H

The zone factor is defined as:

$$Z_H = \sqrt{\frac{2 \cos \beta_b}{\sin \alpha_t \cos \alpha_t}} \quad (17-41)$$

- where: β_m = Central spiral angle
- α_n = Normal pressure angle
- α_t = Central radial pressure angle = $\tan^{-1} \left(\frac{\tan \alpha_n}{\cos \beta_m} \right)$
- β_b = $\tan^{-1} (\tan \beta_m \cos \alpha_t)$

If the normal pressure angle α_n is 20°, 22.5° or 25°, the zone factor can be obtained from Figure 17-10.

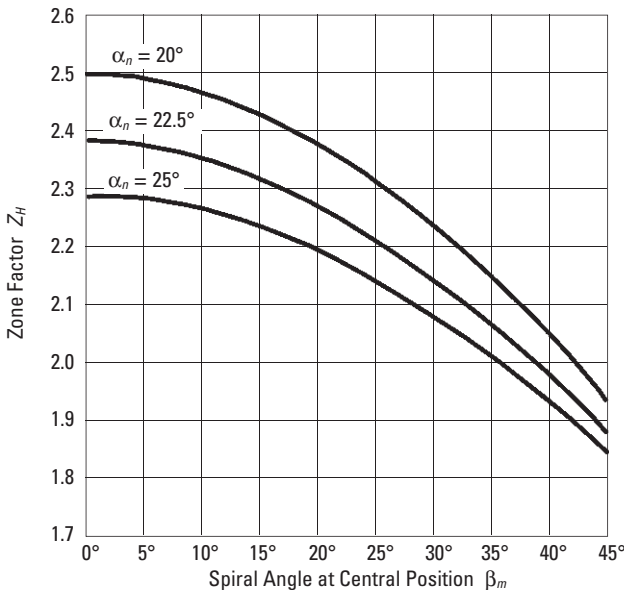


Fig. 17-10 Zone Factor, Z_H

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A



17.4.3.C Material Factor, Z_M

The material factor, Z_M , is obtainable from **Table 17-9**.

17.4.3.D Contact Ratio Factor, Z_e

The contact ratio factor is calculated from the equations below.

Straight bevel gear: $Z_e = 1.0$

Spiral bevel gear:

$$\left. \begin{aligned} &\text{when } \epsilon_\alpha \leq 1, Z_e = \sqrt{1 - \epsilon_\beta + \frac{\epsilon_\beta}{\epsilon_\alpha}} \\ &\text{when } \epsilon_\beta > 1, Z_e = \sqrt{\frac{1}{\epsilon_\alpha}} \end{aligned} \right\} \quad (17-42)$$

where: ϵ_α = Radial Contact Ratio
 ϵ_β = Overlap Ratio

17.4.3.E Spiral Angle Factor, Z_β

Little is known about these factors, so usually it is assumed to be unity.

$$Z_\beta = 1.0 \quad (17-43)$$

17.4.3.F Life Factor, K_{HL}

The life factor for surface strength is obtainable from **Table 17-10**.

17.4.3.G Lubricant Factor, Z_L

The lubricant factor, Z_L , is found in **Figure 17-3**.

17.4.3.H Surface Roughness Factor, Z_R

The surface roughness factor is obtainable from **Figure 17-11** on the basis of average roughness, R_{maxm} , in μm . The average surface roughness is calculated by **Equation (17-44)** from the surface roughnesses of the pinion and gear (R_{max1} and R_{max2}), and the center distance, a , in mm.

$$R_{maxm} = \frac{R_{max1} + R_{max2}}{2} \sqrt[3]{\frac{100}{a}} \quad (\mu\text{m}) \quad (17-44)$$

where: $a = R_m (\sin \delta_1 + \cos \delta_1)$
 $R_m = R_e - \frac{b}{2}$

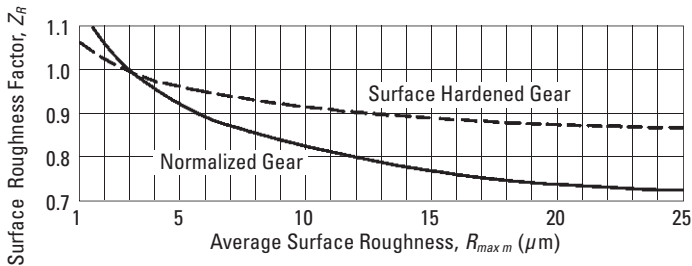


Fig. 17-11 Surface Roughness Factor, Z_R

17.4.3.I Sliding Speed Factor, Z_v

The sliding speed factor is obtained from **Figure 17-5** based on the pitch circle linear speed.

**17.4.3.J Hardness Ratio Factor, Z_w**

The hardness ratio factor applies only to the gear that is in mesh with a pinion which is quenched and ground. The ratio is calculated by **Equation (17-45)**.

$$Z_w = 1.2 - \frac{HB_2 - 130}{1700} \quad (17-45)$$

where Brinell hardness of the gear is: $130 \leq HB_2 \leq 470$

If the gear's hardness is outside of this range, Z_w is assumed to be unity.

$$Z_w = 1.0 \quad (17-46)$$

17.4.3.K Dimension Factor, K_{HX}

Since, often, little is known about this factor, it is assumed to be unity.

$$K_{HX} = 1.0 \quad (17-47)$$

17.4.3.L Tooth Flank Load Distribution Factor, $K_{H\beta}$

Factors are listed in **Tables 17-25** and **17-26**. If the gear and pinion are unhardened, the factors are to be reduced to 90% of the values in the table.

Table 17-25 Tooth Flank Load Distribution Factor for Spiral Bevel Gears, Zero Bevel Gears and Straight Bevel Gears with Crowning, $K_{H\beta}$

| Stiffness of Shaft, Gear Box, etc. | Both Gears Supported on Two Sides | One Gear Supported on One End | Both Gears Supported on One End |
|------------------------------------|-----------------------------------|-------------------------------|---------------------------------|
| Very Stiff | 1.3 | 1.5 | 1.7 |
| Average | 1.6 | 1.85 | 2.1 |
| Somewhat Weak | 1.75 | 2.1 | 2.5 |

Table 17-26 Tooth Flank Load Distribution Factor for Straight Bevel Gear without Crowning, $K_{H\beta}$

| Stiffness of Shaft, Gear Box, etc. | Both Gears Supported on Two Sides | One Gear Supported on One End | Both Gears Supported on One End |
|------------------------------------|-----------------------------------|-------------------------------|---------------------------------|
| Very Stiff | 1.3 | 1.5 | 1.7 |
| Average | 1.85 | 2.1 | 2.6 |
| Somewhat Weak | 2.8 | 3.3 | 3.8 |



17.4.3.M Dynamic Load Factor, K_v

The dynamic load factor can be obtained from **Table 17-24**.

17.4.3.N Overload Factor, K_o

The overload factor can be computed by **Equation 17-11** or found in **Table 17-4**.

17.4.3.O Reliability Factor, C_R

The general practice is to assume C_R to be at least 1.15.

17.4.3.P Allowable Hertz Stress, $\sigma_H \text{ lim}$

The values of allowable Hertz stress are given in **Tables 17-12** through **17-16**.

17.4.4 Examples Of Bevel Gear Surface Strength Calculation

Table 17-26A Gleason Straight Bevel Gear Design Details

| No. | Item | Symbol | Unit | Pinion | Gear |
|-----|-------------------------------|-----------|--------|-----------------------------|--------------------|
| 1 | Shaft Angle | Σ | degree | 90° | |
| 2 | Module | m | mm | 2 | |
| 3 | Pressure Angle | α | degree | 20° | |
| 4 | Central Spiral Angle | β_m | | 0° | |
| 5 | Number of Teeth | z | | 20 | 40 |
| 6 | Pitch Circle Diameter | d | mm | 40.000 | 80.000 |
| 7 | Pitch Cone Angle | δ | degree | 26.56505° | 63.43495° |
| 8 | Cone Distance | R_e | mm | 44.721 | |
| 9 | Tooth Width | b | | 15 | |
| 10 | Central Pitch Circle Diameter | d_m | | 33.292 | 66.584 |
| 11 | Precision Grade | | | JIS 3 | JIS 3 |
| 12 | Manufacturing Method | | | Gleason No. 104 | |
| 13 | Surface Roughness | | | 12.5 μm | 12.5 μm |
| 14 | Revolutions per Minute | n | rpm | 1500 | 750 |
| 15 | Linear Speed | v | m/s | 3.142 | |
| 16 | Direction of Load | | | Unidirectional | |
| 17 | Duty Cycle | | cycle | Over 10 ⁷ cycles | |
| 18 | Material | | | SCM 415 | |
| 19 | Heat Treatment | | | Carburized | |
| 20 | Surface Hardness | | | HV 600 ... 640 | |
| 21 | Core Hardness | | | HB 260 ... 280 | |
| 22 | Effective Carburized Depth | | mm | 0.3 ... 0.5 | |

Table 17-26B Surface Strength Factors of Gleason Straight Bevel Gear

| No. | Item | Symbol | Unit | Pinion | Gear |
|-----|--|--------------------------|---------------------------------------|-----------|-------|
| 1 | Allowable Hertz Stress | $\sigma_{H \text{ lim}}$ | kgf/mm ² | 164 | |
| 2 | Pinion's Pitch Diameter | d_1 | mm | 40.000 | |
| 3 | Pinion's Pitch Cone Angle | δ_1 | degree | 26.56505° | |
| 4 | Cone Distance | R_e | mm | 44.721 | |
| 5 | Tooth Width | b | | 15 | |
| 6 | Numbers of Teeth Ratio z_2/z_1 | u | (kgf/mm ²) ^{0.5} | 2 | |
| 7 | Zone Factor | Z_H | | 2.495 | |
| 8 | Material Factor | Z_M | | 60.6 | |
| 9 | Contact Ratio Factor | Z_e | | 1.0 | |
| 10 | Spiral Angle Factor | Z_β | | 1.0 | |
| 11 | Life Factor | K_{HL} | | 1.0 | |
| 12 | Lubricant Factor | Z_L | | 1.0 | |
| 13 | Surface Roughness Factor | Z_R | | 0.90 | |
| 14 | Sliding Speed Factor | Z_V | | 0.97 | |
| 15 | Hardness Ratio Factor | Z_W | | 1.0 | |
| 16 | Dimension Factor of Root Stress | K_{HX} | | 1.0 | |
| 17 | Load Distribution Factor | $K_{H\beta}$ | | 2.1 | |
| 18 | Dynamic Load Factor | K_V | 1.4 | | |
| 19 | Overload Factor | K_O | 1.0 | | |
| 20 | Reliability Factor | C_R | 1.15 | | |
| 21 | Allowable Tangential Force on Central Pitch Circle | $F_{t \text{ lim}}$ | kgf | 103.0 | 103.0 |

17.5 Strength Of Worm Gearing

This information is applicable for worm gear drives that are used to transmit power in general industrial machines with the following parameters:

| | | |
|------------------------------|-------|--------------------|
| Axial Module: | m_x | 1 to 25 mm |
| Pitch Diameter of Worm Gear: | d_2 | less than 900 mm |
| Sliding Speed: | v_s | less than 30 m/sec |
| Rotating Speed, Worm Gear: | n_2 | less than 600 rpm |

17.5.1 Basic Formulas:

Sliding Speed, v_s (m/s)

$$v_s = \frac{d_1 n_1}{19100 \cos \gamma}$$

(17-48)



17.5.2 Torque, Tangential Force and Efficiency

(1) Worm as Driver Gear (Speed Reducing)

$$\left. \begin{aligned}
 T_2 &= \frac{F_t d_2}{2000} \\
 T_1 &= \frac{T_2}{u \eta_R} = \frac{F_t d_2}{2000 u \eta_R} \\
 \eta_R &= \frac{\tan \gamma \left(1 - \tan \gamma \frac{\mu}{\cos \alpha_n}\right)}{\tan \gamma + \frac{\mu}{\cos \alpha_n}}
 \end{aligned} \right\} \quad (17-49)$$

- where: T_2 = Nominal torque of worm gear (kg • m)
 T_1 = Nominal torque of worm (kgf • m)
 F_t = Nominal tangential force on worm gear's pitch circle (kgf)
 d_2 = Pitch diameter of worm gear (mm)
 u = Teeth number ratio = Z_2 / Z_w
 η_R = Transmission efficiency, worm driving (not including bearing loss, lubricant agitation loss, etc.)
 μ = Friction coefficient

(2) Worm Gear as Driver Gear (Speed Increasing)

$$\left. \begin{aligned}
 T_2 &= \frac{F_t d_2}{2000} \\
 T_1 &= \frac{T_2 \eta_l}{u} = \frac{F_t d_2 \eta_l}{2000 u} \\
 \eta_l &= \frac{\tan \gamma - \frac{\mu}{\cos \alpha_n}}{\tan \gamma \left(1 + \tan \gamma \frac{\mu}{\cos \alpha_n}\right)}
 \end{aligned} \right\} \quad (17-50)$$

- where: η_l = Transmission efficiency, worm gear driving (not including bearing loss, lubricant agitation loss, etc.)

17.5.3 Friction Coefficient, μ

The friction factor varies as sliding speed changes. The combination of materials is important. For the case of a worm that is carburized and ground, and mated with a phosphorous bronze worm gear, see **Figure 17-12**. For some other materials, see **Table 17-27**.

For lack of data, friction coefficient of materials not listed in **Table 17-27** are very difficult to obtain. H.E. Merritt has offered some further information on this topic. See Reference 9.

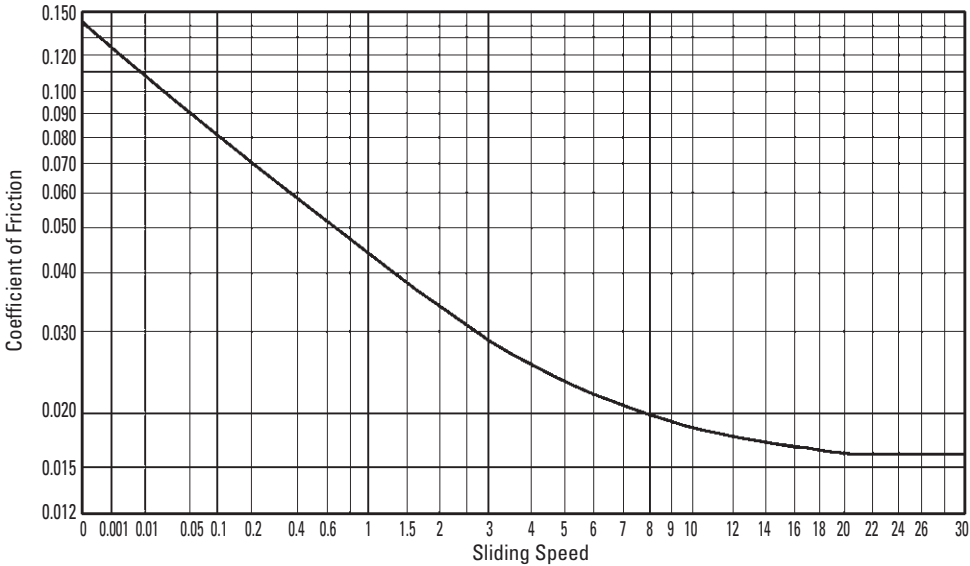


Fig. 17-12 Friction Coefficient, μ

Table 17-27 Combinations of Materials and Their Coefficients of Friction, μ

| Combination of Materials | μ |
|-----------------------------------|----------------------------------|
| Cast Iron and Phosphor Bronze | μ in Figure 17-12 times 1.15 |
| Cast Iron and Cast Iron | μ in Figure 17-12 times 1.33 |
| Quenched Steel and Aluminum Alloy | μ in Figure 17-12 times 1.33 |
| Steel and Steel | μ in Figure 17-12 times 2.00 |

17.5.4 Surface Strength of Worm Gearing Mesh

(1) Calculation of Basic Load

Provided dimensions and materials of the worm pair are known, the allowable load is as follows:

$$F_{t \text{ lim}} = \text{Allowable tangential force (kgf)}$$

$$= 3.82 K_v K_n S_{c \text{ lim}} Z d_2^{0.8} m_x \frac{Z_L Z_M Z_R}{K_C} \tag{17-51}$$

$$T_2 \text{ lim} = \text{Allowable worm gear torque (kgf} \cdot \text{m)}$$

$$= 0.00191 K_v K_n S_{c \text{ lim}} Z d_2^{1.8} m_x \frac{Z_L Z_M Z_R}{K_C} \tag{17-52}$$

(2) Calculation of Equivalent Load

The basic load Equations (17-51) and (17-52) are applicable under the conditions of no impact and the pair can operate for 26000 hours minimum. The condition of "no impact" is defined as the starting torque which must be less than 200% of the rated torque; and the frequency of starting should be less than twice per hour.



An equivalent load is needed to compare with the basic load in order to determine an actual design load, when the conditions deviate from the above.

Equivalent load is then converted to an equivalent tangential force, F_{te} , in kgf:

$$F_{te} = F_t K_h K_s \tag{17-53}$$

and equivalent worm gear torque, T_{2e} , in kgf • m:

$$T_{2e} = T_2 K_h K_s \tag{17-54}$$

(3) Determination of Load

Under no impact condition, to have life expectancy of 26000 hours, the following relationships must be satisfied:

$$F_t \leq F_{t \text{ lim}} \quad \text{or} \quad T_2 \leq T_{2 \text{ lim}} \tag{17-55}$$

For all other conditions:

$$F_{te} \leq F_{t \text{ lim}} \quad \text{or} \quad T_{2e} \leq T_{2 \text{ lim}} \tag{17-56}$$

NOTE: If load is variable, the maximum load should be used as the criterion.

17.5.5 Determination of Factors in Worm Gear Surface Strength Equations

17.5.5.A Tooth Width of Worm Gear, b_2 (mm)

Tooth width of worm gear is defined as in **Figure 17-13**.

17.5.5.B Zone Factor, Z

If $b_2 < 2.3 m_x \sqrt{Q + 1}$, then:

$$Z = (\text{Basic zone factor}) \times \frac{b_2}{2 m_x \sqrt{Q + 1}} \tag{17-57}$$

If $b_2 \geq 2.3 m_x \sqrt{Q + 1}$, then:

$$Z = (\text{Basic zone factor}) \times 1.15$$

where: Basic Zone Factor is obtained from **Table 17-28**

$$Q : \text{Diameter factor} = \frac{d_f}{m_x}$$

z_w : number of worm threads

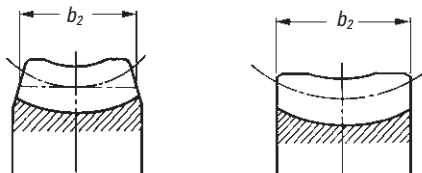


Fig. 17-13 Tooth Width of Worm Gear

Table 17-28 Basic Zone Factors

| $z_w \backslash Q$ | 7 | 7.5 | 8 | 8.5 | 9 | 9.5 | 10 | 11 | 12 | 13 | 14 | 17 | 20 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 1.052 | 1.065 | 1.084 | 1.107 | 1.128 | 1.137 | 1.143 | 1.160 | 1.202 | 1.260 | 1.318 | 1.402 | 1.508 |
| 2 | 1.055 | 1.099 | 1.144 | 1.183 | 1.214 | 1.223 | 1.231 | 1.250 | 1.280 | 1.320 | 1.360 | 1.447 | 1.575 |
| 3 | 0.989 | 1.109 | 1.209 | 1.260 | 1.305 | 1.333 | 1.350 | 1.365 | 1.393 | 1.422 | 1.442 | 1.532 | 1.674 |
| 4 | 0.981 | 1.098 | 1.204 | 1.301 | 1.380 | 1.428 | 1.460 | 1.490 | 1.515 | 1.545 | 1.570 | 1.666 | 1.798 |



17.5.5.C Sliding Speed Factor, K_v

The sliding speed factor is obtainable from Figure 17-14, where the abscissa is the pitch line linear velocity.



Fig. 17-14 Sliding Speed Factor, K_v

17.5.5.D Rotating Speed Factor, K_r

The rotating speed factor is presented in Figure 17-15 as a function of the worm gear's rotating speed, n_2 .

17.5.5.E Lubricant Factor, Z_L

Let $Z_L = 1.0$ if the lubricant is of proper viscosity and has anticorrosive additives.

Some bearings in worm gear boxes may need a low viscosity lubricant. Then Z_L is to be less than 1.0. The recommended kinetic viscosity of lubricant is given in Table 17-29.

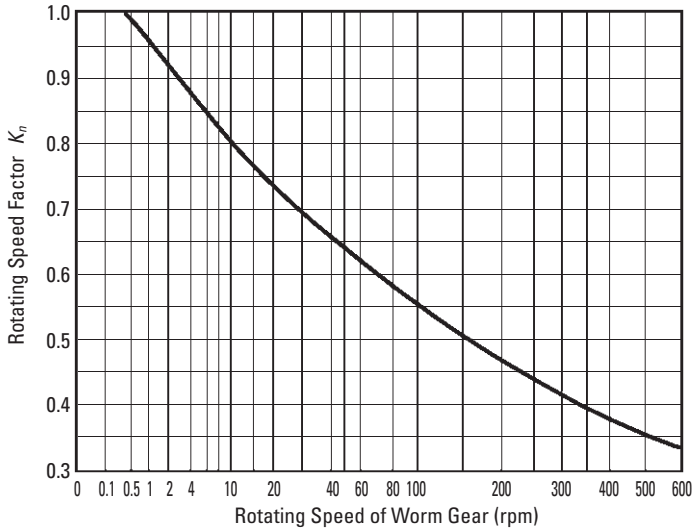


Fig. 17-15 Rotating Speed Factor, K_r

Table 17-29 Recommended Kinematic Viscosity of Lubricant

Unit: cSt/37.8°C

| Operating Lubricant Temperature | | Sliding Speed (m/s) | | |
|---------------------------------|---|---------------------|-------------|-------------|
| Highest Operating Temperature | Lubricant Temperature at Start of Operation | Less than 2.5 | 2.5 to 5 | More than 5 |
| 0°C to less than 10°C | -10°C ... 0°C | 110 ... 130 | 110 ... 130 | 110 ... 130 |
| | more than 0°C | 110 ... 150 | 110 ... 150 | 110 ... 150 |
| 10°C to less than 30°C | more than 0°C | 200 ... 245 | 150 ... 200 | 150 ... 200 |
| 30°C to less than 55°C | more than 0°C | 350 ... 510 | 245 ... 350 | 200 ... 245 |
| 55°C to less than 80°C | more than 0°C | 510 ... 780 | 350 ... 510 | 245 ... 350 |
| 80°C to less than 100°C | more than 0°C | 900 ... 1100 | 510 ... 780 | 350 ... 510 |

17.5.5.F Lubrication Factor, Z_M

The lubrication factor, Z_M , is obtained from Table 17-30.

Table 17-30 Lubrication Factor, Z_M

| Sliding Speed (m/s) | Less than 10 | 10 to 14 | More than 14 |
|--------------------------------|--------------|----------|--------------|
| Oil Bath Lubrication | 1.0 | 0.85 | — |
| Forced Circulation Lubrication | 1.0 | 1.0 | 1.0 |

17.5.5.G Surface Roughness Factor, Z_R

This factor is concerned with resistance to pitting of the working surfaces of the teeth. Since there is insufficient knowledge about this phenomenon, the factor is assumed to be 1.0.



$$Z_R = 1.0 \tag{17-58}$$

It should be noted that for **Equation (17-58)** to be applicable, surfaces roughness of the worm and worm gear must be less than $3 \mu\text{m}$ and $12 \mu\text{m}$ respectively. If either is rougher, the factor is to be adjusted to a smaller value.

17.5.5.H Contact Factor, K_c

Quality of tooth contact will affect load capacity dramatically. Generally, it is difficult to define precisely, but JIS B 1741 offers guidelines depending on the class of tooth contact.

| | | | |
|------------|-------------|---|----------------|
| Class A | $K_c = 1.0$ | } | (17-59) |
| Class B, C | $K_c > 1.0$ | | |

Table 17-31 gives the general values of K_c depending on the JIS tooth contact class.

Table 17-31 Classes of Tooth Contact and General Values of Contact Factor, K_c

| Class | Proportion of Tooth Contact | | K_c |
|-------|---|--|-------------|
| | Tooth Width Direction | Tooth Height Direction | |
| A | More than 50% of Effective Width of Tooth | More than 40% of Effective Height of Tooth | 1.0 |
| B | More than 35% of Effective Width of Tooth | More than 30% of Effective Height of Tooth | 1.3 ... 1.4 |
| C | More than 20% of Effective Width of Tooth | More than 20% of Effective Height of Tooth | 1.5 ... 1.7 |

17.5.5.I Starting Factor, K_s

This factor depends upon the magnitude of starting torque and the frequency of starts. When starting torque is less than 200% of rated torque, K_s factor is per **Table 17-32**.

Table 17-32 Starting Factor, K_s

| Starting Factor | Starting Frequency per Hour | | | |
|-----------------|-----------------------------|---------|----------|--------------|
| | Less than 2 | 2 ... 5 | 5 ... 10 | More than 10 |
| K_s | 1.0 | 1.07 | 1.13 | 1.18 |

17.5.5.J Time Factor, K_t

This factor is a function of the desired life and the impact environment. See **Table 17-33**. The expected lives in between the numbers shown in **Table 17-33** can be interpolated.

Table 17-33 Time Factor, K_h

| Impact from Prime Mover | Expected Life | | K_h | | |
|--|---------------|--------|------------------|---------------|---------------|
| | | | Impact from Load | | |
| | | | Uniform Load | Medium Impact | Strong Impact |
| Uniform Load (Motor, Turbine, Hydraulic Motor) | 1500 | Hours | 0.80 | 0.90 | 1.0 |
| | 5000 | Hours | 0.90 | 1.0 | 1.25 |
| | 26000 | Hours* | 1.0 | 1.25 | 1.50 |
| | 60000 | Hours | 1.25 | 1.50 | 1.75 |
| Light Impact (Multicylinder engine) | 1500 | Hours | 0.90 | 1.0 | 1.25 |
| | 5000 | Hours | 1.0 | 1.25 | 1.50 |
| | 26000 | Hours* | 1.25 | 1.50 | 1.75 |
| | 60000 | Hours | 1.50 | 1.75 | 2.0 |
| Medium Impact (Single cylinder engine) | 1500 | Hours | 1.0 | 1.25 | 1.50 |
| | 5000 | Hours | 1.25 | 1.50 | 1.75 |
| | 26000 | Hours* | 1.50 | 1.70 | 2.0 |
| | 60000 | Hours | 1.75 | 2.0 | 2.25 |

*NOTE: For a machine that operates 10 hours a day, 260 days a year; this number corresponds to ten years of operating life.

17.5.5.K Allowable Stress Factor, S_c lim

Table 17-34 presents the allowable stress factors for various material combinations. Note that the table also specifies governing limits of sliding speed, which must be adhered to if scoring is to be avoided.

Table 17-34 Allowable Stress Factor for Surface Strength, S_c lim

| Material of Worm Gear | Material of Worm | S_c lim | Sliding Speed Limit before Scoring (m/s) * |
|--|---|-----------|--|
| Phosphor Bronze Centrifugal Casting | Alloy Steel Carburized & Quenched | 1.55 | 30 |
| | Alloy Steel HB 400 | 1.34 | 20 |
| | Alloy Steel HB 250 | 1.12 | 10 |
| Phosphor Bronze Chilled Casting | Alloy Steel Carburized & Quenched | 1.27 | 30 |
| | Alloy Steel HB 400 | 1.05 | 20 |
| | Alloy Steel HB 250 | 0.88 | 10 |
| Phosphor Bronze Sand Molding or Forging | Alloy Steel Carburized & Quenched | 1.05 | 30 |
| | Alloy Steel HB 400 | 0.84 | 20 |
| | Alloy Steel HB 250 | 0.70 | 10 |
| Aluminum Bronze | Alloy Steel Carburized & Quenched | 0.84 | 20 |
| | Alloy Steel HB 400 | 0.67 | 15 |
| | Alloy Steel HB 250 | 0.56 | 10 |
| Brass | Alloy Steel HB 400 | 0.49 | 8 |
| | Alloy Steel HB 250 | 0.42 | 5 |
| Ductile Cast Iron | Ductile Cast Iron but with a higher hardness than the worm gear | 0.70 | 5 |
| Cast Iron (Perlitic) | Phosphor Bronze Casting and Forging | 0.63 | 2.5 |
| | Cast Iron but with a higher hardness than the worm gear | 0.42 | 2.5 |

*NOTE: The value indicates the maximum sliding speed within the limit of the allowable stress factor, S_c lim. Even when the allowable load is below the allowable stress level, if the sliding speed exceeds the indicated limit, there is danger of scoring gear surfaces.

17.5.6 Examples Of Worm Mesh Strength Calculation

Table 17-35A Worm and Worm Gear Design Details

| No. | Item | Symbol | Unit | Worm | Worm Gear |
|-----|------------------------------|------------|--------|---------------------|--------------------|
| 1 | Axial Module | m_x | mm | 2 | |
| 2 | Normal Pressure Angle | α_n | degree | 20° | |
| 3 | No. of Threads, No. of Teeth | z_w, z_2 | | 1 | 40 |
| 4 | Pitch Diameter | d | mm | 28 | 80 |
| 5 | Lead Angle | γ | degree | 4.08562 | |
| 6 | Diameter Factor | Q | | 14 | — |
| 7 | Tooth Width | b | mm | () | 20 |
| 8 | Manufacturing Method | | | Grinding | Hobbing |
| 9 | Surface Roughness | | | 3.2 μm | 12.5 μm |
| 10 | Revolutions per Minute | n | rpm | 1500 | 37.5 |
| 11 | Sliding Speed | v_s | m/s | 2.205 | |
| 12 | Material | | | S45C | A/ BC2 |
| 13 | Heat Treatment | | | Induction Hardening | — |
| 14 | Surface Hardness | | | HS 63 ... 68 | — |

Table 17-35B Surface Strength Factors and Allowable Force

| No. | Item | Symbol | Unit | Worm Gear |
|-----|----------------------------|---------------------|------|-----------|
| 1 | Axial Module | m_x | mm | 2 |
| 2 | Worm Gear Pitch Diameter | d_2 | | 80 |
| 3 | Zone Factor | Z | | 1.5157 |
| 4 | Sliding Speed Factor | K_V | | 0.49 |
| 5 | Rotating Speed Factor | K_n | | 0.66 |
| 6 | Lubricant Factor | Z_L | | 1.0 |
| 7 | Lubrication Factor | Z_M | | 1.0 |
| 8 | Surface Roughness Factor | Z_R | | 1.0 |
| 9 | Contact Factor | K_C | | 1.0 |
| 10 | Allowable Stress Factor | $S_{C \text{ lim}}$ | | 0.67 |
| 11 | Allowable Tangential Force | $F_t \text{ lim}$ | | kgf |

SECTION 18 DESIGN OF PLASTIC GEARS



18.1 General Considerations Of Plastic Gearing

Plastic gears are continuing to displace metal gears in a widening arena of applications. Their unique characteristics are also being enhanced with new developments, both in materials and processing. In this regard, plastics contrast somewhat dramatically with metals, in that the latter materials and processes are essentially fully developed and, therefore, are in a relatively static state of development.

Plastic gears can be produced by hobbing or shaping, similarly to metal gears or alternatively by molding. The molding process lends itself to considerably more economical means of production; therefore, a more in-depth treatment of this process will be presented in this section.

Among the characteristics responsible for the large increase in plastic gear usage, the following are probably the most significant:

1. Cost effectiveness of the injection-molding process.
2. Elimination of machining operations; capability of fabrication with inserts and integral designs.
3. Low density: lightweight, low inertia.
4. Uniformity of parts.
5. Capability to absorb shock and vibration as a result of elastic compliance.
6. Ability to operate with minimum or no lubrication, due to inherent lubricity.
7. Relatively low coefficient of friction.
8. Corrosion-resistance; elimination of plating, or protective coatings.
9. Quietness of operation.
10. Tolerances often less critical than for metal gears, due in part to their greater resilience.
11. Consistency with trend to greater use of plastic housings and other components.
12. One step production; no preliminary or secondary operations.

At the same time, the design engineer should be familiar with the limitations of plastic gears relative to metal gears. The most significant of these are the following:

1. Less load-carrying capacity, due to lower maximum allowable stress; the greater compliance of plastic gears may also produce stress concentrations.
2. Plastic gears cannot generally be molded to the same accuracy as high-precision machined metal gears.
3. Plastic gears are subject to greater dimensional instabilities, due to their larger coefficient of thermal expansion and moisture absorption.
4. Reduced ability to operate at elevated temperatures; as an approximate figure, operation is limited to less than 120°C. Also, limited cold temperature operations.
5. Initial high mold cost in developing correct tooth form and dimensions.
6. Can be negatively affected by certain chemicals and even some lubricants.
7. Improper molding tools and process can produce residual internal stresses at the tooth roots, resulting in over stressing and/or distortion with aging.
8. Costs of plastics track petrochemical pricing, and thus are more volatile and subject to increases in comparison to metals.

18.2 Properties Of Plastic Gear Materials

Popular materials for plastic gears are acetal resins such as DELRIN*, Duracon M90; nylon resins such as ZYTEL*, NYLATRON**, MC901 and acetal copolymers such as CELCON***. The physical and mechanical properties of these materials vary with regard to strength, rigidity, dimensional stability, lubrication requirements, moisture absorption, etc. Standardized tabular data is available from various manufacturers' catalogs. Manufacturers in the U.S.A. provide this information in units customarily used in the U.S.A. In general, the data is less simplified and fixed than for the metals. This is because plastics are subject to wider formulation variations and are often regarded as proprietary compounds and mixtures. **Tables 18-1** through **18-9** are representative listings of physical and mechanical properties of gear plastics taken from a variety of sources. All reprinted tables are in their original units of measure.

It is common practice to use plastics in combination with different metals and materials other than plastics. Such is the case when gears have metal hubs, inserts, rims, spokes, etc. In these cases, one must be cognizant of the fact that plastics have an order of magnitude different coefficients of thermal expansion as well as density and modulus of elasticity. For this reason, **Table 18-10** is presented.

Other properties and features that enter into consideration for gearing are given in **Table 18-11** (Wear) and **Table 18-12** (Poisson's Ratio).

Moisture has a significant impact on plastic properties as can be seen in **Tables 18-1** thru **18-5**. Ranking of plastics is given in Table 18-13. In this table, rate refers to expansion from dry to full moist condition. Thus, a 0.20% rating means a dimensional increase of 0.002 mm/mm. Note that this is only a rough guide, as exact values depend upon factors of composition and processing, both the raw material and gear molding. For example, it can be seen that the various types and grades of nylon can range from 0.07% to 2.0%.

Table 18-14 lists safe stress values for a few basic plastics and the effect of glass fiber reinforcement.

Table 18-1 Physical Properties of Plastics Used in Gears

| Material | Tensile Strength (psi x 10 ³) | Flexural Strength (psi x 10 ³) | Compressive Modulus (psi x 10 ³) | Heat Distortion Temperature (°F @ 264 psi) | Water Absorption (% in 24 hrs) | Rockwell Hardness | Mold Shrinkage (in./in.) |
|--------------------------------|---|--|--|--|--------------------------------|-------------------|--------------------------|
| Acetal | 8.8 – 1.0 | 13 – 14 | 410 | 230 – 255 | 0.25 | M94 R120 | 0.022 0.003 |
| ABS | 4.5 – 8.5 | 5 – 13.5 | 120 – 200 | 180 – 245 | 0.2 – 0.5 | R80 – 120 | 0.007 0.007 |
| Nylon 6/6 | 11.2 – 13.1 | 14.6 | 400 | 200 | 1.3 | R118 – 123 | 0.015 |
| Nylon 6/10 | 7 – 8.5 | 10.5 | 400 | 145 | 0.4 | R111 M70 | 0.015 0.005 |
| Polycarbonate | 8 – 9.5 | 11 – 13 | 350 | 265 – 290 | 0.15 | R112 | 0.007 0.003 |
| High Impact Polystyrene | 1.9 – 4 | 5.5 – 12.5 | 300 – 500 | 160 – 205 | 0.05 – 0.10 | M25 – 69 M29 | 0.005 |
| Polyurethane | 4.5 – 8 | 7.1 | 85 | 160 – 205 | 0.60 – 0.80 | R90 | 0.009 0.002 |
| Polyvinyl Chloride | 6 – 9 | 8 – 15 | 300 – 400 | 140 – 175 | 0.07 – 0.40 | R100 – 120 | 0.004 |
| Polysulfone | 10.2 | 15.4 | 370 | 345 | 0.22 | M69 R120 | 0.0076 |
| MoS ₂ -Filled Nylon | 10.2 | 10 | 350 | 140 | 0.4 | D785 | 0.012 |

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* Registered trademark, E.I. du Pont de Nemours and Co., Wilmington, Delaware, 19898.

** Registered trademark, The Polymer Corporation, P.O. Box 422, Reading, Pennsylvania, 19603.

***Registered trademark, Celanese Corporation, 26 Main St., Chatham, N.J. 07928.

Table 18-2 Property Chart for Basic Polymers for Gearing

| | Water Absorp. 24hrs. | Mold Shrinkage | Tensile Strength * Yield • Break | Flexural Modulus | Izod Impact Strength Notched | Deflect. Temp. @ 264 psi | Coeff. of Linear Thermal Expan. | Specific Gravity |
|---|-------------------------|----------------|----------------------------------|------------------|------------------------------|--------------------------|---------------------------------|------------------|
| Units | % | in. / in. | psi | psi | lb.ft./in. ² | °F | 10 ⁻⁵ °F | |
| ASTM | D570 | D955 | D638 | D790 | D256 | D648 | D696 | D792 |
| 1. Nylon 6/6 | 1.5 | .015/.030 | *11,200 | 175,000 | 2.1 | 220 | 4.5 varies | 1.13/1.15 |
| 2. Nylon 6 | 1.6 | .013/.025 | *11,800 | 395,000 | 1.1 | 150 | 4.6 | 1.13 |
| 3. Acetal | 0.2 | .016/.030 | *10,000 | 410,000 | 1.4/2.3 | 255 | 5.8 | 1.42 |
| 4. Polycarbonate 30% G/F, 15% PTFE | 0.06 | .0035 | *17,500 | 1,200,000 | 2 | 290 | 1.50 | 1.55 |
| 5. Polyester (thermoplastic) | 0.08 | .020 | *8,000 •12,000 | 340,000 | 1.2 | 130 | 5.3 | 1.3 |
| 6. Polyphenylene sulfide 30% G/F 15% PTFE | 0.03 | .002 | *19,000 | 1,300,000 | 1.10 | 500 | 1.50 | 1.69 |
| 7. Polyester elastomer | 0.3 | .012 | *3,780 •5,500 | — | — | 122 | 10.00 | 1.25 |
| 8. Phenolic (molded) | 0.45 | .007 | *7,000 | 340,000 | .29 | 270 | 3.75 | 1.42 |

*These are average values for comparison purpose only.

Source: Clifford E. Adams, Plastic Gearing, Marcel Dekker Inc., N.Y. 1986. Reference 1.

Table 18-3 Physical Properties of DELRIN Acetal Resin and ZYTEL Nylon Resin

| Properties – Units | ASTM | "DELRIN" | | "ZYTEL" 101 | |
|--|--------------|------------------------|-----|------------------------|-------------------|
| | | 500 | 100 | .2% Moisture | 2.5% Moisture |
| Yield Strength, psi | D638* | 10,000 | | 11,800 | 8,500 |
| Shear Strength, psi | D732* | 9,510 | | 9,600 | — |
| Impact Strength (Izod) | D256* | 1.4 | 2.3 | 0.9 | 2.0 |
| Elongation at Yield, % | D638* | 15 | 75 | 5 | 25 |
| Modulus of Elasticity, psi | D790* | 410,000 | | 410,000 | 175,000 |
| Hardness, Rockwell | D785* | M 94, R 120 | | M79 R118 | M 94, R 120, etc. |
| Coefficient of Linear Thermal Expansion, in./in.°F | D696 | 4.5 x 10 ⁻⁵ | | 4.5 x 10 ⁻⁵ | — |
| Water Absorption 24 hrs. % Saturation, % | D570 D570 | 0.25 0.9 | | 1.5 8.0 | — |
| Specific Gravity | D792 | 1.425 | | 1.14 | 1.14 |

*Test conducted at 73°F

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Table 18-4 Properties of Nylatron GSM Nylon

| Property | Units | ASTM No. | Value | Property | Units | ASTM No. | Value |
|--|-------------------------|----------|-------------------|--|-----------|----------|------------------------|
| Specific Gravity | — | D 792 | 1.15 - 1.17 | Hardness (Rockwell), 73°F | — | D-785 | R112 - 120 |
| Tensile Strength, 73°F | psi | D 638 | 11,000 - 14,000 | Coefficient of Friction (Dry vs Steel) Dynamic | — | — | .15 - .35 |
| Elongation, 73°F | % | D 638 | 10 - 60 | Heat Distortion Temp. 66 psi 264psi | °F | D-648 | 400 - 425 |
| Modulus of Elasticity, 73°F | psi | D 638 | 350,000 - 450,000 | | °F | D-648 | 200 - 425 |
| Compressive Strength @ 0.1% Offset @ 1.0% Offset | psi | D 695 | 9,000 12,000 | Melting Point | °F | D-789 | 430 ±10 |
| Shear Strength, 73°F | psi | D 732 | 10,500 - 11,500 | Flammability | — | D-635 | Self-extinguishing |
| Tensile Impact, 73°F | lb.ft./in. ² | — | 80 - 130 | Coefficient of Linear Thermal Expansion | in./in.°F | D-696 | 5.0 x 10 ⁻⁵ |
| Deformation Under Load 122°F, 2000psi | % | D 621 | 0.5 - 1.0 | Water Absorption 24 Hours Saturation | % | D-570 | .6 - 1.2 |
| | | | | | % | D-570 | 5.5 - 6.5 |

Resistant to: Common Solvents, Hydrocarbons, Esters, Ketones, Alkalis, Diluted Acids

Not Resistant to: Phenol, Formic Acid, Concentrated Mineral Acid

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Table 18-5 Typical Thermal Properties of "CELCON" Acetal Copolymer

| Property | ASTM Test Method | Units | M Series | GC-25A |
|--|------------------|--------------------------------------|------------------------|------------------------|
| Flow, Softening and Use Temperature | | | | |
| Flow Temperature | D 569 | °F | 345 | — |
| Melting Point | — | °F | 329 | 331 |
| Vicat Softening Point | D 1525 | °F | 324 | 324 |
| Unmolding Temperature ¹ | — | °F | 320 | — |
| Thermal Deflection and Deformation | | | | |
| Deflection Temperature @264 psi | D 648 | °F | 230 | 322 |
| @66 psi | | °F | 316 | |
| Deformation under Load (2000 psi @ 122°F) | D 621 | % | 1.0 | 0.6 |
| Miscellaneous | | | | |
| Thermal Conductivity | — | BTU / hr. / ft ² / °F/in. | 1.6 | — |
| Specific Heat | — | BTU / lb. / °F | 0.35 | — |
| Coefficient of Linear Thermal Expansion (Range: -30°C to + 30°C) | D 696 | in./in.°F | | |
| Flow direction | | | 4.7 x 10 ⁻⁵ | 2.2 x 10 ⁻⁵ |
| Transverse direction | | | 4.7 x 10 ⁻⁵ | 4.7 x 10 ⁻⁵ |
| Flammability | D 635 | in./min. | 1.1 | — |
| Average Mold Shrinkage ² | — | in. / in. | | |
| Flow direction | | | 0.022 | 0.004 |
| Transverse direction | | | 0.018 | 0.018 |

¹Unmolding temperature is the temperature at which a plastic part loses its structural integrity (under its own weight) after a half-hour exposure.

²Data Bulletin C3A, "Injection Molding Celcon," gives information of factors which influence mold shrinkage. Reprinted with the permission of Celanese Plastics and Specialties Co.; see Reference 3.

Table 18-6 Typical Physical / Mechanical Properties of CELCON® Acetal Copolymer

| Property English Units (Metric Units) | ASTM Test Method | Nominal Specimen Size | Temp. | M-Series Values | GC-25A Values | Temp. | M-Series Values | GC-25A Values |
|--|------------------------|--|---------------------------|---|--|--------------------------|---|----------------------------|
| Specific Gravity | D 792 | | | 1.41 | 1.59 | | 1.41 | 1.59 |
| Density lbs/in ³ (g/cm ³) | | | | 0.0507 | 0.057 | | | |
| Specific Volume in ³ /lbs (cm ³ /g) | | | | 19.7 | 17.54 | | 0.71 | 0.63 |
| Tensile Strength at Yield lbs/in ² (kgf/cm ²) | D 638 Speed B | Type I 1/8" | -40 °F 73 °F 160 °F | 13,700 8,800 5,000 | 16,000 (at break) | -40 °C 23 °C 70 °C | 965 620 350 | 1120 (at break) |
| Elongation at Break % | D 638 Speed B | Type I 1/8" Thick | -40 °F 73 °F 160 °F | M25/30 M90/20 M270/15 M25/75 M90/60 M270/40 250 | 2 - 3 | -40 °C 23 °C | M25/30 M90/20 M270/15 M25/75 M90/60 M270/40 250 | 2 - 3 |
| Tensile Modulus lbs/in ² (kgf/cm ²) | D 638 | Type I 1/8" Thick | | 410,000 | 1.2 x 10 ⁸ | 70 °C | 28,800 | 84,500 |
| Flexural Modulus lbs/in ² (kgf/cm ²) | D 790 | 5" x 1/2" x 1/8" Thick | 73 °F 160 °F 220 °F | 375,000 180,000 100,000 | 1.05x10 ⁸ 0.7x10 ⁸ 0.5x10 ⁸ | 23 °C 70 °C 105 °C | 26,400 12,700 7,000 | 74,000 50,000 35,000 |
| Flexural Stress at 5% Deformation lbs/in ² (kgf/cm ²) | D 790 | 5" x 1/2" x 1/8" Thick | | 13,000 | | | 915 | |
| Compressive Stress at 1% Deflection at 10% Deflection lbs/in ² (kgf/cm ²) | D 695 | 1" x 1/2" x 1/2" | | 4,500 16,000 | | | 320 1,100 | |
| Izod Impact Strength (Notched) lb.ft. /in. notch (kgf • cm/cm notch) | D 256 | 2-1/2" x 1/2" x 1/8" machined notch | -40 °F 73 °F | M25/1.2 M90/1.0 M270/0.8 M25/1.5 M90/1.3 M270/1.0 | 1.1 | -40 °C 23 °C | M25/6.5 M90/5.5 M270/4.4 M25/8.0 M90/7.0 M270/5.5 | 6.0 |
| Tensile Impact Strength lb.ft. /in. ² (kgf • cm/cm ²) | D 1822 | L- Specimen 1/8" Thick | | M25/90 M90/70 M270/60 | 50 | | M25/190 M90/150 M270/130 | 110 |
| Rockwell Hardness M Scale | D 785 | 2" x 1/8" Disc | | 80 | | | 80 | |
| Shear Strength lbs/in ² (kgf/cm ²) | D 732 | 2" x 1/8" Disc | 73 °F 120 °F 160 °F | 7,700 6,700 5,700 | 8,300 | 23 °C 50 °C 70 °C | 540 470 400 | 584 |
| Water Absorption 24 - hr. Immersion % | D 570 | 2" x 1/8" Disc | | 0.22 | 0.29 | | 0.22 | 0.29 |
| Equilibrium, 50% R.H. % | | | | 0.16 | | | 0.16 | |
| Equilibrium, Immersion | | | | 0.80 | | | 0.80 | |
| Taper Abrasion 1000 g Load CS-17 Wheel | D 1044 | 4" x 4" | | 14mg per 1000 cycles | | | 14mg per 1000 cycles | |
| Coefficient of Dynamic Friction • against steel, brass and aluminum • against Celcon | D 1894 | 3" x 4" | | 0.15 0.35 | | | 0.15 0.35 | |

Many of the properties of thermoplastics are dependent upon processing conditions, and the test results presented are typical values only. These test results were obtained under standardized test conditions, and with the exception of specific gravity, should not be used as a basis for engineering design. Values were obtained from specimens injection molded in unpigmented material. In common with other thermoplastics, incorporation into Celcon of color pigments or additional U.V. stabilizers may affect some test results. Celcon GC25A test results are obtained from material predried for 3 hours at 240 °F (116 °C) before molding. All values generated at 50% r.h. & 73 °F (23 °C) unless indicated otherwise. Reprinted with the permission of Celanese Plastics and Specialties Co.; see Reference 3.

Table 18-7 Mechanical Properties of Nylon MC901 and Duracon M90

| Properties | Testing Method ASTM | Unit | Nylon MC901 | Duracon M90 |
|----------------------------------|---------------------|---------------------|-------------|-------------|
| Tensile Strength | D 638 | kgf/cm ² | 800 – 980 | 620 |
| Elongation | D 638 | % | 10 – 50 | 60 |
| Modules of Elasticity (Tensile) | D 638 | kgf/cm ² | 30 – 35 | 28.8 |
| Yield Point (Compression) | D 695 | kgf/cm ² | 940 – 1050 | — |
| 5% Deformation Point | D 695 | kgf/cm ² | 940 – 970 | — |
| Modules of Elasticity (Compress) | D 695 | kgf/cm ² | 33 – 36 | — |
| Shearing Strength | D 732 | kgf/cm ² | 735 – 805 | 540 |
| Rockwell Hardness | D 785 | R scale | 115 – 120 | 980 |
| Bending Strength | D 790 | kgf/cm ² | 980 – 1120 | 980 |
| Density (23°C) | D 792 | g/cm ³ | 1.15 – 1.17 | 1.41 |
| Poisson's Ratio | — | — | 0.40 | 0.35 |

Table 18-8 Thermal Properties of Nylon MC901 and Duracon M90

| Properties | Testing Method ASTM | Unit | Nylon MC901 | Duracon M90 |
|--|---------------------|-----------------------------|-------------|-------------|
| Thermal Conductivity | C 177 | 10 ⁻¹ kcal/mhr°C | 2 | 2 |
| Coeff. of Linear Thermal Expansion | D 696 | 10 ⁻⁵ cm/cm/°C | 9 | 9 – 13 |
| Specific Heat (20°C) | D 648 | cal/°Cgrf | 0.4 | 0.35 |
| Thermal Deformation Temperature (18.5 kgf/cm ²) | D 648 | °C | 160 – 200 | 110 |
| Thermal Deformation Temperature (4.6 kgf/cm ²) | D 621 | °C | 200 – 215 | 158 |
| Antithermal Temperature (Long Term) | | °C | 120 – 150 | — |
| Deformation Rate Under Load (140 kgf/cm ² , 50°C) | | % | 0.65 | — |
| Melting Point | | °C | 220 – 223 | 165 |

Table 18-9 Water and Moisture Absorption Property of Nylon MC901 and Duracon M90

| Conditions | Testing Method ASTM | Unit | Nylon MC901 | Duracon M90 |
|--|---------------------|------|-------------|-------------|
| Rate of Water Absorption (at room temp. in water, 24 hrs.) | D 570 | % | 0.5 – 1.0 | 0.22 |
| Saturation Absorption Value (in water) | | % | 5.5 – 7.0 | 0.80 |
| Saturation Absorption Value (in air, room temp.) | | % | 2.5 – 3.5 | 0.16 |



0 10

Table 18-10 Modulus of Elasticity, Coefficients of Thermal Expansion and Density of Materials

| Material | Modulus of Elasticity (flexural) (lb/in. ²) | Coefficient of Thermal Expansion (per °F) | Temperature Range of Coefficient (°F) | Density (lb/in. ³) |
|-------------------------------|---|---|---------------------------------------|--------------------------------|
| Ferrous Metals | | | | |
| Cast Irons: | | | | |
| Malleable | 25 to 28 x 10 ⁶ | 6.6 x 10 ⁻⁶ | 68 to 750 | .265 |
| Gray cast | 9 to 23 x 10 ⁶ | 6.0 x 10 ⁻⁶ | 32 to 212 | .260 |
| Ductile | 23 to 25 x 10 ⁶ | 8.2 x 10 ⁻⁶ | 68 to 750 | .259 |
| Steels: | | | | |
| Cast Steel | 29 to 30 x 10 ⁶ | 8.2 x 10 ⁻⁶ | 68 to 1000 | .283 |
| Plain carbon | 29 to 30 x 10 ⁶ | 8.3 x 10 ⁻⁶ | 68 to 1000 | .286 |
| Low alloy, cast and wrought | 30 x 10 ⁶ | 8.0 x 10 ⁻⁶ | 0 to 1000 | .280 |
| High alloy | 30 x 10 ⁶ | 8 to 9 x 10 ⁻⁶ | 68 to 1000 | .284 |
| Nitriding, wrought | 29 to 30 x 10 ⁶ | 6.5 x 10 ⁻⁶ | 32 to 900 | .286 |
| AISI 4140 | 29 x 10 ⁶ | 6.2 x 10 ⁻⁶ | 32 to 212 | .284 |
| Stainless: | | | | |
| AISI 300 series | 28 x 10 ⁶ | 9.6 x 10 ⁻⁶ | 32 to 212 | .287 |
| AISI 400 series | 29 x 10 ⁶ | 5.6 x 10 ⁻⁶ | 32 to 212 | .280 |
| Nonferrous Metals: | | | | |
| Aluminum alloys, wrought | 10 to 10.6 x 10 ⁶ | 12.6 x 10 ⁻⁶ | 68 to 212 | .098 |
| Aluminum, sand-cast | 10.5 x 10 ⁶ | 11.9 to 12.7 x 10 ⁻⁶ | 68 to 212 | .097 |
| Aluminum, die-cast | 10.3 x 10 ⁶ | 11.4 to 12.2 x 10 ⁻⁶ | 68 to 212 | .096 |
| Beryllium copper | 18 x 10 ⁶ | 9.3 x 10 ⁻⁶ | 68 to 212 | .297 |
| Brasses | 16 to 17 x 10 ⁶ | 11.2 x 10 ⁻⁶ | 68 to 572 | .306 |
| Bronzes | 17 to 18 x 10 ⁶ | 9.8 x 10 ⁻⁶ | 68 to 572 | .317 |
| Copper, wrought | 17 x 10 ⁶ | 9.8 x 10 ⁻⁶ | 68 to 750 | .323 |
| Magnesium alloys, wrought | 6.5 x 10 ⁶ | 14.5 x 10 ⁻⁶ | 68 to 212 | .065 |
| Magnesium, die-cast | 6.5 x 10 ⁶ | 14 x 10 ⁻⁶ | 68 to 212 | .065 |
| Monel | 26 x 10 ⁶ | 7.8 x 10 ⁻⁶ | 32 to 212 | .319 |
| Nickel and alloys | 19 to 30 x 10 ⁶ | 7.6 x 10 ⁻⁶ | 68 to 212 | .302 |
| Nickel, low-expansion alloys | 24 x 10 ⁶ | 1.2 to 5 x 10 ⁻⁶ | -200 to 400 | .292 |
| Titanium, unalloyed | 15 to 16 x 10 ⁶ | 5.8 x 10 ⁻⁶ | 68 to 1650 | .163 |
| Titanium alloys, wrought | 13 to 17.5 x 10 ⁶ | 5.0 to 7 x 10 ⁻⁶ | 68 to 572 | .166 |
| Zinc, die-cast | 2 to 5 x 10 ⁶ | 5.2 x 10 ⁻⁶ | 68 to 212 | .24 |
| Powder Metals: | | | | |
| Iron (unalloyed) | 12 to 25 x 10 ⁶ | — | — | .21 to .27 |
| Iron-carbon | 13 x 10 ⁶ | 7 x 10 ⁻⁶ | 68 to 750 | .22 |
| Iron-copper-carbon | 13 to 15 x 10 ⁶ | 7 x 10 ⁻⁶ | 68 to 750 | .22 |
| AISI 4630 | 18 to 23 x 10 ⁶ | — | — | .25 |
| Stainless steels: | | | | |
| AISI 300 series | 15 to 20 x 10 ⁶ | — | — | .24 |
| AISI 400 series | 14 to 20 x 10 ⁶ | — | — | .23 |
| Brass | 10 x 10 ⁶ | — | — | .26 |
| Bronze | 8 to 13 x 10 ⁶ | 10 x 10 ⁻⁶ | 68 to 750 | .28 |
| Nonmetallics: | | | | |
| Acrylic | 3.5 to 4.5 x 10 ⁵ | 3.0 to 4 x 10 ⁻⁵ | 0 to 100 | .043 |
| Delrin (acetel resin) | 4.1 x 10 ⁵ | 5.5 x 10 ⁻⁵ | 85 to 220 | .051 |
| Fluorocarbon resin (TFE) | 4.0 to 6.5 x 10 ⁴ | 5.5 x 10 ⁻⁵ | -22 to 86 | .078 |
| Nylon | 1.6 to 4.5 x 10 ⁵ | 4.5 to 5.5 x 10 ⁻⁵ | -22 to 86 | .041 |
| Phenolic laminate: | | | | |
| Paper base | 1.1 to 1.8 x 10 ⁵ | 0.9 to 1.4 x 10 ⁻⁵ | -22 to 86 | .048 |
| Cotton base | 0.8 to 1.3 x 10 ⁵ | 0.7 to 1.5 x 10 ⁻⁵ | -22 to 86 | .048 |
| Linen base | 0.8 to 1.1 x 10 ⁵ | 0.8 to 1.4 x 10 ⁻⁵ | -22 to 86 | .049 |
| Polystyrene (general purpose) | 4.0 to 5 x 10 ⁵ | 3.3 to 4.4 x 10 ⁻⁵ | -22 to 86 | .038 |

Source: Michalec, G.W., Precision Gearing, Wiley 1966

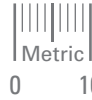


Table 18-11 Wear Characteristics of Plastics

| Material | Steel | Brass | Polyurethane | Polycarbonate | MoS ₂ -Filled Nylon | Nylon 6/10 | Nylon 6/6 | Polystyrene | ABS | Acetal |
|--------------------------------|-------|-------|--------------|---------------|--------------------------------|------------|-----------|-------------|-----|--------|
| Acetal | F | P | G | F | G | G | G | F | F | G |
| ABS | P | P | G | G | G | G | G | P | F | |
| Polystyrene | P | P | F | F | G | F | F | F | | |
| Nylon 6-6 | E | F | E | F | E | G | G | | | |
| Nylon 6-10 | E | F | E | F | E | G | | | | |
| MoS ₂ -Filled Nylon | E | G | E | F | E | | | | | |
| Polycarbonate | G | F | G | G | | | | | | |
| Polyurethane | E | F | G | | | | | | | |
| Brass | G | P | | | | | | | | |
| Steel | F | | | | | | | | | |

Key
E—Excellent
G—Good
F—Fair
P—Poor

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Table 18-12 Poisson's Ratio ν for Unfilled Thermoplastics

| Polymer | ν |
|--------------------------------------|-------|
| Acetal | 0.35 |
| Nylon 6/6 | 0.39 |
| Modified PPO | 0.38 |
| Polycarbonate | 0.36 |
| Polystyrene | 0.33 |
| PVC | 0.38 |
| TFE (Tetrafluorethylene) | 0.46 |
| FEP (Fluorinated Ethylene Propylene) | 0.48 |

Source: Clifford E. Adams, Plastic Gearing, Marcel Dekker Inc., New York 1986. Reference 1.

Table 18-13 Material Ranking by Water Absorption Rate

| Material | Rate of Change % |
|---|---------------------|
| Polytetrafluoroethylene | 0.0 |
| Polyethylene: medium density | < 0.01 |
| high density | < 0.01 |
| high molecular weight | < 0.01 |
| low density | < 0.015 |
| Polyphenylene sulfides (40% glass filled) | 0.01 |
| Polyester: thermosetting and alkyds | |
| low shrink | 0.01 – 0.25 |
| glass – preformed chopping roving | 0.01 – 1.0 |
| Polyester: linear aromatic | 0.02 |
| Polyphenylene sulfide: unfilled | 0.02 |
| Polyester: thermoplastic (18% glass) | 0.02 – 0.07 |
| Polyurethane: cast liquid methane | 0.02 – 1.5 |
| Polyester synthetic: fiber filled – alkyd | 0.05 – 0.20 |
| glass filled – alkyd | 0.05 – 0.25 |
| mineral filled – alkyd | 0.05 – 0.50 |
| glass-woven cloth | 0.05 – 0.50 |
| glass-premix, chopped | 0.06 – 0.28 |
| Nylon 12 (30% glass) | 0.07 |
| Polycarbonate (10–40% glass) | 0.07 – 0.20 |
| Styrene-acrylonitrile copolymer (20–33% glass filled) | 0.08 – 0.22 |
| Polyester thermoplastic: | 0.09 |
| thermoplastic PTMT (20% asbestos) | 0.10 |
| glass sheet molding | 0.10 – 0.15 |
| Polycarbonate <10% glass | 0.12 |
| Phenolic cast: mineral filled | 0.12 – 0.36 |
| Polyester alkyd: asbestos filled | 0.14 |
| Polycarbonate: unfilled | 0.15 – 0.18 |
| Polyester cast: rigid | 0.15 – 0.60 |
| Acetal: TFE | 0.20 |
| Nylon 6/12 (30–35% glass) | 0.20 |
| 6/10 (30–35% glass) | 0.20 |
| Polyester alkyd vinyl ester thermoset | 0.20 |
| Styrene-acrylonitrile copolymer: unfilled | 0.20 – 0.30 |
| Polycarbonate ABS alloy | 0.20 – 0.35 |
| Phenolic cast: unfilled | 0.20 – 0.40 |
| Acetal copolymer | 0.22 |
| homopolymer | 0.25 |
| Nylon 12 (unmodified) | 0.25 |
| Acetal (20% glass) | 0.25 – 0.29 |
| Poly (amide-imide) | 0.28 |
| Acetal (25% glass) | 0.29 |
| Nylon 11 (unmodified) | 0.30 |
| Polyester elastomer | 0.30 – 0.60 |
| Polyamide | 0.32 |
| Nylon: 6/12 (unmodified) | 0.40 |
| 6/10 (unmodified) | 0.40 |
| Polyester-thermosetting and alkyds (cast flexible) | 0.50 – 2.50 |
| Nylon 6 (cast) | 0.60 – 1.20 |
| Polyurethane elastomer thermoplastic | 0.70 – 0.90 |
| Nylon 6/6: MoS ₂ | 0.80 – 1.10 |
| 30 – 35% glass | 0.90 |
| unmodified | 1.10 – 1.50 |
| nucleated | 1.10 – 1.50 |
| Nylon 6 (30 – 35% glass) | 1.30 |
| unmodified | 1.30 – 1.90 |
| nucleated | 1.30 – 1.90 |
| Nylon 6/6 – 6 (copolymer) | 1.50 – 1.20 |

Table 18-14 Safe Stress

| Plastic | Safe stress, psi | |
|---------------|------------------|------------------|
| | Unfilled | Glass-reinforced |
| ABS Resins | 3000 | 6000 |
| Acetal | 5000 | 7000 |
| Nylon | 6000 | 12000 |
| Polycarbonate | 6000 | 9000 |
| Polyester | 3500 | 8000 |
| Polyurethane | 2500 | |



Source: Clifford E. Adams, Plastic Gearing,
Marcel Dekker Inc., New York 1986. Reference 1.

It is important to stress the resistance to chemical corrosion of some plastic materials. These properties of some of materials used in the products presented in this catalog are further explored.

Nylon MC901

Nylon MC901 has almost the same level of antichemical corrosion property as Nylon resins. In general, it has a better antiorganic solvent property, but has a weaker antiacid property. The properties are as follows:

- For many nonorganic acids, even at low concentration at normal temperature, it should not be used without further tests.
- For nonorganic alkali at room temperature, it can be used to a certain level of concentration.
- For the solutions of nonorganic salts, we may apply them to a fairly high level of temperature and concentration.
- MC901 has better antiacid ability and stability in organic acids than in nonorganic acids, except for formic acid.
- MC901 is stable at room temperature in organic compounds of ester series and ketone series.
- It is also stable in mineral oil, vegetable oil and animal oil, at room temperature.



Duracon M90

This plastic has outstanding antiorganic properties. However, it has the disadvantage of having limited suitable adhesives. Its main properties are:

- Good resistance against nonorganic chemicals, but will be corroded by strong acids such as nitric, sulfuric and chloric acids.
- Household chemicals, such as synthetic detergents, have almost no effect on M90.
- M90 does not deteriorate even under long term operation in high temperature lubricating oil, except for some additives in high grade lubricants.
- With grease, M90 behaves the same as with oil lubricants.

Gear designers interested in using this material should be aware of properties regarding individual chemicals. Plastic manufacturers' technical information manuals should be consulted prior to making gear design decisions.

18.3 Choice Of Pressure Angles And Modules

Pressure angles of 14.5°, 20° and 25° are used in plastic gears. The 20° pressure angle is usually preferred due to its stronger tooth shape and reduced undercutting compared to the 14.5° pressure angle system. The 25° pressure angle has the highest load-carrying ability, but is more sensitive to center distance variation and hence runs less quietly. The choice is dependent on the application.

The determination of the appropriate module or diametral pitch is a compromise between a number of different design requirements. A larger module is associated with larger and stronger teeth. For a given pitch diameter, however, this also means a smaller number of teeth with a correspondingly greater likelihood of undercut at very low number of teeth. Larger teeth are generally associated with more sliding than smaller teeth.

On the other hand, smaller modules, which are associated with smaller teeth, tend to provide greater load sharing due to the compliance of plastic gears. However, a limiting condition would eventually be reached when mechanical interference occurs as a result of too much compliance. Smaller teeth are also more sensitive to tooth errors and may be more highly stressed.

A good procedure is probably to size the pinion first, since it is the more highly loaded member. It should be proportioned to support the required loads, but should not be over designed.

18.4 Strength Of Plastic Spur Gears

In the following text, main consideration will be given to Nylon MC901 and Duracon M90. However, the basic equations used are applicable to all other plastic materials if the appropriate values for the factors are applied.

18.4.1 Bending Strength of Spur Gears

Nylon MC901

The allowable tangential force F (kgf) at the pitch circle of a Nylon MC901 spur gear can be obtained from the Lewis formula.

$$F = myb \sigma_b \text{ (kgf)} \quad (18-1)$$

where:

- m = Module (mm)
- y = Form factor at pitch point (see Table 18-15)
- b = Teeth width (mm)
- σ_b = Allowable bending stress (kgf/mm²) (see Figure 18-1)

Duracon M90

The allowable tangential force F (kgf) at pitch circle of a Duracon M90 spur gear can also be obtained from the Lewis formula.

$$F = myb \sigma_b \text{ (kgf)} \quad (18-2)$$

where:

- m = Module (mm)
- y = Form factor at pitch point (see Table 18-15)
- b = Teeth width (mm)
- σ_b = Allowable bending stress (kgf/mm²)

The allowable bending stress can be calculated by Equation (18-3):

$$\sigma_b = \sigma_b' \frac{K_V K_T K_L K_M}{C_S} \quad (18-3)$$

where:

- σ_b' = Maximum allowable bending stress under ideal condition (kgf/mm²) (see Figure 18-2)
- C_S = Working factor (see Table 18-17)
- K_V = Speed factor (see Figure 18-3)
- K_T = Temperature factor (see Figure 18-4)
- K_L = Lubrication factor (see Table 18-18)
- K_M = Material factor (see Table 18-19)

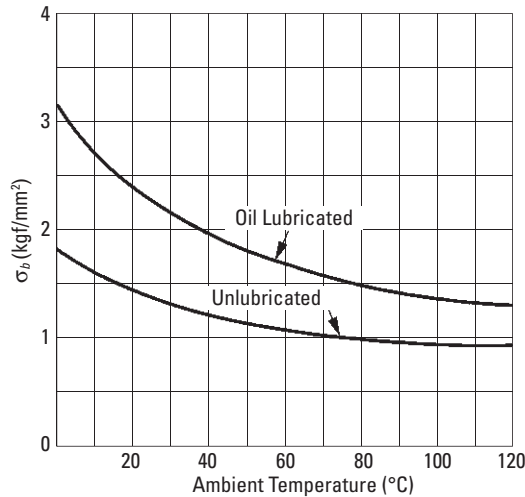


Fig. 18-1 Allowable Bending Stress, σ_b (kgf/mm²)

Table 18-15 Form Factor, y

| Number of Teeth | Form Factor | | |
|-----------------|-------------|--------------------|----------------|
| | 14.5° | 20° Standard Tooth | 20° Stub Tooth |
| 12 | 0.355 | 0.415 | 0.496 |
| 14 | 0.399 | 0.468 | 0.540 |
| 16 | 0.430 | 0.503 | 0.578 |
| 18 | 0.458 | 0.522 | 0.603 |
| 20 | 0.480 | 0.544 | 0.628 |
| 22 | 0.496 | 0.559 | 0.648 |
| 24 | 0.509 | 0.572 | 0.664 |
| 26 | 0.522 | 0.588 | 0.678 |
| 28 | 0.535 | 0.597 | 0.688 |
| 30 | 0.540 | 0.606 | 0.698 |
| 34 | 0.553 | 0.628 | 0.714 |
| 38 | 0.565 | 0.651 | 0.729 |
| 40 | 0.569 | 0.657 | 0.733 |
| 50 | 0.588 | 0.694 | 0.757 |
| 60 | 0.604 | 0.713 | 0.774 |
| 75 | 0.613 | 0.735 | 0.792 |
| 100 | 0.622 | 0.757 | 0.808 |
| 150 | 0.635 | 0.779 | 0.830 |
| 300 | 0.650 | 0.801 | 0.855 |
| Rack | 0.660 | 0.823 | 0.881 |

Table 18-16 Speed Factor, K_V

| Lubrication | Tangential Speed (m/sec) | Factor K_V |
|--------------|--------------------------|--------------|
| Lubricated | Under 12 | 1.0 |
| | Over 12 | 0.85 |
| Unlubricated | Under 5 | 1.0 |
| | Over 5 | 0.7 |

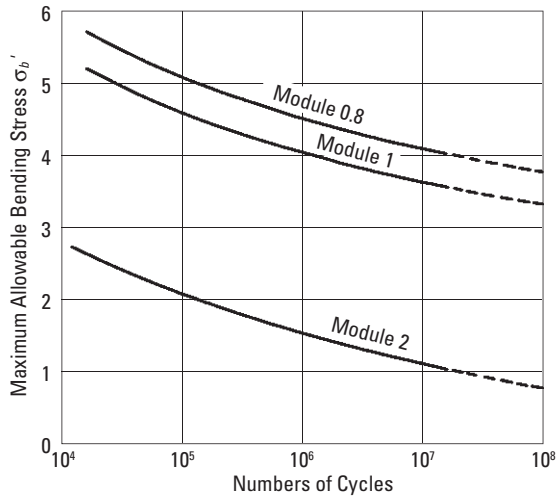


Fig. 18-2 Maximum Allowable Bending Stress under Ideal Condition, σ_b' (kgf/mm²)

Table 18-17 Working Factor, C_s

| Types of Load | Daily Operating Hours | | | |
|---------------|-----------------------|-----------------|--------------|----------------|
| | 24 hrs. / day | 8-10 hrs. / day | 3 hrs. / day | 0.5 hrs. / day |
| Uniform Load | 1.25 | 1.00 | 0.80 | 0.50 |
| Light Impact | 1.50 | 1.25 | 1.00 | 0.80 |
| Medium impact | 1.75 | 1.50 | 1.25 | 1.00 |
| Heavy Impact | 2.00 | 1.75 | 1.50 | 1.25 |

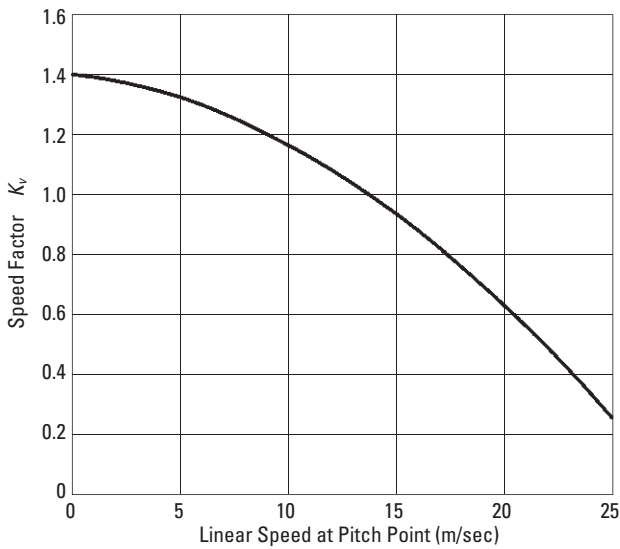


Fig. 18-3 Speed Factor, K_v

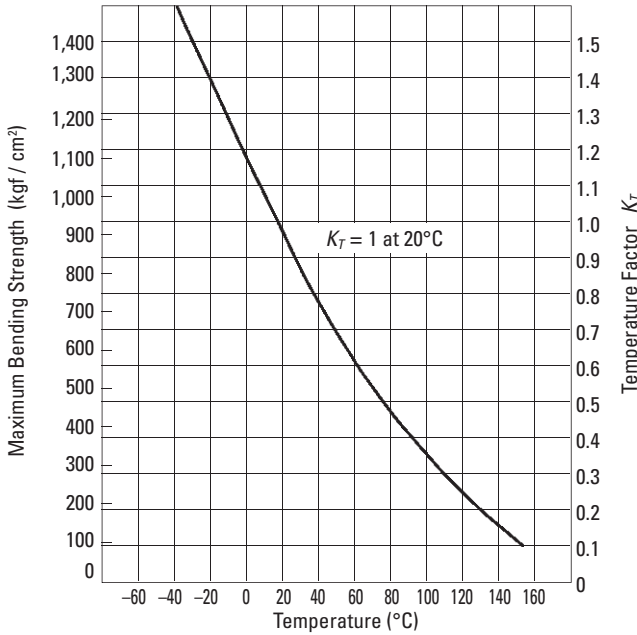


Fig. 18-4 Temperature Factor, K_T

Table 18-18 Lubrication Factor, K_L

| Lubrication | K_L |
|----------------------------|-----------|
| Initial Grease Lubrication | 1 |
| Continuous Oil Lubrication | 1.5 – 3.0 |

Table 18-19 Material Factor, K_M

| Material Combination | K_M |
|----------------------|-------|
| Duracon vs. Metal | 1 |
| Duracon vs. Duracon | 0.75 |

Application Notes

In designing plastic gears, the effects of heat and moisture must be given careful consideration. The related problems are:

1. Backlash

Plastic gears have larger coefficients of thermal expansion. Also, they have an affinity to absorb moisture and swell. Good design requires allowance for a greater amount of backlash than for metal gears.

2. Lubrication

Most plastic gears do not require lubrication. However, temperature rise due to meshing may be controlled by the cooling effect of a lubricant as well as by reduction of friction. Often, in the case of high-speed rotational speeds, lubrication is critical.

3. Plastic gear with metal mate

If one of the gears of a mated pair is metal, there will be a heat sink that combats a high temperature rise. The effectiveness depends upon the particular metal, amount of metal mass, and rotational speed.



18.4.2 Surface Strength of Plastic Spur Gears

Duracon M90

Duracon gears have less friction and wear when in an oil lubrication condition. However, the calculation of strength must take into consideration a no-lubrication condition. The surface strength using Hertz contact stress, S_c , is calculated by **Equation (18-4)**.

$$S_c = \sqrt{\frac{F}{bd_1} \frac{u+1}{u}} \cdot \sqrt{\frac{1.4}{\left(\frac{1}{E_1} + \frac{1}{E_2}\right) \sin 2\alpha}} \quad (\text{kgf/mm}^2) \quad (18-4)$$

where:

- F = Tangential force on surface (kgf)
- b = Tooth width (mm)
- d_1 = Pitch diameter of pinion (mm)
- u = Gear ratio = z_2/z_1
- E = Modulus of elasticity of material (kgf/mm²)
(see **Figure 18-5**)
- α = Pressure angle

If the value of Hertz contact stress, S_c , is calculated by **Equation (18-4)** and the value falls below the curve of **Figure 18-6**, then it is directly applicable as a safe design. If the calculated value falls above the curve, the Duracon gear is unsafe.

Figure 18-6 is based upon data for a pair of Duracon gears: $m = 2$, $v = 12$ m/s, and operating at room temperature. For working conditions that are similar or better, the values in the figure can be used.

18.4.3 Bending Strength Of Plastic Bevel Gears

Nylon MC901

The allowable tangential force at the pitch circle is calculated by **Equation (18-5)**.

$$F = m \frac{R_a - b}{R_a} \gamma b \sigma_b \quad (\text{kgf}) \quad (18-5)$$

$$z_v = \frac{z}{\cos \delta} \quad (18-6)$$

where:

- m = module (mm)
- R_a = Outer cone distance (mm)
- b = Tooth width (mm)
- γ = Form factor at pitch point, which is obtained from **Table 18-15** by computing the number of teeth of equivalent spur gear via **Equation (18-6)**.
- σ_b = Allowable bending stress
- z_v = Number of teeth of equivalent spur gear
- δ = Pitch cone angle (degree)

Other variables may be calculated the same way as for spur gears.

Duracon M90

The allowable tangential force F (kgf) on pitch circle of Duracon M90 bevel gears can be obtained from **Equation (18-7)**.

$$F = m \frac{R_a - b}{R_a} \gamma b \sigma_b \quad (\text{kgf}) \quad (18-7)$$

and γ = Form factor at pitch point, which is obtained from **Table 18-15** by first computing the number of teeth of equivalent spur gear using **Equation (18-6)**.

Other variables may be calculated the same way as for spur gears.





18.4.4 Bending Strength Of Plastic Worm Gears

Nylon MC901

Generally, the worm is much stronger than the worm gear. Therefore, it is necessary to calculate the strength of only the worm gear.

The allowable tangential force F (kgf) at the pitch circle of the worm gear is obtained from Equation (18-8).

$$F = m_n y b \sigma_b \quad (18-8)$$

$$z_v = \frac{z}{\cos^3 \gamma} \quad (18-9)$$

- where: m_n = Normal module (mm)
- y = Form factor at pitch point, which is obtained from Table 18-15 by first computing the number of teeth of equivalent spur gear using Equation (18-9).
- z_v = Number of teeth of equivalent spur gear
- γ = Lead angle

Worm meshes have relatively high sliding velocities, which induces a high temperature rise. This causes a sharp decrease in strength and abnormal friction wear. This is particularly true of an all plastic mesh. Therefore, sliding speeds must be contained within recommendations of Table 18-20.

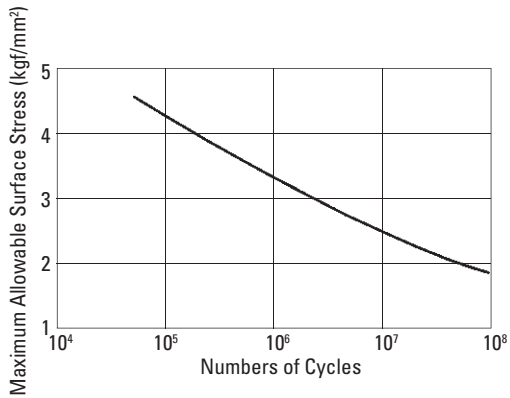
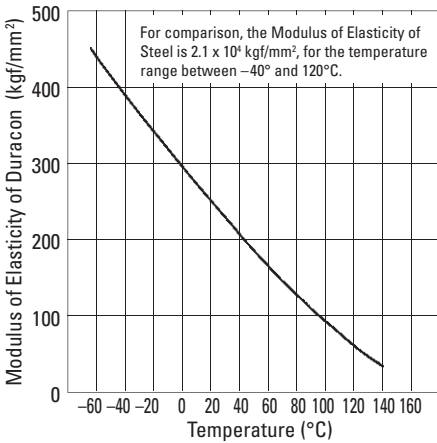


Fig. 18-5 Modulus of Elasticity in Bending of Duracon

Fig. 18-6 Maximum Allowable Surface Stress (Spur Gears)

Table 18-20 Material Combinations and Limits of Sliding Speed

| Material of Worm | Material of Worm Gear | Lubrication Condition | Sliding Speed |
|------------------|-----------------------|------------------------|-----------------|
| "MC" Nylon | "MC" Nylon | No Lubrication | Under 0.125 m/s |
| Steel | "MC" Nylon | No Lubrication | Under 1 m/s |
| Steel | "MC" Nylon | Initial Lubrication | Under 1.5 m/s |
| Steel | "MC" Nylon | Continuous Lubrication | Under 2.5 m/s |



$$\text{Sliding speed } v_s = \frac{\pi d_1 n_1}{60000 \cos \gamma} \quad (\text{m/s})$$

Lubrication of plastic worms is vital, particularly under high load and continuous operation.

18.4.5 Strength Of Plastic Keyway

Fastening of a plastic gear to the shaft is often done by means of a key and keyway. Then, the critical thing is the stress level imposed upon the keyway sides. This is calculated by **Equation (18-10)**.

$$\sigma = \frac{200 T}{d l h} \quad (\text{kgf/cm}^2) \quad (18-10)$$

where: σ = Pressure on the keyway sides (kgf/cm²)
 T = Transmitted torque (kgf • m)
 d = Diameter of shaft (cm)
 l = Effective length of keyway (cm)
 h = Depth of keyway (cm)

The maximum allowable surface pressure for MC901 is 200 kgf/cm², and this must not be exceeded. Also, the keyway's corner must have a suitable radius to avoid stress concentration. The distance from the root of the gear to the bottom of the keyway should be at least twice the tooth whole depth, h .

Keyways are not to be used when the following conditions exist:

- Excessive keyway stress
- High ambient temperature
- High impact
- Large outside diameter gears

When above conditions prevail, it is expedient to use a metallic hub in the gear. Then, a keyway may be cut in the metal hub.

A metallic hub can be fixed in the plastic gear by several methods:

- Press the metallic hub into the plastic gear, ensuring fastening with a knurl or screw.
- Screw fasten metal discs on each side of the plastic gear.
- Thermofuse the metal hub to the gear.

18.5 Effect Of Part Shrinkage On Plastic Gear Design

The nature of the part and the molding operation have a significant effect on the molded gear. From the design point of view, the most important effect is the shrinkage of the gear relative to the size of the mold cavity.

Gear shrinkage depends upon mold proportions, gear geometry, material, ambient temperature and time. Shrinkage is usually expressed in millimeters per millimeter. For example, if a plastic gear with a shrinkage rate of 0.022 mm/mm has a pitch diameter of 50 mm while in the mold, the pitch diameter after molding will be reduced by (50)(0.022) or 1.1 mm, and becomes 48.9 mm after it leaves the mold.

Depending upon the material and the molding process, shrinkage rates ranging from about 0.001 mm/mm to 0.030 mm/mm occur in plastic gears (see **Table 18-1** and **Figure 18-7**). Sometimes shrinkage rates are expressed as a percentage. For example, a shrinkage rate of 0.0025 mm/mm can be stated as a 0.25% shrinkage rate.

The effect of shrinkage must be anticipated in the design of the mold and requires expert knowledge. Accurate and specific treatment of this phenomenon is a result of years of experience in building molds for gears; hence, details go beyond the scope of this presentation.

In general, the final size of a molded gear is a result of the following factors:

1. Plastic material being molded.
2. Injection pressure.
3. Injection temperature.
4. Injection hold time.
5. Mold cure time and mold temperature.
6. Configuration of part (presence of web, insert, spokes, ribs, etc.).
7. Location, number and size of gates.
8. Treatment of part after molding.

From the above, it becomes obvious that with the same mold – by changing molding parameters – parts of different sizes can be produced.

The form of the gear tooth itself changes as a result of shrinkage, irrespective of it shrinking away from the mold, as shown in **Figure 18-8**. The resulting gear will be too thin at the top and too thick at the base. The pressure angle will have increased, resulting in the possibility of binding, as well as greater wear.

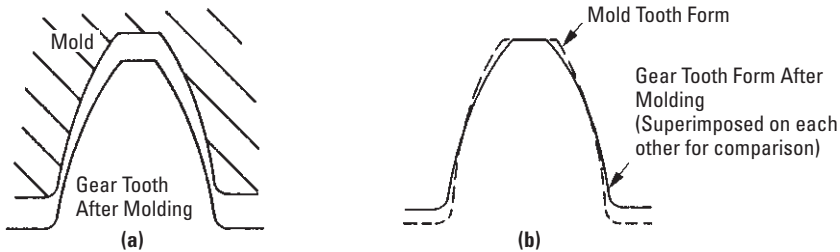


Fig. 18-8 Change of Tooth Profile

In order to obtain an idea of the effect of part shrinkage subsequent to molding, the following equations are presented where the primes refer to quantities after the shrinkage occurred:

$$\cos \alpha' = \frac{\cos \alpha}{1 + s^*} \tag{18-11}$$

$$m' = (1 - s^*)m \tag{18-12}$$

$$d' = zm' \tag{18-13}$$

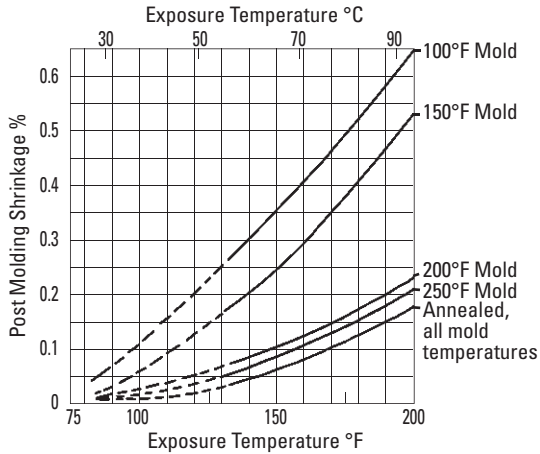


Fig. 18-7 Shrinkage for Delrin in Air
Reprinted with the permission of E.I. DuPont de Nemours and Co.; see Ref. 8

$$p' = \pi m'$$

(18-14)



where: s^* = shrinkage rate (mm/mm)
 m = module
 α = pressure angle
 d = pitch diameter (mm)
 p' = circular pitch (mm)
 z = number of teeth

It follows that a hob generating the electrode for a cavity which will produce a post shrinkage standard gear would need to be of a nonstandard configuration.

Let us assume that an electrode is cut for a 20° pressure angle, module 1, 64 tooth gear which will be made of acetal ($s^* = 0.022$) and will have 64 mm pitch diameter after molding.

$$\cos \alpha = \cos \alpha'(1 + s^*) = 0.93969262 (1 + 0.022) = 0.96036$$

therefore, $\alpha = 16^\circ 11'$ pressure angle

$$m = \frac{m'}{1 - s^*} = \frac{1}{1 - 0.022} = 1.0225$$

The pitch diameter of the electrode, therefore, will be:

$$d = zm = 64 \times 1.0225 = 65.44 \text{ mm}$$

For the sake of simplicity, we are ignoring the correction which has to be made to compensate for the electrode gap which results in the cavity being larger than the electrode.

The shrinking process can give rise to residual stresses within the gear, especially if it has sections of different thicknesses. For this reason, a hubless gear is less likely to be warped than a gear with a hub.

If necessary, a gear can be annealed after molding in order to relieve residual stresses. However, since this adds another operation in the manufacturing of the gear, annealing should be considered only under the following circumstances:

1. If maximum dimensional stability is essential.
2. If the stresses in the gear would otherwise exceed the design limit.
3. If close tolerances and high-temperature operation makes annealing necessary.

Annealing adds a small amount of lubricant within the gear surface region. If the prior gear lubrication is marginal, this can be helpful.

18.6 Proper Use Of Plastic Gears

18.6.1 Backlash

Due to the thermal expansion of plastic gears, which is significantly greater than that of metal gears, and the effects of tolerances, one should make sure that meshing gears do not bind in the course of service. Several means are available for introducing backlash into the system. Perhaps the simplest is to enlarge center distance. Care must be taken, however, to ensure that the contact ratio remains adequate.

It is possible also to thin out the tooth profile during manufacturing, but this adds to the manufacturing cost and requires careful consideration of the tooth geometry.

To some extent, the flexibility of the bearings and clearances can compensate for thermal expansion. If a small change in center distance is necessary and feasible, it probably represents the best and least expensive compromise.



18.6.2 Environment and Tolerances

In any discussion of tolerances for plastic gears, it is necessary to distinguish between manufacturing tolerances and dimensional changes due to environmental conditions.

As far as manufacturing is concerned, plastic gears can be made to high accuracy, if desired. For injection molded gears, Total Composite Error can readily be held within a range of roughly 0.075 – 0.125 mm, with a corresponding Tooth-to-Tooth Composite Error of about 0.025 – 0.050 mm. Higher accuracies can be obtained if the more expensive filled materials, mold design, tooling and quality control are used.

In addition to thermal expansion changes, there are permanent dimensional changes as the result of moisture absorption. Also, there are dimensional changes due to compliance under load. The coefficient of thermal expansion of plastics is on the order of four to ten times those of metals (see **Tables 18-3** and **18-10**). In addition, most plastics are hygroscopic (i.e., absorb moisture) and dimensional changes on the order of 0.1% or more can develop in the course of time, if the humidity is sufficient. As a result, one should attempt to make sure that a tolerance which is specified is not smaller than the inevitable dimensional changes which arise as a result of environmental conditions. At the same time, the greater compliance of plastic gears, as compared to metal gears, suggests that the necessity for close tolerances need not always be as high as those required for metal gears.

18.6.3 Avoiding Stress Concentration

In order to minimize stress concentration and maximize the life of a plastic gear, the root fillet radius should be as large as possible, consistent with conjugate gear action. Sudden changes in cross section and sharp corners should be avoided, especially in view of the possibility of additional residual stresses which may have occurred in the course of the molding operation.

18.6.4 Metal Inserts

Injection molded metal inserts are used in plastic gears for a variety of reasons:

1. To avoid an extra finishing operation.
2. To achieve greater dimensional stability, because the metal will shrink less and is not sensitive to moisture; it is, also, a better heat sink.
3. To provide greater load-carrying capacity.
4. To provide increased rigidity.
5. To permit repeated assembly and disassembly.
6. To provide a more precise bore to shaft fit.

Inserts can be molded into the part or subsequently assembled. In the case of subsequent insertion of inserts, stress concentrations may be present which may lead to cracking of the parts. The interference limits for press fits must be obeyed depending on the material used; also, proper minimum wall thicknesses around the inserts must be left. The insertion of inserts may be accomplished by ultrasonically driving in the insert. In this case, the material actually melts into the knurling at the insert periphery.



Inserts are usually produced by screw machines and made of aluminum or brass. It is advantageous to attempt to match the coefficient of thermal expansion of the plastic to the materials used for inserts. This will reduce the residual stresses in the plastic part of the gear during contraction while cooling after molding.

When metal inserts are used, generous radii and fillets in the plastic gear are recommended to avoid stress concentration. It is also possible to use other types of metal inserts, such as self-threading, self-tapping screws, press fits and knurled inserts. One advantage of the first two of these is that they permit repeated assembly and disassembly without part failure or fatigue.

18.6.5 Attachment Of Plastic Gears to Shafts

Several methods of attaching gears to shafts are in common use. These include splines, keys, integral shafts, set screws, and plain and knurled press fits. **Table 18-21** lists some of the basic characteristics of each of these fastening methods.

Table 18-21 Characteristics of Various Shaft Attachment Methods

| Nature of Gear-Shaft Connection | Torque Capacity | Cost | Disassembly | Comments |
|---------------------------------|-----------------|----------------|---|---|
| Set Screw | Limited | Low | Not good unless threaded metal insert is used | Questionable reliability, particularly under vibration or reversing drive |
| Press fit | Limited | Low | Not possible | Residual stresses need to be considered |
| Knurled Shaft Connection | Fair | Low | Not possible | A permanent assembly |
| Spline | Good | High | Good | Suited for close tolerance |
| Key | Good | Reasonably Low | Good | Requires good fits |
| Integral Shaft | Good | Low | Not Possible | Bending load on shaft needs to be watched |

18.6.6 Lubrication

Depending on the application, plastic gears can operate with continuous lubrication, initial lubrication, or no lubrication. According to L.D. Martin ("Injection Molded Plastic Gears", *Plastic Design and Processing*, 1968; Part 1, August, pp 38-45; Part 2, September, pp. 33-35):

1. All gears function more effectively with lubrication and will have a longer service life.
2. A light spindle oil (SAE 10) is generally recommended as are the usual lubricants; these include silicone and hydrocarbon oils, and in some cases cold water is acceptable as well.



- Under certain conditions, dry lubricants such as molybdenum disulfide, can be used to reduce tooth friction.

Ample experience and evidence exist substantiating that plastic gears can operate with a metal mate without the need of a lubricant, as long as the stress levels are not exceeded. It is also true that in the case of a moderate stress level, relative to the materials rating, plastic gears can be meshed together without a lubricant. However, as the stress level is increased, there is a tendency for a localized plastic-to-plastic welding to occur, which increases friction and wear. The level of this problem varies with the particular type of plastic.

A key advantage of plastic gearing is that, for many applications, running dry is adequate. When a situation of stress and shock level is uncertain, using the proper lubricant will provide a safety margin and certainly will cause no harm. The chief consideration should be in choosing a lubricant's chemical compatibility with the particular plastic. Least likely to encounter problems with typical gear oils and greases are: nylons, Delrins (acetals), phenolics, polyethylene and polypropylene. Materials requiring caution are: polystyrene, polycarbonates, polyvinyl chloride and ABS resins.

An alternate to external lubrication is to use plastics fortified with a solid state lubricant. Molybdenum disulfide in nylon and acetal are commonly used. Also, graphite, colloidal carbon and silicone are used as fillers.

In no event should there be need of an elaborate sophisticated lubrication system such as for metal gearing. If such a system is contemplated, then the choice of plastic gearing is in question. Simplicity is the plastic gear's inherent feature.

18.6.7 Molded vs. Cut Plastic Gears

Although not nearly as common as the injection molding process, both thermosetting and thermoplastic plastic gears can be readily machined. The machining of plastic gears can be considered for high precision parts with close tolerances and for the development of prototypes for which the investment in a mold may not be justified.

Standard stock gears of reasonable precision are produced by using blanks molded with brass inserts, which are subsequently hobbled to close tolerances.

When to use molded gears vs. cut plastic gears is usually determined on the basis of production quantity, body features that may favor molding, quality level and unit cost. Often, the initial prototype quantity will be machine cut, and investment in molding tools is deferred until the product and market is assured. However, with some plastics this approach can encounter problems.

The performance of molded vs. cut plastic gears is not always identical. Differences occur due to subtle causes. Bar stock and molding stock may not be precisely the same. Molding temperature can have an effect. Also, surface finishes will be different for cut vs. molded gears. And finally, there is the impact of shrinkage with molding which may not have been adequately compensated.

18.6.8 Elimination of Gear Noise

Incomplete conjugate action and/or excessive backlash are usually the source of noise. Plastic molded gears are generally less accurate than their metal counterparts. Furthermore, due to the presence of a larger Total Composite Error, there is more backlash built into the gear train.

To avoid noise, more resilient material, such as urethane, can be used. **Figure 18-9** shows several gears made of urethane which, in mesh with Delrin gears, produce a practically noiseless gear train. The face width of the urethane gears must be increased correspondingly to compensate for lower load carrying ability of this material.

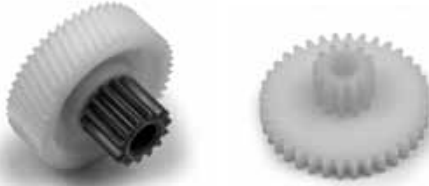


Fig. 18-9 Gears Made of Urethane

18.7 Mold Construction

Depending on the quantity of gears to be produced, a decision has to be made to make one single cavity or a multiplicity of identical cavities. If more than one cavity is involved, these are used as "family molds" inserted in mold bases which can accommodate a number of cavities for identical or different parts.

Since special terminology will be used, we shall first describe the elements shown in Figure 18-10.

1. **Locating Ring** is the element which assures the proper location of the mold on the platen with respect to the nozzle which injects the molten plastic.
2. **Sprue Bushing** is the element which mates with the nozzle. It has a spherical or flat receptacle which accurately mates with the surface of the nozzle.
3. **Sprue** is the channel in the sprue bushing through which the molten plastic is injected.
4. **Runner** is the channel which distributes material to different cavities within the same mold base.
5. **Core Pin** is the element which, by its presence, restricts the flow of plastic; hence, a hole or void will be created in the molded part.
6. **Ejector Sleeves** are operated by the molding machine. These have a relative motion with respect to the cavity in the direction which will cause ejection of the part from the mold.
7. **Front Side** is considered the side on which the sprue bushing and the nozzle are located.
8. **Gate** is the orifice through which the molten plastic enters the cavity.
9. **Vent** (not visible due to its small size) is a minuscule opening through which the air can be evacuated from the cavity as the molten plastic fills it. The vent is configured to let air escape, but does not fill up with plastic.

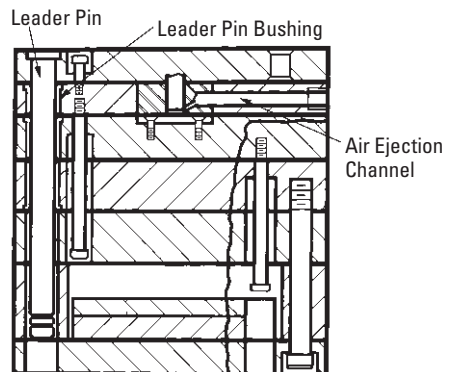
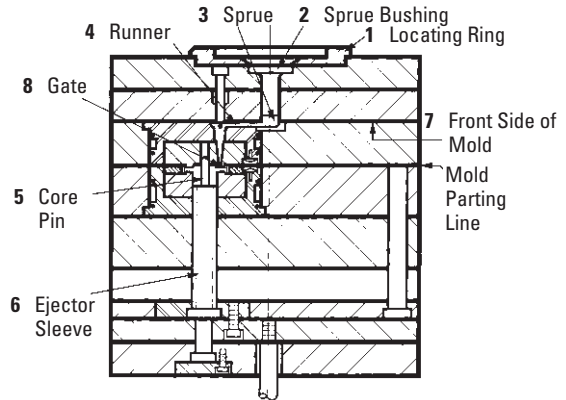


Fig. 18-10 Mold Nomenclature

The location of the gate on the gear is extremely important. If a side gate is used, as shown in **Figure 18-11**, the material is injected in one spot and from there it flows to fill out the cavity. This creates a weld line opposite to the gate. Since the plastic material is less fluid at that point in time, it will be of limited strength where the weld is located.

Furthermore, the shrinkage of the material in the direction of the flow will be different from that perpendicular to the flow. As a result, a side-gated gear or rotating part will be somewhat elliptical rather than round.

In order to eliminate this problem, “diaphragm gating” can be used, which will cause the injection of material in all directions at the same time (**Figure 18-12**). The disadvantage of this method is the presence of a burr at the hub and no means of support of the core pin because of the presence of the sprue.

The best, but most elaborate, way is “multiple pin gating” (**Figure 18-13**). In this case, the plastic is injected at several places symmetrically located. This will assure reasonable viscosity of plastic when the material welds, as well as create uniform shrinkage in all directions. The problem is the elaborate nature of the mold arrangement – so called 3-plate molds, in **Figure 18-14** – accompanied by high costs. If precision is a requirement, this way of molding is a must, particularly if the gears are of a larger diameter.

To compare the complexity of a 3-plate mold with a 2-plate mold, which is used for edge gating, **Figure 18-15** can serve as an illustration.

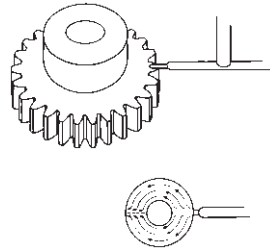


Fig. 18-11 Side Gating

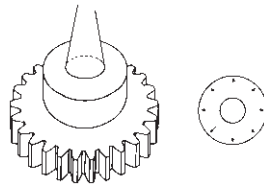


Fig. 18-12 Diaphragm Gating

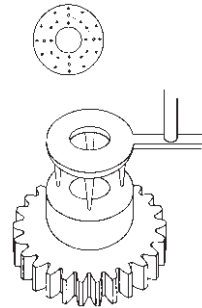


Fig. 18-13 Multiple Pin Gating

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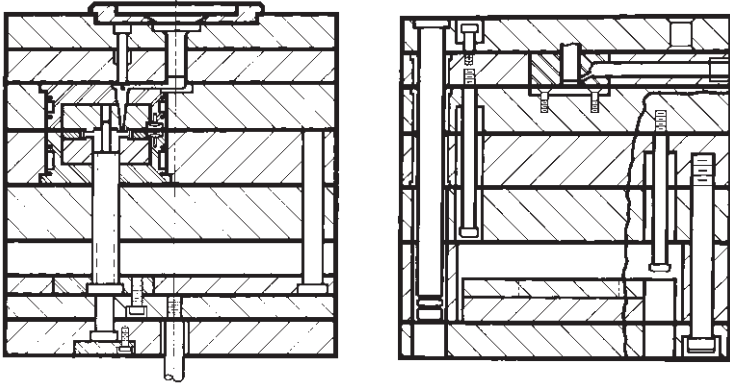
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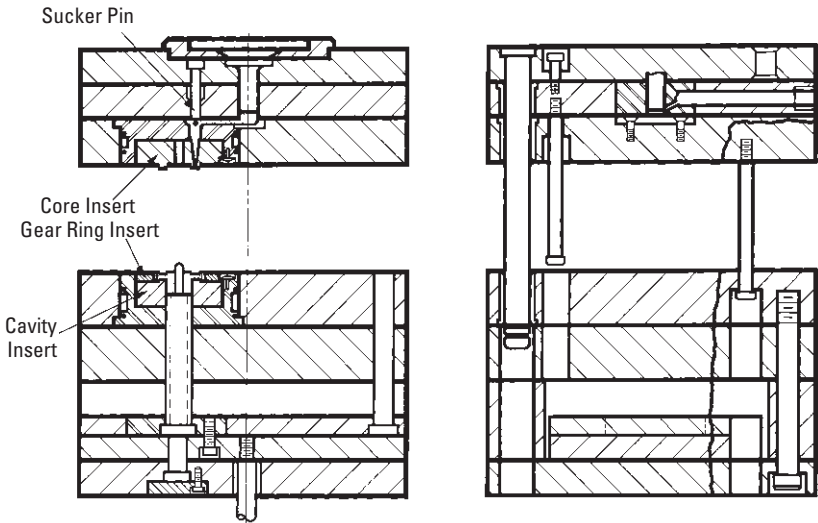
14

15

A

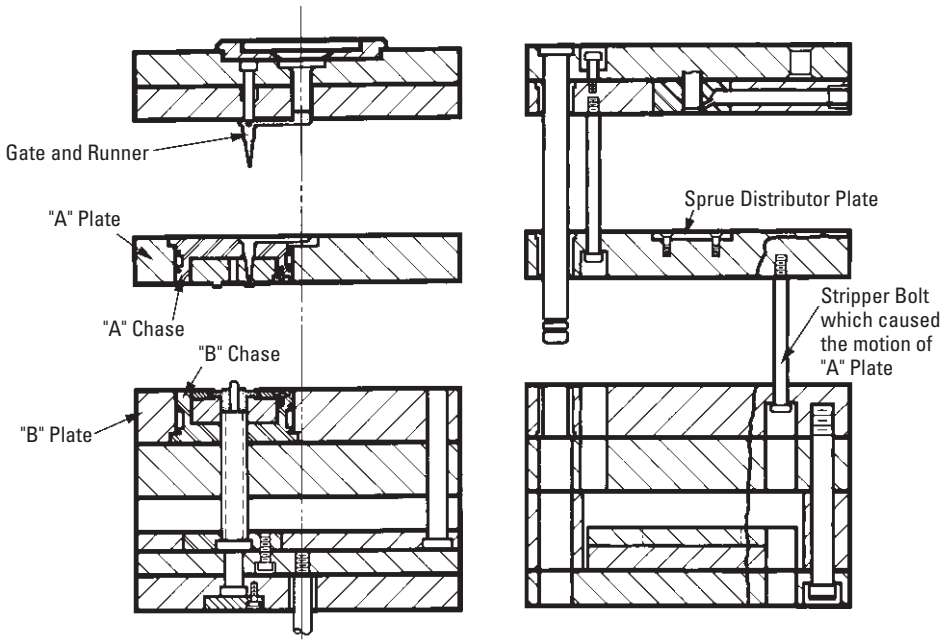


(a) Mold Closed

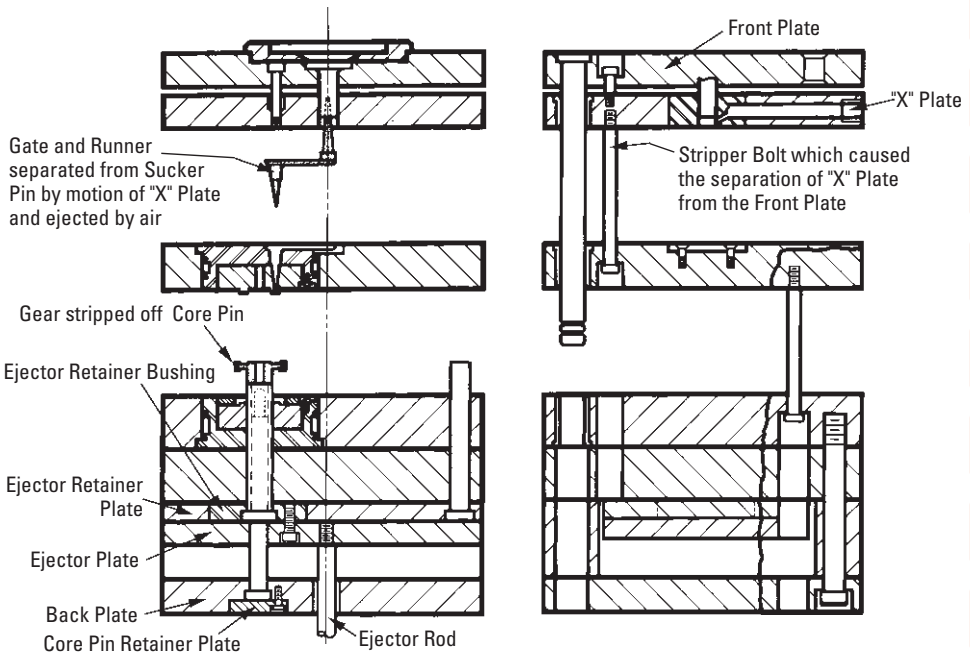


(b) Gates Separated from Molded Parts

Fig. 18-14 Three-Plate Mold

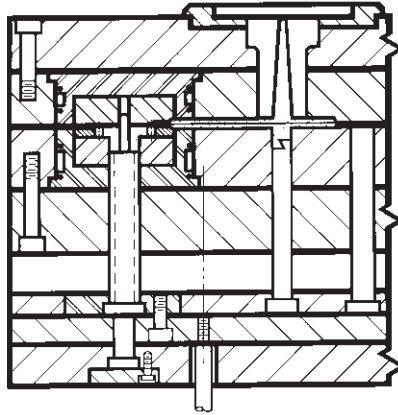


(c) Gate and Runner Exposed

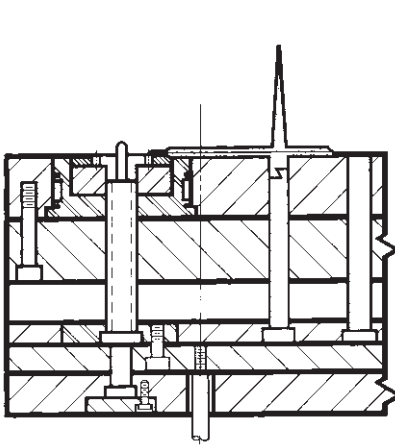
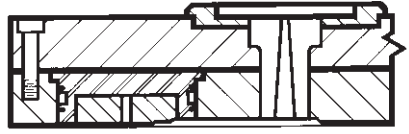
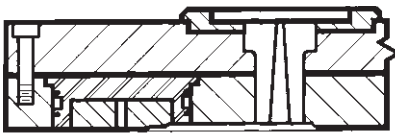


(d) Mold Open

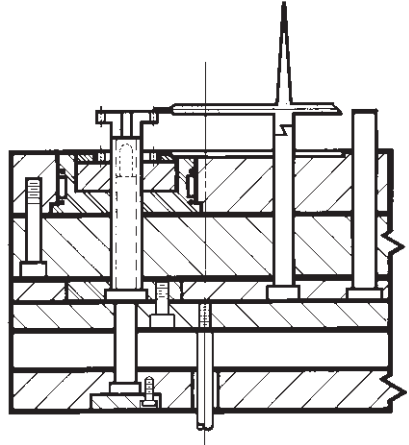
Fig. 18-14 (Cont.) Three-Plate Mold



(a) Mold Closed



(b) Mold Open



(c) Part, Runners & Sprue Ejected

Fig. 18-15 Two-Plate Mold

SECTION 19 FEATURES OF TOOTH SURFACE CONTACT



Tooth surface contact is critical to noise, vibration, efficiency, strength, wear and life. To obtain good contact, the designer must give proper consideration to the following features:

- **Modifying the Tooth Shape**
Improve tooth contact by crowning or relieving.
- **Using Higher Precision Gear**
Specify higher accuracy by design. Also, specify that the manufacturing process is to include grinding or lapping.
- **Controlling the Accuracy of the Gear Assembly**
Specify adequate shaft parallelism and perpendicularity of the gear housing (box or structure).

Surface contact quality of spur and helical gears can be reasonably controlled and verified through piece part inspection. However, for the most part, bevel and worm gears cannot be equally well inspected. Consequently, final inspection of bevel and worm mesh tooth contact in assembly provides a quality criterion for control. Then, as required, gears can be axially adjusted to achieve desired contact.

JIS B 1741 classifies surface contact into three levels, as presented in **Table 19-1**.

The percentage in **Table 19-1** considers only the effective width and height of teeth.

Table 19-1 Levels of Gear Surface Contact

| Level | Types of Gear | Levels of Surface Contact | |
|-------|-------------------|---------------------------|------------------------|
| | | Tooth Width Direction | Tooth Height Direction |
| A | Cylindrical Gears | More than 70% | More than 40% |
| | Bevel Gears | More than 50% | |
| | Worm Gears | | |
| B | Cylindrical Gears | More than 50% | More than 30% |
| | Bevel Gears | More than 35% | |
| | Worm Gears | | |
| C | Cylindrical Gears | More than 35% | More than 20% |
| | Bevel Gears | More than 25% | |
| | Worm Gears | More than 20% | |

19.1 Surface Contact Of Spur And Helical Meshes

A check of contact is, typically, only done to verify the accuracy of the installation, rather than the individual gears. The usual method is to blue dye the gear teeth and operate for a short time. This reveals the contact area for inspection and evaluation.

19.2 Surface Contact Of A Bevel Gear

It is important to check the surface contact of a bevel gear both during manufacturing and again in final assembly. The method is to apply a colored dye and observe the contact area after running. Usually some load is applied, either the actual or applied braking, to realize a realistic contact condition. Ideal contact favors the toe end under no or light load, as shown in **Figure 19-1**; and, as load is increased to full load, contact shifts to the central part of the tooth width.

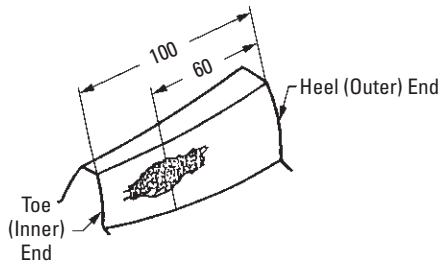


Fig. 19-1 The Contact Trace on Central Front End



0 10

Even when a gear is ideally manufactured, it may reveal poor surface contact due to lack of precision in housing or improper mounting position, or both. Usual major faults are:

1. Shafts are not intersecting, but are skew (offset error).
2. Shaft angle error of gear box.
3. Mounting distance error.

Errors 1 and 2 can be corrected only by reprocessing the housing/mounting. Error 3 can be corrected by adjusting the gears in an axial direction. All three errors may be the cause of improper backlash.

19.2.1 The Offset Error of Shaft Alignment

If a gear box has an offset error, then it will produce crossed end contact, as shown in **Figure 19-2**. This error often appears as if error is in the gear tooth orientation.

19.2.2 The Shaft Angle Error of Gear Box

As **Figure 19-3** shows, the contact trace will move toward the toe end if the shaft angle error is positive; the contact trace will move toward the heel end if the shaft angle error is negative.

19.2.3 Mounting Distance Error

When the mounting distance of the pinion is a positive error, the contact of the pinion will move towards the tooth root, while the contact of the mating gear will move toward the top of the tooth. This is the same situation as if the pressure angle of the pinion is smaller than that of the gear. On the other hand, if the mounting distance of the pinion has a negative error, the contact of the pinion will move toward the top and that of the gear will move toward the root. This is similar to the pressure angle of the pinion being larger than that of the gear. These errors may be diminished by axial adjustment with a backing shim. The various contact patterns due to mounting distance errors are shown in **Figure 19-4**.

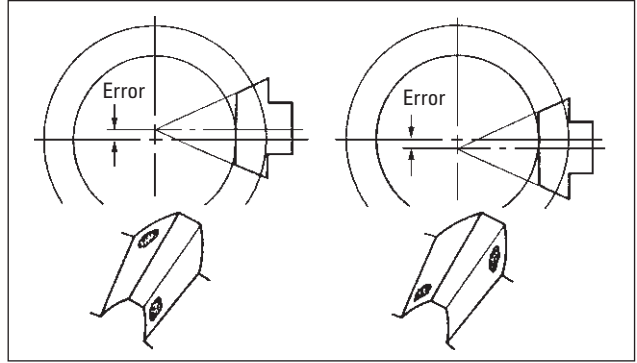


Fig. 19-2 Poor Contact Due to Offset Error of Shafts

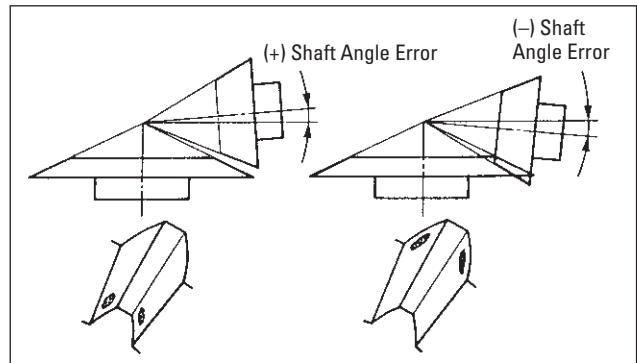


Fig. 19-3 Poor Contact Due to Shaft Angle Error

Mounting distance error will cause a change of backlash; positive error will increase backlash; and negative, decrease. Since the mounting distance error of the pinion affects the surface contact greatly, it is customary to adjust the gear rather than the pinion in its axial direction.



19.3 Surface Contact Of Worm And Worm Gear

There is no specific Japanese standard concerning worm gearing, except for some specifications regarding surface contact in JIS B 1741.

Therefore, it is the general practice to test the tooth contact and backlash with a tester. Figure 19-5 shows the ideal contact for a worm gear mesh.

From Figure 19-5, we realize that the ideal portion of contact inclines to the receding side. The approaching side has a smaller contact trace than the receding side. Because the clearance in the approaching side is larger than in the receding side, the oil film is established much easier in the approaching side. However, an excellent worm gear in conjunction with a defective gear box will decrease the level of tooth contact and the performance.

There are three major factors, besides the gear itself, which may influence the surface contact:

1. Shaft Angle Error.
2. Center Distance Error.
3. Mounting Distance Error of Worm Gear.

Errors number 1 and number 2 can only be corrected by remaking the housing. Error number 3 may be decreased by adjusting the worm gear along the axial direction. These three errors introduce varying degrees of backlash.

19.3.1. Shaft Angle Error

If the gear box has a shaft angle error, then it will produce crossed contact as shown in Figure 19-6.

A helix angle error will also produce a similar crossed contact.

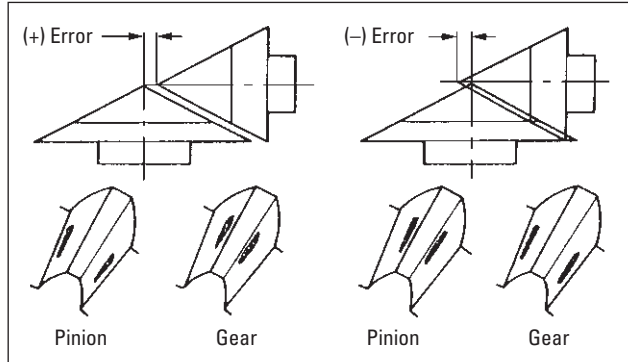


Fig. 19-4 Poor Contact Due to Error in Mounting Distance

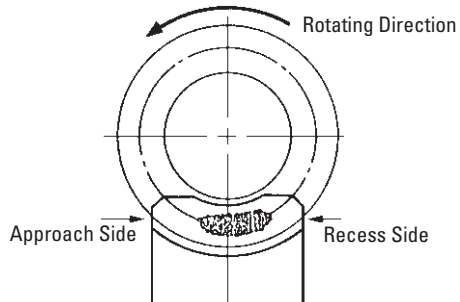


Fig. 19-5 Ideal Surface Contact of Worm Gear

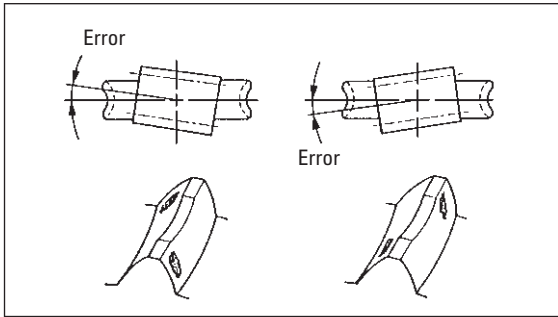


Fig. 19-6 Poor Contact Due to Shaft Angle Error

19.3.2 Center Distance Error

Even when exaggerated center distance errors exist, as shown in **Figure 19-7**, the results are crossed end contacts. Such errors not only cause bad contact but also greatly influence backlash.

A positive center distance error causes increased backlash. A negative error will decrease backlash and may result in a tight mesh, or even make it impossible to assemble.

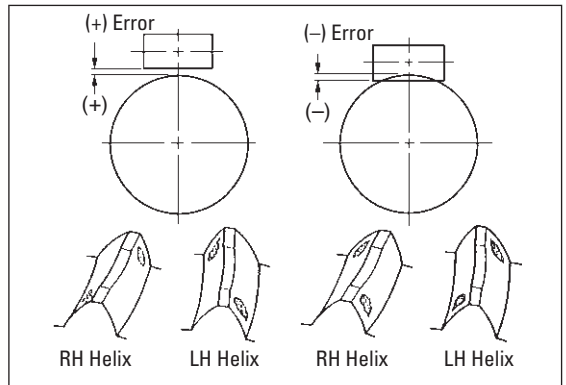


Fig. 19-7 Poor Contact Due to Center Distance Error

19.3.3 Mounting Distance Error

Figure 19-8 shows the resulting poor contact from mounting distance error of the worm gear. From the figure, we can see the contact shifts toward the worm gear tooth's edge. The direction of shift in the contact area matches the direction of worm gear mounting error. This error affects backlash, which tends to decrease as the error increases. The error can be diminished by microadjustment of the worm gear in the axial direction.

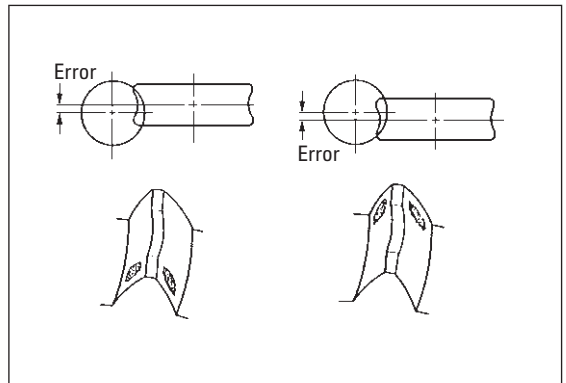


Fig. 19-8 Poor Contact Due to Mounting Distance Error

SECTION 20 LUBRICATION OF GEARS



The purpose of lubricating gears is as follows:

1. Promote sliding between teeth to reduce the coefficient of friction (μ).
2. Limit the temperature rise caused by rolling and sliding friction.

To avoid difficulties such as tooth wear and premature failure, the correct lubricant must be chosen.

20.1 Methods Of Lubrication

There are three gear lubrication methods in general use:

1. Grease lubrication.
2. Splash lubrication (oil bath method).
3. Forced oil circulation lubrication.

There is no single best lubricant and method. Choice depends upon tangential speed (m/s) and rotating speed (rpm). At low speed, grease lubrication is a good choice. For medium and high speeds, splash lubrication and forced circulation lubrication are more appropriate, but there are exceptions. Sometimes, for maintenance reasons, a grease lubricant is used even with high speed. **Table 20-1** presents lubricants, methods and their applicable ranges of speed.

Table 20-1(A) Ranges of Tangential Speed (m/s) for Spur and Bevel Gears

| No. | Lubrication | Range of Tangential Speed (m/s) | | | | | |
|-----|--------------------------------|--------------------------------------|---|----|----|----|----|
| | | 0 | 5 | 10 | 15 | 20 | 25 |
| 1 | Grease Lubrication | ←----- ----- ----- ----- ----- ----- | | | | | |
| 2 | Splash Lubrication | ----- ----- ----- ----- ----- ----- | | | | | |
| 3 | Forced Circulation Lubrication | ----- ----- ----- ----- ----- ----- | | | | | |

Table 20-1(B) Ranges of Sliding Speed (m/s) for Worm Gears

| No. | Lubrication | Range of Sliding Speed (m/s) | | | | | |
|-----|--------------------------------|--------------------------------------|---|----|----|----|----|
| | | 0 | 5 | 10 | 15 | 20 | 25 |
| 1 | Grease Lubrication | ←----- ----- ----- ----- ----- ----- | | | | | |
| 2 | Splash Lubrication | ----- ----- ----- ----- ----- ----- | | | | | |
| 3 | Forced Circulation Lubrication | ----- ----- ----- ----- ----- ----- | | | | | |

The following is a brief discussion of the three lubrication methods.

20.1.1 Grease Lubrication

Grease lubrication is suitable for any gear system that is open or enclosed, so long as it runs at low speed. There are three major points regarding grease:

1. Choosing a lubricant with suitable viscosity.
A lubricant with good fluidity is especially effective in an enclosed system.
2. Not suitable for use under high load and continuous operation.
The cooling effect of grease is not as good as lubricating oil. So it may become a problem with temperature rise under high load and continuous operating conditions.
3. Proper quantity of grease.
There must be sufficient grease to do the job. However, too much grease can be harmful, particularly in an enclosed system. Excess grease will cause agitation, viscous drag and result in power loss.



20.1.2 Splash Lubrication

Splash lubrication is used with an enclosed system. The rotating gears splash lubricant onto the gear system and bearings. It needs at least 3 m/s tangential speed to be effective. However, splash lubrication has several problems, two of them being oil level and temperature limitation.

1. Oil level:

There will be excessive agitation loss if the oil level is too high. On the other hand, there will not be effective lubrication or ability to cool the gears if the level is too low. **Table 20-2** shows guide lines for proper oil level. Also, the oil level during operation must be monitored, as contrasted with the static level, in that the oil level will drop when the gears are in motion. This problem may be countered by raising the static level of lubricant or installing an oil pan.

2. Temperature limitation:

The temperature of a gear system may rise because of friction loss due to gears, bearings and lubricant agitation. Rising temperature may cause one or more of the following problems:

- Lower viscosity of lubricant.
- Accelerated degradation of lubricant.
- Deformation of housing, gears and shafts.
- Decreased backlash.

New high-performance lubricants can withstand up to 80 to 90°C. This temperature can be regarded as the limit. If the lubricant's temperature is expected to exceed this limit, cooling fins should be added to the gear box, or a cooling fan incorporated into the system.

Table 20-2 Adequate Oil Level

| Types of Gears | Spur Gears and Helical Gears | | |
|----------------|------------------------------|--|----------------|
| | Horizontal Shaft | | Vertical Shaft |
| Oil level | | | 0 |
| Level 0 | | | |

| Types of Gears | Bevel Gears | Worm Gears | |
|----------------|------------------|------------|------------|
| | Horizontal Shaft | Worm Above | Worm Below |
| Oil level | | | |
| Level 0 | | | 0 |

h = Full depth, b = Tooth width

d_2 = Pitch diameter of worm gear, d_w = Pitch diameter of worm

20.1.3 Forced-Circulation Lubrication

Forced-circulation lubrication applies lubricant to the contact portion of the teeth by means of an oil pump. There are drop, spray and oil mist methods of application.

1. Drop method:

An oil pump is used to suck-up the lubricant and then directly drop it on the contact portion of the gears via a delivery pipe.

2. Spray method:

An oil pump is used to spray the lubricant directly on the contact area of the gears.

3. Oil mist method:

Lubricant is mixed with compressed air to form an oil mist that is sprayed against the contact region of the gears. It is especially suitable for high-speed gearing.

Oil tank, pump, filter, piping and other devices are needed in the forced-lubrication system. Therefore, it is used only for special high-speed or large gear box applications. By filtering and cooling the circulating lubricant, the right viscosity and cleanliness can be maintained. This is considered to be the best way to lubricate gears.



20.2 Gear Lubricants

An oil film must be formed at the contact surface of the teeth to minimize friction and to prevent dry metal-to-metal contact. The lubricant should have the properties listed in **Table 20-3**.

Table 20-3 The Properties that Lubricant Should Possess

| No. | Properties | Description |
|-----|--------------------------------|--|
| 1 | Correct and Proper Viscosity | Lubricant should maintain a proper viscosity to form a stable oil film at the specified temperature and speed of operation. |
| 2 | Antiscoring Property | Lubricant should have the property to prevent the scoring failure of tooth surface while under high load. |
| 3 | Oxidization and Heat Stability | A good lubricant should not oxidize easily and must perform in moist and high-temperature environment for long duration. |
| 4 | Water Antiaffinity Property | Moisture tends to condense due to temperature change, when the gears are stopped. The lubricant should have the property of isolating moisture and water from lubricant. |
| 5 | Antifoam Property | If the lubricant foams under agitation, it will not provide a good oil film. Antifoam property is a vital requirement. |
| 6 | Anticorrosion Property | Lubrication should be neutral and stable to prevent corrosion from rust that may mix into the oil. |

20.2.1 Viscosity of Lubricant

The correct viscosity is the most important consideration in choosing a proper lubricant. The viscosity grade of industrial lubricant is regulated in JIS K 2001. **Table 20-4** expresses ISO viscosity grade of industrial lubricants.

Table 20-4 ISO Viscosity Grade of Industrial Lubricant (JIS K 2001)

| ISO Viscosity Grade | Kinematic Viscosity Center Value $10^{-6} \text{ m}^2/\text{s}$ (cSt) (40°C) | Kinematic Viscosity Range $10^{-6} \text{ m}^2/\text{s}$ (cSt) (40°C) | |
|---------------------|--|---|----------------|
| ISO VG 2 | 2.2 | More than 1.98 and | less than 2.42 |
| ISO VG 3 | 3.2 | More than 2.88 and | less than 3.52 |
| ISO VG 5 | 4.6 | More than 4.14 and | less than 5.06 |
| ISO VG 7 | 6.8 | More than 6.12 and | less than 7.48 |
| ISO VG 10 | 10 | More than 9.00 and | less than 11.0 |
| ISO VG 15 | 15 | More than 13.5 and | less than 16.5 |
| ISO VG 22 | 22 | More than 19.8 and | less than 24.2 |
| ISO VG 32 | 32 | More than 28.8 and | less than 35.2 |
| ISO VG 46 | 46 | More than 41.4 and | less than 50.6 |
| ISO VG 68 | 68 | More than 61.2 and | less than 74.8 |
| ISO VG 100 | 100 | More than 90.0 and | less than 110 |
| ISO VG 150 | 150 | More than 135 and | less than 165 |
| ISO VG 220 | 220 | More than 198 and | less than 242 |
| ISO VG 320 | 320 | More than 288 and | less than 352 |
| ISO VG 460 | 460 | More than 414 and | less than 506 |
| ISO VG 680 | 680 | More than 612 and | less than 748 |
| ISO VG 1000 | 1000 | More than 900 and | less than 1100 |
| ISO VG 1500 | 1500 | More than 1350 and | less than 1650 |

JIS K 2219 regulates the gear oil for industrial and automobile use. Table 20-5 shows the classes and viscosities for industrial gear oils.

Table 20-5 Industrial Gear Oil

| Types of Industrial Gear Oil | | Usage |
|------------------------------|------------|--|
| Class One | ISO VG 32 | Mainly used in a general and lightly loaded enclosed gear system |
| | ISO VG 46 | |
| | ISO VG 68 | |
| | ISO VG 100 | |
| | ISO VG 150 | |
| | ISO VG 220 | |
| | ISO VG 320 | |
| ISO VG 460 | | |
| Class Two | ISO VG 68 | Mainly used in a general medium to heavily loaded enclosed gear system |
| | ISO VG 100 | |
| | ISO VG 150 | |
| | ISO VG 220 | |
| | ISO VG 320 | |
| | ISO VG 460 | |
| ISO VG 680 | | |

JIS K 2220 regulates the specification of grease which is based on NLGI viscosity ranges. These are shown in **Table 20-6**.

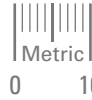


Table 20-6 NLGI Viscosity Grades

| NLGI No. | ASTM Worked Penetration at 25°C | State | Application |
|----------|---------------------------------|-------------------|--|
| No. 000 | 445 ... 475 | Semiliquid | } For Central Lubrication System |
| No. 00 | 400 ... 430 | Semiliquid | |
| No. 0 | 335 ... 385 | Very soft paste | } For Automobile Chassis |
| No. 1 | 310 ... 340 | Soft paste | |
| No. 2 | 265 ... 295 | Medium firm paste | } For Ball & Roller Bearing, General Use |
| No. 3 | 220 ... 250 | Semihard paste | |
| No. 4 | 175 ... 205 | Hard paste | } For Automobile Wheel Bearing |
| No. 5 | 130 ... 165 | Very hard paste | |
| No. 6 | 85 ... 115 | Very hard paste | } For Sleeve Bearing (Pillow Block) |

Besides JIS viscosity classifications, **Table 20-7** contains AGMA viscosity grades and their equivalent ISO viscosity grades.

Table 20-7 AGMA Viscosity Grades

| AGMA No. of Gear Oil | | ISO Viscosity Grades |
|----------------------|---------|----------------------|
| R & O Type | EP Type | |
| 1 | | VG 46 |
| 2 | 2 EP | VG 68 |
| 3 | 3 EP | VG 100 |
| 4 | 4 EP | VG 150 |
| 5 | 5 EP | VG 220 |
| 6 | 6 EP | VG 320 |
| 7 7 comp | 7 EP | VG 460 |
| 8 8 comp | 8 EP | VG 680 |
| 8A comp | | VG 1000 |
| 9 | 9 EP | VG 1500 |

20.2.2 Selection Of Lubricant

It is practical to select a lubricant by following the catalog or technical manual of the manufacturer. **Table 20-8** is the application guide from AGMA 250.03 "Lubrication of Industrial Enclosed Gear Drives".

Table 20-9 is the application guide chart for worm gears from AGMA 250.03.

Table 20-10 expresses the reference value of viscosity of lubricant used in the equations for the strength of worm gears in JGMA 405-01.

Table 20-8 Recommended Lubricants by AGMA

| Gear Type | | Size of Gear Equipment (mm) | | Ambient temperature °C | |
|-----------------------------------|------------------------|---------------------------------|---------------|------------------------|-----------|
| | | | | -10 ... 16 | 10 ... 52 |
| AGMA No. | | | | | |
| Parallel Shaft System | Single Stage Reduction | Center Distance (Output Side) | Less than 200 | 2 to 3 | 3 to 4 |
| | | | 200 ... 500 | 2 to 3 | 4 to 5 |
| | | | More than 500 | 3 to 4 | 4 to 5 |
| | Double Stage Reduction | | Less than 200 | 2 to 3 | 3 to 4 |
| | | | 200 ... 500 | 3 to 4 | 4 to 5 |
| | | | More than 500 | 3 to 4 | 4 to 5 |
| Triple Stage Reduction | Less than 200 | 2 to 3 | 3 to 4 | | |
| | 200 ... 500 | 3 to 4 | 4 to 5 | | |
| | More than 500 | 4 to 5 | 5 to 6 | | |
| Planetary Gear System | | Outside Diameter of Gear Casing | Less than 400 | 2 to 3 | 3 to 4 |
| Straight and Spiral Bevel Gearing | | Cone Distance | More than 400 | 3 to 4 | 4 to 5 |
| | | | Less than 300 | 2 to 3 | 4 to 5 |
| | | | More than 300 | 3 to 4 | 5 to 6 |
| Gearmotor | | | | 2 to 3 | 4 to 5 |
| High-speed Gear Equipment | | | | 1 | 2 |

Table 20-9 Recommended Lubricants for Worm Gears by AGMA

| Types of Worm | Center Distance mm | Rotating Speed of Worm rpm | Ambient Temperature, °C | | Rotating Speed of Worm rpm | Ambient Temperature, °C | |
|------------------|--------------------|----------------------------|-------------------------|---------|----------------------------|-------------------------|---------|
| | | | -10...16 | 10...52 | | -10...16 | 10...52 |
| Cylindrical Type | ≤ 150 | ≤ 700 | | | 700 < | | 8 Comp |
| | 150...300 | ≤ 450 | | | 450 < | | |
| | 300...460 | ≤ 300 | 7 Comp | 8 Comp | 300 < | 7 Comp | |
| | 460...600 | ≤ 250 | | | 250 < | | |
| | 600 < | ≤ 200 | | | 200 < | | |
| Throated Type | ≤ 150 | ≤ 700 | | | 700 < | | |
| | 150...300 | ≤ 450 | | | 450 < | | |
| | 300...460 | ≤ 300 | 8 Comp | 8A Comp | 300 < | 8 Comp | |
| | 460...600 | ≤ 250 | | | 250 < | | |
| | 600 < | ≤ 200 | | | 200 < | | |

Table 20-10 Reference Values of Viscosity Unit: cSt/37.8°C

| Operating Temperature | | Sliding Speed m/s | | | |
|-----------------------|----------------------|-------------------|-------------|-------------|--|
| Maximum Running | Starting Temperature | Less than 2.5 | 2.5 ... 5 | More than 5 | |
| 0°C ... 10°C | -10°C ... 0°C | 110 ... 130 | 110 ... 130 | 110 ... 130 | |
| 0°C ... 10°C | More than 0°C | 110 ... 150 | 110 ... 150 | 110 ... 150 | |
| 10°C ... 30°C | More than 0°C | 200 ... 245 | 150 ... 200 | 150 ... 200 | |
| 30°C ... 55°C | More than 0°C | 350 ... 510 | 245 ... 350 | 200 ... 245 | |
| 55°C ... 80°C | More than 0°C | 510 ... 780 | 350 ... 510 | 245 ... 350 | |
| 80°C ... 100°C | More than 0°C | 900 ... 1100 | 510 ... 780 | 350 ... 510 | |

SECTION 21 GEAR NOISE

There are several causes of noise. The noise and vibration in rotating gears, especially at high loads and high speeds, need to be addressed. Following are ways to reduce the noise. These points should be considered in the design stage of gear systems.

**1. Use High-Precision Gears**

- Reduce the pitch error, tooth profile error, runout error and lead error.
- Grind teeth to improve the accuracy as well as the surface finish.

2. Use Better Surface Finish on Gears

- Grinding, lapping and honing the tooth surface, or running in gears in oil for a period of time can also improve the smoothness of tooth surface and reduce the noise.

3. Ensure a Correct Tooth Contact

- Crowning and relieving can prevent end contact.
- Proper tooth profile modification is also effective.
- Eliminate impact on tooth surface.

4. Have A Proper Amount of Backlash

- A smaller backlash will help reduce pulsating transmission.
- A bigger backlash, in general, causes less problems.

5. Increase the Contact Ratio

- Bigger contact ratio lowers the noise. Decreasing pressure angle and/or increasing tooth depth can produce a larger contact ratio.
- Enlarging overlap ratio will reduce the noise. Because of this relationship, a helical gear is quieter than the spur gear and a spiral bevel gear is quieter than the straight bevel gear.

6. Use Small Gears

- Adopt smaller module gears and smaller outside diameter gears.

7. Use High-Rigidity Gears

- Increasing face width can give a higher rigidity that will help in reducing noise.
- Reinforce housing and shafts to increase rigidity.

8. Use High-Vibration-Damping Material

- Plastic gears will be quiet in light load, low speed operation.
- Cast iron gears have lower noise than steel gears.

9. Apply Suitable Lubrication

- Lubricate gears sufficiently.
- High-viscosity lubricant will have the tendency to reduce the noise.

10. Lower Load and Speed

- Lowering rpm and load as far as possible will reduce gear noise.

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> Spur Gears, Precision

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|----------|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| Fairloc® | | 0.5 | | | | | | | | 1-27 |
| | | 0.5 | | | | | | | | 1-28 |
| | | 0.5 | | | | | | | | 1-37 |
| Fairloc® | | 0.5 | Hub | | | | | Gear | | 1-98 |
| | | 0.5 | Hub | | | | | Gear | | 1-99 |
| | | 0.5 | | | | | | | | 1-104 |
| Fairloc® | | 0.8 | | | | | | | | 1-42 |
| | | 0.8 | | | | | | | | 1-43 |
| | | 0.8 | | | | | | | | 1-47 |
| Fairloc® | | 0.8 | Hub | | | | | Gear | | 1-106 |
| | | 0.8 | Hub | | | | | Gear | | 1-107 |
| | | 0.8 | | | | | | | | 1-110 |
| Fairloc® | | 1 | | | | | | | | 1-50 |
| | | 1 | | | | | | | | 1-51 |
| | | 1 | | | | | | | | 1-57 |
| | | 1 | | | | | | | | 1-59 |
| Fairloc® | | 1 | Hub | | | | | Gear | | 1-111 |
| | | 1 | Hub | | | | | Gear | | 1-112 |
| | | 1 | Core | | | | Gear | | | 1-113 |
| | | 1 | | | | | | | | 1-120 |
| | | 1.25 | | | | | | | | 1-65 |
| | | 1.25 | | | | | | | | 1-67 |
| | | 1.5 | | | | | | | | 1-70 |
| | | 1.5 | | | | | | | | 1-73 |
| | | 1.5 | Core | | | | Gear | | | 1-122 |
| | | 2 | | | | | | | | 1-79 |
| | | 2 | | | | | | | | 1-82 |
| | | 2 | Core | | | | Gear | | | 1-125 |
| | | 2.5 | | | | | | | | 1-86 |
| | | 2.5 | | | | | | | | 1-89 |
| | | 3 | | | | | | | | 1-92 |
| | | 3 | | | | | | | | 1-95 |

> Spur Gears, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|--------|----------|-------|--------|-------|----------|
| | | 0.4 | | | | | | | | 1-26 |
| | | 0.4 | | | Insert | | | Gear | | 1-96 |
| | | 0.4 | | | | | | | | 1-97 |
| | | 0.5 | | | | | | | | 1-33 |
| | | 0.5 | | | | | | | | 1-35 |
| | | 0.5 | | | | | | | | 1-36 |
| | | 0.5 | | | Insert | | | Gear | | 1-100 |
| | | 0.5 | | | | | | | | 1-101 |
| | | 0.7 | | | | | | | | 1-105 |
| | | 0.75 | | | | | | | | 1-40 |
| | | 0.75 | | | | | | | | 1-41 |
| | | 0.8 | | | | | | | | 1-45 |
| | | 0.8 | | | Insert | | | Gear | | 1-108 |
| | | 0.8 | | | | | | | | 1-109 |
| | | 1 | | | | | | | | 1-53 |
| | | 1 | | | | | | | | 1-62 |
| | | 1 | | | Insert | | | Gear | | 1-114 |
| | | 1 | | | | | | | | 1-116 |
| | | 1 | | | | | | | | 1-119 |
| | | 1.25 | | | | | | | | 1-121 |
| | | 1.5 | | | | | | | | 1-68 |
| | | 1.5 | | | | | | | | 1-72 |
| | | 1.5 | | | | | | | | 1-74 |
| | | 1.5 | | | | | | | | 1-123 |
| | | 1.5 | | | | | | | | 1-124 |

➤ **Spur Gears, Commercial (Continued)**

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 2 | | | | | | | | 1-76 |
| | | 2 | | | | | | | | 1-80 |
| | | 2 | | | | | | | | 1-126 |
| | | 2 | | | | | | | | 1-127 |
| | | 2 | | | | | | | | 1-128 |
| | | 2.5 | | | | | | | | 1-83 |
| | | 2.5 | | | | | | | | 1-87 |
| | | 2.5 | | | | | | | | 1-129 |
| | | 2.5 | | | | | | | | 1-130 |
| | | 3 | | | | | | | | 1-90 |
| | | 3 | | | | | | | | 1-93 |
| | | 3 | | | | | | | | 1-131 |
| | | 3 | | | | | | | | 1-132 |
| | | 3 | | | | | | | | 1-133 |

➤ **Spur Gears, Ground, Precision**

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.5 | | | | | | | | 1-7 |
| | | 0.8 | | | | | | | | 1-9 |
| | | 1 | | | | | | | | 1-11 |
| | | 1.5 | | | | | | | | 1-13 |
| | | 2 | | | | | | | | 1-14 |
| | | 2.5 | | | | | | | | 1-15 |
| | | 3 | | | | | | | | 1-16 |
| | | CP2 | | | | | | | | 1-17 |
| | | CP5 | | | | | | | | 1-17 |

➤ **Anti-Backlash Gears, Precision**

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.5 | | | | | | | | 1-134 |
| | | 0.5 | | | | | | | | 1-135 |
| | | 0.8 | | | | | | | | 1-134 |
| | | 0.8 | | | | | | | | 1-135 |
| | | 1 | | | | | | | | 1-134 |
| | | 1 | | | | | | | | 1-135 |

➤ **Spur Gear Stock, Commercial**

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.4 | | | | | | | | 1-23 |
| | | 0.5 | | | | | | | | 1-23 |
| | | 0.8 | | | | | | | | 1-24 |
| | | 1 | | | | | | | | 1-24 |

➤ **Pinions, Commercial**

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.15 | | | | | | | | 1-18 |
| | | 0.2 | | | | | | | | 1-18 |
| | | 0.25 | | | | | | | | 1-18 |
| | | 0.25 | | | | | | | | 1-19 |
| | | 0.3 | | | | | | | | 1-18 |
| | | 0.4 | | | | | | | | 1-18 |
| | | 0.4 | | | | | | | | 1-19 |
| | | 0.4 | | | | | | | | 1-20 |
| | | 0.5 | | | | | | | | 1-18 |
| | | 0.5 | | | | | | | | 1-19 |
| | | 0.5 | | | | | | | | 1-21 |
| | | 0.6 | | | | | | | | 1-19 |

> Pinions, Commercial (Continued)

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.75 | | | | | | | | 1-18 |
| | | 0.8 | | | | | | | | 1-18 |
| | | 0.8 | | | | | | | | 1-22 |
| | | 0.8 | | | | | | | | 1-147 |
| | | 1 | | | | | | | | 1-19 |
| | | 1 | | | | | | | | 1-147 |
| | | 1.5 | | | | | | | | 1-147 |
| | | 2 | | | | | | | | 1-147 |

> Pinion Shafts, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | | | | | | | | | 1-20 |
| | | | | | | | | | | 1-21 |
| | | | | | | | | | | 1-22 |

> Pinion Wire, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.4 | | | | | | | | 1-25 |
| | | 0.5 | | | | | | | | 1-25 |
| | | 0.8 | | | | | | | | 1-25 |

> Racks, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.3 | | | | | | | | 1-139 |
| | | 0.4 | | | | | | | | 1-140 |
| | | 0.5 | | | | | | | | 1-139 |
| | | 0.5 | | | | | | | | 1-140 |
| | | 0.5 | | | | | | | | 1-143 |
| | | 0.7 | | | | | | | | 1-143 |
| | | 0.75 | | | | | | | | 1-139 |
| | | 0.8 | | | | | | | | 1-139 |
| | | 0.8 | | | | | | | | 1-141 |
| | | 1 | | | | | | | | 1-139 |
| | | 1 | | | | | | | | 1-141 |
| | | 1 | | | | | | | | 1-143 |
| | | 1.25 | | | | | | | | 1-143 |
| | | 1.5 | | | | | | | | 1-142 |
| | | 1.5 | | | | | | | | 1-143 |
| | | 2 | | | | | | | | 1-142 |
| | | 2 | | | | | | | | 1-143 |
| | | 2.5 | | | | | | | | 1-142 |
| | | 2.5 | | | | | | | | 1-143 |
| | | 3 | | | | | | | | 1-142 |
| | | 3 | | | | | | | | 1-143 |

> Racks, Flexirack, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.8 | | | | | | | | 1-146 |
| | | 1 | | | | | | | | 1-146 |
| | | 1.5 | | | | | | | | 1-146 |
| | | 2 | | | | | | | | 1-146 |

> Racks, Flexirack Guide Rails, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.8 | | | | | | | | 1-147 |
| | | 1 | | | | | | | | 1-147 |
| | | 1.5 | | | | | | | | 1-147 |
| | | 2 | | | | | | | | 1-147 |

> Racks, Ground & Joining Gauge, Precision

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.5 | | | | | | | | 1-138 |
| | | 0.8 | | | | | | | | 1-138 |
| | | 1 | | | | | | | | 1-138 |
| | | 1.5 | | | | | | | | 1-138 |
| | | CP2 | | | | | | | | 1-144 |
| | | CP5 | | | | | | | | 1-144 |

> Racks, Round, Precision

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.5 | | | | | | | | 1-143 |
| | | 0.75 | | | | | | | | 1-143 |
| | | 0.8 | | | | | | | | 1-143 |
| | | 1 | | | | | | | | 1-143 |

> Internal Gears, Precision

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.5 | | | | | | | | 1-137 |
| | | 0.8 | | | | | | | | 1-137 |
| | | 1 | | | | | | | | 1-137 |

> Internal Gears, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 1 | | | | | | | | 1-136 |

> Helical Gears, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 1 | | | | | | | | 1-136 |
| | | 1.5 | | | | | | | | 1-136 |
| | | 2 | | | | | | | | 1-136 |

> Miter Gears, Spiral, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 1 | | | | | | | | 1-149 |
| | | 1.25 | | | | | | | | 1-150 |
| | | 1.5 | | | | | | | | 1-150 |
| | | 2 | | | | | | | | 1-150 |
| | | 2.25 | | | | | | | | 1-150 |

> Miter Gears, Spiral, Ground, Precision

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 2 | | | | | | | | 1-148 |
| | | 2.5 | | | | | | | | 1-148 |
| | | 3 | | | | | | | | 1-148 |
| | | 3.5 | | | | | | | | 1-148 |
| | | 4 | | | | | | | | 1-148 |
| | | 5 | | | | | | | | 1-148 |

> Miter Gears, Straight, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|---------------|-------|----------|
| | | 0.5 | | | | | | | | 1-149 |
| | | 0.5 | | | | | | | | 1-153 |
| | | 0.6 | | | | | | | | 1-152 |
| | | 0.8 | | | | | | | | 1-149 |
| | | 0.8 | | | | | | | | 1-153 |
| | | 1 | | | | | | | | 1-149 |
| | | 1 | | | | | | | | 1-152 |
| | | 1 | | | | | | | | 1-153 |
| | | 1 | | | | | | Die Cast Zinc | | 1-154 |
| | | 1.5 | | | | | | | | 1-151 |
| | | 1.5 | | | | | | | | 1-152 |
| | | 1.5 | | | | | | | | 1-153 |
| | | 1.5 | | | | | | Die Cast Zinc | | 1-154 |
| | | 2 | | | | | | | | 1-151 |
| | | 2 | | | | | | | | 1-153 |
| | | 2 | | | | | | Die Cast Zinc | | 1-154 |
| | | 2.5 | | | | | | | | 1-151 |
| | | 2.5 | | | | | | | | 1-153 |
| | | 2.5 | | | | | | Die Cast Zinc | | 1-154 |
| | | 2.75 | | | | | | | | 1-151 |
| | | 3 | | | | | | | | 1-151 |
| | | 3 | | | | | | | | 1-153 |
| | | 3 | | | | | | Die Cast Zinc | | 1-154 |
| | | 3.5 | | | | | | | | 1-153 |
| | | 3.5 | | | | | | Die Cast Zinc | | 1-154 |

> Bevel Gears, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 0.5 | | | | | | | | 1-156 |
| | | 0.5 | | | | | | | | 1-158 |
| | | 0.8 | | | | | | | | 1-156 |
| | | 0.8 | | | | | | | | 1-158 |
| | | 1 | | | | | | | | 1-156 |
| | | 1 | | | | | | | | 1-158 |
| | | 1.5 | | | | | | | | 1-157 |
| | | 1.5 | | | | | | | | 1-158 |
| | | 2 | | | | | | | | 1-157 |
| | | 2 | | | | | | | | 1-158 |
| | | 2.5 | | | | | | | | 1-157 |
| | | 2.5 | | | | | | | | 1-158 |
| | | 3 | | | | | | | | 1-157 |
| | | 3 | | | | | | | | 1-158 |

> Bevel Gears, Spiral, Ground, Precision

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | 2 | | | | | | | | 1-155 |
| | | 2.5 | | | | | | | | 1-155 |
| | | 3 | | | | | | | | 1-155 |
| | | 4 | | | | | | | | 1-155 |

> Worms, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|---------------|----------|
| | | 0.5 | | | | | | | | 1-160 |
| | | 0.8 | | | | | | | | 1-161 |
| | | 0.8 | | | | | | | | 1-162 |
| | | 1 | | | | | | | | 1-163 |
| | | 1 | | | | | | | | 1-164 |
| | | 1 | | | | | | | Die Cast Zinc | 1-166 |
| | | 1 | | | | | | | | 1-169 |
| | | 1.5 | | | | | | | | 1-167 |
| | | 1.5 | | | | | | | | 1-168 |
| | | 1.5 | | | | | | | | 1-169 |
| | | 2 | | | | | | | Die Cast Zinc | 1-166 |
| | | 2 | | | | | | | | 1-169 |
| | | 2 | | | | | | | | 1-170 |
| | | 2.5 | | | | | | | | 1-169 |
| | | 2.5 | | | | | | | | 1-172 |
| | | 3 | | | | | | | | 1-174 |

> Worm Gears, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|--------|----------|-------|--------|-----------------|----------|
| | | 0.5 | | | | | | | Aluminum Bronze | 1-160 |
| | | 0.8 | | | | | | | Aluminum Bronze | 1-161 |
| | | 0.8 | | | | | | | | 1-162 |
| | | 1 | | | | | | | Aluminum Bronze | 1-163 |
| | | 1 | | | Insert | | | Gear | | 1-164 |
| | | 1 | | | | | | | Aluminum Bronze | 1-165 |
| | | 1 | | | | | | | | 1-166 |
| | | 1 | | | | | | | | 1-169 |
| | | 1.5 | | | Insert | | | Gear | Cast Iron | 1-167 |
| | | 1.5 | | | | | | | Aluminum Bronze | 1-168 |
| | | 1.5 | | | | | | | | 1-169 |
| | | 2 | | | | | | | | 1-166 |
| | | 2 | | | | | | | | 1-169 |
| | | 2 | | | | | | | Cast Iron | 1-176 |
| | | 2 | | | | | | | Aluminum Bronze | 1-171 |
| | | 2.5 | | | | | | | | 1-169 |
| | | 2.5 | | | | | | | Aluminum Bronze | 1-173 |
| | | 3 | | | | | | | Aluminum Bronze | 1-175 |
| | | 3 | | | | | | | Cast Iron | 1-176 |

> Gear & Dial Hubs, Precision

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|----------|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| Fairloc® | | | | | | | | | | 1-177 |
| | | | | | | | | | | 1-178 |

> Gear Blanks, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|--------|----------|-------|--------|-------|----------|
| | | | | | Insert | | | Gear | | 1-179 |
| | | | | | | | | | | 1-180 |

> Splines & Splined Bushings, Commercial

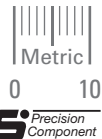
| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | | | | | | | | | 1-182 |
| | | | | | | | | | | 1-183 |

> Ratchets & Pawls, Commercial

| Hub | Hubless | Module | S. Steel | Steel | Brass | Aluminum | Nylon | Acetal | Other | Page No. |
|-----|---------|--------|----------|-------|-------|----------|-------|--------|-------|----------|
| | | | | | | | | | | 1-184 |

ISO CLASS 5
8 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55

> SPECIFICATION:

Δ Shaft Tolerance: 6 mm 0/-0.012
10 mm 0/-0.015



Fig. 1



Fig. 2



Fig. 3

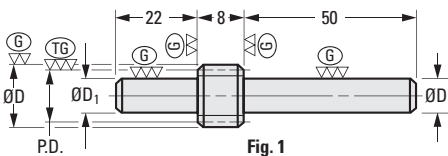


Fig. 1

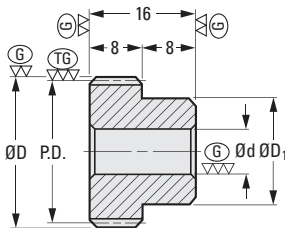


Fig. 2

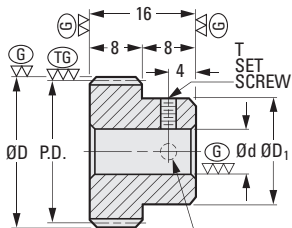


Fig. 3

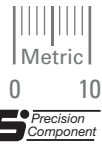
METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | D ₁ Hub Dia. | T Set Screw |
|------------------|----------|--------------|------|--------|-----------|----------|-------------------------|-------------|
| S15S05M020P0800G | 1 | 20 | 10 | 11 | — | — | 6 (h7) Δ | — |
| S15S05M024P0800G | 1 | 24 | 12 | 13 | — | — | 10 (h7) Δ | — |
| S15S05M025P0800G | 1 | 25 | 12.5 | 13.5 | — | — | 10 (h7) Δ | — |
| S10S05M030P0806G | 2 | 30 | 15 | 16 | 6 | +0.012/0 | 12 | — |
| S10S05M030T0806G | 3 | 30 | 15 | 16 | 6 | +0.012/0 | 12 | M3 |
| S10S05M032P0806G | 2 | 32 | 16 | 17 | 6 | +0.012/0 | 12 | — |
| S10S05M036P0808G | 2 | 36 | 18 | 19 | 8 | +0.015/0 | 16 | — |
| S10S05M040P0808G | 2 | 40 | 20 | 21 | 8 | +0.015/0 | 16 | — |
| S10S05M040T0808G | 3 | 40 | 20 | 21 | 8 | +0.015/0 | 16 | M4 |
| S10S05M045P0808G | 2 | 45 | 22.5 | 23.5 | 8 | +0.015/0 | 16 | — |
| S10S05M048P0808G | 2 | 48 | 24 | 25 | 8 | +0.015/0 | 20 | — |
| S10S05M050P0808G | 2 | 50 | 25 | 26 | 8 | +0.015/0 | 20 | — |
| S10S05M050P0810G | 2 | 50 | 25 | 26 | 10 | +0.015/0 | 20 | — |
| S10S05M050T0810G | 3 | 50 | 25 | 26 | 10 | +0.015/0 | 20 | M4 |
| S10S05M054P0808G | 2 | 54 | 27 | 28 | 8 | +0.015/0 | 20 | — |
| S10S05M056P0808G | 2 | 56 | 28 | 29 | 8 | +0.015/0 | 20 | — |
| S10S05M060P0808G | 2 | 60 | 30 | 31 | 8 | +0.015/0 | 22 | — |
| S10S05M060P0810G | 2 | 60 | 30 | 31 | 10 | +0.015/0 | 22 | — |
| S10S05M060T0810G | 3 | 60 | 30 | 31 | 10 | +0.015/0 | 22 | M4 |

Continued on the next page

ISO CLASS 5
8 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55



Fig. 1



Fig. 2

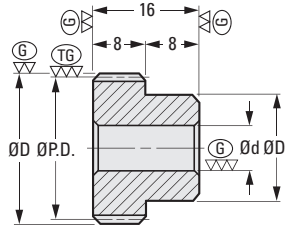


Fig. 1

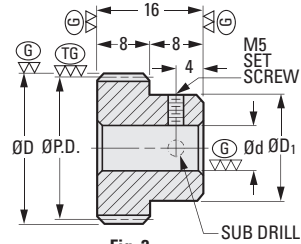


Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | D ₁ Hub Dia. |
|------------------|----------|--------------|------|--------|-----------|----------|-------------------------|
| S10S05M064P0808G | 1 | 64 | 32 | 33 | 8 | +0.015/0 | 22 |
| S10S05M070P0808G | 1 | 70 | 35 | 36 | 8 | +0.015/0 | 22 |
| S10S05M072P0808G | 1 | 72 | 36 | 37 | 8 | +0.015/0 | 25 |
| S10S05M075P0808G | 1 | 75 | 37.5 | 38.5 | 8 | +0.015/0 | 25 |
| S10S05M080P0808G | 1 | 80 | 40 | 41 | 8 | +0.015/0 | 25 |
| S10S05M080P0812G | 1 | 80 | 40 | 41 | 12 | +0.018/0 | 25 |
| S10S05M080T0812G | 2 | 80 | 40 | 41 | 12 | +0.018/0 | 25 |
| S10S05M090P0810G | 1 | 90 | 45 | 46 | 10 | +0.015/0 | 30 |
| S10S05M096P0810G | 1 | 96 | 48 | 49 | 10 | +0.015/0 | 30 |
| S10S05M100P0810G | 1 | 100 | 50 | 51 | 10 | +0.015/0 | 30 |
| S10S05M100P0812G | 1 | 100 | 50 | 51 | 12 | +0.018/0 | 30 |
| S10S05M100T0812G | 2 | 100 | 50 | 51 | 12 | +0.018/0 | 30 |
| S10S05M108P0810G | 1 | 108 | 54 | 55 | 10 | +0.015/0 | 35 |
| S10S05M112P0810G | 1 | 112 | 56 | 57 | 10 | +0.015/0 | 35 |
| S10S05M120P0810G | 1 | 120 | 60 | 61 | 10 | +0.015/0 | 35 |

Continued from the previous page

ISO CLASS 5
8 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55

➤ SPECIFICATION:

Δ Shaft Tolerance: 6 mm 0/-0.012
8 & 10 mm 0/-0.015



Fig. 1



Fig. 2



Fig. 3

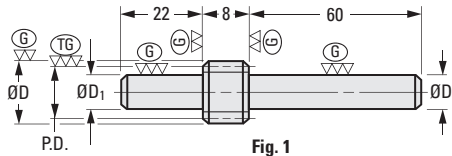


Fig. 1

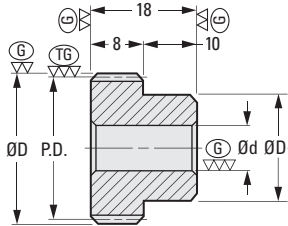


Fig. 2

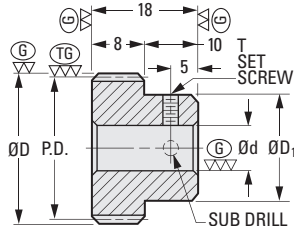


Fig. 3

METRIC COMPONENT

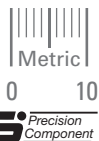
| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | D ₁ Hub Dia. | T Set Screw | Sub Drill Dia. |
|------------------|----------|--------------|------|--------|-----------|----------|-------------------------|-------------|----------------|
| S15S08M015P0800G | 1 | 15 | 12 | 13.6 | — | — | 6 (h7) Δ | — | — |
| S15S08M016P0800G | 1 | 16 | 12.8 | 14.4 | — | — | 6 (h7) Δ | — | — |
| S15S08M018P0800G | 1 | 18 | 14.4 | 16 | — | — | 8 (h7) Δ | — | — |
| S15S08M020P0800G | 1 | 20 | 16 | 17.6 | — | — | 10 (h7) Δ | — | — |
| S15S08M024P0800G | 1 | 24 | 19.2 | 20.8 | — | — | 10 (h7) Δ | — | — |
| S15S08M025P0800G | 1 | 25 | 20 | 21.6 | — | — | 10 (h7) Δ | — | — |
| S10S08M030P0810G | 2 | 30 | 24 | 25.6 | 10 | +0.015/0 | 20 | — | — |
| S10S08M030T0810G | 3 | 30 | 24 | 25.6 | 10 | +0.015/0 | 20 | M4 | 3.3 |
| S10S08M032P0810G | 2 | 32 | 25.6 | 27.2 | 10 | +0.015/0 | 20 | — | — |
| S10S08M036P0810G | 2 | 36 | 28.8 | 30.4 | 10 | +0.015/0 | 20 | — | — |
| S10S08M040P0810G | 2 | 40 | 32 | 33.6 | 10 | +0.015/0 | 25 | — | — |
| S10S08M040T0812G | 3 | 40 | 32 | 33.6 | 12 | +0.018/0 | 25 | M5 | 4.2 |
| S10S08M048P0810G | 2 | 48 | 38.4 | 40 | 10 | +0.015/0 | 25 | — | — |
| S10S08M050P0810G | 2 | 50 | 40 | 41.6 | 10 | +0.015/0 | 25 | — | — |
| S10S08M050T0812G | 3 | 50 | 40 | 41.6 | 12 | +0.018/0 | 25 | M5 | 4.2 |
| S10S08M054P0810G | 2 | 54 | 43.2 | 44.8 | 10 | +0.015/0 | 25 | — | — |
| S10S08M056P0810G | 2 | 56 | 44.8 | 46.4 | 10 | +0.015/0 | 25 | — | — |

Continued on the next page



ISO CLASS 5
8 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55



Fig. 1



Fig. 2

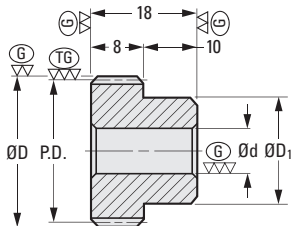


Fig. 1

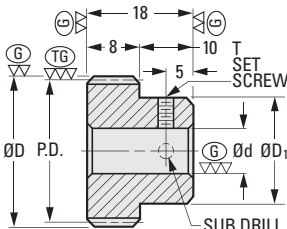


Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | D ₁ Hub Dia. | T Set Screw | Sub Drill Dia. |
|------------------|----------|--------------|------|--------|-----------|----------|-------------------------|-------------|----------------|
| S10S08M060P0810G | 1 | 60 | 48 | 49.6 | 10 | +0.015/0 | 25 | — | — |
| S10S08M060T0812G | 2 | 60 | 48 | 49.6 | 12 | +0.018/0 | 25 | M5 | 4.2 |
| S10S08M064P0812G | 1 | 64 | 51.2 | 52.8 | 12 | +0.018/0 | 30 | — | — |
| S10S08M070P0812G | 1 | 70 | 56 | 57.6 | 12 | +0.018/0 | 30 | — | — |
| S10S08M072P0812G | 1 | 72 | 57.6 | 59.2 | 12 | +0.018/0 | 30 | — | — |
| S10S08M075P0812G | 1 | 75 | 60 | 61.6 | 12 | +0.018/0 | 30 | — | — |
| S10S08M080P0812G | 1 | 80 | 64 | 65.6 | 12 | +0.018/0 | 30 | — | — |
| S10S08M080T0815G | 2 | 80 | 64 | 65.6 | 15 | +0.018/0 | 30 | M6 | 5 |
| S10S08M090P0812G | 1 | 90 | 72 | 73.6 | 12 | +0.018/0 | 35 | — | — |
| S10S08M096P0812G | 1 | 96 | 76.8 | 78.4 | 12 | +0.018/0 | 35 | — | — |
| S10S08M100P0812G | 1 | 100 | 80 | 81.6 | 12 | +0.018/0 | 35 | — | — |
| S10S08M100T0820G | 2 | 100 | 80 | 81.6 | 20 | +0.021/0 | 35 | M6 | 5 |
| S10S08M108P0812G | 1 | 108 | 86.4 | 88 | 12 | +0.018/0 | 40 | — | — |
| S10S08M112P0812G | 1 | 112 | 89.6 | 91.2 | 12 | +0.018/0 | 40 | — | — |
| S10S08M120P0812G | 1 | 120 | 96 | 97.6 | 12 | +0.018/0 | 40 | — | — |
| S10S08M120T0820G | 2 | 120 | 96 | 97.6 | 20 | +0.021/0 | 40 | M6 | 5 |

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ISO CLASS 5
10 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► **MATERIAL:**

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55

► **SPECIFICATION:**

Δ Shaft Tolerance: 8 & 10 mm 0/-0.015



Fig. 1



Fig. 2



Fig. 3

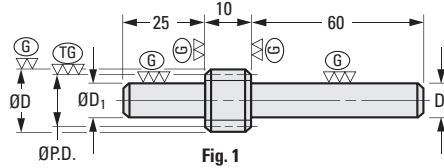
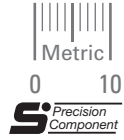


Fig. 1

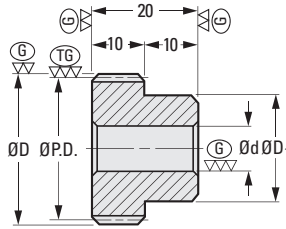


Fig. 2

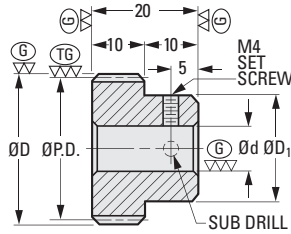


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D ₁ Hub Dia. |
|------------------|----------|--------------|------|--------|-----------|-------------|-------------------------|
| S15S10M014P1000G | 1 | 14 | 14 | 16 | - | - | 8 (h7) Δ |
| S15S10M015P1000G | 1 | 15 | 15 | 17 | - | - | 10 (h7) Δ |
| S15S10M016P1000G | 1 | 16 | 16 | 18 | - | - | 10 (h7) Δ |
| S15S10M018P1000G | 1 | 18 | 18 | 20 | - | - | 10 (h7) Δ |
| S10S10M018P1008G | 2 | 18 | 18 | 20 | 8 | +0.015/0 | 15 |
| S10S10M020P1008G | 2 | 20 | 20 | 22 | 8 | +0.015/0 | 16 |
| S10S10M020T1008G | 3 | 20 | 20 | 22 | 8 | +0.015/0 | 16 |
| S10S10M020T1010G | 3 | 20 | 20 | 22 | 10 | +0.015/0 | 16 |
| S10S10M024P1008G | 2 | 24 | 24 | 26 | 8 | +0.015/0 | 20 |
| S10S10M025P1008G | 2 | 25 | 25 | 27 | 8 | +0.015/0 | 20 |
| S10S10M028P1008G | 2 | 28 | 28 | 30 | 8 | +0.015/0 | 20 |
| S10S10M030P1010G | 2 | 30 | 30 | 32 | 10 | +0.015/0 | 26 |
| S10S10M030T1010G | 3 | 30 | 30 | 32 | 10 | +0.015/0 | 26 |
| S10S10M030T1012G | 3 | 30 | 30 | 32 | 12 | +0.018/0 | 26 |
| S10S10M032P1010G | 2 | 32 | 32 | 34 | 10 | +0.015/0 | 26 |
| S10S10M035P1010G | 2 | 35 | 35 | 37 | 10 | +0.015/0 | 26 |
| S10S10M036P1010G | 2 | 36 | 36 | 38 | 10 | +0.015/0 | 26 |
| S10S10M040P1010G | 2 | 40 | 40 | 42 | 10 | +0.015/0 | 26 |
| S10S10M040P1012G | 2 | 40 | 40 | 42 | 12 | +0.018/0 | 26 |

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ISO CLASS 5
10 mm FACE
20° PRESSURE ANGLE

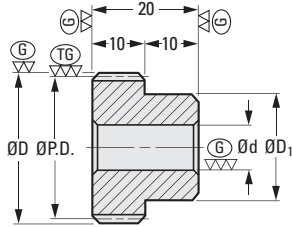


0 10

S Precision Component

> MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55



METRIC COMPONENT

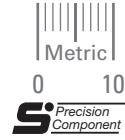
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D1 Hub Dia. |
|------------------|--------------|------|--------|-----------|-------------|-------------|
| S10S10M045P1012G | 45 | 45 | 47 | 12 | +0.018/0 | 35 |
| S10S10M048P1012G | 48 | 48 | 50 | 12 | +0.018/0 | 35 |
| S10S10M050P1012G | 50 | 50 | 52 | 12 | +0.018/0 | 35 |
| S10S10M050P1016G | 50 | 50 | 52 | 16 | +0.018/0 | 35 |
| S10S10M054P1012G | 54 | 54 | 56 | 12 | +0.018/0 | 35 |
| S10S10M056P1012G | 56 | 56 | 58 | 12 | +0.018/0 | 35 |
| S10S10M060P1012G | 60 | 60 | 62 | 12 | +0.018/0 | 40 |
| S10S10M060P1018G | 60 | 60 | 62 | 18 | +0.018/0 | 40 |
| S10S10M064P1012G | 64 | 64 | 66 | 12 | +0.018/0 | 40 |
| S10S10M070P1012G | 70 | 70 | 72 | 12 | +0.018/0 | 40 |
| S10S10M072P1012G | 72 | 72 | 74 | 12 | +0.018/0 | 45 |
| S10S10M075P1012G | 75 | 75 | 77 | 12 | +0.018/0 | 45 |
| S10S10M080P1015G | 80 | 80 | 82 | 15 | +0.018/0 | 45 |
| S10S10M080P1020G | 80 | 80 | 82 | 20 | +0.021/0 | 45 |
| S10S10M090P1015G | 90 | 90 | 92 | 15 | +0.018/0 | 50 |
| S10S10M096P1015G | 96 | 96 | 98 | 15 | +0.018/0 | 50 |
| S10S10M100P1015G | 100 | 100 | 102 | 15 | +0.018/0 | 50 |
| S10S10M100P1020G | 100 | 100 | 102 | 20 | +0.021/0 | 50 |
| S10S10M108P1015G | 108 | 108 | 110 | 15 | +0.018/0 | 50 |
| S10S10M112P1015G | 112 | 112 | 114 | 15 | +0.018/0 | 50 |
| S10S10M120P1015G | 120 | 120 | 122 | 15 | +0.018/0 | 50 |

Continued from the previous page



ISO CLASS 5
15 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55



Fig. 1



Fig. 2

► SPECIFICATION:

Δ Shaft Tolerance: 12 mm 0/-0.018

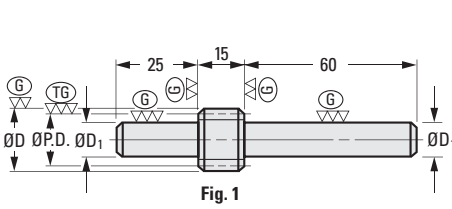


Fig. 1

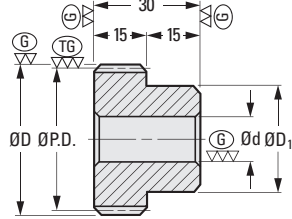


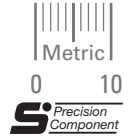
Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D1 Hub Dia. |
|------------------|----------|--------------|-------|--------|-----------|-------------|-------------|
| S15S15M014P1500G | 1 | 14 | 21 | 24 | - | - | 12 (h7) Δ |
| S15S15M015P1500G | 1 | 15 | 22.5 | 25.5 | - | - | 12 (h7) Δ |
| S15S15M016P1500G | 1 | 16 | 24 | 27 | - | - | 12 (h7) Δ |
| S15S15M018P1500G | 1 | 18 | 27 | 30 | - | - | 12 (h7) Δ |
| S10S15M015P1510G | 2 | 15 | 22.5 | 25.5 | 10 | +0.015/0 | 18 |
| S10S15M016P1510G | 2 | 16 | 24 | 27 | 10 | +0.015/0 | 18 |
| S10S15M018P1512G | 2 | 18 | 27 | 30 | 12 | +0.018/0 | 22 |
| S10S15M020P1512G | 2 | 20 | 30 | 33 | 12 | +0.018/0 | 22 |
| S10S15M024P1515G | 2 | 24 | 36 | 39 | 15 | +0.018/0 | 30 |
| S10S15M025P1515G | 2 | 25 | 37.5 | 40.5 | 15 | +0.018/0 | 30 |
| S10S15M028P1515G | 2 | 28 | 42 | 45 | 15 | +0.018/0 | 30 |
| S10S15M030P1515G | 2 | 30 | 45 | 48 | 15 | +0.018/0 | 35 |
| S10S15M032P1515G | 2 | 32 | 48 | 51 | 15 | +0.018/0 | 35 |
| S10S15M036P1515G | 2 | 36 | 54 | 57 | 15 | +0.018/0 | 40 |
| S10S15M040P1515G | 2 | 40 | 60 | 63 | 15 | +0.018/0 | 40 |
| S10S15M045P1520G | 2 | 45 | 67.5 | 70.5 | 20 | +0.021/0 | 50 |
| S10S15M048P1520G | 2 | 48 | 72 | 75 | 20 | +0.021/0 | 50 |
| S10S15M050P1520G | 2 | 50 | 75 | 78 | 20 | +0.021/0 | 50 |
| S10S15M056P1520G | 2 | 56 | 84 | 87 | 20 | +0.021/0 | 50 |
| S10S15M060P1520G | 2 | 60 | 90 | 93 | 20 | +0.021/0 | 60 |
| S10S15M064P1520G | 2 | 64 | 96 | 99 | 20 | +0.021/0 | 60 |
| S10S15M070P1520G | 2 | 70 | 105 | 108 | 20 | +0.021/0 | 60 |
| S10S15M072P1520G | 2 | 72 | 108 | 111 | 20 | +0.021/0 | 60 |
| S10S15M075P1520G | 2 | 75 | 112.5 | 115.5 | 20 | +0.021/0 | 60 |
| S10S15M080P1520G | 2 | 80 | 120 | 123 | 20 | +0.021/0 | 60 |
| S10S15M090P1525G | 2 | 90 | 135 | 138 | 25 | +0.021/0 | 70 |
| S10S15M100P1525G | 2 | 100 | 150 | 153 | 25 | +0.021/0 | 70 |
| S10S15M112P1525G | 2 | 112 | 168 | 171 | 25 | +0.021/0 | 70 |
| S10S15M120P1525G | 2 | 120 | 180 | 183 | 25 | +0.021/0 | 70 |

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ISO CLASS 5
20 mm FACE
20° PRESSURE ANGLE



MATERIAL:
AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55



Fig. 1



Fig. 2

SPECIFICATION:
Δ Shaft Tolerance: 12 & 15 mm 0/-0.018

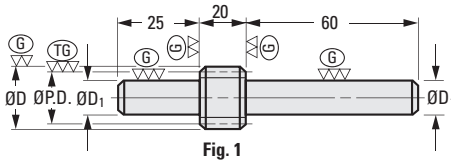


Fig. 1

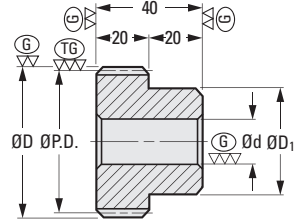


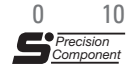
Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D ₁ Hub Dia. |
|------------------|----------|--------------|------|--------|-----------|-------------|-------------------------|
| S15S20M014P2000G | 1 | 14 | 28 | 32 | - | - | 12 (h7) Δ |
| S15S20M015P2000G | 1 | 15 | 30 | 34 | - | - | 12 (h7) Δ |
| S15S20M016P2000G | 1 | 16 | 32 | 36 | - | - | 15 (h7) Δ |
| S15S20M018P2000G | 1 | 18 | 36 | 40 | - | - | 15 (h7) Δ |
| S10S20M014P2012G | 2 | 14 | 28 | 32 | 12 | +0.018/0 | 22 |
| S10S20M015P2012G | 2 | 15 | 30 | 34 | 12 | +0.018/0 | 22 |
| S10S20M016P2012G | 2 | 16 | 32 | 36 | 12 | +0.018/0 | 25 |
| S10S20M018P2015G | 2 | 18 | 36 | 40 | 15 | +0.018/0 | 30 |
| S10S20M020P2015G | 2 | 20 | 40 | 44 | 15 | +0.018/0 | 30 |
| S10S20M024P2015G | 2 | 24 | 48 | 52 | 15 | +0.018/0 | 40 |
| S10S20M025P2015G | 2 | 25 | 50 | 54 | 15 | +0.018/0 | 40 |
| S10S20M028P2015G | 2 | 28 | 56 | 60 | 15 | +0.018/0 | 40 |
| S10S20M030P2015G | 2 | 30 | 60 | 64 | 15 | +0.018/0 | 40 |
| S10S20M032P2020G | 2 | 32 | 64 | 68 | 20 | +0.021/0 | 50 |
| S10S20M036P2020G | 2 | 36 | 72 | 76 | 20 | +0.021/0 | 50 |
| S10S20M040P2020G | 2 | 40 | 80 | 84 | 20 | +0.021/0 | 60 |
| S10S20M045P2020G | 2 | 45 | 90 | 94 | 20 | +0.021/0 | 60 |
| S10S20M048P2020G | 2 | 48 | 96 | 100 | 20 | +0.021/0 | 60 |
| S10S20M050P2020G | 2 | 50 | 100 | 104 | 20 | +0.021/0 | 60 |
| S10S20M056P2020G | 2 | 56 | 112 | 116 | 20 | +0.021/0 | 60 |
| S10S20M060P2025G | 2 | 60 | 120 | 124 | 25 | +0.021/0 | 70 |
| S10S20M064P2025G | 2 | 64 | 128 | 132 | 25 | +0.021/0 | 70 |
| S10S20M070P2025G | 2 | 70 | 140 | 144 | 25 | +0.021/0 | 70 |
| S10S20M072P2025G | 2 | 72 | 144 | 148 | 25 | +0.021/0 | 80 |
| S10S20M075P2025G | 2 | 75 | 150 | 154 | 25 | +0.021/0 | 80 |
| S10S20M080P2025G | 2 | 80 | 160 | 164 | 25 | +0.021/0 | 80 |
| S10S20M090P2025G | 2 | 90 | 180 | 184 | 25 | +0.021/0 | 80 |
| S10S20M100P2025G | 2 | 100 | 200 | 204 | 30 | +0.021/0 | 80 |

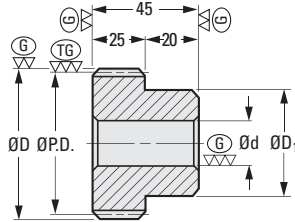
ISO CLASS 5
25 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55



METRIC COMPONENT

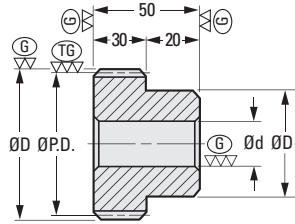
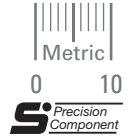
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D1 Hub Dia. |
|------------------|--------------|-------|--------|-----------|-------------|-------------|
| S10S25M014P2515G | 14 | 35 | 40 | 15 | +0.018/0 | 28 |
| S10S25M015P2515G | 15 | 37.5 | 42.5 | 15 | +0.018/0 | 28 |
| S10S25M016P2515G | 16 | 40 | 45 | 15 | +0.018/0 | 28 |
| S10S25M018P2520G | 18 | 45 | 50 | 20 | +0.021/0 | 38 |
| S10S25M020P2520G | 20 | 50 | 55 | 20 | +0.021/0 | 38 |
| S10S25M024P2520G | 24 | 60 | 65 | 20 | +0.021/0 | 50 |
| S10S25M025P2520G | 25 | 62.5 | 67.5 | 20 | +0.021/0 | 50 |
| S10S25M028P2520G | 28 | 70 | 75 | 20 | +0.021/0 | 60 |
| S10S25M030P2520G | 30 | 75 | 80 | 20 | +0.021/0 | 60 |
| S10S25M032P2520G | 32 | 80 | 85 | 20 | +0.021/0 | 60 |
| S10S25M036P2525G | 36 | 90 | 95 | 25 | +0.021/0 | 70 |
| S10S25M040P2525G | 40 | 100 | 105 | 25 | +0.021/0 | 70 |
| S10S25M045P2525G | 45 | 112.5 | 117.5 | 25 | +0.021/0 | 70 |
| S10S25M048P2525G | 48 | 120 | 125 | 25 | +0.021/0 | 70 |
| S10S25M050P2530G | 50 | 125 | 130 | 30 | +0.021/0 | 80 |
| S10S25M056P2530G | 56 | 140 | 145 | 30 | +0.021/0 | 80 |
| S10S25M060P2530G | 60 | 150 | 155 | 30 | +0.021/0 | 80 |
| S10S25M064P2530G | 64 | 160 | 165 | 30 | +0.021/0 | 80 |
| S10S25M072P2530G | 72 | 180 | 185 | 30 | +0.021/0 | 90 |
| S10S25M075P2530G | 75 | 187.5 | 192.5 | 30 | +0.021/0 | 90 |
| S10S25M080P2530G | 80 | 200 | 205 | 30 | +0.021/0 | 90 |

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ISO CLASS 5
30 mm FACE
20° PRESSURE ANGLE

MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55

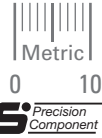


METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D1 Hub Dia. |
|------------------|--------------|------|--------|-----------|-------------|-------------|
| S10S30M014P3015G | 14 | 42 | 48 | 15 | +0.018/0 | 34 |
| S10S30M015P3015G | 15 | 45 | 51 | 15 | +0.018/0 | 36 |
| S10S30M016P3015G | 16 | 48 | 54 | 15 | +0.018/0 | 36 |
| S10S30M018P3020G | 18 | 54 | 60 | 20 | +0.021/0 | 45 |
| S10S30M020P3020G | 20 | 60 | 66 | 20 | +0.021/0 | 45 |
| S10S30M024P3020G | 24 | 72 | 78 | 20 | +0.021/0 | 50 |
| S10S30M025P3020G | 25 | 75 | 81 | 20 | +0.021/0 | 50 |
| S10S30M028P3025G | 28 | 84 | 90 | 25 | +0.021/0 | 60 |
| S10S30M030P3025G | 30 | 90 | 96 | 25 | +0.021/0 | 60 |
| S10S30M032P3025G | 32 | 96 | 102 | 25 | +0.021/0 | 60 |
| S10S30M036P3030G | 36 | 108 | 114 | 30 | +0.021/0 | 70 |
| S10S30M040P3030G | 40 | 120 | 126 | 30 | +0.021/0 | 70 |
| S10S30M045P3030G | 45 | 135 | 141 | 30 | +0.021/0 | 80 |
| S10S30M048P3030G | 48 | 144 | 150 | 30 | +0.021/0 | 80 |
| S10S30M050P3030G | 50 | 150 | 156 | 30 | +0.021/0 | 80 |
| S10S30M056P3035G | 56 | 168 | 174 | 35 | +0.025/0 | 90 |
| S10S30M060P3035G | 60 | 180 | 186 | 35 | +0.025/0 | 90 |
| S10S30M064P3040G | 64 | 192 | 198 | 40 | +0.025/0 | 90 |
| S10S30M072P3040G | 72 | 216 | 222 | 40 | +0.025/0 | 100 |
| S10S30M075P3040G | 75 | 225 | 231 | 40 | +0.025/0 | 100 |
| S10S30M080P3040G | 80 | 240 | 246 | 40 | +0.025/0 | 100 |

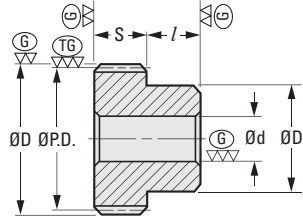
ISO CLASS 5
8 & 15 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50...55



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D1 Hub Dia. | l Hub Proj. | Rack Travel Per Rotation |
|--------------------------------------|--------------|-------|--------|-----------|-------------|--------------|-------------|-------------|--------------------------|
| Circular Pitch 2 (Mod. 0.636) | | | | | | | | | |
| S10CCPM20P20050G | 20 | 12.73 | 14.01 | 5 | +0.012/0 | 8 | 10 | 7 | 40 |
| S10CCPM20P25060G | 25 | 15.92 | 17.19 | 6 | +0.012/0 | 8 | 12 | 7 | 50 |
| S10CCPM20P30060G | 30 | 91.1 | 20.37 | 6 | +0.012/0 | 8 | 15 | 7 | 60 |
| Circular Pitch 5 (Mod. 1.591) | | | | | | | | | |
| S10CCPM50P20100G | 20 | 31.83 | 35.01 | 10 | +0.015/0 | 15 | 25 | 10 | 100 |
| S10CCPM50P25100G | 25 | 39.79 | 42.97 | 10 | +0.015/0 | 15 | 30 | 10 | 125 |
| S10CCPM50P30100G | 30 | 47.75 | 50.93 | 10 | +0.015/0 | 15 | 40 | 10 | 150 |

NOTE: See index for ground circular pitch racks.

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> MATERIAL:
Brass

> SPECIFICATION:
Δ Pinions are suitable for use with speed reducers.

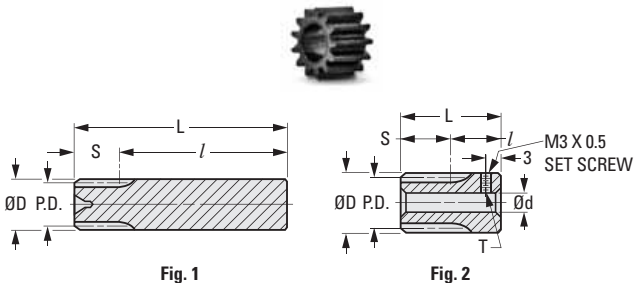


Fig. 1

Fig. 2

Fig. 3

METRIC COMPONENT

| Catalog Number | Mod. | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore | d Tolerance | S Face Width | L | l |
|-------------------|------|----------|--------------|-------|--------|--------|---------------|--------------|----|----|
| Δ A 1B 8MYSH1012 | 0.15 | 3 | 12 | 1.905 | 2.205 | 1 | +0.012/+0.004 | 2.5 | — | — |
| Δ A 1B 8MYSH1013 | 0.15 | 3 | 13 | 2.055 | 2.355 | 1 | +0.012/+0.004 | 2.5 | — | — |
| Δ A 1B 8MYS01515 | 0.15 | 3 | 15 | 2.295 | 2.595 | 1.5 | -0.01/-0.03 | 1.7 | — | — |
| Δ A 1B 8MYSH1015 | 0.15 | 3 | 15 | 2.31 | 2.61 | 1.5 | +0.012/+0.004 | 3.2 | — | — |
| Δ A 1B 8MYS02010 | 0.2 | 3 | 10 | 2.24 | 2.64 | 1.2 | -0.02/-0.04 | 2 | — | — |
| Δ A 1B 8MYS01512 | 0.2 | 3 | 12 | 2.452 | 2.852 | 1.5 | -0.01/-0.0 | 1.7 | — | — |
| Δ A 1B 8MYS02014 | 0.2 | 3 | 14 | 2.9 | 3.3 | 2 | -0.01/-0.03 | 2.8 | — | — |
| Δ A 1B 8MYS02020 | 0.2 | 3 | 20 | 4.1 | 4.5 | 2 | -0.01/-0.03 | 2.8 | — | — |
| Δ A 1B 8MYSH2015 | 0.25 | 3 | 15 | 3.75 | 4.25 | 2 | -0.01/-0.03 | 2.8 | — | — |
| Δ A 1B 8MYS03010 | 0.3 | 3 | 10 | 3.15 | 3.75 | 2 | -0.02/-0.04 | 2 | — | — |
| Δ A 1B 8MYS04014A | 0.4 | 3 | 14 | 5.84 | 6.64 | 3 | -0.014/-0.03 | 4.5 | — | — |
| Δ A 1B 8MYS04014B | 0.4 | 3 | 14 | 5.84 | 6.64 | 4 | -0.014/-0.03 | 4.5 | — | — |
| Δ A 1B 8MYK05010 | 0.5 | 1 | 10 | 5 | 6 | — | — | 10 | 55 | 45 |
| Δ A 1B 8MYS05010 | 0.5 | 3 | 10 | 5.24 | 6.24 | 2 | -0.02/-0.04 | 4 | — | — |
| Δ A 1B 8MYS05012 | 0.5 | 3 | 12 | 6.2 | 7.2 | 4 | -0.02/-0.04 | 4 | — | — |
| A 1B 8MYK05012 | 0.5 | 1 | 12 | 6 | 7 | — | — | 10 | 55 | 45 |
| A 1B 8MYS05012A | 0.5 | 3 | 12 | 6.2 | 7.2 | 3 | -0.02/-0.04 | 4 | — | — |
| A 1B 8MYK05015 | 0.5 | 2 | 15 | 7.5 | 8.5* | 3 | +0.014/0 | 8 | 18 | 10 |
| A 1B 8MYK05016 | 0.5 | 2 | 16 | 8 | 9 | 3 | +0.014/0 | 8 | 18 | 10 |
| A 1B 8MYK05018 | 0.5 | 2 | 18 | 9 | 10 | 3 | +0.014/0 | 8 | 18 | 10 |
| A 1B 8MYKH7010 | 0.75 | 1 | 10 | 7.5 | 9 | — | — | 8 | 55 | 47 |
| A 1B 8MYKH7012 | 0.75 | 1 | 12 | 9 | 10.5 | — | — | 8 | 55 | 47 |
| A 1B 8MYKH7015 | 0.75 | 2 | 15 | 11.25 | 12.75 | 5 | +0.018/0 | 8 | 20 | 12 |
| A 1B 8MYK08014 | 0.8 | 2 | 14 | 11.2 | 12.8 | 4 | +0.018/0 | 7 | 20 | 13 |
| A 1B 8MYK08015 | 0.8 | 2 | 15 | 12 | 13.6 | 4 | +0.018/0 | 7 | 20 | 13 |

* Hub end is 9 mm O.D.

MODULE 0.25, 0.4, 0.5, 0.6, 1
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
Steel

> SPECIFICATION:

** Shaft Tolerance: 6 mm 0/-0.018
8 mm 0/-0.022

Δ To obtain additional tooth strength, these pinions are produced by shifting the tooth profile which results in a long addendum. The center distance between these pinions has to be increased. Therefore, please consult our Engineering Department.

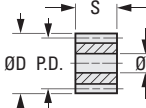


Fig. 1

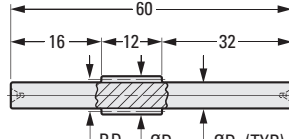


Fig. 2

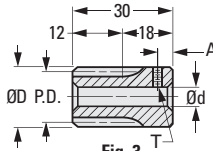


Fig. 3

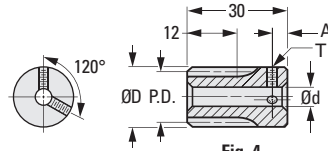


Fig. 4

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore | d Tolerance | S Face Width | D ^{**} Shaft Dia. h8 | A | T Set Screw |
|---------------------------|--------------|------|--------|--------|---------------|--------------|-------------------------------|---|-------------|
| Module 0.25 Fig. 1 | | | | | | | | | |
| A 1C 8MYSH2013 | 13 | 3.25 | 3.75 | 2 | -0.01/-0.03 | 2.5 | — | — | — |
| A 1C 8MYSH2013A | 13 | 3.25 | 3.75 | 1.5 | -0.01/-0.03 | 4 | — | — | — |
| A 1C 8MYSH2016 | 16 | 3.9 | 4.4 | 2 | -0.01/-0.03 | 2.5 | — | — | — |
| A 1C 8MYSH2016A | 16 | 3.9 | 4.4 | 1.5 | -0.01/-0.03 | 4 | — | — | — |
| A 1C 8MYSH2019 | 19 | 4.75 | 5.25 | 2 | -0.01/-0.03 | 2.5 | — | — | — |
| A 1C 8MYSH2019A | 19 | 4.75 | 5.25 | 1.5 | -0.01/-0.03 | 4 | — | — | — |
| Module 0.4 Fig. 1 | | | | | | | | | |
| A 1C 8MYS04012 | 12 | 4.88 | 5.68 | 3 | -0.014/-0.03 | 4 | — | — | — |
| A 1C 8MYS04014A | 14 | 5.84 | 6.64 | 3 | -0.014/-0.03 | 4.5 | — | — | — |
| A 1C 8MYS04014B | 14 | 5.84 | 6.64 | 4 | -0.014/-0.03 | 4.5 | — | — | — |
| Module 0.5 Fig. 1 | | | | | | | | | |
| A 1C 8MYS05012 | 12 | 6.2 | 7.2 | 4 | -0.02/-0.04 | 4 | — | — | — |
| Module 0.6 Fig. 1 | | | | | | | | | |
| *A 1C 8MYS06012 | 12 | 7.2 | 8.4 | 4 | -0.015/-0.035 | 4 | — | — | — |
| *A 1C 8MYS06012B | 12 | 7.2 | 8.4 | 2 | -0.010/-0.025 | 4 | — | — | — |
| *A 1C 8MYS06018 | 18 | 10.7 | 11.9 | 4 | -0.015/-0.035 | 4 | — | — | — |
| *A 1C 8MYS06018A | 18 | 10.7 | 11.9 | 3 | -0.015/-0.035 | 4 | — | — | — |
| *A 1C 8MYS06018B | 18 | 10.7 | 11.9 | 2 | -0.010/-0.025 | 4 | — | — | — |
| Module 1 Fig. 2 | | | | | | | | | |
| Δ A 1C 8MYK10008 | 8 | 8 | 10.64 | — | — | — | 6 | — | — |
| Δ A 1C 8MYK10010 | 10 | 10 | 12.66 | — | — | — | 8 | — | — |
| Module 1 Fig. 3 | | | | | | | | | |
| **A 1C 8MYK10012 | 12 | 12 | 14 | 6 | +0.018/0 | — | — | 5 | M4 |
| **A 1C 8MYK10014 | 14 | 14 | 16 | 6 | +0.018/0 | — | — | 5 | M5 |
| **A 1C 8MYK10016 | 16 | 16 | 18 | 8 | +0.022/0 | — | — | 5 | M5 |
| Module 1 Fig. 4 | | | | | | | | | |
| A 1C 8MYK10012S | 12 | 12 | 14 | 6 | +0.018/0 | — | — | 5 | M4 |
| A 1C 8MYK10014S | 14 | 14 | 16 | 6 | +0.018/0 | — | — | 5 | M5 |
| A 1C 8MYK10015S | 15 | 15 | 17 | 6 | +0.018/0 | — | — | 5 | M5 |
| A 1C 8MYK10016S | 16 | 16 | 18 | 8 | +0.022/0 | — | — | 5 | M5 |
| A 1C 8MYK10018S | 18 | 18 | 20 | 8 | +0.022/0 | — | — | 4 | M4 |

* To be discontinued when present stock is depleted.

** To be discontinued when present stock is depleted.

A new style with two set screws will be offered in its place - see Fig. 4.



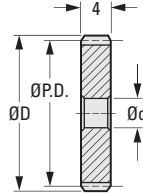
PINIONS – MODULE 0.4

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

HUBLESS
4 mm FACE WIDTH
20° PRESSURE ANGLE



> **MATERIAL:**
Brass



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 |
|----------------|--------------|------|--------|-----------------|
| A 1B 1MY04008 | 8 | 3.2 | 4 | 1.5 |
| A 1B 1MY04010 | 10 | 4 | 4.8 | 2 |
| A 1B 1MY04012 | 12 | 4.8 | 5.6 | 3 |
| A 1B 1MY04014 | 14 | 5.6 | 6.4 | 3 |
| A 1B 1MY04016 | 16 | 6.4 | 7.2 | 3 |
| A 1B 1MY04018 | 18 | 7.2 | 8 | 3 |
| A 1B 1MY04024 | 24 | 9.6 | 10.4 | 3 |

PINION SHAFTS

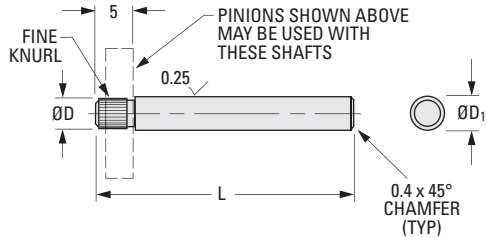
UNDERSIZED DIAMETER

> **MATERIAL:**
303 Stainless Steel



> **STRAIGHTNESS:**
0.0003 mm/mm

Discounts available for large quantity orders.



METRIC COMPONENT

| Catalog Number | D Dia. +0.025 0 | D ₁ Dia. -0.004 -0.012 | L Length ± 0.25 |
|----------------|-----------------|-----------------------------------|-----------------|
| A 7X 1MP0550A | 1.5 | 5 | 50 |
| A 7X 1MP0550B | 2 | 5 | 50 |
| A 7X 1MP0675 | 3 | 6 | 75 |

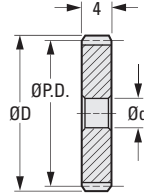
PINIONS – MODULE 0.5

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HUBLESS
4 mm FACE WIDTH
20° PRESSURE ANGLE



> **MATERIAL:**
Brass



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 |
|----------------|--------------|------|--------|-----------------|
| A 1B 1MY05006 | 6 | 3 | 4 | 1.5 |
| A 1B 1MY05008 | 8 | 4 | 5 | 2 |
| A 1B 1MY05010 | 10 | 5 | 6 | 2 |
| A 1B 1MY05012 | 12 | 6 | 7 | 3 |
| A 1B 1MY05014 | 14 | 7 | 8 | 3 |
| A 1B 1MY05016 | 16 | 8 | 9 | 3 |
| A 1B 1MY05018 | 18 | 9 | 10 | 3 |

PINION SHAFTS

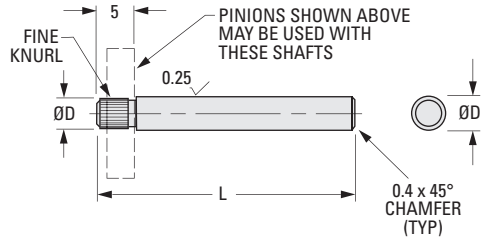
UNDERSIZED DIAMETER

> **MATERIAL:**
303 Stainless Steel



> **STRAIGHTNESS:**
0.0003 mm/mm

Discounts available for large quantity orders.



METRIC COMPONENT

| Catalog Number | D Dia. +0.025 0 | D1 Dia. -0.004 -0.012 | L Length ± 0.25 |
|----------------|-----------------|-----------------------|-----------------|
| A 7X 1MP0550A | 1.5 | 5 | 50 |
| A 7X 1MP0550B | 2 | 5 | 50 |
| A 7X 1MP0675 | 3 | 6 | 75 |



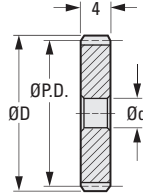
PINIONS – MODULE 0.8

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HUBLESS
4 mm FACE WIDTH
20° PRESSURE ANGLE



> MATERIAL:
Brass



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 |
|----------------|--------------|------|--------|-----------------|
| A 1B 1MY08006 | 6 | 4.8 | 6.4 | 2 |
| A 1B 1MY08008 | 8 | 6.4 | 8 | 3 |
| A 1B 1MY08010 | 10 | 8 | 9.6 | 3 |
| A 1B 1MY08012 | 12 | 9.6 | 11.2 | 3 |
| A 1B 1MY08014 | 14 | 11.2 | 12.8 | 3 |
| A 1B 1MY08016 | 16 | 12.8 | 14.4 | 3 |
| A 1B 1MY08018 | 18 | 14.4 | 16 | 3 |

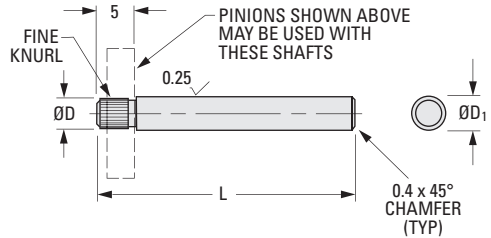
PINION SHAFTS

UNDERSIZED DIAMETER

> MATERIAL:
303 Stainless Steel



> STRAIGHTNESS:
0.0003 mm/mm



Discounts available for large quantity orders.

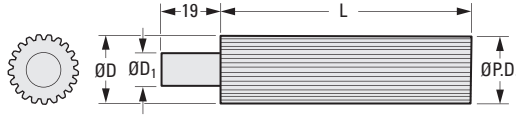
METRIC COMPONENT

| Catalog Number | D Dia. +0.025 0 | D ₁ Dia. -0.004 -0.012 | L Length ± 0.25 |
|----------------|-----------------|-----------------------------------|-----------------|
| A 7X 1MP0550B | 2 | 5 | 50 |
| A 7X 1MP0675 | 3 | 6 | 75 |

20° PRESSURE ANGLE

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> MATERIAL:
Steel



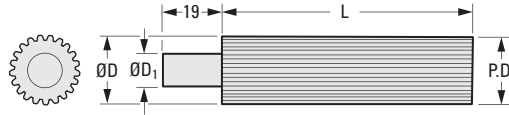
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | D ₁ Shank Dia. | L Minimum Usable Length |
|-------------------|--------------|------|--------|---------------------------|-------------------------|
| Module 0.4 | | | | | |
| A 1C29MY04025 | 25 | 10 | 10.8 | 6 | 80 |
| A 1C29MY04030 | 30 | 12 | 12.8 | 6 | 80 |
| A 1C29MY04032 | 32 | 12.8 | 13.6 | 6 | 80 |
| A 1C29MY04035 | 35 | 14 | 14.8 | 6 | 80 |
| A 1C29MY04036 | 36 | 14.4 | 15.2 | 6 | 80 |
| A 1C29MY04045 | 45 | 18 | 18.8 | 6 | 80 |
| A 1C29MY04048 | 48 | 19.2 | 20 | 6 | 80 |
| A 1C29MY04050 | 50 | 20 | 20.8 | 6 | 80 |
| A 1C29MY04060 | 60 | 24 | 24.8 | 12 | 80 |
| A 1C29MY04064 | 64 | 25.6 | 26.4 | 12 | 150 |
| A 1C29MY04065 | 65 | 26 | 26.8 | 12 | 150 |
| A 1C29MY04070 | 70 | 28 | 28.8 | 12 | 150 |
| A 1C29MY04072 | 72 | 28.8 | 29.6 | 12 | 150 |
| A 1C29MY04075 | 75 | 30 | 30.8 | 12 | 150 |
| A 1C29MY04080 | 80 | 32 | 32.8 | 12 | 150 |
| A 1C29MY04085 | 85 | 34 | 34.8 | 12 | 150 |
| A 1C29MY04090 | 90 | 36 | 36.8 | 12 | 150 |
| A 1C29MY04095 | 95 | 38 | 38.8 | 12 | 200 |
| A 1C29MY04096 | 96 | 38.4 | 39.2 | 12 | 200 |
| A 1C29MY04100 | 100 | 40 | 40.8 | 12 | 200 |
| A 1C29MY04108 | 108 | 43.2 | 44 | 12 | 200 |
| A 1C29MY04120 | 120 | 48 | 48.8 | 12 | 200 |
| Module 0.5 | | | | | |
| A 1C29MY05016 | 16 | 8 | 9 | 6 | 80 |
| A 1C29MY05018 | 18 | 9 | 10 | 6 | 80 |
| A 1C29MY05024 | 24 | 12 | 13 | 6 | 80 |
| A 1C29MY05028 | 28 | 14 | 15 | 6 | 80 |
| A 1C29MY05030 | 30 | 15 | 16 | 6 | 80 |
| A 1C29MY05032 | 32 | 16 | 17 | 6 | 80 |
| A 1C29MY05036 | 36 | 18 | 19 | 6 | 80 |
| A 1C29MY05040 | 40 | 20 | 21 | 6 | 80 |
| A 1C29MY05048 | 48 | 24 | 25 | 12 | 80 |
| A 1C29MY05050 | 50 | 25 | 26 | 12 | 150 |
| A 1C29MY05055 | 55 | 27.5 | 28.5 | 12 | 150 |
| A 1C29MY05056 | 56 | 28 | 29 | 12 | 150 |
| A 1C29MY05060 | 60 | 30 | 31 | 12 | 150 |
| A 1C29MY05065 | 65 | 32.5 | 33.5 | 12 | 150 |
| A 1C29MY05070 | 70 | 35 | 36 | 12 | 150 |
| A 1C29MY05072 | 72 | 36 | 37 | 12 | 150 |
| A 1C29MY05075 | 75 | 37.5 | 38.5 | 12 | 200 |
| A 1C29MY05080 | 80 | 40 | 41 | 12 | 200 |
| A 1C29MY05090 | 90 | 45 | 46 | 12 | 200 |
| A 1C29MY05096 | 96 | 48 | 49 | 12 | 200 |
| A 1C29MY05100 | 100 | 50 | 51 | 12 | 200 |
| A 1C29MY05110 | 110 | 55 | 56 | 16 | 200 |
| A 1C29MY05120 | 120 | 60 | 61 | 16 | 200 |

20° PRESSURE ANGLE

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> MATERIAL:
Steel



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | D ₁ Shank Dia. | L Minimum Usable Length |
|-------------------|--------------|------|--------|---------------------------|-------------------------|
| Module 0.8 | | | | | |
| * A 1C29MY08012 | 12 | 9.6 | 11.2 | 6 | 80 |
| * A 1C29MY08014 | 14 | 11.2 | 12.8 | 6 | 80 |
| * A 1C29MY08016 | 16 | 12.8 | 14.4 | 6 | 80 |
| * A 1C29MY08018 | 18 | 14.4 | 16 | 6 | 80 |
| * A 1C29MY08024 | 24 | 19.2 | 20.8 | 6 | 80 |
| * A 1C29MY08030 | 30 | 24 | 25.6 | 12 | 80 |
| A 1C29MY08032 | 32 | 25.6 | 27.2 | 12 | 150 |
| A 1C29MY08036 | 36 | 28.8 | 30.4 | 12 | 150 |
| A 1C29MY08040 | 40 | 32 | 33.6 | 12 | 150 |
| A 1C29MY08045 | 45 | 36 | 37.6 | 12 | 150 |
| A 1C29MY08050 | 50 | 40 | 41.6 | 12 | 150 |
| A 1C29MY08060 | 60 | 48 | 49.6 | 12 | 200 |
| A 1C29MY08064 | 64 | 51.2 | 52.8 | 12 | 200 |
| A 1C29MY08075 | 75 | 60 | 61.6 | 16 | 200 |
| A 1C29MY08080 | 80 | 64 | 65.6 | 16 | 200 |
| A 1C29MY08090 | 90 | 72 | 73.6 | 16 | 200 |
| Module 1 | | | | | |
| A 1C29MY10014 | 14 | 14 | 16 | 6 | 80 |
| A 1C29MY10016 | 16 | 16 | 18 | 6 | 80 |
| A 1C29MY10020 | 20 | 20 | 22 | 6 | 80 |
| A 1C29MY10024 | 24 | 24 | 26 | 12 | 80 |
| A 1C29MY10028 | 28 | 28 | 30 | 12 | 150 |
| A 1C29MY10030 | 30 | 30 | 32 | 12 | 150 |
| A 1C29MY10032 | 32 | 32 | 34 | 12 | 150 |
| A 1C29MY10036 | 36 | 36 | 38 | 12 | 150 |
| A 1C29MY10040 | 40 | 40 | 42 | 12 | 200 |
| A 1C29MY10045 | 45 | 45 | 47 | 12 | 200 |
| A 1C29MY10048 | 48 | 48 | 50 | 12 | 200 |
| A 1C29MY10050 | 50 | 50 | 52 | 12 | 200 |
| A 1C29MY10060 | 60 | 60 | 62 | 16 | 200 |
| A 1C29MY10064 | 64 | 64 | 66 | 16 | 200 |
| A 1C29MY10072 | 72 | 72 | 74 | 16 | 200 |

* Minimum usable length: 75 mm to 80 mm



20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Brass



> SPECIFICATIONS:

Sold in 1 and 2 meter lengths.

Notes: 1. All pinion wire has unfinished ends.

2. The overall length tolerance on cut pinion wire is ± 13 mm.

Other lengths available on request - call Engineering.



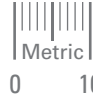
| METRIC COMPONENT | | | | |
|--------------------------|-----------------|---------------------|-------------|-------------|
| Catalog Number | | No. of Teeth | P.D. | O.D. |
| Available Lengths | | | | |
| 1 Meter | 2 Meters | | | |
| Module 0.4 | | | | |
| A 1B 9MY041012 | A 1B 9MY042012 | 12 | 4.8 | 5.6 |
| A 1B 9MY041014 | A 1B 9MY042014 | 14 | 5.6 | 6.4 |
| A 1B 9MY041016 | A 1B 9MY042016 | 16 | 6.4 | 7.2 |
| A 1B 9MY041018 | A 1B 9MY042018 | 18 | 7.2 | 8 |
| A 1B 9MY041024 | A 1B 9MY042024 | 24 | 9.6 | 10.4 |
| Module 0.5 | | | | |
| A 1B 9MY051008 | A 1B 9MY052008 | 8 | 4 | 5 |
| A 1B 9MY051009 | A 1B 9MY052009 | 9 | 4.5 | 5.5 |
| A 1B 9MY051010 | A 1B 9MY052010 | 10 | 5 | 6 |
| *A 1B 9MY051011 | *A 1B 9MY052011 | 11 | 5.5 | 6.5 |
| A 1B 9MY051012 | A 1B 9MY052012 | 12 | 6 | 7 |
| A 1B 9MY051014 | A 1B 9MY052014 | 14 | 7 | 8 |
| A 1B 9MY051016 | A 1B 9MY052016 | 16 | 8 | 9 |
| A 1B 9MY051018 | A 1B 9MY052018 | 18 | 9 | 10 |
| A 1B 9MY051024 | A 1B 9MY052024 | 24 | 12 | 13 |
| A 1B 9MY051028 | A 1B 9MY052028 | 28 | 14 | 15 |
| A 1B 9MY051030 | A 1B 9MY052030 | 30 | 15 | 16 |
| Module 0.8 | | | | |
| A 1B 9MY081006 | A 1B 9MY082006 | 6 | 4.8 | 6.4 |
| A 1B 9MY081008 | A 1B 9MY082008 | 8 | 6.4 | 8 |
| A 1B 9MY081010 | A 1B 9MY082010 | 10 | 8 | 9.6 |
| A 1B 9MY081016 | A 1B 9MY082016 | 16 | 12.8 | 14.4 |
| A 1B 9MY081018 | A 1B 9MY082018 | 18 | 14.4 | 16 |

* To be discontinued when present stock is depleted.



ISO CLASS 8
5 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS



> MATERIAL:
Brass, Steel or Stainless Steel

METRIC COMPONENT CATALOG NUMBER

A 1 **2MY04**

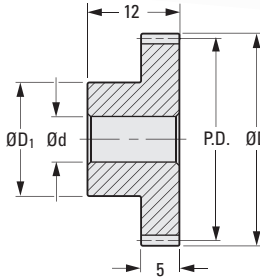
MATERIAL CODE

Brass ASTM 8A **B**

Steel SAE 1109 **C**

Stainless Steel AISI 416 **Y**
Prehardened to HRC 25

No. of Teeth Code



| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | d Bore Dia. H8 | d Tolerance | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|----------------|-------------|-------------------------|
| 012 | 12* | 4.8 | 5.6 | 3 | +0.014/0 | 4.5 |
| 015 | 15* | 6 | 6.8 | 3 | +0.014/0 | 5.5 |
| 016 | 16 | 6.4 | 7.2 | 3 | +0.014/0 | 5.5 |
| 020 | 20 | 8 | 8.8 | 3 | +0.014/0 | 6 |
| 024 | 24 | 9.6 | 10.4 | 4 | +0.018/0 | 8 |
| 025 | 25 | 10 | 10.8 | 4 | +0.018/0 | 8 |
| 030 | 30 | 12 | 12.8 | 4 | +0.018/0 | 8 |
| 032 | 32 | 12.8 | 13.6 | 4 | +0.018/0 | 8 |
| 035 | 35 | 14 | 14.8 | 4 | +0.018/0 | 10 |
| 036 | 36 | 14.4 | 15.2 | 4 | +0.018/0 | 10 |
| 040 | 40 | 16 | 16.8 | 4 | +0.018/0 | 10 |
| 045 | 45 | 18 | 18.8 | 4 | +0.018/0 | 10 |
| 048 | 48 | 19.2 | 20 | 4 | +0.018/0 | 10 |
| 050 | 50 | 20 | 20.8 | 4 | +0.018/0 | 10 |
| 055 | 55 | 22 | 22.8 | 4 | +0.018/0 | 10 |
| 060 | 60 | 24 | 24.8 | 6 | +0.018/0 | 15 |
| 064 | 64 | 25.6 | 26.4 | 6 | +0.018/0 | 15 |
| 065 | 65 | 26 | 26.8 | 6 | +0.018/0 | 15 |
| 070 | 70 | 28 | 28.8 | 6 | +0.018/0 | 15 |
| 072 | 72 | 28.8 | 29.6 | 6 | +0.018/0 | 15 |
| 075 | 75 | 30 | 30.8 | 6 | +0.018/0 | 15 |
| 080 | 80 | 32 | 32.8 | 6 | +0.018/0 | 15 |
| 084 | 84 | 33.6 | 34.4 | 6 | +0.018/0 | 15 |
| 085 | 85 | 34 | 34.8 | 6 | +0.018/0 | 15 |
| 090 | 90 | 36 | 36.8 | 6 | +0.018/0 | 15 |
| 095 | 95 | 38 | 38.8 | 6 | +0.018/0 | 15 |
| 096 | 96 | 38.4 | 39.2 | 6 | +0.018/0 | 15 |
| 100 | 100 | 40 | 40.8 | 6 | +0.018/0 | 15 |
| 108 | 108 | 43.2 | 44 | 6 | +0.018/0 | 15 |
| 120 | 120 | 48 | 48.8 | 6 | +0.018/0 | 15 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.

ISO CLASS 7
5 & 7 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**
303 Stainless Steel

➤ **SPECIFICATIONS:**
Socket Head Cap Screw Supplied.
Gears larger than 90 teeth have two-piece construction.
Fairloc® hubs require controlled shaft tolerances. Suggested tolerance according to g6, h6 or h7.

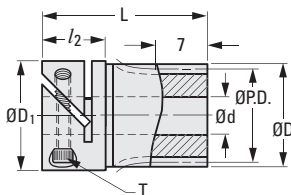


Fig. 1

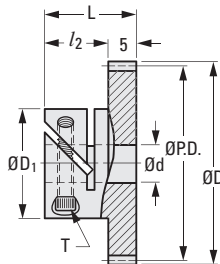


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | L | D ₁ Dia. | l ₂ | T | Hub Clear. Rad. |
|-----------------|--------------|------|--------|-----------|-------------|----|---------------------|----------------|------|-----------------|
| Fig. 1 | | | | | | | | | | |
| S1VS05M016F0704 | 16 | 8 | 9 | 4 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS05M018F0704 | 18 | 9 | 10 | 4 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS05M020F0704 | 20 | 10 | 11 | 4 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS05M024F0705 | 24 | 12 | 13 | 5 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS05M025F0705 | 25 | 12.5 | 13.5 | 5 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS05M028F0705 | 28 | 14 | 15 | 5 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS05M030F0705 | 30 | 15 | 16 | 5 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| Fig. 2 | | | | | | | | | | |
| S1VS05M032F0506 | 32 | 16 | 17 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M036F0506 | 36 | 18 | 19 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M040F0506 | 40 | 20 | 21 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M045F0506 | 45 | 22.5 | 23.5 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M048F0506 | 48 | 24 | 25 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M050F0506 | 50 | 25 | 26 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M054F0506 | 54 | 27 | 28 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M056F0506 | 56 | 28 | 29 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M060F0508 | 60 | 30 | 31 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M064F0508 | 64 | 32 | 33 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M070F0508 | 70 | 35 | 36 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M072F0508 | 72 | 36 | 37 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M075F0508 | 75 | 37.5 | 38.5 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS05M080F0510 | 80 | 40 | 41 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |
| S1VS05M090F0510 | 90 | 45 | 46 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |
| S1VS05M096F0510 | 96 | 48 | 49 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |
| S1VS05M100F0510 | 100 | 50 | 51 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |
| S1VS05M112F0510 | 112 | 56 | 57 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |
| S1VS05M120F0510 | 120 | 60 | 61 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |

ISO CLASS 7
 3 mm FACE
 3 mm BORE
 20° PRESSURE ANGLE

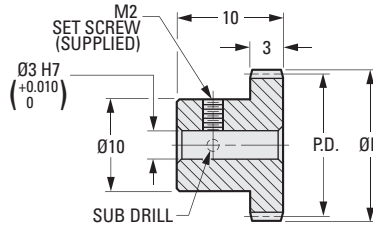
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➤ MATERIAL:

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

Available on special order:
 Number of teeth not listed, different
 bore size and /or material, passivation
 for stainless steel.



METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T05M020S0303 | S10T05M020A0303 | 20* | 10 | 11 |
| S10T05M021S0303 | S10T05M021A0303 | 21* | 10.5 | 11.5 |
| S10T05M022S0303 | S10T05M022A0303 | 22 | 11 | 12 |
| S10T05M024S0303 | S10T05M024A0303 | 24 | 12 | 13 |
| S10T05M025S0303 | S10T05M025A0303 | 25 | 12.5 | 13.5 |
| S10T05M026S0303 | S10T05M026A0303 | 26 | 13 | 14 |
| S10T05M028S0303 | S10T05M028A0303 | 28 | 14 | 15 |
| S10T05M030S0303 | S10T05M030A0303 | 30 | 15 | 16 |
| S10T05M032S0303 | S10T05M032A0303 | 32 | 16 | 17 |
| S10T05M034S0303 | S10T05M034A0303 | 34 | 17 | 18 |
| S10T05M036S0303 | S10T05M036A0303 | 36 | 18 | 19 |
| S10T05M040S0303 | S10T05M040A0303 | 40 | 20 | 21 |
| S10T05M042S0303 | S10T05M042A0303 | 42 | 21 | 22 |
| S10T05M046S0303 | S10T05M046A0303 | 46 | 23 | 24 |
| S10T05M048S0303 | S10T05M048A0303 | 48 | 24 | 25 |
| S10T05M050S0303 | S10T05M050A0303 | 50 | 25 | 26 |
| S10T05M055S0303 | S10T05M055A0303 | 55 | 27.5 | 28.5 |
| S10T05M056S0303 | S10T05M056A0303 | 56 | 28 | 29 |
| S10T05M060S0303 | S10T05M060A0303 | 60 | 30 | 31 |
| S10T05M064S0303 | S10T05M064A0303 | 64 | 32 | 33 |
| S10T05M065S0303 | S10T05M065A0303 | 65 | 32.5 | 33.5 |
| S10T05M070S0303 | S10T05M070A0303 | 70 | 35 | 36 |
| S10T05M072S0303 | S10T05M072A0303 | 72 | 36 | 37 |
| S10T05M075S0303 | S10T05M075A0303 | 75 | 37.5 | 38.5 |
| S10T05M080S0303 | S10T05M080A0303 | 80 | 40 | 41 |
| S10T05M084S0303 | S10T05M084A0303 | 84 | 42 | 43 |
| S10T05M090S0303 | S10T05M090A0303 | 90 | 45 | 46 |
| S10T05M096S0303 | S10T05M096A0303 | 96 | 48 | 49 |
| S10T05M100S0303 | S10T05M100A0303 | 100 | 50 | 51 |
| S10T05M105S0303 | S10T05M105A0303 | 105 | 52.5 | 53.5 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.

ISO CLASS 7
 3 mm FACE
 5 mm BORE
 20° PRESSURE ANGLE

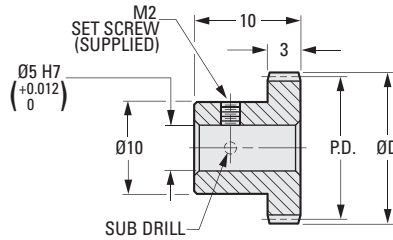
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

Available on special order:
 Number of teeth not listed, different
 bore size and /or material, passivation
 for stainless steel.



METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T05M020S0305 | S10T05M020A0305 | 20* | 10 | 11 |
| S10T05M021S0305 | S10T05M021A0305 | 21* | 10.5 | 11.5 |
| S10T05M022S0305 | S10T05M022A0305 | 22 | 11 | 12 |
| S10T05M024S0305 | S10T05M024A0305 | 24 | 12 | 13 |
| S10T05M025S0305 | S10T05M025A0305 | 25 | 12.5 | 13.5 |
| S10T05M028S0305 | S10T05M028A0305 | 28 | 14 | 15 |
| S10T05M030S0305 | S10T05M030A0305 | 30 | 15 | 16 |
| S10T05M032S0305 | S10T05M032A0305 | 32 | 16 | 17 |
| S10T05M034S0305 | S10T05M034A0305 | 34 | 17 | 18 |
| S10T05M036S0305 | S10T05M036A0305 | 36 | 18 | 19 |
| S10T05M040S0305 | S10T05M040A0305 | 40 | 20 | 21 |
| S10T05M042S0305 | S10T05M042A0305 | 42 | 21 | 22 |
| S10T05M046S0305 | S10T05M046A0305 | 46 | 23 | 24 |
| S10T05M048S0305 | S10T05M048A0305 | 48 | 24 | 25 |
| S10T05M050S0305 | S10T05M050A0305 | 50 | 25 | 26 |
| S10T05M060S0305 | S10T05M060A0305 | 60 | 30 | 31 |
| S10T05M064S0305 | S10T05M064A0305 | 64 | 32 | 33 |
| S10T05M070S0305 | S10T05M070A0305 | 70 | 35 | 36 |
| S10T05M072S0305 | S10T05M072A0305 | 72 | 36 | 37 |
| S10T05M080S0305 | S10T05M080A0305 | 80 | 40 | 41 |
| S10T05M084S0305 | S10T05M084A0305 | 84 | 42 | 43 |
| S10T05M090S0305 | S10T05M090A0305 | 90 | 45 | 46 |
| S10T05M096S0305 | S10T05M096A0305 | 96 | 48 | 49 |
| S10T05M105S0305 | S10T05M105A0305 | 105 | 52.5 | 53.5 |
| S10T05M120S0305 | S10T05M120A0305 | 120 | 60 | 61 |
| S10T05M132S0305 | S10T05M132A0305 | 132 | 66 | 67 |
| S10T05M144S0305 | S10T05M144A0305 | 144 | 72 | 73 |
| S10T05M156S0305 | S10T05M156A0305 | 156 | 78 | 79 |
| S10T05M168S0305 | S10T05M168A0305 | 168 | 84 | 85 |
| S10T05M192S0305 | S10T05M192A0305 | 192 | 96 | 97 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.

ISO CLASS 7
 3 mm FACE
 8 mm BORE
 20° PRESSURE ANGLE

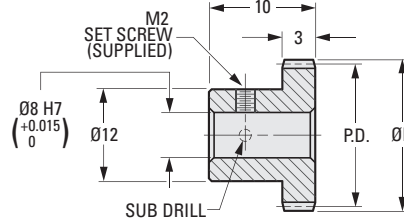
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

Available on special order:
 Number of teeth not listed, different
 bore size and /or material, passivation
 for stainless steel.



METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T05M024S0308 | S10T05M024A0308 | 24* | 12 | 13 |
| S10T05M025S0308 | S10T05M025A0308 | 25* | 12.5 | 13.5 |
| S10T05M028S0308 | S10T05M028A0308 | 28 | 14 | 15 |
| S10T05M030S0308 | S10T05M030A0308 | 30 | 15 | 16 |
| S10T05M032S0308 | S10T05M032A0308 | 32 | 16 | 17 |
| S10T05M036S0308 | S10T05M036A0308 | 36 | 18 | 19 |
| S10T05M040S0308 | S10T05M040A0308 | 40 | 20 | 21 |
| S10T05M042S0308 | S10T05M042A0308 | 42 | 21 | 22 |
| S10T05M048S0308 | S10T05M048A0308 | 48 | 24 | 25 |
| S10T05M050S0308 | S10T05M050A0308 | 50 | 25 | 26 |
| S10T05M054S0308 | S10T05M054A0308 | 54 | 27 | 28 |
| S10T05M056S0308 | S10T05M056A0308 | 56 | 28 | 29 |
| S10T05M060S0308 | S10T05M060A0308 | 60 | 30 | 31 |
| S10T05M064S0308 | S10T05M064A0308 | 64 | 32 | 33 |
| S10T05M070S0308 | S10T05M070A0308 | 70 | 35 | 36 |
| S10T05M072S0308 | S10T05M072A0308 | 72 | 36 | 37 |
| S10T05M075S0308 | S10T05M075A0308 | 75 | 37.5 | 38.5 |
| S10T05M080S0308 | S10T05M080A0308 | 80 | 40 | 41 |
| S10T05M090S0308 | S10T05M090A0308 | 90 | 45 | 46 |
| S10T05M096S0308 | S10T05M096A0308 | 96 | 48 | 49 |
| S10T05M100S0308 | S10T05M100A0308 | 100 | 50 | 51 |
| S10T05M105S0308 | S10T05M105A0308 | 105 | 52.5 | 53.5 |
| S10T05M120S0308 | S10T05M120A0308 | 120 | 60 | 61 |
| S10T05M132S0308 | S10T05M132A0308 | 132 | 66 | 67 |
| S10T05M140S0308 | S10T05M140A0308 | 140 | 70 | 71 |
| S10T05M150S0308 | S10T05M150A0308 | 150 | 75 | 76 |
| S10T05M160S0308 | S10T05M160A0308 | 160 | 80 | 81 |
| S10T05M168S0308 | S10T05M168A0308 | 168 | 84 | 85 |
| S10T05M180S0308 | S10T05M180A0308 | 180 | 90 | 91 |
| S10T05M192S0308 | S10T05M192A0308 | 192 | 96 | 97 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.

ISO CLASS 7
5 mm FACE
5 mm BORE
20° PRESSURE ANGLE

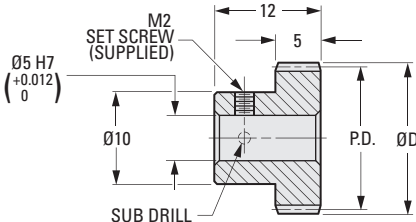
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> MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
anodized before cutting.

Available on special order:
Number of teeth not listed, different
bore size and/or material, passivation
for stainless steel.



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METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T05M020S0505 | S10T05M020A0505 | 20* | 10 | 11 |
| S10T05M021S0505 | S10T05M021A0505 | 21 | 10.5 | 11.5 |
| S10T05M022S0505 | S10T05M022A0505 | 22 | 11 | 12 |
| S10T05M024S0505 | S10T05M024A0505 | 24 | 12 | 13 |
| S10T05M025S0505 | S10T05M025A0505 | 25 | 12.5 | 13.5 |
| S10T05M026S0505 | S10T05M026A0505 | 26 | 13 | 14 |
| S10T05M028S0505 | S10T05M028A0505 | 28 | 14 | 15 |
| S10T05M030S0505 | S10T05M030A0505 | 30 | 15 | 16 |
| S10T05M032S0505 | S10T05M032A0505 | 32 | 16 | 17 |
| S10T05M036S0505 | S10T05M036A0505 | 36 | 18 | 19 |
| S10T05M040S0505 | S10T05M040A0505 | 40 | 20 | 21 |
| S10T05M044S0505 | S10T05M044A0505 | 44 | 22 | 23 |
| S10T05M048S0505 | S10T05M048A0505 | 48 | 24 | 25 |
| S10T05M050S0505 | S10T05M050A0505 | 50 | 25 | 26 |
| S10T05M055S0505 | S10T05M055A0505 | 55 | 27.5 | 28.5 |
| S10T05M060S0505 | S10T05M060A0505 | 60 | 30 | 31 |
| S10T05M064S0505 | S10T05M064A0505 | 64 | 32 | 33 |
| S10T05M065S0505 | S10T05M065A0505 | 65 | 32.5 | 33.5 |
| S10T05M072S0505 | S10T05M072A0505 | 72 | 36 | 37 |
| S10T05M084S0505 | S10T05M084A0505 | 84 | 42 | 43 |
| S10T05M085S0505 | S10T05M085A0505 | 85 | 42.5 | 43.5 |
| S10T05M090S0505 | S10T05M090A0505 | 90 | 45 | 46 |
| S10T05M096S0505 | S10T05M096A0505 | 96 | 48 | 49 |
| S10T05M100S0505 | S10T05M100A0505 | 100 | 50 | 51 |
| S10T05M108S0505 | S10T05M108A0505 | 108 | 54 | 55 |
| S10T05M120S0505 | S10T05M120A0505 | 120 | 60 | 61 |
| S10T05M144S0505 | S10T05M144A0505 | 144 | 72 | 73 |
| S10T05M156S0505 | S10T05M156A0505 | 156 | 78 | 79 |
| S10T05M180S0505 | S10T05M180A0505 | 180 | 90 | 91 |
| S10T05M192S0505 | S10T05M192A0505 | 192 | 96 | 97 |

*Hob cuts into hub. Hub diameter never exceeds gear O.D.

ISO CLASS 7
5 mm FACE
8 mm BORE
20° PRESSURE ANGLE

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> MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized
T4 or T351 Aluminum Alloy,
anodized before cutting.

Available on special order:
Number of teeth not listed,
different bore size and/or material,
passivation for Stainless Steel.

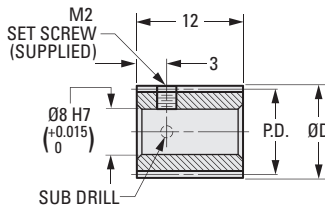


Fig. 1

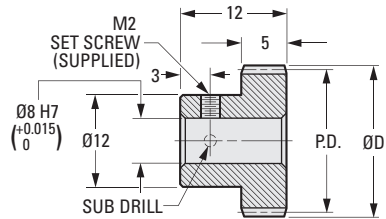


Fig. 2

| METRIC COMPONENT | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| Catalog Number | | | | |
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| Fig. 1 | | | | |
| S10T05M020S0508 | S10T05M020A0508 | 20 | 10 | 11 |
| S10T05M021S0508 | S10T05M021A0508 | 21 | 10.5 | 11.5 |
| S10T05M022S0508 | S10T05M022A0508 | 22 | 11 | 12 |
| Fig. 2 | | | | |
| S10T05M024S0508 | S10T05M024A0508 | 24 | 12 | 13 |
| S10T05M025S0508 | S10T05M025A0508 | 25 | 12.5 | 13.5 |
| S10T05M026S0508 | S10T05M026A0508 | 26 | 13 | 14 |
| S10T05M028S0508 | S10T05M028A0508 | 28 | 14 | 15 |
| S10T05M030S0508 | S10T05M030A0508 | 30 | 15 | 16 |
| S10T05M032S0508 | S10T05M032A0508 | 32 | 16 | 17 |
| S10T05M036S0508 | S10T05M036A0508 | 36 | 18 | 19 |
| S10T05M042S0508 | S10T05M042A0508 | 42 | 21 | 22 |
| S10T05M048S0508 | S10T05M048A0508 | 48 | 24 | 25 |
| S10T05M050S0508 | S10T05M050A0508 | 50 | 25 | 26 |
| S10T05M055S0508 | S10T05M055A0508 | 55 | 27.5 | 28.5 |
| S10T05M060S0508 | S10T05M060A0508 | 60 | 30 | 31 |
| S10T05M064S0508 | S10T05M064A0508 | 64 | 32 | 33 |
| S10T05M070S0508 | S10T05M070A0508 | 70 | 35 | 36 |
| S10T05M072S0508 | S10T05M072A0508 | 72 | 36 | 37 |
| S10T05M075S0508 | S10T05M075A0508 | 75 | 37.5 | 38.5 |
| S10T05M080S0508 | S10T05M080A0508 | 80 | 40 | 41 |
| S10T05M084S0508 | S10T05M084A0508 | 84 | 42 | 43 |
| S10T05M090S0508 | S10T05M090A0508 | 90 | 45 | 46 |
| S10T05M096S0508 | S10T05M096A0508 | 96 | 48 | 49 |
| S10T05M100S0508 | S10T05M100A0508 | 100 | 50 | 51 |
| S10T05M108S0508 | S10T05M108A0508 | 108 | 54 | 55 |
| S10T05M110S0508 | S10T05M110A0508 | 110 | 55 | 56 |
| S10T05M120S0508 | S10T05M120A0508 | 120 | 60 | 61 |
| S10T05M128S0508 | S10T05M128A0508 | 128 | 64 | 65 |
| S10T05M168S0508 | S10T05M168A0508 | 168 | 84 | 85 |
| S10T05M198S0508 | S10T05M198A0508 | 198 | 99 | 100 |

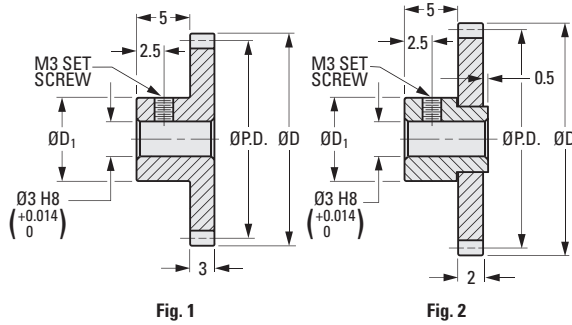
ISO CLASS 8
2 & 3 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> **MATERIAL:**
Brass



METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. |
|-----------------|----------|--------------|------|--------|-------------------------|
| A 1B 2MYK05020H | 1 | 20 | 10 | 11 | 8.5 |
| A 1B 2MYK05024H | 1 | 24 | 12 | 13 | 10 |
| A 1B 2MYK05025 | 1 | 25 | 12.5 | 13.5 | 10 |
| A 1B 2MYK05026 | 1 | 26 | 13 | 14 | 10 |
| A 1B 2MYK05028 | 1 | 28 | 14 | 15 | 10 |
| A 1B 2MYK05030H | 1 | 30 | 15 | 16 | 10 |
| A 1B 2MYK05032 | 1 | 32 | 16 | 17 | 10 |
| A 1B 2MYK05035 | 1 | 35 | 17.5 | 18.5 | 10 |
| A 1B 2MYK05036 | 1 | 36 | 18 | 19 | 10 |
| A 1B 2MYK05040 | 2 | 40 | 20 | 21 | 10 |
| A 1B 2MYK05042 | 2 | 42 | 21 | 22 | 10 |
| A 1B 2MYK05045 | 2 | 45 | 22.5 | 23.5 | 10 |
| A 1B 2MYK05048 | 2 | 48 | 24 | 25 | 10 |
| A 1B 2MYK05050 | 2 | 50 | 25 | 26 | 10 |
| A 1B 2MYK05055 | 2 | 55 | 27.5 | 28.5 | 10 |
| A 1B 2MYK05056 | 2 | 56 | 28 | 29 | 10 |
| A 1B 2MYK05058 | 2 | 58 | 29 | 30 | 10 |

NOTE: See also "Pinions - Module 0.15 to 0.8"

Continued on the next page

ISO CLASS 8
2 mm FACE WIDTH
20° PRESSURE ANGLE

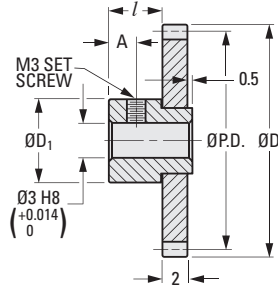
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS



➤ **MATERIAL:**
Brass



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. | / Hub Proj. | A |
|----------------|--------------|------|--------|-------------------------|-------------|-----|
| A 1B 2MYK05060 | 60 | 30 | 31 | 10 | 5 | 2.5 |
| A 1B 2MYK05062 | 62 | 31 | 32 | 10 | 5 | 2.5 |
| A 1B 2MYK05064 | 64 | 32 | 33 | 10 | 5 | 2.5 |
| A 1B 2MYK05065 | 65 | 32.5 | 33.5 | 10 | 5 | 2.5 |
| A 1B 2MYK05066 | 66 | 33 | 34 | 10 | 5 | 2.5 |
| A 1B 2MYK05068 | 68 | 34 | 35 | 10 | 5 | 2.5 |
| A 1B 2MYK05070 | 70 | 35 | 36 | 10 | 5 | 2.5 |
| A 1B 2MYK05072 | 72 | 36 | 37 | 10 | 5 | 2.5 |
| A 1B 2MYK05075 | 75 | 37.5 | 38.5 | 10 | 5 | 2.5 |
| A 1B 2MYK05080 | 80 | 40 | 41 | 10 | 5 | 2.5 |
| A 1B 2MYK05084 | 84 | 42 | 43 | 10 | 5 | 2.5 |
| A 1B 2MYK05085 | 85 | 42.5 | 43.5 | 10 | 5 | 2.5 |
| A 1B 2MYK05090 | 90 | 45 | 46 | 10 | 5 | 2.5 |
| A 1B 2MYK05095 | 95 | 47.5 | 48.5 | 10 | 5 | 2.5 |
| A 1B 2MYK05100 | 100 | 50 | 51 | 15 | 7 | 3.5 |
| A 1B 2MYK05105 | 105 | 52.5 | 53.5 | 15 | 7 | 3.5 |
| A 1B 2MYK05110 | 110 | 55 | 56 | 15 | 7 | 3.5 |

NOTE: See also "Pinions - Module 0.15 to 0.8"

Continued from the previous page

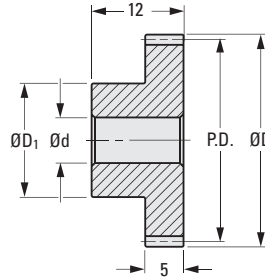
ISO CLASS 8
5 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> MATERIAL:
Brass, Steel or Stainless Steel



METRIC COMPONENT CATALOG NUMBER

A 1 **2MY05**

MATERIAL CODE

Brass F.M. 360 **B**

Carbon Steel **C**

Stainless Steel AISI 416 **Y**
Prehardened to HRC 25

No. of Teeth Code

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|-----------|-------------|-------------------------|
| 012 | 12 | 6 | 7 | 3 | +0.014/0 | 5 |
| 015 | 15 | 7.5 | 8.5 | 3 | +0.014/0 | 6 |
| 016 | 16 | 8 | 9 | 3 | +0.014/0 | 6 |
| 020 | 20 | 10 | 11 | 4 | +0.018/0 | 8 |
| 024 | 24 | 12 | 13 | 4 | +0.018/0 | 8 |
| 025 | 25 | 12.5 | 13.5 | 4 | +0.018/0 | 8 |
| 028 | 28 | 14 | 15 | 4 | +0.018/0 | 8 |
| 030 | 30 | 15 | 16 | 4 | +0.018/0 | 10 |
| 032 | 32 | 16 | 17 | 4 | +0.018/0 | 10 |
| 035 | 35 | 17.5 | 18.5 | 4 | +0.018/0 | 10 |
| 036 | 36 | 18 | 19 | 4 | +0.018/0 | 10 |
| 040 | 40 | 20 | 21 | 4 | +0.018/0 | 10 |
| 048 | 48 | 24 | 25 | 6 | +0.018/0 | 15 |
| 050 | 50 | 25 | 26 | 6 | +0.018/0 | 15 |
| 055 | 55 | 27.5 | 28.5 | 6 | +0.018/0 | 15 |
| 060 | 60 | 30 | 31 | 6 | +0.018/0 | 15 |
| 064 | 64 | 32 | 33 | 6 | +0.018/0 | 15 |
| 065 | 65 | 32.5 | 33.5 | 6 | +0.018/0 | 15 |
| 072 | 72 | 36 | 37 | 6 | +0.018/0 | 15 |
| 075 | 75 | 37.5 | 38.5 | 6 | +0.018/0 | 15 |
| 080 | 80 | 40 | 41 | 6 | +0.018/0 | 15 |
| 090 | 90 | 45 | 46 | 6 | +0.018/0 | 15 |
| 096 | 96 | 48 | 49 | 6 | +0.018/0 | 15 |
| 100 | 100 | 50 | 51 | 6 | +0.018/0 | 15 |
| 120 | 120 | 60 | 61 | 6 | +0.018/0 | 15 |

ISO CLASS 8
8 & 10 mm FACE WIDTHS
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Carbon Steel or 300 Series Stainless Steel

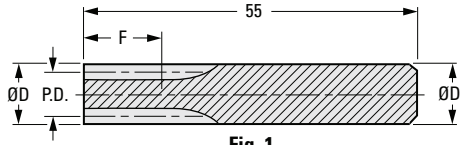
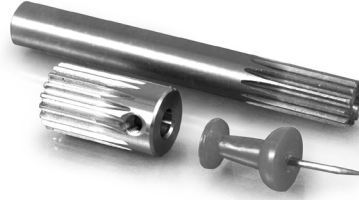


Fig. 1

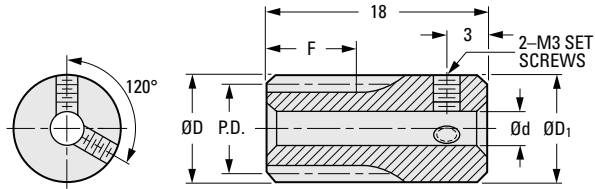
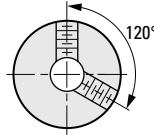


Fig. 2



METRIC COMPONENT

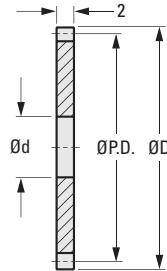
| Catalog Number | No. of Teeth | Fig. No. | P.D. | D Dia. | d Bore H8 | D ₁ Hub Dia. | F Face Width |
|------------------------|--------------|----------|------|--------|-----------|-------------------------|--------------|
| Carbon Steel | | | | | | | |
| A 1C 2MYK050010 | 10 | 1 | 5 | 6 | — | 6 | 10 |
| A 1C 2MYK050012 | 12 | | 6 | 7 | — | 7 | |
| A 1C 2MYK050014 | 14 | 2 | 7 | 8 | 3 | 8 | 8 |
| A 1C 2MYK050015 | 15 | | 7.5 | 8.5 | | 8.5 | |
| A 1C 2MYK050016 | 16 | | 8 | 9 | 9 | | |
| A 1C 2MYK050018 | 18 | | 9 | 10 | 10 | | |
| A 1C 2MYK050020 | 20 | 10 | 11 | 4 | 11 | | |
| Stainless Steel | | | | | | | |
| A 1X 2MYK050010 | 10 | 1 | 5 | 6 | — | 6 | 10 |
| A 1X 2MYK050012 | 12 | | 6 | 7 | — | 7 | |
| A 1X 2MYK050014 | 14 | 2 | 7 | 8 | 4 | 8 | 8 |
| A 1X 2MYK050015 | 15 | | 7.5 | 8.5 | | 8.5 | |
| A 1X 2MYK050016 | 16 | | 8 | 9 | 9 | | |
| A 1X 2MYK050018 | 18 | | 9 | 10 | 10 | | |
| A 1X 2MYK050020 | 20 | 10 | 11 | 11 | | | |

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2 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
Brass



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance |
|----------------|--------------|------|--------|-----------|-------------|
| A 1B 1MYK05040 | 40 | 20 | 21 | 8 | +0.022/0 |
| A 1B 1MYK05042 | 42 | 21 | 22 | 8 | +0.022/0 |
| A 1B 1MYK05045 | 45 | 22.5 | 23.5 | 8 | +0.022/0 |
| A 1B 1MYK05048 | 48 | 24 | 25 | 8 | +0.022/0 |
| A 1B 1MYK05050 | 50 | 25 | 26 | 8 | +0.022/0 |
| A 1B 1MYK05055 | 55 | 27.5 | 28.5 | 8 | +0.022/0 |
| A 1B 1MYK05056 | 56 | 28 | 29 | 8 | +0.022/0 |
| A 1B 1MYK05058 | 58 | 29 | 30 | 8 | +0.022/0 |
| A 1B 1MYK05060 | 60 | 30 | 31 | 8 | +0.022/0 |
| A 1B 1MYK05062 | 62 | 31 | 32 | 8 | +0.022/0 |
| A 1B 1MYK05064 | 64 | 32 | 33 | 8 | +0.022/0 |
| A 1B 1MYK05065 | 65 | 32.5 | 33.5 | 8 | +0.022/0 |
| A 1B 1MYK05068 | 68 | 34 | 35 | 8 | +0.022/0 |
| A 1B 1MYK05070 | 70 | 35 | 36 | 8 | +0.022/0 |
| A 1B 1MYK05072 | 72 | 36 | 37 | 8 | +0.022/0 |
| A 1B 1MYK05075 | 75 | 37.5 | 38.5 | 8 | +0.022/0 |
| A 1B 1MYK05080 | 80 | 40 | 41 | 8 | +0.022/0 |
| A 1B 1MYK05084 | 84 | 42 | 43 | 8 | +0.022/0 |
| A 1B 1MYK05085 | 85 | 42.5 | 43.5 | 8 | +0.022/0 |
| A 1B 1MYK05090 | 90 | 45 | 46 | 8 | +0.022/0 |
| A 1B 1MYK05095 | 95 | 47.5 | 48.5 | 8 | +0.022/0 |
| A 1B 1MYK05100 | 100 | 50 | 51 | 12 | +0.027/0 |
| A 1B 1MYK05105 | 105 | 52.5 | 53.5 | 12 | +0.027/0 |
| A 1B 1MYK05110 | 110 | 55 | 56 | 12 | +0.027/0 |

NOTE: See also "Pinions - Module 0.5"

ISO CLASS 7
 3 mm FACE
 10 mm BORE
 20° PRESSURE ANGLE

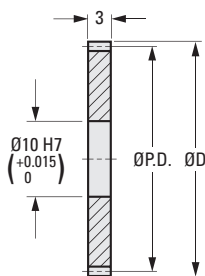
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

Available as special order:
 Number of teeth not listed, different
 bore size and /or material,
 passivation for stainless steel.



| METRIC COMPONENT | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| Catalog Number | | | | |
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S12N05M030S0310 | S12N05M030A0310 | 30 | 15 | 16 |
| S12N05M032S0310 | S12N05M032A0310 | 32 | 16 | 17 |
| S12N05M036S0310 | S12N05M036A0310 | 36 | 18 | 19 |
| S12N05M040S0310 | S12N05M040A0310 | 40 | 20 | 21 |
| S12N05M042S0310 | S12N05M042A0310 | 42 | 21 | 22 |
| S12N05M045S0310 | S12N05M045A0310 | 45 | 22.5 | 23.5 |
| S12N05M048S0310 | S12N05M048A0310 | 48 | 24 | 25 |
| S12N05M050S0310 | S12N05M050A0310 | 50 | 25 | 26 |
| S12N05M056S0310 | S12N05M056A0310 | 56 | 28 | 29 |
| S12N05M060S0310 | S12N05M060A0310 | 60 | 30 | 31 |
| S12N05M064S0310 | S12N05M064A0310 | 64 | 32 | 33 |
| S12N05M070S0310 | S12N05M070A0310 | 70 | 35 | 36 |
| S12N05M072S0310 | S12N05M072A0310 | 72 | 36 | 37 |
| S12N05M080S0310 | S12N05M080A0310 | 80 | 40 | 41 |
| S12N05M084S0310 | S12N05M084A0310 | 84 | 42 | 43 |
| S12N05M090S0310 | S12N05M090A0310 | 90 | 45 | 46 |
| S12N05M096S0310 | S12N05M096A0310 | 96 | 48 | 49 |
| S12N05M100S0310 | S12N05M100A0310 | 100 | 50 | 51 |
| S12N05M108S0310 | S12N05M108A0310 | 108 | 54 | 55 |
| S12N05M110S0310 | S12N05M110A0310 | 110 | 55 | 56 |
| S12N05M120S0310 | S12N05M120A0310 | 120 | 60 | 61 |
| S12N05M130S0310 | S12N05M130A0310 | 130 | 65 | 66 |
| S12N05M132S0310 | S12N05M132A0310 | 132 | 66 | 67 |
| S12N05M138S0310 | S12N05M138A0310 | 138 | 69 | 70 |
| S12N05M140S0310 | S12N05M140A0310 | 140 | 70 | 71 |
| S12N05M150S0310 | S12N05M150A0310 | 150 | 75 | 76 |
| S12N05M160S0310 | S12N05M160A0310 | 160 | 80 | 81 |
| S12N05M180S0310 | S12N05M180A0310 | 180 | 90 | 91 |
| S12N05M186S0310 | S12N05M186A0310 | 186 | 93 | 94 |
| S12N05M192S0310 | S12N05M192A0310 | 192 | 96 | 97 |

ISO CLASS 7
3.2 mm FACE
10 mm BORE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

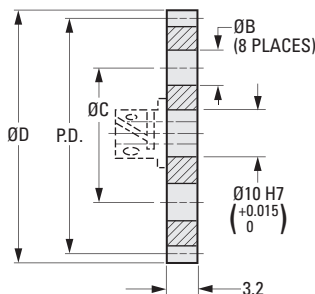
303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
Anodized before cutting.

SPECIFICATIONS:

All gears over 54 mm diameter supplied
with lightening holes.
See index for hubs. Assembled upon
request at nominal charge.



Available on special order:
14-1/2° P.A., teeth not listed, different
bore size and/or material,
passivation for stainless steel.



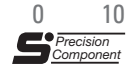
METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. | B Dia. | C Dia. |
|---------------------|------------------------|--------------|------|--------|--------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | | | |
| S12S05M030N0310 | S12A05M030N0310 | 30 | 15 | 16 | — | — |
| S12S05M032N0310 | S12A05M032N0310 | 32 | 16 | 17 | — | — |
| S12S05M048N0310 | S12A05M048N0310 | 48 | 24 | 25 | — | — |
| S12S05M054N0310 | S12A05M054N0310 | 54 | 27 | 28 | — | — |
| S12S05M060N0310 | S12A05M060N0310 | 60 | 30 | 31 | — | — |
| S12S05M065N0310 | S12A05M065N0310 | 65 | 32.5 | 33.5 | — | — |
| S12S05M070N0310 | S12A05M070N0310 | 70 | 35 | 36 | — | — |
| S12S05M080N0310 | S12A05M080N0310 | 80 | 40 | 41 | — | — |
| S12S05M096N0310 | S12A05M096N0310 | 96 | 48 | 49 | — | — |
| S12S05M100N0310 | S12A05M100N0310 | 100 | 50 | 51 | — | — |
| S12S05M105N0310 | S12A05M105N0310 | 105 | 52.5 | 53.5 | — | — |
| S12S05M120N0310 | S12A05M120N0310 | 120 | 60 | 61 | 9.5 | 34.9 |
| S12S05M130N0310 | S12A05M130N0310 | 130 | 65 | 66 | 9.5 | 34.9 |
| S12S05M150N0310 | S12A05M150N0310 | 150 | 75 | 76 | 9.5 | 44.5 |
| S12S05M180N0310 | S12A05M180N0310 | 180 | 90 | 91 | 12.7 | 50.8 |
| S12S05M192N0310 | S12A05M192N0310 | 192 | 96 | 97 | 12.7 | 57.2 |
| S12S05M198N0310 | S12A05M198N0310 | 198 | 99 | 100 | 12.7 | 57.2 |

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ISO CLASS 7
5 mm FACE
10 mm BORE
20° PRESSURE ANGLE

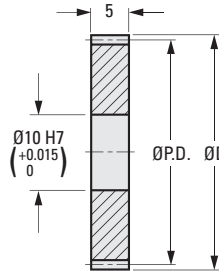
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
anodized before cutting.

Available as special order:
Number of teeth not listed, different
bore size and /or material,
passivation for stainless steel.



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METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S12N05M030S0510 | S12N05M030A0510 | 30 | 15 | 16 |
| S12N05M032S0510 | S12N05M032A0510 | 32 | 16 | 17 |
| S12N05M036S0510 | S12N05M036A0510 | 36 | 18 | 19 |
| S12N05M040S0510 | S12N05M040A0510 | 40 | 20 | 21 |
| S12N05M042S0510 | S12N05M042A0510 | 42 | 21 | 22 |
| S12N05M045S0510 | S12N05M045A0510 | 45 | 22.5 | 23.5 |
| S12N05M048S0510 | S12N05M048A0510 | 48 | 24 | 25 |
| S12N05M050S0510 | S12N05M050A0510 | 50 | 25 | 26 |
| S12N05M056S0510 | S12N05M056A0510 | 56 | 28 | 29 |
| S12N05M060S0510 | S12N05M060A0510 | 60 | 30 | 31 |
| S12N05M064S0510 | S12N05M064A0510 | 64 | 32 | 33 |
| S12N05M070S0510 | S12N05M070A0510 | 70 | 35 | 36 |
| S12N05M072S0510 | S12N05M072A0510 | 72 | 36 | 37 |
| S12N05M080S0510 | S12N05M080A0510 | 80 | 40 | 41 |
| S12N05M084S0510 | S12N05M084A0510 | 84 | 42 | 43 |
| S12N05M090S0510 | S12N05M090A0510 | 90 | 45 | 46 |
| S12N05M096S0510 | S12N05M096A0510 | 96 | 48 | 49 |
| S12N05M100S0510 | S12N05M100A0510 | 100 | 50 | 51 |
| S12N05M108S0510 | S12N05M108A0510 | 108 | 54 | 55 |
| S12N05M110S0510 | S12N05M110A0510 | 110 | 55 | 56 |
| S12N05M120S0510 | S12N05M120A0510 | 120 | 60 | 61 |
| S12N05M130S0510 | S12N05M130A0510 | 130 | 65 | 66 |
| S12N05M132S0510 | S12N05M132A0510 | 132 | 66 | 67 |
| S12N05M138S0510 | S12N05M138A0510 | 138 | 69 | 70 |
| S12N05M140S0510 | S12N05M140A0510 | 140 | 70 | 71 |
| S12N05M150S0510 | S12N05M150A0510 | 150 | 75 | 76 |
| S12N05M160S0510 | S12N05M160A0510 | 160 | 80 | 81 |
| S12N05M180S0510 | S12N05M180A0510 | 180 | 90 | 91 |
| S12N05M186S0510 | S12N05M186A0510 | 186 | 93 | 94 |
| S12N05M192S0510 | S12N05M192A0510 | 192 | 96 | 97 |

ISO CLASS 8
3 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

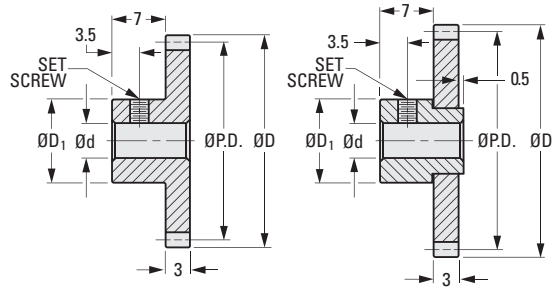


Fig. 1

Fig. 2

METRIC COMPONENT

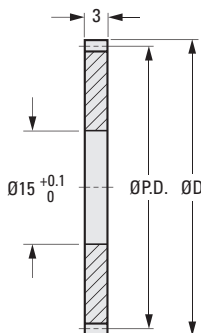
| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H8 (+0.018 0) | D ₁ Hub Dia. | Set Screw |
|----------------|----------|--------------|------|--------|-------------------------------|-------------------------|-----------|
| A 1B 2MYKH7016 | 1 | 16 | 12 | 13.5 | 5 | 10 | M3 |
| A 1B 2MYKH7018 | 1 | 18 | 13.5 | 15 | 5 | 11 | M3 |
| A 1B 2MYKH7020 | 1 | 20 | 15 | 16.5 | 6 | 12 | M4 |
| A 1B 2MYKH7024 | 1 | 24 | 18 | 19.5 | 6 | 14 | M4 |
| A 1B 2MYKH7025 | 1 | 25 | 18.8 | 20.3 | 6 | 14 | M4 |
| A 1B 2MYKH7026 | 1 | 26 | 19.5 | 21 | 6 | 14 | M4 |
| A 1B 2MYKH7028 | 1 | 28 | 21 | 22.5 | 6 | 14 | M4 |
| A 1B 2MYKH7030 | 1 | 30 | 22.5 | 24 | 6 | 15 | M4 |
| A 1B 2MYKH7032 | 1 | 32 | 24 | 25.5 | 6 | 15 | M4 |
| A 1B 2MYKH7035 | 1 | 35 | 26.3 | 27.8 | 6 | 18 | M4 |
| A 1B 2MYKH7036 | 1 | 36 | 27 | 28.5 | 6 | 18 | M4 |
| A 1B 2MYKH7040 | 1 | 40 | 30 | 31.5 | 6 | 20 | M4 |
| A 1B 2MYKH7042 | 1 | 42 | 31.5 | 33 | 6 | 20 | M4 |
| A 1B 2MYKH7045 | 1 | 45 | 33.8 | 35.3 | 6 | 20 | M4 |
| A 1B 2MYKH7048 | 1 | 48 | 36 | 37.5 | 6 | 20 | M4 |
| A 1B 2MYKH7050 | 2 | 50 | 37.5 | 39 | 6 | 20 | M4 |
| A 1B 2MYKH7056 | 2 | 56 | 42 | 43.5 | 6 | 20 | M4 |
| A 1B 2MYKH7060 | 2 | 60 | 45 | 46.5 | 6 | 20 | M4 |
| A 1B 2MYKH7064 | 2 | 64 | 48 | 49.5 | 6 | 20 | M4 |
| A 1B 2MYKH7065 | 2 | 65 | 48.8 | 50.3 | 6 | 20 | M4 |
| A 1B 2MYKH7066 | 2 | 66 | 49.5 | 51 | 6 | 20 | M4 |
| A 1B 2MYKH7070 | 2 | 70 | 52.5 | 54 | 6 | 20 | M4 |
| A 1B 2MYKH7072 | 2 | 72 | 54 | 55.5 | 6 | 20 | M4 |
| A 1B 2MYKH7075 | 2 | 75 | 56.3 | 57.8 | 6 | 20 | M4 |
| A 1B 2MYKH7080 | 2 | 80 | 60 | 61.5 | 6 | 20 | M4 |
| A 1B 2MYKH7090 | 2 | 90 | 67.5 | 69 | 6 | 20 | M4 |
| A 1B 2MYKH7100 | 2 | 100 | 75 | 76.5 | 6 | 20 | M4 |
| A 1B 2MYKH7120 | 2 | 120 | 90 | 91.5 | 6 | 20 | M4 |

NOTE: See also "Pinions - Module 0.15 to 0.8"

3 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:
Brass



METRIC COMPONENT

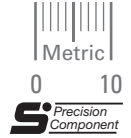
| Catalog Number | No. of Teeth | P.D. | D Dia. |
|----------------|--------------|------|--------|
| A 1B 1MYKH7050 | 50 | 37.5 | 39 |
| A 1B 1MYKH7056 | 56 | 42 | 43.5 |
| A 1B 1MYKH7060 | 60 | 45 | 46.5 |
| A 1B 1MYKH7064 | 64 | 48 | 49.5 |
| A 1B 1MYKH7065 | 65 | 48.8 | 50.3 |
| A 1B 1MYKH7066 | 66 | 49.5 | 51 |
| A 1B 1MYKH7070 | 70 | 52.5 | 54 |
| A 1B 1MYKH7072 | 72 | 54 | 55.5 |
| A 1B 1MYKH7075 | 75 | 56.3 | 57.8 |
| A 1B 1MYKH7080 | 80 | 60 | 61.5 |
| A 1B 1MYKH7090 | 90 | 67.5 | 69 |
| A 1B 1MYKH7100 | 100 | 75 | 76.5 |
| A 1B 1MYKH7120 | 120 | 90 | 91.5 |

NOTE: See also "Pinions - Module 0.75"

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ISO CLASS 7
5 & 7 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
303 Stainless Steel

➤ **SPECIFICATIONS:**
Socket Head Cap Screw Supplied.
Gears larger than 60 teeth have two-piece construction.
Fairloc® hubs require controlled shaft tolerances. Suggested tolerance according to g6, h6 or h7.

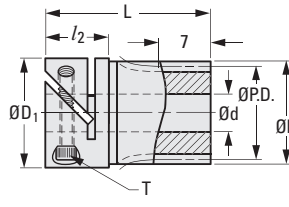


Fig. 1

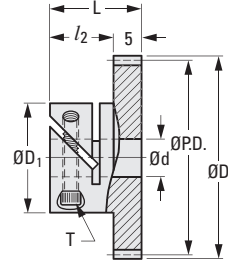


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | L | D ₁ Dia. | l ₂ | T | Hub Clear. Rad. |
|-----------------|--------------|------|--------|-----------|-------------|----|---------------------|----------------|------|-----------------|
| Fig. 1 | | | | | | | | | | |
| S1VS08M014F0704 | 14 | 11.2 | 12.8 | 4 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M015F0704 | 15 | 12 | 13.6 | 4 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M016F0704 | 16 | 12.8 | 14.4 | 4 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M018F0704 | 18 | 14.4 | 16 | 4 | +0.012/0 | 22 | 14 | 8 | M2.5 | 8.3 |
| Fig. 2 | | | | | | | | | | |
| S1VS08M020F0504 | 20 | 16 | 17.6 | 4 | +0.012/0 | 13 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M022F0504 | 22 | 17.6 | 19.2 | 4 | +0.012/0 | 13 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M024F0505 | 24 | 19.2 | 20.8 | 5 | +0.012/0 | 13 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M025F0505 | 25 | 20 | 21.6 | 5 | +0.012/0 | 13 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M028F0505 | 28 | 22.4 | 24 | 5 | +0.012/0 | 13 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M030F0505 | 30 | 24 | 25.6 | 5 | +0.012/0 | 13 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M032F0505 | 32 | 25.6 | 27.2 | 5 | +0.012/0 | 13 | 14 | 8 | M2.5 | 8.3 |
| S1VS08M036F0506 | 36 | 28.8 | 30.4 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M040F0506 | 40 | 32 | 33.6 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M045F0506 | 45 | 36 | 37.6 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M048F0506 | 48 | 38.4 | 40 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M050F0506 | 50 | 40 | 41.6 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M054F0506 | 54 | 43.2 | 44.8 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M056F0506 | 56 | 44.8 | 46.4 | 6 | +0.012/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M060F0508 | 60 | 48 | 49.6 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M064F0508 | 64 | 51.2 | 52.8 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M072F0508 | 72 | 57.6 | 59.2 | 8 | +0.015/0 | 15 | 17 | 10 | M3 | 11.3 |
| S1VS08M080F0510 | 80 | 64 | 65.6 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |
| S1VS08M090F0510 | 90 | 72 | 73.6 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |
| S1VS08M100F0510 | 100 | 80 | 81.6 | 10 | +0.015/0 | 19 | 24 | 14 | M4 | 14 |

ISO CLASS 7
 5 mm FACE
 5 mm BORE
 20° PRESSURE ANGLE

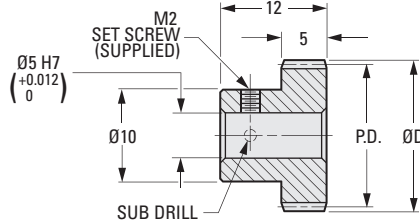
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

Available on special order:
 Number of teeth not listed, different
 bore size and /or material, passivation
 for stainless steel.



METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T08M012S0505 | S10T08M012A0505 | 12* | 9.6 | 11.2 |
| S10T08M015S0505 | S10T08M015A0505 | 15 | 12 | 13.6 |
| S10T08M016S0505 | S10T08M016A0505 | 16 | 12.8 | 14.4 |
| S10T08M017S0505 | S10T08M017A0505 | 17 | 13.6 | 15.2 |
| S10T08M018S0505 | S10T08M018A0505 | 18 | 14.4 | 16 |
| S10T08M020S0505 | S10T08M020A0505 | 20 | 16 | 17.6 |
| S10T08M022S0505 | S10T08M022A0505 | 22 | 17.6 | 19.2 |
| S10T08M024S0505 | S10T08M024A0505 | 24 | 19.2 | 20.8 |
| S10T08M026S0505 | S10T08M026A0505 | 26 | 20.8 | 22.4 |
| S10T08M028S0505 | S10T08M028A0505 | 28 | 22.4 | 24 |
| S10T08M030S0505 | S10T08M030A0505 | 30 | 24 | 25.6 |
| S10T08M032S0505 | S10T08M032A0505 | 32 | 25.6 | 27.2 |
| S10T08M036S0505 | S10T08M036A0505 | 36 | 28.8 | 30.4 |
| S10T08M040S0505 | S10T08M040A0505 | 40 | 32 | 33.6 |
| S10T08M048S0505 | S10T08M048A0505 | 48 | 38.4 | 40 |
| S10T08M052S0505 | S10T08M052A0505 | 52 | 41.6 | 43.2 |
| S10T08M056S0505 | S10T08M056A0505 | 56 | 44.8 | 46.4 |
| S10T08M060S0505 | S10T08M060A0505 | 60 | 48 | 49.6 |
| S10T08M064S0505 | S10T08M064A0505 | 64 | 51.2 | 52.8 |
| S10T08M068S0505 | S10T08M068A0505 | 68 | 54.4 | 56 |
| S10T08M072S0505 | S10T08M072A0505 | 72 | 57.6 | 59.2 |
| S10T08M080S0505 | S10T08M080A0505 | 80 | 64 | 65.6 |
| S10T08M084S0505 | S10T08M084A0505 | 84 | 67.2 | 68.8 |
| S10T08M092S0505 | S10T08M092A0505 | 92 | 73.6 | 75.2 |
| S10T08M096S0505 | S10T08M096A0505 | 96 | 76.8 | 78.4 |
| S10T08M100S0505 | S10T08M100A0505 | 100 | 80 | 81.6 |
| S10T08M108S0505 | S10T08M108A0505 | 108 | 86.4 | 88 |
| S10T08M112S0505 | S10T08M112A0505 | 112 | 89.6 | 91.2 |
| S10T08M116S0505 | S10T08M116A0505 | 116 | 92.8 | 94.4 |
| S10T08M120S0505 | S10T08M120A0505 | 120 | 96 | 97.6 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.

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ISO CLASS 7
5 mm FACE
8 mm BORE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

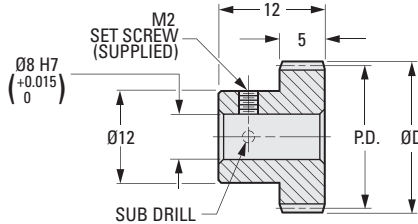


➤ MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
anodized before cutting.



Available on special order:
Number of teeth not listed, different
bore size and /or material, passivation
for stainless steel.



METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|-------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T08M014S0508 | S10T08M014A0508 | 14* | 11.2 | 12.8 |
| S10T08M015S0508 | S10T08M015A0508 | 15* | 12 | 13.6 |
| S10T08M016S0508 | S10T08M016A0508 | 16 | 12.8 | 14.4 |
| S10T08M018S0508 | S10T08M018A0508 | 18 | 14.4 | 16 |
| S10T08M020S0508 | S10T08M020A0508 | 20 | 16 | 17.6 |
| S10T08M024S0508 | S10T08M024A0508 | 24 | 19.2 | 20.8 |
| S10T08M026S0508 | S10T08M026A0508 | 26 | 20.8 | 22.4 |
| S10T08M028S0508 | S10T08M028A0508 | 28 | 22.4 | 24 |
| S10T08M030S0508 | S10T08M030A0508 | 30 | 24 | 25.6 |
| S10T08M032S0508 | S10T08M032A0508 | 32 | 25.6 | 27.2 |
| S10T08M036S0508 | S10T08M036A0508 | 36 | 28.8 | 30.4 |
| S10T08M040S0508 | S10T08M040A0508 | 40 | 32 | 33.6 |
| S10T08M048S0508 | S10T08M048A0508 | 48 | 38.4 | 40 |
| S10T08M052S0508 | S10T08M052A0508 | 52 | 41.6 | 43.2 |
| S10T08M056S0508 | S10T08M056A0508 | 56 | 44.8 | 46.4 |
| S10T08M060S0508 | S10T08M060A0508 | 60 | 48 | 49.6 |
| S10T08M064S0508 | S10T08M064A0508 | 64 | 51.2 | 52.8 |
| S10T08M065S0508 | S10T08M065A0508 | 65 | 52 | 53.6 |
| S10T08M072S0508 | S10T08M072A0508 | 72 | 57.6 | 59.2 |
| S10T08M075S0508 | S10T08M075A0508 | 75 | 60 | 61.6 |
| S10T08M080S0508 | S10T08M080A0508 | 80 | 64 | 65.6 |
| S10T08M085S0508 | S10T08M085A0508 | 85 | 68 | 69.6 |
| S10T08M088S0508 | S10T08M088A0508 | 88 | 70.4 | 72 |
| S10T08M092S0508 | S10T08M092A0508 | 92 | 73.6 | 75.2 |
| S10T08M096S0508 | S10T08M096A0508 | 96 | 76.8 | 78.4 |
| S10T08M100S0508 | S10T08M100A0508 | 100 | 80 | 81.6 |
| S10T08M108S0508 | S10T08M108A0508 | 108 | 86.4 | 88 |
| S10T08M112S0508 | S10T08M112A0508 | 112 | 89.6 | 91.2 |
| S10T08M120S0508 | S10T08M120A0508 | 120 | 96 | 97.6 |
| S10T08M128S0508 | S10T08M128A0508 | 128 | 102.4 | 104 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.

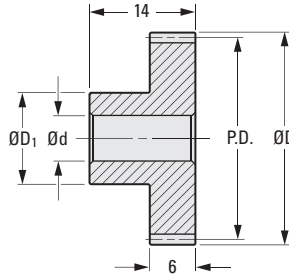
ISO CLASS 8
6 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> MATERIAL:
Brass, Steel or Stainless Steel



METRIC COMPONENT CATALOG NUMBER

A 1 **2MY08**

MATERIAL CODE

Brass F.M. 360 **B**

Carbon Steel **C**

Stainless Steel AISI 416 **Y**
Prehardened to HRC 25

No. of Teeth Code

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | d Bore Dia. H8 | d Tolerance | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|----------------|-------------|-------------------------|
| 010 | 10* | 8 | 9.6 | 4 | +0.018/0 | 9.6 |
| 015 | 15 | 12 | 13.6 | 4 | +0.018/0 | 10 |
| 016 | 16 | 12.8 | 14.4 | 4 | +0.018/0 | 10 |
| 020 | 20 | 16 | 17.6 | 6 | +0.018/0 | 12 |
| 024 | 24 | 19.2 | 20.8 | 6 | +0.018/0 | 12 |
| 025 | 25 | 20 | 21.6 | 6 | +0.018/0 | 12 |
| 030 | 30 | 24 | 25.6 | 6 | +0.018/0 | 12 |
| 032 | 32 | 25.6 | 27.2 | 6 | +0.018/0 | 12 |
| 035 | 35 | 28 | 29.6 | 8 | +0.022/0 | 19 |
| 040 | 40 | 32 | 33.6 | 8 | +0.022/0 | 19 |
| 045 | 45 | 36 | 37.6 | 8 | +0.022/0 | 19 |
| 050 | 50 | 40 | 41.6 | 8 | +0.022/0 | 19 |
| 055 | 55 | 44 | 45.6 | 8 | +0.022/0 | 19 |
| 060 | 60 | 48 | 49.6 | 10 | +0.022/0 | 22 |
| 064 | 64 | 51.2 | 52.8 | 10 | +0.022/0 | 22 |
| 065 | 65 | 52 | 53.6 | 10 | +0.022/0 | 22 |
| 070 | 70 | 56 | 57.6 | 10 | +0.022/0 | 22 |
| 075 | 75 | 60 | 61.6 | 10 | +0.022/0 | 22 |
| 080 | 80 | 64 | 65.6 | 10 | +0.022/0 | 22 |
| 090 | 90 | 72 | 73.6 | 10 | +0.022/0 | 22 |
| 095 | 95 | 76 | 77.6 | 10 | +0.022/0 | 22 |
| 096 | 96 | 76.8 | 78.4 | 10 | +0.022/0 | 22 |
| 100 | 100 | 80 | 81.6 | 10 | +0.022/0 | 26 |
| 120 | 120 | 96 | 97.6 | 10 | +0.022/0 | 26 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.



SPUR GEARS • MODULE 0.8



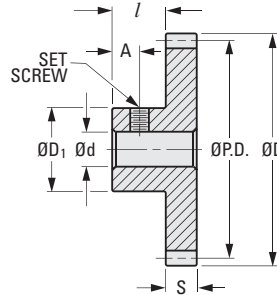
ISO CLASS 8
5 & 7 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



0 10

QUALITY CLASS



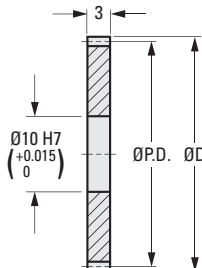
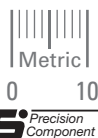
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tol. | S Face Width | D ₁ Hub Dia. | I Hub Proj. | A | Set Screw |
|----------------|--------------|------|--------|-----------|----------|--------------|-------------------------|-------------|---|-----------|
| A 1B 2MYK08016 | 16 | 12.8 | 14.4 | 4 | +0.018/0 | 7 | 10 | 7 | 3 | M3 |
| A 1B 2MYK08018 | 18 | 14.4 | 16 | 4 | +0.018/0 | 7 | 10 | 7 | 3 | M3 |
| A 1B 2MYK08020 | 20 | 16 | 17.6 | 4 | +0.018/0 | 7 | 10 | 7 | 3 | M3 |
| A 1B 2MYK08024 | 24 | 19.2 | 20.8 | 5 | +0.018/0 | 7 | 12.5 | 7 | 3 | M3 |
| A 1B 2MYK08025 | 25 | 20 | 21.6 | 5 | +0.018/0 | 7 | 12.5 | 7 | 3 | M3 |
| A 1B 2MYK08028 | 28 | 22.4 | 24 | 5 | +0.018/0 | 7 | 12.5 | 7 | 3 | M3 |
| A 1B 2MYK08030 | 30 | 24 | 25.6 | 5 | +0.018/0 | 7 | 12.5 | 7 | 3 | M3 |
| A 1B 2MYK08032 | 32 | 25.6 | 27.2 | 5 | +0.018/0 | 5 | 12.5 | 9 | 3 | M3 |
| A 1B 2MYK08036 | 36 | 28.8 | 30.4 | 6 | +0.022/0 | 5 | 14 | 9 | 4 | M4 |
| A 1B 2MYK08040 | 40 | 32 | 33.6 | 6 | +0.022/0 | 5 | 14 | 9 | 4 | M4 |
| A 1B 2MYK08045 | 45 | 36 | 37.6 | 6 | +0.022/0 | 5 | 14 | 9 | 4 | M4 |
| A 1B 2MYK08048 | 48 | 38.4 | 40 | 6 | +0.022/0 | 5 | 14 | 9 | 4 | M4 |
| A 1B 2MYK08050 | 50 | 40 | 41.6 | 6 | +0.022/0 | 5 | 14 | 9 | 4 | M4 |
| A 1B 2MYK08056 | 56 | 44.8 | 46.4 | 6 | +0.022/0 | 5 | 14 | 9 | 4 | M4 |
| A 1B 2MYK08060 | 60 | 48 | 49.6 | 6 | +0.022/0 | 5 | 14 | 9 | 4 | M4 |
| A 1B 2MYK08064 | 64 | 51.2 | 52.8 | 6 | +0.022/0 | 5 | 16 | 9 | 4 | M4 |
| A 1B 2MYK08070 | 70 | 56 | 57.6 | 8 | +0.022/0 | 5 | 16 | 9 | 4 | M4 |
| A 1B 2MYK08072 | 72 | 57.6 | 59.2 | 8 | +0.022/0 | 5 | 16 | 9 | 4 | M4 |
| A 1B 2MYK08080 | 80 | 64 | 65.6 | 8 | +0.022/0 | 5 | 16 | 9 | 4 | M4 |
| A 1B 2MYK08090 | 90 | 72 | 73.6 | 8 | +0.022/0 | 5 | 20 | 9 | 4 | M4 |
| A 1B 2MYK08100 | 100 | 80 | 81.6 | 8 | +0.022/0 | 5 | 24 | 9 | 4 | M4 |
| A 1B 2MYK08108 | 108 | 86.4 | 88 | 8 | +0.022/0 | 5 | 30 | 9 | 4 | M4 |
| A 1B 2MYK08112 | 112 | 89.6 | 91.2 | 8 | +0.022/0 | 5 | 30 | 9 | 4 | M4 |
| A 1B 2MYK08120 | 120 | 96 | 97.6 | 8 | +0.022/0 | 5 | 30 | 9 | 4 | M4 |

NOTE: See also "Pinions - Module 0.15 to 0.8"

ISO CLASS 7
3 mm FACE
10 mm BORE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
anodized before cutting.

Available as special order:
Number of teeth not listed,
different bore size and/or material,
passivation for stainless steel.

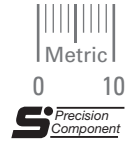
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METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|-------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S12N08M020S0310 | S12N08M020A0310 | 20 | 16 | 17.6 |
| S12N08M024S0310 | S12N08M024A0310 | 24 | 19.2 | 20.8 |
| S12N08M025S0310 | S12N08M025A0310 | 25 | 20 | 21.6 |
| S12N08M028S0310 | S12N08M028A0310 | 28 | 22.4 | 24 |
| S12N08M032S0310 | S12N08M032A0310 | 32 | 25.6 | 27.2 |
| S12N08M036S0310 | S12N08M036A0310 | 36 | 28.8 | 30.4 |
| S12N08M040S0310 | S12N08M040A0310 | 40 | 32 | 33.6 |
| S12N08M048S0310 | S12N08M048A0310 | 48 | 38.4 | 40 |
| S12N08M050S0310 | S12N08M050A0310 | 50 | 40 | 41.6 |
| S12N08M054S0310 | S12N08M054A0310 | 54 | 43.2 | 44.8 |
| S12N08M056S0310 | S12N08M056A0310 | 56 | 44.8 | 46.4 |
| S12N08M060S0310 | S12N08M060A0310 | 60 | 48 | 49.6 |
| S12N08M064S0310 | S12N08M064A0310 | 64 | 51.2 | 52.8 |
| S12N08M065S0310 | S12N08M065A0310 | 65 | 52 | 53.6 |
| S12N08M070S0310 | S12N08M070A0310 | 70 | 56 | 57.6 |
| S12N08M072S0310 | S12N08M072A0310 | 72 | 57.6 | 59.2 |
| S12N08M075S0310 | S12N08M075A0310 | 75 | 60 | 61.6 |
| S12N08M080S0310 | S12N08M080A0310 | 80 | 64 | 65.6 |
| S12N08M084S0310 | S12N08M084A0310 | 84 | 67.2 | 68.8 |
| S12N08M085S0310 | S12N08M085A0310 | 85 | 68 | 69.6 |
| S12N08M090S0310 | S12N08M090A0310 | 90 | 72 | 73.6 |
| S12N08M096S0310 | S12N08M096A0310 | 96 | 76.8 | 78.4 |
| S12N08M100S0310 | S12N08M100A0310 | 100 | 80 | 81.6 |
| S12N08M108S0310 | S12N08M108A0310 | 108 | 86.4 | 88 |
| S12N08M110S0310 | S12N08M110A0310 | 110 | 88 | 89.6 |
| S12N08M115S0310 | S12N08M115A0310 | 115 | 92 | 93.6 |
| S12N08M120S0310 | S12N08M120A0310 | 120 | 96 | 97.6 |
| S12N08M126S0310 | S12N08M126A0310 | 126 | 100.8 | 102.4 |
| S12N08M128S0310 | S12N08M128A0310 | 128 | 102.4 | 104 |
| S12N08M132S0310 | S12N08M132A0310 | 132 | 105.6 | 107.2 |

ISO CLASS 7
 3.2 mm FACE
 10 mm BORE
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



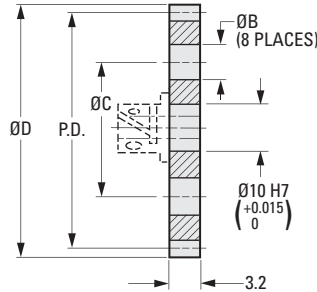
➤ **MATERIAL:**

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

➤ **SPECIFICATIONS:**

All gears over 54 mm diameter supplied
 with lightening holes.
 See index for hubs. Assembled upon
 request at nominal charge.

Available on special order:
 14-1/2° P.A., teeth not listed, different
 bore size and/or material,
 passivation for Stainless Steel.



| Catalog Number | | No. of Teeth | P.D. | D Dia. | B Dia. | C Dia. |
|---------------------|------------------------|--------------|-------|--------|--------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | | | |
| S12S08M020N0310 | S12A08M020N0310 | 20 | 16 | 17.6 | — | — |
| S12S08M024N0310 | S12A08M024N0310 | 24 | 19.2 | 20.8 | — | — |
| S12S08M028N0310 | S12A08M028N0310 | 28 | 22.4 | 24 | — | — |
| S12S08M032N0310 | S12A08M032N0310 | 32 | 25.6 | 27.2 | — | — |
| S12S08M042N0310 | S12A08M042N0310 | 42 | 33.6 | 35.2 | — | — |
| S12S08M048N0310 | S12A08M048N0310 | 48 | 38.4 | 40 | — | — |
| S12S08M056N0310 | S12A08M056N0310 | 56 | 44.8 | 46.4 | — | — |
| S12S08M064N0310 | S12A08M064N0310 | 64 | 51.2 | 52.8 | — | — |
| S12S08M066N0310 | S12A08M066N0310 | 66 | 52.8 | 54.4 | 9.5 | 34.9 |
| S12S08M070N0310 | S12A08M070N0310 | 70 | 56 | 57.6 | 9.5 | 34.9 |
| S12S08M072N0310 | S12A08M072N0310 | 72 | 57.6 | 59.2 | 9.5 | 34.9 |
| S12S08M080N0310 | S12A08M080N0310 | 80 | 64 | 65.6 | 9.5 | 34.9 |
| S12S08M096N0310 | S12A08M096N0310 | 96 | 76.8 | 78.4 | 9.5 | 44.5 |
| S12S08M120N0310 | S12A08M120N0310 | 120 | 96 | 97.6 | 12.7 | 57.2 |
| S12S08M128N0310 | S12A08M128N0310 | 128 | 102.4 | 104 | 12.7 | 57.2 |



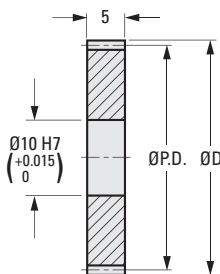
ISO CLASS 7
5 mm FACE
10 mm BORE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
anodized before cutting.

Available as special order:
Number of teeth not listed, different
bore size and /or material,
passivation for stainless steel.

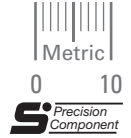


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METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|-------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S12N08M020S0510 | S12N08M020A0510 | 20 | 16 | 17.6 |
| S12N08M024S0510 | S12N08M024A0510 | 24 | 19.2 | 20.8 |
| S12N08M025S0510 | S12N08M025A0510 | 25 | 20 | 21.6 |
| S12N08M028S0510 | S12N08M028A0510 | 28 | 22.4 | 24 |
| S12N08M032S0510 | S12N08M032A0510 | 32 | 25.6 | 27.2 |
| S12N08M036S0510 | S12N08M036A0510 | 36 | 28.8 | 30.4 |
| S12N08M040S0510 | S12N08M040A0510 | 40 | 32 | 33.6 |
| S12N08M048S0510 | S12N08M048A0510 | 48 | 38.4 | 40 |
| S12N08M050S0510 | S12N08M050A0510 | 50 | 40 | 41.6 |
| S12N08M054S0510 | S12N08M054A0510 | 54 | 43.2 | 44.8 |
| S12N08M056S0510 | S12N08M056A0510 | 56 | 44.8 | 46.4 |
| S12N08M060S0510 | S12N08M060A0510 | 60 | 48 | 49.6 |
| S12N08M064S0510 | S12N08M064A0510 | 64 | 51.2 | 52.8 |
| S12N08M065S0510 | S12N08M065A0510 | 65 | 52 | 53.6 |
| S12N08M070S0510 | S12N08M070A0510 | 70 | 56 | 57.6 |
| S12N08M072S0510 | S12N08M072A0510 | 72 | 57.6 | 59.2 |
| S12N08M075S0510 | S12N08M075A0510 | 75 | 60 | 61.6 |
| S12N08M080S0510 | S12N08M080A0510 | 80 | 64 | 65.6 |
| S12N08M084S0510 | S12N08M084A0510 | 84 | 67.2 | 68.8 |
| S12N08M085S0510 | S12N08M085A0510 | 85 | 68 | 69.6 |
| S12N08M090S0510 | S12N08M090A0510 | 90 | 72 | 73.6 |
| S12N08M096S0510 | S12N08M096A0510 | 96 | 76.8 | 78.4 |
| S12N08M100S0510 | S12N08M100A0510 | 100 | 80 | 81.6 |
| S12N08M108S0510 | S12N08M108A0510 | 108 | 86.4 | 88 |
| S12N08M110S0510 | S12N08M110A0510 | 110 | 88 | 89.6 |
| S12N08M115S0510 | S12N08M115A0510 | 115 | 92 | 93.6 |
| S12N08M120S0510 | S12N08M120A0510 | 120 | 96 | 97.6 |
| S12N08M126S0510 | S12N08M126A0510 | 126 | 100.8 | 102.4 |
| S12N08M128S0510 | S12N08M128A0510 | 128 | 102.4 | 104 |
| S12N08M132S0510 | S12N08M132A0510 | 132 | 105.6 | 107.2 |

ISO CLASS 7
6 & 8 mm FACE
20° PRESSURE ANGLE



➤ **MATERIAL:**
303 Stainless Steel

➤ **SPECIFICATIONS:**
Socket Head Cap Screw Supplied.
Gears larger than 45 teeth have two-piece construction.
Fairloc® hubs require controlled shaft tolerances. Suggested tolerance according to g6, h6 or h7.

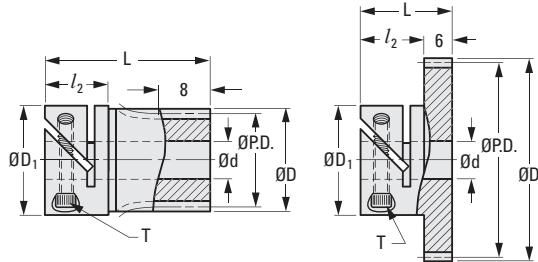


Fig. 1

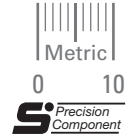
Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | L | D ₁ Dia. | l ₂ | T | Hub Clear. Rad. |
|-----------------|--------------|------|--------|-----------|-------------|----|---------------------|----------------|----|-----------------|
| Fig. 1 | | | | | | | | | | |
| S1VS10M014F0806 | 14 | 14 | 16 | 6 | +0.012/0 | 25 | 17 | 10 | M3 | 11.3 |
| S1VS10M015F0806 | 15 | 15 | 17 | 6 | +0.012/0 | 25 | 17 | 10 | M3 | 11.3 |
| S1VS10M016F0806 | 16 | 16 | 18 | 6 | +0.012/0 | 25 | 17 | 10 | M3 | 11.3 |
| S1VS10M018F0806 | 18 | 18 | 20 | 6 | +0.012/0 | 25 | 17 | 10 | M3 | 11.3 |
| Fig. 2 | | | | | | | | | | |
| S1VS10M020F0606 | 20 | 20 | 22 | 6 | +0.012/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M024F0606 | 24 | 24 | 26 | 6 | +0.012/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M025F0606 | 25 | 25 | 27 | 6 | +0.012/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M028F0606 | 28 | 28 | 30 | 6 | +0.012/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M030F0608 | 30 | 30 | 32 | 8 | +0.015/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M032F0608 | 32 | 32 | 34 | 8 | +0.015/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M035F0608 | 35 | 35 | 37 | 8 | +0.015/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M036F0608 | 36 | 36 | 38 | 8 | +0.015/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M040F0608 | 40 | 40 | 42 | 8 | +0.015/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M045F0608 | 45 | 45 | 47 | 8 | +0.015/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M048F0608 | 48 | 48 | 50 | 8 | +0.015/0 | 16 | 17 | 10 | M3 | 11.3 |
| S1VS10M050F0610 | 50 | 50 | 52 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M056F0610 | 56 | 56 | 58 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M060F0610 | 60 | 60 | 62 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M064F0610 | 64 | 64 | 66 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M070F0610 | 70 | 70 | 72 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M072F0610 | 72 | 72 | 74 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M080F0610 | 80 | 80 | 82 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M090F0610 | 90 | 90 | 92 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |
| S1VS10M100F0610 | 100 | 100 | 102 | 10 | +0.015/0 | 20 | 24 | 14 | M4 | 14 |

ISO CLASS 7
 5 mm FACE
 5 mm BORE
 20° PRESSURE ANGLE

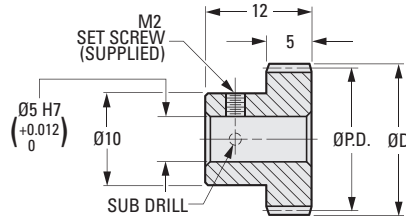
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► **MATERIAL:**

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

Available as special order:
 Number of teeth not listed, different
 bore size and /or material,
 passivation for stainless steel.

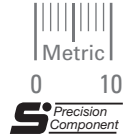


METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T10M015S0505 | S10T10M015A0505 | 15 | 15 | 17 |
| S10T10M016S0505 | S10T10M016A0505 | 16 | 16 | 18 |
| S10T10M018S0505 | S10T10M018A0505 | 18 | 18 | 20 |
| S10T10M020S0505 | S10T10M020A0505 | 20 | 20 | 22 |
| S10T10M022S0505 | S10T10M022A0505 | 22 | 22 | 24 |
| S10T10M024S0505 | S10T10M024A0505 | 24 | 24 | 26 |
| S10T10M030S0505 | S10T10M030A0505 | 30 | 30 | 32 |
| S10T10M036S0505 | S10T10M036A0505 | 36 | 36 | 38 |
| S10T10M042S0505 | S10T10M042A0505 | 42 | 42 | 44 |
| S10T10M048S0505 | S10T10M048A0505 | 48 | 48 | 50 |
| S10T10M054S0505 | S10T10M054A0505 | 54 | 54 | 56 |
| S10T10M060S0505 | S10T10M060A0505 | 60 | 60 | 62 |
| S10T10M072S0505 | S10T10M072A0505 | 72 | 72 | 74 |
| S10T10M084S0505 | S10T10M084A0505 | 84 | 84 | 86 |
| S10T10M096S0505 | S10T10M096A0505 | 96 | 96 | 98 |

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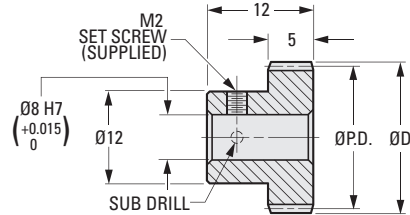
ISO CLASS 7
5 mm FACE
8 mm BORE
20° PRESSURE ANGLE



MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
anodized before cutting.

Available as special order:
Number of teeth not listed, different
bore size and /or material,
passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S10T10M012S0508 | S10T10M012A0508 | 12 | 12 | 14 |
| S10T10M015S0508 | S10T10M015A0508 | 15 | 15 | 17 |
| S10T10M016S0508 | S10T10M016A0508 | 16 | 16 | 18 |
| S10T10M018S0508 | S10T10M018A0508 | 18 | 18 | 20 |
| S10T10M020S0508 | S10T10M020A0508 | 20 | 20 | 22 |
| S10T10M021S0508 | S10T10M021A0508 | 21 | 21 | 23 |
| S10T10M022S0508 | S10T10M022A0508 | 22 | 22 | 24 |
| S10T10M024S0508 | S10T10M024A0508 | 24 | 24 | 26 |
| S10T10M027S0508 | S10T10M027A0508 | 27 | 27 | 29 |
| S10T10M030S0508 | S10T10M030A0508 | 30 | 30 | 32 |
| S10T10M033S0508 | S10T10M033A0508 | 33 | 33 | 35 |
| S10T10M036S0508 | S10T10M036A0508 | 36 | 36 | 38 |
| S10T10M042S0508 | S10T10M042A0508 | 42 | 42 | 44 |
| S10T10M045S0508 | S10T10M045A0508 | 45 | 45 | 47 |
| S10T10M048S0508 | S10T10M048A0508 | 48 | 48 | 50 |
| S10T10M051S0508 | S10T10M051A0508 | 51 | 51 | 53 |
| S10T10M054S0508 | S10T10M054A0508 | 54 | 54 | 56 |
| S10T10M057S0508 | S10T10M057A0508 | 57 | 57 | 59 |
| S10T10M060S0508 | S10T10M060A0508 | 60 | 60 | 62 |
| S10T10M063S0508 | S10T10M063A0508 | 63 | 63 | 65 |
| S10T10M066S0508 | S10T10M066A0508 | 66 | 66 | 68 |
| S10T10M069S0508 | S10T10M069A0508 | 69 | 69 | 71 |
| S10T10M072S0508 | S10T10M072A0508 | 72 | 72 | 74 |
| S10T10M075S0508 | S10T10M075A0508 | 75 | 75 | 77 |
| S10T10M078S0508 | S10T10M078A0508 | 78 | 78 | 80 |
| S10T10M081S0508 | S10T10M081A0508 | 81 | 81 | 83 |
| S10T10M084S0508 | S10T10M084A0508 | 84 | 84 | 86 |
| S10T10M087S0508 | S10T10M087A0508 | 87 | 87 | 89 |
| S10T10M090S0508 | S10T10M090A0508 | 90 | 90 | 92 |
| S10T10M096S0508 | S10T10M096A0508 | 96 | 96 | 98 |

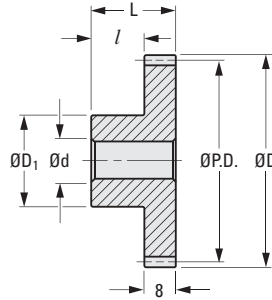
ISO CLASS 8
8 mm FACE WIDTH
20° PRESSURE ANGLE

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QUALITY CLASS

> MATERIAL:
Brass, Steel or Stainless Steel



METRIC COMPONENT CATALOG NUMBER

A 1 2MY10

MATERIAL CODE

Brass ASTM 8A **B**

Steel SAE 1109 **C**

Stainless Steel AISI 416 **Y**
Prehardened to HRC 25

No. of
Teeth
Code

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | L Length | D ₁ Hub Dia. | l Hub Proj. |
|-------------------|--------------|------|--------|-----------|-------------|----------|-------------------------|-------------|
| 015 | 15 | 15 | 17 | 8 | +0.022/0 | 22 | 12 | 14 |
| 020 | 20 | 20 | 22 | 8 | +0.022/0 | 22 | 16 | 14 |
| 025 | 25 | 25 | 27 | 8 | +0.022/0 | 22 | 21 | 14 |
| 030 | 30 | 30 | 32 | 10 | +0.022/0 | 22 | 25 | 14 |
| 035 | 35 | 35 | 37 | 10 | +0.022/0 | 22 | 25 | 14 |
| 040 | 40 | 40 | 42 | 10 | +0.022/0 | 22 | 25 | 14 |
| 045 | 45 | 45 | 47 | 10 | +0.022/0 | 22 | 25 | 14 |
| 050 | 50 | 50 | 52 | 10 | +0.022/0 | 22 | 25 | 14 |
| 055 | 55 | 55 | 57 | 10 | +0.022/0 | 22 | 25 | 14 |
| 060 | 60 | 60 | 62 | 10 | +0.022/0 | 22 | 25 | 14 |
| 063 | 63 | 63 | 65 | 10 | +0.022/0 | 22 | 25 | 14 |
| 065 | 65 | 65 | 67 | 10 | +0.022/0 | 22 | 25 | 14 |
| 070 | 70 | 70 | 72 | 10 | +0.022/0 | 22 | 25 | 14 |
| 075 | 75 | 75 | 77 | 10 | +0.022/0 | 22 | 25 | 14 |
| 080 | 80 | 80 | 82 | 10 | +0.022/0 | 22 | 25 | 14 |
| 085 | 85 | 85 | 87 | 10 | +0.022/0 | 22 | 25 | 14 |
| 090 | 90 | 90 | 92 | 12 | +0.027/0 | 24 | 32 | 16 |
| 095 | 95 | 95 | 97 | 12 | +0.027/0 | 24 | 32 | 16 |
| 100 | 100 | 100 | 102 | 12 | +0.027/0 | 24 | 32 | 16 |
| 120 | 120 | 120 | 122 | 12 | +0.027/0 | 24 | 32 | 16 |

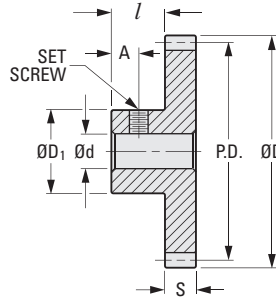
ISO CLASS 8
6 & 8 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> MATERIAL:
Steel



METRIC COMPONENT

| Catalog Number * | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | S Face Width | D ₁ Hub Dia. | l Hub Proj. | A | Set Screw |
|------------------|--------------|------|--------|-----------|----------|--------------|-------------------------|-------------|---|-----------|
| A 1C 2MYK10018 | 18 | 18 | 20 | 6 | +0.012/0 | 8 | 14 | 8 | 4 | M4 |
| A 1C 2MYK10020H | 20 | 20 | 22 | 6 | +0.012/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10020A | 20 | 20 | 22 | 8 | +0.015/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10024 | 24 | 24 | 26 | 8 | +0.015/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10028 | 28 | 28 | 30 | 8 | +0.015/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10030 | 30 | 30 | 32 | 8 | +0.015/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10040 | 40 | 40 | 42 | 10 | +0.015/0 | 6 | 20 | 10 | 5 | M5 |
| A 1C 2MYK10048 | 48 | 48 | 50 | 10 | +0.015/0 | 6 | 20 | 10 | 5 | M5 |
| A 1C 2MYK10050 | 50 | 50 | 52 | 10 | +0.015/0 | 6 | 20 | 10 | 5 | M5 |
| A 1C 2MYK10064 | 64 | 64 | 66 | 10 | +0.015/0 | 6 | 20 | 10 | 5 | M5 |
| A 1C 2MYK10072 | 72 | 72 | 74 | 10 | +0.015/0 | 6 | 20 | 10 | 5 | M5 |
| A 1C 2MYK10080H | 80 | 80 | 82 | 10 | +0.015/0 | 6 | 20 | 10 | 5 | M5 |

* To be discontinued when present stock is depleted.
A new style with two set screws will be offered in its place - see following page.

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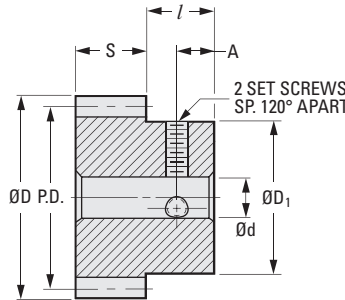
ISO CLASS 8
6 & 8 mm FACE WIDTH
20° PRESSURE ANGLE

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➤ MATERIAL:
Steel



QUALITY CLASS



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | S Face Width | D ₁ Hub Dia. | l Hub Proj. | A | Set Screw |
|------------------|--------------|------|--------|-----------|----------|--------------|-------------------------|-------------|---|-----------|
| A 1C 2MYK10018S | 18 | 18 | 20 | 6 | +0.012/0 | 8 | 14 | 8 | 4 | M4 |
| A 1C 2MYK10020HS | 20 | 20 | 22 | 6 | +0.012/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10020AS | 20 | 20 | 22 | 8 | +0.015/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10024S | 24 | 24 | 26 | 8 | +0.015/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10025S | 25 | 25 | 27 | 8 | +0.015/0 | 8 | 16 | 8 | 4 | M4 |
| A 1C 2MYK10028S | 28 | 28 | 30 | 8 | +0.015/0 | 8 | 20 | 8 | 4 | M4 |
| A 1C 2MYK10030S | 30 | 30 | 32 | 8 | +0.015/0 | 8 | 24 | 8 | 4 | M4 |
| A 1C 2MYK10032HS | 32 | 32 | 34 | 8 | +0.015/0 | 6 | 24 | 10 | 4 | M4 |
| A 1C 2MYK10035HS | 35 | 35 | 37 | 8 | +0.015/0 | 6 | 24 | 10 | 4 | M4 |
| A 1C 2MYK10036HS | 36 | 36 | 38 | 8 | +0.015/0 | 6 | 24 | 10 | 4 | M4 |
| A 1C 2MYK10040S | 40 | 40 | 42 | 10 | +0.015/0 | 6 | 24 | 10 | 5 | M5 |
| A 1C 2MYK10045S | 45 | 45 | 47 | 10 | +0.015/0 | 6 | 24 | 10 | 5 | M5 |
| A 1C 2MYK10048S | 48 | 48 | 50 | 10 | +0.015/0 | 6 | 24 | 10 | 5 | M5 |
| A 1C 2MYK10050S | 50 | 50 | 52 | 10 | +0.015/0 | 6 | 24 | 10 | 5 | M5 |
| A 1C 2MYK10056S | 56 | 56 | 58 | 10 | +0.015/0 | 6 | 24 | 10 | 5 | M5 |
| A 1C 2MYK10060HS | 60 | 60 | 62 | 10 | +0.015/0 | 6 | 30 | 10 | 5 | M5 |
| A 1C 2MYK10064S | 64 | 64 | 66 | 10 | +0.015/0 | 6 | 30 | 10 | 5 | M5 |
| A 1C 2MYK10072S | 72 | 72 | 74 | 10 | +0.015/0 | 6 | 30 | 10 | 5 | M5 |
| A 1C 2MYK10080HS | 80 | 80 | 82 | 10 | +0.015/0 | 6 | 30 | 10 | 5 | M5 |
| A 1C 2MYK10100HS | 100 | 100 | 102 | 10 | +0.015/0 | 6 | 30 | 10 | 5 | M5 |
| A 1C 2MYK10120HS | 120 | 120 | 122 | 10 | +0.015/0 | 6 | 30 | 10 | 5 | M5 |

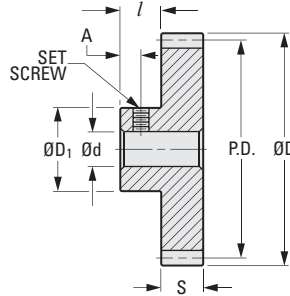
ISO CLASS 8
10 & 12 mm FACE WIDTH
20° PRESSURE ANGLE

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QUALITY CLASS

► MATERIAL:
Steel



METRIC COMPONENT

| Catalog Number * | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | S Face Width | D ₁ Hub Dia. | l Hub Proj. | A | Set Screw |
|------------------|--------------|------|--------|-----------|----------|--------------|-------------------------|-------------|---|-----------|
| A 1C 2MYKW10018 | 18 | 18 | 20 | 8 | +0.015/0 | 10 | 15 | 10 | 5 | M5 |
| A 1C 2MYKX10020 | 20 | 20 | 22 | 8 | +0.015/0 | 12 | 16 | 8 | 4 | M4 |
| A 1C 2MYKW10020 | 20 | 20 | 22 | 8 | +0.015/0 | 10 | 16 | 10 | 5 | M5 |
| A 1C 2MYKX10024 | 24 | 24 | 26 | 8 | +0.015/0 | 12 | 16 | 8 | 4 | M4 |
| A 1C 2MYKW10024 | 24 | 24 | 26 | 8 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKX10025 | 25 | 25 | 27 | 8 | +0.015/0 | 12 | 16 | 8 | 4 | M4 |
| A 1C 2MYKW10025 | 25 | 25 | 27 | 8 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKX10028H | 28 | 28 | 30 | 10 | +0.015/0 | 12 | 20 | 8 | 4 | M4 |
| A 1C 2MYKW10028H | 28 | 28 | 30 | 10 | +0.015/0 | 10 | 24 | 10 | 5 | M5 |
| A 1C 2MYKX10030H | 30 | 30 | 32 | 10 | +0.015/0 | 12 | 20 | 8 | 4 | M5 |
| A 1C 2MYKW10030 | 30 | 30 | 32 | 10 | +0.015/0 | 10 | 25 | 10 | 5 | M5 |
| A 1C 2MYKX10035H | 35 | 35 | 37 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKW10036H | 36 | 36 | 38 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKX10040H | 40 | 40 | 42 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKW10048H | 48 | 48 | 50 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKX10050H | 50 | 50 | 52 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKW10064 | 64 | 64 | 66 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKX10072 | 72 | 72 | 74 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKW10080H | 80 | 80 | 82 | 10 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKW10120H | 120 | 120 | 122 | 12 | +0.018/0 | 10 | 24 | 10 | 5 | M5 |

NOTE: See also "Pinions - Module 1"

* To be discontinued when present stock is depleted.

A new style with two set screws will be offered in its place - see following page.



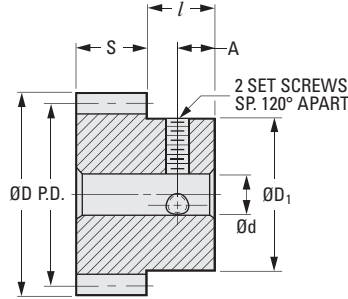
ISO CLASS 8
10 & 12 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

➤ **MATERIAL:**
Steel



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | S Face Width | D ₁ Hub Dia. | l Hub Proj. | A | Set Screw |
|------------------|--------------|------|--------|-----------|----------|--------------|-------------------------|-------------|---|-----------|
| A 1C 2MYKW10018S | 18 | 18 | 20 | 8 | +0.015/0 | 10 | 15 | 10 | 5 | M5 |
| A 1C 2MYKX10020S | 20 | 20 | 22 | 8 | +0.015/0 | 12 | 16 | 8 | 4 | M4 |
| A 1C 2MYKW10020S | 20 | 20 | 22 | 8 | +0.015/0 | 10 | 16 | 10 | 5 | M5 |
| A 1C 2MYKX10024S | 24 | 24 | 26 | 8 | +0.015/0 | 12 | 20 | 8 | 4 | M4 |
| A 1C 2MYKW10024S | 24 | 24 | 26 | 8 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKX10025S | 25 | 25 | 27 | 8 | +0.015/0 | 12 | 20 | 8 | 4 | M4 |
| A 1C 2MYKW10025S | 25 | 25 | 27 | 8 | +0.015/0 | 10 | 20 | 10 | 5 | M5 |
| A 1C 2MYKX10028S | 28 | 28 | 30 | 10 | +0.015/0 | 12 | 24 | 8 | 4 | M5 |
| A 1C 2MYKW10028S | 28 | 28 | 30 | 10 | +0.015/0 | 10 | 24 | 10 | 5 | M5 |
| A 1C 2MYKX10030S | 30 | 30 | 32 | 10 | +0.015/0 | 12 | 24 | 8 | 4 | M5 |
| A 1C 2MYKW10030S | 30 | 30 | 32 | 10 | +0.015/0 | 10 | 25 | 10 | 5 | M5 |
| A 1C 2MYKW10032S | 32 | 32 | 34 | 10 | +0.015/0 | 10 | 24 | 10 | 5 | M5 |
| A 1C 2MYKW10035S | 35 | 35 | 37 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10036S | 36 | 36 | 38 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10040S | 40 | 40 | 42 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10045S | 45 | 45 | 47 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10048S | 48 | 48 | 50 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10050S | 50 | 50 | 52 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10056S | 56 | 56 | 58 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10060S | 60 | 60 | 62 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10064S | 64 | 64 | 66 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10072S | 72 | 72 | 74 | 10 | +0.015/0 | 10 | 30 | 10 | 5 | M5 |
| A 1C 2MYKW10080S | 80 | 80 | 82 | 10 | +0.015/0 | 10 | 32 | 10 | 5 | M5 |
| A 1C 2MYKW10100S | 100 | 100 | 102 | 12 | +0.018/0 | 10 | 36 | 10 | 5 | M5 |
| A 1C 2MYKW10120S | 120 | 120 | 122 | 12 | +0.018/0 | 10 | 36 | 10 | 5 | M5 |

NOTE: See also "Pinions - Module 1"



ISO CLASS 8
 10 mm FACE WIDTH
 20° PRESSURE ANGLE

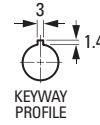
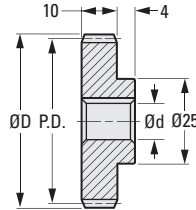
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QUALITY CLASS

> **MATERIAL:**
 Steel

> **SPECIFICATIONS:**
 With Keyway



METRIC COMPONENT

| Catalog Number * | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.018 / 0) |
|------------------------|--------------|------|--------|------------------------|
| A 1C22MYKW10050 | 50 | 50 | 52 | 14 |

* To be discontinued when present stock is depleted.

- I
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- 16

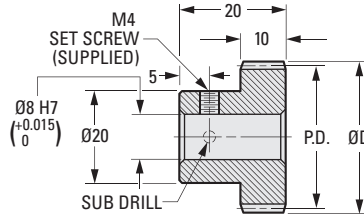
ISO CLASS 7
 10 mm FACE
 8 mm BORE
 20° PRESSURE ANGLE

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> MATERIAL:
 303 Stainless Steel

Available on special order:
 Number of teeth not listed,
 different bore size and/or material,
 passivation for Stainless Steel.



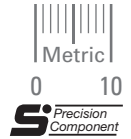
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|------------------|--------------|------|--------|
| *S10T10M015S1008 | 15 | 15 | 17 |
| *S10T10M016S1008 | 16 | 16 | 18 |
| *S10T10M018S1008 | 18 | 18 | 20 |
| S10T10M020S1008 | 20 | 20 | 22 |
| S10T10M022S1008 | 22 | 22 | 24 |
| S10T10M024S1008 | 24 | 24 | 26 |
| S10T10M025S1008 | 25 | 25 | 27 |
| S10T10M028S1008 | 28 | 28 | 30 |
| S10T10M030S1008 | 30 | 30 | 32 |
| S10T10M032S1008 | 32 | 32 | 34 |
| S10T10M035S1008 | 35 | 35 | 37 |
| S10T10M036S1008 | 36 | 36 | 38 |

* Hob cuts into hub. Hub diameter never exceeds gear O.D.

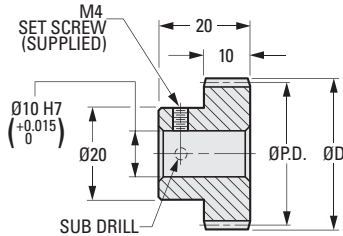


ISO CLASS 7
 10 mm FACE
 10 mm BORE
 20° PRESSURE ANGLE



MATERIAL:
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and/or material,
 passivation for stainless steel.

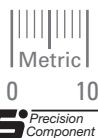


METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|------|--------|
| S10T10M036S1010 | 36 | 36 | 38 |
| S10T10M040S1010 | 40 | 40 | 42 |
| S10T10M042S1010 | 42 | 42 | 44 |
| S10T10M045S1010 | 45 | 45 | 47 |
| S10T10M048S1010 | 48 | 48 | 50 |
| S10T10M050S1010 | 50 | 50 | 52 |
| S10T10M055S1010 | 55 | 55 | 57 |
| S10T10M056S1010 | 56 | 56 | 58 |
| S10T10M060S1010 | 60 | 60 | 62 |
| S10T10M064S1010 | 64 | 64 | 66 |
| S10T10M070S1010 | 70 | 70 | 72 |
| S10T10M075S1010 | 75 | 75 | 77 |
| S10T10M080S1010 | 80 | 80 | 82 |
| S10T10M090S1010 | 90 | 90 | 92 |
| S10T10M096S1010 | 96 | 96 | 98 |

ISO CLASS 7
 3 mm FACE
 10 mm BORE
 20° PRESSURE ANGLE

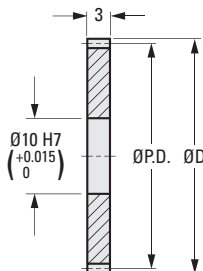
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> MATERIAL:

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

Available as special order:
 Number of teeth not listed,
 different bore size and/or material,
 passivation for stainless steel.

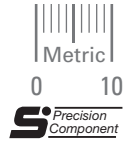


METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S12N10M018S0310 | S12N10M018A0310 | 18 | 18 | 20 |
| S12N10M020S0310 | S12N10M020A0310 | 20 | 20 | 22 |
| S12N10M022S0310 | S12N10M022A0310 | 22 | 22 | 24 |
| S12N10M024S0310 | S12N10M024A0310 | 24 | 24 | 26 |
| S12N10M025S0310 | S12N10M025A0310 | 25 | 25 | 27 |
| S12N10M027S0310 | S12N10M027A0310 | 27 | 27 | 29 |
| S12N10M028S0310 | S12N10M028A0310 | 28 | 28 | 30 |
| S12N10M030S0310 | S12N10M030A0310 | 30 | 30 | 32 |
| S12N10M032S0310 | S12N10M032A0310 | 32 | 32 | 34 |
| S12N10M035S0310 | S12N10M035A0310 | 35 | 35 | 37 |
| S12N10M036S0310 | S12N10M036A0310 | 36 | 36 | 38 |
| S12N10M040S0310 | S12N10M040A0310 | 40 | 40 | 42 |
| S12N10M042S0310 | S12N10M042A0310 | 42 | 42 | 44 |
| S12N10M045S0310 | S12N10M045A0310 | 45 | 45 | 47 |
| S12N10M048S0310 | S12N10M048A0310 | 48 | 48 | 50 |
| S12N10M050S0310 | S12N10M050A0310 | 50 | 50 | 52 |
| S12N10M054S0310 | S12N10M054A0310 | 54 | 54 | 56 |
| S12N10M056S0310 | S12N10M056A0310 | 56 | 56 | 58 |
| S12N10M060S0310 | S12N10M060A0310 | 60 | 60 | 62 |
| S12N10M064S0310 | S12N10M064A0310 | 64 | 64 | 66 |
| S12N10M065S0310 | S12N10M065A0310 | 65 | 65 | 67 |
| S12N10M070S0310 | S12N10M070A0310 | 70 | 70 | 72 |
| S12N10M072S0310 | S12N10M072A0310 | 72 | 72 | 74 |
| S12N10M075S0310 | S12N10M075A0310 | 75 | 75 | 77 |
| S12N10M080S0310 | S12N10M080A0310 | 80 | 80 | 82 |
| S12N10M084S0310 | S12N10M084A0310 | 84 | 84 | 86 |
| S12N10M085S0310 | S12N10M085A0310 | 85 | 85 | 87 |
| S12N10M090S0310 | S12N10M090A0310 | 90 | 90 | 92 |
| S12N10M096S0310 | S12N10M096A0310 | 96 | 96 | 98 |
| S12N10M100S0310 | S12N10M100A0310 | 100 | 100 | 102 |

ISO CLASS 7
 3.2 mm FACE
 10 mm BORE
 20° PRESSURE ANGLE

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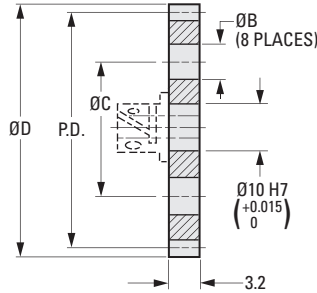
➤ **MATERIAL:**

303 Stainless Steel or
 2024 Aluminum Anodized-
 T4 or T351 Aluminum Alloy,
 anodized before cutting.

➤ **SPECIFICATIONS:**

All gears over 54 mm diameter supplied
 with lightening holes.
 See index for hubs. Assembled upon
 request at nominal charge.

Available on special order:
 14-1/2° P.A., teeth not listed, different
 bore size and/or material,
 passivation for Stainless Steel.



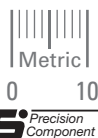
METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. | B Dia. | C Dia. |
|---------------------|------------------------|--------------|------|--------|--------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | | | |
| S12S10M015N0310 | S12A10M015N0310 | 15 | 15 | 17 | — | — |
| S12S10M016N0310 | S12A10M016N0310 | 16 | 16 | 18 | — | — |
| S12S10M020N0310 | S12A10M020N0310 | 20 | 20 | 22 | — | — |
| S12S10M021N0310 | S12A10M021N0310 | 21 | 21 | 23 | — | — |
| S12S10M024N0310 | S12A10M024N0310 | 24 | 24 | 26 | — | — |
| S12S10M025N0310 | S12A10M025N0310 | 25 | 25 | 27 | — | — |
| S12S10M026N0310 | S12A10M026N0310 | 26 | 26 | 28 | — | — |
| S12S10M028N0310 | S12A10M028N0310 | 28 | 28 | 30 | — | — |
| S12S10M030N0310 | S12A10M030N0310 | 30 | 30 | 32 | — | — |
| S12S10M032N0310 | S12A10M032N0310 | 32 | 32 | 34 | — | — |
| S12S10M040N0310 | S12A10M040N0310 | 40 | 40 | 42 | — | — |
| S12S10M042N0310 | S12A10M042N0310 | 42 | 42 | 44 | — | — |
| S12S10M045N0310 | S12A10M045N0310 | 45 | 45 | 47 | — | — |
| S12S10M046N0310 | S12A10M046N0310 | 46 | 46 | 48 | — | — |
| S12S10M048N0310 | S12A10M048N0310 | 48 | 48 | 50 | — | — |
| S12S10M050N0310 | S12A10M050N0310 | 50 | 50 | 52 | — | — |
| S12S10M052N0310 | S12A10M052N0310 | 52 | 52 | 54 | — | — |
| S12S10M056N0310 | S12A10M056N0310 | 56 | 56 | 58 | 9.5 | 34.9 |
| S12S10M060N0310 | S12A10M060N0310 | 60 | 60 | 62 | 9.5 | 34.9 |
| S12S10M064N0310 | S12A10M064N0310 | 64 | 64 | 66 | 9.5 | 34.9 |
| S12S10M070N0310 | S12A10M070N0310 | 70 | 70 | 72 | 9.5 | 44.5 |
| S12S10M072N0310 | S12A10M072N0310 | 72 | 72 | 74 | 9.5 | 44.5 |
| S12S10M099N0310 | S12A10M099N0310 | 99 | 99 | 101 | 12.7 | 57.2 |



ISO CLASS 7
5 mm FACE
10 mm BORE
20° PRESSURE ANGLE

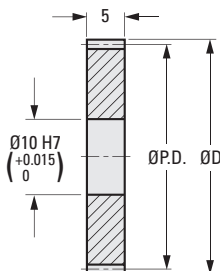
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> MATERIAL:

303 Stainless Steel or
2024 Aluminum Anodized-
T4 or T351 Aluminum Alloy,
anodized before cutting.

Available as special order:
Number of teeth not listed,
different bore size and/or material,
passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | | No. of Teeth | P.D. | D Dia. |
|---------------------|------------------------|--------------|------|--------|
| 303 Stainless Steel | 2024 Aluminum Anodized | | | |
| S12N10M018S0510 | S12N10M018A0510 | 18 | 18 | 20 |
| S12N10M020S0510 | S12N10M020A0510 | 20 | 20 | 22 |
| S12N10M022S0510 | S12N10M022A0510 | 22 | 22 | 24 |
| S12N10M024S0510 | S12N10M024A0510 | 24 | 24 | 26 |
| S12N10M025S0510 | S12N10M025A0510 | 25 | 25 | 27 |
| S12N10M027S0510 | S12N10M027A0510 | 27 | 27 | 29 |
| S12N10M028S0510 | S12N10M028A0510 | 28 | 28 | 30 |
| S12N10M030S0510 | S12N10M030A0510 | 30 | 30 | 32 |
| S12N10M032S0510 | S12N10M032A0510 | 32 | 32 | 34 |
| S12N10M035S0510 | S12N10M035A0510 | 35 | 35 | 37 |
| S12N10M036S0510 | S12N10M036A0510 | 36 | 36 | 38 |
| S12N10M040S0510 | S12N10M040A0510 | 40 | 40 | 42 |
| S12N10M042S0510 | S12N10M042A0510 | 42 | 42 | 44 |
| S12N10M045S0510 | S12N10M045A0510 | 45 | 45 | 47 |
| S12N10M048S0510 | S12N10M048A0510 | 48 | 48 | 50 |
| S12N10M050S0510 | S12N10M050A0510 | 50 | 50 | 52 |
| S12N10M054S0510 | S12N10M054A0510 | 54 | 54 | 56 |
| S12N10M056S0510 | S12N10M056A0510 | 56 | 56 | 58 |
| S12N10M060S0510 | S12N10M060A0510 | 60 | 60 | 62 |
| S12N10M064S0510 | S12N10M064A0510 | 64 | 64 | 66 |
| S12N10M065S0510 | S12N10M065A0510 | 65 | 65 | 67 |
| S12N10M070S0510 | S12N10M070A0510 | 70 | 70 | 72 |
| S12N10M072S0510 | S12N10M072A0510 | 72 | 72 | 74 |
| S12N10M075S0510 | S12N10M075A0510 | 75 | 75 | 77 |
| S12N10M080S0510 | S12N10M080A0510 | 80 | 80 | 82 |
| S12N10M084S0510 | S12N10M084A0510 | 84 | 84 | 86 |
| S12N10M085S0510 | S12N10M085A0510 | 85 | 85 | 87 |
| S12N10M090S0510 | S12N10M090A0510 | 90 | 90 | 92 |
| S12N10M096S0510 | S12N10M096A0510 | 96 | 96 | 98 |
| S12N10M100S0510 | S12N10M100A0510 | 100 | 100 | 102 |

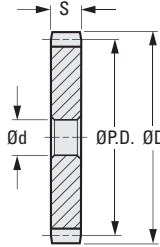


ISO CLASS 8
6 & 8 mm FACE WIDTH
20° PRESSURE ANGLE



0 10

QUALITY CLASS



> MATERIAL:
Steel

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|-----------------|--------------|------|--------|-----------|-------------|--------------|
| A 1C 1MYK10014S | 14 | 14 | 16 | 5 | +0.012/0 | 8 |
| A 1C 1MYK10014 | 14 | 14 | 16 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10015S | 15 | 15 | 17 | 5 | +0.012/0 | 8 |
| A 1C 1MYK10015 | 15 | 15 | 17 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10016S | 16 | 16 | 18 | 5 | +0.012/0 | 8 |
| A 1C 1MYK10016 | 16 | 16 | 18 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10018S | 18 | 18 | 20 | 5 | +0.012/0 | 8 |
| A 1C 1MYK10018 | 18 | 18 | 20 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10020 | 20 | 20 | 22 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10024S | 24 | 24 | 26 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10024 | 24 | 24 | 26 | 8 | +0.015/0 | 8 |
| A 1C 1MYK10025S | 25 | 25 | 27 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10025 | 25 | 25 | 27 | 8 | +0.015/0 | 8 |
| A 1C 1MYK10028S | 28 | 28 | 30 | 6 | +0.012/0 | 8 |
| A 1C 1MYK10028 | 28 | 28 | 30 | 8 | +0.015/0 | 8 |
| A 1C 1MYK10030 | 30 | 30 | 32 | 8 | +0.015/0 | 8 |
| A 1C 1MYK10032 | 32 | 32 | 34 | 8 | +0.015/0 | 6 |
| A 1C 1MYK10035 | 35 | 35 | 37 | 8 | +0.015/0 | 6 |
| A 1C 1MYK10036 | 36 | 36 | 38 | 8 | +0.015/0 | 6 |
| A 1C 1MYK10040S | 40 | 40 | 42 | 8 | +0.015/0 | 6 |
| A 1C 1MYK10045S | 45 | 45 | 47 | 8 | +0.015/0 | 6 |
| A 1C 1MYK10048S | 48 | 48 | 50 | 8 | +0.015/0 | 6 |
| A 1C 1MYK10050 | 50 | 50 | 52 | 10 | +0.015/0 | 6 |
| A 1C 1MYK10056 | 56 | 56 | 58 | 10 | +0.015/0 | 6 |
| A 1C 1MYK10060 | 60 | 60 | 62 | 10 | +0.015/0 | 6 |
| A 1C 1MYK10064 | 64 | 64 | 66 | 10 | +0.015/0 | 6 |
| A 1C 1MYK10072 | 72 | 72 | 74 | 10 | +0.015/0 | 6 |
| A 1C 1MYK10080 | 80 | 80 | 82 | 10 | +0.015/0 | 6 |
| A 1C 1MYK10100 | 100 | 100 | 102 | 10 | +0.015/0 | 6 |
| A 1C 1MYK10120 | 120 | 120 | 122 | 10 | +0.015/0 | 6 |

ISO CLASS 8
6 & 10 mm FACE WIDTH
20° PRESSURE ANGLE

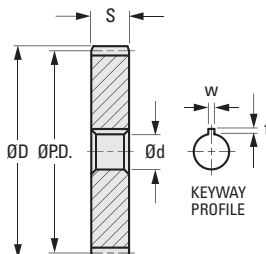
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QUALITY CLASS

> **MATERIAL:**
Steel

> **SPECIFICATIONS:**
With Keyway



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | w | t |
|--------------------|--------------|------|--------|-----------|-------------|--------------|---|-----|
| A 1C11MYK10040K | 40 | 40 | 42 | 10 | +0.015/0 | 6 | 3 | 1.4 |
| A 1C11MYK10045K | 45 | 45 | 47 | 10 | +0.015/0 | 6 | 3 | 1.4 |
| A 1C11MYK10048K | 48 | 48 | 50 | 10 | +0.015/0 | 6 | 3 | 1.4 |
| Δ A 1C11MYK10050 | 50 | 50 | 52 | 12 | +0.018/0 | 6 | 3 | 1.4 |
| A 1C11MYK10050K | 50 | 50 | 52 | 12 | +0.018/0 | 6 | 4 | 1.8 |
| Δ A 1C11MYK10060 | 60 | 60 | 62 | 12 | +0.018/0 | 6 | 3 | 1.4 |
| A 1C11MYK10060K | 60 | 60 | 62 | 12 | +0.018/0 | 6 | 4 | 1.8 |
| Δ A 1C11MYK10100 | 100 | 100 | 102 | 14 | +0.018/0 | 6 | 3 | 1.4 |
| A 1C11MYK10120L | 120 | 120 | 122 | 16 | +0.018/0 | 6 | 5 | 2.3 |
| | | | | | | | | |
| A 1C11MYKW10030 | 30 | 30 | 32 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10032K | 32 | 32 | 34 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10035K | 35 | 35 | 37 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10036K | 36 | 36 | 38 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10040 | 40 | 40 | 42 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10045K | 45 | 45 | 47 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10050S | 50 | 50 | 52 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| Δ A 1C11MYKW10050 | 50 | 50 | 52 | 14 | +0.018/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10060S | 60 | 60 | 62 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10080S | 80 | 80 | 82 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| Δ A 1C11MYKW10080K | 80 | 80 | 82 | 16 | +0.018/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10080L | 80 | 80 | 82 | 16 | +0.018/0 | 10 | 5 | 2.3 |
| A 1C11MYKW10100S | 100 | 100 | 102 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| A 1C11MYKW10100L | 100 | 100 | 102 | 16 | +0.018/0 | 10 | 5 | 2.3 |
| A 1C11MYKW10120S | 120 | 120 | 122 | 10 | +0.015/0 | 10 | 3 | 1.4 |
| Δ A 1C11MYKW10120K | 120 | 120 | 122 | 16 | +0.018/0 | 10 | 4 | 1.8 |
| A 1C11MYKW10120L | 120 | 120 | 122 | 16 | +0.018/0 | 10 | 5 | 2.3 |

Δ To be discontinued when present stock is depleted.

HUBLESS SPUR GEARS • MODULE 1

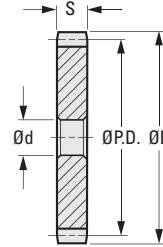
SDP/SI

ISO CLASS 8
10 & 12 mm FACE WIDTH
20° PRESSURE ANGLE

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QUALITY CLASS



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------|--------------|------|--------|-----------|-------------|--------------|
| A 1C 1MYKW10015 | 15 | 15 | 17 | 6 | +0.012/0 | 12 |
| A 1C 1MYKW10016 | 16 | 16 | 18 | 8 | +0.015/0 | 12 |
| A 1C 1MYKW10018 | 18 | 18 | 20 | 8 | +0.015/0 | 12 |
| A 1C 1MYKW10020 | 20 | 20 | 22 | 8 | +0.015/0 | 12 |
| A 1C 1MYKW10024 | 24 | 24 | 26 | 8 | +0.015/0 | 12 |
| A 1C 1MYKW10025 | 25 | 25 | 27 | 8 | +0.015/0 | 12 |
| A 1C 1MYKW10028B | 28 | 28 | 30 | 8 | +0.015/0 | 12 |
| A 1C 1MYKW10030B | 30 | 30 | 32 | 8 | +0.015/0 | 12 |
| A 1C 1MYKW10032S | 32 | 32 | 34 | 8 | +0.015/0 | 10 |
| A 1C 1MYKW10035S | 35 | 35 | 37 | 8 | +0.015/0 | 10 |
| A 1C 1MYKW10036S | 36 | 36 | 38 | 8 | +0.015/0 | 10 |
| A 1C 1MYKW10040S | 40 | 40 | 42 | 8 | +0.015/0 | 10 |
| A 1C 1MYKW10045S | 45 | 45 | 47 | 8 | +0.015/0 | 10 |
| A 1C 1MYKW10048 | 48 | 48 | 50 | 10 | +0.015/0 | 10 |
| A 1C 1MYKW10056 | 56 | 56 | 58 | 10 | +0.015/0 | 10 |
| A 1C 1MYKW10064 | 64 | 64 | 66 | 10 | +0.015/0 | 10 |
| A 1C 1MYKW10072 | 72 | 72 | 74 | 10 | +0.015/0 | 10 |

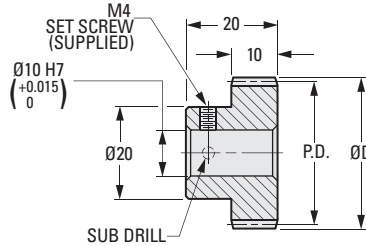
ISO CLASS 7
 10 mm FACE
 10 mm BORE
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
 303 Stainless Steel

Available on special order:
 Number of teeth not listed, different
 bore size and/or material, passivation
 for stainless steel.

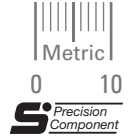


METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|-------|--------|
| S10T12M014S1010 | 14* | 17.5 | 20 |
| S10T12M015S1010 | 15* | 18.75 | 21.25 |
| S10T12M016S1010 | 16* | 20 | 22.5 |
| S10T12M018S1010 | 18 | 22.5 | 25 |
| S10T12M020S1010 | 20 | 25 | 27.5 |
| S10T12M024S1010 | 24 | 30 | 32.5 |
| S10T12M025S1010 | 25 | 31.25 | 33.75 |
| S10T12M028S1010 | 28 | 35 | 37.5 |
| S10T12M030S1010 | 30 | 37.5 | 40 |
| S10T12M035S1010 | 35 | 43.75 | 46.25 |
| S10T12M036S1010 | 36 | 45 | 47.5 |
| S10T12M040S1010 | 40 | 50 | 52.5 |
| S10T12M045S1010 | 45 | 56.25 | 58.75 |
| S10T12M048S1010 | 48 | 60 | 62.5 |
| S10T12M050S1010 | 50 | 62.5 | 65 |
| S10T12M056S1010 | 56 | 70 | 72.5 |
| S10T12M060S1010 | 60 | 75 | 77.5 |
| S10T12M070S1010 | 70 | 87.5 | 90 |
| S10T12M072S1010 | 72 | 90 | 92.5 |
| S10T12M080S1010 | 80 | 100 | 102.5 |
| S10T12M084S1010 | 84 | 105 | 107.5 |

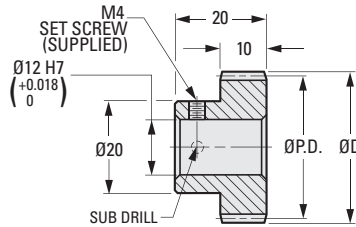
* Hob cuts into hub. Hub diameter never exceeds gear O.D.

ISO CLASS 7
 10 mm FACE
 12 mm BORE
 20° PRESSURE ANGLE



► **MATERIAL:**
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and /or material,
 passivation for stainless steel.

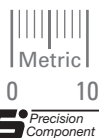


METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|-------|--------|
| S10T12M024S1012 | 24 | 30 | 32.5 |
| S10T12M025S1012 | 25 | 31.25 | 33.75 |
| S10T12M030S1012 | 30 | 37.5 | 40 |
| S10T12M035S1012 | 35 | 43.75 | 46.25 |
| S10T12M040S1012 | 40 | 50 | 52.5 |
| S10T12M045S1012 | 45 | 56.25 | 58.75 |
| S10T12M050S1012 | 50 | 62.5 | 65 |
| S10T12M060S1012 | 60 | 75 | 77.5 |
| S10T12M070S1012 | 70 | 87.5 | 90 |
| S10T12M080S1012 | 80 | 100 | 102.5 |

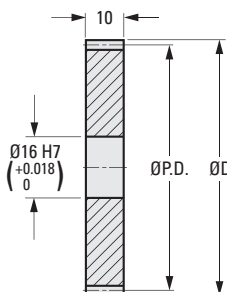
ISO CLASS 7
 10 mm FACE
 16 mm BORE
 20° PRESSURE ANGLE

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> **MATERIAL:**
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|-------|--------|
| S12N12M024S1016 | 24 | 30 | 32.5 |
| S12N12M025S1016 | 25 | 31.25 | 33.75 |
| S12N12M030S1016 | 30 | 37.5 | 40 |
| S12N12M035S1016 | 35 | 43.75 | 46.25 |
| S12N12M040S1016 | 40 | 50 | 52.5 |
| S12N12M045S1016 | 45 | 56.25 | 58.75 |
| S12N12M050S1016 | 50 | 62.5 | 65 |
| S12N12M060S1016 | 60 | 75 | 77.5 |
| S12N12M070S1016 | 70 | 87.5 | 90 |
| S12N12M080S1016 | 80 | 100 | 102.5 |

ISO CLASS 8
16 & 18 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> MATERIAL:
Steel

> SPECIFICATIONS:

Bore Tolerance: 8 & 10 mm +0.022/0
12, 15, 16 & 18 mm +0.018/0

D₁ Shaft Tolerance: 9 mm 0/-0.036
12 mm 0/-0.043

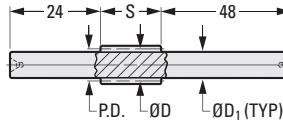


Fig. 1

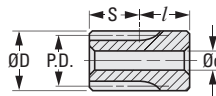


Fig. 2

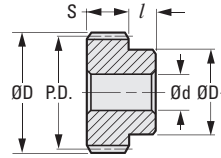


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | D ₁ Dia. | l Hub Proj. |
|------------------|----------|--------------|------|--------|--------|--------------|---------------------|-------------|
| A 1C 8MYK15008L | 1 | 8 | ** | 15.96 | — | 18 | 9(h9) | — |
| A 1C 8MYK15010L | 1 | 10 | ** | 19 | — | 18 | 12(h9) | — |
| A 1C 8MYK15012 | 2 | 12 | 18 | 21 | 8(H8) | 18 | — | 22 |
| A 1C 8MYK15014 | 2 | 14 | 21 | 24 | 8(H8) | 18 | — | 22 |
| | | | | | | | | |
| A 1C 2MYKW15015 | 3 | 15 | 22.5 | 25.5 | 8(H8) | 18 | 18 | 14 |
| A 1C 2MYKW15016 | 3 | 16 | 24 | 27 | 8(H8) | 18 | 20 | 14 |
| A 1C 2MYKW15018 | 3 | 18 | 27 | 30 | 10(H8) | 18 | 22 | 14 |
| A 1C 2MYKW15020 | 3 | 20 | 30 | 33 | 10(H8) | 18 | 25 | 14 |
| A 1C 2MYKW15024 | 3 | 24 | 36 | 39 | 12(H7) | 18 | 30 | 14 |
| A 1C 2MYKW15025B | 3 | 25 | 37.5 | 40.5 | 12(H7) | 18 | 32 | 14 |
| A 1C 2MYKW15028B | 3 | 28 | 42 | 45 | 12(H7) | 18 | 36 | 14 |
| A 1C 2MYKW15030B | 3 | 30 | 45 | 48 | 12(H7) | 18 | 40 | 14 |
| A 1C 2MYKW15032B | 3 | 32 | 48 | 51 | 12(H7) | 16 | 44 | 14 |
| A 1C 2MYKW15036B | 3 | 36 | 54 | 57 | 12(H7) | 16 | 50 | 14 |
| A 1C 2MYKW15040B | 3 | 40 | 60 | 63 | 12(H7) | 16 | 50 | 14 |
| A 1C 2MYKW15048B | 3 | 48 | 72 | 75 | 12(H7) | 16 | 50 | 14 |
| A 1C 2MYKW15050B | 3 | 50 | 75 | 78 | 15(H7) | 16 | 60 | 14 |
| A 1C 2MYKW15056 | 3 | 56 | 84 | 87 | 16(H7) | 16 | 60 | 14 |
| A 1C 2MYKW15060B | 3 | 60 | 90 | 93 | 16(H7) | 16 | 60 | 14 |
| A 1C 2MYKW15064 | 3 | 64 | 96 | 99 | 16(H7) | 16 | 60 | 14 |
| A 1C 2MYKW15070B | 3 | 70 | 105 | 108 | 16(H7) | 16 | 60 | 14 |
| A 1C 2MYKW15072 | 3 | 72 | 108 | 111 | 18(H7) | 16 | 60 | 14 |
| A 1C 2MYKW15080B | 3 | 80 | 120 | 123 | 18(H7) | 16 | 70 | 14 |
| A 1C 2MYKW15100B | 3 | 100 | 150 | 153 | 18(H7) | 16 | 70 | 14 |

** To obtain additional tooth strength these pinions are produced by shifting the tooth profile which results in a long addendum. The center distance for these pinions has to be increased, therefore please consult our Engineering Department.

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ISO CLASS 8
10 & 12 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Steel

QUALITY CLASS

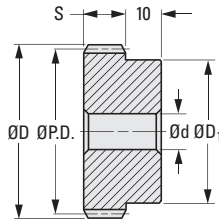


Fig. 1

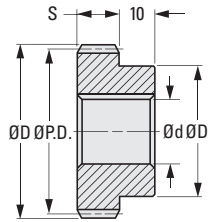


Fig. 2

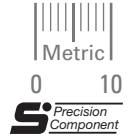


METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D ₁ Hub Dia. |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|-------------------------|
| Fig. 1 Without Keyway | | | | | | | |
| A 1C 2MYK15015 | 15 | 22.5 | 25.5 | 8 | +0.015/0 | 12 | 18 |
| A 1C 2MYK15016 | 16 | 24 | 27 | 8 | +0.015/0 | 12 | 20 |
| A 1C 2MYK15018 | 18 | 27 | 30 | 10 | +0.015/0 | 12 | 22 |
| A 1C 2MYK15020 | 20 | 30 | 33 | 10 | +0.015/0 | 12 | 25 |
| A 1C 2MYK15024 | 24 | 36 | 39 | 10 | +0.015/0 | 12 | 30 |
| A 1C 2MYK15025B | 25 | 37.5 | 40.5 | 10 | +0.015/0 | 12 | 32 |
| A 1C 2MYK15028B | 28 | 42 | 45 | 10 | +0.015/0 | 12 | 36 |
| A 1C 2MYK15030B | 30 | 45 | 48 | 10 | +0.015/0 | 12 | 40 |
| A 1C 2MYK15032B | 32 | 48 | 51 | 10 | +0.015/0 | 10 | 40 |
| A 1C 2MYK15036B | 36 | 54 | 57 | 10 | +0.015/0 | 10 | 50 |
| A 1C 2MYK15040B | 40 | 60 | 63 | 12 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15048B | 48 | 72 | 75 | 12 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15050B | 50 | 75 | 78 | 12 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15056 | 56 | 84 | 87 | 14 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15060 | 60 | 90 | 93 | 14 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15064 | 64 | 96 | 99 | 14 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15070 | 70 | 105 | 108 | 14 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15072B | 72 | 108 | 111 | 15 | +0.018/0 | 10 | 50 |
| A 1C 2MYK15080 | 80 | 120 | 123 | 15 | +0.018/0 | 10 | 60 |
| A 1C 2MYK15100 | 100 | 150 | 153 | 15 | +0.018/0 | 10 | 60 |

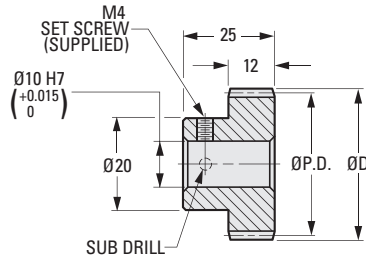
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D ₁ Hub Dia. | w | t |
|---------------------------|--------------|------|--------|-----------|-------------|--------------|-------------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | |
| A 1C22MYK15020B | 20 | 30 | 33 | 15 | +0.018/0 | 12 | 25 | 5 | 2.3 |
| A 1C22MYK15025B | 25 | 37.5 | 40.5 | 15 | +0.018/0 | 12 | 30 | 5 | 2.3 |
| A 1C22MYK15028B | 28 | 42 | 45 | 15 | +0.018/0 | 12 | 30 | 5 | 2.3 |
| A 1C22MYK15030B | 30 | 45 | 48 | 15 | +0.018/0 | 12 | 30 | 5 | 2.3 |
| A 1C22MYK15036B | 36 | 54 | 57 | 15 | +0.018/0 | 10 | 30 | 5 | 2.3 |
| A 1C22MYK15040A | 40 | 60 | 63 | 18 | +0.018/0 | 10 | 36 | 6 | 2.8 |
| A 1C22MYK15048A | 48 | 72 | 75 | 18 | +0.018/0 | 10 | 36 | 6 | 2.8 |
| A 1C22MYK15050A | 50 | 75 | 78 | 18 | +0.018/0 | 10 | 36 | 6 | 2.8 |
| A 1C22MYK15056B | 56 | 84 | 87 | 15 | +0.018/0 | 10 | 30 | 5 | 2.3 |
| A 1C22MYK15060A | 60 | 90 | 93 | 18 | +0.018/0 | 10 | 36 | 6 | 2.8 |
| A 1C22MYK15064B | 64 | 96 | 99 | 15 | +0.018/0 | 10 | 30 | 5 | 2.3 |
| A 1C22MYK15070B | 70 | 105 | 108 | 15 | +0.018/0 | 10 | 30 | 5 | 2.3 |
| A 1C22MYK15072A | 72 | 108 | 111 | 18 | +0.018/0 | 10 | 36 | 6 | 2.8 |
| A 1C22MYK15080B | 80 | 120 | 123 | 18 | +0.018/0 | 10 | 36 | 6 | 2.8 |
| A 1C22MYK15100A | 100 | 150 | 153 | 20 | +0.021/0 | 10 | 40 | 6 | 2.8 |

ISO CLASS 8
 12 mm FACE
 10 mm BORE
 20° PRESSURE ANGLE



MATERIAL:
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.

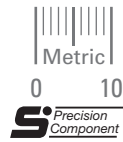


METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|------|--------|
| S10T15M018S1210 | 18 | 27 | 30 |
| S10T15M020S1210 | 20 | 30 | 33 |
| S10T15M024S1210 | 24 | 36 | 39 |
| S10T15M028S1210 | 28 | 42 | 45 |
| S10T15M030S1210 | 30 | 45 | 48 |
| S10T15M032S1210 | 32 | 48 | 51 |
| S10T15M036S1210 | 36 | 54 | 57 |
| S10T15M040S1210 | 40 | 60 | 63 |
| S10T15M042S1210 | 42 | 63 | 66 |
| S10T15M045S1210 | 45 | 67.5 | 70.5 |
| S10T15M048S1210 | 48 | 72 | 75 |
| S10T15M050S1210 | 50 | 75 | 78 |
| S10T15M056S1210 | 56 | 84 | 87 |
| S10T15M060S1210 | 60 | 90 | 93 |
| S10T15M064S1210 | 64 | 96 | 99 |

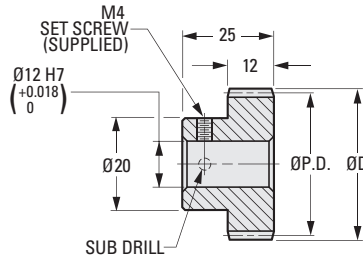
ISO CLASS 8
 12 mm FACE
 12 mm BORE
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|------|--------|
| S10T15M018S1212 | 18 | 27 | 30 |
| S10T15M020S1212 | 20 | 30 | 33 |
| S10T15M024S1212 | 24 | 36 | 39 |
| S10T15M028S1212 | 28 | 42 | 45 |
| S10T15M030S1212 | 30 | 45 | 48 |
| S10T15M032S1212 | 32 | 48 | 51 |
| S10T15M036S1212 | 36 | 54 | 57 |
| S10T15M040S1212 | 40 | 60 | 63 |
| S10T15M042S1212 | 42 | 63 | 66 |
| S10T15M045S1212 | 45 | 67.5 | 70.5 |
| S10T15M048S1212 | 48 | 72 | 75 |
| S10T15M050S1212 | 50 | 75 | 78 |
| S10T15M056S1212 | 56 | 84 | 87 |
| S10T15M060S1212 | 60 | 90 | 93 |
| S10T15M064S1212 | 64 | 96 | 99 |

ISO CLASS 8
16 & 18 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS



➤ **MATERIAL:**
Steel

➤ **SPECIFICATIONS:**
With Keyway

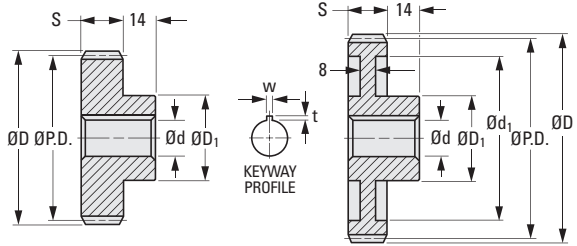


Fig. 1

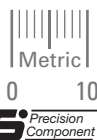
Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D ₁ Hub Dia. | d ₁ Dia. | w | t |
|------------------|--------------|------|--------|-----------|-------------|--------------|-------------------------|---------------------|---|-----|
| Fig. 1 | | | | | | | | | | |
| A 1C22MYKW15024A | 24 | 36 | 39 | 16 | +0.018/0 | 18 | 30 | — | 5 | 2.3 |
| A 1C22MYKW15025A | 25 | 37.5 | 40.5 | 18 | +0.018/0 | 18 | 32 | — | 6 | 2.8 |
| A 1C22MYKW15028A | 28 | 42 | 45 | 18 | +0.018/0 | 18 | 36 | — | 6 | 2.8 |
| A 1C22MYKW15030A | 30 | 45 | 48 | 20 | +0.021/0 | 18 | 40 | — | 6 | 2.8 |
| A 1C22MYKW15032A | 32 | 48 | 51 | 20 | +0.021/0 | 16 | 40 | — | 6 | 2.8 |
| A 1C22MYKW15036A | 36 | 54 | 57 | 20 | +0.021/0 | 16 | 40 | — | 6 | 2.8 |
| A 1C22MYKW15040A | 40 | 60 | 63 | 20 | +0.021/0 | 16 | 40 | — | 6 | 2.8 |
| A 1C22MYKW15048A | 48 | 72 | 75 | 20 | +0.021/0 | 16 | 40 | — | 6 | 2.8 |
| A 1C22MYKW15050A | 50 | 75 | 78 | 20 | +0.021/0 | 16 | 40 | — | 6 | 2.8 |
| A 1C22MYKW15056A | 56 | 84 | 87 | 20 | +0.021/0 | 16 | 40 | — | 6 | 2.8 |
| Fig. 2 | | | | | | | | | | |
| A 1C22MYKW15060A | 60 | 90 | 93 | 20 | +0.021/0 | 16 | 40 | 76 | 6 | 2.8 |
| A 1C22MYKW15064A | 64 | 96 | 99 | 20 | +0.021/0 | 16 | 40 | 82 | 6 | 2.8 |
| A 1C22MYKW15070A | 70 | 105 | 108 | 20 | +0.021/0 | 16 | 40 | 91 | 6 | 2.8 |
| A 1C22MYKW15072A | 72 | 108 | 111 | 20 | +0.021/0 | 16 | 40 | 94 | 6 | 2.8 |
| A 1C22MYKW15080A | 80 | 120 | 123 | 25 | +0.021/0 | 16 | 50 | 106 | 8 | 3.3 |
| A 1C22MYKW15100A | 100 | 150 | 153 | 25 | +0.021/0 | 16 | 50 | 136 | 8 | 3.3 |

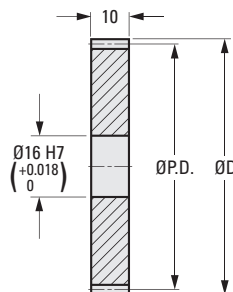
ISO CLASS 8
 10 mm FACE
 16 mm BORE
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|------|--------|
| S12N15M018S1016 | 18 | 27 | 30 |
| S12N15M020S1016 | 20 | 30 | 33 |
| S12N15M024S1016 | 24 | 36 | 39 |
| S12N15M028S1016 | 28 | 42 | 45 |
| S12N15M030S1016 | 30 | 45 | 48 |
| S12N15M032S1016 | 32 | 48 | 51 |
| S12N15M036S1016 | 36 | 54 | 57 |
| S12N15M040S1016 | 40 | 60 | 63 |
| S12N15M042S1016 | 42 | 63 | 66 |
| S12N15M045S1016 | 45 | 67.5 | 70.5 |
| S12N15M048S1016 | 48 | 72 | 75 |
| S12N15M050S1016 | 50 | 75 | 78 |
| S12N15M056S1016 | 56 | 84 | 87 |
| S12N15M060S1016 | 60 | 90 | 93 |
| S12N15M064S1016 | 64 | 96 | 99 |

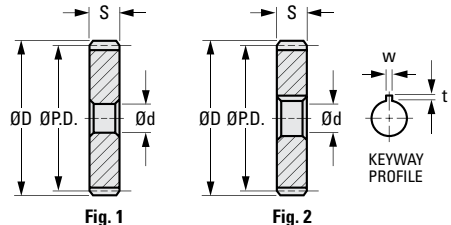
ISO CLASS 8
10 & 12 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> **MATERIAL:**
Steel



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 1MYK15016 | 16 | 24 | 27 | 8 | +0.015/0 | 12 |
| A 1C 1MYK15018 | 18 | 27 | 30 | 10 | +0.015/0 | 12 |
| A 1C 1MYK15020 | 20 | 30 | 33 | 10 | +0.015/0 | 12 |
| A 1C 1MYK15024 | 24 | 36 | 39 | 10 | +0.015/0 | 12 |
| A 1C 1MYK15025 | 25 | 37.5 | 40.5 | 10 | +0.015/0 | 12 |
| A 1C 1MYK15028 | 28 | 42 | 45 | 12 | +0.018/0 | 12 |
| A 1C 1MYK15030A | 30 | 45 | 48 | 12 | +0.018/0 | 10 |
| A 1C 1MYK15036 | 36 | 54 | 57 | 12 | +0.018/0 | 10 |
| A 1C 1MYK15040 | 40 | 60 | 63 | 12 | +0.018/0 | 10 |
| A 1C 1MYK15048 | 48 | 72 | 75 | 14 | +0.018/0 | 10 |
| A 1C 1MYK15050 | 50 | 75 | 78 | 14 | +0.018/0 | 10 |
| A 1C 1MYK15056 | 56 | 84 | 87 | 14 | +0.018/0 | 10 |
| A 1C 1MYK15060 | 60 | 90 | 93 | 14 | +0.018/0 | 10 |
| A 1C 1MYK15064 | 64 | 96 | 99 | 14 | +0.018/0 | 10 |
| A 1C 1MYK15070 | 70 | 105 | 108 | 14 | +0.018/0 | 10 |
| A 1C 1MYK15072 | 72 | 108 | 111 | 16 | +0.018/0 | 10 |
| A 1C 1MYK15080 | 80 | 120 | 123 | 16 | +0.018/0 | 10 |
| A 1C 1MYK15100 | 100 | 150 | 153 | 16 | +0.018/0 | 10 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | w | t |
|---------------------------|--------------|------|--------|-----------|-------------|--------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | |
| A 1C11MYK15036A | 36 | 54 | 57 | 16 | +0.018/0 | 10 | 5 | 2.3 |
| A 1C11MYK15040A | 40 | 60 | 63 | 16 | +0.018/0 | 10 | 5 | 2.3 |
| A 1C11MYK15048A | 48 | 72 | 75 | 18 | +0.018/0 | 10 | 6 | 2.8 |
| A 1C11MYK15050A | 50 | 75 | 78 | 18 | +0.018/0 | 10 | 6 | 2.8 |
| A 1C11MYK15056A | 56 | 84 | 87 | 18 | +0.018/0 | 10 | 6 | 2.8 |
| A 1C11MYK15060A | 60 | 90 | 93 | 18 | +0.018/0 | 10 | 6 | 2.8 |
| A 1C11MYK15064A | 64 | 96 | 99 | 18 | +0.018/0 | 10 | 6 | 2.8 |
| * A 1C11MYK15070 | 70 | 105 | 108 | 18 | +0.018/0 | 10 | 5 | 2.3 |
| A 1C11MYK15070A | 70 | 105 | 108 | 18 | +0.018/0 | 10 | 6 | 2.8 |
| A 1C11MYK15072A | 72 | 108 | 111 | 20 | +0.021/0 | 10 | 6 | 2.8 |
| A 1C11MYK15080A | 80 | 120 | 123 | 20 | +0.021/0 | 10 | 6 | 2.8 |
| A 1C11MYK15100A | 100 | 150 | 153 | 20 | +0.021/0 | 10 | 6 | 2.8 |

* To be discontinued when present stock is depleted.



ISO CLASS 8
16 & 18 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
Steel



QUALITY CLASS

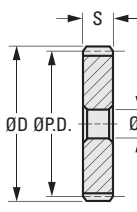


Fig. 1

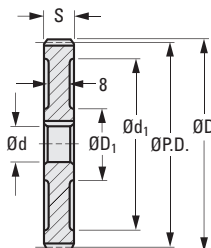
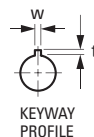


Fig. 2



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 1MYKW15016 | 16 | 24 | 27 | 8 | +0.015/0 | 18 |
| A 1C 1MYKW15018 | 18 | 27 | 30 | 10 | +0.015/0 | 18 |
| A 1C 1MYKW15020 | 20 | 30 | 33 | 10 | +0.015/0 | 18 |
| A 1C 1MYKW15024 | 24 | 36 | 39 | 12 | +0.018/0 | 18 |
| A 1C 1MYKW15025 | 25 | 37.5 | 40.5 | 12 | +0.018/0 | 18 |
| A 1C 1MYKW15028 | 28 | 42 | 45 | 12 | +0.018/0 | 18 |
| A 1C 1MYKW15030 | 30 | 45 | 48 | 14 | +0.018/0 | 18 |
| A 1C 1MYKW15032 | 32 | 48 | 51 | 14 | +0.018/0 | 16 |
| A 1C 1MYKW15036 | 36 | 54 | 57 | 14 | +0.018/0 | 16 |
| A 1C 1MYKW15040 | 40 | 60 | 63 | 14 | +0.018/0 | 16 |
| A 1C 1MYKW15048 | 48 | 72 | 75 | 16 | +0.018/0 | 16 |
| A 1C 1MYKW15050 | 50 | 75 | 78 | 16 | +0.018/0 | 16 |
| A 1C 1MYKW15056 | 56 | 84 | 87 | 16 | +0.018/0 | 16 |
| A 1C 1MYKW15060A | 60 | 90 | 93 | 16 | +0.018/0 | 16 |
| A 1C 1MYKW15064 | 64 | 96 | 99 | 16 | +0.018/0 | 16 |
| A 1C 1MYKW15070 | 70 | 105 | 108 | 16 | +0.018/0 | 16 |
| A 1C 1MYKW15072 | 72 | 108 | 111 | 18 | +0.018/0 | 18 |
| A 1C 1MYKW15080A | 80 | 120 | 123 | 18 | +0.018/0 | 18 |
| A 1C 1MYKW15100A | 100 | 150 | 153 | 18 | +0.018/0 | 18 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | S Face Width | D1 Dia. | d1 Dia. | w | t |
|---------------------------|--------------|------|--------|-----------|----------|--------------|---------|---------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | | |
| A 1C11MYKW15020 | 20 | 30 | 33 | 14 | +0.018/0 | 18 | - | - | 4 | 1.8 |
| A 1C11MYKW15024 | 24 | 36 | 39 | 16 | +0.018/0 | 18 | - | - | 5 | 2.3 |
| A 1C11MYKW15025 | 25 | 37.5 | 40.5 | 16 | +0.018/0 | 18 | - | - | 5 | 2.3 |
| A 1C11MYKW15028 | 28 | 42 | 45 | 16 | +0.018/0 | 18 | - | - | 5 | 2.3 |
| A 1C11MYKW15030 | 30 | 45 | 48 | 18 | +0.018/0 | 18 | - | - | 6 | 2.8 |
| A 1C11MYKW15032 | 32 | 48 | 51 | 18 | +0.018/0 | 16 | - | - | 6 | 2.8 |
| A 1C11MYKW15036 | 36 | 54 | 57 | 18 | +0.018/0 | 16 | - | - | 6 | 2.8 |
| A 1C11MYKW15040 | 40 | 60 | 63 | 18 | +0.018/0 | 16 | - | - | 6 | 2.8 |
| A 1C11MYKW15048 | 48 | 72 | 75 | 20 | +0.021/0 | 16 | - | - | 6 | 2.8 |
| A 1C11MYKW15050A | 50 | 75 | 78 | 20 | +0.021/0 | 16 | - | - | 6 | 2.8 |
| A 1C11MYKW15056A | 56 | 84 | 87 | 20 | +0.021/0 | 16 | - | - | 6 | 2.8 |
| A 1C11MYKW15060A | 60 | 90 | 93 | 20 | +0.021/0 | 16 | 40 | 76 | 6 | 2.8 |
| A 1C11MYKW15064A | 64 | 96 | 99 | 20 | +0.021/0 | 16 | 40 | 82 | 6 | 2.8 |
| A 1C11MYKW15070A | 70 | 105 | 108 | 20 | +0.021/0 | 16 | 40 | 91 | 6 | 2.8 |
| A 1C11MYKW15072 | 72 | 108 | 111 | 25 | +0.021/0 | 16 | 50 | 94 | 8 | 3.3 |
| A 1C 1MYKW15080 | 80 | 120 | 123 | 25 | +0.021/0 | 16 | 50 | 106 | 8 | 3.3 |
| A 1C 1MYKW15100 | 100 | 150 | 153 | 25 | +0.021/0 | 16 | 50 | 136 | 8 | 3.3 |

ISO CLASS 8
20 & 22 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS



> MATERIAL:
Steel

> SPECIFICATIONS:

Bore Tolerance: 10 mm +0.022/0
12 mm +0.027/0
14, 16 & 18 mm +0.018/0
20 mm +0.021/0

D₁ Shaft Tolerance: 12 & 16 mm 0/-0.027

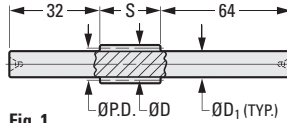


Fig. 1

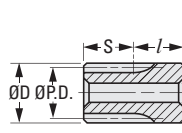


Fig. 2

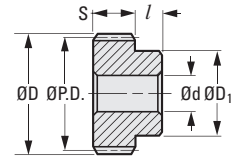


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | D ₁ Dia. | l Hub Proj. |
|------------------|----------|--------------|------|--------|--------|--------------|---------------------|-------------|
| A 1C 8MYK20008L | 1 | 8 | ** | 21.28 | — | 22 | 12(h8) | — |
| A 1C 8MYK20010L | 1 | 10 | ** | 25.33 | — | 22 | 16(h8) | — |
| A 1C 8MYK20012L | 2 | 12 | 24 | 28 | 10(H8) | 22 | — | 28 |
| A 1C 2MYKW20014 | 3 | 14 | 28 | 32 | 10(H8) | 20 | 22 | 20 |
| A 1C 2MYKW20015 | 3 | 15 | 30 | 34 | 10(H8) | 20 | 24 | 20 |
| A 1C 2MYKW20016 | 3 | 16 | 32 | 36 | 12(H8) | 20 | 26 | 20 |
| A 1C 2MYKW20018 | 3 | 18 | 36 | 40 | 12(H8) | 20 | 30 | 20 |
| A 1C 2MYKW20020 | 3 | 20 | 40 | 44 | 12(H8) | 20 | 34 | 20 |
| A 1C 2MYKW20024A | 3 | 24 | 48 | 52 | 14(H7) | 20 | 42 | 20 |
| A 1C 2MYKW20025A | 3 | 25 | 50 | 54 | 14(H7) | 20 | 44 | 20 |
| A 1C 2MYKW20028 | 3 | 28 | 56 | 60 | 16(H7) | 20 | 50 | 20 |
| A 1C 2MYKW20030H | 3 | 30 | 60 | 64 | 18(H7) | 20 | 54 | 20 |
| A 1C 2MYKW20032B | 3 | 32 | 64 | 68 | 16(H7) | 20 | 58 | 20 |
| A 1C 2MYKW20036B | 3 | 36 | 72 | 76 | 16(H7) | 20 | 60 | 20 |
| A 1C 2MYKW20040B | 3 | 40 | 80 | 84 | 16(H7) | 20 | 60 | 20 |
| A 1C 2MYKW20048B | 3 | 48 | 96 | 100 | 18(H7) | 20 | 60 | 20 |
| A 1C 2MYKW20050B | 3 | 50 | 100 | 104 | 18(H7) | 20 | 60 | 20 |
| A 1C 2MYKW20056 | 3 | 56 | 112 | 116 | 18(H7) | 20 | 60 | 20 |
| A 1C 2MYKW20060B | 3 | 60 | 120 | 124 | 18(H7) | 20 | 70 | 20 |
| A 1C 2MYKW20064 | 3 | 64 | 128 | 132 | 18(H7) | 20 | 70 | 20 |
| A 1C 2MYKW20072 | 3 | 72 | 144 | 148 | 20(H7) | 20 | 70 | 20 |
| A 1C 2MYKW20080B | 3 | 80 | 160 | 164 | 20(H7) | 20 | 70 | 20 |
| A 1C 2MYKW20100B | 3 | 100 | 200 | 204 | 20(H7) | 20 | 80 | 20 |

** To obtain additional tooth strength these pinions are produced by shifting the tooth profile which results in a long addendum. The center distance for these pinions has to be increased, therefore please consult our Engineering Department.

ISO CLASS 8
12 & 14 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:
Steel

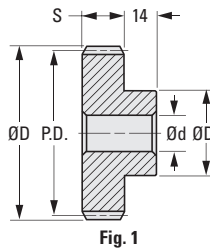


Fig. 1

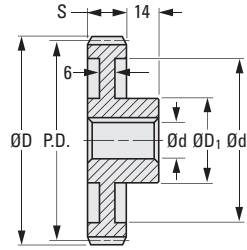


Fig. 2

QUALITY CLASS



KEYWAY PROFILE

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D ₁ Hub Dia. |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|-------------------------|
| Fig. 1 Without Keyway | | | | | | | |
| A 1C 2MYK20014 | 14 | 28 | 32 | 10 | +0.015/0 | 14 | 22 |
| A 1C 2MYK20015 | 15 | 30 | 34 | 10 | +0.015/0 | 14 | 24 |
| A 1C 2MYK20016 | 16 | 32 | 36 | 12 | +0.018/0 | 14 | 26 |
| A 1C 2MYK20018 | 18 | 36 | 40 | 12 | +0.018/0 | 14 | 30 |
| A 1C 2MYK20020 | 20 | 40 | 44 | 12 | +0.018/0 | 14 | 34 |
| A 1C 2MYK20024 | 24 | 48 | 52 | 14 | +0.018/0 | 14 | 42 |
| A 1C 2MYK20025 | 25 | 50 | 54 | 14 | +0.018/0 | 14 | 44 |
| A 1C 2MYK20028B | 28 | 56 | 60 | 14 | +0.018/0 | 14 | 50 |
| A 1C 2MYK20030B | 30 | 60 | 64 | 14 | +0.018/0 | 14 | 54 |
| A 1C 2MYK20032B | 32 | 64 | 68 | 14 | +0.018/0 | 12 | 58 |
| A 1C 2MYK20036B | 36 | 72 | 76 | 14 | +0.018/0 | 12 | 60 |
| A 1C 2MYK20040B | 40 | 80 | 84 | 14 | +0.018/0 | 12 | 60 |
| A 1C 2MYK20048B | 48 | 96 | 100 | 16 | +0.018/0 | 12 | 60 |
| A 1C 2MYK20050B | 50 | 100 | 104 | 16 | +0.018/0 | 12 | 60 |
| A 1C 2MYK20056 | 56 | 112 | 116 | 16 | +0.018/0 | 12 | 60 |
| A 1C 2MYK20064 | 64 | 128 | 132 | 16 | +0.018/0 | 12 | 60 |
| A 1C 2MYK20072 | 72 | 144 | 148 | 18 | +0.018/0 | 12 | 60 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D ₁ Hub Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|-----------|-------------|--------------|-------------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | | |
| A 1C22MYK20020B | 20 | 40 | 44 | 15 | +0.018/0 | 14 | 30 | — | 5 | 2.3 |
| *A 1C22MYK20024A | 24 | 48 | 52 | 18 | +0.018/0 | 14 | 36 | — | 6 | 2.8 |
| A 1C22MYK20024B | 24 | 48 | 52 | 15 | +0.018/0 | 14 | 30 | — | 5 | 2.3 |
| *A 1C22MYK20025A | 25 | 50 | 54 | 18 | +0.018/0 | 14 | 36 | — | 6 | 2.8 |
| A 1C22MYK20025B | 25 | 50 | 54 | 15 | +0.018/0 | 14 | 30 | — | 5 | 2.3 |
| A 1C22MYK20028A | 28 | 56 | 60 | 20 | +0.021/0 | 14 | 40 | — | 6 | 2.8 |
| A 1C22MYK20030A | 30 | 60 | 64 | 20 | +0.021/0 | 14 | 40 | — | 6 | 2.8 |
| A 1C22MYK20032A | 32 | 64 | 68 | 20 | +0.021/0 | 12 | 40 | — | 6 | 2.8 |
| A 1C22MYK20036A | 36 | 72 | 76 | 20 | +0.021/0 | 12 | 40 | — | 6 | 2.8 |
| A 1C22MYK20040A | 40 | 80 | 84 | 20 | +0.021/0 | 12 | 40 | — | 6 | 2.8 |
| A 1C22MYK20048A | 48 | 96 | 100 | 20 | +0.021/0 | 12 | 40 | — | 6 | 2.8 |
| A 1C22MYK20050A | 50 | 100 | 104 | 20 | +0.021/0 | 12 | 40 | — | 6 | 2.8 |
| A 1C22MYK20056A | 56 | 112 | 116 | 20 | +0.021/0 | 12 | 40 | — | 6 | 2.8 |
| A 1C22MYK20060A | 60 | 120 | 124 | 20 | +0.021/0 | 12 | 40 | 102 | 6 | 2.8 |
| A 1C22MYK20060B | 60 | 120 | 124 | 25 | +0.021/0 | 12 | 50 | 102 | 8 | 3.3 |
| A 1C22MYK20064A | 64 | 128 | 132 | 20 | +0.021/0 | 12 | 40 | 110 | 6 | 2.8 |
| A 1C22MYK20072A | 72 | 144 | 148 | 20 | +0.021/0 | 12 | 40 | 126 | 6 | 2.8 |
| A 1C22MYK20080A | 80 | 160 | 164 | 20 | +0.021/0 | 12 | 40 | 142 | 6 | 2.8 |
| A 1C22MYK20080B | 80 | 160 | 164 | 25 | +0.021/0 | 12 | 50 | 142 | 8 | 3.3 |
| A 1C22MYK20100A | 100 | 200 | 204 | 20 | +0.021/0 | 12 | 40 | 182 | 6 | 2.8 |
| A 1C22MYK20100B | 100 | 200 | 204 | 25 | +0.021/0 | 12 | 50 | 182 | 8 | 3.3 |

* To be discontinued when present stock is depleted.



ISO CLASS 8
20 & 22 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS



➤ **MATERIAL:**
Steel

➤ **SPECIFICATIONS:**
With Keyway

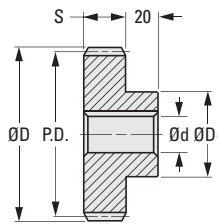


Fig. 1

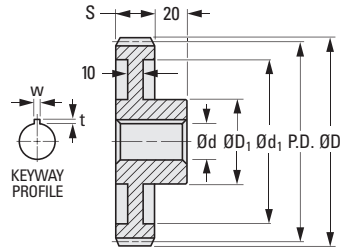


Fig. 2

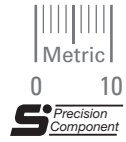
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021 0) | S Face Width | D ₁ Hub Dia. | d ₁ Dia. | w | t |
|------------------|--------------|------|--------|-------------------------------|--------------------|-------------------------------|------------------------|---|-----|
| Fig. 1 | | | | | | | | | |
| A 1C22MYKW20020A | 20 | 40 | 44 | 20 | 22 | 34 | — | 6 | 2.8 |
| A 1C22MYKW20024A | 24 | 48 | 52 | 20 | 22 | 40 | — | 6 | 2.8 |
| A 1C22MYKW20025A | 25 | 50 | 54 | 20 | 22 | 40 | — | 6 | 2.8 |
| A 1C22MYKW20028A | 28 | 56 | 60 | 20 | 22 | 40 | — | 6 | 2.8 |
| A 1C22MYKW20030A | 30 | 60 | 64 | 20 | 22 | 40 | — | 6 | 2.8 |
| A 1C22MYKW20032A | 32 | 64 | 68 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYKW20036A | 36 | 72 | 76 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYKW20040A | 40 | 80 | 84 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYKW20048A | 48 | 96 | 100 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYKW20050A | 50 | 100 | 104 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYKW20056A | 56 | 112 | 116 | 25 | 20 | 50 | — | 8 | 3.3 |
| Fig. 2 | | | | | | | | | |
| A 1C22MYKW20060A | 60 | 120 | 124 | 30 | 20 | 50 | 102 | 8 | 3.3 |
| A 1C22MYKW20064A | 64 | 128 | 132 | 25 | 20 | 50 | 110 | 8 | 3.3 |
| A 1C22MYKW20072A | 72 | 144 | 148 | 30 | 20 | 60 | 126 | 8 | 3.3 |
| A 1C22MYKW20080A | 80 | 160 | 164 | 30 | 20 | 60 | 142 | 8 | 3.3 |
| A 1C22MYKW20100A | 100 | 200 | 204 | 30 | 20 | 60 | 182 | 8 | 3.3 |

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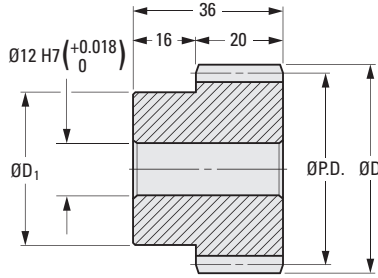
ISO CLASS 8
 20 mm FACE
 12 mm BORE
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. |
|-----------------|--------------|------|--------|-------------------------|
| S10P20M015S2012 | 15 | 30 | 34 | 24 |
| S10P20M016S2012 | 16 | 32 | 36 | 26 |
| S10P20M018S2012 | 18 | 36 | 40 | 30 |
| S10P20M020S2012 | 20 | 40 | 44 | 32 |
| S10P20M022S2012 | 22 | 44 | 48 | 36 |
| S10P20M024S2012 | 24 | 48 | 52 | 38 |
| S10P20M025S2012 | 25 | 50 | 54 | 40 |
| S10P20M028S2012 | 28 | 56 | 60 | 45 |
| S10P20M030S2012 | 30 | 60 | 64 | 50 |

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ISO CLASS 8
12 & 14 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

➤ **MATERIAL:**
Steel

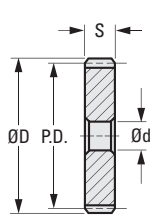


Fig. 1

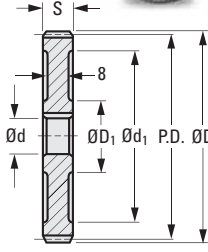
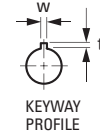


Fig. 2



KEYWAY PROFILE

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 1MYK20014 | 14 | 28 | 32 | 10 | +0.015/0 | 14 |
| A 1C 1MYK20015 | 15 | 30 | 34 | 10 | +0.015/0 | 14 |
| A 1C 1MYK20016 | 16 | 32 | 36 | 12 | +0.018/0 | 14 |
| A 1C 1MYK20018 | 18 | 36 | 40 | 12 | +0.018/0 | 14 |
| A 1C 1MYK20020 | 20 | 40 | 44 | 12 | +0.018/0 | 14 |
| A 1C 1MYK20024 | 24 | 48 | 52 | 12 | +0.018/0 | 14 |
| A 1C 1MYK20025 | 25 | 50 | 54 | 14 | +0.018/0 | 14 |
| A 1C 1MYK20028 | 28 | 56 | 60 | 14 | +0.018/0 | 14 |
| A 1C 1MYK20032 | 32 | 64 | 68 | 14 | +0.018/0 | 12 |
| A 1C 1MYK20036 | 36 | 72 | 76 | 16 | +0.018/0 | 12 |
| A 1C 1MYK20040 | 40 | 80 | 84 | 16 | +0.018/0 | 12 |
| A 1C 1MYK20048 | 48 | 96 | 100 | 16 | +0.018/0 | 12 |
| A 1C 1MYK20050 | 50 | 100 | 104 | 18 | +0.018/0 | 12 |
| A 1C 1MYK20056 | 56 | 112 | 116 | 18 | +0.018/0 | 12 |
| A 1C 1MYK20060 | 60 | 120 | 124 | 20 | +0.021/0 | 12 |
| A 1C 1MYK20064 | 64 | 128 | 132 | 20 | +0.021/0 | 12 |
| A 1C 1MYK20072 | 72 | 144 | 148 | 20 | +0.021/0 | 12 |
| A 1C 1MYK20080 | 80 | 160 | 164 | 20 | +0.021/0 | 12 |
| A 1C 1MYK20100 | 100 | 200 | 204 | 20 | +0.021/0 | 12 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Wdth. | D ₁ Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|-----------|-------------|--------------|---------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | | |
| A 1C11MYK20020A | 20 | 40 | 44 | 16 | +0.018/0 | 14 | — | — | 5 | 2.3 |
| A 1C11MYK20024A | 24 | 48 | 52 | 16 | +0.018/0 | 14 | — | — | 5 | 2.3 |
| A 1C11MYK20030A | 30 | 60 | 64 | 18 | +0.018/0 | 14 | — | — | 6 | 2.8 |
| A 1C11MYK20032A | 32 | 64 | 68 | 18 | +0.018/0 | 12 | — | — | 6 | 2.8 |
| A 1C11MYK20036A | 36 | 72 | 76 | 20 | +0.021/0 | 12 | — | — | 6 | 2.8 |
| A 1C11MYK20040A | 40 | 80 | 84 | 20 | +0.021/0 | 12 | — | — | 6 | 2.8 |
| A 1C11MYK20048A | 48 | 96 | 100 | 20 | +0.021/0 | 12 | — | — | 6 | 2.8 |
| A 1C11MYK20050A | 50 | 100 | 104 | 20 | +0.021/0 | 12 | — | — | 6 | 2.8 |
| A 1C11MYK20056A | 56 | 112 | 116 | 20 | +0.021/0 | 12 | — | — | 6 | 2.8 |
| A 1C11MYK20060A | 60 | 120 | 124 | 25 | +0.021/0 | 12 | 50 | 102 | 8 | 3.3 |
| A 1C11MYK20064A | 64 | 128 | 132 | 25 | +0.021/0 | 12 | 50 | 110 | 8 | 3.3 |
| A 1C11MYK20072A | 72 | 144 | 148 | 25 | +0.021/0 | 12 | 50 | 126 | 8 | 3.3 |
| A 1C11MYK20080A | 80 | 160 | 164 | 25 | +0.021/0 | 12 | 50 | 142 | 8 | 3.3 |
| A 1C11MYK20100A | 100 | 200 | 204 | 25 | +0.021/0 | 12 | 50 | 182 | 8 | 3.3 |



ISO CLASS 8
20 & 22 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:
Steel



QUALITY CLASS

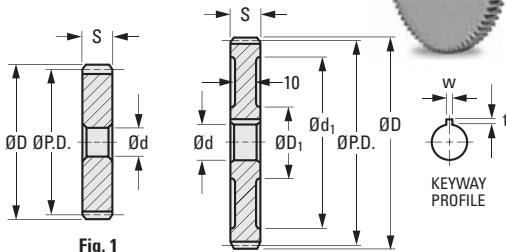


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 1MYKW20014 | 14 | 28 | 32 | 10 | +0.015/0 | 22 |
| A 1C 1MYKW20015 | 15 | 30 | 34 | 10 | +0.015/0 | 22 |
| A 1C 1MYKW20016 | 16 | 32 | 36 | 12 | +0.018/0 | 22 |
| A 1C 1MYKW20018 | 18 | 36 | 40 | 12 | +0.018/0 | 22 |
| A 1C 1MYKW20020 | 20 | 40 | 44 | 12 | +0.018/0 | 22 |
| A 1C 1MYKW20024 | 24 | 48 | 52 | 14 | +0.018/0 | 22 |
| A 1C 1MYKW20025 | 25 | 50 | 54 | 14 | +0.018/0 | 22 |
| A 1C 1MYKW20028 | 28 | 56 | 60 | 16 | +0.018/0 | 22 |
| A 1C 1MYKW20030 | 30 | 60 | 64 | 16 | +0.018/0 | 22 |
| A 1C 1MYKW20032A | 32 | 64 | 68 | 16 | +0.018/0 | 20 |
| A 1C 1MYKW20036 | 36 | 72 | 76 | 20 | +0.021/0 | 20 |
| A 1C 1MYKW20056 | 56 | 112 | 116 | 20 | +0.021/0 | 20 |
| A 1C 1MYKW20064 | 64 | 128 | 132 | 18 | +0.018/0 | 20 |
| A 1C 1MYKW20072 | 72 | 144 | 148 | 18 | +0.018/0 | 20 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021/0) | S Face Width | D ₁ Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|----------------------|--------------|---------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | |
| A 1C11MYKW20024A | 24 | 48 | 52 | 20 | 22 | — | — | 6 | 2.8 |
| A 1C11MYKW20025A | 25 | 50 | 54 | 20 | 22 | — | — | 6 | 2.8 |
| A 1C11MYKW20028A | 28 | 56 | 60 | 20 | 22 | — | — | 6 | 2.8 |
| A 1C11MYKW20030A | 30 | 60 | 64 | 20 | 22 | — | — | 6 | 2.8 |
| A 1C11MYKW20032A | 32 | 64 | 68 | 20 | 20 | — | — | 6 | 2.8 |
| A 1C11MYKW20036A | 36 | 72 | 76 | 25 | 20 | — | — | 8 | 3.3 |
| A 1C11MYKW20040A | 40 | 80 | 84 | 20 | 20 | — | — | 6 | 2.8 |
| A 1C11MYKW20040B | 40 | 80 | 84 | 25 | 20 | — | — | 8 | 3.3 |
| A 1C11MYKW20048A | 48 | 96 | 100 | 25 | 20 | — | — | 8 | 3.3 |
| A 1C11MYKW20050A | 50 | 100 | 104 | 20 | 20 | — | — | 6 | 2.8 |
| A 1C11MYKW20050B | 50 | 100 | 104 | 25 | 20 | — | — | 8 | 3.3 |
| A 1C11MYKW20056A | 56 | 112 | 116 | 25 | 20 | — | — | 8 | 3.3 |
| A 1C11MYKW20060A | 60 | 120 | 124 | 20 | 20 | 40 | 102 | 6 | 2.8 |
| A 1C11MYKW20060B | 60 | 120 | 124 | 25 | 20 | 50 | 102 | 8 | 3.3 |
| A 1C11MYKW20064A | 64 | 128 | 132 | 25 | 20 | 50 | 110 | 8 | 3.3 |
| A 1C11MYKW20072A | 72 | 144 | 148 | 25 | 20 | 50 | 126 | 8 | 3.3 |
| * A 1C11MYKW20080A | 80 | 160 | 164 | 20 | 20 | 40 | 142 | 6 | 2.8 |
| A 1C11MYKW20080B | 80 | 160 | 164 | 25 | 20 | 50 | 142 | 8 | 3.3 |
| A 1C11MYKW20100A | 100 | 200 | 204 | 20 | 20 | 40 | 182 | 6 | 2.8 |
| * A 1C11MYKW20100 | 100 | 200 | 204 | 30 | 20 | 60 | 182 | 7 | 3 |
| A 1C11MYKW20100B | 100 | 200 | 204 | 30 | 20 | 60 | 182 | 8 | 3.3 |

* To be discontinued when present stock is depleted.

ISO CLASS 8
 20 mm FACE
 15 mm BORE
 20° PRESSURE ANGLE

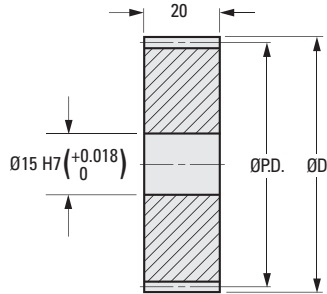


0 10



> MATERIAL:
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|-----------------|--------------|------|--------|
| S12N20M032S2015 | 32 | 64 | 68 |
| S12N20M035S2015 | 35 | 70 | 74 |
| S12N20M036S2015 | 36 | 72 | 76 |
| S12N20M040S2015 | 40 | 80 | 84 |
| S12N20M042S2015 | 42 | 84 | 88 |
| S12N20M045S2015 | 45 | 90 | 94 |
| S12N20M048S2015 | 48 | 96 | 100 |
| S12N20M050S2015 | 50 | 100 | 104 |
| S12N20M056S2015 | 56 | 112 | 116 |
| S12N20M060S2015 | 60 | 120 | 124 |
| S12N20M064S2015 | 64 | 128 | 132 |
| S12N20M070S2015 | 70 | 140 | 144 |

ISO CLASS 8
25 & 28 mm FACE WIDTH
20° PRESSURE ANGLE

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QUALITY CLASS

► MATERIAL:
Steel

► SPECIFICATIONS:

Bore Tolerance: 12, 14, 15 & 16 mm +0.027/0 (H8)
16 & 18 mm +0.018/0 (H7)
20 & 22 mm +0.021/0 (H7)

D₁ Shaft Tolerance: 15 mm 0/-0.027
20 mm 0/-0.033

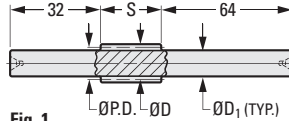


Fig. 1

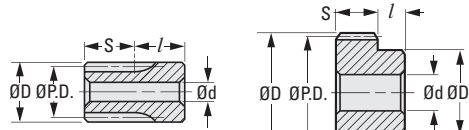


Fig. 2

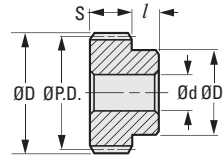


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | D ₁ Dia. | l Hub Proj. |
|------------------|----------|--------------|------|--------|--------|--------------|---------------------|-------------|
| A 1C 8MYK25008L | 1 | 8 | ** | 26.59 | — | 28 | 15(h8) | — |
| A 1C 8MYK25010L | 1 | 10 | ** | 31.66 | — | 28 | 20(h8) | — |
| A 1C 8MYK25012 | 2 | 12 | 30 | 35 | 12(H8) | 28 | — | 32 |
| A 1C 2MYKW25014 | 3 | 14 | 35 | 40 | 12(H8) | 28 | 28 | 20 |
| A 1C 2MYKW25015 | 3 | 15 | 37.5 | 42.5 | 12(H8) | 28 | 30 | 20 |
| A 1C 2MYKW25016 | 3 | 16 | 40 | 45 | 12(H8) | 28 | 32 | 20 |
| A 1C 2MYKW25018 | 3 | 18 | 45 | 50 | 14(H8) | 28 | 36 | 20 |
| A 1C 2MYKW25020 | 3 | 20 | 50 | 55 | 14(H8) | 28 | 42 | 20 |
| A 1C 2MYKW25024B | 3 | 24 | 60 | 65 | 15(H8) | 28 | 50 | 20 |
| A 1C 2MYKW25025B | 3 | 25 | 62.5 | 67.5 | 15(H8) | 28 | 55 | 20 |
| A 1C 2MYKW25028B | 3 | 28 | 70 | 75 | 16(H8) | 28 | 60 | 20 |
| A 1C 2MYKW25030B | 3 | 30 | 75 | 80 | 16(H8) | 28 | 60 | 20 |
| A 1C 2MYKW25032B | 3 | 32 | 80 | 85 | 16(H7) | 25 | 60 | 20 |
| A 1C 2MYKW25036B | 3 | 36 | 90 | 95 | 18(H7) | 25 | 60 | 20 |
| A 1C 2MYKW25040B | 3 | 40 | 100 | 105 | 18(H7) | 25 | 60 | 20 |
| A 1C 2MYKW25048B | 3 | 48 | 120 | 125 | 18(H7) | 25 | 60 | 20 |
| A 1C 2MYKW25050B | 3 | 50 | 125 | 130 | 18(H7) | 25 | 60 | 20 |
| A 1C 2MYKW25056 | 3 | 56 | 140 | 145 | 20(H7) | 25 | 70 | 20 |
| A 1C 2MYKW25060B | 3 | 60 | 150 | 155 | 20(H7) | 25 | 70 | 20 |
| A 1C 2MYKW25064 | 3 | 64 | 160 | 165 | 20(H7) | 25 | 70 | 20 |
| A 1C 2MYKW25072 | 3 | 72 | 180 | 185 | 20(H7) | 25 | 80 | 20 |
| A 1C 2MYKW25080B | 3 | 80 | 200 | 205 | 22(H7) | 25 | 80 | 20 |

** To obtain additional tooth strength these pinions are produced by shifting the tooth profile which results in a long addendum. The center distance for these pinions has to be increased, therefore please consult our Engineering Department.



ISO CLASS 8
16 & 18 mm FACE WIDTH
20° PRESSURE ANGLE

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► MATERIAL:
Steel

QUALITY CLASS

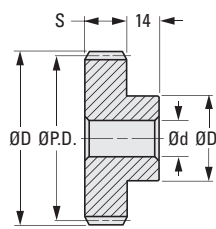


Fig. 1

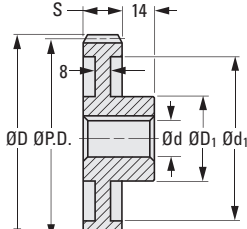
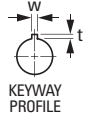


Fig. 2



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.018) 0 | S Face Width | D ₁ Hub Dia. |
|------------------------------|--------------|------|--------|----------------------|--------------|-------------------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 2MYK25014 | 14 | 35 | 40 | 12 | 18 | 28 |
| A 1C 2MYK25015 | 15 | 37.5 | 42.5 | 12 | 18 | 30 |
| A 1C 2MYK25016 | 16 | 40 | 45 | 12 | 18 | 32 |
| A 1C 2MYK25018 | 18 | 45 | 50 | 14 | 18 | 36 |
| A 1C 2MYK25020B | 20 | 50 | 55 | 12 | 18 | 42 |
| A 1C 2MYK25024B | 24 | 60 | 65 | 14 | 18 | 50 |
| A 1C 2MYK25025B | 25 | 62.5 | 67.5 | 14 | 18 | 50 |
| A 1C 2MYK25028B | 28 | 70 | 75 | 14 | 18 | 50 |
| A 1C 2MYK25030B | 30 | 75 | 80 | 14 | 18 | 50 |
| A 1C 2MYK25032B | 32 | 80 | 85 | 16 | 16 | 60 |
| A 1C 2MYK25036B | 36 | 90 | 95 | 16 | 16 | 60 |
| A 1C 2MYK25040B | 40 | 100 | 105 | 16 | 16 | 60 |
| A 1C 2MYK25048B | 48 | 120 | 125 | 16 | 16 | 60 |
| A 1C 2MYK25050B | 50 | 125 | 130 | 16 | 16 | 60 |
| A 1C 2MYK25056 | 56 | 140 | 145 | 18 | 16 | 60 |
| A 1C 2MYK25060B | 60 | 150 | 155 | 18 | 16 | 60 |
| A 1C 2MYK25064 | 64 | 160 | 165 | 18 | 16 | 60 |
| A 1C 2MYK25072 | 72 | 180 | 185 | 18 | 16 | 70 |
| A 1C 2MYK25080B | 80 | 200 | 205 | 18 | 16 | 70 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021) 0 | S Face Width | D ₁ Hub Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|----------------------|--------------|-------------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | |
| A 1C22MYK25020A | 20 | 50 | 55 | 20 | 18 | 40 | — | 6 | 2.8 |
| A 1C22MYK25024A | 24 | 60 | 65 | 20 | 18 | 40 | — | 6 | 2.8 |
| A 1C22MYK25025A | 25 | 62.5 | 67.5 | 20 | 18 | 40 | — | 6 | 2.8 |
| A 1C22MYK25028A | 28 | 70 | 75 | 20 | 18 | 40 | — | 6 | 2.8 |
| A 1C22MYK25030A | 30 | 75 | 80 | 20 | 18 | 40 | — | 6 | 2.8 |
| A 1C22MYK25032A | 32 | 80 | 85 | 25 | 16 | 50 | — | 8 | 3.3 |
| A 1C22MYK25036A | 36 | 90 | 95 | 25 | 16 | 50 | — | 8 | 3.3 |
| A 1C22MYK25040A | 40 | 100 | 105 | 25 | 16 | 50 | — | 8 | 3.3 |
| A 1C22MYK25048A | 48 | 120 | 125 | 25 | 16 | 50 | — | 8 | 3.3 |
| A 1C22MYK25050A | 50 | 125 | 130 | 25 | 16 | 50 | — | 8 | 3.3 |
| A 1C22MYK25060A | 60 | 150 | 155 | 25 | 16 | 50 | 127 | 8 | 3.3 |
| A 1C22MYK25080A | 80 | 200 | 205 | 25 | 16 | 50 | 177 | 8 | 3.3 |

ISO CLASS 8
25 & 28 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

➤ **MATERIAL:**
Steel

➤ **SPECIFICATIONS:**
With Keyway

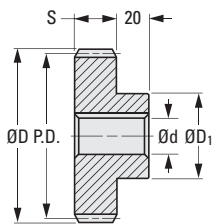


Fig. 1

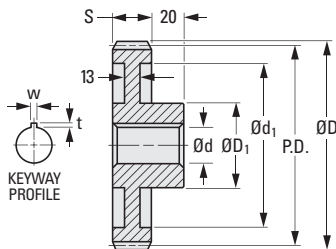
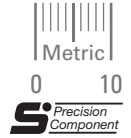


Fig. 2

METRIC COMPONENT

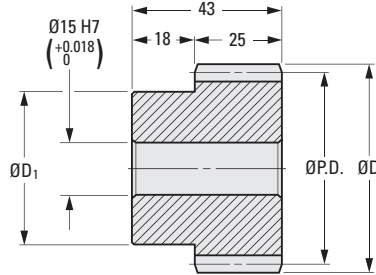
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D ₁ Hub Dia. | d ₁ Dia. | w | t |
|------------------|--------------|------|--------|-----------|-------------|--------------|-------------------------|---------------------|----|-----|
| Fig. 1 | | | | | | | | | | |
| A 1C22MYKW25020A | 20 | 50 | 55 | 20 | +0.021/0 | 28 | 40 | — | 6 | 2.8 |
| A 1C22MYKW25024A | 24 | 60 | 65 | 25 | +0.021/0 | 28 | 50 | — | 8 | 3.3 |
| A 1C22MYKW25025A | 25 | 62.5 | 67.5 | 25 | +0.021/0 | 28 | 50 | — | 8 | 3.3 |
| A 1C22MYKW25028A | 28 | 70 | 75 | 25 | +0.021/0 | 28 | 50 | — | 8 | 3.3 |
| A 1C22MYKW25030A | 30 | 75 | 80 | 25 | +0.021/0 | 28 | 50 | — | 8 | 3.3 |
| A 1C22MYKW25032A | 32 | 80 | 85 | 25 | +0.021/0 | 25 | 50 | — | 8 | 3.3 |
| A 1C22MYKW25036A | 36 | 90 | 95 | 30 | +0.021/0 | 25 | 60 | — | 8 | 3.3 |
| A 1C22MYKW25040A | 40 | 100 | 105 | 30 | +0.021/0 | 25 | 60 | — | 8 | 3.3 |
| A 1C22MYKW25048A | 48 | 120 | 125 | 30 | +0.021/0 | 25 | 60 | — | 8 | 3.3 |
| A 1C22MYKW25050A | 50 | 125 | 130 | 30 | +0.021/0 | 25 | 60 | — | 8 | 3.3 |
| A 1C22MYKW25056A | 56 | 140 | 145 | 25 | +0.021/0 | 25 | 50 | — | 8 | 3.3 |
| Fig. 2 | | | | | | | | | | |
| A 1C22MYKW25060A | 60 | 150 | 155 | 35 | +0.025/0 | 25 | 70 | 127 | 10 | 3.3 |
| A 1C22MYKW25064A | 64 | 160 | 165 | 25 | +0.021/0 | 25 | 50 | 137 | 8 | 3.3 |
| A 1C22MYKW25072A | 72 | 180 | 185 | 25 | +0.021/0 | 25 | 50 | 157 | 8 | 3.3 |
| A 1C22MYKW25080A | 80 | 200 | 205 | 35 | +0.025/0 | 25 | 70 | 177 | 10 | 3.3 |

ISO CLASS 8
 25 mm FACE
 15 mm BORE
 20° PRESSURE ANGLE



MATERIAL:
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. |
|-----------------|--------------|------|--------|-------------------------|
| S10P25M015S2515 | 15 | 37.5 | 42.5 | 30 |
| S10P25M016S2515 | 16 | 40 | 45 | 32 |
| S10P25M018S2515 | 18 | 45 | 50 | 38 |
| S10P25M020S2515 | 20 | 50 | 55 | 40 |
| S10P25M022S2515 | 22 | 55 | 60 | 44 |
| S10P25M024S2515 | 24 | 60 | 65 | 48 |
| S10P25M025S2515 | 25 | 62.5 | 67.5 | 50 |
| S10P25M028S2515 | 28 | 70 | 75 | 60 |
| S10P25M030S2515 | 30 | 75 | 80 | 65 |

ISO CLASS 8
16 & 18 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:
Steel



QUALITY CLASS

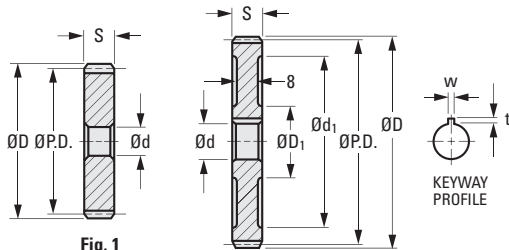


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.018/0) | S Face Width |
|------------------------------|--------------|------|--------|----------------------|--------------|
| Fig. 1 Without Keyway | | | | | |
| A 1C 1MYK25014 | 14 | 35 | 40 | 12 | 18 |
| A 1C 1MYK25015 | 15 | 37.5 | 42.5 | 12 | 18 |
| A 1C 1MYK25016 | 16 | 40 | 45 | 12 | 18 |
| A 1C 1MYK25018 | 18 | 45 | 50 | 12 | 18 |
| A 1C 1MYK25020 | 20 | 50 | 55 | 12 | 18 |
| A 1C 1MYK25024 | 24 | 60 | 65 | 14 | 18 |
| A 1C 1MYK25025 | 25 | 62.5 | 67.5 | 14 | 18 |
| A 1C 1MYK25028 | 28 | 70 | 75 | 14 | 18 |
| A 1C 1MYK25030 | 30 | 75 | 80 | 16 | 18 |
| A 1C 1MYK25032 | 32 | 80 | 85 | 16 | 16 |
| A 1C 1MYK25036A | 36 | 90 | 95 | 16 | 16 |
| A 1C 1MYK25040A | 40 | 100 | 105 | 16 | 16 |
| A 1C 1MYK25048A | 48 | 120 | 125 | 16 | 16 |
| A 1C 1MYK25050A | 50 | 125 | 130 | 16 | 16 |
| A 1C 1MYK25056 | 56 | 140 | 145 | 16 | 16 |
| A 1C 1MYK25060A | 60 | 150 | 155 | 16 | 16 |
| A 1C 1MYK25064 | 64 | 160 | 165 | 16 | 16 |
| A 1C 1MYK25072 | 72 | 180 | 185 | 16 | 16 |
| A 1C 1MYK25080 | 80 | 200 | 205 | 18 | 16 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tol. | S Face Width | D ₁ Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|-----------|----------|--------------|---------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | | |
| * A 1C11MYK25020A | 20 | 50 | 55 | 16 | +0.018/0 | 18 | — | — | 5 | 2.3 |
| A 1C11MYK25020B | 20 | 50 | 55 | 15 | +0.018/0 | 18 | — | — | 5 | 2.3 |
| A 1C11MYK25025B | 25 | 62.5 | 67.5 | 15 | +0.018/0 | 18 | — | — | 5 | 2.3 |
| A 1C11MYK25028A | 28 | 70 | 75 | 20 | +0.021/0 | 18 | — | — | 6 | 2.8 |
| A 1C11MYK25030A | 30 | 75 | 80 | 20 | +0.021/0 | 18 | — | — | 6 | 2.8 |
| A 1C11MYK25032A | 32 | 80 | 85 | 20 | +0.021/0 | 16 | — | — | 6 | 2.8 |
| A 1C11MYK25036A | 36 | 90 | 95 | 20 | +0.021/0 | 16 | — | — | 6 | 2.8 |
| A 1C11MYK25040A | 40 | 100 | 105 | 20 | +0.021/0 | 16 | — | — | 6 | 2.8 |
| A 1C11MYK25048A | 48 | 120 | 125 | 20 | +0.021/0 | 16 | — | — | 6 | 2.8 |
| A 1C11MYK25050A | 50 | 125 | 130 | 20 | +0.021/0 | 16 | — | — | 6 | 2.8 |
| A 1C11MYK25060B | 60 | 150 | 155 | 25 | +0.021/0 | 16 | 50 | 127 | 8 | 3.3 |
| A 1C11MYK25080B | 80 | 200 | 205 | 25 | +0.021/0 | 16 | 50 | 177 | 8 | 3.3 |

* To be discontinued when present stock is depleted.

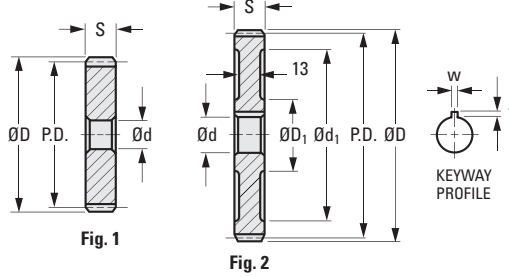
ISO CLASS 8
25 & 28 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

➤ **MATERIAL:**
Steel



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 1MYKW25014 | 14 | 35 | 40 | 12 | +0.018/0 | 28 |
| A 1C 1MYKW25015 | 15 | 37.5 | 42.5 | 12 | +0.018/0 | 28 |
| A 1C 1MYKW25016 | 16 | 40 | 45 | 12 | +0.018/0 | 28 |
| A 1C 1MYKW25018 | 18 | 45 | 50 | 14 | +0.018/0 | 28 |
| A 1C 1MYKW25020 | 20 | 50 | 55 | 14 | +0.018/0 | 28 |
| A 1C 1MYKW25024 | 24 | 60 | 65 | 14 | +0.018/0 | 28 |
| A 1C 1MYKW25025 | 25 | 62.5 | 67.5 | 16 | +0.018/0 | 28 |
| A 1C 1MYKW25028 | 28 | 70 | 75 | 16 | +0.018/0 | 28 |
| A 1C 1MYKW25030 | 30 | 75 | 80 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25032 | 32 | 80 | 85 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25036A | 36 | 90 | 95 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25040A | 40 | 100 | 105 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25048A | 48 | 120 | 125 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25050A | 50 | 125 | 130 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25056 | 56 | 140 | 145 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25060A | 60 | 150 | 155 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25064 | 64 | 160 | 165 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25072 | 72 | 180 | 185 | 18 | +0.018/0 | 25 |
| A 1C 1MYKW25080A | 80 | 200 | 205 | 20 | +0.021/0 | 25 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021/0) | S Face Width | D ₁ Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|----------------------|--------------|---------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | |
| A 1C11MYKW25024A | 24 | 60 | 65 | 20 | 28 | — | — | 6 | 2.8 |
| A 1C11MYKW25025A | 25 | 62.5 | 67.5 | 20 | 28 | — | — | 6 | 2.8 |
| A 1C11MYKW25028A | 28 | 70 | 75 | 20 | 28 | — | — | 6 | 2.8 |
| A 1C11MYKW25030A | 30 | 75 | 80 | 25 | 25 | — | — | 8 | 3.3 |
| A 1C11MYKW25032A | 32 | 80 | 85 | 25 | 25 | — | — | 8 | 3.3 |
| A 1C11MYKW25036A | 36 | 90 | 95 | 25 | 25 | — | — | 8 | 3.3 |
| A 1C11MYKW25040A | 40 | 100 | 105 | 25 | 25 | — | — | 8 | 3.3 |
| A 1C11MYKW25048A | 48 | 120 | 125 | 25 | 25 | — | — | 8 | 3.3 |
| A 1C11MYKW25050A | 50 | 125 | 130 | 25 | 25 | — | — | 8 | 3.3 |
| A 1C11MYKW25060A | 60 | 150 | 155 | 25 | 25 | 50 | 127 | 8 | 3.3 |
| A 1C11MYKW25080A | 80 | 200 | 205 | 25 | 25 | 50 | 177 | 8 | 3.3 |

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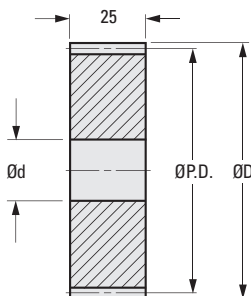
ISO CLASS 8
25 mm FACE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:
303 Stainless Steel

Available as special order:
Number of teeth not listed, different
bore size and / or material,
passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance |
|-----------------|--------------|-------|--------|-----------|-------------|
| S12N25M032S2515 | 32 | 80 | 85 | 15 | +0.018/0 |
| S12N25M035S2515 | 35 | 87.5 | 92.5 | 15 | +0.018/0 |
| S12N25M036S2515 | 36 | 90 | 95 | 15 | +0.018/0 |
| S12N25M040S2520 | 40 | 100 | 105 | 20 | +0.021/0 |
| S12N25M042S2520 | 42 | 105 | 110 | 20 | +0.021/0 |
| S12N25M045S2520 | 45 | 112.5 | 117.5 | 20 | +0.021/0 |
| S12N25M048S2520 | 48 | 120 | 125 | 20 | +0.021/0 |
| S12N25M050S2520 | 50 | 125 | 130 | 20 | +0.021/0 |
| S12N25M055S2520 | 55 | 137.5 | 142.5 | 20 | +0.021/0 |
| S12N25M056S2520 | 56 | 140 | 145 | 20 | +0.021/0 |
| S12N25M060S2520 | 60 | 150 | 155 | 20 | +0.021/0 |
| S12N25M064S2520 | 64 | 160 | 165 | 20 | +0.021/0 |

ISO CLASS 8
30 & 35 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> MATERIAL:
Steel

> SPECIFICATIONS:

Bore Tolerance: 14 & 16 mm +0.027/0
18 mm +0.018/0
20, 22, 25 & 30 mm +0.021/0
35 & 40 mm +0.025/0

D₁ Shaft Tolerance: 18 mm 0/-0.027
24 mm 0/-0.033

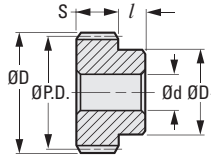
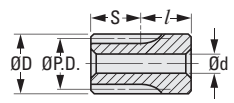
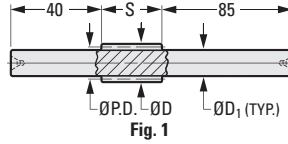


Fig. 3

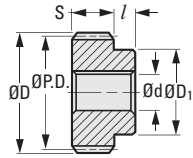


Fig. 4

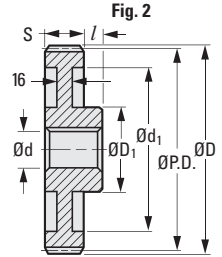


Fig. 5

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | D ₁ Dia. | l Hub Proj. |
|-----------------|--------------|------|--------|--------|--------------|---------------------|-------------|
| Fig. 1 | | | | | | | |
| A 1C 8MYK30008 | 8 | ** | 31.91 | - | 35 | 18(h8) | - |
| A 1C 8MYK30010 | 10 | ** | 37.99 | - | 35 | 24(h8) | - |
| Fig. 2 | | | | | | | |
| A 1C 8MYK30012L | 12 | 36 | 42 | 14(H8) | 35 | - | 35 |
| Fig. 3 | | | | | | | |
| A 1C 2MYKW30014 | 14 | 42 | 48 | 16(H8) | 30 | 34 | 20 |
| A 1C 2MYKW30015 | 15 | 45 | 51 | 16(H8) | 30 | 36 | 20 |
| A 1C 2MYKW30016 | 16 | 48 | 54 | 16(H8) | 30 | 40 | 20 |
| A 1C 2MYKW30018 | 18 | 54 | 60 | 18(H7) | 30 | 46 | 20 |
| A 1C 2MYKW30020 | 20 | 60 | 66 | 18(H7) | 30 | 52 | 20 |
| A 1C 2MYKW30024 | 24 | 72 | 78 | 20(H7) | 30 | 60 | 20 |
| A 1C 2MYKW30025 | 25 | 75 | 81 | 20(H7) | 30 | 60 | 20 |
| A 1C 2MYKW30028 | 28 | 84 | 90 | 22(H7) | 30 | 60 | 20 |
| A 1C 2MYKW30030 | 30 | 90 | 96 | 22(H7) | 30 | 60 | 20 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | S Face Width | D ₁ Dia. | l Hub Proj. | d ₁ | w | t |
|---------------------------|--------------|------|--------|-----------|--------------|---------------------|-------------|----------------|----|-----|
| Fig. 4 With Keyway | | | | | | | | | | |
| A 1C 2MYKW30020A | 20 | 60 | 66 | 25 | 35 | 50 | 15 | - | 8 | 3.3 |
| A 1C 2MYKW30024A | 24 | 72 | 78 | 30 | 35 | 60 | 15 | - | 8 | 3.3 |
| A 1C 2MYKW30025A | 25 | 75 | 81 | 30 | 35 | 60 | 15 | - | 8 | 3.3 |
| A 1C 2MYKW30028A | 28 | 84 | 90 | 30 | 35 | 60 | 15 | - | 8 | 3.3 |
| A 1C 2MYKW30030A | 30 | 90 | 96 | 30 | 35 | 60 | 15 | - | 8 | 3.3 |
| A 1C 2MYKW30036A | 36 | 108 | 114 | 35 | 30 | 70 | 15 | - | 10 | 3.3 |
| A 1C 2MYKW30040A | 40 | 120 | 126 | 35 | 30 | 70 | 15 | - | 10 | 3.3 |
| Fig. 5 With Keyway | | | | | | | | | | |
| A 1C 2MYKW30048A | 48 | 144 | 150 | 40 | 30 | 80 | 15 | 116 | 12 | 3.3 |
| A 1C 2MYKW30050A | 50 | 150 | 156 | 40 | 30 | 80 | 15 | 122 | 12 | 3.3 |
| A 1C 2MYKW30060A | 60 | 180 | 186 | 40 | 30 | 80 | 15 | 152 | 12 | 3.3 |

** To obtain additional tooth strength these pinions are produced by shifting the tooth profile which results in a long addendum. The center distance for these pinions has to be increased, therefore please consult our Engineering Department.

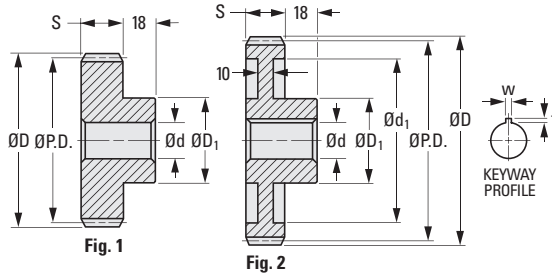
ISO CLASS 8
20 & 22 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

➤ **MATERIAL:**
Steel



METRIC COMPONENT

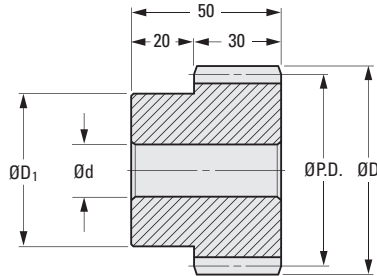
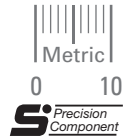
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width | D ₁ Hub Dia. |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|-------------------------|
| Fig. 1 Without Keyway | | | | | | | |
| A 1C 2MYK30014 | 14 | 42 | 48 | 16 | +0.018/0 | 22 | 34 |
| A 1C 2MYK30015 | 15 | 45 | 51 | 16 | +0.018/0 | 22 | 36 |
| A 1C 2MYK30016 | 16 | 48 | 54 | 16 | +0.018/0 | 22 | 40 |
| A 1C 2MYK30018 | 18 | 54 | 60 | 18 | +0.018/0 | 22 | 46 |
| A 1C 2MYK30020 | 20 | 60 | 66 | 18 | +0.018/0 | 22 | 50 |
| A 1C 2MYK30024 | 24 | 72 | 78 | 18 | +0.018/0 | 22 | 50 |
| A 1C 2MYK30025 | 25 | 75 | 81 | 20 | +0.021/0 | 22 | 60 |
| A 1C 2MYK30028 | 28 | 84 | 90 | 20 | +0.021/0 | 22 | 60 |
| A 1C 2MYK30030 | 30 | 90 | 96 | 18 | +0.018/0 | 22 | 60 |
| A 1C 2MYK30032A | 32 | 96 | 102 | 18 | +0.018/0 | 20 | 70 |
| A 1C 2MYK30036A | 36 | 108 | 114 | 20 | +0.021/0 | 20 | 70 |
| A 1C 2MYK30040A | 40 | 120 | 126 | 20 | +0.021/0 | 20 | 70 |
| A 1C 2MYK30048A | 48 | 144 | 150 | 20 | +0.021/0 | 20 | 70 |
| A 1C 2MYK30050A | 50 | 150 | 156 | 20 | +0.021/0 | 20 | 70 |
| A 1C 2MYK30056 | 56 | 168 | 174 | 20 | +0.021/0 | 20 | 70 |
| A 1C 2MYK30060A | 60 | 180 | 186 | 22 | +0.021/0 | 20 | 70 |
| A 1C 2MYK30064 | 64 | 192 | 198 | 22 | +0.021/0 | 20 | 70 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021) 0 | S Face Width | D ₁ Hub Dia. | d ₁ | w | t |
|---------------------------|--------------|------|--------|----------------------|--------------|-------------------------|----------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | |
| A 1C22MYK30020A | 20 | 60 | 66 | 20 | 22 | 40 | — | 6 | 2.8 |
| A 1C22MYK30024A | 24 | 72 | 78 | 20 | 22 | 40 | — | 6 | 2.8 |
| A 1C22MYK30025A | 25 | 75 | 81 | 25 | 22 | 50 | — | 8 | 3.3 |
| A 1C22MYK30028A | 28 | 84 | 90 | 25 | 22 | 50 | — | 8 | 3.3 |
| A 1C22MYK30030A | 30 | 90 | 96 | 25 | 22 | 50 | — | 8 | 3.3 |
| A 1C22MYK30032A | 32 | 96 | 102 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYK30036A | 36 | 108 | 114 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYK30040A | 40 | 120 | 126 | 25 | 20 | 50 | — | 8 | 3.3 |
| A 1C22MYK30048A | 48 | 144 | 150 | 25 | 20 | 50 | 116 | 8 | 3.3 |
| A 1C22MYK30050A | 50 | 150 | 156 | 25 | 20 | 50 | 122 | 8 | 3.3 |
| A 1C22MYK30056A | 56 | 168 | 174 | 25 | 20 | 50 | 140 | 8 | 3.3 |
| A 1C22MYK30060A | 60 | 180 | 186 | 30 | 20 | 60 | 152 | 8 | 3.3 |
| A 1C22MYK30064A | 64 | 192 | 198 | 30 | 20 | 60 | 164 | 8 | 3.3 |

ISO CLASS 8
30 mm FACE
20° PRESSURE ANGLE

MATERIAL:
303 Stainless Steel

Available as special order:
Number of teeth not listed, different
bore size and / or material,
passivation for stainless steel.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D ₁ Hub Dia. |
|-----------------|--------------|------|--------|-----------|-------------|-------------------------|
| S10P30M015S3015 | 15 | 45 | 51 | 15 | +0.018/0 | 36 |
| S10P30M016S3015 | 16 | 48 | 54 | 15 | +0.018/0 | 38 |
| S10P30M018S3015 | 18 | 54 | 60 | 15 | +0.018/0 | 40 |
| S10P30M020S3015 | 20 | 60 | 66 | 15 | +0.018/0 | 50 |
| S10P30M022S3015 | 22 | 66 | 72 | 15 | +0.018/0 | 54 |
| S10P30M024S3015 | 24 | 72 | 78 | 15 | +0.018/0 | 58 |
| S10P30M025S3020 | 25 | 75 | 81 | 20 | +0.021/0 | 60 |
| S10P30M028S3020 | 28 | 84 | 90 | 20 | +0.021/0 | 70 |
| S10P30M030S3020 | 30 | 90 | 96 | 20 | +0.021/0 | 75 |

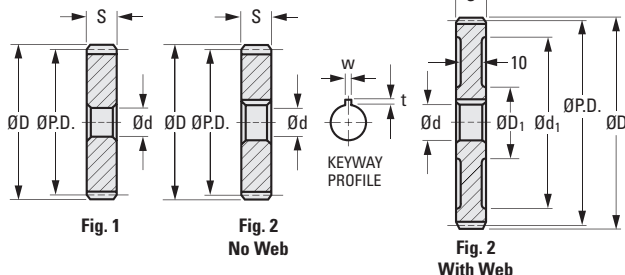
ISO CLASS 8
20 & 22 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:
Steel



QUALITY CLASS



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 1MYK30014 | 14 | 42 | 48 | 16 | +0.018/0 | 22 |
| A 1C 1MYK30015 | 15 | 45 | 51 | 16 | +0.018/0 | 22 |
| A 1C 1MYK30016 | 16 | 48 | 54 | 16 | +0.018/0 | 22 |
| A 1C 1MYK30018 | 18 | 54 | 60 | 16 | +0.018/0 | 22 |
| A 1C 1MYK30020 | 20 | 60 | 66 | 16 | +0.018/0 | 22 |
| A 1C 1MYK30024 | 24 | 72 | 78 | 16 | +0.018/0 | 22 |
| A 1C 1MYK30025 | 25 | 75 | 81 | 18 | +0.018/0 | 22 |
| A 1C 1MYK30028 | 28 | 84 | 90 | 18 | +0.018/0 | 22 |
| A 1C 1MYK30030 | 30 | 90 | 96 | 20 | +0.021/0 | 22 |
| A 1C 1MYK30032 | 32 | 96 | 102 | 20 | +0.021/0 | 20 |
| A 1C 1MYK30036A | 36 | 108 | 114 | 20 | +0.021/0 | 20 |
| A 1C 1MYK30040A | 40 | 120 | 126 | 20 | +0.021/0 | 20 |
| A 1C 1MYK30048A | 48 | 144 | 150 | 20 | +0.021/0 | 20 |
| A 1C 1MYK30050A | 50 | 150 | 156 | 20 | +0.021/0 | 20 |
| A 1C 1MYK30056A | 56 | 168 | 174 | 20 | +0.021/0 | 20 |
| A 1C 1MYK30060A | 60 | 180 | 186 | 20 | +0.021/0 | 20 |
| * A 1C 1MYK30060 | 60 | 180 | 186 | 28 | +0.021/0 | 20 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021/0) | S Face Width | D ₁ Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|----------------------|--------------|---------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | |
| A 1C11MYK30020A | 20 | 60 | 66 | 20 | 22 | - | - | 6 | 2.8 |
| A 1C11MYK30024A | 24 | 72 | 78 | 20 | 22 | - | - | 6 | 2.8 |
| A 1C11MYK30025B | 25 | 75 | 81 | 25 | 22 | - | - | 8 | 3.3 |
| A 1C11MYK30028B | 28 | 84 | 90 | 25 | 22 | - | - | 8 | 3.3 |
| A 1C11MYK30030A | 30 | 90 | 96 | 25 | 22 | - | - | 8 | 3.3 |
| A 1C11MYK30032A | 32 | 96 | 102 | 25 | 20 | - | - | 8 | 3.3 |
| A 1C11MYK30036A | 36 | 108 | 114 | 25 | 20 | - | - | 8 | 3.3 |
| A 1C11MYK30040A | 40 | 120 | 126 | 25 | 20 | - | - | 8 | 3.3 |
| A 1C11MYK30048A | 48 | 144 | 150 | 25 | 20 | 50 | 116 | 8 | 3.3 |
| A 1C11MYK30050A | 50 | 150 | 156 | 25 | 20 | 50 | 122 | 8 | 3.3 |
| A 1C11MYK30056A | 56 | 168 | 174 | 25 | 20 | 50 | 140 | 8 | 3.3 |
| A 1C11MYK30060B | 60 | 180 | 186 | 30 | 20 | 60 | 152 | 8 | 3.3 |

* To be discontinued when present stock is depleted.

ISO CLASS 8
30 & 35 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

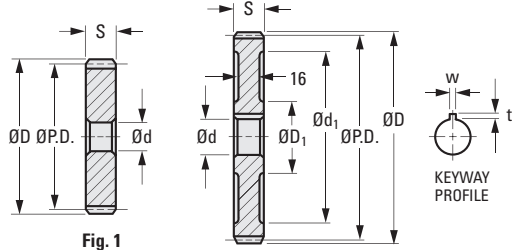


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | S Face Width |
|------------------------------|--------------|------|--------|-----------|-------------|--------------|
| Fig. 1 Without Keyway | | | | | | |
| A 1C 1MYKW30014 | 14 | 42 | 48 | 16 | +0.018/0 | 35 |
| A 1C 1MYKW30015 | 15 | 45 | 51 | 16 | +0.018/0 | 35 |
| A 1C 1MYKW30016 | 16 | 48 | 54 | 16 | +0.018/0 | 35 |
| A 1C 1MYKW30018 | 18 | 54 | 60 | 18 | +0.018/0 | 35 |
| A 1C 1MYKW30020 | 20 | 60 | 66 | 18 | +0.018/0 | 35 |
| A 1C 1MYKW30024 | 24 | 72 | 78 | 18 | +0.018/0 | 35 |
| A 1C 1MYKW30025 | 25 | 75 | 81 | 20 | +0.021/0 | 35 |
| A 1C 1MYKW30028 | 28 | 84 | 90 | 20 | +0.021/0 | 35 |
| A 1C 1MYKW30030 | 30 | 90 | 96 | 22 | +0.021/0 | 30 |
| A 1C 1MYKW30032 | 32 | 96 | 102 | 22 | +0.021/0 | 30 |

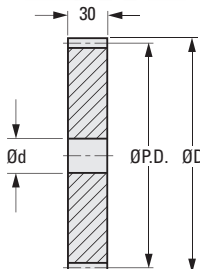
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021/0) | S Face Width | D ₁ Dia. | d ₁ Dia. | w | t |
|---------------------------|--------------|------|--------|----------------------|--------------|---------------------|---------------------|---|-----|
| Fig. 2 With Keyway | | | | | | | | | |
| A 1C11MYKW30024 | 24 | 72 | 78 | 25 | 35 | — | — | 8 | 3.3 |
| A 1C11MYKW30025 | 25 | 75 | 81 | 25 | 35 | — | — | 8 | 3.3 |
| A 1C11MYKW30028 | 28 | 84 | 90 | 25 | 35 | — | — | 8 | 3.3 |
| A 1C11MYKW30036 | 36 | 108 | 114 | 30 | 30 | — | — | 8 | 3.3 |
| A 1C11MYKW30040 | 40 | 120 | 126 | 30 | 30 | — | — | 8 | 3.3 |
| A 1C11MYKW30048 | 48 | 144 | 150 | 30 | 30 | 60 | 116 | 8 | 3.3 |
| A 1C11MYKW30050 | 50 | 150 | 156 | 30 | 30 | 60 | 122 | 8 | 3.3 |
| A 1C11MYKW30060 | 60 | 180 | 186 | 30 | 30 | 60 | 152 | 8 | 3.3 |

ISO CLASS 8
 30 mm FACE
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
 303 Stainless Steel

Available as special order:
 Number of teeth not listed, different
 bore size and / or material,
 passivation for stainless steel.



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- 15
- A

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.021/0) |
|-----------------|--------------|------|--------|----------------------|
| S12N30M032S3020 | 32 | 96 | 102 | 20 |
| S12N30M035S3020 | 35 | 105 | 111 | 20 |
| S12N30M036S3020 | 36 | 108 | 114 | 20 |
| S12N30M040S3025 | 40 | 120 | 126 | 25 |
| S12N30M042S3025 | 42 | 126 | 132 | 25 |
| S12N30M045S3025 | 45 | 135 | 141 | 25 |
| S12N30M048S3025 | 48 | 144 | 150 | 25 |
| S12N30M050S3025 | 50 | 150 | 156 | 25 |
| S12N30M055S3025 | 55 | 165 | 171 | 25 |
| S12N30M056S3025 | 56 | 168 | 174 | 25 |
| S12N30M060S3025 | 60 | 180 | 186 | 25 |

ISO CLASS 9
3 mm FACE WIDTH
20° PRESSURE ANGLE



QUALITY CLASS



> MATERIAL:

Gear – Acetal
Insert – Brass

> SPECIFICATION:

Gears under 80 teeth have no webs.

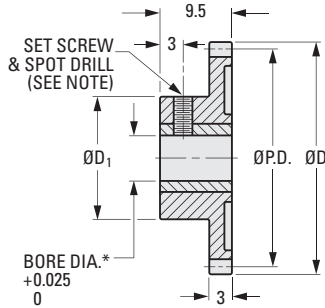
METRIC COMPONENT CATALOG NUMBER

A 1 P 2 M Y D 0 4

No. of Teeth Code

*** BORE CODE**

- A** 3 mm Dia.
- B** 4 mm Dia.
- C** 5 mm Dia.
- D** 6 mm Dia.



| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|-------------------------|
| 036 | 36 | 14.4 | 15.2 | 13 |
| 038 | 38 | 15.2 | 16 | 13 |
| 040 | 40 | 16 | 16.8 | 13 |
| 042 | 42 | 16.8 | 17.6 | 13 |
| 044 | 44 | 17.6 | 18.4 | 13 |
| 045 | 45 | 18 | 18.8 | 13 |
| 046 | 46 | 18.4 | 19.2 | 13 |
| 048 | 48 | 19.2 | 20 | 13 |
| 050 | 50 | 20 | 20.8 | 13 |
| 055 | 55 | 22 | 22.8 | 13 |
| 056 | 56 | 22.4 | 23.2 | 13 |
| 060 | 60 | 24 | 24.8 | 13 |
| 064 | 64 | 25.6 | 26.4 | 16 |
| 065 | 65 | 26 | 26.8 | 16 |
| 070 | 70 | 28 | 28.8 | 16 |
| 072 | 72 | 28.8 | 29.6 | 16 |
| 074 | 74 | 29.6 | 30.4 | 16 |
| 075 | 75 | 30 | 30.8 | 16 |
| 080 | 80 | 32 | 32.8 | 16 |

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|-------------------------|
| 084 | 84 | 33.6 | 34.4 | 16 |
| 085 | 85 | 34 | 34.8 | 16 |
| 088 | 88 | 35.2 | 36 | 16 |
| 090 | 90 | 36 | 36.8 | 16 |
| 092 | 92 | 36.8 | 37.6 | 16 |
| 095 | 95 | 38 | 38.8 | 19 |
| 096 | 96 | 38.4 | 39.2 | 19 |
| 100 | 100 | 40 | 40.8 | 19 |
| 108 | 108 | 43.2 | 44 | 19 |
| 110 | 110 | 44 | 44.8 | 19 |
| 112 | 112 | 44.8 | 45.6 | 19 |
| 120 | 120 | 48 | 48.8 | 19 |
| 127 | 127 | 50.8 | 51.6 | 19 |
| 128 | 128 | 51.2 | 52 | 19 |
| 130 | 130 | 52 | 52.8 | 19 |
| 144 | 144 | 57.6 | 58.4 | 19 |
| 152 | 152 | 60.8 | 61.6 | 19 |
| 160 | 160 | 64 | 64.8 | 19 |
| 168 | 168 | 67.2 | 68 | 19 |

NOTE: Gears with 3 mm & 4 mm bore have M2.5 set screw & spot drill.
5 mm & 6 mm bore have M3 set screw & spot drill.

NONMETALLIC SPUR GEARS • MODULE 0.4

SDP/SI

ISO CLASS 8
5 mm FACE WIDTH
20° PRESSURE ANGLE

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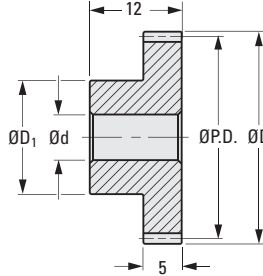


QUALITY CLASS

> **MATERIAL:**
Acetal

METRIC COMPONENT CATALOG NUMBER

A 1P 2MY04
 No. of Teeth Code



| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|-----------|-------------|-------------------------|
| 012 | 12 | 4.8 | 5.6 | 3 | +0.014/0 | 4.5 |
| 015 | 15 | 6 | 6.8 | 3 | +0.014/0 | 5.5 |
| 016 | 16 | 6.4 | 7.2 | 3 | +0.014/0 | 5.5 |
| 020 | 20 | 8 | 8.8 | 3 | +0.014/0 | 6 |
| 024 | 24 | 9.6 | 10.4 | 4 | +0.018/0 | 8 |
| 025 | 25 | 10 | 10.8 | 4 | +0.018/0 | 8 |
| 030 | 30 | 12 | 12.8 | 4 | +0.018/0 | 8 |
| 032 | 32 | 12.8 | 13.6 | 4 | +0.018/0 | 8 |
| 035 | 35 | 14 | 14.8 | 4 | +0.018/0 | 10 |
| 036 | 36 | 14.4 | 15.2 | 4 | +0.018/0 | 10 |
| 040 | 40 | 16 | 16.8 | 4 | +0.018/0 | 10 |
| 045 | 45 | 18 | 18.8 | 4 | +0.018/0 | 10 |
| 048 | 48 | 19.2 | 20 | 4 | +0.018/0 | 10 |
| 050 | 50 | 20 | 20.8 | 4 | +0.018/0 | 10 |
| 055 | 55 | 22 | 22.8 | 4 | +0.018/0 | 10 |
| 060 | 60 | 24 | 24.8 | 6 | +0.018/0 | 15 |
| 064 | 64 | 25.6 | 26.4 | 6 | +0.018/0 | 15 |
| 065 | 65 | 26 | 26.8 | 6 | +0.018/0 | 15 |
| 070 | 70 | 28 | 28.8 | 6 | +0.018/0 | 15 |
| 072 | 72 | 28.8 | 29.6 | 6 | +0.018/0 | 15 |
| 075 | 75 | 30 | 30.8 | 6 | +0.018/0 | 15 |
| 080 | 80 | 32 | 32.8 | 6 | +0.018/0 | 15 |
| 084 | 84 | 33.6 | 34.4 | 6 | +0.018/0 | 15 |
| 085 | 85 | 34 | 34.8 | 6 | +0.018/0 | 15 |
| 090 | 90 | 36 | 36.8 | 6 | +0.018/0 | 15 |
| 095 | 95 | 38 | 38.8 | 6 | +0.018/0 | 15 |
| 096 | 96 | 38.4 | 39.2 | 6 | +0.018/0 | 15 |
| 100 | 100 | 40 | 40.8 | 6 | +0.018/0 | 15 |
| 108 | 108 | 43.2 | 44 | 6 | +0.018/0 | 15 |
| 120 | 120 | 48 | 48.8 | 6 | +0.018/0 | 15 |

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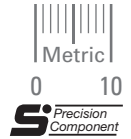
13

14

15

A

ISO CLASS 7
5 mm FACE WIDTH
5, 8 & mm BORE
20° PRESSURE ANGLE

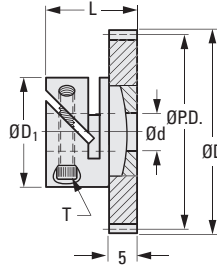


MATERIAL:
Gear – Acetal
Hub – 303 Stainless Steel

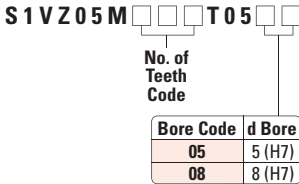
SPECIFICATIONS:
For Fairloc® Type Hub Gear

| d Bore Ref. | T | D ₁ | L |
|-------------|------|----------------|------|
| 5 | M2.5 | 14 | 13.5 |
| 8 | M3 | 17 | 14.8 |

Available as special order:
14-1/2° P.A., teeth not listed
or different bore size, or
assembled onto pin type hub.



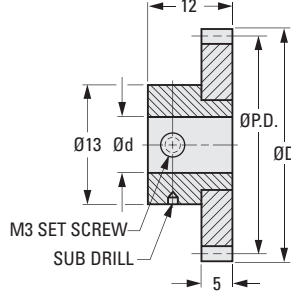
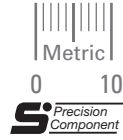
METRIC COMPONENT CATALOG NUMBER



| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|-------------------|--------------|------|--------|
| 028 | 28 | 14 | 15 |
| 029 | 29 | 14.5 | 15.5 |
| 030 | 30 | 15 | 16 |
| 032 | 32 | 16 | 17 |
| 036 | 36 | 18 | 19 |
| 040 | 40 | 20 | 21 |
| 044 | 44 | 22 | 23 |
| 045 | 45 | 22.5 | 23.5 |
| 048 | 48 | 24 | 25 |
| 050 | 50 | 25 | 26 |
| 056 | 56 | 28 | 29 |
| 060 | 60 | 30 | 31 |
| 064 | 64 | 32 | 33 |
| 068 | 68 | 34 | 35 |
| 070 | 70 | 35 | 36 |
| 072 | 72 | 36 | 37 |
| 075 | 75 | 37.5 | 38.5 |
| 080 | 80 | 40 | 41 |
| 084 | 84 | 42 | 43 |
| 090 | 90 | 45 | 46 |
| 092 | 92 | 46 | 47 |
| 096 | 96 | 48 | 49 |
| 100 | 100 | 50 | 51 |
| 110 | 110 | 55 | 56 |
| 120 | 120 | 60 | 61 |
| 138 | 138 | 69 | 70 |
| 144 | 144 | 72 | 73 |
| 168 | 168 | 84 | 85 |
| 180 | 180 | 90 | 91 |
| 186 | 186 | 93 | 94 |

ISO CLASS 7
 5 mm FACE WIDTH
 5 & 8 mm BORE
 20° PRESSURE ANGLE

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> MATERIAL:

Gear – Acetal
Hub – 303 Stainless Steel

> SPECIFICATIONS:

Available as special order:
 14-1/2° P.A., teeth not listed
 or different bore size, or assembled
 onto Fairloc® Integral Fastener Hub.

METRIC COMPONENT CATALOG NUMBER

S 1 0 Z 0 5 M T 0 5

No. of Teeth Code

| Bore Code | d Bore |
|-----------|--------|
| 05 | 5 (H7) |
| 08 | 8 (H7) |

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|-------------------|--------------|------|--------|
| 028 | 28 | 14 | 15 |
| 029 | 29 | 14.5 | 15.5 |
| 030 | 30 | 15 | 16 |
| 032 | 32 | 16 | 17 |
| 036 | 36 | 18 | 19 |
| 040 | 40 | 20 | 21 |
| 044 | 44 | 22 | 23 |
| 045 | 45 | 22.5 | 23.5 |
| 048 | 48 | 24 | 25 |
| 050 | 50 | 25 | 26 |
| 056 | 56 | 28 | 29 |
| 060 | 60 | 30 | 31 |
| 064 | 64 | 32 | 33 |
| 068 | 68 | 34 | 35 |
| 070 | 70 | 35 | 36 |
| 072 | 72 | 36 | 37 |
| 075 | 75 | 37.5 | 38.5 |
| 080 | 80 | 40 | 41 |
| 084 | 84 | 42 | 43 |
| 090 | 90 | 45 | 46 |
| 092 | 92 | 46 | 47 |
| 096 | 96 | 48 | 49 |
| 100 | 100 | 50 | 51 |
| 110 | 110 | 55 | 56 |
| 120 | 120 | 60 | 61 |
| 138 | 138 | 69 | 70 |
| 144 | 144 | 72 | 73 |
| 168 | 168 | 84 | 85 |
| 180 | 180 | 90 | 91 |
| 186 | 186 | 93 | 94 |

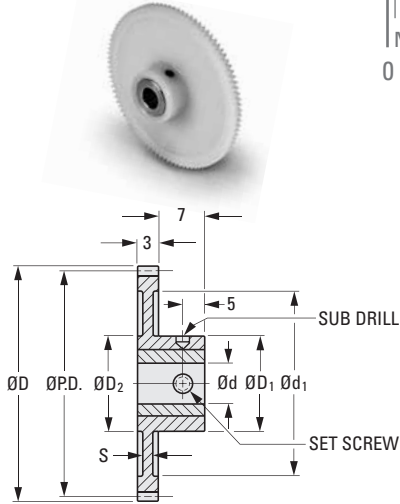
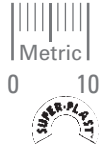
- I
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- 14
- 15
- A

3 mm FACE WIDTH
20° PRESSURE ANGLE

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► MATERIAL:

Gear – Acetal
Insert – Brass



METRIC COMPONENT

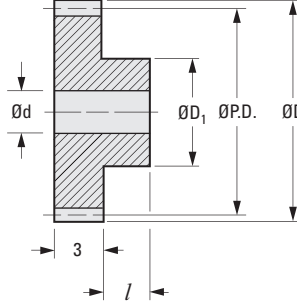
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 | D ₁ Hub Dia. | S | d ₁ Dia. | D ₂ Dia. | Set Screw |
|------------------|--------------|------|--------|-----------------|-------------------------|---|---------------------|---------------------|-----------|
| A 1Z 2MYZ0501803 | 18 | 9 | 10 | 3 | 8 | – | – | – | M2.5 |
| A 1Z 2MYZ0501903 | 19 | 9.5 | 10.5 | 3 | 8 | – | – | – | M2.5 |
| A 1Z 2MYZ0502003 | 20 | 10 | 11 | 3 | 8 | – | – | – | M2.5 |
| A 1Z 2MYZ0502103 | 21 | 10.5 | 11.5 | 3 | 8 | – | – | – | M2.5 |
| A 1Z 2MYZ0502204 | 22 | 11 | 12 | 4 | 10 | – | – | – | M2.5 |
| A 1Z 2MYZ0502304 | 23 | 11.5 | 12.5 | 4 | 10 | – | – | – | M2.5 |
| A 1Z 2MYZ0502404 | 24 | 12 | 13 | 4 | 10 | – | – | – | M2.5 |
| A 1Z 2MYZ0502504 | 25 | 12.5 | 13.5 | 4 | 10 | – | – | – | M2.5 |
| A 1Z 2MYZ0502604 | 26 | 13 | 14 | 4 | 10 | – | – | – | M2.5 |
| A 1Z 2MYZ0502704 | 27 | 13.5 | 14.5 | 4 | 10 | – | – | – | M2.5 |
| A 1Z 2MYZ0502804 | 28 | 14 | 15 | 4 | 10 | – | – | – | M2.5 |
| A 1Z 2MYZ0503004 | 30 | 15 | 16 | 4 | 12 | – | – | – | M2.5 |
| A 1Z 2MYZ0503204 | 32 | 16 | 17 | 4 | 12 | – | – | – | M2.5 |
| A 1Z 2MYZ0503504 | 35 | 17.5 | 18.5 | 4 | 12 | – | – | – | M2.5 |
| A 1Z 2MYZ0503604 | 36 | 18 | 19 | 4 | 12 | – | – | – | M2.5 |
| A 1Z 2MYZ0503804 | 38 | 19 | 20 | 4 | 12 | – | – | – | M2.5 |
| A 1Z 2MYZ0504004 | 40 | 20 | 21 | 4 | 12 | 2 | 14 | 12 | M2.5 |
| A 1Z 2MYZ0504204 | 42 | 21 | 22 | 4 | 12 | 2 | 16 | 12 | M2.5 |
| A 1Z 2MYZ0504504 | 45 | 22.5 | 23.5 | 4 | 12 | 2 | 18.5 | 12 | M2.5 |
| A 1Z 2MYZ0504806 | 48 | 24 | 25 | 6 | 15 | 2 | 19 | 15 | M3 |
| A 1Z 2MYZ0505006 | 50 | 25 | 26 | 6 | 15 | 2 | 20 | 15 | M3 |
| A 1Z 2MYZ0505206 | 52 | 26 | 27 | 6 | 15 | 2 | 21 | 15 | M3 |
| A 1Z 2MYZ0505406 | 54 | 27 | 28 | 6 | 15 | 2 | 22 | 15 | M3 |
| A 1Z 2MYZ0505506 | 55 | 27.5 | 28.5 | 6 | 15 | 2 | 23 | 15 | M3 |
| A 1Z 2MYZ0505606 | 56 | 28 | 29 | 6 | 15 | 2 | 23 | 15 | M3 |
| A 1Z 2MYZ0506006 | 60 | 30 | 31 | 6 | 15 | 2 | 24 | 15 | M3 |
| A 1Z 2MYZ0506406 | 64 | 32 | 33 | 6 | 15 | 2 | 25 | 15 | M3 |
| A 1Z 2MYZ0506506 | 65 | 32.5 | 33.5 | 6 | 15 | 2 | 27 | 15 | M3 |
| A 1Z 2MYZ0507006 | 70 | 35 | 36 | 6 | 15 | 2 | 29 | 15 | M3 |
| A 1Z 2MYZ0507206 | 72 | 36 | 37 | 6 | 15 | 2 | 30 | 15 | M3 |
| A 1Z 2MYZ0507506 | 75 | 37.5 | 38.5 | 6 | 15 | 2 | 33 | 15 | M3 |
| A 1Z 2MYZ0508006 | 80 | 40 | 41 | 6 | 15 | 2 | 36 | 15 | M3 |
| A 1Z 2MYZ0509006 | 90 | 45 | 46 | 6 | 15 | 2 | 39 | 15 | M3 |
| A 1Z 2MYZ0509606 | 96 | 48 | 49 | 6 | 15 | 2 | 42 | 15 | M3 |
| A 1Z 2MYZ0510006 | 100 | 50 | 51 | 6 | 15 | 2 | 44 | 15 | M3 |
| A 1Z 2MYZ0512006 | 120 | 60 | 61 | 6 | 15 | 2 | 54 | 15 | M3 |



3 mm FACE WIDTH
20° PRESSURE ANGLE

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➤ MATERIAL:
Acetal



METRIC COMPONENT

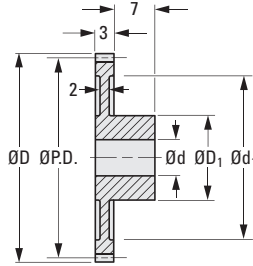
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | l Hub Proj. |
|-----------------|--------------|------|--------|-------------|-------------------------|-------------|
| A 1M 2MYZ05012 | 12 | 6 | 7 | 2 | 4 | 4 |
| A 1M 2MYZ05013 | 13 | 6.5 | 7.5 | 2 | 4 | 4 |
| A 1M 2MYZ05014 | 14 | 7 | 8 | 2 | 5 | 4 |
| A 1M 2MYZ05015 | 15 | 7.5 | 8.5 | 3 | 6 | 7 |
| A 1M 2MYZ05016 | 16 | 8 | 9 | 3 | 6 | 7 |
| A 1M 2MYZ05017 | 17 | 8.5 | 9.5 | 3 | 6 | 7 |
| A 1M 2MYZ05018 | 18 | 9 | 10 | 4 | 8 | 7 |
| A 1M 2MYZ05019 | 19 | 9.5 | 10.5 | 4 | 8 | 7 |
| A 1M 2MYZ05020A | 20 | 10 | 11 | 3 | 8 | 7 |
| A 1M 2MYZ05020 | 20 | 10 | 11 | 4 | 8 | 7 |
| A 1M 2MYZ05021 | 21 | 10.5 | 11.5 | 4 | 8 | 7 |
| A 1M 2MYZ05022 | 22 | 11 | 12 | 4 | 10 | 7 |
| A 1M 2MYZ05023 | 23 | 11.5 | 12.5 | 4 | 10 | 7 |
| A 1M 2MYZ05024 | 24 | 12 | 13 | 4 | 10 | 7 |
| A 1M 2MYZ05025 | 25 | 12.5 | 13.5 | 4 | 10 | 7 |
| A 1M 2MYZ05025A | 25 | 12.5 | 13.5 | 6 | 10 | 7 |
| A 1M 2MYZ05026 | 26 | 13 | 14 | 4 | 10 | 7 |
| A 1M 2MYZ05026A | 26 | 13 | 14 | 6 | 10 | 7 |
| A 1M 2MYZ05027 | 27 | 13.5 | 14.5 | 4 | 10 | 7 |
| A 1M 2MYZ05028 | 28 | 14 | 15 | 4 | 10 | 7 |
| A 1M 2MYZ05030 | 30 | 15 | 16 | 4 | 12 | 7 |
| A 1M 2MYZ05032 | 32 | 16 | 17 | 4 | 12 | 7 |
| A 1M 2MYZ05035 | 35 | 17.5 | 18.5 | 4 | 12 | 7 |
| A 1M 2MYZ05036 | 36 | 18 | 19 | 4 | 12 | 7 |
| A 1M 2MYZ05038 | 38 | 19 | 20 | 4 | 12 | 7 |

Continued on the next page

3 mm FACE WIDTH
20° PRESSURE ANGLE

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► **MATERIAL:**
Acetal



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | d ₁ Dia. |
|------------------|--------------|------|--------|-------------|-------------------------|---------------------|
| * A 1M 2MYZ05040 | 40 | 20 | 21 | 4 | 12 | 14.5 |
| A 1M 2MYZ05042 | 42 | 21 | 22 | 4 | 12 | 16 |
| A 1M 2MYZ05045 | 45 | 22.5 | 23.5 | 4 | 12 | 18.5 |
| A 1M 2MYZ05048 | 48 | 24 | 25 | 6 | 15 | 19 |
| A 1M 2MYZ05050 | 50 | 25 | 26 | 6 | 15 | 20 |
| A 1M 2MYZ05052 | 52 | 26 | 27 | 6 | 15 | 21 |
| A 1M 2MYZ05054 | 54 | 27 | 28 | 6 | 15 | 22 |
| A 1M 2MYZ05055 | 55 | 27.5 | 28.5 | 6 | 15 | 23 |
| A 1M 2MYZ05056 | 56 | 28 | 29 | 6 | 15 | 23 |
| A 1M 2MYZ05060 | 60 | 30 | 31 | 6 | 15 | 24 |
| A 1M 2MYZ05064 | 64 | 32 | 33 | 6 | 15 | 25 |
| A 1M 2MYZ05065 | 65 | 32.5 | 33.5 | 6 | 15 | 27 |
| A 1M 2MYZ05070 | 70 | 35 | 36 | 6 | 15 | 29 |
| A 1M 2MYZ05072 | 72 | 36 | 37 | 6 | 15 | 30 |
| A 1M 2MYZ05075 | 75 | 37.5 | 38.5 | 6 | 15 | 33 |
| A 1M 2MYZ05080 | 80 | 40 | 41 | 6 | 15 | 36 |
| A 1M 2MYZ05090 | 90 | 45 | 46 | 6 | 15 | 39 |
| A 1M 2MYZ05096 | 96 | 48 | 49 | 6 | 15 | 42 |
| A 1M 2MYZ05100 | 100 | 50 | 51 | 6 | 15 | 44 |
| A 1M 2MYZ05120 | 120 | 60 | 61 | 6 | 15 | 54 |

* Coring opposite hub only.

Continued from the previous page

3 mm FACE WIDTH
20° PRESSURE ANGLE

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➤ MATERIAL:
Acetal

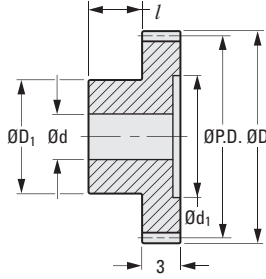


Fig. 1

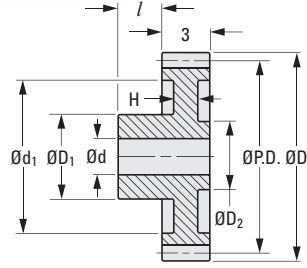


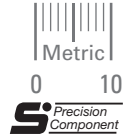
Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Teeth | Fig No. | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | l Hub Proj. | d ₁ Dia. | D ₂ Dia. | H Web Thickness |
|----------------|--------------|---------|------|--------|-------------|-------------------------|-------------|---------------------|---------------------|-----------------|
| A 1M 2MYH05012 | 12 | 1 | 6 | 7 | 2 | 4.5 | 4 | 4 | — | — |
| A 1M 2MYH05015 | 15 | 1 | 7.5 | 8.5 | 2 | 4.5 | 4 | 5 | — | — |
| A 1M 2MYH05016 | 16 | 1 | 8 | 9 | 3 | 6 | 4 | 6 | — | — |
| A 1M 2MYH05018 | 18 | 1 | 9 | 10 | 3 | 6 | 4 | 7 | — | — |
| A 1M 2MYH05020 | 20 | 2 | 10 | 11 | 4 | 8 | 4 | — | 5 | 2.4 |
| A 1M 2MYH05024 | 24 | 2 | 12 | 13 | 4 | 8 | 4 | — | 5 | 1.8 |
| A 1M 2MYH05025 | 25 | 2 | 12.5 | 13.5 | 4 | 8 | 4 | — | 6 | 1.8 |
| A 1M 2MYH05028 | 28 | 2 | 14 | 15 | 4 | 8 | 4 | — | 6 | 1.8 |
| A 1M 2MYH05030 | 30 | 2 | 15 | 16 | 5 | 10 | 4 | — | 7 | 1.8 |
| A 1M 2MYH05032 | 32 | 2 | 16 | 17 | 5 | 10 | 4 | — | 7 | 1.8 |
| A 1M 2MYH05035 | 35 | 2 | 17.5 | 18.5 | 5 | 10 | 4 | — | 7 | 1.8 |
| A 1M 2MYH05036 | 36 | 2 | 18 | 19 | 5 | 10 | 4 | — | 7 | 1.8 |
| A 1M 2MYH05040 | 40 | 2 | 20 | 21 | 5 | 12 | 4 | — | 8 | 1.8 |
| A 1M 2MYH05045 | 45 | 2 | 22.5 | 23.5 | 5 | 12 | 4 | — | 8 | 1.8 |
| A 1M 2MYH05048 | 48 | 2 | 24 | 25 | 5 | 12 | 4 | — | 8 | 1.8 |
| A 1M 2MYH05050 | 50 | 2 | 25 | 26 | 5 | 12 | 4 | — | 8 | 1.8 |
| A 1M 2MYH05056 | 56 | 2 | 28 | 29 | 6 | 14 | 5 | — | 10 | 1.8 |
| A 1M 2MYH05060 | 60 | 2 | 30 | 31 | 6 | 14 | 5 | — | 10 | 1.8 |
| A 1M 2MYH05064 | 64 | 2 | 32 | 33 | 6 | 14 | 5 | — | 10 | 1.8 |
| A 1M 2MYH05070 | 70 | 2 | 35 | 36 | 6 | 14 | 5 | — | 10 | 1.8 |
| A 1M 2MYH05072 | 72 | 2 | 36 | 37 | 6 | 14 | 5 | — | 10 | 1.8 |
| A 1M 2MYH05080 | 80 | 2 | 40 | 41 | 6 | 14 | 5 | — | 10 | 1.8 |

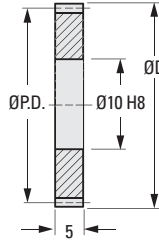


ISO CLASS 7
5 mm FACE WIDTH
10 mm BORE
20° PRESSURE ANGLE



MATERIAL:
Gear – Acetal

Available as special order:
14-1/2° P.A., teeth not listed
or different bore size, or
assembled onto Fairloc® Integral
Fastener hub or pin type hub.



**METRIC COMPONENT
CATALOG NUMBER**

S 1 2 M 0 5 M N 0 5 1 0

No. of
Teeth
Code

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|-------------------|--------------|------|--------|
| 028 | 28 | 14 | 15 |
| 029 | 29 | 14.5 | 15.5 |
| 030 | 30 | 15 | 16 |
| 032 | 32 | 16 | 17 |
| 036 | 36 | 18 | 19 |
| 040 | 40 | 20 | 21 |
| 044 | 44 | 22 | 23 |
| 045 | 45 | 22.5 | 23.5 |
| 048 | 48 | 24 | 25 |
| 050 | 50 | 25 | 26 |
| 056 | 56 | 28 | 29 |
| 060 | 60 | 30 | 31 |
| 064 | 64 | 32 | 33 |
| 068 | 68 | 34 | 35 |
| 070 | 70 | 35 | 36 |
| 072 | 72 | 36 | 37 |
| 075 | 75 | 37.5 | 38.5 |
| 080 | 80 | 40 | 41 |
| 084 | 84 | 42 | 43 |
| 090 | 90 | 45 | 46 |
| 092 | 92 | 46 | 47 |
| 096 | 96 | 48 | 49 |
| 100 | 100 | 50 | 51 |
| 110 | 110 | 55 | 56 |
| 120 | 120 | 60 | 61 |
| 138 | 138 | 69 | 70 |
| 144 | 144 | 72 | 73 |
| 168 | 168 | 84 | 85 |
| 180 | 180 | 90 | 91 |
| 186 | 186 | 93 | 94 |

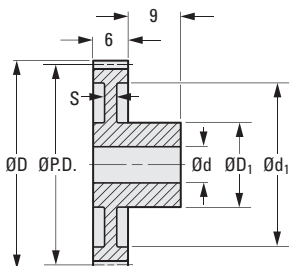


6 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

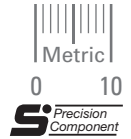
Acetal



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | S | d ₁ Dia. |
|-----------------|--------------|------|--------|-------------|-------------------------|---|---------------------|
| A 1M 2MYZ07012 | 12 | 8.4 | 9.8 | 3 | 6 | — | — |
| A 1M 2MYZ07013 | 13 | 9.1 | 10.5 | 3 | 6 | — | — |
| A 1M 2MYZ07014 | 14 | 9.8 | 11.2 | 3 | 6 | — | — |
| A 1M 2MYZ07015 | 15 | 10.5 | 11.9 | 3 | 6 | — | — |
| A 1M 2MYZ07016 | 16 | 11.2 | 12.6 | 4 | 9 | — | — |
| A 1M 2MYZ07017 | 17 | 11.9 | 13.3 | 4 | 9 | — | — |
| A 1M 2MYZ07018 | 18 | 12.6 | 14 | 4 | 9 | — | — |
| A 1M 2MYZ07019 | 19 | 13.3 | 14.7 | 4 | 9 | — | — |
| A 1M 2MYZ07020 | 20 | 14 | 15.4 | 4 | 9 | — | — |
| A 1M 2MYZ07021 | 21 | 14.7 | 16.1 | 4 | 9 | — | — |
| A 1M 2MYZ07022 | 22 | 15.4 | 16.8 | 4 | 9 | — | — |
| A 1M 2MYZ07023 | 23 | 16.1 | 17.5 | 4 | 9 | — | — |
| A 1M 2MYZ07024 | 24 | 16.8 | 18.2 | 4 | 9 | 3 | 13.5 |
| A 1M 2MYZ07025 | 25 | 17.5 | 18.9 | 6 | 9 | 3 | 13.5 |
| A 1M 2MYZ07026 | 26 | 18.2 | 19.6 | 6 | 9 | 3 | 13.5 |
| A 1M 2MYZ07027 | 27 | 18.9 | 20.3 | 6 | 9 | 3 | 13.5 |
| A 1M 2MYZ07028 | 28 | 19.6 | 21 | 6 | 9 | 3 | 13.5 |
| A 1M 2MYZ07030 | 30 | 21 | 22.4 | 6 | 12 | 3 | 16 |
| A 1M 2MYZ07032 | 32 | 22.4 | 23.8 | 6 | 12 | 3 | 16 |
| A 1M 2MYZ07035 | 35 | 24.5 | 25.9 | 6 | 15 | 3 | 19 |
| A 1M 2MYZ07036A | 36 | 25.5 | 26.9 | 4 | 15 | 3 | 19 |
| A 1M 2MYZ07036 | 36 | 25.5 | 26.9 | 6 | 15 | 3 | 19 |
| A 1M 2MYZ07038 | 38 | 26.6 | 28 | 6 | 15 | 3 | 21.5 |
| A 1M 2MYZ07040 | 40 | 28 | 29.4 | 6 | 15 | 3 | 21.5 |
| A 1M 2MYZ07042 | 42 | 29.4 | 30.8 | 6 | 18 | 2 | 24.5 |
| A 1M 2MYZ07045 | 45 | 31.5 | 32.9 | 6 | 18 | 2 | 24.5 |
| A 1M 2MYZ07048 | 48 | 33.6 | 35 | 8 | 18 | 2 | 24.5 |
| A 1M 2MYZ07050 | 50 | 35 | 36.4 | 8 | 18 | 2 | 28 |
| A 1M 2MYZ07052 | 52 | 36.4 | 37.8 | 8 | 18 | 2 | 28 |
| A 1M 2MYZ07054 | 54 | 37.8 | 39.2 | 8 | 18 | 2 | 28 |
| A 1M 2MYZ07055 | 55 | 38.5 | 39.9 | 8 | 18 | 2 | 31 |
| A 1M 2MYZ07056 | 56 | 39.2 | 40.6 | 8 | 18 | 2 | 31 |
| A 1M 2MYZ07060 | 60 | 42 | 43.4 | 8 | 18 | 2 | 31 |
| A 1M 2MYZ07064 | 64 | 44.8 | 46.2 | 8 | 18 | 2 | 37.5 |
| A 1M 2MYZ07065 | 65 | 45.5 | 46.9 | 8 | 18 | 2 | 37.5 |
| A 1M 2MYZ07070 | 70 | 49 | 50.4 | 8 | 18 | 2 | 37.5 |
| A 1M 2MYZ07072 | 72 | 50.4 | 51.8 | 8 | 18 | 2 | 37.5 |
| A 1M 2MYZ07075 | 75 | 52.5 | 53.9 | 10 | 18 | 2 | 37.5 |
| A 1M 2MYZ07080 | 80 | 56 | 57.4 | 10 | 21 | 2 | 47 |
| A 1M 2MYZ07090 | 90 | 63 | 64.4 | 10 | 21 | 2 | 56.5 |
| A 1M 2MYZ07096 | 96 | 67.2 | 68.6 | 10 | 21 | 2 | 56.5 |
| A 1M 2MYZ07100 | 100 | 70 | 71.4 | 10 | 21 | 2 | 56.5 |
| A 1M 2MYZ07120 | 120 | 84 | 85.4 | 10 | 21 | 2 | 77 |

ISO CLASS 7
5 mm FACE WIDTH
5 & 8 mm BORE
20° PRESSURE ANGLE

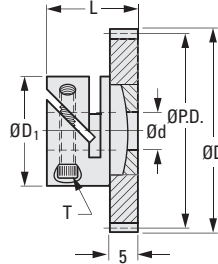


> MATERIAL:
Gear – Acetal
Hub – 303 Stainless Steel

> SPECIFICATIONS:
For Fairloc® Type Hub Gear

| d Bore Ref. | T | D ₁ | L |
|-------------|------|----------------|------|
| 5 | M2.5 | 14 | 13.5 |
| 8 | M3 | 17 | 14.8 |

Available as special order:
14-1/2° P.A., teeth not listed
or different bore size, or
assembled onto pin type hub.



METRIC COMPONENT CATALOG NUMBER

S 1 V Z 0 8 M T 0 5

No. of
Teeth
Code

| Bore Code | d Bore |
|-----------|--------|
| 05 | 5 (H7) |
| 08 | 8 (H7) |

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|-------------------|--------------|------|--------|
| 020 | 20 | 16 | 17.6 |
| 021 | 21 | 16.8 | 18.4 |
| 023 | 23 | 18.4 | 20 |
| 024 | 24 | 19.2 | 20.8 |
| 025 | 25 | 20 | 21.6 |
| 026 | 26 | 20.8 | 22.4 |
| 028 | 28 | 22.4 | 24 |
| 030 | 30 | 24 | 25.6 |
| 032 | 32 | 25.6 | 27.2 |
| 036 | 36 | 28.8 | 30.4 |
| 040 | 40 | 32 | 33.6 |
| 042 | 42 | 33.6 | 35.2 |
| 044 | 44 | 35.2 | 36.8 |
| 045 | 45 | 36 | 37.6 |
| 046 | 46 | 36.8 | 38.4 |
| 048 | 48 | 38.4 | 40 |
| 050 | 50 | 40 | 41.6 |
| 052 | 52 | 41.6 | 43.2 |
| 056 | 56 | 44.8 | 46.4 |
| 060 | 60 | 48 | 49.6 |
| 064 | 64 | 51.2 | 52.8 |
| 066 | 66 | 52.8 | 54.4 |
| 072 | 72 | 57.6 | 59.2 |
| 080 | 80 | 64 | 65.6 |
| 084 | 84 | 67.2 | 68.8 |
| 088 | 88 | 70.4 | 72 |
| 090 | 90 | 72 | 73.6 |
| 092 | 92 | 73.6 | 75.2 |
| 096 | 96 | 76.8 | 78.4 |
| 100 | 100 | 80 | 81.6 |
| 104 | 104 | 83.2 | 84.8 |
| 108 | 108 | 86.4 | 88 |
| 112 | 112 | 89.6 | 91.2 |
| 124 | 124 | 99.2 | 100.8 |

ISO CLASS 7
5 mm FACE WIDTH
5 & 8 mm BORE
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

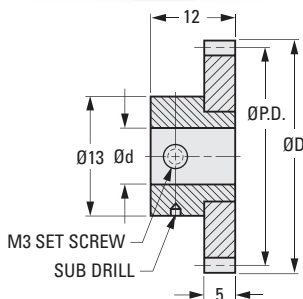


> MATERIAL:

Gear – Acetal
Hub – 303 Stainless Steel

> SPECIFICATIONS:

Available as special order:
14-1/2° P.A., teeth not listed
or different bore size, or assembled
onto Fairloc® Integral Fastener Hub.



METRIC COMPONENT CATALOG NUMBER

S 10 Z 0 8 M T 0 5

No. of
Teeth
Code

| Bore Code | d Bore |
|-----------|--------|
| 05 | 5 (H7) |
| 08 | 8 (H7) |

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|----------------------|-----------------|------|-----------|
| 020 | 20 | 16 | 17.6 |
| 021 | 21 | 16.8 | 18.4 |
| 023 | 23 | 18.4 | 20 |
| 024 | 24 | 19.2 | 20.8 |
| 025 | 25 | 20 | 21.6 |
| 026 | 26 | 20.8 | 22.4 |
| 028 | 28 | 22.4 | 24 |
| 030 | 30 | 24 | 25.6 |
| 032 | 32 | 25.6 | 27.2 |
| 036 | 36 | 28.8 | 30.4 |
| 040 | 40 | 32 | 33.6 |
| 042 | 42 | 33.6 | 35.2 |
| 044 | 44 | 35.2 | 36.8 |
| 045 | 45 | 36 | 37.6 |
| 046 | 46 | 36.8 | 38.4 |
| 048 | 48 | 38.4 | 40 |
| 050 | 50 | 40 | 41.6 |
| 052 | 52 | 41.6 | 43.2 |
| 056 | 56 | 44.8 | 46.4 |
| 060 | 60 | 48 | 49.6 |
| 064 | 64 | 51.2 | 52.8 |
| 066 | 66 | 52.8 | 54.4 |
| 072 | 72 | 57.6 | 59.2 |
| 080 | 80 | 64 | 65.6 |
| 084 | 84 | 67.2 | 68.8 |
| 088 | 88 | 70.4 | 72 |
| 090 | 90 | 72 | 73.6 |
| 092 | 92 | 73.6 | 75.2 |
| 096 | 96 | 76.8 | 78.4 |
| 100 | 100 | 80 | 81.6 |
| 104 | 104 | 83.2 | 84.8 |
| 108 | 108 | 86.4 | 88 |
| 112 | 112 | 89.6 | 91.2 |
| 124 | 124 | 99.2 | 100.8 |

NONMETALLIC SPUR GEARS • MODULE 0.8

SDP/SI

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

ISO CLASS 9
3 mm FACE WIDTH
20° PRESSURE ANGLE



QUALITY CLASS

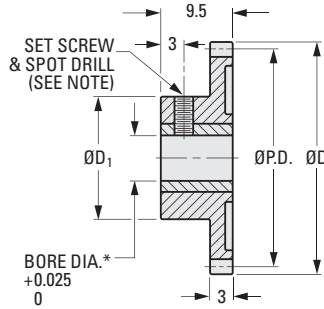


> MATERIAL:

Gear – Acetal
Insert – Brass

> SPECIFICATION:

Gears under 40 teeth have no webs.



METRIC COMPONENT CATALOG NUMBER

A 1 P 2 M Y D 0 8

No. of Teeth Code

*** BORE CODE**

- A** 3 mm Dia.
- B** 4 mm Dia.
- C** 5 mm Dia.
- D** 6 mm Dia.

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|-------------------------|
| 020 | 20 | 16 | 17.6 | 13 |
| 022 | 22 | 17.6 | 19.2 | 13 |
| 024 | 24 | 19.2 | 20.8 | 13 |
| 025 | 25 | 20 | 21.6 | 13 |
| 026 | 26 | 20.8 | 22.4 | 13 |
| 028 | 28 | 22.4 | 24 | 13 |
| 030 | 30 | 24 | 25.6 | 16 |
| 032 | 32 | 25.6 | 27.2 | 16 |
| 034 | 34 | 27.2 | 28.8 | 16 |
| 035 | 35 | 28 | 29.6 | 16 |
| 036 | 36 | 28.8 | 30.4 | 16 |
| 038 | 38 | 30.4 | 32 | 16 |
| 040 | 40 | 32 | 33.6 | 16 |
| 042 | 42 | 33.6 | 35.2 | 16 |

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. | D ₁ Hub Dia. |
|-------------------|--------------|------|--------|-------------------------|
| 044 | 44 | 35.2 | 36.8 | 16 |
| 045 | 45 | 36 | 37.6 | 16 |
| 048 | 48 | 38.4 | 40 | 19 |
| 050 | 50 | 40 | 41.6 | 19 |
| 052 | 52 | 41.6 | 43.2 | 19 |
| 055 | 55 | 44 | 45.6 | 19 |
| 056 | 56 | 44.8 | 46.4 | 19 |
| 060 | 60 | 48 | 49.6 | 19 |
| 064 | 64 | 51.2 | 52.8 | 19 |
| 065 | 65 | 52 | 53.6 | 19 |
| 070 | 70 | 56 | 57.6 | 19 |
| 072 | 72 | 57.6 | 59.2 | 19 |
| 075 | 75 | 60 | 61.6 | 19 |
| 080 | 80 | 64 | 65.6 | 19 |

NOTE: Gears with 3 mm & 4 mm bore have M2.5 set screw & spot drill.
5 mm & 6 mm bore have M3 set screw & spot drill.

1-108



Request Info



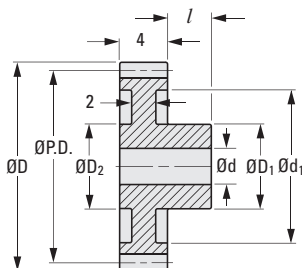
1-800-453-1692

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4 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
Acetal



METRIC COMPONENT

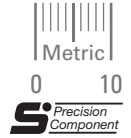
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | l Hub Proj. | d ₁ Dia. | D ₂ |
|----------------|--------------|------|--------|-------------|-------------------------|-------------|---------------------|----------------|
| A 1M 2MYH08012 | 12 | 9.6 | 11.2 | 3 | 6 | 5 | 7 | 4 |
| A 1M 2MYH08015 | 15 | 12 | 13.6 | 3 | 6 | 5 | 9 | 4.5 |
| A 1M 2MYH08016 | 16 | 12.8 | 14.4 | 4 | 8 | 5 | 9 | 6 |
| A 1M 2MYH08018 | 18 | 14.4 | 16 | 4 | 8 | 5 | 11 | 6 |
| A 1M 2MYH08020 | 20 | 16 | 17.6 | 5 | 10 | 5 | 13 | 8 |
| A 1M 2MYH08024 | 24 | 19.2 | 20.8 | 5 | 10 | 5 | 15.5 | 8 |
| A 1M 2MYH08025 | 25 | 20 | 21.6 | 5 | 10 | 5 | 15.5 | 8 |
| A 1M 2MYH08028 | 28 | 22.4 | 24 | 5 | 10 | 5 | 19 | 8 |
| A 1M 2MYH08030 | 30 | 24 | 25.6 | 6 | 12 | 5 | 20 | 10 |
| A 1M 2MYH08032 | 32 | 25.6 | 27.2 | 6 | 12 | 5 | 22 | 10 |
| A 1M 2MYH08035 | 35 | 28 | 29.6 | 6 | 12 | 5 | 24 | 10 |
| A 1M 2MYH08036 | 36 | 29.8 | 30.4 | 6 | 12 | 5 | 25 | 10 |
| A 1M 2MYH08040 | 40 | 32 | 33.6 | 6 | 12 | 5 | 28 | 10 |
| A 1M 2MYH08045 | 45 | 36 | 37.6 | 6 | 12 | 5 | 32 | 10 |
| A 1M 2MYH08048 | 48 | 38.4 | 40 | 6 | 15 | 6 | 34 | 11.7 |
| A 1M 2MYH08050 | 50 | 40 | 41.6 | 6 | 15 | 6 | 36 | 11.7 |
| A 1M 2MYH08056 | 56 | 44.8 | 46.4 | 6 | 15 | 6 | 41 | 11.7 |
| A 1M 2MYH08060 | 60 | 48 | 49.6 | 6 | 15 | 6 | 44 | 11.7 |
| A 1M 2MYH08064 | 64 | 51.2 | 52.8 | 6 | 16 | 6 | 47.5 | 11.7 |
| A 1M 2MYH08070 | 70 | 56 | 57.6 | 6 | 16 | 6 | 52 | 11.7 |
| A 1M 2MYH08072 | 72 | 57.6 | 59.2 | 6 | 16 | 6 | 54 | 11.7 |
| A 1M 2MYH08080 | 80 | 64 | 65.6 | 6 | 16 | 6 | 60 | 11.7 |

NONMETALLIC HUBLESS SPUR GEARS • MODULE 0.8



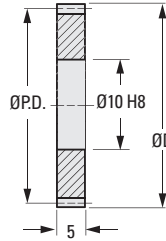
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ISO CLASS 7
5 mm FACE WIDTH
10 mm BORE
20° PRESSURE ANGLE



> MATERIAL:
Gear – Acetal

Available as special order:
14-1/2° P.A., teeth not listed
or different bore size, or
assembled onto Fairloc® Integral
Fastener Hub or pin type hub.



METRIC COMPONENT CATALOG NUMBER

S 1 2 M 0 8 M N 0 5 1 0

No. of
Teeth
Code

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|-------------------|--------------|------|--------|
| 020 | 20 | 16 | 17.6 |
| 021 | 21 | 16.8 | 18.4 |
| 023 | 23 | 18.4 | 20 |
| 024 | 24 | 19.2 | 20.8 |
| 025 | 25 | 20 | 21.6 |
| 026 | 26 | 20.8 | 22.4 |
| 028 | 28 | 22.4 | 24 |
| 030 | 30 | 24 | 25.6 |
| 032 | 32 | 25.6 | 27.2 |
| 036 | 36 | 28.8 | 30.4 |
| 040 | 40 | 32 | 33.6 |
| 042 | 42 | 33.6 | 35.2 |
| 044 | 44 | 35.2 | 36.8 |
| 045 | 45 | 36 | 37.6 |
| 046 | 46 | 36.8 | 38.4 |
| 048 | 48 | 38.4 | 40 |
| 050 | 50 | 40 | 41.6 |
| 052 | 52 | 41.6 | 43.2 |
| 056 | 56 | 44.8 | 46.4 |
| 060 | 60 | 48 | 49.6 |
| 064 | 64 | 51.2 | 52.8 |
| 066 | 66 | 52.8 | 54.4 |
| 072 | 72 | 57.6 | 59.2 |
| 080 | 80 | 64 | 65.6 |
| 084 | 84 | 67.2 | 68.8 |
| 088 | 88 | 70.4 | 72 |
| 090 | 90 | 72 | 73.6 |
| 092 | 92 | 73.6 | 75.2 |
| 096 | 96 | 76.8 | 78.4 |
| 100 | 100 | 80 | 81.6 |
| 104 | 104 | 83.2 | 84.8 |
| 108 | 108 | 86.4 | 88 |
| 112 | 112 | 89.6 | 91.2 |
| 124 | 124 | 99.2 | 100.8 |

1-110



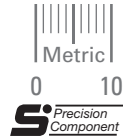
Request Info
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1-800-453-1692

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ISO CLASS 7
 5 mm FACE WIDTH
 5 & 8 mm BORE
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**

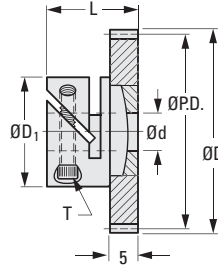
Gear – Acetal
Hub – 303 Stainless Steel

➤ **SPECIFICATIONS:**

For Fairloc® Type Hub Gear

| d Bore Ref. | T | D ₁ | L |
|-------------|------|----------------|------|
| 5 | M2.5 | 14 | 13.5 |
| 8 | M3 | 17 | 14.8 |

Available as special order:
 14-1/2° P.A., teeth not listed
 or different bore size, or
 assembled onto pin type hub.



**METRIC COMPONENT
 CATALOG NUMBER**

S 1 V Z 1 0 M T 0 5

No. of
 Teeth
 Code

| Bore Code | d Bore |
|-----------|--------|
| 05 | 5 (H7) |
| 08 | 8 (H7) |

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|-------------------------|-----------------|------|-----------|
| 015 | 15 | 15 | 17 |
| 016 | 16 | 16 | 18 |
| 018 | 18 | 18 | 20 |
| 020 | 20 | 20 | 22 |
| 021 | 21 | 21 | 23 |
| 022 | 22 | 22 | 24 |
| 023 | 23 | 23 | 25 |
| 024 | 24 | 24 | 26 |
| 025 | 25 | 25 | 27 |
| 028 | 28 | 28 | 30 |
| 030 | 30 | 30 | 32 |
| 032 | 32 | 32 | 34 |
| 035 | 35 | 35 | 37 |
| 036 | 36 | 36 | 38 |
| 040 | 40 | 40 | 42 |
| 042 | 42 | 42 | 44 |
| 045 | 45 | 45 | 47 |
| 046 | 46 | 46 | 48 |
| 048 | 48 | 48 | 50 |
| 050 | 50 | 50 | 52 |
| 052 | 52 | 52 | 54 |
| 056 | 56 | 56 | 58 |
| 060 | 60 | 60 | 62 |
| 064 | 64 | 64 | 66 |
| 066 | 66 | 66 | 68 |
| 069 | 69 | 69 | 71 |
| 070 | 70 | 70 | 72 |
| 072 | 72 | 72 | 74 |
| 078 | 78 | 78 | 80 |
| 080 | 80 | 80 | 82 |
| 084 | 84 | 84 | 86 |
| 090 | 90 | 90 | 92 |
| 093 | 93 | 93 | 95 |
| 100 | 100 | 100 | 102 |

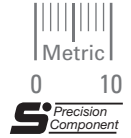
- I
- R
- T
- 1**
- 2
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- 12
- 13
- 14
- 15
- A

NONMETALLIC PIN TYPE HUB SPUR GEARS • MODULE 1



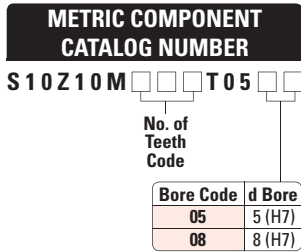
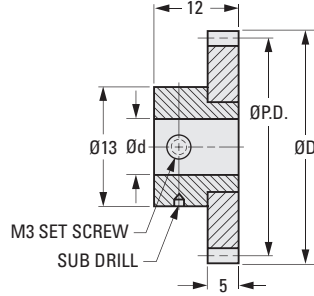
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

ISO CLASS 7
5 mm FACE WIDTH
5 & 8 mm BORE
20° PRESSURE ANGLE



> MATERIAL:
Gear – Acetal
Hub – 303 Stainless Steel

> SPECIFICATIONS:
Available as special order:
14-1/2° P.A., teeth not listed
or different bore size, or assembled
onto Fairloc® Integral Fastener Hub.



| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|-------------------|--------------|------|--------|
| 015 | 15 | 15 | 17 |
| 016 | 16 | 16 | 18 |
| 018 | 18 | 18 | 20 |
| 020 | 20 | 20 | 22 |
| 021 | 21 | 21 | 23 |
| 022 | 22 | 22 | 24 |
| 023 | 23 | 23 | 25 |
| 024 | 24 | 24 | 26 |
| 025 | 25 | 25 | 27 |
| 028 | 28 | 28 | 30 |
| 030 | 30 | 30 | 32 |
| 032 | 32 | 32 | 34 |
| 035 | 35 | 35 | 37 |
| 036 | 36 | 36 | 38 |
| 040 | 40 | 40 | 42 |
| 042 | 42 | 42 | 44 |
| 045 | 45 | 45 | 47 |
| 046 | 46 | 46 | 48 |
| 048 | 48 | 48 | 50 |
| 050 | 50 | 50 | 52 |
| 052 | 52 | 52 | 54 |
| 056 | 56 | 56 | 58 |
| 060 | 60 | 60 | 62 |
| 064 | 64 | 64 | 66 |
| 066 | 66 | 66 | 68 |
| 069 | 69 | 69 | 71 |
| 070 | 70 | 70 | 72 |
| 072 | 72 | 72 | 74 |
| 078 | 78 | 78 | 80 |
| 080 | 80 | 80 | 82 |
| 084 | 84 | 84 | 86 |
| 090 | 90 | 90 | 92 |
| 093 | 93 | 93 | 95 |
| 100 | 100 | 100 | 102 |

ISO CLASS 9
 10 mm FACE WIDTH
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

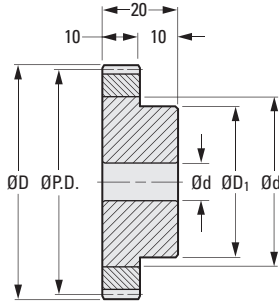


> MATERIAL:

- Core – 303 Stainless Steel
- Gear – Machined from Cast Nylon Blanks

> CAUTION:

The holding strength between the core and the nylon may be less than the ultimate gear strength.



METRIC COMPONENT

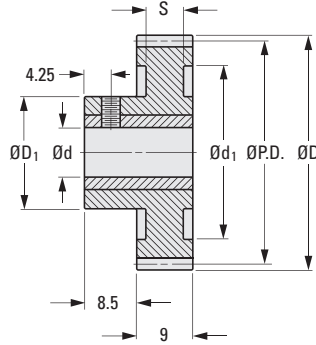
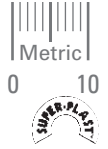
| Catalog Number | No. of Teeth | d Bore H7 | d Tolerance | P.D. | D Dia. | d ₁ Core Dia. | D ₁ Hub Dia. |
|-----------------|--------------|-----------|-------------|------|--------|--------------------------|-------------------------|
| S10N10M030P1008 | 30 | 8 | +0.015/0 | 30 | 32 | 20 | 20 |
| S10N10M035P1008 | 35 | 8 | +0.015/0 | 35 | 37 | 25 | 25 |
| S10N10M040P1010 | 40 | 10 | +0.015/0 | 40 | 42 | 28 | 25 |
| S10N10M050P1010 | 50 | 10 | +0.015/0 | 50 | 52 | 34 | 30 |
| S10N10M060P1010 | 60 | 10 | +0.015/0 | 60 | 62 | 45 | 40 |
| S10N10M080P1010 | 80 | 10 | +0.015/0 | 80 | 82 | 45 | 40 |

NOTE: When core diameter is the same as the hub diameter, there may be serrations on the hub.

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9 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



METRIC COMPONENT

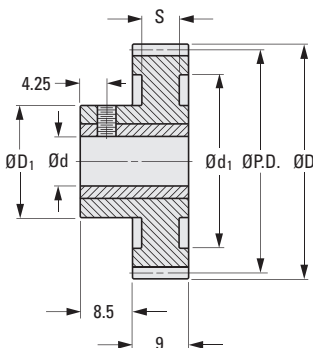
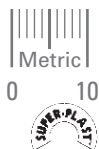
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 | D ₁ Hub Dia. | S | d ₁ Dia. | Set Screw |
|------------------|--------------|------|--------|-----------------|-------------------------|-----|---------------------|-----------|
| A 1Z 2MYZ1002404 | 24 | 24 | 26 | 4 | 15 | 6 | 19 | M2.5 |
| A 1Z 2MYZ1002405 | 24 | 24 | 26 | 5 | 15 | 6 | 19 | M2.5 |
| A 1Z 2MYZ1002406 | 24 | 24 | 26 | 6 | 15 | 6 | 19 | M3 |
| A 1Z 2MYZ1002408 | 24 | 24 | 26 | 8 | 15 | 6 | 19 | M4 |
| A 1Z 2MYZ1002505 | 25 | 25 | 27 | 5 | 15 | 6 | 19 | M2.5 |
| A 1Z 2MYZ1002506 | 25 | 25 | 27 | 6 | 15 | 6 | 19 | M3 |
| A 1Z 2MYZ1002508 | 25 | 25 | 27 | 8 | 15 | 6 | 19 | M4 |
| A 1Z 2MYZ1002605 | 26 | 26 | 28 | 5 | 15 | 6 | 19 | M2.5 |
| A 1Z 2MYZ1002606 | 26 | 26 | 28 | 6 | 15 | 6 | 19 | M3 |
| A 1Z 2MYZ1002608 | 26 | 26 | 28 | 8 | 15 | 6 | 19 | M4 |
| A 1Z 2MYZ1002705 | 27 | 27 | 29 | 5 | 15 | 6 | 19 | M2.5 |
| A 1Z 2MYZ1002706 | 27 | 27 | 29 | 6 | 15 | 6 | 19 | M3 |
| A 1Z 2MYZ1002708 | 27 | 27 | 29 | 8 | 15 | 6 | 19 | M4 |
| A 1Z 2MYZ1002805 | 28 | 28 | 30 | 5 | 15 | 6 | 22 | M2.5 |
| A 1Z 2MYZ1002806 | 28 | 28 | 30 | 6 | 15 | 6 | 22 | M3 |
| A 1Z 2MYZ1002808 | 28 | 28 | 30 | 8 | 15 | 6 | 22 | M4 |
| A 1Z 2MYZ1003005 | 30 | 30 | 32 | 5 | 15 | 6 | 22 | M2.5 |
| A 1Z 2MYZ1003006 | 30 | 30 | 32 | 6 | 15 | 6 | 22 | M3 |
| A 1Z 2MYZ1003008 | 30 | 30 | 32 | 8 | 15 | 6 | 22 | M4 |
| A 1Z 2MYZ1003205 | 32 | 32 | 34 | 5 | 18 | 4.6 | 24.5 | M2.5 |
| A 1Z 2MYZ1003206 | 32 | 32 | 34 | 6 | 18 | 4.6 | 24.5 | M3 |
| A 1Z 2MYZ1003208 | 32 | 32 | 34 | 8 | 18 | 4.6 | 24.5 | M4 |
| A 1Z 2MYZ1003505 | 35 | 35 | 37 | 5 | 18 | 4.6 | 24.5 | M2.5 |
| A 1Z 2MYZ1003506 | 35 | 35 | 37 | 6 | 18 | 4.6 | 24.5 | M3 |
| A 1Z 2MYZ1003508 | 35 | 35 | 37 | 8 | 18 | 4.6 | 24.5 | M4 |

Continued on the next page

9 mm FACE WIDTH
20° PRESSURE ANGLE

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► **MATERIAL:**
Gear – Acetal
Insert – Brass



METRIC COMPONENT

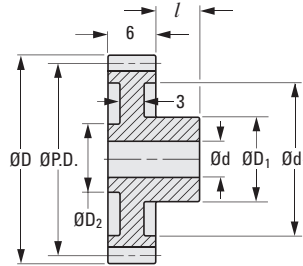
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 | D ₁ Hub Dia. | S | d ₁ Dia. | Set Screw |
|------------------|--------------|------|--------|-----------------|-------------------------|-----|---------------------|-----------|
| A 1Z 2MYZ1003605 | 36 | 36 | 38 | 5 | 18 | 4.6 | 28 | M2.5 |
| A 1Z 2MYZ1003606 | 36 | 36 | 38 | 6 | 18 | 4.6 | 28 | M3 |
| A 1Z 2MYZ1003608 | 36 | 36 | 38 | 8 | 18 | 4.6 | 28 | M4 |
| A 1Z 2MYZ1003805 | 38 | 38 | 40 | 5 | 18 | 4.6 | 28 | M2.5 |
| A 1Z 2MYZ1003806 | 38 | 38 | 40 | 6 | 18 | 4.6 | 28 | M3 |
| A 1Z 2MYZ1003808 | 38 | 38 | 40 | 8 | 18 | 4.6 | 28 | M4 |
| A 1Z 2MYZ1004006 | 40 | 40 | 42 | 6 | 18 | 4.6 | 28 | M3 |
| A 1Z 2MYZ1004008 | 40 | 40 | 42 | 8 | 18 | 4.6 | 28 | M4 |
| A 1Z 2MYZ1004206 | 42 | 42 | 44 | 6 | 18 | 4.6 | 28 | M3 |
| A 1Z 2MYZ1004208 | 42 | 42 | 44 | 8 | 18 | 4.6 | 37 | M4 |
| A 1Z 2MYZ1004506 | 45 | 45 | 47 | 6 | 18 | 4.6 | 37 | M3 |
| A 1Z 2MYZ1004508 | 45 | 45 | 47 | 8 | 18 | 4.6 | 37 | M4 |
| A 1Z 2MYZ1004806 | 48 | 48 | 50 | 6 | 18 | 4.6 | 37 | M3 |
| A 1Z 2MYZ1004808 | 48 | 48 | 50 | 8 | 18 | 4.6 | 37 | M4 |
| A 1Z 2MYZ1005006 | 50 | 50 | 52 | 6 | 18 | 4.6 | 37 | M3 |
| A 1Z 2MYZ1005008 | 50 | 50 | 52 | 8 | 18 | 4.6 | 37 | M4 |
| A 1Z 2MYZ1005206 | 52 | 52 | 54 | 6 | 21 | 4.6 | 47 | M3 |
| A 1Z 2MYZ1005208 | 52 | 52 | 54 | 8 | 21 | 4.6 | 47 | M4 |
| A 1Z 2MYZ1005406 | 54 | 54 | 56 | 6 | 21 | 4.6 | 47 | M3 |
| A 1Z 2MYZ1005408 | 54 | 54 | 56 | 8 | 21 | 4.6 | 47 | M4 |
| A 1Z 2MYZ1005506 | 55 | 55 | 57 | 6 | 21 | 4.6 | 47 | M3 |
| A 1Z 2MYZ1005508 | 55 | 55 | 57 | 8 | 21 | 4.6 | 47 | M4 |
| A 1Z 2MYZ1005606 | 56 | 56 | 58 | 6 | 21 | 4.6 | 47 | M3 |
| A 1Z 2MYZ1005608 | 56 | 56 | 58 | 8 | 21 | 4.6 | 47 | M4 |
| A 1Z 2MYZ1005806 | 58 | 58 | 60 | 6 | 21 | 4.6 | 47 | M3 |
| A 1Z 2MYZ1005808 | 58 | 58 | 60 | 8 | 21 | 4.6 | 47 | M4 |
| A 1Z 2MYZ1006006 | 60 | 60 | 62 | 6 | 21 | 4.6 | 47 | M3 |
| A 1Z 2MYZ1006008 | 60 | 60 | 62 | 8 | 21 | 4.6 | 47 | M4 |

Continued from the previous page

6 mm FACE WIDTH
20° PRESSURE ANGLE

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> MATERIAL:
Acetal



METRIC COMPONENT

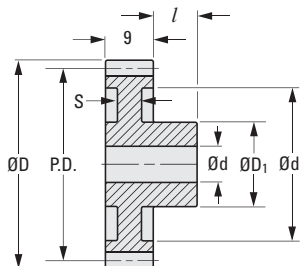
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | l Hub Proj. | d ₁ Dia. | D ₂ Dia. |
|----------------|--------------|------|--------|-------------|-------------------------|-------------|---------------------|---------------------|
| A 1M 2MYH10012 | 12 | 12 | 14 | 4 | 8 | 6 | 8.5 | 6 |
| A 1M 2MYH10015 | 15 | 15 | 17 | 4 | 8 | 6 | 11 | 7 |
| A 1M 2MYH10016 | 16 | 16 | 18 | 5 | 10 | 6 | 11.5 | 8 |
| A 1M 2MYH10018 | 18 | 18 | 20 | 5 | 10 | 6 | 13.5 | 8 |
| A 1M 2MYH10020 | 20 | 20 | 22 | 5 | 11.7 | 6 | 15 | 9 |
| A 1M 2MYH10024 | 24 | 24 | 26 | 5 | 11.7 | 6 | 17 | 9 |
| A 1M 2MYH10025 | 25 | 25 | 27 | 5 | 11.7 | 6 | 20 | 9 |
| A 1M 2MYH10028 | 28 | 28 | 30 | 5 | 11.7 | 6 | 23 | 9 |
| A 1M 2MYH10030 | 30 | 30 | 32 | 6 | 14 | 6 | 24 | 12 |
| A 1M 2MYH10032 | 32 | 32 | 34 | 6 | 14 | 6 | 26.5 | 12 |
| A 1M 2MYH10035 | 35 | 35 | 37 | 6 | 14 | 6 | 29 | 12 |
| A 1M 2MYH10036 | 36 | 36 | 38 | 6 | 14 | 6 | 30 | 12 |
| A 1M 2MYH10040 | 40 | 40 | 42 | 8 | 16 | 6 | 34 | 14 |
| A 1M 2MYH10045 | 45 | 45 | 47 | 8 | 16 | 6 | 39.5 | 14 |
| A 1M 2MYH10048 | 48 | 48 | 50 | 8 | 16 | 8 | 40 | 14 |
| A 1M 2MYH10050 | 50 | 50 | 52 | 8 | 16 | 8 | 42.5 | 14 |
| A 1M 2MYH10056 | 56 | 56 | 58 | 8 | 18 | 8 | 48.5 | 15.6 |
| A 1M 2MYH10060 | 60 | 60 | 62 | 8 | 18 | 8 | 52.5 | 15.6 |
| A 1M 2MYH10064 | 64 | 64 | 66 | 8 | 18 | 8 | 56.5 | 15.6 |
| A 1M 2MYH10070 | 70 | 70 | 72 | 8 | 18 | 8 | 62.5 | 15.6 |
| A 1M 2MYH10072 | 72 | 72 | 74 | 8 | 18 | 8 | 64 | 15.6 |
| A 1M 2MYH10080 | 80 | 80 | 82 | 8 | 18 | 8 | 72.5 | 15.6 |

9 mm FACE WIDTH
20° PRESSURE ANGLE

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> MATERIAL:
Acetal



METRIC COMPONENT

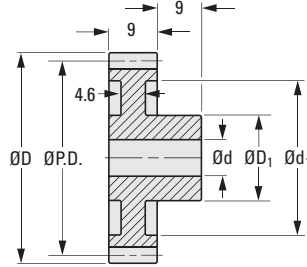
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore | D ₁ Hub Dia. | l Hub Proj. | S | d ₁ Dia. |
|-----------------|--------------|------|--------|--------|-------------------------|-------------|-----|---------------------|
| A 1M 2MYZ10012 | 12 | 12 | 14 | 4 | 9 | 8 | — | — |
| A 1M 2MYZ10012A | 12 | 12 | 14 | 6 | 9 | 8 | — | — |
| A 1M 2MYZ10013 | 13 | 13 | 15 | 4 | 9 | 8 | — | — |
| A 1M 2MYZ10013A | 13 | 13 | 15 | 6 | 9 | 8 | — | — |
| A 1M 2MYZ10014 | 14 | 14 | 16 | 4 | 9 | 8 | — | — |
| A 1M 2MYZ10015 | 15 | 15 | 17 | 4 | 9 | 8 | — | — |
| A 1M 2MYZ10015A | 15 | 15 | 17 | 6 | 9 | 8 | — | — |
| A 1M 2MYZ10016 | 16 | 16 | 18 | 4 | 9 | 8 | — | — |
| A 1M 2MYZ10017 | 17 | 17 | 19 | 4 | 9 | 8 | 6 | 12 |
| A 1M 2MYZ10018 | 18 | 18 | 20 | 4 | 9 | 8 | 6 | 13.5 |
| A 1M 2MYZ10018A | 18 | 18 | 20 | 6 | 9 | 8 | 6 | 13.5 |
| A 1M 2MYZ10019 | 19 | 19 | 21 | 4 | 9 | 8 | 6 | 13.5 |
| A 1M 2MYZ10020 | 20 | 20 | 22 | 4 | 9 | 8 | 6 | 13.5 |
| A 1M 2MYZ10020A | 20 | 20 | 22 | 5 | 12 | 8 | 6 | 13.5 |
| A 1M 2MYZ10021 | 21 | 21 | 23 | 5 | 12 | 8 | 6 | 16 |
| A 1M 2MYZ10022 | 22 | 22 | 24 | 5 | 12 | 8 | 6 | 16 |
| A 1M 2MYZ10023 | 23 | 23 | 25 | 5 | 12 | 8 | 6 | 16 |
| A 1M 2MYZ10024 | 24 | 24 | 26 | 6 | 15 | 9 | 6 | 19 |
| A 1M 2MYZ10025 | 25 | 25 | 27 | 6 | 15 | 9 | 6 | 19 |
| A 1M 2MYZ10026 | 26 | 26 | 28 | 6 | 15 | 9 | 6 | 19 |
| A 1M 2MYZ10027 | 27 | 27 | 29 | 6 | 15 | 9 | 6 | 19 |
| A 1M 2MYZ10028 | 28 | 28 | 30 | 6 | 15 | 9 | 6 | 22 |
| A 1M 2MYZ10030 | 30 | 30 | 32 | 6 | 15 | 9 | 6 | 22 |
| A 1M 2MYZ10030A | 30 | 30 | 32 | 10 | 15 | 9 | 6 | 22 |
| A 1M 2MYZ10032 | 32 | 32 | 34 | 6 | 18 | 9 | 4.6 | 24.5 |
| A 1M 2MYZ10035 | 35 | 35 | 37 | 8 | 18 | 9 | 4.6 | 24.5 |
| A 1M 2MYZ10036 | 36 | 36 | 38 | 8 | 18 | 9 | 4.6 | 28 |

Continued on the next page

9 mm FACE WIDTH
20° PRESSURE ANGLE

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› **MATERIAL:**
Acetal



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | d ₁ Dia. |
|-----------------|--------------|------|--------|-------------|-------------------------|---------------------|
| A 1M 2MYZ10038 | 38 | 38 | 40 | 8 | 18 | 28 |
| A 1M 2MYZ10040A | 40 | 40 | 42 | 6 | 18 | 28 |
| A 1M 2MYZ10040 | 40 | 40 | 42 | 8 | 18 | 28 |
| A 1M 2MYZ10040B | 40 | 40 | 42 | 10 | 18 | 28 |
| A 1M 2MYZ10042 | 42 | 42 | 44 | 8 | 18 | 28 |
| A 1M 2MYZ10045 | 45 | 45 | 47 | 8 | 18 | 37 |
| A 1M 2MYZ10048 | 48 | 48 | 50 | 8 | 18 | 37 |
| A 1M 2MYZ10050 | 50 | 50 | 52 | 8 | 18 | 37 |
| A 1M 2MYZ10052 | 52 | 52 | 54 | 8 | 21 | 47 |
| A 1M 2MYZ10054 | 54 | 54 | 56 | 8 | 21 | 47 |
| A 1M 2MYZ10055 | 55 | 55 | 57 | 8 | 21 | 47 |
| A 1M 2MYZ10056 | 56 | 56 | 58 | 8 | 21 | 47 |
| A 1M 2MYZ10058 | 58 | 58 | 60 | 8 | 21 | 47 |
| A 1M 2MYZ10060 | 60 | 60 | 62 | 8 | 21 | 47 |
| A 1M 2MYZ10064 | 64 | 64 | 66 | 10 | 21 | 57 |
| A 1M 2MYZ10065 | 65 | 65 | 67 | 10 | 21 | 57 |
| A 1M 2MYZ10070 | 70 | 70 | 72 | 10 | 21 | 57 |
| A 1M 2MYZ10072 | 72 | 72 | 74 | 10 | 21 | 67 |
| A 1M 2MYZ10075A | 75 | 75 | 77 | 8 | 21 | 67 |
| A 1M 2MYZ10075 | 75 | 75 | 77 | 10 | 21 | 67 |
| A 1M 2MYZ10080 | 80 | 80 | 82 | 10 | 21 | 67 |
| A 1M 2MYZ10085 | 85 | 85 | 87 | 10 | 21 | 77 |
| A 1M 2MYZ10090 | 90 | 90 | 92 | 10 | 21 | 77 |
| A 1M 2MYZ10100 | 100 | 100 | 102 | 12 | 24 | 87 |
| A 1M 2MYZ10110 | 110 | 110 | 112 | 12 | 24 | 97 |
| A 1M 2MYZ10120 | 120 | 120 | 122 | 12 | 24 | 107 |
| A 1M 2MYZ10130 | 130 | 130 | 132 | 12 | 24 | 115 |
| A 1M 2MYZ10140 | 140 | 140 | 142 | 12 | 24 | 125 |

Continued from the previous page

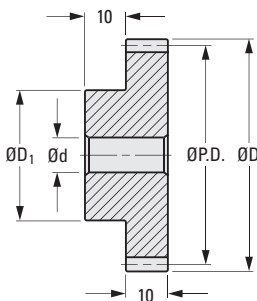
ISO CLASS 9
10 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Machined from Cast Nylon Blanks

> SPECIFICATION:
Bore tolerance is H8 (+0.022/0)
at time of cutting.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 (+0.022/0) | D ₁ Hub Dia. |
|----------------|--------------|------|--------|----------------------|-------------------------|
| A 1P 2MYH10015 | 15 | 15 | 17 | 6 | 12 |
| A 1P 2MYH10016 | 16 | 16 | 18 | 6 | 12 |
| A 1P 2MYH10018 | 18 | 18 | 20 | 6 | 14 |
| A 1P 2MYH10020 | 20 | 20 | 22 | 6 | 16 |
| A 1P 2MYH10022 | 22 | 22 | 24 | 8 | 18 |
| A 1P 2MYH10024 | 24 | 24 | 26 | 8 | 20 |
| A 1P 2MYH10025 | 25 | 25 | 27 | 8 | 20 |
| A 1P 2MYH10026 | 26 | 26 | 28 | 8 | 20 |
| A 1P 2MYH10028 | 28 | 28 | 30 | 8 | 22 |
| A 1P 2MYH10030 | 30 | 30 | 32 | 8 | 25 |
| A 1P 2MYH10032 | 32 | 32 | 34 | 8 | 26 |
| A 1P 2MYH10035 | 35 | 35 | 37 | 8 | 26 |
| A 1P 2MYH10036 | 36 | 36 | 38 | 8 | 28 |
| A 1P 2MYH10040 | 40 | 40 | 42 | 10 | 35 |
| A 1P 2MYH10045 | 45 | 45 | 47 | 10 | 35 |
| A 1P 2MYH10048 | 48 | 48 | 50 | 10 | 35 |
| A 1P 2MYH10050 | 50 | 50 | 52 | 10 | 35 |
| A 1P 2MYH10055 | 55 | 55 | 57 | 10 | 35 |
| A 1P 2MYH10060 | 60 | 60 | 62 | 10 | 35 |
| A 1P 2MYH10065 | 65 | 65 | 67 | 10 | 35 |
| A 1P 2MYH10070 | 70 | 70 | 72 | 10 | 40 |
| A 1P 2MYH10075 | 75 | 75 | 77 | 10 | 40 |
| A 1P 2MYH10080 | 80 | 80 | 82 | 10 | 40 |
| A 1P 2MYH10085 | 85 | 85 | 87 | 10 | 40 |
| A 1P 2MYH10090 | 90 | 90 | 92 | 10 | 40 |
| A 1P 2MYH10095 | 90 | 90 | 97 | 10 | 40 |
| A 1P 2MYH10100 | 100 | 100 | 102 | 10 | 40 |

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NONMETALLIC HUBLESS SPUR GEARS • MODULE 1

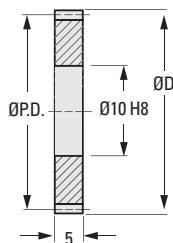
SDP/SI

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

ISO CLASS 7
5 mm FACE WIDTH
10 mm BORE
20° PRESSURE ANGLE

➤ **MATERIAL:**
Gear – Acetal

Available as special order:
14-1/2° P.A., teeth not listed
or different bore size, or
assembled onto Fairloc® Integral
Fastener hub or pin type hub.



0 10
S Precision Component

**METRIC COMPONENT
CATALOG NUMBER**

S 1 2 M 1 0 M N 0 5 1 0

No. of
Teeth
Code

| No. of Teeth Code | No. of Teeth | P.D. | D Dia. |
|----------------------|-----------------|------|-----------|
| 015 | 15 | 15 | 17 |
| 016 | 16 | 16 | 18 |
| 018 | 18 | 18 | 20 |
| 020 | 20 | 20 | 22 |
| 021 | 21 | 21 | 23 |
| 022 | 22 | 22 | 24 |
| 023 | 23 | 23 | 25 |
| 024 | 24 | 24 | 26 |
| 025 | 25 | 25 | 27 |
| 028 | 28 | 28 | 30 |
| 030 | 30 | 30 | 32 |
| 032 | 32 | 32 | 34 |
| 035 | 35 | 35 | 37 |
| 036 | 36 | 36 | 38 |
| 040 | 40 | 40 | 42 |
| 042 | 42 | 42 | 44 |
| 045 | 45 | 45 | 47 |
| 046 | 46 | 46 | 48 |
| 048 | 48 | 48 | 50 |
| 050 | 50 | 50 | 52 |
| 052 | 52 | 52 | 54 |
| 056 | 56 | 56 | 58 |
| 060 | 60 | 60 | 62 |
| 064 | 64 | 64 | 66 |
| 066 | 66 | 66 | 68 |
| 069 | 69 | 69 | 71 |
| 070 | 70 | 70 | 72 |
| 072 | 72 | 72 | 74 |
| 078 | 78 | 78 | 80 |
| 080 | 80 | 80 | 82 |
| 084 | 84 | 84 | 86 |
| 090 | 90 | 90 | 92 |
| 093 | 93 | 93 | 95 |
| 100 | 100 | 100 | 102 |

1-120

ADE
Above Board Electronics, Inc.

Request Info



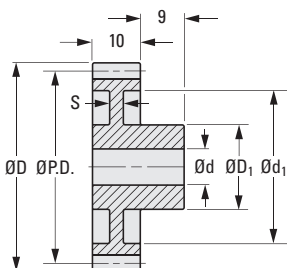
1-800-453-1692

www.aboveboardelectronics.com

10 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:
Acetal



- I
- R
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- 1**
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- 13
- 14
- 15
- A

METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | S | d ₁ Dia. |
|----------------|--------------|-------|--------|-------------|-------------------------|-----|---------------------|
| A 1M 2MYZ12012 | 12 | 15 | 17.5 | 5 | 9 | — | — |
| A 1M 2MYZ12013 | 13 | 16.25 | 18.75 | 5 | 9 | — | — |
| A 1M 2MYZ12014 | 14 | 17.5 | 20 | 5 | 9 | — | — |
| A 1M 2MYZ12015 | 15 | 18.75 | 21.25 | 5 | 9 | 7 | 13.5 |
| A 1M 2MYZ12016 | 16 | 20 | 22.5 | 5 | 9 | 7 | 13.5 |
| A 1M 2MYZ12017 | 17 | 21.25 | 23.75 | 5 | 9 | 7 | 13.5 |
| A 1M 2MYZ12018 | 18 | 22.5 | 25 | 5 | 12 | 7 | 16 |
| A 1M 2MYZ12019 | 19 | 23.75 | 26.25 | 5 | 12 | 7 | 16 |
| A 1M 2MYZ12020 | 20 | 25 | 27.5 | 5 | 12 | 7 | 16 |
| A 1M 2MYZ12021 | 21 | 26.25 | 28.75 | 6 | 15 | 7 | 19 |
| A 1M 2MYZ12022 | 22 | 27.5 | 30 | 6 | 15 | 7 | 19 |
| A 1M 2MYZ12023 | 23 | 28.75 | 31.25 | 6 | 15 | 7 | 19 |
| A 1M 2MYZ12024 | 24 | 30 | 32.5 | 6 | 15 | 7 | 21.5 |
| A 1M 2MYZ12025 | 25 | 31.25 | 33.75 | 6 | 15 | 7 | 21.5 |
| A 1M 2MYZ12026 | 26 | 32.5 | 35 | 6 | 18 | 5.5 | 24 |
| A 1M 2MYZ12027 | 27 | 33.75 | 36.25 | 6 | 18 | 5.5 | 24 |
| A 1M 2MYZ12028 | 28 | 35 | 37.5 | 8 | 18 | 5.5 | 24 |
| A 1M 2MYZ12030 | 30 | 37.5 | 40 | 8 | 18 | 5.5 | 28 |
| A 1M 2MYZ12032 | 32 | 40 | 42.5 | 8 | 18 | 5.5 | 28 |
| A 1M 2MYZ12035 | 35 | 43.75 | 46.25 | 8 | 18 | 5.5 | 28 |
| A 1M 2MYZ12036 | 36 | 45 | 47.5 | 8 | 18 | 5.5 | 37.5 |
| A 1M 2MYZ12038 | 38 | 47.5 | 50 | 8 | 18 | 5.5 | 37.5 |
| A 1M 2MYZ12040 | 40 | 50 | 52.5 | 8 | 18 | 5.5 | 37.5 |
| A 1M 2MYZ12042 | 42 | 52.5 | 55 | 8 | 18 | 5.5 | 37.5 |
| A 1M 2MYZ12045 | 45 | 56.25 | 58.75 | 8 | 21 | 5.5 | 47.5 |
| A 1M 2MYZ12048 | 48 | 60 | 62.5 | 8 | 21 | 5.5 | 47.5 |
| A 1M 2MYZ12050 | 50 | 62.5 | 65 | 8 | 21 | 5.5 | 47.5 |
| A 1M 2MYZ12052 | 52 | 65 | 67.5 | 10 | 21 | 5.5 | 57 |
| A 1M 2MYZ12054 | 54 | 67.5 | 70 | 10 | 21 | 5.5 | 57 |
| A 1M 2MYZ12055 | 55 | 68.75 | 71.25 | 10 | 21 | 5.5 | 57 |
| A 1M 2MYZ12056 | 56 | 70 | 72.5 | 10 | 21 | 5.5 | 57 |
| A 1M 2MYZ12060 | 60 | 75 | 77.5 | 10 | 21 | 5.5 | 67 |
| A 1M 2MYZ12064 | 64 | 80 | 82.5 | 10 | 21 | 5.5 | 67 |
| A 1M 2MYZ12065 | 65 | 81.25 | 83.75 | 10 | 21 | 5.5 | 67 |
| A 1M 2MYZ12070 | 70 | 87.5 | 90 | 10 | 21 | 5.5 | 77 |
| A 1M 2MYZ12072 | 72 | 90 | 92.5 | 12 | 21 | 5.5 | 77 |
| A 1M 2MYZ12075 | 75 | 93.75 | 96.25 | 10 | 21 | 5.5 | 77 |
| A 1M 2MYZ12080 | 80 | 100 | 102.5 | 12 | 24 | 5.5 | 87 |
| A 1M 2MYZ12090 | 90 | 112.5 | 115 | 12 | 24 | 5.5 | 97 |
| A 1M 2MYZ12100 | 100 | 125 | 127.5 | 12 | 24 | 5.5 | 107 |
| A 1M 2MYZ12110 | 110 | 137.5 | 140 | 12 | 24 | 5.5 | 116 |
| A 1M 2MYZ12120 | 120 | 150 | 152.5 | 14 | 30 | 5.5 | 135 |

NONMETALLIC NYLON SPUR GEARS • MODULE 1.5

SDP/SI

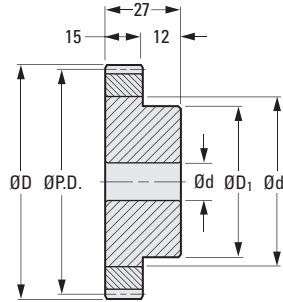
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ISO CLASS 9
15 mm FACE WIDTH
20° PRESSURE ANGLE



> MATERIAL:
Core – 303 Stainless Steel
Gear – Machined from Cast Nylon Blanks

> CAUTION:
The holding strength between the core and the nylon may be less than the ultimate gear strength.



METRIC COMPONENT

| Catalog Number | No. of Teeth | d Bore H7 | d Tolerance | P.D. | D Dia. | d ₁ Core Dia. | D ₁ Hub Dia. |
|-----------------|--------------|-----------|-------------|------|--------|--------------------------|-------------------------|
| S10N15M030P1510 | 30 | 10 | +0.015/0 | 45 | 48 | 30 | 30 |
| S10N15M035P1510 | 35 | 10 | +0.015/0 | 52.5 | 55.5 | 36 | 33 |
| S10N15M040P1510 | 40 | 10 | +0.015/0 | 60 | 63 | 45 | 40 |
| S10N15M050P1512 | 50 | 12 | +0.018/0 | 75 | 78 | 45 | 40 |
| S10N15M060P1512 | 60 | 12 | +0.018/0 | 90 | 93 | 55 | 50 |
| S10N15M080P1512 | 80 | 12 | +0.018/0 | 120 | 123 | 85 | 60 |

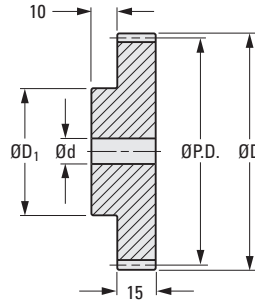
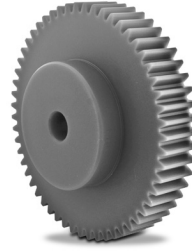
NOTE: When core diameter is the same as the hub diameter, there may be serrations on the hub.

15 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Machined from Cast Nylon Blanks



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METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | D ₁ Hub Dia. |
|----------------|--------------|-------|--------|-----------|-------------|-------------------------|
| A 1P 2MYH15015 | 15 | 22.5 | 25.5 | 8 | +0.022/0 | 18 |
| A 1P 2MYH15016 | 16 | 24 | 27 | | | 20 |
| A 1P 2MYH15018 | 18 | 27 | 30 | | | 22 |
| A 1P 2MYH15020 | 20 | 30 | 33 | | | 24 |
| A 1P 2MYH15022 | 22 | 33 | 36 | | | 26 |
| A 1P 2MYH15024 | 24 | 36 | 39 | | | 28 |
| A 1P 2MYH15025 | 25 | 37.5 | 40.5 | | | 30 |
| A 1P 2MYH15026 | 26 | 39 | 42 | | | 32 |
| A 1P 2MYH15028 | 28 | 42 | 45 | | | 36 |
| A 1P 2MYH15030 | 30 | 45 | 48 | | | 38 |
| A 1P 2MYH15032 | 32 | 48 | 51 | 40 | | |
| A 1P 2MYH15035 | 35 | 52.5 | 55.5 | 42 | | |
| A 1P 2MYH15036 | 36 | 54 | 57 | 45 | | |
| A 1P 2MYH15040 | 40 | 60 | 63 | 45 | | |
| A 1P 2MYH15045 | 45 | 67.5 | 70.5 | 10 | +0.022/0 | 45 |
| A 1P 2MYH15048 | 48 | 72 | 75 | | | 45 |
| A 1P 2MYH15050 | 50 | 75 | 78 | | | 45 |
| A 1P 2MYH15055 | 55 | 82.5 | 85.5 | | | 45 |
| A 1P 2MYH15060 | 60 | 90 | 93 | | | 50 |
| A 1P 2MYH15065 | 65 | 97.5 | 100.5 | 12 | +0.027/0 | 50 |
| A 1P 2MYH15070 | 70 | 105 | 108 | | | 50 |
| A 1P 2MYH15075 | 75 | 112.5 | 115.5 | | | 50 |
| A 1P 2MYH15080 | 80 | 120 | 123 | | | 55 |
| A 1P 2MYH15085 | 85 | 127.5 | 130.5 | | | 55 |
| A 1P 2MYH15090 | 90 | 135 | 138 | | | 55 |
| A 1P 2MYH15095 | 95 | 142.5 | 145.5 | | | 60 |
| A 1P 2MYH15100 | 100 | 150 | 153 | | | 60 |

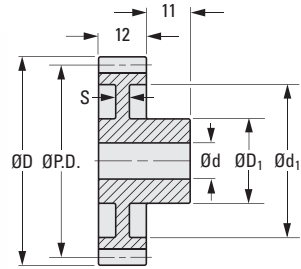


12 mm FACE WIDTH
20° PRESSURE ANGLE

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> MATERIAL:
Acetal



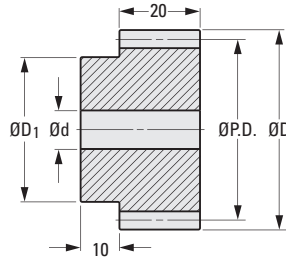
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | S | d ₁ Dia. |
|-----------------|--------------|------|--------|-------------|-------------------------|---|---------------------|
| A 1M 2MYZ15012 | 12 | 18 | 21 | 6 | 14 | - | - |
| A 1M 2MYZ15013 | 13 | 19.5 | 22.5 | 6 | 14 | - | - |
| A 1M 2MYZ15014 | 14 | 21 | 24 | 6 | 14 | - | - |
| A 1M 2MYZ15015 | 15 | 22.5 | 25.5 | 6 | 14 | - | - |
| A 1M 2MYZ15015A | 15 | 22.5 | 25.5 | 10 | 14 | - | - |
| A 1M 2MYZ15016 | 16 | 24 | 27 | 6 | 14 | - | - |
| A 1M 2MYZ15017 | 17 | 25.5 | 28.5 | 6 | 14 | - | - |
| A 1M 2MYZ15018 | 18 | 27 | 30 | 8 | 17 | - | - |
| A 1M 2MYZ15018A | 18 | 27 | 30 | 12 | 17 | - | - |
| A 1M 2MYZ15019 | 19 | 28.5 | 31.5 | 8 | 17 | - | - |
| A 1M 2MYZ15020 | 20 | 30 | 33 | 8 | 17 | - | - |
| A 1M 2MYZ15020A | 20 | 30 | 33 | 10 | 17 | - | - |
| A 1M 2MYZ15021 | 21 | 31.5 | 34.5 | 8 | 17 | 5 | 23 |
| A 1M 2MYZ15022 | 22 | 33 | 36 | 8 | 17 | 5 | 23 |
| A 1M 2MYZ15023 | 23 | 34.5 | 37.5 | 8 | 17 | 5 | 23 |
| A 1M 2MYZ15024 | 24 | 36 | 39 | 8 | 19 | 5 | 27 |
| A 1M 2MYZ15025A | 25 | 37.5 | 40.5 | 6 | 19 | 5 | 27 |
| A 1M 2MYZ15025 | 25 | 37.5 | 40.5 | 8 | 19 | 5 | 27 |
| A 1M 2MYZ15026 | 26 | 39 | 42 | 8 | 19 | 5 | 27 |
| A 1M 2MYZ15027 | 27 | 40.5 | 43.5 | 8 | 19 | 5 | 27 |
| A 1M 2MYZ15028 | 28 | 42 | 45 | 8 | 19 | 5 | 27 |
| A 1M 2MYZ15030 | 30 | 45 | 48 | 10 | 24 | 5 | 35 |
| A 1M 2MYZ15032 | 32 | 48 | 51 | 10 | 24 | 5 | 35 |
| A 1M 2MYZ15035 | 35 | 52.5 | 55.5 | 10 | 24 | 5 | 43 |
| A 1M 2MYZ15035A | 35 | 52.5 | 55.5 | 12 | 24 | 5 | 43 |
| A 1M 2MYZ15036 | 36 | 54 | 57 | 10 | 24 | 5 | 43 |
| A 1M 2MYZ15038 | 38 | 57 | 60 | 10 | 24 | 5 | 43 |
| A 1M 2MYZ15040A | 40 | 60 | 63 | 6 | 24 | 5 | 50 |
| A 1M 2MYZ15040 | 40 | 60 | 63 | 10 | 24 | 5 | 50 |
| A 1M 2MYZ15042 | 42 | 63 | 66 | 10 | 24 | 5 | 50 |
| A 1M 2MYZ15045 | 45 | 67.5 | 70.5 | 10 | 24 | 5 | 50 |
| A 1M 2MYZ15048 | 48 | 72 | 75 | 10 | 24 | 5 | 50 |
| A 1M 2MYZ15050 | 50 | 75 | 78 | 12 | 27 | 5 | 65 |
| A 1M 2MYZ15052 | 52 | 78 | 81 | 12 | 27 | 5 | 65 |
| A 1M 2MYZ15054 | 54 | 81 | 84 | 12 | 27 | 5 | 65 |
| A 1M 2MYZ15055 | 55 | 82.5 | 85.5 | 12 | 27 | 5 | 65 |
| A 1M 2MYZ15060 | 60 | 90 | 93 | 12 | 27 | 5 | 65 |
| A 1M 2MYZ15070 | 70 | 105 | 108 | 14 | 30 | 5 | 90 |
| A 1M 2MYZ15080 | 80 | 120 | 123 | 14 | 30 | 5 | 106 |
| A 1M 2MYZ15090 | 90 | 135 | 138 | 14 | 30 | 5 | 118 |

ISO CLASS 9
20 mm FACE WIDTH
20° PRESSURE ANGLE



> MATERIAL:
Machined from Cast Nylon Blanks



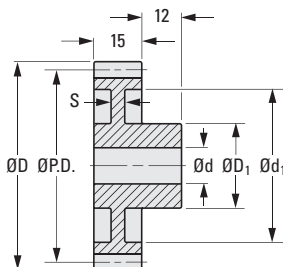
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | D ₁ Hub Dia. |
|----------------|--------------|------|--------|-----------|-------------|-------------------------|
| A 1P 2MYH20012 | 12 | 24 | 28 | 10 | +0.022/0 | 18 |
| A 1P 2MYH20013 | 13 | 26 | 30 | 10 | +0.022/0 | 20 |
| A 1P 2MYH20014 | 14 | 28 | 32 | 10 | +0.022/0 | 20 |
| A 1P 2MYH20015 | 15 | 30 | 34 | 10 | +0.022/0 | 24 |
| A 1P 2MYH20016 | 16 | 32 | 36 | 10 | +0.022/0 | 26 |
| A 1P 2MYH20018 | 18 | 36 | 40 | 10 | +0.022/0 | 30 |
| A 1P 2MYH20020 | 20 | 40 | 44 | 10 | +0.022/0 | 32 |
| A 1P 2MYH20022 | 22 | 44 | 48 | 10 | +0.022/0 | 35 |
| A 1P 2MYH20024 | 24 | 48 | 52 | 10 | +0.022/0 | 38 |
| A 1P 2MYH20025 | 25 | 50 | 54 | 10 | +0.022/0 | 40 |
| A 1P 2MYH20026 | 26 | 52 | 56 | 10 | +0.022/0 | 42 |
| A 1P 2MYH20028 | 28 | 56 | 60 | 10 | +0.022/0 | 45 |
| A 1P 2MYH20030 | 30 | 60 | 64 | 10 | +0.022/0 | 50 |

15 mm FACE WIDTH
20° PRESSURE ANGLE

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➤ MATERIAL:
Acetal



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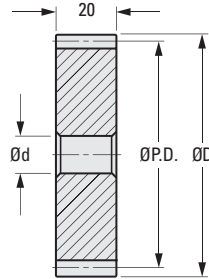
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | S | d ₁ Dia. |
|-----------------|--------------|------|--------|-------------|-------------------------|---|---------------------|
| A 1M 2MYZ20012A | 12 | 24 | 28 | 6 | 18.5 | — | — |
| A 1M 2MYZ20012 | 12 | 24 | 28 | 8 | 18.5 | — | — |
| A 1M 2MYZ20013 | 13 | 26 | 30 | 8 | 18.5 | — | — |
| A 1M 2MYZ20014 | 14 | 28 | 32 | 8 | 18.5 | — | — |
| A 1M 2MYZ20015 | 15 | 30 | 34 | 8 | 18.5 | — | — |
| A 1M 2MYZ20016 | 16 | 32 | 36 | 8 | 17.5 | 6 | 23 |
| A 1M 2MYZ20017 | 17 | 34 | 38 | 8 | 17.5 | 6 | 25 |
| A 1M 2MYZ20018 | 18 | 36 | 40 | 8 | 17.5 | 6 | 26 |
| A 1M 2MYZ20019 | 19 | 38 | 42 | 8 | 17.5 | 6 | 28 |
| A 1M 2MYZ20020 | 20 | 40 | 44 | 10 | 20 | 6 | 29 |
| A 1M 2MYZ20021 | 21 | 42 | 46 | 10 | 20 | 6 | 29 |
| A 1M 2MYZ20022 | 22 | 44 | 48 | 10 | 20 | 6 | 29 |
| A 1M 2MYZ20023 | 23 | 46 | 50 | 10 | 24 | 6 | 36 |
| A 1M 2MYZ20024 | 24 | 48 | 52 | 10 | 24 | 6 | 36 |
| A 1M 2MYZ20025 | 25 | 50 | 54 | 10 | 24 | 6 | 36 |
| A 1M 2MYZ20026 | 26 | 52 | 56 | 10 | 24 | 6 | 40 |
| A 1M 2MYZ20027 | 27 | 54 | 58 | 10 | 24 | 6 | 40 |
| A 1M 2MYZ20028 | 28 | 56 | 60 | 10 | 24 | 6 | 40 |
| A 1M 2MYZ20030 | 30 | 60 | 64 | 10 | 24 | 6 | 46 |
| A 1M 2MYZ20032 | 32 | 64 | 68 | 10 | 26 | 6 | 46 |
| A 1M 2MYZ20035 | 35 | 70 | 74 | 12 | 26 | 6 | 56 |
| A 1M 2MYZ20036 | 36 | 72 | 76 | 12 | 26 | 6 | 56 |
| A 1M 2MYZ20038 | 38 | 76 | 80 | 12 | 26 | 6 | 64 |
| A 1M 2MYZ20040 | 40 | 80 | 84 | 12 | 26 | 6 | 64 |
| A 1M 2MYZ20042 | 42 | 84 | 88 | 12 | 26 | 6 | 64 |
| A 1M 2MYZ20045 | 45 | 90 | 94 | 14 | 30 | 6 | 70 |
| A 1M 2MYZ20048 | 48 | 96 | 100 | 14 | 30 | 6 | 76 |
| A 1M 2MYZ20050 | 50 | 100 | 104 | 14 | 30 | 6 | 80 |
| A 1M 2MYZ20055 | 55 | 110 | 114 | 14 | 30 | 6 | 90 |
| A 1M 2MYZ20060 | 60 | 120 | 124 | 14 | 30 | 6 | 100 |
| A 1M 2MYZ20070 | 70 | 140 | 144 | 14 | 30 | 6 | 120 |

ISO CLASS 9
20 mm FACE WIDTH
20° PRESSURE ANGLE



> MATERIAL:
Machined from Cast Nylon Blanks



METRIC COMPONENT

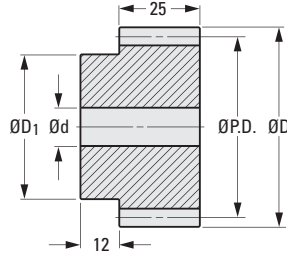
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 (+0.027 / 0) |
|----------------|--------------|------|--------|------------------------|
| A 1P 1MYH20032 | 32 | 64 | 68 | 12 |
| A 1P 1MYH20035 | 35 | 70 | 74 | 12 |
| A 1P 1MYH20036 | 36 | 72 | 76 | 12 |
| A 1P 1MYH20040 | 40 | 80 | 84 | 12 |
| A 1P 1MYH20045 | 45 | 90 | 94 | 12 |
| A 1P 1MYH20048 | 48 | 96 | 100 | 12 |
| A 1P 1MYH20050 | 50 | 100 | 104 | 12 |
| A 1P 1MYH20055 | 55 | 110 | 114 | 12 |
| A 1P 1MYH20060 | 60 | 120 | 124 | 12 |
| A 1P 1MYH20065 | 65 | 130 | 134 | 15 |
| A 1P 1MYH20070 | 70 | 140 | 144 | 15 |
| A 1P 1MYH20075 | 75 | 150 | 154 | 15 |
| A 1P 1MYH20080 | 80 | 160 | 164 | 15 |
| A 1P 1MYH20085 | 85 | 170 | 174 | 15 |
| A 1P 1MYH20090 | 90 | 180 | 184 | 15 |
| A 1P 1MYH20095 | 95 | 190 | 194 | 15 |
| A 1P 1MYH20100 | 100 | 200 | 204 | 15 |

ISO CLASS 9
25 mm FACE WIDTH
20° PRESSURE ANGLE

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> MATERIAL:
Machined from Cast Nylon Blanks



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | D ₁ Hub Dia. |
|----------------|--------------|------|--------|-----------|-------------|-------------------------|
| A 1P 2MYH25012 | 12 | 30 | 35 | 10 | +0.022/0 | 23 |
| A 1P 2MYH25013 | 13 | 32.5 | 37.5 | 10 | +0.022/0 | 25 |
| A 1P 2MYH25014 | 14 | 35 | 40 | 10 | +0.022/0 | 25 |
| A 1P 2MYH25015 | 15 | 37.5 | 42.5 | 12 | +0.027/0 | 30 |
| A 1P 2MYH25016 | 16 | 40 | 45 | 12 | +0.027/0 | 32 |
| A 1P 2MYH25018 | 18 | 45 | 50 | 12 | +0.027/0 | 38 |
| A 1P 2MYH25020 | 20 | 50 | 55 | 12 | +0.027/0 | 40 |
| A 1P 2MYH25022 | 22 | 55 | 60 | 12 | +0.027/0 | 44 |
| A 1P 2MYH25024 | 24 | 60 | 65 | 12 | +0.027/0 | 48 |
| A 1P 2MYH25025 | 25 | 62.5 | 67.5 | 12 | +0.027/0 | 50 |
| A 1P 2MYH25026 | 26 | 65 | 70 | 12 | +0.027/0 | 55 |
| A 1P 2MYH25028 | 28 | 70 | 75 | 12 | +0.027/0 | 60 |
| A 1P 2MYH25030 | 30 | 75 | 80 | 12 | +0.027/0 | 65 |

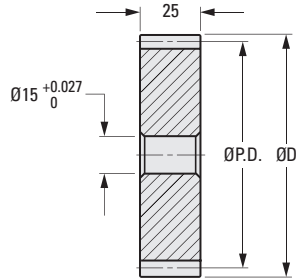
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ISO CLASS 9
25 mm FACE WIDTH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Machined from Cast Nylon Blanks



METRIC COMPONENT

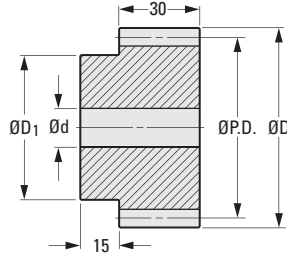
| Catalog Number | No. of Teeth | P.D. | D Dia. |
|----------------|--------------|-------|--------|
| A 1P 1MYH25032 | 32 | 80 | 85 |
| A 1P 1MYH25035 | 35 | 87.5 | 92.5 |
| A 1P 1MYH25036 | 36 | 90 | 95 |
| A 1P 1MYH25040 | 40 | 100 | 105 |
| A 1P 1MYH25045 | 45 | 112.5 | 117.5 |
| A 1P 1MYH25048 | 48 | 120 | 125 |
| A 1P 1MYH25050 | 50 | 125 | 130 |
| A 1P 1MYH25055 | 55 | 137.5 | 142.5 |
| A 1P 1MYH25060 | 60 | 150 | 155 |

ISO CLASS 9
30 mm FACE WIDTH
20° PRESSURE ANGLE

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► **MATERIAL:**
Machined from Cast Nylon Blanks



METRIC COMPONENT

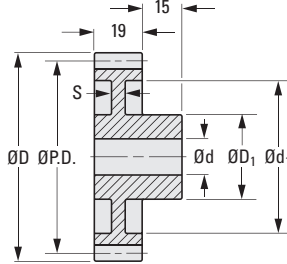
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | D ₁ Hub Dia. |
|----------------|--------------|------|--------|-----------|-------------|-------------------------|
| A 1P 2MYH30012 | 12 | 36 | 42 | 12 | +0.027/0 | 28 |
| A 1P 2MYH30013 | 13 | 39 | 45 | 12 | +0.027/0 | 30 |
| A 1P 2MYH30014 | 14 | 42 | 48 | 12 | +0.027/0 | 32 |
| A 1P 2MYH30015 | 15 | 45 | 51 | 14 | +0.027/0 | 36 |
| A 1P 2MYH30016 | 16 | 48 | 54 | 14 | +0.027/0 | 38 |
| A 1P 2MYH30018 | 18 | 54 | 60 | 14 | +0.027/0 | 40 |
| A 1P 2MYH30020 | 20 | 60 | 66 | 14 | +0.027/0 | 50 |
| A 1P 2MYH30022 | 22 | 66 | 72 | 14 | +0.027/0 | 54 |
| A 1P 2MYH30024 | 24 | 72 | 78 | 14 | +0.027/0 | 58 |
| A 1P 2MYH30025 | 25 | 75 | 81 | 14 | +0.027/0 | 60 |
| A 1P 2MYH30026 | 26 | 78 | 84 | 14 | +0.027/0 | 65 |
| A 1P 2MYH30028 | 28 | 84 | 90 | 14 | +0.027/0 | 70 |
| A 1P 2MYH30030 | 30 | 90 | 96 | 14 | +0.027/0 | 75 |

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19 mm FACE WIDTH
20° PRESSURE ANGLE

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➤ MATERIAL:
Acetal



METRIC COMPONENT

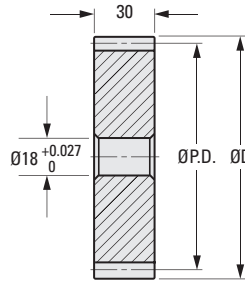
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. | D ₁ Hub Dia. | S | d ₁ Dia. |
|-----------------|--------------|------|--------|-------------|-------------------------|---|---------------------|
| A 1M 2MYZ30012A | 12 | 36 | 42 | 10 | 24 | — | — |
| A 1M 2MYZ30012 | 12 | 36 | 42 | 12 | 24 | — | — |
| A 1M 2MYZ30013 | 13 | 39 | 45 | 12 | 24 | — | — |
| A 1M 2MYZ30014 | 14 | 42 | 48 | 12 | 24 | — | — |
| A 1M 2MYZ30015A | 15 | 45 | 51 | 7 | 24 | — | — |
| A 1M 2MYZ30015 | 15 | 45 | 51 | 12 | 24 | 8 | 30 |
| A 1M 2MYZ30016 | 16 | 48 | 54 | 12 | 24 | 8 | 30 |
| A 1M 2MYZ30017 | 17 | 51 | 57 | 12 | 24 | 8 | 30 |
| A 1M 2MYZ30018 | 18 | 54 | 60 | 12 | 24 | 8 | 38 |
| A 1M 2MYZ30019 | 19 | 57 | 63 | 12 | 24 | 8 | 38 |
| A 1M 2MYZ30020 | 20 | 60 | 66 | 12 | 24 | 8 | 38 |
| A 1M 2MYZ30021 | 21 | 63 | 69 | 12 | 24 | 8 | 45 |
| A 1M 2MYZ30022 | 22 | 66 | 72 | 12 | 24 | 8 | 45 |
| A 1M 2MYZ30023 | 23 | 69 | 75 | 12 | 24 | 8 | 52 |
| A 1M 2MYZ30024 | 24 | 72 | 78 | 12 | 24 | 8 | 52 |
| A 1M 2MYZ30025 | 25 | 75 | 81 | 14 | 28 | 8 | 58 |
| A 1M 2MYZ30026 | 26 | 78 | 84 | 14 | 28 | 8 | 58 |
| A 1M 2MYZ30027 | 27 | 81 | 87 | 14 | 28 | 8 | 58 |
| A 1M 2MYZ30028 | 28 | 84 | 90 | 14 | 28 | 8 | 68 |
| A 1M 2MYZ30030 | 30 | 90 | 96 | 14 | 28 | 8 | 68 |
| A 1M 2MYZ30032 | 32 | 96 | 102 | 16 | 32 | 8 | 71 |
| A 1M 2MYZ30033 | 33 | 99 | 105 | 16 | 32 | 8 | 71 |
| A 1M 2MYZ30035 | 25 | 105 | 111 | 16 | 32 | 8 | 80 |
| A 1M 2MYZ30038 | 28 | 114 | 120 | 16 | 32 | 8 | 89 |
| A 1M 2MYZ30040 | 40 | 120 | 126 | 16 | 32 | 8 | 95 |
| A 1M 2MYZ30045 | 45 | 135 | 141 | 16 | 32 | 8 | 110 |

ISO CLASS 9
 30 mm FACE WIDTH
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> **MATERIAL:**
 Machined from Cast Nylon Blanks



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. |
|----------------|--------------|------|--------|
| A 1P 1MYH30032 | 32 | 96 | 102 |
| A 1P 1MYH30035 | 35 | 105 | 111 |
| A 1P 1MYH30036 | 36 | 108 | 114 |
| A 1P 1MYH30040 | 40 | 120 | 126 |
| A 1P 1MYH30045 | 45 | 135 | 141 |
| A 1P 1MYH30048 | 48 | 144 | 150 |
| A 1P 1MYH30050 | 50 | 150 | 156 |
| A 1P 1MYH30055 | 55 | 165 | 171 |
| A 1P 1MYH30060 | 60 | 180 | 186 |



> **DID YOU KNOW?**

That you can see a video showing how the Fairloc® integral fastener works and how it can benefit your application. It is located at: www.sdp-si.com/fairloc.

ISO CLASS 5
GROUND TEETH
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

AISI 4135 Steel, Tooth Surface
Induction Hardened To HRC 50..55

> SPECIFICATIONS:

Fig. 1 gears use torsion spring.
Fig. 2 gears use helical tension springs.

Bore Tolerance: 8 & 10 mm +0.015/0
12 mm +0.018/0

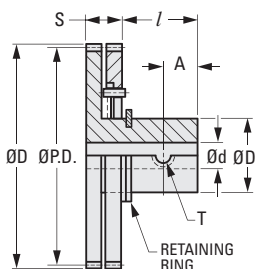


Fig. 1
Torsion Spring

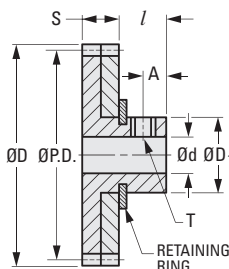


Fig. 2
Helical Tension Springs

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H7 | S Face Width | D ₁ Hub Dia. | l Hub Proj. | T Set Screw | A |
|-------------------|----------|--------------|------|--------|-----------|--------------|-------------------------|-------------|-------------|---|
| Module 0.5 | | | | | | | | | | |
| S97S05M060T0808G | 1 | 60 | 30 | 31 | 8 | 8 | 16 | 8 | M4 | 4 |
| S97S05M070T0808G | 1 | 70 | 35 | 36 | 8 | 8 | 16 | 8 | M4 | 4 |
| S97S05M080T0808G | 1 | 80 | 40 | 41 | 8 | 8 | 20 | 8 | M4 | 4 |
| S97S05M090T0810G | 1 | 90 | 45 | 46 | 10 | 8 | 20 | 8 | M4 | 4 |
| S97S05M100T0810G | 1 | 100 | 50 | 51 | 10 | 8 | 20 | 8 | M4 | 4 |
| S97S05M120T0810G | 1 | 120 | 60 | 61 | 10 | 8 | 20 | 8 | M4 | 4 |
| Module 0.8 | | | | | | | | | | |
| S97S08M050T0810G | 1 | 50 | 40 | 41.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97S08M060T0810G | 1 | 60 | 48 | 49.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97S08M070T0810G | 1 | 70 | 56 | 57.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97S08M080T0810G | 2 | 80 | 64 | 65.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97S08M090T0810G | 2 | 90 | 72 | 73.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97S08M100T0810G | 2 | 100 | 80 | 81.6 | 10 | 8 | 24 | 10 | M5 | 5 |
| S97S08M120T0810G | 2 | 120 | 96 | 97.6 | 10 | 8 | 24 | 10 | M5 | 5 |
| Module 1 | | | | | | | | | | |
| S97S10M050T1010G | 1 | 50 | 50 | 52 | 10 | 10 | 20 | 10 | M6 | 5 |
| S97S10M060T1010G | 1 | 60 | 60 | 62 | 10 | 10 | 20 | 10 | M6 | 5 |
| S97S10M070T1012G | 2 | 70 | 70 | 72 | 12 | 10 | 24 | 10 | M6 | 5 |
| S97S10M080T1012G | 2 | 80 | 80 | 82 | 12 | 10 | 24 | 10 | M6 | 5 |
| S97S10M090T1012G | 2 | 90 | 90 | 92 | 12 | 10 | 24 | 10 | M6 | 5 |
| S97S10M100T1012G | 2 | 100 | 100 | 102 | 12 | 10 | 30 | 10 | M6 | 5 |
| S97S10M120T1012G | 2 | 120 | 120 | 122 | 12 | 10 | 30 | 10 | M6 | 5 |

ISO CLASS 8
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

5056 Aluminum, Anodized or
AISI 1045 Steel, Tufftrided

> SPECIFICATIONS:

Fig. 1 Aluminum gears use torsion spring.
Fig. 2 Steel gears use helical tension springs.

Bore Tolerance: 8 & 10 mm +0.022/0
12 mm +0.027/0

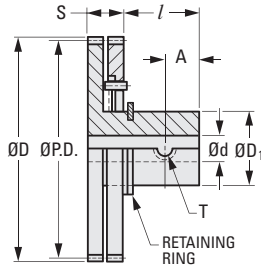


Fig. 1
Torsion Spring

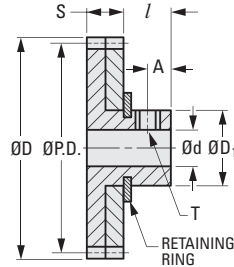


Fig. 2
Helical Tension Springs

METRIC COMPONENT

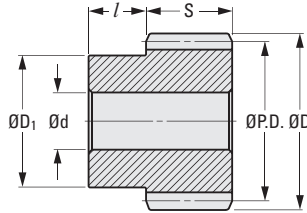
| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore H8 | S Face Width | D ₁ Hub Dia. | l Hub Proj. | T Set Screw | A |
|------------------------|------|--------------|------|--------|-----------|--------------|-------------------------|-------------|-------------|---|
| Fig. 1 Aluminum | | | | | | | | | | |
| S97A05M060T0808 | 0.5 | 60 | 30 | 31 | 8 | 8 | 16 | 8 | M4 | 4 |
| S97A05M070T0808 | 0.5 | 70 | 35 | 36 | 8 | 8 | 16 | 8 | M4 | 4 |
| S97A05M080T0808 | 0.5 | 80 | 40 | 41 | 8 | 8 | 20 | 8 | M4 | 4 |
| S97A05M090T0810 | 0.5 | 90 | 45 | 46 | 10 | 8 | 20 | 8 | M4 | 4 |
| S97A05M100T0810 | 0.5 | 100 | 50 | 51 | 10 | 8 | 20 | 8 | M4 | 4 |
| S97A05M120T0810 | 0.5 | 120 | 60 | 61 | 10 | 8 | 20 | 8 | M4 | 4 |
| S97A08M050T0810 | 0.8 | 50 | 40 | 41.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97A08M060T0810 | 0.8 | 60 | 48 | 49.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97A08M070T0810 | 0.8 | 70 | 56 | 57.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| Fig. 2 Steel | | | | | | | | | | |
| S97S08M080T0810 | 0.8 | 80 | 64 | 65.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97S08M090T0810 | 0.8 | 90 | 72 | 73.6 | 10 | 8 | 20 | 10 | M5 | 5 |
| S97S08M100T0810 | 0.8 | 100 | 80 | 81.6 | 10 | 8 | 24 | 10 | M5 | 5 |
| S97S08M120T0810 | 0.8 | 120 | 96 | 97.6 | 10 | 8 | 24 | 10 | M5 | 5 |
| Fig. 1 Aluminum | | | | | | | | | | |
| S97A10M050T1010 | 1 | 50 | 50 | 52 | 10 | 10 | 20 | 10 | M6 | 5 |
| S97A10M060T1010 | 1 | 60 | 60 | 62 | 10 | 10 | 20 | 10 | M6 | 5 |
| Fig. 2 Steel | | | | | | | | | | |
| S97S10M070T1012 | 1 | 70 | 70 | 72 | 12 | 10 | 24 | 10 | M6 | 5 |
| S97S10M080T1012 | 1 | 80 | 80 | 82 | 12 | 10 | 24 | 10 | M6 | 5 |
| S97S10M090T1012 | 1 | 90 | 90 | 92 | 12 | 10 | 24 | 10 | M6 | 5 |
| S97S10M100T1012 | 1 | 100 | 100 | 102 | 12 | 10 | 30 | 10 | M6 | 5 |
| S97S10M120T1012 | 1 | 120 | 120 | 122 | 12 | 10 | 30 | 10 | M6 | 5 |

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RIGHT- AND LEFT-HAND
MODULE 1, 1.5 & 2
45° HELIX
20° PRESSURE ANGLE



➤ **MATERIAL:**
Steel



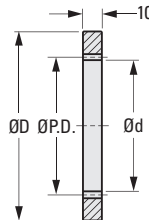
METRIC COMPONENT

| Catalog Number | | No of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | S Face Width | D ₁ Hub Dia. | l Hub Proj. |
|-------------------|-----------------|-------------|------|--------|-----------|-------------|--------------|-------------------------|-------------|
| Right-Hand | Left-Hand | | | | | | | | |
| Module 1 | | | | | | | | | |
| A 1C 7MYK10013R | A 1C 7MYK10013L | 13 | 18.4 | 20.4 | 8 | +0.022/0 | 12 | 15 | 10 |
| A 1C 7MYK10026R | A 1C 7MYK10026L | 26 | 36.8 | 38.8 | 10 | +0.022/0 | 12 | 32 | 10 |
| Module 1.5 | | | | | | | | | |
| A 1C 7MYK15013R | A 1C 7MYK15013L | 13 | 27.6 | 30.6 | 10 | +0.022/0 | 15 | 23 | 10 |
| A 1C 7MYK15026R | A 1C 7MYK15026L | 26 | 55.2 | 58.2 | 12 | +0.027/0 | 15 | 40 | 10 |
| Module 2 | | | | | | | | | |
| A 1C 7MYK20013R | A 1C 7MYK20013L | 13 | 36.8 | 40.8 | 12 | +0.027/0 | 20 | 30 | 13 |
| A 1C 7MYK20026R | A 1C 7MYK20026L | 26 | 73.5 | 77.5 | 16 | +0.027/0 | 20 | 55 | 13 |

INTERNAL GEARS - MODULE 1

20° PRESSURE ANGLE

➤ **MATERIAL:**
Steel



METRIC COMPONENT

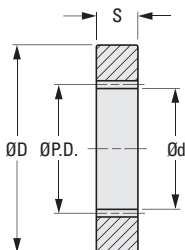
| Catalog Number | No. of Teeth | P.D. | D Dia. | d I.D. |
|----------------|--------------|------|--------|--------|
| A 1C10MYK10060 | 60 | 60 | 90 | 58 |
| A 1C10MYK10072 | 72 | 72 | 100 | 70 |
| A 1C10MYK10080 | 80 | 80 | 110 | 78 |
| A 1C10MYK10084 | 84 | 84 | 115 | 82 |
| A 1C10MYK10090 | 90 | 90 | 120 | 88 |
| A 1C10MYK10096 | 96 | 96 | 125 | 94 |
| A 1C10MYK10100 | 100 | 100 | 130 | 98 |
| A 1C10MYK10108 | 108 | 108 | 140 | 106 |
| A 1C10MYK10120 | 120 | 120 | 150 | 118 |

ISO CLASS 7
 MODULE 0.5, 0.8 & 1
 5, 8 & 10 mm FACE WIDTH
 20° PRESSURE ANGLE

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➤ **MATERIAL:**
 303 Stainless Steel



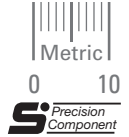
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | d I.D. H9 | S Face Width js 10 | D Dia. h7 |
|-------------------|--------------|------|-----------|--------------------|-----------|
| Module 0.5 | | | | | |
| S1E05ZM05S060 | 60 | 30 | 29 | 5 | 50 |
| S1E05ZM05S072 | 72 | 36 | 35 | 5 | 50 |
| S1E05ZM05S080 | 80 | 40 | 39 | 5 | 50 |
| S1E05ZM05S084 | 84 | 42 | 41 | 5 | 75 |
| S1E05ZM05S090 | 90 | 45 | 44 | 5 | 75 |
| S1E05ZM05S096 | 96 | 48 | 47 | 5 | 75 |
| S1E05ZM05S100 | 100 | 50 | 49 | 5 | 75 |
| S1E05ZM05S108 | 108 | 54 | 53 | 5 | 75 |
| S1E05ZM05S120 | 120 | 60 | 59 | 5 | 75 |
| Module 0.8 | | | | | |
| S1E08ZM08S060 | 60 | 48 | 46.4 | 8 | 100 |
| S1E08ZM08S072 | 72 | 57.6 | 56 | 8 | 100 |
| S1E08ZM08S080 | 80 | 64 | 62.4 | 8 | 100 |
| S1E08ZM08S084 | 84 | 67.2 | 65.6 | 8 | 100 |
| S1E08ZM08S090 | 90 | 72 | 70.4 | 8 | 100 |
| S1E08ZM08S096 | 96 | 76.8 | 75.2 | 8 | 100 |
| S1E08ZM08S100 | 100 | 80 | 78.4 | 8 | 120 |
| S1E08ZM08S108 | 108 | 86.4 | 84.8 | 8 | 120 |
| S1E08ZM08S120 | 120 | 96 | 94.4 | 8 | 120 |
| Module 1 | | | | | |
| S1E10ZM10S060 | 60 | 60 | 58 | 10 | 100 |
| S1E10ZM10S072 | 72 | 72 | 70 | 10 | 100 |
| S1E10ZM10S080 | 80 | 80 | 78 | 10 | 100 |
| S1E10ZM10S084 | 84 | 84 | 82 | 10 | 120 |
| S1E10ZM10S090 | 90 | 90 | 88 | 10 | 120 |
| S1E10ZM10S096 | 96 | 96 | 94 | 10 | 120 |
| S1E10ZM10S100 | 100 | 100 | 98 | 10 | 150 |
| S1E10ZM10S108 | 108 | 108 | 106 | 10 | 150 |
| S1E10ZM10S120 | 120 | 120 | 118 | 10 | 150 |

GROUND RACKS – MODULE 0.5, 0.8, 1 & 1.5

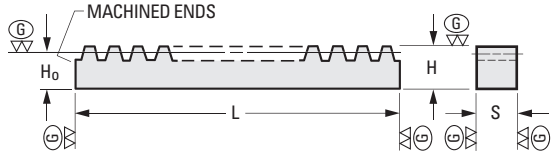
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ISO CLASS 5
GROUND TEETH
20° PRESSURE ANGLE



> MATERIAL:
AISI 1045 Steel Hardened
to HRC 27...32

> SPECIFICATIONS:
Tolerance h8: 8 & 10 mm 0/-0.022
12 & 15 mm 0/-0.027
20 mm 0/-0.033



METRIC COMPONENT

| Catalog Number | Module | No. of Usable Teeth | S Face Width h8 | H Height h8 | H ₀ Pitch Distance | L Stock Length mm |
|------------------|--------|---------------------|-----------------|-------------|-------------------------------|-------------------|
| S18C05M128P0812G | 0.5 | 128 | 8 | 12 | 11.5 | 201.06 |
| S18C08M080P0812G | 0.8 | 80 | 8 | 12 | 11.2 | 201.06 |
| S18C10M096P1015G | 1 | 96 | 10 | 15 | 14 | 301.59 |
| S18C15M064P1520G | 1.5 | 64 | 15 | 20 | 18.5 | 301.59 |

See index for ground spur gears.

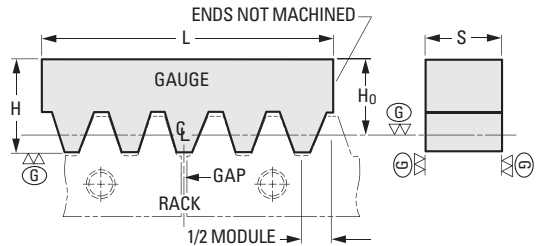
JOINING GAUGES for GROUND RACKS – MODULE 0.5, 0.8 1 & 1.5

ISO CLASS 5
GROUND TEETH
20° PRESSURE ANGLE



> MATERIAL:
AISI 1045 Steel Hardened
to HRC 27...32

> SPECIFICATIONS:
Tolerance h8: 8 & 10 mm 0/-0.022
12 & 15 mm 0/-0.027
20 mm 0/-0.033



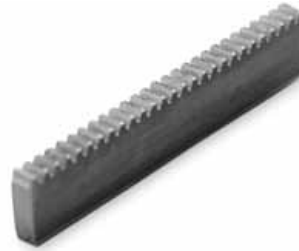
METRIC COMPONENT

| Catalog Number | Mod. | 1/2 Module | | No. of Teeth | S Face Width h8 | H Height h8 | H ₀ Pitch Distance | L Stock Length approx. |
|----------------|------|------------|---------------|--------------|-----------------|-------------|-------------------------------|------------------------|
| | | Dim. | Tol. | | | | | |
| S18C05MGAGE-G | 0.5 | 0.785 | -0.02 / -0.08 | 29 | 8 | 12 | 11.5 | 45.3 |
| S18C08MGAGE-G | 0.8 | 1.256 | -0.03 / -0.12 | 18 | 8 | 12 | 11.2 | 44.9 |
| S18C10MGAGE-G | 1 | 1.57 | -0.03 / -0.12 | 14 | 10 | 15 | 14 | 43.6 |
| S18C15MGAGE-G | 1.5 | 2.356 | -0.04 / -0.16 | 9 | 15 | 20 | 18.5 | 41.9 |

See index for ground spur gears.

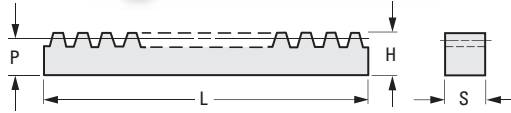
ISO CLASS 8
 MODULE 0.3, 0.5, 0.75, 0.8 & 1
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> **MATERIAL:**
 Brass, Stainless Steel or Steel



METRIC COMPONENT

| Catalog Number | Module | Material | S Face Width | H Height | P Pitch Height | L Length mm |
|-----------------|--------|-----------------|--------------|----------|----------------|-------------|
| A 1B12MYK03200 | 0.3 | Brass | 3 | 8 | 7.7 | 200 |
| A 1B12MYK05200 | 0.5 | Brass | 3 | 8 | 7.5 | 200 |
| A 1B12MYKW05200 | 0.5 | Brass | 8 | 8 | 7.5 | 200 |
| A 1B12MYK05500 | 0.5 | Brass | 8 | 10 | 9.5 | 505 |
| A 1X12MYK05200 | 0.5 | Stainless Steel | 3 | 10 | 9.5 | 200 |
| A 1X12MYK05300 | 0.5 | Stainless Steel | 4.8 | 9.5 | 9 | 300 |
| A 1X12MYKW05200 | 0.5 | Stainless Steel | 8 | 8 | 7.5 | 200 |
| A 1X12MYK05500 | 0.5 | Stainless Steel | 8 | 10 | 9.5 | 505 |
| A 1B12MYKH7200 | 0.75 | Brass | 3 | 8 | 7.25 | 200 |
| A 1B12MYKH7500 | 0.75 | Brass | 3 | 10 | 9.25 | 505 |
| A 1B12MYKWH7200 | 0.75 | Brass | 8 | 8 | 7.25 | 200 |
| A 1B12MYKWH7500 | 0.75 | Brass | 8 | 10 | 9.25 | 505 |
| A 1X12MYKH7200 | 0.75 | Stainless Steel | 3 | 10 | 9.25 | 200 |
| A 1X12MYKWH7200 | 0.75 | Stainless Steel | 8 | 8 | 7.25 | 200 |
| A 1X12MYKH7500 | 0.75 | Stainless Steel | 8 | 10 | 9.25 | 505 |
| A 1B12MYK08500 | 0.8 | Brass | 5 | 10 | 9.2 | 505 |
| A 1B12MYK08200 | 0.8 | Brass | 7 | 7 | 6.2 | 200 |
| A 1B12MYKW08500 | 0.8 | Brass | 7 | 10 | 9.2 | 505 |
| A 1X12MYK08500 | 0.8 | Stainless Steel | 5 | 10 | 9.2 | 505 |
| A 1X12MYK08200 | 0.8 | Stainless Steel | 7 | 7 | 6.2 | 200 |
| A 1X12MYKW08500 | 0.8 | Stainless Steel | 7 | 10 | 9.2 | 505 |
| A 1C12MYK10300 | 1 | Steel | 10 | 10 | 9 | 300 |
| A 1C12MYK10500 | 1 | Steel | 10 | 10 | 9 | 500 |
| A 1C12MYK101000 | 1 | Steel | 10 | 15 | 14 | 1021 |
| A 1X12MYK10500 | 1 | Stainless Steel | 8 | 10 | 9 | 500 |
| A 1X12MYK10300 | 1 | Stainless Steel | 10 | 10 | 9 | 300 |
| A 1X12MYKW10500 | 1 | Stainless Steel | 10 | 10 | 9 | 500 |

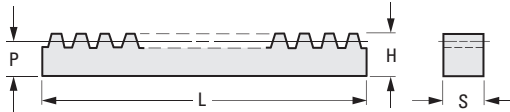
ISO CLASS 8
20° PRESSURE ANGLE

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› **MATERIAL:**
Steel, Brass, or Nylon



QUALITY CLASS



METRIC COMPONENT

| Catalog Number | Module | Material | S Face Width | H Height mm | P Pitch Height | L Length mm |
|----------------|--------|----------|--------------|-------------|----------------|-------------|
| A 1C12MY04A075 | 0.4 | Steel | 4.8 | 9.5 | 9.13 | 75 |
| A 1C12MY04A150 | 0.4 | Steel | 4.8 | 9.5 | 9.13 | 150 |
| A 1C12MY04A300 | 0.4 | Steel | 4.8 | 9.5 | 9.13 | 300 |
| A 1B12MY04A075 | 0.4 | Brass | 4.8 | 9.5 | 9.13 | 75 |
| A 1B12MY04A150 | 0.4 | Brass | 4.8 | 9.5 | 9.13 | 150 |
| A 1B12MY04A300 | 0.4 | Brass | 4.8 | 9.5 | 9.13 | 300 |
| A 1C12MY04B075 | 0.4 | Steel | 4.8 | 4.8 | 4.34 | 75 |
| A 1C12MY04B150 | 0.4 | Steel | 4.8 | 4.8 | 4.34 | 150 |
| A 1C12MY04B300 | 0.4 | Steel | 4.8 | 4.8 | 4.34 | 300 |
| A 1B12MY04B075 | 0.4 | Brass | 4.8 | 4.8 | 4.34 | 75 |
| A 1B12MY04B150 | 0.4 | Brass | 4.8 | 4.8 | 4.34 | 150 |
| A 1B12MY04B300 | 0.4 | Brass | 4.8 | 4.8 | 4.34 | 300 |
| A 1P12MY04C075 | 0.4 | Nylon | 6.3 | 6.3 | 5.94 | 75 |
| A 1P12MY04C150 | 0.4 | Nylon | 6.3 | 6.3 | 5.94 | 150 |
| A 1P12MY04C300 | 0.4 | Nylon | 6.3 | 6.3 | 5.94 | 300 |
| A 1C12MY05A075 | 0.5 | Steel | 4.8 | 9.5 | 9.03 | 75 |
| A 1C12MY05A150 | 0.5 | Steel | 4.8 | 9.5 | 9.03 | 150 |
| A 1C12MY05A300 | 0.5 | Steel | 4.8 | 9.5 | 9.03 | 300 |
| A 1B12MY05A075 | 0.5 | Brass | 4.8 | 9.5 | 9.03 | 75 |
| A 1B12MY05A150 | 0.5 | Brass | 4.8 | 9.5 | 9.03 | 150 |
| A 1B12MY05A300 | 0.5 | Brass | 4.8 | 9.5 | 9.03 | 300 |
| A 1C12MY05B075 | 0.5 | Steel | 4.8 | 4.8 | 4.26 | 75 |
| A 1C12MY05B150 | 0.5 | Steel | 4.8 | 4.8 | 4.26 | 150 |
| A 1C12MY05B300 | 0.5 | Steel | 4.8 | 4.8 | 4.26 | 300 |
| A 1B12MY05B075 | 0.5 | Brass | 4.8 | 4.8 | 4.26 | 75 |
| A 1B12MY05B150 | 0.5 | Brass | 4.8 | 4.8 | 4.26 | 150 |
| A 1B12MY05B300 | 0.5 | Brass | 4.8 | 4.8 | 4.26 | 300 |
| A 1P12MY05C075 | 0.5 | Nylon | 6.3 | 6.3 | 5.85 | 75 |
| A 1P12MY05C150 | 0.5 | Nylon | 6.3 | 6.3 | 5.85 | 150 |
| A 1P12MY05C300 | 0.5 | Nylon | 6.3 | 6.3 | 5.85 | 300 |

Continued on the next page

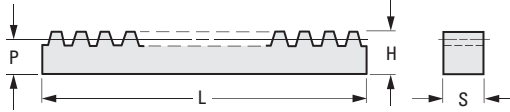
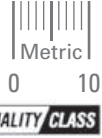
11.27.12 JF

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ISO CLASS 8
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

› **MATERIAL:**
Steel, Brass, or Nylon



METRIC COMPONENT

| Catalog Number | Module | Material | S Face Width | H Height | P Pitch Height | L Length mm |
|----------------|--------|----------|--------------|----------|----------------|-------------|
| A 1C12MY08A075 | 0.8 | Steel | 6.3 | 12.7 | 11.9 | 75 |
| A 1C12MY08A150 | 0.8 | Steel | 6.3 | 12.7 | 11.9 | 150 |
| A 1C12MY08A300 | 0.8 | Steel | 6.3 | 12.7 | 11.9 | 300 |
| A 1B12MY08A075 | 0.8 | Brass | 6.3 | 12.7 | 11.9 | 75 |
| A 1B12MY08A150 | 0.8 | Brass | 6.3 | 12.7 | 11.9 | 150 |
| A 1B12MY08A300 | 0.8 | Brass | 6.3 | 12.7 | 11.9 | 300 |
| A 1C12MY08B075 | 0.8 | Steel | 6.3 | 6.3 | 5.56 | 75 |
| A 1C12MY08B150 | 0.8 | Steel | 6.3 | 6.3 | 5.56 | 150 |
| A 1C12MY08B300 | 0.8 | Steel | 6.3 | 6.3 | 5.56 | 300 |
| A 1B12MY08B075 | 0.8 | Brass | 6.3 | 6.3 | 5.56 | 75 |
| A 1B12MY08B150 | 0.8 | Brass | 6.3 | 6.3 | 5.56 | 150 |
| A 1B12MY08B300 | 0.8 | Brass | 6.3 | 6.3 | 5.56 | 300 |
| A 1P12MY08B075 | 0.8 | Nylon | 6.3 | 6.3 | 5.56 | 75 |
| A 1P12MY08B150 | 0.8 | Nylon | 6.3 | 6.3 | 5.56 | 150 |
| A 1P12MY08B300 | 0.8 | Nylon | 6.3 | 6.3 | 5.56 | 300 |
| A 1C12MY10B150 | 1 | Steel | 7.9 | 15.9 | 14.88 | 150 |
| A 1C12MY10B300 | 1 | Steel | 7.9 | 15.9 | 14.88 | 300 |
| A 1C12MY10B600 | 1 | Steel | 7.9 | 15.9 | 14.88 | 600 |
| A 1B12MY10B150 | 1 | Brass | 7.9 | 15.9 | 14.88 | 150 |
| A 1B12MY10B300 | 1 | Brass | 7.9 | 15.9 | 14.88 | 300 |
| A 1B12MY10B600 | 1 | Brass | 7.9 | 15.9 | 14.88 | 600 |
| A 1C12MY10C150 | 1 | Steel | 7.9 | 7.9 | 6.94 | 150 |
| A 1C12MY10C300 | 1 | Steel | 7.9 | 7.9 | 6.94 | 300 |
| A 1C12MY10C600 | 1 | Steel | 7.9 | 7.9 | 6.94 | 600 |
| A 1B12MY10C150 | 1 | Brass | 7.9 | 7.9 | 6.94 | 150 |
| A 1B12MY10C300 | 1 | Brass | 7.9 | 7.9 | 6.94 | 300 |
| A 1B12MY10C600 | 1 | Brass | 7.9 | 7.9 | 6.94 | 600 |
| A 1P12MY10A150 | 1 | Nylon | 9.5 | 9.5 | 8.53 | 150 |
| A 1P12MY10A300 | 1 | Nylon | 9.5 | 9.5 | 8.53 | 300 |
| A 1P12MY10A600 | 1 | Nylon | 9.5 | 9.5 | 8.53 | 600 |

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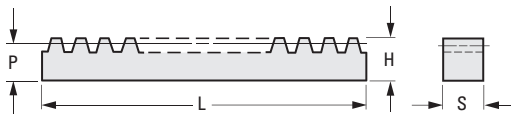
ISO CLASS 8
MODULE 1.5, 2, 2.5 & 3
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

➤ **MATERIAL:**
Steel



METRIC COMPONENT

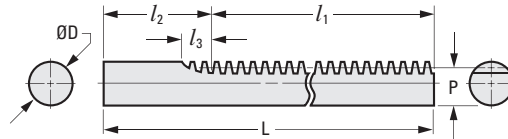
| Catalog Number | Module | S Face Width | H Height | P Pitch Height | L Length mm |
|------------------|--------|--------------|----------|----------------|-------------|
| A 1C12MYK15300 | 1.5 | 16 | 16 | 14.5 | 300 |
| A 1C12MYKW15500 | 1.5 | 16 | 16 | 14.5 | 500 |
| A 1C12MYK151000 | 1.5 | 16 | 16 | 14.5 | 1008.5 |
| A 1C12MYK15500 | 1.5 | 12 | 16 | 14.5 | 500 |
| A 1C12MYK20300 | 2 | 20 | 20 | 18 | 300 |
| A 1C12MYK20500 | 2 | 20 | 20 | 18 | 500 |
| A 1C12MYKW201000 | 2 | 20 | 20 | 18 | 1005.3 |
| A 1C12MYK201000 | 2 | 14 | 20 | 18 | 1005.3 |
| A 1C12MYK25300 | 2.5 | 25 | 25 | 22.5 | 300 |
| A 1C12MYK25500 | 2.5 | 25 | 25 | 22.5 | 500 |
| A 1C12MYKW251000 | 2.5 | 25 | 25 | 22.5 | 1005.3 |
| A 1C12MYK251000 | 2.5 | 18 | 25 | 22.5 | 1005.3 |
| A 1C12MYK30300 | 3 | 30 | 30 | 27 | 300 |
| A 1C12MYK30500 | 3 | 30 | 30 | 27 | 500 |
| A 1C12MYKW301000 | 3 | 30 | 30 | 27 | 1008.5 |
| A 1C12MYK301000 | 3 | 22 | 30 | 27 | 1008.5 |

ROUND RACKS – MODULE 0.5 TO 1

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ISO CLASS 9
20° PRESSURE ANGLE

> **MATERIAL:**
304 Stainless Steel



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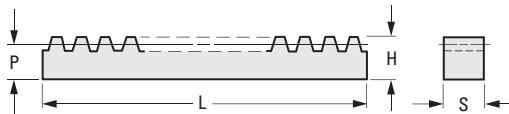
METRIC COMPONENT

| Catalog Number | Module | D h7 (0 -0.015) | P Pitch Height | l | l ₂ Ref. | l ₃ | L Length mm ± 1 |
|----------------|--------|-----------------------|----------------------|-----|------------------------|----------------|-----------------------|
| S181YYM0508200 | 0.5 | 8 | 7.5 | 149 | 53 | 10.7 | 202 |
| S181YYM0758200 | 0.75 | | 7.25 | 148 | 54 | 13 | |
| S181YYM0808200 | 0.8 | | 7.2 | | | 13.4 | |
| S181YYM100A300 | 1 | 10 | 9 | 238 | 67 | 15 | 305 |

NONMETALLIC RACKS - MODULE 0.4 TO 3.0

20° PRESSURE ANGLE

> **MATERIAL:**
Molded Acetal
Machined Cast Nylon



METRIC COMPONENT

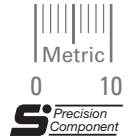
| Catalog Number | Module | Material | S Face Width | H Height | P Pitch Height | L Length mm | |
|-----------------|--------|------------------|--------------------|-------------|----------------------|-------------------|-----|
| A 1M12MYP0425 | 0.4 | Acetal (Molded) | 3 | 3.9 | 3.5 | 250 | |
| A 1M12MYZ0525 | 0.5 | | 4 | 4.5 | 4 | | |
| A 1M12MYZ0525A | | | 4 | 6 | 5.5 | | |
| A 1M12MYZ0725 | 0.7 | | 6 | 6.7 | 6 | | |
| A 1M12MYP0825 | 0.8 | | 5 | 7.3 | 6.5 | | |
| A 1M12MYZ1025 | 1 | | 9 | 9 | 8 | | |
| A 1M12MYZ1225 | 1.25 | | 10 | 11 | 9.75 | | |
| A 1M12MYZ1525 | 1.5 | | 12 | 12 | 10.5 | | |
| A 1M12MYZ2025 | 2 | | 15.4 | 11 | 9 | | |
| A 1M12MYZ3025 | 3 | | 19.4 | 15 | 12 | | |
| A 1M12MYH100500 | 1 | | 10 | 12 | 11 | | 505 |
| A 1M12MYH150500 | 1.5 | | 15 | 20 | 18.5 | | |
| A 1M12MYH151000 | | 1010 | | | | | |
| A 1M12MYH200500 | 2 | Nylon (Machined) | 20 | 25 | 23 | 505 | |
| A 1M12MYH201000 | | | 1010 | | | | |
| A 1M12MYH250500 | 2.5 | | 25 | 30 | 27.5 | 505 | |
| A 1M12MYH251000 | | | | | | 1010 | |
| A 1M12MYH300500 | 3 | | 30 | 35 | 32 | 505 | |
| A 1M12MYH301000 | | | | | | 1010 | |

REV: 3.26.13 JC

GROUND RACKS – CP 2 & 5

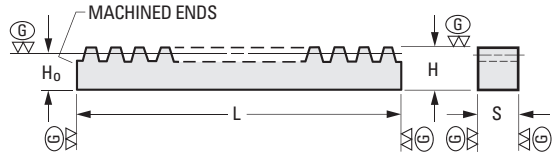
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ISO CLASS 5
GROUND TEETH
20° PRESSURE ANGLE



> MATERIAL:
AISI 1045 Steel Hardened
to HRC 27...32

> SPECIFICATIONS:
Tolerance h8: 8 mm 0/-0.022
12 & 15 mm 0/-0.027
20 mm 0/-0.033



METRIC COMPONENT

| Catalog Number | Circular Pitch | No. of Usable Teeth | S Face Width h8 | H Height h8 | H ₀ Pitch Distance | L Stock Length mm |
|-----------------|----------------|---------------------|-----------------|-------------|-------------------------------|-------------------|
| S18CCPM020P100G | 2 | 100 | 8 | 12 | 11.364 | 200 |
| S18CCPM050P060G | 5 | 60 | 15 | 20 | 18.409 | 300 |

See index for ground circular pitch spur gears.

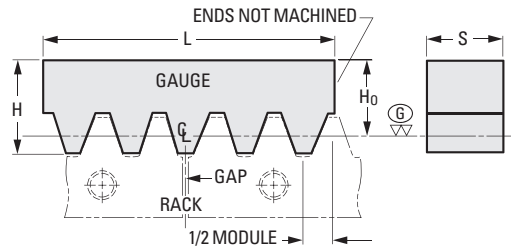
JOINING GAUGE for CP GROUND RACKS – CP 2 & 5

ISO CLASS 5
GROUND TEETH
20° PRESSURE ANGLE



> MATERIAL:
AISI 1045 Steel Hardened
to HRC 27...32

> SPECIFICATIONS:
Tolerance h8: 8 mm 0/-0.022
12 & 15 mm 0/-0.027
20 mm 0/-0.033



METRIC COMPONENT

| Catalog Number | Circular Pitch | 1/2 Module | | No. of Teeth | S Face Width h8 | H Height h8 | H ₀ Pitch Distance | L Stock Length mm |
|------------------|----------------|------------|---------------|--------------|-----------------|-------------|-------------------------------|-------------------|
| | | Dim. | Tol. | | | | | |
| S18CCPM020GAGE-G | 2 | 1 | -0.02 / -0.08 | 23 | 8 | 12 | 11.364 | 45.7 |
| S18CCPM050GAGE-G | 5 | 2.5 | -0.04 / -0.16 | 8 | 15 | 20 | 18.409 | 39.4 |

See index for ground circular pitch spur gears.

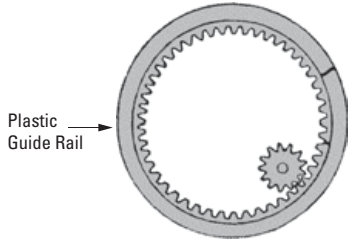
> UNIQUE DESIGN:

SDP Flexiracks are designed for low-cost linear indexing applications of any length. They are ideal for curved, circular or irregular surfaces where they can fit a bent radius as small as 75 mm and still run with standard metric gears. Fitted with their flexible nylon guide rails, they can be bent into circular shape to function either as internal or external gears.

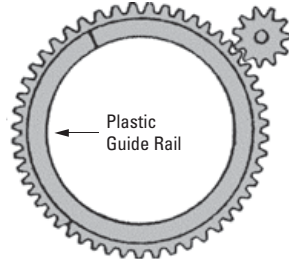
> FEATURES:

- Flexible
- Lightweight
- Economical
- Maintenance-Free
- Self-Lubricating
- Resistant to Chemicals
- High Dielectric Strength
- Stock Length of 2000 mm
- Lengths up to 50 meters available on special request

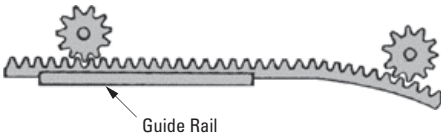
> FOR USE WITH GEARS:



Internal

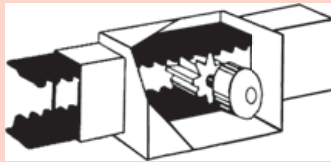


External



APPLICATIONS:

Linear Motions



- Rotating Drums
- Rotating Tables
- Lazy Susans
- Displays
- Gates
- Door Openers
- Panels

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FLEXIRACKS
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Flexiracks – Acetal, Blue

> SPECIFICATIONS:

Flexiracks:

Stock Length: 2000 mm (78.7")
Longer Length up to 50 meters
available on special request.

Working Temperature: 100°C (212°F)

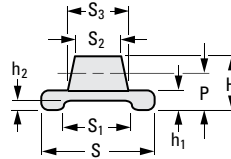
Intermittent Use: 149°C (300°F)

Resistant To:

Weak Acids & Alkalis
Oil, Grease, Gasoline
Alcohol, Ketones



Rack Clamps Shown are Optional.
See Below.



| Module | Minimum Bend Radius | | Bending Strength |
|--------|------------------------|------------------------|------------------|
| | Int. (R _i) | Ext. (R _e) | N |
| 0.8 | 75 (3.0) | 75 (3.0) | 111.8 |
| 1 | 85 (3.3) | 125 (4.9) | 160.9 |
| 1.5 | 100 (3.9) | 150 (5.9) | 161.4 |
| 2 | 125 (4.9) | 175 (6.9) | 264.9 |

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METRIC COMPONENT

| Catalog Number | Module | S | S ₁ | S ₂ | S ₃ | H | h ₁ | h ₂ | P |
|----------------------------------|--------|----------|----------------|----------------|----------------|------------|----------------|----------------|------------|
| Flexiracks – Acetal, Blue | | | | | | | | | |
| A 1M12MYHF082000 | 0.8 | 8 (.31) | 3.7 (.15) | 3 (.12) | 3.8 (.15) | 3.3 (.130) | 1.5 (.06) | 0.7 (.03) | 2.5 (.098) |
| A 1M12MYHF102000 | 1 | 10 (.39) | 4.9 (.19) | 4 (.16) | 5 (.20) | 4.3 (.169) | 2 (.08) | 0.9 (.04) | 3.3 (.130) |
| A 1M12MYHF152000 | 1.5 | 12 (.47) | 8 (.31) | 5 (.20) | 6.5 (.26) | 5.7 (.224) | 2.3 (.09) | 1 (.04) | 4.2 (.165) |
| A 1M12MYHF202000 | 2 | 15 (.59) | 10.1 (.40) | 6 (.24) | 8 (.31) | 7 (.276) | 2.5 (.10) | 1.1 (.04) | 5 (.197) |

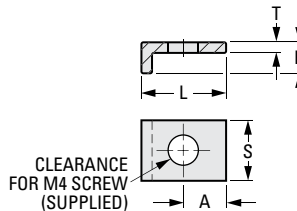
NOTES: 1. Dimensions in () are inch.

2. To use the molded flexible rack with a 20 tooth pinion, the radius of curvature for an external or internal arc must be greater than 150 mm.

RACK CLAMPS

> MATERIAL:

Steel, Plated



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | For Rack Module | L | S | A | H | T |
|----------------|-----------------|------------|---------|-----------|-----------|------------|
| A 1C12MHC1 | 0.8 & 1 | 10.2 (.40) | 8 (.32) | 4.5 (.18) | 2.7 (.11) | 1.2 (.047) |
| A 1C12MHC2 | 1.5 & 2 | 11.4 (.45) | | 5.6 (.22) | 3.9 (.15) | 1.4 (.055) |

GUIDE RAILS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

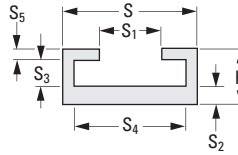
➤ **MATERIAL:**

Extruded Aluminum or
Extruded Flexible Nylon



➤ **SPECIFICATIONS:**

Stock Length – 1000 mm (39.37")
Longer lengths in nylon are
available on special request.



METRIC COMPONENT

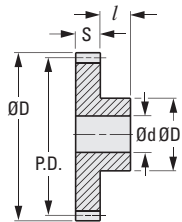
| Catalog Number | For Rack Module | S | S ₁ | H | S ₂ | S ₃ | S ₄ | S ₅ |
|-----------------|-----------------|-------------|----------------|-----------|----------------|----------------|----------------|----------------|
| Aluminum | | | | | | | | |
| A 1A12MHR081000 | 0.8 | 10.3 (.406) | 4.5 (1.80) | 4.8 (.19) | 1.8 (.070) | 1.8 (.071) | 8.4 (.331) | 1 (.039) Ref. |
| A 1A12MHR101000 | 1 | 12.3 (.484) | 5.7 (.22) | 5.2 (.20) | 1.8 (.070) | 2.4 (.094) | 10.4 (.409) | 1 (.039) Ref. |
| A 1A12MHR151000 | 1.5 | 14.3 (.563) | 7.2 (.28) | 5.4 (.21) | 1.8 (.070) | 2.7 (.106) | 12.4 (.488) | 1 (.039) Ref. |
| A 1A12MHR201000 | 2 | 17.3 (.681) | 8.9 (.35) | 6.1 (.24) | 2.3 (.091) | 2.9 (.114) | 15.4 (.606) | 1 (.039) Ref. |
| Nylon | | | | | | | | |
| A 1M12MHR081000 | 0.8 | 11 (.43) | 4 (.16) | 5.1 (.20) | 1.5 (.06) | 2.1 (.083) | 8 (.315) | 1.5 (.06) |
| A 1M12MHR101000 | 1 | 13.1 (.52) | 5.3 (.21) | 5.3 (.21) | 1.5 (.06) | 2.3 (.091) | 9.8 (.386) | 1.5 (.06) |
| A 1M12MHR151000 | 1.5 | 16.1 (.63) | 7 (.28) | 7.1 (.28) | 1.9 (.07) | 3.2 (.126) | 12.3 (.484) | 1.9 (.07) |
| A 1M12MHR201000 | 2 | 20.6 (.81) | 8 (.31) | 7.1 (.28) | 1.9 (.07) | 3.6 (.142) | 16.8 (.661) | 1.9 (.07) |

NOTE: Dimensions in () are inch.

PINIONS – MODULE 0.8 TO 2

➤ **MATERIAL:**

Acetal



METRIC COMPONENT

| Catalog Number | Module | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | D ₁ Hub Dia. | l Hub Proj. |
|-----------------|--------|--------------|------|--------|--------|--------------|-------------------------|-------------|
| A 1M 2MYHF08032 | 0.8 | 32 | 25.6 | 27.2 | 6 | 4 | 12 | 5 |
| A 1M 2MYHF10032 | 1 | 32 | 32 | 34 | 6 | 5 | 14 | 6 |
| A 1M 2MYHF15024 | 1.5 | 24 | 36 | 39 | 8 | 6 | 18.3 | 11 |
| A 1M 2MYHF20024 | 2 | 24 | 48 | 52 | 10 | 8 | 24 | 12 |

ISO CLASS 6
35° SPIRAL ANGLE
MODULE 2, 2.5, 3, 3.5, 4 & 5
20° PRESSURE ANGLE

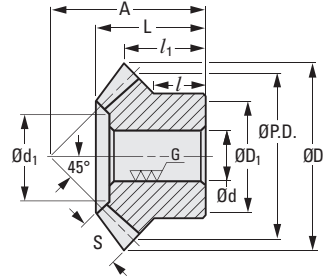


> MATERIAL:

AISI 1045 Steel, Tooth Surfaces
Induction Hardened to HRC 48...53

> FINISH:

Black Oxide, except Ground Bore
and Tooth Surfaces



METRIC COMPONENT

| Catalog Number* | Mod. | d Bore H7 | P.D. | D Dia. | S Face Width | L Length | D ₁ Hub Dia. | l Hub Proj. | A Mtg. Dist. | d ₁ | l ₁ Crown to Back |
|------------------------|------|-----------|------|--------|--------------|----------|-------------------------|-------------|--------------|----------------|------------------------------|
| No. of Teeth 20 | | | | | | | | | | | |
| S13S1YMK20G20L12 | 2 | 12 | 40 | 42.4 | 10 | 24.75 | 34 | 14 | 37 | 21.72 | 18.2 |
| S13S1YMK20G20R12 | 2 | 12 | 40 | 42.4 | 10 | 24.75 | 34 | 14 | 37 | 21.72 | 18.2 |
| S13S1YMK25G20L14 | 2.5 | 14 | 50 | 52.94 | 12 | 32.42 | 42 | 19 | 48 | 28.06 | 24.47 |
| S13S1YMK25G20R14 | 2.5 | 14 | 50 | 52.94 | 12 | 32.42 | 42 | 19 | 48 | 28.06 | 24.47 |
| S13S1YMK30G20L16 | 3 | 16 | 60 | 63.72 | 15 | 39.6 | 50 | 23 | 58 | 31.57 | 29.86 |
| S13S1YMK30G20R16 | 3 | 16 | 60 | 63.72 | 15 | 39.6 | 50 | 23 | 58 | 31.57 | 29.86 |
| S13S1YMK35G20L20 | 3.5 | 20 | 70 | 74.47 | 18 | 43.81 | 60 | 25 | 65 | 39.09 | 32.23 |
| S13S1YMK35G20R20 | 3.5 | 20 | 70 | 74.47 | 18 | 43.81 | 60 | 25 | 65 | 39.09 | 32.23 |
| S13S1YMK40G20L20 | 4 | 20 | 80 | 84.88 | 20 | 50.51 | 64 | 27 | 75 | 43.43 | 37.44 |
| S13S1YMK40G20R20 | 4 | 20 | 80 | 84.88 | 20 | 50.51 | 64 | 27 | 75 | 43.43 | 37.44 |
| S13S1YMK50G20L25 | 5 | 25 | 100 | 105.9 | 26 | 60.16 | 80 | 30 | 90 | 54.46 | 42.95 |
| S13S1YMK50G20R25 | 5 | 25 | 100 | 105.9 | 26 | 60.16 | 80 | 30 | 90 | 54.46 | 42.95 |
| No. of Teeth 25 | | | | | | | | | | | |
| S13S1YMK20G25L12 | 2 | 12 | 50 | 52.4 | 12 | 24.19 | 40 | 10 | 40 | 26.06 | 16.2 |
| S13S1YMK20G25R12 | 2 | 12 | 50 | 52.4 | 12 | 24.19 | 40 | 10 | 40 | 26.06 | 16.2 |
| S13S1YMK25G25L16 | 2.5 | 16 | 62.5 | 65.54 | 15 | 30.24 | 50 | 12.5 | 50 | 34.57 | 20.27 |
| S13S1YMK25G25R16 | 2.5 | 16 | 62.5 | 65.54 | 15 | 30.24 | 50 | 12.5 | 50 | 34.57 | 20.27 |
| S13S1YMK30G25L20 | 3 | 20 | 75 | 78.77 | 20 | 37.57 | 60 | 15 | 60 | 37.43 | 24.39 |
| S13S1YMK30G25R20 | 3 | 20 | 75 | 78.77 | 20 | 37.57 | 60 | 15 | 60 | 37.43 | 24.39 |
| S13S1YMK35G25L25 | 3.5 | 25 | 87.5 | 91.81 | 22 | 42.98 | 70 | 17.5 | 70 | 46.77 | 28.41 |
| S13S1YMK35G25R25 | 3.5 | 25 | 87.5 | 91.81 | 22 | 42.98 | 70 | 17.5 | 70 | 46.77 | 28.41 |
| S13S1YMK40G25L28 | 4 | 28 | 100 | 104.7 | 25 | 49.14 | 80 | 20 | 80 | 55.29 | 32.55 |
| S13S1YMK40G25R28 | 4 | 28 | 100 | 104.7 | 25 | 49.14 | 80 | 20 | 80 | 55.29 | 32.55 |
| S13S1YMK50G25L28 | 5 | 28 | 125 | 130.86 | 30 | 60.59 | 100 | 25 | 100 | 65.15 | 40.43 |
| S13S1YMK50G25R28 | 5 | 28 | 125 | 130.86 | 30 | 60.59 | 100 | 25 | 100 | 65.15 | 40.43 |
| No. of Teeth 30 | | | | | | | | | | | |
| S13S1YMK20G30L12 | 2 | 12 | 60 | 62.42 | 12 | 29.27 | 45 | 12.5 | 50 | 36.06 | 21.21 |
| S13S1YMK20G30R12 | 2 | 12 | 60 | 62.42 | 12 | 29.27 | 45 | 12.5 | 50 | 36.06 | 21.21 |
| S13S1YMK25G30L16 | 2.5 | 16 | 75 | 78.04 | 15 | 36.08 | 60 | 17 | 62 | 47.57 | 26.02 |
| S13S1YMK25G30R16 | 2.5 | 16 | 75 | 78.04 | 15 | 36.08 | 60 | 17 | 62 | 47.57 | 26.02 |
| S13S1YMK30G30L20 | 3 | 20 | 90 | 93.61 | 20 | 45.25 | 70 | 20 | 75 | 53.43 | 31.8 |
| S13S1YMK30G30R20 | 3 | 20 | 90 | 93.61 | 20 | 45.25 | 70 | 20 | 75 | 53.43 | 31.8 |
| S13S1YMK35G30L25 | 3.5 | 25 | 105 | 109.21 | 22 | 49.4 | 90 | 25 | 85 | 67.77 | 34.6 |
| S13S1YMK35G30R25 | 3.5 | 25 | 105 | 109.21 | 22 | 49.4 | 90 | 25 | 85 | 67.77 | 34.6 |
| S13S1YMK40G30L28 | 4 | 28 | 120 | 124.71 | 25 | 54.28 | 100 | 25 | 95 | 79.29 | 37.35 |
| S13S1YMK40G30R28 | 4 | 28 | 120 | 124.71 | 25 | 54.28 | 100 | 25 | 95 | 79.29 | 37.35 |

NOTE: R or L in catalog number indicates right- or left-hand direction of helix.

* A set of spiral miter gears must be identical in module and number of teeth, but opposite in spiral hands.

ISO CLASS 8
MODULE 0.5, 0.8 & 1
20° PRESSURE ANGLE

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QUALITY CLASS

MATERIAL:
Brass or Steel

SPECIFICATIONS:
Straight Tooth sold as each
35° Spiral Tooth sold as matched sets only

Bore Tolerance: 3 & 4 mm +0.014/0 (H8)
5 & 6 mm +0.018/0 (H8)
6 mm +0.012/0 (H7)
8 mm +0.015/0 (H7)

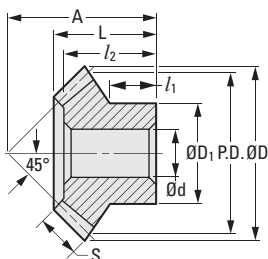


Fig. 1

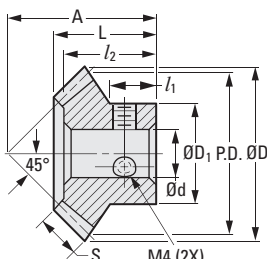


Fig. 2

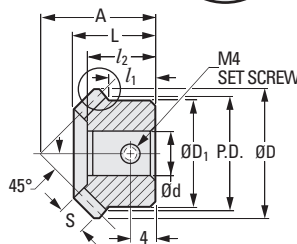


Fig. 3

METRIC COMPONENT

| Catalog Number Straight Tooth | Mod. | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | L Lngth. | D ₁ Hub Dia. | I ₁ Hub Proj. | A | I ₂ |
|----------------------------------|------|----------|--------------|------|--------|--------|--------------|----------|-------------------------|--------------------------|----|----------------|
| Brass - Sold as each | | | | | | | | | | | | |
| A 1B 4MYK05020 | 0.5 | 1 | 20 | 10 | 10.71 | 3 (H8) | 2.5 | 8 | 8 | 5 | 11 | 7 |
| * A 1B 4MYK05025S | 0.5 | 2 | 25 | 12.5 | 13.21 | 4 (H8) | 3.0 | 8.11 | 11 | 5 | 12 | 7 |
| * A 1B 4MYK05030S | 0.5 | 2 | 30 | 15 | 15.71 | 4 (H8) | 3.5 | 9.21 | 12 | 5 | 14 | 8 |
| A 1B 4MYK08020 | 0.8 | 1 | 20 | 16 | 17.13 | 5 (H8) | 3.7 | 11 | 12 | 6 | 16 | 10 |
| * A 1B 4MYK08025S | 0.8 | 2 | 25 | 20 | 21.13 | 5 (H8) | 4.7 | 11.67 | 16 | 6 | 18 | 10.5 |
| A 1B 4MYK08030S | 0.8 | 2 | 30 | 24 | 25.13 | 6 (H8) | 5.6 | 12.34 | 18 | 6 | 20 | 11 |
| A 1B 4MYK10020S | 1 | 2 | 20 | 20 | 21.41 | 6 (H8) | 4.3 | 14.53 | 16 | 9 | 21 | 13 |
| A 1B 4MYK10025S | 1 | 2 | 25 | 25 | 26.41 | 6 (H8) | 5.3 | 14.70 | 20 | 8 | 23 | 13 |
| ** A 1B 4MYK10030S | 1 | 2 | 30 | 30 | 31.41 | 8 (H8) | 6.2 | 15.89 | 22 | 8.9 | 26 | 14.5 |
| Steel - Sold as each | | | | | | | | | | | | |
| A 1C 4MYK05020 | 0.5 | 1 | 20 | 10 | 10.71 | 3 (H8) | 2.5 | 8 | 8 | 5 | 11 | 7 |
| * A 1C 4MYK05025S | 0.5 | 2 | 25 | 12.5 | 13.21 | 4 (H8) | 3.0 | 8.11 | 11 | 5 | 12 | 7 |
| A 1C 4MYK05030 | 0.5 | 1 | 30 | 15 | 15.71 | 4 (H8) | 3.5 | 9.21 | 12 | 5 | 14 | 8 |
| A 1C 4MYK08020 | 0.8 | 1 | 20 | 16 | 17.13 | 5 (H7) | 3.7 | 11 | 12 | 6 | 16 | 10 |
| A 1C 4MYK08025 | 0.8 | 1 | 25 | 20 | 21.13 | 5 (H7) | 4.7 | 11.67 | 16 | 6 | 18 | 10.5 |
| A 1C 4MYK08030 | 0.8 | 1 | 30 | 24 | 25.13 | 6 (H7) | 5.6 | 12.34 | 18 | 6 | 20 | 11 |
| A 1C 4MYK10020A | 1 | 1 | 20 | 20 | 21.41 | 6 (H7) | 4.3 | 7.53 | 16 | 2 | 14 | 6 |
| A 1C44MYK10020A | 1 | 1 | 20 | 20 | 21.41 | 6 (H7) | 4.3 | 14.53 | 16 | 9 | 21 | 13 |

NOTE: * M3 Set Screw; ** M5 Set Screw

| Catalog Number 35° Spiral Tooth | Mod. | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | L Lngth. | D ₁ Hub Dia. | I ₁ Hub Proj. | A | I ₂ |
|-------------------------------------|------|----------|--------------|------|--------|--------|--------------|----------|-------------------------|--------------------------|----|----------------|
| Steel - Sold as matched sets | | | | | | | | | | | | |
| Δ A 1C44MYK10020S | 1 | 3 | 20 | 20 | 21.12 | 8 (H7) | 4.5 | 13.43 | 16 | 8 | 20 | 12 |
| A 1C44MYK10020SR | 1 | 1 | 20 | 20 | 21.12 | 6 (H7) | 4.5 | 14.43 | 16 | 9 | 21 | 13 |

Δ Induction Hardened and Ground.

11.28.12 JF

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35° SPIRAL MITER GEARS • MODULE 1.25 TO 2.25



ISO CLASS 8
 MODULE 1.25, 1.5, 2 & 2.25
 20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



0 10

QUALITY CLASS

► **MATERIAL:**
 Steel

► **SPECIFICATIONS:**
 Sold as matched sets only
 With or Without Keyway

With Keyway *

| Catalog Number | w | t |
|-----------------|---|-----|
| A 1C44MYK15020S | 4 | 1.8 |
| A 1C44MYK20020S | 5 | 2.3 |
| A 1C44MYK22020S | 5 | 2.3 |

Bore Tolerance: 10 mm +0.015/0
 12, 14, 16 mm +0.018/0

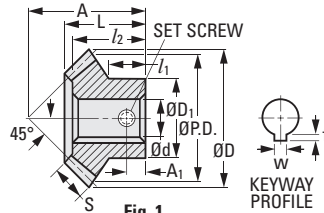


Fig. 1

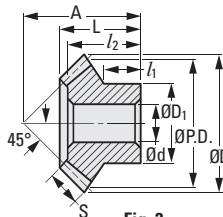


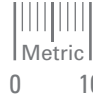
Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No | No. of Teeth | P.D. | D Dia. | d Bore H7 | S Face Width | L Lgth. | D ₁ Hub Dia. | l ₁ Hub Proj. | A | l ₂ | A ₁ | Set Screw |
|---|---------|--------------|------|--------|-----------|--------------|---------|-------------------------|--------------------------|----|----------------|----------------|-----------|
| Module 1.25 Without Keyway - Sold as matched set | | | | | | | | | | | | | |
| A 1C 4MYK12020S | 1 | 20 | 25 | 26.42 | 10 | 6 | 17.13 | 20 | 10 | 25 | 15.5 | 5 | M4 |
| Module 1.5 - Sold as matched sets | | | | | | | | | | | | | |
| A 1C 4MYK15020SR | 2 | 20 | 30 | 31.85 | 10 | 7 | 18.49 | 24 | 10 | 28 | 16.5 | — | — |
| A 1C 4MYKW15020S | 2 | 20 | 30 | 31.85 | 10 | 7 | 11.44 | 24 | 3 | 21 | 9.5 | — | — |
| * A 1C44MYK15020S | 1 | 20 | 30 | 31.85 | 12 | 7 | 20.44 | 24 | 12 | 30 | 18.5 | 6 | M5 |
| Module 2 - Sold as matched sets | | | | | | | | | | | | | |
| A 1C 4MYK20020S | 2 | 20 | 40 | 42.28 | 12 | 9 | 24.16 | 34 | 14 | 37 | 21 | — | — |
| A 1C 4MYKW20020S | 2 | 20 | 40 | 42.28 | 12 | 9 | 15.16 | 34 | 5 | 28 | 12 | — | — |
| * A 1C44MYK20020S | 1 | 20 | 40 | 42.28 | 14 | 9 | 27.16 | 32 | 16 | 40 | 24 | 8 | M5 |
| Module 2.25 - Sold as matched set | | | | | | | | | | | | | |
| * A 1C44MYK22020S | 1 | 20 | 45 | 47.73 | 16 | 10 | 30.39 | 36 | 18 | 45 | 27.5 | 9 | M6 |

ISO CLASS 8
 MODULE 1.5, 2, 2.5, 2.75 & 3
 20° PRESSURE ANGLE

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QUALITY CLASS

➤ **MATERIAL:**
 Steel

➤ **SPECIFICATIONS:**
 Sold as each
 With or Without Keyway

With Keyway *

| Catalog Number | w | t |
|------------------|---|-----|
| A 1C 4MYK25020A | 6 | 2.8 |
| A 1C44MYKW25020A | 6 | 2.8 |
| A 1C 4MYK27020A | 6 | 2.8 |
| A 1C 4MYKW30020A | 6 | 2.8 |
| A 1C44MYKW30020A | 8 | 3.3 |

Bore Tolerance: 10 mm +0.015/0
 12, 14, 16 & 18 mm +0.018/0
 20, 22 & 25 mm +0.021/0

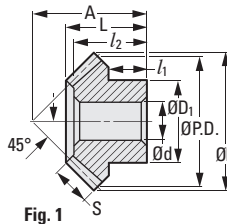


Fig. 1

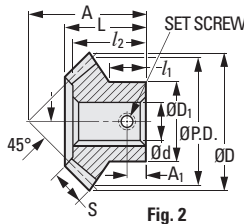
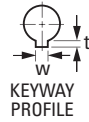


Fig. 2



KEYWAY PROFILE

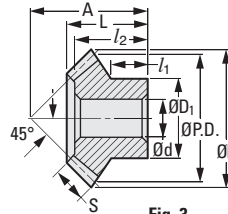


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No | No. of Teeth | P.D. | D Dia. | d Bore H7 | S Face Width | L Lgth. | D1 Hub Dia. | l1 Hub Proj. | A | l2 | A1 | Set Screw |
|--------------------|---------|--------------|------|--------|-----------|--------------|---------|-------------|--------------|----|------|------|-----------|
| Module 1.5 | | | | | | | | | | | | | |
| A 1C 4MYK15020R | 3 | 20 | 30 | 32.12 | 10 | 6 | 11 | 24 | 3 | 21 | 9 | - | - |
| A 1C44MYK15020R | 3 | 20 | 30 | 32.12 | 10 | 6.8 | 18.53 | 24 | 10 | 28 | 16.5 | - | - |
| A 1C 4MYK15030R | 1 | 30 | 45 | 47.12 | 12 | 9.3 | 14.83 | 33 | 4.34 | 30 | 12.5 | - | - |
| A 1C44MYK15030R | 1 | 30 | 45 | 47.12 | 12 | 9.3 | 22.83 | 33 | 12.34 | 38 | 21 | - | - |
| Module 2 | | | | | | | | | | | | | |
| A 1C 4MYK20020R | 3 | 20 | 40 | 42.83 | 12 | 8.5 | 15 | 34 | 5 | 28 | 12 | - | - |
| A 1C44MYK20020R | 3 | 20 | 40 | 42.83 | 12 | 8.5 | 24 | 34 | 14 | 37 | 21 | - | - |
| A 1C 4MYK20030R | 1 | 30 | 60 | 62.83 | 16 | 12.4 | 19.77 | 44 | 5.79 | 40 | 17 | - | - |
| A 1C44MYK20030R | 1 | 30 | 60 | 62.83 | 16 | 12.4 | 30.77 | 44 | 16.79 | 51 | 28 | - | - |
| Module 2.5 | | | | | | | | | | | | | |
| * A 1C 4MYK25020A | 2 | 20 | 50 | 53.54 | 18 | 10.3 | 33.54 | 40 | 20 | 50 | 30 | 10 | M6 |
| A 1C 4MYKW25020 | 3 | 20 | 50 | 53.54 | 14 | 11.1 | 19.06 | 42 | 6 | 35 | 15 | - | - |
| A 1C44MYK25020 | 3 | 20 | 50 | 53.54 | 14 | 11.1 | 32.06 | 42 | 19 | 48 | 28 | - | - |
| * A 1C44MYKW25020A | 2 | 20 | 50 | 53.54 | 18 | 11.1 | 32 | 42 | 19 | 48 | 28 | - | - |
| A 1C 4MYK25030 | 3 | 30 | 75 | 78.54 | 16 | 15.5 | 24.71 | 55 | 7.5 | 50 | 21.5 | - | - |
| A 1C44MYK25030 | 3 | 30 | 75 | 78.54 | 18 | 15.5 | 37.71 | 55 | 20.5 | 63 | 34.5 | - | - |
| Module 2.75 | | | | | | | | | | | | | |
| * A 1C 4MYK27020A | 2 | 20 | 55 | 58.89 | 20 | 10.8 | 35.54 | 44 | 21 | 54 | 32 | 10.5 | M6 |
| Module 3 | | | | | | | | | | | | | |
| A 1C 4MYK30020 | 3 | 20 | 60 | 64.24 | 16 | 13.6 | 39.06 | 50 | 23 | 58 | 35 | - | - |
| * A 1C 4MYKW30020A | 2 | 20 | 60 | 64.24 | 22 | 12 | 38.01 | 48 | 22 | 58 | 34 | 11 | M6 |
| * A 1C44MYKW30020A | 2 | 20 | 60 | 64.24 | 25 | 12 | 38.01 | 48 | 22 | 58 | 34 | 11 | M8 |
| A 1C 4MYK30030 | 3 | 30 | 90 | 94.24 | 20 | 18.6 | 29.65 | 66 | 8.64 | 60 | 25 | - | - |
| A 1C44MYK30030 | 3 | 30 | 90 | 94.24 | 22 | 18.6 | 44.65 | 66 | 23.64 | 75 | 40 | - | - |

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STRAIGHT MITER GEARS • MODULE 0.6 TO 1.5

SDP/SI

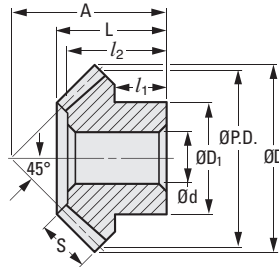
ISO CLASS 8
 MODULE 0.6, 1 & 1.5
 20° PRESSURE ANGLE

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QUALITY CLASS

> **MATERIAL:**
 Aluminum, Brass, Steel or Stainless Steel



METRIC COMPONENT

| Catalog Number | | | Material |
|----------------|---------------|---------------|--------------------------|
| Module 0.6 | Module 1 | Module 1.5 | |
| A 1A 4MY06020 | A 1A 4MY10020 | A 1A 4MY15020 | Aluminum 2024 T4 |
| A 1B 4MY06020 | A 1B 4MY10020 | A 1B 4MY15020 | Brass ASTM B-16 |
| A 1C 4MY06020 | A 1C 4MY10020 | A 1C 4MY15020 | Steel SAE 4140 |
| A 1X 4MY06020 | A 1X 4MY10020 | A 1X 4MY15020 | Stainless Steel AISI 416 |

| Module | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | S Face Width | L Length | D ₁ Hub Dia. | l ₁ Hub Proj. | A | l ₂ |
|--------|--------------|------|--------|-----------|-------------|--------------|----------|-------------------------|--------------------------|----|----------------|
| 0.6 | 20 | 12 | 12.8 | 4 | +0.018/0 | 3 | 6.4 | 7 | 3 | 10 | 5.5 |
| 1 | 20 | 20 | 21.4 | 8 | +0.022/0 | 5 | 10.9 | 12 | 5 | 17 | 9.5 |
| 1.5 | 20 | 30 | *31.5 | 12 | +0.027/0 | 7 | 15.5 | 18 | 7 | 25 | 13 |

* Truncated O.D., Actual O.D. = 32.1

MODULE 0.5, 0.8, 1, 1.5, 2, 2.5, 3, & 3.5
20° PRESSURE ANGLE

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➤ MATERIAL:
Acetal

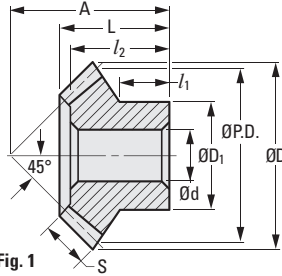


Fig. 1

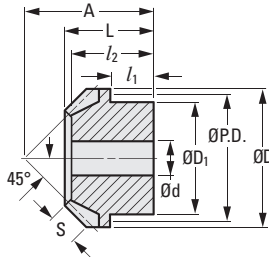


Fig. 2

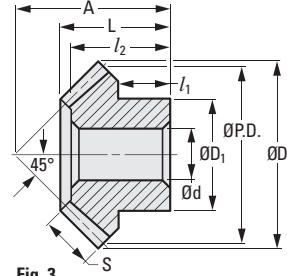


Fig. 3

METRIC COMPONENT

| Catalog Number | Mod. | P.D. | D Dia. | d Bore | S Face Width | L Length | D ₁ Hub Dia. | l ₁ Hub Proj. | A | l ₂ |
|------------------------|------|------|--------|--------|--------------|----------|-------------------------|--------------------------|------|----------------|
| Fig. 1 16 Teeth | | | | | | | | | | |
| A 1M 4MYZ05 | 0.5 | 8 | 8.7 | 3 | 2 | 8 | 7 | 6 | 10.5 | 8 |
| A 1M 4MYZ10 | 1 | 16 | 17.6 | 5 | 4.7 | 13.6 | 12 | 8 | 18.4 | — |
| A 1M 4MYZ15 | 1.5 | 24 | 26.4 | 8 | 7 | 18.4 | 18.5 | 10 | 25.8 | 16.2 |
| A 1M 4MYZ20A | 2 | 32 | 34.9 | 8 | 10 | 21.2 | 21.9 | 9.6 | 30.4 | 18.3 |
| A 1M 4MYZ20 | 2 | 32 | 34.9 | 10 | 10 | 21.2 | 21.9 | 9.6 | 30.4 | 18.3 |
| A 1M 4MYZ25A | 2.5 | 40 | 43.5 | 8 | 12.3 | 25.5 | 25.2 | 11.5 | 37 | 22.9 |
| A 1M 4MYZ25 | 2.5 | 40 | 43.5 | 12 | 12.3 | 25.5 | 25.2 | 11.5 | 37 | 22.9 |
| A 1M 4MYZ30A | 3 | 48 | 52.3 | 14 | 13.8 | 29.2 | 28.8 | 13.2 | 43 | 25.8 |
| A 1M 4MYZ30B | 3 | 48 | 52.3 | 15 | 13.8 | 29.2 | 28.8 | 13.2 | 43 | 25.8 |
| A 1M 4MYZ30C | 3 | 48 | 52.3 | 17 | 13.8 | 29.2 | 28.8 | 13.2 | 43 | 25.8 |
| A 1M 4MYZ30 | 3 | 48 | 52.3 | 20 | 13.8 | 29.2 | 28.8 | 13.2 | 43 | 25.8 |
| A 1M 4MYZ35 | 3.5 | 56 | 61.4 | 18 | 15.8 | 33.1 | 33.3 | 14.4 | 49.5 | 28.1 |
| A 1M 4MYZ35A | 3.5 | 56 | 61.4 | 20 | 15.8 | 33.1 | 33.3 | 14.4 | 49.5 | 28.1 |
| Fig. 2 20 Teeth | | | | | | | | | | |
| A 1M 4MYH05 | 0.5 | 10 | 10.7 | 3 | 2.5 | 8 | 8 | 4 | 11 | 7 |
| A 1M 4MYH08 | 0.8 | 16 | 17.1 | 5 | 3.5 | 10.8 | 12 | 5 | 16 | 10 |
| A 1M 4MYH10 | 1 | 20 | 21.4 | 6 | 4.5 | 14.6 | 16 | 7 | 21 | 13 |
| A 1M 4MYH15 | 1.5 | 30 | 32.1 | 8 | 7 | 20.6 | 20 | 10 | 30 | 19 |
| Fig. 3 30 Teeth | | | | | | | | | | |
| A 1M 4MYZ10A | 1 | 30 | 31.4 | 6 | 7.2 | 15.3 | 15 | 7.5 | 24.8 | 12.9 |

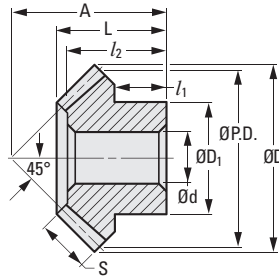
STRAIGHT MITER GEARS • MODULE 1 TO 3.5

SDP/SI

MODULE 1, 1.5, 2, 2.5, 3, & 3.5
20° PRESSURE ANGLE

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► **MATERIAL:**
Die Cast Zinc



METRIC COMPONENT

| Catalog Number | Mod. | P.D. | D Dia. | d Bore | S Face Width | L Length | D ₁ Hub Dia. | I ₁ Hub Proj. | A | I ₂ |
|-----------------|------|------|--------|--------|--------------|----------|-------------------------|--------------------------|------|----------------|
| 16 Teeth | | | | | | | | | | |
| A 1D 4MYZ10020 | 1 | 16 | 17.3 | 6 | 4.5 | 13.1 | 12 | 7.5 | 17.7 | 13.1 |
| A 1D 4MYZ15020 | 1.5 | 24 | 26 | 8 | 6.7 | 18.6 | 19 | 10.8 | 25.7 | 17 |
| A 1D 4MYZ20020 | 2 | 32 | 34.6 | 10 | 9.6 | 21.3 | 23 | 10 | 30 | 19.2 |
| A 1D 4MYZ25020 | 2.5 | 40 | 43.3 | 12 | 12.3 | 25.5 | 26 | 12 | 36 | 22.9 |
| A 1D 4MYZ30020 | 3 | 48 | 52.3 | 14 | 14 | 29.3 | 30 | 13 | 42.5 | 26 |
| A 1D 4MYZ35020 | 3.5 | 56 | 61.5 | 16 | 15.5 | 33.2 | 34 | 14 | 49.4 | 29.1 |

ISO CLASS 6

35° SPIRAL ANGLE

MODULE 2, 2.5, 3 & 4

20° PRESSURE ANGLE

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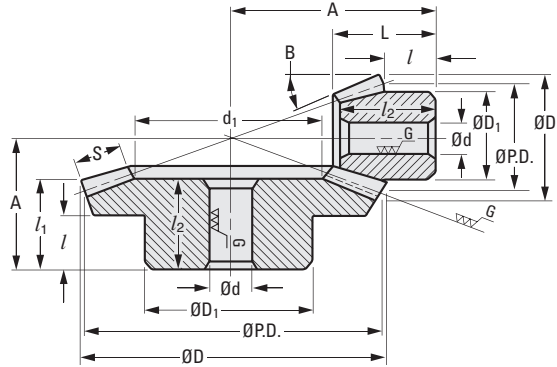


► MATERIAL:

AISI 1045 Steel, Tooth Surfaces
Induction Hardened to HRC 48...53

► FINISH:

Black Oxide, except Ground Bore
and Tooth Surfaces



METRIC COMPONENT

| Catalog Number | Mod. | No. of Teeth | d Bore H7 | P.D. | D Dia. | S Face Width | L Length | D ₁ Hub Dia. | l Hub Proj. | A Mtg. Dist. | d ₁ | l ₁ Crown to Back | l ₂ Lngth. of Bore | B Face Angle |
|------------------|------|--------------|-----------|-------|--------|--------------|----------|-------------------------|-------------|--------------|----------------|------------------------------|-------------------------------|--------------|
| Ratio 2:3 | | | | | | | | | | | | | | |
| S13S2YMK20G20L10 | 2 | 20 | 10 | 40 | 43.55 | 11 | 24.91 | 30 | 11.67 | 45 | 21.34 | 16.18 | 22 | 37° 40' |
| S13S2YMK20G30R12 | 2 | 30 | 12 | 60 | 61.6 | 11 | 26.6 | 35 | 15 | 40 | 37.56 | 21.2 | 23 | 60° 43' |
| S13S2YMK25G20L12 | 2.5 | 20 | 12 | 50 | 54.53 | 15 | 30.88 | 40 | 14.17 | 55 | 27.42 | 18.98 | 28 | 37° 41' |
| S13S2YMK25G30R15 | 2.5 | 30 | 15 | 75 | 77.09 | 15 | 33.86 | 45 | 18 | 50 | 45.61 | 26.56 | 30 | 61° 01' |
| S13S2YMK30G20L16 | 3 | 20 | 16 | 60 | 65.58 | 17 | 40.17 | 45 | 20 | 70 | 34.71 | 26.86 | 37 | 38° 45' |
| S13S2YMK30G30R16 | 3 | 30 | 16 | 90 | 92.21 | 17 | 35.34 | 50 | 17 | 55 | 57.14 | 26.66 | 31 | 59° 20' |
| S13S2YMK40G20L20 | 4 | 20 | 20 | 80 | 87.34 | 20 | 48.17 | 60 | 23.33 | 90 | 46.89 | 32.45 | 43 | 38° 25' |
| S13S2YMK40G30R20 | 4 | 30 | 20 | 120 | 122.85 | 20 | 47.49 | 70 | 25 | 75 | 78.59 | 37.14 | 40 | 58° 52' |
| Ratio 1:2 | | | | | | | | | | | | | | |
| S13S3YMK20G20L12 | 2 | 20 | 12 | 40 | 44.1 | 15 | 34 | 32 | 18 | 60 | 21.11 | 21 | 32 | 29° 58' |
| S13S3YMK20G40R12 | 2 | 40 | 12 | 80 | 81 | 15 | 32.2 | 40 | 18 | 45 | 48.8 | 26 | 27 | 65° 20' |
| S13S3YMK25G20L12 | 2.5 | 20 | 12 | 50 | 55.2 | 20 | 43.61 | 40 | 22.5 | 75 | 20.53 | 26.3 | 40 | 30° 18' |
| S13S3YMK25G40R15 | 2.5 | 40 | 15 | 100 | 101.27 | 20 | 39.65 | 50 | 20 | 55 | 59.26 | 31.27 | 34 | 65° 50' |
| S13S3YMK30G20L16 | 3 | 20 | 16 | 60 | 66.07 | 22 | 50.63 | 50 | 27.5 | 90 | 29.63 | 31.52 | 47 | 29° 50' |
| S13S3YMK30G40R20 | 3 | 40 | 20 | 120 | 121.48 | 22 | 45.76 | 60 | 24 | 65 | 73.78 | 36.47 | 38 | 65° 03' |
| S13S3YMK40G20L20 | 4 | 20 | 20 | 80 | 88.5 | 28 | 66.24 | 60 | 35 | 120 | 42.8 | 42.12 | 62 | 30° 47' |
| S13S3YMK40G40R20 | 4 | 40 | 20 | 160 | 162.07 | 28 | 53.68 | 70 | 28 | 80 | 102.44 | 42.07 | 45 | 65° 30' |
| Ratio 1:3 | | | | | | | | | | | | | | |
| S13S4YMK20G15L10 | 2 | 15 | 10 | 30 | 34.78 | 15 | 29.66 | 24 | 14 | 60 | 19.15 | 15.8 | 29 | 22° 50' |
| S13S4YMK20G45R12 | 2 | 45 | 12 | 90 | 90.67 | 15 | 30.29 | 40 | 17 | 40 | 59.07 | 26.01 | 26 | 73° 25' |
| S13S4YMK25G15L12 | 2.5 | 15 | 12 | 37.5 | 43.36 | 20 | 38.27 | 30 | 17.5 | 75 | 20.48 | 19.73 | 37 | 22° 22' |
| S13S4YMK25G45L15 | 2.5 | 45 | 15 | 112.5 | 113.32 | 20 | 38.25 | 50 | 22 | 50 | 72.82 | 32.47 | 35 | 73° 13' |
| S13S4YMK30G15L15 | 3 | 15 | 15 | 45 | 52.08 | 23 | 44.98 | 38 | 21.33 | 90 | 28.52 | 23.68 | 44 | 22° 32' |
| S13S4YMK30G45L20 | 3 | 45 | 20 | 135 | 135.99 | 23 | 40.59 | 60 | 20 | 55 | 88.2 | 33.98 | 35 | 73° 18' |

NOTE: R or L in catalog number indicates right- or left-hand direction of helix.

ISO CLASS 8
MODULE 0.5, 0.8 & 1
20° PRESSURE ANGLE

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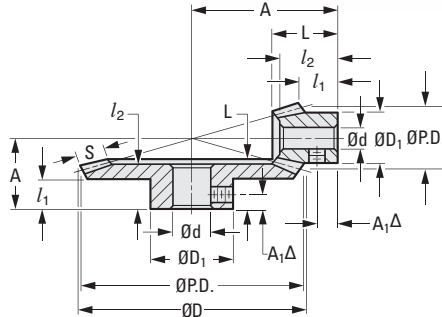
QUALITY CLASS

➤ **MATERIAL:**
Brass or Steel

➤ **SPECIFICATIONS:**

Brass Bore Tolerance: 3 mm +0.014/0
4, 5 & 6 mm +0.018/0

Steel Bore Tolerance: 6 mm +0.012/0
8 & 10 mm +0.015/0



Δ Only A 1C33MYK10020S and A 1C33MYK10040S have tapped holes with set screw

METRIC COMPONENT

| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore H8 | S Face Width | L Length | D ₁ Hub Dia. | l ₁ Hub Proj. | A | l ₂ |
|------------------------|------|--------------|------|--------|-----------|--------------|----------|-------------------------|--------------------------|-------|----------------|
| Ratio 1:2 Brass | | | | | | | | | | | |
| A 1B 3MYK05020 | 0.5 | 20 | 10 | 10.89 | 3 | 3.2 | 8.54 | 8 | 5 | 15.52 | 8 |
| A 1B 3MYK05040 | 0.5 | 40 | 20 | 20.45 | 4 | 3.2 | 7.31 | 12 | 4 | 10.56 | 6.3 |
| A 1B 3MYK08020 | 0.8 | 20 | 16 | 17.43 | 5 | 4.5 | 10.79 | 12 | 5.5 | 22.5 | 10 |
| A 1B 3MYK08040 | 0.8 | 40 | 32 | 32.72 | 6 | 4.5 | 11.01 | 20 | 6 | 16.46 | 9.5 |

| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore H7 | S Face Wdth. | L Lgth. | D ₁ Hub Dia. | l ₁ Hub Proj. | A | l ₂ | A ₁ | Set Screw Δ |
|------------------------|------|--------------|------|--------|-----------|--------------|---------|-------------------------|--------------------------|------|----------------|----------------|-------------|
| Ratio 1:2 Steel | | | | | | | | | | | | | |
| A 1C 3MYK10020 | 1 | 20 | 20 | 21.79 | 6 | 5.7 | 15.03 | 16 | 8.6 | 29.6 | 14 | — | — |
| A 1C 3MYK10040 | 1 | 40 | 40 | 40.89 | 8 | 5.7 | 15.02 | 25 | 8 | 21.8 | 13 | — | — |
| A 1C33MYK10020S | 1 | 20 | 20 | 21.79 | 8 | 5.7 | 15.03 | 16 | 8.6 | 29.6 | 14 | 4 | M4 |
| A 1C33MYK10040S | 1 | 40 | 40 | 40.89 | 10 | 5.7 | 15.02 | 25 | 8 | 21.8 | 13 | 4 | M5 |
| Ratio 1:3 Steel | | | | | | | | | | | | | |
| A 1C 3MYK10015 | 1 | 15 | 15 | 17.67 | 6 | 6.7 | 15.16 | 13 | 8.17 | 31 | 14.4 | — | — |
| A 1C 3MYK10045 | 1 | 45 | 45 | 45.37 | 10 | 6.7 | 14.97 | 25 | 8 | 20 | 12.9 | — | — |

ISO CLASS 8
MODULE 1.5, 2, 2.5 & 3
20° PRESSURE ANGLE

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QUALITY CLASS

> MATERIAL:

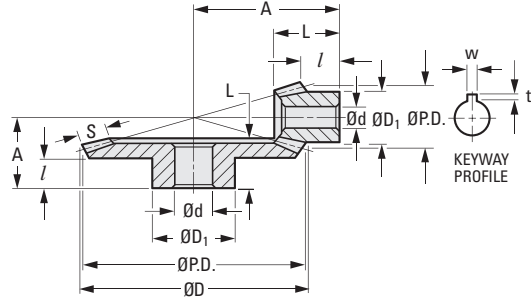
Without Keyway – Steel
With Keyway – AISI 1045 Steel,
Tooth Surfaces Induction Hardened
to HRC 48...53

> FINISH:

With Keyway – Black Oxide, Except
Ground Bore and Tooth Surfaces

> SPECIFICATIONS:

Bore Tolerance (H8): 8 & 10 mm +0.022/0
12, 14, 15, 16 & 18 mm +0.027/0
25 mm +0.033/0



METRIC COMPONENT

| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore H8 | S Face Width | L Length | D ₁ Hub Dia. | l Hub Proj. | A |
|---------------------------------|------|--------------|-------|--------|-----------|--------------|----------|-------------------------|-------------|-------|
| Ratio 1:2 Without Keyway | | | | | | | | | | |
| A 1C 3MYK15018 | 1.5 | 18 | 27 | 29.68 | 8 | 9.8 | 22.96 | 22 | 12.5 | 40.74 |
| A 1C 3MYK15036 | 1.5 | 36 | 54 | 55.34 | 10 | 9.8 | 18.54 | 30 | 10 | 26.75 |
| * A 1C 3MYK20018H | 2 | 18 | 36 | 39.58 | 10 | 12.6 | 29 | 28 | 15.12 | 53.12 |
| A 1C 3MYK20036 | 2 | 36 | 72 | 73.79 | 12 | 12.6 | 24.07 | 36 | 13 | 35.21 |
| A 1C 3MYK25018 | 2.5 | 18 | 45 | 49.47 | 12 | 16.7 | 34.97 | 36 | 17 | 64.29 |
| A 1C 3MYK25036 | 2.5 | 36 | 90 | 92.24 | 14 | 16.7 | 29.01 | 50 | 15 | 42.55 |
| A 1C 3MYK30018A | 3 | 18 | 54 | 59.37 | 15 | 20 | 40.06 | 41 | 18 | 75.27 |
| * A 1C 3MYK30036H | 3 | 36 | 108 | 110.68 | 16 | 20 | 36.06 | 60 | 19 | 52.32 |
| Ratio 1:3 Without Keyway | | | | | | | | | | |
| A 1C 3MYK15015 | 1.5 | 15 | 22.5 | 26.51 | 8 | 10.1 | 22.29 | 19.5 | 11.78 | 46 |
| A 1C 3MYK15045 | 1.5 | 45 | 67.5 | 68.06 | 12 | 10.1 | 22.47 | 37.5 | 12 | 30 |
| A 1C 3MYK25015 | 2.5 | 15 | 37.5 | 44.18 | 10 | 19 | 40.41 | 32 | 20.8 | 77.93 |
| A 1C 3MYK25045 | 2.5 | 45 | 112.5 | 113.44 | 16 | 19 | 28.74 | 60 | 14 | 40.67 |
| A 1C 3MYK30015 | 3 | 15 | 45 | 53.02 | 12 | 23 | 44.53 | 36 | 20.3 | 89.36 |
| A 1C 3MYK30045 | 3 | 45 | 135 | 136.12 | 18 | 23 | 36.69 | 70 | 19 | 50.95 |

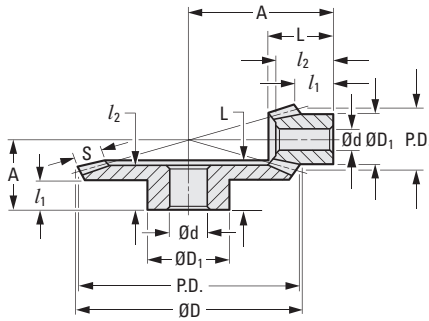
* Catalog Numbers ending in H are induction hardened.

| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore H8 | S Face Wdth. | L Lgth. | D ₁ Hub Dia. | l Hub Proj. | A | w | t |
|------------------------------|------|--------------|------|--------|-----------|--------------|---------|-------------------------|-------------|-------|---|-----|
| Ratio 1:2 With Keyway | | | | | | | | | | | | |
| A 1C33MYK15018H | 1.5 | 18 | 27 | 29.68 | 10 | 9.8 | 22.96 | 22 | 12.5 | 40.74 | 3 | 1.4 |
| A 1C33MYK15036H | 1.5 | 36 | 54 | 55.34 | 15 | 9.8 | 18.54 | 30 | 10 | 26.75 | 5 | 2.3 |
| A 1C33MYK20018H | 2 | 18 | 36 | 39.58 | 12 | 12.6 | 29 | 28 | 15.12 | 53.12 | 4 | 1.8 |
| A 1C33MYK20036H | 2 | 36 | 72 | 73.79 | 18 | 12.6 | 24.07 | 36 | 13 | 35.21 | 6 | 2.8 |
| A 1C33MYK30018H | 3 | 18 | 54 | 59.37 | 16 | 13.4 | 40.06 | 41 | 18 | 75.27 | 5 | 2.3 |
| A 1C33MYK30036H | 3 | 36 | 108 | 110.68 | 25 | 13.4 | 36.06 | 60 | 19 | 52.32 | 8 | 3.3 |
| Ratio 1:3 With Keyway | | | | | | | | | | | | |
| A 1C33MYK30015H | 3 | 15 | 45 | 53.02 | 16 | 23 | 44.53 | 36 | 20.3 | 89.36 | 5 | 2.3 |
| A 1C33MYK30045H | 3 | 45 | 135 | 136.12 | 25 | 23 | 36.69 | 70 | 19 | 50.95 | 8 | 3.3 |

MODULE 0.5, 0.8, 1, 1.5, 2, 2.5, & 3
20° PRESSURE ANGLE

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› MATERIAL:
Acetal



METRIC COMPONENT

| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | L Length | D ₁ Hub Dia. | l Hub Proj. | A | l ₂ |
|--------------------|------|--------------|------|--------|--------|--------------|----------|-------------------------|-------------|------|----------------|
| Ratio 1:1.5 | | | | | | | | | | | |
| A 1M 3MYZ1516 | 1.5 | 16 | 24 | 26 | 8 | 8 | 18.8 | 20 | 10.8 | 30 | 17.8 |
| A 1M 3MYZ1524 | 1.5 | 24 | 36 | 37 | 10 | 8 | 19.6 | 24 | 11.3 | 26.6 | 18.2 |
| Ratio 1:2 | | | | | | | | | | | |
| A 1M 3MYH0520 | 0.5 | 20 | 10 | 11.2 | 3 | 2.5 | 8.5 | 8 | 4 | 16 | 8.5 |
| A 1M 3MYH0540 | 0.5 | 40 | 20 | 20.3 | 4 | 2.5 | 8.3 | 12 | 4 | 12 | 7 |
| A 1M 3MYH0820 | 0.8 | 20 | 16 | 17.9 | 4 | 3.5 | 11.5 | 12 | 5 | 24 | 11.5 |
| A 1M 3MYH0840 | 0.8 | 40 | 32 | 32.5 | 5 | 3.5 | 11.9 | 15 | 6 | 18 | 10 |
| A 1M 3MYH1020 | 1 | 20 | 20 | 22.4 | 5 | 4.5 | 14.5 | 15 | 7 | 30 | 14.5 |
| A 1M 3MYH1040 | 1 | 40 | 40 | 40.6 | 6 | 4.5 | 14.5 | 18 | 7 | 22 | 12 |
| A 1M 3MYZ1015 | 1 | 15 | 15 | 16.8 | 5 | 6.6 | 17 | 12.2 | 10.6 | 26.4 | 17 |
| A 1M 3MYZ1030 | 1 | 30 | 30 | 31.1 | 8 | 6.6 | 16.2 | 18 | 9.1 | 20.9 | 14.8 |
| A 1M 3MYZ1515 | 1.5 | 15 | 22.5 | 25.4 | 8 | 10.5 | 22.8 | 17 | 11.5 | 35.8 | 22.8 |
| A 1M 3MYZ1530 | 1.5 | 30 | 45 | 46.4 | 10 | 10.5 | 19.5 | 23.4 | 9.6 | 26.2 | 17.5 |
| A 1M 3MYZ2015 | 2 | 15 | 30 | 33.6 | 10 | 14.6 | 27 | 22.5 | 11.8 | 44.2 | 26 |
| A 1M 3MYZ2015A | 2 | 15 | 30 | 33.6 | 15 | 14.6 | 27 | 22.5 | 11.8 | 44.2 | 26 |
| A 1M 3MYZ2030A | 2 | 30 | 60 | 62.2 | 10 | 14.6 | 24.2 | 30.2 | 11.8 | 32.6 | 22.6 |
| A 1M 3MYZ2030 | 2 | 30 | 60 | 62.2 | 12 | 14.6 | 24.2 | 30.2 | 11.8 | 32.6 | 22.6 |
| A 1M 3MYZ2030B | 2 | 30 | 60 | 62.2 | 15 | 14.6 | 24.2 | 30.2 | 11.8 | 32.6 | 22.6 |
| A 1M 3MYZ2515 | 2.5 | 15 | 37.5 | 42 | 12 | 17.3 | 31.2 | 26.5 | 13 | 53.3 | 29.6 |
| A 1M 3MYZ2530A | 2.5 | 30 | 75 | 77.3 | 14 | 17.3 | 29.5 | 36.1 | 15 | 40.5 | 27.5 |
| A 1M 3MYZ2530 | 2.5 | 30 | 75 | 77.3 | 16 | 17.3 | 29.5 | 36.1 | 15 | 40.5 | 27.5 |
| A 1M 3MYZ3015 | 3 | 15 | 45 | 50.3 | 14 | 20.5 | 36.3 | 31.2 | 14.8 | 63.3 | 35 |
| A 1M 3MYZ3030 | 3 | 30 | 90 | 93 | 18 | 20.5 | 37 | 45 | 19 | 49.5 | 34.2 |
| A 1M 3MYZ3030A | 3 | 30 | 90 | 93 | 35 | 20.5 | 37 | 45 | 19 | 49.5 | 34.2 |

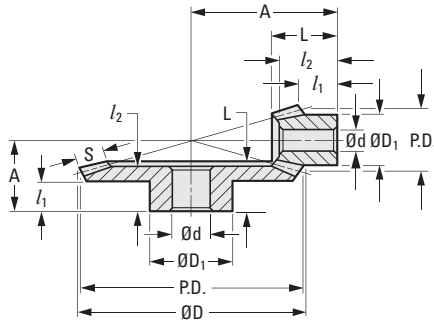
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MODULE 1, 1.5, 2, 2.5
20° PRESSURE ANGLE

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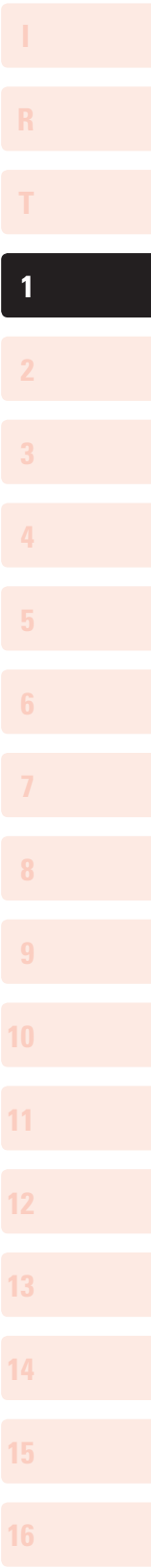
› MATERIAL:
Acetal



METRIC COMPONENT

| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore | S Face Width | L Length | D ₁ Hub Dia. | l Hub Proj. | A | l ₂ |
|------------------|------|--------------|------|--------|--------|--------------|----------|-------------------------|-------------|------|----------------|
| Ratio 1:3 | | | | | | | | | | | |
| A 1M33MYZ1015A | 1 | 15 | 15 | 16.6 | 4 | 9.2 | 20.4 | 12.3 | 11 | 34.3 | — |
| A 1M33MYZ1015 | 1 | 15 | 15 | 16.6 | 5 | 9.2 | 20.4 | 12.3 | 11 | 34.3 | — |
| A 1M33MYZ1045 | 1 | 45 | 45 | 46.1 | 10 | 9.2 | 18.2 | 23.4 | 9.6 | 22.7 | 16.5 |
| A 1M33MYZ1045A | 1 | 45 | 45 | 46.1 | 12 | 9.2 | 18.2 | 23.4 | 9.6 | 22.7 | 16.5 |
| A 1M33MYZ1515 | 1.5 | 15 | 22.5 | 25.1 | 8 | 14 | 26.8 | 17.2 | 12.5 | 47.9 | — |
| A 1M33MYZ1545 | 1.5 | 45 | 67.5 | 68.8 | 12 | 14 | 23 | 30.4 | 11.5 | 29.4 | 21.5 |
| A 1M33MYZ2010 | 2 | 10 | 20 | 24 | 6 | 12.5 | 25 | 15.5 | 12 | 43.7 | — |
| A 1M33MYZ2030 | 2 | 30 | 60 | 61.7 | 12 | 12.5 | 22.5 | 30.3 | 11.5 | 28 | 19.8 |
| A 1M33MYZ2510 | 2.5 | 10 | 25 | 29.7 | 8 | 15.7 | 28.8 | 18.8 | 13 | 52.4 | — |
| A 1M33MYZ2530 | 2.5 | 30 | 75 | 77.2 | 18 | 15.7 | 29 | 36.1 | 15.5 | 35.7 | 25.2 |
| Ratio 1:4 | | | | | | | | | | | |
| A 1M 3MYZ1010 | 1 | 10 | 10 | 12 | 4 | 8.2 | 17.7 | 7.8 | 9.3 | 30.1 | — |
| A 1M 3MYZ1040 | 1 | 40 | 40 | 40.8 | 10 | 8.2 | 17 | 23.4 | 10.8 | 20.1 | 15.7 |
| A 1M 3MYZ1510 | 1.5 | 10 | 15 | 18 | 5 | 12.3 | 23.5 | 11.3 | 10.9 | 41.7 | — |
| A 1M 3MYZ1540 | 1.5 | 40 | 60 | 61.2 | 12 | 12.3 | 21.7 | 30.4 | 12.8 | 26.2 | 20 |
| A 1M 3MYZ2010 | 2 | 10 | 20 | 23.8 | 6 | 16.3 | 28.9 | 14.3 | 12.8 | 54 | — |
| A 1M 3MYZ2040A | 2 | 40 | 80 | 81.5 | 10 | 16.3 | 27 | 36 | 16.6 | 32.5 | 24.7 |
| A 1M 3MYZ2040 | 2 | 40 | 80 | 81.5 | 18 | 16.3 | 27 | 36 | 16.6 | 32.5 | 24.7 |
| Ratio 1:5 | | | | | | | | | | | |
| A 1M 3MYZ1012 | 1 | 12 | 12 | 13.7 | 4 | 9.5 | 20.3 | 9.5 | 10 | 40.5 | — |
| A 1M 3MYZ1060 | 1 | 60 | 60 | 60.4 | 10 | 9.5 | 17.4 | 20.5 | 11 | 21 | 15.5 |

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WORMS & WORM GEARS • MODULE 0.5



ISO CLASS 8
RIGHT-HAND
20° PRESSURE ANGLE

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QUALITY CLASS

► **MATERIAL:**
Worms - Steel
Worm Gears - Aluminum Bronze

► **SPECIFICATIONS:**

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 1.571 | 3.142 |
| Lead Angle | 3° 11' | 6° 20' |

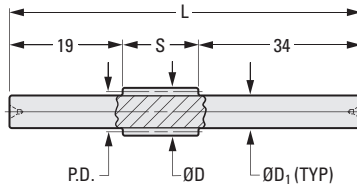


Fig. 1

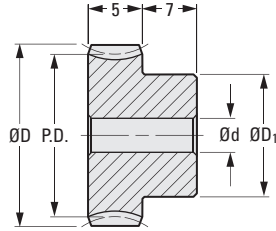


Fig. 2

METRIC COMPONENT

| Catalog Number | Thread Data | | P.D. | D Dia. | D ₁ Dia. h7 (-0.012) | S Face Width | L |
|-----------------------------------|-------------|-----------|------|--------|---------------------------------|--------------|----|
| | Sgl. Thd. | Dbl. Thd. | | | | | |
| Fig. 1 Worms – Right-Hand – Steel | | | | | | | |
| A 1C 5MYH05RC | • | | 9 | 10 | 6 | 12 | 65 |
| A 1C 5MWH05RC | | • | 9 | 10 | 6 | 12 | 65 |

| Catalog Number | Thread Data | | No. of Teeth | P.D. | D Dia. | d Bore H7 (+0.012 / 0) | D ₁ Hub Dia. |
|--|-------------|-----------|--------------|------|--------|------------------------|-------------------------|
| | Sgl. Thd. | Dbl. Thd. | | | | | |
| Fig. 2 Worm Gears – Right-Hand – Aluminum Bronze | | | | | | | |
| A 1B 6MYH05R020 | • | | 20 | 10 | 11 | 4 | 9 |
| A 1B 6MWH05R020 | | • | 20 | 10 | 11 | 4 | 9 |
| A 1B 6MYH05R030 | • | | 30 | 15 | 16 | 4 | 12 |
| A 1B 6MWH05R030 | | • | 30 | 15 | 16 | 4 | 12 |
| A 1B 6MYH05R040 | • | | 40 | 20 | 21 | 5 | 15 |
| A 1B 6MYH05R050 | • | | 50 | 25 | 26 | 5 | 20 |
| A 1B 6MYH05R060 | • | | 60 | 30 | 31 | 5 | 25 |



ISO CLASS 8
RIGHT-HAND
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Worms – Steel
Worm Gears – Aluminum Bronze

QUALITY CLASS

> SPECIFICATIONS:

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 2.513 | 5.026 |
| Lead Angle | 3° 49' | 7° 36' |

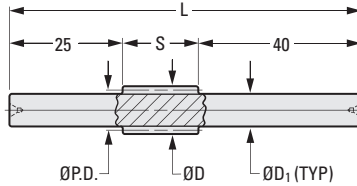


Fig. 1

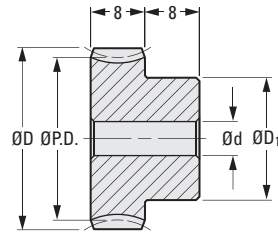


Fig. 2

METRIC COMPONENT

| Catalog Number | Thread Data | | P.D. | D Dia. | D ₁ Dia. h7 (0 -0.015) | S Face Width | L |
|--|-------------|-----------|------|--------|-----------------------------------|--------------|----|
| | Sgl. Thd. | Dbl. Thd. | | | | | |
| Fig. 1 Worms – Right-Hand – Steel | | | | | | | |
| A 1C 5MYH08RC | • | | 12 | 13.6 | 8 | 20 | 85 |
| A 1C 5MWH08RC | | • | 12 | 13.6 | 8 | 20 | 85 |

| Catalog Number | Thread Data | | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D ₁ Hub Dia. |
|---|-------------|-----------|--------------|------|--------|-----------|-------------|-------------------------|
| | Sgl. Thd. | Dbl. Thd. | | | | | | |
| Fig. 2 Worm Gears – Right-Hand – Aluminum Bronze | | | | | | | | |
| A 1B 6MYH08R020 | • | | 20 | 16 | 17.6 | 5 | +0.012/0 | 12 |
| A 1B 6MWH08R020 | | • | 20 | 16 | 17.6 | 5 | +0.012/0 | 12 |
| A 1B 6MYH08R030 | • | | 30 | 24 | 25.6 | 5 | +0.012/0 | 18 |
| A 1B 6MWH08R030 | | • | 30 | 24 | 25.6 | 5 | +0.012/0 | 18 |
| A 1B 6MYH08R040 | • | | 40 | 32 | 33.6 | 6 | +0.012/0 | 20 |
| A 1B 6MYH08R050 | • | | 50 | 40 | 41.6 | 8 | +0.015/0 | 25 |
| A 1B 6MYH08R060 | • | | 60 | 48 | 49.6 | 8 | +0.015/0 | 25 |

RIGHT-HAND
SINGLE THREAD
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:
Worms – Stainless Steel
Worm Gears – Acetal

SPECIFICATIONS:
Thread Data

| | |
|------------|---------------|
| | Single Thread |
| Lead | 2.521 |
| Lead Angle | 4° 24' |

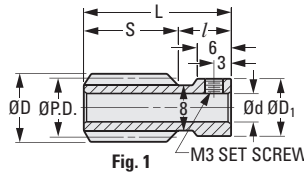


Fig. 1

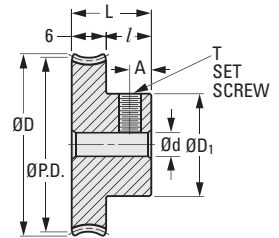


Fig. 3

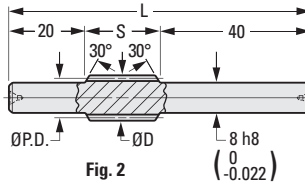


Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | P.D. | D Dia. | d Bore H8 (+0.018) 0 | S Face Width | L | D ₁ Hub Dia. | l Hub Proj. |
|--|----------|------|--------|----------------------|--------------|----|-------------------------|-------------|
| Fig. 1 & 2 Worms – Right-Hand – Stainless Steel | | | | | | | | |
| A 1Y 5MYK08RA | 1 | 10.4 | 12 | 5 | 17 | 26 | 10.1 | 9 |
| A 1Y 5MYK08RB | 2 | 10.4 | 12 | – | 20 | 80 | – | – |

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore H8 (+0.018) 0 | L | D ₁ Hub Dia. | l Hub Proj. | A | T Set Screw |
|--|----------|--------------|------|--------|----------------------|----|-------------------------|-------------|---|-------------|
| Fig. 3 Worm Gears – Right-Hand – Acetal | | | | | | | | | | |
| A 1P 6MYK08R020 | 3 | 20 | 16 | 17.7 | 5 | 12 | 12 | 6 | 3 | M3 |
| A 1P 6MYK08R030 | 3 | 30 | 24 | 25.7 | 5 | 12 | 16 | 6 | 3 | M3 |
| A 1P 6MYK08R040 | 3 | 40 | 32 | 33.7 | 6 | 14 | 18 | 8 | 4 | M4 |
| A 1P 6MYK08R050 | 3 | 50 | 40 | 41.7 | 6 | 14 | 20 | 8 | 4 | M4 |

ISO CLASS 8
RIGHT-HAND
20° PRESSURE ANGLE

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QUALITY CLASS

> MATERIAL:

Worms – Steel
Worm Gears – Aluminum Bronze

> SPECIFICATIONS:

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 3.146 | 6.311 |
| Lead Angle | 3° 35' | 7° 08' |

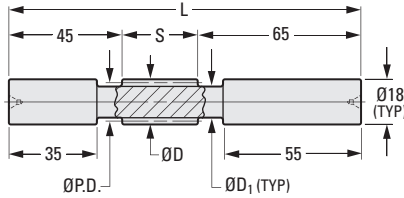


Fig. 1

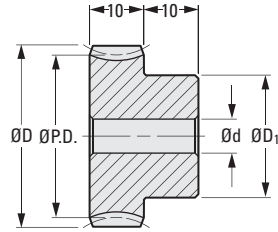


Fig. 2

METRIC COMPONENT

| Catalog Number | Thread Data | | P.D. | D Dia. | D ₁ Dia. h7 (0 -0.018) | S Face Width | L |
|-----------------------------------|-------------|-----------|------|--------|-----------------------------------|--------------|-----|
| | Sgl. Thd. | DbL. Thd. | | | | | |
| Fig. 1 Worms – Right-Hand – Steel | | | | | | | |
| A 1C 5MYH10RC | • | | 16 | 18 | 13 | 30 | 140 |
| A 1C 5MWH10RC | | • | 16 | 18 | 13 | 30 | 140 |

| Catalog Number | Thread Data | | No. of Teeth | P.D. | D Dia. | d Bore H7 | d Tolerance | D ₁ Hub Dia. |
|--|-------------|-----------|--------------|------|--------|-----------|-------------|-------------------------|
| | Sgl. Thd. | DbL. Thd. | | | | | | |
| Fig. 2 Worm Gears – Right-Hand – Aluminum Bronze | | | | | | | | |
| A 1B 6MYH10R020 | • | | 20 | 20 | 23 | 6 | +0.012/0 | 16 |
| A 1B 6MWH10R020 | | • | 20 | 20 | 23 | 6 | +0.012/0 | 16 |
| A 1B 6MYH10R030 | • | | 30 | 30 | 33 | 6 | +0.012/0 | 20 |
| A 1B 6MWH10R030 | | • | 30 | 30 | 33 | 6 | +0.012/0 | 20 |
| A 1B 6MYH10R040 | • | | 40 | 40 | 43 | 8 | +0.015/0 | 26 |
| A 1B 6MYH10R050 | • | | 50 | 50 | 53 | 8 | +0.015/0 | 30 |
| A 1B 6MYH10R060 | • | | 60 | 60 | 63 | 10 | +0.015/0 | 35 |

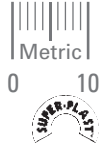
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- A

WORMS – RIGHT- AND LEFT-HAND
 WORM GEARS – RIGHT-HAND
 20° PRESSURE ANGLE

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> MATERIAL:

- Worms – Steel
- Worm Gears: Gear – Acetal
- Insert – Brass



> SPECIFICATIONS:

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 3.148 | 6.333 |
| Lead Angle | 3° 35' | 7° 11' |

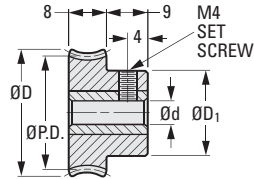


Fig. 4

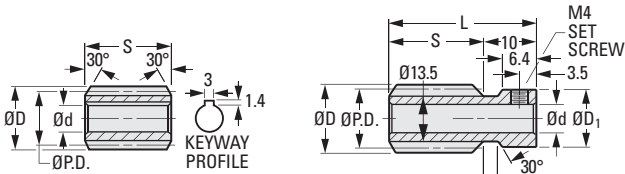


Fig. 1

Fig. 2

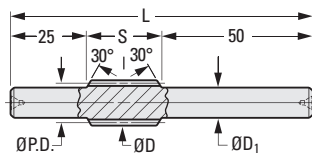


Fig. 3

METRIC COMPONENT

| Catalog Number | Thread Data | | | | P.D. | D Dia. | d Bore H8 | d Tol. | S Face Width | L | D ₁ Dia. | D ₁ Tol. |
|----------------|-------------|-----------|------------|-----------|------|--------|-----------|--------|--------------|---|---------------------|---------------------|
| | Sgl. Thd. | Dbl. Thd. | Right-Hand | Left-Hand | | | | | | | | |

| Fig. 1 Worms – Right- and Left-Hand – Steel | | | | | | | | | | | | |
|---|---|---|---|---|----|----|---|----------|----|---|---|---|
| A 1C 5MYK10RA | • | | • | | 16 | 18 | 8 | +0.022/0 | 25 | – | – | – |
| A 1C 5MWK10RA | | • | • | | 16 | 18 | 8 | +0.022/0 | 25 | – | – | – |
| A 1C 5MYK10LA | • | | | • | 16 | 18 | 8 | +0.022/0 | 25 | – | – | – |
| A 1C 5MWK10LA | | • | | • | 16 | 18 | 8 | +0.022/0 | 25 | – | – | – |

| Fig. 2 | | | | | | | | | | | | |
|---------------|---|---|---|---|----|----|---|----------|----|----|------|---|
| A 1C 5MYK10RB | • | | • | | 16 | 18 | 6 | +0.018/0 | 22 | 32 | 15.7 | – |
| A 1C 5MWK10RB | | • | • | | 16 | 18 | 6 | +0.018/0 | 22 | 32 | 15.7 | – |
| A 1C 5MYK10LB | • | | | • | 16 | 18 | 6 | +0.018/0 | 22 | 32 | 15.7 | – |
| A 1C 5MWK10LB | | • | | • | 16 | 18 | 6 | +0.018/0 | 22 | 32 | 15.7 | – |

| Fig. 3 | | | | | | | | | | | | |
|---------------|---|---|---|---|----|----|---|---|----|-----|---------|----------|
| A 1C 5MYK10RC | • | | • | | 16 | 18 | – | – | 25 | 100 | 13 (h8) | 0/-0.027 |
| A 1C 5MWK10RC | | • | • | | 16 | 18 | – | – | 25 | 100 | 13 (h8) | 0/-0.027 |
| A 1C 5MYK10LC | • | | | • | 16 | 18 | – | – | 25 | 100 | 13 (h8) | 0/-0.027 |
| A 1C 5MWK10LC | | • | | • | 16 | 18 | – | – | 25 | 100 | 13 (h8) | 0/-0.027 |

| Catalog Number | Thread Data | | No. of Teeth | P.D. | D Dia. | d Bore H8 (+0.018) ₀ | D ₁ Hub Dia. |
|----------------|-------------|-----------|--------------|------|--------|---------------------------------|-------------------------|
| | Sgl. Thd. | Dbl. Thd. | | | | | |

| Fig. 4 Worm Gears – Right-Hand – Acetal with Brass Insert | | | | | | | |
|---|---|---|----|----|----|---|----|
| A 1Z 6MWK10R020R | | • | 20 | 20 | 23 | 6 | 16 |
| A 1Z 6MYK10R020R | • | | 20 | 20 | 23 | 6 | 16 |
| A 1Z 6MYK10R030R | | | 30 | 30 | 33 | 6 | 20 |

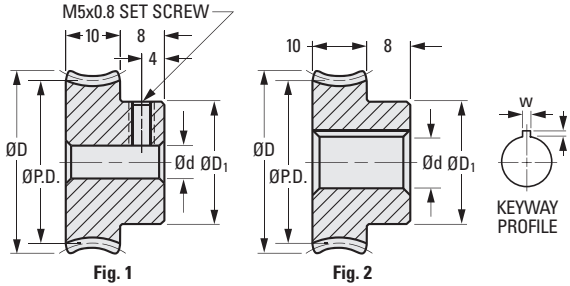
ISO CLASS 8
WORM GEARS – RIGHT- AND LEFT-HAND
WITH OR WITHOUT KEYWAY
20° PRESSURE ANGLE

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QUALITY CLASS

➤ MATERIAL:
Aluminum Bronze



METRIC COMPONENT

| Catalog Number | Thread Data | | | | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tol. | D ₁ Hub Dia. |
|--|-------------|-----------|------------|-----------|--------------|------|--------|-----------|----------|-------------------------|
| | Sgl. Thd. | DbI. Thd. | Right-Hand | Left-Hand | | | | | | |
| Fig. 1 Worm Gears – Right- and Left-Hand – Aluminum Bronze | | | | | | | | | | |
| A 1B 6MYK10R020 | • | | • | | 20 | 20 | 23.5 | 6 | +0.018/0 | 17 |
| A 1B 6MYK10L020 | • | | | • | 20 | 20 | 23.5 | 6 | +0.018/0 | 17 |
| A 1B 6MWK10R020 | | • | • | | 20 | 20 | 23.5 | 6 | +0.018/0 | 17 |
| A 1B 6MYK10R030 | • | | • | | 30 | 30 | 33.5 | 6 | +0.018/0 | 22 |
| A 1B 6MYK10L030 | • | | | • | 30 | 30 | 33.5 | 6 | +0.018/0 | 22 |
| A 1B 6MWK10R030 | | • | • | | 30 | 30 | 33.5 | 6 | +0.018/0 | 22 |
| A 1B 6MYK10R040 | • | | • | | 40 | 40 | 43.5 | 8 | +0.022/0 | 25 |
| A 1B 6MYK10L040 | • | | | • | 40 | 40 | 43.5 | 8 | +0.022/0 | 25 |
| A 1B 6MYK10R050 | • | | • | | 50 | 50 | 53.5 | 8 | +0.022/0 | 30 |
| A 1B 6MYK10L050 | • | | | • | 50 | 50 | 53.5 | 8 | +0.022/0 | 30 |

| Catalog Number | Thread Data | | | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tolerance | D ₁ Hub Dia. | w | t |
|--|-------------|-----------|------------|--------------|------|--------|-----------|-------------|-------------------------|---|-----|
| | Sgl. Thd. | DbI. Thd. | Right-Hand | | | | | | | | |
| Fig. 2 Worm Gears – With Keyway – Right-Hand – Aluminum Bronze | | | | | | | | | | | |
| A 1B66MYK10R020 | • | | | 20 | 20 | 23.5 | 8 | +0.022/0 | 17 | 3 | 1.4 |
| A 1B66MWK10R020 | | • | | 20 | 20 | 23.5 | 8 | +0.022/0 | 17 | 3 | 1.4 |
| A 1B66MYK10R030 | • | | | 30 | 30 | 33.5 | 10 | +0.022/0 | 22 | 3 | 1.4 |
| A 1B66MWK10R030 | | • | | 30 | 30 | 33.5 | 10 | +0.022/0 | 22 | 3 | 1.4 |
| A 1B66MYK10R040 | • | | | 40 | 40 | 43.5 | 10 | +0.022/0 | 25 | 3 | 1.4 |
| A 1B66MYK10R050K | • | | | 50 | 50 | 53.5 | 12 | +0.027/0 | 30 | 4 | 1.8 |

RIGHT-HAND
SINGLE THREAD
20° PRESSURE ANGLE

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> MATERIAL:
Worms – Zinc Die Cast
Worm Gears – Nylon Molded

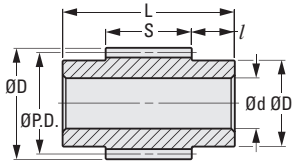


Fig. 1

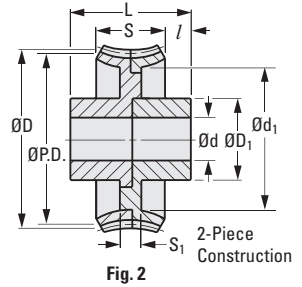


Fig. 2

2-Piece Construction

METRIC COMPONENT

| Catalog Number | Module | P.D. | D Dia. | d Bore H8 | d Tol. | S Face Width | L | D ₁ Hub Dia. | l Hub Proj. |
|--|--------|------|--------|-----------|----------|--------------|----|-------------------------|-------------|
| Fig. 1 Worms – Right-Hand – Zinc Die Cast | | | | | | | | | |
| A 1D 5MYZ10 | 1 | 20 | 22 | 10 | +0.015/0 | 17 | 34 | 17 | 8.5 |
| A 1D 5MYZ20 | 2 | 32 | 36 | 14 | +0.018/0 | 34 | 54 | 26 | 10 |

| Catalog Number | Mod. | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tol. | S Face Wdth. | L | D ₁ Hub Dia. | l Hub Proj. | d ₁ | S ₁ |
|--|------|--------------|------|--------|-----------|----------|--------------|----|-------------------------|-------------|----------------|----------------|
| Fig. 2 Worm Gears – Right-Hand – Nylon Molded | | | | | | | | | | | | |
| A 1M 6MYZ10R040 | 1 | 40 | 40 | 45 | 10 | +0.015/0 | 16 | 28 | 19 | 6 | 33 | 5 |
| A 1M 6MYZ20R040 | 2 | 40 | 80 | 87 | 17 | +0.018/0 | 25 | 36 | 29 | 5.5 | 70 | 6 |

WORMS – RIGHT-AND LEFT-HAND
 WORM GEARS – RIGHT-HAND
 20° PRESSURE ANGLE

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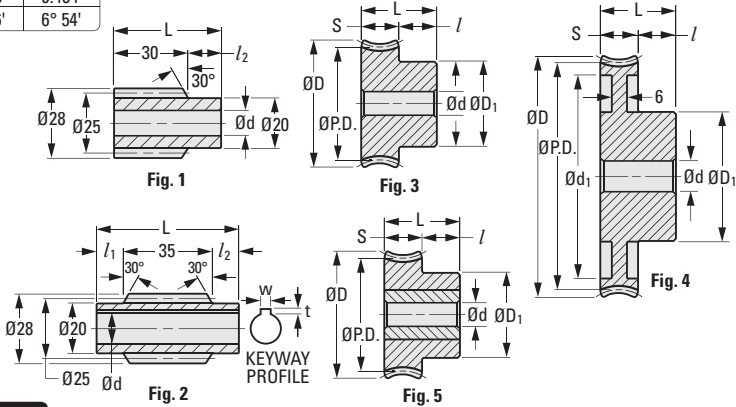
► MATERIAL:

Worms – Steel
 Worm Gears – Cast Iron or Acetal with Brass Insert

► SPECIFICATIONS:

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 4.719 | 9.484 |
| Lead Angle | 3° 26' | 6° 54' |



METRIC COMPONENT

| Catalog Number | Thread Data | | | | d Bore H8 | d Tol. | L | l ₁ Hub Proj. | l ₂ Hub Proj. | w | t |
|--|-------------|-----------|------------|-----------|-----------|----------|----|--------------------------|--------------------------|---|-----|
| | Sgl. Thd. | Dbl. Thd. | Right-Hand | Left-Hand | | | | | | | |
| Fig. 1 Worms – Right- and Left-Hand – Steel | | | | | | | | | | | |
| A 1C 5MYK15RB | • | | | | 10 | +0.022/0 | 43 | – | 13 | – | – |
| A 1C 5MWK15RB | | • | • | | 10 | +0.022/0 | 43 | – | 13 | – | – |
| A 1C 5MYK15LB | • | | | • | 10 | +0.022/0 | 43 | – | 13 | – | – |
| A 1C 5MWK15LB | | • | | • | 10 | +0.022/0 | 43 | – | 13 | – | – |
| Fig. 2 Worms – Right- and Left-Hand – Steel | | | | | | | | | | | |
| A 1C 5MYK15RC | • | | • | | 12 | +0.027/0 | 55 | 10 | 10 | 4 | 1.8 |
| A 1C 5MWK15RC | | • | • | | 12 | +0.027/0 | 55 | 10 | 10 | 4 | 1.8 |
| A 1C 5MYK15LC | • | | | • | 12 | +0.027/0 | 55 | 10 | 10 | 4 | 1.8 |
| A 1C 5MWK15LC | | • | | • | 12 | +0.027/0 | 55 | 10 | 10 | 4 | 1.8 |

| Catalog Number | Thread Data | | No. of Teeth | P.D. | D Dia. | d Bore H8 | d Tol. | S Face Width | L | D ₁ Hub Dia. | l Hub Proj. | d ₁ Dia. |
|--|-------------|-----------|--------------|------|--------|-----------|----------|--------------|----|-------------------------|-------------|---------------------|
| | Sgl. Thd. | Dbl. Thd. | | | | | | | | | | |
| Fig. 3 Worm Gears – Right-Hand – Cast Iron | | | | | | | | | | | | |
| A 1C 6MYK15R020 | • | | 20 | 30 | 34.3 | 8 | +0.022/0 | 10 | 20 | 22 | 10 | – |
| A 1C 6MWK15R020 | | • | 20 | 30 | 34.3 | 8 | +0.022/0 | 10 | 20 | 22 | 10 | – |
| A 1C 6MYK15R030 | • | | 30 | 45 | 50 | 10 | +0.022/0 | 12 | 22 | 30 | 10 | – |
| A 1C 6MWK15R030 | | • | 30 | 45 | 50 | 10 | +0.022/0 | 12 | 22 | 30 | 10 | – |
| A 1C 6MYK15R040 | • | | 40 | 60 | 65 | 12 | +0.027/0 | 12 | 25 | 36 | 13 | – |
| A 1C 6MYK15R050 | • | | 50 | 75 | 80 | 12 | +0.027/0 | 14 | 27 | 40 | 13 | – |
| Fig. 4 Worm Gears – Right-Hand – Cast Iron | | | | | | | | | | | | |
| A 1C 6MYK15R060 | • | | 60 | 90 | 96 | 12 | +0.027/0 | 14 | 27 | 40 | 13 | 81 |
| A 1C 6MYK15R080 | • | | 80 | 120 | 126 | 15 | +0.027/0 | 14 | 29 | 50 | 15 | 111 |
| A 1C 6MYK15R100 | • | | 100 | 150 | 156 | 15 | +0.027/0 | 14 | 29 | 50 | 15 | 141 |
| Fig. 5 Worm Gears – Right-Hand – Acetal with Brass Insert | | | | | | | | | | | | |
| A 1P 6MYK15R020 | • | | 20 | 30 | 34.3 | 8 | +0.022/0 | 10 | 20 | 22 | 10 | – |
| A 1P 6MWK15R020 | | • | 20 | 30 | 34.3 | 8 | +0.022/0 | 10 | 20 | 22 | 10 | – |

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ISO CLASS 8
RIGHT- AND LEFT-HAND
20° PRESSURE ANGLE

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➤ MATERIAL:

Worms – Steel
Worm Gears – Aluminum Bronze or
Aluminum Bronze with Gray Cast Iron Core

➤ SPECIFICATIONS:

** Bore Tolerance: 8 & 10 mm +0.022/0
12, 14 & 16 mm +0.027/0

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 4.719 | 9.484 |
| Lead Angle | 3° 26' | 6° 54' |

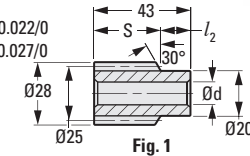


Fig. 1

KEYWAY PROFILE (Fig.'s 2, 4 & 6)

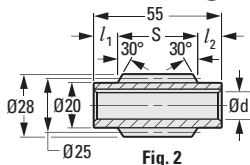


Fig. 2



QUALITY CLASS

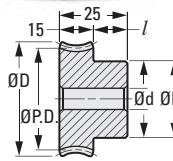


Fig. 3

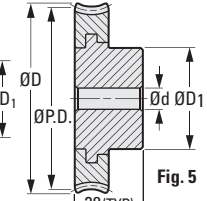


Fig. 5

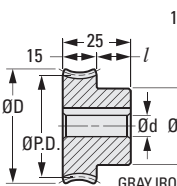


Fig. 4 * (Fig.'s 5 & 6)

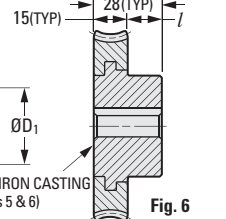


Fig. 6

METRIC COMPONENT

| Catalog Number | Thread Data | | | | d** Bore H8 | S | l ₁ | l ₂ | w | t |
|---|-------------|-----------|------------|-----------|----------------|----|----------------|----------------|---|-----|
| | Sgl. Thd. | Dbl. Thd. | Right-Hand | Left-Hand | | | | | | |
| Fig. 1 Worms – Right- and Left-Hand – Steel | | | | | | | | | | |
| A 1C 5MYK15RB | • | • | • | | 10 | 30 | – | 13 | – | – |
| A 1C 5MWK15RB | | • | • | | 10 | 30 | – | 13 | – | – |
| A 1C 5MYK15LB | • | | | • | 10 | 30 | – | 13 | – | – |
| A 1C 5MWK15LB | | • | | • | 10 | 30 | – | 13 | – | – |
| Fig. 2 Worms – Right- and Left-Hand – Steel – With Keyway | | | | | | | | | | |
| A 1C 5MYK15RC | • | | • | | 12 | 35 | 10 | 10 | 4 | 1.8 |
| A 1C 5MWK15RC | | • | | • | 12 | 35 | 10 | 10 | 4 | 1.8 |
| A 1C 5MYK15LC | • | | | • | 12 | 35 | 10 | 10 | 4 | 1.8 |
| A 1C 5MWK15LC | | • | | • | 12 | 35 | 10 | 10 | 4 | 1.8 |

| Catalog Number | Thread Data | | | | No. of Teeth | P.D. | D Dia. | d** Bore H8 | D ₁ Hub Dia. | l Hub Proj. | w | t |
|---|-------------|-----------|------------|-----------|--------------|------|--------|----------------|----------------------------|----------------|---|-----|
| | Sgl. Thd. | Dbl. Thd. | Right-Hand | Left-Hand | | | | | | | | |
| Fig. 3 & 4 Worm Gears – Right- and Left-Hand – Aluminum Bronze – Fig. 4 With Keyway | | | | | | | | | | | | |
| A 1B 6MYK15R020 | • | | • | | 20 | 30 | 35.3 | 8 | 25 | 10 | – | – |
| A 1B66MYK15R020 | | | | | 20 | 30 | 35.3 | 12 | 25 | 10 | 4 | 1.8 |
| A 1B 6MWK15R020 | | | • | • | 20 | 30 | 35.5 | 8 | 25 | 10 | – | – |
| A 1B66MWK15R020 | | | • | • | 20 | 30 | 35.3 | 12 | 25 | 10 | 4 | 1.8 |
| A 1B 6MYK15L020 | • | | | • | 20 | 30 | 35.3 | 8 | 25 | 10 | – | – |
| A 1B 6MYK15R030 | • | | • | | 30 | 45 | 50.3 | 10 | 30 | 10 | – | – |
| A 1B66MYK15R030A | • | | • | | 30 | 45 | 50.3 | 15 | 30 | 10 | 5 | 2.3 |
| A 1B 6MWK15R030 | | | • | • | 30 | 45 | 50.3 | 10 | 30 | 10 | – | – |
| *A 1B66MWK15R030 | | | • | • | 30 | 45 | 50.3 | 14 | 30 | 10 | 5 | 2.3 |
| A 1B66MWK15R030A | | | • | • | 30 | 45 | 50.3 | 15 | 30 | 10 | 5 | 2.3 |
| A 1B 6MYK15L030 | • | | | • | 30 | 45 | 50.3 | 10 | 30 | 10 | – | – |
| Fig. 5 & 6 Worm Gears – Right and Left-Hand – Aluminum Bronze with Gray Cast Iron Core – Fig. 6 With Keyway | | | | | | | | | | | | |
| A 1B 6MYK15R040 | • | | • | | 40 | 60 | 65.3 | 12 | 36 | 13 | – | – |
| A 1B66MYK15R040 | | | • | | 40 | 60 | 65.3 | 16 | 36 | 13 | 5 | 2.3 |
| A 1B 6MYK15L040 | • | | | • | 40 | 60 | 65.3 | 12 | 36 | 13 | – | – |
| A 1B 6MYK15R050 | • | | • | | 50 | 75 | 80.3 | 12 | 40 | 13 | – | – |
| A 1B66MYK15R050A | • | | • | | 50 | 75 | 80.3 | 20 | 40 | 13 | 6 | 2.8 |
| A 1B 6MYK15L050 | • | | | • | 50 | 75 | 80.3 | 12 | 40 | 13 | – | – |

RIGHT-HAND
 MODULE 1, 1.5, 2 & 2.5
 20° PRESSURE ANGLE (EXCEPT MODULE 2)

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Worms – Steel, Black Oxide Finish
 Worm Gears – Machined from Cast Nylon Blanks

> SPECIFICATIONS:

Thread Data

| Module | Lead Angle | | P.A. |
|--------|---------------|---------------|---------|
| | Single Thread | Double Thread | |
| 1 | 3° 35' | 7° 11' | 20° |
| 1.5 | 3° 26' | 6° 54' | 20° |
| 2 | 3° 42' | 7° 25' | 14-1/2° |
| 2.5 | 3° 52' | 7° 46' | 20° |

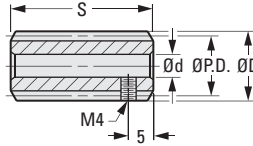


Fig. 1

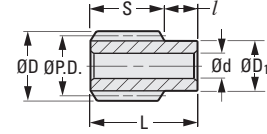


Fig. 2

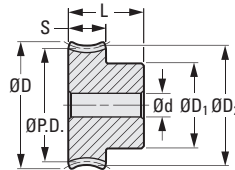


Fig. 3

METRIC COMPONENT

| Catalog Number | Thread Data | | Mod. | P.D. | D Dia. | d Bore H7 | d Tol. | S Face Width | L | D ₁ Hub Dia. | l |
|--|-------------|-----------|------|------|--------|-----------|----------|--------------|----|-------------------------|----|
| | Sgl. Thd. | Dbl. Thd. | | | | | | | | | |
| Fig. 1 Worms – Right-Hand – Steel, Black Oxide Finish | | | | | | | | | | | |
| A 1C 5MYH10R | • | | 1 | 16 | 18 | 6 | +0.012/0 | 32 | – | – | – |
| A 1C 5MWH10R | | • | 1 | 16 | 18 | 6 | +0.012/0 | 32 | – | – | – |
| Fig. 2 Worms – Right-Hand – Steel, Black Oxide Finish | | | | | | | | | | | |
| A 1C 5MYH15R | • | | 1.5 | 25 | 28 | 8 | +0.015/0 | 30 | 40 | 20 | 10 |
| A 1C 5MWH15R | | • | 1.5 | 25 | 28 | 8 | +0.015/0 | 30 | 40 | 20 | 10 |
| A 1C 5MYH20R | • | | 2 | 31 | 35 | 12 | +0.018/0 | 32 | 46 | 25 | 14 |
| A 1C 5MWH20R | | • | 2 | 31 | 35 | 12 | +0.018/0 | 32 | 46 | 25 | 14 |
| A 1C 5MYH25R | • | | 2.5 | 37 | 42 | 15 | +0.018/0 | 45 | 63 | 30 | 18 |
| A 1C 5MWH25R | | • | 2.5 | 37 | 42 | 15 | +0.018/0 | 45 | 63 | 30 | 18 |

| Catalog Number | Thread Data | | Mod. | No. of Teeth | P.D. | D ₂ Throat Dia. | D Dia. | d Bore H7 | d Tol. | S Face Width | D ₁ Hub Dia. | L |
|--|-------------|-----------|------|--------------|------|----------------------------|--------|-----------|----------|--------------|-------------------------|----|
| | Sgl. Thd. | Dbl. Thd. | | | | | | | | | | |
| Fig. 3 Worm Gears – Right-Hand – Machined from Cast Nylon | | | | | | | | | | | | |
| A 1P 6MYH10R20 | • | | 1 | 20 | 20 | 22 | 23 | 6 | +0.012/0 | 10 | 16 | 20 |
| A 1P 6MWH10R20 | | • | 1 | 20 | 20 | 22 | 23 | 6 | +0.012/0 | 10 | 16 | 20 |
| A 1P 6MYH10R30 | • | | 1 | 30 | 30 | 32 | 33 | 6 | +0.012/0 | 10 | 20 | 20 |
| A 1P 6MYH10R40 | • | | 1 | 40 | 40 | 42 | 43 | 8 | +0.015/0 | 10 | 26 | 20 |
| A 1P 6MYH10R50 | • | | 1 | 50 | 50 | 52 | 53 | 8 | +0.015/0 | 10 | 30 | 20 |
| A 1P 6MYH15R20 | • | | 1.5 | 20 | 30 | 33 | 34.5 | 8 | +0.015/0 | 12 | 22 | 22 |
| A 1P 6MWH15R20 | | • | 1.5 | 20 | 30 | 33 | 34.5 | 8 | +0.015/0 | 12 | 22 | 22 |
| A 1P 6MYH20R20 | • | | 2 | 20 | 40 | 44 | 46 | 10 | +0.015/0 | 22 | 33 | 35 |
| A 1P 6MWH20R20 | | • | 2 | 20 | 40 | 44 | 46 | 10 | +0.015/0 | 22 | 33 | 35 |
| A 1P 6MYH25R20 | • | | 2.5 | 20 | 50 | 55 | 57.5 | 12 | +0.018/0 | 22 | 35 | 36 |
| A 1P 6MWH25R20 | | • | 2.5 | 20 | 50 | 55 | 57.5 | 12 | +0.018/0 | 22 | 35 | 36 |

ISO CLASS 8
RIGHT- AND LEFT-HAND
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:
Worms – Steel

➤ SPECIFICATIONS:

* Bore Tolerance: 12 & 14 mm +0.027/0

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 6.296 | 12.672 |
| Lead Angle | 3° 42' | 7° 25' |



QUALITY CLASS

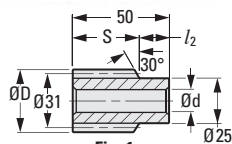


Fig. 1

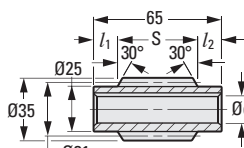
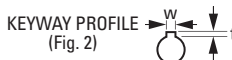


Fig. 2



METRIC COMPONENT

| Catalog Number | Thread Data | | | | d* Bore H8 | S | l ₁ Hub Proj. | l ₂ Hub Proj. | w | t |
|--|-------------|-----------|------------|-----------|---------------|----|-----------------------------|-----------------------------|---|-----|
| | Sgl. Thd. | Dbl. Thd. | Right-Hand | Left-Hand | | | | | | |
| Fig. 1 Worms – Right- and Left-Hand – Steel | | | | | | | | | | |
| A 1C 5MYK20RB | • | | • | | 12 | 35 | – | 15 | – | – |
| A 1C 5MWK20RB | | • | • | | 12 | 35 | – | 15 | – | – |
| A 1C 5MYK20LB | • | | | • | 12 | 35 | – | 15 | – | – |
| A 1C 5MWK20LB | | • | | • | 12 | 35 | – | 15 | – | – |
| Fig. 2 Worms – Right- and Left-Hand – Steel – With Keyway | | | | | | | | | | |
| A 1C 5MYK20RC | • | | • | | 14 | 41 | 12 | 12 | 5 | 2.3 |
| A 1C 5MWK20RC | | • | • | | 14 | 41 | 12 | 12 | 5 | 2.3 |
| A 1C 5MYK20LC | • | | | • | 14 | 41 | 12 | 12 | 5 | 2.3 |
| A 1C 5MWK20LC | | • | | • | 14 | 41 | 12 | 12 | 5 | 2.3 |

See the next page for mating worm gears

ISO CLASS 8
RIGHT- AND LEFT-HAND
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

► MATERIAL:

Worm Gears – Aluminum Bronze or Aluminum Bronze with Gray Cast Iron Core

► SPECIFICATIONS:

** Bore Tolerance: 10 mm +0.022/0
12, 14, 16 & 18 mm +0.027/0
20 mm +0.033/0

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 6.296 | 12.672 |
| Lead Angle | 3° 42' | 7° 25' |

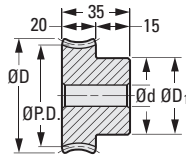


Fig. 1

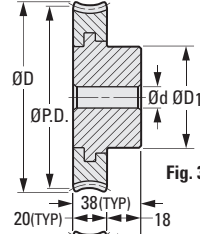


Fig. 3

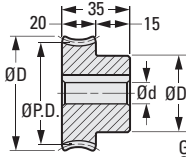


Fig. 2

GRAY IRON CASTING* (Fig. s 3 & 4)



METRIC COMPONENT

| Catalog Number | Thread Data | | | | No. of Teeth | P.D. | D Dia. | d** Bore H8 | D1 Hub Dia. | w | t |
|--|-------------|-----------|------------|-----------|--------------|------|--------|-------------|-------------|---|-----|
| | Sgl. Thd. | DbI. Thd. | Right-Hand | Left-Hand | | | | | | | |
| Fig. 1 & 2 Worm Gears – Right- and Left-Hand – Aluminum Bronze – Fig. 2 With Keyway | | | | | | | | | | | |
| A 1B 6MYK20R20 | • | | • | | 20 | 40 | 47 | 10 | 32 | – | – |
| A 1B 6MVK20R020 | | • | • | | 20 | 40 | 47 | 10 | 32 | – | – |
| A 1B66MVK20R020A | | • | • | | 20 | 40 | 47 | 15 | 32 | 5 | 2.3 |
| A 1B66MYK20R020A | • | | • | | 20 | 40 | 47 | 15 | 32 | 5 | 2.3 |
| A 1B 6MYK20L020 | • | | | • | 20 | 40 | 47 | 10 | 32 | – | – |
| A 1B 6MYK20R025 | • | | • | | 25 | 50 | 57 | 12 | 38 | – | – |
| Δ A 1B66MYK20R025 | • | | • | | 25 | 50 | 57 | 16 | 38 | 5 | 2.3 |
| A 1B 6MYK20L025 | • | | | • | 25 | 50 | 57 | 12 | 38 | – | – |
| A 1B 6MYK20R030 | • | | • | | 30 | 60 | 67 | 12 | 40 | – | – |
| A 1B66MYK20R030 | • | | • | | 30 | 60 | 67 | 18 | 40 | 6 | 2.8 |
| A 1B 6MVK20R030 | | • | • | | 30 | 60 | 67 | 12 | 40 | – | – |
| A 1B66MVK20R030 | | • | • | | 30 | 60 | 67 | 18 | 40 | 6 | 2.8 |
| A 1B 6MYK20L030 | • | | | • | 30 | 60 | 67 | 12 | 40 | – | – |
| Fig. 3 Worm Gears – Right- and Left-Hand – Aluminum Bronze with Gray Cast Iron Core | | | | | | | | | | | |
| A 1B 6MYK20R040 | • | | • | | 40 | 80 | 87 | 14 | 45 | – | – |
| * A 1B66MYK20R040 | • | | • | | 40 | 80 | 87 | 20 | 45 | 6 | 2.8 |
| A 1B 6MYK20L040 | • | | | • | 40 | 80 | 87 | 14 | 45 | – | – |
| Fig. 4 Worm Gears – Right- and Left-Hand – Aluminum Bronze with Gray Cast Iron Core | | | | | | | | | | | |
| A 1B 6MYK20R050 | • | | • | | 50 | 100 | 107 | 14 | 50 | – | – |
| * A 1B66MYK20R050A | • | | • | | 50 | 100 | 107 | 14 | 50 | 8 | 3.3 |
| A 1B 6MYK20L050 | • | | | • | 50 | 100 | 107 | 25 | 50 | – | – |

Δ To be discontinued when present stock is depleted.

* This gear has a keyway.

See the previous page for mating worms

ISO CLASS 8
RIGHT- AND LEFT-HAND
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:
Worms – Steel

► SPECIFICATIONS:

* Bore Tolerance: 14 & 16 mm +0.027/0

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 7.871 | 15.853 |
| Lead Angle | 3° 52' | 7° 46' |



QUALITY CLASS

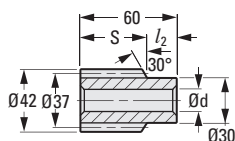


Fig. 1

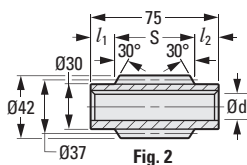


Fig. 2



METRIC COMPONENT

| Catalog Number | Thread Data | | | | d* Bore H8 | S | l ₁ Hub Proj. | l ₂ Hub Proj. | w | t |
|--|--------------|--------------|----------------|---------------|------------------|----|--------------------------------|--------------------------------|---|-----|
| | Sgl. Thd. | DbL. Thd. | Right- Hand | Left- Hand | | | | | | |
| Fig. 1 Worms – Right- and Left-Hand – Steel | | | | | | | | | | |
| A 1C 5MYK25RB | • | | • | | 14 | 42 | – | 18 | – | – |
| A 1C 5MWK25RB | | • | • | | 14 | 42 | – | 18 | – | – |
| A 1C 5MYK25LB | • | | | • | 14 | 42 | – | 18 | – | – |
| A 1C 5MWK25LB | | • | | | 14 | 42 | – | 18 | – | – |
| Fig. 2 Worms – Right- and Left-Hand – Steel – With Keyway | | | | | | | | | | |
| A 1C 5MYK25RC | • | | • | | 16 | 47 | 14 | 14 | 5 | 2.3 |
| A 1C 5MWK25RC | | • | • | | 16 | 47 | 14 | 14 | 5 | 2.3 |
| A 1C 5MYK25LC | • | | | • | 16 | 47 | 14 | 14 | 5 | 2.3 |
| A 1C 5MWK25LC | | • | | • | 16 | 47 | 14 | 14 | 5 | 2.3 |

See the next page for mating worm gears

ISO CLASS 8
RIGHT- AND LEFT-HAND
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



QUALITY CLASS

> MATERIAL:

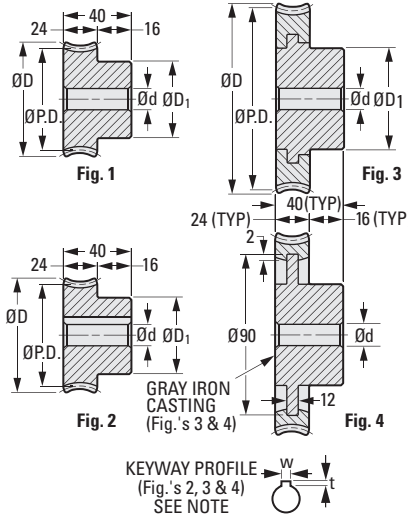
Worm Gears – Aluminum Bronze or Aluminum Bronze with Gray Cast Iron Core

> SPECIFICATIONS:

** Bore Tolerance: 12, 14, 15, 16 & 18 mm +0.027/0
20 & 25 mm +0.033/0

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 7.871 | 15.853 |
| Lead Angle | 3° 52' | 7° 46' |



METRIC COMPONENT

| Catalog Number | Thread Data | | | | No. of Teeth | P.D. | D Dia. | d** Bore H8 | D ₁ Hub Dia. | w | t |
|--|-------------|-----------|------------|-----------|--------------|------|--------|-------------|-------------------------|---|-----|
| | Sgl. Thd. | Dbl. Thd. | Right-Hand | Left-Hand | | | | | | | |
| Fig. 1 & 2 Worm Gears – Right- and Left-Hand – Aluminum Bronze – Fig. 2 With Keyway | | | | | | | | | | | |
| A 1B 6MYK25R020 | • | | • | | 20 | 50 | 58.8 | 12 | 40 | – | – |
| A 1B66MYK25R020 | • | | • | | 20 | 50 | 58.8 | 18 | 40 | 6 | 2.8 |
| A 1B 6MWK25R020 | | • | • | | 20 | 50 | 58.8 | 12 | 40 | – | – |
| A 1B66MWK25R020 | | • | • | | 20 | 50 | 58.8 | 18 | 40 | 6 | 2.8 |
| A 1B 6MYK25L020 | • | | | • | 20 | 50 | 58.8 | 12 | 40 | – | – |
| A 1B 6MYK25R030 | • | | • | | 30 | 75 | 83.8 | 14 | 50 | – | – |
| A 1B66MYK25R030 | • | | • | | 30 | 75 | 83.8 | 20 | 50 | 6 | 2.8 |
| A 1B 6MWK25R030 | | • | • | | 30 | 75 | 83.8 | 14 | 50 | – | – |
| A 1B66MWK25R030 | | • | • | | 30 | 75 | 83.8 | 20 | 50 | 6 | 2.8 |
| A 1B 6MYK25L030 | • | | | • | 30 | 75 | 83.8 | 14 | 50 | – | – |
| Fig. 3 Worm Gears – Right- and Left-Hand – Aluminum Bronze with Gray Cast Iron Core | | | | | | | | | | | |
| A 1B 6MYK25R040 | • | | • | | 40 | 100 | 108.8 | 15 | 52 | – | – |
| A 1B 6MYK25L040 | • | | | • | 40 | 100 | 108.8 | 15 | 52 | – | – |
| *A 1B66MYK25R040A | • | | • | | 40 | 100 | 108.8 | 25 | 52 | 8 | 3.3 |
| Fig. 4 Worm Gears – Right- and Left-Hand – Aluminum Bronze with Gray Cast Iron Core | | | | | | | | | | | |
| A 1B 6MYK25R050 | • | | • | | 50 | 125 | 133.8 | 15 | 60 | – | – |
| *Δ A 1B66MYK25R050 | • | | • | | 50 | 125 | 133.8 | 25 | 60 | 8 | 3.3 |
| *A 1B66MYK25R050A | • | | • | | 50 | 125 | 133.8 | 30 | 60 | 8 | 3.3 |
| A 1B 6MYK25L050 | • | | | • | 50 | 125 | 133.8 | 15 | 60 | – | – |

Δ To be discontinued when present stock is depleted.
* This gear has a keyway.

See the previous page for mating worms

ISO CLASS 8
RIGHT- AND LEFT-HAND
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:
Worms – Steel

► SPECIFICATIONS:

* Bore Tolerance: 16 mm +0.027/0
20 mm +0.033/0

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 9.447 | 19.027 |
| Lead Angle | 3° 55' | 7° 50' |



QUALITY CLASS

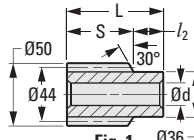


Fig. 1

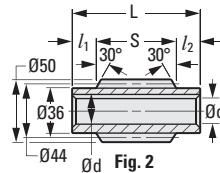


Fig. 2



KEYWAY PROFILE
(Fig. 2)
SEE NOTE

METRIC COMPONENT

| Catalog Number | Thread Data | | | | Fig. No. | d* Bore H8 | L | S | l ₁ Hub Proj. | l ₂ Hub Proj. | w | t |
|---|-------------|-----------|------------|-----------|----------|---------------|----|----|-----------------------------|-----------------------------|---|-----|
| | Sgl. Thd. | DbL. Thd. | Right-Hand | Left-Hand | | | | | | | | |
| Fig. 1 & 2 Worms – Right- and Left-Hand – Steel | | | | | | | | | | | | |
| A 1C 5MYK30RB | • | | • | | 1 | 16 | 70 | 50 | – | 20 | – | – |
| A 1C 5MWK30RB | | • | • | | 1 | 16 | 70 | 50 | – | 20 | – | – |
| A 1C 5MYK30LB | • | | | • | 1 | 16 | 70 | 50 | – | 20 | – | – |
| A 1C 5MWK30LB | | • | | • | 1 | 16 | 70 | 50 | – | 20 | – | – |
| A 1C 5MYK30RCA | • | | • | | 2 | 20 | 85 | 55 | 15 | 15 | 6 | 2.8 |
| A 1C 5MWK30RC | | • | • | | 2 | 20 | 85 | 55 | 15 | 15 | 6 | 2.8 |
| A 1C 5MYK30LC | • | | | • | 2 | 20 | 85 | 55 | 15 | 15 | 6 | 2.8 |
| A 1C 5MWK30LC | | • | | • | 2 | 20 | 85 | 55 | 15 | 15 | 6 | 2.8 |

See the next page for mating worm gears

ISO CLASS 8
RIGHT- AND LEFT-HAND
20° PRESSURE ANGLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:

Worm Gears – Aluminum Bronze or
Aluminum Bronze with Gray Cast Iron Core

► SPECIFICATIONS:

** Bore Tolerance: 16 mm +0.027/0
20, 25 & 30 mm +0.033/0
40 mm +0.039/0

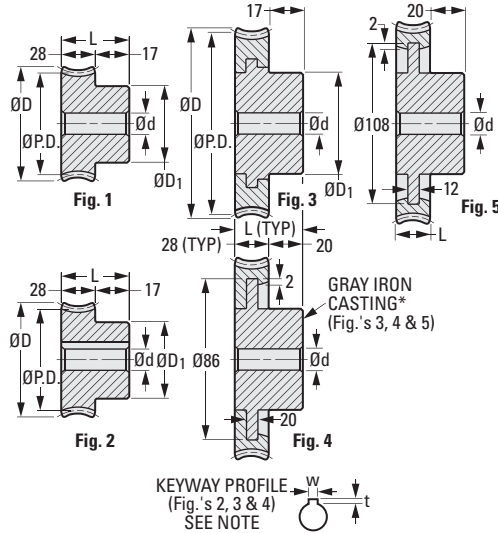


QUALITY CLASS

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

Thread Data

| | Single Thread | Double Thread |
|------------|---------------|---------------|
| Lead | 9.447 | 19.027 |
| Lead Angle | 3° 55' | 7° 50' |



METRIC COMPONENT

| Catalog Number | Thread Data | | | | Fig. No. | No. of Teeth | P.D. | D Dia. | d** Bore H8 | L | D ₁ Hub Dia. | w | t |
|---|-------------|-----------|------------|-----------|----------|--------------|------|--------|-------------|----|-------------------------|----|-----|
| | Sgl. Thd. | DbL. Thd. | Right-Hand | Left-Hand | | | | | | | | | |
| Fig. 1 & 2 Worm Gears – Right- and Left-Hand – Aluminum Bronze | | | | | | | | | | | | | |
| A 1B 6MYK30R020 | • | | • | | 1 | 20 | 60 | 70.5 | 16 | 45 | 48 | – | – |
| A 1B66MYK30R020 | • | | • | | 2 | 20 | 60 | 70.5 | 20 | 45 | 48 | 6 | 2.8 |
| A 1B 6MWK30R020 | | • | • | | 1 | 20 | 60 | 70.5 | 16 | 45 | 48 | – | – |
| A 1B66MWK30R020 | | • | • | | 2 | 20 | 60 | 70.5 | 20 | 45 | 48 | 6 | 2.8 |
| A 1B 6MYK30L020 | • | | | • | 1 | 20 | 60 | 70.5 | 16 | 45 | 48 | – | – |
| A 1B 6MYK30R025 | • | | • | | 1 | 25 | 75 | 85.5 | 16 | 45 | 55 | – | – |
| A 1B 6MYK30L025 | • | | | • | 1 | 25 | 75 | 85.5 | 16 | 45 | 55 | – | – |
| Fig. 3, 4 & 5 Worm Gears – Right- and Left-Hand – Aluminum Bronze with Gray Cast Iron Core | | | | | | | | | | | | | |
| A 1B 6MYK30R030 | • | | • | | 3 | 30 | 90 | 100.5 | 16 | 45 | 55 | – | – |
| *A 1B66MYK30R030 | • | | • | | 3 | 30 | 90 | 100.5 | 25 | 45 | 55 | 8 | 3.3 |
| A 1B 6MWK30R030 | | • | • | | 3 | 30 | 90 | 100.5 | 16 | 45 | 55 | – | – |
| *A 1B66MWK30R030 | | • | • | | 3 | 30 | 90 | 100.5 | 25 | 45 | 55 | 8 | 3.3 |
| A 1B 6MYK30L030 | • | | | • | 3 | 30 | 90 | 100.5 | 16 | 45 | 55 | – | – |
| A 1B 6MYK30R040 | • | | • | | 4 | 40 | 120 | 130.5 | 16 | 48 | 60 | – | – |
| Δ *A 1B66MYK30R040 | • | | • | | 4 | 40 | 120 | 130.5 | 25 | 48 | 60 | 8 | 3.3 |
| *A 1B66MYK30R040A | • | | • | | 4 | 40 | 120 | 130.5 | 30 | 48 | 60 | 8 | 3.3 |
| A 1B 6MYK30L040 | • | | | • | 4 | 40 | 120 | 130.5 | 16 | 48 | 60 | – | – |
| A 1B 6MYK30R050 | • | | • | | 5 | 50 | 150 | 160.5 | 16 | 48 | 70 | – | – |
| *A 1B66MYK30R050A | • | | • | | 5 | 50 | 150 | 160.5 | 40 | 48 | 70 | 12 | 3.3 |
| A 1B 6MYK30L050 | • | | | • | 5 | 50 | 150 | 160.5 | 16 | 48 | 70 | – | – |

Δ To be discontinued when present stock is depleted.

* This gear has a keyway.

See the previous page for mating worms



1-800-453-1692

www.aboveboardelectronics.com

1-175

RIGHT-HAND
20° PRESSURE ANGLE

► MATERIAL:
Cast Iron

► SPECIFICATIONS:

- * Bore Tolerance: 10 mm +0.022/0
- 12, 14 & 16 mm +0.027/0
- 19, 20, 22 & 25 mm +0.033/0



For Module 2 worm gears, select right-hand single or double thread worms on page 1-170.
For Module 3 worm gears, select right-hand single or double thread worms on page 1-174.

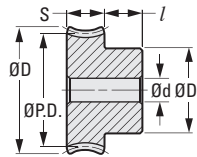


Fig. 1

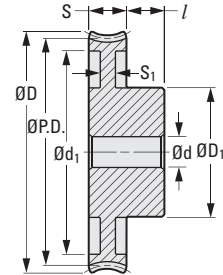


Fig. 2

METRIC COMPONENT

| Catalog Number | Thread Data | | Fig. No. | No. of Teeth | P.D. | D Dia. | d* Bore H8 | S Face Wdth. | D ₁ Hub Dia. | l Hub Proj. | S ₁ | d ₁ Dia. |
|-----------------|-------------|-----------|----------|--------------|------|--------|------------|--------------|-------------------------|-------------|----------------|---------------------|
| | Sgl. Thd. | Dbl. Thd. | | | | | | | | | | |
| Module 2 | | | | | | | | | | | | |
| A 1C 6MYK20R020 | • | | 1 | 20 | 40 | 46.5 | 10 | 16 | 30 | 14 | – | – |
| A 1C 6MWK20R020 | | • | 1 | 20 | 40 | 46.5 | 10 | 16 | 30 | 14 | – | – |
| A 1C 6MYK20R025 | • | | 1 | 25 | 50 | 57 | 12 | 18 | 38 | 15 | – | – |
| A 1C 6MYK20R030 | • | | 1 | 30 | 60 | 67 | 12 | 18 | 40 | 15 | – | – |
| A 1C 6MWK20R030 | | • | 1 | 30 | 60 | 67 | 12 | 18 | 40 | 15 | – | – |
| A 1C 6MYK20R040 | • | | 2 | 40 | 80 | 88 | 14 | 20 | 45 | 18 | 8 | 70 |
| A 1C 6MYK20R050 | • | | 2 | 50 | 100 | 108 | 14 | 20 | 50 | 18 | 8 | 90 |
| A 1C 6MYK20R060 | • | | 2 | 60 | 120 | 128 | 14 | 20 | 50 | 18 | 8 | 110 |
| A 1C 6MYK20R080 | • | | 2 | 80 | 160 | 168 | 19 | 20 | 54 | 15 | 8 | 150 |
| A 1C 6MYK20R100 | • | | 2 | 100 | 200 | 208 | 19 | 20 | 55 | 15 | 8 | 190 |
| Module 3 | | | | | | | | | | | | |
| A 1C 6MYK30R020 | • | | 1 | 20 | 60 | 70 | 16 | 24 | 48 | 18 | – | – |
| A 1C 6MWK30R020 | | • | 1 | 20 | 60 | 70 | 16 | 24 | 48 | 18 | – | – |
| A 1C 6MYK30R025 | • | | 1 | 25 | 75 | 85 | 16 | 24 | 55 | 18 | – | – |
| A 1C 6MYK30R030 | • | | 1 | 30 | 90 | 100 | 16 | 24 | 55 | 18 | – | – |
| A 1C 6MWK30R030 | | • | 1 | 30 | 90 | 100 | 16 | 24 | 55 | 18 | – | – |
| A 1C 6MYK30R040 | • | | 2 | 40 | 120 | 131 | 16 | 28 | 60 | 20 | 8 | 106 |
| A 1C 6MYK30R050 | • | | 2 | 50 | 150 | 161 | 16 | 28 | 70 | 20 | 8 | 134 |
| A 1C 6MYK30R060 | • | | 2 | 60 | 180 | 191 | 20 | 28 | 70 | 20 | 10 | 164 |
| A 1C 6MYK30R080 | • | | 2 | 80 | 240 | 251 | 22 | 28 | 70 | 20 | 10 | 224 |
| A 1C 6MYK30R100 | • | | 2 | 100 | 300 | 311 | 25 | 30 | 80 | 20 | 10 | 284 |

> **MATERIAL:**

303 Stainless Steel

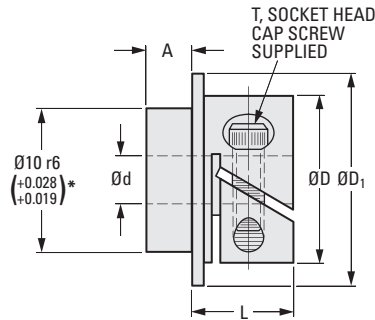
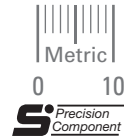
> **SPECIFICATIONS:**

Fairloc® hubs require controlled shaft tolerances. Suggested tolerance according to g6, h6 or h7

d bore and mounting diameter are concentric to 0.005 mm.

Bore Tolerance: 2.5 & 3 mm +0.01/0
 4, 5 & 6 mm +0.012/0
 8 mm +0.015/0

Available as special order:
 Hubs assembled to gears or dials and passivation



METRIC COMPONENT

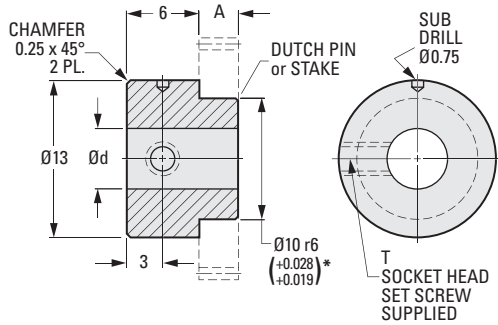
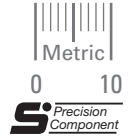
| Catalog Number | A | d Bore H7 | L | D Dia. | T | D1 Dia. | Clear. Radius |
|----------------|-----|-----------|-----|--------|------|---------|---------------|
| S2F0MYM016025 | 1.6 | 2.5 | 8.5 | 11 | M2 | 14 | 6.4 |
| S2F0MYM032025 | 3.2 | 2.5 | 8.5 | 11 | M2 | 14 | 6.4 |
| S2F0MYM016030 | 1.6 | 3 | 8.5 | 11 | M2 | 14 | 6.4 |
| S2F0MYM032030 | 3.2 | 3 | 8.5 | 11 | M2 | 14 | 6.4 |
| S2F0MYM060030 | 6 | 3 | 8.5 | 11 | M2 | 14 | 6.4 |
| S2F0MYM080030 | 8 | 3 | 8.5 | 11 | M2 | 14 | 6.4 |
| S2F0MYM100030 | 10 | 3 | 8.5 | 11 | M2 | 14 | 6.4 |
| S2F0MYM016040 | 1.6 | 4 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM032040 | 3.2 | 4 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM060040 | 6 | 4 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM080040 | 8 | 4 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM100040 | 10 | 4 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM016050 | 1.6 | 5 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM032050 | 3.2 | 5 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM048050 | 4.8 | 5 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM050050 | 5 | 5 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM060050 | 6 | 5 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM080050 | 8 | 5 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM100050 | 10 | 5 | 8.5 | 14 | M2.5 | 17 | 8.3 |
| S2F0MYM016060 | 1.6 | 6 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM032060 | 3.2 | 6 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM048060 | 4.8 | 6 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM050060 | 5 | 6 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM060060 | 6 | 6 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM080060 | 8 | 6 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM100060 | 10 | 6 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM016080 | 1.6 | 8 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM032080 | 3.2 | 8 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM048080 | 4.8 | 8 | 9.8 | 17 | M3 | 17 | 11.1 |
| S2F0MYM050080 | 5 | 8 | 9.8 | 17 | M3 | 17 | 11.1 |

* To provide press fit, use tolerance according to H7 for the mating part bore diameter.

➤ **MATERIAL:**
303 Stainless Steel

➤ **SPECIFICATION:**
d bore and mounting diameter are
concentric to 0.008 mm.

Available as special order:
Hubs assembled to gears or
dials and passivation



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | A | d Bore H7 | d Tolerance | T Set Screw |
|----------------|-----|-----------|-------------|-------------|
| S200MYM016025 | 1.6 | 2.5 | +0.01/0 | M2 |
| S200MYM032025 | 3.2 | 2.5 | +0.01/0 | M2 |
| S200MYM016030 | 1.6 | 3 | +0.01/0 | M2 |
| S200MYM032030 | 3.2 | 3 | +0.01/0 | M2 |
| S200MYM016040 | 1.6 | 4 | +0.012/0 | M2 |
| S200MYM032040 | 3.2 | 4 | +0.012/0 | M2 |
| S200MYM016050 | 1.6 | 5 | +0.012/0 | M3 |
| S200MYM032050 | 3.2 | 5 | +0.012/0 | M3 |
| S200MYM016060 | 1.6 | 6 | +0.012/0 | M3 |
| S200MYM032060 | 3.2 | 6 | +0.012/0 | M3 |
| S200MYM016080 | 1.6 | 8 | +0.015/0 | M3 |
| S200MYM032080 | 3.2 | 8 | +0.015/0 | M3 |

* To provide press fit, use tolerance according to H7 for the mating part bore diameter.

NONMETALLIC GEAR BLANKS

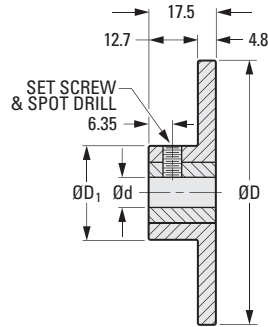
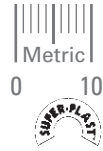
SDP/SI

4.8 mm FACE WIDTH
FOR GEARS, PULLEYS AND FRICTION DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Body – Acetal
Insert – Brass



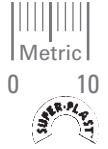
METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | D ₁ Hub Dia. | Set Screw |
|----------------|--------|-----------------------|-------------------------|-----------|
| A 1T15M53204 | 31.8 | 4 | 16 | M2.5 |
| A 1T15M53205 | 31.8 | 5 | 16 | M2.5 |
| A 1T15M53206 | 31.8 | 6 | 16 | M3 |
| A 1T15M53208 | 31.8 | 8 | 16 | M4 |
| A 1T15M54504 | 44.5 | 4 | 19 | M2.5 |
| A 1T15M54505 | 44.5 | 5 | 19 | M2.5 |
| A 1T15M54506 | 44.5 | 6 | 19 | M3 |
| A 1T15M54508 | 44.5 | 8 | 19 | M4 |
| A 1T15M57004 | 70 | 4 | 25 | M2.5 |
| A 1T15M57005 | 70 | 5 | 25 | M2.5 |
| A 1T15M57006 | 70 | 6 | 25 | M3 |
| A 1T15M57008 | 70 | 8 | 25 | M4 |

- I
- R
- T
- 1**
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

3 mm FACE WIDTH
FOR GEARS, PULLEYS AND FRICTION DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Blank – Acetal
Insert – Brass

> SPECIFICATIONS:

With or Without Insert
Blanks with:
3 mm bore have M2.5 set screw
and spot drill.
4, 5 & 6 mm bore have M3 set screw
and spot drill.

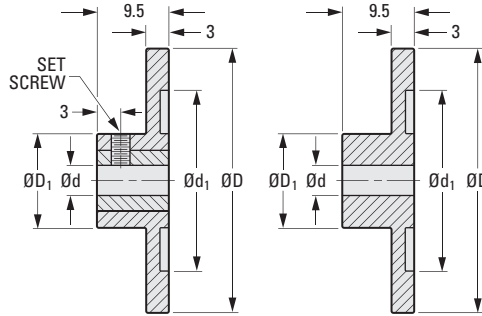
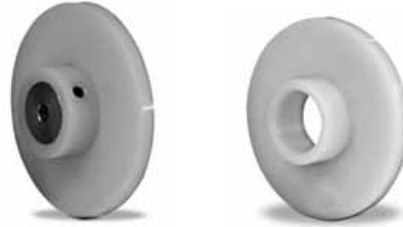


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | D Dia. ± 0.25 | d Bore +0.025 0 | D ₁ Hub Dia. | d ₁ Dia. |
|---------------------------|---------------|-----------------|-------------------------|---------------------|
| Fig. 1 With Insert | | | | |
| A 1T15M32003 | 19.3 | 3 | 13 | — |
| A 1T15M32004 | 19.3 | 4 | 13 | — |
| A 1T15M32005 | 19.3 | 5 | 13 | — |
| A 1T15M32006 | 19.3 | 6 | 13 | — |
| A 1T15M32303 | 22.5 | 3 | 13 | — |
| A 1T15M32304 | 22.5 | 4 | 13 | — |
| A 1T15M32305 | 22.5 | 5 | 13 | — |
| A 1T15M32306 | 22.5 | 6 | 13 | — |
| A 1T15M32603 | 25.6 | 3 | 13 | — |
| A 1T15M32604 | 25.6 | 4 | 13 | — |
| A 1T15M32605 | 25.6 | 5 | 13 | — |
| A 1T15M32606 | 25.6 | 6 | 13 | — |
| A 1T15M32903 | 28.8 | 3 | 16 | — |
| A 1T15M32905 | 28.8 | 5 | 16 | — |
| A 1T15M33203 | 32 | 3 | 16 | — |
| A 1T15M33206 | 32 | 6 | 16 | — |
| A 1T15M33903 | 38.5 | 3 | 16 | 25 |
| A 1T15M33904 | 38.5 | 4 | 16 | 25 |
| A 1T15M33905 | 38.5 | 5 | 16 | 25 |
| A 1T15M33906 | 38.5 | 6 | 16 | 25 |
| A 1T15M34503 | 44.8 | 3 | 19 | 29 |
| A 1T15M34504 | 44.8 | 4 | 19 | 29 |

| Catalog Number | D Dia. ± 0.25 | d Bore +0.025 0 | D ₁ Hub Dia. | d ₁ Dia. |
|------------------------------|---------------|-----------------|-------------------------|---------------------|
| Fig. 1 With Insert | | | | |
| A 1T15M34505 | 44.8 | 5 | 19 | 29 |
| A 1T15M34506 | 44.8 | 6 | 19 | 29 |
| A 1T15M35403 | 54.4 | 3 | 19 | 35 |
| A 1T15M35404 | 54.4 | 4 | 19 | 35 |
| A 1T15M35405 | 54.4 | 5 | 19 | 35 |
| A 1T15M35406 | 54.4 | 6 | 19 | 35 |
| A 1T15M36103 | 60.7 | 3 | 19 | 46 |
| A 1T15M36104 | 60.7 | 4 | 19 | 46 |
| A 1T15M36106 | 60.7 | 6 | 19 | 46 |
| A 1T15M37003 | 70.2 | 3 | 19 | 51 |
| A 1T15M37004 | 70.2 | 4 | 19 | 51 |
| A 1T15M37006 | 70.2 | 6 | 19 | 51 |
| Fig. 2 Without Insert | | | | |
| A 1M15M320 | 19.3 | 10 | 13 | — |
| A 1M15M323 | 22.5 | 10 | 13 | — |
| A 1M15M326 | 25.6 | 10 | 13 | — |
| A 1M15M329 | 28.8 | 12 | 16 | — |
| A 1M15M332 | 32 | 12 | 16 | — |
| A 1M15M339 | 38.5 | 12 | 16 | 25 |
| A 1M15M345 | 44.8 | 12 | 19 | 29 |
| A 1M15M354 | 54.4 | 12 | 19 | 35 |
| A 1M15M361 | 60.7 | 12 | 19 | 46 |
| A 1M15M370 | 70.2 | 12 | 19 | 51 |

EXTERNAL
INTERNAL

The splines are straddled milled, the bushings are broached. The spline sides are straight and the two straddled parallel surfaces are milled simultaneously.

Splined bushings can be used press-fitted or fastened to components which require relative axial motion with respect to the spline. Bushings made of bronze or mild steel are available.

For suggested method of fastening, see drawing.

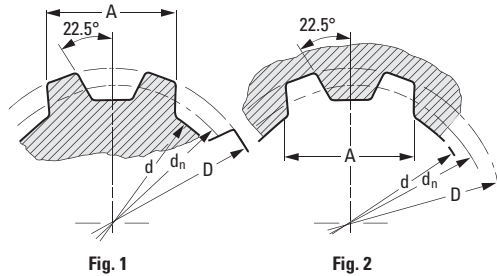
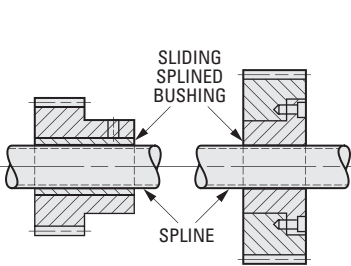


Fig. 1 External Spline Standards

| d_n Nominal Size | No. of Grooves | A Straddled Width | d Minor Dia. | D Minor Dia. |
|-----------------------|----------------|----------------------|-----------------|-----------------|
| 12 | 16 | 3.483 -0.015/-0.050 | 10.9 | 12.8 |
| 12 | 16 | 3.483 -0.015/-0.050 | 10.9 | 12.8 |
| 15 | 16 | 4.354 -0.020/-0.055 | 13.5 | 16.1 |
| 15 | 16 | 4.354 -0.020/-0.055 | 13.5 | 16.1 |
| 17 | 16 | 4.935 -0.020/-0.055 | 15.4 | 18.2 |
| 17 | 16 | 4.935 -0.020/-0.055 | 15.4 | 18.2 |
| 20 | 16 | 5.806 -0.020/-0.055 | 18.3 | 21.5 |
| 20 | 16 | 5.806 -0.020/-0.055 | 18.3 | 21.5 |

Fig. 2 Internal Spline Standards

| d_n Nominal Size | No. of Grooves | A Straddled Width | d Minor Dia. | D Minor Dia. | Max. Fillet Radius | Max. Broachable Length |
|-----------------------|----------------|----------------------|-----------------|-----------------|--------------------|------------------------|
| 12 | 16 | 3.483 +0.035/0 | 11.2 | 13.1 | 0.2 | 35 |
| 15 | 16 | 4.354 +0.035/0 | 13.8 | 16.4 | 0.2 | 40 |
| 17 | 16 | 4.935 +0.035/0 | 15.72 | 18.52 | 0.2 | 51 |
| 20 | 16 | 5.806 +0.035/0 | 18.88 | 21.88 | 0.2 | 51 |

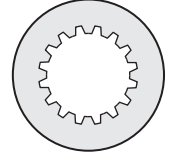
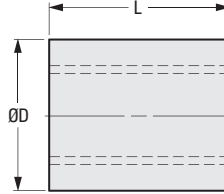
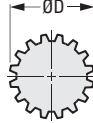
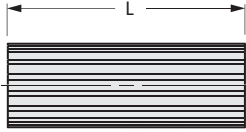
EXTERNAL
INTERNAL

➤ **MATERIAL:**

External Splines – Steel
Internal Spline Bushings – Steel or Brass

➤ **SPECIFICATIONS:**

External Splines are priced per stock length.
Internal Spline Bushings are priced per piece.



EXTERNAL SPLINE SHOWN

INTERNAL SPLINE BUSHING SHOWN

METRIC COMPONENT

| Catalog Number | Nominal Size | No. of Teeth | Stock Length cm |
|---------------------------------|--------------|--------------|-----------------|
| External Splines – Steel | | | |
| A 1C25M12050 | 12 | 16 | 50 |
| A 1C25M12100 | 12 | 16 | 100 |
| A 1C25M12150 | 12 | 16 | 150 |
| A 1C25M15050 | 15 | 16 | 50 |
| A 1C25M15100 | 15 | 16 | 100 |
| A 1C25M15150 | 15 | 16 | 150 |
| A 1C25M17050 | 17 | 16 | 50 |
| A 1C25M17100 | 17 | 16 | 100 |
| A 1C25M17150 | 17 | 16 | 150 |
| A 1C25M20050 | 20 | 16 | 50 |
| A 1C25M20100 | 20 | 16 | 100 |
| A 1C25M20150 | 20 | 16 | 150 |

| Catalog Number | Nominal Size | No. of Teeth | D Dia. | L |
|---|--------------|--------------|--------|----|
| Internal Spline Bushings – Steel | | | | |
| A 1C26M123035 | 12 | 16 | 30 | 35 |
| A 1C26M154040 | 15 | 16 | 40 | 40 |
| A 1C26M174551 | 17 | 16 | 45 | 51 |
| A 1C26M205051 | 20 | 16 | 50 | 51 |
| Internal Spline Bushings – Brass | | | | |
| A 1B26M122535 | 12 | 16 | 25 | 35 |
| A 1B26M152540 | 15 | 16 | 25 | 40 |
| A 1B26M173051 | 17 | 16 | 30 | 51 |
| A 1B26M203551 | 20 | 16 | 35 | 51 |

For technical information, see preceding page.

EXTERNAL
INTERNAL

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► MATERIAL:
Carbon Steel

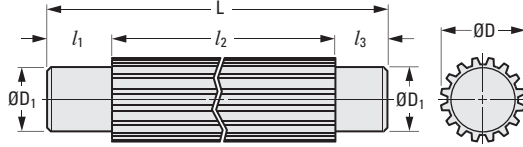


Fig. 1

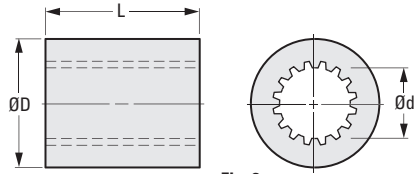


Fig. 2

METRIC COMPONENT

| Catalog Number | Nominal Size | No. of Teeth | D Dia. | l_1 | l_2 | l_3 | L cm | D ₁ Dia. |
|--------------------------------|--------------|--------------|--------|-------|-------|-------|------|---------------------|
| Fig. 1 External Splines | | | | | | | | |
| A 1C25MH1517 | 15 | 8 | 16.67 | 20 | 135 | 15 | 17 | 13 |
| A 1C25MH1820 | 18 | 10 | 19.67 | 20 | 165 | 15 | 20 | 15 |
| A 1C25MH2325 | 23 | 13 | 24.67 | 30 | 220 | – | 25 | 20 |
| A 1C25MH2830 | 28 | 16 | 29.67 | 30 | 270 | – | 30 | 25 |

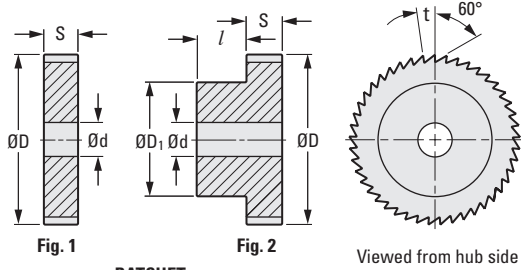
| Catalog Number | Nominal Size | No. of Teeth | d Dia. | D Dia. | L |
|--|--------------|--------------|--------|--------|----|
| Fig. 2 Internal Spline Bushings | | | | | |
| A 1C26MH1540 | 15 | 8 | 13.7 | 40 | 25 |
| A 1C26MH1845 | 18 | 10 | 16.7 | 45 | 30 |
| A 1C26MH2355 | 23 | 13 | 21.7 | 55 | 38 |
| A 1C26MH2865 | 28 | 16 | 26.7 | 65 | 45 |

60° TEETH

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> MATERIAL:

Steel (Hardened Teeth)



RATCHET

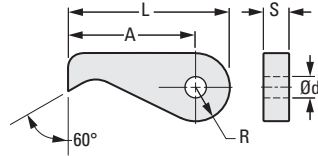


Fig. 3
PAWL

METRIC COMPONENT

| Catalog Number | t Circular Pitch | Fig. No. | No. of Teeth | D Dia. | d Bore H8 | d Tolerance | S Face Width | D ₁ Hub Dia. | l Hub Proj. |
|--------------------------------|------------------------|-------------|--------------------|-----------|-----------------|----------------|--------------------|-------------------------------|-------------------|
| Fig. 1 & 2 Ratchets | | | | | | | | | |
| A 1C14M23060A | 2.094 (2/3 π) | 1 | 60 | 40 | 10 | +0.022/0 | 8 | — | — |
| A 1C14M23090A | | | 90 | 60 | 12 | +0.027/0 | | — | — |
| A 1C14M23045 | | 2 | 45 | 30 | 6 | +0.018/0 | 6 | 20 | 9 |
| A 1C14M23060B | | | 60 | 40 | 8 | +0.022/0 | 8 | 28 | 12 |
| A 1C14M23090B | | | 90 | 60 | 10 | | | 42 | 15 |
| A 1C14M23120 | | | 120 | 80 | — | | | 56 | — |
| A 1C14M10060A | 3.142 (π) | 1 | 60 | 60 | 14 | | | +0.027/0 | 10 |
| A 1C14M10090 | | | 90 | 90 | 16 | — | — | | |
| A 1C14M10060B | | 2 | 60 | 60 | 12 | 42 | 20 | | |
| A 1C14M10080 | | | 80 | 80 | 14 | 56 | | | |
| A 1C14M10100 | | | 100 | 100 | 14 | 70 | | | |
| A 1C14M20040 | | | 40 | 80 | 12 | 56 | | | |
| A 1C14M20050 | 6.283 (2 π) | 2 | 50 | 100 | 14 | 70 | 84 | | |
| A 1C14M20060 | | | 60 | 120 | 14 | 84 | | | |

| Catalog Number | No. | d H8 | d Tolerance | A | L | R | S |
|---------------------|-----|---------|----------------|----|------|------|----|
| Fig. 3 Pawls | | | | | | | |
| A 1C14M03006 | 0 | 5 | +0.018/0 | 30 | 38 | 8 | 6 |
| A 1C14M13912 | 1 | 8 | +0.022/0 | 39 | 49 | 10 | 12 |
| A 1C14M25515 | 2 | 10 | | 55 | 67.5 | 12.5 | 15 |

REV: 6.10.15 JC



| | |
|--|-------|
| Timing Belt Stock | 2-7 |
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| 40 D.P. • 2.07 mm Pitch | 2-46 |
| XL • 1/5" or 5.08 mm Pitch | 2-55 |
| L • 3/8" or 9.525 mm Pitch | 2-86 |
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| HTD® • 5 mm Pitch | 2-115 |
| GT®2 • 2 mm Pitch | 2-136 |
| GT®2 • 3 mm Pitch | 2-148 |
| GT®2 • 5 mm Pitch | 2-163 |
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| V-Belts and Pulleys | 2-240 |



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| BELTS | | Timing Belt Drives | | | | |
|--------------------|------------------|--------------------|-----------------|---------------------|---------------|---------------|
| | | Miniature 1 mm | MXL 2.032 mm | 40 D.P. 2.073 mm | XL 5.08 mm | L 9.525 mm |
| Single-Sided Belts | Neoprene | | 2-27 | | 2-55 | 2-86 |
| | Polyurethane | 2-20 | 2-32 | 2-46 | 2-59 | |
| | Polymer Compound | | 2-30 | | 2-57 | 2-88 |
| Double-Sided Belts | Neoprene | | | | 2-60 | 2-89 |
| | Polyurethane | | 2-34 | | 2-61 | |
| Belt Stock | Neoprene | | 2-7 | | 2-7 | 2-7 |
| | Polyurethane | | | | 2-7 | 2-7 |

| PULLEYS | | Timing Belt Drives | | | | |
|-----------------------|--------------------|--------------------|-----------------|---------------------|---------------|---------------|
| | | Miniature 1 mm | MXL 2.032 mm | 40 D.P. 2.073 mm | XL 5.08 mm | L 9.525 mm |
| Aluminum Pulleys | With Fairloc® Hub | | 2-38 | | | |
| | With Set Screw Hub | 2-25 | 2-39 | | 2-67, 2-69 | 2-92 |
| Steel Pulleys | | | | | 2-69 | |
| Acetal Pulleys | With Insert | | | 2-50 | | |
| | Without Insert | | | 2-54 | 2-85 | |
| Polycarbonate Pulleys | With Fairloc® Hub | | | | 2-71 | |
| | With Metal Hub | | 2-42 | | 2-73 | 2-93 |
| | With Insert | | 2-43 | | 2-75 | |
| | Without Insert | | 2-44 | | 2-82 | |
| Pulley Flanges | | 2-22 | 2-35 | | 2-62 | 2-90 |
| Pulley Stock | | 2-23 | 2-36 | | 2-63 | 2-91 |

| TIMING BELT CLAMPS | | Timing Belt Drives | | |
|--------------------|---------------|--------------------|---------------|---------------|
| | | MXL 2.032 mm | XL 5.08 mm | L 9.525 mm |
| Timing Belt Clamps | Polycarbonate | 2-10 | 2-10 | |
| | Aluminum | | 2-11 | 2-11 |

Continued on the next page



MXL Timing Belts
Neoprene



MXL Timing Belts
Polymer Compound



Miniature Timing Belts
Polyurethane



XL Double-Sided Timing Belts
Polyurethane



MXL Timing Belt Pulleys
Fairloc® Hub • Aluminum



XL Timing Belt Pulleys
Polycarbonate



XL Timing Belt Pulleys
Acetal



| BELTS | | Timing Belt Drives | | | | | | | |
|--------------------|------------------|--------------------|-------|-------|-------|-------|--------|-------|-------|
| | | HTD® | | GT®2 | | | T2.5 | T5 | T10 |
| | | 3 mm | 5 mm | 2 mm | 3 mm | 5 mm | 2.5 mm | 5 mm | 10 mm |
| Single-Sided Belts | Neoprene | 2-95 | 2-115 | 2-136 | 2-148 | 2-163 | | | |
| | Polyurethane | | | | | | 2-175 | 2-180 | 2-186 |
| | Polymer Compound | | | 2-138 | 2-150 | 2-164 | | | |
| Double-Sided Belts | Neoprene | 2-97 | 2-117 | | 2-151 | 2-165 | | | |
| | Polyurethane | | | | | | | 2-181 | 2-187 |
| Belt Stock | Neoprene | 2-8 | 2-8 | 2-9 | 2-9 | 2-9 | | | |
| | Polyurethane | | | | | | | 2-8 | 2-8 |

| PULLEYS | | Timing Belt Drives | | | | | | | |
|-----------------------|--------------------|--------------------|-------|-------|-------|-------|--------|-------|-------|
| | | HTD® | | GT®2 | | | T2.5 | T5 | T10 |
| | | 3 mm | 5 mm | 2 mm | 3 mm | 5 mm | 2.5 mm | 5 mm | 10 mm |
| Aluminum Pulleys | With Fairloc® Hub | 2-104 | | 2-142 | 2-156 | | | | |
| | With Set Screw Hub | 2-105 | 2-124 | 2-143 | 2-157 | 2-171 | 2-178 | 2-184 | |
| Steel Pulleys | | | | | | | | | |
| Acetal Pulleys | Without Insert | | | | | | 2-179 | 2-185 | |
| Polycarbonate Pulleys | With Fairloc® Hub | | 2-128 | | | | | | |
| | With Metal Hub | | 2-129 | | | | | | |
| | With Insert | 2-109 | 2-130 | 2-146 | 2-159 | | | | |
| | Without Insert | 2-113 | 2-134 | 2-147 | 2-162 | | | | |
| Pulley Flanges | | 2-99 | 2-119 | 2-139 | 2-153 | 2-166 | 2-176 | 2-182 | 2-188 |
| Pulley Stock | | 2-100 | 2-120 | 2-140 | 2-154 | 2-167 | 2-177 | 2-183 | 2-189 |

| TIMING BELT CLAMPS | | Timing Belt Drives | | | | | | | | | | | |
|--------------------|---------------|--------------------|------|------|------|------|------|------|--------|------|-------|------|-------|
| | | HTD® | | | GT®2 | | | | T2.5 | T5 | T10 | AT | |
| | | 3 mm | 5 mm | 8 mm | 2 mm | 3 mm | 5 mm | 8 mm | 2.5 mm | 5 mm | 10 mm | 5 mm | 10 mm |
| Timing Belt Clamps | Polycarbonate | 2-10 | 2-10 | | 2-10 | 2-10 | 2-10 | | | | | | |
| | Aluminum | | 2-12 | 2-12 | 2-13 | 2-13 | 2-14 | 2-14 | | 2-16 | 2-16 | 2-15 | 2-15 |

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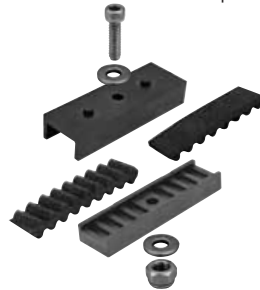
HTD® Timing Belts
Neoprene



T2.5 Timing Belts
Polyurethane



GT®2 Timing Belts
Polymer Compound



Timing Belt Clamps
Polycarbonate



HTD® Timing Belt Pulleys
Fairloc® Hub • Aluminum



HTD® Timing Belt Pulley Stock
Carbon Steel



HTD® Timing Belt Clamps
Aluminum



0 10

| CONIDRIVE® BELT DRIVES | | | Conidrive® | |
|------------------------|--------------|-------------------|------------|--|
| | | | 10 mm | |
| Belts | Polyurethane | Single Sided | 2-193 | |
| Belt Stock | | | 2-193 | |
| Pulleys | Aluminum | With Fairloc® Hub | 2-194 | |
| Mounting Plates | Aluminum | | 2-196 | |

| POSI-DRIVE BELT DRIVES | | Posi-Drives | | | |
|------------------------|-----------------|-------------|-----------|-------------|-----------|
| | | Single Core | Twin Core | Single Core | Twin Core |
| | | CP 2.5 | CP 3.75 | CP 4 | CP 4 |
| Belts | Polyurethane | 2-197 | 2-200 | 2-202 | 2-204 |
| Sprockets | Aluminum | 2-199 | 2-201 | 2-203 | 2-205 |
| | Stainless Steel | 2-199 | 2-201 | 2-203 | 2-205 |

| ROLLER CHAINS | | Pitch | | | | | | |
|---------------|-----------------|-------|-------|---|-------|---|-------|------|
| | | 3.12 | 3.75 | 6 | 6.35 | 8 | 9.525 | 12.7 |
| Roller Chains | Stainless Steel | | 2-208 | | 2-211 | | 2-217 | |
| | Hardened Steel | | | | 2-211 | | | |
| | Nylatron | | 2-210 | | | | | |
| | Acetal | 2-206 | | | | | | |

| ROLLER CHAIN SPROCKETS | | Pitch | | | | | | |
|------------------------|-----------------|----------------|-------|---|-------|-------|-------|-------|
| | | 3.12 | 3.75 | 6 | 6.35 | 8 | 9.525 | 12.7 |
| Roller Chain Sprockets | Stainless Steel | | 2-209 | | | | | |
| | Steel | | | | 2-212 | | | |
| | Acetal | With Insert | | | | 2-216 | | |
| | | Without Insert | 2-207 | | 2-218 | | 2-218 | 2-218 |
| Nylatron | | 2-210 | | | | | | |

| LADDER CHAINS | | Pitch | | | | | | |
|---------------|--------------------|-------|----------------|---------------|-------|-------------|----------------|-------|
| | | 3.75 | 4.24 (size 21) | 4.7 (size 19) | 4.8 | 6.35 & 9.52 | 7.26 (size 18) | 8.9 |
| Ladder Chains | Tinned Steel | | 2-221, 222 | | | | | |
| | Stainless Steel | 2-220 | 2-221, 222 | 2-223 | 2-224 | 2-228 | 2-225, 226 | 2-227 |
| | High-Tensile Steel | | 2-221, 222 | 2-223 | 2-224 | 2-228 | 2-225, 226 | 2-227 |
| | Steel | | | 2-223 | | 2-228 | 2-225, 226 | 2-227 |
| | Brass | | | 2-223 | | 2-228 | 2-225, 226 | 2-227 |

| LADDER CHAIN SPROCKETS | | Pitch | | | | | | | |
|------------------------|-----------------|----------------|----------------|---------------|-------|-------------|----------------|-------|-------|
| | | 3.75 | 4.24 (size 21) | 4.7 (size 19) | 4.8 | 6.35 & 9.52 | 7.26 (size 18) | 8.9 | |
| Ladder Chain Sprockets | Stainless Steel | 2-220 | | | 2-224 | 2-228 | | | |
| | Steel | | | | | | | | |
| | Brass | 2-220 | | | 2-224 | 2-228 | | | |
| | Acetal | With Insert | | 2-221 | 2-223 | | | 2-225 | 2-227 |
| | | Without Insert | 2-220 | 2-222 | | 2-224 | | 2-226 | |

Continued on the next page



| SYNCHROMESH DRIVES | | Synchromesh Drives | | |
|--------------------|------------------------------------|--------------------|------|-----------------|
| | | 3.048 | 3.81 | 5.08 6.35 Pitch |
| Cable | Stainless Steel | 2-231 | | |
| Pulleys | Acetal (With Insert On 6.35 Pitch) | 2-232 | | |
| Attachments | Various Materials | 2-233 | | |

| OTHER BELT DRIVES | | Other Belt Drives | |
|-------------------|--|-------------------|-------|
| | | O-Ring | Flat |
| Belts | | 2-235 | 2-238 |
| Pulleys | | 2-237 | 2-239 |

| "V" BELT DRIVES | | "V" Belt Drives | |
|-----------------|-------------------|-----------------|--|
| | | Width: 6.6 mm | |
| Belts | Reinforced Rubber | 2-240 | |
| Pulleys | Nylon | 2-241 | |

Continued from the previous page



Conidrive® Timing Belts
Polyurethane



Conidrive® Timing Belt Pulleys
Aluminum



Posi-Drive Belts
Polyurethane



Posi-Drive Sprockets
Aluminum



Miniature Roller Chain
Stainless Steel



Miniature Sprocket
Stainless Steel



Ladder Chain
Stainless Steel



Sprocket
Acetal



Synchromesh Cable
Stainless Steel



Synchromesh Cable Pulley
Acetal



Flat Belt
Polyester / Neoprene



Flat Belt Pulleys
Polycarbonate



Fractional H.P. V-Belts
Reinforced Rubber



Companion Pulleys
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WHY CHOOSE THIS BELT ?

➤ **CLEAN RUNNING**

Polymer-Free Nylon Tooth Facing Provides:

- Reduced dust operation
- Durable wear surface
- Long life
- Frictional loss is kept to a minimum
- Low noise levels

➤ **OUTSTANDING PERFORMANCE**

Multiple Tooth Profiles:

- Enhanced capacity through full tooth-to-sprocket contact

➤ **PROTECTION**

Cream-Colored Polymer Compound Body:

- Withstands high and low temperatures
- 40°F to +220°F (-40°C to +104°C)

➤ **STRENGTH**

Fiberglass Tensile Cord Insures:

- Resistance to elongation
- High flex life

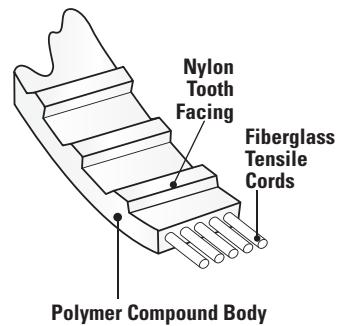
RoHS COMPLIANT

➤ **APPLICATIONS:**

- Medical Equipment
- Data Storage Equipment
- Printers and Plotters
- Office Equipment

➤ **AVAILABLE IN:**

- MXL
- XL
- L
- GT®2 – 2, 3 and 5 mm
- and other pitches



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PITCH

INCH - .080, 1/5 & 3/8

METRIC - 2.032, 5.08 & 9.525 mm

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced
Polyurethane - Reinforced with Steel Tensile Cords

➤ SPECIFICATION:

Temperature Range:

Neoprene: -30°F to +185°F (-34°C to +85°C)

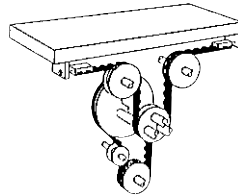
Polyurethane: -0°F to +180°F (-18°C to +82°C)

➤ APPLICATIONS:

Metering, positioning, conveying and oscillating drives where belt lengths required are longer than standard endless belts.

➤ EXAMPLE OF APPLICATIONS:

A complete timing belt and a timing belt segment reduced vibration and chatter in this oscillating drive for a surface grinder.



See Pages 2-10 & 2-11 for Clamping Plates

Priced per Foot or Meter

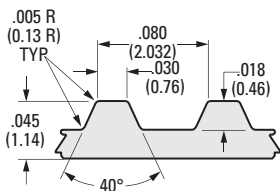


Fig. 1 MXL
.080 Pitch
(2.032 Pitch)

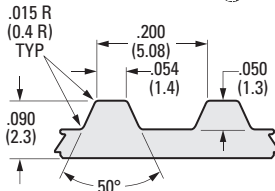


Fig. 2 XL
1/5 Pitch
(5.08 Pitch)

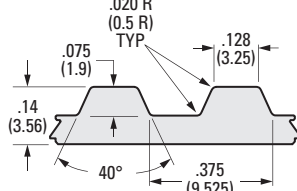


Fig. 3 L
3/8 Pitch
(9.525 Pitch)

INCH COMPONENT

NOTE: Dimensions in () are inch

| Catalog Number | | Fig. No. | Pitch | | Belt Width | | No. of Teeth Approx. | |
|--------------------------|-------------|----------|-------|-------|------------|-----|----------------------|-----------|
| Inch | Metric | | Inch | mm | Inch | mm | Per Foot | Per Meter |
| Neoprene - MXL | | | | | | | | |
| A 6Z16-C012 | A 6Z16MC030 | 1 | .080 | 2.032 | 1/8 | 3 | 150 | 492 |
| A 6Z16-C018 | A 6Z16MC045 | 1 | .080 | 2.032 | 3/16 | 4.5 | 150 | 492 |
| A 6Z16-C025 | A 6Z16MC060 | 1 | .080 | 2.032 | 1/4 | 6 | 150 | 492 |
| A 6Z16-C037 | A 6Z16MC095 | 1 | .080 | 2.032 | 3/8 | 9.5 | 150 | 492 |
| Neoprene - XL | | | | | | | | |
| A 6R 3-C025 | A 6R 3MC060 | 2 | 1/5 | 5.08 | 1/4 | 6 | 60 | 197 |
| A 6R 3-C037 | A 6R 3MC095 | 2 | 1/5 | 5.08 | 3/8 | 9.5 | 60 | 197 |
| A 6R 3-C050 | A 6R 3MC130 | 2 | 1/5 | 5.08 | 1/2 | 13 | 60 | 197 |
| Polyurethane - XL | | | | | | | | |
| A 6T 3-C025 | A 6T 3MC060 | 2 | 1/5 | 5.08 | 1/4 | 6 | 60 | 197 |
| A 6T 3-C037 | A 6T 3MC095 | 2 | 1/5 | 5.08 | 3/8 | 9.5 | 60 | 197 |
| A 6T 3-C050 | A 6T 3MC130 | 2 | 1/5 | 5.08 | 1/2 | 13 | 60 | 197 |
| Neoprene - L | | | | | | | | |
| A 6R 4-C050 | A 6R 4MC130 | 3 | 3/8 | 9.525 | 1/2 | 13 | 32 | 105 |
| A 6R 4-C075 | A 6R 4MC190 | 3 | 3/8 | 9.525 | 3/4 | 19 | 32 | 105 |
| A 6R 4-C100 | A 6R 4MC250 | 3 | 3/8 | 9.525 | 1 | 25 | 32 | 105 |
| Polyurethane - L | | | | | | | | |
| A 6T 4-C050 | A 6T 4MC130 | 3 | 3/8 | 9.525 | 1/2 | 13 | 32 | 105 |
| A 6T 4-C075 | A 6T 4MC190 | 3 | 3/8 | 9.525 | 3/4 | 19 | 32 | 105 |
| A 6T 4-C100 | A 6T 4MC250 | 3 | 3/8 | 9.525 | 1 | 25 | 32 | 105 |



METRIC - 3 & 5 mm HTD®
T5 & T10 PITCH

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

TRUE METRIC® PROFILE



> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced
Polyurethane - Reinforced with Steel Tensile Cords

> SPECIFICATION:

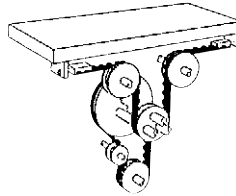
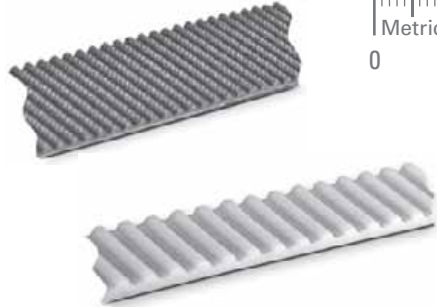
Temperature Range:
Neoprene: -34°C to +85°C (-30°F to +185°F)
Polyurethane: -18°C to +82°C (0°F to +180°F)

> APPLICATIONS:

Metering, positioning, conveying and oscillating drives where belt lengths required are longer than standard endless belts.

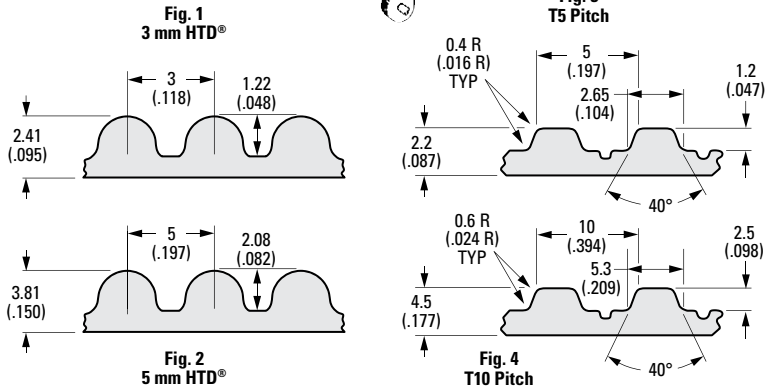
> EXAMPLE OF APPLICATIONS:

A complete timing belt and a timing belt segment reduced vibration and chatter in this oscillating drive for a surface grinder.



See Pages 2-10 thru 2-13 for Clamping Plates

Priced per Meter



NOTE: Dimensions in () are inch.

| METRIC COMPONENT | | | | | | | |
|-------------------------|----------|-------|------|------------|------|----------------------|----------|
| Catalog Number | Fig. No. | Pitch | | Belt Width | | No. of Teeth Approx. | |
| | | mm | Inch | mm | Inch | Per Meter | Per Foot |
| Neoprene - HTD® | | | | | | | |
| A 6R23MC060 | 1 | 3 | .118 | 6 | .236 | 333 | 101 |
| A 6R23MC090 | 1 | 3 | .118 | 9 | .354 | 333 | 101 |
| A 6R23MC250 | 1 | 3 | .118 | 25 | .984 | 333 | 101 |
| A 6R25MC060 | 2 | 5 | .197 | 6 | .236 | 200 | 61 |
| A 6R25MC090 | 2 | 5 | .197 | 9 | .354 | 200 | 61 |
| A 6R25MC130 | 2 | 5 | .197 | 13 | .512 | 200 | 61 |
| A 6R25MC150 | 2 | 5 | .197 | 15 | .591 | 200 | 61 |
| A 6R25MC250 | 2 | 5 | .197 | 25 | .984 | 200 | 61 |
| Polyurethane - T | | | | | | | |
| A 6T35MC100 | 3 | 5 | .197 | 10 | .394 | 200 | 61 |
| A 6T35MC150 | 3 | 5 | .197 | 15 | .591 | 200 | 61 |
| A 6T39MC150 | 4 | 10 | .394 | 15 | .591 | 100 | 30 |
| A 6T39MC250 | 4 | 10 | .394 | 25 | .984 | 100 | 30 |

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PITCH

METRIC - 2, 3 & 5 mm GT®2

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Nylon Covered, Fiberglass Reinforced, Neoprene

> SPECIFICATION:

Temperature Range:

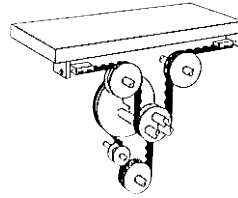
-34°C to +85°C (-30°F to +185°F)

> APPLICATIONS:

Metering, positioning, conveying and oscillating drives where belt lengths required are longer than standard endless belts.

> EXAMPLE OF APPLICATIONS:

A complete timing belt and a timing belt segment reduced vibration and chatter in this oscillating drive for a surface grinder.



See Page 2-10, 2-13 & 2-14 for Clamping Plates

Priced per Meter

Other widths available on special order.

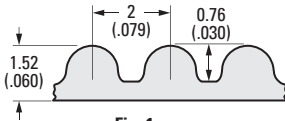


Fig. 1
2 mm GT®2

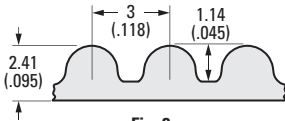


Fig. 2
3 mm GT®2

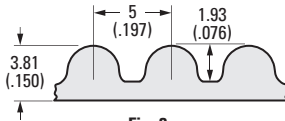


Fig. 3
5 mm GT®2

NOTE: Dimensions in () are inch

METRIC COMPONENT

| Catalog Number | Fig. No. | Pitch | | Belt Width | | No. of Teeth Approx. | |
|----------------|----------|-------|------|------------|------|----------------------|----------|
| | | mm | Inch | mm | Inch | Per Meter | Per Foot |
| A 6R51MC060 | 1 | 2 | .079 | 6 | .236 | 500 | 152 |
| A 6R51MC090 | 1 | 2 | .079 | 9 | .354 | 500 | 152 |
| A 6R51MC120 | 1 | 2 | .079 | 12 | .472 | 500 | 152 |
| A 6R53MC060 | 2 | 3 | .118 | 6 | .236 | 333 | 101 |
| A 6R53MC090 | 2 | 3 | .118 | 9 | .354 | 333 | 101 |
| A 6R53MC120 | 2 | 3 | .118 | 12 | .472 | 333 | 101 |
| A 6R55MC090 | 3 | 5 | .197 | 9 | .354 | 200 | 61 |
| A 6R55MC120 | 3 | 5 | .197 | 12 | .472 | 200 | 61 |

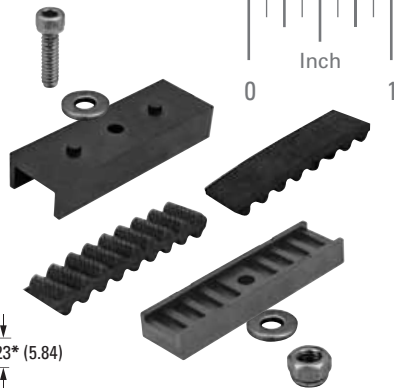


TIMING BELT CLAMPS



FOR RECIPROCATING DRIVES
 PATENT NO: US7,810,219 B2
 COMPACT
 LOW INERTIA
 FOR SINGLE- AND DOUBLE-SIDED BELTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

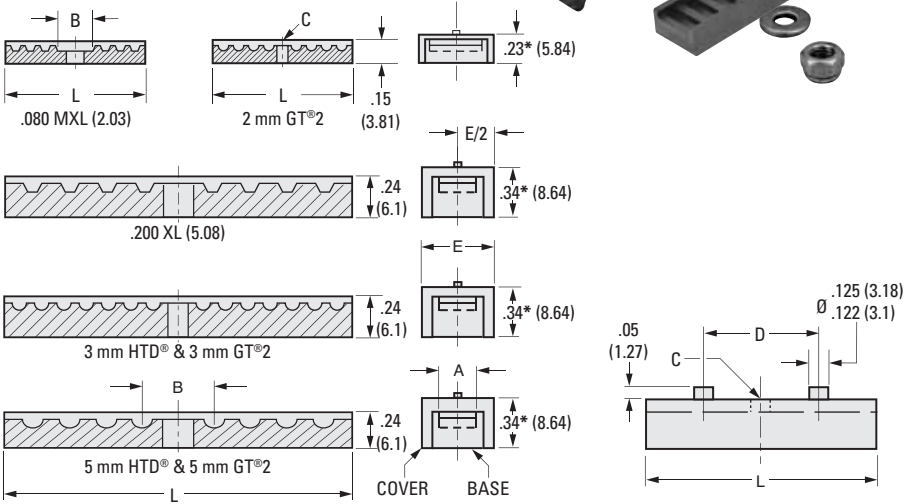


> MATERIAL:

Base & Cover - Black Polycarbonate
Hardware - 303 Stainless Steel

> SPECIFICATION:

Supplied with Hex Socket Cap Screw,
 Flat Washers & Elastic Stop Nut.



INCH COMPONENT

NOTE: Dimensions in () are mm.

| Catalog Number | Belt Width | | A | B | C | D | E Cover Width | L Length |
|----------------------------------|------------|-----|--------------|--------------|-------------|--------------|---------------------|---------------|
| | Inch | mm | | | | | | |
| MXL .080 Pitch | | | | | | | | |
| A 6M16M030 | 1/8 | 3 | .135 (3.43) | .160 (4.06) | .093 (2.36) | .500 (12.7) | .32 (8.13) | .750 (19.05) |
| A 6M16M045 | 3/16 | 4.5 | .197 (5) | .160 (4.06) | .093 (2.36) | .500 (12.7) | .39 (9.91) | .750 (19.05) |
| A 6M16M060 | 1/4 | 6 | .260 (6.6) | .160 (4.06) | .125 (3.18) | .500 (12.7) | .45 (11.43) | .750 (19.05) |
| A 6M16M080 | 5/16 | 8 | .322 (8.18) | .160 (4.06) | .145 (3.68) | .500 (12.7) | .50 (12.7) | .750 (19.05) |
| A 6M16M095 | 3/8 | 9.5 | .385 (9.78) | .160 (4.06) | .145 (3.68) | .500 (12.7) | .57 (14.48) | .750 (19.05) |
| XL .200 Pitch | | | | | | | | |
| A 6M 3M060 | 1/4 | 6 | .265 (6.73) | .380 (9.65) | .125 (3.18) | 1.000 (25.4) | .50 (12.7) | 1.880 (47.75) |
| A 6M 3M080 | 5/16 | 8 | .327 (8.31) | .380 (9.65) | .145 (3.68) | 1.000 (25.4) | .63 (16) | 1.880 (47.75) |
| A 6M 3M095 | 3/8 | 9.5 | .390 (9.91) | .380 (9.65) | .145 (3.68) | 1.000 (25.4) | .63 (16) | 1.880 (47.75) |
| GT² 2 mm Pitch | | | | | | | | |
| A 6M51M030 | - | 3 | .130 (3.3) | .168 (4.27) | .093 (2.36) | .500 (12.7) | .32 (8.13) | .750 (19.05) |
| A 6M51M060 | - | 6 | .250 (6.35) | .168 (4.27) | .125 (3.18) | .500 (12.7) | .45 (11.43) | .750 (19.05) |
| A 6M51M090 | - | 9 | .370 (9.4) | .168 (4.27) | .145 (3.68) | .500 (12.7) | .57 (14.48) | .750 (19.05) |
| HTD® & GT² 3 mm Pitch | | | | | | | | |
| A 6M53M060 | - | 6 | .250 (6.35) | .298 (7.57) | .125 (3.18) | 1.000 (25.4) | .50 (12.7) | 1.880 (47.75) |
| A 6M53M090 | - | 9 | .370 (9.4) | .298 (7.57) | .145 (3.68) | 1.000 (25.4) | .63 (16) | 1.880 (47.75) |
| HTD® & GT² 5 mm Pitch | | | | | | | | |
| A 6M55M060 | - | 6 | .250 (6.35) | .430 (10.92) | .125 (3.18) | 1.000 (25.4) | .50 (12.7) | 1.880 (47.75) |
| A 6M55M090 | - | 9 | .370 (9.4) | .430 (10.92) | .145 (3.68) | 1.000 (25.4) | .63 (16) | 1.880 (47.75) |
| A 6M55M150 | - | 15 | .605 (15.37) | .430 (10.92) | .145 (3.68) | 1.000 (25.4) | .87 (22.1) | 1.880 (47.75) |

*Dimensions when used with single sided belts.



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XL & L TIMING BELT CLAMP KITS • 1/5" & 3/8" PITCH



USED IN LINEAR DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Aluminum

> SPECIFICATIONS:

Timing Belt Clamp Kit includes:

Top and Bottom Plate and Hardware for Assembly

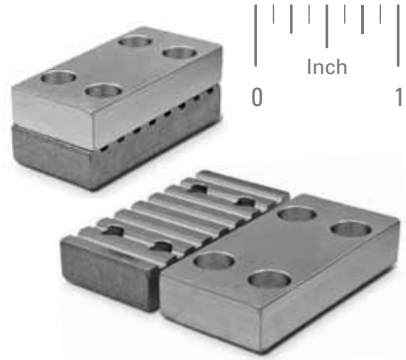
Hardware for kit includes:

Screws, Washers and Hex Nuts for Assembly

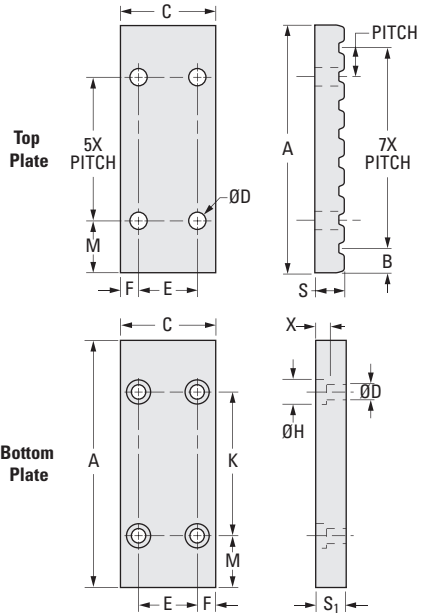
For Replacement hardware kit, order:

A16A 3-BOLTKIT XL 1/5 inch pitch

A16A 4-BOLTKIT L 3/8 inch pitch



| XL • 1/5 Inch Pitch | | | | | | |
|---------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------|
| F in. (mm) | M in. (mm) | S in. (mm) | H in. (mm) | K in. (mm) | X in. (mm) | S ₁ in. (mm) |
| .290 (7.4) | .370 (9.4) | .320 (8.1) | .375 (9.5) | 1.000 (25.4) | .190 (4.8) | .380 (9.65) |
| L • 3/8 Inch Pitch | | | | | | |
| .370 (9.4) | .685 (17.4) | .590 (15) | .531 (13.5) | 1.875 (47.6) | .320 (0.81) | .630 (16) |



INCH COMPONENT

| Catalog Number | Belt Width in. (mm) | A in. (mm) | B in. (mm) | C in. (mm) | D in. (mm) | E in. (mm) | Toothed + Flat Plate Total Weight (with hardware) lb. (kg) |
|--|------------------------|------------------|------------------|------------------|------------------|------------------|--|
| XL • 1/5 Inch Pitch - Sold as Kit | | | | | | | |
| A16A 3-025 | .25 (6.35) | 1.740 (44.2) | .170 (4.3) | 1.09 (27.7) | .221 (5.6) | .51 (13) | .12 (0.054) |
| A16A 3-031 | .3125 (7.94) | 1.740 (44.2) | .170 (4.3) | 1.15 (29.2) | .221 (5.6) | .57 (14.5) | .13 (0.060) |
| A16A 3-037 | .375 (9.53) | 1.740 (44.2) | .170 (4.3) | 1.22 (31) | .221 (5.6) | .64 (16.3) | .14 (0.064) |
| L • 3/8 Inch Pitch - Sold as Kit | | | | | | | |
| A16A 4-050 | .500 (12.7) | 3.245 (82.4) | .310 (7.9) | 1.62 (41.1) | .344 (8.7) | .88 (22.4) | .58 (0.263) |
| A16A 4-075 | .750 (19.1) | 3.245 (82.4) | .310 (7.9) | 1.87 (47.5) | .344 (8.7) | 1.13 (28.7) | .67 (0.304) |



Request Info



1-800-453-1692

www.aboveboardelectronics.com

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USED IN LINEAR DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Aluminum

> SPECIFICATIONS:

Timing Belt Clamp Kit includes:

Top and Bottom Plate and Hardware for Assembly

Hardware for kit includes:

Screws, Washers and Hex Nuts for Assembly

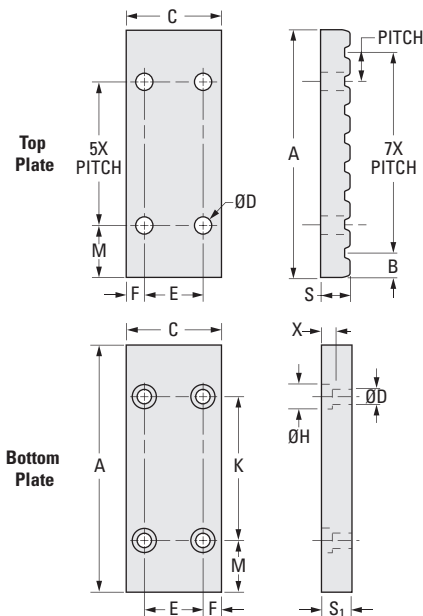
For Replacement hardware kit, order:

A16A25MBOLTKIT HTD®5 mm pitch

A16A28MBOLTKIT HTD®8 mm pitch



| 5 mm Pitch | | | | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------|
| F mm (in.) | M mm (in.) | S mm (in.) | H mm (in.) | K mm (in.) | X mm (in.) | S ₁ mm (in.) |
| 7.5 (.295) | 10 (.394) | 8 (.315) | 10 (.394) | 25 (.984) | 5 (.197) | 10 (.394) |
| 8 mm Pitch | | | | | | |
| 10 (.394) | 16 (.630) | 15 (.591) | 15 (.591) | 40 (1.574) | 8 (.315) | 16 (.630) |



METRIC COMPONENT

| Catalog Number | Belt Width mm (in.) | A mm (in.) | B mm (in.) | C mm (in.) | D mm (in.) | E mm (in.) | Toothed + Flat Plate Total Weight (with hardware) kg (lb.) |
|--|------------------------|------------------|------------------|------------------|------------------|------------------|---|
| HTD® • 5 mm Pitch - Sold as Kit | | | | | | | |
| A16A25M09 | 6 (.236) & 9 (.354) | 45 (1.772) | 5 (.197) | 31.5 (1.24) | 5.5 (.217) | 16.5 (.650) | 0.068 (.15) |
| A16A25M15 | 15 (.591) | 45 (1.772) | 5 (.197) | 36.5 (1.44) | 5.5 (.217) | 21.5 (.846) | 0.068 (.15) |
| A16A25M25 | 25 (.984) | 45 (1.772) | 5 (.197) | 46.5 (1.83) | 5.5 (.217) | 31.5 (1.24) | 0.100 (.22) |
| HTD® • 8 mm Pitch - Sold as Kit | | | | | | | |
| A16A28M20 | 20 (.787) | 72 (2.835) | 8 (.315) | 50.5 (1.988) | 9 (.354) | 30.5 (1.201) | 0.272 (.60) |
| A16A28M30 | 30 (1.181) | 72 (2.835) | 8 (.315) | 60.5 (2.382) | 9 (.354) | 40.5 (1.594) | 0.331 (.73) |
| A16A28M50 | 50 (1.969) | 72 (2.835) | 8 (.315) | 80.5 (3.169) | 9 (.354) | 60.5 (2.382) | 0.449 (.99) |

USED IN LINEAR DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Aluminum

> SPECIFICATIONS:

Timing belt clamp kit includes:

Top and bottom plate and hardware for assembly.

Hardware for kit includes:

Screws, washers and hex nuts for assembly.

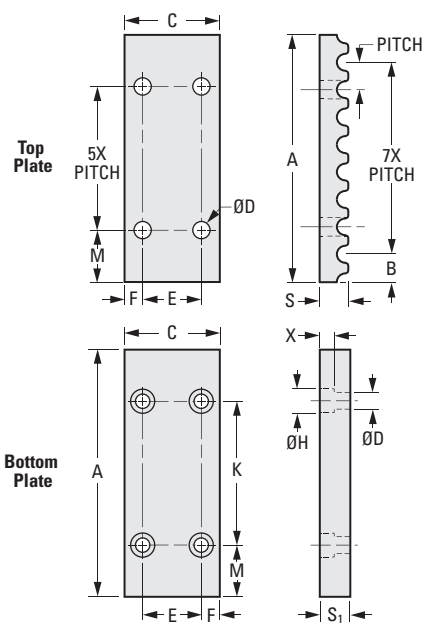
For replacement hardware kit, order:

A16A51MBOLTKIT GT² 2 mm pitch

A16A53MBOLTKIT GT² 3 mm pitch



| 2 mm Pitch | | | | | | |
|------------|------------|------------|-----------------|------------|------------|-------------------------|
| F mm (in.) | M mm (in.) | S mm (in.) | H Dia. mm (in.) | K mm (in.) | X mm (in.) | S ₁ mm (in.) |
| 4.7 (.185) | 4 (.157) | 4 (.157) | 4.4 (.173) | 10 (.394) | 2 (.079) | 4 (.157) |
| 3 mm Pitch | | | | | | |
| 5.8 (.228) | 6 (.236) | 5 (.197) | 6.5 (.256) | 15 (.591) | 3 (.118) | 6 (.236) |



METRIC COMPONENT

| Catalog Number | Belt Width mm (in.) | A mm (in.) | B mm (in.) | C mm (in.) | D Dia. mm (in.) | E mm (in.) | Toothed + Flat Plate Total Weight (with hardware) kg (lb.) |
|--|---------------------|------------|------------|-------------|-----------------|-------------|--|
| GT² • 2 mm Pitch - Sold as Kit | | | | | | | |
| A16A51M04 | 4 (.157) | 18 (.709) | 2 (.079) | 16.8 (.661) | 2.4 (.094) | 7.4 (.291) | 0.006 (.01) |
| A16A51M06 | 6 (.236) | 18 (.709) | 2 (.079) | 18.8 (.740) | 2.4 (.094) | 9.4 (.370) | 0.015 (.03) |
| A16A51M09 | 9 (.354) | 18 (.709) | 2 (.079) | 21.8 (.858) | 2.4 (.094) | 12.4 (.488) | 0.017 (.04) |
| GT² • 3 mm Pitch - Sold as Kit | | | | | | | |
| A16A53M06 | 6 (.236) | 27 (1.063) | 3 (.118) | 22 (.866) | 3.4 (.134) | 10.4 (.409) | 0.016 (.04) |
| A16A53M09 | 9 (.354) | 27 (1.063) | 3 (.118) | 25 (.984) | 3.4 (.134) | 13.4 (.528) | 0.019 (.04) |



USED IN LINEAR DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Aluminum

> SPECIFICATIONS:

Timing belt clamp kit includes:

Top and bottom plate and hardware for assembly.

Hardware for kit includes:

Screws, washers and hex nuts for assembly.

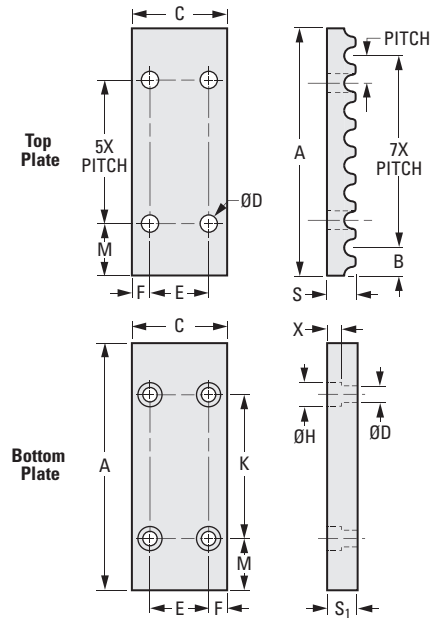
For replacement hardware kit, order:

A16A55MBOLTKIT GT² 5 mm pitch

A16A58MBOLTKIT GT² 8 mm pitch



| 5 mm Pitch | | | | | | |
|------------------|------------------|------------------|--------------------------|------------------|------------------|-------------------------------|
| F mm (in.) | M mm (in.) | S mm (in.) | H Dia. mm (in.) | K mm (in.) | X mm (in.) | S ₁ mm (in.) |
| 7.5 (.295) | 10 (.394) | 8 (.315) | 10 (.394) | 25 (.984) | 5 (.197) | 10 (.394) |
| 8 mm Pitch | | | | | | |
| 10 (.394) | 16 (.630) | 15 (.591) | 15 (.591) | 40 (1.575) | 8 (.315) | 16 (.630) |



METRIC COMPONENT

| Catalog Number | Belt Width mm (in.) | A mm (in.) | B mm (in.) | C mm (in.) | D Dia. mm (in.) | E mm (in.) | Toothed + Flat Plate Total Weight (with hardware) kg (lb.) |
|--|---------------------------|------------------|------------------|------------------|--------------------------|------------------|--|
| GT² • 5 mm Pitch - Sold as Kit | | | | | | | |
| A16A55M09 | 9 (.354) | 45 (1.772) | 5 (.197) | 30.5 (1.201) | 5.5 (.217) | 15.5 (.610) | 0.056 (.12) |
| A16A55M15 | 15 (.591) | 45 (1.772) | 5 (.197) | 37 (1.457) | 5.5 (.217) | 22 (.866) | 0.074 (.16) |
| A16A55M25 | 25 (.984) | 45 (1.772) | 5 (.197) | 47 (1.850) | 5.5 (.217) | 32 (1.260) | 0.096 (.21) |
| GT² • 8 mm Pitch - Sold as Kit | | | | | | | |
| A16A58M20 | 20 (.787) | 72 (2.835) | 8 (.315) | 50.5 (1.988) | 9 (.354) | 30.5 (1.201) | 0.272 (.60) |
| A16A58M30 | 30 (1.181) | 72 (2.835) | 8 (.315) | 60.5 (2.382) | 9 (.354) | 40.5 (1.594) | 0.334 (.73) |
| A16A58M50 | 50 (1.968) | 72 (2.835) | 8 (.315) | 81 (3.189) | 9 (.354) | 61 (2.401) | 0.448 (.99) |



USED IN LINEAR DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

Aluminum

➤ **SPECIFICATIONS:**

Timing Belt Clamp Kit includes:

Top and Bottom Plate and Hardware for Assembly

Hardware for kit includes:

Screws, Washers and Hex Nuts for Assembly

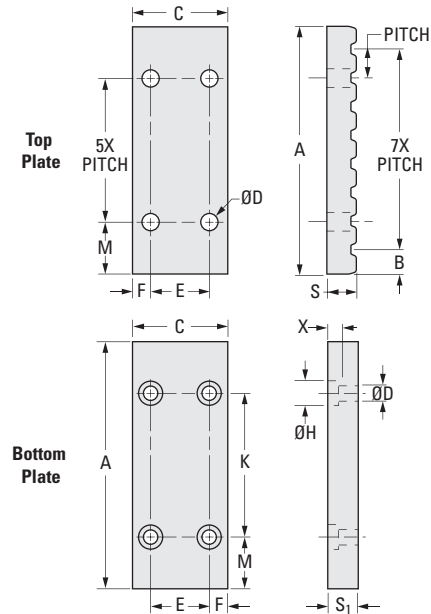
For Replacement hardware kit, order:

A16A45MBOLTKIT AT 5 mm pitch

A16A49MBOLTKIT AT 10 mm pitch



| 5 mm Pitch | | | | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------|
| F mm (in.) | M mm (in.) | S mm (in.) | H mm (in.) | K mm (in.) | X mm (in.) | S ₁ mm (in.) |
| 7.5 (.295) | 9 (.354) | 8 (.315) | 10 (.394) | 25 (.984) | 5 (.197) | 10 (.394) |
| 10 mm Pitch | | | | | | |
| 10 (.394) | 17.5 (.689) | 15 (.591) | 15 (.591) | 50 (1.969) | 8 (.315) | 16 (.630) |



METRIC COMPONENT

| Catalog Number | Belt Width mm (in.) | A mm (in.) | B mm (in.) | C mm (in.) | D mm (in.) | E mm (in.) | Toothed + Flat Plate Total Weight (with hardware) kg (lb.) |
|---------------------------------------|------------------------|------------------|------------------|------------------|------------------|------------------|--|
| AT • 5 mm Pitch - Sold as Kit | | | | | | | |
| A16A45M06 | 6 (.236) | 43 (1.693) | 4 (.157) | 27.5 (1.083) | 5.5 (.217) | 12.5 (.492) | 0.050 (.11) |
| A16A45M10 | 10 (.3937) | 43 (1.693) | 4 (.157) | 31.5 (1.240) | 5.5 (.217) | 16.5 (.650) | 0.060 (.13) |
| A16A45M16 | 16 (.630) | 43 (1.693) | 4 (.157) | 37.5 (1.476) | 5.5 (.217) | 22.5 (.886) | 0.068 (.15) |
| A16A45M25 | 25 (.984) | 43 (1.693) | 4 (.157) | 46.5 (1.831) | 5.5 (.217) | 31.5 (1.240) | 0.091 (.2) |
| AT • 10 mm Pitch - Sold as Kit | | | | | | | |
| A16A49M16 | 16 (.630) | 85 (3.346) | 7.5 (.295) | 46.5 (1.831) | 9 (.354) | 26.5 (1.043) | 0.313 (.69) |
| A16A49M25 | 25 (.984) | 85 (3.346) | 7.5 (.295) | 55.5 (2.185) | 9 (.354) | 35.5 (1.398) | 0.363 (.8) |
| A16A49M32 | 32 (1.260) | 85 (3.346) | 7.5 (.295) | 62.5 (2.461) | 9 (.354) | 42.5 (1.673) | 0.422 (.93) |

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T TIMING BELT CLAMP KITS • 5 & 10 mm PITCH



USED IN LINEAR DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Aluminum

> SPECIFICATIONS:

Timing Belt Clamp Kit includes:

Top and Bottom Plate and Hardware for Assembly

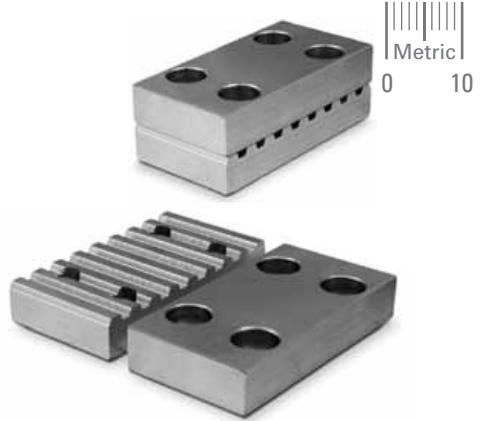
Hardware for kit includes:

Screws, Washers and Hex Nuts for Assembly

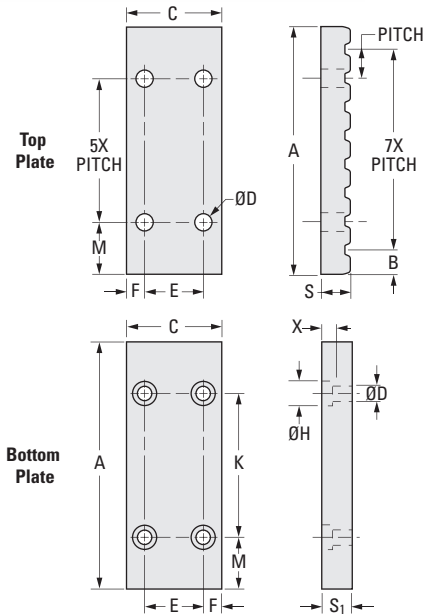
For Replacement hardware kit, order:

A16A35MBOLTKIT T 5 mm pitch

A16A39MBOLTKIT T 10 mm pitch



| 5 mm Pitch | | | | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------|
| F mm (in.) | M mm (in.) | S mm (in.) | H mm (in.) | K mm (in.) | X mm (in.) | S ₁ mm (in.) |
| 7.5 (.295) | 9 (.354) | 8 (.315) | 10 (.394) | 25 (.984) | 5 (.197) | 10 (.394) |
| 10 mm Pitch | | | | | | |
| 10 (.394) | 18.5 (.728) | 15 (.591) | 15 (.591) | 50 (1.969) | 8 (.315) | 16 (.630) |



METRIC COMPONENT

| Catalog Number | Belt Width mm (in.) | A mm (in.) | B mm (in.) | C mm (in.) | D mm (in.) | E mm (in.) | Toothed + Flat Plate Total Weight (with hardware) kg (lb.) |
|--------------------------------------|------------------------|------------------|------------------|------------------|------------------|------------------|--|
| T • 5 mm Pitch - Sold as Kit | | | | | | | |
| A16A35M06 | 6 (.236) | 43 (1.693) | 4 (.157) | 27.5 (1.083) | 5.5 (.217) | 12.5 (.492) | 0.050 (.11) |
| A16A35M10 | 10 (.3937) | 43 (1.693) | 4 (.157) | 31.5 (1.240) | 5.5 (.217) | 16.5 (.650) | 0.070 (.15) |
| A16A35M16 | 16 (.630) | 43 (1.693) | 4 (.157) | 37.5 (1.476) | 5.5 (.217) | 22.5 (.886) | 0.070 (.15) |
| A16A35M25 | 25 (.984) | 43 (1.693) | 4 (.157) | 46.5 (1.831) | 5.5 (.217) | 31.5 (1.240) | 0.090 (.2) |
| T • 10 mm Pitch - Sold as Kit | | | | | | | |
| A16A39M16 | 16 (.630) | 87 (3.425) | 8.5 (.335) | 46 (1.811) | 9 (.354) | 26 (1.024) | 0.313 (.69) |
| A16A39M25 | 25 (.984) | 87 (3.425) | 8.5 (.335) | 55 (2.165) | 9 (.354) | 35 (1.378) | 0.372 (.82) |
| A16A39M32 | 32 (1.260) | 87 (3.425) | 8.5 (.335) | 62 (2.441) | 9 (.354) | 42 (1.654) | 0.431 (.95) |



TENSIONER ARMS

SDP/SI

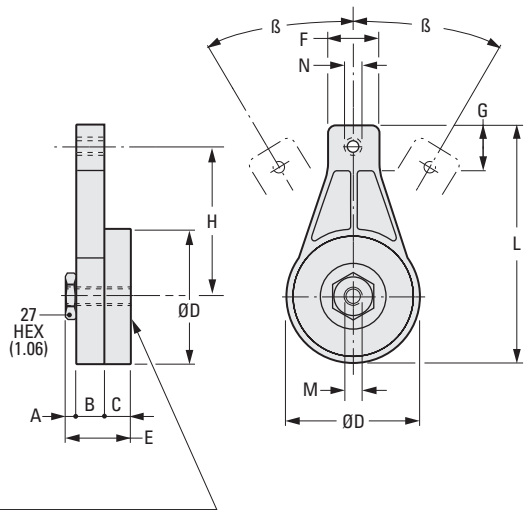
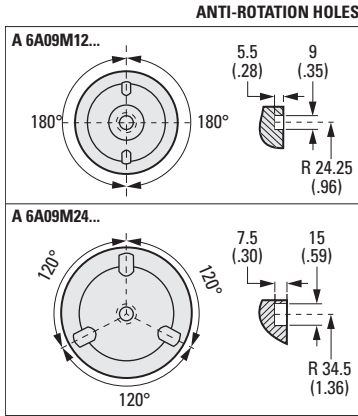
SPRING-LOADED
AUTOMATICALLY KEEPS TENSION CONSTANT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Arm - Acetal, **A 6Z09M...**
- Arm - High-Tensile Die-Cast Aluminum Alloy, **A 6A09M...**



METRIC COMPONENT

Dimensions in () are inch.

| Catalog Number | Load N (lbf) | | A | B | C | D Dia. | E | F | G |
|-----------------|--------------|---------------|-------------|-------------|----------------|----------------|----------------|--------------|--------------|
| | Min. | Max. | | | | | | | |
| A 6Z09M08016008 | 80 (18) | 160 (36) | 5 (.20) | 15 (.59) | 15 (.59) | 63.3 (2.49) | 36 (1.42) | 23 (.91) | 23 (.91) |
| A 6Z09M08016010 | | | | | | | | | |
| A 6Z09M08016012 | | | | | | | | | |
| A 6A09M12024010 | 120 (27) | 240 (54) | 7 (.28) | 18 (.71) | 18 (.71) | 89.5 (3.52) | 43 (1.69) | 34 (1.34) | 30 (1.18) |
| A 6A09M12024012 | | | | | | | | | |
| A 6A09M12024016 | 240 (54) | 380 (85.5) | 15 (.59) | 15 (.59) | 69.5 (2.74) | 36 (1.42) | 29.5 (1.16) | 25 (.98) | 25 (.98) |
| A 6A09M24038010 | | | | | | | | | |
| A 6A09M24038012 | 240 (54) | 380 (85.5) | 7 (.28) | 18 (.71) | 18 (.71) | 89.5 (3.52) | 43 (1.69) | 34 (1.34) | 30 (1.18) |
| A 6A09M24038016 | | | | | | | | | |
| A 6A09M24038020 | 240 (54) | 380 (85.5) | 7 (.28) | 18 (.71) | 18 (.71) | 89.5 (3.52) | 43 (1.69) | 34 (1.34) | 30 (1.18) |
| A 6A09M24038020 | | | | | | | | | |

| Catalog Number (Ref.) | H | L | M | N | B |
|-----------------------|----------------|-----------------|-----|-----|-----|
| A 6Z09M08016008 | 75.5 (2.97) | 118 (4.65) | M10 | M8 | 45° |
| A 6Z09M08016010 | | | | M10 | |
| A 6Z09M08016012 | | | | M12 | |
| A 6A09M12024010 | 86.5 (3.41) | 133.5 (5.26) | M10 | M10 | 45° |
| A 6A09M12024012 | | | | M12 | |
| A 6A09M12024016 | 240 (54) | 380 (85.5) | M12 | M16 | 30° |
| A 6A09M24038010 | | | | M10 | |
| A 6A09M24038012 | 100 (3.94) | 159 (6.26) | M12 | M12 | 30° |
| A 6A09M24038016 | | | | M16 | |
| A 6A09M24038020 | 240 (54) | 380 (85.5) | M12 | M20 | 30° |
| A 6A09M24038020 | | | | M20 | |

Rev: 5.19.15 JC

2-16A



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BELT TENSIONERS • ROLLER WITH BALL BEARING

SDP/SI

SPRING-LOADED
AUTOMATICALLY KEEPS TENSION CONSTANT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



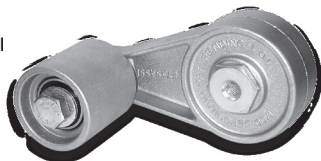
> MATERIAL:

- Arm - Acetal, **A 6TR9M16...**
- Arm - High-Tensile Die-Cast Aluminum Alloy, **A 6AR9I**

> MATERIAL CODE:

Roller

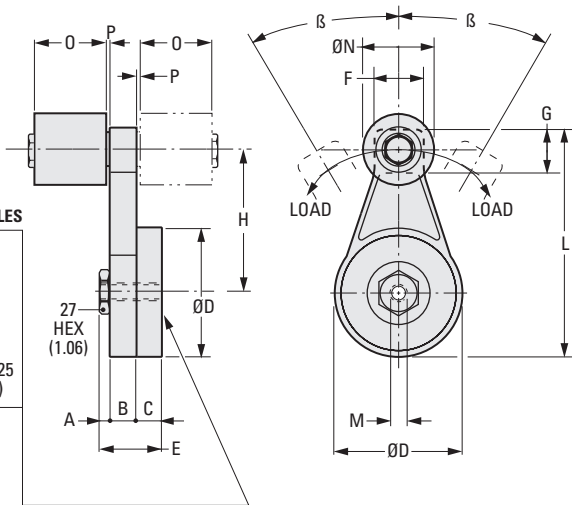
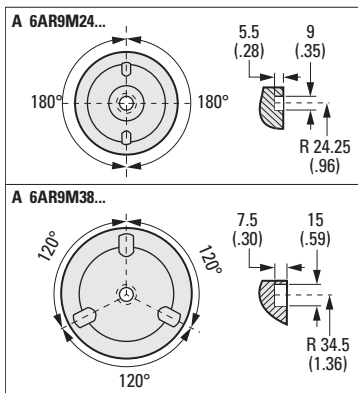
- A** Aluminum
- N** Nylon
- S** Steel (Zinc Plated)



> SPECIFICATIONS:

- Max. Operating Temperature:**
Aluminum and Steel Rollers: 100°C (212°F)
Nylon Rollers: 60°C (140°F)

ANTI-ROTATION HOLES



NEW

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METRIC COMPONENT

Dimensions in () are inch.

| Catalog Number | Load N (lbf) | | A | B | C | D Dia. | E | F | G |
|--|--------------|--------|------------|-------|-------|--------|--------------|--------|--------|
| | Min. | Max. | | | | | | | |
| A 6TR9M16030 <input type="checkbox"/> | 80 | 160 | 5 (.20) | 15 | 15 | 63.3 | 36 (1.42) | 23 | 23 |
| A 6TR9M16040N <input type="checkbox"/> | (18) | (36) | | 15.3 | 15.3 | (2.49) | | (.91) | (.91) |
| A 6TR9M16050 <input type="checkbox"/> | | | | (.60) | (.60) | | | | |
| A 6AR9M24045N <input type="checkbox"/> | 120 | 240 | 7 | 18 | 18 | 89.5 | 43 | 34 | 30 |
| A 6AR9M24050 <input type="checkbox"/> | (27) | (54) | (.28) | (.71) | (.71) | (3.52) | (1.69) | (1.34) | (1.18) |
| A 6AR9M38050 <input type="checkbox"/> | 240 | 380 | | | | | | | |
| A 6AR9M38060 <input type="checkbox"/> | (54) | (85.5) | | | | | | | |

| Catalog Number (Ref.) | H | L | M | N Dia. | O | P | B |
|--|----------------|-----------------|-----|-----------|-----------|-----------|-----|
| A 6TR9M16030 <input type="checkbox"/> | 75.5 (2.97) | 118 (4.65) | M10 | 30 (1.18) | 35 (1.38) | 2.5 (1.0) | 45° |
| A 6TR9M16040N <input type="checkbox"/> | | | | 40 (1.57) | 45 (1.77) | 6 (.24) | |
| A 6TR9M16050 <input type="checkbox"/> | | | | 50 (1.97) | 50 (1.97) | 2.5 (1.0) | |
| A 6AR9M24045N <input type="checkbox"/> | 86.5 (3.41) | 133.5 (5.26) | M10 | 40 (1.57) | 45 (1.77) | 6 (.24) | |
| A 6AR9M24050 <input type="checkbox"/> | | | | 50 (1.97) | 50 (1.97) | 2.5 (1.0) | |
| A 6AR9M38050 <input type="checkbox"/> | 100 (3.94) | 159 (6.26) | M12 | 50 (1.97) | 50 (1.97) | 2.5 (1.0) | 30° |
| A 6AR9M38060 <input type="checkbox"/> | | | | 60 (2.36) | 60 (2.36) | | |

- NOTES:** 1. Orientation of roller is supplied as shown. Can be repositioned if necessary.
2. Fill in the box with the desired roller material code to complete the catalog number.

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2-16B

CHAIN TENSIONERS • SPROCKET WITH BALL BEARING

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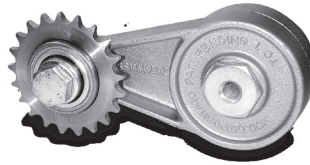
SPRING-LOADED
AUTOMATICALLY KEEPS TENSION CONSTANT
FOR 3/8" TO 1" PITCH ROLLER CHAINS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



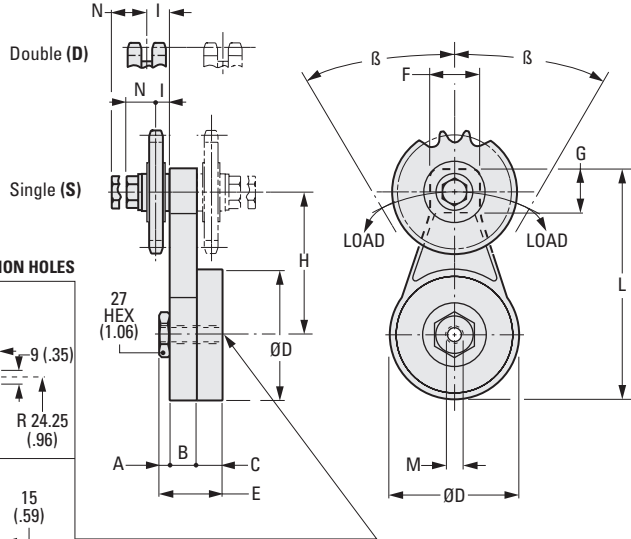
> MATERIAL:

- Arm - Acetal, **A 6TS9M3716021S**
- Arm - High-Tensile Die-Cast Aluminum Alloy, **A 6A99M...**
- Sprocket - Steel (Heat-Treated)

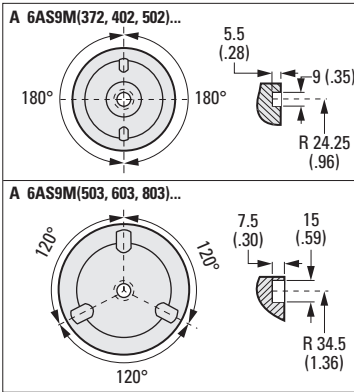


> SPECIFICATION:

Max. Operating Temperature:
100°C (212°F)



ANTI-ROTATION HOLES



METRIC COMPONENT

Dimensions in () are inch.

| Catalog Number | Load N (lbf) | | Chain Pitch | Teeth | A | B | C | D Dia. | E |
|-----------------|--------------|----------|--------------|-------|---------|------------|------------|-------------|-----------|
| | Min. | Max. | | | | | | | |
| A 6TS9M3716021S | 80 (18) | 160 (36) | 3/8" X 7/32" | 21 | 5 (.20) | 15 (.59) | 15 (.59) | 63.3 (2.49) | 36 (1.42) |
| A 6AS9M3724021S | 120 (27) | 240 (54) | 3/8" X 7/32" | 21 | 5 (.20) | 15.3 (.60) | 15.3 (.60) | 69.5 (2.74) | 36 (1.42) |
| A 6AS9M3724021D | | | 1/2" X 5/16" | 16 | | | | | |
| A 6AS9M4024016S | | | 5/8" X 3/8" | 17 | | | | | |
| A 6AS9M4024016D | | | | | | | | | |
| A 6AS9M5024017S | | | | | | | | | |
| A 6AS9M5024017D | | | | | | | | | |

| Catalog Number (Ref.) | F | G | H | I | L | M | N | B |
|-----------------------|-------------|----------|-------------|------------|--------------|-----|------------|-----|
| A 6TS9M3716021S | 23 (.91) | 23 (.91) | 75.5 (2.97) | 9.2 (.36) | 119 (4.69) | M10 | 19.7 (.78) | 45° |
| A 6AS9M3724021S | 29.5 (1.16) | 25 (.98) | 86.5 (3.41) | 9.2 (.36) | 133.5 (5.26) | M10 | 19.7 (.78) | 45° |
| A 6AS9M3724021D | | | | 11 (.43) | | | 18 (.71) | |
| A 6AS9M4024016S | | | | 9.2 (.36) | | | 19.7 (.78) | |
| A 6AS9M4024016D | | | | 12.5 (.49) | | | 16.5 (.65) | |
| A 6AS9M5024017S | | | | 9.2 (.36) | | | 19.7 (.78) | |
| A 6AS9M5024017D | | | | 15.2 (.60) | | | 17.7 (.70) | |

NOTE: Orientation of roller is supplied as shown. Can be repositioned if necessary.

2-16C



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CHAIN TENSIONERS • SPROCKET WITH BALL BEARING

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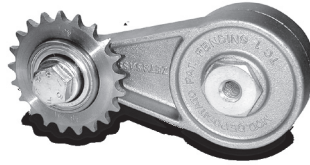
SPRING-LOADED
AUTOMATICALLY KEEPS TENSION CONSTANT
FOR 3/8" TO 1" PITCH ROLLER CHAINS

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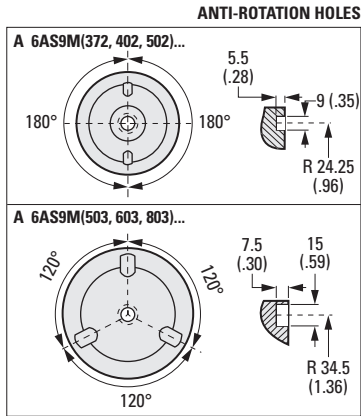
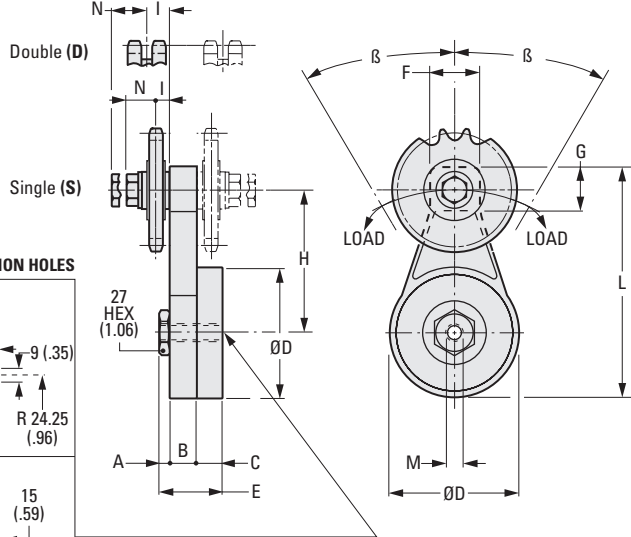
► MATERIAL:

- Arm - Acetal, **A 6TS9M3716021S**
- Arm - High-Tensile Die-Cast Aluminum Alloy, **A 6AR9M...**
- Sprocket - Steel (Heat-Treated)



► SPECIFICATION:

Max. Operating Temperature:
100°C (212°F)



METRIC COMPONENT

Dimensions in () are inch.

| Catalog Number | Load N (lbf) | | Chain Pitch | Teeth | A | B | C | D Dia. | E |
|-----------------|--------------|---------------|--------------|-------|------------|-------------|-------------|----------------|--------------|
| | Min. | Max. | | | | | | | |
| A 6AS9M5038017S | 240 (54) | 380 (85.5) | 5/8" X 7/32" | 17 | 7 (.28) | 18 (.71) | 18 (.71) | 89.5 (3.52) | 43 (1.69) |
| A 6AS9M5038017D | | | | | | | | | |
| A 6AS9M6038015S | | | 3/4" X 7/16" | 15 | | | | | |
| A 6AS9M6038015D | | | | | | | | | |
| A 6AS9M8038012S | | | 1" X 17 mm | 12 | | | | | |
| A 6AS9M8038012D | | | | | | | | | |

| Catalog Number (Ref.) | F | G | H | I | L | M | N | B |
|-----------------------|--------------|--------------|---------------|-------------|---------------|-----|-------------|-----|
| A 6AS9M5038017S | 34 (1.34) | 30 (1.18) | 100 (3.94) | 9.2 (.36) | 159 (6.26) | M12 | 19.7 (.78) | 30° |
| A 6AS9M5038017D | | | | 15.2 (.60) | | | 17.7 (.70) | |
| A 6AS9M6038015S | | | | 9.2 (.36) | | | 19.7 (.78) | |
| A 6AS9M6038015D | | | | 17.6 (.69) | | | 19.2 (.76) | |
| A 6AS9M8038012S | | | | 8.9 (.35) | | | 19.4 (.76) | |
| A 6AS9M8038012D | | | | 26.6 (1.05) | | | 34.6 (1.36) | |

NOTE: Orientation of roller is supplied as shown. Can be repositioned if necessary.

Continued from the previous page

Rev: 5.19.15 JC



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IDLER ROLLERS

SDP/SI

WITH BALL BEARING SUPPORTS

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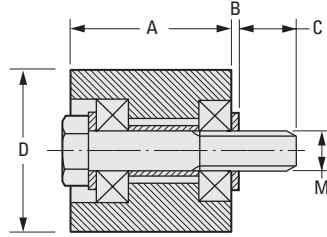
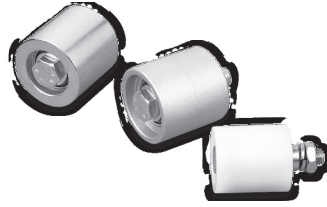
> MATERIAL:

Steel, Aluminum or Nylon

> SPECIFICATION:

Max. operating speed: 6000 rpm

Washers, nut and bolt supplied with rollers.



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METRIC COMPONENT

Dimensions in () are inch.

| Catalog Number | | | A | B | C | D | M |
|----------------|--------------|--------------|-----------|-----------|------------|-----------|-----|
| Steel | Aluminum | Nylon | | | | | |
| A 6C 9M03008 | A 6A 9M03008 | A 6Z 9M03008 | 35 (1.38) | 2.5 (.10) | 13.5 (.53) | 30 (1.18) | M8 |
| — | — | A 6Z 9M04010 | 45 (1.77) | 2 (.08) | 16 (.63) | 40 (1.57) | M10 |
| A 6C 9M05012 | A 6A 9M05012 | A 6Z 9M05012 | 50 (1.97) | 2.5 (.10) | 18 (.71) | 50 (1.97) | M12 |
| A 6C 9M06012 | A 6A 9M06012 | A 6Z 9M06012 | 60 (2.36) | | | 60 (2.36) | |
| A 6C 9M08012 | A 6A 9M08012 | A 6Z 9M08012 | 90 (3.54) | | | 80 (3.15) | |

Rev: 5.19.15 JC



1-800-453-1692

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2-16E

BELT TENSION TESTERS

SDP/SI

FAST, ACCURATE TENSION READINGS
EASY TO USE
COMPACT & LIGHT
ROHS COMPLIANT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

FEATURES:

- Suitable for multi-ribbed belts, V-belts and synchronous belts.
- Output reading measurable in hertz, pounds, kilograms and newtons.
- Frequency range from 10-5000 hertz.
- Measured accuracy: $\pm 1\%$.
- Variable frequency range filters.
- Auto gain control automatically adjusts meter sensitivity.
- LCD screen backlight.
- 20 memory registers for belt constants.

Testing tension with a spring tester requires muscle, a piece of string and at least three hands! The Sonic Tension Meter works on the theory that belts, like strings, vibrate at a particular natural frequency based on mass and span length. The meter converts this frequency into a measurement of tension.

To test tension:

1. Enter belt mass constant, belt width & span length into meter.
2. Hold meter to belt span, then strum belt to make it vibrate. The meter will measure the vibration and converts into belt tension.






Model 507C
shown with Cord Sensor

INCH COMPONENT

| Catalog Number | Model |
|---|-------|
| Sonic Tension Meter with Cord Sensor | |
| A14Z 6-742004 | 507C |

OPTIONAL ACCESSORIES

| | | | |
|--|--|--|---|
|  <p>A14Z 7-742010 Inductive Sensor: use in high-noise or windy environments</p> |  <p>A14Z 7-742005 New Flexible Flat Sensor: allows belt tension measurements to be taken in narrow spaces where previously it was not possible.</p> |  <p>A14Z 7-742006 Replacement Cord Sensor</p> | <p>A14Z 7-742008 Replacement A/C Adapter: only available for former Model 305FD</p> |
|--|--|--|---|

PENCIL TYPE TENSION GAUGE

Maximum Deflection Force: 30 lbs.

INCH COMPONENT

| Catalog Number |
|----------------|
| A14Z 6-740176 |



> Step 1.

Determine the peak torque for your drive. This is usually the motor starting torque, but may also be any unusual momentary or shock load which may occur during normal operation.

> Step 2.

Determine the largest pulley diameters that can be utilized, considering the space limitations and drive ratio of your system. This helps to increase the torque capacity of the drive and extend the service life of the belt.

> Step 3.

Calculate the teeth in mesh (*T.I.M.*) using **Formula 5** in **Table 1**. Consult **Table 2** for the teeth in mesh factor. Divide the peak torque (from **Step 1**) by the *T.I.M.* factor to determine the design torque by using **Formula 7** in **Table 1**.

> Step 4.

Calculate the belt pitch length based on the design center distance of your drive using **Formula 2** in **Table 1**.

> Step 5.

Divide the belt pitch length by the tooth pitch selected and round the result to the nearest whole number. This is the number of teeth on the belt for your application. Adjust the nominal center distance of your drive design to match the belt using **Formula 1** in **Table 1**.

> Step 6.

Using **Formula 6** in **Table 1**, calculate the effective tension (*Te*) on the drive using the pitch radius and design torque of the smallest loaded pulley in the system.

> Step 7.

(a) Select the strength factor for your application from **Table 3**. Divide the effective tension from **Step 6** by the strength factor to determine the required break strength for the belt design. (b) Multiply by 2 to represent a double span break. Consult the break strength **Table 4** to determine the required reinforcement type and belt width. The value listed in the table must be greater than the design break strength.

> Step 8.

Using the torque capacity graph, select a belt width that is capable of handling the design torque with the selected pulley size.

Note: This belt width may be different from the width selected in **Step 7**. The belt width required for the system will be the wider of the two.

> Step 9.

Special Note: Limiting torque values must be multiplied by 0.45 for fiberglass reinforced belts.

IMPORTANT NOTE

Always incorporate a means of adjusting center distance. To allow for pitch length manufacturing tolerance.

> ENGINEERING FORMULAS • Table 1

| No. | Unknown | Where | Formula |
|-----|--|---|--|
| 1 | Center Distance (using unequal size pulleys for driveR and driveN) (approximation formula) | CD = center distance mm (in.) PL = belt pitch length mm (in.) D = large pulley pitch dia. mm (in.) d = small pulley pitch dia. mm (in.) | $CD = \frac{b + \sqrt{b^2 - [8 \times (D - d)^2]}}{8}$ $b = (2 \times PL) - [\pi \times (D + d)]$ |
| 2 | Belt Pitch Length (approximation formula) | PL = belt pitch length mm (in.) CD = center distance mm (in.) D = large pulley pitch dia. mm (in.) d = small pulley pitch dia. mm (in.) | $PL = (2 \times CD) + [1.57 \times (D + d)] + \frac{(D - d)^2}{(4 \times CD)}$ |
| 3 | Number of Teeth on Belt | N_B = number of teeth on belt PL = belt pitch length mm (in.) P = tooth pitch mm (in.) | $N_B = \frac{PL}{P}$ |
| 4 | Belt Speed | V = belt speed mm/sec (in./sec.) D_r = pitch diameter of driver pulley mm (in.) rpm = speed of driver 1/min. | $V = \frac{D_r \times \pi \times rpm}{60}$ |
| 5 | Teeth in Mesh | <i>T.I.M.</i> = teeth in mesh N_d = number of teeth on small pulley CD = center distance mm (in.) D = large pulley pitch dia. mm (in.) d = small pulley pitch dia. mm (in.) | $T.I.M. = \left[0.5 \cdot \left(\frac{D - d}{6 \times CD} \right) \right] N_d$ |
| 6 | Effective Tension | T_e = effective tension N (lbf) T_d = design torque N • mm (lbf • in.) r = pulley radius mm (in.) | $T_e = \frac{T_d}{r}$ |
| 7 | Design Torque | T_d = design torque N • mm (lbf • in.) T_{pk} = peak torque N • mm (lbf • in.) | $T_d = \frac{T_{pk}}{T.I.M. \text{ factor}}$ |

► **ENGINEERING FORMULAS • Table 2** - Teeth in Mesh Factor

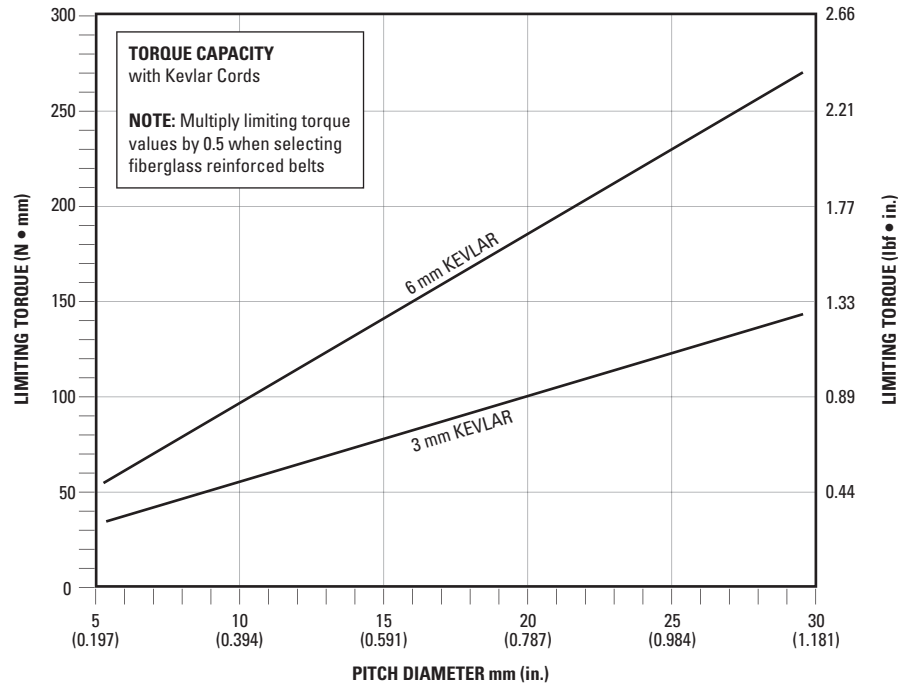
| Teeth in Mesh on Drive | T.I.M. Factor |
|------------------------|---------------|
| 6 or more | 1.0 |
| 5 | 0.8 |
| 4 | 0.6 |
| 3 | 0.4 |
| 2 | 0.2 |

► **ENGINEERING FORMULAS • Table 3** - Strength Factor

| Drive Description | Examples | Strength Factor |
|---|--|-----------------|
| Critical Positioning Tolerance and Accuracy | Pen Plotter, Printers and Pick and Place Robots | 0.02 |
| High Positioning Tolerance and Accuracy | Medical Equipment, Paper Handling and Security Cameras | 0.10 |
| Low Positioning Tolerance and Accuracy | Home Appliances, Currency Equipment and Light Load Unidirectional Drives | 0.20 |

► **ENGINEERING FORMULAS • Table 4** - Breaking Strength

| Belt Width | Kevlar N (lbf) | Fiberglass N (lbf) |
|------------|----------------|--------------------|
| 3 mm | 905 (205) | 485 (110) |
| 6 mm | 1865 (420) | 995 (225) |



BELT WIDTHS
METRIC - 3 & 6 mm

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Body - Polyurethane
Cords - Kevlar or Fiberglass

> **OPERATING TEMPERATURE:**

-30°C to +85°C (-22°F to +185°F)

> **SPECIFICATIONS:**

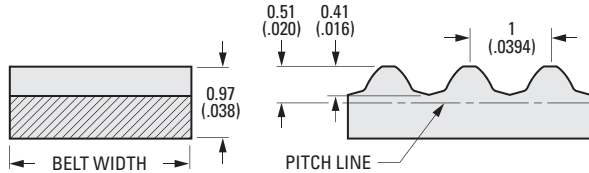
Breaking Strength (Double Span)

Kevlar: 300 N per 1 mm (214 lbf per 1/8 in.)
Fiberglass: 165 N per 1 mm (117 lbf per 1/8 in.)
Not representative of the load carrying capacity of the belt; see the technical section.

> **MODIFICATIONS:**

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric standards.



NOTE: Dimensions in () are inch.

> **Polyurethane Belt with Kevlar Cords:**

METRIC COMPONENT CATALOG NUMBER

A 6 B 1 8 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 (.118) | 030 |
| 6 (.236) | 060 |

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 091 | 91 | 3.583 |
| 094 | 94 | 3.701 |
| 125 | 125 | 4.921 |
| 128 | 128 | 5.039 |
| 140 | 140 | 5.512 |
| 175 | 175 | 6.890 |
| 185 | 185 | 7.283 |
| 190 | 190 | 7.480 |
| 195 | 195 | 7.677 |
| 197 | 197 | 7.756 |
| 200 | 200 | 7.874 |
| 210 | 210 | 8.268 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 220 | 220 | 8.661 |
| 230 | 230 | 9.055 |
| 240 | 240 | 9.449 |
| 255 | 255 | 10.040 |
| 275 | 275 | 10.827 |
| 300 | 300 | 11.811 |
| 310 | 310 | 12.205 |
| 320 | 320 | 12.599 |
| 324 | 324 | 12.756 |
| 375 | 375 | 14.764 |
| 559 | 559 | 22.008 |

> **Polyurethane Belt with Fiberglass Cords:**

METRIC COMPONENT CATALOG NUMBER

A 6 G 1 8 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 (.118) | 030 |
| 6 (.236) | 060 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| *142 | 142 | 5.591 |
| 145 | 145 | 5.709 |
| 190 | 190 | 7.480 |
| 275 | 275 | 10.827 |
| 300 | 300 | 11.811 |
| *386 | 386 | 15.197 |
| 705 | 705 | 27.756 |

* To be discontinued when present stock is depleted.

FHT® Registered trademark of Fenner Precision
For Timing Pulleys see: A 6A18M...

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SPECIAL SIZES
METRIC - 3 & 6 mm

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> **MATERIAL:**

Body - Polyurethane
Cords - Kevlar or Fiberglass

> **OPERATING TEMPERATURE:**

-30°C to +85°C (-22°F to +185°F)

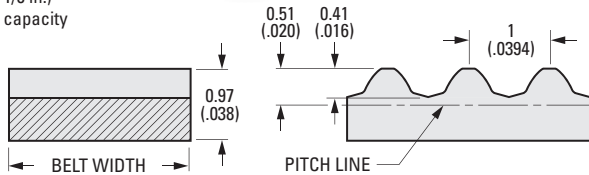
> **SPECIFICATIONS:**

Breaking Strength (Double Span)

Kevlar: 300 N per 1 mm (214 lbf per 1/8 in.)
Fiberglass: 165 N per 1 mm (117 lbf per 1/8 in.)
Not representative of the load carrying capacity of the belt; see the technical section.

> **MODIFICATIONS:**

Special Widths - cut to size from sleeves available from stock.



NOTE: Dimensions in () are inch.

> **Polyurethane Belt with Kevlar Cords:**

METRIC COMPONENT CATALOG NUMBER *

A 6 B 1 8 M S

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 (.118) | 030 |
| 6 (.236) | 060 |

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 091 | 91 | 3.583 |
| 105 | 105 | 4.134 |
| 148 | 148 | 5.827 |
| 156 | 156 | 6.142 |
| 165 | 165 | 6.496 |
| 188 | 188 | 7.402 |
| 202 | 202 | 7.953 |
| 205 | 205 | 8.071 |
| 225 | 225 | 8.858 |

* To be discontinued when present stock is depleted.

> **Polyurethane Belt with Fiberglass Cords:**

METRIC COMPONENT CATALOG NUMBER *

A 6 G 1 8 M S

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 (.118) | 030 |
| 6 (.236) | 060 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 996 | 996 | 39.213 |

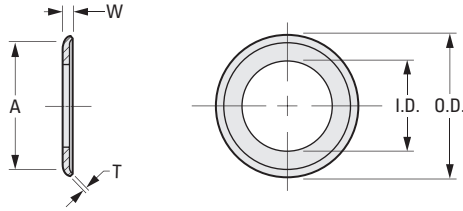
* To be discontinued when present stock is depleted.

FHT® Registered trademark of Fenner Precision
For Timing Pulleys see: A 6A18M...



> **MATERIAL:**
Aluminum Alloy

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



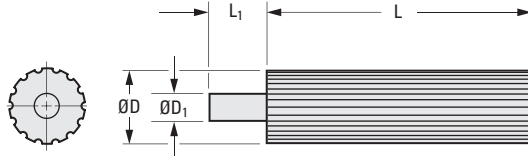
METRIC COMPONENT

| Catalog Number | I.D. ± 0.08 | A Ref. | O.D. ± 0.4 | W Width ± 0.25 | T Thickness |
|----------------|----------------|-----------|---------------|----------------------|----------------|
| A 6A17M020FA | 4.78 | 6.35 | 9 | 1.14 | 0.64 |
| A 6A17M022FA | 5.08 | 6.83 | 9 | 1.14 | 0.64 |
| A 6A17M025FA | 6.35 | 7.6 | 12.7 | 1.14 | 0.64 |
| A 6A17M030FA | 6.86 | 9.3 | 12.7 | 1.14 | 0.64 |
| A 6A17M035FA | 6.86 | 10.4 | 13.5 | 1.14 | 0.64 |
| A 6A17M040FA | 8.18 | 12.3 | 14.7 | 1.14 | 0.64 |
| A 6A17M045FA | 10.82 | 14.7 | 17.4 | 1.32 | 0.81 |
| A 6A17M049FA | 11.48 | 15.9 | 18.8 | 1.32 | 0.81 |
| A 6A17M055FA | 13.46 | 18.2 | 20.7 | 1.32 | 0.81 |
| A 6A17M058FA | 14.12 | 18.25 | 21.3 | 1.32 | 0.81 |
| A 6A17M059FA | 14.58 | 19.8 | 22.7 | 1.32 | 0.81 |
| A 6A17M064FA | 15.9 | 21.2 | 24 | 1.32 | 0.81 |
| A 6A17M070FA | 17.22 | 22.5 | 25.4 | 1.32 | 0.81 |
| A 6A17M075FA | 17.88 | 23.7 | 26 | 1.32 | 0.81 |

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> **MATERIAL:**
Aluminum Alloy

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



METRIC COMPONENT

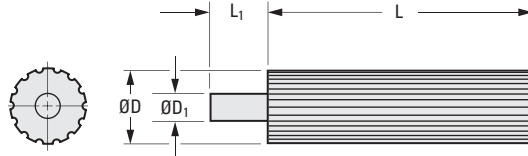
| Catalog Number | No. of Grooves | P.D. | D Dia. +0.05 0 | D ₁ Shank Dia. | L ₁ Shank Lgth. (Ref.) | L Min. Usable Length | Suggested Mating Flanges |
|----------------|----------------|-------|----------------|---------------------------|-----------------------------------|----------------------|--------------------------|
| A 6A17M018015 | 18 | 5.73 | 5.38 | 9.5 | 25.4 | 38 | A 6A17M020FA |
| A 6A17M019015 | 19 | 6.05 | 5.69 | 9.5 | 25.4 | 38 | A 6A17M020FA |
| A 6A17M020015 | 20 | 6.37 | 6.01 | 9.5 | 25.4 | 38 | A 6A17M020FA |
| A 6A17M021015 | 21 | 6.68 | 6.33 | 9.5 | 25.4 | 38 | A 6A17M022FA |
| A 6A17M02202 | 22 | 7 | 6.65 | 9.5 | 25.4 | 50.8 | A 6A17M022FA |
| A 6A17M02302 | 23 | 7.32 | 6.97 | 9.5 | 25.4 | 50.8 | A 6A17M025FA |
| A 6A17M02402 | 24 | 7.64 | 7.28 | 9.5 | 25.4 | 50.8 | A 6A17M025FA |
| A 6A17M02502 | 25 | 7.96 | 7.6 | 9.5 | 25.4 | 50.8 | A 6A17M025FA |
| A 6A17M02602 | 26 | 8.28 | 7.92 | 9.5 | 25.4 | 50.8 | A 6A17M030FA |
| A 6A17M02702 | 27 | 8.59 | 8.24 | 9.5 | 25.4 | 50.8 | A 6A17M030FA |
| A 6A17M02803 | 28 | 8.91 | 8.56 | 9.5 | 25.4 | 76.2 | A 6A17M030FA |
| A 6A17M02903 | 29 | 9.23 | 8.88 | 9.5 | 25.4 | 76.2 | A 6A17M030FA |
| A 6A17M03003 | 30 | 9.55 | 9.19 | 9.5 | 25.4 | 76.2 | A 6A17M030FA |
| A 6A17M03103 | 31 | 9.87 | 9.51 | 9.5 | 25.4 | 76.2 | A 6A17M035FA |
| A 6A17M03203 | 32 | 10.19 | 9.83 | 9.5 | 25.4 | 76.2 | A 6A17M035FA |
| A 6A17M03303 | 33 | 10.5 | 10.15 | 9.5 | 25.4 | 76.2 | A 6A17M035FA |
| A 6A17M03403 | 34 | 10.82 | 10.47 | 9.5 | 25.4 | 76.2 | A 6A17M035FA |
| A 6A17M03503 | 35 | 11.14 | 10.79 | 9.5 | 25.4 | 76.2 | A 6A17M035FA |
| A 6A17M03603 | 36 | 11.46 | 11.1 | 9.5 | 25.4 | 76.2 | A 6A17M040FA |
| A 6A17M03703 | 37 | 11.78 | 11.42 | 9.5 | 25.4 | 76.2 | A 6A17M040FA |
| A 6A17M03803 | 38 | 12.1 | 11.74 | 9.5 | 25.4 | 76.2 | A 6A17M040FA |
| A 6A17M03904 | 39 | 12.41 | 12.06 | 9.5 | 25.4 | 101.6 | A 6A17M040FA |
| A 6A17M04004 | 40 | 12.73 | 12.38 | 9.5 | 25.4 | 101.6 | A 6A17M040FA |
| A 6A17M04104 | 41 | 13.05 | 12.7 | 9.5 | 25.4 | 101.6 | A 6A17M045FA |
| A 6A17M04204 | 42 | 13.37 | 13.01 | 9.5 | 25.4 | 101.6 | A 6A17M045FA |
| A 6A17M04304 | 43 | 13.69 | 13.33 | 9.5 | 25.4 | 101.6 | A 6A17M045FA |
| A 6A17M04404 | 44 | 14.01 | 13.65 | 9.5 | 25.4 | 101.6 | A 6A17M045FA |
| A 6A17M04504 | 45 | 14.32 | 13.97 | 9.5 | 25.4 | 101.6 | A 6A17M045FA |

Continued on the next page

► MATERIAL:

Aluminum Alloy

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METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. +0.05 0 | D ₁ Shank Dia. | L ₁ Shank Length Ref. | L Min. Usable Length | Suggested Mating Flanges |
|----------------|----------------|-------|----------------|---------------------------|----------------------------------|----------------------|--------------------------|
| A 6A17M04604 | 46 | 14.64 | 14.29 | 9.5 | 25.4 | 101.6 | A 6A17M049FA |
| A 6A17M04704 | 47 | 14.96 | 14.6 | 9.5 | 25.4 | 101.6 | A 6A17M049FA |
| A 6A17M04805 | 48 | 15.28 | 14.92 | 12.7 | 25.4 | 127 | A 6A17M049FA |
| A 6A17M04905 | 49 | 15.6 | 15.24 | 12.7 | 25.4 | 127 | A 6A17M049FA |
| A 6A17M05005 | 50 | 15.92 | 15.56 | 12.7 | 25.4 | 127 | A 6A17M055FA |
| A 6A17M05105 | 51 | 16.23 | 15.88 | 12.7 | 25.4 | 127 | A 6A17M055FA |
| A 6A17M05205 | 52 | 16.55 | 16.2 | 12.7 | 25.4 | 127 | A 6A17M055FA |
| A 6A17M05305 | 53 | 16.87 | 16.51 | 12.7 | 25.4 | 127 | A 6A17M055FA |
| A 6A17M05406 | 54 | 17.19 | 16.83 | 12.7 | 25.4 | 152.4 | A 6A17M055FA |
| A 6A17M05506 | 55 | 17.51 | 17.15 | 12.7 | 25.4 | 152.4 | A 6A17M055FA |
| A 6A17M05606 | 56 | 17.83 | 17.47 | 12.7 | 25.4 | 152.4 | A 6A17M058FA |
| A 6A17M05706 | 57 | 18.14 | 17.79 | 12.7 | 25.4 | 152.4 | A 6A17M058FA |
| A 6A17M05806 | 58 | 18.46 | 18.11 | 12.7 | 25.4 | 152.4 | A 6A17M058FA |
| A 6A17M05906 | 59 | 18.78 | 18.42 | 12.7 | 25.4 | 152.4 | A 6A17M059FA |
| A 6A17M06006 | 60 | 19.1 | 18.74 | 12.7 | 25.4 | 152.4 | A 6A17M064FA |
| A 6A17M06106 | 61 | 19.42 | 19.06 | 12.7 | 25.4 | 152.4 | A 6A17M064FA |
| A 6A17M06206 | 62 | 19.74 | 19.38 | 12.7 | 25.4 | 152.4 | A 6A17M064FA |
| A 6A17M06306 | 63 | 20.05 | 19.7 | 12.7 | 25.4 | 152.4 | A 6A17M064FA |
| A 6A17M06406 | 64 | 20.37 | 20.02 | 12.7 | 25.4 | 152.4 | A 6A17M064FA |
| A 6A17M06506 | 65 | 20.69 | 20.33 | 12.7 | 25.4 | 152.4 | A 6A17M070FA |
| A 6A17M06606 | 66 | 21.01 | 20.65 | 12.7 | 25.4 | 152.4 | A 6A17M070FA |
| A 6A17M06706 | 67 | 21.33 | 20.97 | 12.7 | 25.4 | 152.4 | A 6A17M070FA |
| A 6A17M06806 | 68 | 21.65 | 21.29 | 12.7 | 25.4 | 152.4 | A 6A17M070FA |
| A 6A17M06906 | 69 | 21.96 | 21.61 | 12.7 | 25.4 | 152.4 | A 6A17M070FA |
| A 6A17M07006 | 70 | 22.28 | 21.93 | 12.7 | 25.4 | 152.4 | A 6A17M070FA |
| A 6A17M07106 | 71 | 22.6 | 22.24 | 12.7 | 25.4 | 152.4 | A 6A17M075FA |
| A 6A17M07206 | 72 | 22.92 | 22.56 | 12.7 | 25.4 | 152.4 | A 6A17M075FA |
| A 6A17M07306 | 73 | 23.24 | 22.88 | 12.7 | 25.4 | 152.4 | A 6A17M075FA |
| A 6A17M07406 | 74 | 23.55 | 23.2 | 12.7 | 25.4 | 152.4 | A 6A17M075FA |
| A 6A17M07506 | 75 | 23.87 | 23.52 | 12.7 | 25.4 | 152.4 | A 6A17M075FA |

Continued from the previous page



FOR BELTS 3 mm WIDE
DOUBLE FLANGE AND NO FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:

Aluminum Alloy

► FINISH:

Clear Anodized

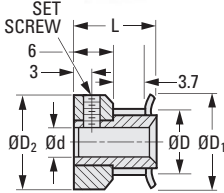


Fig. 1

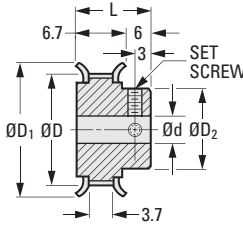


Fig. 2

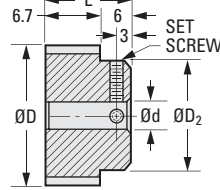


Fig. 3

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. +0.05 0 | D ₁ Dia. ± 0.04 | d Bore Dia. +0.025 0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | Set Screw |
|------------------|----------------|-------|----------------|----------------------------|----------------------|----------------|-------------------------------|-----------|
| Fig. 1 | | | | | | | | |
| A 6A18M018DF3002 | 18 | 5.73 | 5.38 | 9 | 2 | 11.2 | 9 | M2 |
| A 6A18M020DF3002 | 20 | 6.37 | 6.01 | 9 | 2 | 11.2 | 9 | M2 |
| A 6A18M020DF3003 | 20 | 6.37 | 6.01 | 9 | 3 | 11.2 | 9 | M2 |
| A 6A18M021DF3002 | 21 | 6.68 | 6.33 | 9 | 2 | 11.2 | 9 | M2 |
| A 6A18M021DF3003 | 21 | 6.68 | 6.33 | 9 | 3 | 11.2 | 9 | M2 |
| A 6A18M022DF3002 | 22 | 7 | 6.65 | 9 | 2 | 11.2 | 9 | M2 |
| A 6A18M022DF3003 | 22 | 7 | 6.65 | 9 | 3 | 11.2 | 9 | M2 |
| A 6A18M024DF3003 | 24 | 7.64 | 7.28 | 12.7 | 3 | 11.2 | 12.7 | M2 |
| A 6A18M024DF3004 | 24 | 7.64 | 7.28 | 12.7 | 4 | 11.2 | 12.7 | M2 |
| A 6A18M025DF3003 | 25 | 7.96 | 7.6 | 12.7 | 3 | 11.2 | 12.7 | M2 |
| A 6A18M025DF3004 | 25 | 7.96 | 7.6 | 12.7 | 4 | 11.2 | 12.7 | M2 |
| A 6A18M028DF3003 | 28 | 8.91 | 8.56 | 12.7 | 3 | 11.2 | 12.7 | M2 |
| A 6A18M028DF3004 | 28 | 8.91 | 8.56 | 12.7 | 4 | 11.2 | 12.7 | M2 |
| A 6A18M030DF3003 | 30 | 9.55 | 9.19 | 12.7 | 3 | 11.2 | 12.7 | M2 |
| A 6A18M030DF3004 | 30 | 9.55 | 9.19 | 12.7 | 4 | 11.2 | 12.7 | M2 |
| A 6A18M035DF3003 | 35 | 11.14 | 10.79 | 13.5 | 3 | 11.2 | 13.5 | M2 |
| A 6A18M035DF3004 | 35 | 11.14 | 10.79 | 13.5 | 4 | 11.2 | 13.5 | M2 |
| A 6A18M040DF3003 | 40 | 12.73 | 12.38 | 14.7 | 3 | 11.2 | 14.9 | M2 |
| A 6A18M040DF3004 | 40 | 12.73 | 12.38 | 14.7 | 4 | 11.2 | 14.9 | M2 |
| A 6A18M045DF3003 | 45 | 14.32 | 13.97 | 17.4 | 3 | 11.2 | 17.4 | M2 |
| A 6A18M045DF3004 | 45 | 14.32 | 13.97 | 17.4 | 4 | 11.2 | 17.4 | M2 |
| Fig. 2 | | | | | | | | |
| A 6A18M050DF3004 | 50 | 15.92 | 15.56 | 20.7 | 4 | 12.7 | 9.5 | M2 |
| A 6A18M055DF3004 | 55 | 17.51 | 17.15 | 20.7 | 4 | 12.7 | 9.5 | M2 |
| A 6A18M060DF3005 | 60 | 19.1 | 18.74 | 24 | 5 | 12.7 | 13 | M2.5 |
| A 6A18M065DF3005 | 65 | 20.69 | 20.33 | 25.4 | 5 | 12.7 | 13 | M2.5 |
| A 6A18M070DF3005 | 70 | 22.28 | 21.93 | 25.4 | 5 | 12.7 | 13 | M2.5 |
| A 6A18M075DF3005 | 75 | 23.87 | 23.52 | 26 | 5 | 12.7 | 14 | M2.5 |
| Fig. 3 | | | | | | | | |
| A 6A18M050NF3004 | 50 | 15.92 | 15.56 | — | 4 | 12.7 | 9.5 | M2 |
| A 6A18M055NF3004 | 55 | 17.51 | 17.15 | — | 4 | 12.7 | 9.5 | M2 |
| A 6A18M060NF3005 | 60 | 19.1 | 18.74 | — | 5 | 12.7 | 13 | M2.5 |
| A 6A18M065NF3005 | 65 | 20.69 | 20.33 | — | 5 | 12.7 | 13 | M2.5 |
| A 6A18M070NF3005 | 70 | 22.28 | 21.93 | — | 5 | 12.7 | 13 | M2.5 |
| A 6A18M075NF3005 | 75 | 23.87 | 23.52 | — | 5 | 12.7 | 14 | M2.5 |

NOTE: Pulleys with 18 to 45 grooves have 1 set screw; others have 2 at 90°.

Continued on the next page

For FHT®-1 Miniature Timing Belts see: A 6B18M... and A 6G18M...



Request Info



1-800-453-1692

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FOR BELTS 6 mm WIDE
DOUBLE FLANGE AND NO FLANGE

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➤ MATERIAL:

Aluminum Alloy

➤ FINISH:

Clear Anodized

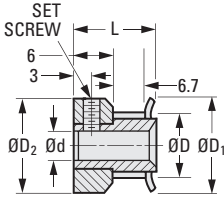


Fig. 1

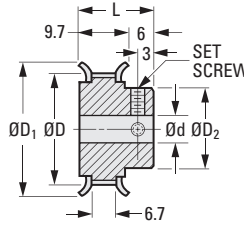


Fig. 2

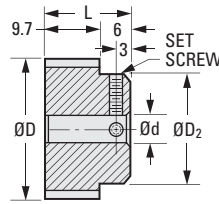


Fig. 3

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. +0.05 0 | D ₁ Dia. ± 0.04 | d Bore Dia. +0.025 0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | Set Screw |
|------------------|----------------|-------|-------------------|----------------------------|-------------------------|----------------|-------------------------------|-----------|
| Fig. 1 | | | | | | | | |
| A 6A18M018DF6002 | 18 | 5.73 | 5.38 | 9 | 2 | 14.2 | 9 | M2 |
| A 6A18M020DF6002 | 20 | 6.37 | 6.01 | 9 | 2 | 14.2 | 9 | M2 |
| A 6A18M020DF6003 | 20 | 6.37 | 6.01 | 9 | 3 | 14.2 | 9 | M2 |
| A 6A18M021DF6002 | 21 | 6.68 | 6.33 | 9 | 2 | 14.2 | 9 | M2 |
| A 6A18M021DF6003 | 21 | 6.68 | 6.33 | 9 | 3 | 14.2 | 9 | M2 |
| A 6A18M022DF6002 | 22 | 7 | 6.65 | 9 | 2 | 14.2 | 9 | M2 |
| A 6A18M022DF6003 | 22 | 7 | 6.65 | 9 | 3 | 14.2 | 9 | M2 |
| A 6A18M024DF6003 | 24 | 7.64 | 7.28 | 12.7 | 3 | 14.2 | 12.7 | M2 |
| A 6A18M024DF6004 | 24 | 7.64 | 7.28 | 12.7 | 4 | 14.2 | 12.7 | M2 |
| A 6A18M025DF6003 | 25 | 7.96 | 7.6 | 12.7 | 3 | 14.2 | 12.7 | M2 |
| A 6A18M025DF6004 | 25 | 7.96 | 7.6 | 12.7 | 4 | 14.2 | 12.7 | M2 |
| A 6A18M028DF6003 | 28 | 8.91 | 8.56 | 12.7 | 3 | 14.2 | 12.7 | M2 |
| A 6A18M028DF6004 | 28 | 8.91 | 8.56 | 12.7 | 4 | 14.2 | 12.7 | M2 |
| A 6A18M030DF6003 | 30 | 9.55 | 9.19 | 12.7 | 3 | 14.2 | 12.7 | M2 |
| A 6A18M030DF6004 | 30 | 9.55 | 9.19 | 12.7 | 4 | 14.2 | 12.7 | M2 |
| A 6A18M035DF6003 | 35 | 11.14 | 10.79 | 13.5 | 3 | 14.2 | 13.5 | M2 |
| A 6A18M035DF6004 | 35 | 11.14 | 10.79 | 13.5 | 4 | 14.2 | 13.5 | M2 |
| A 6A18M040DF6003 | 40 | 12.73 | 12.38 | 14.7 | 3 | 14.2 | 14.9 | M2 |
| A 6A18M040DF6004 | 40 | 12.73 | 12.38 | 14.7 | 4 | 14.2 | 14.9 | M2 |
| A 6A18M045DF6003 | 45 | 14.32 | 13.97 | 17.4 | 3 | 14.2 | 17.4 | M2 |
| A 6A18M045DF6004 | 45 | 14.32 | 13.97 | 17.4 | 4 | 14.2 | 17.4 | M2 |
| Fig. 2 | | | | | | | | |
| A 6A18M050DF6004 | 50 | 15.92 | 15.56 | 20.7 | 4 | 15.7 | 9.5 | M2 |
| A 6A18M055DF6004 | 55 | 17.51 | 17.15 | 20.7 | 4 | 15.7 | 9.5 | M2 |
| A 6A18M060DF6005 | 60 | 19.1 | 18.74 | 24 | 5 | 15.7 | 13 | M2.5 |
| A 6A18M065DF6005 | 65 | 20.69 | 20.33 | 25.4 | 5 | 15.7 | 13 | M2.5 |
| A 6A18M070DF6005 | 70 | 22.28 | 21.93 | 25.4 | 5 | 15.7 | 13 | M2.5 |
| A 6A18M075DF6005 | 75 | 23.87 | 23.52 | 26 | 5 | 15.7 | 14 | M2.5 |
| Fig. 3 | | | | | | | | |
| A 6A18M050NF6004 | 50 | 15.92 | 15.56 | — | 4 | 15.7 | 9.5 | M2 |
| A 6A18M055NF6004 | 55 | 17.51 | 17.15 | — | 4 | 15.7 | 9.5 | M2 |
| A 6A18M060NF6005 | 60 | 19.1 | 18.74 | — | 5 | 15.7 | 13 | M2.5 |
| A 6A18M065NF6005 | 65 | 20.69 | 20.33 | — | 5 | 15.7 | 13 | M2.5 |
| A 6A18M070NF6005 | 70 | 22.28 | 21.93 | — | 5 | 15.7 | 13 | M2.5 |
| A 6A18M075NF6005 | 75 | 23.87 | 23.52 | — | 5 | 15.7 | 14 | M2.5 |

NOTE: Pulleys with 18 to 45 grooves have 1 set screw; others have 2 at 90°.

Continued from the previous page

For FHT®-1 Miniature Timing Belts see: A 6R18M... and A 6G18M...

BELT WIDTHS
 METRIC - 3, 6 & 9 mm
 HIGH TORQUE CAPACITY
 VERY LOW NOISE
 CLEAN OPERATION
 MINIMAL BACKLASH
 COMPACT DRIVE



► MATERIAL:

Body - Polyurethane, Black
Cords - Kevlar or Fiberglass
Backing - Textured

► OPERATING TEMPERATURE:

-30°C to +85°C (-22°F to +185°F)

► SPECIFICATIONS:

Breaking Strength (Double Span)

Kevlar: 364 N per 1 mm (260 lbf per 1/8 in.) Belt Width
 Fiberglass: 168 N per 1 mm (120 lbf per 1/8 in.) Belt Width

► MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.



NOTE: Dimensions in () are inch.

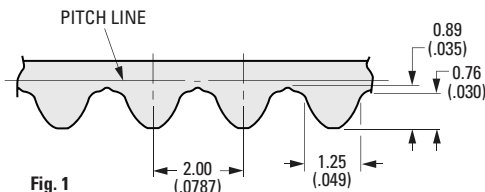
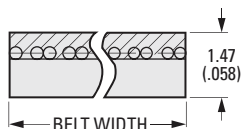


Fig. 1

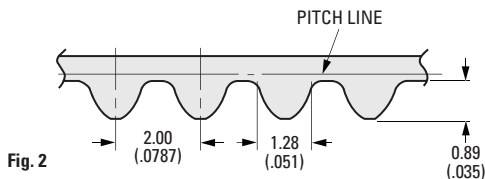
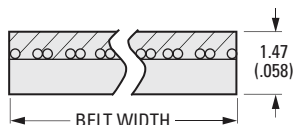
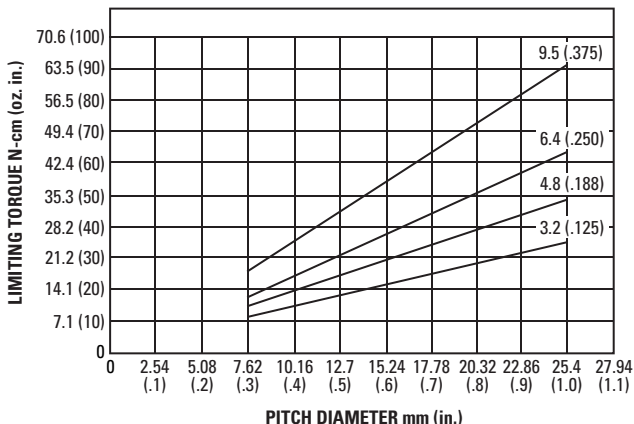


Fig. 2

FHT®-2 TORQUE CAPACITY
 AT VARIOUS WIDTHS CONTAINING FR-17 KEVLAR® @ 50 T.P.I.



FHT® Registered trademark of Fenner Precision

For Timing Pulleys see:

A 6D51M..., A 6A51M..., A 6Z51M..., A 6L51M..., A 6D51..., A 6A51..., A 6Z51..., A 6L51...



› Polyurethane Belt with Kevlar Cords:

METRIC COMPONENT CATALOG NUMBER

A 6 B 19 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 6 | 060 |
| 9 | 090 |

Fig. 1

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 050 | 100 | 3.94 |
| 082 | 164 | 6.46 |
| 085 | 170 | 6.69 |
| 090 | 180 | 7.09 |
| 097 | 194 | 7.64 |
| 110 | 220 | 8.66 |
| 111 | 222 | 8.74 |
| 136 | 272 | 10.71 |
| 140 | 280 | 11.02 |
| 144 | 288 | 11.34 |
| 160 | 320 | 12.60 |
| 175 | 350 | 13.78 |
| 185 | 370 | 14.57 |
| 204 | 408 | 16.06 |
| 210 | 420 | 16.54 |
| 220 | 440 | 17.32 |

Fig. 2

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 049 | 98 | 3.86 |
| 065 | 130 | 5.12 |
| 070 | 140 | 5.51 |
| 075 | 150 | 5.91 |
| 080 | 160 | 6.30 |
| 084 | 168 | 6.61 |
| 086 | 172 | 6.77 |
| 095 | 190 | 7.48 |
| 098 | 196 | 7.72 |
| 100 | 200 | 7.87 |
| 105 | 210 | 8.27 |
| 115 | 230 | 9.06 |
| 120 | 240 | 9.45 |
| 130 | 260 | 10.24 |
| 132 | 264 | 10.39 |
| 135 | 270 | 10.63 |
| 145 | 290 | 11.42 |
| 150 | 300 | 11.81 |
| 155 | 310 | 12.20 |
| 165 | 330 | 12.99 |
| 170 | 340 | 13.39 |
| 190 | 380 | 14.96 |
| 192 | 384 | 15.12 |
| 200 | 400 | 15.75 |
| 245 | 490 | 19.29 |
| 250 | 500 | 19.69 |
| 290 | 580 | 22.83 |

› Polyurethane Belt with Fiberglass Cords:

METRIC COMPONENT CATALOG NUMBER

A 6 G 19 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 6 | 060 |
| 9 | 090 |

Fig. 1

| Groove Code | Pitch Length | |
|-------------|--------------|------|
| | mm | Inch |
| 083 | 166 | 6.54 |
| 089 | 178 | 7.01 |
| 110 | 220 | 8.66 |
| 125 | 125 | 9.84 |

Fig. 2

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 090 | 180 | 7.09 |
| 165 | 330 | 12.99 |
| 180 | 360 | 14.17 |
| 182 | 364 | 14.33 |



1-800-453-1692

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For Timing Pulleys see:

A 6D51M..., A 6A51M..., A 6Z51M..., A 6L51M..., A 6D51..., A 6A51..., A 6Z51..., A 6L51...

2-26B

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BELT WIDTHS
 METRIC - 6 & 9 mm
 HIGH TORQUE CAPACITY
 VERY LOW NOISE
 CLEAN OPERATION
 MINIMAL BACKLASH
 COMPACT DRIVE



► **MATERIAL:**

Body - Polyurethane, Black
Cords - Kevlar or Fiberglass
Backing - Textured

► **OPERATING TEMPERATURE:**

-30°C to +85°C (-22°F to +185°F)

► **SPECIFICATIONS:**

Breaking Strength (Double Span)

Kevlar: 364 N per 1 mm (260 lbf per 1/8 in.) Belt Width
 Fiberglass: 168 N per 1 mm (120 lbf per 1/8 in.) Belt Width

► **MODIFICATIONS:**

Special Widths - cut to size from sleeves available from stock.



NOTE: Dimensions in () are inch.

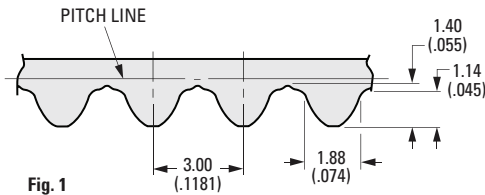
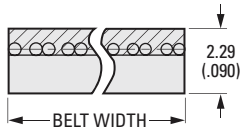


Fig. 1

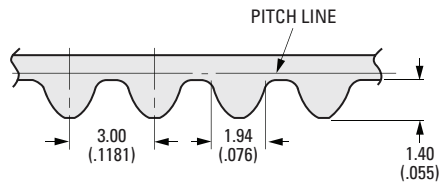
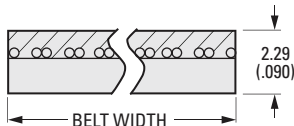
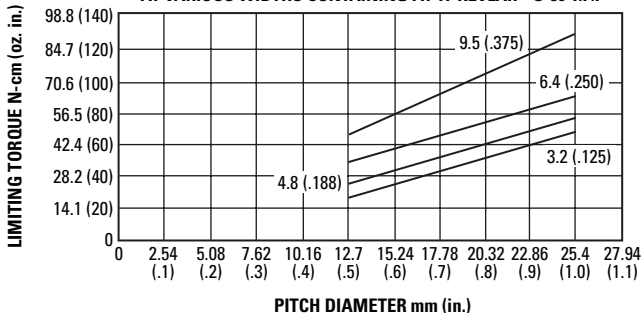


Fig. 2

FHT®-3 TORQUE CAPACITY AT VARIOUS WIDTHS CONTAINING FR-17 KEVLAR® @ 50 T.P.I.



FHT® Registered trademark of Fenner Precision

For Timing Pulleys see:

A 6D53M..., A 6A53M..., A 6Z53M..., A 6L53M..., A 6D53-..., A 6A53-..., A 6Z53-..., A 6L53-...



> Polyurethane Belt with Kevlar Cords:

METRIC COMPONENT CATALOG NUMBER

A 6 B 2 0 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 | 060 |
| 9 | 090 |

Fig. 1

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 054 | 162 | 6.38 |
| 078 | 234 | 9.21 |
| 082 | 246 | 9.69 |
| 085 | 255 | 10.04 |
| 086 | 258 | 10.16 |
| 092 | 276 | 10.87 |
| 108 | 324 | 12.76 |
| 131 | 393 | 15.47 |
| 135 | 405 | 15.94 |
| 136 | 408 | 16.06 |
| 140 | 420 | 16.54 |
| 179 | 537 | 21.14 |
| 180 | 540 | 21.26 |
| 200 | 600 | 23.62 |

Fig. 2 Continued

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 068 | 204 | 8.03 |
| 069 | 207 | 8.15 |
| 070 | 210 | 8.27 |
| 075 | 255 | 8.86 |
| 077 | 231 | 9.09 |
| 080 | 240 | 9.45 |
| 081 | 243 | 9.57 |
| 084 | 252 | 9.92 |
| 089 | 267 | 10.51 |
| 090 | 270 | 10.63 |
| 095 | 285 | 11.22 |
| 098 | 294 | 11.57 |
| 105 | 315 | 12.40 |
| 110 | 330 | 12.99 |
| 112 | 336 | 13.23 |
| 118 | 354 | 13.94 |
| 121 | 363 | 14.29 |
| 122 | 366 | 14.41 |
| 125 | 375 | 14.76 |
| 130 | 390 | 15.35 |
| 132 | 396 | 15.59 |
| 148 | 444 | 17.48 |
| 150 | 450 | 17.72 |
| 151 | 453 | 17.83 |
| 158 | 474 | 18.66 |
| 163 | 489 | 19.25 |
| 164 | 492 | 19.37 |
| 165 | 495 | 19.49 |
| 167 | 501 | 19.72 |
| 183 | 549 | 21.61 |

Fig. 2

| Groove Code | Pitch Length | |
|-------------|--------------|------|
| | mm | Inch |
| 045 | 135 | 5.31 |
| 048 | 144 | 5.67 |
| 050 | 150 | 5.91 |
| 055 | 165 | 6.50 |
| 058 | 174 | 6.85 |
| 059 | 177 | 6.97 |
| 060 | 180 | 7.09 |
| 064 | 192 | 7.56 |
| 065 | 195 | 7.68 |
| 067 | 201 | 7.91 |

> Polyurethane Belt with Fiberglass Cords:

METRIC COMPONENT CATALOG NUMBER

A 6 G 2 0 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 | 060 |
| 9 | 090 |

Fig. 1

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 086 | 258 | 10.16 |
| 113 | 339 | 13.35 |
| 156 | 468 | 18.43 |

Fig. 2

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 062 | 186 | 7.32 |
| 092 | 276 | 10.87 |
| 108 | 324 | 12.76 |
| 120 | 360 | 14.17 |



Request Info



1-800-453-1692

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FHT® Registered trademark of Fenner Precision

For Timing Pulleys see:

A 6D53M..., A 6A53M..., A 6Z53M..., A 6L53M..., A 6D53-..., A 6A53-..., A 6Z53-..., A 6L53-...

BELT WIDTHS

INCH - 1/8, 3/16, 1/4, 5/16 & 3/8

METRIC - 3, 4.5, 6, 8 & 9.5 mm

> MATERIAL:

Nylon Covered, Fiberglass Reinforced, Neoprene

> SPECIFICATIONS:

Breaking Strength:

51 lbs. per 1/8 in. (72 N per 1 mm) Belt Width;
not representative of the load-carrying capacity of the belt.

Working Tension:

18 lbs. for 1 in. belt (80 N for 25.4 mm Belt)

For more information, see the technical section.

Temperature Range:

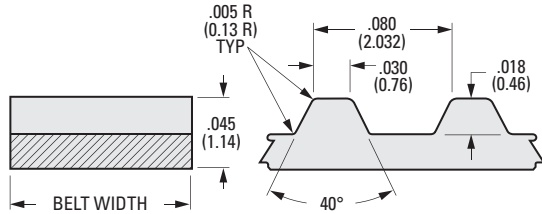
-30°F to +185°F (-34°C to +85°C)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 Z 16 -

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 012 |
| 3/16 | 018 |
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |

METRIC COMPONENT CATALOG NUMBER

A 6 Z 16 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 4.5 | 045 |
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 036 | 2.88 | 73.15 |
| 037 | 2.96 | 75.18 |
| 039 | 3.12 | 79.25 |
| 040 | 3.20 | 81.28 |
| 041 | 3.28 | 83.31 |
| 042 | 3.36 | 85.34 |
| 043 | 3.44 | 87.38 |
| 044 | 3.52 | 89.41 |
| 045 | 3.60 | 91.44 |
| 046 | 3.68 | 93.47 |
| 047 | 3.76 | 95.5 |
| 048 | 3.84 | 97.54 |
| 049 | 3.92 | 99.57 |
| 050 | 4.00 | 101.6 |
| 052 | 4.16 | 105.66 |
| 053 | 4.24 | 107.7 |
| 054 | 4.32 | 109.73 |
| 055 | 4.40 | 111.76 |
| 056 | 4.48 | 113.79 |
| 057 | 4.56 | 115.82 |
| 058 | 4.64 | 117.86 |
| 059 | 4.72 | 119.89 |
| 060 | 4.80 | 121.92 |
| 061 | 4.88 | 123.95 |
| 062 | 4.96 | 125.98 |
| 063 | 5.04 | 128.02 |
| 064 | 5.12 | 130.05 |
| 065 | 5.20 | 132.08 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 067 | 5.36 | 136.14 |
| 068 | 5.44 | 138.18 |
| 069 | 5.52 | 140.21 |
| 070 | 5.60 | 142.24 |
| 071 | 5.68 | 144.27 |
| 072 | 5.76 | 146.3 |
| 073 | 5.84 | 148.34 |
| 074 | 5.92 | 150.37 |
| 075 | 6.00 | 152.4 |
| 076 | 6.08 | 154.43 |
| 077 | 6.16 | 156.46 |
| 078 | 6.24 | 158.5 |
| 079 | 6.32 | 160.53 |
| 080 | 6.40 | 162.56 |
| 081 | 6.48 | 164.59 |
| 082 | 6.56 | 166.62 |
| 083 | 6.64 | 168.66 |
| 084 | 6.72 | 170.69 |
| 085 | 6.80 | 172.72 |
| 086 | 6.88 | 174.75 |
| 087 | 6.96 | 176.78 |
| 088 | 7.04 | 178.82 |
| 089 | 7.12 | 180.85 |
| 090 | 7.20 | 182.88 |
| 091 | 7.28 | 184.91 |
| 092 | 7.36 | 186.94 |
| 093 | 7.44 | 188.98 |
| 094 | 7.52 | 191.01 |

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| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 095 | 7.60 | 193.04 |
| 096 | 7.68 | 195.07 |
| 097 | 7.76 | 197.1 |
| 098 | 7.84 | 199.14 |
| 099 | 7.92 | 201.17 |
| 100 | 8.00 | 203.2 |
| 101 | 8.08 | 205.23 |
| 102 | 8.16 | 207.26 |
| 103 | 8.24 | 209.3 |
| 104 | 8.32 | 211.33 |
| 105 | 8.40 | 213.36 |
| 106 | 8.48 | 215.39 |
| 107 | 8.56 | 217.42 |
| 108 | 8.64 | 219.46 |
| 109 | 8.72 | 221.49 |
| 110 | 8.80 | 223.52 |
| 112 | 8.96 | 227.58 |
| 114 | 9.12 | 231.65 |
| 115 | 9.20 | 233.68 |
| 117 | 9.36 | 237.74 |
| 118 | 9.44 | 239.78 |
| 119 | 9.52 | 241.81 |
| 120 | 9.60 | 243.84 |
| *121 | 9.68 | 245.87 |
| 122 | 9.76 | 247.9 |
| 123 | 9.84 | 249.94 |
| 124 | 9.92 | 251.97 |
| 125 | 10.00 | 254 |
| 126 | 10.08 | 256.03 |
| 127 | 10.16 | 258.06 |
| 128 | 10.24 | 260.1 |
| 129 | 10.32 | 262.13 |
| 130 | 10.40 | 264.16 |
| 131 | 10.48 | 266.19 |
| 132 | 10.56 | 268.22 |
| 134 | 10.72 | 272.29 |
| 135 | 10.80 | 274.32 |
| 136 | 10.88 | 276.35 |
| 137 | 10.96 | 278.38 |
| 138 | 11.04 | 280.42 |
| 139 | 11.12 | 282.45 |
| 140 | 11.20 | 284.48 |
| 142 | 11.36 | 288.54 |
| 143 | 11.44 | 290.58 |
| 144 | 11.52 | 292.61 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 145 | 11.60 | 294.64 |
| 146 | 11.68 | 296.67 |
| 147 | 11.76 | 298.7 |
| 148 | 11.84 | 300.74 |
| 149 | 11.92 | 302.77 |
| 150 | 12.00 | 304.8 |
| 151 | 12.08 | 306.83 |
| 153 | 12.24 | 310.9 |
| 154 | 12.32 | 312.93 |
| 155 | 12.40 | 314.96 |
| 156 | 12.48 | 316.99 |
| 158 | 12.64 | 321.06 |
| 159 | 12.72 | 323.09 |
| 160 | 12.80 | 325.12 |
| 162 | 12.96 | 329.18 |
| 163 | 13.04 | 331.22 |
| 164 | 13.12 | 333.25 |
| 165 | 13.20 | 335.28 |
| 166 | 13.28 | 337.31 |
| 167 | 13.36 | 339.34 |
| 169 | 13.52 | 343.41 |
| 170 | 13.60 | 345.44 |
| 171 | 13.68 | 347.47 |
| 175 | 14.00 | 355.6 |
| 177 | 14.16 | 359.66 |
| 180 | 14.40 | 365.76 |
| 184 | 14.72 | 373.89 |
| 186 | 14.88 | 377.95 |
| 188 | 15.04 | 382.02 |
| 190 | 15.20 | 386.08 |
| 192 | 15.36 | 390.14 |
| 194 | 15.52 | 394.21 |
| 195 | 15.60 | 396.24 |
| 196 | 15.68 | 398.27 |
| 200 | 16.00 | 406.4 |
| 203 | 16.24 | 412.5 |
| 204 | 16.32 | 414.53 |
| 205 | 16.40 | 416.56 |
| 208 | 16.64 | 422.66 |
| 210 | 16.80 | 426.72 |
| 212 | 16.96 | 430.78 |
| 215 | 17.20 | 436.88 |
| 216 | 17.28 | 438.91 |
| 220 | 17.60 | 447.04 |
| 221 | 17.68 | 449.07 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 222 | 17.76 | 451.1 |
| 224 | 17.92 | 455.17 |
| 225 | 18.00 | 457.2 |
| 226 | 18.08 | 459.23 |
| 228 | 18.24 | 463.3 |
| 229 | 18.32 | 465.33 |
| 230 | 18.40 | 467.36 |
| 232 | 18.56 | 471.42 |
| 234 | 18.72 | 475.49 |
| 235 | 18.80 | 477.52 |
| 236 | 18.88 | 479.55 |
| 239 | 19.12 | 485.65 |
| 240 | 19.20 | 487.68 |
| 243 | 19.44 | 493.78 |
| 245 | 19.60 | 497.84 |
| 248 | 19.84 | 503.94 |
| 249 | 19.92 | 505.97 |
| 250 | 20.00 | 508 |
| 251 | 20.08 | 510.03 |
| 255 | 20.40 | 518.16 |
| 256 | 20.48 | 520.19 |
| 260 | 20.80 | 528.32 |
| 262 | 20.96 | 532.38 |
| 265 | 21.20 | 538.48 |
| 267 | 21.36 | 542.54 |
| 268 | 21.44 | 544.58 |
| 271 | 21.68 | 550.67 |
| 273 | 21.84 | 554.74 |
| 275 | 22.00 | 558.8 |
| 280 | 22.40 | 568.96 |
| 281 | 22.48 | 570.99 |
| 285 | 22.80 | 579.12 |
| 288 | 23.04 | 585.22 |
| 290 | 23.20 | 589.28 |
| 295 | 23.60 | 599.44 |
| 297 | 23.76 | 603.5 |
| 298 | 23.84 | 605.54 |
| 300 | 24.00 | 609.6 |
| 305 | 24.40 | 619.76 |
| 308 | 24.64 | 625.86 |
| 310 | 24.80 | 629.92 |
| 312 | 24.96 | 633.98 |
| 315 | 25.20 | 640.08 |
| 318 | 25.44 | 646.18 |
| 320 | 25.60 | 650.24 |

* To be discontinued when present stock is depleted.

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INCH COMPONENT CATALOG NUMBER

A 6 Z 1 6 -

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 012 |
| 3/16 | 018 |
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |

METRIC COMPONENT CATALOG NUMBER

A 6 Z 1 6 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 4.5 | 045 |
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 322 | 25.76 | 654.3 |
| 323 | 25.84 | 656.34 |
| 324 | 25.92 | 658.37 |
| 325 | 26.00 | 660.4 |
| 326 | 26.08 | 662.43 |
| 328 | 26.24 | 666.5 |
| 330 | 26.40 | 670.56 |
| 332 | 26.56 | 674.62 |
| 334 | 26.72 | 678.69 |
| 336 | 26.88 | 682.75 |
| 337 | 26.96 | 684.78 |
| 338 | 27.04 | 686.82 |
| 339 | 27.12 | 688.85 |
| 340 | 27.20 | 690.88 |
| 342 | 27.36 | 694.94 |
| 343 | 27.44 | 696.98 |
| 347 | 27.76 | 705.1 |
| 350 | 28.00 | 711.2 |
| 354 | 28.32 | 719.33 |
| 355 | 28.40 | 721.36 |
| 356 | 28.48 | 723.39 |
| 358 | 28.64 | 727.46 |
| 359 | 28.72 | 729.49 |
| 360 | 28.80 | 731.52 |
| 364 | 29.12 | 739.65 |
| 365 | 29.20 | 741.68 |
| 371 | 29.68 | 753.87 |
| 372 | 29.76 | 755.9 |
| 380 | 30.40 | 772.16 |
| 388 | 31.04 | 788.42 |
| 390 | 31.20 | 792.48 |
| 397 | 31.76 | 806.7 |
| 400 | 32.00 | 812.8 |
| 402 | 32.16 | 816.86 |
| 405 | 32.40 | 822.96 |
| 408 | 32.64 | 829.06 |
| 410 | 32.80 | 833.12 |
| 412 | 32.96 | 837.18 |
| 413 | 33.04 | 839.22 |
| 419 | 33.52 | 851.41 |
| 420 | 33.60 | 853.44 |
| 421 | 33.68 | 855.47 |
| 424 | 33.92 | 861.57 |
| 425 | 34.00 | 863.6 |
| 427 | 34.16 | 867.66 |
| 431 | 34.48 | 875.79 |
| 434 | 34.72 | 881.89 |
| 435 | 34.80 | 883.92 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 436 | 34.88 | 885.95 |
| 440 | 35.20 | 894.08 |
| 442 | 35.36 | 898.14 |
| 447 | 35.76 | 908.3 |
| 448 | 35.84 | 910.34 |
| 453 | 36.24 | 920.5 |
| 458 | 36.64 | 930.66 |
| 463 | 37.04 | 940.82 |
| 464 | 37.12 | 942.85 |
| 466 | 37.28 | 946.91 |
| 468 | 37.44 | 950.98 |
| 472 | 37.76 | 959.1 |
| 473 | 37.84 | 961.14 |
| 475 | 38.00 | 965.2 |
| 480 | 38.40 | 975.36 |
| 482 | 38.56 | 979.42 |
| 487 | 38.96 | 989.58 |
| 488 | 39.04 | 991.62 |
| 490 | 39.20 | 995.68 |
| 493 | 39.44 | 1001.78 |
| 497 | 39.76 | 1009.9 |
| 498 | 39.84 | 1011.94 |
| 500 | 40.00 | 1016 |
| 505 | 40.40 | 1026.16 |
| 516 | 41.28 | 1048.51 |
| 522 | 41.76 | 1060.7 |
| 524 | 41.92 | 1064.77 |
| 525 | 42.00 | 1066.8 |
| 532 | 42.56 | 1081.02 |
| 535 | 42.80 | 1087.12 |
| 537 | 42.96 | 1091.18 |
| 540 | 43.20 | 1097.28 |
| 543 | 43.44 | 1103.38 |
| 546 | 43.68 | 1109.47 |
| 548 | 43.84 | 1113.54 |
| 550 | 44.00 | 1117.6 |
| 571 | 45.68 | 1160.27 |
| 591 | 47.28 | 1200.91 |
| 592 | 47.36 | 1202.94 |
| 599 | 47.92 | 1217.17 |
| 600 | 48.00 | 1219.2 |
| 612 | 48.96 | 1243.58 |
| 648 | 51.84 | 1316.74 |
| 665 | 53.20 | 1351.28 |
| 681 | 54.48 | 1383.79 |
| 694 | 55.52 | 1410.21 |
| 913 | 73.04 | 1855.22 |
| *1189 | 95.12 | 2416.05 |

* The catalog number for this length belt is A 6Z16 B89

Continued from the previous page

BELT WIDTHS
 INCH - 1/8, 3/16, 1/4, 5/16 & 3/8
 METRIC - 3, 4, 5, 6, 8 & 9.5 mm
 NON-MARKING
 LOW DUST
 RoHS COMPLIANT
 PowerGrip® TruMotion®



> MATERIAL:

Cream-Colored Polymer Compound, Fiberglass
 Reinforced Body with Nylon Tooth Facing for Reduced Dust.

> SPECIFICATIONS:

Breaking Strength:
 51 lbs. per 1/8 in. (72 N per 1 mm) Belt Width;
 not representative of the load-carrying
 capacity of the belt.

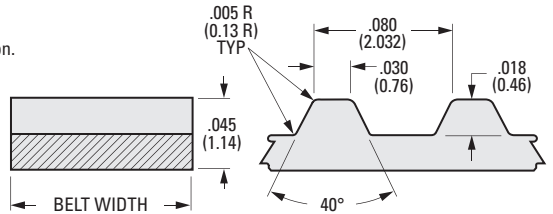
Working Tension:
 15 lbs. for 1 in. belt (67 N for 25.4 mm Belt)
 For more information, see the technical section.

Temperature Range:
 -40°F to +220°F (-40°C to +104°C)

> MODIFICATIONS:

Special Widths - cut to size from
 sleeves available from stock.

Pulleys are available with inch
 or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 2 6 Z 1 6 -

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 012 |
| 3/16 | 018 |
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |

METRIC COMPONENT CATALOG NUMBER

A 2 6 Z 1 6 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 4.5 | 045 |
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |

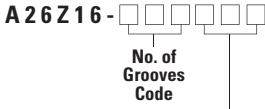
| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 040 | 3.20 | 81.28 |
| 042 | 3.36 | 85.34 |
| 045 | 3.60 | 91.44 |
| 047 | 3.76 | 95.5 |
| 050 | 4.00 | 101.6 |
| 054 | 4.32 | 109.73 |
| 055 | 4.40 | 111.76 |
| 057 | 4.56 | 115.82 |
| 058 | 4.64 | 117.86 |
| 059 | 4.72 | 119.89 |
| 060 | 4.80 | 121.92 |
| 061 | 4.88 | 123.95 |
| 064 | 5.12 | 130.05 |
| 065 | 5.20 | 132.08 |
| 067 | 5.36 | 136.14 |
| 068 | 5.44 | 138.18 |
| 070 | 5.60 | 142.24 |
| 071 | 5.68 | 144.27 |
| 072 | 5.76 | 146.3 |
| 074 | 5.92 | 15.037 |
| 076 | 6.08 | 154.43 |
| 077 | 6.16 | 156.46 |
| 079 | 6.32 | 160.53 |
| 080 | 6.40 | 162.56 |
| 082 | 6.56 | 166.62 |
| 083 | 6.64 | 168.66 |
| 085 | 6.80 | 172.72 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 087 | 6.96 | 176.78 |
| 088 | 7.04 | 178.82 |
| 090 | 7.20 | 182.88 |
| 092 | 7.36 | 186.94 |
| 093 | 7.44 | 188.98 |
| 094 | 7.52 | 191.01 |
| 095 | 7.60 | 193.04 |
| 097 | 7.76 | 197.1 |
| 100 | 8.00 | 203.2 |
| 102 | 8.16 | 207.26 |
| 103 | 8.24 | 209.3 |
| 105 | 8.40 | 213.36 |
| 106 | 8.48 | 215.39 |
| 107 | 8.56 | 217.42 |
| 108 | 8.64 | 219.46 |
| 109 | 8.72 | 221.49 |
| 110 | 8.80 | 223.52 |
| 112 | 8.96 | 227.58 |
| 114 | 9.12 | 231.65 |
| 120 | 9.60 | 243.84 |
| 122 | 9.76 | 247.9 |
| 123 | 9.84 | 249.94 |
| 125 | 10.00 | 254 |
| 126 | 10.08 | 256.03 |
| 130 | 10.40 | 264.16 |
| 132 | 10.56 | 268.22 |
| 140 | 11.20 | 284.48 |

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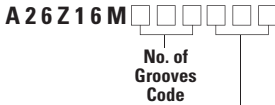


INCH COMPONENT CATALOG NUMBER



| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 012 |
| 3/16 | 018 |
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |

METRIC COMPONENT CATALOG NUMBER



| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 4.5 | 045 |
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 144 | 11.52 | 292.61 |
| 150 | 12.00 | 304.8 |
| 153 | 12.24 | 310.9 |
| 155 | 12.40 | 314.96 |
| 165 | 13.20 | 335.28 |
| 166 | 13.28 | 337.31 |
| 170 | 13.60 | 345.44 |
| 175 | 14.00 | 355.6 |
| 180 | 14.40 | 365.76 |
| 184 | 14.72 | 373.89 |
| 190 | 15.20 | 386.08 |
| 195 | 15.60 | 396.24 |
| 200 | 16.00 | 406.4 |
| 208 | 16.64 | 422.66 |
| 210 | 16.80 | 426.72 |
| 212 | 16.96 | 430.78 |
| 215 | 17.20 | 436.88 |
| 221 | 17.68 | 449.07 |
| 222 | 17.76 | 451.1 |
| 225 | 18.00 | 457.2 |
| 230 | 18.40 | 467.36 |
| 245 | 19.60 | 497.84 |
| 248 | 19.84 | 503.94 |
| 249 | 19.92 | 505.97 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 250 | 20.00 | 508 |
| 251 | 20.08 | 510.03 |
| 260 | 20.80 | 528.32 |
| 265 | 21.20 | 538.48 |
| 280 | 22.40 | 568.96 |
| 295 | 23.60 | 599.44 |
| 300 | 24.00 | 609.6 |
| 315 | 25.20 | 640.08 |
| 324 | 25.92 | 658.37 |
| 347 | 27.76 | 705.1 |
| 371 | 29.68 | 753.87 |
| 372 | 29.76 | 755.9 |
| 400 | 32.00 | 812.8 |
| 412 | 32.96 | 837.18 |
| 424 | 33.92 | 861.57 |
| 434 | 34.72 | 881.89 |
| 435 | 34.80 | 883.92 |
| 440 | 35.20 | 894.08 |
| 453 | 36.24 | 920.5 |
| 487 | 38.96 | 989.58 |
| 498 | 39.84 | 1011.94 |
| 600 | 48.00 | 1219.2 |
| 612 | 48.96 | 1243.58 |
| 648 | 51.84 | 1316.74 |

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BELT WIDTHS

INCH - 1/8, 3/16, 1/4, 5/16 & 3/8

METRIC - 3, 4.5, 6, 8 & 9.5 mm

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Body - Polyurethane

Cord - Polyester Balanced Construction or Kevlar

> SPECIFICATIONS:

Breaking Strength:

< 155 Grooves - 40 lbf per 1/8 in. (56 N per 1 mm) Belt Width

≥ 155 Grooves - 80 lbf per 1/8 in. (112 N per 1 mm) Belt Width

< 155 Grooves - 80 lbf per 1/8 in. (112 N per 1 mm) Belt Width

≥ 155 Grooves - 130 lbf per 1/8 in. (182 N per 1 mm) Belt Width

Breaking Strength is not representative of the load-carrying capacity of the belt.

Temperature Range:

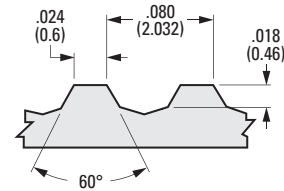
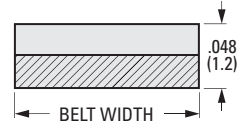
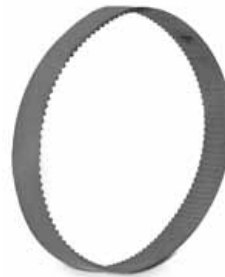
Continuous: -30°F to +185°F (-34°C to +85°C)

Intermittent: up to +250°F (+121°C)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER



Polyester Cord **G**
Kevlar Cord **B**

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 012 |
| 3/16 | 018 |
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |

METRIC COMPONENT CATALOG NUMBER



Polyester Cord **G**
Kevlar Cord **B**

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 4.5 | 045 |
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 030 | 2.40 | 60.96 |
| 035 | 2.80 | 71.12 |
| 036 | 2.88 | 73.15 |
| 040 | 3.20 | 81.28 |
| 045 | 3.60 | 91.44 |
| 046 | 3.68 | 93.47 |
| 048 | 3.84 | 97.53 |
| 050 | 4.00 | 101.6 |
| 051 | 4.08 | 103.63 |
| 054 | 4.32 | 109.73 |
| 055 | 4.40 | 111.76 |
| 060 | 4.80 | 121.92 |
| 061 | 4.88 | 123.95 |
| 064 | 5.12 | 130.05 |
| 065 | 5.20 | 132.08 |
| 068 | 5.44 | 138.18 |
| 070 | 5.60 | 142.24 |
| 071 | 5.68 | 144.27 |
| 073 | 5.84 | 148.34 |
| 075 | 6.00 | 152.4 |
| 078 | 6.24 | 158.5 |
| 079 | 6.32 | 160.53 |
| 080 | 6.40 | 162.56 |
| 082 | 6.56 | 166.62 |
| 083 | 6.64 | 168.66 |
| 085 | 6.80 | 172.72 |
| 087 | 6.96 | 176.78 |
| 088 | 7.04 | 178.82 |

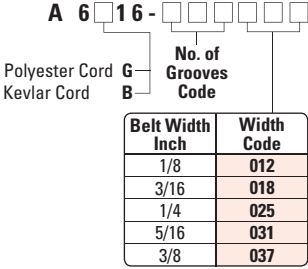
| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| *089 | 7.12 | 180.85 |
| 090 | 7.20 | 182.88 |
| 091 | 7.28 | 184.91 |
| 093 | 7.44 | 188.98 |
| 095 | 7.60 | 193.04 |
| 097 | 7.76 | 197.1 |
| 100 | 8.00 | 203.2 |
| 102 | 8.16 | 207.26 |
| 103 | 8.24 | 209.3 |
| 105 | 8.40 | 213.36 |
| 106 | 8.48 | 215.39 |
| 110 | 8.80 | 223.52 |
| 112 | 8.96 | 227.58 |
| 114 | 9.12 | 231.65 |
| 115 | 9.20 | 233.68 |
| 118 | 9.44 | 239.77 |
| 120 | 9.60 | 243.84 |
| 122 | 9.76 | 247.9 |
| 123 | 9.84 | 249.93 |
| 125 | 10.00 | 254 |
| 126 | 10.08 | 256.03 |
| 130 | 10.40 | 264.16 |
| 132 | 10.56 | 268.22 |
| 135 | 10.80 | 274.32 |
| 140 | 11.20 | 284.48 |
| 144 | 11.52 | 292.61 |
| 145 | 11.60 | 294.64 |
| 150 | 12.00 | 304.8 |

* This belt not available with kevlar cord. Continued on the next page

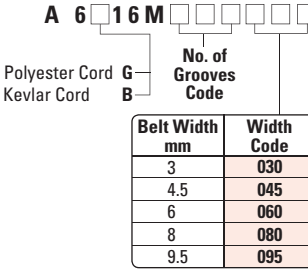




INCH COMPONENT CATALOG NUMBER



METRIC COMPONENT CATALOG NUMBER



| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 155 | 12.40 | 314.96 |
| 160 | 12.80 | 325.12 |
| 165 | 13.20 | 335.28 |
| 170 | 13.60 | 345.44 |
| 175 | 14.00 | 355.6 |
| 180 | 14.40 | 365.76 |
| 184 | 14.72 | 373.88 |
| 185 | 14.80 | 375.92 |
| 190 | 15.20 | 386.08 |
| 195 | 15.60 | 396.24 |
| 200 | 16.00 | 406.4 |
| 205 | 16.40 | 416.56 |
| 210 | 16.80 | 426.72 |
| 212 | 16.96 | 430.78 |
| 215 | 17.20 | 436.88 |
| 220 | 17.60 | 447.04 |
| 225 | 18.00 | 457.2 |
| 230 | 18.40 | 467.36 |
| 235 | 18.80 | 477.52 |
| 240 | 19.20 | 487.68 |
| 245 | 19.60 | 497.84 |
| 249 | 19.92 | 505.97 |
| 250 | 20.00 | 508 |
| 255 | 20.40 | 518.16 |
| 260 | 20.80 | 528.32 |
| 265 | 21.20 | 538.48 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 270 | 21.60 | 548.64 |
| 275 | 22.00 | 558.8 |
| 280 | 22.40 | 568.96 |
| 285 | 22.80 | 579.12 |
| 290 | 23.20 | 589.28 |
| 295 | 23.60 | 599.44 |
| 300 | 24.00 | 609.6 |
| 310 | 24.80 | 629.92 |
| 315 | 25.20 | 640.08 |
| 320 | 25.60 | 650.24 |
| 324 | 25.92 | 658.37 |
| 330 | 26.40 | 670.56 |
| 340 | 27.20 | 690.88 |
| 350 | 28.00 | 711.2 |
| 360 | 28.80 | 731.52 |
| 370 | 29.60 | 751.84 |
| 380 | 30.40 | 772.16 |
| 390 | 31.20 | 792.48 |
| 400 | 32.00 | 812.8 |
| 403 | 32.24 | 818.9 |
| *420 | 33.60 | 853.44 |
| 434 | 34.72 | 881.89 |
| 454 | 36.32 | 922.53 |
| 482 | 38.56 | 979.42 |
| 502 | 40.16 | 1020.06 |
| 515 | 41.20 | 1046.48 |
| **1500 | 120.00 | 3048 |

* This size only available with polyester cord.

** The catalog number for this length belt is A 6 16 15

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BELT WIDTHS

INCH - 1/8, 3/16, 1/4 & 3/8
 METRIC - 3, 4.5, 6 & 9.5 mm

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Body - Polyurethane
Cord - Kevlar

> SPECIFICATIONS:

Breaking Strength:

< 155 Grooves - 80 lbf per 1/8 in. (112 N per 1 mm) Belt Width
 ≥ 155 Grooves - 130 lbf per 1/8 in. (182 N per 1 mm) Belt Width
 Breaking Strength is not representative of the load-carrying capacity of the belt.

Temperature Range:

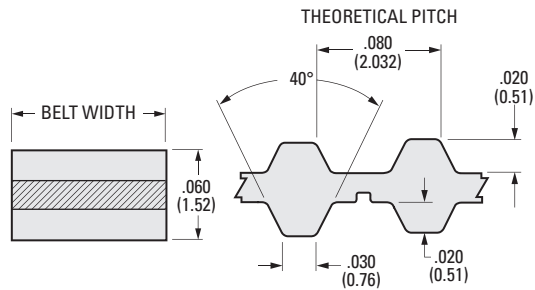
Continuous: -30°F to +180°F (-34°C to +82°C)
Intermittent: up to +250°F (+121°C)



> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 B 16 - D □ □ □ □ □ □

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 012 |
| 3/16 | 018 |
| 1/4 | 025 |
| 3/8 | 037 |

METRIC COMPONENT CATALOG NUMBER

A 6 B 16 M D □ □ □ □ □ □

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 4.5 | 045 |
| 6 | 060 |
| 9.5 | 095 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 132 | 10.56 | 268.22 |
| 136 | 10.88 | 276.35 |
| 145 | 11.60 | 294.64 |
| 150 | 12.00 | 304.8 |
| 155 | 12.40 | 314.96 |
| 160 | 12.80 | 325.12 |
| 165 | 13.20 | 335.28 |
| 170 | 13.60 | 345.44 |
| 175 | 14.00 | 355.6 |
| 180 | 14.40 | 365.76 |
| 185 | 14.80 | 375.92 |
| 190 | 15.20 | 386.08 |
| 195 | 15.60 | 396.24 |
| 200 | 16.00 | 406.4 |
| 212 | 16.96 | 430.78 |
| 236 | 18.88 | 479.55 |
| 250 | 20.00 | 508 |
| 265 | 21.20 | 538.48 |
| 300 | 24.00 | 609.6 |
| 315 | 25.20 | 640.08 |
| 355 | 28.40 | 721.36 |
| 400 | 32.00 | 812.8 |
| 475 | 38.00 | 965.2 |
| 500 | 40.00 | 1016 |

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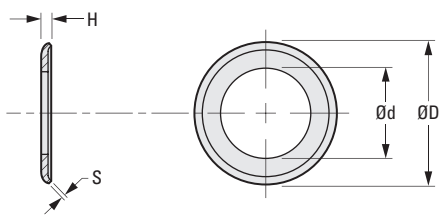
> **MATERIAL:**

Aluminum Alloy

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **SPECIFICATION:**

Priced Per 25 Pieces



METRIC COMPONENT

| Catalog Number | Pulley Grooves Ref. | Metric | | Inch | | H Width ± 0.25 (± .010) | S Thickness |
|----------------|---------------------|------------------|-----------------|------------------|------------------|-------------------------------|-------------|
| | | d Dia. ± 0.08 | D Dia. ± 0.4 | d Dia. ± .003 | D Dia. ± .016 | | |
| A 6A 5M010FA | 10 | 4.77 | 10.8 | .188 | .425 | 1.14 (.045) | 0.64 (.025) |
| A 6A 5M011FA | 11 | 5.44 | 11.4 | .214 | .450 | | |
| A 6A 5M012FA | 12 | 5.54 | 12.2 | .218 | .480 | | |
| A 6A 5M013FA | 13 | 6.2 | 12.8 | .244 | .505 | | |
| A 6A 5M014FA | 14 | 6.86 | 13.5 | .270 | .530 | | |
| A 6A 5M015FA | 15 | 7.52 | 14.1 | .296 | .555 | | |
| A 6A 5M016FA | 16 | 8.18 | 14.7 | .322 | .580 | | |
| A 6A 5M018FA | 18 | 9.5 | 16.1 | .374 | .635 | | |
| A 6A 5M020FA | 20 | 10.82 | 17.4 | .426 | .685 | 1.32 (.052) | 0.81 (.032) |
| A 6A 5M021FA | 21 | 11.48 | 18 | .452 | .710 | | |
| A 6A 5M022FA | 22 | 11.48 | 18.8 | .452 | .740 | | |
| A 6A 5M024FA | 24 | 12.8 | 20.1 | .504 | .790 | | |
| A 6A 5M025FA | 25 | 13.46 | 20.7 | .530 | .815 | | |
| A 6A 5M026FA | 26 | 14.12 | 21.3 | .556 | .840 | | |
| A 6A 5M028FA | 28 | 14.58 | 22.7 | .574 | .895 | | |
| A 6A 5M030FA | 30 | 15.9 | 24 | .626 | .945 | | |
| A 6A 5M032FA | 32 | 17.22 | 25.4 | .678 | 1.000 | | |
| A 6A 5M033FA | 33 | 17.88 | 26 | .704 | 1.025 | | |
| A 6A 5M034FA | 34 | 18.34 | 26.7 | .722 | 1.050 | | |
| A 6A 5M035FA | 35 | 19 | 27.4 | .748 | 1.080 | | |
| A 6A 5M036FA | 36 | 19.66 | 28.1 | .774 | 1.105 | | |
| A 6A 5M038FA | 38 | 20.98 | 29.3 | .826 | 1.155 | | |
| A 6A 5M040FA | 40 | 22.2 | 30.7 | .874 | 1.210 | 1.52 (.060) | 1.02 (.040) |
| A 6A 5M042FA | 42 | 23.52 | 32 | .926 | 1.260 | | |
| A 6A 5M044FA | 44 | 24.84 | 33.4 | .978 | 1.315 | | |
| A 6A 5M045FA | 45 | 26.52 | 34 | 1.044 | 1.340 | | |
| A 6A 5M048FA | 48 | 26.87 | 36.1 | 1.058 | 1.420 | | |
| A 6A 5M050FA | 50 | 28.19 | 37.3 | 1.110 | 1.470 | | |
| A 6A 5M054FA | 54 | 30.48 | 40 | 1.200 | 1.575 | | |
| A 6A 5M060FA | 60 | 34.44 | 43.9 | 1.356 | 1.730 | | |

NOTE: Dimensions in () are inch.

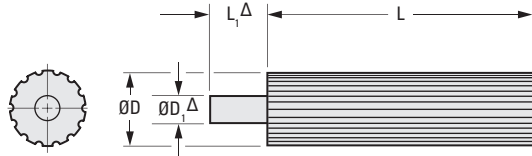
REV: 4.26.13 JC



> MATERIAL:

Aluminum Alloy

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length | L Minimum Usable Length |
|-----------------|----------------|--------|----------------|-------|--------------------|--|-----------------------------|-------------------------|
| | | P.D. | D Dia. +0.05 0 | P.D. | D Dia. +.002 -.000 | | | |
| A 6A15M010MXL05 | 10 | 6.5 | 5.96 | .255 | .235 | 5 (3/16-7/32) [8 (5/16)] ^Δ | 25.4 (1") | 50.8 (2") |
| A 6A15M011MXL05 | 11 | 7.1 | 6.61 | .280 | .260 | | | |
| A 6A15M012MXL05 | 12 | 7.8 | 7.25 | .306 | .286 | 6 (1/4) [9.5 (3/8)] ^Δ | 25.4 (1") | 76.2 (3") |
| A 6A15M013MXL05 | 13 | 8.4 | 7.9 | .331 | .311 | | | |
| A 6A15M014MXL08 | 14 | 9.1 | 8.55 | .357 | .337 | 8 (5/16) [11.1 (7/16)] ^Δ | 25.4 (1") | 76.2 (3") |
| A 6A15M015MXL08 | 15 | 9.7 | 9.19 | .382 | .362 | | | |
| A 6A15M016MXL08 | 16 | 10.3 | 9.84 | .407 | .387 | 9.5 (3/8) [12.7 (1/2)] ^Δ | 25.4 (1") | 76.2 (3") |
| A 6A15M017MXL08 | 17 | 11 | 10.49 | .433 | .413 | | | |
| A 6A15M018MXL08 | 18 | 11.6 | 11.13 | .458 | .438 | 9.5 (3/8) | 22.2 (7/8) | 101.6 (4") |
| A 6A15M019MXL08 | 19 | 12.3 | 11.78 | .484 | .464 | | | |
| A 6A15M020MXL10 | 20 | 12.9 | 12.43 | .509 | .489 | 9.5 (3/8) | 22.2 (7/8) | 101.6 (4") |
| A 6A15M021MXL10 | 21 | 13.6 | 13.07 | .535 | .515 | | | |
| A 6A15M022MXL10 | 22 | 14.2 | 13.72 | .560 | .540 | 9.5 (3/8) | 22.2 (7/8) | 101.6 (4") |
| A 6A15M023MXL10 | 23 | 14.9 | 14.37 | .586 | .566 | | | |
| A 6A15M024MXL13 | 24 | 15.5 | 15.02 | .611 | .591 | 9.5 (3/8) | 22.2 (7/8) | 101.6 (4") |
| A 6A15M025MXL13 | 25 | 16.2 | 15.66 | .637 | .617 | | | |
| A 6A15M026MXL13 | 26 | 16.8 | 16.31 | .662 | .642 | 9.5 (3/8) | 22.2 (7/8) | 101.6 (4") |
| A 6A15M027MXL13 | 27 | 17.5 | 16.96 | .687 | .667 | | | |
| A 6A15M028MXL13 | 28 | 18.1 | 17.6 | .713 | .693 | 9.5 (3/8) | 22.2 (7/8) | 101.6 (4") |
| A 6A15M029MXL13 | 29 | 18.8 | 18.25 | .738 | .718 | | | |
| A 6A15M030MXL15 | 30 | 19.4 | 18.9 | .764 | .744 | 12.7 (1/2) | 25.4 (1") | 127 (5") |
| A 6A15M031MXL15 | 31 | 20.1 | 19.54 | .789 | .769 | | | |
| A 6A15M032MXL15 | 32 | 20.7 | 20.19 | .815 | .795 | 12.7 (1/2) | 25.4 (1") | 127 (5") |
| A 6A15M033MXL15 | 33 | 21.3 | 20.84 | .840 | .820 | | | |
| A 6A15M034MXL15 | 34 | 22 | 21.48 | .866 | .846 | 19.1 (3/4) ^Δ | 25.4 (1") | 152.4 (6") |
| A 6A15M035MXL15 | 35 | 22.6 | 22.13 | .891 | .871 | | | |
| A 6A15M036MXL15 | 36 | 23.3 | 22.78 | .917 | .897 | 19.1 (3/4) ^Δ | 25.4 (1") | 152.4 (6") |
| A 6A15M037MXL15 | 37 | 23.9 | 23.42 | .942 | .922 | | | |
| A 6A15M038MXL15 | 38 | 24.6 | 24.07 | .968 | .948 | 19.1 (3/4) ^Δ | 25.4 (1") | 152.4 (6") |
| A 6A15M039MXL15 | 39 | 25.2 | 24.72 | .993 | .973 | | | |
| A 6A15M040MXL18 | 40 | 25.9 | 25.36 | 1.019 | .999 | 19.1 (3/4) ^Δ | 25.4 (1") | 177.8 (7") |

NOTE: Dimensions in () are inch.

^Δ Dimensions in [] may be substituted at SDP option.

Continued on the next page

REV: 4.26.13 JC



MXL TIMING PULLEY STOCK • 2.03 mm or .080" PITCH

SDP/SI

> MATERIAL:

Aluminum Alloy

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> SPECIFICATIONS:

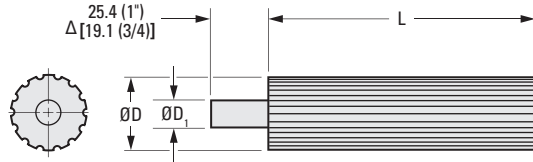
D Tolerance:

From 42 to 75 grooves is +0.06/0 (+.003/- .000)

From 80 to 150 grooves is +0.10/0 (+.004/- .000)



Δ Dimensions in [] may be substituted at SDP option.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L Minimum Usable Length |
|-----------------|----------------|--------|--------|-------|--------|---------------------------|-------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | |
| A 6A15M042MXL18 | 42 | 27.2 | 26.66 | 1.070 | 1.050 | 12.7 (1/2) | 177.8 (7") |
| A 6A15M044MXL18 | 44 | 28.5 | 27.95 | 1.120 | 1.100 | | |
| A 6A15M045MXL18 | 45 | 29.1 | 28.6 | 1.146 | 1.126 | | |
| A 6A15M048MXL18 | 48 | 31 | 30.54 | 1.222 | 1.202 | | |
| A 6A15M049MXL18 | 49 | 31.7 | 31.19 | 1.248 | 1.228 | | |
| A 6A15M050MXL18 | 50 | 32.3 | 31.83 | 1.273 | 1.253 | | |
| A 6A15M051MXL18 | 51 | 33 | 32.48 | 1.299 | 1.279 | | |
| A 6A15M052MXL18 | 52 | 33.6 | 33.13 | 1.324 | 1.304 | | |
| A 6A15M054MXL18 | 54 | 34.9 | 34.42 | 1.375 | 1.355 | | |
| A 6A15M055MXL18 | 55 | 35.6 | 35.07 | 1.401 | 1.381 | | |
| A 6A15M056MXL18 | 56 | 36.2 | 35.71 | 1.426 | 1.406 | | |
| A 6A15M057MXL18 | 57 | 36.9 | 36.36 | 1.451 | 1.431 | | |
| A 6A15M060MXL20 | 60 | 38.8 | 38.3 | 1.528 | 1.508 | | |
| A 6A15M064MXL20 | 64 | 41.4 | 40.89 | 1.630 | 1.610 | | |
| A 6A15M065MXL20 | 65 | 42 | 41.53 | 1.655 | 1.635 | | |
| A 6A15M066MXL20 | 66 | 42.7 | 42.18 | 1.681 | 1.661 | | |
| A 6A15M070MXL20 | 70 | 45.3 | 44.77 | 1.783 | 1.763 | | |
| A 6A15M072MXL20 | 72 | 46.6 | 46.06 | 1.833 | 1.813 | | |
| A 6A15M075MXL20 | 75 | 48.5 | 48 | 1.910 | 1.890 | | |
| A 6A15M080MXL20 | 80 | 51.7 | 51.24 | 2.037 | 2.017 | | |
| A 6A15M082MXL20 | 82 | 53 | 52.53 | 2.088 | 2.068 | | |
| A 6A15M084MXL20 | 84 | 54.3 | 53.82 | 2.139 | 2.119 | | |
| A 6A15M088MXL20 | 88 | 56.9 | 56.41 | 2.241 | 2.221 | | |
| A 6A15M090MXL20 | 90 | 58.2 | 57.7 | 2.292 | 2.272 | | |
| A 6A15M096MXL20 | 96 | 62.1 | 61.59 | 2.445 | 2.425 | | |
| A 6A15M098MXL20 | 98 | 63.4 | 62.88 | 2.496 | 2.476 | | |
| A 6A15M100MXL20 | 100 | 64.7 | 64.17 | 2.546 | 2.526 | | |
| A 6A15M102MXL20 | 102 | 66 | 65.47 | 2.597 | 2.577 | | |
| A 6A15M108MXL20 | 108 | 69.9 | 69.35 | 2.750 | 2.730 | | |
| A 6A15M110MXL20 | 110 | 71.1 | 70.64 | 2.801 | 2.781 | | |
| A 6A15M120MXL20 | 120 | 77.6 | 77.11 | 3.056 | 3.036 | | |
| A 6A15M130MXL20 | 130 | 84.1 | 83.58 | 3.310 | 3.290 | | |
| A 6A15M140MXL20 | 140 | 90.6 | 90.04 | 3.565 | 3.545 | | |
| A 6A15M150MXL20 | 150 | 97 | 96.51 | 3.820 | 3.800 | | |

NOTE: Dimensions in () are inch.

Continued from the previous page

REV: 4.26.13 JC

FOR BELTS UP TO 6 mm WIDE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

FAIRLOC® HUB
DOUBLE OR NO FLANGE

➤ **MATERIAL:**
Aluminum Alloy

➤ **FINISH:**
Clear Anodized

➤ **SPECIFICATION:**
Other sizes available
on special order.

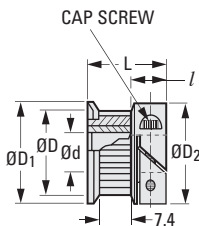


Fig. 1

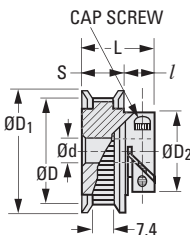


Fig. 2

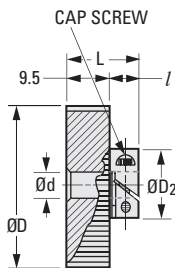


Fig. 3

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. +0.08 0 | D1 Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Lgth. ± 0.4 | D2 Hub Dia. ± 0.4 | l Hub Proj. | Cap Screw |
|------------------|----------------|------|----------------|---------------|-----------------|--------|---------------|-------------------|-------------|-----------|
| Fig. 1 | | | | | | | | | | |
| A 6D16M012DF6003 | 12 | 7.8 | 7.3 | 12.2 | 3 | — | 14.5 | 12.2 | 6.2 | M2 |
| A 6D16M015DF6005 | 15 | 9.7 | 9.2 | 14.1 | 5 | — | 14.5 | 14.1 | 6.2 | M2 |
| A 6D16M016DF6005 | 16 | 10.3 | 9.8 | 14.7 | 5 | — | 14.5 | 14.7 | 6.2 | M2 |
| Fig. 2 | | | | | | | | | | |
| A 6D16M018DF6006 | 18 | 11.6 | 11.1 | 16.1 | 6 | — | 14.5 | 15.9 | 6.2 | M2 |
| A 6D16M020DF6006 | 20 | 12.9 | 12.4 | 17.4 | 6 | — | 14.5 | 15.9 | 6.2 | M2 |
| A 6D16M022DF6006 | 22 | 14.2 | 13.7 | 18.8 | 6 | — | 14.5 | 15.9 | 6.2 | M2 |
| A 6D16M024DF6006 | 24 | 15.5 | 15 | 20.1 | 6 | — | 17.3 | 15.9 | 8.9 | M2 |
| A 6D16M025DF6006 | 25 | 16.2 | 15.7 | 20.7 | 6 | — | 17.3 | 15.9 | 8.9 | M2 |
| A 6D16M028DF6006 | 28 | 18.1 | 17.6 | 22.7 | 6 | — | 17.3 | 15.9 | 8.9 | M2 |
| A 6D16M030DF6006 | 30 | 19.4 | 18.9 | 24 | 6 | — | 17.3 | 15.9 | 8.9 | M2 |
| A 6D16M032DF6006 | 32 | 20.7 | 20.2 | 25.4 | 6 | — | 17.3 | 15.9 | 8.9 | M2 |
| A 6D16M036DF6006 | 36 | 23.3 | 22.8 | 28.1 | 6 | 9.9 | 17.5 | 15.9 | 7.5 | M2 |
| A 6D16M040DF6006 | 40 | 25.9 | 25.4 | 30.7 | 6 | 10.3 | 18.3 | 19.1 | 7.9 | M2 |
| A 6D16M048DF6006 | 48 | 31 | 30.5 | 36.1 | 6 | 10.3 | 18.3 | 19.1 | 7.9 | M2 |
| A 6D16M060DF6006 | 60 | 38.8 | 38.3 | 43.9 | 6 | 10.3 | 18.3 | 19.1 | 7.9 | M2 |
| Fig. 3 | | | | | | | | | | |
| A 6D16M060NF6006 | 60 | 38.8 | 38.3 | — | 6 | — | 19.1 | 19.1 | 9.5 | M2.5 |
| A 6D16M072NF6006 | 72 | 46.6 | 46.1 | — | 6 | — | 19.1 | 19.1 | 9.5 | M2.5 |

MXL TIMING BELT PULLEYS • 2.03 mm PITCH



FOR BELTS UP TO 3 mm WIDE
 LOW PROFILE
 DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
 Aluminum Alloy

> FINISH:
 Clear Anodized

> SPECIFICATION:
 Pulleys with 10 to 16 grooves have 1 set screw;
 others have 2 set screws at 90°.

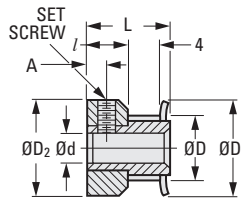
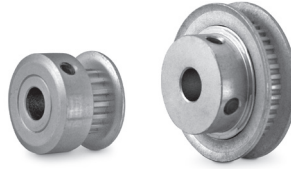


Fig. 1

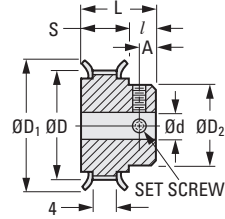


Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D Dia. +0.08 0 | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Lgth. ± 0.4 | D ₂ Hub Dia. ± 0.4 | I Hub Proj. | A | Set Screw |
|------------------|----------|----------------|------|-------------------|---------------------------|--------------------|--------|---------------|-------------------------------|-------------|---|-----------|
| A 6N16M010DF3003 | 1 | 10 | 6.5 | 6 | 10.8 | 3 | — | 11.1 | 10.8 | 6 | 3 | M2 |
| A 6N16M011DF3003 | | 11 | 7.1 | 6.6 | 11.4 | | | | 11.4 | | | |
| A 6N16M012DF3003 | | 12 | 7.8 | 7.3 | 12.2 | | | | 12.2 | | | |
| A 6N16M014DF3003 | | 14 | 9.1 | 8.6 | 13.5 | | | | 13.5 | | | |
| A 6N16M015DF3004 | | 15 | 9.7 | 9.2 | 14.1 | | | | 14.1 | | | |
| A 6N16M016DF3004 | | 16 | 10.3 | 9.8 | 14.7 | | | | 14.7 | | | |
| A 6N16M018DF3004 | 2 | 18 | 11.6 | 11.1 | 16.1 | 6 | — | 11.1 | 7.9 | 6 | 3 | M2 |
| A 6N16M018DF3006 | 1 | | | | | | | | 16.1 | | | |
| A 6N16M020DF3004 | 2 | 20 | 12.9 | 12.4 | 17.4 | 4 | 6.6 | 12.3 | 9.2 | 6 | 3 | M2 |
| A 6N16M020DF3006 | 1 | | | | | | | | 17.4 | | | |
| A 6N16M021DF3004 | 2 | 21 | 13.9 | 13.1 | 18 | 4 | 6.6 | 12.3 | 9.9 | 6 | 3 | M2 |
| A 6N16M021DF3006 | 1 | | | | | | | | 18 | | | |
| A 6N16M022DF3004 | 2 | 22 | 14.2 | 13.7 | 18.8 | 4 | 6.6 | 12.3 | 9.9 | 6 | 3 | M2 |
| A 6N16M022DF3006 | 1 | | | | | | | | 18.8 | | | |
| A 6N16M024DF3006 | 2 | 24 | 15.5 | 15 | 20.1 | 6 | 6.6 | 13.1 | 11.2 | 7.5 | 4 | M3 |
| A 6N16M025DF3006 | | 25 | 16.2 | 15.7 | 20.7 | | | | 11.9 | | | |
| A 6N16M028DF3006 | | 28 | 18.1 | 17.6 | 22.7 | | | | 12.5 | | | |
| A 6N16M030DF3006 | | 30 | 19.4 | 18.9 | 24 | | | | 13.9 | | | |
| A 6N16M032DF3006 | | 32 | 20.7 | 20.2 | 25.4 | | | | 15.2 | | | |
| A 6N16M036DF3006 | | 36 | 23.3 | 22.8 | 28.1 | | | | 17.2 | | | |
| A 6N16M040DF3006 | | 40 | 25.9 | 25.4 | 30.7 | | | | 19.2 | | | |
| A 6N16M042DF3006 | | 42 | 27.2 | 26.7 | 32 | | | | 20.5 | | | |
| A 6N16M044DF3006 | | 44 | 28.5 | 28 | 33.4 | | | | 21.8 | | | |
| A 6N16M048DF3006 | | 48 | 31 | 30.5 | 36.1 | | | | 23.8 | | | |
| A 6N16M060DF3006 | | 60 | 38.8 | 38.3 | 43.9 | | | | 31 | | | |

FOR BELTS UP TO 6 mm WIDE
DOUBLE OR NO FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Aluminum Alloy

> FINISH:

Clear Anodized

> SPECIFICATION:

Pulleys with 10 to 16 grooves have 1 set screw; others have 2 set screws at 90°

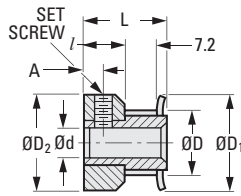


Fig. 1

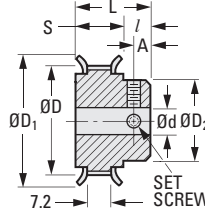


Fig. 2

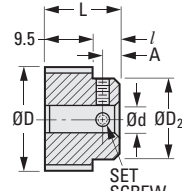


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D Dia. +0.08 0 | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Lgth. ± 0.4 | D ₂ Hub Dia. ± 0.4 | l / Hub Proj. | A | Set Screw |
|----------------------|----------|----------------|------|----------------|---------------------------|-----------------|--------|---------------|-------------------------------|---------------|---|-----------|
| Double Flange | | | | | | | | | | | | |
| A 6A16M010DF6003 | 1 | 10 | 6.5 | 6 | 10.8 | 3 | — | 14.3 | 10.8 | 6 | 3 | M2 |
| A 6A16M011DF6003 | 1 | 11 | 7.1 | 6.6 | 11.4 | 3 | — | 14.3 | 11.4 | 6 | 3 | M2 |
| A 6A16M012DF6003 | 1 | 12 | 7.8 | 7.3 | 12.2 | 3 | — | 14.3 | 12.2 | 6 | 3 | M2 |
| A 6A16M014DF6003 | 1 | 14 | 9.1 | 8.6 | 13.5 | 3 | — | 14.3 | 13.5 | 6 | 3 | M2 |
| A 6A16M015DF6004 | 1 | 15 | 9.7 | 9.2 | 14.1 | 4 | — | 14.3 | 14.1 | 6 | 3 | M2.5 |
| A 6A16M016DF6004 | 1 | 16 | 10.3 | 9.8 | 14.7 | 4 | — | 14.3 | 14.7 | 6 | 3 | M2.5 |
| A 6A16M018DF6004 | 2 | 18 | 11.6 | 11.1 | 16.1 | 4 | 9.9 | 15.9 | 7.9 | 6 | 3 | M2.5 |
| A 6A16M018DF6006 | 1 | 18 | 11.6 | 11.1 | 16.1 | 6 | — | 14.3 | 16.1 | 6 | 3 | M3 |
| A 6A16M020DF6004 | 2 | 20 | 12.9 | 12.4 | 17.4 | 4 | 9.9 | 15.9 | 9.2 | 6 | 3 | M2.5 |
| A 6A16M020DF6006 | 1 | 20 | 12.9 | 12.4 | 17.4 | 6 | — | 14.3 | 17.4 | 6 | 3 | M3 |
| A 6A16M021DF6004 | 2 | 21 | 13.6 | 13.1 | 18 | 4 | 9.9 | 15.9 | 9.9 | 6 | 3 | M2.5 |
| A 6A16M021DF6006 | 1 | 21 | 13.6 | 13.1 | 18 | 6 | — | 14.3 | 18 | 6 | 3 | M3 |
| A 6A16M022DF6004 | 2 | 22 | 14.2 | 13.7 | 18.8 | 4 | 9.9 | 15.9 | 9.9 | 6 | 3 | M2.5 |
| A 6A16M022DF6006 | 1 | 22 | 14.2 | 13.7 | 18.8 | 6 | — | 14.3 | 18.8 | 6 | 3 | M3 |
| A 6A16M024DF6006 | 2 | 24 | 15.5 | 15 | 20.1 | 6 | 9.9 | 17.5 | 11.2 | 7.5 | 4 | M3 |
| A 6A16M025DF6006 | 2 | 25 | 16.2 | 15.7 | 20.7 | 6 | 9.9 | 17.5 | 11.9 | 7.5 | 4 | M3 |
| A 6A16M028DF6006 | 2 | 28 | 18.1 | 17.6 | 22.7 | 6 | 9.9 | 17.5 | 12.5 | 7.5 | 4 | M3 |
| A 6A16M030DF6006 | 2 | 30 | 19.4 | 18.9 | 24 | 6 | 9.9 | 17.5 | 13.9 | 7.5 | 4 | M3 |
| A 6A16M032DF6006 | 2 | 32 | 20.7 | 20.2 | 25.4 | 6 | 9.9 | 17.5 | 15.2 | 7.5 | 4 | M3 |
| A 6A16M036DF6006 | 2 | 36 | 23.3 | 22.8 | 28.1 | 6 | 9.9 | 17.5 | 17.2 | 7.5 | 4 | M3 |
| A 6A16M040DF6006 | 2 | 40 | 25.9 | 25.4 | 30.7 | 6 | 10.3 | 18.3 | 19.2 | 8 | 4 | M3 |
| A 6A16M042DF6006 | 2 | 42 | 27.2 | 26.7 | 32 | 6 | 10.3 | 18.3 | 20.5 | 8 | 4 | M3 |
| A 6A16M044DF6006 | 2 | 44 | 28.5 | 28 | 33.4 | 6 | 10.3 | 18.3 | 21.8 | 8 | 4 | M3 |
| A 6A16M048DF6006 | 2 | 48 | 31 | 30.5 | 36.1 | 6 | 10.3 | 18.3 | 23.8 | 8 | 4 | M3 |
| A 6A16M060DF6006 | 2 | 60 | 38.8 | 38.3 | 43.9 | 6 | 10.3 | 18.3 | 31 | 8 | 4 | M3 |
| No Flange | | | | | | | | | | | | |
| A 6A16M060NF6006 | 3 | 60 | 38.8 | 38.3 | — | 6 | — | 18.3 | 29.2 | 9.5 | 5 | M3 |
| A 6A16M072NF6006 | 3 | 72 | 46.6 | 46.1 | — | 6 | — | 19.1 | 30.4 | 9.5 | 5 | M3 |
| A 6A16M080NF6008 | 3 | 80 | 51.7 | 51.2 | — | 8 | — | 19.1 | 38.1 | 9.5 | 5 | M4 |
| A 6A16M090NF6008 | 3 | 90 | 58.2 | 57.7 | — | 8 | — | 19.1 | 38.1 | 9.5 | 5 | M4 |
| A 6A16M100NF6008 | 3 | 100 | 64.7 | 64.2 | — | 8 | — | 19.1 | 38.1 | 9.5 | 5 | M4 |
| A 6A16M120NF6010 | 3 | 120 | 77.6 | 77.1 | — | 10 | — | 19.1 | 38.1 | 9.5 | 5 | M5 |



FOR BELTS UP TO 9.5 mm WIDE
DOUBLE OR NO FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

Aluminum Alloy

➤ FINISH:

Clear Anodized

➤ SPECIFICATION:

Pulleys with 10 to 16 grooves have 1 set screw; others have 2 set screws at 90°

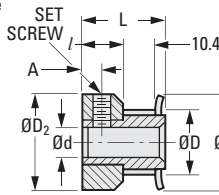


Fig. 1

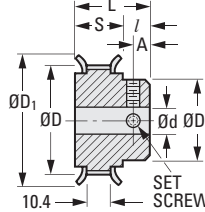


Fig. 2

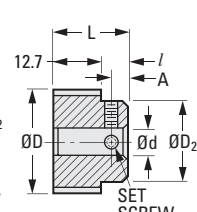


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D Dia. +0.08 0 | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Lgth. ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|----------------------|----------|----------------|------|----------------|---------------------------|-----------------|--------|---------------|-------------------------------|-------------|---|-----------|
| Double Flange | | | | | | | | | | | | |
| A 6A16M010DF9503 | 1 | 10 | 6.5 | 6 | 10.8 | 3 | — | 17.5 | 10.8 | 6 | 3 | M2 |
| A 6A16M011DF9503 | 1 | 11 | 7.1 | 6.6 | 11.4 | 3 | — | 17.5 | 11.4 | 6 | 3 | M2 |
| A 6A16M012DF9503 | 1 | 12 | 7.8 | 7.3 | 12.2 | 3 | — | 17.5 | 12.2 | 6 | 3 | M2 |
| A 6A16M014DF9503 | 1 | 14 | 9.1 | 8.6 | 13.5 | 3 | — | 17.5 | 13.5 | 6 | 3 | M2 |
| A 6A16M015DF9504 | 1 | 15 | 9.7 | 9.2 | 14.1 | 4 | — | 17.5 | 14.1 | 6 | 3 | M2.5 |
| A 6A16M016DF9504 | 1 | 16 | 10.3 | 9.8 | 14.7 | 4 | — | 17.5 | 14.7 | 6 | 3 | M2.5 |
| A 6A16M018DF9504 | 2 | 18 | 11.6 | 11.1 | 16.1 | 4 | 13.1 | 19.1 | 7.9 | 6 | 3 | M2.5 |
| A 6A16M018DF9506 | 1 | 18 | 11.6 | 11.1 | 16.1 | 6 | — | 17.5 | 16.1 | 6 | 3 | M3 |
| A 6A16M020DF9504 | 2 | 20 | 12.9 | 12.4 | 17.4 | 4 | 13.1 | 19.1 | 9.2 | 6 | 3 | M2.5 |
| A 6A16M020DF9506 | 1 | 20 | 12.9 | 12.4 | 17.4 | 6 | — | 17.5 | 17.4 | 6 | 3 | M3 |
| A 6A16M021DF9504 | 2 | 21 | 13.6 | 13.1 | 18 | 4 | 13.1 | 19.1 | 9.9 | 6 | 3 | M2.5 |
| A 6A16M021DF9506 | 1 | 21 | 13.6 | 13.1 | 18 | 6 | — | 17.5 | 18 | 6 | 3 | M3 |
| A 6A16M022DF9504 | 2 | 22 | 14.2 | 13.7 | 18.8 | 4 | 13.1 | 19.1 | 9.9 | 6 | 3 | M2.5 |
| A 6A16M022DF9506 | 1 | 22 | 14.2 | 13.7 | 18.8 | 6 | — | 17.5 | 18.8 | 6 | 3 | M3 |
| A 6A16M024DF9506 | 2 | 24 | 15.5 | 15 | 20.1 | 6 | 13.1 | 20.6 | 11.2 | 7.5 | 4 | M3 |
| A 6A16M025DF9506 | 2 | 25 | 16.2 | 15.7 | 20.7 | 6 | 13.1 | 20.6 | 11.9 | 7.5 | 4 | M3 |
| A 6A16M028DF9506 | 2 | 28 | 18.1 | 17.6 | 22.7 | 6 | 13.1 | 20.6 | 12.5 | 7.5 | 4 | M3 |
| A 6A16M030DF9506 | 2 | 30 | 19.4 | 18.9 | 24 | 6 | 13.1 | 20.6 | 13.9 | 7.5 | 4 | M3 |
| A 6A16M032DF9506 | 2 | 32 | 20.7 | 20.2 | 25.4 | 6 | 13.1 | 20.6 | 15.2 | 7.5 | 4 | M3 |
| A 6A16M036DF9506 | 2 | 36 | 23.3 | 22.8 | 28.1 | 6 | 13.1 | 20.6 | 17.2 | 7.5 | 4 | M3 |
| A 6A16M040DF9506 | 2 | 40 | 25.9 | 25.4 | 30.7 | 6 | 13.5 | 21.4 | 19.2 | 8 | 4 | M3 |
| A 6A16M042DF9506 | 2 | 42 | 27.2 | 26.7 | 32 | 6 | 13.5 | 21.4 | 20.5 | 8 | 4 | M3 |
| A 6A16M044DF9506 | 2 | 44 | 28.5 | 28 | 33.4 | 6 | 13.5 | 21.4 | 21.8 | 8 | 4 | M3 |
| A 6A16M048DF9506 | 2 | 48 | 31 | 30.5 | 36.1 | 6 | 13.5 | 21.4 | 23.8 | 8 | 4 | M3 |
| A 6A16M060DF9506 | 2 | 60 | 38.8 | 38.3 | 43.9 | 6 | 13.5 | 21.4 | 31 | 8 | 4 | M3 |
| No Flange | | | | | | | | | | | | |
| A 6A16M060NF9506 | 3 | 60 | 38.8 | 38.3 | — | 6 | — | 22.2 | 29.2 | 9.5 | 5 | M3 |
| A 6A16M072NF9506 | 3 | 72 | 46.6 | 46.1 | — | 6 | — | 22.2 | 30.4 | 9.5 | 5 | M3 |
| A 6A16M080NF9508 | 3 | 80 | 51.7 | 51.2 | — | 8 | — | 22.2 | 38.1 | 9.5 | 5 | M4 |
| A 6A16M090NF9508 | 3 | 90 | 58.2 | 57.7 | — | 8 | — | 22.2 | 38.1 | 9.5 | 5 | M4 |
| A 6A16M100NF9508 | 3 | 100 | 64.7 | 64.2 | — | 8 | — | 22.2 | 38.1 | 9.5 | 5 | M4 |
| A 6A16M120NF9510 | 3 | 120 | 77.6 | 77.1 | — | 10 | — | 22.2 | 38.1 | 9.5 | 5 | M5 |



FOR 6 mm BELTS
 MOLDED WITH METAL HUB
 SINGLE OR DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled Clear Anodized

SPECIFICATION:

Pulleys with 18 to 40 grooves do not have webs.

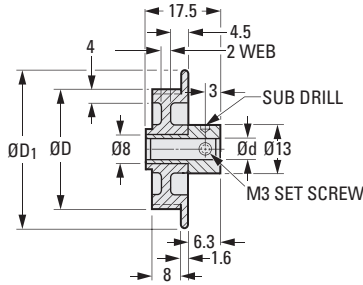
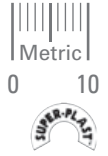


Fig. 1

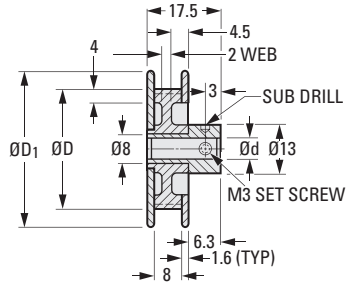


Fig. 2

| METRIC COMPONENT | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|----------------------|----------------------|----------------|------|--------|---------------------|----------------------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | |
| A 6T16M018SF6005 | A 6T16M018DF6005 | 18 | 11.6 | 11.1 | 16 | 5 |
| A 6T16M018SF6006 | A 6T16M018DF6006 | 18 | 11.6 | 11.1 | 16 | 6 |
| A 6T16M020SF6005 | A 6T16M020DF6005 | 20 | 12.9 | 12.4 | 17 | 5 |
| A 6T16M020SF6006 | A 6T16M020DF6006 | 20 | 12.9 | 12.4 | 17 | 6 |
| A 6T16M021SF6005 | A 6T16M021DF6005 | 21 | 13.6 | 13.1 | 18 | 5 |
| A 6T16M021SF6006 | A 6T16M021DF6006 | 21 | 13.6 | 13.1 | 18 | 6 |
| A 6T16M022SF6005 | A 6T16M022DF6005 | 22 | 14.2 | 13.7 | 19 | 5 |
| A 6T16M022SF6006 | A 6T16M022DF6006 | 22 | 14.2 | 13.7 | 19 | 6 |
| A 6T16M024SF6005 | A 6T16M024DF6005 | 24 | 15.5 | 15 | 20 | 5 |
| A 6T16M024SF6006 | A 6T16M024DF6006 | 24 | 15.5 | 15 | 20 | 6 |
| A 6T16M026SF6005 | A 6T16M026DF6005 | 26 | 16.8 | 16.3 | 21 | 5 |
| A 6T16M026SF6006 | A 6T16M026DF6006 | 26 | 16.8 | 16.3 | 21 | 6 |
| A 6T16M028SF6005 | A 6T16M028DF6005 | 28 | 18.1 | 17.6 | 22 | 5 |
| A 6T16M028SF6006 | A 6T16M028DF6006 | 28 | 18.1 | 17.6 | 22 | 6 |
| A 6T16M030SF6005 | A 6T16M030DF6005 | 30 | 19.4 | 18.9 | 24 | 5 |
| A 6T16M030SF6006 | A 6T16M030DF6006 | 30 | 19.4 | 18.9 | 24 | 6 |
| A 6T16M032SF6005 | A 6T16M032DF6005 | 32 | 20.7 | 20.2 | 25 | 5 |
| A 6T16M032SF6006 | A 6T16M032DF6006 | 32 | 20.7 | 20.2 | 25 | 6 |
| A 6T16M036SF6005 | A 6T16M036DF6005 | 36 | 23.3 | 22.8 | 28 | 5 |
| A 6T16M036SF6006 | A 6T16M036DF6006 | 36 | 23.3 | 22.8 | 28 | 6 |
| A 6T16M040SF6005 | A 6T16M040DF6005 | 40 | 25.9 | 25.4 | 30 | 5 |
| A 6T16M040SF6006 | A 6T16M040DF6006 | 40 | 25.9 | 25.4 | 30 | 6 |
| A 6T16M042SF6005 | A 6T16M042DF6005 | 42 | 27.2 | 26.7 | 31 | 5 |
| A 6T16M042SF6006 | A 6T16M042DF6006 | 42 | 27.2 | 26.7 | 31 | 6 |
| A 6T16M044SF6005 | A 6T16M044DF6005 | 44 | 28.5 | 28 | 33 | 5 |
| A 6T16M044SF6006 | A 6T16M044DF6006 | 44 | 28.5 | 28 | 33 | 6 |

FOR 6 mm BELTS
 MOLDED WITH INSERT
 SINGLE OR DOUBLE FLANGE

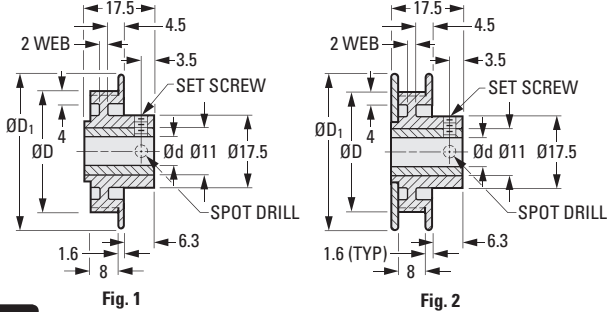
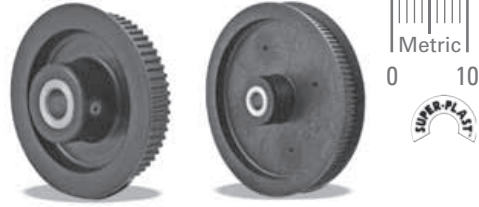
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➤ MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Brass, Knurled

➤ SPECIFICATIONS:

Pulleys with 36 to 40 grooves
 do not have webs.
 Pulleys with:
 5 and 6 mm bore have M3 set screw
 & spot drill.
 8 mm bore have M4 set screw
 & spot drill.



METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|----------------------|----------------------|----------------|------|--------|---------------------|----------------------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | |
| A 6Z16M036SF6005 | A 6Z16M036DF6005 | 36 | 23.3 | 22.8 | 28 | 5 |
| A 6Z16M036SF6006 | A 6Z16M036DF6006 | 36 | 23.3 | 22.8 | 28 | 6 |
| A 6Z16M036SF6008 | A 6Z16M036DF6008 | 36 | 23.3 | 22.8 | 28 | 8 |
| A 6Z16M040SF6005 | A 6Z16M040DF6005 | 40 | 25.9 | 25.4 | 30 | 5 |
| A 6Z16M040SF6006 | A 6Z16M040DF6006 | 40 | 25.9 | 25.4 | 30 | 6 |
| A 6Z16M040SF6008 | A 6Z16M040DF6008 | 40 | 25.9 | 25.4 | 30 | 8 |
| A 6Z16M042SF6005 | A 6Z16M042DF6005 | 42 | 27.2 | 26.7 | 31 | 5 |
| A 6Z16M042SF6006 | A 6Z16M042DF6006 | 42 | 27.2 | 26.7 | 31 | 6 |
| A 6Z16M042SF6008 | A 6Z16M042DF6008 | 42 | 27.2 | 26.7 | 31 | 8 |
| A 6Z16M044SF6005 | A 6Z16M044DF6005 | 44 | 28.5 | 28 | 33 | 5 |
| A 6Z16M044SF6006 | A 6Z16M044DF6006 | 44 | 28.5 | 28 | 33 | 6 |
| A 6Z16M044SF6008 | A 6Z16M044DF6008 | 44 | 28.5 | 28 | 33 | 8 |
| A 6Z16M048SF6005 | A 6Z16M048DF6005 | 48 | 31 | 30.5 | 35 | 5 |
| A 6Z16M048SF6006 | A 6Z16M048DF6006 | 48 | 31 | 30.5 | 35 | 6 |
| A 6Z16M048SF6008 | A 6Z16M048DF6008 | 48 | 31 | 30.5 | 35 | 8 |
| A 6Z16M060SF6006 | A 6Z16M060DF6006 | 60 | 38.8 | 38.3 | 43 | 6 |
| A 6Z16M060SF6008 | A 6Z16M060DF6008 | 60 | 38.8 | 38.3 | 43 | 8 |
| A 6Z16M065SF6006 | A 6Z16M065DF6006 | 65 | 42 | 41.5 | 46 | 6 |
| A 6Z16M065SF6008 | A 6Z16M065DF6008 | 65 | 42 | 41.5 | 46 | 8 |
| A 6Z16M072SF6006 | A 6Z16M072DF6006 | 72 | 46.6 | 46.1 | 51 | 6 |
| A 6Z16M072SF6008 | A 6Z16M072DF6008 | 72 | 46.6 | 46.1 | 51 | 8 |
| A 6Z16M080SF6006 | A 6Z16M080DF6006 | 80 | 51.7 | 51.2 | 56 | 6 |
| A 6Z16M080SF6008 | A 6Z16M080DF6008 | 80 | 51.7 | 51.2 | 56 | 8 |
| A 6Z16M090SF6006 | A 6Z16M090DF6006 | 90 | 58.2 | 57.7 | 63 | 6 |
| A 6Z16M090SF6008 | A 6Z16M090DF6008 | 90 | 58.2 | 57.7 | 63 | 8 |
| A 6Z16M100SF6006 | A 6Z16M100DF6006 | 100 | 64.7 | 64.2 | 69 | 6 |
| A 6Z16M100SF6008 | A 6Z16M100DF6008 | 100 | 64.7 | 64.2 | 69 | 8 |
| A 6Z16M110SF6006 | A 6Z16M110DF6006 | 110 | 71.1 | 70.6 | 75 | 6 |
| A 6Z16M110SF6008 | A 6Z16M110DF6008 | 110 | 71.1 | 70.6 | 75 | 8 |
| A 6Z16M120SF6006 | A 6Z16M120DF6006 | 120 | 77.6 | 77.1 | 82 | 6 |
| A 6Z16M120SF6008 | A 6Z16M120DF6008 | 120 | 77.6 | 77.1 | 82 | 8 |
| A 6Z16M130SF6006 | A 6Z16M130DF6006 | 130 | 84.1 | 83.6 | 88 | 6 |
| A 6Z16M130SF6008 | A 6Z16M130DF6008 | 130 | 84.1 | 83.6 | 88 | 8 |

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FOR 6 mm BELTS

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MOLDED
SINGLE OR DOUBLE FLANGE



MATERIAL:

Polycarbonate, Fiberglass Reinforced

SPECIFICATIONS:

Pulleys with 10 to 40 grooves do not have webs.
Also available with set screw or pinning holes on special order.

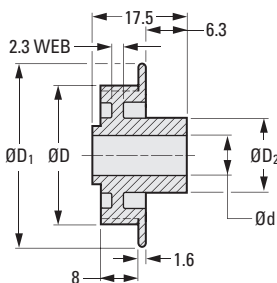


Fig. 1

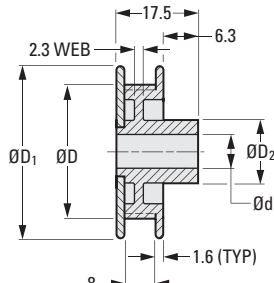


Fig. 2

| METRIC COMPONENT | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 | D ₂ Hub Dia. |
|----------------------|----------------------|----------------|------|--------|---------------------|----------------------|-------------------------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | |
| A 6M16M010SF6003 | A 6M16M010DF6003 | 10 | 6.5 | 6 | 11 | 3 | 11 |
| A 6M16M011SF6003 | A 6M16M011DF6003 | 11 | 7.1 | 6.6 | 12 | 3 | 11 |
| A 6M16M012SF6003 | A 6M16M012DF6003 | 12 | 7.8 | 7.3 | 12 | 3 | 11 |
| A 6M16M014SF6004 | A 6M16M014DF6004 | 14 | 9.1 | 8.6 | 13 | 4 | 11 |
| A 6M16M015SF6004 | A 6M16M015DF6004 | 15 | 9.7 | 9.2 | 14 | 4 | 11 |
| A 6M16M016SF6004 | A 6M16M016DF6004 | 16 | 10.3 | 9.8 | 15 | 4 | 11 |
| A 6M16M018SF6006 | A 6M16M018DF6006 | 18 | 11.6 | 11.1 | 16 | 6 | 13 |
| A 6M16M020SF6006 | A 6M16M020DF6006 | 20 | 12.9 | 12.4 | 17 | 6 | 13 |
| A 6M16M021SF6006 | A 6M16M021DF6006 | 21 | 13.6 | 13.1 | 18 | 6 | 13 |
| A 6M16M022SF6006 | A 6M16M022DF6006 | 22 | 14.2 | 13.7 | 19 | 6 | 13 |
| A 6M16M024SF6006 | A 6M16M024DF6006 | 24 | 15.5 | 15 | 20 | 6 | 13 |
| A 6M16M026SF6008 | A 6M16M026DF6008 | 26 | 16.8 | 16.3 | 21 | 8 | 17.5 |
| A 6M16M028SF6008 | A 6M16M028DF6008 | 28 | 18.1 | 17.6 | 22 | 8 | 17.5 |
| A 6M16M030SF6008 | A 6M16M030DF6008 | 30 | 19.4 | 18.9 | 24 | 8 | 17.5 |
| A 6M16M032SF6008 | A 6M16M032DF6008 | 32 | 20.7 | 20.2 | 25 | 8 | 17.5 |
| A 6M16M036SF6008 | A 6M16M036DF6008 | 36 | 23.3 | 22.8 | 28 | 8 | 17.5 |
| A 6M16M040SF6008 | A 6M16M040DF6008 | 40 | 25.9 | 25.4 | 30 | 8 | 17.5 |
| A 6M16M042SF6008 | A 6M16M042DF6008 | 42 | 27.2 | 26.7 | 31 | 8 | 17.5 |
| A 6M16M044SF6008 | A 6M16M044DF6008 | 44 | 28.5 | 28 | 33 | 8 | 17.5 |
| A 6M16M048SF6008 | A 6M16M048DF6008 | 48 | 31 | 30.5 | 35 | 8 | 17.5 |
| A 6M16M060SF6008 | A 6M16M060DF6008 | 60 | 38.8 | 38.3 | 43 | 8 | 17.5 |
| A 6M16M065SF6008 | A 6M16M065DF6008 | 65 | 42 | 41.5 | 46 | 8 | 17.5 |
| A 6M16M072SF6008 | A 6M16M072DF6008 | 72 | 46.6 | 46.1 | 51 | 8 | 17.5 |
| A 6M16M080SF6008 | A 6M16M080DF6008 | 80 | 51.7 | 51.2 | 56 | 8 | 17.5 |
| A 6M16M090SF6008 | A 6M16M090DF6008 | 90 | 58.2 | 57.7 | 63 | 8 | 17.5 |
| A 6M16M100SF6008 | A 6M16M100DF6008 | 100 | 64.7 | 64.2 | 69 | 8 | 17.5 |
| A 6M16M110SF6008 | A 6M16M110DF6008 | 110 | 71.1 | 70.6 | 75 | 8 | 17.5 |
| A 6M16M120SF6008 | A 6M16M120DF6008 | 120 | 77.6 | 77.1 | 82 | 8 | 17.5 |
| A 6M16M130SF6008 | A 6M16M130DF6008 | 130 | 84.1 | 83.6 | 88 | 8 | 17.5 |

FOR 6 mm BELTS
MOLDED
HUBLESS
SINGLE OR DOUBLE FLANGE

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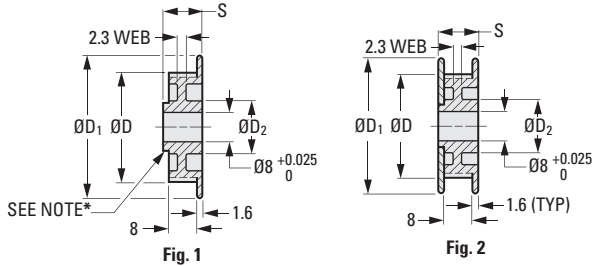


> MATERIAL:

Polycarbonate, Fiberglass Reinforced

> SPECIFICATION:

Pulleys with 18 to 40 grooves do not have webs.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | S Length | D ₂ Dia. |
|-----------------------------|----------------|------|--------|---------------------|----------|---------------------|
| Fig. 1 Single Flange | | | | | | |
| A 6M16M018SF60 | 18 | 11.6 | 11.1 | 16 | 9.6* | – |
| A 6M16M020SF60 | 20 | 12.9 | 12.4 | 17 | 9.6* | – |
| A 6M16M021SF60 | 21 | 13.6 | 13.1 | 18 | 11.2 | – |
| A 6M16M022SF60 | 22 | 14.2 | 13.7 | 19 | 11.2 | – |
| A 6M16M024SF60 | 24 | 15.5 | 15 | 20 | 11.2 | – |
| A 6M16M026SF60 | 26 | 16.8 | 16.3 | 21 | 11.2 | – |
| A 6M16M028SF60 | 28 | 18.1 | 17.6 | 22 | 11.2 | – |
| A 6M16M030SF60 | 30 | 19.4 | 18.9 | 24 | 11.2 | – |
| A 6M16M032SF60 | 32 | 20.7 | 20.2 | 25 | 11.2 | – |
| A 6M16M036SF60 | 36 | 23.3 | 22.8 | 28 | 11.2 | – |
| A 6M16M040SF60 | 40 | 25.9 | 25.4 | 30 | 11.2 | – |
| A 6M16M042SF60 | 42 | 27.2 | 26.7 | 31 | 11.2 | 17.5 |
| A 6M16M044SF60 | 44 | 28.5 | 28 | 33 | 11.2 | 17.5 |
| Fig. 2 Double Flange | | | | | | |
| A 6M16M018DF60 | 18 | 11.6 | 11.1 | 16 | 11.2 | – |
| A 6M16M020DF60 | 20 | 12.9 | 12.4 | 17 | 11.2 | – |
| A 6M16M021DF60 | 21 | 13.6 | 13.1 | 18 | 11.2 | – |
| A 6M16M022DF60 | 22 | 14.2 | 13.7 | 19 | 11.2 | – |
| A 6M16M024DF60 | 24 | 15.5 | 15 | 20 | 11.2 | – |
| A 6M16M026DF60 | 26 | 16.8 | 16.3 | 21 | 11.2 | – |
| A 6M16M028DF60 | 28 | 18.1 | 17.6 | 22 | 11.2 | – |
| A 6M16M030DF60 | 30 | 19.4 | 18.9 | 24 | 11.2 | – |
| A 6M16M032DF60 | 32 | 20.7 | 20.2 | 25 | 11.2 | – |
| A 6M16M036DF60 | 36 | 23.3 | 22.8 | 28 | 11.2 | – |
| A 6M16M040DF60 | 40 | 25.9 | 25.4 | 30 | 11.2 | – |
| A 6M16M042DF60 | 42 | 27.2 | 26.7 | 31 | 11.2 | 17.5 |
| A 6M16M044DF60 | 44 | 28.5 | 28 | 33 | 11.2 | 17.5 |

* No step (see Figure 1)

BELT WIDTHS

INCH - 1/8, 3/16, 1/4, 5/16 & 3/8

METRIC - 3, 4.5, 6 & 8 mm

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> MATERIAL:

Polyurethane Elastomer Reinforced with Polyester Cord

> SPECIFICATIONS:

Breaking Strength:

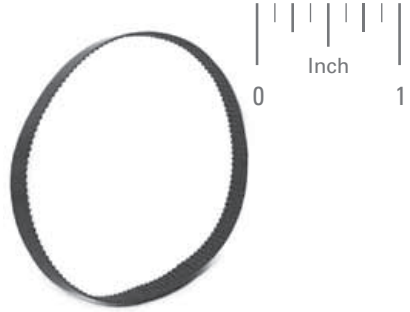
< 151 Grooves - 40 lbs. per 1/8 in. (56 N per 1 mm) Belt Width

≥ 151 Grooves - 80 lbs. per 1/8 in. (112 N per 1 mm) Belt Width

Breaking Strength is not representative of the load-carrying capacity of the belt.

Temperature Range:

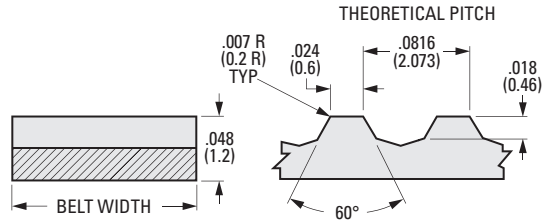
0°F to +150°F (-18°C to +66°C)



> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 R 6 -

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 0120 |
| 3/16 | 0180 |
| 1/4 | 0250 |
| 5/16 | 0310 |

METRIC COMPONENT CATALOG NUMBER

A 6 R 6 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 0300 |
| 4.5 | 0450 |
| 6 | 0600 |
| 8 | 0800 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 030 | 2.448 | 62.18 |
| 033 | 2.693 | 68.4 |
| 035 | 2.856 | 72.54 |
| 040 | 3.264 | 82.91 |
| 044 | 3.590 | 91.2 |
| 045 | 3.672 | 93.27 |
| *048 | 3.917 | 99.49 |
| 050 | 4.080 | 103.63 |
| 051 | 4.162 | 105.71 |
| 052 | 4.243 | 107.78 |
| 053 | 4.325 | 109.85 |
| 055 | 4.488 | 114 |
| 056 | 4.570 | 116.07 |
| 057 | 4.651 | 118.14 |
| 058 | 4.733 | 120.21 |
| 060 | 4.896 | 124.36 |
| 061 | 4.978 | 126.43 |
| 064 | 5.222 | 132.65 |
| 065 | 5.304 | 134.72 |
| *067 | 5.467 | 138.87 |
| 069 | 5.630 | 143.01 |
| 070 | 5.712 | 145.08 |
| 071 | 5.794 | 147.16 |
| 072 | 5.875 | 149.23 |
| 073 | 5.957 | 151.3 |
| 074 | 6.038 | 153.38 |
| 075 | 6.120 | 155.45 |
| 076 | 6.202 | 157.52 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 080 | 6.528 | 165.81 |
| 081 | 6.610 | 167.88 |
| 085 | 6.936 | 176.17 |
| 089 | 7.262 | 184.46 |
| 090 | 7.344 | 186.54 |
| 091 | 7.426 | 188.61 |
| 094 | 7.670 | 194.83 |
| 095 | 7.752 | 196.9 |
| 096 | 7.834 | 198.97 |
| 097 | 7.915 | 201.05 |
| 098 | 7.997 | 203.12 |
| 100 | 8.160 | 207.26 |
| 102 | 8.323 | 211.41 |
| 105 | 8.568 | 217.63 |
| 109 | 8.894 | 225.92 |
| 110 | 8.976 | 227.99 |
| 115 | 9.384 | 238.35 |
| 116 | 9.466 | 240.43 |
| 118 | 9.629 | 244.57 |
| 119 | 9.710 | 246.64 |
| 120 | 9.792 | 248.72 |
| 122 | 9.955 | 252.86 |
| 123 | 10.037 | 254.93 |
| 125 | 10.200 | 259.08 |
| 130 | 10.608 | 269.44 |
| 131 | 10.690 | 271.52 |
| 132 | 10.771 | 273.59 |
| 135 | 11.016 | 279.81 |

* To be discontinued when present stock is depleted.

Continued on the next page



- I
- R
- T
- 1
- 2
- 3
- 4
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- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

INCH COMPONENT CATALOG NUMBER

A 6 R 6 -

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 0120 |
| 3/16 | 0180 |
| 1/4 | 0250 |
| 5/16 | 0310 |

METRIC COMPONENT CATALOG NUMBER

A 6 R 6 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 0300 |
| 4.5 | 0450 |
| 6 | 0600 |
| 8 | 0800 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 139 | 11.342 | 288.1 |
| 140 | 11.424 | 290.17 |
| 143 | 11.669 | 296.39 |
| 144 | 11.750 | 298.46 |
| 145 | 11.832 | 300.53 |
| 147 | 11.995 | 304.68 |
| 149 | 12.158 | 308.82 |
| 150 | 12.240 | 310.9 |
| 151 | 12.322 | 312.97 |
| 152 | 12.403 | 315.04 |
| 153 | 12.485 | 317.11 |
| 154 | 12.566 | 319.19 |
| 155 | 12.648 | 321.26 |
| 159 | 12.974 | 329.55 |
| 160 | 13.056 | 331.62 |
| 162 | 13.219 | 335.77 |
| 163 | 13.301 | 337.84 |
| 165 | 13.464 | 341.99 |
| 170 | 13.872 | 352.35 |
| 175 | 14.280 | 362.71 |
| 178 | 14.525 | 368.93 |
| 180 | 14.688 | 373.08 |
| 185 | 15.096 | 383.44 |
| 190 | 15.504 | 393.8 |
| 192 | 15.667 | 397.95 |
| 193 | 15.749 | 400.02 |
| 195 | 15.912 | 404.16 |
| 200 | 16.320 | 414.53 |
| 205 | 16.728 | 424.89 |
| 208 | 16.973 | 431.11 |
| 210 | 17.136 | 435.25 |
| 214 | 17.462 | 443.54 |
| 215 | 17.544 | 445.62 |
| 220 | 17.952 | 455.98 |
| 225 | 18.360 | 466.34 |
| 230 | 18.768 | 476.71 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 235 | 19.176 | 487.07 |
| 240 | 19.584 | 497.43 |
| 245 | 19.992 | 507.8 |
| 250 | 20.400 | 518.16 |
| 252 | 20.563 | 522.31 |
| 255 | 20.808 | 528.52 |
| 257 | 20.971 | 532.67 |
| 258 | 21.053 | 534.74 |
| 260 | 21.216 | 538.89 |
| 264 | 21.542 | 547.18 |
| 265 | 21.624 | 549.25 |
| 270 | 22.032 | 559.61 |
| 275 | 22.440 | 569.98 |
| 280 | 22.848 | 580.34 |
| 281 | 22.930 | 582.41 |
| 285 | 23.256 | 590.7 |
| 290 | 23.664 | 601.07 |
| 295 | 24.072 | 611.43 |
| 300 | 24.480 | 621.79 |
| 310 | 25.296 | 642.52 |
| 320 | 26.112 | 663.24 |
| 324 | 26.438 | 671.54 |
| 330 | 26.928 | 683.97 |
| 340 | 27.744 | 704.7 |
| 350 | 28.560 | 725.42 |
| 360 | 29.376 | 746.15 |
| 369 | 30.110 | 764.8 |
| 370 | 30.192 | 766.88 |
| 380 | 31.008 | 787.6 |
| 390 | 31.824 | 808.33 |
| 392 | 31.987 | 812.47 |
| 400 | 32.640 | 829.06 |
| 423 | 34.517 | 876.73 |
| *436 | 35.578 | 903.67 |
| 472 | 38.515 | 978.29 |
| 535 | 43.656 | 1108.86 |

* To be discontinued when present stock is depleted.
Continued from the previous page

BELT WIDTHS

INCH - 1/8, 3/16, 1/4, & 5/16

METRIC - 3, 4.5, 6, & 8 mm

> MATERIAL:

Body - Polyurethane

Cord - Polyester Balanced Construction or Kevlar

> SPECIFICATIONS:

Breaking Strength:

Polyester:

< 151 Grooves - 40 lbf per 1/8 in. (56 N per 1 mm) belt width.

≥ 151 Grooves - 80 lbf per 1/8 in. (112 N per 1 mm) belt width.

Kevlar:

< 151 Grooves - 80 lbf per 1/8 in. (112 N per 1 mm) belt width.

≥ 151 Grooves - 130 lbf per 1/8 in. (182 N per 1 mm) belt width.

Breaking Strength is not representative of the load-carrying capacity of the belt.

Temperature Range:

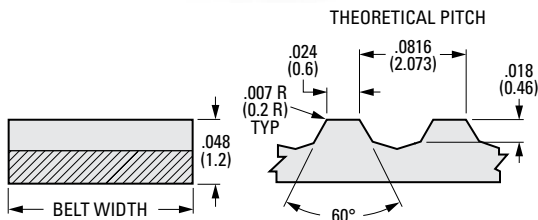
Continuous: 0°F to +180°F (-18°C to +82°C)

Intermittent: up to +250°F (+121°C)

> MODIFICATIONS:

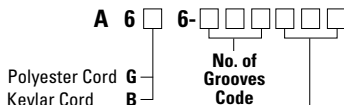
Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



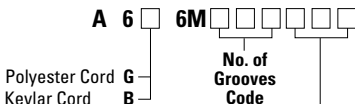
NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER



| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/8 | 012 |
| 3/16 | 018 |
| 1/4 | 025 |
| 5/16 | 031 |

METRIC COMPONENT CATALOG NUMBER



| Belt Width mm | Width Code |
|---------------|------------|
| 3 | 030 |
| 4.5 | 045 |
| 6 | 060 |
| 8 | 080 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 030 | 2.448 | 62.18 |
| 033 | 2.693 | 68.4 |
| 035 | 2.856 | 72.54 |
| 040 | 3.264 | 82.91 |
| 044 | 3.590 | 91.2 |
| 045 | 3.672 | 93.27 |
| 050 | 4.080 | 103.63 |
| 051 | 4.162 | 105.71 |
| 052 | 4.243 | 107.78 |
| 053 | 4.325 | 109.85 |
| 055 | 4.488 | 114 |
| 056 | 4.570 | 116.07 |
| 057 | 4.651 | 118.14 |
| 058 | 4.733 | 120.21 |
| 060 | 4.896 | 124.36 |
| 061 | 4.978 | 126.43 |
| 064 | 5.222 | 132.65 |
| 065 | 5.304 | 134.72 |
| 069 | 5.630 | 143.01 |
| 070 | 5.712 | 145.08 |
| 071 | 5.794 | 147.16 |
| 072 | 5.875 | 149.23 |
| 073 | 5.957 | 151.3 |
| 074 | 6.038 | 153.38 |
| 075 | 6.120 | 155.45 |
| 076 | 6.202 | 157.52 |
| 077 | 6.283 | 159.59 |

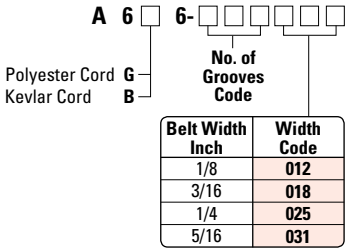
| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| *078 | 6.365 | 161.67 |
| 080 | 6.528 | 165.81 |
| 081 | 6.610 | 167.88 |
| 084 | 6.854 | 174.1 |
| 085 | 6.936 | 176.17 |
| 089 | 7.262 | 184.46 |
| 090 | 7.344 | 186.54 |
| 091 | 7.426 | 188.61 |
| 094 | 7.670 | 194.83 |
| 095 | 7.752 | 196.9 |
| 096 | 7.834 | 198.97 |
| 097 | 7.915 | 201.05 |
| 098 | 7.997 | 203.12 |
| 100 | 8.160 | 207.26 |
| 102 | 8.323 | 211.41 |
| 105 | 8.568 | 217.63 |
| 109 | 8.894 | 225.92 |
| 110 | 8.976 | 227.99 |
| 114 | 9.302 | 236.28 |
| 115 | 9.384 | 238.35 |
| 116 | 9.466 | 240.43 |
| 118 | 9.629 | 244.57 |
| 119 | 9.710 | 246.64 |
| 120 | 9.792 | 248.72 |
| 122 | 9.955 | 252.86 |
| 123 | 10.037 | 254.93 |
| 125 | 10.200 | 259.08 |
| 130 | 10.608 | 269.44 |

* To be discontinued when present stock is depleted.

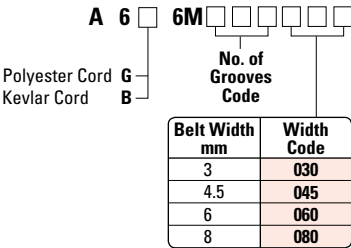
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INCH COMPONENT CATALOG NUMBER



METRIC COMPONENT CATALOG NUMBER



| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 131 | 10.690 | 271.52 |
| 132 | 10.771 | 273.59 |
| 135 | 11.016 | 279.81 |
| 139 | 11.342 | 288.1 |
| 140 | 11.424 | 290.17 |
| 143 | 11.669 | 296.39 |
| 144 | 11.750 | 298.46 |
| 145 | 11.832 | 300.53 |
| 147 | 11.995 | 304.68 |
| 149 | 12.158 | 308.82 |
| 150 | 12.240 | 310.9 |
| 151 | 12.322 | 312.97 |
| 152 | 12.403 | 315.04 |
| 153 | 12.485 | 317.11 |
| 154 | 12.566 | 319.19 |
| 155 | 12.648 | 321.26 |
| 159 | 12.974 | 329.55 |
| 160 | 13.056 | 331.62 |
| 162 | 13.219 | 335.77 |
| 163 | 13.301 | 337.84 |
| 165 | 13.464 | 341.99 |
| 170 | 13.872 | 352.35 |
| 175 | 14.280 | 362.71 |
| 178 | 14.525 | 368.93 |
| 180 | 14.688 | 373.08 |
| 185 | 15.096 | 383.44 |
| 190 | 15.504 | 393.8 |
| 192 | 15.667 | 397.95 |
| 193 | 15.749 | 400.02 |
| 195 | 15.912 | 404.16 |
| 200 | 16.320 | 414.53 |
| 205 | 16.728 | 424.89 |
| 208 | 16.973 | 431.11 |
| 210 | 17.136 | 435.25 |
| 214 | 17.462 | 443.54 |
| 215 | 17.544 | 445.62 |
| 220 | 17.952 | 455.98 |
| 222 | 18.115 | 460.13 |
| 225 | 18.360 | 466.34 |
| 230 | 18.768 | 476.71 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 235 | 19.176 | 487.07 |
| 240 | 19.584 | 497.43 |
| 245 | 19.992 | 507.8 |
| 250 | 20.400 | 518.16 |
| 251 | 20.482 | 520.23 |
| 252 | 20.563 | 522.31 |
| 256 | 20.890 | 530.6 |
| 257 | 20.971 | 532.67 |
| 258 | 21.053 | 534.74 |
| 260 | 21.216 | 538.89 |
| 264 | 21.542 | 547.18 |
| 265 | 21.624 | 549.25 |
| 270 | 22.032 | 559.61 |
| 275 | 22.440 | 569.98 |
| 280 | 22.848 | 580.34 |
| 281 | 22.930 | 582.41 |
| 285 | 23.256 | 590.7 |
| 290 | 23.664 | 601.07 |
| 295 | 24.072 | 611.43 |
| 300 | 24.480 | 621.79 |
| 310 | 25.296 | 642.52 |
| 320 | 26.112 | 663.24 |
| 324 | 26.438 | 671.54 |
| 330 | 26.928 | 683.97 |
| 340 | 27.744 | 704.7 |
| 350 | 28.560 | 725.42 |
| 360 | 29.376 | 746.15 |
| 369 | 30.110 | 764.8 |
| 370 | 30.192 | 766.88 |
| 380 | 31.008 | 787.6 |
| 390 | 31.824 | 808.33 |
| 392 | 31.987 | 812.47 |
| 400 | 32.640 | 829.06 |
| 408 | 33.293 | 845.64 |
| 423 | 34.517 | 876.73 |
| 436 | 35.578 | 903.67 |
| 472 | 38.515 | 978.29 |
| 535 | 43.656 | 1108.86 |

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40 D.P. TIMING BELT PULLEYS • 2.07 mm PITCH

SDP/SI

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

FOR 6 mm BELTS
MOLDED WITH INSERT
DOUBLE FLANGE



0 10

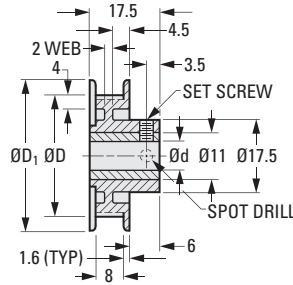


> MATERIAL:

Pulley - Acetal
Insert - Brass, Knurled

> SPECIFICATIONS:

Pulleys with 34 to 38 grooves do not have webs.
 Pulleys with:
 5 & 6 mm bore have M3 set screw & spot drill.
 8 mm bore have M4 set screw & spot drill.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 6M34DF06005 | 34 | 22.5 | 22.1 | 26 | 5 |
| A 6Z 6M34DF06006 | 34 | 22.5 | 22.1 | 26 | 6 |
| A 6Z 6M34DF06008 | 34 | 22.5 | 22.1 | 26 | 8 |
| A 6Z 6M36DF06005 | 36 | 23.8 | 23.4 | 28 | 5 |
| A 6Z 6M36DF06006 | 36 | 23.8 | 23.4 | 28 | 6 |
| A 6Z 6M36DF06008 | 36 | 23.8 | 23.4 | 28 | 8 |
| A 6Z 6M38DF06005 | 38 | 25.1 | 24.7 | 29 | 5 |
| A 6Z 6M38DF06006 | 38 | 25.1 | 24.7 | 29 | 6 |
| A 6Z 6M38DF06008 | 38 | 25.1 | 24.7 | 29 | 8 |
| A 6Z 6M40DF06005 | 40 | 26.4 | 26.1 | 31 | 5 |
| A 6Z 6M40DF06006 | 40 | 26.4 | 26.1 | 31 | 6 |
| A 6Z 6M40DF06008 | 40 | 26.4 | 26.1 | 31 | 8 |
| A 6Z 6M42DF06005 | 42 | 27.7 | 27.4 | 32 | 5 |
| A 6Z 6M42DF06006 | 42 | 27.7 | 27.4 | 32 | 6 |
| A 6Z 6M42DF06008 | 42 | 27.7 | 27.4 | 32 | 8 |
| A 6Z 6M44DF06005 | 44 | 29.1 | 28.7 | 33 | 5 |
| A 6Z 6M44DF06006 | 44 | 29.1 | 28.7 | 33 | 6 |
| A 6Z 6M44DF06008 | 44 | 29.1 | 28.7 | 33 | 8 |
| A 6Z 6M46DF06005 | 46 | 30.4 | 30 | 35 | 5 |
| A 6Z 6M46DF06006 | 46 | 30.4 | 30 | 35 | 6 |
| A 6Z 6M46DF06008 | 46 | 30.4 | 30 | 35 | 8 |
| A 6Z 6M48DF06005 | 48 | 31.7 | 31.3 | 36 | 5 |
| A 6Z 6M48DF06006 | 48 | 31.7 | 31.3 | 36 | 6 |
| A 6Z 6M48DF06008 | 48 | 31.7 | 31.3 | 36 | 8 |
| A 6Z 6M50DF06005 | 50 | 33 | 32.7 | 37 | 5 |
| A 6Z 6M50DF06006 | 50 | 33 | 32.7 | 37 | 6 |
| A 6Z 6M50DF06008 | 50 | 33 | 32.7 | 37 | 8 |
| A 6Z 6M51DF06006 | 51 | 33.7 | 33.3 | 38 | 6 |
| A 6Z 6M51DF06008 | 51 | 33.7 | 33.3 | 38 | 8 |

Continued on the next page

FOR 6 mm BELTS
 MOLDED WITH INSERT
 DOUBLE FLANGE

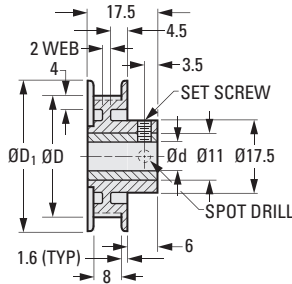
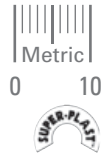
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Pulley - Acetal
- Insert - Brass, Knurled

➤ **SPECIFICATIONS:**

- Pulleys with:
 6 mm bore have M3 set screw & spot drill.
- 8 mm bore have M4 set screw & spot drill.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 6M54DF06006 | 54 | 35.7 | 35.3 | 40 | 6 |
| A 6Z 6M54DF06008 | 54 | 35.7 | 35.3 | 40 | 8 |
| A 6Z 6M60DF06006 | 60 | 39.6 | 39.3 | 44 | 6 |
| A 6Z 6M60DF06008 | 60 | 39.6 | 39.3 | 44 | 8 |
| A 6Z 6M70DF06006 | 70 | 46.2 | 45.9 | 51 | 6 |
| A 6Z 6M70DF06008 | 70 | 46.2 | 45.9 | 51 | 8 |
| A 6Z 6M72DF06006 | 72 | 47.5 | 47.2 | 52 | 6 |
| A 6Z 6M72DF06008 | 72 | 47.5 | 47.2 | 52 | 8 |
| A 6Z 6M75DF06006 | 75 | 49.5 | 49.2 | 54 | 6 |
| A 6Z 6M75DF06008 | 75 | 49.5 | 49.2 | 54 | 8 |
| A 6Z 6M80DF06006 | 80 | 52.8 | 52.5 | 57 | 6 |
| A 6Z 6M80DF06008 | 80 | 52.8 | 52.5 | 57 | 8 |
| A 6Z 6M84DF06006 | 84 | 55.5 | 55.1 | 60 | 6 |
| A 6Z 6M84DF06008 | 84 | 55.5 | 55.1 | 60 | 8 |
| A 6Z 6M90DF06006 | 90 | 59.4 | 59.1 | 64 | 6 |
| A 6Z 6M90DF06008 | 90 | 59.4 | 59.1 | 64 | 8 |
| A 6Z 6M96DF06006 | 96 | 63.4 | 63 | 68 | 6 |
| A 6Z 6M96DF06008 | 96 | 63.4 | 63 | 68 | 8 |
| A 6Z 6M97DF06006 | 97 | 64.1 | 63.7 | 68 | 6 |
| A 6Z 6M97DF06008 | 97 | 64.1 | 63.7 | 68 | 8 |
| A 6Z 6M98DF06006 | 98 | 64.7 | 64.4 | 69 | 6 |
| A 6Z 6M98DF06008 | 98 | 64.7 | 64.4 | 69 | 8 |
| A 6Z 6M99DF06006 | 99 | 65.4 | 65 | 70 | 6 |
| A 6Z 6M99DF06008 | 99 | 65.4 | 65 | 70 | 8 |
| A 6Z61M00DF06006 | 100 | 66 | 65.7 | 70 | 6 |
| A 6Z61M00DF06008 | 100 | 66 | 65.7 | 70 | 8 |
| A 6Z61M02DF06006 | 102 | 67.4 | 67 | 72 | 6 |
| A 6Z61M02DF06008 | 102 | 67.4 | 67 | 72 | 8 |
| A 6Z61M10DF06006 | 110 | 72.6 | 72.3 | 77 | 6 |
| A 6Z61M10DF06008 | 110 | 72.6 | 72.3 | 77 | 8 |
| A 6Z61M20DF06006 | 120 | 79.2 | 78.9 | 86 | 6 |
| A 6Z61M20DF06008 | 120 | 79.2 | 78.9 | 86 | 8 |

Continued from the previous page

40 D.P. TIMING BELT PULLEYS • 2.07 mm PITCH



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

FOR 6 mm BELTS
 MOLDED WITH INSERT
 SINGLE FLANGE



0 10



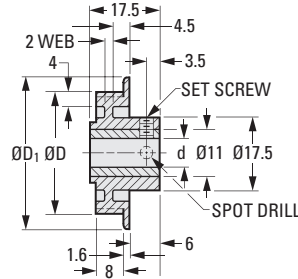
> MATERIAL:

Pulley - Acetal
Insert - Brass, Knurled



> SPECIFICATIONS:

Pulleys with 34 to 38 grooves do not have webs.
 Pulleys with:
 5 & 6 mm bore have M3 set screw & spot drill.
 8 mm bore have M4 set screw & spot drill.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 6M34SF06005 | 34 | 22.5 | 22.1 | 26 | 5 |
| A 6Z 6M34SF06006 | 34 | 22.5 | 22.1 | 26 | 6 |
| A 6Z 6M34SF06008 | 34 | 22.5 | 22.1 | 26 | 8 |
| A 6Z 6M36SF06005 | 36 | 23.8 | 23.4 | 28 | 5 |
| A 6Z 6M36SF06006 | 36 | 23.8 | 23.4 | 28 | 6 |
| A 6Z 6M36SF06008 | 36 | 23.8 | 23.4 | 28 | 8 |
| A 6Z 6M38SF06005 | 38 | 25.1 | 24.7 | 29 | 5 |
| A 6Z 6M38SF06006 | 38 | 25.1 | 24.7 | 29 | 6 |
| A 6Z 6M38SF06008 | 38 | 25.1 | 24.7 | 29 | 8 |
| A 6Z 6M40SF06005 | 40 | 26.4 | 26.1 | 31 | 5 |
| A 6Z 6M40SF06006 | 40 | 26.4 | 26.1 | 31 | 6 |
| A 6Z 6M40SF06008 | 40 | 26.4 | 26.1 | 31 | 8 |
| A 6Z 6M42SF06005 | 42 | 27.7 | 27.4 | 32 | 5 |
| A 6Z 6M42SF06006 | 42 | 27.7 | 27.4 | 32 | 6 |
| A 6Z 6M42SF06008 | 42 | 27.7 | 27.4 | 32 | 8 |
| A 6Z 6M44SF06005 | 44 | 29.1 | 28.7 | 33 | 5 |
| A 6Z 6M44SF06006 | 44 | 29.1 | 28.7 | 33 | 6 |
| A 6Z 6M44SF06008 | 44 | 29.1 | 28.7 | 33 | 8 |
| A 6Z 6M46SF06005 | 46 | 30.4 | 30 | 35 | 5 |
| A 6Z 6M46SF06006 | 46 | 30.4 | 30 | 35 | 6 |
| A 6Z 6M46SF06008 | 46 | 30.4 | 30 | 35 | 8 |
| A 6Z 6M48SF06005 | 48 | 31.7 | 31.3 | 36 | 5 |
| A 6Z 6M48SF06006 | 48 | 31.7 | 31.3 | 36 | 6 |
| A 6Z 6M48SF06008 | 48 | 31.7 | 31.3 | 36 | 8 |
| A 6Z 6M50SF06005 | 50 | 33 | 32.7 | 37 | 5 |
| A 6Z 6M50SF06006 | 50 | 33 | 32.7 | 37 | 6 |
| A 6Z 6M50SF06008 | 50 | 33 | 32.7 | 37 | 8 |
| A 6Z 6M51SF06006 | 51 | 33.7 | 33.3 | 38 | 6 |
| A 6Z 6M51SF06008 | 51 | 33.7 | 33.3 | 38 | 8 |

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FOR 6 mm BELTS
 MOLDED WITH INSERT
 SINGLE FLANGE

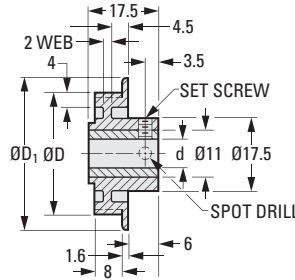
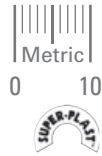
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➤ **MATERIAL:**

- Pulley** - Acetal
- Insert** - Brass, Knurled

➤ **SPECIFICATIONS:**

- Pulleys with:
 6 mm bore have M3 set screw & spot drill.
- 8 mm bore have M4 set screw & spot drill.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 6M54SF06006 | 54 | 35.7 | 35.3 | 40 | 6 |
| A 6Z 6M54SF06008 | 54 | 35.7 | 35.3 | 40 | 8 |
| A 6Z 6M60SF06006 | 60 | 39.6 | 39.3 | 44 | 6 |
| A 6Z 6M60SF06008 | 60 | 39.6 | 39.3 | 44 | 8 |
| A 6Z 6M70SF06006 | 70 | 46.2 | 45.9 | 51 | 6 |
| A 6Z 6M70SF06008 | 70 | 46.2 | 45.9 | 51 | 8 |
| A 6Z 6M72SF06006 | 72 | 47.5 | 47.2 | 52 | 6 |
| A 6Z 6M72SF06008 | 72 | 47.5 | 47.2 | 52 | 8 |
| A 6Z 6M75SF06006 | 75 | 49.5 | 49.2 | 54 | 6 |
| A 6Z 6M75SF06008 | 75 | 49.5 | 49.2 | 54 | 8 |
| A 6Z 6M80SF06006 | 80 | 52.8 | 52.5 | 57 | 6 |
| A 6Z 6M80SF06008 | 80 | 52.8 | 52.5 | 57 | 8 |
| A 6Z 6M84SF06006 | 84 | 55.5 | 55.1 | 60 | 6 |
| A 6Z 6M84SF06008 | 84 | 55.5 | 55.1 | 60 | 8 |
| A 6Z 6M90SF06006 | 90 | 59.4 | 59.1 | 64 | 6 |
| A 6Z 6M90SF06008 | 90 | 59.4 | 59.1 | 64 | 8 |
| A 6Z 6M96SF06006 | 96 | 63.4 | 63 | 68 | 6 |
| A 6Z 6M96SF06008 | 96 | 63.4 | 63 | 68 | 8 |
| A 6Z 6M97SF06006 | 97 | 64.1 | 63.7 | 68 | 6 |
| A 6Z 6M97SF06008 | 97 | 64.1 | 63.7 | 68 | 8 |
| A 6Z 6M98SF06006 | 98 | 64.7 | 64.4 | 69 | 6 |
| A 6Z 6M98SF06008 | 98 | 64.7 | 64.4 | 69 | 8 |
| A 6Z 6M99SF06006 | 99 | 65.4 | 65 | 70 | 6 |
| A 6Z 6M99SF06008 | 99 | 65.4 | 65 | 70 | 8 |
| A 6Z61M00SF06006 | 100 | 66 | 65.7 | 70 | 6 |
| A 6Z61M00SF06008 | 100 | 66 | 65.7 | 70 | 8 |
| A 6Z61M02SF06006 | 102 | 67.4 | 67 | 72 | 6 |
| A 6Z61M02SF06008 | 102 | 67.4 | 67 | 72 | 8 |
| A 6Z61M10SF06006 | 110 | 72.6 | 72.3 | 77 | 6 |
| A 6Z61M10SF06008 | 110 | 72.6 | 72.3 | 77 | 8 |
| A 6Z61M20SF06006 | 120 | 79.2 | 78.9 | 86 | 6 |
| A 6Z61M20SF06008 | 120 | 79.2 | 78.9 | 86 | 8 |

Continued from the previous page

FOR 6 mm BELTS

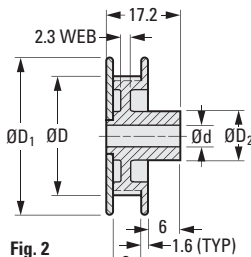
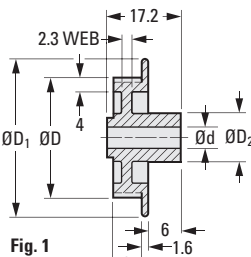
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MOLDED
SINGLE OR DOUBLE FLANGE



➤ **MATERIAL:**
Acetal

➤ **SPECIFICATION:**
Pulleys with 10 to 38 grooves do not have webs.



METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.03 -0.05 | D ₂ Hub Dia. |
|----------------------|----------------------|----------------|------|--------|---------------------|-------------------------|-------------------------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | |
| A 6M 6M10SF06003 | A 6M 6M10DF06003 | 10 | 6.6 | 6.2 | 11 | 3 | 11 |
| A 6M 6M11SF06003 | A 6M 6M11DF06003 | 11 | 7.3 | 6.9 | 12 | 3 | 11 |
| A 6M 6M14SF06004 | A 6M 6M14DF06004 | 14 | 9.2 | 8.9 | 14 | 4 | 11 |
| A 6M 6M15SF06004 | A 6M 6M15DF06004 | 15 | 9.9 | 9.6 | 14 | 4 | 11 |
| A 6M 6M18SF06006 | A 6M 6M18DF06006 | 18 | 11.9 | 11.5 | 16 | 6 | 13 |
| A 6M 6M19SF06006 | A 6M 6M19DF06006 | 19 | 12.5 | 12.2 | 17 | 6 | 13 |
| A 6M 6M20SF06006 | A 6M 6M20DF06006 | 20 | 13.2 | 12.9 | 18 | 6 | 13 |
| A 6M 6M21SF06006 | A 6M 6M21DF06006 | 21 | 13.9 | 13.5 | 19 | 6 | 13 |
| A 6M 6M24SF06006 | A 6M 6M24DF06006 | 24 | 15.8 | 15.5 | 20 | 6 | 13 |
| A 6M 6M25SF06008 | A 6M 6M25DF06008 | 25 | 16.5 | 16.2 | 21 | 8 | 13 |
| A 6M 6M28SF06008 | A 6M 6M28DF06008 | 28 | 18.5 | 18.1 | 23 | 8 | 13 |
| A 6M 6M30SF06008 | A 6M 6M30DF06008 | 30 | 19.8 | 19.5 | 24 | 8 | 13 |
| A 6M 6M32SF06008 | A 6M 6M32DF06008 | 32 | 21.1 | 20.8 | 26 | 8 | 13 |
| A 6M 6M34SF06008 | A 6M 6M34DF06008 | 34 | 22.5 | 22.1 | 26 | 8 | 17.5 |
| A 6M 6M36SF06008 | A 6M 6M36DF06008 | 36 | 23.8 | 23.4 | 28 | 8 | 17.5 |
| A 6M 6M38SF06008 | A 6M 6M38DF06008 | 38 | 25.1 | 24.7 | 29 | 8 | 17.5 |
| A 6M 6M40SF06008 | A 6M 6M40DF06008 | 40 | 26.4 | 26.1 | 31 | 8 | 17.5 |
| A 6M 6M42SF06008 | A 6M 6M42DF06008 | 42 | 27.7 | 27.4 | 32 | 8 | 17.5 |
| A 6M 6M44SF06008 | A 6M 6M44DF06008 | 44 | 29.1 | 28.7 | 33 | 8 | 17.5 |
| A 6M 6M46SF06008 | A 6M 6M46DF06008 | 46 | 30.4 | 30 | 35 | 8 | 17.5 |
| A 6M 6M48SF06008 | A 6M 6M48DF06008 | 48 | 31.7 | 31.3 | 36 | 8 | 17.5 |
| A 6M 6M50SF06008 | A 6M 6M50DF06008 | 50 | 33 | 32.7 | 37 | 8 | 17.5 |
| A 6M 6M51SF06008 | A 6M 6M51DF06008 | 51 | 33.7 | 33.3 | 38 | 8 | 17.5 |
| A 6M 6M54SF06008 | A 6M 6M54DF06008 | 54 | 35.7 | 35.3 | 40 | 8 | 17.5 |
| A 6M 6M60SF06008 | A 6M 6M60DF06008 | 60 | 39.6 | 39.3 | 44 | 8 | 17.5 |
| A 6M 6M70SF06008 | A 6M 6M70DF06008 | 70 | 46.2 | 45.9 | 51 | 8 | 17.5 |
| A 6M 6M72SF06008 | A 6M 6M72DF06008 | 72 | 47.5 | 47.2 | 52 | 8 | 17.5 |
| A 6M 6M75SF06008 | A 6M 6M75DF06008 | 75 | 49.5 | 49.2 | 54 | 8 | 17.5 |
| A 6M 6M80SF06008 | A 6M 6M80DF06008 | 80 | 52.8 | 52.5 | 57 | 8 | 17.5 |
| A 6M 6M84SF06008 | A 6M 6M84DF06008 | 84 | 55.5 | 55.1 | 60 | 8 | 17.5 |
| A 6M 6M90SF06008 | A 6M 6M90DF06008 | 90 | 59.4 | 59.1 | 64 | 8 | 17.5 |
| A 6M 6M96SF06008 | A 6M 6M96DF06008 | 96 | 63.4 | 63 | 68 | 8 | 17.5 |
| A 6M 6M97SF06008 | A 6M 6M97DF06008 | 97 | 64.1 | 63.7 | 68 | 8 | 17.5 |
| A 6M 6M98SF06008 | A 6M 6M98DF06008 | 98 | 64.7 | 64.4 | 69 | 8 | 17.5 |
| A 6M 6M99SF06008 | A 6M 6M99DF06008 | 99 | 65.4 | 65 | 70 | 8 | 17.5 |
| A 6M61M00SF06008 | A 6M61M00DF06008 | 100 | 66 | 65.7 | 70 | 8 | 17.5 |
| A 6M61M02SF06008 | A 6M61M02DF06008 | 102 | 67.4 | 67 | 72 | 8 | 17.5 |
| A 6M61M10SF06008 | A 6M61M10DF06008 | 110 | 72.6 | 72.3 | 77 | 8 | 17.5 |
| A 6M61M20SF06008 | A 6M61M20DF06008 | 120 | 79.2 | 78.9 | 85 | 8 | 17.5 |

BELT WIDTHS

INCH - 1/4, 5/16, 3/8 & 1/2

METRIC - 6, 8, 9.5 & 12.7 mm

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> MATERIAL:

Nylon Covered, Fiberglass Reinforced, Neoprene

> SPECIFICATIONS:

Breaking Strength:

113 lbf per 1/8 in. (158 N per 1 mm) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

28 lbf for 1 in. belt (125 N for 25.4 mm belt).

For more information, see the technical section.

Temperature Range:

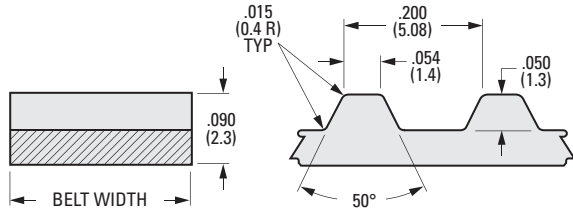
-30°F to +185°F (-34°C to +85°C)



> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 R 3 - [] [] [] [] []

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |
| 1/2 | 050 |

METRIC COMPONENT CATALOG NUMBER

A 6 R 3 M [] [] [] [] []

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |
| 12.7 | 127 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 021 | 4.2 | 106.68 |
| 023 | 4.6 | 116.84 |
| 025 | 5.0 | 127 |
| 027 | 5.4 | 137.16 |
| 028 | 5.6 | 142.24 |
| 029 | 5.8 | 147.32 |
| 030 | 6.0 | 152.4 |
| 031 | 6.2 | 157.48 |
| 032 | 6.4 | 162.56 |
| 033 | 6.6 | 167.64 |
| 034 | 6.8 | 172.72 |
| 035 | 7.0 | 177.8 |
| 036 | 7.2 | 182.88 |
| 037 | 7.4 | 187.96 |
| 038 | 7.6 | 193.04 |
| 039 | 7.8 | 198.12 |
| 040 | 8.0 | 203.2 |
| 041 | 8.2 | 208.28 |
| 042 | 8.4 | 213.36 |
| 043 | 8.6 | 218.44 |
| 044 | 8.8 | 223.52 |
| 045 | 9.0 | 228.6 |
| 046 | 9.2 | 233.68 |
| 047 | 9.4 | 238.76 |
| 048 | 9.6 | 243.84 |
| 049 | 9.8 | 248.92 |
| 050 | 10.0 | 254 |
| 051 | 10.2 | 259.08 |
| 052 | 10.4 | 264.16 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 053 | 10.6 | 269.24 |
| 054 | 10.8 | 274.32 |
| 055 | 11.0 | 279.4 |
| 056 | 11.2 | 284.48 |
| 057 | 11.4 | 289.56 |
| 058 | 11.6 | 294.64 |
| 059 | 11.8 | 299.72 |
| 060 | 12.0 | 304.8 |
| 061 | 12.2 | 309.88 |
| 062 | 12.4 | 314.96 |
| 063 | 12.6 | 320.04 |
| 064 | 12.8 | 325.12 |
| 065 | 13.0 | 330.2 |
| 066 | 13.2 | 335.28 |
| 067 | 13.4 | 340.36 |
| 068 | 13.6 | 345.44 |
| 069 | 13.8 | 350.52 |
| 070 | 14.0 | 355.6 |
| 071 | 14.2 | 360.68 |
| 072 | 14.4 | 365.76 |
| 073 | 14.6 | 370.84 |
| 074 | 14.8 | 375.92 |
| 075 | 15.0 | 381 |
| 076 | 15.2 | 386.08 |
| 077 | 15.4 | 391.16 |
| 078 | 15.6 | 396.24 |
| 079 | 15.8 | 401.32 |
| 080 | 16.0 | 406.4 |
| 081 | 16.2 | 411.48 |

Continued on the next page



| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 082 | 16.4 | 416.56 |
| 083 | 16.6 | 421.64 |
| 084 | 16.8 | 426.72 |
| 085 | 17.0 | 431.8 |
| 086 | 17.2 | 436.88 |
| 087 | 17.4 | 441.96 |
| 088 | 17.6 | 447.04 |
| 089 | 17.8 | 452.12 |
| 090 | 18.0 | 457.24 |
| 091 | 18.2 | 462.28 |
| 092 | 18.4 | 467.36 |
| 093 | 18.6 | 472.44 |
| 094 | 18.8 | 477.52 |
| 095 | 19.0 | 482.6 |
| 096 | 19.2 | 487.68 |
| 097 | 19.4 | 492.76 |
| 098 | 19.6 | 497.84 |
| 099 | 19.8 | 502.92 |
| 100 | 20.0 | 508 |
| 101 | 20.2 | 513.08 |
| 102 | 20.4 | 518.16 |
| 103 | 20.6 | 523.24 |
| 104 | 20.8 | 528.32 |
| 105 | 21.0 | 533.4 |
| 106 | 21.2 | 538.48 |
| 107 | 21.4 | 543.56 |
| 109 | 21.8 | 553.72 |
| 110 | 22.0 | 558.8 |
| 111 | 22.2 | 563.88 |
| 112 | 22.4 | 568.96 |
| 113 | 22.6 | 574.04 |
| 114 | 22.8 | 579.12 |
| 115 | 23.0 | 584.2 |
| 116 | 23.2 | 589.28 |
| 117 | 23.4 | 594.36 |
| 118 | 23.6 | 599.44 |
| 120 | 24.0 | 609.6 |
| 121 | 24.2 | 614.68 |
| 122 | 24.4 | 619.76 |
| 123 | 24.6 | 624.84 |
| 124 | 24.8 | 629.92 |
| 125 | 25.0 | 635 |
| 127 | 25.4 | 645.16 |
| 128 | 25.6 | 650.24 |
| 129 | 25.8 | 655.32 |
| 130 | 26.0 | 660.4 |
| 131 | 26.2 | 665.48 |
| 132 | 26.4 | 670.56 |
| 133 | 26.6 | 675.64 |
| 134 | 26.8 | 680.72 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 135 | 27.0 | 685.8 |
| 136 | 27.2 | 690.88 |
| 137 | 27.4 | 695.96 |
| 138 | 27.6 | 701.04 |
| 140 | 28.0 | 711.2 |
| 142 | 28.4 | 721.36 |
| 143 | 28.6 | 726.44 |
| 145 | 29.0 | 736.6 |
| 146 | 29.2 | 741.68 |
| 148 | 29.6 | 751.84 |
| 150 | 30.0 | 762 |
| 151 | 30.2 | 767.08 |
| 153 | 30.6 | 777.24 |
| 155 | 31.0 | 787.4 |
| 157 | 31.4 | 797.56 |
| 158 | 31.6 | 802.64 |
| 160 | 32.0 | 812.8 |
| 161 | 32.2 | 817.88 |
| 165 | 33.0 | 838.2 |
| 166 | 33.2 | 843.28 |
| 169 | 33.8 | 858.52 |
| 170 | 34.0 | 863.6 |
| 172 | 34.4 | 873.76 |
| 174 | 34.8 | 883.92 |
| 175 | 35.0 | 889 |
| 176 | 35.2 | 894.08 |
| 178 | 35.6 | 904.24 |
| 180 | 36.0 | 914.4 |
| 181 | 36.2 | 919.48 |
| 182 | 36.4 | 924.56 |
| 185 | 37.0 | 939.8 |
| 186 | 37.2 | 944.88 |
| 188 | 37.6 | 955.04 |
| 190 | 38.0 | 965.2 |
| 191 | 38.2 | 970.28 |
| 192 | 38.4 | 975.36 |
| 193 | 38.6 | 980.44 |
| 194 | 38.8 | 985.52 |
| 195 | 39.0 | 990.6 |
| 196 | 39.2 | 995.68 |
| 198 | 39.6 | 1005.84 |
| 200 | 40.0 | 1016 |
| 202 | 40.4 | 1026.16 |
| 204 | 40.8 | 1036.32 |
| 206 | 41.2 | 1046.48 |
| 207 | 41.4 | 1051.56 |
| 210 | 42.0 | 1066.8 |
| 212 | 42.4 | 1076.96 |
| 215 | 43.0 | 1092.2 |
| 216 | 43.2 | 1097.28 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 217 | 43.4 | 1102.36 |
| 219 | 43.8 | 1112.52 |
| 222 | 44.4 | 1127.76 |
| 225 | 45.0 | 1143 |
| 227 | 45.4 | 1153.16 |
| 228 | 45.6 | 1158.24 |
| 230 | 46.0 | 1168.4 |
| 234 | 46.8 | 1188.72 |
| 235 | 47.0 | 1193.8 |
| 240 | 48.0 | 1219.2 |
| 243 | 48.6 | 1234.44 |
| 245 | 49.0 | 1244.6 |
| 246 | 49.2 | 1249.68 |
| 249 | 49.8 | 1264.92 |
| 250 | 50.0 | 1270 |
| 253 | 50.6 | 1285.24 |
| * 254 | 50.8 | 1290.32 |
| 257 | 51.4 | 1305.56 |
| 261 | 52.2 | 1325.88 |
| 262 | 52.4 | 1330.96 |
| 266 | 53.2 | 1351.28 |
| 270 | 54.0 | 1371.6 |
| * 274 | 54.8 | 1391.92 |
| 277 | 55.4 | 1407.16 |
| 280 | 56.0 | 1422.4 |
| 282 | 56.4 | 1432.56 |
| 283 | 56.6 | 1437.64 |
| 285 | 57.0 | 1447.8 |
| 290 | 58.0 | 1473.2 |
| 296 | 59.2 | 1503.68 |
| 304 | 60.8 | 1544.32 |
| 306 | 61.2 | 1554.48 |
| 315 | 63.0 | 1600.2 |
| 331 | 66.2 | 1681.48 |
| 335 | 67.0 | 1701.8 |
| 336 | 67.2 | 1706.88 |
| 345 | 69.0 | 1752.6 |
| 368 | 73.6 | 1869.44 |
| 380 | 76.0 | 1930.4 |
| 384 | 76.8 | 1950.72 |
| 385 | 77.0 | 1955.8 |
| 405 | 81.0 | 2057.4 |
| 414 | 82.8 | 2103.12 |
| 425 | 85.0 | 2159 |
| 430 | 86.0 | 2184.4 |
| 444 | 88.8 | 2255.52 |
| 450 | 90.0 | 2286 |
| 510 | 102.0 | 2590.8 |
| 590 | 118.0 | 2997.2 |

* To be discontinued when present stock is depleted.

Continued from the previous page

BELT WIDTHS
 INCH - 1/4, 5/16 & 3/8
 METRIC - 6, 8 & 9.5 mm
 NON-MARKING
 LOW DUST
 RoHS COMPLIANT
 PowerGrip® TruMotion®



➤ MATERIAL:

Cream-Colored Polymer Compound, Fiberglass
 Reinforced Body with Nylon Tooth Facing for Reduced Dust.

➤ SPECIFICATIONS:

Breaking Strength:
 113 lbs. per 1/8 in. (158 N per 1 mm) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:
 23 lbs. for 1 in. belt (102 N for 25.4 mm Belt)

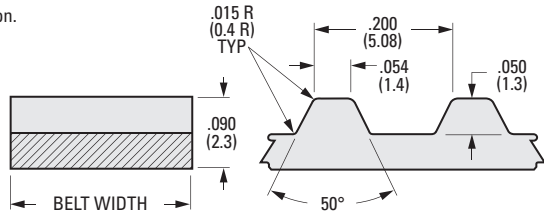
For more information, see the technical section.

Temperature Range:
 -40°F to +220°F (-40°C to +104°C)

➤ MODIFICATIONS:

Special Widths - cut to size from
 sleeves available from stock.

Pulleys are available with inch
 or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 2 6 R 3 - [] [] [] [] []

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |

METRIC COMPONENT CATALOG NUMBER

A 2 6 R 3 M [] [] [] [] []

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 021 | 4.2 | 106.68 |
| 025 | 5.0 | 127 |
| 027 | 5.4 | 137.16 |
| 028 | 5.6 | 142.24 |
| 029 | 5.8 | 147.32 |
| 030 | 6.0 | 152.4 |
| 031 | 6.2 | 157.48 |
| 032 | 6.4 | 162.56 |
| 033 | 6.6 | 167.64 |
| 034 | 6.8 | 172.72 |
| 035 | 7.0 | 177.8 |
| 036 | 7.2 | 182.88 |
| 037 | 7.4 | 187.96 |
| 038 | 7.6 | 193.04 |
| 039 | 7.8 | 198.12 |
| 040 | 8.0 | 203.2 |
| 041 | 8.2 | 208.28 |
| 042 | 8.4 | 213.36 |
| 043 | 8.6 | 218.44 |
| 044 | 8.8 | 223.52 |
| 045 | 9.0 | 228.6 |
| 046 | 9.2 | 233.68 |
| 047 | 9.4 | 238.76 |
| 048 | 9.6 | 243.84 |
| 049 | 9.8 | 248.92 |
| 050 | 10.0 | 254 |
| 051 | 10.2 | 259.08 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 053 | 10.6 | 269.24 |
| 054 | 10.8 | 274.32 |
| 055 | 11.0 | 279.4 |
| 056 | 11.2 | 284.48 |
| 057 | 11.4 | 289.56 |
| 058 | 11.6 | 294.64 |
| 060 | 12.0 | 304.8 |
| 061 | 12.2 | 309.88 |
| 062 | 12.4 | 314.96 |
| 063 | 12.6 | 320.04 |
| 064 | 12.8 | 325.12 |
| 065 | 13.0 | 330.2 |
| 066 | 13.2 | 335.28 |
| 067 | 13.4 | 340.36 |
| 068 | 13.6 | 345.44 |
| 069 | 13.8 | 350.52 |
| 070 | 14.0 | 355.6 |
| 071 | 14.2 | 360.68 |
| 072 | 14.4 | 365.76 |
| 073 | 14.6 | 370.84 |
| 074 | 14.8 | 375.92 |
| 075 | 15.0 | 381 |
| 076 | 15.2 | 386.08 |
| 077 | 15.4 | 391.16 |
| 078 | 15.6 | 396.24 |
| 079 | 15.8 | 401.32 |
| 080 | 16.0 | 406.4 |

Continued on the next page

I
R
T
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A



2

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 081 | 16.2 | 411.48 |
| 082 | 16.4 | 416.56 |
| 083 | 16.6 | 421.64 |
| 084 | 16.8 | 426.72 |
| 085 | 17.0 | 431.8 |
| 086 | 17.2 | 436.88 |
| 087 | 17.4 | 441.96 |
| 088 | 17.6 | 447.04 |
| 089 | 17.8 | 452.12 |
| 090 | 18.0 | 457.2 |
| 091 | 18.2 | 462.28 |
| 092 | 18.4 | 467.36 |
| 093 | 18.6 | 472.44 |
| 094 | 18.8 | 477.52 |
| 095 | 19.0 | 482.6 |
| 096 | 19.2 | 487.68 |
| 097 | 19.4 | 492.76 |
| 100 | 20.0 | 508 |
| 101 | 20.2 | 513.08 |
| 102 | 20.4 | 518.16 |
| 103 | 20.6 | 523.24 |
| 105 | 21.0 | 533.4 |
| 106 | 21.2 | 538.48 |
| 107 | 21.4 | 543.56 |
| 109 | 21.8 | 553.72 |
| 110 | 22.0 | 558.8 |
| 111 | 22.2 | 563.88 |
| 113 | 22.6 | 574.04 |
| 114 | 22.8 | 579.12 |
| 115 | 23.0 | 584.2 |
| 116 | 23.2 | 589.28 |
| 117 | 23.4 | 594.36 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 118 | 23.6 | 599.44 |
| 120 | 24.0 | 609.6 |
| 122 | 24.4 | 619.76 |
| 123 | 24.6 | 624.84 |
| 125 | 25.0 | 635 |
| 127 | 25.4 | 645.16 |
| 129 | 25.8 | 655.32 |
| 130 | 26.0 | 660.4 |
| 131 | 26.2 | 665.48 |
| 132 | 26.4 | 670.56 |
| 133 | 26.6 | 675.64 |
| 134 | 26.8 | 680.72 |
| 137 | 27.4 | 695.96 |
| 140 | 28.0 | 711.2 |
| 143 | 28.6 | 726.44 |
| 145 | 29.0 | 736.6 |
| 148 | 29.6 | 751.84 |
| 150 | 30.0 | 762 |
| 153 | 30.6 | 777.24 |
| 155 | 31.0 | 787.4 |
| 158 | 31.6 | 802.64 |
| 160 | 32.0 | 812.8 |
| 161 | 32.2 | 817.88 |
| 165 | 33.0 | 838.2 |
| 169 | 33.8 | 858.52 |
| 170 | 34.0 | 863.6 |
| 172 | 34.4 | 873.76 |
| 174 | 34.8 | 883.92 |
| 175 | 35.0 | 889 |
| 176 | 35.2 | 894.08 |
| 181 | 36.2 | 919.48 |
| 185 | 37.0 | 939.8 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 190 | 38.0 | 965.2 |
| 192 | 38.4 | 975.36 |
| 195 | 39.0 | 990.6 |
| 200 | 40.0 | 1016 |
| 206 | 41.2 | 1046.48 |
| 210 | 42.0 | 1066.8 |
| 212 | 42.4 | 1076.96 |
| 216 | 43.2 | 1097.28 |
| 219 | 43.8 | 1112.52 |
| 222 | 44.4 | 1127.76 |
| 225 | 45.0 | 1143 |
| 227 | 45.4 | 1153.16 |
| 230 | 46.0 | 1168.4 |
| 234 | 46.8 | 1188.72 |
| 240 | 48.0 | 1219.2 |
| 243 | 48.6 | 1234.44 |
| 246 | 49.2 | 1249.68 |
| 249 | 49.8 | 1264.92 |
| 250 | 50.0 | 1270 |
| 253 | 50.6 | 1285.24 |
| 262 | 52.4 | 1330.96 |
| 277 | 55.4 | 1407.16 |
| 285 | 57.0 | 1447.8 |
| 290 | 58.0 | 1473.2 |
| 296 | 59.2 | 1503.68 |
| 306 | 61.2 | 1554.48 |
| 315 | 63.0 | 1600.2 |
| 336 | 67.2 | 1706.88 |
| 345 | 69.0 | 1752.6 |
| 385 | 77.0 | 1955.8 |
| 425 | 85.0 | 2159 |

Continued from the previous page

XL DOUBLE-SIDED BELTS • 1/5" OR 5.08 mm PITCH



BELT WIDTHS

INCH - 1/4, 5/16, 3/8 & 1/2
 METRIC - 6, 8, 9.5 & 12.7 mm

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Body - Polyurethane
Cord - Kevlar

> SPECIFICATIONS:

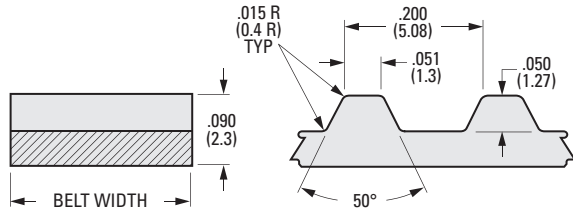
Breaking Strength:
 130 lbf per 1/8 in. (182 N per 1 mm) Belt Width;
 not representative of the load-carrying capacity of the belt.
Temperature Range:
Continuous: -30°F to +180°F (-34°C to +82°C)
Intermittent: up to +250°F (+121°C)



> MODIFICATIONS:

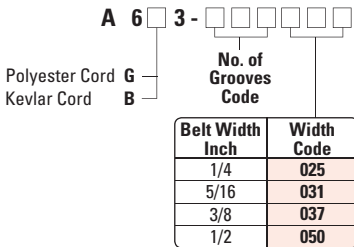
Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.

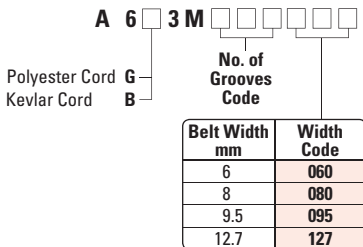


NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER



METRIC COMPONENT CATALOG NUMBER



| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | Inch | mm |
| 020 | 4.0 | 101.6 |
| 025 | 5.0 | 127 |
| 030 | 6.0 | 152.4 |
| 034 | 6.8 | 172.7 |
| 035 | 7.0 | 177.8 |
| 040 | 8.0 | 203.2 |
| 041 | 8.2 | 208.3 |
| 042 | 8.4 | 213.4 |
| 045 | 9.0 | 228.6 |
| 047 | 9.4 | 238.8 |
| 048 | 9.6 | 243.8 |
| 050 | 10.0 | 254 |
| 052 | 10.4 | 264.2 |
| 055 | 11.0 | 279.4 |
| 060 | 12.0 | 304.8 |
| 065 | 13.0 | 330.2 |
| 070 | 14.0 | 355.6 |
| 072 | 14.4 | 365.8 |
| 075 | 15.0 | 381 |
| 078 | 15.6 | 396.2 |
| 080 | 16.0 | 406.4 |
| 083 | 16.6 | 421.6 |
| 085 | 17.0 | 431.8 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 086 | 17.2 | 436.9 |
| 088 | 17.6 | 447 |
| 090 | 18.0 | 457.2 |
| 095 | 19.0 | 482.6 |
| 100 | 20.0 | 508 |
| 105 | 21.0 | 533.4 |
| 110 | 22.0 | 558.8 |
| 115 | 23.0 | 584.2 |
| 120 | 24.0 | 609.6 |
| 125 | 25.0 | 635 |
| 130 | 26.0 | 660.4 |
| 135 | 27.0 | 685.8 |
| 140 | 28.0 | 711.2 |
| 145 | 29.0 | 736.6 |
| 150 | 30.0 | 762 |
| 165 | 33.0 | 838.2 |
| 170 | 34.0 | 863.6 |
| 172 | 34.4 | 873.7 |
| 175 | 35.0 | 889 |
| 180 | 36.0 | 914.4 |
| 230 | 46.0 | 1168.4 |
| 240 | 48.0 | 1219.2 |

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XL DOUBLE-SIDED BELTS • 1/5" OR 5.08 mm PITCH



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

BELT WIDTHS

INCH - 1/4, 5/16, 3/8 & 1/2
 METRIC - 6, 8, 9.5 & 12.7 mm



> MATERIAL:

Nylon Covered, Fiberglass Reinforced, Neoprene

> SPECIFICATIONS:

Breaking Strength:

113 lbf per 1/8 in. (158 N per 1 mm) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:

28 lbf for 1 in. belt (125 N for 25.4 mm belt).
 For more information, see the technical section.

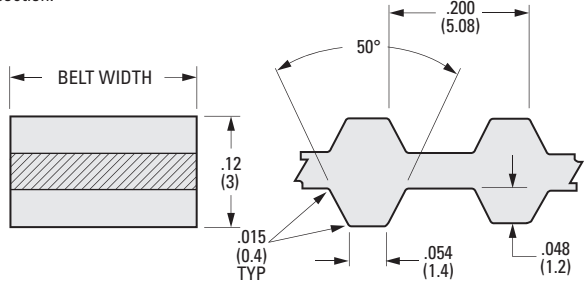
Temperature Range:

30°F to +185°F (-34°C to +85°C)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 R 3 - D

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |
| 1/2 | 050 |

METRIC COMPONENT CATALOG NUMBER

A 6 R 3 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |
| 12.7 | 127 |

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | Inch | mm |
| 030 | 6.0 | 152.4 |
| 035 | 7.0 | 177.8 |
| 040 | 8.0 | 203.2 |
| 045 | 9.0 | 228.6 |
| 050 | 10.0 | 254 |
| 055 | 11.0 | 279.4 |
| 060 | 12.0 | 304.8 |
| 065 | 13.0 | 330.2 |
| 070 | 14.0 | 355.6 |
| 075 | 15.0 | 381 |
| 080 | 16.0 | 406.4 |
| 085 | 17.0 | 431.8 |
| 090 | 18.0 | 457.2 |
| 095 | 19.0 | 482.6 |
| 100 | 20.0 | 508 |
| 105 | 21.0 | 533.4 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 110 | 22.0 | 558.8 |
| 115 | 23.0 | 584.2 |
| 120 | 24.0 | 609.6 |
| 125 | 25.0 | 635 |
| 130 | 26.0 | 660.4 |
| 140 | 28.0 | 711.2 |
| 145 | 29.0 | 736.6 |
| 150 | 30.0 | 762 |
| 155 | 31.0 | 787.4 |
| 165 | 33.0 | 838.2 |
| 181 | 36.2 | 919.48 |
| 195 | 39.0 | 990.6 |
| 196 | 39.2 | 995.68 |
| 225 | 45.0 | 1143 |
| 246 | 49.2 | 1249.68 |
| 345 | 69.0 | 1752.6 |



XL DOUBLE-SIDED BELTS • 1/5" OR 5.08 mm PITCH

SDP/SI

BELT WIDTHS

INCH - 1/4, 5/16, 3/8 & 1/2
 METRIC - 6, 8, 9.5 & 12.7 mm

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Body - Polyurethane
Cord - Kevlar

> SPECIFICATIONS:

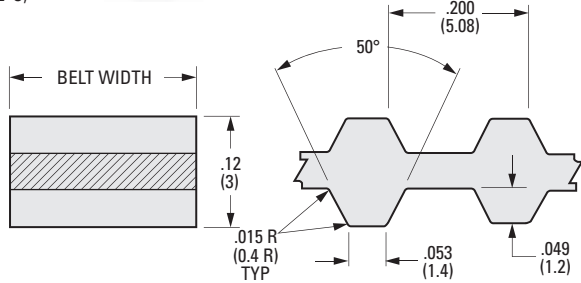
Breaking Strength:
 130 lbf per 1/8 in. (182 N per 1 mm) Belt Width;
 not representative of the load-carrying capacity of the belt.
Temperature Range:
Continuous: -30°F to +180°F (-34°C to +82°C)
Intermittent: up to +250°F (+121°C)



> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 B 3 - D

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/4 | 025 |
| 5/16 | 031 |
| 3/8 | 037 |
| 1/2 | 050 |

METRIC COMPONENT CATALOG NUMBER

A 6 B 3 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 | 060 |
| 8 | 080 |
| 9.5 | 095 |
| 12.7 | 127 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 070 | 14.0 | 355.6 |
| 073 | 14.6 | 370.84 |
| 075 | 15.0 | 381 |
| 083 | 16.6 | 421.64 |
| 085 | 17.0 | 431.8 |
| 090 | 18.0 | 457.2 |
| 095 | 19.0 | 482.6 |
| 100 | 20.0 | 508 |
| 105 | 21.0 | 533.4 |
| 110 | 22.0 | 558.8 |
| 115 | 23.0 | 584.2 |
| 120 | 24.0 | 609.6 |
| 135 | 27.0 | 685.8 |
| 145 | 29.0 | 736.6 |
| 160 | 32.0 | 812.8 |
| 188 | 37.6 | 955.04 |
| 200 | 40.0 | 1016 |
| 215 | 43.0 | 1092.2 |
| 245 | 49.0 | 1244.6 |



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XL PULLEY FLANGES • 5.08 mm OR 1/5" PITCH

SDP/SI

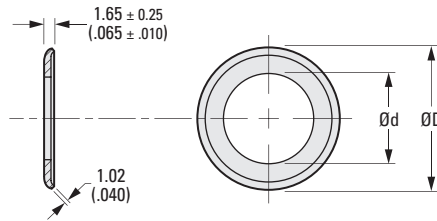
> MATERIAL:

Aluminum Alloy or Steel

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> SPECIFICATION:

Priced per 25 pieces



METRIC COMPONENT

| Catalog Number | | Pulley Grooves Ref. | Metric | | Inch | |
|----------------|--------------|---------------------|---------------|--------------|---------------|---------------|
| Aluminum Alloy | Steel | | d Dia. ± 0.08 | D Dia. ± 0.4 | d Dia. ± .003 | D Dia. ± .015 |
| A 6A 2M10FA | A 6C 2M10FS | 10 | 12.78 | 22.2 | .503 | 7/8 |
| A 6A 2M11FA | A 6C 2M11FS | 11 | 14.27 | 23.8 | .562 | 15/16 |
| A 6A 2M12FA | A 6C 2M12FS | 12 | | 25.4 | | 1 |
| A 6A 2M13FA | A 6C 2M13FS | 13 | 15.88 | 27 | .625 | 1-1/16 |
| A 6A 2M14FA | A 6C 2M14FS | 14 | 17.37 | 27.8 | .684 | 1-3/32 |
| A 6A 2M15FA | A 6C 2M15FS | 15 | 19 | 30.2 | .748 | 1-3/16 |
| A 6A 2M15FAX | A 6C 2M15FSX | | 20.67 | | .814 | 1-3/16 |
| A 6A 2M16FA | A 6C 2M16FS | 16 | 20.58 | 31.8 | .810 | 1-1/4 |
| A 6A 2M17FA | A 6C 2M17FS | 17 | 22.53 | 33.3 | .887 | 1-5/16 |
| A 6A 2M18FA | A 6C 2M18FS | 18 | 23.77 | 34.9 | .936 | 1-3/8 |
| A 6A 2M19FA | A 6C 2M19FS | 19 | 25.4 | 36.5 | 1.000 | 1-7/16 |
| A 6A 2M20FA | A 6C 2M20FS | 20 | 26.97 | 38.1 | 1.062 | 1-1/2 |
| A 6A 2M21FA | A 6C 2M21FS | 21 | 28.58 | 39.7 | 1.125 | 1-9/16 |
| A 6A 2M22FA | A 6C 2M22FS | 22 | 29.46 | 41.3 | 1.160 | 1-5/8 |
| A 6A 2M23FA | A 6C 2M23FS | 23 | 31.04 | 42.8 | 1.222 | 1-11/16 |
| A 6A 2M24FA | A 6C 2M24FS | 24 | | 44.5 | | 1-3/4 |
| A 6A 2M25FA | A 6C 2M25FS | 25 | 31.75 | 46 | 1.250 | 1-13/16 |
| A 6A 2M26FA | A 6C 2M26FS | 26 | 34.21 | 47.6 | 1.347 | 1-7/8 |
| A 6A 2M28FA | A 6C 2M28FS | 28 | 36.2 | 50.8 | 1.425 | 2 |
| A 6A 2M30FA | A 6C 2M30FS | 30 | 39.37 | 54 | 1.550 | 2-1/8 |
| A 6A 2M32FA | A 6C 2M32FS | 32 | 42.55 | 57.2 | 1.675 | 2-1/4 |

NOTE: Dimensions in () are in inch.

REV: 4.26.13 JC

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> MATERIAL:

Aluminum Alloy

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> SPECIFICATIONS:

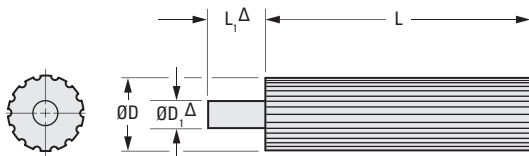
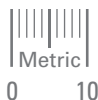
D Tolerance:

8 to 16 grooves is +0.05/0 (+.002/-.000)

17 to 31 grooves is +0.08/0 (+.003/-.000)

32 to 62 grooves is +0.10/0 (+.004/-.000)

72 & 80 grooves is +0.13/0 (+.005/-.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|----------------------------|-----------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A 2M08XL15 | 8 | 12.9 | 12.43 | .509 | .489 | 12.7 (1/2) | 22.3 (7/8) | 152.4 (6") |
| A 6A 2M10XL15 | 10 | 16.2 | 15.66 | .637 | .617 | [11.1 (7/16)] ^Δ | | |
| A 6A 2M11XL15 | 11 | 17.8 | 17.28 | .700 | .680 | 12.7 (1/2) | 25.4 (1") | 203.2 (8") |
| A 6A 2M12XL20 | 12 | 19.4 | 18.9 | .764 | .744 | | | |
| A 6A 2M13XL20 | 13 | 21 | 20.51 | .828 | .808 | | | |
| A 6A 2M14XL20 | 14 | 22.6 | 22.13 | .891 | .871 | | | |
| A 6A 2M15XL20 | 15 | 24.3 | 23.75 | .955 | .935 | | | |
| A 6A 2M16XL20 | 16 | 25.9 | 25.36 | 1.019 | .999 | | | |
| A 6A 2M17XL20 | 17 | 27.5 | 26.98 | 1.082 | 1.062 | | | |
| A 6A 2M18XL20 | 18 | 29.1 | 28.6 | 1.146 | 1.126 | | | |
| A 6A 2M19XL20 | 19 | 30.7 | 30.22 | 1.210 | 1.190 | | | |
| A 6A 2M20XL20 | 20 | 32.3 | 31.83 | 1.273 | 1.253 | | | |
| A 6A 2M21XL20 | 21 | 34 | 33.45 | 1.337 | 1.317 | | | |
| A 6A 2M22XL20 | 22 | 35.6 | 35.07 | 1.401 | 1.381 | | | |
| A 6A 2M23XL20 | 23 | 37.2 | 36.68 | 1.464 | 1.444 | | | |
| A 6A 2M24XL20 | 24 | 38.8 | 38.3 | 1.528 | 1.508 | | | |
| A 6A 2M25XL20 | 25 | 40.4 | 39.92 | 1.592 | 1.572 | | | |
| A 6A 2M26XL20 | 26 | 42 | 41.53 | 1.655 | 1.635 | | | |
| A 6A 2M27XL20 | 27 | 43.7 | 43.15 | 1.719 | 1.699 | | | |
| A 6A 2M28XL20 | 28 | 45.3 | 44.77 | 1.783 | 1.763 | | | |
| A 6A 2M29XL20 | 29 | 46.9 | 46.39 | 1.846 | 1.826 | | | |
| A 6A 2M30XL20 | 30 | 48.5 | 48 | 1.910 | 1.890 | | | |
| A 6A 2M31XL20 | 31 | 50.1 | 49.62 | 1.974 | 1.954 | | | |
| A 6A 2M32XL20 | 32 | 51.7 | 51.24 | 2.037 | 2.017 | | | |
| A 6A 2M33XL20 | 33 | 53.4 | 52.85 | 2.101 | 2.081 | | | |
| A 6A 2M34XL20 | 34 | 55 | 54.47 | 2.165 | 2.145 | | | |
| A 6A 2M35XL20 | 35 | 56.6 | 56.09 | 2.228 | 2.208 | | | |
| A 6A 2M36XL20 | 36 | 58.2 | 57.7 | 2.292 | 2.272 | | | |
| A 6A 2M37XL20 | 37 | 59.8 | 59.32 | 2.355 | 2.335 | | | |
| A 6A 2M38XL20 | 38 | 61.4 | 60.94 | 2.419 | 2.399 | | | |
| A 6A 2M40XL20 | 40 | 64.7 | 64.17 | 2.546 | 2.526 | | | |
| A 6A 2M42XL20 | 42 | 67.9 | 67.41 | 2.674 | 2.654 | | | |
| A 6A 2M43XL20 | 43 | 69.5 | 69.02 | 2.737 | 2.717 | | | |
| A 6A 2M44XL20 | 44 | 71.1 | 70.64 | 2.801 | 2.781 | | | |
| A 6A 2M45XL20 | 45 | 72.8 | 72.26 | 2.865 | 2.845 | | | |
| A 6A 2M48XL20 | 48 | 77.6 | 77.11 | 3.056 | 3.036 | | | |
| A 6A 2M50XL20 | 50 | 80.9 | 80.34 | 3.183 | 3.163 | | | |
| A 6A 2M60XL20 | 60 | 97 | 96.51 | 3.820 | 3.800 | | | |
| A 6A 2M62XL20 | 62 | 100.3 | 99.75 | 3.947 | 3.927 | | | |
| A 6A 2M72XL20 | 72 | 116.4 | 115.92 | 4.584 | 4.564 | | | |
| A 6A 2M80XL20 | 80 | 129.4 | 128.85 | 5.093 | 5.073 | | | |

NOTE: Dimensions in () are inch.

^Δ Dimensions in [] may be substituted at SDP option.

Continued on the next page

> MATERIAL:

Aluminum Alloy or Steel

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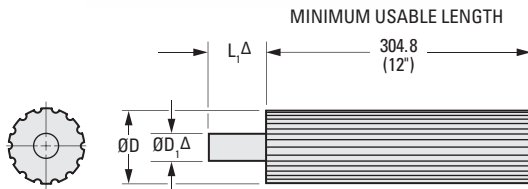
> SPECIFICATIONS:

D Tolerance:

18 to 31 grooves is +0.08/0 (+.003/-.000)

32 to 60 grooves is +0.10/0 (+.004/-.000)

64 & 72 grooves is +0.13/0 (+.005/-.000)



METRIC COMPONENT

| Catalog Number | | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length |
|----------------|---------------|----------------|--------|--------|-------|--------|---------------------------|--|
| Aluminum | Steel | | P.D. | D Dia. | P.D. | D Dia. | | |
| A 6A 2M18XL30 | A 6C 2M18XL30 | 18 | 29.1 | 28.6 | 1.146 | 1.126 | 12.7 (1/2) | 25.4 (1") [19.1 (3/4)] ^Δ |
| A 6A 2M19XL30 | A 6C 2M19XL30 | 19 | 30.7 | 30.23 | 1.210 | 1.190 | | |
| A 6A 2M20XL30 | A 6C 2M20XL30 | 20 | 32.3 | 31.83 | 1.273 | 1.253 | | |
| A 6A 2M21XL30 | A 6C 2M21XL30 | 21 | 34 | 33.45 | 1.337 | 1.317 | | |
| A 6A 2M22XL30 | A 6C 2M22XL30 | 22 | 35.6 | 35.08 | 1.401 | 1.381 | | |
| A 6A 2M23XL30 | A 6C 2M23XL30 | 23 | 37.2 | 36.68 | 1.464 | 1.444 | | |
| A 6A 2M24XL30 | A 6C 2M24XL30 | 24 | 38.8 | 38.3 | 1.528 | 1.508 | | |
| A 6A 2M25XL30 | A 6C 2M25XL30 | 25 | 40.4 | 39.93 | 1.592 | 1.572 | | |
| A 6A 2M26XL30 | A 6C 2M26XL30 | 26 | 42 | 41.53 | 1.655 | 1.635 | | |
| A 6A 2M27XL30 | A 6C 2M27XL30 | 27 | 43.7 | 43.15 | 1.719 | 1.699 | | |
| A 6A 2M28XL30 | A 6C 2M28XL30 | 28 | 45.3 | 44.78 | 1.783 | 1.763 | | |
| A 6A 2M29XL30 | A 6C 2M29XL30 | 29 | 46.9 | 46.38 | 1.846 | 1.826 | | |
| A 6A 2M30XL30 | A 6C 2M30XL30 | 30 | 48.5 | 48.01 | 1.910 | 1.890 | | |
| A 6A 2M31XL30 | A 6C 2M31XL30 | 31 | 50.1 | 49.63 | 1.974 | 1.954 | | |
| A 6A 2M32XL30 | A 6C 2M32XL30 | 32 | 51.7 | 51.23 | 2.037 | 2.017 | | |
| A 6A 2M33XL30 | A 6C 2M33XL30 | 33 | 53.4 | 52.86 | 2.101 | 2.081 | | |
| A 6A 2M34XL30 | A 6C 2M34XL30 | 34 | 55 | 54.48 | 2.165 | 2.145 | | |
| A 6A 2M35XL30 | A 6C 2M35XL30 | 35 | 56.6 | 56.08 | 2.228 | 2.208 | | |
| A 6A 2M36XL30 | A 6C 2M36XL30 | 36 | 58.2 | 57.71 | 2.292 | 2.272 | | |
| A 6A 2M37XL30 | A 6C 2M37XL30 | 37 | 59.8 | 59.31 | 2.355 | 2.335 | | |
| A 6A 2M38XL30 | A 6C 2M38XL30 | 38 | 61.4 | 60.93 | 2.419 | 2.399 | | |
| A 6A 2M39XL30 | A 6C 2M39XL30 | 39 | 63.1 | 62.56 | 2.483 | 2.463 | | |
| A 6A 2M40XL30 | A 6C 2M40XL30 | 40 | 64.7 | 64.16 | 2.546 | 2.526 | | |
| A 6A 2M41XL30 | A 6C 2M41XL30 | 41 | 66.3 | 65.79 | 2.610 | 2.590 | | |
| A 6A 2M42XL30 | A 6C 2M42XL30 | 42 | 67.9 | 67.41 | 2.674 | 2.654 | | |
| A 6A 2M44XL30 | A 6C 2M44XL30 | 44 | 71.1 | 70.64 | 2.801 | 2.781 | | |
| A 6A 2M45XL30 | A 6C 2M45XL30 | 45 | 72.8 | 72.26 | 2.865 | 2.845 | | |
| A 6A 2M46XL30 | A 6C 2M46XL30 | 46 | 74.4 | 73.86 | 2.928 | 2.908 | | |
| A 6A 2M48XL30 | A 6C 2M48XL30 | 48 | 77.6 | 77.11 | 3.056 | 3.036 | | |
| A 6A 2M50XL30 | A 6C 2M50XL30 | 50 | 80.9 | 80.34 | 3.183 | 3.163 | | |
| A 6A 2M54XL30 | A 6C 2M54XL30 | 54 | 87.3 | 86.82 | 3.438 | 3.418 | | |
| A 6A 2M60XL30 | A 6C 2M60XL30 | 60 | 97 | 96.52 | 3.820 | 3.800 | | |
| A 6A 2M64XL30 | A 6C 2M64XL30 | 64 | 103.5 | 102.87 | 4.074 | 4.054 | | |
| A 6A 2M72XL30 | A 6C 2M72XL30 | 72 | 116.4 | 115.93 | 4.584 | 4.564 | | |

NOTE: Dimensions in () are inch.

Δ Dimensions in [] may be substituted at SDP option.

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REV: 4.26.13 JC

► MATERIAL:

Carbon Steel

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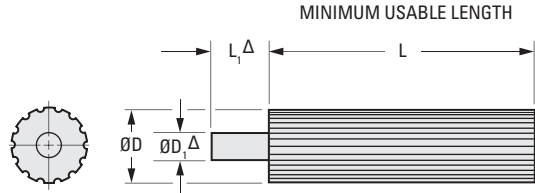
► SPECIFICATIONS:

D Tolerance:

10 to 16 grooves is +0.05/0 (+.002/-.000)

17 to 30 grooves is +0.08/0 (+.003/-.000)

32 to 72 grooves is +0.10/0 (+.004/-.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------------------|-----------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6C 2M10XL15 | 10 | 16.2 | 15.67 | .637 | .617 | 12.7 (1/2) [11.1 (7/16)] ^Δ | 22.2 (7/8) | 152.4 (6") |
| A 6C 2M11XL15 | 11 | 17.8 | 17.27 | .700 | .680 | | | |
| A 6C 2M12XL20 | 12 | 19.4 | 18.9 | .764 | .744 | | | |
| A 6C 2M13XL20 | 13 | 21 | 20.52 | .828 | .808 | | | |
| A 6C 2M14XL20 | 14 | 22.6 | 22.12 | .891 | .871 | | | |
| A 6C 2M15XL20 | 15 | 24.3 | 23.75 | .955 | .935 | | | |
| A 6C 2M16XL20 | 16 | 25.9 | 25.37 | 1.019 | .999 | | | |
| A 6C 2M17XL20 | 17 | 27.5 | 26.98 | 1.082 | 1.062 | | | |
| A 6C 2M18XL20 | 18 | 29.1 | 28.6 | 1.146 | 1.126 | | | |
| A 6C 2M19XL20 | 19 | 30.7 | 30.23 | 1.210 | 1.190 | | | |
| A 6C 2M20XL20 | 20 | 32.3 | 31.83 | 1.273 | 1.253 | | | |
| A 6C 2M21XL20 | 21 | 34 | 33.45 | 1.337 | 1.317 | | | |
| A 6C 2M22XL20 | 22 | 35.6 | 35.08 | 1.401 | 1.381 | | | |
| A 6C 2M23XL20 | 23 | 37.2 | 36.68 | 1.464 | 1.444 | | | |
| A 6C 2M24XL20 | 24 | 38.8 | 38.3 | 1.528 | 1.508 | | | |
| A 6C 2M25XL20 | 25 | 40.4 | 39.93 | 1.592 | 1.572 | | | |
| A 6C 2M26XL20 | 26 | 42 | 41.53 | 1.655 | 1.635 | | | |
| A 6C 2M27XL20 | 27 | 43.7 | 43.15 | 1.719 | 1.699 | | | |
| A 6C 2M28XL20 | 28 | 45.3 | 44.78 | 1.783 | 1.763 | | | |
| A 6C 2M29XL20 | 29 | 46.9 | 46.38 | 1.846 | 1.826 | | | |
| A 6C 2M30XL20 | 30 | 48.5 | 49.01 | 1.910 | 1.890 | | | |
| A 6C 2M32XL20 | 32 | 51.7 | 51.23 | 2.037 | 2.017 | | | |
| A 6C 2M33XL20 | 33 | 53.4 | 52.86 | 2.101 | 2.081 | | | |
| A 6C 2M34XL20 | 34 | 55 | 54.48 | 2.165 | 2.145 | | | |
| A 6C 2M35XL20 | 35 | 56.6 | 56.08 | 2.228 | 2.208 | | | |
| A 6C 2M36XL20 | 36 | 58.2 | 57.71 | 2.292 | 2.272 | | | |
| A 6C 2M38XL20 | 38 | 61.4 | 60.93 | 2.419 | 2.399 | | | |
| A 6C 2M40XL20 | 40 | 64.7 | 64.16 | 2.546 | 2.526 | | | |
| A 6C 2M42XL20 | 42 | 67.9 | 67.41 | 2.674 | 2.654 | | | |
| A 6C 2M44XL20 | 44 | 71.1 | 70.64 | 2.801 | 2.781 | | | |
| A 6C 2M45XL20 | 45 | 72.8 | 72.26 | 2.865 | 2.845 | | | |
| A 6C 2M46XL20 | 46 | 74.4 | 73.86 | 2.928 | 2.908 | | | |
| A 6C 2M48XL20 | 48 | 77.6 | 77.11 | 3.056 | 3.036 | | | |
| A 6C 2M50XL20 | 50 | 80.9 | 80.34 | 3.183 | 3.163 | | | |
| A 6C 2M60XL20 | 60 | 97 | 96.52 | 3.820 | 3.800 | | | |
| A 6C 2M72XL20 | 72 | 116.4 | 115.93 | 4.584 | 4.564 | | | |
| | | | | | | 25.4 (1") | | |
| | | | | | | | 25.4 (1") | |
| | | | | | | | [19.1 (3/4)] ^Δ | |
| | | | | | | | | 203.2 (8") |

NOTE: Dimensions in () are inch.

^Δ Dimensions in [] may be substituted at SDP option.

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REV: 4.26.13 JC

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> MATERIAL:

Carbon Steel

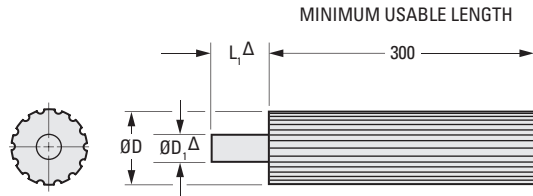
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> SPECIFICATIONS:

D Tolerance:

18 to 31 grooves is +0.08/0

32 to 72 grooves is +0.10/0



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Shank Dia. | L ₁ Shank Length (Ref.) |
|----------------|----------------|-------|--------|---------------------------|------------------------------------|
| A 6C 2M18XL30 | 18 | 29.1 | 28.6 | 13 | 25 [19] ^Δ |
| A 6C 2M19XL30 | 19 | 30.7 | 30.23 | | |
| A 6C 2M20XL30 | 20 | 32.3 | 31.83 | | |
| A 6C 2M21XL30 | 21 | 34 | 33.45 | | |
| A 6C 2M22XL30 | 22 | 35.6 | 35.08 | | |
| A 6C 2M23XL30 | 23 | 37.2 | 36.68 | | |
| A 6C 2M24XL30 | 24 | 38.8 | 38.3 | | |
| A 6C 2M25XL30 | 25 | 40.4 | 39.93 | | |
| A 6C 2M26XL30 | 26 | 42 | 41.53 | | |
| A 6C 2M27XL30 | 27 | 43.7 | 43.15 | | |
| A 6C 2M28XL30 | 28 | 45.3 | 44.78 | | |
| A 6C 2M29XL30 | 29 | 46.9 | 46.38 | | |
| A 6C 2M30XL30 | 30 | 48.5 | 48.01 | | |
| A 6C 2M31XL30 | 31 | 50.1 | 49.63 | | |
| A 6C 2M32XL30 | 32 | 51.7 | 51.23 | | |
| A 6C 2M34XL30 | 34 | 55 | 54.48 | | |
| A 6C 2M36XL30 | 36 | 58.2 | 57.71 | | |
| A 6C 2M38XL30 | 38 | 61.4 | 60.93 | | |
| A 6C 2M40XL30 | 40 | 64.7 | 64.16 | | |
| A 6C 2M41XL30 | 41 | 66.3 | 65.79 | | |
| A 6C 2M42XL30 | 42 | 67.9 | 67.41 | | |
| A 6C 2M44XL30 | 44 | 71.1 | 70.64 | | |
| A 6C 2M45XL30 | 45 | 72.8 | 72.26 | | |
| A 6C 2M48XL30 | 48 | 77.6 | 77.11 | | |
| A 6C 2M50XL30 | 50 | 80.9 | 80.34 | | |
| A 6C 2M54XL30 | 54 | 87.3 | 86.82 | | |
| A 6C 2M60XL30 | 60 | 97 | 96.52 | | |
| A 6C 2M64XL30 | 64 | 103.5 | 102.97 | | |
| A 6C 2M72XL30 | 72 | 116.4 | 115.93 | | |
| | | | | 25 [19] ^Δ | 25 |
| | | | | 25 | |

NOTE: Dimensions in () are inch.

^ΔDimensions in [] may be substituted at SDP option.

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REV: 4.26.13 JC

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FOR 6 mm BELTS
DOUBLE FLANGE

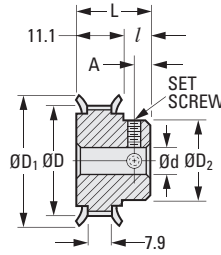
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**
Aluminum Alloy

> **FINISH:**
Clear Anodized

> **SPECIFICATION:**
D Tolerance: 10 to 16 grooves is +0.05/0
18 to 30 grooves is +0.08/0

Pulleys with 10 and 11 grooves have 1 set screw;
others have 2 set screws at 90°



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|----------------|-------------------------------|-------------|-----|-----------|
| A 6A 3M10DF06006 | 10 | 16.2 | 15.7 | 22 | 6 | 17.5 | 10 | 6.4 | 3.2 | M3 |
| A 6A 3M11DF06006 | 11 | 17.8 | 17.3 | 24 | 6 | 17.5 | 11 | 6.4 | 3.2 | M3 |
| A 6A 3M12DF06006 | 12 | 19.4 | 18.9 | 25 | 6 | 17.5 | 13 | 6.4 | 3.2 | M3 |
| A 6A 3M14DF06008 | 14 | 22.6 | 22.1 | 28 | 8 | 17.5 | 14 | 6.4 | 3.2 | M4 |
| A 6A 3M15DF06008 | 15 | 24.3 | 23.7 | 30 | 8 | 17.5 | 16 | 6.4 | 3.2 | M4 |
| A 6A 3M16DF06008 | 16 | 25.9 | 25.4 | 32 | 8 | 17.5 | 17 | 6.4 | 3.2 | M4 |
| A 6A 3M18DF06008 | 18 | 29.1 | 28.6 | 35 | 8 | 17.5 | 21 | 6.4 | 3.2 | M4 |
| A 6A 3M20DF06008 | 20 | 32.3 | 31.8 | 38 | 8 | 19.1 | 24 | 8 | 4 | M4 |
| A 6A 3M22DF06008 | 22 | 35.6 | 35.1 | 41 | 8 | 19.1 | 25 | 8 | 4 | M4 |
| A 6A 3M24DF06008 | 24 | 38.8 | 38.3 | 44 | 8 | 19.8 | 27 | 8.7 | 4.4 | M4 |
| A 6A 3M28DF06008 | 28 | 45.3 | 44.8 | 51 | 8 | 19.8 | 30 | 8.7 | 4.4 | M4 |
| A 6A 3M30DF06008 | 30 | 48.5 | 48 | 54 | 8 | 19.8 | 33 | 8.7 | 4.4 | M4 |

XL TIMING BELT PULLEYS • 5.08 mm PITCH



FOR 9.5 mm BELTS
DOUBLE FLANGE

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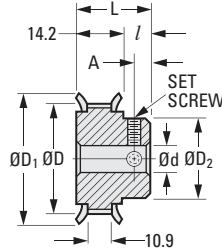
> MATERIAL:
Aluminum Alloy

> FINISH:
Clear Anodized

> SPECIFICATION:
D Tolerance: 10 to 16 grooves is +0.05/0
18 to 30 grooves is +0.08/0
32 grooves is +0.10/0



Pulleys with 10 and 11 grooves have 1 set screw;
others have 2 set screws at 90°



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l / Hub Proj. | A | Set Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|----------------|-------------------------------|---------------|-----|-----------|
| A 6A 3M10DF09506 | 10 | 16.2 | 15.7 | 22 | 6 | 20.6 | 10 | 6.4 | 3.2 | M3 |
| A 6A 3M11DF09506 | 11 | 17.8 | 17.3 | 24 | 6 | 20.6 | 11 | 6.4 | 3.2 | M3 |
| A 6A 3M12DF09506 | 12 | 19.4 | 18.9 | 25 | 6 | 20.6 | 13 | 6.4 | 3.2 | M3 |
| A 6A 3M14DF09508 | 14 | 22.6 | 22.1 | 28 | 8 | 20.6 | 14 | 6.4 | 3.2 | M4 |
| A 6A 3M15DF09508 | 15 | 24.3 | 23.7 | 30 | 8 | 20.6 | 16 | 6.4 | 3.2 | M4 |
| A 6A 3M15DF09510 | 15 | 24.3 | 23.7 | 30 | 10 | 20.6 | 16 | 6.4 | 3.2 | M5 |
| A 6A 3M16DF09508 | 16 | 25.9 | 25.4 | 32 | 8 | 20.6 | 17 | 6.4 | 3.2 | M4 |
| A 6A 3M18DF09508 | 18 | 29.1 | 28.6 | 35 | 8 | 20.6 | 21 | 6.4 | 3.2 | M4 |
| A 6A 3M20DF09508 | 20 | 32.3 | 31.8 | 38 | 8 | 22.2 | 24 | 8 | 4 | M4 |
| A 6A 3M22DF09508 | 22 | 35.6 | 35.1 | 41 | 8 | 22.2 | 25 | 8 | 4 | M4 |
| A 6A 3M24DF09508 | 24 | 38.8 | 38.3 | 44 | 8 | 22.9 | 27 | 8.7 | 4.4 | M4 |
| A 6A 3M28DF09508 | 28 | 45.3 | 44.8 | 51 | 8 | 22.9 | 30 | 8.7 | 4.4 | M4 |
| A 6A 3M30DF09510 | 30 | 48.5 | 48 | 54 | 10 | 22.9 | 33 | 8.7 | 4.4 | M5 |
| A 6A 3M32DF09512 | 32 | 51.7 | 51.2 | 57 | 12 | 22.9 | 37 | 8.7 | 4.4 | M6 |

FOR 9.5 mm BELTS
 HUBLESS
 DOUBLE FLANGE

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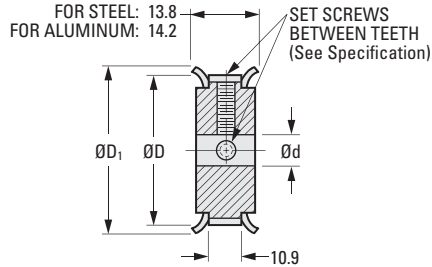
> MATERIAL:

Aluminum Alloy, Clear Anodized Finish
 or Steel, Black Oxide Finish

> SPECIFICATION:

D Tolerance: 10 to 16 grooves is +0.05/0
 18 to 30 grooves is +0.08/0

Pulleys with 10 to 12 grooves have 1 set screw;
 others have 2 set screws at approximately 90°



METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore Dia. +0.025 0 | Set Screw |
|----------------|----------------|----------------|------|--------|---------------------------|----------------------|-----------|
| Aluminum | Steel | | | | | | |
| A 6A 3M10H9506 | A 6C 3M10H9506 | 10 | 16.2 | 15.7 | 22 | 6 | M3 |
| A 6A 3M11H9506 | A 6C 3M11H9506 | 11 | 17.8 | 17.3 | 24 | 6 | M3 |
| A 6A 3M12H9506 | A 6C 3M12H9506 | 12 | 19.4 | 18.9 | 25 | 6 | M3 |
| A 6A 3M14H9508 | A 6C 3M14H9508 | 14 | 22.6 | 22.1 | 28 | 8 | M4 |
| A 6A 3M15H9508 | A 6C 3M15H9508 | 15 | 24.3 | 23.7 | 30 | 8 | M4 |
| A 6A 3M16H9508 | A 6C 3M16H9508 | 16 | 25.9 | 25.4 | 32 | 8 | M4 |
| A 6A 3M18H9508 | A 6C 3M18H9508 | 18 | 29.1 | 28.6 | 35 | 8 | M4 |
| A 6A 3M20H9508 | A 6C 3M20H9508 | 20 | 32.3 | 31.8 | 38 | 8 | M4 |
| A 6A 3M22H9508 | A 6C 3M22H9508 | 22 | 35.6 | 35.1 | 41 | 8 | M4 |
| A 6A 3M24H9508 | A 6C 3M24H9508 | 24 | 38.8 | 38.3 | 44 | 8 | M4 |
| A 6A 3M30H9508 | A 6C 3M30H9508 | 30 | 48.5 | 48 | 54 | 8 | M4 |

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FOR 9.5 mm BELTS
NO FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:
Aluminum Alloy

➤ FINISH:
Clear Anodized

➤ SPECIFICATION:
D Tolerance: 10 to 16 grooves is +0.05/0
18 to 30 grooves is +0.08/0
32 to 60 grooves is +0.10/0
72 grooves is +0.13/0

Pulleys with 10 and 11 grooves have 1 set screw;
others have 2 set screws at 90°.

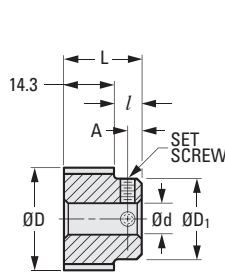


Fig. 1

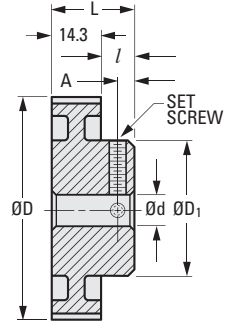


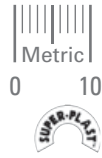
Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | d Bore +0.025 0 | L Length ± 0.4 | D1 Hub Dia. ± 0.4 | l / Hub Proj. | A | Set Screw |
|------------------|----------------|-------|--------|-----------------|----------------|-------------------|---------------|-----|-----------|
| Fig. 1 | | | | | | | | | |
| A 6A 3M10NF09506 | 10 | 16.2 | 15.7 | 6 | 20.6 | 11 | 6.4 | 3.2 | M3 |
| A 6A 3M11NF09506 | 11 | 17.8 | 17.3 | 6 | 20.6 | 13 | 6.4 | 3.2 | M3 |
| A 6A 3M12NF09506 | 12 | 19.4 | 18.9 | 6 | 20.6 | 14 | 6.4 | 3.2 | M3 |
| A 6A 3M14NF09508 | 14 | 22.6 | 22.1 | 8 | 20.6 | 16 | 6.4 | 3.2 | M4 |
| A 6A 3M15NF09508 | 15 | 24.3 | 23.7 | 8 | 22.22 | 17 | 8 | 4 | M4 |
| A 6A 3M16NF09508 | 16 | 25.9 | 25.4 | 8 | 22.22 | 19 | 8 | 4 | M4 |
| A 6A 3M18NF09508 | 18 | 29.1 | 28.6 | 8 | 22.22 | 22 | 8 | 4 | M4 |
| A 6A 3M20NF09508 | 20 | 32.3 | 31.8 | 8 | 23.8 | 24 | 9.5 | 5 | M4 |
| A 6A 3M22NF09508 | 22 | 35.6 | 35.1 | 8 | 23.8 | 27 | 9.5 | 5 | M4 |
| A 6A 3M24NF09508 | 24 | 38.8 | 38.3 | 8 | 23.8 | 30 | 9.5 | 5 | M4 |
| A 6A 3M28NF09508 | 28 | 45.3 | 44.8 | 8 | 23.8 | 32 | 9.5 | 5 | M4 |
| A 6A 3M30NF09510 | 30 | 48.5 | 48 | 10 | 23.5 | 35 | 9.2 | 5 | M5 |
| A 6A 3M32NF09510 | 32 | 51.7 | 51.2 | 10 | 25.4 | 38 | 11.1 | 5.5 | M5 |
| A 6A 3M36NF09510 | 36 | 58.2 | 57.7 | 10 | 25.4 | 38 | 11.1 | 5.5 | M5 |
| Fig. 2 | | | | | | | | | |
| A 6A 3M40NF09510 | 40 | 64.7 | 64.2 | 10 | 25.4 | 38 | 11.1 | 5.5 | M5 |
| A 6A 3M42NF09510 | 42 | 67.9 | 67.4 | 10 | 25.4 | 38 | 11.1 | 5.5 | M5 |
| A 6A 3M44NF09510 | 44 | 71.1 | 70.6 | 10 | 25.4 | 38 | 11.1 | 5.5 | M5 |
| A 6A 3M48NF09512 | 48 | 77.6 | 77.1 | 12 | 25.4 | 38 | 11.1 | 5.5 | M6 |
| A 6A 3M60NF09512 | 60 | 97 | 96.5 | 12 | 25.4 | 38 | 11.1 | 5.5 | M6 |
| A 6A 3M72NF09512 | 72 | 116.4 | 115.9 | 12 | 25.4 | 38 | 11.1 | 5.5 | M6 |

FOR 9.5 mm BELTS
 MOLDED WITH FAIRLOC® HUB
 DOUBLE FLANGE

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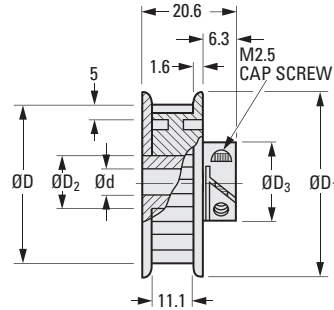


> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Hub - Aluminum Alloy, Overmolded

> SPECIFICATION:

Pulleys with 10 to 21 grooves do not have webs.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Dia. | D ₃ Hub Dia. |
|------------------|----------------|------|--------|---------------------|-----------|-------------|---------------------|-------------------------|
| A 6H 3M10DF09504 | 10 | 16.2 | 15.7 | 22 | 4 | +0.030/0 | 9.5 | 13 |
| A 6H 3M11DF09504 | 11 | 17.8 | 17.3 | 24 | 4 | +0.030/0 | 9.5 | 13 |
| A 6H 3M12DF09504 | 12 | 19.4 | 18.9 | 25 | 4 | +0.030/0 | 9.5 | 13 |
| A 6H 3M13DF09504 | 13 | 21 | 20.5 | 27 | 4 | +0.030/0 | 9.5 | 13 |
| A 6H 3M14DF09506 | 14 | 22.6 | 22.1 | 28 | 6 | +0.030/0 | 13 | 19 |
| A 6H 3M15DF09506 | 15 | 24.3 | 23.7 | 30 | 6 | +0.030/0 | 13 | 19 |
| A 6H 3M16DF09506 | 16 | 25.9 | 25.4 | 32 | 6 | +0.030/0 | 13 | 19 |
| A 6H 3M17DF09506 | 17 | 27.5 | 27 | 33 | 6 | +0.030/0 | 13 | 19 |
| A 6H 3M18DF09506 | 18 | 29.1 | 28.6 | 35 | 6 | +0.030/0 | 13 | 19 |
| A 6H 3M19DF09506 | 19 | 30.7 | 30.2 | 37 | 6 | +0.030/0 | 13 | 19 |
| A 6H 3M20DF09506 | 20 | 32.3 | 31.8 | 38 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M21DF09506 | 21 | 34 | 33.4 | 40 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M22DF09506 | 22 | 35.6 | 35.1 | 41 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M23DF09506 | 23 | 37.2 | 36.7 | 43 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M24DF09506 | 24 | 38.8 | 38.3 | 45 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M25DF09506 | 25 | 40.4 | 39.9 | 46 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M26DF09506 | 26 | 42 | 41.5 | 48 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M27DF09506 | 27 | 43.7 | 43.2 | 50 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M28DF09506 | 28 | 45.3 | 44.8 | 51 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M29DF09506 | 29 | 46.9 | 46.4 | 53 | 6 | +0.030/0 | 13 | 22 |
| A 6H 3M30DF09508 | 30 | 48.5 | 48 | 54 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M31DF09508 | 31 | 50.1 | 49.6 | 56 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M32DF09508 | 32 | 51.7 | 51.2 | 58 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M34DF09508 | 34 | 55 | 54.5 | 61 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M35DF09508 | 35 | 56.6 | 56.1 | 63 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M36DF09508 | 36 | 58.2 | 57.7 | 64 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M37DF09508 | 37 | 59.8 | 59.3 | 66 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M39DF09508 | 39 | 63.1 | 62.6 | 69 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M40DF09508 | 40 | 64.7 | 64.2 | 71 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M42DF09508 | 42 | 67.9 | 67.4 | 74 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M44DF09508 | 44 | 71.1 | 70.6 | 77 | 8 | +0.036/0 | 16 | 22 |
| A 6H 3M48DF09508 | 48 | 77.6 | 77.1 | 84 | 8 | +0.036/0 | 16 | 22 |

FOR 9.5 mm BELTS
 MOLDED WITH FAIRLOC® HUB
 SINGLE OR NO FLANGE

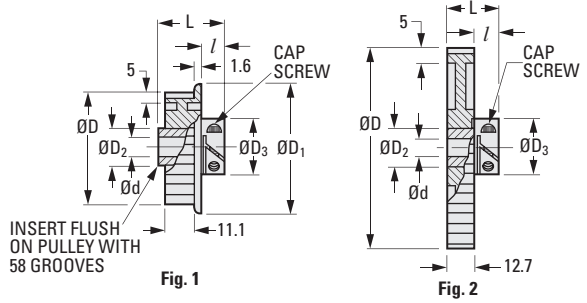
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> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Hub - Aluminum Alloy, Overmolded

> SPECIFICATION:

Pulleys with 10 to 21 grooves do not have webs.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | L Lgth. | D ₂ Dia. | D ₃ Hub Dia. | l Hub Proj. | Cap Screw |
|-----------------------------|----------------|-------|--------|---------------------|-----------|-------------|---------|---------------------|-------------------------|-------------|-----------|
| Fig. 1 Single Flange | | | | | | | | | | | |
| A 6H 3M10SF09504 | 10 | 16.2 | 15.7 | 22 | 4 | +0.030/0 | 20.6 | 9.5 | 13 | 6.3 | M2.5 |
| A 6H 3M11SF09504 | 11 | 17.8 | 17.3 | 24 | 4 | +0.030/0 | 20.6 | 9.5 | 13 | 6.3 | M2.5 |
| A 6H 3M12SF09504 | 12 | 19.4 | 18.9 | 25 | 4 | +0.030/0 | 20.6 | 9.5 | 13 | 6.3 | M2.5 |
| A 6H 3M13SF09504 | 13 | 21 | 20.5 | 27 | 4 | +0.030/0 | 20.6 | 13 | 19 | 6.3 | M2.5 |
| A 6H 3M14SF09506 | 14 | 22.6 | 22.1 | 28 | 6 | +0.030/0 | 20.6 | 13 | 19 | 6.3 | M2.5 |
| A 6H 3M15SF09506 | 15 | 24.3 | 23.7 | 30 | 6 | +0.030/0 | 20.6 | 13 | 19 | 6.3 | M2.5 |
| A 6H 3M16SF09506 | 16 | 25.9 | 25.4 | 32 | 6 | +0.030/0 | 20.6 | 13 | 19 | 6.3 | M2.5 |
| A 6H 3M17SF09506 | 17 | 27.5 | 27 | 33 | 6 | +0.030/0 | 20.6 | 13 | 19 | 6.3 | M2.5 |
| A 6H 3M18SF09506 | 18 | 29.1 | 28.6 | 35 | 6 | +0.030/0 | 20.6 | 13 | 19 | 6.3 | M2.5 |
| A 6H 3M19SF09506 | 19 | 30.7 | 30.2 | 37 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M20SF09506 | 20 | 32.3 | 31.8 | 38 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M21SF09506 | 21 | 34 | 33.5 | 40 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M22SF09506 | 22 | 35.6 | 35.1 | 41 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M23SF09506 | 23 | 37.2 | 36.7 | 43 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M24SF09506 | 24 | 38.8 | 38.3 | 45 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M25SF09506 | 25 | 40.4 | 39.9 | 46 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M26SF09506 | 26 | 42 | 41.6 | 48 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M27SF09506 | 27 | 43.7 | 43.2 | 50 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M28SF09506 | 28 | 45.3 | 44.8 | 51 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M29SF09506 | 29 | 46.9 | 46.4 | 53 | 6 | +0.030/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M30SF09508 | 30 | 48.5 | 48 | 54 | 8 | +0.036/0 | 20.6 | 13 | 22 | 6.3 | M2.5 |
| A 6H 3M31SF09508 | 31 | 50.1 | 49.6 | 56 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M32SF09508 | 32 | 51.7 | 51.2 | 58 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M34SF09508 | 34 | 55 | 54.5 | 61 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M35SF09508 | 35 | 56.6 | 56.1 | 63 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M36SF09508 | 36 | 58.2 | 57.7 | 64 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M37SF09508 | 37 | 59.8 | 59.3 | 66 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M39SF09508 | 39 | 63 | 62.5 | 69 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M40SF09508 | 40 | 64.7 | 64.2 | 71 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M42SF09508 | 42 | 67.9 | 67.4 | 74 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M44SF09508 | 44 | 71.1 | 70.6 | 77 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M48SF09508 | 48 | 77.6 | 77.1 | 84 | 8 | +0.036/0 | 20.6 | 16 | 22 | 6.3 | M2.5 |
| A 6H 3M58SF09508 | 58 | 93.8 | 93.3 | 100 | 10 | +0.036/0 | 20.6 | 16 | 26 | 8 | M3 |
| Fig. 2 No Flange | | | | | | | | | | | |
| A 6H 3M60NF09510 | 60 | 97 | 96.5 | - | 10 | +0.036/0 | 22.2 | 16 | 26 | 9.5 | M4 |
| A 6H 3M72NF09510 | 72 | 116.4 | 115.9 | - | 10 | +0.036/0 | 22.2 | 16 | 26 | 9.5 | M4 |

FOR 9.5 mm BELTS
 MOLDED WITH METAL HUB
 DOUBLE FLANGE

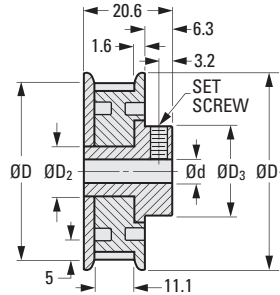
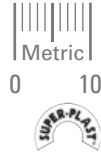
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> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Hub - Aluminum Alloy, Overmolded

> SPECIFICATION:

Pulleys with 10 to 21 grooves do not have webs.



METRIC COMPONENT

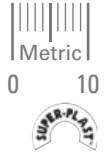
| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|-------------|---------------------|-------------------------|-----------|
| A 6J 3M10DF09504 | 10 | 16.2 | 15.7 | 22 | 4 | +0.030/0 | 9.5 | 13 | M3 |
| A 6J 3M11DF09504 | 11 | 17.8 | 17.3 | 24 | 4 | +0.030/0 | 9.5 | 13 | M3 |
| A 6J 3M12DF09504 | 12 | 19.4 | 18.9 | 25 | 4 | +0.030/0 | 9.5 | 13 | M3 |
| A 6J 3M13DF09504 | 13 | 21 | 20.5 | 27 | 4 | +0.030/0 | 9.5 | 13 | M3 |
| A 6J 3M14DF09506 | 14 | 22.6 | 22.1 | 28 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6J 3M15DF09506 | 15 | 24.3 | 23.7 | 30 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6J 3M16DF09506 | 16 | 25.9 | 25.4 | 32 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6J 3M17DF09506 | 17 | 27.5 | 27 | 33 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6J 3M18DF09506 | 18 | 29.1 | 28.6 | 35 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6J 3M19DF09506 | 19 | 30.7 | 30.2 | 37 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6J 3M20DF09506 | 20 | 32.3 | 31.8 | 38 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M21DF09506 | 21 | 34 | 33.4 | 40 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M22DF09506 | 22 | 35.6 | 35.1 | 41 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M23DF09506 | 23 | 37.2 | 36.7 | 43 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M24DF09506 | 24 | 38.8 | 38.3 | 45 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M25DF09506 | 25 | 40.4 | 39.9 | 46 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M26DF09506 | 26 | 42 | 41.5 | 48 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M27DF09506 | 27 | 43.7 | 43.2 | 50 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M28DF09506 | 28 | 45.3 | 44.8 | 51 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M29DF09506 | 29 | 46.9 | 46.4 | 53 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6J 3M30DF09508 | 30 | 48.5 | 48 | 54 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M31DF09508 | 31 | 50.1 | 49.6 | 56 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M32DF09508 | 32 | 51.7 | 51.2 | 58 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M34DF09508 | 34 | 55 | 54.5 | 61 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M35DF09508 | 35 | 56.6 | 56.1 | 63 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M36DF09508 | 36 | 58.2 | 57.7 | 64 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M37DF09508 | 37 | 59.8 | 59.3 | 66 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M39DF09508 | 39 | 63.1 | 62.6 | 69 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M40DF09508 | 40 | 64.7 | 64.2 | 71 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M42DF09508 | 42 | 67.9 | 67.4 | 74 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M44DF09508 | 44 | 71.1 | 70.6 | 77 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6J 3M48DF09508 | 48 | 77.6 | 77.1 | 84 | 8 | +0.036/0 | 16 | 22 | M5 |

FOR 9.5 mm BELTS
 MOLDED WITH METAL HUB
 SINGLE OR NO FLANGE

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> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Hub - Aluminum Alloy, Overmolded



> SPECIFICATION:

Pulleys with 10 to 21 grooves do not have webs.

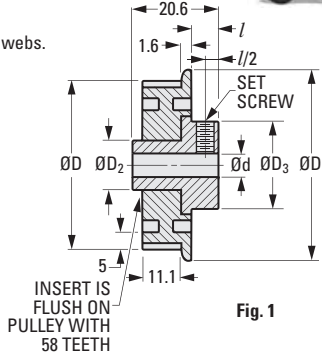


Fig. 1

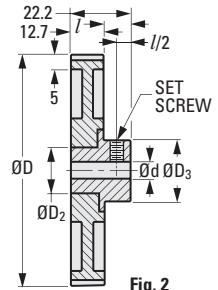


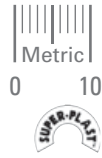
Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Dia. | D ₃ Hub Dia. | l Hub Proj. | Set Screw |
|-----------------------------|----------------|-------|--------|---------------------|-----------|-------------|---------------------|-------------------------|-------------|-----------|
| Fig. 1 Single Flange | | | | | | | | | | |
| A 6J 3M10SF09504 | 10 | 16.2 | 15.7 | 22 | 4 | +0.030/0 | 9.5 | 13 | 6.3 | M3 |
| A 6J 3M11SF09504 | 11 | 17.8 | 17.3 | 24 | 4 | +0.030/0 | 9.5 | 13 | 6.3 | M3 |
| A 6J 3M12SF09504 | 12 | 19.4 | 18.9 | 25 | 4 | +0.030/0 | 9.5 | 13 | 6.3 | M3 |
| A 6J 3M13SF09504 | 13 | 21 | 20.5 | 27 | 4 | +0.030/0 | 13 | 19 | 6.3 | M3 |
| A 6J 3M14SF09506 | 14 | 22.6 | 22.1 | 28 | 6 | +0.030/0 | 13 | 19 | 6.3 | M4 |
| A 6J 3M15SF09506 | 15 | 24.3 | 23.7 | 30 | 6 | +0.030/0 | 13 | 19 | 6.3 | M4 |
| A 6J 3M16SF09506 | 16 | 25.9 | 25.4 | 32 | 6 | +0.030/0 | 13 | 19 | 6.3 | M4 |
| A 6J 3M17SF09506 | 17 | 27.5 | 27 | 33 | 6 | +0.030/0 | 13 | 19 | 6.3 | M4 |
| A 6J 3M18SF09506 | 18 | 29.1 | 28.6 | 35 | 6 | +0.030/0 | 13 | 19 | 6.3 | M4 |
| A 6J 3M19SF09506 | 19 | 30.7 | 30.2 | 37 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M20SF09506 | 20 | 32.3 | 31.8 | 38 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M21SF09506 | 21 | 34 | 33.4 | 40 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M22SF09506 | 22 | 35.6 | 35.1 | 41 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M23SF09506 | 23 | 37.2 | 36.7 | 43 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M24SF09506 | 24 | 38.8 | 38.3 | 45 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M25SF09506 | 25 | 40.4 | 39.9 | 46 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M26SF09506 | 26 | 42 | 41.5 | 48 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M27SF09506 | 27 | 43.7 | 43.2 | 50 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M28SF09506 | 28 | 45.3 | 44.8 | 51 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M29SF09506 | 29 | 46.9 | 46.4 | 53 | 6 | +0.030/0 | 13 | 22 | 6.3 | M4 |
| A 6J 3M30SF09508 | 30 | 48.5 | 48 | 54 | 8 | +0.036/0 | 13 | 22 | 6.3 | M5 |
| A 6J 3M31SF09508 | 31 | 50.1 | 49.6 | 56 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M32SF09508 | 32 | 51.7 | 51.2 | 58 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M34SF09508 | 34 | 55 | 54.5 | 61 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M35SF09508 | 35 | 56.6 | 56.1 | 63 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M36SF09508 | 36 | 58.2 | 57.7 | 64 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M37SF09508 | 37 | 59.8 | 59.3 | 66 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M39SF09508 | 39 | 63.1 | 62.6 | 69 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M40SF09508 | 40 | 64.7 | 64.2 | 71 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M42SF09508 | 42 | 67.9 | 67.4 | 74 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M44SF09508 | 44 | 71.1 | 70.6 | 77 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M48SF09508 | 48 | 77.6 | 77.1 | 84 | 8 | +0.036/0 | 16 | 22 | 6.3 | M5 |
| A 6J 3M58SF09508 | 58 | 93.8 | 93.3 | 100 | 10 | +0.036/0 | 16 | 26 | 8 | M5 |
| Fig. 2 No Flange | | | | | | | | | | |
| A 6J 3M60NF09510 | 60 | 97 | 96.5 | - | 10 | +0.036/0 | 16 | 26 | 9.5 | M5 |
| A 6J 3M72NF09510 | 72 | 116.4 | 115.9 | - | 10 | +0.036/0 | 16 | 26 | 9.5 | M5 |

FOR 9.5 mm BELTS
 MOLDED WITH INSERT
 DOUBLE FLANGE

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› MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled

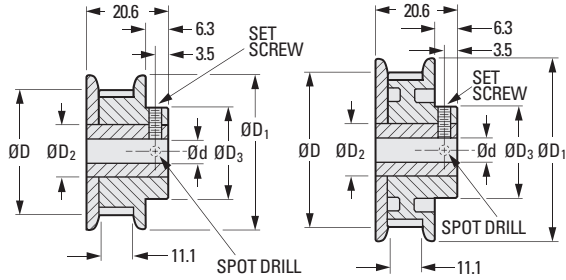


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|----------------------|---------------------|-------------------------|-----------|
| Fig. 1 | | | | | | | | |
| A 6Z 3M10DF09504 | 10 | 16.2 | 15.7 | 22 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M10DF09505 | 10 | 16.2 | 15.7 | 22 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M10DF09506 | 10 | 16.2 | 15.7 | 22 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M11DF09504 | 11 | 17.8 | 17.3 | 24 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M11DF09505 | 11 | 17.8 | 17.3 | 24 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M11DF09506 | 11 | 17.8 | 17.3 | 24 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M12DF09504 | 12 | 19.4 | 18.9 | 25 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M12DF09505 | 12 | 19.4 | 18.9 | 25 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M12DF09506 | 12 | 19.4 | 18.9 | 25 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M13DF09504 | 13 | 21 | 20.5 | 27 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M13DF09505 | 13 | 21 | 20.5 | 27 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M13DF09506 | 13 | 21 | 20.5 | 27 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M14DF09506 | 14 | 22.6 | 22.1 | 28 | 6 | 13 | 19 | M4 |
| A 6Z 3M14DF09508 | 14 | 22.6 | 22.1 | 28 | 8 | 13 | 19 | M4 |
| A 6Z 3M15DF09506 | 15 | 24.3 | 23.7 | 30 | 6 | 13 | 19 | M4 |
| A 6Z 3M15DF09508 | 15 | 24.3 | 23.7 | 30 | 8 | 13 | 19 | M4 |
| A 6Z 3M16DF09506 | 16 | 25.9 | 25.4 | 32 | 6 | 13 | 19 | M4 |
| A 6Z 3M16DF09508 | 16 | 25.9 | 25.4 | 32 | 8 | 13 | 19 | M4 |
| A 6Z 3M17DF09506 | 17 | 27.5 | 27 | 33 | 6 | 13 | 19 | M4 |
| A 6Z 3M17DF09508 | 17 | 27.5 | 27 | 33 | 8 | 13 | 19 | M4 |
| A 6Z 3M18DF09506 | 18 | 29.1 | 28.6 | 35 | 6 | 13 | 19 | M4 |
| A 6Z 3M18DF09508 | 18 | 29.1 | 28.6 | 35 | 8 | 13 | 19 | M4 |
| Fig. 2 | | | | | | | | |
| A 6Z 3M19DF09506 | 19 | 30.7 | 30.2 | 37 | 6 | 13 | 19 | M4 |
| A 6Z 3M19DF09508 | 19 | 30.7 | 30.2 | 37 | 8 | 13 | 19 | M4 |

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XL TIMING BELT PULLEYS • 5.08 mm PITCH



FOR 9.5 mm BELTS
MOLDED WITH INSERT
DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

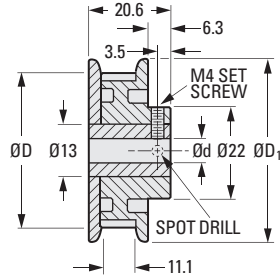


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> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



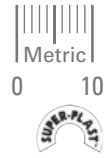
METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 3M20DF09506 | 20 | 32.3 | 31.8 | 38 | 6 |
| A 6Z 3M20DF09508 | 20 | 32.3 | 31.8 | 38 | 8 |
| A 6Z 3M21DF09506 | 21 | 34 | 33.5 | 40 | 6 |
| A 6Z 3M21DF09508 | 21 | 34 | 33.5 | 40 | 8 |
| A 6Z 3M22DF09506 | 22 | 35.6 | 35.1 | 41 | 6 |
| A 6Z 3M22DF09508 | 22 | 35.6 | 35.1 | 41 | 8 |
| A 6Z 3M23DF09506 | 23 | 37.2 | 36.7 | 43 | 6 |
| A 6Z 3M23DF09508 | 23 | 37.2 | 36.7 | 43 | 8 |
| A 6Z 3M24DF09506 | 24 | 38.8 | 38.3 | 45 | 6 |
| A 6Z 3M24DF09508 | 24 | 38.8 | 38.3 | 45 | 8 |
| A 6Z 3M25DF09506 | 25 | 40.4 | 39.9 | 46 | 6 |
| A 6Z 3M25DF09508 | 25 | 40.4 | 39.9 | 46 | 8 |
| A 6Z 3M26DF09506 | 26 | 42 | 41.6 | 48 | 6 |
| A 6Z 3M26DF09508 | 26 | 42 | 41.6 | 48 | 8 |
| A 6Z 3M27DF09506 | 27 | 43.7 | 43.2 | 50 | 6 |
| A 6Z 3M27DF09508 | 27 | 43.7 | 43.2 | 50 | 8 |
| A 6Z 3M28DF09506 | 28 | 45.3 | 44.8 | 51 | 6 |
| A 6Z 3M28DF09508 | 28 | 45.3 | 44.8 | 51 | 8 |
| A 6Z 3M29DF09506 | 29 | 46.9 | 46.4 | 53 | 6 |
| A 6Z 3M29DF09508 | 29 | 46.9 | 46.4 | 53 | 8 |
| A 6Z 3M30DF09506 | 30 | 48.5 | 48 | 54 | 6 |
| A 6Z 3M30DF09508 | 30 | 48.5 | 48 | 54 | 8 |

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 and continued on the next page

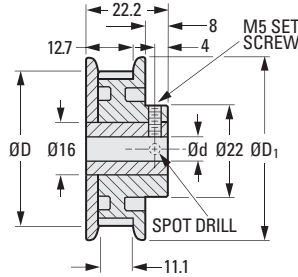
FOR 9.5 mm BELTS
 MOLDED WITH INSERT
 DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



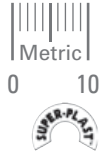
METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 3M31DF09508 | 31 | 50.1 | 49.6 | 56 | 8 |
| A 6Z 3M31DF09510 | 31 | 50.1 | 49.6 | 56 | 10 |
| A 6Z 3M31DF09512 | 31 | 50.1 | 49.6 | 56 | 12 |
| A 6Z 3M32DF09508 | 32 | 51.7 | 51.2 | 58 | 8 |
| A 6Z 3M32DF09510 | 32 | 51.7 | 51.2 | 58 | 10 |
| A 6Z 3M32DF09512 | 32 | 51.7 | 51.2 | 58 | 12 |
| A 6Z 3M34DF09508 | 34 | 55 | 54.5 | 61 | 8 |
| A 6Z 3M34DF09510 | 34 | 55 | 54.5 | 61 | 10 |
| A 6Z 3M34DF09512 | 34 | 55 | 54.5 | 61 | 12 |
| A 6Z 3M35DF09508 | 35 | 56.6 | 56.1 | 63 | 8 |
| A 6Z 3M35DF09510 | 35 | 56.6 | 56.1 | 63 | 10 |
| A 6Z 3M35DF09512 | 35 | 56.6 | 56.1 | 63 | 12 |
| A 6Z 3M36DF09508 | 36 | 58.2 | 57.7 | 64 | 8 |
| A 6Z 3M36DF09510 | 36 | 58.2 | 57.7 | 64 | 10 |
| A 6Z 3M36DF09512 | 36 | 58.2 | 57.7 | 64 | 12 |
| A 6Z 3M37DF09508 | 37 | 59.8 | 59.3 | 66 | 8 |
| A 6Z 3M37DF09510 | 37 | 59.8 | 59.3 | 66 | 10 |
| A 6Z 3M37DF09512 | 37 | 59.8 | 59.3 | 66 | 12 |
| A 6Z 3M39DF09508 | 39 | 63 | 62.5 | 69 | 8 |
| A 6Z 3M39DF09510 | 39 | 63 | 62.5 | 69 | 10 |
| A 6Z 3M39DF09512 | 39 | 63 | 62.5 | 69 | 12 |
| A 6Z 3M40DF09508 | 40 | 64.7 | 64.2 | 71 | 8 |
| A 6Z 3M40DF09510 | 40 | 64.7 | 64.2 | 71 | 10 |
| A 6Z 3M40DF09512 | 40 | 64.7 | 64.2 | 71 | 12 |
| A 6Z 3M42DF09508 | 42 | 67.9 | 67.4 | 74 | 8 |
| A 6Z 3M42DF09510 | 42 | 67.9 | 67.4 | 74 | 10 |
| A 6Z 3M42DF09512 | 42 | 67.9 | 67.4 | 74 | 12 |
| A 6Z 3M44DF09508 | 44 | 71.1 | 70.6 | 77 | 8 |
| A 6Z 3M44DF09510 | 44 | 71.1 | 70.6 | 77 | 10 |
| A 6Z 3M44DF09512 | 44 | 71.1 | 70.6 | 77 | 12 |
| A 6Z 3M48DF09508 | 48 | 77.6 | 77.1 | 83 | 8 |
| A 6Z 3M48DF09510 | 48 | 77.6 | 77.1 | 83 | 10 |
| A 6Z 3M48DF09512 | 48 | 77.6 | 77.1 | 83 | 12 |

Continued from the previous page

FOR 9.5 mm BELTS
MOLDED WITH INSERT
SINGLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled

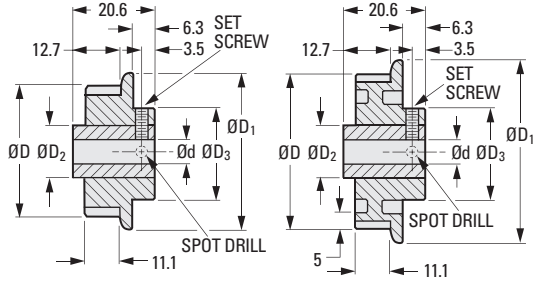


Fig. 1

Fig. 2

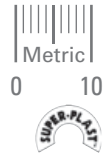
METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025/0 | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|----------------------|---------------------|-------------------------|-----------|
| Fig. 1 | | | | | | | | |
| A 6Z 3M10SF09504 | 10 | 16.2 | 15.7 | 22 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M10SF09505 | 10 | 16.2 | 15.7 | 22 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M10SF09506 | 10 | 16.2 | 15.7 | 22 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M11SF09504 | 11 | 17.8 | 17.3 | 24 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M11SF09505 | 11 | 17.8 | 17.3 | 24 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M11SF09506 | 11 | 17.8 | 17.3 | 24 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M12SF09504 | 12 | 19.4 | 18.9 | 25 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M12SF09505 | 12 | 19.4 | 18.9 | 25 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M12SF09506 | 12 | 19.4 | 18.9 | 25 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M13SF09504 | 13 | 21 | 20.5 | 27 | 4 | 9.5 | 17.5 | M3 |
| A 6Z 3M13SF09505 | 13 | 21 | 20.5 | 27 | 5 | 9.5 | 17.5 | M3 |
| A 6Z 3M13SF09506 | 13 | 21 | 20.5 | 27 | 6 | 9.5 | 17.5 | M3 |
| A 6Z 3M14SF09506 | 14 | 22.6 | 22.1 | 28 | 6 | 13 | 19 | M4 |
| A 6Z 3M14SF09508 | 14 | 22.6 | 22.1 | 28 | 8 | 13 | 19 | M4 |
| A 6Z 3M15SF09506 | 15 | 24.3 | 23.7 | 30 | 6 | 13 | 19 | M4 |
| A 6Z 3M15SF09508 | 15 | 24.3 | 23.7 | 30 | 8 | 13 | 19 | M4 |
| A 6Z 3M16SF09506 | 16 | 25.9 | 25.4 | 32 | 6 | 13 | 19 | M4 |
| A 6Z 3M16SF09508 | 16 | 25.9 | 25.4 | 32 | 8 | 13 | 19 | M4 |
| A 6Z 3M17SF09506 | 17 | 27.5 | 27 | 33 | 6 | 13 | 19 | M4 |
| A 6Z 3M17SF09508 | 17 | 27.5 | 27 | 33 | 8 | 13 | 19 | M4 |
| A 6Z 3M18SF09506 | 18 | 29.1 | 28.6 | 35 | 6 | 13 | 19 | M4 |
| A 6Z 3M18SF09508 | 18 | 29.1 | 28.6 | 35 | 8 | 13 | 19 | M4 |
| Fig. 2 | | | | | | | | |
| A 6Z 3M19SF09506 | 19 | 30.7 | 30.2 | 37 | 6 | 13 | 19 | M4 |
| A 6Z 3M19SF09508 | 19 | 30.7 | 30.2 | 37 | 8 | 13 | 19 | M4 |

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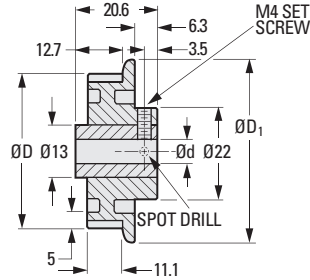
FOR 9.5 mm BELTS
 MOLDED WITH INSERT
 SINGLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 3M20SF09506 | 20 | 32.3 | 31.8 | 38 | 6 |
| A 6Z 3M20SF09508 | 20 | 32.3 | 31.8 | 38 | 8 |
| A 6Z 3M21SF09506 | 21 | 34 | 33.5 | 40 | 6 |
| A 6Z 3M21SF09508 | 21 | 34 | 33.5 | 40 | 8 |
| A 6Z 3M22SF09506 | 22 | 35.6 | 35.1 | 41 | 6 |
| A 6Z 3M22SF09508 | 22 | 35.6 | 35.1 | 41 | 8 |
| A 6Z 3M23SF09506 | 23 | 37.2 | 36.7 | 43 | 6 |
| A 6Z 3M23SF09508 | 23 | 37.2 | 36.7 | 43 | 8 |
| A 6Z 3M24SF09506 | 24 | 38.8 | 38.3 | 45 | 6 |
| A 6Z 3M24SF09508 | 24 | 38.8 | 38.3 | 45 | 8 |
| A 6Z 3M25SF09506 | 25 | 40.4 | 39.9 | 46 | 6 |
| A 6Z 3M25SF09508 | 25 | 40.4 | 39.9 | 46 | 8 |
| A 6Z 3M26SF09506 | 26 | 42 | 41.6 | 48 | 6 |
| A 6Z 3M26SF09508 | 26 | 42 | 41.6 | 48 | 8 |
| A 6Z 3M27SF09506 | 27 | 43.7 | 43.2 | 50 | 6 |
| A 6Z 3M27SF09508 | 27 | 43.7 | 43.2 | 50 | 8 |
| A 6Z 3M28SF09506 | 28 | 45.3 | 44.8 | 51 | 6 |
| A 6Z 3M28SF09508 | 28 | 45.3 | 44.8 | 51 | 8 |
| A 6Z 3M29SF09506 | 29 | 46.9 | 46.4 | 53 | 6 |
| A 6Z 3M29SF09508 | 29 | 46.9 | 46.4 | 53 | 8 |
| A 6Z 3M30SF09506 | 30 | 48.5 | 48 | 54 | 6 |
| A 6Z 3M30SF09508 | 30 | 48.5 | 48 | 54 | 8 |

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XL TIMING BELT PULLEYS • 5.08 mm PITCH



FOR 9.5 mm BELTS
 MOLDED WITH INSERT
 SINGLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

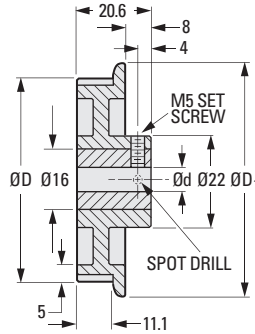


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> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 |
|------------------|----------------|------|--------|---------------------|----------------------|
| A 6Z 3M31SF09508 | 31 | 50.1 | 49.6 | 56 | 8 |
| A 6Z 3M31SF09510 | 31 | 50.1 | 49.6 | 56 | 10 |
| A 6Z 3M31SF09512 | 31 | 50.1 | 49.6 | 56 | 12 |
| A 6Z 3M32SF09508 | 32 | 51.7 | 51.2 | 58 | 8 |
| A 6Z 3M32SF09510 | 32 | 51.7 | 51.2 | 58 | 10 |
| A 6Z 3M32SF09512 | 32 | 51.7 | 51.2 | 58 | 12 |
| A 6Z 3M34SF09508 | 34 | 55 | 54.5 | 61 | 8 |
| A 6Z 3M34SF09510 | 34 | 55 | 54.5 | 61 | 10 |
| A 6Z 3M34SF09512 | 34 | 55 | 54.5 | 61 | 12 |
| A 6Z 3M35SF09508 | 35 | 56.6 | 56.1 | 63 | 8 |
| A 6Z 3M35SF09510 | 35 | 56.6 | 56.1 | 63 | 10 |
| A 6Z 3M35SF09512 | 35 | 56.6 | 56.1 | 63 | 12 |
| A 6Z 3M36SF09508 | 36 | 58.2 | 57.7 | 64 | 8 |
| A 6Z 3M36SF09510 | 36 | 58.2 | 57.7 | 64 | 10 |
| A 6Z 3M36SF09512 | 36 | 58.2 | 57.7 | 64 | 12 |
| A 6Z 3M37SF09508 | 37 | 59.8 | 59.3 | 66 | 8 |
| A 6Z 3M37SF09510 | 37 | 59.8 | 59.3 | 66 | 10 |
| A 6Z 3M37SF09512 | 37 | 59.8 | 59.3 | 66 | 12 |
| A 6Z 3M39SF09508 | 39 | 63 | 62.5 | 69 | 8 |
| A 6Z 3M39SF09510 | 39 | 63 | 62.5 | 69 | 10 |
| A 6Z 3M39SF09512 | 39 | 63 | 62.5 | 69 | 12 |

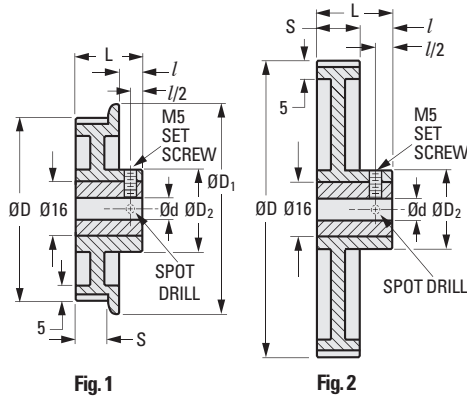
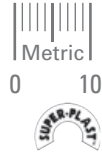
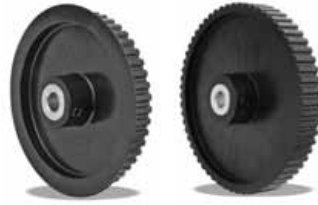
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FOR 9.5 mm BELTS
 MOLDED WITH INSERT
 SINGLE OR NO FLANGE

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► MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.025 0 | L Length | D ₂ Hub Dia. | l Hub Proj. | S |
|-----------------------------|----------------|-------|--------|---------------------|----------------------|----------|-------------------------|-------------|------|
| Fig. 1 Single Flange | | | | | | | | | |
| A 6Z 3M40SF09508 | 40 | 64.7 | 64.2 | 71 | 8 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M40SF09510 | 40 | 64.7 | 64.2 | 71 | 10 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M40SF09512 | 40 | 64.7 | 64.2 | 71 | 12 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M42SF09508 | 42 | 67.9 | 67.4 | 74 | 8 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M42SF09510 | 42 | 67.9 | 67.4 | 74 | 10 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M42SF09512 | 42 | 67.9 | 67.4 | 74 | 12 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M44SF09508 | 44 | 71.1 | 70.6 | 77 | 8 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M44SF09510 | 44 | 71.1 | 70.6 | 77 | 10 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M44SF09512 | 44 | 71.1 | 70.6 | 77 | 12 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M48SF09508 | 48 | 77.6 | 77.1 | 83 | 8 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M48SF09510 | 48 | 77.6 | 77.1 | 83 | 10 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M48SF09512 | 48 | 77.6 | 77.1 | 83 | 12 | 20.6 | 22 | 8 | 11.1 |
| A 6Z 3M58SF09508 | 58 | 93.8 | 93.3 | 100 | 8 | 20.6 | 25 | 8 | 11.1 |
| A 6Z 3M58SF09510 | 58 | 93.8 | 93.3 | 100 | 10 | 20.6 | 25 | 8 | 11.1 |
| A 6Z 3M58SF09512 | 58 | 93.8 | 93.3 | 100 | 12 | 20.6 | 25 | 8 | 11.1 |
| A 6Z 3M78SF09508 | 78 | 126.1 | 125.6 | 132 | 8 | 24.6 | 25 | 9.5 | 12.7 |
| A 6Z 3M78SF09510 | 78 | 126.1 | 125.6 | 132 | 10 | 24.6 | 25 | 9.5 | 12.7 |
| A 6Z 3M78SF09512 | 78 | 126.1 | 125.6 | 132 | 12 | 24.6 | 25 | 9.5 | 12.7 |
| Fig. 2 No Flange | | | | | | | | | |
| A 6Z 3M60NF09508 | 60 | 97 | 96.5 | — | 8 | 22.2 | 25 | 9.5 | 12.7 |
| A 6Z 3M60NF09510 | 60 | 97 | 96.5 | — | 10 | 22.2 | 25 | 9.5 | 12.7 |
| A 6Z 3M60NF09512 | 60 | 97 | 96.5 | — | 12 | 22.2 | 25 | 9.5 | 12.7 |
| A 6Z 3M72NF09508 | 72 | 116.4 | 115.9 | — | 8 | 22.2 | 25 | 9.5 | 12.7 |
| A 6Z 3M72NF09510 | 72 | 116.4 | 115.9 | — | 10 | 22.2 | 25 | 9.5 | 12.7 |
| A 6Z 3M72NF09512 | 72 | 116.4 | 115.9 | — | 12 | 22.2 | 25 | 9.5 | 12.7 |

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FOR 9.5 mm BELTS
MOLDED
DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
 Polycarbonate, Fiberglass Reinforced

> SPECIFICATIONS:
 Bore Tolerance: 4 & 6 mm +0.030/0
 8 mm +0.036/0

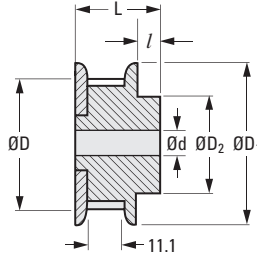


Fig. 1

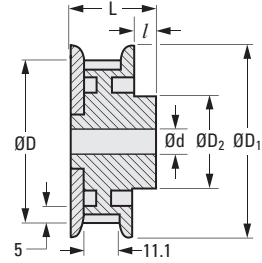


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | L Lgth. | D ₂ Hub Dia. | l Hub Proj. |
|------------------|----------------|------|--------|---------------------|-----------|---------|-------------------------|-------------|
| Fig. 1 | | | | | | | | |
| A 6L 3M10DF09504 | 10 | 16.2 | 15.7 | 22 | 4 | 20.6 | 17.5 | 6.3 |
| A 6L 3M11DF09504 | 11 | 17.8 | 17.3 | 24 | 4 | 20.6 | 17.5 | 6.3 |
| A 6L 3M12DF09504 | 12 | 19.4 | 18.9 | 25 | 4 | 20.6 | 17.5 | 6.3 |
| A 6L 3M13DF09504 | 13 | 21 | 20.5 | 27 | 4 | 20.6 | 17.5 | 6.3 |
| A 6L 3M14DF09506 | 14 | 22.6 | 22.1 | 28 | 6 | 20.6 | 19 | 6.3 |
| A 6L 3M15DF09506 | 15 | 24.3 | 23.7 | 30 | 6 | 20.6 | 19 | 6.3 |
| A 6L 3M16DF09506 | 16 | 25.9 | 25.4 | 32 | 6 | 20.6 | 19 | 6.3 |
| A 6L 3M17DF09506 | 17 | 27.5 | 27 | 33 | 6 | 20.6 | 19 | 6.3 |
| A 6L 3M18DF09506 | 18 | 29.1 | 28.6 | 35 | 6 | 20.6 | 19 | 6.3 |
| Fig. 2 | | | | | | | | |
| A 6L 3M19DF09506 | 19 | 30.7 | 30.2 | 37 | 6 | 20.6 | 19 | 6.3 |
| A 6L 3M20DF09506 | 20 | 32.3 | 31.8 | 38 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M21DF09506 | 21 | 34 | 33.4 | 40 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M22DF09506 | 22 | 35.6 | 35.1 | 41 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M23DF09506 | 23 | 37.2 | 36.7 | 43 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M24DF09506 | 24 | 38.8 | 38.3 | 45 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M25DF09506 | 25 | 40.4 | 39.9 | 46 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M26DF09506 | 26 | 42 | 41.5 | 48 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M27DF09506 | 27 | 43.7 | 43.2 | 50 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M28DF09506 | 28 | 45.3 | 44.8 | 51 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M29DF09506 | 29 | 46.9 | 46.4 | 53 | 6 | 20.6 | 22 | 6.3 |
| A 6L 3M30DF09508 | 30 | 48.5 | 48 | 54 | 8 | 20.6 | 22 | 6.3 |
| A 6L 3M31DF09508 | 31 | 50.1 | 49.6 | 56 | 8 | 22.2 | 22 | 8 |
| A 6L 3M32DF09508 | 32 | 51.7 | 51.2 | 58 | 8 | 22.2 | 22 | 8 |
| A 6L 3M34DF09508 | 34 | 55 | 54.5 | 61 | 8 | 22.2 | 22 | 8 |
| A 6L 3M35DF09508 | 35 | 56.6 | 56.1 | 63 | 8 | 22.2 | 22 | 8 |
| A 6L 3M36DF09508 | 36 | 58.2 | 57.7 | 64 | 8 | 22.2 | 22 | 8 |
| A 6L 3M37DF09508 | 37 | 59.8 | 59.3 | 66 | 8 | 22.2 | 22 | 8 |
| A 6L 3M39DF09508 | 39 | 63.1 | 62.6 | 69 | 8 | 22.2 | 22 | 8 |
| A 6L 3M40DF09508 | 40 | 64.7 | 64.2 | 71 | 8 | 22.2 | 22 | 8 |
| A 6L 3M42DF09508 | 42 | 67.9 | 67.4 | 74 | 8 | 22.2 | 22 | 8 |
| A 6L 3M44DF09508 | 44 | 71.1 | 70.6 | 77 | 8 | 22.2 | 22 | 8 |
| A 6L 3M48DF09508 | 48 | 77.6 | 77.1 | 84 | 8 | 22.2 | 22 | 8 |

FOR 9.5 mm BELTS
 MOLDED
 SINGLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
 Polycarbonate, Fiberglass Reinforced

> SPECIFICATIONS:
 Bore Tolerance: 4 & 6 mm +0.030/0
 8 mm +0.036/0

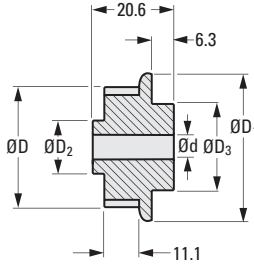


Fig. 1

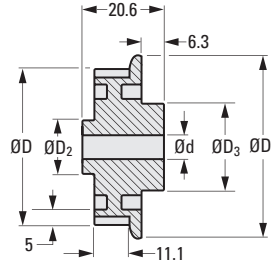


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | D ₂ Dia. | D ₃ Hub Dia. |
|------------------|----------------|------|--------|---------------------|-----------|---------------------|-------------------------|
| Fig. 1 | | | | | | | |
| A 6L 3M10SF09504 | 10 | 16.2 | 15.7 | 22 | 4 | 9.6 | 17.5 |
| A 6L 3M11SF09504 | 11 | 17.8 | 17.3 | 24 | 4 | 9.6 | 17.5 |
| A 6L 3M12SF09504 | 12 | 19.4 | 18.9 | 25 | 4 | 9.6 | 17.5 |
| A 6L 3M13SF09504 | 13 | 21 | 20.5 | 27 | 4 | 12.7 | 17.5 |
| A 6L 3M14SF09506 | 14 | 22.6 | 22.1 | 28 | 6 | 12.7 | 19 |
| A 6L 3M15SF09506 | 15 | 24.3 | 23.7 | 30 | 6 | 12.7 | 19 |
| A 6L 3M16SF09506 | 16 | 25.9 | 25.4 | 32 | 6 | 12.7 | 19 |
| A 6L 3M17SF09506 | 17 | 27.5 | 27 | 33 | 6 | 12.7 | 19 |
| A 6L 3M18SF09506 | 18 | 29.1 | 28.6 | 35 | 6 | 12.7 | 19 |
| Fig. 2 | | | | | | | |
| A 6L 3M19SF09506 | 19 | 30.7 | 30.2 | 37 | 6 | 12.7 | 19 |
| A 6L 3M20SF09506 | 20 | 32.3 | 31.8 | 38 | 6 | 12.7 | 22 |
| A 6L 3M21SF09506 | 21 | 34 | 33.4 | 40 | 6 | 12.7 | 22 |
| A 6L 3M22SF09506 | 22 | 35.6 | 35.1 | 41 | 6 | 12.7 | 22 |
| A 6L 3M23SF09506 | 23 | 37.2 | 36.7 | 43 | 6 | 12.7 | 22 |
| A 6L 3M24SF09506 | 24 | 38.8 | 38.3 | 45 | 6 | 12.7 | 22 |
| A 6L 3M25SF09506 | 25 | 40.4 | 39.9 | 46 | 6 | 12.7 | 22 |
| A 6L 3M26SF09506 | 26 | 42 | 41.5 | 48 | 6 | 12.7 | 22 |
| A 6L 3M27SF09506 | 27 | 43.7 | 43.2 | 50 | 6 | 12.7 | 22 |
| A 6L 3M28SF09506 | 28 | 45.3 | 44.8 | 51 | 6 | 12.7 | 22 |
| A 6L 3M29SF09506 | 29 | 46.9 | 46.4 | 53 | 6 | 12.7 | 22 |
| A 6L 3M30SF09508 | 30 | 48.5 | 48 | 54 | 8 | 12.7 | 22 |

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FOR 9.5 mm BELTS
 MOLDED
 SINGLE OR NO FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
 Polycarbonate, Fiberglass Reinforced

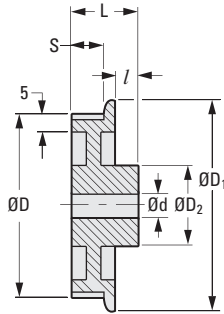
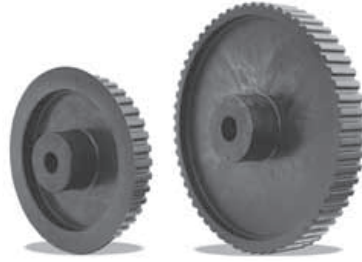


Fig. 1

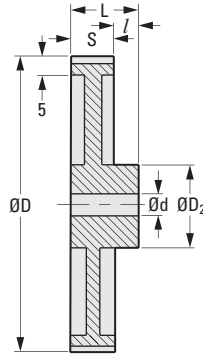


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.036 0 | L Lgth. | D ₂ Hub Dia. | l Hub Proj. | S | |
|-----------------------------|----------------|-------|--------|---------------------|----------------------|---------|-------------------------|-------------|------|--|
| Fig. 1 Single Flange | | | | | | | | | | |
| A 6L 3M31SF09508 | 31 | 50.1 | 49.6 | 56 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M32SF09508 | 32 | 51.7 | 51.2 | 58 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M34SF09508 | 34 | 55 | 54.5 | 61 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M35SF09508 | 35 | 56.6 | 56.1 | 63 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M36SF09508 | 36 | 58.2 | 57.7 | 64 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M37SF09508 | 37 | 59.8 | 59.3 | 66 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M39SF09508 | 39 | 63.1 | 62.6 | 69 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M40SF09508 | 40 | 64.7 | 64.2 | 71 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M42SF09508 | 42 | 67.9 | 67.4 | 74 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M44SF09508 | 44 | 71.1 | 70.6 | 77 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M48SF09508 | 48 | 77.6 | 77.1 | 84 | 8 | 20.6 | 22 | 8 | 11.1 | |
| A 6L 3M58SF09510 | 58 | 93.8 | 93.3 | 100 | 10 | 20.6 | 25 | 8 | 11.1 | |
| A 6L 3M78SF09510 | 78 | 126.1 | 125.6 | 132 | 10 | 24.6 | 25 | 9.5 | 12.7 | |
| Fig. 2 No Flange | | | | | | | | | | |
| A 6L 3M60NF09510 | 60 | 97 | 96.5 | - | 10 | 22.2 | 25 | 9.5 | 12.7 | |
| A 6L 3M72NF09510 | 72 | 116.4 | 115.9 | - | 10 | 22.2 | 25 | 9.5 | 12.7 | |

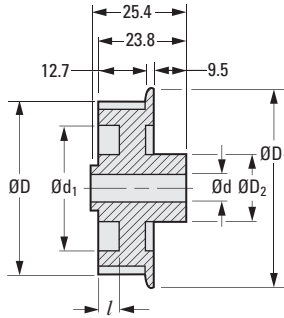
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FOR 9.5 mm BELTS
 MOLDED
 SINGLE FLANGE

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➤ **MATERIAL:**
 Acetal



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. ± 0.04 | D ₂ Hub Dia. | d ₁ Dia. | l |
|--------------------|----------------|------|--------|---------------------|--------------------|-------------------------|---------------------|-------|
| A 6M 3M10SF09506 | 10 | 16.2 | 15.7 | 22 | 6 | 12.7 | Solid | Solid |
| A 6M 3M11SF09506 | 11 | 17.8 | 17.3 | 24 | 6 | 12.7 | Solid | Solid |
| A 6M 3M12SF09506 | 12 | 19.4 | 18.9 | 25 | 6 | 12.7 | Solid | Solid |
| A 6M 3M14SF09508 | 14 | 22.6 | 22.1 | 29 | 8 | 12.7 | 15 | 6.7 |
| * A 6M 3M15SF09508 | 15 | 24.3 | 23.7 | 30 | 8 | 12.7 | 15.5 | 6.7 |
| * A 6M 3M16SF09508 | 16 | 25.9 | 25.4 | 32 | 8 | 12.7 | 19 | 5.3 |
| A 6M 3M18SF09508 | 18 | 29.1 | 28.6 | 35 | 8 | 15.9 | 20 | 5.2 |
| A 6M 3M20SF09508 | 20 | 32.3 | 31.8 | 38 | 8 | 15.9 | 24 | 5.3 |
| * A 6M 3M21SF09508 | 21 | 34 | 33.5 | 40 | 8 | 15.9 | 26.5 | 5.3 |
| A 6M 3M22SF09508 | 22 | 35.6 | 35.1 | 41 | 8 | 15.9 | 28 | 5.1 |
| * A 6M 3M24SF09508 | 24 | 38.8 | 38.3 | 44 | 8 | 15.9 | 32 | 5.3 |
| * A 6M 3M28SF09508 | 28 | 45.3 | 44.8 | 51 | 8 | 15.9 | 38 | 5.5 |
| A 6M 3M30SF09508 | 30 | 48.5 | 48 | 54 | 8 | 17.5 | 40 | 5.3 |
| * A 6M 3M32SF09508 | 32 | 51.7 | 51.2 | 57 | 8 | 17.5 | 44 | 5.3 |
| * A 6M 3M36SF09508 | 36 | 58.2 | 57.7 | 64 | 8 | 17.5 | 50 | 5.5 |
| A 6M 3M40SF09508 | 40 | 64.7 | 64.2 | 70 | 8 | 17.5 | 56 | 6.9 |
| * A 6M 3M42SF09508 | 42 | 67.9 | 67.4 | 74 | 8 | 17.5 | 59 | 5.3 |
| * A 6M 3M44SF09508 | 44 | 71.2 | 70.6 | 77 | 8 | 17.5 | 62 | 5.3 |
| A 6M 3M48SF09508 | 48 | 77.6 | 77.1 | 83 | 8 | 17.5 | 69 | 5.6 |

* These pulleys are 23.8 mm wide (no flange shoulder).

BELT WIDTHS

INCH - 1/2, 3/4 & 1 in.
METRIC - 12.5, 19 & 25.4 mm

➤ **MATERIAL:**

Nylon Covered, Fiberglass Reinforced, Neoprene

➤ **SPECIFICATIONS:**

Breaking Strength:

125 lbf per 1/8 in. (175 N per 1 mm) Belt Width; not representative of the load-carrying capacity of the belt.

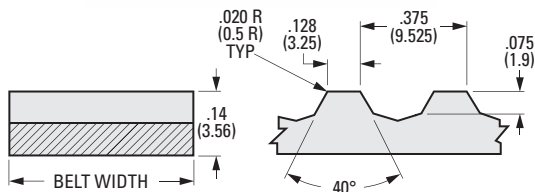
Temperature Range:

-30°F to +185°F (-34°C to +85°C)

➤ **MODIFICATIONS:**

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 R 4 - [] [] [] [] []

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/2 | 050 |
| 3/4 | 075 |
| 1 | 100 |

METRIC COMPONENT CATALOG NUMBER

A 6 R 4 M [] [] [] [] []

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 12.5 | 125 |
| 19 | 190 |
| 25.4 | 254 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 026 | 9.750 | 247.65 |
| 029 | 10.875 | 276.23 |
| 033 | 12.375 | 314.33 |
| 035 | 13.125 | 333.38 |
| 036 | 13.500 | 342.9 |
| 038 | 14.250 | 361.95 |
| 040 | 15.000 | 381 |
| 041 | 15.375 | 390.53 |
| 042 | 15.750 | 400.05 |
| 044 | 16.500 | 419.1 |
| 045 | 16.875 | 428.63 |
| 046 | 17.250 | 438.15 |
| 047 | 17.625 | 447.68 |
| 050 | 18.750 | 476.25 |
| 052 | 19.500 | 495.3 |
| 053 | 19.875 | 504.83 |
| 054 | 20.250 | 514.35 |
| 055 | 20.625 | 523.88 |
| 056 | 21.000 | 533.4 |
| 058 | 21.750 | 552.45 |
| 060 | 22.500 | 571.5 |
| 062 | 23.250 | 590.55 |
| 063 | 23.625 | 600.08 |
| 064 | 24.000 | 609.6 |
| 065 | 24.375 | 619.13 |
| 066 | 24.750 | 628.65 |
| 067 | 25.125 | 638.18 |
| 068 | 25.500 | 647.7 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 069 | 25.875 | 657.23 |
| 070 | 26.250 | 666.75 |
| 072 | 27.000 | 685.8 |
| 074 | 27.750 | 704.85 |
| 076 | 28.500 | 723.9 |
| 080 | 30.000 | 762 |
| 081 | 30.375 | 771.53 |
| 082 | 30.750 | 781.05 |
| 084 | 31.500 | 800.1 |
| 085 | 31.875 | 809.63 |
| 086 | 32.250 | 819.15 |
| 089 | 33.375 | 847.73 |
| 090 | 33.750 | 857.25 |
| 092 | 34.500 | 876.3 |
| 094 | 35.250 | 895.35 |
| 096 | 36.000 | 914.4 |
| 098 | 36.750 | 933.45 |
| 100 | 37.500 | 952.5 |
| 104 | 39.000 | 990.6 |
| 105 | 39.375 | 1000.13 |
| 108 | 40.500 | 1028.7 |
| 112 | 42.000 | 1066.8 |
| 114 | 42.750 | 1085.85 |
| 116 | 43.500 | 1104.9 |
| 117 | 43.875 | 1114.43 |
| 119 | 44.625 | 1133.48 |
| 120 | 45.000 | 1143 |
| 123 | 46.125 | 1171.58 |

Continued on the next page



INCH COMPONENT CATALOG NUMBER

A 6 R 4 -

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/2 | 050 |
| 3/4 | 075 |
| 1 | 100 |

METRIC COMPONENT CATALOG NUMBER

A 6 R 4 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 12.5 | 125 |
| 19 | 190 |
| 25.4 | 254 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 124 | 46.500 | 1181.1 |
| *126 | 47.250 | 1200.15 |
| 128 | 48.000 | 1219.2 |
| 136 | 51.000 | 1295.4 |
| 140 | 52.500 | 1333.5 |
| 144 | 54.000 | 1371.6 |
| 146 | 54.750 | 1390.65 |
| 151 | 56.625 | 1438.28 |
| 152 | 57.000 | 1447.8 |
| 154 | 57.750 | 1466.85 |
| 155 | 58.125 | 1476.38 |
| 160 | 60.000 | 1524 |
| 161 | 60.375 | 1533.53 |
| 165 | 61.875 | 1571.63 |
| 168 | 63.000 | 1600.2 |
| 174 | 65.250 | 1657.35 |
| 176 | 66.000 | 1676.4 |
| 186 | 69.750 | 1771.65 |
| 192 | 72.000 | 1828.8 |
| 194 | 72.750 | 1847.85 |
| 195 | 73.125 | 1857.38 |
| 208 | 78.000 | 1981.2 |
| 210 | 78.750 | 2000.25 |
| 215 | 80.625 | 2047.88 |
| 218 | 81.750 | 2076.45 |
| 228 | 85.500 | 2171.7 |
| 230 | 86.250 | 2190.75 |
| 235 | 88.125 | 2238.38 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 240 | 90.000 | 2286 |
| 244 | 91.500 | 2324.1 |
| 250 | 93.750 | 2381.25 |
| 252 | 94.500 | 2400.3 |
| 294 | 110.250 | 2800.35 |
| 340 | 127.500 | 3238.5 |
| *590 | 221.250 | 5619.75 |

* To be discontinued when present stock is depleted.
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- 14
- 15
- A

BELT WIDTHS
 INCH - 1/2 & 3/4
 METRIC - 12.5 & 19 mm
 NON-MARKING
 LOW DUST
 RoHS COMPLIANT
 PowerGrip® TruMotion®



➤ **MATERIAL:**

Cream-Colored Polymer Compound, Fiberglass
 Reinforced Body with Nylon Tooth Facing for Reduced Dust.

➤ **SPECIFICATIONS:**

Breaking Strength:
 125 lbs. per 1/8 in. (175 N per 1 mm) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:
 40 lbs. for 1 in. belt (178 N for 25.4 mm belt).

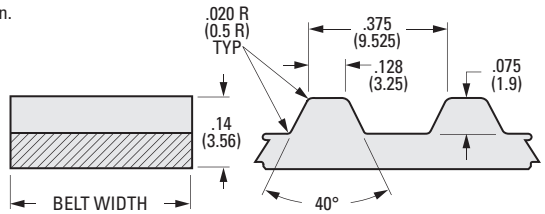
For more information, see the technical section.

Temperature Range:
 -40°F to +220°F (-40°C to +104°C)

➤ **MODIFICATIONS:**

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 2 6 R 4 - [] [] [] []

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/2 | 050 |
| 3/4 | 075 |

METRIC COMPONENT CATALOG NUMBER

A 2 6 R 4 M [] [] [] []

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 12.5 | 125 |
| 19 | 190 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 033 | 12.375 | 314.33 |
| 036 | 13.500 | 342.9 |
| 040 | 15.000 | 381 |
| 041 | 15.375 | 390.53 |
| 042 | 15.750 | 400.05 |
| 044 | 16.500 | 419.1 |
| 046 | 17.250 | 438.15 |
| 047 | 17.625 | 447.68 |
| 050 | 18.750 | 476.25 |
| 052 | 19.500 | 495.3 |
| 053 | 19.875 | 504.83 |
| 054 | 20.250 | 514.35 |
| 056 | 21.000 | 533.4 |
| 058 | 21.750 | 552.45 |
| 060 | 22.500 | 571.5 |
| 064 | 24.000 | 609.6 |
| 066 | 24.750 | 628.65 |
| 068 | 25.500 | 647.7 |
| 070 | 26.250 | 666.75 |
| 072 | 27.000 | 685.8 |
| 076 | 28.500 | 723.9 |
| 080 | 30.000 | 762 |
| 084 | 31.500 | 800.1 |
| 086 | 32.250 | 819.15 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | Inch | mm |
| 092 | 34.500 | 876.3 |
| 098 | 36.750 | 933.45 |
| 100 | 37.500 | 952.5 |
| 104 | 39.000 | 990.6 |
| 112 | 42.000 | 1066.8 |
| 119 | 44.625 | 1133.5 |
| 120 | 45.000 | 1143 |
| 128 | 48.000 | 1219.2 |
| 136 | 51.000 | 1295.4 |
| 144 | 54.000 | 1371.6 |
| 151 | 56.625 | 1438.3 |
| 152 | 57.000 | 1447.8 |
| 155 | 58.125 | 1476.38 |
| 160 | 60.000 | 1524 |
| 168 | 63.000 | 1600.2 |
| 176 | 66.000 | 1676.4 |
| 192 | 72.000 | 1828.8 |
| 195 | 73.125 | 1857.38 |
| 218 | 81.750 | 2076.5 |
| 240 | 90.000 | 2286 |
| 244 | 91.500 | 2324.1 |
| 252 | 94.500 | 2400.3 |
| 294 | 110.250 | 2800.4 |

BELT WIDTHS

INCH - 1/2, 3/4 & 1 in.

METRIC - 12.5, 19 & 25.4 mm

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> MATERIAL:

Nylon Covered, Fiberglass Reinforced, Neoprene

> SPECIFICATIONS:

Breaking Strength:

125 lbf per 1/8 in. (175 N per 1 mm) Belt Width; not representative of the load-carrying capacity of the belt.

Temperature Range:

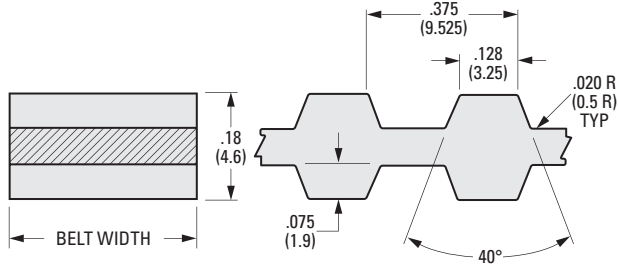
-30°F to +185°F (-34°C to +85°C)



> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are mm.

INCH COMPONENT CATALOG NUMBER

A 6 R 4 - D

No. of Grooves Code

| Belt Width Inch | Width Code |
|-----------------|------------|
| 1/2 | 050 |
| 3/4 | 075 |
| 1 | 100 |

METRIC COMPONENT CATALOG NUMBER

A 6 R 4 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 12.5 | 125 |
| 19 | 190 |
| 25.4 | 254 |

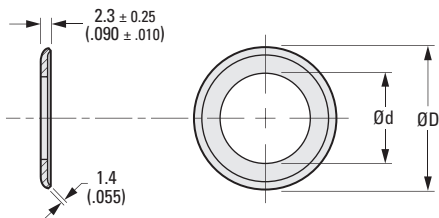
| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | Inch | mm |
| 033 | 12.375 | 314.33 |
| 040 | 15.000 | 381 |
| 050 | 18.750 | 476.25 |
| *056 | 21.000 | 533.4 |
| 060 | 22.500 | 571.5 |
| 064 | 24.000 | 609.6 |
| 068 | 25.500 | 647.7 |
| 072 | 27.000 | 685.8 |
| 076 | 28.500 | 723.9 |
| 080 | 30.000 | 762 |
| 086 | 32.250 | 819.15 |
| 092 | 34.500 | 876.3 |
| 098 | 36.750 | 933.45 |
| 104 | 39.000 | 990.6 |
| 112 | 42.000 | 1066.8 |
| 120 | 45.000 | 1143 |
| 128 | 48.000 | 1219.2 |
| 136 | 51.000 | 1295.4 |
| 144 | 54.000 | 1371.6 |
| 160 | 60.000 | 1524 |
| 176 | 66.000 | 1676.4 |

* To be discontinued when present stock is depleted.

> **MATERIAL:**
Aluminum Alloy or Steel

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> **SPECIFICATION:**
Priced per 25 pieces



METRIC COMPONENT

| Catalog Number | | Pulley Grooves (Ref.) | Metric | | Inch | |
|----------------|-------------|-----------------------|-------------------|------------------|-------------------|-------------------|
| Aluminum Alloy | Steel | | d Dia. ± 0.13 | D Dia. ± 0.4 | d Dia. $\pm .005$ | D Dia. $\pm 1/64$ |
| A 6A 4M10FA | A 6C 4M10FS | 10 | 24.79 | 36.5 | .976 | 1-7/16 |
| A 6A 4M11FA | A 6C 4M11FS | 11 | 27.96 | 38.9 | 1.101 | 1-17/32 |
| A 6A 4M12FA | A 6C 4M12FS | 12 | 31.14 | 42 | 1.226 | 1-21/32 |
| A 6A 4M13FA | A 6C 4M13FS | 13 | 32.41 | 45.2 | 1.276 | 1-25/32 |
| A 6A 4M14FA | A 6C 4M14FS | 14 | 35.58 | 48.4 | 1.401 | 1-29/32 |
| A 6A 4M15FA | A 6C 4M15FS | 15 | 38.63 | 51.6 | 1.521 | 2-1/32 |
| A 6A 4M16FA | A 6C 4M16FS | 16 | 40.08 | 53.9 | 1.578 | 2-1/8 |
| A 6A 4M17FA | A 6C 4M17FS | 17 | 43.2 | 57.1 | 1.701 | 2-1/4 |
| A 6A 4M18FA | A 6C 4M18FS | 18 | 46.32 | 60.3 | 1.824 | 2-3/8 |
| A 6A 4M19FA | A 6C 4M19FS | 19 | 48.51 | 63.5 | 1.910 | 2-1/2 |
| A 6A 4M20FA | A 6C 4M20FS | 20 | 51.68 | 66.6 | 2.035 | 2-5/8 |
| A 6A 4M21FA | A 6C 4M21FS | 21 | 53.85 | 69.8 | 2.120 | 2-3/4 |
| A 6A 4M22FA | A 6C 4M22FS | 22 | 56.92 | 73 | 2.241 | 2-7/8 |
| A 6A 4M24FA | A 6C 4M24FS | 24 | 60.32 | 78.5 | 2.375 | 3-3/32 |

NOTE: Dimensions in () are inch.

REV: 4.26.13 JC

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➤ **MATERIAL:**

Aluminum Alloy or Steel

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

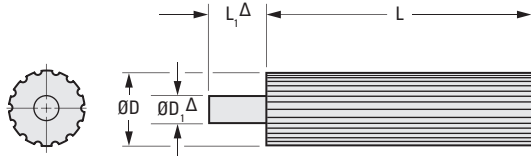
➤ **SPECIFICATIONS:**

D Tolerance:

From 10 to 17 grooves is +0.08/0 (+.003)

From 18 to 32 grooves is +0.10/0 (+.004)

From 34 to 48 grooves is +0.13/0 (+.005)



METRIC COMPONENT

| Catalog Number | | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length | L Min. Usable Length |
|----------------|--------------|----------------|--------|--------|-------|--------|---------------------------|-----------------------------|----------------------|
| Aluminum | Steel | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A 4M10L20 | A 6C 4M10L20 | 10 | 30.3 | 29.56 | 1.194 | 1.164 | 19.1 (3/4) | 28.6 (1-1/8) | 203.2 (8) |
| A 6A 4M11L20 | A 6C 4M11L20 | 11 | 33.4 | 32.59 | 1.313 | 1.283 | | | |
| A 6A 4M12L20 | A 6C 4M12L20 | 12 | 36.4 | 35.62 | 1.432 | 1.402 | | | |
| A 6A 4M12L30 | A 6C 4M12L30 | | | | | | | | |
| A 6A 4M13L20 | A 6C 4M13L20 | 13 | 39.4 | 38.65 | 1.552 | 1.522 | | | |
| A 6A 4M14L20 | A 6C 4M14L20 | 14 | 42.4 | 41.68 | 1.671 | 1.641 | | | |
| A 6A 4M14L30 | A 6C 4M14L30 | | | | | | | | |
| A 6A 4M15L20 | A 6C 4M15L20 | 15 | 45.5 | 44.72 | 1.790 | 1.760 | | | |
| A 6A 4M15L30 | A 6C 4M15L30 | | | | | | | | |
| A 6A 4M16L20 | A 6C 4M16L20 | | | | | | | | |
| A 6A 4M16L30 | A 6C 4M16L30 | 16 | 48.5 | 47.75 | 1.910 | 1.880 | | | |
| A 6A 4M17L20 | A 6C 4M17L20 | 17 | 51.5 | 50.78 | 2.029 | 1.999 | | | |
| A 6A 4M18L20 | A 6C 4M18L20 | 18 | 54.6 | 53.81 | 2.149 | 2.119 | | | |
| A 6A 4M18L30 | — | | | | | | | | |
| A 6A 4M19L20 | A 6C 4M19L20 | 19 | 57.6 | 56.84 | 2.268 | 2.238 | | | |
| A 6A 4M20L20 | A 6C 4M20L20 | 20 | 60.6 | 59.88 | 2.387 | 2.357 | | | |
| A 6A 4M20L30 | A 6C 4M20L30 | | | | | | | | |
| A 6A 4M21L20 | A 6C 4M21L20 | 21 | 63.7 | 62.91 | 2.507 | 2.477 | | | |
| A 6A 4M21L30 | A 6C 4M21L30 | | | | | | | | |
| — | A 6C 4M22L30 | 22 | 66.7 | 65.94 | 2.626 | 2.596 | | | |
| A 6A 4M22L30 | A 6C 4M22L30 | | | | | | | | |
| A 6A 4M23L25 | — | 23 | 69.7 | 68.97 | 2.745 | 2.715 | | | |
| A 6A 4M24L20 | A 6C 4M24L20 | 24 | 72.8 | 72 | 2.865 | 2.835 | | | |
| A 6A 4M24L30 | A 6C 4M24L30 | | | | | | | | |
| A 6A 4M26L20 | A 6C 4M26L20 | 26 | 78.8 | 78.07 | 3.104 | 3.074 | | | |
| A 6A 4M28L20 | A 6C 4M28L20 | 28 | 84.9 | 84.13 | 3.342 | 3.312 | | | |
| A 6A 4M28L30 | — | | | | | | | | |
| A 6A 4M29L25 | — | 29 | 87.9 | 87.16 | 3.462 | 3.432 | | | |
| A 6A 4M30L20 | A 6C 4M30L20 | 30 | 91 | 90.2 | 3.581 | 3.551 | | | |
| A 6A 4M30L30 | A 6C 4M30L30 | | | | | | | | |
| A 6A 4M32L20 | A 6C 4M32L20 | 32 | 97 | 96.26 | 3.820 | 3.790 | | | |
| A 6A 4M32L30 | A 6C 4M32L30 | | | | | | | | |
| A 6A 4M34L25 | — | 34 | 103.1 | 102.32 | 4.058 | 4.028 | | | |
| A 6A 4M36L20 | — | 36 | 109.1 | 108.39 | 4.297 | 4.267 | | | |
| A 6A 4M36L30 | A 6C 4M36L30 | | | | | | | | |
| A 6A 4M40L25 | — | 40 | 121.3 | 120.51 | 4.775 | 4.745 | | | |
| A 6A 4M42L25 | — | 42 | 127.3 | 126.58 | 5.013 | 4.983 | | | |
| A 6A 4M44L25 | — | 44 | 133.4 | 132.64 | 5.252 | 5.222 | | | |
| A 6A 4M48L25 | — | 48 | 145.5 | 144.77 | 5.730 | 5.700 | | | |

NOTE: Dimensions in () are inch.

Δ Dimensions in [] may be substituted at SDP option.

REV: 4.26.13 JC

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L TIMING BELT PULLEYS • 9.525 mm PITCH

SDP/SI

FOR 12.5 mm BELTS
DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



0 10

> MATERIAL:

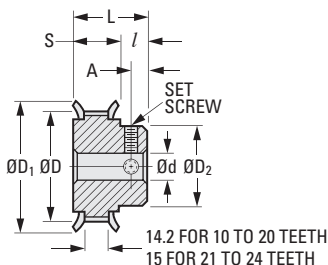
Aluminum Alloy

> FINISH:

Clear Anodized

> SPECIFICATION:

All pulleys supplied with
2 set screws at 90°



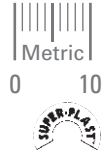
METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore +0.025/0 | S Body | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------------|--------|----------------|-------------------------------|-------------|-----|-----------|
| A 6A 4M10DF12510 | 10 | 30.3 | 29.6 | 36.5 | 10 | 18.3 | 28.6 | 22.2 | 10.3 | 5 | M5 |
| A 6A 4M11DF12510 | 11 | 33.4 | 32.6 | 38.9 | 10 | 18.3 | 28.6 | 25.4 | 10.3 | 5 | M5 |
| A 6A 4M12DF12510 | 12 | 36.4 | 35.6 | 42 | 10 | 18.3 | 30.2 | 28.6 | 11.9 | 6 | M5 |
| A 6A 4M13DF12510 | 13 | 39.4 | 38.7 | 45.2 | 10 | 18.3 | 30.2 | 28.6 | 11.9 | 6 | M5 |
| A 6A 4M14DF12512 | 14 | 42.4 | 41.7 | 48.4 | 12 | 18.3 | 30.2 | 31.7 | 11.9 | 6 | M6 |
| A 6A 4M15DF12512 | 15 | 45.5 | 44.7 | 51.6 | 12 | 18.3 | 31.8 | 35 | 13.5 | 7 | M6 |
| A 6A 4M16DF12514 | 16 | 48.5 | 47.7 | 53.9 | 14 | 18.3 | 31.8 | 35 | 13.5 | 7 | M6 |
| A 6A 4M17DF12514 | 17 | 51.5 | 50.8 | 57.1 | 14 | 18.3 | 31.8 | 38 | 13.5 | 7 | M6 |
| A 6A 4M18DF12514 | 18 | 54.6 | 53.8 | 60.3 | 14 | 18.3 | 31.8 | 41.3 | 13.5 | 7 | M6 |
| A 6A 4M19DF12514 | 19 | 57.6 | 56.8 | 63.5 | 14 | 18.3 | 33.3 | 42.8 | 15 | 7.5 | M6 |
| A 6A 4M20DF12514 | 20 | 60.6 | 59.9 | 66.6 | 14 | 18.3 | 33.3 | 46 | 15 | 7.5 | M6 |
| A 6A 4M21DF12514 | 21 | 63.7 | 62.9 | 69.8 | 14 | 19 | 34.9 | 50.8 | 15.9 | 8 | M6 |
| A 6A 4M22DF12514 | 22 | 66.7 | 65.9 | 73 | 14 | 19 | 34.9 | 54 | 15.9 | 8 | M6 |
| A 6A 4M24DF12514 | 24 | 72.8 | 72 | 78.5 | 14 | 19 | 34.9 | 57.1 | 15.9 | 8 | M6 |

FOR 12.5 mm BELTS

MOLDED WITH METAL HUB
SINGLE OR DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**

- Pulley** - Polycarbonate, Fiberglass Reinforced
- Insert** - Aluminum Knurled

➤ **SPECIFICATIONS:**

- Pulleys with 10 to 16 grooves do not have webs.
- All Pulleys have 2 set screws at 90°

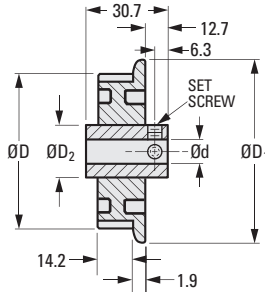


Fig. 1

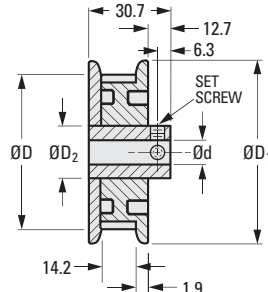


Fig. 2

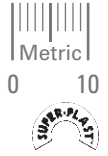
METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.043 0 | D ₂ Hub Dia. | Set Screw |
|----------------------|----------------------|----------------|-------|--------|---------------------|----------------------|-------------------------|-----------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | | |
| A 6Z 4M10SF12510 | A 6Z 4M10DF12510 | 10 | 30.3 | 29.6 | 36.6 | 10 | 22.2 | M5 |
| A 6Z 4M10SF12512 | A 6Z 4M10DF12512 | 10 | 30.3 | 29.6 | 36.6 | 12 | 22.2 | M5 |
| A 6Z 4M12SF12510 | A 6Z 4M12DF12510 | 12 | 36.4 | 35.6 | 42.9 | 10 | 22.2 | M5 |
| A 6Z 4M12SF12512 | A 6Z 4M12DF12512 | 12 | 36.4 | 35.6 | 42.9 | 12 | 22.2 | M5 |
| A 6Z 4M16SF12512 | A 6Z 4M16DF12512 | 16 | 48.5 | 47.7 | 53.8 | 12 | 28.6 | M6 |
| A 6Z 4M16SF12516 | A 6Z 4M16DF12516 | 16 | 48.5 | 47.7 | 53.8 | 16 | 28.6 | M6 |
| A 6Z 4M18SF12512 | A 6Z 4M18DF12512 | 18 | 54.6 | 53.8 | 60.2 | 12 | 28.6 | M6 |
| A 6Z 4M18SF12516 | A 6Z 4M18DF12516 | 18 | 54.6 | 53.8 | 60.2 | 16 | 28.6 | M6 |
| A 6Z 4M20SF12512 | A 6Z 4M20DF12512 | 20 | 60.6 | 59.9 | 66.5 | 12 | 28.6 | M6 |
| A 6Z 4M20SF12516 | A 6Z 4M20DF12516 | 20 | 60.6 | 59.9 | 66.5 | 16 | 28.6 | M6 |
| A 6Z 4M24SF12512 | A 6Z 4M24DF12512 | 24 | 72.8 | 72 | 79.2 | 12 | 28.6 | M6 |
| A 6Z 4M24SF12516 | A 6Z 4M24DF12516 | 24 | 72.8 | 72 | 79.2 | 16 | 28.6 | M6 |
| A 6Z 4M36SF12512 | A 6Z 4M36DF12512 | 36 | 109.1 | 108.4 | 115 | 12 | 28.6 | M6 |
| A 6Z 4M36SF12516 | A 6Z 4M36DF12516 | 36 | 109.1 | 108.4 | 115 | 16 | 28.6 | M6 |
| A 6Z 4M40SF12512 | A 6Z 4M40DF12512 | 40 | 121.3 | 120.5 | 127 | 12 | 28.6 | M6 |
| A 6Z 4M40SF12516 | A 6Z 4M40DF12516 | 40 | 121.3 | 120.5 | 127 | 16 | 28.6 | M6 |

FOR 19 mm BELTS

MOLDED WITH METAL HUB
SINGLE OR DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum Knurled

SPECIFICATIONS:

Pulleys with 10 to 16 grooves do not have webs.
All Pulleys have 2 set screws at 90°

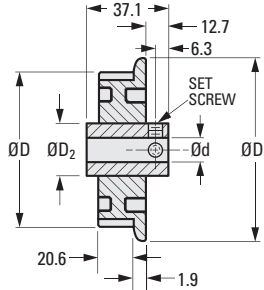


Fig. 1

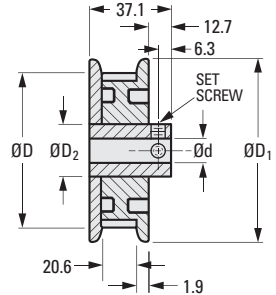


Fig. 2

METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. +0.043 0 | D ₂ Hub Dia. | Set Screw |
|----------------------|----------------------|----------------|-------|--------|---------------------|----------------------|-------------------------|-----------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | | |
| A 6Z 4M10SF19010 | A 6Z 4M10DF19010 | 10 | 30.3 | 29.6 | 36.6 | 10 | 22.2 | M5 |
| A 6Z 4M10SF19012 | A 6Z 4M10DF19012 | 10 | 30.3 | 29.6 | 36.6 | 12 | 22.2 | M5 |
| A 6Z 4M12SF19010 | A 6Z 4M12DF19010 | 12 | 36.4 | 35.6 | 42.9 | 10 | 22.2 | M5 |
| A 6Z 4M12SF19012 | A 6Z 4M12DF19012 | 12 | 36.4 | 35.6 | 42.9 | 12 | 22.2 | M5 |
| A 6Z 4M16SF19012 | A 6Z 4M16DF19012 | 16 | 48.5 | 47.7 | 53.8 | 12 | 28.6 | M6 |
| A 6Z 4M16SF19016 | A 6Z 4M16DF19016 | 16 | 48.5 | 47.7 | 53.8 | 16 | 28.6 | M6 |
| A 6Z 4M18SF19012 | A 6Z 4M18DF19012 | 18 | 54.6 | 53.8 | 60.2 | 12 | 28.6 | M6 |
| A 6Z 4M18SF19016 | A 6Z 4M18DF19016 | 18 | 54.6 | 53.8 | 60.2 | 16 | 28.6 | M6 |
| A 6Z 4M20SF19012 | A 6Z 4M20DF19012 | 20 | 60.6 | 59.9 | 66.5 | 12 | 28.6 | M6 |
| A 6Z 4M20SF19016 | A 6Z 4M20DF19016 | 20 | 60.6 | 59.9 | 66.5 | 16 | 28.6 | M6 |
| A 6Z 4M24SF19012 | A 6Z 4M24DF19012 | 24 | 72.8 | 72 | 79.2 | 12 | 28.6 | M6 |
| A 6Z 4M24SF19016 | A 6Z 4M24DF19016 | 24 | 72.8 | 72 | 79.2 | 16 | 28.6 | M6 |
| A 6Z 4M36SF19012 | A 6Z 4M36DF19012 | 36 | 109.1 | 108.4 | 115 | 12 | 28.6 | M6 |
| A 6Z 4M36SF19016 | A 6Z 4M36DF19016 | 36 | 109.1 | 108.4 | 115 | 16 | 28.6 | M6 |
| A 6Z 4M40SF19012 | A 6Z 4M40DF19012 | 40 | 121.3 | 120.5 | 127 | 12 | 28.6 | M6 |
| A 6Z 4M40SF19016 | A 6Z 4M40DF19016 | 40 | 121.3 | 120.5 | 127 | 16 | 28.6 | M6 |

BELT WIDTHS

METRIC - 6, 9 & 15 mm

TRUE METRIC® PROFILE

> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced

> SPECIFICATIONS:

Breaking Strength:

158 N per 1 mm (113 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

285 N for 25.4 mm belt (64 lbf for 1 in. belt).

For more information, see the technical section.

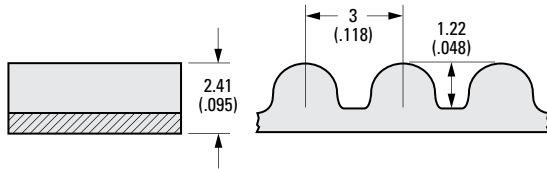
Temperature Range:

-34°C to +85°C (-30°F to +185°F)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with inch or metric standards.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 2 3 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 029 | 87 | 3.425 |
| 034 | 102 | 4.016 |
| 035 | 105 | 4.134 |
| 036 | 108 | 4.252 |
| 037 | 111 | 4.370 |
| 040 | 120 | 4.724 |
| 041 | 123 | 4.843 |
| 042 | 126 | 4.961 |
| 043 | 129 | 5.079 |
| 044 | 132 | 5.197 |
| 045 | 135 | 5.315 |
| 047 | 141 | 5.551 |
| 048 | 144 | 5.669 |
| 049 | 147 | 5.787 |
| 050 | 150 | 5.906 |
| 051 | 153 | 6.024 |
| 052 | 156 | 6.142 |
| 053 | 159 | 6.260 |
| 054 | 162 | 6.378 |
| 055 | 165 | 6.496 |
| 056 | 168 | 6.614 |
| 057 | 171 | 6.732 |
| 058 | 174 | 6.850 |
| 059 | 177 | 6.968 |
| 060 | 180 | 7.087 |
| 061 | 183 | 7.205 |
| 062 | 186 | 7.323 |
| 063 | 189 | 7.441 |
| 064 | 192 | 7.559 |
| 065 | 195 | 7.677 |
| 066 | 198 | 7.795 |
| 067 | 201 | 7.913 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 068 | 204 | 8.031 |
| 069 | 207 | 8.150 |
| 070 | 210 | 8.268 |
| 071 | 213 | 8.386 |
| 072 | 216 | 8.504 |
| 073 | 219 | 8.622 |
| 074 | 222 | 8.740 |
| 075 | 225 | 8.858 |
| 076 | 228 | 8.976 |
| 078 | 234 | 9.213 |
| 079 | 237 | 9.331 |
| 080 | 240 | 9.449 |
| 081 | 243 | 9.567 |
| 082 | 246 | 9.685 |
| 083 | 249 | 9.803 |
| 084 | 252 | 9.921 |
| 085 | 255 | 10.039 |
| 086 | 258 | 10.157 |
| 087 | 261 | 10.276 |
| 088 | 264 | 10.394 |
| 089 | 267 | 10.512 |
| 090 | 270 | 10.630 |
| 092 | 276 | 10.866 |
| 093 | 279 | 10.984 |
| 094 | 282 | 11.102 |
| 095 | 285 | 11.220 |
| 096 | 288 | 11.339 |
| 097 | 291 | 11.457 |
| 098 | 294 | 11.575 |
| 099 | 297 | 11.693 |
| 100 | 300 | 11.811 |
| 101 | 303 | 11.929 |

Continued on the next page



| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 102 | 306 | 12.047 |
| 103 | 309 | 12.165 |
| 104 | 312 | 12.283 |
| 105 | 315 | 12.402 |
| 106 | 318 | 12.520 |
| 108 | 324 | 12.756 |
| 109 | 327 | 12.874 |
| 110 | 330 | 12.992 |
| 111 | 333 | 13.110 |
| 112 | 336 | 13.228 |
| 113 | 339 | 13.346 |
| 114 | 342 | 13.465 |
| 115 | 345 | 13.583 |
| 117 | 351 | 13.819 |
| 119 | 357 | 14.055 |
| 120 | 360 | 14.173 |
| 121 | 363 | 14.291 |
| 122 | 366 | 14.409 |
| 123 | 369 | 14.528 |
| 124 | 372 | 14.646 |
| 125 | 375 | 14.764 |
| 127 | 381 | 15.000 |
| 128 | 384 | 15.118 |
| 129 | 387 | 15.236 |
| 130 | 390 | 15.354 |
| 131 | 393 | 15.472 |
| 132 | 396 | 15.591 |
| 133 | 399 | 15.709 |
| 134 | 402 | 15.827 |
| 135 | 405 | 15.945 |
| 137 | 411 | 16.181 |
| 139 | 417 | 16.417 |
| 140 | 420 | 16.535 |
| 141 | 423 | 16.654 |
| 142 | 426 | 16.772 |
| 144 | 432 | 17.008 |
| 145 | 435 | 17.126 |
| 146 | 438 | 17.244 |
| 147 | 441 | 17.362 |
| 148 | 444 | 17.480 |
| 149 | 447 | 17.598 |
| 153 | 459 | 18.071 |
| 154 | 462 | 18.189 |
| 155 | 465 | 18.307 |
| 156 | 468 | 18.425 |
| 157 | 471 | 18.543 |
| 158 | 474 | 18.661 |
| 159 | 477 | 18.779 |
| 160 | 480 | 18.898 |
| 161 | 483 | 19.016 |
| 162 | 486 | 19.134 |
| 163 | 489 | 19.252 |
| 164 | 492 | 19.370 |
| 167 | 501 | 19.724 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 168 | 504 | 19.843 |
| 170 | 510 | 20.079 |
| 171 | 513 | 20.197 |
| 172 | 516 | 20.315 |
| 173 | 519 | 20.433 |
| 174 | 522 | 20.551 |
| 175 | 525 | 20.669 |
| 176 | 528 | 20.787 |
| 177 | 531 | 20.905 |
| 179 | 537 | 21.142 |
| 183 | 549 | 21.614 |
| 184 | 552 | 21.732 |
| 186 | 558 | 21.968 |
| 188 | 564 | 22.205 |
| 189 | 567 | 22.323 |
| 190 | 570 | 22.441 |
| 191 | 573 | 22.559 |
| 192 | 576 | 22.677 |
| 193 | 579 | 22.795 |
| 194 | 582 | 22.913 |
| 195 | 585 | 23.031 |
| 197 | 591 | 23.268 |
| 198 | 594 | 23.386 |
| 199 | 597 | 23.504 |
| 200 | 600 | 23.622 |
| 202 | 606 | 23.858 |
| 203 | 609 | 23.976 |
| 204 | 612 | 24.094 |
| 209 | 627 | 24.685 |
| 211 | 633 | 24.921 |
| 213 | 639 | 25.157 |
| 215 | 645 | 25.394 |
| 216 | 648 | 25.512 |
| 217 | 651 | 25.630 |
| 218 | 654 | 25.748 |
| 219 | 657 | 25.866 |
| 220 | 660 | 25.984 |
| 221 | 663 | 26.102 |
| 222 | 666 | 26.221 |
| 223 | 669 | 26.339 |
| 224 | 672 | 26.457 |
| 227 | 681 | 26.811 |
| 228 | 684 | 26.929 |
| 229 | 687 | 27.047 |
| 231 | 693 | 27.283 |
| 232 | 696 | 27.402 |
| 233 | 699 | 27.520 |
| 234 | 702 | 27.638 |
| 235 | 705 | 27.756 |
| 237 | 711 | 27.992 |
| 240 | 720 | 28.346 |
| 241 | 723 | 28.465 |
| 244 | 732 | 28.819 |
| 245 | 735 | 28.937 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 246 | 738 | 29.055 |
| 250 | 750 | 29.528 |
| 251 | 753 | 29.646 |
| 261 | 783 | 30.827 |
| 265 | 795 | 31.299 |
| 268 | 804 | 31.653 |
| 274 | 822 | 32.362 |
| 275 | 825 | 32.480 |
| 279 | 837 | 32.953 |
| 281 | 843 | 33.189 |
| 286 | 858 | 33.780 |
| 287 | 861 | 33.898 |
| 291 | 873 | 34.370 |
| 294 | 882 | 34.724 |
| 297 | 891 | 35.079 |
| 300 | 900 | 35.433 |
| 305 | 915 | 36.024 |
| 312 | 936 | 36.850 |
| 315 | 945 | 37.205 |
| 317 | 951 | 37.441 |
| 327 | 981 | 38.622 |
| 334 | 1002 | 39.449 |
| 342 | 1026 | 40.394 |
| 345 | 1035 | 40.748 |
| 346 | 1038 | 40.866 |
| 350 | 1050 | 41.339 |
| 352 | 1056 | 41.575 |
| 354 | 1062 | 41.811 |
| 356 | 1068 | 42.047 |
| 357 | 1071 | 42.165 |
| 360 | 1080 | 42.520 |
| 362 | 1086 | 42.756 |
| 370 | 1110 | 43.701 |
| 375 | 1125 | 44.291 |
| 385 | 1155 | 45.472 |
| 396 | 1188 | 46.772 |
| 397 | 1191 | 46.890 |
| 409 | 1227 | 48.307 |
| 415 | 1245 | 49.016 |
| 420 | 1260 | 49.606 |
| 421 | 1263 | 49.724 |
| 445 | 1335 | 52.559 |
| 500 | 1500 | 59.055 |
| 504 | 1512 | 59.527 |
| 510 | 1530 | 60.236 |
| 529 | 1587 | 62.480 |
| 600 | 1800 | 70.866 |
| 621 | 1863 | 73.346 |
| 630 | 1890 | 74.409 |
| 642 | 1926 | 75.827 |
| 652 | 1956 | 77.008 |
| 668 | 2004 | 78.897 |

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BELT WIDTHS
 METRIC - 6, 9 & 15 mm
TRUE METRIC® PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced

> SPECIFICATIONS:

Breaking Strength:

158 N per 1 mm (113 lbf per 1/8 in.) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:

285 N for 25.4 mm belt (64 lbf for 1 in. belt).

For more information, see the technical section.

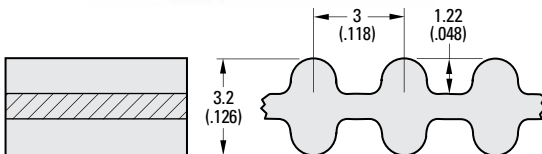
Temperature Range:

-34°C to +85°C (-30°F to +185°F)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric or inch standards.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 23 M D [] [] [] [] [] []

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 132 | 396 | 15.591 |
| 133 | 399 | 15.709 |
| 135 | 405 | 15.945 |
| 137 | 411 | 16.181 |
| 140 | 420 | 16.535 |
| 142 | 426 | 16.772 |
| 144 | 432 | 17.008 |
| 145 | 435 | 17.126 |
| 149 | 447 | 17.598 |
| 155 | 465 | 18.307 |
| 156 | 468 | 18.425 |
| 157 | 471 | 18.543 |
| 158 | 474 | 18.661 |
| 160 | 480 | 18.898 |
| 162 | 486 | 19.134 |
| 163 | 489 | 19.252 |
| 164 | 492 | 19.370 |
| 167 | 501 | 19.724 |
| 168 | 504 | 19.843 |
| 170 | 510 | 20.079 |
| 171 | 513 | 20.197 |
| 175 | 525 | 20.669 |
| 176 | 528 | 20.787 |
| 177 | 531 | 20.905 |
| 179 | 537 | 21.142 |
| 184 | 552 | 21.732 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 186 | 558 | 21.968 |
| 188 | 564 | 22.205 |
| 190 | 570 | 22.441 |
| 192 | 576 | 22.677 |
| 195 | 585 | 23.031 |
| 197 | 591 | 23.268 |
| 199 | 597 | 23.504 |
| 200 | 600 | 23.622 |
| 202 | 606 | 23.858 |
| 203 | 609 | 23.976 |
| 204 | 612 | 24.094 |
| 209 | 627 | 24.685 |
| 211 | 633 | 24.921 |
| 213 | 639 | 25.157 |
| 215 | 645 | 25.394 |
| 216 | 648 | 25.512 |
| 219 | 657 | 25.866 |
| 221 | 663 | 26.102 |
| 223 | 669 | 26.339 |
| 228 | 684 | 26.929 |
| 229 | 687 | 27.047 |
| 232 | 696 | 27.402 |
| 237 | 711 | 27.992 |
| 245 | 735 | 28.937 |
| 246 | 738 | 29.055 |
| 250 | 750 | 29.528 |

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METRIC COMPONENT CATALOG NUMBER

A 6 R 2 3 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 251 | 753 | 29.646 |
| 265 | 795 | 31.299 |
| 274 | 822 | 32.362 |
| 279 | 837 | 32.953 |
| 281 | 843 | 33.189 |
| 291 | 873 | 34.370 |
| 294 | 882 | 34.724 |
| 297 | 891 | 35.079 |
| 300 | 900 | 35.433 |
| 305 | 915 | 36.024 |
| 315 | 945 | 37.205 |
| 327 | 981 | 38.622 |
| 334 | 1002 | 39.449 |
| 342 | 1026 | 40.394 |
| 345 | 1035 | 40.748 |
| 347 | 1041 | 40.984 |
| 352 | 1056 | 41.575 |
| 354 | 1062 | 41.811 |
| 375 | 1125 | 44.291 |
| 385 | 1155 | 45.472 |
| 397 | 1191 | 46.890 |
| 421 | 1263 | 49.724 |
| 500 | 1500 | 59.055 |
| 504 | 1512 | 59.527 |
| 529 | 1587 | 62.480 |
| 600 | 1800 | 70.866 |
| 652 | 1956 | 77.008 |
| 668 | 2004 | 78.897 |

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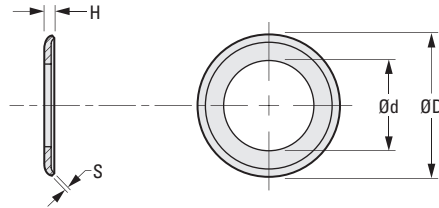
16

> **MATERIAL:**

Aluminum Alloy or Steel

> **SPECIFICATION:**

Priced per 25 pieces



METRIC COMPONENT

| Catalog Number | | Pulley Grooves Ref. | Metric | | Inch | | H Width ± 0.25 (± .01) | S Thickness |
|----------------|--------------|---------------------|----------|---------|----------|----------|------------------------|-------------|
| Aluminum Alloy | Steel | | d ± 0.08 | D ± 0.4 | d ± .003 | D ± .015 | | |
| A 6A22M010FA | A 6C22M010FS | 10 | 6.2 | 12.8 | .244 | .505 | 1.14 (.045) | 0.64 (.025) |
| A 6A22M011FA | A 6C22M011FS | 11 | 6.86 | 13.5 | .270 | .530 | 1.14 (.045) | 0.64 (.025) |
| A 6A22M012FA | A 6C22M012FS | 12 | 8.18 | 14.7 | .322 | .580 | 1.14 (.045) | 0.64 (.025) |
| A 6A22M013FA | A 6C22M013FS | 13 | 8.89 | 15.5 | .350 | .610 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M014FA | A 6C22M014FS | 14 | 9.5 | 16.1 | .374 | .635 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M015FA | A 6C22M015FS | 15 | 10.82 | 17.4 | .426 | .685 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M016FA | A 6C22M016FS | 16 | 11.48 | 18 | .452 | .710 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M017FA | A 6C22M017FS | 17 | 11.48 | 18.8 | .452 | .740 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M018FA | A 6C22M018FS | 18 | 12.8 | 20 | .504 | .790 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M019FA | A 6C22M019FS | 19 | 13.46 | 20.7 | .530 | .815 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M020FA | A 6C22M020FS | 20 | 14.58 | 22.7 | .574 | .895 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M022FA | A 6C22M022FS | 22 | 15.9 | 24 | .626 | .945 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M024FA | A 6C22M024FS | 24 | 17.88 | 26 | .704 | 1.025 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M025FA | A 6C22M025FS | 25 | 18.75 | 26.9 | .738 | 1.060 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M026FA | A 6C22M026FS | 26 | 19.66 | 28.1 | .774 | 1.105 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M028FA | A 6C22M028FS | 28 | 21.56 | 29.8 | .849 | 1.173 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M030FA | A 6C22M030FS | 30 | 23.47 | 31.8 | .924 | 1.250 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M032FA | A 6C22M032FS | 32 | 25.38 | 33.6 | .999 | 1.323 | 1.32 (.052) | 0.81 (.032) |
| A 6A22M034FA | A 6C22M034FS | 34 | 27.28 | 35.5 | 1.074 | 1.398 | 1.52 (.06) | 1.02 (.040) |
| A 6A22M036FA | A 6C22M036FS | 36 | 29.18 | 37.4 | 1.149 | 1.473 | 1.52 (.06) | 1.02 (.040) |
| A 6A22M038FA | A 6C22M038FS | 38 | 31.12 | 39.4 | 1.225 | 1.549 | 1.52 (.06) | 1.02 (.040) |
| A 6A22M040FA | A 6C22M040FS | 40 | 33.02 | 41.3 | 1.300 | 1.625 | 1.52 (.06) | 1.02 (.040) |
| A 6A22M044FA | A 6C22M044FS | 44 | 36.83 | 45.1 | 1.450 | 1.775 | 1.52 (.06) | 1.02 (.040) |

NOTE: Dimensions in () are inch size.



> MATERIAL:

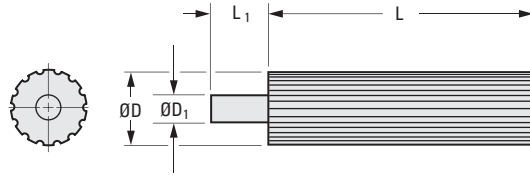
Aluminum Alloy

> SPECIFICATIONS:

D Tolerance:

9 to 27 grooves is +0.05/0 (+.002/-0.00)

28 to 35 grooves is +0.08/0 (+.003/-0.00)



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METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ * Shank Dia. | L ₁ Shank Length (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|-----------------------------|-------------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A22M009TM08 | 9 | 8.6 | 7.83 | .338 | .308 | 4.7 (3/16) | 25 (1) | 75 (3) |
| A 6A22M010TM08 | 10 | 9.5 | 8.79 | .376 | .346 | 4.7 (3/16) | 25 (1) | 75 (3) |
| A 6A22M011TM08 | 11 | 10.5 | 9.74 | .414 | .384 | 6.3 (1/4) | 25 (1) | 75 (3) |
| A 6A22M012TM10 | 12 | 11.5 | 10.7 | .451 | .421 | 6.3 (1/4) | 22 (7/8) | 100 (4) |
| A 6A22M013TM10 | 13 | 12.4 | 11.65 | .489 | .459 | 7.9 (5/16) | 22 (7/8) | 100 (4) |
| A 6A22M014TM10 | 14 | 13.4 | 12.61 | .526 | .496 | 7.9 (5/16) | 22 (7/8) | 100 (4) |
| A 6A22M015TM10 | 15 | 14.3 | 13.56 | .564 | .534 | 9.5 (3/8) | 22 (7/8) | 100 (4) |
| A 6A22M016TM13 | 16 | 15.3 | 14.52 | .602 | .572 | 9.5 (3/8) | 25 (1) [19 (3/4)] ^Δ | 125 (5) |
| A 6A22M017TM13 | 17 | 16.2 | 15.47 | .639 | .609 | 12.7 (1/2) | | 125 (5) |
| A 6A22M018TM13 | 18 | 17.2 | 16.43 | .677 | .647 | 12.7 (1/2) | | 125 (5) |
| A 6A22M019TM13 | 19 | 18.1 | 17.38 | .714 | .684 | 12.7 (1/2) | | 125 (5) |
| A 6A22M020TM15 | 20 | 19.1 | 18.34 | .752 | .722 | 12.7 (1/2) | | 150 (6) |
| A 6A22M021TM15 | 21 | 20.1 | 19.29 | .790 | .760 | 12.7 (1/2) | | 150 (6) |
| A 6A22M022TM15 | 22 | 21 | 20.25 | .827 | .797 | 12.7 (1/2) | | 150 (6) |
| A 6A22M023TM15 | 23 | 22 | 21.2 | .865 | .835 | 12.7 (1/2) | | 150 (6) |
| A 6A22M024TM15 | 24 | 22.9 | 22.16 | .902 | .872 | 12.7 (1/2) | | 150 (6) |
| A 6A22M025TM15 | 25 | 23.9 | 23.11 | .940 | .910 | 12.7 (1/2) | | 150 (6) |
| A 6A22M026TM15 | 26 | 24.8 | 24.07 | .977 | .947 | 12.7 (1/2) | | 150 (6) |
| A 6A22M027TM15 | 27 | 25.8 | 25.02 | 1.015 | .985 | 12.7 (1/2) | | 150 (6) |
| A 6A22M028TM15 | 28 | 26.7 | 25.98 | 1.053 | 1.023 | 12.7 (1/2) | | 150 (6) |
| A 6A22M029TM15 | 29 | 27.7 | 26.93 | 1.090 | 1.060 | 12.7 (1/2) | | 150 (6) |
| A 6A22M030TM18 | 30 | 28.6 | 27.89 | 1.128 | 1.098 | 12.7 (1/2) | | 175 (7) |
| A 6A22M031TM18 | 31 | 29.6 | 28.84 | 1.165 | 1.135 | 12.7 (1/2) | | 175 (7) |
| A 6A22M032TM18 | 32 | 30.6 | 29.8 | 1.203 | 1.173 | 12.7 (1/2) | | 175 (7) |
| A 6A22M033TM18 | 33 | 31.5 | 30.75 | 1.241 | 1.211 | 12.7 (1/2) | | 175 (7) |
| A 6A22M034TM18 | 34 | 32.5 | 31.71 | 1.278 | 1.248 | 12.7 (1/2) | 175 (7) | |
| A 6A22M035TM18 | 35 | 33.4 | 32.66 | 1.316 | 1.286 | 12.7 (1/2) | 175 (7) | |

NOTE: Dimensions in () are inch.

Δ Dimensions in [] may be substituted at SDP option.

* Shank Diameter of 9.5 (3/8) for pulleys with 9 to 12 grooves may be substituted at SDP option.

Shank Diameter of 11.1 (7/16) for pulleys with 13 & 14 grooves may be substituted at SDP option.

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➤ MATERIAL:

Aluminum Alloy

➤ SPECIFICATION:

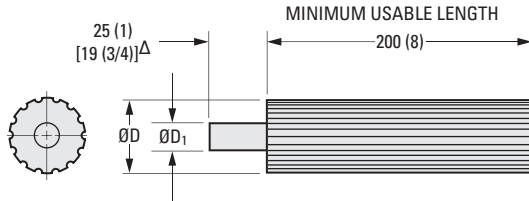
D Tolerance:

36 to 52 grooves is +0.08/0 (+.003/- .000)

54 to 100 grooves is +0.10/0 (+.004/- .000)

110 to 160 grooves is +0.13/0 (+.005/- .000)

Δ Dimensions in [] may be substituted at SDP option.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. |
|----------------|----------------|--------|--------|-------|--------|---------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | |
| A 6A22M036TM20 | 36 | 34.4 | 33.62 | 1.353 | 1.323 | 12.7 (1/2) |
| A 6A22M037TM20 | 37 | 35.3 | 34.57 | 1.391 | 1.361 | 12.7 (1/2) |
| A 6A22M038TM20 | 38 | 36.3 | 35.53 | 1.429 | 1.399 | 12.7 (1/2) |
| A 6A22M039TM20 | 39 | 37.2 | 36.48 | 1.466 | 1.436 | 12.7 (1/2) |
| A 6A22M040TM20 | 40 | 38.2 | 37.44 | 1.504 | 1.474 | 12.7 (1/2) |
| A 6A22M042TM20 | 42 | 40.1 | 39.35 | 1.579 | 1.549 | 12.7 (1/2) |
| A 6A22M044TM20 | 44 | 42 | 41.25 | 1.654 | 1.624 | 12.7 (1/2) |
| A 6A22M045TM20 | 45 | 43 | 42.21 | 1.692 | 1.662 | 12.7 (1/2) |
| A 6A22M048TM20 | 48 | 45.8 | 45.07 | 1.805 | 1.775 | 12.7 (1/2) |
| A 6A22M050TM20 | 50 | 47.7 | 46.98 | 1.880 | 1.850 | 19.1 (3/4) |
| A 6A22M052TM20 | 52 | 49.7 | 48.89 | 1.955 | 1.925 | 19.1 (3/4) |
| A 6A22M054TM20 | 54 | 51.6 | 50.8 | 2.030 | 2.000 | 19.1 (3/4) |
| A 6A22M056TM20 | 56 | 53.5 | 52.71 | 2.105 | 2.075 | 19.1 (3/4) |
| A 6A22M060TM20 | 60 | 57.3 | 56.53 | 2.256 | 2.226 | 19.1 (3/4) |
| A 6A22M062TM20 | 62 | 59.2 | 58.44 | 2.331 | 2.301 | 19.1 (3/4) |
| A 6A22M064TM20 | 64 | 61.1 | 60.35 | 2.406 | 2.376 | 19.1 (3/4) |
| A 6A22M066TM20 | 66 | 63 | 62.26 | 2.481 | 2.451 | 19.1 (3/4) |
| A 6A22M068TM20 | 68 | 64.9 | 64.17 | 2.556 | 2.526 | 19.1 (3/4) |
| A 6A22M070TM20 | 70 | 66.8 | 66.08 | 2.632 | 2.602 | 19.1 (3/4) |
| A 6A22M072TM20 | 72 | 68.8 | 67.99 | 2.707 | 2.677 | 19.1 (3/4) |
| A 6A22M075TM20 | 75 | 71.6 | 70.86 | 2.820 | 2.790 | 19.1 (3/4) |
| A 6A22M080TM20 | 80 | 76.4 | 75.63 | 3.008 | 2.978 | 19.1 (3/4) |
| A 6A22M090TM20 | 90 | 85.9 | 85.18 | 3.384 | 3.354 | 19.1 (3/4) |
| A 6A22M100TM20 | 100 | 95.5 | 94.73 | 3.760 | 3.730 | 25.4 (1) |
| A 6A22M110TM20 | 110 | 105 | 104.28 | 4.136 | 4.106 | 25.4 (1) |
| A 6A22M120TM20 | 120 | 114.6 | 113.83 | 4.511 | 4.481 | 25.4 (1) |
| A 6A22M130TM20 | 130 | 124.1 | 123.38 | 4.887 | 4.857 | 25.4 (1) |
| A 6A22M140TM20 | 140 | 133.7 | 132.93 | 5.263 | 5.233 | 25.4 (1) |
| A 6A22M150TM20 | 150 | 143.2 | 142.48 | 5.639 | 5.609 | 25.4 (1) |
| A 6A22M160TM20 | 160 | 152.8 | 152.03 | 6.015 | 5.985 | 25.4 (1) |

NOTE: Dimensions in () are inch size.

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➤ **MATERIAL:**

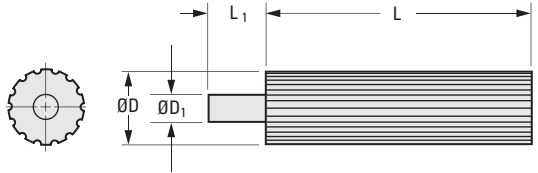
Carbon Steel

➤ **SPECIFICATION:**

D Tolerance:

9 to 27 grooves is +0.05/0 (+.002/- .000)

28 to 35 grooves is +0.08/0 (+.003/- .000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Lgth. (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|-------------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6C22M009TM08 | 9 | 8.6 | 7.83 | .338 | .308 | 9.5 (3/8) | 25 (1) | 75 (3) |
| A 6C22M010TM08 | 10 | 9.5 | 8.79 | .376 | .346 | 9.5 (3/8) | 25 (1) | 75 (3) |
| A 6C22M011TM08 | 11 | 10.5 | 9.74 | .414 | .384 | 9.5 (3/8) | 25 (1) | 75 (3) |
| A 6C22M012TM10 | 12 | 11.5 | 10.7 | .451 | .421 | 9.5 (3/8) | 22 (7/8) | 100 (4) |
| A 6C22M013TM10 | 13 | 12.4 | 11.65 | .489 | .459 | 11.1 (7/16) | 22 (7/8) | 100 (4) |
| A 6C22M014TM10 | 14 | 13.4 | 12.61 | .526 | .496 | 11.1 (7/16) | 22 (7/8) | 100 (4) |
| A 6C22M015TM10 | 15 | 14.3 | 13.56 | .564 | .534 | 12.7 (1/2) | 22 (7/8) | 100 (4) |
| A 6C22M016TM13 | 16 | 15.3 | 14.52 | .602 | .572 | 12.7 (1/2) | 25 (1) [19 (3/4)] ^Δ | 125 (5) |
| A 6C22M017TM13 | 17 | 16.2 | 15.47 | .639 | .609 | 12.7 (1/2) | | 125 (5) |
| A 6C22M018TM13 | 18 | 17.2 | 16.43 | .677 | .647 | 12.7 (1/2) | | 125 (5) |
| A 6C22M019TM13 | 19 | 18.1 | 17.38 | .714 | .684 | 12.7 (1/2) | | 125 (5) |
| A 6C22M020TM15 | 20 | 19.1 | 18.34 | .752 | .722 | 12.7 (1/2) | | 150 (6) |
| A 6C22M021TM15 | 21 | 20.1 | 19.29 | .790 | .760 | 12.7 (1/2) | | 150 (6) |
| A 6C22M022TM15 | 22 | 21 | 20.25 | .827 | .797 | 12.7 (1/2) | | 150 (6) |
| A 6C22M023TM15 | 23 | 22 | 21.2 | .865 | .835 | 12.7 (1/2) | | 150 (6) |
| A 6C22M024TM15 | 24 | 22.9 | 22.16 | .902 | .872 | 12.7 (1/2) | | 150 (6) |
| A 6C22M025TM15 | 25 | 23.9 | 23.11 | .940 | .910 | 12.7 (1/2) | | 150 (6) |
| A 6C22M026TM15 | 26 | 24.8 | 24.07 | .977 | .947 | 12.7 (1/2) | 150 (6) | |
| A 6C22M027TM15 | 27 | 25.8 | 25.02 | 1.015 | .985 | 12.7 (1/2) | 150 (6) | |
| A 6C22M028TM15 | 28 | 26.7 | 25.98 | 1.053 | 1.023 | 12.7 (1/2) | 150 (6) | |
| A 6C22M029TM15 | 29 | 27.7 | 26.93 | 1.090 | 1.060 | 12.7 (1/2) | 150 (6) | |
| A 6C22M030TM18 | 30 | 28.6 | 27.89 | 1.128 | 1.098 | 12.7 (1/2) | 175 (7) | |
| A 6C22M031TM18 | 31 | 29.6 | 28.84 | 1.165 | 1.135 | 12.7 (1/2) | 175 (7) | |
| A 6C22M032TM18 | 32 | 30.6 | 29.8 | 1.203 | 1.173 | 12.7 (1/2) | 175 (7) | |
| A 6C22M033TM18 | 33 | 31.5 | 30.75 | 1.241 | 1.211 | 12.7 (1/2) | 175 (7) | |
| A 6C22M034TM18 | 34 | 32.5 | 31.71 | 1.278 | 1.248 | 12.7 (1/2) | 175 (7) | |
| A 6C22M035TM18 | 35 | 33.4 | 32.66 | 1.316 | 1.286 | 12.7 (1/2) | 175 (7) | |

NOTE: Dimensions in () are inch size.

^Δ Dimensions In [] may be substituted at SDP option.

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> MATERIAL:

Carbon Steel

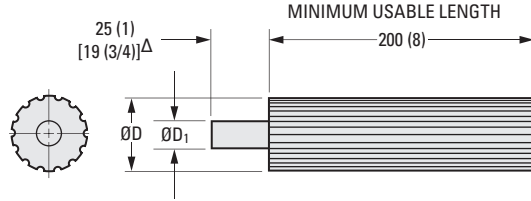
> SPECIFICATION:

D Tolerance:

36 to 52 grooves is +0.08/0 (+.003/- .000)

54 to 100 grooves is +0.10/0 (+.004/- .000)

110 to 160 grooves is +0.13/0 (+.005/- .000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. |
|----------------|----------------|--------|--------|-------|--------|-----------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | |
| A 6C22M036TM20 | 36 | 34.4 | 33.62 | 1.353 | 1.323 | 12.7 (1/2) |
| A 6C22M037TM20 | 37 | 35.3 | 34.57 | 1.391 | 1.361 | 12.7 (1/2) |
| A 6C22M038TM20 | 38 | 36.3 | 35.53 | 1.429 | 1.399 | 12.7 (1/2) |
| A 6C22M039TM20 | 39 | 37.2 | 36.48 | 1.466 | 1.436 | 12.7 (1/2) |
| A 6C22M040TM20 | 40 | 38.2 | 37.44 | 1.504 | 1.474 | 12.7 (1/2) |
| A 6C22M042TM20 | 42 | 40.1 | 39.35 | 1.579 | 1.549 | 12.7 (1/2) |
| A 6C22M044TM20 | 44 | 42 | 41.25 | 1.654 | 1.624 | 12.7 (1/2) |
| A 6C22M045TM20 | 45 | 43 | 42.21 | 1.692 | 1.662 | [19.1 (3/4)] ^Δ |
| A 6C22M048TM20 | 48 | 45.8 | 45.07 | 1.805 | 1.775 | [(3/4)] ^Δ |
| A 6C22M050TM20 | 50 | 47.7 | 46.98 | 1.880 | 1.850 | 19.1 (3/4) |
| A 6C22M052TM20 | 52 | 49.7 | 48.89 | 1.955 | 1.925 | 19.1 (3/4) |
| A 6C22M054TM20 | 54 | 51.6 | 50.8 | 2.030 | 2.000 | 19.1 (3/4) |
| A 6C22M056TM20 | 56 | 53.5 | 52.71 | 2.105 | 2.075 | 19.1 (3/4) |
| A 6C22M060TM20 | 60 | 57.3 | 56.53 | 2.256 | 2.226 | 19.1 (3/4) |
| A 6C22M062TM20 | 62 | 59.2 | 58.44 | 2.331 | 2.301 | 19.1 (3/4) |
| A 6C22M064TM20 | 64 | 61.1 | 60.35 | 2.406 | 2.376 | 19.1 (3/4) |
| A 6C22M066TM20 | 66 | 63 | 62.26 | 2.481 | 2.451 | 19.1 (3/4) |
| A 6C22M068TM20 | 68 | 64.9 | 64.17 | 2.556 | 2.526 | 19.1 (3/4) |
| A 6C22M070TM20 | 70 | 66.8 | 66.08 | 2.632 | 2.602 | 19.1 (3/4) |
| A 6C22M072TM20 | 72 | 68.8 | 67.99 | 2.707 | 2.677 | 19.1 (3/4) |
| A 6C22M075TM20 | 75 | 71.6 | 70.86 | 2.820 | 2.790 | 19.1 (3/4) |
| A 6C22M080TM20 | 80 | 76.4 | 75.63 | 3.008 | 2.978 | 19.1 (3/4) |
| A 6C22M090TM20 | 90 | 85.9 | 85.18 | 3.384 | 3.354 | 19.1 (3/4) |
| A 6C22M100TM20 | 100 | 95.5 | 94.73 | 3.760 | 3.730 | 25.4 (1) |
| A 6C22M110TM20 | 110 | 105 | 104.28 | 4.136 | 4.106 | 25.4 (1) |
| A 6C22M120TM20 | 120 | 114.6 | 113.83 | 4.511 | 4.481 | 25.4 (1) |
| A 6C22M130TM20 | 130 | 124.1 | 123.38 | 4.887 | 4.857 | 25.4 (1) |
| A 6C22M140TM20 | 140 | 133.7 | 132.93 | 5.263 | 5.233 | 25.4 (1) |
| A 6C22M150TM20 | 150 | 143.2 | 142.48 | 5.639 | 5.609 | 25.4 (1) |
| A 6C22M160TM20 | 160 | 152.8 | 152.03 | 6.015 | 5.985 | 25.4 (1) |

NOTE: Dimensions in () are inch size.

Δ Dimensions in [] may be substituted at SDP option.

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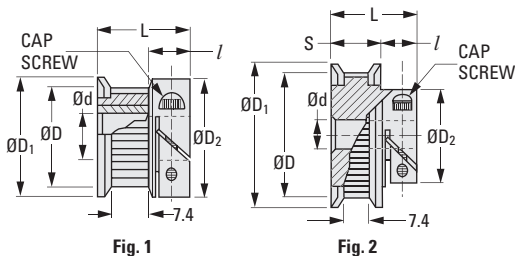
FOR BELTS UP TO 6 mm WIDE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

FAIRLOC® HUB
DOUBLE FLANGE
TRUE METRIC PROFILE



- **MATERIAL:**
Aluminum Alloy
- **FINISH:**
Clear Anodized



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. +0.05 0 | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Lgth. ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | Cap Screw |
|------------------|----------------|------|----------------|---------------------------|-----------------|--------|---------------|-------------------------------|-------------|-----------|
| Fig. 1 | | | | | | | | | | |
| A 6D23M010DF0603 | 10 | 9.6 | 8.8 | 12.8 | 3 | – | 14.5 | 12.2 | 6 | M2 |
| A 6D23M012DF0605 | 12 | 11.5 | 10.7 | 14.7 | 5 | – | 14.5 | 14.7 | 6 | M2 |
| Fig. 2 | | | | | | | | | | |
| A 6D23M014DF0605 | 14 | 13.4 | 12.6 | 16.1 | 5 | – | 14.5 | 15.9 | 6 | M2 |
| A 6D23M015DF0605 | 15 | 14.3 | 13.5 | 17.4 | 5 | – | 14.5 | 15.9 | 6 | M2 |
| A 6D23M016DF0605 | 16 | 15.3 | 14.5 | 18 | 5 | – | 14.5 | 15.9 | 6 | M2 |
| A 6D23M018DF0606 | 18 | 17.2 | 16.4 | 20 | 6 | – | 17.1 | 15.9 | 8.8 | M2 |
| A 6D23M020DF0606 | 20 | 19.1 | 18.3 | 22.7 | 6 | – | 17.1 | 15.9 | 8.8 | M2 |
| A 6D23M022DF0606 | 22 | 21 | 20.2 | 24 | 6 | – | 17.1 | 15.9 | 8.8 | M2 |
| A 6D23M024DF0606 | 24 | 22.9 | 22.1 | 26 | 6 | 9.8 | 17.5 | 15.9 | 7.5 | M2 |
| A 6D23M025DF0606 | 25 | 23.9 | 23.1 | 26.9 | 6 | 9.8 | 17.5 | 15.9 | 7.5 | M2 |
| A 6D23M026DF0606 | 26 | 24.8 | 24 | 28.1 | 6 | 9.8 | 17.5 | 15.9 | 7.5 | M2 |
| A 6D23M030DF0606 | 30 | 28.7 | 27.9 | 31.8 | 6 | 9.8 | 17.5 | 19.1 | 7.5 | M2.5 |
| A 6D23M032DF0606 | 32 | 30.6 | 29.8 | 33.6 | 6 | 9.8 | 17.5 | 19.1 | 7.5 | M2.5 |
| A 6D23M034DF0606 | 34 | 32.5 | 31.7 | 35.5 | 6 | 10.3 | 18.3 | 19.1 | 7.9 | M2.5 |
| A 6D23M036DF0606 | 36 | 34.4 | 33.6 | 37.4 | 6 | 10.3 | 18.3 | 19.1 | 7.9 | M2.5 |
| A 6D23M040DF0606 | 40 | 38.2 | 37.4 | 41.3 | 6 | 10.3 | 18.3 | 19.1 | 7.9 | M2.5 |
| A 6D23M044DF0606 | 44 | 42 | 41.2 | 45.1 | 6 | 10.3 | 18.3 | 19.1 | 7.9 | M2.5 |

FOR 6 mm BELTS
DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

TRUE METRIC PROFILE



➤ **MATERIAL:**
Aluminum Alloy

➤ **FINISH:**
Clear Anodized

➤ **SPECIFICATION:**
D Tolerance: 10 to 26 grooves is +0.05/0
28 to 44 grooves is +0.08/0

Pulleys with 10 to 13 grooves have 1 set screw; others have 2 set screws at 90°

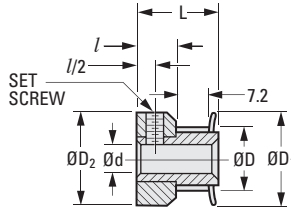


Fig. 1

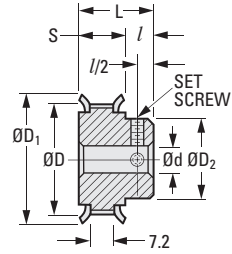


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | Set Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|--------|----------------|-------------------------------|-------------|-----------|
| Fig. 1 | | | | | | | | | | |
| A 6A23M010DF0603 | 10 | 9.6 | 8.8 | 12.8 | 3 | — | 14.5 | 12.8 | 6 | M2 |
| A 6A23M011DF0603 | 11 | 10.5 | 9.7 | 13.5 | 3 | — | 14.5 | 13.5 | 6 | M2 |
| A 6A23M012DF0604 | 12 | 11.5 | 10.7 | 14.7 | 4 | — | 14.5 | 14.7 | 6 | M2 |
| A 6A23M013DF0604 | 13 | 12.4 | 11.6 | 15.5 | 4 | — | 14.5 | 15.5 | 6 | M2 |
| A 6A23M014DF0606 | 14 | 13.4 | 12.6 | 16.1 | 6 | — | 14.5 | 16.1 | 6 | M3 |
| A 6A23M015DF0606 | 15 | 14.3 | 13.5 | 17.4 | 6 | — | 14.5 | 17.4 | 6 | M3 |
| A 6A23M016DF0606 | 16 | 15.3 | 14.5 | 18 | 6 | — | 14.5 | 18 | 6 | M3 |
| A 6A23M017DF0606 | 17 | 16.2 | 15.4 | 18.8 | 6 | — | 14.5 | 18.8 | 6 | M3 |
| Fig. 2 | | | | | | | | | | |
| A 6A23M018DF0606 | 18 | 17.2 | 16.4 | 20 | 6 | 9.8 | 17.5 | 11.2 | 7.7 | M3 |
| A 6A23M019DF0606 | 19 | 18.2 | 17.4 | 20.7 | 6 | 9.8 | 17.5 | 11.9 | 7.7 | M3 |
| A 6A23M020DF0606 | 20 | 19.1 | 18.3 | 22.7 | 6 | 9.8 | 17.5 | 12.7 | 7.7 | M3 |
| A 6A23M022DF0606 | 22 | 21 | 20.2 | 24 | 6 | 9.8 | 17.5 | 14.3 | 7.7 | M4 |
| A 6A23M024DF0606 | 24 | 22.9 | 22.1 | 26 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A23M025DF0606 | 25 | 23.9 | 23.1 | 26.9 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A23M026DF0606 | 26 | 24.8 | 24 | 28.1 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A23M028DF0606 | 28 | 26.8 | 26 | 29.8 | 6 | 9.8 | 17.5 | 17.8 | 7.7 | M4 |
| A 6A23M030DF0606 | 30 | 28.7 | 27.9 | 31.8 | 6 | 9.8 | 17.5 | 19.7 | 7.7 | M4 |
| A 6A23M032DF0606 | 32 | 30.6 | 29.8 | 33.6 | 6 | 9.8 | 17.5 | 21.6 | 7.7 | M4 |
| A 6A23M034DF0606 | 34 | 32.5 | 31.7 | 35.5 | 6 | 10.3 | 18.3 | 23.4 | 8 | M4 |
| A 6A23M036DF0606 | 36 | 34.4 | 33.6 | 37.4 | 6 | 10.3 | 18.3 | 25.4 | 8 | M4 |
| A 6A23M038DF0606 | 38 | 36.3 | 35.5 | 39.4 | 6 | 10.3 | 18.3 | 27.3 | 8 | M4 |
| A 6A23M040DF0606 | 40 | 38.2 | 37.4 | 41.3 | 6 | 10.3 | 18.3 | 29.2 | 8 | M4 |
| A 6A23M044DF0606 | 44 | 42 | 41.2 | 45.1 | 6 | 10.3 | 18.3 | 33 | 8 | M4 |

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FOR 9 mm BELTS
DOUBLE FLANGE
TRUE METRIC® PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
 Aluminum Alloy

➤ **FINISH:**
 Clear Anodized

➤ **SPECIFICATION:**
 D Tolerance: 10 to 26 grooves is +0.05/0
 28 to 44 grooves is +0.08/0

Pulleys with 10 to 13 grooves have 1 set screw; others have 2 set screws at 90°

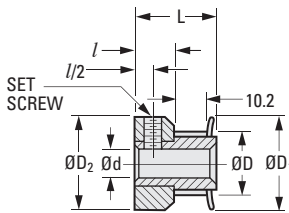


Fig. 1

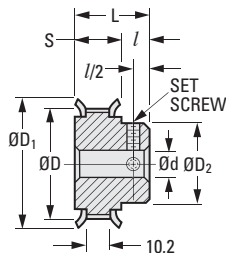


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | Set Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|--------|----------------|-------------------------------|-------------|-----------|
| Fig. 1 | | | | | | | | | | |
| A 6A23M010DF0903 | 10 | 9.6 | 8.8 | 12.8 | 3 | — | 17.5 | 12.8 | 6 | M2 |
| A 6A23M011DF0903 | 11 | 10.5 | 9.7 | 13.5 | 3 | — | 17.5 | 13.5 | 6 | M2 |
| A 6A23M012DF0904 | 12 | 11.5 | 10.7 | 14.7 | 4 | — | 17.5 | 14.7 | 6 | M2 |
| A 6A23M013DF0904 | 13 | 12.4 | 11.6 | 15.5 | 4 | — | 17.5 | 15.5 | 6 | M2 |
| A 6A23M014DF0906 | 14 | 13.4 | 12.6 | 16.1 | 6 | — | 17.5 | 16.1 | 6 | M3 |
| A 6A23M015DF0906 | 15 | 14.3 | 13.5 | 17.4 | 6 | — | 17.5 | 17.4 | 6 | M3 |
| A 6A23M016DF0906 | 16 | 15.3 | 14.5 | 18 | 6 | — | 17.5 | 18 | 6 | M3 |
| A 6A23M017DF0906 | 17 | 16.2 | 15.4 | 18.8 | 6 | — | 17.5 | 18.8 | 6 | M3 |
| Fig. 2 | | | | | | | | | | |
| A 6A23M018DF0906 | 18 | 17.2 | 16.4 | 20 | 6 | 12.8 | 20.6 | 11.2 | 7.8 | M3 |
| A 6A23M019DF0906 | 19 | 18.2 | 17.4 | 20.7 | 6 | 12.8 | 20.6 | 11.9 | 7.8 | M3 |
| A 6A23M020DF0906 | 20 | 19.1 | 18.3 | 22.7 | 6 | 12.8 | 20.6 | 12.7 | 7.8 | M3 |
| A 6A23M022DF0906 | 22 | 21 | 20.2 | 24 | 6 | 12.8 | 20.6 | 14.3 | 7.8 | M4 |
| A 6A23M024DF0906 | 24 | 22.9 | 22.1 | 26 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A23M025DF0906 | 25 | 23.9 | 23.1 | 26.9 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A23M026DF0906 | 26 | 24.8 | 24 | 28.1 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A23M028DF0906 | 28 | 26.8 | 26 | 29.8 | 6 | 12.8 | 20.6 | 17.8 | 7.8 | M4 |
| A 6A23M030DF0906 | 30 | 28.7 | 27.9 | 31.8 | 6 | 12.8 | 20.6 | 19.7 | 7.8 | M4 |
| A 6A23M032DF0906 | 32 | 30.6 | 29.8 | 33.6 | 6 | 12.8 | 20.6 | 21.6 | 7.8 | M4 |
| A 6A23M034DF0906 | 34 | 32.5 | 31.7 | 35.5 | 6 | 13.4 | 21.4 | 23.4 | 8 | M4 |
| A 6A23M036DF0906 | 36 | 34.4 | 33.6 | 37.4 | 6 | 13.4 | 21.4 | 25.4 | 8 | M4 |
| A 6A23M038DF0906 | 38 | 36.3 | 35.5 | 39.4 | 6 | 13.4 | 21.4 | 27.3 | 8 | M4 |
| A 6A23M040DF0906 | 40 | 38.2 | 37.4 | 41.3 | 6 | 13.4 | 21.4 | 29.2 | 8 | M4 |
| A 6A23M044DF0906 | 44 | 42 | 41.2 | 45.1 | 6 | 13.4 | 21.4 | 33 | 8 | M4 |

FOR 6 mm BELTS

NO FLANGE

TRUE METRIC® PROFILE

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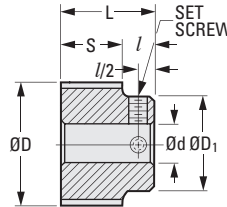


> **MATERIAL:**
Aluminum Alloy

> **FINISH:**
Clear Anodized

> **SPECIFICATION:**
D Tolerance: 18 to 26 grooves is +0.05/0
28 to 50 grooves is +0.08/0
56 to 72 grooves is +0.10/0

All pulleys 2 set screws at 90°



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | d Bore +0.025 0 | S Face Width | L Length ± 0.25 | D ₁ Hub Dia. ± 0.4 | l Hub Proj. | Set Screw |
|------------------|----------------|------|--------|-----------------|--------------|-----------------|-------------------------------|-------------|-----------|
| A 6A23M018NF0606 | 18 | 17.2 | 16.4 | 6 | 9.8 | 17.5 | 11.2 | 7.7 | M3 |
| A 6A23M019NF0606 | 19 | 18.2 | 17.4 | 6 | 9.8 | 17.5 | 11.9 | 7.7 | M3 |
| A 6A23M020NF0606 | 20 | 19.1 | 18.3 | 6 | 9.8 | 17.5 | 12.7 | 7.7 | M3 |
| A 6A23M022NF0606 | 22 | 21 | 20.2 | 6 | 9.8 | 17.5 | 14.3 | 7.7 | M4 |
| A 6A23M024NF0606 | 24 | 22.9 | 22.1 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A23M025NF0606 | 25 | 23.9 | 23.1 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A23M026NF0606 | 26 | 24.8 | 24 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A23M028NF0606 | 28 | 26.8 | 26 | 6 | 9.8 | 17.5 | 17.8 | 7.7 | M4 |
| A 6A23M030NF0606 | 30 | 28.7 | 27.9 | 6 | 9.8 | 17.5 | 19.7 | 7.7 | M4 |
| A 6A23M032NF0606 | 32 | 30.6 | 29.8 | 6 | 9.8 | 17.5 | 21.6 | 7.7 | M4 |
| A 6A23M034NF0606 | 34 | 32.5 | 31.7 | 6 | 10.3 | 18.3 | 23.4 | 8 | M4 |
| A 6A23M036NF0606 | 36 | 34.4 | 33.6 | 6 | 10.3 | 18.3 | 25.4 | 8 | M4 |
| A 6A23M038NF0606 | 38 | 36.3 | 35.5 | 6 | 10.3 | 18.3 | 27.3 | 8 | M4 |
| A 6A23M040NF0606 | 40 | 38.2 | 37.4 | 6 | 10.3 | 18.3 | 29.2 | 8 | M4 |
| A 6A23M044NF0606 | 44 | 42 | 41.2 | 6 | 10.3 | 18.3 | 33 | 8 | M4 |
| A 6A23M048NF0608 | 48 | 45.8 | 45 | 8 | 10.3 | 18.3 | 31.8 | 8.3 | M4 |
| A 6A23M050NF0608 | 50 | 47.8 | 47 | 8 | 10.3 | 18.3 | 31.8 | 8.3 | M4 |
| A 6A23M056NF0608 | 56 | 53.5 | 52.7 | 8 | 10.3 | 18.3 | 31.8 | 8.3 | M4 |
| A 6A23M060NF0608 | 60 | 57.3 | 56.5 | 8 | 10.3 | 18.3 | 31.8 | 8.3 | M4 |
| A 6A23M062NF0608 | 62 | 59.2 | 58.4 | 8 | 10.3 | 18.3 | 31.8 | 8.3 | M4 |
| A 6A23M072NF0608 | 72 | 68.8 | 68 | 8 | 10.3 | 18.3 | 31.8 | 8.3 | M4 |

FOR 9 mm BELTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

NO FLANGE

TRUE METRIC® PROFILE



> **MATERIAL:**

Aluminum Alloy

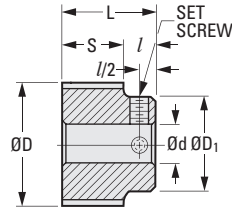
> **FINISH:**

Clear Anodized

> **SPECIFICATION:**

D Tolerance: 18 to 26 grooves is +0.05/0
 28 to 50 grooves is +0.08/0
 56 to 72 grooves is +0.10/0

All pulleys 2 set screws at 90°



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | d Bore +0.025 0 | S Face Width | L Length ± 0.25 | D ₁ Hub Dia. ± 0.4 | l Hub Proj. | Set Screw |
|------------------|----------------|------|--------|-----------------|--------------|-----------------|-------------------------------|-------------|-----------|
| A 6A23M018NF0906 | 18 | 17.2 | 16.4 | 6 | 12.8 | 20.6 | 11.2 | 7.8 | M3 |
| A 6A23M019NF0906 | 19 | 18.2 | 17.4 | 6 | 12.8 | 20.6 | 11.9 | 7.8 | M3 |
| A 6A23M020NF0906 | 20 | 19.1 | 18.3 | 6 | 12.8 | 20.6 | 12.7 | 7.8 | M3 |
| A 6A23M022NF0906 | 22 | 21 | 20.2 | 6 | 12.8 | 20.6 | 14.3 | 7.8 | M4 |
| A 6A23M024NF0906 | 24 | 22.9 | 22.1 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A23M025NF0906 | 25 | 23.9 | 23.1 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A23M026NF0906 | 26 | 24.8 | 24 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A23M028NF0906 | 28 | 26.8 | 26 | 6 | 12.8 | 20.6 | 17.8 | 7.8 | M4 |
| A 6A23M030NF0906 | 30 | 28.7 | 27.9 | 6 | 12.8 | 20.6 | 19.7 | 7.8 | M4 |
| A 6A23M032NF0906 | 32 | 30.6 | 29.8 | 6 | 12.8 | 20.6 | 21.6 | 7.8 | M4 |
| A 6A23M034NF0906 | 34 | 32.5 | 31.7 | 6 | 13.4 | 21.4 | 23.4 | 8 | M4 |
| A 6A23M036NF0906 | 36 | 34.4 | 33.6 | 6 | 13.4 | 21.4 | 25.4 | 8 | M4 |
| A 6A23M038NF0906 | 38 | 36.3 | 35.5 | 6 | 13.4 | 21.4 | 27.3 | 8 | M4 |
| A 6A23M040NF0906 | 40 | 38.2 | 37.4 | 6 | 13.4 | 21.4 | 29.2 | 8 | M4 |
| A 6A23M044NF0906 | 44 | 42 | 41.2 | 6 | 13.4 | 21.4 | 33 | 8 | M4 |
| A 6A23M048NF0908 | 48 | 45.8 | 45 | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A23M050NF0908 | 50 | 47.8 | 47 | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A23M056NF0908 | 56 | 53.5 | 52.7 | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A23M060NF0908 | 60 | 57.3 | 56.5 | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A23M062NF0908 | 62 | 59.2 | 58.4 | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A23M072NF0908 | 72 | 68.8 | 68 | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |

FOR 9 mm BELTS
 MOLDED WITH INSERT
 DOUBLE FLANGE
TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled

➤ **SPECIFICATIONS:**

Bore Tolerance: 4, 5 & 6 mm +0.030/0
 8 mm +0.036/0

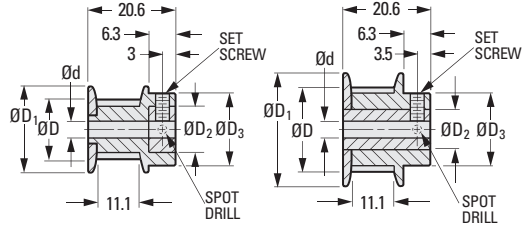


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|--------------------------------------|----------------|------|--------|---------------------|-----------|---------------------|-------------------------|-----------|
| Fig. 1 Grooves Flush with End | | | | | | | | |
| A 6Z23M010DF0904 | 10 | 9.6 | 8.8 | 16 | 4 | 11* | 16 | M3 |
| A 6Z23M011DF0904 | 11 | 10.5 | 9.7 | 16 | 4 | 11* | 16 | M3 |
| A 6Z23M012DF0904 | 12 | 11.5 | 10.7 | 16 | 4 | 11* | 16 | M3 |
| A 6Z23M013DF0904 | 13 | 12.4 | 11.6 | 17.5 | 4 | 11* | 17.5 | M3 |
| A 6Z23M014DF0904 | 14 | 13.4 | 12.6 | 17.5 | 4 | 11* | 17.5 | M3 |
| Fig. 1 | | | | | | | | |
| A 6Z23M015DF0904 | 15 | 14.3 | 13.5 | 20 | 4 | 11* | 17.5 | M3 |
| A 6Z23M016DF0904 | 16 | 15.3 | 14.5 | 21 | 4 | 11* | 17.5 | M3 |
| Fig. 2 | | | | | | | | |
| A 6Z23M017DF0904 | 17 | 16.2 | 15.4 | 22 | 4 | 9.5 | 17.5 | M3 |
| A 6Z23M017DF0905 | 17 | 16.2 | 15.4 | 22 | 5 | 9.5 | 17.5 | M3 |
| A 6Z23M017DF0906 | 17 | 16.2 | 15.4 | 22 | 6 | 9.5 | 17.5 | M3 |
| A 6Z23M018DF0904 | 18 | 17.2 | 16.4 | 24 | 4 | 9.5 | 17.5 | M3 |
| A 6Z23M018DF0905 | 18 | 17.2 | 16.4 | 24 | 5 | 9.5 | 17.5 | M3 |
| A 6Z23M018DF0906 | 18 | 17.2 | 16.4 | 24 | 6 | 9.5 | 17.5 | M3 |
| A 6Z23M019DF0904 | 19 | 18.2 | 17.4 | 24 | 4 | 9.5 | 17.5 | M3 |
| A 6Z23M019DF0905 | 19 | 18.2 | 17.4 | 24 | 5 | 9.5 | 17.5 | M3 |
| A 6Z23M019DF0906 | 19 | 18.2 | 17.4 | 24 | 6 | 9.5 | 17.5 | M3 |
| A 6Z23M020DF0904 | 20 | 19.1 | 18.3 | 24 | 4 | 9.5 | 17.5 | M3 |
| A 6Z23M020DF0905 | 20 | 19.1 | 18.3 | 24 | 5 | 9.5 | 17.5 | M3 |
| A 6Z23M020DF0906 | 20 | 19.1 | 18.3 | 24 | 6 | 9.5 | 17.5 | M3 |
| A 6Z23M022DF0904 | 22 | 21 | 20.2 | 27 | 4 | 9.5 | 17.5 | M3 |
| A 6Z23M022DF0905 | 22 | 21 | 20.2 | 27 | 5 | 9.5 | 17.5 | M3 |
| A 6Z23M022DF0906 | 22 | 21 | 20.2 | 27 | 6 | 9.5 | 17.5 | M3 |
| A 6Z23M025DF0906 | 25 | 23.9 | 23.1 | 30 | 6 | 13 | 19 | M4 |
| A 6Z23M025DF0908 | 25 | 23.9 | 23.1 | 30 | 8 | 13 | 19 | M4 |
| A 6Z23M028DF0906 | 28 | 26.8 | 26 | 32 | 6 | 13 | 19 | M4 |
| A 6Z23M028DF0908 | 28 | 26.8 | 26 | 32 | 8 | 13 | 19 | M4 |
| A 6Z23M030DF0906 | 30 | 28.7 | 27.9 | 34 | 6 | 13 | 19 | M4 |
| A 6Z23M030DF0908 | 30 | 28.7 | 27.9 | 34 | 8 | 13 | 19 | M4 |

* 6 mm long insert in hub end only.

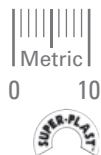
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FOR 9 mm BELTS
MOLDED WITH INSERT
DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

TRUE METRIC PROFILE



> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



> SPECIFICATIONS:

Bore Tolerance: 6 mm +0.030/0
 8 & 10 mm +0.036/0
 12 mm +0.043/0

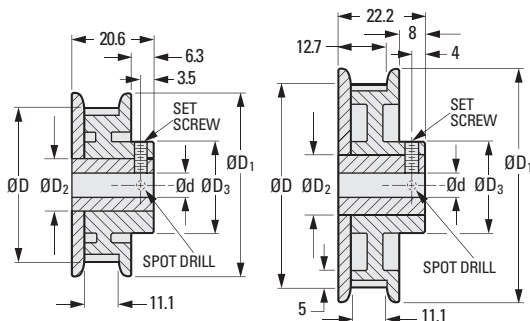


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|---------------------|-------------------------|-----------|
| Fig. 1 | | | | | | | | |
| A 6Z23M032DF0906 | 32 | 30.6 | 29.8 | 37 | 6 | 13 | 19 | M4 |
| A 6Z23M032DF0908 | 32 | 30.6 | 29.8 | 37 | 8 | 13 | 19 | M4 |
| A 6Z23M036DF0906 | 36 | 34.4 | 33.6 | 40 | 6 | 13 | 22 | M4 |
| A 6Z23M036DF0908 | 36 | 34.4 | 33.6 | 40 | 8 | 13 | 22 | M4 |
| A 6Z23M040DF0906 | 40 | 38.2 | 37.4 | 45 | 6 | 13 | 22 | M4 |
| A 6Z23M040DF0908 | 40 | 38.2 | 37.4 | 45 | 8 | 13 | 22 | M4 |
| A 6Z23M048DF0906 | 48 | 45.8 | 45 | 51 | 6 | 13 | 22 | M4 |
| A 6Z23M048DF0908 | 48 | 45.8 | 45 | 51 | 8 | 13 | 22 | M4 |
| Fig. 2 | | | | | | | | |
| A 6Z23M060DF0908 | 60 | 57.3 | 56.5 | 63 | 8 | 16 | 22 | M5 |
| A 6Z23M060DF0910 | 60 | 57.3 | 56.5 | 63 | 10 | 16 | 22 | M5 |
| A 6Z23M060DF0912 | 60 | 57.3 | 56.5 | 63 | 12 | 16 | 22 | M5 |
| A 6Z23M072DF0908 | 72 | 68.8 | 68 | 74 | 8 | 16 | 22 | M5 |
| A 6Z23M072DF0910 | 72 | 68.8 | 68 | 74 | 10 | 16 | 22 | M5 |
| A 6Z23M072DF0912 | 72 | 68.8 | 68 | 74 | 12 | 16 | 22 | M5 |
| A 6Z23M080DF0908 | 80 | 76.4 | 75.6 | 83 | 8 | 16 | 22 | M5 |
| A 6Z23M080DF0910 | 80 | 76.4 | 75.6 | 83 | 10 | 16 | 22 | M5 |
| A 6Z23M080DF0912 | 80 | 76.4 | 75.6 | 83 | 12 | 16 | 22 | M5 |

Continued from the previous page

FOR 9 mm BELTS
 MOLDED WITH INSERT
 SINGLE FLANGE
TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> **MATERIAL:**

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled

> **SPECIFICATIONS:**

Bore Tolerance: 4, 5 & 6 mm +0.030/0
 8 mm +0.036/0

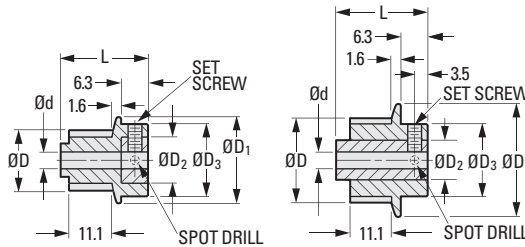


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | L Length | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|--------------------------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|-------------------------|-----------|
| Fig. 1 Grooves Flush with End | | | | | | | | | |
| A 6Z23M010SF0904 | 10 | 9.6 | 8.8 | 16 | 4 | 19 | 11* | 16 | M3 |
| A 6Z23M011SF0904 | 11 | 10.5 | 9.7 | 16 | 4 | 19 | 11* | 16 | M3 |
| A 6Z23M012SF0904 | 12 | 11.5 | 10.7 | 16 | 4 | 19 | 11* | 16 | M3 |
| A 6Z23M013SF0904 | 13 | 12.4 | 11.6 | 17.5 | 4 | 19 | 11* | 17.5 | M3 |
| A 6Z23M014SF0904 | 14 | 13.4 | 12.6 | 17.5 | 4 | 19 | 11* | 17.5 | M3 |
| Fig. 1 | | | | | | | | | |
| A 6Z23M015SF0904 | 15 | 14.3 | 13.5 | 20 | 4 | 20.6 | 11* | 17.5 | M3 |
| A 6Z23M016SF0904 | 16 | 15.3 | 14.5 | 21 | 4 | 20.6 | 11* | 17.5 | M3 |
| Fig. 2 | | | | | | | | | |
| A 6Z23M017SF0904 | 17 | 16.2 | 15.4 | 22 | 4 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M017SF0905 | 17 | 16.2 | 15.4 | 22 | 5 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M017SF0906 | 17 | 16.2 | 15.4 | 22 | 6 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M018SF0904 | 18 | 17.2 | 16.4 | 24 | 4 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M018SF0905 | 18 | 17.2 | 16.4 | 24 | 5 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M018SF0906 | 18 | 17.2 | 16.4 | 24 | 6 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M019SF0904 | 19 | 18.2 | 17.4 | 24 | 4 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M019SF0905 | 19 | 18.2 | 17.4 | 24 | 5 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M019SF0906 | 19 | 18.2 | 17.4 | 24 | 6 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M020SF0904 | 20 | 19.1 | 18.3 | 24 | 4 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M020SF0905 | 20 | 19.1 | 18.3 | 24 | 5 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M020SF0906 | 20 | 19.1 | 18.3 | 24 | 6 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M022SF0904 | 22 | 21 | 20.2 | 27 | 4 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M022SF0905 | 22 | 21 | 20.2 | 27 | 5 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M022SF0906 | 22 | 21 | 20.2 | 27 | 6 | 20.6 | 9.5 | 17.5 | M3 |
| A 6Z23M025SF0906 | 25 | 23.9 | 23.1 | 30 | 6 | 20.6 | 13 | 19 | M4 |
| A 6Z23M025SF0908 | 25 | 23.9 | 23.1 | 30 | 8 | 20.6 | 13 | 19 | M4 |
| A 6Z23M028SF0906 | 28 | 26.8 | 26 | 32 | 6 | 20.6 | 13 | 19 | M4 |
| A 6Z23M028SF0908 | 28 | 26.8 | 26 | 32 | 8 | 20.6 | 13 | 19 | M4 |
| A 6Z23M030SF0906 | 30 | 28.7 | 27.9 | 34 | 6 | 20.6 | 13 | 19 | M4 |
| A 6Z23M030SF0908 | 30 | 28.7 | 27.9 | 34 | 8 | 20.6 | 13 | 19 | M4 |

* 6 mm long insert in hub end only.

Continued on the next page

FOR 9 mm BELTS
 MOLDED WITH INSERT
 SINGLE OR NO FLANGE
TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled

➤ **SPECIFICATIONS:**

Bore Tolerance: 6 mm +0.030/0
 8 & 10 mm +0.036/0
 12 mm +0.043/0

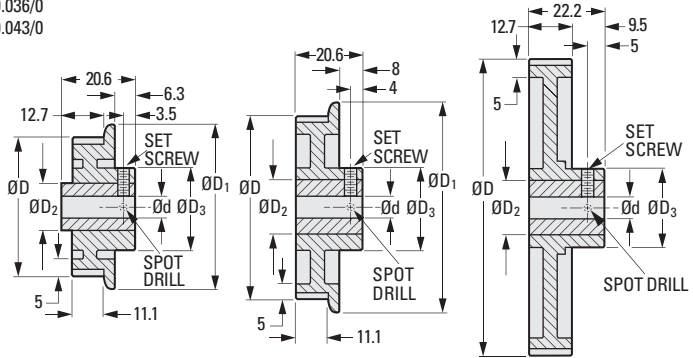
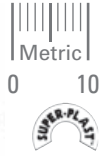


Fig. 1

Fig. 2

Fig. 3

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|-----------------------------|----------------|-------|--------|---------------------|-----------|---------------------|-------------------------|-----------|
| Fig. 1 Single Flange | | | | | | | | |
| A 6Z23M032SF0906 | 32 | 30.6 | 29.8 | 37 | 6 | 13 | 19 | M4 |
| A 6Z23M032SF0908 | 32 | 30.6 | 29.8 | 37 | 8 | 13 | 19 | M4 |
| A 6Z23M036SF0906 | 36 | 34.4 | 33.6 | 40 | 6 | 13 | 22 | M4 |
| A 6Z23M036SF0908 | 36 | 34.4 | 33.6 | 40 | 8 | 13 | 22 | M4 |
| A 6Z23M040SF0906 | 40 | 38.2 | 37.4 | 45 | 6 | 13 | 22 | M4 |
| A 6Z23M040SF0908 | 40 | 38.2 | 37.4 | 45 | 8 | 13 | 22 | M4 |
| A 6Z23M048SF0906 | 48 | 45.8 | 45 | 51 | 6 | 13 | 22 | M4 |
| A 6Z23M048SF0908 | 48 | 45.8 | 45 | 51 | 8 | 13 | 22 | M4 |
| Fig. 2 Single Flange | | | | | | | | |
| A 6Z23M060SF0908 | 60 | 57.3 | 56.5 | 63 | 8 | 16 | 22 | M5 |
| A 6Z23M060SF0910 | 60 | 57.3 | 56.5 | 63 | 10 | 16 | 22 | M5 |
| A 6Z23M060SF0912 | 60 | 57.3 | 56.5 | 63 | 12 | 16 | 22 | M5 |
| A 6Z23M072SF0908 | 72 | 68.8 | 68 | 74 | 8 | 16 | 22 | M5 |
| A 6Z23M072SF0910 | 72 | 68.8 | 68 | 74 | 10 | 16 | 22 | M5 |
| A 6Z23M072SF0912 | 72 | 68.8 | 68 | 74 | 12 | 16 | 22 | M5 |
| A 6Z23M080SF0908 | 80 | 76.4 | 75.6 | 84 | 8 | 16 | 22 | M5 |
| A 6Z23M080SF0910 | 80 | 76.4 | 75.6 | 84 | 10 | 16 | 22 | M5 |
| A 6Z23M080SF0912 | 80 | 76.4 | 75.6 | 84 | 12 | 16 | 22 | M5 |
| A 6Z23M084SF0908 | 84 | 80.2 | 79.5 | 86 | 8 | 16 | 22 | M5 |
| A 6Z23M084SF0910 | 84 | 80.2 | 79.5 | 86 | 10 | 16 | 22 | M5 |
| A 6Z23M084SF0912 | 84 | 80.2 | 79.5 | 86 | 12 | 16 | 22 | M5 |
| A 6Z23M096SF0908 | 96 | 91.7 | 90.9 | 97 | 8 | 16 | 25 | M5 |
| A 6Z23M096SF0910 | 96 | 91.7 | 90.9 | 97 | 10 | 16 | 25 | M5 |
| A 6Z23M096SF0912 | 96 | 91.7 | 90.9 | 97 | 12 | 16 | 25 | M5 |
| Fig. 3 No Flange | | | | | | | | |
| A 6Z23M120NF0910 | 120 | 114.6 | 113.8 | — | 10 | 16 | 25 | M5 |
| A 6Z23M120NF0912 | 120 | 114.6 | 113.8 | — | 12 | 16 | 25 | M5 |

Continued from the previous page

FOR 9 mm BELTS

MOLED

DOUBLE FLANGE

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> **MATERIAL:**

Polycarbonate, Fiberglass Reinforced

> **SPECIFICATIONS:**

Pulleys with 10 to 30 grooves do not have webs.

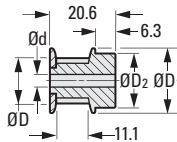


Fig. 1

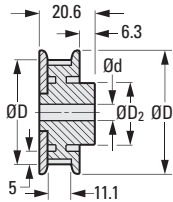


Fig. 2

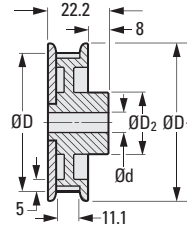


Fig. 3

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | D ₂ Dia. |
|---------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|
| Fig. 1 | | | | | | | |
| A 6L23M010DF0904 | 10 | 9.5 | 8.8 | 16 | 4 | +0.030/0 | 16 |
| A 6L23M011DF0904 | 11 | 10.5 | 9.7 | 16 | 4 | +0.030/0 | 16 |
| A 6L23M012DF0904 | 12 | 11.5 | 10.7 | 16 | 4 | +0.030/0 | 16 |
| A 6L23M013DF0904 | 13 | 12.4 | 11.7 | 17.5 | 4 | +0.030/0 | 17.5 |
| A 6L23M014DF0904 | 14 | 13.4 | 12.6 | 17.5 | 4 | +0.030/0 | 17.5 |
| A 6L23M015DF0904 | 15 | 14.3 | 13.6 | 20 | 4 | +0.030/0 | 17.5 |
| A 6L23M016DF0904 | 16 | 15.3 | 14.5 | 21 | 4 | +0.030/0 | 17.5 |
| Fig. 2 Solid | | | | | | | |
| A 6L23M017DF0904 | 17 | 16.2 | 15.5 | 22 | 4 | +0.030/0 | 17.5 |
| A 6L23M018DF0904 | 18 | 17.2 | 16.4 | 24 | 4 | +0.030/0 | 17.5 |
| A 6L23M019DF0904 | 19 | 18.1 | 17.4 | 24 | 4 | +0.030/0 | 17.5 |
| A 6L23M020DF0904 | 20 | 19.1 | 18.3 | 24 | 4 | +0.030/0 | 17.5 |
| A 6L23M022DF0904 | 22 | 21 | 20.2 | 27 | 4 | +0.030/0 | 17.5 |
| A 6L23M025DF0906 | 25 | 23.9 | 23.1 | 30 | 6 | +0.030/0 | 19 |
| A 6L23M028DF0906 | 28 | 26.7 | 26 | 32 | 6 | +0.030/0 | 19 |
| A 6L23M030DF0906 | 30 | 28.7 | 27.9 | 34 | 6 | +0.030/0 | 19 |
| Fig. 2 | | | | | | | |
| A 6L23M032DF0906 | 32 | 30.6 | 29.8 | 37 | 6 | +0.030/0 | 19 |
| A 6L23M036DF0906 | 36 | 34.4 | 33.6 | 40 | 6 | +0.030/0 | 22 |
| A 6L23M040DF0906 | 40 | 38.2 | 37.4 | 45 | 6 | +0.030/0 | 22 |
| A 6L23M048DF0906 | 48 | 45.8 | 45.1 | 51 | 6 | +0.030/0 | 22 |
| Fig. 3 | | | | | | | |
| A 6L23M060DF0908 | 60 | 57.3 | 56.5 | 63 | 8 | +0.036/0 | 22 |
| A 6L23M072DF0908 | 72 | 68.8 | 68 | 74 | 8 | +0.036/0 | 22 |
| A 6L23M080DF0908 | 80 | 76.4 | 75.6 | 84 | 8 | +0.036/0 | 22 |

FOR 9 mm BELTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

MOLDED
SINGLE OR NO FLANGE
TRUE METRIC PROFILE



➤ **MATERIAL:**
Polycarbonate, Fiberglass Reinforced

➤ **SPECIFICATIONS:**
Pulleys with 10 to 30 grooves do not have webs.

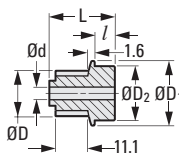


Fig. 1

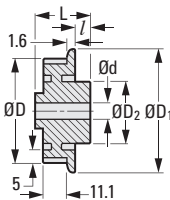


Fig. 2

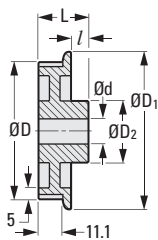


Fig. 3

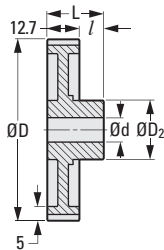


Fig. 4

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | L Length | D ₂ Dia. | l Hub Proj. |
|--|----------------|-------|--------|---------------------|-----------|----------|----------|---------------------|-------------|
| Fig. 1 Single Flange Grooves Flush with End | | | | | | | | | |
| A 6L23M010SF0904 | 10 | 9.5 | 8.8 | 16 | 4 | +0.030/0 | 19 | 16 | 6.3 |
| A 6L23M011SF0904 | 11 | 10.5 | 9.7 | 16 | 4 | +0.030/0 | 19 | 16 | 6.3 |
| A 6L23M012SF0904 | 12 | 11.5 | 10.7 | 16 | 4 | +0.030/0 | 19 | 16 | 6.3 |
| A 6L23M013SF0904 | 13 | 12.4 | 11.7 | 17.5 | 4 | +0.030/0 | 19 | 17.5 | 6.3 |
| A 6L23M014SF0904 | 14 | 13.4 | 12.6 | 17.5 | 4 | +0.030/0 | 19 | 17.5 | 6.3 |
| Fig. 1 Single Flange | | | | | | | | | |
| A 6L23M015SF0904 | 15 | 14.3 | 13.6 | 20 | 4 | +0.030/0 | 20.6 | 17.5 | 6.3 |
| A 6L23M016SF0904 | 16 | 15.3 | 14.5 | 21 | 4 | +0.030/0 | 20.6 | 17.5 | 6.3 |
| Fig. 2 Single Flange Solid | | | | | | | | | |
| A 6L23M017SF0904 | 17 | 16.2 | 15.5 | 22 | 4 | +0.030/0 | 20.6 | 17.5 | 6.3 |
| A 6L23M018SF0904 | 18 | 17.2 | 16.4 | 24 | 4 | +0.030/0 | 20.6 | 17.5 | 6.3 |
| A 6L23M019SF0904 | 19 | 18.1 | 17.4 | 24 | 4 | +0.030/0 | 20.6 | 17.5 | 6.3 |
| A 6L23M020SF0904 | 20 | 19.1 | 18.3 | 24 | 4 | +0.030/0 | 20.6 | 17.5 | 6.3 |
| A 6L23M022SF0904 | 22 | 21 | 20.2 | 27 | 4 | +0.030/0 | 20.6 | 17.5 | 6.3 |
| A 6L23M025SF0906 | 25 | 23.9 | 23.1 | 30 | 6 | +0.030/0 | 20.6 | 19 | 6.3 |
| A 6L23M028SF0906 | 28 | 26.7 | 26 | 32 | 6 | +0.030/0 | 20.6 | 19 | 6.3 |
| A 6L23M030SF0906 | 30 | 28.7 | 27.9 | 34 | 6 | +0.030/0 | 20.6 | 19 | 6.3 |
| Fig. 2 Single Flange | | | | | | | | | |
| A 6L23M032SF0906 | 32 | 30.6 | 29.8 | 37 | 6 | +0.036/0 | 20.6 | 19 | 6.3 |
| A 6L23M036SF0906 | 36 | 34.4 | 33.6 | 40 | 6 | +0.036/0 | 20.6 | 22 | 6.3 |
| A 6L23M040SF0906 | 40 | 38.2 | 37.4 | 45 | 6 | +0.036/0 | 20.6 | 22 | 6.3 |
| A 6L23M048SF0906 | 48 | 45.8 | 45.1 | 51 | 6 | +0.036/0 | 20.6 | 22 | 6.3 |
| Fig. 3 Single Flange | | | | | | | | | |
| A 6L23M060SF0908 | 60 | 57.3 | 56.5 | 63 | 8 | +0.036/0 | 20.6 | 22 | 8 |
| A 6L23M072SF0908 | 72 | 68.8 | 68 | 74 | 8 | +0.036/0 | 20.6 | 22 | 8 |
| A 6L23M080SF0908 | 80 | 76.4 | 75.6 | 84 | 8 | +0.036/0 | 20.6 | 22 | 8 |
| A 6L23M084SF0908 | 84 | 80.2 | 79.5 | 86 | 8 | +0.036/0 | 20.6 | 22 | 8 |
| A 6L23M096SF0908 | 96 | 91.7 | 90.9 | 97 | 8 | +0.036/0 | 22.2 | 25 | 9.5 |
| Fig. 4 No Flange | | | | | | | | | |
| A 6L23M120NF0910 | 120 | 114.6 | 113.8 | — | 10 | +0.036/0 | 22.2 | 25 | 9.5 |

BELT WIDTHS

METRIC - 6, 9, 15 & 25 mm

TRUE METRIC® PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Nylon Covered, Fiberglass Reinforced, Neoprene

> SPECIFICATIONS:

Breaking Strength:

316 N per 1 mm (226 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

454 N for 25.4 mm belt (102 lbf for 1 in. belt).

For more information, see the technical section.

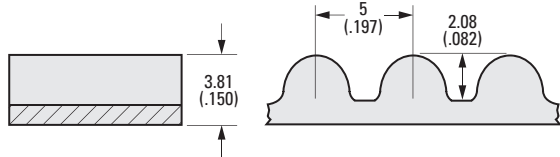
Temperature Range:

-34°C to +85°C (-30°F to +185°F)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric or inch standards.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 2 5 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 024 | 120 | 4.724 |
| 035 | 175 | 6.890 |
| 036 | 180 | 7.087 |
| 038 | 190 | 7.480 |
| 040 | 200 | 7.874 |
| 043 | 215 | 8.465 |
| 045 | 225 | 8.858 |
| 046 | 230 | 9.055 |
| 048 | 240 | 9.449 |
| 049 | 245 | 9.646 |
| 051 | 255 | 10.039 |
| 052 | 260 | 10.236 |
| 053 | 265 | 10.433 |
| 054 | 270 | 10.630 |
| 055 | 275 | 10.827 |
| 056 | 280 | 11.024 |
| 057 | 285 | 11.220 |
| 059 | 295 | 11.614 |
| 060 | 300 | 11.811 |
| 061 | 305 | 12.008 |
| 062 | 310 | 12.205 |
| 064 | 320 | 12.598 |
| 065 | 325 | 12.795 |
| 066 | 330 | 12.992 |
| 067 | 335 | 13.189 |
| 068 | 340 | 13.386 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 069 | 345 | 13.583 |
| 070 | 350 | 13.780 |
| 072 | 360 | 14.173 |
| 073 | 365 | 14.370 |
| 074 | 370 | 14.567 |
| 075 | 375 | 14.764 |
| 077 | 385 | 15.157 |
| 080 | 400 | 15.748 |
| 081 | 405 | 15.945 |
| 082 | 410 | 16.142 |
| 083 | 415 | 16.339 |
| 084 | 420 | 16.535 |
| 085 | 425 | 16.732 |
| 090 | 450 | 17.717 |
| 092 | 460 | 18.110 |
| 093 | 465 | 18.307 |
| 095 | 475 | 18.701 |
| 096 | 480 | 18.898 |
| 099 | 495 | 19.488 |
| 100 | 500 | 19.685 |
| 104 | 520 | 20.472 |
| 105 | 525 | 20.669 |
| 107 | 535 | 21.063 |
| 110 | 550 | 21.654 |
| 111 | 555 | 21.850 |
| 112 | 560 | 22.047 |

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METRIC COMPONENT CATALOG NUMBER

A 6 R 25 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 113 | 565 | 22.244 |
| 115 | 575 | 22.638 |
| 116 | 580 | 22.835 |
| 117 | 585 | 23.031 |
| 118 | 590 | 23.228 |
| 120 | 600 | 23.622 |
| 122 | 610 | 24.016 |
| 123 | 615 | 24.213 |
| 124 | 620 | 24.409 |
| 125 | 625 | 24.606 |
| 127 | 635 | 25.000 |
| 128 | 640 | 25.197 |
| 129 | 645 | 25.394 |
| 131 | 655 | 25.787 |
| 133 | 665 | 26.181 |
| 134 | 670 | 26.378 |
| 136 | 680 | 26.772 |
| 137 | 685 | 26.968 |
| 139 | 695 | 27.362 |
| 140 | 700 | 27.559 |
| 142 | 710 | 27.953 |
| 144 | 720 | 28.346 |
| 148 | 740 | 29.134 |
| 149 | 745 | 29.331 |
| 150 | 750 | 29.528 |
| 151 | 755 | 29.724 |
| 153 | 765 | 30.118 |
| 154 | 770 | 30.315 |
| 155 | 775 | 30.512 |
| 158 | 790 | 31.102 |
| 160 | 800 | 31.496 |
| 162 | 810 | 31.890 |
| 165 | 825 | 32.480 |
| 166 | 830 | 32.677 |
| 167 | 835 | 32.874 |
| 169 | 845 | 33.268 |
| 170 | 850 | 33.465 |
| 172 | 860 | 33.858 |
| 174 | 870 | 34.252 |
| 178 | 890 | 35.039 |
| 180 | 900 | 35.433 |
| 184 | 920 | 36.220 |
| 185 | 925 | 36.417 |
| 186 | 930 | 36.614 |
| 187 | 935 | 36.811 |
| 188 | 940 | 37.008 |
| 190 | 950 | 37.402 |
| 193 | 965 | 37.992 |
| 195 | 975 | 38.386 |
| 196 | 980 | 38.583 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | mm | Inch |
| 197 | 985 | 38.779 |
| 200 | 1000 | 39.370 |
| 205 | 1025 | 40.354 |
| 207 | 1035 | 40.748 |
| 208 | 1040 | 40.945 |
| 210 | 1050 | 41.339 |
| 220 | 1100 | 43.307 |
| 223 | 1115 | 43.898 |
| 225 | 1125 | 44.291 |
| 227 | 1135 | 44.685 |
| 229 | 1145 | 45.079 |
| 235 | 1175 | 46.260 |
| 239 | 1195 | 47.047 |
| 240 | 1200 | 47.244 |
| 245 | 1225 | 48.228 |
| 247 | 1235 | 48.622 |
| 250 | 1250 | 49.213 |
| 254 | 1270 | 50.000 |
| 259 | 1295 | 50.984 |
| 270 | 1350 | 53.150 |
| 275 | 1375 | 54.134 |
| 276 | 1380 | 54.331 |
| 284 | 1420 | 55.905 |
| 300 | 1500 | 59.055 |
| 304 | 1520 | 59.843 |
| 315 | 1575 | 62.008 |
| 319 | 1595 | 62.795 |
| 327 | 1635 | 64.370 |
| 338 | 1690 | 66.535 |
| 344 | 1720 | 67.716 |
| 358 | 1790 | 70.472 |
| 360 | 1800 | 70.866 |
| 374 | 1870 | 73.622 |
| 379 | 1895 | 74.606 |
| 389 | 1945 | 76.575 |
| 396 | 1980 | 77.953 |
| 400 | 2000 | 78.740 |
| 420 | 2100 | 82.677 |
| 422 | 2110 | 83.071 |
| 450 | 2250 | 88.583 |
| 470 | 2350 | 92.520 |
| 505 | 2525 | 99.409 |
| 552 | 2760 | 108.661 |
| 624 | 3120 | 122.834 |
| 634 | 3170 | 124.803 |
| 640 | 3200 | 125.984 |
| 686 | 3430 | 135.039 |
| 760 | 3800 | 149.606 |
| 800 | 4000 | 157.480 |

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BELT WIDTHS
 METRIC - 6, 9, 15 & 25 mm
TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Nylon Covered, Fiberglass Reinforced, Neoprene

> **SPECIFICATIONS:**

Breaking Strength:

316 N per 1 mm (226 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

454 N for 25.4 mm belt (102 lbf for 1 in. belt).

For more information, see the technical section.

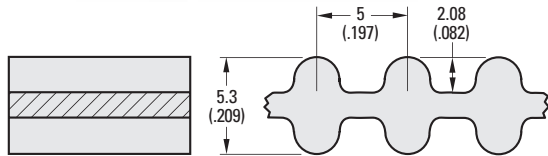
Temperature Range:

-34°C to +85°C (-30°F to +185°F)

> **MODIFICATIONS:**

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric or inch standards.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 25 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 080 | 400 | 15.748 |
| 083 | 415 | 16.339 |
| 085 | 425 | 16.732 |
| 090 | 450 | 17.717 |
| 092 | 460 | 18.110 |
| 095 | 475 | 18.701 |
| 096 | 480 | 18.898 |
| 099 | 495 | 19.488 |
| 100 | 500 | 19.685 |
| 104 | 520 | 20.472 |
| 107 | 535 | 21.063 |
| 111 | 555 | 21.850 |
| 112 | 560 | 22.047 |
| 113 | 565 | 22.244 |
| 115 | 575 | 22.638 |
| 116 | 580 | 22.835 |
| 117 | 585 | 23.031 |
| 118 | 590 | 23.228 |
| 120 | 600 | 23.622 |
| 122 | 610 | 24.016 |
| 123 | 615 | 24.213 |
| 127 | 635 | 25.000 |
| 128 | 640 | 25.197 |
| 131 | 655 | 25.787 |
| 133 | 665 | 26.181 |
| 134 | 670 | 26.378 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 136 | 680 | 26.772 |
| 137 | 685 | 26.968 |
| 139 | 695 | 27.362 |
| 140 | 700 | 27.559 |
| 142 | 710 | 27.953 |
| 148 | 740 | 29.134 |
| 149 | 745 | 29.331 |
| 151 | 755 | 29.724 |
| 153 | 765 | 30.118 |
| 155 | 775 | 30.512 |
| 158 | 790 | 31.102 |
| 160 | 800 | 31.496 |
| 166 | 830 | 32.677 |
| 167 | 835 | 32.874 |
| 170 | 850 | 33.465 |
| 174 | 870 | 34.252 |
| 178 | 890 | 35.039 |
| 185 | 925 | 36.417 |
| 186 | 930 | 36.614 |
| 187 | 935 | 36.811 |
| 190 | 950 | 37.402 |
| 195 | 975 | 38.386 |
| 197 | 985 | 38.779 |
| 200 | 1000 | 39.370 |
| 207 | 1035 | 40.748 |
| 210 | 1050 | 41.339 |

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METRIC COMPONENT CATALOG NUMBER

A 6 R 25 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | mm | Inch |
| 220 | 1100 | 43.307 |
| 225 | 1125 | 44.291 |
| 239 | 1195 | 47.047 |
| 240 | 1200 | 47.244 |
| 245 | 1225 | 48.228 |
| 250 | 1250 | 49.213 |
| 254 | 1270 | 50.000 |
| 259 | 1295 | 50.984 |
| 275 | 1375 | 54.134 |
| 284 | 1420 | 55.905 |
| 300 | 1500 | 59.055 |
| 315 | 1575 | 62.008 |
| 319 | 1595 | 62.795 |
| 327 | 1635 | 64.370 |
| 338 | 1690 | 66.535 |
| 358 | 1790 | 70.472 |
| 360 | 1800 | 70.866 |
| 374 | 1870 | 73.622 |
| 379 | 1895 | 74.606 |
| 389 | 1945 | 76.575 |
| 396 | 1980 | 77.953 |
| 400 | 2000 | 78.740 |
| 420 | 2100 | 82.677 |
| 422 | 2110 | 83.071 |
| 450 | 2250 | 88.583 |
| 470 | 2350 | 92.520 |
| 505 | 2525 | 99.409 |
| 552 | 2760 | 108.661 |
| 624 | 3120 | 122.834 |

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FOR **TRUE METRIC®** PROFILE

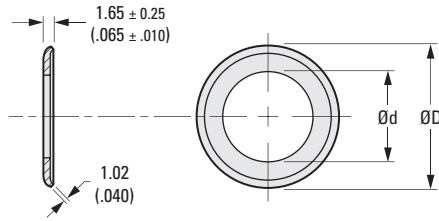
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Aluminum Alloy or Steel

> **SPECIFICATION:**

Priced per 25 pieces



METRIC COMPONENT

| Catalog Number | | Pulley Grooves Ref. | Metric | | Inch | |
|----------------|--------------|---------------------|----------|---------|----------|----------|
| Aluminum Alloy | Steel | | d ± 0.08 | D ± 0.4 | d ± .003 | D ± 1/64 |
| A 6A24M012FA | A 6C24M012FS | 12 | 12.78 | 22.2 | .503 | 7/8 |
| A 6A24M013FA | A 6C24M013FS | 13 | 14.27 | 23.8 | .562 | 15/16 |
| A 6A24M014FA | A 6C24M014FS | 14 | 14.27 | 25.4 | .562 | 1 |
| A 6A24M015FA | A 6C24M015FS | 15 | 15.88 | 27 | .625 | 1-1/16 |
| A 6A24M016FA | A 6C24M016FS | 16 | 17.37 | 27.8 | .684 | 1-3/32 |
| A 6A24M017FA | A 6C24M017FS | 17 | 19 | 30.2 | .748 | 1-3/16 |
| A 6A24M018FA | A 6C24M018FS | 18 | 20.58 | 31.8 | .810 | 1-1/4 |
| A 6A24M019FA | A 6C24M019FS | 19 | 22.53 | 33.3 | .887 | 1-5/16 |
| A 6A24M020FA | A 6C24M020FS | 20 | 23.77 | 34.9 | .936 | 1-3/8 |
| A 6A24M021FA | A 6C24M021FS | 21 | 25.4 | 36.5 | 1.000 | 1-7/16 |
| A 6A24M022FA | A 6C24M022FS | 22 | 26.97 | 38.1 | 1.062 | 1-1/2 |
| A 6A24M023FA | A 6C24M023FS | 23 | 28.58 | 39.7 | 1.125 | 1-9/16 |
| A 6A24M024FA | A 6C24M024FS | 24 | 29.46 | 41.3 | 1.160 | 1-5/8 |
| A 6A24M025FA | A 6C24M025FS | 25 | 31.04 | 42.9 | 1.222 | 1-11/16 |
| A 6A24M026FA | A 6C24M026FS | 26 | 31.04 | 44.5 | 1.222 | 1-3/4 |
| A 6A24M028FA | A 6C24M028FS | 28 | 34.21 | 47.6 | 1.347 | 1-7/8 |
| A 6A24M030FA | A 6C24M030FS | 30 | 36.2 | 50.8 | 1.425 | 2 |
| A 6A24M032FA | A 6C24M032FS | 32 | 39.37 | 54 | 1.550 | 2-1/8 |
| A 6A24M034FA | A 6C24M034FS | 34 | 42.55 | 57.2 | 1.675 | 2-1/4 |

NOTE: Dimensions in () are inch size.

➤ **MATERIAL:**

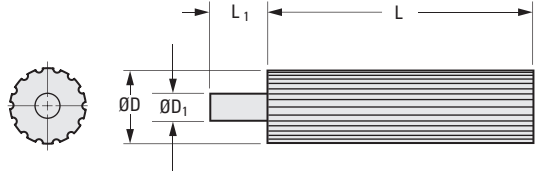
Aluminum Alloy

➤ **SPECIFICATION:**

D Tolerance:

12 to 16 grooves is +0.05/0 (+.002/-.000)

17 to 30 grooves is +0.08/0 (+.003/-.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Lgth. (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|-----------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A24M012TM15 | 12 | 19.1 | 17.96 | .752 | .707 | 12.7 (1/2) | 25 (1) [19 (3/4)] ^Δ | 150 (6) |
| A 6A24M013TM15 | 13 | 20.7 | 19.55 | .815 | .770 | 12.7 (1/2) | | 150 (6) |
| A 6A24M014TM18 | 14 | 22.3 | 21.14 | .877 | .832 | 12.7 (1/2) | | 175 (7) |
| A 6A24M015TM18 | 15 | 23.9 | 22.73 | .940 | .895 | 12.7 (1/2) | | 175 (7) |
| A 6A24M016TM18 | 16 | 25.5 | 24.32 | 1.003 | .958 | 12.7 (1/2) | | 175 (7) |
| A 6A24M017TM18 | 17 | 27.1 | 25.91 | 1.065 | 1.020 | 12.7 (1/2) | | 175 (7) |
| A 6A24M018TM20 | 18 | 28.6 | 27.5 | 1.128 | 1.083 | 12.7 (1/2) | | 200 (8) |
| A 6A24M019TM20 | 19 | 30.2 | 29.1 | 1.191 | 1.146 | 12.7 (1/2) | | 200 (8) |
| A 6A24M020TM20 | 20 | 31.8 | 30.69 | 1.253 | 1.208 | 12.7 (1/2) | | 200 (8) |
| A 6A24M021TM20 | 21 | 33.4 | 32.28 | 1.316 | 1.271 | 12.7 (1/2) | | 200 (8) |
| A 6A24M022TM20 | 22 | 35 | 33.87 | 1.379 | 1.334 | 12.7 (1/2) | | 200 (8) |
| A 6A24M023TM20 | 23 | 36.6 | 35.46 | 1.441 | 1.396 | 12.7 (1/2) | | 200 (8) |
| A 6A24M024TM20 | 24 | 38.2 | 37.05 | 1.504 | 1.459 | 12.7 (1/2) | | 200 (8) |
| A 6A24M025TM20 | 25 | 39.8 | 38.65 | 1.566 | 1.521 | 12.7 (1/2) | | 200 (8) |
| A 6A24M026TM20 | 26 | 41.4 | 40.24 | 1.629 | 1.584 | 12.7 (1/2) | | 200 (8) |
| A 6A24M027TM20 | 27 | 43 | 41.83 | 1.692 | 1.647 | 12.7 (1/2) | | 200 (8) |
| A 6A24M028TM20 | 28 | 44.6 | 43.42 | 1.754 | 1.709 | 12.7 (1/2) | | 200 (8) |
| A 6A24M029TM20 | 29 | 46.2 | 45.01 | 1.817 | 1.772 | 12.7 (1/2) | | 200 (8) |
| A 6A24M030TM20 | 30 | 47.7 | 46.6 | 1.880 | 1.835 | 12.7 (1/2) | | 200 (8) |

NOTE: Dimensions in () are inch size.

^Δ Dimensions in [] may be substituted at SDP option.

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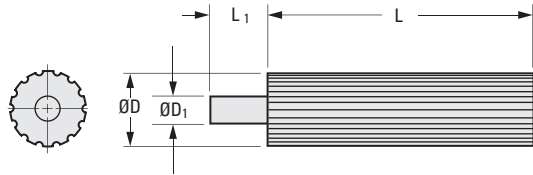
► MATERIAL:

Aluminum Alloy

► SPECIFICATION:

D Tolerance:

- 31 to 32 grooves is +0.08/0 (+.003/-.000)
- 33 to 62 grooves is +0.10/0 (+.004/-.000)
- 65 to 112 grooves is +0.13/0 (+.005/-.000)
- 126 grooves is +0.15/0 (+.006/-.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Lgth. (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|-------------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A24M031TM20 | 31 | 49.3 | 48.2 | 1.942 | 1.897 | 19.1 (3/4) | 25 (1) [19 (3/4)] ^Δ | 200 (8) |
| A 6A24M032TM20 | 32 | 50.9 | 49.79 | 2.005 | 1.960 | 19.1 (3/4) | | 200 (8) |
| A 6A24M033TM20 | 33 | 52.5 | 51.38 | 2.068 | 2.023 | 19.1 (3/4) | | 200 (8) |
| A 6A24M034TM20 | 34 | 54.1 | 52.97 | 2.130 | 2.085 | 19.1 (3/4) | | 200 (8) |
| A 6A24M035TM20 | 35 | 55.7 | 54.56 | 2.193 | 2.148 | 19.1 (3/4) | | 200 (8) |
| A 6A24M036TM20 | 36 | 57.3 | 56.15 | 2.256 | 2.211 | 19.1 (3/4) | | 200 (8) |
| A 6A24M038TM20 | 38 | 60.5 | 59.34 | 2.381 | 2.336 | 19.1 (3/4) | | 200 (8) |
| A 6A24M040TM20 | 40 | 63.7 | 62.52 | 2.506 | 2.461 | 19.1 (3/4) | | 200 (8) |
| A 6A24M042TM20 | 42 | 66.8 | 65.7 | 2.632 | 2.587 | 19.1 (3/4) | | 200 (8) |
| A 6A24M044TM20 | 44 | 70 | 68.89 | 2.757 | 2.712 | 19.1 (3/4) | | 200 (8) |
| A 6A24M045TM20 | 45 | 71.6 | 70.48 | 2.820 | 2.775 | 19.1 (3/4) | | 200 (8) |
| A 6A24M046TM20 | 46 | 73.2 | 72.07 | 2.882 | 2.837 | 19.1 (3/4) | | 200 (8) |
| A 6A24M048TM20 | 48 | 76.4 | 75.25 | 3.008 | 2.963 | 19.1 (3/4) | | 200 (8) |
| A 6A24M050TM20 | 50 | 79.6 | 78.43 | 3.133 | 3.088 | 19.1 (3/4) | | 200 (8) |
| A 6A24M054TM20 | 54 | 85.9 | 84.8 | 3.384 | 3.339 | 19.1 (3/4) | | 200 (8) |
| A 6A24M056TM20 | 56 | 89.1 | 87.98 | 3.509 | 3.464 | 19.1 (3/4) | | 200 (8) |
| A 6A24M060TM20 | 60 | 95.5 | 94.35 | 3.760 | 3.715 | 19.1 (3/4) | | 200 (8) |
| A 6A24M062TM20 | 62 | 98.7 | 97.53 | 3.885 | 3.840 | 19.1 (3/4) | | 200 (8) |
| A 6A24M065TM20 | 65 | 103.5 | 102.31 | 4.073 | 4.028 | 25.4 (1) | | 200 (8) |
| A 6A24M072TM20 | 72 | 114.6 | 113.45 | 4.511 | 4.466 | 25.4 (1) | | 200 (8) |
| A 6A24M080TM20 | 80 | 127.3 | 126.18 | 5.013 | 4.968 | 25.4 (1) | | 200 (8) |
| A 6A24M090TM20 | 90 | 143.2 | 142.1 | 5.639 | 5.594 | 25.4 (1) | | 200 (8) |
| A 6A24M100TM20 | 100 | 159.2 | 158.01 | 6.266 | 6.221 | 25.4 (1) | | 200 (8) |
| A 6A24M112TM15 | 112 | 178.3 | 177.11 | 7.018 | 6.973 | 25.4 (1) | | 150 (6) |
| A 6A24M126TM15 | 126 | 200.5 | 199.39 | 7.895 | 7.850 | 25.4 (1) | | 150 (6) |

NOTE: Dimensions in () are inch size.

Δ Dimensions in [] may be substituted at SDP option.

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➤ **MATERIAL:**

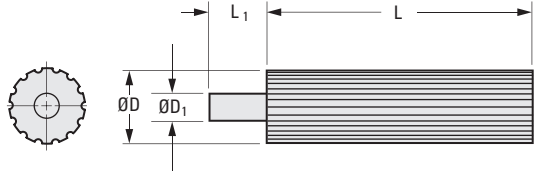
Carbon Steel

➤ **SPECIFICATION:**

D Tolerance:

12 to 16 grooves is +0.05/0 (+.002/- .000)

17 to 30 grooves is +0.08/0 (+.003/- .000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Lgth. (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|-----------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6C24M012TM15 | 12 | 19.1 | 17.96 | .752 | .707 | 12.7 (1/2) | 25 (1) [19 (3/4)] ^Δ | 150 (6) |
| A 6C24M013TM15 | 13 | 20.7 | 19.55 | .815 | .770 | 12.7 (1/2) | | 150 (6) |
| A 6C24M014TM18 | 14 | 22.3 | 21.14 | .877 | .832 | 12.7 (1/2) | | 175 (7) |
| A 6C24M015TM18 | 15 | 23.9 | 22.73 | .940 | .895 | 12.7 (1/2) | | 175 (7) |
| A 6C24M016TM18 | 16 | 25.5 | 24.32 | 1.003 | .958 | 12.7 (1/2) | | 175 (7) |
| A 6C24M017TM18 | 17 | 27.1 | 25.91 | 1.065 | 1.020 | 12.7 (1/2) | | 175 (7) |
| A 6C24M018TM20 | 18 | 28.6 | 27.5 | 1.128 | 1.083 | 12.7 (1/2) | | 200 (8) |
| A 6C24M019TM20 | 19 | 30.2 | 29.1 | 1.191 | 1.146 | 12.7 (1/2) | | 200 (8) |
| A 6C24M020TM20 | 20 | 31.8 | 30.69 | 1.253 | 1.208 | 12.7 (1/2) | | 200 (8) |
| A 6C24M021TM20 | 21 | 33.4 | 32.28 | 1.316 | 1.271 | 12.7 (1/2) | | 200 (8) |
| A 6C24M022TM20 | 22 | 35 | 33.87 | 1.379 | 1.334 | 12.7 (1/2) | | 200 (8) |
| A 6C24M023TM20 | 23 | 36.6 | 35.46 | 1.441 | 1.396 | 12.7 (1/2) | | 200 (8) |
| A 6C24M024TM20 | 24 | 38.2 | 37.05 | 1.504 | 1.459 | 12.7 (1/2) | | 200 (8) |
| A 6C24M025TM20 | 25 | 39.8 | 38.65 | 1.566 | 1.521 | 12.7 (1/2) | | 200 (8) |
| A 6C24M026TM20 | 26 | 41.4 | 40.24 | 1.629 | 1.584 | 12.7 (1/2) | | 200 (8) |
| A 6C24M027TM20 | 27 | 43 | 41.83 | 1.692 | 1.647 | 12.7 (1/2) | | 200 (8) |
| A 6C24M028TM20 | 28 | 44.6 | 43.42 | 1.754 | 1.709 | 12.7 (1/2) | | 200 (8) |
| A 6C24M029TM20 | 29 | 46.2 | 45.01 | 1.817 | 1.772 | 12.7 (1/2) | | 200 (8) |
| A 6C24M030TM20 | 30 | 47.7 | 46.6 | 1.880 | 1.835 | 12.7 (1/2) | | 200 (8) |

NOTE: Dimensions in () are inch size.

^Δ Dimensions in [] may be substituted at SDP option.

Continued on the next page

> **MATERIAL:**

Carbon Steel

> **SPECIFICATION:**

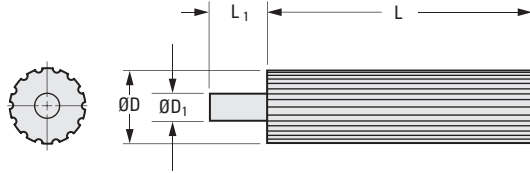
D Tolerance:

31 & 32 grooves is +0.08/0 (+.003/-.000)

33 to 62 grooves is +0.10/0 (+.004/-.000)

72 to 112 grooves is +0.13/0 (+.005/-.000)

126 grooves is +0.15/0 (+.006/-.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Lgth. (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|---------------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6C24M031TM20 | 31 | 49.3 | 48.2 | 1.942 | 1.897 | 19.1 (3/4) | 25 (1) [18.2 (23/32)] ^Δ | 200 (8) |
| A 6C24M032TM20 | 32 | 50.9 | 49.79 | 2.005 | 1.960 | 19.1 (3/4) | | 200 (8) |
| A 6C24M033TM20 | 33 | 52.5 | 51.38 | 2.068 | 2.023 | 19.1 (3/4) | | 200 (8) |
| A 6C24M034TM20 | 34 | 54.1 | 52.97 | 2.130 | 2.085 | 19.1 (3/4) | | 200 (8) |
| A 6C24M035TM20 | 35 | 55.7 | 54.56 | 2.193 | 2.148 | 19.1 (3/4) | | 200 (8) |
| A 6C24M036TM20 | 36 | 57.3 | 56.15 | 2.256 | 2.211 | 19.1 (3/4) | | 200 (8) |
| A 6C24M038TM20 | 38 | 60.5 | 59.34 | 2.381 | 2.336 | 19.1 (3/4) | | 200 (8) |
| A 6C24M040TM20 | 40 | 63.7 | 62.52 | 2.506 | 2.461 | 19.1 (3/4) | | 200 (8) |
| A 6C24M042TM20 | 42 | 66.8 | 65.7 | 2.632 | 2.587 | 19.1 (3/4) | | 200 (8) |
| A 6C24M044TM20 | 44 | 70 | 68.89 | 2.757 | 2.712 | 19.1 (3/4) | | 200 (8) |
| A 6C24M045TM20 | 45 | 71.6 | 70.48 | 2.820 | 2.775 | 19.1 (3/4) | | 200 (8) |
| A 6C24M046TM20 | 46 | 73.2 | 72.07 | 2.882 | 2.837 | 19.1 (3/4) | | 200 (8) |
| A 6C24M048TM20 | 48 | 76.4 | 75.25 | 3.008 | 2.963 | 25.4 (1) | | 200 (8) |
| A 6C24M050TM20 | 50 | 79.6 | 78.43 | 3.133 | 3.088 | | | 200 (8) |
| A 6C24M054TM20 | 54 | 85.9 | 84.8 | 3.384 | 3.339 | [19.1 (3/4)] ^Δ | | 200 (8) |
| A 6C24M056TM20 | 56 | 89.1 | 87.98 | 3.509 | 3.464 | | | 200 (8) |
| A 6C24M060TM20 | 60 | 95.5 | 94.35 | 3.760 | 3.715 | | | 200 (8) |
| A 6C24M062TM20 | 62 | 98.7 | 97.53 | 3.885 | 3.840 | 200 (8) | | |
| A 6C24M065TM20 | 65 | 103.5 | 102.31 | 4.073 | 4.028 | 25.4 (1) | | 200 (8) |
| A 6C24M072TM20 | 72 | 114.6 | 113.45 | 4.511 | 4.466 | 25.4 (1) | | 200 (8) |
| A 6C24M080TM20 | 80 | 127.3 | 126.18 | 5.013 | 4.968 | 25.4 (1) | | 200 (8) |
| A 6C24M090TM20 | 90 | 143.2 | 142.1 | 5.639 | 5.594 | 25.4 (1) | | 200 (8) |
| A 6C24M100TM20 | 100 | 159.2 | 158.01 | 6.266 | 6.221 | 25.4 (1) | | 200 (8) |
| A 6C24M112TM15 | 112 | 178.3 | 177.11 | 7.018 | 6.973 | 25.4 (1) | | 150 (6) |
| A 6C24M126TM15 | 126 | 200.5 | 199.39 | 7.895 | 7.850 | 25.4 (1) | | 150 (6) |

NOTE: Dimensions in () are inch size.

Δ Dimensions In [] may be substituted at SDP option.

Continued from the previous page



FOR 9 mm BELTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

DOUBLE FLANGE

TRUE METRIC® PROFILE



> MATERIAL:

Aluminum Alloy

> FINISH:

Clear Anodized

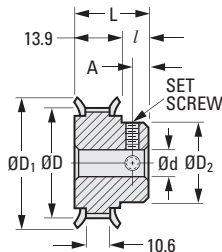
> SPECIFICATIONS:

D Tolerance: 2 to 16 grooves is +0.05/0

17 to 32 grooves is +0.08/0

34 grooves is +0.10/0

Pulleys with 12 and 13 grooves have 1 set screw; others have 2 set screws at 90°.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025/0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|----------------|-------------------------------|-------------|-----|-----------|
| A 6A25M012DF0906 | 12 | 19.1 | 18 | 22.2 | 6 | 20.2 | 11.1 | 6.3 | 3.2 | M3 |
| A 6A25M013DF0906 | 13 | 20.7 | 19.6 | 23.8 | 6 | 20.2 | 12.7 | 6.3 | 3.2 | M3 |
| A 6A25M014DF0906 | 14 | 22.2 | 21.1 | 25.4 | 6 | 20.2 | 12.7 | 6.3 | 3.2 | M3 |
| A 6A25M015DF0906 | 15 | 23.8 | 22.7 | 27 | 6 | 20.2 | 14.3 | 6.3 | 3.2 | M3 |
| A 6A25M016DF0906 | 16 | 25.4 | 24.3 | 27.8 | 6 | 20.2 | 14.3 | 6.3 | 3.2 | M3 |
| A 6A25M017DF0908 | 17 | 27 | 25.9 | 30.2 | 8 | 20.2 | 15.9 | 6.3 | 3.2 | M4 |
| A 6A25M018DF0908 | 18 | 28.6 | 27.5 | 31.8 | 8 | 20.2 | 17.5 | 6.3 | 3.2 | M4 |
| A 6A25M019DF0908 | 19 | 30.2 | 29.1 | 33.3 | 8 | 20.2 | 19.1 | 6.3 | 3.2 | M4 |
| A 6A25M020DF0908 | 20 | 31.8 | 30.7 | 34.9 | 8 | 20.2 | 20.6 | 6.3 | 3.2 | M4 |
| A 6A25M022DF0908 | 22 | 35 | 33.9 | 38.1 | 8 | 20.2 | 23.8 | 6.3 | 3.2 | M4 |
| A 6A25M024DF0908 | 24 | 38.2 | 37.1 | 41.3 | 8 | 21.8 | 25.4 | 7.9 | 4 | M4 |
| A 6A25M025DF0908 | 25 | 39.8 | 38.7 | 42.9 | 8 | 21.8 | 25.4 | 7.9 | 4 | M4 |
| A 6A25M026DF0908 | 26 | 41.4 | 40.2 | 44.5 | 8 | 21.8 | 27 | 7.9 | 4 | M4 |
| A 6A25M028DF0908 | 28 | 44.5 | 43.4 | 47.6 | 8 | 21.8 | 30.2 | 7.9 | 4 | M4 |
| A 6A25M030DF0908 | 30 | 47.8 | 46.6 | 50.8 | 8 | 21.8 | 30.2 | 7.9 | 4 | M4 |
| A 6A25M032DF0908 | 32 | 50.9 | 49.8 | 54 | 8 | 21.8 | 31.8 | 7.9 | 4 | M4 |
| A 6A25M034DF0908 | 34 | 54.1 | 53 | 57.2 | 8 | 21.8 | 35 | 7.9 | 4 | M4 |



FOR 15 mm BELTS

DOUBLE FLANGE

TRUE METRIC® PROFILE

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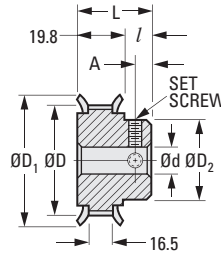


> MATERIAL:
Aluminum Alloy

> FINISH:
Clear Anodized

> SPECIFICATIONS:
D Tolerance: 12 to 16 grooves is +0.05/0
17 to 32 grooves is +0.08/0
34 grooves is +0.10/0

Pulleys with 12 and 13 grooves have 1 set screw; others have 2 set screws at 90°.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|----------------|-------------------------------|-------------|-----|-----------|
| A 6A25M012DF1506 | 12 | 19.1 | 18 | 22.2 | 6 | 26.2 | 11.1 | 6.4 | 3.2 | M3 |
| A 6A25M013DF1506 | 13 | 20.7 | 19.6 | 23.8 | 6 | 26.2 | 12.7 | 6.4 | 3.2 | M3 |
| A 6A25M014DF1506 | 14 | 22.2 | 21.1 | 25.4 | 6 | 26.2 | 12.7 | 6.4 | 3.2 | M3 |
| A 6A25M015DF1506 | 15 | 23.8 | 22.7 | 27 | 6 | 26.2 | 14.3 | 6.4 | 3.2 | M3 |
| A 6A25M016DF1506 | 16 | 25.4 | 24.3 | 27.8 | 6 | 26.2 | 14.3 | 6.4 | 3.2 | M3 |
| A 6A25M017DF1508 | 17 | 27 | 25.9 | 30.2 | 8 | 26.2 | 15.9 | 6.4 | 3.2 | M4 |
| A 6A25M018DF1508 | 18 | 28.6 | 27.5 | 31.8 | 8 | 26.2 | 17.5 | 6.4 | 3.2 | M4 |
| A 6A25M019DF1508 | 19 | 30.2 | 29.1 | 33.3 | 8 | 26.2 | 19.1 | 6.4 | 3.2 | M4 |
| A 6A25M020DF1508 | 20 | 31.8 | 30.7 | 34.9 | 8 | 26.2 | 20.6 | 6.4 | 3.2 | M4 |
| A 6A25M022DF1508 | 22 | 35 | 33.9 | 38.1 | 8 | 26.2 | 23.8 | 6.4 | 3.2 | M4 |
| A 6A25M024DF1508 | 24 | 38.2 | 37.1 | 41.3 | 8 | 27.8 | 25.4 | 8 | 4 | M4 |
| A 6A25M025DF1508 | 25 | 39.8 | 38.7 | 42.9 | 8 | 27.8 | 25.4 | 8 | 4 | M4 |
| A 6A25M026DF1508 | 26 | 41.4 | 40.2 | 44.5 | 8 | 27.8 | 27 | 8 | 4 | M4 |
| A 6A25M028DF1508 | 28 | 44.5 | 43.4 | 47.6 | 8 | 27.8 | 30.2 | 8 | 4 | M4 |
| A 6A25M030DF1508 | 30 | 47.8 | 46.6 | 50.8 | 8 | 27.8 | 30.2 | 8 | 4 | M4 |
| A 6A25M032DF1508 | 32 | 50.9 | 49.8 | 54 | 8 | 27.8 | 31.8 | 8 | 4 | M4 |
| A 6A25M034DF1508 | 34 | 54.1 | 53 | 57.2 | 8 | 27.8 | 35 | 8 | 4 | M4 |

FOR 9 mm BELTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

NO FLANGE

TRUE METRIC® PROFILE



➤ MATERIAL:

Aluminum Alloy

➤ FINISH:

Clear Anodized

➤ SPECIFICATIONS:

- D Tolerance: 12 to 16 grooves is +0.05/0
- 17 to 32 grooves is +0.08/0
- 34 to 72 grooves is +0.10/0

Pulleys with 12 and 13 grooves have 1 set screw; others have 2 set screws at 90°.

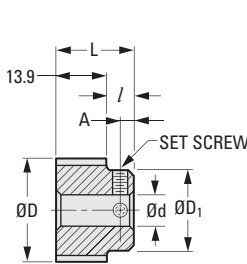


Fig. 1

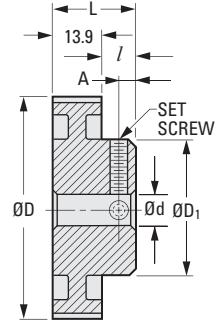


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | d Bore +0.025 0 | L Length ± 0.25 | D1 Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|-------|--------|-----------------|-----------------|-------------------|-------------|-----|-----------|
| Fig. 1 | | | | | | | | | |
| A 6A25M012NF0906 | 12 | 19.1 | 18 | 6 | 20.2 | 11.1 | 6.3 | 3.2 | M3 |
| A 6A25M013NF0906 | 13 | 20.7 | 19.6 | 6 | 20.2 | 12.7 | 6.3 | 3.2 | M3 |
| A 6A25M014NF0906 | 14 | 22.2 | 21.1 | 6 | 20.2 | 12.7 | 6.3 | 3.2 | M3 |
| A 6A25M015NF0906 | 15 | 23.8 | 22.7 | 6 | 20.2 | 14.3 | 6.3 | 3.2 | M3 |
| A 6A25M016NF0906 | 16 | 25.4 | 24.3 | 6 | 20.2 | 14.3 | 6.3 | 3.2 | M3 |
| A 6A25M017NF0908 | 17 | 27 | 25.9 | 8 | 20.2 | 15.9 | 6.3 | 3.2 | M4 |
| A 6A25M018NF0908 | 18 | 28.6 | 27.5 | 8 | 20.2 | 17.5 | 6.3 | 3.2 | M4 |
| A 6A25M019NF0908 | 19 | 30.2 | 29.1 | 8 | 20.2 | 19.1 | 6.3 | 3.2 | M4 |
| A 6A25M020NF0908 | 20 | 31.8 | 30.7 | 8 | 20.2 | 20.6 | 6.3 | 3.2 | M4 |
| A 6A25M022NF0908 | 22 | 35 | 33.9 | 8 | 20.2 | 23.8 | 6.3 | 3.2 | M4 |
| A 6A25M024NF0908 | 24 | 38.2 | 37.1 | 8 | 21.8 | 25.4 | 7.9 | 4 | M4 |
| A 6A25M025NF0908 | 25 | 39.8 | 38.6 | 8 | 21.8 | 25.4 | 7.9 | 4 | M4 |
| A 6A25M026NF0908 | 26 | 41.4 | 40.2 | 8 | 21.8 | 27 | 7.9 | 4 | M4 |
| A 6A25M028NF0908 | 28 | 44.5 | 43.4 | 8 | 21.8 | 30.2 | 7.9 | 4 | M4 |
| A 6A25M030NF0908 | 30 | 47.8 | 46.6 | 8 | 21.8 | 30.2 | 7.9 | 4 | M4 |
| A 6A25M032NF0908 | 32 | 50.9 | 49.8 | 8 | 21.8 | 31.8 | 7.9 | 4 | M4 |
| A 6A25M034NF0908 | 34 | 54.1 | 53 | 8 | 21.8 | 35 | 7.9 | 4 | M4 |
| A 6A25M036NF0910 | 36 | 57.3 | 56.2 | 10 | 23.8 | 38.1 | 10 | 5 | M5 |
| A 6A25M038NF0910 | 38 | 60.5 | 59.3 | 10 | 23.8 | 38.1 | 10 | 5 | M5 |
| A 6A25M040NF0910 | 40 | 63.6 | 62.5 | 10 | 23.8 | 38.1 | 10 | 5 | M5 |
| Fig. 2 | | | | | | | | | |
| A 6A25M044NF0910 | 44 | 70 | 68.9 | 10 | 23.8 | 38.1 | 10 | 5 | M6 |
| A 6A25M048NF0912 | 48 | 76.4 | 75.3 | 12 | 23.8 | 38.1 | 10 | 5 | M6 |
| A 6A25M050NF0912 | 50 | 79.6 | 78.4 | 12 | 23.8 | 38.1 | 10 | 5 | M6 |
| A 6A25M056NF0912 | 56 | 89.1 | 88 | 12 | 23.8 | 38.1 | 10 | 5 | M6 |
| A 6A25M060NF0912 | 60 | 95.5 | 94.4 | 12 | 23.8 | 38.1 | 10 | 5 | M6 |
| A 6A25M062NF0912 | 62 | 98.7 | 97.5 | 12 | 23.8 | 38.1 | 10 | 5 | M6 |
| A 6A25M070NF0912 | 70 | 111.4 | 110.3 | 12 | 23.8 | 38.1 | 10 | 5 | M6 |
| A 6A25M072NF0912 | 72 | 114.6 | 113.4 | 12 | 23.8 | 38.1 | 10 | 5 | M6 |

FOR 15 mm BELTS

NO FLANGE

TRUE METRIC® PROFILE

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> MATERIAL:

Aluminum Alloy

> FINISH:

Clear Anodized

> SPECIFICATIONS:

- D Tolerance: 12 to 16 grooves is +0.05/0
- 17 to 32 grooves is +0.08/0
- 34 to 72 grooves is +0.10/0

Pulleys with 12 and 13 grooves have 1 set screw; others have 2 set screws at 90°.

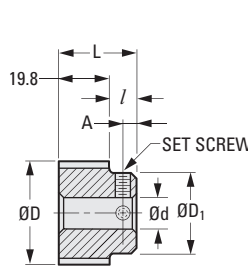


Fig. 1

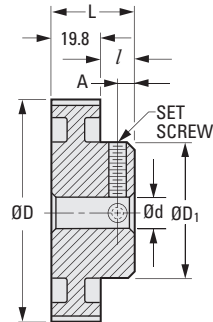


Fig. 2

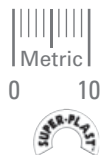
METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | d Bore +0.025 0 | L Length ± 0.25 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|-------|--------|-----------------------|--------------------|----------------------------------|-------------|-----|-----------|
| Fig. 1 | | | | | | | | | |
| A 6A25M012NF1506 | 12 | 19.1 | 18 | 6 | 26.2 | 11.1 | 6.4 | 3.2 | M3 |
| A 6A25M013NF1506 | 13 | 20.7 | 19.6 | 6 | 26.2 | 12.7 | 6.4 | 3.2 | M3 |
| A 6A25M014NF1506 | 14 | 22.2 | 21.1 | 6 | 26.2 | 12.7 | 6.4 | 3.2 | M3 |
| A 6A25M015NF1506 | 15 | 23.8 | 22.7 | 6 | 26.2 | 14.3 | 6.4 | 3.2 | M3 |
| A 6A25M016NF1506 | 16 | 25.4 | 24.3 | 6 | 26.2 | 14.3 | 6.4 | 3.2 | M3 |
| A 6A25M017NF1508 | 17 | 27 | 25.9 | 8 | 26.2 | 15.9 | 6.4 | 3.2 | M4 |
| A 6A25M018NF1508 | 18 | 28.6 | 27.5 | 8 | 26.2 | 17.5 | 6.4 | 3.2 | M4 |
| A 6A25M019NF1508 | 19 | 30.2 | 29.1 | 8 | 26.2 | 19.1 | 6.4 | 3.2 | M4 |
| A 6A25M020NF1508 | 20 | 31.8 | 30.7 | 8 | 26.2 | 20.6 | 6.4 | 3.2 | M4 |
| A 6A25M022NF1508 | 22 | 35 | 33.9 | 8 | 26.2 | 23.8 | 6.4 | 3.2 | M4 |
| A 6A25M024NF1508 | 24 | 38.2 | 37.1 | 8 | 27.8 | 25.4 | 8 | 4 | M4 |
| A 6A25M025NF1508 | 25 | 39.8 | 38.6 | 8 | 27.8 | 25.4 | 8 | 4 | M4 |
| A 6A25M026NF1508 | 26 | 41.4 | 40.2 | 8 | 27.8 | 27 | 8 | 4 | M4 |
| A 6A25M028NF1508 | 28 | 44.5 | 43.4 | 8 | 27.8 | 30.2 | 8 | 4 | M4 |
| A 6A25M030NF1508 | 30 | 47.8 | 46.6 | 8 | 27.8 | 30.2 | 8 | 4 | M4 |
| A 6A25M032NF1508 | 32 | 50.9 | 49.8 | 8 | 27.8 | 31.8 | 8 | 4 | M4 |
| A 6A25M034NF1508 | 34 | 54.1 | 53 | 8 | 27.8 | 35 | 8 | 4 | M4 |
| A 6A25M036NF1510 | 36 | 57.3 | 56.2 | 10 | 30.1 | 38.1 | 10.3 | 5 | M5 |
| A 6A25M038NF1510 | 38 | 60.5 | 59.3 | 10 | 30.1 | 38.1 | 10.3 | 5 | M5 |
| A 6A25M040NF1510 | 40 | 63.6 | 62.5 | 10 | 30.1 | 38.1 | 10.3 | 5 | M5 |
| Fig. 2 | | | | | | | | | |
| A 6A25M044NF1510 | 44 | 70 | 68.9 | 10 | 30.1 | 38.1 | 10.3 | 5 | M5 |
| A 6A25M048NF1512 | 48 | 76.4 | 75.3 | 12 | 30.1 | 38.1 | 10.3 | 5 | M6 |
| A 6A25M050NF1512 | 50 | 79.6 | 78.4 | 12 | 30.1 | 38.1 | 10.3 | 5 | M6 |
| A 6A25M056NF1512 | 56 | 89.1 | 88 | 12 | 30.1 | 38.1 | 10.3 | 5 | M6 |
| A 6A25M060NF1512 | 60 | 95.5 | 94.4 | 12 | 30.1 | 38.1 | 10.3 | 5 | M6 |
| A 6A25M062NF1512 | 62 | 98.7 | 97.5 | 12 | 30.1 | 38.1 | 10.3 | 5 | M6 |
| A 6A25M070NF1512 | 70 | 111.4 | 110.3 | 12 | 30.1 | 38.1 | 10.3 | 5 | M6 |
| A 6A25M072NF1512 | 72 | 114.6 | 113.4 | 12 | 30.1 | 38.1 | 10.3 | 5 | M6 |

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FOR 9 mm BELTS
 MOLDED WITH FAIRLOC® HUB
 SINGLE OR DOUBLE FLANGE
TRUE METRIC® PROFILE

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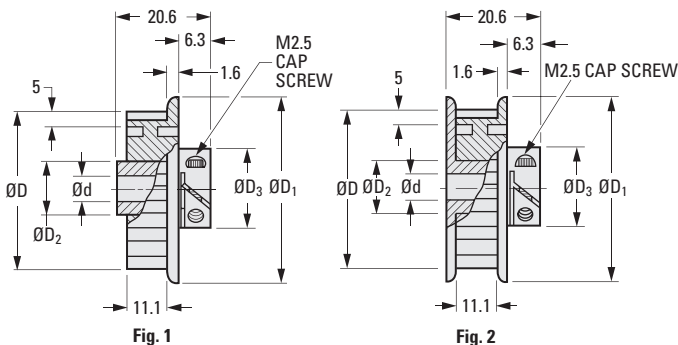


> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Hub - Aluminum Alloy, Overmolded

> SPECIFICATIONS:

Pulleys with 11 to 19 grooves do not have webs.



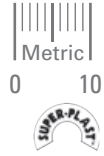
METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | D ₂ Dia. | D ₃ Hub Dia. | d Bore Dia. +0.025 0 |
|----------------------|----------------------|----------------|------|--------|---------------------|---------------------|-------------------------|----------------------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | | |
| A 6H25M011SF0904 | A 6H25M011DF0904 | 11 | 17.5 | 16.4 | 22 | 9.5 | 12.7 | 4 |
| A 6H25M012SF0904 | A 6H25M012DF0904 | 12 | 19.1 | 18 | 24 | 9.5 | 12.7 | 4 |
| A 6H25M013SF0904 | A 6H25M013DF0904 | 13 | 20.7 | 19.5 | 25 | 9.5 | 12.7 | 4 |
| A 6H25M014SF0906 | A 6H25M014DF0906 | 14 | 22.3 | 21.1 | 27 | 12.7 | 19.1 | 6 |
| A 6H25M015SF0906 | A 6H25M015DF0906 | 15 | 23.9 | 22.7 | 30 | 12.7 | 19.1 | 6 |
| A 6H25M016SF0906 | A 6H25M016DF0906 | 16 | 25.5 | 24.3 | 30 | 12.7 | 19.1 | 6 |
| A 6H25M017SF0906 | A 6H25M017DF0906 | 17 | 27.1 | 25.9 | 32 | 12.7 | 19.1 | 6 |
| A 6H25M018SF0906 | A 6H25M018DF0906 | 18 | 28.6 | 27.5 | 33 | 12.7 | 19.1 | 6 |
| A 6H25M019SF0906 | A 6H25M019DF0906 | 19 | 30.2 | 29.1 | 35 | 12.7 | 19.1 | 6 |
| A 6H25M020SF0906 | A 6H25M020DF0906 | 20 | 31.8 | 30.7 | 37 | 12.7 | 19.1 | 6 |
| A 6H25M022SF0906 | A 6H25M022DF0906 | 22 | 35 | 33.9 | 40 | 12.7 | 22.2 | 6 |
| A 6H25M025SF0906 | A 6H25M025DF0906 | 25 | 39.8 | 38.6 | 45 | 12.7 | 22.2 | 6 |
| A 6H25M028SF0906 | A 6H25M028DF0906 | 28 | 44.6 | 43.4 | 50 | 12.7 | 22.2 | 6 |
| A 6H25M029SF0906 | A 6H25M029DF0906 | 29 | 46.2 | 45 | 51 | 12.7 | 22.2 | 6 |
| A 6H25M030SF0906 | A 6H25M030DF0906 | 30 | 47.7 | 46.6 | 53 | 12.7 | 22.2 | 6 |
| A 6H25M040SF0908 | A 6H25M040DF0908 | 40 | 63.7 | 62.5 | 69 | 15.9 | 22.2 | 8 |
| A 6H25M050SF0908 | A 6H25M050DF0908 | 50 | 79.6 | 78.4 | 84 | 15.9 | 22.2 | 8 |

FOR 9 mm BELTS

MOLDED WITH METAL HUB
SINGLE OR DOUBLE FLANGE
TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

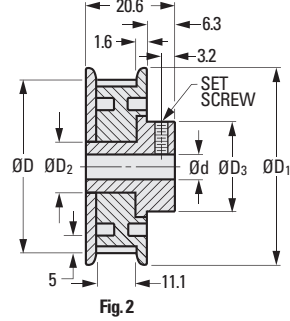
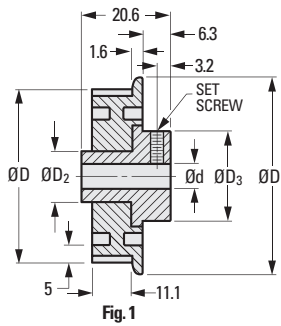


> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Hub - Aluminum Alloy, Overmolded

> SPECIFICATIONS:

Pulleys with 11 to 19 grooves do not have webs.

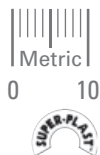


METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | D ₂ Dia. | D ₃ Hub Dia. | d Bore Dia. +0.025 0 | Set Screw |
|----------------------|----------------------|----------------|------|--------|---------------------|---------------------|-------------------------|----------------------|-----------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | | | |
| A 6J25M011SF0904 | A 6J25M011DF0904 | 11 | 17.5 | 16.4 | 22 | 9.5 | 12.7 | 4 | M3 |
| A 6J25M012SF0904 | A 6J25M012DF0904 | 12 | 19.1 | 18 | 24 | 9.5 | 12.7 | 4 | M3 |
| A 6J25M013SF0904 | A 6J25M013DF0904 | 13 | 20.7 | 19.5 | 25 | 9.5 | 12.7 | 4 | M3 |
| A 6J25M014SF0906 | A 6J25M014DF0906 | 14 | 22.3 | 21.1 | 27 | 12.7 | 19.1 | 6 | M4 |
| A 6J25M015SF0906 | A 6J25M015DF0906 | 15 | 23.9 | 22.7 | 30 | 12.7 | 19.1 | 6 | M4 |
| A 6J25M016SF0906 | A 6J25M016DF0906 | 16 | 25.5 | 24.3 | 30 | 12.7 | 19.1 | 6 | M4 |
| A 6J25M017SF0906 | A 6J25M017DF0906 | 17 | 27.1 | 25.9 | 32 | 12.7 | 19.1 | 6 | M4 |
| A 6J25M018SF0906 | A 6J25M018DF0906 | 18 | 28.6 | 27.5 | 33 | 12.7 | 19.1 | 6 | M4 |
| A 6J25M019SF0906 | A 6J25M019DF0906 | 19 | 30.2 | 29.1 | 35 | 12.7 | 19.1 | 6 | M4 |
| A 6J25M020SF0906 | A 6J25M020DF0906 | 20 | 31.8 | 30.7 | 37 | 12.7 | 19.1 | 6 | M4 |
| A 6J25M022SF0906 | A 6J25M022DF0906 | 22 | 35 | 33.9 | 40 | 12.7 | 22.2 | 6 | M4 |
| A 6J25M025SF0906 | A 6J25M025DF0906 | 25 | 39.8 | 38.6 | 45 | 12.7 | 22.2 | 6 | M4 |
| A 6J25M028SF0906 | A 6J25M028DF0906 | 28 | 44.6 | 43.4 | 50 | 12.7 | 22.2 | 6 | M4 |
| A 6J25M029SF0906 | A 6J25M029DF0906 | 29 | 46.2 | 45 | 51 | 12.7 | 22.2 | 6 | M4 |
| A 6J25M030SF0906 | A 6J25M030DF0906 | 30 | 47.7 | 46.6 | 53 | 12.7 | 22.2 | 6 | M4 |
| A 6J25M040SF0908 | A 6J25M040DF0908 | 40 | 63.7 | 62.5 | 69 | 15.9 | 22.2 | 8 | M5 |
| A 6J25M050SF0908 | A 6J25M050DF0908 | 50 | 79.6 | 78.4 | 84 | 15.9 | 22.2 | 8 | M5 |

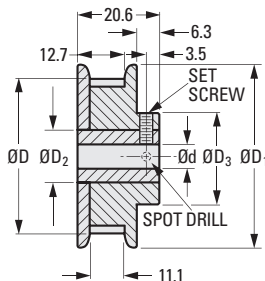
FOR 9 mm BELTS
 MOLDED WITH INSERT
 DOUBLE FLANGE
TRUE METRIC PROFILE

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> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|-------------------------|-----------|
| A 6Z25M011DF0904 | 11 | 17.5 | 16.4 | 22 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M011DF0905 | 11 | 17.5 | 16.4 | 22 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M011DF0906 | 11 | 17.5 | 16.4 | 22 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M012DF0904 | 12 | 19.1 | 18 | 24 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M012DF0905 | 12 | 19.1 | 18 | 24 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M012DF0906 | 12 | 19.1 | 18 | 24 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M013DF0904 | 13 | 20.7 | 19.6 | 25 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M013DF0905 | 13 | 20.7 | 19.6 | 25 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M013DF0906 | 13 | 20.7 | 19.6 | 25 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M014DF0904 | 14 | 22.3 | 21.1 | 27 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M014DF0905 | 14 | 22.3 | 21.1 | 27 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M014DF0906 | 14 | 22.3 | 21.1 | 27 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M015DF0906 | 15 | 23.8 | 22.7 | 30 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M015DF0908 | 15 | 23.8 | 22.7 | 30 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M016DF0906 | 16 | 25.4 | 24.3 | 30 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M016DF0908 | 16 | 25.4 | 24.3 | 30 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M017DF0906 | 17 | 27 | 25.9 | 32 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M017DF0908 | 17 | 27 | 25.9 | 32 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M018DF0906 | 18 | 28.6 | 27.5 | 33 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M018DF0908 | 18 | 28.6 | 27.5 | 33 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M019DF0906 | 19 | 30.2 | 29.1 | 35 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M019DF0908 | 19 | 30.2 | 29.1 | 35 | 8 | +0.036/0 | 13 | 19 | M4 |

Continued on the next page

FOR 9 mm BELTS
 MOLDED WITH INSERT
 DOUBLE FLANGE
TRUE METRIC PROFILE

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► **MATERIAL:**

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled

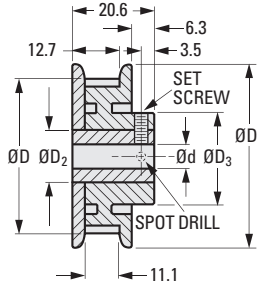


Fig. 1

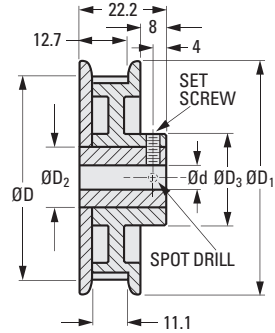


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|-------------------------|-----------|
| Fig. 1 | | | | | | | | | |
| A 6Z25M020DF0906 | 20 | 31.8 | 30.7 | 37 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M020DF0908 | 20 | 31.8 | 30.7 | 37 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M022DF0906 | 22 | 35 | 33.9 | 40 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M022DF0908 | 22 | 35 | 33.9 | 40 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M025DF0906 | 25 | 39.8 | 38.7 | 45 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M025DF0908 | 25 | 39.8 | 38.7 | 45 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M028DF0906 | 28 | 44.5 | 43.4 | 50 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M028DF0908 | 28 | 44.5 | 43.4 | 50 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M029DF0906 | 29 | 46.1 | 45 | 51 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M029DF0908 | 29 | 46.1 | 45 | 51 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M030DF0906 | 30 | 47.7 | 46.6 | 53 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M030DF0908 | 30 | 47.7 | 46.6 | 53 | 8 | +0.036/0 | 13 | 22 | M4 |
| Fig. 2 | | | | | | | | | |
| A 6Z25M040DF0908 | 40 | 63.6 | 62.5 | 69 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M040DF0910 | 40 | 63.6 | 62.5 | 69 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M040DF0912 | 40 | 63.6 | 62.5 | 69 | 12 | +0.043/0 | 16 | 22 | M5 |
| A 6Z25M050DF0908 | 50 | 79.5 | 78.4 | 84 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M050DF0910 | 50 | 79.5 | 78.4 | 84 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M050DF0912 | 50 | 79.5 | 78.4 | 84 | 12 | +0.043/0 | 16 | 22 | M5 |

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FOR 9 mm BELTS
 MOLDED WITH INSERT
 SINGLE FLANGE

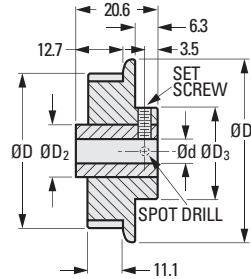
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TRUE METRIC® PROFILE



> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|-------------------------|-----------|
| A 6Z25M011SF0904 | 11 | 17.5 | 16.4 | 22 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M011SF0905 | 11 | 17.5 | 16.4 | 22 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M011SF0906 | 11 | 17.5 | 16.4 | 22 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M012SF0904 | 12 | 19.1 | 18 | 24 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M012SF0905 | 12 | 19.1 | 18 | 24 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M012SF0906 | 12 | 19.1 | 18 | 24 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M013SF0904 | 13 | 20.7 | 19.6 | 25 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M013SF0905 | 13 | 20.7 | 19.6 | 25 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M013SF0906 | 13 | 20.7 | 19.6 | 25 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M014SF0904 | 14 | 22.3 | 21.1 | 27 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M014SF0905 | 14 | 22.3 | 21.1 | 27 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M014SF0906 | 14 | 22.3 | 21.1 | 27 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z25M015SF0906 | 15 | 23.8 | 22.7 | 30 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M015SF0908 | 15 | 23.8 | 22.7 | 30 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M016SF0906 | 16 | 25.4 | 24.3 | 30 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M016SF0908 | 16 | 25.4 | 24.3 | 30 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M017SF0906 | 17 | 27 | 25.9 | 32 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M017SF0908 | 17 | 27 | 25.9 | 32 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M018SF0906 | 18 | 28.6 | 27.5 | 33 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M018SF0908 | 18 | 28.6 | 27.5 | 33 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M019SF0906 | 19 | 30.2 | 29.1 | 35 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M019SF0908 | 19 | 30.2 | 29.1 | 35 | 8 | +0.036/0 | 13 | 19 | M4 |

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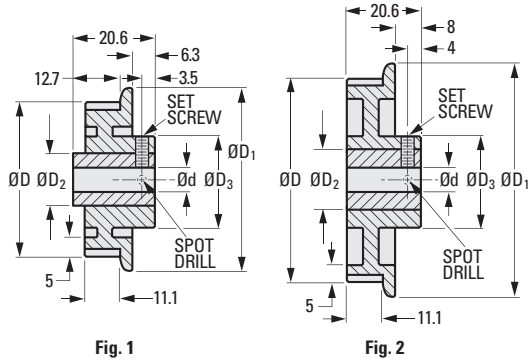
FOR 9 mm BELTS
 MOLDED WITH INSERT
 SINGLE FLANGE
TRUE METRIC PROFILE

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► **MATERIAL:**

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Aluminum, Knurled



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|-------------------------|-----------|
| Fig. 1 | | | | | | | | | |
| A 6Z25M020SF0906 | 20 | 31.8 | 30.7 | 37 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z25M020SF0908 | 20 | 31.8 | 30.7 | 37 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z25M022SF0906 | 22 | 35 | 33.9 | 40 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M022SF0908 | 22 | 35 | 33.9 | 40 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M025SF0906 | 25 | 39.8 | 38.7 | 45 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M025SF0908 | 25 | 39.8 | 38.7 | 45 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M028SF0906 | 28 | 44.5 | 43.4 | 50 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M028SF0908 | 28 | 44.5 | 43.4 | 50 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M029SF0906 | 29 | 46.1 | 45 | 51 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M029SF0908 | 29 | 46.1 | 45 | 51 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z25M030SF0906 | 30 | 47.7 | 46.6 | 53 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z25M030SF0908 | 30 | 47.7 | 46.6 | 53 | 8 | +0.036/0 | 13 | 22 | M4 |
| Fig. 2 | | | | | | | | | |
| A 6Z25M040SF0908 | 40 | 63.6 | 62.5 | 69 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M040SF0910 | 40 | 63.6 | 62.5 | 69 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M040SF0912 | 40 | 63.6 | 62.5 | 69 | 12 | +0.043/0 | 16 | 22 | M5 |
| A 6Z25M050SF0908 | 50 | 79.5 | 78.4 | 84 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M050SF0910 | 50 | 79.5 | 78.4 | 84 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z25M050SF0912 | 50 | 79.5 | 78.4 | 84 | 12 | +0.043/0 | 16 | 22 | M5 |

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FOR 9 mm BELTS

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MOLDED

DOUBLE FLANGE

TRUE METRIC PROFILE



> MATERIAL:

Polycarbonate, Fiberglass Reinforced

> SPECIFICATION:

Pulleys with 11 to 19 grooves do not have webs.

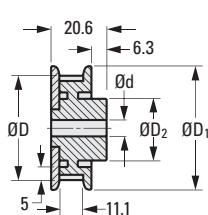


Fig. 1

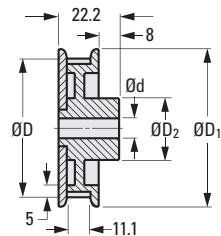


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | D ₂ Dia. |
|------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|
| Fig. 1 | | | | | | | |
| A 6L25M011DF0904 | 11 | 17.5 | 16.4 | 22 | 4 | +0.030/0 | 9.6 |
| A 6L25M012DF0904 | 12 | 19.1 | 18 | 24 | 4 | +0.030/0 | 9.6 |
| A 6L25M013DF0904 | 13 | 20.7 | 19.6 | 25 | 4 | +0.030/0 | 9.6 |
| A 6L25M014DF0904 | 14 | 22.3 | 21.1 | 27 | 4 | +0.030/0 | 9.6 |
| A 6L25M015DF0906 | 15 | 23.8 | 22.7 | 30 | 6 | +0.030/0 | 9.6 |
| A 6L25M016DF0906 | 16 | 25.4 | 24.3 | 30 | 6 | +0.030/0 | 12.7 |
| A 6L25M017DF0906 | 17 | 27 | 25.9 | 32 | 6 | +0.030/0 | 12.7 |
| A 6L25M018DF0906 | 18 | 28.6 | 27.5 | 33 | 6 | +0.030/0 | 12.7 |
| A 6L25M019DF0906 | 19 | 30.2 | 29.1 | 35 | 6 | +0.030/0 | 12.7 |
| A 6L25M020DF0906 | 20 | 31.8 | 30.7 | 37 | 6 | +0.030/0 | 12.7 |
| A 6L25M022DF0906 | 22 | 35 | 33.9 | 40 | 6 | +0.030/0 | 12.7 |
| A 6L25M025DF0906 | 25 | 39.8 | 38.7 | 45 | 6 | +0.030/0 | 12.7 |
| A 6L25M028DF0906 | 28 | 44.5 | 43.4 | 50 | 6 | +0.030/0 | 12.7 |
| A 6L25M029DF0906 | 29 | 46.1 | 45 | 51 | 6 | +0.030/0 | 12.7 |
| A 6L25M030DF0906 | 30 | 47.7 | 46.6 | 53 | 6 | +0.030/0 | 12.7 |
| Fig. 2 | | | | | | | |
| A 6L25M040DF0908 | 40 | 63.6 | 62.5 | 69 | 8 | +0.036/0 | — |
| A 6L25M050DF0908 | 50 | 79.5 | 78.4 | 84 | 8 | +0.036/0 | — |

FOR 9 mm BELTS

MOLDED

SINGLE FLANGE

TRUE METRIC PROFILE

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➤ **MATERIAL:**

Polycarbonate, Fiberglass Reinforced

➤ **SPECIFICATION:**

Pulleys with 11 to 19 grooves do not have webs.

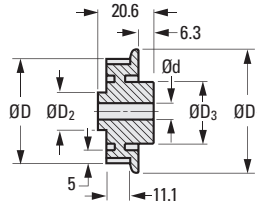


Fig. 1

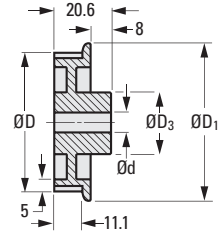


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tol. | D ₂ Dia. | D ₃ Hub Dia. |
|------------------|----------------|------|--------|---------------------|-----------|----------|---------------------|-------------------------|
| Fig. 1 | | | | | | | | |
| A 6L25M011SF0904 | 11 | 17.5 | 16.4 | 22 | 4 | +0.030/0 | 9.6 | 17.5 |
| A 6L25M012SF0904 | 12 | 19.1 | 18 | 24 | 4 | +0.030/0 | 9.6 | 17.5 |
| A 6L25M013SF0904 | 13 | 20.7 | 19.6 | 25 | 4 | +0.030/0 | 9.6 | 17.5 |
| A 6L25M014SF0904 | 14 | 22.3 | 21.1 | 27 | 4 | +0.030/0 | 9.6 | 17.5 |
| A 6L25M015SF0906 | 15 | 23.8 | 22.7 | 30 | 6 | +0.030/0 | 9.6 | 19 |
| A 6L25M016SF0906 | 16 | 25.4 | 24.3 | 30 | 6 | +0.030/0 | 12.7 | 19 |
| A 6L25M017SF0906 | 17 | 27 | 25.9 | 32 | 6 | +0.030/0 | 12.7 | 19 |
| A 6L25M018SF0906 | 18 | 28.6 | 27.5 | 33 | 6 | +0.030/0 | 12.7 | 19 |
| A 6L25M019SF0906 | 19 | 30.2 | 29.1 | 35 | 6 | +0.030/0 | 12.7 | 19 |
| A 6L25M020SF0906 | 20 | 31.8 | 30.7 | 37 | 6 | +0.030/0 | 12.7 | 19 |
| A 6L25M022SF0906 | 22 | 35 | 33.9 | 40 | 6 | +0.030/0 | 12.7 | 22 |
| A 6L25M025SF0906 | 25 | 39.8 | 38.7 | 45 | 6 | +0.030/0 | 12.7 | 22 |
| A 6L25M028SF0906 | 28 | 44.5 | 43.4 | 50 | 6 | +0.030/0 | 12.7 | 22 |
| A 6L25M029SF0906 | 29 | 46.1 | 45 | 51 | 6 | +0.030/0 | 12.7 | 22 |
| A 6L25M030SF0906 | 30 | 47.7 | 46.6 | 53 | 6 | +0.030/0 | 12.7 | 22 |
| Fig. 2 | | | | | | | | |
| A 6L25M040SF0908 | 40 | 63.6 | 62.5 | 69 | 8 | +0.036/0 | – | 22 |
| A 6L25M050SF0908 | 50 | 79.5 | 78.4 | 84 | 8 | +0.036/0 | – | 22 |

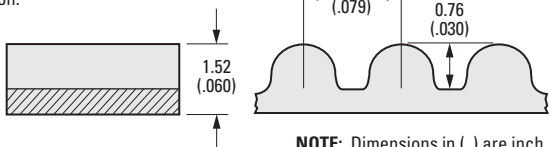


BELT WIDTHS

METRIC - 3, 6 & 9 mm

TRUE METRIC[®] PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



NOTE: Dimensions in () are inch.

➤ MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced

➤ SPECIFICATIONS:

Breaking Strength:

86 N per 1 mm (62 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

111 N for 25.4 mm belt (25 lbf for 1 in. belt)

For more information, see the technical section.

Temperature Range:

-34°C to +85°C (-30°F to +185°F)

➤ MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

METRIC COMPONENT CATALOG NUMBER

A 6 R 5 1 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 (.118) | 030 |
| 6 (.236) | 060 |
| 9 (.354) | 090 |

Gates GT[®]2 and GT[®]3 Belts

GT[®]3 is an equivalent and direct replacement for GT[®]2 belts. As inventories of GT[®]2 belts are exhausted, they will be replaced with the GT[®]3 equivalent. GT[®]3 belts will not be available until GT[®]2 belts are depleted. Call for special requests and additional information.

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 027 | 54 | 2.126 |
| 029 | 58 | 2.283 |
| 030 | 60 | 2.362 |
| 033 | 66 | 2.598 |
| 036 | 72 | 2.835 |
| 037 | 74 | 2.913 |
| 038 | 76 | 2.992 |
| 039 | 78 | 3.071 |
| 041 | 82 | 3.228 |
| 042 | 84 | 3.307 |
| 043 | 86 | 3.386 |
| 044 | 88 | 3.465 |
| 045 | 90 | 3.543 |
| 046 | 92 | 3.622 |
| 047 | 94 | 3.701 |
| 048 | 96 | 3.780 |
| 049 | 98 | 3.858 |
| 050 | 100 | 3.937 |
| 051 | 102 | 4.016 |
| 053 | 106 | 4.173 |
| 054 | 108 | 4.252 |
| 055 | 110 | 4.331 |
| 056 | 112 | 4.409 |
| 057 | 114 | 4.488 |
| 058 | 116 | 4.567 |
| 059 | 118 | 4.646 |
| 060 | 120 | 4.724 |
| 061 | 122 | 4.803 |
| 062 | 124 | 4.882 |
| 063 | 126 | 4.961 |
| 064 | 128 | 5.039 |
| 065 | 130 | 5.118 |
| 066 | 132 | 5.197 |
| 067 | 134 | 5.276 |
| 068 | 136 | 5.354 |
| 069 | 138 | 5.433 |
| 070 | 140 | 5.512 |
| 071 | 142 | 5.591 |

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 072 | 144 | 5.669 |
| 073 | 146 | 5.748 |
| 074 | 148 | 5.827 |
| 075 | 150 | 5.906 |
| 076 | 152 | 5.984 |
| 077 | 154 | 6.063 |
| 078 | 156 | 6.142 |
| 079 | 158 | 6.220 |
| 080 | 160 | 6.299 |
| 081 | 162 | 6.378 |
| 082 | 164 | 6.457 |
| 083 | 166 | 6.535 |
| 084 | 168 | 6.614 |
| 085 | 170 | 6.693 |
| 086 | 172 | 6.772 |
| 087 | 174 | 6.850 |
| 088 | 176 | 6.929 |
| 089 | 178 | 7.008 |
| 090 | 180 | 7.087 |
| 091 | 182 | 7.165 |
| 092 | 184 | 7.244 |
| 093 | 186 | 7.323 |
| 094 | 188 | 7.402 |
| 095 | 190 | 7.480 |
| 096 | 192 | 7.559 |
| 097 | 194 | 7.638 |
| 098 | 196 | 7.717 |
| 100 | 200 | 7.874 |
| 101 | 202 | 7.953 |
| 102 | 204 | 8.031 |
| 103 | 206 | 8.110 |
| 104 | 208 | 8.189 |
| 105 | 210 | 8.268 |
| 106 | 212 | 8.346 |
| 107 | 214 | 8.425 |
| 108 | 216 | 8.504 |
| 110 | 220 | 8.661 |
| 112 | 224 | 8.819 |

Continued on the next page



| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 113 | 226 | 8.898 |
| 114 | 228 | 8.976 |
| 115 | 230 | 9.055 |
| 116 | 232 | 9.134 |
| 118 | 236 | 9.291 |
| 120 | 240 | 9.449 |
| 121 | 242 | 9.528 |
| 122 | 244 | 9.606 |
| 124 | 248 | 9.764 |
| 125 | 250 | 9.842 |
| 126 | 252 | 9.921 |
| 127 | 254 | 10.000 |
| 128 | 256 | 10.079 |
| 129 | 258 | 10.157 |
| 130 | 260 | 10.236 |
| 132 | 264 | 10.394 |
| 133 | 266 | 10.472 |
| 134 | 268 | 10.551 |
| 135 | 270 | 10.630 |
| 137 | 274 | 10.787 |
| 139 | 278 | 10.945 |
| 140 | 280 | 11.024 |
| 141 | 282 | 11.102 |
| 142 | 284 | 11.181 |
| 143 | 286 | 11.260 |
| 144 | 288 | 11.339 |
| 145 | 290 | 11.417 |
| 146 | 292 | 11.496 |
| 147 | 294 | 11.575 |
| 150 | 300 | 11.811 |
| 151 | 302 | 11.890 |
| 152 | 304 | 11.969 |
| 154 | 308 | 12.126 |
| 155 | 310 | 12.205 |
| 157 | 314 | 12.362 |
| 159 | 318 | 12.520 |
| 160 | 320 | 12.598 |
| 161 | 322 | 12.677 |
| 162 | 324 | 12.756 |
| 163 | 326 | 12.835 |
| 164 | 328 | 12.913 |
| 165 | 330 | 12.992 |
| 166 | 332 | 13.071 |
| 168 | 336 | 13.228 |
| 169 | 338 | 13.307 |
| 170 | 340 | 13.386 |
| 171 | 342 | 13.465 |
| 172 | 344 | 13.543 |
| 173 | 346 | 13.622 |
| 175 | 350 | 13.779 |
| 176 | 352 | 13.858 |
| 177 | 354 | 13.937 |
| 178 | 356 | 14.016 |
| 179 | 358 | 14.094 |
| 180 | 360 | 14.173 |
| 182 | 364 | 14.331 |
| 183 | 366 | 14.409 |
| 185 | 370 | 14.567 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 186 | 372 | 14.646 |
| 188 | 376 | 14.803 |
| 190 | 380 | 14.961 |
| 191 | 382 | 15.039 |
| 193 | 386 | 15.197 |
| 196 | 392 | 15.433 |
| 197 | 394 | 15.512 |
| 200 | 400 | 15.748 |
| 203 | 406 | 15.984 |
| 206 | 412 | 16.220 |
| 210 | 420 | 16.535 |
| 213 | 426 | 16.772 |
| 214 | 428 | 16.850 |
| 215 | 430 | 16.929 |
| 218 | 436 | 17.165 |
| 220 | 440 | 17.323 |
| 222 | 444 | 17.480 |
| 223 | 446 | 17.559 |
| 224 | 448 | 17.638 |
| 226 | 452 | 17.795 |
| 228 | 456 | 17.953 |
| 230 | 460 | 18.110 |
| 233 | 466 | 18.346 |
| 235 | 470 | 18.504 |
| 237 | 474 | 18.661 |
| 239 | 478 | 18.819 |
| 240 | 480 | 18.898 |
| 242 | 484 | 19.055 |
| 243 | 486 | 19.134 |
| 244 | 488 | 19.213 |
| 246 | 492 | 19.370 |
| 247 | 494 | 19.449 |
| 250 | 500 | 19.685 |
| 251 | 502 | 19.764 |
| 252 | 504 | 19.842 |
| 253 | 506 | 19.921 |
| 258 | 516 | 20.315 |
| 262 | 524 | 20.630 |
| 264 | 528 | 20.787 |
| 265 | 530 | 20.866 |
| 267 | 534 | 21.024 |
| 272 | 544 | 21.417 |
| 275 | 550 | 21.654 |
| 276 | 552 | 21.732 |
| 279 | 558 | 21.969 |
| 280 | 560 | 22.047 |
| 285 | 570 | 22.441 |
| 286 | 572 | 22.520 |
| 288 | 576 | 22.677 |
| 289 | 578 | 22.756 |
| 293 | 586 | 23.071 |
| 299 | 598 | 23.543 |
| 300 | 600 | 23.622 |
| 303 | 606 | 23.858 |
| 308 | 616 | 24.252 |
| 315 | 630 | 24.803 |
| 317 | 634 | 24.961 |
| 320 | 640 | 25.197 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 323 | 646 | 25.433 |
| 330 | 660 | 25.984 |
| 335 | 670 | 26.378 |
| 338 | 676 | 26.614 |
| 345 | 690 | 27.165 |
| 348 | 696 | 27.401 |
| 351 | 702 | 27.638 |
| 363 | 726 | 28.583 |
| 371 | 742 | 29.213 |
| 372 | 744 | 29.291 |
| 376 | 752 | 29.606 |
| 380 | 760 | 29.921 |
| 386 | 772 | 30.394 |
| 391 | 782 | 30.787 |
| 400 | 800 | 31.496 |
| 405 | 810 | 31.890 |
| 408 | 816 | 32.126 |
| 424 | 848 | 33.386 |
| 426 | 852 | 33.543 |
| 430 | 860 | 33.858 |
| 433 | 866 | 34.094 |
| 446 | 892 | 35.118 |
| 450 | 900 | 35.433 |
| 465 | 930 | 36.614 |
| 475 | 950 | 37.402 |
| 488 | 976 | 38.425 |
| 497 | 994 | 39.134 |
| 502 | 1004 | 39.528 |
| 514 | 1028 | 40.472 |
| 516 | 1032 | 40.630 |
| 533 | 1066 | 41.969 |
| 534 | 1068 | 42.047 |
| 555 | 1110 | 43.701 |
| 570 | 1140 | 44.882 |
| 582 | 1164 | 45.827 |
| 590 | 1180 | 46.457 |
| 605 | 1210 | 47.638 |
| 614 | 1228 | 48.346 |
| 617 | 1234 | 48.583 |
| 628 | 1256 | 49.449 |
| 655 | 1310 | 51.575 |
| 660 | 1320 | 51.969 |
| 672 | 1344 | 52.913 |
| 680 | 1360 | 53.543 |
| 693 | 1386 | 54.567 |
| 717 | 1434 | 56.457 |
| 762 | 1524 | 60.000 |
| 779 | 1558 | 61.339 |
| 830 | 1660 | 65.354 |
| 844 | 1688 | 66.457 |
| 850 | 1700 | 66.929 |
| 905 | 1810 | 71.260 |
| 915 | 1830 | 72.047 |
| 925 | 1850 | 72.835 |
| 930 | 1860 | 73.228 |
| 955 | 1910 | 75.197 |
| *1109 | 2218 | 87.323 |

* The catalog number for this length belt is **A 6R51MB09**
Continued from the previous page



BELT WIDTHS

METRIC - 3, 6 & 9 mm

TRUE METRIC® PROFILE

> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced
GT®3 belts offer an improved construction and material compound for superior load bearing capacity.

> SPECIFICATIONS:

Breaking Strength:
 93 N per 1 mm (67 lbf per 1/8 in.) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:
 734 N for 25.4 mm belt (165 lbf for 1 in. belt)
 For more information, see the technical section.

Temperature Range:
 -34°C to +85°C (-30°F to +185°F)

> FEATURES:

Higher Capacity
 Improved Registration
 Reduced Noise

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Example: **A36R51M046060** is a 46 groove 6 mm wide belt.

METRIC COMPONENT CATALOG NUMBER

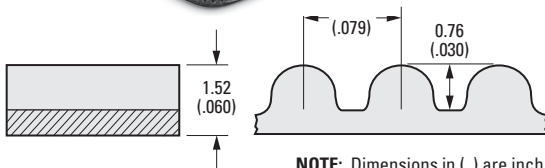
A 3 6 R 5 1 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 3 (.118) | 030 |
| 6 (.236) | 060 |
| 9 (.354) | 090 |

Gates GT®2 and GT®3 Belts

GT®3 is an equivalent and direct replacement for GT®2 belts. As inventories of GT®2 belts are exhausted, they will be replaced with the GT®3 equivalent. GT®3 belts will not be available until GT®2 belts are depleted. Call for special requests and additional information.



NOTE: Dimensions in () are inch.

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | inch |
| 027 | 54 | 2.126 |
| 029 | 58 | 2.283 |
| 030 | 60 | 2.362 |
| 033 | 66 | 2.598 |
| 036 | 72 | 2.835 |
| 037 | 74 | 2.913 |
| 038 | 76 | 2.992 |
| 039 | 78 | 3.071 |
| 040 | 80 | 3.150 |
| 041 | 82 | 3.228 |
| 042 | 84 | 3.307 |
| 043 | 86 | 3.386 |
| 044 | 88 | 3.465 |
| 045 | 90 | 3.543 |
| 046 | 92 | 3.622 |
| 047 | 94 | 3.701 |
| 048 | 96 | 3.780 |
| 049 | 98 | 3.858 |
| 050 | 100 | 3.937 |
| 051 | 102 | 4.016 |
| 053 | 106 | 4.173 |
| 054 | 108 | 4.252 |
| 055 | 110 | 4.331 |
| 056 | 112 | 4.409 |
| 057 | 114 | 4.488 |
| 058 | 116 | 4.567 |
| 059 | 118 | 4.646 |
| 060 | 120 | 4.724 |
| 061 | 122 | 4.803 |
| 062 | 124 | 4.882 |
| 063 | 126 | 4.961 |
| 064 | 128 | 5.039 |
| 065 | 130 | 5.118 |
| 066 | 132 | 5.197 |
| 067 | 134 | 5.276 |
| 068 | 136 | 5.354 |
| 069 | 138 | 5.433 |
| 070 | 140 | 5.512 |

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | inch |
| 071 | 142 | 5.591 |
| 072 | 144 | 5.669 |
| 073 | 146 | 5.748 |
| 074 | 148 | 5.827 |
| 075 | 150 | 5.906 |
| 076 | 152 | 5.984 |
| 077 | 154 | 6.063 |
| 078 | 156 | 6.142 |
| 079 | 158 | 6.220 |
| 080 | 160 | 6.299 |
| 081 | 162 | 6.378 |
| 082 | 164 | 6.457 |
| 083 | 166 | 6.535 |
| 084 | 168 | 6.614 |
| 085 | 170 | 6.693 |
| 086 | 172 | 6.772 |
| 087 | 174 | 6.850 |
| 088 | 176 | 6.929 |
| 089 | 178 | 7.008 |
| 090 | 180 | 7.087 |
| 091 | 182 | 7.165 |
| 092 | 184 | 7.244 |
| 093 | 186 | 7.323 |
| 094 | 188 | 7.402 |
| 095 | 190 | 7.480 |
| 096 | 192 | 7.559 |
| 097 | 194 | 7.638 |
| 098 | 196 | 7.717 |
| 100 | 200 | 7.874 |
| 101 | 202 | 7.953 |
| 102 | 204 | 8.031 |
| 103 | 206 | 8.110 |
| 104 | 208 | 8.189 |
| 105 | 210 | 8.268 |
| 106 | 212 | 8.346 |
| 107 | 214 | 8.425 |
| 108 | 216 | 8.504 |
| 110 | 220 | 8.661 |

Continued on the next page



| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 112 | 224 | 8.819 |
| 113 | 226 | 8.898 |
| 114 | 228 | 8.976 |
| 115 | 230 | 9.055 |
| 116 | 232 | 9.134 |
| 118 | 236 | 9.291 |
| 120 | 240 | 9.449 |
| 121 | 242 | 9.528 |
| 122 | 244 | 9.606 |
| 124 | 248 | 9.764 |
| 125 | 250 | 9.842 |
| 126 | 252 | 9.921 |
| 127 | 254 | 10.000 |
| 128 | 256 | 10.079 |
| 129 | 258 | 10.157 |
| 130 | 260 | 10.236 |
| 132 | 264 | 10.394 |
| 133 | 266 | 10.472 |
| 134 | 268 | 10.551 |
| 135 | 270 | 10.630 |
| 137 | 274 | 10.787 |
| 139 | 278 | 10.945 |
| 140 | 280 | 11.024 |
| 141 | 282 | 11.102 |
| 142 | 284 | 11.181 |
| 143 | 286 | 11.260 |
| 144 | 288 | 11.339 |
| 145 | 290 | 11.417 |
| 146 | 292 | 11.496 |
| 147 | 294 | 11.575 |
| 150 | 300 | 11.811 |
| 151 | 302 | 11.890 |
| 152 | 304 | 11.969 |
| 154 | 308 | 12.126 |
| 155 | 310 | 12.205 |
| 157 | 314 | 12.362 |
| 159 | 318 | 12.520 |
| 160 | 320 | 12.598 |
| 161 | 322 | 12.677 |
| 162 | 324 | 12.756 |
| 163 | 326 | 12.835 |
| 164 | 328 | 12.913 |
| 165 | 330 | 12.992 |
| 166 | 332 | 13.071 |
| 168 | 336 | 13.228 |
| 169 | 338 | 13.307 |
| 170 | 340 | 13.386 |
| 171 | 342 | 13.465 |
| 172 | 344 | 13.543 |
| 173 | 346 | 13.622 |
| 175 | 350 | 13.779 |
| 176 | 352 | 13.858 |
| 177 | 354 | 13.937 |
| 178 | 356 | 14.016 |
| 179 | 358 | 14.094 |
| 180 | 360 | 14.173 |
| 182 | 364 | 14.331 |
| 183 | 366 | 14.409 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 185 | 370 | 14.567 |
| 186 | 372 | 14.646 |
| 188 | 376 | 14.803 |
| 190 | 380 | 14.961 |
| 191 | 382 | 15.039 |
| 193 | 386 | 15.197 |
| 196 | 392 | 15.433 |
| 197 | 394 | 15.512 |
| 200 | 400 | 15.748 |
| 203 | 406 | 15.984 |
| 206 | 412 | 16.220 |
| 210 | 420 | 16.535 |
| 213 | 426 | 16.772 |
| 214 | 428 | 16.850 |
| 215 | 430 | 16.929 |
| 218 | 436 | 17.165 |
| 220 | 440 | 17.323 |
| 222 | 444 | 17.480 |
| 223 | 446 | 17.559 |
| 224 | 448 | 17.638 |
| 226 | 452 | 17.795 |
| 228 | 456 | 17.953 |
| 230 | 460 | 18.110 |
| 233 | 466 | 18.346 |
| 235 | 470 | 18.504 |
| 237 | 474 | 18.661 |
| 239 | 478 | 18.819 |
| 240 | 480 | 18.898 |
| 242 | 484 | 19.055 |
| 243 | 486 | 19.134 |
| 244 | 488 | 19.213 |
| 246 | 492 | 19.370 |
| 247 | 494 | 19.449 |
| 250 | 500 | 19.685 |
| 251 | 502 | 19.764 |
| 252 | 504 | 19.842 |
| 253 | 506 | 19.921 |
| 258 | 516 | 20.315 |
| 262 | 524 | 20.630 |
| 264 | 528 | 20.787 |
| 265 | 530 | 20.866 |
| 267 | 534 | 21.024 |
| 272 | 544 | 21.417 |
| 275 | 550 | 21.654 |
| 276 | 552 | 21.732 |
| 279 | 558 | 21.969 |
| 280 | 560 | 22.047 |
| 285 | 570 | 22.441 |
| 286 | 572 | 22.520 |
| 288 | 576 | 22.677 |
| 289 | 578 | 22.756 |
| 293 | 586 | 23.071 |
| 299 | 598 | 23.543 |
| 300 | 600 | 23.622 |
| 303 | 606 | 23.858 |
| 308 | 616 | 24.252 |
| 315 | 630 | 24.803 |
| 317 | 634 | 24.961 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 320 | 640 | 25.197 |
| 323 | 646 | 25.433 |
| 330 | 660 | 25.984 |
| 335 | 670 | 26.378 |
| 338 | 676 | 26.614 |
| 345 | 690 | 27.165 |
| 348 | 696 | 27.401 |
| 351 | 702 | 27.638 |
| 363 | 726 | 28.583 |
| 371 | 742 | 29.213 |
| 372 | 744 | 29.291 |
| 376 | 752 | 29.606 |
| 380 | 760 | 29.921 |
| 386 | 772 | 30.394 |
| 391 | 782 | 30.787 |
| 400 | 800 | 31.496 |
| 405 | 810 | 31.890 |
| 408 | 816 | 32.126 |
| 424 | 848 | 33.386 |
| 426 | 852 | 33.543 |
| 430 | 860 | 33.858 |
| 433 | 866 | 34.094 |
| 446 | 892 | 35.118 |
| 450 | 900 | 35.433 |
| 465 | 930 | 36.614 |
| 475 | 950 | 37.402 |
| 488 | 976 | 38.425 |
| 497 | 994 | 39.134 |
| 502 | 1004 | 39.528 |
| 514 | 1028 | 40.472 |
| 516 | 1032 | 40.630 |
| 533 | 1066 | 41.969 |
| 534 | 1068 | 42.047 |
| 539 | 1078 | 42.441 |
| 555 | 1110 | 43.701 |
| 570 | 1140 | 44.882 |
| 582 | 1164 | 45.827 |
| 590 | 1180 | 46.457 |
| 605 | 1210 | 47.638 |
| 614 | 1228 | 48.346 |
| 617 | 1234 | 48.583 |
| 628 | 1256 | 49.449 |
| 655 | 1310 | 51.575 |
| 660 | 1320 | 51.969 |
| 672 | 1344 | 52.913 |
| 680 | 1360 | 53.543 |
| 693 | 1386 | 54.567 |
| 717 | 1434 | 56.457 |
| 762 | 1524 | 60.000 |
| 779 | 1558 | 61.339 |
| 830 | 1660 | 65.354 |
| 850 | 1700 | 66.929 |
| 905 | 1810 | 71.260 |
| 915 | 1830 | 72.047 |
| 925 | 1850 | 72.835 |
| 930 | 1860 | 73.228 |
| 955 | 1910 | 75.197 |
| *1109 | 2218 | 87.323 |

* The catalog number for this length belt is **A36R51MB09**

Continued from the previous page



BELT WIDTHS
 METRIC - 3, 6 & 9 mm
 NON-MARKING
 LOW DUST
 RoHS COMPLIANT
 PowerGrip® TruMotion®



> MATERIAL:

Cream-Colored Polymer Compound, Fiberglass
 Reinforced Body with Nylon Tooth Facing for Reduced Dust.

> SPECIFICATIONS:

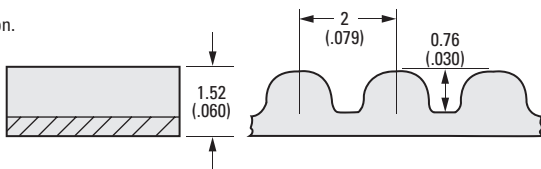
Breaking Strength:
 86 N per 1 mm (62 lbf per 1/8 in.) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:
 89 N for 25.4 mm belt (20 lbf for 1 in. belt).
 For more information, see the technical section.

Temperature Range:
 -40°C to +104°C (-40°F to +220°F)

> MODIFICATIONS:

Special Widths - cut to size from
 sleeves available from stock.



NOTE: Dimensions in () are inch.

METRIC COMPONENT
 CATALOG NUMBER

A 2 6 R 5 1 M □ □ □ □ □ □

No. of
 Grooves
 Code

| Belt Width mm | Width Code |
|------------------|---------------|
| 3 (.118) | 030 |
| 6 (.236) | 060 |
| 9 (.354) | 090 |

| Groove Code | Pitch Length | |
|----------------|--------------|--------|
| | mm | Inch |
| 048 | 96 | 3.780 |
| 050 | 100 | 3.937 |
| 056 | 112 | 4.409 |
| 062 | 124 | 4.882 |
| 063 | 126 | 4.961 |
| 065 | 130 | 5.118 |
| 066 | 132 | 5.197 |
| 067 | 134 | 5.276 |
| 068 | 136 | 5.354 |
| 070 | 140 | 5.512 |
| 076 | 152 | 5.984 |
| 079 | 158 | 6.220 |
| 080 | 160 | 6.299 |
| 082 | 164 | 6.457 |
| 083 | 166 | 6.535 |
| 084 | 168 | 6.614 |
| 086 | 172 | 6.772 |
| 089 | 178 | 7.008 |
| 090 | 180 | 7.087 |
| 093 | 186 | 7.323 |
| 096 | 192 | 7.559 |
| 100 | 200 | 7.874 |
| 101 | 202 | 7.953 |
| 104 | 208 | 8.189 |
| 105 | 210 | 8.268 |
| 106 | 212 | 8.346 |
| 108 | 216 | 8.504 |
| 110 | 220 | 8.661 |
| 112 | 224 | 8.819 |
| 118 | 236 | 9.291 |
| 120 | 240 | 9.449 |
| 125 | 250 | 9.842 |
| 126 | 252 | 9.921 |
| 129 | 258 | 10.157 |
| 137 | 274 | 10.787 |

| Groove Code | Pitch Length | |
|----------------|--------------|--------|
| | mm | Inch |
| 139 | 278 | 10.945 |
| 140 | 280 | 11.024 |
| 143 | 286 | 11.260 |
| 150 | 300 | 11.811 |
| 160 | 320 | 12.598 |
| 161 | 322 | 12.677 |
| 166 | 332 | 13.071 |
| 171 | 342 | 13.465 |
| 173 | 346 | 13.622 |
| 175 | 350 | 13.779 |
| 180 | 360 | 14.173 |
| 182 | 364 | 14.331 |
| 185 | 370 | 14.567 |
| 190 | 380 | 14.961 |
| 193 | 386 | 15.197 |
| 200 | 400 | 15.748 |
| 203 | 406 | 15.984 |
| 210 | 420 | 16.535 |
| 214 | 428 | 16.850 |
| 228 | 456 | 17.953 |
| 235 | 470 | 18.504 |
| 237 | 474 | 18.661 |
| 244 | 488 | 19.213 |
| 252 | 504 | 19.842 |
| 264 | 528 | 20.787 |
| 276 | 552 | 21.732 |
| 280 | 560 | 22.047 |
| 288 | 576 | 22.677 |
| 300 | 600 | 23.622 |
| 320 | 640 | 25.197 |
| 348 | 696 | 27.401 |
| 372 | 744 | 29.291 |
| 424 | 848 | 33.386 |
| 582 | 1164 | 45.827 |
| 779 | 1558 | 61.339 |

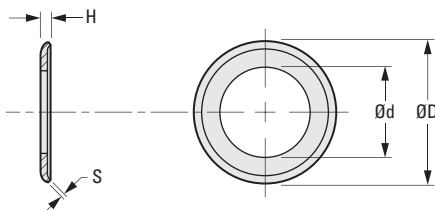


> **MATERIAL:**

Aluminum Alloy

> **SPECIFICATION:**

Priced per 25 Pieces



METRIC COMPONENT

| Catalog Number | Pulley Grooves (Ref.) | Metric | | Inch | | H Width ± 0.25 (± .01) | S Thickness |
|----------------|-----------------------|---------------|--------------|---------------|---------------|------------------------|-------------|
| | | d Dia. ± 0.08 | D Dia. ± 0.4 | d Dia. ± .003 | D Dia. ± .015 | | |
| A 6A50M010FA | 10 | 4.8 | 10.8 | .188 | .425 | 1.14 (.045) | 0.64 (.025) |
| A 6A50M011FA | 11 | 5.4 | 11.4 | .214 | .450 | | |
| A 6A50M012FA | 12 | 5.5 | 12.2 | .218 | .480 | | |
| A 6A50M013FA | 13 | 6.2 | 12.8 | .244 | .505 | | |
| A 6A50M014FA | 14 | 6.9 | 13.5 | .270 | .530 | | |
| A 6A50M015FA | 15 | 7.5 | 14.1 | .296 | .555 | | |
| A 6A50M016FA | 16 | 8.2 | 14.7 | .322 | .580 | | |
| A 6A50M018FA | 18 | 9.5 | 16.1 | .374 | .635 | 1.32 (.052) | 0.81 (.032) |
| A 6A50M020FA | 20 | 10.8 | 17.4 | .426 | .685 | | |
| A 6A50M021FA | 21 | 11.5 | 18 | .452 | .710 | | |
| A 6A50M022FA | 22 | 11.5 | 18.8 | .452 | .740 | | |
| A 6A50M024FA | 24 | 12.8 | 20 | .504 | .790 | | |
| A 6A50M025FA | 25 | 13.5 | 20.7 | .530 | .815 | | |
| A 6A50M026FA | 26 | 14.1 | 21.3 | .556 | .840 | | |
| A 6A50M028FA | 28 | 14.6 | 22.7 | .574 | .895 | | |
| A 6A50M030FA | 30 | 15.9 | 24 | .626 | .945 | | |
| A 6A50M032FA | 32 | 17.2 | 25.4 | .678 | 1.000 | | |
| A 6A50M033FA | 33 | 17.9 | 26 | .704 | 1.025 | | |
| A 6A50M034FA | 34 | 18.3 | 26.7 | .722 | 1.050 | | |
| A 6A50M035FA | 35 | 19 | 27.4 | .748 | 1.080 | | |
| A 6A50M036FA | 36 | 19.7 | 28.1 | .774 | 1.105 | | |
| A 6A50M038FA | 38 | 21 | 29.3 | .826 | 1.155 | | |
| A 6A50M040FA | 40 | 22.2 | 30.7 | .874 | 1.210 | 1.52 (.06) | 1.02 (.040) |
| A 6A50M042FA | 42 | 23.5 | 32 | .926 | 1.260 | | |
| A 6A50M044FA | 44 | 24.8 | 33.4 | .978 | 1.315 | | |
| A 6A50M045FA | 45 | 26.5 | 34 | 1.044 | 1.340 | | |
| A 6A50M048FA | 48 | 26.9 | 36.1 | 1.058 | 1.420 | | |
| A 6A50M050FA | 50 | 28.2 | 37.3 | 1.110 | 1.470 | | |
| A 6A50M054FA | 54 | 30.5 | 40 | 1.200 | 1.575 | | |
| A 6A50M060FA | 60 | 34.4 | 43.9 | 1.356 | 1.730 | | |

NOTE: Dimensions in () are inch.



- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

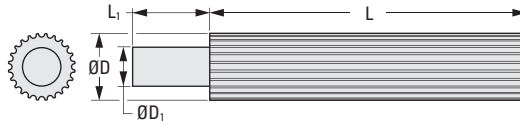
> MATERIAL:

Aluminum Alloy

> SPECIFICATION:

D Tolerance:

10 to 40 grooves is +0.05/0 (+.002/-0.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ ** Shank Dia. | L ₁ Shank Length. (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------------|---|-------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A50M010GT05 | 10 | 6.4 | 5.9 | .251 | .231 | 7.9 (5/16) | 25 (1") | 50 (2") |
| A 6A50M011GT05 | 11 | 7 | 6.5 | .276 | .256 | | | |
| A 6A50M012GT05 | 12 | 7.6 | 7.1 | .301 | .281 | | | |
| A 6A50M013GT05 | 13 | 8.3 | 7.8 | .326 | .306 | 9.5 (3/8) | 25 (1") | 75 (3") |
| A 6A50M014GT08 | 14 | 8.9 | 8.4 | .351 | .331 | | | |
| A 6A50M015GT08 | 15 | 9.6 | 9 | .376 | .356 | | | |
| A 6A50M016GT08 | 16 | 10.2 | 9.7 | .401 | .381 | | | |
| A 6A50M017GT08 | 17 | 10.8 | 10.3 | .426 | .406 | | | |
| A 6A50M018GT08 | 18 | 11.5 | 11 | .451 | .431 | | | |
| A 6A50M019GT08 | 19 | 12.1 | 11.6 | .476 | .456 | | | |
| A 6A50M020GT10 | 20 | 12.7 | 12.2 | .501 | .481 | 22 (7/8) | 100 (4") | |
| A 6A50M021GT10 | 21 | 13.4 | 12.9 | .526 | .506 | | | |
| A 6A50M022GT10 | 22 | 14 | 13.5 | .551 | .531 | | | |
| A 6A50M023GT10 | 23 | 14.6 | 14.1 | .576 | .556 | | | |
| A 6A50M024GT13 | 24 | 15.3 | 14.8 | .602 | .582 | 12.7 (1/2) | 25 (1") [19 (3/4)] ^Δ | 125 (5") |
| A 6A50M025GT13 | 25 | 15.9 | 15.4 | .627 | .607 | | | |
| A 6A50M026GT13 | 26 | 16.5 | 16 | .652 | .632 | | | |
| A 6A50M027GT13 | 27 | 17.2 | 16.7 | .677 | .657 | | | |
| A 6A50M028GT13 | 28 | 17.8 | 17.6 | .702 | .682 | | | |
| A 6A50M029GT13 | 29 | 18.5 | 18 | .727 | .707 | | | |
| A 6A50M030GT15 | 30 | 19.1 | 18.6 | .752 | .732 | | | |
| A 6A50M031GT15 | 31 | 19.7 | 19.2 | .777 | .757 | | | |
| A 6A50M032GT15 | 32 | 20.4 | 19.9 | .802 | .782 | | | |
| A 6A50M033GT15 | 33 | 21 | 20.5 | .827 | .807 | | | |
| A 6A50M034GT15 | 34 | 21.6 | 21.1 | .852 | .832 | | | |
| A 6A50M035GT15 | 35 | 22.3 | 21.8 | .877 | .857 | | | |
| A 6A50M036GT15 | 36 | 22.9 | 22.4 | .902 | .882 | | | |
| A 6A50M037GT15 | 37 | 23.5 | 23 | .927 | .907 | | | |
| A 6A50M038GT15 | 38 | 24.2 | 23.7 | .952 | .932 | | | |
| A 6A50M039GT15 | 39 | 24.8 | 24.3 | .977 | .957 | | | |
| A 6A50M040GT15 | 40 | 25.5 | 25 | 1.003 | .983 | | | |

NOTE: Dimensions in () are inch.

Continued on the next page

^Δ Dimensions in [] may be substituted at SDP option.

** Shank Diameter of 4.7 mm (3/16") or 5.5 mm (7/32") for pulleys with 10 to 12 grooves may be substituted at SDP option.

Shank Diameter of 6.3 mm (1/4") for pulleys with 13 & 14 grooves may be substituted at SDP option.

Shank Diameter of 7.9 mm (5/16") for pulleys with 15 & 17 grooves may be substituted at SDP option.





> MATERIAL:

Aluminum Alloy

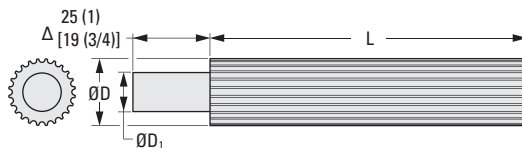
> SPECIFICATIONS:

D Tolerance:

42 to 80 grooves is +0.08/0 (+.003/-0.000)

82 to 150 grooves is +0.10/0 (+.004/-0.000)

Δ Dimensions in [] may be substituted at SDP option.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | |
| A 6A50M042GT18 | 42 | 26.7 | 26.2 | 1.053 | 1.033 | 12.7 (1/2) | 175 (7) |
| A 6A50M044GT18 | 44 | 28 | 27.5 | 1.103 | 1.083 | | |
| A 6A50M045GT18 | 45 | 28.7 | 28.1 | 1.128 | 1.108 | | |
| A 6A50M048GT18 | 48 | 30.6 | 30.1 | 1.203 | 1.183 | | |
| A 6A50M049GT18 | 49 | 31.2 | 30.7 | 1.228 | 1.208 | | |
| A 6A50M050GT18 | 50 | 31.8 | 31.3 | 1.253 | 1.233 | | |
| A 6A50M051GT18 | 51 | 32.5 | 32 | 1.278 | 1.258 | | |
| A 6A50M052GT18 | 52 | 33.1 | 32.6 | 1.303 | 1.283 | | |
| A 6A50M054GT18 | 54 | 34.4 | 33.9 | 1.353 | 1.333 | | |
| A 6A50M055GT18 | 55 | 35 | 34.5 | 1.379 | 1.359 | | |
| A 6A50M056GT18 | 56 | 35.7 | 35.1 | 1.404 | 1.384 | | |
| A 6A50M057GT18 | 57 | 36.3 | 35.8 | 1.429 | 1.409 | | |
| A 6A50M060GT20 | 60 | 38.2 | 37.7 | 1.504 | 1.484 | | |
| A 6A50M064GT20 | 64 | 40.7 | 40.2 | 1.604 | 1.584 | | |
| A 6A50M065GT20 | 65 | 41.4 | 40.9 | 1.629 | 1.609 | | |
| A 6A50M066GT20 | 66 | 42 | 41.5 | 1.654 | 1.634 | | |
| A 6A50M070GT20 | 70 | 44.6 | 44.1 | 1.754 | 1.734 | | |
| A 6A50M072GT20 | 72 | 45.8 | 45.3 | 1.805 | 1.785 | | |
| A 6A50M075GT20 | 75 | 47.8 | 47.2 | 1.880 | 1.860 | | |
| A 6A50M080GT20 | 80 | 50.9 | 50.4 | 2.005 | 1.985 | | |
| A 6A50M082GT20 | 82 | 52.2 | 51.7 | 2.055 | 2.035 | | |
| A 6A50M084GT20 | 84 | 53.5 | 53 | 2.105 | 2.085 | | |
| A 6A50M088GT20 | 88 | 56 | 55.5 | 2.206 | 2.186 | | |
| A 6A50M090GT20 | 90 | 57.3 | 56.8 | 2.256 | 2.236 | | |
| A 6A50M096GT20 | 96 | 61.1 | 60.6 | 2.406 | 2.386 | | |
| A 6A50M098GT20 | 98 | 62.4 | 61.9 | 2.456 | 2.436 | | |
| A 6A50M100GT20 | 100 | 63.7 | 63.2 | 2.506 | 2.486 | | |
| A 6A50M102GT20 | 102 | 64.9 | 64.4 | 2.557 | 2.537 | | |
| A 6A50M108GT20 | 108 | 68.8 | 68.3 | 2.707 | 2.687 | | |
| A 6A50M110GT20 | 110 | 70 | 69.5 | 2.757 | 2.737 | | |
| A 6A50M120GT20 | 120 | 76.4 | 75.9 | 3.008 | 2.988 | | |
| A 6A50M130GT20 | 130 | 82.8 | 82.3 | 3.258 | 3.238 | | |
| A 6A50M140GT20 | 140 | 89.1 | 88.6 | 3.509 | 3.489 | | |
| A 6A50M150GT20 | 150 | 95.5 | 95 | 3.760 | 3.740 | | |
| | | | | | | 19.1 (3/4) | 200 (8) |

NOTE: Dimensions in () are inch.

Continued from the previous page

REV: 02.20.15 JC

FOR BELTS UP TO 6 mm WIDE
FOR USE WITH GT®2, GT®3 and FHT®-2 BELTS
 FAIRLOC® HUB
 DOUBLE OR NO FLANGE
TRUE METRIC® PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

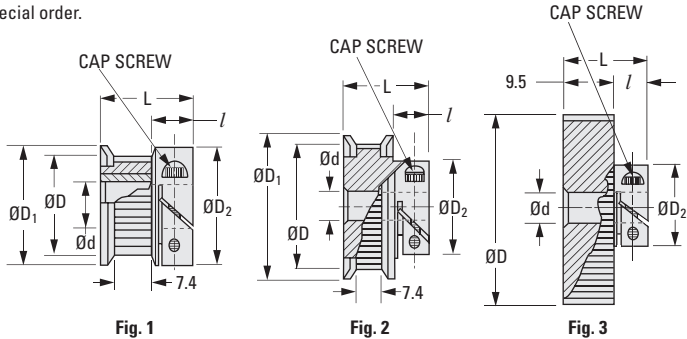


> MATERIAL:
 Aluminum Alloy

> FINISH:
 Clear Anodized

> SPECIFICATION:
 D Tolerance: 15 to 40 grooves is +0.051/0
 45 to 80 grooves is +0.076/0
 90 to 120 grooves is +0.102/0

Other sizes available on special order.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025/0 | L Length ± 0.4 | D ₂ Hub ± 0.4 | l Hub Proj. | Cap Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|----------------|--------------------------|-------------|-----------|
| Fig. 1 | | | | | | | | | |
| A 6D51M015DF0605 | 15 | 9.6 | 9 | 14.1 | 5 | 14.3 | 14.7 | 6 | M2 |
| A 6D51M016DF0605 | 16 | 10.2 | 9.7 | 14.7 | | | | | |
| A 6D51M018DF0605 | 18 | 11.5 | 11 | 16.1 | | | | | |
| A 6D51M020DF0605 | 20 | 12.7 | 12.2 | 17.4 | | | | | |
| A 6D51M022DF0605 | 22 | 14 | 13.5 | 18.8 | | | | | |
| A 6D51M024DF0606 | 24 | 15.3 | 14.8 | 20.1 | 6 | 17.5 | 15.9 | 7.5 | M2.5 |
| A 6D51M025DF0606 | 25 | 15.9 | 15.4 | 20.7 | | | | | |
| A 6D51M028DF0606 | 28 | 17.8 | 17.3 | 22.7 | | | | | |
| A 6D51M030DF0606 | 30 | 19.1 | 18.6 | 24 | | | | | |
| A 6D51M032DF0606 | 32 | 20.4 | 19.9 | 25.4 | | | | | |
| Fig. 2 | | | | | | | | | |
| A 6D51M036DF0606 | 36 | 23 | 22.4 | 28.1 | 6 | 17.5 | 15.9 | 7.5 | M2.5 |
| A 6D51M040DF0606 | 40 | 25.5 | 25 | 30.7 | | | | | |
| A 6D51M045DF0606 | 45 | 28.6 | 28.1 | 34 | | 18.3 | | 7.9 | |
| A 6D51M048DF0606 | 48 | 30.6 | 30 | 36.1 | | | | | |
| A 6D51M050DF0606 | 50 | 31.8 | 31.3 | 37.3 | | | | | |
| A 6D51M060DF0606 | 60 | 38.2 | 37.7 | 43.9 | | | | | |
| Fig. 3 | | | | | | | | | |
| A 6D51M060NF0606 | 60 | 38.2 | 37.7 | — | 6 | 19.1 | 25.4 | 9.5 | M2.5 |
| A 6D51M072NF0606 | 72 | 45.9 | 45.3 | | 8 | | | | |
| A 6D51M080NF0608 | 80 | 51 | 50.4 | | | | | | |
| A 6D51M090NF0608 | 90 | 57.3 | 56.8 | | 10 | | | | |
| A 6D51M100NF0608 | 100 | 63.7 | 63.2 | | | | | | |
| A 6D51M120NF0610 | 120 | 76.4 | 75.9 | | | | | | |

For FHT®-2 Timing Belts see: A 6B19M... and A 6G19M...
 REV: 02.20.15 JC



Request Info

1-800-453-1692
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FOR BELTS UP TO 3 mm WIDE
 FOR USE WITH GT®2, GT®3 and FHT®-2 BELTS
 LOW PROFILE
 DOUBLE FLANGE
TRUE METRIC PROFILE

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➤ **MATERIAL:**
 Aluminum Alloy

➤ **FINISH:**
 Clear Anodized

➤ **SPECIFICATION:**
 Pulleys with 12 to 16 grooves have 1 set screw;
 others have 2 set screws at 90°

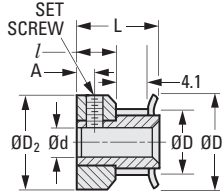


Fig. 1

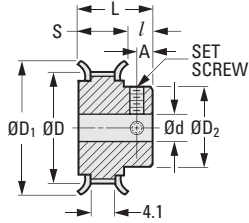


Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D Dia. +0.05 | D ₁ Dia. ± 0.04 | d Bore +0.025 0 | S Body | L Lgth. ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------|----------------|------|--------------|----------------------------|-----------------|--------|---------------|-------------------------------|-------------|-----|-----------|
| A 6A51M012DF0303 | 1 | 12 | 7.6 | 7.1 | 12.2 | 3 | - | 11.1 | 12.2 | 6 | 2.8 | M2 |
| A 6A51M013DF0303 | 1 | 13 | 8.3 | 7.8 | 12.8 | 3 | - | 11.1 | 12.8 | 6 | 2.8 | M2 |
| A 6A51M014DF0303 | 1 | 14 | 8.9 | 8.4 | 13.5 | 3 | - | 11.1 | 13.5 | 6 | 2.8 | M2 |
| A 6A51M015DF0304 | 1 | 15 | 9.6 | 9 | 14.1 | 4 | - | 11.1 | 14.1 | 6 | 2.8 | M2.5 |
| A 6A51M016DF0304 | 1 | 16 | 10.2 | 9.7 | 14.7 | 4 | - | 11.1 | 14.7 | 6 | 2.8 | M2.5 |
| A 6A51M017DF0304 | 2 | 17 | 10.8 | 10.3 | 16.1 | 4 | 6.6 | 12.3 | 7.9 | 5.6 | 2.8 | M2.5 |
| A 6A51M017DF0306 | 1 | 17 | 10.8 | 10.3 | 16.1 | 6 | - | 11.1 | 16.1 | 6 | 2.8 | M3 |
| A 6A51M018DF0304 | 2 | 18 | 11.5 | 11 | 16.1 | 4 | 6.6 | 12.3 | 7.9 | 5.6 | 2.8 | M2.5 |
| A 6A51M018DF0306 | 1 | 18 | 11.5 | 11 | 16.1 | 6 | - | 11.1 | 16.1 | 6 | 2.8 | M3 |
| A 6A51M019DF0304 | 2 | 19 | 12.3 | 11.6 | 16.1 | 4 | 6.6 | 12.3 | 7.9 | 5.6 | 2.8 | M2.5 |
| A 6A51M019DF0306 | 1 | 19 | 12.3 | 11.6 | 16.1 | 6 | - | 11.1 | 16.1 | 6 | 2.8 | M3 |
| A 6A51M020DF0304 | 2 | 20 | 12.7 | 12.2 | 17.4 | 4 | 6.6 | 12.3 | 9.2 | 5.6 | 2.8 | M2.5 |
| A 6A51M020DF0306 | 1 | 20 | 12.7 | 12.2 | 17.4 | 6 | - | 11.1 | 17.4 | 6 | 2.8 | M3 |
| A 6A51M021DF0304 | 2 | 21 | 13.4 | 12.9 | 18 | 4 | 6.6 | 12.3 | 9.9 | 5.6 | 2.8 | M2.5 |
| A 6A51M021DF0306 | 1 | 21 | 13.4 | 12.9 | 18 | 6 | - | 11.1 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M022DF0304 | 2 | 22 | 14 | 13.5 | 18.8 | 4 | 6.6 | 12.1 | 9.9 | 5.6 | 2.8 | M2.5 |
| A 6A51M022DF0306 | 1 | 22 | 14 | 13.5 | 18.8 | 6 | - | 11.1 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M024DF0306 | 2 | 24 | 15.3 | 14.8 | 20.1 | 6 | 6.6 | 13.1 | 11.2 | 6.4 | 3.2 | M3 |
| A 6A51M025DF0306 | 2 | 25 | 15.9 | 15.4 | 20.7 | 6 | 6.6 | 13.1 | 11.9 | 6.4 | 3.2 | M3 |
| A 6A51M026DF0306 | 2 | 26 | 16.6 | 16.1 | 21.3 | 6 | 6.6 | 13.1 | 12.4 | 6.4 | 3.2 | M3 |
| A 6A51M028DF0306 | 2 | 28 | 17.8 | 17.3 | 22.7 | 6 | 6.6 | 13.1 | 12.5 | 6.4 | 3.2 | M3 |
| A 6A51M030DF0306 | 2 | 30 | 19.1 | 18.6 | 24 | 6 | 6.6 | 13.1 | 13.9 | 6.4 | 3.2 | M3 |
| A 6A51M032DF0306 | 2 | 32 | 20.4 | 19.9 | 25.4 | 6 | 6.6 | 13.1 | 15.2 | 6.4 | 3.2 | M4 |
| A 6A51M036DF0306 | 2 | 36 | 23 | 22.4 | 28.1 | 6 | 6.6 | 13.1 | 17.2 | 6.4 | 3.2 | M4 |
| A 6A51M040DF0306 | 2 | 40 | 25.5 | 25 | 30.7 | 6 | 7 | 13.5 | 19.2 | 6.4 | 3.2 | M4 |
| A 6A51M042DF0306 | 2 | 42 | 26.7 | 26.2 | 32 | 6 | 7 | 13.5 | 20.5 | 6.4 | 3.2 | M4 |
| A 6A51M044DF0306 | 2 | 44 | 28 | 27.5 | 33.4 | 6 | 7 | 13.5 | 21.8 | 6.4 | 3.2 | M4 |
| A 6A51M045DF0306 | 2 | 45 | 28.6 | 28.1 | 34 | 6 | 7 | 13.5 | 22.9 | 6.4 | 3.2 | M4 |
| A 6A51M048DF0306 | 2 | 48 | 30.6 | 30 | 36.1 | 6 | 7 | 13.5 | 23.8 | 6.4 | 3.2 | M4 |
| A 6A51M050DF0306 | 2 | 50 | 31.8 | 31.3 | 37.3 | 6 | 7 | 13.5 | 23.8 | 6.4 | 3.2 | M4 |
| A 6A51M056DF0306 | 2 | 56 | 35.7 | 35.2 | 40 | 6 | 7 | 13.5 | 26.2 | 6.4 | 3.2 | M4 |
| A 6A51M060DF0306 | 2 | 60 | 38.2 | 37.7 | 43.9 | 6 | 7 | 13.5 | 31 | 6.4 | 3.2 | M4 |

For FHT®-2 Timing Belts see: A 6B19M... and A 6G19M...
 REV: 02.20.15 JC



Request Info



1-800-453-1692

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FOR 6 mm BELTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

FOR USE WITH GT®2, GT®3 and FHT®-2 BELTS

DOUBLE OR NO FLANGE

TRUE METRIC® PROFILE

➤ **MATERIAL:** Aluminum Alloy

➤ **FINISH:** Clear Anodized

➤ **SPECIFICATION:**

*D Tolerance:

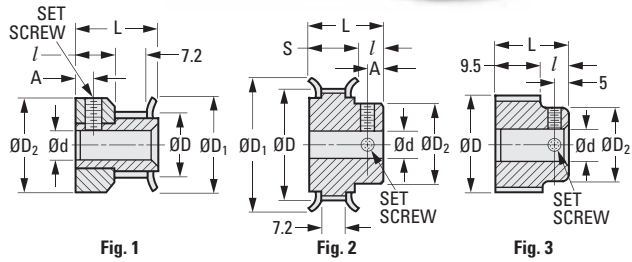
Fig. 1 & Fig. 2:

12 to 60 grooves is +0.05/0

Fig. 3:

60 to 120 grooves is +0.08/0

Pulleys with 12 to 16 grooves have 1 set screw; others have 2 set screws at 90°



METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D* Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025/0 | S Body | L Lgth. | D ₂ Hub Dia. ± 0.4 | I / Hub Proj. | A | Set Screw |
|------------------|----------|----------------|------|---------|---------------------------|-----------------|--------|---------|-------------------------------|---------------|-----|-----------|
| A 6A51M012DF0603 | 1 | 12 | 7.6 | 7.1 | 12.2 | 3 | - | 14.3 | 12.2 | 6 | 2.8 | M2 |
| A 6A51M013DF0603 | 1 | 13 | 8.3 | 7.8 | 12.8 | 3 | - | 14.3 | 12.8 | 6 | 2.8 | M2 |
| A 6A51M014DF0603 | 1 | 14 | 8.9 | 8.4 | 13.5 | 3 | - | 14.3 | 13.5 | 6 | 2.8 | M2 |
| A 6A51M015DF0604 | 1 | 15 | 9.6 | 9 | 14.1 | 4 | - | 14.3 | 14.1 | 6 | 2.8 | M2.5 |
| A 6A51M016DF0604 | 1 | 16 | 10.2 | 9.7 | 14.7 | 4 | - | 14.3 | 14.7 | 6 | 2.8 | M2.5 |
| A 6A51M017DF0604 | 2 | 17 | 10.8 | 10.3 | 16.1 | 4 | 9.9 | 15.9 | 7.9 | 6 | 2.8 | M2.5 |
| A 6A51M017DF0606 | 1 | 17 | 10.8 | 10.3 | 16.1 | 6 | - | 14.3 | 16.1 | 6 | 2.8 | M3 |
| A 6A51M018DF0604 | 2 | 18 | 11.5 | 11 | 16.1 | 4 | 9.9 | 15.9 | 9.2 | 6 | 2.8 | M2.5 |
| A 6A51M018DF0606 | 1 | 18 | 11.5 | 11 | 16.1 | 6 | - | 14.3 | 17.4 | 6 | 2.8 | M3 |
| A 6A51M019DF0604 | 2 | 19 | 12.3 | 11.6 | 16.1 | 4 | 9.9 | 15.9 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M019DF0606 | 1 | 19 | 12.3 | 11.6 | 16.1 | 6 | - | 14.3 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M020DF0604 | 2 | 20 | 12.7 | 12.2 | 17.4 | 4 | 9.9 | 15.9 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M020DF0606 | 1 | 20 | 12.7 | 12.2 | 17.4 | 6 | - | 14.3 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M021DF0604 | 2 | 21 | 13.4 | 12.9 | 18 | 4 | 9.9 | 15.9 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M021DF0606 | 1 | 21 | 13.4 | 12.9 | 18 | 6 | - | 14.3 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M022DF0604 | 2 | 22 | 14 | 12.9 | 18.8 | 4 | 9.9 | 15.9 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M022DF0606 | 1 | 22 | 14 | 12.9 | 18.8 | 6 | - | 14.3 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M024DF0606 | 2 | 24 | 15.3 | 14.8 | 20.1 | 6 | 9.9 | 17.5 | 11.2 | 7.5 | 4 | M3 |
| A 6A51M025DF0606 | 2 | 25 | 15.9 | 15.4 | 20.7 | 6 | 9.9 | 17.5 | 11.9 | 7.5 | 4 | M3 |
| A 6A51M026DF0606 | 2 | 26 | 16.6 | 16.1 | 21.3 | 6 | 9.9 | 17.5 | 12.5 | 7.5 | 4 | M3 |
| A 6A51M028DF0606 | 2 | 28 | 17.8 | 17.3 | 22.7 | 6 | 9.9 | 17.5 | 12.5 | 7.5 | 4 | M3 |
| A 6A51M030DF0606 | 2 | 30 | 19.1 | 18.6 | 24 | 6 | 9.9 | 17.5 | 13.9 | 7.5 | 4 | M3 |
| A 6A51M032DF0606 | 2 | 32 | 20.4 | 19.9 | 25.4 | 6 | 9.9 | 17.5 | 15.2 | 7.5 | 4 | M3 |
| A 6A51M036DF0606 | 2 | 36 | 23 | 22.4 | 28.1 | 6 | 9.9 | 17.5 | 17.2 | 7.5 | 4 | M3 |
| A 6A51M040DF0606 | 2 | 40 | 25.5 | 25 | 30.7 | 6 | 10.3 | 18.3 | 19.2 | 8 | 4 | M3 |
| A 6A51M042DF0606 | 2 | 42 | 26.7 | 26.2 | 32 | 6 | 10.3 | 18.3 | 20.5 | 8 | 4 | M3 |
| A 6A51M044DF0606 | 2 | 44 | 28 | 27.5 | 33.4 | 6 | 10.3 | 18.3 | 21.8 | 8 | 4 | M3 |
| A 6A51M045DF0606 | 2 | 45 | 28.6 | 28.1 | 34 | 6 | 10.3 | 18.3 | 22.9 | 8 | 4 | M3 |
| A 6A51M048DF0606 | 2 | 48 | 30.6 | 30 | 36.1 | 6 | 10.3 | 18.3 | 23.8 | 8 | 4 | M3 |
| A 6A51M050DF0606 | 2 | 50 | 31.8 | 31.3 | 37.3 | 6 | 10.3 | 18.3 | 23.8 | 8 | 4 | M3 |
| A 6A51M056DF0606 | 2 | 56 | 35.7 | 35.2 | 40 | 6 | 10.3 | 18.3 | 26.2 | 8 | 4 | M3 |
| A 6A51M060DF0606 | 2 | 60 | 38.2 | 37.7 | 43.9 | 6 | 10.3 | 18.3 | 31 | 8 | 4 | M3 |
| A 6A51M060NF0606 | 3 | 60 | 38.2 | 37.7 | - | 6 | - | 19.1 | 29.2 | - | - | M3 |
| A 6A51M062NF0606 | 3 | 62 | 39.5 | 39 | - | 6 | - | 19.1 | 29.2 | - | - | M3 |
| A 6A51M068NF0606 | 3 | 68 | 43.3 | 42.8 | - | 6 | - | 19.1 | 30.4 | - | - | M3 |
| A 6A51M072NF0606 | 3 | 72 | 45.9 | 45.3 | - | 6 | - | 19.1 | 30.4 | - | - | M3 |
| A 6A51M074NF0608 | 3 | 74 | 47.1 | 46.6 | - | 8 | - | 19.1 | 30.9 | - | - | M4 |
| A 6A51M080NF0608 | 3 | 80 | 51 | 50.4 | - | 8 | - | 19.1 | 38.1 | - | - | M4 |
| A 6A51M090NF0608 | 3 | 90 | 57.3 | 56.8 | - | 8 | - | 19.1 | 38.1 | - | - | M4 |
| A 6A51M100NF0608 | 3 | 100 | 63.7 | 63.2 | - | 8 | - | 19.1 | 38.1 | - | - | M4 |
| A 6A51M120NF0610 | 3 | 120 | 76.4 | 75.9 | - | 10 | - | 19.1 | 38.1 | - | - | M5 |

For FHT®-2 Timing Belts see: A 6B19M... and A 6G19M...

REV: 02.20.15 JC

FOR 9 mm BELTS

FOR USE WITH GT®2 and GT®3 BELTS

DOUBLE OR NO FLANGE

TRUE METRIC PROFILE

➤ **MATERIAL:** Aluminum Alloy

➤ **FINISH:** Clear Anodized

➤ **SPECIFICATION:**

*D Tolerance:

Fig. 1 & Fig. 2:

12 to 60 grooves is +0.05/0

Fig. 3:

60 to 120 grooves is +0.08/0

Pulleys with 12 to 16 grooves have 1 set screw; others have 2 set screws at 90°

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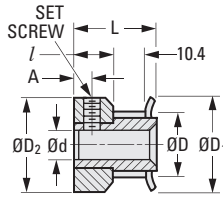


Fig. 1

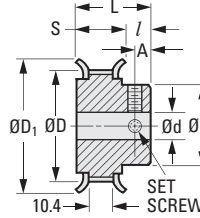


Fig. 2

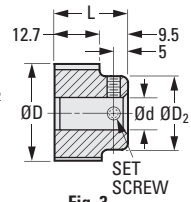


Fig. 3

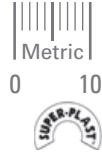
METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D* Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025/0 | S Body | L Lgth. | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------|----------------|------|---------|---------------------------|-----------------|--------|---------|-------------------------------|-------------|-----|-----------|
| A 6A51M012DF0903 | 1 | 12 | 7.6 | 7.1 | 12.2 | 3 | - | 17.5 | 12.2 | 6 | 2.8 | M2 |
| A 6A51M013DF0903 | 1 | 13 | 8.3 | 7.8 | 12.8 | 3 | - | 17.5 | 12.8 | 6 | 2.8 | M2 |
| A 6A51M014DF0903 | 1 | 14 | 8.9 | 8.4 | 13.5 | 3 | - | 17.5 | 13.5 | 6 | 2.8 | M2 |
| A 6A51M015DF0904 | 1 | 15 | 9.6 | 9 | 14.1 | 4 | - | 17.5 | 14.1 | 6 | 2.8 | M2.5 |
| A 6A51M016DF0904 | 1 | 16 | 10.2 | 9.7 | 14.7 | 4 | - | 17.5 | 14.7 | 6 | 2.8 | M2.5 |
| A 6A51M017DF0904 | 2 | 17 | 10.8 | 10.3 | 16.1 | 4 | 13.1 | 19.1 | 7.9 | 6 | 2.8 | M2.5 |
| A 6A51M017DF0906 | 1 | 17 | 10.8 | 10.3 | 16.1 | 6 | - | 17.5 | 16.1 | 6 | 2.8 | M3 |
| A 6A51M018DF0904 | 2 | 18 | 11.5 | 11 | 16.1 | 4 | 13.1 | 19.1 | 9.2 | 6 | 2.8 | M2.5 |
| A 6A51M018DF0906 | 1 | 18 | 11.5 | 11 | 16.1 | 6 | - | 17.5 | 17.4 | 6 | 2.8 | M3 |
| A 6A51M019DF0904 | 2 | 19 | 12.3 | 11.6 | 16.1 | 4 | 13.1 | 19.1 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M019DF0906 | 1 | 19 | 12.3 | 11.6 | 16.1 | 6 | - | 17.5 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M020DF0904 | 2 | 20 | 12.7 | 12.2 | 17.4 | 4 | 13.1 | 19.1 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M020DF0906 | 1 | 20 | 12.7 | 12.2 | 17.4 | 6 | - | 17.5 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M021DF0904 | 2 | 21 | 13.4 | 12.9 | 18 | 4 | 13.1 | 19.1 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M021DF0906 | 1 | 21 | 13.4 | 12.9 | 18 | 6 | - | 17.5 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M022DF0904 | 2 | 22 | 14 | 13.5 | 18.8 | 4 | 13.1 | 19.1 | 9.9 | 6 | 2.8 | M2.5 |
| A 6A51M022DF0906 | 1 | 22 | 14 | 13.5 | 18.8 | 6 | - | 17.5 | 18.8 | 6 | 2.8 | M3 |
| A 6A51M024DF0906 | 2 | 24 | 15.3 | 14.8 | 20.1 | 6 | 13.1 | 20.6 | 11.2 | 7.5 | 4 | M3 |
| A 6A51M025DF0906 | 2 | 25 | 15.9 | 15.4 | 20.7 | 6 | 13.1 | 20.6 | 11.9 | 7.5 | 4 | M3 |
| A 6A51M026DF0906 | 2 | 26 | 16.6 | 16.1 | 21.3 | 6 | 13.1 | 20.6 | 12.5 | 7.5 | 4 | M3 |
| A 6A51M028DF0906 | 2 | 28 | 17.8 | 17.3 | 22.7 | 6 | 13.1 | 20.6 | 12.5 | 7.5 | 4 | M3 |
| A 6A51M030DF0906 | 2 | 30 | 19.1 | 18.6 | 24 | 6 | 13.1 | 20.6 | 13.9 | 7.5 | 4 | M3 |
| A 6A51M032DF0906 | 2 | 32 | 20.4 | 19.9 | 25.4 | 6 | 13.1 | 20.6 | 15.2 | 7.5 | 4 | M3 |
| A 6A51M036DF0906 | 2 | 36 | 23 | 22.4 | 28.1 | 6 | 13.1 | 20.6 | 17.2 | 7.5 | 4 | M3 |
| A 6A51M040DF0906 | 2 | 40 | 25.5 | 25 | 30.7 | 6 | 13.5 | 21.4 | 19.2 | 8 | 4 | M3 |
| A 6A51M042DF0906 | 2 | 42 | 26.7 | 26.2 | 32 | 6 | 13.5 | 21.4 | 20.5 | 8 | 4 | M3 |
| A 6A51M044DF0906 | 2 | 44 | 28 | 27.5 | 33.4 | 6 | 13.5 | 21.4 | 21.8 | 8 | 4 | M3 |
| A 6A51M045DF0906 | 2 | 45 | 28.6 | 28.1 | 34 | 6 | 13.5 | 21.4 | 22.9 | 8 | 4 | M3 |
| A 6A51M048DF0906 | 2 | 48 | 30.6 | 30 | 36.1 | 6 | 13.5 | 21.4 | 23.8 | 8 | 4 | M3 |
| A 6A51M050DF0906 | 2 | 50 | 31.8 | 31.3 | 37.3 | 6 | 13.5 | 21.4 | 23.8 | 8 | 4 | M3 |
| A 6A51M056DF0906 | 2 | 56 | 35.7 | 35.2 | 40 | 6 | 13.5 | 21.4 | 26.2 | 8 | 4 | M3 |
| A 6A51M060DF0906 | 2 | 60 | 38.2 | 37.7 | 43.9 | 6 | 13.5 | 21.4 | 31 | 8 | 4 | M3 |
| A 6A51M060NF0906 | 3 | 60 | 38.2 | 37.7 | - | 6 | - | 22.2 | 29.2 | - | - | M3 |
| A 6A51M062NF0906 | 3 | 62 | 39.5 | 39 | - | 6 | - | 22.2 | 29.2 | - | - | M3 |
| A 6A51M068NF0906 | 3 | 68 | 43.3 | 42.8 | - | 6 | - | 22.2 | 30.4 | - | - | M3 |
| A 6A51M072NF0906 | 3 | 72 | 45.9 | 45.3 | - | 6 | - | 22.2 | 30.4 | - | - | M3 |
| A 6A51M074NF0908 | 3 | 74 | 47.1 | 46.6 | - | 8 | - | 22.2 | 30.9 | - | - | M4 |
| A 6A51M080NF0908 | 3 | 80 | 51 | 50.4 | - | 8 | - | 22.2 | 38.1 | - | - | M4 |
| A 6A51M090NF0908 | 3 | 90 | 57.3 | 56.8 | - | 8 | - | 22.2 | 38.1 | - | - | M4 |
| A 6A51M100NF0908 | 3 | 100 | 63.7 | 63.2 | - | 8 | - | 22.2 | 38.1 | - | - | M4 |
| A 6A51M120NF0910 | 3 | 120 | 76.4 | 75.9 | - | 10 | - | 22.2 | 38.1 | - | - | M5 |

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FOR 6 mm BELTS
FOR USE WITH GT®2, GT®3 and FHT®-2 BELTS
 MOLDED WITH INSERT
 DOUBLE FLANGE
TRUE METRIC® PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

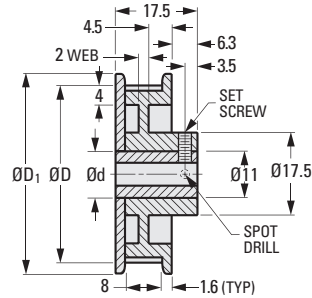


> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced
Insert - Brass, Knurled

> SPECIFICATIONS:

Pulleys with 36 & 40 grooves do not have webs.
 Pulleys with:
 5 & 6 mm bore have M3 set screw & spot drill.
 8 mm bore have M4 set screw & spot drill.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance |
|------------------|----------------|------|--------|---------------------|-----------|-------------|
| A 6Z51M036DF0605 | 36 | 23 | 22.4 | 28 | 5 | +0.030/0 |
| A 6Z51M036DF0606 | 36 | 23 | 22.4 | 28 | 6 | +0.030/0 |
| A 6Z51M036DF0608 | 36 | 23 | 22.4 | 28 | 8 | +0.036/0 |
| A 6Z51M040DF0605 | 40 | 25.5 | 25 | 30 | 5 | +0.030/0 |
| A 6Z51M040DF0606 | 40 | 25.5 | 25 | 30 | 6 | +0.030/0 |
| A 6Z51M040DF0608 | 40 | 25.5 | 25 | 30 | 8 | +0.036/0 |
| A 6Z51M042DF0605 | 42 | 26.7 | 26.2 | 31 | 5 | +0.030/0 |
| A 6Z51M042DF0606 | 42 | 26.7 | 26.2 | 31 | 6 | +0.030/0 |
| A 6Z51M042DF0608 | 42 | 26.7 | 26.2 | 31 | 8 | +0.036/0 |
| A 6Z51M044DF0605 | 44 | 28 | 27.5 | 33 | 5 | +0.030/0 |
| A 6Z51M044DF0606 | 44 | 28 | 27.5 | 33 | 6 | +0.030/0 |
| A 6Z51M044DF0608 | 44 | 28 | 27.5 | 33 | 8 | +0.036/0 |
| A 6Z51M048DF0605 | 48 | 30.6 | 30.1 | 35 | 5 | +0.030/0 |
| A 6Z51M048DF0606 | 48 | 30.6 | 30.1 | 35 | 6 | +0.030/0 |
| A 6Z51M048DF0608 | 48 | 30.6 | 30.1 | 35 | 8 | +0.036/0 |
| A 6Z51M060DF0606 | 60 | 38.2 | 37.7 | 43 | 6 | +0.030/0 |
| A 6Z51M060DF0608 | 60 | 38.2 | 37.7 | 43 | 8 | +0.036/0 |
| A 6Z51M065DF0606 | 65 | 41.4 | 40.9 | 46 | 6 | +0.030/0 |
| A 6Z51M065DF0608 | 65 | 41.4 | 40.9 | 46 | 8 | +0.036/0 |
| A 6Z51M072DF0606 | 72 | 45.8 | 45.3 | 51 | 6 | +0.030/0 |
| A 6Z51M072DF0608 | 72 | 45.8 | 45.3 | 51 | 8 | +0.036/0 |
| A 6Z51M080DF0606 | 80 | 50.9 | 50.4 | 56 | 6 | +0.030/0 |
| A 6Z51M080DF0608 | 80 | 50.9 | 50.4 | 56 | 8 | +0.036/0 |
| A 6Z51M090DF0606 | 90 | 57.3 | 56.8 | 63 | 6 | +0.030/0 |
| A 6Z51M090DF0608 | 90 | 57.3 | 56.8 | 63 | 8 | +0.036/0 |
| A 6Z51M100DF0606 | 100 | 63.7 | 63.2 | 69 | 6 | +0.030/0 |
| A 6Z51M100DF0608 | 100 | 63.7 | 63.2 | 69 | 8 | +0.036/0 |
| A 6Z51M110DF0606 | 110 | 70 | 69.5 | 75 | 6 | +0.030/0 |
| A 6Z51M110DF0608 | 110 | 70 | 69.5 | 75 | 8 | +0.036/0 |
| A 6Z51M120DF0606 | 120 | 76.4 | 75.4 | 82 | 6 | +0.030/0 |
| A 6Z51M120DF0608 | 120 | 76.4 | 75.4 | 82 | 8 | +0.036/0 |
| A 6Z51M130DF0606 | 130 | 82.8 | 82.3 | 88 | 6 | +0.030/0 |
| A 6Z51M130DF0608 | 130 | 82.8 | 82.3 | 88 | 8 | +0.036/0 |

For FHT®-2 Timing Belts see: A 6B19M... and A 6G19M...
 REV: 02.20.15 JC



Request Info
 1-800-453-1692
www.aboveboardelectronics.com

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FOR 6 mm BELTS
FOR USE WITH GT[®]2, GT[®]3 and FHT[®]-2 BELTS
 MOLDED
 DOUBLE FLANGE
TRUE METRIC[®] PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

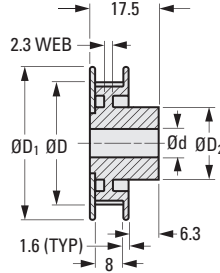
Polycarbonate, Fiberglass Reinforced

> SPECIFICATION:

Pulleys with 12 to 40 grooves do not have webs.

> MODIFICATIONS:

Available with set screws or pinning holes on special request.
 Single flange and modifications available on special request.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Hub Dia. |
|------------------|----------------|------|--------|---------------------|-----------|-------------|-------------------------|
| A 6L51M012DF0604 | 12 | 7.6 | 7.1 | 12 | 4 | +0.030/0 | 11 |
| A 6L51M013DF0604 | 13 | 8.3 | 7.8 | 13 | 4 | +0.030/0 | 11 |
| A 6L51M014DF0604 | 14 | 8.9 | 8.4 | 13 | 4 | +0.030/0 | 11 |
| A 6L51M015DF0604 | 15 | 9.6 | 9 | 14 | 4 | +0.030/0 | 11 |
| A 6L51M016DF0604 | 16 | 10.2 | 9.7 | 15 | 4 | +0.030/0 | 11 |
| A 6L51M018DF0606 | 18 | 11.5 | 11 | 16 | 6 | +0.030/0 | 13 |
| A 6L51M020DF0606 | 20 | 12.7 | 12.2 | 17 | 6 | +0.030/0 | 13 |
| A 6L51M021DF0606 | 21 | 13.4 | 12.9 | 18 | 6 | +0.030/0 | 13 |
| A 6L51M022DF0606 | 22 | 14 | 13.5 | 19 | 6 | +0.030/0 | 13 |
| A 6L51M024DF0606 | 24 | 15.3 | 14.8 | 20 | 6 | +0.030/0 | 13 |
| A 6L51M028DF0608 | 28 | 17.8 | 17.3 | 22 | 8 | +0.036/0 | 17.5 |
| A 6L51M030DF0608 | 30 | 19.1 | 18.6 | 24 | 8 | +0.036/0 | 17.5 |
| A 6L51M032DF0608 | 32 | 20.4 | 19.9 | 25 | 8 | +0.036/0 | 17.5 |
| A 6L51M036DF0608 | 36 | 23 | 22.4 | 28 | 8 | +0.036/0 | 17.5 |
| A 6L51M040DF0608 | 40 | 25.5 | 25 | 30 | 8 | +0.036/0 | 17.5 |
| A 6L51M042DF0608 | 42 | 26.7 | 26.2 | 31 | 8 | +0.036/0 | 17.5 |
| A 6L51M044DF0608 | 44 | 28 | 27.5 | 33 | 8 | +0.036/0 | 17.5 |
| A 6L51M048DF0608 | 48 | 30.6 | 30.1 | 35 | 8 | +0.036/0 | 17.5 |
| A 6L51M060DF0608 | 60 | 38.2 | 37.7 | 43 | 8 | +0.036/0 | 17.5 |
| A 6L51M065DF0608 | 65 | 41.4 | 40.9 | 46 | 8 | +0.036/0 | 17.5 |
| A 6L51M072DF0608 | 72 | 45.8 | 45.3 | 51 | 8 | +0.036/0 | 17.5 |
| A 6L51M080DF0608 | 80 | 51 | 50.4 | 56 | 8 | +0.036/0 | 17.5 |
| A 6L51M090DF0608 | 90 | 57.3 | 56.8 | 63 | 8 | +0.036/0 | 17.5 |
| A 6L51M100DF0608 | 100 | 63.7 | 63.2 | 69 | 8 | +0.036/0 | 17.5 |
| A 6L51M110DF0608 | 110 | 70 | 69.5 | 75 | 8 | +0.036/0 | 17.5 |
| A 6L51M120DF0608 | 120 | 76.4 | 75.9 | 82 | 8 | +0.036/0 | 17.5 |
| A 6L51M130DF0608 | 130 | 82.8 | 82.3 | 88 | 8 | +0.036/0 | 17.5 |

For FHT[®]-2 Timing Belts see: A 6B19M... and A 6G19M...
 REV: 02.20.15 JC



Request Info
 1-800-453-1692
www.aboveboardelectronics.com

BELT WIDTHS

METRIC - 6, 9 & 15 mm

TRUE METRIC[®] PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced

> SPECIFICATIONS:

Breaking Strength:

158 N per 1 mm (113 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

507 N for 25.4 mm belt (114 lbf for 1 in. belt).

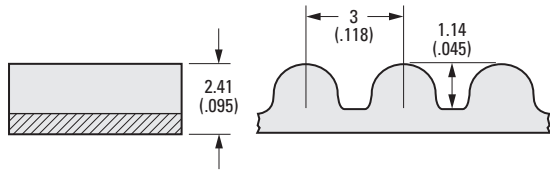
For more information, see the technical section.

Temperature Range:

-34°C to +85°C (-30°F to +185°F)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 5 3 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

Gates GT[®]2 and GT[®]3 Belts

GT[®]3 is an equivalent and direct replacement for GT[®]2 belts. As inventories of GT[®]2 belts are exhausted, they will be replaced with the GT[®]3 equivalent. GT[®]3 belts will not be available until GT[®]2 belts are depleted. Call for special requests and additional information.

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | Inch |
| 033 | 99 | 3.898 |
| 035 | 105 | 4.134 |
| 037 | 111 | 4.370 |
| 040 | 120 | 4.724 |
| 041 | 123 | 4.843 |
| 043 | 129 | 5.079 |
| 045 | 135 | 5.315 |
| 048 | 144 | 5.669 |
| 050 | 150 | 5.906 |
| 053 | 159 | 6.260 |
| 054 | 162 | 6.378 |
| 055 | 165 | 6.496 |
| 058 | 174 | 6.850 |
| 059 | 177 | 6.969 |
| 060 | 180 | 7.087 |
| 061 | 183 | 7.205 |
| 062 | 186 | 7.323 |
| 063 | 189 | 7.441 |
| 064 | 192 | 7.559 |
| 065 | 195 | 7.677 |
| 066 | 198 | 7.795 |
| 067 | 201 | 7.914 |
| 068 | 204 | 8.031 |
| 070 | 210 | 8.268 |
| 072 | 216 | 8.504 |
| 073 | 219 | 8.622 |
| 075 | 225 | 8.858 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 077 | 231 | 9.094 |
| 078 | 234 | 9.213 |
| 080 | 240 | 9.449 |
| 081 | 243 | 9.567 |
| 082 | 246 | 9.685 |
| 084 | 252 | 9.921 |
| 085 | 255 | 10.039 |
| 089 | 267 | 10.512 |
| 090 | 270 | 10.630 |
| 092 | 276 | 10.866 |
| 094 | 282 | 11.102 |
| 095 | 285 | 11.220 |
| 096 | 288 | 11.339 |
| 097 | 291 | 11.457 |
| 098 | 294 | 11.575 |
| 100 | 300 | 11.811 |
| 101 | 303 | 11.929 |
| 103 | 309 | 12.165 |
| 104 | 312 | 12.283 |
| 108 | 324 | 12.756 |
| 110 | 330 | 12.992 |
| 113 | 339 | 13.346 |
| 116 | 348 | 13.700 |
| 118 | 354 | 13.937 |
| 119 | 357 | 15.055 |
| 120 | 360 | 14.173 |
| 121 | 363 | 14.291 |

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METRIC COMPONENT CATALOG NUMBER

A 6 R 5 3 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

Gates GT[®]2 and GT[®]3 Belts

GT[®]3 is an equivalent and direct replacement for GT[®]2 belts. As inventories of GT[®]2 belts are exhausted, they will be replaced with the GT[®]3 equivalent. GT[®]3 belts will not be available until GT[®]2 belts are depleted. Call for special requests and additional information.

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 125 | 375 | 14.764 |
| 128 | 384 | 15.118 |
| 129 | 387 | 15.236 |
| 130 | 390 | 15.354 |
| 131 | 393 | 15.472 |
| 133 | 399 | 15.709 |
| 136 | 408 | 16.063 |
| 138 | 414 | 16.299 |
| 140 | 420 | 16.535 |
| 148 | 444 | 17.480 |
| 149 | 447 | 17.598 |
| 150 | 450 | 17.716 |
| 152 | 456 | 17.953 |
| 158 | 474 | 18.661 |
| 160 | 480 | 18.898 |
| 161 | 483 | 19.016 |
| 163 | 489 | 19.252 |
| 165 | 495 | 19.488 |
| 167 | 501 | 19.724 |
| 168 | 504 | 19.843 |
| 170 | 510 | 20.079 |
| 171 | 513 | 20.197 |
| 174 | 522 | 20.551 |
| 179 | 537 | 21.142 |
| 180 | 540 | 21.260 |
| 184 | 552 | 21.732 |
| 187 | 561 | 22.087 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 188 | 564 | 22.205 |
| 190 | 570 | 22.441 |
| 194 | 582 | 22.913 |
| 196 | 588 | 23.150 |
| 200 | 600 | 23.622 |
| 207 | 621 | 24.449 |
| 210 | 630 | 24.803 |
| 219 | 657 | 25.866 |
| 228 | 684 | 26.929 |
| 232 | 696 | 27.402 |
| 245 | 735 | 28.937 |
| 250 | 750 | 29.527 |
| 262 | 786 | 30.945 |
| 280 | 840 | 33.071 |
| 283 | 849 | 33.425 |
| 299 | 897 | 35.315 |
| 308 | 924 | 36.378 |
| 315 | 945 | 37.205 |
| 350 | 1050 | 41.338 |
| 360 | 1080 | 42.520 |
| 424 | 1272 | 50.079 |
| 512 | 1536 | 60.472 |
| 529 | 1587 | 62.480 |
| 555 | 1665 | 65.551 |
| 564 | 1692 | 66.614 |
| 687 | 2061 | 81.142 |
| 820 | 2460 | 96.850 |

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BELT WIDTHS
METRIC - 6, 9 & 15 mm
TRUE METRIC® PROFILE

> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced
GT®3 belts offer an improved construction and material compound for superior load bearing capacity.

> SPECIFICATIONS:

Breaking Strength:
170 N per 1 mm (121 lbf per 1/8 in.) Belt Width;
not representative of the load-carrying capacity of the belt.
Working Tension:
1014 N for 25.4 mm belt (228 lbf for 1 in. belt).
For more information, see the technical section.
Temperature Range:
-34°C to +85°C (-30°F to +185°F)

> FEATURES:

Higher Capacity
Improved Registration
Reduced Noise

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric or inch standards.

Example: **A36R53M125090** is a 125 groove 9 mm wide belt.

METRIC COMPONENT CATALOG NUMBER

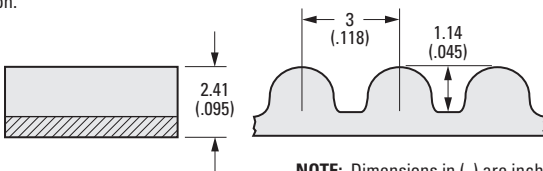
A 3 6 R 5 3 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

Gates GT®2 and GT®3 Belts

GT®3 is an equivalent and direct replacement for GT®2 belts. As inventories of GT®2 belts are exhausted, they will be replaced with the GT®3 equivalent. GT®3 belts will not be available until GT®2 belts are depleted. Call for special requests and additional information.



NOTE: Dimensions in () are inch.

| Groove Code | Pitch Length | |
|-------------|--------------|-------|
| | mm | inch |
| 033 | 99 | 3.898 |
| 035 | 105 | 4.134 |
| 037 | 111 | 4.370 |
| 040 | 120 | 4.724 |
| 041 | 123 | 4.843 |
| 043 | 129 | 5.079 |
| 045 | 135 | 5.315 |
| 048 | 144 | 5.669 |
| 050 | 150 | 5.906 |
| 053 | 159 | 6.260 |
| 054 | 162 | 6.378 |
| 055 | 165 | 6.496 |
| 058 | 174 | 6.850 |
| 059 | 177 | 6.969 |
| 060 | 180 | 7.087 |
| 061 | 183 | 7.205 |
| 062 | 186 | 7.323 |
| 063 | 189 | 7.441 |
| 064 | 192 | 7.559 |
| 065 | 195 | 7.677 |
| 066 | 198 | 7.795 |
| 067 | 201 | 7.914 |
| 068 | 204 | 8.031 |
| 070 | 210 | 8.268 |
| 072 | 216 | 8.504 |
| 073 | 219 | 8.622 |
| 075 | 225 | 8.858 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 077 | 231 | 9.094 |
| 078 | 234 | 9.213 |
| 080 | 240 | 9.449 |
| 081 | 243 | 9.567 |
| 082 | 246 | 9.685 |
| 084 | 252 | 9.921 |
| 085 | 255 | 10.039 |
| 089 | 267 | 10.512 |
| 090 | 270 | 10.630 |
| 092 | 276 | 10.866 |
| 094 | 282 | 11.102 |
| 095 | 285 | 11.220 |
| 096 | 288 | 11.339 |
| 097 | 291 | 11.457 |
| 098 | 294 | 11.575 |
| 100 | 300 | 11.811 |
| 101 | 303 | 11.929 |
| 103 | 309 | 12.165 |
| 104 | 312 | 12.283 |
| 108 | 324 | 12.756 |
| 110 | 330 | 12.992 |
| 113 | 339 | 13.346 |
| 116 | 348 | 13.700 |
| 118 | 354 | 13.937 |
| 119 | 357 | 15.055 |
| 120 | 360 | 14.173 |
| 121 | 363 | 14.291 |

Continued on the next page



METRIC COMPONENT CATALOG NUMBER

A 3 6 R 5 3 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

Gates GT[®]2 and GT[®]3 Belts

GT[®]3 is an equivalent and direct replacement for GT[®]2 belts. As inventories of GT[®]2 belts are exhausted, they will be replaced with the GT[®]3 equivalent. GT[®]3 belts will not be available until GT[®]2 belts are depleted. Call for special requests and additional information.

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 125 | 375 | 14.764 |
| 128 | 384 | 15.118 |
| 129 | 387 | 15.236 |
| 130 | 390 | 15.354 |
| 131 | 393 | 15.472 |
| 133 | 399 | 15.709 |
| 136 | 408 | 16.063 |
| 138 | 414 | 16.299 |
| 140 | 420 | 16.535 |
| 148 | 444 | 17.480 |
| 149 | 447 | 17.598 |
| 150 | 450 | 17.716 |
| 152 | 456 | 17.953 |
| 158 | 474 | 18.661 |
| 160 | 480 | 18.898 |
| 161 | 483 | 19.016 |
| 163 | 489 | 19.252 |
| 165 | 495 | 19.488 |
| 167 | 501 | 19.724 |
| 168 | 504 | 19.843 |
| 170 | 510 | 20.079 |
| 171 | 513 | 20.197 |
| 174 | 522 | 20.551 |
| 179 | 537 | 21.142 |
| 180 | 540 | 21.260 |
| 184 | 552 | 21.732 |
| 187 | 561 | 22.087 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 188 | 564 | 22.205 |
| 190 | 570 | 22.441 |
| 194 | 582 | 22.913 |
| 196 | 588 | 23.150 |
| 200 | 600 | 23.622 |
| 207 | 621 | 24.449 |
| 210 | 630 | 24.803 |
| 219 | 657 | 25.866 |
| 228 | 684 | 26.929 |
| 232 | 696 | 27.402 |
| 245 | 735 | 28.937 |
| 250 | 750 | 29.527 |
| 262 | 786 | 30.945 |
| 280 | 840 | 33.071 |
| 283 | 849 | 33.425 |
| 299 | 897 | 35.315 |
| 308 | 924 | 36.378 |
| 315 | 945 | 37.205 |
| 350 | 1050 | 41.338 |
| 360 | 1080 | 42.520 |
| 424 | 1272 | 50.079 |
| 512 | 1536 | 60.472 |
| 529 | 1587 | 62.480 |
| 555 | 1665 | 65.551 |
| 564 | 1692 | 66.614 |
| 687 | 2061 | 81.142 |
| 820 | 2460 | 96.850 |

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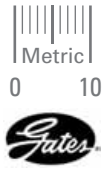
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BELT WIDTHS
 METRIC - 6 & 9 mm
 NON-MARKING
 LOW DUST
 RoHS COMPLIANT
 PowerGrip® TruMotion®



> MATERIAL:

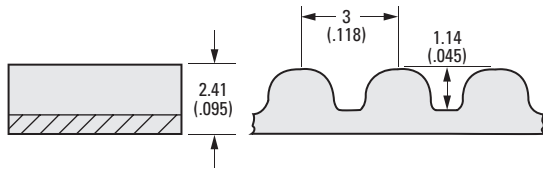
Cream-Colored Polymer Compound, Fiberglass
 Reinforced Body with Nylon Tooth Facing for Reduced Dust.

> SPECIFICATIONS:

Breaking Strength:
 158 N per 1 mm (113 lbf per 1/8 in.) Belt Width;
 not representative of the load-carrying capacity of the belt.
Working Tension:
 409 N for 25.4 mm belt (92 lbf for 1 in. belt).
 For more information, see the technical section.
Temperature Range:
 -40°C to +104°C (-40°F to +220°F)

> MODIFICATIONS:

Special Widths - cut to size from
 sleeves available from stock.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 2 6 R 5 3 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 033 | 99 | 3.898 |
| 037 | 111 | 4.370 |
| 041 | 123 | 4.843 |
| 043 | 129 | 5.079 |
| 045 | 135 | 5.315 |
| 050 | 150 | 5.906 |
| 053 | 159 | 6.260 |
| 060 | 180 | 7.087 |
| 061 | 183 | 7.205 |
| 063 | 189 | 7.441 |
| 067 | 201 | 7.914 |
| 070 | 210 | 8.268 |
| 073 | 219 | 8.622 |
| 075 | 225 | 8.858 |
| 080 | 240 | 9.449 |
| 081 | 243 | 9.567 |
| 084 | 252 | 9.921 |
| 085 | 255 | 10.039 |
| 089 | 267 | 10.512 |
| 094 | 282 | 11.102 |
| 097 | 291 | 11.457 |
| 100 | 300 | 11.811 |
| 113 | 339 | 13.346 |
| 116 | 348 | 13.700 |
| 119 | 357 | 14.055 |
| 120 | 360 | 14.173 |
| 125 | 375 | 14.764 |
| 130 | 390 | 15.354 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 131 | 393 | 15.472 |
| 138 | 414 | 16.299 |
| 140 | 420 | 16.535 |
| 148 | 444 | 17.480 |
| 149 | 447 | 17.598 |
| 158 | 474 | 18.661 |
| 160 | 480 | 18.898 |
| 161 | 483 | 19.016 |
| 163 | 489 | 19.252 |
| 168 | 504 | 19.843 |
| 170 | 510 | 20.079 |
| 179 | 537 | 21.142 |
| 184 | 552 | 21.732 |
| 188 | 564 | 22.205 |
| 200 | 600 | 23.622 |
| 210 | 630 | 24.803 |
| 228 | 684 | 26.929 |
| 232 | 696 | 27.402 |
| 245 | 735 | 28.937 |
| 250 | 750 | 29.527 |
| 262 | 786 | 30.945 |
| 280 | 840 | 33.071 |
| 315 | 945 | 37.205 |
| 350 | 1050 | 41.338 |
| 360 | 1080 | 42.520 |
| 424 | 1272 | 50.079 |
| 512 | 1536 | 60.472 |
| 687 | 2061 | 81.142 |



BELT WIDTHS

METRIC - 6, 9 & 15 mm

TRUE METRIC® PROFILE

> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced

> SPECIFICATIONS:

Breaking Strength:

190 N per 1 mm (135 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

507 N for 25.4 mm belt (114 lbf for 1 in. belt).

For more information, see the technical section.

Temperature Range:

-34°C to +85°C (-30°F to +185°F)

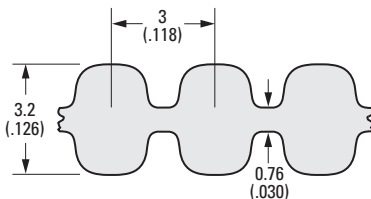
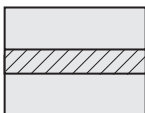
> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric or inch standards.

Example: **A 6R53MD125090** is a 125 groove 9mm wide belt.

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 5 3 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

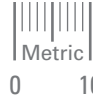
| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 124 | 372 | 14.646 |
| 125 | 375 | 14.764 |
| 127 | 381 | 15.000 |
| 128 | 384 | 15.118 |
| 129 | 387 | 15.236 |
| 130 | 390 | 15.354 |
| 131 | 393 | 15.472 |
| 132 | 396 | 15.591 |
| 133 | 399 | 15.709 |
| 135 | 405 | 15.945 |
| 137 | 411 | 16.181 |
| 138 | 414 | 16.299 |
| 139 | 417 | 16.417 |
| 140 | 420 | 16.535 |
| 142 | 426 | 16.772 |
| 144 | 432 | 17.008 |
| 145 | 435 | 17.126 |
| 146 | 438 | 17.244 |
| 148 | 444 | 17.480 |
| 149 | 447 | 17.598 |
| 153 | 459 | 18.071 |
| 155 | 465 | 18.307 |
| 156 | 468 | 18.425 |
| 157 | 471 | 18.543 |
| 158 | 474 | 18.661 |
| 160 | 480 | 18.898 |
| 161 | 483 | 19.016 |
| 162 | 486 | 19.134 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 163 | 489 | 19.252 |
| 164 | 492 | 19.370 |
| 167 | 501 | 19.724 |
| 170 | 510 | 20.079 |
| 171 | 513 | 20.197 |
| 175 | 525 | 20.669 |
| 176 | 528 | 20.787 |
| 177 | 531 | 20.905 |
| 179 | 537 | 21.142 |
| 184 | 552 | 21.732 |
| 186 | 558 | 21.968 |
| 188 | 564 | 22.205 |
| 190 | 570 | 22.441 |
| 192 | 576 | 22.677 |
| 195 | 585 | 23.031 |
| 197 | 591 | 23.268 |
| 199 | 597 | 23.504 |
| 200 | 600 | 23.622 |
| 202 | 606 | 23.858 |
| 203 | 609 | 23.976 |
| 204 | 612 | 24.094 |
| 209 | 627 | 24.685 |
| 210 | 630 | 24.803 |
| 211 | 633 | 24.921 |
| 213 | 639 | 25.157 |
| 215 | 645 | 25.394 |
| 216 | 648 | 25.512 |
| 218 | 654 | 25.748 |

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METRIC COMPONENT CATALOG NUMBER

A 6 R 5 3 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 9 (.354) | 090 |
| 15 (.591) | 150 |

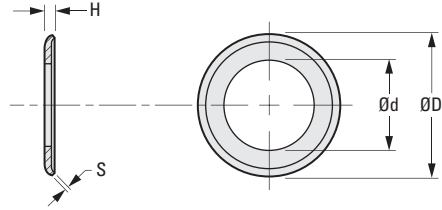
| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 219 | 657 | 25.866 |
| 221 | 663 | 26.102 |
| 223 | 669 | 26.339 |
| 228 | 684 | 26.929 |
| 229 | 687 | 27.047 |
| 232 | 696 | 27.402 |
| 237 | 711 | 27.992 |
| 245 | 735 | 28.937 |
| 246 | 738 | 29.055 |
| 250 | 750 | 29.528 |
| 251 | 753 | 29.646 |
| 262 | 786 | 30.945 |
| 265 | 795 | 31.299 |
| 274 | 822 | 32.362 |
| 279 | 837 | 32.953 |
| 280 | 840 | 33.071 |
| 281 | 843 | 33.189 |
| 291 | 873 | 34.370 |
| 294 | 882 | 34.724 |
| 297 | 891 | 35.079 |
| 300 | 900 | 35.433 |
| 305 | 915 | 36.024 |
| 315 | 945 | 37.205 |
| 317 | 951 | 37.441 |
| 327 | 981 | 38.622 |
| 334 | 1002 | 39.449 |
| 342 | 1026 | 40.394 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 345 | 1035 | 40.748 |
| 350 | 1050 | 41.339 |
| 352 | 1056 | 41.575 |
| 354 | 1062 | 41.811 |
| 360 | 1080 | 42.520 |
| 375 | 1125 | 44.291 |
| 385 | 1155 | 45.472 |
| 397 | 1191 | 46.890 |
| 421 | 1263 | 49.724 |
| 445 | 1335 | 52.559 |
| 500 | 1500 | 59.055 |
| 504 | 1512 | 59.527 |
| 512 | 1536 | 60.472 |
| 529 | 1587 | 62.480 |
| 652 | 1956 | 77.008 |
| 668 | 2004 | 78.897 |
| 687 | 2061 | 81.142 |

Continued from the previous page

> **MATERIAL:**
Aluminum Alloy

> **SPECIFICATION:**
Priced per 25 pieces



METRIC COMPONENT

| Catalog Number | Pulley Grooves (Ref.) | Metric | | Inch | | H Width ± 0.25 (± .01) | S Thickness |
|----------------|-----------------------|---------------|--------------|---------------|---------------|------------------------|-------------|
| | | d Dia. ± 0.08 | D Dia. ± 0.4 | d Dia. ± .003 | D Dia. ± .015 | | |
| A 6A52M010FA | 10 | 6.2 | 12.8 | .244 | .505 | 1.14 (.045) | 0.64 (.025) |
| A 6A52M011FA | 11 | 6.86 | 13.5 | .270 | .530 | 1.14 (.045) | 0.64 (.025) |
| A 6A52M012FA | 12 | 8.18 | 14.7 | .322 | .580 | 1.14 (.045) | 0.64 (.025) |
| A 6A52M013FA | 13 | 8.89 | 15.5 | .350 | .610 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M014FA | 14 | 9.5 | 16.1 | .374 | .635 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M015FA | 15 | 10.82 | 17.4 | .426 | .685 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M016FA | 16 | 11.48 | 18 | .452 | .710 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M017FA | 17 | 11.48 | 18.8 | .452 | .740 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M018FA | 18 | 12.8 | 20 | .504 | .790 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M019FA | 19 | 13.46 | 20.7 | .530 | .815 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M020FA | 20 | 14.58 | 22.7 | .574 | .895 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M022FA | 22 | 15.9 | 24 | .626 | .945 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M024FA | 24 | 17.88 | 26 | .704 | 1.025 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M025FA | 25 | 18.75 | 26.9 | .738 | 1.060 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M026FA | 26 | 19.66 | 28.1 | .774 | 1.105 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M028FA | 28 | 21.56 | 29.8 | .849 | 1.173 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M030FA | 30 | 23.47 | 31.8 | .924 | 1.250 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M032FA | 32 | 25.38 | 33.6 | .999 | 1.323 | 1.32 (.052) | 0.81 (.032) |
| A 6A52M034FA | 34 | 27.28 | 35.5 | 1.074 | 1.398 | 1.52 (.060) | 1.02 (.040) |
| A 6A52M036FA | 36 | 29.18 | 37.4 | 1.149 | 1.473 | 1.52 (.060) | 1.02 (.040) |
| A 6A52M038FA | 38 | 31.12 | 39.4 | 1.225 | 1.549 | 1.52 (.060) | 1.02 (.040) |
| A 6A52M040FA | 40 | 33.02 | 41.3 | 1.300 | 1.625 | 1.52 (.060) | 1.02 (.040) |
| A 6A52M044FA | 44 | 36.83 | 45.1 | 1.450 | 1.775 | 1.52 (.060) | 1.02 (.040) |

NOTE: Dimensions in () are inch.

> **MATERIAL:**

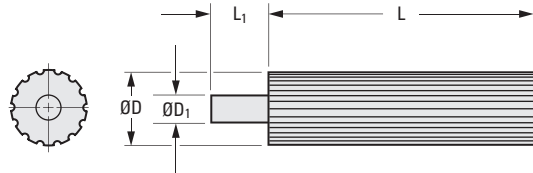
Aluminum Alloy

> **SPECIFICATIONS:**

D Tolerance:

9 to 27 grooves is +0.05/0 (+.002/-.000)

28 to 35 grooves is +0.08/0 (+.003/-.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ ** Shank Dia. | L ₁ Shank Lgth. (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------------|---|-------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A52M009GT08 | 9 | 8.6 | 7.83 | .338 | .308 | 4.7 (3/16) | 25 (1) | 75 (3) |
| A 6A52M010GT08 | 10 | 9.5 | 8.79 | .376 | .346 | 4.7 (3/16) | 25 (1) | 75 (3) |
| A 6A52M011GT08 | 11 | 10.5 | 9.74 | .414 | .384 | 6.3 (1/4) | 25 (1) | 75 (3) |
| A 6A52M012GT10 | 12 | 11.5 | 10.7 | .451 | .421 | 6.3 (1/4) | 22 (7/8) | 100 (4) |
| A 6A52M013GT10 | 13 | 12.4 | 11.65 | .489 | .459 | 7.9 (5/16) | 22 (7/8) | 100 (4) |
| A 6A52M014GT10 | 14 | 13.4 | 12.61 | .526 | .496 | 7.9 (5/16) | 22 (7/8) | 100 (4) |
| A 6A52M015GT10 | 15 | 14.3 | 13.56 | .564 | .534 | 9.5 (3/8) | 22 (7/8) | 100 (4) |
| A 6A52M016GT13 | 16 | 15.3 | 14.52 | .602 | .572 | 9.5 (3/8) | | 125 (5) |
| A 6A52M017GT13 | 17 | 16.2 | 15.47 | .639 | .609 | 12.7 (1/2) | | 125 (5) |
| A 6A52M018GT13 | 18 | 17.2 | 16.43 | .677 | .647 | 12.7 (1/2) | | 125 (5) |
| A 6A52M019GT13 | 19 | 18.1 | 17.38 | .714 | .684 | 12.7 (1/2) | | 125 (5) |
| A 6A52M020GT15 | 20 | 19.1 | 18.34 | .752 | .722 | 12.7 (1/2) | | 150 (6) |
| A 6A52M021GT15 | 21 | 20.1 | 19.29 | .790 | .760 | 12.7 (1/2) | | 150 (6) |
| A 6A52M022GT15 | 22 | 21 | 20.25 | .827 | .797 | 12.7 (1/2) | | 150 (6) |
| A 6A52M023GT15 | 23 | 22 | 21.2 | .865 | .835 | 12.7 (1/2) | | 150 (6) |
| A 6A52M024GT15 | 24 | 22.9 | 22.16 | .902 | .872 | 12.7 (1/2) | | 150 (6) |
| A 6A52M025GT15 | 25 | 23.9 | 23.11 | .940 | .910 | 12.7 (1/2) | 25 (1) | 150 (6) |
| A 6A52M026GT15 | 26 | 24.8 | 24.07 | .977 | .947 | 12.7 (1/2) | [19 (3/4)] ^Δ | 150 (6) |
| A 6A52M027GT15 | 27 | 25.8 | 25.02 | 1.015 | .985 | 12.7 (1/2) | | 150 (6) |
| A 6A52M028GT15 | 28 | 26.7 | 25.98 | 1.053 | 1.023 | 12.7 (1/2) | | 150 (6) |
| A 6A52M029GT15 | 29 | 27.7 | 26.93 | 1.090 | 1.060 | 12.7 (1/2) | | 150 (6) |
| A 6A52M030GT18 | 30 | 28.6 | 27.89 | 1.128 | 1.098 | 12.7 (1/2) | | 175 (7) |
| A 6A52M031GT18 | 31 | 29.6 | 28.84 | 1.165 | 1.135 | 12.7 (1/2) | | 175 (7) |
| A 6A52M032GT18 | 32 | 30.6 | 29.8 | 1.203 | 1.173 | 12.7 (1/2) | | 175 (7) |
| A 6A52M033GT18 | 33 | 31.5 | 30.75 | 1.241 | 1.211 | 12.7 (1/2) | | 175 (7) |
| A 6A52M034GT18 | 34 | 32.5 | 31.71 | 1.278 | 1.248 | 12.7 (1/2) | | 175 (7) |
| A 6A52M035GT18 | 35 | 33.4 | 32.66 | 1.316 | 1.286 | 12.7 (1/2) | | 175 (7) |

NOTE: Dimensions in () are inch.

Δ Dimensions in [] may be substituted at SDP option.

** Shank Diameter of 9.5 mm (3/8") for pulley with 9 to 12 grooves may be substituted at SDP option.

Shank Diameter of 11.1 mm (37/16") for pulley with 13 & 14 grooves may be substituted at SDP option.

Continued from the previous page

> MATERIAL:

Aluminum Alloy

> SPECIFICATIONS:

D Tolerance:

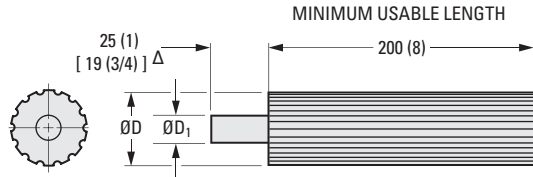
36 to 52 grooves is +0.08/0 (+.003/- .000)

54 to 100 grooves is +0.10/0 (+.004/- .000)

110 to 160 grooves is +0.13/0 (+.005/- .000)



Δ Dimensions in [] may be substituted at SDP option.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. |
|----------------|----------------|--------|--------|-------|--------|---------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | |
| A 6A52M036GT20 | 36 | 34.4 | 33.62 | 1.353 | 1.323 | 12.7 (1/2) |
| A 6A52M037GT20 | 37 | 35.3 | 34.57 | 1.391 | 1.361 | 12.7 (1/2) |
| A 6A52M038GT20 | 38 | 36.3 | 35.53 | 1.429 | 1.399 | 12.7 (1/2) |
| A 6A52M039GT20 | 39 | 37.2 | 36.48 | 1.466 | 1.436 | 12.7 (1/2) |
| A 6A52M040GT20 | 40 | 38.2 | 37.44 | 1.504 | 1.474 | 12.7 (1/2) |
| A 6A52M042GT20 | 42 | 40.1 | 39.35 | 1.579 | 1.549 | 12.7 (1/2) |
| A 6A52M044GT20 | 44 | 42 | 41.25 | 1.654 | 1.624 | 12.7 (1/2) |
| A 6A52M045GT20 | 45 | 43 | 42.21 | 1.692 | 1.662 | 12.7 (1/2) |
| A 6A52M048GT20 | 48 | 45.8 | 45.07 | 1.805 | 1.775 | 12.7 (1/2) |
| A 6A52M050GT20 | 50 | 47.7 | 46.98 | 1.880 | 1.850 | 19.1 (3/4) |
| A 6A52M052GT20 | 52 | 49.7 | 48.89 | 1.955 | 1.925 | 19.1 (3/4) |
| A 6A52M054GT20 | 54 | 51.6 | 50.8 | 2.030 | 2.000 | 19.1 (3/4) |
| A 6A52M056GT20 | 56 | 53.5 | 52.71 | 2.105 | 2.075 | 19.1 (3/4) |
| A 6A52M060GT20 | 60 | 57.3 | 56.53 | 2.256 | 2.226 | 19.1 (3/4) |
| A 6A52M062GT20 | 62 | 59.2 | 58.44 | 2.331 | 2.301 | 19.1 (3/4) |
| A 6A52M064GT20 | 64 | 61.1 | 60.35 | 2.406 | 2.376 | 19.1 (3/4) |
| A 6A52M066GT20 | 66 | 63 | 62.26 | 2.481 | 2.451 | 19.1 (3/4) |
| A 6A52M068GT20 | 68 | 64.9 | 64.17 | 2.557 | 2.527 | 19.1 (3/4) |
| A 6A52M070GT20 | 70 | 66.8 | 66.08 | 2.632 | 2.602 | 19.1 (3/4) |
| A 6A52M072GT20 | 72 | 68.8 | 67.99 | 2.707 | 2.677 | 19.1 (3/4) |
| A 6A52M075GT20 | 75 | 71.6 | 70.86 | 2.820 | 2.790 | 19.1 (3/4) |
| A 6A52M080GT20 | 80 | 76.4 | 75.63 | 3.008 | 2.978 | 19.1 (3/4) |
| A 6A52M090GT20 | 90 | 85.9 | 85.18 | 3.384 | 3.354 | 19.1 (3/4) |
| A 6A52M100GT20 | 100 | 95.5 | 94.73 | 3.760 | 3.730 | 25.4 (1) |
| A 6A52M110GT20 | 110 | 105 | 104.28 | 4.136 | 4.106 | 25.4 (1) |
| A 6A52M120GT20 | 120 | 114.6 | 113.83 | 4.511 | 4.481 | 25.4 (1) |
| A 6A52M130GT20 | 130 | 124.1 | 123.38 | 4.887 | 4.857 | 25.4 (1) |
| A 6A52M140GT20 | 140 | 133.7 | 132.93 | 5.263 | 5.233 | 25.4 (1) |
| A 6A52M150GT20 | 150 | 143.2 | 142.48 | 5.639 | 5.609 | 25.4 (1) |
| A 6A52M160GT20 | 160 | 152.8 | 152.03 | 6.015 | 5.985 | 25.4 (1) |

NOTE: Dimensions in () are inch.

Continued from the previous page

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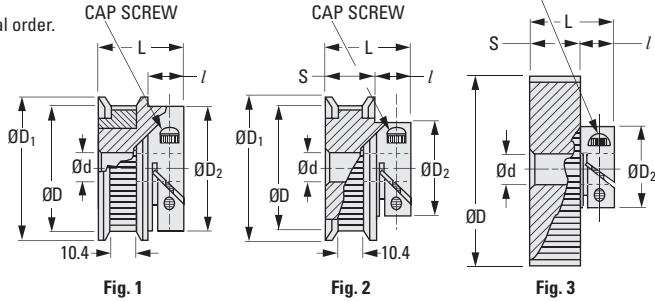


> MATERIAL:
 Aluminum Alloy

> FINISH:
 Clear Anodized

> SPECIFICATION:
 D Tolerance: 18 to 26 grooves is +0.051/0
 30 to 50 grooves is +0.076/0
 56 to 80 grooves is +0.102/0

Other sizes available on special order.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | Cap Screw |
|------------------|----------------|------|--------|---------------------------|-----------------|--------|----------------|-------------------------------|-------------|-----------|
| Fig. 1 | | | | | | | | | | |
| A 6D53M018DF0906 | 18 | 17.2 | 16.4 | 20 | 6 | — | 20.5 | 19.1 | 7.5 | M3 |
| A 6D53M020DF0906 | 20 | 19.1 | 18.3 | 22.7 | 6 | — | 20.5 | 19.1 | 7.5 | M3 |
| A 6D53M022DF0906 | 22 | 21 | 20.2 | 24 | 6 | — | 20.5 | 19.1 | 7.5 | M3 |
| A 6D53M024DF0906 | 24 | 22.9 | 22.1 | 26 | 6 | — | 20.5 | 19.1 | 7.5 | M3 |
| A 6D53M025DF0906 | 25 | 23.9 | 23.1 | 26.9 | 6 | — | 20.5 | 19.1 | 7.5 | M3 |
| A 6D53M026DF0906 | 26 | 24.8 | 24 | 28.1 | 6 | — | 20.5 | 19.1 | 7.5 | M3 |
| Fig. 2 | | | | | | | | | | |
| A 6D53M030DF0906 | 30 | 28.7 | 27.9 | 31.8 | 6 | 12.9 | 20.6 | 19.1 | 7.5 | M3 |
| A 6D53M032DF0906 | 32 | 30.6 | 29.8 | 33.6 | 6 | 12.9 | 20.6 | 19.1 | 7.5 | M3 |
| A 6D53M034DF0906 | 34 | 32.5 | 31.7 | 35.5 | 6 | 13.4 | 21.4 | 19.1 | 7.9 | M3 |
| A 6D53M036DF0906 | 36 | 34.4 | 33.6 | 37.4 | 6 | 13.4 | 21.4 | 19.1 | 7.9 | M3 |
| A 6D53M038DF0906 | 38 | 36.3 | 35.5 | 39.9 | 6 | 13.4 | 21.4 | 19.1 | 7.9 | M3 |
| A 6D53M040DF0906 | 40 | 38.2 | 37.4 | 41.3 | 6 | 13.4 | 21.4 | 19.1 | 7.9 | M3 |
| A 6D53M045DF0906 | 45 | 43 | 42.2 | 45.1 | 6 | 13.4 | 21.4 | 19.1 | 7.9 | M3 |
| Fig. 3 | | | | | | | | | | |
| A 6D53M034NF0906 | 34 | 32.5 | 31.7 | — | 6 | 13.4 | 21.3 | 19.1 | 7.9 | M3 |
| A 6D53M036NF0906 | 36 | 34.4 | 33.6 | — | 6 | 13.4 | 21.3 | 19.1 | 7.9 | M3 |
| A 6D53M038NF0906 | 38 | 36.3 | 35.5 | — | 6 | 13.4 | 21.3 | 19.1 | 7.9 | M3 |
| A 6D53M040NF0906 | 40 | 38.2 | 37.4 | — | 6 | 13.4 | 21.3 | 19.1 | 7.9 | M3 |
| A 6D53M045NF0908 | 45 | 43 | 42.2 | — | 8 | 12.7 | 22.2 | 25.4 | 9.5 | M3 |
| A 6D53M048NF0908 | 48 | 45.8 | 45 | — | 8 | 12.7 | 22.2 | 25.4 | 9.5 | M3 |
| A 6D53M050NF0908 | 50 | 47.8 | 47 | — | 8 | 12.7 | 22.2 | 25.4 | 9.5 | M3 |
| A 6D53M056NF0908 | 56 | 53.5 | 52.7 | — | 8 | 12.7 | 22.2 | 25.4 | 9.5 | M3 |
| A 6D53M060NF0908 | 60 | 57.3 | 56.5 | — | 8 | 12.7 | 22.2 | 25.4 | 9.5 | M3 |
| A 6D53M072NF0908 | 72 | 68.8 | 68 | — | 8 | 12.7 | 22.2 | 25.4 | 9.5 | M3 |
| A 6D53M080NF0908 | 80 | 76.4 | 75.6 | — | 8 | 12.7 | 22.2 | 25.4 | 9.5 | M3 |

For FHT®-3 Timing Belts see: A 6B20M... and A 6G20M...
 REV: 02.20.15 JC



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TRUE METRIC[®]



> MATERIAL:

Aluminum Alloy

> FINISH:

Clear Anodized

> SPECIFICATIONS:

D Tolerance:

Fig. 1 & Fig. 2:

16 to 45 grooves is +0.05/0

Fig. 3:

34 to 80 grooves is +0.08/0

All pulleys have 2 set screws at 90°.

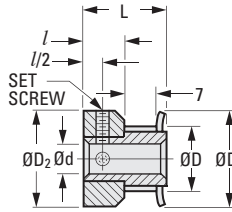


Fig. 1

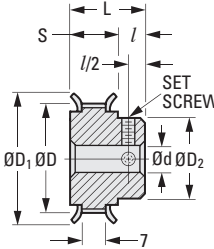


Fig. 2

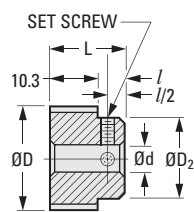


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | S Body | L Lgth. ± 0.4 | D ₂ Hub Dia. ± 0.4 | l Hub Proj. | Set Screw |
|----------------------|----------|----------------|------|--------|---------------------------|-----------------|--------|---------------|-------------------------------|-------------|-----------|
| Double Flange | | | | | | | | | | | |
| A 6A53M016DF0606 | 1 | 16 | 15.3 | 14.5 | 18 | 6 | — | 14.5 | 18 | 6 | M3 |
| A 6A53M017DF0606 | 1 | 17 | 16.2 | 15.4 | 18.8 | 6 | — | 14.5 | 18.8 | 6 | M3 |
| A 6A53M018DF0606 | 2 | 18 | 17.2 | 16.4 | 20 | 6 | 9.8 | 17.5 | 11.2 | 7.7 | M3 |
| A 6A53M019DF0606 | 2 | 19 | 18.2 | 17.4 | 20.7 | 6 | 9.8 | 17.5 | 11.9 | 7.7 | M3 |
| A 6A53M020DF0606 | 2 | 20 | 19.1 | 18.3 | 22.7 | 6 | 9.8 | 17.5 | 12.7 | 7.7 | M3 |
| A 6A53M021DF0606 | 2 | 21 | 20 | 19.3 | 22.7 | 6 | 9.8 | 17.5 | 12.7 | 7.7 | M3 |
| A 6A53M022DF0606 | 2 | 22 | 21 | 20.2 | 24 | 6 | 9.8 | 17.5 | 14.3 | 7.7 | M4 |
| A 6A53M024DF0606 | 2 | 24 | 22.9 | 22.1 | 26 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A53M025DF0606 | 2 | 25 | 23.9 | 23.1 | 26.9 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A53M026DF0606 | 2 | 26 | 24.8 | 24 | 28.1 | 6 | 9.8 | 17.5 | 15.9 | 7.7 | M4 |
| A 6A53M028DF0606 | 2 | 28 | 26.8 | 26 | 29.8 | 6 | 9.8 | 17.5 | 17.8 | 7.7 | M4 |
| A 6A53M030DF0606 | 2 | 30 | 28.7 | 27.9 | 31.8 | 6 | 9.8 | 17.5 | 19.7 | 7.7 | M4 |
| A 6A53M032DF0606 | 2 | 32 | 30.6 | 29.8 | 33.6 | 6 | 9.8 | 17.5 | 21.6 | 7.7 | M4 |
| A 6A53M034DF0606 | 2 | 34 | 32.5 | 31.7 | 35.5 | 6 | 10.3 | 18.2 | 23.4 | 8 | M4 |
| A 6A53M036DF0606 | 2 | 36 | 34.4 | 33.6 | 37.4 | 6 | 10.3 | 18.2 | 25.4 | 8 | M4 |
| A 6A53M038DF0606 | 2 | 38 | 36.3 | 35.5 | 39.4 | 6 | 10.3 | 18.2 | 27.3 | 8 | M4 |
| A 6A53M040DF0606 | 2 | 40 | 38.2 | 37.4 | 41.3 | 6 | 10.3 | 18.2 | 29.2 | 8 | M4 |
| A 6A53M044DF0606 | 2 | 44 | 42 | 41.2 | 45.1 | 6 | 10.3 | 18.2 | 33 | 8 | M4 |
| A 6A53M045DF0606 | 2 | 45 | 43 | 42.2 | 45.1 | 6 | 10.3 | 18.2 | 33 | 8 | M4 |
| No Flange | | | | | | | | | | | |
| A 6A53M034NF0606 | 3 | 34 | 32.5 | 31.7 | — | 6 | — | 18.2 | 23.4 | 8 | M4 |
| A 6A53M036NF0606 | 3 | 36 | 34.4 | 33.6 | — | 6 | — | 18.2 | 25.4 | 8 | M4 |
| A 6A53M038NF0606 | 3 | 38 | 36.3 | 35.5 | — | 6 | — | 18.2 | 27.3 | 8 | M4 |
| A 6A53M040NF0606 | 3 | 40 | 38.2 | 37.4 | — | 6 | — | 18.2 | 29.2 | 8 | M4 |
| A 6A53M044NF0606 | 3 | 44 | 42 | 41.2 | — | 6 | — | 18.2 | 33 | 8 | M4 |
| A 6A53M045NF0608 | 3 | 45 | 43 | 42.2 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M048NF0608 | 3 | 48 | 45.8 | 45 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M050NF0608 | 3 | 50 | 47.8 | 47 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M056NF0608 | 3 | 56 | 53.5 | 52.7 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M060NF0608 | 3 | 60 | 57.3 | 56.5 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M062NF0608 | 3 | 62 | 59.2 | 58.4 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M068NF0608 | 3 | 68 | 64.9 | 64.2 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M072NF0608 | 3 | 72 | 68.8 | 68 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |
| A 6A53M080NF0608 | 3 | 80 | 76.4 | 75.6 | — | 8 | — | 18.6 | 31.8 | 8.3 | M4 |

For FHT[®]-3 Timing Belts see: A 6B20M... and A 6G20M...
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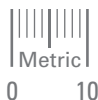


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 Aluminum Alloy

> FINISH:
 Clear Anodized

> SPECIFICATIONS:
 D Tolerance:
 Fig. 1 & Fig. 2:
 16 to 45 grooves is +0.05/0
 Fig. 3:
 34 to 80 grooves is +0.08/0

All pulleys have 2 set screws at 90°.

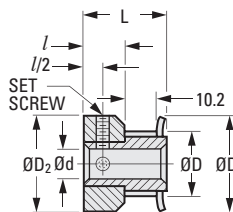


Fig. 1

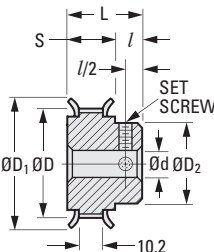


Fig. 2

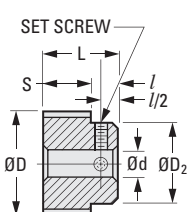


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025/0 | S Body | L Lgth. ± 0.4 | D ₂ Hub Dia. ± 0.4 | l / Hub Proj. | Set Screw |
|----------------------|----------|----------------|------|--------|---------------------------|-----------------|--------|---------------|-------------------------------|---------------|-----------|
| Double Flange | | | | | | | | | | | |
| A 6A53M016DF0906 | 1 | 16 | 15.3 | 14.5 | 18 | 6 | — | 17.5 | 18 | 6 | M3 |
| A 6A53M017DF0906 | 1 | 17 | 16.2 | 15.4 | 18.8 | 6 | — | 17.5 | 18.8 | 6 | M3 |
| A 6A53M018DF0906 | 2 | 18 | 17.2 | 16.4 | 20 | 6 | 12.8 | 20.6 | 11.2 | 7.8 | M3 |
| A 6A53M019DF0906 | 2 | 19 | 18.2 | 17.4 | 20.7 | 6 | 12.8 | 20.6 | 11.9 | 7.8 | M3 |
| A 6A53M020DF0906 | 2 | 20 | 19.1 | 18.3 | 22.7 | 6 | 12.8 | 20.6 | 12.7 | 7.8 | M3 |
| A 6A53M021DF0906 | 2 | 21 | 20 | 19.3 | 22.7 | 6 | 12.8 | 20.6 | 12.7 | 7.8 | M3 |
| A 6A53M022DF0906 | 2 | 22 | 21 | 20.2 | 24 | 6 | 12.8 | 20.6 | 14.3 | 7.8 | M4 |
| A 6A53M024DF0906 | 2 | 24 | 22.9 | 22.1 | 26 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A53M025DF0906 | 2 | 25 | 23.9 | 23.1 | 26.9 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A53M026DF0906 | 2 | 26 | 24.8 | 24 | 28.1 | 6 | 12.8 | 20.6 | 15.9 | 7.8 | M4 |
| A 6A53M028DF0906 | 2 | 28 | 26.8 | 26 | 29.8 | 6 | 12.8 | 20.6 | 17.8 | 7.8 | M4 |
| A 6A53M030DF0906 | 2 | 30 | 28.7 | 27.9 | 31.8 | 6 | 12.8 | 20.6 | 19.7 | 7.8 | M4 |
| A 6A53M032DF0906 | 2 | 32 | 30.6 | 29.8 | 33.6 | 6 | 12.8 | 20.6 | 21.6 | 7.8 | M4 |
| A 6A53M034DF0906 | 2 | 34 | 32.5 | 31.7 | 35.5 | 6 | 13.4 | 21.4 | 23.4 | 8 | M4 |
| A 6A53M036DF0906 | 2 | 36 | 34.4 | 33.6 | 37.4 | 6 | 13.4 | 21.4 | 25.4 | 8 | M4 |
| A 6A53M038DF0906 | 2 | 38 | 36.3 | 35.5 | 39.4 | 6 | 13.4 | 21.4 | 27.3 | 8 | M4 |
| A 6A53M040DF0906 | 2 | 40 | 38.2 | 37.4 | 41.3 | 6 | 13.4 | 21.4 | 29.2 | 8 | M4 |
| A 6A53M044DF0906 | 2 | 44 | 42 | 41.2 | 45.1 | 6 | 13.4 | 21.4 | 33 | 8 | M4 |
| A 6A53M045DF0906 | 2 | 45 | 43 | 42.2 | 45.1 | 6 | 13.4 | 21.4 | 33 | 8 | M4 |
| No Flange | | | | | | | | | | | |
| A 6A53M034NF0906 | 3 | 34 | 32.5 | 31.7 | — | 6 | 13.4 | 21.4 | 23.4 | 8 | M4 |
| A 6A53M036NF0906 | 3 | 36 | 34.4 | 33.6 | — | 6 | 13.4 | 21.4 | 25.4 | 8 | M4 |
| A 6A53M038NF0906 | 3 | 38 | 36.3 | 35.5 | — | 6 | 13.4 | 21.4 | 27.3 | 8 | M4 |
| A 6A53M040NF0906 | 3 | 40 | 38.2 | 37.4 | — | 6 | 13.4 | 21.4 | 29.2 | 8 | M4 |
| A 6A53M044NF0906 | 3 | 44 | 42 | 41.2 | — | 6 | 13.4 | 21.4 | 33 | 8 | M4 |
| A 6A53M045NF0908 | 3 | 45 | 43 | 42.2 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M048NF0908 | 3 | 48 | 45.8 | 45 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M050NF0908 | 3 | 50 | 47.8 | 47 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M056NF0908 | 3 | 56 | 53.5 | 52.7 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M060NF0908 | 3 | 60 | 57.3 | 56.5 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M062NF0908 | 3 | 62 | 59.2 | 58.4 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M068NF0908 | 3 | 68 | 64.9 | 64.2 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M072NF0908 | 3 | 72 | 68.8 | 68 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |
| A 6A53M080NF0908 | 3 | 80 | 76.4 | 75.6 | — | 8 | 12.7 | 22.2 | 31.8 | 9.5 | M4 |

FOR 9 mm BELTS

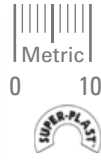
FOR USE WITH GT², GT³ and FHT[®]-3 BELTS

MOLDED WITH INSERT

DOUBLE FLANGE

TRUE METRIC PROFILE

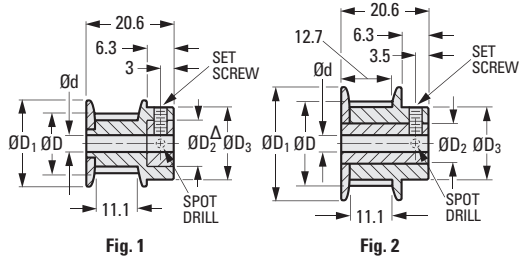
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced

Insert - Aluminum, Knurled



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|-------------|---------------------|-------------------------|-----------|
| Fig. 1 | | | | | | | | | |
| A 6Z53M016DF0904 | 16 | 15.3 | 14.5 | 21 | 4 | +0.030/0 | 11 Δ | 17.5 | M3 |
| Fig. 2 | | | | | | | | | |
| A 6Z53M017DF0904 | 17 | 16.2 | 15.4 | 22 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M017DF0905 | 17 | 16.2 | 15.4 | 22 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M017DF0906 | 17 | 16.2 | 15.4 | 22 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M018DF0904 | 18 | 17.2 | 16.4 | 22 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M018DF0905 | 18 | 17.2 | 16.4 | 22 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M018DF0906 | 18 | 17.2 | 16.4 | 22 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M019DF0904 | 19 | 18.2 | 17.4 | 22 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M019DF0905 | 19 | 18.2 | 17.4 | 22 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M019DF0906 | 19 | 18.2 | 17.4 | 22 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M020DF0904 | 20 | 19.1 | 18.3 | 24 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M020DF0905 | 20 | 19.1 | 18.3 | 24 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M020DF0906 | 20 | 19.1 | 18.3 | 24 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M022DF0904 | 22 | 21 | 20.2 | 27 | 4 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M022DF0905 | 22 | 21 | 20.2 | 27 | 5 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M022DF0906 | 22 | 21 | 20.2 | 27 | 6 | +0.030/0 | 9.5 | 17.5 | M3 |
| A 6Z53M025DF0906 | 25 | 23.9 | 23.1 | 30 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z53M025DF0908 | 25 | 23.9 | 23.1 | 30 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z53M028DF0906 | 28 | 26.8 | 26 | 32 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z53M028DF0908 | 28 | 26.8 | 26 | 32 | 8 | +0.036/0 | 13 | 19 | M4 |

Δ 6 mm long insert hub end only.

Continued on the next page.

For FHT[®]-3 Timing Belts see: A 6B20M... and A 6G20M...

REV: 02.20.15 JC



1-800-453-1692

www.aboveboardelectronics.com

FOR 9 mm BELTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

FOR USE WITH GT², GT³ and FHT[®]-3 BELTS

MOLDED WITH INSERT

DOUBLE FLANGE

TRUE METRIC PROFILE

➤ MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced

Insert - Aluminum, Knurled

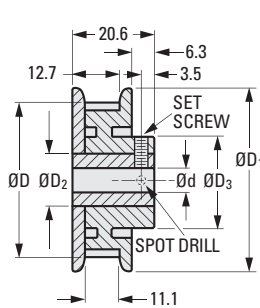


Fig. 1

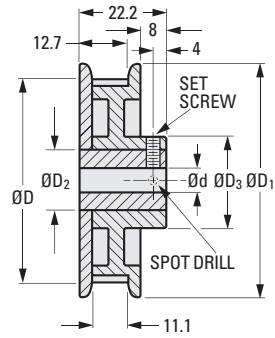


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|------------------|----------------|------|--------|---------------------|-----------|-------------|---------------------|-------------------------|-----------|
| Fig. 1 | | | | | | | | | |
| A 6Z53M032DF0906 | 32 | 30.6 | 29.8 | 37 | 6 | +0.030/0 | 13 | 19 | M4 |
| A 6Z53M032DF0908 | 32 | 30.6 | 29.8 | 37 | 8 | +0.036/0 | 13 | 19 | M4 |
| A 6Z53M036DF0906 | 36 | 34.4 | 33.6 | 40 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z53M036DF0908 | 36 | 34.4 | 33.6 | 40 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z53M040DF0906 | 40 | 38.2 | 37.4 | 45 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z53M040DF0908 | 40 | 38.2 | 37.4 | 45 | 8 | +0.036/0 | 13 | 22 | M4 |
| A 6Z53M048DF0906 | 48 | 45.8 | 45 | 51 | 6 | +0.030/0 | 13 | 22 | M4 |
| A 6Z53M048DF0908 | 48 | 45.8 | 45 | 51 | 8 | +0.036/0 | 13 | 22 | M4 |
| Fig. 2 | | | | | | | | | |
| A 6Z53M060DF0908 | 60 | 57.3 | 56.5 | 63 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M060DF0910 | 60 | 57.3 | 56.5 | 63 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M060DF0912 | 60 | 57.3 | 56.5 | 63 | 12 | +0.043/0 | 16 | 22 | M5 |
| A 6Z53M072DF0908 | 72 | 68.8 | 68 | 74 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M072DF0910 | 72 | 68.8 | 68 | 74 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M072DF0912 | 72 | 68.8 | 68 | 74 | 12 | +0.043/0 | 16 | 22 | M5 |
| A 6Z53M080DF0908 | 80 | 76.4 | 75.6 | 83 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M080DF0910 | 80 | 76.4 | 75.6 | 83 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M080DF0912 | 80 | 76.4 | 75.6 | 83 | 12 | +0.043/0 | 16 | 22 | M5 |

Continued from the previous page.

FOR 9 mm BELTS

FOR USE WITH GT², GT³ and FHT[®]-3 BELTS

MOLDED WITH INSERT

SINGLE OR NO FLANGE

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Pulley - Polycarbonate, Fiberglass Reinforced

Insert - Aluminum, Knurled

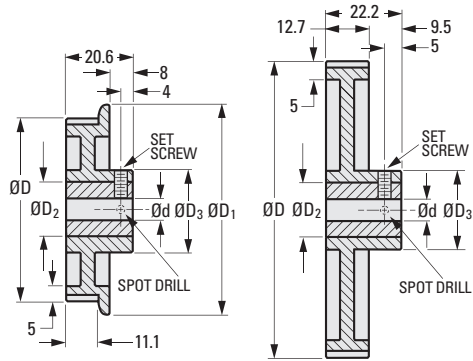


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Dia. | D ₃ Hub Dia. | Set Screw |
|-----------------------------|----------------|-------|--------|---------------------|-----------|-------------|---------------------|-------------------------|-----------|
| Fig. 1 Single Flange | | | | | | | | | |
| A 6Z53M084SF0908 | 84 | 80.2 | 79.5 | 86 | 8 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M084SF0910 | 84 | 80.2 | 79.5 | 86 | 10 | +0.036/0 | 16 | 22 | M5 |
| A 6Z53M084SF0912 | 84 | 80.2 | 79.5 | 86 | 12 | +0.043/0 | 16 | 22 | M5 |
| A 6Z53M096SF0908 | 96 | 91.7 | 90.9 | 97 | 8 | +0.036/0 | 16 | 25 | M5 |
| A 6Z53M096SF0910 | 96 | 91.7 | 90.9 | 97 | 10 | +0.036/0 | 16 | 25 | M5 |
| A 6Z53M096SF0912 | 96 | 91.7 | 90.9 | 97 | 12 | +0.043/0 | 16 | 25 | M5 |
| Fig. 2 No Flange | | | | | | | | | |
| A 6Z53M120NF0910 | 120 | 114.6 | 113.8 | - | 10 | +0.036/0 | 16 | 25 | M5 |
| A 6Z53M120NF0912 | 120 | 114.6 | 113.8 | - | 12 | +0.043/0 | 16 | 25 | M5 |

For FHT[®]-3 Timing Belts see: A 6B20M... and A 6G20M...

REV: 02.20.15 JC



Request Info



1-800-453-1692

www.aboveboardelectronics.com

FOR 9 mm BELTS

FOR USE WITH GT², GT³ and FHT[®]-3 BELTS

MOLDED

DOUBLE FLANGE

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Polycarbonate, Fiberglass Reinforced

> SPECIFICATION:

Pulleys with 16 to 28 grooves do not have webs.

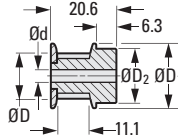


Fig. 1

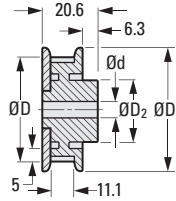


Fig. 2

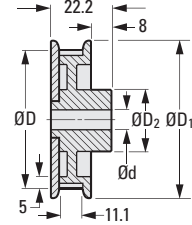


Fig. 3

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore H9 | d Tolerance | D ₂ Hub Dia. |
|---------------------|----------------|------|--------|---------------------|-----------|-------------|-------------------------|
| Fig. 1 | | | | | | | |
| A 6L53M016DF0904 | 16 | 15.3 | 14.5 | 21 | 4 | +0.030/0 | 17.5 |
| Fig. 2 Solid | | | | | | | |
| A 6L53M017DF0904 | 17 | 16.2 | 15.5 | 22 | 4 | +0.030/0 | 17.5 |
| A 6L53M018DF0904 | 18 | 17.2 | 16.4 | 24 | 4 | +0.030/0 | 17.5 |
| A 6L53M019DF0904 | 19 | 18.1 | 17.4 | 24 | 4 | +0.030/0 | 17.5 |
| A 6L53M020DF0904 | 20 | 19.1 | 18.3 | 24 | 4 | +0.030/0 | 17.5 |
| A 6L53M022DF0904 | 22 | 21 | 20.2 | 27 | 4 | +0.030/0 | 17.5 |
| A 6L53M025DF0906 | 25 | 23.9 | 23.1 | 30 | 4 | +0.030/0 | 19 |
| A 6L53M028DF0906 | 28 | 26.7 | 26 | 32 | 4 | +0.030/0 | 19 |
| Fig. 2 | | | | | | | |
| A 6L53M032DF0906 | 32 | 30.6 | 29.8 | 37 | 6 | +0.030/0 | 19 |
| A 6L53M036DF0906 | 36 | 34.4 | 33.6 | 40 | 6 | +0.030/0 | 22 |
| A 6L53M040DF0906 | 40 | 38.2 | 37.4 | 45 | 6 | +0.030/0 | 22 |
| A 6L53M048DF0906 | 48 | 45.8 | 45.1 | 51 | 6 | +0.030/0 | 22 |
| Fig. 3 | | | | | | | |
| A 6L53M060DF0908 | 60 | 57.3 | 56.5 | 63 | 8 | +0.036/0 | 22 |
| A 6L53M072DF0908 | 72 | 68.8 | 68 | 74 | 8 | +0.036/0 | 22 |
| A 6L53M080DF0908 | 80 | 76.4 | 75.6 | 84 | 8 | +0.036/0 | 22 |

BELT WIDTHS

METRIC - 9, 15 & 25 mm

TRUE METRIC® PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced

> SPECIFICATIONS:

Breaking Strength:

315 N per 1 mm (226 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Working Tension:

712 N for 25.4 mm belt (160 lbf for 1 in. belt).

For more information, see the technical section.

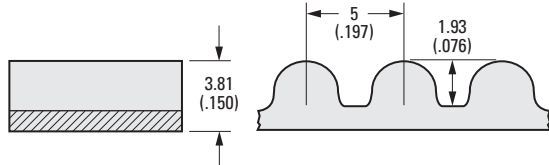
Temperature Range:

-34°C to +85°C (-30°F to +185°F)



> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 5 5 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

Gates GT®2 and GT®3 Belts

GT®3 is an equivalent and direct replacement for GT®2 belts. As inventories of GT®2 belts are exhausted, they will be replaced with the GT®3 equivalent. GT®3 belts will not be available until GT®2 belts are depleted. Call for special requests and additional information.

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 040 | 200 | 7.874 |
| 045 | 225 | 8.858 |
| 050 | 250 | 9.842 |
| 053 | 265 | 10.433 |
| 055 | 275 | 10.827 |
| 056 | 280 | 11.024 |
| 057 | 285 | 11.220 |
| 060 | 300 | 11.811 |
| 065 | 325 | 12.795 |
| 066 | 330 | 12.992 |
| 068 | 340 | 13.386 |
| 070 | 350 | 13.780 |
| 071 | 355 | 13.976 |
| 072 | 360 | 14.173 |
| 075 | 375 | 14.764 |
| 080 | 400 | 15.748 |
| 081 | 405 | 15.945 |
| 082 | 410 | 16.142 |
| 083 | 415 | 16.339 |
| 085 | 425 | 16.732 |
| 088 | 440 | 17.323 |
| 089 | 445 | 17.520 |
| 090 | 450 | 17.716 |
| 092 | 460 | 18.110 |
| 095 | 475 | 18.701 |
| 098 | 490 | 19.291 |
| 100 | 500 | 19.685 |
| 102 | 510 | 20.079 |
| 105 | 525 | 20.669 |
| 106 | 530 | 20.866 |
| 107 | 535 | 21.063 |
| 108 | 540 | 21.260 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 110 | 550 | 21.654 |
| 113 | 565 | 22.244 |
| 115 | 575 | 22.638 |
| 116 | 580 | 22.835 |
| 120 | 600 | 23.622 |
| 125 | 625 | 24.606 |
| 127 | 635 | 25.000 |
| 130 | 650 | 25.590 |
| 133 | 665 | 26.181 |
| 140 | 700 | 27.559 |
| 150 | 750 | 29.528 |
| 155 | 775 | 30.512 |
| 160 | 800 | 31.496 |
| 163 | 815 | 32.087 |
| 170 | 850 | 33.465 |
| 172 | 860 | 33.858 |
| 180 | 900 | 35.433 |
| 190 | 950 | 37.401 |
| 200 | 1000 | 39.370 |
| 210 | 1050 | 41.338 |
| 230 | 1150 | 45.276 |
| 254 | 1270 | 50.000 |
| 260 | 1300 | 51.181 |
| 290 | 1450 | 57.087 |
| 300 | 1580 | 59.055 |
| 320 | 1600 | 62.992 |
| 344 | 1720 | 67.716 |
| 351 | 1755 | 69.094 |
| 370 | 1850 | 72.835 |
| 420 | 2100 | 82.677 |
| 488 | 2440 | 96.063 |



BELT WIDTHS

METRIC - 9, 15 & 25 mm

TRUE METRIC[®] PROFILE

> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced
GT[®]3 belts offer an improved construction and material compound for superior load bearing capacity.

> SPECIFICATIONS:

Breaking Strength:
 349 N per 1 mm (250 lbf per 1/8 in.) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:
 1178 N for 25.4 mm belt (265 lbf for 1 in. belt).

For more information, see the technical section.

Temperature Range:
 -34°C to +85°C (-30°F to +185°F)

> FEATURES:

- Higher Capacity
- Improved Registration
- Reduced Noise

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric or inch standards.

Example: **A36R55M092250** is a 92 groove 25 mm wide belt.

METRIC COMPONENT CATALOG NUMBER

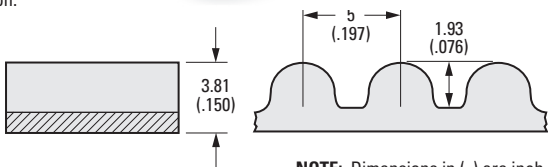
A 3 6 R 5 5 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

Gates GT[®]2 and GT[®]3 Belts

GT[®]3 is an equivalent and direct replacement for GT[®]2 belts. As inventories of GT[®]2 belts are exhausted, they will be replaced with the GT[®]3 equivalent. GT[®]3 belts will not be available until GT[®]2 belts are depleted. Call for special requests and additional information.



NOTE: Dimensions in () are inch.

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 040 | 200 | 7.874 |
| 045 | 225 | 8.858 |
| 050 | 250 | 9.842 |
| 053 | 265 | 10.433 |
| 055 | 275 | 10.827 |
| 056 | 280 | 11.024 |
| 057 | 285 | 11.220 |
| 060 | 300 | 11.811 |
| 065 | 325 | 12.795 |
| 066 | 330 | 12.992 |
| 068 | 340 | 13.386 |
| 070 | 350 | 13.780 |
| 071 | 355 | 13.976 |
| 072 | 360 | 14.173 |
| 075 | 375 | 14.764 |
| 080 | 400 | 15.748 |
| 081 | 405 | 15.945 |
| 082 | 410 | 16.142 |
| 083 | 415 | 16.339 |
| 085 | 425 | 16.732 |
| 088 | 440 | 17.323 |
| 089 | 445 | 17.520 |
| 090 | 450 | 17.716 |
| 092 | 460 | 18.110 |
| 095 | 475 | 18.701 |
| 098 | 490 | 19.291 |
| 100 | 500 | 19.685 |
| 102 | 510 | 20.079 |
| 105 | 525 | 20.669 |
| 106 | 530 | 20.866 |
| 107 | 535 | 21.063 |
| 108 | 540 | 21.260 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | inch |
| 110 | 550 | 21.654 |
| 113 | 565 | 22.244 |
| 115 | 575 | 22.638 |
| 116 | 580 | 22.835 |
| 120 | 600 | 23.622 |
| 125 | 625 | 24.606 |
| 127 | 635 | 25.000 |
| 130 | 650 | 25.590 |
| 133 | 665 | 26.181 |
| 140 | 700 | 27.559 |
| 150 | 750 | 29.528 |
| 155 | 775 | 30.512 |
| 160 | 800 | 31.496 |
| 163 | 815 | 32.087 |
| 170 | 850 | 33.465 |
| 172 | 860 | 33.858 |
| 180 | 900 | 35.433 |
| 190 | 950 | 37.401 |
| 200 | 1000 | 39.370 |
| 210 | 1050 | 41.338 |
| 230 | 1150 | 45.276 |
| 254 | 1270 | 50.000 |
| 260 | 1300 | 51.181 |
| 290 | 1450 | 57.087 |
| 300 | 1580 | 59.055 |
| 320 | 1600 | 62.992 |
| 344 | 1720 | 67.716 |
| 351 | 1755 | 69.094 |
| 370 | 1850 | 72.835 |
| 420 | 2100 | 82.677 |
| 488 | 2440 | 96.063 |

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BELT WIDTHS
 METRIC - 9 & 15 mm
 NON-MARKING
 LOW DUST
 RoHS COMPLIANT
 PowerGrip® TruMotion®

> **MATERIAL:**

Cream-Colored Polymer Compound, Fiberglass
 Reinforced Body with Nylon Tooth Facing for Reduced Dust.

> **SPECIFICATIONS:**

Breaking Strength:

315 N per 1 mm (226 lbf per 1/8 in.) Belt Width;
 not representative of the load-carrying capacity of the belt.

Working Tension:

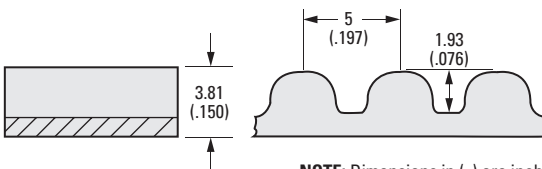
578 N for 25.4 mm belt (130 lbf for 1 in. belt).
 For more information, see the technical section.

Temperature Range:

-40°C to +104°C (-40°F to +220°F)

> **MODIFICATIONS:**

Special Widths - cut to size from
 sleeves available from stock.



NOTE: Dimensions in () are inch.

**METRIC COMPONENT
 CATALOG NUMBER**

A 26 R 55 M □ □ □ □ □

No. of
 Grooves
 Code

| Belt Width mm | Width Code |
|------------------|---------------|
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|----------------|--------------|--------|
| | mm | Inch |
| 060 | 300 | 11.811 |
| 071 | 355 | 13.976 |
| 075 | 375 | 14.764 |
| 080 | 400 | 15.748 |
| 081 | 405 | 15.945 |
| 085 | 425 | 16.732 |
| 090 | 450 | 17.716 |
| 100 | 500 | 19.685 |
| 107 | 535 | 21.063 |
| 113 | 565 | 22.244 |
| 115 | 575 | 22.638 |
| 116 | 580 | 22.835 |
| 120 | 600 | 23.622 |
| 125 | 625 | 24.606 |
| 130 | 650 | 25.590 |
| 140 | 700 | 27.559 |
| 150 | 750 | 29.528 |
| 160 | 800 | 31.496 |
| 163 | 815 | 32.087 |
| 170 | 850 | 33.465 |
| 180 | 900 | 35.433 |
| 200 | 1000 | 39.370 |
| 230 | 1150 | 45.276 |
| 260 | 1300 | 51.181 |
| 290 | 1450 | 57.087 |
| 320 | 1600 | 62.992 |
| 344 | 1720 | 67.716 |
| 351 | 1755 | 69.094 |

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BELT WIDTHS
METRIC - 9, 15 & 25 mm
TRUE METRIC® PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Neoprene - Nylon Covered, Fiberglass Reinforced

> SPECIFICATIONS:

Breaking Strength:

385 N per 1 mm (275 lbf per 1/8 in.) Belt Width;
not representative of the load-carrying capacity of the belt.

Working Tension:

712 N for 25.4 mm belt (160 lbf for 1 in. belt).

For more information, see the technical section.

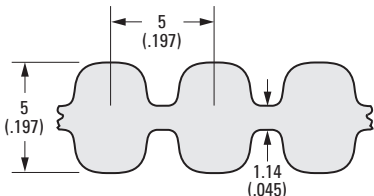
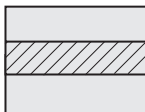
Temperature Range:

-34°C to +85°C (-30°F to +185°F)

> MODIFICATIONS:

Special Widths - cut to size from sleeves available from stock.

Pulleys are available with metric or inch standards.



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 R 55 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 9 (.354) | 090 |
| 15 (.591) | 150 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 080 | 400 | 15.748 |
| 081 | 405 | 15.945 |
| 085 | 425 | 16.732 |
| 090 | 450 | 17.717 |
| 100 | 500 | 19.685 |
| 107 | 535 | 21.063 |
| 113 | 565 | 22.244 |
| 115 | 575 | 22.638 |
| 116 | 580 | 22.835 |
| 120 | 600 | 23.622 |
| 125 | 625 | 24.606 |
| 130 | 650 | 25.591 |
| 140 | 700 | 27.559 |
| 142 | 710 | 27.953 |
| 148 | 740 | 29.134 |
| 149 | 745 | 29.331 |
| 150 | 750 | 29.528 |
| 153 | 765 | 30.118 |
| 158 | 790 | 31.102 |
| 160 | 800 | 31.496 |
| 163 | 815 | 32.087 |
| 166 | 830 | 32.677 |
| 167 | 835 | 32.874 |
| 170 | 850 | 33.465 |
| 174 | 870 | 34.252 |
| 178 | 890 | 35.039 |
| 180 | 900 | 35.433 |
| 185 | 925 | 36.417 |
| 190 | 950 | 37.402 |
| 195 | 975 | 38.359 |
| 197 | 985 | 38.779 |
| 200 | 1000 | 39.370 |
| 210 | 1050 | 41.339 |

| Groove Code | Pitch Length | |
|-------------|--------------|---------|
| | mm | Inch |
| 223 | 1115 | 43.898 |
| 225 | 1125 | 44.291 |
| 230 | 1150 | 45.276 |
| 239 | 1195 | 47.047 |
| 250 | 1250 | 49.213 |
| 254 | 1270 | 50.000 |
| 259 | 1295 | 50.984 |
| 260 | 1300 | 51.181 |
| 275 | 1375 | 54.134 |
| 284 | 1420 | 55.905 |
| 290 | 1450 | 57.087 |
| 315 | 1575 | 62.008 |
| 319 | 1595 | 62.795 |
| 320 | 1600 | 62.992 |
| 327 | 1635 | 64.370 |
| 338 | 1690 | 66.535 |
| 344 | 1720 | 67.716 |
| 351 | 1755 | 69.094 |
| 358 | 1790 | 70.472 |
| 360 | 1800 | 70.866 |
| 379 | 1895 | 74.606 |
| 389 | 1945 | 76.575 |
| 396 | 1980 | 77.953 |
| 400 | 2000 | 78.740 |
| 422 | 2110 | 83.071 |
| 450 | 2250 | 88.583 |
| 505 | 2525 | 99.409 |
| 552 | 2760 | 108.661 |
| 624 | 3120 | 122.834 |
| 634 | 3170 | 124.803 |
| 640 | 3200 | 125.984 |
| 686 | 3430 | 135.039 |
| 760 | 3800 | 149.606 |



GT® 2 / GT® 3 PULLEY FLANGES • 5 mm PITCH

SDP/SI

FOR **TRUE METRIC®** PROFILE

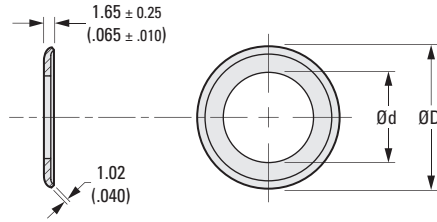
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Aluminum Alloy or Steel

> **SPECIFICATION:**

Priced per 25 pieces



| METRIC COMPONENT | | Pulley Grooves (Ref.) | Metric | | Inch | |
|------------------|--------------|-----------------------|-------------------|------------------|-------------------|-------------------|
| Catalog Number | | | d Dia. ± 0.08 | D Dia. ± 0.4 | d Dia. $\pm .003$ | D Dia. $\pm 1/64$ |
| Aluminum Alloy | Steel | | | | | |
| A 6A54M012FA | A 6C54M012FS | 12 | 12.78 | 22.2 | .503 | 7/8 |
| A 6A54M013FA | A 6C54M013FS | 13 | 14.27 | 23.8 | .562 | 15/16 |
| A 6A54M014FA | A 6C54M014FS | 14 | 14.27 | 25.4 | .562 | 1 |
| A 6A54M015FA | A 6C54M015FS | 15 | 15.88 | 27 | .625 | 1-1/16 |
| A 6A54M016FA | A 6C54M016FS | 16 | 17.37 | 27.8 | .684 | 1-3/32 |
| A 6A54M017FA | A 6C54M017FS | 17 | 19 | 30.2 | .748 | 1-3/16 |
| A 6A54M018FA | A 6C54M018FS | 18 | 20.58 | 31.8 | .810 | 1-1/4 |
| A 6A54M019FA | A 6C54M019FS | 19 | 22.53 | 33.3 | .887 | 1-5/16 |
| A 6A54M020FA | A 6C54M020FS | 20 | 23.77 | 34.9 | .936 | 1-3/8 |
| A 6A54M021FA | A 6C54M021FS | 21 | 25.4 | 36.5 | 1.000 | 1-7/16 |
| A 6A54M022FA | A 6C54M022FS | 22 | 26.97 | 38.1 | 1.062 | 1-1/2 |
| A 6A54M023FA | A 6C54M023FS | 23 | 28.58 | 39.7 | 1.125 | 1-9/16 |
| A 6A54M024FA | A 6C54M024FS | 24 | 29.46 | 41.3 | 1.160 | 1-5/8 |
| A 6A54M025FA | A 6C54M025FS | 25 | 31.04 | 42.9 | 1.222 | 1-11/16 |
| A 6A54M026FA | A 6C54M026FS | 26 | 31.04 | 44.5 | 1.222 | 1-3/4 |
| A 6A54M028FA | A 6C54M028FS | 28 | 34.21 | 47.6 | 1.347 | 1-7/8 |
| A 6A54M030FA | A 6C54M030FS | 30 | 36.2 | 50.8 | 1.425 | 2 |
| A 6A54M032FA | A 6C54M032FS | 32 | 39.37 | 54 | 1.550 | 2-1/8 |
| A 6A54M034FA | A 6C54M034FS | 34 | 42.55 | 57.2 | 1.675 | 2-1/4 |

NOTE: Dimensions in () are inch.

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> MATERIAL:

Aluminum Alloy

> SPECIFICATIONS:

D Tolerance:

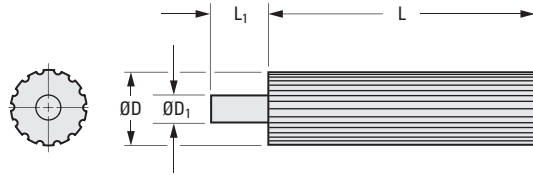
12 to 16 grooves is +0.05/0 (+.002/- .000)

17 to 32 grooves is +0.08/0 (+.003/- .000)

33 to 40 grooves is +0.10/0 (+.004/- .000)

Available on special order:

Number of grooves not listed and larger sizes.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|------------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A54M012GT15 | 12 | 19.1 | 17.96 | .752 | .707 | 12.7 (1/2) | 22 (7/8) | 150 (6) |
| A 6A54M013GT15 | 13 | 20.7 | 19.55 | .815 | .770 | 12.7 (1/2) | 22 (7/8) | 150 (6) |
| A 6A54M014GT18 | 14 | 22.3 | 21.14 | .877 | .832 | 12.7 (1/2) | | 175 (7) |
| A 6A54M015GT18 | 15 | 23.9 | 22.73 | .940 | .895 | 12.7 (1/2) | | 175 (7) |
| A 6A54M016GT18 | 16 | 25.5 | 24.32 | 1.003 | .958 | 12.7 (1/2) | | 175 (7) |
| A 6A54M017GT18 | 17 | 27.1 | 25.91 | 1.065 | 1.020 | 12.7 (1/2) | | 175 (7) |
| A 6A54M018GT20 | 18 | 28.6 | 27.5 | 1.128 | 1.083 | 12.7 (1/2) | | 200 (8) |
| A 6A54M019GT20 | 19 | 30.2 | 29.1 | 1.191 | 1.146 | 12.7 (1/2) | | 200 (8) |
| A 6A54M020GT20 | 20 | 31.8 | 30.69 | 1.253 | 1.208 | 12.7 (1/2) | | 200 (8) |
| A 6A54M021GT20 | 21 | 33.4 | 32.28 | 1.316 | 1.271 | 12.7 (1/2) | | 200 (8) |
| A 6A54M022GT20 | 22 | 35 | 33.87 | 1.379 | 1.334 | 12.7 (1/2) | | 200 (8) |
| A 6A54M023GT20 | 23 | 36.6 | 35.46 | 1.441 | 1.396 | 12.7 (1/2) | | 200 (8) |
| A 6A54M024GT20 | 24 | 38.2 | 37.05 | 1.504 | 1.459 | 12.7 (1/2) | | 200 (8) |
| A 6A54M025GT20 | 25 | 39.8 | 38.65 | 1.566 | 1.521 | 12.7 (1/2) | 25 (1) | 200 (8) |
| A 6A54M026GT20 | 26 | 41.4 | 40.24 | 1.629 | 1.584 | | | 200 (8) |
| A 6A54M027GT20 | 27 | 43 | 41.83 | 1.692 | 1.647 | | | 200 (8) |
| A 6A54M028GT20 | 28 | 44.6 | 43.42 | 1.754 | 1.709 | | [19 (3/4)] ^Δ | 200 (8) |
| A 6A54M029GT20 | 29 | 46.2 | 45.01 | 1.817 | 1.772 | | | 200 (8) |
| A 6A54M030GT20 | 30 | 47.7 | 46.6 | 1.880 | 1.835 | | | 200 (8) |
| A 6A54M031GT20 | 31 | 49.3 | 48.2 | 1.942 | 1.897 | 19.1 (3/4) | | 200 (8) |
| A 6A54M032GT20 | 32 | 50.9 | 49.79 | 2.005 | 1.960 | | | 200 (8) |
| A 6A54M033GT20 | 33 | 52.5 | 51.38 | 2.068 | 2.023 | | [12.7 (1/2)] ^Δ | 200 (8) |
| A 6A54M034GT20 | 34 | 54.1 | 52.97 | 2.130 | 2.085 | | | 200 (8) |
| A 6A54M035GT20 | 35 | 55.7 | 54.56 | 2.193 | 2.148 | | | 200 (8) |
| A 6A54M036GT20 | 36 | 57.3 | 56.15 | 2.256 | 2.211 | | | 200 (8) |
| A 6A54M038GT20 | 38 | 60.5 | 59.34 | 2.381 | 2.336 | | | 200 (8) |
| A 6A54M040GT20 | 40 | 63.7 | 62.52 | 2.506 | 2.461 | | | 200 (8) |

NOTE: Dimensions in () are inch.

Δ Dimensions in [] may be substituted at SDP option.

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> **MATERIAL:**

Aluminum Alloy

> **SPECIFICATIONS:**

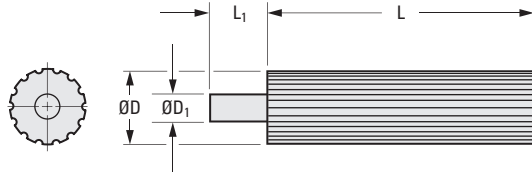
D Tolerance:

42 to 62 grooves is +0.10/0 (+.004/- .000)

65 to 90 grooves is +0.13/0 (+.005/- .000)

Available on special order:

Number of grooves not listed and larger sizes.



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METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|-----------------------------|---------------------------------------|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6A54M042GT20 | 42 | 66.8 | 65.7 | 2.632 | 2.587 | 19.1 (3/4) | 25 (1) [18 (23/32)] ^Δ | 200 (8) |
| A 6A54M044GT20 | 44 | 70 | 68.89 | 2.757 | 2.712 | 19.1 (3/4) | | 200 (8) |
| A 6A54M045GT20 | 45 | 71.6 | 70.48 | 2.82 | 2.775 | 19.1 (3/4) | | 200 (8) |
| A 6A54M046GT20 | 46 | 73.2 | 72.07 | 2.882 | 2.837 | 19.1 (3/4) | | 200 (8) |
| A 6A54M048GT20 | 48 | 76.4 | 75.25 | 3.008 | 2.963 | 25.4 (1) | | 200 (8) |
| A 6A54M050GT20 | 50 | 79.6 | 78.43 | 3.133 | 3.088 | | | 200 (8) |
| A 6A54M054GT20 | 54 | 85.9 | 84.8 | 3.384 | 3.339 | [19.1 (3/4)] ^Δ | | 200 (8) |
| A 6A54M056GT20 | 56 | 89.1 | 87.98 | 3.509 | 3.464 | | | 200 (8) |
| A 6A54M060GT20 | 60 | 95.5 | 94.35 | 3.76 | 3.715 | 25.4 (1) | | 200 (8) |
| A 6A54M062GT20 | 62 | 98.7 | 97.53 | 3.885 | 3.84 | 25 (1) | | 200 (8) |
| A 6A54M065GT20 | 65 | 103.5 | 102.31 | 4.073 | 4.028 | 25.4 (1) | | 200 (8) |
| A 6A54M072GT20 | 72 | 114.6 | 113.45 | 4.511 | 4.466 | 25 (1) | | 200 (8) |
| A 6A54M080GT20 | 80 | 127.3 | 126.18 | 5.013 | 4.968 | 25 (1) | | 200 (8) |
| A 6A54M090GT20 | 90 | 143.2 | 142.1 | 5.639 | 5.594 | 25 (1) | | 200 (8) |

NOTE: Dimensions in () are inch.

^ΔDimensions in [] may be substituted at SDP option.

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> MATERIAL:

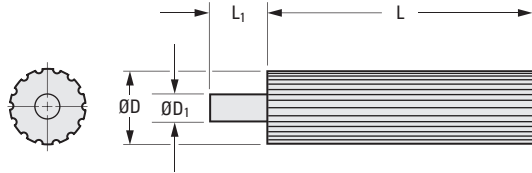
Carbon Steel

> SPECIFICATIONS:

D Tolerance:

12 to 16 grooves is +0.05/0 (+.002/- .000)

17 to 30 grooves is +0.08/0 (+.003/- .000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|---------------------------|---|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6C54M012GT15 | 12 | 19.1 | 17.96 | .752 | .707 | 12.7 (1/2) | 22 (7/8) 25 (1) [19 (3/4)] ^Δ | 150 (6) |
| A 6C54M013GT15 | 13 | 20.7 | 19.55 | .815 | .770 | 12.7 (1/2) | | 150 (6) |
| A 6C54M014GT18 | 14 | 22.3 | 21.14 | .877 | .832 | 12.7 (1/2) | | 175 (7) |
| A 6C54M015GT18 | 15 | 23.9 | 22.73 | .940 | .895 | 12.7 (1/2) | | 175 (7) |
| A 6C54M016GT18 | 16 | 25.5 | 24.32 | 1.003 | .958 | 12.7 (1/2) | | 175 (7) |
| A 6C54M017GT18 | 17 | 27.1 | 25.91 | 1.065 | 1.020 | 12.7 (1/2) | | 175 (7) |
| A 6C54M018GT20 | 18 | 28.6 | 27.5 | 1.128 | 1.083 | 12.7 (1/2) | | 200 (8) |
| A 6C54M019GT20 | 19 | 30.2 | 29.1 | 1.191 | 1.146 | 12.7 (1/2) | | 200 (8) |
| A 6C54M020GT20 | 20 | 31.8 | 30.69 | 1.253 | 1.208 | 12.7 (1/2) | | 200 (8) |
| A 6C54M021GT20 | 21 | 33.4 | 32.28 | 1.316 | 1.271 | 12.7 (1/2) | | 200 (8) |
| A 6C54M022GT20 | 22 | 35 | 33.87 | 1.379 | 1.334 | 12.7 (1/2) | | 200 (8) |
| A 6C54M023GT20 | 23 | 36.6 | 35.46 | 1.441 | 1.396 | 12.7 (1/2) | | 200 (8) |
| A 6C54M024GT20 | 24 | 38.2 | 37.05 | 1.504 | 1.459 | 12.7 (1/2) | | 200 (8) |
| A 6C54M025GT20 | 25 | 39.8 | 38.65 | 1.566 | 1.521 | 12.7 (1/2) | | 200 (8) |
| A 6C54M026GT20 | 26 | 41.4 | 40.24 | 1.629 | 1.584 | 12.7 (1/2) | | 200 (8) |
| A 6C54M027GT20 | 27 | 43 | 41.83 | 1.692 | 1.647 | 12.7 (1/2) | | 200 (8) |
| A 6C54M028GT20 | 28 | 44.6 | 43.42 | 1.754 | 1.709 | 12.7 (1/2) | | 200 (8) |
| A 6C54M029GT20 | 29 | 46.2 | 45.01 | 1.817 | 1.772 | 12.7 (1/2) | | 200 (8) |
| A 6C54M030GT20 | 30 | 47.7 | 46.6 | 1.880 | 1.835 | 12.7 (1/2) | | 200 (8) |

NOTE: Dimensions in () are inch.

Δ Dimensions in [] may be substituted at SDP option.

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> MATERIAL:

Carbon Steel

> SPECIFICATIONS:

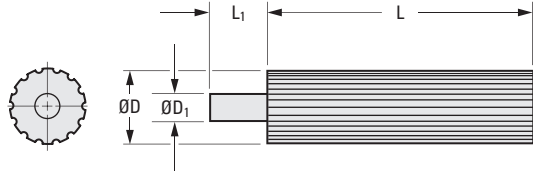
D Tolerance:

31 & 32 grooves is +0.08/0 (+.003/-0.000)

33 to 62 grooves is +0.10/0 (+.004/-0.000)

65 to 112 grooves is +0.13/0 (+.005/-0.000)

126 grooves is +0.15/0 (+.006/-0.000)



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | D ₁ Shank Dia. | L ₁ Shank Length (Ref.) | L Min. Usable Length |
|----------------|----------------|--------|--------|-------|--------|-----------------------------|---|----------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | | |
| A 6C54M031GT20 | 31 | 49.3 | 48.2 | 1.942 | 1.897 | 19.1 (3/4) | 25 (1) [18.2 (23/32)] ^Δ | 200 (8) |
| A 6C54M032GT20 | 32 | 50.9 | 49.79 | 2.005 | 1.960 | 19.1 (3/4) | | 200 (8) |
| A 6C54M033GT20 | 33 | 52.5 | 51.38 | 2.068 | 2.023 | 19.1 (3/4) | | 200 (8) |
| A 6C54M034GT20 | 34 | 54.1 | 52.97 | 2.130 | 2.085 | 19.1 (3/4) | | 200 (8) |
| A 6C54M035GT20 | 35 | 55.7 | 54.56 | 2.193 | 2.148 | 19.1 (3/4) | | 200 (8) |
| A 6C54M036GT20 | 36 | 57.3 | 56.15 | 2.256 | 2.211 | 19.1 (3/4) | | 200 (8) |
| A 6C54M038GT20 | 38 | 60.5 | 59.34 | 2.381 | 2.336 | 19.1 (3/4) | | 200 (8) |
| A 6C54M040GT20 | 40 | 63.7 | 62.52 | 2.506 | 2.461 | 19.1 (3/4) | | 200 (8) |
| A 6C54M042GT20 | 42 | 66.8 | 65.7 | 2.632 | 2.587 | 19.1 (3/4) | | 200 (8) |
| A 6C54M044GT20 | 44 | 70 | 68.89 | 2.757 | 2.712 | 19.1 (3/4) | | 200 (8) |
| A 6C54M045GT20 | 45 | 71.6 | 70.48 | 2.820 | 2.775 | 19.1 (3/4) | | 200 (8) |
| A 6C54M046GT20 | 46 | 73.2 | 72.07 | 2.882 | 2.837 | 19.1 (3/4) | | 200 (8) |
| A 6C54M048GT20 | 48 | 76.4 | 75.25 | 3.008 | 2.963 | 25.4 (1) | | 200 (8) |
| A 6C54M050GT20 | 50 | 79.6 | 78.43 | 3.133 | 3.088 | | | 200 (8) |
| A 6C54M054GT20 | 54 | 85.9 | 84.8 | 3.384 | 3.339 | [19.1 (3/4)] ^Δ | | 200 (8) |
| A 6C54M056GT20 | 56 | 89.1 | 87.98 | 3.509 | 3.464 | | | 200 (8) |
| A 6C54M060GT20 | 60 | 95.5 | 94.35 | 3.760 | 3.715 | 25 (1) | | 200 (8) |
| A 6C54M062GT20 | 62 | 98.7 | 97.53 | 3.885 | 3.840 | | | 200 (8) |
| A 6C54M065GT20 | 65 | 103.5 | 102.31 | 4.073 | 4.028 | 25.4 (1) | | 200 (8) |
| A 6C54M072GT20 | 72 | 114.6 | 113.45 | 4.511 | 4.466 | 25.4 (1) | | 200 (8) |
| A 6C54M080GT20 | 80 | 127.3 | 126.18 | 5.013 | 4.968 | 25.4 (1) | 200 (8) | |
| A 6C54M090GT20 | 90 | 143.2 | 142.1 | 5.639 | 5.594 | 25.4 (1) | 200 (8) | |
| A 6C54M100GT20 | 100 | 159.2 | 158.01 | 6.266 | 6.221 | 25.4 (1) | 200 (8) | |
| A 6C54M112GT20 | 112 | 178.3 | 177.11 | 7.018 | 6.973 | 25.4 (1) | 150 (6) | |
| A 6C54M126GT20 | 126 | 200.5 | 199.39 | 7.895 | 7.850 | 25.4 (1) | 150 (6) | |

NOTE: Dimensions in () are inch.

^Δ Dimensions in [] may be substituted at SDP option.

Continued from the previous page

FOR 9 mm BELTS
FOR USE WITH GT®2 and GT®3 BELTS
 DOUBLE FLANGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

TRUE METRIC™ PROFILE

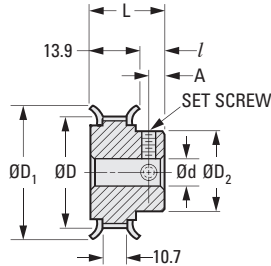


> MATERIAL:
 Aluminum Alloy

> FINISH:
 Clear Anodized

> SPECIFICATIONS:
 D Tolerance: 12 to 16 grooves is +0.05/0
 17 to 32 grooves is +0.08/0
 34 grooves is +0.10/0

Pulleys with 12 and 13 grooves have
 1 set screw; others have 2 set screws at 90°.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | I Hub Proj. | A | Set Screw | | | | | |
|------------------|----------------|-------|--------|---------------------------|-----------------|----------------|-------------------------------|-------------|-----|-----------|------|------|-----|-----|----|
| A 6A55M012DF0906 | 12 | 19.1 | 17.96 | 22.2 | 6 | 20.2 | 11.1 | 6.4 | 3.2 | M3 | | | | | |
| A 6A55M013DF0906 | 13 | 20.7 | 19.56 | 23.8 | | | 12.7 | | | | | | | | |
| A 6A55M014DF0906 | 14 | 22.28 | 21.13 | 25.4 | | | 14.2 | | | | | | | | |
| A 6A55M015DF0906 | 15 | 23.88 | 22.73 | 27 | | | 15.9 | | | | | | | | |
| A 6A55M016DF0906 | 16 | 25.48 | 24.33 | 27.8 | | | 17.5 | | | | | | | | |
| A 6A55M017DF0906 | 17 | 27.05 | 25.91 | 30.2 | | | 19.1 | | | | | | | | |
| A 6A55M018DF0906 | 18 | 28.65 | 27.51 | 31.8 | | | 20.6 | | | | | | | | |
| A 6A55M019DF0906 | 19 | 30.25 | 29.11 | 33.3 | | | 23.8 | | | | | | | | |
| A 6A55M020DF0906 | 20 | 31.83 | 30.68 | 34.9 | | | 25.4 | | | | | | | | |
| A 6A55M022DF0906 | 22 | 35.03 | 33.88 | 38.1 | | | 27 | | | | | | | | |
| A 6A55M024DF0910 | 24 | 38.2 | 37.06 | 41.3 | | | 10 | | | | 23.4 | 25.4 | 9.5 | 4.8 | M5 |
| A 6A55M025DF0910 | 25 | 39.78 | 38.63 | 42.9 | | | | | | | | 30.2 | | | |
| A 6A55M026DF0910 | 26 | 41.38 | 40.23 | 44.5 | 31.8 | | | | | | | | | | |
| A 6A55M028DF0912 | 28 | 44.55 | 43.41 | 47.6 | 12 | 26.6 | 30.2 | 12.7 | 6.4 | M6 | | | | | |
| A 6A55M030DF0912 | 30 | 47.75 | 46.61 | 50.8 | | | 31.8 | | | | | | | | |
| A 6A55M032DF0912 | 32 | 50.93 | 49.78 | 54 | | | 35 | | | | | | | | |
| A 6A55M034DF0912 | 34 | 54.1 | 52.96 | 57.2 | | | | | | | | | | | |



FOR 9 mm BELTS
FOR USE WITH GT[®]2 and GT[®]3 BELTS
NO FLANGE
TRUE METRIC[®] PROFILE

- > **MATERIAL:**
Aluminum Alloy
- > **FINISH:**
Clear Anodized

- > **SPECIFICATIONS:**
 D Tolerance: 12 to 16 grooves is +0.05/0
 17 to 32 grooves is +0.08/0
 34 to 62 grooves is +0.10/0
 70 & 72 grooves is +0.13/0
- Pulleys with 12 and 13 grooves have 1 set screw; others have 2 set screws at 90°

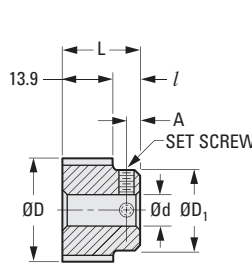


Fig. 1

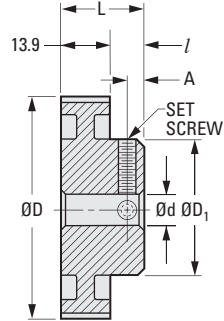


Fig. 2

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | d Bore +0.025/0 | L Length ± 0.4 | D ₁ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|--------|--------|-----------------|----------------|-------------------------------|-------------|-----|-----------|
| Fig. 1 | | | | | | | | | |
| A 6A55M012NF0906 | 12 | 19.1 | 17.96 | 6 | 20.2 | 11.1 | 6.4 | 3.2 | M3 |
| A 6A55M013NF0906 | 13 | 20.7 | 19.56 | 6 | 20.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M014NF0906 | 14 | 22.28 | 21.13 | 6 | 20.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M015NF0906 | 15 | 23.88 | 22.73 | 6 | 20.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M016NF0906 | 16 | 25.48 | 24.33 | 6 | 20.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M017NF0906 | 17 | 27.05 | 25.91 | 6 | 20.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M018NF0906 | 18 | 28.65 | 27.51 | 6 | 20.2 | 17.5 | 6.4 | 3.2 | M3 |
| A 6A55M019NF0906 | 19 | 30.25 | 29.11 | 6 | 20.2 | 19.1 | 6.4 | 3.2 | M3 |
| A 6A55M020NF0906 | 20 | 31.83 | 30.68 | 6 | 20.2 | 20.6 | 6.4 | 3.2 | M3 |
| A 6A55M022NF0906 | 22 | 35.03 | 33.88 | 6 | 20.2 | 23.8 | 6.4 | 3.2 | M3 |
| A 6A55M024NF0910 | 24 | 38.2 | 37.06 | 10 | 23.4 | 28.6 | 9.5 | 4.8 | M5 |
| A 6A55M025NF0910 | 25 | 39.78 | 38.63 | 10 | 23.4 | 28.6 | 9.5 | 4.8 | M5 |
| A 6A55M026NF0910 | 26 | 41.38 | 40.23 | 10 | 23.4 | 28.6 | 9.5 | 4.8 | M5 |
| A 6A55M028NF0912 | 28 | 44.55 | 43.41 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M030NF0912 | 30 | 47.75 | 46.61 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M032NF0912 | 32 | 50.93 | 49.78 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M034NF0912 | 34 | 54.1 | 52.96 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M036NF0912 | 36 | 57.3 | 56.16 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M038NF0912 | 38 | 60.48 | 59.33 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M040NF0912 | 40 | 63.65 | 62.51 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| Fig. 2 | | | | | | | | | |
| A 6A55M044NF0912 | 44 | 70.03 | 68.88 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M048NF0912 | 48 | 76.4 | 75.26 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M050NF0912 | 50 | 79.58 | 78.44 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M056NF0912 | 56 | 89.13 | 87.99 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M060NF0912 | 60 | 95.5 | 94.36 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M062NF0912 | 62 | 98.68 | 97.54 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M070NF0912 | 70 | 111.4 | 110.26 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M072NF0912 | 72 | 114.58 | 113.44 | 12 | 26.6 | 38.1 | 12.7 | 6.4 | M6 |



GT® 2 / GT® 3 TIMING BELT PULLEYS • 5 mm PITCH



FOR 15 mm BELTS
FOR USE WITH GT®2 and GT®3 BELTS
DOUBLE FLANGE
TRUE METRIC™ PROFILE

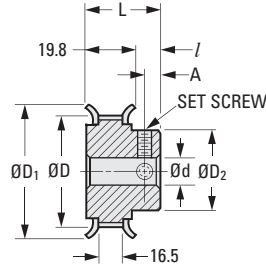
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- > **MATERIAL:**
Aluminum Alloy
- > **FINISH:**
Clear Anodized

- > **SPECIFICATIONS:**
 D Tolerance: 12 to 16 grooves is +0.05/0
 17 to 32 grooves is +0.08/0
 34 grooves is +0.10/0

Pulleys with 12 and 13 grooves have 1 set screw; others have 2 set screws at 90°



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | L Length ± 0.4 | D ₂ Hub Dia. ± 0.4 | I Hub Proj. | A | Set Screw |
|------------------|----------------|-------|--------|---------------------------|-----------------|----------------|-------------------------------|-------------|-----|-----------|
| A 6A55M012DF1506 | 12 | 19.1 | 17.96 | 22.2 | 6 | 26.2 | 11.1 | 6.4 | 3.2 | M3 |
| A 6A55M013DF1506 | 13 | 20.7 | 19.56 | 23.8 | 6 | 26.2 | 12.7 | 6.4 | 3.2 | M3 |
| A 6A55M014DF1506 | 14 | 22.28 | 21.13 | 25.4 | 6 | 26.2 | 12.7 | 6.4 | 3.2 | M3 |
| A 6A55M015DF1506 | 15 | 23.88 | 22.73 | 27 | 6 | 26.2 | 14.2 | 6.4 | 3.2 | M3 |
| A 6A55M016DF1506 | 16 | 25.48 | 24.33 | 27.8 | 6 | 26.2 | 14.2 | 6.4 | 3.2 | M3 |
| A 6A55M017DF1506 | 17 | 27.05 | 25.91 | 30.2 | 6 | 26.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M018DF1506 | 18 | 28.65 | 27.51 | 31.8 | 6 | 26.2 | 17.5 | 6.4 | 3.2 | M3 |
| A 6A55M019DF1506 | 19 | 30.25 | 29.11 | 33.3 | 6 | 26.2 | 19.1 | 6.4 | 3.2 | M3 |
| A 6A55M020DF1506 | 20 | 31.83 | 30.68 | 34.9 | 6 | 26.2 | 20.6 | 6.4 | 3.2 | M3 |
| A 6A55M022DF1506 | 22 | 35.03 | 33.88 | 38.1 | 6 | 26.2 | 23.8 | 6.4 | 4.8 | M5 |
| A 6A55M024DF1510 | 24 | 38.2 | 37.06 | 41.3 | 10 | 29.4 | 25.4 | 9.5 | 4.8 | M5 |
| A 6A55M025DF1510 | 25 | 39.78 | 38.63 | 42.9 | 10 | 29.4 | 25.4 | 9.5 | 4.8 | M5 |
| A 6A55M026DF1510 | 26 | 41.38 | 40.23 | 44.5 | 10 | 32.5 | 27 | 9.5 | 6.4 | M6 |
| A 6A55M028DF1512 | 28 | 44.55 | 43.41 | 47.6 | 12 | 32.5 | 30.2 | 12.7 | 6.4 | M6 |
| A 6A55M030DF1512 | 30 | 47.75 | 46.61 | 50.8 | 12 | 32.5 | 30.2 | 12.7 | 6.4 | M6 |
| A 6A55M032DF1512 | 32 | 50.93 | 49.78 | 54 | 12 | 32.5 | 31.8 | 12.7 | 6.4 | M6 |
| A 6A55M034DF1512 | 34 | 54.1 | 52.96 | 57.2 | 12 | 32.5 | 35 | 12.7 | 6.4 | M6 |



FOR 15 mm BELTS

FOR USE WITH GT®2 and GT®3 BELTS

NO FLANGE

TRUE METRIC® PROFILE

> MATERIAL:

Aluminum Alloy

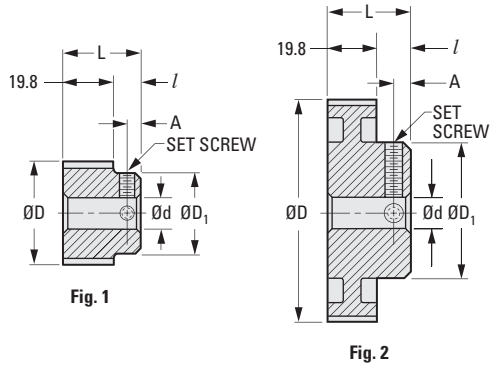
> FINISH:

Clear Anodized

> SPECIFICATIONS:

- D Tolerance: 12 to 16 grooves is +0.05/0
- 17 to 32 grooves is +0.08/0
- 34 to 62 grooves is +0.10/0
- 70 & 72 grooves is +0.13/0

Pulleys with 12 and 13 grooves have 1 set screw; others have 2 set screws at 90°



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | d Bore +0.025 0 | L Length ± 0.4 | D ₁ Hub Dia. ± 0.4 | l Hub Proj. | A | Set Screw |
|------------------|----------------|--------|--------|-----------------------|-------------------|----------------------------------|-------------|-----|-----------|
| Fig. 1 | | | | | | | | | |
| A 6A55M012NF1506 | 12 | 19.1 | 17.96 | 6 | 26.2 | 11.1 | 6.4 | 3.2 | M3 |
| A 6A55M013NF1506 | 13 | 20.7 | 19.56 | 6 | 26.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M014NF1506 | 14 | 22.28 | 21.13 | 6 | 26.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M015NF1506 | 15 | 23.88 | 22.73 | 6 | 26.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M016NF1506 | 16 | 25.48 | 24.33 | 6 | 26.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M017NF1506 | 17 | 27.05 | 25.91 | 6 | 26.2 | 15.9 | 6.4 | 3.2 | M3 |
| A 6A55M018NF1506 | 18 | 28.65 | 27.51 | 6 | 26.2 | 17.5 | 6.4 | 3.2 | M3 |
| A 6A55M019NF1506 | 19 | 30.25 | 29.11 | 6 | 26.2 | 19.1 | 6.4 | 3.2 | M3 |
| A 6A55M020NF1506 | 20 | 31.83 | 30.68 | 6 | 26.2 | 20.6 | 6.4 | 3.2 | M3 |
| A 6A55M022NF1506 | 22 | 35.03 | 33.88 | 6 | 26.2 | 23.8 | 6.4 | 3.2 | M3 |
| A 6A55M024NF1510 | 24 | 38.2 | 37.06 | 10 | 29.4 | 28.6 | 9.5 | 4.8 | M5 |
| A 6A55M025NF1510 | 25 | 39.78 | 38.63 | 10 | 29.4 | 28.6 | 9.5 | 4.8 | M5 |
| A 6A55M026NF1510 | 26 | 41.38 | 40.23 | 10 | 29.4 | 28.6 | 9.5 | 4.8 | M5 |
| A 6A55M028NF1512 | 28 | 44.55 | 43.41 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M030NF1512 | 30 | 47.75 | 46.61 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M032NF1512 | 32 | 50.93 | 49.78 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M034NF1512 | 34 | 54.1 | 52.96 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M036NF1512 | 36 | 57.3 | 56.16 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M038NF1512 | 38 | 60.48 | 59.33 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M040NF1512 | 40 | 63.65 | 62.51 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| Fig. 2 | | | | | | | | | |
| A 6A55M044NF1512 | 44 | 70.03 | 68.88 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M048NF1512 | 48 | 76.4 | 75.26 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M050NF1512 | 50 | 79.58 | 78.44 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M056NF1512 | 56 | 89.13 | 87.99 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M060NF1512 | 60 | 95.5 | 94.36 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M062NF1512 | 62 | 98.68 | 97.54 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M070NF1512 | 70 | 111.4 | 110.26 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |
| A 6A55M072NF1512 | 72 | 114.58 | 113.44 | 12 | 32.5 | 38.1 | 12.7 | 6.4 | M6 |



T TIMING BELTS • 2.5 mm PITCH

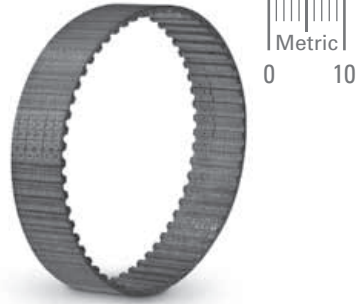
SDP/SI

BELT WIDTHS

METRIC - 4, 6 & 10 mm

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Polyurethane - Reinforced with Steel Tensile Cords

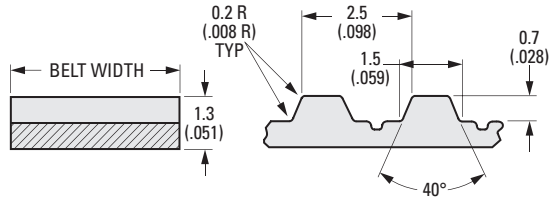
> SPECIFICATIONS:

Breaking Strength:

39 N per 1 mm (28 lbs. per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Temperature Range:

-18°C to +82°C (0°F to +180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 T 3 2 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 4 (.157) | 040 |
| 6 (.236) | 060 |
| 10 (.394) | 100 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 048 | 120 | 4.724 |
| 058 | 145 | 5.709 |
| 064 | 160 | 6.299 |
| 071 | 177.5 | 6.988 |
| 080 | 200 | 7.874 |
| 092 | 230 | 9.055 |
| 098 | 245 | 9.646 |
| 106 | 265 | 10.433 |
| 114 | 285 | 11.220 |
| 122 | 305 | 12.008 |
| 127 | 317.5 | 12.500 |
| 132 | 330 | 12.992 |
| 152 | 380 | 14.961 |
| 168 | 420 | 16.535 |
| 192 | 480 | 18.898 |
| 200 | 500 | 19.685 |
| 240 | 600 | 23.622 |
| 260 | 650 | 25.591 |
| 312 | 780 | 30.709 |
| 366 | 915 | 36.024 |
| 380 | 950 | 37.402 |

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A

T TIMING BELTS • 2.5 mm PITCH



BELT WIDTHS

METRIC - 4, 6 & 10 mm

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Polyurethane - Reinforced with Fiberglass Tensile Cords

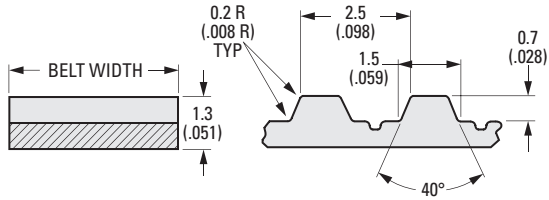
> **SPECIFICATIONS:**

Breaking Strength:

70 N per 1 mm (49 lbf per 1/8 in.) Belt Width;
not representative of the load-carrying capacity of the belt.

Temperature Range:

-18°C to +82°C (0°F to +180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 T 32 M F

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 4 (.157) | 040 |
| 6 (.236) | 060 |
| 10 (.394) | 100 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 048 | 120 | 4.724 |
| 058 | 145 | 5.709 |
| 064 | 160 | 6.299 |
| 071 | 177.5 | 6.988 |
| 080 | 200 | 7.874 |
| 092 | 230 | 9.055 |
| 098 | 245 | 9.646 |
| 106 | 265 | 10.433 |
| 114 | 285 | 11.220 |
| 122 | 305 | 12.008 |
| 127 | 317.5 | 12.500 |
| 132 | 330 | 12.992 |
| 152 | 380 | 14.961 |
| 168 | 420 | 16.535 |
| 192 | 480 | 18.898 |
| 200 | 500 | 19.685 |
| 240 | 600 | 23.622 |
| 248 | 620 | 24.409 |
| 260 | 650 | 25.591 |
| 312 | 780 | 30.709 |
| 366 | 915 | 36.024 |
| 380 | 950 | 37.402 |

D805 2-175A 8.24.10 JC
D790 2-178A 8.24.10 JC



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T PULLEY FLANGES • 2.5 mm PITCH

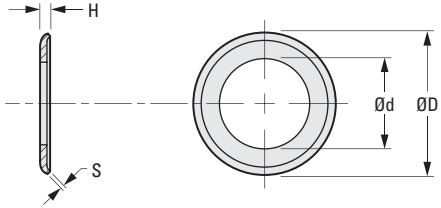


FOR **TRUE METRIC®** PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**
Aluminum Alloy

> **SPECIFICATION:**
Priced per 25 pieces



METRIC COMPONENT

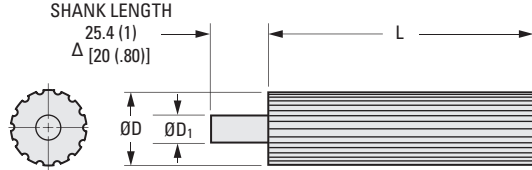
| Catalog Number | Pulley Grooves Ref. | Metric | | Inch | | H Width ± 0.25 (± .01) | S Thickness |
|----------------|---------------------|----------|---------|----------|----------|------------------------|-------------|
| | | d ± 0.08 | D ± 0.4 | d ± .003 | D ± .015 | | |
| A 6A31M012FA | 12 | 6.2 | 13 | .244 | .512 | 1.14 (.045) | 0.64 (.025) |
| A 6A31M014FA | 14 | 8.18 | 15 | .322 | .591 | 1.14 (.045) | 0.64 (.025) |
| A 6A31M018FA | 18 | 10.82 | 17.5 | .426 | .689 | 1.32 (.052) | 0.81 (.032) |
| A 6A31M019FA | 19 | 11.48 | 18 | .452 | .710 | 1.32 (.052) | 0.81 (.032) |
| A 6A31M020FA | 20 | 12.8 | 20 | .504 | .787 | 1.32 (.052) | 0.81 (.032) |
| A 6A31M022FA | 22 | 14.58 | 23 | .574 | .906 | 1.32 (.052) | 0.81 (.032) |
| A 6A31M026FA | 26 | 17.22 | 25.5 | .678 | 1.004 | 1.32 (.052) | 0.81 (.032) |
| A 6A31M030FA | 30 | 17.88 | 26 | .704 | 1.025 | 1.32 (.052) | 0.81 (.032) |
| A 6A31M032FA | 32 | 23.52 | 32 | .926 | 1.260 | 1.52 (.06) | 1.02 (.040) |
| A 6A31M036FA | 36 | 26.87 | 36 | 1.058 | 1.417 | 1.52 (.06) | 1.02 (.040) |
| A 6A31M040FA | 40 | 28.19 | 37.5 | 1.110 | 1.476 | 1.52 (.06) | 1.02 (.040) |

NOTE: Dimensions in () are inch size.

> **MATERIAL:**
Aluminum Alloy

> **SPECIFICATION:**
D Tolerance:
10 to 60 grooves is 0/-0.05 (+.000/-0.02)
65 to 100 grooves is 0/-0.08 (+.000/-0.03)

Δ Dimensions in [] may be substituted at SDP option.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | L Min. Usable Length | D ₁ Shank Dia. |
|----------------|----------------|--------|--------|-------|--------|----------------------|---------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | |
| A 6A31M010T05 | 10 | 8.05 | 7.45 | .317 | .293 | 50 (2) | 8 (5/16) |
| A 6A31M012T05 | 12 | 9.6 | 9 | .378 | .354 | 50 (2) | 9.5 (3/8) |
| A 6A31M013T05 | 13 | 10.4 | 9.8 | .409 | .386 | 50 (2) | 11.1 (7/16) |
| A 6A31M014T05 | 14 | 11.2 | 10.6 | .441 | .417 | 50 (2) | 11.1 (7/16) |
| A 6A31M015T05 | 15 | 12 | 11.4 | .472 | .449 | 50 (2) | 12.7 (1/2) |
| A 6A31M016T05 | 16 | 12.8 | 12.2 | .504 | .480 | 50 (2) | 12.7 (1/2) |
| A 6A31M017T05 | 17 | 13.6 | 13 | .535 | .512 | 50 (2) | 9.5 (3/8) |
| A 6A31M018T05 | 18 | 14.4 | 13.8 | .567 | .543 | 50 (2) | 9.5 (3/8) |
| A 6A31M019T09 | 19 | 15.2 | 14.6 | .598 | .575 | 90 (3.5) | 9.5 (3/8) |
| A 6A31M020T09 | 20 | 16 | 15.4 | .630 | .606 | 90 (3.5) | 12.7 (1/2) |
| A 6A31M021T09 | 21 | 16.8 | 16.2 | .661 | .638 | 90 (3.5) | 12.7 (1/2) |
| A 6A31M022T12 | 22 | 17.6 | 17 | .693 | .669 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M024T12 | 24 | 19.15 | 18.55 | .754 | .730 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M026T12 | 26 | 20.75 | 20.15 | .817 | .793 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M027T12 | 27 | 21.55 | 20.95 | .848 | .825 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M028T12 | 28 | 22.35 | 21.75 | .880 | .856 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M029T12 | 29 | 23.15 | 22.55 | .911 | .888 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M030T12 | 30 | 23.95 | 23.35 | .943 | .919 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M032T12 | 32 | 25.55 | 24.95 | 1.006 | .982 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M034T12 | 34 | 27.15 | 26.55 | 1.069 | 1.045 | 125 (4.9) | 12.7 (1/2) |
| A 6A31M035T13 | 35 | 27.95 | 27.35 | 1.100 | 1.077 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M036T13 | 36 | 28.75 | 28.15 | 1.132 | 1.108 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M038T13 | 38 | 30.3 | 29.7 | 1.193 | 1.169 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M040T13 | 40 | 31.9 | 31.3 | 1.256 | 1.232 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M042T13 | 42 | 33.5 | 32.9 | 1.319 | 1.295 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M044T13 | 44 | 35.1 | 34.5 | 1.382 | 1.358 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M045T13 | 45 | 35.9 | 35.3 | 1.413 | 1.390 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M048T13 | 48 | 38.3 | 37.7 | 1.508 | 1.484 | 132 (5.2) | 12.7 (1/2) |
| A 6A31M050T16 | 50 | 39.85 | 39.25 | 1.569 | 1.545 | 160 (6.3) | 12.7 (1/2) |
| A 6A31M060T16 | 60 | 47.85 | 47.25 | 1.884 | 1.860 | 160 (6.3) | 12.7 (1/2) |
| A 6A31M065T16 | 65 | 51.8 | 51.2 | 2.039 | 2.016 | 160 (6.3) | 19.1 (3/4) |
| A 6A31M070T16 | 70 | 55.8 | 55.2 | 2.197 | 2.173 | 160 (6.3) | 19.1 (3/4) |
| A 6A31M072T16 | 72 | 57.4 | 56.8 | 2.260 | 2.236 | 160 (6.3) | 19.1 (3/4) |
| A 6A31M090T16 | 90 | 71.7 | 71.1 | 2.823 | 2.799 | 160 (6.3) | 19.1 (3/4) |
| A 6A31M100T16 | 100 | 79.65 | 79.05 | 3.136 | 3.112 | 160 (6.3) | 19.1 (3/4) |

NOTE: Dimensions in () are inch size.

FOR BELTS UP TO 6 mm WIDE
 DOUBLE OR NO FLANGE
TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
 Aluminum Alloy

➤ **FINISH:**
 Clear Anodized

➤ **SPECIFICATIONS:**
 D Tolerance: 12 to 32 grooves is 0/-0.05
 36 to 60 grooves is 0/-0.08

Pulleys with 12 to 16 grooves have 1 set screw; 18 to 40 grooves have 2 set screws at 90°, 44 to 60 grooves do not have tapped holes.

➤ **MODIFICATIONS:**
 Inch size bores available on special request.

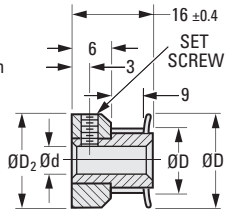


Fig. 1

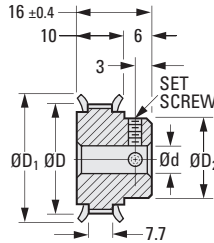


Fig. 2

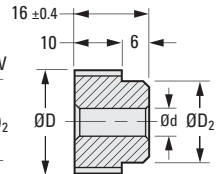


Fig. 3

METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | D ₂ Hub Dia. ± 0.4 | Set Screw |
|-----------------------------|----------------|-------|--------|---------------------------|-----------------|-------------------------------|-----------|
| Fig. 1 Double Flange | | | | | | | |
| A 6A32M012DF0603 | 12 | 9.6 | 9 | 13 | 3 | 13 | M2 |
| A 6A32M014DF0603 | 14 | 11.2 | 10.6 | 15 | 3 | 15 | M2 |
| A 6A32M015DF0603 | 15 | 12 | 11.4 | 15 | 3 | 15 | M2 |
| A 6A32M016DF0603 | 16 | 12.8 | 12.2 | 15 | 3 | 15 | M2 |
| Fig. 2 Double Flange | | | | | | | |
| A 6A32M018DF0604 | 18 | 14.4 | 13.8 | 17.5 | 4 | 9 | M2 |
| A 6A32M019DF0604 | 19 | 15.2 | 14.6 | 18 | 4 | 10 | M2 |
| A 6A32M020DF0604 | 20 | 16 | 15.4 | 20 | 4 | 11 | M2 |
| A 6A32M022DF0604 | 22 | 17.6 | 17 | 23 | 4 | 11 | M2 |
| A 6A32M024DF0604 | 24 | 19.15 | 18.55 | 23 | 4 | 12 | M2 |
| A 6A32M025DF0604 | 25 | 19.95 | 19.35 | 23 | 4 | 13 | M2 |
| A 6A32M026DF0604 | 26 | 20.75 | 20.15 | 25.5 | 4 | 14 | M2 |
| A 6A32M028DF0604 | 28 | 22.35 | 21.75 | 25.5 | 4 | 14 | M2 |
| A 6A32M030DF0606 | 30 | 23.95 | 23.35 | 26 | 6 | 16 | M3 |
| A 6A32M032DF0606 | 32 | 25.55 | 24.95 | 29 | 6 | 16 | M3 |
| A 6A32M036DF0606 | 36 | 28.75 | 28.15 | 36 | 6 | 20 | M3 |
| A 6A32M040DF0606 | 40 | 31.9 | 31.3 | 37.5 | 6 | 22 | M3 |
| Fig. 3 No Flange | | | | | | | |
| A 6A32M044NF0606 | 44 | 35.1 | 34.5 | — | 6 | 24 | — |
| A 6A32M048NF0606 | 48 | 38.3 | 37.7 | — | 6 | 26 | — |
| A 6A32M060NF0608 | 60 | 47.85 | 47.25 | — | 8 | 34 | — |

T TIMING BELT PULLEYS • 2.5 mm PITCH



FOR BELTS UP TO 6 mm WIDE
 MOLDED
 SINGLE OR DOUBLE FLANGE
TRUE METRIC PROFILE

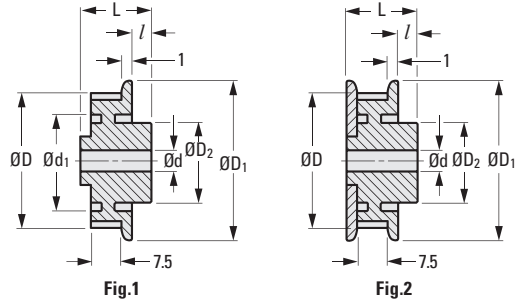
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➤ **MATERIAL:**
 Acetal - Black

➤ **SPECIFICATIONS:**
 Pulleys with 12 to 22 grooves do not have webs.

➤ **MODIFICATIONS:**
 Inch size bores available on special request.



METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. | D ₂ Hub Dia. | L | l | d ₁ Dia. |
|----------------------|----------------------|----------------|-------|--------|---------------------|-------------|-------------------------|----|-----|---------------------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | | | | |
| A 6M32M012SF0603 | A 6M32M012DF0603 | 12 | 9.6 | 9 | 10.6 | 3.5 | 9 | 14 | 4.5 | Solid |
| A 6M32M013SF0603 | A 6M32M013DF0603 | 13 | 10.4 | 9.8 | 11.4 | 3.5 | 9 | 14 | 4.5 | Solid |
| A 6M32M014SF0603 | A 6M32M014DF0603 | 14 | 11.2 | 10.6 | 12.2 | 3.5 | 9 | 14 | 4.5 | Solid |
| A 6M32M015SF0603 | A 6M32M015DF0603 | 15 | 12 | 11.4 | 13 | 3.5 | 9 | 14 | 4.5 | Solid |
| A 6M32M016SF0603 | A 6M32M016DF0603 | 16 | 12.8 | 12.2 | 13.8 | 3.5 | 9 | 14 | 4.5 | Solid |
| A 6M32M017SF0603 | A 6M32M017DF0603 | 17 | 13.6 | 13 | 14.6 | 3.5 | 9 | 14 | 4.5 | Solid |
| A 6M32M018SF0604 | A 6M32M018DF0604 | 18 | 14.4 | 13.8 | 15.4 | 4 | 10 | 15 | 5.5 | Solid |
| A 6M32M019SF0604 | A 6M32M019DF0604 | 19 | 15.2 | 14.6 | 16.2 | 4 | 10 | 15 | 5.5 | Solid |
| A 6M32M020SF0604 | A 6M32M020DF0604 | 20 | 16 | 15.4 | 17 | 4 | 12 | 15 | 5.5 | Solid |
| A 6M32M022SF0604 | A 6M32M022DF0604 | 22 | 17.6 | 17 | 18.6 | 4 | 12 | 15 | 5.5 | Solid |
| A 6M32M025SF0605 | A 6M32M025DF0605 | 25 | 19.95 | 19.35 | 21 | 5 | 12 | 15 | 5.5 | 14 |
| A 6M32M028SF0605 | A 6M32M028DF0605 | 28 | 22.35 | 21.75 | 23.4 | 5 | 12 | 15 | 5.5 | 16.2 |
| A 6M32M032SF0605 | A 6M32M032DF0605 | 32 | 25.55 | 24.95 | 26.6 | 5 | 15 | 16 | 6.5 | 18.5 |
| A 6M32M036SF0605 | A 6M32M036DF0605 | 36 | 28.75 | 28.15 | 29.8 | 5 | 15 | 16 | 6.5 | 21.8 |
| A 6M32M040SF0608 | A 6M32M040DF0608 | 40 | 31.9 | 31.3 | 32.9 | 8 | 18 | 16 | 6.5 | 25 |
| A 6M32M048SF0608 | A 6M32M048DF0608 | 48 | 38.3 | 37.7 | 39.3 | 8 | 18 | 16 | 6.5 | 31.6 |
| A 6M32M060SF0608 | A 6M32M060DF0608 | 60 | 47.85 | 47.25 | 48.9 | 8 | 18 | 16 | 6.5 | 41 |
| A 6M32M072SF0608 | A 6M32M072DF0608 | 72 | 57.4 | 56.8 | 58.4 | 8 | 18 | 16 | 6.5 | 49.5 |
| A 6M32M084SF0608 | A 6M32M084DF0608 | 84 | 66.95 | 66.35 | 68 | 8 | 18 | 16 | 6.5 | 59 |
| A 6M32M096SF0608 | A 6M32M096DF0608 | 96 | 76.5 | 75.9 | 77.5 | 8 | 18 | 16 | 6.5 | 68 |



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T TIMING BELTS • 5 mm PITCH



BELT WIDTHS

METRIC - 6, 10 & 16 mm

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Polyurethane - Reinforced with Fiberglass Tensile Cords

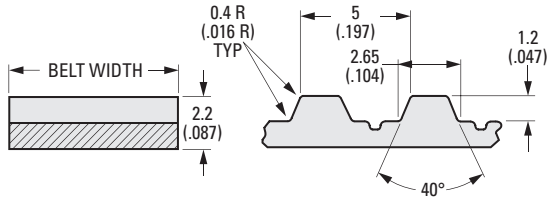
> SPECIFICATIONS:

Breaking Strength:

217 N per 1 mm (154 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Temperature Range:

-18°C to +82°C (0°F to +180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 T 35 M F

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 10 (.394) | 100 |
| 16 (.630) | 160 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 020 | 100 | 3.937 |
| 033 | 165 | 6.496 |
| 036 | 180 | 7.087 |
| 037 | 185 | 7.283 |
| 040 | 200 | 7.874 |
| 043 | 215 | 8.465 |
| 044 | 220 | 8.661 |
| 045 | 225 | 8.858 |
| 049 | 245 | 9.646 |
| 050 | 250 | 9.843 |
| 051 | 255 | 10.039 |
| 052 | 260 | 10.236 |
| 054 | 270 | 10.630 |
| 055 | 275 | 10.827 |
| 056 | 280 | 11.024 |
| 059 | 295 | 11.614 |
| 060 | 300 | 11.811 |
| 061 | 305 | 12.008 |
| 065 | 325 | 12.795 |
| 066 | 330 | 12.992 |
| 068 | 340 | 13.386 |
| 070 | 350 | 13.780 |
| 071 | 355 | 13.976 |
| 073 | 365 | 14.370 |
| 078 | 390 | 15.354 |
| 080 | 400 | 15.748 |
| 082 | 410 | 16.142 |
| 084 | 420 | 16.535 |
| 085 | 425 | 16.732 |
| 090 | 450 | 17.717 |
| 091 | 455 | 17.913 |
| 095 | 475 | 18.701 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 096 | 480 | 18.898 |
| 100 | 500 | 19.685 |
| 102 | 510 | 20.079 |
| 105 | 525 | 20.669 |
| 109 | 545 | 21.457 |
| 110 | 550 | 21.654 |
| 112 | 560 | 22.047 |
| 115 | 575 | 22.638 |
| 120 | 600 | 23.622 |
| 122 | 610 | 24.016 |
| 124 | 620 | 24.409 |
| 126 | 630 | 24.803 |
| 128 | 640 | 25.197 |
| 130 | 650 | 25.591 |
| 132 | 660 | 25.984 |
| 138 | 690 | 27.165 |
| 139 | 695 | 27.362 |
| 140 | 700 | 27.559 |
| 144 | 720 | 28.346 |
| 150 | 750 | 29.528 |
| 156 | 780 | 30.709 |
| 163 | 815 | 32.087 |
| 168 | 840 | 33.071 |
| 170 | 850 | 33.465 |
| 180 | 900 | 35.433 |
| 198 | 990 | 38.976 |
| 200 | 1000 | 39.370 |
| 215 | 1075 | 42.323 |
| 220 | 1100 | 43.307 |
| 243 | 1215 | 47.835 |
| 276 | 1380 | 54.331 |
| 288 | 1440 | 56.693 |

D805 2-180A 8.24.10 JC
D790 2-183A 8.24.10 JC



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BELT WIDTHS

METRIC - 6, 10 & 16 mm
TRUE METRIC PROFILE

> MATERIAL:

Polyurethane - Reinforced with Steel Tensile Cords

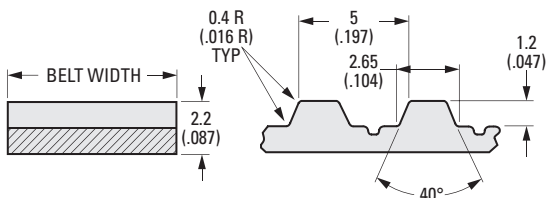
> SPECIFICATIONS:

Breaking Strength:

119 N per 1 mm (85 lbs. per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Temperature Range:

-18°C to +82°C (0°F to +180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 T 35 M

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 6 (.236) | 060 |
| 10 (.394) | 100 |
| 16 (.630) | 160 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 033 | 165 | 6.496 |
| 037 | 185 | 7.283 |
| 040 | 200 | 7.874 |
| 043 | 215 | 8.465 |
| 044 | 220 | 8.661 |
| 045 | 225 | 8.858 |
| 049 | 245 | 9.646 |
| 050 | 250 | 9.843 |
| 051 | 255 | 10.039 |
| 052 | 260 | 10.236 |
| 054 | 270 | 10.630 |
| 055 | 275 | 10.827 |
| 056 | 280 | 11.024 |
| 059 | 295 | 11.614 |
| 060 | 300 | 11.811 |
| 061 | 305 | 12.008 |
| 065 | 325 | 12.795 |
| 066 | 330 | 12.992 |
| 068 | 340 | 13.386 |
| 070 | 350 | 13.780 |
| 071 | 355 | 13.976 |
| 073 | 365 | 14.370 |
| 078 | 390 | 15.354 |
| 080 | 400 | 15.748 |
| 082 | 410 | 16.142 |
| 084 | 420 | 16.535 |
| 085 | 425 | 16.732 |
| 090 | 450 | 17.717 |
| 091 | 455 | 17.913 |
| 095 | 475 | 18.701 |
| 096 | 480 | 18.898 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 100 | 500 | 19.685 |
| 102 | 510 | 20.079 |
| 105 | 525 | 20.669 |
| 109 | 545 | 21.457 |
| 110 | 550 | 21.654 |
| 112 | 560 | 22.047 |
| 115 | 575 | 22.638 |
| 120 | 600 | 23.622 |
| 122 | 610 | 24.016 |
| 124 | 620 | 24.409 |
| 126 | 630 | 24.803 |
| 128 | 640 | 25.197 |
| 130 | 650 | 25.591 |
| 132 | 660 | 25.984 |
| 138 | 690 | 27.165 |
| 139 | 695 | 27.362 |
| 140 | 700 | 27.559 |
| 144 | 720 | 28.346 |
| 150 | 750 | 29.528 |
| 156 | 780 | 30.709 |
| 163 | 815 | 32.087 |
| 168 | 840 | 33.071 |
| 170 | 850 | 33.465 |
| 180 | 900 | 35.433 |
| 198 | 990 | 38.976 |
| 200 | 1000 | 39.370 |
| 215 | 1075 | 42.323 |
| 220 | 1100 | 43.307 |
| 243 | 1215 | 47.835 |
| 276 | 1380 | 54.331 |
| 288 | 1440 | 56.693 |

T DOUBLE-SIDED TIMING BELTS • 5 mm PITCH

SDP/SI

BELT WIDTHS

METRIC - 5, 10 & 15 mm

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Polyurethane - Reinforced with Steel Tensile Cords

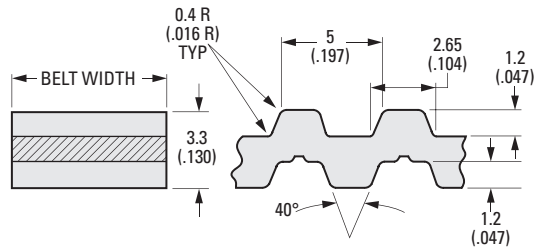
> SPECIFICATIONS:

Breaking Strength:

119 N per 1 mm (85 lbs. per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Temperature Range:

-18°C to +82°C (0°F to +180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 T 3 5 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 5 (.197) | 050 |
| 10 (.394) | 100 |
| 15 (.630) | 150 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 082 | 410 | 16.142 |
| 092 | 460 | 18.110 |
| 096 | 480 | 18.898 |
| 103 | 515 | 20.276 |
| 118 | 590 | 23.228 |
| 124 | 620 | 24.409 |
| 140 | 700 | 27.559 |
| 150 | 750 | 29.528 |
| 160 | 800 | 31.496 |
| 163 | 815 | 32.087 |
| 172 | 860 | 33.858 |
| 188 | 940 | 37.008 |
| 220 | 1100 | 43.307 |

T PULLEY FLANGES • 5 mm PITCH

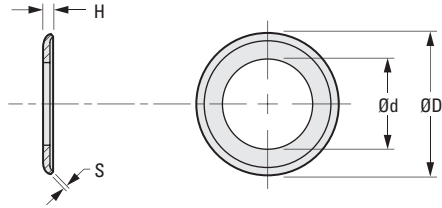
SDP/SI

FOR **TRUE METRIC®** PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**
Aluminum Alloy

> **SPECIFICATION:**
Priced per 25 pieces



METRIC COMPONENT

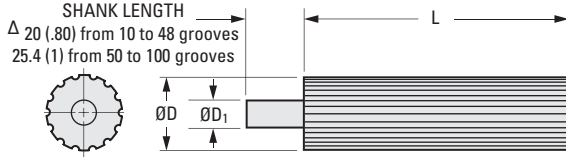
| Catalog Number | Pulley Grooves Ref. | Metric | | | Inch | | | H Width ± 0.25 (± .01) | S Thickness |
|----------------|---------------------|--------|--------|---------|-------|--------|----------|------------------------------|-------------|
| | | d | d Tol. | D ± 0.4 | d | d Tol. | D ± .015 | | |
| A 6A34M010FA | 10 | 12.8 | ±0.08 | 20 | .504 | ±.003 | .787 | 1.32 (.052) | 0.81 (.032) |
| A 6A34M012FA | 12 | 14.58 | ±0.08 | 23 | .574 | ±.003 | .906 | 1.32 (.052) | 0.81 (.032) |
| A 6A34M014FA | 14 | 17.22 | ±0.08 | 25.5 | .678 | ±.003 | 1.004 | 1.32 (.052) | 0.81 (.032) |
| A 6A34M015FA | 15 | 17.88 | ±0.08 | 26 | .704 | ±.003 | 1.025 | 1.32 (.052) | 0.81 (.032) |
| A 6A34M016FA | 16 | 23.52 | ±0.08 | 32 | .926 | ±.003 | 1.260 | 1.52 (.06) | 1.02 (.040) |
| A 6A34M019FA | 19 | 26.87 | ±0.08 | 36 | 1.058 | ±.003 | 1.417 | 1.52 (.06) | 1.02 (.040) |
| A 6A34M022FA | 22 | 28.19 | ±0.08 | 38 | 1.110 | ±.003 | 1.496 | 1.52 (.06) | 1.02 (.040) |
| A 6A34M024FA | 24 | 31.04 | ±0.08 | 42.5 | 1.222 | ±.003 | 1.673 | 1.65 (.065) | 1.02 (.040) |
| A 6A34M025FA | 25 | 31.04 | ±0.08 | 44.5 | 1.222 | ±.003 | 1.750 | 1.65 (.065) | 1.02 (.040) |
| A 6A34M027FA | 27 | 34.21 | ±0.08 | 47.5 | 1.347 | ±.003 | 1.870 | 1.65 (.065) | 1.02 (.040) |
| A 6A34M030FA | 30 | 36.2 | ±0.08 | 51 | 1.425 | ±.003 | 2.008 | 1.65 (.065) | 1.02 (.040) |
| A 6A34M032FA | 32 | 40.08 | ±0.13 | 54 | 1.578 | ±.005 | 2.126 | 2.29 (.09) | 1.4 (.055) |
| A 6A34M036FA | 36 | 48.51 | ±0.13 | 63.5 | 1.910 | ±.005 | 2.500 | 2.29 (.09) | 1.4 (.055) |
| A 6A34M040FA | 40 | 51.68 | ±0.13 | 66.5 | 2.035 | ±.005 | 2.618 | 2.29 (.09) | 1.4 (.055) |
| A 6A34M042FA | 42 | 53.85 | ±0.13 | 70 | 2.120 | ±.005 | 2.756 | 2.29 (.09) | 1.4 (.055) |

NOTE: Dimensions in () are inch size.

➤ **MATERIAL:**
Aluminum Alloy

➤ **SPECIFICATION:**
D Tolerance:
10 to 30 grooves is 0/-0.05 (+.000/-0.02)
32 to 100 grooves is 0/-0.08 (+.000/-0.03)

Δ 25.4 (1) may be substituted here in place of 20 (.80) at SDP option.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | L Min. Usable Length | D ₁ Shank Dia. |
|----------------|----------------|--------|--------|-------|--------|----------------------|---------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | |
| A 6A34M010T12 | 10 | 16.05 | 15.05 | .632 | .593 | 125 (4.9) | 12.7 (1/2) |
| A 6A34M011T12 | 11 | 17.65 | 16.65 | .695 | .656 | 125 (4.9) | 12.7 (1/2) |
| A 6A34M012T12 | 12 | 19.25 | 18.25 | .758 | .719 | 125 (4.9) | 12.7 (1/2) |
| A 6A34M013T12 | 13 | 20.85 | 19.85 | .821 | .781 | 125 (4.9) | 12.7 (1/2) |
| A 6A34M014T13 | 14 | 22.45 | 21.45 | .884 | .844 | 132 (5.2) | 12.7 (1/2) |
| A 6A34M015T13 | 15 | 24.05 | 23.05 | .947 | .907 | 132 (5.2) | 12.7 (1/2) |
| A 6A34M016T14 | 16 | 25.6 | 24.6 | 1.008 | .969 | 140 (5.5) | 12.7 (1/2) |
| A 6A34M017T14 | 17 | 27.2 | 26.2 | 1.071 | 1.031 | 140 (5.5) | 12.7 (1/2) |
| A 6A34M018T14 | 18 | 28.8 | 27.8 | 1.134 | 1.094 | 140 (5.5) | 12.7 (1/2) |
| A 6A34M019T14 | 19 | 30.4 | 29.4 | 1.197 | 1.157 | 140 (5.5) | 12.7 (1/2) |
| A 6A34M020T16 | 20 | 32 | 31 | 1.260 | 1.220 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M021T16 | 21 | 33.6 | 32.6 | 1.323 | 1.283 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M022T16 | 22 | 35.15 | 34.15 | 1.384 | 1.344 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M023T16 | 23 | 36.75 | 35.75 | 1.447 | 1.407 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M024T16 | 24 | 38.35 | 37.35 | 1.510 | 1.470 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M025T16 | 25 | 39.95 | 38.95 | 1.573 | 1.533 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M026T16 | 26 | 41.55 | 40.55 | 1.636 | 1.596 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M027T16 | 27 | 43.15 | 42.15 | 1.699 | 1.659 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M028T16 | 28 | 44.75 | 43.75 | 1.762 | 1.722 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M029T16 | 29 | 46.3 | 45.3 | 1.823 | 1.783 | 160 (6.3) | 12.7 (1/2) |
| A 6A34M030T16 | 30 | 47.9 | 46.9 | 1.886 | 1.846 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M032T16 | 32 | 51.1 | 50.1 | 2.012 | 1.972 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M034T16 | 34 | 54.3 | 53.3 | 2.138 | 2.098 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M035T16 | 35 | 55.85 | 54.85 | 2.199 | 2.159 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M036T16 | 36 | 57.45 | 56.45 | 2.262 | 2.222 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M037T16 | 37 | 59.05 | 58.05 | 2.325 | 2.285 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M038T16 | 38 | 60.65 | 59.65 | 2.388 | 2.348 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M040T16 | 40 | 63.85 | 62.85 | 2.514 | 2.474 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M042T16 | 42 | 67 | 66 | 2.638 | 2.598 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M044T16 | 44 | 70.2 | 69.2 | 2.764 | 2.724 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M045T16 | 45 | 71.8 | 70.8 | 2.827 | 2.787 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M046T16 | 46 | 73.4 | 72.4 | 2.890 | 2.850 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M048T16 | 48 | 76.55 | 75.55 | 3.014 | 2.974 | 160 (6.3) | 19.1 (3/4) |
| A 6A34M050T16 | 50 | 79.75 | 78.75 | 3.140 | 3.100 | 160 (6.3) | 25.4 (1) |
| A 6A34M060T16 | 60 | 95.65 | 94.65 | 3.766 | 3.726 | 160 (6.3) | 25.4 (1) |
| A 6A34M072T16 | 72 | 114.75 | 113.75 | 4.518 | 4.478 | 160 (6.3) | 25.4 (1) |
| A 6A34M080T16 | 80 | 127.5 | 126.5 | 5.020 | 4.980 | 160 (6.3) | 25.4 (1) |
| A 6A34M090T16 | 90 | 143.45 | 142.45 | 5.648 | 5.608 | 160 (6.3) | 25.4 (1) |
| A 6A34M100T16 | 100 | 159.34 | 158.34 | 6.273 | 6.234 | 160 (6.3) | 25.4 (1) |

NOTE: Dimensions in () are inch size.



FOR BELTS UP TO 10 mm WIDE
 DOUBLE OR NO FLANGE
TRUE METRIC PROFILE

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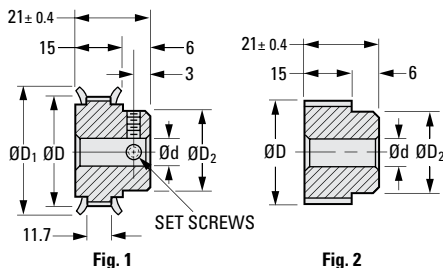
> **MATERIAL:**
 Aluminum Alloy

> **FINISH:**
 Clear Anodized

> **SPECIFICATIONS:**
 D Tolerance: 10 to 30 grooves is 0/-0.05
 32 to 60 grooves is 0/-0.08

Pulleys with 10 and 14 grooves have 1 set screw; 15 to 26 grooves have 2 set screws at 90°, 27 to 60 grooves do not have tapped holes.

Inch size bores available on special request.



METRIC COMPONENT

| Catalog Number | No. of Grooves | P.D. | D Dia. | D ₁ Dia. ± 0.4 | d Bore +0.025 0 | D ₂ Hub Dia. ± 0.4 | Set Screw | | |
|-----------------------------|----------------|-------|--------|---------------------------|-----------------|-------------------------------|-----------|----|---|
| Fig. 1 Double Flange | | | | | | | | | |
| A 6A35M010DF1004 | 10 | 16.05 | 15.05 | 20 | 4 | 8 | M2 | | |
| A 6A35M012DF1004 | 12 | 19.25 | 18.25 | 23 | | 11 | | | |
| A 6A35M014DF1004 | 14 | 22.45 | 21.45 | 25.5 | | 14 | | | |
| A 6A35M015DF1006 | 15 | 24.05 | 23.05 | 26 | | 16 | | | |
| A 6A35M016DF1006 | 16 | 25.6 | 24.6 | 32 | 6 | 18 | M3 | | |
| A 6A35M018DF1006 | 18 | 28.8 | 27.8 | | | 20 | | | |
| A 6A35M019DF1006 | 19 | 30.4 | 29.4 | 36 | | 22 | | | |
| A 6A35M020DF1006 | 20 | 32 | 31 | | | 23 | | | |
| A 6A35M022DF1006 | 22 | 35.15 | 34.15 | 38 | | 24 | | | |
| A 6A35M024DF1006 | 24 | 38.35 | 37.35 | 42.5 | | 26 | | | |
| A 6A35M025DF1006 | 25 | 39.95 | 38.95 | 44.5 | | | | | |
| A 6A35M026DF1006 | 26 | 41.55 | 40.55 | 47.5 | | 8 | | 30 | — |
| A 6A35M027DF1008 | 27 | 43.15 | 42.15 | | 32 | | | | |
| A 6A35M028DF1008 | 28 | 44.75 | 43.75 | 51 | 34 | | | | |
| A 6A35M030DF1008 | 30 | 47.9 | 46.9 | | 35 | | | | |
| A 6A35M032DF1008 | 32 | 51.1 | 50.1 | 54 | 38 | | | | |
| A 6A35M036DF1008 | 36 | 57.45 | 56.45 | 63.5 | 40 | | | | |
| A 6A35M040DF1008 | 40 | 63.85 | 62.85 | 66.5 | | | | | |
| A 6A35M042DF1008 | 42 | 67 | 66 | 70 | | | | | |
| Fig. 2 No Flange | | | | | | | | | |
| A 6A35M044NF1008 | 44 | 70.2 | 69.2 | — | 8 | | 45 | — | |
| A 6A35M048NF1008 | 48 | 76.55 | 75.55 | | | 50 | | | |
| A 6A35M060NF1008 | 60 | 95.65 | 94.65 | | | 65 | | | |



FOR 10 mm BELTS

MOLDED

SINGLE OR DOUBLE FLANGE

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
Acetal - Black

➤ **SPECIFICATION:**
Pulleys with 12 to 14 grooves do not have webs.

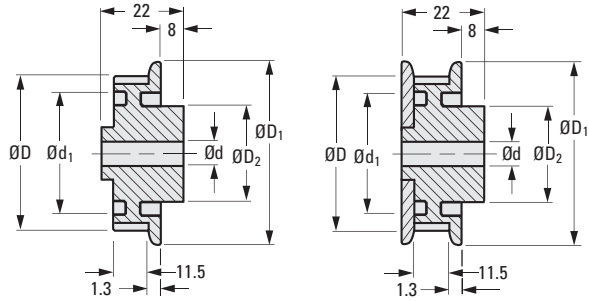


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | | No. of Grooves | P.D. | D Dia. | D ₁ Dia. | d Bore Dia. | D ₂ Hub Dia. | d ₁ Dia. |
|----------------------|----------------------|----------------|--------|--------|---------------------|-------------|-------------------------|---------------------|
| Fig. 1 Single Flange | Fig. 2 Double Flange | | | | | | | |
| A 6M35M012SF1005 | A 6M35M012DF1005 | 12 | 19.25 | 18.25 | 20.7 | 5 | 15 | Solid |
| A 6M35M013SF1005 | A 6M35M013DF1005 | 13 | 20.85 | 19.85 | 22.3 | 5 | 15 | Solid |
| A 6M35M014SF1005 | A 6M35M014DF1005 | 14 | 22.45 | 21.45 | 23.9 | 5 | 15 | Solid |
| A 6M35M015SF1006 | A 6M35M015DF1006 | 15 | 24.05 | 23.05 | 25.5 | 6 | 16 | 19 |
| A 6M35M016SF1006 | A 6M35M016DF1006 | 16 | 25.6 | 24.6 | 27 | 6 | 16 | 19 |
| A 6M35M017SF1006 | A 6M35M017DF1006 | 17 | 27.2 | 26.2 | 28.6 | 6 | 16 | 19 |
| A 6M35M018SF1006 | A 6M35M018DF1006 | 18 | 28.8 | 27.8 | 30.2 | 6 | 16 | 19 |
| A 6M35M019SF1008 | A 6M35M019DF1008 | 19 | 30.4 | 29.4 | 31.8 | 8 | 16 | 22 |
| A 6M35M020SF1008 | A 6M35M020DF1008 | 20 | 32 | 31 | 33.4 | 8 | 16 | 25 |
| A 6M35M022SF1008 | A 6M35M022DF1008 | 22 | 35.15 | 34.15 | 36.6 | 8 | 18 | 27 |
| A 6M35M025SF1008 | A 6M35M025DF1008 | 25 | 39.95 | 38.95 | 41.4 | 8 | 18 | 32 |
| A 6M35M028SF1010 | A 6M35M028DF1010 | 28 | 44.75 | 43.75 | 46.2 | 10 | 18 | 36 |
| A 6M35M032SF1010 | A 6M35M032DF1010 | 32 | 51.1 | 50.1 | 52.5 | 10 | 18 | 42 |
| A 6M35M036SF1010 | A 6M35M036DF1010 | 36 | 57.45 | 56.45 | 58.9 | 10 | 18 | 47 |
| A 6M35M040SF1010 | A 6M35M040DF1010 | 40 | 63.85 | 62.85 | 65.3 | 10 | 18 | 53 |
| A 6M35M048SF1010 | A 6M35M048DF1010 | 48 | 76.55 | 75.55 | 78 | 10 | 18 | 66 |
| A 6M35M060SF1010 | A 6M35M060DF1010 | 60 | 95.65 | 94.65 | 97.1 | 10 | 18 | 85 |
| A 6M35M072SF1010 | A 6M35M072DF1010 | 72 | 114.75 | 113.75 | 116.2 | 10 | 18 | 104 |
| A 6M35M084SF1010 | A 6M35M084DF1010 | 84 | 133.9 | 132.9 | 135.3 | 10 | 18 | 123 |

T TIMING BELTS • 10 mm PITCH

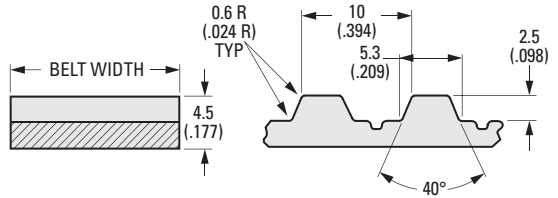


BELT WIDTHS
 METRIC - 16 & 25 mm
TRUE METRIC® PROFILE

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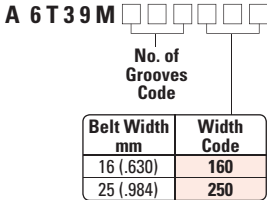
➤ **MATERIAL:**
 Polyurethane - Reinforced with Steel Tensile Cords

➤ **SPECIFICATIONS:**
Breaking Strength:
 266 N per 1 mm (190 lbs. per 1/8 in.) Belt Width;
 not representative of the load-carrying capacity of the belt.
Temperature Range:
 -18°C to +82°C (0°F to 180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER



| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 037 | 370 | 14.567 |
| 040 | 400 | 15.748 |
| 041 | 410 | 16.142 |
| 044 | 440 | 17.323 |
| *045 | 450 | 17.717 |
| 049 | 490 | 19.291 |
| 050 | 500 | 19.685 |
| 053 | 530 | 20.866 |
| 056 | 560 | 22.047 |
| 066 | 660 | 25.984 |
| 069 | 690 | 27.165 |
| 070 | 700 | 27.559 |
| 072 | 720 | 28.346 |
| 075 | 750 | 29.528 |
| 078 | 780 | 30.709 |
| 081 | 810 | 31.890 |
| *084 | 840 | 33.071 |
| 088 | 880 | 34.646 |
| 089 | 890 | 35.039 |
| 090 | 900 | 35.433 |
| 092 | 920 | 36.220 |
| 096 | 960 | 37.795 |
| 097 | 970 | 38.189 |
| 098 | 980 | 38.582 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 101 | 1010 | 39.764 |
| 108 | 1080 | 42.520 |
| 111 | 1110 | 43.701 |
| 114 | 1140 | 44.882 |
| 115 | 1150 | 45.276 |
| 121 | 1210 | 47.638 |
| 124 | 1240 | 48.819 |
| 125 | 1250 | 49.213 |
| 132 | 1320 | 51.968 |
| 135 | 1350 | 53.150 |
| 139 | 1390 | 54.724 |
| 140 | 1400 | 55.118 |
| 142 | 1420 | 55.905 |
| 144 | 1440 | 56.693 |
| 146 | 1460 | 57.480 |
| 150 | 1500 | 59.055 |
| 156 | 1560 | 61.417 |
| 161 | 1610 | 63.386 |
| 175 | 1750 | 68.898 |
| 178 | 1780 | 70.079 |
| 188 | 1880 | 74.016 |
| 196 | 1960 | 77.165 |
| 225 | 2250 | 88.853 |

* To be discontinued when present stock is depleted.



T TIMING BELTS • 10 mm PITCH



BELT WIDTHS

METRIC - 16 & 25 mm

TRUE METRIC PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Polyurethane - Reinforced with Fiberglass Tensile Cords

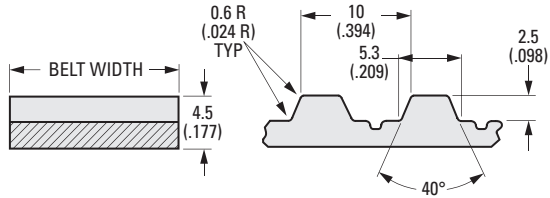
> SPECIFICATIONS:

Breaking Strength:

355 N per 1 mm (253 lbf per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Temperature Range:

-18°C to +82°C (0°F to 180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 T 3 9 M F

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 16 (.630) | 160 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 026 | 260 | 10.236 |
| 034 | 340 | 13.386 |
| 037 | 370 | 14.567 |
| 040 | 400 | 15.748 |
| 041 | 410 | 16.142 |
| 044 | 440 | 17.323 |
| 045 | 450 | 17.717 |
| 048 | 480 | 18.898 |
| 049 | 490 | 19.291 |
| 050 | 500 | 19.685 |
| 053 | 530 | 20.866 |
| 056 | 560 | 22.047 |
| 060 | 600 | 23.622 |
| 061 | 610 | 24.016 |
| 063 | 630 | 24.803 |
| 066 | 660 | 25.984 |
| 069 | 690 | 27.165 |
| 070 | 700 | 27.559 |
| 072 | 720 | 28.346 |
| 075 | 750 | 29.528 |
| 078 | 780 | 30.709 |
| 081 | 810 | 31.890 |
| 084 | 840 | 33.071 |
| 088 | 880 | 34.646 |
| 089 | 890 | 35.039 |
| 090 | 900 | 35.433 |
| 092 | 920 | 36.220 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 096 | 960 | 37.795 |
| 097 | 970 | 38.189 |
| 098 | 980 | 38.582 |
| 101 | 1010 | 39.764 |
| 108 | 1080 | 42.520 |
| 111 | 1110 | 43.701 |
| 114 | 1140 | 44.882 |
| 115 | 1150 | 45.276 |
| 121 | 1210 | 47.638 |
| 124 | 1240 | 48.819 |
| 125 | 1250 | 49.213 |
| 130 | 1300 | 51.181 |
| 132 | 1320 | 51.968 |
| 135 | 1350 | 53.150 |
| 139 | 1390 | 54.724 |
| 140 | 1400 | 55.118 |
| 142 | 1420 | 55.905 |
| 144 | 1440 | 56.693 |
| 146 | 1460 | 57.480 |
| 150 | 1500 | 59.055 |
| 156 | 1560 | 61.417 |
| 161 | 1610 | 63.386 |
| 175 | 1750 | 68.898 |
| 178 | 1780 | 70.079 |
| 188 | 1880 | 74.016 |
| 196 | 1960 | 77.165 |
| 225 | 2250 | 88.853 |

D805 2-186A 8.24.10 JC
D790 2-188A 8.24.10 JC



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T DOUBLE-SIDED TIMING BELTS • 10 mm PITCH



BELT WIDTHS

METRIC - 15 & 25 mm

TRUE METRIC PROFILE

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> MATERIAL:

Polyurethane - Reinforced with Steel Tensile Cords

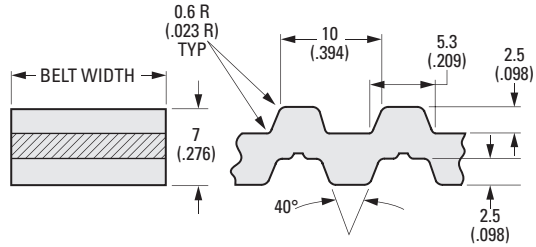
> SPECIFICATIONS:

Breaking Strength:

266 N per 1 mm (190 lbs. per 1/8 in.) Belt Width; not representative of the load-carrying capacity of the belt.

Temperature Range:

-18°C to +82°C (0°F to +180°F)



NOTE: Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 6 T 3 9 M D

No. of Grooves Code

| Belt Width mm | Width Code |
|---------------|------------|
| 15 (.591) | 150 |
| 25 (.984) | 250 |

| Groove Code | Pitch Length | |
|-------------|--------------|--------|
| | mm | Inch |
| 026 | 260 | 10.236 |
| 053 | 530 | 20.866 |
| 063 | 630 | 24.803 |
| 066 | 660 | 25.984 |
| 070 | 700 | 27.559 |
| 072 | 720 | 28.346 |
| 080 | 800 | 31.496 |
| 084 | 840 | 33.071 |
| 090 | 900 | 35.433 |
| 098 | 980 | 38.583 |
| 110 | 1100 | 43.307 |
| 121 | 1210 | 47.638 |
| 124 | 1240 | 48.819 |
| 125 | 1250 | 49.213 |
| 132 | 1320 | 51.968 |
| 135 | 1350 | 53.150 |
| 142 | 1420 | 55.905 |
| 150 | 1500 | 59.055 |
| 161 | 1610 | 63.386 |
| 180 | 1800 | 70.866 |
| 188 | 1880 | 74.016 |

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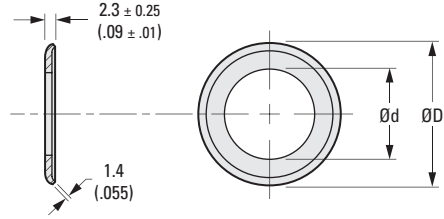
T PULLEY FLANGES • 10 mm PITCH



FOR **TRUE METRIC®** PROFILE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

- > **MATERIAL:**
Aluminum Alloy
- > **SPECIFICATION:**
Priced per 25 pieces



METRIC COMPONENT

| Catalog Number | Pulley Grooves Ref. | Metric | | Inch | |
|----------------|---------------------|-------------|------------|-------------|-------------|
| | | d ± 0.13 | D ± 0.4 | d ± .005 | D ± 1/64 |
| A 6A38M010FA | 10 | 24.79 | 36.5 | .976 | 1-7/16 |
| A 6A38M011FA | 11 | 27.96 | 38.9 | 1.101 | 1-17/32 |
| A 6A38M012FA | 12 | 31.14 | 42 | 1.226 | 1-21/32 |
| A 6A38M013FA | 13 | 32.41 | 45.2 | 1.276 | 1-25/32 |
| A 6A38M014FA | 14 | 35.58 | 48.4 | 1.401 | 1-29/32 |
| A 6A38M015FA | 15 | 38.63 | 51.6 | 1.521 | 2-1/32 |
| A 6A38M016FA | 16 | 40.08 | 53.9 | 1.578 | 2-1/8 |
| A 6A38M017FA | 17 | 43.2 | 57.1 | 1.701 | 2-1/4 |
| A 6A38M018FA | 18 | 46.32 | 60.3 | 1.824 | 2-3/8 |
| A 6A38M019FA | 19 | 48.51 | 63.5 | 1.910 | 2-1/2 |
| A 6A38M020FA | 20 | 51.68 | 66.6 | 2.035 | 2-5/8 |
| A 6A38M021FA | 21 | 53.85 | 69.8 | 2.120 | 2-3/4 |
| A 6A38M022FA | 22 | 56.92 | 73 | 2.241 | 2-7/8 |
| A 6A38M023FA | 23 | 60.32 | 78.5 | 2.375 | 3-3/32 |

NOTE: Dimensions in () are inch size.

> **MATERIAL:**

Aluminum Alloy

> **SPECIFICATION:**

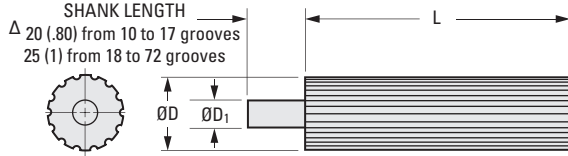
D Tolerance:

10 to 16 grooves is 0/-0.05 (+.000/-0.002)

17 to 48 grooves is 0/-0.08 (+.000/-0.003)

60 & 72 grooves is 0/-0.10 (+.000/-0.004)

Δ 25 (1) may be substituted here in place of 20 (.80) at SDP option.



METRIC COMPONENT

| Catalog Number | No. of Grooves | Metric | | Inch | | L Min. Usable Length | D ₁ Shank Dia. |
|----------------|----------------|--------|--------|-------|--------|----------------------|---------------------------|
| | | P.D. | D Dia. | P.D. | D Dia. | | |
| A 6A38M010T14 | 10 | 31.98 | 29.98 | 1.259 | 1.180 | 140 (5.5) | 12.7 (1/2) |
| A 6A38M011T14 | 11 | 35.16 | 33.16 | 1.384 | 1.306 | 140 (5.5) | 12.7 (1/2) |
| A 6A38M012T14 | 12 | 38.35 | 36.35 | 1.510 | 1.431 | 140 (5.5) | 12.7 (1/2) |
| A 6A38M013T14 | 13 | 41.55 | 39.55 | 1.636 | 1.557 | 140 (5.5) | 12.7 (1/2) |
| A 6A38M014T16 | 14 | 44.7 | 42.7 | 1.760 | 1.681 | 160 (6.3) | 12.7 (1/2) |
| A 6A38M015T16 | 15 | 47.9 | 45.9 | 1.886 | 1.807 | 160 (6.3) | 12.7 (1/2) |
| A 6A38M016T16 | 16 | 51.1 | 49.1 | 2.012 | 1.933 | 160 (6.3) | 12.7 (1/2) |
| A 6A38M017T16 | 17 | 54.25 | 52.25 | 2.136 | 2.057 | 160 (6.3) | 12.7 (1/2) |
| A 6A38M018T16 | 18 | 57.45 | 55.45 | 2.262 | 2.183 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M019T16 | 19 | 60.65 | 58.65 | 2.388 | 2.309 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M020T16 | 20 | 63.8 | 61.8 | 2.512 | 2.433 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M021T16 | 21 | 67 | 65 | 2.638 | 2.559 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M022T16 | 22 | 70.2 | 68.2 | 2.764 | 2.685 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M023T16 | 23 | 73.35 | 71.35 | 2.888 | 2.809 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M024T16 | 24 | 76.55 | 74.55 | 3.014 | 2.935 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M026T16 | 26 | 82.9 | 80.9 | 3.264 | 3.185 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M028T16 | 28 | 89.25 | 87.25 | 3.514 | 3.435 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M030T16 | 30 | 95.65 | 93.65 | 3.766 | 3.687 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M032T16 | 32 | 102 | 100 | 4.016 | 3.937 | 160 (6.3) | 19.1 (3/4) |
| A 6A38M034T16 | 34 | 108.35 | 106.35 | 4.266 | 4.187 | 160 (6.3) | 25.4 (1) |
| A 6A38M036T16 | 36 | 114.75 | 112.75 | 4.518 | 4.439 | 160 (6.3) | 25.4 (1) |
| A 6A38M038T16 | 38 | 121.1 | 119.1 | 4.768 | 4.689 | 160 (6.3) | 25.4 (1) |
| A 6A38M040T16 | 40 | 127.45 | 125.45 | 5.018 | 4.939 | 160 (6.3) | 25.4 (1) |
| A 6A38M045T16 | 45 | 143.4 | 141.4 | 5.646 | 5.567 | 160 (6.3) | 25.4 (1) |
| A 6A38M048T16 | 48 | 152.95 | 150.95 | 6.022 | 5.943 | 160 (6.3) | 25.4 (1) |
| A 6A38M060T16 | 60 | 191.15 | 189.15 | 7.447 | 7.400 | 160 (6.3) | 25.4 (1) |
| A 6A38M072T16 | 72 | 229.3 | 227.3 | 9.030 | 8.950 | 160 (6.3) | 25.4 (1) |

NOTE: Dimensions in () are inch size.

ALL CONIDRIVE® N10 belt and pulley systems should be designed incorporating the design data shown below to ensure reliability and long-life operation.



CONIDRIVE® N10 belts are available in Endless Style and as Belt Stock.

Rotational Belt Drives

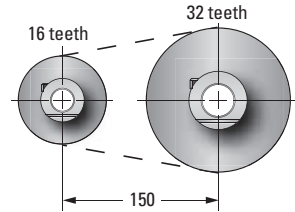
The power transmitting capability is dependent on various parameters; namely torque to be transmitted, the rpm of the smallest pulley (driver), the number of teeth on the driver & driven pulleys and the number of teeth on the belt. However, in all cases, the allowable belt tension values shown in **Tables 1, 2 and 4** must not be exceeded. It is advisable to remain below these values if shock loads are anticipated.

Horsepower Calculations

H.P. to be transmitted - **3/4**
 rpm of small pulley (driver) - **1750**
 Belt style - **2 row**
 Small pulley Dia. (mm) - **49.49 (16 teeth)**
 Large pulley Dia. (mm) - **100.42 (32 teeth)**
 Center Distance - **150 mm**

Reciprocating Belt Drives

Reciprocating belt drives employing belt stock materials can be selected based on an allowable static load of 8 lbs. per engaging tooth and belt load from static and acceleration forces not to exceed values indicated in **Table 4**.



• Step 1 - Determine no. of teeth in engagement at small pulley

N = No. of teeth in engagement
n = No. of cavities per row in small pulley
D = Diameter of large pulley (mm)
d = Diameter of small pulley (mm)
C.D. = Center distance (mm)

$$N = \frac{n}{360} \left[180 - \frac{60(D-d)}{C.D.} \right]$$

$$N = \frac{20}{360} \left[180 - \frac{60(100.42 - 49.49)}{150} \right]$$

N = 8.868

• Step 2 - Calculating horsepower using graphs provided (see next page)

By interpolating the maximum allowable force in **Table 1**
TANGENTIAL FORCE = 400 N

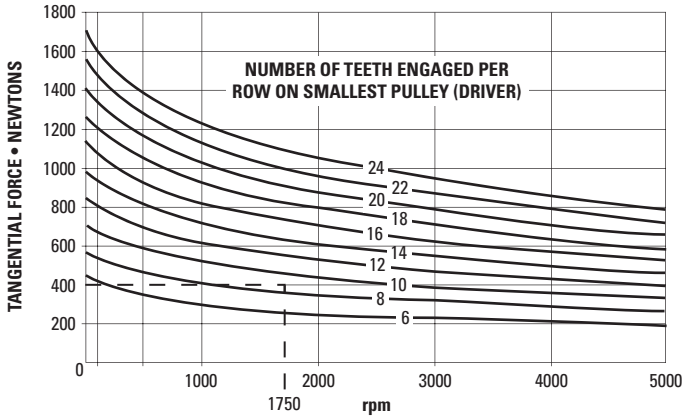
H.P. = $\frac{\text{TANGENTIAL FORCE} \times \text{PULLEY DIA.} \times \text{rpm}}{14.34 \times 10^6}$

H.P. = $\frac{400 \times 49.49 \times 1750}{14.34 \times 10^6}$

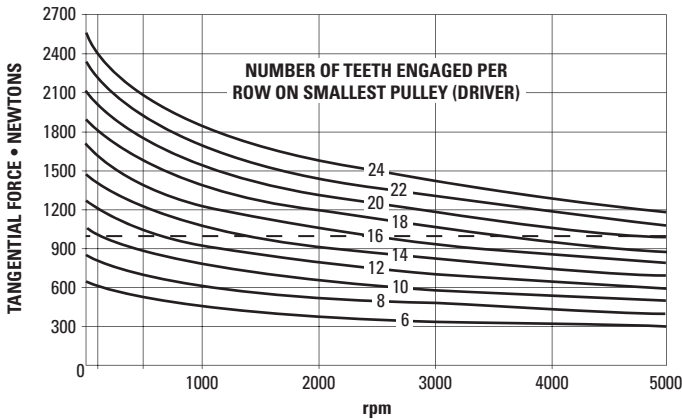
H.P. = 2.41 Therefore, belt/pulley selection can transmit **3/4 H.P.** with a theoretical safety factor of **3.21**



• **Table 1 - TANGENTIAL FORCE VS. rpm - for 2-Row Belt & Pulley Systems**



• **Table 2 - TANGENTIAL FORCE VS. rpm - for 3-Row Belt & Pulley Systems**



• **Table 3**

| |
|---|
| Minimum no. of pulley teeth per row - 16 |
| Minimum inner idler diameter - 40 mm |
| Minimum outer idler diameter - 50 mm |

NOTE: Inner idlers must have pockets to receive belt projections.

• **Table 4**

| Allowable belt tension (N) | | | |
|----------------------------|-----|------|------|
| Belt Width (mm) | 10 | 20 | 30 |
| Belt Stock | 650 | 1300 | 1950 |
| Endless Belts | - | 650 | 975 |

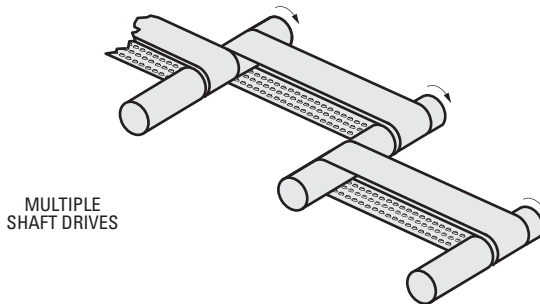
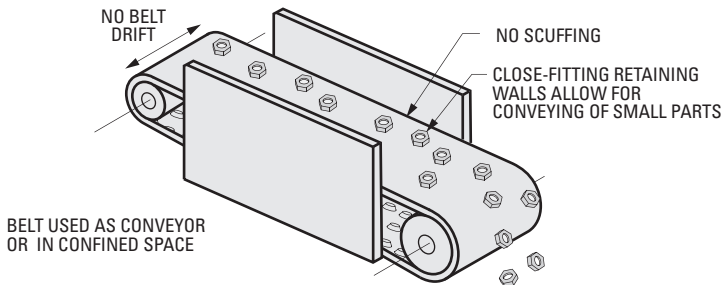
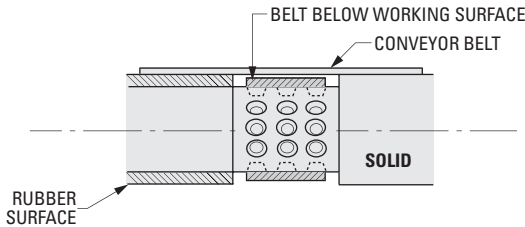
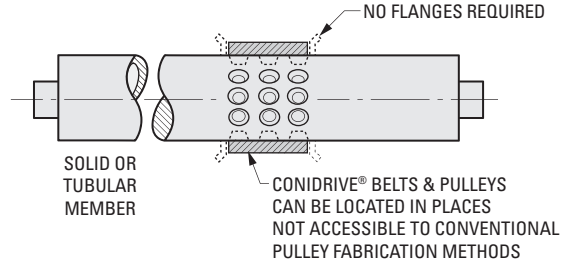
Can't find the sizes you need? Other sizes available on special order.





Conidrive® Systems have distinct advantages over present synchronous drives.

Shown below are some examples of applications with solutions unique to Conidrive® Components.

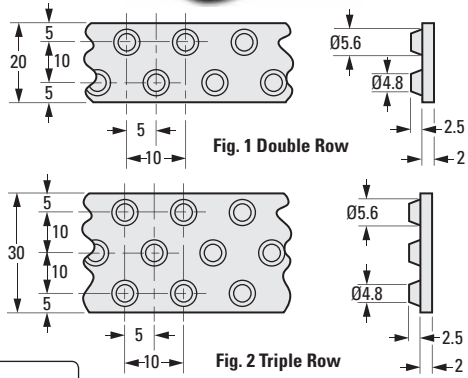


Conidrive® pulleys are manufactured by SDP as standard catalog items and as custom parts to your specifications.

10 mm PITCH
SELF-GUIDING
CONTINUOUS ROLLING ACTION
LOW NOISE & VIBRATION

- > **MATERIAL:**
Polyurethane Reinforced with Steel Tensile Cords
- > **OPERATING TEMPERATURE:**
-30°C to +80°C

- > **FEATURES:**
 - Self-guiding system:** no side flanges needed on pulleys
 - Nondirectional:** same meshing performance in both directions of belt travel
 - Polygon-free:** smooth rolling around pulleys thanks to contact with flat belt area
 - Noise-minimized & low-vibration:** continuous rolling, smooth meshing of conical projections into recesses
 - Homogenous distribution of forces in the belt:** no force components acting laterally thanks to symmetrical cone geometry and balanced tension member arrangement (S/Z winding)



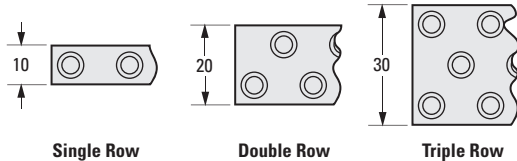
| METRIC COMPONENT | | Length mm |
|-------------------|-------------------|-----------|
| Catalog Number | | |
| Fig. 1 Double Row | Fig. 2 Triple Row | |
| A 6Z13MD0500 | A 6Z13MT0500 | 500 |
| A 6Z13MD0600 | A 6Z13MT0600 | 600 |
| A 6Z13MD0700 | A 6Z13MT0700 | 700 |
| A 6Z13MD0800 | A 6Z13MT0800 | 800 |
| A 6Z13MD0900 | A 6Z13MT0900 | 900 |
| A 6Z13MD1000 | A 6Z13MT1000 | 1000 |

TIMING BELT STOCK - 10 mm Pitch

- > **MATERIAL:**
Polyurethane Reinforced with Steel Tensile Cords
- > **OPERATING TEMPERATURE:**
-30°C to +80°C

- > **APPLICATIONS:**
Metering, positioning, conveying and oscillating drives where belt lengths required are longer than standard endless belts.

Priced per Meter



| METRIC COMPONENT | | | |
|------------------|-------------|---------------------------------|-------------------------|
| Catalog Number | No. of Rows | Allowable Static Tensile Load N | Max. Available Length m |
| A 6Z13MCS | Single | 650 | 50 |
| A 6Z13MCD | Double | 1300 | 50 |
| A 6Z13MCT | Triple | 1950 | 50 |

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NO FLANGE
FAIRLOC® HUB
NONCHORDAL ACTION

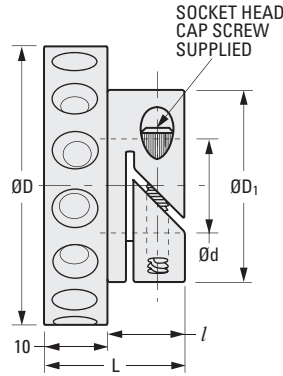


➤ **MATERIAL:**
Aluminum Alloy

➤ **FINISH:**
Clear Anodized

➤ **FEATURES:**
Self-Guiding
No Flanges Required
No Chordal Effect
Smooth Running
Fairloc® Hub
Nonmarring of Shaft

➤ **SPECIFICATION:**
Other sizes available
on special order.



Single Row

METRIC COMPONENT

| Catalog Number | No. of Cavities Per Row | D O.D. | d Bore Dia. +0.025 0 | L Length ± 0.4 | D ₁ Hub Dia. | l Hub Proj. |
|----------------|-------------------------|--------|----------------------|----------------|-------------------------|-------------|
| A 6A14M16S10 | 16 | 49.49 | 10 | 23 | 32 | 13 |
| A 6A14M16S12 | 16 | 49.49 | 12 | 23 | 32 | 13 |
| A 6A14M20S10 | 20 | 62.22 | 10 | 23 | 32 | 13 |
| A 6A14M20S12 | 20 | 62.22 | 12 | 23 | 32 | 13 |
| A 6A14M24S10 | 24 | 74.95 | 10 | 23 | 32 | 13 |
| A 6A14M24S12 | 24 | 74.95 | 12 | 23 | 32 | 13 |
| A 6A14M28S10 | 28 | 87.69 | 10 | 23 | 32 | 13 |
| A 6A14M28S12 | 28 | 87.69 | 12 | 23 | 32 | 13 |
| A 6A14M32S10 | 32 | 100.42 | 10 | 23 | 32 | 13 |
| A 6A14M32S12 | 32 | 100.42 | 12 | 23 | 32 | 13 |
| A 6A14M36S10 | 36 | 113.15 | 10 | 23 | 32 | 13 |
| A 6A14M36S12 | 36 | 113.15 | 12 | 23 | 32 | 13 |
| A 6A14M40S10 | 40 | 125.89 | 10 | 23 | 32 | 13 |
| A 6A14M40S12 | 40 | 125.89 | 12 | 28.5 | 38 | 18.5 |
| A 6A14M44S12 | 44 | 138.62 | 12 | 28.5 | 38 | 18.5 |
| A 6A14M44S16 | 44 | 138.62 | 16 | 28.5 | 38 | 18.5 |
| A 6A14M48S12 | 48 | 151.35 | 12 | 28.5 | 38 | 18.5 |
| A 6A14M48S16 | 48 | 151.35 | 16 | 28.5 | 38 | 18.5 |

NO FLANGES
FAIRLOC® HUB
NONCHORDAL ACTION

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➤ **MATERIAL:**
Aluminum Alloy

➤ **FINISH:**
Clear Anodized

➤ **FEATURES:**
Self-Guiding
No Flanges Required
No Chordal Effect
Smooth Running
Fairloc® Hub
Nonmarring of Shaft

➤ **SPECIFICATION:**
Other sizes available on special order.

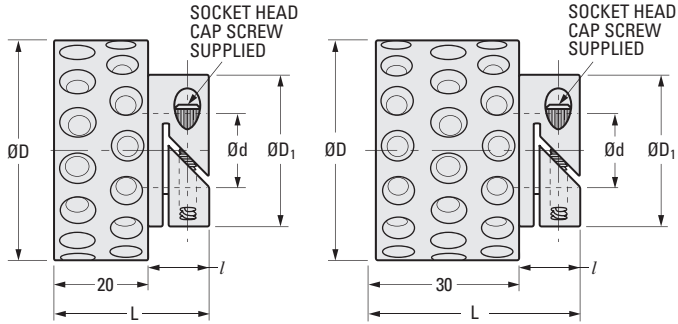


Fig. 1
Double Row

Fig. 2
Triple Row

METRIC COMPONENT

| Catalog Number | No. of Cavities Per Row | D O.D. | d Bore Dia. +0.025 0 | L Length | D ₁ Hub Dia. | l Hub Proj. |
|--------------------------|-------------------------|--------|----------------------|----------|-------------------------|-------------|
| Fig. 1 Double Row | | | | | | |
| A 6A14M16D16 | 16 | 49.49 | 16 | 38.5 | 38 | 18.5 |
| A 6A14M16D20 | 16 | 49.49 | 20 | 42 | 49.5 | 22 |
| A 6A14M24D16 | 24 | 74.95 | 16 | 38.5 | 38 | 18.5 |
| A 6A14M24D20 | 24 | 74.95 | 20 | 42 | 49.5 | 22 |
| A 6A14M32D16 | 32 | 100.42 | 16 | 38.5 | 38 | 18.5 |
| A 6A14M32D20 | 32 | 100.42 | 20 | 42 | 49.5 | 22 |
| A 6A14M48D16 | 48 | 151.35 | 16 | 38.5 | 38 | 18.5 |
| A 6A14M48D20 | 48 | 151.35 | 20 | 42 | 49.5 | 22 |
| Fig. 2 Triple Row | | | | | | |
| A 6A14M16T16 | 16 | 49.49 | 16 | 48.5 | 38 | 18.5 |
| A 6A14M16T20 | 16 | 49.49 | 20 | 52 | 49.5 | 22 |
| A 6A14M24T16 | 24 | 74.95 | 16 | 48.5 | 38 | 18.5 |
| A 6A14M24T20 | 24 | 74.95 | 20 | 52 | 49.5 | 22 |
| A 6A14M32T16 | 32 | 100.42 | 16 | 48.5 | 38 | 18.5 |
| A 6A14M32T20 | 32 | 100.42 | 20 | 52 | 49.5 | 22 |
| A 6A14M48T16 | 48 | 151.35 | 16 | 48.5 | 38 | 18.5 |
| A 6A14M48T20 | 48 | 151.35 | 20 | 52 | 49.5 | 22 |

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USED IN LINEAR DRIVES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

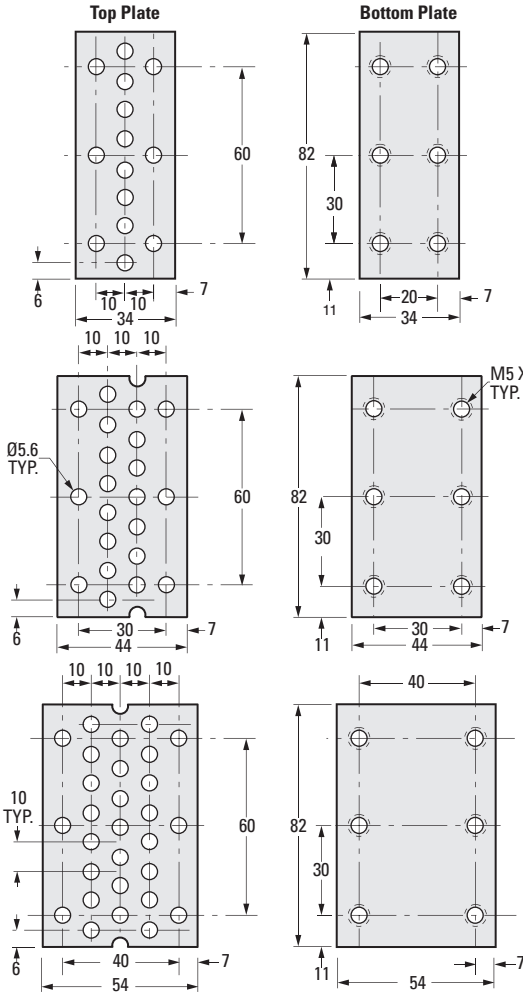
> MATERIAL:

Aluminum Alloy - 3.18 mm Thick



> SPECIFICATION:

* Supplied with socket head cap screws and internal lock washers.



**A16A13M100*
Single Row**



**A16A13M200*
Double Row**



**A16A13M300*
Triple Row**

SINGLE CORE
COLOR-DARK BLUE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Body - Molded Polyurethane
Core - Aramid Fiber or Stainless Steel

> **SPECIFICATIONS:**

Operating Temperature Range:
-26°C to +82°C for AF
-54°C to +82°C for SS

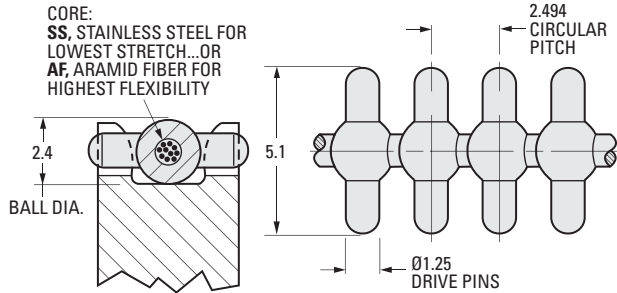


BELT DATA

| Belt Core | Belt Core Code | Min. No. of Teeth in Mesh | Min. Pulley Dia. | Recom. Operating Speed rpm | Max. Operating Belt Tension N |
|-----------|----------------|---------------------------|------------------|----------------------------|-------------------------------|
| Aramid | AF | 8 | 12.7 | 1800 | 18 |
| Steel | SS | 8 | 19.1 | 1800 | 27 |

These belts are also sold by the meter, in continuous lengths up to 30.4 meters.

| Catalog Number | Belt Core |
|----------------|-----------------|
| S7912YMC32AF | Aramid Fiber |
| S7912YMC32SS | Stainless Steel |



METRIC COMPONENT CATALOG NUMBER

S 7 9 1 2 Y M C 3 2
 Aramid Fiber Core AF No. of Drive Pins
 Stainless Steel Core SS

| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 064 | 159.6 |
| 080 | 199.5 |
| 095 | 236.9 |
| 112 | 279.3 |
| 126 | 314.2 |
| 128 | 319.2 |
| 144 | 359.1 |
| 158 | 394 |
| 176 | 438.9 |
| 189 | 471.3 |
| 208 | 518.7 |
| 220 | 548.6 |
| 240 | 598.5 |
| 252 | 628.4 |
| 272 | 678.3 |
| 283 | 705.7 |
| 304 | 758.1 |
| 315 | 785.4 |
| 336 | 837.9 |
| 346 | 862.8 |
| 368 | 917.7 |
| 377 | 940.1 |
| 400 | 997.5 |
| 408 | 1017.4 |
| 432 | 1077.3 |

| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 440 | 1097.2 |
| 464 | 1157 |
| 471 | 1174.4 |
| 480 | 1196.9 |
| 496 | 1236.9 |
| 512 | 1276.7 |
| 528 | 1316.6 |
| 544 | 1356.5 |
| 560 | 1396.4 |
| 576 | 1436.3 |
| 592 | 1476.2 |
| 608 | 1516.1 |
| 624 | 1556 |
| 640 | 1595.9 |
| 656 | 1635.8 |
| 672 | 1675.7 |
| 688 | 1715.6 |
| 704 | 1755.5 |
| 720 | 1795.4 |
| 736 | 1835.3 |
| 752 | 1875.2 |
| 768 | 1915.1 |
| 784 | 1955 |
| 800 | 1994.9 |

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SINGLE CORE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Body - Molded Polyurethane
Core - Aramid Fiber or Stainless Steel

> **SPECIFICATIONS:**

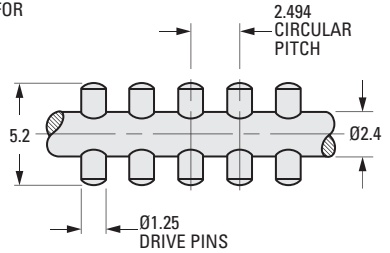
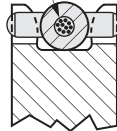
Operating Temperature Range:
 -23°C to +60°C



BELT DATA

| Belt Core | Belt Core Code | Min. No. of Teeth in Mesh | Min. Pulley Dia. | Max. Belt Operating Speed No Load/Load m/min. | Max. Operating Belt Tension N |
|-----------|----------------|---------------------------|------------------|---|-------------------------------|
| Aramid | AF | 8 | 12.7 | 274/91 | 18 |
| Steel | SS | 8 | 19.1 | 274/107 | 27 |

CORE:
 SS, STAINLESS STEEL FOR
 LOWEST STRETCH...OR
 AF, ARAMID FIBER FOR
 HIGHEST FLEXIBILITY
 & SPEED



METRIC COMPONENT CATALOG NUMBER

S7912YM32
 Aramid Fiber Core **AF**
 Stainless Steel Core **SS**
 No. of Drive Pins

| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 064 | 159.6 |
| 080 | 199.5 |
| 095 | 236.9 |
| 112 | 279.3 |
| 126 | 314.2 |
| 128 | 319.2 |
| 144 | 359.1 |
| 158 | 394 |
| 176 | 438.9 |
| 189 | 471.3 |
| 208 | 518.7 |
| 220 | 548.6 |
| 240 | 598.5 |
| 252 | 628.4 |
| 272 | 678.3 |
| 283 | 705.7 |
| 304 | 758.1 |
| 315 | 785.4 |
| 336 | 837.9 |
| 346 | 862.8 |
| 368 | 917.7 |
| 377 | 940.1 |
| 400 | 997.5 |
| 408 | 1017.4 |
| 432 | 1077.3 |

| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 440 | 1097.2 |
| 464 | 1157 |
| 471 | 1174.4 |
| 480 | 1196.9 |
| 496 | 1236.9 |
| 512 | 1276.7 |
| 528 | 1316.6 |
| 544 | 1356.5 |
| 560 | 1396.4 |
| 576 | 1436.3 |
| 592 | 1476.2 |
| 608 | 1516.1 |
| 624 | 1556 |
| 640 | 1595.9 |
| 656 | 1635.8 |
| 672 | 1675.7 |
| 688 | 1715.6 |
| 704 | 1755.5 |
| 720 | 1795.4 |
| 736 | 1835.3 |
| 752 | 1875.2 |
| 768 | 1915.1 |
| 784 | 1955 |
| 800 | 1994.9 |

POSI-DRIVE SPROCKETS • CP 2.5



FOR SINGLE CORE POSI-DRIVE BELTS
PIN TYPE
4 & 6 mm BORES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



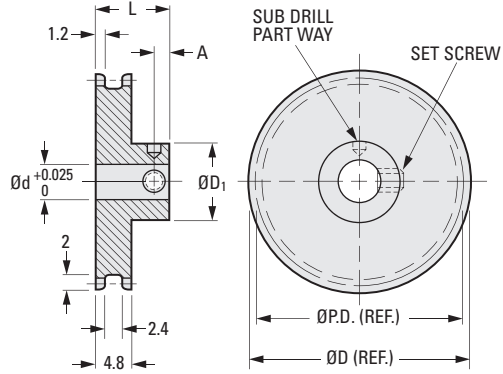
> MATERIAL:

303 Stainless Steel
2024-T4 Aluminum (Chromic Acid
Anodize-Before Cutting)

> SPECIFICATIONS:

SPROCKETS

| Bore | Bore Code | d | D ₁ | A | L | Set Screw |
|------|-----------|-------|----------------|-----|------|-----------|
| 4 mm | 040 | 3.995 | 9.5 | 2.8 | 10.3 | M2 |
| 6 mm | 060 | 5.994 | 12.7 | 3.1 | 11 | M3 |



METRIC COMPONENT CATALOG NUMBER

S 10 12 M P

Aluminum A
Stainless Steel S

No. of Teeth

Bore Code

Example: S10S12M018P040 is an 18 Tooth 4 mm Bore Stainless Steel Sprocket.

| Sprocket Data | | | Bore Code Availability | |
|---------------|-------|--------|------------------------|-----|
| No. of Teeth | P.D. | D Dia. | 040 | 060 |
| *15 | 11.9 | 13.5 | — | — |
| 16 | 12.7 | 14.3 | — | — |
| 18 | 14.3 | 15.9 | — | — |
| 20 | 15.9 | 17.5 | 040 | 060 |
| 22 | 17.5 | 19.1 | | |
| 24 | 19.1 | 20.7 | | |
| 26 | 20.6 | 22.2 | | |
| 28 | 22.2 | 23.8 | | |
| 30 | 23.8 | 25.4 | | |
| 32 | 25.4 | 27 | | |
| 36 | 28.6 | 30.2 | | |
| 40 | 31.8 | 33.4 | | |
| 48 | 38.1 | 39.7 | | |
| 56 | 44.5 | 46.1 | | |
| 64 | 50.8 | 52.4 | | |
| 72 | 57.2 | 58.8 | | |
| 80 | 63.5 | 65.1 | | |
| 88 | 69.9 | 71.5 | | |
| 96 | 76.2 | 77.8 | | |
| 112 | 88.9 | 90.5 | | |
| 128 | 101.6 | 103.2 | | |

* Recommended for use as an idler only.



Request Info
1-800-453-1692
www.aboveboardelectronics.com

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FOR TWIN CORE POSI-DRIVE BELTS
PIN TYPE
4 & 6 mm BORES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

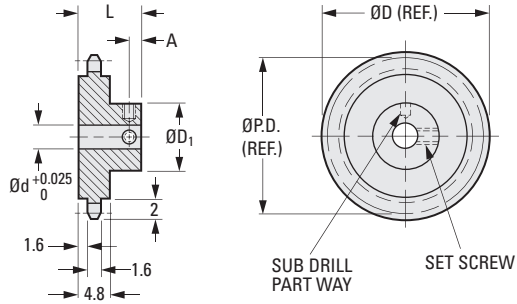
303 Stainless Steel
2024-T4 Aluminum (Chromic Acid
Anodize-Before Cutting)

> SPECIFICATIONS:

SPROCKET



| Bore | Bore Code | d | D ₁ | A | L | Set Screw |
|------|-----------|-------|----------------|-----|------|-----------|
| 4 mm | 040 | 3.995 | 9.5 | 2.8 | 10.3 | M2 |
| 6 mm | 060 | 5.994 | 12.7 | 3.1 | 11 | M3 |



METRIC COMPONENT CATALOG NUMBER

S 1 0 1 5 M 0 P

Aluminum A
Stainless Steel S

No. of Teeth
Bore Code

Example: S10A15M035P040 is a 35 Tooth 4 mm Bore Aluminum Sprocket.

| Sprocket Data | | | Bore Code Availability | |
|---------------|-------|--------|------------------------|-----|
| No. of Teeth | P.D. | D Dia. | 040 | 060 |
| * 10 | 12.1 | 13.4 | — | — |
| * 11 | 13.3 | 14.6 | — | — |
| * 12 | 14.5 | 15.8 | — | — |
| * 13 | 15.6 | 17 | — | — |
| * 14 | 16.8 | 18.2 | — | — |
| * 15 | 18 | 19.3 | — | — |
| 16 | 19.2 | 20.5 | 040 | 060 |
| 17 | 20.4 | 21.7 | | |
| 18 | 21.6 | 22.9 | | |
| 19 | 22.8 | 24.1 | | |
| 20 | 24 | 25.3 | | |
| 22 | 26.3 | 27.6 | | |
| 24 | 28.7 | 30 | | |
| 25 | 29.9 | 31.2 | | |
| 26 | 31.1 | 32.4 | | |
| 28 | 33.5 | 34.8 | | |
| 30 | 35.8 | 37.2 | | |
| 32 | 38.2 | 39.5 | | |
| 35 | 41.8 | 43.1 | | |
| 36 | 43 | 44.3 | | |
| 40 | 47.8 | 49.1 | | |
| 45 | 53.7 | 55 | | |
| 48 | 57.3 | 58.6 | | |
| 50 | 59.7 | 61 | | |
| 55 | 65.6 | 67 | — | — |
| 60 | 71.6 | 72.9 | — | — |
| 65 | 77.5 | 78.9 | — | — |
| 85 | 101.4 | 102.7 | — | — |

* Recommended for use as an idler only.

SINGLE CORE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

Body - Molded Polyurethane
Core - Aramid Fiber or Stainless Steel



> **SPECIFICATIONS:**

Operating Temperature Range:
 -23°C to +60°C

BELT DATA

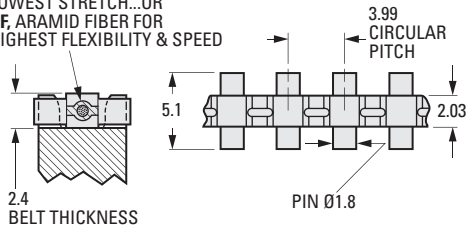
| Belt Core | Belt Core Code | Min. No. of Teeth in Mesh | Min. Pulley Dia. | Max. Belt Operating Speed No Load/Load m/min. | Max. Operating Belt Tension N |
|-----------|----------------|---------------------------|------------------|---|-------------------------------|
| Aramid | AF | 6 | 19.1 | 335/152 | 23 |
| Steel | SS | 6 | 19.1 | 335/183 | 45 |



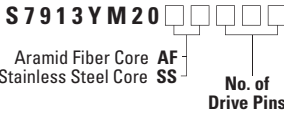
These belts are also sold by the meter, in continuous lengths up to 30.4 meters.

| Catalog Number | Belt Core |
|--------------------|-----------------|
| S7913YM20AF | Aramid Fiber |
| S7913YM20SS | Stainless Steel |

CORE:
SS, STAINLESS STEEL FOR LOWEST STRETCH...OR
AF, ARAMID FIBER FOR HIGHEST FLEXIBILITY & SPEED



METRIC COMPONENT CATALOG NUMBER



| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 030 | 119.7 |
| 035 | 139.6 |
| 040 | 159.6 |
| 045 | 179.5 |
| 050 | 199.5 |
| 055 | 219.4 |
| 060 | 239.4 |
| 070 | 279.3 |
| 080 | 319.2 |
| 090 | 359.1 |
| 100 | 399 |
| 110 | 438.9 |
| 120 | 478.8 |
| 130 | 518.7 |
| 140 | 558.6 |
| 150 | 598.5 |
| 160 | 638.4 |
| 170 | 678.3 |
| 180 | 718.2 |
| 190 | 758.1 |
| 200 | 798 |

| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 210 | 837.8 |
| 220 | 877.7 |
| 230 | 917.7 |
| 240 | 957.6 |
| 250 | 997.5 |
| 260 | 1037.3 |
| 270 | 1077.2 |
| 280 | 1117.1 |
| 290 | 1157 |
| 300 | 1196.9 |
| 310 | 1236.8 |
| 320 | 1276.7 |
| 330 | 1316.6 |
| 340 | 1356.5 |
| 350 | 1396.4 |
| 360 | 1436.3 |
| 370 | 1476.2 |
| 380 | 1516.1 |
| 400 | 1595.9 |
| 420 | 1675.7 |
| 440 | 1755.5 |

FOR SINGLE CORE POSI-DRIVE BELTS
PIN TYPE
4 & 6 mm BORES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



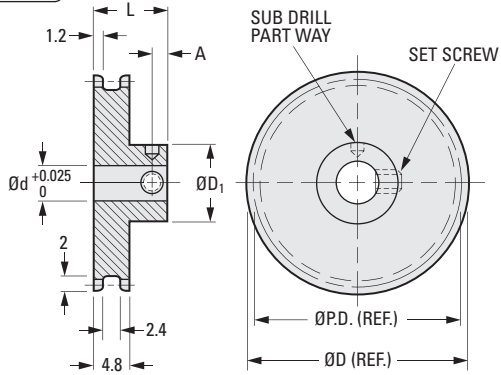
> MATERIAL:

303 Stainless Steel
2024-T4 Aluminum (Chromic Acid Anodize-Before Cutting)

> SPECIFICATIONS:

SPROCKET

| Bore | Bore Code | d | D ₁ | A | L | Set Screw |
|------|-----------|-------|----------------|-----|------|-----------|
| 4 mm | 040 | 3.995 | 9.5 | 2.8 | 10.3 | M2 |
| 6 mm | 060 | 5.994 | 12.7 | 3.1 | 11 | M3 |



METRIC COMPONENT CATALOG NUMBER

S 10 13 M 0 P

Aluminum **A**
Stainless Steel **S**

No. of Teeth Bore Code

Example: S10A13M022P040 is a 22 Tooth 4 mm Bore Aluminum Sprocket.

| Sprocket Data | | | Bore Code Availability | |
|---------------|-------|--------|------------------------|-----|
| No. of Teeth | P.D. | D Dia. | 040 | 060 |
| * 10 | 12.7 | 14.3 | — | — |
| * 11 | 14 | 15.5 | — | — |
| * 12 | 15.2 | 16.8 | — | — |
| * 13 | 16.5 | 18.1 | — | — |
| * 14 | 17.8 | 19.4 | — | — |
| * 15 | 19.1 | 20.6 | — | — |
| 16 | 20.3 | 21.9 | — | — |
| 17 | 21.6 | 23.2 | — | — |
| 18 | 22.9 | 24.4 | — | — |
| 19 | 24.1 | 25.7 | — | — |
| 20 | 25.4 | 27 | — | — |
| 22 | 27.9 | 29.5 | — | — |
| 24 | 30.5 | 32.1 | — | — |
| 25 | 31.8 | 33.3 | — | — |
| 26 | 33 | 34.6 | — | — |
| 28 | 35.6 | 37.1 | — | — |
| 30 | 38.1 | 39.7 | — | — |
| 32 | 40.6 | 42.2 | — | — |
| 35 | 44.5 | 46 | — | — |
| 36 | 45.7 | 47.3 | — | — |
| 40 | 50.8 | 52.4 | — | — |
| 45 | 57.2 | 58.7 | — | — |
| 50 | 63.5 | 65.1 | — | — |
| 60 | 76.2 | 77.8 | — | — |
| 70 | 88.9 | 90.5 | — | — |
| 80 | 101.6 | 103.2 | — | — |

* Recommended for use as an idler only.

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- A

TWIN CORE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Body - Molded Polyurethane
Core - Aramid Fiber or Stainless Steel



> SPECIFICATIONS:

Operating Temperature Range:
-23°C to +60°C

BELT DATA

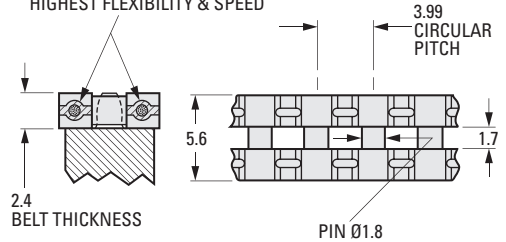
| Belt Core | Belt Core Code | Min. No. of Teeth in Mesh | Min. Pulley Dia. | Max. Belt Operating Speed No Load/Load m/min. | Max. Operating Belt Tension N |
|-----------|----------------|---------------------------|------------------|---|-------------------------------|
| Aramid | AF | 6 | 19.1 | 396.2/167.6 | 45 |
| Steel | SS | 6 | 19.1 | 396.2/213.4 | 89 |



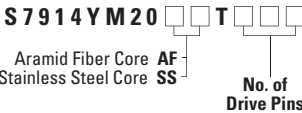
These belts are also sold by the meter, in continuous lengths up to 30.4 meters.

| Catalog Number | Belt Core |
|----------------|-----------------|
| S7914YM20AFT | Aramid Fiber |
| S7914YM20SST | Stainless Steel |

CORE:
SS, STAINLESS STEEL FOR LOWEST STRETCH...OR
AF, ARAMID FIBER FOR HIGHEST FLEXIBILITY & SPEED



METRIC COMPONENT CATALOG NUMBER



| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 030 | 119.7 |
| 035 | 139.6 |
| 040 | 159.6 |
| 045 | 179.5 |
| 050 | 199.5 |
| 055 | 219.4 |
| 060 | 239.4 |
| 070 | 279.3 |
| 080 | 319.2 |
| 090 | 359.1 |
| 100 | 399 |
| 110 | 438.9 |
| 120 | 478.8 |
| 130 | 518.7 |
| 140 | 558.6 |
| 150 | 598.5 |
| 160 | 638.4 |
| 170 | 678.3 |
| 180 | 718.2 |
| 190 | 758.1 |
| 200 | 798 |

| No. of Drive Pins | Pitch Length |
|-------------------|--------------|
| 210 | 837.8 |
| 220 | 877.7 |
| 230 | 917.7 |
| 240 | 957.6 |
| 250 | 997.5 |
| 260 | 1037.3 |
| 270 | 1077.2 |
| 280 | 1117.1 |
| 290 | 1157 |
| 300 | 1196.9 |
| 310 | 1236.8 |
| 320 | 1276.7 |
| 330 | 1316.6 |
| 340 | 1356.5 |
| 350 | 1396.4 |
| 360 | 1436.3 |
| 370 | 1476.2 |
| 380 | 1516.1 |
| 400 | 1595.9 |
| 420 | 1675.7 |
| 440 | 1755.5 |

FOR TWIN CORE POSI-DRIVE BELTS
PIN TYPE
4 & 6 mm BORES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

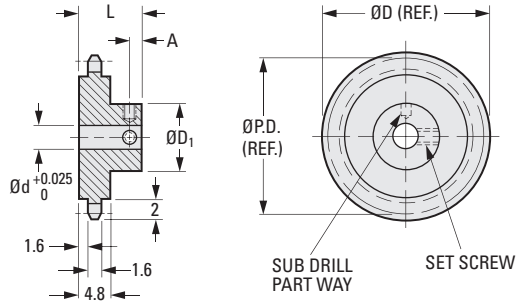
> MATERIAL:

- 303 Stainless Steel
- 2024-T4 Aluminum (Chromic Acid Anodize-Before Cutting)

> SPECIFICATIONS:

SPROCKET

| Bore | Bore Code | d | D ₁ | A | L | Set Screw |
|------|-----------|-------|----------------|-----|------|-----------|
| 4 mm | 040 | 3.995 | 9.5 | 2.8 | 10.3 | M2 |
| 6 mm | 060 | 5.994 | 12.7 | 3.1 | 11 | M3 |



METRIC COMPONENT CATALOG NUMBER

S 1 0 1 4 M 0 P

Aluminum **A**
Stainless Steel **S**

No. of Teeth **M** Bore Code **0**

Example: S10S14M030P060 is a 30 Tooth 6 mm Bore Stainless Steel Sprocket.

| Sprocket Data | | | Bore Code Availability | |
|---------------|-------|--------|------------------------|-----|
| No. of Teeth | P.D. | D Dia. | | |
| *10 | 12.7 | 14.3 | 040 | — |
| *11 | 14 | 15.5 | | — |
| *12 | 15.2 | 16.8 | | 060 |
| *13 | 16.5 | 18.1 | | |
| *14 | 17.8 | 19.4 | | |
| *15 | 19.1 | 20.6 | | |
| 16 | 20.3 | 21.9 | | |
| 17 | 21.6 | 23.2 | | |
| 18 | 22.9 | 24.4 | | |
| 19 | 24.1 | 25.7 | | |
| 20 | 25.4 | 27 | | |
| 22 | 27.9 | 29.5 | | |
| 24 | 30.5 | 32.1 | | |
| 25 | 31.8 | 33.3 | | |
| 26 | 33 | 34.6 | | |
| 28 | 35.6 | 37.1 | | |
| 30 | 38.1 | 39.7 | | |
| 32 | 40.6 | 42.2 | | |
| 35 | 44.5 | 46 | | |
| 36 | 45.7 | 47.3 | | |
| 40 | 50.8 | 52.4 | | |
| 45 | 57.2 | 58.7 | | |
| 50 | 63.5 | 65.1 | — | |
| 60 | 76.2 | 77.8 | — | |
| 70 | 88.9 | 90.5 | — | |
| 80 | 101.6 | 103.2 | — | |

* Recommended for use as an idler only.



MOLDED
SINGLE STRAND
SELF-LUBRICATING

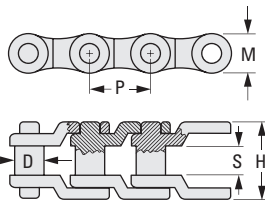
MATERIAL:
Acetal Resin, Black

LUBRICATION
Surface penetration with oil has been provided and is considered to be sufficient for average service. Some applications may be found to require additional lubrication.

OPERATING TEMPERATURE
The chain and sprockets have been stress relieved and have operating capabilities over the range of: -40°C to +121°C. Sustained temperatures above +82°C not recommended. Strength derating applies at elevated temperatures.

OPERATING SPEED
To 5.1 m/sec around 8-tooth sprockets; larger sizes higher.

WEIGHT
Approximately 0.031 kg / 5 meters



METRIC COMPONENT

| Catalog Number | P Pitch (± 1/2%) | Links Per Meter | D | S | M | H | Weight Per Meter kg | Operating Tension Load kgf |
|--|---------------------|-----------------|------|------|------|------|---------------------|----------------------------|
| A 6M 7M12 - <input type="checkbox"/> <input type="checkbox"/> | 3.12 | 321 | 1.52 | 1.57 | 2.08 | 4.12 | 0.006 | 0.91 |

| Length Code | Length Meter |
|-------------|--------------|
| 01 | 1 |
| 02 | 2 |
| 03 | 3 |
| 04 | 4 |
| 05 | 5 |
| 06 | 6 |

| Length Code | Length Meter |
|-------------|--------------|
| 07 | 7 |
| 08 | 8 |
| 09 | 9 |
| 10 | 10 |
| 20 | 20 |
| 30 | 30 |

Two Ways to Order:

1. Use Catalog Number **A 6M 7M12** when specifying any length up to 30 meters (Max.). Priced Per Meter
2. To purchase standard lengths add **Length Code** to Catalog Number. Priced Per Each

THE DESIGN

Unit-link design eliminates need for connecting link and makes length adjustable by snap-together assembly. Either side of the chain will run on the sprockets.

LOAD TENSION

Operates running tension loads up to 0.91 kgf. Sustained static tension such as with spring loaded idlers not recommended. Means of limiting torque and tension should be provided. See elasticity table - long term tension gives greater elongation.

MOMENTARY ELASTICITY TABLE

| Tension kgf | Elongation | Tension kgf | Elongation |
|-------------|------------|-------------|------------|
| 0.05 | 0.145% | 0.8 | 1.0% |
| 0.1 | 0.237% | 1.2 | 1.39% |
| 0.3 | 0.483% | 1.5 | 1.68% |
| 0.5 | 0.7% | 1.8 | 1.98% |

CENTER DISTANCES

Should be adjustable, or adjustable position idlers incorporated to compensate for pitch variation and wear.

SERVICE LIFE

Accelerated life tests at +22°C where 2% elongation represented end of life have given:
(a) 135,600 N • m of work per 25.4 mm (1 in.) of chain
(b) 0.06 horsepower transfer for 10 hours.

QUALITY CONTROL

100% inspection for momentary break strength (3.2 kgf minimum), thickness, width, pitch dimension and flexibility.

APPLICATIONS-LIMITATIONS

These components are designed especially for requirements found among mechanical drives in the field of instrumentation. Servo drives to stylus or pen carriages in recorders and X-Y plotters, chart roll drives and counter drives are some of the principal applications.

Operating speed is seldom a limiting factor; however, the load, inertial impact and elasticity factors must be given due consideration and evaluated in a typical prototype before final application.

The data provided herein are furnished only for general evaluation and are not necessarily indicative of specific use adaptability.

MOLDED
NONMAGNETIC
SELF-LUBRICATING
NONCONDUCTIVE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

Acetal Resin, Black

► **SPECIFICATION:**

Nominal bore d is for press fit on given size shaft.



D₂ Hub Diameters

| d Bore | D ₂ Dia. |
|--------|---------------------|
| Δ 3 | 6.3 |
| 4 | 7.9 |
| 6 | 9.5 |

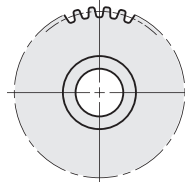


Fig. 1

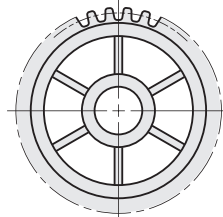
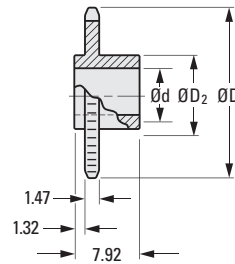
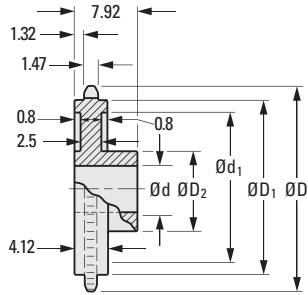


Fig. 2



METRIC COMPONENT CATALOG NUMBER

A 6 M 7 M 12

Suffix Code

| No. of Teeth | Suffix Code | | | Fig. No. | Spokes | P.D.* | D * Dia. | Root * | Nominal Dimensions | |
|--------------|----------------|------|------|----------|--------|-------|----------|--------|---------------------|---------------------|
| | Nominal Bore d | | | | | | | | D ₁ Dia. | d ₁ Dia. |
| | 3 | 4 | 6 | | | | | | | |
| 8 | Δ0803 | — | — | 1 | — | 8.1 | 9.4 | 6.6 | — | — |
| 9 | 0903 | — | — | 1 | — | 9 | 10.4 | 7.5 | — | — |
| 10 | 1003 | 1004 | — | 1 | — | 10 | 11.6 | 8.5 | — | — |
| 12 | 1203 | 1204 | — | 1 | — | 12 | 13.6 | 10.4 | — | — |
| 15 | 1503 | 1504 | 1506 | 1 | — | 14.9 | 16.5 | 13.4 | — | — |
| 16 | 1603 | 1604 | 1606 | 1 | — | 15.9 | 17.5 | 14.4 | — | — |
| 18 | 1803 | 1804 | 1806 | 1 | — | 17.8 | 19.5 | 16.3 | — | — |
| 20 | 2003 | 2004 | 2006 | 1 | — | 19.8 | 21.5 | 18.3 | — | — |
| 24 | — | 2404 | 2406 | 2 | 6 | 23.7 | 25.5 | 22.2 | 21.5 | 18.9 |
| 30 | — | 3004 | 3006 | 2 | 6 | 29.6 | 31.5 | 28.1 | 27.4 | 24.9 |
| 32 | — | 3204 | 3206 | 2 | 6 | 31.7 | 33.5 | 30.1 | 39.4 | 26.9 |
| 36 | — | — | 3606 | 2 | 8 | 35.6 | 37.3 | 34 | 33.3 | 30.8 |
| 40 | — | — | 4006 | 2 | 8 | 39.5 | 41.4 | 37.9 | 37.2 | 34.7 |
| 48 | — | — | 4806 | 2 | 8 | 47.4 | 49.3 | 45.8 | 45.1 | 42.6 |

* Dimensions are -0.25 at 24°C

Δ 8 Tooth sprocket has 6 mm hub dia.

MINIATURE ROLLER CHAIN • 3.75 mm PITCH

SDP/SI

SINGLE STRAND
RIVETED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

Stainless Steel Type 18-8

➤ **FINISH:**

Clear Passivated

➤ **AVERAGE TENSILE LOAD:**

778 N

➤ **SPECIFICATION:**

Sizes not listed are available on request.
All lengths include and are supplied with
connecting link A 6Y 7M37CHA.

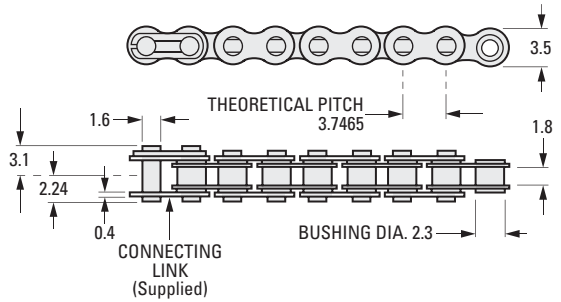
➤ **WEIGHT:**

50 grams per meter



| | |
|--|--|
| CONNECTING LINK (SNAP TYPE) | |
| Catalog Number | |
| A 6Y 7M37CHA | |

| | |
|-----------------------|--|
| BUSHING LINK | |
| Catalog Number | |
| A 6Y 7M37BL | |



METRIC COMPONENT

| Catalog Number | No. of Links | Length mm |
|----------------|--------------|-----------|
| A 6Y 7MM040 | 40 | 150 |
| A 6Y 7MM050 | 50 | 187 |
| A 6Y 7MM060 | 60 | 225 |
| A 6Y 7MM070 | 70 | 262 |
| A 6Y 7MM080 | 80 | 300 |
| A 6Y 7MM090 | 90 | 337 |
| A 6Y 7MM100 | 100 | 375 |
| A 6Y 7MM110 | 110 | 412 |
| A 6Y 7MM120 | 120 | 450 |
| A 6Y 7MM130 | 130 | 487 |
| A 6Y 7MM140 | 140 | 525 |
| A 6Y 7MM150 | 150 | 562 |
| A 6Y 7MM160 | 160 | 599 |
| A 6Y 7MM170 | 170 | 637 |
| A 6Y 7MM180 | 180 | 674 |
| A 6Y 7MM190 | 190 | 712 |
| A 6Y 7MM200 | 200 | 749 |
| A 6Y 7MM210 | 210 | 787 |
| A 6Y 7MM220 | 220 | 824 |
| A 6Y 7MM230 | 230 | 862 |
| A 6Y 7MM240 | 240 | 899 |

MINIATURE
1.6 mm FACE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

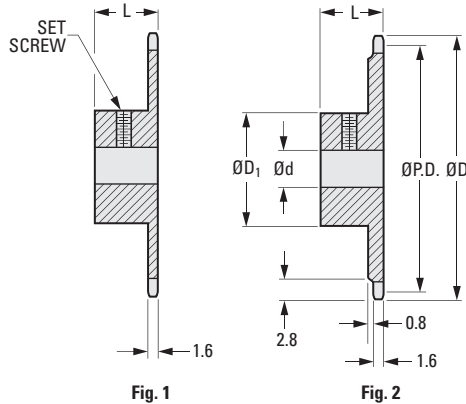
Stainless Steel Type 303

> FINISH:

Clear Passivated

> SPECIFICATION:

Ladder Chain A 6Y 8M375 can be used with these chain sprockets. See part number index at the beginning of this catalog.



METRIC COMPONENT

| Catalog Number | Fig. No. | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 | L Length | D ₁ Hub Dia. | Set Screw & Sub Drill |
|----------------|----------|--------------|------|--------|-----------------|----------|-------------------------|-----------------------|
| A 6X 7M1407 | 1 | 7 | 8.6 | 10 | 2.5 | 9 | *6 | — |
| A 6X 7M1408 | 1 | 8 | 9.8 | 11.1 | 4 | 9 | *7 | M2.5 0.75 |
| A 6X 7M1409 | 1 | 9 | 10.9 | 12.3 | 4 | 9 | *8 | M2.5 0.75 |
| A 6X 7M1410 | 1 | 10 | 12.1 | 13.4 | 4 | 9 | *9 | M2.5 0.75 |
| A 6X 7M1412 | 1 | 12 | 14.5 | 15.8 | 4 | 9 | 10 | M2.5 0.75 |
| A 6X 7M1415 | 1 | 15 | 18 | 19.3 | 6 | 9 | 13 | M3 1 |
| A 6X 7M1416 | 1 | 16 | 19.2 | 20.5 | 6 | 9 | 14 | M3 1 |
| A 6X 7M1418 | 1 | 18 | 21.6 | 22.9 | 6 | 9 | 17 | M3 1 |
| A 6X 7M1420 | 1 | 20 | 24 | 25.3 | 6 | 10 | 19 | M3 1 |
| A 6X 7M1424 | 1 | 24 | 28.7 | 30 | 8 | 10 | 19 | M4 1.8 |
| A 6X 7M1428 | 1 | 28 | 33.5 | 34.8 | 8 | 10 | 19 | M4 1.8 |
| A 6X 7M1430 | 2 | 30 | 35.8 | 37.2 | 8 | 10 | 19 | M4 1.8 |
| A 6X 7M1434 | 2 | 34 | 40.6 | 41.9 | 8 | 10 | 19 | M4 1.8 |
| A 6X 7M1436 | 2 | 36 | 43 | 44.3 | 8 | 10 | 19 | M4 1.8 |
| A 6X 7M1440 | 2 | 40 | 47.8 | 49.1 | 8 | 10 | 19 | M4 1.8 |
| A 6X 7M1448 | 2 | 48 | 57.3 | 58.6 | 8 | 10 | 19 | M4 1.8 |

* Hubs are grooved 2 mm wide next to the sprocket to provide clearance for chain link plate.

MOLDED
MINIATURE
SINGLE STRAND
NONCONDUCTIVE
NONMAGNETIC
SELF-LUBRICATING

► **MATERIAL:**

Roller Chain - Nylatron GS
Sprockets - Nylatron GS

► **SPECIFICATION:**

Larger pitch plastic sprockets are available.
See index. Also available in acetal, different bores, hub features and hubless.

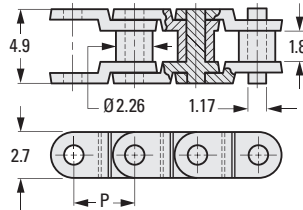


Fig. 1

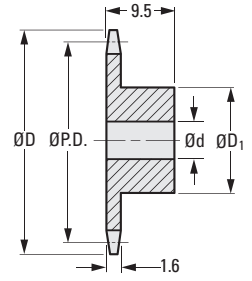


Fig. 2

METRIC COMPONENT

| Catalog Number | P Pitch | Links Per Meter | Weight g/m |
|---|---------|-----------------|------------|
| Fig. 1 Roller Chain - Priced Per Meter | | | |
| A 6M 7MMT | 3.7465 | 267 | 2.64 |

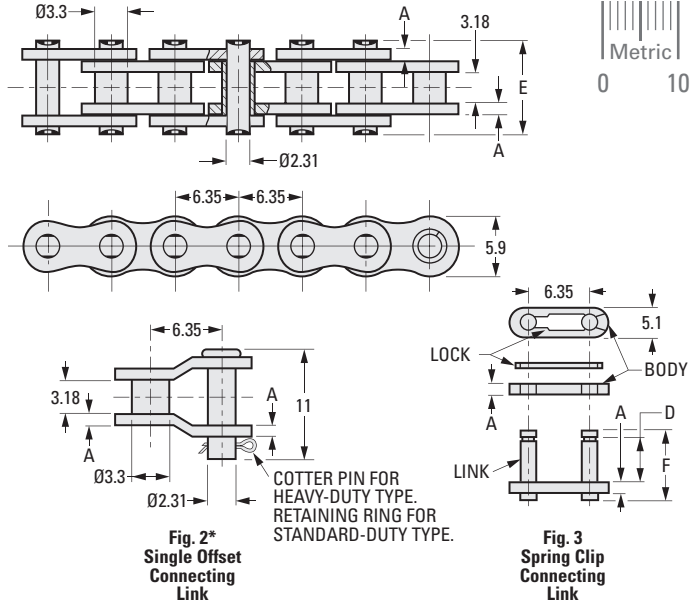
| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore | D ₁ Hub Dia. |
|-------------------------|--------------|------|--------|--------|-------------------------|
| Fig. 2 Sprockets | | | | | |
| A 6M 7M1407 | 7 | 8.6 | 9.9 | 3 | 4.7 |
| A 6M 7M1408 | 8 | 9.7 | 11 | 3 | 5.5 |
| A 6M 7M1409 | 9 | 10.9 | 12.3 | 4 | 6.3 |
| A 6M 7M1410 | 10 | 12.1 | 13.4 | 4 | 6.3 |
| A 6M 7M1412 | 12 | 14.5 | 15.8 | 4 | 6.3 |
| A 6M 7M1413 | 13 | 15.6 | 16.9 | 5 | 9.5 |
| A 6M 7M1414 | 14 | 16.8 | 18.2 | 5 | 9.5 |
| A 6M 7M1415 | 15 | 18 | 19.3 | 5 | 12.7 |
| A 6M 7M1416 | 16 | 19.2 | 20.5 | 5 | 12.7 |
| A 6M 7M1417 | 17 | 20.4 | 21.7 | 5 | 12.7 |
| A 6M 7M1418 | 18 | 21.6 | 22.9 | 5 | 12.7 |
| A 6M 7M1419 | 19 | 22.7 | 24.1 | 5 | 12.7 |
| A 6M 7M1420 | 20 | 23.9 | 25.3 | 5 | 12.7 |
| A 6M 7M1421 | 21 | 25.1 | 26.4 | 6 | 16 |
| A 6M 7M1422 | 22 | 26.3 | 27.6 | 6 | 16 |
| A 6M 7M1423 | 23 | 27.5 | 28.8 | 6 | 16 |
| A 6M 7M1424 | 24 | 28.7 | 30 | 6 | 16 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore | D ₁ Hub Dia. |
|-------------------------|--------------|------|--------|--------|-------------------------|
| Fig. 2 Sprockets | | | | | |
| A 6M 7M1425 | 25 | 29.9 | 31.2 | 6 | 16 |
| A 6M 7M1426 | 26 | 31.1 | 32.4 | 6 | 16 |
| A 6M 7M1427 | 27 | 32.3 | 33.6 | 6 | 16 |
| A 6M 7M1428 | 28 | 33.5 | 34.8 | 6 | 16 |
| A 6M 7M1429 | 29 | 34.6 | 36 | 6 | 16 |
| A 6M 7M1430 | 30 | 35.8 | 37.2 | 6 | 16 |
| A 6M 7M1431 | 31 | 37 | 38.4 | 6 | 16 |
| A 6M 7M1432 | 32 | 38.2 | 39.5 | 6 | 16 |
| A 6M 7M1433 | 33 | 39.4 | 40.7 | 6 | 16 |
| A 6M 7M1434 | 34 | 40.6 | 41.9 | 6 | 16 |
| A 6M 7M1435 | 35 | 41.8 | 43.1 | 6 | 16 |
| A 6M 7M1436 | 36 | 43 | 44.3 | 6 | 16 |
| A 6M 7M1438 | 38 | 45.4 | 46.7 | 6 | 16 |
| A 6M 7M1440 | 40 | 47.7 | 49.1 | 6 | 16 |
| A 6M 7M1442 | 42 | 50.1 | 51.5 | 6 | 16 |
| A 6M 7M1444 | 44 | 52.5 | 53.8 | 6 | 16 |
| A 6M 7M1452 | 52 | 62 | 63.4 | 6 | 16 |

STANDARD DUTY
HEAVY-DUTY
SINGLE STRAND
RIVETED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► **MATERIAL:**
Stainless Steel
Hardened Steel



METRIC COMPONENT

| Catalog Number | Material | A Thickness | D | E | F | Tensile Load N | Weight Per Meter kg / m |
|---|-----------------|-------------|-----|-----|-----|----------------|-------------------------|
| Roller Chain - Standard-Duty Type - Priced Per Meter | | | | | | | |
| A 6Q 7M25 | Hardened Steel | .78 | 4.8 | 7.8 | 8.4 | 3500 | 0.13 |
| A 6Y 7M25 | Stainless Steel | .78 | 4.8 | 7.8 | 8.4 | 2500 | 0.13 |

| Roller Chain (Ref.) | Material | Roller (Fig. 1) | Single Offset * (Fig. 2) | Spring Clip (Fig. 3) |
|---|-----------------|-----------------|--------------------------|----------------------|
| Connecting Links - For Standard-Duty Type Chain - Priced Per Piece | | | | |
| A 6Q 7M25 | Hardened Steel | A 6Q 7M25RL | — | A 6Q 7M25SCCL |
| A 6Y 7M25 | Stainless Steel | A 6Y 7M25RL | A 6Y 7M25OSCLS | A 6Y 7M25SCCL |

METRIC COMPONENT

| Catalog Number | Material | A Thickness | D | E | F | Tensile Load N | Weight Per Meter kg / m |
|--|-----------------|-------------|------|-----|-----|----------------|-------------------------|
| Roller Chain - Heavy-Duty Type - Priced Per Meter | | | | | | | |
| A 6Q 7MH25 | Hardened Steel | 1.03 | 5.35 | 8.9 | 9.7 | 5200 | 0.16 |
| A 6Y 7MH25 | Stainless Steel | 1.03 | 5.35 | 8.9 | 9.7 | 2500 | 0.16 |

| Roller Chain (Ref.) | Material | Roller (Fig. 1) | Single Offset * (Fig. 2) | Spring Clip (Fig. 3) |
|--|-----------------|-----------------|--------------------------|----------------------|
| Connecting Links - For Heavy-Duty Type Chain - Priced Per Piece | | | | |
| A 6Q 7MH25 | Hardened Steel | A 6Q 7MH25RL | A 6Q 7MH25OSCLS | A 6Q 7MH25SCCL |
| A 6Y 7MH25 | Stainless Steel | A 6Y 7MH25RL | A 6Y 7MH25OSCLS | A 6Y 7MH25SCCL |

* To be discontinued when present stock is depleted.

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SPROCKETS FOR ROLLER CHAIN • 6.35 mm PITCH



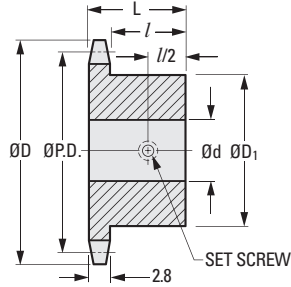
FOR SINGLE STRAND CHAINS
2.8 mm FACE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**
AISI C 1045 Steel

► **SPECIFICATION:**
These sprockets can be used with standard #25, 1/4" pitch roller or ladder chains.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. (Ref.) | d Bore | L Length | D ₁ Hub Dia. | l Hub Proj. | Set Screw |
|----------------|--------------|------|---------------|--------|----------|-------------------------|-------------|-----------|
| A 6C 7MHK2508 | 8 | 16.6 | 19.1 | 6 | 12.8 | 10 | 10 | M4 |
| A 6C 7MHK2509 | 9 | 18.6 | 21.3 | 6 | 12.8 | 10 | 10 | M4 |
| A 6C 7MHK2510 | 10 | 20.5 | 23.4 | 8 | 12.8 | 14 | 10 | M4 |
| A 6C 7MHK2511 | 11 | 22.5 | 25.4 | 8 | 12.8 | 16 | 10 | M4 |
| A 6C 7MHK2512 | 12 | 24.5 | 27.5 | 8 | 12.8 | 18 | 10 | M4 |
| A 6C 7MHK2513 | 13 | 26.5 | 29.6 | 8 | 12.8 | 20 | 10 | M4 |
| A 6C 7MHK2514 | 14 | 28.5 | 31.6 | 8 | 12.8 | 22 | 10 | M4 |
| A 6C 7MHK2515 | 15 | 30.5 | 33.7 | 8 | 12.8 | 22 | 10 | M4 |
| A 6C 7MHK2516 | 16 | 32.5 | 35.7 | 8 | 14.8 | 26 | 12 | M4 |
| A 6C 7MHK2517 | 17 | 34.6 | 37.8 | 8 | 14.8 | 26 | 12 | M4 |
| A 6C 7MHK2518 | 18 | 36.6 | 39.8 | 8 | 14.8 | 28 | 12 | M4 |
| A 6C 7MHK2519 | 19 | 38.6 | 41.9 | 8 | 14.8 | 28 | 12 | M4 |
| A 6C 7MHK2520 | 20 | 40.6 | 43.9 | 8 | 17.8 | 28 | 15 | M4 |
| A 6C 7MHK2521 | 21 | 42.6 | 45.9 | 8 | 17.8 | 35 | 15 | M4 |
| A 6C 7MHK2522 | 22 | 44.6 | 48 | 8 | 17.8 | 35 | 15 | M4 |
| A 6C 7MHK2523 | 23 | 46.6 | 50 | 8 | 17.8 | 35 | 15 | M4 |
| A 6C 7MHK2524 | 24 | 48.6 | 52 | 8 | 17.8 | 35 | 15 | M4 |
| A 6C 7MHK2525 | 25 | 50.7 | 54.1 | 8 | 17.8 | 35 | 15 | M4 |
| A 6C 7MHK2526 | 26 | 52.7 | 56.1 | 10 | 18 | 35 | 15.2 | M5 |
| A 6C 7MHK2528 | 28 | 56.7 | 60.2 | 10 | 18 | 38 | 15.2 | M5 |
| A 6C 7MHK2530 | 30 | 60.7 | 64.2 | 10 | 18 | 38 | 15.2 | M5 |
| A 6C 7MHK2532 | 32 | 64.8 | 68.3 | 12 | 18 | 42 | 15.2 | M5 |

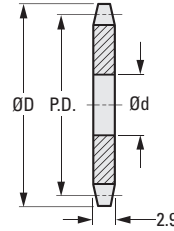
Root Dia. = P.D. -3.3

FOR SINGLE STRAND CHAINS
2.9 mm FACE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**
Steel

> **SPECIFICATION:**
These sprockets can be used with standard #25, 1/4" pitch roller or ladder chains.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. (Ref.) | d Bore Dia. |
|------------------|--------------|-------|---------------|-------------|
| A 6C 7MYC25008 | 8 | 16.58 | 19.4 | 6 |
| A 6C 7MYC25009 | 9 | 18.56 | 21.4 | 6 |
| A 6C 7MYC25010 | 10 | 20.55 | 23.3 | 6 |
| A 6C 7MYC25011 | 11 | 22.54 | 25.3 | 8 |
| A 6C 7MYC25012 | 12 | 24.53 | 27.3 | 8 |
| A 6C 7MYC25013 | 13 | 26.53 | 29.3 | 8 |
| A 6C 7MYC25014 | 14 | 28.53 | 31.3 | 8 |
| A 6C 7MYC25015 | 15 | 30.53 | 33.3 | 8 |
| A 6C 7MYC25016 | 16 | 32.55 | 35.3 | 8 |
| A 6C 7MYC25017 | 17 | 34.55 | 37.3 | 8 |
| A 6C 7MYC25018 | 18 | 36.56 | 39.4 | 8 |
| *A 6C 7MYC25018A | 18 | 36.56 | 39.4 | 10 |
| A 6C 7MYC25019 | 19 | 38.58 | 41.9 | 8 |
| A 6C 7MYC25020 | 20 | 40.58 | 43.4 | 8 |
| *A 6C 7MYC25020A | 20 | 40.58 | 43.4 | 10 |
| A 6C 7MYC25021 | 21 | 42.6 | 45.4 | 8 |
| A 6C 7MYC25022 | 22 | 44.62 | 47.4 | 8 |
| A 6C 7MYC25023 | 23 | 46.63 | 49.4 | 8 |
| A 6C 7MYC25024 | 24 | 48.64 | 51.4 | 8 |
| A 6C 7MYC25025 | 25 | 50.66 | 53.5 | 8 |
| A 6C 7MYC25026 | 26 | 52.67 | 55.5 | 8 |
| A 6C 7MYC25027 | 27 | 54.69 | 57.5 | 8 |
| A 6C 7MYC25028 | 28 | 56.71 | 59.5 | 8 |

| Catalog Number | No. of Teeth | P.D. | D Dia. (Ref.) | d Bore Dia. |
|------------------|--------------|--------|---------------|-------------|
| A 6C 7MYC25029 | 29 | 58.73 | 61.5 | 8 |
| A 6C 7MYC25030 | 30 | 60.75 | 63.6 | 8 |
| A 6C 7MYC25031 | 31 | 62.76 | 65.6 | 10 |
| A 6C 7MYC25032 | 32 | 64.78 | 67.6 | 10 |
| A 6C 7MYC25033 | 33 | 66.8 | 69.6 | 10 |
| A 6C 7MYC25034 | 34 | 68.82 | 71.6 | 10 |
| A 6C 7MYC25035 | 35 | 70.84 | 73.6 | 10 |
| A 6C 7MYC25036 | 36 | 72.85 | 75.6 | 10 |
| A 6C 7MYC25037 | 37 | 74.87 | 77.7 | 10 |
| A 6C 7MYC25038 | 38 | 76.89 | 79.7 | 10 |
| A 6C 7MYC25039 | 39 | 78.91 | 81.7 | 10 |
| A 6C 7MYC25040 | 40 | 80.93 | 83.7 | 10 |
| A 6C 7MYC25041 | 41 | 82.95 | 85.7 | 10 |
| A 6C 7MYC25042 | 42 | 84.97 | 87.8 | 10 |
| A 6C 7MYC25043 | 43 | 86.98 | 89.8 | 10 |
| A 6C 7MYC25044 | 44 | 89.01 | 91.8 | 10 |
| *A 6C 7MYC25044A | 44 | 89.01 | 91.8 | 12 |
| A 6C 7MYC25045 | 45 | 91.03 | 93.8 | 10 |
| A 6C 7MYC25046 | 46 | 93.05 | 95.8 | 10 |
| A 6C 7MYC25047 | 47 | 95.07 | 97.9 | 10 |
| A 6C 7MYC25048 | 48 | 97.09 | 99.9 | 10 |
| A 6C 7MYC25049 | 49 | 99.1 | 101.9 | 10 |
| A 6C 7MYC25050 | 50 | 101.13 | 103.9 | 10 |

* Sprockets width = 2.5 mm.

Continued on the next page

SPROCKETS FOR ROLLER CHAIN • 6.35 mm PITCH

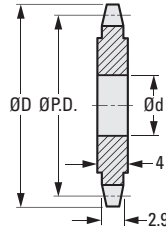


FOR SINGLE STRAND CHAINS
2.9 mm FACE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**
Steel

> **SPECIFICATION:**
These sprockets can be used with standard #25, 1/4" pitch roller or ladder chains.



METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. (Ref.) | d Bore |
|------------------|--------------|--------|---------------|--------|
| A 6C 7MYC25051 | 51 | 103.14 | 105.9 | 12 |
| A 6C 7MYC25052 | 52 | 105.16 | 108 | 12 |
| A 6C 7MYC25053 | 53 | 107.18 | 110 | 12 |
| A 6C 7MYC25054 | 54 | 109.18 | 112 | 12 |
| A 6C 7MYC25055 | 55 | 111.23 | 114 | 12 |
| A 6C 7MYC25056 | 56 | 113.25 | 116 | 12 |
| *A 6C 7MYC25056A | 56 | 115.27 | 116 | 14 |
| A 6C 7MYC25057 | 57 | 115.27 | 118.1 | 12 |
| A 6C 7MYC25058 | 58 | 117.29 | 120.1 | 12 |
| A 6C 7MYC25059 | 59 | 119.31 | 122.1 | 12 |
| A 6C 7MYC25060 | 60 | 121.32 | 124.1 | 12 |
| A 6C 7MYC25061 | 61 | 123.34 | 126.1 | 12 |
| A 6C 7MYC25062 | 62 | 125.37 | 128.2 | 12 |
| A 6C 7MYC25063 | 63 | 127.38 | 130.2 | 12 |
| A 6C 7MYC25064 | 64 | 129.41 | 132.2 | 12 |
| A 6C 7MYC25065 | 65 | 131.43 | 134.2 | 12 |

| Catalog Number | No. of Teeth | P.D. | D Dia. (Ref.) | d Bore |
|------------------|--------------|--------|---------------|--------|
| A 6C 7MYC25066 | 66 | 133.45 | 136.2 | 14 |
| A 6C 7MYC25067 | 67 | 135.47 | 138.3 | 14 |
| A 6C 7MYC25068 | 68 | 137.49 | 140.3 | 14 |
| A 6C 7MYC25069 | 69 | 139.51 | 142.3 | 14 |
| A 6C 7MYC25070 | 70 | 141.53 | 144.3 | 14 |
| *A 6C 7MYC25070A | 70 | 141.53 | 144.3 | 16 |
| A 6C 7MYC25072 | 72 | 145.58 | 148.4 | 14 |
| A 6C 7MYC25075 | 75 | 151.63 | 154.4 | 14 |
| A 6C 7MYC25076 | 76 | 153.66 | 156.5 | 16 |
| A 6C 7MYC25078 | 78 | 157.77 | 160.5 | 16 |
| A 6C 7MYC25080 | 80 | 161.74 | 164.5 | 16 |
| A 6C 7MYC25085 | 85 | 171.84 | 174.6 | 16 |
| A 6C 7MYC25090 | 90 | 181.97 | 184.7 | 16 |
| A 6C 7MYC25095 | 95 | 192.05 | 194.8 | 16 |
| A 6C 7MYC25100 | 100 | 202.15 | 204.9 | 16 |
| A 6C 7MYC25110 | 110 | 222.38 | 225.1 | 16 |
| ΔA 6C 7MYC25114 | 114 | 230.45 | 233.2 | 16 |

* Sprockets width = 5 mm length thru bore.

Δ To be discontinued when present stock is depleted

Continued from the previous page

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SPROCKETS FOR ROLLER CHAIN • 6.35 mm PITCH

SDP/SI

FOR SINGLE STRAND CHAINS
2.8 mm FACE

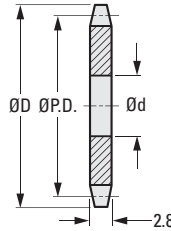
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

AISI C 1045 Steel

> SPECIFICATION:

These sprockets can be used with standard #25, 1/4" pitch roller or ladder chains.



METRIC COMPONENT

| Catalog Number * | No. of Teeth | P.D. | D Dia. (Ref.) | d Bore |
|------------------|--------------|-------|---------------|--------|
| A 6C 7MYK2510 | 10 | 20.5 | 23.4 | 6 |
| A 6C 7MYK2512 | 12 | 24.5 | 27.5 | 6 |
| A 6C 7MYK2514 | 14 | 28.5 | 31.6 | 8 |
| A 6C 7MYK2516 | 16 | 32.5 | 35.7 | 8 |
| A 6C 7MYK2518 | 18 | 36.6 | 39.8 | 8 |
| A 6C 7MYK2520 | 20 | 40.6 | 43.9 | 8 |
| A 6C 7MYK2522 | 22 | 44.6 | 48 | 10 |
| A 6C 7MYK2524 | 24 | 48.6 | 52 | 10 |
| A 6C 7MYK2525 | 25 | 50.7 | 54.1 | 10 |
| A 6C 7MYK2526 | 26 | 52.7 | 56.1 | 10 |
| A 6C 7MYK2528 | 28 | 56.7 | 60.2 | 10 |
| A 6C 7MYK2532 | 32 | 64.8 | 68.3 | 12 |
| A 6C 7MYK2534 | 34 | 68.8 | 72.3 | 12 |
| A 6C 7MYK2536 | 36 | 72.9 | 76.4 | 12 |
| A 6C 7MYK2540 | 40 | 80.9 | 84.5 | 12 |
| A 6C 7MYK2545 | 45 | 91 | 94.6 | 15 |
| A 6C 7MYK2550 | 50 | 101.1 | 107.7 | 15 |
| A 6C 7MYK2555 | 55 | 111.2 | 114.9 | 15 |
| A 6C 7MYK2560 | 60 | 121.3 | 125 | 15 |

* To be discontinued when the present stock is depleted.
Root Dia. = P.D. - 3.3

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SPROCKETS FOR ROLLER CHAIN • 6.35 mm PITCH

SDP/SI

MOLDED WITH METAL INSERT
FOR SINGLE STRAND
2.8 mm FACE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



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> MATERIAL:

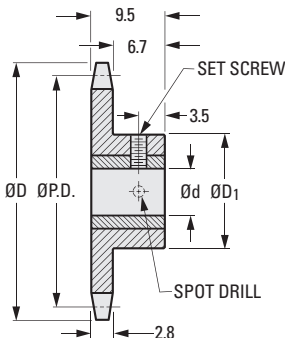
Sprockets - Acetal Resin, White
Insert - Aluminum

> SPECIFICATIONS:

These sprockets can be used with standard #25, 1/4" pitch roller or ladder chains. Other bore sizes are available on special order.

Sprockets with:

6 mm bore have an M3 set screw & spot drill.
8 mm bore have an M4 set screw & spot drill.



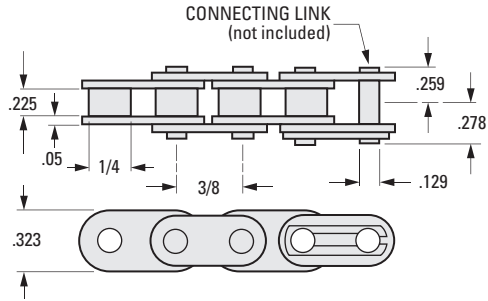
METRIC COMPONENT

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025/0 | D ₁ Hub Dia. |
|----------------|--------------|------|--------|-----------------|-------------------------|
| A 6Z 7M251006 | 10 | 20.5 | 23 | 6 | 12 |
| A 6Z 7M251008 | 10 | 20.5 | 23 | 8 | 12 |
| A 6Z 7M251206 | 12 | 24.5 | 27 | 6 | 15 |
| A 6Z 7M251208 | 12 | 24.5 | 27 | 8 | 15 |
| A 6Z 7M251506 | 15 | 30.6 | 34 | 6 | 15 |
| A 6Z 7M251508 | 15 | 30.6 | 34 | 8 | 15 |
| A 6Z 7M251606 | 16 | 32.6 | 36 | 6 | 15 |
| A 6Z 7M251608 | 16 | 32.6 | 36 | 8 | 15 |
| A 6Z 7M251706 | 17 | 34.6 | 38 | 6 | 15 |
| A 6Z 7M251708 | 17 | 34.6 | 38 | 8 | 15 |
| A 6Z 7M251806 | 18 | 36.6 | 40 | 6 | 15 |
| A 6Z 7M251808 | 18 | 36.6 | 40 | 8 | 15 |
| A 6Z 7M251906 | 19 | 38.6 | 42 | 6 | 15 |
| A 6Z 7M251908 | 19 | 38.6 | 42 | 8 | 15 |
| A 6Z 7M252006 | 20 | 40.6 | 44 | 6 | 15 |
| A 6Z 7M252008 | 20 | 40.6 | 44 | 8 | 15 |
| A 6Z 7M252406 | 24 | 48.6 | 52 | 6 | 15 |
| A 6Z 7M252408 | 24 | 48.6 | 52 | 8 | 15 |
| A 6Z 7M252508 | 25 | 50.7 | 54 | 8 | 17 |
| A 6Z 7M253008 | 30 | 60.8 | 64 | 8 | 17 |
| A 6Z 7M253208 | 32 | 64.8 | 68 | 8 | 17 |
| A 6Z 7M253608 | 36 | 72.9 | 76 | 8 | 17 |
| A 6Z 7M254006 | 40 | 80.9 | 85 | 6 | 17 |
| A 6Z 7M254008 | 40 | 80.9 | 85 | 8 | 17 |

SINGLE STRAND
RIVETED

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> **MATERIAL:**
Stainless Steel



METRIC COMPONENT

| Catalog Number | Average Tensile Load N | Average Weight Per Meter kg/m |
|--|---------------------------|----------------------------------|
| Roller Chain - Priced Per Meter | | |
| A 6Y77M37 | 5500 | 0.41 |



METRIC COMPONENT

| Catalog Number | Type of Connecting Link |
|--|-------------------------|
| Connecting Links (For Roller Chain) | |
| A 6Y77M37SCCL | Spring Clip |

- I
- R
- T
- 1
- 2**
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

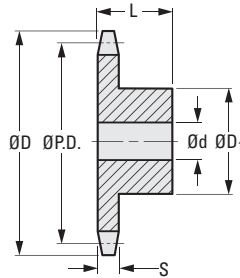
6, 8 & 9.525 mm PITCH
 MOLDED
 2.6, 2.8, & 5.3 mm WIDE
 DIN 8187

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
 Acetal

➤ **SPECIFICATION:**
Sprockets with:
 8 & 10 mm bores have a tolerance of +0.022/0
 12 & 15 mm bores have a tolerance of +0.027/0



METRIC COMPONENT

| Catalog Number | Pitch | No. of Teeth | P.D. (Ref.) | D Dia. | d Bore H8 | S Face Width | L Length | D1 Hub Dia. |
|---|--------------|--------------|-------------|--------|-----------|--------------|----------|-------------|
| Sprockets for 6 x 2.8 mm, 4 mm Diameter Roller Chain | | | | | | | | |
| A 6M 7MHZ06013 | 6 | 13 | 25.1 | 27.5 | 8 | 2.6 | 10 | 18 |
| A 6M 7MHZ06015 | 6 | 15 | 28.9 | 31 | 8 | 2.6 | 10 | 21 |
| A 6M 7MHZ06015A | 6 | 15 | 28.9 | 31 | 12 | 2.6 | 10 | 21 |
| A 6M 7MHZ06017 | 6 | 17 | 32.7 | 35 | 8 | 2.6 | 13 | 24 |
| A 6M 7MHZ06019 | 6 | 19 | 36.5 | 39 | 8 | 2.6 | 13 | 24 |
| A 6M 7MHZ06021 | 6 | 21 | 40.3 | 42.5 | 10 | 2.6 | 13 | 28 |
| A 6M 7MHZ06023 | 6 | 23 | 44.1 | 46.5 | 10 | 2.6 | 13 | 28 |
| A 6M 7MHZ06025 | 6 | 25 | 47.9 | 50 | 10 | 2.6 | 13 | 28 |
| Sprockets for 8 x 3 mm, 5 mm Diameter Roller Chain | | | | | | | | |
| A 6M 7MHZ08013 | 8 | 13 | 33.4 | 36.5 | 8 | 2.8 | 13 | 24 |
| A 6M 7MHZ08015 | 8 | 15 | 38.5 | 41.5 | 8 | 2.8 | 13 | 24 |
| A 6M 7MHZ08017 | 8 | 17 | 43.5 | 46.5 | 10 | 2.8 | 14 | 28 |
| A 6M 7MHZ08019 | 8 | 19 | 48.6 | 52 | 10 | 2.8 | 14 | 28 |
| A 6M 7MHZ08021 | 8 | 21 | 53.7 | 57 | 10 | 2.8 | 14 | 28 |
| A 6M 7MHZ08023 | 8 | 23 | 58.8 | 62.5 | 10 | 2.8 | 14 | 28 |
| A 6M 7MHZ08025 | 8 | 25 | 63.8 | 67 | 10 | 2.8 | 14 | 28 |
| Sprockets for 9.525 x 5.72 mm, 6.35 mm Diameter Roller Chain | | | | | | | | |
| A 6M 7MHZ09513 | 9.525 (3/8") | 13 | 39.8 | 43 | 8 | 5.3 | 16 | 24 |
| A 6M 7MHZ09513A | 9.525 (3/8") | 13 | 39.8 | 43 | 15 | 5.3 | 16 | 24 |
| A 6M 7MHZ09515 | 9.525 (3/8") | 15 | 45.8 | 49 | 8 | 5.3 | 16 | 24 |
| A 6M 7MHZ09517 | 9.525 (3/8") | 17 | 51.8 | 55.5 | 10 | 5.3 | 16 | 28 |
| A 6M 7MHZ09519 | 9.525 (3/8") | 19 | 57.9 | 61.5 | 10 | 5.3 | 16 | 28 |
| A 6M 7MHZ09521 | 9.525 (3/8") | 21 | 63.8 | 68 | 12 | 5.3 | 20 | 32 |
| A 6M 7MHZ09523 | 9.525 (3/8") | 23 | 70 | 74 | 12 | 5.3 | 20 | 32 |
| A 6M 7MHZ09525 | 9.525 (3/8") | 25 | 76 | 80 | 12 | 5.3 | 20 | 32 |

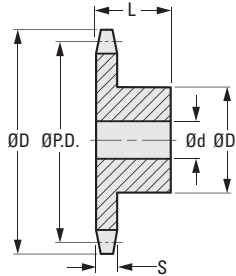
MOLDED
3, 4.4 & 7.2 mm WIDE
DIN 8187

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
Acetal

➤ **SPECIFICATION:**
Sprockets with:
8 & 10 mm bores have a tolerance of +0.022/0
12 & 16 mm bores have a tolerance of +0.027/0



METRIC COMPONENT

| Catalog Number | Pitch | No. of Teeth | P.D. (Ref.) | D Dia. | d Bore H8 | S Face Width | L Length | D ₁ Hub Dia. |
|--|-------------|--------------|-------------|--------|-----------|--------------|----------|-------------------------|
| Sprockets for 12.7 x 3.3 mm, 7.75 mm Diameter Roller Chain | | | | | | | | |
| A 6M 7MHZ12713A | 12.7 (1/2") | 13 | 53.1 | 58 | 8 | 3 | 16 | 24 |
| A 6M 7MHZ12715A | 12.7 (1/2") | 15 | 61.1 | 66 | 8 | 3 | 16 | 24 |
| A 6M 7MHZ12717A | 12.7 (1/2") | 17 | 69.1 | 74 | 10 | 3 | 18 | 28 |
| A 6M 7MHZ12719A | 12.7 (1/2") | 19 | 77.2 | 82 | 10 | 3 | 18 | 28 |
| A 6M 7MHZ12721A | 12.7 (1/2") | 21 | 85.2 | 90.5 | 12 | 3 | 20 | 32 |
| A 6M 7MHZ12723A | 12.7 (1/2") | 23 | 93.3 | 98.5 | 12 | 3 | 20 | 32 |
| A 6M 7MHZ12725A | 12.7 (1/2") | 25 | 101.3 | 107 | 12 | 3 | 20 | 32 |
| Sprockets for 12.7 x 4.88 mm, 7.75 mm Diameter Roller Chain | | | | | | | | |
| A 6M 7MHZ12713B | 12.7 (1/2") | 13 | 53.1 | 58 | 8 | 4.4 | 17.4 | 24 |
| A 6M 7MHZ12715B | 12.7 (1/2") | 15 | 61.1 | 66 | 8 | 4.4 | 17.4 | 24 |
| A 6M 7MHZ12717B | 12.7 (1/2") | 17 | 69.1 | 74 | 10 | 4.4 | 19.4 | 28 |
| A 6M 7MHZ12719B | 12.7 (1/2") | 19 | 77.2 | 82 | 10 | 4.4 | 19.4 | 28 |
| A 6M 7MHZ12721B | 12.7 (1/2") | 21 | 85.2 | 90.5 | 12 | 4.4 | 21.4 | 32 |
| A 6M 7MHZ12723B | 12.7 (1/2") | 23 | 93.3 | 98.5 | 12 | 4.4 | 21.4 | 32 |
| A 6M 7MHZ12725B | 12.7 (1/2") | 25 | 101.3 | 107 | 12 | 4.4 | 21.4 | 32 |
| Sprockets for 12.7 x 7.75 mm, 8.51 mm Diameter Roller Chain | | | | | | | | |
| A 6M 7MHZ12713C | 12.7 (1/2") | 13 | 53.1 | 58 | 10 | 7.2 | 20 | 28 |
| A 6M 7MHZ12715C | 12.7 (1/2") | 15 | 61.1 | 66 | 10 | 7.2 | 20 | 28 |
| A 6M 7MHZ12717C | 12.7 (1/2") | 17 | 69.1 | 74 | 12 | 7.2 | 25 | 32 |
| A 6M 7MHZ12719C | 12.7 (1/2") | 19 | 77.2 | 82 | 12 | 7.2 | 25 | 32 |
| A 6M 7MHZ12721C | 12.7 (1/2") | 21 | 85.2 | 90.5 | 16 | 7.2 | 25 | 36 |
| A 6M 7MHZ12723C | 12.7 (1/2") | 23 | 93.3 | 98.5 | 16 | 7.2 | 25 | 36 |
| A 6M 7MHZ12725C | 12.7 (1/2") | 25 | 101.3 | 107 | 16 | 7.2 | 25 | 36 |

1.6 mm FACE

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> MATERIAL:

Ladder Chain - Stainless Steel
Sprockets - Brass, Acetal or Stainless Steel

> SPECIFICATION:

These sprockets are the same pitch as the sprockets (A 6X 7) series shown in this catalog. However, they cannot be used with the A 6X 7 series chains. The A 6X 8M375 chain can be used with both A 6B 8M as well as A 6X 7 series sprockets.

Bore Tolerance:
 3 mm +0.014/0
 4, 5 & 6 mm +0.018/0
 For Stainless Steel
 3 mm +0.025/0
 4, 5 & 6 mm +0.030/0

> MATERIAL CODE:

- B Brass
- P Acetal Δ
- X Stainless Steel

Δ Acetal sprockets do not have a threaded hole for a set screw

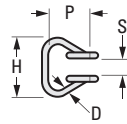


Fig. 1

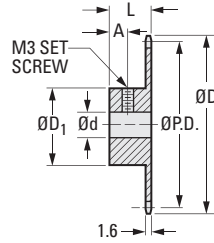


Fig. 2

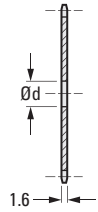


Fig. 3

METRIC COMPONENT

| Catalog Number | P Pitch Nom. | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | |
| A 6Y 8M375 | 3.75 | 267 | 0.8 | 5.8 | 2 | 304 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore | L | D ₁ Hub Dia. | A |
|--|--------------|-------|--------|--------|------|-------------------------|---|
| Fig. 2 Sprockets With Hub (See above for Material Code) | | | | | | | |
| A 6 8MHK3710 | 10 | 12.12 | 13.8 | 3 | 9.6 | 9.5 | 4 |
| A 6 8MHK3711 | 11 | 13.3 | 15 | 3 | 9.6 | 9.5 | 4 |
| A 6 8MHK3712 | 12 | 14.48 | 16.2 | 3 | 9.6 | 10 | 4 |
| A 6 8MHK3713 | 13 | 15.66 | 17.5 | 3 | 9.6 | 11 | 4 |
| A 6 8MHK3714 | 14 | 16.84 | 18.7 | 4 | 9.6 | 12 | 4 |
| A 6 8MHK3715 | 15 | 18.02 | 19.9 | 4 | 9.6 | 14 | 4 |
| A 6 8MHK3716 | 16 | 19.2 | 21.1 | 4 | 9.6 | 14 | 4 |
| A 6 8MHK3718 | 18 | 21.58 | 23.5 | 4 | 9.6 | 16 | 4 |
| A 6 8MHK3720 | 20 | 23.95 | 25.8 | 5 | 11.6 | 18 | 5 |
| A 6 8MHK3722 | 22 | 26.33 | 28.3 | 5 | 11.6 | 20 | 5 |
| A 6 8MHK3724 | 24 | 28.7 | 30.6 | 5 | 11.6 | 20 | 5 |
| A 6 8MHK3726 | 26 | 31.08 | 33 | 6 | 11.6 | 20 | 5 |
| A 6 8MHK3728 | 28 | 33.46 | 35.3 | 6 | 11.6 | 20 | 5 |
| A 6 8MHK3730 | 30 | 35.84 | 37.7 | 6 | 11.6 | 20 | 5 |

| Fig. 3 Sprockets Plain * | | | | | | | |
|---------------------------------|----|-------|------|---|---|---|---|
| A 6B 8MYK3732 | 32 | 38.22 | 40.1 | 8 | - | - | - |
| A 6B 8MYK3734 | 34 | 40.61 | 42.5 | 8 | - | - | - |
| A 6B 8MYK3736 | 36 | 42.99 | 44.9 | 8 | - | - | - |
| A 6B 8MYK3740 | 40 | 47.75 | 49.6 | 8 | - | - | - |
| A 6B 8MYK3748 | 48 | 57.28 | 59.2 | 8 | - | - | - |

* To be discontinued when present stock is depleted

SIZE 21
 MOLDED WITH METAL INSERT
 1.7 mm FACE

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► **MATERIAL:**

- Ladder Chain - Tinned Steel, High-Tensile Steel or Stainless Steel
- Sprockets - Acetal, Black
- Insert - Brass, Knurled

► **SPECIFICATION:**

- Sprockets with:
- 3 mm & 4 mm bore have an M2.5 set screw & spot drill.
- 5 mm & 6 mm bore have an M3 set screw & spot drill.

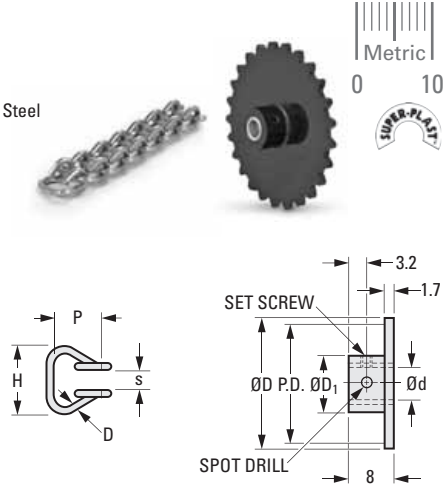


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | | |
| A 6C 8M21 | Steel, Tinned | 4.24 | 236 | 0.8 | 5.6 | 2 | 78 |
| A 6C88M21 | High-Tensile Steel | 4.24 | 236 | 0.8 | 5.6 | 2 | 157 |
| A 6Y 8M21 | Stainless Steel | 4.24 | 236 | 0.8 | 5.6 | 2 | 78 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. +0.025 0 | D ₁ Hub Dia. |
|-------------------------|--------------|------|--------|----------------------|-------------------------|
| Fig. 2 Sprockets | | | | | |
| A 6Z 8M211003 | 10 | 13.7 | 16.8 | 3 | 9.4 |
| A 6Z 8M211004 | 10 | 13.7 | 16.8 | 4 | 9.4 |
| A 6Z 8M211203 | 12 | 16.4 | 19.8 | 3 | 9.4 |
| A 6Z 8M211204 | 12 | 16.4 | 19.8 | 4 | 9.4 |
| A 6Z 8M211303 | 13 | 17.7 | 21.1 | 3 | 9.4 |
| A 6Z 8M211304 | 13 | 17.7 | 21.1 | 4 | 9.4 |
| A 6Z 8M211403 | 14 | 19 | 22.3 | 3 | 9.4 |
| A 6Z 8M211404 | 14 | 19 | 22.3 | 4 | 9.4 |
| A 6Z 8M211503 | 15 | 20.4 | 23.9 | 3 | 9.4 |
| A 6Z 8M211504 | 15 | 20.4 | 23.9 | 4 | 9.4 |
| A 6Z 8M211604 | 16 | 21.7 | 25.1 | 4 | 12.5 |
| A 6Z 8M211606 | 16 | 21.7 | 25.1 | 6 | 12.5 |
| A 6Z 8M211805 | 18 | 24.4 | 27.7 | 5 | 12.5 |
| A 6Z 8M211806 | 18 | 24.4 | 27.7 | 6 | 12.5 |
| A 6Z 8M212006 | 20 | 27.1 | 30.5 | 6 | 12.5 |
| A 6Z 8M212008 | 20 | 27.1 | 30.5 | 8 | 12.5 |
| A 6Z 8M212105 | 21 | 28.4 | 31.8 | 5 | 12.5 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Dia. +0.025 0 | D ₁ Hub Dia. |
|-------------------------|--------------|------|--------|----------------------|-------------------------|
| Fig. 2 Sprockets | | | | | |
| A 6Z 8M212106 | 21 | 28.4 | 31.8 | 6 | 12.5 |
| A 6Z 8M212205 | 22 | 29.8 | 33 | 5 | 12.5 |
| A 6Z 8M212206 | 22 | 29.8 | 33 | 6 | 12.5 |
| A 6Z 8M212405 | 24 | 32.4 | 35.8 | 5 | 12.5 |
| A 6Z 8M212406 | 24 | 32.4 | 35.8 | 6 | 12.5 |
| A 6Z 8M212505 | 25 | 33.8 | 37.1 | 5 | 12.5 |
| A 6Z 8M212506 | 25 | 33.8 | 37.1 | 6 | 12.5 |
| A 6Z 8M213005 | 30 | 40.5 | 44 | 5 | 12.5 |
| A 6Z 8M213006 | 30 | 40.5 | 44 | 6 | 12.5 |
| A 6Z 8M213205 | 32 | 43.2 | 46.7 | 5 | 12.5 |
| A 6Z 8M213206 | 32 | 43.2 | 46.7 | 6 | 12.5 |
| A 6Z 8M213605 | 36 | 48.6 | 52.1 | 5 | 12.5 |
| A 6Z 8M213606 | 36 | 48.6 | 52.1 | 6 | 12.5 |
| A 6Z 8M214005 | 40 | 54 | 57.4 | 5 | 12.5 |
| A 6Z 8M214006 | 40 | 54 | 57.4 | 6 | 12.5 |
| A 6Z 8M214805 | 48 | 64.7 | 68.1 | 5 | 12.5 |
| A 6Z 8M214806 | 48 | 64.7 | 68.1 | 6 | 12.5 |

SIZE 21
MOLDED
1.7 mm FACE

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> MATERIAL:

Ladder Chain - Tinned Steel, High-Tensile Steel or Stainless Steel
Sprockets - Acetal, Black

> SPECIFICATION:

Bore is sized for press fit on standard shafting.
Use straight knurl on shafting for maximum torques.

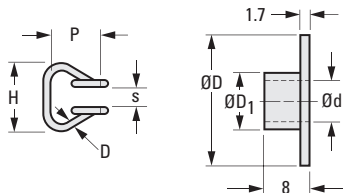


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | | |
| A 6C 8M21 | Steel, Tinned | 4.24 | 236 | 0.8 | 5.6 | 2 | 78 |
| A 6C8M21 | High-Tensile Steel | 4.24 | 236 | 0.8 | 5.6 | 2 | 157 |
| A 6Y 8M21 | Stainless Steel | 4.24 | 236 | 0.8 | 5.6 | 2 | 78 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Nom. | D ₁ Hub Dia. |
|-------------------------|--------------|------|--------|-------------|-------------------------|
| Fig. 2 Sprockets | | | | | |
| A 6M 8M210603 | 6 | 8.5 | 11.9 | 3 | 6.2 |
| A 6M 8M210803 | 8 | 11.1 | 14.2 | 3 | 6.2 |
| A 6M 8M211003 | 10 | 13.7 | 16.8 | 3 | 6.2 |
| A 6M 8M211004 | 10 | 13.7 | 16.8 | 4 | 7.9 |
| A 6M 8M211006 | 10 | 13.7 | 16.8 | 6 | 9.4 |
| A 6M 8M211203 | 12 | 16.4 | 19.8 | 3 | 6.2 |
| A 6M 8M211204 | 12 | 16.4 | 19.8 | 4 | 7.9 |
| A 6M 8M211206 | 12 | 16.4 | 19.8 | 6 | 9.4 |
| A 6M 8M211303 | 13 | 17.7 | 21 | 3 | 6.2 |
| A 6M 8M211304 | 13 | 17.7 | 21 | 4 | 7.9 |
| A 6M 8M211306 | 13 | 17.7 | 21 | 6 | 9.4 |
| A 6M 8M211403 | 14 | 19 | 22.4 | 3 | 6.2 |
| A 6M 8M211503 | 15 | 20.4 | 23.9 | 3 | 6.2 |
| A 6M 8M211504 | 15 | 20.4 | 23.9 | 4 | 7.9 |
| A 6M 8M211506 | 15 | 20.4 | 23.9 | 6 | 9.4 |
| A 6M 8M211603 | 16 | 21.7 | 25.1 | 3 | 6.2 |
| A 6M 8M211604 | 16 | 21.7 | 25.1 | 4 | 7.9 |
| A 6M 8M211606 | 16 | 21.7 | 25.1 | 6 | 9.4 |
| A 6M 8M211609 | 16 | 21.7 | 25.1 | 9 | 12.4 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore Nom. | D ₁ Hub Dia. |
|-------------------------|--------------|------|--------|-------------|-------------------------|
| Fig. 2 Sprockets | | | | | |
| A 6M 8M212003 | 20 | 27.1 | 30.5 | 3 | 6.2 |
| A 6M 8M212004 | 20 | 27.1 | 30.5 | 4 | 7.9 |
| A 6M 8M212006 | 20 | 27.1 | 30.5 | 6 | 9.4 |
| A 6M 8M212009 | 20 | 27.1 | 30.5 | 9 | 12.4 |
| A 6M 8M212204 | 22 | 29.8 | 33 | 4 | 7.9 |
| A 6M 8M212206 | 22 | 29.8 | 33 | 6 | 9.4 |
| A 6M 8M212209 | 22 | 29.8 | 33 | 9 | 12.4 |
| A 6M 8M212404 | 24 | 32.4 | 35.8 | 4 | 7.9 |
| A 6M 8M212406 | 24 | 32.4 | 35.8 | 6 | 9.4 |
| A 6M 8M213004 | 30 | 40.5 | 43.9 | 4 | 7.9 |
| A 6M 8M213006 | 30 | 40.5 | 43.9 | 6 | 9.4 |
| A 6M 8M213009 | 30 | 40.5 | 43.9 | 9 | 12.4 |
| A 6M 8M213206 | 32 | 43.2 | 46.7 | 6 | 9.4 |
| A 6M 8M213209 | 32 | 43.2 | 46.7 | 9 | 12.4 |
| A 6M 8M213606 | 36 | 48.6 | 52.1 | 6 | 9.4 |
| A 6M 8M213609 | 36 | 48.6 | 52.1 | 9 | 12.4 |
| A 6M 8M214006 | 40 | 54 | 57.4 | 6 | 9.4 |
| A 6M 8M214009 | 40 | 54 | 57.4 | 9 | 12.4 |
| A 6M 8M214809 | 48 | 64.7 | 68.1 | 9 | 12.4 |

SIZE 19
 MOLDED WITH METAL INSERT
 2.5 mm FACE

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► **MATERIAL:**

Ladder Chain - Steel or Brass, High-Tensile Steel, Stainless Steel

Sprockets - Acetal, Black

Insert - Brass, Knurled

► **SPECIFICATION:**

Sprockets with:

4 mm bore have an M2.5 set screw & spot drill

6 mm bore have an M3 set screw & spot drill

8 mm bore have an M4 set screw & spot drill

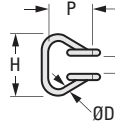


Fig. 1

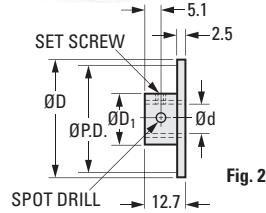


Fig. 2

METRIC COMPONENT

| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | | |
| A 6C 8M19 | Steel | 4.7 | 213 | 1.04 | 7.7 | 3 | 133 |
| A 6C88M19 | High-Tensile Steel | 4.7 | 213 | 1.04 | 7.7 | 3 | 245 |
| A 6B 8M19 | Brass | 4.7 | 213 | 1.04 | 7.7 | 3 | 80.4 |
| A 6Y 8M19 | Stainless Steel | 4.7 | 213 | 1.04 | 7.7 | 3 | 133 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 | D1 Hub Dia. |
|-------------------------|--------------|-------|--------|-----------------|-------------|
| Fig. 2 Sprockets | | | | | |
| A 6Z 8M192004 | 20 | 30 | 34.3 | 4 | 15.8 |
| A 6Z 8M192006 | 20 | 30 | 34.3 | 6 | 15.8 |
| A 6Z 8M192204 | 22 | 33 | 37.3 | 4 | 15.8 |
| A 6Z 8M192206 | 22 | 33 | 37.3 | 6 | 15.8 |
| A 6Z 8M192208 | 22 | 33 | 37.3 | 8 | 19 |
| A 6Z 8M192404 | 24 | 36 | 40.3 | 4 | 15.8 |
| A 6Z 8M192406 | 24 | 36 | 40.3 | 6 | 15.8 |
| A 6Z 8M192408 | 24 | 36 | 40.3 | 8 | 19 |
| A 6Z 8M192504 | 25 | 37.4 | 41.7 | 4 | 15.8 |
| A 6Z 8M192506 | 25 | 37.4 | 41.7 | 6 | 15.8 |
| A 6Z 8M192508 | 25 | 37.4 | 41.7 | 8 | 19 |
| A 6Z 8M193004 | 30 | 44.9 | 49.2 | 4 | 15.8 |
| A 6Z 8M193006 | 30 | 44.9 | 49.2 | 6 | 15.8 |
| A 6Z 8M193008 | 30 | 44.9 | 49.2 | 8 | 19 |
| A 6Z 8M193204 | 32 | 47.9 | 52.2 | 4 | 15.8 |
| A 6Z 8M193206 | 32 | 47.9 | 52.2 | 6 | 15.8 |
| A 6Z 8M193208 | 32 | 47.9 | 52.2 | 8 | 19 |
| A 6Z 8M193604 | 36 | 53.8 | 58.1 | 4 | 15.8 |
| A 6Z 8M193606 | 36 | 53.8 | 58.1 | 6 | 15.8 |
| A 6Z 8M193608 | 36 | 53.8 | 58.1 | 8 | 19 |
| A 6Z 8M194004 | 40 | 59.8 | 64.1 | 4 | 15.8 |
| A 6Z 8M194006 | 40 | 59.8 | 64.1 | 6 | 15.8 |
| A 6Z 8M194008 | 40 | 59.8 | 64.1 | 8 | 19 |
| A 6Z 8M194804 | 48 | 71.7 | 76 | 4 | 15.8 |
| A 6Z 8M194806 | 48 | 71.7 | 76 | 6 | 15.8 |
| A 6Z 8M194808 | 48 | 71.7 | 76 | 8 | 19 |
| A 6Z 8M195404 | 54 | 80.6 | 85 | 4 | 15.8 |
| A 6Z 8M195406 | 54 | 80.6 | 85 | 6 | 15.8 |
| A 6Z 8M195408 | 54 | 80.6 | 85 | 8 | 19 |
| A 6Z 8M196008 | 60 | 89.6 | 93.9 | 8 | 19 |
| A 6Z 8M197208 | 72 | 107.5 | 111.8 | 8 | 19 |

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2 mm FACE

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➤ **MATERIAL:**

Ladder Chain - High-Tensile Steel or Stainless Steel
Sprockets - Brass, Acetal or Stainless Steel

➤ **SPECIFICATION:**

Bore Tolerance:
 +0.018/0
 For Stainless Steel
 +0.030/0

➤ **MATERIAL CODE:**

- B Brass
- P Acetal Δ
- X Stainless Steel

Δ Acetal sprockets do not have a threaded hole for a set screw

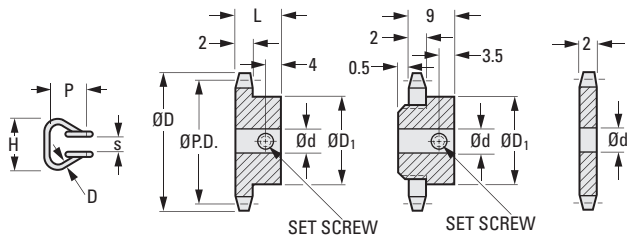


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Inserted Hub

METRIC COMPONENT

| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | | |
| A 6C88M480 | High-Tensile Steel | 4.8 | 208 | 1 | 7.7 | 2.6 | 245 |
| A 6Y 8M480 | Stainless Steel | 4.8 | 208 | 1 | 7.7 | 2.6 | 133 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore | L | | D ₁ Hub Dia. |
|--|--------------|------|--------|--------|--------|------------|-------------------------|
| | | | | | Acetal | All Others | |
| Fig. 2 Sprockets With Hub (See above for Material Code) | | | | | | | |
| * A 6B 8MHK4810A | 10 | 15.5 | 17.7 | 4 | 10 | 10 | 11.5 |
| * A 6B 8MHK4810B | 10 | 15.5 | 17.7 | 5 | 10 | 10 | 11.5 |
| A 6 <input type="checkbox"/> 8MHK4810 | 10 | 15.5 | 17.7 | 6 | 10 | 10 | 11.5 |
| A 6 <input type="checkbox"/> 8MHK4811 | 11 | 17 | 19.2 | 6 | 10 | 10 | 13 |
| A 6 <input type="checkbox"/> 8MHK4812 | 12 | 18.5 | 20.8 | 6 | 10 | 10 | 14 |
| A 6 <input type="checkbox"/> 8MHK4813 | 13 | 20.1 | 22.4 | 6 | 10 | 10 | 15 |
| A 6 <input type="checkbox"/> 8MHK4814 | 14 | 21.6 | 23.9 | 6 | 10 | 10 | 17 |
| A 6 <input type="checkbox"/> 8MHK4815 | 15 | 23.1 | 25.5 | 6 | 10 | 10 | 18 |
| A 6 <input type="checkbox"/> 8MHK4816 | 16 | 24.6 | 27 | 6 | 10 | 10 | 19 |
| A 6 <input type="checkbox"/> 8MHK4818 | 18 | 27.6 | 30.1 | 6 | 10 | 10 | 21 |
| A 6 <input type="checkbox"/> 8MHK4820 | 20 | 30.7 | 33.2 | 6 | 10 | 10 | 23 |
| A 6 <input type="checkbox"/> 8MHK4822 | 22 | 33.7 | 36.3 | 6 | 10 | 10 | 25 |
| A 6 <input type="checkbox"/> 8MHK4824A | 24 | 36.8 | 39.3 | 6 | 10 | 9 | 25 |
| A 6 <input type="checkbox"/> 8MHK4826A | 26 | 39.8 | 42.4 | 6 | 10 | 9 | 25 |
| A 6 <input type="checkbox"/> 8MHK4828A | 28 | 42.9 | 45.5 | 6 | 10 | 9 | 25 |
| A 6 <input type="checkbox"/> 8MHK4830A | 30 | 45.9 | 48.5 | 6 | 10 | 9 | 25 |
| Fig. 3 Sprockets with Hub Insert** | | | | | | | |
| A 6B 8MHK4824 | 24 | 36.8 | 39.3 | 6 | - | - | 20 |
| A 6B 8MHK4826 | 26 | 39.8 | 42.4 | 6 | - | - | 20 |
| A 6B 8MHK4828 | 28 | 42.9 | 45.5 | 6 | - | - | 20 |
| A 6B 8MHK4830 | 30 | 45.9 | 48.5 | 6 | - | - | 20 |
| Fig. 4 Sprockets Plain** | | | | | | | |
| A 6B 8MYK4824 | 24 | 36.8 | 39.3 | 8 | - | - | - |
| A 6B 8MYK4826 | 26 | 39.8 | 42.4 | 8 | - | - | - |
| A 6B 8MYK4828 | 28 | 42.9 | 45.5 | 8 | - | - | - |
| A 6B 8MYK4830 | 30 | 45.9 | 48.5 | 8 | - | - | - |

* These items have an M3 set screw. All others have an M4 set screw.

** To be discontinued when present stock is depleted

Root Dia.= P.D. - 1

SIZE 18
 MOLDED WITH METAL INSERT
 2.5 mm FACE

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► **MATERIAL:**

- Ladder Chain - Steel or Brass, High-Tensile Steel, Stainless Steel.
- Sprockets - Acetal, Black
- Insert - Brass, Knurled

► **SPECIFICATIONS:**

- Sprockets with:
 - 4 & 6 mm bore have an M3 set screw & spot drill
 - 8 mm bore have an M4 set screw & spot drill

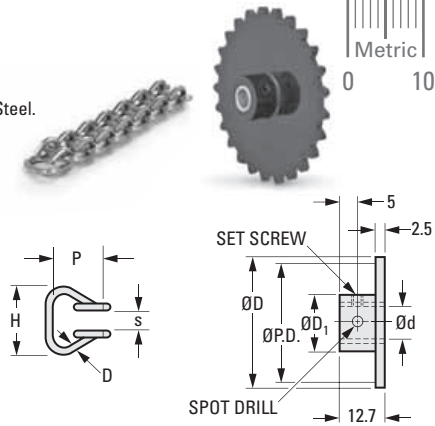


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | | |
| A 6C 8M18 | Steel | 7.26 | 138 | 1.2 | 8.5 | 3.2 | 178 |
| A 6B 8M18 | Brass | 7.26 | 138 | 1.2 | 8.5 | 3.2 | 111 |
| A 6C88M18 | High-Tensile Steel | 7.26 | 138 | 1.2 | 8.5 | 3.2 | 333 |
| A 6Y 8M18 | Stainless Steel | 7.26 | 138 | 1.2 | 8.5 | 3.2 | 178 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 | D ₁ Hub Dia. |
|-------------------------|--------------|-------|--------|-----------------|-------------------------|
| Fig. 2 Sprockets | | | | | |
| A 6Z 8M181304 | 13 | 30.3 | 35.15 | 4 | 16 |
| A 6Z 8M181306 | 13 | 30.3 | 35.15 | 6 | 16 |
| A 6Z 8M181404 | 14 | 32.6 | 37.44 | 4 | 16 |
| A 6Z 8M181406 | 14 | 32.6 | 37.44 | 6 | 16 |
| A 6Z 8M181504 | 15 | 34.9 | 39.73 | 4 | 16 |
| A 6Z 8M181506 | 15 | 34.9 | 39.73 | 6 | 16 |
| A 6Z 8M181604 | 16 | 37.2 | 42.04 | 4 | 16 |
| A 6Z 8M181606 | 16 | 37.2 | 42.04 | 6 | 16 |
| A 6Z 8M181804 | 18 | 41.8 | 46.61 | 4 | 16 |
| A 6Z 8M181806 | 18 | 41.8 | 46.61 | 6 | 16 |
| A 6Z 8M182004 | 20 | 46.4 | 51.21 | 4 | 16 |
| A 6Z 8M182006 | 20 | 46.4 | 51.21 | 6 | 16 |
| A 6Z 8M182204 | 22 | 51 | 55.8 | 4 | 16 |
| A 6Z 8M182206 | 22 | 51 | 55.8 | 6 | 16 |
| A 6Z 8M182404 | 24 | 55.6 | 60.43 | 4 | 16 |
| A 6Z 8M182406 | 24 | 55.6 | 60.43 | 6 | 16 |
| A 6Z 8M182408 | 24 | 55.6 | 60.43 | 8 | 19 |
| A 6Z 8M182506 | 25 | 57.9 | 62.74 | 6 | 16 |
| A 6Z 8M182508 | 25 | 57.9 | 62.74 | 8 | 19 |
| A 6Z 8M183006 | 30 | 69.4 | 74.24 | 6 | 16 |
| A 6Z 8M183008 | 30 | 69.4 | 74.24 | 8 | 19 |
| A 6Z 8M183206 | 32 | 74 | 78.87 | 6 | 16 |
| A 6Z 8M183208 | 32 | 74 | 78.87 | 8 | 19 |
| A 6Z 8M183606 | 36 | 83.3 | 88.09 | 6 | 19 |
| A 6Z 8M183608 | 36 | 83.3 | 88.09 | 8 | 19 |
| A 6Z 8M184008 | 40 | 92.5 | 97.31 | 8 | 19 |
| A 6Z 8M184808 | 48 | 111 | 115.8 | 8 | 19 |
| A 6Z 8M185408 | 54 | 124.8 | 129.64 | 8 | 19 |

2.5 mm FACE

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> MATERIAL:

Ladder Chain - Steel or Brass, High-Tensile Steel, Stainless Steel
Sprockets - Acetal, Black

> SPECIFICATION:

Bore is sized for press fit. Use straight knurl on shafting for maximum torques.

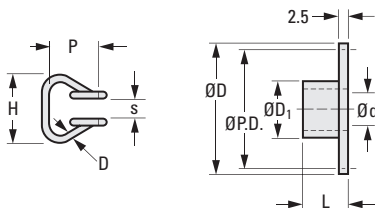


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | | |
| A 6C 8M18 | Steel | 7.26 | 138 | 1.2 | 8.5 | 3.2 | 178 |
| A 6B 8M18 | Brass | 7.26 | 138 | 1.2 | 8.5 | 3.2 | 111 |
| A 6C8M18 | High-Tensile Steel | 7.26 | 138 | 1.2 | 8.5 | 3.2 | 333 |
| A 6Y 8M18 | Stainless Steel | 72.6 | 138 | 1.2 | 8.5 | 3.2 | 178 |

| Catalog Number * | No. of Teeth | P.D. | D Dia. | d Bore Nom. | D1 Hub Dia. | L Length |
|----------------------------------|--------------|-------|--------|-------------|-------------|----------|
| Fig. 2 Sprockets With Hub | | | | | | |
| A 6M 8M180806 | 8 | 19 | 23.8 | 6 | 12.5 | 8.9 |
| A 6M 8M181006 | 10 | 23.5 | 28.3 | 6 | 12.5 | 8.9 |
| A 6M 8M181308 | 13 | 30.3 | 35.2 | 8 | 15.9 | 12.7 |
| A 6M 8M181506 | 15 | 34.9 | 39.7 | 6 | 12.7 | 10.2 |
| A 6M 8M181508 | 15 | 34.9 | 39.7 | 8 | 15.9 | 12.7 |
| A 6M 8M181606 | 16 | 37.2 | 42 | 6 | 12.7 | 10.2 |
| A 6M 8M181808 | 18 | 41.8 | 46.6 | 8 | 15.9 | 12.7 |
| A 6M 8M182008 | 20 | 46.4 | 51.2 | 8 | 15.9 | 12.7 |
| A 6M 8M182510 | 25 | 57.9 | 62.7 | 10 | 19 | 12.7 |
| A 6M 8M183008 | 30 | 69.4 | 74.2 | 8 | 15.9 | 12.7 |
| A 6M 8M183608 | 36 | 83.3 | 88.1 | 8 | 15.9 | 12.7 |
| A 6M 8M183610 | 36 | 83.3 | 88.1 | 10 | 19 | 12.7 |
| A 6M 8M184810 | 48 | 111 | 115.8 | 10 | 19 | 12.7 |
| A 6M 8M185410 | 54 | 124.8 | 129.6 | 10 | 19 | 12.7 |

* To be discontinued when present stock is depleted.

SIZE 14
 MOLDED WITH METAL INSERT
 4.3 mm FACE

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► **MATERIAL:**

- Ladder Chain** - Steel or Brass, High-Tensile Steel, Stainless Steel
- Sprockets** - Acetal, Black
- Insert** - Brass, Knurled

► **SPECIFICATION:**

- Sprockets with:**
- 4 mm bore have an M3 set screw & spot drill
- 6 mm bore have an M4 set screw & spot drill
- 8 mm bore have an M5 set screw & spot drill

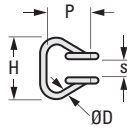
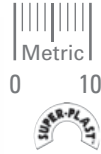


Fig. 1

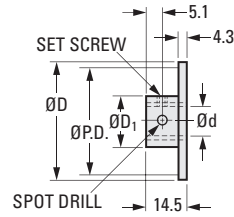


Fig. 2

METRIC COMPONENT

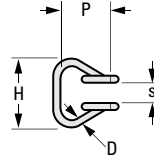
| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|---|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Fig. 1 Ladder Chain - Priced per Meter | | | | | | | |
| A 6C 8M14 | Steel | 8.9 | 112 | 2 | 14.1 | 5.2 | 353 |
| A 6C88M14 | High-Tensile Steel | 8.9 | 112 | 2 | 14.1 | 5.2 | 667 |
| A 6B 8M14 | Brass | 8.9 | 112 | 2 | 14.1 | 5.2 | 201 |
| A 6Y 8M14 | Stainless Steel | 8.9 | 112 | 2 | 14.1 | 5.2 | 353 |

| Catalog Number | No. of Teeth | P.D. | D Dia. | d Bore +0.025 0 | D1 Hub Dia. |
|-------------------------|--------------|-------|--------|-----------------|-------------|
| Fig. 2 Sprockets | | | | | |
| A 6Z 8M141204 | 12 | 34.6 | 40.1 | 4 | 15.8 |
| A 6Z 8M141206 | 12 | 34.6 | 40.1 | 6 | 15.8 |
| A 6Z 8M141304 | 13 | 37.4 | 42.7 | 4 | 15.8 |
| A 6Z 8M141306 | 13 | 37.4 | 42.7 | 6 | 15.8 |
| A 6Z 8M141404 | 14 | 40.3 | 45.5 | 4 | 15.8 |
| A 6Z 8M141406 | 14 | 40.3 | 45.5 | 6 | 15.8 |
| A 6Z 8M141506 | 15 | 43.1 | 48.3 | 6 | 15.8 |
| A 6Z 8M141508 | 15 | 43.1 | 48.3 | 8 | 19 |
| A 6Z 8M141606 | 16 | 46 | 50.8 | 6 | 15.8 |
| A 6Z 8M141608 | 16 | 46 | 50.8 | 8 | 19 |
| A 6Z 8M141808 | 18 | 51.6 | 56.4 | 8 | 19 |
| A 6Z 8M142008 | 20 | 57.3 | 62 | 8 | 19 |
| A 6Z 8M142208 | 22 | 63 | 67.3 | 8 | 19 |
| A 6Z 8M142408 | 24 | 68.7 | 74.2 | 8 | 19 |
| A 6Z 8M142508 | 25 | 71.6 | 76.7 | 8 | 19 |
| A 6Z 8M143008 | 30 | 85.8 | 90.4 | 8 | 19 |
| A 6Z 8M143208 | 32 | 91.5 | 96 | 8 | 19 |
| A 6Z 8M143608 | 36 | 102.9 | 108 | 8 | 19 |
| A 6Z 8M144008 | 40 | 114.3 | 120 | 8 | 19 |
| A 6Z 8M144808 | 48 | 137.1 | 141.7 | 8 | 19 |

> **MATERIAL:**

Brass or Steel, Stainless Steel, High-Tensile Steel

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METRIC COMPONENT

| Catalog Number | Material | P Pitch | Links Per Meter | D Wire Dia. | H Outside Width | s Inside Width | Yield Point N |
|--|--------------------|---------|-----------------|-------------|-----------------|----------------|---------------|
| Ladder Chain - Priced per Meter | | | | | | | |
| A 6B 8M635 | Brass | 6.35 | 157 | 1.22 | 8.5 | 3.3 | 115 |
| A 6C 8M635 | Steel | 6.35 | 157 | 1.22 | 8.5 | 3.3 | 133 |
| A 6Y 8M635 | Stainless Steel | 6.35 | 157 | 1.22 | 8.5 | 3.3 | 133 |
| A 6C88M635 | High-Tensile Steel | 6.35 | 157 | 1.22 | 8.5 | 3.3 | 400 |
| A 6B 8M952 | Brass | 9.525 | 105 | 2.03 | 14.1 | 5.2 | 200 |
| A 6Y 8M952 | Stainless Steel | 9.525 | 105 | 2.03 | 14.1 | 5.2 | 356 |

| Catalog Number Series | Sprocket Material | Catalog Page |
|-------------------------|-------------------|-----------------------|
| Sprocket Locator | | |
| A 6C 7MHK25... | Steel | See Part Number Index |
| A 6C 7MHC25... | Steel | |
| A 6C 7MYC25... | Steel | |
| A 6C 7MYK25... | Steel | |
| A 6M 7MHZ09... | Acetal | |
| A 6Z 7M25... | Acetal | |



The Synchromesh Drive System represents an entirely new approach to synchronous drives. At the heart of the system is a drive cable, which replaces conventional timing belts as well as other means of transmitting synchronous motion. The cable consists of a core bundle of stranded stainless steel wires encapsulated in a nylon jacket. Wound spirally around the nylon jacket is another cable of similar construction. The spiral member is bonded to the core cable to provide functional stability under load. The pitch of the spiral winding is carefully controlled during the winding and bonding processes.



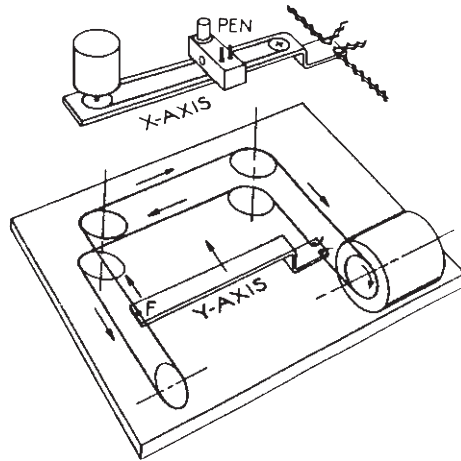
The use of stranded wire and nylon resin produces an extremely flexible cable that opens up new design possibilities, which were previously not possible with any other synchronous drives. The schematic diagram shown below illustrates the geometric features of the x-y plotter. Synchromesh cables are capable of changing operating planes, limited only by the size and proximity of adjacent pulleys. This unique characteristic makes it possible to produce this plotter design without employing expensive lead screw drive components. This is only one example of the countless possibilities offered with Synchromesh Drive Systems.

Complementing the Synchromesh cables are the drive pulleys which have helical grooves on their outside diameter to accurately engage the spiral convolutions on the drive cable. An additional radial groove of half round cross section supports the core cable and provides lateral stability. Synchromesh cables can be readily secured to other mechanism members in many different ways as well as those offered in the catalog pages.

Please note, however, that the Synchromesh Drive Systems are intended for reciprocating motion applications and cannot be made endless.

➤ ADVANTAGES AND DESIGN FEATURES:

- Synchronous motion
- Flexible in all directions
- Miniature in size
- High strength
- Small bending radius
- Lightweight
- Low inertia
- Low tension required
- Chemically resistant
- Electrically conductive & insulated
- Pulleys available machined or molded
- Easy to mount attachments & end fittings
- Cables available up to 200 feet long



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SYNCHROMESH DRIVE SELECTION TABLE



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

| Catalog Number | | IDLER PULLEY STYLES | | | |
|--------------------------------------|--------------------------------------|---|--|---|---|
| CABLE | PULLEY | Steel / Ball Bearing | All Plastic | Plastic / Sintered Brg. | Nylon / Ball Bearing |
| A 6J 9MAS0605 or A 6J 9-AS0605 | A 6P 9M060... or A 6P 9-060... | A 6C 9-00804 (.441) | A 6M 9-00804 (.493) A 6M 9-01004 (.611) A 6M 9-01204 (.709) A 6M 9-01606 (.861) | A 6T 9-00604 (.401) A 6T 9-00804 (.517) A 6T 9-01004 (.626) A 6T 9-01204 (.711) | A 6Z 9-01004 (.623) A 6Z9-01204 (.706) A 6Z 9-01604 (.906) |
| A 6J 9MAS0805 or A 6J 9-AS0805 | A 6P 9M080... or A 6P 9-080... | A 6C 9-00804 (.489) | A 6M 9-01204 (.759) A 6M 9-01606 (1.009) A 6M 9-02006 (1.229) | A 6T 9-00804 (.544) A 6T 9-01204 (.769) A 6T 9-01706 (1.019) A 6T 9-02006 (1.179) A 6T 9-02008 (1.179) | A 6Z 9-01204 (.767) A 6Z 9-01604 (.992) A 6Z 9-02006 (1.199) A 6Z 9-01706 (1.029) A 6Z 9-02008 (1.199) |
| A 6J 9MAS1005 or A 6J 9-AS1005 | A 6P 9M100... or A 6P 9-100... | — | A 6M 9-02408 (1.348) | A 6T 9-01706 (1.058) A 6T 9-02006 (1.253) A 6T 9-02008 (1.253) A 6T 9-02408 (1.348) A 6T 9-02412 (1.348) | A 6Z 9-02006 (1.258) A 6Z 9-01706 (1.064) A 6Z 9-02008 (1.258) A 6Z 9-02408 (1.388) A 6Z 9-02412 (1.388) |
| A 6J 9MAS1209 or A 6J 9-AS1209 | A 6P 9M120... or A 6P 9-120... | A 6C 9-01606 (.866) A 6C 9-01706 (1.000) | A 6M 9-02408 (1.426) A 6M 9-02808 (1.476) | A 6T 9-02408 (1.421) A 6T 9-02808 (1.491) A 6T 9-02412 (1.421) A 6T 9-02812 (1.491) | A 6Z 9-02408 (1.476) A 6Z 9-02808 (1.501) A 6Z 9-02412 (1.476) A 6Z 9-02812 (1.501) |

NOTE: Numbers shown in parentheses indicate pitch diameters of cable when wrapped around related pulley.
Example: Cable **A 6J 9MAS1005** when used with pulley A 6M 9-02408 has a pitch diameter of 1.348.

METRIC SIZE BORES ARE AVAILABLE ON REQUEST.

PATENTED
MINIATURE
SYNCHRONOUS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

Core - Stainless Steel 304
Casing - Nylon

➤ **SPECIFICATIONS:**

Life Data:

10⁶ minimum flexing cycles where:
Pulley Pitch Radius (R) = 13.9 x D₂

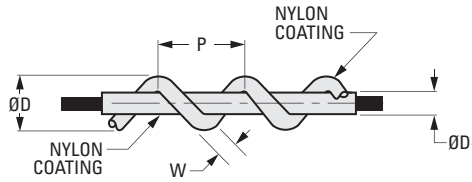
Accuracy:

1. Pitch Error ± 0.05 mm
2. Cumulative Pitch Error ± 4.07 mm max. over 100 pitches.

Ambient Factors:

1. Temperature Range: -30°C to +80°C
2. Avoid strong acids, alkalies and organic solvents.

Priced Per Meter



METRIC COMPONENT

| Catalog Number | P Pitch | D Outside Dia. mm | D ₁ Dia. | W | Breaking Load N |
|----------------|---------|-------------------|---------------------|------|-----------------|
| A 6J 9MAS0605 | 3.048 | 1.6 | 0.6 | 0.60 | 160 |
| A 6J 9MAS0805 | 3.81 | 2.2 | 0.8 | 0.80 | 323.4 |
| A 6J 9MAS1005 | 5.08 | 2.8 | 1 | 1 | 529.2 |
| A 6J 9MAS1209 | 6.35 | 3.4 | 1.2 | 1.20 | 784.5 |

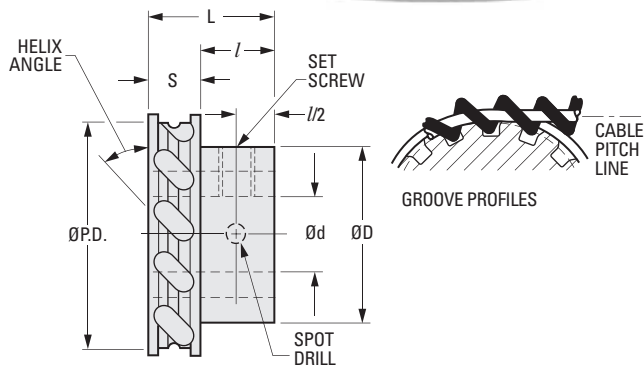
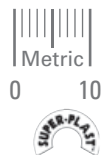
> MATERIAL:

Pulley - Acetal

Insert - Brass

Aluminum inserts used on 6.35 pitch pulleys.

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METRIC COMPONENT

| Catalog Number | Pitch | No. of Grooves | P.D. | d Bore +0.025 0 | S Face Width | L Length | D Hub Dia. | l Hub Proj. Ref. | Helix Angle | Set Screw |
|----------------|-------|----------------|-------|-----------------|--------------|----------|------------|------------------|-------------|-----------|
| A 6P 9M0601502 | 3.048 | 15 | 14.55 | 2 | 3.6 | 9.5 | 10.3 | 5.9 | 45° | M2 |
| A 6P 9M0601503 | 3.048 | 15 | 14.55 | 3 | 3.6 | 9.5 | 10.3 | 5.9 | 45° | M2 |
| A 6P 9M0601504 | 3.048 | 15 | 14.55 | 4 | 3.6 | 9.5 | 10.3 | 5.9 | 45° | M2.5 |
| A 6P 9M0602003 | 3.048 | 20 | 19.4 | 3 | 3.6 | 9.5 | 13.9 | 5.9 | 45° | M2 |
| A 6P 9M0602004 | 3.048 | 20 | 19.4 | 4 | 3.6 | 9.5 | 13.9 | 5.9 | 45° | M2.5 |
| A 6P 9M0602005 | 3.048 | 20 | 19.4 | 5 | 3.6 | 9.5 | 13.9 | 5.9 | 45° | M3 |
| A 6P 9M0602503 | 3.048 | 25 | 24.26 | 3 | 3.6 | 9.5 | 13.9 | 5.9 | 45° | M2 |
| A 6P 9M0602504 | 3.048 | 25 | 24.26 | 4 | 3.6 | 9.5 | 13.9 | 5.9 | 45° | M2.5 |
| A 6P 9M0602505 | 3.048 | 25 | 24.26 | 5 | 3.6 | 9.5 | 13.9 | 5.9 | 45° | M3 |
| A 6P 9M0801503 | 3.81 | 15 | 18.19 | 3 | 3.6 | 9.5 | 13.9 | 5.9 | 51° | M2 |
| A 6P 9M0801504 | 3.81 | 15 | 18.19 | 4 | 3.6 | 9.5 | 13.9 | 5.9 | 51° | M2.5 |
| A 6P 9M0801505 | 3.81 | 15 | 18.19 | 5 | 3.6 | 9.5 | 13.9 | 5.9 | 51° | M3 |
| A 6P 9M0802403 | 3.81 | 24 | 29.11 | 3 | 3.6 | 9.5 | 15.9 | 5.9 | 51° | M2 |
| A 6P 9M0802404 | 3.81 | 24 | 29.11 | 4 | 3.6 | 9.5 | 15.9 | 5.9 | 51° | M2.5 |
| A 6P 9M0802405 | 3.81 | 24 | 29.11 | 5 | 3.6 | 9.5 | 15.9 | 5.9 | 51° | M3 |
| A 6P 9M1001506 | 5.08 | 15 | 24.26 | 6 | 4.8 | 12.7 | 15.9 | 7.9 | 42° | M4 |
| A 6P 9M1003008 | 5.08 | 30 | 48.51 | 8 | 4.8 | 12.7 | 17.1 | 7.9 | 42° | M5 |
| A 6P 9M1201510 | 6.35 | 15 | 30.3 | 10 | 6.4 | 15.9 | 22.2 | 9.5 | 48° | M5 |
| A 6P 9M1203010 | 6.35 | 30 | 60.63 | 10 | 6.4 | 15.9 | 22.2 | 9.5 | 48° | M5 |



SYNCHROMESH CABLE ATTACHMENTS

SDP/SI

LOOP SLEEVES
THIMBLES
CRIMPING TOOL

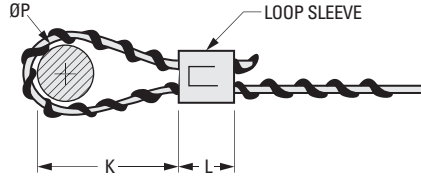
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> MATERIAL:

Loop Sleeves - Copper, Zinc Plated
Thimbles - Stainless Steel

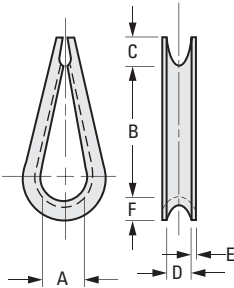
P = Pin Diameter
K = Distance from bearing point to fitting

P should be at least five (5) times the cable diameter for guaranteed breaking strength and K should be at least 2.5 times P.



METRIC COMPONENT

| Catalog Number | For Cable No.'s | L Length After Swaging |
|-----------------------------|-----------------|------------------------|
| Priced Per 10 Pieces | | |
| A 6B 9MS039 | A 6J 9MAS0605 | 11.1 |
| A 6B 9MS063 | A 6J 9MAS0805 | 11.9 |
| A 6B 9MS093 | A 6J 9MAS1005 | 12.7 |
| A 6B 9MS093 | A 6J 9MAS1209 | 12.7 |



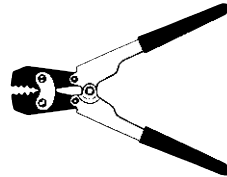
Thimbles provide loop support at higher loads & protect cables from wear when motion is present. Some thimbles may have open and/or uneven ends.



METRIC COMPONENT

| Catalog Number | For Cable No.'s | A | B | C | D | E | F |
|-----------------------------|-----------------|------|-------|------|------|------|------|
| Priced Per 10 Pieces | | | | | | | |
| A 6C 9MT015 | A 6J 9MAS0605 | 4.77 | 6.35 | 3.18 | 3.18 | 0.38 | 1.17 |
| A 6C 9MT047 | A 6J 9MAS0805 | 8.61 | 17.06 | 4.75 | 2.38 | 0.81 | 1.98 |
| A 6C 9MT047 | A 6J 9MAS1005 | 8.61 | 17.06 | 4.75 | 2.38 | 0.81 | 1.98 |
| A 6C 9MT094 | A 6J 9MAS1209 | 8.61 | 17.86 | 5.54 | 3.57 | 0.81 | 1.98 |

This precision crimping tool gives compound leverage of at least 15-1. The scissor-action plier-type tool has jaws which are made of a tough chrome alloy steel. All component parts of the tool are hardened and tempered. The handles have nonslip plastic grips. Easy to use.



METRIC COMPONENT

| Catalog Number | For Cable No.'s |
|----------------|-----------------------------|
| A 6O 9M00 | A 6J 9MAS0605 A 6J 9MAS0805 |
| A 6O 9M01 | A 6J 9MAS1005 A 6J 9MAS1209 |

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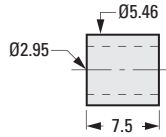
PLUGS
EYES

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> MATERIAL:

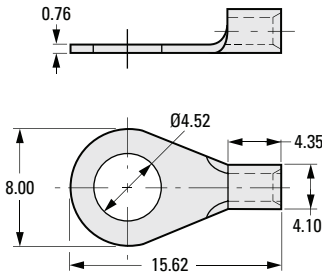
Plugs - Annealed Brass
Eyes - Steel, Nickel Plated

Priced Per 10 Pieces



METRIC COMPONENT

| Catalog Number | Used with Cable No. |
|----------------|---------------------|
| A 6J 9MB103 | A 6J 9MAS0605 |
| | A 6J 9MAS0805 |
| | A 6J 9MAS1005 |
| | A 6J 9MAS1209 |



The projections shown are per ISO convention.

Universal eyes fit all cable sizes and provide for convenient screw mounting.

METRIC COMPONENT

| Catalog Number | Used with Cable No. |
|----------------|---------------------|
| A 6J 9MAA39 | A 6J 9MAS0605 |
| | A 6J 9MAS0805 |
| | A 6J 9MAS1005 |
| | A 6J 9MAS1209 |

REV: 4.26.13 JC

O-RINGS

SDP/SI

FOR USE WITH FRELON® LINED
LINEAR BEARINGS

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> **MATERIAL:**

Neoprene, Approx. 70 Durometer

> **SPECIFICATIONS:**

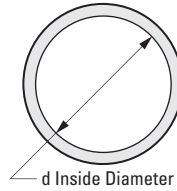
Operating Temperature: -54°C to +99°C

10% elongation is permissible.

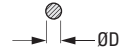


METRIC COMPONENT

| Catalog Number | D Dia. | d Dia. |
|----------------|--------|--------|
| A 6R11ML009713 | 1.3 | 9.7 |
| A 6R11ML016015 | 1.5 | 16 |
| A 6R11ML025015 | 1.5 | 25 |
| A 6R11ML018015 | 1.5 | 18 |
| A 6R11ML014116 | 1.6 | 14.1 |
| A 6R11ML021116 | 1.6 | 21.1 |
| A 6R11ML013017 | 1.7 | 13 |
| A 6R11ML012817 | 1.78 | 12.83 |
| A 6R11ML011819 | 1.96 | 11.89 |
| A 6R11ML015520 | 2 | 15.5 |
| A 6R11ML017525 | 2.5 | 17.5 |
| A 6R11ML021525 | 2.5 | 21.5 |
| A 6R11ML027525 | 2.5 | 27.5 |
| A 6R11ML030525 | 2.5 | 30.5 |
| A 6R11ML035525 | 2.5 | 35.5 |
| A 6R11ML042526 | 2.62 | 42.52 |
| A 6R11ML046035 | 3.5 | 46 |
| A 6R11ML056035 | 3.5 | 56 |
| A 6R11ML069035 | 3.5 | 69 |
| A 6R11ML081050 | 5 | 81 |



Cross-Section



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ROUND ENDLESS BELTS • O-RINGS

SDP/SI

METRIC - 2, 3, 4 & 5 mm DIAMETER

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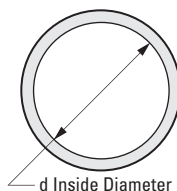
> MATERIAL:

Neoprene, Approx. 70 Durometer compounded for use in mechanical belt drives

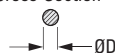
> SPECIFICATIONS:

Operating Temperature: -54°C to +99°C

10% elongation is permissible.



Cross-Section



d Inside Diameter

METRIC COMPONENT

| Catalog Number | D Dia. | d Dia. |
|----------------|--------|--------|
| A 6R11M02010 | 2 | 10 |
| A 6R11M02011 | 2 | 11 |
| A 6R11M02013 | 2 | 13 |
| A 6R11M02016 | 2 | 16 |
| A 6R11M02017 | 2 | 17 |
| A 6R11M02021 | 2 | 21 |
| A 6R11M02024 | 2 | 24 |
| A 6R11M03014 | 3 | 14 |
| A 6R11M03017 | 3 | 17 |
| A 6R11M03024 | 3 | 24 |
| A 6R11M03027 | 3 | 27 |
| A 6R11M03032 | 3 | 32 |
| A 6R11M03035 | 3 | 35 |
| A 6R11M03038 | 3 | 38 |
| A 6R11M03046 | 3 | 46 |
| A 6R11M03108 | 3 | 108 |
| A 6R11M03114 | 3 | 114 |
| A 6R11M03121 | 3 | 121 |
| A 6R11M03127 | 3 | 127 |
| A 6R11M03133 | 3 | 133 |
| A 6R11M03140 | 3 | 140 |
| A 6R11M03146 | 3 | 146 |
| A 6R11M03152 | 3 | 152 |
| A 6R11M03159 | 3 | 159 |
| A 6R11M03165 | 3 | 165 |

| Catalog Number | D Dia. | d Dia. |
|----------------|--------|--------|
| A 6R11M03178 | 3 | 178 |
| A 6R11M03191 | 3 | 191 |
| A 6R11M03203 | 3 | 203 |
| A 6R11M03216 | 3 | 216 |
| A 6R11M03229 | 3 | 229 |
| A 6R11M03241 | 3 | 241 |
| A 6R11M03254 | 3 | 254 |
| A 6R11M03267 | 3 | 267 |
| A 6R11M03279 | 3 | 279 |
| A 6R11M03292 | 3 | 292 |
| A 6R11M03305 | 3 | 305 |
| A 6R11M03330 | 3 | 330 |
| A 6R11M03356 | 3 | 356 |
| A 6R11M03381 | 3 | 381 |
| A 6R11M04041 | 4 | 41 |
| A 6R11M04051 | 4 | 51 |
| A 6R11M04054 | 4 | 54 |
| A 6R11M04057 | 4 | 57 |
| A 6R11M04070 | 4 | 70 |
| A 6R11M05060 | 5 | 60 |
| A 6R11M05079 | 5 | 79 |
| A 6R11M05085 | 5 | 85 |
| A 6R11M05104 | 5 | 104 |
| A 6R11M05111 | 5 | 111 |
| A 6R11M05136 | 5 | 136 |

GROOVED PULLEYS

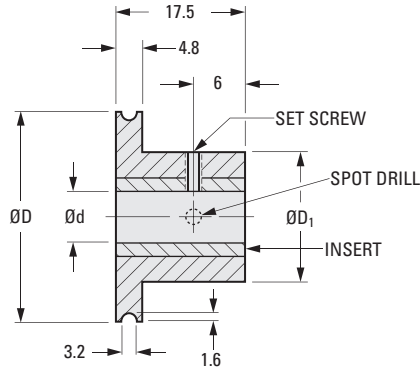
SDP/SI

FOR 3 mm ROUND BELTS
MOLDED WITH INSERT
4.8 mm FACE

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> MATERIAL:
Body - Acetal
Insert - Brass



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | D ₁ Hub Dia. | Set Screw |
|----------------|--------|-----------------------|-------------------------|-----------|
| A 6T10M121304 | 12.7 | 4 | 16 | M3 |
| A 6T10M121904 | 19.1 | 4 | 16 | M3 |
| A 6T10M122504 | 25.4 | 4 | 16 | M3 |
| A 6T10M123804 | 38.1 | 4 | 19 | M3 |
| A 6T10M125104 | 50.8 | 4 | 25 | M3 |
| A 6T10M121306 | 12.7 | 6 | 16 | M3 |
| A 6T10M121906 | 19.1 | 6 | 16 | M3 |
| A 6T10M122506 | 25.4 | 6 | 16 | M3 |
| A 6T10M123806 | 38.1 | 6 | 19 | M3 |
| A 6T10M125106 | 50.8 | 6 | 25 | M3 |
| A 6T10M121308 | 12.7 | 8 | 16 | M4 |
| A 6T10M121908 | 19.1 | 8 | 16 | M4 |
| A 6T10M122508 | 25.4 | 8 | 16 | M4 |
| A 6T10M125108 | 50.8 | 8 | 25 | M4 |



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FLAT BELTS



6 mm WIDE
HIGH-SPEED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**

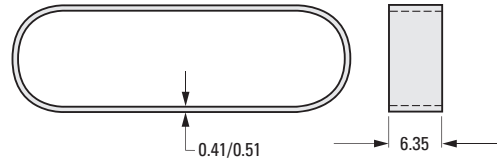
1 Ply Polyester Woven Cord,
Black Neoprene Coating

➤ **SPECIFICATIONS:**

Maximum Belt Speed: 6100 meters/min.
Working Tension: 2.3 to 27.5 N
Length Tolerance: ± 0.5%
Minimum Pulley Size: 6 mm Diameter
Breaking Strength: 1108 N



Special Widths - cut to size from sleeves
available from stock.



METRIC COMPONENT

| Catalog Number | Length | |
|----------------|--------|-------|
| | mm | Inch |
| A 6R19M18006 | 180 | 7.09 |
| A 6R19M19006 | 190 | 7.48 |
| A 6R19M20006 | 200 | 7.87 |
| A 6R19M22506 | 225 | 8.86 |
| A 6R19M25006 | 250 | 9.84 |
| A 6R19M27506 | 275 | 10.83 |
| A 6R19M30006 | 300 | 11.81 |
| A 6R19M32506 | 325 | 12.80 |
| A 6R19M35006 | 350 | 13.78 |
| A 6R19M37506 | 375 | 14.76 |
| A 6R19M40006 | 400 | 15.75 |
| A 6R19M42506 | 425 | 16.73 |
| A 6R19M47506 | 475 | 18.70 |
| A 6R19M50006 | 500 | 19.69 |

FOR 6 mm FLAT BELTS
 MOLDED WITH INSERT
 MACHINED O.D.

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> MATERIAL:

- Pulley** - Polycarbonate, Fiberglass Reinforced
- Insert** - Fig. 1 Aluminum, Knurled
 Fig. 2 Brass, Knurled

> SPECIFICATION:

Pulleys with nonstandard diameters or of special design are available custom-made to your drawings.

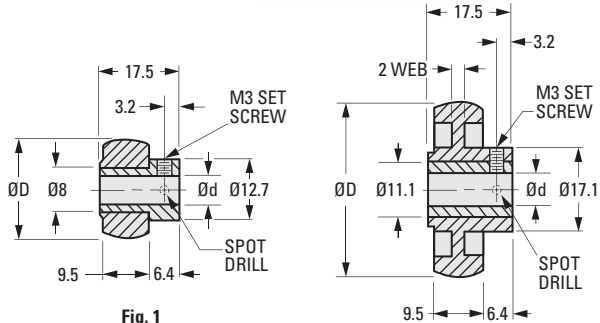
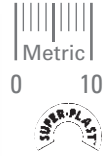


Fig. 1
ALUMINUM INSERT

Fig. 2
BRASS INSERT

METRIC COMPONENT

| Catalog Number | Fig. No. | D Dia. | | d Bore +0.025 0 |
|----------------|----------|--------|-------|-----------------------|
| | | mm | Inch | |
| A 6T19M130605 | 1 | 13 | .512 | 5 |
| A 6T19M130606 | 1 | 13 | .512 | 6 |
| A 6T19M150605 | 1 | 15 | .591 | 5 |
| A 6T19M150606 | 1 | 15 | .591 | 6 |
| A 6T19M170605 | 1 | 17 | .669 | 5 |
| A 6T19M170606 | 1 | 17 | .669 | 6 |
| A 6T19M180605 | 1 | 18 | .709 | 5 |
| A 6T19M180606 | 1 | 18 | .709 | 6 |
| A 6T19M200605 | 1 | 20 | .787 | 5 |
| A 6T19M200606 | 1 | 20 | .787 | 6 |
| A 6T19M230605 | 2 | 23 | .906 | 5 |
| A 6T19M230606 | 2 | 23 | .906 | 6 |
| A 6T19M240605 | 2 | 24 | .945 | 5 |
| A 6T19M240606 | 2 | 24 | .945 | 6 |
| A 6T19M260605 | 2 | 26 | 1.024 | 5 |
| A 6T19M260606 | 2 | 26 | 1.024 | 6 |
| A 6T19M280605 | 2 | 28 | 1.102 | 5 |
| A 6T19M280606 | 2 | 28 | 1.102 | 6 |

| Catalog Number | Fig. No. | D Dia. | | d Bore +0.025 0 |
|----------------|----------|--------|-------|-----------------------|
| | | mm | Inch | |
| A 6T19M360605 | 2 | 36 | 1.417 | 5 |
| A 6T19M360606 | 2 | 36 | 1.417 | 6 |
| A 6T19M390605 | 2 | 39 | 1.535 | 5 |
| A 6T19M390606 | 2 | 39 | 1.535 | 6 |
| A 6T19M440605 | 2 | 44 | 1.732 | 5 |
| A 6T19M440606 | 2 | 44 | 1.732 | 6 |
| A 6T19M490605 | 2 | 49 | 1.929 | 5 |
| A 6T19M490606 | 2 | 49 | 1.929 | 6 |
| A 6T19M550605 | 2 | 55 | 2.165 | 5 |
| A 6T19M550606 | 2 | 55 | 2.165 | 6 |
| A 6T19M620605 | 2 | 62 | 2.441 | 5 |
| A 6T19M620606 | 2 | 62 | 2.441 | 6 |
| A 6T19M680605 | 2 | 68 | 2.677 | 5 |
| A 6T19M680606 | 2 | 68 | 2.677 | 6 |
| A 6T19M750605 | 2 | 75 | 2.953 | 5 |
| A 6T19M750606 | 2 | 75 | 2.953 | 6 |
| A 6T19M810605 | 2 | 81 | 3.189 | 5 |
| A 6T19M810606 | 2 | 81 | 3.189 | 6 |

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FRACTIONAL H.P. V-BELTS

SDP/SI

OIL & HEAT RESISTANT
STATIC DISSIPATING

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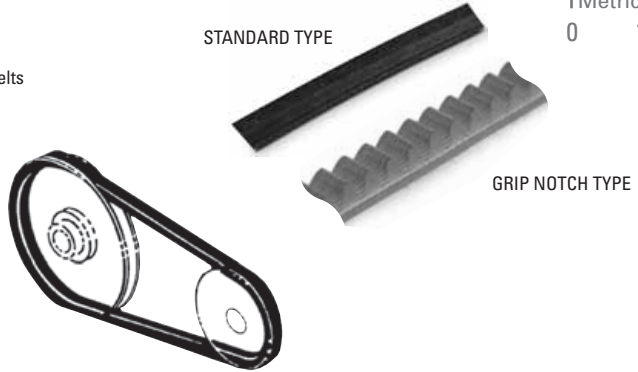


> MATERIAL:

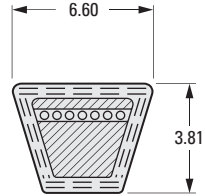
Reinforced Rubber

STANDARD TYPE

Standard or Grip Notch type belts will be supplied at SDP option.



GRIP NOTCH TYPE



METRIC COMPONENT

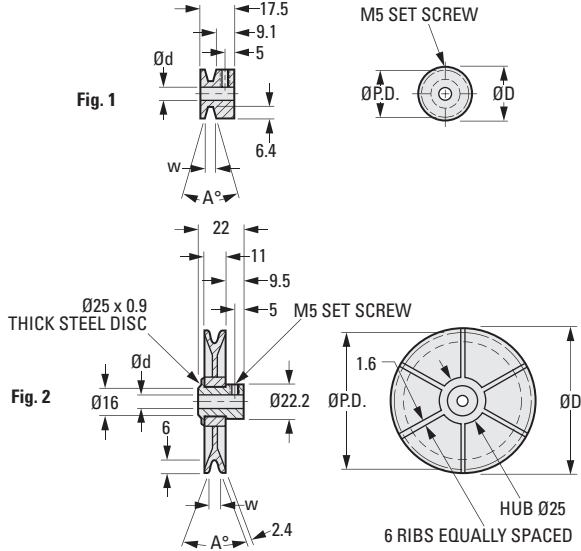
| Catalog Number | Outside Length Ref. | Pitch Length |
|----------------|---------------------|--------------|
| A 6R12M2L254 | 254 | 244 |
| A 6R12M2L279 | 279 | 269 |
| A 6R12M2L305 | 305 | 295 |
| A 6R12M2L356 | 356 | 345 |
| A 6R12M2L381 | 381 | 371 |
| A 6R12M2L406 | 406 | 396 |
| A 6R12M2L457 | 457 | 447 |
| A 6R12M2L508 | 508 | 498 |
| A 6R12M2L559 | 559 | 549 |
| A 6R12M2L610 | 610 | 599 |
| A 6R12M2L686 | 686 | 676 |
| A 6R12M2L711 | 711 | 701 |
| A 6R12M2L724 | 724 | 714 |
| A 6R12M2L737 | 737 | 726 |
| A 6R12M2L762 | 762 | 752 |
| A 6R12M2L787 | 787 | 777 |
| A 6R12M2L813 | 813 | 803 |
| A 6R12M2L826 | 826 | 815 |

FOR 6 mm V-BELTS
 MOLDED & MOLDED WITH INSERT

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> MATERIAL:

- Fig. 1 - Nylon
- Fig. 2 - Body - Nylon
 Hub - Aluminum



METRIC COMPONENT

| Catalog Number | P.D. | D Dia. | d Bore +0.03 0 | W Width | A° Angle |
|--|------|--------|----------------------|---------|----------|
| Fig. 1 Nylon | | | | | |
| A 6T10M01202506 | 23 | 25 | 6 | 6.1 | 32° |
| A 6T10M01202508 | 23 | 25 | 8 | 6.1 | 32° |
| Fig. 2 Body - Nylon, Hub - Aluminum | | | | | |
| A 6Z10M01203806 | 36 | 38 | 6 | 6.25 | 34° |
| A 6Z10M01203808 | 36 | 38 | 8 | 6.25 | 34° |
| A 6Z10M01203810 | 36 | 38 | 10 | 6.25 | 34° |
| A 6Z10M01203812 | 36 | 38 | 12 | 6.25 | 34° |
| A 6Z10M01205106 | 48 | 51 | 6 | 6.25 | 36° |
| A 6Z10M01205108 | 48 | 51 | 8 | 6.25 | 36° |
| A 6Z10M01205110 | 48 | 51 | 10 | 6.25 | 36° |
| A 6Z10M01205112 | 48 | 51 | 12 | 6.25 | 36° |
| A 6Z10M01206406 | 61 | 64 | 6 | 6.25 | 36° |
| A 6Z10M01206408 | 61 | 64 | 8 | 6.25 | 36° |
| A 6Z10M01206410 | 61 | 64 | 10 | 6.25 | 36° |
| A 6Z10M01206412 | 61 | 64 | 12 | 6.25 | 36° |
| A 6Z10M01207606 | 74 | 76 | 6 | 6.35 | 38° |
| A 6Z10M01207608 | 74 | 76 | 8 | 6.35 | 38° |
| A 6Z10M01207610 | 74 | 76 | 10 | 6.35 | 38° |
| A 6Z10M01207612 | 74 | 76 | 12 | 6.35 | 38° |

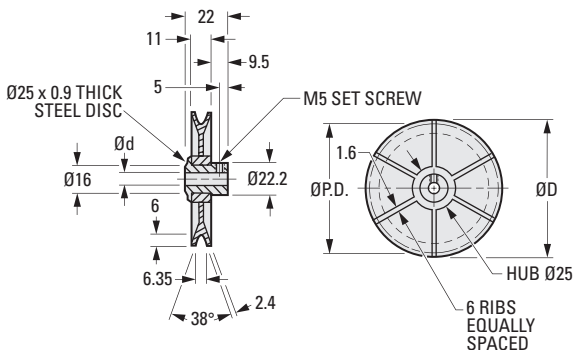
COMPANION PULLEYS



FOR 6 mm V-BELTS
MOLDED WITH INSERT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
Body - Nylon
Hub - Aluminum



METRIC COMPONENT

| Catalog Number | P.D. | D Dia. | d Bore +0.03 0 |
|-----------------|------|--------|----------------------|
| A 6Z10M01208906 | 86 | 89 | 6 |
| A 6Z10M01208908 | 86 | 89 | 8 |
| A 6Z10M01208910 | 86 | 89 | 10 |
| A 6Z10M01208912 | 86 | 89 | 12 |
| A 6Z10M01210206 | 99 | 102 | 6 |
| A 6Z10M01210208 | 99 | 102 | 8 |
| A 6Z10M01210210 | 99 | 102 | 10 |
| A 6Z10M01210212 | 99 | 102 | 12 |
| A 6Z10M01211406 | 112 | 114 | 6 |
| A 6Z10M01211408 | 112 | 114 | 8 |
| A 6Z10M01211410 | 112 | 114 | 10 |
| A 6Z10M01211412 | 112 | 114 | 12 |
| A 6Z10M01212706 | 124 | 127 | 6 |
| A 6Z10M01212708 | 124 | 127 | 8 |
| A 6Z10M01212710 | 124 | 127 | 10 |
| A 6Z10M01212712 | 124 | 127 | 12 |
| A 6Z10M01215206 | 150 | 152 | 6 |
| A 6Z10M01215208 | 150 | 152 | 8 |
| A 6Z10M01215210 | 150 | 152 | 10 |
| A 6Z10M01215212 | 150 | 152 | 12 |



| Catalog Series | Material | Hardness | Diameter mm | Length mm | Pages |
|---|--|-----------------------------------|-------------|------------|-------|
|  S40PX0MHG... | 416 Stainless Steel, Cond. T, Ground | HRC 26...32 | 3...10 | 25...400 | 3-2 |
|  S40PH0MCHS... | Steel AISI C1060 Case-Hardened and Ground | HRC 60...63 | 8...20 | 75...1000 | 3-3 |
|  S40PX0MCHS... | Stainless Steel AISI 420 Case-Hardened and Ground | HRC 50...55 | 8...20 | 75...1000 | 3-4 |
|  A 7Q 1M... | Chrome Vanadium Alloy DIN 175 Tool Steel Ground and Polished | Dependent on Heat Treatment | 2...20 | 1000 | 3-5 |
|  A 7X 1M... | 303 Stainless Steel Hardened and Ground Under Size Diameters | HRB 84 | 2...12 | 25...500 | 3-6 |
|  S40AW6M... | Aluminum 6061-T6 Hard Anodized Solid and Hollow | HRC 60 | 8...50 | 250...1000 | 3-7 |
|  S40LPSM... | Bearing Steel AISI 52100 Hardened | HRC 58...62 | 6...25 | 100...1000 | 3-8 |

Other lengths and diameters not listed are available on special request.

For Shaft Related Components, see:

Section 4 - Shaft Collars

Bore Reducers
Tolerance Rings
Shaftloc®
Shaft Support

Section 5 - Bearings

Section 10 - Retaining Rings
Washers

HARDENED PRECISION GROUND SHAFTING

SDP/SI

416 STAINLESS STEEL
COND. T (HRC 26...32)

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

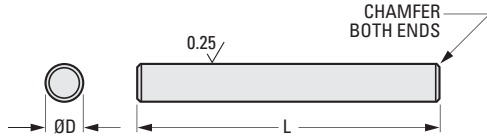
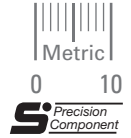
> MATERIAL:

416 Stainless Steel Cond. T (HRC 26...32)

> STRAIGHTNESS:

0.0003 mm/mm

Other lengths and diameters available as special order.
Grooved shafts available as special order.



METRIC COMPONENT CATALOG NUMBER

S 40 P X 0 M H G M -

Diameter Code Length Code

| Diameter Code | D Diameter g6 | D Tolerance |
|---------------|---------------|---------------|
| 3 | 3 | -0.002/-0.008 |
| 4 | 4 | -0.004/-0.012 |
| 5 | 5 | -0.004/-0.012 |
| 6 | 6 | -0.004/-0.012 |
| 8 | 8 | -0.005/-0.014 |
| A | 10 | -0.005/-0.014 |

| Length Code | L ± 0.8 Length mm |
|-------------|-------------------|
| 025 | 25 |
| 030 | 30 |
| 035 | 35 |
| 040 | 40 |
| 045 | 45 |
| 050 | 50 |
| 055 | 55 |
| 060 | 60 |
| 065 | 65 |
| 070 | 70 |
| 075 | 75 |
| 080 | 80 |
| 085 | 85 |
| 090 | 90 |
| 095 | 95 |
| 100 | 100 |
| 110 | 110 |
| 120 | 120 |
| 130 | 130 |
| 140 | 140 |
| 150 | 150 |
| 160 | 160 |
| 170 | 170 |
| 180 | 180 |
| 190 | 190 |
| 200 | 200 |
| 210 | 210 |
| 220 | 220 |
| 230 | 230 |
| 240 | 240 |
| 250 | 250 |
| 260 | 260 |
| 270 | 270 |
| 280 | 280 |
| 290 | 290 |
| 300 | 300 |
| 325 | 325 |
| 350 | 350 |
| 375 | 375 |
| 400 | 400 |

HARDENED PRECISION GROUND SHAFTING

SDP/SI

C1060 STEEL
CASE HARDENED HRC 60...63

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Steel AISI C1060 Case-Hardened to HRC 60...63

> STRAIGHTNESS:

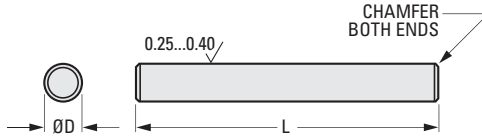
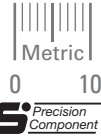
0.0003 mm/mm

> SPECIFICATIONS:

Minimum Depth of Hardness:

8 & 10 mm diameters is 1 mm.
12, 16 & 20 mm diameters is 1.5 mm.

Other lengths and diameters available as special order.



METRIC COMPONENT CATALOG NUMBER

S 4 0 P H O M C H S -

Diameter Code Length Code

| Diameter Code | D Diameter h6 | D Tolerance |
|---------------|---------------|-------------|
| 08 | 8 | 0/-0.009 |
| 10 | 10 | 0/-0.009 |
| 12 | 12 | 0/-0.011 |
| 16 | 16 | 0/-0.011 |
| 20 | 20 | 0/-0.013 |

| Length Code | L ± 0.8 Length mm |
|-------------|-------------------|
| 075 | 75 |
| 100 | 100 |
| 125 | 125 |
| 150 | 150 |
| 175 | 175 |
| 200 | 200 |
| 225 | 225 |
| 250 | 250 |
| 275 | 275 |
| 300 | 300 |
| 325 | 325 |
| 350 | 350 |
| 375 | 375 |
| 400 | 400 |
| 425 | 425 |
| 450 | 450 |
| 475 | 475 |
| 500 | 500 |
| 525 | 525 |
| 550 | 550 |
| 575 | 575 |
| 600 | 600 |
| 625 | 625 |
| 650 | 650 |
| 700 | 700 |
| 750 | 750 |
| 800 | 800 |
| 850 | 850 |
| 900 | 900 |
| A00 | 1000 |

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HARDENED PRECISION GROUND SHAFTING



420 STAINLESS STEEL
CASE HARDENED HRC 50...55

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

Stainless Steel AISI 420 Case-Hardened
to HRC 50...55

➤ **STRAIGHTNESS:**

0.0003 mm/mm

➤ **SPECIFICATIONS:**

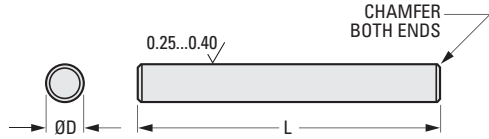
Minimum Depth of Hardness:

8 mm diameters is 1 mm.
12, 16 & 20 mm diameters is 1.5 mm.

Other lengths and diameters available
as special order.



0 10



METRIC COMPONENT CATALOG NUMBER

S 4 0 P X 0 M C H S -

Diameter Code Length Code

| Diameter Code | D Diameter h6 | D Tolerance |
|---------------|---------------|-------------|
| 08 | 8 | 0/-0.009 |
| 12 | 12 | 0/-0.011 |
| 16 | 16 | 0/-0.011 |
| 20 | 20 | 0/-0.013 |

| Length Code | L ± 0.8 Length mm |
|-------------|-------------------|
| 075 | 75 |
| 100 | 100 |
| 125 | 125 |
| 150 | 150 |
| 175 | 175 |
| 200 | 200 |
| 225 | 225 |
| 250 | 250 |
| 275 | 275 |
| 300 | 300 |
| 325 | 325 |
| 350 | 350 |
| 375 | 375 |
| 400 | 400 |
| 425 | 425 |
| 450 | 450 |
| 475 | 475 |
| 500 | 500 |
| 525 | 525 |
| 550 | 550 |
| 575 | 575 |
| 600 | 600 |
| 625 | 625 |
| 650 | 650 |
| 700 | 700 |
| 750 | 750 |
| 800 | 800 |
| 850 | 850 |
| 900 | 900 |
| A00 | 1000 |



DRILL RODS

SDP/SI

TOOL STEEL
DIN 175

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Chrome Vanadium Alloy

> FINISH:

Ground & Polished

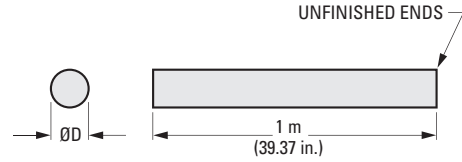
> RECOMMENDED HEAT TREATMENT:

Oil Quench 810°C – 860°C

For HRC 62, 204°C (Draw Temp.)

For HRC 60, 252°C (Draw Temp.)

For HRC 56, 299°C (Draw Temp.)



METRIC COMPONENT

| Catalog Number | D Diameter h9 | D Tolerance | Length |
|----------------|---------------------|----------------|--------------------------------|
| A 7Q 1M020 | 2 | 0/-0.025 | Sold in 1 Meter Pieces Only |
| A 7Q 1M030 | 3 | 0/-0.025 | |
| A 7Q 1M040 | 4 | 0/-0.030 | |
| A 7Q 1M050 | 5 | 0/-0.030 | |
| A 7Q 1M060 | 6 | 0/-0.030 | |
| A 7Q 1M080 | 8 | 0/-0.036 | |
| A 7Q 1M100 | 10 | 0/-0.036 | |
| A 7Q 1M120 | 12 | 0/-0.043 | |
| A 7Q 1M140 | 14 | 0/-0.043 | |
| A 7Q 1M160 | 16 | 0/-0.043 | |
| A 7Q 1M180 | 18 | 0/-0.043 | |
| A 7Q 1M200 | 20 | 0/-0.052 | |

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A

UNDERSIZE DIAMETERS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

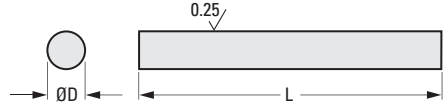
> MATERIAL:

303 Stainless Steel

> STRAIGHTNESS:

0.0004 mm/mm

Grooving and other modifications available on special order.



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- 14
- 15
- 16

METRIC COMPONENT CATALOG NUMBER

A 7 X 1 M

Diameter Code Length Code

| Diameter Code | D Diameter g6 | D Tolerance |
|---------------|---------------|---------------|
| 020 | 2 | -0.002/-0.008 |
| 025 | 2.5 | |
| 030 | 3 | |
| 040 | 4 | |
| 050 | 5 | -0.004/-0.012 |
| 060 | 6 | |
| 070 | 7 | |
| 080 | 8 | |
| 090 | 9 | -0.005/-0.014 |
| 100 | 10 | |
| 120 | 12 | |
| | | -0.006/-0.017 |

| Length Code | L ± 0.4 Length mm |
|-------------|-------------------|
| 025 | 25 |
| 050 | 50 |
| 075 | 75 |
| 100 | 100 |
| 150 | 150 |
| 200 | 200 |
| 300 | 300 |
| 400 | 400 |
| 500 | 500 |

SOLID AND HOLLOW SHAFTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

› **MATERIAL:**

Aluminum 6061-T6
Hard Anodized, HRC 60

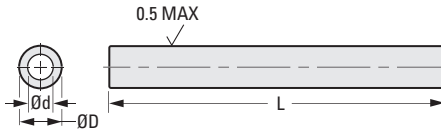
› **STRAIGHTNESS:**

DIN 1798

Recommended for use with:
S99GSPM..., **S99GLPM...** and
S99GLZM... series linear
bearings

DryLin® is a registered trademark
of the Iigus Corporation.

Other lengths available
upon request.



**METRIC COMPONENT
CATALOG NUMBER**

S 4 0 A W 6 M

Diameter Length
Code Code

| Diameter Code | D Diameter h8 | D Tolerance | d Diameter | Weight kg/m |
|---------------|---------------|-------------|------------|-------------|
| 08 | 8 | 0/-0.022 | — | 0.7 |
| 10 | 10 | 0/-0.022 | — | 1.061 |
| 12 | 12 | 0/-0.027 | — | 1.566 |
| 16 | 16 | 0/-0.027 | — | 2.779 |
| 20 | 20 | 0/-0.033 | — | 4.345 |
| 25 | 25 | 0/-0.033 | — | 6.843 |
| 30 | 30 | 0/-0.033 | 15 | 9.78 |
| 40 | 40 | 0/-0.039 | 20 | 13.1 |
| 50 | 50 | 0/-0.039 | 28 | 18.622 |

| Length Code | L Length ± 1 mm |
|-------------|-----------------|
| 025 | 250 |
| 050 | 500 |
| 100 | 1000 |

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- 14
- 15
- A

PIPE SHAFTS



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

BEARINGS STEEL
WEIGHT REDUCTION
DESIGN FLEXIBILITY



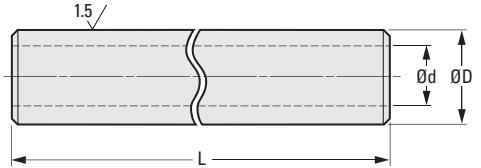
> MATERIAL:

AISI 52100 Steel, Hardened
to HRC 58...62

> STRAIGHTNESS:

0.0003 mm/mm

Other lengths available
upon request.



METRIC COMPONENT

| Catalog Number | d Bore ± 0.5 | D Diameter g6 | D Tolerance | L Length | Case Depth |
|-----------------|-----------------|------------------|---------------|----------|------------|
| S40LPSM02060100 | 2 | 6 | -0.004/-0.012 | 100 | 1 |
| S40LPSM02060150 | 2 | 6 | -0.004/-0.012 | 150 | 1 |
| S40LPSM02060200 | 2 | 6 | -0.004/-0.012 | 200 | 1 |
| S40LPSM02060300 | 2 | 6 | -0.004/-0.012 | 300 | 1 |
| S40LPSM03080100 | 3 | 8 | -0.005/-0.014 | 100 | 1 |
| S40LPSM03080150 | 3 | 8 | -0.005/-0.014 | 150 | 1 |
| S40LPSM03080200 | 3 | 8 | -0.005/-0.014 | 200 | 1 |
| S40LPSM03080300 | 3 | 8 | -0.005/-0.014 | 300 | 1 |
| S40LPSM03080400 | 3 | 8 | -0.005/-0.014 | 400 | 1 |
| S40LPSM04100100 | 4 | 10 | -0.005/-0.014 | 100 | 1 |
| S40LPSM04100150 | 4 | 10 | -0.005/-0.014 | 150 | 1 |
| S40LPSM04100200 | 4 | 10 | -0.005/-0.014 | 200 | 1 |
| S40LPSM04100300 | 4 | 10 | -0.005/-0.014 | 300 | 1 |
| S40LPSM04100400 | 4 | 10 | -0.005/-0.014 | 400 | 1 |
| S40LPSM04100500 | 4 | 10 | -0.005/-0.014 | 500 | 1 |
| S40LPSM04100600 | 4 | 10 | -0.005/-0.014 | 600 | 1 |
| S40LPSM06120200 | 6 | 12 | -0.006/-0.017 | 200 | 1 |
| S40LPSM06120300 | 6 | 12 | -0.006/-0.017 | 300 | 1 |
| S40LPSM06120400 | 6 | 12 | -0.006/-0.017 | 400 | 1 |
| S40LPSM06120500 | 6 | 12 | -0.006/-0.017 | 500 | 1 |
| S40LPSM06120600 | 6 | 12 | -0.006/-0.017 | 600 | 1 |
| S40LPSM06120800 | 6 | 12 | -0.006/-0.017 | 800 | 1 |
| S40LPSM10160300 | 10 | 16 | -0.006/-0.017 | 300 | 1.5 |
| S40LPSM10160400 | 10 | 16 | -0.006/-0.017 | 400 | 1.5 |
| S40LPSM10160500 | 10 | 16 | -0.006/-0.017 | 500 | 1.5 |
| S40LPSM10160600 | 10 | 16 | -0.006/-0.017 | 600 | 1.5 |
| S40LPSM10160800 | 10 | 16 | -0.006/-0.017 | 800 | 1.5 |
| S40LPSM10161000 | 10 | 16 | -0.006/-0.017 | 1000 | 1.5 |
| S40LPSM14200300 | 14 | 20 | -0.007/-0.020 | 300 | 1.5 |
| S40LPSM14200400 | 14 | 20 | -0.007/-0.020 | 400 | 1.5 |
| S40LPSM14200500 | 14 | 20 | -0.007/-0.020 | 500 | 1.5 |
| S40LPSM14200600 | 14 | 20 | -0.007/-0.020 | 600 | 1.5 |
| S40LPSM14200800 | 14 | 20 | -0.007/-0.020 | 800 | 1.5 |
| S40LPSM14201000 | 14 | 20 | -0.007/-0.020 | 1000 | 1.5 |
| S40LPSM17250300 | 17 | 25 | -0.007/-0.020 | 300 | 1.5 |
| S40LPSM17250400 | 17 | 25 | -0.007/-0.020 | 400 | 1.5 |
| S40LPSM17250500 | 17 | 25 | -0.007/-0.020 | 500 | 1.5 |
| S40LPSM17250600 | 17 | 25 | -0.007/-0.020 | 600 | 1.5 |
| S40LPSM17250800 | 17 | 25 | -0.007/-0.020 | 800 | 1.5 |
| S40LPSM17251000 | 17 | 25 | -0.007/-0.020 | 1000 | 1.5 |



M-Type Shaftloc®
pg. 4-4



A-Type Shaftloc®
pg. 4-5



Single-Ended Shaftloc® Sleeves
pg. 4-6



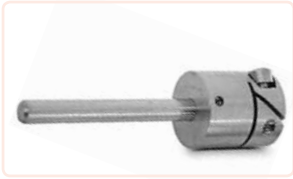
Taper Bushings
pg. 4-7



Locking Hub Bushings
pgs. 4-8 & 4-9



Pressure Locking Hub Connectors
pg. 4-10



Fairloc® Shaft Reducers & Extenders
pg. 4-11



Bore Reducers
pgs. 4-12 & 4-13



Internal Tolerance Rings
pgs. 4-14 & 4-15



Fastlock Shaft Collars
pg. 4-16



Grip Fast™ Shaft Collars
pg. 4-17



Fairloc® Shaft Collar
pg. 4-18



Set Screw Collar
pgs. 4-19 & 4-20



One- & Two-Piece Clamp-Type Collars
Plain or Padded, pgs. 4-21 thru 4-23



Stroke Adjustment Shaft Collars
pg. 4-24



Shaft Supports
pg. 4-25



Ball Screws
pg. 4-28



KM Series Anti-Backlash Ball Nuts
pg. 4-29



Series 1 Anti-Backlash Ball Nuts
pg. 4-30

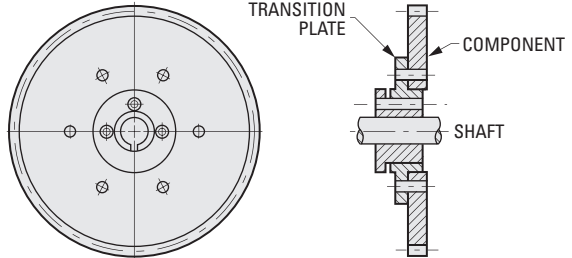
A SUPERIOR WAY TO FASTEN ROTATING COMPONENTS

Excelling because of its simplicity, it contains all structural features in only two parts. This new development is the Shaftloc® – a patented device (United States Patent No. 5,067,846 and No. 6,000,875), – manufactured and marketed by Stock Drive Products.

The usefulness of wedges and inclined surfaces for the lifting of heavy loads has been well-known for centuries.

Similarly, the usefulness of tapered, conical surfaces has also been appreciated; in this case, for their ability to produce large forces.

An example of such an application is the use of a tapered cylindrical split bushing (see illustration) to fasten a rotating component to a shaft. The axial force, which results from tightening the bolts, is translated into amplified radial forces that close the split bushing.



PREVIOUS METHOD

In this way, fastening of the component to the shaft is achieved. A disadvantage of this particular method is that the component must have a tapered bore.

A modification of this method, so that it can be used to fasten components with cylindrical bores, involves the use of a transition plate which contains the tapered bore.

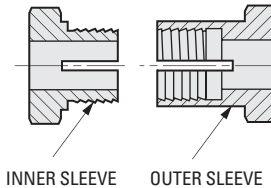
However, the Shaftloc® design is the **ULTIMATE** in fastening methods for the following reasons:

Shaftloc® has only two parts:

A slotted outer sleeve and a slotted inner sleeve, both of which have hexagonal heads. The outer sleeve is cylindrical on its outside diameter, and threaded on its inside diameter. Conversely, the inner sleeve is threaded on its outside diameter, and cylindrical on its inside diameter. The thread is unique in that it is not symmetrical and that it creates a continuous inclined surface.

How Shaftloc® works:

The shallow angle of the thread produces large amplifications of forces, resulting in substantial torque transmission capability between the component and the shaft.



STYLE 1:
A 7Z37-series
Double-Ended

STYLE 2:
A 7Z39-series
A 7Z39M-series
Single-Ended



› DID YOU KNOW?

That you can see a video showing how the Shaftloc® rotating component fastener works and how it can benefit your application. It is located at: www.sdp-si.com/shaftloc.



DISTINCT ADVANTAGES OF SHAFTLOC® OVER OTHER FASTENING DEVICES:

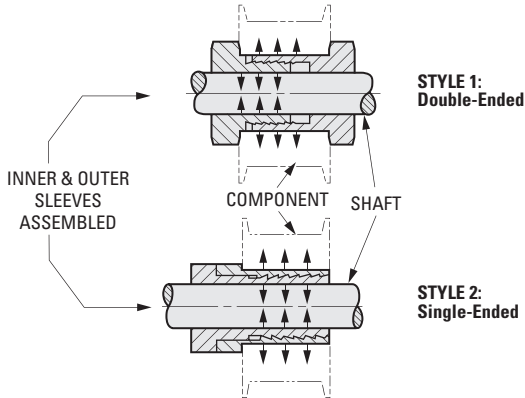
- Simplicity of design – few parts
- No marring of shafts
- Easy repositioning or synchronizing of rotating components.
- Ease of assembly
- Applicability to small shaft diameters
- Availability in all stainless steel construction
- Ability to be used for stationary breadboard or production structures
- Low-cost

Style 1: Double-Ended

When the two sleeves are threaded into each other with a component placed between them, tightening the sleeves will cause the outer one to expand and the inner one to contract.

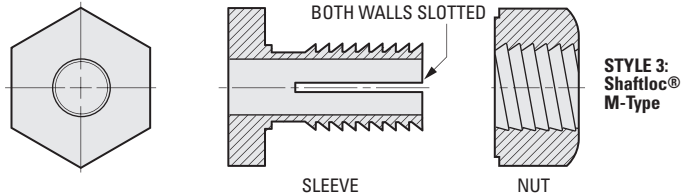
Style 2: Single-Ended

When the two sleeves are threaded into each other and slipped into the component, tightening the sleeves will cause the outer one to expand and the inner one to contract.



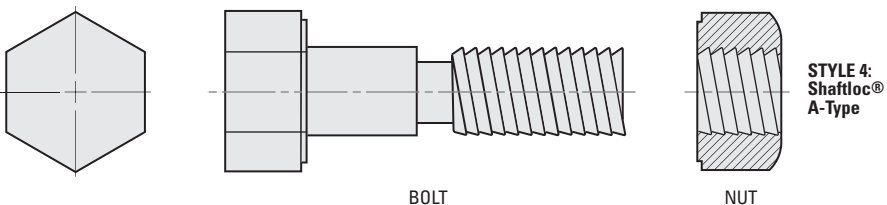
Style 3: Shaftloc® M-Type

Two-piece construction consists of a slotted sleeve and a nut, both of hexagonal shape. Used as a locking device for rigidly mounting mechanical components on a shaft. Tightening the nut next to the component causes the slotted sleeve to contract by gripping the shaft and clamping the part to the sleeve at the same time.



Style 4: Shaftloc® A-Type

Two-piece construction consists of a bolt and a nut which becomes a vibration-resistant fastener when the nut is tightened to embrace the component mounted to it. The two-piece unit uses the wedging action between the shallow thread inclines of the nut and bolt when the nut is tightened against the component mounted on the bolt.



PATENTED
 SELF-LOCKING
 VIBRATION-RESISTANT
 NONMARRING OF SHAFT
 INSTALLED WITH STANDARD TOOLS
 REUSABLE

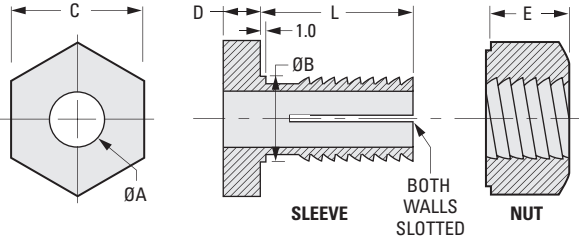


> MATERIAL:

416 Stainless Steel, Passivated

> SPECIFICATIONS:

Used as a locking device for rigidly mounting mechanical components onto a shaft. Due to its asymmetric thread geometry, a large radial clamping force is produced when the nut is tightened. It is a precision, dynamically balanced product suitable for high-speed applications. This simple two-piece keyless fastener can be installed within seconds, reducing assembly costs. Tightening the nut causes the slotted sleeve to contract, gripping the shaft and clamping the part to the sleeve at the same time. Keyways and screws are now obsolete; can be installed on shafts with existing keyways.



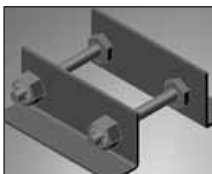
Special sizes available upon request.

Sold in Pairs

METRIC COMPONENT

| Catalog Number | A Dia. +0.025 0 | B Dia. 0 -0.025 | C | D | E | L |
|----------------|-----------------|-----------------|----|---|----|----|
| A 7Z36M0612 | 6 | 10 | 14 | 4 | 7 | 12 |
| A 7Z36M1016 | 10 | 14 | 18 | 4 | 12 | 16 |
| A 7Z36M1218 | 12 | 16 | 24 | 5 | 14 | 18 |

Diameters A and B concentric within 0.013 T.I.R.



A superior method for building frames, mounting shafts, pins, rails or any cylindrical components to thin sheet metal or plastic walls.



Ideal in slots or oversized holes used for shaft position or belt tension adjustment applications.



Mounts hubless gears, sprockets, pulleys, cams or any thin walled components onto a shaft. Offers infinite radial and axial adjustments and quick lock and release action.



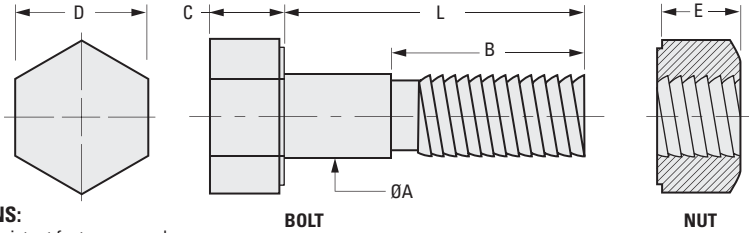
PATENTED
 SELF-LOCKING
 VIBRATION-RESISTANT
 INSTALLED WITH STANDARD TOOLS
 REUSABLE

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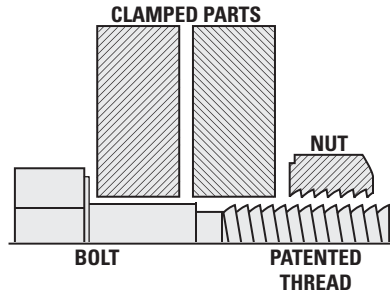
> MATERIAL:

416 Stainless Steel, Passivated



> SPECIFICATIONS:

These vibration-resistant fasteners employ asymmetric threads to self-lock. The two-piece unit uses the wedging action between the shallow thread inclines of the nut and bolt for self-locking when the nut encounters resistance. The nut turns freely until it contacts parts being clamped together and additional turns wedge them into a locked and vibration-resistant condition.



Special sizes available upon request.

Sold in Pairs

METRIC COMPONENT

| Catalog Number | A Dia. 0 -0.05 | L | B | C | D | E |
|----------------|----------------------|----|----|---|----|------|
| A 7Z38M0619 | 6.5 | 19 | 19 | 4 | 10 | 6.1 |
| A 7Z38M0625 | 6.5 | 25 | 19 | 4 | 10 | 6.1 |
| A 7Z38M0632 | 6.5 | 32 | 19 | 4 | 10 | 6.1 |
| A 7Z38M0820 | 8 | 20 | 20 | 5 | 14 | 7 |
| A 7Z38M0825 | 8 | 25 | 20 | 5 | 14 | 7 |
| A 7Z38M0832 | 8 | 32 | 20 | 5 | 14 | 7 |
| A 7Z38M1025 | 10 | 25 | 25 | 7 | 16 | 8.9 |
| A 7Z38M1032 | 10 | 32 | 25 | 7 | 16 | 8.9 |
| A 7Z38M1038 | 10 | 38 | 25 | 7 | 16 | 8.9 |
| A 7Z38M1332 | 13 | 32 | 32 | 8 | 18 | 11.7 |
| A 7Z38M1338 | 13 | 38 | 32 | 8 | 18 | 11.7 |
| A 7Z38M1345 | 13 | 45 | 32 | 8 | 18 | 11.7 |

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NEW SIZES ADDED
 PATENTED
 EASY ASSEMBLY
 NO MARRING OF SHAFTS

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> MATERIAL:

416 Stainless Steel

> SPECIFICATIONS:

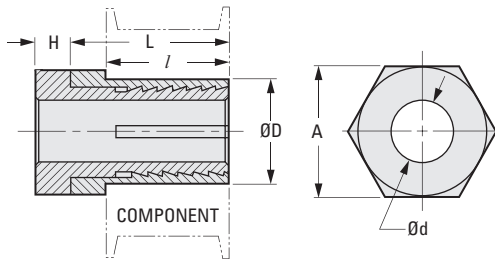
For Shaftloc® introduction and use, see page 3-13.

For optimum performance, the clearances between the shaft, Shaftloc® and housing should not exceed 0.0254 mm.

Maximum torque capacity based on mating components being degreased before assembly with Shaftloc® coupling.

Single-Ended Shaftloc® Sleeves

Can be used with Precision Ground Shafting, Catalog Number A 7X 1M...



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore +0.025 0 | D Dia. 0 -0.025 | A Hex Size | L | l | H | Max. Torque Capacity N • m |
|----------------|-----------------------|-----------------------|------------|------|----|------|-------------------------------|
| A 7Z39M0306 | 3 | 6 | 8 | 13.2 | 10 | 3.17 | 1.1 |
| A 7Z39M0408 | 4 | 8 | 10 | 15.2 | 12 | 3.17 | 2.8 |
| A 7Z39M0610 | 6 | 10 | 13 | 15.6 | 12 | 3.6 | 3.3 |
| A 7Z39M0812 | 8 | 12 | 15 | 20 | 16 | 4 | 9.9 |
| A 7Z39M1016 | 10 | 16 | 19 | 20 | 16 | 4 | 11 |
| A 7Z39M1218 | 12 | 18 | 21 | 25.5 | 20 | 5.6 | 16.5 |
| A 7Z39M1420 | 14 | 21 | 27 | 28.3 | 20 | 8.25 | 18.6 |
| A 7Z39M1622 | 16 | 24 | 30 | 33.2 | 25 | 8.25 | 20.6 |
| A 7Z39M1825 | 18 | 27 | 32 | 43.0 | 25 | 9.02 | 22.8 |



> DID YOU KNOW?

That you can see a video showing how the Shaftloc® rotating component fastener works and how it can benefit your application. It is located at: www.sdp-si.com/shaftloc.

WON'T MAR SHAFT

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> MATERIAL:

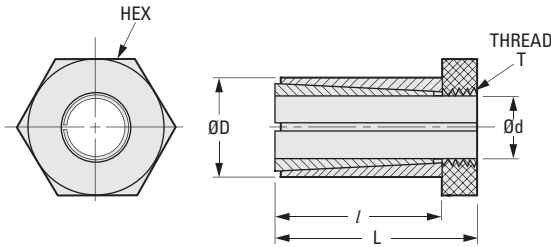
Stainless Steel

> SPECIFICATIONS:

O.D. Tolerance:
 8 & 10 mm 0/-0.015
 12 to 17 mm 0/-0.018
 20 to 28 mm 0/-0.021

Bore Tolerance:
 4 to 6 mm +0.012/0
 7 to 10 mm +0.015/0
 11 to 17 mm +0.018/0
 19 & 20 mm +0.021/0

Tolerance for diameters are before slitting.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore H7 | D Dia. h7 | l | L ± 0.1 | Hex Across Flats | T | Max. Torque N • m (lb • in) |
|----------------|-----------------|-----------------|-------------|------------|------------------------|----------|--------------------------------------|
| S99TBSM04 | 4 (.157) | 8 (.315) | 12.5 (.492) | 15 (.591) | 8 (.315) | M6x0.5 | 3 (26.6) |
| S99TBSM05 | 5 (.197) | 10 (.394) | 12.5 (.492) | 15 (.591) | 10 (.394) | M8x0.5 | 4 (35.4) |
| S99TBSM06 | 6 (.236) | 10 (.394) | 12.5 (.492) | 15 (.591) | 10 (.394) | M8x0.5 | 7 (62.0) |
| S99TBSM07 | 7 (.276) | 12 (.472) | 12 (.472) | 15 (.591) | 12 (.472) | M10x0.75 | 8 (70.8) |
| S99TBSM08 | 8 (.315) | 14 (.551) | 19 (.748) | 22 (.866) | 16 (.630) | M12x1 | 14 (123.9) |
| S99TBSM09 | 9 (.354) | 14 (.551) | 19 (.748) | 22 (.866) | 16 (.630) | M12x1 | 14 (123.9) |
| S99TBSM10 | 10 (.394) | 17 (.669) | 18.5 (.728) | 22 (.866) | 18 (.709) | M15x1 | 18 (159.3) |
| S99TBSM11 | 11 (.433) | 17 (.669) | 18.5 (.728) | 22 (.866) | 18 (.709) | M15x1 | 18 (159.3) |
| S99TBSM12 | 12 (.472) | 17 (.669) | 18.5 (.728) | 22 (.866) | 18 (.709) | M15x1 | 18 (159.3) |
| S99TBSM14 | 14 (.551) | 20 (.787) | 23 (.906) | 28 (1.102) | 20 (.787) | M17x1 | 24 (212.4) |
| S99TBSM15 | 15 (.591) | 20 (.787) | 23 (.906) | 28 (1.102) | 20 (.787) | M17x1 | 24 (212.4) |
| S99TBSM16 | 16 (.630) | 23 (.906) | 23 (.906) | 28 (1.102) | 26 (1.024) | M20x1 | 26 (230.1) |
| S99TBSM17 | 17 (.669) | 23 (.906) | 23 (.906) | 28 (1.102) | 26 (1.024) | M20x1 | 26 (230.1) |
| S99TBSM19 | 19 (.748) | 25 (.984) | 23 (.906) | 28 (1.102) | 27 (1.063) | M22x1 | 29 (256.7) |
| S99TBSM20 | 20 (.787) | 28 (1.102) | 23 (.906) | 28 (1.102) | 30 (1.181) | M25x1 | 31 (274.4) |

NOTE: Dimensions in () are inch.

THREE-PIECE FRICTION GRIP CONSTRUCTION
CONNECTS ROTATING COMPONENT TO SHAFT
TRANSMITS HIGH TORQUE WITHOUT KEYWAYS

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> MATERIAL:
Carbon Steel

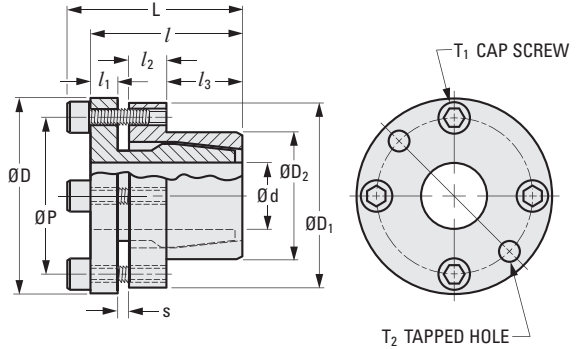
> FINISH:
Nickel Plated

> SPECIFICATIONS:

*Tolerance of mating shaft diameter (h8):
6 mm 0/-0.018
7 to 10 mm 0/-0.022
12 to 18 mm 0/-0.027
20 to 25 mm 0/-0.033

**Tolerance of mating bore of mounted component (H7):
12 to 18 mm +0.018/0
20 to 28 mm +0.021/0
32 to 34 mm +0.025/0

Configuration and number of cap screws and tapped holes varies depending on catalog number.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d* Bore Dia. | D Dia. | D ₁ Dia. | D ₂ ** Dia. | P Dia. | L | l | l ₁ | l ₂ | l ₃ | s | T ₁ Cap Screw | T ₂ Tapped Hole | Max. Torque N • m | Allow. Axial Force N | Bolt Tight. Torque N • m |
|----------------|-----------------|-----------|------------------------|---------------------------|-----------|----|----|----------------|----------------|----------------|-----|--------------------------------|----------------------------------|-------------------------|-------------------------------|-----------------------------------|
| S21AMYM062524 | 6 | 25 | 23 | 12 | 17 | 24 | 20 | 3.5 | 5 | 10 | 1.5 | 2-M4x8 | 2-M4 | 6 | 1948 | 2 |
| S21AMYM072524 | 7 | 25 | 23 | 12 | 17 | 24 | 20 | 3.5 | 5 | 10 | 1.5 | 2-M4x8 | 2-M4 | 7 | 1948 | 2 |
| S21AMYM082828 | 8 | 28 | 26 | 15 | 20 | 28 | 24 | 5 | 5 | 12 | 2 | 3-M4x10 | 3-M4 | 23 | 5898 | 4 |
| S21AMYM092828 | 9 | 28 | 26 | 15 | 20 | 28 | 24 | 5 | 5 | 12 | 2 | 3-M4x10 | 3-M4 | 26 | 5898 | 4 |
| S21AMYM103128 | 10 | 31 | 29 | 18 | 23 | 28 | 24 | 5 | 5 | 12 | 2 | 3-M4x10 | 3-M4 | 29 | 5898 | 4 |
| S21AMYM123328 | 12 | 33 | 31 | 20 | 25 | 28 | 24 | 5 | 5 | 12 | 2 | 4-M4x10 | 2-M4 | 47 | 7798 | 4 |
| S21AMYM143528 | 14 | 35 | 33 | 22 | 27 | 28 | 24 | 5 | 5 | 12 | 2 | 4-M4x10 | 2-M4 | 55 | 7798 | 4 |
| S21AMYM153934 | 15 | 39 | 36 | 23 | 29 | 34 | 29 | 6 | 7 | 14 | 2 | 4-M5x12 | 2-M5 | 95 | 12700 | 8 |
| S21AMYM164034 | 16 | 40 | 37 | 24 | 30 | 34 | 29 | 6 | 7 | 14 | 2 | 4-M5x12 | 2-M5 | 100 | 12700 | 8 |
| S21AMYM184234 | 18 | 42 | 39 | 26 | 32 | 34 | 29 | 6 | 7 | 14 | 2 | 4-M5x12 | 2-M5 | 110 | 12700 | 8 |
| S21AMYM204434 | 20 | 44 | 41 | 28 | 34 | 34 | 29 | 6 | 7 | 14 | 2 | 4-M5x12 | 2-M5 | 130 | 12700 | 8 |
| S21AMYM224838 | 22 | 48 | 45 | 32 | 38 | 38 | 33 | 6.5 | 8 | 16 | 2.5 | 6-M5x14 | 2-M5 | 210 | 18998 | 8 |
| S21AMYM245038 | 24 | 50 | 47 | 34 | 40 | 38 | 33 | 6.5 | 8 | 16 | 2.5 | 6-M5x14 | 2-M5 | 230 | 18998 | 8 |
| S21AMYM255038 | 25 | 50 | 47 | 34 | 40 | 38 | 33 | 6.5 | 8 | 16 | 2.5 | 6-M5x14 | 2-M5 | 240 | 18998 | 8 |

FITS COMPONENTS WITH LIMITED HUB O.D.
 ELIMINATES KEYS OR SPLINES
 IMPROVES FIT CONCENTRICITY
 DEFINED AXIAL HUB POSITION
 EASY AXIAL OR ANGULAR TIMING

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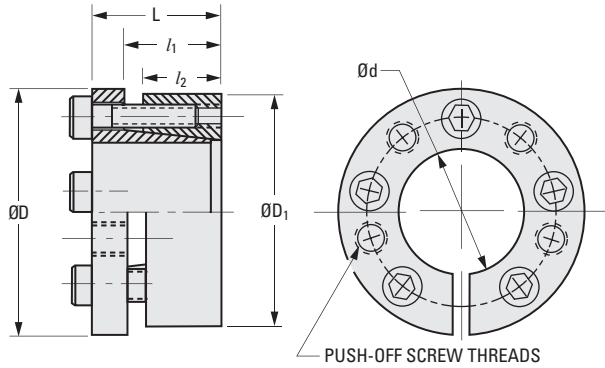


> MATERIAL:

- Inner Body** - Steel
- Outer Sleeve** - Steel
- Socket Head Screws** - Alloy Steel, Black Oxide Finish

> SPECIFICATION:

* Tolerance of shaft diameter and mating mounted component bore is ± 0.025 .



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d* Bore | D Dia. | D ₁ Dia. | L | l ₁ | l ₂ | Locking Screw Size | Qty. | Screw Tightening Torque N • m | Max. Torque N • m |
|----------------|---------|--------|---------------------|------|----------------|----------------|--------------------|------|-------------------------------|-------------------|
| S21HSCM062024 | 6 | 23.8 | 20.6 | 16.5 | 13.1 | 10 | M4 | 3 | 4.3 | 19 |
| S21HSCM082225 | 8 | 25.4 | 22.2 | 16.5 | 13.1 | 10 | M4 | 3 | 5 | 29 |
| S21HSCM102427 | 10 | 27 | 23.8 | 16.5 | 13.1 | 10 | M4 | 3 | 5 | 36 |
| S21HSCM122730 | 12 | 30.2 | 27 | 16.5 | 13.1 | 10 | M4 | 4 | 5 | 58 |
| S21HSCM153033 | 15 | 33.3 | 30.2 | 20.5 | 15.1 | 12 | M4 | 6 | 5 | 109 |
| S21HSCM163033 | 16 | 33.3 | 30.2 | 20.5 | 15.1 | 12 | M4 | 6 | 5 | 117 |
| S21HSCM204045 | 20 | 44.5 | 39.7 | 25 | 19.2 | 15 | M5 | 6 | 10 | 234 |
| S21HSCM254348 | 25 | 47.6 | 42.9 | 25 | 19.2 | 15 | M5 | 8 | 10 | 390 |

PRESSURE LOCKING HUB CONNECTORS



NO WEAR OR STRESS ON COMPONENT
EASY TO USE
SPACE SAVER

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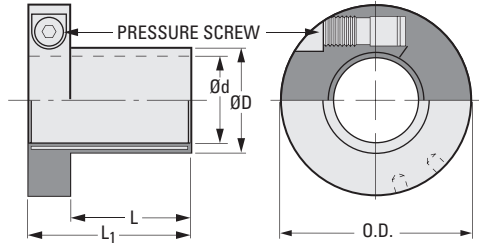
► **MATERIAL:**
Hardened Steel

► **SPECIFICATIONS:**

These connectors are designed for fast and accurate repositioning of the hub. It has just one screw for pressurizing in radial position. No space is used along the shaft for mounting tools. They are made up of a double-walled sleeve and flange filled with a pressure medium. **Pressure screw must not be tightened when not mounted or else pressure may deform the unit.**

CONNECTOR TOLERANCES

| | |
|------------------------------|-------------------|
| Shaft O.D. Tolerance: | 15 mm 0/- .027 |
| | 19-30 mm 0/- .033 |
| | 35-45 mm 0/- .039 |
| Hub Bore Tolerance: | 18-30 mm 0/- .027 |
| | 35-50 mm 0/- .033 |
| | 54 mm 0/- .039 |
| | |



The projections shown are per ISO convention.

► **FEATURES:**

- Fast and frequent mounting / dismantling with only one set screw.
- Radial screw positioning saves space along the shaft.
- Accurate positioning. No axial movement when mounted.
- Uniform surface pressure against shaft and hub prevents damage to surfaces and enables the use of small diameter hubs.
- Handles temperature range: -30°C to +82°C.

► **OPERATION:**

When the pressure screw is tightened to the recommended tightening torque, the double-walled sleeve expands uniformly against shaft and hub and creates a rigid joint. Dismantling is done by loosening the screw which returns the connector to its original dimensions. It can then easily be dismantled.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | D Dia. | D ₁ O.D. | L Length | L ₁ OAL | T Torque N • m | Screw Tightening N • m |
|----------------|-------------------|-----------|------------------------|-------------|-----------------------|----------------------|------------------------------|
| S21BPYM154639 | 15 | 18 | 45 | 25 | 39 | 46.1 | 4.9 |
| S21BPYM195042 | 19 | 23 | 50.5 | 28 | 42 | 85.4 | 4.9 |
| S21BPYM205144 | 20 | 24 | 51.5 | 30 | 44 | 109.8 | 4.9 |
| S21BPYM225546 | 22 | 27 | 55.5 | 32 | 46 | 130.1 | 4.9 |
| S21BPYM245747 | 24 | 29 | 57.5 | 33 | 47 | 189.8 | 4.9 |
| S21BPYM255849 | 25 | 30 | 58 | 35 | 49 | 229.1 | 4.9 |
| S21BPYM306454 | 30 | 36 | 64.5 | 40 | 54 | 379.6 | 4.9 |
| S21BPYM357359 | 35 | 42 | 73 | 45 | 59 | 639.9 | 4.9 |
| S21BPYM408675 | 40 | 48 | 86.5 | 55 | 75 | 1099.5 | 21 |
| S21BPYM459378 | 45 | 54 | 93 | 58 | 78 | 1399.2 | 21 |

> MATERIAL:

303 Stainless Steel

> SPECIFICATIONS:

Bore Tolerance (H7):

3 mm +0.01/0

4, 5 & 6 mm +0.012/0

8 & 10 mm +0.015/0

12 mm +0.018/0

Shaft Tolerance (g6):

3 mm -0.002/-0.008

4, 5 & 6 mm -0.004/-0.012

8 & 10 mm -0.005/-0.014

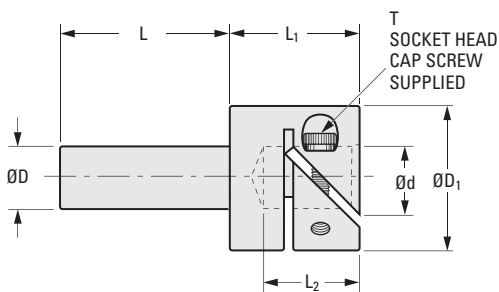
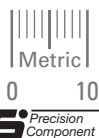
12 mm -0.006/-0.017

d bores and D shaft concentric to within 0.025 mm T.I.R.

Fairloc® hubs require controlled mating shaft tolerances: g6, h6 or h7.

> MODIFICATIONS:

Metric to inch or inch to metric connections, other sizes and materials, available on special order.



METRIC COMPONENT

| Catalog Number | d Bore H7 | D Dia. g6 | D ₁ Dia. | L | L ₁ | L ₂ | T | Clear. Radius | Max. Torque N • m |
|----------------|-----------|-----------|---------------------|----|----------------|----------------|------|---------------|-------------------|
| S52FCYM030030 | 3 | 3 | 11 | 25 | 15 | 9 | M2 | 6.4 | 0.45 |
| S52FCYM030040 | 3 | 4 | 11 | 25 | 15 | 9 | M2 | 6.4 | 0.45 |
| S52FCYM030050 | 3 | 5 | 11 | 25 | 15 | 9 | M2 | 6.4 | 0.45 |
| S52FCYM040030 | 4 | 3 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.57 |
| S52FCYM040040 | 4 | 4 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.57 |
| S52FCYM040050 | 4 | 5 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.57 |
| S52FCYM050030 | 5 | 3 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM050040 | 5 | 4 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM050050 | 5 | 5 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM050060 | 5 | 6 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM060040 | 6 | 4 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060050 | 6 | 5 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060060 | 6 | 6 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060080 | 6 | 8 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060100 | 6 | 10 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM080050 | 8 | 5 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080060 | 8 | 6 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080080 | 8 | 8 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080100 | 8 | 10 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080120 | 8 | 12 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM100060 | 10 | 6 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM100080 | 10 | 8 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM100100 | 10 | 10 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM100120 | 10 | 12 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM120080 | 12 | 8 | 26 | 30 | 26 | 18 | M4 | 15.1 | 5.1 |
| S52FCYM120100 | 12 | 10 | 26 | 30 | 26 | 18 | M4 | 15.1 | 5.1 |
| S52FCYM120120 | 12 | 12 | 26 | 30 | 26 | 18 | M4 | 15.1 | 5.1 |

BORE REDUCERS



METRIC TO METRIC REDUCTION

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> MATERIAL:

Aluminum



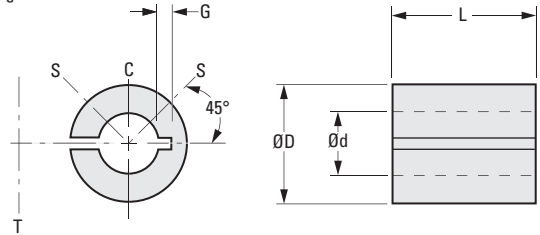
> INSTALLATION RECOMMENDATIONS:

- S = set screw positions in hub
- C = for single set screw fastening
- T = for tangential screw in clamp hub



> SPECIFICATIONS:

Bore reducers with thicker walls may have slot extending into opposite wall for additional flexibility. D and d tolerances are maintained before slitting.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. +0.013 -0.025 | d Bore +0.025 0 | G Groove Depth | L |
|----------------|----------------------------|-----------------------|-------------------|-----------|
| A 7A30M060309 | 6 | 3 | 0.64 | 9 (.354) |
| A 7A30M060312 | 6 | 3 | (.025) | 12 (.472) |
| A 7A30M060409 | 6 | 4 | - | 9 (.354) |
| A 7A30M060412 | 6 | 4 | - | 12 (.472) |
| A 7A30M060509 | 6 | 5 | - | 9 (.354) |
| A 7A30M060512 | 6 | 5 | - | 12 (.472) |
| A 7A30M080412 | 8 | 4 | - | 12 (.472) |
| A 7A30M080416 | 8 | 4 | - | 16 (.625) |
| A 7A30M080512 | 8 | 5 | - | 12 (.472) |
| A 7A30M080516 | 8 | 5 | - | 16 (.625) |
| A 7A30M080612 | 8 | 6 | - | 12 (.472) |
| A 7A30M080616 | 8 | 6 | - | 16 (.625) |
| A 7A30M100512 | 10 | 5 | - | 12 (.472) |
| A 7A30M100516 | 10 | 5 | - | 16 (.625) |
| A 7A30M100522 | 10 | 5 | - | 22 (.865) |
| A 7A30M100612 | 10 | 6 | - | 12 (.472) |
| A 7A30M100616 | 10 | 6 | - | 16 (.625) |
| A 7A30M100622 | 10 | 6 | - | 22 (.865) |

| Catalog Number | D Dia. +0.013 -0.025 | d Bore +0.025 0 | G Groove Depth | L |
|----------------|----------------------------|-----------------------|-------------------|------------|
| A 7A30M100812 | 10 | 8 | - | 12 (.472) |
| A 7A30M100816 | 10 | 8 | - | 16 (.625) |
| A 7A30M100822 | 10 | 8 | - | 22 (.865) |
| A 7A30M120622 | 12 | 6 | 1.27 | 22 (.865) |
| A 7A30M120635 | 12 | 6 | (.050) | 35 (1.377) |
| A 7A30M120822 | 12 | 8 | 0.89 | 22 (.865) |
| A 7A30M120835 | 12 | 8 | (.035) | 35 (1.377) |
| A 7A30M121022 | 12 | 10 | - | 22 (.865) |
| A 7A30M121035 | 12 | 10 | - | 35 (1.377) |
| A 7A30M141022 | 14 | 10 | 0.89 | 22 (.865) |
| A 7A30M141035 | 14 | 10 | (.035) | 35 (1.377) |
| A 7A30M141222 | 14 | 12 | - | 22 (.865) |
| A 7A30M141235 | 14 | 12 | - | 35 (1.377) |
| A 7A30M161022 | 16 | 10 | 1.27 | 22 (.865) |
| A 7A30M161035 | 16 | 10 | (.050) | 35 (1.377) |
| A 7A30M161222 | 16 | 12 | 0.89 | 22 (.865) |
| A 7A30M161235 | 16 | 12 | (.035) | 35 (1.377) |
| A 7A30M161422 | 16 | 14 | - | 22 (.865) |
| A 7A30M161435 | 16 | 14 | - | 35 (1.377) |

NOTE: Dimensions in () are inch sizes.



> MATERIAL:

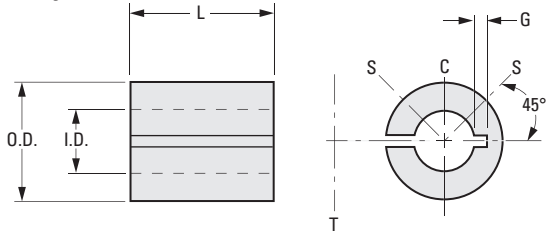
Aluminum or Brass where noted*

> INSTALLATION RECOMMENDATIONS:

- S = set screw positions in hub
- C = for single set screw fastening
- T = for tangential screw in clamp hub

> SPECIFICATIONS:

Bore reducers with thicker walls may have slot extending into opposite wall for additional flexibility. O.D. and I.D. tolerances are maintained before slitting.



INCH COMPONENT

| Catalog Number | O.D. +.0005 -.0010 in. | I.D. +0.025 0 mm | G Groove Depth in. | L in. (mm) |
|-----------------|---------------------------------|---------------------------|-----------------------------|------------------|
| A 7A30-250309 | .2500 | 3 | .025 | .354 (9) |
| A 7A30-250312 | .2500 | 3 | .025 | .472 (12) |
| A 7A30-250409 | .2500 | 4 | — | .354 (9) |
| A 7A30-250412 | .2500 | 4 | — | .472 (12) |
| A 7A30-250416 | .2500 | 4 | — | .625 (16) |
| A 7A30-250509 | .2500 | 5 | — | .354 (9) |
| A 7A30-250512 | .2500 | 5 | — | .472 (12) |
| A 7A30-250516 | .2500 | 5 | — | .625 (16) |
| A 7A30-250519 | .2500 | 5 | — | .750 (19) |
| * A 7B30-250609 | .2500 | 6 | — | .354 (9) |
| * A 7B30-250612 | .2500 | 6 | — | .472 (12) |
| * A 7B30-250616 | .2500 | 6 | — | .625 (16) |
| * A 7B30-250619 | .2500 | 6 | — | .750 (19) |
| * A 7B30-250622 | .2500 | 6 | — | .865 (22) |
| A 7A30-310609 | .3125 | 6 | — | .354 (9) |
| A 7A30-310612 | .3125 | 6 | — | .472 (12) |
| A 7A30-310616 | .3125 | 6 | — | .625 (16) |
| A 7A30-310619 | .3125 | 6 | — | .750 (19) |
| A 7A30-310622 | .3125 | 6 | — | .865 (22) |
| A 7A30-370512 | .3750 | 5 | .035 | .472 (12) |
| A 7A30-370612 | .3750 | 6 | .035 | .472 (12) |
| A 7A30-370616 | .3750 | 6 | .035 | .625 (16) |
| A 7A30-370619 | .3750 | 6 | .035 | .750 (19) |
| A 7A30-370622 | .3750 | 6 | .035 | .865 (22) |
| A 7A30-370812 | .3750 | 8 | — | .472 (12) |
| A 7A30-370816 | .3750 | 8 | — | .625 (16) |

| Catalog Number | O.D. +.0005 -.0010 in. | I.D. +0.025 0 mm | G Groove Depth in. | L in. (mm) |
|----------------|---------------------------------|---------------------------|-----------------------------|------------------|
| A 7A30-370819 | .3750 | 8 | — | .750 (19) |
| A 7A30-370822 | .3750 | 8 | — | .865 (22) |
| A 7A30-500812 | .5000 | 8 | .035 | .472 (12) |
| A 7A30-500816 | .5000 | 8 | .035 | .625 (16) |
| A 7A30-500819 | .5000 | 8 | .035 | .750 (19) |
| A 7A30-500822 | .5000 | 8 | .035 | .865 (22) |
| A 7A30-501012 | .5000 | 10 | — | .472 (12) |
| A 7A30-501016 | .5000 | 10 | — | .625 (16) |
| A 7A30-501019 | .5000 | 10 | — | .750 (19) |
| A 7A30-501022 | .5000 | 10 | — | .865 (22) |
| A 7A30-501212 | .5000 | 12 | — | .472 (12) |
| A 7A30-501216 | .5000 | 12 | — | .625 (16) |
| A 7A30-501219 | .5000 | 12 | — | .750 (19) |
| A 7A30-501222 | .5000 | 12 | — | .865 (22) |
| A 7A30-621012 | .6250 | 10 | .035 | .472 (12) |
| A 7A30-621016 | .6250 | 10 | .035 | .625 (16) |
| A 7A30-621019 | .6250 | 10 | .035 | .750 (19) |
| A 7A30-621022 | .6250 | 10 | .035 | .865 (22) |
| A 7A30-621212 | .6250 | 12 | — | .472 (12) |
| A 7A30-621216 | .6250 | 12 | — | .625 (16) |
| A 7A30-621219 | .6250 | 12 | — | .750 (19) |
| A 7A30-621222 | .6250 | 12 | — | .865 (22) |
| A 7A30-621412 | .6250 | 14 | — | .472 (12) |
| A 7A30-621416 | .6250 | 14 | — | .625 (16) |
| A 7A30-621419 | .6250 | 14 | — | .750 (19) |
| A 7A30-621422 | .6250 | 14 | — | .865 (22) |

NOTE: Dimensions in () are metric sizes.
* Brass

INTERNAL TOLERANCE RINGS



ALLOWS LOOSER TOLERANCE
 LOW COST ASSEMBLY
 MOUNTS BALL BEARINGS

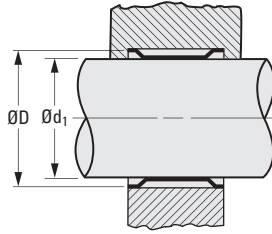
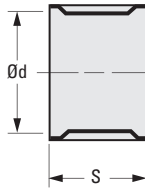
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> MATERIAL:
 301 Stainless Steel



CENTERED ARRANGEMENT
 (GROOVED HOUSING)



FREE ARRANGEMENT
 (NONGROOVED HOUSING)

METRIC COMPONENT

| Catalog Number | Ring Dimensions mm | | D Inner Member O.D. 0 -0.050 | d ₁ Outer Member I.D. mm | | Max. Radial Load Capacity N | Max. Design Torque N • m | Max. Design Thrust N |
|----------------|--------------------|----|------------------------------------|-------------------------------------|---------------------|-----------------------------|--------------------------|----------------------|
| | d | S | | For Mounting Ball Bearings | For Torque Transfer | | | |
| S77RY1M160X05 | 16 | 5 | 16 | 17.47/17.40 | 17.30/17.22 | 1110 | 3.95 | 495 |
| S77RY1M190X06 | 19 | 6 | 19 | 20.98/20.90 | 20.75/20.68 | 1870 | 6.78 | 715 |
| S77RY1M200X08 | 20 | 8 | 20 | 21.97/21.89 | 21.74/21.67 | 2490 | 11.86 | 1185 |
| S77RY1M200X16 | 20 | 16 | 20 | 21.97/21.89 | 21.74/21.67 | 4895 | 23.73 | 2770 |
| S77RY1M220X07 | 22 | 7 | 22 | 23.98/23.90 | 23.75/23.67 | 2445 | 15.25 | 1385 |
| S77RY1M220X10 | 22 | 10 | 22 | 23.98/23.90 | 23.75/23.67 | 3515 | 21.47 | 1950 |
| S77RY1M240X06 | 24 | 6 | 24 | 25.93/25.88 | 25.76/25.65 | 2315 | 13 | 1085 |
| S77RY1M240X07 | 24 | 7 | 24 | 25.93/25.88 | 25.76/25.65 | 2715 | 15.25 | 1270 |
| S77RY1M260X05 | 26 | 5 | 26 | 27.97/27.89 | 27.74/27.66 | 2135 | 13.56 | 1045 |
| S77RY1M260X08 | 26 | 8 | 26 | 27.97/27.89 | 27.74/27.66 | 3425 | 21.47 | 1650 |
| S77RY1M280X08 | 28 | 8 | 28 | 30.00/29.90 | 29.74/29.67 | 3135 | 26.55 | 1895 |
| S77RY1M300X09 | 30 | 9 | 30 | 31.98/31.90 | 31.75/31.67 | 4360 | 31.07 | 2070 |
| S77RY1M300X13 | 30 | 13 | 30 | 31.98/31.90 | 31.75/31.67 | 6225 | 44.07 | 2935 |
| S77RY1M320X10 | 32 | 10 | 32 | 33.98/33.88 | 33.71/33.60 | 2980 | 37.85 | 2365 |
| S77RY1M350X10 | 35 | 10 | 35 | 36.98/36.88 | 36.70/36.60 | 3335 | 42.94 | 2455 |
| S77RY1M350X11 | 35 | 11 | 35 | 36.98/36.88 | 36.70/36.60 | 3645 | 47.46 | 2710 |
| S77RY1M400X07 | 40 | 7 | 40 | 41.99/41.88 | 41.71/41.60 | 2670 | 45.76 | 2290 |
| S77RY1M400X12 | 40 | 12 | 40 | 41.99/41.88 | 41.71/41.60 | 4450 | 72.32 | 3615 |
| S77RY1M400X16 | 40 | 16 | 40 | 41.99/41.88 | 41.71/41.60 | 6225 | 91.53 | 4575 |
| S77RY1M420X07 | 42 | 7 | 42 | 43.97/43.87 | 43.69/43.59 | 2760 | 48.59 | 2315 |
| S77RY1M420X13 | 42 | 13 | 42 | 43.97/43.87 | 43.69/43.59 | 5540 | 79.66 | 3795 |



INTERNAL TOLERANCE RINGS

SDP/SI

FOR MOUNTING SMALL,
INSTRUMENT BEARINGS
LIGHT DUTY

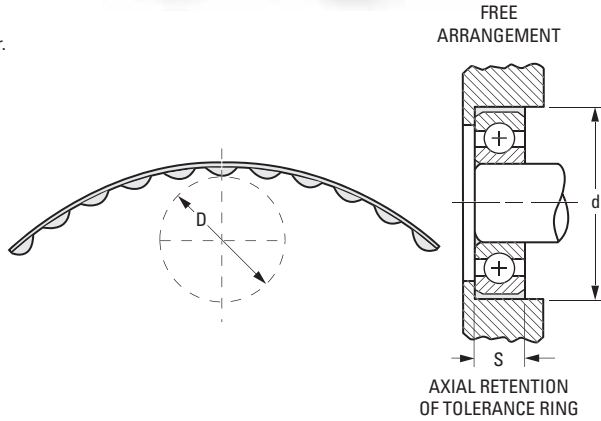
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> MATERIAL:
301 Stainless Steel

> FEATURES:
Allows looser tolerances.
Prevents loss of retention of steel
bearings in aluminum housings.
Easier, low cost assembly.
Open free state.

Other sizes available on special order.



METRIC COMPONENT

| Catalog Number | D Nominal Bearing O.D. | S Nominal Bearing Width mm | d Recommended Housing Bore mm | Radial Load Capacity N |
|----------------|---------------------------------|--|--|------------------------------|
| S77RY1ML127X05 | 12.7 | 5 | 13.38/13.33 | 25 |
| S77RY1ML160X05 | 16 | 5 | 16.69/16.64 | 35 |
| S77RY1ML220X07 | 22 | 7 | 22.66/22.61 | 60 |
| S77RY1ML220X10 | 22 | 10 | 22.66/22.61 | 95 |
| S77RY1ML240X10 | 24 | 10 | 24.66/24.61 | 100 |
| S77RY1ML260X08 | 26 | 8 | 26.67/26.62 | 85 |
| S77RY1ML320X10 | 32 | 10 | 32.66/32.61 | 135 |
| S77RY1ML350X11 | 35 | 11 | 35.69/35.64 | 160 |
| S77RY1ML400X12 | 40 | 12 | 40.69/40.64 | 200 |
| S77RY1ML470X14 | 47 | 14 | 47.67/47.62 | 290 |
| S77RY1ML520X15 | 52 | 15 | 52.68/52.63 | 335 |

FASTLOCK SHAFT COLLARS

SDP/SI

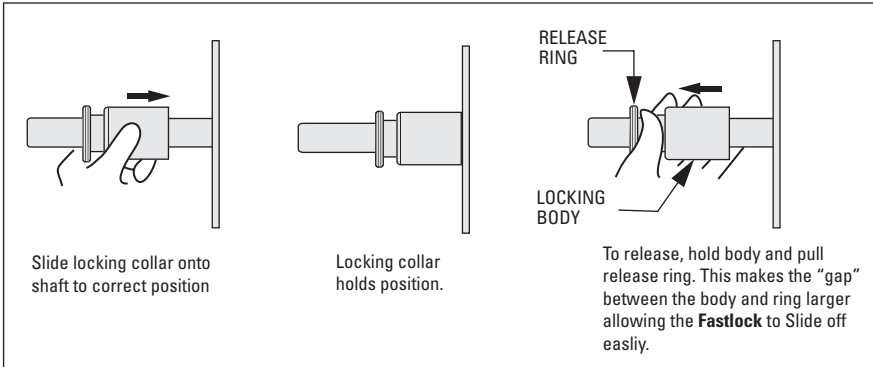
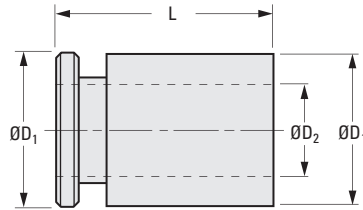
NO TOOLS NEEDED
USABLE FOR NONHARDENED SHAFTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Inner Body - 303 Stainless Steel
- Outer Sleeve - 303 Stainless Steel
- Balls - 440C Stainless Steel
- Spring - 302 Stainless Steel



METRIC COMPONENT

| Catalog Number | D ₁ Dia. | D ₂ Shaft Dia. +0.03 -0.35 | L Overall Length | Weight kg |
|----------------|---------------------|---|------------------|-----------|
| S25FLYM0394 | 22 | 10 | 45 | 0.08 |
| S25FLYM0591 | 28 | 15 | 45 | 0.13 |
| S25FLYM0630 | 28 | 16 | 45 | 0.12 |
| S25FLYM0787 | 37 | 20 | 45 | 0.22 |
| S25FLYM0866 | 37 | 22 | 45 | 0.20 |
| S25FLYM0984 | 37 | 25 | 45 | 0.16 |
| S25FLYM1181 | 50 | 30 | 45 | 0.34 |
| S25FLYM1260 | 57 | 32 | 48 | 0.52 |
| S25FLYM1380 | 57 | 35 | 48 | 0.46 |
| S25FLYM1575 | 60 | 40 | 48 | 0.42 |

U.S. PATENT #4893810
 ABSORBS VIBRATION AND SHOCK
 SELF-LOCKING
 QUICK RELEASE
 EASY MOUNTING
 NO TOOLS NEEDED

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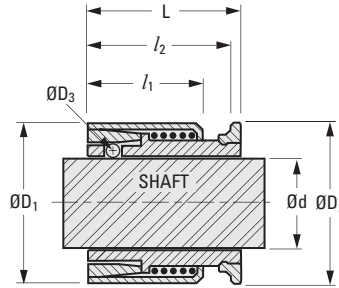


› **MATERIAL:**

Inner Body - ABS Plastic
 Outer Sleeve - ABS Plastic
 Retention Ring - Steel
 Balls and Springs - Steel

› **SPECIFICATION:**

Load Capacity: 2669 N



Shown with shaft in place (not supplied)

METRIC COMPONENT

| Catalog Number * | D ₁ Outer Sleeve | d Shaft Dia. Ref. | D ₂ Cap O.D. | D ₃ Ball Dia. | l ₁ Sleeve Length | l ₂ | L Overall Length |
|------------------|-----------------------------------|-------------------------|-------------------------------|--------------------------------|------------------------------------|----------------|------------------------|
| A 7Z34M0157MC | 14.17 | 4 | 15.44 | 2.77 | 16.2 | 21.33 | 23.88 |
| A 7Z34M0196MC | 14.17 | 5 | 15.44 | 1.4 | 16.2 | 21.33 | 23.88 |
| A 7Z34M0236MC | 18.87 | 6 | 19.91 | 2.54 | 16.2 | 25.4 | 25.65 |
| A 7Z34M0315MC | 18.87 | 8 | 19.91 | 1.6 | 16.2 | 25.4 | 25.65 |
| A 7Z34M0375MC | 28.12 | 10 | 29.21 | 4.75 | 20.32 | 22.99 | 26.8 |
| A 7Z34M0472MC | 28.12 | 12 | 29.21 | 3.56 | 20.32 | 22.99 | 26.8 |
| A 7Z34M0562MC | 35.56 | 14 | 36.07 | 5.54 | 25.4 | 33.15 | 37.08 |
| A 7Z34M0620MC | 35.56 | 16 | 36.07 | 4.75 | 25.4 | 33.15 | 37.08 |
| A 7Z34M0787MC | 35.56 | 20 | 36.07 | 2.77 | 25.4 | 33.15 | 37.08 |
| A 7Z34M0866MC | 47.24 | 22 | 48.51 | 7.54 | 33.66 | 45.72 | 50.93 |
| A 7Z34M1000MC | 47.24 | 25 | 48.51 | 5.94 | 33.66 | 45.72 | 50.93 |
| A 7Z34M1102MC | 47.24 | 28 | 48.51 | 3.96 | 33.66 | 45.72 | 50.93 |
| A 7Z34M1181MC | 54.61 | 30 | 54.61 | 7.54 | 34.04 | 44.07 | 46.36 |
| A 7Z34M1250MC | 54.61 | 32 | 54.61 | 6.35 | 34.04 | 44.07 | 46.36 |
| A 7Z34M1375MC | 54.61 | 35 | 54.61 | 4.75 | 34.04 | 44.07 | 46.36 |
| A 7Z34M2000MC | 69.09 | 50 | 75.06 | 4.04 | 33.91 | 47.63 | 52.96 |
| A 7Z34M2750MC | 95.89 | 70 | 95.76 | 7.92 | 40.64 | 47.37 | 50.8 |

* To be discontinued when present stock is depleted.

REV: 02.09.2012 JC



WITH INTEGRAL BEARING SHIM SPACER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

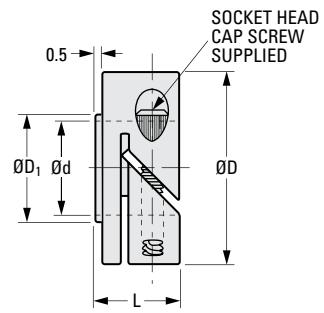
Brass, Black Oxide Finish
303 Stainless Steel

> FEATURES:

No shim spacers required.
Used to preload bearing.
Fairloc® eliminates marred shafts.
More holding strength than set screw collars.

> SPECIFICATION:

* Bore Tolerances:
3 mm +0.014/0
4, 5 & 6 mm +0.018/0
8 & 10 mm +0.022/0
12 & 15 mm +0.027/0
20 mm +0.033/0



METRIC COMPONENT

| Catalog Number | | Shaft Size | d* Bore H8 | D Dia. | L | D ₁ Dia. | Screw Size |
|---------------------|---------------------|------------|---------------|-----------|----|------------------------|------------|
| Brass - Black Oxide | 303 Stainless Steel | | | | | | |
| S25FB9MPC0311 | S25FY9MPC0311 | 3 | 3 | 11 | 7 | 5 | M2 |
| S25FB9MPC0412 | S25FY9MPC0412 | 4 | 4 | 12.5 | | 6 | |
| S25FB9MPC0516 | S25FY9MPC0516 | 5 | 5 | 16 | 9 | 7 | M2.5 |
| S25FB9MPC0616 | S25FY9MPC0616 | 6 | 6 | | | 8 | |
| S25FB9MPC0822 | S25FY9MPC0822 | 8 | 8 | 22 | 11 | 10 | M3 |
| S25FB9MPC1025 | S25FY9MPC1025 | 10 | 10 | 25 | | 12 | |
| S25FB9MPC1225 | S25FY9MPC1225 | 12 | 12 | 30 | | 14 | |
| S25FB9MPC1530 | S25FY9MPC1530 | 15 | 15 | 30 | 16 | 19 | M4 |
| S25FB9MPC2038 | S25FY9MPC2038 | 20 | 20 | 38 | | 22 | M5 |

NOTE: Fairloc® collars require controlled shaft tolerances. Suggested tolerance according to g6, h6 or h7.



SET SCREW SHAFT COLLARS

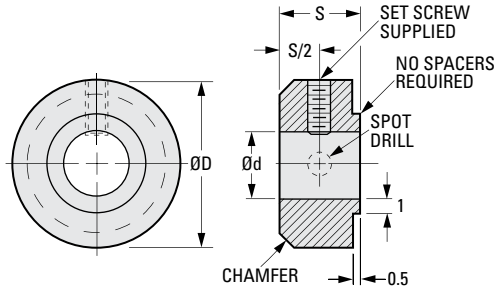
SDP/SI

WITH INTEGRAL BEARING SHIM SPACER
NO SHIM SPACERS REQUIRED
USED TO PRELOAD BEARING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
303 Stainless Steel



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Shaft Size | d Bore +0.013 0 | D Dia. | S Width | Set Screw |
|----------------|------------|-----------------------|--------|---------|-----------|
| S25CY9MPC0308 | 3 | 3.003 | 8 | 4 | M2 |
| S25CY9MPC0410 | 4 | 4.003 | 10 | 5 | M3 |
| S25CY9MPC0512 | 5 | 5.003 | 12 | | |
| S25CY9MPC0612 | 6 | 6.003 | 16 | 6 | M4 |
| S25CY9MPC0716 | 7 | 7.003 | | | |
| S25CY9MPC0816 | 8 | 8.003 | 19 | 10 | M5 |
| S25CY9MPC1019 | 10 | 10.003 | | | |
| S25CY9MPC1219 | 12 | 12.003 | 32 | 12 | M6 |
| S25CY9MPC1532 | 15 | 15.003 | | | |
| S25CY9MPC1632 | 16 | 16.003 | 38 | 14 | M8 |
| S25CY9MPC1938 | 19 | 19.003 | | | |
| S25CY9MPC2038 | 20 | 20.003 | | | |

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SET SCREW COLLARS

SDP/SI

LIGHT-DUTY
HEAVY-DUTY
EQUIVALENT TO DIN 705A

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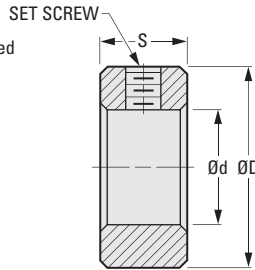


> MATERIAL:

- Light-Duty - Steel, Oiled
- Heavy-Duty - Steel, Zinc Plated or 303 Stainless Steel, Clear Passivated

> SPECIFICATION:

- Width tolerances from 3.5 to 6 mm ± 0.15
- 8 & 10 mm ± 0.18
- 12 mm ± 0.22



METRIC COMPONENT

| Catalog Number | d Bore | D Dia. | S Width | Set Screw |
|---------------------|--------|--------|---------|-----------|
| Light-Duty * | | | | |
| A 7C 2M107030 | 3 | 7 | 5 | M2 |
| A 7C 2M108040 | 4 | 8 | | M2.5 |
| A 7C 2M110050 | 5 | 10 | 6 | M3 |
| A 7C 2M112060 | 6 | 12 | | M4 |
| A 7C 2M112070 | 7 | 12 | 8 | M4 |
| A 7C 2M116080 | 8 | 16 | | |
| A 7C 2M118090 | 9 | 18 | 10 | M5 |
| A 7C 2M120100 | 10 | 20 | | |
| A 7C 2M120110 | 11 | 20 | 12 | M6 |
| A 7C 2M122120 | 12 | 22 | | |
| A 7C 2M125140 | 14 | 25 | 12 | M6 |
| A 7C 2M125150 | 15 | 25 | | |
| A 7C 2M128160 | 16 | 28 | | |

* Light-duty collars have a chamfer on one side only.

| Catalog Number | | d Bore | D Dia. | S Width | Set Screw |
|--------------------|---------------------|--------|--------|---------|-----------|
| Steel, Zinc Plated | 303 Stainless Steel | | | | |
| Heavy-Duty | | | | | |
| — | A 7X 2M106015 | 1.5 | 6 | 3.5 | M1.6 |
| — | A 7X 2M107020 | 2 | | | |
| — | A 7X 2M107025 | 2.5 | 7 | 4 | M2 |
| — | A 7X 2M107030 | 3 | | | |
| A 7Z 2M109020 | A 7X 2M109020 | 2 | 9 | 3.5 | M2 |
| A 7Z 2M109025 | A 7X 2M109025 | 2.5 | | | |
| A 7Z 2M109030 | A 7X 2M109030 | 3 | 9.5 | 5 | M2.5 |
| — | A 7X 2M110940 | 4 | | | |
| A 7Z 2M111040 | A 7X 2M111040 | 4 | 11 | 6 | M3 |
| A 7Z 2M111050 | A 7X 2M111050 | 5 | | | |
| — | A 7X 2M111250 | 5 | 12.7 | 8 | M4 |
| — | A 7X 2M111460 | 6 | 14 | | |
| A 7Z 2M116060 | A 7X 2M116060 | 6 | 16 | 10 | M5 |
| A 7Z 2M116070 | A 7X 2M116070 | 7 | | | |
| A 7Z 2M116080 | A 7X 2M116080 | 8 | 20 | 12 | M6 |
| A 7Z 2M120090 | A 7X 2M120090 | 9 | | | |
| A 7Z 2M120100 | A 7X 2M120100 | 10 | 24 | 12 | M6 |
| A 7Z 2M124120 | A 7X 2M124120 | 12 | | | |

ONE- AND TWO-PIECE CLAMP-TYPE COLLARS

SDP/SI

EASY INSTALLATION
WON'T MAR SHAFT

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➤ MATERIAL:

304 Stainless Steel

➤ SPECIFICATION:

Shaft Tolerance:

- 3 mm 0/-0.007
- 4 to 6 mm 0/-0.012
- 8 & 10 mm 0/-0.015
- 12 to 18 mm 0/-0.018
- 20 & 25 mm 0/-0.021

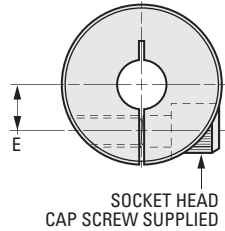
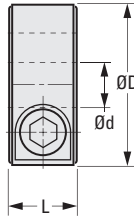


Fig. 1
One-Piece Clamp

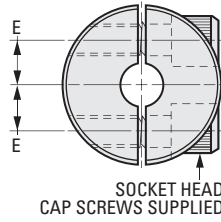
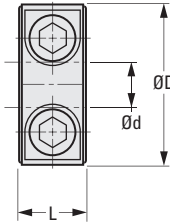


Fig. 2
Two-Piece Clamp

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | Shaft Size h7 | d Bore | D Dia. ± 0.1 | L ± 0.1 | E | Set Screw | Weight g | |
|---------------------------|---------------------------|------------------|-----------|--------------------|------------|-----|--------------|-------------|--------|
| Fig. 1 One-Piece Clamp | Fig. 2 Two-Piece Clamp | | | | | | | Fig. 1 | Fig. 2 |
| S25NSCM1S0308 | S25NSCM2S0308 | 3 | 3 | 15 | 8 | 4.5 | M3 | 9 | 9 |
| S25NSCM1S0408 | S25NSCM2S0408 | 4 | 4 | 15 | 8 | 4.5 | M3 | 9 | 9 |
| S25NSCM1S0508 | S25NSCM2S0508 | 5 | 5 | 20 | 8 | 5.5 | M3 | 16 | 16 |
| S25NSCM1S0608 | S25NSCM2S0608 | 6 | 6 | 20 | 8 | 6 | M3 | 16 | 16 |
| S25NSCM1S0808 | S25NSCM2S0808 | 8 | 8 | 25 | 8 | 8 | M3 | 24 | 24 |
| S25NSCM1S1010 | S25NSCM2S1010 | 10 | 10 | 30 | 10 | 9 | M4 | 44 | 42 |
| S25NSCM1S1210 | S25NSCM2S1210 | 12 | 12 | 30 | 10 | 10 | M4 | 42 | 40 |
| S25NSCM1S1310 | S25NSCM2S1310 | 13 | 13 | 30 | 10 | 10 | M4 | 40 | 38 |
| S25NSCM1S1512 | S25NSCM2S1512 | 15 | 15 | 35 | 12 | 12 | M5 | 68 | 66 |
| S25NSCM1S1612 | S25NSCM2S1612 | 16 | 16 | 35 | 12 | 12 | M5 | 66 | 64 |
| S25NSCM1S1715 | S25NSCM2S1715 | 17 | 17 | 40 | 15 | 13 | M6 | 108 | 102 |
| S25NSCM1S1815 | S25NSCM2S1815 | 18 | 18 | 45 | 15 | 15 | M6 | 140 | 132 |
| S25NSCM1S2015 | S25NSCM2S2015 | 20 | 20 | 45 | 15 | 15 | M6 | 144 | 129 |
| S25NSCM1S2515 | S25NSCM2S2515 | 25 | 25 | 50 | 15 | 18 | M6 | 164 | 155 |

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PADDED ONE-PIECE CLAMP-TYPE COLLARS

SDP/SI

SHOCK-ABSORBING PAD
WON'T MAR SHAFT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



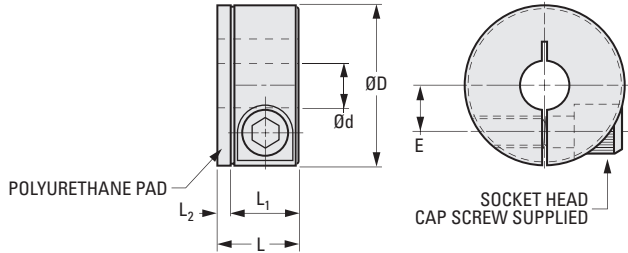
> MATERIAL:

Body - Carbon Steel, Black Chromate Finish
or 304 Stainless Steel

Pad - Polyurethane

> SPECIFICATION:

Shaft Tolerance:
3 mm 0/-0.007
4 to 6 mm 0/-0.012
8 & 10 mm 0/-0.015
12 to 18 mm 0/-0.018
20 & 25 mm 0/-0.021



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | | Shaft Size h7 | d Bore | D Dia. ± 0.1 | L | L ₁ ± 0.1 | L ₂ | E | Screw Size | Weight g |
|------------------|-----------------|------------------|-----------|--------------------|----|-------------------------|----------------|-----|------------|-------------|
| Carbon Steel | Stainless Steel | | | | | | | | | |
| S25NSPM1C0310 | S25NSPM1S0310 | 3 | 3 | 15 | 10 | 8 | 2 | 4.5 | M3 | 2.8 |
| S25NSPM1C0410 | S25NSPM1S0410 | 4 | 4 | 15 | 10 | 8 | 2 | 4.5 | M3 | 2.7 |
| S25NSPM1C0512 | S25NSPM1S0512 | 5 | 5 | 20 | 12 | 10 | 2 | 6 | M4 | 4.8 |
| S25NSPM1C0612 | S25NSPM1S0612 | 6 | 6 | 20 | 12 | 10 | 2 | 6 | M4 | 4.7 |
| S25NSPM1C0818 | S25NSPM1S0818 | 8 | 8 | 30 | 18 | 15 | 3 | 9 | M6 | 16 |
| S25NSPM1C1018 | S25NSPM1S1018 | 10 | 10 | 35 | 18 | 15 | 3 | 10 | M6 | 22 |
| S25NSPM1C1218 | S25NSPM1S1218 | 12 | 12 | 35 | 18 | 15 | 3 | 11 | M6 | 21 |
| S25NSPM1C1318 | S25NSPM1S1318 | 13 | 13 | 35 | 18 | 15 | 3 | 11 | M6 | 20 |
| S25NSPM1C1518 | S25NSPM1S1518 | 15 | 15 | 40 | 18 | 15 | 3 | 13 | M6 | 27 |
| S25NSPM1C1618 | S25NSPM1S1618 | 16 | 16 | 40 | 18 | 15 | 3 | 13 | M6 | 26 |
| S25NSPM1C1718 | S25NSPM1S1718 | 17 | 17 | 40 | 18 | 15 | 3 | 13 | M6 | 25 |
| S25NSPM1C1818 | S25NSPM1S1818 | 18 | 18 | 45 | 18 | 15 | 3 | 15 | M6 | 33 |
| S25NSPM1C2020 | S25NSPM1S2020 | 20 | 20 | 45 | 20 | 15 | 5 | 15 | M6 | 52 |
| S25NSPM1C2520 | S25NSPM1S2520 | 25 | 25 | 50 | 20 | 15 | 5 | 18 | M6 | 61 |

* To be discontinued when present stock is depleted.

PADDED TWO-PIECE CLAMP-TYPE COLLARS

SDP/SI

SHOCK-ABSORBING PAD
EASY INSTALLATION
WON'T MAR SHAFT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

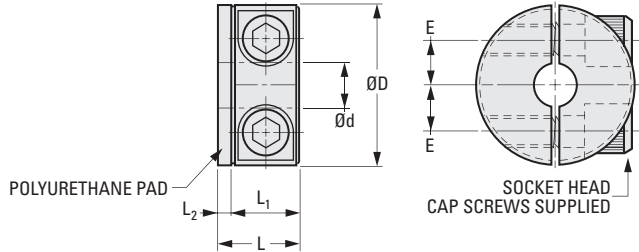


> MATERIAL:

Body - Carbon Steel, Black Chromate Finish
Pad - Polyurethane

> SPECIFICATION:

Shaft Tolerance:
8 & 10 mm 0/-0.015
12 & 15 mm 0/-0.018
20 & 25 mm 0/-0.021



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Shaft Size h7 | d Bore | D Dia. ± 0.1 | L | L ₁ ± 0.1 | L ₂ | E | Screw Size | Weight g |
|------------------|------------------|-----------|--------------------|----|-------------------------|----------------|----|------------|-------------|
| S25NSPM2C0818 | 8 | 8 | 30 | 18 | 15 | 3 | 9 | M6 | 15 |
| S25NSPM2C1018 | 10 | 10 | 35 | 18 | 15 | 3 | 10 | M6 | 21 |
| S25NSPM2C1218 | 12 | 12 | 35 | 18 | 15 | 3 | 11 | M6 | 20 |
| S25NSPM2C1518 | 15 | 15 | 40 | 18 | 15 | 3 | 13 | M6 | 25 |
| S25NSPM2C2020 | 20 | 20 | 45 | 20 | 15 | 5 | 15 | M6 | 30 |
| S25NSPM2C2520 | 25 | 25 | 50 | 20 | 15 | 5 | 18 | M6 | 35 |

* To be discontinued when present stock is depleted.

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SHAFT COLLARS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

EASY & PRECISE STROKE ADJUSTMENT
UP TO 11.1 mm FINE STROKE ADJUSTMENT

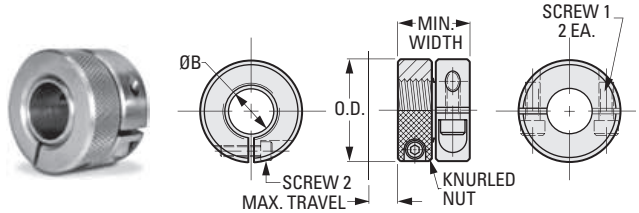


MATERIAL:

Stainless Steel or Carbon Steel, Black Oxide

SPECIFICATION:

** Recommended Tolerances for mating shaft diameter (h6):
6 mm 0/-0.008
8 & 10 mm 0/-0.009
12 & 16 mm 0/-0.011
20, 25 & 30 mm 0/-0.013



METRIC COMPONENT

| Catalog Number | | B** Dia. | O.D. | Min. Width | Max.* Travel | Screw 1 | Screw 2 | Max. Axial Load Capacity kgf | |
|-----------------|---------------------------|----------|------|------------|--------------|---------|---------|------------------------------|-------|
| Stainless Steel | Carbon Steel, Black Oxide | | | | | | | Stainless Steel | Steel |
| S21SACM06159 | S21SACM06159S | 6 | 15.9 | 12 | 4.8 | M2.5 | M2 | 170 | 300 |
| S21SACM08190 | S21SACM08190S | 8 | 19 | 12 | 4 | M2.5 | M2 | 120 | 280 |
| S21SACM10222 | S21SACM10222S | 10 | 22.2 | 12 | 4 | M2.5 | M2 | 170 | 310 |
| S21SACM12286 | S21SACM12286S | 12 | 28.6 | 19.1 | 7.9 | M4 | M2.5 | 260 | 890 |
| S21SACM16333 | S21SACM16333S | 16 | 33.3 | 19.1 | 7.9 | M4 | M3 | 410 | 1230 |
| S21SACM20381 | S21SACM20381S | 20 | 38.1 | 22.2 | 9.5 | M5 | M3 | 670 | 1730 |
| S21SACM25445 | S21SACM25445S | 25 | 44.5 | 22.2 | 9.5 | M5 | M4 | 670 | 1780 |
| S21SACM30524 | S21SACM30524S | 30 | 52.4 | 25.4 | 11.1 | M5 | M4 | 750 | 1850 |

* Max. Width = Min. Width + Max. Travel

RUBBER BUMPERS

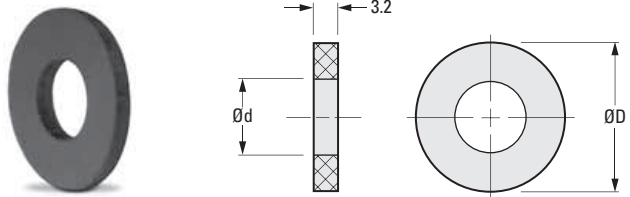
SHOCK ABSORBER FOR COMPRESSION LOADS
OIL- AND CHEMICAL-RESISTANT

MATERIAL:

Buna N70 Durometer

OPERATING TEMPERATURE:

-29°C to +121°C



METRIC COMPONENT

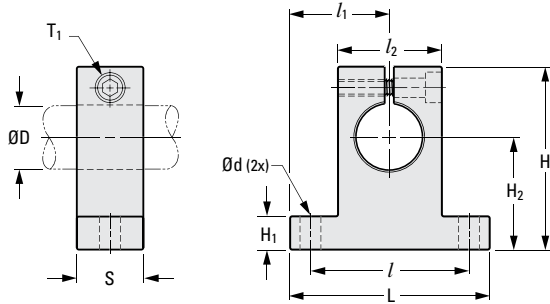
| Catalog Number | d Bore | D Dia. |
|----------------|--------|--------|
| S79RUBM06159 | 6 | 15.9 |
| S79RUBM08190 | 8 | 19 |
| S79RUBM10222 | 10 | 22.2 |
| S79RUBM12286 | 12 | 28.6 |
| S79RUBM16333 | 16 | 33.3 |
| S79RUBM20381 | 20 | 38.1 |
| S79RUBM25445 | 25 | 44.5 |
| S79RUBM30524 | 30 | 52.4 |

BASE MOUNT SHAFT SUPPORT

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> **MATERIAL:**

Housing - Cast Aluminum
Clamping Screw (Supplied) - Steel



The projections shown are per ISO convention.

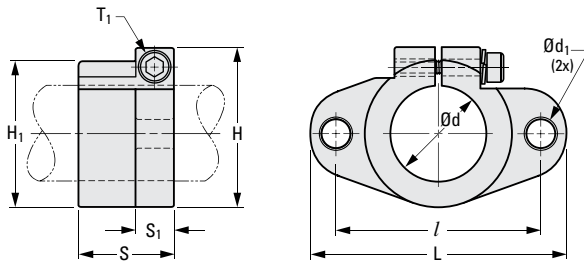
METRIC COMPONENT

| Catalog Number | D Shaft Dia. | L Lgth. | H Hgt. | H ₁ | H ₂ ± 0.02 | l | L ₁ ± 0.05 | L ₂ | S | d Dia. | Mounting Screw Ref. | T ₁ Clamping Screw |
|----------------|--------------|---------|--------|----------------|-----------------------|-----|-----------------------|----------------|----|--------|---------------------|-------------------------------|
| S64SBAM101433 | 10 | 42 | 33 | 6 | 20 | 32 | 21 | 18 | 14 | 5.5 | M5 | M4 |
| S64SBAM121438 | 12 | 42 | 38 | 6 | 23 | 32 | 21 | 20 | 14 | 5.5 | M5 | M4 |
| S64SBAM161644 | 16 | 48 | 44 | 8 | 27 | 38 | 24 | 25 | 16 | 5.5 | M5 | M4 |
| S64SBAM202051 | 20 | 60 | 51 | 10 | 31 | 45 | 30 | 30 | 20 | 6.6 | M6 | M5 |
| S64SBAM252460 | 25 | 70 | 60 | 12 | 35 | 56 | 35 | 38 | 24 | 6.6 | M6 | M6 |
| S64SBAM302870 | 30 | 84 | 70 | 12 | 42 | 64 | 42 | 44 | 28 | 9 | M8 | M6 |
| S64SBAM403696 | 40 | 114 | 96 | 15 | 60 | 90 | 57 | 60 | 36 | 11 | M10 | M8 |
| S64SBAM5040C0 | 50 | 126 | 120 | 18 | 70 | 100 | 63 | 74 | 40 | 14 | M12 | M12 |

FLANGE MOUNT SHAFT SUPPORT

> **MATERIAL:**

Housing - Cast Aluminum
Clamping Screw (Supplied) - Steel



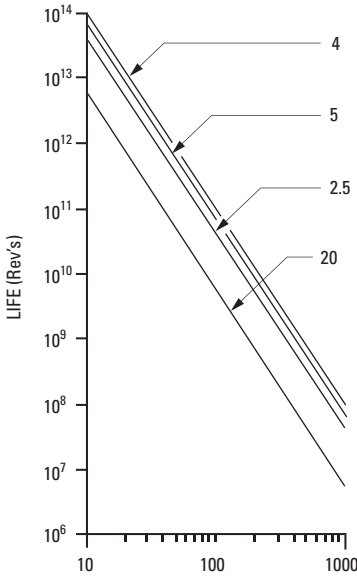
The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore | L Length | H Height | H ₁ | l | S | S ₁ | d ₁ Dia. | Mounting Screw Ref. | T ₁ Clamping Screw |
|----------------|--------|----------|----------|----------------|----|----|----------------|---------------------|---------------------|-------------------------------|
| S61SFAM101024 | 10 | 43 | 24 | 20 | 32 | 10 | 7.5 | 5.5 | M5 | M4 |
| S61SFAM121328 | 12 | 47 | 28 | 25 | 36 | 13 | 7.5 | 5.5 | M5 | M4 |
| S61SFAM161631 | 16 | 50 | 31 | 28 | 40 | 16 | 7.5 | 5.5 | M5 | M4 |
| S61SFAM202037 | 20 | 60 | 37 | 34 | 48 | 20 | 9 | 7 | M6 | M5 |
| S61SFAM252542 | 25 | 70 | 42 | 40 | 56 | 25 | 10 | 7 | M6 | M5 |



LIFE EXPECTANCY



SPECIFICATIONS

| Pitch | Diameter | Number of Ball Circuits | Axial Load (N) | |
|-------|----------|-------------------------|---------------------------|--------|
| | | | Dynamic (C _a) | Static |
| 2.5 | 2 | 4 | 3500 | 5500 |
| 4 | 2.5 | 2 | 2600 | 4200 |
| 5 | 3.5 | 2 | 4600 | 7200 |
| 10 | 3.5 | 2 | 4200 | 6500 |
| 20 | 3.5 | 2 | 1900 | 2500 |

$$L = \left[\frac{C_a}{F_m} \right]^3 \times 10^6$$

L = life expectancy expressed in number of revolutions

C_a = dynamic load rating (N), see specifications table

F_m = average axial load (N)

Example: For 10 mm pitch screw, C_a = 4200 N carrying an average axial load, F_m = 200 N (45 lbs.) the expected life is:

$$L = \left[\frac{4200}{200} \right]^3 \times 10^6 = 9.261 \times 10^9 \text{ revolutions.}$$

At an average of 1000 rpm this will result in:

$$\frac{9.261 \times 10^9 \text{ revolutions}}{1000 \text{ rpm}} \times \frac{1 \text{ hour}}{60 \text{ minutes}} = 154,000 \text{ hours}$$

of expected operational life. Note that the nature of the motion (jerky, smooth, etc.) will affect the life expectancy.

FORCE / TORQUE

$$M = \frac{F \times p}{2000 \times \pi \times 0.9}$$

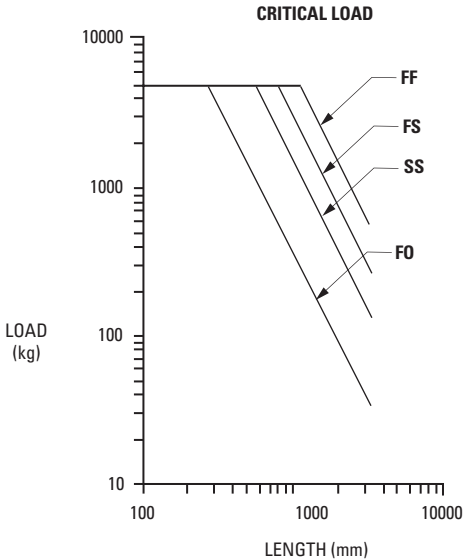
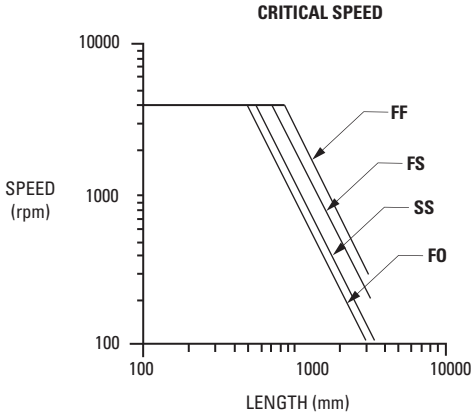
M = torque applied to screw (Nm)

p = screw pitch (mm)

F = resulting linear force (N)

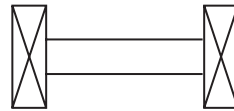
Example: For a force of 200 N (45 lbs.) with a 10 mm pitch screw, the required torque is:

$$M = \frac{200 \times 10}{2000 \times \pi \times 0.9} = 0.35 \text{ Nm} \approx 50 \text{ oz. in.}$$



BEARING SUPPORT TYPES

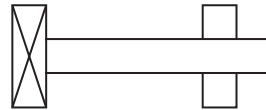
FF - Fixed, Fixed



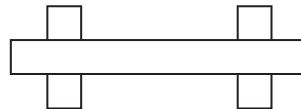
FO - Fixed, Open



FS - Fixed, Simple



SS - Simple, Simple



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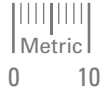
A

BALL SCREWS



HIGH LIFE EXPECTANCY
EXCELLENT COST PERFORMANCE RATIO

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> MATERIAL:

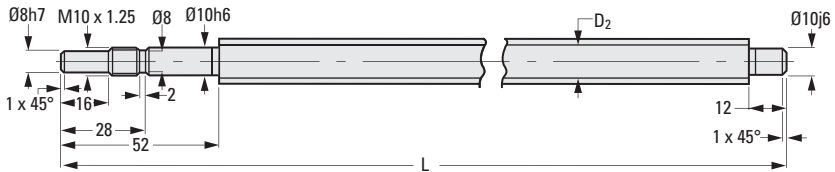
Cf 53 induction-hardened to HRC 62 ± 2

> SPECIFICATIONS:

Pitch accuracy ≤ 0.1 mm / 300 mm,
ISO class 7.
Screw pitches of 2.5, 4, 5, 10 and 20 mm.
Available with machined and unmachined
ends in lengths up to 3 m.
Ø16 mm, rolled and polished.

Produce greater than 90% efficiency in
converting rotary to linear motion.

Machined screws are designed to be held
by a double bearing on one side and on the
other side by either a floating bearing, or no
bearing and a guiding ball nut.



Root Diameter: $D_2 = 12.98$ for 5, 10, 20 mm Pitch
 $D_2 = 13.34$ for 2.5 mm Pitch

METRIC COMPONENT CATALOG NUMBER

S 6 5 1 3 H M **L** **2**

Machining
0 – Unmachined
2 – Machined

Pitch Code (mm)
025 – 2.5
040 – 4
050 – 5
100 – 10
200 – 20

Length L**
Code Length (mm)
045 – 452
* 055 – 552
065 – 652
* 075 – 752
085 – 852
* 095 – 952
105 – 1052

* These lengths are available machined only.

** Longer ball screws available on special request.

THIS ISEL BALL NUT IS PATENTED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Ball Nut - Steel, Cf 53, ground, polished and hardened to HRC 62 ± 2



> SPECIFICATIONS:

Ball nut is 50 mm long by 28 mm diameter. 2 optional mounting brackets allow for flange mounting or base mounting. Both feature standard lubrication ports and are made of steel with a black oxide finish. Available in 2.5, 5, 10 and 20 mm pitch. Repeatability < 0.01 mm, accuracy < 0.1 mm/300 mm when used with our sleeve. Optional wipers available. Compatible with 16 mm diameter ball screws. See index under **Ball Screws**.

Produce greater than 90% efficiency in converting rotary to linear or linear to rotary motion.



Fig. 1



Fig. 2

Fig. 3

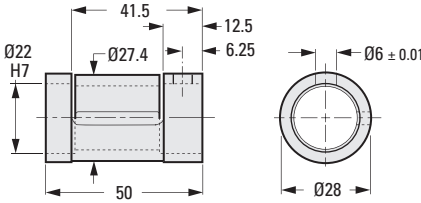


Fig. 1

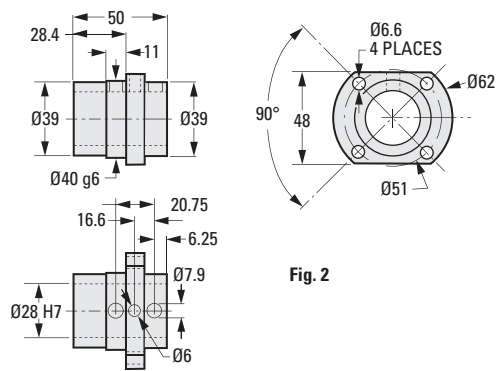


Fig. 2

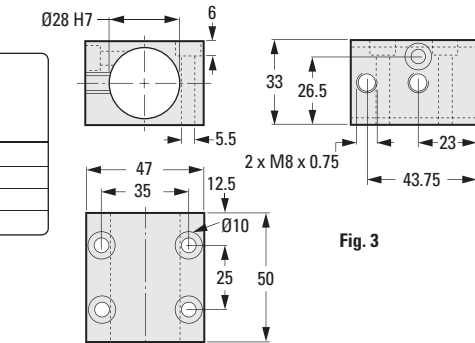


Fig. 3

METRIC COMPONENT

| Catalog Number Fig. 1 | Pitch |
|--------------------------|-------|
| S6652HM2135025 | 2.5 |
| S6652HM2135050 | 5 |
| S6652HM2135100 | 10 |
| S6652HM2135200 | 20 |

Catalog Number

| |
|--------------------------------|
| FLANGE MOUNTING BLOCK (Fig. 2) |
| S6652HMF2135 |
| BASE MOUNTING BLOCK (Fig. 3) |
| S6652HMB2135 |
| WIPERS (not shown) |
| S6652HMW6135 |

SERIES 1 ANTI-BACKLASH BALL NUTS



THIS ISEL BALL NUT IS A PATENTED ANTI-BACKLASH DESIGN

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Balls** - Hardened Steel HRC 63 ± 2
- Ball Nut** - Steel, Cf 53, ground, polished and hardened to HRC 62 ± 2

> SPECIFICATIONS:

Repeatability of 0.01 mm and accuracy of 0.1 mm/300 mm when used with our ball screws.
Blank shaft is used to retain balls during shipment.
Can be used with 16 mm ball screws; see index.
Available in 2 heights of 25.3 mm and 28.5 mm.



Fig. 1



Fig. 2

Photographed with blank shaft to retain balls.

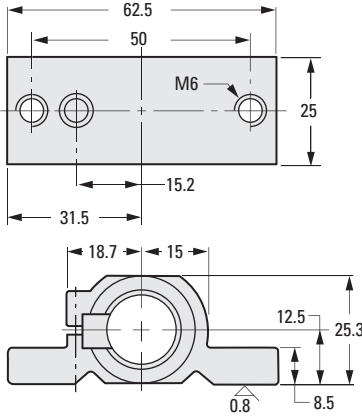


Fig. 1

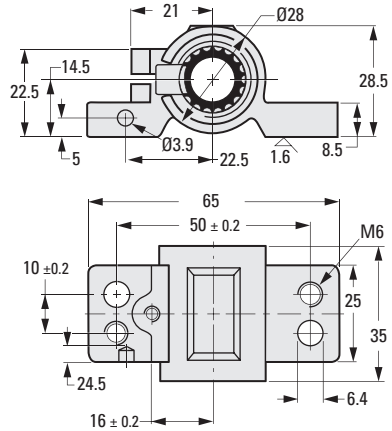


Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | Pitch |
|----------------|----------|-------|
| S6653HM2130040 | 1 | 4 |
| S6653HM2130050 | 1 | 5 |
| S6653HM2130100 | 2 | 10 |
| S6653HM2130200 | 2 | 20 |

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Precision Ball Bearings, Plain
pg. 5-6



Precision Ball Bearings, Flanged
pg. 5-7



Ball Bearings, Plain
pgs. 5-8 & 5-10



Ball Bearings, Flanged
pg. 5-9



Nonmetallic Ball Bearings
pg. 5-11



Hydro-Dynamic Pressure Bearings
pg. 5-13



Linear Ball Bearings, Closed Type
pgs. 5-14 & 5-15



Linear Ball Bearings, Open Type
pgs. 5-16 & 5-17



Linear Ball Bearings, Adjustable Type
pg. 5-18



Frelon® Lined Linear Bearings, Precision
pg. 5-20



Frelon® Lined Linear Bearings, Standard
pg. 5-21



Frelon® Lined Linear Bearings, Self-Lubricating
pg. 5-22



Linear Plastic Bearings, Closed Series
pg. 5-23



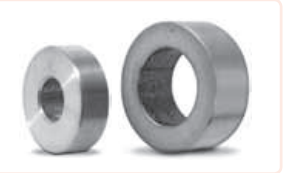
Linear Plain Bearings, Closed Series
pg. 5-24



Linear Plain Bearings, Open Series
pg. 5-25



Sintered Solid Bar Stock
pg. 5-27



Ultraprecision Sintered Bronze Bearings, Plain
pg. 5-28



Ultraprecision Sintered Bronze Bearings, Flanged
pg. 5-29



Sintered Bearings, Plain
pg. 5-30



Sintered Bearings, Flanged
pg. 5-31



Sintered Bearings, Spherical
pg. 5-32



Felt Washers and Retainers
pg. 5-33



Nonmetallic Sleeve Bearings
pgs. 5-34 & 5-35



Plain Sleeve Bearings,
General Purpose Polymer pg. 5-36



Flanged Sleeve Bearings,
General Purpose Polymer pg. 5-37



Plain Sleeve Bearings,
High-Temperature Polymer pg. 5-39



Flanged Sleeve Bearings,
High-Temperature Polymer pg. 5-40



Plain Sleeve Bearings,
Industrial Grade Polymer pg. 5-42



Flanged Sleeve Bearings,
Industrial Grade Polymer pg. 5-43



Clip Bearings with Beveled Edges
pg. 5-45



Clip Bearings with Double Flange
pg. 5-46



Self-Clinching Pressbearings,
Sintered Bronze pg. 5-48



Self-Clinching Pressbearings,
PTFE Bronze pgs. 5-49 & 5-50



Self-Clinching Pressbearings,
Acetal pg. 5-52



Pressbearings, Sintered Bronze
pg. 5-54



Pressbearings, Acetal
pg. 5-55



Sintered Bronze Bearings,
Flange Mounted pg. 5-60



PTFE Bronze Bearings,
Flange Mounted pgs. 5-57 & 5-58



Acetal Bearings, Flange Mounted
pg. 5-59



Needle Roller Bearings
pg. 5-60



Inner Races for Needle Bearings
pg. 5-61

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Roller Clutches
pg. 5-62



Roller Clutches with Bearing Support
pgs. 5-63 & 5-64



Needle Roller Pressbearings
pgs. 5-65 & 5-66



Needle Roller Bearings,
Flange Mounted pgs. 5-68 & 5-69



Thrust Bearings
pgs. 5-70 & 5-71



Thrust Washers
pgs. 5-72 & 5-73



Plastic Rod End Bearings, Male
pg. 5-74



Plastic Rod End Bearings, Female
pg. 5-75



Pillow Block Bearings
pg. 5-77



Pillow Block-Mounted Ball Bearings,
Miniature pg. 5-78



Pillow Block-Mounted Needle Roller
Bearings pg. 5-79



Pillow Block-Mounted Bearings,
Sintered Bronze pg. 5-80



Pillow Block-Mounted Bearings,
PTFE Bronze pg. 5-81



Frelon® Lined Pillow Blocks,
Closed Series pg. 5-82



Frelon® Lined Pillow Blocks,
Open Series pg. 5-83



Die Cast Bearing Blocks
pg. 5-84



Nonmetallic Bearing Blocks
pg. 5-85

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| Material: | G300® (1) | T500® (2) | M250® (3) | L280® (4) | J® (5) |
|---|---|---|---|---|--|
|  |  |  |  |  |  |
| Product Pages: | pgs. 5-36 & 5-72 | pgs. 5-39 & 5-73 | pg. 5-42 | pg. 5-74 | pg. 5-23 |

GENERAL PROPERTIES

| | | | | | |
|---|---------------|---------------|-------------|---------------|---------------|
| Density g/cm ³ (oz/in ³) | 1.45 (.84) | 1.44 (.83) | 1.14 (.66) | 1.24 (.72) | 1.49 (.86) |
| Color | Dark gray | Black | Charcoal | Yellow | Yellow |
| Max. moisture absorption at 23°C (73°F) / 50% r.h. % weight | 0.7 | 0.1 | 1.4 | 1.3 | 0.3 |
| Max. moisture absorption % weight | 4 | 0.5 | 7.6 | 6.5 | 1.3 |
| Coefficient of sliding friction, dynamic against steel | 0.08 ... 0.15 | 0.09 ... 0.27 | 0.1 ... 0.3 | 0.08 ... 0.23 | 0.06 ... 0.18 |
| p x v-value, max. (dry) kgf/cm ² x m/min (lbf/in ² x ft/min) | 257 (11993) | 808 (37705) | 73 (3407) | 141 (6580) | 208 (9706) |

MECHANICAL PROPERTIES

| | | | | | |
|--|-------------|-------------|------------|------------|------------|
| Modulus of elasticity N/mm ² (ksi) | 7798 (1131) | 8098 (1174) | 838 (122) | 3499 (507) | 2399 (348) |
| Tensile strength at 20°C (68°F) N/mm ² (ksi) | 210 (30.5) | 170 (24.7) | 112 (16.2) | 125 (18.1) | 73 (10.6) |
| Compressive strength N/mm ² (ksi) | 78 (11.3) | 100 (14.5) | 52 (7.5) | 61 (8.8) | 60 (8.7) |
| Max. permissible static surface pressure 20°C (68°F) N/mm ² (ksi) | 80 (11.6) | 150 (21.8) | 18 (2.6) | 60 (8.7) | 35 (5.1) |
| Shore D-hardness | 81 | 85 | 79 | 77 | 81 |

| | | | | | |
|----------------------------|------------------|------------------|------------------|------------------|------------------|
| For Additional Data | (1) See pg. 5-38 | (2) See pg. 5-41 | (3) See pg. 5-44 | (4) See pg. 5-76 | (5) See pg. 5-26 |
|----------------------------|------------------|------------------|------------------|------------------|------------------|



| Material: | G300® (1) | T500® (2) | M250® (3) | L280® (4) | J® (5) |
|-----------------------|------------------|------------------|-----------|-----------|----------|
| SDP/SI | | | | | |
| Product Pages: | pgs. 5-36 & 5-72 | pgs. 5-39 & 5-73 | pg. 5-42 | pg. 5-74 | pg. 5-23 |

PHYSICAL AND THERMAL PROPERTIES

| | | | | | |
|---|------------|-------------|------------|------------|------------|
| Max. long-term application temperature °C (°F) | 130 (266) | 250 (482) | 80 (176) | 90 (194) | 90 (194) |
| Max. short-term application temperature °C (°F) | 220 (428) | 315 (599) | 170 (338) | 180 (356) | 120 (248) |
| Min. application temperature °C (°F) | -40 (-40) | -100 (-148) | -40 (-40) | -40 (-40) | -50 (-58) |
| Thermal conductivity W/m x K (Btu/h • ft • F) | 0.24 (.14) | 0.6 (.39) | 0.24 (.14) | 0.24 (.14) | 0.25 (.14) |
| Coefficient of thermal expansion (at 23°C) 10⁻⁵/K (10⁻⁵/F) | 9 (5) | 5 (2.8) | 10 (5.5) | 9 (5) | 10 (5.5) |

ELECTRICAL PROPERTIES

| | | | | | |
|---------------------------------------|-------------------|------------------|-------------------|-------------------|-------------------|
| Specific volume resistance Ωcm | >10 ¹³ | >10 ⁵ | >10 ¹³ | >10 ¹³ | >10 ¹³ |
| Surface resistance Ω | >10 ¹¹ | >10 ³ | >10 ¹¹ | >10 ¹² | >10 ¹² |

| | | | | | |
|----------------------------|------------------|------------------|------------------|------------------|------------------|
| For Additional Data | (1) See pg. 5-38 | (2) See pg. 5-41 | (3) See pg. 5-44 | (4) See pg. 5-76 | (5) See pg. 5-26 |
|----------------------------|------------------|------------------|------------------|------------------|------------------|

BEARING DESIGN CALCULATIONS FOR LOADS & SPEED

The load carrying capability of sleeve bearings is expressed by a PV factor in the following formula:

$$PV = \frac{W}{Ld} \times \pi dn = \frac{\pi Wn}{L}$$

P = load in kgf/cm² (lbf/in²) on the bearing area

V = shaft surface velocity, m/min (ft/min).

W = bearing load, kgf (lbf)

L = bearing length, cm (in)

d = bearing I.D., cm (in)

n = shaft speed (rpm)

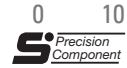
COEFFICIENT OF FRICTION AND LIMITING PV DATA

| Material | Dynamic Coefficient of Friction (Dry against steel) | Limiting PV kgf/cm ² x m/min (lbf/in ² x ft/min) |
|--------------|---|--|
| Ertalyte TX | 0.19 | 129 (6019) |
| Acetron® NS | 0.20 | 187 (8726) |
| Delrin 500AF | 0.16 | 108 (5034) |
| Delrin 500CL | 0.20 | 65 (3033) |
| Delrin 500 | 0.39 | 65 (3033) |
| T500®* | 0.09...0.27 | 808 (37704) |
| G300®* | 0.08...0.15 | 257 (11992) |
| M250®* | 0.1...0.3 | 73 (3406) |
| L280®* | 0.08...0.23 | 141 (6579) |

*These materials are a registered trademark of Iqgus, Inc.

ISO 5 AND 4
 FLANGED
 0.013/0.005 mm RADIAL PLAY

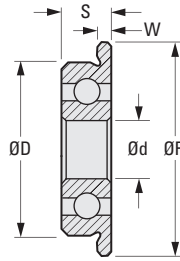
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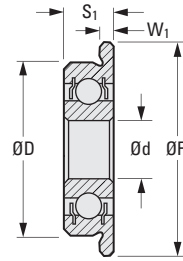
> MATERIAL:
 440C Stainless Steel

> LOAD RATING

| Bearing Code | Dynamic | Static |
|--------------|---------|--------|
| 0206 | 253 | 98 |
| 0208 | 431 | 178 |
| 0306 | 155 | 62 |
| 0308 | 293 | 106 |
| 0408 | 196 | 80 |
| 0410 | 293 | 116 |
| 0413 | 1000 | 480 |
| 0508 | 164 | 67 |
| 0513 | 832 | 400 |
| 0610 | 253 | 115 |
| 0613 | 836 | 400 |
| 0713 | 276 | 138 |
| 0816 | 960 | 520 |



No Shield



Double Shield

METRIC COMPONENT CATALOG NUMBER

S9912YM FS

ISO 4 D

ISO 5 E

Bearing Code

No Shield 0

Double Shield 2

Lubrication

Leave Blank for Synthetic Oil, MIL-L-6085A

M Grease, MIL-G-23827A

G Grease, Beacon 325 Commercial

| Bearing Code | d Bore 0 -0.005 | D Outer Ring Dia. 0 -0.005 | Width 0 -0.025 | | Flange Dia. | | Flange Width 0 -0.05 | |
|--------------|-----------------------|----------------------------------|-------------------|----------------|-------------|----------------|-------------------------|----------------|
| | | | S | S ₁ | F | F ₁ | W | W ₁ |
| 0206 | 2 | 6 | 2.3 | 3 | 7.5 | 7.5 | 0.6 | 0.8 |
| 0208 | 2.5 | 8 | 2.5 | 4 | 9.5 | 9.5 | 0.6 | 0.9 |
| 0306 | 3 | 6 | 2 | 2.5 | 7.2 | 7.2 | 0.6 | 0.6 |
| 0308 | 3 | 8 | 3 | 4 | 9.5 | 9.5 | 0.7 | 0.9 |
| 0408 | 4 | 8 | 2 | 3 | 9.2 | 9.2 | 0.6 | 0.6 |
| 0410 | 4 | 10 | 3 | 4 | 11.2 | 11.6 | 0.6 | 0.8 |
| 0413 | 4 | 13 | 5 | 5 | 15 | 15 | 1 | 1 |
| 0508 | 5 | 8 | 2 | 2.5 | 9.2 | 9.2 | 0.6 | 0.6 |
| 0513 | 5 | 13 | 4 | 4 | 15 | 15 | 1 | 1 |
| 0610 | 6 | 10 | 2.5 | 3 | 11.2 | 11.2 | 0.6 | 0.6 |
| 0613 | 6 | 13 | 3.5 | 5 | 15 | 15 | 1 | 1.1 |
| 0713 | 7 | 13 | 3 | 4 | 14.2 | 14.6 | 0.6 | 0.8 |
| 0816 | 8 | 16 | 4 | 5 | 18 | 18 | 1 | 1.1 |

NOTES: 1. ISO 5 and 4 tolerances are approximately equivalent to ABEC 5 and 7, respectively.
 2. Other lubricants available on special order.



BALL BEARINGS

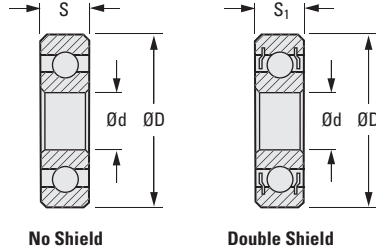


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ISO 6
PLAIN
0.013/0.005 mm RADIAL PLAY



> MATERIAL:
440C Stainless Steel



METRIC COMPONENT CATALOG NUMBER

A 7Y 5M

No Shield **P**
Double Shield **PSS**

Bearing Code

Lubrication
Leave Blank for Synthetic Oil, MIL-L-6085A
M Grease, MIL-G-23827A
G Grease, Beacon 325 Commercial

| Bearing Code | d Bore 0 -0.005 | D Outer Ring Dia. 0 -0.007 | Width ⁰ / _{-0.025} | | Load Rating N | |
|--------------|-----------------------|----------------------------------|--|----------------|---------------|--------|
| | | | S | S ₁ | Dynamic | Static |
| 0301 | 1 | 3 | 1 | — | 49 | 14 |
| 0602 | 2 | 6 | 2.3 | 3 | 203 | 78 |
| 0802 | 2.5 | 8 | 2.8 | 4 | 344 | 142 |
| 0603 | 3 | 6 | 2 | 2.5 | 124 | 49 |
| 0803 | 3 | 8 | 3 | 4 | 235 | 85 |
| 0804 | 4 | 8 | 2 | 3 | 156 | 64 |
| 1004 | 4 | 10 | 3 | 4 | 235 | 92 |
| 1304 | 4 | 13 | 5 | 5 | 801 | 384 |
| 0805 | 5 | 8 | 2 | 2.5 | 132 | 54 |
| 1305 | 5 | 13 | 4 | 4 | 666 | 320 |
| 1006 | 6 | 10 | 2.5 | 3 | 203 | 93 |
| 1306 | 6 | 13 | 3.5 | 5 | 669 | 320 |
| 1307 | 7 | 13 | 3 | 4 | 221 | 110 |
| 1608 | 8 | 16 | 4 | 5 | 769 | 416 |

NOTES: 1. ISO 6 tolerances are approximately equivalent to ABEC 3.
2. Other lubricants available on special order.



ISO 6

FLANGED

0.013/0.005 mm RADIAL PLAY

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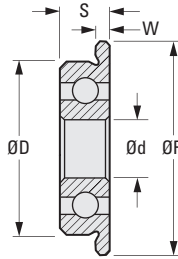


> MATERIAL:

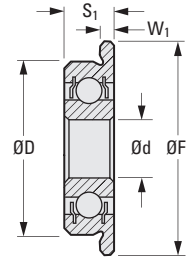
440C Stainless Steel

> LOAD RATING:

| Bearing Code | Dynamic | Static |
|--------------|---------|--------|
| 0301 | 40 | 13 |
| 0602 | 253 | 98 |
| 0802 | 431 | 178 |
| 0603 | 125 | 50 |
| 0803 | 293 | 106 |
| 0804 | 157 | 64 |
| 1004 | 235 | 93 |
| 1304 | 1000 | 480 |
| 0805 | 132 | 54 |
| 1305 | 832 | 400 |
| 1006 | 203 | 93 |
| 1306 | 669 | 320 |
| 1307 | 221 | 110 |
| 1608 | 769 | 416 |



No Shield



Double Shield

METRIC COMPONENT CATALOG NUMBER

A 7Y 5M



No Shield F

Bearing Code

Lubrication
— Leave Blank for Synthetic Oil, MIL-L-6085A

Double Shield FSS

M Grease, MIL-G-23827A

G Grease, Beacon 325 Commercial

| Bearing Code | d Bore 0 -0.005 | D Outer Ring Dia. 0 -0.007 | Width 0 -0.025 | | Flange Dia. +0.125 -0.050 | | Flange Width 0 -0.050 | |
|--------------|-----------------------|----------------------------------|----------------------|----------------|---------------------------------|----------------|-----------------------------|----------------|
| | | | S | S ₁ | F | F ₁ | W | W ₁ |
| 0301 | 1 | 3 | 1 | — | 3.8 | — | 0.3 | — |
| 0602 | 2 | 6 | 2.3 | 3 | 7.5 | 7.5 | 0.6 | 0.8 |
| 0802 | 2.5 | 8 | 2.5 | 4 | 9.5 | 9.5 | 0.6 | 0.9 |
| 0603 | 3 | 6 | 2 | 2.5 | 7.2 | 7.2 | 0.6 | 0.6 |
| 0803 | 3 | 8 | 3 | 4 | 9.5 | 9.5 | 0.7 | 0.9 |
| 0804 | 4 | 8 | 2 | 3 | 9.2 | 9.2 | 0.6 | 0.6 |
| 1004 | 4 | 10 | 3 | 4 | 11.2 | 11.6 | 0.6 | 0.8 |
| 1304 | 4 | 13 | 5 | 5 | 15 | 15 | 1 | 1 |
| 0805 | 5 | 8 | 2 | 2.5 | 9.2 | 9.2 | 0.6 | 0.6 |
| 1305 | 5 | 13 | 4 | 4 | 15 | 15 | 1 | 1 |
| 1006 | 6 | 10 | 2.5 | 3 | 11.2 | 11.2 | 0.6 | 0.6 |
| 1306 | 6 | 13 | 3.5 | 5 | 15 | 15 | 1 | 1.1 |
| 1307 | 7 | 13 | 3 | 4 | 14.2 | 14.6 | 0.8 | 0.6 |
| 1608 | 8 | 16 | 4 | 5 | 18 | 18 | 1 | 1.1 |

NOTES: 1. ISO 6 tolerances are approximately equivalent to ABEC 3.

2. Other lubricants available on special order.



BALL BEARINGS



ISO 0 (ABEC 1)
 PLAIN
 0.013/0.005 mm RADIAL PLAY

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- > **MATERIAL:**
Steel, AISI 52100
- > **LUBRICATION:**
Chevron SRI #2

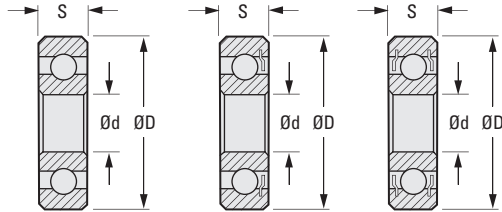


Fig. 1
No Shield

Fig. 2
Single Shield

Fig. 3
Double Shield

METRIC COMPONENT

| Catalog Number | | | d Bore 0 -0.008 | D Outer Ring Dia. 0 -0.01 | S Width 0 -0.12 | Shaft & Housing Fillet Radius Max. |
|---------------------|-------------------------|-------------------------|--------------------------|---------------------------------------|--------------------------|--|
| Fig. 1 No Shield | Fig. 2 Single Shield | Fig. 3 Double Shield | | | | |
| A 7C55MP1905 | A 7C55MPS1905 | A 7C55MPSS1905 | 5 | 19 | 6 | 0.5 |
| A 7C55MP1906 | A 7C55MPS1906 | A 7C55MPSS1906 | 6 | 19 | 6 | 0.5 |
| A 7C55MP2207 | A 7C55MPS2207 | A 7C55MPSS2207 | 7 | 22 | 7 | 0.5 |
| A 7C55MP2208 | A 7C55MPS2208 | A 7C55MPSS2208 | 8 | 22 | 7 | 0.5 |
| A 7C55MP2609 | A 7C55MPS2609 | A 7C55MPSS2609 | 9 | 26 | 8 | 0.5 |
| A 7C55MP3010 | A 7C55MPS3010 | A 7C55MPSS3010 | 10 | 30 | 9 | 0.6 |
| A 7C55MP3212 | A 7C55MPS3212 | A 7C55MPSS3212 | 12 | 32 | 10 | 0.6 |
| A 7C55MP3515 | A 7C55MPS3515 | A 7C55MPSS3515 | 15 | 35 | 11 | 0.6 |
| A 7C55MP4017 | A 7C55MPS4017 | A 7C55MPSS4017 | 17 | 40 | 12 | 0.6 |
| A 7C55MP4720 | A 7C55MPS4720 | A 7C55MPSS4720 | 20 | 47 | 14 | 1 |
| A 7C55MP5225 | A 7C55MPS5225 | A 7C55MPSS5225 | 25 | 52 | 15 | 1 |

SELF-CLINCHING BALL BEARINGS

SDP/SI

SELF-ALIGNING TO $\pm 5^\circ$
 DOUBLE SHIELDS
 ABEC 3

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> MATERIAL:

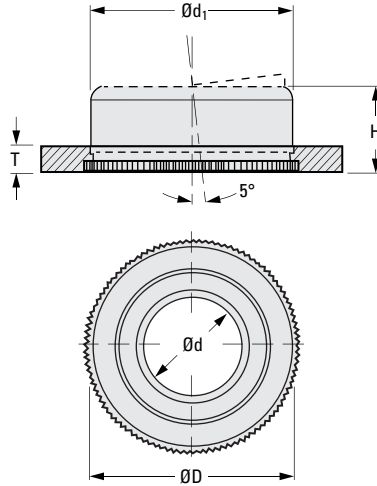
Bearing - High Chromium Alloy Steel
Retainer - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

-34°C to +121°C

> FEATURES:

High-speed applications.
 Knurling ensures secure self-clinching.
 Simple, quick installation.
 Major assembly and production savings.
 Mounting blocks not necessary.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Panel Hole Dia. +0.07 0 | T Min. Panel Thickness | D Knurl O.D. | H Height | Max. Speed rpm | Max. Radial Load N | |
|----------------|-------------------|--|---------------------------------|--------------------|-------------|----------------------|-----------------------|---------|
| | | | | | | | Static | Dynamic |
| A 7Z54MFSL050 | 5 | 16.26 | 1.5 | 17.5 | 7.2 | 40000 | 275 | 544 |
| A 7Z54MFSL060 | 6 | | | | | | | |
| A 7Z54MFSL080 | 8 | | | | | | | |
| A 7Z54MFSL100 | 10 | 23.98 | 1.9 | 25 | 10 | 36000 | 839 | 1716 |

NEW

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FLANGE-MOUNTED BALL BEARINGS

SDP/SI

SELF-ALIGNING TO $\pm 5^\circ$
 FLANGE-MOUNTED
 DOUBLE SHIELDS
 ABEC 3

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Bearing - High Chromium Alloy Steel
Flange & Retainer - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

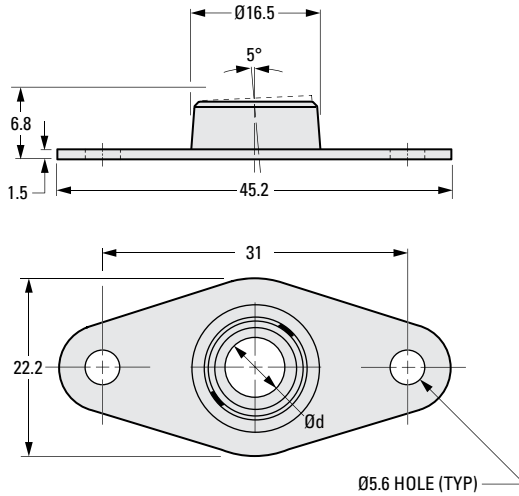
-34°C to +121°C

> SPECIFICATIONS:

Max. Speed: 40000 rpm

Max. Radial Load - Static: 275 N

Dynamic: 544 N



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. |
|----------------|-------------------|
| A 7Z58MBFM005L | 5 |
| A 7Z58MBFM006L | 6 |
| A 7Z58MBFM008L | 8 |

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PILLOW FLANGE-MOUNTED BALL BEARINGS

SDP/SI

SELF-ALIGNING TO $\pm 5^\circ$
 PILLOW FLANGE-MOUNTED
 DOUBLE SHIELDS
 ABEC 3

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> MATERIAL:

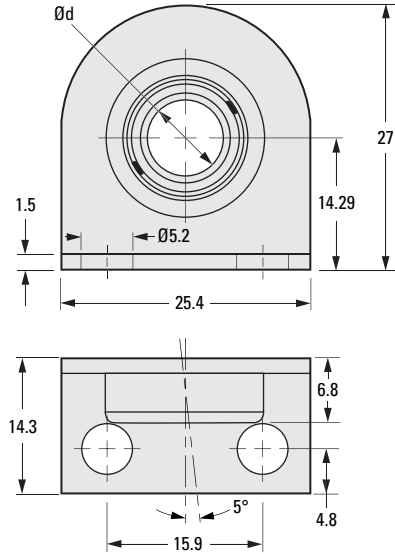
Bearing - High Chromium Alloy Steel
Flange & Retainer - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

-34°C to +121°C

> SPECIFICATIONS:

Max. Speed: 40000 rpm
Max. Radial Load - Static: 275 N
Dynamic: 544 N



The projections shown are per ISO convention.

METRIC COMPONENT

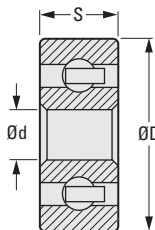
| Catalog Number | d Nom. I.D. |
|----------------|-------------------|
| A 7Z59MPF050L | 5 |
| A 7Z59MPF060L | 6 |
| A 7Z59MPF080L | 8 |



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LIGHTWEIGHT
ELECTRICALLY INSULATED
NONCORROSIVE
SELF LUBRICATING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Rings & Cage - Acetal
- Balls - Ground Glass

> OPERATING TEMPERATURE:

- Continuous: -30°C to +100°C
- Intermittent: -55°C to +140°C

> SPECIFICATIONS:

- d Tolerance:
5 mm thru 17 mm +0.076/0
20 mm +0.102/0

- D Tolerance:
16 mm thru 24 mm 0/-0.076
26 mm thru 40 mm 0/-0.102
42 mm & 47 mm 0/-0.127
52 mm 0/-0.152

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METRIC COMPONENT

| Catalog Number | d Bore | D Outer Ring Dia. | S Width | Load Rating Radial | | Max. rpm in Air | |
|----------------|--------|-------------------|---------|--------------------|----------|-----------------|------|
| | | | | Dynamic N | Static N | | |
| A 7Z 5M1605 | 5 | 16 | 5 | 116 | 76 | 2352 | |
| A 7Z 5M1906 | 6 | 19 | 6 | | | 3017 | |
| A 7Z 5M1907 | 7 | 19 | 6 | 187 | 147 | 3017 | |
| A 7Z 5M2207 | | 22 | 7 | | | 2606 | |
| A 7Z 5M2208 | 8 | 22 | 7 | | | 1600 | |
| A 7Z 5M2409 | 9 | 24 | 7 | | | 2384 | |
| A 7Z 5M2609 | | 26 | 8 | | | 2205 | |
| A 7Z 5M2610 | | 26 | 8 | | | 1600 | |
| A 7Z 5M3010 | 10 | 30 | 9 | 245 | 191 | 1142 | |
| A 7Z 5M3510 | | 35 | 11 | 307 | 205 | 1638 | |
| A 7Z 5M2812 | 12 | 28 | 8 | 245 | 191 | 2047 | |
| A 7Z 5M3212 | | 32 | 10 | | | 1142 | |
| A 7Z 5M3712 | | 37 | 12 | 307 | 205 | 1550 | |
| A 7Z 5M3215 | | 15 | 32 | 8 | 245 | 191 | 1800 |
| A 7Z 5M3215A | 32 | | 9 | 1142 | | | |
| A 7Z 5M3515 | 35 | | 11 | 307 | 205 | 1069 | |
| A 7Z 5M4215 | 42 | | 13 | 347 | 231 | 1360 | |
| A 7Z 5M3517 | 17 | | 35 | 8 | 307 | 205 | 1630 |
| A 7Z 5M3517A | | | 35 | 10 | | | 1069 |
| A 7Z 5M4017 | | 40 | 12 | 347 | 231 | 1069 | |
| A 7Z 5M4717 | | 47 | 14 | | | 1220 | |
| A 7Z 5M4220 | 20 | 42 | 8 | 347 | 231 | 1365 | |
| A 7Z 5M4220A | | 42 | 12 | | | 840 | |
| A 7Z 5M4720 | | 47 | 14 | 409 | 271 | 840 | |
| A 7Z 5M5220 | | 52 | 15 | | | 1103 | |



Sterling Instrument's new Hydro-Dynamic Pressure Bearing

fulfills the need for a long-lasting and economical bearing capable of high-speed, quiet operation and suitable for light application use, such as compact fan motors, paper feeders of copying machines and printers, laptop computers, micromotors, toys, etc.

The bearings are formed by stacking "petal-shaped" laminated aluminum-silicon alloy plates and housed in a stainless steel case with a polyurea-thickened grease containing antioxidant and anticorrosion additives.

A cross section of the Hydro-Dynamic Pressure Bearing (see Fig. 1) shows the shaft guides (laminated plates) having a number of projections, of which the inner faces act as the bore of the assembled bearing. The inner faces of the plates' projections face the shaft, as shown in Fig. 2. Clearance to the shaft is closer in the center area and wider on both sides.

When the shaft rotates in this state, a fluid between the shaft guide and the shaft generates pressure as a result of the squeeze effect – a phenomenon of generating pressure to a lubricating membrane in a fluid lubrication when wall faces are close to each other. This fluid pressure supports the shaft with a clearance of 7 to 15 µm between the shaft and the shaft guide.

To generate the fluid pressure, the shaft guide is fabricated very precisely. 0.4 mm thick Al-Si (Aluminum-Silicon) alloy plates are punched, stacked and caulked into the final shape, retaining a bore accuracy of +0.003 mm. Using stainless steel sheet for the case and the seal, the bearing provides 30% less weight than an equivalent size precision ball bearing.

With dimensions similar to those of precision ball bearings, these bearings can be used at speeds up to 20,000 rpm, depending on the bore size. Allowable radial loads, however, will be less than a quarter of that of precision ball bearings. As an added feature, the operational noise level remains very low due to the nonfriction configuration.

Hydro-Dynamic Pressure Bearing

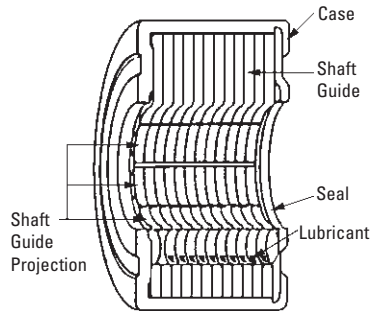


Fig. 1
Cross Section of Bearing

The Clearance between Shaft Guide and Shaft is closest in the center area of the end face (h_2) and wider at both sides (h_1)

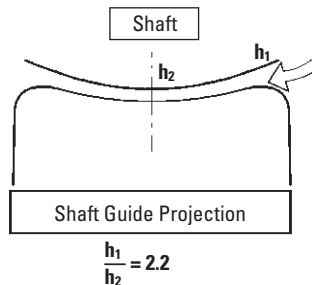


Fig. 2
A schematic sectional view between shaft and shaft guide

PATENTED
ECONOMICAL
HIGH-SPEED
LONG LIFE



> MATERIAL:

Shaft Guide (Bearing) - Laminated Aluminum-Silicon Alloy Plates
Case & Seal - Stainless Steel

> OPERATING TEMPERATURE:

-20°C to +100°C

> FEATURES:

Low-cost alternative to ball bearings.
Quiet operation.
30% weight savings over ball bearings.

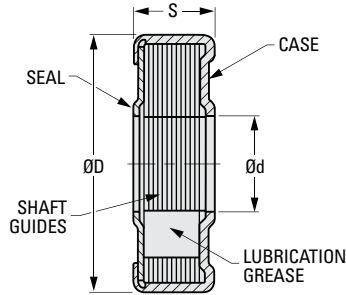
> APPLICATIONS:

Camera micromotors
Compact fan motors
Copying machines
Laptop computers
Printers
Toys

> SHAFT REQUIREMENTS:

Normal Use - Case-hardened, Carbon Steel, 2 μm surface finish, O.D. tolerance -0.007 to -0.012.

High Accuracy - Case-hardened, 400 series Stainless Steel, 1 μm surface finish, O.D. tolerance -0.005 to -0.007.



METRIC COMPONENT

| Catalog Number | d I.D. +0.003 0 | D O.D. +0.015 0 | S Width | Max. Speed rpm | Max. Radial Load kg | Comparable Ball Bearing Series |
|----------------|--------------------------|--------------------------|------------|----------------------|---------------------------|--------------------------------------|
| S99HDPM100310 | 1 | 3 | 1 | 20000 | 0.2 | 681 |
| S99HDPM150420 | 1.5 | 4 | 2 | | 0.3 | 681XZZ |
| S99HDPM200525 | 2 | 5 | 2.5 | 15000 | 0.4 | MR52ZZ |
| S99HDPM300840 | 3 | 8 | 4 | | 0.5 | 693ZZ |
| S99HDPM401140 | 4 | 11 | | 10000 | 0.6 | 694ZZ |
| S99HDPM501650 | 5 | 16 | | | 0.8 | 625ZZ |
| S99HDPM601960 | 6 | 19 | 6 | 6000 | 1 | 626ZZ |



LOW FRICTION COEFFICIENT
HIGH POSITIONING ACCURACY
HIGH LOAD CAPACITY
QUIET MOVEMENT
LONG TRAVEL LIFE



► **MATERIAL:**

Sleeve & Balls - AISI 52100 Steel
Retainer - Duracon M90

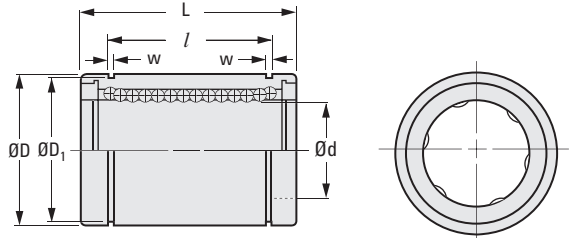
► **SPECIFICATIONS:**

d Tolerance:
3, 4, 5, 8, 10 & 12 mm +0.008/0
16 & 20 mm +0.009/-0.001
25 & 30 mm +0.011/-0.001
40, 50, & 60 mm +0.013/-0.002

D Tolerance:
7, 8, 12 & 16 mm 0/-0.008
19, 22 & 26 mm 0/-0.009
32, 40 & 47 mm 0/-0.011
62 & 75 mm 0/-0.013
90 mm 0/-0.015

L Tolerance:
10 & 12 mm 0/-0.120
22, 25, 29, 32, 36 & 45 mm 0/-0.200
58, 68, 80 & 100 mm 0/-0.300
125 mm 0/-0.400

l Tolerance:
14.5, 16.5, 22, 22.9, 24.9 & 31.5 mm 0/-0.200
44.1, 52.1, 60.6 & 77.6 mm 0/-0.300
101.7 mm 0/-0.400



METRIC COMPONENT

| Catalog Number * | Ball Circuit | d Bore | D Dia. | L Length | l Groove Dist. | w Groove Width | D ₁ Groove Dia. | Load Capacity | |
|---|--------------|--------|--------|----------|----------------|----------------|----------------------------|---------------|----------|
| | | | | | | | | Dynamic N | Static N |
| ** S99LBCM003010 <input type="checkbox"/> | 4 | 3 | 7 | 10 | — | — | — | 69 | 105 |
| ** S99LBCM004012 <input type="checkbox"/> | 4 | 4 | 8 | 12 | — | — | — | 88 | 127 |
| S99LBCM005022 <input type="checkbox"/> | 4 | 5 | 12 | 22 | 14.5 | 1.1 | 11.5 | 206 | 265 |
| S99LBCM008025 <input type="checkbox"/> | 4 | 8 | 16 | 25 | 16.5 | 1.1 | 15.2 | 265 | 402 |
| S99LBCM010029 <input type="checkbox"/> | 4 | 10 | 19 | 29 | 22 | 1.3 | 18 | 372 | 549 |
| S99LBCM012032 <input type="checkbox"/> | 4 | 12 | 22 | 32 | 22.9 | 1.3 | 21 | 510 | 784 |
| S99LBCM016036 <input type="checkbox"/> | 4 | 16 | 26 | 36 | 24.9 | 1.3 | 24.9 | 578 | 892 |
| S99LBCM020045 <input type="checkbox"/> | 5 | 20 | 32 | 45 | 31.5 | 1.6 | 30.3 | 862 | 1370 |
| S99LBCM025058 <input type="checkbox"/> | 6 | 25 | 40 | 58 | 44.1 | 1.85 | 37.5 | 980 | 1570 |
| S99LBCM030068 <input type="checkbox"/> | 6 | 30 | 47 | 68 | 52.1 | 1.85 | 44.5 | 1570 | 2740 |
| S99LBCM040080 <input type="checkbox"/> | 6 | 40 | 62 | 80 | 60.6 | 2.15 | 59 | 2160 | 4020 |
| S99LBCM050100 <input type="checkbox"/> | 6 | 50 | 75 | 100 | 77.6 | 2.65 | 72 | 3820 | 7940 |
| S99LBCM060125 <input type="checkbox"/> | 6 | 60 | 90 | 125 | 101.7 | 3.15 | 86.5 | 4700 | 9800 |

* To order bearings with no seals, use catalog numbers as they are.
To order bearings with seals at both ends, add "S" to the end of catalog number.
** These part numbers are not available with seals.

LOW FRICTION COEFFICIENT
HIGH POSITIONING ACCURACY
HIGH LOAD CAPACITY
QUIET MOVEMENT
LONG TRAVEL LIFE



► **MATERIAL:**

Sleeve & Balls - AISI 52100 Steel
Retainer - Duracon M90

► **SPECIFICATIONS:**

d Tolerance:

10 & 12 mm +0.008/0
16 & 20 mm +0.009/-0.001
25 & 30 mm +0.011/-0.001
40, 50, & 60 mm +0.013/-0.002

D Tolerance:

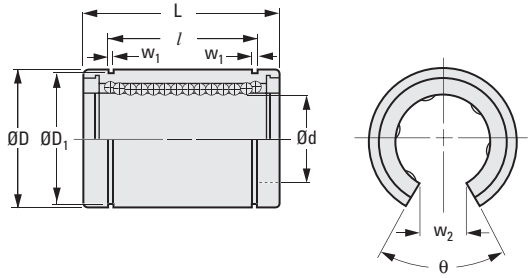
19, 22, & 26 mm 0/-0.009
32, 40, & 47 mm 0/-0.011
62 & 75 mm 0/-0.013
90 mm 0/-0.015

L Tolerance:

29, 32, 36 & 45 mm 0/-0.200
58, 68, 80 & 100 mm 0/-0.300
125 mm 0/-0.400

l Tolerance:

22, 22.9, 24.9 & 31.5 mm 0/-0.200
44.1, 52.1, 60.6 & 77.6 mm 0/-0.300
101.7 mm 0/-0.400



METRIC COMPONENT

| Catalog Number * | Ball Circuit | d Bore | D O.D. | L Length | l Groove Dist. | w ₁ Groove Width | D ₁ Groove Dia. | w ₂ Slot Width | θ Slot Angle | Load Capacity | |
|--|--------------|--------|--------|----------|----------------|-----------------------------|----------------------------|---------------------------|--------------|---------------|----------|
| | | | | | | | | | | Dynamic N | Static N |
| S99LBOM010029 <input type="checkbox"/> | 3 | 10 | 19 | 29 | 22 | 1.3 | 18 | 6.8 | 80° | 372 | 549 |
| S99LBOM012032 <input type="checkbox"/> | 3 | 12 | 22 | 32 | 22.9 | 1.3 | 21 | 7.5 | 78° | 510 | 784 |
| S99LBOM016036 <input type="checkbox"/> | 3 | 16 | 26 | 36 | 24.9 | 1.3 | 24.9 | 10 | 78° | 578 | 892 |
| S99LBOM020045 <input type="checkbox"/> | 4 | 20 | 32 | 45 | 31.5 | 1.6 | 30.3 | 10 | 60° | 862 | 1370 |
| S99LBOM025058 <input type="checkbox"/> | 5 | 25 | 40 | 58 | 44.1 | 1.85 | 37.5 | 12.5 | 60° | 980 | 1570 |
| S99LBOM030068 <input type="checkbox"/> | 5 | 30 | 47 | 68 | 52.1 | 1.85 | 44.5 | 12.5 | 50° | 1570 | 2740 |
| S99LBOM040080 <input type="checkbox"/> | 5 | 40 | 62 | 80 | 60.6 | 2.15 | 59 | 16.8 | 50° | 2160 | 4020 |
| S99LBOM050100 <input type="checkbox"/> | 5 | 50 | 75 | 100 | 77.6 | 2.65 | 72 | 21 | 50° | 3820 | 7940 |
| S99LBOM060125 <input type="checkbox"/> | 5 | 60 | 90 | 125 | 101.7 | 3.15 | 86.5 | 27.2 | 54° | 4700 | 9800 |

* To order bearings with no seals, use catalog numbers as they are.
To order bearings with seals at both ends, add "S" to end of catalog number.



> BEARING LOAD:

Frelon® lined bearings can tolerate up to 105 kgf/cm² over the portion of the bearing that is carrying the load. These bearings carry 4 to 8 times the load of ball bearings.
A 12 mm Frelon® bearing will carry as much load as a 25 mm ball bearing.

> WEAR RATE:

Although wear rates are affected by surface finish, shaft hardness, length of travel, contamination and lubrication, these bearings last on average 4 to 8 times longer than ball bearings.

> BEARING PV:

P = Pressure in kgf/cm² on the projected area.
V = Velocity of the wear surface in m/min.
The maximum PV is 214 kgf/cm² • m/min.

> BEARING SPEED:

The maximum average speed without lubrication is:
70 cm/sec - continuous
200 cm/sec - intermittent
When lubricated, the maximum speed is 200 cm/sec

> CANTILEVERED LOADS:

The distance between the bearings and the drive source or load should not exceed a maximum ratio of 2:1.

> SHAFT FINISH AND HARDNESS:

A shaft finish with an 0.2 to 0.3 µm R_a and a hardness of HRC 50 is recommended for best results. Acceptable performance can be attained with a finish of 0.2 to 0.4 µm R_a and a minimum hardness of HRC 35. Softer shafting will cause an accelerated wear to both the shaft and the bearings.
Optional liners are available for both nonhardened shafting and for use in food applications.

> RUNNING CLEARANCES:

Precision Series -
approximately 0.025 mm. High precision, similar to a preloaded ball bearing.

Standard Series -
approximately 0.075 mm. Excellent for parallel shaft applications, similar to a typical ball bearing.

> LUBRICATION:

Frelon lined bearings are self-lubricating. Additional lubrication reduces friction up to 50%, minimizes wear, reduces heat, allows greater speed, and extends wear life.
Acceptable lubrication includes 3-in-1 oils, way lube oils and petroleum-based greases.
DO NOT USE PTFE FLUOROCARBON AND/OR SILICONE OILS, GREASE, SPRAY, OR WD40.

> NO CATASTROPHIC FAILURE:

No shaft scoring or shock load damage.
Liner dampens shock loads and vibration. These bearings provide more surface contact area than ball bearings.
No corrosion or rust.
No temperature induced bearing seizure.
Temperature range of -240°C to +260°C. Operates with consistent friction and load bearing characteristics throughout temperature range. Liner allows heat to dissipate through the shell.

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PRECISION SERIES
CLOSED OR OPEN
SELF-LUBRICATING
LOW COST



➤ MATERIAL:

Body - Aluminum, Anodized
Liner - Bonded Frelon®

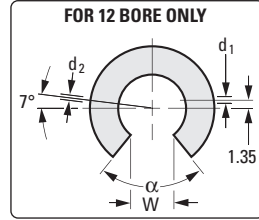
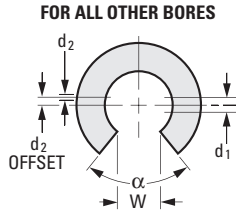
➤ SPECIFICATIONS:

d Tolerance:

- 5 mm +0.028/+0.010
- 8 & 10 mm +0.035/+0.013
- 12 & 16 mm +0.043/+0.016
- 20, 25 & 30 mm +0.053/+0.020
- 40 mm +0.064/+0.025

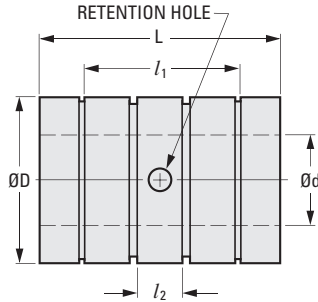
D Tolerance:

- 12 & 16 mm 0/-0.018
- 19, 22 & 26 mm 0/-0.021
- 32, 40 & 47 mm 0/-0.025
- 62 mm 0/-0.030



➤ APPLICABLE RETAINING RINGS AND O-RINGS

| Bearing Reference (Closed or Open Series) | Catalog Numbers | |
|--|-----------------|----------------|
| | Retaining Ring | O-Ring |
| S99AP □ M05F012022 | MD0471MQB012 | A 6R11ML009713 |
| S99AP □ M08F016025 | MD0471MQB016 | A 6R11ML013017 |
| S99AP □ M10F019029 | MD0471MQB019 | A 6R11ML015520 |
| S99AP □ M12F022032 | MD0471MQB022 | A 6R11ML017525 |
| S99AP □ M16F026036 | MD0471MQB026 | A 6R11ML021525 |
| S99AP □ M20F032045 | MD0471MQB032 | A 6R11ML027525 |
| S99AP □ M25F040058 | MD0471MQB040 | A 6R11ML035525 |
| S99AP □ M30F047068 | MD0471MQB047 | A 6R11ML042526 |
| S99AP □ M40F062080 | MD0471MQB062 | A 6R11ML056035 |



METRIC COMPONENT

| Catalog Number * | d Bore F8 | D Dia. h7 | L 0 -0.254 | Slot (Open Series) | | l ₁ Retaining Space | l ₂ O-Ring Spacing | Max. Load N |
|--------------------|--------------|--------------|------------------|--------------------|-----------------|--------------------------------------|-------------------------------------|-------------------|
| | | | | W Slot Width | α Slot Angle | | | |
| S99AP □ M05F012022 | 5 | 12 | 22 | 3.2 | 60° | 12 | 5 | 1135 |
| S99AP □ M08F016025 | 8 | 16 | 25 | 5.1 | 60° | 14 | 5.33 | 2055 |
| S99AP □ M10F019029 | 10 | 19 | 29 | 6.4 | 60° | 19.4 | 5.63 | 2985 |
| S99AP □ M12F022032 | 12 | 22 | 32 | 7.6 | 78° | 20 | 6 | 3950 |
| S99AP □ M16F026036 | 16 | 26 | 36 | 10.4 | 78° | 22 | 8 | 5930 |
| S99AP □ M20F032045 | 20 | 32 | 45 | 10.8 | 60° | 28 | 10 | 9265 |
| S99AP □ M25F040058 | 25 | 40 | 58 | 13.2 | 60° | 40 | 12.5 | 14935 |
| S99AP □ M30F047068 | 30 | 47 | 68 | 14.2 | 72° | 48 | 15 | 21010 |
| S99AP □ M40F062080 | 40 | 62 | 80 | 19.5 | 72° | 56 | 20 | 32955 |

* To complete catalog number, specify C for Closed Series and Z for Open Series.

| Catalog Number (Ref.) | Effective Surface Area cm ² | Retention Hole | | |
|--------------------------|---|----------------|----------------|--------------------------|
| | | d ₁ | d ₂ | d ₂ Offset |
| S99AP □ M05F012022 | 1.1 | 2.2 | - | - |
| S99AP □ M08F016025 | 2 | 3 | - | - |
| S99AP □ M10F019029 | 2.9 | 3 | - | - |
| S99AP □ M12F022032 | 3.8 | 3 | 3 | 7° |
| S99AP □ M16F026036 | 5.8 | 2.2 | 3 | 0 |
| S99AP □ M20F032045 | 9 | 2.2 | 3 | 0 |
| S99AP □ M25F040058 | 14.5 | 3 | 3 | -1.51 |
| S99AP □ M30F047068 | 20.4 | 3 | 3 | 2 |
| S99AP □ M40F062080 | 32 | 3 | 3 | 1.5 |

STANDARD SERIES
CLOSED OR OPEN
SELF-LUBRICATING
LOW COST

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

Body - Aluminum, Anodized
Liner - Bonded Frelon®



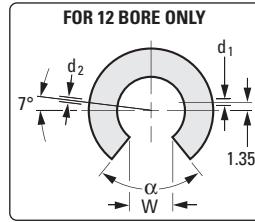
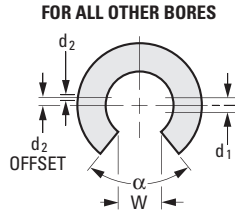
➤ SPECIFICATIONS:

d Tolerance:

- 5 mm +0.078/+0.060
- 8 & 10 mm +0.085/+0.063
- 12 & 16 mm +0.093/+0.066
- 20, 25 & 30 mm +0.129/+0.096
- 40 mm +0.166/+0.127

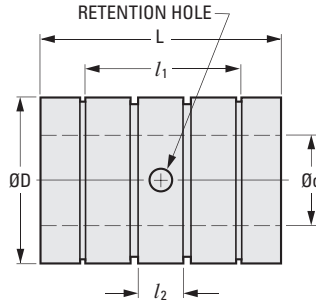
D Tolerance:

- 12 & 16 mm 0/-0.018
- 19, 22 & 26 mm 0/-0.021
- 32, 40 & 47 mm 0/-0.025
- 62 mm 0/-0.030



➤ APPLICABLE RETAINING RINGS AND O-RINGS

| Bearing Reference (Closed or Open Series) | Catalog Numbers | |
|--|-----------------|----------------|
| | Retaining Ring | O-Ring |
| S99AS □ M05F012022 | MD0471MQB012 | A 6R11ML009713 |
| S99AS □ M08F016025 | MD0471MQB016 | A 6R11ML013017 |
| S99AS □ M10F019029 | MD0471MQB019 | A 6R11ML015520 |
| S99AS □ M12F022032 | MD0471MQB022 | A 6R11ML017525 |
| S99AS □ M16F026036 | MD0471MQB026 | A 6R11ML021525 |
| S99AS □ M20F032045 | MD0471MQB032 | A 6R11ML027525 |
| S99AS □ M25F040058 | MD0471MQB040 | A 6R11ML035525 |
| S99AS □ M30F047068 | MD0471MQB047 | A 6R11ML042526 |
| S99AS □ M40F062080 | MD0471MQB062 | A 6R11ML056035 |



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METRIC COMPONENT

| Catalog Number * | d Bore | D Dia. h7 | L 0 -0.254 | Slot (Open Series) | | l ₁ Retaining Space | l ₂ O-Ring Spacing | Max. Load N |
|--------------------|--------|-----------|------------|--------------------|--------------|--------------------------------|-------------------------------|-------------|
| | | | | W Slot Width | α Slot Angle | | | |
| S99AS □ M05F012022 | 5 | 12 | 22 | 3.2 | 60° | 12 | 5 | 1135 |
| S99AS □ M08F016025 | 8 | 16 | 25 | 5.1 | 60° | 14 | 5.33 | 2055 |
| S99AS □ M10F019029 | 10 | 19 | 29 | 6.4 | 60° | 19.4 | 5.63 | 2985 |
| S99AS □ M12F022032 | 12 | 22 | 32 | 7.6 | 78° | 20 | 6 | 3950 |
| S99AS □ M16F026036 | 16 | 26 | 36 | 10.4 | 78° | 22 | 8 | 5930 |
| S99AS □ M20F032045 | 20 | 32 | 45 | 10.8 | 60° | 28 | 10 | 9265 |
| S99AS □ M25F040058 | 25 | 40 | 58 | 13.2 | 60° | 40 | 12.5 | 14935 |
| S99AS □ M30F047068 | 30 | 47 | 68 | 14.2 | 72° | 48 | 15 | 21010 |
| S99AS □ M40F062080 | 40 | 62 | 80 | 19.5 | 72° | 56 | 20 | 32955 |

* To complete catalog number, specify C for Closed Series and Z for Open Series.

| Catalog Number (Ref.) | Effective Surface Area cm ² | Retention Hole | | |
|-----------------------|--|----------------|----------------|-----------------------|
| | | d ₁ | d ₂ | d ₂ Offset |
| S99AS □ M05F012022 | 1.1 | 2.2 | — | — |
| S99AS □ M08F016025 | 2 | 3 | — | — |
| S99AS □ M10F019029 | 2.9 | 3 | — | — |
| S99AS □ M12F022032 | 3.8 | 3 | 3 | 7° |
| S99AS □ M16F026036 | 5.8 | 2.2 | 3 | 0 |
| S99AS □ M20F032045 | 9 | 2.2 | 3 | 0 |
| S99AS □ M25F040058 | 14.5 | 3 | 3 | -1.51 |
| S99AS □ M30F047068 | 20.4 | 3 | 3 | 2 |
| S99AS □ M40F062080 | 32 | 3 | 3 | 1.5 |

SELF-LUBRICATING
PRECISION OR STANDARD
THIN-WALLED
LOW COST

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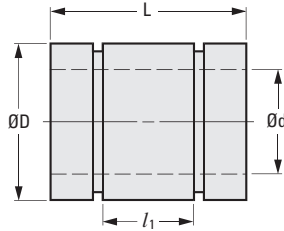
> MATERIAL:

Body - Aluminum, Anodized
Liner - Bonded Frelon®



> SPECIFICATION:

D Tolerance:
12 & 17 mm 0/-0.018
19 to 28 mm 0/-0.021
35 & 40 mm 0/-0.025
52 & 62 mm 0/-0.3



> APPLICABLE O-RINGS

| Bearing Reference (Precision or Standard) | Catalog Number |
|--|----------------|
| S99B □ CM06F012022 | — |
| S99B □ CM08F015024 | A 6R11ML011819 |
| S99B □ CM10F017026 | A 6R11ML014116 |
| S99B □ CM12F019028 | A 6R11ML016015 |
| S99B □ CM14F021028 | A 6R11ML018015 |
| S99B □ CM16F024030 | A 6R11ML021116 |
| S99B □ CM20F028030 | A 6R11ML025015 |
| S99B □ CM25F035040 | A 6R11ML030525 |
| S99B □ CM30F040050 | A 6R11ML035525 |
| S99B □ CM40F052060 | A 6R11ML046035 |
| S99B □ CM50F062070 | A 6R11ML056035 |

METRIC COMPONENT

| Catalog Number * | d Bore | Bore Tolerance | | D h7 | L 0 -0.254 | l ₁ O-Ring Spacing | Max. Load N | Effective Surface Area cm ² |
|--------------------|-----------|---------------------|--------------------|---------|------------------|-------------------------------------|-------------------|---|
| | | Precision Series | Standard Series | | | | | |
| S99B □ CM06F012022 | 6 | +0.028/+0.010 | +0.078/+0.060 | 12 | 22 | — | 1360 | 1.3 |
| S99B □ CM08F015024 | 8 | +0.035/+0.013 | +0.085/+0.063 | 15 | 24 | 10 | 1975 | 1.9 |
| S99B □ CM10F017026 | 10 | +0.035/+0.013 | +0.085/+0.063 | 17 | 26 | 12 | 2675 | 2.6 |
| S99B □ CM12F019028 | 12 | +0.043/+0.016 | +0.093/+0.066 | 19 | 28 | 14 | 3460 | 3.4 |
| S99B □ CM14F021028 | 14 | +0.043/+0.016 | +0.093/+0.066 | 21 | 28 | 14 | 4035 | 3.9 |
| S99B □ CM16F024030 | 16 | +0.043/+0.016 | +0.093/+0.066 | 24 | 30 | 14 | 4940 | 4.8 |
| S99B □ CM20F028030 | 20 | +0.020/+0.053 | +0.129/+0.096 | 28 | 30 | 14 | 6175 | 6 |
| S99B □ CM25F035040 | 25 | +0.020/+0.053 | +0.129/+0.096 | 35 | 40 | 22 | 10295 | 10 |
| S99B □ CM30F040050 | 30 | +0.020/+0.053 | +0.129/+0.096 | 40 | 50 | 30 | 15445 | 15 |
| S99B □ CM40F052060 | 40 | +0.064/+0.025 | +0.166/+0.127 | 52 | 60 | 40 | 24715 | 24 |
| S99B □ CM50F062070 | 50 | +0.064/+0.025 | +0.166/+0.127 | 62 | 70 | 50 | 36045 | 35 |

* To complete catalog number, specify **P** for Precision Series and **S** for Standard Series.

SELF-LUBRICATING
CORROSION- AND DIRT-RESISTANT
LIGHTWEIGHT
MAINTENANCE-FREE
VIBRATION DAMPENING
SECURED BY RETAINING RING (NOT INCLUDED)

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

J® Polymer

► **OPERATING TEMPERATURE:**

Continuous: -14°C to +90°C

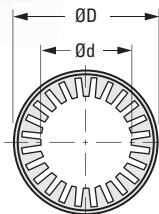
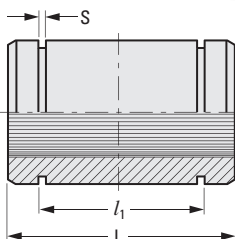
Intermittent: up to +120°C

► **SHAFT REQUIREMENTS:**

Hard anodized aluminum, 8-16 RMS surface finish. Other materials such as stainless steel, ceramic, case-hardened steel & chrome plated steel can be used, but if hardness is below HRC 50 and surface finish is outside 8-16 RMS, overall service life may be affected.

Recommended for use with Catalog Number:

S40AW6M..., See pg. 3-7



► **SPECIFICATIONS:**

d Tolerance:

8 mm +0.061/+0.025

10 to 16 mm +0.075/+0.032

20 to 30 mm +0.092/+0.040

40 mm +0.112/+0.050

50 mm +0.134/+0.060

D Tolerance:

16 mm 0/-0.018

19 to 26 mm 0/-0.021

32 to 47 mm 0/-0.025

62 & 75 mm 0/-0.030

► **APPLICABLE RETAINING RINGS**

| Bearing Reference | Catalog Numbers |
|-------------------|---------------------|
| | Retaining Ring |
| S99GSPM0816025 | — |
| S99GSPM1019029 | MD0471MQB019 |
| S99GSPM1222032 | MD0471MQB022 |
| S99GSPM1628036 | MD0471MQB026 |
| S99GSPM2032045 | MD0471MQB032 |

| Bearing Reference | Catalog Numbers |
|-------------------|---------------------|
| | Retaining Ring |
| S99GSPM2540058 | MD0471MQB040 |
| S99GSPM3047068 | MD0471MQB047 |
| S99GSPM4062080 | MD0471MQB062 |
| S99GSPM5075100 | MD0471MQB075 |

METRIC COMPONENT

| Catalog Number | d Bore | D Dia. h7 | L Length 0 -0.3 | I ₁ Groove Distance +0.2 0 | S Groove Width +0.1 0 | Load Capacity | | Weight g |
|-----------------------|--------|-----------|-----------------|---------------------------------------|-----------------------|---------------|----------|----------|
| | | | | | | Dynamic N | Static N | |
| S99GSPM0816025 | 8 | 16 | 25 | 16.2 | 1.1 | 249 | 1748 | 9 |
| S99GSPM1019029 | 10 | 19 | 29 | 21.6 | 1.3 | 360 | 2535 | 14 |
| S99GSPM1222032 | 12 | 22 | 32 | 22.6 | 1.3 | 476 | 3558 | 21 |
| S99GSPM1628036 | 16 | 26 | 36 | 24.6 | 1.3 | 716 | 5035 | 28 |
| S99GSPM2032045 | 20 | 32 | 45 | 31.2 | 1.6 | 1121 | 7873 | 49 |
| S99GSPM2540058 | 25 | 40 | 58 | 43.7 | 1.85 | 1810 | 12686 | 108 |
| S99GSPM3047068 | 30 | 47 | 68 | 51.7 | 1.85 | 2549 | 17846 | 162 |
| S99GSPM4062080 | 40 | 62 | 80 | 60.3 | 2.15 | 3999 | 27997 | 334 |
| S99GSPM5075100 | 50 | 75 | 100 | 77.3 | 2.65 | 6250 | 43748 | 579 |



SELF-LUBRICATING
CORROSION- AND DIRT-RESISTANT
MAINTENANCE-FREE
VIBRATION DAMPENING



► **MATERIAL:**

Body - Aluminum, Anodized
Bearing - J® Polymer

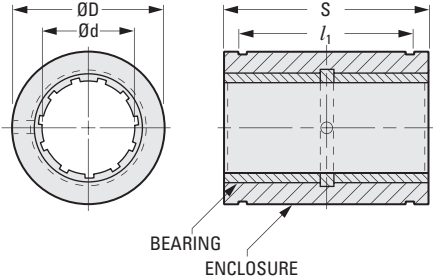
► **OPERATING TEMPERATURE:**

Continuous: -14°C to +90°C
Intermittent: up to +120°C

► **SHAFT REQUIREMENTS:**

Hard anodized aluminum, 8-16 RMS surface finish. Other materials such as stainless steel, ceramic, case-hardened steel & chrome plated steel can be used, but if hardness is below HRC 50 and surface finish is outside 8-16 RMS, overall service life may be affected.

Recommended for use with Catalog Number:
S40AW6M..., See pg. 3-7



► **SPECIFICATIONS:**

d Tolerance:
10 to 16 mm +0.088/+0.030
20 & 25 mm +0.091/+0.030
30 mm +0.110/+0.040
40 mm +0.115/+0.040
50 mm +0.130/+0.050

D Tolerance:
19 to 26 mm 0/-0.021
32 to 47 mm 0/-0.025
62 & 75 mm 0/-0.030

► **APPLICABLE RETAINING RINGS**

| Bearing Reference | Catalog Numbers |
|-------------------|-----------------|
| | Retaining Ring |
| S99GLPM101929 | MD0471MQB019 |
| S99GLPM122232 | MD0471MQB022 |
| S99GLPM162636 | MD0471MQB026 |
| S99GLPM203245 | MD0471MQB032 |
| S99GLPM254058 | MD0471MQB040 |
| S99GLPM304768 | MD0471MQB047 |
| S99GLPM406280 | MD0471MQB062 |
| S99GLPM5075A0 | MD0471MQB075 |

METRIC COMPONENT

| Catalog Number | d Bore | D Dia. h7 | S Length | l ₁ Retaining Ring Spacing | Load Capacity | |
|----------------|--------|-----------|----------|---------------------------------------|---------------|----------|
| | | | | | Dynamic N | Static N |
| S99GLPM101929 | 10 | 19 | 29 | 21.6 | 725 | 5075 |
| S99GLPM122232 | 12 | 22 | 32 | 22.6 | 961 | 6721 |
| S99GLPM162636 | 16 | 26 | 36 | 24.6 | 1441 | 10080 |
| S99GLPM203245 | 20 | 32 | 45 | 31.2 | 2251 | 15751 |
| S99GLPM254058 | 25 | 40 | 58 | 43.7 | 3625 | 25372 |
| S99GLPM304768 | 30 | 47 | 68 | 51.7 | 5098 | 35696 |
| S99GLPM406280 | 40 | 62 | 80 | 60.3 | 7998 | 55998 |
| S99GLPM5075A0 | 50 | 75 | 100 | 77.3 | 12499 | 87496 |

EQUIVALENT TO THE STANDARD FOR
 RECIRCULATING BALL BEARING
 SELF-LUBRICATING
 OPEN, ANODIZED ALUMINUM HOUSING
 FOR SUPPORTED SHAFTS
 MAINTENANCE-FREE
 SECURE BEARING WITH SET SCREWS
 (NOT INCLUDED)

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

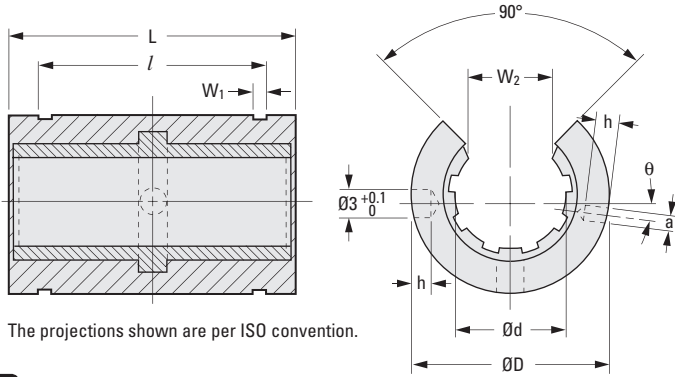
Body - Aluminum, Anodized
Bearing - J® Polymer

> SPECIFICATIONS:

d Tolerance:
 10 to 16 mm +0.088/+0.030
 20 & 25 mm +0.091/+0.030
 30 mm +0.110/+0.040
 40 mm +0.115/+0.040
 50 mm +0.130/+0.050

Δ Housing Bore Tolerance:
 19 to 26 mm +0.021/0
 32 to 47 mm +0.025/0
 62 & 75 mm +0.030/0

Recommended for use with
 Catalog Number:
S40AW6M..., See pg. 3-7

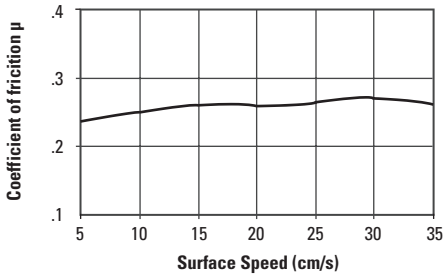


METRIC COMPONENT

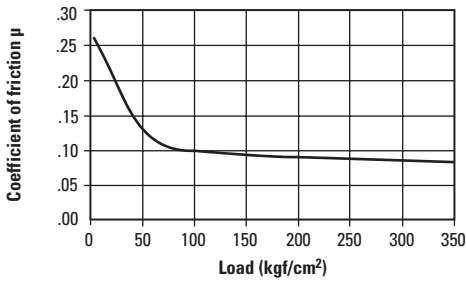
| Catalog Number | d Bore | D Δ Dia. | L Length ± 0.3 | l Groove Distance | W ₁ Groove Width | W ₂ | a +0.1 0 |
|----------------|--------|----------|----------------|-------------------|-----------------------------|----------------|----------|
| S99GLZM1019029 | 10 | 19 | 29 | 21.6 | 1.3 | 7.3 | — |
| S99GLZM1222032 | 12 | 22 | 32 | 22.6 | 1.3 | 9 | 3 |
| S99GLZM1626036 | 16 | 26 | 36 | 24.6 | 1.3 | 11.6 | 2.2 |
| S99GLZM2032045 | 20 | 32 | 45 | 31.2 | 1.6 | 12 | 2.2 |
| S99GLZM2540058 | 25 | 40 | 58 | 43.7 | 1.85 | 14.5 | 3 |
| S99GLZM3047068 | 30 | 47 | 68 | 51.7 | 1.85 | 16.6 | 3 |
| S99GLZM4062080 | 40 | 62 | 80 | 60.3 | 2.15 | 21 | 3 |
| S99GLZM5075100 | 50 | 75 | 100 | 77.3 | 2.65 | 25.5 | 5 |

| Catalog Number (Ref.) | θ | h 0 -0.5 | Load Capacity | | | | | |
|-----------------------|-------|----------|--------------------------------------|------|------|--|-------|-------|
| | | | Dynamic p = 51 kgf / cm ² | | | Static p = 356.8 kgf / cm ² | | |
| | | | 0° | 90° | 180° | 0° | 90° | 180° |
| S99GLZM1019029 | — | 1.2 | 163 | 112 | 44 | 1141 | 766 | 308 |
| S99GLZM1222032 | 7° | 1.2 | 215 | 142 | 54 | 1510 | 999 | 377 |
| S99GLZM1626036 | — | 1.2 | 323 | 222 | 89 | 2266 | 1560 | 623 |
| S99GLZM2032045 | — | 1.2 | 505 | 404 | 202 | 3540 | 2832 | 1416 |
| S99GLZM2540058 | -4.3° | 1.5 | 815 | 663 | 342 | 5704 | 4646 | 2396 |
| S99GLZM3047068 | 4.9° | 2 | 1146 | 955 | 512 | 8025 | 6684 | 3584 |
| S99GLZM4062080 | 2.8° | 2 | 1798 | 1530 | 854 | 12588 | 10714 | 5993 |
| S99GLZM5075100 | 3.8° | 2 | 2810 | 2413 | 1377 | 19670 | 16919 | 13769 |

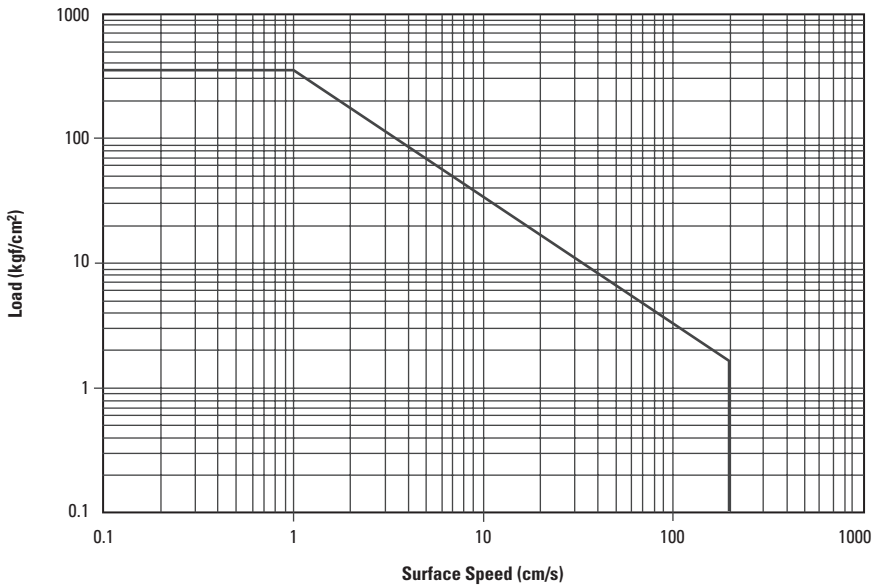
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Graph 1: Coefficient of friction of J® Polymer as a result of the surface speed; $p = 7.6 \text{ kg/cm}^2$



Graph 2: Coefficient of friction of J® Polymer as a result of load, $v = 1 \text{ cm/s}$



Graph 3: Permissible $p \times v$ value for J® Polymer running dry against steel shaft, at 20°C

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SELF-LUBRICATING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Oil-Impregnated Bronze, Self-Lubricating

> SPECIFICATION:

All bars are supplied oversized so they can be machine finished to the dimensions shown.



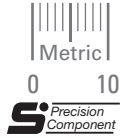
METRIC COMPONENT

| Catalog Number | D mm Ref. | L Length mm Ref. |
|----------------|-----------------|---------------------------|
| A 7B 4MSSB006 | 6.3 | 50 |
| A 7B 4MSSB010 | 9.5 | 76 |
| A 7B 4MSSB013 | 12.7 | 165 |
| A 7B 4MSSB016 | 15.9 | 165 |
| A 7B 4MSSB019 | 19 | 165 |
| A 7B 4MSSB022 | 22.2 | 165 |
| A 7B 4MSSB025 | 25.4 | 165 |
| A 7B 4MSSB029 | 28.6 | 165 |
| A 7B 4MSSB032 | 31.7 | 165 |
| A 7B 4MSSB035 | 34.9 | 165 |
| A 7B 4MSSB038 | 38.1 | 165 |
| A 7B 4MSSB041 | 41.3 | 165 |
| A 7B 4MSSB045 | 44.5 | 165 |
| A 7B 4MSSB051 | 50.8 | 165 |
| A 7B 4MSSB057 | 57.1 | 165 |
| A 7B 4MSSB064 | 63.5 | 165 |
| A 7B 4MSSB070 | 69.8 | 165 |
| A 7B 4MSSB076 | 76.2 | 165 |
| A 7B 4MSSB083 | 82.6 | 165 |
| A 7B 4MSSB089 | 88.9 | 165 |
| A 7B 4MSSB102 | 101.6 | 165 |
| A 7B 4MSSB114 | 114.3 | 165 |
| A 7B 4MSSB127 | 127 | 165 |
| A 7B 4MSSB140 | 139.7 | 165 |
| A 7B 4MSSB152 | 152.4 | 165 |

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SELF-LUBRICATING
OIL-IMPREGNATED
PLAIN

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Porous Sintered Bronze

> LUBRICATION:
Vacuum-Impregnated with Oil.

> FEATURES:
Economical replacement for ball bearings.
Dimensioned to be readily interchangeable
with comparable ball bearings.

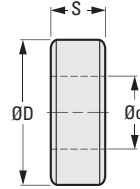
> SPECIFICATIONS:
O.D. concentric to Bore within 0.005 mm.
Faces square to Bore within 0.008 mm.

d Tolerance:
3 mm +0.01/0
4, 5 & 6 mm +0.012/0
8 & 10 mm +0.015/0
12 mm +0.018/0

Shaft & D Tolerance:
3 mm 0/-0.006
4, 5 & 6 mm 0/-0.008
8 & 10 mm 0/-0.009
12, 13 & 16 mm 0/-0.011
19 & 20 mm 0/-0.013

Other bores / O.D.'s available as special order.

$$\text{Load} = \frac{\text{Load Speed Rating}}{\text{rpm}} = \text{Newtons}$$



METRIC COMPONENT

| Catalog Number | Shaft Size h6 | d Bore H7 | D Dia. h6 | S Width 0 -0.17 | Load Speed Rating N • rpm |
|-----------------|------------------|--------------|--------------|-----------------------|------------------------------|
| S99BP3MPB030625 | 3 | 3 | 6 | 2.5 | 84000 |
| S99BP3MPB030830 | 3 | 3 | 8 | 3 | 100000 |
| S99BP3MPB031040 | 3 | 3 | 10 | 4 | 134000 |
| S99BP3MPB040840 | 4 | 4 | 8 | 4 | 134000 |
| S99BP3MPB051050 | 5 | 5 | 10 | 5 | 167000 |
| S99BP3MPB051240 | 5 | 5 | 12 | 4 | 134000 |
| S99BP3MPB051350 | 5 | 5 | 13 | 5 | 167000 |
| S99BP3MPB061050 | 6 | 6 | 10 | 5 | 167000 |
| S99BP3MPB061650 | 6 | 6 | 16 | 5 | 167000 |
| S99BP3MPB081660 | 8 | 8 | 16 | 6 | 200000 |
| S99BP3MPB101970 | 10 | 10 | 19 | 7 | 220000 |
| S99BP3MPB122080 | 12 | 12 | 20 | 8 | 220000 |

SELF-LUBRICATING
OIL-IMPREGNATED
FLANGED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



10



> MATERIAL:

Porous Sintered Bronze

> LUBRICATION:

Vacuum-Impregnated with Oil.

> FEATURES:

Economical replacement for ball bearings.
Dimensioned to be readily interchangeable
with comparable ball bearings.



> SPECIFICATIONS:

O.D. concentric to Bore within 0.005 mm.
Faces square to Bore within 0.008 mm.

d Tolerance:

- 3 mm +0.01/0
- 4, 5 & 6 mm +0.012/0
- 8 & 10 mm +0.015/0
- 12 mm +0.018/0

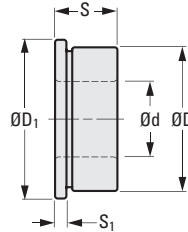
Shaft & D Tolerance:

- 3 mm 0/-0.006
- 4, 5 & 6 mm 0/-0.008
- 8 & 10 mm 0/-0.009
- 12, 13 & 16 mm 0/-0.011
- 19 & 20 mm 0/-0.013

D₁ Tolerance:

- 8 mm 0/-0.36
- 10, 12, 14 & 18 mm 0/-0.43
- 21 & 22 mm 0/-0.52

Other bores / O.D.'s available as special order.



$$\text{Load} = \frac{\text{Load Speed Rating}}{\text{rpm}} = \text{Newtons}$$

METRIC COMPONENT

| Catalog Number | Shaft Size h6 | d Bore H7 | D Dia. h6 | S Width 0 -0.17 | D ₁ Flange Dia. h14 | S ₁ Flange Width 0 -0.05 | Load Speed Rating N • rpm |
|-----------------|------------------|--------------|--------------|-----------------------|-----------------------------------|---|------------------------------|
| S99BP4MFB030625 | 3 | 3 | 6 | 2.5 | 8 | 0.5 | 84000 |
| S99BP4MFB030830 | 3 | 3 | 8 | 3 | 10 | 0.5 | 100000 |
| S99BP4MFB031040 | 3 | 3 | 10 | 4 | 12 | 1 | 134000 |
| S99BP4MFB040840 | 4 | 4 | 8 | 4 | 10 | 1 | 134000 |
| S99BP4MFB051050 | 5 | 5 | 10 | 5 | 12 | 1 | 167000 |
| S99BP4MFB051240 | 5 | 5 | 12 | 4 | 14 | 1 | 134000 |
| S99BP4MFB051350 | 5 | 5 | 13 | 5 | 14 | 1 | 167000 |
| S99BP4MFB061050 | 6 | 6 | 10 | 5 | 12 | 1 | 167000 |
| S99BP4MFB061650 | 6 | 6 | 16 | 5 | 18 | 1 | 167000 |
| S99BP4MFB081660 | 8 | 8 | 16 | 6 | 18 | 1 | 200000 |
| S99BP4MFB101970 | 10 | 10 | 19 | 7 | 21 | 1.5 | 220000 |
| S99BP4MFB122080 | 12 | 12 | 20 | 8 | 22 | 1.5 | 220000 |

SELF-LUBRICATING
STANDARD SERIES

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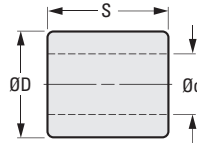
> MATERIAL:

Oil-Impregnated Bronze,
Self-Lubricating

> SPECIFICATIONS:

d Tolerance:
2, 2.5 & 3 mm +0.024/+0.014
4, 5 & 6 mm +0.032/+0.020
7, 8, 9 & 10 mm +0.040/+0.025
12 mm +0.050/+0.032

D Tolerance:
4, 5 & 6 mm +0.027/+0.015
8 & 10 mm +0.034/+0.019
12, 14, 16, & 18 mm +0.041/+0.023



METRIC COMPONENT

| Catalog Number | d Bore E7 | D Dia. r7 | S Width 0 -0.20 |
|------------------|--------------|--------------|-----------------------|
| A 7B 4MP020403 | 2 | 4 | 3 |
| A 7B 4MP020404 | 2 | 4 | 4 |
| A 7B 4MP020503 | 2 | 5 | 3 |
| * A 7B 4MPH20603 | 2.5 | 6 | 3 |
| A 7B 4MP030503 | 3 | 5 | 3 |
| A 7B 4MP030504 | 3 | 5 | 4 |
| A 7B 4MP030506 | 3 | 5 | 6 |
| A 7B 4MP040804 | 4 | 8 | 4 |
| A 7B 4MP040806 | 4 | 8 | 6 |
| A 7B 4MP040808 | 4 | 8 | 8 |
| A 7B 4MP050805 | 5 | 8 | 5 |
| A 7B 4MP050808 | 5 | 8 | 8 |
| A 7B 4MP061004 | 6 | 10 | 4 |
| A 7B 4MP061006 | 6 | 10 | 6 |
| A 7B 4MP061010 | 6 | 10 | 10 |
| A 7B 4MP061208 | 6 | 12 | 8 |
| A 7B 4MP061212 | 6 | 12 | 12 |
| A 7B 4MP071008 | 7 | 10 | 8 |
| A 7B 4MP071010 | 7 | 10 | 10 |
| A 7B 4MP071208 | 7 | 12 | 8 |

| Catalog Number | d Bore E7 | D Dia. r7 | S Width 0 -0.20 |
|------------------|--------------|--------------|-----------------------|
| * A 7B 4MP071210 | 7 | 12 | 10 |
| A 7B 4MP081206 | 8 | 12 | 6 |
| A 7B 4MP081208 | 8 | 12 | 8 |
| A 7B 4MP081212 | 8 | 12 | 12 |
| A 7B 4MP081408 | 8 | 14 | 8 |
| A 7B 4MP081412 | 8 | 14 | 12 |
| A 7B 4MP081416 | 8 | 14 | 16 |
| * A 7B 4MP091410 | 9 | 14 | 10 |
| * A 7B 4MP091420 | 9 | 14 | 20 |
| A 7B 4MP101410 | 10 | 14 | 10 |
| A 7B 4MP101416 | 10 | 14 | 16 |
| A 7B 4MP101610 | 10 | 16 | 10 |
| A 7B 4MP101616 | 10 | 16 | 16 |
| A 7B 4MP101620 | 10 | 16 | 20 |
| A 7B 4MP121612 | 12 | 16 | 12 |
| A 7B 4MP121620 | 12 | 16 | 20 |
| A 7B 4MP121812 | 12 | 18 | 12 |
| A 7B 4MP121816 | 12 | 18 | 16 |
| A 7B 4MP121825 | 12 | 18 | 25 |

* To be discontinued when present stock is depleted.

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SELF-LUBRICATING
STANDARD SERIES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Oil-Impregnated Bronze,
Self-Lubricating

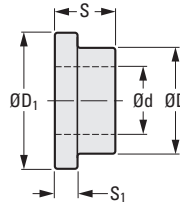
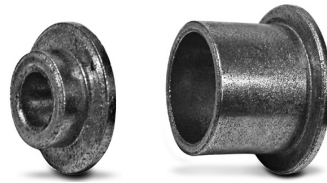
> SPECIFICATIONS:

d Tolerance:

- 1, 2, 2.5 & 3 mm +0.024/+0.014
- 4, 5 & 6 mm +0.032/+0.020
- 7, 8, & 10 mm +0.040/+0.025
- 12 mm +0.050/+0.032

D Tolerance:

- 3 mm +0.020/+0.010
- 4, 5 & 6 mm +0.027/+0.015
- 8 & 10 mm +0.034/+0.019
- 12, 16, & 18 mm +0.041/+0.023



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METRIC COMPONENT

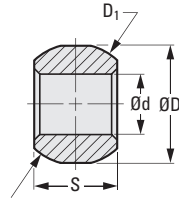
| Catalog Number | d Bore E7 | D Dia. r7 | S Width 0 -0.20 | D ₁ Flange Dia. ± 0.12 | S ₁ Flange Width 0 -0.20 |
|----------------|-----------------|-----------------|--------------------------|---|--|
| A 7B 4MF010302 | 1 | 3 | 2 | 5 | 1 |
| A 7B 4MF020404 | 2 | 4 | 4 | 6 | 1.5 |
| A 7B 4MFH20603 | 2.5 | 6 | 3 | 9 | |
| A 7B 4MF030504 | 3 | 5 | 4 | 8 | |
| A 7B 4MF030604 | 4 | 6 | 6 | 9 | 2 |
| A 7B 4MF040806 | | 8 | | 10 | |
| A 7B 4MF050806 | 5 | 10 | 4 | 12 | |
| A 7B 4MF051006 | 6 | | | 12 | 14 |
| A 7B 4MF061004 | | 8 | 16 | | |
| A 7B 4MF061006 | | | | | 10 |
| A 7B 4MF061206 | 7 | 18 | 10 | 22 | |
| A 7B 4MF071208 | 8 | | | | |
| A 7B 4MF081208 | 10 | 18 | 12 | 22 | 3 |
| A 7B 4MF101610 | 12 | | | | |
| A 7B 4MF121810 | | | | | |
| A 7B 4MF121812 | | | | | |

SELF-LUBRICATING

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> **MATERIAL:**

Oil-Impregnated Bronze,
Self-Lubricating



METRIC COMPONENT

| Catalog Number | d Bore H7 | d Tolerance | D Dia. | D ₁ Dia. h11 | D ₁ Tolerance | S Width 0 -0.3 |
|-----------------|-----------------|----------------|-----------|-------------------------------|-----------------------------|-------------------------|
| A 7B 4MS04H908 | 4 | +0.012/0 | 9.5 | 10 | +0.034/+0.019 | 8 |
| A 7B 4MS05H1210 | 5 | +0.012/0 | 12.5 | 13 | +0.041/+0.023 | 10 |
| A 7B 4MS06H1411 | 6 | +0.012/0 | 14.5 | 15 | +0.041/+0.023 | 11 |
| A 7B 4MS07H1511 | 7 | +0.015/0 | 15.5 | 16 | +0.041/+0.023 | 11 |
| A 7B 4MS08H1511 | 8 | +0.015/0 | 15.5 | 16 | +0.041/+0.023 | 11 |
| A 7B 4MS102114 | 10 | +0.015/0 | 21 | 22 | +0.049/+0.028 | 14 |
| A 7B 4MS122416 | 12 | +0.018/0 | 24 | 25 | +0.049/+0.028 | 16 |

FELT WASHERS AND RETAINERS

SDP/SI

FOR SPHERICAL BEARINGS

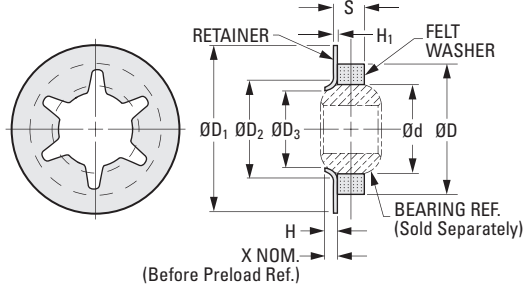
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> MATERIAL:

Felt Washer - Felt, Oil-Impregnated (SAE 50)
Retainer - Steel, Spring



| Bearing I.D. (mm) | X Nom. (Ref.) |
|----------------------|------------------|
| 3 | 1.35 |
| 4 | 1.65 |
| 5 | 2.1 |
| 6 | 2.3 |
| 7 | 2.45 |
| 8 | 2.45 |
| 9 | 3.05 |
| 10 | 2.75 |



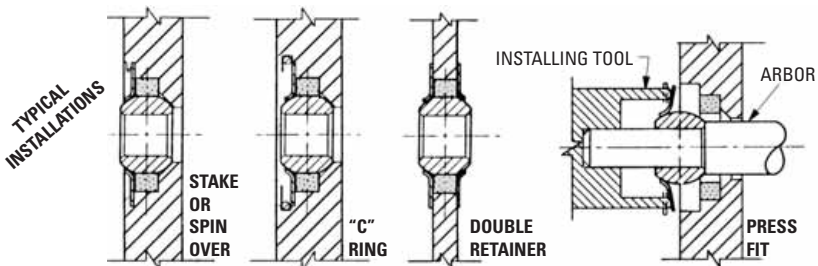
METRIC COMPONENT

| Catalog Number | d Dia. | D Dia. | S | Use With Bearing I.D. Δ |
|--------------------|-----------|-----------|---|-----------------------------------|
| Felt Washer | | | | |
| A 7B 4MW0810 | 7.6 | 10 | 3 | 3 |
| A 7B 4MW1013 | 9.5 | 13 | 3 | 4 |
| * A 7B 4MW1316 | 12.5 | 16 | 5 | 5 |
| A 7B 4MW1518 | 14.5 | 18 | 5 | 6 |
| A 7B 4MW1619 | 15.5 | 19 | 5 | 7 & 8 |
| * A 7B 4MW1822 | 17.5 | 22 | 6 | 9 |
| A 7B 4MW2127 | 21 | 27 | 6 | 10 |
| A 7B 4MW2430 | 24 | 30 | 7 | 12 |

| Catalog Number * | D ₁ Dia. | D ₂ Dia. | D ₃ Dia. | H Height | H ₁ | Use with Bearing I.D. Δ |
|------------------|------------------------|------------------------|------------------------|-------------|----------------|-----------------------------------|
| Retainer | | | | | | |
| A 7B 4MR0715 | 14.92 | 9.5 | 6.5 | 1.05 | 0.2 | 3 |
| A 7B 4MR1120 | 19.9 | 14.5 | 10.9 | 1.7 | 0.3 | 5 |
| A 7B 4MR1224 | 23.9 | 17 | 12.4 | 2.15 | 0.3 | 6 |
| A 7B 4MR1326 | 25.9 | 18 | 13.2 | 2.4 | 0.3 | 7 & 8 |
| A 7B 4MR1532 | 31.9 | 19 | 15.1 | 2.25 | 0.35 | 9 |
| A 7B 4MR1934 | 33.9 | 24 | 18.9 | 3.6 | 0.4 | 10 |

NOTE: Retainer for 12 mm Bearing I.D. not available.
 Δ For Spherical Bearings, see index.

* To be discontinued when present stock is depleted.



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MACHINED
SELF-LUBRICATING

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> MATERIAL:

Ertalyte TX Polyester

> COLOR:

Gray

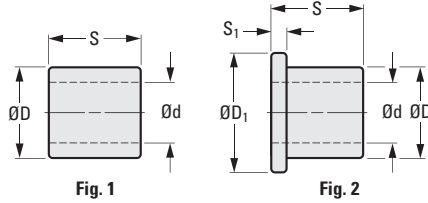
> OPERATING TEMPERATURE:

0°C to +99°C

> FEATURES:

Extremely low wear rate.
High performance rating (PV) among sleeve bearing materials.
Bearing O.D.'s compatible with standard sintered bronze sizes for upgrading existing equipment.
Dynamic coefficient of friction varies, dependent upon customer's loads.
Extremely low coefficient of friction.
Inexpensive.

For additional information on this material, see page 5-5.



METRIC COMPONENT

| Catalog Number | d Bore +0.04 0 | D Dia. +0.05 0 | S Length ± 0.13 | D ₁ Flange Dia. ± 0.13 | S ₁ Flange Width ± 0.08 |
|--------------------------------|-------------------------|-------------------------|-----------------------|---|--|
| Fig. 1 Plain Bearings | | | | | |
| A 7P 6MP0304E | 3.06 | 6.05 | 4 | — | — |
| A 7P 6MP0306E | 3.06 | 6.05 | 6 | — | — |
| A 7P 6MP0404E | 4.06 | 8.06 | 4 | — | — |
| A 7P 6MP0406E | 4.06 | 8.06 | 6 | — | — |
| A 7P 6MP0506E | 5.06 | 10.05 | 6 | — | — |
| A 7P 6MP0508E | 5.06 | 10.05 | 8 | — | — |
| A 7P 6MP0510E | 5.06 | 10.05 | 10 | — | — |
| A 7P 6MP0608E | 6.07 | 10.05 | 8 | — | — |
| A 7P 6MP0612E | 6.07 | 10.05 | 12 | — | — |
| A 7P 6MP0808E | 8.08 | 12.07 | 8 | — | — |
| A 7P 6MP0812E | 8.08 | 12.07 | 12 | — | — |
| A 7P 6MP1012E | 10.1 | 16.07 | 12 | — | — |
| A 7P 6MP1016E | 10.1 | 16.07 | 16 | — | — |
| Fig. 2 Flanged Bearings | | | | | |
| A 7P 6MF0404E | 4.06 | 8.06 | 4 | 10 | 2 |
| A 7P 6MF0406E | 4.06 | 8.06 | 6 | 10 | 2 |
| A 7P 6MF0508E | 5.06 | 10.05 | 8 | 12 | 2 |
| A 7P 6MF0510E | 5.06 | 10.05 | 10 | 12 | 2 |
| A 7P 6MF0608E | 6.07 | 10.05 | 8 | 14 | 2 |
| A 7P 6MF0612E | 6.07 | 10.05 | 12 | 14 | 2 |
| A 7P 6MF0808E | 8.08 | 12.07 | 8 | 15.8 | 2 |
| A 7P 6MF0812E | 8.08 | 12.07 | 12 | 15.8 | 2 |
| A 7P 6MF1012E | 10.1 | 16.07 | 12 | 20 | 3 |
| A 7P 6MF1016E | 10.1 | 16.07 | 16 | 20 | 3 |

MACHINED
SELF-LUBRICATING

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➤ **MATERIAL:**
Acetron

➤ **OPERATING TEMPERATURE:**
-40°C to +121°C

➤ **FEATURES:**
Extremely low wear rate.
High performance rating (PV) among sleeve bearing materials.
Bearing O.D.'s compatible with standard sintered bronze sizes for upgrading existing equipment.
Dynamic coefficient of friction varies, dependent upon customer's loads.
Extremely low coefficient of friction.
Inexpensive.

For additional information on this material, see page 5-5.

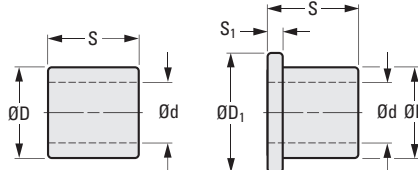


Fig. 1

Fig. 2

METRIC COMPONENT

| Catalog Number * | d Bore +0.04 0 | D Dia. +0.05 0 | S Length ± 0.13 | D ₁ Flange Dia. ± 0.13 | S ₁ Flange Width ± 0.08 |
|--------------------------------|-------------------------|-------------------------|-----------------------|---|--|
| Fig. 1 Plain Bearings | | | | | |
| A 7P 6MP0304 | 3.06 | 6.05 | 4 | - | - |
| A 7P 6MP0406 | 4.06 | 8.06 | 6 | - | - |
| A 7P 6MP0508 | 5.06 | 10.05 | 8 | - | - |
| A 7P 6MP0510 | 5.06 | 10.05 | 10 | - | - |
| A 7P 6MP0608 | 6.07 | 10.05 | 8 | - | - |
| A 7P 6MP0612 | 6.07 | 10.05 | 12 | - | - |
| A 7P 6MP0812 | 8.08 | 12.07 | 12 | - | - |
| A 7P 6MP1012 | 10.1 | 16.07 | 12 | - | - |
| A 7P 6MP1016 | 10.1 | 16.07 | 16 | - | - |
| Fig. 2 Flanged Bearings | | | | | |
| A 7P 6MF0510 | 5.06 | 10.05 | 10 | 12 | 2 |
| A 7P 6MF0608 | 6.07 | 10.05 | 8 | 14 | 2 |
| A 7P 6MF0612 | 6.07 | 10.05 | 12 | 14 | 2 |
| A 7P 6MF0808 | 8.08 | 12.07 | 8 | 15.8 | 2 |
| A 7P 6MF0812 | 8.08 | 12.07 | 12 | 15.8 | 2 |
| A 7P 6MF1012 | 10.1 | 16.07 | 12 | 20 | 3 |
| A 7P 6MF1016 | 10.1 | 16.07 | 16 | 20 | 3 |

* To be discontinued when present material is depleted.
A new material will be offered in its place - **Ertalyte TX Polyester**
See page 5-34 for those part numbers.

SLEEVE BEARINGS • GENERAL PURPOSE POLYMER



MAINTENANCE-FREE
HIGH WEAR RESISTANCE
ABOVE AVERAGE LOADS
DRY RUNNING

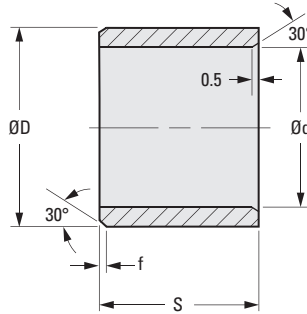
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➤ **MATERIAL:**
G300® Polymer

➤ **OPERATING TEMPERATURE:**
-40°C to +130°C

For additional information concerning the bearing material, see page 5-38.



METRIC COMPONENT

| Catalog Number | d Bore | d Tolerance | D Dia. | S h13 | I.D. After Pressfit | |
|----------------|-----------|----------------|-----------|----------|---------------------|--------|
| | | | | | Max. | Min. |
| S99GGPM020403 | 2 | +0.054/+0.014 | 3.5 | 3 | 2.054 | 2.014 |
| S99GGPM030506 | 3 | +0.054/+0.014 | 4.5 | 6 | 3.054 | 3.014 |
| S99GGPM040604 | 4 | +0.068/+0.020 | 5.5 | 4 | 4.068 | 4.020 |
| S99GGPM050708 | 5 | +0.068/+0.020 | 7 | 8 | 5.068 | 5.020 |
| S99GGPM060808 | 6 | +0.068/+0.020 | 8 | 8 | 6.068 | 6.020 |
| S99GGPM081012 | 8 | +0.083/+0.025 | 10 | 12 | 8.083 | 8.025 |
| S99GGPM101212 | 10 | +0.083/+0.025 | 12 | 12 | 10.083 | 10.025 |
| S99GGPM121414 | 12 | +0.102/+0.032 | 14 | 14 | 12.102 | 12.032 |
| S99GGPM161820 | 16 | +0.102/+0.032 | 18 | 20 | 16.102 | 16.032 |
| S99GGPM202222 | 20 | +0.124/+0.040 | 22 | 22 | 20.124 | 20.040 |

| Catalog Number (Ref.) | Housing Bore | | Shaft Size | | f |
|--------------------------|--------------|--------|------------|--------|-----|
| | Max. | Min. | Max. | Min. | |
| S99GGPM020403 | 3.508 | 3.500 | 2.000 | 1.975 | 0.3 |
| S99GGPM030506 | 4.512 | 4.500 | 3.000 | 2.975 | 0.3 |
| S99GGPM040604 | 5.512 | 5.500 | 4.000 | 3.970 | 0.3 |
| S99GGPM050708 | 7.015 | 7.000 | 5.000 | 4.970 | 0.3 |
| S99GGPM060808 | 8.015 | 8.000 | 6.000 | 5.970 | 0.3 |
| S99GGPM081012 | 10.015 | 10.000 | 8.000 | 7.964 | 0.5 |
| S99GGPM101212 | 12.018 | 12.000 | 10.000 | 9.964 | 0.5 |
| S99GGPM121414 | 14.018 | 14.000 | 12.000 | 11.957 | 0.5 |
| S99GGPM161820 | 18.018 | 18.000 | 16.000 | 15.957 | 0.8 |
| S99GGPM202222 | 22.021 | 22.000 | 20.000 | 19.948 | 0.8 |

MAINTENANCE-FREE
HIGH WEAR RESISTANCE
ABOVE AVERAGE LOADS
DRY-RUNNING

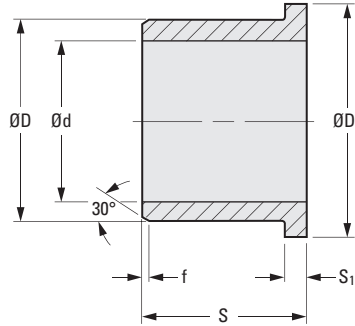
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> MATERIAL:
G300® Polymer

> OPERATING TEMPERATURE:
-40°C to +130°C

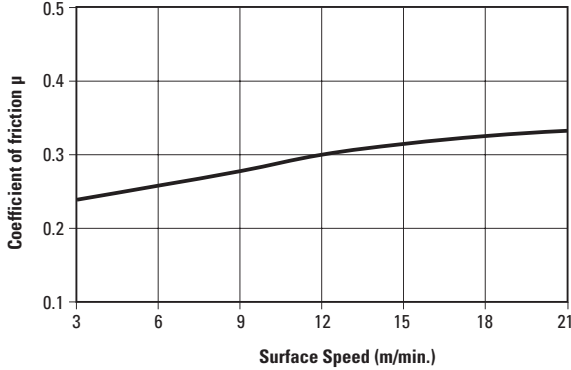
For additional information concerning the bearing material, see page 5-38.



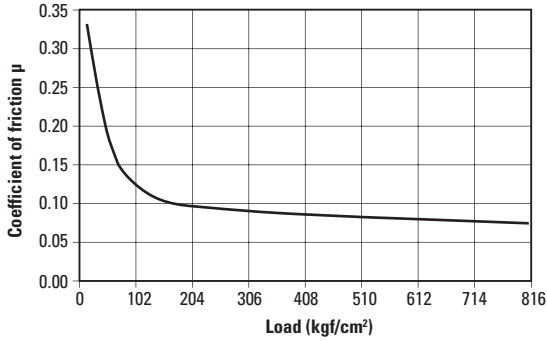
METRIC COMPONENT

| Catalog Number | d Bore | d Tolerance | D Dia. | D ₁ Dia. d13 | S h13 | S ₁ 0 -0.14 | I.D. After Pressfit | |
|----------------|-----------|----------------|-----------|-------------------------------|----------|------------------------------|---------------------|--------|
| | | | | | | | Max. | Min. |
| S99GGFM030503 | 3 | +0.054/+0.014 | 4.5 | 7.5 | 3 | 0.75 | 3.054 | 3.014 |
| S99GGFM040604 | 4 | +0.068/+0.020 | 5.5 | 9.5 | 4 | 0.75 | 4.068 | 4.020 |
| S99GGFM050605 | 5 | +0.040/+0.010 | 6 | 10 | 5 | 0.5 | 5.040 | 5.010 |
| S99GGFM060808 | 6 | +0.068/+0.020 | 8 | 12 | 8 | 1 | 6.068 | 6.020 |
| S99GGFM081010 | 8 | +0.083/+0.025 | 10 | 15 | 10 | 1 | 8.083 | 8.025 |
| S99GGFM101212 | 10 | +0.083/+0.025 | 12 | 18 | 12 | 1 | 10.098 | 10.040 |
| S99GGFM121415 | 12 | +0.102/+0.032 | 14 | 20 | 15 | 1 | 12.102 | 12.032 |
| S99GGFM161817 | 16 | +0.102/+0.032 | 18 | 24 | 17 | 1 | 16.102 | 16.032 |
| S99GGFM202120 | 20 | +0.072/+0.020 | 21 | 25 | 20 | 0.5 | 20.072 | 20.020 |

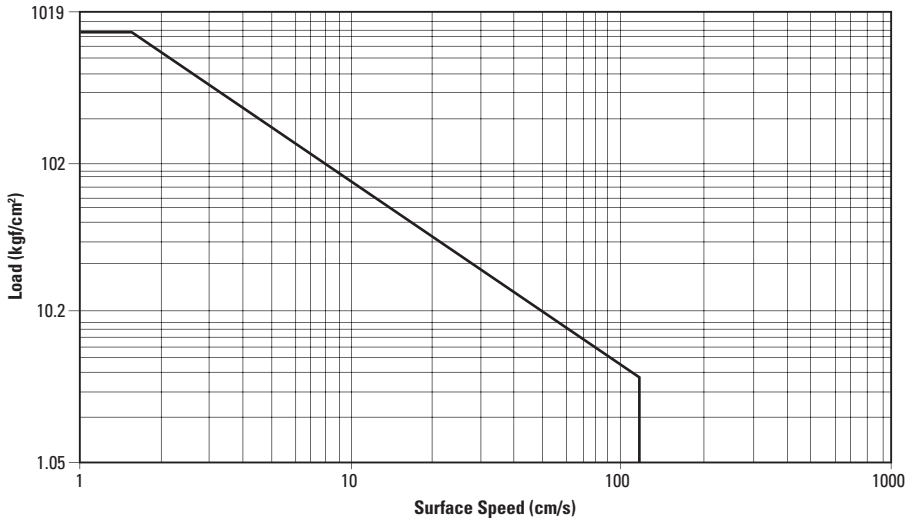
| Catalog Number (Ref.) | Housing Bore | | Shaft Size | | f |
|--------------------------|--------------|--------|------------|--------|-----|
| | Max. | Min. | Max. | Min. | |
| S99GGFM030503 | 4.512 | 4.500 | 3.000 | 2.975 | 0.3 |
| S99GGFM040604 | 5.512 | 5.500 | 4.000 | 3.970 | 0.3 |
| S99GGFM050605 | 6.012 | 6.000 | 5.000 | 4.970 | 0.3 |
| S99GGFM060808 | 8.015 | 8.000 | 6.000 | 5.970 | 0.3 |
| S99GGFM081010 | 10.015 | 10.000 | 8.000 | 7.964 | 0.5 |
| S99GGFM101212 | 12.018 | 12.000 | 10.000 | 9.964 | 0.5 |
| S99GGFM121415 | 14.018 | 14.000 | 12.000 | 11.957 | 0.5 |
| S99GGFM161817 | 18.018 | 18.000 | 16.000 | 15.957 | 0.8 |
| S99GGFM202120 | 21.021 | 21.000 | 20.000 | 19.948 | 0.8 |



Graph 1: Coefficient of friction of G300® as a result of the running speed; $p = 7.6 \text{ kgf/cm}^2$



Graph 2: Coefficient of friction of G300® as a result of the load; $v = 0.6 \text{ m/min.}$



Graph 3: Permissible $p \times v$ - values for G300® running dry against a steel shaft, at 20°C.

HIGH COMPRESSIVE STRENGTH
 VERY LOW MOISTURE ABSORPTION
 UNIVERSAL RESISTANCE TO CHEMICALS

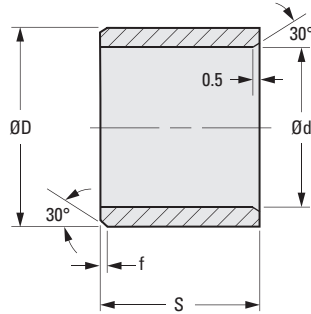
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➤ **MATERIAL:**
 T500® Polymer

➤ **OPERATING TEMPERATURE:**
 -100°C to +250°C

For additional information concerning the bearing material, see page 5-41.



METRIC COMPONENT

| Catalog Number | d Bore | d Tolerance | D Dia. | S h13 | I.D. After Pressfit | |
|----------------|--------|---------------|--------|-------|---------------------|--------|
| | | | | | Max. | Min. |
| S99GTPM020403 | 2 | +0.046/+0.006 | 3.5 | 3 | 2.046 | 2.006 |
| S99GTPM030506 | 3 | +0.046/+0.006 | 4.5 | 6 | 3.046 | 3.006 |
| S99GTPM040604 | 4 | +0.058/+0.010 | 5.5 | 4 | 4.058 | 4.010 |
| S99GTPM050708 | 5 | +0.058/+0.010 | 7 | 8 | 5.058 | 5.010 |
| S99GTPM061008 | 6 | +0.058/+0.010 | 10 | 8 | 6.058 | 6.010 |
| S99GTPM081015 | 8 | +0.071/+0.013 | 10 | 15 | 8.071 | 8.013 |
| S99GTPM101212 | 10 | +0.071/+0.013 | 12 | 12 | 10.071 | 10.013 |
| S99GTPM121415 | 12 | +0.086/+0.016 | 14 | 15 | 12.086 | 12.016 |
| S99GTPM161820 | 16 | +0.086/+0.016 | 18 | 20 | 16.086 | 16.016 |
| S99GTPM202220 | 20 | +0.104/+0.020 | 22 | 20 | 20.104 | 20.020 |

| Catalog Number (Ref.) | Housing Bore | | Shaft Size | | f |
|-----------------------|--------------|--------|------------|--------|-----|
| | Max. | Min. | Max. | Min. | |
| S99GTPM020403 | 3.580 | 3.500 | 2.000 | 1.975 | 0.3 |
| S99GTPM030506 | 4.512 | 4.500 | 3.000 | 2.975 | 0.3 |
| S99GTPM040604 | 5.512 | 5.500 | 4.000 | 3.970 | 0.3 |
| S99GTPM050708 | 7.015 | 7.000 | 5.000 | 4.970 | 0.3 |
| S99GTPM061008 | 10.015 | 10.000 | 6.000 | 5.970 | 0.3 |
| S99GTPM081015 | 10.015 | 10.000 | 8.000 | 7.964 | 0.5 |
| S99GTPM101212 | 12.018 | 12.000 | 10.000 | 9.964 | 0.5 |
| S99GTPM121415 | 14.018 | 14.000 | 12.000 | 11.957 | 0.5 |
| S99GTPM161820 | 18.018 | 18.000 | 16.000 | 15.957 | 0.8 |
| S99GTPM202220 | 22.021 | 22.000 | 20.000 | 19.948 | 0.8 |

FLANGED BEARINGS • HIGH-TEMPERATURE POLYMER



HIGH COMPRESSIVE STRENGTH
 VERY LOW MOISTURE ABSORPTION
 UNIVERSAL RESISTANCE TO CHEMICALS

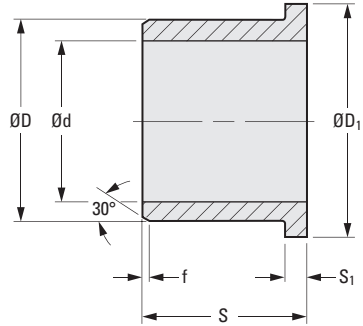
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> MATERIAL:
 T500® Polymer

> OPERATING TEMPERATURE:
 -100°C to +250°C

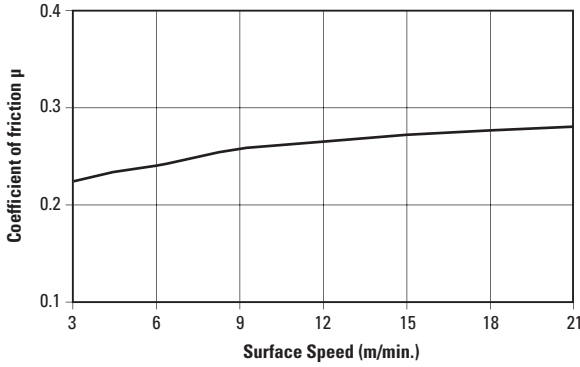
For additional information concerning the bearing material, see page 5-41.



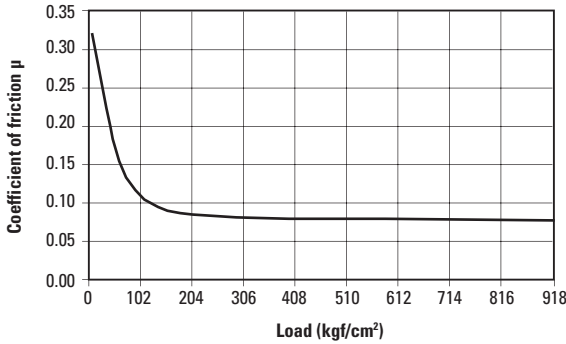
METRIC COMPONENT

| Catalog Number | d Bore | d Tolerance | D Dia. | D ₁ Dia. d13 | S h13 | S ₁ 0 -0.14 | I.D. After Pressfit | |
|----------------|-----------|----------------|-----------|-------------------------------|----------|------------------------------|---------------------|--------|
| | | | | | | | Max. | Min. |
| S99GTFM030505 | 3 | +0.046/+0.006 | 4.5 | 7.5 | 5 | 0.75 | 3.046 | 3.006 |
| S99GTFM040606 | 4 | +0.058/+0.010 | 5.5 | 9.5 | 6 | 0.75 | 4.058 | 4.010 |
| S99GTFM050705 | 5 | +0.058/+0.010 | 7 | 11 | 5 | 1 | 5.058 | 5.010 |
| S99GTFM060808 | 6 | +0.058/+0.010 | 8 | 12 | 8 | 1 | 6.058 | 6.010 |
| S99GTFM081009 | 8 | +0.071/+0.013 | 10 | 15 | 9 | 1 | 8.071 | 8.013 |
| S99GTFM101209 | 10 | +0.071/+0.013 | 12 | 18 | 9 | 1 | 10.071 | 10.013 |
| S99GTFM121412 | 12 | +0.086/+0.016 | 14 | 20 | 12 | 1 | 12.086 | 12.016 |
| S99GTFM161817 | 16 | +0.086/+0.016 | 18 | 24 | 17 | 1 | 16.086 | 16.016 |
| S99GTFM202321 | 20 | +0.104/+0.020 | 23 | 30 | 21 | 1.5 | 20.104 | 20.020 |

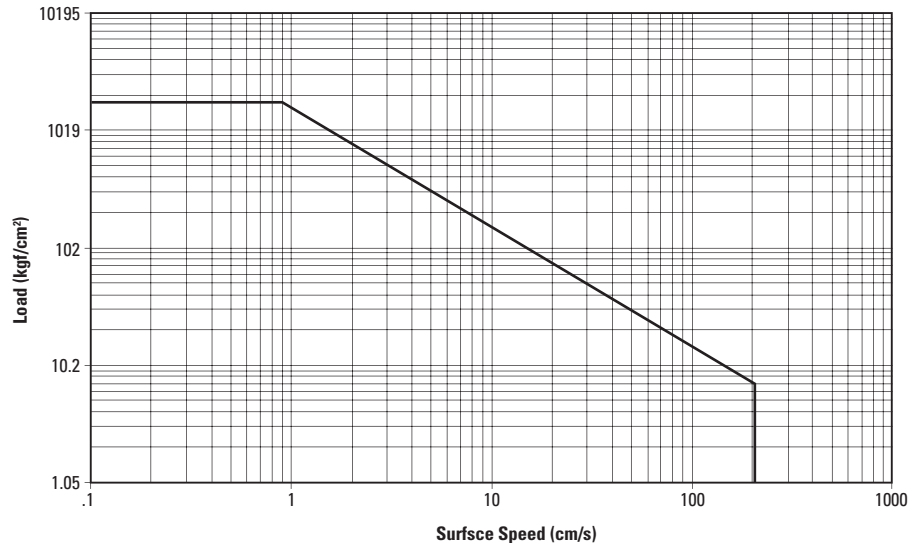
| Catalog Number (Ref.) | Housing Bore | | Shaft Size | | f |
|--------------------------|--------------|--------|------------|--------|-----|
| | Max. | Min. | Max. | Min. | |
| S99GTFM030505 | 4.512 | 4.500 | 3.000 | 2.975 | 0.3 |
| S99GTFM040606 | 5.512 | 5.500 | 4.000 | 3.970 | 0.3 |
| S99GTFM050705 | 7.015 | 7.000 | 5.000 | 4.970 | 0.3 |
| S99GTFM060808 | 8.015 | 8.000 | 6.000 | 5.970 | 0.3 |
| S99GTFM081009 | 10.015 | 10.000 | 8.000 | 7.964 | 0.5 |
| S99GTFM101209 | 12.018 | 12.000 | 10.000 | 9.964 | 0.5 |
| S99GTFM121412 | 14.018 | 14.000 | 12.000 | 11.957 | 0.5 |
| S99GTFM161817 | 18.018 | 18.000 | 16.000 | 15.957 | 0.8 |
| S99GTFM202321 | 23.021 | 23.000 | 20.000 | 19.948 | 0.8 |



Graph 1: Coefficient of friction for T500® as a result of the surface speed; $p = 7.6 \text{ kgf/cm}^2$ shaft Cold Rolled Steel



Graph 2: Coefficient of friction for T500® as a result of the load; $v = 0.6 \text{ m/min.}$



Graph 3: Permissible $p \times v$ values for T500® running dry against a steel shaft, at 20°C

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EXCELLENT VIBRATION DAMPENING
HIGH IMPACT AND CORROSION RESISTANCE
ABSORBS DIRT TO PROTECT SHAFT

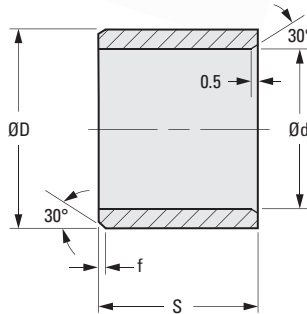
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
M250® Polymer

➤ **OPERATING TEMPERATURE:**
-40°C to +80°C

For additional information concerning the bearing material, see page 5-52.



METRIC COMPONENT

| Catalog Number | d Bore | d Tolerance | D Dia. | S h13 | I.D. After Pressfit | |
|----------------|--------|---------------|--------|-------|---------------------|--------|
| | | | | | Max. | Min. |
| S99GHPM030604 | 3 | +0.080/+0.020 | 6 | 4 | 3.080 | 3.020 |
| S99GHPM040806 | 4 | +0.105/+0.030 | 8 | 6 | 4.105 | 4.030 |
| S99GHPM050908 | 5 | +0.105/+0.030 | 9 | 8 | 5.105 | 5.030 |
| S99GHPM061008 | 6 | +0.105/+0.030 | 10 | 8 | 6.105 | 6.030 |
| S99GHPM081212 | 8 | +0.130/+0.040 | 12 | 12 | 8.130 | 8.040 |
| S99GHPM101616 | 10 | +0.130/+0.040 | 16 | 16 | 10.130 | 10.040 |
| S99GHPM121815 | 12 | +0.160/+0.050 | 18 | 15 | 12.160 | 12.050 |
| S99GHPM161820 | 16 | +0.160/+0.050 | 18 | 20 | 16.160 | 16.050 |
| S99GHPM202520 | 20 | +0.195/+0.065 | 25 | 20 | 20.195 | 20.065 |

| Catalog Number (Ref.) | Housing Bore | | Shaft Size | | f |
|-----------------------|--------------|--------|------------|--------|-----|
| | Max. | Min. | Max. | Min. | |
| S99GHPM030604 | 6.012 | 6.000 | 3.000 | 2.975 | 0.3 |
| S99GHPM040806 | 8.015 | 8.000 | 4.000 | 3.970 | 0.3 |
| S99GHPM050908 | 9.015 | 9.000 | 5.000 | 4.970 | 0.3 |
| S99GHPM061008 | 10.015 | 10.000 | 6.000 | 5.970 | 0.3 |
| S99GHPM081212 | 10.015 | 10.000 | 8.000 | 7.964 | 0.5 |
| S99GHPM101616 | 16.018 | 16.000 | 10.000 | 9.964 | 0.5 |
| S99GHPM121815 | 18.018 | 18.000 | 12.000 | 11.957 | 0.5 |
| S99GHPM161820 | 18.018 | 18.000 | 16.000 | 15.957 | 0.8 |
| S99GHPM202520 | 25.021 | 25.000 | 20.000 | 19.948 | 0.8 |



EXCELLENT VIBRATION DAMPENING
HIGH IMPACT AND CORROSION RESISTANCE
ABSORBS DIRT TO PROTECT SHAFT

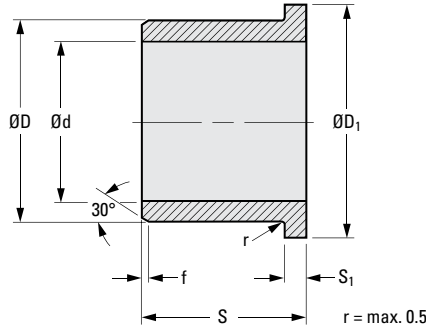
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
M250® Polymer

➤ **OPERATING TEMPERATURE:**
-40°C to +80°C

For additional information concerning the bearing material, see page 5-44.

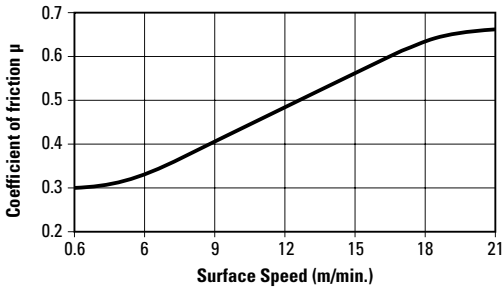


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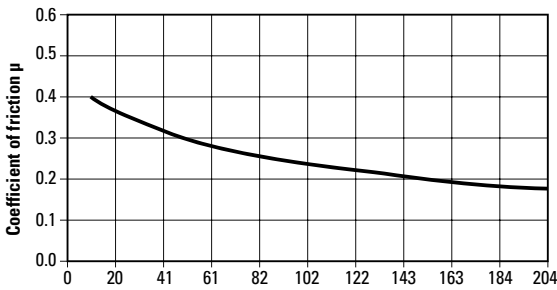
METRIC COMPONENT

| Catalog Number | d Bore | d Tolerance | D Dia. | D ₁ Dia. d13 | S h13 | S ₁ 0 -0.14 | I.D. After Pressfit | |
|----------------|-----------|----------------|-----------|-------------------------------|----------|------------------------------|---------------------|--------|
| | | | | | | | Max. | Min. |
| S99GHFM030604 | 3 | +0.080/+0.020 | 6 | 9 | 4 | 1.5 | 3.080 | 3.020 |
| S99GHFM040806 | 4 | +0.105/+0.030 | 8 | 12 | 6 | 2 | 4.105 | 4.030 |
| S99GHFM050908 | 5 | +0.105/+0.030 | 9 | 13 | 8 | 2 | 5.105 | 5.030 |
| S99GHFM061010 | 6 | +0.105/+0.030 | 10 | 14 | 10 | 2 | 6.105 | 6.030 |
| S99GHFM081212 | 8 | +0.130/+0.040 | 12 | 16 | 12 | 2 | 8.130 | 8.040 |
| S99GHFM101616 | 10 | +0.130/+0.040 | 16 | 22 | 16 | 3 | 10.130 | 10.040 |
| S99GHFM121810 | 12 | +0.160/+0.050 | 18 | 22 | 10 | 3 | 12.160 | 12.050 |
| S99GHFM161812 | 16 | +0.160/+0.050 | 18 | 24 | 12 | 1 | 16.160 | 16.050 |
| S99GHFM202620 | 20 | +0.195/+0.060 | 26 | 32 | 20 | 3 | 20.195 | 20.065 |

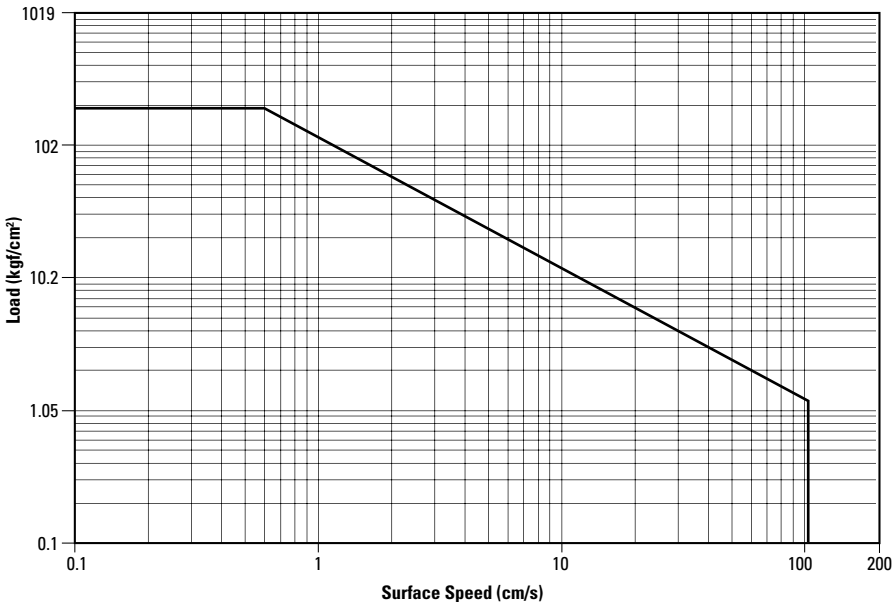
| Catalog Number (Ref.) | Housing Bore | | Shaft Size | | f |
|--------------------------|--------------|--------|------------|--------|-----|
| | Max. | Min. | Max. | Min. | |
| S99GHFM030604 | 6.012 | 6.000 | 3.000 | 2.975 | 0.3 |
| S99GHFM040806 | 8.015 | 8.000 | 4.000 | 3.970 | 0.3 |
| S99GHFM050908 | 9.015 | 9.000 | 5.000 | 4.970 | 0.3 |
| S99GHFM061010 | 10.015 | 10.000 | 6.000 | 5.970 | 0.3 |
| S99GHFM081212 | 12.018 | 12.000 | 8.000 | 7.964 | 0.5 |
| S99GHFM101616 | 16.018 | 16.000 | 10.000 | 9.964 | 0.5 |
| S99GHFM121810 | 18.018 | 18.000 | 12.000 | 11.957 | 0.5 |
| S99GHFM161812 | 18.021 | 18.000 | 16.000 | 15.957 | 0.8 |
| S99GHFM202620 | 26.021 | 26.000 | 20.000 | 19.948 | 0.8 |



Graph 1: Coefficient of friction of M250® as a result of the surface speed; $p = 7.6 \text{ kgf/cm}^2$



Graph 2: Coefficient of friction of M250® as a result of the load; $v = 0.6 \text{ m/min}$.



Graph 3: Permissible $p \times v$ value for M250® running dry against a steel shaft, at 20°C

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CLIP BEARINGS WITH BEVELED EDGES

SDP/SI

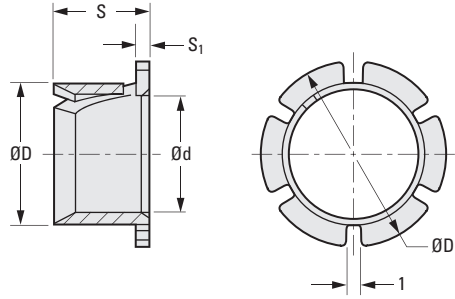
LOW CLEARANCE
 MAINTENANCE-FREE
 ECONOMICAL
 HIGH PRECISION
 HIGH WEAR RESISTANCE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
 M250® Polymer

➤ **OPERATING TEMPERATURE:**
 Continuous: -40°C to +80°C
 Intermittent: +170°C



METRIC COMPONENT

| Catalog Number | d Bore | D Dia | S Length | D ₁ Flange Dia. | S ₁ Flange Width | Recommended | | | |
|----------------|-----------|----------|-------------|----------------------------------|-----------------------------------|--------------|-------|------------|--------|
| | | | | | | Housing Bore | | Shaft Size | |
| | | | | | | Max. | Min. | Max. | Min. |
| S99GMYM040504 | 4 | 5.2 | 4 | 7 | 0.6 | 5.20 | 5.02 | 4.000 | 3.975 |
| S99GMYM050605 | 5 | 6.2 | 5 | 8 | 0.6 | 6.20 | 5.98 | 5.000 | 4.975 |
| S99GMYM060706 | 6 | 7.2 | 6 | 9.5 | 0.6 | 7.20 | 6.98 | 6.000 | 5.975 |
| S99GMYM081008 | 8 | 9.6 | 8 | 12 | 0.8 | 9.60 | 9.38 | 8.000 | 7.975 |
| S99GMYM101210 | 10 | 11.6 | 10 | 15 | 0.8 | 11.60 | 11.33 | 10.000 | 9.975 |
| S99GMYM121412 | 12 | 13.6 | 12 | 18 | 0.8 | 13.60 | 13.33 | 12.000 | 11.975 |
| S99GMYM141614 | 14 | 15.6 | 14 | 21 | 0.8 | 15.60 | 15.33 | 14.000 | 13.975 |
| S99GMYM161816 | 16 | 17.6 | 16 | 24 | 0.8 | 17.60 | 17.33 | 16.000 | 15.975 |
| S99GMYM202220 | 20 | 21.6 | 20 | 30 | 0.8 | 21.60 | 21.27 | 20.000 | 19.975 |
| S99GMYM252825 | 25 | 27.4 | 25 | 37.5 | 1.2 | 27.40 | 27.07 | 25.000 | 24.962 |

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CLIP BEARINGS WITH DOUBLE FLANGE

SDP/SI

FOR USE WITH SHEET METAL PLATES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

M250® Polymer

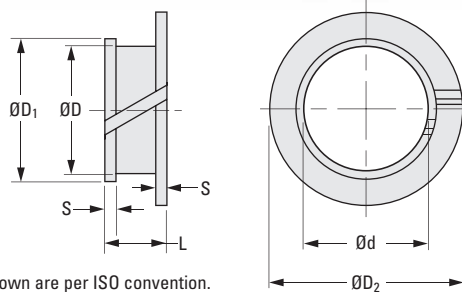
> FEATURES:

- Easy Installation
- Maintenance-Free & Self-Lubricating
- Smooth Operation
- Good Wear Resistance
- Used for Both Rotational & Linear Movements
- Lightweight

> OPERATING TEMPERATURE:

Continuous: -40°C to +80°C

Intermittent: +170°C



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore | D Dia. | Flange Dia. | | S Flange Width | L Length | Recommended | | | | |
|----------------|-----------|-----------|------------------------|------------------------|----------------------|-------------|--------------|--------|------------|--------|--------------------------|
| | | | D ₁ Dia. | D ₂ Dia. | | | Housing Bore | | Shaft Size | | Sheet Metal Thickness |
| | | | | | | | Max. | Min. | Max. | Min. | |
| S99GMC0304832 | 3 | 4.2 | 4.8 | 6 | 0.6 | 3.2 | 4.380 | 4.200 | 3.000 | 2.975 | 1.45...1.92 |
| S99GMC0304842 | 3 | 4.2 | 4.8 | 6 | 0.6 | 4.2 | 4.380 | 4.200 | 3.000 | 2.975 | 2.45...2.92 |
| S99GMC0405932 | 4 | 5.2 | 5.9 | 7 | 0.6 | 3.2 | 5.380 | 5.200 | 4.000 | 3.975 | 1.45...1.92 |
| S99GMC0405942 | 4 | 5.2 | 5.9 | 7 | 0.6 | 4.2 | 5.380 | 5.200 | 4.000 | 3.975 | 2.45...2.92 |
| S99GMC0506832 | 5 | 6.2 | 6.8 | 8 | 0.6 | 3.2 | 6.420 | 6.200 | 5.000 | 4.975 | 1.45...1.92 |
| S99GMC0506842 | 5 | 6.2 | 6.8 | 8 | 0.6 | 4.2 | 6.420 | 6.200 | 5.000 | 4.975 | 2.45...2.92 |
| S99GMC0607832 | 6 | 7.2 | 7.8 | 11 | 0.6 | 3.2 | 7.420 | 7.200 | 6.000 | 5.975 | 1.45...1.92 |
| S99GMC0607842 | 6 | 7.2 | 7.8 | 11 | 0.6 | 4.2 | 7.420 | 7.200 | 6.000 | 5.975 | 2.45...2.92 |
| S99GMC0607852 | 6 | 7.2 | 7.8 | 11 | 0.6 | 5.2 | 7.420 | 7.200 | 6.000 | 5.975 | 3.45...3.92 |
| S99GMC0709846 | 7 | 9 | 9.8 | 13 | 0.8 | 4.6 | 9.220 | 9.000 | 7.000 | 6.975 | 2.45...2.92 |
| S99GMC0810436 | 8 | 9.6 | 10.4 | 13 | 0.8 | 3.6 | 9.820 | 9.600 | 8.000 | 7.975 | 1.45...1.92 |
| S99GMC0810446 | 8 | 9.6 | 10.4 | 13 | 0.8 | 4.6 | 9.820 | 9.600 | 8.000 | 7.975 | 2.45...2.92 |
| S99GMC0911436 | 9 | 10.6 | 11.4 | 14 | 0.8 | 3.6 | 10.870 | 10.600 | 9.000 | 8.975 | 1.45...1.92 |
| S99GMC1012436 | 10 | 11.6 | 12.4 | 15 | 0.8 | 3.6 | 11.870 | 11.600 | 10.000 | 9.975 | 1.45...1.92 |
| S99GMC1012446 | 10 | 11.6 | 12.4 | 15 | 0.8 | 4.6 | 11.870 | 11.600 | 10.000 | 9.975 | 2.45...2.92 |
| S99GMC1214436 | 12 | 13.6 | 14.4 | 17 | 0.8 | 3.6 | 13.870 | 13.600 | 12.000 | 11.975 | 1.45...1.92 |
| S99GMC1214446 | 12 | 13.6 | 14.4 | 17 | 0.8 | 4.6 | 13.870 | 13.600 | 12.000 | 11.975 | 2.45...2.92 |
| S99GMC1214456 | 12 | 13.6 | 14.4 | 17 | 0.8 | 5.6 | 13.870 | 13.600 | 12.000 | 11.975 | 3.45...3.92 |
| S99GMC1416446 | 14 | 15.6 | 16.4 | 19 | 0.8 | 4.6 | 15.870 | 15.600 | 14.000 | 13.975 | 2.45...2.92 |
| S99GMC1618436 | 16 | 17.6 | 18.4 | 21 | 0.8 | 3.6 | 17.870 | 17.600 | 16.000 | 15.975 | 1.45...1.92 |
| S99GMC1618446 | 16 | 17.6 | 18.4 | 21 | 0.8 | 4.6 | 17.870 | 17.600 | 16.000 | 15.975 | 2.45...2.92 |
| S99GMC1821050 | 18 | 20 | 21 | 23 | 1 | 5 | 20.330 | 20.000 | 18.000 | 17.975 | 2.45...2.92 |
| S99GMC2023050 | 20 | 22 | 23 | 25 | 1 | 5 | 22.330 | 22.000 | 20.000 | 19.975 | 2.45...2.92 |
| S99GMC2528050 | 25 | 27 | 28 | 30 | 1 | 5 | 27.330 | 27.000 | 25.000 | 24.975 | 2.45...2.92 |

> SELECTION CHART:

- Items with page numbers are in this catalog.
For items with shaded background, please consult our other SDP/SI catalogs or our Web site: www.sdp-si.com
- The part numbers with the “-” in the 7th character denotes inch size bore and “M” in the 7th character signify metric size bore.



| Type | Bearing Material | | | |
|--|--------------------|--------------------|--------------------|-----------------------|
| | Sintered Bronze | PTFE Bronze | Acetal | Needle Roller Bearing |
| Press-Fit Self-Aligning | A 7Z41- | | A 7Z44- | A 7Z47- |
| | A 7Z41M (pg. 5-54) | | A 7Z44M (pg. 5-55) | A 7Z47M (pg. 5-65) |
| Press-Fit Self-Clinching Self-Aligning | A 7Z40- | A 7Z60- | A 7Z43- | A 7Z46- |
| | A 7Z40M (pg. 5-48) | A 7Z60M (pg. 5-49) | A 7Z43M (pg. 5-52) | A 7Z46M (pg. 5-66) |
| Press-Fit Self-Clinching Nonaligning | | A 7Z61- | | A 7Z48- |
| | | A 7Z61M (pg. 5-50) | | A 7Z48M (pg. 5-66) |
| Flange-Mounted Self-Aligning | A 7Z42- | A 7Z62- | A 7Z45- | A 7Z56- |
| | A 7Z42M (pg. 5-56) | A 7Z62M (pg. 5-57) | A 7Z45M (pg. 5-59) | A 7Z56M (pg. 5-68) |
| Flange-Mounted Nonaligning | | A 7Z63- | | A 7Z57- |
| | | A 7Z63M (pg. 5-58) | | A 7Z57M (pg. 5-69) |
| Pillow Block-Mounted Self-Aligning | A 7Z31- | A 7Z32- | | A 7Z33- |
| | A 7Z31M (pg. 5-80) | A 7Z32M (pg. 5-81) | | A 7Z33M (pg. 5-79) |

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SELF-CLINCHING SINTERED BRONZE PRESSBEARINGS

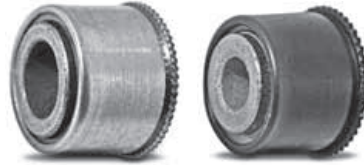
SDP/SI

SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Bearing - Oil-Impregnated Sintered Bronze
Retainer - Carbon Steel, Black Oxide Finish
 or 300 Series Stainless Steel

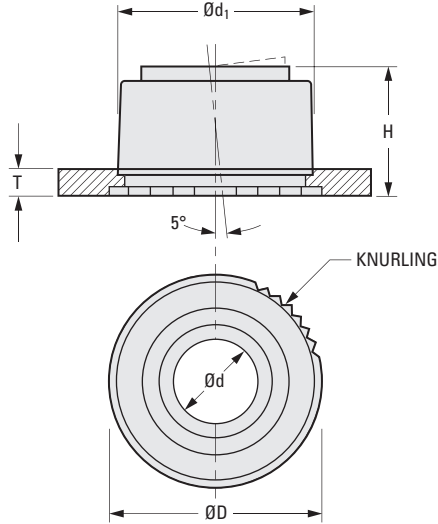


> OPERATING TEMPERATURE:

-29°C to +93°C

> SHAFT REQUIREMENTS:

Any material, HRC 95 min.,
 with a 0.4 μm or finer finish.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | d Nom. I.D. | Actual I.D. +0.02 0 | d ₁ Panel Hole Dia. +0.07 0 | T Min. Panel Thickness | D Knurl O.D. | H Height |
|--|-------------------|------------------------------|--|---------------------------------|--------------------|-------------|
| A 7Z40MF <input type="checkbox"/> B04M | 4 | 4.01 | 12.7 | 1 | 14 | 10.2 |
| A 7Z40MF <input type="checkbox"/> B06M | 6 | 6.02 | 12.7 | 1 | 14 | 10.2 |
| A 7Z40MF <input type="checkbox"/> B08M | 8 | 8.02 | 15.9 | 1.5 | 17 | 11.5 |
| A 7Z40MF <input type="checkbox"/> B10M | 10 | 10.02 | 15.9 | 1.5 | 17 | 11.5 |
| A 7Z40MF <input type="checkbox"/> B12M | 12 | 12.03 | 20.6 | 1.5 | 22 | 16.3 |
| A 7Z40MF <input type="checkbox"/> B15M | 15 | 15.03 | 27 | 2 | 28 | 19.4 |
| A 7Z40MF <input type="checkbox"/> B18M | 18 | 18.03 | 31.8 | 2.3 | 33 | 22.5 |

| Catalog Number (Ref.) | Max. Speed rpm | Max. Radial Load N | |
|--|----------------------|-----------------------|-----------------|
| | | Carbon Steel | Stainless Steel |
| A 7Z40MF <input type="checkbox"/> B04M | 24170 | 800 | 800 |
| A 7Z40MF <input type="checkbox"/> B06M | 16110 | 1530 | 890 |
| A 7Z40MF <input type="checkbox"/> B08M | 12120 | 1850 | 1150 |
| A 7Z40MF <input type="checkbox"/> B10M | 9700 | 1850 | 1150 |
| A 7Z40MF <input type="checkbox"/> B12M | 8060 | 2550 | 1480 |
| A 7Z40MF <input type="checkbox"/> B15M | 6460 | 7000 | 4030 |
| A 7Z40MF <input type="checkbox"/> B18M | 5380 | 8500 | 4880 |

* To complete the Catalog Number, specify:

for a **Carbon Steel Retainer**
 or for a **Stainless Steel Retainer**.

See page 5-51 for installation data

Example: For a Stainless Steel retainer, specify Catalog Number A 7Z40MFXB08M.

SELF-CLINCHING PTFE BRONZE PRESSBEARINGS

SDP/SI

SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING
 EXTREME TEMPERATURE RANGE
 IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING
 AND SLIDING MOTIONS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Bearing - PTFE-Impregnated Porous Bronze
Retainer - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

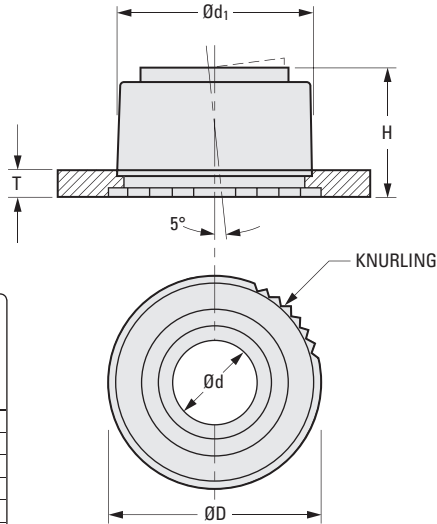
-201°C to +195°C

> FEATURES:

Knurling ensures secure self-clinching
 Simple quick installation.
 Major assembly and production savings
 Mounting blocks not necessary.

> SHAFT REQUIREMENTS:

Any material, soft or hard, with a
 0.4 μm or finer finish.



SHAFT DIAMETERS

| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 4 | 4.000 | 3.992 |
| 6 | 5.990 | 5.978 |
| 8 | 7.987 | 7.972 |
| 10 | 9.987 | 9.972 |
| 12 | 11.984 | 11.966 |
| 16 | 15.984 | 15.966 |
| 18 | 17.984 | 17.966 |

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Panel Hole Dia. +0.07 0 | T Min. Panel Thickness | D Knurl O.D. | H Height | Max. Speed rpm | Max. Radial Load N |
|----------------|-------------------|--|---------------------------------|--------------------|-------------|----------------------|-----------------------------|
| A 7Z60MFSDU04 | 4 | 12.7 | 1 | 14 | 10.2 | 9540 | 1530 |
| A 7Z60MFSDU06 | 6 | 15.9 | 1.5 | 17 | 11.5 | 6360 | 1780 |
| A 7Z60MFSDU08 | 8 | 15.9 | 1.5 | 17 | 11.5 | 4770 | 1780 |
| A 7Z60MFSDU10 | 10 | 20.6 | 1.5 | 22 | 16.3 | 3820 | 2550 |
| A 7Z60MFSDU12 | 12 | 20.6 | 1.5 | 22 | 15.9 | 3180 | 2550 |
| A 7Z60MFSDU16 | 16 | 27 | 2 | 28 | 19.5 | 2390 | 4800 |
| A 7Z60MFSDU18 | 18 | 31.8 | 2.3 | 33 | 22.5 | 2120 | 6200 |

See page 5-51 for installation data

SELF-CLINCHING PTFE BRONZE PRESSBEARINGS

SDP/SI

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NONALIGNING
 SELF-LUBRICATING
 EXTREME TEMPERATURE RANGE
 IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING
 AND SLIDING MOTIONS



► **MATERIAL:**

Bearing - PTFE-Impregnated Porous Bronze
Retainer - Carbon Steel, Black Oxide Finish

► **OPERATING TEMPERATURE:**

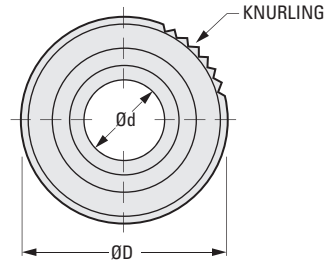
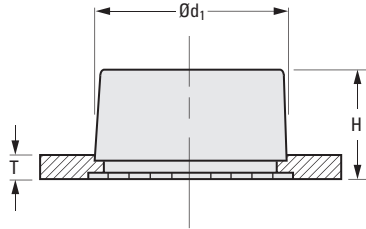
-201°C to +195°C

► **FEATURES:**

Knurling ensures secure self-clinching
 Simple quick installation.
 Major assembly and production savings
 Mounting blocks not necessary.

► **SHAFT REQUIREMENTS:**

Any material, soft or hard, with a
 0.4 µm or finer finish.



The projections shown are per ISO convention.

SHAFT DIAMETERS

| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 4 | 4.000 | 3.992 |
| 6 | 5.990 | 5.978 |
| 8 | 7.987 | 7.972 |
| 10 | 9.987 | 9.972 |
| 12 | 11.984 | 11.966 |
| 16 | 15.984 | 15.966 |
| 18 | 17.984 | 17.966 |

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Panel Hole Dia. +0.07 0 | T Min. Panel Thickness | D Knurl O.D. | H Height | Max. Speed rpm | Max. Radial Load |
|----------------|-------------------|--|---------------------------------|--------------------|-------------|----------------------|------------------------|
| A 7Z61MFSDU04 | 4 | 9.5 | 1 | 10.5 | 6.7 | 9540 | 1530 |
| A 7Z61MFSDU06 | 6 | 12.7 | 1 | 14 | 8.7 | 6360 | 1780 |
| A 7Z61MFSDU08 | 8 | 15.9 | 1.5 | 17 | 10.7 | 4770 | 1780 |
| A 7Z61MFSDU10 | 10 | 15.9 | 1.5 | 17 | 12.9 | 3820 | 2550 |
| A 7Z61MFSDU12 | 12 | 20.6 | 1.5 | 22 | 12.9 | 3180 | 2550 |
| A 7Z61MFSDU16 | 16 | 22.2 | 1.5 | 23 | 14.9 | 2390 | 4800 |
| A 7Z61MFSDU18 | 18 | 27 | 2 | 28 | 17.9 | 2120 | 4800 |

See next page for installation data

FOR SINTERED BRONZE PRESSBEARINGS
 FOR PTFE BRONZE PRESSBEARINGS
 SELF-CLINCHING
 SELF-LUBRICATING

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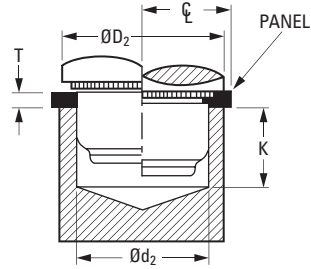
> INSTALLATION:

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below.
 Panel hardness HRB 65 max., HRB 75 max.
 (Stainless Steel retainer).

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!



TOOLING AND INSTALLATION DATA - For Sintered Bronze and PTFE Self-Aligning

| Nominal Shaft Diameter | d_1 Panel Hole Dia. +0.07 0 | d_2 Anvil Dia. +0.1 0 | K Minimum Anvil Depth | D_2 Press Tool Minimum Dia. | C Min. Dist. Centerline to Panel Edge | F Install Force Cold-Rolled Steel kN |
|------------------------|-------------------------------|-------------------------|-----------------------|-------------------------------|---|--------------------------------------|
| 4 | 12.7 | 13.15 | 15.2 | 19 | 9.5 | 45 |
| 6 | 12.7 | 13.15 | 15.2 | 19 | 9.5 | 45 |
| 8 | 15.9 | 16.35 | 16.5 | 22 | 11.5 | 49 |
| 10 | 15.9 | 16.35 | 16.5 | 22 | 11.5 | 49 |
| 12 | 20.6 | 21.05 | 21.3 | 27 | 12.7 | 49 |
| 15 | 27 | 27.45 | 24.4 | 33 | 19 | 54 |
| 18 | 31.8 | 32.25 | 27.5 | 38 | 19 | 54 |

TOOLING AND INSTALLATION DATA - For PTFE Bronze Nonaligning

| Nominal Shaft Diameter | d_1 Panel Hole Dia. +0.07 0 | d_2 Anvil Dia. +0.1 0 | K Minimum Anvil Depth | D_2 Press Tool Minimum Dia. | C Min. Dist. Centerline to Panel Edge | F Install Force Cold-Rolled Steel kN |
|------------------------|-------------------------------|-------------------------|-----------------------|-------------------------------|---|--------------------------------------|
| 4 | 9.5 | 9.95 | 11.7 | 15.5 | 6.4 | 18 |
| 6 | 12.7 | 13.15 | 13.7 | 19 | 9.5 | 45 |
| 8 | 15.9 | 16.35 | 15.7 | 22 | 11.5 | 49 |
| 10 | 15.9 | 16.35 | 17.9 | 22 | 11.5 | 49 |
| 12 | 20.6 | 21.05 | 17.9 | 27 | 12.7 | 49 |
| 16 | 22.2 | 22.65 | 19.9 | 28 | 15.9 | 54 |
| 18 | 27 | 27.45 | 22.9 | 33 | 19 | 54 |

See previous pages for product specifications

SELF-CLINCHING ACETAL PRESSBEARINGS



SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING

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> MATERIAL:

- Bearing** - Acetal with PTFE added
- Retainer** - Carbon Steel, Black Oxide Finish or 300 Series Stainless Steel, Δ Carbon Steel, Zinc Plated. When stock is depleted, Carbon Steel, Black Oxide Finish will be supplied.



> OPERATING TEMPERATURE:

-40°C to +149°C

> SHAFT REQUIREMENTS:

Any material, soft or hard, with a 0.4 μm or finer finish.

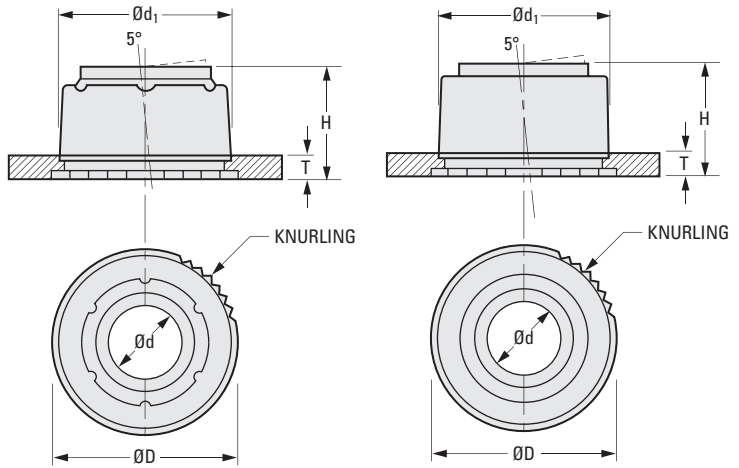


Fig. 1

Fig. 2

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | d Nom. I.D. | Actual I.D. | | d ₁ Panel Hole Dia. +0.07 0 | T Min. Panel Thickness | D Knurl O.D. | H Height | Max. Speed rpm | Max. Radial Load N |
|---|-------------------|-------------|-------|--|---------------------------------|--------------------|-------------|----------------------|-----------------------------|
| | | Max. | Min. | | | | | | |
| Fig. 1 | | | | | | | | | |
| A 7Z43MF <input type="checkbox"/> D02MAF | 2 | 2.10 | 2.06 | 5.9 | 1 | 7.2 | 4.9 | 9220 | 60 |
| A 7Z43MF <input type="checkbox"/> D04MAF | 4 | 4.07 | 4.02 | 7.5 | 1 | 8.7 | 6 | 4620 | 150 |
| A 7Z43MF <input type="checkbox"/> D06MAF | 6 | 6.07 | 6.02 | 9.5 | 1 | 10.6 | 6.9 | 3080 | 270 |
| A 7Z43MF <input type="checkbox"/> D08MAF | 8 | 8.08 | 8.03 | 13.9 | 1.5 | 15.3 | 10 | 2300 | 530 |
| Fig. 2 | | | | | | | | | |
| Δ A 7Z43MF <input type="checkbox"/> D10MAF | 10 | 10.08 | 10.03 | 15.9 | 1.5 | 17 | 11.4 | 1840 | 860 |
| A 7Z43MF <input type="checkbox"/> D12MAF | 12 | 12.08 | 12.03 | 20.6 | 1.5 | 22 | 16.5 | 1540 | 1330 |
| A 7Z43MF <input type="checkbox"/> D15MAF | 15 | 15.08 | 15.03 | 27 | 2 | 28 | 19.4 | 1240 | 1870 |
| A 7Z43MF <input type="checkbox"/> D18MAF | 18 | 18.08 | 18.03 | 31.8 | 2.3 | 33 | 22.4 | 1030 | 2680 |

* To complete the Catalog Number, specify:

- S for a Carbon Steel Retainer
- or X for a Stainless Steel Retainer.

See next page for installation data

Example: For a Carbon Steel retainer, specify Catalog Number A 7Z43MFS08MAF.

FOR ACETAL PRESSBEARINGS
 SELF-ALIGNING TO $\pm 5^\circ$
 SELF-CLINCHING
 SELF-LUBRICATING

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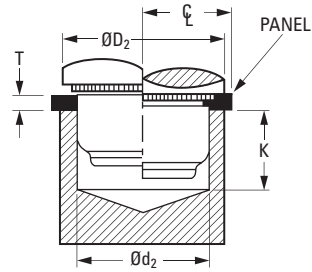
> INSTALLATION:

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below.
 Panel hardness HRB 65 max., HRB 75 max. (Stainless Steel retainer).

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!



TOOLING AND INSTALLATION DATA

| Nominal Shaft Diameter | d_1 Panel Hole Dia. +0.07/0 | d_2 Anvil Dia. +0.1/0 | K Minimum Anvil Depth | D_2 Press Tool Minimum Dia. | ζ Min. Dist. Centerline to Panel Edge | F Install Force Cold-Rolled Steel kN |
|------------------------|-------------------------------|-------------------------|-----------------------|-------------------------------|---|--------------------------------------|
| 2 | 5.9 | 6.35 | 9.9 | 12.2 | 4.7 | 9 |
| 4 | 7.5 | 7.95 | 11 | 13.7 | 5.5 | 14 |
| 6 | 9.5 | 9.95 | 11.9 | 15.6 | 6.4 | 18 |
| 8 | 13.9 | 14.35 | 15 | 20.3 | 10.3 | 45 |
| 10 | 15.9 | 16.35 | 16.4 | 22 | 11.5 | 49 |
| 12 | 20.6 | 21.05 | 21.5 | 27 | 12.7 | 49 |
| 15 | 27 | 27.45 | 24.5 | 33 | 19 | 54 |
| 18 | 31.8 | 32.25 | 27.4 | 38 | 19 | 54 |

See previous page for product specifications



SINTERED BRONZE PRESSBEARINGS



PRESS-FIT INSTALLATION
 SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Bearing - Oil-Impregnated Sintered Bronze
Retainer - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

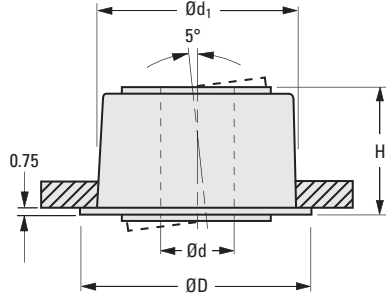
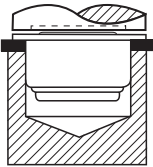
-29°C to +93°C

> SHAFT REQUIREMENTS:

Any material, HRB 95 min., with a 0.4 μm or finer finish.

> INSTALLATION NOTES:

1. The punch must be relieved to accommodate protruding insert.
2. **DO NOT PRESS BEARING ON INSERT!**



METRIC COMPONENT

| Catalog Number | d Nom. I.D. | Actual I.D. +0.02 0 | d ₁ Panel Hole Dia. +0.07 0 | D Flange Dia. | H Height | Max. Speed rpm | Max. Radial Load N |
|----------------|-------------------|------------------------------|--|---------------------|-------------|----------------------|-----------------------------|
| A 7Z41MPSB04M | 4 | 4.01 | 12.7 | 14.2 | 9.6 | 24170 | 800 |
| A 7Z41MPSB06M | 6 | 6.02 | 12.7 | 14.2 | 9.6 | 16110 | 1530 |
| A 7Z41MPSB08M | 8 | 8.02 | 15.9 | 17.4 | 10.8 | 12120 | 1850 |
| A 7Z41MPSB10M | 10 | 10.02 | 15.9 | 17.4 | 10.8 | 9700 | 1850 |
| A 7Z41MPSB12M | 12 | 12.03 | 20.6 | 22.2 | 15.2 | 8060 | 2550 |
| A 7Z41MPSB15M | 15 | 15.03 | 27 | 28.5 | 19.6 | 6460 | 7000 |

PRESS-FIT INSTALLATION
 SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



› **MATERIAL:**

Bearing - Acetal with PTFE added
Retainer - Carbon Steel, Black Oxide Finish

› **OPERATING TEMPERATURE:**

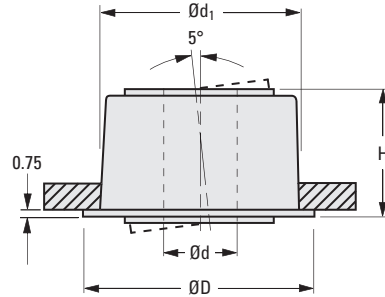
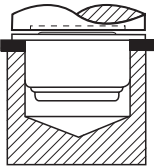
-40°C to +149°C

› **SHAFT REQUIREMENTS:**

Any material, soft or hard, with a 0.4 μm or finer finish.

› **INSTALLATION NOTES:**

1. The punch must be relieved to accommodate protruding insert.
2. **DO NOT PRESS BEARING ON INSERT!**



METRIC COMPONENT

| Catalog Number | d Nom. I.D. | Actual I.D. +0.05 0 | d ₁ Panel Hole Dia. +0.07 0 | D Flange Dia. | H Height | Max. Speed rpm | Max. Radial Load N |
|-----------------|-------------------|------------------------------|--|---------------------|-------------|----------------------|-----------------------------|
| A 7Z44MPSD04MAF | 4 | 4.02 | 12.7 | 14.2 | 9.6 | 4620 | 150 |
| A 7Z44MPSD06MAF | 6 | 6.02 | 12.7 | 14.2 | 9.6 | 3080 | 270 |
| A 7Z44MPSD08MAF | 8 | 8.03 | 15.9 | 17.4 | 10.8 | 2300 | 530 |
| A 7Z44MPSD10MAF | 10 | 10.03 | 15.9 | 17.4 | 10.8 | 1840 | 860 |
| A 7Z44MPSD12MAF | 12 | 12.03 | 20.6 | 22.2 | 14.9 | 1540 | 1330 |
| A 7Z44MPSD15MAF | 15 | 15.03 | 27 | 28.5 | 19.6 | 1240 | 1870 |

SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING
 FLANGE-MOUNTED

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> MATERIAL:

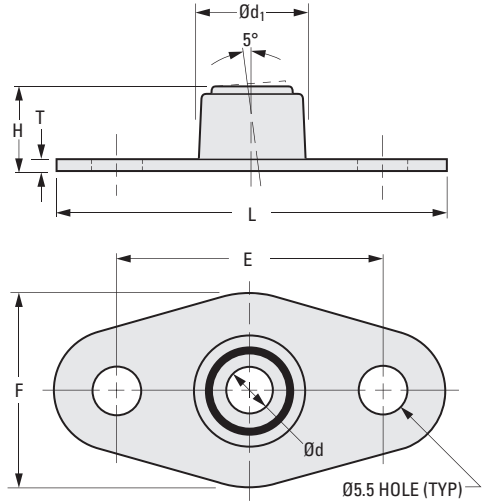
Bearing - Oil-Impregnated Sintered Bronze
Flange & Retainer - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

-29°C to +93°C

> SHAFT REQUIREMENTS:

Any material, soft or hard, HRB 95,
 with a 0.4 μm or finer finish



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | Actual I.D. +0.02 0 | d ₁ Clearance Hole Dia. (Ref.) | L Overall Length | F Overall Width | E Mtg. Dist. | T Nominal Flange Thickness | H Height | Max. Speed rpm | Max. Radial Load N |
|-----------------|-------------------|------------------------------|--|------------------------|-----------------------|--------------------|-------------------------------------|-------------|----------------------|-----------------------------|
| *A 7Z42MBFM04MB | 4 | 4.01 | 13.5 | 45 | 22.3 | 31 | 1.2 | 10.2 | 24170 | 530 |
| A 7Z42MBFM06MB | 6 | 6.02 | 13.5 | 45 | 22.3 | 31 | 1.2 | 10.2 | 16110 | 790 |
| A 7Z42MBFM08MB | 8 | 8.02 | 17 | 53 | 30.2 | 39 | 1.5 | 11.5 | 12120 | 1190 |
| A 7Z42MBFM10MB | 10 | 10.02 | 17 | 53 | 30.2 | 39 | 1.5 | 11.5 | 9700 | 1490 |
| A 7Z42MBFM12MB | 12 | 12.03 | 21.5 | 60 | 36.5 | 45.2 | 1.5 | 16.3 | 8060 | 2530 |
| A 7Z42MBFM15MB | 15 | 15.03 | 28 | 60 | 39.7 | 45.2 | 2.3 | 19.4 | 6460 | 3750 |
| A 7Z42MBFM18MB | 18 | 18.03 | 32.5 | 60 | 47 | 45.2 | 2.3 | 22.5 | 5380 | 4800 |
| A 7Z42MBFM20MB | 20 | 20.03 | 32.5 | 60 | 47 | 45.2 | 2.3 | 22.5 | 5200 | 4800 |

* To be discontinued when present stock is depleted.

SELF-ALIGNING $\pm 5^\circ$
 SELF-LUBRICATING
 EXTREME TEMPERATURE RANGE
 IDEAL FOR ALL TYPES OF ROTATING,
 OSCILLATING AND SLIDING MOTIONS

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> MATERIAL:

Bearing - PTFE-Impregnated Porous Bronze
Retainer - Carbon Steel, Black Oxide Finish

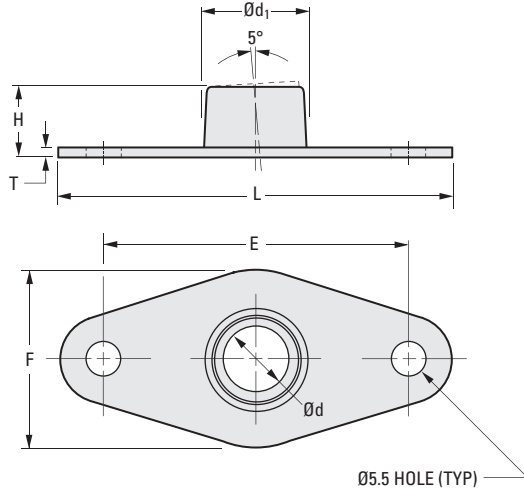
> OPERATING TEMPERATURE:

-201°C to +195°C

> SHAFT REQUIREMENTS:

Any material, soft or hard,
 with a 0.4 μm or finer finish.

| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 4 | 4.000 | 3.992 |
| 6 | 5.990 | 5.978 |
| 8 | 7.987 | 7.972 |
| 10 | 9.987 | 9.972 |
| 12 | 11.984 | 11.966 |
| 16 | 15.984 | 15.966 |
| 18 | 17.984 | 17.966 |



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Clearance Hole Dia. (Ref.) | L Overall Length | F Overall Width | E Mounting Distance | T Nominal Flange Thickness | H Height | Max. Speed rpm | Max. Radial Load N |
|----------------|-------------------|--|------------------------|-----------------------|---------------------------|-------------------------------------|-------------|----------------------|-----------------------------|
| A 7Z62MFDU04 | 4 | 13 | 45 | 22.2 | 31 | 1.2 | 10.2 | 23885 | 3360 |
| A 7Z62MFDU06 | 6 | 16.5 | 53 | 30.2 | 39 | 1.5 | 11.5 | 6360 | 1550 |
| A 7Z62MFDU08 | 8 | 16.5 | 53 | 30.2 | 39 | 1.5 | 11.5 | 4770 | 1550 |
| A 7Z62MFDU10 | 10 | 22 | 60 | 36.5 | 45.2 | 1.5 | 16.3 | 3820 | 2550 |
| A 7Z62MFDU12 | 12 | 22 | 60 | 36.5 | 45.2 | 1.5 | 15.9 | 3180 | 4800 |
| A 7Z62MFDU16 | 16 | 28 | 60 | 39.7 | 45.2 | 2.3 | 19.5 | 2390 | 4800 |
| A 7Z62MFDU18 | 18 | 33 | 60 | 47 | 45.2 | 2.3 | 22.5 | 2120 | 4800 |

NONALIGNING
 SELF-LUBRICATING
 EXTREME TEMPERATURE RANGE
 IDEAL FOR ALL TYPES OF ROTATING,
 OSCILLATING AND SLIDING MOTIONS



> MATERIAL:

Bearing - PTFE-Impregnated Porous Bronze
Retainer - Carbon Steel, Black Oxide Finish

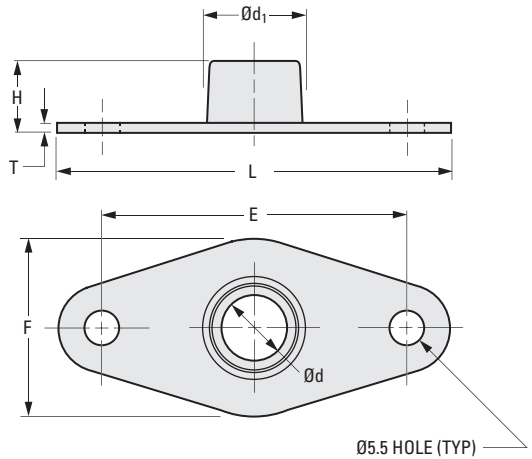
> OPERATING TEMPERATURE:

-201°C to +195°C

> SHAFT REQUIREMENTS:

Any material, soft or hard,
 with a 0.4 µm or finer finish.

| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 4 | 4.000 | 3.992 |
| 6 | 5.990 | 5.978 |
| 8 | 7.987 | 7.972 |
| 10 | 9.987 | 9.972 |
| 12 | 11.984 | 11.966 |
| 16 | 15.984 | 15.966 |
| 18 | 17.984 | 17.966 |



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Clearance Hole Dia. (Ref.) | L Overall Length | F Overall Width | E Mounting Distance | T Nominal Flange Thickness | H Height | Max. Speed rpm | Max. Radial Load N |
|----------------|-------------------|--|------------------------|-----------------------|---------------------------|-------------------------------------|-------------|----------------------|-----------------------------|
| * A 7Z63MFDU04 | 4 | 10.3 | 45 | 22.2 | 31 | 1.2 | 6.7 | 23885 | 3360 |
| A 7Z63MFDU06 | 6 | 13 | 45 | 22.2 | 31 | 1.2 | 8.7 | 6360 | 1550 |
| A 7Z63MFDU08 | 8 | 16.5 | 53 | 30.2 | 39 | 1.5 | 10.7 | 4770 | 1550 |
| A 7Z63MFDU10 | 10 | 16.5 | 53 | 30.2 | 39 | 1.5 | 12.9 | 3820 | 2550 |
| A 7Z63MFDU12 | 12 | 22 | 60 | 36.5 | 45 | 1.5 | 12.9 | 3180 | 4800 |
| A 7Z63MFDU16 | 16 | 23 | 53 | 32 | 39 | 2.3 | 14.9 | 2390 | 4800 |
| A 7Z63MFDU18 | 18 | 28 | 60 | 39.7 | 45 | 2.3 | 17.9 | 2120 | 4800 |

* To be discontinued when present stock is depleted.

FLANGE-MOUNTED ACETAL BEARINGS

SDP/SI

SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING
 FLANGE-MOUNTED

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> MATERIAL:

Bearing - Acetal with PTFE added
Flange & Retainer - Carbon Steel,
 Black Oxide Finish



> OPERATING TEMPERATURE:

-40°C to +149°C

> SHAFT REQUIREMENTS:

Any material, soft or hard
 with a 0.4 μm or finer finish.

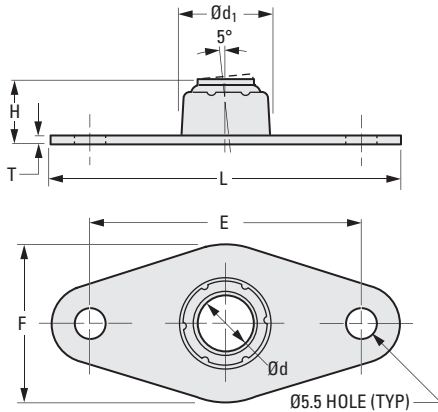


Fig. 1

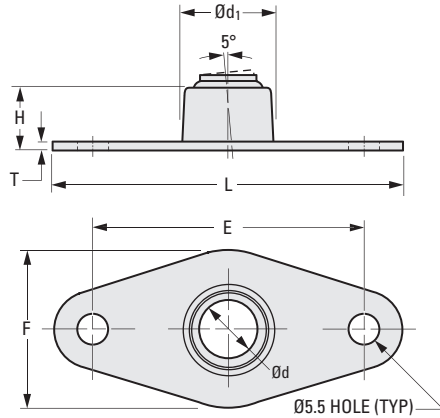


Fig. 2

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | Actual I.D. +0.05 0 | d ₁ Clearance Hole Dia. (Ref.) | L Overall Length | F Overall Width | E Mtg. Dist. | T Nominal Flange Thickness | H Height | Max. Speed rpm | Max. Radial Load N |
|-----------------|-------------------|------------------------------|--|------------------------|-----------------------|--------------------|-------------------------------------|-------------|----------------------|-----------------------------|
| Fig. 1 | | | | | | | | | | |
| A 7Z45MBFM06MAF | 6 | 6.02 | 11 | 45 | 22 | 31 | 1.2 | 6.9 | 3080 | 270 |
| A 7Z45MBFM08MAF | 8 | 8.03 | 17 | 53 | 30 | 39 | 1.6 | 10 | 2300 | 530 |
| Fig. 2 | | | | | | | | | | |
| A 7Z45MBFM10MAF | 10 | 10.03 | 17 | 53 | 30 | 39 | 1.6 | 11.4 | 1840 | 860 |
| A 7Z45MBFM12MAF | 12 | 12.03 | 22 | 60 | 36.5 | 45 | 1.6 | 16.5 | 1540 | 1330 |
| A 7Z45MBFM15MAF | 15 | 15.03 | 28 | 60 | 39.7 | 45 | 2.3 | 19.4 | 1240 | 1870 |
| A 7Z45MBFM18MAF | 18 | 18.03 | 33 | 60 | 47 | 45.2 | 2.3 | 22.4 | 1030 | 2600 |
| A 7Z45MBFM20MAF | 20 | 20.03 | 33 | 60 | 47 | 45.2 | 2.3 | 22.4 | 900 | 2600 |



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NEEDLE ROLLER BEARINGS



FOR 3 mm TO 25 mm HARDENED SHAFTS
EXTREMELY HIGH-SPEED
HIGH LOAD CAPACITY

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Roller Cup** - Case-Hardened Steel
- Needle Bearing** - 52100 Hardened Chrome Steel
- Bearing Cage** - Low Carbon Steel

> FEATURES:

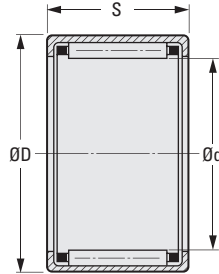
- Low profile, lightweight caged.
- Caged needle bearings offer up to 3 times the speed of uncaged designs.
- Extremely low rolling friction.
- High lubrication capacity.
- Low sensitivity to misalignment.
- Needles have high length to diameter ratios.

> SHAFT REQUIREMENTS^Δ:

- Shaft surface hardness must be HRC 58 minimum;
- or use inner race over softer shaft, where available.

> HOUSING TOLERANCES^{**}:

- Recommended tolerances for steel or cast iron housing bore diameter according to N6. For light metal, use tolerance R6.



TOLERANCE CHART

| Dimensions | | Shaft ^Δ h6 | Bore ^{**} N6 | Bore ^{**} R6 |
|------------|-------|--------------------------|--------------------------|--------------------------|
| Over | Incl. | | | |
| — | 3 | 0/-0.006 | -0.004/-0.010 | -0.010/-0.016 |
| 3 | 6 | 0/-0.008 | -0.005/-0.013 | -0.012/-0.020 |
| 6 | 10 | 0/-0.009 | -0.007/-0.016 | -0.016/-0.025 |
| 10 | 18 | 0/-0.011 | -0.009/-0.020 | -0.020/-0.031 |
| 18 | 30 | 0/-0.013 | -0.011/-0.024 | -0.024/-0.037 |
| 30 | 50 | 0/-0.016 | -0.012/-0.028 | -0.029/-0.045 |

METRIC COMPONENT

| Catalog Number | d Shaft Diameter h6 | D Dia. | S Face Width 0 -0.2 | Speed* Limit Oil rpm | Load Capacity | | Inner Race Available See Series S99RH2M... |
|----------------|------------------------------|-----------|------------------------------|----------------------------|---------------|-------------|---|
| | | | | | Dynamic N | Static N | |
| S99NH2MBN0306 | 3 | 6.5 | 6 | 46000 | 1230 | 840 | — |
| S99NH2MBN0408 | 4 | 8 | 8 | 41000 | 1780 | 1310 | — |
| S99NH2MBN0509 | 5 | 9 | 9 | 38000 | 2400 | 1990 | — |
| S99NH2MBN0609 | 6 | 10 | 9 | 35000 | 2850 | 2600 | — |
| S99NH2MBN0709 | 7 | 11 | 9 | 31000 | 3100 | 2950 | — |
| S99NH2MBN0810 | 8 | 12 | 10 | 28000 | 3800 | 3950 | S99RH2MBNR0508 |
| S99NH2MBN0910 | 9 | 13 | 10 | 25000 | 4250 | 4650 | S99RH2MBNR0609 |
| S99NH2MBN1010 | 10 | 14 | 10 | 23000 | 4400 | 5100 | S99RH2MBNR0710 |
| S99NH2MBN1212 | 12 | 18 | 12 | 19000 | 6500 | 7300 | S99RH2MBNR0812 |
| S99NH2MBN1312 | 13 | 19 | 12 | 18000 | 6800 | 7900 | S99RH2MBNR1013 |
| S99NH2MBN1412 | 14 | 20 | 12 | 16000 | 7100 | 8500 | S99RH2MBNR1014 |
| S99NH2MBN1512 | 15 | 21 | 12 | 16000 | 7900 | 9400 | S99RH2MBNR1215 |
| S99NH2MBN1612 | 16 | 22 | 12 | 15000 | 7600 | 9700 | S99RH2MBNR1216 |
| S99NH2MBN1712 | 17 | 23 | 12 | 14000 | 7900 | 10300 | S99RH2MBNR1417 |
| S99NH2MBN1812 | 18 | 24 | 12 | 13000 | 8100 | 10900 | S99RH2MBNR1518 |
| S99NH2MBN2012 | 20 | 26 | 12 | 12000 | 8600 | 12100 | S99RH2MBNR1520 |
| S99NH2MBN2212 | 22 | 28 | 12 | 11000 | 9100 | 13400 | S99RH2MBNR1722 |
| S99NH2MBN2512 | 25 | 32 | 12 | 10000 | 11000 | 15200 | S99RH2MBNR2025 |

* With grease lubricant, 60% of given values are permissible. Standard bearings are oiled or greased with general purpose lubricants. Other lubricants are available on special order.



INNER RACES FOR NEEDLE BEARINGS

SDP/SI

USED AS INNER RACE ON SOFT SHAFTS
CAN BE USED AS HARDENED BUSHINGS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



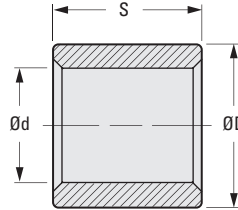
> MATERIAL:

Alloy Steel, Hardened to HRC 58 Min.

> SPECIFICATIONS:

O.D. ground to 0.40 μ m AA surface roughness.
Recommended fit tolerances for shaft according to k6.
All corners chamfered for easy assembly.
Wider units available to accommodate shaft translation.

Other sizes available on special order.



TOLERANCE CHART

| Dimensions | | H6 | h5 | h6 | k6 |
|------------|-------|----------|----------|----------|---------------|
| Over | Incl. | | | | |
| 3 | 6 | +0.008/0 | 0/-0.005 | 0/-0.008 | +0.009/+0.001 |
| 6 | 10 | +0.009/0 | 0/-0.006 | 0/-0.009 | +0.010/+0.001 |
| 10 | 18 | +0.011/0 | 0/-0.008 | 0/-0.011 | +0.012/+0.001 |
| 18 | 30 | +0.013/0 | 0/-0.009 | 0/-0.013 | +0.015/+0.002 |

METRIC COMPONENT

| Catalog Number | d Bore H6 | D Dia. h5 | S h6 | Use with Bearing No. |
|----------------|-----------------|-----------------|---------|-------------------------|
| S99RH2MBNR0508 | 5 | 8 | 12 | S99NH2MBN0810 |
| S99RH2MBNR0609 | 6 | 9 | 12 | S99NH2MBN0910 |
| S99RH2MBNR0710 | 7 | 10 | 12 | S99NH2MBN1010 |
| S99RH2MBNR0812 | 8 | 12 | 12 | S99NH2MBN1212 |
| S99RH2MBNR1013 | 10 | 13 | 12.5 | S99NH2MBN1312 |
| S99RH2MBNR1014 | 10 | 14 | 12 | S99NH2MBN1412 |
| S99RH2MBNR1215 | 12 | 15 | 12 | S99NH2MBN1512 |
| S99RH2MBNR1216 | 12 | 16 | 12 | S99NH2MBN1612 |
| S99RH2MBNR1417 | 14 | 17 | 17 | S99NH2MBN1712 |
| S99RH2MBNR1518 | 15 | 18 | 16 | S99NH2MBN1812 |
| S99RH2MBNR1520 | 15 | 20 | 12 | S99NH2MBN2012 |
| S99RH2MBNR1722 | 17 | 22 | 13 | S99NH2MBN2212 |
| S99RH2MBNR2025 | 20 | 25 | 16 | S99NH2MBN2512 |

ROLLER CLUTCHES

SDP/SI

FOR 4 mm TO 35 mm HARDENED SHAFTS
UNIDIRECTIONAL DRIVE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

- Roller Cup** - Case-Hardened Steel
- Needle Bearing** - 52100 Hardened Chrome Steel
- Springs** - Stainless Steel
- Cage** - Nylon 66 (or Equivalent)



► **FEATURES:**

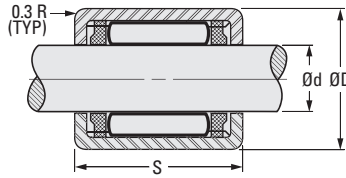
- Ideal for indexing, backstopping or overrunning operations.
- Free rolling one way, drives in opposite direction.
- Lightweight, low profile.
- High indexing frequency, up to 4CPS.
- Operating temperature, grease +10°C to +70°C.
- Minimum backlash.

► **SHAFT REQUIREMENTS:**

Shaft surface hardness must be HRC 58 min.

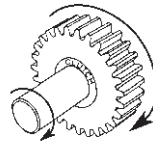
► **HOUSING RECOMMENDATION:**

Recommended tolerances for Housing Bore according to N7 for Steel, R7 for Aluminum.

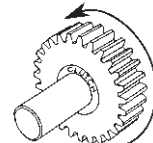


What It Does...

Transmits torque load in one direction.
Overruns freely in opposite direction.
Either shaft or housing can be driving member.



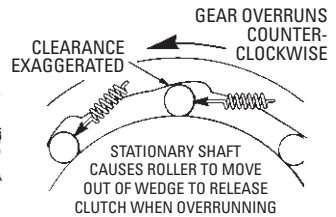
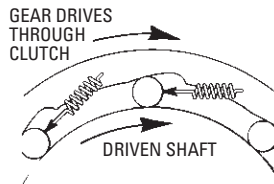
GEAR DRIVES
SHAFT CLOCKWISE



GEAR OVERRUNS
SHAFT COUNTERCLOCKWISE

How It Works...

Rollers wedge between shaft and outer race. Positive wedging forces prevent slipping. Springs position rollers for instantaneous lockup.



METRIC COMPONENT

| Catalog Number | d Shaft Dia. h6 | D Dia. | S Face Width 0 -0.2 | Max. Torque N • m | Rotating Overrun Speed Max. rpm | |
|----------------|--------------------------|-----------|---------------------------------|-------------------------|---------------------------------------|---------|
| | | | | | Shaft | Housing |
| S99NH3MURC0406 | 4 | 8 | 6 | 0.34 | 34000 | 8000 |
| S99NH3MURC0612 | 6 | 10 | 12 | 1.76 | 23000 | 13000 |
| S99NH3MURC0812 | 8 | 12 | 12 | 3.15 | 17000 | 12000 |
| S99NH3MURC1012 | 10 | 14 | 12 | 5.3 | 14000 | 11000 |
| S99NH3MURC1216 | 12 | 18 | 16 | 12.2 | 11000 | 8000 |
| S99NH3MURC1416 | 14 | 20 | 16 | 17.3 | 9500 | 8000 |
| S99NH3MURC1616 | 16 | 22 | 16 | 20.5 | 8500 | 7500 |
| S99NH3MURC1816 | 18 | 24 | 16 | 24.1 | 7500 | 7500 |
| S99NH3MURC2016 | 20 | 26 | 16 | 28.5 | 7000 | 6500 |
| S99NH3MURC2520 | 25 | 32 | 20 | 66 | 5500 | 5500 |
| S99NH3MURC3020 | 30 | 37 | 20 | 90 | 4500 | 4500 |
| S99NH3MURC3520 | 35 | 42 | 20 | 121 | 3900 | 3900 |

SINTERED BEARING SUPPORT
UNDIRECTIONAL DRIVE

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> MATERIAL:

- Roller Cup** - Case-Hardened Steel
- Needle Bearing** - 52100 Hardened Chrome Steel
- Springs** - Stainless Steel
- Cage** - Plastic
- Bearing Support** - Sintered Bronze Bearings

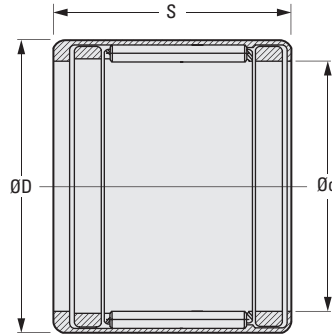


> SHAFT REQUIREMENTS:

Shaft surface hardness must be HRC 58 min.

> HOUSING RECOMMENDATION:

Recommended tolerances for Housing Bore are N6 for Steel, R6 for Aluminum. Tolerances for Housing Bore of N7 for Steel and R7 for Aluminum can be used if only 50% of the torque is used.



METRIC COMPONENT

| Catalog Number | d Shaft Dia. h6 | D Dia. | S Face Width 0 -0.2 | Torque Limit N • m | Max. Speed Limit rpm | | Max. Load Limit N | Max. Load Speed Limit N/min. |
|-------------------|-----------------|--------|---------------------|--------------------|----------------------|---------|-------------------|------------------------------|
| | | | | | Shaft | Housing | | |
| *Δ S99NH4MURC0408 | 4 | 8 | 8 | 0.34 | 34000 | 8000 | 80 | 16000 |
| * S99NH4MURC0615 | 6 | 10 | 15 | 1.76 | 23000 | 13000 | 110 | 18000 |

* During operation of the above items:

F max. = Load Speed Limit (N/min.)

F_R = Load Limit (N)

n = Speed Limit (housing or shaft) (rpm)

F_R • n = F max.

Δ Equipped with plastic springs.

Continued on the next page

NEEDLE BEARING SUPPORT
UNDIRECTIONAL DRIVE

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> MATERIAL:

- Roller Cup** - Case-Hardened Steel
- Needle Bearing** - 52100 Hardened Chrome Steel
- Springs** - Stainless Steel
- Cage** - Plastic
- Bearing Support** - Needle Bearings

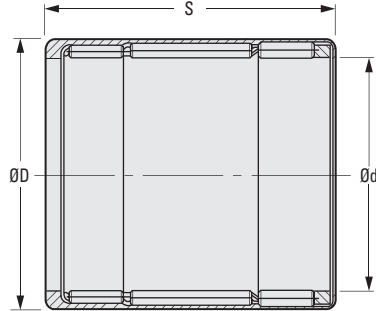


> SHAFT REQUIREMENTS:

Shaft surface hardness must be HRC 58 min.

> HOUSING RECOMMENDATIONS:

Recommended tolerances for Housing Bore are N6 for Steel, R6 for Aluminum. Tolerances for Housing Bore of N7 for Steel and R7 for Aluminum can be used if only 50% of the torque is used.



METRIC COMPONENT

| Catalog Number | d Shaft Dia. h6 | D Dia. | S Face Width 0 -0.2 | Max. Torque N • m | Rotating Overrun Speed Max. rpm | | Load Ratings N | |
|----------------|-----------------|--------|---------------------|-------------------|---------------------------------|---------|----------------|--------|
| | | | | | Shaft | Housing | Dynamic | Static |
| S99NH4MURC0822 | 8 | 12 | 22 | 3.15 | 17000 | 12000 | 3500 | 4100 |
| S99NH4MURC1022 | 10 | 14 | 22 | 5.3 | 14000 | 11000 | 3750 | 4650 |
| S99NH4MURC1226 | 12 | 18 | 26 | 12.2 | 11000 | 8000 | 5800 | 6700 |
| S99NH4MURC1426 | 14 | 20 | 26 | 17.3 | 9500 | 8000 | 6300 | 7800 |
| S99NH4MURC1626 | 16 | 22 | 26 | 20.5 | 8500 | 7500 | 6900 | 9000 |
| S99NH4MURC1826 | 18 | 24 | 26 | 24.1 | 7500 | 7500 | 7400 | 10200 |
| S99NH4MURC2026 | 20 | 26 | 26 | 28.5 | 7000 | 6500 | 7900 | 11400 |
| S99NH4MURC2530 | 25 | 32 | 30 | 66 | 5500 | 5500 | 9800 | 14000 |
| S99NH4MURC3030 | 30 | 37 | 30 | 90 | 4500 | 4500 | 10800 | 16900 |
| S99NH4MURC3530 | 35 | 42 | 30 | 121 | 3900 | 3900 | 11400 | 18800 |

Continued from the previous page

NEEDLE ROLLER PRESSBEARINGS

SDP/SI

PRESS-FIT INSTALLATION
SELF-ALIGNING TO $\pm 5^\circ$

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► **MATERIAL:**

- Bearing** - Drawn Cup Needle
- Housing** - Carbon Steel, Black Oxide Finish

► **OPERATING TEMPERATURE:**

-30°C to +100°C

► **FEATURES:**

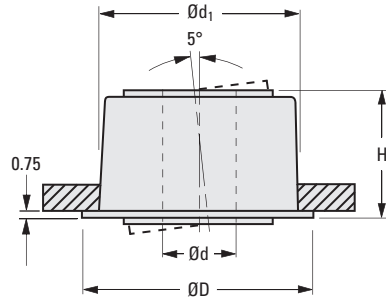
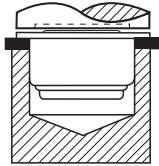
- High-speed, high-load
- No precision holes required
- Major assembly and production savings

► **SHAFT REQUIREMENTS:**

Any material, HRC 58 to 64
with a 0.4 μm or finer finish.

► **INSTALLATION NOTES:**

- The punch must be relieved to accommodate protruding insert.
- DO NOT PRESS BEARING ON INSERT!**



SHAFT DIAMETERS

| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 4 | 4.000 | 3.992 |
| 6 | 6.000 | 5.992 |
| 8 | 8.000 | 7.991 |
| 10 | 10.000 | 9.991 |
| 12 | 12.000 | 11.989 |
| 15 | 15.000 | 14.989 |

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Panel Hole Dia. +0.07 0 | D Flange Dia. | H Height | Max. Speed rpm | Max. Radial Load N |
|----------------|-------------|--|---------------|----------|----------------|--------------------|
| A 7Z47MPSN04M | 4 | 15.9 | 17.4 | 10.8 | 41000 | 1780 |
| A 7Z47MPSN06M | 6 | 15.9 | 17.4 | 10.8 | 35000 | 1830 |
| A 7Z47MPSN08M | 8 | 20.6 | 22.2 | 15.2 | 28000 | 1830 |
| A 7Z47MPSN10M | 10 | 20.6 | 22.2 | 15.2 | 23000 | 2550 |
| A 7Z47MPSN12M | 12 | 27 | 28.5 | 19.6 | 20000 | 2550 |
| A 7Z47MPSN15M | 15 | 31.8 | 33.3 | 21.6 | 16000 | 7800 |

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SELF-ALIGNING TO $\pm 5^\circ$ OR NONALIGNING

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> MATERIAL:

Bearing - Drawn Cup Needle
Housing - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

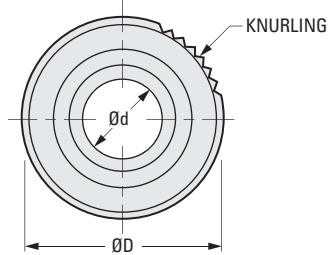
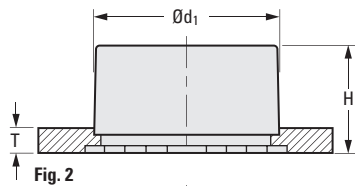
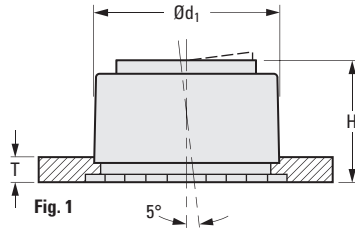
-30°C to +100°C

> FEATURES:

High-speed, high-load applications.
 Knurling ensures secure self-clinching.
 Simple quick installation.
 Major assembly and production savings.
 Mounting blocks not necessary.

> SHAFT REQUIREMENTS:

Any material, HRC 58 to 64, with a 0.4 μm or finer finish.



The projections shown are per ISO convention.

**SHAFT DIAMETERS
 SELF-ALIGNING & NONALIGNING**

| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 4 | 4.000 | 3.992 |
| 6 | 6.000 | 5.992 |
| 8 | 8.000 | 7.991 |
| 10 | 10.000 | 9.991 |
| 12 | 12.000 | 11.989 |
| 15 | 15.000 | 14.989 |
| 18 | 18.000 | 17.989 |

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Panel Hole Dia. +0.07 0 | T Min. Panel Thickness | D Knurl O.D. | H Height | Max. Speed rpm | Max. Radial Load |
|-----------------------------|-------------------|--|---------------------------------|--------------------|-------------|----------------------|------------------------|
| Fig. 1 Self-Aligning | | | | | | | |
| A 7246MFSN04M | 4 | 15.9 | 1.5 | 17 | 11.6 | 41000 | 1780 |
| A 7246MFSN06M | 6 | 15.9 | 1.5 | 17 | 11.6 | 35000 | 1830 |
| A 7246MFSN08M | 8 | 20.6 | 1.5 | 22 | 16.3 | 28000 | 1830 |
| A 7246MFSN10M | 10 | 20.6 | 1.5 | 22 | 16.3 | 23000 | 2550 |
| A 7246MFSN12M | 12 | 27 | 2 | 28 | 19.5 | 20000 | 2550 |
| A 7246MFSN15M | 15 | 31.8 | 2.3 | 33 | 22.5 | 16000 | 7800 |
| Fig. 2 Nonaligning | | | | | | | |
| A 7248MFSN06M | 6 | 15.9 | 1.5 | 17 | 10.8 | 35000 | 1830 |
| A 7248MFSN08M | 8 | 15.9 | 1.5 | 17 | 11.1 | 28000 | 2500 |
| A 7248MFSN10M | 10 | 20.6 | 1.5 | 22 | 12.7 | 23000 | 2500 |
| A 7248MFSN12M | 12 | 20.6 | 1.5 | 22 | 12.7 | 20000 | 4000 |
| A 7248MFSN15M | 15 | 27 | 2.3 | 28 | 12.7 | 16000 | 7800 |
| A 7248MFSN18M | 18 | 31.8 | 2.3 | 33 | 16 | 13000 | 7800 |

See next page for installation data

FOR NEEDLE ROLLER PRESSBEARINGS
 TOOLING AND INSTALLATION DATA
 SELF-ALIGNING TO $\pm 5^\circ$ OR NONALIGNING

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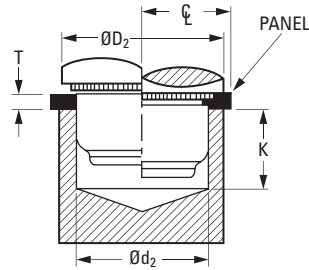
> INSTALLATION:

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below.
 Panel hardness HRB 65 max.

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!



TOOLING AND INSTALLATION DATA

| Nominal Shaft Diameter | d_1 Panel Hole Dia. +0.07 0 | d_2 Anvil Dia. +0.1 0 | K Minimum Anvil Depth | D_2 Press Tool Minimum Dia. | C Min. Dist. Centerline to Panel Edge | F Install Force Cold-Rolled Steel kN |
|-----------------------------|-------------------------------|-------------------------|-----------------------|-------------------------------|---|--------------------------------------|
| Fig. 1 Self-Aligning | | | | | | |
| 4 | 15.9 | 16.35 | 16.6 | 22 | 11.5 | 49 |
| 6 | 15.9 | 16.35 | 16.6 | 22 | 11.5 | 49 |
| 8 | 20.6 | 21.05 | 21.3 | 27 | 12.7 | 49 |
| 10 | 20.6 | 21.05 | 21.3 | 27 | 12.7 | 49 |
| 12 | 27 | 27.45 | 24.5 | 33 | 19 | 54 |
| 15 | 31.8 | 32.25 | 27.5 | 38 | 19 | 54 |
| Fig. 2 Nonaligning | | | | | | |
| 6 | 15.9 | 16.35 | 15.8 | 22 | 11.5 | 49 |
| 8 | 15.9 | 16.35 | 16.1 | 22 | 11.5 | 49 |
| 10 | 20.6 | 21.05 | 17.7 | 27 | 12.7 | 49 |
| 12 | 20.6 | 21.05 | 17.7 | 27 | 12.7 | 49 |
| 15 | 27 | 27.45 | 23.7 | 33 | 19 | 54 |
| 18 | 31.8 | 32.25 | 21 | 38 | 19 | 54 |

See previous page for product specifications

FLANGE-MOUNTED NEEDLE ROLLER BEARINGS



SELF-ALIGNING TO $\pm 5^\circ$
FLANGE-MOUNTED

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> MATERIAL:

Bearing - Drawn Cup Needle
Housing - Carbon Steel, Black Oxide Finish



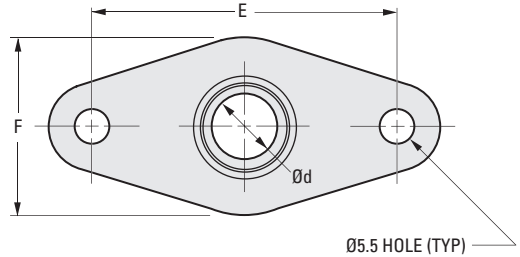
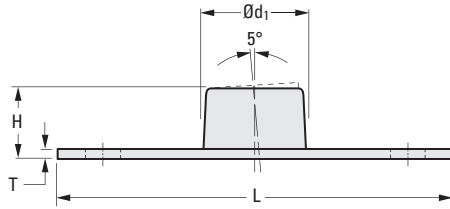
> OPERATING TEMPERATURE:

-30°C to +100°C

> SHAFT REQUIREMENTS:

Any material, HRC 58 to 64
with a 0.4 μm or finer finish.

| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 4 | 4.000 | 3.992 |
| 6 | 6.000 | 5.992 |
| 8 | 8.000 | 7.991 |
| 10 | 10.000 | 9.991 |
| 12 | 12.000 | 11.989 |
| 15 | 15.000 | 14.989 |



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Clearance Hole Dia. (Ref.) | L Overall Length | F Overall Width | E Mounting Distance | T Nominal Flange Thickness | H Height | Max. Speed rpm | Max. Radial Load N |
|------------------|-------------------|--|------------------------|-----------------------|---------------------------|-------------------------------------|-------------|----------------------|-----------------------------|
| * A 7Z56MBFM04MN | 4 | 13.5 | 45 | 22.3 | 31 | 1.2 | 10.2 | 41000 | 1780 |
| A 7Z56MBFM06MN | 6 | 17 | 53 | 30 | 39 | 1.5 | 11.6 | 35000 | 2550 |
| A 7Z56MBFM08MN | 8 | 22 | 45 | 31.8 | 30.9 | 2.3 | 16.3 | 28000 | 2550 |
| A 7Z56MBFM10MN | 10 | 22 | 45 | 31.8 | 30.9 | 2.3 | 16.3 | 23000 | 2550 |
| A 7Z56MBFM12MN | 12 | 28 | 60 | 39.6 | 45.2 | 2.3 | 19.5 | 20000 | 4000 |
| A 7Z56MBFM15MN | 15 | 33 | 60 | 47 | 45.2 | 2.3 | 22.5 | 16000 | 4800 |

* To be discontinued when present stock is depleted.

NONALIGNING
FLANGE-MOUNTED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Bearing - Drawn Cup Needle
Housing - Carbon Steel, Black Oxide Finish

> OPERATING TEMPERATURE:

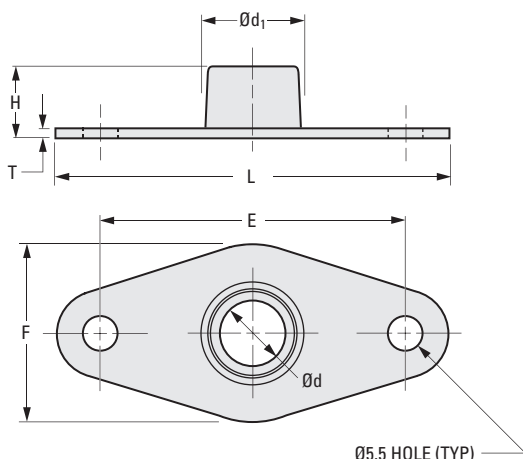
-30°C to +100°C

> SHAFT REQUIREMENTS:

Any material, HRC 58 to 64,
with a 0.4 µm or finer finish.



| Nominal Shaft Diameter | Maximum Diameter | Minimum Diameter |
|------------------------|------------------|------------------|
| 6 | 6.000 | 5.992 |
| 8 | 8.000 | 7.991 |
| 10 | 10.000 | 9.991 |
| 12 | 12.000 | 11.989 |
| 15 | 15.000 | 14.989 |
| 18 | 18.000 | 17.989 |



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d ₁ Clearance Hole Dia. (Ref.) | L Overall Length | F Overall Width | E Mounting Distance | T Nominal Flange Thickness | H Height | Max. Speed rpm | Max. Radial Load N |
|----------------|-------------------|--|------------------------|-----------------------|---------------------------|-------------------------------------|-------------|----------------------|-----------------------------|
| A 7257MBFM06MN | 6 | 16.7 | 53 | 30 | 38.8 | 1.5 | 10.8 | 35000 | 2550 |
| A 7257MBFM08MN | 8 | 16.7 | 53 | 30 | 38.8 | 1.5 | 11.1 | 28000 | 2550 |
| A 7257MBFM10MN | 10 | 22 | 45 | 31.8 | 31 | 2.3 | 12.7 | 23000 | 2550 |
| A 7257MBFM12MN | 12 | 22 | 45 | 31.8 | 31 | 2.3 | 12.7 | 20000 | 4000 |
| A 7257MBFM15MN | 15 | 28 | 60 | 39.6 | 45.2 | 2.3 | 18.7 | 16000 | 4800 |
| A 7257MBFM18MN | 18 | 32.5 | 60 | 39.6 | 45.2 | 2.3 | 16 | 13000 | 6380 |

THRUST BEARINGS



STAINLESS STEEL

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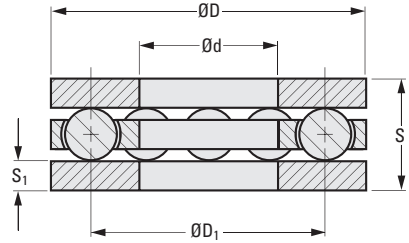
> MATERIAL:

- Balls** - 440C Stainless Steel, Hardened to HRC 58...65
- Retainer** - Molded Nylon, for 120°C Max.
- Washer** - 410 Stainless Steel, Hardened to HRC 38...42



ADDITIONAL BEARING COMPONENTS USED ON COMPLETE THRUST BEARING

| Reference (Complete Bearing Set) | Catalog Number | |
|--|------------------|-------------|
| | Retainer & Balls | Washer |
| A 7Z 7M0409ST | A 7M 7M0409ST | A 7Y 7M0409 |
| A 7Z 7M0512ST | A 7M 7M0512ST | A 7Y 7M0512 |
| A 7Z 7M0614ST | A 7M 7M0614ST | A 7Y 7M0614 |
| A 7Z 7M0717ST | A 7M 7M0717ST | A 7Y 7M0717 |
| A 7Z 7M0816ST | A 7M 7M0816ST | A 7Y 7M0816 |
| A 7Z 7M1021ST | A 7M 7M1021ST | A 7Y 7M1021 |
| A 7Z 7M1224ST | A 7M 7M1224ST | A 7Y 7M1224 |
| A 7Z 7M1628ST | A 7M 7M1628ST | A 7Y 7M1628 |
| A 7Z 7M1932ST | A 7M 7M1932ST | A 7Y 7M1932 |
| A 7Z 7M2541ST | A 7M 7M2541ST | A 7Y 7M2541 |
| A 7Z 7M2844ST | A 7M 7M2844ST | A 7Y 7M2844 |



METRIC COMPONENT

| Catalog Number (Complete Bearing Set) | d | | D | | D ₁ Ball Circle | S ₁ Washer | | S Total Bearing Thickness |
|--|------|---------------|------|---------------|----------------------------------|-----------------------|-------------|------------------------------------|
| | Bore | Tolerance | O.D. | Tolerance | | Thk. | Tolerance | |
| A 7Z 7M0409ST | 4.01 | 4.06...4.01 | 8.99 | 9.04...8.94 | 6.5 | 1.27 | ± 0.03 | 4.24...4.04 |
| A 7Z 7M0512ST | 5 | 5.21...5.08 | 12 | 11.96...11.78 | 8.7 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M0614ST | 6 | 6.20...6.07 | 14 | 13.97...13.79 | 10.3 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M0717ST | 7 | 7.18...7.06 | 17 | 16.97...16.79 | 11.9 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M0816ST | 8 | 8.20...8.08 | 16 | 15.96...15.80 | 11.9 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M1021ST | 10 | 10.19...10.06 | 21 | 20.96...20.78 | 15.1 | 1.57 | +0.06/-0.05 | 6.44...6.22 |
| A 7Z 7M1224ST | 12 | 12.19...12.06 | 24 | 23.98...23.80 | 18.3 | 1.57 | +0.06/-0.05 | 6.44...6.22 |
| A 7Z 7M1628ST | 16 | 16.26...16.07 | 28 | 27.97...27.74 | 22.2 | 2.36 | ± 0.08 | 8.88...8.56 |
| A 7Z 7M1932ST | 19 | 19.25...19.08 | 32 | 31.98...31.75 | 25.4 | 2.36 | ± 0.08 | 8.88...8.56 |
| A 7Z 7M2541ST | 25 | 25.30...25.07 | 41 | 40.97...40.69 | 33.3 | 3.18 | +0.12/-0.13 | 11.36...10.86 |
| A 7Z 7M2844ST | 28 | 28.30...28.07 | 44 | 43.97...43.69 | 36.5 | 3.18 | +0.12/-0.13 | 11.36...10.86 |

| Catalog Number Ref. (Complete Bearing Set) | No. of Balls | Size of Balls ± 0.0025 | Load Rating N | |
|---|-----------------|------------------------------|------------------|---------|
| | | | 15 rpm | 100 rpm |
| A 7Z 7M0409ST | 6 | 1.587 | 156 | 80 |
| A 7Z 7M0512ST | 7 | 2.38 | 391 | 218 |
| A 7Z 7M0614ST | 8 | 2.38 | 405 | 214 |
| A 7Z 7M0717ST | 9 | 2.38 | 423 | 222 |
| A 7Z 7M0816ST | 9 | 2.38 | 423 | 222 |
| A 7Z 7M1021ST | 6 | 3.18 | 543 | 289 |
| A 7Z 7M1224ST | 8 | 3.18 | 623 | 329 |
| A 7Z 7M1628ST | 6 | 3.97 | 778 | 414 |
| A 7Z 7M1932ST | 8 | 3.97 | 912 | 480 |
| A 7Z 7M2541ST | 10 | 4.76 | 1428 | 756 |
| A 7Z 7M2844ST | 12 | 4.76 | 1566 | 832 |

NOTE: Load rating @ 900 rpm approximately 50% of those @ 100 rpm. Other data available.

THRUST BEARINGS

SDP/SI

STEEL

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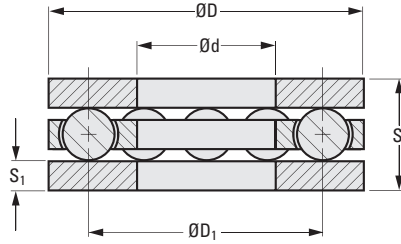
> MATERIAL:

- Balls** - S.A.E 1018 Steel, Hardened to HRC 60 Min.
- Retainer** - Molded Nylon, for 120°C Max.
- Washer** - CR1075 Steel, Hardened to HRC 59...61



**ADDITIONAL BEARING COMPONENTS
USED ON COMPLETE THRUST BEARING**

| Reference (Complete Bearing Set) | Catalog Number | |
|--|------------------|-------------|
| | Retainer & Balls | Washer |
| A 7Z 7M0409 | A 7M 7M0409 | A 7Q 7M0409 |
| A 7Z 7M0512 | A 7M 7M0512 | A 7Q 7M0512 |
| A 7Z 7M0614 | A 7M 7M0614 | A 7Q 7M0614 |
| A 7Z 7M0717 | A 7M 7M0717 | A 7Q 7M0717 |
| A 7Z 7M0816 | A 7M 7M0816 | A 7Q 7M0816 |
| A 7Z 7M1021 | A 7M 7M1021 | A 7Q 7M1021 |
| A 7Z 7M1224 | A 7M 7M1224 | A 7Q 7M1224 |
| A 7Z 7M1628 | A 7M 7M1628 | A 7Q 7M1628 |
| A 7Z 7M1932 | A 7M 7M1932 | A 7Q 7M1932 |
| A 7Z 7M2541 | A 7M 7M2541 | A 7Q 7M2541 |
| A 7Z 7M2844 | A 7M 7M2844 | A 7Q 7M2844 |



METRIC COMPONENT

| Catalog Number (Complete Bearing Set) | d | | D | | D ₁ Ball Circle | S ₁ Washer | | S Total Bearing Thickness |
|--|------|---------------|------|---------------|----------------------------------|-----------------------|-------------|------------------------------------|
| | Bore | Tolerance | O.D. | Tolerance | | Thk. | Tolerance | |
| A 7Z 7M0409 | 4.01 | 4.06...4.01 | 8.99 | 9.04...8.94 | 6.5 | 1.27 | ± 0.03 | 4.24...4.04 |
| A 7Z 7M0512 | 5 | 5.21...5.08 | 12 | 11.96...11.78 | 8.7 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M0614 | 6 | 6.20...6.07 | 14 | 13.97...13.79 | 10.3 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M0717 | 7 | 7.18...7.06 | 17 | 16.97...16.79 | 11.9 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M0816 | 8 | 8.20...8.08 | 16 | 15.96...15.80 | 11.9 | 1.27 | ± 0.05 | 5.02...4.82 |
| A 7Z 7M1021 | 10 | 10.19...10.06 | 21 | 20.96...20.78 | 15.1 | 1.57 | +0.06/-0.05 | 6.44...6.22 |
| A 7Z 7M1224 | 12 | 12.19...12.06 | 24 | 23.98...23.80 | 18.3 | 1.57 | +0.06/-0.05 | 6.44...6.22 |
| A 7Z 7M1628 | 16 | 16.26...16.07 | 28 | 27.97...27.74 | 22.2 | 2.36 | ± 0.08 | 8.88...8.56 |
| A 7Z 7M1932 | 19 | 19.25...19.08 | 32 | 31.98...31.75 | 25.4 | 2.36 | ± 0.08 | 8.88...8.56 |
| A 7Z 7M2541 | 25 | 25.30...25.07 | 41 | 40.97...40.69 | 33.3 | 3.18 | +0.12/-0.13 | 11.36...10.86 |
| A 7Z 7M2844 | 28 | 28.30...28.07 | 44 | 43.97...43.69 | 36.5 | 3.18 | +0.12/-0.13 | 11.36...10.86 |

| Catalog Number Ref. (Complete Bearing Set) | No. of Balls | Size of Balls ± 0.0025 | Load Rating N | |
|---|-----------------|------------------------------|------------------|---------|
| | | | 15 rpm | 100 rpm |
| A 7Z 7M0409 | 6 | 1.587 | 227 | 120 |
| A 7Z 7M0512 | 7 | 2.38 | 560 | 311 |
| A 7Z 7M0614 | 8 | 2.38 | 583 | 307 |
| A 7Z 7M0717 | 9 | 2.38 | 605 | 320 |
| A 7Z 7M0816 | 9 | 2.38 | 605 | 320 |
| A 7Z 7M1021 | 6 | 3.18 | 778 | 414 |
| A 7Z 7M1224 | 8 | 3.18 | 894 | 472 |
| A 7Z 7M1628 | 6 | 3.97 | 1116 | 592 |
| A 7Z 7M1932 | 8 | 3.97 | 1303 | 689 |
| A 7Z 7M2541 | 10 | 4.76 | 2042 | 1081 |
| A 7Z 7M2844 | 12 | 4.76 | 2242 | 1188 |

NOTE: Load rating @ 900 rpm approximately 50% of those @ 100 rpm. Other data available.

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A

ECONOMICAL
DIN-1494

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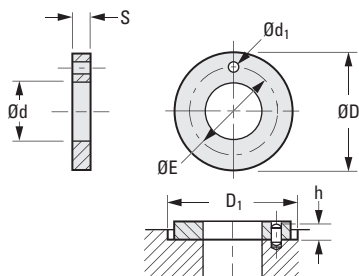
> **MATERIAL:**
G300® Polymer

> **OPERATING TEMPERATURE:**
Continuous: -40°C to +130°C
Intermittent: +220°C

> **FEATURES:**
Maintenance-Free
Dry Running
High Wear Resistance
Resistant to Dust and Dirt
Vibration Damping

> **SPECIFICATIONS:**
Tensile Strength at 20°C: 2137 kgf/cm²
Compressive Strength: 794 kgf/cm²
Coefficient of Friction (dynamic against steel): 0.08...0.15
PV Value, max. (dry): 256 kgf/cm² x m/min

Other sizes available upon request



METRIC COMPONENT

| Catalog Number | d +0.25 0 | D Dia. 0 -0.25 | S Thickness 0 -0.05 | E Dia. ± 0.12 | d ₁ +0.375 +0.125 | h ± 0.2 | D ₁ +0.12 0 |
|----------------|-----------------|-------------------------|------------------------------|---------------------|------------------------------------|------------|------------------------------|
| S99GGTM050906 | 5 | 9.5 | 0.6 | * | * | * | 9.5 |
| S99GGTM062015 | 6 | 20 | 1.5 | 13 | 1.5 | 1 | 20 |
| S99GGTM071305 | 7 | 13 | 0.5 | * | * | * | 13 |
| S99GGTM081515 | 8 | 15 | 1.5 | * | * | * | 15 |
| S99GGTM101810 | 10 | 18 | 1 | * | * | * | 18 |
| S99GGTM122415 | 12 | 24 | 1.5 | 18 | 1.5 | 1 | 24 |
| S99GGTM152415 | 15 | 24 | 1.5 | 19.5 | 1.5 | 1 | 24 |
| S99GGTM183215 | 18 | 32 | 1.5 | 25 | 2 | 1 | 32 |
| S99GGTM203615 | 20 | 36 | 1.5 | 28 | 3 | 1 | 36 |

* No hole

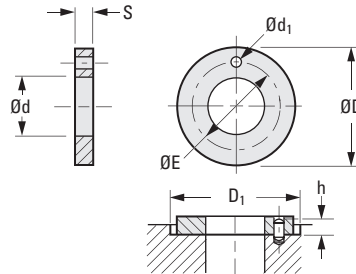
HIGH LOAD
HIGH-SPEED
ISO 3547-1

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- > **MATERIAL:**
T500® Polymer
- > **OPERATING TEMPERATURE:**
Continuous: -100°C to +250°C
Intermittent: +315°C
- > **FEATURES:**
High Compression Strength
Chemical-Resistant
Very Low Moisture Absorption
Great Wear Resistance

- > **SPECIFICATIONS:**
Tensile Strength at 20°C: 1733 kgf/cm² psi
Compressive Strength: 1019 kgf/cm²
Coefficient of Friction (dynamic against steel): 0.09...0.27
PV Value, max. (dry): 808 kgf/cm² x m/min



METRIC COMPONENT

| Catalog Number | d +0.25 0 | D Dia. 0 -0.25 | S Thickness 0 -0.05 | E ± 0.12 | d ₁ +0.375 +0.125 | h ± 0.2 | D ₁ +0.12 0 |
|----------------|-----------------|-------------------------|------------------------------|-------------|------------------------------------|------------|------------------------------|
| S99GTTM062015 | 6 | 20 | 1.5 | 13 | 1.5 | 1 | 20 |
| S99GTTM081815 | 8 | 18 | 1.5 | 13 | 1.5 | 1 | 18 |
| S99GTTM101810 | 10 | 18 | 1.5 | * | * | * | 18 |
| S99GTTM122415 | 12 | 24 | 1.5 | 18 | 1.5 | 1 | 24 |
| S99GTTM142615 | 14 | 26 | 1.5 | 20 | 2 | 1 | 26 |
| S99GTTM152415 | 15 | 24 | 1.5 | 19.5 | 1.5 | 1 | 24 |
| S99GTTM163015 | 16 | 30 | 1.5 | 22 | 2 | 1 | 30 |
| S99GTTM183215 | 18 | 32 | 1.5 | 25 | 2 | 1 | 32 |
| S99GTTM203615 | 20 | 36 | 1.5 | 28 | 3 | 1 | 36 |
| S99GTTM223815 | 22 | 38 | 1.5 | 30 | 3 | 1 | 38 |
| S99GTTM244215 | 24 | 42 | 1.5 | 33 | 3 | 1 | 42 |
| S99GTTM264415 | 26 | 44 | 1.5 | 35 | 3 | 1 | 44 |
| S99GTTM284815 | 28 | 48 | 1.5 | 38 | 4 | 1 | 48 |
| S99GTTM325415 | 32 | 54 | 1.5 | 43 | 4 | 1 | 54 |
| S99GTTM386215 | 38 | 62 | 1.5 | 50 | 4 | 1 | 62 |
| S99GTTM426615 | 42 | 66 | 1.5 | 54 | 4 | 1 | 66 |
| S99GTTM487420 | 48 | 74 | 2 | 61 | 4 | 1.5 | 74 |
| S99GTTM527820 | 52 | 78 | 2 | 65 | 4 | 1.5 | 78 |
| S99GTTM629020 | 62 | 90 | 2 | 76 | 4 | 1.5 | 90 |

* No hole

MALE PLASTIC ROD END BEARINGS



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 LIGHTWEIGHT
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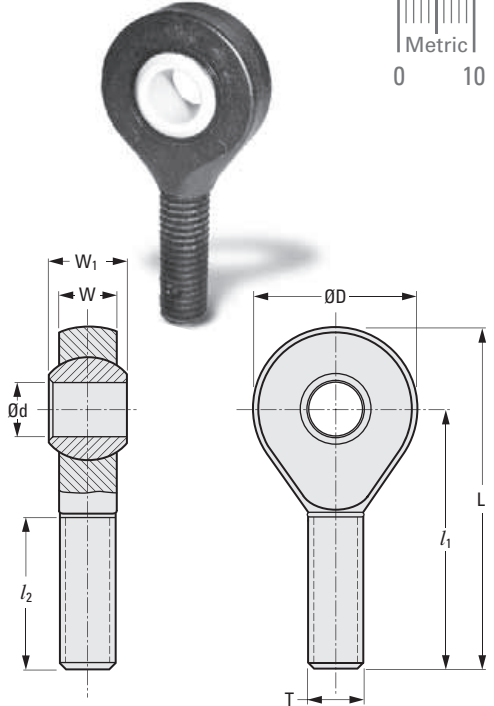
> MATERIAL:

Body - Thermoplastic
Ball - L280® Polymer

> OPERATING TEMPERATURE:

-40°C to +130°C

For additional information concerning the bearing material, see page 5-76.



METRIC COMPONENT

| Catalog Number * | d Bore E10 | D Dia. | T Thread Size | W | W ₁ | l ₁ | l ₂ | L | Shaft Size | |
|--------------------------------------|------------------|-----------|---------------------|------|----------------|----------------|----------------|-----|------------|--------|
| | | | | | | | | | Min. | Max. |
| S62GMRM0508 <input type="checkbox"/> | 5 | 18 | M5 | 6 | 8 | 33 | 19 | 42 | 4.970 | 5.000 |
| S62GMRM0609 <input type="checkbox"/> | 6 | 20 | M6 | 7 | 9 | 36 | 21 | 46 | 5.970 | 6.000 |
| S62GMRM0812 <input type="checkbox"/> | 8 | 24 | M8 | 9 | 12 | 42 | 25 | 55 | 7.964 | 8.000 |
| S62GMRM1014 <input type="checkbox"/> | 10 | 30 | M10 | 10.5 | 14 | 48 | 28 | 63 | 9.964 | 10.000 |
| S62GMRM1216 <input type="checkbox"/> | 12 | 34 | M12 | 12 | 16 | 54 | 32 | 71 | 11.957 | 12.000 |
| S62GMRM1419 <input type="checkbox"/> | 14 | 38 | M14 | 13.5 | 19 | 61 | 36 | 79 | 13.957 | 14.000 |
| S62GMRM1621 <input type="checkbox"/> | 16 | 42 | M16 | 15 | 21 | 66 | 37 | 88 | 15.957 | 16.000 |
| S62GMRM1823 <input type="checkbox"/> | 18 | 46 | M18 x 1.5 | 16.5 | 23 | 72 | 41 | 96 | 17.957 | 18.000 |
| S62GMRM2025 <input type="checkbox"/> | 20 | 50 | M20 x 1.5 | 18 | 25 | 78 | 45 | 104 | 19.948 | 20.000 |
| S62GMRM2228 <input type="checkbox"/> | 22 | 56 | M22 x 1.5 | 20 | 28 | 84 | 48 | 112 | 21.948 | 22.000 |
| S62GMRM2531 <input type="checkbox"/> | 25 | 60 | M24 x 2 | 22 | 31 | 94 | 55 | 125 | 24.948 | 25.000 |

| Catalog Number (Ref.) | Max. Angle of Pivot | Max. Static Tensile Strength N | | Max. Radial Load N | | Min. Thread Engmnt. mm | Max. Torque Stngth Inner Threading N • m | Max. Torque Strength N • m |
|--------------------------------------|---------------------------|-----------------------------------|-----------|-----------------------|-----------|---------------------------------|---|-------------------------------------|
| | | Short-Term | Long-Term | Short-Term | Long-Term | | | |
| S62GMRM0508 <input type="checkbox"/> | 30° | 801 | 400 | 80 | 40 | 13 | 0.41 | 5 |
| S62GMRM0609 <input type="checkbox"/> | 29° | 1001 | 498 | 98 | 49 | 15 | 0.54 | 10 |
| S62GMRM0812 <input type="checkbox"/> | 25° | 1699 | 850 | 200 | 98 | 18 | 2 | 12.1 |
| S62GMRM1014 <input type="checkbox"/> | 25° | 2500 | 1250 | 298 | 147 | 20 | 5 | 20.1 |
| S62GMRM1216 <input type="checkbox"/> | 25° | 2700 | 1348 | 396 | 200 | 22 | 6 | 30 |
| S62GMRM1419 <input type="checkbox"/> | 25° | 3398 | 1699 | 698 | 347 | 25 | 12.1 | 35 |
| S62GMRM1621 <input type="checkbox"/> | 23° | 3897 | 1948 | 796 | 396 | 26 | 16.9 | 40 |
| S62GMRM1823 <input type="checkbox"/> | 23° | 4199 | 2100 | 996 | 498 | 29 | 20.1 | 45 |
| S62GMRM2025 <input type="checkbox"/> | 23° | 5996 | 2988 | 1299 | 649 | 32 | 24.9 | 55 |
| S62GMRM2228 <input type="checkbox"/> | 22° | 7197 | 3599 | 1499 | 747 | 34 | 24.9 | 60.1 |
| S62GMRM2531 <input type="checkbox"/> | 22° | 7500 | 3750 | 1899 | 947 | 39 | 45 | 64.9 |

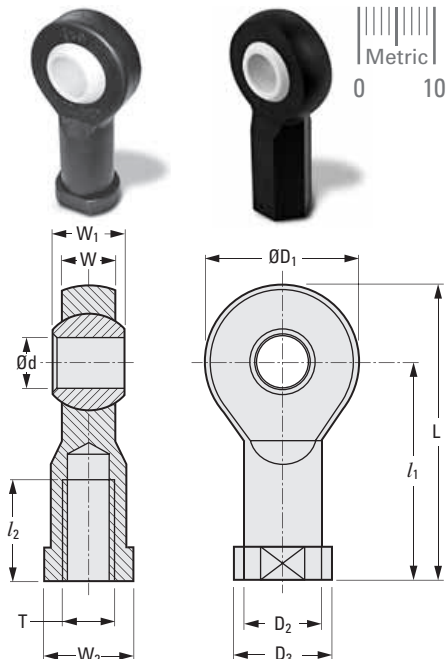
* To complete Catalog Number, specify **R** for Right-Hand Thread and **L** for Left-Hand Thread.

FEMALE PLASTIC ROD END BEARINGS

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► MATERIAL:

Body - Thermoplastic
 Ball - L280® Polymer

► OPERATING TEMPERATURE:

-40°C to +130°C

For additional information concerning the bearing material, see page 5-76.

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

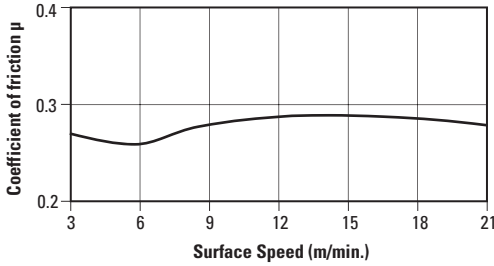
METRIC COMPONENT

| Catalog Number * | d Bore E10 | D1 Dia. | T Thread Size | D2 | D3 | W | W1 | L1 | L2 | L | W2 Wrench Size | Shaft Size | |
|--------------------------------------|------------------|------------|---------------------|-------|----|------|----|------|----|-----|----------------------|------------|--------|
| | | | | | | | | | | | | Min. | Max. |
| S62GFRM0306 <input type="checkbox"/> | 3 | 13 | M3 | 6.5 | 8 | 4.5 | 6 | 18.5 | 8 | 25 | 06 | 2.975 | 3.000 |
| S62GFRM0508 <input type="checkbox"/> | 5 | 18 | M5 | 9 | 12 | 6 | 8 | 27 | 10 | 36 | 09 | 4.970 | 5.000 |
| S62GFRM0609 <input type="checkbox"/> | 6 | 20 | M6 | 10 | 13 | 7 | 9 | 30 | 12 | 40 | 11 | 5.970 | 6.000 |
| S62GFRM0812 <input type="checkbox"/> | 8 | 24 | M8 | 13 | 16 | 9 | 12 | 36 | 16 | 48 | 14 | 7.964 | 8.000 |
| S62GFRM1014 <input type="checkbox"/> | 10 | 30 | M10 | 15 | 19 | 10.5 | 14 | 43 | 20 | 58 | 17 | 9.964 | 10.000 |
| S62GFRM1216L | 12 | 34 | M12 | 18 | 22 | 12 | 16 | 50 | 22 | 67 | 19 | 11.957 | 12.000 |
| Δ S62GFRM1216R | 12 | 34 | M12 | 19.75 | — | 12 | 16 | 50 | 28 | 67 | 17 | 11.957 | 12.000 |
| S62GFRM1419 <input type="checkbox"/> | 14 | 38 | M14 | 20 | 25 | 13.5 | 19 | 57 | 25 | 76 | 22 | 13.957 | 14.000 |
| S62GFRM1621 <input type="checkbox"/> | 16 | 42 | M16 | 22 | 27 | 15 | 21 | 64 | 28 | 85 | 22 | 15.957 | 16.000 |
| S62GFRM1823 <input type="checkbox"/> | 18 | 46 | M18 x 1.5 | 25 | 31 | 16.5 | 23 | 71 | 32 | 94 | 27 | 17.957 | 18.000 |
| S62GFRM2025 <input type="checkbox"/> | 20 | 50 | M20 x 1.5 | 28 | 34 | 18 | 25 | 77 | 33 | 102 | 30 | 19.948 | 20.000 |
| S62GFRM2228 <input type="checkbox"/> | 22 | 56 | M22 x 1.5 | 30 | 37 | 20 | 28 | 84 | 37 | 112 | 32 | 21.948 | 22.000 |
| S62GFRM2531 <input type="checkbox"/> | 25 | 60 | M24 x 2 | 32 | 41 | 22 | 31 | 94 | 42 | 124 | 36 | 24.948 | 25.000 |

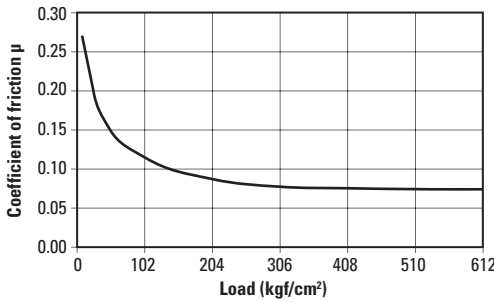
| Catalog Number (Ref.) | Max. Angle of Pivot | Max. Static Tensile Strength N | | Max. Radial Load N | | Min. Thread Engmnt. mm | Max. Torque Stngth Inner Threading N • m | Max. Torque Strength N • m |
|--------------------------------------|---------------------------|-----------------------------------|-----------|-----------------------|-----------|---------------------------------|---|-------------------------------------|
| | | Short-Term | Long-Term | Short-Term | Long-Term | | | |
| S62GFRM0306 <input type="checkbox"/> | 30° | 796 | 396 | 98 | 49 | 5 | 0.5 | 2.03 |
| S62GFRM0508 <input type="checkbox"/> | 30° | 996 | 498 | 249 | 125 | 7 | 1 | 5.02 |
| S62GFRM0609 <input type="checkbox"/> | 29° | 1397 | 698 | 396 | 196 | 8 | 1.49 | 10 |
| S62GFRM0812 <input type="checkbox"/> | 25° | 2100 | 1050 | 698 | 347 | 11 | 10 | 12.1 |
| S62GFRM1014 <input type="checkbox"/> | 25° | 3096 | 1548 | 796 | 396 | 13 | 15 | 20.1 |
| S62GFRM1216L | 25° | 3599 | 1797 | 899 | 449 | 15 | 20 | 30 |
| Δ S62GFRM1216R | 25° | 3599 | 1797 | 899 | 449 | 15 | 20 | 30 |
| S62GFRM1419 <input type="checkbox"/> | 23° | 3999 | 1997 | 996 | 496 | 17 | 24.9 | 35 |
| S62GFRM1621 <input type="checkbox"/> | 23° | 4199 | 2100 | 1299 | 649 | 19 | 30 | 40 |
| S62GFRM1823 <input type="checkbox"/> | 23° | 4599 | 2300 | 1597 | 796 | 21 | 45 | 45 |
| S62GFRM2025 <input type="checkbox"/> | 23° | 5396 | 2696 | 2100 | 1050 | 22 | 60.1 | 55 |
| S62GFRM2228 <input type="checkbox"/> | 22° | 6997 | 3496 | 2197 | 1099 | 25 | 75 | 60.1 |
| S62GFRM2531 <input type="checkbox"/> | 22° | 8446 | 4248 | 2300 | 1148 | 28 | 120 | 60.1 |

* To complete Catalog Number, specify R for Right-Hand Thread and L for Left-Hand Thread.
 Δ Stem has a hexagonal shape, not rounded as shown.

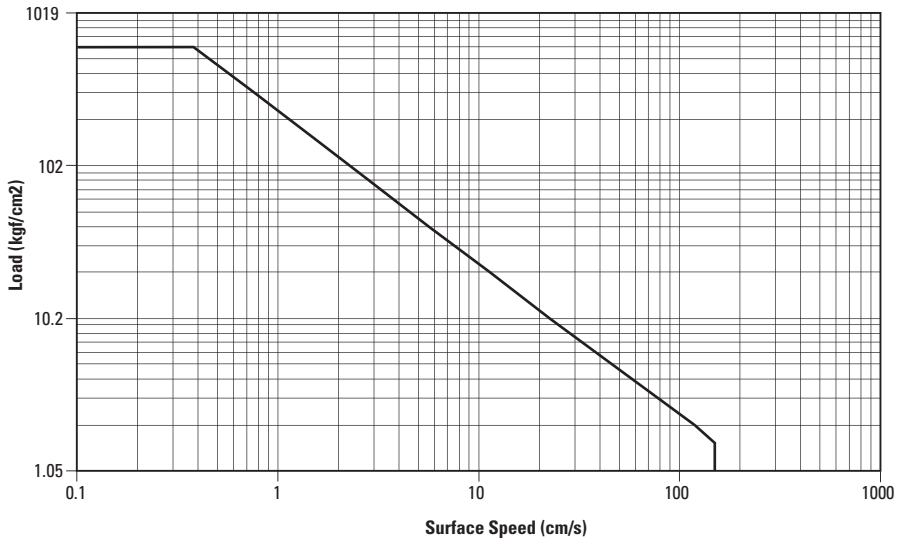
5-75



Graph 1: Coefficient of friction of L280® as a result of the surface speed; p = 7,6 kgf/cm², shaft made of Cold Rolled Steel



Graph 2: Coefficient of friction of L280® as a result of the load; v = 0.6 m/min.



Graph 3: Permissible p x v - values for L280® running dry against a steel shaft, at 20°C

MAINTENANCE-FREE
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 LIGHTWEIGHT
 COMPENSATES FOR ALIGNMENT ERRORS

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> MATERIAL:

- Body - Thermoplastic
- Ball - L280® Polymer

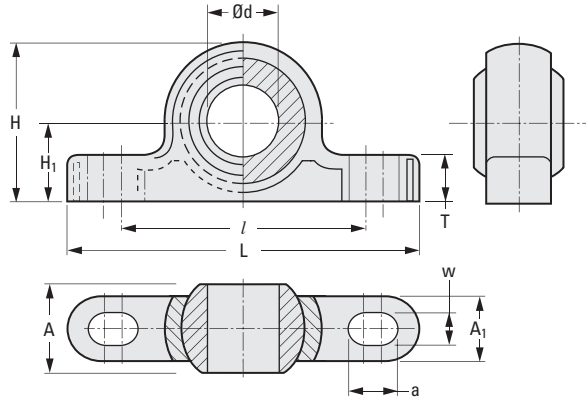
> OPERATING TEMPERATURE:

-40°C to +130°C

> SPECIFICATION:

- Bore Tolerance:
- 5 & 6 mm +0.068/+0.020
 - 8 & 10 mm +0.083/+0.025
 - 12 to 18 mm +0.102/+0.032
 - 20 to 30 mm +0.124/+0.040

For additional information concerning the bearing material, see page 5-76.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore E10 | H | H ₁ | T | A | A ₁ | L | l | w | a | Max. Angle of Pivot |
|----------------|------------------|----|----------------|------|----|----------------|-----|----|-----|----|---------------------------|
| S61GPBM0508 | 5 | 14 | 7 | 4 | 8 | 6 | 34 | 25 | 3.3 | 5 | 30° |
| S61GPBM0609 | 6 | 20 | 10 | 5.5 | 9 | 7 | 43 | 33 | 4.5 | 6 | 29° |
| S61GPBM0812 | 8 | 20 | 10 | 6 | 12 | 9 | 47 | 33 | 4.5 | 7 | 25° |
| S61GPBM1014 | 10 | 28 | 14 | 7.5 | 14 | 10.5 | 62 | 46 | 5.5 | 8 | 25° |
| S61GPBM1226 | 12 | 28 | 14 | 8.5 | 26 | 12 | 65 | 46 | 5.5 | 9 | 25° |
| S61GPBM1429 | 14 | 36 | 18 | 9.5 | 29 | 13.5 | 82 | 60 | 6.6 | 11 | 23° |
| S61GPBM1621 | 16 | 36 | 18 | 10.5 | 21 | 15 | 86 | 60 | 6.6 | 12 | 23° |
| S61GPBM1823 | 18 | 44 | 22 | 11.5 | 23 | 16.5 | 93 | 68 | 9 | 13 | 23° |
| S61GPBM2025 | 20 | 44 | 22 | 13 | 25 | 18 | 98 | 68 | 9 | 14 | 23° |
| S61GPBM2228 | 22 | 48 | 24 | 14 | 28 | 20 | 108 | 74 | 9 | 16 | 22° |
| S61GPBM2531 | 25 | 54 | 27 | 16 | 31 | 22 | 124 | 86 | 9 | 17 | 22° |
| S61GPBM3037 | 30 | 64 | 32 | 17 | 37 | 25 | 139 | 96 | 11 | 20 | 22° |

| Catalog Number Ref. | Max. Static Tensile Strength | | Maximum Torque for Longitudinal Holes N • m |
|---------------------|------------------------------|----------------|--|
| | Short-Term N | Long-Term N | |
| S61GPBM0508 | 698 | 347 | 0.54 |
| S61GPBM0609 | 1099 | 547 | 1.36 |
| S61GPBM0812 | 1299 | 649 | 1.36 |
| S61GPBM1014 | 1499 | 747 | 2.44 |
| S61GPBM1226 | 2197 | 1099 | 2.44 |
| S61GPBM1429 | 2398 | 1197 | 4.47 |
| S61GPBM1621 | 2998 | 1499 | 4.47 |
| S61GPBM1823 | 3496 | 1748 | 10.4 |
| S61GPBM2025 | 4697 | 2349 | 10.4 |
| S61GPBM2228 | 6099 | 3047 | 10.4 |
| S61GPBM2531 | 6597 | 3296 | 10.4 |
| S61GPBM3037 | 8096 | 4048 | 21.6 |

WASHDOWN PILLOW BLOCK BEARINGS

SDP/SI

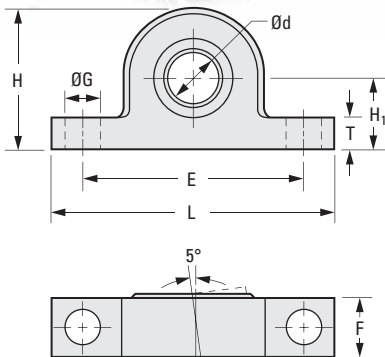
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MAINTENANCE-FREE
CORROSION-RESISTANT
FDA-COMPLIANT
SELF-ALIGNING $\pm 5^\circ$
LOW COST
FOOD, DAIRY, PHARMACEUTICAL &
MARINE APPLICATIONS



> MATERIAL:

- Bearing** - Acetal or Acetal with PTFE-added
- Bearing Housing** - Stainless Steel
- Housing** - Electroless Nickel Plated Aluminum



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Shaft Dia. +0.05 0 | H Overall Height | L Overall Length | F Overall Width | E Mounting Distance |
|----------------|----------------------|------------------|------------------|-----------------|---------------------|
| A 7Z25MPB0619 | 6.02 | 19 | 36.5 | 9.5 | 28.5 |
| A 7Z25MPB0629 | 6.02 | 28.5 | 57 | 9.5 | 44.5 |
| A 7Z25MPB0829 | 8.03 | 28.5 | 57 | 11 | 44.5 |
| A 7Z25MPB1029 | 10.03 | 28.5 | 57 | 11 | 44.5 |
| A 7Z25MPB1229 | 12.03 | 28.5 | 57 | 16 | 44.5 |
| A 7Z25MPB1240 | 12.03 | 39.5 | 82.5 | 20 | 63.5 |
| A 7Z25MPB1540 | 15.03 | 39.5 | 82.5 | 20 | 63.5 |
| A 7Z25MPB1640 | 16.03 | 39.5 | 82.5 | 20 | 63.5 |
| A 7Z25MPB1840 | 18.03 | 39.5 | 82.5 | 23 | 63.5 |
| A 7Z25MPB2040 | 20.03 | 39.5 | 82.5 | 23 | 63.5 |

| Catalog Number (Ref.) | T Nominal Flange Thickness | H ₁ Height to Centerline | G Mounting Hole Dia. | Max. Speed rpm | Max. Radial Load N |
|-----------------------|----------------------------|-------------------------------------|----------------------|----------------|--------------------|
| A 7Z25MPB0619 | 5 | 9.5 | 5 | 1591 | 383 |
| A 7Z25MPB0629 | 6.5 | 14.5 | 7 | 1591 | 383 |
| A 7Z25MPB0829 | 6.5 | 14.5 | 7 | 1193 | 580 |
| A 7Z25MPB1029 | 6.5 | 14.5 | 7 | 955 | 725 |
| A 7Z25MPB1229 | 6.5 | 14.5 | 7 | 795 | 961 |
| A 7Z25MPB1240 | 8 | 19 | 9 | 795 | 1295 |
| A 7Z25MPB1540 | 8 | 19 | 9 | 636 | 1690 |
| A 7Z25MPB1640 | 8 | 19 | 9 | 597 | 1690 |
| A 7Z25MPB1840 | 8 | 19 | 9 | 530 | 1477 |
| A 7Z25MPB2040 | 8 | 19 | 9 | 477 | 1477 |

NOTE: For PTFE-added bearings, add an "F" to the end of the catalog number.



NEW

WASHDOWN FLANGE-MOUNTED BEARINGS

SDP/SI

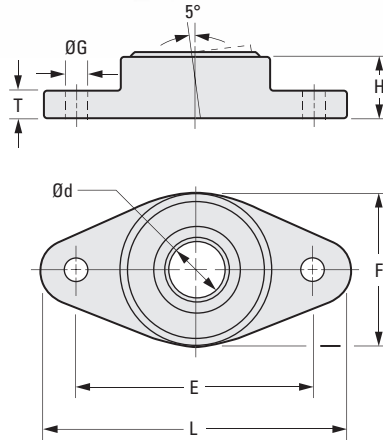
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CORROSION-RESISTANT
FDA COMPLIANT
SELF-ALIGNING $\pm 5^\circ$
LOW COST
FOOD, DAIRY, PHARMACEUTICAL &
MARINE APPLICATIONS

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> MATERIAL:

- Bearing** - Acetal or Acetal with PTFE added
- Bearing Housing** - Stainless Steel
- Housing** - Electroless Nickel Plated Aluminum



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Shaft Dia. +0.05 0 | H Overall Height | L Overall Length | F Overall Width | E Mounting Distance |
|----------------|----------------------------|------------------|------------------|-----------------|---------------------|
| A 7Z26MFB0610 | 6.02 | 9.5 | 41.5 | 19 | 32 |
| A 7Z26MFB0811 | 8.03 | 11 | 57 | 28.5 | 44.5 |
| A 7Z26MFB1011 | 10.03 | 11 | 57 | 28.5 | 44.5 |
| A 7Z26MFB1216 | 12.03 | 15.9 | 82.5 | 28.5 | 44.5 |
| A 7Z26MFB1220 | 12.03 | 20 | 82.5 | 41.5 | 63.5 |
| A 7Z26MFB1520 | 15.03 | 20 | 82.5 | 41.5 | 63.5 |
| A 7Z26MFB1620 | 16.03 | 20 | 82.5 | 41.5 | 63.5 |
| A 7Z26MFB1822 | 18.03 | 22 | 82.5 | 41.5 | 63.5 |
| A 7Z26MFB2022 | 20.03 | 22 | 82.5 | 41.5 | 63.5 |

| Catalog Number (Ref.) | T Nominal Flange Thickness | G Mounting Hole Dia. | Max. Speed rpm | Max. Radial Load N |
|-----------------------|----------------------------|----------------------|----------------|--------------------|
| A 7Z26MFB0610 | 5 | 4.5 | 1591 | 383 |
| A 7Z26MFB0811 | 5 | 7 | 1193 | 580 |
| A 7Z26MFB1011 | 5 | 7 | 955 | 725 |
| A 7Z26MFB1216 | 5 | 7 | 795 | 1295 |
| A 7Z26MFB1220 | 6.5 | 7 | 795 | 1295 |
| A 7Z26MFB1520 | 6.5 | 10.5 | 636 | 1831 |
| A 7Z26MFB1620 | 6.5 | 10.5 | 597 | 1953 |
| A 7Z26MFB1822 | 6.5 | 10.5 | 530 | 2627 |
| A 7Z26MFB2022 | 6.5 | 10.5 | 477 | 2919 |

NOTE: For PTFE-added bearings, add an "F" to the end of the catalog number.

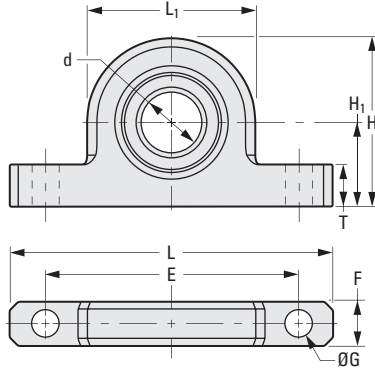
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ISO CLASS 6
 DOUBLE-SHIELDED
 CORROSION-RESISTANT
 LIGHTWEIGHT
 LUBRICATED FOR THE LIFE OF THE BEARING
 MEDICAL, SCIENTIFIC & PHARMACEUTICAL APPLICATIONS



> MATERIAL:
Bearing - Stainless Steel
Pillow Block - Sintered Aluminum

> OPERATING TEMPERATURE:
 -30°C to +120°C



The projections shown are per ISO convention.

NEW

METRIC COMPONENT

| Catalog Number | d Shaft Dia. | H Overall Height | L Overall Length | F Overall Width | E Mounting Distance | T Nominal Flange Thickness |
|----------------|--------------|------------------|------------------|-----------------|---------------------|----------------------------|
| A 7Z29MXS004 | 4 | 19 | 36.5 | 5 | 28.57 | 5 |
| A 7Z29MXS005 | 5 | 19 | 36.5 | 5 | 28.57 | 5 |
| A 7Z29MXS006 | 6 | 19 | 36.5 | 5 | 28.57 | 5 |
| A 7Z29MXS008 | 8 | 19 | 36.5 | 5 | 28.57 | 5 |
| A 7Z29MXS010 | 10 | 28.6 | 57.2 | 10.1 | 44.45 | 6 |

| Catalog Number (Ref.) | H ₁ Height to Centerline ± 0.025 | G Mounting Hole | L ₁ Housing Width | Max. Speed rpm | Max. Radial Load N |
|-----------------------|---|-----------------|------------------------------|----------------|--------------------|
| A 7Z29MXS004 | 9.525 | 3.2 | 19 | 48000 | 1000 |
| A 7Z29MXS005 | 9.525 | 3.2 | 19 | 43000 | 1130 |
| A 7Z29MXS006 | 9.525 | 3.2 | 19 | 43000 | 750 |
| A 7Z29MXS008 | 9.525 | 3.2 | 19 | 40000 | 560 |
| A 7Z29MXS010 | 14.287 | 4 | 28.7 | 37000 | 1780 |

PILLOW BLOCK-MOUNTED NEEDLE ROLLER BEARINGS

SDP/SI

SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING
 CORROSION-RESISTANT
 LIGHTWEIGHT

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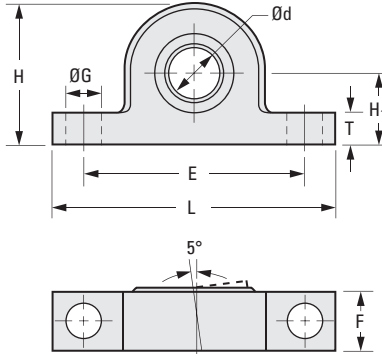


> MATERIAL:

Bearing - Drawn Cup Needle
Pillow Block - Sintered Aluminum

> OPERATING TEMPERATURE:

-30°C to +100°C



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | Recommended Shaft Dia. | | H Overall Height | L Overall Length | F Overall Width |
|----------------|-------------------|---------------------------|--------|------------------------|------------------------|-----------------------|
| | | Max. | Min. | | | |
| A 7Z33MPB06MN | 6 | 6.000 | 5.992 | 28.5 | 57 | 11 |
| A 7Z33MPB08MN | 8 | 8.000 | 7.991 | 28.5 | 57 | 16 |
| A 7Z33MPB10MN | 10 | 10.000 | 9.991 | 28.5 | 57 | 16 |
| A 7Z33MPB12MN | 12 | 12.000 | 11.989 | 39.5 | 82.5 | 20 |
| A 7Z33MPB15MN | 15 | 15.000 | 14.989 | 39.5 | 82.5 | 23 |
| A 7Z33MPB18MN | 18 | 18.000 | 17.989 | 65 | 127 | 23 |

| Catalog Number (Ref.) | E Mounting Distance | T Nominal Flange Thickness | H ₁ Height To Centerline | G Mounting Hole | Max. Speed rpm | Max. Radial Load N |
|--------------------------|---------------------------|-------------------------------------|---|-----------------------|----------------------|-----------------------------|
| A 7Z33MPB06MN | 44.5 | 6.5 | 14.5 | 7 | 35000 | 940 |
| A 7Z33MPB08MN | 44.5 | 6.5 | 14.5 | 7 | 28000 | 940 |
| A 7Z33MPB10MN | 44.5 | 6.5 | 14.5 | 7 | 23000 | 960 |
| A 7Z33MPB12MN | 63.5 | 8 | 19 | 8.7 | 20000 | 1700 |
| A 7Z33MPB15MN | 63.5 | 8 | 19 | 8.7 | 16000 | 1500 |
| A 7Z33MPB18MN | 101 | 14.5 | 32 | 14.3 | 14700 | 4450 |

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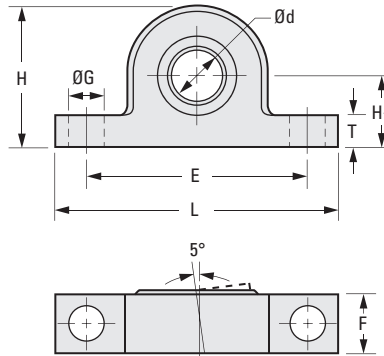
A

SELF-ALIGNING TO $\pm 5^\circ$
 SELF-LUBRICATING
 CORROSION-RESISTANT
 LIGHTWEIGHT



> **MATERIAL:**
 Bearing - Sintered Bronze SAE 840
 Pillow Block - Sintered Aluminum

> **OPERATING TEMPERATURE:**
 -29°C to +93°C



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | d I.D. Actual | | H Overall Height | L Overall Length | F Overall Width |
|----------------|-------------------|------------------|-------|------------------------|------------------------|-----------------------|
| | | Max. | Min. | | | |
| A 7Z31MPB006MB | 6 | 6.04 | 6.02 | 28.5 | 57 | 9.5 |
| A 7Z31MPB008MB | 8 | 8.04 | 8.02 | 28.5 | 57 | 11 |
| A 7Z31MPB010MB | 10 | 10.04 | 10.02 | 28.5 | 57 | 11 |
| A 7Z31MPB012MB | 12 | 12.05 | 12.03 | 28.5 | 57 | 16 |
| A 7Z31MPB015MB | 15 | 15.05 | 15.03 | 39.5 | 82.5 | 20 |
| A 7Z31MPB018MB | 18 | 18.05 | 18.03 | 39.5 | 82.5 | 23 |
| A 7Z31MPB020MB | 20 | 20.08 | 20.03 | 39.5 | 82.5 | 23 |
| A 7Z31MPB025MB | 25 | 25.07 | 25.03 | 65 | 127 | 23 |

| Catalog Number (Ref.) | E Mounting Distance | T Nominal Flange Thickness | H ₁ Height To Centerline | G Mounting Hole | Max. Speed rpm | Max. Radial Load N |
|--------------------------|---------------------------|-------------------------------------|---|-----------------------|----------------------|-----------------------------|
| A 7Z31MPB006MB | 44.5 | 6.5 | 14.5 | 7 | 16110 | 940 |
| A 7Z31MPB008MB | 44.5 | 6.5 | 14.5 | 7 | 12120 | 960 |
| A 7Z31MPB010MB | 44.5 | 6.5 | 14.5 | 7 | 9700 | 960 |
| A 7Z31MPB012MB | 44.5 | 6.5 | 14.5 | 7 | 8060 | 960 |
| A 7Z31MPB015MB | 63.5 | 8 | 19 | 9 | 6460 | 1700 |
| A 7Z31MPB018MB | 63.5 | 8 | 19 | 9 | 5380 | 1500 |
| A 7Z31MPB020MB | 63.5 | 8 | 19 | 9 | 5200 | 1500 |
| A 7Z31MPB025MB | 101.5 | 14.5 | 32 | 14 | 4600 | 4450 |

SELF-ALIGNING TO ± 5°
 SELF-LUBRICATING
 CORROSION-RESISTANT
 LIGHTWEIGHT

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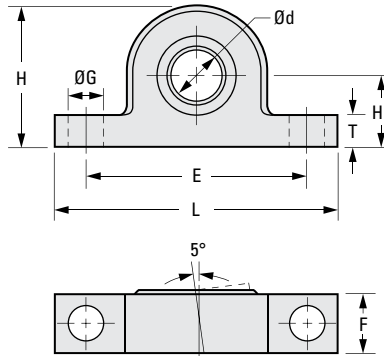


► **MATERIAL:**

Bearing - PTFE Impregnated Bronze
Pillow Block - Sintered Aluminum

► **OPERATING TEMPERATURE:**

-201°C to +282°C



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Nom. I.D. | Recommended Shaft Dia. | | H Overall Height | L Overall Length | F Overall Width |
|----------------|-------------------|---------------------------|--------|------------------------|------------------------|-----------------------|
| | | Max. | Min. | | | |
| A 7Z32MPB006MP | 6 | 5.990 | 5.978 | 28.5 | 57 | 11 |
| A 7Z32MPB008MP | 8 | 7.987 | 7.972 | | | 16 |
| A 7Z32MPB010MP | 10 | 9.987 | 9.972 | | | 20 |
| A 7Z32MPB012MP | 12 | 11.984 | 11.966 | 39.5 | 82.5 | 23 |
| A 7Z32MPB016MP | 16 | 15.984 | 15.966 | | | |
| A 7Z32MPB018MP | 18 | 17.984 | 17.966 | 49.2 | 100 | 23 |
| A 7Z32MPB020MP | 20 | 19.980 | 19.959 | | | |
| A 7Z32MPB025MP | 25 | 24.980 | 24.959 | 65 | 127 | |

| Catalog Number (Ref.) | E Mounting Distance | T Nominal Flange Thickness | H ₁ Height To Centerline | G Mounting Hole | Max. Speed rpm | Max. Radial Load N |
|--------------------------|---------------------------|-------------------------------------|---|-----------------------|----------------------|-----------------------------|
| A 7Z32MPB006MP | 44.5 | 6.5 | 14.5 | 7 | 6360 | 950 |
| A 7Z32MPB008MP | | | | | 4770 | |
| A 7Z32MPB010MP | | | | | 3820 | |
| A 7Z32MPB012MP | 63.5 | 8 | 19 | 9 | 2180 | 1000 |
| A 7Z32MPB016MP | | | | | 2390 | 1500 |
| A 7Z32MPB018MP | | | | | 2120 | |
| A 7Z32MPB020MP | 79.4 | 14.5 | 25 | 14 | 1900 | 1700 |
| A 7Z32MPB025MP | 101 | | 32 | | 1500 | 4450 |



CLOSED SERIES
SELF-ALIGNING
LOW COST

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► **MATERIAL:**

Body - Anodized Aluminum
Bearing - Frelon® Lined Aluminum

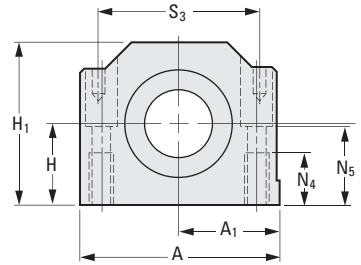
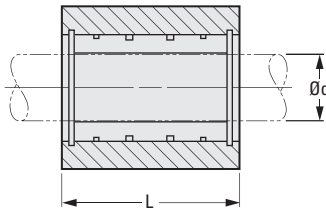
► **SPECIFICATIONS:**

Bore Tolerance for **PRECISION** (F8):

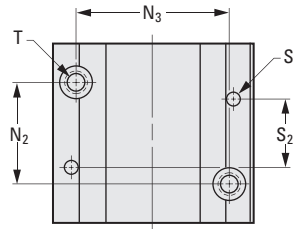
- 8 & 10 mm +0.035/+0.013
- 12 & 16 mm +0.043/+0.016
- 20, 25 & 30 mm +0.053/+0.020

Bore Tolerance for **STANDARD:**

- 8 & 10 mm +0.085/+0.063
- 12 & 16 mm +0.093/+0.066
- 20, 25 & 30 mm +0.129/+0.096



The projections shown are per ISO convention.



CATALOG NUMBER DESIGNATION

S 6 1 P **C** **M** **F**

— P Precision
— S Standard

METRIC COMPONENT

| Catalog Number | d Nom. Bore Size | H ± 0.015 | H ₁ Height | A Width | A ₁ ± 0.013 | L Length | T | N ₂ ± 0.15 |
|--|---------------------|--------------|--------------------------|------------|---------------------------|-------------|-----|--------------------------|
| S61P <input type="checkbox"/> CM08F032 | 08 | 15 | 28 | 35 | 17.5 | 32 | M4 | 20 |
| S61P <input type="checkbox"/> CM10F036 | 10 | 16 | 31.5 | 40 | 20 | 36 | M5 | 20 |
| S61P <input type="checkbox"/> CM12F039 | 12 | 18 | 35 | 43 | 21.5 | 39 | M5 | 23 |
| S61P <input type="checkbox"/> CM16F043 | 16 | 22 | 42 | 53 | 26.5 | 43 | M6 | 26 |
| S61P <input type="checkbox"/> CM20F054 | 20 | 25 | 50 | 60 | 30 | 54 | M8 | 32 |
| S61P <input type="checkbox"/> CM25F067 | 25 | 30 | 60 | 78 | 39 | 67 | M10 | 40 |
| S61P <input type="checkbox"/> CM30F079 | 30 | 35 | 71 | 87 | 43.5 | 79 | M10 | 45 |

| Catalog Number (Ref.) | N ₃ ± 0.15 | N ₄ | N ₅ | S | S ₂ | S ₃ | Max. Load Rating N | Ass'y Weight kg |
|--|--------------------------|----------------|----------------|---|----------------|----------------|-----------------------|--------------------|
| S61P <input type="checkbox"/> CM08F032 | 25 | 9 | 14.5 | — | — | — | 1760 | 0.069 |
| S61P <input type="checkbox"/> CM10F036 | 29 | 11 | 15 | 4 | 29 | 31 | 2985 | 0.095 |
| S61P <input type="checkbox"/> CM12F039 | 32 | 11 | 16.5 | 4 | 32 | 34 | 3950 | 0.118 |
| S61P <input type="checkbox"/> CM16F043 | 40 | 13 | 21 | 4 | 35 | 42 | 5930 | 0.2 |
| S61P <input type="checkbox"/> CM20F054 | 45 | 18 | 24 | 5 | 45 | 50 | 9265 | 0.329 |
| S61P <input type="checkbox"/> CM25F067 | 60 | 22 | 29 | 6 | 20 | 64 | 14935 | 0.655 |
| S61P <input type="checkbox"/> CM30F079 | 68 | 22 | 34 | 6 | 30 | 72 | 21010 | 1.02 |

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SELF-ALIGNING
LOW COST

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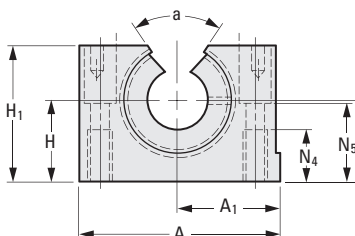
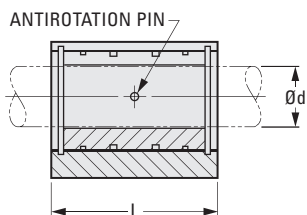
> MATERIAL:

Body - Anodized Aluminum
Bearing - Frelon® Lined Aluminum

> SPECIFICATIONS:

Bore Tolerance for **PRECISION** (F8):
12 & 16 mm +0.043/+0.016
20, 25 & 30 mm +0.053/+0.020

Bore Tolerance for **STANDARD**:
12 & 16 mm +0.093/+0.066
20, 25 & 30 mm +0.129/+0.096

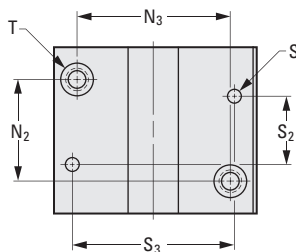


The projections shown are per ISO convention.

CATALOG NUMBER DESIGNATION

S 6 1 P □ Z M □ □ F □ □ □

— P Precision
— S Standard



METRIC COMPONENT

| Catalog Number | d Nom. Bore Size | H ± 0.015 | H ₁ Height | A Width | A ₁ ± 0.013 | L Length | T | N ₂ ± 0.15 |
|-----------------|---------------------------|--------------|--------------------------|------------|---------------------------|-------------|-----|--------------------------|
| S61P □ ZM12F039 | 12 | 18 | 28 | 43 | 21.5 | 39 | M5 | 23 |
| S61P □ ZM16F043 | 16 | 22 | 35 | 53 | 26.5 | 43 | M6 | 26 |
| S61P □ ZM20F054 | 20 | 25 | 42 | 60 | 30 | 54 | M8 | 32 |
| S61P □ ZM25F067 | 25 | 30 | 51 | 78 | 39 | 67 | M10 | 40 |
| S61P □ ZM30F079 | 30 | 35 | 60 | 87 | 43.5 | 79 | M10 | 45 |

| Catalog Number (Ref.) | N ₃ ± 0.15 | N ₄ | N ₅ | S | S ₂ | S ₃ | a Degree | Max. Load Rating N | Ass'y Weight kg |
|-----------------------|--------------------------|----------------|----------------|---|----------------|----------------|-------------|-----------------------------|-----------------------|
| S61P □ ZM12F039 | 32 | 11 | 16.5 | 4 | 32 | 34 | 66° | 3950 | 0.096 |
| S61P □ ZM16F043 | 40 | 13 | 21 | 4 | 35 | 42 | 68° | 5930 | 0.162 |
| S61P □ ZM20F054 | 45 | 18 | 24 | 5 | 45 | 50 | 60° | 9265 | 0.267 |
| S61P □ ZM25F067 | 60 | 22 | 29 | 6 | 20 | 64 | 60° | 14935 | 0.536 |
| S61P □ ZM30F079 | 68 | 22 | 34 | 6 | 30 | 72 | 60° | 21010 | 0.831 |

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NO BEARING
FLANGED BEARING

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> MATERIAL:

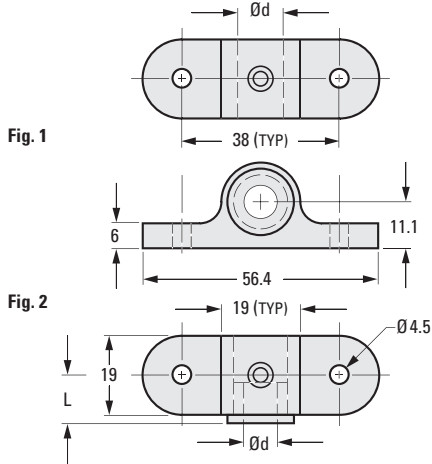
Body - Zinc, Die Cast
Bearing - Sintered Bronze, oiled



Fig. 1



Fig. 2



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore +0.025 0 |
|-------------------------------|--------------------------|
| Fig. 1 Without Bearing | |
| A 7Z 4M08 | 8 |
| A 7Z 4M10 | 10 |
| A 7Z 4M12 | 12 |

| Catalog Number | d Bore | d Tolerance | L |
|------------------------------------|-----------|----------------|------|
| Fig. 2 With Flanged Bearing | | | |
| A 7Z 4MF2104 | 4 | +0.03/0 | 11 |
| A 7Z 4MF2105 | 5 | +0.03/0 | 11.5 |
| A 7Z 4MF2106 | 6 | +0.03/0 | 11.5 |
| A 7Z 4MF2207 | 7 | +0.04/0 | 12.5 |
| A 7Z 4MF2208 | 8 | +0.04/0 | 12.5 |

MOLDED
WITH FLANGED BEARING

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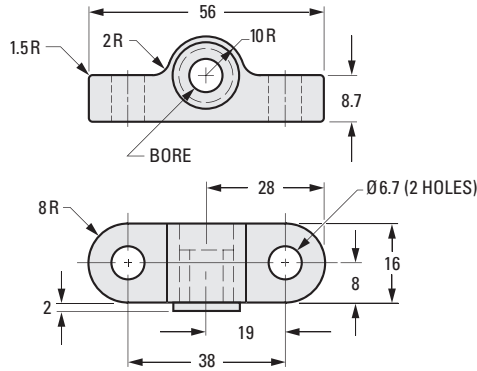


> MATERIAL:

- Body - Nylon 101, Molded
- Bearing - Acetron NS or Ertalyte TX, Machined

> FEATURES:

- Self-Lubricating
- Low Cost
- High-Performance
- Electrically Insulating



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Bore +0.10 +0.05 |
|-----------------------------|------------------------|
| Acetron NS, Machined | |
| A 7Z 6MF1804 | 4 |
| A 7Z 6MF1805 | 5 |

* All items to be discontinued when present material is depleted. The parts below, with better performance characteristics, will be offered in its place.

| Catalog Number | Bore +0.10 +0.05 |
|------------------------------|------------------------|
| Ertalyte TX, Machined | |
| A 7Z 6MF1804E | 4 |
| A 7Z 6MF1805E | 5 |
| A 7Z 6MF1806E | 6 |
| A 7Z 6MF1808E | 8 |

For additional information on this material, see page 5-5.



Fairloc® Bellows Couplings
pg. 6-3



Split Hub Type Bellows Couplings
pgs. 6-4 & 6-5



Set Screw Type Bellows Couplings
pgs. 6-6 thru 6-9



Set Screw Type Hub Bellows Couplings
pg. 6-10



Hi-Flex Bellows Couplings
Integral Clamp pg. 6-11



Hi-Flex Bellows Couplings
pg. 6-12



Modular Bellows Couplings
pgs. 6-13 thru 6-17



Miniature Slit Type Flexible Couplings
pgs. 6-18 thru 6-21



Slit Type MSC Flexible Couplings
pgs. 6-22 & 6-23



Slit Type MSC Flexible Couplings
pgs. 6-24 & 6-25



Miniature Slit Type Flexible Couplings
pg. 6-26



Miniature Slit Type Flexible Couplings
pg. 6-27



Miniatures Slit Type Flexible Couplings
Keyway pgs. 6-28 & 6-29



Split Type Hub, Slit Type Plastic Couplings
pg. 6-30



Slit Type Plastic Couplings
Set Screw Type pg. 6-31



Flexible Helical Couplings
Split Type Hub pgs. 6-32 & 6-33



Flexible Helical Couplings
Set Screw Type pgs. 6-34 & 6-35



Miniature Helical Couplings
pg. 6-36



Helical Couplings
pg. 6-37



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Double Disk Flexible Couplings
pgs. 6-38 thru 6-41



Single Disk Flexible Couplings
pgs. 6-42 thru 6-45



Single Disk Flexible Couplings
pg. 6-46



Double Disk Flexible Couplings
pg. 6-47



Single Disk Flexible Couplings
Heavy-Duty
pg. 6-48



Double Disk Flexible Couplings
Heavy-Duty
pg. 6-49



Double Disk Flexible Couplings
pg. 6-50



Silicone Insert Couplings
pg. 6-51



Spline Type Flexible Couplings
pgs. 6-52 & 6-53



Short, Neo-Flex Couplings
pgs. 6-54 & 6-55



Long, Neo-Flex Couplings
pgs. 6-56 & 6-57



Antivibration Flexible Couplings
pgs. 6-58 thru 6-61



Cross Joint Type Flexible Couplings
pgs. 6-62 & 6-63



Split Type Hub Oldham Couplings
pg. 6-64



Set Screw Type Oldham Couplings
pg. 6-65



Spider Type Flexible Couplings
pg. 6-66



Sleeve Type Flexible Couplings
pg. 6-67



Two-Piece Junior Couplings
pg. 6-68

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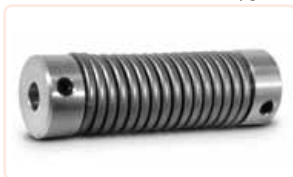
Three-Piece Junior Couplings
pg. 6-69



"K" Type Flexible Couplings
pgs. 6-70 & 6-71



Miniature Ball Couplings
pg. 6-72



Spring Couplings
pg. 6-73



Flexible Shafts
pgs. 6-74 & 6-75



Panel Mounting Flexible Shafts
pg. 6-76



Rigid Fairloc® Shaft Couplings
pg. 6-77



Rigid Precision Shaft Couplings
pgs. 6-78 & 6-79



Fairloc® Shaft Reducers & Extenders
pg. 6-80



Magnetic Disk Couplings
pg. 6-81



> DID YOU KNOW?

That you can see a video showing how the Fairloc® integral fastener works and how it can benefit your application. It is located at: www.sdp-si.com/fairloc.

ZERO BACKLASH
HIGH TORQUE

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> MATERIAL:

- Hubs - 6061 Aluminum
- Discs - 420 Stainless Steel
- End Flanges - 416 Stainless Steel

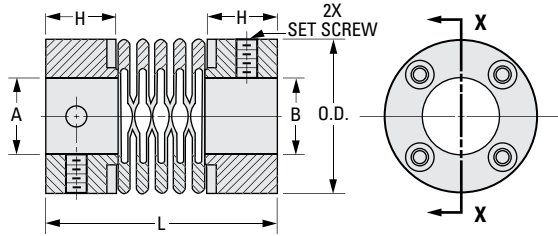
> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 7°

> FEATURES:

The unique lattice structure allows for very high angular misalignment.

Other bores are available on special order.



SECTION X-X

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | O.D. | A Bore +0.050 0 | B Bore +0.050 0 | L Length | H | Set Screw |
|------------------|------|--------------------------|--------------------------|-------------|----------|--------------|
| S50CLMM190X04X04 | 19 | 4 | 4 | 35 | 12 | M4 x 0.7 |
| S50CLMM190X04X06 | | 6 | 6 | | | |
| S50CLMM190X06X06 | 25.4 | 6 | 6 | 38 | | |
| S50CLMM254X08X08 | | 8 | 8 | | | |
| S50CLMM254X10X10 | | 10 | 10 | | | |
| S50CLMM254X10X12 | | 12 | 12 | | | |
| S50CLMM254X12X12 | 31.7 | 16 | 16 | 42 | M5 x 0.8 | |
| S50CLMM317X16X16 | 44.5 | 20 | 20 | 66 | 19 | M6 x 1 |
| S50CLMM445X20X20 | 50.8 | 25 | 25 | 72 | 21 | M8 x 1.25 |
| S50CLMM508X25X25 | 63.5 | 30 | 30 | 79 | 20 | |

| Catalog Number (Ref. Only) | Max. Torque N • m | Max. rpm | Max. Lateral Offset | Max. Axial Offset | Static Torsional Stiffness N • m / deg | Weight g |
|-------------------------------|-------------------------|-------------|---------------------------|-------------------------|---|-------------|
| S50CLMM190... | 1.4 | 10000 | 0.25 | 0.51 | 1.2 | 21 |
| S50CLMM254... | 2.8 | 7500 | | 0.38 | 0.63 | 3.1 |
| S50CLMM317X16X16 | 5.6 | | 5000 | 0.51 | 0.76 | 5.8 |
| S50CLMM445X20X20 | 15.3 | 1 | | | 15 | 190 |
| S50CLMM508X25X25 | 20.5 | 3750 | | | 0.63 | 1.25 |
| S50CLMM635X30X30 | 34 | | 45 | 466 | | |



NEW

ZERO BACKLASH

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Hubs - 6061 Aluminum
- Discs - High Performance Polyamide Resin

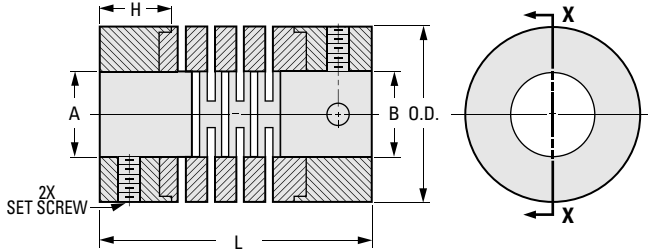
> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 7°

> FEATURES:

The unique lattice structure allows for very high angular misalignment.

Other bores are available on special order.



SECTION X-X

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | O.D. | A Bore +0.050 0 | B Bore +0.050 0 | L Length | H | Set Screw |
|------------------|------|-----------------------|-----------------------|----------|------|-----------|
| S50CLPM127X04X04 | 12.7 | 4 | 4 | 21.6 | 5.9 | M3 x 0.5 |
| S50CLPM127X04X06 | | 6 | 6 | | | |
| S50CLPM127X06X06 | | 6 | 6 | | | |
| S50CLPM254X08X08 | 25.4 | 8 | 8 | 38.1 | 9.7 | M4 x 0.7 |
| S50CLPM254X08X10 | | 10 | 10 | | | |
| S50CLPM254X10X10 | | 10 | 10 | | | |
| S50CLPM254X10X12 | | 12 | 12 | | | |
| S50CLPM254X12X12 | 25.4 | 12 | 12 | 38.1 | 9.7 | M4 x 0.7 |
| S50CLPM381X16X16 | 38.1 | 16 | 16 | 55.9 | 14 | M5 x 0.8 |
| S50CLPM508X20X20 | 50.8 | 20 | 20 | 69.8 | 16.2 | M6 x 1 |
| S50CLPM508X25X25 | | 25 | 25 | | | |
| S50CLPM635X30X30 | | 30 | 30 | | | |

| Catalog Number (Ref. Only) | Max. Torque N • m | Max. rpm | Max. Lateral Offset | Max. Axial Offset | Static Torsional Stiffness N • m / deg | Weight g |
|-------------------------------|----------------------|----------|---------------------|-------------------|---|-------------|
| S50CLPM127X04X04 | 0.6 | 10000 | 0.13 | 0.20 | 0.11 | 15.6 |
| S50CLPM127X04X06 | 2.3 | | | 0.30 | 2 | 26.3 |
| S50CLPM254... | 5.6 | | | 0.46 | 3.2 | 87.9 |
| S50CLPM381X16X16 | 13.6 | 3750 | 0.25 | 0.51 | 7.6 | 198 |
| S50CLPM508X20X20 | 22.6 | | | | 14.6 | 330 |
| S50CLPM508X25X25 | | | | | | |
| S50CLPM635X30X30 | | | | | | |

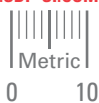


MINIATURE FAIRLOC® BELLOWS COUPLINGS



ZERO BACKLASH
EASY INSTALLATION
READILY REPOSITIONED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

- Hubs - Brass
- Bellows - Phosphor Bronze
- Socket Head Screws - 300 Series Stainless Steel
- Finish - Tin Plate

► MISALIGNMENT COMPENSATION:

Max. Lateral Offset: ± 0.15 mm

► FEATURES:

- Absorbs end play in shafts
- Allows looser tolerances in mounting components
- Corrects for angular and parallel axis misalignment
- Constant angular velocity
- Dampens vibration and noise
- Fairloc® eliminates marred shafts

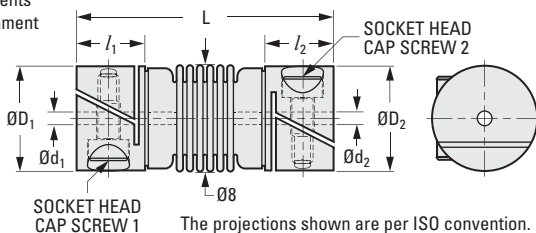
► SPECIFICATION:

Bore Tolerance: $+0.016/0$

Fairloc® hubs require controlled shaft tolerances.

Suggested tolerance according to g6, h6, h7.

Other bores, finishes available on special order.



METRIC COMPONENT

| Catalog Number | d ₁ Bore H8 | d ₂ Bore H8 | D ₁ Hub Dia. ± 0.15 | D ₂ Hub Dia. ± 0.15 | l ₁ ± 0.15 | l ₂ ± 0.15 | L Overall Length ± 1.5 | Cap Screw 1 | Cap Screw 2 |
|-----------------|------------------------------|------------------------------|---|---|------------------------------|------------------------------|-------------------------------------|-------------------|-------------------|
| S50FP9MFB101008 | 1 | 1 | 8 | 8 | 6 | 6 | 21.5 | M1.6 | M1.6 |
| S50FP9MFB101508 | | 1.5 | | | | | | | |
| S50FP9MFB102008 | | 2 | | | | | | | |
| S50FP9MFB103008 | | 3 | | | | | | | |
| S50FP9MFB151508 | 1.5 | 1.5 | 8 | 8.5 | 6 | 7 | 21.5 | M1.6 | M1.6 |
| S50FP9MFB152008 | | 2 | | | | | | | |
| S50FP9MFB153008 | | 3 | | | | | | | |
| S50FP9MFB202008 | | 2 | | | | | | | |
| S50FP9MFB203008 | 2 | 2 | 8.5 | 8.5 | 7 | 7 | 21.5 | M1.6 | M1.6 |
| S50FP9MFB203008 | | 3 | | | | | | | |
| S50FP9MFB303008 | 3 | 3 | 10 | 10 | 8 | 8 | 24.5 | M2 | M2 |

| Catalog Number (Ref. Only) | Max. Torque N • m | Max. Angular Offset | Max. Axial Motion | Spring Rate for Axial Deflection (N/mm) | Torsional Deflection @ Max. Load |
|-------------------------------|-------------------------|---------------------------|-------------------------|--|--|
| S50FP9MFB101008 | 0.11 | 3° | +0.25 / -0.5 | 26.6 | 0.1° |
| S50FP9MFB101508 | | | | | |
| S50FP9MFB102008 | | | | | |
| S50FP9MFB103008 | | | | | |
| S50FP9MFB151508 | 0.21 | 3° | +0.25 / -0.5 | 26.6 | 0.2° |
| S50FP9MFB152008 | | | | | |
| S50FP9MFB153008 | | | | | |
| S50FP9MFB202008 | | | | | |
| S50FP9MFB203008 | 0.32 | 3° | +0.25 / -0.5 | 26.6 | 0.3° |
| S50FP9MFB203008 | | | | | |
| S50FP9MFB303008 | 0.42 | 3° | +0.25 / -0.5 | 26.6 | 0.4° |

ZERO BACKLASH
EASY INSTALLATION
READILY REPOSITIONED

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› MATERIAL:

- Hubs** - Brass
- Bellows** - Phosphor Bronze
- Socket Head Screws** - 300 Series Stainless Steel
- Finish** - Tin Plate

› MISALIGNMENT COMPENSATION:

Max. Lateral Offset: 0.4

› FEATURES:

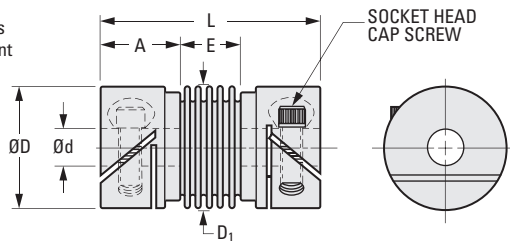
- Absorbs end play in shafts
- Allows looser tolerances in mounting components
- Corrects for angular and parallel axis misalignment
- Constant angular velocity
- Dampens vibration and noise
- Fairloc® eliminates marred shafts

› SPECIFICATION:

- Bore Tolerance:
- 3 mm +0.014/0
 - 4, 5 & 6 mm +0.018/0
 - 8 & 10 mm +0.022/0
 - 12 mm +0.027/0

Fairloc® hubs require controlled shaft tolerances.
Suggested tolerance according to g6, h6 or h7.

Other bores, finishes available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore H8 | D ₁ Bellows Dia. ± 0.4 | E Active Bellows Length Ref. | D Hub Dia. ± 0.25 | A Hub Length | L Overall Length ± 1.5 | Screw Size |
|----------------|-----------|-----------------------------------|------------------------------|-------------------|--------------|------------------------|------------|
| S50FP9MFBC0312 | 3 | 11.9 | 6.4 | 11 | 8.5 | 23.4 | M2 |
| S50FP9MFBC0412 | 4 | 11.9 | 6.4 | 12.5 | 8.5 | 23.4 | M2 |
| S50FP9MFBC0517 | 5 | 16.7 | 8.5 | 16 | 10.5 | 29.5 | M2.5 |
| S50FP9MFBC0617 | 6 | 16.7 | 8.5 | 16 | 10.5 | 29.5 | M2.5 |
| S50FP9MFBC0821 | 8 | 21.4 | 9.3 | 22 | 12 | 33.3 | M3 |
| S50FP9MFBC1021 | 10 | 21.4 | 9.3 | 25 | 12 | 33.3 | M3 |
| S50FP9MFBC1221 | 12 | 21.4 | 9.3 | 25 | 12 | 33.3 | M3 |

| Catalog Number | Max. Torque N • m | Max. Angular Offset | Max. Axial Motion | Spring Rate For Axial Deflection N/mm | Torsional Deflection @ Max. Load Degrees |
|----------------|-------------------|---------------------|-------------------|---------------------------------------|--|
| S50FP9MFBC0312 | 0.85 | 5° | +0.38/-0.75 | 25.4 | 1.2° |
| S50FP9MFBC0412 | 0.85 | 5° | +0.38/-0.75 | 25.4 | 1.2° |
| S50FP9MFBC0517 | 1.4 | 6° | +0.5 /-1 | 24.2 | 1.4° |
| S50FP9MFBC0617 | 1.4 | 6° | +0.5 /-1 | 24.2 | 1.4° |
| S50FP9MFBC0821 | 2.12 | 6° | +0.65/-1.25 | 24.2 | 1.5° |
| S50FP9MFBC1021 | 2.12 | 6° | +0.65/-1.25 | 24.2 | 1.5° |
| S50FP9MFBC1221 | 2.12 | 6° | +0.65/-1.25 | 24.2 | 1.5° |

SPLIT HUB TYPE BELLOWS COUPLINGS



STAINLESS STEEL
ZERO BACKLASH
MAINTENANCE-FREE

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► **MATERIAL:**

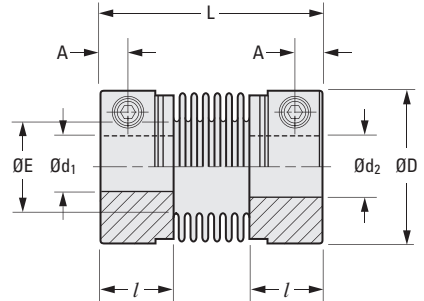
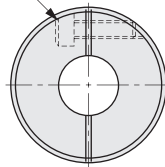
- Hubs** - Stainless Steel
- Bellows** - Stainless Steel
- Cap Screws** - Stainless Steel

► **SPECIFICATION:**

- Recommended Shaft Tolerance (h7):
 4, 5 & 6 mm 0/-0.012
 8 & 10 mm 0/-0.015
 12 & 14 mm 0/-0.018

Other bore sizes and combinations are available on special order.

CAP SCREW



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d ₁ Bore | d ₂ Bore | D Dia. | l | L | E Bellows I.D. | A | Cap Screw | Max. Bore |
|------------------|------------------------|------------------------|-----------|------|------|----------------------|------|--------------|--------------|
| S50MFBMS12H04H04 | 4 | 4 | 12 | 7.5 | 23.5 | 7 | 2.25 | M2 | 5 |
| S50MFBMS12H04H05 | 4 | 5 | 12 | 7.5 | 23.5 | 7 | 2.25 | M2 | 5 |
| S50MFBMS12H05H05 | 5 | 5 | 12 | 7.5 | 23.5 | 7 | 2.25 | M2 | 5 |
| S50MFBMS16H05H05 | 5 | 5 | 16 | 9 | 26.5 | 9.5 | 3 | M2.5 | 6.35 |
| S50MFBMS16H05H06 | 5 | 6 | 16 | 9 | 26.5 | 9.5 | 3 | M2.5 | 6.35 |
| S50MFBMS16H06H06 | 6 | 6 | 16 | 9 | 26.5 | 9.5 | 3 | M2.5 | 6.35 |
| S50MFBMS20H06H06 | 6 | 6 | 20 | 10 | 32 | 12.5 | 3.5 | M2.5 | 8 |
| S50MFBMS20H06H08 | 6 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M2.5 | 8 |
| S50MFBMS20H08H08 | 8 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M2.5 | 8 |
| S50MFBMS25H08H08 | 8 | 8 | 25 | 12 | 36.5 | 15 | 4.5 | M3 | 10 |
| S50MFBMS25H08H10 | 8 | 10 | 25 | 12 | 36.5 | 15 | 4.5 | M3 | 10 |
| S50MFBMS25H10H10 | 10 | 10 | 25 | 12 | 36.5 | 15 | 4.5 | M3 | 10 |
| S50MFBMS32H08H08 | 8 | 8 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMS32H10H10 | 10 | 10 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMS32H10H14 | 10 | 14 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMS32H12H12 | 12 | 12 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMS32H14H14 | 14 | 14 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Max. Parallel Offset mm | Max. Angular Offset deg | Max. Axial Play mm | Weight* grams |
|--------------------------------|--------------------------|-------------------------|-------------|---|---|----------------------------------|----------------------------------|-----------------------------|------------------|
| S50MFBMS12__H__ | 0.5 | 1 | 13000 | 2.1 x 10 ⁻⁷ | 100 | 0.1 | 1.5 | +0.4/-1.2 | 9.2 |
| S50MFBMS16__H__ | 1 | 2 | 9500 | 8.1 x 10 ⁻⁷ | 150 | 0.1 | 1.5 | +0.4/-1.2 | 22 |
| S50MFBMS20__H__ | 1.5 | 3 | 7700 | 2.3 x 10 ⁻⁶ | 220 | 0.15 | 2 | +0.6/-1.8 | 38 |
| S50MFBMS25__H__ | 2 | 4 | 6100 | 6.9 x 10 ⁻⁶ | 330 | 0.15 | 2 | +0.6/-1.8 | 74 |
| S50MFBMS32__H__ | 3 | 6 | 4800 | 2.1 x 10 ⁻⁵ | 490 | 0.2 | 2 | +0.8/-2.5 | 130 |

* Values with max. bore diameter.



SPLIT HUB TYPE BELLOWS COUPLINGS

SDP/SI

PHOSPHOR BRONZE BELLOWS
ZERO BACKLASH
MAINTENANCE-FREE

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› MATERIAL:

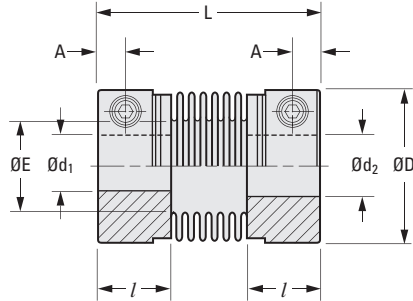
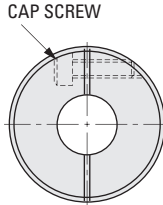
- Hubs** - Aluminum Alloy
- Bellows** - Phosphor Bronze
- Cap Screws** - Steel - Black Oxide Finish



› SPECIFICATION:

- Recommended Shaft Tolerance (h7):
- 4, 5 & 6 mm 0/-0.012
 - 8 & 10 mm 0/-0.015
 - 12 & 14 mm 0/-0.018

Other bore sizes and combinations are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d ₁ Bore | d ₂ Bore | D Dia. | l | L | E Bellows I.D. | A | Cap Screw | Max. Bore |
|------------------|---------------------|---------------------|--------|------|------|----------------|------|-----------|-----------|
| S50MFBMA12H04H04 | 4 | 4 | 12 | 7.5 | 23.5 | 7 | 2.25 | M2 | 5 |
| S50MFBMA12H04H05 | 4 | 5 | 12 | 7.5 | 23.5 | 7 | 2.25 | M2 | 5 |
| S50MFBMA12H05H05 | 5 | 5 | 12 | 7.5 | 23.5 | 7 | 2.25 | M2 | 5 |
| S50MFBMA16H05H05 | 5 | 5 | 16 | 9 | 26.5 | 9.5 | 3 | M2.5 | 6.35 |
| S50MFBMA16H05H06 | 5 | 6 | 16 | 9 | 26.5 | 9.5 | 3 | M2.5 | 6.35 |
| S50MFBMA16H06H06 | 6 | 6 | 16 | 9 | 26.5 | 9.5 | 3 | M2.5 | 6.35 |
| S50MFBMA20H06H06 | 6 | 6 | 20 | 10 | 32 | 12.5 | 3.5 | M2.5 | 8 |
| S50MFBMA20H06H08 | 6 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M2.5 | 8 |
| S50MFBMA20H08H08 | 8 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M2.5 | 8 |
| S50MFBMA25H08H08 | 8 | 8 | 25 | 12 | 36.5 | 15 | 4.5 | M3 | 10 |
| S50MFBMA25H08H10 | 8 | 10 | 25 | 12 | 36.5 | 15 | 4.5 | M3 | 10 |
| S50MFBMA25H10H10 | 10 | 10 | 25 | 12 | 36.5 | 15 | 4.5 | M3 | 10 |
| S50MFBMA32H08H08 | 8 | 8 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMA32H10H10 | 10 | 10 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMA32H10H12 | 10 | 12 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMA32H10H14 | 10 | 14 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |
| S50MFBMA32H12H12 | 12 | 12 | 32 | 13.5 | 42 | 21 | 5 | M4 | 14 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Max. Parallel Offset mm | Max. Angular Offset deg | Max. Axial Play mm | Weight* grams |
|-----------------------------|--------------------|-------------------|----------|--|--------------------------------------|-------------------------|-------------------------|--------------------|---------------|
| S50MFBMA12_H_ | 0.3 | 0.6 | 13000 | 9.7 x 10 ⁻⁸ | 82 | 0.1 | 1.5 | +0.4/-1.2 | 3.8 |
| S50MFBMA16_H_ | 0.5 | 1 | 9500 | 3.7 x 10 ⁻⁷ | 110 | 0.1 | 1.5 | +0.4/-1.2 | 9.8 |
| S50MFBMA20_H_ | 0.8 | 1.6 | 7700 | 1 x 10 ⁻⁶ | 180 | 0.15 | 2 | +0.6/-1.8 | 16 |
| S50MFBMA25_H_ | 1.3 | 2.6 | 6100 | 3.1 x 10 ⁻⁶ | 240 | 0.15 | 2 | +0.6/-1.8 | 32 |
| S50MFBMA32_H_ | 2 | 4 | 4800 | 9.6 x 10 ⁻⁶ | 330 | 0.2 | 2 | +0.8/-2.5 | 58 |

* Values with max. bore diameter.



Request Info
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SET SCREW TYPE BELLOWS COUPLINGS



STAINLESS STEEL
ZERO BACKLASH
MAINTENANCE-FREE

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► MATERIAL:

- Hubs** - Stainless Steel
- Bellows** - Stainless Steel
- Cap Screws** - Stainless Steel

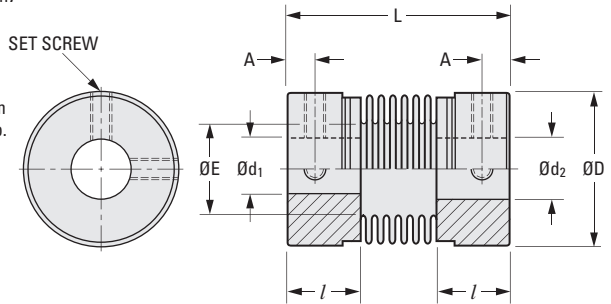
► SPECIFICATION:

- d_1, d_2 Tolerance:
- 3 mm +0.014/0
 - 4, 5 & 6 mm +0.018/0
 - 8 & 10 mm +0.022/0

Recommended Shaft Tolerances h6 or h7

Other bore sizes and combinations are available on special order.

Couplings with a bore diameter of 4 mm or less have one set screw in each hub.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d_1 Bore H8 | d_2 Bore H8 | D Dia. | l | L | E Bellows I.D. | A | Set Screw | Max. Bore |
|------------------|---------------------|---------------------|-----------|-----|------|----------------------|-----|--------------|--------------|
| S50MFBMS12P03P03 | 3 | 3 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMS12P03P05 | 3 | 5 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMS12P04P04 | 4 | 4 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMS12P04P06 | 4 | 6 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMS12P05P06 | 5 | 6 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMS16P04P04 | 4 | 4 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMS16P05P05 | 5 | 5 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMS16P06P06 | 6 | 6 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMS16P06P08 | 6 | 8 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMS20P05P05 | 5 | 5 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMS20P06P06 | 6 | 6 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMS20P06P08 | 6 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMS20P08P08 | 8 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMS20P10P10 | 10 | 10 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Max. Parallel Offset mm | Max. Angular Offset deg | Max. Axial Play mm | Weight* grams |
|--------------------------------|--------------------------|-------------------------|-------------|---|---|----------------------------------|----------------------------------|-----------------------------|------------------|
| S50MFBMS12_ P__ | 0.5 | 1 | 32000 | 2.1×10^{-7} | 100 | 0.1 | 1.5 | +0.4/-1.2 | 9.1 |
| S50MFBMS16_ P__ | 1 | 2 | 24000 | 8×10^{-7} | 150 | 0.1 | 1.5 | +0.4/-1.2 | 20 |
| S50MFBMS20_ P__ | 1.5 | 3 | 19000 | 2.3×10^{-6} | 220 | 0.15 | 2 | +0.6/-1.8 | 37 |

* Values with max. bore diameter.

Continued on the next page

SET SCREW TYPE BELLOWS COUPLINGS

SDP/SI

STAINLESS STEEL
ZERO BACKLASH
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> MATERIAL:

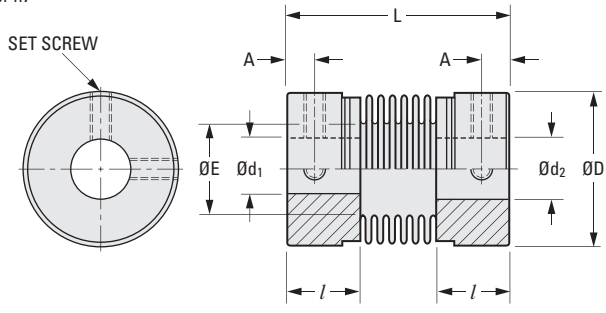
- Hubs** - Stainless Steel
- Bellows** - Stainless Steel
- Cap Screws** - Stainless Steel

> SPECIFICATION:

- d₁, d₂ Tolerance:
6 mm +0.018/0
- 8 & 10 mm +0.022/0
- 12 & 14 mm +0.027/0

Recommended Shaft Tolerances h6 or h7

Other bore sizes and combinations are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d ₁ Bore H8 | d ₂ Bore H8 | D Dia. | l | L | E Bellows I.D. | A | Set Screw | Max. Bore |
|-----------------|------------------------|------------------------|--------|------|------|----------------|-----|-----------|-----------|
| S50MBMS25P06P06 | 6 | 6 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MBMS25P06P12 | 6 | 12 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MBMS25P08P08 | 8 | 8 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MBMS25P08P10 | 8 | 10 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MBMS25P10P10 | 10 | 10 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MBMS32P08P08 | 8 | 8 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |
| S50MBMS32P10P10 | 10 | 10 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |
| S50MBMS32P10P14 | 10 | 14 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |
| S50MBMS32P12P12 | 12 | 12 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Max. Parallel Offset mm | Max. Angular Offset deg | Max. Axial Play mm | Weight* grams |
|-----------------------------|--------------------|-------------------|----------|--|--------------------------------------|-------------------------|-------------------------|--------------------|---------------|
| S50MBMS25_P__ | 2 | 4 | 15000 | 7 x 10 ⁻⁶ | 330 | 0.15 | 2 | +0.6/-1.8 | 73 |
| S50MBMS32_P__ | 3 | 6 | 12000 | 2.1 x 10 ⁻⁵ | 490 | 0.2 | 2 | +0.8/-2.5 | 130 |

* Values with max. bore diameter.

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- 14
- 15
- A

SET SCREW TYPE BELLOWS COUPLINGS



PHOSPHOR BRONZE BELLOWS
ZERO BACKLASH
MAINTENANCE-FREE

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MATERIAL:

- Hubs** - Aluminum Alloy
- Bellows** - Phosphor Bronze
- Cap Screws** - Steel - Black Oxide Finish

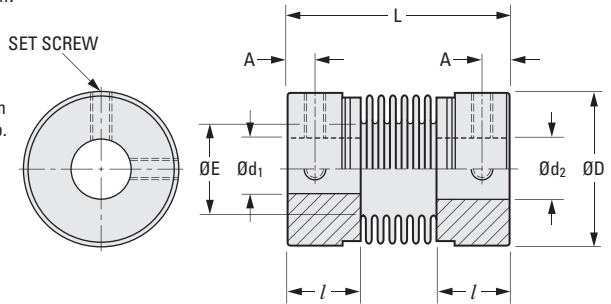
SPECIFICATION:

- d₁, d₂ Tolerance:
3 mm +0.014/0
- 4, 5 & 6 mm +0.018/0
- 8 & 10 mm +0.022/0

Recommended Shaft Tolerances h6 or h7

Other bore sizes and combinations are available on special order.

Couplings with a bore diameter of 4 mm or less have one set screw in each hub.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d ₁ Bore H8 | d ₂ Bore H8 | D Dia. | l | L | E Bellows I.D. | A | Set Screw | Max. Bore |
|------------------|------------------------------|------------------------------|-----------|-----|------|----------------------|-----|--------------|--------------|
| S50MFBMA12P03P03 | 3 | 3 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMA12P04P05 | 4 | 5 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMA12P05P05 | 5 | 5 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMA12P05P06 | 5 | 6 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMA12P06P06 | 6 | 6 | 12 | 7.5 | 23.5 | 7 | 2.5 | M2.5 | 6.35 |
| S50MFBMA16P04P04 | 4 | 4 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMA16P05P05 | 5 | 5 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMA16P05P06 | 5 | 6 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMA16P06P06 | 6 | 6 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMA16P06P08 | 6 | 8 | 16 | 9 | 26.5 | 9.5 | 3 | M3 | 8 |
| S50MFBMA20P06P06 | 6 | 6 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMA20P06P08 | 6 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMA20P06P10 | 6 | 10 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMA20P08P08 | 8 | 8 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |
| S50MFBMA20P10P10 | 10 | 10 | 20 | 10 | 32 | 12.5 | 3.5 | M3 | 10 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Max. Parallel Offset mm | Max. Angular Offset deg | Max. Axial Play mm | Weight* grams |
|--------------------------------|--------------------------|-------------------------|-------------|---|---|----------------------------------|----------------------------------|-----------------------------|------------------|
| S50MFBMA12_P__ | 0.3 | 0.6 | 32000 | 9 x 10 ⁻⁸ | 82 | 0.1 | 1.5 | +0.4/-1.2 | 4.1 |
| S50MFBMA16_P__ | 0.5 | 1 | 24000 | 3.5 x 10 ⁻⁷ | 110 | 0.1 | 1.5 | +0.4/-1.2 | 9 |
| S50MFBMA20_P__ | 0.8 | 1.6 | 19000 | 9.9 x 10 ⁻⁷ | 180 | 0.15 | 2 | +0.6/-1.8 | 16 |

* Values with max. bore diameter.

Continued on the next page

SET SCREW TYPE BELLOWS COUPLINGS



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› MATERIAL:

- Hubs** - Aluminum Alloy
- Bellows** - Phosphor Bronze
- Cap Screws** - Steel - Black Oxide Finish



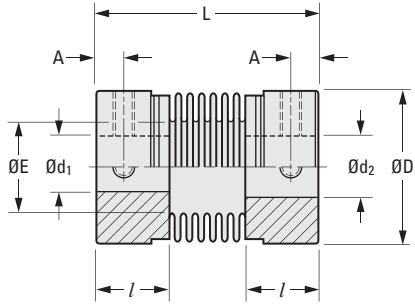
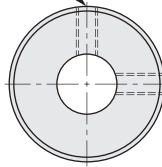
› SPECIFICATION:

- d₁, d₂ Tolerance:
6 mm +0.018/0
- 8 & 10 mm +0.022/0
- 12 & 14 mm +0.027/0

Recommended Shaft Tolerances h6 or h7

Other bore sizes and combinations are available on special order.

SET SCREW



The projections shown are per ISO convention.

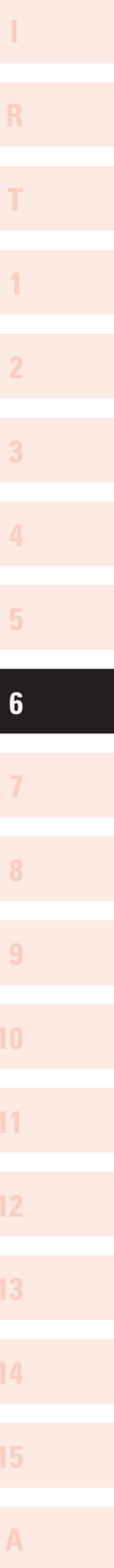
METRIC COMPONENT

| Catalog Number | d ₁ Bore H8 | d ₂ Bore H8 | D Dia. | l | L | E Bellows I.D. | A | Set Screw | Max. Bore |
|------------------|------------------------|------------------------|--------|------|------|----------------|-----|-----------|-----------|
| S50MFBMA25P06P06 | 6 | 6 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MFBMA25P08P08 | 8 | 8 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MFBMA25P10P10 | 10 | 10 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MFBMA25P10P12 | 10 | 12 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MFBMA25P12P12 | 12 | 12 | 25 | 12 | 36.5 | 15 | 4.5 | M4 | 12 |
| S50MFBMA32P08P08 | 8 | 8 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |
| S50MFBMA32P08P14 | 8 | 14 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |
| S50MFBMA32P10P10 | 10 | 10 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |
| S50MFBMA32P12P12 | 12 | 12 | 32 | 13.5 | 42 | 21 | 5.5 | M4 | 16 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Max. Parallel Offset mm | Max. Angular Offset deg | Max. Axial Play mm | Weight* grams |
|-----------------------------|--------------------|-------------------|----------|--|--------------------------------------|-------------------------|-------------------------|--------------------|---------------|
| S50MFBMA25_P__ | 1.3 | 2.6 | 15000 | 3 × 10 ⁻⁶ | 240 | 0.15 | 2 | +0.6/-1.8 | 32 |
| S50MFBMA32_P__ | 2 | 4 | 12000 | 9.2 × 10 ⁻⁶ | 330 | 0.2 | 2 | +0.8/-2.5 | 57 |

*Values with max. bore diameter.

Continued from the previous page

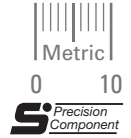


SET SCREW TYPE HUB BELLOWS COUPLINGS

SDP/SI

STANDARD DUTY
HEAVY-DUTY

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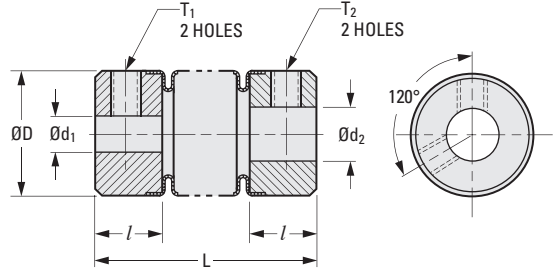


MATERIAL:

- Hubs** - Brass
- Bellows** - Phosphor Bronze
- Set Screws** - Stainless Steel
- Finish** - Tin Plate

SPECIFICATION:

- d₁, d₂ Tolerance:
- 3 mm +0.01/0
 - 4, 5 & 6 mm +0.012/0
 - 8 & 10 mm +0.015/0
 - 12 mm +0.018/0



METRIC COMPONENT

| Catalog Number | | d ₁ Bore H7 | d ₂ Bore H7 | D Dia. | T ₁ | T ₂ | l | Max. Torque N • m |
|----------------------|-----------------|------------------------------|------------------------------|-----------|----------------|----------------|-----|-------------------------|
| L = 19 | L = 32 | | | | | | | |
| Standard Duty | | | | | | | | |
| S50BP9MP03P0319 | S50BP9MP03P0332 | 3 | 3 | 12 | M2 | M2 | 6.5 | 1.06 |
| S50BP9MP03P0419 | S50BP9MP03P0432 | 3 | 4 | 12 | M2 | M3 | 6.5 | 1.06 |
| S50BP9MP03P0519 | S50BP9MP03P0532 | 3 | 5 | 12 | M2 | M3 | 6.5 | 1.06 |
| S50BP9MP03P0619 | S50BP9MP03P0632 | 3 | 6 | 12 | M2 | M3 | 6.5 | 1.06 |
| S50BP9MP04P0419 | S50BP9MP04P0432 | 4 | 4 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP04P0519 | S50BP9MP04P0532 | 4 | 5 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP04P0619 | S50BP9MP04P0632 | 4 | 6 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP04P0819 | S50BP9MP04P0832 | 4 | 8 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP05P0519 | S50BP9MP05P0532 | 5 | 5 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP05P0619 | S50BP9MP05P0632 | 5 | 6 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP05P0819 | S50BP9MP05P0832 | 5 | 8 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP06P0619 | S50BP9MP06P0632 | 6 | 6 | 12 | M3 | M3 | 6.5 | 1.06 |
| S50BP9MP06P0819 | S50BP9MP06P0832 | 6 | 8 | 12 | M3 | M3 | 6.5 | 1.06 |

| Catalog Number | d ₁ Bore H7 | d ₂ Bore H7 | D Dia. | L | T ₁ | T ₂ | l | Max. Torque N • m |
|-------------------|------------------------------|------------------------------|-----------|------|----------------|----------------|---|-------------------------|
| Heavy-Duty | | | | | | | | |
| S50BPHMP05P0526 | 5 | 5 | 17 | 26.3 | M3 | M3 | 9 | 1.41 |
| S50BPHMP05P0626 | 5 | 6 | 17 | 26.3 | M3 | M3 | 9 | 1.41 |
| S50BPHMP06P0626 | 6 | 6 | 17 | 26.3 | M3 | M3 | 9 | 1.41 |
| S50BPHMP08P0827 | 8 | 8 | 22 | 27 | M4 | M4 | 9 | 2.12 |
| S50BPHMP10P1027 | 10 | 10 | 22 | 27 | M4 | M4 | 9 | 2.12 |
| S50BPHMP12P1227 | 12 | 12 | 22 | 27 | M4 | M4 | 9 | 2.12 |

INTEGRAL CLAMP HI-FLEX BELLOWS COUPLINGS

SDP/SI

TORQUE RANGE FROM 7.1 TO 245.3 N • cm
 ZERO BACKLASH
 ZERO CYCLIC SPEED VARIATION DURING 360° ROTATION
 VERY LOW TORSIONAL DEFLECTION

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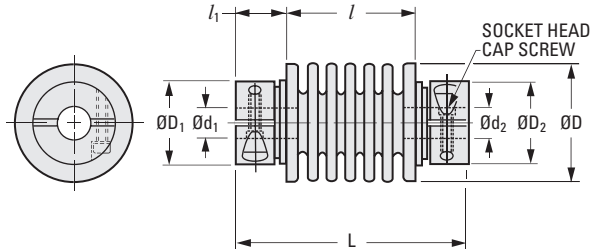
► MATERIAL:

- Hubs - Aluminum
- Bellows - Flexible Electrodeposited Nickel
- Cap Screws - Steel, Black Oxide

► FOR APPLICATIONS REQUIRING:

- Precise Adjustment
- Repositioning
- Reversal Torque Resistance
- Vibration Resistance
- Ability to Handle Large Shaft Misalignment

Other bores, finishes are available upon special order



METRIC COMPONENT

| Catalog Number | d ₁ Bore H8 | d ₂ Bore H8 | D ₁ Hub Dia. | D ₂ Hub Dia. | l Bellows Length | l ₁ Hub Width | L Overall Length | D Bellows O.D. | Cap Screws |
|----------------|------------------------------|------------------------------|-------------------------------|-------------------------------|------------------------|--------------------------------|------------------------|----------------------|---------------|
| S9901YMG020223 | 2 | 2 | 10.5 | 10.5 | 11.43 | 5.7 | 22.83 | 9.5 | M1.6 |
| S9901YMG020323 | 2 | 3 | 10.5 | 10.5 | 11.43 | 5.7 | 22.83 | 9.5 | M1.6 |
| S9901YMG030323 | 3 | 3 | 10.5 | 10.5 | 11.43 | 5.7 | 22.83 | 9.5 | M1.6 |
| S9901YMG030423 | 3 | 4 | 10.5 | 10.5 | 11.43 | 5.7 | 22.83 | 9.5 | M1.6 |
| S9901YMG040423 | 4 | 4 | 10.5 | 10.5 | 11.43 | 5.7 | 22.83 | 9.5 | M1.6 |
| S9901YMG020226 | 2 | 2 | 12 | 12 | 13.06 | 6.5 | 26.06 | 11.1 | M2 |
| S9901YMG020326 | 2 | 3 | 12 | 12 | 13.06 | 6.5 | 26.06 | 11.1 | M2 |
| S9901YMG040426 | 4 | 4 | 12 | 12 | 13.06 | 6.5 | 26.06 | 11.1 | M2 |
| S9901YMG040626 | 4 | 6 | 12 | 14.5 | 13.06 | 6.5 | 26.06 | 11.1 | M2 |
| S9901YMG060626 | 6 | 6 | 14.5 | 14.5 | 13.06 | 6.5 | 26.06 | 11.1 | M2 |
| S9901YMG040428 | 4 | 4 | 12 | 12 | 14.76 | 6.5 | 27.76 | 16.3 | M2 |
| S9901YMG040628 | 4 | 6 | 12 | 14.5 | 14.76 | 6.5 | 27.76 | 16.3 | M2 |
| S9901YMG060628 | 6 | 6 | 14.5 | 14.5 | 14.76 | 6.5 | 27.76 | 16.3 | M2 |
| S9901YMG060630 | 6 | 6 | 15.5 | 15.5 | 15.75 | 7.2 | 30.15 | 19.1 | M2.5 |
| S9901YMG061030 | 6 | 10 | 15.5 | 22 | 15.75 | 7.2 | 30.15 | 19.1 | M2.5 |
| S9901YMG101030 | 10 | 10 | 22 | 22 | 15.75 | 7.2 | 30.15 | 19.1 | M2.5 |
| S9901YMG101035 | 10 | 10 | 22 | 22 | 20.55 | 7.2 | 34.95 | 25 | M2.5 |
| S9901YMG101235 | 10 | 12 | 22 | 22 | 20.55 | 7.2 | 34.95 | 25 | M2.5 |
| S9901YMG121235 | 12 | 12 | 22 | 22 | 20.55 | 7.2 | 34.95 | 25 | M2.5 |

| Coupling Series (Ref. Only) | Max. Rated Instantaneous Torque N • cm | Max. Misalignment | | Max. Axial Extension | Max. Axial Compression | Side Force N/mm | Torsional Deflection Arc Sec./ N • cm | Spring Rate N/mm |
|--------------------------------|---|----------------------|-------------------|----------------------------|------------------------------|-----------------------|--|------------------------|
| | | Angular Offset | Lateral Offset | | | | | |
| S9901YM...23 | 7.1 | 13° | 0.4 | 1.3 | 1.7 | 6.3 | 94.7 | 3.1 |
| S9901YM...26 | 9.6 | 14° | 0.53 | 1.67 | 2.23 | 4.1 | 74.9 | 2.2 |
| S9901YM...28 | 37.4 | 10° | 0.42 | 1.71 | 2.28 | 12.1 | 20.2 | 4 |
| S9901YM...30 | 131.4 | 8° | 0.36 | 1.58 | 2.1 | 36.9 | 8.8 | 10.3 |
| S9901YM...35 | 245.3 | 8° | 0.46 | 2 | 2.66 | 38 | 4.5 | 11.2 |

SET SCREW TYPE HUBS
ZERO BACKLASH

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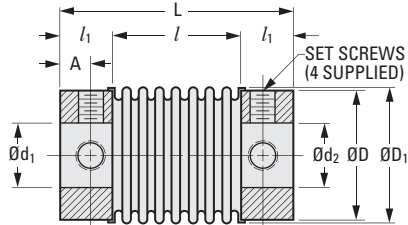
➤ **MATERIAL:**

Bellows - Flexible Electrodeposited Nickel
Hubs - 303 Stainless Steel

➤ **SPECIFICATION:**

d_1, d_2 Tolerance (H7):
3 mm +0.010/0
4 mm +0.012/0

* d_1, d_2 Tolerance (H8):
2 & 3 mm +0.014/0



METRIC COMPONENT

| Catalog Number | d_1 Bore | d_2 Bore | D Dia. | l | l ₁ | L | D ₁ Bellows O.D. | A | Set Screw |
|-----------------|---------------|---------------|-----------|------|----------------|------|-----------------------------------|-----|--------------|
| S9901YM0202182* | 2 | 2 | 7.01 | 6.2 | 6 | 18.2 | 6.4 | 2.2 | M2.5 |
| S9901YM0203182* | 2 | 3 | 7.01 | 6.2 | 6 | 18.2 | 6.4 | 2.2 | M2.5 |
| S9901YM0202214* | 2 | 2 | 10 | 9.4 | 6 | 21.4 | 9.5 | 2.2 | M2.5 |
| S9901YM0203214* | 2 | 3 | 10 | 9.4 | 6 | 21.4 | 9.5 | 2.2 | M2.5 |
| S9901YM0303142 | 3 | 3 | 6.25 | 6.2 | 4 | 14.2 | 6.4 | 2 | M2 |
| S9901YM0303174 | 3 | 3 | 6.25 | 9.4 | 4 | 17.4 | 6.4 | 2 | M2 |
| S9901YM0303268 | 3 | 3 | 6.25 | 18.8 | 4 | 26.8 | 6.4 | 2 | M2 |
| S9901YM0304157 | 3 | 4 | 9.4 | 7.7 | 4 | 15.7 | 9.5 | 2 | M2 |
| S9901YM0304174 | 3 | 4 | 9.4 | 9.4 | 4 | 17.4 | 9.5 | 2 | M2 |
| S9901YM0304220 | 3 | 4 | 9.4 | 14 | 4 | 22 | 9.5 | 2 | M2 |
| S9901YM0304268 | 3 | 4 | 9.4 | 18.8 | 4 | 26.8 | 9.5 | 2 | M2 |
| S9901YM0404157 | 4 | 4 | 9.4 | 7.7 | 4 | 15.7 | 9.5 | 2 | M2 |
| S9901YM0404174 | 4 | 4 | 9.4 | 9.4 | 4 | 17.4 | 9.5 | 2 | M2 |
| S9901YM0404220 | 4 | 4 | 9.4 | 14 | 4 | 22 | 9.5 | 2 | M2 |
| S9901YM0404268 | 4 | 4 | 9.4 | 18.8 | 4 | 26.8 | 9.5 | 2 | M2 |

| Catalog Number (Ref.) | Torque N • cm | Windup arcsec/N • cm | Max. Axial Motion | Max. Angular Offset |
|--------------------------|------------------|-------------------------|-------------------------|---------------------------|
| S9901YM0202182* | 3.5 | 286 | 0.18 | 9 |
| S9901YM0203182* | 3.5 | 286 | 0.18 | 9 |
| S9901YM0202214* | 7.1 | 95 | 0.41 | 13 |
| S9901YM0203214* | 7.1 | 95 | 0.41 | 13 |
| S9901YM0303142 | 4.9 | 286 | 0.18 | 9 |
| S9901YM0303174 | 3.5 | 433 | 0.43 | 15 |
| S9901YM0303268 | 1.4 | 872 | 1.93 | 31 |
| S9901YM0304157 | 13 | 78 | 0.25 | 10 |
| S9901YM0304174 | 9.9 | 95 | 0.38 | 13 |
| S9901YM0304220 | 6.4 | 140 | 0.91 | 20 |
| S9901YM0304268 | 4.9 | 190 | 1.68 | 27 |
| S9901YM0404157 | 13 | 78 | 0.25 | 10 |
| S9901YM0404174 | 9.9 | 95 | 0.38 | 13 |
| S9901YM0404220 | 6.4 | 140 | 0.91 | 20 |
| S9901YM0404268 | 4.9 | 190 | 1.68 | 27 |

Continued on the next page

SET SCREW TYPE HUBS
ZERO BACKLASH

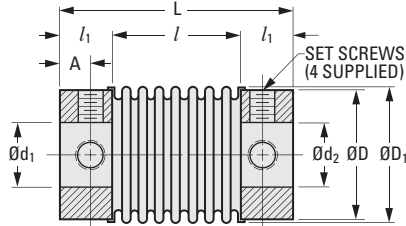
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► MATERIAL:

Bellows - Flexible Electrodeposited Nickel
Hubs - 303 Stainless Steel

► SPECIFICATION:

d_1, d_2 Tolerance:
3 mm +0.010/0
4 & 6 mm +0.012/0
8 mm +0.015/0



METRIC COMPONENT

| Catalog Number | d_1 Bore H7 | d_2 Bore H7 | D Dia. | l | l_1 | L | D ₁ Bellows O.D. | A | Set Screw |
|----------------|---------------------|---------------------|-----------|------|-------|------|-----------------------------------|-----|--------------|
| S9901YM0603194 | 6 | 3 | 12.5 | 9.4 | 5 | 19.4 | 12.7 | 3 | M3/M2 |
| S9901YM0603224 | 6 | 3 | 12.5 | 12.4 | 5 | 22.4 | 12.7 | 3 | M3/M2 |
| S9901YM0603288 | 6 | 3 | 12.5 | 18.8 | 5 | 28.8 | 12.7 | 3 | M3/M2 |
| S9901YM0604194 | 6 | 4 | 12.5 | 9.4 | 5 | 19.4 | 12.7 | 3 | M3 |
| S9901YM0604224 | 6 | 4 | 12.5 | 12.4 | 5 | 22.4 | 12.7 | 3 | M3 |
| S9901YM0604288 | 6 | 4 | 12.5 | 18.8 | 5 | 28.8 | 12.7 | 3 | M3 |
| S9901YM0606194 | 6 | 6 | 12.5 | 9.4 | 5 | 19.4 | 12.7 | 3 | M3 |
| S9901YM0606224 | 6 | 6 | 12.5 | 12.4 | 5 | 22.4 | 12.7 | 3 | M3 |
| S9901YM0606288 | 6 | 6 | 12.5 | 18.8 | 5 | 28.8 | 12.7 | 3 | M3 |
| S9901YM0606237 | 6 | 6 | 12.5 | 13.7 | 5 | 23.7 | 19 | 3 | M3 |
| S9901YM0606285 | 6 | 6 | 12.5 | 18.5 | 5 | 28.5 | 19 | 3 | M3 |
| S9901YM0606349 | 6 | 6 | 12.5 | 24.9 | 5 | 34.9 | 19 | 3 | M3 |
| S9901YM0804305 | 8 | 4 | 16 | 18.5 | 6 | 30.5 | 25.4 | 3.5 | M4/M3 |
| S9901YM0804432 | 8 | 4 | 16 | 31.2 | 6 | 43.2 | 25.4 | 3.5 | M4/M3 |
| S9901YM0806305 | 8 | 6 | 16 | 18.5 | 6 | 30.5 | 25.4 | 3.5 | M4 |
| S9901YM0806432 | 8 | 6 | 16 | 31.2 | 6 | 43.2 | 25.4 | 3.5 | M4 |
| S9901YM0808305 | 8 | 8 | 16 | 18.5 | 6 | 30.5 | 25.4 | 3.5 | M4 |
| S9901YM0808432 | 8 | 8 | 16 | 31.2 | 6 | 43.2 | 25.4 | 3.5 | M4 |

| Catalog Number (Ref.) | Torque N • cm | Windup arcsec/N • cm | Max. Axial Motion | Max. Angular Offset |
|--------------------------|------------------|-------------------------|-------------------------|---------------------------|
| S9901YM0603194 | 46 | 25 | 0.25 | 9 |
| S9901YM0603224 | 35 | 34 | 0.46 | 12 |
| S9901YM0603288 | 23 | 52 | 1.12 | 18 |
| S9901YM0604194 | 46 | 25 | 0.25 | 9 |
| S9901YM0604224 | 35 | 34 | 0.46 | 12 |
| S9901YM0604288 | 23 | 52 | 1.12 | 18 |
| S9901YM0606194 | 46 | 25 | 0.25 | 9 |
| S9901YM0606224 | 35 | 34 | 0.46 | 12 |
| S9901YM0606288 | 23 | 52 | 1.12 | 18 |
| S9901YM0606237 | 133 | 8.8 | 0.36 | 8 |
| S9901YM0606285 | 99 | 12 | 0.66 | 11 |
| S9901YM0606349 | 74 | 16 | 1.17 | 14 |
| S9901YM0804305 | 198 | 4.4 | 0.51 | 9 |
| S9901YM0804432 | 107 | 7.5 | 1.73 | 17 |
| S9901YM0806305 | 198 | 4.4 | 0.51 | 9 |
| S9901YM0806432 | 107 | 7.5 | 1.73 | 17 |
| S9901YM0808305 | 198 | 4.4 | 0.51 | 9 |
| S9901YM0808432 | 107 | 7.5 | 1.73 | 17 |

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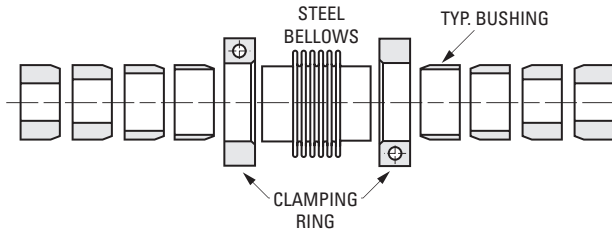
> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 3°

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> FEATURES:

- Various shaft diameters are accommodated via prebored hub bushings
- Permits complete couplings to be quickly and easily assembled from stock components
- Time-saving installation with fast and easy shaft attachment
- Modular components provide immediate availability
- Low-restoring forces protects shaft bearings



> COUPLING SELECTION:

Operating Torque:

Establish the Maximum Operating Torque
If the Temperature will exceed 50°C,
multiply the Maximum Operating Torque
by the Temperature Factor, as shown below:

| | | | | | |
|---------------------------|----|-------|-----|-------|-----|
| Temperature °C | 50 | 100 | 150 | 200 | 250 |
| Temperature Factor | 1 | 1.075 | 1.1 | 1.225 | 1.3 |

Misalignment:

Determine the various shaft misalignments possible (axial, angular and lateral) as a percentage of "permissible shaft misalignments" as shown in the technical data table for the preselected coupling size. Add each of the percentage values noting that the sum must be smaller than 100%. For example, 0.2 mm of axial misalignment corresponds to 25% of the permissible value of 0.8 mm for a size 2 coupling. Locate both the values for maximum operating torque in N • m and misalignment in % as ascertained above, on the corresponding axes of Diagram 1. The intersection of these two values must be below the characteristic curve of the preselected coupling size.

Temperature Resistance:

Up to 250°C

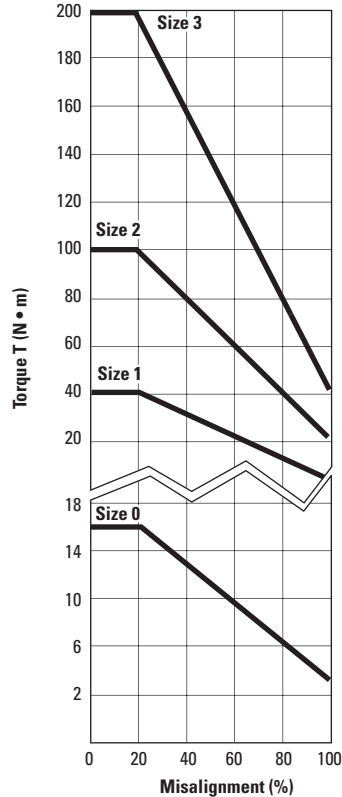
Shaft/Hub Tolerances:

- H7 Tolerance for bores of bushings
- h6 Tolerance recommended for shafts

Important Installation Notes:

- Bores must be cleaned and any corrosion prohibitive removed by washing with a suitable solvent
- Bores and shafts must not be oiled and greased in any way

Diagram 1



> TECHNICAL DATA:

| SIZE | Max. Torque T N • m | Max. Speed rpm | Torsional Rigidity N • m/rad | Axial Rigidity N/mm | Max. Misalignments | | Tight. Torque of Clamp Screw N • m | Inertia kg • m ² |
|------|------------------------|-------------------|---------------------------------|------------------------|----------------------|--------------------|---------------------------------------|--------------------------------|
| | | | | | Lateral Offset mm | Axial Motion mm | | |
| 0 | 16 | 10000 | 4000 | 50 | 0.3 | 0.4 | 10 | 2.9 x 10 ⁻⁵ |
| 1 | 40 | 8000 | 9000 | 70 | 0.4 | 0.6 | 14 | 8.7 x 10 ⁻⁵ |
| 2 | 100 | 6000 | 22000 | 90 | 0.5 | 0.8 | 17 | 2.6 x 10 ⁻⁴ |
| 3 | 200 | 4000 | 50000 | 120 | 0.5 | 0.8 | 41 | 11.4 x 10 ⁻⁴ |

> **MATERIAL:**

- Bushing** - Aluminum
- Clamp** - Aluminum
- Bellows** - Stainless Steel

> **FEATURES:**

- Backlash-Free Torque Transmission
- High Torsional Rigidity
- High-Speed Torque Transmission
- Low-Mass Moment of Inertia

> **FOR COMPLETE COUPLING**

METRIC COMPONENT CATALOG NUMBER

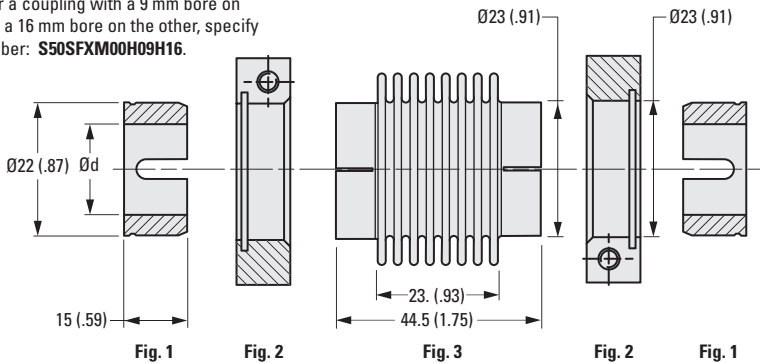
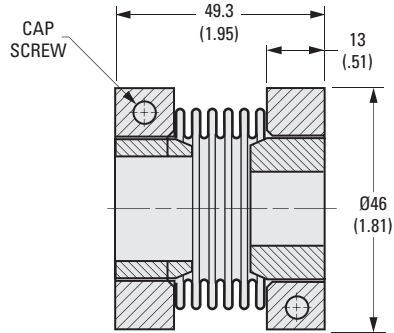
S50SFXM00H **H**

Bore 1 Bore 2

*When creating a Catalog Number, **Bore 1** must be smaller than or equal to **Bore 2**.

| Bore Code | Bore |
|-----------|------|
| 09 | 9 |
| 12 | 12 |
| 16 | 16 |
| 19 | 19 |

Example: For a coupling with a 9 mm bore on one side and a 16 mm bore on the other, specify Catalog Number: **S50SFXM00H09H16**.



> **FOR INDIVIDUAL COMPONENTS**

METRIC COMPONENT

| Catalog Number | Material | d Bore (H7) | Transmissible Torque N • m |
|-----------------------|-----------------|-------------|----------------------------|
| Fig. 1 Bushing | | | |
| S50SFXM0009220 | Aluminum | 9 | 11 |
| S50SFXM0012220 | Aluminum | 12 | 16 |
| S50SFXM0016220 | Aluminum | 16 | 16 |
| S50SFXM0019220 | Aluminum | 19 | 16 |
| Fig. 2 Clamp | | | |
| S35SFXM0023043 | Aluminum | - | - |
| Fig. 3 Bellows | | | |
| S60SFXM00445230 | Stainless Steel | - | - |

NOTE: Dimensions in () are in inch.

> **MATERIAL:**

- Bushing** - Aluminum
- Clamp** - Aluminum
- Bellows** - Stainless Steel

> **FEATURES:**

- Backlash-Free Torque Transmission
- High Torsional Rigidity
- High-Speed Torque Transmission
- Low-Mass Moment of Inertia

> **FOR COMPLETE COUPLING**

METRIC COMPONENT CATALOG NUMBER

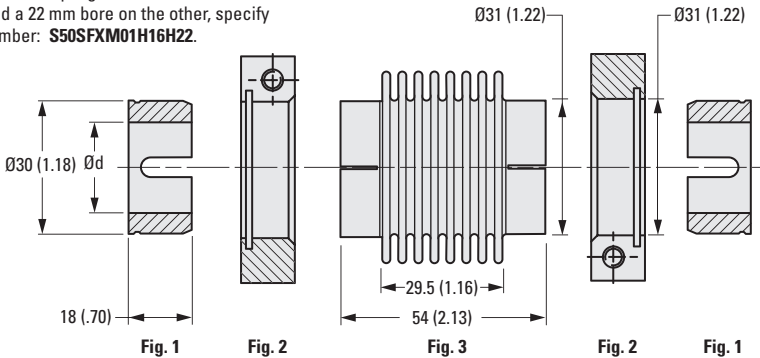
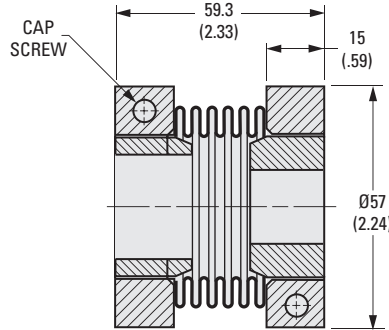
S50SFXM01H

Bore 1 Bore 2

*When creating a Catalog Number, **Bore 1** must be smaller than or equal to **Bore 2**.

| Bore Code | Bore |
|-----------|------|
| 12 | 12 |
| 16 | 16 |
| 19 | 19 |
| 22 | 22 |

Example: For a coupling with a 16 mm bore on one side and a 22 mm bore on the other, specify Catalog Number: **S50SFXM01H16H22**.



> **FOR INDIVIDUAL COMPONENTS**

METRIC COMPONENT

| Catalog Number | Material | d Bore (H7) | Transmissible Torque N • m |
|-----------------------|-----------------|-------------|----------------------------|
| Fig. 1 Bushing | | | |
| S50SFXM0112300 | Aluminum | 12 | 26 |
| S50SFXM0116300 | Aluminum | 16 | 35 |
| S50SFXM0119300 | Aluminum | 19 | 40 |
| S50SFXM0122300 | Aluminum | 22 | 40 |
| Fig. 2 Clamp | | | |
| S35SFXM0131055 | Aluminum | - | - |
| Fig. 3 Bellows | | | |
| S60SFXM01540310 | Stainless Steel | - | - |

NOTE: Dimensions in () are inch.

> MATERIAL:

- Bushing - Aluminum
- Clamp - Aluminum
- Bellows - Stainless Steel

> FEATURES:

- Backlash-Free Torque Transmission
- High Torsional Rigidity
- High-Speed Torque Transmission
- Low-Mass Moment of Inertia

> FOR COMPLETE COUPLING

METRIC COMPONENT CATALOG NUMBER

S50SFXM02H

Bore 1 Bore 2

*When creating a Catalog Number, **Bore 1** must be smaller than or equal to **Bore 2**.

| Bore Code | Bore |
|-----------|------|
| 16 | 16 |
| 19 | 19 |
| 22 | 22 |
| 25 | 25 |
| 32 | 32 |

Example: For a coupling with a 16 mm bore on one side and a 22 mm bore on the other, specify Catalog Number: **S50SFXM02H16H22**.

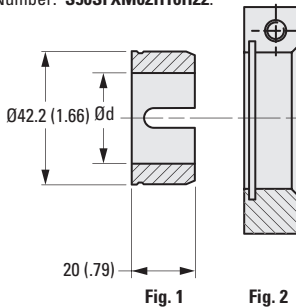
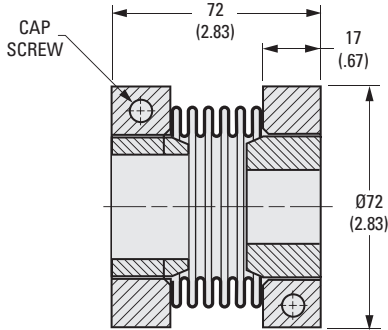


Fig. 1



Fig. 2

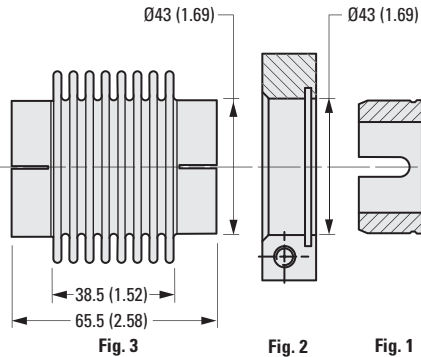


Fig. 3

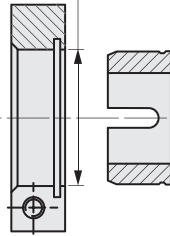


Fig. 2



Fig. 1

> FOR INDIVIDUAL COMPONENTS

METRIC COMPONENT

| Catalog Number | Material | d Bore (H7) | Transmissible Torque N • m |
|-----------------------|-----------------|-------------|----------------------------|
| Fig. 1 Bushing | | | |
| S50SFXM0216422 | Aluminum | 16 | 60 |
| S50SFXM0219422 | Aluminum | 19 | 72 |
| S50SFXM0222422 | Aluminum | 22 | 84 |
| S50SFXM0225422 | Aluminum | 25 | 100 |
| S50SFXM0232422 | Aluminum | 32 | 100 |
| Fig. 2 Clamp | | | |
| S35SFXM0243071 | Aluminum | - | - |
| Fig. 3 Bellows | | | |
| S60SFXM02655430 | Stainless Steel | - | - |

NOTE: Dimensions in () are inch.

MODULAR PREBORED HUB BUSHINGS

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> MATERIAL:

- Bushing - Aluminum
- Clamp - Aluminum
- Bellows - Stainless Steel

> FEATURES:

- Backlash-Free Torque Transmission
- High Torsional Rigidity
- High-Speed Torque Transmission
- Low-Mass Moment of Inertia

> FOR COMPLETE COUPLING

METRIC COMPONENT CATALOG NUMBER

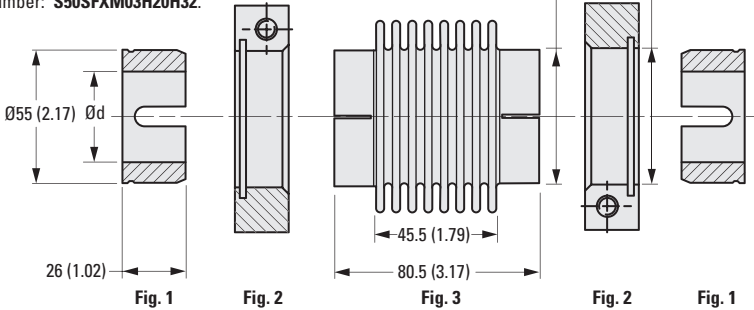
S50SFXM03H□□□

Bore 1 Bore 2

*When creating a Catalog Number, Bore 1 must be smaller than or equal to Bore 2.

| Bore Code | Bore |
|-----------|------|
| 20 | 20 |
| 22 | 22 |
| 25 | 25 |
| 32 | 32 |
| 38 | 38 |
| 45 | 45 |

Example: For a coupling with a 20 mm bore on one side and a 32 mm bore on the other, specify Catalog Number: S50SFXM03H20H32.



- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

> FOR INDIVIDUAL COMPONENTS

METRIC COMPONENT

| Catalog Number | Material | d Bore (H7) | Transmissible Torque N • m |
|-----------------------|-----------------|-------------|----------------------------|
| Fig. 1 Bushing | | | |
| S50SFXM0320550 | Aluminum | 20 | 133 |
| S50SFXM0322550 | Aluminum | 22 | 147 |
| S50SFXM0325550 | Aluminum | 25 | 167 |
| S50SFXM0332550 | Aluminum | 32 | 200 |
| S50SFXM0338550 | Aluminum | 38 | 200 |
| S50SFXM0345550 | Aluminum | 45 | 200 |
| Fig. 2 Clamp | | | |
| S35SFXM0356592 | Aluminum | - | - |
| Fig. 3 Bellows | | | |
| S60SFXM03805565 | Stainless Steel | - | - |

NOTE: Dimensions in () are in ch.

SET SCREW TYPE
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

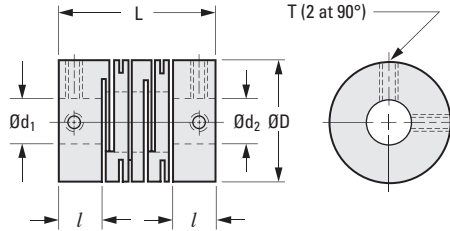
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➤ **MATERIAL:**
Stainless Steel

➤ **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 2°

➤ **SPECIFICATION:**
d₁, d₂ Tolerance:
2 & 3 mm +0.014/0
4, 5 & 6 mm +0.018/0
8 & 10 mm +0.022/0



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | L | l | T Set Screw | Max.* Bore |
|------------------|--------|------------------------|------------------------|------|-----|-------------|------------|
| S50MSTMS08P02P02 | 8 | 2 | 2 | 14 | 3.5 | M2** | 4 |
| S50MSTMS08P02P03 | 8 | 2 | 3 | 14 | 3.5 | M2** | 4 |
| S50MSTMS08P03P03 | 8 | 3 | 3 | 14 | 3.5 | M2** | 4 |
| S50MSTMS12P03P03 | 12 | 3 | 3 | 18.5 | 5 | M2.5** | 6 |
| S50MSTMS12P04P04 | 12 | 4 | 4 | 18.5 | 5 | M2.5** | 6 |
| S50MSTMS12P05P05 | 12 | 5 | 5 | 18.5 | 5 | M2.5 | 6 |
| S50MSTMS16P04P04 | 16 | 4 | 4 | 23 | 6.5 | M3** | 8 |
| S50MSTMS16P04P06 | 16 | 4 | 6 | 23 | 6.5 | M3** | 8 |
| S50MSTMS16P06P06 | 16 | 6 | 6 | 23 | 6.5 | M3 | 8 |
| S50MSTMS20P06P06 | 20 | 6 | 6 | 26 | 7.5 | M3 | 10 |
| S50MSTMS20P06P08 | 20 | 6 | 8 | 26 | 7.5 | M3 | 10 |
| S50MSTMS20P08P08 | 20 | 8 | 8 | 26 | 7.5 | M3 | 10 |
| S50MSTMS25P08P08 | 25 | 8 | 8 | 31 | 8.5 | M4 | 12 |
| S50MSTMS25P08P10 | 25 | 8 | 10 | 31 | 8.5 | M4 | 12 |
| S50MSTMS25P10P10 | 25 | 10 | 10 | 31 | 8.5 | M4 | 12 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

**Couplings with a bore diameter of 4 mm or less have one set screw at that end.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment ^Δ of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Axial Offset | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50MSTMS08... | 0.2 | 78000 | 3.1 x 10 ⁻⁸ | 50 | 0.1 | ± 0.2 | 3 |
| S50MSTMS12... | 0.3 | 52000 | 2.1 x 10 ⁻⁷ | 64 | 0.1 | ± 0.3 | 9.3 |
| S50MSTMS16... | 0.5 | 39000 | 8.4 x 10 ⁻⁷ | 85 | 0.1 | ± 0.3 | 21 |
| S50MSTMS20... | 1 | 31000 | 2.4 x 10 ⁻⁶ | 250 | 0.1 | ± 0.3 | 38 |
| S50MSTMS25... | 2 | 25000 | 6.8 x 10 ⁻⁶ | 330 | 0.15 | ± 0.4 | 71 |

^Δ Based on max. bore dimension.

Continued on the next page

MINIATURE SLIT TYPE FLEXIBLE COUPLINGS

SDP/SI

SET SCREW TYPE
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

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> MATERIAL:

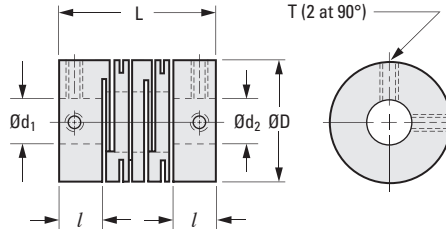
Stainless Steel

> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 2°
Max. Axial Motion: ± 0.5

> SPECIFICATION:

d₁, d₂ Tolerance:
8 & 10 mm +0.022/0
12, 14 & 16 mm +0.027/0



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | L | l | T Set Screw | Max.* Bore |
|------------------|--------|------------------------|------------------------|----|----|-------------|------------|
| S50MSTMS32P08P08 | 32 | 8 | 8 | 41 | 12 | M4 | 16 |
| S50MSTMS32P08P10 | 32 | 8 | 10 | 41 | 12 | M4 | 16 |
| S50MSTMS32P10P10 | 32 | 10 | 10 | 41 | 12 | M4 | 16 |
| S50MSTMS32P12P12 | 32 | 12 | 12 | 41 | 12 | M4 | 16 |
| S50MSTMS32P14P14 | 32 | 14 | 14 | 41 | 12 | M4 | 16 |
| S50MSTMS40P10P10 | 40 | 10 | 10 | 56 | 17 | M5 | 20 |
| S50MSTMS40P12P12 | 40 | 12 | 12 | 56 | 17 | M5 | 20 |
| S50MSTMS40P14P14 | 40 | 14 | 14 | 56 | 17 | M5 | 20 |
| S50MSTMS50P12P12 | 50 | 12 | 12 | 71 | 21 | M6 | 25 |
| S50MSTMS50P14P14 | 50 | 14 | 14 | 71 | 21 | M6 | 25 |
| S50MSTMS50P16P16 | 50 | 16 | 16 | 71 | 21 | M6 | 25 |
| S50MSTMS63P14P14 | 63 | 14 | 14 | 90 | 26 | M8 | 35 |
| S50MSTMS63P16P16 | 63 | 16 | 16 | 90 | 26 | M8 | 35 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------------|
| S50MSTMS32... | 3.5 | 19000 | 2.6 × 10 ⁻⁵ | 850 | 0.15 | 160 |
| S50MSTMS40... | 8 | 15000 | 8.7 × 10 ⁻⁵ | 1000 | 0.2 | 350 |
| S50MSTMS50... | 15 | 12000 | 2.7 × 10 ⁻⁴ | 1400 | 0.2 | 700 |
| S50MSTMS63... | 35 | 10000 | 8.4 × 10 ⁻⁴ | 1800 | 0.2 | 1300 |

^Δ Based on max. bore dimension.

Continued from the previous page

SET SCREW TYPE
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

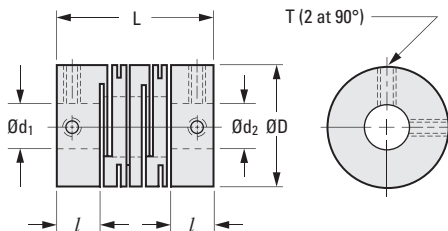
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
Anodized Aluminum

➤ **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 2°

➤ **SPECIFICATION:**
d₁, d₂ Tolerance:
2 & 3 mm +0.014/0
4, 5 & 6 mm +0.018/0
8 & 10 mm +0.022/0



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | L | l | T Set Screw | Max.* Bore |
|------------------|--------|------------------------|------------------------|------|-----|-------------|------------|
| S50MSTMA08P02P02 | 8 | 2 | 2 | 14 | 3.5 | M2** | 4 |
| S50MSTMA08P02P03 | 8 | 2 | 3 | 14 | 3.5 | M2** | 4 |
| S50MSTMA08P03P03 | 8 | 3 | 3 | 14 | 3.5 | M2** | 4 |
| S50MSTMA12P03P03 | 12 | 3 | 3 | 18.5 | 5 | M2.5** | 6 |
| S50MSTMA12P04P04 | 12 | 4 | 4 | 18.5 | 5 | M2.5** | 6 |
| S50MSTMA12P05P05 | 12 | 5 | 5 | 18.5 | 5 | M2.5 | 6 |
| S50MSTMA16P04P04 | 16 | 4 | 4 | 23 | 6.5 | M3** | 8 |
| S50MSTMA16P04P06 | 16 | 4 | 6 | 23 | 6.5 | M3** | 8 |
| S50MSTMA16P06P06 | 16 | 6 | 6 | 23 | 6.5 | M3 | 8 |
| S50MSTMA20P06P06 | 20 | 6 | 6 | 26 | 7.5 | M3 | 10 |
| S50MSTMA20P06P08 | 20 | 6 | 8 | 26 | 7.5 | M3 | 10 |
| S50MSTMA20P08P08 | 20 | 8 | 8 | 26 | 7.5 | M3 | 10 |
| S50MSTMA25P08P08 | 25 | 8 | 8 | 31 | 8.5 | M4 | 12 |
| S50MSTMA25P08P10 | 25 | 8 | 10 | 31 | 8.5 | M4 | 12 |
| S50MSTMA25P10P10 | 25 | 10 | 10 | 31 | 8.5 | M4 | 12 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

**Couplings with a bore diameter of 4 mm or less have one set screw at that end.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Axial Offset | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50MSTMA08... | 0.1 | 78000 | 1.2 x 10 ⁻⁸ | 25 | 0.1 | ± 0.2 | 1.4 |
| S50MSTMA12... | 0.4 | 52000 | 8.3 x 10 ⁻⁸ | 45 | 0.1 | ± 0.3 | 3.7 |
| S50MSTMA16... | 0.5 | 39000 | 3.3 x 10 ⁻⁷ | 80 | 0.1 | ± 0.4 | 8.1 |
| S50MSTMA20... | 1 | 31000 | 9 x 10 ⁻⁷ | 170 | 0.1 | ± 0.4 | 14 |
| S50MSTMA25... | 2 | 25000 | 2.6 x 10 ⁻⁶ | 380 | 0.15 | ± 0.5 | 27 |

^Δ Based on max. bore dimension.

Continued on the next page

SET SCREW TYPE
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

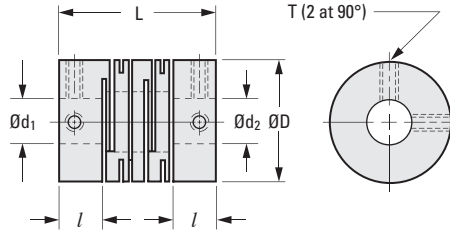
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



› **MATERIAL:**
Anodized Aluminum

› **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 2°
Max. Axial Motion: ± 0.5

› **SPECIFICATION:**
d₁, d₂ Tolerance:
8 & 10 mm +0.022/0
12, 14 & 16 mm +0.027/0



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | L | l | T Set Screw | Max.* Bore |
|------------------|--------|------------------------|------------------------|----|----|-------------|------------|
| S50MSTMA32P08P08 | 32 | 8 | 8 | 41 | 12 | M4 | 16 |
| S50MSTMA32P08P10 | 32 | 8 | 10 | 41 | 12 | M4 | 16 |
| S50MSTMA32P10P10 | 32 | 10 | 10 | 41 | 12 | M4 | 16 |
| S50MSTMA32P12P12 | 32 | 12 | 12 | 41 | 12 | M4 | 16 |
| S50MSTMA32P14P14 | 32 | 14 | 14 | 41 | 12 | M4 | 16 |
| S50MSTMA40P10P10 | 40 | 10 | 10 | 56 | 17 | M5 | 20 |
| S50MSTMA40P12P12 | 40 | 12 | 12 | 56 | 17 | M5 | 20 |
| S50MSTMA40P14P14 | 40 | 14 | 14 | 56 | 17 | M5 | 20 |
| S50MSTMA50P12P12 | 50 | 12 | 12 | 71 | 21 | M6 | 25 |
| S50MSTMA50P14P14 | 50 | 14 | 14 | 71 | 21 | M6 | 25 |
| S50MSTMA50P16P16 | 50 | 16 | 16 | 71 | 21 | M6 | 25 |
| S50MSTMA63P14P14 | 63 | 14 | 14 | 90 | 26 | M8 | 35 |
| S50MSTMA63P16P16 | 63 | 16 | 16 | 90 | 26 | M8 | 35 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------------|
| S50MSTMA32... | 4 | 19000 | 9.6 x 10 ⁻⁶ | 500 | 0.15 | 60 |
| S50MSTMA40... | 8 | 15000 | 3.2 x 10 ⁻⁵ | 700 | 0.2 | 130 |
| S50MSTMA50... | 16 | 12000 | 1.0 x 10 ⁻⁴ | 1800 | 0.2 | 260 |
| S50MSTMA63... | 32 | 10000 | 3.2 x 10 ⁻⁴ | 3100 | 0.2 | 490 |

^Δ Based on max. bore dimension.

Continued from the previous page

SLIT TYPE MSC FLEXIBLE COUPLINGS

SDP/SI

SPLIT TYPE HUB
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

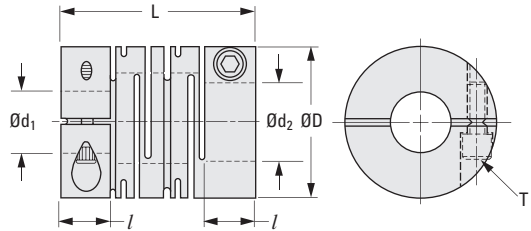
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:
Stainless Steel

> MISALIGNMENT COMPENSATION:
Max. Angular Offset: 2°

> SPECIFICATION:
Shaft Tolerance (h7):
4, 5 & 6 mm 0/-0.012
8 & 10 mm 0/-0.015



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | T Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|------|-----|-------------|------------|
| S50MSCMS12H04H04 | 12 | 4 | 4 | 18.5 | 5 | M2 | 5 |
| S50MSCMS12H04H05 | 12 | 4 | 5 | 18.5 | 5 | M2 | 5 |
| S50MSCMS12H05H05 | 12 | 5 | 5 | 18.5 | 5 | M2 | 5 |
| S50MSCMS16H05H05 | 16 | 5 | 5 | 23 | 6.5 | M2.5 | 6 |
| S50MSCMS16H05H06 | 16 | 5 | 6 | 23 | 6.5 | M2.5 | 6 |
| S50MSCMS16H06H06 | 16 | 6 | 6 | 23 | 6.5 | M2.5 | 6 |
| S50MSCMS20H06H06 | 20 | 6 | 6 | 26 | 7.5 | M2.5 | 8 |
| S50MSCMS20H06H08 | 20 | 6 | 8 | 26 | 7.5 | M2.5 | 8 |
| S50MSCMS20H08H08 | 20 | 8 | 8 | 26 | 7.5 | M2.5 | 8 |
| S50MSCMS25H06H06 | 25 | 6 | 6 | 31 | 8.5 | M3 | 10 |
| S50MSCMS25H06H08 | 25 | 6 | 8 | 31 | 8.5 | M3 | 10 |
| S50MSCMS25H08H08 | 25 | 8 | 8 | 31 | 8.5 | M3 | 10 |
| S50MSCMS25H08H10 | 25 | 8 | 10 | 31 | 8.5 | M3 | 10 |
| S50MSCMS25H10H10 | 25 | 10 | 10 | 31 | 8.5 | M3 | 10 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment ^Δ of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50MSCMS12... | 0.3 | 52000 | 2.2 x 10 ⁻⁷ | 64 | 0.1 | ± 0.2 | 10 |
| S50MSCMS16... | 0.5 | 39000 | 9 x 10 ⁻⁷ | 85 | 0.1 | ± 0.3 | 25 |
| S50MSCMS20... | 1 | 31000 | 2.5 x 10 ⁻⁶ | 250 | 0.1 | ± 0.3 | 43 |
| S50MSCMS25... | 2 | 25000 | 7.1 x 10 ⁻⁶ | 330 | 0.15 | ± 0.4 | 78 |

^Δ Based on max. bore dimension.

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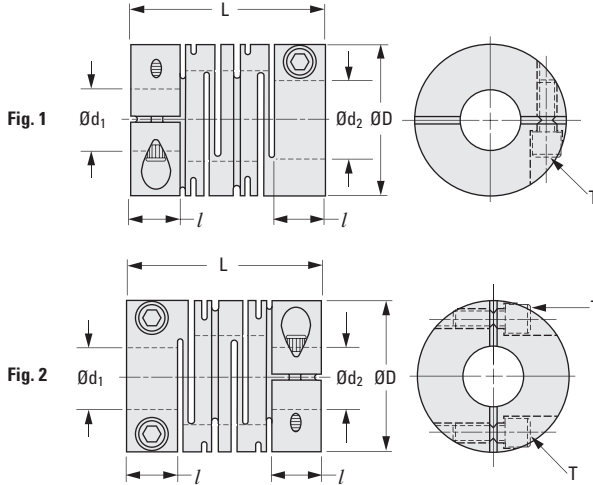
SPLIT TYPE HUB
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► **MATERIAL:**
Stainless Steel

► **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 2°
Max. Axial Motion: ± 0.5

► **SPECIFICATION:**
Shaft Tolerance (h7):
8 & 10 mm 0/-0.015
12, 14 & 16 mm 0/-0.018



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Fig. No. | D Dia. | d ₁ Bore | d ₂ Bore | L | l | T Cap Screw | Max.* Bore |
|------------------|----------|--------|---------------------|---------------------|----|----|-------------|------------|
| S50MSCMS32H08H08 | 1 | 32 | 8 | 8 | 41 | 12 | M4 | 14 |
| S50MSCMS32H08H10 | 1 | 32 | 8 | 10 | 41 | 12 | M4 | 14 |
| S50MSCMS32H10H10 | 1 | 32 | 10 | 10 | 41 | 12 | M4 | 14 |
| S50MSCMS32H12H12 | 1 | 32 | 12 | 12 | 41 | 12 | M4 | 14 |
| S50MSCMS32H12H14 | 1 | 32 | 12 | 14 | 41 | 12 | M4 | 14 |
| S50MSCMS40H08H08 | 2 | 40 | 8 | 8 | 56 | 17 | M5 | 18 |
| S50MSCMS40H12H12 | 2 | 40 | 12 | 12 | 56 | 17 | M5 | 18 |
| S50MSCMS40H12H14 | 2 | 40 | 12 | 14 | 56 | 17 | M5 | 18 |
| S50MSCMS40H14H14 | 2 | 40 | 14 | 14 | 56 | 17 | M5 | 18 |
| S50MSCMS50H14H14 | 2 | 50 | 14 | 14 | 71 | 21 | M6 | 22 |
| S50MSCMS50H16H16 | 2 | 50 | 16 | 16 | 71 | 21 | M6 | 22 |
| S50MSCMS63H14H14 | 2 | 63 | 14 | 14 | 90 | 26 | M8 | 30 |
| S50MSCMS63H16H16 | 2 | 63 | 16 | 16 | 90 | 26 | M8 | 30 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------------|
| S50MSCMS32... | 3.5 | 19000 | 2.7 x 10 ⁻⁵ | 850 | 0.15 | 170 |
| S50MSCMS40... | 8 | 15000 | 9 x 10 ⁻⁵ | 1000 | 0.2 | 370 |
| S50MSCMS50... | 15 | 12000 | 2.8 x 10 ⁻⁴ | 1400 | 0.2 | 750 |
| S50MSCMS63... | 35 | 10000 | 8.8 x 10 ⁻⁴ | 1800 | 0.2 | 1400 |

^Δ Based on max. bore dimension.

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SLIT TYPE MSC FLEXIBLE COUPLINGS



SPLIT TYPE HUB
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

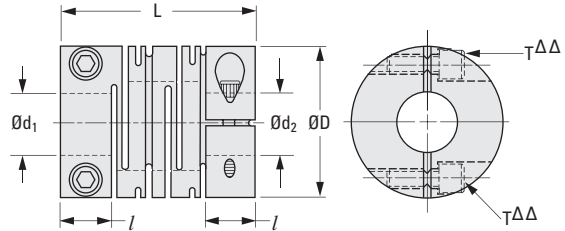
Anodized Aluminum

> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 2°

> SPECIFICATION:

Shaft Tolerance (h7):
4, 5 & 6 mm 0/-0.012
8 & 10 mm 0/-0.015



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number ΔΔ | D Dia. | d ₁ Bore | d ₂ Bore | L | l | T Cap Screw | Max.* Bore |
|-------------------|--------|---------------------|---------------------|------|-----|-------------|------------|
| S50MSCMA12H04H04 | 12 | 4 | 4 | 18.5 | 5 | M2 | 5 |
| S50MSCMA12H04H05 | 12 | 4 | 5 | 18.5 | 5 | M2 | 5 |
| S50MSCMA12H05H05 | 12 | 5 | 5 | 18.5 | 5 | M2 | 5 |
| S50MSCMA16H05H05 | 16 | 5 | 5 | 23 | 6.5 | M2.5 | 6 |
| S50MSCMA16H05H06 | 16 | 5 | 6 | 23 | 6.5 | M2.5 | 6 |
| S50MSCMA16H06H06 | 16 | 6 | 6 | 23 | 6.5 | M2.5 | 6 |
| S50MSCMA20H06H06 | 20 | 6 | 6 | 26 | 7.5 | M2.5 | 8 |
| S50MSCMA20H06H08 | 20 | 6 | 8 | 26 | 7.5 | M2.5 | 8 |
| S50MSCMA20H08H08 | 20 | 8 | 8 | 26 | 7.5 | M2.5 | 8 |
| S50MSCMA25H06H06 | 25 | 6 | 6 | 31 | 8.5 | M3 | 10 |
| S50MSCMA25H06H08 | 25 | 6 | 8 | 31 | 8.5 | M3 | 10 |
| S50MSCMA25H08H08 | 25 | 8 | 8 | 31 | 8.5 | M3 | 10 |
| S50MSCMA25H08H10 | 25 | 8 | 10 | 31 | 8.5 | M3 | 10 |
| S50MSCMA25H10H10 | 25 | 10 | 10 | 31 | 8.5 | M3 | 10 |

* Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

ΔΔ One cap screw each end until present stock is depleted. After that, all items will have two cap screws each end.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia kg • m ² Δ | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Axial Motion | Weight grams Δ |
|-----------------------------|--------------------|----------|---|--------------------------------------|---------------------|-------------------|----------------|
| S50MSCMA12... | 0.4 | 52000 | 7.8 x 10 ⁻⁸ | 45 | 0.1 | ± 0.3 | 3.6 |
| S50MSCMA16... | 0.5 | 39000 | 3.4 x 10 ⁻⁷ | 80 | 0.1 | ± 0.4 | 9.2 |
| S50MSCMA20... | 1 | 31000 | 9.1 x 10 ⁻⁷ | 170 | 0.1 | ± 0.4 | 16 |
| S50MSCMA25... | 2 | 25000 | 2.6 x 10 ⁻⁶ | 380 | 0.15 | ± 0.5 | 28 |

Δ Based on max. bore dimension

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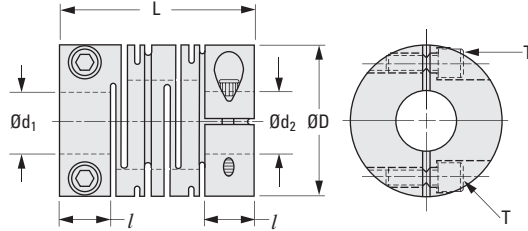
SPLIT TYPE HUB
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► **MATERIAL:**
Anodized Aluminum

► **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 2°
Max. Axial Motion: ± 0.5

► **SPECIFICATION:**
Shaft Tolerance (h7):
8 & 10 mm 0/-0.015
12, 14 & 16 mm 0/-0.018



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | T Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|----|----|-------------|------------|
| S50MSCMA32H08H08 | 32 | 8 | 8 | 41 | 12 | M4 | 14 |
| S50MSCMA32H08H10 | 32 | 8 | 10 | 41 | 12 | M4 | 14 |
| S50MSCMA32H10H10 | 32 | 10 | 10 | 41 | 12 | M4 | 14 |
| S50MSCMA32H12H12 | 32 | 12 | 12 | 41 | 12 | M4 | 14 |
| S50MSCMA32H12H14 | 32 | 12 | 14 | 41 | 12 | M4 | 14 |
| S50MSCMA40H08H08 | 40 | 8 | 8 | 56 | 17 | M5 | 18 |
| S50MSCMA40H12H12 | 40 | 12 | 12 | 56 | 17 | M5 | 18 |
| S50MSCMA40H12H14 | 40 | 12 | 14 | 56 | 17 | M5 | 18 |
| S50MSCMA40H14H14 | 40 | 14 | 14 | 56 | 17 | M5 | 18 |
| S50MSCMA50H14H14 | 50 | 14 | 14 | 71 | 21 | M6 | 22 |
| S50MSCMA50H16H16 | 50 | 16 | 16 | 71 | 21 | M6 | 22 |
| S50MSCMA63H14H14 | 63 | 14 | 14 | 90 | 26 | M8 | 30 |
| S50MSCMA63H16H16 | 63 | 16 | 16 | 90 | 26 | M8 | 30 |

* Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------------|
| S50MSCMA32... | 4 | 19000 | 9.7 x 10 ⁻⁶ | 500 | 0.15 | 64 |
| S50MSCMA40... | 8 | 15000 | 3.3 x 10 ⁻⁵ | 700 | 0.2 | 140 |
| S50MSCMA50... | 16 | 12000 | 1.0 x 10 ⁻⁴ | 1800 | 0.2 | 270 |
| S50MSCMA63... | 32 | 10000 | 3.2 x 10 ⁻⁴ | 3100 | 0.2 | 530 |

^Δ Based on max. bore dimension.

Continued from the previous page

MINIATURE SLIT TYPE FLEXIBLE COUPLINGS

SDP/SI

SPLIT TYPE HUB
ZERO BACKLASH
LOW MOMENT OF INERTIA
MAINTENANCE-FREE

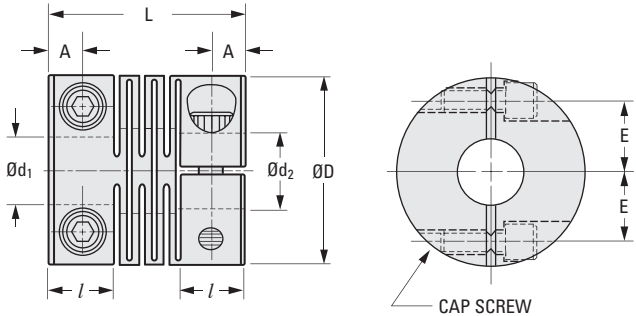
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
Anodized Aluminum

➤ **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 0.5°
Max. Lateral Offset: 0.05
Max. Axial Motion: ± 0.1

➤ **SPECIFICATION:**
Shaft Tolerance (h7):
6 mm 0/-0.012
8 & 10 mm 0/-0.015
12 & 16 mm 0/-0.018
20 & 25 mm 0/-0.021



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | A | L | l | E | Cap Screw | Max.* Bore |
|-----------------|--------|---------------------|---------------------|------|------|------|----|-----------|------------|
| S50MSXM16H06H06 | 16 | 6 | 6 | 3 | 17.4 | 6 | 5 | M2 | 6 |
| S50MSXM19H06H06 | 19 | 6 | 6 | 3.4 | 20 | 6.8 | 6 | M2.5 | 8 |
| S50MSXM19H06H08 | 19 | 6 | 8 | 3.4 | 20 | 6.8 | 6 | M2.5 | 8 |
| S50MSXM19H08H08 | 19 | 8 | 8 | 3.4 | 20 | 6.8 | 6 | M2.5 | 8 |
| S50MSXM24H08H08 | 24 | 8 | 8 | 4.25 | 25 | 8.5 | 8 | M3 | 10 |
| S50MSXM24H08H10 | 24 | 8 | 10 | 4.25 | 25 | 8.5 | 8 | M3 | 10 |
| S50MSXM24H10H10 | 24 | 10 | 10 | 4.25 | 25 | 8.5 | 8 | M3 | 10 |
| S50MSXM29H10H10 | 29 | 10 | 10 | 5.1 | 30 | 10.2 | 9 | M3 | 12 |
| S50MSXM29H10H12 | 29 | 10 | 12 | 5.1 | 30 | 10.2 | 9 | M3 | 12 |
| S50MSXM29H12H12 | 29 | 12 | 12 | 5.1 | 30 | 10.2 | 9 | M3 | 12 |
| S50MSXM34H12H12 | 34 | 12 | 12 | 6 | 35 | 12 | 11 | M3 | 16 |
| S50MSXM34H12H16 | 34 | 12 | 16 | 6 | 35 | 12 | 11 | M3 | 16 |
| S50MSXM34H16H16 | 34 | 16 | 16 | 6 | 35 | 12 | 11 | M3 | 16 |
| S50MSXM39H16H16 | 39 | 16 | 16 | 6.75 | 40 | 13.5 | 14 | M4 | 20 |
| S50MSXM44H20H20 | 44 | 20 | 20 | 7.75 | 45 | 15.5 | 16 | M4 | 22 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Weight grams |
|-----------------------------|--------------------|----------|---------------------------------------|--------------------------------------|--------------|
| S50MSXM16H... | 0.5 | 39000 | 2.5 x 10 ⁻⁷ | 200 | 7 |
| S50MSXM19H... | 1 | 33000 | 5.8 x 10 ⁻⁷ | 270 | 12 |
| S50MSXM24H... | 1.5 | 26000 | 1.8 x 10 ⁻⁶ | 790 | 23 |
| S50MSXM29H... | 2 | 21000 | 4.7 x 10 ⁻⁶ | 1400 | 41 |
| S50MSXM34H... | 3 | 18000 | 1.1 x 10 ⁻⁵ | 2200 | 62 |
| S50MSXM39H... | 6 | 16000 | 2.3 x 10 ⁻⁵ | 4100 | 88 |
| S50MSXM44H... | 9 | 14000 | 4.3 x 10 ⁻⁵ | 5100 | 128 |

MINIATURE SLIT TYPE FLEXIBLE COUPLINGS

SDP/SI

SET SCREW TYPE
ZERO BACKLASH
LOW MOMENT OF INERTIA
MAINTENANCE-FREE

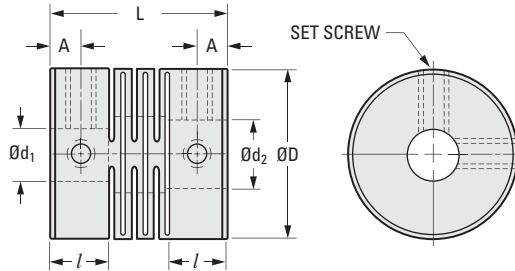
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**
Anodized Aluminum

➤ **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 0.5°
Max. Lateral Offset: 0.05
Max. Axial Motion: ± 0.1

➤ **SPECIFICATION:**
d₁, d₂ Tolerance:
6 mm +0.018/0
8 & 10 mm +0.022/0
12 & 16 mm +0.027/0
20 mm +0.033/0



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | A | L | l | Cap Screw | Max.* Bore |
|-----------------|--------|------------------------|------------------------|------|------|------|-----------|------------|
| S50MSXM16P06P06 | 16 | 6 | 6 | 3 | 17.4 | 6 | M3 | 8 |
| S50MSXM19P06P06 | 19 | 6 | 6 | 3.4 | 20 | 6.8 | M3 | 10 |
| S50MSXM19P06P08 | 19 | 6 | 8 | 3.4 | 20 | 6.8 | M3 | 10 |
| S50MSXM19P08P08 | 19 | 8 | 8 | 3.4 | 20 | 6.8 | M3 | 10 |
| S50MSXM24P08P08 | 24 | 8 | 8 | 4.25 | 25 | 8.5 | M4 | 12 |
| S50MSXM24P08P10 | 24 | 8 | 10 | 4.25 | 25 | 8.5 | M4 | 12 |
| S50MSXM24P10P10 | 24 | 10 | 10 | 4.25 | 25 | 8.5 | M4 | 12 |
| S50MSXM29P10P10 | 29 | 10 | 10 | 5.1 | 30 | 10.2 | M4 | 14 |
| S50MSXM29P10P12 | 29 | 10 | 12 | 5.1 | 30 | 10.2 | M4 | 14 |
| S50MSXM29P12P12 | 29 | 12 | 12 | 5.1 | 30 | 10.2 | M4 | 14 |
| S50MSXM34P12P12 | 34 | 12 | 12 | 6 | 35 | 12 | M5 | 18 |
| S50MSXM34P12P16 | 34 | 12 | 16 | 6 | 35 | 12 | M5 | 18 |
| S50MSXM34P16P16 | 34 | 16 | 16 | 6 | 35 | 12 | M5 | 18 |
| S50MSXM39P16P16 | 39 | 16 | 16 | 6.75 | 40 | 13.5 | M5 | 20 |
| S50MSXM44P20P20 | 44 | 20 | 20 | 7.75 | 45 | 15.5 | M6 | 22 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Weight grams |
|-----------------------------|--------------------|----------|---------------------------------------|--------------------------------------|--------------|
| S50MSXM16P... | 0.5 | 39000 | 2.8 x 10 ⁻⁷ | 200 | 7 |
| S50MSXM19P... | 1 | 33000 | 6.2 x 10 ⁻⁷ | 270 | 10 |
| S50MSXM24P... | 1.5 | 26000 | 2.0 x 10 ⁻⁶ | 790 | 22 |
| S50MSXM29P... | 2 | 21000 | 5.2 x 10 ⁻⁶ | 1400 | 40 |
| S50MSXM34P... | 3 | 18000 | 1.1 x 10 ⁻⁵ | 2200 | 64 |
| S50MSXM39P... | 6 | 16000 | 2.9 x 10 ⁻⁵ | 4100 | 90 |
| S50MSXM44P... | 9 | 14000 | 5.5 x 10 ⁻⁵ | 5100 | 133 |

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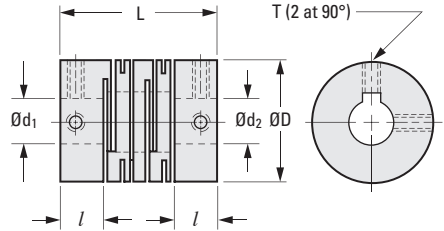
KEYWAY
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

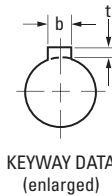
➤ **MATERIAL:**
Stainless Steel

➤ **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 2°
Max. Axial Offset: ± 0.5

➤ **SPECIFICATION:**
d₁, d₂ Tolerance:
12, 14, 16 & 18 mm +0.027/0
20, 25 & 30 mm +0.033/0



The projections shown are per ISO convention.



| Catalog Number (Ref.) | Keyway Dimensions | | | | Key Size b x h |
|--------------------------|-------------------|---------|-----|--------|-------------------|
| | b | b Tol. | t | t Tol. | |
| S50MSKMS32K12K12 | 4 | ± 0.015 | 1.8 | +0.1/0 | 4 x 4 |
| S50MSKMS32K14K14 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMS40K14K14 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMS40K16K16 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMS40K18K18 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMS50K16K16 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMS50K18K18 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMS50K20K20 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMS63K20K20 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMS63K25K25 | 8 | ± 0.018 | 3.3 | +0.2/0 | 8 x 7 |
| S50MSKMS63K30K30 | 8 | ± 0.018 | 3.3 | +0.2/0 | 8 x 7 |

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | L | l | T Set Screw | Max.* Bore |
|------------------|-----------|------------------------------|------------------------------|----|----|-------------------|---------------|
| S50MSKMS32K12K12 | 32 | 12 | 12 | 41 | 12 | M4 | 14 |
| S50MSKMS32K14K14 | 32 | 14 | 14 | 41 | 12 | M4 | 14 |
| S50MSKMS40K14K14 | 40 | 14 | 14 | 56 | 17 | M5 | 18 |
| S50MSKMS40K16K16 | 40 | 16 | 16 | 56 | 17 | M5 | 18 |
| S50MSKMS40K18K18 | 40 | 18 | 18 | 56 | 17 | M5 | 18 |
| S50MSKMS50K16K16 | 50 | 16 | 16 | 71 | 21 | M6 | 20 |
| S50MSKMS50K18K18 | 50 | 18 | 18 | 71 | 21 | M6 | 20 |
| S50MSKMS50K20K20 | 50 | 20 | 20 | 71 | 21 | M6 | 20 |
| S50MSKMS63K20K20 | 63 | 20 | 20 | 90 | 26 | M8 | 30 |
| S50MSKMS63K25K25 | 63 | 25 | 25 | 90 | 26 | M8 | 30 |
| S50MSKMS63K30K30 | 63 | 30 | 30 | 90 | 26 | M8 | 30 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment ^Δ of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Weight ^Δ grams |
|--------------------------------|--------------------------|-------------|--|---|---------------------------|------------------------------|
| S50MSKMS32... | 3.5 | 19000 | 2.6 x 10 ⁻⁵ | 850 | 0.15 | 160 |
| S50MSKMS40... | 8 | 15000 | 8.6 x 10 ⁻⁵ | 1000 | 0.2 | 340 |
| S50MSKMS50... | 15 | 12000 | 2.8 x 10 ⁻⁴ | 1400 | 0.2 | 730 |
| S50MSKMS63... | 35 | 10000 | 8.5 x 10 ⁻⁴ | 1800 | 0.2 | 1300 |

Δ Based on max. bore dimension.

KEYWAY
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS

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➤ MATERIAL:

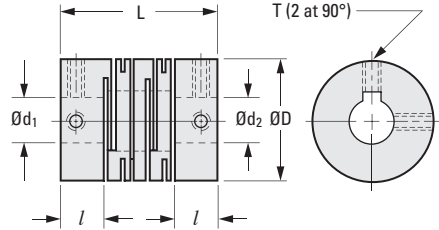
Anodized Aluminum

➤ MISALIGNMENT COMPENSATION:

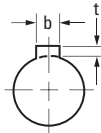
Max. Angular Offset: 2°
Max. Axial Offset: ± 0.5

➤ SPECIFICATION:

d₁, d₂ Tolerance:
12, 14, 16 & 18 mm +0.027/0
20, 25 & 30 mm +0.033/0



The projections shown are per ISO convention.



KEYWAY DATA
(enlarged)

| Catalog Number (Ref.) | Keyway Dimensions | | | | Key Size b x h |
|--------------------------|-------------------|---------|-----|--------|-------------------|
| | b | b Tol. | t | t Tol. | |
| S50MSKMA32K12K12 | 4 | ± 0.015 | 1.8 | +0.1/0 | 4 x 4 |
| S50MSKMA32K14K14 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMA40K14K14 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMA40K16K16 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMA40K18K18 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMA50K16K16 | 5 | ± 0.015 | 2.3 | +0.1/0 | 5 x 5 |
| S50MSKMA50K18K18 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMA50K20K20 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMA63K20K20 | 6 | ± 0.015 | 2.8 | +0.1/0 | 6 x 6 |
| S50MSKMA63K25K25 | 8 | ± 0.018 | 3.3 | +0.2/0 | 8 x 7 |
| S50MSKMA63K30K30 | 8 | ± 0.018 | 3.3 | +0.2/0 | 8 x 7 |

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | L | l | T Set Screw | Max.* Bore |
|------------------|-----------|------------------------------|------------------------------|----|----|-------------------|---------------|
| S50MSKMA32K12K12 | 32 | 12 | 12 | 41 | 12 | M4 | 14 |
| S50MSKMA32K14K14 | 32 | 14 | 14 | 41 | 12 | M4 | 14 |
| S50MSKMA40K14K14 | 40 | 14 | 14 | 56 | 17 | M5 | 18 |
| S50MSKMA40K16K16 | 40 | 16 | 16 | 56 | 17 | M5 | 18 |
| S50MSKMA40K18K18 | 40 | 18 | 18 | 56 | 17 | M5 | 18 |
| S50MSKMA50K16K16 | 50 | 16 | 16 | 71 | 21 | M6 | 20 |
| S50MSKMA50K18K18 | 50 | 18 | 18 | 71 | 21 | M6 | 20 |
| S50MSKMA50K20K20 | 50 | 20 | 20 | 71 | 21 | M6 | 20 |
| S50MSKMA63K20K20 | 63 | 20 | 20 | 90 | 26 | M8 | 30 |
| S50MSKMA63K25K25 | 63 | 25 | 25 | 90 | 26 | M8 | 30 |
| S50MSKMA63K30K30 | 63 | 30 | 30 | 90 | 26 | M8 | 30 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment ^Δ of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Weight ^Δ grams |
|--------------------------------|--------------------------|-------------|--|---|---------------------------|------------------------------|
| S50MSKMA32... | 4 | 19000 | 9.6 x 10 ⁻⁶ | 500 | 0.15 | 59 |
| S50MSKMA40... | 8 | 15000 | 3.2 x 10 ⁻⁵ | 700 | 0.2 | 130 |
| S50MSKMA50... | 16 | 12000 | 1 x 10 ⁻⁴ | 1800 | 0.2 | 270 |
| S50MSKMA63... | 32 | 10000 | 3.2 x 10 ⁻⁴ | 3100 | 0.2 | 490 |

Δ Based on max. bore dimension.

SPLIT TYPE HUB
 LOW COST
 UV RESISTANT
 VOLTAGE & RF ISOLATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Coupling - Engineered Polymer
Fasteners - Stainless Steel

Sizes:
 13 thru 19



> OPERATING TEMPERATURE:

-20°C to +140°C

> FEATURES:

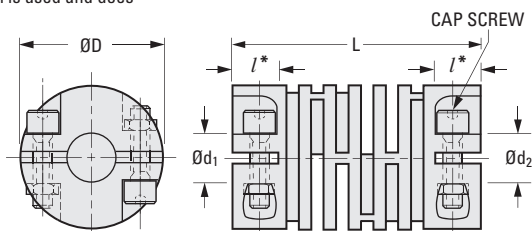
This lightweight molded patented coupling can replace many stainless/aluminum slit type couplings with low cost and improved operation. There is no windup or backlash or any derating for reversing applications. To insure a tight fit between the shaft and the coupling, a metal screw-to-metal nut design is used and does not utilize threads cut into the molded piece.

Size: 25



> SPECIFICATIONS:

| Coupling Size | Max. Parallel Offset | Max. Angular Offset |
|---------------|----------------------|---------------------|
| 13 | 0.15 | 3° |
| 16 | 0.2 | 4° |
| 25 | 0.3 | 5° |



METRIC COMPONENT

The projections shown are per ISO convention.

| Catalog Number | D Dia. | d ₁ Bore +0.04 0 | d ₂ Bore +0.04 0 | L Length | l* | Cap Screw | Max. Torque N • m | Torsional Stiffness N • m / rad |
|-----------------|--------|-----------------------------|-----------------------------|----------|-----|-----------|-------------------|---------------------------------|
| Size 13 | | | | | | | | |
| S50TLCM13H03H03 | 12.7 | 3 | 3 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H03H04 | 12.7 | 3 | 4 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H03H05 | 12.7 | 3 | 5 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H03H06 | 12.7 | 3 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H04H04 | 12.7 | 4 | 4 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H04H05 | 12.7 | 4 | 5 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H04H06 | 12.7 | 4 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H05H05 | 12.7 | 5 | 5 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H05H06 | 12.7 | 5 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLCM13H06H06 | 12.7 | 6 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| Size 19 | | | | | | | | |
| S50TLCM19H05H05 | 19 | 5 | 5 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLCM19H05H06 | 19 | 5 | 6 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLCM19H05H08 | 19 | 5 | 8 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLCM19H06H06 | 19 | 6 | 6 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLCM19H06H08 | 19 | 6 | 8 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLCM19H08H08 | 19 | 8 | 8 | 28 | 6.8 | M2.5 | 2 | 10 |
| Size 25 | | | | | | | | |
| S50TLCM25H06H06 | 25 | 6 | 6 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H06H08 | 25 | 6 | 8 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H06H10 | 25 | 6 | 10 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H06H12 | 25 | 6 | 12 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H08H08 | 25 | 8 | 8 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H08H10 | 25 | 8 | 10 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H08H12 | 25 | 8 | 12 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H10H10 | 25 | 10 | 10 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H10H12 | 25 | 10 | 12 | 36 | 10 | M3 | 3.8 | 18 |
| S50TLCM25H12H12 | 25 | 12 | 12 | 36 | 10 | M3 | 3.8 | 18 |

*l = max. shaft penetration depth.

SLIT TYPE PLASTIC COUPLINGS

SDP/SI

SET SCREW TYPE
 LOW COST
 UV RESISTANT
 VOLTAGE & RF ISOLATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

Coupling - Engineered Polymer
Fasteners - Stainless Steel

► OPERATING TEMPERATURE:

-20°C to +140°C

► FEATURES:

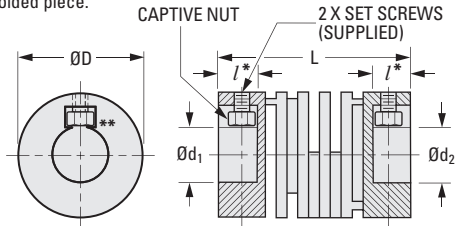
This lightweight molded patented coupling can replace many stainless/aluminum slit type couplings with low cost and improved operation. There is no windup or backlash or any derating for reversing applications. To insure a tight fit between the shaft and the coupling, a metal screw-to-metal nut design is used and does not utilize threads cut into the molded piece.



► SPECIFICATIONS:

| Coupling Size | Max. Parallel Offset | Max. Angular Offset |
|---------------|----------------------|---------------------|
| 13 | 0.15 | 3° |
| 19 | 0.2 | 4° |
| 25 | 0.3 | 5° |

**On larger bores, the I.D. may partially intrude into the captive nut cavity.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore +0.04 0 | d ₂ Bore +0.04 0 | L Length | l* Shaft Penetration | Set Screw | Max. Torque N • m | Torsional Stiffness N • m / rad |
|-----------------|--------|-----------------------------|-----------------------------|----------|----------------------|-----------|-------------------|---------------------------------|
| Size 13 | | | | | | | | |
| S50TLSM13P03P03 | 12.7 | 3 | 3 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P03P04 | 12.7 | 3 | 4 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P03P05 | 12.7 | 3 | 5 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P03P06 | 12.7 | 3 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P04P04 | 12.7 | 4 | 4 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P04P05 | 12.7 | 4 | 5 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P04P06 | 12.7 | 4 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P05P05 | 12.7 | 5 | 5 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P05P06 | 12.7 | 5 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| S50TLSM13P06P06 | 12.7 | 6 | 6 | 18 | 5 | M2 | 0.5 | 5.2 |
| Size 19 | | | | | | | | |
| S50TLSM19P05P05 | 19 | 5 | 5 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLSM19P05P06 | 19 | 5 | 6 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLSM19P05P08 | 19 | 5 | 8 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLSM19P06P06 | 19 | 6 | 6 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLSM19P06P08 | 19 | 6 | 8 | 28 | 6.8 | M2.5 | 2 | 10 |
| S50TLSM19P08P08 | 19 | 8 | 8 | 28 | 6.8 | M2.5 | 2 | 10 |
| Size 25 | | | | | | | | |
| S50TLSM25P06P06 | 25 | 6 | 6 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P06P08 | 25 | 6 | 8 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P06P10 | 25 | 6 | 10 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P06P12 | 25 | 6 | 12 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P08P08 | 25 | 8 | 8 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P08P10 | 25 | 8 | 10 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P08P12 | 25 | 8 | 12 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P10P10 | 25 | 10 | 10 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P10P12 | 25 | 10 | 12 | 36 | 10 | M4 | 3.8 | 18 |
| S50TLSM25P12P12 | 25 | 12 | 12 | 36 | 10 | M4 | 3.8 | 18 |

*l = max. shaft penetration depth.

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SPLIT TYPE HUB
STAINLESS STEEL
ZERO BACKLASH

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

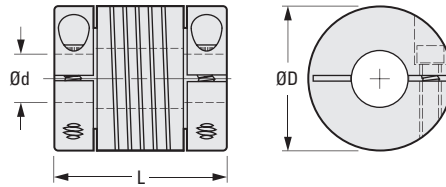


► **MATERIAL:**
17-4PH Stainless Steel

► **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 5°
Max. Lateral Offset: 0.25
Max. Axial Motion: ± 0.25

► **FEATURES:**
One-Piece Construction.
Integral Clamp.
Shaft Relief.
High Fatigue Resistance.
Constant Velocity.
Adapts to High- and Low-Speed Applications.

Bore diameter combinations are available on special order.

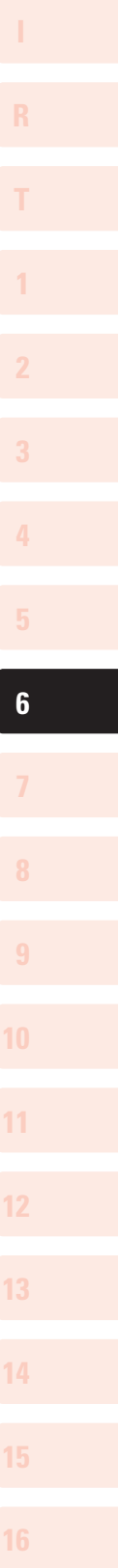


The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore +0.05 0 | D O.D. | L Length ± 0.25 | Screw Size | Momentary Dynamic Torque N • m | Torsional Flexibility Arc Min./ N • m | Inertia** x 10 ⁻⁴ kg cm sec. ² |
|----------------|----------------------|--------|--------------------|------------|-----------------------------------|---|--|
| S50HWWW15H0303 | 3 | 15 | 22 | M2 | 1.4 | 114 | 0.078 |
| S50HWWW15H0404 | 4 | 15 | 22 | M2 | 1.3 | 156 | 0.078 |
| S50HWWW15H0505 | 5 | 15 | 22 | M2 | 1.2 | 222 | 0.078 |
| S50HWWW20H0404 | 4 | 20 | 28 | M3 | 2.6 | 59.4 | 0.32 |
| S50HWWW20H0505 | 5 | 20 | 28 | M3 | 2.5 | 78 | 0.32 |
| S50HWWW20H0606 | 6 | 20 | 28 | M3 | 2.3 | 96 | 0.32 |
| S50HWWW25H0606 | 6 | 25 | 30 | M3 | 5.7 | 32.4 | 0.84 |
| S50HWWW25H0707 | 7 | 25 | 30 | M3 | 5.5 | 39.6 | 0.84 |
| S50HWWW25H0808 | 8 | 25 | 30 | M3 | 5.1 | 49.2 | 0.84 |
| S50HWWW25H0909 | 9 | 25 | 30 | M3 | 4.7 | 60 | 0.84 |
| S50HWWW25H1010 | 10 | 25 | 30 | M3 | 4.3 | 78 | 0.84 |
| S50HWWW30H0909 | 9 | 30 | 38 | M4 | 9.5 | 24 | 2.2 |
| S50HWWW30H1010 | 10 | 30 | 38 | M4 | 8.9 | 28.8 | 2.2 |
| S50HWWW30H1111 | 11 | 30 | 38 | M4 | 8.3 | 34.8 | 2.2 |
| S50HWWW30H1212 | 12 | 30 | 38 | M4 | 7.7 | 42 | 2.2 |

* Torque listed is maximum momentary value:
For NONREVERSING applications, the torque rating is 1/2.
For REVERSING applications, the torque rating is 1/4.
** Inertia is based on the smallest standard bore diameter.



SPLIT TYPE HUB
ALUMINUM
ZERO BACKLASH

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

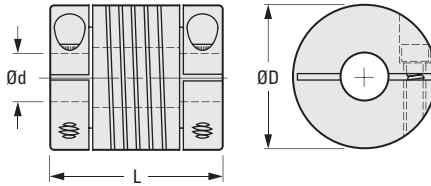


› **MATERIAL:**
7075-T6 Aluminum

› **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 5°
Max. Lateral Offset: 0.25
Max. Axial Motion: ± 0.25

› **FEATURES:**
One-Piece Construction
Integral Clamp
Shaft Relief
High Fatigue Resistance
Constant Velocity
Adapts to High- and Low-Speed Applications

Bore diameter combinations are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore +0.05 0 | D O.D. | L Length ± 0.25 | Screw Size | Momentary* Dynamic Torque N • m | Torsional Flexibility Arc Min./ N • m | Inertia Δ $\times 10^{-4}$ kg cm sec. ² |
|----------------|-------------------------|-----------|-----------------------|---------------|--|--|--|
| S50HAWM15H0303 | 3 | 15 | 22 | M2 | 0.71 | 306 | 0.028 |
| S50HAWM15H0404 | 4 | 15 | 22 | M2 | 0.66 | 432 | 0.028 |
| S50HAWM15H0505 | 5 | 15 | 22 | M2 | 0.59 | 600 | 0.028 |
| S50HAWM20H0404 | 4 | 20 | 28 | M3 | 1.3 | 162 | 0.11 |
| S50HAWM20H0505 | 5 | 20 | 28 | M3 | 1.2 | 210 | 0.11 |
| S50HAWM20H0606 | 6 | 20 | 28 | M3 | 1.1 | 270 | 0.11 |
| S50HAWM25H0606 | 6 | 25 | 30 | M3 | 2.9 | 90 | 0.3 |
| S50HAWM25H0707 | 7 | 25 | 30 | M3 | 2.8 | 108 | 0.3 |
| S50HAWM25H0808 | 8 | 25 | 30 | M3 | 2.6 | 132 | 0.3 |
| S50HAWM25H0909 | 9 | 25 | 30 | M3 | 2.4 | 168 | 0.3 |
| S50HAWM25H1010 | 10 | 25 | 30 | M3 | 2.2 | 210 | 0.3 |
| S50HAWM30H0909 | 9 | 30 | 38 | M4 | 4.9 | 66 | 0.78 |
| S50HAWM30H1010 | 10 | 30 | 38 | M4 | 4.6 | 78 | 0.78 |
| S50HAWM30H1111 | 11 | 30 | 38 | M4 | 4.3 | 96 | 0.78 |
| S50HAWM30H1212 | 12 | 30 | 38 | M4 | 4 | 114 | 0.78 |

* Torque listed is maximum momentary value.
For NONREVERSING applications, the torque rating is 1/2.
For REVERSING applications, the torque rating is 1/4.
 Δ Inertia is based on the smallest standard bore diameter.

SET SCREW TYPE
STAINLESS STEEL
ZERO BACKLASH

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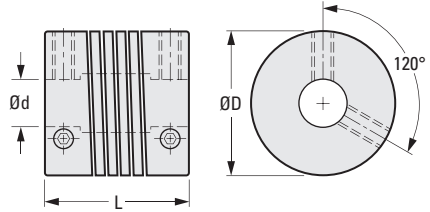


➤ **MATERIAL:**
17-4PH Stainless Steel

➤ **MISALIGNMENT COMPENSATION:**
Max. Angular Offset: 5°
Max. Lateral Offset: 0.25
Max. Axial Motion: ± 0.25

➤ **FEATURES:**
 One-Piece Construction
 Shaft Relief
 High Fatigue Resistance
 Constant Velocity
 Adapts to High- and Low-Speed Applications

Bore diameter combinations are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore +0.05 0 | D O.D. | L Length ± 0.25 | Screw Size | Momentary* Dynamic Torque N • m | Torsional Flexibility Arc Min./ N • m | Inertia ** x 10 ⁻⁴ kg cm sec. ² |
|----------------|-------------------------|-----------|-----------------------|---------------|--|--|--|
| S50HWWW15P0303 | 3 | 15 | 20 | M2.5 | 1.4 | 114 | 0.07 |
| S50HWWW15P0404 | 4 | 15 | 20 | M3 | 1.3 | 156 | 0.07 |
| S50HWWW15P0505 | 5 | 15 | 20 | M3 | 1.2 | 222 | 0.07 |
| S50HWWW20P0404 | 4 | 20 | 20 | M3 | 2.6 | 59.4 | 0.22 |
| S50HWWW20P0505 | 5 | 20 | 20 | M3 | 2.5 | 78 | 0.22 |
| S50HWWW20P0606 | 6 | 20 | 20 | M3 | 2.3 | 96 | 0.22 |
| S50HWWW25P0606 | 6 | 25 | 24 | M4 | 5.7 | 32.4 | 0.66 |
| S50HWWW25P0707 | 7 | 25 | 24 | M4 | 5.5 | 39.6 | 0.66 |
| S50HWWW25P0808 | 8 | 25 | 24 | M4 | 5.1 | 49.2 | 0.66 |
| S50HWWW25P0909 | 9 | 25 | 24 | M4 | 4.7 | 60 | 0.66 |
| S50HWWW25P1010 | 10 | 25 | 24 | M4 | 4.3 | 78 | 0.66 |
| S50HWWW30P0909 | 9 | 30 | 30 | M5 | 9.5 | 24 | 1.7 |
| S50HWWW30P1010 | 10 | 30 | 30 | M5 | 8.9 | 28.8 | 1.7 |
| S50HWWW30P1111 | 11 | 30 | 30 | M5 | 8.3 | 34.8 | 1.7 |
| S50HWWW30P1212 | 12 | 30 | 30 | M5 | 7.7 | 42 | 1.7 |

* Torque listed is maximum momentary value:
 For NONREVERSING applications, the torque rating is 1/2.
 For REVERSING applications, the torque rating is 1/4.

** Inertia is based on the smallest standard bore diameter.

SET SCREW TYPE
ALUMINUM
ZERO BACKLASH

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› **MATERIAL:**

7075-T6 Aluminum

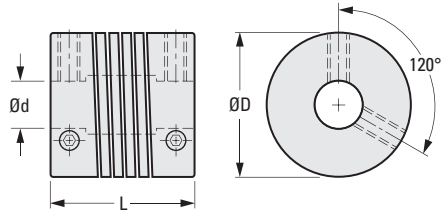
› **MISALIGNMENT COMPENSATION:**

Max. Angular Offset: 5°
Max. Lateral Offset: 0.25
Max. Axial Motion: ± 0.25

› **FEATURES:**

One-Piece Construction
Shaft Relief
High Fatigue Resistance
Constant Velocity
Adapts to High- and Low-Speed Applications

Bore diameter combinations are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Bore +0.05 0 | D O.D. | L Length ± 0.25 | Screw Size | Momentary* Dynamic Torque N • m | Torsional Flexibility Arc Min./ N • m | Inertia Δ x 10 ⁻⁴ kg cm sec. ² |
|----------------|----------------------|--------|--------------------|------------|--|--|---|
| S50HAWM15P0303 | 3 | 15 | 20 | M2.5 | 0.71 | 306 | 0.025 |
| S50HAWM15P0404 | 4 | 15 | 20 | M3 | 0.66 | 432 | 0.025 |
| S50HAWM15P0505 | 5 | 15 | 20 | M3 | 0.59 | 600 | 0.025 |
| S50HAWM20P0404 | 4 | 20 | 20 | M3 | 1.3 | 162 | 0.079 |
| S50HAWM20P0505 | 5 | 20 | 20 | M3 | 1.2 | 210 | 0.079 |
| S50HAWM20P0606 | 6 | 20 | 20 | M3 | 1.1 | 270 | 0.079 |
| S50HAWM25P0606 | 6 | 25 | 24 | M4 | 2.9 | 90 | 0.24 |
| S50HAWM25P0707 | 7 | 25 | 24 | M4 | 2.8 | 108 | 0.24 |
| S50HAWM25P0808 | 8 | 25 | 24 | M4 | 2.6 | 132 | 0.24 |
| S50HAWM25P0909 | 9 | 25 | 24 | M4 | 2.4 | 168 | 0.24 |
| S50HAWM25P1010 | 10 | 25 | 24 | M4 | 2.2 | 210 | 0.24 |
| S50HAWM30P0909 | 9 | 30 | 30 | M5 | 4.9 | 66 | 0.6 |
| S50HAWM30P1010 | 10 | 30 | 30 | M5 | 4.6 | 78 | 0.6 |
| S50HAWM30P1111 | 11 | 30 | 30 | M5 | 4.3 | 96 | 0.6 |
| S50HAWM30P1212 | 12 | 30 | 30 | M5 | 4 | 114 | 0.6 |

* Torque listed is maximum momentary value.

For NONREVERSING applications, the torque rating is 1/2.

For REVERSING applications, the torque rating is 1/4.

Δ Inertia is based on the smallest standard bore diameter.

ZERO BACKLASH
LIGHTWEIGHT

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0 10
S Precision Component

> MATERIAL:

7075-T651 Aluminum

> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 3°

Max. Lateral Offset: See table below

> MAX. OPERATING SPEED:

5000 rpm



| Service Factor | |
|-------------------|-----|
| Shock & Reversing | 2 |
| Nonreversing | 1.5 |
| Steady Load | 1 |

*Select the size so that
(Application Torque) x (Service Factor)
is less than the allowable maximum torque

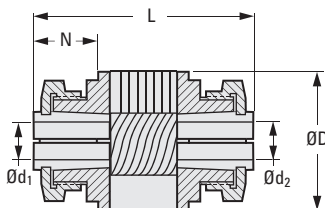
> SPECIFICATION:

d₁, d₂ Tolerance:

4 to 6 mm +0.012/0

8 & 10 mm +0.015/0

12 mm +0.018/0



METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H7 | d ₂ Bore H7 | N | L | Max. Lateral Offset | Max.* Torque N • m | Torsional Stiffness N • m/rad | Approx. Weight grams |
|----------------|--------|------------------------|------------------------|----|----|---------------------|--------------------|-------------------------------|----------------------|
| S54MHCM190404 | 19.1 | 4 | 4 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190405 | 19.1 | 4 | 5 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190406 | 19.1 | 4 | 6 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190408 | 19.1 | 4 | 8 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190505 | 19.1 | 5 | 5 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190506 | 19.1 | 5 | 6 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190508 | 19.1 | 5 | 8 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190606 | 19.1 | 6 | 6 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190608 | 19.1 | 6 | 8 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM190808 | 19.1 | 8 | 8 | 8 | 28 | 0.08 | 4 | 90 | 22 |
| S54MHCM250505 | 25.4 | 5 | 5 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250506 | 25.4 | 5 | 6 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250508 | 25.4 | 5 | 8 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250510 | 25.4 | 5 | 10 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250606 | 25.4 | 6 | 6 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250608 | 25.4 | 6 | 8 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250610 | 25.4 | 6 | 10 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250808 | 25.4 | 8 | 8 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM250810 | 25.4 | 8 | 10 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM251010 | 25.4 | 10 | 10 | 11 | 40 | 0.10 | 8 | 130 | 30 |
| S54MHCM310606 | 31.8 | 6 | 6 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM310608 | 31.8 | 6 | 8 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM310610 | 31.8 | 6 | 10 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM310612 | 31.8 | 6 | 12 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM310808 | 31.8 | 8 | 8 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM310810 | 31.8 | 8 | 10 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM310812 | 31.8 | 8 | 12 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM311010 | 31.8 | 10 | 10 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM311012 | 31.8 | 10 | 12 | 16 | 58 | 0.15 | 14 | 200 | 60 |
| S54MHCM311212 | 31.8 | 12 | 12 | 16 | 58 | 0.15 | 14 | 200 | 60 |



PATENT NO. 3,068,666

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> MATERIAL:

303 Stainless Steel

> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 5°
 Max. Lateral Offset: 0.075
 Max. Axial Motion: 0

> FEATURES:

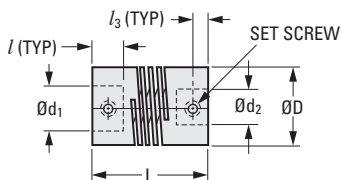
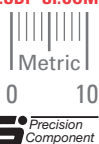
One-Piece Construction
 Constant Velocity
 Adapts to High- and Low-Speed Applications

> SPECIFICATIONS:

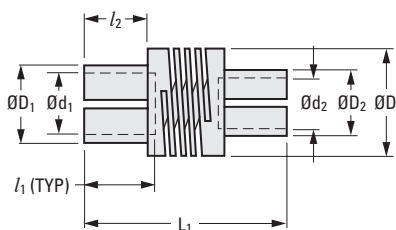
d_1, d_2 Tolerance:
 2 & 3 mm +0.010/0
 4, 5 & 6 mm +0.012/0

D_1, D_2 Dia. Tolerance:
 3.6, 4.6 & 5.6 mm 0/-0.018
 6.6 & 7.6 mm 0/-0.022

Other sizes and bores available on special order.



Set Screw Type



Clamp Type

| D | l | L | l ₁ | l ₂ | l ₃ | L ₁ | Set Screw |
|------|---|----|----------------|----------------|----------------|----------------|-----------|
| 6.35 | 3 | 10 | 3 | 3 | 1.6 | 10 | M2 |
| 12.7 | 6 | 20 | 8 | 7 | 2.4 | 24 | M3 |

METRIC COMPONENT

| Catalog Number | | d ₁ Bore H7 | d ₂ Bore H7 | D ₁ Dia. h8 | D ₂ Dia. h8 | D Dia. | Working Torque N • m | Torsional Flexibility Arc Sec./ N • m |
|----------------|----------------|------------------------|------------------------|------------------------|------------------------|--------|----------------------|---------------------------------------|
| Set Screw Type | Clamp Type | | | | | | | |
| S50HS9M1P02P02 | S50HS9M1C02C02 | 2 | 2 | 3.6 | 3.6 | 6.35 | 0.14 | 18.9 |
| S50HS9M1P02P03 | S50HS9M1C02C03 | 2 | 3 | 3.6 | 4.6 | | | |
| S50HS9M1P03P03 | S50HS9M1C03C03 | 3 | 3 | 4.6 | 4.6 | | | |
| S50HS9M2P03P03 | S50HS9M2C03C03 | 3 | 3 | 4.6 | 4.6 | 12.7 | 0.56 | 3.5 |
| S50HS9M2P03P04 | S50HS9M2C03C04 | | 4 | | 5.6 | | | |
| S50HS9M2P03P05 | S50HS9M2C03C05 | | 5 | | 6.6 | | | |
| S50HS9M2P03P06 | S50HS9M2C03C06 | | 6 | | 7.6 | | | |
| S50HS9M2P04P04 | S50HS9M2C04C04 | 4 | 4 | 5.6 | 5.6 | 12.7 | 0.56 | 3.5 |
| S50HS9M2P04P05 | S50HS9M2C04C05 | | 5 | | 6.6 | | | |
| S50HS9M2P04P06 | S50HS9M2C04C06 | | 6 | | 7.6 | | | |
| S50HS9M2P05P05 | S50HS9M2C05C05 | 5 | 5 | 6.6 | 6.6 | 12.7 | 0.56 | 3.5 |
| S50HS9M2P05P06 | S50HS9M2C05C06 | | 6 | | 7.6 | | | |
| S50HS9M2P06P06 | S50HS9M2C06C06 | | 6 | | 7.6 | | | |

SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 HIGH TORQUE
 HIGH RESPONSE



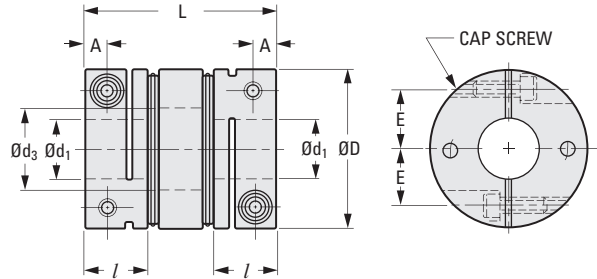
MATERIAL:

- Collars & Disks - Stainless Steel
- Hubs & Spacer - Stainless Steel
- Bolts & Screws - Stainless Steel

SPECIFICATION:

- Shaft Tolerance (h7):
- 3 to 6 mm 0/-0.012
- 8 & 10 mm 0/-0.015
- 12 mm 0/-0.018

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | d ₃ Dia. | L | l | A | E | Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|---------------------|------|-----|-----|-------|-----------|------------|
| S50XBWMS15H03H03 | 15 | 3 | 3 | 6.1 | 22 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBWMS15H04H04 | 15 | 4 | 4 | 6.1 | 22 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBWMS15H06H06 | 15 | 6 | 6 | 6.1 | 22 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBWMS19H06H06 | 19 | 6 | 6 | 9.5 | 25.5 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBWMS19H06H08 | 19 | 6 | 8 | 9.5 | 25.5 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBWMS19H08H08 | 19 | 8 | 8 | 9.5 | 25.5 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBWMS25H08H08 | 25 | 8 | 8 | 12.5 | 32.2 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBWMS25H08H10 | 25 | 8 | 10 | 12.5 | 32.2 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBWMS25H10H10 | 25 | 10 | 10 | 12.5 | 32.2 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBWMS27H10H10 | 27 | 10 | 10 | 14.5 | 32.2 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBWMS27H10H12 | 27 | 10 | 12 | 14.5 | 32.2 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBWMS27H12H12 | 27 | 12 | 12 | 14.5 | 32.2 | 11 | 3.5 | 10.25 | M2.5 | 14 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Angular Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------|-------------------|---------------------------|
| S50XBWMS15H... | 0.5 | 42000 | 5.0 x 10 ⁻⁷ | 300 | 0.05 | 1° | ± 0.2 | 20 |
| S50XBWMS19H... | 1 | 33000 | 1.6 x 10 ⁻⁶ | 500 | 0.15 | 2° | ± 0.2 | 38 |
| S50XBWMS25H... | 1.2 | 25000 | 6.1 x 10 ⁻⁶ | 1100 | 0.2 | 2° | ± 0.4 | 71 |
| S50XBWMS27H... | 1.5 | 23000 | 8.2 x 10 ⁻⁶ | 1300 | 0.2 | 2° | ± 0.4 | 88 |

^Δ Based on max. bore dimension.

Continued on the next page

SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 HIGH TORQUE
 HIGH RESPONSE

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> MATERIAL:

- Collars & Disks - Stainless Steel
- Hubs & Spacer - Stainless Steel
- Bolts & Screws - Stainless Steel

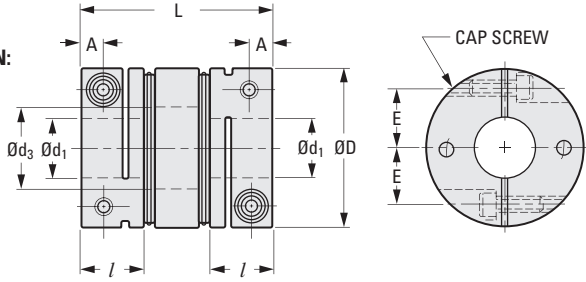
> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 2°

> SPECIFICATION:

- Shaft Tolerance (h7):
- 12 & 16 mm 0/-0.018
- 20 & 25 mm 0/-0.021

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | d ₃ Dia. | L | l | A | E | Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|---------------------|------|----|---|-------|-----------|------------|
| S50XBWMS34H12H12 | 34 | 12 | 12 | 16.5 | 37.4 | 12 | 4 | 13 | M3 | 16 |
| S50XBWMS34H12H16 | 34 | 12 | 16 | 16.5 | 37.4 | 12 | 4 | 13 | M3 | 16 |
| S50XBWMS34H16H16 | 34 | 16 | 16 | 16.5 | 37.4 | 12 | 4 | 13 | M3 | 16 |
| S50XBWMS39H12H12 | 39 | 12 | 12 | 20.5 | 46.6 | 15 | 5 | 14.5 | M4 | 20 |
| S50XBWMS39H16H16 | 39 | 16 | 16 | 20.5 | 46.6 | 15 | 5 | 14.5 | M4 | 20 |
| S50XBWMS44H16H16 | 44 | 16 | 16 | 23 | 46.6 | 15 | 5 | 17 | M4 | 22 |
| S50XBWMS44H16H20 | 44 | 16 | 20 | 23 | 46.6 | 15 | 5 | 17 | M4 | 22 |
| S50XBWMS44H20H20 | 44 | 20 | 20 | 23 | 46.6 | 15 | 5 | 17 | M4 | 22 |
| S50XBWMS56H20H20 | 56 | 20 | 20 | 28.5 | 60.4 | 20 | 6 | 21.25 | M5 | 28 |
| S50XBWMS56H20H25 | 56 | 20 | 25 | 28.5 | 60.4 | 20 | 6 | 21.25 | M5 | 28 |
| S50XBWMS56H25H25 | 56 | 25 | 25 | 28.5 | 60.4 | 20 | 6 | 21.25 | M5 | 28 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50XBWMS34H... | 3.5 | 18000 | 2.5 x 10 ⁻⁵ | 1800 | 0.25 | ± 0.6 | 160 |
| S50XBWMS39H... | 5 | 16000 | 5.1 x 10 ⁻⁵ | 3500 | 0.3 | ± 0.6 | 260 |
| S50XBWMS44H... | 7 | 14000 | 8.9 x 10 ⁻⁵ | 5500 | 0.3 | ± 0.6 | 400 |
| S50XBWMS56H... | 15 | 11000 | 2.9 x 10 ⁻⁴ | 10000 | 0.3 | ± 0.8 | 800 |

^Δ Based on max. bore dimension.

Continued from the previous page

DOUBLE DISK FLEXIBLE COUPLINGS



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SPLIT TYPE HUB
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS
HIGH TORQUE
HIGH RESPONSE



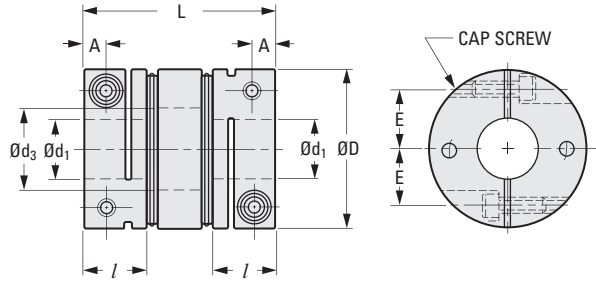
MATERIAL:

Collars & Disks - Stainless Steel
Hubs & Spacer - Aluminum Alloy
Bolts & Screws - Steel, Black Oxide

SPECIFICATION:

Shaft Tolerance (h7):
3 to 6 mm 0/-0.012
8 & 10 mm 0/-0.015
12 mm 0/-0.018

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | d ₃ Dia. | L | l | A | E | Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|---------------------|------|-----|-----|-------|-----------|------------|
| S50XBWMA15H03H03 | 15 | 3 | 3 | 6.1 | 22 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBWMA15H04H04 | 15 | 4 | 4 | 6.1 | 22 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBWMA15H06H06 | 15 | 6 | 6 | 6.1 | 22 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBWMA19H06H06 | 19 | 6 | 6 | 9.5 | 25.5 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBWMA19H06H08 | 19 | 6 | 8 | 9.5 | 25.5 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBWMA19H08H08 | 19 | 8 | 8 | 9.5 | 25.5 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBWMA25H08H08 | 25 | 8 | 8 | 12.5 | 32.2 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBWMA25H08H10 | 25 | 8 | 10 | 12.5 | 32.2 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBWMA25H10H10 | 25 | 10 | 10 | 12.5 | 32.2 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBWMA27H10H10 | 27 | 10 | 10 | 14.5 | 32.2 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBWMA27H10H12 | 27 | 10 | 12 | 14.5 | 32.2 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBWMA27H12H12 | 27 | 12 | 12 | 14.5 | 32.2 | 11 | 3.5 | 10.25 | M2.5 | 14 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Angular Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------|-------------------|---------------------------|
| S50XBWMA15H... | 0.6 | 42000 | 2.2 x 10 ⁻⁷ | 200 | 0.05 | 1° | ± 0.2 | 7.5 |
| S50XBWMA19H... | 1 | 33000 | 6.7 x 10 ⁻⁷ | 450 | 0.15 | 2° | ± 0.2 | 14 |
| S50XBWMA25H... | 2 | 25000 | 2.3 x 10 ⁻⁶ | 850 | 0.2 | 2° | ± 0.4 | 24 |
| S50XBWMA27H... | 2.2 | 23000 | 3.1 x 10 ⁻⁶ | 1000 | 0.2 | 2° | ± 0.4 | 30 |

^Δ Based on max. bore dimension.

Continued on the next page

SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 HIGH TORQUE
 HIGH RESPONSE

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MATERIAL:

- Collars & Disks - Stainless Steel
- Hubs & Spacer - Aluminum Alloy
- Bolts & Screws - Steel, Black Oxide

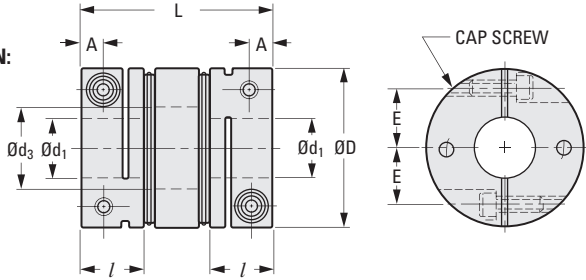
MISALIGNMENT COMPENSATION:

Max. Angular Offset: 2°

SPECIFICATION:

- Shaft Tolerance (h7):
- 12 & 16 mm 0/-0.018
- 20 & 25 mm 0/-0.021

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | d ₃ Dia. | L | l | A | E | Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|---------------------|------|----|---|-------|-----------|------------|
| S50XBWMA34H12H12 | 34 | 12 | 12 | 16.5 | 37.4 | 12 | 4 | 13 | M3 | 16 |
| S50XBWMA34H12H16 | 34 | 12 | 16 | 16.5 | 37.4 | 12 | 4 | 13 | M3 | 16 |
| S50XBWMA34H16H16 | 34 | 16 | 16 | 16.5 | 37.4 | 12 | 4 | 13 | M3 | 16 |
| S50XBWMA39H12H12 | 39 | 12 | 12 | 20.5 | 46.6 | 15 | 5 | 14.5 | M4 | 20 |
| S50XBWMA39H16H16 | 39 | 16 | 16 | 20.5 | 46.6 | 15 | 5 | 14.5 | M4 | 20 |
| S50XBWMA44H16H16 | 44 | 16 | 16 | 23 | 46.6 | 15 | 5 | 17 | M4 | 22 |
| S50XBWMA44H16H20 | 44 | 16 | 20 | 23 | 46.6 | 15 | 5 | 17 | M4 | 22 |
| S50XBWMA44H20H20 | 44 | 20 | 20 | 23 | 46.6 | 15 | 5 | 17 | M4 | 22 |
| S50XBWMA56H20H20 | 56 | 20 | 20 | 28.5 | 60.4 | 20 | 6 | 21.25 | M5 | 28 |
| S50XBWMA56H20H25 | 56 | 20 | 25 | 28.5 | 60.4 | 20 | 6 | 21.25 | M5 | 28 |
| S50XBWMA56H25H25 | 56 | 25 | 25 | 28.5 | 60.4 | 20 | 6 | 21.25 | M5 | 28 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50XBWMA34H... | 4.2 | 18000 | 9.0 x 10 ⁻⁶ | 1600 | 0.25 | ± 0.6 | 63 |
| S50XBWMA39H... | 8 | 16000 | 2.1 x 10 ⁻⁵ | 3200 | 0.3 | ± 0.6 | 120 |
| S50XBWMA44H... | 10 | 14000 | 3.5 x 10 ⁻⁵ | 3900 | 0.3 | ± 0.6 | 151 |
| S50XBWMA56H... | 25 | 11000 | 1.2 x 10 ⁻⁴ | 9000 | 0.3 | ± 0.8 | 322 |

^Δ Based on max. bore dimension.

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SINGLE DISK FLEXIBLE COUPLINGS



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

SPLIT TYPE HUB
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS
HIGH TORQUE
HIGH RESPONSE



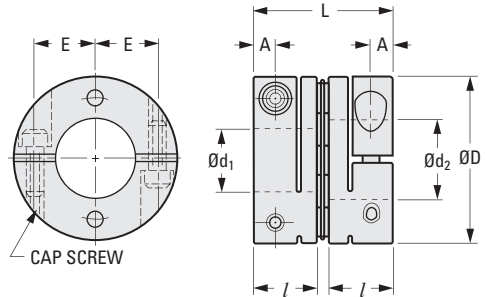
> MATERIAL:

- Collars & Disks** - Stainless Steel
- Hubs** - Stainless Steel
- Bolts & Screws** - Stainless Steel

> SPECIFICATION:

- Shaft Tolerance (h7):
- 3 to 6 mm 0/-0.012
- 8 & 10 mm 0/-0.015
- 12 mm 0/-0.018

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|------|-----|-----|-------|-----------|------------|
| S50XBSMS15H03H03 | 15 | 3 | 3 | 16 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBSMS15H04H04 | 15 | 4 | 4 | 16 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBSMS15H06H06 | 15 | 6 | 6 | 16 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBSMS19H06H06 | 19 | 6 | 6 | 19 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBSMS19H06H08 | 19 | 6 | 8 | 19 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBSMS19H08H08 | 19 | 8 | 8 | 19 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBSMS25H08H08 | 25 | 8 | 8 | 23.6 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBSMS25H08H10 | 25 | 8 | 10 | 23.6 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBSMS25H10H10 | 25 | 10 | 10 | 23.6 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBSMS27H10H10 | 27 | 10 | 10 | 23.6 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBSMS27H10H12 | 27 | 10 | 12 | 23.6 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBSMS27H12H12 | 27 | 12 | 12 | 23.6 | 11 | 3.5 | 10.25 | M2.5 | 14 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Angular Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50XBSMS15H... | 0.5 | 42000 | 2.3 x 10 ⁻⁷ | 500 | 0.5° | ± 0.1 | 15 |
| S50XBSMS19H... | 1 | 33000 | 7.4 x 10 ⁻⁷ | 1000 | 1° | ± 0.1 | 29 |
| S50XBSMS25H... | 1.2 | 25000 | 2.8 x 10 ⁻⁶ | 1500 | 1° | ± 0.2 | 53 |
| S50XBSMS27H... | 1.5 | 23000 | 3.8 x 10 ⁻⁶ | 2100 | 1° | ± 0.2 | 67 |

^Δ Based on max. bore dimension.

Continued on the next page

SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 HIGH TORQUE
 HIGH RESPONSE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

- Collars & Disks - Stainless Steel
- Hubs - Stainless Steel
- Bolts & Screws - Stainless Steel

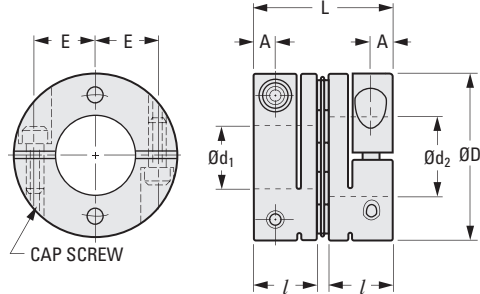
MISALIGNMENT COMPENSATION:

Max. Angular Offset: 1°

SPECIFICATION:

- Shaft Tolerance (h7):
- 12 & 16 mm 0/-0.018
- 20 & 25 mm 0/-0.021

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max.* Bore |
|-------------------|--------|---------------------|---------------------|------|----|---|-------|-----------|------------|
| S50XB SMS34H12H12 | 34 | 12 | 12 | 26.2 | 12 | 4 | 13 | M3 | 16 |
| S50XB SMS34H12H16 | 34 | 12 | 16 | 26.2 | 12 | 4 | 13 | M3 | 16 |
| S50XB SMS34H16H16 | 34 | 16 | 16 | 26.2 | 12 | 4 | 13 | M3 | 16 |
| S50XB SMS39H16H16 | 39 | 16 | 16 | 32.8 | 15 | 5 | 14.5 | M4 | 20 |
| S50XB SMS39H20H20 | 39 | 20 | 20 | 32.8 | 15 | 5 | 14.5 | M4 | 20 |
| S50XB SMS44H16H16 | 44 | 16 | 16 | 32.8 | 15 | 5 | 17 | M4 | 22 |
| S50XB SMS44H16H20 | 44 | 16 | 20 | 32.8 | 15 | 5 | 17 | M4 | 22 |
| S50XB SMS44H20H20 | 44 | 20 | 20 | 32.8 | 15 | 5 | 17 | M4 | 22 |
| S50XB SMS56H20H20 | 56 | 20 | 20 | 43.2 | 20 | 6 | 21.25 | M5 | 28 |
| S50XB SMS56H20H25 | 56 | 20 | 25 | 43.2 | 20 | 6 | 21.25 | M5 | 28 |
| S50XB SMS56H25H25 | 56 | 25 | 25 | 43.2 | 20 | 6 | 21.25 | M5 | 28 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|-------------------|---------------------------|
| S50XB SMS34H... | 3.5 | 18000 | 1.1 x 10 ⁻⁵ | 3800 | ± 0.3 | 115 |
| S50XB SMS39H... | 5 | 16000 | 2.3 x 10 ⁻⁵ | 5500 | ± 0.3 | 185 |
| S50XB SMS44H... | 7 | 14000 | 3.9 x 10 ⁻⁵ | 7000 | ± 0.3 | 305 |
| S50XB SMS56H... | 15 | 11000 | 1.4 x 10 ⁻⁴ | 15000 | ± 0.4 | 610 |

^Δ Based on max. bore dimension.

Continued from the previous page

SINGLE DISK FLEXIBLE COUPLINGS

SDP/SI

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- SPLIT TYPE HUB
- ZERO BACKLASH
- HIGH TORSIONAL STIFFNESS
- HIGH TORQUE
- HIGH RESPONSE



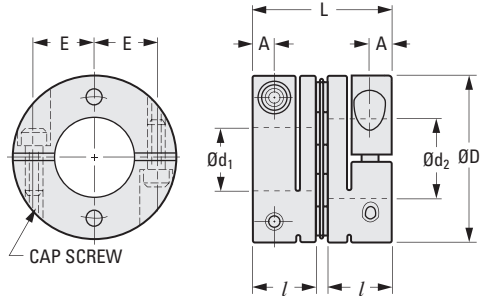
MATERIAL:

- Collars & Disks - Stainless Steel
- Hubs - Aluminum Alloy
- Bolts & Screws - Steel, Black Oxide

SPECIFICATION:

- Shaft Tolerance (h7):
- 3 to 6 mm 0/-0.012
- 8 & 10 mm 0/-0.015
- 12 mm 0/-0.018

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|------|-----|-----|-------|-----------|------------|
| S50XBSMA15H03H03 | 15 | 3 | 3 | 16 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBSMA15H04H04 | 15 | 4 | 4 | 16 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBSMA15H06H06 | 15 | 6 | 6 | 16 | 7.5 | 2.3 | 5.25 | M2 | 6 |
| S50XBSMA19H06H06 | 19 | 6 | 6 | 19 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBSMA19H06H08 | 19 | 6 | 8 | 19 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBSMA19H08H08 | 19 | 8 | 8 | 19 | 9 | 2.5 | 7.1 | M2 | 8 |
| S50XBSMA25H08H08 | 25 | 8 | 8 | 23.6 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBSMA25H08H10 | 25 | 8 | 10 | 23.6 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBSMA25H10H10 | 25 | 10 | 10 | 23.6 | 11 | 3.5 | 9.25 | M2.5 | 12 |
| S50XBSMA27H10H10 | 27 | 10 | 10 | 23.6 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBSMA27H10H12 | 27 | 10 | 12 | 23.6 | 11 | 3.5 | 10.25 | M2.5 | 14 |
| S50XBSMA27H12H12 | 27 | 12 | 12 | 23.6 | 11 | 3.5 | 10.25 | M2.5 | 14 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Angular Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50XBSMA15H... | 0.6 | 42000 | 9.8 x 10 ⁻⁸ | 300 | 0.5° | ± 0.1 | 5 |
| S50XBSMA19H... | 1 | 33000 | 2.9 x 10 ⁻⁷ | 600 | 1° | ± 0.1 | 9 |
| S50XBSMA25H... | 2 | 25000 | 1.1 x 10 ⁻⁶ | 1300 | 1° | ± 0.2 | 17 |
| S50XBSMA27H... | 2.2 | 23000 | 1.4 x 10 ⁻⁶ | 1600 | 1° | ± 0.2 | 21 |

^Δ Based on max. bore dimension.

Continued on the next page

SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 HIGH TORQUE
 HIGH RESPONSE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

- Collars & Disks - Stainless Steel
- Hubs - Aluminum Alloy
- Bolts & Screws - Steel, Black Oxide

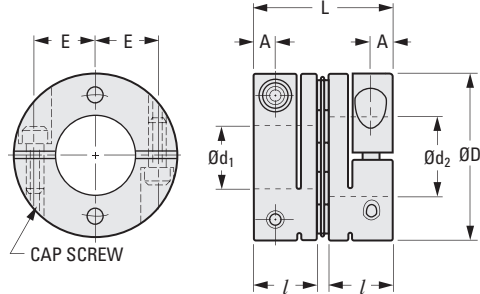
MISALIGNMENT COMPENSATION:

Max. Angular Offset: 1°

SPECIFICATION:

- Shaft Tolerance (h7):
- 12 & 16 mm 0/-0.018
- 20 & 25 mm 0/-0.021

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max.* Bore |
|------------------|--------|---------------------|---------------------|------|----|---|-------|-----------|------------|
| S50XBSMA34H12H12 | 34 | 12 | 12 | 26.2 | 12 | 4 | 13 | M3 | 16 |
| S50XBSMA34H12H16 | 34 | 12 | 16 | 26.2 | 12 | 4 | 13 | M3 | 16 |
| S50XBSMA34H16H16 | 34 | 16 | 16 | 26.2 | 12 | 4 | 13 | M3 | 16 |
| S50XBSMA39H16H16 | 39 | 16 | 16 | 32.8 | 15 | 5 | 14.5 | M4 | 20 |
| S50XBSMA39H20H20 | 39 | 20 | 20 | 32.8 | 15 | 5 | 14.5 | M4 | 20 |
| S50XBSMA44H16H16 | 44 | 16 | 16 | 32.8 | 15 | 5 | 17 | M4 | 22 |
| S50XBSMA44H16H20 | 44 | 16 | 20 | 32.8 | 15 | 5 | 17 | M4 | 22 |
| S50XBSMA44H20H20 | 44 | 20 | 20 | 32.8 | 15 | 5 | 17 | M4 | 22 |
| S50XBSMA56H20H20 | 56 | 20 | 20 | 43.2 | 20 | 6 | 21.25 | M5 | 28 |
| S50XBSMA56H20H25 | 56 | 20 | 25 | 43.2 | 20 | 6 | 21.25 | M5 | 28 |
| S50XBSMA56H25H25 | 56 | 25 | 25 | 43.2 | 20 | 6 | 21.25 | M5 | 28 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|-------------------|---------------------------|
| S50XBSMA34H... | 4.2 | 18000 | 4.0 x 10 ⁻⁶ | 2500 | ± 0.3 | 43 |
| S50XBSMA39H... | 8 | 16000 | 9.8 x 10 ⁻⁶ | 4600 | ± 0.3 | 83 |
| S50XBSMA44H... | 10 | 14000 | 1.6 x 10 ⁻⁵ | 6000 | ± 0.3 | 105 |
| S50XBSMA56H... | 25 | 11000 | 5.7 x 10 ⁻⁴ | 14000 | ± 0.4 | 232 |

^Δ Based on max. bore dimension.

Continued from the previous page



SINGLE DISK FLEXIBLE COUPLINGS

SDP/SI

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SPLIT TYPE HUBS
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS
MAINTENANCE-FREE



➤ **MATERIAL:**

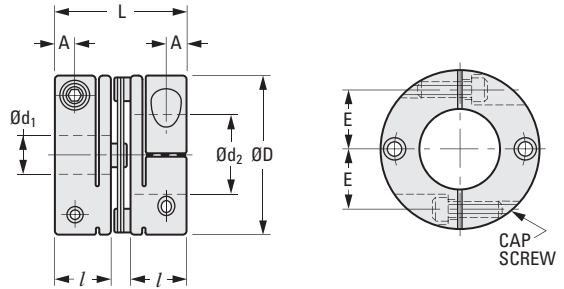
Pins & Disks - Stainless Steel
Hubs - Aluminum Alloy

➤ **MISALIGNMENT COMPENSATION:**

Max. Angular Offset: 0.7°
Max. Axial Motion: ± 0.2

➤ **SPECIFICATION:**

Shaft Tolerance (h7):
6 mm 0/-0.012
8 & 10 mm 0/-0.015
12 & 16 mm 0/-0.018
20 & 25 mm 0/-0.021



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore H8 | d ₂ Bore H8 | L | l | A | E | Cap Screw | Max.* Bore |
|-----------------|--------|------------------------|------------------------|----|----|-----|-----|-----------|------------|
| S50MDSM19H06H06 | 19 | 6 | 6 | 20 | 8 | 2.5 | 6.5 | M2 | 8 |
| S50MDSM19H06H08 | 19 | 6 | 8 | 20 | 8 | 2.5 | 6.5 | M2 | 8 |
| S50MDSM19H08H08 | 19 | 8 | 8 | 20 | 8 | 2.5 | 6.5 | M2 | 8 |
| S50MDSM25H08H08 | 25 | 8 | 8 | 24 | 10 | 3.5 | 9 | M2.5 | 12 |
| S50MDSM25H08H10 | 25 | 8 | 10 | 24 | 10 | 3.5 | 9 | M2.5 | 12 |
| S50MDSM25H10H10 | 25 | 10 | 10 | 24 | 10 | 3.5 | 9 | M2.5 | 12 |
| S50MDSM32H10H10 | 32 | 10 | 10 | 29 | 12 | 4 | 11 | M3 | 15 |
| S50MDSM32H10H12 | 32 | 10 | 12 | 29 | 12 | 4 | 11 | M3 | 15 |
| S50MDSM32H12H12 | 32 | 12 | 12 | 29 | 12 | 4 | 11 | M3 | 15 |
| S50MDSM40H12H12 | 40 | 12 | 12 | 33 | 14 | 5 | 15 | M4 | 20 |
| S50MDSM40H12H16 | 40 | 12 | 16 | 33 | 14 | 5 | 15 | M4 | 20 |
| S50MDSM40H16H16 | 40 | 16 | 16 | 33 | 14 | 5 | 15 | M4 | 20 |
| S50MDSM50H16H16 | 50 | 16 | 16 | 42 | 18 | 6 | 18 | M5 | 25 |
| S50MDSM50H16H20 | 50 | 16 | 20 | 42 | 18 | 6 | 18 | M5 | 25 |
| S50MDSM50H20H20 | 50 | 20 | 20 | 42 | 18 | 6 | 18 | M5 | 25 |
| S50MDSM63H20H20 | 63 | 20 | 20 | 46 | 20 | 7 | 24 | M6 | 30 |
| S50MDSM63H20H25 | 63 | 20 | 25 | 46 | 20 | 7 | 24 | M6 | 30 |
| S50MDSM63H25H25 | 63 | 25 | 25 | 46 | 20 | 7 | 24 | M6 | 30 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Torque N • cm | Max. rpm | Moment of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Weight grams |
|-----------------------------|---------------|----------|---------------------------------------|--------------------------------------|--------------|
| S50MDSM19H... | 0.7 | 10000 | 6.3 x 10 ⁻⁷ | 280 | 9 |
| S50MDSM25H... | 1 | 8000 | 2.1 x 10 ⁻⁶ | 630 | 19 |
| S50MDSM32H... | 2.5 | 6000 | 7.2 x 10 ⁻⁶ | 1600 | 41 |
| S50MDSM40H... | 3.5 | 5000 | 1.3 x 10 ⁻⁵ | 2600 | 68 |
| S50MDSM50H... | 9 | 4000 | 6.1 x 10 ⁻⁵ | 3100 | 140 |
| S50MDSM63H... | 12.5 | 3000 | 1.7 x 10 ⁻⁴ | 4200 | 250 |

SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 MAINTENANCE-FREE

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> MATERIAL:

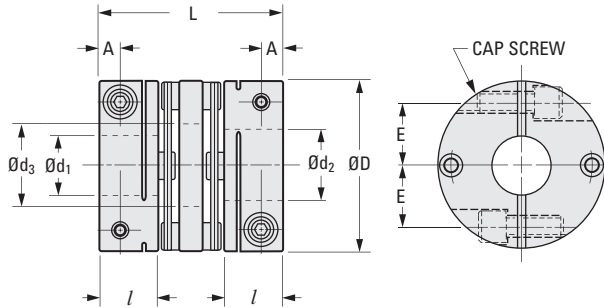
Pins & Disks - Stainless Steel
 Hubs & Spacer - Aluminum Alloy

> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 1.5°
 Max. Axial Motion: ± 0.5

> SPECIFICATION:

Shaft Tolerance (h7):
 6 mm 0/-0.012
 8 & 10 mm 0/-0.015
 12 & 16 mm 0/-0.018
 20 & 25 mm 0/-0.021



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | d ₃ | L | l | A | E | Cap Screw | Max.* Bore |
|-----------------|--------|---------------------|---------------------|----------------|----|----|-----|-----|-----------|------------|
| S50MDDM19H06H06 | 19 | 6 | 6 | 8.5 | 27 | 8 | 2.5 | 6.5 | M2 | 8 |
| S50MDDM19H06H08 | 19 | 6 | 8 | 8.5 | 27 | 8 | 2.5 | 6.5 | M2 | 8 |
| S50MDDM19H08H08 | 19 | 8 | 8 | 8.5 | 27 | 8 | 2.5 | 6.5 | M2 | 8 |
| S50MDDM25H08H08 | 25 | 8 | 8 | 12.5 | 31 | 10 | 3.5 | 9 | M2.5 | 12 |
| S50MDDM25H08H10 | 25 | 8 | 10 | 12.5 | 31 | 10 | 3.5 | 9 | M2.5 | 12 |
| S50MDDM25H10H10 | 25 | 10 | 10 | 12.5 | 31 | 10 | 3.5 | 9 | M2.5 | 12 |
| S50MDDM32H10H10 | 32 | 10 | 10 | 16 | 40 | 12 | 4 | 11 | M3 | 15 |
| S50MDDM32H10H12 | 32 | 10 | 12 | 16 | 40 | 12 | 4 | 11 | M3 | 15 |
| S50MDDM32H12H12 | 32 | 12 | 12 | 16 | 40 | 12 | 4 | 11 | M3 | 15 |
| S50MDDM40H12H12 | 40 | 12 | 12 | 21 | 44 | 14 | 5 | 15 | M4 | 20 |
| S50MDDM40H12H16 | 40 | 12 | 16 | 21 | 44 | 14 | 5 | 15 | M4 | 20 |
| S50MDDM40H16H16 | 40 | 16 | 16 | 21 | 44 | 14 | 5 | 15 | M4 | 20 |
| S50MDDM50H16H16 | 50 | 16 | 16 | 26 | 57 | 18 | 6 | 18 | M5 | 25 |
| S50MDDM50H16H20 | 50 | 16 | 20 | 26 | 57 | 18 | 6 | 18 | M5 | 25 |
| S50MDDM50H20H20 | 50 | 20 | 20 | 26 | 57 | 18 | 6 | 18 | M5 | 25 |
| S50MDDM63H20H20 | 63 | 20 | 20 | 35 | 61 | 20 | 7 | 24 | M6 | 30 |
| S50MDDM63H20H25 | 63 | 20 | 25 | 35 | 61 | 20 | 7 | 24 | M6 | 30 |
| S50MDDM63H25H25 | 63 | 25 | 25 | 35 | 61 | 20 | 7 | 24 | M6 | 30 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------------|
| S50MDDM19H... | 0.7 | 33000 | 8.7 × 10 ⁻⁷ | 200 | 0.12 | 18 |
| S50MDDM25H... | 1 | 25000 | 2.7 × 10 ⁻⁶ | 450 | 0.12 | 25 |
| S50MDDM32H... | 2.5 | 19000 | 9.6 × 10 ⁻⁶ | 1100 | 0.15 | 60 |
| S50MDDM40H... | 3.5 | 15000 | 1.9 × 10 ⁻⁵ | 1400 | 0.15 | 100 |
| S50MDDM50H... | 9 | 12000 | 8.1 × 10 ⁻⁵ | 2200 | 0.15 | 210 |
| S50MDDM63H... | 12.5 | 10000 | 2.1 × 10 ⁻⁴ | 3000 | 0.15 | 340 |

^ΔBased on max. bore dimension.

HEAVY-DUTY SINGLE DISK FLEXIBLE COUPLINGS



ZERO BACKLASH
HIGH TORSIONAL STIFFNESS
HIGH TORQUE
HIGH RESPONSE

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► MATERIAL:

Pins & Disks - Stainless Steel
Hubs - Anodized Aluminum

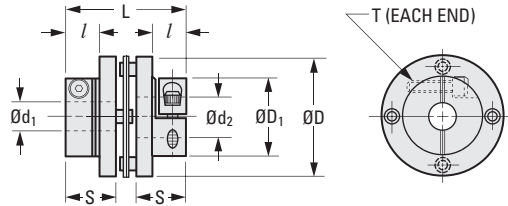
► MISALIGNMENT COMPENSATION:

Max. Angular Offset: 1°
Max. Axial Motion: ± 0.2

► SPECIFICATION:

Shaft Tolerance (h7):
6 mm 0/-0.012
8 & 10 mm 0/-0.015
12 to 18 mm 0/-0.018
20 mm 0/-0.021

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | S | l | D ₁ Dia. | T Cap Screw | Max.* Bore |
|-----------------|--------|---------------------|---------------------|----|------|----|---------------------|-------------|------------|
| S50MHSM32H06H06 | 32 | 6 | 6 | 32 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHSM32H06H08 | 32 | 6 | 8 | 32 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHSM32H08H08 | 32 | 8 | 8 | 32 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHSM32H08H10 | 32 | 8 | 10 | 32 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHSM32H10H10 | 32 | 10 | 10 | 32 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHSM40H08H08 | 40 | 8 | 8 | 38 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHSM40H08H10 | 40 | 8 | 10 | 38 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHSM40H10H10 | 40 | 10 | 10 | 38 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHSM40H10H14 | 40 | 10 | 14 | 38 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHSM40H12H12 | 40 | 12 | 12 | 38 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHSM50H12H12 | 50 | 12 | 12 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H12H16 | 50 | 12 | 16 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H14H14 | 50 | 14 | 14 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H14H16 | 50 | 14 | 16 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H15H15 | 50 | 15 | 15 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H16H16 | 50 | 16 | 16 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H16H18 | 50 | 16 | 18 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H18H18 | 50 | 18 | 18 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H18H20 | 50 | 18 | 20 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM50H20H20 | 50 | 20 | 20 | 44 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHSM63H16H16 | 63 | 16 | 16 | 50 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHSM63H16H18 | 63 | 16 | 18 | 50 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHSM63H16H20 | 63 | 16 | 20 | 50 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHSM63H18H18 | 63 | 18 | 18 | 50 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHSM63H18H20 | 63 | 18 | 20 | 50 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHSM63H20H20 | 63 | 20 | 20 | 50 | 22.5 | 18 | 45 | M6 | 25 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia kg • m ² | Static Torsional Stiffness N • m/rad | Weight grams |
|-----------------------------|--------------------|----------|---------------------------------------|--------------------------------------|--------------|
| S50MHSM32... | 2 | 4800 | 4.5 x 10 ⁻⁶ | 1300 | 38 |
| S50MHSM40... | 6 | 3800 | 1.2 x 10 ⁻⁵ | 2800 | 66 |
| S50MHSM50... | 12 | 3100 | 3.7 x 10 ⁻⁵ | 2700 | 120 |
| S50MHSM63... | 19 | 2400 | 8.4 x 10 ⁻⁵ | 5000 | 190 |

HEAVY-DUTY DOUBLE DISK FLEXIBLE COUPLINGS

SDP/SI

ZERO BACKLASH
MEDIUM TORSIONAL STIFFNESS
HIGH TORQUE
HIGH RESPONSE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

Pins & Disks - Stainless Steel
Hubs & Spacer - Anodized Aluminum

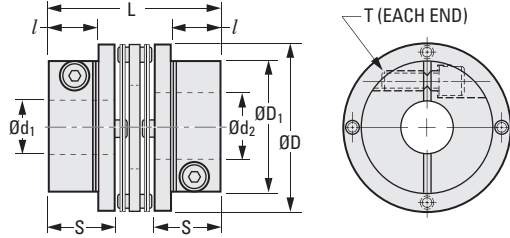
➤ MISALIGNMENT COMPENSATION:

Max. Angular Offset: 2°

➤ SPECIFICATION:

Shaft Tolerance (h7):
6 mm 0/-0.012
8 & 10 mm 0/-0.015
12 to 18 mm 0/-0.018
20 mm 0/-0.021

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | S | l | D ₁ Dia. | T Cap Screw | Max.* Bore |
|-----------------|--------|---------------------|---------------------|----|------|----|---------------------|-------------|------------|
| S50MHWM32H06H06 | 32 | 6 | 6 | 40 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHWM32H06H08 | 32 | 6 | 8 | 40 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHWM32H08H08 | 32 | 8 | 8 | 40 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHWM32H08H10 | 32 | 8 | 10 | 40 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHWM32H10H10 | 32 | 10 | 10 | 40 | 13.7 | 9 | 22 | M3 | 10 |
| S50MHWM40H08H08 | 40 | 8 | 8 | 46 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHWM40H08H10 | 40 | 8 | 10 | 46 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHWM40H10H10 | 40 | 10 | 10 | 46 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHWM40H10H14 | 40 | 10 | 14 | 46 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHWM40H12H12 | 40 | 12 | 12 | 46 | 16.5 | 12 | 28 | M4 | 14 |
| S50MHWM50H12H12 | 50 | 12 | 12 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H12H16 | 50 | 12 | 16 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H14H14 | 50 | 14 | 14 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H14H16 | 50 | 14 | 16 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H15H15 | 50 | 15 | 15 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H16H16 | 50 | 16 | 16 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H16H18 | 50 | 16 | 18 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H18H18 | 50 | 18 | 18 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H18H20 | 50 | 18 | 20 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM50H20H20 | 50 | 20 | 20 | 52 | 19.4 | 15 | 39 | M5 | 20 |
| S50MHWM63H16H16 | 63 | 16 | 16 | 58 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHWM63H16H18 | 63 | 16 | 18 | 58 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHWM63H16H20 | 63 | 16 | 20 | 58 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHWM63H18H18 | 63 | 18 | 18 | 58 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHWM63H18H20 | 63 | 18 | 20 | 58 | 22.5 | 18 | 45 | M6 | 25 |
| S50MHWM63H20H20 | 63 | 20 | 20 | 58 | 22.5 | 18 | 45 | M6 | 25 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Lateral Offset | Max. Axial Motion | Weight ^Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|-------------------|---------------------------|
| S50MHWM32... | 2 | 19000 | 6.2 x 10 ⁻⁶ | 1000 | 0.15 | ± 0.4 | 48 |
| S50MHWM40... | 4 | 15000 | 1.6 x 10 ⁻⁵ | 1500 | 0.2 | ± 0.5 | 81 |
| S50MHWM50... | 7.5 | 12000 | 4.6 x 10 ⁻⁵ | 2000 | 0.2 | ± 0.6 | 150 |
| S50MHWM63... | 10 | 10000 | 1.1 x 10 ⁻⁴ | 2500 | 0.3 | ± 0.8 | 230 |

^Δ Based on max. bore dimension.



1-800-453-1692

www.aboveboardelectronics.com

DOUBLE DISK FLEXIBLE COUPLINGS



SET SCREW TYPE
ZERO BACKLASH
HIGH TORSIONAL STIFFNESS
EXCELLENT RESPONSE
LIGHTWEIGHT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



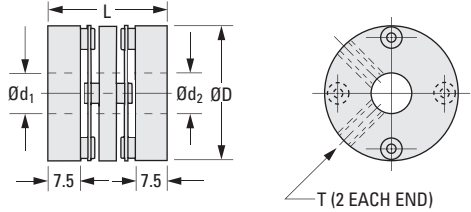
► MATERIAL:

Pins & Disks - Stainless Steel
Hubs & Spacer - Anodized Aluminum

► SPECIFICATION:

d_1, d_2 Tolerance:
3 mm +0.014/0
4 & 6 mm +0.018/0
8 & 10 mm +0.022/0
12 & 14 mm +0.027/0

*Other bore diameter combinations and bore sizes not exceeding the maximum listed below are available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d_1 Bore H8 | d_2 Bore H8 | L | T Set Screw | Max.* Bore |
|-----------------|--------|---------------|---------------|------|-------------|------------|
| S50MTDM20P03P03 | 20 | 3 | 3 | 27.3 | M3 | 8 |
| S50MTDM20P03P04 | 20 | 3 | 4 | 27.3 | M3 | 8 |
| S50MTDM20P04P04 | 20 | 4 | 4 | 27.3 | M3 | 8 |
| S50MTDM20P04P06 | 20 | 4 | 6 | 27.3 | M3 | 8 |
| S50MTDM20P06P06 | 20 | 6 | 6 | 27.3 | M3 | 8 |
| S50MTDM20P06P08 | 20 | 6 | 8 | 27.3 | M3 | 8 |
| S50MTDM20P08P08 | 20 | 8 | 8 | 27.3 | M3 | 8 |
| S50MTDM25P06P06 | 25 | 6 | 6 | 27.4 | M3 | 12 |
| S50MTDM25P06P08 | 25 | 6 | 8 | 27.4 | M3 | 12 |
| S50MTDM25P06P10 | 25 | 6 | 10 | 27.4 | M3 | 12 |
| S50MTDM25P08P08 | 25 | 8 | 8 | 27.4 | M3 | 12 |
| S50MTDM25P08P10 | 25 | 8 | 10 | 27.4 | M3 | 12 |
| S50MTDM25P08P12 | 25 | 8 | 12 | 27.4 | M3 | 12 |
| S50MTDM25P10P10 | 25 | 10 | 10 | 27.4 | M3 | 12 |
| S50MTDM25P10P12 | 25 | 10 | 12 | 27.4 | M3 | 12 |
| S50MTDM25P12P12 | 25 | 12 | 12 | 27.4 | M3 | 12 |
| S50MTDM32P08P08 | 32 | 8 | 8 | 27.5 | M4 | 14 |
| S50MTDM32P08P10 | 32 | 8 | 10 | 27.5 | M4 | 14 |
| S50MTDM32P08P12 | 32 | 8 | 12 | 27.5 | M4 | 14 |
| S50MTDM32P10P10 | 32 | 10 | 10 | 27.5 | M4 | 14 |
| S50MTDM32P10P12 | 32 | 10 | 12 | 27.5 | M4 | 14 |
| S50MTDM32P10P14 | 32 | 10 | 14 | 27.5 | M4 | 14 |
| S50MTDM32P12P12 | 32 | 12 | 12 | 27.5 | M4 | 14 |
| S50MTDM32P12P14 | 32 | 12 | 14 | 27.5 | M4 | 14 |
| S50MTDM32P14P14 | 32 | 14 | 14 | 27.5 | M4 | 14 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia Δ kg • m ² | Static Torsional Stiffness N • m/rad | Max. Angular Offset | Max. Lateral Offset | Max. Axial Motion | Weight Δ grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------------|---------------------|-------------------|-----------------------|
| S50MTDM20... | 0.5 | 31000 | 1.2×10^{-6} | 120 | 1° | 0.1 | ± 0.4 | 21 |
| S50MTDM25... | 1 | 25000 | 2.6×10^{-6} | 210 | 1.5° | 0.15 | ± 0.5 | 27 |
| S50MTDM32... | 2 | 19000 | 6.7×10^{-6} | 230 | 2° | 0.15 | ± 0.6 | 43 |

Δ Based on max. bore dimension.



ZERO BACKLASH
ELECTRICAL ISOLATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:

Hub - Aluminum
Insert - Silicone 40 ShA

➤ MAX. OPERATING SPEED:

5000 rpm

➤ OPERATING TEMPERATURE:

-50°C to +150°C

➤ SPECIFICATION:

d_1, d_2 Tolerance:
6 mm +0.012/0
8 & 10 mm +0.015/0
12 to 18 mm +0.018/0

| Coupling Size | Max. Δ Torque N • m | Torsional Stiffness N • m/rad | Approx. Weight grams |
|---------------|----------------------------|-------------------------------|----------------------|
| 19.1 | 3 | 35 | 22 |
| 25.4 | 5.7 | 65 | 45 |
| 31.8 | 8 | 80 | 120 |

| Service Factor | |
|-------------------|-----|
| Shock & Reversing | 2 |
| Nonreversing | 1.5 |
| Steady Load | 1 |

Δ Select the size so that
(Applicable Torque) x (Service Factor)
is less than the allowable maximum torque

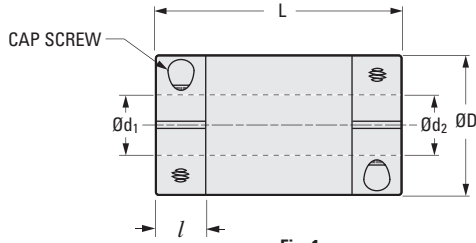


Fig. 1
Split Type

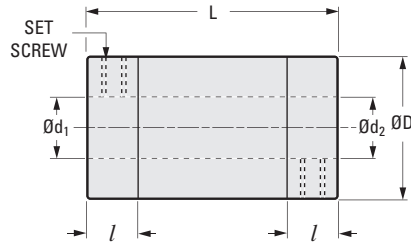


Fig. 2
Set Screw Type

METRIC COMPONENT

| Catalog Number | | D Dia. | d_1 Bore H7 | d_2 Bore H7 | L | l | Fig. 1 | Fig. 2 | Max.* Bore | Misalignment Compensation | |
|------------------|----------------|--------|---------------|---------------|------|-----|-----------|-----------|------------|---------------------------|---------------------|
| Split Type | Set Screw Type | | | | | | Cap Screw | Set Screw | | Max. Angular Offset | Max. Lateral Offset |
| Size 19.1 | | | | | | | | | | | |
| S54HSAM190606 | S54PSAM190606 | 19.1 | 6 | 6 | 26.5 | 6.5 | M2.5 | M4 | 10 | 0.6° | 0.12 |
| S54HSAM190808 | S54PSAM190808 | 19.1 | 8 | 8 | 26.5 | 6.5 | M2.5 | M4 | 10 | 0.6° | 0.12 |
| S54HSAM191010 | S54PSAM191010 | 19.1 | 10 | 10 | 26.5 | 6.5 | M2.5 | M4 | 10 | 0.6° | 0.12 |
| Size 25.4 | | | | | | | | | | | |
| S54HSAM250606 | S54PSAM250606 | 25.4 | 6 | 6 | 38.1 | 11 | M3 | M5 | 12.7 | 1° | 0.15 |
| S54HSAM250808 | S54PSAM250808 | 25.4 | 8 | 8 | 38.1 | 11 | M3 | M5 | 12.7 | 1° | 0.15 |
| S54HSAM251010 | S54PSAM251010 | 25.4 | 10 | 10 | 38.1 | 11 | M3 | M5 | 12.7 | 1° | 0.15 |
| S54HSAM251212 | S54PSAM251212 | 25.4 | 12 | 12 | 38.1 | 11 | M3 | M5 | 12.7 | 1° | 0.15 |
| Size 31.8 | | | | | | | | | | | |
| S54HSAM310606 | S54PSAM310606 | 31.8 | 6 | 6 | 57 | 16 | M4 | M6 | 19 | 1.6° | 0.3 |
| S54HSAM310808 | S54PSAM310808 | 31.8 | 8 | 8 | 57 | 16 | M4 | M6 | 19 | 1.6° | 0.3 |
| S54HSAM311010 | S54PSAM311010 | 31.8 | 10 | 10 | 57 | 16 | M4 | M6 | 19 | 1.6° | 0.3 |
| S54HSAM311212 | S54PSAM311212 | 31.8 | 12 | 12 | 57 | 16 | M4 | M6 | 19 | 1.6° | 0.3 |
| S54HSAM311616 | S54PSAM311616 | 31.8 | 16 | 16 | 57 | 16 | M4 | M6 | 19 | 1.6° | 0.3 |

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

FOR HIGH-TORQUE AND HIGH-TEMPERATURE APPLICATIONS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Spline - Hytrel
- Hub - 16, 20 & 25 Series - Zinc Alloy Die Casting
- 32 Series - Sintered Metal

> MISALIGNMENT COMPENSATION:

- Max. Angular Offset: 2°
- Max. Lateral Offset: 0.2

> OPERATING TEMPERATURE:

- 30°C to +100°C

> FEATURES:

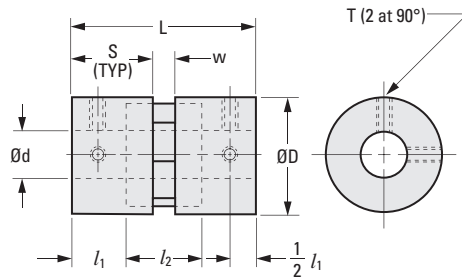
- High rpm.
- Electrically Isolated.
- Dampens Shock & Vibration.
- Blind Assembly.
- No Lubrication.

> SPECIFICATION:

- Bore Tolerance:
 - 3 mm +0.014/0
 - 4, 5 & 6 mm +0.018/0
 - 8 & 10 mm +0.022/0
 - 12 & 14 mm +0.027/0

> BUILD YOUR OWN COUPLING:

- For Different Bore Combinations:** Select hubs and corresponding spline within the same series.
- For Hubs with the Same Bore:** Select the "Complete Coupling"



The projections shown are per ISO convention.

| Coupling Series | Rated Torque Nm | Max. rpm |
|-----------------|-----------------|----------|
| 16 | 0.75 | 24000 |
| 20 | 1.5 | 19000 |
| 25 | 2.3 | 15000 |
| 32 | 4.5 | 12000 |

| METRIC COMPONENT | | | D Dia. | d Bore H8 | L | S | l ₁ | l ₂ | w | Spline Bore | T Set Screw | Max.* Bore |
|-------------------|-------------|-------------|--------|-----------|----|----|----------------|----------------|---|-------------|-------------|------------|
| Catalog Number ** | | | | | | | | | | | | |
| Complete Coupling | Hub Only | Spline Only | | | | | | | | | | |
| A 5Z29M1603 | A 5D29M1603 | A 5R29M16 | 16 | 3 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z29M1604 | A 5D29M1604 | | 16 | 4 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z29M1605 | A 5D29M1605 | | 16 | 5 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z29M1606 | A 5D29M1606 | | 16 | 6 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z29M1608 | A 5D29M1608 | | 16 | 8 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z29M2005 | A 5D29M2005 | A 5R29M20 | 20 | 5 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z29M2006 | A 5D29M2006 | | 20 | 6 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z29M2008 | A 5D29M2008 | | 20 | 8 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z29M2010 | A 5D29M2010 | | 20 | 10 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z29M2506 | A 5D29M2506 | A 5R29M25 | 25 | 6 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z29M2508 | A 5D29M2508 | | 25 | 8 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z29M2510 | A 5D29M2510 | | 25 | 10 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z29M2512 | A 5D29M2512 | | 25 | 12 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z29M3208 | A 5D29M3208 | A 5R29M32 | 32 | 8 | 48 | 21 | 14 | 20 | 6 | 12 | M4 | 15 |
| A 5Z29M3210 | A 5D29M3210 | | 32 | 10 | 48 | 21 | 14 | 20 | 6 | 12 | M4 | 15 |
| A 5Z29M3212 | A 5D29M3212 | | 32 | 12 | 48 | 21 | 14 | 20 | 6 | 14 | M4 | 15 |
| A 5Z29M3214 | A 5D29M3214 | | 32 | 14 | 48 | 21 | 14 | 20 | 6 | 14 | M4 | 15 |

* Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

** To be discontinued when present stock is depleted.



> MATERIAL:

Spline - Polyurethane
Hub - 16, 20 & 25 Series - Zinc Alloy Die Casting
 32 Series - Sintered Metal

> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 2°
Max. Lateral Offset: 0.2

> OPERATING TEMPERATURE:

-20°C to +60°C

> FEATURES:

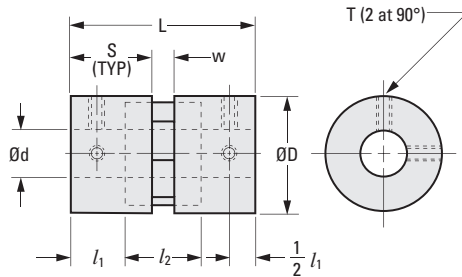
High rpm.
 Electrically Isolated.
 Dampens Shock & Vibration.
 Blind Assembly.
 No Lubrication.

> SPECIFICATION:

Bore Tolerance:
 3 mm +0.014/0
 4, 5 & 6 mm +0.018/0
 8 & 10 mm +0.022/0
 12 & 14 mm +0.027/0

> BUILD YOUR OWN COUPLING:

For Different Bore Combinations: Select hubs and corresponding spline within the same series.
For Hubs with the Same Bore: Select the "Complete Coupling"



The projections shown are per ISO convention.

| Coupling Series | Rated Torque Nm | Max. rpm |
|-----------------|-----------------|----------|
| 16 | 0.5 | 24000 |
| 20 | 1 | 19000 |
| 25 | 1.5 | 15000 |
| 32 | 3 | 12000 |

| METRIC COMPONENT | | | | | | | | | | | | |
|-------------------|-------------|-------------|--------|-----------|----|----|----------------|----------------|---|-------------|-------------|-------------|
| Catalog Number | | | D Dia. | d Bore H8 | L | S | l ₁ | l ₂ | w | Spline Bore | T Set Screw | Max.** Bore |
| Complete Coupling | Hub Only | Spline Only | | | | | | | | | | |
| A 5Z28M1603 | A 5D28M1603 | A 5R28M16 | 16 | 3 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z28M1604 | A 5D28M1604 | | 16 | 4 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z28M1605 | A 5D28M1605 | | 16 | 5 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z28M1606 | A 5D28M1606 | | 16 | 6 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z28M1608 | A 5D28M1608 | | 16 | 8 | 27 | 12 | 8 | 11 | 3 | 6 | M3 | 8 |
| A 5Z28M2005 | A 5D28M2005 | A 5R28M20 | 20 | 5 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z28M2006 | A 5D28M2006 | | 20 | 6 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z28M2008 | A 5D28M2008 | | 20 | 8 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z28M2010 | A 5D28M2010 | | 20 | 10 | 34 | 15 | 10 | 14 | 4 | 8 | M3 | 10 |
| A 5Z28M2506 | A 5D28M2506 | A 5R28M25 | 25 | 6 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z28M2508 | A 5D28M2508 | | 25 | 8 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z28M2510 | A 5D28M2510 | | 25 | 10 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z28M2512 | A 5D28M2512 | | 25 | 12 | 41 | 18 | 12 | 17 | 5 | 10 | M4 | 12 |
| A 5Z28M3208 | A 5D28M3208 | A 5R28M32 | 32 | 8 | 48 | 21 | 14 | 20 | 6 | 12 | M4 | 15 |
| A 5Z28M3210 | A 5D28M3210 | | 32 | 10 | 48 | 21 | 14 | 20 | 6 | 12 | M4 | 15 |
| A 5Z28M3212 | A 5D28M3212 | | 32 | 12 | 48 | 21 | 14 | 20 | 6 | 14 | M4 | 15 |
| A 5Z28M3214 | A 5D28M3214 | | 32 | 14 | 48 | 21 | 14 | 20 | 6 | 14 | M4 | 15 |

** Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

FAIRLOC® TYPE HUBS
 MOLDED NEOPRENE CENTER
 SHAFT-TO-SHAFT INSULATION
 TORSIONAL VIBRATION ISOLATION



➤ **MATERIAL:**

Hub - 303 Stainless Steel
 Center - Molded Neoprene, Durometer 73



➤ **MISALIGNMENT COMPENSATION:**

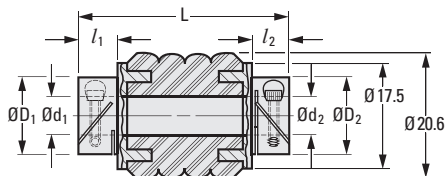
| | Ribbed Style | Smooth Style |
|---------------------|--------------|--------------|
| Max. Angular Offset | 1° | 1° |
| Max. Lateral Offset | 0.38 | 0.13 |

➤ **SPECIFICATION:**

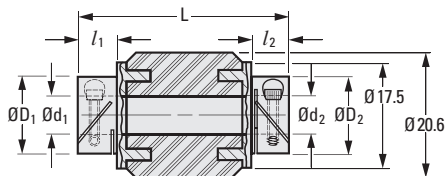
| Bore Size | Max. Torque N • m |
|-----------|----------------------|
| 3 | 0.71 |
| 4 | 0.85 |
| 5 | 1.06 |
| 6 | 1.27 |

Fairloc® hubs require controlled shaft tolerances.
 Suggested tolerance according to g6, h6 or h7.

Other bore sizes and combinations available
 on special order.



Ribbed Style



Smooth Style

METRIC COMPONENT

| Catalog Number | | d ₁ Bore +0.025 0 | d ₂ Bore +0.025 0 | D ₁ Hub Dia. | D ₂ Hub Dia. | l ₁ Hub Length | l ₂ Hub Length | L Overall Length ± 0.8 | Cap Screw |
|----------------|--------------|---------------------------------------|---------------------------------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------|
| Ribbed Style | Smooth Style | | | | | | | | |
| S50FSRM0303 | S50FSSM0303 | 3 | 3 | 11 | 11 | 7 | 7 | 33.1 | M2 |
| S50FSRM0304 | S50FSSM0304 | 3 | 4 | 11 | 12.5 | 7 | 7 | 33.1 | M2 |
| S50FSRM0305 | S50FSSM0305 | 3 | 5 | 11 | 16 | 7 | 7.5 | 33.6 | M2/M2.5 |
| S50FSRM0306 | S50FSSM0306 | 3 | 6 | 11 | 16 | 7 | 7.5 | 33.6 | M2/M2.5 |
| S50FSRM0404 | S50FSSM0404 | 4 | 4 | 12.5 | 12.5 | 7 | 7 | 33.1 | M2 |
| S50FSRM0405 | S50FSSM0405 | 4 | 5 | 12.5 | 16 | 7 | 7.5 | 33.6 | M2/M2.5 |
| S50FSRM0406 | S50FSSM0406 | 4 | 6 | 12.5 | 16 | 7 | 7.5 | 33.6 | M2/M2.5 |
| S50FSRM0505 | S50FSSM0505 | 5 | 5 | 16 | 16 | 7.5 | 7.5 | 34.1 | M2.5 |
| S50FSRM0506 | S50FSSM0506 | 5 | 6 | 16 | 16 | 7.5 | 7.5 | 34.1 | M2.5 |
| S50FSRM0606 | S50FSSM0606 | 6 | 6 | 16 | 16 | 7.5 | 7.5 | 34.1 | M2.5 |

SET SCREW TYPE HUBS
 MOLDED NEOPRENE CENTER
 SHAFT-TO-SHAFT INSULATION
 TORSIONAL VIBRATION ISOLATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Hubs - 303 Stainless Steel
Center - Molded Neoprene, Durometer 73

> MISALIGNMENT COMPENSATION:

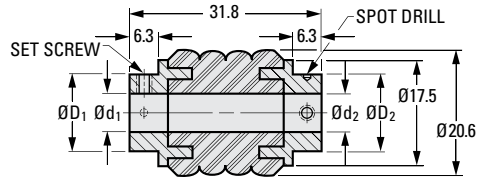
| | Ribbed Style | Smooth Style |
|----------------------------|--------------|--------------|
| Max. Angular Offset | 1° | 1° |
| Max. Lateral Offset | 0.38 | 0.13 |



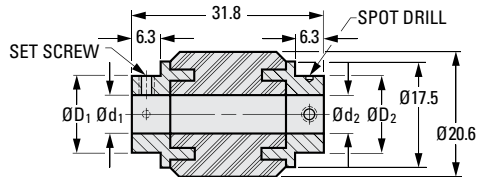
> SPECIFICATION:

| Bore Size | Max. Torque N • m |
|-----------|----------------------|
| 3 | 0.71 |
| 4 | 0.85 |
| 6 | 1.27 |

Other bore sizes and combinations available on special order.



Ribbed Style



Smooth Style

METRIC COMPONENT

| Catalog Number | | d ₁ Bore +0.013 0 | d ₂ Bore +0.013 0 | D ₁ Hub Dia. | D ₂ Hub Dia. | Set Screw |
|----------------|--------------|---------------------------------------|---------------------------------------|-------------------------------|-------------------------------|--------------|
| Ribbed Style | Smooth Style | | | | | |
| S50PSRM0303 | S50PSSM0303 | 3 | 3 | 7.9 | 7.9 | M2 |
| S50PSRM0304 | S50PSSM0304 | | 4 | | 9.5 | M2 |
| S50PSRM0306 | S50PSSM0306 | | 6 | | 12.7 | M2/M3 |
| S50PSRM0404 | S50PSSM0404 | 4 | 4 | 9.5 | 9.5 | M2 |
| S50PSRM0406 | S50PSSM0406 | | 6 | | 12.7 | M2/M3 |
| S50PSRM0606 | S50PSSM0606 | | 6 | | 12.7 | M3 |

FAIRLOC® TYPE HUBS
 MOLDED NEOPRENE CENTER
 SHAFT-TO-SHAFT INSULATION
 TORSIONAL VIBRATION ISOLATION



> MATERIAL:

Hubs - 303 Stainless Steel
 Center - Molded Neoprene, Durometer 73

> MISALIGNMENT COMPENSATION:

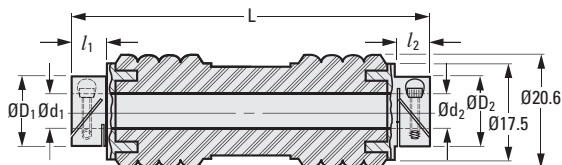
| | Ribbed Style | Smooth Style |
|---------------------|--------------|--------------|
| Max. Angular Offset | 15° | 8° |
| Max. Lateral Offset | 0.38 | 0.25 |

> SPECIFICATION:

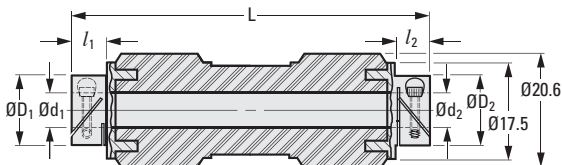
| Bore Size | Max. Torque N • m |
|-----------|----------------------|
| 3 | 0.71 |
| 4 | 0.85 |
| 5 | 1.06 |
| 6 | 1.27 |

Fairloc® hubs require controlled shaft tolerances.
 Suggested tolerance according to g6, h6 or h7.

Other bore sizes and combinations available
 on special order.



Ribbed Style



METRIC COMPONENT

| Catalog Number | | d ₁ Bore +0.025 0 | d ₂ Bore +0.025 0 | D ₁ Hub Dia. | D ₂ Hub Dia. | l ₁ Hub Length | l ₂ Hub Length | L Overall Length ± 0.8 | Cap Screw |
|----------------|--------------|---------------------------------------|---------------------------------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------|
| Ribbed Style | Smooth Style | | | | | | | | |
| S50FLRM0303 | S50FLSM0303 | 3 | 3 | 11 | 11 | 7 | 7 | 66.3 | M2 |
| S50FLRM0304 | S50FLSM0304 | 3 | 4 | 11 | 12.5 | 7 | 7 | 66.3 | M2 |
| S50FLRM0305 | S50FLSM0305 | 3 | 5 | 11 | 16 | 7 | 7.5 | 66.8 | M2/M2.5 |
| S50FLRM0306 | S50FLSM0306 | 3 | 6 | 11 | 16 | 7 | 7.5 | 66.8 | M2/M2.5 |
| S50FLRM0404 | S50FLSM0404 | 4 | 4 | 12.5 | 12.5 | 7 | 7 | 66.3 | M2 |
| S50FLRM0405 | S50FLSM0405 | 4 | 5 | 12.5 | 16 | 7 | 7.5 | 66.8 | M2/M2.5 |
| S50FLRM0406 | S50FLSM0406 | 4 | 6 | 12.5 | 16 | 7 | 7.5 | 66.8 | M2/M2.5 |
| S50FLRM0505 | S50FLSM0505 | 5 | 5 | 16 | 16 | 7.5 | 7.5 | 67.3 | M2.5 |
| S50FLRM0506 | S50FLSM0506 | 5 | 6 | 16 | 16 | 7.5 | 7.5 | 67.3 | M2.5 |
| S50FLRM0606 | S50FLSM0606 | 6 | 6 | 16 | 16 | 7.5 | 7.5 | 67.3 | M2.5 |



SET SCREW TYPE HUBS
 MOLDED NEOPRENE CENTER
 SHAFT-TO-SHAFT INSULATION
 TORSIONAL VIBRATION ISOLATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Hubs - 303 Stainless Steel
 Center - Molded Neoprene, Durometer 73

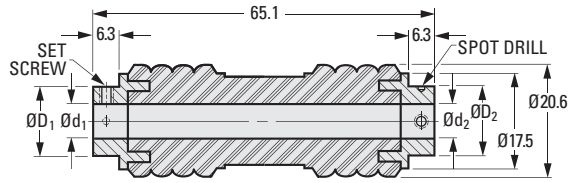
> MISALIGNMENT COMPENSATION:

| | Ribbed Style | Smooth Style |
|---------------------|--------------|--------------|
| Max. Angular Offset | 15° | 8° |
| Max. Lateral Offset | 0.38 | 0.25 |

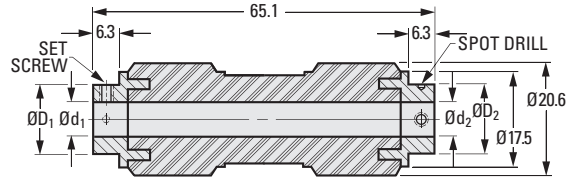
> SPECIFICATION:

| Bore Size | Max. Torque N • m |
|-----------|----------------------|
| 3 | 0.71 |
| 4 | 0.85 |
| 6 | 1.27 |

Other bore sizes and combinations available on special order.



Ribbed Style



Smooth Style

METRIC COMPONENT

| Catalog Number | | d ₁ Bore +0.013 0 | d ₂ Bore +0.013 0 | D ₁ Hub Dia. | D ₂ Hub Dia. | Set Screw |
|----------------|--------------|---------------------------------------|---------------------------------------|-------------------------------|-------------------------------|--------------|
| Ribbed Style | Smooth Style | | | | | |
| S50PLRM0303 | S50PLSM0303 | 3 | 3 | 7.9 | 7.9 | M2 |
| S50PLRM0304 | S50PLSM0304 | 3 | 4 | 7.9 | 9.5 | M2 |
| S50PLRM0306 | S50PLSM0306 | 3 | 6 | 7.9 | 12.7 | M2/M3 |
| S50PLRM0404 | S50PLSM0404 | 4 | 4 | 9.5 | 9.5 | M2 |
| S50PLRM0406 | S50PLSM0406 | 4 | 6 | 9.5 | 12.7 | M2/M3 |
| S50PLRM0606 | S50PLSM0606 | 6 | 6 | 12.7 | 12.7 | M3 |

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ZERO BACKLASH
HIGH TORQUE
HIGH RESPONSE
EXCELLENT ELECTRICAL INSULATION
ABSORBS VIBRATION



➤ **MATERIAL:**

Hubs - Aluminum
Center - Molded Rubber
Cap Screws - Steel, Black Oxide

➤ **MISALIGNMENT COMPENSATION:**

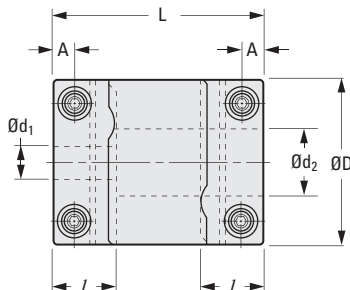
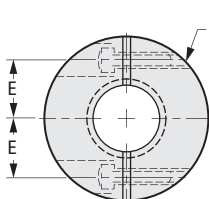
Max. Angular Offset: 1.5°
Max. Lateral Offset: 0.15
Max. Axial Motion: ± 0.2

➤ **OPERATING TEMPERATURE:**

-20°C to +80°C

➤ **APPLICATIONS:**

Outstanding performance when used with servomotors or stepping motors for the following reasons:
Eliminates Resonance
Absorbs Vibration
High Speed & Precise Positioning
Increases Gain



The projections shown are per ISO convention.

➤ **SPECIFICATION:**

Shaft Tolerance (h7):
3 to 6 mm 0/-0.012
6.35 to 10 mm 0/-0.015
11 mm 0/-0.018

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max. Bore |
|-----------------|--------|---------------------|---------------------|----|-----|------|-----|-----------|-----------|
| S50XGSMA15H0305 | 15 | 3 | 5 | 18 | 6.5 | 2.15 | 5 | M1.6 | 6 |
| S50XGSMA15H0404 | 15 | 4 | 4 | 18 | 6.5 | 2.15 | 5 | M1.6 | 6 |
| S50XGSMA15H0406 | 15 | 4 | 6 | 18 | 6.5 | 2.15 | 5 | M1.6 | 6 |
| S50XGSMA19H0606 | 19 | 6 | 6 | 20 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGSMA19H06E6 | 19 | 6 | 6.35 | 20 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGSMA19H0608 | 19 | 6 | 8 | 20 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGSMA19H08E6 | 19 | 6.35 | 8 | 20 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGSMA25H08E6 | 25 | 6.35 | 8 | 27 | 9.5 | 3.25 | 9 | M2.5 | 12 |
| S50XGSMA25H0808 | 25 | 8 | 8 | 27 | 9.5 | 3.25 | 9 | M2.5 | 12 |
| S50XGSMA25H0810 | 25 | 8 | 10 | 27 | 9.5 | 3.25 | 9 | M2.5 | 12 |
| S50XGSMA25H0811 | 25 | 8 | 11 | 27 | 9.5 | 3.25 | 9 | M2.5 | 12 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Weight* grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------|
| S50XGSMA15H... | 0.5 | 42000 | 2.0 x 10 ⁻⁷ | 25 | 7 |
| S50XGSMA19H... | 0.8 | 33000 | 6.2 x 10 ⁻⁷ | 63 | 12 |
| S50XGSMA25H... | 2.3 | 25000 | 2.3 x 10 ⁻⁶ | 125 | 25 |

*Based on max. bore dimension.

Continued on the next page

ZERO BACKLASH
HIGH TORQUE
HIGH RESPONSE
EXCELLENT ELECTRICAL INSULATION
ABSORBS VIBRATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



› **MATERIAL:**

- Hubs - Aluminum
- Center - Molded Rubber
- Cap Screws - Steel, Black Oxide

› **MISALIGNMENT COMPENSATION:**

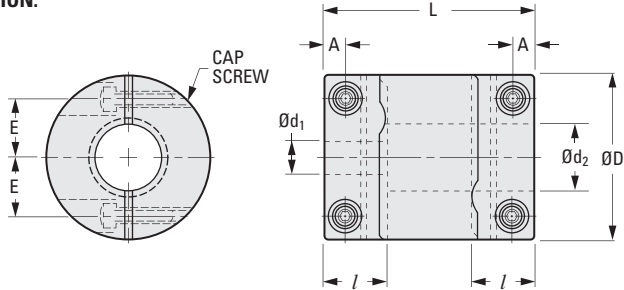
- Max. Angular Offset: 1.5°
- Max. Lateral Offset: 0.2
- Max. Axial Motion: ± 0.3

› **OPERATING TEMPERATURE:**

-20°C to +80°C

› **APPLICATIONS:**

Outstanding performance when used with servomotors or stepping motors for the following reasons:
Eliminates Resonance
Absorbs Vibration
High Speed & Precise Positioning
Increases Gain



The projections shown are per ISO convention.

› **SPECIFICATION:**

Shaft Tolerance (h7):
8 & 10 mm 0/-0.015
11 to 16 mm 0/-0.018

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max. Bore |
|-----------------|--------|---------------------|---------------------|----|------|-----|-------|-----------|-----------|
| S50XGSMA30H0812 | 30 | 8 | 12 | 30 | 11 | 4 | 11 | M3 | 15 |
| S50XGSMA30H1010 | 30 | 10 | 10 | 30 | 11 | 4 | 11 | M3 | 15 |
| S50XGSMA30H1212 | 30 | 12 | 12 | 30 | 11 | 4 | 11 | M3 | 15 |
| S50XGSMA34H1012 | 34 | 10 | 12 | 35 | 12 | 4 | 12.25 | M3 | 16 |
| S50XGSMA34H1111 | 34 | 11 | 11 | 35 | 12 | 4 | 12.25 | M3 | 16 |
| S50XGSMA39H1212 | 39 | 12 | 12 | 40 | 15.5 | 4.5 | 14.5 | M4 | 20 |
| S50XGSMA39H1216 | 39 | 12 | 16 | 40 | 15.5 | 4.5 | 14.5 | M4 | 20 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Weight* grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------|
| S50XGSMA30H... | 3.3 | 21000 | 5.5 x 10 ⁻⁶ | 160 | 39 |
| S50XGSMA34H... | 5.5 | 18000 | 1.0 x 10 ⁻⁵ | 350 | 62 |
| S50XGSMA39H... | 7 | 16000 | 2.1 x 10 ⁻⁵ | 440 | 85 |

*Based on max. bore dimension.

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ZERO BACKLASH
HIGH TORQUE
HIGH RESPONSE
EXCELLENT ELECTRICAL INSULATION
ABSORBS VIBRATION



➤ **MATERIAL:**

Hubs - Aluminum
Center - Molded Rubber
Cap Screws - Steel, Black Oxide

➤ **MISALIGNMENT COMPENSATION:**

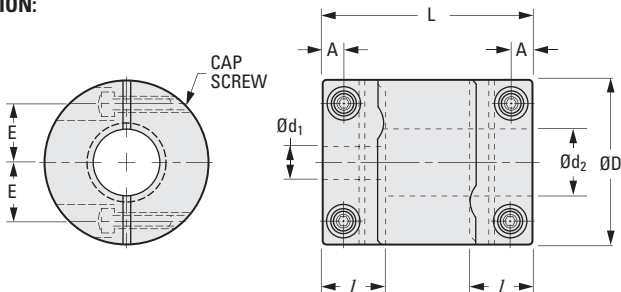
Max. Angular Offset: 1.5°
Max. Lateral Offset: 0.15
Max. Axial Motion: ± 0.2

➤ **OPERATING TEMPERATURE:**

-20°C to +80°C

➤ **APPLICATIONS:**

Outstanding performance when used with servomotors or stepping motors for the following reasons:
Eliminates Resonance
Absorbs Vibration
High Speed & Precise Positioning
Increases Gain



The projections shown are per ISO convention.

➤ **SPECIFICATION:**

Shaft Tolerance (h7):
3 to 6 mm 0/-0.012
6.35 to 10 mm 0/-0.015
11 mm 0/-0.018

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max. Bore |
|-----------------|--------|---------------------|---------------------|----|-----|------|-----|-----------|-----------|
| S50XGTMA15H0305 | 15 | 3 | 5 | 23 | 6.5 | 2.15 | 5 | M1.6 | 6 |
| S50XGTMA15H0404 | 15 | 4 | 4 | 23 | 6.5 | 2.15 | 5 | M1.6 | 6 |
| S50XGTMA15H0406 | 15 | 4 | 6 | 23 | 6.5 | 2.15 | 5 | M1.6 | 6 |
| S50XGTMA19H0606 | 19 | 6 | 6 | 26 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGTMA19H06E6 | 19 | 6 | 6.35 | 26 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGTMA19H0608 | 19 | 6 | 8 | 26 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGTMA19H08E6 | 19 | 6.35 | 8 | 26 | 7.7 | 2.65 | 6.5 | M2 | 8 |
| S50XGTMA25H08E6 | 25 | 6.35 | 8 | 32 | 9.5 | 3.25 | 9 | M2.5 | 12 |
| S50XGTMA25H0808 | 25 | 8 | 8 | 32 | 9.5 | 3.25 | 9 | M2.5 | 12 |
| S50XGTMA25H0810 | 25 | 8 | 10 | 32 | 9.5 | 3.25 | 9 | M2.5 | 12 |
| S50XGTMA25H0811 | 25 | 8 | 11 | 32 | 9.5 | 3.25 | 9 | M2.5 | 12 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Weight* grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------|
| S50XGTMA15H... | 1.1 | 42000 | 2.7 x 10 ⁻⁷ | 43 | 8 |
| S50XGTMA19H... | 2.1 | 33000 | 8.4 x 10 ⁻⁷ | 88 | 14 |
| S50XGTMA25H... | 4 | 25000 | 3.0 x 10 ⁻⁶ | 170 | 28 |

*Based on max. bore dimension.

Continued on the next page

ZERO BACKLASH
HIGH TORQUE
HIGH RESPONSE
EXCELLENT ELECTRICAL INSULATION
ABSORBS VIBRATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

- Hubs - Aluminum
- Center - Molded Rubber
- Cap Screws - Steel, Black Oxide

► **MISALIGNMENT COMPENSATION:**

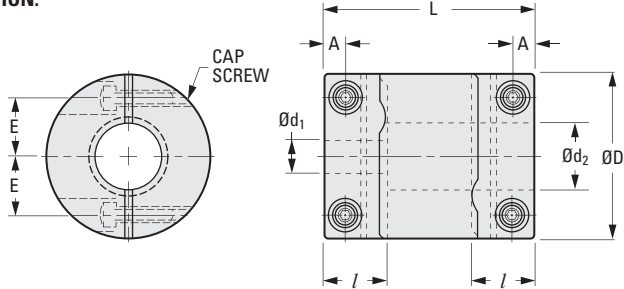
- Max. Angular Offset: 1.5°
- Max. Lateral Offset: 0.2
- Max. Axial Motion: ± 0.3

► **OPERATING TEMPERATURE:**

-20°C to +80°C

► **APPLICATIONS:**

Outstanding performance when used with servomotors or stepping motors for the following reasons:
Eliminates Resonance
Absorbs Vibration
High Speed & Precise Positioning
Increases Gain



The projections shown are per ISO convention.

► **SPECIFICATION:**

- Shaft Tolerance (h7):
- 8 & 10 mm 0/-0.015
- 11 to 18 mm 0/-0.018
- 19 to 24 mm 0/-0.021

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | L | l | A | E | Cap Screw | Max. Bore |
|-----------------|--------|---------------------|---------------------|----|------|------|-------|-----------|-----------|
| S50XGTMA30H0812 | 30 | 8 | 12 | 36 | 11 | 4 | 11 | M3 | 15 |
| S50XGTMA30H1010 | 30 | 10 | 10 | 36 | 11 | 4 | 11 | M3 | 15 |
| S50XGTMA30H1212 | 30 | 12 | 12 | 36 | 11 | 4 | 11 | M3 | 15 |
| S50XGTMA34H1012 | 34 | 10 | 12 | 38 | 12 | 4 | 12.25 | M3 | 16 |
| S50XGTMA34H1111 | 34 | 11 | 11 | 38 | 12 | 4 | 12.25 | M3 | 16 |
| S50XGTMA39H1212 | 39 | 12 | 12 | 48 | 15.5 | 4.5 | 14.5 | M4 | 20 |
| S50XGTMA39H1216 | 39 | 12 | 16 | 48 | 15.5 | 4.5 | 14.5 | M4 | 20 |
| S50XGTMA44H1616 | 44 | 16 | 16 | 48 | 15 | 4.75 | 16 | M4 | 22 |
| S50XGTMA44H1619 | 44 | 16 | 19 | 48 | 15 | 4.75 | 16 | M4 | 22 |
| S50XGTMA56H1924 | 56 | 19 | 24 | 60 | 19.5 | 5.5 | 20 | M5 | 28 |
| S50XGTMA56H2020 | 56 | 20 | 20 | 60 | 19.5 | 5.5 | 20 | M5 | 28 |

| Coupling Series (Ref. Only) | Rated Torque N • m | Max. rpm | Moment of Inertia* kg • m ² | Static Torsional Stiffness N • m/rad | Weight* grams |
|-----------------------------|--------------------|----------|--|--------------------------------------|---------------|
| S50XGTMA30H... | 6.3 | 21000 | 6.9 x 10 ⁻⁶ | 220 | 45 |
| S50XGTMA34H... | 8 | 18000 | 1.3 x 10 ⁻⁵ | 390 | 65 |
| S50XGTMA39H... | 13.5 | 16000 | 2.7 x 10 ⁻⁵ | 520 | 98 |
| S50XGTMA44H... | 18 | 14000 | 4.2 x 10 ⁻⁵ | 640 | 136 |
| S50XGTMA56H... | 35 | 11000 | 1.4 x 10 ⁻⁴ | 1500 | 276 |

*Based on max. bore dimension.

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SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 HIGH TORQUE
 SMALL ECCENTRIC REACTION FORCE



► MATERIAL:

- Hubs - Aluminum Alloy
- Pins - Steel
- Bushings - Polyimide
- Spacers - Stainless Steel
- Screws - Steel, Black Oxide

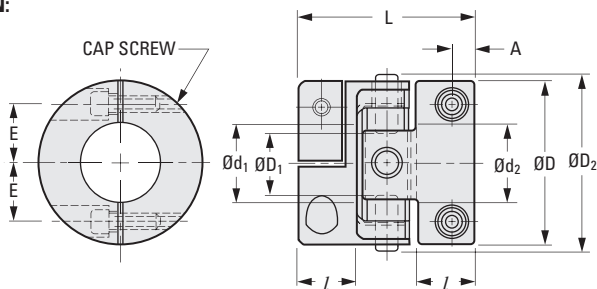
► MISALIGNMENT COMPENSATION:

- Max. Angular Offset: 1°
- Max. Lateral Offset: 0.2

► SPECIFICATION:

- Shaft Tolerance (h7):
- 3 to 6 mm 0/-0.012
- 8 & 10 mm 0/-0.015
- 12 mm 0/-0.018

Coupling series **S50MCTM...** has been replaced by new series **S50XUTM...**
 When selecting replacement couplings, be sure to verify dimensions and specifications.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | D ₁ Dia. | D ₂ Dia. | L | l | A | E | Cap Screw |
|-----------------|--------|---------------------|---------------------|---------------------|---------------------|----|---|-----|-----|-----------|
| S50XUTM15H03H03 | 15 | 3 | 3 | 4 | 16 | 18 | 6 | 2.5 | 5.2 | M2 |
| S50XUTM15H04H04 | 15 | 4 | 4 | 4 | 16 | 18 | 6 | 2.5 | 5.2 | M2 |
| S50XUTM15H06H06 | 15 | 6 | 6 | 4 | 16 | 18 | 6 | 2.5 | 5.2 | M2 |
| S50XUTM20H04H04 | 20 | 4 | 4 | 7 | 22 | 20 | 7 | 2.7 | 6.5 | M2 |
| S50XUTM20H04H06 | 20 | 4 | 6 | 7 | 22 | 20 | 7 | 2.7 | 6.5 | M2 |
| S50XUTM20H06H06 | 20 | 6 | 6 | 7 | 22 | 20 | 7 | 2.7 | 6.5 | M2 |
| S50XUTM20H06H08 | 20 | 6 | 8 | 7 | 22 | 20 | 7 | 2.7 | 6.5 | M2 |
| S50XUTM20H08H08 | 20 | 8 | 8 | 7 | 22 | 20 | 7 | 2.7 | 6.5 | M2 |
| S50XUTM25H06H06 | 25 | 6 | 6 | 10 | 27 | 27 | 9 | 3.5 | 9 | M2.5 |
| S50XUTM25H08H08 | 25 | 8 | 8 | 10 | 27 | 27 | 9 | 3.5 | 9 | M2.5 |
| S50XUTM25H08H10 | 25 | 8 | 10 | 10 | 27 | 27 | 9 | 3.5 | 9 | M2.5 |
| S50XUTM25H10H10 | 25 | 10 | 10 | 10 | 27 | 27 | 9 | 3.5 | 9 | M2.5 |
| S50XUTM25H10H12 | 25 | 10 | 12 | 10 | 27 | 27 | 9 | 3.5 | 9 | M2.5 |
| S50XUTM25H12H12 | 25 | 12 | 12 | 10 | 27 | 27 | 9 | 3.5 | 9 | M2.5 |

| Coupling Series (Ref. Only) | Max.* Bore | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Weight ^Δ grams |
|-----------------------------|------------|--------------------|----------|--|--------------------------------------|---------------------------|
| S50XUTM15... | 6 | 0.3 | 42000 | 2.3 x 10 ⁻⁷ | 200 | 8 |
| S50XUTM20... | 8 | 0.6 | 31000 | 8.1 x 10 ⁻⁷ | 400 | 16 |
| S50XUTM25... | 12 | 1.2 | 25000 | 2.7 x 10 ⁻⁶ | 900 | 33 |

^ΔBased on max. bore dimension.

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

Continued on the next page

SPLIT TYPE HUB
 ZERO BACKLASH
 HIGH TORSIONAL STIFFNESS
 HIGH TORQUE
 SMALL ECCENTRIC REACTION FORCE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Hubs - Aluminum Alloy
- Pins - Steel
- Bushings - Polyimide
- Spacers - Stainless Steel
- Screws - Steel, Black Oxide

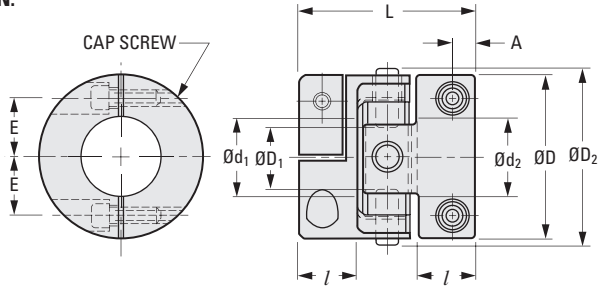
> MISALIGNMENT COMPENSATION:

- Max. Angular Offset: 1°
- Max. Lateral Offset: 0.2

> SPECIFICATION:

- Shaft Tolerance (h7):
 10 mm 0/-0.015
 12 to 18 mm 0/-0.018
 20 mm 0/-0.021

Coupling series **S50MCTM...** has been replaced by new series **S50XUTM...**
 When selecting replacement couplings, be sure to verify dimensions and specifications.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d ₁ Bore | d ₂ Bore | D ₁ Dia. | D ₂ Dia. | L | l | A | E | Cap Screw |
|-----------------|--------|---------------------|---------------------|---------------------|---------------------|----|------|-----|------|-----------|
| S50XUTM30H10H10 | 30 | 10 | 10 | 10 | 32 | 30 | 9.5 | 4 | 10.5 | M3 |
| S50XUTM30H12H12 | 30 | 12 | 12 | 10 | 32 | 30 | 9.5 | 4 | 10.5 | M3 |
| S50XUTM30H12H14 | 30 | 12 | 14 | 10 | 32 | 30 | 9.5 | 4 | 10.5 | M3 |
| S50XUTM30H14H14 | 30 | 14 | 14 | 10 | 32 | 30 | 9.5 | 4 | 10.5 | M3 |
| S50XUTM35H12H12 | 35 | 12 | 12 | 13 | 37 | 35 | 11.5 | 5 | 12.5 | M4 |
| S50XUTM35H14H14 | 35 | 14 | 14 | 13 | 37 | 35 | 11.5 | 5 | 12.5 | M4 |
| S50XUTM35H14H16 | 35 | 14 | 16 | 13 | 37 | 35 | 11.5 | 5 | 12.5 | M4 |
| S50XUTM35H16H16 | 35 | 16 | 16 | 13 | 37 | 35 | 11.5 | 5 | 12.5 | M4 |
| S50XUTM40H16H16 | 40 | 16 | 16 | 15 | 42 | 40 | 12.5 | 5.5 | 15 | M4 |
| S50XUTM40H16H18 | 40 | 16 | 18 | 15 | 42 | 40 | 12.5 | 5.5 | 15 | M4 |
| S50XUTM40H18H18 | 40 | 18 | 18 | 15 | 42 | 40 | 12.5 | 5.5 | 15 | M4 |
| S50XUTM40H18H20 | 40 | 18 | 20 | 15 | 42 | 40 | 12.5 | 5.5 | 15 | M4 |
| S50XUTM40H20H20 | 40 | 20 | 20 | 15 | 42 | 40 | 12.5 | 5.5 | 15 | M4 |

| Coupling Series (Ref. Only) | Max.* Bore | Rated Torque N • m | Max. rpm | Moment of Inertia ^Δ kg • m ² | Static Torsional Stiffness N • m/rad | Weight ^Δ grams |
|-----------------------------|------------|--------------------|----------|--|--------------------------------------|---------------------------|
| S50XUTM30... | 14 | 2.4 | 21000 | 6.2 x 10 ⁻⁶ | 1300 | 53 |
| S50XUTM35... | 16 | 4 | 18000 | 1.3 x 10 ⁻⁵ | 2200 | 81 |
| S50XUTM40... | 20 | 6 | 15000 | 2.6 x 10 ⁻⁵ | 2300 | 120 |

^ΔBased on max. bore dimension.

Continued from the previous page

*Other bore diameter combinations and bore sizes not exceeding the maximum listed above are available on special order.

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SPLIT TYPE HUB

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Hubs - Aluminum, Clear Anodized
Torque Disc - Acetal

> OPERATING TEMPERATURE:

-40°C to +85°C

> FEATURES:

Easy Assembly.
 Lubrication-Free.
 Low Inertia.
 Corrosion-Resistant.
 Electrical Isolation.

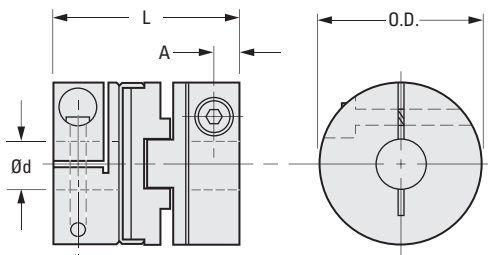
> MAX. SERVICE TORQUE:

0.75 Nm for 15 series
 1.69 Nm for 19 series
 3.95 Nm for 25 series
 9.04 Nm for 33 series

> BUILD YOUR OWN COUPLING:

For Different Bore Combinations: Select hubs and corresponding disc within the same series.
For Hubs with the Same Bore: Select the "Complete Coupling"

Set Screw & Split Hubs can be interchanged if discs from the same size O.D. are selected.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | | O.D. | d Bore +0.030 0 | L Length | Max. Shaft Depth | Cap Screw | Max. Angular Offset | Max. Lateral Offset | A |
|----------------------|---------------|-------------|------|--------------------------|-------------|------------------------|--------------|---------------------------|---------------------------|-----|
| Complete Coupling | Hub Only | Disc Only | | | | | | | | |
| A 5Z15M331503 | A 5A15M331503 | A 5P15M3315 | 15 | 3 | 25.9 | 8.1 | M2 | 1/2° | 0.1 | 2.4 |
| A 5Z15M331504 | A 5A15M331504 | | 15 | 4 | 25.9 | 8.1 | M2 | 1/2° | 0.1 | 2.4 |
| A 5Z15M331506 | A 5A15M331506 | | 15 | 6 | 25.9 | 8.1 | M3 | 1/2° | 0.1 | 2.4 |
| A 5Z15M331903 | A 5A15M331903 | A 5P15M3319 | 19.1 | 3 | 22 | 6.3 | M2.5 | 1/2° | 0.2 | 2.4 |
| A 5Z15M331904 | A 5A15M331904 | | 19.1 | 4 | 22 | 6.3 | M2.5 | 1/2° | 0.2 | 2.4 |
| A 5Z15M331906 | A 5A15M331906 | | 19.1 | 6 | 22 | 6.3 | M3 | 1/2° | 0.2 | 2.4 |
| A 5Z15M332506 | A 5A15M332506 | A 5P15M3325 | 25.4 | 6 | 28.4 | 8.6 | M3 | 1/2° | 0.2 | 3.2 |
| A 5Z15M332508 | A 5A15M332508 | | 25.4 | 8 | 28.4 | 8.6 | M3 | 1/2° | 0.2 | 3.2 |
| A 5Z15M332510 | A 5A15M332510 | | 25.4 | 10 | 28.4 | 8.6 | M3 | 1/2° | 0.2 | 3.2 |
| A 5Z15M333308 | A 5A15M333308 | A 5P15M3333 | 33.3 | 8 | 48 | 13 | M3 | 1/2° | 0.2 | 3.2 |
| A 5Z15M333310 | A 5A15M333310 | | 33.3 | 10 | 48 | 13 | M3 | 1/2° | 0.2 | 3.2 |
| A 5Z15M333312 | A 5A15M333312 | | 33.3 | 12 | 48 | 13 | M3 | 1/2° | 0.2 | 3.2 |

SET SCREW HUB

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Hubs - 06, 09 & 13 Series - Brass, Bright Dip
 15 Thru 41 Series - Aluminum, Clear Anodized
Torque Disc - Acetal

> OPERATING TEMPERATURE:

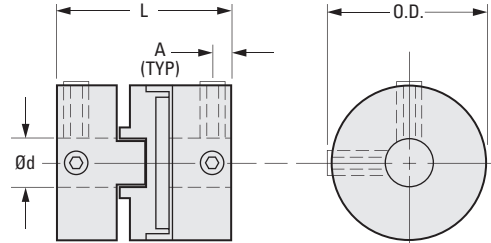
-40°C to +85°C

> FEATURES:

Easy Assembly.
 Lubrication-Free.
 Low Inertia.
 Corrosion-Resistant.
 Electrical Isolation.

> MAX. SERVICE TORQUE:

0.06 Nm for 06 series
 0.2 Nm for 09 series
 0.49 Nm for 13 series
 0.75 Nm for 15 series
 1.69 Nm for 19 series
 3.95 Nm for 25 series
 9.04 Nm for 33 series
 16.94 Nm for 41 series



> BUILD YOUR OWN COUPLING:

For Different Bore Combinations: Select hubs and corresponding disc within the same series.
For Hubs with the Same Bore: Select the "Complete Coupling"

Set Screw & Split Hubs can be interchanged if discs from the same size O.D. are selected.

| METRIC COMPONENT | | | O.D. | d Bore +0.030 0 | L Length | Max. Shaft Depth | Set Screw | Max. Angular Offset | Max. Lateral Offset | A | |
|-------------------|---------------|-------------|------|-----------------------|----------|------------------|-----------|---------------------|---------------------|-----|--|
| Catalog Number | | | | | | | | | | | |
| Complete Coupling | Hub Only | Disc Only | | | | | | | | | |
| A 5Z15M000602 | A 5B15M000602 | A 5P15M0006 | 6.4 | 2 | 12.7 | 3.8 | M3* | 1/2° | 0.1 | 1.9 | |
| A 5Z15M000603 | A 5B15M000603 | | 6.4 | 3 | 12.7 | 3.8 | M3* | 1/2° | 0.1 | 1.9 | |
| A 5Z15M000903 | A 5B15M000903 | A 5P15M0009 | 9.5 | 3 | 12.7 | 3.8 | M3* | 1/2° | 0.1 | 1.9 | |
| A 5Z15M000904 | A 5B15M000904 | | 9.5 | 4 | 12.7 | 3.8 | M3* | 1/2° | 0.1 | 1.9 | |
| A 5Z15M001304 | A 5B15M001304 | A 5P15M0013 | 12.7 | 4 | 15.9 | 4.3 | M3 | 1/2° | 0.1 | 2.4 | |
| A 5Z15M001306 | A 5B15M001306 | | 12.7 | 6 | 15.9 | 4.3 | M3 | 1/2° | 0.1 | 2.4 | |
| A 5Z15M001504 | A 5A15M001504 | A 5P15M0015 | 15 | 4 | 25.9 | 8.1 | M3 | 1/2° | 0.1 | 2.4 | |
| A 5Z15M001506 | A 5A15M001506 | | 15 | 6 | 25.9 | 8.1 | M3 | 1/2° | 0.1 | 2.4 | |
| A 5Z15M001906 | A 5A15M001906 | A 5P15M0019 | 19.1 | 6 | 22 | 6.3 | M3 | 1/2° | 0.2 | 2.4 | |
| A 5Z15M001908 | A 5A15M001908 | | 19.1 | 8 | 22 | 6.3 | M3 | 1/2° | 0.2 | 2.4 | |
| A 5Z15M002508 | A 5A15M002508 | A 5P15M0025 | 25.4 | 8 | 28.4 | 8.6 | M4 | 1/2° | 0.2 | 3.2 | |
| A 5Z15M002510 | A 5A15M002510 | | 25.4 | 10 | 28.4 | 8.6 | M4 | 1/2° | 0.2 | 3.2 | |
| A 5Z15M003310 | A 5A15M003310 | A 5P15M0033 | 33.3 | 10 | 48 | 13 | M4 | 1/2° | 0.2 | 3.2 | |
| A 5Z15M003312 | A 5A15M003312 | | 33.3 | 12 | 48 | 13 | M4 | 1/2° | 0.2 | 3.2 | |
| A 5Z15M004110 | A 5A15M004110 | A 5P15M0041 | 41.1 | 10 | 50.8 | 16.7 | M5 | 1/2° | 0.25 | 4.4 | |
| A 5Z15M004112 | A 5A15M004112 | | 41.1 | 12 | 50.8 | 16.7 | M5 | 1/2° | 0.25 | 4.4 | |

* 06 & 09 series have only one set screw at each end.

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SPIDER TYPE FLEXIBLE COUPLINGS



SPLIT TYPE HUB
PRELOADED RUBBER SPIDER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

› **MATERIAL:**

Hubs - Aluminum
Spider - NBR Rubber - 86, 92 or 98 Durometer

› **MISALIGNMENT COMPENSATION:**

Max. Angular Offset: 1°

› **FEATURES:**

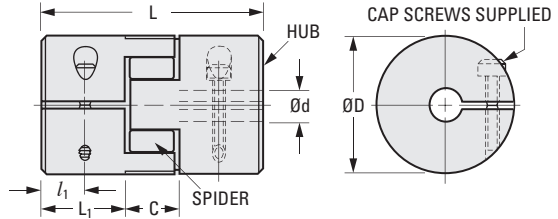
Precision machined hub with integral fasteners
& prestressed spiders which eliminate backlash.
Allows limited axial motion.



**METRIC COMPONENT
CATALOG NUMBER**

A 5Z27M [] [] [] [] [] []

Coupling Size Code
Durometer Code



EXAMPLE: A 5Z27M200692 is a 20 mm O.D. coupling with a 6 mm bore & a 92 durometer spider.

METRIC COMPONENT

| Catalog Number (Hub Only) | Coupling Size Code | D Dia. | d +0.025 0 | l ₁ | Cap Screw |
|---------------------------|--------------------|--------|---------------|----------------|-----------|
| A 5A27M2005 | 2005 | 20 | 5 | 5 | M3 |
| A 5A27M2006 | 2006 | 20 | 6 | 5 | M3 |
| A 5A27M2008 | 2008 | 20 | 8 | 5 | M3 |
| A 5A27M3006 | 3006 | 30 | 6 | 7 | M3 |
| A 5A27M3008 | 3008 | 30 | 8 | 7 | M3 |
| A 5A27M3010 | 3010 | 30 | 10 | 7 | M3 |
| A 5A27M4010 | 4010 | 40 | 10 | 11 | M4 |
| A 5A27M4012 | 4012 | 40 | 12 | 11 | M4 |
| A 5A27M4016 | 4016 | 40 | 16 | 11 | M4 |

METRIC COMPONENT

| Catalog Number (Spider Only) | D Dia. | Durometer Code | Color | Temperature Range | | Max. Lateral Offset | Rated Torque N • m |
|------------------------------|--------|----------------|-------|-------------------|-------------------|---------------------|--------------------|
| | | | | Operating | Max. Nonoperating | | |
| A 5R27M2086 | 20 | 86 | Tan | -50°C to +80°C | -60°C to +120°C | 0.18 | 2.2 |
| A 5R27M2092 | 20 | 92 | Black | -50°C to +80°C | -60°C to +120°C | 0.13 | 3 |
| A 5R27M2098 | 20 | 98 | Rust | -50°C to +80°C | -60°C to +120°C | 0.08 | 5 |
| A 5R27M3086 | 30 | 86 | Tan | -40°C to +90°C | -50°C to +120°C | 0.21 | 5.5 |
| A 5R27M3092 | 30 | 92 | Black | -40°C to +90°C | -50°C to +120°C | 0.15 | 7.5 |
| A 5R27M3098 | 30 | 98 | Rust | -40°C to +90°C | -50°C to +120°C | 0.09 | 12.5 |
| A 5R27M4086 | 40 | 86 | Tan | -30°C to +90°C | -40°C to +120°C | 0.14 | 7 |
| A 5R27M4092 | 40 | 92 | Black | -30°C to +90°C | -40°C to +120°C | 0.1 | 10 |
| A 5R27M4098 | 40 | 98 | Rust | -30°C to +90°C | -40°C to +120°C | 0.06 | 17 |

| Coupling Series (Ref. Only) | D Dia. | L Overall Length | C Distance Between Flanges | L ₁ Length Through Bore | Rated Torque N • m | Max. Axial Motion |
|-----------------------------|--------|------------------|----------------------------|------------------------------------|--------------------|-------------------|
| A 5Z27M20... | 20 | 30 | 10 | 11 | See Spider Data | 0.8 |
| A 5Z27M30... | 30 | 40 | 12 | 15 | | 1 |
| A 5Z27M40... | 40 | 60 | 15 | 24 | | 1.2 |

> MATERIAL:

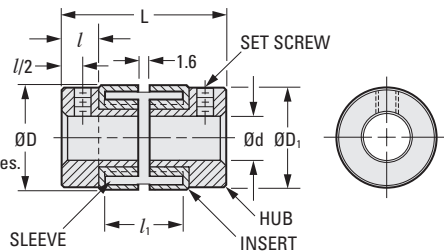
- Sleeve - Polyethylene
- Insert - Acetal
- Hubs - Aluminum Alloy, Anodized

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> SPECIFICATIONS:

| | Series | |
|---------------------|--------|------|
| | 21 | 23 |
| Max. hp @ 1750 rpm | 1/20 | 1/2 |
| Max. Angular Offset | 3° | 7° |
| Max. Lateral Offset | 0.12 | 0.35 |
| Max. Torque Nm | 0.07 | 2.03 |



> BUILD YOUR OWN COUPLING:

For Different Bore Combinations: Select insert and hub assemblies and corresponding sleeve within the same series.
For Hubs with the Same Bore: Select the "Complete Coupling"

METRIC COMPONENT

| Catalog Number | | | D Dia. | d Bore Dia. +0.025 0 | L Length | l ₁ Sleeve Length | D ₁ Hub Dia. | l Hub Length | Set Screw |
|-------------------|-----------------------|-------------|--------|----------------------|----------|------------------------------|-------------------------|--------------|-----------|
| Complete Coupling | Insert & Hub Assembly | Sleeve Only | | | | | | | |
| A 5Z21M1304 | A 5T21M1304 | A 5R21M13 | 14.7 | 4 | 23.8 | 11 | 14.3 | 5.6 | M2.5 |
| A 5Z21M1305 | A 5T21M1305 | | | 5 | | | | | M3 |
| A 5Z21M1306 | A 5T21M1306 | | | 6 | | | | | M3 |
| A 5Z23M2508 | A 5T23M2508 | A 5R23M25 | 27.4 | 8 | 39.7 | 17.5 | 25.4 | 9.5 | M5 |
| A 5Z23M2510 | A 5T23M2510 | | | 10 | | | | | M6 |
| A 5Z23M2512 | A 5T23M2512 | | | 12 | | | | | M6 |

| Sleeve Stock Catalog Number | O.D. | Length |
|-----------------------------|------|--------|
| A 5R21M13S | 13 | 250 |
| A 5R23M25S | 25 | 300 |



TWO-PIECE JUNIOR COUPLINGS



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

CROWNED GEAR TEETH
 CHEMICAL-RESISTANT NYLON
 NO NEED FOR LUBRICATION
 ELECTRICALLY ISOLATED



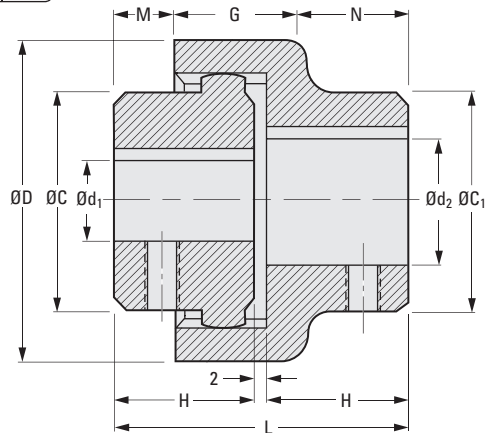
➤ **MATERIAL:**
 Nylon

➤ **OPERATING TEMPERATURE:**
 -25°C to +100°C

➤ **MAX. OPERATING SPEED:**
 6000 rpm

Keyway Dimensions

| Bore | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
|------|---|---|-----|-----|-----|-----|-----|-----|
| w | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 6 |
| t | 1 | 1 | 1.4 | 1.8 | 2.3 | 2.3 | 2.8 | 2.8 |



METRIC COMPONENT

| Catalog Number | d ₁ Bore | d ₂ Bore | C | C ₁ | D | H | L | M | N | G | Torque N • m | |
|--------------------------|------------------------|------------------------|----|----------------|----|----|----|----|----|----|-----------------|------|
| | | | | | | | | | | | Nom. | Max. |
| BoWex® Size JR-14 | | | | | | | | | | | | |
| S5911YMJR140610 | 6 | 10 | 22 | 25 | 40 | 23 | 48 | 8 | 17 | 23 | 5 | 10 |
| S5911YMJR140810 | 8 | 10 | 22 | 25 | 40 | 23 | 48 | 8 | 17 | 23 | 5 | 10 |
| S5911YMJR141010 | 10 | 10 | 25 | 25 | 40 | 23 | 48 | 8 | 17 | 23 | 5 | 10 |
| S5911YMJR141212 | 12 | 12 | 26 | 26 | 40 | 23 | 48 | 8 | 17 | 23 | 5 | 10 |
| S5911YMJR141214 | 12 | 14 | 26 | 26 | 40 | 23 | 48 | 8 | 17 | 23 | 5 | 10 |
| S5911YMJR141414 | 14 | 14 | 26 | 26 | 40 | 23 | 48 | 8 | 17 | 23 | 5 | 10 |
| BoWex® Size JR-19 | | | | | | | | | | | | |
| S5911YMJR191214 | 12 | 14 | 27 | 29 | 48 | 25 | 52 | 10 | 19 | 23 | 8 | 16 |
| S5911YMJR191414 | 14 | 14 | 27 | 29 | 48 | 25 | 52 | 10 | 19 | 23 | 8 | 16 |
| S5911YMJR191614 | 16 | 14 | 30 | 29 | 48 | 25 | 52 | 10 | 19 | 23 | 8 | 16 |
| BoWex® Size JR-24 | | | | | | | | | | | | |
| S5911YMJR241014 | 10 | 14 | 26 | 32 | 52 | 26 | 54 | 9 | 20 | 25 | 12 | 24 |
| S5911YMJR241214 | 12 | 14 | 26 | 32 | 52 | 26 | 54 | 9 | 20 | 25 | 12 | 24 |
| S5911YMJR241414 | 14 | 14 | 32 | 32 | 52 | 26 | 54 | 9 | 20 | 25 | 12 | 24 |
| S5911YMJR241614 | 16 | 14 | 32 | 32 | 52 | 26 | 54 | 9 | 20 | 25 | 12 | 24 |
| S5911YMJR241820 | 18 | 20 | 36 | 36 | 52 | 26 | 54 | 9 | 20 | 25 | 12 | 24 |
| S5911YMJR242020 | 20 | 20 | 36 | 36 | 52 | 26 | 54 | 9 | 20 | 25 | 12 | 24 |

NOTES: 1. Hub diameters (C, C₁) are not to exceed dimensions; some smaller bores may have smaller hub diameters.
 2. M5 set-screw, located 180° opposite from keyway.



THREE-PIECE JUNIOR COUPLINGS

SDP/SI

CROWNED GEAR TEETH
 CHEMICAL-RESISTANT NYLON
 NO NEED FOR LUBRICATION
 ELECTRICALLY ISOLATED

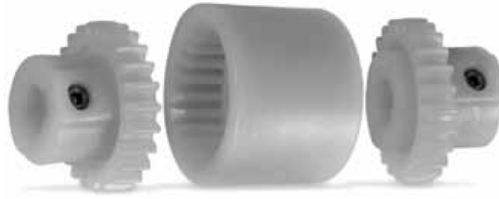
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



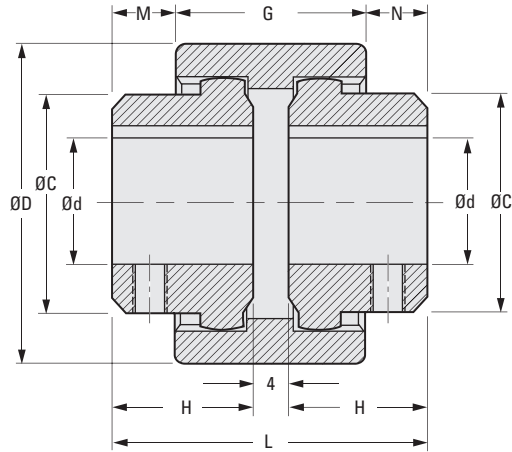
➤ **MATERIAL:**
 Nylon

➤ **OPERATING TEMPERATURE:**
 -25°C to +100°C

➤ **MAX. OPERATING SPEED:**
 6000 rpm



| Keyway Dimensions | | | | | | | | |
|-------------------|---|---|-----|-----|-----|-----|-----|-----|
| Bore | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| w | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 6 |
| t | 1 | 1 | 1.4 | 1.8 | 2.3 | 2.3 | 2.8 | 2.8 |



METRIC COMPONENT

| Catalog Number | d Bore | C | D | H | L | M/N | G | Torque N • m | |
|---------------------------|-----------|----|----|----|----|-----|----|-----------------|------|
| | | | | | | | | Nom. | Max. |
| BoWex® Size JRM-14 | | | | | | | | | |
| S5911YMJRM1406 | 6 | 22 | 40 | 23 | 50 | 6.5 | 37 | 5 | 10 |
| S5911YMJRM1408 | 8 | 22 | 40 | 23 | 50 | 6.5 | 37 | 5 | 10 |
| S5911YMJRM1410 | 10 | 25 | 40 | 23 | 50 | 6.5 | 37 | 5 | 10 |
| S5911YMJRM1412 | 12 | 26 | 40 | 23 | 50 | 6.5 | 37 | 5 | 10 |
| S5911YMJRM1414 | 14 | 26 | 40 | 23 | 50 | 6.5 | 37 | 5 | 10 |
| BoWex® Size JRM-19 | | | | | | | | | |
| S5911YMJRM1912 | 12 | 27 | 48 | 25 | 54 | 8.5 | 37 | 8 | 16 |
| S5911YMJRM1914 | 14 | 27 | 48 | 25 | 54 | 8.5 | 37 | 8 | 16 |
| S5911YMJRM1916 | 16 | 30 | 48 | 25 | 54 | 8.5 | 37 | 8 | 16 |
| BoWex® Size JRM-24 | | | | | | | | | |
| S5911YMJRM2410 | 10 | 26 | 52 | 26 | 56 | 7.5 | 41 | 12 | 24 |
| S5911YMJRM2412 | 12 | 26 | 52 | 26 | 56 | 7.5 | 41 | 12 | 24 |
| S5911YMJRM2414 | 14 | 32 | 52 | 26 | 56 | 7.5 | 41 | 12 | 24 |
| S5911YMJRM2416 | 16 | 32 | 52 | 26 | 56 | 7.5 | 41 | 12 | 24 |
| S5911YMJRM2418 | 18 | 36 | 52 | 26 | 56 | 7.5 | 41 | 12 | 24 |
| S5911YMJRM2420 | 20 | 36 | 52 | 26 | 56 | 7.5 | 41 | 12 | 24 |

NOTES: 1. Hub diameters (C) are not to exceed dimensions; some smaller bores may have smaller hub diameters.
 2. M5 set-screw, located 180° opposite from keyway.

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"K" TYPE FLEXIBLE COUPLINGS

SDP/SI

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

› **MATERIAL:**

Hubs - Steel, Zinc Plated
Body - Polyurethane

› **OPERATING TEMPERATURE:**

-20°C to +60°C

› **FEATURES:**

Speeds up to 3600 rpm.
Tough polyurethane material is strong, flexible, cut- and tear-resistant.
Unique configuration gives maximum flexibility.
Generous radius for added strength.
Ozone-proof.
Full wraparound design stays securely in hub.

› **HUB FEATURES:**

Annealed steel for maximum strength
Zinc plating to resist corrosion
Inside hub to decrease overall length
Rounded corners to prevent cutting
Precision swaged mechanical crimp
Accommodates standard size set screws

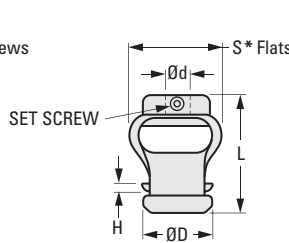


Fig. 1
Standard Hub

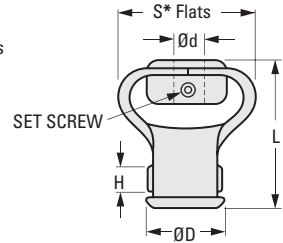


Fig. 2
Inverted Hub

METRIC COMPONENT

| Catalog Number | S* | | d Bore +0.05 0 | D Dia. | H | L | Set Screw | Max. Torque Capacity N • m | Max. Angular Offset | Max. Lateral Offset |
|----------------------------|-------|--------|-------------------------|-----------|-----|----|--------------|-------------------------------------|---------------------------|---------------------------|
| | Flats | Points | | | | | | | | |
| Fig. 1 Standard Hub | | | | | | | | | | |
| A 5Z 7M10606 | 24 | 28 | 6 | 17.5 | 0.8 | 30 | M3 | 0.4 | 10° | 2.4 |
| A 5Z 7M10808 | 24 | 28 | 8 | 17.5 | 0.8 | 30 | M3 | 0.4 | 10° | 2.4 |
| A 5Z 7M11010 | 24 | 28 | 10 | 17.5 | 0.8 | 30 | M3 | 0.4 | 10° | 2.4 |
| Fig. 2 Inverted Hub | | | | | | | | | | |
| A 5Z 7M21010 | 43 | 47 | 10 | 25.4 | 8.5 | 48 | M5 | 1.4 | 15° | 3.2 |
| A 5Z 7M21414 | 43 | 47 | 14 | 25.4 | 8.5 | 48 | M5 | 1.4 | 15° | 3.2 |
| A 5Z 7M41414 | 50 | 54 | 14 | 28.5 | 9.8 | 59 | M6 | 3.2 | 15° | 3.2 |
| A 5Z 7M41616 | 50 | 54 | 16 | 28.5 | 9.8 | 59 | M6 | 3.2 | 15° | 3.2 |

"K" TYPE FLEXIBLE COUPLINGS

SDP/SI

ADJUSTS TO PARALLEL AND ANGULAR MISALIGNMENT
 REDUCES BEARING LOADS
 ADJUSTS TO AXIAL END PLAY
 DAMPENS VIBRATION AND MOTOR NOISE
 PROVIDES A POSITIVE DRIVE CONNECTION WITH ZERO BACKLASH

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Hubs - Steel, Zinc Plated
 Body - Polyurethane

> OPERATING TEMPERATURE:

-18°C to +83°C

> FEATURES:

Speeds up to 3600 rpm.
 Tough polyurethane material is strong, flexible, cut- and tear-resistant.
 Unique configuration gives maximum flexibility.
 Generous radius for added strength.
 Ozone-proof.
 Full wraparound design stays securely in hub.

> HUB FEATURES:

Annealed steel for maximum strength
 Zinc plating to resist corrosion
 Inside hub to decrease overall length
 Rounded corners to prevent cutting
 Precision swaged mechanical crimp
 Accommodates standard size set screws

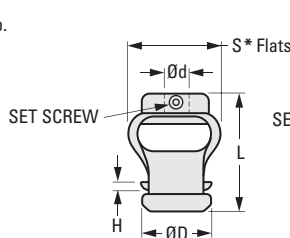


Fig. 1
Standard Hub

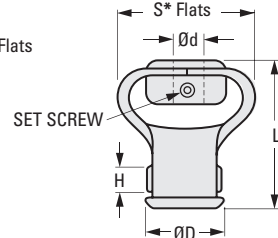


Fig. 2
Inverted Hub

METRIC COMPONENT

| Catalog Number | S* | | d Bore +0.05 0 | D Dia. | H | L | Set Screw | Max. Torque Capacity N • m | Max. Angular Misalign. | Max. Parallel Offset |
|----------------------------|-------|--------|----------------------|--------|-----|-------|-----------|-------------------------------|------------------------|----------------------|
| | Flats | Points | | | | | | | | |
| Fig. 1 Standard Hub | | | | | | | | | | |
| A 5Z 7MS10505 | 22.25 | 25.4 | 5 | 17.5 | 1.6 | 28.6 | M4 | 0.34 | 10° | 2.38 |
| A 5Z 7MS10606 | 22.25 | 25.4 | 6 | 17.5 | 1.6 | 28.6 | M4 | 0.34 | 10° | 2.38 |
| A 5Z 7MS10808 | 22.25 | 25.4 | 8 | 17.5 | 1.6 | 28.6 | M4 | 0.34 | 10° | 2.38 |
| Fig. 2 Inverted Hub | | | | | | | | | | |
| A 5Z 7MS21010 | 42.87 | 47.5 | 10 | 25.4 | 9.5 | 50.8 | M5 | 1.36 | 15° | 3 |
| A 5Z 7MS21212 | 42.87 | 47.5 | 12 | 25.4 | 9.5 | 50.8 | M5 | 1.36 | 15° | 3 |
| A 5Z 7MS31010 | 46 | 53.85 | 10 | 31.75 | 11 | 57.15 | M6 | 3.16 | 15° | 4.75 |
| A 5Z 7MS31212 | 46 | 53.85 | 12 | 31.75 | 11 | 57.15 | M6 | 3.16 | 15° | 4.75 |
| A 5Z 7MS31414 | 46 | 53.85 | 14 | 31.75 | 11 | 57.15 | M6 | 3.16 | 15° | 4.75 |
| A 5Z 7MS41414 | 50.8 | 54.61 | 14 | 31.75 | 9.5 | 61.9 | M6 | 4.52 | 15° | 3 |
| A 5Z 7MS41616 | 50.8 | 54.61 | 16 | 31.75 | 9.5 | 61.9 | M6 | 4.52 | 15° | 3 |

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MINIATURE BALL COUPLINGS



UP TO 15° ANGULAR MISALIGNMENT
ACCOMMODATES AXIAL MOTION
HI-SPEED OPERATION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

303 Stainless Steel

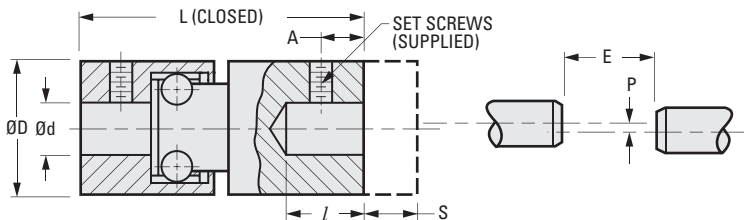
> LUBRICATION:

Molybdenum disulphide and grease

> FEATURES:

- Allows angular and lateral misalignment and axial motion
- A constant-velocity assembly
- Exhibits low friction loss
- Has a low moment of inertia
- Backlash 1° to 2°

Units with other bores and/or with greater axial travel available on special order.



| Misalignment Vs. Speed & Torque | | |
|---------------------------------|-----------|-------------------|
| Angular Misalignment Degrees | Speed rpm | Percentage Torque |
| 5° | 20000 | 100% |
| 6° - 10° | 10000 | 50% |
| 11° - 15° | 5000 | 44% |

| Maximum Operating Conditions [◇] | | | | |
|---|--------------|-----------------------|---------------------|------------------------|
| D Dia. | Torque N • m | P Max. Lateral Offset | S Max. Axial Motion | E Axial Shaft Distance |
| 5.6 | 0.7 | 0.5 | 3 | 9.5 |
| 7.9 | 1.4 | 0.8 | 3 | 10.3 |
| 11.1 | 4.2 | 1.3 | 3 | 12.7 |
| 14.3 | 11.3 | 1.8 | 3 | 17.5 |
| 25.4 | 22.6 | 1.8 | 3 | 20.6 |

[◇]Angular offset under max. operating conditions is 5°.

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | l Typ | L Closed | Set Screw | |
|-----------------|--------|-----------------|-------|----------|--------------------|----------------|
| | | | | | A ^Δ Typ | Hex Socket Typ |
| S58PY5MMJC0206 | 5.6 | 2 | 3.6 | 15.9 | 1.5 | #2-56 |
| S58PY5MMJC0306 | 5.6 | 3 | 3.6 | 15.9 | 1.5 | #2-56 |
| S58PY5MMJC0308 | 7.9 | 3 | 4 | 18.3 | 2 | #2-56 |
| S58PY5MMJC0411 | 11.1 | 4 | 4.8 | 22.2 | 2.8 | #4-40 |
| S58PY5MMJC0511 | 11.1 | 5 | 4.8 | 22.2 | 2.8 | #4-40 |
| S58PY5MMJC0611 | 11.1 | 6 | 4.8 | 22.2 | 2.8 | #4-40 |
| S58PY5MMJC0614 | 14.3 | 6 | 7.9 | 33.3 | 4.1 | #10-32 |
| S58PY5MMJC0814 | 14.3 | 8 | 7.9 | 33.3 | 4.1 | #10-32 |
| S58PY5MMJC1014 | 14.3 | 10 | 7.9 | 33.3 | 4.1 | #10-32 |
| *S58PY5MMJC1025 | 25.4 | 10 | 13.5 | 47.6 | 6.4 | 1/4-20 |
| *S58PY5MMJC1225 | 25.4 | 12 | 13.5 | 47.6 | 6.4 | 1/4-20 |
| *S58PY5MMJC1425 | 25.4 | 14 | 13.5 | 47.6 | 6.4 | 1/4-20 |
| *S58PY5MMJC1625 | 25.4 | 16 | 13.5 | 47.6 | 6.4 | 1/4-20 |

*These couplings utilize four ball races for smoother operation and larger torque capacity.
^ΔAngular relationship between tapped holes may vary freely.

SHOCK ABSORBING

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› **MATERIAL:**

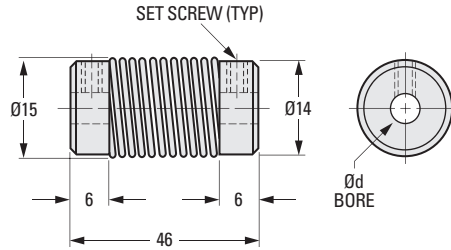
Hub - Aluminum Alloy
Spring - 303 Series Stainless Steel Oval Section

› **MISALIGNMENT COMPENSATION:**

Max. Angular Offset: 20°
Max. Lateral Offset: .030

› **FEATURES:**

Protects gear and timing belt drives from excessive shock loads.
 Suitable for high-speed drives.
 Not affected by heat or oils.
 Will accommodate shafts that are angularly or laterally offset.



METRIC COMPONENT

| Catalog Number * | d Bore +0.025 0 | Set Screw | Max. Torque N • m | Radial Deflection °/0.113 N • m |
|------------------|-----------------------|-----------|----------------------|------------------------------------|
| A 5Z26M0505 | 5 | M2.5 | 1.4 | 3° |
| A 5Z26M0606 | 6 | M3 | 1.4 | 3° |

*To be discontinued when present stock is depleted.

WITHOUT CASING

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> MATERIAL:

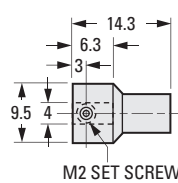
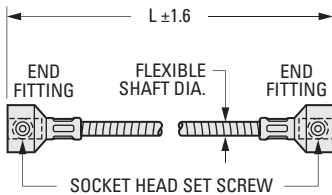
Flexible Cable - Stainless Steel
End Fittings - Stainless Steel



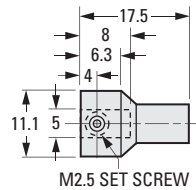
> PERFORMANCE DATA:

| Shaft Dia. | Mode of Operation | Operating Torque Capacity, Winding and Unwinding Directions (N•m) Input | | | | | | | | Maximum Torsional Deflection at Load Indicated (Degrees per 30 cm of Shaft) | | |
|------------|-------------------|---|------|------|------|------|------|------|------|---|---------|-----------|
| | | Radius of Curvature | | | | | | | | N•m | Winding | Unwinding |
| | | 625 | 500 | 375 | 300 | 250 | 200 | 150 | 100 | | | |
| 3.3 | Manual | 1.12 | 1.08 | 1.01 | 0.94 | 0.87 | 0.76 | 0.59 | 0.24 | 0.113 | 11 | 20 |
| 3.3 | Dynamic | 0.65 | 0.63 | 0.59 | 0.55 | 0.51 | 0.44 | 0.34 | 0.14 | 0.113 | 11 | 20 |
| 3.8 | Manual | 1.69 | 1.63 | 1.52 | 1.42 | 1.31 | 1.15 | 0.89 | 0.36 | 0.113 | 7 | 10 |
| 3.8 | Dynamic | 0.99 | 0.95 | 0.89 | 0.83 | 0.77 | 0.67 | 0.52 | 0.21 | 0.113 | 7 | 10 |
| 4.8 | Manual | 2.89 | 2.78 | 2.6 | 2.42 | 2.24 | 1.97 | 1.52 | 0.62 | 0.113 | 2.7 | 4.8 |
| 4.8 | Dynamic | 1.69 | 1.62 | 1.52 | 1.41 | 1.31 | 1.15 | 0.89 | 0.36 | 0.113 | 2.7 | 4.8 |
| 6.4 | Manual | 7.32 | 6.94 | 6.32 | 5.69 | 5.06 | 4.12 | 2.55 | — | 1.13 | 9 | 12.6 |
| 6.4 | Dynamic | 4.27 | 4.05 | 3.68 | 3.32 | 2.95 | 2.4 | 1.49 | — | 1.13 | 9 | 12.6 |

SPECIAL ORDERS for Many Combinations of Fittings and Lengths Accepted.



M2 SET SCREW
End Fitting No. 1

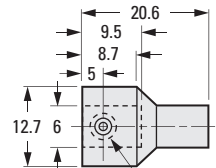


M2.5 SET SCREW
End Fitting No. 2

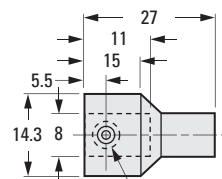
The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Flexible Shaft Diameter | L Length mm | End Fitting Number | Screw Size |
|----------------|-------------------------|-------------|--------------------|------------|
| S55S7MFSF33075 | 3.3 | 75 | 1 | M2 |
| S55S7MFG33075 | 3.3 | 75 | 2 | M2.5 |
| S55S7MFSF33100 | 3.3 | 100 | 1 | M2 |
| S55S7MFG33100 | 3.3 | 100 | 2 | M2.5 |
| S55S7MFG33125 | 3.3 | 125 | 2 | M2.5 |
| S55S7MFSH33125 | 3.3 | 125 | 3 | M3 |
| S55S7MFSH33150 | 3.3 | 150 | 3 | M3 |
| S55S7MFSH33200 | 3.3 | 200 | 3 | M3 |
| S55S7MFG38100 | 3.8 | 100 | 2 | M2.5 |
| S55S7MFG38125 | 3.8 | 125 | 2 | M2.5 |
| S55S7MFSH38125 | 3.8 | 125 | 3 | M3 |
| S55S7MFSH38150 | 3.8 | 150 | 3 | M3 |
| S55S7MFSH38200 | 3.8 | 200 | 3 | M3 |
| S55S7MFSH38250 | 3.8 | 250 | 3 | M3 |
| S55S7MFSH38300 | 3.8 | 300 | 3 | M3 |
| S55S7MFG48200 | 4.8 | 200 | 2 | M2.5 |
| S55S7MFSH48250 | 4.8 | 250 | 3 | M3 |
| S55S7MFSH48300 | 4.8 | 300 | 3 | M3 |
| S55S7MFSH64300 | 6.4 | 300 | 3 | M3 |
| S55S7MFSK64350 | 6.4 | 350 | 4 | M4 |



M3 SET SCREW
End Fitting No. 3



M4 2 SET SCREWS
End Fitting No. 4

WITHOUT CASING

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> MATERIAL:

Flexible Cable - Steel
End Fittings - Plated Steel

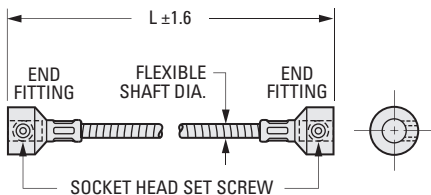


> PERFORMANCE DATA:

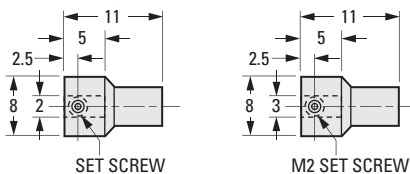
| Shaft Dia. | Mode of Operation | Operating Torque Capacity, Winding and Unwinding Directions (N•m) Input | | | | | | | | | | | Maximum Torsional Deflection at Load Indicated (Degrees per 30 cm of Shaft) | | |
|------------|-------------------|---|------|------|------|------|------|------|------|------|------|------|---|---------|-----------|
| | | Radius of Curvature | | | | | | | | | | | N•m | Winding | Unwinding |
| | | 625 | 500 | 375 | 300 | 250 | 200 | 150 | 100 | 62 | 50 | 38 | | | |
| 1.7 | Dynamic | - | - | - | - | 0.07 | 0.06 | 0.05 | 0.04 | * | - | - | 0.113 | 80 | 250 |
| Δ 3.3A | Manual | - | - | - | - | - | - | - | 0.22 | 0.17 | 0.13 | 0.06 | 0.113 | 40 | 50 |
| 3.3 | Manual | - | - | - | 0.86 | 0.8 | 0.75 | 0.63 | 0.41 | - | - | - | 0.113 | 13 | 13 |
| 3.3 | Dynamic | - | - | - | 0.43 | 0.41 | 0.37 | 0.32 | 0.2 | - | - | - | 0.113 | 13 | 13 |
| 3.8 | Manual | - | 2.36 | 2.2 | 2.08 | 1.94 | 1.73 | 1.37 | 0.7 | - | - | - | 0.113 | 6 | 6 |
| 3.8 | Dynamic | - | 1.19 | 1.11 | 1.04 | 0.97 | 0.87 | 0.69 | 0.35 | - | - | - | 0.113 | 6 | 6 |
| 4.8 | Manual | - | 3.77 | 3.55 | 3.22 | 3.12 | 2.8 | 2.24 | 1.13 | - | - | - | 0.113 | 3 | 3.3 |
| 4.8 | Dynamic | - | 1.89 | 1.77 | 1.66 | 1.56 | 1.4 | 1.12 | 0.57 | - | - | - | 0.113 | 3 | 3.3 |
| 6.4 | Manual | 10.51 | 9.79 | 9.38 | 8.59 | 7.91 | 7.01 | 5.09 | - | - | - | - | 1.13 | 10 | 13 |
| 6.4 | Dynamic | 5.31 | 4.63 | 4.63 | 4.29 | 3.96 | 3.5 | 2.6 | - | - | - | - | 1.13 | 10 | 13 |

SPECIAL ORDERS for Many Combinations of Fittings and Lengths Accepted.

* Can be operated manually to radius indicated with torsional breaking strength of 0.68 N • m clockwise.
Δ Can be used in dynamic mode if shaft length is shortened (approximately 50 mm long).



The projections shown are per ISO convention.

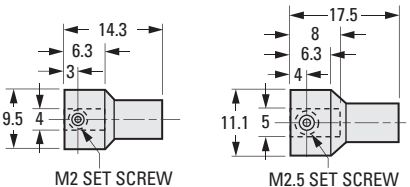


SET SCREW

M2 SET SCREW

End Fitting No. 1A

End Fitting No. 1B

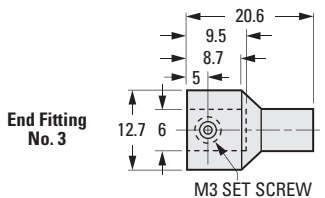


M2 SET SCREW

M2.5 SET SCREW

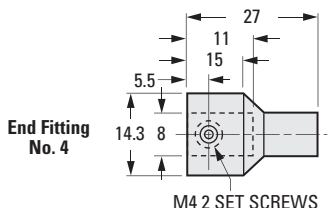
End Fitting No. 1

End Fitting No. 2



End Fitting No. 3

M3 SET SCREW



End Fitting No. 4

M4 2 SET SCREWS

METRIC COMPONENT

| Catalog Number | Flexible Shaft Diameter | L Length mm | End Fitting Number |
|-----------------|-------------------------|-------------|--------------------|
| A 7C12M1705011 | 1.7 | 50 | 1A |
| A 7C12M1707611 | 1.7 | 76 | 1B |
| A 7C12M1710211 | 1.7 | 102 | 1B |
| A 7C12M3307611A | 3.3A | 76 | 1 |
| A 7C12M3312722A | 3.3A | 127 | 2 |
| A 7C12M3320333A | 3.3A | 203 | 3 |
| A 7C12M3307622 | 3.3 | 76 | 2 |
| A 7C12M3312733 | 3.3 | 127 | 3 |
| A 7C12M3320333 | 3.3 | 203 | 3 |
| A 7C12M3810222 | 3.8 | 102 | 2 |
| A 7C12M3815233 | 3.8 | 152 | 3 |
| A 7C12M3820333 | 3.8 | 203 | 3 |
| A 7C12M3830533 | 3.8 | 305 | 3 |
| A 7C12M4825433 | 4.8 | 254 | 3 |
| A 7C12M4830533 | 4.8 | 305 | 3 |
| A 7C12M6430533 | 6.4 | 305 | 3 |
| A 7C12M6435544 | 6.4 | 355 | 4 |

NOTE: 3.3A diameter shaft has a greater degree of flexibility.

WITHOUT CASING
PANEL MOUNTING

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➤ **MATERIAL:**

Flexible Cable - Steel
End Fittings - Plated Steel



➤ **PERFORMANCE DATA:**

| Shaft Dia. | Mode of Operation | Operating Torque Capacity, Winding and Unwinding Directions (N • m) Input | | | | | | | | | | Maximum Torsional Deflection at Load Indicated (Degrees per 30 cm of Shaft) | | |
|------------|-------------------|---|------|------|------|------|------|------|------|------|------|---|---------|-----------|
| | | Radius of Curvature | | | | | | | | | | N • m | Winding | Unwinding |
| | | 500 | 375 | 300 | 250 | 200 | 150 | 100 | 62 | 50 | 38 | | | |
| 3.3A | Manual | — | — | — | — | — | — | 0.22 | 0.17 | 0.13 | 0.06 | 0.113 | 40 | 50 |
| 3.3 | Manual | — | — | 0.86 | 0.8 | 0.75 | 0.63 | 0.41 | — | — | — | 0.113 | 13 | 13 |
| 3.8 | Manual | 2.36 | 2.2 | 2.08 | 1.94 | 1.72 | 1.36 | 0.7 | — | — | — | 0.113 | 6 | 6 |
| 4.8 | Manual | 3.78 | 3.55 | 3.32 | 3.12 | 2.8 | 2.24 | 1.13 | — | — | — | 0.113 | 3 | 3.3 |

SPECIAL ORDERS for Many Combinations of Fittings and Lengths Accepted.

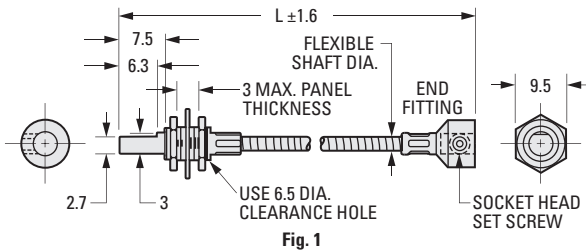
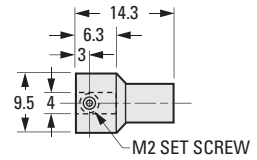


Fig. 1



End Fitting No. 1

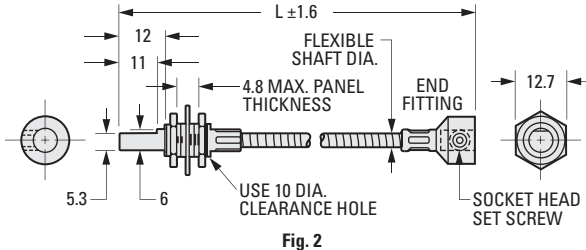
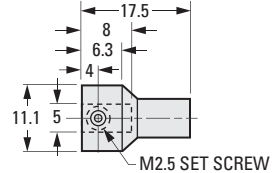


Fig. 2

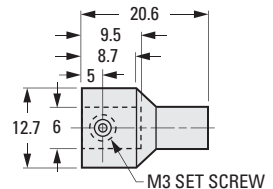


End Fitting No. 2

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Flexible Shaft Diameter | L Length mm | End Fitting Number |
|-----------------|-------------------------|-------------|--------------------|
| Fig. 1 | | | |
| A 7C13M3307611A | 3.3A | 76 | 1 |
| A 7C13M3310222A | 3.3A | 102 | 2 |
| Fig. 2 | | | |
| A 7C13M3307611 | 3.3 | 76 | 1 |
| A 7C13M3310222 | 3.3 | 102 | 2 |
| A 7C13M3812722 | 3.8 | 127 | 2 |
| A 7C13M3820333 | 3.8 | 203 | 3 |
| A 7C13M4822822 | 4.8 | 228 | 2 |
| A 7C13M4820333 | 4.8 | 203 | 3 |
| A 7C13M4835533 | 4.8 | 355 | 3 |



End Fitting No. 3

NOTE: 3.3A diameter shaft has a greater degree of flexibility.

ADJUSTABLE
NONMARRING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

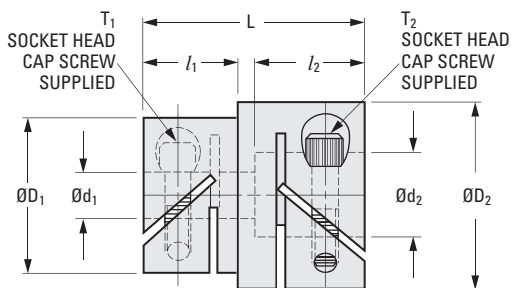
303 Stainless Steel

> SPECIFICATIONS:

d₁, d₂ Tolerance:
2.5 & 3 mm +0.01/0
4, 5 & 6 mm +0.012/0
8 & 10 mm +0.015/0
12 mm +0.018/0

d₁ and d₂ bores concentric to within 0.025 mm T.I.R.
Fairloc® hubs require controlled shaft tolerances.
Suggested tolerance according to g6, h6 or h7.

Other sizes and material available on special order.



METRIC COMPONENT

| Catalog Number | d ₁ Bore H7 | d ₂ Bore H7 | D ₁ Dia. | D ₂ Dia. | L | l ₁ | l ₂ | T ₁ | T ₂ | Max. Clear. Radius | Max. Torque N • m |
|----------------|------------------------|------------------------|---------------------|---------------------|----|----------------|----------------|----------------|----------------|--------------------|-------------------|
| S51FCZM025030 | 2.5 | 3 | 11 | 11 | 19 | — | 9 | M2 | M2 | 6.4 | 0.4 |
| S51FCZM025040 | 2.5 | 4 | 11 | 14 | 19 | 8 | 9 | M2 | M2.5 | 8.3 | 0.4 |
| S51FCZM025050 | 2.5 | 5 | 11 | 14 | 19 | 8 | 9 | M2 | M2.5 | 8.3 | 0.4 |
| S51FCZM030030 | 3 | 3 | 11 | 11 | 19 | — | — | M2 | M2 | 6.4 | 0.45 |
| S51FCZM030040 | 3 | 4 | 11 | 14 | 19 | 8 | 9 | M2 | M2.5 | 8.3 | 0.45 |
| S51FCZM030050 | 3 | 5 | 11 | 14 | 19 | 8 | 9 | M2 | M2.5 | 8.3 | 0.45 |
| S51FCZM030060 | 3 | 6 | 11 | 17 | 21 | 8 | 11 | M2 | M3 | 11.3 | 0.45 |
| S51FCZM040040 | 4 | 4 | 14 | 14 | 19 | — | — | M2.5 | M2.5 | 8.3 | 0.57 |
| S51FCZM040050 | 4 | 5 | 14 | 14 | 19 | — | 9 | M2.5 | M2.5 | 8.3 | 0.57 |
| S51FCZM040060 | 4 | 6 | 14 | 17 | 21 | 8 | 11 | M2.5 | M3 | 11.3 | 0.57 |
| S51FCZM040080 | 4 | 8 | 14 | 17 | 21 | 8 | 11 | M2.5 | M3 | 11.3 | 0.57 |
| S51FCZM050050 | 5 | 5 | 14 | 14 | 19 | — | — | M2.5 | M2.5 | 8.3 | 0.9 |
| S51FCZM050060 | 5 | 6 | 14 | 17 | 21 | 8 | 11 | M2.5 | M3 | 11.3 | 0.9 |
| S51FCZM050080 | 5 | 8 | 14 | 17 | 21 | 8 | 11 | M2.5 | M3 | 11.3 | 0.9 |
| S51FCZM050100 | 5 | 10 | 14 | 24 | 25 | 8 | 15 | M2.5 | M4 | 14 | 0.9 |
| S51FCZM060060 | 6 | 6 | 17 | 17 | 23 | — | — | M3 | M3 | 11.3 | 1.3 |
| S51FCZM060080 | 6 | 8 | 17 | 17 | 23 | — | 12 | M3 | M3 | 11.3 | 1.3 |
| S51FCZM060100 | 6 | 10 | 17 | 24 | 27 | 10 | 15 | M3 | M4 | 14 | 1.3 |
| S51FCZM060120 | 6 | 12 | 17 | 26 | 30 | 10 | 18 | M3 | M4 | 15.1 | 1.3 |
| S51FCZM080080 | 8 | 8 | 17 | 17 | 23 | — | — | M3 | M3 | 11.3 | 2.6 |
| S51FCZM080100 | 8 | 10 | 17 | 24 | 27 | 10 | 15 | M3 | M4 | 14 | 2.6 |
| S51FCZM080120 | 8 | 12 | 17 | 26 | 30 | 10 | 18 | M3 | M4 | 15.1 | 2.6 |
| S51FCZM100100 | 10 | 10 | 24 | 24 | 35 | — | — | M4 | M4 | 14 | 3.5 |
| S51FCZM100120 | 10 | 12 | 24 | 26 | 35 | 14 | 18 | M4 | M4 | 15.1 | 3.5 |
| S51FCZM120120 | 12 | 12 | 26 | 26 | 38 | — | — | M4 | M4 | 15.1 | 5.1 |

► **MATERIAL:**

Aluminum, Chromic Acid Anodized
 Brass, Black Oxide Finish
 303 Stainless Steel

► **SPECIFICATIONS:**

Set screws supplied.
 Bores d & d_1 concentric to within
 0.013 mm T.I.R.

Bore Tolerance:

2.5 & 3 mm +0.01/0
 4, 5 & 6 mm +0.012/0
 8 & 10 mm +0.015/0
 12 & 15 mm +0.018/0



0 10

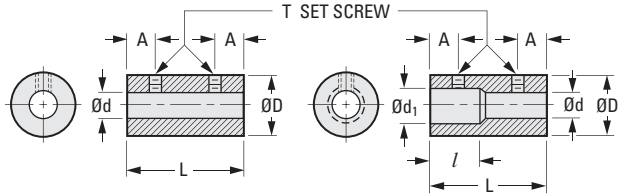


Fig. 1

Fig. 2

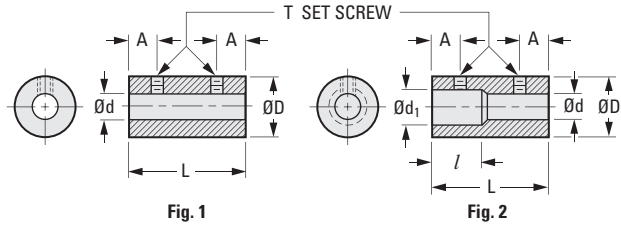
The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | | D Dia. | d Bore H7 | d ₁ Bore H7 | l | A | L | T |
|----------------|---------------|-----------------|--------|-----------|------------------------|------|---|----|----|
| Aluminum | Brass | Stainless Steel | | | | | | | |
| Fig. 1 | | | | | | | | | |
| S51CAYM025025 | S51CBYM025025 | S51CYYM025025 | 8 | 2.5 | - | - | 3 | 12 | M2 |
| S51CAYM030030 | S51CBYM030030 | S51CYYM030030 | 9 | 3 | - | - | 3 | 12 | M2 |
| S51CAYM040040 | S51CBYM040040 | S51CYYM040040 | 11 | 4 | - | - | 3 | 12 | M3 |
| S51CAYM050050 | S51CBYM050050 | S51CYYM050050 | 12 | 5 | - | - | 5 | 20 | M3 |
| S51CAYM060060 | S51CBYM060060 | S51CYYM060060 | 13 | 6 | - | - | 5 | 20 | M4 |
| S51CAYM080080 | S51CBYM080080 | S51CYYM080080 | 16 | 8 | - | - | 5 | 20 | M4 |
| S51CAYM100100 | S51CBYM100100 | S51CYYM100100 | 19 | 10 | - | - | 5 | 20 | M6 |
| S51CAYM120120 | S51CBYM120120 | S51CYYM120120 | 22 | 12 | - | - | 5 | 20 | M6 |
| Fig. 2 | | | | | | | | | |
| S51CAYM025030 | S51CBYM025030 | S51CYYM025030 | 9 | 2.5 | 3 | 6 | 3 | 12 | M2 |
| S51CAYM025040 | S51CBYM025040 | S51CYYM025040 | 11 | 2.5 | 4 | 6 | 3 | 12 | M2 |
| S51CAYM030040 | S51CBYM030040 | S51CYYM030040 | 11 | 3 | 4 | 6 | 3 | 12 | M3 |
| S51CAYM030050 | S51CBYM030050 | S51CYYM030050 | 12 | 3 | 5 | 6 | 3 | 12 | M3 |
| S51CAYM040050 | S51CBYM040050 | S51CYYM040050 | 12 | 4 | 5 | 10 | 5 | 20 | M3 |
| S51CAYM040060 | S51CBYM040060 | S51CYYM040060 | 13 | 4 | 6 | 10 | 5 | 20 | M3 |
| S51CAYM050060 | S51CBYM050060 | S51CYYM050060 | 13 | 5 | 6 | 10 | 5 | 20 | M5 |
| S51CAYM050080 | S51CBYM050080 | S51CYYM050080 | 16 | 5 | 8 | 10 | 5 | 20 | M5 |
| S51CAYM050100 | S51CBYM050100 | S51CYYM050100 | 19 | 5 | 10 | 10 | 5 | 20 | M5 |
| S51CAYM060080 | S51CBYM060080 | S51CYYM060080 | 16 | 6 | 8 | 10 | 5 | 20 | M5 |
| S51CAYM060100 | S51CBYM060100 | S51CYYM060100 | 19 | 6 | 10 | 10 | 5 | 20 | M5 |
| S51CAYM060120 | S51CBYM060120 | S51CYYM060120 | 22 | 6 | 12 | 12.5 | 6 | 25 | M5 |
| S51CAYM080100 | S51CBYM080100 | S51CYYM080100 | 19 | 8 | 10 | 12.5 | 6 | 25 | M6 |
| S51CAYM080120 | S51CBYM080120 | S51CYYM080120 | 22 | 8 | 12 | 12.5 | 6 | 25 | M6 |
| S51CAYM100120 | S51CBYM100120 | S51CYYM100120 | 22 | 10 | 12 | 12.5 | 6 | 25 | M6 |
| S51CAYM100150 | S51CBYM100150 | S51CYYM100150 | 27 | 10 | 15 | 15 | 7 | 30 | M6 |

> MATERIAL:

303 Stainless Steel



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.05 0 | d ₁ Bore +0.05 0 | l | A | L Length | T Set Screw |
|----------------|--------|----------------------|-----------------------------------|------|------|----------|-------------|
| Fig. 1 | | | | | | | |
| A 5X 9M0101A | 7 | 0.8 | — | — | 1.75 | 7 | M1.6* |
| A 5X 9M0101 | 7 | 1 | — | — | 1.75 | 7 | M1.6* |
| A 5X 9M0101B | 8 | 1.5 | — | — | 2 | 8 | M1.6* |
| A 5X 9M0202 | 8 | 2 | — | — | 3 | 12 | M2 |
| A 5X 9M0303 | 9 | 3 | — | — | 4 | 16 | M2 |
| A 5X 9M0404 | 11 | 4 | — | — | 5 | 20 | M3 |
| A 5X 9M0606 | 13 | 6 | — | — | 5 | 20 | M4 |
| A 5X 9M0808 | 16 | 8 | — | — | 5 | 20 | M4 |
| A 5X 9M1010 | 19 | 10 | — | — | 5 | 20 | M6 |
| A 5X 9M1212 | 22 | 12 | — | — | 5 | 20 | M6 |
| Fig. 2 | | | | | | | |
| A 5X 9M0101C | 7.5 | 0.8 | 1.5 | 4 | 2 | 8 | M1.6* |
| A 5X 9M0102A | 8 | 0.8 | 2 | 5 | 2.5 | 10 | M1.6* |
| A 5X 9M0102B | 7.5 | 1 | 1.5 | 4 | 2 | 8 | M1.6* |
| A 5X 9M0102 | 8 | 1 | 2 | 5 | 2.5 | 10 | M1.6* |
| A 5X 9M0203 | 9 | 2 | 3 | 7 | 3.5 | 14 | M2 |
| A 5X 9M0204 | 10 | 2 | 4 | 8 | 4 | 16 | M2 |
| A 5X 9M0304 | 11 | 3 | 4 | 8 | 4 | 16 | M3 |
| A 5X 9M0305 | 11 | 3 | 5 | 10 | 5 | 20 | M3 |
| A 5X 9M0405 | 11 | 4 | 5 | 10 | 5 | 20 | M3 |
| A 5X 9M0406 | 13 | 4 | 6 | 10 | 5 | 20 | M3 |
| A 5X 9M0408 | 16 | 4 | 8 | 10 | 5 | 20 | M3 |
| A 5X 9M0608 | 16 | 6 | 8 | 10 | 6 | 25 | M5 |
| A 5X 9M0610 | 19 | 6 | 10 | 12.5 | 6 | 25 | M5 |
| A 5X 9M0612 | 19 | 6 | 12 | 12.5 | 6 | 25 | M6 |
| A 5X 9M0810 | 25 | 8 | 10 | 12.5 | 6 | 25 | M6 |
| A 5X 9M0812 | 25 | 8 | 12 | 12.5 | 6 | 25 | M6 |
| A 5X 9M1012 | 25 | 10 | 12 | 12.5 | 6 | 25 | M6 |

* Threaded holes pass through both walls.

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➤ MATERIAL:

303 Stainless Steel

➤ SPECIFICATIONS:

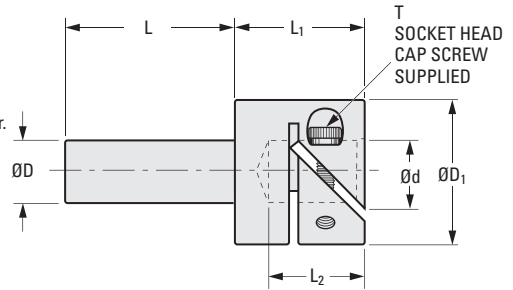
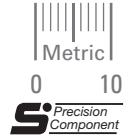
Bore Tolerance (H7):
 3 mm +0.01/0
 4, 5 & 6 mm +0.012/0
 8 & 10 mm +0.015/0
 12 mm +0.018/0

Shaft Tolerance (g6):
 3 mm -0.002/-0.008
 4, 5 & 6 mm -0.004/-0.012
 8 & 10 mm -0.005/-0.014
 12 mm -0.006/-0.017

d bores and D shaft concentric to within
 0.025 mm T.I.R.
 Fairloc® hubs require controlled mating
 shaft tolerances: g6, h6 or h7.

➤ MODIFICATIONS:

Metric to inch or inch to metric connections,
 other sizes and materials, available on special order.



METRIC COMPONENT

| Catalog Number | d Bore H7 | D Dia. g6 | D ₁ Dia. | L | L ₁ | L ₂ | T | Clear. Radius | Max. Torque N • m |
|----------------|-----------|-----------|---------------------|----|----------------|----------------|------|---------------|-------------------|
| S52FCYM030030 | 3 | 3 | 11 | 25 | 15 | 9 | M2 | 6.4 | 0.45 |
| S52FCYM030040 | 3 | 4 | 11 | 25 | 15 | 9 | M2 | 6.4 | 0.45 |
| S52FCYM030050 | 3 | 5 | 11 | 25 | 15 | 9 | M2 | 6.4 | 0.45 |
| S52FCYM040030 | 4 | 3 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.57 |
| S52FCYM040040 | 4 | 4 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.57 |
| S52FCYM040050 | 4 | 5 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.57 |
| S52FCYM050030 | 5 | 3 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM050040 | 5 | 4 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM050050 | 5 | 5 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM050060 | 5 | 6 | 14 | 25 | 15 | 9 | M2.5 | 8.3 | 0.9 |
| S52FCYM060040 | 6 | 4 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060050 | 6 | 5 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060060 | 6 | 6 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060080 | 6 | 8 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM060100 | 6 | 10 | 17 | 25 | 18 | 11 | M3 | 11.3 | 1.3 |
| S52FCYM080050 | 8 | 5 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080060 | 8 | 6 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080080 | 8 | 8 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080100 | 8 | 10 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM080120 | 8 | 12 | 17 | 25 | 18 | 11 | M3 | 11.3 | 2.6 |
| S52FCYM100060 | 10 | 6 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM100080 | 10 | 8 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM100100 | 10 | 10 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM100120 | 10 | 12 | 24 | 30 | 23 | 15 | M4 | 14 | 3.5 |
| S52FCYM120080 | 12 | 8 | 26 | 30 | 26 | 18 | M4 | 15.1 | 5.1 |
| S52FCYM120100 | 12 | 10 | 26 | 30 | 26 | 18 | M4 | 15.1 | 5.1 |
| S52FCYM120120 | 12 | 12 | 26 | 30 | 26 | 18 | M4 | 15.1 | 5.1 |

> CAUTION:

Be prepared for strong magnetic attraction between the magnet hubs.

> MATERIAL:

Hub - 416 Stainless Steel
Set Screw - Stainless Steel
Magnet - NdFeB, Nickel Plated

> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 3°
Max. Parallel Offset: 6.35 mm

> MAX. OPERATING TEMPERATURE:

+140°C

> SPECIFICATION:

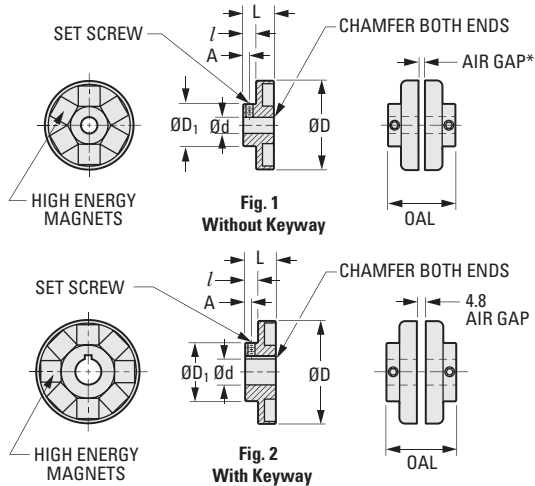
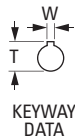
d Tolerance
5 & 6 mm +0.018/0
8 & 10 mm +0.022/0
11 & 12 mm +0.027/0

Air Gap*

Catalog Numbers
S50DCMM27: 3.2 mm
S50DCMM43: 4.8 mm
S50DCMM50: 4.8 mm

> TO MAKE COUPLING:

Select two hub halves with the same O.D. from the table below.



The projections shown are per ISO convention.

| Fig. 2 Keyway Dimensions | | |
|--------------------------|------|------|
| Bore | 11 | 12 |
| W Width (+0.05/0) | 4 | 4 |
| T Height (+0.25/0) | 12.8 | 13.8 |

METRIC COMPONENT

| Catalog Number | Fig. No. | D O.D. | d Bore H8 | D ₁ Hub Dia. | L | l ₁ Hub Length | A | Set Screw | No. of Magnets |
|----------------|----------|--------|-----------|-------------------------|----|---------------------------|---|-----------|----------------|
| S50DCMM27 | 1 | 27 | Solid | 20.6 | 16 | 6.35 | 3 | — | 6 |
| S50DCMM27H05 | 1 | 27 | 5 | 20.6 | 16 | 6.35 | 3 | M4 | 6 |
| S50DCMM27H06 | 1 | 27 | 6 | 20.6 | 16 | 6.35 | 3 | M4 | 6 |
| S50DCMM43 | 1 | 43.7 | Solid | 20.6 | 15 | 6.35 | 3 | — | 6 |
| S50DCMM43H05 | 1 | 43.7 | 5 | 20.6 | 15 | 6.35 | 3 | M4 | 6 |
| S50DCMM43H06 | 1 | 43.7 | 6 | 20.6 | 15 | 6.35 | 3 | M4 | 6 |
| S50DCMM50 | 1 | 50 | Solid | 28.5 | 15 | 6.35 | 3 | — | 8 |
| S50DCMM50H06 | 1 | 50 | 6 | 28.5 | 15 | 6.35 | 3 | M5 | 8 |
| S50DCMM50H08 | 1 | 50 | 8 | 28.5 | 15 | 6.35 | 3 | M5 | 8 |
| S50DCMM50H10 | 1 | 50 | 10 | 28.5 | 15 | 6.35 | 3 | M5 | 8 |
| S50DCMM50H11 | 2 | 50 | 11 | 28.5 | 15 | 6.35 | 3 | M5 | 8 |
| S50DCMM50H12 | 2 | 50 | 12 | 28.5 | 15 | 6.35 | 3 | M5 | 8 |

| Coupling Series (Ref. Only) | Specifications for Two Hub Halves | | | | | |
|-----------------------------|-----------------------------------|--------------|------------------------|----------|---------------|----------------|
| | OAL | Torque N • m | Breakaway Torque N • m | Max. rpm | HP @ 1750 rpm | Max. Weight kg |
| S50DCMM2... | 34.8 | 0.11 | 0.16 | 42500 | 0.03 | 0.10 |
| S50DCMM4... | 34.8 | 0.5 | 0.6 | 26000 | 0.08 | 0.22 |
| S50DCMM5... | 34.8 | 0.7 | 0.9 | 23000 | 0.17 | 0.27 |

> CAUTION:

Be prepared for strong magnetic attraction between the magnet hubs.

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> MATERIAL:

Hub - 416 Stainless Steel
Set Screw - Stainless Steel
Magnet - NdFeB, Nickel Plated



> MISALIGNMENT COMPENSATION:

Max. Angular Offset: 3°
Max. Parallel Offset: 6.35 mm

> MAX. OPERATING TEMPERATURE:

+140°C

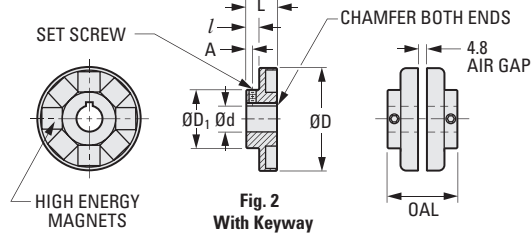
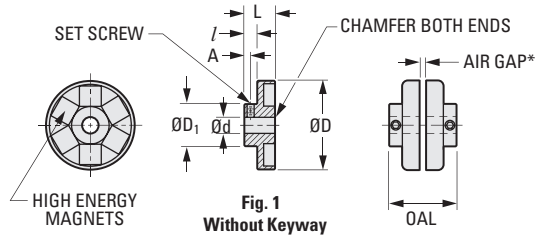
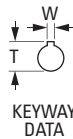
> SPECIFICATION:

d Tolerance
10 mm +0.022/0
11 & 18 mm +0.027/0
19 mm +0.033/0

> TO MAKE COUPLING:

Select two hub halves with the same O.D. from the table below.

Priced Per Hub Half



The projections shown are per ISO convention.

Fig. 2 Keyway Dimensions

| Bore | 11 | 12 | 14 | 18 | 19 |
|--------------------|------|------|------|------|------|
| W Width (+0.05/0) | 4 | 4 | 5 | 6 | 6 |
| T Height (+0.25/0) | 12.8 | 13.8 | 16.3 | 20.8 | 21.8 |

METRIC COMPONENT

| Catalog Number | Fig. No. | D O.D. | d Bore H8 | D ₁ Hub Dia. | L | l ₁ Hub Length | A | Set Screw | No. of Magnets |
|----------------|----------|--------|-----------|-------------------------|------|---------------------------|---|-----------|----------------|
| S50DCMM60 | 1 | 60 | Solid | 38 | 19 | 9 | 4 | — | 10 |
| S50DCMM60H10 | 1 | 60 | 10 | 38 | 19 | 9 | 4 | M5 | 10 |
| S50DCMM60H11 | 2 | 60 | 11 | 38 | 19 | 9 | 4 | M5 | 10 |
| S50DCMM60H12 | 2 | 60 | 12 | 38 | 19 | 9 | 4 | M5 | 10 |
| S50DCMM60H14 | 2 | 60 | 14 | 38 | 19 | 9 | 4 | M5 | 10 |
| S50DCMM60H18 | 2 | 60 | 18 | 38 | 19 | 9 | 4 | M5 | 10 |
| S50DCMM60H19 | 2 | 60 | 19 | 38 | 19 | 9 | 4 | M5 | 10 |
| S50DCMM73 | 1 | 73 | Solid | 51 | 25.4 | 13.5 | 7 | — | 14 |
| S50DCMM73H11 | 2 | 73 | 11 | 51 | 25.4 | 13.5 | 7 | M5 | 14 |
| S50DCMM73H12 | 2 | 73 | 12 | 51 | 25.4 | 13.5 | 7 | M5 | 14 |
| S50DCMM73H14 | 2 | 73 | 14 | 51 | 25.4 | 13.5 | 7 | M5 | 14 |
| S50DCMM73H19 | 2 | 73 | 19 | 51 | 25.4 | 13.5 | 7 | M5 | 14 |

Coupling Series (Ref. Only)

Specifications for Two Hub Halves

| OAL | Torque N • m | Breakaway Torque N • m | Max. rpm | HP @ 1750 rpm | Max. Weight kg |
|-------------|--------------|------------------------|----------|---------------|----------------|
| S50DCMM6... | 1 | 1.4 | 19000 | 0.25 | 0.55 |
| S50DCMM7... | 1.7 | 2.3 | 16000 | 0.43 | 1.13 |

Continued from the previous page



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| Catalog Series | Unique Features | Material | Bore | Pages |
|---|--|---|----------------|-------|
|  S57PY5MSU... | Single, Miniature, Zero Backlash | 303 Stainless Steel Body, 440 Stainless Steel Balls | Solid 2.5 to 6 | 7-4 |
|  S57PY5MDU... | Double, Miniature, Zero Backlash | 303 Stainless Steel Body, 440 Stainless Steel Balls | 2.5 to 6 | 7-4 |
|  S57PY4MSFU... | Single, Inverted Design, Zero Backlash | 303 Stainless Steel Body, 440 Stainless Steel Balls | 5 to 14 | 7-5 |
|  S57PY4MDFU... | Double, Inverted Design, Zero Backlash | 303 Stainless Steel Body, 440 Stainless Steel Balls | 5 to 14 | 7-5 |
|  A 5Y 8MDM... | Single, Short Series, Solid and Bored | 303 Stainless Steel | Solid 6 to 12 | 7-6 |
|  A 5Y 8MDU... | Single, Step Down Series | 303 Stainless Steel | 3 to 6 | 7-6 |
|  A 5Q 8MD... | Single, Standard Design, Solid and Bored | Alloy Steel | Solid 4 to 14 | 7-7 |
|  A 5Y 8MDGZ... | Single, Small Series | 303 Stainless Steel | 3 to 5 | 7-8 |



0 10

| Catalog Series | Unique Features | Material | Bore | Pages |
|---|---|--|------------------|-------|
|  A 5Q 8MDGZ... | Single, Small Series | 4140 Alloy Steel | 3 to 5 | 7-8 |
|  A 5Q 8MDM... | Single, Solid and Bored | Alloy Steel | Solid 6 to 12 | 7-8 |
|  A 5Q 8MDD... | Double, Slow Speed | Alloy Steel | Solid 4 to 14 | 7-9 |
|  A 5Q 8MDG... | Double | Carbon Steel Unhardened | 6 to 20 | 7-10 |
|  A 5X 8MSE... | Double, Telescoping, Heat- and Corrosion-Resistant | 300 Series SS Joints, 416 Stainless Steel Spline | 6 to 14 | 7-11 |
|  S57PY5MDUT... | Double, Telescoping, Miniature, Ball Spline, Zero Backlash | 303 Stainless Steel Body, 440 Stainless Steel Balls | 2.5 to 6 | 7-12 |
|  S57PY4MDFUT... | Double, Telescoping, Inverted Design, Ball Spline, Zero Backlash | 440 Stainless Steel Body, 440 Stainless Steel Balls | 5 to 14 | 7-12 |

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| Catalog Series | Unique Features | Material | Bore | Pages |
|---|---|---------------------------------------|---------|-------|
|  A 5M 8MD... | Single, Molded, Economy Series | Acetal | 3 to 10 | 7-14 |
|  A 5M 8MDD... | Double, Molded, Economy Series | Acetal | 3 to 10 | 7-14 |
|  A 5T 8MD... | Single, Molded, Brass Spider | Acetal Body, Brass Spider | 3 to 10 | 7-15 |
|  A 5Z 8MD... | Single, Molded, Brass Spider & Inserts | Acetal Body, Brass Spider & Inserts | 2 to 8 | 7-15 |
|  A 5T 8MDD... | Double, Molded, Brass Spider | Acetal Body, Brass Spider | 3 to 10 | 7-16 |
|  A 5Z 8MDD... | Double, Molded, Brass Spider and Inserts | Acetal Body, Brass Spider and Inserts | 2 to 8 | 7-16 |
|  A 5M 8MSE... | Double, Telescoping, Molded, Economy Series | Acetal | 4, 6, 8 | 7-17 |
|  A 5T 8MSE3... | Double, Telescoping, Molded, Brass Spider, 9.5 O.D. | Acetal Body & Extension, Brass Spider | 4, 6 | 7-18 |



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| Catalog Series | Unique Features | Material | Bore | Pages |
|--|--|---|--------|-------|
|  <p>A 5Z 8MSE3...</p> | Double, Telescoping, Molded, Brass Spider and inserts, 9.5 O.D. | Acetal Body and Extension, Brass Spider and Inserts | 3, 4 | 7-18 |
|  <p>A 5T 8MSE4...</p> | Double, Telescoping, Molded, Brass Spider, 12.7 O.D. | Acetal Body and Extension, Brass Spider | 6, 8 | 7-19 |
|  <p>A 5Z 8MSE4...</p> | Double, Telescoping, Molded, Brass Spider and Inserts, 12.7 O.D. | Acetal Body and Extension, Brass Spider and Inserts | 4, 6 | 7-19 |
|  <p>A 5Z 8MSEB...</p> | Double, Telescoping, Molded, Brass Spider Inserts and Extension | Acetal Body, Brass Spider, Inserts and Extension | 2 to 8 | 7-20 |

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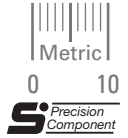
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A

SINGLE & DOUBLE JOINT
ZERO BACKLASH

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Body: 303 Stainless Steel
Balls: 440 Stainless Steel

> LUBRICATION:

Dry Film Plus Oil Suspension

> FEATURES:

Zero backlash through use of precision balls and burnished sockets
Sealed-in lubrication
Lightweight
Low inertia

> SPECIFICATIONS:

Torque Ratings - For static conditions with in-line loading, maximum load being one which causes joint to yield.

Max. Operating Angle - Fig. 1: 30° @ 4000 rpm

Fig. 2: 60° @ 4000 rpm

Set screws available on special order.

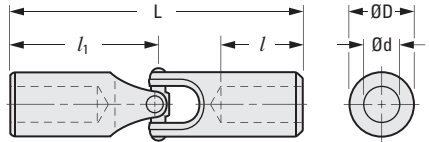


Fig. 1

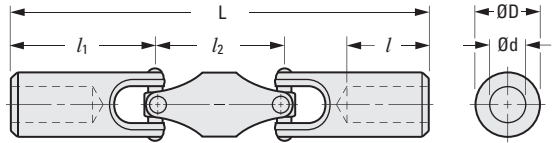


Fig. 2

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.013 0 | l Bore Depth | l ₁ End Unit | l ₂ Center | L Length | Torque N • m |
|----------------------------|--------|-----------------|--------------|-------------------------|-----------------------|----------|--------------|
| Fig. 1 Single Joint | | | | | | | |
| S57PY5MSU0005 | 4.76 | Solid | — | 12.7 | — | 25.4 | 0.11 |
| S57PY5MSU0205 | 4.76 | 2.5 | 8.7 | 12.7 | — | 25.4 | 0.11 |
| S57PY5MSU0305 | 4.76 | 3 | 8.7 | 12.7 | — | 25.4 | 0.11 |
| S57PY5MSU0407 | 7.15 | 4 | 11.1 | 17.5 | — | 34.9 | 0.45 |
| S57PY5MSU0507 | 7.15 | 5 | 11.1 | 17.5 | — | 34.9 | 0.45 |
| S57PY5MSU0510 | 9.53 | 5 | 12.7 | 22.2 | — | 44.5 | 1.8 |
| S57PY5MSU0610 | 9.53 | 6 | 12.7 | 22.2 | — | 44.5 | 1.8 |
| Fig. 2 Double Joint | | | | | | | |
| S57PY5MDU0205 | 4.76 | 2.5 | 8.7 | 12.7 | 12.7 | 38.1 | 0.11 |
| S57PY5MDU0305 | 4.76 | 3 | 8.7 | 12.7 | 12.7 | 38.1 | 0.11 |
| S57PY5MDU0407 | 7.15 | 4 | 11.1 | 17.5 | 15.9 | 50.8 | 0.45 |
| S57PY5MDU0507 | 7.15 | 5 | 11.1 | 17.5 | 15.9 | 50.8 | 0.45 |
| S57PY5MDU0510 | 9.53 | 5 | 12.7 | 22.2 | 19.1 | 63.5 | 1.8 |
| S57PY5MDU0610 | 9.53 | 6 | 12.7 | 22.2 | 19.1 | 63.5 | 1.8 |

SINGLE & DOUBLE JOINT
ZERO BACKLASH

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Body: 303 Stainless Steel
Balls: 440 Stainless Steel

> LUBRICATION:

Dry Film Plus Oil Suspension

> FEATURES:

Zero backlash is attained with patented design and close dimensional control of components. Torque is transmitted by hardened steel balls operating in burnished sockets. Elastic preload between components eliminates all clearances. Inverted design reduces size and weight for a given torque capacity. Inverted design reduces inertia. Sealed-in lubrication.

> SPECIFICATIONS:

Torque Ratings - For static conditions with in-line loading.
Max. Operating Speed @ 0°: 4000 rpm
Max. Operating Angle - Fig. 1: 20° @ 2000 rpm
Fig. 2: 40° @ 2000 rpm

Set screws available on special order.

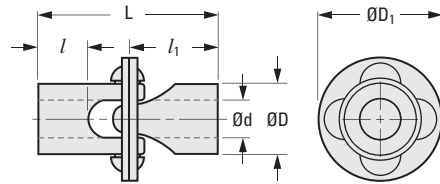
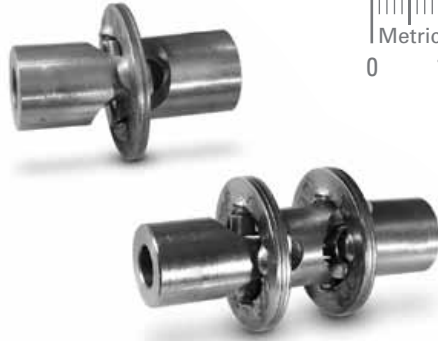


Fig. 1

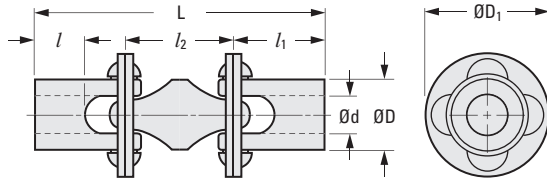


Fig. 2

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | l Bore Depth | l ₁ End Unit | l ₂ Center | L Overall Length | D ₁ Dia. | Torque N • m |
|----------------------------|--------|-----------------------|--------------|-------------------------|-----------------------|------------------|---------------------|--------------|
| Fig. 1 Single Joint | | | | | | | | |
| S57PY4MSFU0519 | 9.53 | 5 | 9.5 | 19.1 | — | 38.1 | 19.1 | 1.8 |
| S57PY4MSFU0619 | 9.53 | 6 | 9.5 | 19.1 | — | 38.1 | 19.1 | 1.8 |
| S57PY4MSFU0724 | 12.71 | 7 | 11.1 | 20.7 | — | 41.4 | 23.8 | 2.3 |
| S57PY4MSFU0824 | 12.71 | 8 | 11.1 | 20.7 | — | 41.4 | 23.8 | 2.3 |
| S57PY4MSFU1035 | 19.06 | 10 | 15.9 | 25.4 | — | 50.8 | 35.1 | 3.4 |
| S57PY4MSFU1248 | 25.41 | 12 | 22.2 | 33.5 | — | 66.8 | 47.8 | 8.5 |
| S57PY4MSFU1448 | 25.41 | 14 | 22.2 | 33.5 | — | 66.8 | 47.8 | 8.5 |
| Fig. 2 Double Joint | | | | | | | | |
| S57PY4MDFU0519 | 9.53 | 5 | 9.5 | 19.1 | 15.9 | 54.1 | 19.1 | 1.8 |
| S57PY4MDFU0619 | 9.53 | 6 | 9.5 | 19.1 | 15.9 | 54.1 | 19.1 | 1.8 |
| S57PY4MDFU0724 | 12.71 | 7 | 11.1 | 20.7 | 19.9 | 61.2 | 23.8 | 2.3 |
| S57PY4MDFU0824 | 12.71 | 8 | 11.1 | 20.7 | 19.9 | 61.2 | 23.8 | 2.3 |
| S57PY4MDFU1035 | 19.06 | 10 | 15.9 | 25.4 | 22.2 | 73.2 | 35.1 | 3.4 |
| S57PY4MDFU1248 | 25.41 | 12 | 22.2 | 33.5 | 31.8 | 98.6 | 47.8 | 8.5 |
| S57PY4MDFU1448 | 25.41 | 14 | 22.2 | 33.5 | 31.8 | 98.6 | 47.8 | 8.5 |

SHORT SERIES
STEP-DOWN SERIES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> **MATERIAL:**
303 Stainless Steel

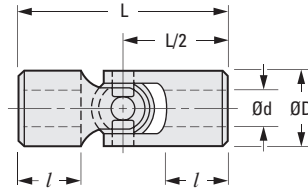


Fig. 1
Short Series

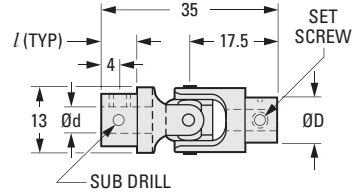


Fig. 2
Step-Down Series

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | l Bore Depth ± 0.8 | L Overall Length | Max. Torque N•m | Approx. Weight kg |
|------------------------------------|--------|-----------------------|-----------------------|------------------|--------------------|----------------------|
| Fig. 1 Short Series - Solid | | | | | | |
| A 5Y 8MDM06 | 12.5 | — | — | 40 | 13 | 0.03 |
| A 5Y 8MDM08 | 16 | — | — | 50 | 25 | 0.07 |
| A 5Y 8MDM10 | 20 | — | — | 56 | 45 | 0.13 |
| A 5Y 8MDM12 | 25 | — | — | 71 | 79 | 0.23 |
| Fig. 1 Short Series - Bored | | | | | | |
| A 5Y 8MDM0606 | 12.5 | 6 | 13 | 40 | 13 | 0.02 |
| A 5Y 8MDM0808 | 16 | 8 | 16.5 | 50 | 25 | 0.06 |
| A 5Y 8MDM1010 | 20 | 10 | 17 | 56 | 45 | 0.09 |
| A 5Y 8MDM1212 | 25 | 12 | 22 | 71 | 79 | 0.18 |

| Catalog Number | D Dia. | d Bore +0.025 0 | l | Set Screw | Sub Drill |
|--------------------------------|--------|-----------------------|---|-----------|-----------|
| Fig. 2 Step-Down Series | | | | | |
| A 5Y 8MDU1030 | 8 | 3 | 8 | M2.5 | 0.75 |
| A 5Y 8MDU1040 | 8 | 4 | 8 | M2.5 | 0.75 |
| A 5Y 8MDU2050 | 9.5 | 5 | 8 | M4 | 1 |
| A 5Y 8MDU3060 | 13 | 6 | — | M4 | 1.8 |

NOTE: Step-Down Series Universal Joints will operate at angles up to 30°.

> MATERIAL:

Alloy Steel

> SPECIFICATIONS:

Max. Working Angle - Power Driven Applications: 25°
Hand Rotation Applications: 45°

Rating - Multiply design torque by correction factor obtained from following tables. Resulting number must be smaller than the breaking torque of the joint used.



Intermittent Running Conditions

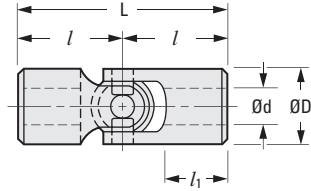
| Speed rpm | Angle of Operation - Degrees | | | | | | | | | |
|-----------|------------------------------|----|----|----|----|----|----|----|----|--|
| | 0 | 3 | 5 | 7 | 10 | 15 | 20 | 25 | 30 | |
| 1800 | 9 | 20 | 34 | 45 | - | - | - | - | - | |
| 1500 | 8 | 16 | 28 | 39 | - | - | - | - | - | |
| 1200 | 7 | 13 | 22 | 32 | 40 | - | - | - | - | |
| 900 | 6 | 11 | 16 | 23 | 34 | - | - | - | - | |
| 600 | 5 | 8 | 11 | 15 | 22 | 34 | 40 | - | - | |
| 300 | 4 | 5 | 7 | 8 | 11 | 16 | 22 | 28 | 34 | |
| 100 | 3 | 4 | 4 | 5 | 6 | 8 | 9 | 11 | 12 | |

Running under load for less than 15 minutes.

Continuous Running Conditions

| Speed rpm | Angle of Operation - Degrees | | | | | | | | | |
|-----------|------------------------------|----|----|----|----|----|----|----|----|--|
| | 0 | 3 | 5 | 7 | 10 | 15 | 20 | 25 | 30 | |
| 1800 | 18 | 40 | 68 | 90 | - | - | - | - | - | |
| 1500 | 16 | 32 | 55 | 78 | - | - | - | - | - | |
| 1200 | 14 | 26 | 44 | 64 | 80 | - | - | - | - | |
| 900 | 12 | 21 | 32 | 46 | 68 | - | - | - | - | |
| 600 | 10 | 15 | 22 | 30 | 44 | 68 | 80 | - | - | |
| 300 | 8 | 10 | 14 | 16 | 22 | 32 | 44 | 55 | 68 | |
| 100 | 6 | 7 | 8 | 10 | 12 | 15 | 18 | 22 | 24 | |

Running under load from 15 minutes to 8 hours.



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | l ₁ Bore Depth ± 0.8 | l | L Overall Length | Static Breaking Torque N•m | Approx. Weight kg |
|----------------|--------|-----------------|---------------------------------|------|------------------|----------------------------|-------------------|
| Solid | | | | | | | |
| A 5Q 8MD100 | 9.5 | - | - | 22.2 | 44.4 | 12 | 0.023 |
| A 5Q 8MD200 | 12.7 | - | - | 25.4 | 50.8 | 43 | 0.045 |
| A 5Q 8MD300 | 15.9 | - | - | 28.6 | 57.2 | 61 | 0.077 |
| A 5Q 8MD400 | 19.1 | - | - | 34.1 | 68.2 | 87 | 0.136 |
| A 5Q 8MD500 | 22.2 | - | - | 38.1 | 76.2 | 133 | 0.204 |
| Bored | | | | | | | |
| A 5Q 8MD104 | 9.5 | 4 | 14 | 22.2 | 44.4 | 12 | 0.018 |
| A 5Q 8MD106 | 9.5 | 6 | 14 | 22.2 | 44.4 | 12 | 0.018 |
| A 5Q 8MD206 | 12.7 | 6 | 16 | 25.4 | 50.8 | 43 | 0.036 |
| A 5Q 8MD208 | 12.7 | 8 | 16 | 25.4 | 50.8 | 43 | 0.036 |
| A 5Q 8MD210 | 12.7 | 10 | 16 | 25.4 | 50.8 | 43 | 0.036 |
| A 5Q 8MD308 | 15.9 | 8 | 17 | 28.6 | 57.2 | 61 | 0.068 |
| A 5Q 8MD310 | 15.9 | 10 | 17 | 28.6 | 57.2 | 61 | 0.068 |
| A 5Q 8MD312 | 15.9 | 12 | 17 | 28.6 | 57.2 | 61 | 0.068 |
| A 5Q 8MD314 | 15.9 | 14 | 17 | 28.6 | 57.2 | 61 | 0.068 |
| A 5Q 8MD410 | 19.1 | 10 | 22 | 34.1 | 68.2 | 87 | 0.113 |
| A 5Q 8MD412 | 19.1 | 12 | 22 | 34.1 | 68.2 | 87 | 0.113 |
| A 5Q 8MD414 | 19.1 | 14 | 22 | 34.1 | 68.2 | 87 | 0.113 |
| A 5Q 8MD512 | 22.2 | 12 | 22 | 38.1 | 76.2 | 133 | 0.168 |
| A 5Q 8MD514 | 22.2 | 14 | 22 | 38.1 | 76.2 | 133 | 0.168 |

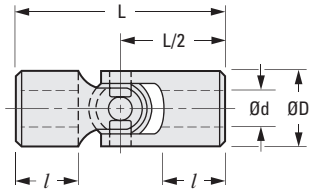
SMALL SERIES
METRIC STANDARD

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- 303 Stainless Steel
- 4140 Alloy Steel
- Alloy Steel



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.05 0 | l Bore Depth | L Overall Length | Static Breaking Torque N•m | Approx. Weight g |
|---|--------|----------------------|-----------------|---------------------|-------------------------------------|------------------------|
| Small Series - 4140 Alloy Steel | | | | | | |
| A 5Q 8MDGZ1030 | 6 | 3 | 9.3 | 29 | 5.1 | 5 |
| A 5Q 8MDGZ2040 | 8 | 4 | 12.5 | 38 | 12.8 | 9.4 |
| *A 5Q 8MDGZ3050 | 9 | 5 | 15 | 44 | 21.5 | 17 |
| Small Series - 303 Stainless Steel | | | | | | |
| A 5Y 8MDGZ1030 | 6 | 3 | 9.3 | 29 | 5.1 | 5 |
| A 5Y 8MDGZ2040 | 8 | 4 | 12.5 | 38 | 12.8 | 9.4 |
| *A 5Y 8MDGZ3050 | 9 | 5 | 15 | 44 | 21.5 | 17 |

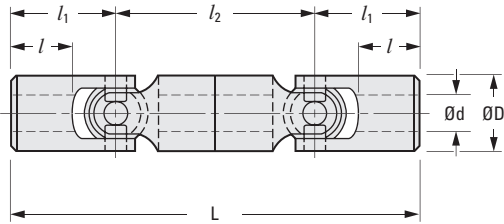
* To be discontinued when present stock is depleted.

| Catalog Number | D Dia. | d Bore +0.025 0 | l Bore Depth ± 0.8 | L Overall Length | Approx. Weight kg |
|--|--------|-----------------------|--------------------------|---------------------|-------------------------|
| Metric Standard - Alloy Steel Solid | | | | | |
| A 5Q 8MDM06 | 12 | — | — | 50 | 0.043 |
| A 5Q 8MDM08 | 16 | — | — | 56 | 0.079 |
| A 5Q 8MDM10 | 20 | — | — | 68 | 0.142 |
| A 5Q 8MDM12 | 24 | — | — | 84 | 0.255 |
| Metric Standard - Alloy Steel Bored | | | | | |
| A 5Q 8MDM0606 | 12 | 6 | 16.5 | 50 | 0.037 |
| A 5Q 8MDM0808 | 16 | 8 | 17.5 | 56 | 0.085 |
| A 5Q 8MDM1010 | 20 | 10 | 21.5 | 68 | 0.12 |
| A 5Q 8MDM1212 | 24 | 12 | 27 | 84 | 0.21 |

HAND OPERATED & POWER DRIVEN
1750 RPM OR LESS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

› **MATERIAL:**
Alloy Steel



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | l Bore Depth ± 0.8 | L Overall Length | l ₁ | l ₂ | Approx. Weight kg |
|----------------|--------|-----------------------|--------------------------|---------------------|----------------|----------------|-------------------------|
| Solid | | | | | | | |
| A 5Q 8MDD100 | 9.5 | – | – | 88.9 | 22.2 | 44.5 | 0.04 |
| A 5Q 8MDD200 | 12.7 | – | – | 101.6 | 25.4 | 50.8 | 0.08 |
| A 5Q 8MDD300 | 15.9 | – | – | 114.3 | 28.6 | 57.1 | 0.15 |
| A 5Q 8MDD400 | 19.1 | – | – | 136.5 | 34.1 | 68.3 | 0.25 |
| A 5Q 8MDD500 | 22.2 | – | – | 152.4 | 38.1 | 76.2 | 0.37 |
| A 5Q 8MDD600 | 25.4 | – | – | 171.5 | 42.9 | 85.7 | 0.54 |
| Bored | | | | | | | |
| A 5Q 8MDD104 | 9.5 | 4 | 14 | 88.9 | 22.2 | 44.5 | 0.04 |
| A 5Q 8MDD206 | 12.7 | 6 | 16 | 101.6 | 25.4 | 50.8 | 0.07 |
| A 5Q 8MDD308 | 15.9 | 8 | 17 | 114.3 | 28.6 | 57.1 | 0.14 |
| A 5Q 8MDD410 | 19.1 | 10 | 22 | 136.5 | 34.1 | 68.3 | 0.23 |
| A 5Q 8MDD512 | 22.2 | 12 | 22 | 152.4 | 38.1 | 76.2 | 0.34 |
| A 5Q 8MDD614 | 25.4 | 14 | 25 | 171.4 | 42.9 | 85.7 | 0.48 |

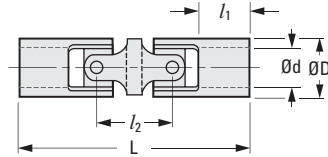
UNIVERSAL JOINTS • DOUBLE JOINT

SDP/SI

> MATERIAL:

Carbon Steel - Unhardened
(Also available hardened, on special order)

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore H8 | L Overall Length | l ₁ | l ₂ | Max. Torque N • m | Approx. Weight kg |
|----------------|--------|-----------|------------------|----------------|----------------|-------------------|-------------------|
| A 5Q 8MDG1306 | 13 | 6 | 60 | 13 | 18 | 2 | 0.036 |
| A 5Q 8MDG1308 | 13 | 8 | 60 | 13 | 18 | 2 | 0.036 |
| A 5Q 8MDG1608 | 16 | 8 | 74 | 16 | 22 | 3 | 0.067 |
| A 5Q 8MDG1610 | 16 | 10 | 74 | 16 | 22 | 3 | 0.067 |
| A 5Q 8MDG2010 | 20 | 10 | 88 | 19 | 26 | 6 | 0.127 |
| A 5Q 8MDG2012 | 20 | 12 | 88 | 19 | 26 | 6 | 0.127 |
| A 5Q 8MDG2512 | 25 | 12 | 104 | 22 | 30 | 11.5 | 0.231 |
| A 5Q 8MDG2516 | 25 | 16 | 104 | 22 | 30 | 11.5 | 0.231 |
| A 5Q 8MDG3216 | 32 | 16 | 124 | 25 | 38 | 23 | 0.46 |
| A 5Q 8MDG3220 | 32 | 20 | 124 | 25 | 38 | 23 | 0.46 |

HEAT-RESISTANT
CORROSION-RESISTANT

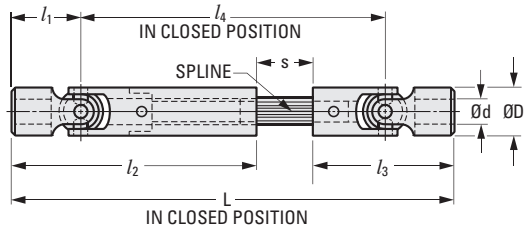
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► **MATERIAL:**

Stainless Steel

► **OPERATING TEMPERATURE:**

-20°C to +400°C



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | l_1 | l_2 | l_3 | L Closed | l_4 Closed | s Max. Exten. | Max. Torque N•m |
|----------------|--------|-----------------------|-------|-------|-------|----------|--------------|---------------|-----------------|
| A 5X 8MSE1306 | 12.5 | 6 | 20 | 97 | 40 | 137 | 97 | 41 | 4.5 |
| A 5X 8MSE1608 | 16 | 8 | 25 | 126 | 50 | 176 | 126 | 57 | 11 |
| A 5X 8MSE2010 | 20 | 10 | 28 | 151 | 56 | 207 | 151 | 73 | 27 |
| A 5X 8MSE2512 | 25 | 12 | 35.5 | 185 | 71 | 256 | 185 | 83 | 68 |
| A 5X 8MSE2514 | 25 | 14 | 35.5 | 185 | 71 | 256 | 185 | 83 | 68 |

DOUBLE UNIVERSAL WITH BALL SPLINE
ZERO BACKLASH
ACCOMMODATES 6 mm AXIAL MOTION
LOW INERTIA

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

- Body - Fig. 1: 303 Stainless Steel
Fig. 2: 440 Stainless Steel
- Balls - Fig. 1 & 2: 440 Stainless Steel
- Ends and Flanges - Fig. 2: 300 Series Stainless Steel

LUBRICATION:

Dry Film Plus Oil Suspension

FEATURES:

Zero backlash is attained with patented design and close dimensional control of components. Use where axial motion is present while transmitting rotary motion.

SPECIFICATIONS:

- Torque Ratings - For static conditions with in-line loading.
- Max. Operating Speed @ 0° - Fig. 1: 10000 rpm
Fig. 2: 4000 rpm
- Max. Operating Angle - Fig. 1: 60° @ 4000 rpm
Fig. 2: 40° @ 1800 rpm

d Bore Tolerance:

Fig. 1: +0.013/0, Fig. 2: +0.025/0

Travel of up to 100 mm on Fig. 1 units and 150 mm on Fig. 2 units available on special order.

Set screws available on special order.

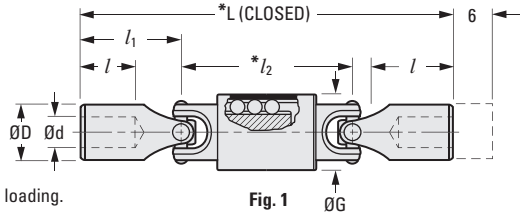


Fig. 1

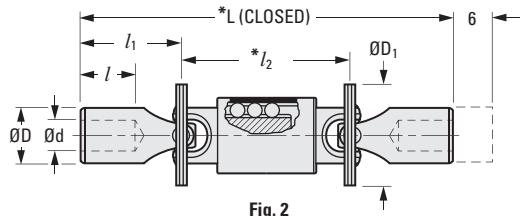


Fig. 2

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore | l Bore Depth | l ₁ End Unit | l ₂ * Center (Closed) | L* Length (Closed) | G Dia. Over Ball Race | D ₁ Dia. | Torque N • m |
|-------------------------------|--------|--------|--------------|-------------------------|----------------------------------|--------------------|-----------------------|---------------------|--------------|
| Fig. 1 Miniature | | | | | | | | | |
| S57PY5MDUT0205 | 4.76 | 2.5 | 4.8 | 9.5 | 19.1 | 38.1 | 7.9 | - | 0.11 |
| S57PY5MDUT0305 | 4.76 | 3 | 4.8 | 9.5 | 19.1 | 38.1 | 7.9 | - | 0.11 |
| S57PY5MDUT0407 | 7.15 | 4 | 7.2 | 14.3 | 23.8 | 52.6 | 10.4 | - | 0.45 |
| S57PY5MDUT0510 | 9.53 | 5 | 9.5 | 19.1 | 31.8 | 69.9 | 14.2 | - | 1.8 |
| S57PY5MDUT0610 | 9.53 | 6 | 9.5 | 19.1 | 31.8 | 69.9 | 14.2 | - | 1.8 |
| Fig. 2 Inverted Design | | | | | | | | | |
| S57PY4MDFUT0519 | 9.53 | 5 | 9.5 | 19.1 | 31.8 | 69.9 | - | 19.1 | 1.8 |
| S57PY4MDFUT0619 | 9.53 | 6 | 9.5 | 19.1 | 31.8 | 69.9 | - | 19.1 | 1.8 |
| S57PY4MDFUT0724 | 12.71 | 7 | 11.1 | 19.1 | 41.4 | 76.2 | - | 23.8 | 2.3 |
| S57PY4MDFUT0824 | 12.71 | 8 | 11.1 | 19.1 | 41.4 | 76.2 | - | 23.8 | 2.3 |
| S57PY4MDFUT1035 | 19.06 | 10 | 15.9 | 20.7 | 57.2 | 108 | - | 35.1 | 3.4 |
| S57PY4MDFUT1248 | 25.41 | 12 | 22.2 | 33.5 | 63.2 | 130 | - | 47.8 | 8.5 |
| S57PY4MDFUT1448 | 25.41 | 14 | 22.2 | 33.5 | 63.2 | 130 | - | 47.8 | 8.5 |

*Closed dimensions for standard 6 mm of travel.

Stock Drive Products pioneered the concept of combining the exceptional qualities of selected plastic materials with different metals to create products which incorporate both.



SUPER-PLAST® designs have the following advantages:

1. Inexpensive replacement of metal components, particularly for low torque applications.
2. As vibration dampers due to the resiliency of plastics used.
3. For drives used in corrosive environments or for chemical processing equipment.
4. For drives which have to be electrically insulated.
5. For domestic appliances and other intermittent duty applications.



The SDP line of molded universal joints is a valuable extension of the above capabilities, and they are shown on the following pages:

| Name | Description | Metric Series | Page |
|---------------------------------------|--------------------------|----------------------|------------|
| Universal Single Joint | All Molded | A 5M 8MD... | 7-14 |
| | Metal Spider (No Insert) | A 5T 8MD... | 7-15 |
| | Metal Spider and Insert | A 5Z 8MD... | 7-15 |
| Universal Double Joint | All Molded | A 5M 8MDD... | 7-14 |
| | Metal Spider (No Insert) | A 5T 8MDD... | 7-16 |
| | Metal Spider and Insert | A 5Z 8MDD... | 7-16 |
| Universal With Molded Slide Extension | All Molded | A 5M 8MSE... | 7-17 |
| | Metal Spider (No Insert) | A 5T 8MSE... | 7-18, 7-19 |
| | Metal Spider and Insert | A 5Z 8MSE... | 7-18, 7-19 |
| Universal With Brass Slide Extension | Metal Spider and Insert | A 5Z 8MSEB... | 7-20 |

The above products are available from stock in standard configurations as presented in the catalog pages. They can also be manufactured to special requirements, with partial modification of existing tools. These "specials" can consist of:

- a) Bores molded to accommodate square, "D" shape or hexagonal shafts.
- b) Shafts molded into the components themselves.
- c) Zero backlash or components with built-in backlash.
- d) Gears, pulleys or other components molded or assembled to couplings or universal joints.

For inch size Molded Universal Joint series, see our Web site www.sdp-si.com or see our *Handbook of Inch Drive Components*.

Please consult SDP Application Engineering for further details.

SINGLE & DOUBLE JOINT
ECONOMY SERIES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**

Body & Spider - Molded Acetal

➤ **MAX. OPERATING TEMPERATURE:**

+85°C

➤ **SPECIFICATIONS:**

Max. Angular Displacement - Fig. 1: 45°

Fig. 2: 90°

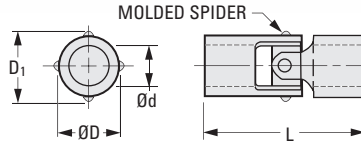


Fig. 1

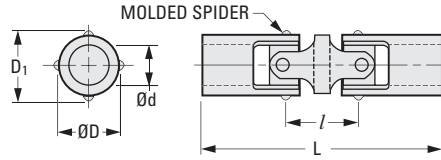


Fig. 2

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore 0 -0.05 | Bore Depth (Typ) | L Overall Length | D ₁ | l | Max. Torque N•m | Max. Parallel Offset |
|----------------------------|--------|----------------------|---------------------|------------------|----------------|------|--------------------|----------------------|
| Fig. 1 Single Joint | | | | | | | | |
| A 5M 8MD203 | 6.3 | 3 | 5.8 | 19 | 6.6 | — | 0.2 | — |
| A 5M 8MD204 | 6.3 | 4 | 5.8 | 19 | 6.6 | — | 0.2 | — |
| A 5M 8MD304 | 9.5 | 4 | 8.6 | 28.6 | 10.6 | — | 0.9 | — |
| A 5M 8MD306 | 9.5 | 6 | 8.6 | 28.6 | 10.6 | — | 0.9 | — |
| A 5M 8MD406 | 12.7 | 6 | 10.6 | 35.6 | 13.8 | — | 2 | — |
| A 5M 8MD408 | 12.7 | 8 | 10.6 | 35.6 | 13.8 | — | 2 | — |
| A 5M 8MD506 | 15.9 | 6 | 14.7 | 52.7 | 16.4 | — | 4.2 | — |
| A 5M 8MD508 | 15.9 | 8 | 14.7 | 52.7 | 16.4 | — | 4.2 | — |
| A 5M 8MD510 | 15.9 | 10 | 14.7 | 52.7 | 16.4 | — | 4.2 | — |
| Fig. 2 Double Joint | | | | | | | | |
| A 5M 8MDD203 | 6.3 | 3 | 5.8 | 27 | 6.6 | 8 | 0.2 | 0.22 |
| A 5M 8MDD204 | 6.3 | 4 | 5.8 | 27 | 6.6 | 8 | 0.2 | 0.22 |
| A 5M 8MDD304 | 9.5 | 4 | 8.6 | 41.9 | 10.6 | 13.3 | 0.7 | 0.36 |
| A 5M 8MDD306 | 9.5 | 6 | 8.6 | 41.9 | 10.6 | 13.3 | 0.7 | 0.36 |
| A 5M 8MDD406 | 12.7 | 6 | 10.6 | 51.3 | 13.8 | 15.7 | 1.2 | 0.43 |
| A 5M 8MDD408 | 12.7 | 8 | 10.6 | 51.3 | 13.8 | 15.7 | 1.2 | 0.43 |
| A 5M 8MDD506 | 15.9 | 6 | 14.7 | 74.9 | 16.4 | 22.3 | 3.6 | 0.61 |
| A 5M 8MDD508 | 15.9 | 8 | 14.7 | 74.9 | 16.4 | 22.3 | 3.6 | 0.61 |
| A 5M 8MDD510 | 15.9 | 10 | 14.7 | 74.9 | 16.4 | 22.3 | 3.6 | 0.61 |

ELECTRICALLY INSULATING

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> **MATERIAL:**

Body - Molded Acetal
Spider & Insert - Nickel Plated Brass

> **MAX. OPERATING TEMPERATURE:**

+85°C

> **SPECIFICATION:**

Max. Angular Displacement: 45°

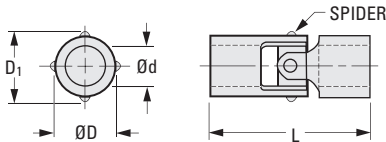


Fig. 1 Plain

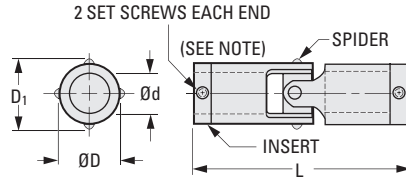


Fig. 2 With Insert

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore 0 -0.05 | Bore Depth (Typ) | L Overall Length | D ₁ | Set Screw | Max. Torque N • m |
|---------------------------|--------|----------------------|---------------------|------------------|----------------|-----------|----------------------|
| Fig. 1 Plain | | | | | | | |
| A 5T 8MD203 | 6.3 | 3 | 5.8 | 19 | 6.9 | — | 0.57 |
| A 5T 8MD204 | 6.3 | 4 | 5.8 | 19 | 6.9 | — | 0.57 |
| A 5T 8MD304 | 9.5 | 4 | 8.6 | 28.6 | 10.4 | — | 1.8 |
| A 5T 8MD306 | 9.5 | 6 | 8.6 | 28.6 | 10.4 | — | 1.8 |
| A 5T 8MD406 | 12.7 | 6 | 10.6 | 35.6 | 13.8 | — | 2.9 |
| A 5T 8MD408 | 12.7 | 8 | 10.6 | 35.6 | 13.8 | — | 2.9 |
| A 5T 8MD506 | 15.9 | 6 | 14.7 | 52.7 | 17 | — | 6.8 |
| A 5T 8MD508 | 15.9 | 8 | 14.7 | 52.7 | 17 | — | 6.8 |
| A 5T 8MD510 | 15.9 | 10 | 14.7 | 52.7 | 17 | — | 6.8 |
| Fig. 2 With Insert | | | | | | | |
| A 5Z 8MD202 | 6.3 | *2 | 9.9 | 26.6 | 6.9 | M3 | 0.57 |
| A 5Z 8MD203 | 6.3 | *3 | 9.9 | 26.6 | 6.9 | M3 | 0.57 |
| A 5Z 8MD303 | 9.5 | *3 | 13.2 | 37.5 | 10.4 | M3 | 1.8 |
| A 5Z 8MD304 | 9.5 | 4 | 13.2 | 37.5 | 10.4 | M3 | 1.8 |
| A 5Z 8MD404 | 12.7 | *4 | 16 | 46.1 | 13.8 | M3 | 2.9 |
| A 5Z 8MD406 | 12.7 | 6 | 16 | 46.1 | 13.8 | M3 | 2.9 |
| A 5Z 8MD506 | 15.9 | 6 | 21.8 | 66.9 | 17 | M4 | 6.8 |
| A 5Z 8MD508 | 15.9 | 8 | 21.8 | 66.9 | 17 | M4 | 6.8 |

*NOTE: One set screw each end.

ELECTRICALLY INSULATING

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> **MATERIAL:**

Body - Molded Acetal
Spider & Insert - Nickel Plated Brass

> **MAX. OPERATING TEMPERATURE:**

+85°C

> **SPECIFICATIONS:**

Max. Angular Displacement: 90°

d Bore Tolerance:

Fig. 1 Plain: 0/-0.05

Fig. 2 With Insert: +0.025/0

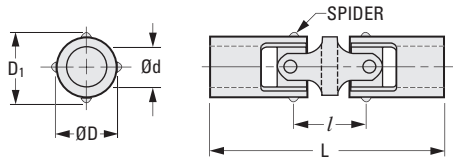
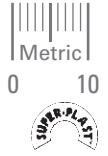


Fig. 1 Plain

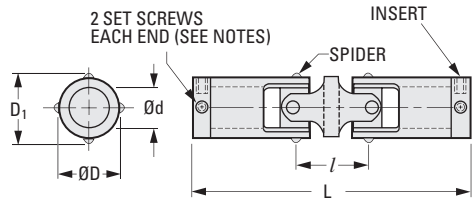


Fig. 2 With Insert

METRIC COMPONENT

| Catalog Number | D Dia. | d Bore | Bore Depth (Typ) | L Overall Length | D ₁ | l | Set Screw | Max. Torque N•m | Max. Parallel Offset |
|---------------------------|--------|--------|------------------|------------------|----------------|------|-----------|-----------------|----------------------|
| Fig. 1 Plain | | | | | | | | | |
| A 5T 8MDD203 | 6.3 | 3 | 5.8 | 27 | 6.9 | 8 | — | 0.3 | 5.6 |
| A 5T 8MDD204 | 6.3 | 4 | 5.8 | 27 | 6.9 | 8 | — | 0.3 | 5.6 |
| A 5T 8MDD304 | 9.5 | 4 | 8.6 | 41.9 | 10.4 | 13.3 | — | 0.8 | 9.1 |
| A 5T 8MDD306 | 9.5 | 6 | 8.6 | 41.9 | 10.4 | 13.3 | — | 0.8 | 9.1 |
| A 5T 8MDD406 | 12.7 | 6 | 10.6 | 51.3 | 13.8 | 15.7 | — | 1.4 | 10.9 |
| A 5T 8MDD408 | 12.7 | 8 | 10.6 | 51.3 | 13.8 | 15.7 | — | 1.4 | 10.9 |
| A 5T 8MDD506 | 15.9 | 6 | 14.7 | 74.9 | 17 | 22.3 | — | 5.3 | 15.5 |
| A 5T 8MDD508 | 15.9 | 8 | 14.7 | 74.9 | 17 | 22.3 | — | 5.3 | 15.5 |
| A 5T 8MDD510 | 15.9 | 10 | 14.7 | 74.9 | 17 | 22.3 | — | 5.3 | 15.5 |
| Fig. 2 With Insert | | | | | | | | | |
| A 5Z 8MDD202 | 6.3 | *2 | 9.9 | 34.6 | 6.9 | 8 | M3 | 0.3 | 5.6 |
| A 5Z 8MDD203 | 6.3 | *3 | 9.9 | 34.6 | 6.9 | 8 | M3 | 0.3 | 5.6 |
| A 5Z 8MDD303 | 9.5 | *3 | 13.2 | 50.8 | 10.4 | 13.3 | M3 | 0.8 | 9.1 |
| A 5Z 8MDD304 | 9.5 | 4 | 13.2 | 50.8 | 10.4 | 13.3 | M3 | 0.8 | 9.1 |
| A 5Z 8MDD404 | 12.7 | *4 | 16 | 61.8 | 13.8 | 15.7 | M3 | 1.4 | 10.9 |
| A 5Z 8MDD406 | 12.7 | 6 | 16 | 61.8 | 13.8 | 15.7 | M3 | 1.4 | 10.9 |
| A 5Z 8MDD506 | 15.9 | 6 | 21.8 | 89.2 | 17 | 22.3 | M4 | 5.3 | 15.5 |
| A 5Z 8MDD508 | 15.9 | 8 | 21.8 | 89.2 | 17 | 22.3 | M4 | 5.3 | 15.5 |

*NOTE: One set screw each end.

MOLDED UNIVERSAL JOINTS • TELESCOPING



WITH MOLDED SLIDE EXTENSION
ECONOMY SERIES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Body & Spider - Molded Acetal

> MAX. OPERATING TEMPERATURE:

+85°C

> SPECIFICATIONS:

Max. Angular Displacement: 90°

*Max. Recommended Extension: 19 mm

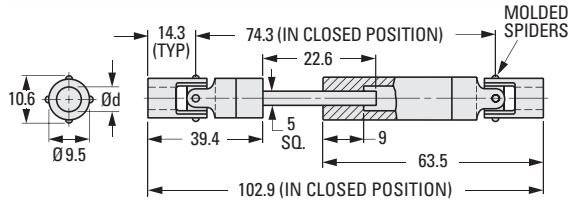


Fig. 1

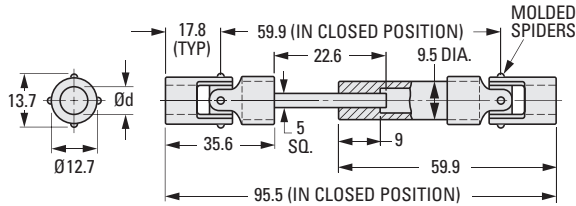


Fig. 2

METRIC COMPONENT

| Catalog Number | d Bore 0 -0.05 | Bore Depth (Typ) | Max. Recommended Torque N•m | |
|----------------|-------------------------|------------------------|--------------------------------|-------|
| | | | Closed | Open* |
| Fig. 1 | | | | |
| A 5M 8MSE304 | 4 | 8.6 | 0.7 | 0.5 |
| A 5M 8MSE306 | 6 | 8.6 | 0.7 | 0.5 |
| Fig. 2 | | | | |
| A 5M 8MSE406 | 6 | 10.6 | 1.4 | 1.1 |
| A 5M 8MSE408 | 8 | 10.6 | 1.4 | 1.1 |



WITH MOLDED SLIDE EXTENSION
PLAIN OR WITH INSERT
9.5 O.D.

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> MATERIAL:

Body - Molded Acetal
Spider & Insert - Nickel Plated Brass

> MAX. OPERATING TEMPERATURE:

+85°C

> SPECIFICATIONS:

Max. Angular Displacement: 90°
Max. Recommended Extension: 19 mm

d Bore Tolerance:

Fig. 1 Plain: 0/-0.05

Fig. 2 With Insert: +0.025/0

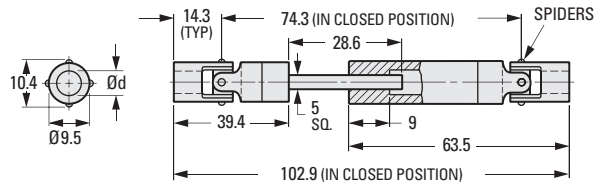
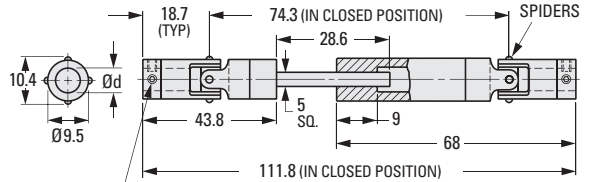


Fig. 1 Plain



2 SET SCREWS
EACH END
(SEE NOTE)

Fig. 2 With Insert

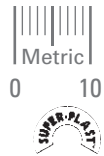
METRIC COMPONENT

| Catalog Number | d Bore | Bore Depth (Typ) | Set Screw | Max. Recommended Torque N • m | |
|---------------------------|--------|------------------|-----------|-------------------------------|-------------------|
| | | | | Closed | Open ^Δ |
| Fig. 1 Plain | | | | | |
| A 5T 8MSE304 | 4 | 8.6 | — | 0.9 | 0.5 |
| A 5T 8MSE306 | 6 | 8.6 | — | 0.9 | 0.5 |
| Fig. 2 With Insert | | | | | |
| A 5Z 8MSE303 | *3 | 13.2 | M3 | 0.9 | 0.5 |
| A 5Z 8MSE304 | 4 | 13.2 | M3 | 0.9 | 0.5 |

*NOTE: One set screw each end.

WITH MOLDED SLIDE EXTENSION
PLAIN OR WITH INSERT
12.7 O.D.

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► **MATERIAL:**

Body - Molded Acetal
Spider & Insert - Nickel Plated Brass

► **MAX. OPERATING TEMPERATURE:**

+85°C

► **SPECIFICATIONS:**

Max. Angular Displacement: 90°

***Max. Recommended Extension:** 19 mm

d Bore Tolerance:

Fig. 1 Plain: 0/-0.05

Fig. 2 With Insert: +0.025/0

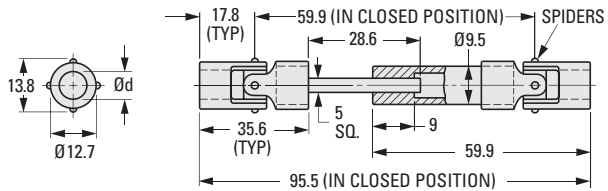


Fig. 1 Plain

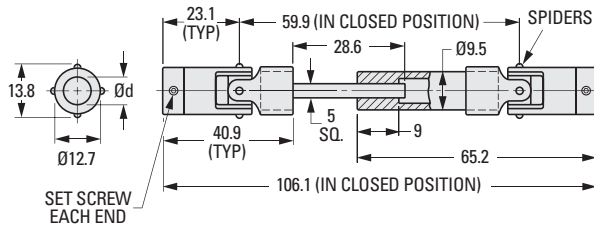


Fig. 2 With Insert

METRIC COMPONENT

| Catalog Number | d Bore | Bore Depth (Typ) | Set Screw | Max. Recommended Torque N•m | |
|--|--------|------------------|-----------|-----------------------------|-------|
| | | | | Closed | Open* |
| Fig. 1 Plain | | | | | |
| A 5T 8MSE406 | 6 | 10.6 | – | 1.6 | 1.1 |
| A 5T 8MSE408 | 8 | 10.6 | – | 1.6 | 1.1 |
| Fig. 2 With Insert ^Δ | | | | | |
| A 5Z 8MSE404 | 4 | 16 | M3 | 1.6 | 1.1 |
| A 5Z 8MSE406 | 6 | 16 | M3 | 1.6 | 1.1 |

^Δ **NOTE:** One set screw each end.

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MOLDED UNIVERSAL JOINTS • TELESCOPING

SDP/SI

WITH BRASS SLIDE EXTENSION
ELECTRICALLY INSULATING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



0 10

► **MATERIAL:**

- Body - Molded Acetal
- Spider & Insert - Nickel Plated Brass
- Tube - Brass



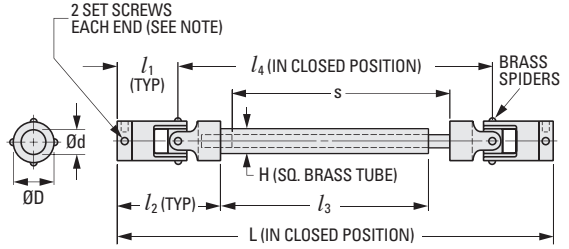
► **MAX. OPERATING TEMPERATURE:**

+85°C

► **SPECIFICATION:**

- Max. Angular Displacement: 90°
- Max. Recommended Extension: $\frac{l_3}{2}$

Shorter or longer lengths available on special order.



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | Bore Depth (Typ) | l ₁ | l ₂ | Length Closed | | l ₃ | s | H SQ. | Set Screw |
|----------------|--------|-----------------|------------------|----------------|----------------|---------------|----------------|----------------|------|-------|-----------|
| | | | | | | L | l ₄ | | | | |
| A 5Z 8MSEB202 | 6.3 | *2 | 9.9 | 13.5 | 23 | 82.6 | 55.6 | 36.5 | 40.5 | 3.2 | M3 |
| A 5Z 8MSEB203 | 6.3 | *3 | 9.9 | 13.5 | 23 | 82.6 | 55.6 | 36.5 | 40.5 | 3.2 | M3 |
| A 5Z 8MSEB303 | 9.5 | *3 | 13.2 | 19.1 | 33.3 | 112.7 | 74.6 | 46 | 53.2 | 4 | M3 |
| A 5Z 8MSEB304 | 9.5 | 4 | 13.2 | 19.1 | 33.3 | 112.7 | 74.6 | 46 | 53.2 | 4 | M3 |
| A 5Z 8MSEB404 | 12.7 | *4 | 16 | 23 | 40.9 | 152.5 | 106.5 | 70.6 | 78.6 | 4.8 | M3 |
| A 5Z 8MSEB406 | 12.7 | 6 | 16 | 23 | 40.9 | 152.5 | 106.5 | 70.6 | 78.6 | 4.8 | M3 |
| A 5Z 8MSEB506 | 15.9 | 6 | 21.8 | 33.7 | 60.3 | 203.2 | 135.8 | 82.6 | 96 | 6.4 | M4 |
| A 5Z 8MSEB508 | 15.9 | 8 | 21.8 | 33.7 | 60.3 | 203.2 | 135.8 | 82.6 | 96 | 6.4 | M4 |

*NOTE: One set screw each end.

BALL AND SOCKET JOINTS

SDP/SI

ROHS COMPLIANT

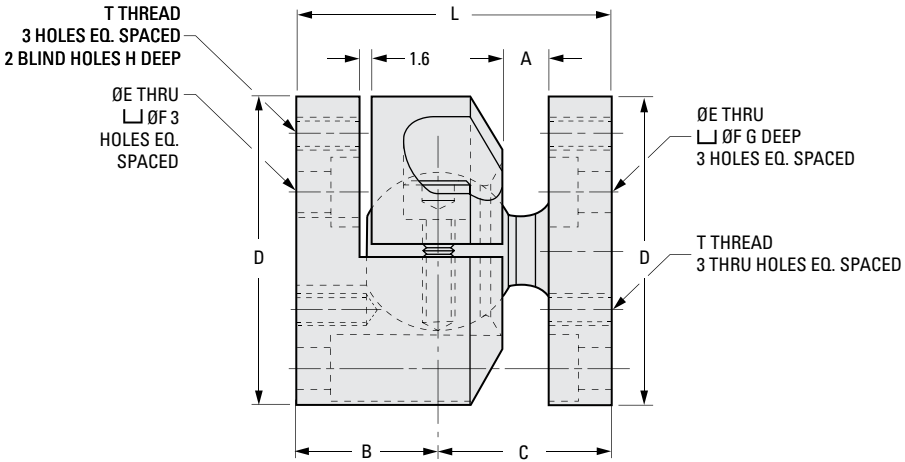
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

2024-T4 Aluminum Alloy

> **FINISH:**

Black Anodized



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- NEW**
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- 15
- 16

METRIC COMPONENT

| Catalog Number | Ball Size | D Dia. | L Overall Length | A | B | C |
|----------------|-----------|--------|------------------|---|----|----|
| A 5A 9M20400 | 20 | 40 | 40 | 6 | 18 | 22 |
| A 5A 9M30600 | 30 | 60 | 60 | 8 | 28 | 32 |

| Catalog Number (Ref.) | E Dia. | F Dia. | G | H | T Thread | Bolt Circle Dia. |
|-----------------------|--------|--------|-----|----|-----------|------------------|
| A 5A 9M20400 | 5.3 | 8.7 | 3.7 | 9 | M5 x 0.8 | 30 |
| A 5A 9M30600 | 8.3 | 13.5 | 8.2 | 23 | M8 x 1.25 | 45 |





Silicone Gel Vibration Dampers Flanged
pg. 8-5



Silicone Gel Vibration Dampers Double-Studded
pg. 8-6



Spring and Silicone Gel Vibration Dampers
pg. 8-8



Silicone Gel Vibration Dampers Bushings
pg. 8-9



Silicone Gel Sheets
pg. 8-10



Silicone Gel Tape
pg. 8-11



Silicone Gel Chip
pg. 8-11



Silicone Foam Sheets
pg. 8-12



Cylindrical Mountings to 6 kgf
pg. 8-13



Cylindrical Mountings to 34 kgf
pg. 8-14



Cylindrical Mountings to 36 kgf
pg. 8-15



Cylindrical Mountings to 48 kgf
pg. 8-16



Cylindrical Mountings to 54 kgf
pg. 8-17



Cylindrical Mountings to 64 kgf
pg. 8-18



Cylindrical Mountings to 84 kgf
pg. 8-19



Cylindrical Mountings to 95 kgf
pg. 8-20



Conical Bumpers
pg. 8-21



Ring Mountings
pg. 8-22



M-Style Mountings
pg. 8-23



V-Style Mountings
pg. 8-24



V-Style Mountings
pg. 8-24



Base Mountings to 10 lbs (4.6 kgf)
pg. 8-26



Base Mountings to 242 lbs (110 kgf)
pg. 8-27



Heavy-Duty Base Mountings
General Purpose pg. 8-28



Wheel Leveling Carry Mountings
pg. 8-29



Leveling Carry Mountings
pg. 8-30

Figure 1: REBOUND RESILIENCE

No matter what the temperature could be, Silicone Gel performs more stably than other materials.

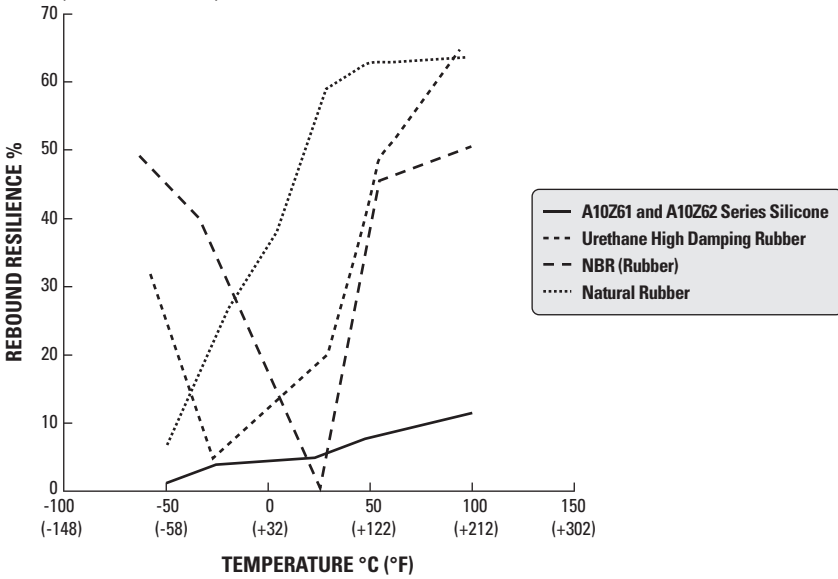
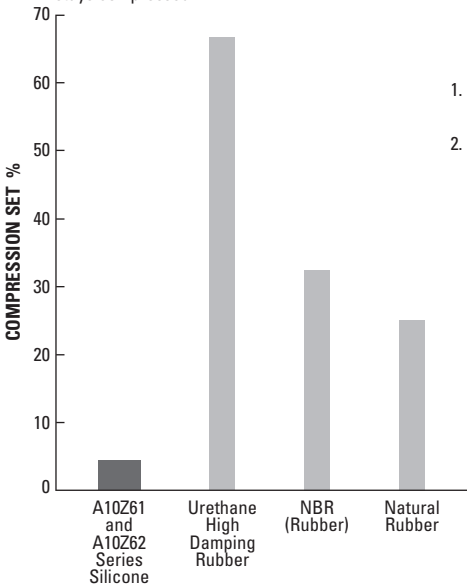


Figure 2: COMPRESSION SET

Outstanding restoration is available even when Silicone Gel stays compressed.



1. Compress above materials by 25% and leave compressed for 22 hours in 70°C (158° F).
2. Release compression and leave in normal temperature for 30 minutes.



0 10

| General Characteristics | | A10Z61MA1 | A10Z61MA2 & A10Z61MB1 | A10Z61MB2 & A10Z61MSF10 |
|---|-------------------------------------|------------------------|------------------------|-------------------------|
| Specific Gravity | | 1.05 | 1.06 | 1.07 |
| Hardness | Needle* Penetration (1/10 mm) | 55 | — | — |
| | Asker C** | — | 33 | 52.5 |
| Specific Heat (J/g x K) | | 1.52 | 1.51 | 1.52 |
| Thermal Conductivity (W/m x K) | | 0.2 | 0.2 | 0.2 |
| Specific Volume Resistance Ratio (Ohm x cm) | | 4.0 x 10 ¹⁴ | 3.2 x 10 ¹⁴ | 6.6 x 10 ¹⁴ |
| Chemical Resistance | Toluene | + | + | + |
| | Acetone | + | + | + |
| | Methanol | - | - | - |
| | Distilled H ₂ O | - | - | - |
| | Fuel | + | + | + |
| | Lubricant | + | + | + |
| | NaCl (10%) | - | - | - |
| | HCl (10%) NaOH (5%) | - | - | - |
| Operating Temperature | | -40°C to +200°C | -40°C to +200°C | -40°C to +200°C |

+ = Has a Reaction
- = No Reaction

| Catalog Number | Quantity of Deflection (mm) | Load at Deflection (kgf) |
|----------------|-----------------------------|--------------------------|
| A10Z61MTHB | 6.3 +/-1 | 0.010 |
| A10Z61MTHA | 3.3 +/-1 | 0.010 |
| A10Z61MTHC | 5 +/-1 | 0.026 |
| A10Z61MTHTW | 4.4 +/-0.5 | 0.208 |
| A10Z61MMN03 | 3.5 +/-1 | 0.031 |
| A10Z61MMN05 | 3.5 +/-1 | 0.052 |
| A10Z61MMN07 | 3.5 +/-1 | 0.073 |
| A10Z61MMN10 | 3.5 +/-1 | 0.104 |
| A10Z61MSF02 | 4 +/-0.5 | 0.031 |
| A10Z61MSF05 | 4 +/-0.5 | 0.078 |
| A10Z61MSF10 | 4 +/-0.5 | 0.146 |

* JIS K 2207

** Japan Rubber Association Standard (SRIS 0101)

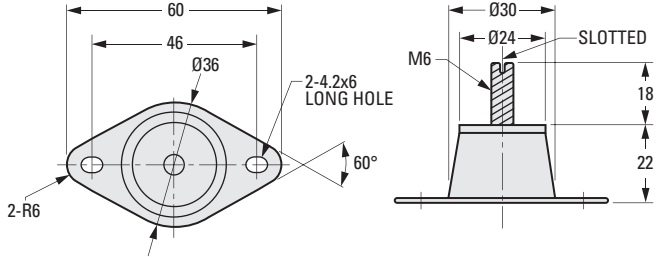
TO BE USED IN COMPRESSION ONLY
 FOR SMALL TO INTERMEDIATE LOAD APPLICATIONS
 DAMPS LOW FREQUENCY VIBRATION
 CAN BE USED WHEN SPACE IS LIMITED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

- Stud** - Steel, Unichro Plated
- Body** - Silicone Gel
- Flange Plate** - Stainless Steel

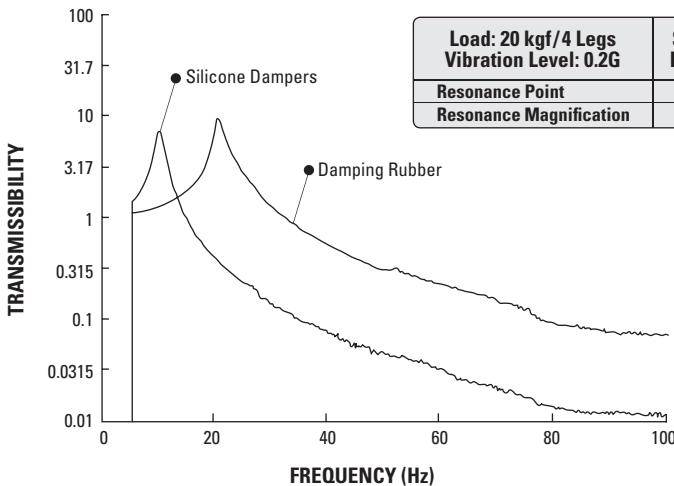


METRIC COMPONENT

| Catalog Number | Optimum Load kgf/leg |
|----------------|----------------------|
| A10Z61MSF02 | 1.25 to 3.25 |
| A10Z61MSF05 | 3.25 to 7.5 |
| A10Z61MSF10 | 7.5 to 12.5 |

TYPICAL CHARACTERISTICS OF THE SILICONE MOUNTS

(Example Shown: A10Z61MMN05)



TO BE USED IN COMPRESSION ONLY
 FOR SMALL TO INTERMEDIATE LOAD APPLICATIONS
 DAMPS LOW FREQUENCY

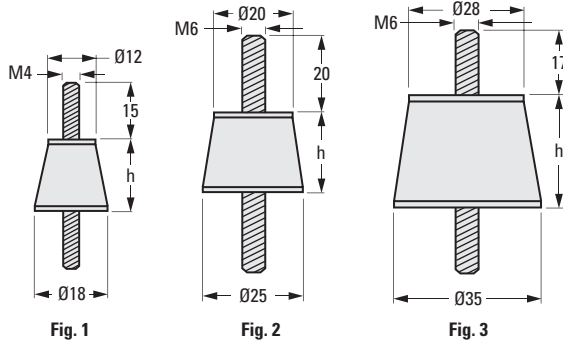
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> MATERIAL:

Studs - Fig. 1 & 2: Brass, Nickel Plated
Fig. 3: Steel, Unichro Plate
Body - Silicone Gel

See application page for proper usage.



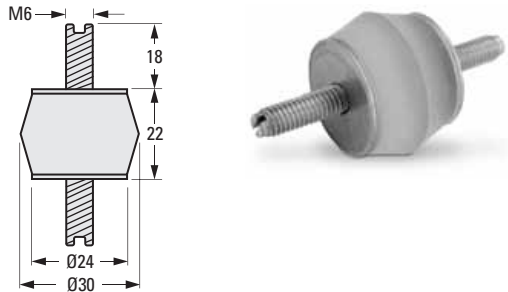
METRIC COMPONENT

| Catalog Number | Fig. No. | Optimum Load kgf/leg | Resonance Point Hz | Resonance Magnification dB | Recommended Frequency Hz | h mm |
|----------------|----------|----------------------|--------------------|----------------------------|--------------------------|------|
| A10Z61MTHB | 1 | 0.4 to 0.6 | 13 to 11 | 13 to 12 | 18 ~ | 18 |
| A10Z61MTHA | 1 | 0.5 to 0.8 | 16 to 15 | 12 | 23 ~ | 12 |
| A10Z61MTHC | 2 | 0.8 to 2 | 14 to 12 | 13 to 12 | 20 ~ | 18 |
| A10Z61MTHTW | 3 | 12.5 to 25 | 10 to 8 | 20 to 19 | from 14 | 25 |

> MATERIAL:

Studs - Steel, Unichro Plate
Body - Silicone Gel

See application page for proper usage.



METRIC COMPONENT

| Catalog Number * | Optimum Load kgf/leg | Resonance Point Hz | Resonance Magnification dB | Recommended Frequency Hz |
|------------------|----------------------|--------------------|----------------------------|--------------------------|
| A10Z61MMN03 | 2 to 3.5 | 12 to 10 | 12 | 17 ~ |
| **A10Z61MMN05 | 3.5 to 5.5 | 11 to 10 | 14 to 13 | 16 ~ |
| A10Z61MMN07 | 5.5 to 8.5 | 11 to 10 | 16 to 15 | 16 ~ |
| A10Z61MMN10 | 8.5 to 12.5 | 11 to 10 | 20 to 18 | 16 ~ |

* This type is slotted on the stud for fixing a bolt.

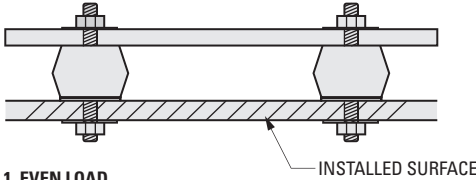
** See the next page for Transmissibility Chart.



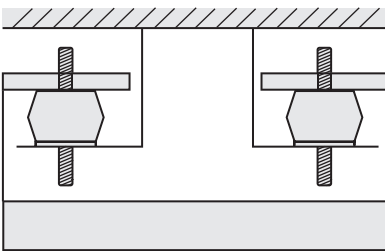
> FEATURES:

- Highest damping effect arises when gel is compressed 10% up to 30%.
- Low in temperature dependency, this material offers stable performance from -40°C to +200°C
- Excellent chemical resistance.
- Low in compression set.
- Performance stays the same even after repeated use.
- Contains nothing harmful. Environment-friendly.

> RIGHT USE:

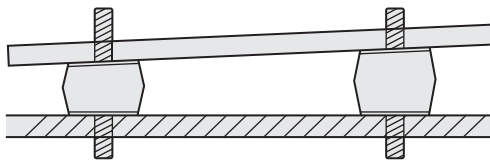


1. EVEN LOAD

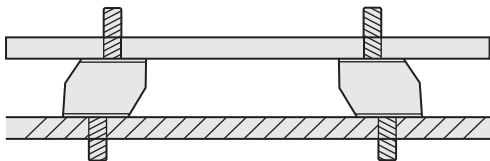


2. HANG IN COMPRESSIVE DIRECTION

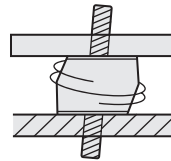
> WRONG USE:



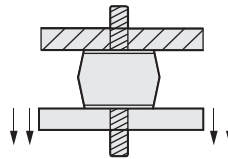
1. UNEVEN LOAD



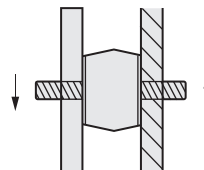
2. BOLT HOLE OUT OF CENTER



3. TWIST



4. TENSILE DIRECTION



5. SHEARING DIRECTION

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8**
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

SPRING AND SILICONE GEL VIBRATION DAMPERS

SDP/SI

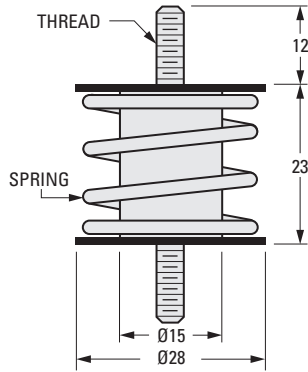
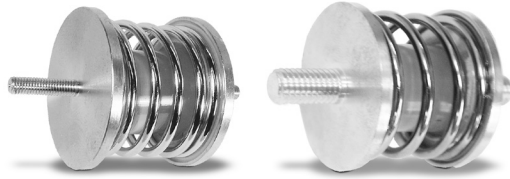
TO BE USED IN COMPRESSION ONLY
 DAMPS LOW FREQUENCY VIBRATIONS
 VERTICAL VIBRATIONS DAMPED WITHOUT HORIZONTAL DEFLECTION

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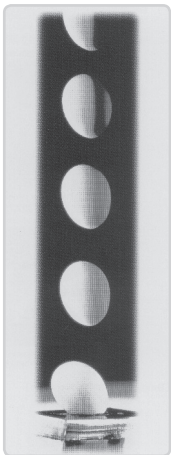
> MATERIAL:

- Studs** - Brass
- Body** - Silicone Gel
- Spring** - Piano Wire Type B, Nickel Plated



METRIC COMPONENT

| Catalog Number | Optimum Load kgf/leg | Resonance Point Hz | Resonance Magnification dB | Recommended Frequency Hz | Thread |
|----------------|-------------------------|-----------------------|-------------------------------|-----------------------------|--------|
| A10Z61MBG7 | 0.8 to 1.6 | 10 to 8 | 16 to 14 | from 14 | M3 |
| A10Z61MBG8 | 1.5 to 4 | | 18 to 16 | | M6 |



Demonstration of Silicone Gel's outstanding shock-absorbing abilities.

An ordinary fresh raw egg dropped down from 18 meters high to a 2 cm thick Silicone Gel bed does not break. It is publicly proven many times.

I

R

T

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

A

PROTECTS FRAGILE SUBJECTS FROM
MICRO-VIBRATIONS AND LIGHT SHOCKS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Collar - Brass
- Bushing - Silicone Gel

More technical data is given on preceding pages.

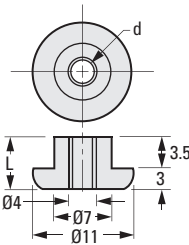


Fig. 1

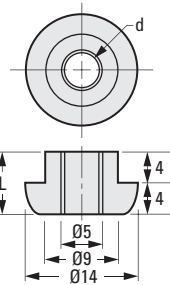
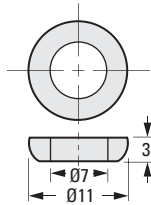
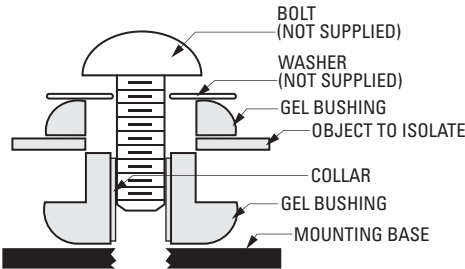
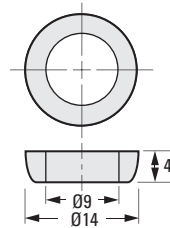


Fig. 2



INSTALLATION DIAGRAM

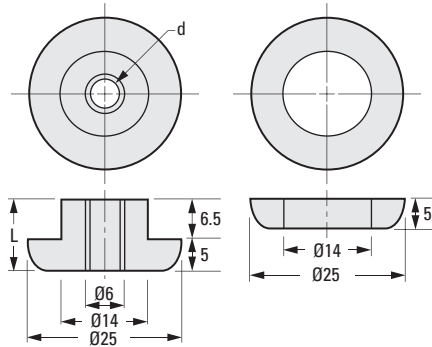


Fig. 3

METRIC COMPONENT

| Catalog Number | Fig. No. | d Collar I.D. | L Collar Length | Collar Thickness | Optimum Load kgf/leg | Resonance Point Hz | Resonance Magnification dB | Recommended Frequency Hz |
|----------------|----------|---------------|-----------------|------------------|----------------------|--------------------|----------------------------|------------------------------------|
| A10261MS | 1 | 3 | 6 | 0.5 | 0.05 to 0.188 | 64 to 42 | 7 to 9 | 0.05 kg • 90 ~ 0.188 kg • 60 ~ |
| A10261MA1 | 2 | 3 | 7 | 1 | 0.125 to 0.625 | 67 to 35 | 9 to 10 | 0.125 kg • 95 ~ 0.625 kg • 50 ~ |
| A10261MA2 | 2 | 3 | 7 | 1 | 0.625 to 1 | 49 to 37 | 15 to 16 | 0.625 kg • 70 ~ 1 kg • 55 ~ |
| A10261MB1 | 3 | 4 | 11 | 1 | 1 to 3.75 | 49 to 23 | 15 to 17 | 1 kg • 70 ~ 3.75 kg • 35 ~ |
| A10261MB2 | 3 | 4 | 11 | 1 | 3.75 to 8 | 20 to 15 | 19 to 23 | 3.75 kg • 30 ~ 8 kg • 25 ~ |

SILICONE GEL SHEETS

SDP/SI

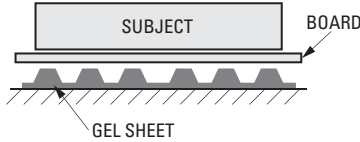
LOW RESONANCE MAGNIFICATION
 OZONE, UV AND CHEMICAL RESISTANT
 SHOCK ABSORBER
 REDUCES NOISE

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➤ MATERIAL:
 Silicone Gel

➤ INSTALLATION:

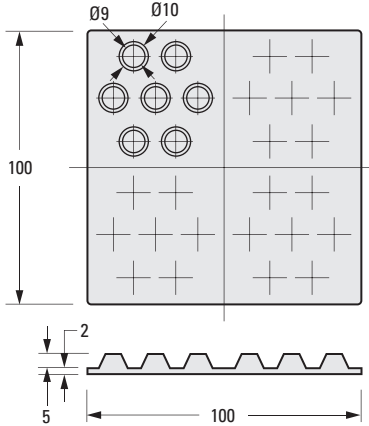


Divide for light load. Add for heavy load.
 Make sure of total subject load and then
 select optimum gel sheet.

Example:
 For 0.3 kgf load, add a board for extra weight
 or divide **A10Z62MSN02** to reduce projections.

For 10 kgf load, divide **A10Z62MSN15** into pieces.

For 80 kgf load, use two of **A10Z62MSN50** and
 divide if needed.



METRIC COMPONENT

| Catalog Number | Optimum Load kgf/sheet | Resonance Point Hz | Resonance Magnification dB | Recommended Frequency Hz | Deflection mm | Color |
|----------------|------------------------|--------------------|----------------------------|--------------------------|---------------|--------|
| A10Z62MSN02 | 0.5 to 2 | 27 to 21 | 6 | from 38 | 1.4 to 3 | Yellow |
| A10Z62MSN05 | 2 to 5 | 29 to 23 | 8 | from 40 | 1.5 to 2.5 | Green |
| A10Z62MSN15 | 5 to 15 | 26 to 18 | 13 | from 37 | 1.1 to 2.2 | Orange |
| A10Z62MSN50 | 15 to 50 | 22 to 15 | 20 to 18 | from 30 | 0.7 to 2 | Blue |

LOW COMPRESSION SET
HIGH WEATHER RESISTANCE
HIGH CHEMICAL RESISTANCE
EFFECTIVE IN NARROW SPACE

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➤ **MATERIAL:**
Silicone Gel

➤ **OPERATING TEMPERATURE:**
-40°C to +100°C

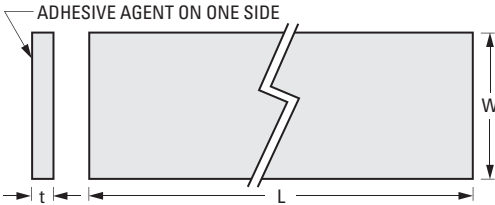


Fig. 1

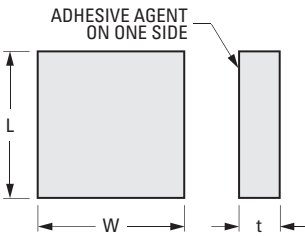


Fig. 2



METRIC COMPONENT

| Catalog Number | W | L | t |
|----------------------|----|------|----|
| Fig. 1 Tape | | | |
| A10Z62MGT1 | 10 | 1000 | 1 |
| A10Z62MGT2 | 20 | 1000 | 1 |
| A10Z62MGT3 | 10 | 1000 | 2 |
| A10Z62MGT4 | 20 | 1000 | 2 |
| A10Z62MGT5 | 10 | 1000 | 3 |
| A10Z62MGT6 | 20 | 1000 | 3 |
| Fig. 2 Chips* | | | |
| A10Z62MGC1 | 10 | 10 | 3 |
| A10Z62MGC2 | 10 | 10 | 5 |
| A10Z62MGC3 | 15 | 15 | 3 |
| A10Z62MGC4 | 15 | 15 | 5 |
| A10Z62MGC5 | 15 | 15 | 10 |
| A10Z62MGC6 | 20 | 20 | 3 |
| A10Z62MGC7 | 20 | 20 | 5 |
| A10Z62MGC8 | 20 | 20 | 10 |

* Priced per sheet (25 chips per sheet)

SILICONE FOAM SHEETS



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LOW COMPRESSION SET
 OUTSTANDING DURABILITY
 SHOCK ABSORBER
 LOW FLAMMABILITY
 FOR OUTSIDE USE
 DURABLE IN ANY WEATHER



➤ **MATERIAL:**

Silicone Foam

➤ **OPERATING TEMPERATURE:**

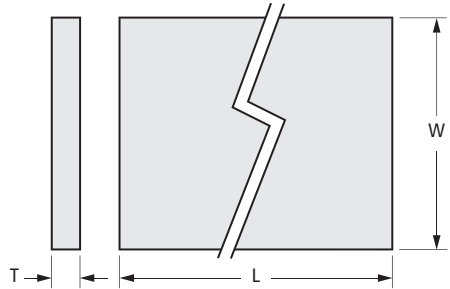
-40°C to +200°C

➤ **CHARACTERISTICS:**

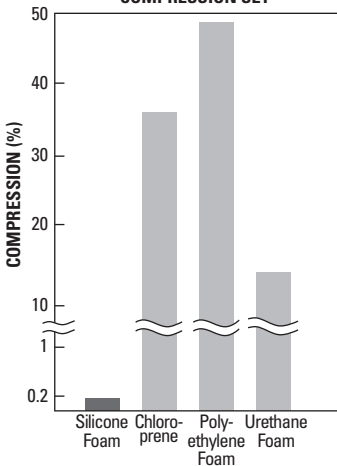
| | | |
|---|----------------------------|---|
| Specific Gravity | 0.26 | |
| Tensile Strength (Mega Pascal) | 0.32 | |
| Elongation (%) | 73 | |
| Young's Modulus (Kilo Pascal) | 269.5 | |
| Specific Heat (Joule/g • °K) | 1.15 | |
| Thermal Conductivity (Watt/m • °K) | 0.06 | |
| Specific Volume Resistance Ratio (Ω • cm) | 3.8x10 ¹⁴ | |
| Dielectric Breakdown Strength (kV/mm) | 3.8 | |
| Chemical Resistance | Toluene | X |
| | Acetone | X |
| | Methanol | 0 |
| | Distilled H ₂ O | 0 |
| | Fuel | X |
| | Lubricant | X |
| | NaCl (10%) | 0 |
| | HCl (10%) | 0 |
| | NaOH (5%) | 0 |

X = Has a reaction

0 = No reaction



COMPRESSION SET



1. Compress the materials by 50% and leave compressed for 22 hours in +70°C.
2. Release compression and leave subject in normal temperature for 30 minutes.

METRIC COMPONENT

| Catalog Number | W Width | T Thickness | L Length | Color |
|-------------------|---------|-------------|----------|-------|
| A 10Z62MNPGRN0500 | 450 | 3 | 500 | Green |
| A 10Z62MNPGRN2000 | 450 | 3 | 2000 | Green |
| A 10Z62MNPWTE0500 | 300 | 6 | 500 | White |
| A 10Z62MNPWTE1000 | 300 | 6 | 1000 | White |

FOR COMPRESSION LOADS OF 2 TO 6 kgf
SHEAR LOADS OF 1 TO 3 kgf

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› MATERIAL:

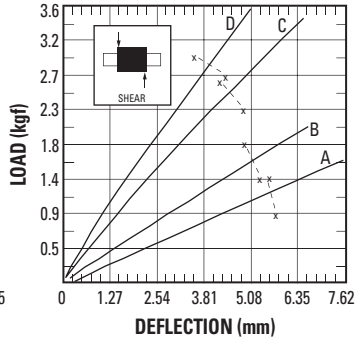
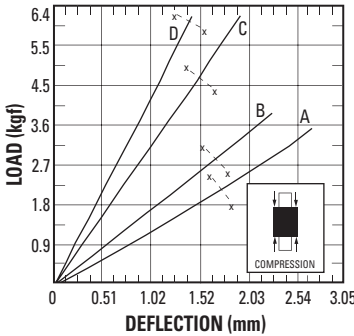
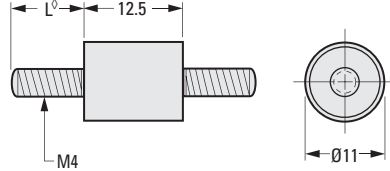
Fastener - Steel, Zinc Plated
Isolator - Natural Rubber

› NOTE:

Maximum unthreaded portion of stud does not exceed 1.59 mm.

› LOAD DEFLECTION GRAPHS:

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



METRIC COMPONENT CATALOG NUMBER

A 10Z 2 M 302 **M 4**
Load Rating — A, B, C or D Length, L
07 = 7 mm **
10 = 10 mm

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 2.2 | - | - | - | - | 1.8 | 1.4 | 1.1 | 0.9 | 0.8 | 0.5 |
| B | 2.9 | - | - | - | - | 2.4 | 1.9 | 1.5 | 1.3 | 1.1 | 0.7 |
| C | 4.7 | - | - | - | - | 4.5 | 3.5 | 2.9 | 2.4 | 2 | 1.2 |
| D | 6 | - | - | - | - | 5.9 | 4.7 | 3.9 | 3.2 | 2.6 | 1.9 |

| Shear | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 1000 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 1.2 | 1.18 | 0.77 | 0.54 | 0.45 | 0.32 | 0.22 | * | * | * | * |
| B | 1.6 | - | 1.18 | 0.87 | 0.63 | 0.5 | 0.37 | 0.32 | 0.28 | * | * |
| C | 2.5 | - | 2.14 | 1.45 | 1.13 | 0.87 | 0.68 | 0.59 | 0.5 | 0.41 | 0.32 |
| D | 2.9 | - | 2.76 | 2 | 1.54 | 1.22 | 1 | 0.82 | 0.72 | 0.63 | 0.45 |

* At these forcing frequencies, lesser loads will yield less than 81% isolation.

** To be discontinued when present stock is depleted.

CYLINDRICAL MOUNTINGS • TO 34 kgf



FOR COMPRESSION LOADS OF 18 TO 34 kgf
SHEAR LOADS OF 9 TO 19 kgf

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➤ **MATERIAL:**

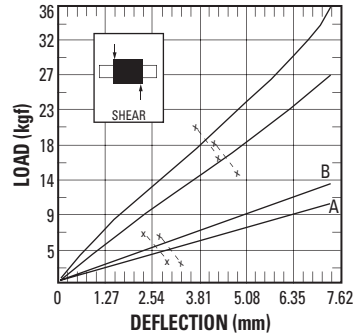
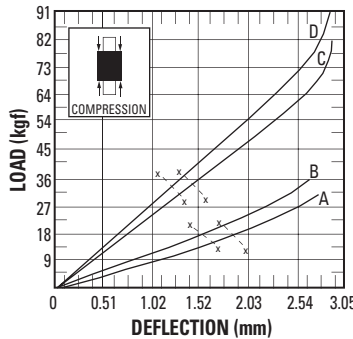
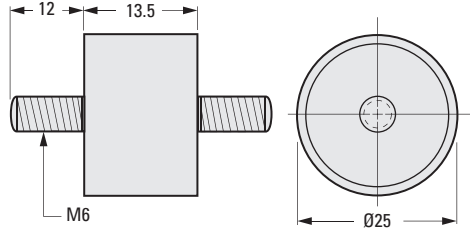
Fastener - Steel, Zinc Plated
Isolator - Natural Rubber

➤ **NOTE:**

Maximum unthreaded portion of stud does not exceed 1.59 mm.

➤ **LOAD DEFLECTION GRAPHS:**

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



METRIC COMPONENT CATALOG NUMBER

A 10Z 2 M 305 □ M 06

Load Rating □

A, B, C or D

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 18.2 | - | - | - | - | 13.8 | 10.9 | 8.8 | 7.3 | 6.1 | 4.5 |
| B | 19.5 | - | - | - | - | 17.2 | 13.6 | 11.3 | 9.3 | 7.9 | 5.7 |
| C | 33.6 | - | - | - | - | 33.6 | 26.5 | 21.6 | 17.9 | 15 | 10.7 |
| D | 34 | - | - | - | - | - | 30.6 | 25.2 | 20.6 | 17.5 | 12.5 |

| Shear | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 8.6 | 7.1 | 5.7 | 3.8 | 2.9 | * | * | * | * | * | * |
| B | 9.5 | 8.6 | 7 | 4.8 | 3.6 | 2.9 | 2.3 | * | * | * | * |
| C | 16.8 | - | 14.3 | 10.2 | 7.7 | 6.4 | 5.2 | 4.3 | * | * | * |
| D | 19 | - | 18.1 | 13.3 | 10 | 8.4 | 7.2 | 5.9 | 5 | 4.3 | * |

* At these forcing frequencies, lesser loads will yield 81% isolation.

FOR COMPRESSION LOADS OF 15 TO 36 kgf
SHEAR LOADS OF 8 TO 18 kgf

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► **MATERIAL:**

Fastener - Steel, Zinc Plated
Isolator - Natural Rubber

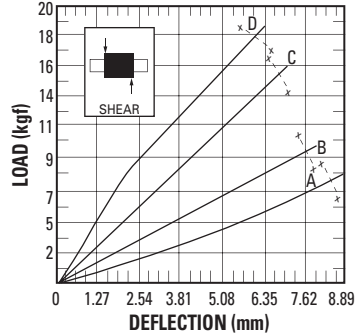
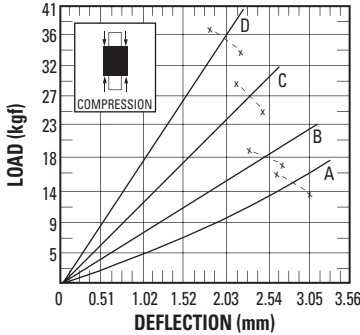
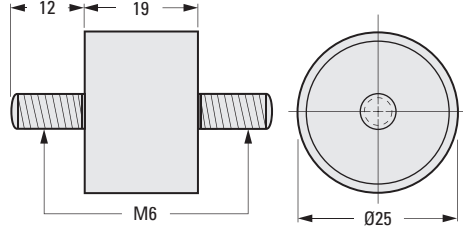
► **NOTE:**

Maximum unthreaded portion of stud does not exceed 1.59 mm.



► **LOAD DEFLECTION GRAPHS:**

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



METRIC COMPONENT CATALOG NUMBER

A10Z 2M300 M06

Load Rating
A, B, C or D

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 850 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 15 | - | - | - | 13.2 | 9.5 | 7.3 | 5.7 | 4.8 | 3.2 | 2.3 |
| B | 18.1 | - | - | - | 17.9 | 12.9 | 9.8 | 7.7 | 6.4 | 4.3 | 3.2 |
| C | 27.2 | - | - | - | - | 22.2 | 16.8 | 13.4 | 10.9 | 7.7 | 5.2 |
| D | 35.9 | - | - | - | - | 32.9 | 25 | 19.7 | 16.3 | 11.1 | 7.7 |

| Shear | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 850 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 8.2 | 7.3 | 4.2 | 3.3 | 2.3 | 1.7 | 1.3 | 1 | 0.8 | 0.5 | * |
| B | 9.5 | - | 5.9 | 4.6 | 3.2 | 2.3 | 1.8 | 1.4 | 1.2 | 0.8 | * |
| C | 15.4 | - | 11.1 | 9.1 | 6.7 | 5.1 | 4.1 | 3.4 | 2.8 | 2 | 1.6 |
| D | 18.1 | - | 14.5 | 11.8 | 8.6 | 6.7 | 5.5 | 4.5 | 3.8 | 2.7 | 2.3 |

* At these forcing frequencies, lesser loads will yield 81% isolation.

CYLINDRICAL MOUNTINGS • TO 48 kgf



FOR COMPRESSION LOADS OF 21 TO 48 kgf
SHEAR LOADS OF 12 TO 30 kgf

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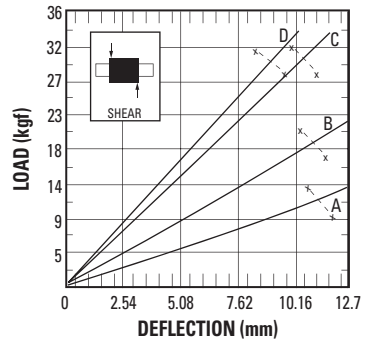
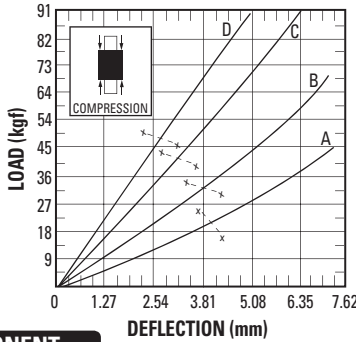
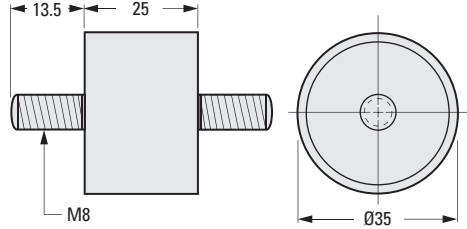
► **MATERIAL:**

Fastener - Steel, Zinc Plated
Isolator - Natural Rubber



► **LOAD DEFLECTION GRAPHS:**

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



METRIC COMPONENT CATALOG NUMBER

A 10 Z 2 M 3 1 1 M 0 8

Load Rating
A, B, C or D

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|-----|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 700 | 850 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 21.3 | - | - | - | 20.2 | 13.6 | 10 | 8.2 | 6.1 | 5 | - |
| B | 33.6 | - | - | - | 32.9 | 22 | 16.1 | 12.3 | 9.5 | 7.9 | 5.7 |
| C | 43.5 | - | - | - | - | 34.3 | 25.5 | 19.5 | 15.4 | 12.7 | 8.8 |
| D | 47.6 | - | - | - | - | 45.4 | 33.1 | 25.6 | 20.4 | 17.2 | 11.6 |

| Shear | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 700 | 850 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 12.3 | 12.3 | 8.8 | 5.2 | 4.1 | 2.7 | * | * | * | * | * |
| B | 18.6 | - | 14.1 | 8.6 | 6.6 | 4.8 | 3.6 | * | * | * | * |
| C | 29.9 | - | 24.3 | 15 | 12 | 8.6 | 6.4 | 5.2 | 4.1 | * | * |
| D | 29.9 | - | 27.7 | 17.2 | 13.8 | 10 | 8.8 | 5.9 | 4.8 | 3.9 | * |

* At these forcing frequencies, lesser loads will yield 81% isolation.



FOR COMPRESSION LOADS OF 19 TO 54 kgf
SHEAR LOADS OF 10 TO 29 kgf

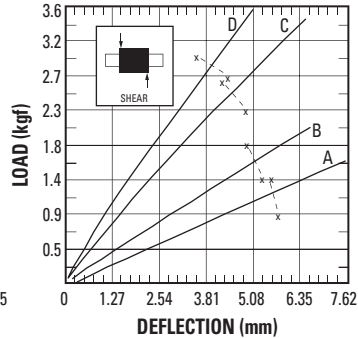
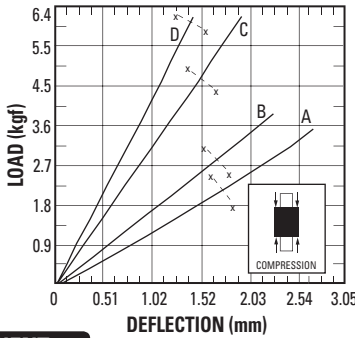
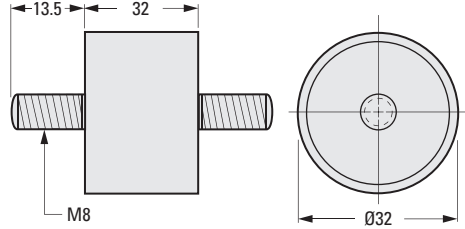
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> **MATERIAL:**

Fastener - Steel, Zinc Plated
Isolator - Natural Rubber

> **LOAD DEFLECTION GRAPHS:**

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



METRIC COMPONENT CATALOG NUMBER

A 10Z 2 M 310 □ M 08

Load Rating
A, B, C or D

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|-----|-----|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 600 | 850 | 950 | 1100 | 1250 | 1500 | 1750 | 2000 | 2500 | 3000 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 18.6 | - | - | - | 15.7 | 12.5 | 8.6 | 6.4 | 4.5 | 3.2 | - |
| B | 29 | - | - | - | - | 21.8 | 14.5 | 10.9 | 7.9 | 5.5 | 3.9 |
| C | 40.8 | - | - | - | - | 36.3 | 25 | 18.8 | 13.6 | 9.1 | 6.4 |
| D | 54.4 | - | - | - | - | - | 40.4 | 32 | 24 | 17.5 | 12 |

| Shear | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 600 | 850 | 950 | 1100 | 1250 | 1500 | 1750 | 2000 | 2500 | 3000 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 9.5 | 9.1 | 5 | 3.9 | 3 | 2.5 | * | * | * | * | * |
| B | 14.1 | - | 8.2 | 6.4 | 4.8 | 3.6 | 2.5 | * | * | * | * |
| C | 21.8 | - | 14.3 | 11.3 | 8.8 | 7 | 5 | 3.9 | * | * | * |
| D | 28.6 | - | 22.7 | 18.6 | 14.8 | 12.5 | 9.3 | 7.3 | 6.4 | 3.6 | * |

* At these forcing frequencies, lesser loads will yield 81% isolation.

CYLINDRICAL MOUNTINGS • TO 64 kgf



FOR COMPRESSION LOADS OF 25 TO 64 kgf
SHEAR LOADS OF 15 TO 29 kgf

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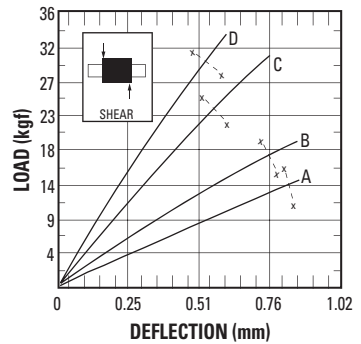
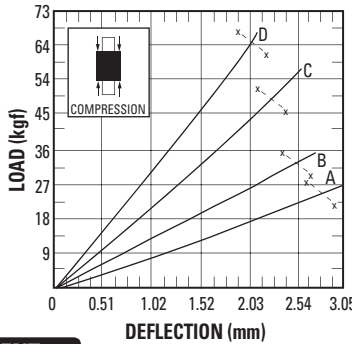
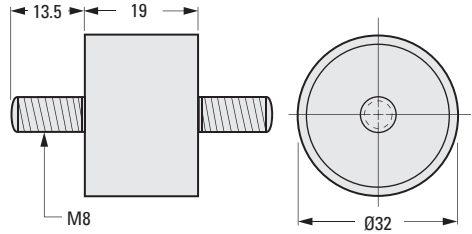


➤ MATERIAL:

Fastener - Steel, Zinc Plated
Isolator - Natural Rubber

➤ LOAD DEFLECTION GRAPHS:

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



METRIC COMPONENT CATALOG NUMBER

A 10 Z 2 M 3 1 4 M 0 8

Load Rating
A, B, C or D

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 950 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 25.4 | - | - | - | 22.7 | 17.2 | 12.9 | 10.2 | 8.2 | 5.7 | - |
| B | 33.1 | - | - | - | 33.1 | 23.1 | 17.7 | 13.8 | 11.1 | 7.5 | 5.5 |
| C | 49.5 | - | - | - | - | 38.6 | 28.8 | 22.7 | 18.6 | 12.7 | 9.1 |
| D | 64.4 | - | - | - | - | 58.5 | 44.9 | 35.4 | 29 | 20 | 13.6 |

| Shear | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 950 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 3000 | 3600 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 14.5 | 10.4 | 8.2 | 6.6 | 4.5 | 3.4 | * | * | * | * | * |
| B | 17.2 | 14.5 | 11.1 | 8.6 | 5.9 | 4.3 | 3.2 | * | * | * | * |
| C | 23.1 | - | 20.2 | 16.3 | 11.8 | 8.8 | 6.4 | 5.5 | 4.5 | * | * |
| D | 29 | - | 26.3 | 21.1 | 15.4 | 12.3 | 9.3 | 7.7 | 6.4 | 4.3 | * |

* At these forcing frequencies, lesser loads will yield 81% isolation.

FOR COMPRESSION LOADS OF 42 TO 84 kgf
SHEAR LOADS OF 16 TO 30 kgf

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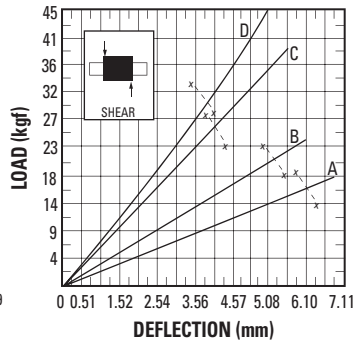
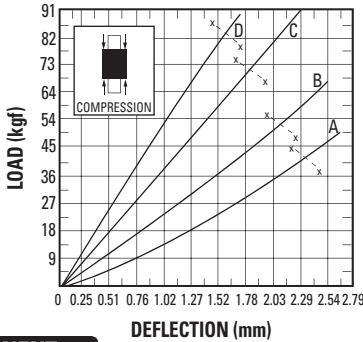
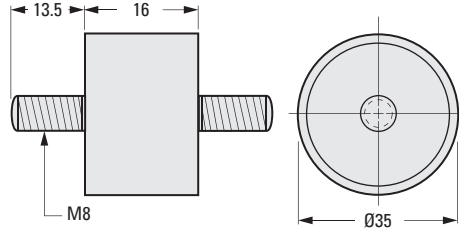


> MATERIAL:

Fastener - Steel, Zinc Plated
Isolator - Natural Rubber

> LOAD DEFLECTION GRAPHS:

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



METRIC COMPONENT CATALOG NUMBER

A 10Z 2M 312 M 08

Load Rating
A, B, C or D

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 950 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 42.2 | - | - | - | - | 32.2 | 23.1 | 17.7 | 14.1 | 11.3 | - |
| B | 53.5 | - | - | - | - | 48.1 | 36.7 | 29 | 23.6 | 19.5 | 15.9 |
| C | 71.7 | - | - | - | - | - | 54.9 | 43.5 | 35.8 | 29.5 | 24.5 |
| D | 83.9 | - | - | - | - | - | 74.4 | 59.4 | 49.5 | 40.8 | 33.6 |

| Shear | | Forcing Frequency in Cycles per Minute | | | | | | | | | |
|-------------|------------------|--|------|------|------|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 950 | 1100 | 1250 | 1500 | 1750 | 2000 | 2250 | 2500 | 2750 | 3000 |
| | | Minimum Load for 81% Isolation (kgf) | | | | | | | | | |
| A | 16.3 | 15.4 | 11.3 | 8.6 | 6.1 | 4.5 | * | * | * | * | * |
| B | 20.9 | - | 17.2 | 13.6 | 9.5 | 7.3 | 5.5 | 4.3 | * | * | * |
| C | 25.9 | - | - | 22.7 | 15.9 | 11.8 | 9.1 | 7.3 | 5.9 | * | * |
| D | 30.4 | - | - | 29.9 | 20.9 | 15.4 | 11.8 | 9.5 | 8.2 | 6.4 | * |

* At these forcing frequencies, lesser loads will yield 81% isolation.

CYLINDRICAL MOUNTINGS • TO 95 kgf



FOR COMPRESSION LOADS OF 43 TO 95 kgf
NOT RECOMMENDED FOR STATIC SHEAR LOADS

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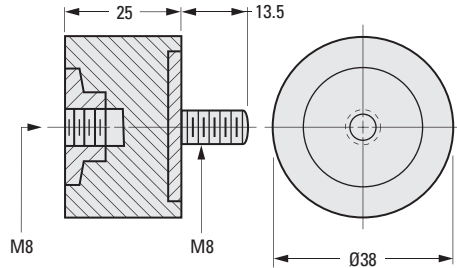
➤ **MATERIAL:**

Fastener - Steel, Zinc Plated
Isolator - Natural Rubber

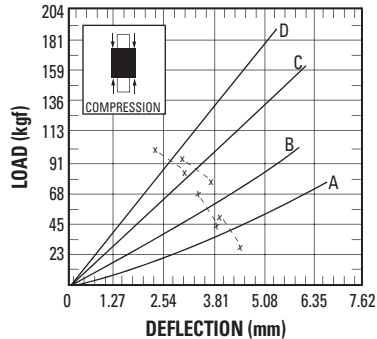


➤ **LOAD DEFLECTION GRAPHS:**

Deflections below the line x-x are considered safe practice for static loads; data above that line are useful for calculating deflections under dynamic loads.



The projections shown are per ISO convention.



METRIC COMPONENT CATALOG NUMBER

A 10 Z 2 M 3 0 8 □ M 0 8

Load Rating
A, B, C or D

| Compression | | Forcing Frequency in Cycles per Minute | | | | | | |
|--------------------------------------|------------------|--|------|------|------|------|------|------|
| Load Rating | Maximum Load kgf | 1150 | 1250 | 1500 | 1750 | 2000 | 2750 | 3500 |
| Minimum Load for 81% Isolation (kgf) | | | | | | | | |
| A | 43.1 | 43.1 | 36.3 | 25 | 18.2 | 13.6 | 6.8 | — |
| B | 61.2 | — | 56.7 | 38.6 | 27.2 | 20.4 | 10 | — |
| C | 83.9 | — | — | 63.5 | 45.4 | 34 | 18.2 | 11.3 |
| D | 95.3 | — | — | 83.9 | 61.2 | 47.6 | 25 | 15.9 |

CONICAL BUMPERS

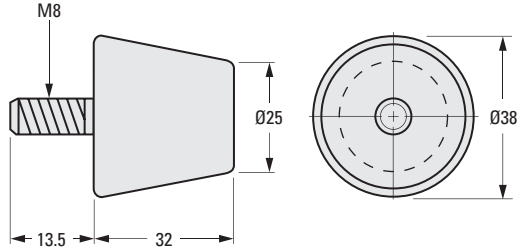
SDP/SI

FOR LOADS OF 20 TO 28 kgf

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Fastener - Steel, Zinc Plated
Isolator - Natural Rubber



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Recommended Maximum Load | |
|----------------|--------------------------|---------------------------|
| | Static kgf | Occasional Dynamic kgf |
| A10Z 7M1020AM | 20 | 36.3 |
| A10Z 7M1020BM | 22.2 | 45.4 |
| A10Z 7M1020CM | 25.4 | 55.3 |
| A10Z 7M1020DM | 28.1 | 65.8 |

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A

RING MOUNTINGS



FOR STANDARD LOADS OF 75 TO 1200 kgf
(165 TO 2645 lb.)

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

Mounting Plates - Steel, Plated
Isolators - Natural Rubber

➤ **FEATURES:**

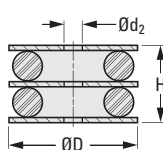
Low natural frequency.
Constant natural frequency
in a wide range of loads.
Excellent stability.
Multiple layers are possible.
Very easy to install.

➤ **APPLICATIONS:**

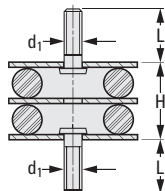
Compressors
Pumps
Blowers
Transformers
Lightweight Machines
Office Equipment
Measuring Instruments
Scales



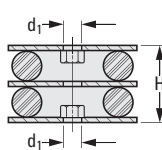
Two Ring Mounts



Style 2HH

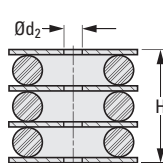


Style 2BB

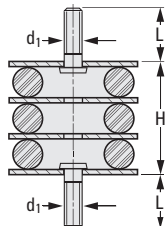


Style 2NN

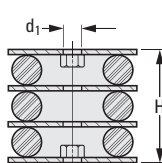
Three Ring Mounts



Style 3HH

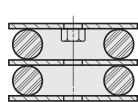


Style 3BB

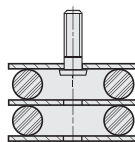


Style 3NN

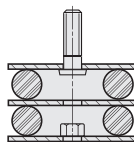
Combination Mounts



Style HN



Style HB



Style BN

NOTE: These combination mounts shown above are also available with three rings

Dimensions in () are inch.

METRIC COMPONENT CATALOG NUMBER

A 1 0 Z 4 7 M R M

Load Code

Mounting Style:

(See drawings at right)

HH, BB, NN, HN, HB, or BN

| Load Code No. | Rings | Load Range | | | | Defl. with Std. Load | | *Nat. Freq. (cpm) | D Dia. | | H | | d ₁ Thread | d ₂ | L |
|---------------|-------|---------------|------|----------------------------|------------|----------------------|------|-------------------|--------|-----|------|-----|-----------------------|----------------|---|
| | | Standard Load | | Lower Limit... Upper Limit | | mm | in. | | mm | in. | | | | | |
| | | kgf | lb. | kgf | lb. | | | mm | | | in. | mm | in. | | |
| 0602 | 2 | 75 | 165 | 25...100 | 55...220 | 10 | .39 | 450 | 60 | 35 | 1.38 | M8 | 11 | 30 (1.18) | |
| 0603 | 3 | | | | | 15 | .59 | 372 | (2.36) | 51 | 2.00 | | (.43) | | |
| 0802 | 2 | 150 | 331 | 50...200 | 110...441 | 13 | .51 | 378 | 80 | 46 | 1.81 | M10 | 13 | (1.18) | |
| 0803 | 3 | | | | | 20 | .79 | 318 | (3.15) | 67 | 2.64 | | (.51) | | |
| 1202 | 2 | 300 | 661 | 100...400 | 220...882 | 20 | .79 | 312 | 120 | 66 | 2.60 | M12 | 15 | 35 (1.38) | |
| 1203 | 3 | | | | | 30 | 1.18 | 258 | (4.72) | 97 | 3.82 | | (.59) | | |
| 1602 | 2 | 600 | 1322 | 200...800 | 440...1763 | 26 | 1.02 | 270 | 160 | 86 | 3.39 | M16 | 19 | 55 (2.17) | |
| 1603 | 3 | | | | | 39 | 1.54 | 222 | (6.30) | 126 | 4.96 | | (.75) | | |
| 2302 | 2 | 1200 | 2645 | 400...1600 | 882...3526 | 35 | 1.38 | 228 | 230 | 114 | 4.49 | M16 | 19 | 55 (2.17) | |
| 2303 | 3 | | | | | 53 | 2.09 | 192 | (9.06) | 168 | 6.61 | | (.75) | | |

* The natural frequency of n layers is 2 layers natural frequency x $\sqrt{\frac{2}{n}}$

M-STYLE MOUNTINGS

SDP/SI

FOR STANDARD LOADS OF 15 TO 125 kgf

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› **MATERIAL:**

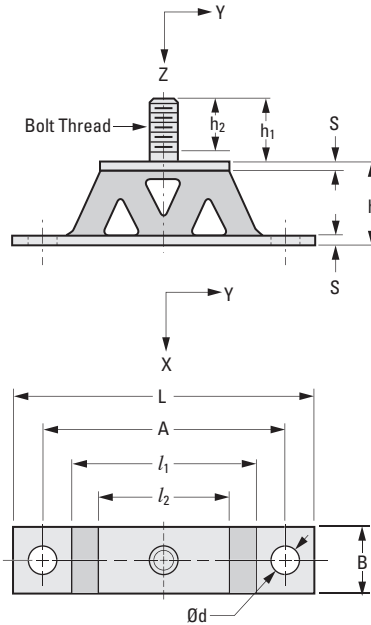
Mounting Plates - Mild Steel, Painted
Isolators - Natural Rubber, 60 Durometer

› **FEATURES:**

Compared with circular rubber mountings, they ensure lower spring rate in vertical direction and higher stability in horizontal direction. Suited for machines which generate considerable vibrations during low-speed operation.
 Excellent in controlling vibrations of 600 cpm or higher.
 Can be installed in very small areas because of its narrow width.
 Used for oscillating motions.

› **APPLICATIONS:**

Vibration Screen
 Vibration Conveyors
 Vibration Sieves
 Instrument Panels
 Refrigerators
 Compressors



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | L | A | B | I ₁ | I ₂ | S | h | h ₁ | h ₂ | d Dia. | Bolt Thread |
|----------------|-----|-----|----|----------------|----------------|-----|----|----------------|----------------|--------|-------------|
| A10Z46MKD040 | 125 | 104 | 30 | 80 | 55 | 4.5 | 40 | 29 | 25 | 11 | M10 |
| A10Z46MKD045 | 160 | 130 | 35 | 100 | 70 | 4.5 | 45 | 34 | 32 | 14 | M12 |
| A10Z46MKD055 | 210 | 170 | 40 | 130 | 90 | 6 | 55 | 54 | 50 | 17 | M16 |
| A10Z46MKD065 | 245 | 205 | 50 | 165 | 115 | 9 | 65 | 52 | 50 | 20 | M16 |

| Catalog Number (Ref.) | Standard Load in Z Direction kgf | Allowable Load kgf | | | Spring Rate in Z dir. Kz kgf/cm | Stiffness Ratio Kx/Kz | Stiffness Ratio Ky/Kz |
|-----------------------|----------------------------------|--------------------|--------|--------|---------------------------------|-----------------------|-----------------------|
| | | Z Dir. | X Dir. | Y Dir. | | | |
| A10Z46MKD040 | 15...35 | 70 | 12 | 14 | 200 | 0.17 | 0.2 |
| A10Z46MKD045 | 30...50 | 100 | 22 | 20 | 250 | 0.22 | 0.2 |
| A10Z46MKD055 | 50...90 | 175 | 45 | 35 | 290 | 0.25 | 0.2 |
| A10Z46MKD065 | 80...125 | 250 | 45 | 40 | 370 | 0.19 | 0.16 |

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FOR STANDARD LOADS OF 4 TO 900 kgf (9 TO 1980 lb.)

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



FEATURES:

Compared with circular rubber mountings these have higher stiffness in horizontal direction "X" and better stability. They are also well-suited for rotating machines which generate vibrating forces in the horizontal direction.

Easy to install. The spring rate can be changed just by altering the mounting positions.

For the base plate attached type (Fig. 2), a rubber pad is fitted to the base plate so that the machine can be placed on the floor.

LOAD DEFLECTION CHART

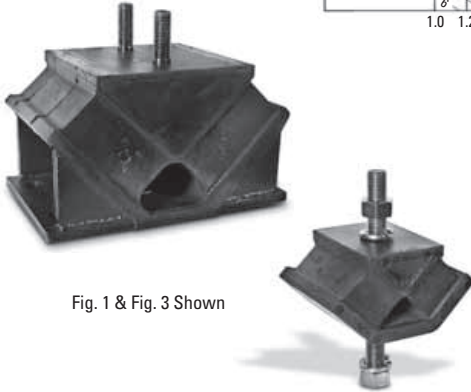
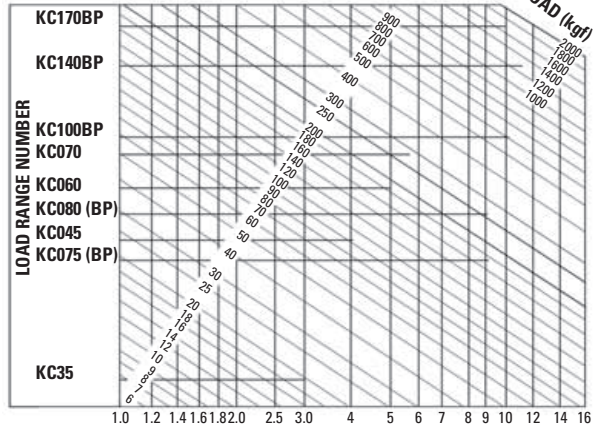


Fig. 1 & Fig. 3 Shown

DEFLECTION mm

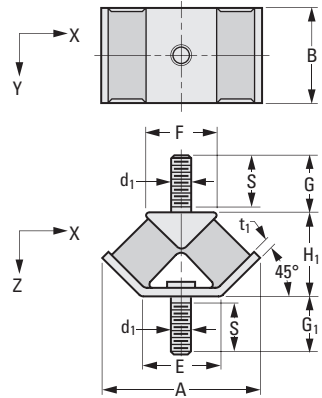


Fig. 1 Without Base Plate

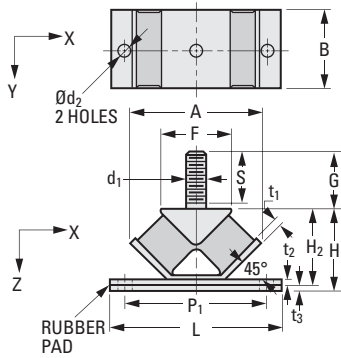


Fig. 2 With Base Plate

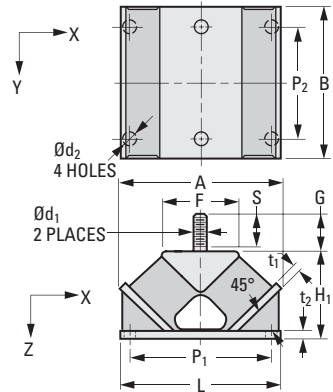


Fig. 3 With Base Plate

V-STYLE MOUNTINGS SELECTION DATA



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:

Mounting Plates - Mild Steel, Painted
Isolators - Natural Rubber

➤ APPLICATIONS:

Air Compressors
Vibration Screens
Horizontal Centrifugal Separators
Machine Tools
Vibration Sieves
High-Speed Diesel Engines

➤ DIMENSIONS:

Measured in mm and (inches)

METRIC COMPONENT CATALOG NUMBER

A 1 0 Z 4 5 M

Load Range Number

Use information in both tables below to determine appropriate Load Range Number

Base Plate - BP

(Where applicable)



| Load Range Number | A | B | E | F | d ₁ Thread | G | G ₁ | S | t ₁ | L | P ₁ | P ₂ | H ₁ | H ₂ | d ₂ | t ₂ | t ₃ |
|-------------------|---|---|---|---|-----------------------|---|----------------|---|----------------|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|-------------------|---|---|---|---|-----------------------|---|----------------|---|----------------|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|

Fig. 1 Without Base Plate

| | | | | | | | | | | | | | | | | | |
|-------|--------------|-------------|-------------|-------------|-----|-------------|---------------|-------------|--------------|---|---|---|-------------|---|---|---|---|
| KC035 | 60 (2.4) | 30 (1.2) | 30 (1.2) | 26 (1.0) | M10 | 31 (1.2) | 29 (1.1) | 25 (1.0) | 4.5 (.18) | - | - | - | 35 (1.4) | - | - | - | - |
| KC045 | 82 (3.2) | 50 (2.0) | 40 (1.6) | 40 (1.6) | M12 | 35 (1.4) | 34 (1.3) | 32 (1.3) | 4.5 (.18) | - | - | - | 45 (1.8) | - | - | - | - |
| KC060 | 108 (4.3) | 70 (2.8) | 45 (1.8) | 56 (2.2) | M12 | 45 (1.8) | 43.5 (1.7) | 40 (1.6) | 6 (.24) | - | - | - | 60 (2.4) | - | - | - | - |
| KC070 | 124 (4.9) | 90 (3.5) | 55 (2.2) | 65 (2.6) | M16 | 52 (2.0) | 52 (2.0) | 50 (2.0) | 8 (.32) | - | - | - | 70 (2.8) | - | - | - | - |
| KC075 | 135 (5.3) | 70 (2.8) | 76 (3.0) | 56 (2.2) | M12 | 45 (1.8) | 43.5 (1.7) | 40 (1.6) | 6 (.24) | - | - | - | 73 (2.9) | - | - | - | - |
| KC080 | 148 (5.8) | 90 (3.5) | 76 (3.0) | 65 (2.6) | M16 | 52 (2.0) | 52 (2.0) | 50 (2.0) | 8 (.32) | - | - | - | 80 (3.1) | - | - | - | - |

Fig. 2 With Base Plate

| | | | | | | | | | | | | | | | | | |
|---------|--------------|--------------|---|--------------|-----|---------------|---|-------------|------------|--------------|--------------|---|--------------|--------------|-------------|------------|------------|
| KC075BP | 135 (5.3) | 70 (2.8) | - | 56 (2.2) | M12 | 45 (1.8) | - | 40 (1.6) | 6 (.24) | 170 (6.7) | 140 (5.5) | - | 85 (3.3) | 79 (3.1) | 14 (.55) | 6 (.24) | - |
| KC080BP | 148 (5.8) | 90 (3.5) | - | 65 (2.6) | M16 | 51.5 (2.0) | - | 50 (2.0) | 8 (.32) | 180 (7.1) | 150 (5.9) | - | 94 (3.7) | 88 (3.5) | 18 (.71) | 8 (.32) | 6 (.24) |
| KC100BP | 180 (7.1) | 110 (4.3) | - | 100 (3.9) | M20 | 57 (2.2) | - | 46 (1.8) | 8 (.32) | 240 (9.5) | 200 (7.9) | - | 114 (4.5) | 108 (4.3) | 18 (.71) | 8 (.32) | 6 (.24) |

Fig. 3 With Base Plate

| | | | | | | | | | | | | | | | | | |
|---------|---------------|--------------|---|--------------|-------|-------------|---|-------------|-------------|---------------|--------------|--------------|--------------|---|-----------------|-------------|---|
| KC140BP | 250 (9.8) | 240 (9.5) | - | 127 (5.0) | M20x2 | 56 (2.2) | - | 46 (1.8) | 12 (.47) | 250 (9.8) | 220 (8.7) | 175 (6.9) | 140 (5.5) | - | 18x2 .71x.08 | 12 (.47) | - |
| KC170BP | 288 (11.3) | 180 (7.1) | - | 184 (7.2) | M20x2 | 56 (2.2) | - | 46 (1.8) | 12 (.47) | 300 (11.8) | 252 (9.9) | 100 (3.9) | 170 (6.7) | - | 22x2 .87x.08 | 12 (.47) | - |

NOTE: "BP" at the end of the Catalog Number stands for base plate attached type.

| Load Range Number | Nominal Load in Z Direction | *ALLOWABLE LOAD kgf (lb.) | | | Spring Rate Z Direction kgf/cm (lb/in.) | Stiffness Ratio K _x /K _z | Stiffness Ratio K _y /K _z |
|-------------------|-----------------------------|---------------------------|---------------|--------------|---|--|--|
| | | Z Dir. | X Dir. | Y Dir. | | | |
| KC035 | 4...10 (9...22) | 20 (44) | 13 (28) | 5 (11) | 75 (420) | 0.72 | 0.33 |
| KC045 | 25...45 (55...99) | 90 (196) | 55 (121) | 25 (55) | 235 (1316) | 0.64 | 0.27 |
| KC060 | 30...95 (66...209) | 185 (407) | 65 (143) | 30 (66) | 380 (2128) | 0.65 | 0.28 |
| KC070 | 50...150 (110...330) | 290 (638) | 110 (242) | 55 (121) | 520 (2912) | 0.66 | 0.29 |
| KC075 | 30...90 (66...198) | 170 (374) | 105 (231) | 40 (88) | 170 (952) | 0.71 | 0.31 |
| KC080 | 35...135 (77...297) | 260 (572) | 155 (341) | 60 (132) | 300 (1680) | 0.72 | 0.3 |
| KC075BP | 30...90 (66...198) | 170 (374) | 105 (231) | 40 (88) | 170 (952) | 0.71 | 0.31 |
| KC080BP | 35...135 (77...297) | 260 (572) | 155 (341) | 60 (132) | 300 (1680) | 0.72 | 0.3 |
| KC100BP | 100...300 (220...660) | 600 (1320) | 260 (572) | 120 (264) | 600 (3360) | 0.82 | 0.27 |
| KC140BP | 300...650 (660...1430) | 1300 (2860) | 550 (1210) | 250 (550) | 1300 (7280) | 0.88 | 0.31 |
| KC170BP | 500...900 (1100...1980) | 1750 (3850) | 650 (1430) | 280 (616) | 1700 (9520) | 0.87 | 0.27 |

NOTE: Rubber material is natural rubber of hardness 45 durometer.

* Includes Static and Dynamic Loads.



Request Info



1-800-453-1692

www.aboveboardelectronics.com

INCH OR METRIC THREADS
 FOR LOADS OF .5 TO 10 POUNDS (0.25 TO 4.6 kgf)
 STAINLESS STEEL MESH
 CORROSIVE ENVIRONMENT



› MATERIAL:

- Housing** - Aluminum Alloy, Anodized
- Eyelets** - Brass, Tin Plated
- Isolators** - Stainless Steel Spring and Mesh

› OPERATING TEMPERATURE:

-94°F to +347°F (-70°C to +175°C)

› APPLICATIONS:

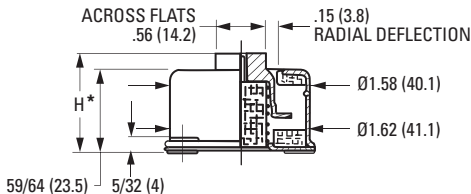
- Aircraft
- Marine
- Mobile
- Rotating Machines

› WEIGHT:

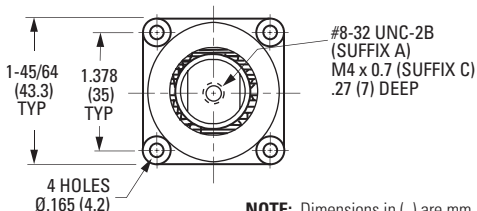
1.4 oz. (0.04 kg) approx.

› DYNAMIC CHARACTERISTICS:

Ratio between transverse and axial stiffness (vertical) approximately 1:2.5
 Natural frequency = 7 to 11 Hz vertical and 4.5 to 7 Hz transverse depending on load, for a displacement input $\pm .014$ (0.35).
 Maximum displacement input $\pm .016$ (0.4)
 Transmissibility $\leq 4:1$
 Conforms to MIL-E-5400



NOTE: MAX BOLT LENGTH INTO CAP IS .276 (7)

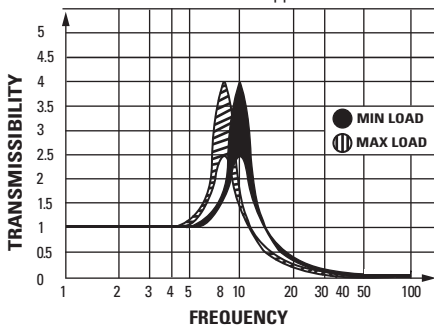


NOTE: Dimensions in () are mm.

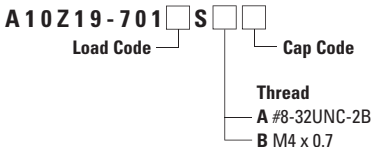
› LOADING LIMITATIONS:

Prior to abutting snubber, load corresponding to a continuous acceleration of at least 2 G. Loads corresponding to at least 10 G may be accepted without subsequently affecting the mount performance. Maximum displacement of the suspended unit under limiting loads $\pm .197$ (5).

TYPICAL TRANSMISSIBILITY CURVE
 as a function of applied load



INCH COMPONENT CATALOG NUMBER



| Load Code | Static Load | |
|-----------|--------------|-------------|
| | lb. | kgf |
| 1 | .55 – 1.00 | 0.25 – 0.45 |
| 2 | .80 – 1.80 | 0.35 – 0.8 |
| 3 | 1.50 – 3.40 | 0.7 – 1.5 |
| 4 | 2.20 – 5.60 | 1 – 2.55 |
| 5 | 5.60 – 10.10 | 2.55 – 4.6 |

| Cap Code | H* - Height | | | |
|------------------|-------------|----|-----------|------|
| | Free | | Max. Load | |
| | in. | mm | in. | mm |
| S - Short | 1.50 | 38 | 1.09 | 27.7 |
| L - Long | 1.61 | 41 | 1.21 | 30.7 |

INCH OR METRIC THREADS
 FOR LOADS OF 1.5 TO 242 POUNDS (0.7 TO 110 kgf)
 STAINLESS STEEL MESH
 CORROSIVE ENVIRONMENT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

- Housing** - Aluminum Alloy, Anodized
- Eyelets** - Brass, Tin Plated
- Isolators** - Stainless Steel Spring and Mesh

➤ OPERATING TEMPERATURE:

-94°F to +347°F (-70°C to +175°C)

➤ APPLICATIONS:

- Aircraft
- Marine
- Mobile
- Rotating Machines

➤ WEIGHT:

3.53 to 4.41 oz. (100 to 125 g) approx.

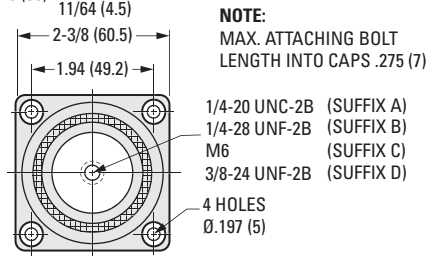
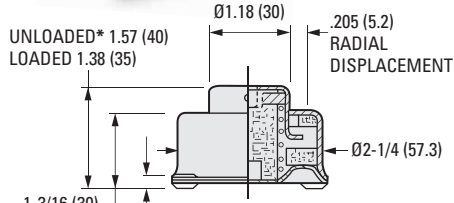
➤ DYNAMIC CHARACTERISTICS:

In accordance with curve 1 of spec MIL-C-172.
 Ratio Between transverse and axial stiffness (vertical): approximately 1:2.5
 Natural Frequency = 7 to 10 Hz vertical and 4.5 to 6 Hz transverse depending on load for a displacement input of ± .303 (0.75)
 Maximum displacement input ± .031 (0.8)
 Transmissibility: ≤ 4:1
 Conforms to MIL-E-5400C

➤ LOADING LIMITATIONS:

Just prior to abutting snubber, load corresponding to a continuous acceleration of at least 2 G.
 Loads corresponding to at least 10 G may be accepted without subsequently affecting the mount performance. Maximum displacement of the suspended unit under limiting loads ± .236 (6)

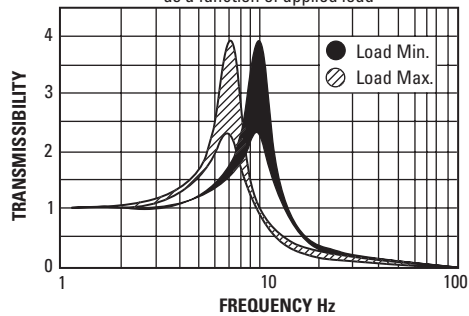
* Long Cap, unloaded height 1.76 (44.6) loaded height 1.57 (40) available on special request.
 To order with long cap, add **L** to the end of Catalog Number.



NOTE:
 MAX. ATTACHING BOLT LENGTH INTO CAPS. .275 (7)

NOTE: Dimensions in () are mm.

TYPICAL TRANSMISSIBILITY CURVE
 as a function of applied load



| INCH/METRIC COMPONENT | | | | Static Load | |
|---------------------------------|---------------------------------|----------------------|---------------------------------|-----------------|------------|
| Catalog Number 1/4-20 UNC-2B | Catalog Number 1/4-28 UNF-2B | Catalog Number M6 | Catalog Number 3/8-24 UNF-2B | lb. | kgf |
| A10Z22-7201A | A10Z22-7201B | A10Z22M7201C | - | 1.55 - 2.75 | 0.7 - 1.25 |
| A10Z22-7202A | A10Z22-7202B | A10Z22M7202C | - | 2.55 - 5.00 | 1.15 - 2.3 |
| A10Z22-7203A | A10Z22-7203B | A10Z22M7203C | - | 4.40 - 9.90 | 2 - 4.5 |
| A10Z22-7204A | A10Z22-7204B | A10Z22M7204C | - | 6.20 - 12.35 | 2.8 - 5.6 |
| A10Z22-7205A | A10Z22-7205B | A10Z22M7205C | A10Z22-7205D | 9.90 - 19.85 | 4.5 - 9 |
| A10Z22-7206A | A10Z22-7206B | A10Z22M7206C | - | 15.40 - 30.85 | 7 - 14 |
| A10Z22-7207A | A10Z22-7207B | A10Z22M7207C | A10Z22-7207D | 17.65 - 39.70 | 8 - 18 |
| A10Z22-7209A | A10Z22-7209B | A10Z22M7209C | - | 35.30 - 48.50 | 16 - 22 |
| A10Z22-7210A | A10Z22-7210B | A10Z22M7210C | A10Z22-7210D | 44.10 - 72.75 | 20 - 33 |
| A10Z22-7211A | A10Z22-7211B | A10Z22M7211C | A10Z22-7211D | 72.75 - 132.30 | 33 - 60 |
| A10Z22-7212A | A10Z22-7212B | A10Z22M7212C | A10Z22-7212D | 132.28 - 242.51 | 60 - 110 |

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INCH OR METRIC THREADS
 FOR LOADS OF 77 TO 1598 POUNDS (35 TO 725 kgf)
 STAINLESS STEEL MESH
 CORROSIVE ENVIRONMENT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Housing - Machined Casting.
 Center and Cup Washer are
 Zinc Plated and Gold Passivated Mild Steel
Isolators - Stainless Steel Mesh

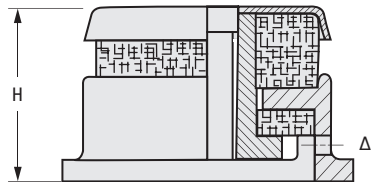
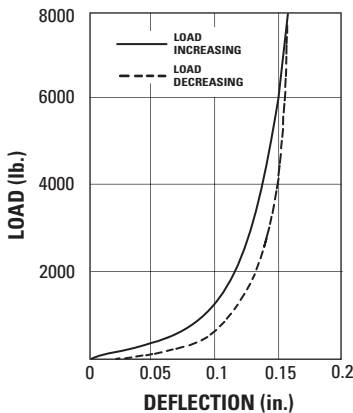
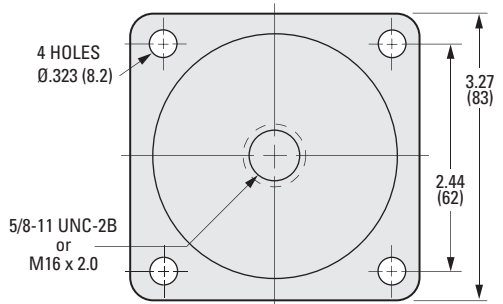
> OPERATING TEMPERATURE:

-94°F to +347°F (-70°C to +175°C)

> APPLICATIONS:

Primarily developed for heavy-duty applications where severe shock forces are encountered, this mounting is especially recommended for vehicle and marine installation where there is high starting torque or a reversal of loads. It is capable of withstanding compression loads as high as ten times the static loads and is used for isolating marine fans, mobile engines, generators, instrument consoles and general machine tools, such as lathes, milling machines, slotters, broachers, etc.

Δ An access hole is provided to be able to pin the center section for assembling the mounting bolt or to remove rusted bolt.



NOTE: Dimensions in () are mm.

| INCH COMPONENT | METRIC COMPONENT | Static Load | | Natural Frequency Hz | H - Height | |
|---------------------------------|-----------------------------|-------------|-----------|----------------------|-----------------|-----------------|
| | | lb. | kgf | | Free | Loaded |
| Catalog Number 5/8-11 UNC-2B | Catalog Number M16 x 2.0 | 77 - 396 | 35 - 180 | 14 - 22 | 1-31/32 (50) | 1-13/16 (46) |
| A10Z27-3021A | A10Z27M3021C | 308 - 793 | 140 - 360 | 14 - 22 | | |
| A10Z27-3022A | A10Z27M3022C | 606 - 1598 | 275 - 725 | 14 - 22 | | |

LEVELING CARRY MOUNTINGS

SDP/SI

FOR LOADS OF 60 TO 100 kgf
 CASTER TYPE
 COMPACT & LIGHTWEIGHT DESIGN
 EXCELLENT STABILITY
 EASY MOVEMENT & SETTING
 LOW PRICE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> DESCRIPTION:

CARRY MOUNT is a moveable mount in which the rubber mount is incorporated into a caster. They allow movement of machines and give excellent vibration-free installations.

> MATERIAL:

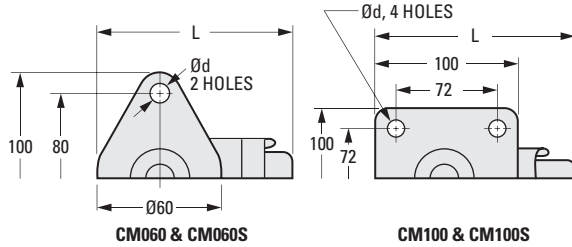
Frame & Bolt - Steel, Galvanized
Wheel - Nylon
Isolator - Oil-Resistant Rubber

> APPLICATIONS:

Shop Machines
 Office Equipment
 Medical Instruments

> INSTALLATION:

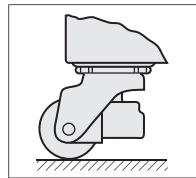
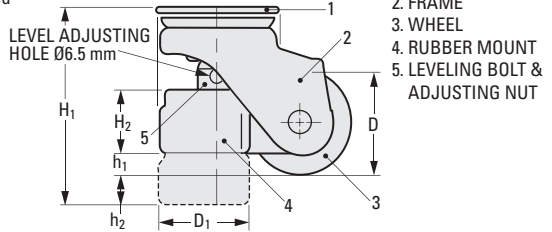
Raise machine and attach casters with suitable bolts. Insert screwdriver or 1/4" diameter rod into level adjusting hole and turn it to the left (clockwise) to lift the rubber mount. Machine can now be easily moved. Once relocated, level adjusting hole is rotated counterclockwise to lift the wheel. The machine is then positioned in place.



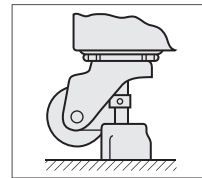
CM060 & CM060S

CM100 & CM100S

MOUNTING HOLES



CASTER IN ROLLING POSITION



MACHINE LEVELED RUBBER MOUNT EXTENDED

METRIC COMPONENT

| Catalog Number | Working Load Max. kgf | H ₁ | H ₂ | D | D ₁ | h ₁ | h ₂ | d Dia. | L |
|----------------|-----------------------|----------------|----------------|----|----------------|----------------|----------------|--------|-----|
| A10Z43MCM060 | 60 | 80 | 30 | 50 | 57 | 13 | 15 | 8.8 | 95 |
| A10Z43MCM060S | 60 | 70 | 8.9 | 50 | 34 | 10 | 16 | 8.8 | 96 |
| A10Z43MCM100 | 100 | 120 | 46 | 75 | 76 | 25 | 17 | 11 | 143 |
| A10Z43MCM100S | 100 | 84 | 8.9 | 60 | 34 | 15 | 15 | 11 | 126 |

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LEVELING CARRY MOUNTINGS



FOR LOADS OF 200 TO 600 kgf
 BALL TYPE
 COMPACT & LIGHTWEIGHT DESIGN
 EXCELLENT STABILITY
 EASY MOVEMENT & SETTING
 LOW PRICE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> DESCRIPTION:

CARRY MOUNT is a moveable mount in which the rubber mount is incorporated with a rotating ball. They allow movement of machines and give excellent vibration-free installations.

> MATERIAL:

- Spoked Wheel** - Steel, Painted
- Bolt** - Steel, Zinc Plated
- Housing** - Iron, Galvanized
- Ball** - Steel
- Isolator** - Oil-Resistant Rubber

> APPLICATIONS:

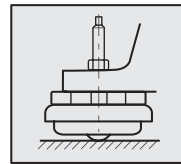
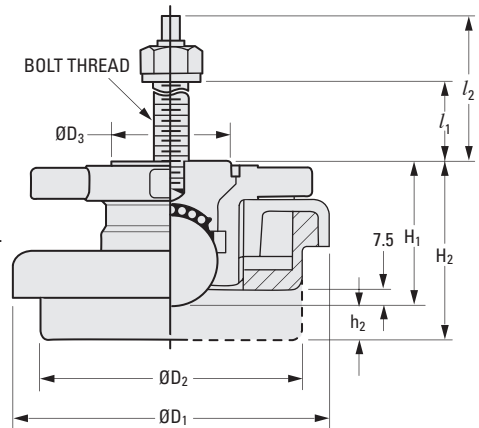
- Shop Machines
- Office Equipment
- Medical Instruments

> INSTALLATION:

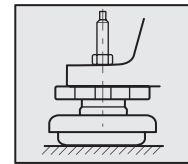
Place the CARRY MOUNT under the bolt hole of the machine. Insert the bolt into the screw hole of the CARRY MOUNT and screw it in until the bolt stops.

Turn the spoked wheel clockwise to lift the rubber mount. The steel ball then allows free movement.

Turn the spoked wheel counterclockwise to lift the steel ball. The rubber mount now supports the machine in place.



MOUNT IN ROLLING POSITION



MACHINE LEVELED RUBBER PAD EXTENDED

METRIC COMPONENT

| Catalog Number | Working Load Max. kgf | H ₁ | H ₂ | D ₁ Dia. ± 2 | D ₂ Dia. | D ₃ Dia. | l ₁ | l ₂ | h ₂ | Bolt Thread |
|----------------|-----------------------|----------------|----------------|-------------------------|---------------------|---------------------|----------------|----------------|----------------|-------------|
| A10Z44MCM200 | 200 | 58 | 70 | 100 | 80 | 44 | 67 | 92 | 12 | M12 |
| A10Z44MCM600 | 600 | 65 | 79 | 140 | 120 | 54 | 72 | 102 | 14 | M14 |



Double-Edged Size 0 Steel Tracks
pg. 9-5



Steel Tracks with Mounting Holes
pg. 9-6



Steel Tracks, Plain
pg. 9-7



Guide Wheels
pg. 9-8



Adapter Bushings
pg. 9-9



Studded Guide Wheels
pg. 9-10



Guide Wheel Journals
pg. 9-11



Utilittrak® Carriage Assemblies
pg. 9-12



Utilittrak® Linear Guide Rails
pg. 9-13



Utilittrak® Carriage Assemblies
Economy
pg. 9-14



Utilittrak® Linear Guide Rails
Economy
pg. 9-15



Mini-Rail® Linear Guides
pg. 9-16



Linear Guide System, Low Profile
Size 17
pg. 9-19



Linear Guide System, Low Profile
Size 27
pg. 9-20



Linear Guide System, Low Profile
Size 40
pg. 9-21



Linear Guide System, Low Profile
Size 80
pg. 9-22



Linear Guide System, Heavy-Duty
Size 40
pg. 9-25

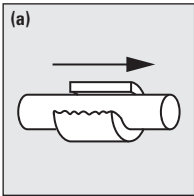


Linear Guide System, Heavy-Duty
Size 80
pg. 9-26

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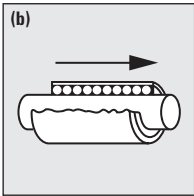
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GENERAL INFORMATION

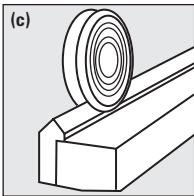
Linear motion devices find application in many designs related to machines in general and mechanisms in particular. The simplest known sliding pair used consists of a bushing and shaft. Due to friction and the resulting wear, loss of alignment will occur which will, in turn, cause binding and chatter. Because of vertical loading, the lubricant will accumulate where it is not needed and will not be available where it could do some good. The presence of lubrication may also cause accumulation of dust and dirt and create gumming and grit.

The above disadvantages led to the development of Ball Bushings with recirculating balls. These have the disadvantage that they are captive on the shafts or have complicated mounting arrangements if they are of the "open type".



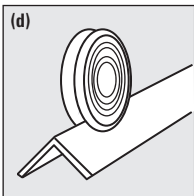
The wheel and track components offered in this catalog have the following advantages:

- Easy mounting** to machined surfaces which are in most cases part of the existing structure.
- Self-cleaning** feature due to the circumference being greater at the edge than it is on the bottom of the "V" groove, and there is a constant wiping action present.
- Eccentric bushings** provide means to take out "slack" and compensate for any inaccuracy or accumulation of tolerances.
- Low cost** in comparison with other alternatives, in particular, for low speeds and loads where the "economy series" guide wheels can be used.
- Available Selection** of different guide wheel and track sizes and materials enables economical choice depending on loads and other requirements.



The accuracy of the system depends on the parallelism of the mounting surfaces; therefore, it cannot be stressed too strongly that reasonable care should be taken when bolting track to the mounting surfaces to assure proper alignment. And, as a matter of good engineering practice, the wheels should be so spaced that leverage from overhanging loads does not cause stresses exceeding the load capacity of the wheel.

For Mounting Instructions and Engineering Notes see the following pages:



| Name of Product | Page No. |
|--|------------|
| Double-Edged Steel Tracks (Size 0) | 9-5 |
| Steel Tracks with Mounting Holes | 9-6 |
| Steel Tracks, Plain | 9-7 |
| Guide Wheels (Precision & Economy Series) | 9-8 |
| Adapter Bushings (Adjustable & Stationary) | 9-9 |
| Studded Guide Wheels (Adjustable & Stationary) | 9-10 |
| Guide Wheel Journal Assemblies | 9-11 |
| Utilittrak® Carriage Assemblies and Rails (High Load) | 9-12, 9-13 |
| Utilittrak® Carriage Assemblies and Rails (Economy Series) | 9-14, 9-15 |

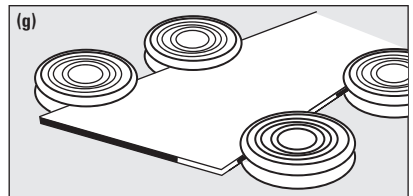
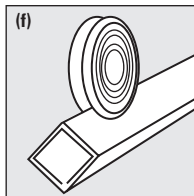
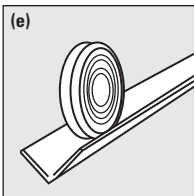




Fig. 1

When necessary to carry outboard loads, use setup as shown or similar. Keep ratio of X to D as low as possible.

Approximation of Max. Load is given by the Formula:

$$R_1 = \frac{D}{X} F \quad R_2 = -\frac{D}{X} F$$

Where: R_1 = Max. Axial Load per Guide Wheel
 D = Center Distance
 X = Outboard Distance
 F = Radial Load

NOTES: • Rigidity decreases as X increases.
 • Max. Load not to exceed Radial Load.

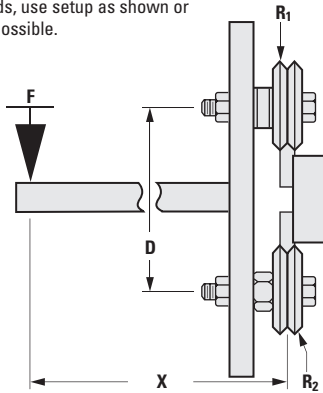


Fig. 2

Rotating motion in large plates can be accomplished as shown in Fig. 2. A valuable feature of the guide system is that excellent stability of the plate with maximum available working area unencumbered by shafts and spindle bearings is possible.

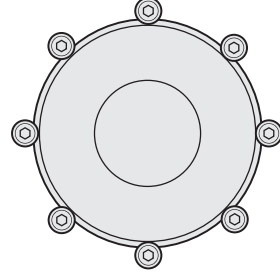


Fig. 3

Shows use of Guide Wheels to guide strip stock into punch press dies or roll forming machines. Use of all adjustable mounting bushings gives axial as well as longitudinal adjustment.

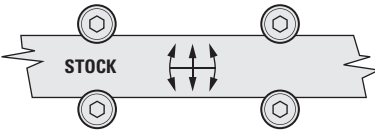
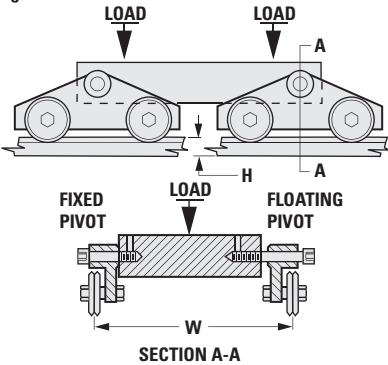
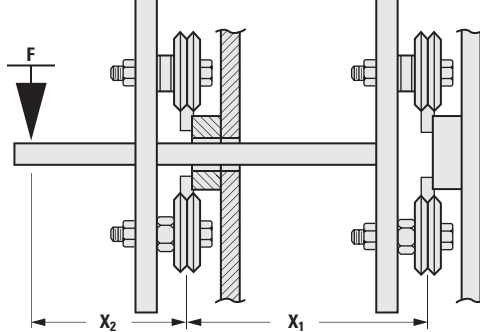


Fig. 5



In practical application, on long fabricated equipment, it is difficult to hold track mounts to close tolerances. We recommend use of more than two wheels to support a heavy load, with construction approximately as shown in Fig. 5. This system will compensate for small differences in track alignment both height (H) and width (W).

Fig. 4



Overhanging loads are mostly radial in nature. Use this formula for approximate Max. Load.

$$R = \frac{X_1}{X_2 + X_2} F$$

Where: R = Max. Axial Load per Guide Wheel
 X_1 = Center Distance
 X_2 = Outboard Distance
 F = Radial Load

Max. Load not to exceed Radial Load.



LOAD FACTOR CALCULATION

Calculate the load factor for the most heavily loaded bearing

$$L_f = \frac{F_A}{F_{A(max)}} + \frac{F_R}{F_{R(max)}}$$

Where: L_f = Load Factor

F_A = Resultant axial load on the guide wheel

$F_{A(max)}$ = The maximum axial working load capacity of the guide wheel

F_R = Resultant radial load on the guide wheel

$F_{R(max)}$ = The maximum radial working load capacity of the guide wheel

- Bearings should be sized such that $L_f \leq 1$
- The most heavily loaded bearing will have the highest load factor

LIFE CALCULATION

Calculate life by applying the load factor to the load/life equation below:

Due to varying application load and speed parameters and environmental conditions, the appropriate adjustment factor must be applied to the life equation.

Adjustment Factor (A_f) Application Conditions

- 1.0-0.7 Clean, low speed, low shock, low duty
- 0.7-0.4 Moderate contaminants, medium duty, medium shock, low to medium vibration, moderate speed
- 0.4-0.1 Heavy contamination, high acceleration, high speed, medium to high shock, high vibration, high duty cycle

| DUALVEE® Size | Life Constant L_c | |
|---------------|-----------------------|---------------------------|
| | Inches of Travel Life | Kilometers of Travel Life |
| 0 | 1.65×10^6 | 41 |
| 1 | 2.19×10^6 | 55 |
| 2 | 3.47×10^6 | 87 |
| 3 | 5.19×10^6 | 130 |
| 4 | 6.84×10^6 | 151 |
| 4XL | 8.58×10^6 | 215 |

$$\text{Life} = \left(\frac{L_c}{(L_f)^3} \right) A_f$$

- Where: L_f = Load Factor
- L_c = Life Constant
- A_f = Adjustment Factor

Calculate loads on each bearing. Given below are force equations for some common configurations.

F_A = Axial Force, F_R = Radial Force

Scenario 1

$$F_{A1} = \frac{F(x-a)}{x}$$

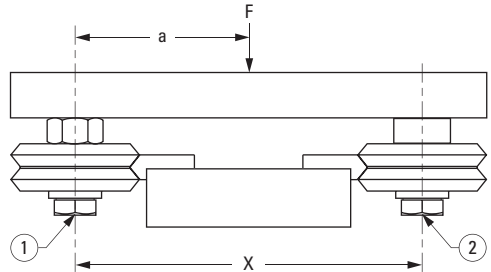
$$F_{A2} = \frac{Fa}{x}$$

Scenario 2

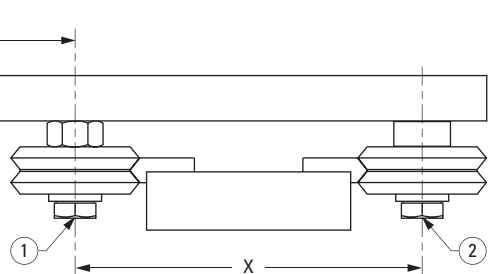
$$F_{A1} = \frac{F(x+a)}{x}$$

$$F_{A2} = \frac{-Fa}{x}$$

NOTE: Since carriages use 4 wheels, 2 wheels absorb the load at both points 1 & 2, divide the calculated load by 2 to obtain the load on each wheel.



Scenario 1



Scenario 2

STEEL
HARDENED
UNHARDENED
DRILLED
UNDRILLED

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> MATERIAL:

Fig. 1 Undrilled -
Steel - **Hardened** - AISI 1045 Carbon Steel (HRC 58...60),
Polished and Oiled
Unhardened - AISI 1045 Carbon Steel (HRC 22...25)
as Formed, Oiled

> MATERIAL CODE:

Fig. 2 Drilled -
C AISI 1045 Carbon Steel, Unhardened (HRC 22...25)
Q AISI 1045 Carbon Steel, Hardened (HRC 58...60)

*To complete the Catalog Number please specify Material Code from above.

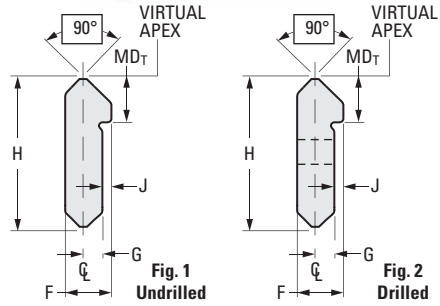


Fig. 1 Undrilled

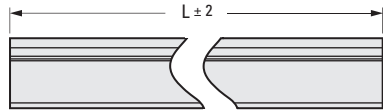
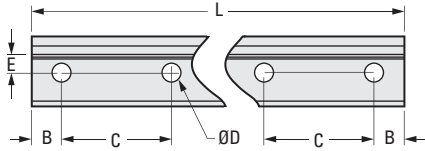


Fig. 2 Drilled



METRIC COMPONENT

| Catalog Number | | H | F | G | MD _T | J | L Length m |
|-------------------------|--------------|-------|------|------|-----------------|------|------------------|
| Hardened | Unhardened | | | | | | |
| Fig. 1 Undrilled | | | | | | | |
| A 7Q15M00305 | A 7C15M00305 | 13.11 | 3.89 | 1.52 | 4.01 | 0.84 | 0.305 |
| A 7Q15M00610 | A 7C15M00610 | 13.11 | 3.89 | 1.52 | 4.01 | 0.84 | 0.61 |
| A 7Q15M01220 | A 7C15M01220 | 13.11 | 3.89 | 1.52 | 4.01 | 0.84 | 1.22 |
| A 7Q15M01830 | A 7C15M01830 | 13.11 | 3.89 | 1.52 | 4.01 | 0.84 | 1.83 |

NOTES: 1. Except for length, dimensions are in mm.
2. Maximum length available: Hardened - 6.1 meters Unhardened - 6.7 meters

METRIC COMPONENT

| Catalog Number * | | Num. of Holes | L ± 0.38 | B ± 0.13 | C ± 0.13 | D ± 0.13 | E ± 0.13 | F | G | H | J | MD _T |
|-----------------------|----------|---------------------|-------------|-------------|-------------|-------------|-------------|------|------|-------|------|-----------------|
| Fig. 2 Drilled | | | | | | | | | | | | |
| A 7 | 15M00650 | 4 | 165.1 | 6.35 | 50.8 | 3.96 | 3.51 | 3.89 | 1.52 | 13.11 | 0.84 | 4.01 |
| A 7 | 15M01250 | 7 | 317.5 | 6.35 | 50.8 | 3.96 | 3.51 | 3.89 | 1.52 | 13.11 | 0.84 | 4.01 |
| A 7 | 15M01850 | 10 | 469.9 | 6.35 | 50.8 | 3.96 | 3.51 | 3.89 | 1.52 | 13.11 | 0.84 | 4.01 |
| A 7 | 15M02450 | 13 | 622.3 | 6.35 | 50.8 | 3.96 | 3.51 | 3.89 | 1.52 | 13.11 | 0.84 | 4.01 |
| A 7 | 15M03050 | 16 | 774.7 | 6.35 | 50.8 | 3.96 | 3.51 | 3.89 | 1.52 | 13.11 | 0.84 | 4.01 |
| A 7 | 15M03650 | 19 | 927.1 | 6.35 | 50.8 | 3.96 | 3.51 | 3.89 | 1.52 | 13.11 | 0.84 | 4.01 |

NOTES: 1. Dimensions are in mm.
2. Other track sizes available on special order.

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STEEL
 STAINLESS STEEL
 HARDENED
 UNHARDENED

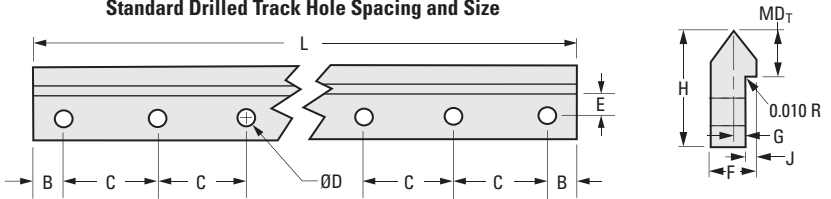
➤ MATERIAL CODE:

- C** AISI 1045 Carbon Steel, Unhardened
- Q** AISI 1045 Carbon Steel, Hardened to HRC 58...60
- Y** AISI 420 Stainless Steel, Unhardened
- W** AISI 420 Stainless Steel, Hardened to HRC 48...50

*To complete the Catalog Number please specify Material Code from above.



Standard Drilled Track Hole Spacing and Size



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Size | L | No. of Holes | B ± 0.13 | C ± 0.13 | D ± 0.13 | E ± 0.13 | F | G | H | J | MD _T |
|------------------|------|--------|--------------|----------|----------|----------|----------|------|------|------|------|-----------------|
| A 7 15M11250 | 1 | 317.5 | 7 | 6.35 | 50.8 | 3.96 | 3.96 | 4.75 | 0.79 | 11.1 | 1.57 | 3.18 |
| A 7 15M12450 | 1 | 622.3 | 13 | 6.35 | 50.8 | 3.96 | 3.96 | 4.75 | 0.79 | 11.1 | 1.57 | 3.18 |
| A 7 15M13650 | 1 | 927.1 | 19 | 6.35 | 50.8 | 3.96 | 3.96 | 4.75 | 0.79 | 11.1 | 1.57 | 3.18 |
| A 7 15M14850 | 1 | 1231.9 | 25 | 6.35 | 50.8 | 3.96 | 3.96 | 4.75 | 0.79 | 11.1 | 1.57 | 3.18 |
| A 7 15M16050 | 1 | 1536.7 | 31 | 6.35 | 50.8 | 3.96 | 3.96 | 4.75 | 0.79 | 11.1 | 1.57 | 3.18 |
| A 7 15M17250 | 1 | 1841.5 | 37 | 6.35 | 50.8 | 3.96 | 3.96 | 4.75 | 0.79 | 11.1 | 1.57 | 3.18 |
| A 7 15M21263 | 2 | 320.8 | 5 | 7.87 | 76.2 | 5.16 | 5.56 | 6.35 | 0.79 | 15.9 | 2.39 | 4.75 |
| A 7 15M22463 | 2 | 625.6 | 9 | 7.87 | 76.2 | 5.16 | 5.56 | 6.35 | 0.79 | 15.9 | 2.39 | 4.75 |
| A 7 15M23663 | 2 | 930.4 | 13 | 7.87 | 76.2 | 5.16 | 5.56 | 6.35 | 0.79 | 15.9 | 2.39 | 4.75 |
| A 7 15M24863 | 2 | 1235.2 | 17 | 7.87 | 76.2 | 5.16 | 5.56 | 6.35 | 0.79 | 15.9 | 2.39 | 4.75 |
| A 7 15M26063 | 2 | 1540 | 21 | 7.87 | 76.2 | 5.16 | 5.56 | 6.35 | 0.79 | 15.9 | 2.39 | 4.75 |
| A 7 15M27263 | 2 | 1844.8 | 25 | 7.87 | 76.2 | 5.16 | 5.56 | 6.35 | 0.79 | 15.9 | 2.39 | 4.75 |
| A 7 15M31275 | 3 | 323.9 | 5 | 9.65 | 76.2 | 7.14 | 7.95 | 8.71 | 1.57 | 22.2 | 2.77 | 6.35 |
| A 7 15M32475 | 3 | 628.7 | 9 | 9.65 | 76.2 | 7.14 | 7.95 | 8.71 | 1.57 | 22.2 | 2.77 | 6.35 |
| A 7 15M33675 | 3 | 933.5 | 13 | 9.65 | 76.2 | 7.14 | 7.95 | 8.71 | 1.57 | 22.2 | 2.77 | 6.35 |
| A 7 15M34875 | 3 | 1238.3 | 17 | 9.65 | 76.2 | 7.14 | 7.95 | 8.71 | 1.57 | 22.2 | 2.77 | 6.35 |
| A 7 15M36075 | 3 | 1543.1 | 21 | 9.65 | 76.2 | 7.14 | 7.95 | 8.71 | 1.57 | 22.2 | 2.77 | 6.35 |
| A 7 15M37275 | 3 | 1847.9 | 25 | 9.65 | 76.2 | 7.14 | 7.95 | 8.71 | 1.57 | 22.2 | 2.77 | 6.35 |
| A 7 15M41300 | 4 | 330.2 | 4 | 12.7 | 101.6 | 8.74 | 9.53 | 11.1 | 2.36 | 27 | 3.18 | 7.93 |
| A 7 15M42500 | 4 | 635 | 7 | 12.7 | 101.6 | 8.74 | 9.53 | 11.1 | 2.36 | 27 | 3.18 | 7.93 |
| A 7 15M43700 | 4 | 939.8 | 10 | 12.7 | 101.6 | 8.74 | 9.53 | 11.1 | 2.36 | 27 | 3.18 | 7.93 |
| A 7 15M44900 | 4 | 1244.6 | 13 | 12.7 | 101.6 | 8.74 | 9.53 | 11.1 | 2.36 | 27 | 3.18 | 7.93 |
| A 7 15M46100 | 4 | 1549.4 | 16 | 12.7 | 101.6 | 8.74 | 9.53 | 11.1 | 2.36 | 27 | 3.18 | 7.93 |
| A 7 15M47300 | 4 | 1854.2 | 19 | 12.7 | 101.6 | 8.74 | 9.53 | 11.1 | 2.36 | 27 | 3.18 | 7.93 |

STEEL TRACKS, PLAIN



STEEL
STAINLESS STEEL
HARDENED
UNHARDENED

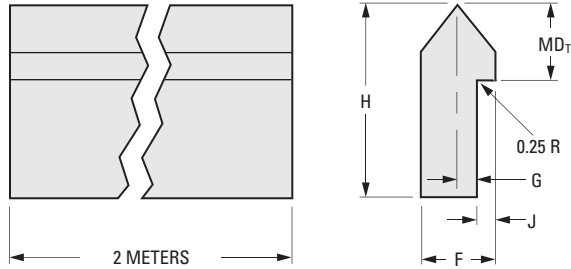
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> MATERIAL:

- Hardened - Steel** - AISI 1045 Cold Formed, Induction-Hardened to HRC 58...60
- Stainless Steel** - AISI 420 Cold Formed, Hardened and Polished on the Top Contact Surfaces
- Unhardened - Steel** - AISI 1045 Unhardened (as formed)
- Stainless Steel** - AISI 420 Series Unhardened (as formed)

Except for length, all dimensions are in mm.



The projections shown are per ISO convention.

| METRIC COMPONENT | | Size | H | F | G | MD _T | J |
|---|------------|------|------|------|------|-----------------|------|
| Catalog Number | | | | | | | |
| Steel | Stainless | | | | | | |
| Hardened - Maximum length: 6.1 meters (on special order) | | | | | | | |
| A 7Q15M120 | A 7W15M120 | 1 | 11.1 | 4.75 | 0.79 | 3.18 | 1.57 |
| A 7Q15M220 | A 7W15M220 | 2 | 15.9 | 6.35 | 0.79 | 4.75 | 2.39 |
| A 7Q15M320 | A 7W15M320 | 3 | 22.2 | 8.71 | 1.57 | 6.35 | 2.77 |
| A 7Q15M420 | A 7W15M420 | 4 | 27 | 11.1 | 2.36 | 7.93 | 3.18 |
| Unhardened - Maximum length: 6.7 meters (on special order) | | | | | | | |
| A 7C15M120 | A 7Y15M120 | 1 | 11.1 | 4.75 | 0.79 | 3.18 | 1.57 |
| A 7C15M220 | A 7Y15M220 | 2 | 15.9 | 6.35 | 0.79 | 4.75 | 2.39 |
| A 7C15M320 | A 7Y15M320 | 3 | 22.2 | 8.71 | 1.57 | 6.35 | 2.77 |
| A 7C15M420 | A 7Y15M420 | 4 | 27 | 11.1 | 2.36 | 7.93 | 3.18 |

PRECISION SERIES
 ABEC 5 BEARINGS
 ECONOMY SERIES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

MATERIAL:

Fig. 1 - Wheels - Steel SAE 52100 HRC 60...62
 or 440C Stainless Steel HRC 58...60

With Ground Contact Edges

Bearings - Prelubricated;

Steel - Shielded, Stainless - Sealed

Bearing Retainer - Nylon 66

Fig. 2 - Wheel - Acetal

Bearing - Sintered Bronze



Low or high temperature wheels available on special request.

For engineering assistance for all SDP components, call on our application engineers.

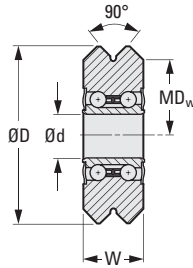


Fig. 1
Precision Series

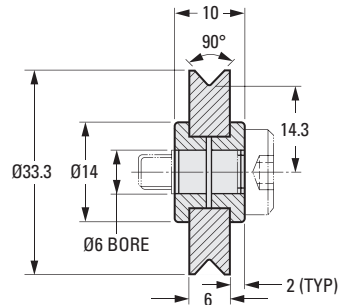


Fig. 2
Economy Series

METRIC COMPONENT

| Catalog Number | | Size | D Dia. | | W | d Bore | MDw | Radial Working Load Capacity N | Axial Working Load Capacity N |
|--------------------------------|------------|------|--------|------|-------|--------|-------|--------------------------------|-------------------------------|
| Steel | Stainless | | Clear. | Ref. | | | | | |
| Fig. 1 Precision Series | | | | | | | | | |
| A 7Q16M0 | - | 0 | 14.83 | - | 6.35 | 4 | 5.94 | 650 | 123 |
| Δ A 7Q16M1 | Δ A 7Y16M1 | 1 | 19.8 | 19.6 | 7.87 | 4.76 | 7.95 | 1220 | 252 |
| Δ A 7Q16M2 | Δ A 7Y16M2 | 2 | 31.8 | 30.7 | 11.1 | 9.53 | 12.7 | 2650 | 625 |
| A 7Q16M3 | A 7Y16M3 | 3 | 45.3 | 45.8 | 15.88 | 12 | 19.05 | 5900 | 1701 |
| A 7Q16M4 | A 7Y16M4 | 4 | 60.3 | 59.9 | 19.05 | 15 | 25.4 | 9700 | 4001 |

Δ Bores conform to inch sizes.

See the next page for adapter bushings to use in metric designs.

METRIC COMPONENT

| Catalog Number | Bore |
|------------------------------|------|
| Fig. 2 Economy Series | |
| A 7Z16M3 | 6 mm |

ADJUSTABLE OR STATIONARY

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> MATERIAL:

Steel, Nickel Plated or
303 Stainless Steel

For Use With Steel Guide Wheels.

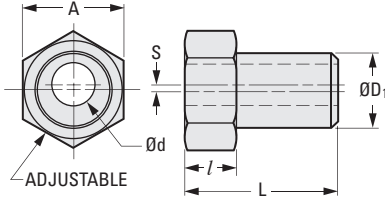


Fig. 1

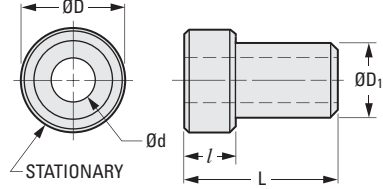


Fig. 2

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | Size | L Ref. | l ± 0.03 | D ₁ Dia. 0 -0.03 | A or D | d | | S |
|-----------------------------------|-----------------|------|-----------|-------------|--------------------------------------|--------|--------------------|--------------|------|
| Steel | Stainless Steel | | | | | | Dia. +0.05 0 | Bolt Size | |
| Fig. 1 Adjustable Bushings | | | | | | | | | |
| A 7C16M1A | A 7X16M1A | 1 | 13.8 | 6.22 | 4.76 | 12 | 4.01 | M4 | 0.18 |
| A 7C16M2A | A 7X16M2A | 2 | 17.9 | 6.65 | 9.52 | 14 | 6.1 | M6 | 0.61 |
| A 7C16M3A | A 7X16M3A | 3 | 25.1 | 9.47 | 11.99 | 19 | 8.1 | M8 | 1.07 |
| A 7C16M4A | A 7X16M4A | 4 | 29.9 | 11.1 | 15 | 22 | 10.11 | M10 | 1.52 |
| Fig. 2 Stationary Bushings | | | | | | | | | |
| A 7C16M1F | A 7X16M1F | 1 | 13.8 | 6.22 | 4.76 | 11.2 | 4.01 | M4 | — |
| A 7C16M2F | A 7X16M2F | 2 | 17.9 | 6.65 | 9.52 | 14.2 | 6.1 | M6 | — |
| A 7C16M3F | A 7X16M3F | 3 | 25.1 | 9.47 | 11.99 | 19.1 | 8.1 | M8 | — |
| A 7C16M4F | A 7X16M4F | 4 | 29.9 | 11.1 | 15 | 22.4 | 10.11 | M10 | — |

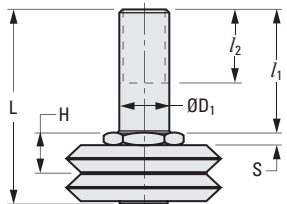
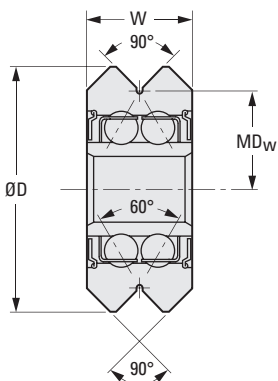
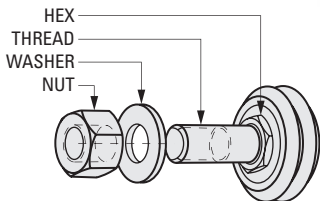
NOTE: M1A and M1F bushings have a small shoulder to support the inner race of the guide wheel's bearing.

SIZES 0, 1, 2
EASY INSTALLATION
ADJUSTABLE OR STATIONARY

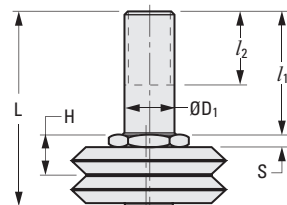
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Wheel** - Steel SAE 52100
- Bearing** - Pre-lubricated - Sealed (Size 0)
Shielded (Size 1 & 2)
- Nuts** - DIN 934 (18-8 Stainless Steel)
- Washer** - DIN 125 (18-8 Stainless Steel)



Stationary Stud



Adjustable Stud

METRIC COMPONENT

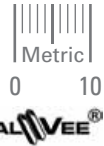
| Catalog Number | Size | EC Offset ± 0.13 | L Overall Length | D ₁ Journal Dia. 0 -0.02 | l ₁ Journal Length | l ₂ Thread Length | Thread | S Shoulder Thick. ± 0.03 | H Vee Height ± 0.05 |
|----------------|------|------------------|------------------|-------------------------------------|-------------------------------|------------------------------|-----------|--------------------------|---------------------|
| A 7Q17M0STA | 0 | — | 18.8 | 3.98 | 9.9 | 6.1 | M4 x 0.7 | 2 | 5.2 |
| A 7Q17M0ADJ | 0 | 0.3 | 18.8 | 3.98 | 9.9 | 6.1 | M4 x 0.7 | 2 | 5.2 |
| A 7Q17M1STA | 1 | — | 25.4 | 5.97 | 15 | 8.9 | M6 x 1 | 2.1 | 6 |
| A 7Q17M1ADJ | 1 | 0.4 | 25.4 | 5.97 | 15 | 8.9 | M6 x 1 | 2.1 | 6 |
| A 7Q17M2STA | 2 | — | 39.1 | 9.97 | 24.9 | 15 | M10 x 1.5 | 2.6 | 8.2 |
| A 7Q17M2ADJ | 2 | 0.6 | 39.1 | 9.97 | 24.9 | 15 | M10 x 1.5 | 2.6 | 8.2 |

| Catalog Number (Ref.) | Hex Size | Nut and Washer | D Dia. | W 0 -0.12 | MDw | Static Radial Load Rating N | Dynamic Radial Load Rating N | Static Axial Load Rating N | Dynamic Axial Load Rating N |
|-----------------------|----------|----------------|--------|-----------|------|-----------------------------|------------------------------|----------------------------|-----------------------------|
| A 7Q17M0STA | 11 | M4 | 14.83 | 6.35 | 5.94 | 500 | 1050 | 470 | 530 |
| A 7Q17M0ADJ | 11 | M4 | 14.83 | 6.35 | 5.94 | 500 | 1050 | 470 | 530 |
| A 7Q17M1STA | 12 | M6 | 19.68 | 7.87 | 7.95 | 1110 | 2180 | 1040 | 1090 |
| A 7Q17M1ADJ | 12 | M6 | 19.68 | 7.87 | 7.95 | 1110 | 2180 | 1040 | 1090 |
| A 7Q17M2STA | 14 | M10 | 30.73 | 11.13 | 12.7 | 2780 | 4700 | 2630 | 2380 |
| A 7Q17M2ADJ | 14 | M10 | 30.73 | 11.13 | 12.7 | 2780 | 4700 | 2630 | 2380 |

NOTE: Load ratings are according to AFBMA STD9-1990.

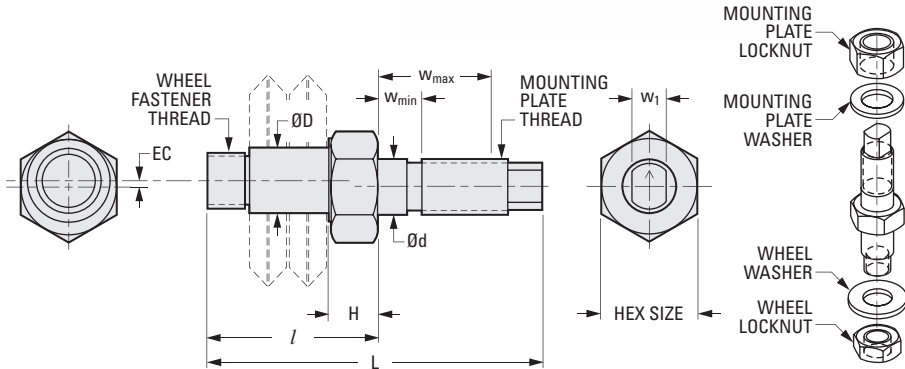
MATERIAL:

- Journal** - Stainless Steel
- Washers** - Stainless Steel
- Wheel Locknut** - Steel, Zinc Plated, Nylon Insert, Grade 2
- Mounting Plate Locknut** - Steel, Zinc Plated, Nylon Insert, Grade 8



SPECIFICATION:

- Metric equivalent of Inch Component
- A 7X17-...



METRIC COMPONENT

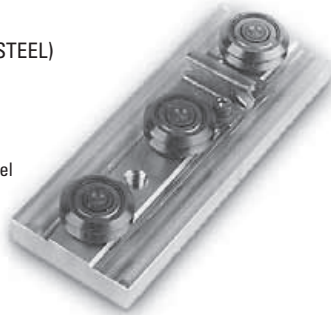
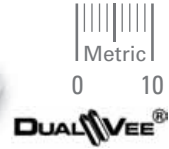
| Catalog Number | Size | EC Offset | H Head Height | I Clearance Length | L Overall Length | D* Outside Dia. 0 -0.018 | d Journal Dia. 0 -0.05 | Mounting Plate Thread | Wheel Fastener Thread | w ₁ Adjustment Flat Width |
|----------------|------|-----------|---------------|--------------------|------------------|--------------------------|------------------------|-----------------------|-----------------------|--------------------------------------|
| A 7X17MJA0* | 0 | 0.254 | 6.35 | 16.13 | 35.05 | 3.99 | 6.35 | 1/4-28 | #8-32 | 3.18 |
| A 7X17MJF0* | 0 | — | 6.35 | 16.13 | 35.05 | 3.99 | 6.35 | 1/4-28 | #8-32 | 3.18 |
| A 7X17MJA1 | 1 | 0.305 | 6.35 | 17.65 | 36.58 | 4.76 | 6.35 | 1/4-28 | #10-32 | 3.18 |
| A 7X17MJF1 | 1 | — | 6.35 | 17.65 | 36.58 | 4.76 | 6.35 | 1/4-28 | #10-32 | 3.18 |
| A 7X17MJA2 | 2 | 0.61 | 7.14 | 24.54 | 51.56 | 9.52 | 9.53 | 3/8-24 | 5/16-24 | 6.35 |
| A 7X17MJF2 | 2 | — | 7.14 | 24.54 | 51.56 | 9.52 | 9.53 | 3/8-24 | 5/16-24 | 6.35 |
| A 7X17MJA3 | 3 | 1.067 | 9.53 | 32.39 | 64.26 | 11.99 | 11.1 | 7/16-20 | 7/16-20 | 6.35 |
| A 7X17MJF3 | 3 | — | 9.53 | 32.39 | 64.26 | 11.99 | 11.1 | 7/16-20 | 7/16-20 | 6.35 |
| A 7X17MJA4 | 4 | 1.524 | 11.1 | 39.04 | 77.22 | 15 | 12.7 | 1/2-20 | 1/2-20 | 7.92 |
| A 7X17MJF4 | 4 | — | 11.1 | 39.04 | 77.22 | 15 | 12.7 | 1/2-20 | 1/2-20 | 7.92 |

| Catalog Number (Ref.) | Size | Hex Size | Mounting Plate Width | | Weight g | Hardware Supplied | | | |
|-----------------------|------|----------|----------------------|------------------|----------|-------------------|---------------|-----------------------|------------------------|
| | | | W _{max} | W _{min} | | Wheel Washer | Wheel Locknut | Mounting Plate Washer | Mounting Plate Locknut |
| | | | | | | | | | |
| A 7X17MJA0 | 0 | 3/8 | 9.53 | 3.18 | 14 | — | #8 | 1/4 Flat | 1/4 |
| A 7X17MJF0 | 0 | 3/8 | 9.53 | 3.18 | 14 | — | #8 | Washer | 1/4 |
| A 7X17MJA1 | 1 | 7/16 | 9.53 | 3.18 | 16.1 | #8 Flat Washer | #10 | 1/4 Flat | 1/4 |
| A 7X17MJF1 | 1 | 7/16 | 9.53 | 3.18 | 16.1 | Washer | #10 | Washer | 1/4 |
| A 7X17MJA2 | 2 | 9/16 | 12.7 | 4.75 | 45.7 | 5/16 Flat Washer | 5/16 | 3/8 Flat | 3/8 |
| A 7X17MJF2 | 2 | 9/16 | 12.7 | 4.75 | 45.7 | Washer | 5/16 | Washer | 3/8 |
| A 7X17MJA3 | 3 | 3/4 | 15.88 | 6.35 | 78 | 7/16 Flat Washer | 7/16 | 7/16 Flat | 7/16 |
| A 7X17MJF3 | 3 | 3/4 | 15.88 | 6.35 | 78 | Washer | 7/16 | Washer | 7/16 |
| A 7X17MJA4 | 4 | 7/8 | 19.05 | 9.53 | 133.1 | 1/2 Flat Washer | 1/2 | 1/2 Flat | 1/2 |
| A 7X17MJF4 | 4 | 7/8 | 19.05 | 9.53 | 133.1 | Washer | 1/2 | Washer | 1/2 |

* Diameter Tolerance: 0/-0.013
 ◇ Inch Designation.



EASY INSTALLATION
 HIGH-SPEED CAPACITY
 HIGH-LOAD CAPACITY
 CORROSION RESISTANT (ONLY FOR STAINLESS STEEL)
 THREE WHEEL CONFIGURATION
 SMOOTH OPERATION

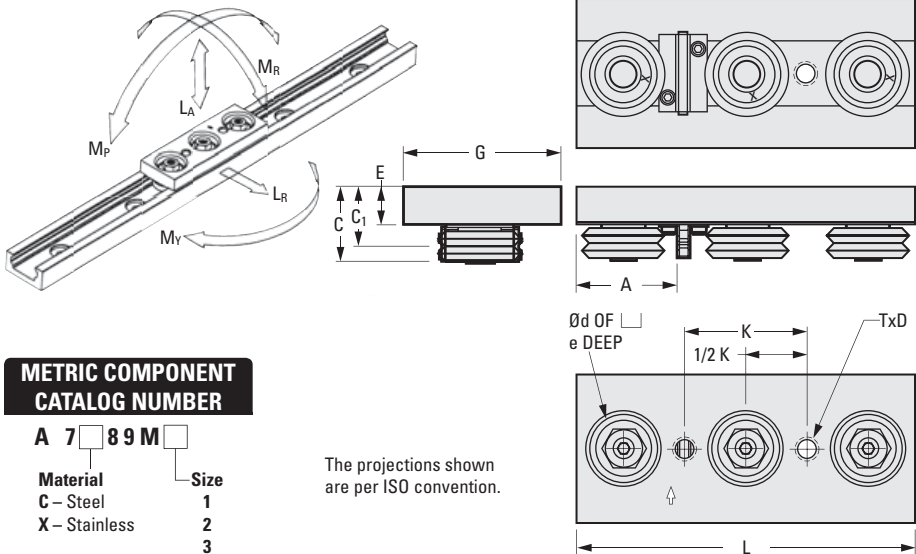


> MATERIAL:

Guide Wheels - Steel SAE 52100 or 440C Stainless Steel
Plate - Aluminum, Clear Anodized

Direction of arrow, on carriage plate, indicates how the load should be oriented to achieve radial loading on the two concentric guide wheels.

Dimensions in () are inch.



METRIC COMPONENT CATALOG NUMBER

A 7 8 9 M

Material
 C - Steel
 X - Stainless

Size
 1
 2
 3

The projections shown are per ISO convention.

| Size | L Assembly Length | C Assembly Height | E Plate Height | C ₁ Wheel Height | G Assembly Width | K Hole Spacing | T Fastener Size | D Fastener Depth (max) |
|------|-------------------------|-------------------------|----------------------|-----------------------------------|------------------------|----------------------|-----------------------|---------------------------------|
| 1 | 100 (3.94) | 19.5 (.77) | 9 (.35) | 15.2 (.6) | 38 (1.5) | 40 (1.57) | M6 x 1 | 10.1 (.4) |
| 2 | 125 (4.92) | 26.5 (1.04) | 13 (.51) | 20.8 (.82) | 55 (2.17) | 45 (1.77) | M8 x 1.25 | 13.7 (.54) |
| 3 | 170 (6.69) | 37.3 (1.47) | 17 (.67) | 29.4 (1.16) | 80 (3.15) | 60 (2.36) | M10 x 1.5 | 19.6 (.77) |

| Size | d C' Bore Dia. | e C' Bore Depth | A Lubricator Location | L _A Axial Working Load Capacity N (lbf) | L _R Radial Working Load Capacity N (lbf) | M _P Pitch Moment Capacity N • m (lb • in) | M _Y Yaw Moment Capacity N • m (lb • in) | M _R Roll Moment Capacity N • m (lb • in) |
|------|----------------------|-----------------------|-----------------------------|---|--|--|--|---|
| 1 | 16 (.63) | 5 (.2) | 28.4 (1.12) | 705 (158.5) | 1111 (249.8) | 14 (123.9) | 21 (185.9) | 3 (26.6) |
| 2 | 25 (.98) | 8.5 (.33) | 37.3 (1.47) | 1749 (393.2) | 2671 (600.4) | 40 (354.0) | 61 (539.9) | 9 (79.7) |
| 3 | 38 (1.5) | 8.1 (.32) | 51.3 (2.02) | 4763 (1070.7) | 5739 (1290.1) | 146 (1292.2) | 176 (1557.7) | 35 (309.8) |

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DISCONTINUED 6/22/11

EASY INSTALLATION
 HIGH-SPEED CAPACITY
 HIGH-LOAD CAPACITY
 CORROSION RESISTANT (STAINLESS STEEL ONLY)
 SMOOTH OPERATION

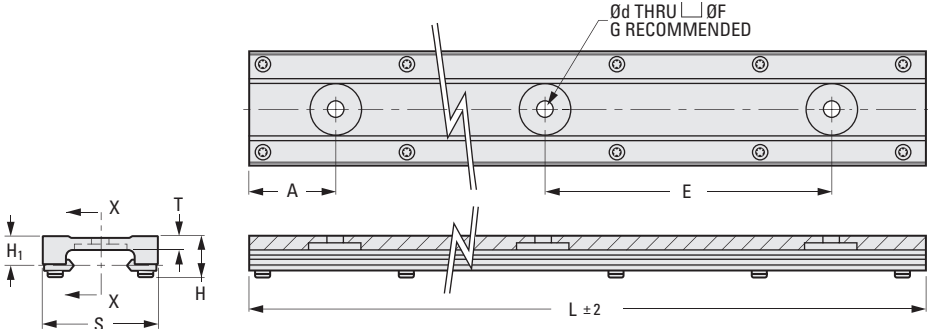
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> MATERIAL:

U-Channel Track - Aluminum, Clear Anodized
Track Raceways - 1045 Carbon Steel or 420 Stainless Steel

Dimensions in () are inch.



SECTION X-X

The projections shown are per ISO convention.

METRIC COMPONENT CATALOG NUMBER

A 7 8 8 M

Raceway Material: C - Steel, X - Stainless
 Size: 1, 2, 3
 Length Code:

| Size | S Width | H Height | H ₁ Vee Height | A End Mount Hole Spacing | E Mount Hole Spacing | d Mount Hole Diameter | G Recommended Fastener | T Base Thickness | F C'Bore Geometry |
|------|--------------|----------------|---------------------------|--------------------------|----------------------|-----------------------|------------------------|------------------|---------------------------|
| 1 | 40 (1.57) | 17.6 (.69) | 12.8 (.50) | 45 (1.77) | 100 (3.94) | 6.9 (.27) | Pan Head M6 | 5.9 (.23) | Ø18.8x2DP (.74x.08DP) |
| 2 | 60 (2.36) | 21.5 (.85) | 15.2 (.60) | 45 (1.77) | 150 (5.91) | 8.8 (.35) | Pan Head M8 | 7.3 (.29) | Ø25.4x3DP (1.00x.12DP) |
| 3 | 85 (3.35) | 29.5 (1.16) | 20.6 (.81) | 82.5 (3.25) | 250 (9.84) | 10.5 (.41) | Pan Head M10 | 9 (.35) | Ø28.6x5DP (1.13x.20DP) |

| Size | Length Code | | | | | | | | | |
|------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1 | 0190 | 0290 | 0390 | 0490 | 0590 | 0690 | 0790 | 0890 | 0990 | 1090 |
| | 190 (7.48) | 290 (11.42) | 390 (15.35) | 490 (19.29) | 590 (23.23) | 690 (27.17) | 790 (31.10) | 890 (35.04) | 990 (38.98) | 1090 (42.91) |
| 2 | 0240 | 0390 | 0540 | 0690 | 0840 | 0990 | 1140 | 1290 | 1440 | 1590 |
| | 240 (9.45) | 390 (15.35) | 540 (21.26) | 690 (27.17) | 840 (33.07) | 990 (38.98) | 1140 (44.88) | 1290 (50.79) | 1440 (56.69) | 1590 (62.60) |
| 3 | 0415 | 0665 | 0915 | 1165 | 1415 | 1665 | - | - | - | - |
| | 415 (16.34) | 665 (26.18) | 915 (36.02) | 1165 (45.87) | 1415 (55.71) | 1665 (65.55) | - | - | - | - |

NOTE: Dimensions in () are in inches.

DISCONTINUED 6/22/11

- I
- R
- T
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- A

EXTREMELY LOW NOISE
EASY INSTALLATION
HIGH-SPEED OPERATION
ECONOMICAL DESIGN

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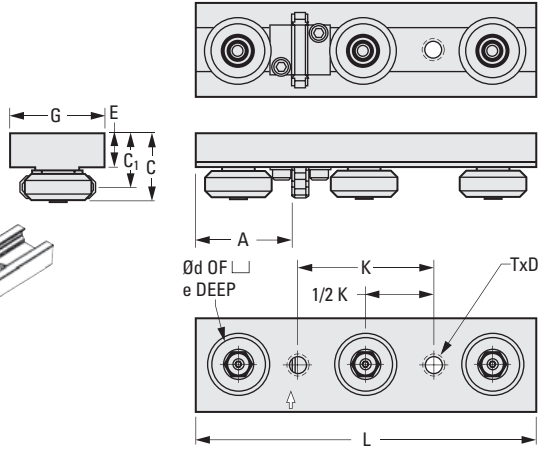
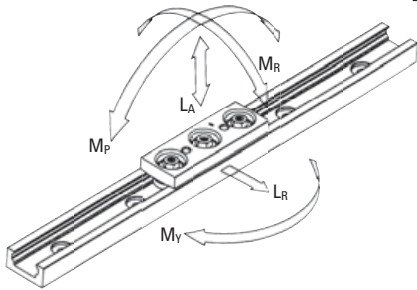


MATERIAL:

- Guide Wheels** - Acetal Polymer
- Plate** - Aluminum, Clear Anodized
- Bearings** - Stainless Steel Ball

Dimensions in () are inch.

Direction of arrow, on carriage plate, indicates how the load should be oriented to achieve radial loading on the two concentric guide wheels.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Size | L Assy. Length | C Assy. Height | E Plate Height | C ₁ Wheel Height | G Assy. Width | K Hole Spacing | T Fast. Size | D Fast. Depth (max) |
|----------------|------|----------------|----------------|----------------|-----------------------------|---------------|----------------|--------------|---------------------|
| A 7P86M1 | 1 | 100 (3.94) | 19.5 (.77) | 9 (.35) | 15.2 (.6) | 28 (1.1) | 40 (1.57) | M6x1 | 10.1 (.4) |
| A 7P86M2 | 2 | 125 (4.92) | 26.5 (1.04) | 13 (.51) | 20.8 (.82) | 42 (1.65) | 45 (1.77) | M8x1.25 | 13.7 (.54) |

| Catalog Number (Ref.) | d C'Bore Dia. | e C'Bore Depth | A Lubricator Location | L _A Axial Working Load Capacity N (lbf) | L _R Radial Working Load Capacity N (lbf) | M _P Pitch Moment Capacity Nm (lb • in) | M _Y Yaw Moment Capacity Nm (lb • in) | M _R Roll Moment Capacity Nm (lb • in) |
|-----------------------|---------------|----------------|-----------------------|--|---|---|---|--|
| A 7P86M1 | 19 (.75) | 5 (.2) | 28.4 (1.12) | 177 (39.8) | 89 (20) | 10 (88.5) | 3 (26.6) | 2 (17.7) |
| A 7P86M2 | 25 (.98) | 8.5 (.33) | 37.3 (1.47) | 222 (49.9) | 177 (39.8) | 18 (159.3) | 8 (70.8) | 4 (35.4) |

NOTE: Load Capacity is based on 100 km service life.

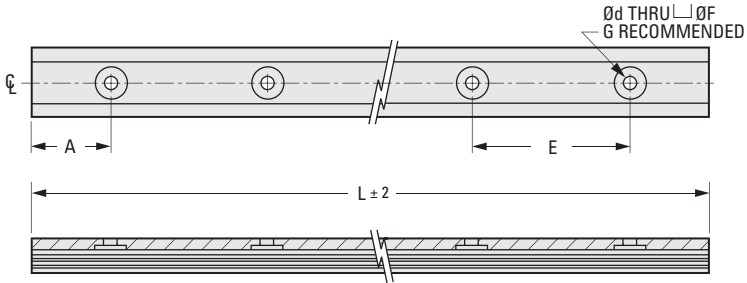
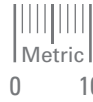
EASY INSTALLATION
 LIGHT WEIGHT
 COMPACT ENVELOPE
 ECONOMICAL

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► MATERIAL:

U-Channel Track - Aluminum, Clear Anodized

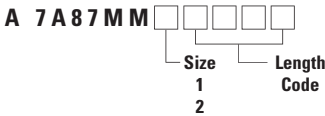
Dimensions in () are inch.



SECTION X-X

The projections shown are per ISO convention.

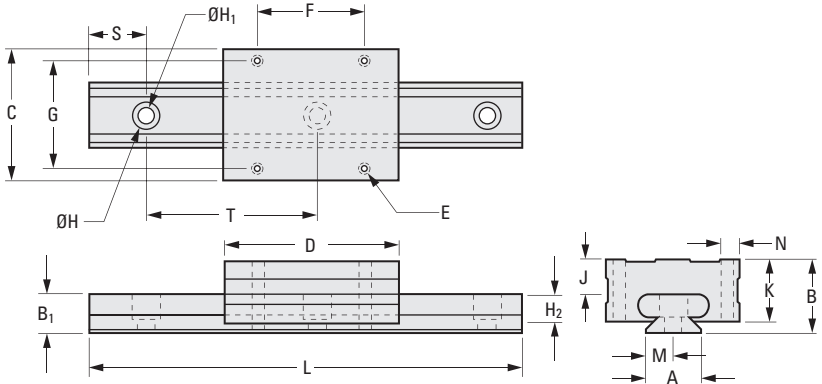
METRIC COMPONENT CATALOG NUMBER



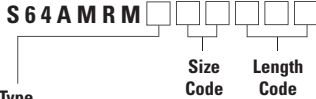
| Size | S Width | H Height | H ₁ Track Vee Height | A End Hole Spacing | E Hole Spacing | d Hole Diameter | G Recommended Fastener | T Base Thickness | F C'Bore Geometry |
|------|--------------|-------------|---------------------------------|--------------------|----------------|-----------------|------------------------|------------------|------------------------|
| 1 | 30 (1.18) | 18 (.71) | 12.8 (.5) | 30 (1.18) | 60 (2.36) | 5.5 (.22) | Pan Head M5 | 6 (.24) | Ø12x2DP (.47x.08DP) |
| 2 | 45 (1.77) | 22 (.87) | 15.2 (.6) | 50 (1.97) | 100 (3.94) | 8.8 (.35) | Pan Head M8 | 7 (.28) | Ø20x3DP (.79x.12DP) |

| Size | Length Code | | | | | | | | |
|------|----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| | 0120 | 0240 | 0360 | 0540 | 0720 | 0960 | 1200 | 1440 | 1800 |
| 1 | 120 (4.72) | 240 (9.45) | 360 (14.17) | 540 (21.26) | 720 (28.35) | 960 (37.8) | 1200 (47.24) | 1440 (56.69) | 1800 (70.87) |
| 2 | 0200 (7.87) | 0300 (11.81) | 0400 (15.75) | 0600 (23.62) | 0800 (31.5) | 1000 (39.37) | 1200 (47.24) | 1600 (62.99) | - |

QUIET RUNNING
 SELF-LUBRICATING
 TOLERATES SHOCK LOADS
 CORROSION-RESISTANT
 DAMPENS VIBRATION



METRIC COMPONENT CATALOG NUMBER



A – Precision 0.025 – 0.051 running clearance. FrelonGOLD® material on HRC70 ceramic-coated aluminum
B – Compensated Precision 0.064 – 0.089 running clearance. FrelonGOLD® material on HRC70 ceramic-coated aluminum

| Size Code | Length Code (Length in mm) | | | | | | |
|-----------|----------------------------|-----|-----|-----|-----|-----|-----|
| | 040 | 070 | 085 | 100 | 130 | – | – |
| 07 | 40 | 70 | 85 | 100 | 130 | – | – |
| 09 | 055 | 075 | 095 | 115 | 155 | 195 | 275 |
| | 55 | 75 | 95 | 115 | 155 | 195 | 275 |
| 12 | 120 | 170 | 220 | 270 | 320 | 370 | 470 |
| | 120 | 170 | 220 | 270 | 320 | 370 | 470 |
| 15 | 150 | 230 | 310 | 430 | 470 | 670 | – |
| | 150 | 230 | 310 | 430 | 470 | 670 | – |
| 20 | 220 | 280 | 340 | 460 | 640 | 880 | – |
| | 220 | 280 | 340 | 460 | 640 | 880 | – |

| Size Code (Ref.) | A | B | B ₁ | C | D | E | F | G | H | H ₁ | H ₂ | K | J | M | N | S | T |
|------------------|----|----|----------------|----|----|----|----|----|-----|----------------|----------------|------|------|-----|-----|-----|----|
| 07 | 7 | 8 | 6.1 | 17 | 24 | M2 | 8 | 12 | 4.2 | 2.4 | 2.3 | 6.2 | 1.7 | 3.5 | 2.3 | 5 | 15 |
| 09 | 9 | 10 | 7.1 | 20 | 30 | M3 | 13 | 15 | 4.5 | 2.6 | 3 | 8 | 2.4 | 4.5 | 2.5 | 7.5 | 20 |
| 12 | 12 | 13 | 8 | 27 | 34 | M3 | 15 | 20 | 6 | 3.5 | 3.5 | 10.7 | 4.6 | 6 | 3.5 | 10 | 25 |
| 15 | 15 | 16 | 9.2 | 32 | 42 | M3 | 20 | 25 | 6 | 3.5 | 4.5 | 14.1 | 6.3 | 7.5 | 3.5 | 15 | 40 |
| 20 | 20 | 25 | 13.4 | 46 | 62 | M4 | 38 | 38 | 9.5 | 6 | 8.5 | 21.2 | 11.2 | 10 | 4 | 20 | 60 |

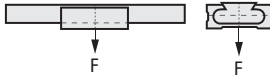
NOTES: 1. Longer lengths are available on special order (maximum length 3600 mm)
 2. If more than one carriage is needed per track, contact our engineering department.



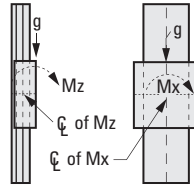
| Size | Force N (lb.) | Max. Static Load N (lb.) |
|------|---------------|--------------------------|
| 7 | 445 (100.04) | 734 (165.00) |
| 9 | 667 (149.94) | 1557 (350.01) |
| 12 | 1334 (299.88) | 1957 (439.93) |
| 15 | 2224 (499.96) | 3114 (700.03) |
| 20 | 3559 (800.06) | 6005 (1349.92) |



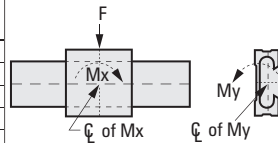
| Size | Force N (lb.) |
|------|---------------|
| 7 | 89 (20.01) |
| 9 | 125 (28.10) |
| 12 | 222 (49.91) |
| 15 | 356 (80.03) |
| 20 | 578 (129.93) |



| Size | Mx N • m (lb. in.) | My N • m (lb. in.) | Mz N • m (lb. in.) |
|------|--------------------|--------------------|--------------------|
| 7 | 2.3 (20.36) | 1.8 (15.93) | 1.8 (15.93) |
| 9 | 5 (44.25) | 3.2 (28.32) | 3.2 (28.32) |
| 12 | 9 (79.66) | 5.6 (49.56) | 5.6 (49.56) |
| 15 | 15.1 (133.65) | 9 (79.66) | 9 (79.66) |
| 20 | 24.9 (220.38) | 14.7 (130.11) | 14.7 (130.11) |



| Size | Force N (lb.) | Mx N • m (lb. in.) | My N • m (lb. in.) | Mz N • m (lb. in.) |
|------|---------------|--------------------|--------------------|--------------------|
| 7 | 133 (29.90) | 2.3 (20.36) | 1.8 (15.93) | 1.8 (15.93) |
| 9 | 222 (49.91) | 5 (44.25) | 3.2 (28.32) | 3.2 (28.32) |
| 12 | 400 (89.92) | 9 (79.66) | 5.6 (49.56) | 5.6 (49.56) |
| 15 | 667 (149.94) | 15.1 (133.65) | 9 (79.66) | 9 (79.66) |
| 20 | 1112 (249.98) | 24.9 (220.38) | 14.7 (130.11) | 14.7 (130.11) |

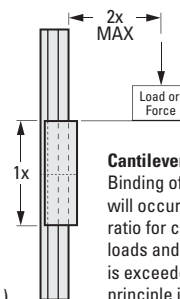


Plane bearings are rated by their limiting PV, which is a combination of load over a given surface area and the velocity.

| Bearing Material | Max. "PV" | Max. "P" | Max. "V" (No Lubrication) |
|------------------|-----------------------------------|----------------------------|---------------------------|
| FrelonGOLD® | 20000 (psi x ft./min) | 3000 psi | 300 ft./min. |
| | 430 (kgf/cm ² x m/min) | 210.9 kgf/cm ² | 91.44 m/min. |
| FrelonJ™ | 10000 (psi x ft./min) | 1500 psi | 140 ft./min. |
| | 215 (kgf/cm ² x m/min) | 105.45 kgf/cm ² | 42.66 m/min. |

PV = The performance measurement of plane bearings
 PV = P x V where P = pressure (load) in psi (kgf/cm²), V = velocity (speed) in ft./min. (m/min.)

NOTE: All three parameters must be met by an application for the bearing to perform properly.



Cantilevered Loads
 Binding of the carriage will occur if the 2:1 ratio for cantilevered loads and drive forces is exceeded. This principle is not load or force dependent. It is a product of the coefficient of frictions associated with plane bearings.

TECHNICAL INFORMATION

Linear Guide System – Low Profile

Carriage glides smoothly on anodized aluminum rails without the need for lubricants. Their low profile design is ideal when space constraints are tight. The rails are offered in 4 widths.

Unique features include:

- Low friction without lubrication
- Resistance to dirt and dust
- Small mounting height and width
- Lightweight
- Replaceable polymer sliding elements
- Low-cost alternative to miniature ball bearing systems.

MAXIMUM LOAD PER CARRIAGE

| | |
|---------|--------|
| Size 17 | 5 kg |
| Size 27 | 50 kg |
| Size 40 | 70 kg |
| Size 80 | 100 kg |

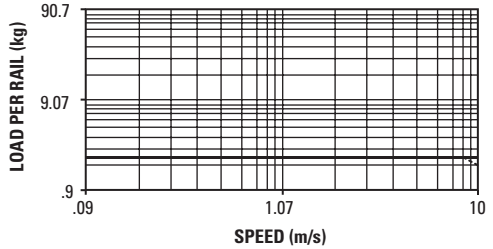
APPLICATION HINT: The mounting surface for rails and bearings should have a very flat surface (e.g. milled surface) in order to enhance performance.



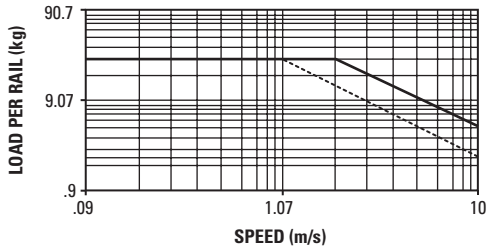
MAXIMUM PERMISSIBLE DYNAMIC LOADS

NOTE: Dotted lines are Z direction.

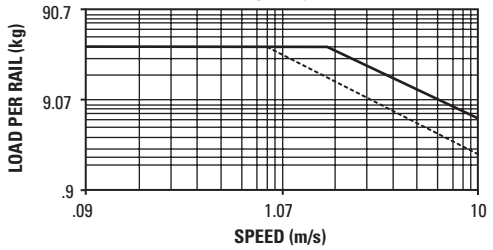
SIZE 17



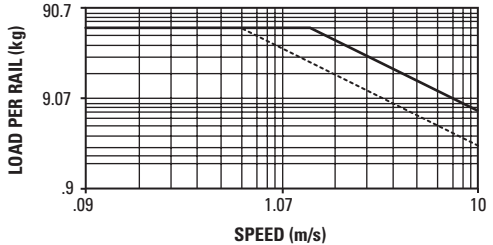
SIZE 27



SIZE 40

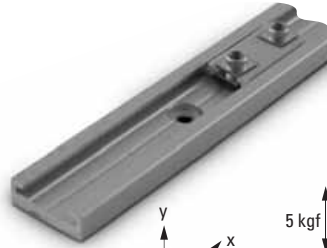


SIZE 80



LOW-LOAD APPLICATIONS
 REPLACEABLE GLIDE PADS
 SELF-LUBRICATING
 CORROSION-RESISTANT
 LOW FRICTION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

Rails - Anodized Aluminum
Carriage Assembly - Plastic with Brass threaded inserts and J® Polymer Pads

► **OPERATING TEMPERATURE:**

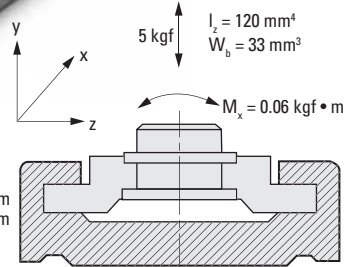
-40°C to +90°C

► **SPECIFICATIONS:**

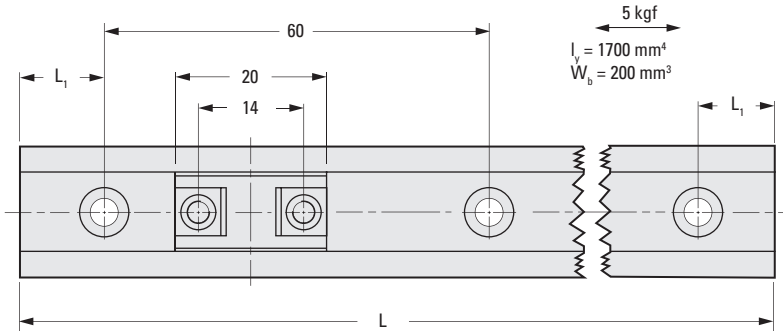
Maximum Load: 50 N
Maximum Speed: 15 m/s

LOAD DATA

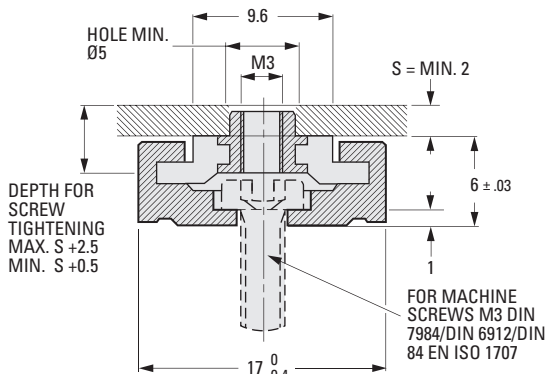
I = Moment of Inertia
 W_b = Section Modulus
 M = Max. Torque



$M_y = 0.01 \text{ kgf} \cdot \text{m}$
 $M_z = 0.01 \text{ kgf} \cdot \text{m}$



Carriage Assembly
S99GNCM17202



METRIC COMPONENT

| Catalog Number | L Length mm | L ₁ | Weight g |
|--------------------------|-------------|----------------|----------|
| Rails | | | |
| S99GNRM170490 | 490 | 35 | 73.5 |
| S99GNRM170980 | 980 | 40 | 147 |
| S99GNRM171470 | 1470 | 45 | 220.5 |
| S99GNRM171960 | 1960 | 20 | 294 |
| Carriage Assembly | | | |
| S99GNCM17202 | — | — | 1.7 |

REV: 6.12.11 JC

LOW- TO MEDIUM-LOAD APPLICATIONS
 REPLACEABLE GLIDE PADS
 LOW FRICTION
 MOUNTING THROUGH HOLES OR THREADED ADJUSTING STUDS FOR MOUNTING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► **MATERIAL:**

Rails - Anodized Aluminum
Carriage Assembly - Zinc, Chromated and J® Polymer Pads

► **OPERATING TEMPERATURE:**

-40°C to +90°C

► **SPECIFICATIONS:**

Maximum Load: 500 N
Maximum Speed: 15 m/s

FOR MACHINE SCREWS M4
 DIN 7984 / DIN 6912
 DIN 84 / EN ISO 1707

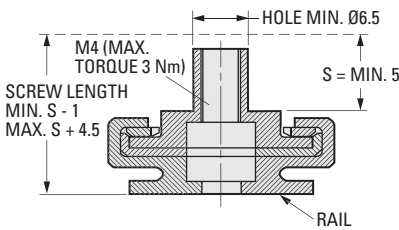
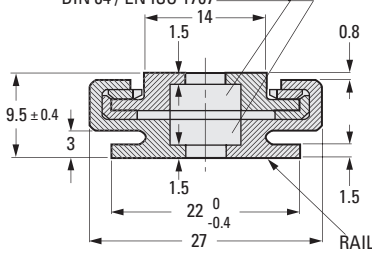


Fig. 1

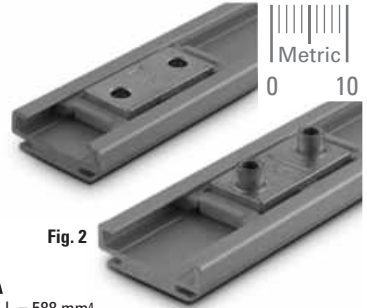
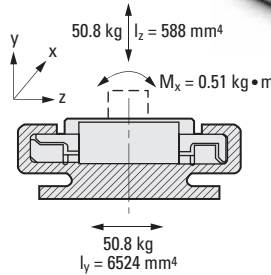


Fig. 2



LOAD DATA:
 WITH AND WITHOUT
 MOUNTING STUDS

I = Moment of Inertia
 M = Max. Torque

$M_y = 0.25 \text{ kg} \cdot \text{m}$
 $M_z = 0.25 \text{ kg} \cdot \text{m}$

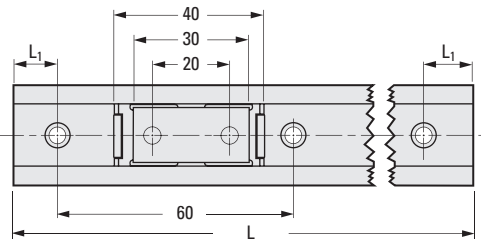


Fig. 1
 Without Mounting Studs

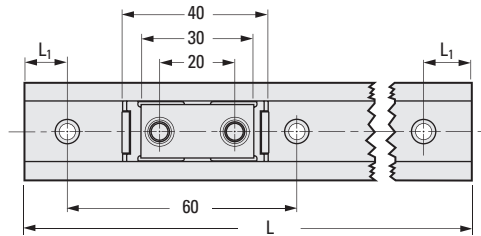


Fig. 2
 With Mounting Studs

METRIC COMPONENT

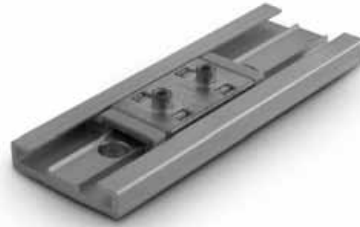
| Catalog Number | Fig. No. | L Length mm | L ₁ | Weight g |
|--------------------------|----------|-------------|----------------|----------|
| Rails | | | | |
| S99GNRM271000 | – | 1000 | 20 | 290 |
| S99GNRM272000 | – | 2000 | 40 | 580 |
| S99GNRM273000 | – | 3000 | 30 | 870 |
| Carriage Assembly | | | | |
| S99GNCM27A401 | 1 | – | – | 10.8 |
| S99GNCM27B402 | 2 | – | – | 12.5 |

LINEAR GUIDE SYSTEM • LOW PROFILE SIZE 40

SDP/SI

MEDIUM- TO HIGH-LOAD APPLICATIONS
REPLACEABLE GLIDE PADS
LOW FRICTION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Rails - Anodized Aluminum
Carriage Assembly - Zinc, Chromated
and J® Polymer Pads

> OPERATING TEMPERATURE:

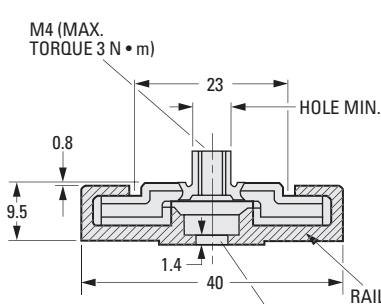
-40°C to +90°C

> SPECIFICATIONS:

Maximum Load: 700 N
Maximum Speed: 15 m/s

LOAD DATA

I = Moment of Inertia
W_b = Section Modulus
M = Max. Torque

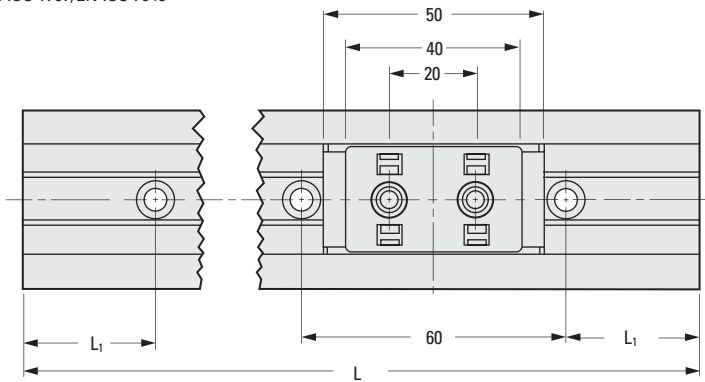
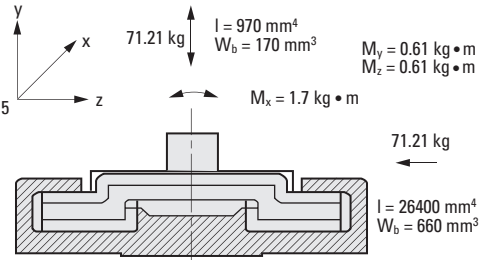


M4 (MAX. TORQUE 3 N • m)

HOLE MIN. Ø6.5

RAIL

FOR MACHINE SCREWS M4
DIN 7984/DIN 6912/DIN 84
EN ISO 1707/EN ISO 7045



METRIC COMPONENT

| Catalog Number | L Length mm | L ₁ | Weight g |
|--------------------------|-------------|----------------|----------|
| Rails | | | |
| S99GNRM401000 | 1000 | 20 | 450 |
| S99GNRM402000 | 2000 | 40 | 900 |
| S99GNRM403000 | 3000 | 30 | 1350 |
| Carriage Assembly | | | |
| S99GNCM40502 | — | — | 30 |



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LINEAR GUIDE SYSTEM • LOW PROFILE SIZE 80



HIGH-LOAD APPLICATIONS
REPLACEABLE GLIDE PADS
LOW FRICTION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



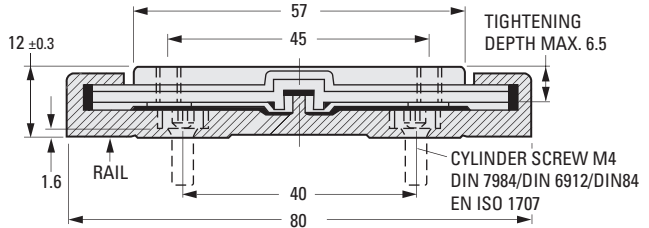
> MATERIAL:

Rails - Anodized Aluminum
Carriage Assembly - Zinc, Chromated and J[®] Polymer Pads

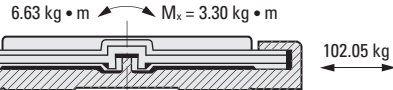


> SPECIFICATIONS:

Maximum Load - 50 N
Maximum Speed - 15 m/s
Operating Temperature: -40°C to +90°C



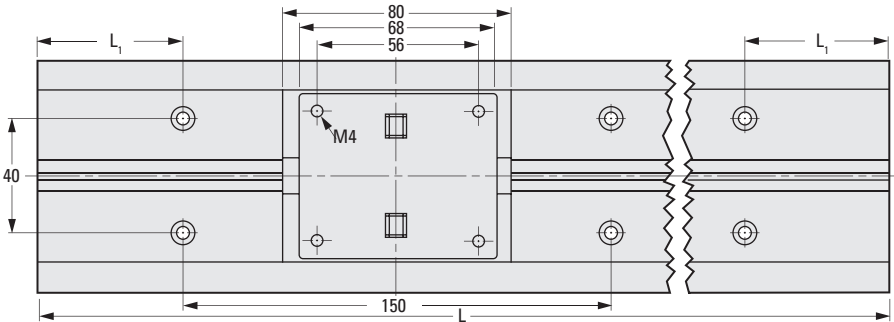
102.05 kg $I = 2900 \text{ mm}^4$ $M_y = 1.52 \text{ kg} \cdot \text{m}$
 $W_b = 380 \text{ mm}^3$ $M_z = 1.52 \text{ kg} \cdot \text{m}$



LOAD DATA

I = moment of Inertia
W_b = Section Modulus
M = Maximum Torque

| Catalog Number | Weight g |
|-------------------|----------|
| Carriage Assembly | |
| S99GNCM80802 | 100 |



METRIC COMPONENT

| Catalog Number | L Length mm | L ₁ | Weight g |
|----------------|-------------|----------------|----------|
| Rails | | | |
| S99GNRM800990 | 990 | 45 | 1128.6 |
| S99GNRM801980 | 1980 | 90 | 2257.2 |
| S99GNRM802970 | 2970 | 60 | 3385.8 |

MINIATURE PRODUCTS

When drive automation is mentioned, we usually think of big gears, shafts or belt and pulley systems. But what about the miniature parts that go into making things work? No matter how small your application may be, SDP/SI is your complete source for all your drive and automation components. We manufacture and stock the many different miniature products that our customers demand. From gears to pulleys and couplings to assemblies, whatever your application, you can count on us to supply you with the right component on time every time.



TECHNICAL INFORMATION

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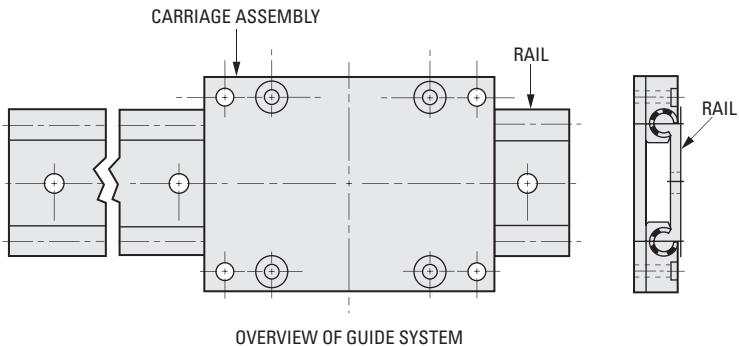
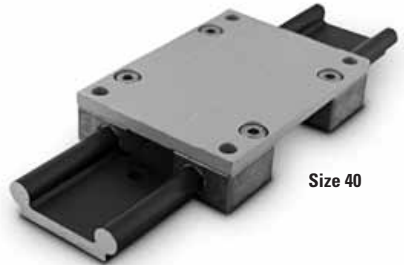
Linear Guide System – Heavy-Duty

Carriage assembly slides over the specially profiled, hard anodized aluminum rails. It is available in two sizes.

Unique features include:

- › Low friction without lubrication
- › Resistance to dirt and dust
- › Low weight
- › Quiet operation
- › Low wear
- › Maintenance-free

The sliding element is a specially formulated polymer material best suited for hard anodized aluminum rails. This combination results in low abrasion leading to excellent durability. The preconfigured parallel rails eliminate alignment problems and speed assembly. The carriage and rail combination is a compact, space-saving design with easy installation. The low and wide profile withstands high torque.



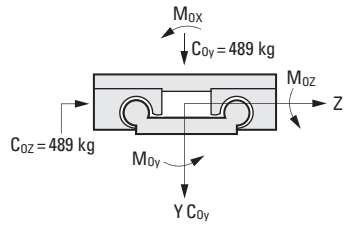
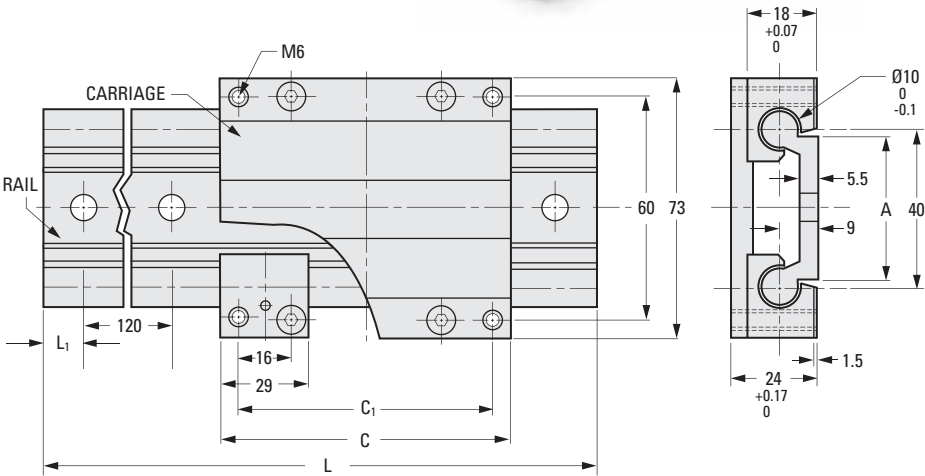
LOW FRICTION
LIGHTWEIGHT
MAINTENANCE-FREE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Rails - Hard Anodized Aluminum
- Carriage Assembly - Plate - Aluminum
- Blocks - Die Cast Zinc
- Bearings - J® Polymer



C= STATIC LOAD CAPACITY

METRIC COMPONENT

| Catalog Number | L Length mm | L1 | A 0 -0.3 | C | C1 | Moment Load Capacity kg • m | | | Weight kg |
|--------------------------|-------------|----|----------|-----|-----|-----------------------------|--------|--------|-----------|
| | | | | | | Mox | Moy | Moz | |
| Rails | | | | | | | | | |
| S99GWRM401000 | 1000 | 20 | 40 | - | - | - | - | - | 1 |
| S99GWRM402000 | 2000 | 40 | 40 | - | - | - | - | - | 2 |
| S99GWRM404000 | 4000 | 20 | 40 | - | - | - | - | - | 4 |
| Carriage Assembly | | | | | | | | | |
| S99GWC40100 | - | - | - | 100 | 87 | 9.789 | 17.323 | 17.323 | 0.29 |
| S99GWC40150 | - | - | - | 150 | 137 | 9.789 | 29.559 | 29.559 | 0.34 |
| S99GWC40200 | - | - | - | 200 | 187 | 9.789 | 41.808 | 41.808 | 0.4 |

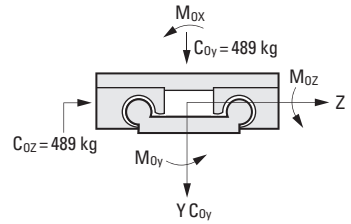
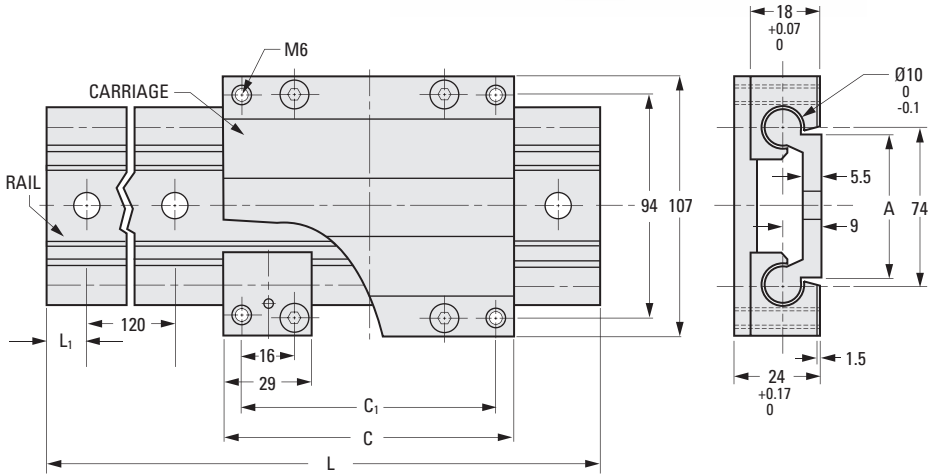
LOW FRICTION
LIGHTWEIGHT
MAINTENANCE-FREE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

- Rails - Hard Anodized Aluminum
- Carriage Assembly - Plate - Aluminum
- Blocks - Die Cast Zinc
- Bearings - J® Polymer



C = STATIC LOAD CAPACITY

METRIC COMPONENT

| Catalog Number | L Length mm | L ₁ | A 0 -0.3 | C | C ₁ | Moment Load Capacity kg • m | | | Weight kg |
|--------------------------|-------------|----------------|----------|-----|----------------|-----------------------------|-----------------|-----------------|-----------|
| | | | | | | M _{Ox} | M _{Oy} | M _{Oz} | |
| Rails | | | | | | | | | |
| S99GWRM801000 | 1000 | 20 | 74 | - | - | - | - | - | 1.5 |
| S99GWRM802000 | 2000 | 40 | 74 | - | - | - | - | - | 3 |
| S99GWRM804000 | 4000 | 20 | 74 | - | - | - | - | - | 6 |
| Carriage Assembly | | | | | | | | | |
| S99GWC80100 | - | - | - | 100 | 87 | 18.139 | 17.337 | 17.337 | 0.34 |
| S99GWC80150 | - | - | - | 150 | 137 | 18.139 | 29.559 | 29.559 | 0.42 |
| S99GWC80200 | - | - | - | 200 | 187 | 18.139 | 41.808 | 41.808 | 0.5 |



Phillips Head Shoulder Screws
pg. 10-3



Socket Head Shoulder Screws
pgs. 10-4 & 10-5



Slotted Head Shoulder Screws
pgs. 10-6 & 10-7



Shallow Head Shoulder Screws
pg. 10-8



Large Shallow Head Screws
pg. 10-9



Pan Head Machine Screws
pg. 10-10



Fillister Head Machine Screws
pg. 10-11



Flat Head Machine Screws
pg. 10-12



Socket Flat Head Cap Screws
pgs. 10-13 & 10-14



Oval Head Machine Screws
pg. 10-15



Socket Head Cap Screws
pgs. 10-16 thru 10-18



Rolling-Ball Tip Set Screws
pg. 10-19



Diamond-Knurled Tip Set Screws
pg. 10-20



Flat-Ball Tip Set Screws
pg. 10-21



Socket Head Set Screws
pg. 10-22



Nylon Tipped Set Screws
pg. 10-23



Hexagonal Wrenches
pg. 10-24



Threaded Rods
pg. 10-25



Hexagonal Nuts
pg. 10-26



Thumbscrew Knobs
pg. 10-27



Assorted Knob Kits
pg. 10-28

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Shaft and Shim Spacers
pg. 10-29



Flat and Sintered Thrust Washers
pg. 10-30



Lock and Wave Spring Washers
pg. 10-31



Curved and Wave Spring Washers
pg. 10-32



Split Lock Washers
pg. 10-33



E-Rings
pg. 10-34



Internal Retaining Rings
pg. 10-35



External Retaining Rings
pgs. 10-36 thru 10-38



Precision Dowel Pins
pgs. 10-39 & 10-40



Roll Pins
pg. 10-41



Taper Pins
pg. 10-42



Precision Disc Dials
pgs. 10-43 & 10-44



Precision Drum Dials
pgs. 10-44 & 10-45



Vernier and Drum or Disc Dial Sets
pg. 10-46



Precision Disc and Drum Indexes
pg. 10-47



Extension Springs
pgs. 10-48 & 10-49



Compression Springs
pgs. 10-50 & 10-51



Torsion Springs
pg. 10-52



Spring Posts
pg. 10-53



Woodruff Keys
pg. 10-54



Parallel Machine Keys
pg. 10-55

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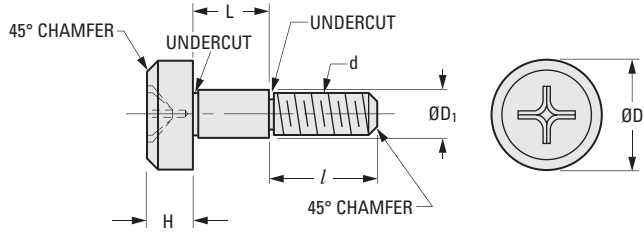
15

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> MATERIAL:

303 Stainless Steel

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The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Thread Size | D Dia. | D ₁ 0 -0.025 | H | L +0.05 0 | l | Phillips Size |
|----------------|---------------------|-----------|-------------------------------|---|-----------------|----|------------------|
| *S706Y3M3005 | M3 x 0.5 | 6 | 3.987 | 3 | 5.013 | 4 | #1 |
| S706Y3M3006 | M3 x 0.5 | 6 | 3.987 | 3 | 6.013 | 4 | #1 |
| *S706Y3M3007 | M3 x 0.5 | 6 | 3.987 | 3 | 7.013 | 4 | #1 |
| S706Y3M3008 | M3 x 0.5 | 6 | 3.987 | 3 | 8.013 | 4 | #1 |
| S706Y3M3010 | M3 x 0.5 | 6 | 3.987 | 3 | 10.013 | 4 | #1 |
| S706Y3M4008 | M4 x 0.7 | 8 | 4.987 | 4 | 8.013 | 5 | #2 |
| S706Y3M4010 | M4 x 0.7 | 8 | 4.987 | 4 | 10.013 | 5 | #2 |
| S706Y3M4012 | M4 x 0.7 | 8 | 4.987 | 4 | 12.013 | 5 | #2 |
| S706Y3M4014 | M4 x 0.7 | 8 | 4.987 | 4 | 14.013 | 5 | #2 |
| S706Y3M4016 | M4 x 0.7 | 8 | 4.987 | 4 | 16.013 | 5 | #2 |
| S706Y3M4020 | M4 x 0.7 | 8 | 4.987 | 4 | 20.013 | 5 | #2 |
| S706Y3M4025 | M4 x 0.7 | 8 | 4.987 | 4 | 25.013 | 5 | #2 |
| S706Y3M4030 | M4 x 0.7 | 8 | 4.987 | 4 | 30.013 | 5 | #2 |
| S706Y3M5010 | M5 x 0.8 | 10 | 5.987 | 5 | 10.013 | 6 | #2 |
| S706Y3M5014 | M5 x 0.8 | 10 | 5.987 | 5 | 14.013 | 6 | #2 |
| S706Y3M5020 | M5 x 0.8 | 10 | 5.987 | 5 | 20.013 | 6 | #2 |
| *S706Y3M5025 | M5 x 0.8 | 10 | 5.987 | 5 | 25.013 | 6 | #2 |
| S706Y3M5030 | M5 x 0.8 | 10 | 5.987 | 5 | 30.013 | 6 | #2 |
| S706Y3M6012 | M6 x 1.0 | 12 | 7.987 | 6 | 12.013 | 11 | #3 |
| S706Y3M6020 | M6 x 1.0 | 12 | 7.987 | 6 | 20.013 | 11 | #3 |
| S706Y3M6010 | M6 x 1.0 | 12 | 9.987 | 6 | 10.013 | 11 | #3 |
| S706Y3M6016 | M6 x 1.0 | 12 | 9.987 | 6 | 16.013 | 11 | #3 |
| S706Y3M8012 | M8 x 1.25 | 14 | 9.987 | 7 | 12.013 | 12 | #4 |
| S706Y3M8015 | M8 x 1.25 | 14 | 9.987 | 7 | 15.013 | 12 | #4 |
| S706Y3MA020 | M10 x 1.5 | 20 | 11.987 | 8 | 20.013 | 16 | #4 |
| S706Y3MA025 | M10 x 1.5 | 20 | 11.987 | 8 | 25.013 | 16 | #4 |

* To be discontinued when present stock is depleted.

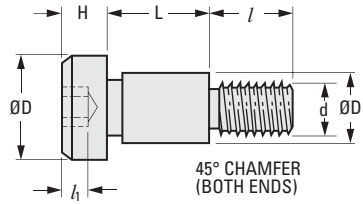
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SOCKET HEAD SHOULDER SCREWS



► MATERIAL:
303 Stainless Steel

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The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Thread Size | D Dia. | D ₁ Dia. 0 -0.078 | H | L +0.2 +0.05 | l | l ₁ | s |
|----------------|---------------------|-----------|---------------------------------------|---|--------------------|----|----------------|-----|
| A 9X25M0304 | M3 x 0.5 | 6 | 4 | 3 | 4 | 4 | 1.6 | 2 |
| A 9X25M0305 | M3 x 0.5 | 6 | 4 | 3 | 5 | 4 | 1.6 | 2 |
| A 9X25M0306 | M3 x 0.5 | 6 | 4 | 3 | 6 | 4 | 1.6 | 2 |
| A 9X25M0308 | M3 x 0.5 | 6 | 4 | 3 | 8 | 4 | 1.6 | 2 |
| A 9X25M0310 | M3 x 0.5 | 6 | 4 | 3 | 10 | 4 | 1.6 | 2 |
| A 9X25M0404 | M4 x 0.7 | 8 | 5 | 4 | 4 | 5 | 2 | 2.5 |
| A 9X25M0405 | M4 x 0.7 | 8 | 5 | 4 | 5 | 5 | 2 | 2.5 |
| A 9X25M0406 | M4 x 0.7 | 8 | 5 | 4 | 6 | 5 | 2 | 2.5 |
| A 9X25M0408 | M4 x 0.7 | 8 | 5 | 4 | 8 | 5 | 2 | 2.5 |
| A 9X25M0410 | M4 x 0.7 | 8 | 5 | 4 | 10 | 5 | 2 | 2.5 |
| A 9X25M0412 | M4 x 0.7 | 8 | 5 | 4 | 12 | 5 | 2 | 2.5 |
| A 9X25M0414 | M4 x 0.7 | 8 | 5 | 4 | 14 | 5 | 2 | 2.5 |
| A 9X25M0416 | M4 x 0.7 | 8 | 5 | 4 | 16 | 5 | 2 | 2.5 |
| A 9X25M0420 | M4 x 0.7 | 8 | 5 | 4 | 20 | 5 | 2 | 2.5 |
| A 9X25M0425 | M4 x 0.7 | 8 | 5 | 4 | 25 | 5 | 2 | 2.5 |
| A 9X25M0430 | M4 x 0.7 | 8 | 5 | 4 | 30 | 5 | 2 | 2.5 |
| A 9X25M0504 | M5 x 0.8 | 10 | 6 | 5 | 4 | 6 | 2.4 | 3 |
| A 9X25M0505 | M5 x 0.8 | 10 | 6 | 5 | 5 | 6 | 2.4 | 3 |
| A 9X25M0506 | M5 x 0.8 | 10 | 6 | 5 | 6 | 6 | 2.4 | 3 |
| A 9X25M0508 | M5 x 0.8 | 10 | 6 | 5 | 8 | 6 | 2.4 | 3 |
| A 9X25M0510 | M5 x 0.8 | 10 | 6 | 5 | 10 | 6 | 2.4 | 3 |
| A 9X25M0512 | M5 x 0.8 | 10 | 6 | 5 | 12 | 6 | 2.4 | 3 |
| A 9X25M0514 | M5 x 0.8 | 10 | 6 | 5 | 14 | 6 | 2.4 | 3 |
| A 9X25M0516 | M5 x 0.8 | 10 | 6 | 5 | 16 | 6 | 2.4 | 3 |
| A 9X25M0520 | M5 x 0.8 | 10 | 6 | 5 | 20 | 6 | 2.4 | 3 |
| A 9X25M0525 | M5 x 0.8 | 10 | 6 | 5 | 25 | 6 | 2.4 | 3 |
| A 9X25M0530 | M5 x 0.8 | 10 | 6 | 5 | 30 | 6 | 2.4 | 3 |
| A 9X25M0606 | M6 x 1 | 12 | 8 | 6 | 6 | 11 | 3.2 | 4 |
| A 9X25M0608 | M6 x 1 | 12 | 8 | 6 | 8 | 11 | 3.2 | 4 |
| A 9X25M0610 | M6 x 1 | 12 | 8 | 6 | 10 | 11 | 3.2 | 4 |
| A 9X25M0612 | M6 x 1 | 12 | 8 | 6 | 12 | 11 | 3.2 | 4 |
| A 9X25M0616 | M6 x 1 | 12 | 8 | 6 | 16 | 11 | 3.2 | 4 |
| A 9X25M0620 | M6 x 1 | 12 | 8 | 6 | 20 | 11 | 3.2 | 4 |
| A 9X25M0608A | M6 x 1 | 12 | 10 | 6 | 8 | 11 | 3.2 | 4 |
| A 9X25M0610A | M6 x 1 | 12 | 10 | 6 | 10 | 11 | 3.2 | 4 |
| A 9X25M0612A | M6 x 1 | 12 | 10 | 6 | 12 | 11 | 3.2 | 4 |
| A 9X25M0616A | M6 x 1 | 12 | 10 | 6 | 16 | 11 | 3.2 | 4 |
| A 9X25M0808 | M8 x 1.25 | 14 | 10 | 7 | 8 | 12 | 4 | 5 |
| A 9X25M0810 | M8 x 1.25 | 14 | 10 | 7 | 10 | 12 | 4 | 5 |
| A 9X25M0812 | M8 x 1.25 | 14 | 10 | 7 | 12 | 12 | 4 | 5 |
| A 9X25M0816 | M8 x 1.25 | 14 | 10 | 7 | 16 | 12 | 4 | 5 |
| A 9X25M1012A | M10 x 1.5 | 20 | 12 | 8 | 12 | 16 | 4.8 | 6 |
| A 9X25M1016A | M10 x 1.5 | 20 | 12 | 8 | 16 | 16 | 4.8 | 6 |
| A 9X25M1020 | M10 x 1.5 | 20 | 12 | 8 | 20 | 16 | 4.8 | 6 |
| A 9X25M1025 | M10 x 1.5 | 20 | 12 | 8 | 25 | 16 | 4.8 | 6 |



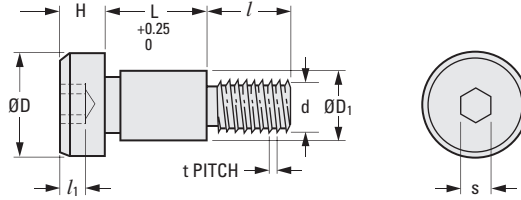
SOCKET HEAD SHOULDER SCREWS

SDP/SI

STANDARD SHOULDER LENGTH SERIES
LONG SHOULDER LENGTH SERIES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:
Steel



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d | L | D Dia. | D ₁ Dia. | H | s | l ₁ | l | t |
|--|-----|----|--------|---------------------|---|-----|----------------|----|------|
| Standard Shoulder Length Series | | | | | | | | | |
| A 9C25M0505 | M5 | 5 | 12 | 6 | 4 | 3.5 | 2.4 | 6 | 0.8 |
| A 9C25M0506 | M5 | 6 | 12 | 6 | 4 | 3.5 | 2.4 | 6 | 0.8 |
| A 9C25M0608 | M6 | 8 | 14 | 8 | 4 | 4.5 | 3.2 | 8 | 1 |
| A 9C25M0610 | M6 | 10 | 14 | 8 | 4 | 4.5 | 3.2 | 8 | 1 |
| A 9C25M0810 | M8 | 10 | 16 | 10 | 5 | 6 | 4 | 10 | 1.25 |
| A 9C25M0812 | M8 | 12 | 16 | 10 | 5 | 6 | 4 | 10 | 1.25 |
| A 9C25M1012 | M10 | 12 | 20 | 12 | 6 | 7 | 4.8 | 12 | 1.5 |
| A 9C25M1016 | M10 | 16 | 20 | 12 | 6 | 7 | 4.8 | 12 | 1.5 |

| Catalog Number | Thread Size | L Length |
|------------------------------------|-------------|----------|
| Long Shoulder Length Series | | |
| A 9C25ML0510 | M5 | 10 |
| A 9C25ML0512 | M5 | 12 |
| A 9C25ML0516 | M5 | 16 |
| A 9C25ML0520 | M5 | 20 |
| A 9C25ML0525 | M5 | 25 |
| A 9C25ML0530 | M5 | 30 |
| A 9C25ML0540 | M5 | 40 |
| A 9C25ML0612 | M6 | 12 |
| A 9C25ML0616 | M6 | 16 |
| A 9C25ML0620 | M6 | 20 |
| A 9C25ML0625 | M6 | 25 |
| A 9C25ML0630 | M6 | 30 |
| A 9C25ML0640 | M6 | 40 |
| A 9C25ML0650 | M6 | 50 |
| A 9C25ML0816 | M8 | 16 |
| A 9C25ML0820 | M8 | 20 |

| Catalog Number | Thread Size | L Length |
|------------------------------------|-------------|----------|
| Long Shoulder Length Series | | |
| A 9C25ML0825 | M8 | 25 |
| A 9C25ML0830 | M8 | 30 |
| A 9C25ML0840 | M8 | 40 |
| A 9C25ML0850 | M8 | 50 |
| A 9C25ML0860 | M8 | 60 |
| A 9C25ML0870 | M8 | 70 |
| A 9C25ML0880 | M8 | 80 |
| A 9C25ML1016 | M10 | 16 |
| A 9C25ML1020 | M10 | 20 |
| A 9C25ML1025 | M10 | 25 |
| A 9C25ML1030 | M10 | 30 |
| A 9C25ML1040 | M10 | 40 |
| A 9C25ML1050 | M10 | 50 |
| A 9C25ML1060 | M10 | 60 |
| A 9C25ML1070 | M10 | 70 |
| A 9C25ML1080 | M10 | 80 |

| Dimensions | Thread Size | | | |
|----------------------|---------------|-----------------|------------------|------------------|
| Long Shoulder Series | | | | |
| d | M5 | M6 | M8 | M10 |
| D | 10 | 13 | 16 | 18 |
| D ₁ | 6 -0.01/-0.04 | 8 -0.013/-0.049 | 10 -0.013/-0.049 | 12 -0.016/-0.059 |
| H | 4.5 | 5.5 | 7 | 8 |
| s | 3 | 4 | 5 | 6 |
| l ₁ | 2 | 2.4 | 3.3 | 4.2 |
| l | 9.5 | 11 | 13 | 16 |
| t | 0.8 | 1 | 1.25 | 1.5 |

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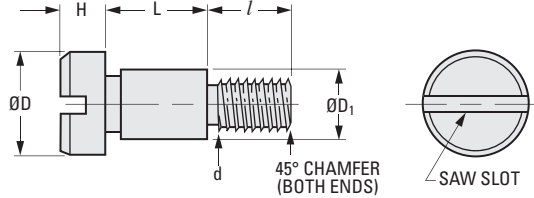
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➤ **MATERIAL:**
303 Stainless Steel

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The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Thread Size | D Dia. | D ₁ 0 -0.078 | H | L +0.2 +0.05 | l |
|----------------|---------------------|-----------|-------------------------------|---|--------------------|----|
| A 9X15M0304 | M3 x 0.5 | 6 | 4 | 3 | 4 | 4 |
| A 9X15M0305 | M3 x 0.5 | 6 | 4 | 3 | 5 | 4 |
| A 9X15M0306 | M3 x 0.5 | 6 | 4 | 3 | 6 | 4 |
| A 9X15M0308 | M3 x 0.5 | 6 | 4 | 3 | 8 | 4 |
| A 9X15M0310 | M3 x 0.5 | 6 | 4 | 3 | 10 | 4 |
| A 9X15M0404 | M4 x 0.7 | 8 | 5 | 4 | 4 | 5 |
| A 9X15M0405 | M4 x 0.7 | 8 | 5 | 4 | 5 | 5 |
| A 9X15M0406 | M4 x 0.7 | 8 | 5 | 4 | 6 | 5 |
| A 9X15M0408 | M4 x 0.7 | 8 | 5 | 4 | 8 | 5 |
| A 9X15M0410 | M4 x 0.7 | 8 | 5 | 4 | 10 | 5 |
| A 9X15M0412 | M4 x 0.7 | 8 | 5 | 4 | 12 | 5 |
| A 9X15M0414 | M4 x 0.7 | 8 | 5 | 4 | 14 | 5 |
| A 9X15M0416 | M4 x 0.7 | 8 | 5 | 4 | 16 | 5 |
| A 9X15M0420 | M4 x 0.7 | 8 | 5 | 4 | 20 | 5 |
| A 9X15M0425 | M4 x 0.7 | 8 | 5 | 4 | 25 | 5 |
| A 9X15M0430 | M4 x 0.7 | 8 | 5 | 4 | 30 | 5 |
| A 9X15M0504 | M5 x 0.8 | 10 | 6 | 5 | 4 | 6 |
| A 9X15M0505 | M5 x 0.8 | 10 | 6 | 5 | 5 | 6 |
| A 9X15M0506 | M5 x 0.8 | 10 | 6 | 5 | 6 | 6 |
| A 9X15M0508 | M5 x 0.8 | 10 | 6 | 5 | 8 | 6 |
| A 9X15M0510 | M5 x 0.8 | 10 | 6 | 5 | 10 | 6 |
| A 9X15M0512 | M5 x 0.8 | 10 | 6 | 5 | 12 | 6 |
| A 9X15M0514 | M5 x 0.8 | 10 | 6 | 5 | 14 | 6 |
| A 9X15M0516 | M5 x 0.8 | 10 | 6 | 5 | 16 | 6 |
| A 9X15M0520 | M5 x 0.8 | 10 | 6 | 5 | 20 | 6 |
| A 9X15M0525 | M5 x 0.8 | 10 | 6 | 5 | 25 | 6 |
| A 9X15M0530 | M5 x 0.8 | 10 | 6 | 5 | 30 | 6 |
| A 9X15M0606 | M6 x 1 | 12 | 8 | 6 | 6 | 11 |
| A 9X15M0608 | M6 x 1 | 12 | 8 | 6 | 8 | 11 |
| A 9X15M0610 | M6 x 1 | 12 | 8 | 6 | 10 | 11 |
| A 9X15M0612 | M6 x 1 | 12 | 8 | 6 | 12 | 11 |
| A 9X15M0616 | M6 x 1 | 12 | 8 | 6 | 16 | 11 |
| A 9X15M0620 | M6 x 1 | 12 | 8 | 6 | 20 | 11 |
| A 9X15M0608A | M6 x 1 | 12 | 10 | 6 | 8 | 11 |
| A 9X15M0616A | M6 x 1 | 12 | 10 | 6 | 16 | 11 |
| A 9X15M0808 | M8 x 1.25 | 14 | 10 | 7 | 8 | 12 |
| A 9X15M0810 | M8 x 1.25 | 14 | 10 | 7 | 10 | 12 |
| A 9X15M0816 | M8 x 1.25 | 14 | 10 | 7 | 16 | 12 |
| A 9X15M1012 | M10 x 1.5 | 20 | 12 | 8 | 12 | 16 |
| A 9X15M1016 | M10 x 1.5 | 20 | 12 | 8 | 16 | 16 |
| A 9X15M1025 | M10 x 1.5 | 20 | 12 | 8 | 25 | 16 |

SLOTTED HEAD SHOULDER SCREWS

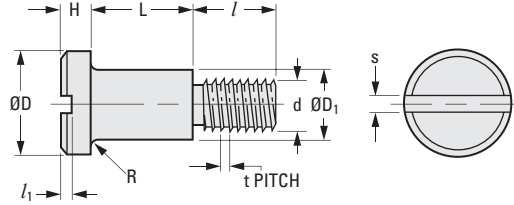
SDP/SI

DIN 923
SHALLOW HEAD

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**
Steel

➤ **SPECIFICATION:**
Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0923MCO03X002 | M3 | 2 |
| MD0923MCO03X0025 | M3 | 2.5 |
| MD0923MCO03X003 | M3 | 3 |
| MD0923MCO03X004 | M3 | 4 |
| MD0923MCO03X005 | M3 | 5 |
| MD0923MCO03X006 | M3 | 6 |
| MD0923MCO03X008 | M3 | 8 |
| MD0923MCO03X010 | M3 | 10 |
| MD0923MCO04X002 | M4 | 2 |
| MD0923MCO04X0025 | M4 | 2.5 |
| MD0923MCO04X003 | M4 | 3 |
| MD0923MCO04X004 | M4 | 4 |
| MD0923MCO04X005 | M4 | 5 |
| MD0923MCO04X006 | M4 | 6 |
| MD0923MCO04X008 | M4 | 8 |
| MD0923MCO04X010 | M4 | 10 |
| MD0923MCO04X012 | M4 | 12 |
| MD0923MCO04X016 | M4 | 16 |
| MD0923MCO05X0025 | M5 | 2.5 |
| MD0923MCO05X003 | M5 | 3 |
| MD0923MCO05X004 | M5 | 4 |
| MD0923MCO05X005 | M5 | 5 |
| MD0923MCO05X006 | M5 | 6 |

| Catalog Number | Thread Size | L Length |
|-----------------|-------------|----------|
| MD0923MCO05X008 | M5 | 8 |
| MD0923MCO05X010 | M5 | 10 |
| MD0923MCO05X012 | M5 | 12 |
| MD0923MCO05X016 | M5 | 16 |
| MD0923MCO06X003 | M6 | 3 |
| MD0923MCO06X004 | M6 | 4 |
| MD0923MCO06X005 | M6 | 5 |
| MD0923MCO06X006 | M6 | 6 |
| MD0923MCO06X008 | M6 | 8 |
| MD0923MCO06X010 | M6 | 10 |
| MD0923MCO06X012 | M6 | 12 |
| MD0923MCO06X016 | M6 | 16 |
| MD0923MCO06X020 | M6 | 20 |
| MD0923MCO08X004 | M8 | 4 |
| MD0923MCO08X005 | M8 | 5 |
| MD0923MCO08X006 | M8 | 6 |
| MD0923MCO08X008 | M8 | 8 |
| MD0923MCO08X010 | M8 | 10 |
| MD0923MCO08X012 | M8 | 12 |
| MD0923MCO08X016 | M8 | 16 |
| MD0923MCO08X020 | M8 | 20 |
| MD0923MCO08X025 | M8 | 25 |

| Dimensions | Thread Size | | | | |
|------------------------|-------------|-----|-----|------|------|
| | M3 | M4 | M5 | M6 | M8 |
| d | | | | | |
| D Dia. | 7 | 8.5 | 11 | 13 | 16 |
| D ₁ Dia. h9 | 4 | 5.5 | 7 | 8 | 10 |
| H | 1.8 | 2.4 | 2.7 | 3.1 | 3.8 |
| s | 0.8 | 1 | 1.2 | 1.6 | 2 |
| l ₁ Min. | 0.9 | 1.2 | 1.3 | 1.5 | 1.9 |
| l | 4.5 | 6 | 7 | 9 | 11 |
| R Max. | 0.1 | 0.2 | 0.2 | 0.25 | 1.4 |
| t | 0.5 | 0.7 | 0.8 | 1 | 1.25 |

| L Shoulder Length | Tolerance |
|-------------------|----------------|
| 2, 2.5, 3 | +0.10 +0.06 |
| 4, 5, 6, 8, 10 | +0.15 +0.07 |
| 12, 16, 20, 25 | +0.2 +0.1 |

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SHALLOW HEAD SHOULDER SCREWS

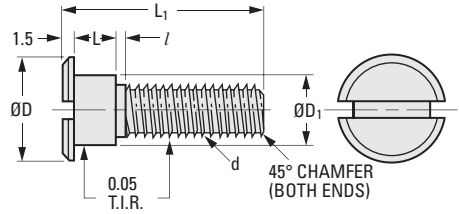
SDP/SI

SLOTTED HEAD

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> MATERIAL:

303 Stainless Steel



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | d Thread Size | D Dia. | D ₁ Dia. 0 -0.025 | L | L ₁ | l |
|----------------|---------------|--------|------------------------------|------|----------------|------|
| A 7Y 5MCF1 | M2 x 0.4 | 5 | 3 | 3.75 | 11.5 | 0.6 |
| A 7Y 5MCF2 | M3 x 0.5 | 6 | 4 | 3.75 | 13.5 | 0.75 |
| A 7Y 5MCF3 | M3 x 0.5 | 6 | 4 | 4.75 | 14.5 | 0.75 |
| A 7Y 5MCF4 | M5 x 0.8 | 8 | 6 | 4.75 | 18.5 | 1.2 |
| A 7Y 5MCF5 | M6 x 1 | 10 | 8 | 4.75 | 22.5 | 1.5 |



> DID YOU KNOW?

That you can see a video showing how the Fairloc® integral fastener works and how it can benefit your application. It is located at: www.sdp-si.com/fairloc.

LARGE SHALLOW HEAD SCREWS

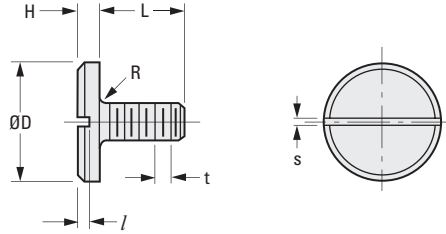
SDP/SI

DIN 921
SLOTTED HEAD

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**
Steel

> **SPECIFICATION:**
Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Thread Size | L Length |
|-----------------|-------------|----------|
| MD0921MCO03X005 | M3 | 5 |
| MD0921MCO03X006 | M3 | 6 |
| MD0921MCO03X008 | M3 | 8 |
| MD0921MCO03X010 | M3 | 10 |
| MD0921MCO04X005 | M4 | 5 |
| MD0921MCO04X006 | M4 | 6 |
| MD0921MCO04X008 | M4 | 8 |
| MD0921MCO04X010 | M4 | 10 |
| MD0921MCO04X012 | M4 | 12 |
| MD0921MCO05X008 | M5 | 8 |
| MD0921MCO05X010 | M5 | 10 |
| MD0921MCO05X012 | M5 | 12 |
| MD0921MCO05X016 | M5 | 16 |
| MD0921MCO06X010 | M6 | 10 |
| MD0921MCO06X012 | M6 | 12 |
| MD0921MCO06X016 | M6 | 16 |
| MD0921MCO08X010 | M8 | 10 |

| Dimensions | Thread Size | | | | |
|------------|-------------|-----|-----|------|------|
| | M3 | M4 | M5 | M6 | M8 |
| t | 0.5 | 0.7 | 0.8 | 1 | 1.25 |
| D | 8 | 12 | 16 | 20 | 25 |
| H | 1.8 | 2.4 | 2.7 | 3.1 | 3.8 |
| s | 0.8 | 1 | 1.2 | 1.6 | 2 |
| l Min. | 0.9 | 1.2 | 1.3 | 1.5 | 1.9 |
| R Max. | 0.1 | 0.2 | 0.2 | 0.25 | 0.4 |

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DIN 85

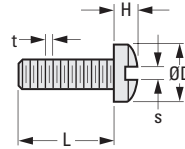
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> **MATERIAL:**

304 Stainless Steel

> **SPECIFICATION:**

Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0085MXO020X006 | M2 | 6 |
| MD0085MXO020X010 | M2 | 10 |
| MD0085MXO025X006 | M2.5 | 6 |
| MD0085MXO025X008 | M2.5 | 8 |
| MD0085MXO025X010 | M2.5 | 10 |
| MD0085MXO025X012 | M2.5 | 12 |
| MD0085MXO025X016 | M2.5 | 16 |
| MD0085MXO025X020 | M2.5 | 20 |
| MD0085MXO025X025 | M2.5 | 25 |
| MD0085MXO030X006 | M3 | 6 |
| MD0085MXO030X008 | M3 | 8 |
| MD0085MXO030X016 | M3 | 16 |
| MD0085MXO030X020 | M3 | 20 |
| MD0085MXO030X030 | M4 | 30 |
| MD0085MXO040X006 | M4 | 6 |

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0085MXO040X010 | M4 | 10 |
| MD0085MXO040X012 | M4 | 12 |
| MD0085MXO040X016 | M4 | 16 |
| MD0085MXO040X020 | M4 | 20 |
| MD0085MXO040X025 | M4 | 25 |
| MD0085MXO040X030 | M4 | 30 |
| MD0085MXO050X008 | M5 | 8 |
| MD0085MXO050X010 | M5 | 10 |
| MD0085MXO050X012 | M5 | 12 |
| MD0085MXO050X016 | M5 | 16 |
| MD0085MXO050X020 | M5 | 20 |
| MD0085MXO050X025 | M5 | 25 |
| MD0085MXO050X030 | M5 | 30 |
| MD0085MXO060X012 | M6 | 12 |
| MD0085MXO060X030 | M6 | 30 |

| Dimensions | Thread Size | | | | | |
|------------|-------------|------|-----|-----|-----|-----|
| | M2 | M2.5 | M3 | M4 | M5 | M6 |
| t | 0.4 | 0.45 | 0.5 | 0.7 | 0.8 | 1 |
| D | 3.7 | 5 | 6 | 8 | 10 | 12 |
| H | 1.2 | 1.5 | 1.8 | 2.4 | 3 | 3.6 |
| s | 0.5 | 0.6 | 0.8 | 1 | 1.2 | 1.6 |

DIN 84

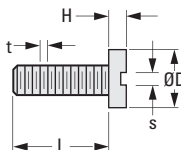
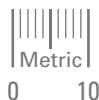
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> MATERIAL:

304 Stainless Steel

> SPECIFICATION:

Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0084MXO016X004 | M1.6 | 4 |
| MD0084MXO016X006 | M1.6 | 6 |
| MD0084MXO020X003 | M2 | 3 |
| MD0084MXO020X004 | M2 | 4 |
| MD0084MXO020X005 | M2 | 5 |
| MD0084MXO020X006 | M2 | 6 |
| MD0084MXO020X008 | M2 | 8 |
| MD0084MXO020X010 | M2 | 10 |
| MD0084MXO020X016 | M2 | 16 |
| MD0084MXO020X020 | M2 | 20 |
| MD0084MXO025X005 | M2.5 | 5 |
| MD0084MXO025X006 | M2.5 | 6 |
| MD0084MXO025X008 | M2.5 | 8 |
| MD0084MXO025X010 | M2.5 | 10 |
| MD0084MXO025X012 | M2.5 | 12 |
| MD0084MXO025X016 | M2.5 | 16 |
| MD0084MXO025X020 | M2.5 | 20 |
| MD0084MXO030X005 | M3 | 5 |
| MD0084MXO030X006 | M3 | 6 |
| MD0084MXO030X008 | M3 | 8 |
| MD0084MXO030X010 | M3 | 10 |
| MD0084MXO030X012 | M3 | 12 |
| MD0084MXO030X020 | M3 | 20 |
| MD0084MXO030X025 | M3 | 25 |
| MD0084MXO035X008 | M3.5 | 8 |
| MD0084MXO035X012 | M3.5 | 12 |

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0084MXO035X016 | M3.5 | 16 |
| MD0084MXO040X006 | M4 | 6 |
| MD0084MXO040X008 | M4 | 8 |
| MD0084MXO040X010 | M4 | 10 |
| MD0084MXO040X012 | M4 | 12 |
| MD0084MXO040X016 | M4 | 16 |
| MD0084MXO040X020 | M4 | 20 |
| MD0084MXO040X025 | M4 | 25 |
| MD0084MXO040X030 | M4 | 30 |
| MD0084MXO040X035 | M4 | 35 |
| MD0084MXO040X040 | M4 | 40 |
| MD0084MXO050X010 | M5 | 10 |
| MD0084MXO050X012 | M5 | 12 |
| MD0084MXO050X016 | M5 | 16 |
| MD0084MXO050X020 | M5 | 20 |
| MD0084MXO050X025 | M5 | 25 |
| MD0084MXO050X030 | M5 | 30 |
| MD0084MXO050X035 | M5 | 35 |
| MD0084MXO050X040 | M5 | 40 |
| MD0084MXO060X008 | M6 | 8 |
| MD0084MXO060X010 | M6 | 10 |
| MD0084MXO060X012 | M6 | 12 |
| MD0084MXO060X016 | M6 | 16 |
| MD0084MXO060X020 | M6 | 20 |
| MD0084MXO060X025 | M6 | 25 |
| MD0084MXO060X030 | M6 | 30 |

| Dimensions | Thread Size | | | | | | | |
|------------|-------------|-----|------|-----|------|-----|-----|-----|
| | M1.6 | M2 | M2.5 | M3 | M3.5 | M4 | M5 | M6 |
| t | 0.35 | 0.4 | 0.45 | 0.5 | 0.6 | 0.7 | 0.8 | 1 |
| D | 3 | 3.8 | 4.5 | 5.5 | 6 | 7 | 8.5 | 10 |
| H | 1 | 1.3 | 1.6 | 2 | 2.5 | 2.6 | 3.3 | 3.6 |
| s | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 1 | 1.2 | 1.6 |



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FLAT HEAD MACHINE SCREWS

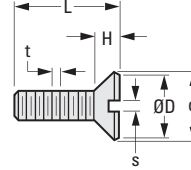


DIN 963
90° FLAT HEAD

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**
304 Stainless Steel

➤ **SPECIFICATION:**
Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0963MXO020X004 | M2 | 4 |
| MD0963MXO020X005 | M2 | 5 |
| MD0963MXO020X006 | M2 | 6 |
| MD0963MXO020X008 | M2 | 8 |
| MD0963MXO020X010 | M2 | 10 |
| MD0963MXO020X012 | M2 | 12 |
| MD0963MXO025X004 | M2.5 | 4 |
| MD0963MXO025X006 | M2.5 | 6 |
| MD0963MXO025X008 | M2.5 | 8 |
| MD0963MXO025X010 | M2.5 | 10 |
| MD0963MXO025X012 | M2.5 | 12 |
| MD0963MXO025X016 | M2.5 | 16 |
| MD0963MXO025X020 | M2.5 | 20 |
| MD0963MXO030X005 | M3 | 5 |
| MD0963MXO030X006 | M3 | 6 |
| MD0963MXO030X008 | M3 | 8 |

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0963MXO030X010 | M3 | 10 |
| MD0963MXO030X012 | M3 | 12 |
| MD0963MXO030X016 | M3 | 16 |
| MD0963MXO030X020 | M3 | 20 |
| MD0963MXO030X025 | M3 | 25 |
| MD0963MXO040X006 | M4 | 6 |
| MD0963MXO040X008 | M4 | 8 |
| MD0963MXO040X010 | M4 | 10 |
| MD0963MXO040X012 | M4 | 12 |
| MD0963MXO040X016 | M4 | 16 |
| MD0963MXO050X008 | M5 | 8 |
| MD0963MXO050X010 | M5 | 10 |
| MD0963MXO050X012 | M5 | 12 |
| MD0963MXO050X016 | M5 | 16 |
| MD0963MXO050X020 | M5 | 20 |

| Dimensions | Thread Size | | | | |
|------------|-------------|------|------|-----|------|
| | M2 | M2.5 | M3 | M4 | M5 |
| t | 0.4 | 0.45 | 0.5 | 0.7 | 0.8 |
| D | 3.8 | 4.7 | 5.6 | 7.5 | 9.2 |
| d (c'sink) | 4.6 | 5.7 | 6.5 | 8.6 | 10.4 |
| H | 1.2 | 1.5 | 1.65 | 2.2 | 2.5 |
| s | 0.5 | 0.6 | 0.8 | 1 | 1.2 |

DIN 7991

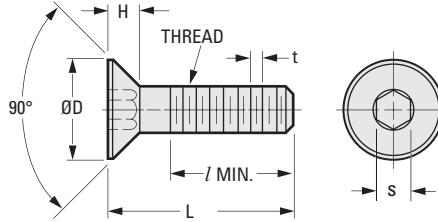
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

304 Stainless Steel

> SPECIFICATION:

Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Thread Size | L ^Δ Length |
|------------------|-------------|-----------------------|
| MD7991MX0040X012 | M4 | 12 |
| MD7991MX0040X016 | M4 | 16 |
| MD7991MX0040X020 | M4 | 20 |
| MD7991MX0050X010 | M5 | 10 |
| MD7991MX0050X012 | M5 | 12 |
| MD7991MX0050X016 | M5 | 16 |
| MD7991MX0050X020 | M5 | 20 |
| MD7991MX0050X025 | M5 | 25 |
| MD7991MX0050X030 | M5 | 30 |
| MD7991MX0060X012 | M6 | 12 |
| MD7991MX0060X020 | M6 | 20 |
| MD7991MX0080X012 | M8 | 12 |
| MD7991MX0080X020 | M8 | 20 |
| MD7991MX0080X025 | M8 | 25 |
| MD7991MX0080X030 | M8 | 30 |

Δ Screw is fully threaded unless L Length is greater than l

| Dimensions | Thread Size | | | |
|------------|-------------|-----|-----|------|
| | M4 | M5 | M6 | M8 |
| t | 0.7 | 0.8 | 1 | 1.25 |
| D | 8 | 10 | 12 | 16 |
| H | 2.3 | 2.8 | 3.3 | 4.4 |
| s | 2.5 | 3 | 4 | 5 |
| l Min. | 14 | 16 | 18 | 22 |

SOCKET FLAT HEAD CAP SCREWS



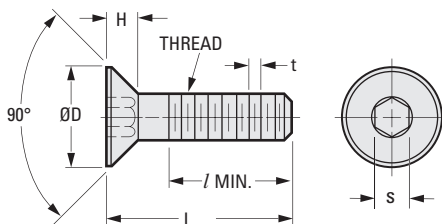
DIN 7991

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**
High-Tensile Steel, Grade 10.9

➤ **FINISH:**
Black Oxide

➤ **SPECIFICATION:**
Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Thread Size | L ^Δ Length |
|------------------|-------------|-----------------------|
| MD7991MQB040X008 | M4 | 8 |
| MD7991MQB040X010 | M4 | 10 |
| MD7991MQB040X012 | M4 | 12 |
| MD7991MQB040X016 | M4 | 16 |
| MD7991MQB040X020 | M4 | 20 |
| MD7991MQB040X025 | M4 | 25 |
| MD7991MQB040X030 | M4 | 30 |
| MD7991MQB050X012 | M5 | 12 |
| MD7991MQB050X020 | M5 | 20 |
| MD7991MQB050X025 | M5 | 25 |
| MD7991MQB050X030 | M5 | 30 |
| MD7991MQB050X040 | M5 | 40 |
| MD7991MQB050X050 | M5 | 50 |
| MD7991MQB060X008 | M6 | 8 |
| MD7991MQB060X010 | M6 | 10 |
| MD7991MQB060X012 | M6 | 12 |

| Catalog Number | Thread Size | L ^Δ Length |
|------------------|-------------|-----------------------|
| MD7991MQB060X016 | M6 | 16 |
| MD7991MQB060X025 | M6 | 25 |
| MD7991MQB060X030 | M6 | 30 |
| MD7991MQB060X035 | M6 | 35 |
| MD7991MQB060X040 | M6 | 40 |
| MD7991MQB060X050 | M6 | 50 |
| MD7991MQB080X010 | M8 | 10 |
| MD7991MQB080X012 | M8 | 12 |
| MD7991MQB080X016 | M8 | 16 |
| MD7991MQB080X020 | M8 | 20 |
| MD7991MQB080X025 | M8 | 25 |
| MD7991MQB080X030 | M8 | 30 |
| MD7991MQB080X035 | M8 | 35 |
| MD7991MQB080X040 | M8 | 40 |
| MD7991MQB080X050 | M8 | 50 |

Δ Screw is fully threaded unless L Length is greater than I

| Dimensions | Thread Size | | | |
|------------|-------------|-----|-----|------|
| | M4 | M5 | M6 | M8 |
| t | 0.7 | 0.8 | 1 | 1.25 |
| D | 8 | 10 | 12 | 16 |
| H | 2.3 | 2.8 | 3.3 | 4.4 |
| s | 2.5 | 3 | 4 | 5 |
| I Min. | 14 | 16 | 18 | 22 |

OVAL HEAD MACHINE SCREWS

SDP/SI

DIN 964

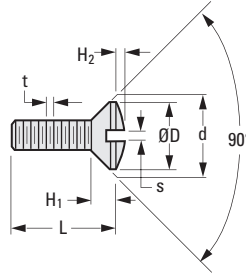
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

304 Stainless Steel

> SPECIFICATION:

Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | Thread Size | L Length |
|------------------|-------------|----------|
| MD0964MXO020X006 | M2 | 6 |
| MD0964MXO020X010 | M2 | 10 |
| MD0964MXO020X012 | M2 | 12 |
| MD0964MXO020X020 | M2 | 20 |
| MD0964MXO025X006 | M2.5 | 6 |
| MD0964MXO025X008 | M2.5 | 8 |
| MD0964MXO025X010 | M2.5 | 10 |
| MD0964MXO030X005 | M3 | 5 |
| MD0964MXO030X006 | M3 | 6 |
| MD0964MXO030X008 | M3 | 8 |
| MD0964MXO030X010 | M3 | 10 |
| MD0964MXO030X016 | M3 | 16 |
| MD0964MXO030X020 | M3 | 20 |
| MD0964MXO030X025 | M3 | 25 |
| MD0964MXO040X006 | M4 | 6 |
| MD0964MXO040X008 | M4 | 8 |
| MD0964MXO040X025 | M4 | 25 |
| MD0964MXO040X030 | M4 | 30 |
| MD0964MXO050X010 | M5 | 10 |
| MD0964MXO050X016 | M5 | 16 |
| MD0964MXO050X020 | M5 | 20 |
| MD0964MXO050X025 | M5 | 25 |
| MD0964MXO050X030 | M5 | 30 |

| Dimensions | Thread Size | | | | |
|--------------------|-------------|------|------|-----|------|
| | M2 | M2.5 | M3 | M4 | M5 |
| t | 0.4 | 0.45 | 0.5 | 0.7 | 0.8 |
| D | 3.8 | 4.7 | 5.6 | 7.5 | 9.2 |
| d (c'sink) | 4.6 | 5.7 | 6.5 | 8.6 | 10.4 |
| H ₁ | 1.2 | 1.5 | 1.65 | 2.2 | 2.5 |
| H ₂ & s | 0.5 | 0.6 | 0.8 | 1 | 1.2 |

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SOCKET HEAD CAP SCREWS

SDP/SI

DIN 912

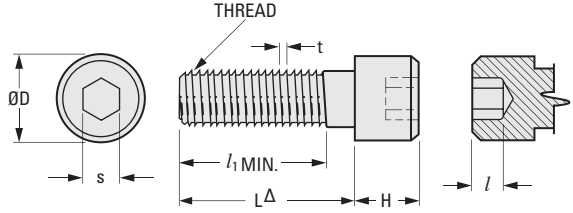
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

304 Stainless Steel

➤ **SPECIFICATION:**

Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Thread Size | L ^Δ Length |
|-------------------|-------------|-----------------------|
| *MD0912MXO016X003 | M1.6 | 3 |
| *MD0912MXO016X004 | M1.6 | 4 |
| *MD0912MXO016X005 | M1.6 | 5 |
| *MD0912MXO016X006 | M1.6 | 6 |
| *MD0912MXO016X008 | M1.6 | 8 |
| MD0912MXO020X004 | M2 | 4 |
| MD0912MXO020X005 | M2 | 5 |
| MD0912MXO020X006 | M2 | 6 |
| MD0912MXO020X008 | M2 | 8 |
| MD0912MXO020X010 | M2 | 10 |
| MD0912MXO025X005 | M2.5 | 5 |
| MD0912MXO025X006 | M2.5 | 6 |
| MD0912MXO025X008 | M2.5 | 8 |
| MD0912MXO025X010 | M2.5 | 10 |
| MD0912MXO025X012 | M2.5 | 12 |
| MD0912MXO030X006 | M3 | 6 |
| MD0912MXO030X008 | M3 | 8 |
| MD0912MXO030X010 | M3 | 10 |
| MD0912MXO030X012 | M3 | 12 |
| MD0912MXO030X016 | M3 | 16 |
| MD0912MXO040X008 | M4 | 8 |
| MD0912MXO040X010 | M4 | 10 |
| MD0912MXO040X012 | M4 | 12 |
| MD0912MXO040X016 | M4 | 16 |
| MD0912MXO040X020 | M4 | 20 |
| MD0912MXO040X025 | M4 | 25 |
| MD0912MXO040X030 | M4 | 30 |

| Catalog Number | Thread Size | L ^Δ Length |
|------------------|-------------|-----------------------|
| MD0912MXO050X010 | M5 | 10 |
| MD0912MXO050X012 | M5 | 12 |
| MD0912MXO050X016 | M5 | 16 |
| MD0912MXO050X020 | M5 | 20 |
| MD0912MXO050X025 | M5 | 25 |
| MD0912MXO050X030 | M5 | 30 |
| MD0912MXO050X035 | M5 | 35 |
| MD0912MXO060X012 | M6 | 12 |
| MD0912MXO060X016 | M6 | 16 |
| MD0912MXO060X020 | M6 | 20 |
| MD0912MXO060X025 | M6 | 25 |
| MD0912MXO060X030 | M6 | 30 |
| MD0912MXO060X035 | M6 | 35 |
| MD0912MXO060X040 | M6 | 40 |
| MD0912MXO060X045 | M6 | 45 |
| MD0912MXO060X050 | M6 | 50 |
| MD0912MXO080X012 | M8 | 12 |
| MD0912MXO080X016 | M8 | 16 |
| MD0912MXO080X020 | M8 | 20 |
| MD0912MXO080X025 | M8 | 25 |
| MD0912MXO080X030 | M8 | 30 |
| MD0912MXO080X035 | M8 | 35 |
| MD0912MXO080X040 | M8 | 40 |
| MD0912MXO080X045 | M8 | 45 |
| MD0912MXO080X050 | M8 | 50 |
| MD0912MXO080X055 | M8 | 55 |
| MD0912MXO080X060 | M8 | 60 |
| MD0912MXO100X040 | M10 | 40 |

* M1.6 material is 316 Stainless Steel

Δ Screw is fully threaded unless L Length is greater than l₁

| Δ Dimensions | Thread Size | | | | | | | | | |
|---------------------|-------------|-----|------|-----|-----|-----|----|------|-----|--|
| | M1.6 | M2 | M2.5 | M3 | M4 | M5 | M6 | M8 | M10 | |
| t | 0.35 | 0.4 | 0.45 | 0.5 | 0.7 | 0.8 | 1 | 1.25 | 1.5 | |
| D | 3 | 3.8 | 4.5 | 5.5 | 7 | 8.5 | 10 | 13 | 16 | |
| H | 1.7 | 2 | 2.5 | 3 | 4 | 5 | 6 | 8 | 10 | |
| s | 1.5 | 1.5 | 2 | 2.5 | 3 | 4 | 5 | 6 | 8 | |
| l | 0.7 | 1 | 1.1 | 1.3 | 2 | 2.5 | 3 | 4 | 5 | |
| l ₁ Min. | 15 | 16 | 17 | 18 | 20 | 22 | 24 | 28 | 32 | |

10-16



Request Info



1-800-453-1692

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DIN 912

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

High-Tensile Steel, Grade 12.9

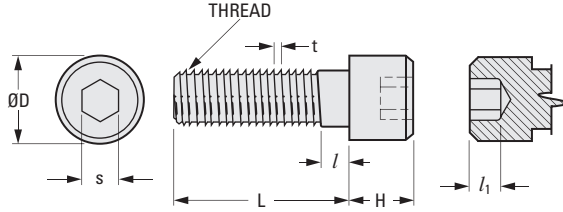
> FINISH:

Black Oxide - Coated with Dry Molybdenum Disulfide

> SPECIFICATION:

Priced Per 100 Pieces

These screws are ideal for use with aluminum to prevent galling of threaded holes.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Thread Size | L | D Dia. | H | s | l ₁ | l Ref. | t |
|------------------|-------------|----|--------|-----|-----|----------------|--------|------|
| MD0912MQBM020X10 | M2 | 10 | 3.8 | 2 | 1.5 | 1 | 0.7 | 0.4 |
| MD0912MQBM025X06 | M2.5 | 6 | 4.5 | 2.5 | 2 | 1.1 | 0.9 | 0.45 |
| MD0912MQBM025X08 | M2.5 | 8 | 4.5 | 2.5 | 2 | 1.1 | 0.9 | 0.45 |
| MD0912MQBM025X10 | M2.5 | 10 | 4.5 | 2.5 | 2 | 1.1 | 0.9 | 0.45 |
| MD0912MQBM025X12 | M2.5 | 12 | 4.5 | 2.5 | 2 | 1.1 | 0.9 | 0.45 |
| MD0912MQBM030X06 | M3 | 6 | 5.5 | 3 | 2.5 | 1.3 | 1 | 0.5 |
| MD0912MQBM030X08 | M3 | 8 | 5.5 | 3 | 2.5 | 1.3 | 1 | 0.5 |
| MD0912MQBM030X10 | M3 | 10 | 5.5 | 3 | 2.5 | 1.3 | 1 | 0.5 |
| MD0912MQBM030X12 | M3 | 12 | 5.5 | 3 | 2.5 | 1.3 | 1 | 0.5 |
| MD0912MQBM030X16 | M3 | 16 | 5.5 | 3 | 2.5 | 1.3 | 1 | 0.5 |
| MD0912MQBM040X08 | M4 | 8 | 7 | 4 | 3 | 2 | 1.4 | 0.7 |
| MD0912MQBM040X10 | M4 | 10 | 7 | 4 | 3 | 2 | 1.4 | 0.7 |
| MD0912MQBM040X12 | M4 | 12 | 7 | 4 | 3 | 2 | 1.4 | 0.7 |
| MD0912MQBM040X16 | M4 | 16 | 7 | 4 | 3 | 2 | 1.4 | 0.7 |
| MD0912MQBM040X20 | M4 | 20 | 7 | 4 | 3 | 2 | 1.4 | 0.7 |

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SOCKET HEAD CAP SCREWS

SDP/SI

DIN 912

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

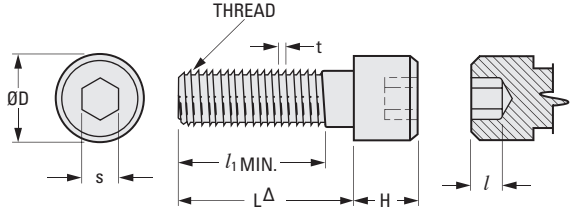
High-Tensile Steel, Grade 12.9

> FINISH:

Black Oxide

> SPECIFICATION:

Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Thread Size | L ^Δ Length |
|------------------|-------------|-----------------------|
| MD0912MQB020X004 | M2 | 4 |
| MD0912MQB020X005 | M2 | 5 |
| MD0912MQB020X006 | M2 | 6 |
| MD0912MQB020X008 | M2 | 8 |
| MD0912MQB020X010 | M2 | 10 |
| MD0912MQB025X005 | M2.5 | 5 |
| MD0912MQB025X006 | M2.5 | 6 |
| MD0912MQB025X008 | M2.5 | 8 |
| MD0912MQB025X010 | M2.5 | 10 |
| MD0912MQB025X012 | M2.5 | 12 |
| MD0912MQB030X006 | M3 | 6 |
| MD0912MQB030X008 | M3 | 8 |
| MD0912MQB030X010 | M3 | 10 |
| MD0912MQB030X012 | M3 | 12 |
| MD0912MQB030X016 | M3 | 16 |
| MD0912MQB040X006 | M4 | 6 |
| MD0912MQB040X008 | M4 | 8 |
| MD0912MQB040X010 | M4 | 10 |
| MD0912MQB040X012 | M4 | 12 |
| MD0912MQB040X016 | M4 | 16 |
| MD0912MQB040X020 | M4 | 20 |
| MD0912MQB040X025 | M4 | 25 |
| MD0912MQB050X010 | M5 | 10 |
| MD0912MQB050X012 | M5 | 12 |

| Catalog Number | Thread Size | L ^Δ Length |
|------------------|-------------|-----------------------|
| MD0912MQB050X016 | M5 | 16 |
| MD0912MQB050X020 | M5 | 20 |
| MD0912MQB050X025 | M5 | 25 |
| MD0912MQB050X030 | M5 | 30 |
| MD0912MQB050X035 | M5 | 35 |
| MD0912MQB060X012 | M6 | 12 |
| MD0912MQB060X016 | M6 | 16 |
| MD0912MQB060X020 | M6 | 20 |
| MD0912MQB060X025 | M6 | 25 |
| MD0912MQB060X030 | M6 | 30 |
| MD0912MQB060X035 | M6 | 35 |
| MD0912MQB060X040 | M6 | 40 |
| MD0912MQB060X045 | M6 | 45 |
| MD0912MQB060X050 | M6 | 50 |
| MD0912MQB080X016 | M8 | 16 |
| MD0912MQB080X020 | M8 | 20 |
| MD0912MQB080X025 | M8 | 25 |
| MD0912MQB080X030 | M8 | 30 |
| MD0912MQB080X035 | M8 | 35 |
| MD0912MQB080X040 | M8 | 40 |
| MD0912MQB080X055 | M8 | 55 |
| MD0912MQB080X060 | M8 | 60 |
| MD0912MQB080X065 | M8 | 65 |
| MD0912MQB080X070 | M8 | 70 |

Δ Screw is fully threaded unless L Length is greater than l₁

| Dimensions | Thread Size | | | | | | |
|---------------------|-------------|------|-----|-----|-----|----|------|
| | M2 | M2.5 | M3 | M4 | M5 | M6 | M8 |
| t | 0.4 | 0.45 | 0.5 | 0.7 | 0.8 | 1 | 1.25 |
| D Dia. | 3.8 | 4.5 | 5.5 | 7 | 8.5 | 10 | 13 |
| H | 2 | 2.5 | 3 | 4 | 5 | 6 | 8 |
| s | 1.5 | 2 | 2.5 | 3 | 4 | 5 | 6 |
| l | 1 | 1.1 | 1.3 | 2 | 2.5 | 3 | 4 |
| l ₁ Min. | 16 | 17 | 18 | 20 | 22 | 24 | 28 |

10-18



Request Info



1-800-453-1692

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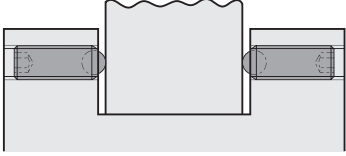
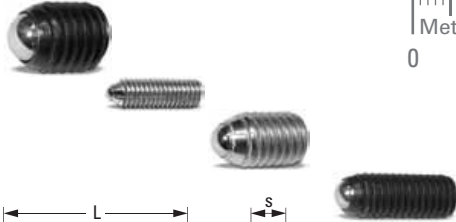
SINGLE-POINT CONTACT

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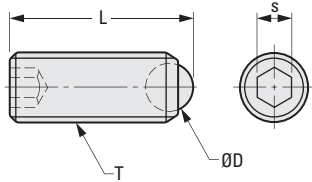
> MATERIAL:

Body - Carbon Steel, Black Oxide Finish;
304 Stainless Steel

Ball - Carbon Steel, HRC 56...60;
440C Stainless Steel, HRC 55...60



Example of application to fasten work piece that damages easily.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | T Thread | L | D Dia. | s Hex Size | Mass g |
|----------------|-----------------|------------|------|--------|------------|--------|
| Carbon Steel | Stainless Steel | | | | | |
| S705CBM0305 | S705YBM0305 | M3 x 0.5 | 5.2 | 1.5 | 1.5 | 0.3 |
| S705CBM0310 | S705YBM0310 | M3 x 0.5 | 10.2 | 1.5 | 1.5 | 0.6 |
| S705CBM0407 | S705YBM0407 | M4 x 0.7 | 6.5 | 2.5 | 2 | 0.4 |
| S705CBM0411 | S705YBM0411 | M4 x 0.7 | 10.5 | 2.5 | 2 | 0.7 |
| S705CBM0417 | S705YBM0417 | M4 x 0.7 | 16.5 | 2.5 | 2 | 1 |
| S705CBM0509 | S705YBM0509 | M5 x 0.8 | 8.6 | 3 | 2.5 | 0.8 |
| S705CBM0513 | S705YBM0513 | M5 x 0.8 | 12.6 | 3 | 2.5 | 1.3 |
| S705CBM0521 | S705YBM0521 | M5 x 0.8 | 20.6 | 3 | 2.5 | 2.3 |
| S705CBM0611 | S705YBM0611 | M6 x 1 | 10.8 | 4 | 3 | 1.5 |
| S705CBM0617 | S705YBM0617 | M6 x 1 | 16.8 | 4 | 3 | 2.5 |
| S705CBM0621 | S705YBM0621 | M6 x 1 | 20.8 | 4 | 3 | 3.4 |
| S705CBM0626 | S705YBM0626 | M6 x 1 | 25.8 | 4 | 3 | 4 |
| S705CBM0811 | S705YBM0811 | M8 x 1.25 | 11.2 | 5.5 | 4 | 2.5 |
| S705CBM0813 | S705YBM0813 | M8 x 1.25 | 13.2 | 5.5 | 4 | 3.2 |
| S705CBM0821 | S705YBM0821 | M8 x 1.25 | 21.2 | 5.5 | 4 | 5.7 |
| S705CBM0826 | S705YBM0826 | M8 x 1.25 | 26.2 | 5.5 | 4 | 7.7 |
| S705CBM0831 | S705YBM0831 | M8 x 1.25 | 31.2 | 5.5 | 4 | 9 |
| S705CBM1014 | S705YBM1014 | M10 x 1.5 | 13.7 | 7 | 5 | 5 |
| S705CBM1018 | S705YBM1018 | M10 x 1.5 | 17.7 | 7 | 5 | 7 |
| S705CBM1022 | S705YBM1022 | M10 x 1.5 | 21.7 | 7 | 5 | 9.5 |
| S705CBM1027 | S705YBM1027 | M10 x 1.5 | 26.7 | 7 | 5 | 11 |
| S705CBM1037 | S705YBM1037 | M10 x 1.5 | 36.7 | 7 | 5 | 16 |
| S705CBM1218 | S705YBM1218 | M12 x 1.75 | 18 | 8.5 | 6 | 10 |
| S705CBM1222 | S705YBM1222 | M12 x 1.75 | 22 | 8.5 | 6 | 12.5 |
| S705CBM1232 | S705YBM1232 | M12 x 1.75 | 32 | 8.5 | 6 | 20 |
| S705CBM1242 | S705YBM1242 | M12 x 1.75 | 42 | 8.5 | 6 | 28 |
| S705CBM1623 | S705YBM1623 | M16 x 2 | 23.3 | 12 | 8 | 22 |
| S705CBM1628 | S705YBM1628 | M16 x 2 | 28.3 | 12 | 8 | 28 |
| S705CBM1638 | S705YBM1638 | M16 x 2 | 38.3 | 12 | 8 | 41 |
| S705CBM1653 | S705YBM1653 | M16 x 2 | 53.3 | 12 | 8 | 48 |

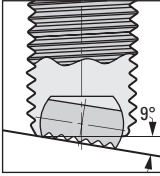
GRIPS ROUGH SHAFTS

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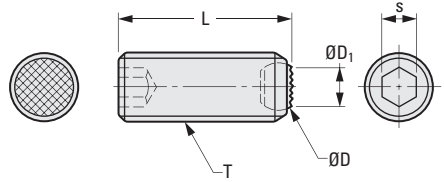
> MATERIAL:

Body - Carbon Steel, Black Oxide Finish;
304 Stainless Steel

Ball - Carbon Steel, HRC 56...60;
440C Stainless Steel, HRC 55...60



The ball can rotate up to 9° to securely fasten the object.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | T Thread | L | D Dia. | D ₁ Dia. | s Hex Size | Mass g |
|----------------|-----------------|------------|----|--------|---------------------|------------|--------|
| Carbon Steel | Stainless Steel | | | | | | |
| S705CDM0610 | S705YDM0610 | M6 x 1 | 10 | 4 | 3.2 | 3 | 1.5 |
| S705CDM0616 | S705YDM0616 | M6 x 1 | 16 | 4 | 3.2 | 3 | 2.5 |
| S705CDM0620 | S705YDM0620 | M6 x 1 | 20 | 4 | 3.2 | 3 | 3.4 |
| S705CDM0625 | S705YDM0625 | M6 x 1 | 25 | 4 | 3.2 | 3 | 4 |
| S705CDM0810 | S705YDM0810 | M8 x 1.25 | 10 | 5.5 | 4.5 | 4 | 2.5 |
| S705CDM0812 | S705YDM0812 | M8 x 1.25 | 12 | 5.5 | 4.5 | 4 | 3.2 |
| S705CDM0820 | S705YDM0820 | M8 x 1.25 | 20 | 5.5 | 4.5 | 4 | 5.7 |
| S705CDM0825 | S705YDM0825 | M8 x 1.25 | 25 | 5.5 | 4.5 | 4 | 7.7 |
| S705CDM0830 | S705YDM0830 | M8 x 1.25 | 30 | 5.5 | 4.5 | 4 | 9 |
| S705CDM1012 | S705YDM1012 | M10 x 1.5 | 12 | 7 | 6 | 5 | 5 |
| S705CDM1016 | S705YDM1016 | M10 x 1.5 | 16 | 7 | 6 | 5 | 7 |
| S705CDM1020 | S705YDM1020 | M10 x 1.5 | 20 | 7 | 6 | 5 | 9.5 |
| S705CDM1025 | S705YDM1025 | M10 x 1.5 | 25 | 7 | 6 | 5 | 11 |
| S705CDM1035 | S705YDM1035 | M10 x 1.5 | 35 | 7 | 6 | 5 | 16 |
| S705CDM1216 | S705YDM1216 | M12 x 1.75 | 16 | 8.5 | 7.2 | 6 | 10 |
| S705CDM1220 | S705YDM1220 | M12 x 1.75 | 20 | 8.5 | 7.2 | 6 | 12.5 |
| S705CDM1230 | S705YDM1230 | M12 x 1.75 | 30 | 8.5 | 7.2 | 6 | 20 |
| S705CDM1240 | S705YDM1240 | M12 x 1.75 | 40 | 8.5 | 7.2 | 6 | 28 |
| S705CDM1620 | S705YDM1620 | M16 x 2 | 20 | 12 | 10.7 | 8 | 22 |
| S705CDM1625 | S705YDM1625 | M16 x 2 | 25 | 12 | 10.7 | 8 | 28 |
| S705CDM1635 | S705YDM1635 | M16 x 2 | 35 | 12 | 10.7 | 8 | 41 |
| S705CDM1650 | S705YDM1650 | M16 x 2 | 50 | 12 | 10.7 | 8 | 48 |

FLAT-BALL TIP SET SCREWS

SDP/SI

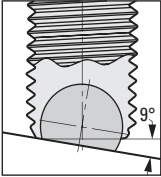
CAN ACCOMMODATE TILTED SURFACES

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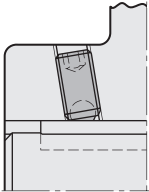
> MATERIAL:

Body - Carbon Steel, Black Oxide Finish;
304 Stainless Steel

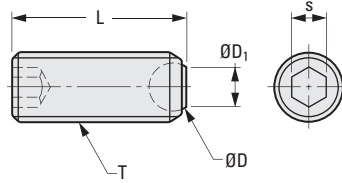
Ball - Carbon Steel, HRC 56...60;
440C Stainless Steel, HRC 55...60



The ball can rotate up to 9° to securely fasten the object.



Application Example



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | T Thread | L | D Dia. | D ₁ Dia. | s Hex Size | Mass g |
|----------------|-----------------|-------------|----|-----------|------------------------|------------------|-----------|
| Carbon Steel | Stainless Steel | | | | | | |
| S705CFM0406 | S705YFM0406 | M4 x 0.7 | 6 | 2.5 | 2 | 2 | 0.4 |
| S705CFM0410 | S705YFM0410 | M4 x 0.7 | 10 | 2.5 | 2 | 2 | 0.7 |
| S705CFM0416 | S705YFM0416 | M4 x 0.7 | 16 | 2.5 | 2 | 2 | 1 |
| S705CFM0508 | S705YFM0508 | M5 x 0.8 | 8 | 3 | 2.5 | 2.5 | 0.8 |
| S705CFM0512 | S705YFM0512 | M5 x 0.8 | 12 | 3 | 2.5 | 2.5 | 1.3 |
| S705CFM0520 | S705YFM0520 | M5 x 0.8 | 20 | 3 | 2.5 | 2.5 | 2.3 |
| S705CFM0610 | S705YFM0610 | M6 x 1 | 10 | 4 | 3.2 | 3 | 1.5 |
| S705CFM0616 | S705YFM0616 | M6 x 1 | 16 | 4 | 3.2 | 3 | 2.5 |
| S705CFM0620 | S705YFM0620 | M6 x 1 | 20 | 4 | 3.2 | 3 | 3.4 |
| S705CFM0625 | S705YFM0625 | M6 x 1 | 25 | 4 | 3.2 | 3 | 4 |
| S705CFM0810 | S705YFM0810 | M8 x 1.25 | 10 | 5.5 | 4.5 | 4 | 2.5 |
| S705CFM0812 | S705YFM0812 | M8 x 1.25 | 12 | 5.5 | 4.5 | 4 | 3.2 |
| S705CFM0820 | S705YFM0820 | M8 x 1.25 | 20 | 5.5 | 4.5 | 4 | 5.7 |
| S705CFM0825 | S705YFM0825 | M8 x 1.25 | 25 | 5.5 | 4.5 | 4 | 7.7 |
| S705CFM0830 | S705YFM0830 | M8 x 1.25 | 30 | 5.5 | 4.5 | 4 | 9 |
| S705CFM1012 | S705YFM1012 | M10 x 1.5 | 12 | 7 | 6 | 5 | 5 |
| S705CFM1016 | S705YFM1016 | M10 x 1.5 | 16 | 7 | 6 | 5 | 7 |
| S705CFM1020 | S705YFM1020 | M10 x 1.5 | 20 | 7 | 6 | 5 | 9.5 |
| S705CFM1025 | S705YFM1025 | M10 x 1.5 | 25 | 7 | 6 | 5 | 11 |
| S705CFM1035 | S705YFM1035 | M10 x 1.5 | 35 | 7 | 6 | 5 | 16 |
| S705CFM1216 | S705YFM1216 | M12 x 1.75 | 16 | 8.5 | 7.2 | 6 | 10 |
| S705CFM1220 | S705YFM1220 | M12 x 1.75 | 20 | 8.5 | 7.2 | 6 | 12.5 |
| S705CFM1230 | S705YFM1230 | M12 x 1.75 | 30 | 8.5 | 7.2 | 6 | 20 |
| S705CFM1240 | S705YFM1240 | M12 x 1.75 | 40 | 8.5 | 7.2 | 6 | 28 |
| S705CFM1620 | S705YFM1620 | M16 x 2 | 20 | 12 | 10.7 | 8 | 22 |
| S705CFM1625 | S705YFM1625 | M16 x 2 | 25 | 12 | 10.7 | 8 | 28 |
| S705CFM1635 | S705YFM1635 | M16 x 2 | 35 | 12 | 10.7 | 8 | 41 |
| S705CFM1650 | S705YFM1650 | M16 x 2 | 50 | 12 | 10.7 | 8 | 48 |

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SOCKET HEAD SET SCREWS



DIN 916
CUP POINT

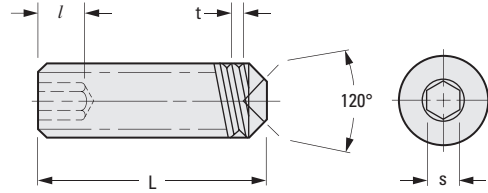
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> MATERIAL:

Hardened Steel, Black Oxide Finish
or 304 Stainless Steel

> SPECIFICATION:

Priced Per 100 Pieces



The projections shown are per ISO convention.

| METRIC COMPONENT | | T Thread | L |
|------------------|---------------------|-------------|----|
| Catalog Number | | | |
| Hardened Steel | 304 Stainless Steel | | |
| MD0916MQB020X003 | MD0916MXO020X003 | M2 | 3 |
| MD0916MQB020X004 | MD0916MXO020X004 | M2 | 4 |
| MD0916MQB020X005 | MD0916MXO020X005 | M2 | 5 |
| MD0916MQB025X003 | MD0916MXO025X003 | M2.5 | 3 |
| MD0916MQB025X004 | MD0916MXO025X004 | M2.5 | 4 |
| MD0916MQB025X005 | MD0916MXO025X005 | M2.5 | 5 |
| MD0916MQB025X006 | MD0916MXO025X006 | M2.5 | 6 |
| MD0916MQB030X003 | MD0916MXO030X003 | M3 | 3 |
| MD0916MQB030X004 | MD0916MXO030X004 | M3 | 4 |
| MD0916MQB030X005 | MD0916MXO030X005 | M3 | 5 |
| MD0916MQB030X006 | MD0916MXO030X006 | M3 | 6 |
| MD0916MQB030X008 | MD0916MXO030X008 | M3 | 8 |
| MD0916MQB040X004 | MD0916MXO040X004 | M4 | 4 |
| MD0916MQB040X005 | MD0916MXO040X005 | M4 | 5 |
| MD0916MQB040X006 | MD0916MXO040X006 | M4 | 6 |
| MD0916MQB040X008 | MD0916MXO040X008 | M4 | 8 |
| MD0916MQB040X010 | MD0916MXO040X010 | M4 | 10 |
| MD0916MQB050X005 | MD0916MXO050X005 | M5 | 5 |
| MD0916MQB050X006 | MD0916MXO050X006 | M5 | 6 |
| MD0916MQB050X008 | MD0916MXO050X008 | M5 | 8 |
| MD0916MQB050X010 | MD0916MXO050X010 | M5 | 10 |
| MD0916MQB050X012 | MD0916MXO050X012 | M5 | 12 |
| MD0916MQB060X006 | MD0916MXO060X006 | M6 | 6 |
| MD0916MQB060X008 | MD0916MXO060X008 | M6 | 8 |
| MD0916MQB060X010 | MD0916MXO060X010 | M6 | 10 |
| MD0916MQB060X012 | MD0916MXO060X012 | M6 | 12 |
| MD0916MQB060X016 | MD0916MXO060X016 | M6 | 16 |
| MD0916MQB080X008 | MD0916MXO080X008 | M8 | 8 |
| MD0916MQB080X010 | MD0916MXO080X010 | M8 | 10 |
| MD0916MQB080X012 | MD0916MXO080X012 | M8 | 12 |
| MD0916MQB080X016 | MD0916MXO080X016 | M8 | 16 |
| MD0916MQB080X020 | MD0916MXO080X020 | M8 | 20 |

| Dimensions | Thread Size | | | | | | |
|------------|-------------|------|-----|-----|-----|----|------|
| | M2 | M2.5 | M3 | M4 | M5 | M6 | M8 |
| t | 0.4 | 0.45 | 0.5 | 0.7 | 0.8 | 1 | 1.25 |
| l min. | 0.8 | 1.2 | 1.2 | 1.5 | 2 | 2 | 3 |
| s | 0.9 | 1.3 | 1.5 | 2 | 2.5 | 3 | 4 |

SELF-LOCKING
NONMARRING

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> MATERIAL:

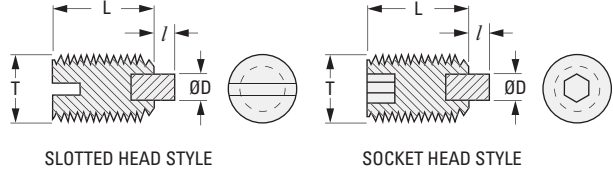
Screw - 300 Series Stainless Steel (18-8)
Tip - Nylon



> SPECIFICATIONS:

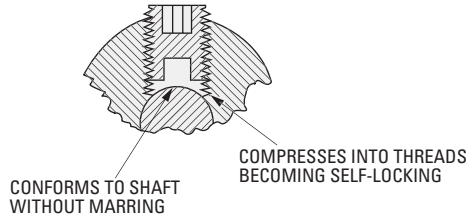
Slotted Head Style: Class 2A
Socket Head Style: Class 3A

For engineering assistance for all SDP components, call on our application engineers.



SLOTTED HEAD STYLE

SOCKET HEAD STYLE



METRIC COMPONENT

| Catalog Number | T Thread Size | L | I | D Dia. |
|--------------------------------------|---------------------|------|-----|-----------|
| Slotted Head Style - Class 2A | | | | |
| A 9X93MSL030050 | M3 x 0.5 | 5 | 0.8 | 1.6 |
| A 9X93MSL040070 | M4 x 0.7 | 7 | 1.2 | 2.4 |
| A 9X93MSL050110 | M5 x 0.8 | 11 | 1.2 | 2.4 |
| A 9X93MSL060075 | M6 x 1 | 7.5 | 1.6 | 3.2 |
| Socket Head Style - Class 3A | | | | |
| A 9X93MSO020040 | M2 x 0.4 | 3 | 0.8 | 0.8 |
| A 9X93MSO020050 | M2 x 0.4 | 4 | 0.8 | 0.8 |
| A 9X93MSO020060 | M2 x 0.4 | 5 | 0.8 | 0.8 |
| A 9X93MSO020070 | M2 x 0.4 | 6 | 0.8 | 0.8 |
| A 9X93MSO030040 | M3 x 0.5 | 3 | 0.8 | 1.6 |
| A 9X93MSO030050 | M3 x 0.5 | 4 | 0.8 | 1.6 |
| A 9X93MSO030060 | M3 x 0.5 | 5 | 0.8 | 1.6 |
| A 9X93MSO030070 | M3 x 0.5 | 6 | 0.8 | 1.6 |
| A 9X93MSO040050 | M4 x 0.7 | 4 | 1.2 | 2.4 |
| A 9X93MSO040070 | M4 x 0.7 | 6 | 1.2 | 2.4 |
| A 9X93MSO040110 | M4 x 0.7 | 10 | 1.2 | 2.4 |
| A 9X93MSO050070 | M5 x 0.8 | 6 | 1.2 | 2.4 |
| A 9X93MSO050110 | M5 x 0.8 | 10 | 1.2 | 2.4 |
| A 9X93MSO050150 | M5 x 0.8 | 14 | 1.2 | 2.4 |
| A 9X93MSO050210 | M5 x 0.8 | 20 | 1.2 | 2.4 |
| A 9X93MSO060075 | M6 x 1 | 6 | 1.6 | 3.2 |
| A 9X93MSO060115 | M6 x 1 | 10 | 1.6 | 3.2 |
| A 9X93MSO060175 | M6 x 1 | 16 | 1.6 | 3.2 |
| A 9X93MSO060265 | M6 x 1 | 25 | 1.6 | 3.2 |
| *A 9X93MSO100145 | M10 x 1.5 | 14.5 | 2.4 | 4.8 |
| *A 9X93MSO100225 | M10 x 1.5 | 22.5 | 2.4 | 4.8 |
| *A 9X93MSO100325 | M10 x 1.5 | 32.5 | 2.4 | 4.8 |

* To be discontinued when present stock is depleted.





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The integrated LONG-LOK thread system is an effective, economical solution for secure fastening.

› LONG-LOK ADVANTAGES:

1. Vibration Resistant

The threads are resistant to loosening or falling out after impact or vibrations.

2. High-loosening Torque Required

As LONG-LOK threads are inserted into the tapped hole in a clockwise direction, the advanced locking system begins to expand in the opposite direction. This expansion creates a high degree of holding force, which requires a great deal of torque to loosen.

3. Secure in Every Position

The LONG-LOK system allows a plunger to be secured in any position within the threaded hole.

4. Save Assembly Time and Cost

The LONG-LOK thread system does not require any additional components. This will improve assembly time, lower cost and reduce your required storage space.

5. Suitable for Repeated Use

When using the LONG-LOK system for the first time, it will require a slightly higher tightening torque. After repeated use, the torque value remains nearly constant for approximately 20 uses.

6. Wide Variety of Solutions

LONG-LOK offers options to fit any application – M3 to M6 thread sizes, light pressure to heavy pressure, steel or stainless steel.



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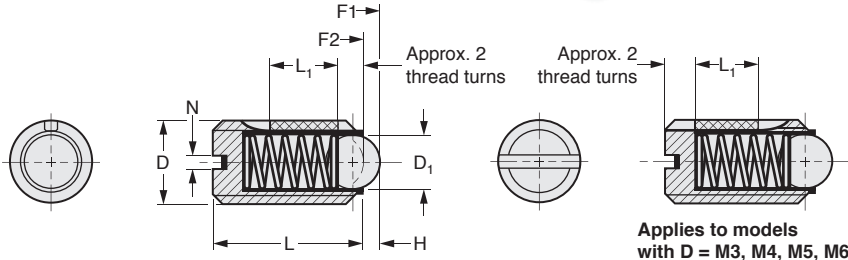
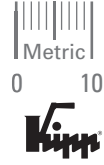
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LONG-LOK

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> MATERIAL:

- Body** - Steel, Black Oxide Finish;
Stainless Steel, Natural Finish
 - Spring** - Spring Steel;
Stainless Steel
 - Ball** - Steel
Stainless Steel, Natural Finish, Hardened
- LONG-LOK THREAD SYSTEM - Nylon**



Applies to models with D = M3, M4, M5, M6

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | D | D ₁ | L | L ₁ ±0.5 | H | N | Spring Force | | | |
|----------------|-----------------|-----|----------------|----|------------------------|-----|-----|--------------|------------|--------------|--------------|
| Steel | Stainless Steel | | | | | | | Standard | | Heavy* | |
| | | | | | | | | Initial F1 N | Final F2 N | Initial F1 N | Initial F2 N |
| S707CBMSL0307 | S707YBMSL0307 | M3 | 1.5 | 7 | 4 | 0.5 | 0.4 | 1.5 | 3 | 5 | 7 |
| S707CBMSL0409 | S707YBMSL0409 | M4 | 2.5 | 9 | 5 | 0.8 | 0.6 | 4 | 10 | 12 | 22 |
| S707CBMSL0512 | S707YBMSL0512 | M5 | 3 | 12 | 6 | 0.9 | 0.8 | 6 | 11 | 19 | 30 |
| S707CBMSL0614 | S707YBMSL0614 | M6 | 3.5 | 14 | 7 | 1 | 1 | 9 | 13 | 28 | 40 |
| S707CBMSL0816 | S707YBMSL0816 | M8 | 5 | 16 | 8 | 1.5 | 1.2 | 15 | 30 | 47 | 73 |
| S707CBMSL1019 | S707YBMSL1019 | M10 | 6 | 19 | 9 | 2 | 1.6 | 20 | 35 | 66 | 100 |
| S707CBMSL1222 | S707YBMSL1222 | M12 | 8 | 22 | 10 | 2.5 | 2 | 30 | 55 | | 120 |
| S707CBMSL1624 | S707YBMSL1624 | M16 | 10 | 24 | 14 | 3.5 | 2.5 | 65 | 125 | 90 | 180 |

* For heavy end pressure, add "H" to the end of the desired part number.

| Catalog Number | | Tightening Torque Max. Nm | Loosening Torque Min. After Third Unscrewing Nm | Weight g |
|----------------|-----------------|------------------------------|---|-------------|
| Steel | Stainless Steel | | | |
| S707CBMSL0307 | S707YBMSL0307 | 0.10 | 0.07 | 0.2 |
| S707CBMSL0409 | S707YBMSL0409 | 0.18 | 0.12 | 0.6 |
| S707CBMSL0512 | S707YBMSL0512 | 0.12 | 0.08 | 0.9 |
| S707CBMSL0614 | S707YBMSL0614 | 0.43 | 0.21 | 1.5 |
| S707CBMSL0816 | S707YBMSL0816 | 1.09 | 0.37 | 3.5 |
| S707CBMSL1019 | S707YBMSL1019 | 1.36 | 0.62 | 7 |
| S707CBMSL1222 | S707YBMSL1222 | 2.03 | 1.36 | 10 |
| S707CBMSL1624 | S707YBMSL1624 | 3.95 | 2.95 | 24 |

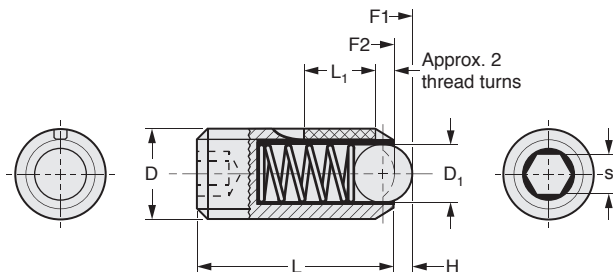
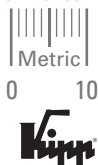
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LONG-LOK

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> MATERIAL:

- Body** - Steel, Black Oxide Finish;
Stainless Steel, Natural Finish
 - Spring** - Spring Steel;
Stainless Steel
 - Ball** - Steel, Hardened;
Stainless Steel, Natural Finish, Hardened
- LONG-LOK THREAD SYSTEM - Nylon**



The projections shown are per ISO convention.

| METRIC COMPONENT | | | | | | | | | | | |
|------------------|-----------------|-----|----------------|----|------------------------|-----|-----|--------------|------------|--------------|--------------|
| Catalog Number | | | | | | | | | | | |
| Steel | Stainless Steel | D | D ₁ | L | L ₁ ±0.5 | H | s | Spring Force | | | |
| | | | | | | | | Standard | | Heavy* | |
| | | | | | | | | Initial F1 N | Final F2 N | Initial F1 N | Initial F2 N |
| S707CBMHL0309 | S707YBMHL0309 | M3 | 1.5 | 9 | 4 | 0.5 | 1.5 | 1.5 | 3 | 5 | 7 |
| S707CBMHL0410 | S707YBMHL0410 | M4 | 2.5 | 10 | 5 | 0.8 | 2 | 4 | 10 | 12 | 22 |
| S707CBMHL0514 | S707YBMHL0514 | M5 | 3 | 14 | 6 | 0.9 | 3 | 6 | 11 | 19 | 30 |
| S707CBMHL0615 | S707YBMHL0615 | M6 | 3.5 | 15 | 7 | 1 | | 9 | 13 | 28 | 40 |
| S707CBMHL0818 | S707YBMHL0818 | M8 | 5 | 18 | 8 | 1.5 | 4 | 15 | 30 | 47 | 73 |
| S707CBMHL1023 | S707YBMHL1023 | M10 | 6 | 23 | 9 | 2 | 5 | 20 | 35 | 66 | 100 |
| S707CBMHL1226 | S707YBMHL1226 | M12 | 8 | 26 | 10 | 2.5 | 6 | 30 | 55 | | 120 |
| S707CBMHL1633 | S707YBMHL1633 | M16 | 10 | 33 | 14 | 3.5 | 8 | 65 | 125 | 90 | 180 |

* For heavy end pressure, add "H" to the end of the desired part number.

| Catalog Number | | Tightening Torque Max. Nm | Loosening Torque Min. After Third Unscrewing Nm | Weight g |
|----------------|-----------------|------------------------------|---|-------------|
| Steel | Stainless Steel | | | |
| S707CBMHL0309 | S707YBMHL0309 | 0.1 | 0.07 | 0.23 |
| S707CBMHL0410 | S707YBMHL0410 | 0.18 | 0.12 | 0.46 |
| S707CBMHL0514 | S707YBMHL0514 | 0.12 | 0.08 | 1.27 |
| S707CBMHL0615 | S707YBMHL0615 | 0.44 | 0.21 | 2 |
| S707CBMHL0818 | S707YBMHL0818 | 1.1 | 0.38 | 4 |
| S707CBMHL1023 | S707YBMHL1023 | 1.3 | 0.6 | 8 |
| S707CBMHL1226 | S707YBMHL1226 | 2 | 1.3 | 12 |
| S707CBMHL1633 | S707YBMHL1633 | 3.9 | 3 | 31 |

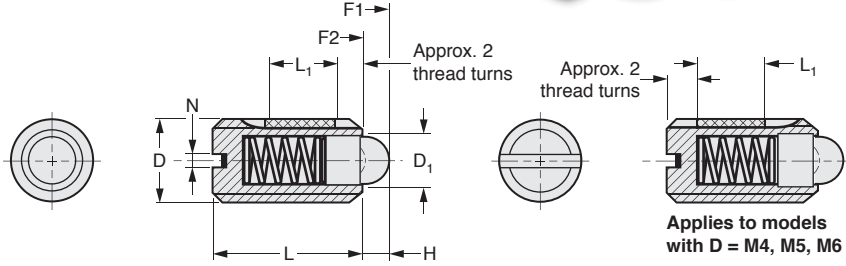
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LONG-LOK

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Body** - Steel, Black Oxide Finish;
Stainless Steel, Natural Finish
- Spring** - Spring Steel;
Stainless Steel
- Pin** - Steel, Hardened;
Stainless Steel, Natural Finish, Hardened



Applies to models with D = M4, M5, M6

METRIC COMPONENT

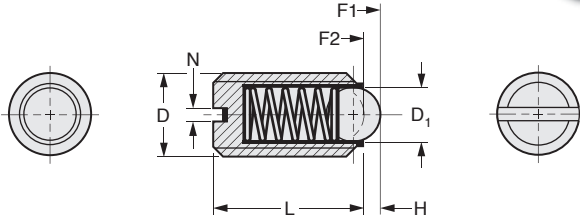
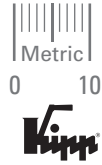
| Catalog Number | | D | D ₁ | L | L ₁ ±0.5 | H | N | Spring Force | | | |
|----------------|-----------------|-----|----------------|----|------------------------|-----|-----|--------------------------|------------------------|--------------------------|------------------------|
| Steel | Stainless Steel | | | | | | | Standard | | Light* | |
| | | | | | | | | Initial F ₁ N | Final F ₂ N | Initial F ₁ N | Final F ₂ N |
| S707CPMSL0409 | S707YPMSL0409 | M4 | 1.8 | 9 | 5 | 1.5 | 0.6 | 6 | 20 | 3 | 10 |
| S707CPMSL0512 | S707YPMSL0512 | M5 | 2.4 | 12 | 6 | 0.8 | | | | | |
| S707CPMSL0614 | S707YPMSL0614 | M6 | 2.7 | 14 | 7 | 2 | 1 | 7 | 4 | 7 | 15 |
| S707CPMSL0816 | S707YPMSL0816 | M8 | 4 | 16 | 8 | 1.2 | 15 | 30 | 7 | 15 | 15 |
| S707CPMSL1019 | S707YPMSL1019 | M10 | 4.5 | 19 | 9 | 2.5 | 1.6 | 20 | 35 | 9 | 16 |
| S707CPMSL1222 | S707YPMSL1222 | M12 | 6 | 22 | 10 | 3.5 | 2 | 30 | 55 | 14 | 26 |
| S707CPMSL1624 | S707YPMSL1624 | M16 | 8.5 | 24 | 14 | 4.5 | 2.5 | 45 | 100 | 22 | 50 |

* For light end pressure, add "L" to the end of the desired part number.

| Catalog Number | | Tightening Torque Max. Nm | Loosening Torque Min. After Third Unscrewing Nm | Weight g |
|----------------|-----------------|------------------------------|---|-------------|
| Steel | Stainless Steel | | | |
| S707CPMSL0409 | S707YPMSL0409 | 0.18 | 0.12 | 0.39 |
| S707CPMSL0512 | S707YPMSL0512 | 0.12 | 0.08 | 1 |
| S707CPMSL0614 | S707YPMSL0614 | 0.44 | 0.21 | 1.7 |
| S707CPMSL0816 | S707YPMSL0816 | 1.1 | 0.38 | 4 |
| S707CPMSL1019 | S707YPMSL1019 | 1.36 | 0.62 | 7 |
| S707CPMSL1222 | S707YPMSL1222 | 2.11 | 1.41 | 13 |
| S707CPMSL1624 | S707YPMSL1624 | 3.95 | 3.05 | 24 |

> MATERIAL:

- Body** - Steel, Black Oxide Finish;
Stainless Steel
- Spring** - Spring Steel;
Stainless Steel
- Ball** - Steel, Hardened;
Stainless Steel



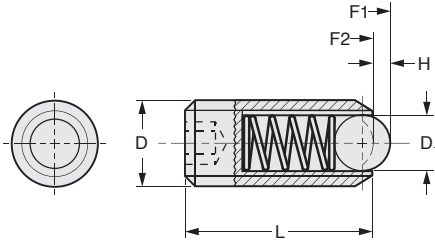
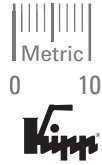
The projections shown are per ISO convention.

| METRIC COMPONENT | | D | D ₁ | L | H | N | Spring Force | | Weight g |
|------------------------------|-----------------|-----|----------------|----|-----|-----|-----------------|---------------|-------------|
| Catalog Number | | | | | | | Initial F1 N | Final F2 N | |
| Steel | Stainless Steel | | | | | | | | |
| Standard End Pressure | | | | | | | | | |
| S707CBMS0307 | S707YBMS0307 | M3 | 1.5 | 7 | 0.5 | 0.4 | 1.5 | 3 | 0.2 |
| S707CBMS0409 | S707YBMS0409 | M4 | 2.5 | 9 | 0.8 | 0.6 | 4 | 10 | 0.6 |
| S707CBMS0512 | S707YBMS0512 | M5 | 3 | 12 | 0.9 | 0.8 | 6 | 11 | 0.9 |
| S707CBMS0614 | S707YBMS0614 | M6 | 3.5 | 14 | 1 | 1 | 9 | 13 | 1.5 |
| S707CBMS0816 | S707YBMS0816 | M8 | 5 | 16 | 1.5 | 1.2 | 15 | 30 | 3.5 |
| S707CBMS1019 | S707YBMS1019 | M10 | 6 | 19 | 2 | 1.6 | 20 | 35 | 7 |
| S707CBMS1222 | S707YBMS1222 | M12 | 8 | 22 | 2.5 | 2 | 30 | 55 | 10 |
| S707CBMS1624 | S707YBMS1624 | M16 | 10 | 24 | 3.5 | 2.5 | 65 | 125 | 24 |
| S707CBMS2030 | S707YBMS2030 | M20 | 12 | 30 | 4.5 | | 80 | 160 | 44.3 |
| Heavy End Pressure | | | | | | | | | |
| S707CBMS0307H | S707YBMS0307H | M3 | 1.5 | 7 | 0.5 | 0.4 | 5 | 7 | 0.2 |
| S707CBMS0409H | S707YBMS0409H | M4 | 2.5 | 9 | 0.8 | 0.6 | 12 | 22 | 0.6 |
| S707CBMS0512H | S707YBMS0512H | M5 | 3 | 12 | 0.9 | 0.8 | 19 | 30 | 0.9 |
| S707CBMS0614H | S707YBMS0614H | M6 | 3.5 | 14 | 1 | 1 | 28 | 40 | 1.5 |
| S707CBMS0816H | S707YBMS0816H | M8 | 5 | 16 | 1.5 | 1.2 | 47 | 73 | 3.5 |
| S707CBMS1019H | S707YBMS1019H | M10 | 6 | 19 | 2 | 1.6 | 66 | 100 | 7 |
| S707CBMS1222H | S707YBMS1222H | M12 | 8 | 22 | 2.5 | 2 | | 120 | 10 |
| S707CBMS1624H | S707YBMS1624H | M16 | 10 | 24 | 3.5 | 2.5 | 90 | 180 | 24 |
| S707CBMS2030H | S707YBMS2030H | M20 | 12 | 30 | 4.5 | | 115 | 240 | 44.3 |

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> MATERIAL:

- Body** - Steel, Black Oxide Finish;
Stainless Steel, Natural Finish
- Spring** - Spring Steel;
Stainless Steel
- Ball** - Steel, Hardened;
Stainless Steel, Hardened



The projections shown are per ISO convention.

| METRIC COMPONENT | | D | D ₁ | L | H | s | Spring Force | | Weight g |
|------------------------------|-----------------|-----|----------------|----|-----|-----|-----------------|---------------|-------------|
| Catalog Number | | | | | | | Initial F1 N | Final F2 N | |
| Steel | Stainless Steel | | | | | | | | |
| Standard End Pressure | | | | | | | | | |
| S707CBMH0309 | S707YBMH0309 | M3 | 1.5 | 9 | 0.5 | 1.5 | 1.5 | 3 | 0.23 |
| S707CBMH0410 | S707YBMH0410 | M4 | 2.5 | 10 | 0.8 | 2 | 4 | 10 | 0.46 |
| S707CBMH0514 | S707YBMH0514 | M5 | 3 | 14 | 0.9 | 3 | 6 | 11 | 1.27 |
| S707CBMH0615 | S707YBMH0615 | M6 | 3.5 | 15 | 1 | | 9 | 13 | 2 |
| S707CBMH0818 | S707YBMH0818 | M8 | 5 | 18 | 1.5 | 4 | 15 | 30 | 4 |
| S707CBMH1023 | S707YBMH1023 | M10 | 6 | 23 | 2 | 5 | 20 | 35 | 8 |
| S707CBMH1226 | S707YBMH1226 | M12 | 8 | 26 | 2.5 | 6 | 30 | 55 | 12 |
| S707CBMH1633 | S707YBMH1633 | M16 | 10 | 33 | 3.5 | 8 | 65 | 125 | 31 |
| S707CBMH2043 | S707YBMH2043 | M20 | 12 | 43 | 4.5 | 10 | 80 | 160 | 64 |
| S707CBMH2448 | S707YBMH2448 | M24 | 15 | 48 | 5.5 | 12 | 90 | 180 | 100 |
| Heavy End Pressure | | | | | | | | | |
| S707CBMH0309H | S707YBMH0309H | M3 | 1.5 | 9 | 0.5 | 1.5 | 5 | 7 | 0.23 |
| S707CBMH0410H | S707YBMH0410H | M4 | 2.5 | 10 | 0.8 | 2 | 12 | 22 | 0.46 |
| S707CBMH0514H | S707YBMH0514H | M5 | 3 | 14 | 0.9 | 3 | 19 | 30 | 1.27 |
| S707CBMH0615H | S707YBMH0615H | M6 | 3.5 | 15 | 1 | | 28 | 40 | 2 |
| S707CBMH0818H | S707YBMH0818H | M8 | 5 | 18 | 1.5 | 4 | 47 | 73 | 4 |
| S707CBMH1023H | S707YBMH1023H | M10 | 6 | 23 | 2 | 5 | 66 | 100 | 8 |
| S707CBMH1226H | S707YBMH1226H | M12 | 8 | 26 | 2.5 | 6 | | 120 | 12 |
| S707CBMH1633H | S707YBMH1633H | M16 | 10 | 33 | 3.5 | 8 | 90 | 180 | 31 |
| S707CBMH2043H | S707YBMH2043H | M20 | 12 | 43 | 4.5 | 10 | 115 | 240 | 64 |
| S707CBMH2448H | S707YBMH2448H | M24 | 15 | 48 | 5.5 | 12 | 130 | 270 | 100 |

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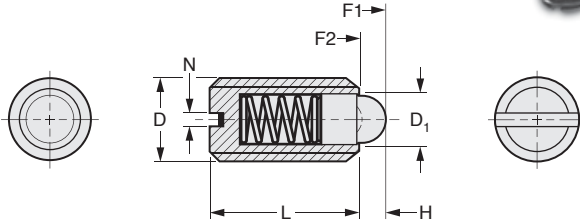
SPRING PIN PLUNGERS • SLOTTED HEAD



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Body** - Steel, Black Oxide Finish;
Stainless Steel, Natural Finish
- Spring** - Spring Steel;
Stainless Steel
- Pin** - Steel, Hardened;
Stainless Steel, Natural Finish, Hardened



The projections shown are per ISO convention.

| METRIC COMPONENT | | D | D ₁ | L | H | N | Spring Force | | Weight g |
|------------------------------|-----------------|-----|----------------|----|-----|-----|-----------------|---------------|-------------|
| Catalog Number | | | | | | | Initial F1 N | Final F2 N | |
| Steel | Stainless Steel | | | | | | | | |
| Standard End Pressure | | | | | | | | | |
| S707CPMS0409 | S707YPMS0409 | M4 | 1.8 | 9 | 1.5 | 0.6 | 6 | 20 | 0.39 |
| S707CPMS0512 | S707YPMS0512 | M5 | 2.4 | 12 | 2 | 0.8 | | | 1 |
| S707CPMS0614 | S707YPMS0614 | M6 | 2.7 | 14 | | 1.2 | 7 | 1.7 | |
| S707CPMS0816 | S707YPMS0816 | M8 | 4 | 16 | 1.2 | 15 | 30 | 4 | |
| S707CPMS1019 | S707YPMS1019 | M10 | 4.5 | 19 | 2.5 | 1.6 | 20 | 35 | 7 |
| S707CPMS1222 | S707YPMS1222 | M12 | 6 | 22 | 3.5 | 2 | 30 | 55 | 13 |
| S707CPMS1624 | S707YPMS1624 | M16 | 8.5 | 24 | 4.5 | 2.5 | 45 | 100 | 24 |
| S707CPMS2030 | S707YPMS2030 | M20 | 10 | 30 | 6.5 | | 60 | 120 | 46.3 |
| Light End Pressure | | | | | | | | | |
| S707CPMS0409L | S707YPMS0409L | M4 | 1.8 | 9 | 1.5 | 0.6 | 3 | 10 | 0.39 |
| S707CPMS0512L | S707YPMS0512L | M5 | 2.4 | 12 | 2 | 0.8 | | | 1 |
| S707CPMS0614L | S707YPMS0614L | M6 | 2.7 | 14 | | 1.2 | 4 | 1.7 | |
| S707CPMS0816L | S707YPMS0816L | M8 | 4 | 16 | 1.2 | 7 | 15 | 4 | |
| S707CPMS1019L | S707YPMS1019L | M10 | 4.5 | 19 | 2.5 | 1.6 | 9 | 16 | 7 |
| S707CPMS1222L | S707YPMS1222L | M12 | 6 | 22 | 3.5 | 2 | 14 | 26 | 13 |
| S707CPMS1624L | S707YPMS1624L | M16 | 8.5 | 24 | 4.5 | 2.5 | 22 | 50 | 24 |
| S707CPMS2030L | S707YPMS2030L | M20 | 10 | 30 | 6.5 | | 30 | 60 | 46.3 |

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10-23G

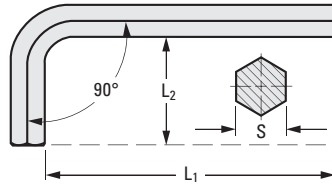
HEXAGONAL WRENCHES

SDP/SI

DIN 911

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

- > **MATERIAL:**
High-Tensile Steel
- > **FINISH:**
Black Oxide



METRIC COMPONENT

| Catalog Number | S | L ₁ | L ₂ | Set Screw Size |
|-----------------|------|----------------|----------------|----------------|
| MD0911MQB007X03 | 0.71 | 30 | 7 | M1.4 & M1.6 |
| MD0911MQB009X03 | 0.89 | 30 | 12 | M2 & #2-56 |
| MD0911MQB013X04 | 1.27 | 40 | 15 | M2.5 & #4-40 |
| MD0911MQB015X05 | 1.5 | 50 | 15 | M3 |
| MD0911MQB020X05 | 2 | 55 | 16 | M4 |
| MD0911MQB025X06 | 2.5 | 60 | 20 | M5 |
| MD0911MQB030X06 | 3 | 65 | 20 | M6 |
| MD0911MQB040X07 | 4 | 72 | 25 | M8 |
| MD0911MQB050X08 | 5 | 80 | 28 | M10 |
| MD0911MQB060X09 | 6 | 90 | 32 | M12 & M14 |

| Catalog Number | Description |
|----------------|------------------------------|
| MD0911MQBHSET | Set of 10 Pieces (0.71 to 6) |

DIN 975

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Brass or Mild Steel or Stainless Steel

> SPECIFICATION:

Priced Per Meter (39.37 in.)



| METRIC COMPONENT | | | |
|------------------|--------------|-----------------|-------------|
| Catalog Number | | | Thread Size |
| Brass | Mild Steel | Stainless Steel | |
| - | - | A 9X60M020 | M2 x 0.4 |
| - | * A 9C60M023 | - | M2.3 x 0.4 |
| - | - | A 9X60M025 | M2.5 x 0.45 |
| - | A 9C60M026 | - | M2.6 x 0.45 |
| A 9B60M030 | - | A 9X60M030 | M3 x 0.5 |
| A 9B60M040 | - | A 9X60M040 | M4 x 0.7 |
| A 9B60M050 | A 9C60M050 | A 9X60M050 | M5 x 0.8 |
| A 9B60M060 | A 9C60M060 | A 9X60M060 | M6 x 1 |
| A 9B60M080 | A 9C60M080 | A 9X60M080 | M8 x 1.25 |
| - | A 9C60M100 | - | M10 x 1.5 |
| A 9B60M120 | A 9C60M120 | - | M12 x 1.75 |

* To be discontinued when present stock is depleted.

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HEXAGONAL NUTS

SDP/SI

DIN 934

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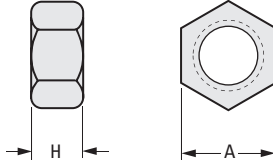
> MATERIAL:

Alloy Steel or Stainless Steel

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> SPECIFICATION:

Priced Per 100 Pieces



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METRIC COMPONENT

| Catalog Number | | Thread Size | A Flats | H Height |
|----------------|-----------------|-------------|------------|-------------|
| Alloy Steel | Stainless Steel | | | |
| MD0934MQO016 | MD0934MXO016 | M1.6 x 0.35 | 3.2 | 1.3 |
| MD0934MQO020 | MD0934MXO020 | M2 x 0.4 | 4 | 1.6 |
| MD0934MQO025 | MD0934MXO025 | M2.5 x 0.45 | 5 | 2 |
| MD0934MQO030 | MD0934MXO030 | M3 x 0.5 | 5.5 | 2.4 |
| MD0934MQO035 | MD0934MXO035 | M3.5 x 0.6 | 6 | 2.8 |
| MD0934MQO040 | MD0934MXO040 | M4 x 0.7 | 7 | 3.2 |
| MD0934MQO050 | MD0934MXO050 | M5 x 0.8 | 8 | 4 |
| MD0934MQO060 | MD0934MXO060 | M6 x 1 | 10 | 5 |
| MD0934MQO080 | MD0934MXO080 | M8 x 1.25 | 13 | 6.5 |
| MD0934MQO100 | MD0934MXO100 | M10 x 1.5 | 17 | 8 |
| MD0934MQO120 | MD0934MXO120 | M12 x 1.75 | 19 | 10 |

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APE
Above Board Electronics, Inc.

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1-800-453-1692

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USED ON SOCKET HEAD CAP SCREWS
DECORATIVE COLORS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> **MATERIAL:**
Acetal

> **SPECIFICATION:**
Priced Per 100 Pieces

> **EXAMPLE:**
A 9M41MG8398935 is a Gray Rosette Knob with a 38 mm Head Dia. for an M8 Screw.

Using data below, insert desired Head Color Code in the box in the catalog number:

| Color Code | Color Code |
|------------|------------|
| B | Black |
| R | Red |
| G | Gray |
| Y | Yellow |



Method of Assembly to MD0912MQB series Cap Screws

1. Preassemble into ribbed retaining socket.
2. Simply press screw to shear and lock.

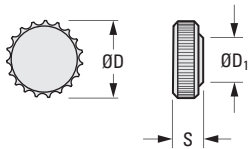


Fig. 1

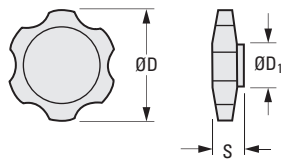


Fig. 2

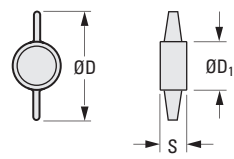


Fig. 3

METRIC COMPONENT

| Catalog Number | Fits Screw | Specifications | | |
|-----------------------------|------------|----------------|------|---------------------|
| | | D Dia. | S | D ₁ Dia. |
| Fig. 1 Knurled Knobs | | | | |
| A 9M41M 8398928 | M3 | 9.6 | 4.4 | 8.3 |
| A 9M41M 8398929 | M4 | 13 | 5.5 | 9.8 |
| A 9M41M 8398930 | M5 | 16 | 6.5 | 11.5 |
| A 9M41M 8398931 | M6 | 19 | 7.6 | 13 |
| A 9M41M 8398932 | M6 | 26 | 7.8 | 13 |
| A 9M41M 8398933 | M8 | 26 | 9.8 | 16 |
| Fig. 2 Rosette Knobs | | | | |
| A 9M41M 8398934 | M6 | 38 | 12.2 | 14.1 |
| A 9M41M 8398935 | M8 | 38 | 10 | 16 |
| A 9M41M 8398936 | M10 | 38 | 12.5 | 19.5 |
| Fig. 3 Tee Knobs | | | | |
| A 9M41M 8398937 | M5 | 26 | 6.6 | 12 |
| A 9M41M 8398938 | M6 | 30 | 7.8 | 13.5 |
| A 9M41M 8398939 | M8 | 38 | 10 | 16.5 |
| A 9M41M 8398940 | M10 | 45 | 12.5 | 20 |

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ASSORTED KNOB KITS**SDP/SI**

USED ON SOCKET HEAD CAP SCREWS
DECORATIVE COLORS

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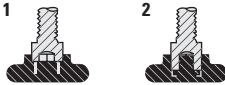
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> MATERIAL:

Acetal

Simple two-step assembly to standard socket head cap screws.

Method of Assembly to MD0912MQB Series Cap Screw



1. Preassemble into ribbed retaining socket.
2. Simply press screw to shear and lock.



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METRIC COMPONENT

| Catalog Number | Description |
|----------------|---|
| A 9M41MKIT005 | 300-piece Knurled Knob kit; 25 black, 15 red and 10 gray of each size: M3, M4, M5, M6 x 19, M6 x 26 and M8 in plastic case. |
| A 9M41MKIT006 | 150-piece Rosette Knob kit; 25 black and 25 gray of each size: M6, M8 and M10 in plastic case. |
| A 9M41MKIT007 | 300-piece Tee Knob kit; 25 black, 25 red and 25 gray of each size: M5, M6, M8 and M10 in plastic case. |

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10-28

Above Board Electronics, Inc.

Request Info
⚙️ 🛒 🕒

1-800-453-1692

www.aboveboardelectronics.com

SHAFT SPACERS

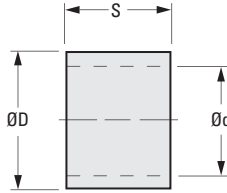
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➤ **MATERIAL:**

Steel

➤ **SPECIFICATION:**

Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | d Dia. | D Dia. | S |
|-----------------|--------|--------|------|
| A 7C 8MC03060H2 | 3 | 6 | 0.25 |
| A 7C 8MC0306005 | 3 | 6 | 0.5 |
| A 7C 8MC0306030 | 3 | 6 | 3 |
| A 7C 8MC0306050 | 3 | 6 | 5 |
| A 7C 8MC0306100 | 3 | 6 | 10 |
| A 7C 8MC0408005 | 4 | 8 | 0.5 |
| A 7C 8MC0408010 | 4 | 8 | 1 |
| A 7C 8MC0408030 | 4 | 8 | 3 |
| A 7C 8MC0408050 | 4 | 8 | 5 |
| A 7C 8MC0408100 | 4 | 8 | 10 |
| A 7C 8MC05100H2 | 5 | 10 | 0.25 |
| A 7C 8MC0510005 | 5 | 10 | 0.5 |
| A 7C 8MC0510010 | 5 | 10 | 1 |
| A 7C 8MC0510030 | 5 | 10 | 3 |
| A 7C 8MC0510050 | 5 | 10 | 5 |
| A 7C 8MC06120H2 | 6 | 12 | 0.25 |
| A 7C 8MC0612005 | 6 | 12 | 0.5 |
| A 7C 8MC0612010 | 6 | 12 | 1 |
| A 7C 8MC0612030 | 6 | 12 | 3 |
| A 7C 8MC0612050 | 6 | 12 | 5 |
| A 7C 8MC0612100 | 6 | 12 | 10 |
| A 7C 8MC08140H2 | 8 | 14 | 0.25 |
| A 7C 8MC0814005 | 8 | 14 | 0.5 |
| A 7C 8MC0814010 | 8 | 14 | 1 |

| Catalog Number | d Dia. | D Dia. | S |
|-----------------|--------|--------|------|
| A 7C 8MC0814030 | 8 | 14 | 3 |
| A 7C 8MC0814050 | 8 | 14 | 5 |
| A 7C 8MC0814100 | 8 | 14 | 10 |
| A 7C 8MC10160H2 | 10 | 16 | 0.25 |
| A 7C 8MC1016005 | 10 | 16 | 0.5 |
| A 7C 8MC1016010 | 10 | 16 | 1 |
| A 7C 8MC1016030 | 10 | 16 | 3 |
| A 7C 8MC1016050 | 10 | 16 | 5 |
| A 7C 8MC1016100 | 10 | 16 | 10 |
| A 7C 8MC10180H2 | 10 | 18 | 0.25 |
| A 7C 8MC1018010 | 10 | 18 | 1 |
| A 7C 8MC1018050 | 10 | 18 | 5 |
| A 7C 8MC1018100 | 10 | 18 | 10 |
| A 7C 8MC1220005 | 12 | 20 | 0.5 |
| A 7C 8MC1220010 | 12 | 20 | 1 |
| A 7C 8MC1220030 | 12 | 20 | 3 |
| A 7C 8MC1220050 | 12 | 20 | 5 |
| A 7C 8MC1220100 | 12 | 20 | 10 |
| A 7C 8MC12240H2 | 12 | 24 | 0.25 |
| A 7C 8MC1224005 | 12 | 24 | 0.5 |
| A 7C 8MC1224010 | 12 | 24 | 1 |
| A 7C 8MC1224030 | 12 | 24 | 3 |
| A 7C 8MC1224050 | 12 | 24 | 5 |
| A 7C 8MC1224100 | 12 | 24 | 10 |

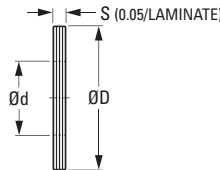
LAMINATED BRASS SHIM SPACERS

➤ **MATERIAL:**

Laminated Brass

➤ **SPECIFICATION:**

Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | d Dia. | D Dia. | S |
|----------------|--------|--------|-----|
| A 7B 8MB0306 | 3 | 6 | 0.8 |
| A 7B 8MB0408 | 4 | 8 | 0.8 |
| A 7B 8MB0510 | 5 | 10 | 0.8 |
| A 7B 8MB0612 | 6 | 12 | 0.8 |
| A 7B 8MB0814 | 8 | 14 | 0.8 |
| A 7B 8MB1016 | 10 | 16 | 0.8 |
| A 7B 8MB1218 | 12 | 18 | 0.8 |

FLAT WASHERS

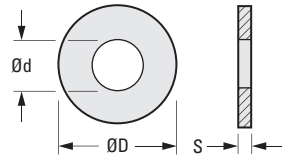
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DIN 125



> MATERIAL:
Steel, Zinc Plated or
Stainless Steel

> SPECIFICATION:
Priced Per 100 Pieces

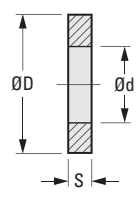


| METRIC COMPONENT | | d Dia. | D Dia. | S | Screw Size |
|------------------|-----------------|-----------|-----------|-----|---------------|
| Catalog Number | | | | | |
| Steel | Stainless Steel | | | | |
| MD0125MCA025 | MD0125MXO025 | 2.7 | 6 | 0.5 | M2.5 |
| MD0125MCA030 | MD0125MXO030 | 3.2 | 7 | 0.5 | M3 |
| MD0125MCA040 | MD0125MXO040 | 4.3 | 9 | 0.8 | M4 |
| MD0125MCA050 | MD0125MXO050 | 5.3 | 10 | 1 | M5 |
| MD0125MCA060 | MD0125MXO060 | 6.4 | 12 | 1.6 | M6 |
| MD0125MCA080 | MD0125MXO080 | 8.4 | 16 | 1.6 | M8 |

SINTERED THRUST WASHERS

> MATERIAL:
Oil-Impregnated Bronze, Self-Lubricating

> SPECIFICATION:
Priced Per Each



| METRIC COMPONENT | | | |
|------------------|---------------------|----------------------|-------------|
| Catalog Number | d Dia. ± 0.13 | D Dia. ± 0.254 | S ± 0.07 |
| A 7B 7M0316 | 3.2 | 9.5 | 1.6 |
| A 7B 7M0416 | 4.3 | 9.5 | 1.6 |
| A 7B 7M0516 | 5.3 | 12.5 | 1.6 |
| A 7B 7M0616 | 6.4 | 12.5 | 1.6 |
| A 7B 7M0816 | 8.4 | 19 | 1.6 |
| A 7B 7M1016 | 10.5 | 19 | 1.6 |
| A 7B 7M1032 | 10.5 | 19 | 3.2 |
| A 7B 7M1316 | 13 | 25.4 | 1.6 |
| A 7B 7M1332 | 13 | 25.4 | 3.2 |

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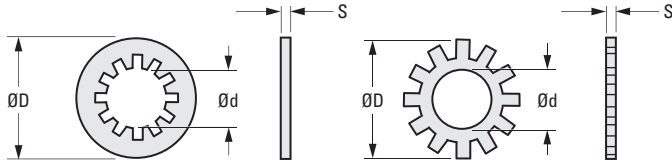
LOCK WASHERS

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DIN 6797

➤ **MATERIAL:**
Spring Steel

➤ **SPECIFICATION:**
Priced Per 100 Pieces



INTERNAL "I" SERIES

EXTERNAL "E" SERIES

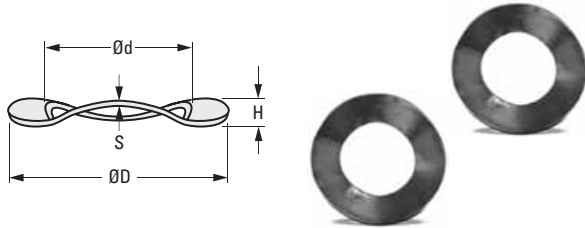
METRIC COMPONENT

| Catalog Number | | Nominal Screw Size | d Dia. | D Dia. | S |
|----------------|----------------|--------------------|--------|--------|-----|
| Internal | External | | | | |
| MD6797MQ.ZI020 | MD6797MQ.ZE020 | M2 | 2.2 | 4.5 | 0.3 |
| MD6797MQ.ZI025 | MD6797MQ.ZE025 | M2.5 | 2.7 | 5.5 | 0.4 |
| MD6797MQ.ZI030 | MD6797MQ.ZE030 | M3 | 3.2 | 6 | 0.4 |
| MD6797MQ.ZI040 | MD6797MQ.ZE040 | M4 | 4.3 | 8 | 0.5 |
| MD6797MQ.ZI050 | MD6797MQ.ZE050 | M5 | 5.3 | 10 | 0.6 |
| MD6797MQ.ZI060 | MD6797MQ.ZE060 | M6 | 6.4 | 11 | 0.7 |
| MD6797MQ.ZI080 | MD6797MQ.ZE080 | M8 | 8.4 | 15 | 0.8 |

WAVE SPRING WASHERS

SCREW SIZE SERIES

➤ **SPECIFICATION:**
Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | | Nominal Screw Size | d Dia. | D Dia. | S | H | |
|------------------|------------------|--------------------|--------|--------|------|------|------|
| Beryllium Copper | Stainless Steel | | | | | Min. | Max. |
| MD4463MEA046X016 | MD4463MXP046X016 | M2 | 2.2 | 4.6 | 0.16 | 0.38 | 0.53 |
| MD4463MEA058X016 | MD4463MXP058X016 | M2.5 | 2.7 | 5.8 | 0.16 | 0.38 | 0.53 |
| MD4463MEA064X016 | MD4463MXP064X016 | M3 | 3.2 | 6.4 | 0.16 | 0.46 | 0.61 |
| MD4463MEA081X028 | MD4463MXP081X028 | M4 | 4.3 | 8.1 | 0.28 | 0.69 | 0.84 |
| MD4463MEA092X030 | MD4463MXP092X030 | M5 | 5.3 | 9.2 | 0.3 | 0.74 | 0.89 |
| MD4463MEA115X040 | MD4463MXP115X040 | M6 | 6.4 | 11.5 | 0.4 | 0.99 | 1.14 |
| MD4463MEA150X040 | MD4463MXP150X040 | M8 | 8.4 | 15 | 0.4 | 1.25 | 1.4 |
| MD4463MEA196X055 | MD4463MXP196X055 | M10 | 10.5 | 19.6 | 0.55 | 1.55 | 1.7 |
| MD4463MEA220X055 | MD4463MXP220X055 | M12 | 13 | 22 | 0.55 | 1.65 | 1.9 |
| MD4463MEA278X070 | MD4463MXP278X070 | M16 | 17 | 27.8 | 0.7 | 2.16 | 2.41 |

DIN 137

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> MATERIAL:

Spring Steel, HRC 43...50

> FINISH:

Zinc

> SPECIFICATIONS:

d Tolerance (H14):

- 2.2 & 2.8 mm +0.25/0
- 3.2 to 5.3 mm +0.30/0
- 6.4 & 8.4 mm +0.36/0
- 10.5 to 17 mm +0.43/0
- 21 & 25 mm +0.52/0

D Tolerance (js 16):

- 4.5 to 6 mm ±0.38
- 8 to 10 mm ±0.45
- 11 to 18 mm ±0.55
- 21 to 30 mm ±0.65
- 36 & 44 mm ±0.80

Priced Per 100 Pieces

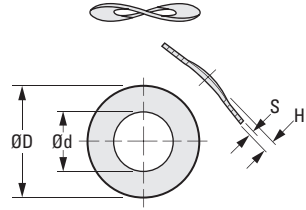
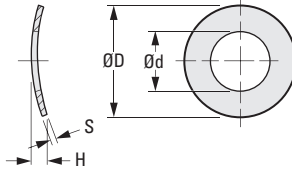


Fig. 1
Curved Spring Washer

Fig. 2
Wave Spring Washer

METRIC COMPONENT

| Catalog Number | d Dia. H14 | D Dia. js 16 | H min. | S | For Screw Size |
|---|------------|--------------|--------|------------|----------------|
| Fig. 1 Curved Spring Washer DIN 137 Type A | | | | | |
| MD0137MQA045 | 2.2 | 4.5 | 0.5 | 0.3 | M2 |
| MD0137MQA055 | 2.8 | 5.5 | 0.55 | 0.3 | M2.5 |
| MD0137MQA060 | 3.2 | 6 | 0.65 | 0.4 | M3 |
| MD0137MQA080 | 4.3 | 8 | 0.8 | 0.5 | M4 |
| MD0137MQA100 | 5.3 | 10 | 0.9 | 0.5 | M5 |
| MD0137MQA110 | 6.4 | 11 | 1.1 | 0.5 | M6 |
| MD0137MQA150 | 8.4 | 15 | 1.7 | 0.5 | M8 |
| MD0137MQA180 | 10.5 | 18 | 2 | 0.8 | M10 |
| Fig. 2 Wave Spring Washer DIN 137 Type B | | | | | |
| MD0137MQB080 | 3.2 | 8 | 0.8 | 0.5 ± 0.05 | M3 |
| MD0137MQB090 | 4.3 | 9 | 1 | 0.5 ± 0.05 | M4 |
| MD0137MQB110 | 5.3 | 11 | 1.1 | 0.5 ± 0.05 | M5 |
| MD0137MQB120 | 6.4 | 12 | 1.3 | 0.5 ± 0.05 | M6 |
| MD0137MQB150 | 8.4 | 15 | 1.5 | 0.8 ± 0.06 | M8 |
| MD0137MQB210 | 10.5 | 21 | 2.1 | 1 ± 0.07 | M10 |
| MD0137MQB240 | 13 | 24 | 2.5 | 1.2 ± 0.07 | M12 |
| MD0137MQB300 | 17 | 30 | 3.2 | 1.6 ± 0.08 | M16 |
| MD0137MQB360 | 21 | 36 | 3.7 | 1.6 ± 0.08 | M20 |
| MD0137MQB440 | 25 | 44 | 4.1 | 1.8 ± 0.1 | M24 |

DIN 127 B
DIN 7980

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➤ **MATERIAL:**

Spring Steel or
Stainless Steel

➤ **SPECIFICATION:**

Priced Per 100 Pieces

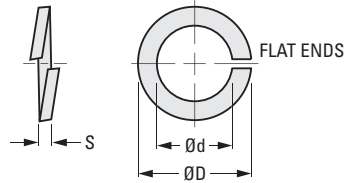


Fig. 1 DIN 127 B

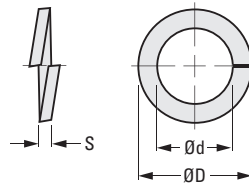


Fig. 2 DIN 7980

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | | Screw Size Ref. | d Dia. | D Dia. | S |
|--|-----------------|-----------------|--------|--------|-----|
| Spring Steel | Stainless Steel | | | | |
| Fig. 1 DIN 127 B For Pan Head Screws | | | | | |
| MD0127MQB020 | MD0127MXO020 | M2 | 2.1 | 4.4 | 0.5 |
| MD0127MQB025 | MD0127MXO025 | M2.5 | 2.6 | 5.1 | 0.6 |
| MD0127MQB030 | MD0127MXO030 | M3 | 3.1 | 6.2 | 0.8 |
| MD0127MQB040 | MD0127MXO040 | M4 | 4.1 | 7.6 | 0.9 |
| MD0127MQB050 | MD0127MXO050 | M5 | 5.1 | 9.2 | 1.2 |
| MD0127MQB060 | MD0127MXO060 | M6 | 6.1 | 11.8 | 1.6 |
| MD0127MQB080 | MD0127MXO080 | M8 | 8.1 | 14.8 | 2 |
| MD0127MQB100 | MD0127MXO100 | M10 | 10.2 | 18.1 | 2.2 |
| MD0127MQB120 | MD0127MXO120 | M12 | 12.2 | 21.1 | 2.5 |
| Fig. 2 DIN 7980 For Socket & Cheese Head Screws | | | | | |
| MD7980MQB030 | MD7980MXO030 | M3 | 3.1 | 5.6 | 1 |
| MD7980MQB040 | MD7980MXO040 | M4 | 4.1 | 7 | 1.2 |
| MD7980MQB050 | MD7980MXO050 | M5 | 5.1 | 8.8 | 1.6 |
| MD7980MQB060 | MD7980MXO060 | M6 | 6.1 | 9.9 | 1.6 |
| MD7980MQB080 | MD7980MXO080 | M8 | 8.1 | 12.7 | 2 |

E-RINGS

SDP/SI

DIN 6799
EXTERNAL

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> **MATERIAL:**
Carbon Spring Steel

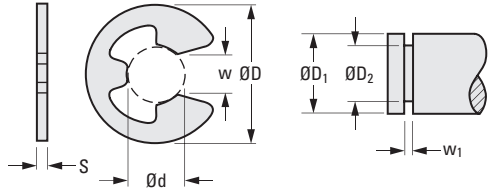
> **FINISH:**
Oil-Dipped

> **SPECIFICATIONS:**
D₂ Tolerance:
0.8 to 2.3 mm 0/-0.06
3.2 to 6 mm 0/-0.07
7 to 10 mm 0/-0.09
12 mm 0/-0.11

w₁ Tolerance:
0.24 to 0.44 mm +0.02/0
0.54 to 0.94 mm +0.03/0
1.05 to 1.35 mm +0.06/0

S Tolerance:
0.2 to 0.9 mm ± 0.02
1 to 1.3 mm ± 0.03

Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Free Ring | | | D ₁ Shaft Dia. | D ₂ Groove Dia. | w ₁ Groove Width | S Ring Thickness | Ring Thrust Strength-kg Safety Factor = 4 |
|----------------|-----------|-----------|-----------|---------------------------------|----------------------------------|-----------------------------------|------------------------|--|
| | w Gap | d Dia. | D Dia. | | | | | |
| MD6799MQB008 | 0.58 | 0.8 | 2 | 1 | 0.8 | 0.24 | 0.2 | 2 |
| MD6799MQB012 | 1.01 | 1.2 | 3 | 1.4 | 1.2 | 0.34 | 0.3 | 4 |
| MD6799MQB015 | 1.28 | 1.5 | 4 | 2 | 1.5 | 0.44 | 0.4 | 7 |
| MD6799MQB019 | 1.61 | 1.9 | 4.5 | 2.5 | 1.9 | 0.54 | 0.5 | 10 |
| MD6799MQB023 | 1.94 | 2.3 | 6 | 3 | 2.3 | 0.64 | 0.6 | 14 |
| MD6799MQB032 | 2.7 | 3.2 | 7 | 4 | 3.2 | 0.64 | 0.6 | 20 |
| MD6799MQB040 | 3.34 | 4 | 9 | 5 | 4 | 0.74 | 0.7 | 30 |
| MD6799MQB050 | 4.11 | 5 | 11 | 6 | 5 | 0.74 | 0.7 | 40 |
| MD6799MQB060 | 5.26 | 6 | 12 | 7 | 6 | 0.74 | 0.7 | 50 |
| MD6799MQB070 | 5.84 | 7 | 14 | 8 | 7 | 0.94 | 0.9 | 60 |
| MD6799MQB080 | 6.52 | 8 | 16 | 9 | 8 | 1.05 | 1 | 70 |
| MD6799MQB090 | 7.63 | 9 | 18.5 | 10 | 9 | 1.15 | 1.1 | 80 |
| MD6799MQB100 | 8.32 | 10 | 20 | 11 | 10 | 1.25 | 1.2 | 90 |
| MD6799MQB120 | 10.45 | 12 | 23 | 13 | 12 | 1.35 | 1.3 | 100 |

DIN 472
INTERNAL

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> MATERIAL:

Carbon Spring Steel

> FINISH:

Oil-Dipped

> SPECIFICATIONS:

D Tolerance:

8.7 to 17.3 mm +0.36/-0.10

18.3 to 23.5 mm +0.42/-0.13

25.9 & 26.9 mm +0.42/-0.21

d₁ Tolerance:

8.4 & 9.4 mm +0.09/0

10.4 to 17.8 mm +0.11/0

19 to 23 mm +0.13/0

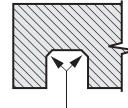
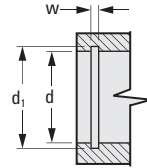
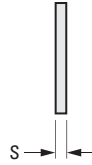
25.2 & 26.2 mm +0.21/0

S Tolerance:

0.8 mm 0/-0.05

1 & 1.2 mm 0/-0.06

Priced Per 100 Pieces



RADII 0.127 MAX.

METRIC COMPONENT

| Catalog Number | D Free Dia. | d Housing Dia. | d ₁ Groove Dia. | w Groove Width +0.14 0 | S Ring Thickness | Ring Thrust Strength kg |
|----------------|-------------|----------------|----------------------------|------------------------|------------------|-------------------------|
| MD0472MQB008 | 8.7 | 8 | 8.4 | 0.9 | 0.8 | 204 |
| MD0472MQB009 | 9.8 | 9 | 9.4 | 0.9 | 0.8 | 204 |
| MD0472MQB010 | 10.8 | 10 | 10.4 | 1.1 | 1 | 408 |
| MD0472MQB011 | 11.8 | 11 | 11.4 | 1.1 | 1 | 408 |
| MD0472MQB012 | 13 | 12 | 12.5 | 1.1 | 1 | 408 |
| MD0472MQB013 | 14.1 | 13 | 13.6 | 1.1 | 1 | 428 |
| MD0472MQB014 | 15.1 | 14 | 14.6 | 1.1 | 1 | 459 |
| MD0472MQB015 | 16.2 | 15 | 15.7 | 1.1 | 1 | 510 |
| MD0472MQB016 | 17.3 | 16 | 16.8 | 1.1 | 1 | 561 |
| MD0472MQB017 | 18.3 | 17 | 17.8 | 1.1 | 1 | 612 |
| MD0472MQB018 | 19.5 | 18 | 19 | 1.1 | 1 | 663 |
| MD0472MQB019 | 20.5 | 19 | 20 | 1.1 | 1 | 693 |
| MD0472MQB020 | 21.5 | 20 | 21 | 1.1 | 1 | 734 |
| MD0472MQB021 | 22.5 | 21 | 22 | 1.1 | 1 | 775 |
| MD0472MQB022 | 23.5 | 22 | 23 | 1.1 | 1 | 816 |
| MD0472MQB024 | 25.9 | 24 | 25.2 | 1.3 | 1.2 | 1417 |
| MD0472MQB025 | 26.9 | 25 | 26.2 | 1.3 | 1.2 | 1489 |



DIN 471
EXTERNAL

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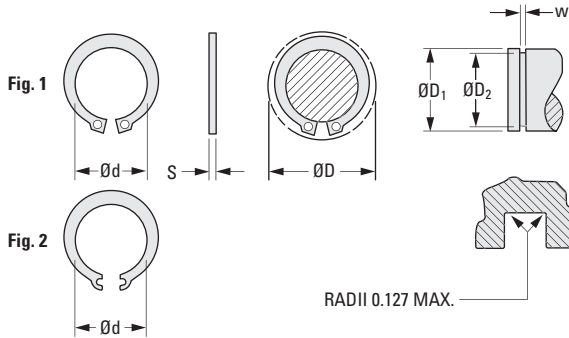
> MATERIAL:
Carbon Spring Steel

> FINISH:
Oil-Dipped

> SPECIFICATIONS:
d Tolerance:
2.7 mm +0.06/-0.12
3.7 to 5.6 mm +0.08/-0.15
6.5 to 8.4 mm +0.09/-0.18
9.3 mm +0.15/-0.30
10.2 to 14.7 mm +0.18/-0.36

D₂ Tolerance:
2.8 to 5.7 mm 0/-0.04
6.7 to 8.6 mm 0/-0.06
9.6 to 15.2 mm 0/-0.11

Priced Per 100 Pieces



METRIC COMPONENT

| Catalog Number | d Free Dia. | D Dia. Ring Clear. | D ₁ Shaft Dia. | D ₂ Groove Dia. | w Groove Width +0.14 0 | S Ring Thickness 0 -0.06 | Ring Thrust Strength-kg Safety Factor = 4 |
|----------------|-------------|--------------------|---------------------------|----------------------------|------------------------|--------------------------|---|
| *MD0471MQB003 | 2.7 | 7.4 | 3 | 2.8 | 0.5 | 0.4 | 68 |
| *MD0471MQB004 | 3.7 | 8.8 | 4 | 3.8 | | | 90 |
| *MD0471MQB005 | 4.7 | 10.7 | 5 | 4.8 | 0.7 | 0.6 | 176 |
| *MD0471MQB006 | 5.6 | 12.2 | 6 | 5.7 | 0.8 | 0.7 | 252 |
| *MD0471MQB007 | 6.5 | 13.8 | 7 | 6.7 | 0.9 | 0.8 | 341 |
| *MD0471MQB008 | 7.4 | 15.2 | 8 | 7.6 | | | 390 |
| *MD0471MQB009 | 8.4 | 16.4 | 9 | 8.6 | 1.1 | 1 | 560 |
| MD0471MQB010 | 9.3 | 17.6 | 10 | 9.6 | | | 622 |
| MD0471MQB011 | 10.2 | 18.6 | 11 | 10.5 | | | 685 |
| MD0471MQB012 | 11 | 19.6 | 12 | 11.5 | | | 747 |
| MD0471MQB013 | 11.9 | 20.8 | 13 | 12.4 | | | 809 |
| MD0471MQB014 | 12.9 | 22 | 14 | 13.4 | | | 872 |
| MD0471MQB015 | 13.8 | 23.3 | 15 | 14.3 | | | 935 |
| MD0471MQB016 | 14.7 | 24.4 | 16 | 15.2 | | | 996 |

* Supplied with slots, not holes (see Fig. 2)

See next page for larger sizes.

RETAINING RINGS

SDP/SI

DIN 471
EXTERNAL

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Carbon Spring Steel

> FINISH:

Oil-Dipped

> SPECIFICATIONS:

d Tolerance:

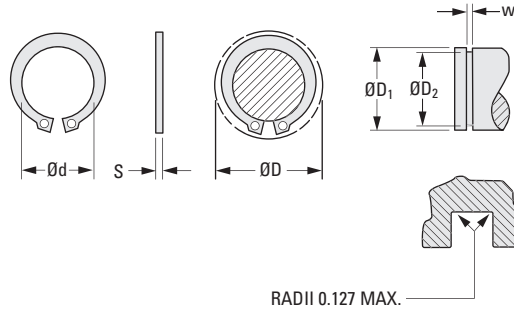
- 17.5 mm +0.10/-0.36
- 19.5 & 20.5 mm +0.13/-0.42
- 24.2 & 29.6 mm +0.21/-0.42
- 36.5 & 43.5 mm +0.39/-0.90
- 57.8 & 70.5 mm +0.46/-1.10
- 84.5 & 113 mm +0.54/-1.30

D₂ Tolerance:

- 18 mm 0/-0.11
- 20 to 24.9 mm 0/-0.21
- 30.3 to 44.5 mm 0/-0.25
- 59 & 72 mm 0/-0.3
- 86.5 mm 0/-0.35
- 116 mm 0/-0.54

w Tolerance:

- 1.3 to 2.65 mm +0.14/0
- 3.15 to 4.15 mm +0.18/0



Priced Per Each

METRIC COMPONENT

| Catalog Number | d Free Dia. | D Dia. Ring Clear. | D ₁ Shaft Dia. | D ₂ Groove Dia. | w Groove Width | S Ring Thickness 0 -0.06 | Ring Thrust Strength-kg Safety Factor = 4 |
|----------------|-------------|--------------------|---------------------------|----------------------------|----------------|--------------------------------|--|
| MD0471MQB019 | 17.5 | 27.2 | 19 | 18 | 1.3 | 1.2 | 1631 |
| MD0471MQB021 | 19.5 | 29.6 | 21 | 20 | 1.3 | 1.2 | 1811 |
| MD0471MQB022 | 20.5 | 30.8 | 22 | 21 | 1.3 | 1.2 | 1901 |
| MD0471MQB026 | 24.2 | 35.5 | 26 | 24.9 | 1.3 | 1.2 | 2475 |
| MD0471MQB032 | 29.6 | 43 | 32 | 30.3 | 1.6 | 1.5 | 4725 |
| MD0471MQB040 | 36.5 | 52.6 | 40 | 37.5 | 1.85 | 1.75 | 8572 |
| MD0471MQB047 | 43.5 | 61.6 | 47 | 44.5 | 1.85 | 1.75 | 10125 |
| MD0471MQB062 | 57.8 | 77.8 | 62 | 59 | 2.15 | 2 | 15975 |
| MD0471MQB075 | 70.5 | 92.8 | 75 | 72 | 2.65 | 2.5 | 19350 |
| MD0471MQB090 | 84.5 | 108.5 | 90 | 86.5 | 3.15 | 3* | 27225 |
| MD0471MQB120 | 113 | 143.1 | 120 | 116 | 4.15 | 4* | 41625 |

* Tolerance: 0/-0.075

See previous page for smaller sizes.

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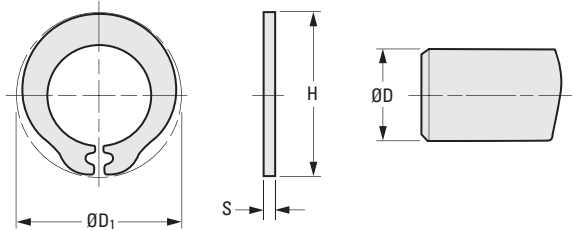
EXTERNAL
FOR AXIAL ASSEMBLY
NO GROOVE REQUIRED



> MATERIAL:
Spring Steel HRC 46...52

> FINISH:
Black Oxide

> SPECIFICATION:
Shaft Tolerance (h9): 2 to 3 mm 0/-0.025
(h11): 4 to 6 mm 0/-0.075
(h11): 7 to 10 mm 0/-0.090
(h11): 12 & 16 mm 0/-0.110
(h11): 20 mm 0/-0.130



METRIC COMPONENT

| Catalog Number | D Shaft Dia. | D ₁ Ring Clearance | H Ring Height | Thickness | | Allowable Axial Load N |
|------------------|--------------|-------------------------------|---------------|-----------|--------|------------------------|
| | | | | S | Tol. | |
| S73NW2MGR555-020 | 2 | 5.8 | 5.2 | 0.5 | ± 0.03 | 50 |
| S73NW2MGR555-025 | 2.5 | 6.5 | 5.9 | 0.6 | ± 0.03 | 60 |
| S73NW2MGR555-030 | 3 | 7.4 | 6.8 | 0.7 | ± 0.03 | 75 |
| S73NW2MGR555-040 | 4 | 9 | 8.3 | 0.8 | ± 0.03 | 100 |
| S73NW2MGR555-050 | 5 | 10.2 | 9.75 | 0.8 | ± 0.03 | 130 |
| S73NW2MGR555-060 | 6 | 11.4 | 11.1 | 1 | ± 0.04 | 170 |
| S73NW2MGR555-070 | 7 | 12.8 | 12.5 | 1 | ± 0.04 | 180 |
| S73NW2MGR555-080 | 8 | 14.8 | 14.3 | 1.2 | ± 0.04 | 200 |
| S73NW2MGR555-100 | 10 | 17.5 | 16.9 | 1.2 | ± 0.04 | 250 |
| S73NW2MGR555-120 | 12 | 21 | 20.6 | 1.5 | ± 0.05 | 300 |
| S73NW2MGR555-160 | 16 | 28.5 | 26.5 | 1.5 | ± 0.05 | 500 |
| S73NW2MGR555-200 | 20 | 35 | 33.25 | 1.75 | ± 0.05 | 750 |

PRECISION DOWEL PINS



DIN 7
PIN FIT m6

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

304 Stainless Steel

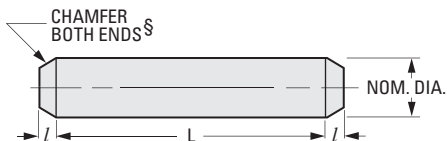
> SPECIFICATIONS:

Nominal Diameter Tolerance (m6):

2 to 3 mm +0.008/+0.002

4 to 6 mm +0.012/+0.004

Priced Per 100 Pieces



[§] Chamfer or rounded ends at SDP option

| Nominal Diameter | 2 | 2.5 | 3 | 4 | 5 | 6 |
|------------------|-----|-----|------|-----|------|-----|
| <i>l</i> | 0.3 | 0.4 | 0.45 | 0.6 | 0.75 | 0.9 |

METRIC COMPONENT CATALOG NUMBER

M D 0 0 0 7 M X 0 0 X 0

| Nominal Diameter m6 | | | | | | L Length Code mm | Length Tolerance |
|---------------------|-----|----|----|----|----|------------------|------------------|
| 2 | 2.5 | 3 | 4 | 5 | 6 | | |
| Diameter Code | | | | | | | |
| 20 | 25 | 30 | 40 | — | — | 06 | ± 0.25 |
| 20 | 25 | 30 | 40 | 50 | — | 08 | ± 0.25 |
| 20 | 25 | 30 | 40 | 50 | 60 | 10 | ± 0.25 |
| 20 | 25 | 30 | 40 | 50 | 60 | 12 | ± 0.50 |
| 20 | 25 | 30 | 40 | 50 | 60 | 14 | ± 0.50 |
| — | 25 | 30 | 40 | 50 | 60 | 16 | ± 0.50 |
| 20 | 25 | 30 | 40 | 50 | 60 | 20 | ± 0.50 |
| — | 25 | 30 | 40 | 50 | 60 | 24 | ± 0.50 |
| — | — | — | 40 | 50 | 60 | 40 | ± 0.50 |
| — | — | — | — | 50 | 60 | 50 | ± 0.50 |
| — | — | — | — | — | 60 | 60 | ± 0.75 |

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REV: 6.24.11 JC



Request Info



1-800-453-1692

www.aboveboardelectronics.com

10-39

PRECISION DOWEL PINS



DIN 6325/ISO 8734

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Hardened Steel, HRC 58-62

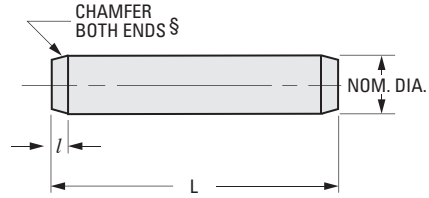
> SPECIFICATIONS:

Nominal Diameter Tolerance:

1 to 3 mm +0.008/+0.002

4 to 6 mm +0.012/+0.004

Priced Per 100 Pieces



§ Chamfer or rounded ends at SDP option.

| Nominal Diameter | 1 | 1.5 | 2 | 2.5 | 3 | 4 | 5 | 6 |
|------------------|------|------|------|------|-----|-----|-----|-----|
| l | 0.48 | 0.62 | 0.78 | 0.95 | 1.1 | 1.4 | 1.7 | 2.1 |

METRIC COMPONENT CATALOG NUMBER

MD 6325 M Q 00 X 0

| Nominal Diameter m6 | | | | | | | | L Length Code mm | Length Tolerance | |
|---------------------|-----|----|-----|----|----|----|----|---------------------------|---------------------|--------|
| 1 | 1.5 | 2 | 2.5 | 3 | 4 | 5 | 6 | | | |
| Diameter Code | | | | | | | | | | |
| 10 | - | - | - | - | - | - | - | 04 | ± 0.25 | |
| 10 | 15 | 20 | 25 | 30 | - | - | - | 05 | ± 0.25 | |
| 10 | 15 | 20 | 25 | 30 | 40 | 50 | - | 06 | ± 0.25 | |
| 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 08 | ± 0.25 | |
| 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 10 | ± 0.25 | |
| 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 12 | ± 0.50 | |
| - | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 14 | ± 0.50 | |
| - | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 16 | ± 0.50 | |
| - | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 20 | ± 0.50 | |
| - | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 24 | ± 0.50 | |
| - | - | 20 | - | 30 | - | - | - | 25* | ± 0.50 | |
| - | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 28 | ± 0.50 | |
| - | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 30 | ± 0.50 | |
| - | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 32 | ± 0.50 | |
| - | - | - | - | 30 | - | - | - | 35* | ± 0.50 | |
| - | - | 20 | 25 | 30 | 40 | 50 | 60 | 36 | ± 0.50 | |
| - | - | 20 | 25 | 30 | 40 | 50 | 60 | 40 | ± 0.50 | |
| - | - | - | - | 25 | - | 40 | 50 | 60 | 45 | ± 0.50 |
| - | - | - | - | 25 | 30 | 40 | 50 | 60 | 50 | ± 0.50 |
| - | - | - | - | - | - | 50 | 60 | 55 | ± 0.75 | |
| - | - | - | - | 30 | - | 50 | 60 | 60 | ± 0.75 | |
| - | - | - | - | - | - | - | 60 | 70 | ± 0.75 | |
| - | - | - | - | - | - | - | 60 | 80 | ± 0.75 | |

* To be discontinued when present stock is depleted.

DIN 1481/ISO 8752

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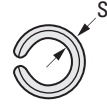
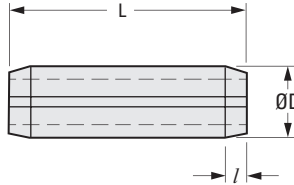
> MATERIAL:

Hardened Steel, Black Oxide Finish or
Stainless Steel



> SPECIFICATION:

Priced Per 100 Pieces



| Nominal Diameter | 1 | 1.5 | 2 | 2.5 | 3 | 4 |
|-------------------------|------|------|------|-----|-----|------|
| <i>l</i> | 0.15 | 0.25 | 0.35 | 0.4 | 0.5 | 0.65 |
| S Wall Thick. | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.8 |
| D Free Dia. | 1.2 | 1.7 | 2.3 | 2.8 | 3.3 | 4.4 |

**METRIC COMPONENT
CATALOG NUMBER**

MD1481M **0** **X0**

Material Code
Hardened Steel, Black Oxide Finish **QB**

Stainless Steel **XO**

| Nominal Diameter | | | | | | L Length Code mm |
|------------------|-------|----|-----|----|----|---------------------------|
| 1 * | 1.5 * | 2 | 2.5 | 3 | 4 | |
| Diameter Code | | | | | | |
| 10 | 15 | - | - | - | - | 04 |
| 10 | 15 | 20 | - | - | - | 05 |
| 10 | 15 | 20 | 25 | - | - | 06 |
| 10 | 15 | 20 | 25 | 30 | - | 08 |
| 10 | 15 | 20 | 25 | 30 | 40 | 10 |
| - | 15 | 20 | 25 | 30 | 40 | 12 |
| - | 15 | 20 | 25 | 30 | 40 | 14 |
| - | - | 20 | 25 | 30 | 40 | 16 |
| - | - | 20 | 25 | 30 | 40 | 18 |
| - | - | - | 25 | 30 | 40 | 20 |
| - | - | - | 25 | 30 | 40 | 22 |
| - | - | - | - | 30 | 40 | 24 |
| - | - | - | - | 30 | 40 | 26 |
| - | - | - | - | - | 40 | 28 |
| - | - | - | - | - | 40 | 30 |

*Stainless Steel is not available in 1 & 1.5 mm diameters.

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TAPER PINS

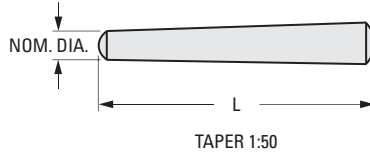


DIN 1/ISO 2339

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **SPECIFICATION:**

Priced Per 100 Pieces



> **MATERIAL:**

Steel

METRIC COMPONENT CATALOG NUMBER

MD0001MC00 X

| Nominal Diameter | | | | | | L Length Code mm |
|------------------|-----|----|-----|----|----|------------------|
| 1 | 1.5 | 2 | 2.5 | 3 | 4 | |
| Diameter Code | | | | | | |
| 10 | - | 20 | - | - | - | 008 |
| 10 | 15 | 20 | 25 | 30 | - | 010 |
| 10 | 15 | 20 | 25 | 30 | - | 012 |
| 10 | 15 | 20 | 25 | 30 | 40 | 014 |
| 10 | 15 | 20 | 25 | 30 | 40 | 016 |
| 10 | 15 | 20 | 25 | 30 | 40 | 018 |
| - | 15 | 20 | 25 | 30 | 40 | 020 |
| - | 15 | 20 | 25 | 30 | 40 | 022 |
| - | 15 | 20 | 25 | 30 | 40 | 024 |
| - | 15 | 20 | 25 | 30 | 40 | 026 |
| - | - | 20 | 25 | 30 | 40 | 028 |
| - | - | 20 | 25 | 30 | 40 | 030 |
| - | - | - | 25 | 30 | 40 | 032 |
| - | - | - | 25 | 30 | 40 | 036 |
| - | - | - | 25 | 30 | 40 | 040 |
| - | - | - | - | 30 | 40 | 045 |
| - | - | - | - | 30 | 40 | 050 |
| - | - | - | - | - | 40 | 060 |

> **MATERIAL:**

303 Stainless Steel

METRIC COMPONENT CATALOG NUMBER

MD0001MX00 X

| Nominal Diameter | | | | | | L Length Code mm |
|------------------|-----|----|-----|----|----|------------------|
| 1 | 1.5 | 2 | 2.5 | 3 | 4 | |
| Diameter Code | | | | | | |
| 10 | - | - | - | - | - | 008 |
| 10 | 15 | 20 | - | - | - | 010 |
| 10 | 15 | 20 | - | 30 | - | 012 |
| 10 | 15 | 20 | - | 30 | - | 014 |
| 10 | 15 | 20 | 25 | 30 | 40 | 016 |
| 10 | 15 | 20 | 25 | 30 | - | 018 |
| - | 15 | 20 | 25 | 30 | 40 | 020 |
| - | - | 20 | 25 | 30 | 40 | 024 |
| - | - | 20 | 25 | 30 | 40 | 026 |
| - | - | 20 | 25 | 30 | 40 | 030 |
| - | - | - | 25 | 30 | 40 | 036 |
| - | - | 20 | 25 | 30 | 40 | 040 |
| - | - | - | - | 30 | 40 | 045 |
| - | - | 20 | - | - | 40 | 050 |
| - | - | - | - | - | 40 | 060 |



CLOCKWISE
PRECISION LASER ENGRAVED

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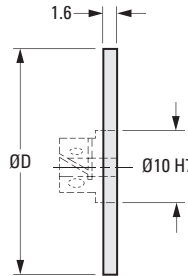
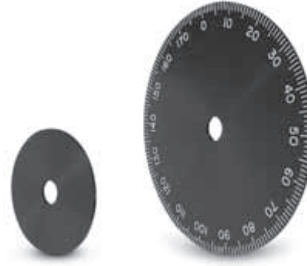
> MATERIAL:

2024 Aluminum, Black Hard Anodized

> MODIFICATION:

Assembled with hubs upon request at nominal charge.

See index for hubs



METRIC COMPONENT

| Catalog Number | D Dia. h9 | No. of Graduations | Steps in Degrees | Dial Range |
|----------------|-----------|--------------------|------------------|------------|
| S12BM1M038000 | 38 | BLANK | — | — |
| S12BM1M038180 | 38 | 180 | 2° | 0 ... 360 |
| S12BM1M038060 | 38 | 60 | 6° | 0 ... 60 |
| S12BM1M038050 | 38 | 50 | 7°12' | 0 ... 50 |
| S12BM1M038025 | 38 | 25 | 14°24' | 0 ... 25 |
| S12BM1M038010 | 38 | 10 | 36° | 0 ... 10 |
| S12BM1M051000 | 51 | BLANK | — | — |
| S12BM1M051180 | 51 | 180 | 2° | 0 ... 360 |
| S12BM1M051120 | 51 | 120 | 3° | 0 ... 120 |
| S12BM1M051060 | 51 | 60 | 6° | 0 ... 60 |
| S12BM1M051025 | 51 | 25 | 14°24' | 0 ... 25 |
| S12BM1M076000 | 76 | BLANK | — | — |
| S12BM1M076360 | 76 | 360 | 1° | 0 ... 360 |
| S12BM1M076180 | 76 | 180 | 2° | 0 ... 360 |
| S12BM1M076200 | 76 | 200 | 1°48' | 0 ... 200 |
| S12BM1M076180A | 76 | 180 | 2° | 0 ... 180 |
| S12BM1M076120 | 76 | 120 | 3° | 0 ... 120 |
| S12BM1M076100 | 76 | 100 | 3°36' | 0 ... 100 |
| S12BM1M076072 | 76 | 72 | 5° | 0 ... 72 |
| S12BM1M076050 | 76 | 50 | 7°12' | 0 ... 50 |
| S12BM1M076010 | 76 | 10 | 36° | 0 ... 10 |
| S12BM1M102000 | 101.5 | BLANK | — | — |
| S12BM1M102360 | 101.5 | 360 | 1° | 0 ... 360 |
| S12BM1M102180 | 101.5 | 180 | 2° | 0 ... 360 |
| S12BM1M102200 | 101.5 | 200 | 1°48' | 0 ... 200 |
| S12BM1M102180A | 101.5 | 180 | 2° | 0 ... 180 |
| S12BM1M102100 | 101.5 | 100 | 3°36' | 0 ... 100 |
| S12BM1M100010 | 101.5 | 10 | 36° | 0 ... 10 |

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PRECISION DRUM DIALS

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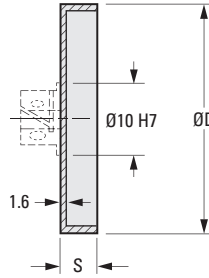
COUNTERCLOCKWISE
PRECISION LASER ENGRAVED



> MATERIAL:
2024 Aluminum, Black Hard Anodized

> MODIFICATION:
Assembled with hubs upon request
at nominal charge.

See index for hubs



METRIC COMPONENT

| Catalog Number | S | D Dia. | No. of Graduations | Steps in Degrees | Dial Range |
|----------------|------|--------|--------------------|------------------|------------|
| S51BM2M076360 | 12.5 | 76 | 360 | 1° | 0 ... 360 |
| S51BM2M076180 | 12.5 | 76 | 180 | 2° | 0 ... 360 |
| S51BM2M063180 | 12.5 | 63 | 180 | 2° | 0 ... 360 |

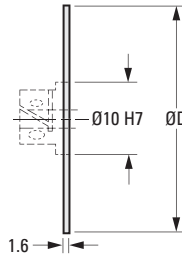
PRECISION DISC DIALS

COUNTERCLOCKWISE
PRECISION LASER ENGRAVED

> MATERIAL:
2024 Aluminum, Black Hard Anodized

> MODIFICATION:
Assembled with hubs upon request
at nominal charge.

See index for hubs



METRIC COMPONENT

| Catalog Number | D Dia. h9 | No. of Graduations | Steps in Degrees | Dial Range |
|----------------|-----------|--------------------|------------------|------------|
| S12BM2M076360 | 76 | 360 | 1° | 0 ... 360 |
| S12BM2M076180 | 76 | 180 | 2° | 0 ... 360 |
| S12BM2M076100 | 76 | 100 | 3°36' | 0 ... 100 |
| S12BM2M102360 | 101.5 | 360 | 1° | 0 ... 360 |
| S12BM2M102180 | 101.5 | 180 | 2° | 0 ... 360 |

CLOCKWISE
PRECISION LASER ENGRAVED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



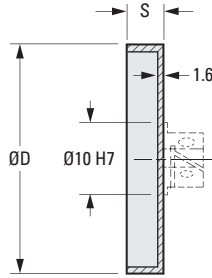
> MATERIAL:

2024 Aluminum, Black Hard Anodized

> MODIFICATION:

Assembled with hubs upon request at nominal charge.

See index for hubs



METRIC COMPONENT

| Catalog Number | S | D Dia. h12 | No. of Graduations | Steps in Degrees | Dial Range |
|----------------|------|------------|--------------------|------------------|------------|
| S51BM1M025000 | 10 | 25 | BLANK | — | — |
| S51BM1M025100 | 10 | 25 | 100 | 3°36' | 0 ... 100 |
| S51BM1M025180 | 10 | 25 | 180 | 2° | 0 ... 360 |
| S51BM1M038000 | 10 | 38 | BLANK | — | — |
| S51BM1M038060 | 10 | 38 | 60 | 6° | 0 ... 60 |
| S51BM1M038100 | 10 | 38 | 100 | 3°36' | 0 ... 100 |
| S51BM1M038180 | 10 | 38 | 180 | 2° | 0 ... 360 |
| S51BM1M051000 | 10 | 50.5 | BLANK | — | — |
| S51BM1M051050 | 10 | 50.5 | 50 | 7°12' | 0 ... 50 |
| S51BM1M051025 | 10 | 50.5 | 25 | 14°24' | 0 ... 25 |
| S51BM1M051010 | 10 | 50.5 | 10 | 36° | 0 ... 10 |
| S51BM1M051180 | 10 | 50.5 | 180 | 2° | 0 ... 180 |
| S51BM1M051180A | 10 | 50.5 | 180 | 2° | 0 ... 360 |
| S51BM1M063000 | 12.5 | 63 | BLANK | — | — |
| S51BM1M063200 | 12.5 | 63 | 200 | 1°48' | 0 ... 200 |
| S51BM1M063180 | 12.5 | 63 | 180 | 2° | 0 ... 180 |
| S51BM1M063360 | 12.5 | 63 | 360 | 1° | 0 ... 360 |
| S51BM1M063100 | 12.5 | 76 | 100 | 3°36' | 0 ... 100 |
| S51BM1M076000 | 12.5 | 76 | BLANK | — | — |
| S51BM1M076180 | 12.5 | 76 | 180 | 2° | 0 ... 180 |
| S51BM1M076100 | 12.5 | 76 | 100 | 3°36' | 0 ... 100 |
| S51BM1M076010 | 12.5 | 76 | 10 | 36° | 0 ... 10 |
| S51BM1M076360 | 12.5 | 76 | 360 | 1° | 0 ... 360 |
| S51BM1M076180A | 12.5 | 76 | 180 | 2° | 0 ... 360 |

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VERNIER AND DRUM OR DISC DIAL SETS



VERNIER AND DRUM DIAL SETS

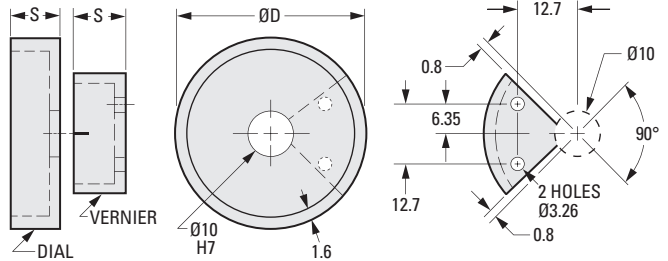
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PRECISION LASER ENGRAVED

► MATERIAL:

2024 Aluminum, Black Hard Anodized

Other sets available on special order.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. h12 | S | No. of Graduations | Steps in Degrees | Dial Range | Vernier Reading |
|----------------|------------|------|--------------------|------------------|------------|-----------------|
| S9922YM038180 | 38 | 10 | 180 | 2° | 0 ... 360 | 12 arc min. |
| S9922YM050180 | 50.5 | 10 | 180 | 2° | 0 ... 360 | 12 arc min. |
| S9922YM063360 | 63 | 12.5 | 360 | 1° | 0 ... 360 | 6 arc min. |
| S9922YM076360 | 76 | 12.5 | 360 | 1° | 0 ... 360 | 6 arc min. |

VERNIER AND DISC DIAL SETS

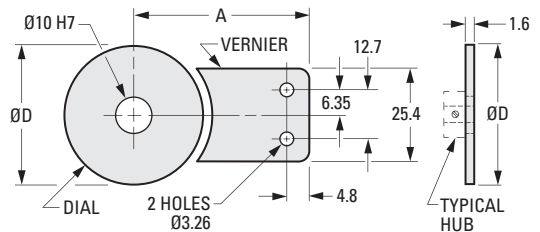
PRECISION LASER ENGRAVED

► MATERIAL:

2024 Aluminum, Black Hard Anodized

Other sets available on special order.

See index for hubs



The projections shown are per ISO convention.

METRIC COMPONENT

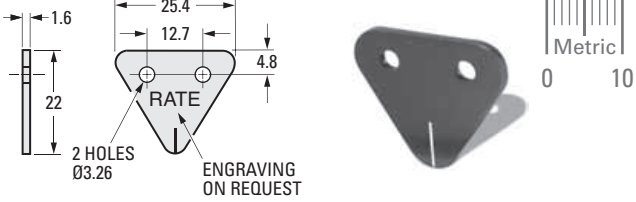
| Catalog Number | D Dia. h10 | A | No. of Graduations | Steps in Degrees | Dial Range | Vernier Reading |
|----------------|------------|----|--------------------|------------------|------------|-----------------|
| S9909YM038180 | 38 | 45 | 180 | 2° | 0 ... 360 | 12 arc min. |
| S9909YM051180 | 51 | 50 | 180 | 2° | 0 ... 360 | 12 arc min. |
| S9909YM102360 | 101.5 | 75 | 360 | 1° | 0 ... 360 | 6 arc min. |

PRECISION INDEX

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PRECISION LASER ENGRAVED

> **MATERIAL:**
Clear Plexiglass



METRIC COMPONENT

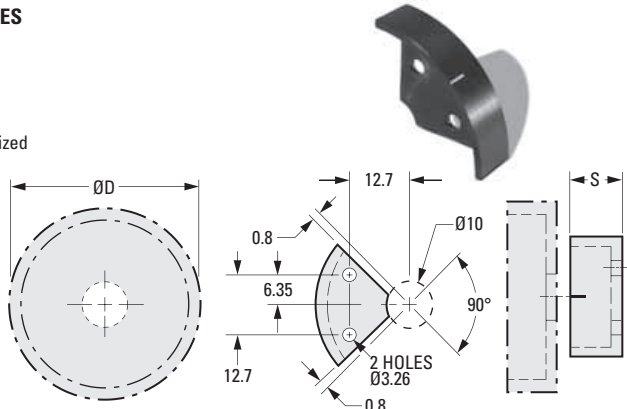
| Catalog Number | Material |
|----------------|------------------|
| S6900YMHE-1 | Clear Plexiglass |

PRECISION DRUM DIAL INDEXES

PRECISION LASER ENGRAVED

> **MATERIAL:**
2024 Aluminum, Black Hard Anodized

Use with S51BM1M and S51BM2M Series Drum Dials.



METRIC COMPONENT

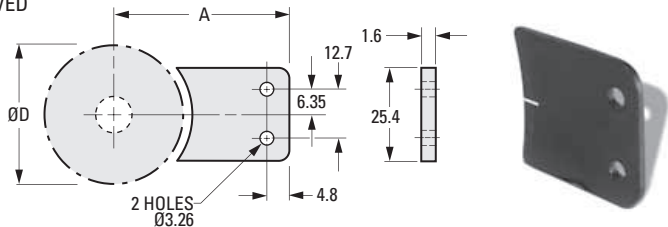
| Catalog Number | S | D Dia. of Drum |
|----------------|------|----------------|
| S6900YMHF-1 | 9.5 | 38 |
| S6900YMHF-2 | 9.5 | 50.5 |
| S6900YMHF-3 | 12.7 | 63 |
| S6900YMHF-4 | 12.7 | 76 |

PRECISION DISC DIAL INDEXES

PRECISION LASER ENGRAVED

> **MATERIAL:**
2024 Aluminum,
Black Hard Anodized

Use with S12BM1M and S12BM2M Series Disc Dials.



METRIC COMPONENT

| Catalog Number | A | D Dia. of Dial |
|----------------|------|----------------|
| S6900YMHG-2 | 51.1 | 51 |
| S6900YMHG-3 | 63.8 | 76 |
| S6900YMHG-4 | 76.5 | 101.5 |

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- A

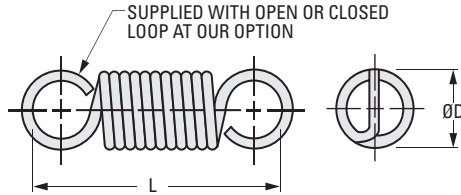
CROSSOVER LOOPS OR MACHINE LOOPS
CLOSE WOUND

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

302 Stainless Steel, Spring Temper

Supplied right- or left-hand wound at our option.
Loop orientation may vary.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | Wire Dia. | L Free Length | Max. Load N | Max. Extension | Spring Rate N/mm |
|------------------|--------|-----------|---------------|-------------|----------------|------------------|
| S78ESYM025025009 | 2.5 | 0.25 | 9.5 | 2.04 | 13.49 | 0.14 |
| S78ESYM025025012 | 2.5 | 0.25 | 12.5 | 2.04 | 21.24 | 0.089 |
| S78ESYM025025015 | 2.5 | 0.25 | 15.5 | 2.04 | 28.79 | 0.066 |
| S78ESYM030035017 | 3 | 0.35 | 17 | 4.08 | 18.04 | 0.202 |
| S78ESYM030035021 | 3 | 0.35 | 21 | 4.08 | 23.93 | 0.152 |
| S78ESYM030035025 | 3 | 0.35 | 25 | 4.08 | 29.99 | 0.121 |
| S78ESYM030035030 | 3 | 0.35 | 30 | 4.08 | 37.15 | 0.097 |
| S78ESYM030035035 | 3 | 0.35 | 35 | 4.08 | 45.26 | 0.08 |
| S78ESYM045045017 | 4.5 | 0.45 | 17 | 5.71 | 20.32 | 0.255 |
| S78ESYM045045021 | 4.5 | 0.45 | 21 | 5.71 | 28.91 | 0.179 |
| S78ESYM045045025 | 4.5 | 0.45 | 25 | 5.71 | 37.43 | 0.138 |
| S78ESYM045045030 | 4.5 | 0.45 | 30 | 5.71 | 48.71 | 0.107 |
| S78ESYM045045035 | 4.5 | 0.45 | 35 | 5.71 | 59.27 | 0.087 |
| S78ESYM045060017 | 4.5 | 0.6 | 17 | 13.08 | 10 | 1.153 |
| S78ESYM045060021 | 4.5 | 0.6 | 21 | 13.08 | 14.08 | 0.818 |
| S78ESYM045060025 | 4.5 | 0.6 | 25 | 13.08 | 18.16 | 0.635 |
| S78ESYM045060030 | 4.5 | 0.6 | 30 | 13.08 | 23.3 | 0.495 |
| S78ESYM045060035 | 4.5 | 0.6 | 35 | 13.08 | 28.42 | 0.406 |
| S78ESYM063055019 | 6.3 | 0.55 | 19 | 7.33 | 23.44 | 0.283 |
| S78ESYM063055022 | 6.3 | 0.55 | 22 | 7.33 | 32.25 | 0.206 |
| S78ESYM063055025 | 6.3 | 0.55 | 25 | 7.33 | 40.96 | 0.162 |
| S78ESYM063055030 | 6.3 | 0.55 | 30 | 7.33 | 55.45 | 0.12 |
| S78ESYM063055035 | 6.3 | 0.55 | 35 | 7.33 | 69.95 | 0.095 |
| S78ESYM063075019 | 6.3 | 0.75 | 19 | 16.33 | 10.35 | 1.381 |
| S78ESYM063075022 | 6.3 | 0.75 | 22 | 16.33 | 13.95 | 1.025 |
| S78ESYM063075025 | 6.3 | 0.75 | 25 | 16.33 | 17.54 | 0.816 |
| S78ESYM063075030 | 6.3 | 0.75 | 30 | 16.33 | 23.51 | 0.608 |
| S78ESYM063075035 | 6.3 | 0.75 | 35 | 16.33 | 29.53 | 0.484 |
| S78ESYM063080019 | 6.3 | 0.8 | 19 | 20.41 | 9.19 | 1.927 |
| S78ESYM063080022 | 6.3 | 0.8 | 22 | 20.41 | 12.33 | 1.437 |
| S78ESYM063080025 | 6.3 | 0.8 | 25 | 20.41 | 15.45 | 1.147 |
| S78ESYM063080030 | 6.3 | 0.8 | 30 | 20.41 | 20.68 | 0.856 |
| S78ESYM063080035 | 6.3 | 0.8 | 35 | 20.41 | 25.89 | 0.684 |

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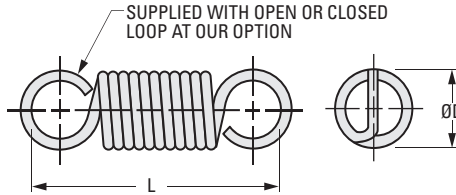
CROSSOVER LOOPS OR MACHINE LOOPS
CLOSE WOUND

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

302 Stainless Steel, Spring Temper

Supplied right- or left-hand wound at our option.
Loop orientation may vary.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | Wire Dia. | L Free Length | Max. Load N | Max. Extension | Spring Rate N/mm |
|------------------|--------|-----------|---------------|-------------|----------------|------------------|
| S78ESYM080075025 | 8 | 0.75 | 25 | 13.91 | 26.25 | 0.477 |
| S78ESYM080075030 | 8 | 0.75 | 30 | 13.91 | 37.99 | 0.33 |
| S78ESYM080075035 | 8 | 0.75 | 35 | 13.91 | 49.63 | 0.252 |
| S78ESYM080075040 | 8 | 0.75 | 40 | 13.91 | 61.32 | 0.204 |
| S78ESYM095095025 | 9.5 | 0.95 | 25 | 21.66 | 15.78 | 1.205 |
| S78ESYM095095030 | 9.5 | 0.95 | 30 | 21.66 | 24.68 | 0.77 |
| S78ESYM095095035 | 9.5 | 0.95 | 35 | 21.66 | 33.58 | 0.566 |
| S78ESYM095095040 | 9.5 | 0.95 | 40 | 21.66 | 42.58 | 0.446 |
| S78ESYM095120025 | 9.5 | 1.2 | 25 | 44.98 | 10.06 | 3.903 |
| S78ESYM095120030 | 9.5 | 1.2 | 30 | 44.98 | 15.3 | 2.567 |
| S78ESYM095120035 | 9.5 | 1.2 | 35 | 44.98 | 20.54 | 1.913 |
| S78ESYM095120040 | 9.5 | 1.2 | 40 | 44.98 | 25.79 | 1.523 |
| S78ESYM095150025 | 9.5 | 1.5 | 25 | 81.63 | 5.71 | 12.165 |
| S78ESYM095150030 | 9.5 | 1.5 | 30 | 81.63 | 8.43 | 8.24 |
| S78ESYM095150035 | 9.5 | 1.5 | 35 | 81.63 | 11.15 | 6.23 |
| S78ESYM095150040 | 9.5 | 1.5 | 40 | 81.63 | 13.87 | 5.01 |
| S78ESYM095150045 | 9.5 | 1.5 | 45 | 81.63 | 15.59 | 4.188 |
| S78ESYM125120030 | 12.5 | 1.2 | 30 | 32.65 | 17.03 | 1.728 |
| S78ESYM125120040 | 12.5 | 1.2 | 40 | 32.65 | 36.87 | 0.798 |
| S78ESYM125120050 | 12.5 | 1.2 | 50 | 32.65 | 56.65 | 0.519 |
| S78ESYM125120060 | 12.5 | 1.2 | 60 | 32.65 | 76.39 | 0.385 |
| S78ESYM125160030 | 12.5 | 1.6 | 30 | 73.51 | 8.95 | 7.116 |
| S78ESYM125160035 | 12.5 | 1.6 | 35 | 73.51 | 13.52 | 4.712 |
| S78ESYM125160040 | 12.5 | 1.6 | 40 | 73.51 | 18.09 | 3.522 |
| S78ESYM125160045 | 12.5 | 1.6 | 45 | 73.51 | 22.65 | 2.813 |
| S78ESYM125160050 | 12.5 | 1.6 | 50 | 73.51 | 27.22 | 2.34 |
| S78ESYM125160055 | 12.5 | 1.6 | 55 | 73.51 | 31.78 | 2.004 |
| S78ESYM190160050 | 19 | 1.6 | 50 | 47.4 | 42.08 | 1.02 |
| S78ESYM190160060 | 19 | 1.6 | 60 | 47.4 | 67.15 | 0.639 |
| S78ESYM190160070 | 19 | 1.6 | 70 | 47.4 | 92.2 | 0.466 |
| S78ESYM190160080 | 19 | 1.6 | 80 | 47.4 | 117.18 | 0.367 |
| S78ESYM190160090 | 19 | 1.6 | 90 | 47.4 | 142.09 | 0.302 |
| S78ESYM190160100 | 19 | 1.6 | 100 | 47.4 | 167.12 | 0.257 |
| S78ESYM190160130 | 19 | 1.6 | 130 | 47.4 | 243.08 | 0.177 |

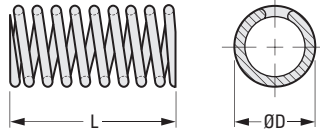
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SQUARED AND GROUND ENDS
RIGHT-HAND WOUND

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► MATERIAL:

302 Stainless Steel, Spring Temper



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | Wire Dia. | L Free Length | Approx. Load at Solid Hgt. N | Approx. Solid Height | Spring Rate N/mm |
|-------------------|--------|-----------|---------------|------------------------------|----------------------|------------------|
| *S78CSYM022025006 | 2.25 | 0.25 | 6.5 | 2.92 | 2.4 | 0.69 |
| *S78CSYM022025008 | 2.25 | 0.25 | 8 | 2.92 | 2.8 | 0.55 |
| *S78CSYM022025009 | 2.25 | 0.25 | 9.5 | 2.92 | 3.2 | 0.46 |
| *S78CSYM022025011 | 2.25 | 0.25 | 11 | 2.92 | 3.6 | 0.39 |
| *S78CSYM022025012 | 2.25 | 0.25 | 12.5 | 2.92 | 4 | 0.34 |
| S78CSYM030035006 | 3 | 0.35 | 6.5 | 6.78 | 2.4 | 1.59 |
| S78CSYM030035008 | 3 | 0.35 | 8 | 6.78 | 2.8 | 1.26 |
| S78CSYM030035009 | 3 | 0.35 | 9.5 | 6.78 | 3.2 | 1.05 |
| S78CSYM030035011 | 3 | 0.35 | 11 | 6.78 | 3.6 | 0.89 |
| S78CSYM030035012 | 3 | 0.35 | 12.5 | 6.78 | 4 | 0.78 |
| S78CSYM030050006 | 3 | 0.5 | 6.5 | 17.08 | 3.76 | 6.25 |
| S78CSYM030050008 | 3 | 0.5 | 8 | 17.08 | 4.52 | 4.91 |
| S78CSYM030050009 | 3 | 0.5 | 9.5 | 17.08 | 5.26 | 4.04 |
| S78CSYM030050011 | 3 | 0.5 | 11 | 17.08 | 6.02 | 3.43 |
| S78CSYM030050012 | 3 | 0.5 | 12.5 | 17.08 | 6.76 | 2.98 |
| S78CSYM046035008 | 4.6 | 0.35 | 8 | 4.08 | 1.6 | 0.65 |
| S78CSYM046035011 | 4.6 | 0.35 | 11 | 4.08 | 1.98 | 0.46 |
| S78CSYM046035014 | 4.6 | 0.35 | 14 | 4.08 | 2.36 | 0.36 |
| S78CSYM046035017 | 4.6 | 0.35 | 17 | 4.08 | 2.74 | 0.29 |
| S78CSYM046045008 | 4.6 | 0.45 | 8 | 9 | 2.31 | 1.58 |
| S78CSYM046045011 | 4.6 | 0.45 | 11 | 9 | 2.9 | 1.11 |
| S78CSYM046045014 | 4.6 | 0.45 | 14 | 9 | 3.51 | 0.86 |
| S78CSYM046045017 | 4.6 | 0.45 | 17 | 9 | 4.09 | 0.7 |
| S78CSYM046055008 | 4.6 | 0.55 | 8 | 14.7 | 3.23 | 3.08 |
| S78CSYM046055011 | 4.6 | 0.55 | 11 | 14.7 | 4.14 | 2.14 |
| S78CSYM046055014 | 4.6 | 0.55 | 14 | 14.7 | 5.05 | 1.65 |
| S78CSYM046055017 | 4.6 | 0.55 | 17 | 14.7 | 5.99 | 1.33 |
| S78CSYM046060008 | 4.6 | 0.6 | 8 | 19.58 | 3.56 | 4.42 |
| S78CSYM046060011 | 4.6 | 0.6 | 11 | 19.58 | 4.6 | 3.07 |
| S78CSYM046060014 | 4.6 | 0.6 | 14 | 19.58 | 5.66 | 2.35 |
| S78CSYM046060017 | 4.6 | 0.6 | 17 | 19.58 | 6.71 | 1.91 |

* Ends squared, not ground

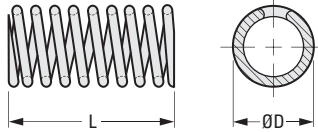
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SQUARED AND GROUND ENDS
RIGHT-HAND WOUND

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► MATERIAL:

302 Stainless Steel, Spring Temper



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | Wire Dia. | L Free Length | Approx. Load at Solid Hgt. N | Approx. Solid Height | Spring Rate N/mm |
|------------------|--------|-----------|---------------|------------------------------|----------------------|------------------|
| S78CSYM046080008 | 4.6 | 0.8 | 8 | 46.56 | 4.95 | 15.31 |
| S78CSYM046080011 | 4.6 | 0.8 | 11 | 46.56 | 6.53 | 10.42 |
| S78CSYM046080014 | 4.6 | 0.8 | 14 | 46.56 | 8.1 | 7.9 |
| S78CSYM046080017 | 4.6 | 0.8 | 17 | 46.56 | 9.68 | 6.36 |
| S78CSYM060060011 | 6 | 0.6 | 11 | 12.25 | 3.73 | 1.68 |
| S78CSYM060060014 | 6 | 0.6 | 14 | 12.25 | 4.5 | 1.29 |
| S78CSYM060060017 | 6 | 0.6 | 17 | 12.25 | 5.26 | 1.04 |
| S78CSYM060080011 | 6 | 0.8 | 11 | 36.74 | 4.93 | 6.05 |
| S78CSYM060080014 | 6 | 0.8 | 14 | 36.74 | 5.97 | 4.58 |
| S78CSYM060080017 | 6 | 0.8 | 17 | 36.74 | 7.04 | 3.69 |
| S78CSYM060110011 | 6 | 1.1 | 11 | 78.47 | 7.49 | 22.31 |
| S78CSYM060110014 | 6 | 1.1 | 14 | 78.47 | 9.3 | 16.64 |
| S78CSYM060110017 | 6 | 1.1 | 17 | 78.47 | 11.1 | 13.26 |
| S78CSYM060110019 | 6 | 1.1 | 19 | 78.47 | 12.29 | 11.69 |
| S78CSYM060110022 | 6 | 1.1 | 22 | 78.47 | 14.1 | 9.91 |
| S78CSYM075080011 | 7.5 | 0.8 | 11 | 27.82 | 3.96 | 3.96 |
| S78CSYM075080014 | 7.5 | 0.8 | 14 | 27.82 | 4.72 | 3 |
| S78CSYM075080017 | 7.5 | 0.8 | 17 | 27.82 | 5.49 | 2.42 |
| S78CSYM075080021 | 7.5 | 0.8 | 21 | 27.82 | 6.5 | 1.92 |
| S78CSYM075080025 | 7.5 | 0.8 | 25 | 27.82 | 7.52 | 1.59 |
| S78CSYM075095011 | 7.5 | 0.95 | 11 | 44.98 | 5.05 | 7.55 |
| S78CSYM075095014 | 7.5 | 0.95 | 14 | 44.98 | 6.07 | 5.67 |
| S78CSYM075095017 | 7.5 | 0.95 | 17 | 44.98 | 7.11 | 4.55 |
| S78CSYM075095021 | 7.5 | 0.95 | 21 | 44.98 | 8.51 | 3.6 |
| S78CSYM075095025 | 7.5 | 0.95 | 25 | 44.98 | 9.88 | 2.97 |
| S78CSYM090110017 | 9 | 1.1 | 17 | 58.81 | 6.99 | 5.87 |
| S78CSYM090110021 | 9 | 1.1 | 21 | 58.81 | 8.28 | 4.62 |
| S78CSYM090110025 | 9 | 1.1 | 25 | 58.81 | 9.58 | 3.82 |
| S78CSYM120140025 | 12 | 1.4 | 25 | 73.55 | 10.49 | 5.06 |
| S78CSYM150160030 | 15 | 1.6 | 30 | 84.97 | 11.4 | 4.57 |
| S78CSYM183200040 | 18.3 | 2 | 40 | 143.77 | 15.04 | 5.76 |

Continued from the previous page

TORSION SPRINGS

SDP/SI

180° DEFLECTION
LEFT-HAND WOUND

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

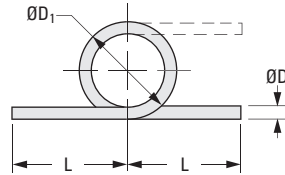


> MATERIAL:

302 Stainless Steel, Spring Temper

> SPECIFICATION:

Right-Hand wound and special springs available on special order.



METRIC COMPONENT

| Catalog Number | D Wire Dia. | Mandrel Size | D ₁ O.D. | L | Min.* Axial Space | Torque N • cm |
|------------------|-------------|--------------|---------------------|-------|-------------------|---------------|
| S78TSYM030180027 | 0.3 | 2.77 | 4.24 | 12.7 | 1.5 | 0.5 |
| S78TSYM038180027 | 0.38 | 2.77 | 4.67 | 19.05 | 1.9 | 1.1 |
| S78TSYM046180035 | 0.46 | 3.56 | 5.51 | 19.05 | 2.77 | 1.6 |
| S78TSYM053180039 | 0.53 | 3.96 | 6.3 | 25.4 | 3.22 | 2.6 |
| S78TSYM064180051 | 0.64 | 5.16 | 7.75 | 25.4 | 3.84 | 4.4 |
| S78TSYM076180063 | 0.76 | 6.35 | 10.03 | 25.4 | 4.6 | 7.2 |
| S78TSYM089180071 | 0.89 | 7.14 | 11.46 | 31.75 | 5.38 | 11.3 |
| S78TSYM102180087 | 1.02 | 8.71 | 13.18 | 50.8 | 6.15 | 15.8 |
| S78TSYM122180103 | 1.22 | 10.31 | 15.72 | 50.8 | 7.42 | 29 |
| S78TSYM137180116 | 1.37 | 11.68 | 16.61 | 50.8 | 9.91 | 36.9 |
| S78TSYM160180138 | 1.6 | 13.89 | 19.48 | 50.8 | 11.68 | 58 |

* Space required on application to allow for operation of the spring.

DIN 1469 TYPE C

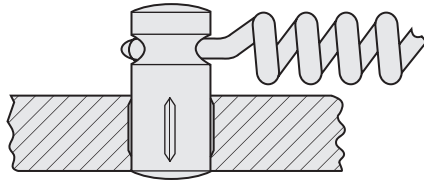
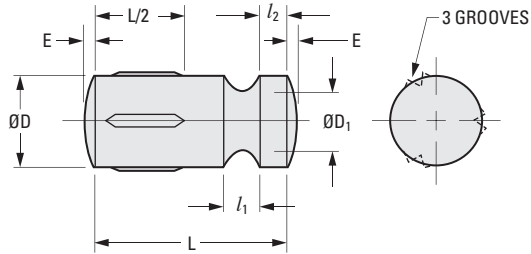
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Carbon Steel

> SPECIFICATION:

Priced Per 100 Pieces



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | D Dia. | Hole Tolerance | L | l ₁ | D ₁ Dia. | l ₂ | E Crown Height |
|----------------|--------|----------------|----|----------------|---------------------|----------------|----------------|
| S7270YM3010 | 3 | H9 +0.025/0 | 10 | 1 | 1.5 | 1 | 0.4 |
| S7270YM3012 | 3 | H9 +0.025/0 | 12 | 1 | 1.5 | 1 | 0.4 |
| S7270YM3016 | 3 | H9 +0.025/0 | 16 | 1 | 1.5 | 1 | 0.4 |
| S7270YM3020 | 3 | H9 +0.025/0 | 20 | 1 | 1.5 | 1 | 0.4 |
| S7270YM3025 | 3 | H9 +0.025/0 | 25 | 1 | 1.5 | 1 | 0.4 |
| S7270YM4012 | 4 | H11 +0.075/0 | 12 | 1.4 | 2.4 | 1.4 | 0.5 |
| S7270YM4016 | 4 | H11 +0.075/0 | 16 | 1.4 | 2.4 | 1.4 | 0.5 |
| S7270YM4020 | 4 | H11 +0.075/0 | 20 | 1.4 | 2.4 | 1.4 | 0.5 |
| S7270YM4025 | 4 | H11 +0.075/0 | 25 | 1.4 | 2.4 | 1.4 | 0.5 |
| S7270YM4030 | 4 | H11 +0.075/0 | 30 | 1.4 | 2.4 | 1.4 | 0.5 |
| S7270YM5012 | 5 | H11 +0.075/0 | 12 | 1.6 | 2.8 | 1.6 | 0.6 |
| S7270YM5016 | 5 | H11 +0.075/0 | 16 | 1.6 | 2.8 | 1.6 | 0.6 |
| S7270YM5020 | 5 | H11 +0.075/0 | 20 | 1.6 | 2.8 | 1.6 | 0.6 |
| S7270YM5025 | 5 | H11 +0.075/0 | 25 | 1.6 | 2.8 | 1.6 | 0.6 |
| S7270YM5030 | 5 | H11 +0.075/0 | 30 | 1.6 | 2.8 | 1.6 | 0.6 |
| S7270YM6016 | 6 | H11 +0.075/0 | 16 | 1.6 | 3.8 | 1.6 | 0.8 |
| S7270YM6020 | 6 | H11 +0.075/0 | 20 | 1.6 | 3.8 | 1.6 | 0.8 |
| S7270YM6025 | 6 | H11 +0.075/0 | 25 | 1.6 | 3.8 | 1.6 | 0.8 |
| S7270YM6030 | 6 | H11 +0.075/0 | 30 | 1.6 | 3.8 | 1.6 | 0.8 |

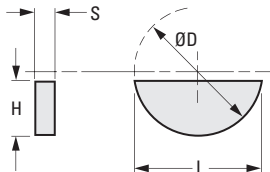
WOODRUFF KEYS



DIN 6888

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
Carbon Steel



METRIC COMPONENT

| Catalog Number | Width | | Height | | L Length | D Dia. | For Shaft Dia. | |
|----------------|-------|----------|--------|---------|----------|--------|----------------|----|
| | S | Tol. | H | Tol. | | | Over | To |
| A 9C49M01507 | 1.5 | 0/-0.025 | 2.6 | 0/-0.1 | 6.76 | 7 | 4 | 6 |
| A 9C49M02007 | 2 | 0/-0.025 | 2.6 | 0/-0.1 | 6.76 | 7 | 6 | 8 |
| A 9C49M02010 | 2 | 0/-0.025 | 3.7 | 0/-0.12 | 9.66 | 10 | 6 | 8 |
| A 9C49M02013 | 2 | 0/-0.025 | 5 | 0/-0.12 | 12.65 | 13 | 6 | 8 |
| A 9C49M02510 | 2.5 | 0/-0.025 | 3.7 | 0/-0.12 | 9.66 | 10 | 8 | 10 |
| A 9C49M03010 | 3 | 0/-0.025 | 3.7 | 0/-0.12 | 9.66 | 10 | 8 | 10 |
| A 9C49M03013 | 3 | 0/-0.025 | 5 | 0/-0.12 | 12.65 | 13 | 8 | 10 |
| A 9C49M03016 | 3 | 0/-0.025 | 6.5 | 0/-0.15 | 15.72 | 16 | 8 | 10 |
| A 9C49M03019 | 3 | 0/-0.025 | 7.5 | 0/-0.15 | 18.57 | 19 | 8 | 10 |
| A 9C49M04013 | 4 | 0/-0.03 | 5 | 0/-0.12 | 12.65 | 13 | 10 | 12 |
| A 9C49M04016 | 4 | 0/-0.03 | 6.5 | 0/-0.15 | 15.72 | 16 | 10 | 12 |
| A 9C49M04019 | 4 | 0/-0.03 | 7.5 | 0/-0.15 | 18.57 | 19 | 10 | 12 |
| A 9C49M04022 | 4 | 0/-0.03 | 9 | 0/-0.15 | 21.63 | 22 | 10 | 12 |
| A 9C49M05016 | 5 | 0/-0.03 | 6.5 | 0/-0.15 | 15.72 | 16 | 12 | 17 |
| A 9C49M05019 | 5 | 0/-0.03 | 7.5 | 0/-0.15 | 18.57 | 19 | 12 | 17 |
| A 9C49M05022 | 5 | 0/-0.03 | 9 | 0/-0.15 | 21.63 | 22 | 12 | 17 |
| A 9C49M05025 | 5 | 0/-0.03 | 10 | 0/-0.15 | 24.49 | 25 | 12 | 17 |
| A 9C49M06022 | 6 | 0/-0.03 | 9 | 0/-0.15 | 21.63 | 22 | 17 | 22 |
| A 9C49M06025 | 6 | 0/-0.03 | 10 | 0/-0.15 | 24.49 | 25 | 17 | 22 |
| A 9C49M06028 | 6 | 0/-0.03 | 11 | 0/-0.18 | 27.35 | 28 | 17 | 22 |
| A 9C49M08028 | 8 | 0/-0.036 | 11 | 0/-0.18 | 27.35 | 28 | 22 | 30 |
| A 9C49M08032 | 8 | 0/-0.036 | 13 | 0/-0.18 | 31.43 | 32 | 22 | 30 |
| A 9C49M10032 | 10 | 0/-0.036 | 13 | 0/-0.18 | 31.43 | 32 | 30 | 38 |
| A 9C49M10045 | 10 | 0/-0.036 | 16 | 0/-0.18 | 43.08 | 45 | 30 | 38 |

DIN 6885A
ROUND ENDED

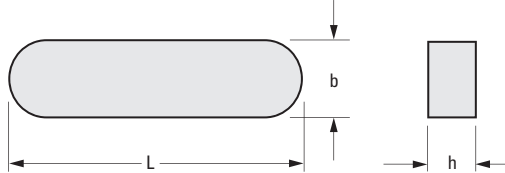
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► **MATERIAL:**
Carbon Steel

► **SPECIFICATION:**
b Tolerance:

- 3 mm 0/-0.025
- 4 to 6 mm 0/-0.030
- 8 & 10 mm 0/-0.036
- 12, 14 & 16 mm 0/-0.043



METRIC COMPONENT

| Catalog Number | b Width h9 | h Height | L Length |
|----------------|------------------|-------------|-------------|
| A 9C39M030306 | 3 | 3 | 6 |
| A 9C39M030308 | 3 | 3 | 8 |
| A 9C39M030310 | 3 | 3 | 10 |
| A 9C39M030314 | 3 | 3 | 14 |
| A 9C39M030320 | 3 | 3 | 20 |
| A 9C39M030325 | 3 | 3 | 25 |
| A 9C39M040408 | 4 | 4 | 8 |
| A 9C39M040410 | 4 | 4 | 10 |
| A 9C39M040414 | 4 | 4 | 14 |
| A 9C39M040416 | 4 | 4 | 16 |
| A 9C39M040420 | 4 | 4 | 20 |
| A 9C39M040425 | 4 | 4 | 25 |
| A 9C39M050510 | 5 | 5 | 10 |
| A 9C39M050514 | 5 | 5 | 14 |
| A 9C39M050516 | 5 | 5 | 16 |
| A 9C39M050520 | 5 | 5 | 20 |
| A 9C39M050525 | 5 | 5 | 25 |
| A 9C39M050536 | 5 | 5 | 36 |
| A 9C39M060610 | 6 | 6 | 10 |
| A 9C39M060614 | 6 | 6 | 14 |
| A 9C39M060616 | 6 | 6 | 16 |
| A 9C39M060620 | 6 | 6 | 20 |
| A 9C39M060628 | 6 | 6 | 28 |

| Catalog Number | b Width h9 | h Height | L Length |
|----------------|------------------|-------------|-------------|
| A 9C39M060636 | 6 | 6 | 36 |
| A 9C39M080710 | 8 | 7 | 10 |
| A 9C39M080716 | 8 | 7 | 16 |
| A 9C39M080720 | 8 | 7 | 20 |
| A 9C39M080725 | 8 | 7 | 25 |
| A 9C39M080736 | 8 | 7 | 36 |
| A 9C39M080745 | 8 | 7 | 45 |
| A 9C39M100825 | 10 | 8 | 25 |
| A 9C39M100828 | 10 | 8 | 28 |
| A 9C39M100836 | 10 | 8 | 36 |
| A 9C39M100845 | 10 | 8 | 45 |
| A 9C39M100856 | 10 | 8 | 56 |
| A 9C39M120828 | 12 | 8 | 28 |
| A 9C39M120836 | 12 | 8 | 36 |
| A 9C39M120845 | 12 | 8 | 45 |
| A 9C39M120856 | 12 | 8 | 56 |
| A 9C39M120863 | 12 | 8 | 63 |
| A 9C39M140936 | 14 | 9 | 36 |
| A 9C39M140945 | 14 | 9 | 45 |
| A 9C39M140956 | 14 | 9 | 56 |
| A 9C39M140963 | 14 | 9 | 63 |
| A 9C39M161056 | 16 | 10 | 56 |
| A 9C39M161063 | 16 | 10 | 63 |



PATENTED
TWO-PIECE FASTENING DEVICE

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► **A SUPERIOR WAY TO FASTEN ROTATING COMPONENTS:**

Excelling because of its simplicity, it contains all structural features in only two parts. This new development is the Shaftloc® - a patented device (United States Patent No. 5,067,846), - manufactured and marketed exclusively by Stock Drive Products.

► **SHAFTLOC® HAS ONLY TWO PARTS:**

A slotted outer sleeve and a slotted inner sleeve, both of which have hexagonal heads. The outer sleeve is cylindrical on its outside diameter, and threaded on its inside diameter. Conversely, the inner sleeve is threaded on its outside diameter, and cylindrical on its inside diameter. The thread is unique in that it is not symmetrical and that it creates a continuous inclined surface.

► **HOW SHAFTLOC® WORKS:**

The shallow angle of the thread produces large amplifications of forces, resulting in substantial torque transmission capability between the component and the shaft.

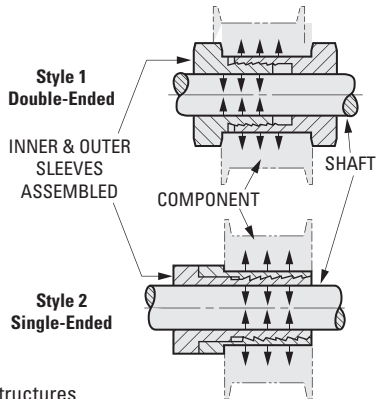
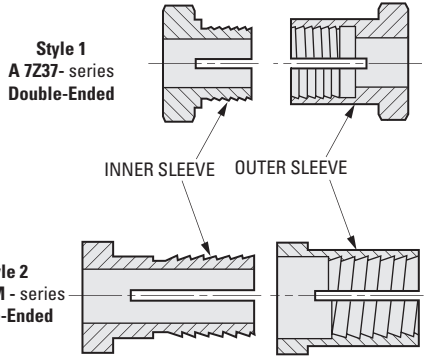
Style 1: Double-Ended, when the two sleeves are threaded into each other with a component placed between them, tightening the sleeves will cause the outer one to expand and the inner one to contract.

Style 2: Single-Ended, when the two sleeves are threaded into each other and slipped into the component, tightening the sleeves will cause the outer one to expand and the inner one to contract.

► **DISTINCT ADVANTAGES OF SHAFTLOC® OVER OTHER FASTENING DEVICES:**

- Ability to be used for stationary breadboard or production structures
- Simplicity of design - few parts
- Easy repositioning or synchronizing of rotating components
- Ease of assembly
- Applicability to small shaft diameters
- Availability in all stainless construction
- No marring of shafts
- Low cost

These products are shown on pages 4-4 thru 4-6 in this catalog and 4-3 and 4-4 in catalog 790, Inch Drive Components. Please contact our Engineering Department for sizes not shown in this catalog.





Gearheads Size 12
pg. 11-3



Gearheads Size 12
pg. 11-4



Gearheads Size 16
pgs. 11-5 & 11-6



Gearheads Size 20
pg. 11-7



Speed Reducers Size 20
pg. 11-8



Gearheads Size 22
pg. 11-9



Gearheads Size 27
pg. 11-10



Speed Reducers Size 27
pg. 11-11



Gearheads Size 37
pg. 11-12



Gearheads Size 42
pg. 11-13



Speed Reducers & Gearheads Size 42
pg. 11-14



Gearheads Size 43
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Gearheads Size 48
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Gearheads Size 60
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Speed Reducers & Gearheads Size 60
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PRX Planetary Gearheads Size 60
pg. 11-22



RTX Planetary Gearheads Size 60
pg. 11-23



PRX Planetary Gearheads Size 90
pg. 11-24



RTX Planetary Gearheads Size 90
pg. 11-25



T-Series Planetary Gearheads Size 60
pg. 11-28

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T-Series Right Angle Planetary Gearheads Size 60 pg. 11-30



T-Series Planetary Gearheads Size 90 pg. 11-32



T-Series Right Angle Planetary Gearheads Size 90 pg. 11-34



T-Series Planetary Gearheads Size 115 pg. 11-36



T-Series Right Angle Planetary Gearheads Size 115 pg. 11-38

Technical Data:

- Planetary Gearhead Types-pg. 11-19
- Planetary Gear Systems-pg. 11-20
- PRX and RTX Planetary Gearheads-pg. 11-21
- T-Series Gearhead Mounting Instruction-pg. 11-26
- Gearhead to Motor Mounting Information-pg. 11-27

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12 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Gearhead - Housing - Stainless Steel
Mating Motor Pinion - Brass

> OPERATING TEMPERATURE:

-10°C to +60°C

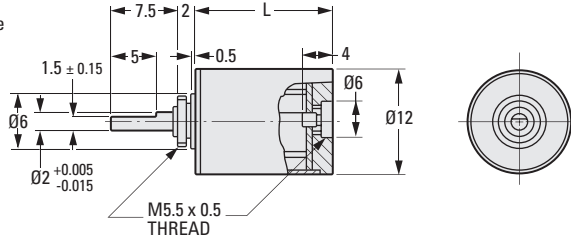
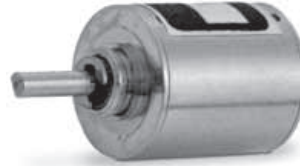
> FEATURES:

Small size, lightweight and compact design.
 The input and output shafts have the same center line.
 Decreased noise and smooth rotation due to the use of high-precision gears.

> SPECIFICATIONS:

Radial Play of Shaft: ≤ 0.07 mm
Thrust Play of Shaft: ≤ 0.2 mm
Shaft Rotation - Same direction relative to input

These gearheads can be used as replacements for **D33S12M...** and **D33S57M28F...** Series gearmotors.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Input Pinion Code | L Length | Efficiency % | Maximum Torque N • mm (oz. in.) | |
|------------------|------------|-------------------|----------|--------------|---------------------------------|------------|
| | | | | | Continuous | Momentary |
| Gearheads | | | | | | |
| A 2G12M0032 | 32 | 1 | 14.2 | 66 | 9.8 (1.4) | 29.4 (4.2) |
| A 2G12M0052 | 52 | 1 | 14.2 | 66 | 14.7 (2.1) | 34.3 (4.9) |
| A 2G12M0070 | 70 | 1 | 14.2 | 66 | 14.7 (2.1) | 34.3 (4.9) |
| A 2G12M0103 | 103 | 2 | 15.6 | 60 | 19.6 (2.8) | 39.2 (5.5) |
| A 2G12M0144 | 144 | 2 | 15.6 | 60 | 19.6 (2.8) | 39.2 (5.5) |

* To be discontinued when present stock is depleted. Similar gearheads are offered as **A 2G12MRB...**

| Catalog Number | Pinion Code | Number of Teeth | Module | P.D. | O.D. | Bore +0.012 +0.004 | Face Width |
|--|-------------|-----------------|--------|-------|-------|--------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | | |
| A 1B 8MYSH1012 | 1 | 12 | 0.15 | 1.905 | 2.205 | 1 | 2.5 |
| A 1B 8MYSH1013 | 2 | 13 | 0.15 | 2.055 | 2.355 | 1 | 2.5 |

12 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Gearhead - Housing - Zinc Die Cast
Mating Motor Pinion - Brass



> OPERATING TEMPERATURE:

-10°C to +60°C

> FEATURES:

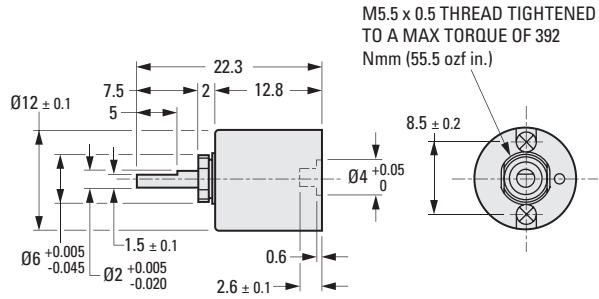
Small size, lightweight and compact design.
 The input and output shafts have the same centerline.
 Decreased noise and smooth rotation due to the use of high-precision gears.



> SPECIFICATIONS:

Radial Play of Shaft: ≤ 0.07 mm
Thrust Play of Shaft: ≤ 0.25 mm

These gearheads can be used as replacements for **D33S12M13...** and **D33S12M18...** Series gearmotors.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Shaft Rotation | Efficiency % | Maximum Torque Nmm (ozf in.) |
|------------------|------------|----------------|--------------|------------------------------|
| Gearheads | | | | |
| A 2G12MRB0007 | 7.49 | CW | 81 | 4.9 (.69) |
| A 2G12MRB0016 | 15.56 | CCW | 73 | 11.8 (1.67) |
| A 2G12MRB0031 | 31.12 | CW | 66 | 24.5 (3.47) |
| A 2G12MRB0052 | 52.25 | CW | 66 | 24.5 (3.47) |
| A 2G12MRB0072 | 71.99 | CW | 66 | 24.5 (3.47) |
| A 2G12MRB0100 | 100.22 | CCW | 59 | 24.5 (3.47) |
| A 2G12MRB0144 | 143.99 | CCW | 59 | 24.5 (3.47) |
| A 2G12MRB0209 | 208.79 | CCW | 59 | 24.5 (3.47) |

* To be discontinued when present stock is depleted.

NOTE: CW - same as that of a motor; CCW - opposite of that of a motor

| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore +0.012 +0.004 | Face Width |
|--|-----------------|--------|-------|-------|--------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1B 8MYSH1012 | 12 | 0.15 | 1.905 | 2.205 | 1 | 2.5 |

16 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Gearhead - Housing - Stainless Steel
Mating Motor Pinion - Brass

> OPERATING TEMPERATURE:

-10°C to +60°C

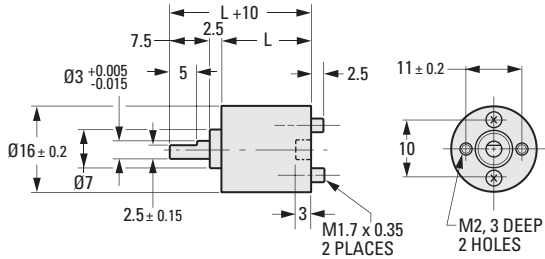
> FEATURES:

Small size, lightweight and compact design.
 The input and output shafts have the same center line.
 Decreased noise and smooth rotation due to the use of high-precision gears.
 Stable quality.

> SPECIFICATIONS:

Radial Play of Shaft: ≤ 0.07 mm
Thrust Play of Shaft: ≤ 0.25 mm
Shaft Rotation - Same direction relative to input

These gearheads can be used as replacements for **D33S16M...**, **D33S57M25H...** and **D33S57M35H...** Series gearmotors.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L Length | Efficiency % | Maximum Torque N • mm (oz. in.) | |
|------------------|------------|----------|--------------|---------------------------------|------------|
| | | | | Continuous | Momentary |
| Gearheads | | | | | |
| A 2G16M0010 | 10.24 | 14.75 | 66 | 9.8 (1.4) | 29 (4.1) |
| A 2G16M0019 | 19.36 | 14.75 | 66 | 9.8 (1.4) | 29 (4.1) |
| A 2G16M0030 | 29.9 | 14.75 | 66 | 20 (2.8) | 59 (8.4) |
| A 2G16M0042 | 41.53 | 14.75 | 66 | 20 (2.8) | 59 (8.4) |
| A 2G16M0050 | 50.32 | 14.75 | 66 | 29 (4.1) | 88 (12.5) |
| A 2G16M0063 | 62.66 | 14.75 | 66 | 29 (4.1) | 88 (12.5) |
| A 2G16M0103 | 102.59 | 17.05 | 53 | 49 (6.9) | 147 (20.8) |
| A 2G16M0157 | 156.52 | 17.05 | 53 | 49 (6.9) | 147 (20.8) |
| A 2G16M0208 | 208.03 | 17.05 | 53 | 49 (6.9) | 147 (20.8) |
| A 2G16M0258 | 257.57 | 17.05 | 53 | 49 (6.9) | 147 (20.8) |
| A 2G16M0366 | 365.94 | 17.05 | 53 | 49 (6.9) | 147 (20.8) |
| A 2G16M0540 | 539.82 | 17.05 | 53 | 49 (6.9) | 147 (20.8) |

* To be discontinued when present stock is depleted. Similar gearheads are offered as **A 2G16MA...** See Index.

| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore +0.012 +0.004 | Face Width |
|--|-----------------|--------|------|------|--------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1B 8MYSH1015 | 15 | 0.15 | 2.31 | 2.61 | 1.5 | 3.2 |

20 mm DIAMETER

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> MATERIAL:

- Gearhead - Housing** - Zinc Die Cast
- Shaft & Gears** - Steel
- Bearings** - Bronze
- Mating Motor Pinion** - Brass

> OPERATING TEMPERATURE:

-10°C to +60°C

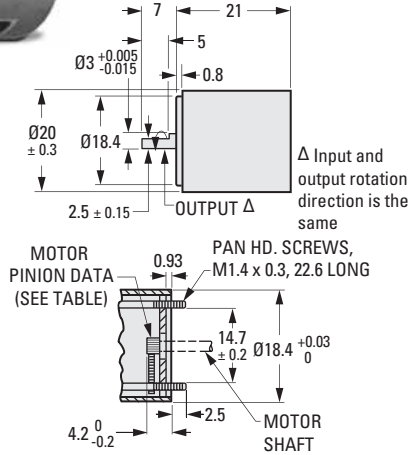
> SPECIFICATIONS:

- Radial Play of Shaft:** ≤ 0.1 mm
- Thrust Play of Shaft:** ≤ 0.18 mm
- Backlash:** 2° at output shaft

> WEIGHT:

17 g

Gearhead (Mounting Screws supplied)
These gearheads can be used as replacements for **D33S20ME20...D** and **D33S57M20K...** Series gearmotors.



METRIC COMPONENT

| Catalog Number * | Gear Ratio to 1 | Input Pinion Code | Efficiency % | Maximum Torque N • mm (oz. in.) | |
|----------------------------|-----------------|-------------------|--------------|---------------------------------|------------|
| | | | | Continuous | Momentary |
| Gearheads with flat | | | | | |
| A 2G10M0005F | 5 | 2 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2G10M0020F | 20 | 2 | 66 | 9.8 (1.4) | 49 (6.9) |
| A 2G10M0025F | 25 | 2 | 68 | 15 (2.1) | 74 (10.5) |
| A 2G10M0040F | 40 | 3 | 68 | 15 (2.1) | 74 (10.5) |
| A 2G10M0045F | 45 | 3 | 68 | 15 (2.1) | 74 (10.5) |
| A 2G10M0050F | 50 | 2 | 66 | 20 (2.8) | 98 (13.9) |
| A 2G10M0060F | 60 | 2 | 66 | 20 (2.8) | 98 (13.9) |
| A 2G10M0075F | 75 | 1 | 66 | 20 (2.8) | 98 (13.9) |
| A 2G10M0100F | 100 | 2 | 53 | 29 (4.1) | 147 (20.8) |
| A 2G10M0120F | 120 | 3 | 53 | 29 (4.1) | 147 (20.8) |
| A 2G10M0180F | 180 | 3 | 53 | 29 (4.1) | 147 (20.8) |
| A 2G10M0200F | 200 | 2 | 53 | 29 (4.1) | 147 (20.8) |
| A 2G10M0250F | 250 | 2 | 53 | 29 (4.1) | 147 (20.8) |
| A 2G10M0300F | 300 | 2 | 53 | 49 (6.9) | 245 (34.7) |
| A 2G10M0360F | 360 | 2 | 53 | 49 (6.9) | 245 (34.7) |
| A 2G10M0450F | 450 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2G10M0500F | 500 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2G10M0750F | 750 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2G10M1000F | 1000 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2G10M1500F | 1500 | 2 | 48 | 49 (6.9) | 245 (34.7) |
| A 2G10M1800F | 1800 | 3 | 48 | 49 (6.9) | 245 (34.7) |
| A 2G10M3000F | 3000 | 2 | 48 | 49 (6.9) | 245 (34.7) |
| A 2G10M4000F | 4000 | 2 | 48 | 49 (6.9) | 245 (34.7) |
| A 2G10M6000F | 6000 | 3 | 48 | 49 (6.9) | 245 (34.7) |

* To be discontinued when present stock is depleted.

| Catalog Number | Pinion Code | Number of Teeth | Module | P.D. | O.D. | Bore -0.01 -0.03 | Face Width |
|--|-------------|-----------------|--------|------|------|------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | | |
| A 1B 8MYS02014 | 1 | 14 | 0.2 | 2.9 | 3.3 | 2 | 2.8 |
| A 1B 8MYS02015 | 2 | 15 | 0.25 | 3.75 | 4.25 | 2 | 2.8 |
| A 1B 8MYS02020 | 3 | 20 | 0.2 | 4.1 | 4.5 | 2 | 2.8 |

20 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Housing - Zinc Die Cast
- Flange - Machined Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

➤ **OPERATING TEMPERATURE:**

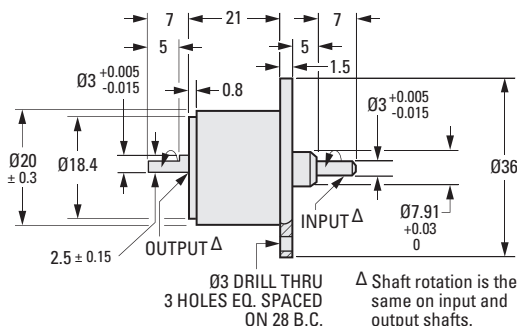
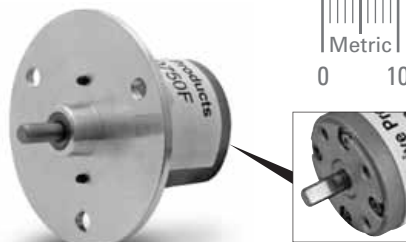
-10°C to +60°C

➤ **SPECIFICATIONS:**

- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.18 mm
- Backlash: 2° at output shaft

➤ **WEIGHT:**

20 g



METRIC COMPONENT

| Catalog Number ** | Ratio to 1 | Input Pinion Code* | Efficiency % | Maximum Torque N • mm (oz. in.) | |
|---------------------------------|------------|--------------------|--------------|---------------------------------|------------|
| | | | | Continuous | Momentary |
| Speed Reducers with Flat | | | | | |
| A 2210M0005F | 5 | 2 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2210M0010F | 10 | 1 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2210M0015F | 15 | 3 | 66 | 9.8 (1.4) | 49 (6.9) |
| A 2210M0020F | 20 | 2 | 66 | 9.8 (1.4) | 49 (6.9) |
| A 2210M0025F | 25 | 2 | 68 | 15 (2.1) | 74 (10.5) |
| A 2210M0030F | 30 | 3 | 68 | 15 (2.1) | 74 (10.5) |
| A 2210M0040F | 40 | 3 | 68 | 15 (2.1) | 74 (10.5) |
| A 2210M0045F | 45 | 3 | 68 | 15 (2.1) | 74 (10.5) |
| A 2210M0050F | 50 | 2 | 66 | 20 (2.8) | 98 (13.9) |
| A 2210M0060F | 60 | 2 | 66 | 20 (2.8) | 98 (13.9) |
| A 2210M0075F | 75 | 1 | 66 | 20 (2.8) | 98 (13.9) |
| A 2210M0100F | 100 | 2 | 53 | 29 (4.1) | 147 (20.8) |
| A 2210M0120F | 120 | 3 | 53 | 29 (4.1) | 147 (20.8) |
| A 2210M0180F | 180 | 3 | 53 | 29 (4.1) | 147 (20.8) |
| A 2210M0200F | 200 | 3 | 53 | 29 (4.1) | 147 (20.8) |
| A 2210M0250F | 250 | 2 | 53 | 29 (4.1) | 147 (20.8) |
| A 2210M0300F | 300 | 2 | 53 | 49 (6.9) | 245 (34.7) |
| A 2210M0360F | 360 | 2 | 53 | 49 (6.9) | 245 (34.7) |
| A 2210M0450F | 450 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2210M0500F | 500 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2210M0750F | 750 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2210M1000F | 1000 | 1 | 53 | 49 (6.9) | 245 (34.7) |
| A 2210M1500F | 1500 | 3 | 48 | 49 (6.9) | 245 (34.7) |
| A 2210M1800F | 1800 | 3 | 48 | 49 (6.9) | 245 (34.7) |
| A 2210M3000F | 3000 | 2 | 48 | 49 (6.9) | 245 (34.7) |
| A 2210M4000F | 4000 | 2 | 48 | 49 (6.9) | 245 (34.7) |
| A 2210M6000F | 6000 | 3 | 48 | 49 (6.9) | 245 (34.7) |

* See pages 11-7 for pinion.

** To be discontinued when present stock is depleted.

22 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Housing - Stainless Steel
Mating Motor Pinion - Steel

> OPERATING TEMPERATURE:

-10°C to +60°C

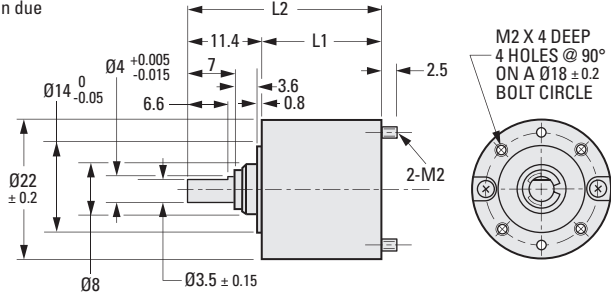
> FEATURES:

Small size, lightweight and compact design.
 The input and output shafts have the same center line.
 Decreased noise and smooth rotation due to the use of high-precision gears.
 Stable quality.

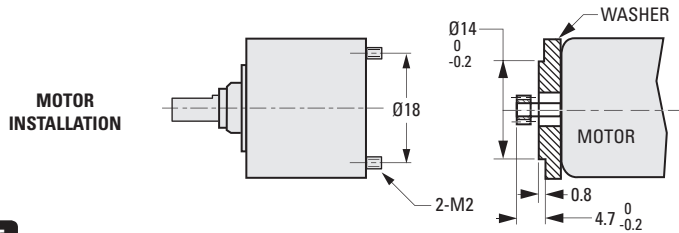
> SPECIFICATIONS:

Radial Play of Shaft: ≤ 0.10 mm
Thrust Play of Shaft: ≤ 0.35 mm

These gearheads can be used as replacements for **D33S57M46C...**, **D33S22MG12...** and **D33S22MG24...** Series gearmotors. See index.



The projections shown are per ISO convention.



METRIC COMPONENT

| Catalog Number | Ratio to 1 | L1 Length | L2 Overall Length | Efficiency % | Max. Continuous Torque N • m (lb. in.) |
|------------------|------------|-----------|-------------------|--------------|--|
| Gearheads | | | | | |
| A 2G22MG0005D | 4.5 | 15.5 | 26.9 | 81 | 0.029 (.257) |
| A 2G22MG0016D | 15.58 | 15.5 | 26.9 | 66 | 0.049 (.434) |
| A 2G22MG0020D | 20.25 | 15.5 | 26.9 | 66 | 0.049 (.434) |
| A 2G22MG0024D | 23.88 | 15.5 | 26.9 | 66 | 0.049 (.434) |
| A 2G22MG0062D | 61.5 | 18.7 | 30.1 | 53 | 0.098 (.867) |
| A 2G22MG0107D | 107.48 | 18.7 | 30.1 | 53 | 0.098 (.867) |
| A 2G22MG0243D | 242.79 | 21.9 | 33.3 | 43 | 0.147 (1.30) |
| A 2G22MG0326D | 326.46 | 21.9 | 33.3 | 43 | 0.147 (1.30) |
| A 2G22MG0410D | 410.06 | 21.9 | 33.3 | 43 | 0.196 (1.73) |
| A 2G22MG0484D | 483.66 | 21.9 | 33.3 | 43 | 0.196 (1.73) |

| Catalog Number | No. of Teeth | Module | P.D. | O.D. | Bore -0.01 -0.03 | Face Width | For Ratio to 1 |
|--|--------------|--------|------|------|------------------|------------|-------------------------------|
| Mating Motor Pinion for Gearheads | | | | | | | |
| A 1C 8MYSH2016 | 16 | 0.25 | 3.9 | 4.4 | 2 | 2.5 | 4.5, 20.25, 410.06 |
| A 1C 8MYSH2019 | 19 | 0.25 | 4.75 | 5.25 | 2 | 2.5 | 15.58, 61.5, 242.79 |
| A 1C 8MYSH2013 | 13 | 0.25 | 3.25 | 3.75 | 2 | 2.5 | 23.88, 107.48, 326.46, 483.66 |

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27 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

› **MATERIAL:**

- Housing - Zinc Die Cast
- Shaft & Gears - Steel
- Bearings - Bronze
- Mating Motor Pinion - Brass

› **OPERATING TEMPERATURE:**

-10°C to +60°C

› **SPECIFICATIONS:**

- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.18 mm
- Backlash: 1-1/2° at output shaft

› **WEIGHT:**

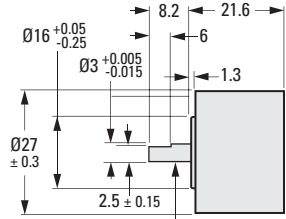
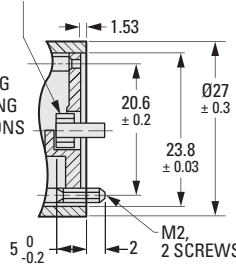
30 g

Gearhead (Mounting Screws supplied)
 These gearheads can be used as replacements for D33S57M46D... Series Gearmotors.



MOTOR PINION DATA (SEE TABLE)

HOUSING MOUNTING DIMENSIONS



OUTPUT *

* Input and output rotation direction is the same

METRIC COMPONENT

| Catalog Number ** | Gear Ratio to 1 | Efficiency % | Maximum Torque N • mm (oz. • in.) | |
|----------------------------|-----------------|--------------|-----------------------------------|--------------|
| | | | Continuous | Momentary |
| Gearheads with Flat | | | | |
| A 2G13M0005F | 5 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2G13M0008F | 8 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2G13M0010F | 10 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2G13M0020F | 20 | 66 | 14.7 (2.1) | 73.5 (10.4) |
| A 2G13M0025F | 25 | 66 | 14.7 (2.1) | 73.5 (10.4) |
| A 2G13M0030F | 30 | 66 | 19.6 (2.8) | 98.1 (13.9) |
| A 2G13M0040F | 40 | 66 | 19.6 (2.8) | 98.1 (13.9) |
| A 2G13M0050F | 50 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2G13M0060F | 60 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2G13M0075F | 75 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2G13M0080F | 80 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2G13M0090F | 90 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2G13M0100F | 100 | 66 | 58.8 (8.3) | 294.2 (41.7) |
| A 2G13M0120F | 120 | 66 | 58.8 (8.3) | 294.2 (41.7) |
| A 2G13M0150F | 150 | 66 | 58.8 (8.3) | 294.2 (41.7) |
| A 2G13M0200F | 200 | 53 | 58.8 (8.3) | 294.2 (41.7) |
| A 2G13M0300F | 300 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2G13M0500F | 500 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2G13M0600F | 600 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2G13M0750F | 750 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2G13M1000F | 1000 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2G13M1200F | 1200 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2G13M1500F | 1500 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2G13M2000F | 2000 | 43 | 58.8 (8.3) | 294.2 (41.7) |
| A 2G13M3000F | 3000 | 43 | 58.8 (8.3) | 294.2 (41.7) |
| A 2G13M3600F | 3600 | 43 | 58.8 (8.3) | 294.2 (41.7) |
| A 2G13M6000F | 6000 | 43 | 58.8 (8.3) | 294.2 (41.7) |

** To be discontinued when present stock is depleted.

| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore -0.01 -0.03 | Face Width |
|--|-----------------|--------|------|------|------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1B 8MYS02020 | 20 | 0.2 | 4.1 | 4.5 | 2 | 2.8 |

27 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing - Zinc Die Cast
- Flange - Machined Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

> OPERATING TEMPERATURE:

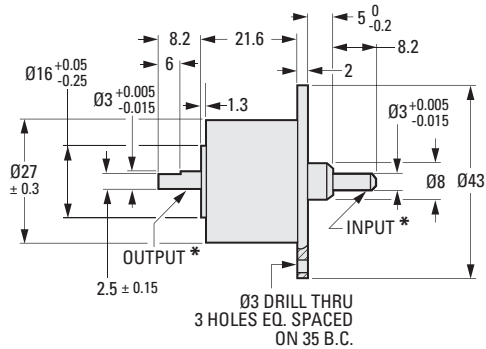
-10°C to +60°C

> SPECIFICATIONS:

- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.18 mm
- Backlash: 1-1/2° at output shaft

> WEIGHT:

40 g



METRIC COMPONENT

| Catalog Number ** | Ratio to 1 | Efficiency % | Maximum Torque N • mm (oz. in.) | |
|---------------------------------|------------|--------------|---------------------------------|--------------|
| | | | Continuous | Momentary |
| Speed Reducers with Flat | | | | |
| A 2Z13M0005F | 5 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2Z13M0008F | 8 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2Z13M0010F | 10 | 81 | 9.8 (1.4) | 49 (6.9) |
| A 2Z13M0020F | 20 | 66 | 14.7 (2.1) | 73.5 (10.4) |
| A 2Z13M0025F | 25 | 66 | 14.7 (2.1) | 73.5 (10.4) |
| A 2Z13M0030F | 30 | 66 | 19.6 (2.8) | 98.1 (13.9) |
| A 2Z13M0040F | 40 | 66 | 19.6 (2.8) | 98.1 (13.9) |
| A 2Z13M0050F | 50 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2Z13M0060F | 60 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2Z13M0075F | 75 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2Z13M0080F | 80 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2Z13M0090F | 90 | 66 | 39.2 (5.6) | 196 (27.8) |
| A 2Z13M0100F | 100 | 66 | 58.8 (8.3) | 294.2 (41.7) |
| A 2Z13M0120F | 120 | 66 | 58.8 (8.3) | 294.2 (41.7) |
| A 2Z13M0150F | 150 | 66 | 58.8 (8.3) | 294.2 (41.7) |
| A 2Z13M0200F | 200 | 53 | 58.8 (8.3) | 294.2 (41.7) |
| A 2Z13M0300F | 300 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2Z13M0500F | 500 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2Z13M0600F | 600 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2Z13M0750F | 750 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2Z13M1000F | 1000 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2Z13M1200F | 1200 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2Z13M1500F | 1500 | 53 | 98.1 (13.9) | 490 (69.4) |
| A 2Z13M2000F | 2000 | 43 | 58.8 (8.3) | 294.2 (41.7) |
| A 2Z13M3000F | 3000 | 43 | 58.8 (8.3) | 294.2 (41.7) |
| A 2Z13M3600F | 3600 | 43 | 58.8 (8.3) | 294.2 (41.7) |
| A 2Z13M6000F | 6000 | 43 | 58.8 (8.3) | 294.2 (41.7) |

* Shaft rotation is the same on input and output shaft.
 ** To be discontinued when present stock is depleted.

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37 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Housing - Die Cast Aluminum
- Gears - Steel
- Mating Motor Pinion - Brass

➤ **OPERATING TEMPERATURE:**

-10°C to +60°C

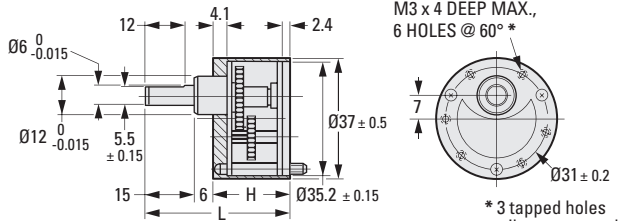
➤ **FEATURES:**

- Small size and high output.
- The input and output shafts have different center lines.
- Decreased noise and smooth rotation due to the use of high-precision gears.
- Stable quality.
- Excellent durability.

➤ **SPECIFICATIONS:**

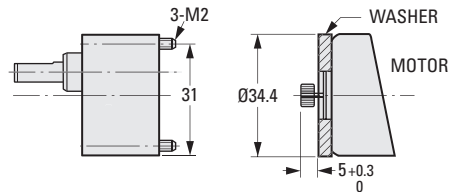
- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.35 mm

These gearheads can be used as replacements for **D33S35M...** and **D33S57M35A...** Series gearmotors.



The projections shown are per ISO convention.

MOTOR INSTALLATION



METRIC COMPONENT

| Catalog Number | Gear Ratio to 1 | H | L | Efficiency % | Maximum Torque N • m (lb • in.) | |
|----------------------------|-----------------|------|------|--------------|---------------------------------|-------------|
| | | | | | Continuous | Momentary |
| Gearheads with Flat | | | | | | |
| A 2G23MA0006 | 6 | 19 | 40 | 81 | 0.10 (0.9) | 0.29 (2.6) |
| A 2G23MA0010 | 10 | 19 | 40 | 81 | 0.10 (0.9) | 0.29 (2.6) |
| A 2G23MA0018 | 18 | 21.5 | 42.5 | 73 | 0.10 (0.9) | 0.29 (2.6) |
| A 2G23MA0030 | 30 | 21.5 | 42.5 | 73 | 0.20 (1.8) | 0.59 (5.2) |
| A 2G23MA0050 | 50 | 24 | 45 | 66 | 0.29 (2.6) | 0.88 (7.8) |
| A 2G23MA0060 | 60 | 24 | 45 | 66 | 0.29 (2.6) | 0.88 (7.8) |
| A 2G23MA0075 | 75 | 24 | 45 | 66 | 0.39 (3.4) | 1.18 (10.4) |
| A 2G23MA0100 | 100 | 24 | 45 | 66 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0120 | 120 | 26.5 | 47.5 | 59 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0150 | 150 | 26.5 | 47.5 | 59 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0180 | 180 | 26.5 | 47.5 | 59 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0200 | 200 | 26.5 | 47.5 | 59 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0250 | 250 | 26.5 | 47.5 | 59 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0300 | 300 | 26.5 | 47.5 | 59 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0400 | 400 | 29 | 50 | 53 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0500 | 500 | 29 | 50 | 53 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0600 | 600 | 29 | 50 | 53 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA0750 | 750 | 29 | 50 | 53 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA1000 | 1000 | 29 | 50 | 53 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA1500 | 1500 | 31.5 | 52.5 | 48 | 0.59 (5.2) | 1.77 (15.7) |
| A 2G23MA3000 | 3000 | 31.5 | 52.5 | 48 | 0.59 (5.2) | 1.77 (15.7) |

| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore -0.02 -0.04 | Face Width |
|--|-----------------|--------|------|------|------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1B 8MYS05010 | 10 | 0.5 | 5.24 | 6.24 | 2 | 4 |

42 mm DIAMETER ROUND HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing - Die Cast Aluminum
- Gears - Steel
- Mating Motor Pinion - Steel

> OPERATING TEMPERATURE:

-10°C to +60°C

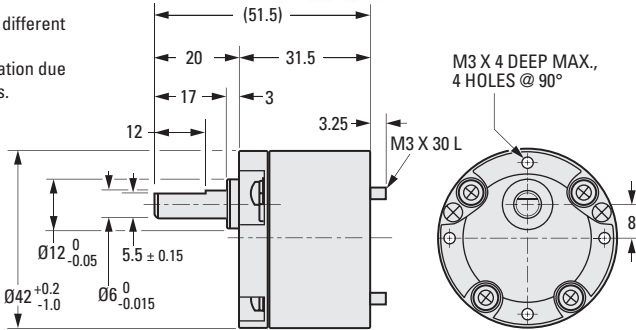
> FEATURES:

- Small size and high output.
- The input and output shafts have different center lines.
- Decreased noise and smooth rotation due to the use of high-precision gears.
- Stable quality.
- Excellent durability.

> SPECIFICATIONS:

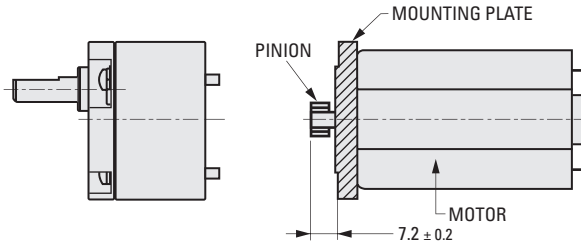
- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.35 mm

These gearheads can be used as replacements for D33S38M... Series gearmotors. See index.



The projections shown are per ISO convention.

MOTOR INSTALLATION



| METRIC COMPONENT | | | |
|------------------|-----------------|--------------|-------------------------------------|
| Catalog Number * | Gear Ratio to 1 | Efficiency % | Max. Continuous Torque Nm (lbf in.) |
| Gearheads | | | |
| A 2G33M0011 | 11.73 | 73 | 0.29 (2.57) |
| A 2G33M0030 | 30 | 66 | 0.49 (4.34) |
| A 2G33M0033 | 33.16 | 66 | 0.49 (4.34) |
| A 2G33M0050 | 50 | 66 | 0.88 (7.79) |
| A 2G33M0062 | 62.31 | 66 | 0.98 (8.67) |
| A 2G33M0090 | 90 | 66 | 0.98 (8.67) |
| A 2G33M0099 | 99.47 | 59 | 0.98 (8.67) |
| A 2G33M0150 | 150 | 59 | 0.98 (8.67) |
| A 2G33M0186 | 186.92 | 59 | 0.98 (8.67) |
| A 2G33M0270 | 270 | 59 | 0.98 (8.67) |

* To be discontinued when present stock is depleted.

| Catalog Number | Motor Shaft Dia. | No. of Teeth | Module | P.D. | O.D. | Bore -0.014 -0.030 | Face Width |
|--|------------------|--------------|--------|------|------|--------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | | |
| A 1C 8MYS04014A | 3 | 14 | 0.4 | 5.84 | 6.64 | 3 | 4.5 |
| A 1C 8MYS04014B | 4 | 14 | 0.4 | 5.84 | 6.64 | 4 | 4.5 |

42 mm DIAMETER
LIGHT-DUTY

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing - Steel, Zinc Chromate Finish
- Shaft & Gears - Steel
- Bearings - Bronze
- Mating Motor Pinion - Brass

> OPERATING TEMPERATURE:

-10°C to +60°C

> SPECIFICATIONS:

- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.35 mm
- Backlash: 2° at output shaft

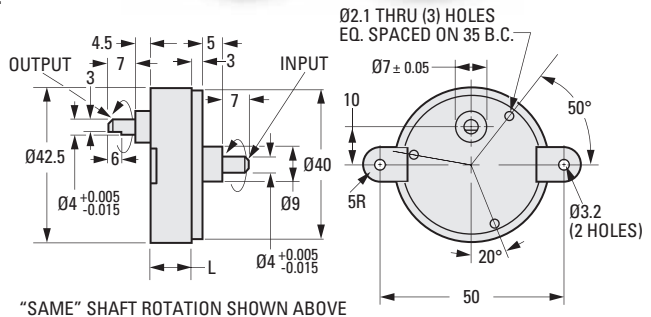
> WEIGHT:

65 g

- Δ Gearhead
- Less Flange & Pinion
- Mounting Screws supplied

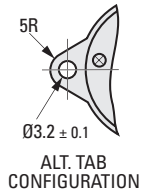
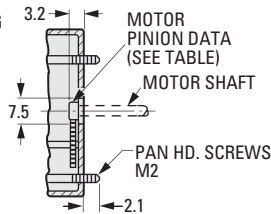
SPEED REDUCER

GEARHEAD Δ



HOUSING MOUNTING DIMENSIONS

The projections shown are per ISO convention.



METRIC COMPONENT

| Catalog Number * | | Gear Ratio to 1 | L | Shaft Rotation | Efficiency % | Maximum Torque N • m (lb. in.) | |
|------------------|----------------|-----------------|------|----------------|--------------|--------------------------------|------------|
| Speed Reducers | Gearheads Only | | | | | Continuous | Momentary |
| A 2Z15M00020 | A 2G15M00020 | 20 | 11.3 | Same | 81 | 0.01 (.09) | 0.05 (.44) |
| A 2Z15M00030 | A 2G15M00030 | 30 | 11.3 | Same | 81 | 0.02 (.18) | 0.1 (.90) |
| A 2Z15M00050 | - | 50 | 11.3 | Reverse | 73 | 0.04 (.35) | 0.2 (.18) |
| A 2Z15M00060 | A 2G15M00060 | 60 | 11.3 | Reverse | 73 | 0.04 (.35) | 0.2 (.18) |
| A 2Z15M00100 | A 2G15M00100 | 100 | 11.3 | Reverse | 73 | 0.06 (.53) | 0.3 (2.7) |
| A 2Z15M00150 | A 2G15M00150 | 150 | 11.3 | Reverse | 73 | 0.06 (.53) | 0.3 (2.7) |
| A 2Z15M00200 | A 2G15M00200 | 200 | 11.3 | Same | 66 | 0.08 (.71) | 0.4 (3.5) |
| A 2Z15M00250 | A 2G15M00250 | 250 | 11.3 | Same | 66 | 0.08 (.71) | 0.4 (3.5) |
| A 2Z15M00300 | - | 300 | 11.3 | Same | 66 | 0.08 (.71) | 0.4 (3.5) |
| A 2Z15M00400 | A 2G15M00400 | 400 | 11.3 | Same | 66 | 0.08 (.71) | 0.4 (3.5) |
| A 2Z15M00500 | A 2G15M00500 | 500 | 11.3 | Same | 66 | 0.1 (.89) | 0.5 (4.4) |
| A 2Z15M00750 | A 2G15M00750 | 750 | 11.3 | Same | 66 | 0.1 (.89) | 0.5 (4.4) |
| A 2Z15M01000 | A 2G15M01000 | 1000 | 11.3 | Reverse | 59 | 0.1 (.89) | 0.5 (4.4) |
| A 2Z15M01500 | A 2G15M01500 | 1500 | 11.3 | Reverse | 59 | 0.1 (.89) | 0.5 (4.4) |
| A 2Z15M02000 | A 2G15M02000 | 2000 | 11.3 | Reverse | 59 | 0.1 (.89) | 0.5 (4.4) |
| A 2Z15M03000 | A 2G15M03000 | 3000 | 11.3 | Reverse | 59 | 0.1 (.89) | 0.5 (4.4) |
| A 2Z15M15000 | A 2G15M15000 | 15000 | 14.4 | Same | - | 0.1 (.89) | 0.5 (4.4) |
| - | A 2G15M30000 | 30000 | 14.4 | Reverse | - | 0.1 (.89) | 0.5 (4.4) |
| - | A 2G15M90000 | 90000 | 14.4 | Reverse | - | 0.1 (.89) | 0.5 (4.4) |

* To be discontinued when present stock is depleted.

| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore -0.02 -0.04 | Face Width |
|--|-----------------|--------|------|------|------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1B 8MYS03010 | 10 | 0.3 | 3.15 | 3.75 | 2 | 2 |

43 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing** - Machined Aluminum
- Gears** - Steel
- Mating Motor Pinion** - Steel

> OPERATING TEMPERATURE:

-10°C to +60°C

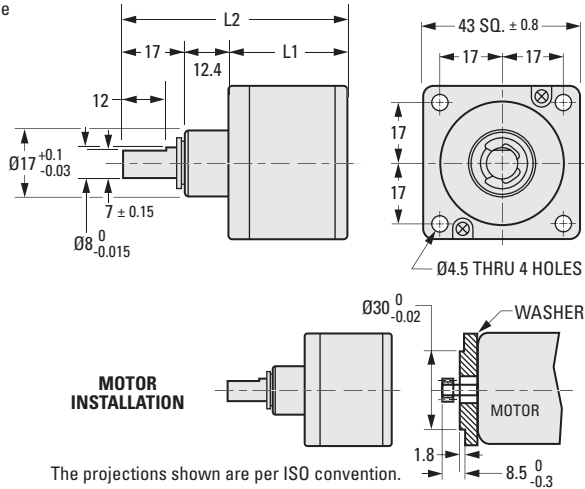
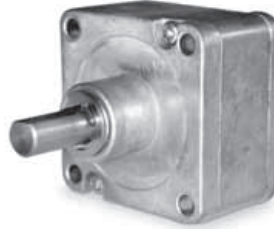
> FEATURES:

- Small size and high output.
- Decreased noise and smooth rotation due to the use of high-precision gears.
- Stable quality.
- Excellent durability.

> SPECIFICATIONS:

- Radial Play of Shaft:** ≤ 0.1 mm
- Thrust Play of Shaft:** ≤ 0.5 mm

These gearheads can be used as replacements for **D33S43ME38... & D33S43MFST...** Series gearmotors. See index.



MOTOR INSTALLATION

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L1 Length | L2 Overall Length | Efficiency % | Max. Continuous Torque N • m (lb. in.) |
|------------------|------------|-----------|-------------------|--------------|--|
| Gearheads | | | | | |
| A 2G32ME0014 | 14 | 25.9 | 55.3 | 66 | 0.88 (7.79) |
| A 2G32ME0017 | 17.3 | 25.9 | 55.3 | 66 | 0.88 (7.79) |
| A 2G32ME0024 | 24 | 25.9 | 55.3 | 66 | 0.88 (7.79) |
| A 2G32ME0049 | 49 | 32.7 | 62.1 | 53 | 1.96 (17.35) |
| A 2G32ME0061 | 60.7 | 32.7 | 62.1 | 53 | 1.96 (17.35) |
| A 2G32ME0104 | 104 | 32.7 | 62.1 | 53 | 1.96 (17.35) |
| A 2G32ME0144 | 144 | 32.7 | 62.1 | 53 | 1.96 (17.35) |
| A 2G32ME0213 | 212.3 | 39.4 | 68.8 | 43 | 1.96 (17.35) |
| A 2G32ME0294 | 294 | 39.4 | 68.8 | 43 | 1.96 (17.35) |
| A 2G32ME0624 | 624 | 39.4 | 68.8 | 43 | 1.96 (17.35) |
| A 2G32ME0864 | 864 | 39.4 | 68.8 | 43 | 1.96 (17.35) |

* To be discontinued when present stock is depleted.

| Catalog Number * | No. of Teeth | Module | P.D. | O.D. | Bore -0.015 -0.035 | Face Width | For Ratio to 1 |
|--|--------------|--------|------|------|--------------------|------------|--------------------------------------|
| Mating Motor Pinion for Gearheads | | | | | | | |
| A 1C 8MYS06012 | 12 | 0.6 | 7.2 | 8.4 | 4 | 4 | 24, 84, 104, 144, 294, 504, 624, 864 |
| A 1C 8MYS06018 | 18 | 0.6 | 10.7 | 11.9 | 4 | 4 | 17.3, 60.7, 212.3 |
| A 1C 8MYS06024 | 24 | 0.6 | 14.3 | 15.5 | 4 | 4 | 14, 49 |

* To be discontinued when present stock is depleted.

48 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

- Housing - Machined Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze
- Mating Motor Pinion - Steel

► **OPERATING TEMPERATURE:**

-10°C to +60°C

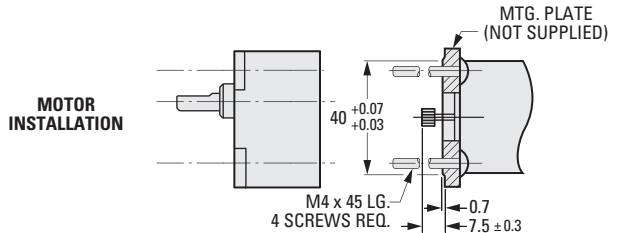
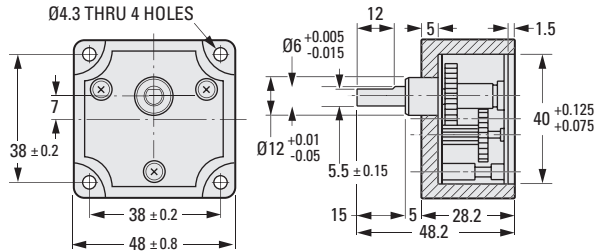
► **FEATURES:**

- Small size and high output.
- The input and output shafts have different center lines.
- Decreased noise and smooth rotation due to the use of high-precision gears.
- Stable quality.
- Excellent durability.

► **SPECIFICATIONS:**

- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.3 mm

These gearheads can be used as replacements for **D33S40M...** and **D33S57M40B...** Series gearmotors.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Shaft Rotation | Efficiency % | Maximum Torque N • m (lb. in.) | |
|------------------|------------|----------------|--------------|--------------------------------|------------|
| | | | | Continuous | Momentary |
| Gearheads | | | | | |
| A 2G31MB0013 | 12.67 | Same | 81 | 0.29 (2.6) | 0.88 (7.8) |
| A 2G31MB0026 | 26.31 | Reverse | 73 | 0.49 (4.3) | 1.47 (13) |
| A 2G31MB0030 | 29.56 | Reverse | 73 | 0.49 (4.3) | 1.47 (13) |
| A 2G31MB0051 | 50.66 | Reverse | 73 | 0.49 (4.3) | 1.47 (13) |
| A 2G31MB0152 | 152 | Same | 66 | 0.98 (8.7) | 2.94 (26) |

* To be discontinued when present stock is depleted.

| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore -0.014 -0.030 | Face Width |
|--|-----------------|--------|------|------|--------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1C 8MYS04012 | 12 | 0.4 | 4.88 | 5.68 | 3 | 4 |

60 mm SQUARE HOUSING
HIGH TORQUE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing** - Machined Aluminum
- Shafts & Gears** - Steel
- Bearings** - Bronze
- Mating Motor Pinion** - Brass

> OPERATING TEMPERATURE:

-10°C to +60°C

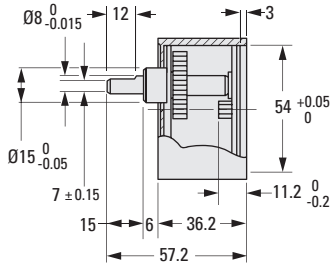
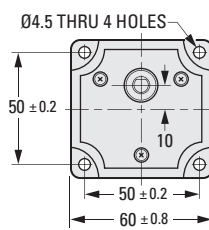
> FEATURES:

- Small size and high output.
- The input and output shafts have different center lines.
- Decreased noise and smooth rotation due to the use of high-precision gears.
- Stable quality.
- Excellent durability.

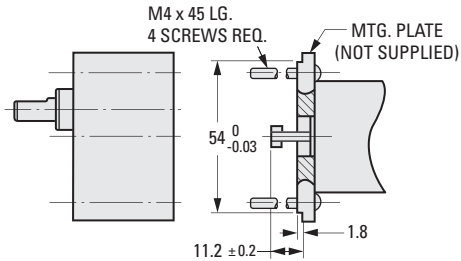
> SPECIFICATIONS:

- Radial Play of Shaft:** ≤ 0.1 mm
- Thrust Play of Shaft:** ≤ 0.5 mm

These gearheads can be used as replacements for **D33S52M...** and **D33S57M54D...** Series gearmotors.



MOTOR INSTALLATION



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Shaft Rotation | Efficiency % | Maximum Torque N • m (lb. in.) | |
|------------------|------------|----------------|--------------|--------------------------------|-------------|
| | | | | Continuous | Momentary |
| Gearheads | | | | | |
| A 2G30MD0030 | 30 | Reverse | 73 | 0.78 (6.9) | 2.35 (20.8) |
| A 2G30MD0060 | 60 | Same | 66 | 1.96 (17.3) | 5.88 (52) |
| A 2G30MD0090 | 90 | Same | 66 | 1.96 (17.3) | 5.88 (52) |
| A 2G30MD0140 | 140 | Same | 66 | 1.96 (17.3) | 5.88 (52) |
| A 2G30MD0160 | 160 | Same | 66 | 1.96 (17.3) | 5.88 (52) |

* To be discontinued when present stock is depleted.

| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore -0.02 -0.04 | Face Width |
|--|-----------------|--------|------|------|------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1B 8MYS05012 | 12 | 0.5 | 6.2 | 7.2 | 4 | 4 |

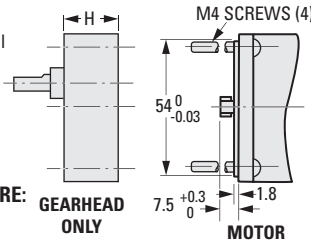
60 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:

- Housing - Die Cast Aluminum
- Bracket - Steel, Black Enamel
- Shaft - Steel
- Gears - Steel & Phenolic
- Bearings - Input - Ball
- Output - Bronze
- Mating Motor Pinion - Brass

The projections shown are per ISO convention.



➤ OPERATING TEMPERATURE:

-10°C to +60°C

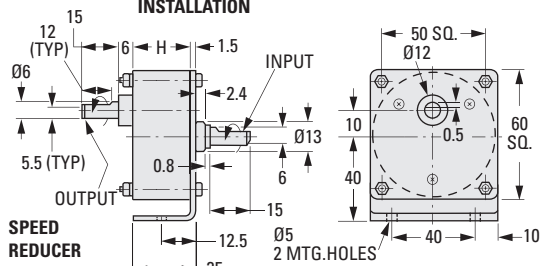
➤ SPECIFICATIONS:

- Radial Play of Shaft: ≤ 0.1 mm
- Thrust Play of Shaft: ≤ 0.3 mm

➤ APPROX. WEIGHT:

0.026 kg (Speed Reducer)

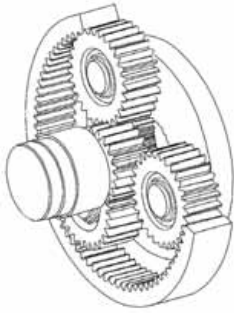
These gearheads can be used as replacements for A 3G25M... & D33S54M... Series gearmotors



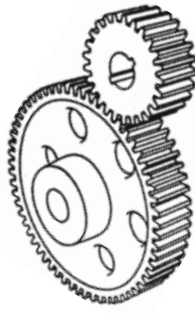
| MATIC COMPONENT | | Gear Ratio to 1 | Shaft Rotation | H | Efficiency % | Maximum Torque N • m (lb. in.) | |
|-----------------|----------------|-----------------|----------------|------|--------------|--------------------------------|-------------|
| Speed Reducers | Gearheads Only | | | | | Continuous | Momentary |
| A 2Z25M0006 | - | 6 | Same | 19 | 81 | 0.1 (0.9) | 0.3 (2.7) |
| A 2Z25M0008 | A 2G25M0008 | 7.5 | Same | 19 | 81 | 0.1 (0.9) | 0.3 (2.7) |
| A 2Z25M00010 | A 2G25M00010 | 10 | Same | 19 | 81 | 0.2 (1.8) | 0.6 (5.3) |
| A 2Z25M00012H | A 2G25M00012H | 12.5 | Reverse | 19 | 81 | 0.2 (1.8) | 0.6 (5.3) |
| A 2Z25M00020 | A 2G25M00020 | 20 | Same | 19 | 81 | 0.3 (2.7) | 0.9 (8.0) |
| A 2Z25M00025 | A 2G25M00025 | 25 | Reverse | 21.5 | 73 | 0.4 (3.5) | 1.18 (10.4) |
| A 2Z25M00030 | A 2G25M00030 | 30 | Reverse | 21.5 | 73 | 0.4 (3.5) | 1.18 (10.4) |
| A 2Z25M00036 | A 2G25M00036 | 36 | Reverse | 21.5 | 73 | 0.4 (3.5) | 1.18 (10.4) |
| A 2Z25M00040 | A 2G25M00040 | 40 | Reverse | 21.5 | 73 | 0.4 (3.5) | 1.18 (10.4) |
| A 2Z25M00050 | A 2G25M00050 | 50 | Reverse | 21.5 | 73 | 0.7 (6.2) | 2.07 (18.3) |
| A 2Z25M00060 | A 2G25M00060 | 60 | Reverse | 21.5 | 73 | 0.7 (6.2) | 2.07 (18.3) |
| A 2Z25M00100 | A 2G25M00100 | 100 | Reverse | 21.5 | 73 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00120 | A 2G25M00120 | 120 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00150 | A 2G25M00150 | 150 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00180 | A 2G25M00180 | 180 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00200 | A 2G25M00200 | 200 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00250 | A 2G25M00250 | 250 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00300 | A 2G25M00300 | 300 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00360 | A 2G25M00360 | 360 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00450 | A 2G25M00450 | 450 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00500 | A 2G25M00500 | 500 | Same | 24 | 66 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00750 | A 2G25M00750 | 750 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M00900 | A 2G25M00900 | 900 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M01000 | A 2G25M01000 | 1000 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M01200 | A 2G25M01200 | 1200 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M01500 | A 2G25M01500 | 1500 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M01800 | A 2G25M01800 | 1800 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |
| A 2Z25M02000 | A 2G25M02000 | 2000 | Reverse | 26.5 | 59 | 1 (8.9) | 2.96 (26.2) |

* To be discontinued when present stock is depleted.

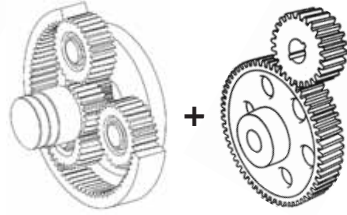
| Catalog Number | Number of Teeth | Module | P.D. | O.D. | Bore -0.02 -0.04 | Face Width |
|--|-----------------|--------|------|------|------------------|------------|
| Mating Motor Pinion for Gearheads | | | | | | |
| A 1B 8MYS05012 | 12 | 0.5 | 6.2 | 7.2 | 4 | 4 |



TRUE PLANETARY



SPUR GEAR



HYBRID

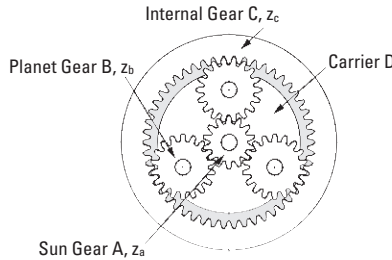
How to choose the type of gearhead depends primarily on the application. Some of the factors to be considered to make proper trade-offs between cost and performance are shown below. The hybrid design of planetary and spur gears are not offered by us but are available on the market, and are included for comparison purposes.

| DESIGN FACTORS | GEARHEAD TYPE | | | |
|--|---------------------|------------------------|----------------------|---|
| | Planetary | Low Cost Planetary | Spur | Hybrid |
| Torque Capacity | High | Medium | Low | Medium limited by spur gear pair strength |
| Load Sharing | Yes | Yes | No | Planetary Section Only |
| Power to Weight Ratio | High | Medium | Low | Medium |
| Power to Size Ratio | High | Medium | Low | Medium |
| Torsional Stiffness | High | Medium | Low | Medium |
| Backlash | Low 6-10 minutes | Medium 7-14 minutes | High 30 min. max. | Medium |
| Available Number of Gear Ratios | Low | Low | High | Medium |
| Cost | High | Medium | Low | Medium |

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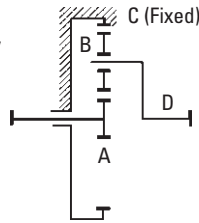


Planetary Gear System



The basic form of planetary gear system is shown above. It consists of a sun gear A, planetary gears B, internal gear C and carrier D. In our gearheads the internal gear is fixed, the sun gear is the input pinion, and the output shaft is part of the carrier.

This relationship can be represented schematically as shown on the right. The speed ratio is given by the equation:



$$\text{Gear Ratio} = \frac{1 + \frac{z_a}{z_c}}{\frac{z_a}{z_c}} = \frac{z_a + z_c}{z_a} = \frac{z_c}{z_a} + 1$$

where: z_a = number of teeth in sun gear A, and
 z_c = number of teeth in internal gear C.

For the example shown in the above illustration (where $z_a = 14$, $z_b = 18$ and $z_c = 50$), the Gear Ratio is 4.6:1.

For a double-stage planetary gearhead, the carrier of the first stage becomes the sun gear of the second stage.

The advantages of the planetary gearheads are:

1. The input and output axes are in the same line.
2. The planet gears used in a planetary system share the load, allowing for a much higher torque capacity unit than the comparable size spur gearheads.
3. The unit is compact and inertially balanced.

The disadvantages are:

1. The mechanism is complex.
2. The components require high-precision manufacturing.
3. The cost is considerably more than comparable size spur gearheads.

USEFUL FORMULAS

The maximum output HP of Gearhead = $\frac{(\text{Maximum continuous torque}) \times (\text{Maximum rated output rpm})}{63025}$

The maximum allowable output HP of the motor = $\frac{\text{The maximum output HP of gearhead}}{0.90 \text{ (single stage) or } 0.85 \text{ (double stage)}}$

Effective inertia = $(\text{gear ratio})^2 \frac{\text{load inertia}}{\text{inertia}} + \frac{\text{gearhead}^\Delta}{\text{inertia}} + \text{pinion}^\Delta$

For very fast response, the effective inertia should be one to three times larger than the motor inertia (including the pinion).

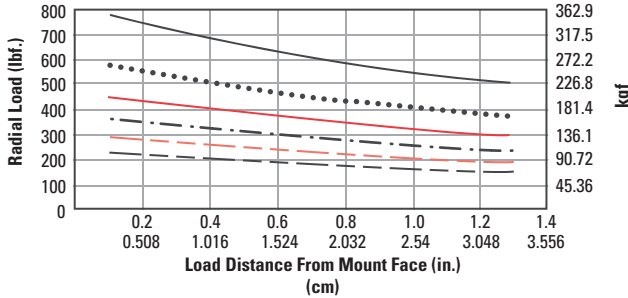
For acceptably fast response, the effective inertia should be less than ten times larger than the motor inertia (including the pinion).

Δ Inertia values shown in this catalog include both the gearhead and pinion values.



> PRX TYPE

023/060 PRX Bearing Radial Load Limits

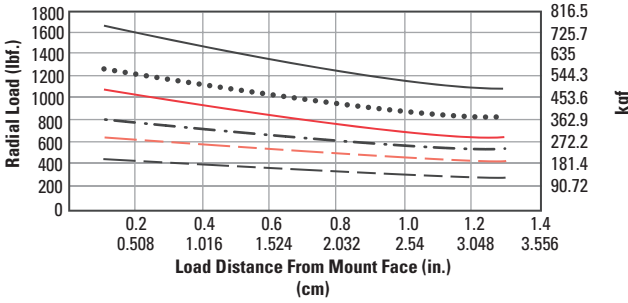


KEY

- 50 rpm
- 125 rpm
- 250 rpm
- - - 500 rpm
- - - 1000 rpm
- - - 2000 rpm

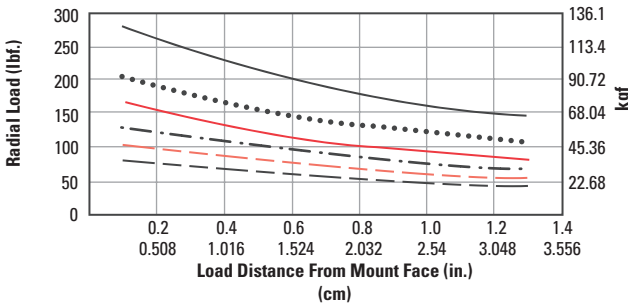
The graphs display allowable radial load at a given distance from the gearhead face based on an L₁₀ bearing life of; 20,000 hours (PRX), 15,000 hours (RTX)

034/090 PRX Bearing Radial Load Limits

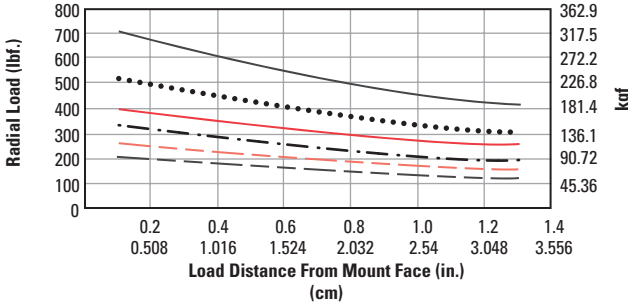


> RTX TYPE

023/060 RTX Bearing Radial Load Limits



034/090 RTX Bearing Radial Load Limits



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- NEW
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- 14
- 15
- A

PRECISION SERIES
SINGLE & DOUBLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

- Housing** - Stainless Steel
- Mounting Flanges** - Red Anodized Aluminum (Front)
Aluminum (Back)
- Output Shafts** - Stainless Steel
- Gears** - Alloy and Stainless Steel
- Bearings** - Ball and Angular Contact Bearings

► FEATURES:

- Standard METRIC Sizes
- High Torque Design with Optimized Gear Geometry
- High Torsional Stiffness
- Sealed to extend service life
- Captive, Bearing supported input pinion
- Simplified quick installation
- Single-piece construction
- Alloy Steel key is supplied

► SPECIFICATIONS:

- Max. Input Speed:** 6500 rpm
- Shaft Loading:**
 - Axial:** 226.8 kgf Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%
 - Radial:** See graph on page: 11-21

Min. Efficiency:

- Single Stage:** 95 %
- Double Stage:** 90 %

Backlash:

- Single Stage:** 4 arc min.
- Double Stage:** 6 arc min.

Operating Temperature:

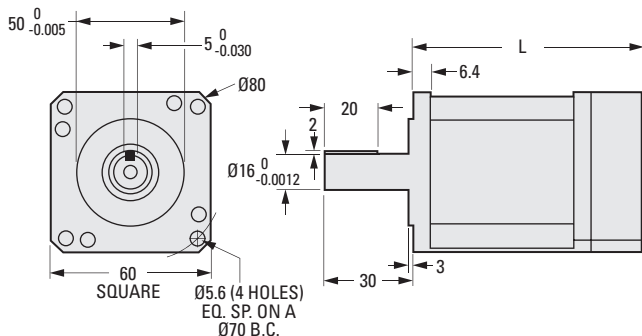
-40°C to +121°C

Weight:

- Single Stage:** 1.27 kg
- Double Stage:** 1.72 kg

Torsional Stiffness:

23.04 kgf cm/arc min.



METRIC COMPONENT

| Catalog Number | Gear Ratio | L Max. | Max. Rated Continuous Torque N • m | Max. Momentary Torque N • m | Max. Stopping Torque N • m | Gearhead Moment of Inertia* kg • m ² |
|----------------|------------|------------------|------------------------------------|-----------------------------|----------------------------|---|
| S9160AMPRX004 | 4:1 | 82 Single Stage | 48 | 60 | 121 | 1.5578 x 10 ⁻⁵ |
| S9160AMPRX005 | 5:1 | | 41 | 51 | 118 | 1.3369 x 10 ⁻⁵ |
| S9160AMPRX007 | 7:1 | | 28 | 36 | 109 | 1.1765 x 10 ⁻⁵ |
| S9160AMPRX010 | 10:1 | | 19 | 24 | 81 | 1.0945 x 10 ⁻⁵ |
| S9160AMPRX016 | 16:1 | | 48 | 60 | 121 | 1.3085 x 10 ⁻⁵ |
| S9160AMPRX020 | 20:1 | 111 Double Stage | 48 | 60 | 121 | 1.1800 x 10 ⁻⁵ |
| S9160AMPRX025 | 25:1 | | 41 | 51 | 118 | 1.1715 x 10 ⁻⁵ |
| S9160AMPRX028 | 28:1 | | 48 | 60 | 121 | 1.0952 x 10 ⁻⁵ |
| S9160AMPRX035 | 35:1 | | 41 | 51 | 118 | 1.0910 x 10 ⁻⁵ |
| S9160AMPRX040 | 40:1 | | 48 | 60 | 121 | 1.0543 x 10 ⁻⁵ |
| S9160AMPRX050 | 50:1 | | 41 | 51 | 118 | 1.0522 x 10 ⁻⁵ |
| S9160AMPRX070 | 70:1 | | 32 | 41 | 109 | 1.0508 x 10 ⁻⁵ |
| S9160AMPRX100 | 100:1 | | 22 | 27 | 81 | 1.0501 x 10 ⁻⁵ |

* Values shown include pinion, clamp and sleeve and are for standard METRIC mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 20,000 hours minimum service life.

NEW

PRECISION SERIES
SINGLE, DOUBLE & TRIPLE STAGE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

- Housing - Stainless Steel
- Mounting Flanges - Red Anodized Aluminum (Front) Aluminum (Back)

- Output Shafts - Stainless Steel
- Gears - Alloy and Stainless Steel
- Bearings - Ball Bearings

► FEATURES:

- Standard METRIC Sizes
- High Torque Design with Optimized Gear Geometry
- High Torsional Stiffness
- Sealed to extend service life
- Captive, Bearing supported input pinion
- Simplified quick installation
- Single-piece construction
- Alloy Steel key is supplied

► SPECIFICATIONS:

Max. Input Speed: 6500 rpm
Shaft Loading:

Axial: 158.75 kgf Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%

Radial: See graph on page: 11-21

Min. Efficiency:

- Single Stage: 95 %
- Double Stage: 90 %
- Triple Stage: 85 %

Backlash:

- Single Stage: 4 arc min.
- Double Stage: 6 arc min.
- Triple Stage: 8 arc min.

Operating Temperature:

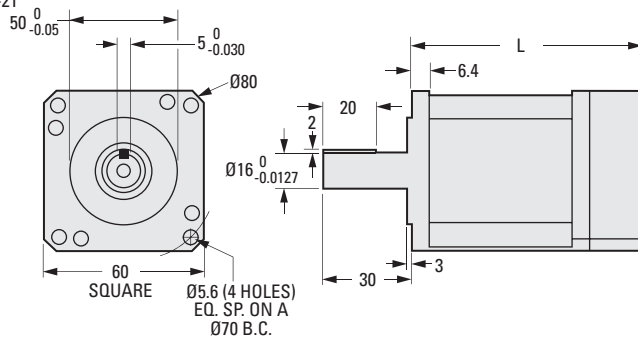
-40°C to +121°C

Weight:

- Single Stage: 1.49 kg
- Double Stage: 1.77 kg
- Triple Stage: 2.13 kg

Torsional Stiffness:

17.28 kgf-cm/arc min.



* Values shown include pinion, clamp and sleeve and are for standard METRIC mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 15,000 hours minimum service life.

METRIC COMPONENT

| Catalog Number | Gear Ratio | L Max. | Max. Rated Continuous Torque N • m | Max. Momentary Torque N • m | Max. Stopping Torque N • m | Gearhead Moment of Inertia* kg • m ² |
|----------------|------------|------------------------|------------------------------------|-----------------------------|----------------------------|---|
| S9160AMRTX004 | 4:1 | 86 Single Stage | 45 | 53 | 107 | 1.3191 x 10 ⁻⁵ |
| S9160AMRTX005 | 5:1 | | 38 | 45 | 105 | 1.1863 x 10 ⁻⁵ |
| S9160AMRTX007 | 7:1 | | 26 | 32 | 97 | 1.0861 x 10 ⁻⁵ |
| S9160AMRTX010 | 10:1 | | 17 | 22 | 81 | 1.0345 x 10 ⁻⁵ |
| S9160AMRTX016 | 16:1 | 108 Double Stage | 45 | 53 | 107 | 1.2019 x 10 ⁻⁵ |
| S9160AMRTX020 | 20:1 | | 45 | 53 | 107 | 1.1122 x 10 ⁻⁵ |
| S9160AMRTX025 | 25:1 | | 38 | 45 | 105 | 1.1065 x 10 ⁻⁵ |
| S9160AMRTX028 | 28:1 | | 45 | 53 | 107 | 1.0486 x 10 ⁻⁵ |
| S9160AMRTX035 | 35:1 | | 38 | 45 | 105 | 1.0458 x 10 ⁻⁵ |
| S9160AMRTX040 | 40:1 | | 45 | 53 | 107 | 1.0162 x 10 ⁻⁵ |
| S9160AMRTX050 | 50:1 | | 38 | 45 | 105 | 1.0147 x 10 ⁻⁵ |
| S9160AMRTX070 | 70:1 | | 30 | 36 | 97 | 1.0140 x 10 ⁻⁵ |
| S9160AMRTX100 | 100:1 | 131 Triple Stage | 20 | 25 | 81 | 1.0133 x 10 ⁻⁵ |
| S9160AMRTX160 | 160:1 | | 45 | 53 | 107 | 1.0147 x 10 ⁻⁵ |
| S9160AMRTX280 | 280:1 | | 45 | 53 | 107 | 1.0133 x 10 ⁻⁵ |
| S9160AMRTX400 | 400:1 | | 45 | 53 | 107 | 1.0133 x 10 ⁻⁵ |
| S9160AMRTX500 | 500:1 | | 38 | 45 | 105 | 1.0133 x 10 ⁻⁵ |
| S9160AMRTX700 | 700:1 | 30 | 36 | 97 | 1.0133 x 10 ⁻⁵ | |

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PRECISION SERIES
SINGLE & DOUBLE STAGE

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► **MATERIAL:**

- Housing** - Stainless Steel
- Mounting Flanges** - Red Anodized Aluminum (Front)
Aluminum (Back)
- Output Shafts** - Stainless Steel
- Gears** - Alloy and Stainless Steel
- Bearings** - Ball and Angular Contact Bearings

► **FEATURES:**

- Standard METRIC Sizes
- High Torque Design with Optimized Gear Geometry
- High Torsional Stiffness
- Sealed to extend service life
- Captive, Bearing supported input pinion
- Simplified quick installation
- Single-piece construction
- Alloy Steel key is supplied



► **SPECIFICATIONS:**

Max. Input Speed: 6500 rpm

Shaft Loading:

Axial: 340.2 kgf Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%

Radial: See graph on page: 11-21

Min. Efficiency:

- Single Stage:** 95 %
- Double Stage:** 90 %

Backlash:

- Single Stage:** 4 arc min.
- Double Stage:** 6 arc min.

Operating Temperature:

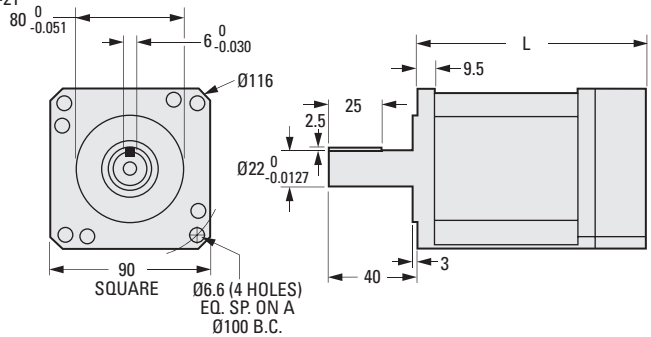
-40°C to +121°C

Weight:

- Single Stage:** 4.13 kg
- Double Stage:** 5.76 kg

Torsional Stiffness:

92.17 kgf-cm/arc min.



METRIC COMPONENT

| Catalog Number | Gear Ratio | L Max. | Max. Rated Continuous Torque N • m | Max. Momentary Torque N • m | Max. Stopping Torque N • m | Gearhead Moment of Inertia* kg • m ² |
|----------------|------------|------------------------|---------------------------------------|--------------------------------|-------------------------------|--|
| S9190AMPRX004 | 4:1 | 120 Single Stage | 168 | 212 | 401 | 1.0995 x 10 ⁻⁴ |
| S9190AMPRX005 | 5:1 | | 150 | 189 | 393 | 0.9265 x 10 ⁻⁴ |
| S9190AMPRX007 | 7:1 | | 101 | 127 | 334 | 0.7895 x 10 ⁻⁴ |
| S9190AMPRX010 | 10:1 | | 66 | 83 | 290 | 0.7196 x 10 ⁻⁴ |
| S9190AMPRX016 | 16:1 | 165 Double Stage | 168 | 212 | 401 | 0.9201 x 10 ⁻⁴ |
| S9190AMPRX020 | 20:1 | | 168 | 212 | 401 | 0.8114 x 10 ⁻⁴ |
| S9190AMPRX025 | 25:1 | | 150 | 189 | 393 | 0.8043 x 10 ⁻⁴ |
| S9190AMPRX028 | 28:1 | | 168 | 212 | 401 | 0.7309 x 10 ⁻⁴ |
| S9190AMPRX035 | 35:1 | | 150 | 189 | 393 | 0.7273 x 10 ⁻⁴ |
| S9190AMPRX040 | 40:1 | | 168 | 212 | 401 | 6.9048 x 10 ⁻⁵ |
| S9190AMPRX050 | 50:1 | | 150 | 189 | 393 | 6.8872 x 10 ⁻⁵ |
| S9190AMPRX070 | 70:1 | | 116 | 146 | 334 | 6.8738 x 10 ⁻⁵ |
| S9190AMPRX100 | 100:1 | | 76 | 96 | 290 | 6.8667 x 10 ⁻⁵ |

* Values shown include pinion, clamp and sleeve and are for standard METRIC mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 20,000 hours minimum service life.

NEW

PRECISION SERIES
SINGLE, DOUBLE & TRIPLE STAGE

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> MATERIAL:

- Housing** - Stainless Steel
- Mounting Flanges** - Red Anodized Aluminum (Front)
Aluminum (Back)
- Output Shafts** - Stainless Steel
- Gears** - Alloy and Stainless Steel
- Bearings** - Ball Bearings

> FEATURES:

- Standard METRIC Sizes
- High Torque Design with Optimized Gear Geometry
- High Torsional Stiffness
- Sealed to extend service life
- Captive, Bearing supported input pinion
- Simplified quick installation
- Single-piece construction
- Alloy Steel key is supplied

> SPECIFICATIONS:

- Max. Input Speed:** 6500 rpm
- Shaft Loading:**
 - Axial:** 249.48 kgf. Value shown is for loads into the gearhead face. For loads away from the face, reduce by 50%
 - Radial:** See graph on page: 11-21

Min. Efficiency:

- Single Stage:** 95 %
- Double Stage:** 90 %
- Triple Stage:** 85 %

Backlash:

- Single Stage:** 4 arc min.
- Double Stage:** 6 arc min.
- Triple Stage:** 8 arc min.

Operating Temperature:

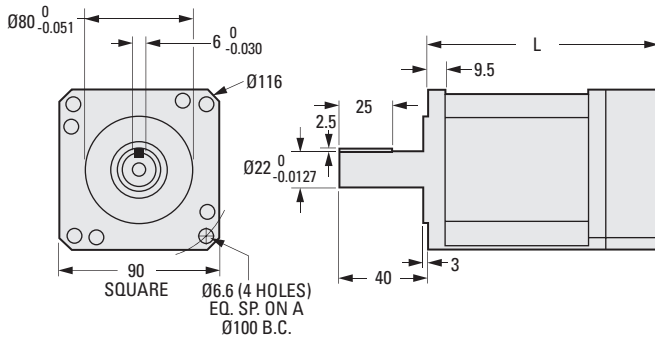
-40°C to +121°C

Weight:

- Single Stage:** 4.35 kg
- Double Stage:** 5.89 kg
- Triple Stage:** 7.39 kg

Torsional Stiffness:

80.64 kgf-cm/arc min.

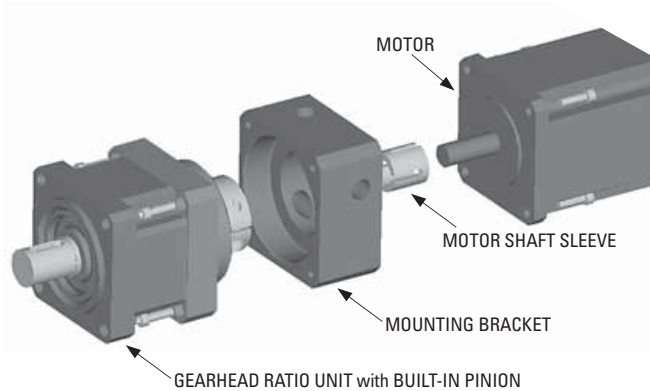


* Value shown include pinion, clamp and sleeve and are for standard METRIC mountings. Efficiency rated at 3000 rpm input speed, at nominal rated torque. All torque ratings are based upon 3000 rpm nominal input speed and 15,000 hours minimum service life.

METRIC COMPONENT

| Catalog Number | Gear Ratio | L Max. | Max. Rated Continuous Torque N • m | Max. Momentary Torque N • m | Max. Stopping Torque N • m | Gearhead Moment of Inertia* kg • m ² |
|----------------|------------|------------------------|---------------------------------------|--------------------------------|-------------------------------|--|
| S9190AMRTX004 | 4:1 | 122 Single Stage | 164 | 207 | 392 | 0.9159 x 10 ⁻⁴ |
| S9190AMRTX005 | 5:1 | | 144 | 181 | 375 | 0.7916 x 10 ⁻⁴ |
| S9190AMRTX007 | 7:1 | | 98 | 123 | 319 | 0.6932 x 10 ⁻⁴ |
| S9190AMRTX010 | 10:1 | 158 Double Stage | 63 | 80 | 277 | 0.6437 x 10 ⁻⁴ |
| S9190AMRTX016 | 16:1 | | 164 | 207 | 392 | 0.8474 x 10 ⁻⁴ |
| S9190AMRTX020 | 20:1 | | 164 | 207 | 392 | 0.7478 x 10 ⁻⁴ |
| S9190AMRTX025 | 25:1 | | 144 | 181 | 375 | 0.7429 x 10 ⁻⁴ |
| S9190AMRTX028 | 28:1 | | 164 | 207 | 392 | 0.6707 x 10 ⁻⁴ |
| S9190AMRTX035 | 35:1 | | 144 | 181 | 375 | 0.6682 x 10 ⁻⁴ |
| S9190AMRTX040 | 40:1 | | 164 | 207 | 392 | 0.6316 x 10 ⁻⁴ |
| S9190AMRTX050 | 50:1 | 144 | 181 | 375 | 0.6303 x 10 ⁻⁴ | |
| S9190AMRTX070 | 70:1 | 112 | 141 | 319 | 0.6293 x 10 ⁻⁴ | |
| S9190AMRTX100 | 100:1 | 73 | 92 | 277 | 0.6299 x 10 ⁻⁴ | |
| S9190AMRTX160 | 160:1 | 164 | 207 | 392 | 0.6309 x 10 ⁻⁴ | |
| S9190AMRTX280 | 280:1 | 164 | 207 | 392 | 0.6291 x 10 ⁻⁴ | |
| S9190AMRTX400 | 400:1 | 164 | 207 | 392 | 0.6298 x 10 ⁻⁴ | |
| S9190AMRTX500 | 500:1 | 144 | 181 | 375 | 0.6298 x 10 ⁻⁴ | |
| S9190AMRTX700 | 700:1 | 112 | 141 | 319 | 0.6297 x 10 ⁻⁴ | |

NEW



All of our NEMA and Metric sized gearheads, except NEMA size 17, are offered using a ready-to-mount system of attaching the motor to the gearhead. The gearhead ratio unit includes a preinstalled pinion and a self-aligning input clamp. This allows the gearhead to maintain concentricity with the motor shaft and eliminates the need to set the pinion.

The procedure for selecting a complete gearhead solution is simple:

- Step 1. Select you motor and determine the appropriate frame size for the gearhead.**
- Step 2. Measure the pilot diameter E, pilot length (from motor), bolt circle, shaft OD and shaft length of your motor.**
- Step 3. Based on your measurements and frame size selection, go to the page that lists the mounting bracket and sleeve that you require.**
- Step 4. Choose the reduction ratio and complete the part number.**

Example: You have a size 60 motor and you measure the pilot diameter to be 50.4 mm, the pilot length to be 3.8 mm, the bolt circle to be 67 mm, the shaft diameter to be 10 mm and the shaft length to be 30 mm. If your required reduction is 30:1 then you would select mounting bracket "1" and sleeve "G". Therefore the part number you would need to order is: S9160TM0301G

NOTE: The mounting brackets and motor shaft sleeves listed in this catalog complement 90% of the motors currently available. If your motor does not meet our gearhead specifications, please contact our engineering staff to arrange for a custom mounting bracket or motor shaft sleeve.

> MOUNTING INSTRUCTIONS:

- A) Using the screws provided, bolt the mounting bracket to the input end of the gearhead ratio unit.
- B) Slide the motor shaft sleeve into the input clamp and align the slot in the sleeve with the slot in the clamp.
- C) Rotate the clamp to align the mounting bracket access holes with the clamping bolts.
- D) Place the motor on a solid work surface with the output shaft pointing up. Slide the assembled gearhead onto the motor shaft.
- E) Using a torque wrench, tighten the clamp bolts to the pretightening torque values listed below.
- F) Using the screws provided, bolt the gearhead to the motor.
- G) Using an alternating pattern, gradually tighten the clamp bolts until you reach the final tightening torque listed below.











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Clamp Bolt Tightening Torques

| Gearhead Frame Size | Pretightening Torque | | Final Tightening Torque | |
|---------------------|----------------------|-------|-------------------------|-------|
| | lb. in. | N • m | lb. in. | N • m |
| NEMA 23 | 2 | 0.2 | 39 | 4.4 |
| NEMA 34 | 4 | 0.4 | 76 | 8.5 |
| NEMA 42 | 16 | 1.8 | 316 | 36 |
| Metric 60 | 2 | 0.2 | 39 | 4.4 |
| Metric 90 | 4 | 0.4 | 76 | 8.5 |
| Metric 115 | 16 | 1.8 | 316 | 36 |



| Catalog Series | Material | Ratios | Pages |
|---|---|------------------|-------|
|  S99RD1MBE...-1 | Economy Series Right Angle Bevel Gear Drives AISI 1045 Steel Gears | 1:1 | 12-2 |
|  S99RD1MBE...-2 | Economy Series Right Angle Bevel Gear Drives AISI 1045 Steel Gears | 2:1 | 12-3 |
|  A 2Z20M.C... | Right Angle Bevel Gear Drives Hardened Steel Gears Steel Ball Bearings | 1:1 | 12-4 |
|  A 2Z21M.M... | Right Angle Bevel Gear Drives Molded Nylon Gears Sintered Bronze Bearings | 1:1 and 2:1 | 12-5 |
|  A 2Z21M.C... | Right Angle Bevel Gear Drives Case-Hardened Steel Gears Precision Grade Steel Ball Bearings and Sintered Bronze Bearings | 1:1, 2:1 and 3:1 | 12-6 |
|  A 2Z27MC... A 2Z28MC... A 2Z29MC... | Precision Quality Right Angle Bevel Gear Drives SAE 4340 Steel Miter Gears Sealed Ball Bearings | 1:1 | 12-7 |
|  S991LYM... | Heavy-Duty "L" Gear Drives Case-Hardened Alloy Steel Spiral Bevel Gears | 1:1 and 2:1 | 12-9 |
|  S991TYM... | Heavy-Duty "T" Gear Drives Case-Hardened Alloy Steel Spiral Bevel Gears | 1:1 and 2:1 | 12-10 |



| Catalog Series | Material | Ratios | Pages |
|---|---|----------------|------------------------|
|  A 2Z17M... A 2Z18M... A 2Z19M... | Precision Quality Worm Gear Speed Reducers Hardened Carbon Steel Worms and Phosphor Bronze Worm Wheels Precision Ball Bearings and Self-Lubricating Bearings | 6:1 thru 100:1 | 12-11 thru 12-13 |
|  A 2Z22M... | Base-Mounted Right Angle Helical Gear Speed Reducers Hardened Steel Helical Gears | 1:1 thru 25:1 | 12-14 |
|  A 2Z23M... | Panel-Mounted Right Angle Helical Gear Speed Reducers Hardened Steel Helical Gears | 1:1 thru 25:1 | 12-15 |

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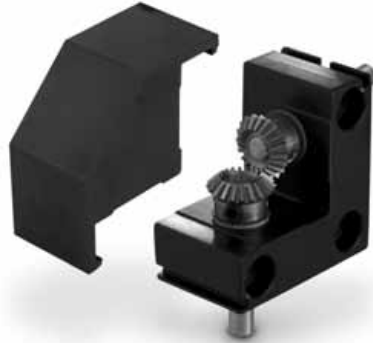
1:1 RATIO
 RATED SPEEDS UP TO 500 RPM
 ECONOMY SERIES

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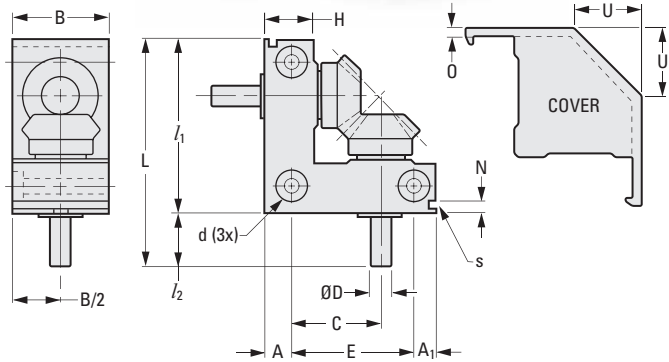
> MATERIAL:

- Gears** - AISI 1045 Steel
- Cover** - Plastic, Black
- Shafts** - 303 Stainless Steel
- Housing** - Aluminum, Black Anodized
- Bearings** - Layers of special resin and bronze with steel backing



> SPECIFICATION:

- Shaft Tolerance:
- 4, 5 & 6 mm 0/-0.018
- 8 & 10 mm 0/-0.022
- 12 mm 0/-0.027



The projections shown are per ISO convention.

PERFORMANCE DATA

| Input (rpm) | Output Torque N • m | | | |
|-------------|---------------------|----------------|----------------------|----------------------|
| | S99RD1MBE40L-1 | S99RD1MBE55L-1 | S99RD1MBE70L-1A or B | S99RD1MBE88L-1A or B |
| 50 | 0.14 | 0.553 | 1.035 | 3.32 |
| 100 | 0.139 | 0.544 | 1.017 | 3.237 |
| 250 | 0.135 | 0.524 | 0.968 | 3.013 |
| 500 | 0.129 | 0.491 | 0.896 | 2.7 |

METRIC COMPONENT

| Catalog Number | Gear Module | No. of Teeth | Gear Ratio | L Overall Length | L ₁ Housing Length | H Housing Width | D Shaft Dia. h8 | L ₂ Shaft Length | A | A ₁ | E |
|-----------------|-------------|--------------|------------|------------------|-------------------------------|-----------------|-----------------|-----------------------------|-----|----------------|------|
| S99RD1MBE40L-1 | 0.5 | 20 | 1:1 | 40 | 30 | 10 | 4 | 10 | 5 | 4.5 | 20.5 |
| S99RD1MBE55L-1 | 0.8 | 20 | 1:1 | 55 | 40 | 13 | 5 | 15 | 6.5 | 5 | 28.5 |
| S99RD1MBE70L-1A | 1 | 20 | 1:1 | 70 | 50 | 16 | 6 | 20 | 8 | 6 | 36 |
| S99RD1MBE70L-1B | 1 | 20 | 1:1 | 70 | 50 | 16 | 8 | 20 | 8 | 6 | 36 |
| S99RD1MBE88L-1A | 1.5 | 20 | 1:1 | 88 | 63 | 20 | 10 | 25 | 10 | 7 | 46 |
| S99RD1MBE88L-1B | 1.5 | 20 | 1:1 | 88 | 63 | 20 | 12 | 25 | 10 | 7 | 46 |

| Catalog Number (Ref.) | C | B Housing Depth | d | | | N | S Slot | | O Cover Thickness | U Chamfer | Wt. g |
|-----------------------|------|-----------------|-----------|-------------|--------------|-----|--------|-------|-------------------|-----------|-------|
| | | | Mtg. Hole | Hole C'bore | C'bore Depth | | Width | Depth | | | |
| S99RD1MBE40L-1 | 15 | 18 | 3.4 | 6.5 | 3.5 | 2.5 | 1.5 | 1.7 | 1.7 | 13 | 30 |
| S99RD1MBE55L-1 | 21.5 | 25 | 3.4 | 6.5 | 3.5 | 4 | 2.5 | 2 | 1.9 | 16 | 85 |
| S99RD1MBE70L-1A or B | 27 | 30 | 4.3 | 8 | 4.5 | 4.5 | 2.5 | 2.5 | 2.1 | 20 | 170 |
| S99RD1MBE88L-1A or B | 33 | 40 | 5.2 | 9.5 | 5.5 | 5 | 2.5 | 2.5 | 2.1 | 27 | 380 |

LOW-COST RIGHT ANGLE BEVEL GEAR DRIVES

SDP/SI

2:1 RATIO
 RATED SPEEDS UP TO 500 RPM
 ECONOMY SERIES

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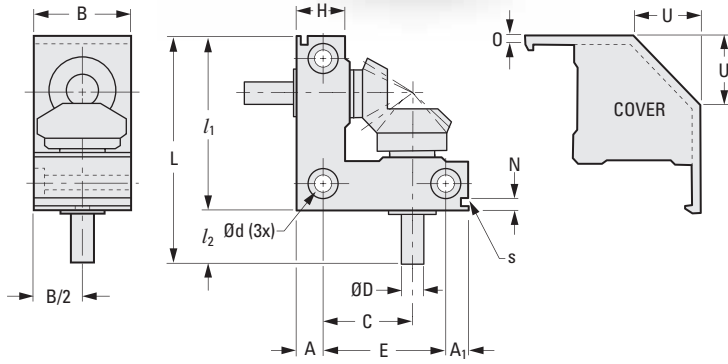
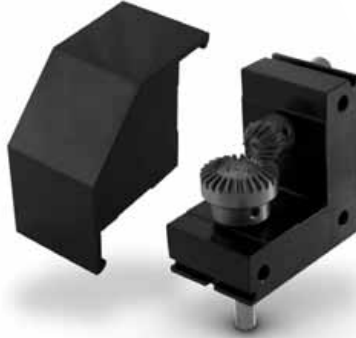


► MATERIAL:

- Gears** - AISI 1045 Steel
- Cover** - Plastic, Black
- Shafts** - 303 Stainless Steel
- Housing** - Aluminum, Black Anodized
- Bearings** - Layers of special resin and bronze with steel backing

► SPECIFICATION:

- Shaft Tolerance:
 - 5 & 6 mm 0/-0.018
 - 8 & 10 mm 0/-0.022
 - 12 mm 0/-0.027



The projections shown are per ISO convention.

PERFORMANCE DATA

| Input (rpm) | Output Torque N • m | | |
|-------------|---------------------|----------------------|----------------------|
| | S99RD1MBE55L-2 | S99RD1MBE70L-2A or B | S99RD1MBE88L-2A or B |
| 50 | 0.152 | 0.298 | 1.061 |
| 100 | 0.15 | 0.296 | 1.047 |
| 250 | 0.147 | 0.288 | 1.005 |
| 500 | 0.142 | 0.276 | 0.942 |

METRIC COMPONENT

| Catalog Number | Gear Module | No. of Teeth | Gear Ratio | L Overall Length | l_1 Housing Length | H Housing Width | D Shaft Dia. h8 | l_2 Shaft Length | A | A_1 | E |
|-----------------|-------------|--------------|------------|------------------|----------------------|-----------------|-----------------|--------------------|-----|-------|------|
| S99RD1MBE55L-2 | 0.6 | 28/14 | 2:1 | 55 | 40 | 13 | 5 | 15 | 6.5 | 5 | 28.5 |
| S99RD1MBE70L-2A | 0.8 | 26/13 | 2:1 | 70 | 50 | 16 | 6 | 20 | 8 | 6 | 36 |
| S99RD1MBE70L-2B | 0.8 | 26/13 | 2:1 | 70 | 50 | 16 | 8 | 20 | 8 | 6 | 36 |
| S99RD1MBE88L-2A | 1.25 | 26/13 | 2:1 | 88 | 63 | 20 | 10 | 25 | 10 | 7 | 46 |
| S99RD1MBE88L-2B | 1.25 | 26/13 | 2:1 | 88 | 63 | 20 | 12 | 25 | 10 | 7 | 46 |

| Catalog Number (Ref.) | C | B Housing Depth | d | | | N | s Slot | | O Cover Thickness | U Chamfer | Wt. g |
|-----------------------|------|-----------------|-----------|-------------|--------------|-----|--------|-------|-------------------|-----------|-------|
| | | | Mtg. Hole | Hole C'bore | C'bore Depth | | Width | Depth | | | |
| S99RD1MBE55L-2 | 21.5 | 25 | 3.4 | 6.5 | 3.5 | 4 | 2.5 | 2 | 1.9 | 16 | 80 |
| S99RD1MBE70L-2A or B | 27 | 30 | 4.3 | 8 | 4.5 | 4.5 | 2.5 | 2.5 | 2.1 | 20 | 165 |
| S99RD1MBE88L-2A or B | 33 | 40 | 5.2 | 9.5 | 5.5 | 5 | 2.5 | 2.5 | 2.1 | 27 | 375 |



Request Info



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RIGHT ANGLE BEVEL GEAR DRIVES



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1:1 RATIO
 INPUT SPEEDS UP TO 3000 RPM
 METAL GEARS
 BALL BEARINGS
 LARGE

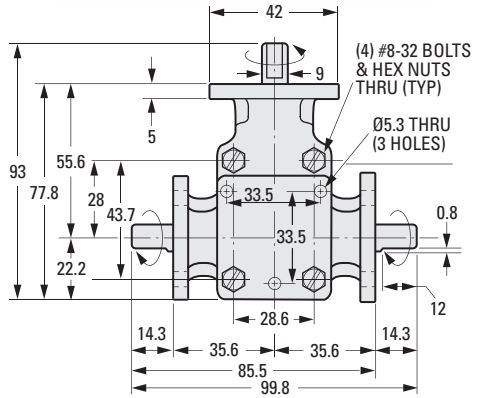
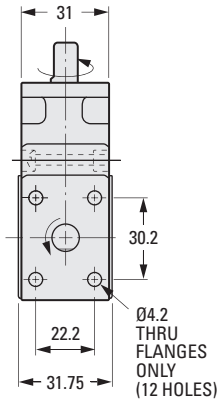


> MATERIAL:

- Housing** - Fiberglass reinforced plastic
- Gears** - Steel, Hardened – Coniflex Type
- Shafts** - High Tensile Steel
- Bearings** - Steel Ball
- Lubrication** - Permanently Lubricated with Lithium-Base Grease

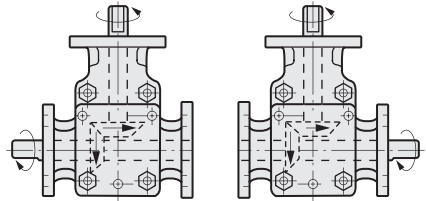
> SPECIFICATIONS:

Rated at 249W (1/3 HP) at 1800 rpm.
 Maximum speed is 3000 rpm.



"U" Series

The projections shown are per ISO convention.



"L" Series

"R" Series

METRIC COMPONENT

| Catalog Number | Shaft Dia. 0 -0.025 | Gear Ratio | Approx. Weight grams |
|-----------------|---------------------------|------------|----------------------|
| A 2Z20MUC101009 | 9 | 1:1 | 340 |
| A 2Z20MLC101009 | 9 | 1:1 | 340 |
| A 2Z20MRC101009 | 9 | 1:1 | 340 |

RIGHT ANGLE BEVEL GEAR DRIVES

SDP/SI

1:1 OR 2:1 RATIOS
 RATED SPEEDS UP TO 1800 RPM
 MOLDED GEARS
 SINTERED BRONZE BEARINGS

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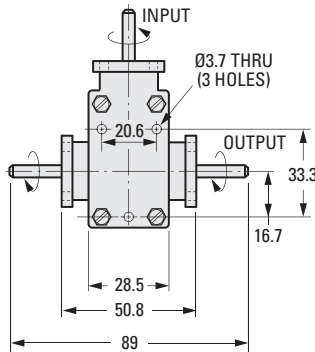
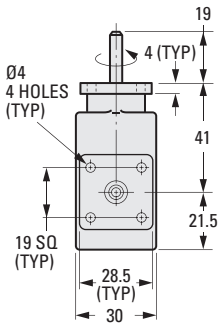
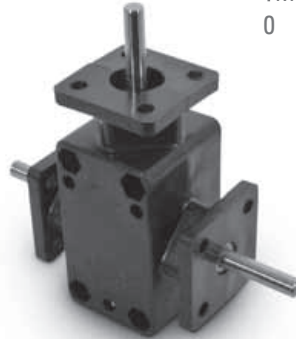


> MATERIAL:

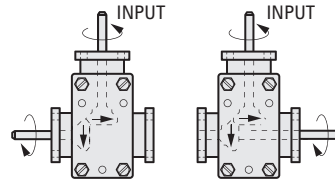
- Housing** - PBT Polyester 40% Glass/Mineral Filled
- Shafts** - Precision Ground Type 303 Stainless Steel
- Bearings** - Sintered Bronze
- Gears** - Molded Nylon

> SPECIFICATION:

Backlash: 5°



"U" Series



"L" Series

"R" Series

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Shaft Dia. 0 -0.025 | Gear Ratio | 1800 rpm Input | | Approx. Weight grams |
|-----------------|---------------------------|------------|--------------------|-------------------|----------------------|
| | | | Max. Output Torque | Max. Output Power | |
| A 2Z21MUM101004 | 4 | 1:1 | 0.12 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MLM101004 | 4 | 1:1 | 0.12 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MRM101004 | 4 | 1:1 | 0.12 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MUM201004 | 4 | 2:1 | 0.29 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MLM201004 | 4 | 2:1 | 0.29 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MRM201004 | 4 | 2:1 | 0.29 N • m | 22.4W (0.03 hp) | 100 |

12



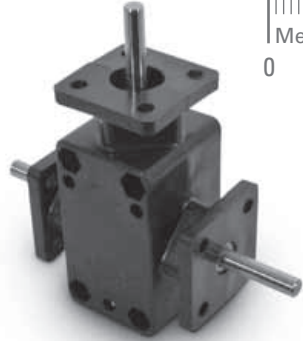
A

RIGHT ANGLE BEVEL GEAR DRIVES



MULTIPLE RATIOS
 RATED SPEEDS UP TO 1800 RPM
 METAL GEARS
 BALL AND BRONZE BEARINGS

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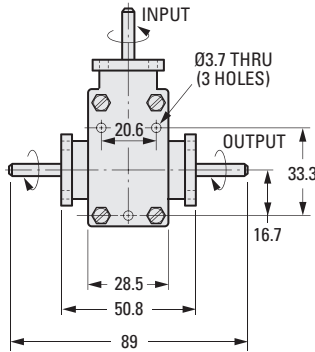
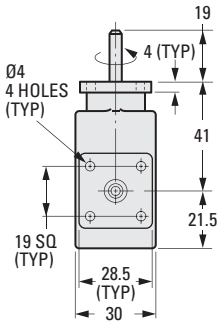


› MATERIAL:

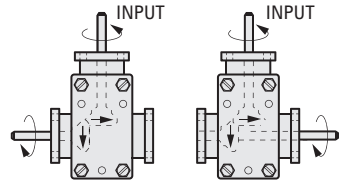
- Housing** - PBT Polyester 40% Glass/Mineral Filled
- Shafts** - Precision Ground Type 303 Stainless Steel
- Bearings** - Input Shaft - Precision Grade Steel Ball
- Output Shaft** - Sintered Bronze
- Gears** - Case-Hardened Steel

› SPECIFICATION:

Backlash: 3°



"U" Series



"L" Series

"R" Series

The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Shaft Dia. 0 -0.025 | Gear Ratio | 1800 rpm Input | | Approx. Weight grams |
|-----------------|---------------------------|------------|--------------------|-------------------|----------------------|
| | | | Max. Output Torque | Max. Output Power | |
| A 2Z21MUC101004 | 4 | 1:1 | 0.35 N • m | 59.7W (0.08 hp) | 100 |
| A 2Z21MLC101004 | 4 | 1:1 | 0.35 N • m | 59.7W (0.08 hp) | 100 |
| A 2Z21MRC101004 | 4 | 1:1 | 0.35 N • m | 59.7W (0.08 hp) | 100 |
| A 2Z21MUC101006 | 6 | 1:1 | 0.35 N • m | 59.7W (0.08 hp) | 120 |
| A 2Z21MLC101006 | 6 | 1:1 | 0.35 N • m | 59.7W (0.08 hp) | 120 |
| A 2Z21MRC101006 | 6 | 1:1 | 0.35 N • m | 59.7W (0.08 hp) | 120 |
| A 2Z21MUC201004 | 4 | 2:1 | 0.52 N • m | 44.7W (0.06 hp) | 100 |
| A 2Z21MLC201004 | 4 | 2:1 | 0.52 N • m | 44.7W (0.06 hp) | 100 |
| A 2Z21MRC201004 | 4 | 2:1 | 0.52 N • m | 44.7W (0.06 hp) | 100 |
| A 2Z21MUC201006 | 6 | 2:1 | 0.52 N • m | 44.7W (0.06 hp) | 120 |
| A 2Z21MLC201006 | 6 | 2:1 | 0.52 N • m | 44.7W (0.06 hp) | 120 |
| A 2Z21MRC201006 | 6 | 2:1 | 0.52 N • m | 44.7W (0.06 hp) | 120 |
| A 2Z21MUC301004 | 4 | 3:1 | 0.46 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MLC301004 | 4 | 3:1 | 0.46 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MRC301004 | 4 | 3:1 | 0.46 N • m | 22.4W (0.03 hp) | 100 |
| A 2Z21MUC301006 | 6 | 3:1 | 0.46 N • m | 22.4W (0.03 hp) | 120 |
| A 2Z21MLC301006 | 6 | 3:1 | 0.46 N • m | 22.4W (0.03 hp) | 120 |
| A 2Z21MRC301006 | 6 | 3:1 | 0.46 N • m | 22.4W (0.03 hp) | 120 |



RIGHT ANGLE BEVEL GEAR DRIVES



PRECISION 1:1 RATIO
 INPUT SPEEDS UP TO 3000 RPM
 UP TO 1 HP
 MEDIUM-DUTY

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QUALITY CLASS

► MATERIAL:

- Housing** - Aluminum Alloy, Black Anodized
All Surfaces Machined
- Gears** - Miter, SAE 4340 Steel
- Shafts** - Type 18-8 Stainless Steel
- Bearings** - Ball, Sealed
- Lubrication** - Grease-Packed for Life

► OPERATING TEMPERATURE:

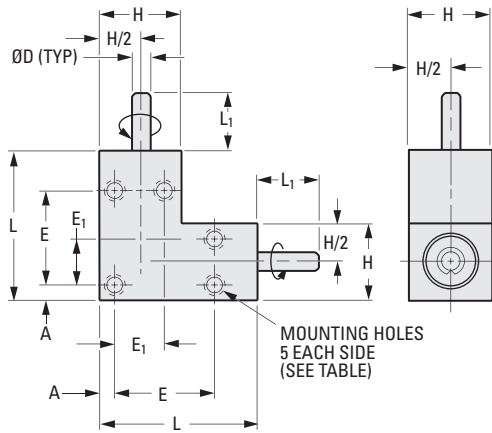
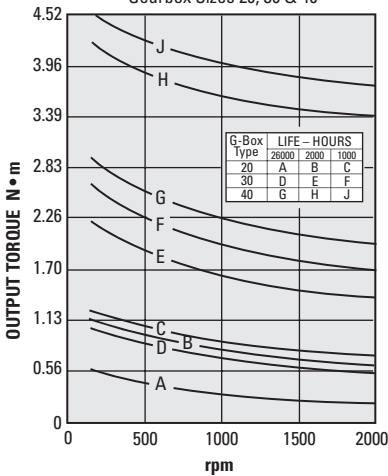
-20°C to +150°C

► SPECIFICATIONS:

- Gear Ratio:** 1:1
- Backlash:** 1° Max.
- Input Speed:** Max. recommended 3000 rpm



TORQUE/SPEED DATA
 Gearbox Sizes 20, 30 & 40



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Size | D Shaft Dia. 0 -0.013 | L ± 0.25 | H ± 0.25 | A | E | E ₁ |
|----------------|------|-----------------------------|-------------|-------------|---|----|----------------|
| A 2227MC1010 | 20 | 4 | 40 | 20 | 4 | 25 | 12 |
| A 2228MC1010 | 30 | 8 | 60 | 30 | 5 | 40 | 20 |
| A 2229MC1010 | 40 | 12 | 80 | 40 | 5 | 55 | 30 |

| Catalog Number (Ref.) | L ₁ | Mounting Holes | | 1800 rpm Input | | Weight grams |
|-----------------------|----------------|----------------|-------|------------------------|-------------------|--------------|
| | | Size | Depth | Max. Output Torque N·m | Max. Output Power | |
| A 2227MC1010 | 15 | M4 | 5 | 0.3 | 149W (0.2 HP) | 80 |
| A 2228MC1010 | 20 | M5 | 7 | 1.3 | 336W (0.45 HP) | 265 |
| A 2229MC1010 | 25 | M6 | 9 | 3.8 | 746W (1 HP) | 665 |



Request Info

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> PERFORMANCE DATA FOR FOLLOWING PAGES:

| Catalog Number | Ratio | Specification | X-Axis (rpm) | | | | | | | | | | | | Allowable Thrust Load N (lbf) | |
|--------------------------|-------|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------------------|---------------|
| | | | 50 | 100 | 200 | 300 | 400 | 600 | 900 | 1200 | 1500 | 1800 | 2500 | 3600 | X-Axis | Y-Axis |
| 1:1 RATIO | | | | | | | | | | | | | | | | |
| S991TYM10A S991LYM10A | 1:1 | Allowable Power kW | 0.01 | 0.02 | 0.05 | 0.07 | 0.09 | 0.14 | 0.20 | 0.26 | 0.31 | 0.35 | 0.38 | 0.44 | 59 (13.3) | 69 (15.5) |
| | | X-Y Axis Torque N • m (kgf • m) [lb • ft] | 2.35 (0.24) [1.73] | 2.35 (0.24) [1.73] | 2.25 (0.23) [1.66] | 2.25 (0.23) [1.66] | 2.16 (0.22) [1.59] | 2.16 (0.22) [1.59] | 2.06 (0.21) [1.52] | 2.06 (0.21) [1.52] | 1.96 (0.20) [1.45] | 1.86 (0.19) [1.37] | 1.47 (0.15) [1.08] | 1.18 (0.12) [0.87] | | |
| S991TYM15A S991LYM15A | | Allowable Power kW | 0.05 | 0.09 | 0.18 | 0.27 | 0.35 | 0.51 | 0.75 | 0.96 | 1.16 | 1.30 | 1.44 | 1.66 | 98 (22.0) | 118 (26.5) |
| | | X-Y Axis Torque N • m (kgf • m) [lb • ft] | 8.82 (0.90) [6.51] | 8.82 (0.90) [6.51] | 8.62 (0.88) [6.36] | 8.53 (0.87) [6.29] | 8.33 (0.85) [6.14] | 8.13 (0.83) [6.00] | 7.94 (0.81) [5.86] | 7.64 (0.78) [5.63] | 7.35 (0.75) [5.42] | 6.86 (0.70) [5.06] | 5.49 (0.56) [4.05] | 4.41 (0.45) [3.25] | | |
| S991TYM20A S991LYM20A | | Allowable Power kW | 0.09 | 0.18 | 0.36 | 0.52 | 0.68 | 0.95 | 1.38 | 1.78 | 2.15 | 2.50 | 2.55 | 2.95 | 196 (44.1) | 274 (61.6) |
| | | X-Y Axis Torque N • m (kgf • m) [lb • ft] | 17.6 (1.80) [13.0] | 17.6 (1.80) [13.0] | 17.2 (1.75) [12.7] | 16.7 (1.70) [12.3] | 16.2 (1.65) [11.9] | 15.2 (1.55) [11.2] | 14.7 (1.50) [10.8] | 14.2 (1.45) [10.4] | 13.7 (1.40) [10.1] | 13.2 (1.35) [9.7] | 9.80 (1.00) [7.2] | 7.84 (0.80) [5.8] | | |
| 2:1 RATIO | | | | | | | | | | | | | | | | |
| S991TYM10B S991LYM10B | 2:1 | Allowable Power kW | 0.005 | 0.01 | 0.02 | 0.03 | 0.04 | 0.06 | 0.09 | 0.12 | 0.14 | 0.16 | 0.17 | 0.20 | 59 (13.3) | 69 (15.5) |
| | | Y-Axis Torque N • m (kgf • m) [lb • ft] | 2.06 (0.21) [1.52] | 2.06 (0.21) [1.52] | 2.06 (0.21) [1.52] | 1.96 (0.20) [1.45] | 1.96 (0.20) [1.45] | 1.96 (0.20) [1.45] | 1.86 (0.19) [1.37] | 1.86 (0.19) [1.37] | 1.76 (0.18) [1.30] | 1.67 (0.17) [1.23] | 1.27 (0.13) [0.94] | 1.08 (0.11) [0.80] | | |
| S991TYM15B S991LYM15B | | Allowable Power kW | 0.02 | 0.04 | 0.08 | 0.13 | 0.17 | 0.25 | 0.36 | 0.46 | 0.55 | 0.62 | 0.69 | 0.80 | 98 (22.0) | 118 (26.5) |
| | | Y-Axis Torque N • m (kgf • m) [lb • ft] | 8.43 (0.86) [6.22] | 8.43 (0.86) [6.22] | 8.23 (0.84) [6.07] | 8.13 (0.83) [6.00] | 8.04 (0.82) [5.93] | 7.84 (0.80) [5.78] | 7.55 (0.77) [5.57] | 7.25 (0.74) [5.35] | 7.06 (0.72) [5.21] | 6.57 (0.67) [4.85] | 5.29 (0.54) [3.90] | 4.21 (0.43) [3.11] | | |
| S991TYM20B S991LYM20B | | Allowable Power kW | 0.05 | 0.10 | 0.19 | 0.28 | 0.37 | 0.53 | 0.77 | 0.99 | 1.15 | 1.31 | 1.40 | 1.57 | 196 (44.1) | 274 (61.6) |
| | | Y-Axis Torque N • m (kgf • m) [lb • ft] | 19.6 (2.00) [14.5] | 19.6 (2.00) [14.5] | 18.6 (1.90) [13.7] | 18.1 (1.85) [13.3] | 17.6 (1.80) [13.0] | 17.0 (1.73) [12.5] | 16.4 (1.67) [12.1] | 15.7 (1.60) [11.6] | 14.7 (1.50) [10.8] | 13.9 (1.42) [10.3] | 10.8 (1.10) [7.97] | 8.33 (0.85) [6.14] | | |

NOTE: When the 2:1 ratio is used as a speed increaser (from the Y-Axis to the X-Axis), the X-Axis torque becomes one half of the Y-Axis torque shown in the table.

HEAVY-DUTY "L" GEAR DRIVES

SDP/SI

1:1 OR 2:1 RATIOS
 RATED SPEEDS UP TO 3600 RPM
 LOW NOISE & HIGH EFFICIENCY
 EASY INSTALLATION
 COMPACT DESIGN
 MAINTENANCE-FREE
 REVERSIBLE

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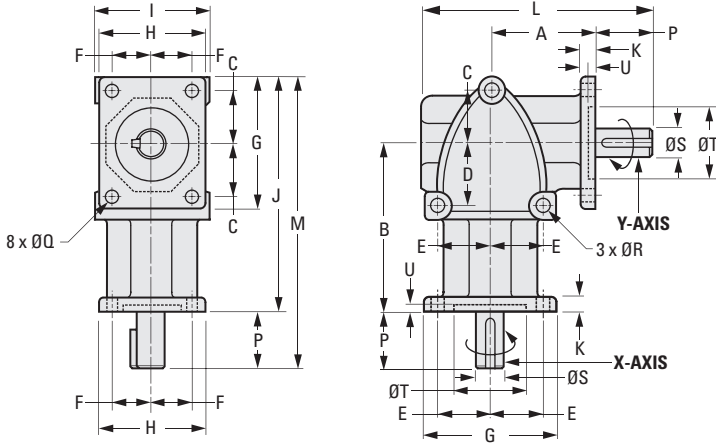


> MATERIAL:

- Gears - Spiral Bevel, Case-Hardened Alloy Steel
- Case - Aluminum Die-Cast
- Shafts - Alloy Steel

> OPERATING TEMPERATURE:

-10°C to +40°C



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Ratio | A | B | C | D | E | F | G | H | I | J | K | L |
|----------------|-------|----|-----|----|----|----|----|----|----|----|-----|----|-----|
| S991LYM10A | 1:1 | 37 | 58 | 18 | 18 | 18 | 14 | 46 | 38 | 40 | 82 | 5 | 82 |
| S991LYM10B | 2:1 | 37 | 58 | 18 | 18 | 18 | 14 | 46 | 38 | 40 | 82 | 5 | 82 |
| S991LYM15A | 1:1 | 66 | 100 | 31 | 36 | 31 | 22 | 80 | 62 | 66 | 140 | 8 | 137 |
| S991LYM15B | 2:1 | 66 | 100 | 31 | 36 | 31 | 22 | 80 | 62 | 66 | 140 | 8 | 137 |
| S991LYM20A | 1:1 | 80 | 120 | 36 | 36 | 36 | 26 | 92 | 72 | 76 | 166 | 10 | 168 |
| S991LYM20B | 2:1 | 80 | 120 | 36 | 36 | 36 | 26 | 92 | 72 | 76 | 166 | 10 | 168 |

| Catalog Number (Ref.) | M | P | Q Dia. | R Dia. | S Dia. h7 | T Dia. H7 | U | Key | Backlash of Shaft Rotation | Weight kg |
|-----------------------|-----|----|--------|--------|-----------|-----------|---|--------------|----------------------------|-----------|
| S991LYM10A | 102 | 20 | 5.5 | 6.5 | 10 | 26 | 2 | 1 mm deep | 16'...44' | 0.4 |
| S991LYM10B | 102 | 20 | 5.5 | 6.5 | 10 | 26 | 2 | Flat 15 / | 30'...1°23' | 0.4 |
| S991LYM15A | 170 | 30 | 8.5 | 8.5 | 15 | 42 | 3 | 5 x 5 x 27 / | 10'...37' | 1.8 |
| S991LYM15B | 170 | 30 | 8.5 | 8.5 | 15 | 42 | 3 | | 19'...1°09' | 1.8 |
| S991LYM20A | 206 | 40 | 8.5 | 8.5 | 20 | 52 | 4 | 6 x 6 x 35 / | 8'...33' | 3.1 |
| S991LYM20B | 206 | 40 | 8.5 | 8.5 | 20 | 52 | 4 | | 15'...60' | 3.1 |

See page 12-8 for performance data.



Request Info

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HEAVY-DUTY "T" GEAR DRIVES

SDP/SI

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- 1:1 OR 2:1 RATIOS
- RATED SPEEDS UP TO 3600 RPM
- LOW NOISE & HIGH EFFICIENCY
- EASY INSTALLATION
- COMPACT DESIGN
- MAINTENANCE-FREE
- REVERSIBLE

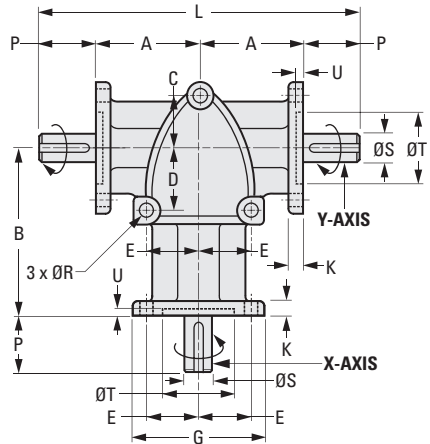
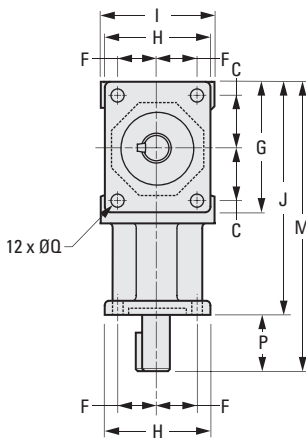


➤ MATERIAL:

- Gears - Spiral Bevel, Case-Hardened Alloy Steel
- Case - Aluminum Die-Cast
- Shafts - Alloy Steel

➤ OPERATING TEMPERATURE:

-10°C to +40°C



The projections shown are per ISO convention

METRIC COMPONENT

| Catalog Number | Ratio | A | B | C | D | E | F | G | H | I | J | K | L |
|----------------|-------|----|-----|----|----|----|----|----|----|----|-----|----|-----|
| S991TYM10A | 1:1 | 37 | 58 | 18 | 18 | 18 | 14 | 46 | 38 | 40 | 82 | 5 | 114 |
| S991TYM10B | 2:1 | 37 | 58 | 18 | 18 | 18 | 14 | 46 | 38 | 40 | 82 | 5 | 144 |
| S991TYM15A | 1:1 | 66 | 100 | 31 | 36 | 31 | 22 | 80 | 62 | 66 | 140 | 8 | 192 |
| S991TYM15B | 2:1 | 66 | 100 | 31 | 36 | 31 | 22 | 80 | 62 | 66 | 140 | 8 | 192 |
| S991TYM20A | 1:1 | 80 | 120 | 36 | 36 | 36 | 26 | 92 | 72 | 76 | 166 | 10 | 240 |
| S991TYM20B | 2:1 | 80 | 120 | 36 | 36 | 36 | 26 | 92 | 72 | 76 | 166 | 10 | 240 |

| Catalog Number (Ref.) | M | P | Q Dia. | R Dia. | S Dia. h7 | T Dia. H7 | U | Key | Backlash of Shaft Rotation | Weight kg |
|-----------------------|-----|----|--------|--------|-----------|-----------|---|--------------|----------------------------|-----------|
| S991TYM10A | 102 | 20 | 5.5 | 6.5 | 10 | 26 | 2 | 1 mm deep | 16'...44' | 0.5 |
| S991TYM10B | 102 | 20 | 5.5 | 6.5 | 10 | 26 | 2 | Flat 15 / | 30'...1°23' | 0.5 |
| S991TYM15A | 170 | 30 | 8.5 | 8.5 | 15 | 42 | 3 | 5 x 5 x 27 / | 10'...37' | 2.2 |
| S991TYM15B | 170 | 30 | 8.5 | 8.5 | 15 | 42 | 3 | | 19'...1°09' | 2.2 |
| S991TYM20A | 206 | 40 | 8.5 | 8.5 | 20 | 52 | 4 | 6 x 6 x 35 / | 8'...33' | 3.4 |
| S991TYM20B | 206 | 40 | 8.5 | 8.5 | 20 | 52 | 4 | | 15'...60' | 3.4 |

See page 12-8 for performance data.

12-10



Request Info



1-800-453-1692

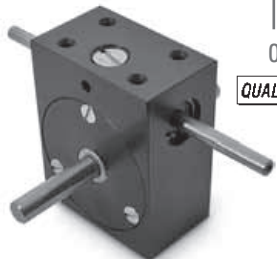
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PRECISION QUALITY
STYLE "E"
MULTIPLE RATIOS

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QUALITY CLASS



> MATERIAL:

- Housing** - Aluminum Alloy, Black Anodized
- Shafts - Input** - Carbon Steel, Integral with Worm
- Output** - Mild Steel
- Gears - Worm** - Hardened Carbon Steel with Polished Right-Hand Threads
- Worm Wheel** - Phosphor Bronze
- Bearings - Input** - Precision Ball
- Output** - Self-Lubricating

> LUBRICATION:

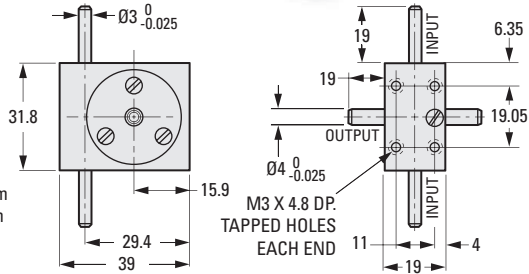
Packed with grease at assembly having temperature range of -20°C to +150°C.

> SPECIFICATIONS:

- Input Speed:** 6000 rpm Max.
- Backlash at Output:** 0°30'
- Torque:**
- Max. starting torque at input shaft:** $5 \times 10^{-4} \text{ N} \cdot \text{m}$
- Max. cont. output torque @ 1800 rpm:** $0.51 \text{ N} \cdot \text{m}$

> WEIGHT:

0.08 kg



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Ratio to 1 |
|----------------|------------|
| A 2217ME0080 | 8 |
| A 2217ME0100 | 10 |
| A 2217ME0125 | 12.5 |
| A 2217ME0166 | 16.67 |
| A 2217ME0200 | 20 |
| A 2217ME0250 | 25 |
| A 2217ME0300 | 30 |
| A 2217ME0500 | 50 |
| A 2217ME0600 | 60 |
| A 2217ME0800 | 80 |

NOTE:

Also available in other styles where special shaft diameters or extensions are required. These speed reducers are available with anti-backlash gears. Input speed, however, is limited to 3000 rpm with a maximum continuous output torque of 0.009 N • m. Maximum starting torque at input shaft is $60 \times 10^{-4} \text{ N} \cdot \text{m}$.

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PRECISION QUALITY
STYLE "E"
MULTIPLE RATIOS

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QUALITY CLASS

► **MATERIAL:**

- Housing** - Aluminum Alloy, Black Anodized
- Shafts - Input** - Carbon Steel
- Output** - Mild Steel
- Gears - Worm** - Hardened Carbon Steel with Polished Right-Hand Threads
- Worm Wheel** - Phosphor Bronze
- Bearings - Input** - Precision Ball
- Output** - Self-Lubricating

► **LUBRICATION:**

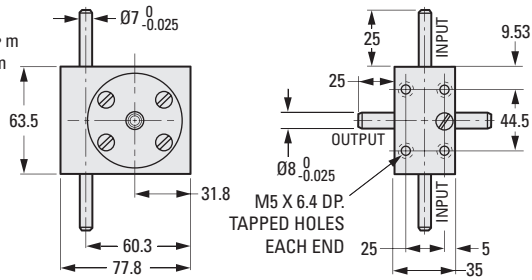
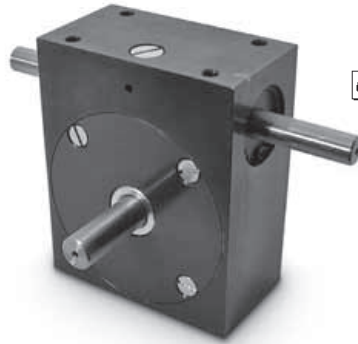
Packed with grease at assembly having temperature range of -20°C to +150°C.

► **SPECIFICATIONS:**

- Input Speed:** 6000 rpm Max.
- Backlash at Output:** 0°30'
- Torque:**
- Max. starting torque at input shaft:** $80 \times 10^{-4} \text{ N} \cdot \text{m}$
- Max. cont. output torque @ 1800 rpm:** $4.41 \text{ N} \cdot \text{m}$

► **WEIGHT:**

0.6 kg



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Ratio to 1 |
|----------------|------------|
| A 2Z19ME0060 | 6 |
| A 2Z19ME0100 | 10 |
| A 2Z19ME0200 | 20 |
| A 2Z19ME0250 | 25 |
| A 2Z19ME0300 | 30 |
| A 2Z19ME0360 | 36 |
| A 2Z19ME0500 | 50 |
| A 2Z19ME0700 | 70 |
| A 2Z19ME1000 | 100 |

NOTE:

Also available in other styles where special shaft diameters or extensions are required. These speed reducers are available with anti-backlash gears. Input speed, however, is limited to 3000 rpm with a maximum continuous output torque of $0.29 \text{ N} \cdot \text{m}$. Maximum starting torque at input shaft is $1225 \times 10^{-4} \text{ N} \cdot \text{m}$.

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RIGHT ANGLE HELICAL GEAR SPEED REDUCERS



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MULTIPLE RATIOS
RATED SPEEDS UP TO 1800 RPM
BASE-MOUNTED
LIGHT-DUTY



> MATERIAL:

Housing and Base - Aluminum Alloy, Black Anodized
Gears - Hardened Steel Helical
Shafts - Steel-Plated

> SPECIFICATIONS:

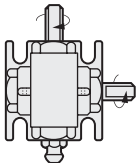
Backlash: 3° Nominal
8° Including End Play

> APPROX. WEIGHT:

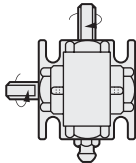
113 grams

For 1:1 ratio, any shaft may be used as input.

| Output Power @ 1800 rpm Input | | |
|-------------------------------|-----------------------|-------------------------|
| Duty | From 1:1 to 5:1 Ratio | From 10:1 to 25:1 Ratio |
| Intermittent | 93W (1/8 HP) | 62W (1/12 HP) |
| Continuous | 50W (1/15 HP) | 37W (1/20 HP) |

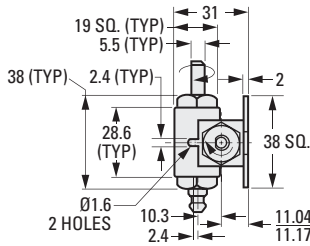


2RR SERIES



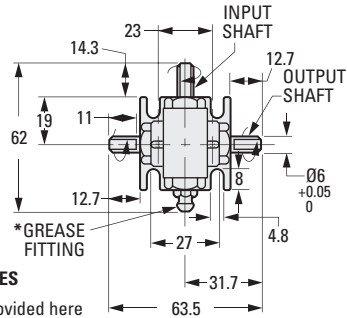
2SR SERIES

The projections shown are per ISO convention.



3DR SERIES

*Shaft extension may be provided here in lieu of grease fitting (special item).



METRIC COMPONENT

| Catalog Number | Shaft Extension | Gear Ratio | Torque Capacity N • m | | |
|----------------|-----------------|------------|-----------------------|--------|---------|
| | | | Ultimate Static | Manual | Dynamic |
| A 2222M3DR0106 | Left & Right | 1:1 | 4 | 3.2 | 0.5 |
| A 2222M2SR0106 | Left | 1:1 | 4 | 3.2 | 0.5 |
| A 2222M2RR0106 | Right | 1:1 | 4 | 3.2 | 0.5 |
| A 2222M3DR0206 | Left & Right | 2:1 | 4 | 3.2 | 0.5 |
| A 2222M2SR0206 | Left | 2:1 | 4 | 3.2 | 0.5 |
| A 2222M2RR0206 | Right | 2:1 | 4 | 3.2 | 0.5 |
| A 2222M3DR0306 | Left & Right | 3:1 | 4 | 3.2 | 0.5 |
| A 2222M2SR0306 | Left | 3:1 | 4 | 3.2 | 0.5 |
| A 2222M2RR0306 | Right | 3:1 | 4 | 3.2 | 0.5 |
| A 2222M3DR0406 | Left & Right | 4:1 | 4 | 3.2 | 0.5 |
| A 2222M2SR0406 | Left | 4:1 | 4 | 3.2 | 0.5 |
| A 2222M2RR0406 | Right | 4:1 | 4 | 3.2 | 0.5 |
| A 2222M3DR0506 | Left & Right | 5:1 | 4 | 3.2 | 0.5 |
| A 2222M2SR0506 | Left | 5:1 | 4 | 3.2 | 0.5 |
| A 2222M2RR0506 | Right | 5:1 | 4 | 3.2 | 0.5 |
| A 2222M3DR1006 | Left & Right | 10:1 | 2.8 | 2.3 | 0.35 |
| A 2222M2SR1006 | Left | 10:1 | 2.8 | 2.3 | 0.35 |
| A 2222M2RR1006 | Right | 10:1 | 2.8 | 2.3 | 0.35 |
| A 2222M3DR1506 | Left & Right | 15:1 | 2.8 | 2.3 | 0.35 |
| A 2222M2SR1506 | Left | 15:1 | 2.8 | 2.3 | 0.35 |
| A 2222M2RR1506 | Right | 15:1 | 2.8 | 2.3 | 0.35 |
| A 2222M3DR2506 | Left & Right | 25:1 | 2.8 | 2.3 | 0.35 |
| A 2222M2SR2506 | Left | 25:1 | 2.8 | 2.3 | 0.35 |
| A 2222M2RR2506 | Right | 25:1 | 2.8 | 2.3 | 0.35 |

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 LIGHT-DUTY

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> MATERIAL:

Housing and Base - Aluminum Alloy, Black Anodized
Gears - Hardened Steel Helical
Shafts - Steel-Plated

> SPECIFICATIONS:

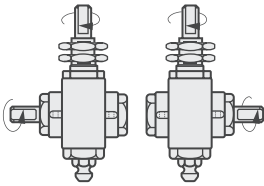
Backlash: 3° Nominal
 8° Including End Play

> APPROX. WEIGHT:

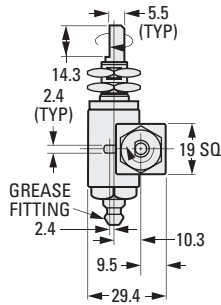
113 grams

For 1:1 ratio, any shaft may be used as input.

The projections shown are per ISO convention.

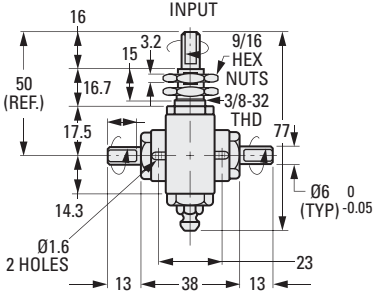


2SR SERIES 2RR SERIES



3DR SERIES

| Output Power @ 1800 rpm Input | | |
|-------------------------------|-----------------------|-------------------------|
| Duty | From 1:1 to 5:1 Ratio | From 10:1 to 25:1 Ratio |
| Intermittent | 93W (1/8 HP) | 62W (1/12 HP) |
| Continuous | 50W (1/15 HP) | 37W (1/20 HP) |



METRIC COMPONENT

| Catalog Number | Shaft Extension | Gear Ratio | Torque Capacity N • m | | |
|----------------|-----------------|------------|-----------------------|--------|---------|
| | | | Ultimate Static | Manual | Dynamic |
| A 2223M3DR0106 | Left & Right | 1:1 | 4 | 3.2 | 0.5 |
| A 2223M2SR0106 | Left | 1:1 | 4 | 3.2 | 0.5 |
| A 2223M2RR0106 | Right | 1:1 | 4 | 3.2 | 0.5 |
| A 2223M3DR0206 | Left & Right | 2:1 | 4 | 3.2 | 0.5 |
| A 2223M2SR0206 | Left | 2:1 | 4 | 3.2 | 0.5 |
| A 2223M2RR0206 | Right | 2:1 | 4 | 3.2 | 0.5 |
| A 2223M3DR0306 | Left & Right | 3:1 | 4 | 3.2 | 0.5 |
| A 2223M2SR0306 | Left | 3:1 | 4 | 3.2 | 0.5 |
| A 2223M2RR0306 | Right | 3:1 | 4 | 3.2 | 0.5 |
| A 2223M3DR0406 | Left & Right | 4:1 | 4 | 3.2 | 0.5 |
| A 2223M2SR0406 | Left | 4:1 | 4 | 3.2 | 0.5 |
| A 2223M2RR0406 | Right | 4:1 | 4 | 3.2 | 0.5 |
| A 2223M3DR0506 | Left & Right | 5:1 | 4 | 3.2 | 0.5 |
| A 2223M2SR0506 | Left | 5:1 | 4 | 3.2 | 0.5 |
| A 2223M2RR0506 | Right | 5:1 | 4 | 3.2 | 0.5 |
| A 2223M3DR1006 | Left & Right | 10:1 | 2.8 | 2.3 | 0.35 |
| A 2223M2SR1006 | Left | 10:1 | 2.8 | 2.3 | 0.35 |
| A 2223M2RR1006 | Right | 10:1 | 2.8 | 2.3 | 0.35 |
| A 2223M3DR1506 | Left & Right | 15:1 | 2.8 | 2.3 | 0.35 |
| A 2223M2SR1506 | Left | 15:1 | 2.8 | 2.3 | 0.35 |
| A 2223M2RR1506 | Right | 15:1 | 2.8 | 2.3 | 0.35 |
| A 2223M3DR2506 | Left & Right | 25:1 | 2.8 | 2.3 | 0.35 |
| A 2223M2SR2506 | Left | 25:1 | 2.8 | 2.3 | 0.35 |
| A 2223M2RR2506 | Right | 25:1 | 2.8 | 2.3 | 0.35 |



Request Info

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In-Line Slip Clutches
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In-Line Slip Clutches
pg. 13-3



Plastic Bearings Magnetic Particle Slip Clutches
pg. 13-6



Ball Bearings Magnetic Particle Slip Clutches
pg. 13-6



Magnetic Particle Slip Clutches with Shaft
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Spring-Wrapped Slip Clutches
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Spring-Wrapped Slip Couplings
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Magnetic Clutches and Couplings
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Magnetic Clutches and Couplings
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Magnetic Clutches and Couplings
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Roller Clutches
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Roller Clutches with Bearing Support
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Roller Clutches with Bearing Support
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Power-Off Cap Style Brakes
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Power-Off Parallel Plate Brakes
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Shaft-Mounted Clutches
pg. 13-33

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Shaft-Mounted Clutch Couplings
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Flange-Mounted Clutches
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Flange-Mounted Clutch Couplings
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Technical Data

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- Examples of In-Line Slip Clutch Applications-pg. 13-4
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- Magnetic Clutches & Couplings, Applications-pg. 13-12
- Magnetic Clutches & Couplings, Operating Curves-pg. 13-15
- Hysteresis Brakes & Clutches-pg. 13-22

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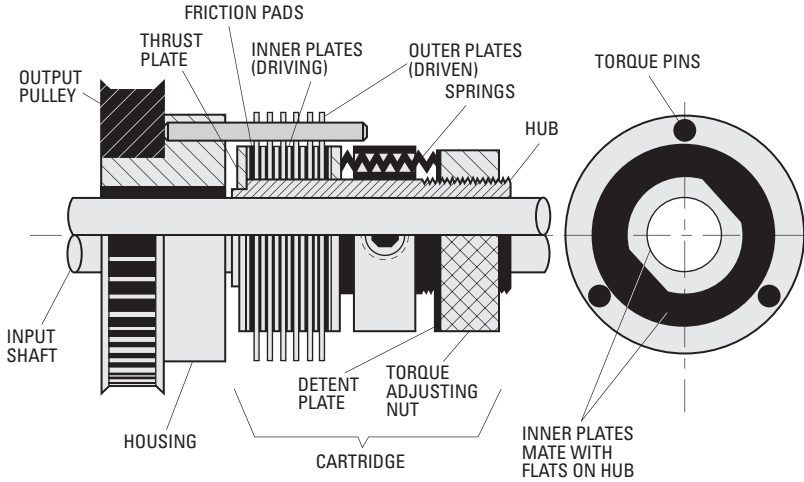
15

A



> FUNCTION:

Multiplate slip clutches control torque for intermittent, continuous, or overload slip. It will drive in both directions, slip when the torque setting is reached, and resume driving as the load is reduced. These clutches are excellent as continuous or intermittent drag brakes, protection against overloads, for "soft starts," slip at the end of a stroke, as friction hinges, for screwing on container caps, etc.



> CONSTRUCTION:

The clutch consists of two assemblies: a cartridge and a housing (see cutaway above). The cartridge is set-screwed or keyed to the input shaft. The housing is either set-screwed or keyed to the output shaft or, as shown, is attached to the output gear or pulley with a bronze bearing to allow relative motion between the input shaft and the output gear/pulley. Torque is transmitted from the flats on the hub to the mating flats on the inner plates, through the friction pads to the outer plates, through the torque pins to the housing and the output gear/pulley. The torque level is controlled by compressing the springs with the adjusting nut. For a fixed torque clutch, a collar is attached to the hub in a fixed position instead of the adjusting nut. In operation, either the input shaft or the housing can be the input member, with the other member being driven.

> CAPACITY:

The clutch capacity as noted in the catalog is based on continuous operation at 50 rpm for over 25 million cycles. Torque, rpm, duty cycle and life are interdependent. A reduction of any of these will allow an increase in any other. Running at 25 rpm will allow twice the torque, or running for only 10% of the cycle will allow higher rpm, etc. The limit is based on heat buildup measured in watts:

English Unit Watts = Torque (inch pounds) x rpm x 0.0118 x % Duty Cycle

Metric Unit Watts = Torque (N • m) x rpm x 0.104 x % Duty Cycle

For typical applications, see examples on page 13-4

> MATERIAL:

- Fig. 1 - Housing** - Zinc Plated Steel
- Plates** - Brass
- Friction Materials** - Proprietary (Nonasbestos)
- Fig. 2 - Housing** - Aluminum
- Plates** - Brass
- Friction Materials** - Proprietary (Nonasbestos)

> FEATURES:

- Fully adjustable within rating limits
- Low stick / slip ratio
- Continuous slip within dissipation limit
- Available with bronze bearing in hub end so that gear, pulley, etc. can be mounted on hub "D₁"
- Available with other bores as special order



Fig. 1



Fig. 2

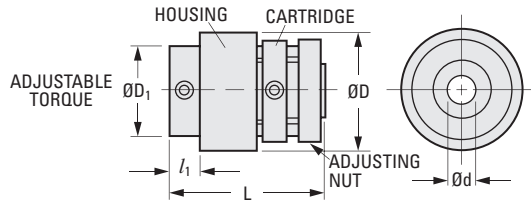


Fig. 1

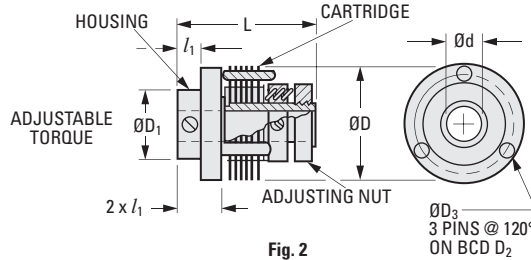


Fig. 2

METRIC COMPONENT

| Catalog Number | D Body Dia. ± 0.5 | d Bore | | L Length ± 0.05 | D ₁ Hub Dia. ± 0.05 | l ₁ Hub Length | Bore Depth | | Torque* Range N • cm @ 50 rpm | * Dissip. Power Watts | Friction Surfaces |
|------------------|-------------------|--------------|-----------------|-----------------|--------------------------------|---------------------------|------------|-----------|-------------------------------|-----------------------|-------------------|
| | | Std. +0.05 0 | Max. Bore Spec. | | | | Hub End | Cart. End | | | |
| Fig. 1 | | | | | | | | | | | |
| S98CA6MMOC250827 | 25.4 | 8 | 10 | 26.9 | 19.3 | 6.3 | 7.8 | 19.1 | 0.23 to 22.6 | 1 | 2 |
| S98CA6MMOC250833 | 25.4 | 8 | 10 | 33.3 | 19.3 | 6.3 | 7.8 | 25.4 | 1.13 to 113 | 5.8 | 8 |

| Catalog Number | D Body Dia. ± 0.5 | d Bore | | L Length ± 0.05 | D ₁ Hub Dia. ± 0.05 | l ₁ Hub Length | Bore Depth | | D ₂ | D ₃ | Torque* Range N • cm @ 50 rpm | * Dissip. Power Watts | Friction Surfaces |
|------------------|-------------------|--------------|-----------------|-----------------|--------------------------------|---------------------------|------------|-----------|----------------|----------------|-------------------------------|-----------------------|-------------------|
| | | Std. +0.05 0 | Max. Bore Spec. | | | | Hub End | Cart. End | | | | | |
| Fig. 2 | | | | | | | | | | | | | |
| S98CA6MMOC320838 | 31.8 | 8 | 10 | 38.1 | 19.3 | 6.3 | 12.7 | 25.4 | 26.98 | 2.38 | 1.13 to 113 | 6 | 8 |
| S98CA6MMOC381063 | 38.1 | 10 | 13 | 63.5 | 25.7 | 9.4 | 19.1 | 44.5 | 33.32 | 3.17 | 5.65 to 282 | 14.5 | 12 |
| S98CA6MMOC511273 | 50.8 | 12 | 16 | 72.9 | 35.1 | 12.7 | 25.4 | 47.7 | 42.47 | 4.78 | 9.04 to 564 | 29 | 12 |
| S98CA6MMOC701273 | 69.9 | 12 | 16 | 72.9 | 41.4 | 12.7 | 25.4 | 47.7 | 60.33 | 4.78 | 11.3 to 847 | 43 | 12 |

* See Technical Applications page.

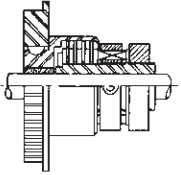


> UNLIMITED APPLICATIONS:*

- | | |
|---------------------|-----------------|
| Intermittent motion | Torque limiting |
| Indexing | Hinging |
| Phase adjustment | Many more |
| Feeding | |

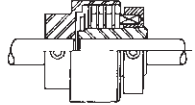
* The ingenuity of engineering has led to applications with labelers, indexing, film transport, instrumentation, business machines, computer peripherals, packaging, mailing, plotters, paper feeds and many more. We supply stock clutches or we work with you to develop units for your specific applications.

> TYPICAL MULTIPLATE SLIP CLUTCH APPLICATIONS:



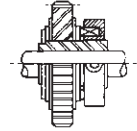
TIMING BELT ON HOUSING

Timing belt drives housing. Torque transmitted through adjustable pressure plates to shaft. Also operates as shaft input to timing belt.



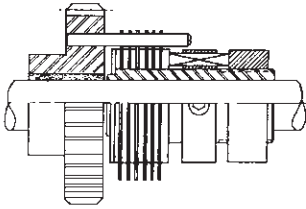
SHAFT TO SHAFT CONTROL

Either shaft as input. Fixed torque transmitted through pressure plates. Shafts must be journaled. Also can be adjustable torque.



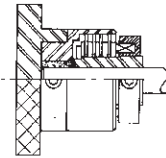
SLIP CARTRIDGE WITH GEAR

Pressure pads transmit torque directly to gear for space saving package.



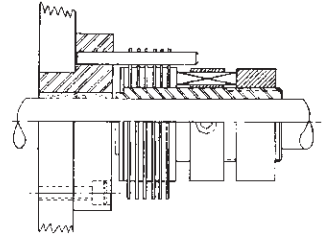
CLUTCH WITH A MODIFIED GEAR

Torque transmitted directly from gear through pins to adjustable pressure plates.



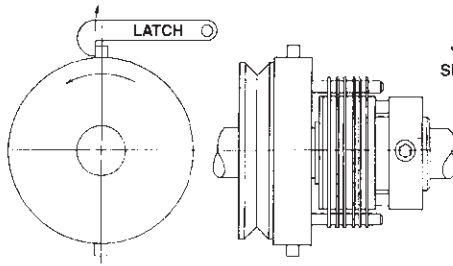
KNOB WITH TORQUE PROTECTION

Knob connected directly to housing. Fixed torque transmitted to shaft. Will slip above preset torque.



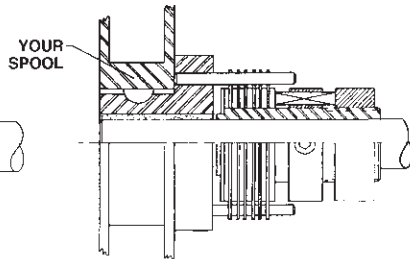
BRAKE TO FRAME OF MACHINE

Outer pressure plates held to machine frame. Adjustable braking pressure transmitted to shaft.



"SINGLE" REVOLUTION CLUTCH

Input shaft turns continuously. Output shaft turns when latch is disengaged. Single revolution, partial revolution, or multi-revolutions can be designed.



CONSTANT TORQUE – SUPPLY OR REWIND SPOOL

Slip clutch mounted directly to spool will give constant torque. Mounted directly to constant diameter cylinder will give constant tension. Many variations available to control wire supply system.

> DESIGN:

The magnetic particle slip clutch uses a sealed, steel outer housing and permanent magnets arranged alternately (north and south poles) around a central hub.



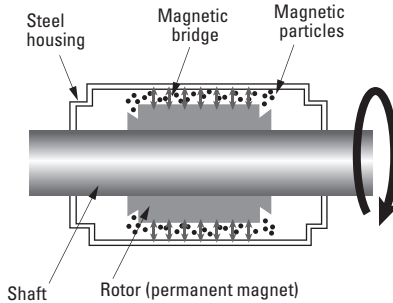
The space between the housing and the magnets is filled with a ferromagnetic compound (hysteresis particles). The particles align themselves along the flux pattern between the steel housing and the magnets, creating a magnetic coupling between them. (See Fig. 1)

The torque rating is determined by the number of particles added. The clutches can be manufactured in the range from 2.82 to 39.55 N • cm. Because the coupling is magnetic, torque value remains stable over time, temperature and speed value.

> APPLICATIONS:

One of the applications is for paper feeding devices on scanners, copy machines and fax machines. Paper is an abrasive material. Pages often stick together and usually the thickness of the paper is different. The paper feeding device uses a powered roller to “urge” the top sheet off an infeed stack toward the interface between a second pair of rollers just beyond the urging mechanism. On the second pair, one of the rollers is powered; the second is unpowered, spring-loaded against the first and rides on a shaft linked to the chassis through the magnetic particle clutch. With no paper in the feeder mechanism, the clutch slips; when a single page is drawn between rollers, friction between the rollers and the paper remains high enough to maintain slippage and paper passes through the mechanism normally.

If two or more pages are drawn in, the coefficient of friction between the pages is not high enough to drive the unpowered roller. The slip clutch now acts as a drag brake holding back the lower roller. The roller stalls, preventing all but the top page from continuing through the feed device.



**Fig. 1
Reversible Magnetic
Particle Slip Clutch**

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- 8
- 9
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- 14
- 15
- A

ZERO MAINTENANCE
CONSTANT TORQUE LEVELS

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> MATERIAL:

Shell - Steel
End Caps - Plastic

> FEATURES:

Requires no power
Uses permanent magnets and magnetic particles
Long operational life
Sealed from contamination

> SPECIFICATIONS:

d Tolerances:
Fig. 1: +0.1/0
Fig. 2: +0.022/0
*D₁ Tolerance: 0/-0.033 (h8)

**Optional torques available only by special order.

When the slip clutch is to be subjected to any radial or axial thrust, use of the ball bearing design is required. Units should be used on horizontal shafts only.

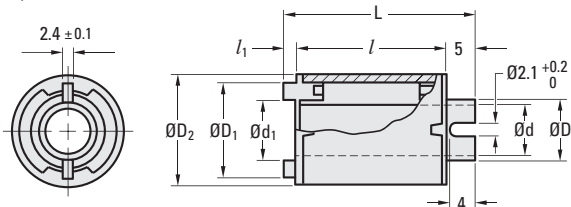


Fig. 1

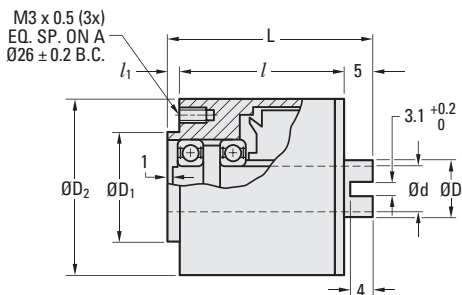


Fig. 2

METRIC COMPONENT

| Catalog Number | d Bore | d ₁ | D Hub Dia. | D ₁ Hub Dia. | D ₂ | l | l ₁ End Lgth. | L Total Lgth. | Max. Allowable Speed rpm | Torque | | Weight kg |
|--------------------------------|--------|----------------|------------|-------------------------|----------------|----|--------------------------|---------------|--------------------------|--------------------|----------------------------|-----------|
| | | | | | | | | | | ± 10% Static N • m | Nominal Opt. Range** N • m | |
| Fig. 1 Plastic Bearings | | | | | | | | | | | | |
| S90APLMP08030028 | 8 | 11 | 11 | 17 | 20 | 20 | 2.5 | 27.5 | 300 | 0.030 | 0.019 - 0.040 | 0.025 |
| S90APLMP08060028 | 8 | 11 | 11 | 17 | 20 | 20 | 2.5 | 27.5 | 300 | 0.060 | 0.040 - 0.060 | 0.025 |
| S90APLMP08120035 | 8 | 11 | 11 | 17 | 20 | 27 | 2.5 | 34.5 | 250 | 0.120 | 0.060 - 0.120 | 0.030 |
| Fig. 2 Ball Bearings | | | | | | | | | | | | |
| S90APLMS08099037 | 8 | - | 10 | 20* | 32 | 30 | 2 | 37 | 400 | 0.099 | 0.070 - 0.099 | 0.120 |
| S90APLMS08150037 | 8 | - | 10 | 20* | 32 | 30 | 2 | 37 | 400 | 0.150 | 0.099 - 0.150 | 0.120 |
| S90APLMS08199044 | 8 | - | 10 | 20* | 32 | 37 | 2 | 44 | 300 | 0.199 | 0.150 - 0.199 | 0.150 |
| S90APLMS08301044 | 8 | - | 10 | 20* | 32 | 37 | 2 | 44 | 300 | 0.301 | 0.199 - 0.301 | 0.150 |

ZERO MAINTENANCE
CONSTANT TORQUE LEVELS
INTEGRAL SHAFT

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➤ MATERIAL:

Shell - Steel
End Caps - Plastic
Shafts - Steel

➤ FEATURES:

Requires no power
Uses permanent magnets and magnetic particles
Long operational life

*Optional torques available only by special order.

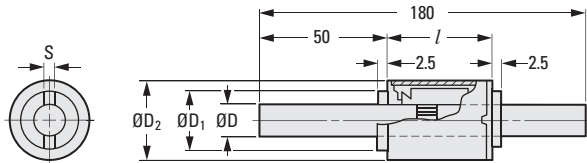


Fig. 1

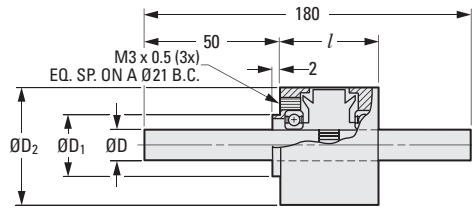


Fig. 2

METRIC COMPONENT

| Catalog Number ** | D Shaft Dia. 0 -0.03 | D ₁ Hub Dia. | D ₂ | S | l | Max. Allowable Speed rpm | Torque ± 10% Nominal | |
|--------------------------------|----------------------------------|-------------------------------|----------------|-----|----|-----------------------------------|-------------------------|----------------------|
| | | | | | | | Static N • m | Opt. Range* N • m |
| Fig. 1 Plastic Bearings | | | | | | | | |
| S90BPLMP08030025 | 8 | 15 | 20 | 2.4 | 20 | 300 | 0.030 | 0.019 - 0.040 |
| S90BPLMP08060025 | 8 | 15 | 20 | 2.4 | 20 | 300 | 0.060 | 0.040 - 0.060 |
| S90BPLMP08120032 | 8 | 15 | 20 | 2.4 | 27 | 250 | 0.120 | 0.060 - 0.120 |
| S90BPLMP08181039 | 8 | 15 | 20 | 2.4 | 34 | 200 | 0.181 | 0.120 - 0.181 |
| Fig. 2 Ball Bearings | | | | | | | | |
| S90BPLMS08099028 | 8 | 15 | 32 | - | 26 | 400 | 0.099 | 0.070 - 0.099 |
| S90BPLMS08150028 | 8 | 15 | 32 | - | 26 | 400 | 0.150 | 0.099 - 0.150 |
| S90BPLMS08199035 | 8 | 15 | 32 | - | 33 | 300 | 0.199 | 0.150 - 0.199 |
| S90BPLMS08301035 | 8 | 15 | 32 | - | 33 | 300 | 0.301 | 0.199 - 0.301 |
| S90BPLMS08398042 | 8 | 15 | 32 | - | 40 | 200 | 0.398 | 0.301 - 0.398 |

NOTE: When the slip clutch is to be subjected to any radial or axial thrust, use of the ball bearing design is required.
Units should be used on horizontal shafts only.



> FEATURES:

- Long life under continuous slip conditions
- Unidirectional or bidirectional operation
- Same or different clockwise and counterclockwise torques
- Precise and stable limit torque calibration (range: 0.007 to 4.24 N • m)
- Same torque at breakaway as at high slip velocities
- Mounting provisions for gear, sprocket or pulley
- Corrosion-resistant materials

> APPLICATIONS:

- Tension control of film or tape drives
- Transmission overload protection

> SPECIAL DESIGNS:

The standard line of slip elements provides a wide selection of limit torques, sizes and coupling arrangements. In addition, our engineers will modify designs to meet your specific requirements in such areas as:

- Configuration
- Driving arrangement
- Limit torques from a fraction of a N • cm to many N • m's
- Calibration of torque to a tolerance of ± 5%
- Different limit torques for the two directions of rotation
- Spring windup and limit torque combination. The spring action of the slip element is useful for tensioning of tape and prevention of slack loops.

*Stock units are calibrated with equal clockwise and counterclockwise slip torques corresponding to the tabulated Upper Limit Torques. Other torques are readily available from full, down to 1/8 of the Upper Limit Torque for each model. Torque values are independent of each other for clockwise and counterclockwise rotation, and may be specified the same or different for the two directions.

**All clutches in this series have a pilot diameter "D₃" and three tapped holes "T₁" for mounting a gear, sprocket or pulley on the input hub. Screw penetration into the clutch housing must not exceed the depth specified in column "T₁". Concentricity of pilot diameter "D₃" to bore "d" is 0.025 T.I.R. max.

All slip clutches are designed for long life under continuous slip conditions. The useful life of these elements is a function of the transmitted torque and slip speed.

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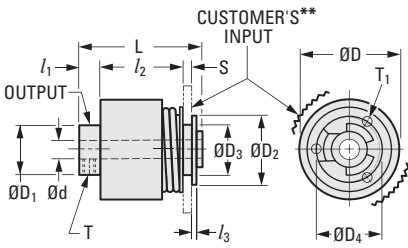


Fig. 1

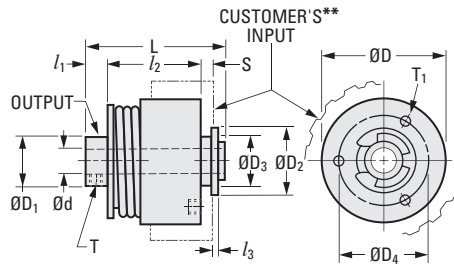


Fig. 2

METRIC COMPONENT

| Catalog Number | Fig. No. | d Bore +0.025/0 | D | L | l ₁ | l ₂ | S | l ₃ | T Set Screw | D ₁ Max. | D ₂ Max. | D ₃ 0 -0.025 | D ₄ | T ₁ | Upper* Limit Torque N • m | Wt. g |
|-----------------|----------|-----------------|-------|------|----------------|----------------|------|----------------|-------------|---------------------|---------------------|-------------------------|----------------|----------------|---------------------------|-------|
| S9940YMSWC16X03 | 1 | 3 | 16 | 26.7 | 4.57 | 18.29 | 2.03 | 0.76 | M1.6 | 13 | 11.43 | 9.5 | 12.7 | M2X3 | ± 0.064 | 26 |
| S9940YMSWC16X04 | 1 | 4 | 16 | 26.7 | 4.57 | 18.29 | 2.03 | 0.76 | M1.6 | 13 | 11.43 | 9.5 | 12.7 | M2X3 | ± 0.007 | 26 |
| S9940YMSWC25X04 | 1 | 4 | 25.4 | 31.5 | 5.33 | 21.59 | 2.41 | 1.02 | M3 | 22.4 | 17.27 | 12.675 | 16.51 | M2X3 | ± 0.141 | 68 |
| S9940YMSWC25X06 | 1 | 6 | 25.4 | 31.5 | 5.33 | 21.59 | 2.41 | 1.02 | M3 | 22.4 | 17.27 | 12.675 | 16.51 | M2X3 | ± 0.014 | 68 |
| S9940YMSWC25X08 | 1 | 8 | 25.4 | 31.5 | 5.33 | 21.59 | 2.41 | 1.02 | M3 | 22.4 | 17.27 | 12.675 | 16.51 | M2X3 | ± 0.057 | 68 |
| S9940YMSWC32X06 | 2 | 6 | 31.75 | 35.3 | 5.84 | 23.88 | 3.3 | 1.02 | M4 | 25.7 | 17.27 | 12.675 | 23.5 | M2X3 | ± 0.339 | 117 |
| S9940YMSWC32X08 | 2 | 8 | 31.75 | 35.3 | 5.84 | 23.88 | 3.3 | 1.02 | M4 | 25.7 | 17.27 | 12.675 | 23.5 | M2X3 | ± 0.035 | 117 |
| S9940YMSWC38X06 | 1 | 6 | 38.1 | 35.3 | 5.84 | 23.88 | 3.3 | 1.02 | M4 | 25.7 | 17.27 | 12.675 | 23.5 | M3X4 | ± 0.565 | 213 |
| S9940YMSWC38X08 | 1 | 8 | 38.1 | 35.3 | 5.84 | 23.88 | 3.3 | 1.02 | M4 | 32 | 17.27 | 12.675 | 23.5 | M3X4 | ± 0.057 | 213 |
| S9940YMSWC48X06 | 1 | 6 | 47.5 | 42.4 | 6.35 | 30.48 | 3.3 | 1.02 | M4 | 32 | 17.27 | 12.675 | 19.2 | M3X4 | ± 0.847 | 355 |
| S9940YMSWC48X08 | 1 | 8 | 47.5 | 42.4 | 6.35 | 30.48 | 3.3 | 1.02 | M4 | 38.4 | 17.27 | 12.675 | 19.2 | M3X4 | ± 0.085 | 355 |
| S9940YMSWC48X10 | 1 | 10 | 47.5 | 47.8 | 7.37 | 34.04 | 3.3 | 1.02 | M4 | 38.4 | 17.27 | 12.675 | 29.72 | M3X4 | ± 1.059 | 482 |
| S9940YMSWC48X12 | 1 | 12 | 47.5 | 47.8 | 7.37 | 34.04 | 3.3 | 1.02 | M4 | 38.4 | 17.27 | 19.025 | 29.72 | M3X4 | ± 0.170 | 482 |
| S9940YMSWC57X06 | 2 | 6 | 57.15 | 47.8 | 7.37 | 34.04 | 3.3 | 1.02 | M4 | 38.4 | 18.8 | 19.025 | 29.72 | M3X4 | ± 0.170 | 582 |
| S9940YMSWC57X08 | 2 | 8 | 57.15 | 47.8 | 7.37 | 34.04 | 3.3 | 1.02 | M4 | 51.1 | 18.8 | 19.025 | 29.72 | M3X4 | ± 1.695 | 582 |
| S9940YMSWC57X10 | 2 | 10 | 57.15 | 47.8 | 7.37 | 34.04 | 3.3 | 1.02 | M4 | 51.1 | 18.8 | 19.025 | 29.72 | M3X4 | ± 0.170 | 582 |
| S9940YMSWC57X12 | 2 | 12 | 57.15 | 47.8 | 7.37 | 34.04 | 3.3 | 1.02 | M4 | 51.1 | 18.8 | 19.025 | 29.72 | M3X4 | ± 0.170 | 582 |
| S9940YMSWC67X08 | 1 | 8 | 66.55 | 47.8 | 8.13 | 33.27 | 3.3 | 1.02 | M5 | 51.1 | 18.8 | 19.025 | 29.72 | M4X5 | ± 2.540 | 794 |
| S9940YMSWC67X10 | 1 | 10 | 66.55 | 47.8 | 8.13 | 33.27 | 3.3 | 1.02 | M5 | 51.1 | 18.8 | 19.025 | 29.72 | M4X5 | ± 0.250 | 794 |
| S9940YMSWC67X12 | 1 | 12 | 66.55 | 47.8 | 8.13 | 33.27 | 3.3 | 1.02 | M5 | 51.1 | 18.8 | 19.025 | 29.72 | M4X5 | ± 0.250 | 794 |
| S9940YMSWC76X16 | 1 | 16 | 76.2 | 58.4 | - | 50.17 | 5.72 | 1.17 | M6 | 76.5 | 27.94 | 28.55 | 37.6 | M2X3 | ± 3.390 | 993 |
| S9940YMSWC76X19 | 1 | 19 | 76.2 | 58.4 | - | 50.17 | 5.72 | 1.17 | 2@ | 76.5 | 27.94 | 28.55 | 37.6 | M2X3 | ± 0.340 | 993 |
| S9940YMSWC76X20 | 1 | 20 | 76.2 | 58.4 | - | 50.17 | 5.72 | 1.17 | 120° | 76.5 | 27.94 | 28.55 | 37.6 | M2X3 | ± 0.340 | 993 |

* or ** See Preceding Page



> FEATURES:

- Long life under continuous slip conditions
- Unidirectional or bidirectional operation
- Same or different clockwise and counterclockwise torques
- Precise and stable limit torque calibration (0.0035 to 1.695 N • m)
- Same torque at breakaway as at high slip velocities
- Corrosion-resistant materials

> APPLICATIONS:

- Tension control of film or tape drives
- Friction loads for testing components
- Transmission overload protection

> RECOMMENDED MOUNTING PROCEDURE:

- Coupling is slipped over one shaft and applicable screws tightened.
- Second shaft is inserted into other end of coupling.
- Pull loose end of coupling back about 0.5 mm and tighten applicable screws.

The slip coupling serves as a torque limiter as well as a coupling for two colinear shafts. This coupling is equipped with hubs at both ends for pinning to the two shafts. When the load exceeds the limit torque of a slip coupling, the two shafts rotate relative to each other at the full limit torque. The standard coupling is designed to operate with 3° angular or linear misalignments of up to 0.25 mm between the two shafts. The mounting hole diameters of the slip couplings can differ for the two ends, so that different diameters of “in-line” shafts can be coupled together.

*Stock units are calibrated with equal clockwise and counterclockwise slip torques corresponding to the tabulated Upper Limit Torques. Other torques are readily available from full, down to 1/8 of the Upper Limit Torque for each model. Torque values are independent of each other for clockwise and counterclockwise rotation, and may be specified the same or different for the directions.

This series of slip couplings is designed for long life under continuous slip conditions. The useful life of these elements is a function of the transmitted torque and slip speed.

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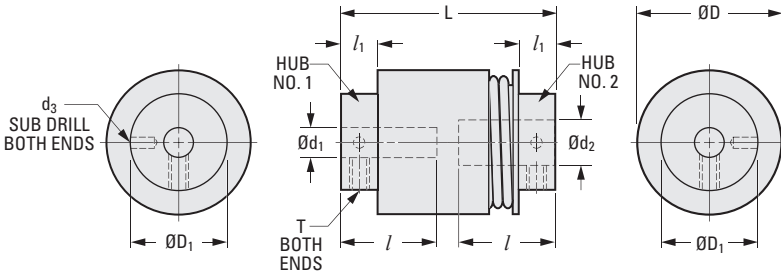
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METRIC COMPONENT

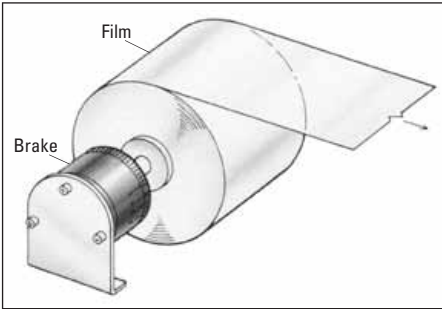
| Catalog Number | d ₁ Bore + 0.025 0 | d ₂ Bore + 0.025 0 | D ± 0.5 | L ± 0.8 | D ₁ Max. | l | l ₁ ± 0.5 | T Set Screw | d ₃ Sub Drill | Upper Limit Torque* N • m | Weight g |
|-----------------|--|--|------------|------------|------------------------|-------|-------------------------|-------------------|--------------------------------|------------------------------------|-------------|
| S9941YMSWC12X33 | 3 | 3 | 12.7 | 22.6 | 12.7 | 10.9 | 4.32 | M2 | .74 | 0.035 ± 0.005 | 17 |
| S9941YMSWC12X34 | 3 | 4 | 12.7 | 22.6 | 12.7 | 10.9 | 4.32 | M2 | .74 | 0.035 ± 0.005 | 17 |
| S9941YMSWC12X44 | 4 | 4 | 12.7 | 22.6 | 12.7 | 10.9 | 4.32 | M2 | .74 | 0.035 ± 0.005 | 17 |
| S9941YMSWC19X44 | 4 | 4 | 19.05 | 28.2 | 16 | 12.7 | 4.83 | M3 | 1.02 | 0.085 ± 0.008 | 34 |
| S9941YMSWC19X46 | 4 | 6 | 19.05 | 28.2 | 16 | 12.7 | 4.83 | M3 | 1.02 | 0.085 ± 0.008 | 34 |
| S9941YMSWC19X66 | 6 | 6 | 19.05 | 28.2 | 16 | 12.7 | 4.83 | M3 | 1.02 | 0.085 ± 0.008 | 34 |
| S9941YMSWC25X44 | 4 | 4 | 25.4 | 32 | 19.3 | 14 | 4.83 | M3 | 1.02 | 0.141 ± 0.014 | 74 |
| S9941YMSWC25X46 | 4 | 6 | 25.4 | 32 | 19.3 | 14 | 4.83 | M3 | 1.02 | 0.141 ± 0.014 | 74 |
| S9941YMSWC25X66 | 6 | 6 | 25.4 | 32 | 19.3 | 14 | 4.83 | M3 | 1.02 | 0.141 ± 0.014 | 74 |
| S9941YMSWC31X66 | 6 | 6 | 31.75 | 36.3 | 25.7 | 15.75 | 6.35 | M4 | 1.4 | 0.339 ± 0.035 | 108 |
| S9941YMSWC31X6A | 6 | 10 | 31.75 | 36.3 | 25.7 | 15.75 | 6.35 | M4 | 1.4 | 0.339 ± 0.035 | 108 |
| S9941YMSWC31XAA | 10 | 10 | 31.75 | 36.3 | 25.7 | 15.75 | 6.35 | M4 | 1.4 | 0.339 ± 0.035 | 108 |
| S9941YMSWC38X88 | 8 | 8 | 38.1 | 40.4 | 32 | 18.54 | 6.35 | M4 | 1.4 | 0.622 ± 0.063 | 184 |
| S9941YMSWC38XAA | 10 | 10 | 38.1 | 40.4 | 32 | 18.54 | 6.35 | M4 | 1.4 | 0.622 ± 0.063 | 184 |
| S9941YMSWC47XAC | 10 | 10 | 47.5 | 46.74 | 38.4 | 21.6 | 7.11 | M4 | 1.4 | 0.847 ± 0.085 | 312 |
| S9941YMSWC47XCC | 10 | 12 | 47.5 | 46.74 | 38.4 | 21.6 | 7.11 | M4 | 1.4 | 0.847 ± 0.085 | 312 |
| S9941YMSWC47XCC | 12 | 12 | 47.5 | 46.74 | 38.4 | 21.6 | 7.11 | M4 | 1.4 | 0.847 ± 0.085 | 312 |
| S9941YMSWC57XAA | 10 | 10 | 57.15 | 57.15 | 51.1 | 25.4 | 9.65 | M5 | 2.36 | 1.695 ± 0.170 | 624 |
| S9941YMSWC57XAC | 10 | 12 | 57.15 | 57.15 | 51.1 | 25.4 | 9.65 | M5 | 2.36 | 1.695 ± 0.170 | 624 |
| S9941YMSWC57XCC | 12 | 12 | 57.15 | 57.15 | 51.1 | 25.4 | 9.65 | M5 | 2.36 | 1.695 ± 0.170 | 624 |
| S9941YMSWC57XCG | 12 | 16 | 57.15 | 57.15 | 51.1 | 25.4 | 9.65 | M5 | 2.36 | 1.695 ± 0.170 | 624 |
| S9941YMSWC57XGG | 16 | 16 | 57.15 | 57.15 | 51.1 | 25.4 | 9.65 | M5 | 2.36 | 1.695 ± 0.170 | 624 |

* See Preceding Page.



UNWIND TENSION CONTROL

Brake mounted on shaft of unwind spool or bobbin.



Film Unwind - Tension provided by hysteresis units.

Information required: (Example)

- Full diameter = 150 mm
- Empty core diameter = 75 mm
- Average tension = 5 N
- Velocity (meters per min.) = 50 m/min.

How to size:

$$\text{Avg. radius} = [\text{Full roll dia.} + \text{Empty dia.}] / 4$$

$$= (150 + 75) / 4 = 56.25 \text{ mm} = 0.056 \text{ m}$$

$$\text{Avg. torque (N} \cdot \text{m)} = \text{avg. tension (N)} \times \text{avg. radius (m)}$$

$$= 5 \times 0.056 = 0.28 \text{ N} \cdot \text{m}$$

1. Select Catalog Number **S90MCCMMTL0806** based on 0.28 N • m

2. Check Operating Curve

The Max. rpm occurs at the min. radius

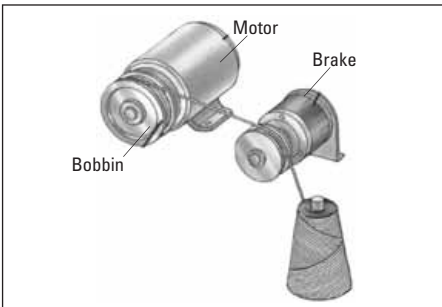
$$\text{Max. rpm} = \text{Velocity} / (\text{Empty dia.} \times \pi)$$

$$= (50 \text{ m/min.}) / [(0.075 \text{ m}) \times \pi]$$

$$= 212 \text{ rpm}$$

0.28 N • m at 212 rpm is okay.

NIP ROLL OR PULLEY TENSION CONTROL



Coil Winding - Constant tension provided by hysteresis unit.

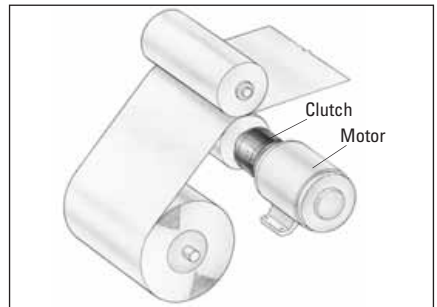
Information required: (Example)

- Pulley diameter or nip roll** = 76 mm
- Tension** = 10 N
- Velocity** = 100 m/min.

How to size:

$$\text{Torque (N} \cdot \text{m)} = \text{Tension} \times \text{Radius}$$

$$= 10 \text{ N} \times [(0.076 \text{ m}) / 2] = 0.38 \text{ N} \cdot \text{m}$$



Film Tensioning - Constant tensioning supplied by hysteresis unit.

1. Select Catalog Number **S90MCCMMTL0806** based on 0.38 N • m

2. Check Operating Curve

$$\text{Max. rpm} = (100 \text{ m/min.}) / (0.076 \text{ m} \times \pi)$$

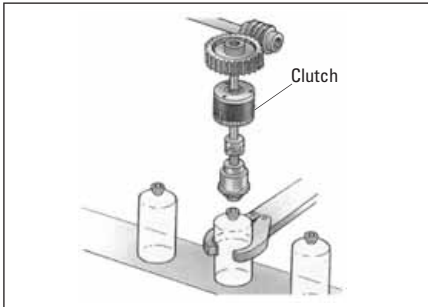
419 rpm is too high for continuous duty on the **S90MCCMMTL0806** unit.

3. Select Catalog Number **S90MCCMMTL1612**

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CYCLING



Bottle Capping - Constant torque provided by a hysteresis clutch.

Information required: (Example)

Slip rpm = 350 rpm

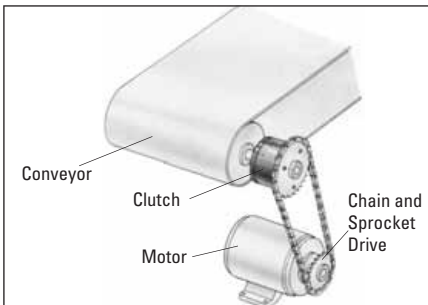
Torque = 1 N • m

Duty cycle (% slip time of total cycle time) = 25%

How to size:

1. Select Catalog Number **S90MCCMML1612** based on 1 N • m
2. Check Operating Curve
350 rpm is high, but as the duty cycle is only 25%, the Catalog Number **S90MCCMML1612** is okay.

OVERLOAD PROTECTION TORQUE LIMITING SOFT START (Motor Horsepower Method)



Torque Limiting - Hysteresis clutch provides overload protection.

Information required: (Example)

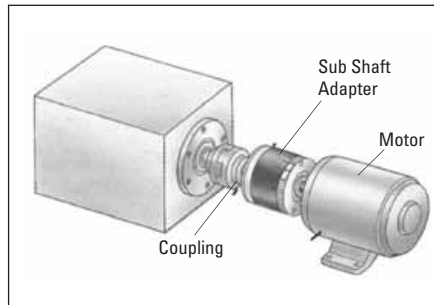
Motor HP = 0.07 kw (1/10 HP)

Motor rpm = 900 rpm

How to size:

$$\text{Torque (N} \cdot \text{m)} = (\text{Motor HP} \times 9550) / \text{Motor rpm}$$

$$= [0.07 \text{ kw} \times 9550] / 900 = 0.74 \text{ N} \cdot \text{m}$$



Material Handling - Hysteresis clutch can provide overload protection and soft start.

1. Select Catalog Number **S90MCCMML1628** based on 0.74 N • m
2. Check Operating Curve
0.75 N • m is at the upper limit of safe continuous operation, but is okay.

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➤ **ADVANTAGES:**

- No electricity
- No breakaway torque
- Constant torque independent of shaft (rotor) speed
- No contacting or wearing parts
- No friction elements – same smooth torque year after year
- No magnetic particles to leak or contaminate end product
- Operable in some of the most difficult environments
- Brake (with shaft) and clutch (with hollow shaft) available
- Custom designs available

➤ **APPLICATIONS:**

Fig. 1 As a Coupling

This is for load protection or torque limiting. The coupling style unit is directly connected to a motor and turns at the same speed as the motor until the torque is reached. At this point it will slip and still generate the max. torque.

Fig. 2 As a Clutch

The unit is connected to a motor by a timing belt or gear. The housing is driven and the shaft is the output end.

Fig. 3 As a Payout Brake

Brake is stationary and the reel or material is fitted to the output shaft. The tension on the material will vary with the diameter.

➤ **HOW THEY OPERATE:**

For Maximum Torque

All important internal clearances are ground to tolerances of less than .001 in. (0.025 mm). Magnet assemblies surround hysteresis assembly. When like poles face each other, they produce maximum magnetic saturation of the hysteresis disc, forcing lines of flux to travel circumferentially through the hysteresis disc.

For Minimum Torque

When opposite poles face each other they produce minimum saturation of the hysteresis disc. The lines of flux travel through the hysteresis disc.

Combinations of adjustment angles between the two extremes give infinite adjustability. Because there are no contacting surfaces, the setting can be maintained indefinitely.

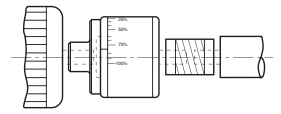


Fig. 1

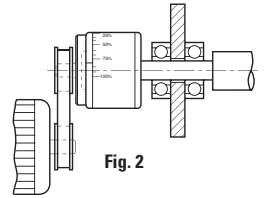


Fig. 2

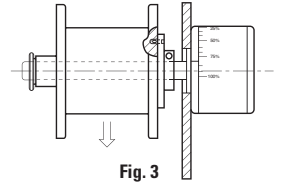
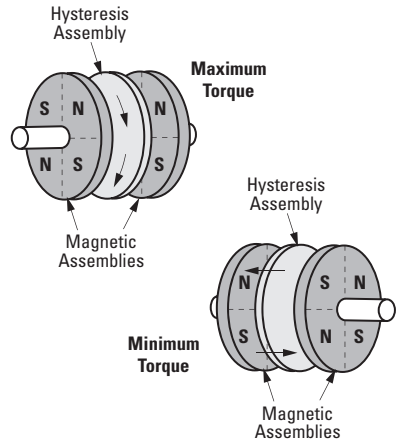


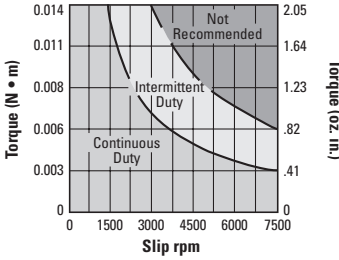
Fig. 3



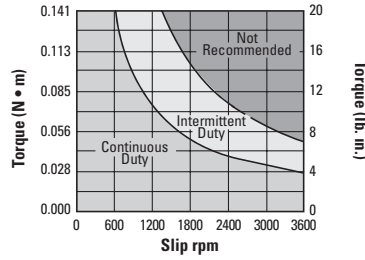
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► HOW TO USE THE CURVES:

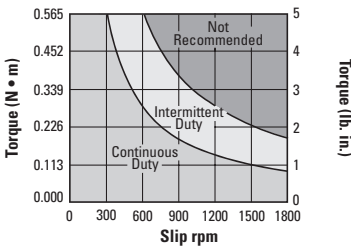
Find the slip rpm on the X-axis and the torque on the Y-axis. Notice the areas that represent safe, continuous duty; intermittent duty, such as five minutes on, five minutes off; and the area which is not recommended. Operating above that line for any period of time will cause overheating and possible damage to the unit.



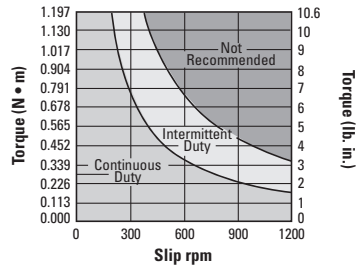
S90MCCM513...



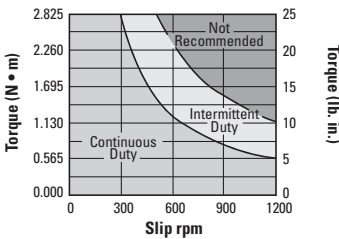
S90MCC-MTL25001
S90MCCMML0601



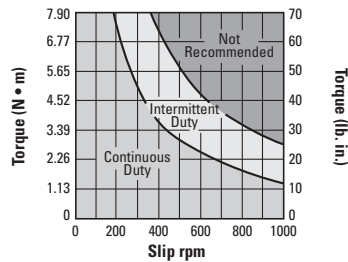
S90MCC-MTL37505
S90MCCMML0806



S90MCC-MTL37510
S90MCC-MTL50010
S90MCC-MTL62510
S90MCCMML1612



S90MCC-MTLA0025
S90MCC-MTL50025
S90MCC-MTL62525
S90MCC-MTL75025
S90MCC-MTL87525
S90MCCMML1628



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S90MCCMM806...

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MAGNETIC CLUTCHES & COUPLINGS

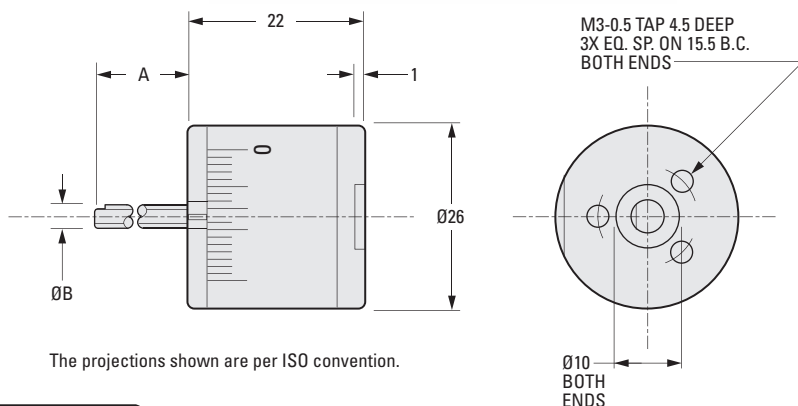
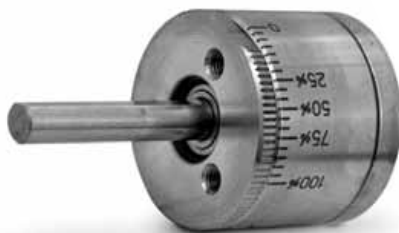


0.0003...0.014 N • m TORQUE RANGE
 NONELECTRIC
 NO WEARING PARTS
 NO FRICTION

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> **MATERIAL:**
 Housing and Shaft - Stainless Steel



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | B Shaft 0 -0.03 | A Shaft Length | Torque Range N•m | Weight kg |
|----------------|-----------------------|-------------------|------------------------|--------------|
| S90MCCM5130213 | 5 | 13 | 0.0003...0.002 | 0.071 |
| S90MCCM5130225 | 5 | 25 | 0.0003...0.002 | 0.071 |
| S90MCCM5130713 | 5 | 13 | 0.001... 0.007 | 0.071 |
| S90MCCM5130725 | 5 | 25 | 0.001... 0.007 | 0.071 |
| S90MCCM5131413 | 5 | 13 | 0.001... 0.014 | 0.071 |
| S90MCCM5131425 | 5 | 25 | 0.001... 0.014 | 0.071 |

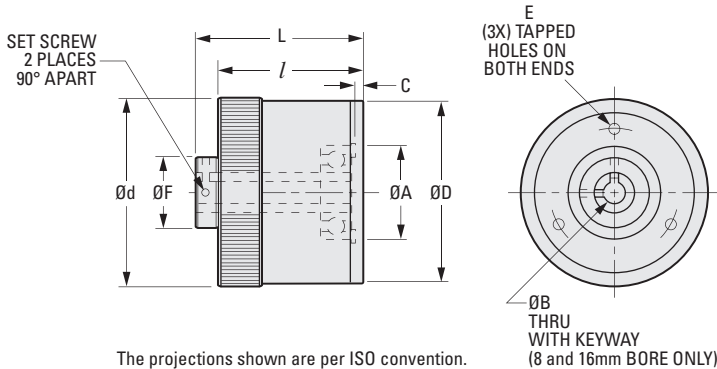
0.007...2.83 N • m TORQUE RANGE
 NONELECTRIC
 NO WEARING PARTS
 NO FRICTION
 HOLLOW BORE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

Housing - Aluminum, Black Anodized Finish
Dial - Steel, Black Oxide Finish



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | B Bore +0.025 0 | L Length | l | D | d | A | C | Torque Range N • m |
|----------------|--------------------------|-------------|----|------|------|----|---|--------------------------|
| S90MCCMMTL0601 | 6 | 42 | 36 | 47.5 | 49.5 | 22 | 2 | 0.007...0.14 |
| S90MCCMMTL0806 | 8 | 62 | 54 | 69 | 70 | 35 | 2 | 0.02 ...0.56 |
| S90MCCMMTL1612 | 16 | 64 | 56 | 82 | 84 | 47 | 2 | 0.06 ...1.2 |
| S90MCCMMTL1628 | 16 | 79 | 68 | 116 | 119 | 62 | 2 | 0.11 ...2.83 |

| Catalog Number (Ref.) | F Hub Dia. | Set Screw | E | | | Keyway | Weight kg |
|--------------------------|------------------|--------------|---------|-------|----------------|--------|--------------|
| | | | Thread | Depth | Bolt Circle | | |
| S90MCCMMTL0601 | 19 | M4 | M4 -0.7 | 8 | 32 | — | 0.33 |
| S90MCCMMTL0806 | 27 | M4 | M4 | 10 | 48 | 3 | 1.04 |
| S90MCCMMTL1612 | 37 | M5 | M5 | 10 | 60.33 | 5 | 1.62 |
| S90MCCMMTL1628 | 35 | M5 | M5 -0.8 | 12 | 76.2 | 5 | 4.07 |

MAGNETIC CLUTCHES & COUPLINGS

SDP/SI

0.33...7.9 N • m TORQUE RANGE
 NONELECTRIC
 NO WEARING PARTS
 NO FRICTION
 HOLLOW BORE

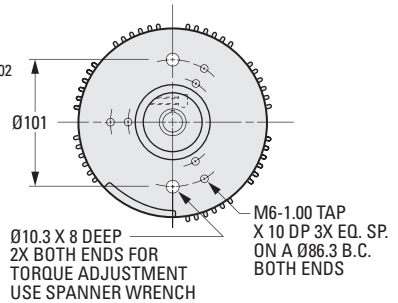
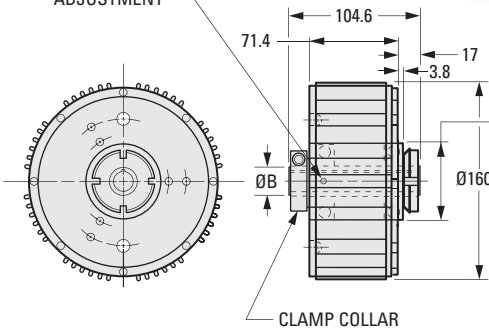
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



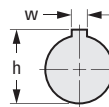
MATERIAL:

Housing - Aluminum, Black Anodized Finish
Dial - Steel, Black Oxide Finish

(2) 1/4-28 SET SCREWS 90° APART FOR LOCKING TORQUE ADJUSTMENT



The projections shown are per ISO convention.



| Keyway Dimensions | | |
|-------------------|------|------|
| Bore | 16 | 19 |
| w +0.05/0 | 5 | 6 |
| h +0.25/0 | 18.3 | 21.8 |

METRIC COMPONENT

| Catalog Number | B Bore +0.025 0 | Torque Range N • m | Weight kg |
|----------------|-----------------|--------------------|-----------|
| S90MCCM80616 | 16 | 0.33...7.9 | 6.45 |
| S90MCCM80619 | 19 | 0.33...7.9 | 6.45 |

ROLLER CLUTCHES



FOR 4 mm TO 35 mm HARDENED SHAFTS
UNDIRECTIONAL DRIVE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Roller Cup** - Case-Hardened Steel
- Needle Bearing** - 52100 Hardened Chrome Steel
- Springs** - Stainless Steel
- Cage** - Nylon 66 (or Equivalent)

> FEATURES:

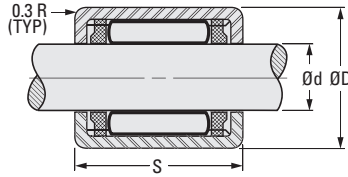
- Ideal for indexing, backstopping or overrunning operations.
- Free rolling one way, drives in opposite direction.
- Lightweight, low profile.
- High indexing frequency, up to 4CPS.
- Operating temperature, grease +10°C to +70°C.
- Minimum backlash.

> SHAFT REQUIREMENTS:

Shaft surface hardness must be HRC 58 min.

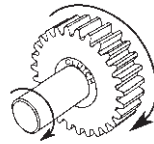
> HOUSING RECOMMENDATION:

Recommended tolerances for Housing Bore according to N7 for Steel, R7 for Aluminum.

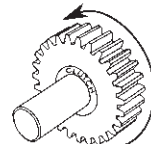


What It Does...

Transmits torque load in one direction.
Overruns freely in opposite direction.
Either shaft or housing can be driving member.



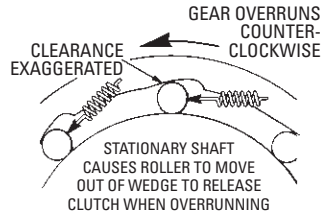
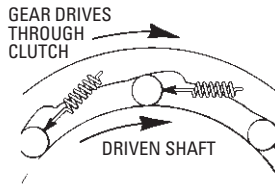
GEAR DRIVES
SHAFT CLOCKWISE



GEAR OVERRUNS
SHAFT COUNTERCLOCKWISE

How It Works...

Rollers wedge between shaft and outer race. Positive wedging forces prevent slipping. Springs position rollers for instantaneous lockup.



METRIC COMPONENT

| Catalog Number | d Shaft Dia. h6 | D Dia. | S Face Width 0 -0.2 | Max. Torque N • m | Rotating Overrun Speed Max. rpm | |
|----------------|--------------------------|-----------|------------------------------|-------------------------|---------------------------------------|---------|
| | | | | | Shaft | Housing |
| S99NH3MURC0406 | 4 | 8 | 6 | 0.34 | 34000 | 8000 |
| S99NH3MURC0612 | 6 | 10 | 12 | 1.76 | 23000 | 13000 |
| S99NH3MURC0812 | 8 | 12 | 12 | 3.15 | 17000 | 12000 |
| S99NH3MURC1012 | 10 | 14 | 12 | 5.3 | 14000 | 11000 |
| S99NH3MURC1216 | 12 | 18 | 16 | 12.2 | 11000 | 8000 |
| S99NH3MURC1416 | 14 | 20 | 16 | 17.3 | 9500 | 8000 |
| S99NH3MURC1616 | 16 | 22 | 16 | 20.5 | 8500 | 7500 |
| S99NH3MURC1816 | 18 | 24 | 16 | 24.1 | 7500 | 7500 |
| S99NH3MURC2016 | 20 | 26 | 16 | 28.5 | 7000 | 6500 |
| S99NH3MURC2520 | 25 | 32 | 20 | 66 | 5500 | 5500 |
| S99NH3MURC3020 | 30 | 37 | 20 | 90 | 4500 | 4500 |
| S99NH3MURC3520 | 35 | 42 | 20 | 121 | 3900 | 3900 |



Request Info
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1-800-453-1692

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SINTERED BEARING SUPPORT
UNDIRECTIONAL DRIVE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Roller Cup** - Case-Hardened Steel
- Needle Bearing** - 52100 Hardened Chrome Steel
- Springs** - Stainless Steel
- Cage** - Plastic
- Bearing Support** - Sintered Bronze Bearings

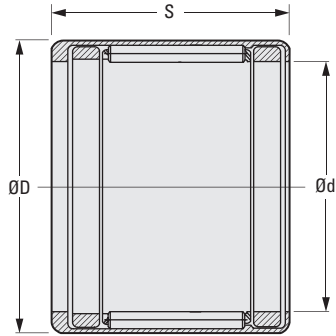


> SHAFT REQUIREMENTS:

Shaft surface hardness must be HRC 58 min.

> HOUSING RECOMMENDATION:

Recommended tolerances for Housing Bore are N6 for Steel, R6 for Aluminum. Tolerances for Housing Bore of N7 for Steel and R7 for Aluminum can be used if only 50% of the torque is used.



METRIC COMPONENT

| Catalog Number | d Shaft Dia. h6 | D Dia. | S Face Width 0 -0.2 | Torque Limit N • m | Max. Speed Limit rpm | | Max. Load Limit N | Max. Load Speed Limit N/min. |
|--------------------|--------------------------|-----------|------------------------------|--------------------------|-------------------------|---------|-------------------------|------------------------------------|
| | | | | | Shaft | Housing | | |
| * Δ S99NH4MURC0408 | 4 | 8 | 8 | 0.34 | 34000 | 8000 | 80 | 16000 |
| * S99NH4MURC0615 | 6 | 10 | 15 | 1.76 | 23000 | 13000 | 110 | 18000 |

* During operation of the above items:
 F max. = Load Speed Limit (N/min.)
 F_R = Load Limit (N)
 n = Speed Limit (housing or shaft) (rpm)
 F_R • n = F max.

Δ Equipped with plastic springs.

Continued on the next page

NEEDLE BEARING SUPPORT
UNDIRECTIONAL DRIVE

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> MATERIAL:

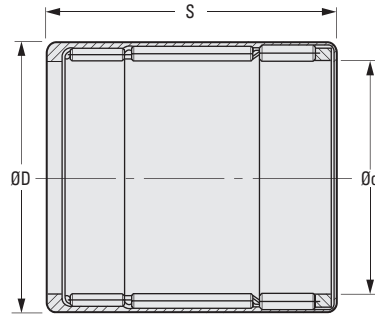
- Roller Cup** - Case-Hardened Steel
- Needle Bearing** - 52100 Hardened Chrome Steel
- Springs** - Stainless Steel
- Cage** - Plastic
- Bearing Support** - Needle Bearings

> SHAFT REQUIREMENTS:

Shaft surface hardness must be HRC 58 min.

> HOUSING RECOMMENDATIONS:

Recommended tolerances for Housing Bore are N6 for Steel, R6 for Aluminum. Tolerances for Housing Bore of N7 for Steel and R7 for Aluminum can be used if only 50% of the torque is used.



METRIC COMPONENT

| Catalog Number | d Shaft Dia. h6 | D Dia. | S Face Width 0 -0.2 | Max. Torque N • m | Rotating Overrun Speed Max. rpm | | Load Ratings N | |
|----------------|--------------------------|-----------|------------------------------|-------------------------|--|---------|----------------------|--------|
| | | | | | Shaft | Housing | Dynamic | Static |
| S99NH4MURC0822 | 8 | 12 | 22 | 3.15 | 17000 | 12000 | 3500 | 4100 |
| S99NH4MURC1022 | 10 | 14 | 22 | 5.3 | 14000 | 11000 | 3750 | 4650 |
| S99NH4MURC1226 | 12 | 18 | 26 | 12.2 | 11000 | 8000 | 5800 | 6700 |
| S99NH4MURC1426 | 14 | 20 | 26 | 17.3 | 9500 | 8000 | 6300 | 7800 |
| S99NH4MURC1626 | 16 | 22 | 26 | 20.5 | 8500 | 7500 | 6900 | 9000 |
| S99NH4MURC1826 | 18 | 24 | 26 | 24.1 | 7500 | 7500 | 7400 | 10200 |
| S99NH4MURC2026 | 20 | 26 | 26 | 28.5 | 7000 | 6500 | 7900 | 11400 |
| S99NH4MURC2530 | 25 | 32 | 30 | 66 | 5500 | 5500 | 9800 | 14000 |
| S99NH4MURC3030 | 30 | 37 | 30 | 90 | 4500 | 4500 | 10800 | 16900 |
| S99NH4MURC3530 | 35 | 42 | 30 | 121 | 3900 | 3900 | 11400 | 18800 |

Continued from the previous page

TECHNICAL INFORMATION

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**> FEATURES:**

- Torque proportional to input current
- Torque virtually independent of slip speed
- Smooth stable, noise-free operation
- Long-life no-wearing components
- Maintenance-free
- Infinitely adjustable

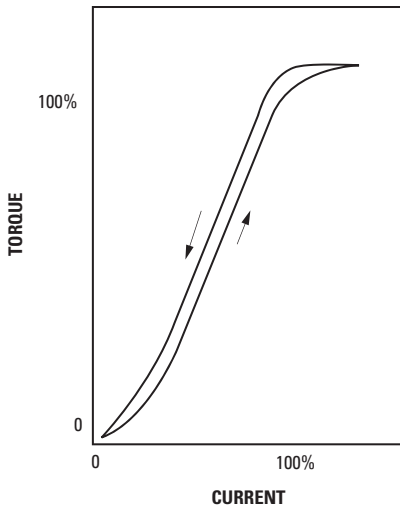
> APPLICATIONS:

- Tensioning of wire, cable, films, paper, etc.
- Positioning of fuel flow controls, film processors
- Braking for motors and dereeling
- Load simulation for motor testing, fuse testing, etc.

> OPTIONS:

- Nonstandard coil voltages
- Special mounting configurations
- Modified shafts

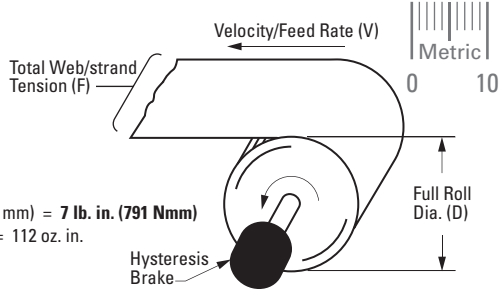
Hysteresis clutches provide an efficient, smooth, electrically controllable link between a motor and a load. While presenting integral ball bearing supported input and output shafts, the clutch features a field (electromagnet) assembly that is prevented from rotating by fixing to a bulkhead. When the coil is energized, the input and output shafts are coupled by magnetic fluxes, thus driving the load. The torque transmitted is proportional to the current supplied to the device.

> TORQUE AS A FUNCTION OF INPUT CURRENT:

When a field setting is approached from zero current, it will produce less torque than if approached from prior current because of residual magnetism. Accurate and repeatable torque outputs are delivered when the setting is approached from the same direction.

> APPLICATION EXAMPLE:

To select a brake to tension a 7-inch (178 mm) diameter pay-off reel in a system requiring total (web or strand) tension of 2 lbs. (8.9 N) and a process speed of 600 FPM.



BRAKE TORQUE (T) = Force (F) X Radius (D/2)
 $T = 2 \text{ lbs. (8.9 N)} \times 3.5 \text{ in. (88.9 mm)} = \mathbf{7 \text{ lb. in. (791 Nmm)}}$
 or $T = 32 \text{ oz.} \times 3.5 \text{ in. (88.9 mm)} = 112 \text{ oz. in.}$

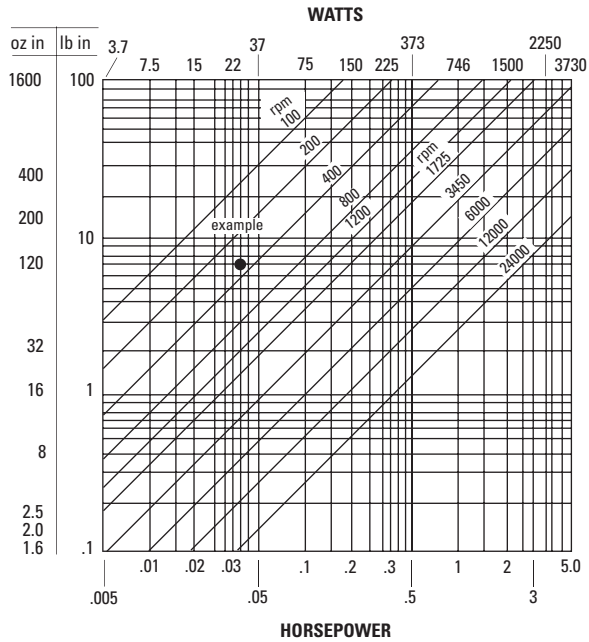
SLIP SPEED (rpm) = linear velocity (V) (in/min) / circumference (in.) or linear velocity (V) (mm/min) / circumference(mm)
 $\text{rpm} = 600 \text{ ft/min} \times 12 / (\pi \times 7 \text{ in.})$ or $(183 \text{ m/min} \times 1000) / (\pi \times 178 \text{ mm})$
 $\text{rpm} = \mathbf{327}$

ENERGY DISSIPATION (W) = Energy Dissipation requirement is calculated using basic horsepower formula X 746 watts/HP
 $W = (T \text{ (lb. in.)} \times \text{rpm} / 63025) \times 746$ or $(T \text{ (Nmm)} \times \text{rpm} / 7145221) \times 746$
 $W = \mathbf{(7 \text{ lb. in.} \times 327 \text{ rpm} / 63025) \times 746 = 27 \text{ watts}}$ or $\mathbf{(791 \text{ Nmm} \times 327 \text{ rpm} / 7145221) \times 746 = 27 \text{ watts}}$

Quick Check: The curves to the left can be used as a quick check to verify the kinetic power calculation. Simply locate the required torque on the vertical axis, move horizontally until you intersect the appropriate speed line, and then read vertically (up or down) to obtain the resulting watts or horsepower.

Selection: From the data on the following pages it can be seen that an S90HYB-120024 Hysteresis Brake which has a rated torque of 120 oz. in. (847 Nmm), a maximum speed capability of 12000 rpm, and an energy dissipation capability of 75 watts continuous, would be the proper selection for this application.

Note: In a clutch application, slip speed is the difference in rotational speed between the input and output members of the clutch assembly. In the above example, tensioning was being accomplished with a clutch inserted between a take-up reel and a motor driving at 500 rpm. The actual slip used to compute the energy dissipation requirements would be 500 rpm (clutch input speed) - 327 rpm (clutch output speed = 173 rpm). This difference in speed would obviously impact the result for energy dissipation.



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HYSTERESIS CLUTCHES

SDP/SI

MAINTENANCE-FREE
INFINITELY ADJUSTABLE
TORQUE INDEPENDENT OF SLIP SPEED

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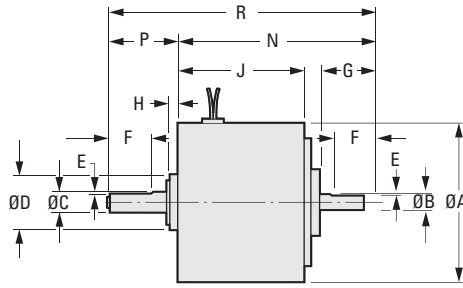
> COIL DATA:

Voltage: 24V DC

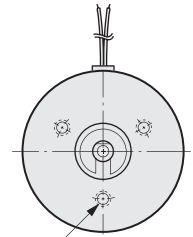
Δ Shaft & Hub Tolerance (h8):

- 8 mm -0.022
- 12 & 16 mm -0.027
- 19 mm -0.033
- 34.93 & 41.28 mm -0.039

Maximum recommended speed is 3600 rpm.



The projections shown are per ISO convention.



K THREAD x L DEEP,
3 HOLES EQ. SP.
ON A ØM B.C.

METRIC COMPONENT

| Catalog Number * | Min. Static Torque @ rated VDC N • m | Max. Drag Torque De-Energized & Degaussed N • m | Max. Wattage @ rated VDC @ 25°C | Input Inertia kg • m ² | Output Inertia kg • m ² | Max. Dissipation Capacity Watts | A ± 0.4 | B ^Δ h8 | C ^Δ h8 |
|------------------|---|--|---------------------------------|--------------------------------------|---------------------------------------|------------------------------------|------------|----------------------|----------------------|
| S90HYCM108A08 | 0.847 | 0.011 | 8 | 17.29 x 10 ⁻³ | 1.86 x 10 ⁻³ | 80 | 108 | 8 | 16 |
| S90HYCM162A12 | 2.825 | 0.050 | 8 | 97.18 x 10 ⁻³ | 14.52 x 10 ⁻³ | 150 | 161.9 | 12 | 19 |

| Catalog Number * (Ref.) | D ^Δ h8 | E ± 0.15 | F ± 0.4 | G Min. | H ± 0.15 | J ± 0.4 | K | L Min. | M | N ± 0.7 | P ± 0.3 | R ± 0.3 | Weight kg |
|-------------------------|----------------------|-------------|------------|-----------|-------------|------------|----|-----------|------|------------|------------|------------|--------------|
| S90HYCM108A08 | 34.93 | 0.7 | 19.1 | 25 | 4.3 | 54.7 | M4 | 9.5 | 50.8 | 92.7 | 45.6 | 139.8 | 3.402 |
| S90HYCM162A12 | 41.28 | 0.7 | 25.4 | 32 | 5.6 | 81.8 | M5 | 14.3 | 63.5 | 125.2 | 56.4 | 184 | 13.154 |

* To be discontinued when present stock is depleted.

MAINTENANCE-FREE
INFINITELY ADJUSTABLE

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> COIL DATA:

Voltage: 24V DC

Δ Shaft & Hub Tolerance (h8):

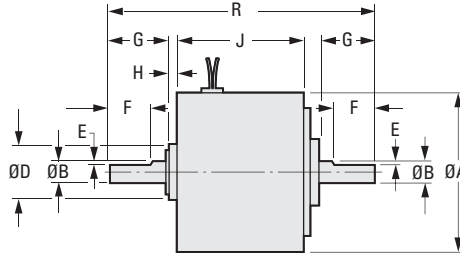
6 mm 0/-0.018

9 mm 0/-0.022

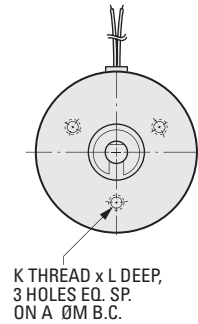
12 & 15.88 mm 0/-0.027

22.23 & 28.58 mm 0/-0.033

Maximum recommended speed is 3600 rpm.



The projections shown are per ISO convention.



METRIC COMPONENT

| Catalog Number * | Min. Static Torque @ rated VDC N • m | Max. Drag Torque De-Energized & Degaussed N • m | Max. Wattage @ rated VDC @ 25°C | Input Inertia kg • m ² | Max. Dissipation Capacity Watts | A ± 0.4 | B ^Δ h8 |
|------------------|---|--|---------------------------------|--------------------------------------|------------------------------------|------------|----------------------|
| S90HYBM053A06 | 0.247 | 0.005 | 7 | 1.58 × 10 ⁻⁴ | 20 | 53.2 | 6 |
| S90HYBM092A08 | 0.847 | 0.011 | 7 | 1.86 × 10 ⁻³ | 80 | 92.1 | 9 |
| S90HYBM113A12 | 1.412 | 0.018 | 8 | 5.03 × 10 ⁻³ | 120 | 112.7 | 12 |
| S90HYBM139A12 | 3.001 | 0.035 | 8 | 14.46 × 10 ⁻³ | 235 | 139.3 | 12 |

| Catalog Number * (Ref.) | D ^Δ h8 | E ± 0.15 | F ± 0.4 | G Min. | H ± 0.15 | J ± 0.4 | K | L Min. | M | R ± 0.3 | Weight kg |
|-------------------------|----------------------|-------------|------------|-----------|-------------|------------|----|-----------|------|------------|--------------|
| S90HYBM053A06 | 15.88 | 0.7 | 12.7 | 19 | 2.29 | 30.5 | M3 | 6.3 | 23.8 | 81.3 | 0.499 |
| S90HYBM092A08 | 22.23 | 1.5 | 19.1 | 25 | 3.18 | 38.9 | M4 | 7.9 | 38.1 | 105.6 | 1.86 |
| S90HYBM113A12 | 28.58 | 1.5 | 25.4 | 31 | 3.81 | 50.8 | M5 | 12.7 | 44.5 | 130.6 | 3.538 |
| S90HYBM139A12 | 28.58 | 1.5 | 25.4 | 31 | 3.81 | 52.3 | M5 | 14.2 | 44.5 | 131.4 | 5.67 |

* To be discontinued when present stock is depleted.



VERY FAST RESPONSE
 FRICTION-FREE OPERATION
 HIGH-TORQUE TO SIZE RATIO
 UNIDIRECTIONAL INPUT

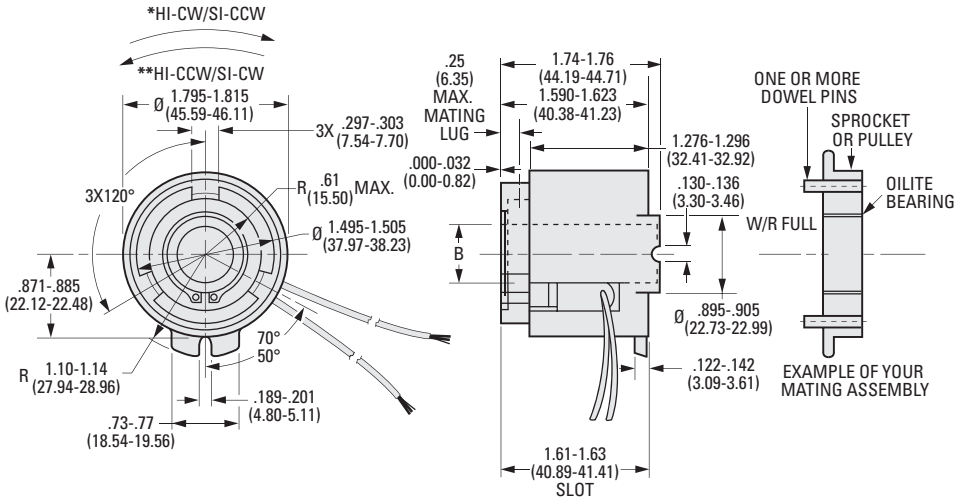
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> COIL DATA:

- Voltage:** 24V DC
- Resistance:** 93±10% ohms
- Current:** .257 amp.
- Leads Ends Stripped:** 12.0 in. (300 mm) long standard
.19/.31 in. (4.9/7.8 mm)

> SPECIFICATIONS:

- Static Torque:** 150 lb. in. (16 N • m)
- Max. Radial Bearing Load:** 30 lb. (13.6 kg)
- Max. Operating Speed:** 1000 rpm
- Response Time, Voltage on at Full Speed:** 150 msec Max. 40 msec Nom.
- Input Configuration:** Hub input or shaft input
- Bearing:** Reinforced polyetherimide with internal lubricant
- Weight:** 1.0 lb (0.45 kg)



INCH COMPONENT

| Catalog Number | B Bore in. (mm) |
|-----------------|---------------------------|
| *S90SWA-18AA06 | .3755-.3780 (9.54 - 9.60) |
| **S90SWA-18AB06 | .3755-.3780 (9.54 - 9.60) |
| *S90SWA-18AA08 | .5010-.5035 (12.73-12.79) |
| **S90SWA-18AB08 | .5010-.5035 (12.73-12.79) |

METRIC COMPONENT

| Catalog Number | B Bore mm (in.) |
|-----------------|-----------------------------|
| *S90SWAM18AA10 | 10.010-10.079 (.3941-.3968) |
| **S90SWAM18AB10 | 10.010-10.079 (.3941-.3968) |
| *S90SWAM18AA12 | 12.011-12.078 (.4729-.4755) |
| **S90SWAM18AB12 | 12.011-12.078 (.4729-.4755) |

* Hub Input (HI)CW / Shaft Input (SI)CCW
 ** Hub Input (HI)CCW / Shaft Input (SI)CW

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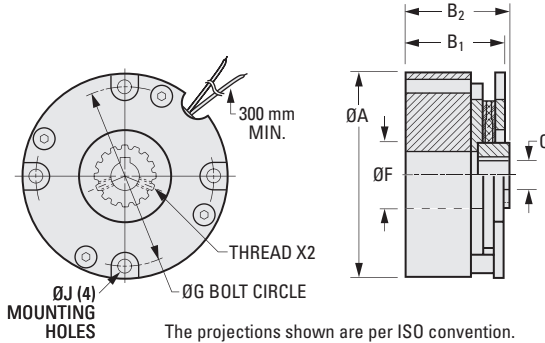
SIMPLE INSTALLATION
ECONOMICAL COST
ENERGY EFFICIENT

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> COIL DATA:

Voltage: 24V DC



The projections shown are per ISO convention.



| Keyway Dimensions | | | | | |
|-------------------|---|-----|------|------|------|
| Bore | 6 | 8 | 10 | 12 | 16 |
| Width | 2 | 3 | 3 | 4 | 5 |
| Height | 7 | 9.4 | 11.4 | 13.8 | 18.3 |

METRIC COMPONENT

| Catalog Number | Static Torque N•m | Max. Watts | C Bore | F Case Inside Dia. | A Dia. | G | J | B ₁ OAL Short Hub | B ₂ OAL Long Hub |
|----------------|-------------------|------------|--------|--------------------|--------|------|-----|------------------------------|-----------------------------|
| S90SB9M15A06S | 0.56 | 7 | 6 | 13.5 | 38.1 | 33.3 | 3.2 | 26.9 | — |
| S90SB9M15A06L | 0.56 | 7 | 6 | 13.5 | 38.1 | 33.3 | 3.2 | — | 30 |
| S90SB9M15A08S | 0.56 | 7 | 8 | 13.5 | 38.1 | 33.3 | 3.2 | 26.9 | — |
| S90SB9M15A08L | 0.56 | 7 | 8 | 13.5 | 38.1 | 33.3 | 3.2 | — | 30 |
| S90SB9M15A10S | 0.56 | 7 | 10 | 13.5 | 38.1 | 33.3 | 3.2 | 26.9 | — |
| S90SB9M15A10L | 0.56 | 7 | 10 | 13.5 | 38.1 | 33.3 | 3.2 | — | 30 |
| S90SB9M17A06S | 1.13 | 10 | 6 | 14.7 | 45.5 | 41.7 | 2.4 | 30.2 | — |
| S90SB9M17A06L | 1.13 | 10 | 6 | 14.7 | 45.5 | 41.7 | 2.4 | — | 33.5 |
| S90SB9M17A10S | 1.13 | 10 | 10 | 14.7 | 45.5 | 41.7 | 2.4 | 30.2 | — |
| S90SB9M17A10L | 1.13 | 10 | 10 | 14.7 | 45.5 | 41.7 | 2.4 | — | 33.5 |
| S90SB9M17A12S | 1.13 | 10 | 12 | 14.7 | 45.5 | 41.7 | 2.4 | 30.2 | — |
| S90SB9M17A12L | 1.13 | 10 | 12 | 14.7 | 45.5 | 41.7 | 2.4 | — | 33.5 |
| S90SB9M19A06S | 2.03 | 12 | 6 | 10.9 | 50.8 | 45 | 3.7 | 30.2 | — |
| S90SB9M19A06L | 2.03 | 12 | 6 | 10.9 | 50.8 | 45 | 3.7 | — | 35 |
| S90SB9M19A10S | 2.03 | 12 | 10 | 10.9 | 50.8 | 45 | 3.7 | 30.2 | — |
| S90SB9M19A10L | 2.03 | 12 | 10 | 10.9 | 50.8 | 45 | 3.7 | — | 35 |
| S90SB9M23A08S | 3.95 | 13 | 8 | 20 | 60 | 52.1 | 4.5 | 35.6 | — |
| S90SB9M23A08L | 3.95 | 13 | 8 | 20 | 60 | 52.1 | 4.5 | — | 41.9 |
| S90SB9M23A10S | 3.95 | 13 | 10 | 20 | 60 | 52.1 | 4.5 | 35.6 | — |
| S90SB9M23A10L | 3.95 | 13 | 10 | 20 | 60 | 52.1 | 4.5 | — | 41.9 |
| S90SB9M23A12S | 3.95 | 13 | 12 | 20 | 60 | 52.1 | 4.5 | 35.6 | — |
| S90SB9M23A12L | 3.95 | 13 | 12 | 20 | 60 | 52.1 | 4.5 | — | 41.9 |
| S90SB9M23A16S | 3.95 | 13 | 16 | 20 | 60 | 52.1 | 4.5 | 35.6 | — |
| S90SB9M23A16L | 3.95 | 13 | 16 | 20 | 60 | 52.1 | 4.5 | — | 41.9 |

| Catalog Number (Series Ref.) | Thread | Nom. Resistance Ohms | Armature | | Rotor Inertia kgf • m • sec ² | Energy Dissipation N • m/min | Weight kg |
|------------------------------|--------|----------------------|-----------------|--------------------|--|------------------------------|-----------|
| | | | Engagement msec | Disengagement msec | | | |
| S90SB9M15A... | M2 | 96 | 20 | 10 | 0.5 x 10 ⁻⁷ | 678 | 0.1 |
| S90SB9M17A... | M3 | 64 | 20 | 10 | 0.21 x 10 ⁻⁶ | 949 | 0.3 |
| S90SB9M19A... | M3 | 54 | 35 | 10 | 0.27 x 10 ⁻⁶ | 1220 | 0.3 |
| S90SB9M23A... | M3 | 46.5 | 70 | 20 | 0.20 x 10 ⁻⁶ | 1627 | 0.5 |

Continued on the next page

POWER-OFF SERVO BRAKES



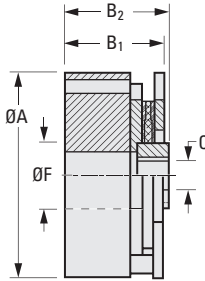
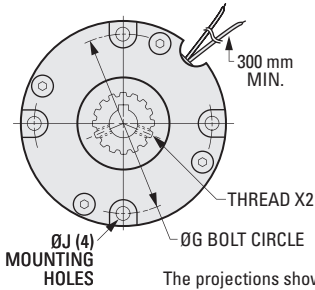
SIMPLE INSTALLATION
ECONOMICAL COST
ENERGY EFFICIENT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> COIL DATA:

Voltage: 24V DC



The projections shown are per ISO convention.



| Keyway Dimensions | | | |
|-------------------|------|------|------|
| Bore | 10 | 12 | 16 |
| Width | 3 | 4 | 5 |
| Height | 11.4 | 13.8 | 18.3 |

METRIC COMPONENT

| Catalog Number | Static Torque N•m | Max. Watts | C Bore | F Case Inside Dia. | A Dia. | G | J | B ₁ OAL Short Hub | B ₂ OAL Long Hub |
|----------------|-------------------|------------|--------|--------------------|--------|------|-----|------------------------------|-----------------------------|
| S90SB9M26A10S | 4.52 | 19 | 10 | 16 | 72.9 | 63.5 | 4.5 | 31 | — |
| S90SB9M26A10L | 4.52 | 19 | 10 | 16 | 72.9 | 63.5 | 4.5 | — | 36.8 |
| S90SB9M26A12S | 4.52 | 19 | 12 | 16 | 72.9 | 63.5 | 4.5 | 31 | — |
| S90SB9M26A12L | 4.52 | 19 | 12 | 16 | 72.9 | 63.5 | 4.5 | — | 36.8 |
| S90SB9M28A10S | 9.04 | 20 | 10 | 30 | 77 | 70 | 4.5 | 31 | — |
| S90SB9M28A10L | 9.04 | 20 | 10 | 30 | 77 | 70 | 4.5 | — | 36.8 |
| S90SB9M28A12S | 9.04 | 20 | 12 | 30 | 77 | 70 | 4.5 | 31 | — |
| S90SB9M28A12L | 9.04 | 20 | 12 | 30 | 77 | 70 | 4.5 | — | 36.8 |
| S90SB9M28A16S | 9.04 | 20 | 16 | 30 | 77 | 70 | 4.5 | 31 | — |
| S90SB9M28A16L | 9.04 | 20 | 16 | 30 | 77 | 70 | 4.5 | — | 36.8 |

| Catalog Number (Series Ref.) | Thread | Nom. Resistance Ohms | Armature | | Rotor Inertia kgf • m • sec ² | Energy Dissipation N • m/min | Weight kg |
|------------------------------|--------|----------------------|-----------------|--------------------|--|------------------------------|-----------|
| | | | Engagement msec | Disengagement msec | | | |
| S90SB9M26A... | M4 | 33 | 80 | 20 | 0.13 x 10 ⁻⁵ | 1898 | 0.5 |
| S90SB9M28A... | M4 | 36 | 50 | 40 | 0.12 x 10 ⁻⁶ | 2440 | 0.8 |

Continued from the previous page

ANTI-BACKLASH WHEN ENERGIZED
ZERO DRAG WHEN DE-ENERGIZED

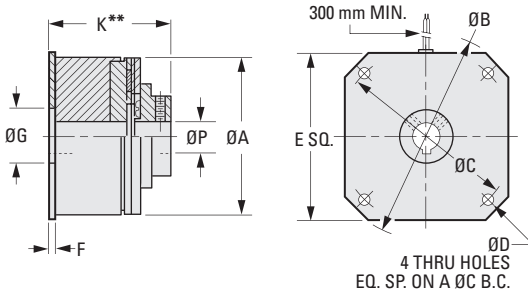
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> COIL DATA:

Voltage: 24V DC

Other voltages available on special order.



The projections shown are per ISO convention.

Keyway Dimensions

| Bore | 6 | 8 | 10 | 12 | 16 |
|--------|---|-----|------|------|------|
| Width | 2 | 3 | 3 | 4 | 5 |
| Height | 7 | 9.4 | 11.4 | 13.8 | 18.3 |

METRIC COMPONENT

| Catalog Number | Static* Torque N • m | Max. Wattage | Armature Inertia kgf • m • sec ² | Energy Dissipation N • m/min. | Armature | | P Bore |
|----------------|----------------------------|-----------------|---|-------------------------------------|--------------------|-----------------------|-----------|
| | | | | | Engagement msec | Disengagement msec | |
| S90BF9M11A06 | 0.565 | 5 | 0.39 x 10 ⁻⁶ | 237.3 | 5 | 18 | 6 |
| S90BF9M11A08 | 0.565 | 5 | 0.39 x 10 ⁻⁶ | 237.3 | 5 | 18 | 8 |
| S90BF9M22A08 | 4.519 | 8.5 | 0.38 x 10 ⁻⁵ | 1898.4 | 12 | 32 | 8 |
| S90BF9M22A10 | 4.519 | 8.5 | 0.38 x 10 ⁻⁵ | 1898.4 | 12 | 32 | 10 |
| S90BF9M26A10 | 9.039 | 9.5 | 0.93 x 10 ⁻⁵ | 3525.6 | 15 | 35 | 10 |
| S90BF9M26A12 | 9.039 | 9.5 | 0.93 x 10 ⁻⁵ | 3525.6 | 15 | 35 | 12 |
| S90BF9M30A16 | 14.123 | 12 | 2.06 x 10 ⁻⁵ | 3932.4 | 18 | 45 | 16 |

| Catalog Number (Ref.) | A | B | C | D | E | F | G | Length** | | T Set Screws | Weight kg |
|--------------------------|------|--------|-------|-----|------|-----|-------|----------|-----------|--------------------|--------------|
| | | | | | | | | K | Air Gap | | |
| S90BF9M11A06 | 31.8 | 38.05 | 33.32 | 3.2 | 29.7 | 1.3 | 13.34 | 29 | 0.1/0.22 | M3 | 0.1 |
| S90BF9M11A08 | 31.8 | 38.05 | 33.32 | 3.2 | 29.7 | 1.3 | 13.34 | 29 | 0.1/0.22 | M3 | 0.1 |
| S90BF9M22A08 | 57.4 | 72.97 | 63.5 | 4.2 | 59.2 | 1.6 | 22.23 | 44.2 | 0.15/0.33 | M4 | 0.4 |
| S90BF9M22A10 | 57.4 | 72.97 | 63.5 | 4.2 | 59.2 | 1.6 | 22.23 | 44.2 | 0.15/0.33 | M4 | 0.4 |
| S90BF9M26A10 | 66.7 | 88.87 | 79.38 | 4.8 | 66.8 | 1.6 | 26.97 | 46.8 | 0.15/0.33 | M5 | 0.5 |
| S90BF9M26A12 | 66.7 | 88.87 | 79.38 | 4.8 | 66.8 | 1.6 | 26.97 | 46.8 | 0.15/0.33 | M5 | 0.5 |
| S90BF9M30A16 | 83 | 106.32 | 95.25 | 4.8 | 82.6 | 2.3 | 44.48 | 49.2 | 0.2/0.33 | M5 | 1.3 |

*Typical torque after burnishing; units shipped burnished.

**Length equals K including the working gap at installation.

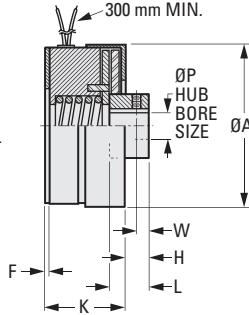
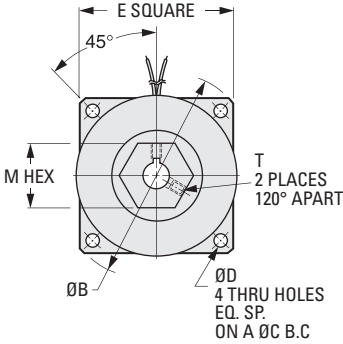
BRAKES LOAD IN ABSENCE OF POWER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> COIL DATA:

Voltage: 24V DC

Other voltages available on special order.



The projections shown are per ISO convention.

Keyway Dimensions

| | | |
|--------|---|------|
| Bore | 6 | 12 |
| Width | 2 | 4 |
| Height | 7 | 13.8 |

METRIC COMPONENT

| Catalog Number * | Min. Static Torque N • m | Max. Wattage | P Hub Bore | A | B | C | D | E |
|------------------|--------------------------|--------------|------------|------|-------|------|-----|------|
| S90BRCM11A05 | 0.565 | 7 | 5 Δ | 32.1 | 38.05 | 33.3 | 3.2 | 29 |
| S90BRCM11A06 | 0.565 | 7 | 6 | 32.1 | 38.05 | 33.3 | 3.2 | 29 |
| S90BRCM26A12 | 5.65 | 14 | 12 | 67.1 | 88.87 | 79.4 | 5.1 | 66.8 |

| Catalog Number * (Ref.) | F | H | K | L | M | T Set Screws | W | Weight kg |
|-------------------------|-----|------|------|------|------|--------------|-----|-----------|
| S90BRCM11A05 | 1.6 | 8.5 | 27.7 | 12.2 | 12.7 | M3 | 4.3 | 0.1 |
| S90BRCM11A06 | 1.6 | 8.5 | 27.7 | 12.2 | 12.7 | M3 | 4.3 | 0.1 |
| S90BRCM26A12 | 1.6 | 13.2 | 34.8 | 19.6 | 22.2 | M5 | 7.9 | 0.7 |

* To be discontinued when present stock is depleted.

Δ No keyway supplied with 5 mm bore.



POWER-OFF PARALLEL PLATE BRAKES

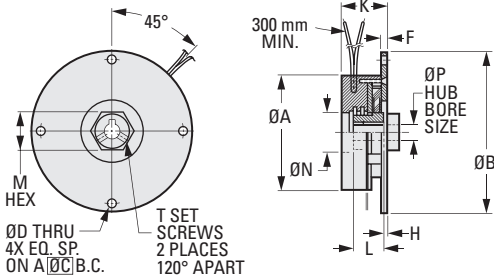
SDP/SI

STOPS CRITICAL LOADS UPON POWER FAILURE PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> COIL DATA:

Voltage: 24V DC

Other voltages available on special order.



The projections shown are per ISO convention.

Keyway Dimensions

| | | |
|--------|---|-----|
| Bore | 6 | 8 |
| Width | 2 | 3 |
| Height | 7 | 9.4 |

METRIC COMPONENT

| Catalog Number * | Min. Static Torque N • m | Max. Wattage | P Hub Bore | A | B | C | D |
|------------------|--------------------------|--------------|------------|------|-------|------|-----|
| S90BRPM22A06 | 0.904 | 8 | 6 | 57.2 | 81.28 | 72.1 | 4.5 |
| S90BRPM22A08 | 0.904 | 8 | 8 | 57.2 | 81.28 | 72.1 | 4.5 |
| S90BRPM23A06 | 1.694 | 8 | 6 | 60.4 | 82.55 | 72.1 | 4.7 |
| S90BRPM23A08 | 1.694 | 8 | 8 | 60.4 | 82.55 | 72.1 | 4.7 |

| Catalog Number * (Ref.) | F | H | K | L | M | T Set Screws | N | Weight kg |
|-------------------------|-----|-----|------|------|------|--------------|------|-----------|
| S90BRPM22A06 | 2.5 | 0.5 | 22.9 | 15.8 | 19.1 | M3 | 19.8 | 0.3 |
| S90BRPM22A08 | 2.5 | 0.5 | 22.9 | 15.8 | 19.1 | M3 | 19.8 | 0.3 |
| S90BRPM23A06 | 3.1 | 2.9 | 36.9 | 19.1 | 19.1 | M3 | 19.8 | 0.4 |
| S90BRPM23A08 | 3.1 | 2.9 | 36.9 | 19.1 | 19.1 | M3 | 19.8 | 0.4 |

* To be discontinued when present stock is depleted.

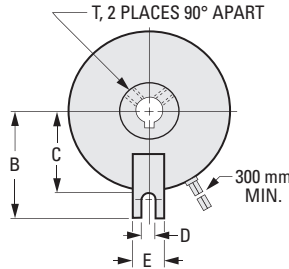
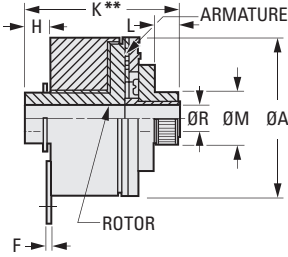
ZERO-BACKLASH ARMATURE
FOR PARALLEL LOADS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> COIL DATA:

Voltage: 24V DC

Other voltages and dissimilar bore combinations are available as special order.



The projections shown are per ISO convention.

| Keyway Dimensions | | | | |
|-------------------|---|-----|------|------|
| Bore | 6 | 8 | 10 | 16 |
| Width | 2 | 3 | 3 | 5 |
| Height | 7 | 9.4 | 11.4 | 18.3 |

METRIC COMPONENT

| Catalog Number | Static* Torque N • m | Max. Wattage | Armature Inertia kgf • m • sec ² | Rotor Inertia kgf • m • sec ² | Energy Dissipation N • m/min | Armature | | R Bore |
|-------------------|----------------------|--------------|---|--|------------------------------|-----------------|--------------------|--------|
| | | | | | | Engagement msec | Disengagement msec | |
| Δ S90CS9M11A0606 | 0.565 | 5 | 0.40 x 10 ⁻⁶ | 0.30 x 10 ⁻⁶ | 237.3 | 5 | 18 | 6 |
| Δ S90CS9M11A0808 | 0.565 | 5 | 0.40 x 10 ⁻⁶ | 0.30 x 10 ⁻⁶ | 237.3 | 5 | 18 | 8 |
| S90CS9M15A0808 | 1.13 | 5 | 0.68 x 10 ⁻⁶ | 0.60 x 10 ⁻⁶ | 400 | 8 | 22 | 8 |
| S90CS9M17A0606 | 1.695 | 6 | 0.84 x 10 ⁻⁶ | 0.13 x 10 ⁻⁵ | 569.5 | 10 | 27 | 6 |
| S90CS9M17A0808 | 1.695 | 6 | 0.84 x 10 ⁻⁶ | 0.13 x 10 ⁻⁵ | 569.5 | 10 | 27 | 8 |
| S90CS9M22A0808 | 4.519 | 8.5 | 0.38 x 10 ⁻⁵ | 0.37 x 10 ⁻⁵ | 1898.4 | 12 | 32 | 8 |
| S90CS9M22A1010 | 4.519 | 8.5 | 0.38 x 10 ⁻⁵ | 0.37 x 10 ⁻⁵ | 1898.4 | 12 | 32 | 10 |
| § S90CS9M26A1010 | 9.039 | 9.5 | 0.92 x 10 ⁻⁵ | 0.71 x 10 ⁻⁵ | 3525.6 | 15 | 35 | 10 |
| § S90CS9M30A1616 | 14.123 | 12 | 2.07 x 10 ⁻⁵ | 2.34 x 10 ⁻⁵ | 3932.4 | 18 | 45 | 16 |
| ◇§ S90CS9M30A2020 | 14.123 | 15 | 2.07 x 10 ⁻⁵ | 2.34 x 10 ⁻⁵ | 3932.4 | 18 | 45 | 20ΔΔ |

| Catalog Number (Ref.) | A | B | C | D | E | F | H | Length** | | L | M | T Set Screws | Weight kg |
|-----------------------|------|------|------|-----|------|-----|-----|----------|-----------|------|-------|--------------|-----------|
| | | | | | | | | K | Air Gap | | | | |
| Δ S90CS9M11A0606 | 31.8 | 22.1 | 14.2 | 3.2 | 9.6 | 0.8 | 5.5 | 35 | 0.1/0.22 | 8.4 | 12.88 | M3 | 0.1 |
| Δ S90CS9M11A0808 | 31.8 | 22.1 | 14.2 | 3.2 | 9.6 | 0.8 | 5.5 | 35 | 0.1/0.22 | 8.4 | 12.88 | M3 | 0.1 |
| S90CS9M15A0808 | 38.9 | 27.9 | 19.1 | 4.8 | 12.7 | 1.5 | 9.7 | 46.5 | 0.1/0.22 | 8.4 | 16.03 | M3 | 0.2 |
| S90CS9M17A0606 | 45.3 | 33.5 | 23.1 | 4.8 | 12.7 | 1.5 | 7.5 | 46.9 | 0.1/0.22 | 8.4 | 16.03 | M4 | 0.3 |
| S90CS9M17A0808 | 45.3 | 33.5 | 23.1 | 4.8 | 12.7 | 1.5 | 7.5 | 46.9 | 0.1/0.22 | 8.4 | 16.03 | M4 | 0.3 |
| S90CS9M22A0808 | 57.4 | 38.5 | 29.5 | 4.8 | 11.2 | 1.5 | 9.1 | 55.9 | 0.15/0.33 | 9.4 | 19.2 | M4 | 0.5 |
| S90CS9M22A1010 | 57.4 | 38.5 | 29.5 | 4.8 | 11.2 | 1.5 | 9.1 | 55.9 | 0.15/0.33 | 9.4 | 19.2 | M4 | 0.5 |
| § S90CS9M26A1010 | 66.7 | 44.5 | 34 | 4.8 | 12.7 | 1.5 | 8.7 | 62.6 | 0.15/0.33 | 11.9 | 25.37 | M5 | 0.6 |
| § S90CS9M30A1616 | 83 | 52 | 42.9 | 4.8 | 12.7 | 2.3 | 9.1 | 71.4 | 0.2/0.45 | — | — | M5 | 1.5 |
| ◇§ S90CS9M30A2020 | 83 | 51 | 40.6 | 4.8 | 12.7 | 2.3 | 10 | 71.4 | 0.2/0.45 | — | — | M5 | 1.5 |

* Typical torque after burnishing; units shipped burnished.
 ** Length equals K including initial working air gap at installation.
 Δ Keyway not available in rotor.
 ΔΔ For 20 mm Bore, tolerance = E9 : + 0.092/+0.040.
 § No knurl available; S90CS9M26A supplied with (3) M5 holes on a 34.925 B.C.
 S90CS9M30A supplied with (3) M5 holes on a 44.45 B.C.
 ◇ To be discontinued when present stock is depleted.

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ZERO-BACKLASH ARMATURE
FOR IN-LINE LOADS

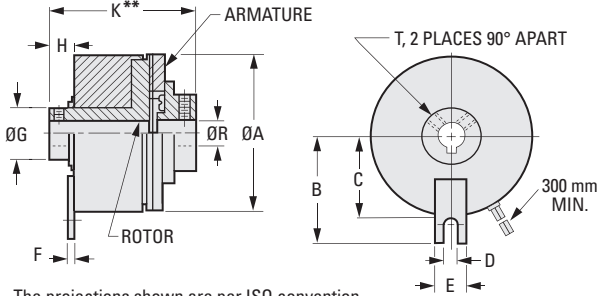
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> COIL DATA:

Voltage: 24V DC

Other voltages and dissimilar bore combinations are available as special order.



The projections shown are per ISO convention.



| Keyway Dimensions | | | |
|-------------------|---|-----|------|
| Bore | 6 | 8 | 10 |
| Width | 2 | 3 | 3 |
| Height | 7 | 9.4 | 11.4 |

METRIC COMPONENT

| Catalog Number | Static Torque N • m | Max. Wattle | Armature Inertia kgf • m • sec ² | Rotor Inertia kgf • m • sec ² | Energy Dissipation N • m/min. | Armature | | R Bore |
|------------------|---------------------|-------------|---|--|-------------------------------|-----------------|--------------------|--------|
| | | | | | | Engagement msec | Disengagement msec | |
| Δ S90CSCM11A0606 | 0.56 | 5 | 0.40 x 10 ⁻⁶ | 0.30 x 10 ⁻⁶ | 237.3 | 5 | 18 | 6 |
| Δ S90CSCM11A0808 | 0.56 | 5 | 0.40 x 10 ⁻⁶ | 0.30 x 10 ⁻⁶ | 237.3 | 5 | 18 | 8 |
| □ S90CSCM17A0606 | 1.69 | 6 | 0.93 x 10 ⁻⁶ | 0.13 x 10 ⁻⁵ | 569.5 | 10 | 27 | 6 |
| □ S90CSCM26A1010 | 9.04 | 9.5 | 0.93 x 10 ⁻⁵ | 0.71 x 10 ⁻⁵ | 3525.6 | 15 | 35 | 10 |

| Catalog Number (Ref.) | A | B | C | D | E | F | G | H | Length** | | T Set Screws | Weight kg |
|-----------------------|------|------|------|-----|------|-----|------|-----|----------|-----------|--------------|-----------|
| | | | | | | | | | K | Air Gap | | |
| Δ S90CSCM11A0606 | 31.8 | 22.1 | 14.2 | 3.2 | 9.6 | 0.8 | 12.4 | 5.5 | 32.5 | 0.1/0.22 | M3 | 0.1 |
| Δ S90CSCM11A0808 | 31.8 | 22.1 | 14.2 | 3.2 | 9.6 | 0.8 | 12.4 | 5.5 | 32.5 | 0.1/0.22 | M3 | 0.1 |
| □ S90CSCM17A0606 | 45.2 | 33.5 | 23.1 | 4.8 | 12.7 | 1.5 | 15.8 | 7.5 | 39.4 | 0.1/0.22 | M4 | 0.3 |
| □ S90CSCM26A1010 | 66.8 | 44.5 | 34 | 4.8 | 12.7 | 1.5 | 22.2 | 8.7 | 53.3 | 0.15/0.33 | M5 | 0.6 |

*Typical torque after burnishing; units shipped burnished.

**Length equals K including initial working air gap at installation.

Δ Keyway not available in rotor.

□ To be discontinued when present stock is depleted.

ZERO-BACKLASH ARMATURE
FOR PARALLEL LOADS

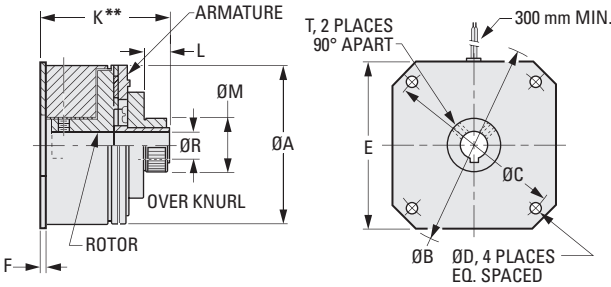
PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> COIL DATA:

Voltage: 24V DC

Other voltages and dissimilar bore combinations are available as special order.



The projections shown are per ISO convention.

Keyway Dimensions

| | | |
|--------|---|-----|
| Bore | 6 | 8 |
| Width | 2 | 3 |
| Height | 7 | 9.4 |

METRIC COMPONENT

| Catalog Number ◊ | Static* Torque N • m | Max. Wattage | Armature Inertia kgf • m • sec ² | Rotor Inertia kgf • m • sec ² | Energy Dissipation N • m/min | Armature | | R Bore |
|------------------|----------------------|--------------|---|--|------------------------------|-----------------|--------------------|--------|
| | | | | | | Engagement msec | Disengagement msec | |
| Δ S90CF9M11A0606 | 0.56 | 5 | 0.40 x 10 ⁻⁶ | 0.28 x 10 ⁻⁶ | 237.3 | 5 | 18 | 6 |
| S90CF9M15A0606 | 1.13 | 5 | 0.68 x 10 ⁻⁶ | 0.57 x 10 ⁻⁶ | 400 | 8 | 22 | 6 |

| Catalog Number ◊ (Ref.) | A | B | C | D | E | F | Length** | | L | M | T Set Screws | Weight kg |
|-------------------------|------|-------|------|-----|------|-----|----------|-----------|-----|-------|--------------|-----------|
| | | | | | | | K | Air Gap | | | | |
| Δ S90CF9M11A0606 | 31.8 | 38.05 | 33.3 | 3.2 | 29.7 | 1.3 | 31.3 | 0.1/0.22 | 8.4 | 12.88 | — | 0.1 |
| S90CF9M15A0606 | 38.9 | 50.77 | 44.4 | 4 | 39.6 | 1.5 | 39.2 | 0.15/0.33 | 8.4 | 16.03 | M3 | 0.2 |

* Typical torque after burnishing; units shipped burnished.

** Length equals K including initial working air gap at installation.

Δ Keyway not available in rotor.

◊ To be discontinued when present stock is depleted.



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FLANGE-MOUNTED CLUTCH COUPLINGS

SDP/SI

ZERO-BACKLASH ARMATURE
FOR IN-LINE LOADS

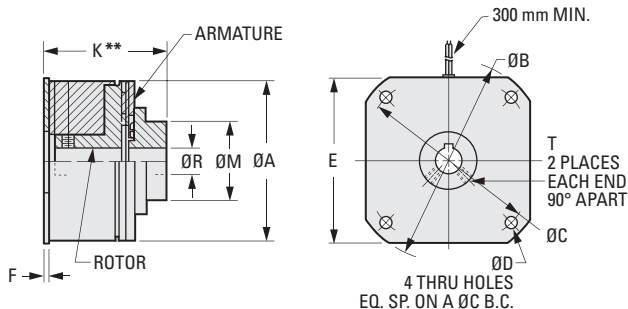
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> COIL DATA:

Voltage: 24V DC



The projections shown are per ISO convention.

Keyway Dimensions

| | | |
|--------|-----|------|
| Bore | 8 | 10 |
| Width | 3 | 3 |
| Height | 9.4 | 11.4 |

METRIC COMPONENT

| Catalog Number § | Static Torque N • m | Max. Wattage | Armature Inertia kgf • m • sec ² | Rotor Inertia kgf • m • sec ² | Energy Dissipation N • m/min | Armature | | R Bore |
|------------------|------------------------|--------------|--|---|---------------------------------|-----------------|--------------------|--------|
| | | | | | | Engagement msec | Disengagement msec | |
| Δ S90CFM11A0606 | 0.56 | 5 | 0.39 x 10 ⁻⁶ | 0.29 x 10 ⁻⁶ | 237.3 | 5 | 18 | 6 |
| Δ S90CFM11A0808 | 0.56 | 5 | 0.39 x 10 ⁻⁶ | 0.29 x 10 ⁻⁶ | 237.3 | 5 | 18 | 8 |
| S90CFM17A0808 | 1.69 | 6 | 0.93 x 10 ⁻⁶ | 0.13 x 10 ⁻⁵ | 569.5 | 10 | 27 | 8 |
| S90CFM26A1010 | 9.04 | 9.5 | 0.93 x 10 ⁻⁵ | 0.74 x 10 ⁻⁵ | 3525.6 | 15 | 35 | 10 |

| Catalog Number § (Ref.) | A | B | C | D | E | F | Length** | | M | T Set Screws | Weight kg |
|----------------------------|------|-------|------|-----|------|-----|----------|-----------|------|--------------|-----------|
| | | | | | | | K | Air Gap | | | |
| Δ S90CFM11A0606 | 31.8 | 38.05 | 33.3 | 3.2 | 29.8 | 1.2 | 29 | 0.1/0.22 | 17.5 | M3 | 0.1 |
| Δ S90CFM11A0808 | 31.8 | 38.05 | 33.3 | 3.2 | 29.8 | 1.2 | 29 | 0.1/0.22 | 17.5 | M3 | 0.1 |
| S90CFM17A0808 | 45.3 | 61.87 | 54 | 4.8 | 46.3 | 1.5 | 34.3 | 0.15/0.33 | 26.9 | M4 | 0.3 |
| S90CFM26A1010 | 66.7 | 88.87 | 79.4 | 4.8 | 66.8 | 1.6 | 46.8 | 0.15/0.33 | 43.7 | M5 | 0.6 |

* Typical torque after burnishing; units shipped burnished.

** Length equals K including the working gap at installation.

Δ Keyway not available in rotor.

§ To be discontinued when present stock is depleted.





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> **A.C. Gearmotors**

| Size | Voltage | Rated Torque N • m | Rated Speed rpm | Page |
|------|---------|--------------------|-----------------|------|
| 60 | 115V | 0.1-1 | 1200/1450 | 14-3 |

> **D.C. Gearmotors - Motor Specifications**

| Size | Voltage | Rated Torque N • mm | Rated Speed rpm | Page |
|------|---------|---------------------|-----------------|--------------|
| 12 | 3V | 0.098 | 11600 | 14-4 |
| 12 | 3V | 0.1 | 12000 | 14-5 |
| 12 | 4.5V | 0.294 | 7350 | 14-6 |
| 12 | 12V | 0.16 | 10500 | 14-7 |
| 12 | 12V | 0.245 | 12550 | 14-8 |
| 12 | 12V | 0.25 | 13050 | 14-9 |
| 16 | 6V | 0.49 | 4750 | 14-10 |
| 16 | 6V | 0.59 | 9090 | 14-11 |
| 16 | 6V | 0.59 | 9097 | 14-12 |
| 16 | 6V | 1.96 | 6891 | 14-13 |
| 16 | 6V | 1.96 | 7021 | 14-14, 14-15 |
| 16 | 12V | 0.49 | 6556 | 14-16 |
| 16 | 12V | 0.49 | 6571 | 14-17 |
| 16 | 12V | 1.96 | 7082 | 14-18 |
| 16 | 12V | 1.96 | 7261 | 14-19 |
| 20 | 12V | 0.59 | 3500 | 14-20, 14-21 |
| 22 | 12V | 2.94 | 4700 | 14-22, 14-23 |
| 22 | 12V | 2.94 | 4750 | 14-24 |
| 22 | 12V | 2.94 | 5150 | 14-25 |
| 22 | 24V | 3.92 | 10300 | 14-26 |
| 22 | 24V | 3.92 | 10400 | 14-27 |
| 27 | 12V | 2.94 | 5150 | 14-28, 14-29 |
| 37 | 12V | 2.45 | 7200 | 14-30 |
| 37 | 12V | 4.9 | 5200 | 14-31 |
| 37 | 24V | 1.96 | 4600 | 14-32 |
| 37 | 24V | 4.9 | 4200 | 14-33 |
| 37 | 24V | 4.9 | 4500 | 14-34 |
| 37 | 24V | 4.9 | 6550 | 14-35 |
| 37 | 24V | 5.1 | 3600 | 14-36 |
| 42 | 6V | 0.98 | 1250 | 14-37 |
| 42 | 12V | 0.98 | 1200 | 14-38 |
| 42 | 12V | 14.7 | 2560 | 14-39 |
| 42 | 12V | 29.4 | 4300 | 14-40 |
| 42 | 24V | 0.98 | 2500 | 14-41 |
| 42 | 24V | 19.6 | 3400 | 14-42 |
| 43 | 12V | 9.81 | 3750 | 14-43 |
| 43 | 12V | 14.72 | 2560 | 14-44 |
| 43 | 24V | 9.81 | 3590 | 14-45 |
| 43 | 24V | 14.72 | 2560 | 14-46 |
| 48 | 12V | 14.7 | 2560 | 14-47 |
| 48 | 12V | 29.4 | 3800 | 14-48 |
| 48 | 24V | 4.9 | 4600 | 14-49 |
| 48 | 24V | 14.7 | 2560 | 14-50 |
| 48 | 24V | 14.7 | 3500 | 14-51 |
| 60 | 12V | 9.81 | 3750 | 14-52, 14-53 |
| 60 | 12V | 14.72 | 2560 | 14-54, 14-55 |
| 60 | 12V | 29.43 | 3800 | 14-56 |





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> D.C. Gearmotors - Motor Specifications (Continued)

| Size | Voltage | Rated Torque N • mm | Rated Speed rpm | Page |
|------|---------|---------------------|-----------------|--------------|
| 60 | 24V | 9.81 | 3590 | 14-57, 14-58 |
| 60 | 24V | 14.72 | 2560 | 14-59 |
| 60 | 24V | 14.72 | 3500 | 14-60 |

> Single Phase A.C. Motors

| Size | Voltage | Rated Torque N • mm | Rated Speed rpm | Page |
|------|---------|---------------------|-----------------|-------|
| 60 | 115V | — | 1200-1800 | 14-61 |

> D.C. Motors

| Size | Voltage | Rated Torque N • mm | Rated Speed rpm | Page |
|------|---------|---------------------|-----------------|-------|
| 40 | 6V | 0.98 | 1250 | 14-62 |
| 40 | 12V | 0.98 | 1200 | 14-62 |

> Hybrid Stepper Motors

| Nema Size | Max. Drive Voltage | Min. Holding Torque ozf. in. | Step Angle | Page |
|-----------|--------------------|------------------------------|------------|-------|
| 11 | 24V DC | 7-15 | 1.8° | 14-66 |
| 14 | 80V DC | 8-26 | 1.8° | 14-68 |
| 17 | 80V DC | 17 - 62.8 | .9 ~ 1.8° | 14-70 |
| 23 | 80V DC | 54.2 - 264 | 1.8° | 14-72 |
| 23 | 160V DC | 69 - 212 | 1.8° | 14-74 |
| 34 | 160V DC | 850 - 1845 | 1.8° | 14-76 |
| 34 | 160V DC | 150 - 636 | 1.8° | 14-78 |
| 42 | 160V DC | 1125 - 1591 | 1.8° | 14-80 |

> Stepper Motors & Modules

| Nema Size | Drive Voltage | Holding Torque N • cm | Step Angle | Page |
|-----------|---------------|-----------------------|------------|-------|
| 23 | 60V DC | 40, 88, 106 | 1.8° | 14-82 |
| 34 | 60V DC | 123, 350 | 1.8° | 14-83 |
| Metric | 60V DC | 58, 123 | 1.8° | 14-84 |
| Metric | 60V DC | 41-216 | 1.8° | 14-85 |

115 VOLTS A.C.
REVERSIBLE
INDUCTION TYPE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



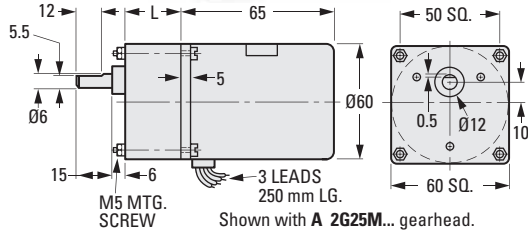
► **MATERIAL:**

- Housing** - Machined Aluminum
- Shaft** - Steel
- Gears** - Steel & Phenolic
- Bearings** - Bronze

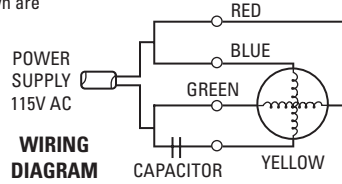
► **SPECIFICATIONS:**

| Units | Induction |
|---------------|------------------------------|
| H.P. | 1/250 |
| rpm* | 1200/1450 |
| Voltage | 115 (50-60 Hz) |
| Watts | 3 |
| Amps | 0.1 |
| Capacitance Δ | 50 Hz 1.0 μF 60 Hz 0.8 μF |
| Weight | Approx. 0.8 kg |

* This is the unloaded motor rpm.
Final output shaft speed will depend upon gear ratio, load & motor characteristics.
Δ Capacitor supplied with motors



The projections shown are per ISO convention.



WIRING DIAGRAM
CCW Rotation
Switch Yellow and Blue Leads for CW Rotation

| METRIC COMPONENT | | Ratio to 1 | L | Shaft Rotation | Maximum Continuous Torque N • m (lbf in.) |
|------------------|------|------------|---------|----------------|---|
| A 3G25MIS0006** | 6 | 19 | Same | 0.1 (0.9) | |
| A 3G25MIS0008 | 7.5 | 19 | Same | 0.1 (0.9) | |
| A 3G25MIS0010 | 10 | 19 | Same | 0.2 (1.8) | |
| A 3G25MIS0012H | 12.5 | 21.5 | Reverse | 0.2 (1.8) | |
| A 3G25MIS0020 | 20 | 19 | Same | 0.3 (2.7) | |
| A 3G25MIS0025 | 25 | 21.5 | Reverse | 0.4 (3.5) | |
| A 3G25MIS0030 | 30 | 21.5 | Reverse | 0.4 (3.5) | |
| A 3G25MIS0036 | 36 | 21.5 | Reverse | 0.4 (3.5) | |
| A 3G25MIS0040 | 40 | 21.5 | Reverse | 0.4 (3.5) | |
| A 3G25MIS0050 | 50 | 21.5 | Reverse | 0.7 (6.2) | |
| A 3G25MIS0060 | 60 | 21.5 | Reverse | 0.7 (6.2) | |
| A 3G25MIS0100 | 100 | 21.5 | Reverse | 1 (8.9) | |
| A 3G25MIS0120 | 120 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0150 | 150 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0180 | 180 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0200 | 200 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0250 | 250 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0300 | 300 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0360 | 360 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0450 | 450 | 26.5 | Reverse | 1 (8.9) | |
| A 3G25MIS0500 | 500 | 24 | Same | 1 (8.9) | |
| A 3G25MIS0750 | 750 | 26.5 | Reverse | 1 (8.9) | |
| A 3G25MIS0900 | 900 | 26.5 | Reverse | 1 (8.9) | |
| A 3G25MIS1000 | 1000 | 26.5 | Reverse | 1 (8.9) | |
| A 3G25MIS1200 | 1200 | 26.5 | Reverse | 1 (8.9) | |
| A 3G25MIS1500 | 1500 | 26.5 | Reverse | 1 (8.9) | |
| A 3G25MIS1800 | 1800 | 26.5 | Reverse | 1 (8.9) | |
| A 3G25MIS2000 | 2000 | 26.5 | Reverse | 1 (8.9) | |

**To be discontinued when present stock is depleted.

3 VOLTS
12 mm DIAMETER

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> MATERIAL:

- Housing - Gearhead - Zinc, Die Cast
- Motor - Steel
- Shafts & Gears - Steel
- Bearings - Sintered



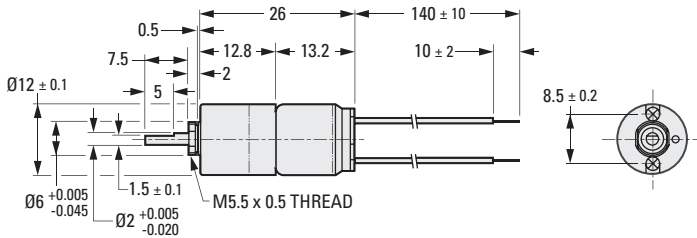
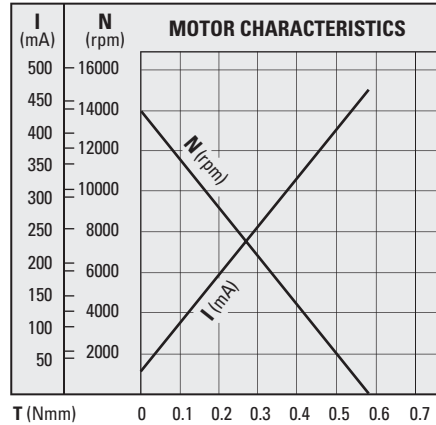
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 3V
- Rated Torque: 0.098 Nmm
- Rated Speed: 11600 rpm
- Rated Current: ≤ 110 mA
- No Load Speed: 14000 rpm
- No Load Current: ≤ 35 mA
- Rated Output: 0.12W

For replacement gearheads,
see A 2G12MRB... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque Nmm (ozf in.) | Shaft Rotation | Speed rpm | |
|------------------|------------|----------------------------|----------------|-----------|---------|
| | | | | Rated | No Load |
| D33S12M1300007 | 7.49 | 0.59 (.08) | CW | 1568 | 1832 |
| D33S12M1300016 | 15.56 | 0.98 (.14) | CCW | 772 | 882 |
| D33S12M1300031 | 31.12 | 1.96 (.28) | CW | 371 | 441 |
| D33S12M1300052 | 52.25 | 2.94 (.42) | CW | 230 | 263 |
| D33S12M1300072 | 71.99 | 4.41 (.62) | CW | 165 | 196 |
| D33S12M1300100 | 100.22 | 5.39 (.76) | CCW | 116 | 137 |
| D33S12M1300144 | 143.99 | 7.85 (1.11) | CCW | 82 | 95 |
| D33S12M1300209 | 208.79 | 9.81 (1.39) | CCW | 58 | 66 |

* To be discontinued when present stock is depleted.

3 VOLTS
12 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Input Gears - Acetal
- Bearings - Bronze

> OPERATING TEMPERATURE:

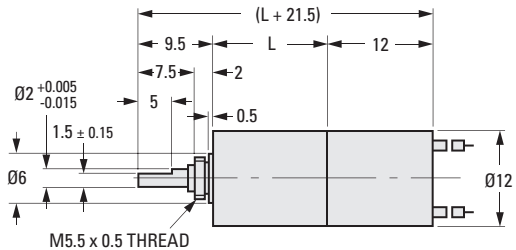
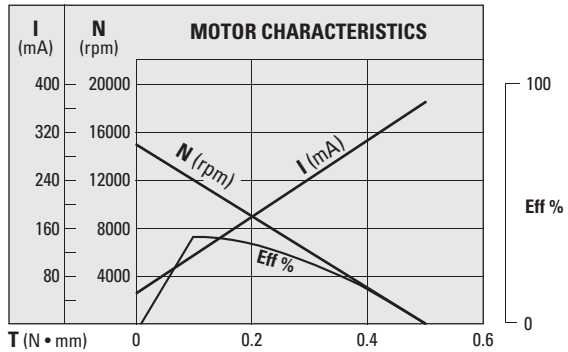
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 3V
- Rated Torque: 0.1 N • mm
- Rated Speed: 12000 rpm
- Rated Current: ≤ 110 mA
- No Load Speed: 15000 rpm
- No Load Current: ≤ 45 mA
- Rated Output: 0.12W
- Weight: 10 g

For replacement gearheads,
see **A 2G12M...** Series.

Similar gearmotors are offered as
D33S12M130... Series. See index.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S12M1200052 | 52 | 14.2 | 2.94 (.42) | 238 | 288 |
| D33S12M1200070 | 70 | 14.2 | 4.41 (.62) | 173 | 216 |
| D33S12M1200103 | 103 | 15.6 | 5.89 (.83) | 117 | 146 |
| D33S12M1200144 | 144 | 15.6 | 7.85 (1.11) | 85 | 104 |

*To be discontinued when present stock is depleted.

4.5 VOLTS
12 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Zinc, Die Cast
- Motor - Steel
- Shafts & Gears - Steel
- Bearings - Sintered

> OPERATING TEMPERATURE:

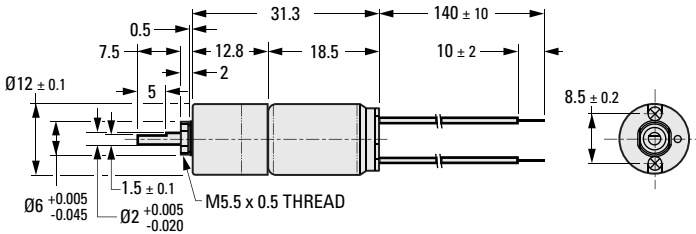
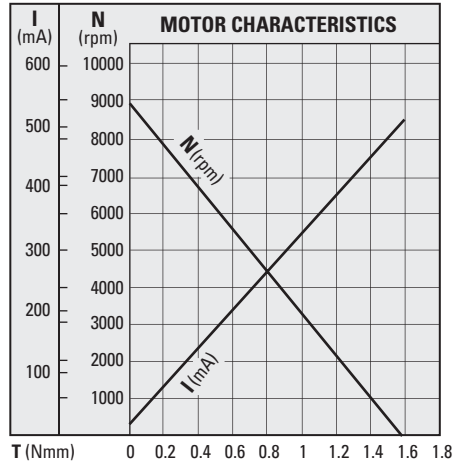
-10°C to +60°C



> MOTOR SPECIFICATIONS:

- Rated Voltage: 4.5V
- Rated Torque: 0.294 Nmm
- Rated Speed: 7350 rpm
- Rated Current: ≤ 110 mA
- No Load Speed: 9000 rpm
- No Load Current: ≤ 20 mA
- Rated Output: 0.23W

For replacement gearheads,
see A 2G12MRB... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque Nmm (ozf in.) | Shaft Rotation | Speed rpm | |
|------------------|------------|----------------------------|----------------|-----------|---------|
| | | | | Rated | No Load |
| D33S12M1800007 | 7.49 | 1.47 (.21) | CW | 979 | 1190 |
| D33S12M1800016 | 15.56 | 2.94 (.42) | CCW | 466 | 573 |
| D33S12M1800031 | 31.12 | 5.88 (.83) | CW | 247 | 286 |
| D33S12M1800052 | 52.25 | 9.81 (1.39) | CW | 147 | 179 |
| D33S12M1800072 | 71.99 | 9.81 (1.39) | CW | 108 | 130 |
| D33S12M1800100 | 100.22 | 14.7 (2.08) | CCW | 75 | 93 |
| D33S12M1800144 | 143.99 | 24.5 (3.47) | CCW | 51 | 65 |
| D33S12M1800209 | 208.79 | 24.5 (3.47) | CCW | 37 | 45 |

* To be discontinued when present stock is depleted.

12 VOLTS
12 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Input Gears - Acetal
- Bearings - Bronze

> OPERATING TEMPERATURE:

-10°C to +60°C

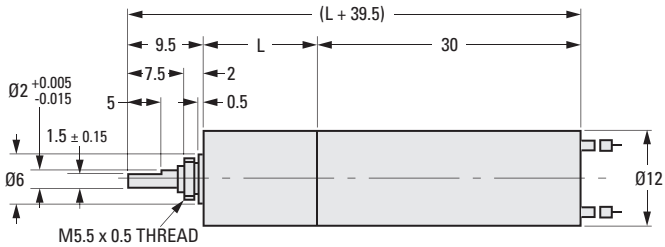
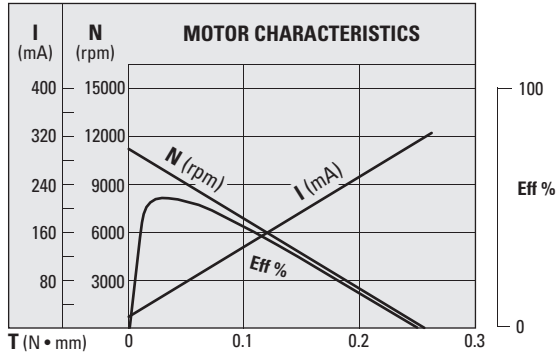


> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 0.16 N • mm
- Rated Speed: 10500 rpm
- Rated Current: ≤ 30 mA
- No Load Speed: 11200 rpm
- No Load Current: ≤ 10 mA
- Rated Output: 0.17W
- Weight: 22 g

For replacement gearheads,
see A 2G12M... Series.

Similar gearmotor is offered as
D33S12M181... Series. See index.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf. in.) | Speed rpm | |
|------------------|------------|------|--------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S12M3040070 | 70 | 14.2 | 6.87 (.97) | 151 | 161 |
| D33S12M3040103 | 103 | 15.6 | 9.81 (1.4) | 102 | 109 |
| D33S12M3040144 | 144 | 15.6 | 13.73 (1.9) | 74 | 78 |

*To be discontinued when present stock is depleted.

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12 VOLTS
12 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Zinc, Die Cast
- Motor - Steel
- Shafts & Gears - Steel
- Bearings - Sintered

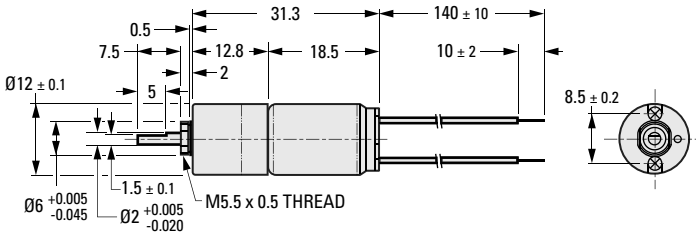
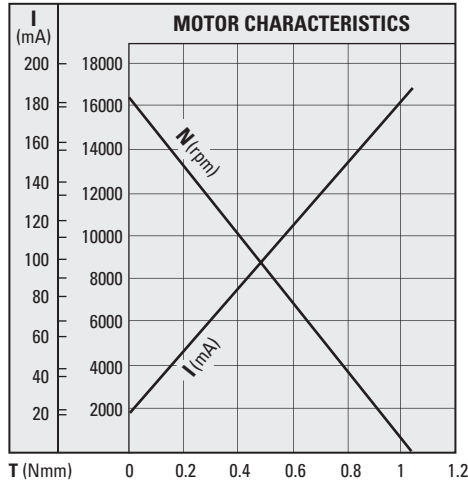
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 0.245 Nmm
- Rated Speed: 12550 rpm
- Rated Current: ≤ 60 mA
- No Load Speed: 16500 rpm
- No Load Current: ≤ 20 mA
- Rated Output: 0.32W

For replacement gearheads,
see A 2G12MRB... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque Nmm (ozf in.) | Shaft Rotation | Speed rpm | |
|------------------|------------|----------------------------|----------------|-----------|---------|
| | | | | Rated | No Load |
| D33S12M1810007 | 7.49 | 1.47 (.21) | CW | 1725 | 2071 |
| D33S12M1810016 | 15.56 | 2.45 (.35) | CCW | 859 | 997 |
| D33S12M1810031 | 31.12 | 4.9 (.69) | CW | 417 | 498 |
| D33S12M1810052 | 52.25 | 8.34 (1.18) | CW | 248 | 297 |
| D33S12M1810072 | 71.99 | 9.81 (1.39) | CW | 188 | 215 |
| D33S12M1810100 | 100.22 | 9.81 (1.39) | CCW | 134 | 155 |
| D33S12M1810144 | 143.99 | 19.6 (2.78) | CCW | 91 | 108 |
| D33S12M1810209 | 208.79 | 24.5 (3.47) | CCW | 65 | 74 |

* To be discontinued when present stock is depleted.

12 VOLTS
12 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Bearings - Bronze

> OPERATING TEMPERATURE:

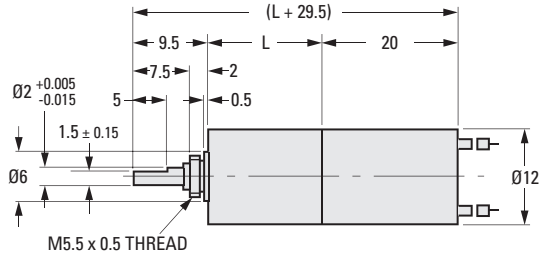
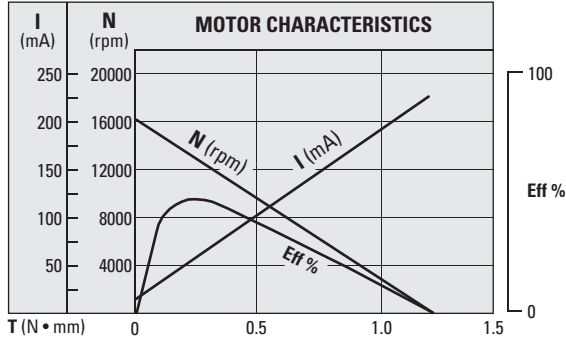
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 0.25 N • mm
- Rated Speed: 13050 rpm
- Rated Current: ≤ 55 mA
- No Load Speed: 16300 rpm
- No Load Current: ≤ 12 mA
- Rated Output: 0.33W
- Weight: 12 g

For replacement gearheads, see **A 2G12M...** Series.

Similar gearmotor is offered as **D33S12M181...**Series. See index.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S57M28F0032 | 32 | 14.2 | 4.9 (.69) | 413 | 509 |
| D33S57M28F0052 | 52 | 14.2 | 8.3 (1.2) | 251 | 313 |
| D33S57M28F0070 | 70 | 14.2 | 9.8 (1.4) | 194 | 234 |
| D33S57M28F0103 | 103 | 15.6 | 14.7 (2.1) | 127 | 158 |
| D33S57M28F0144 | 144 | 15.6 | 19.6 (2.8) | 92 | 113 |

*To be discontinued when present stock is depleted.

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6 VOLTS
16 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Input Gears - Acetal
- Bearings - Bronze



> OPERATING TEMPERATURE:

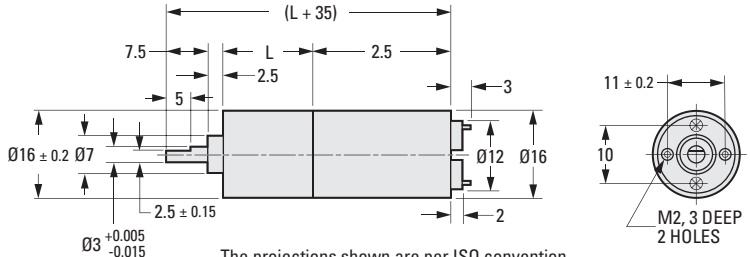
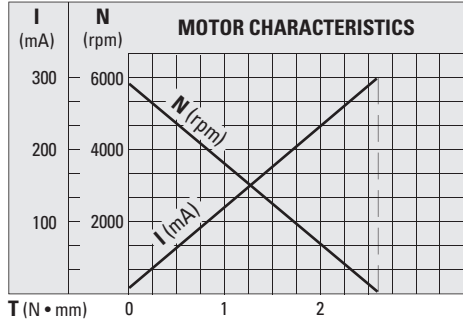
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 6V
- Rated Torque: 0.49 N • mm
- Rated Speed: 4750 rpm
- Rated Current: 65 mA
- No Load Speed: 5900 rpm
- No Load Current: 15 mA
- Rated Output: 0.24W
- Weight: 24 g

For replacement gearheads, see **A 2G16M...** Series.

Same gearhead with different motor is offered as **D33S57M25H...** or **D33S16M25H...** Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S16M2530010 | 10.24 | 14.75 | 2.9 (.42) | 476 | 576 |
| D33S16M2530019 | 19.36 | 14.75 | 5.9 (.85) | 249 | 305 |
| D33S16M2530030 | 29.9 | 14.75 | 9.8 (1.4) | 158 | 197 |
| D33S16M2530042 | 41.53 | 14.75 | 9.8 (1.4) | 122 | 142 |
| D33S16M2530050 | 50.32 | 14.75 | 14.7 (2.1) | 97 | 117 |
| D33S16M2530063 | 62.66 | 14.75 | 19.6 (2.8) | 76 | 94 |
| D33S16M2530103 | 102.59 | 17.05 | 24.5 (3.5) | 47 | 58 |
| D33S16M2530157 | 156.52 | 17.05 | 39.2 (5.5) | 31 | 38 |
| D33S16M2530208 | 208.03 | 17.05 | 49 (6.9) | 23 | 28 |
| D33S16M2530258 | 257.57 | 17.05 | 49 (6.9) | 20 | 23 |
| D33S16M2530366 | 365.94 | 17.05 | 49 (6.9) | 15 | 16 |
| D33S16M2530540 | 539.82 | 17.05 | 49 (6.9) | 10 | 11 |

*To be discontinued when present stock is depleted.

6 VOLTS
16 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Input Gears - Acetal
- Bearings - Bronze



► **OPERATING TEMPERATURE:**

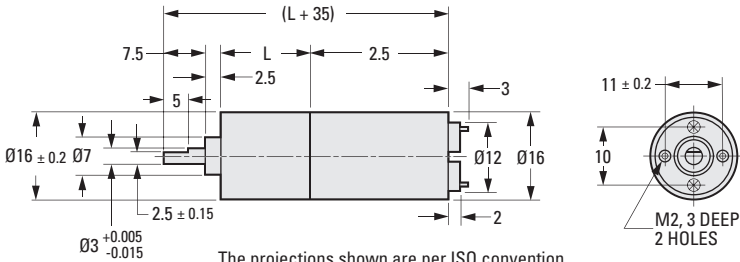
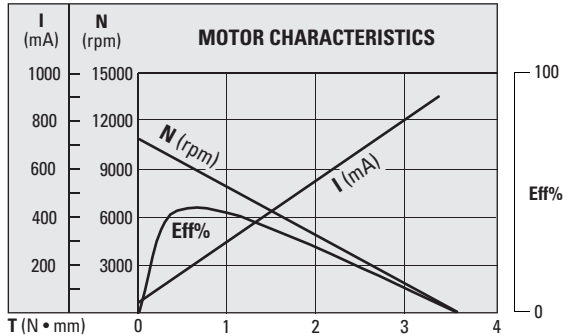
-10°C to +60°C

► **MOTOR SPECIFICATIONS:**

- Rated Voltage: 6V
- Rated Torque: 0.59 N • mm
- Rated Speed: 9090 rpm
- Rated Current: ≤ 156 mA
- No Load Speed: 11000 rpm
- No Load Current: ≤ 35 mA
- Rated Output: 0.54W
- Weight: 24 g

For replacement gearheads,
see **A 2G16M...** or **A 2G16MA...** Series.

Similar gearmotor is offered as
D33S57M25G...Series. See index.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S57M25H0010 | 10.24 | 14.75 | 3.9 (.56) | 886 | 1074 |
| D33S57M25H0019 | 19.36 | 14.75 | 7.4 (1.1) | 470 | 568 |
| D33S57M25H0030 | 29.9 | 14.75 | 9.8 (1.4) | 313 | 368 |
| D33S57M25H0042 | 41.53 | 14.75 | 14.7 (2.1) | 222 | 265 |
| D33S57M25H0050 | 50.32 | 14.75 | 14.7 (2.1) | 189 | 219 |
| D33S57M25H0063 | 62.66 | 14.75 | 19.6 (2.8) | 150 | 176 |
| D33S57M25H0103 | 102.59 | 17.05 | 29.4 (4.2) | 90 | 107 |
| D33S57M25H0157 | 156.52 | 17.05 | 44 (6.2) | 59 | 70 |
| D33S57M25H0208 | 208.03 | 17.05 | 49 (6.9) | 46 | 53 |
| D33S57M25H0258 | 257.57 | 17.05 | 49 (6.9) | 38 | 43 |
| D33S57M25H0366 | 365.94 | 17.05 | 49 (6.9) | 28 | 30 |
| D33S57M25H0540 | 539.82 | 17.05 | 49 (6.9) | 19 | 20 |

*To be discontinued when present stock is depleted.

6 VOLTS
16 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ MATERIAL:

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Bearings - Bronze

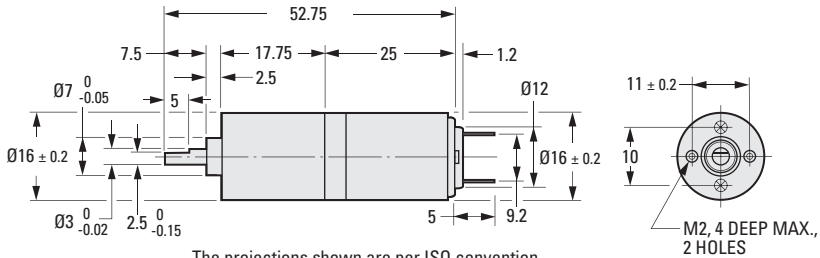
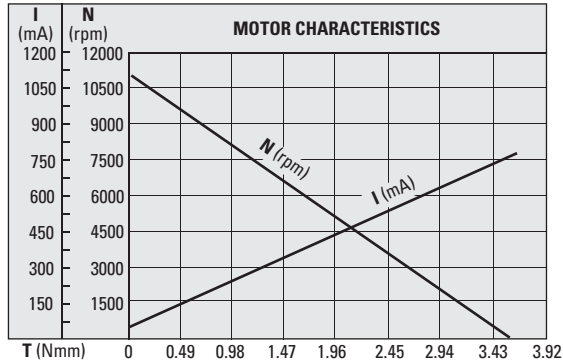
➤ OPERATING TEMPERATURE:

-10°C to +60°C

➤ MOTOR SPECIFICATIONS:

- Rated Voltage: 6V
- Rated Torque: 0.59 Nmm
- Rated Speed: 9097 rpm
- Rated Current: ≤ 148 mA
- No Load Speed: 10860 rpm
- No Load Current: ≤ 30 mA
- Weight: 34 g

For replacement gearheads, see A 2G16MA... Series.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque Nmm (ozf in.) | Speed rpm | |
|------------------|------------|----------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M25G0011 | 10.91 | 4.41 (.63) | 844 | 999 |
| D33S57M25G0019 | 19.22 | 7.85 (1.11) | 478 | 567 |
| D33S57M25G0031 | 31.06 | 9.81 (1.39) | 304 | 351 |
| D33S57M25G0040 | 40.14 | 14.7 (2.08) | 229 | 272 |
| D33S57M25G0055 | 54.58 | 19.6 (2.78) | 169 | 200 |
| D33S57M25G0062 | 62.37 | 19.6 (2.78) | 151 | 175 |
| D33S57M25G0097 | 97.37 | 29.4 (4.16) | 96 | 112 |
| D33S57M25G0150 | 150.11 | 49 (6.94) | 61 | 73 |
| D33S57M25G0206 | 206.45 | 58.8 (8.33) | 45 | 53 |
| D33S57M25G0259 | 258.78 | 58.8 (8.33) | 37 | 42 |
| D33S57M25G0375 | 375.49 | 58.8 (8.33) | 27 | 29 |
| D33S57M25G0535 | 534.96 | 58.8 (8.33) | 19 | 20 |
| D33S57M25G0782 | 781.62 | 58.8 (8.33) | 13 | 14 |
| D33S57M25G0992 | 992.36 | 58.8 (8.33) | 11 | 11 |
| D33S57M25G1237 | 1237.09 | 58.8 (8.33) | 8.6 | 8.8 |
| D33S57M25G1414 | 1413.82 | 58.8 (8.33) | 7.5 | 7.7 |

* To be discontinued when present stock is depleted.



6 VOLTS
16 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Bearings - Bronze



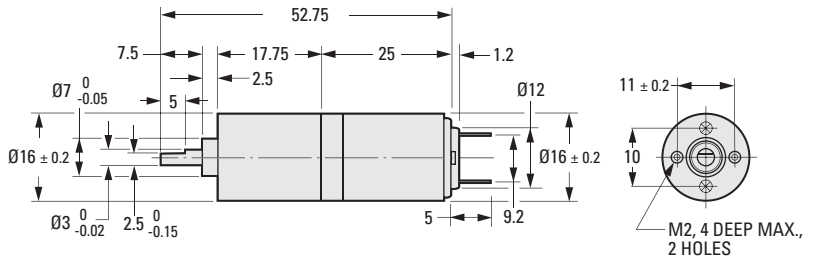
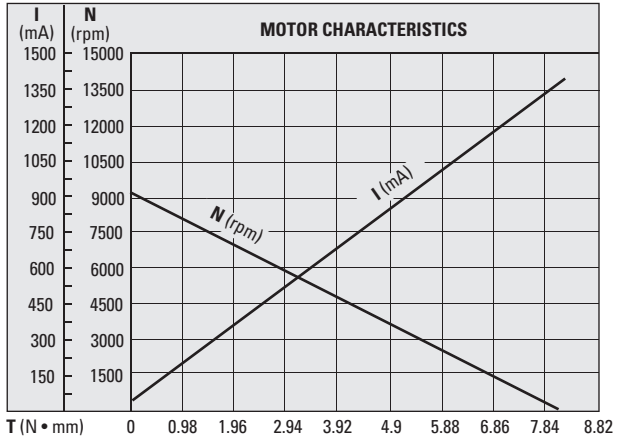
➤ **OPERATING TEMPERATURE:**

-10°C to +60°C

➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage: 6V
- Rated Torque: 1.96 N • mm
- Rated Speed: 7021 rpm
- Rated Current: ≤ 346 mA
- No Load Speed: 9200 rpm
- No Load Current: ≤ 20 mA
- Weight: 34 g

For replacement gearheads, see A 2G16MA... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|----------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S16M2590011 | 10.91 | 12.8 (1.81) | 679 | 843 |
| D33S16M2590019 | 19.22 | 12.8 (1.81) | 426 | 479 |
| D33S16M2590031 | 31.06 | 29.4 (4.16) | 244 | 296 |
| D33S16M2590040 | 40.14 | 34.3 (4.86) | 193 | 229 |
| D33S16M2590055 | 54.58 | 34.3 (4.86) | 149 | 169 |
| D33S16M2590062 | 62.37 | 34.3 (4.86) | 133 | 148 |
| D33S16M2590097 | 97.37 | 49 (6.94) | 85 | 94 |
| D33S16M2590150 | 150.11 | 58.8 (8.33) | 56 | 61 |

Continued on the next page

6 VOLTS
16 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Bearings - Bronze



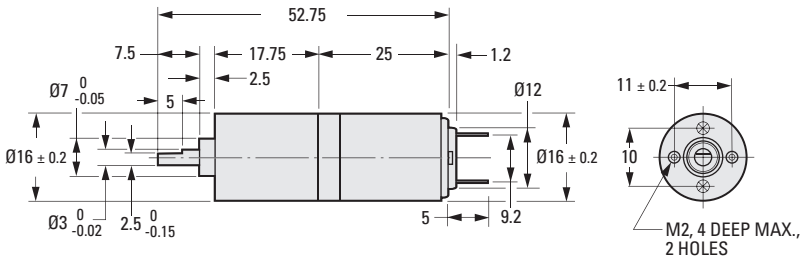
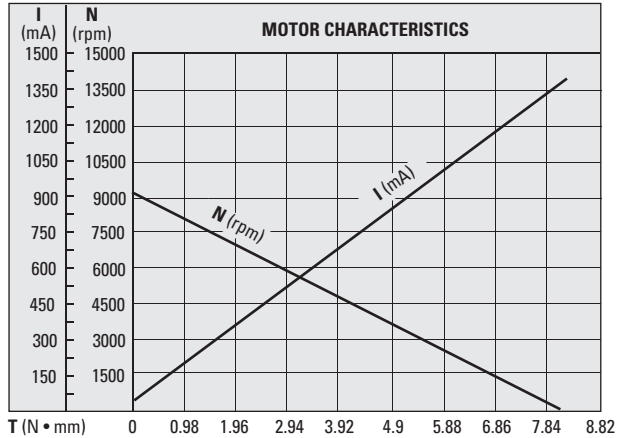
► OPERATING TEMPERATURE:

-10°C to +60°C

► MOTOR SPECIFICATIONS:

- Rated Voltage: 6V
- Rated Torque: 1.96 N • mm
- Rated Speed: 7021 rpm
- Rated Current: ≤ 346 mA
- No Load Speed: 9200 rpm
- No Load Current: ≤ 20 mA
- Weight: 34 g

For replacement gearheads, see A 2G16MA... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|----------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S16M2590206 | 206.45 | 58.8 (8.33) | 42 | 45 |
| D33S16M2590259 | 258.78 | 58.8 (8.33) | 34 | 36 |
| D33S16M2590375 | 375.49 | 58.8 (8.33) | 24 | 25 |
| D33S16M2590535 | 534.96 | 58.8 (8.33) | 17 | 17 |
| D33S16M2590782 | 781.62 | 58.8 (8.33) | 12 | 12 |
| D33S16M2590992 | 992.36 | 58.8 (8.33) | 9.1 | 9.3 |
| D33S16M2591237 | 1237.09 | 58.8 (8.33) | 7.3 | 7.4 |
| D33S16M2591414 | 1413.82 | 58.8 (8.33) | 6.4 | 6.5 |

Continued from the previous page

12 VOLTS
16 mm DIAMETER

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➤ **MATERIAL:**

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Bearings - Bronze

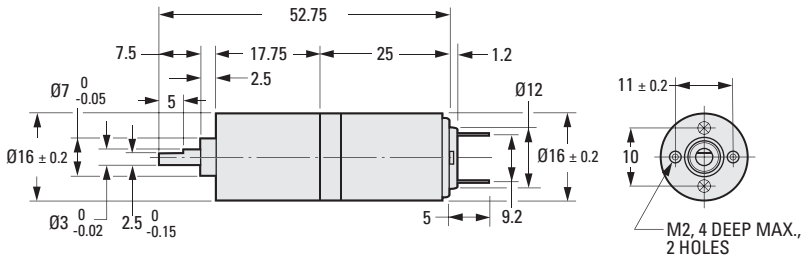
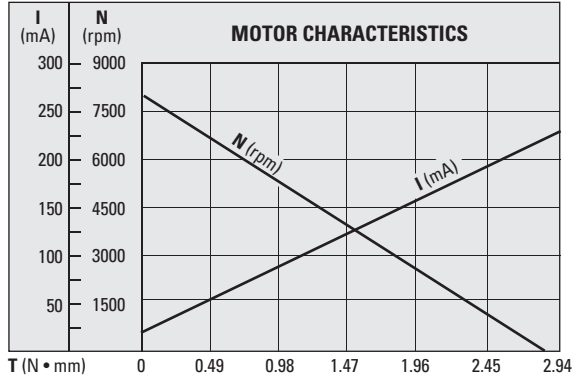


➤ **OPERATING TEMPERATURE:**
-10°C to +60°C

➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage:** 12V
- Rated Torque:** 0.49 N • mm
- Rated Speed:** 6556 rpm
- Rated Current:** ≤ 46 mA
- No Load Speed:** 7920 rpm
- No Load Current:** ≤ 10 mA
- Weight:** 34 g

For replacement gearheads, see **A 2G16MA...** Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|----------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S16M2550011 | 10.91 | 3.43 (.49) | 611 | 724 |
| D33S16M2550019 | 19.22 | 6.86 (.97) | 338 | 411 |
| D33S16M2550031 | 31.06 | 9.81 (1.39) | 210 | 254 |
| D33S16M2550040 | 40.14 | 9.81 (1.39) | 170 | 197 |
| D33S16M2550055 | 54.58 | 14.7 (2.08) | 123 | 145 |
| D33S16M2550062 | 62.37 | 19.6 (2.78) | 105 | 127 |
| D33S16M2550097 | 97.37 | 24.5 (3.47) | 69 | 81 |
| D33S16M2550150 | 150.11 | 39.2 (5.55) | 44 | 53 |
| D33S16M2550206 | 206.45 | 49 (6.94) | 32 | 38 |
| D33S16M2550259 | 258.78 | 58.8 (8.33) | 26 | 31 |
| D33S16M2550375 | 375.49 | 58.8 (8.33) | 19 | 21 |
| D33S16M2550535 | 534.96 | 58.8 (8.33) | 14 | 15 |
| D33S16M2550782 | 781.62 | 58.8 (8.33) | 9.5 | 10.1 |
| D33S16M2550992 | 992.36 | 58.8 (8.33) | 7.6 | 8 |
| D33S16M2551237 | 1237.09 | 58.8 (8.33) | 6.2 | 6.4 |
| D33S16M2551414 | 1413.82 | 58.8 (8.33) | 5.4 | 5.6 |

12 VOLTS
16 mm DIAMETER

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► **MATERIAL:**

- Housing - Stainless Steel
- Shafts & Gears- Steel
- Input Gears - Acetal
- Bearings - Bronze

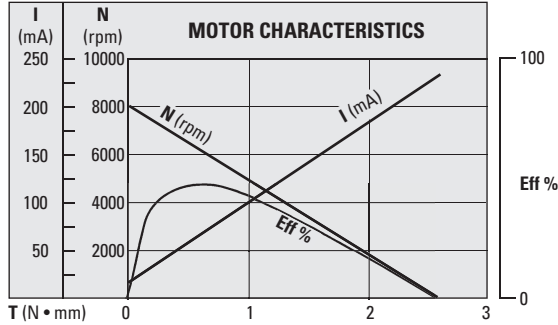


► **OPERATING TEMPERATURE:**

-10°C to +60°C

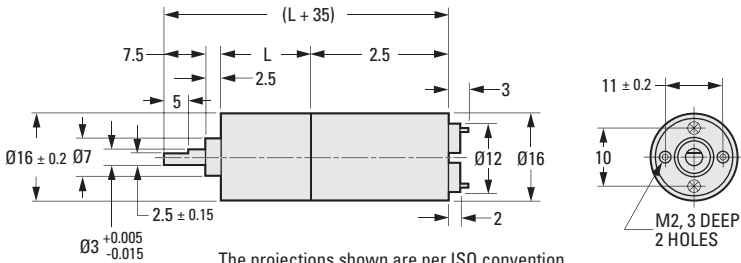
► **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 0.49 N • mm
- Rated Speed: 6571 rpm
- Rated Current: ≤ 49 mA
- No Load Speed: 8100 rpm
- No Load Current: ≤ 12 mA
- Rated Output: 0.33W
- Weight: 24 g



For replacement gearheads, see **A 2G16M...** or **A 2G16MA...** Series.

Similar gearmotor is offered as **D33S16M255...**Series. See index.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S16M2540010 | 10.24 | 14.75 | 2.9 (.42) | 661 | 791 |
| D33S16M2540019 | 19.36 | 14.75 | 5.9 (.83) | 346 | 418 |
| D33S16M2540030 | 29.9 | 14.75 | 9.3 (1.3) | 223 | 271 |
| D33S16M2540042 | 41.53 | 14.75 | 9.8 (1.4) | 169 | 195 |
| D33S16M2540050 | 50.32 | 14.75 | 14.7 (2.1) | 134 | 161 |
| D33S16M2540063 | 62.66 | 14.75 | 19.6 (2.8) | 106 | 129 |
| D33S16M2540103 | 102.59 | 17.05 | 24.5 (3.5) | 66 | 79 |
| D33S16M2540157 | 156.52 | 17.05 | 39.2 (5.5) | 43 | 52 |
| D33S16M2540208 | 208.03 | 17.05 | 49 (6.9) | 32 | 39 |
| D33S16M2540258 | 257.57 | 17.05 | 49 (6.9) | 27 | 31 |
| D33S16M2540366 | 365.94 | 17.05 | 49 (6.9) | 20 | 22 |
| D33S16M2540540 | 539.82 | 17.05 | 49 (6.9) | 14 | 15 |

*To be discontinued when present stock is depleted.

12 VOLTS
16 mm DIAMETER

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➤ **MATERIAL:**

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Bearings - Bronze



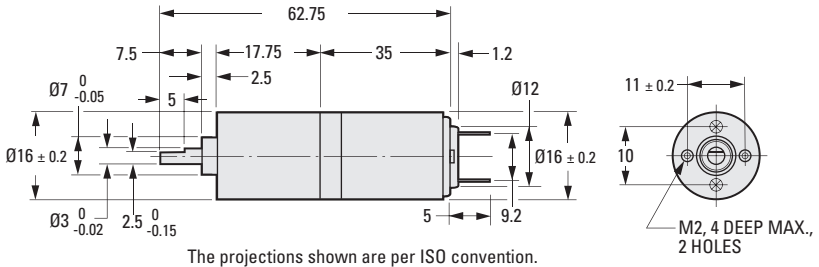
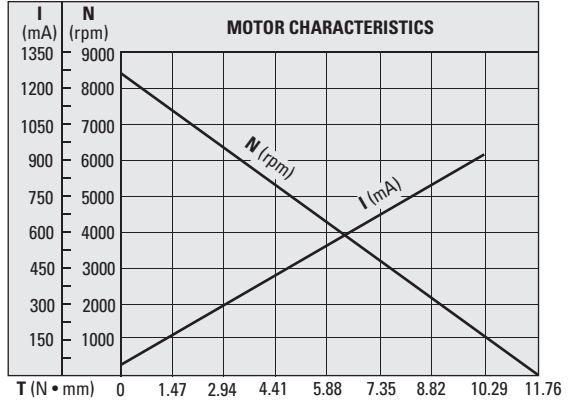
➤ **OPERATING TEMPERATURE:**

-10°C to +60°C

➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage:** 12V
- Rated Torque:** 1.96 N • mm
- Rated Speed:** 7082 rpm
- Rated Current:** ≤ 160 mA
- No Load Speed:** 8500 rpm
- No Load Current:** ≤ 10 mA
- Weight:** 45 g

For replacement gearheads, see A 2G16MA... Series.



METRIC COMPONENT

| Catalog Number | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|----------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M35G0011 | 10.91 | 12.8 (1.81) | 674 | 779 |
| D33S57M35G0019 | 19.22 | 12.8 (1.81) | 409 | 442 |
| D33S57M35G0031 | 31.06 | 29.4 (4.16) | 241 | 274 |
| D33S57M35G0040 | 40.14 | 34.3 (4.86) | 189 | 212 |
| D33S57M35G0055 | 54.58 | 34.3 (4.86) | 143 | 156 |
| D33S57M35G0062 | 62.37 | 34.3 (4.86) | 127 | 136 |
| D33S57M35G0097 | 97.37 | 34.3 (4.86) | 81 | 87 |
| D33S57M35G0150 | 150.11 | 49 (6.94) | 53 | 57 |
| D33S57M35G0206 | 206.45 | 58.8 (8.33) | 39 | 41 |
| D33S57M35G0259 | 258.78 | 58.8 (8.33) | 32 | 33 |
| D33S57M35G0375 | 375.49 | 58.8 (8.33) | 22 | 23 |
| D33S57M35G0535 | 534.96 | 58.8 (8.33) | 16 | 16 |
| D33S57M35G0782 | 781.62 | 58.8 (8.33) | 11 | 11 |
| D33S57M35G0992 | 992.36 | 58.8 (8.33) | 8.5 | 8.6 |
| D33S57M35G1237 | 1237.09 | 58.8 (8.33) | 6.8 | 6.9 |
| D33S57M35G1414 | 1413.82 | 58.8 (8.33) | 6 | 6 |

12 VOLTS
16 mm DIAMETER

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► **MATERIAL:**

- Housing - Stainless Steel
- Shafts & Gears - Steel
- Input Gears - Acetal
- Bearings - Bronze

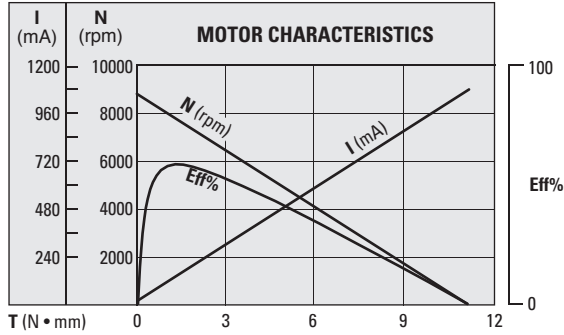


► **OPERATING TEMPERATURE:**

-10°C to +60°C

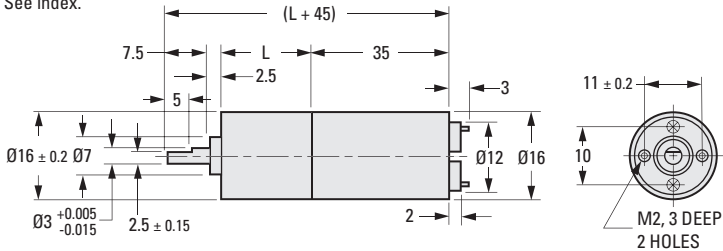
► **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 1.96 N • mm
- Rated Speed: 7261 rpm
- Rated Current: ≤ 168 mA
- No Load Speed: 8800 rpm
- No Load Current: ≤ 12 mA
- Rated Output: 1.44W
- Weight: 38 g



For replacement gearheads,
see **A 2G16M...** or **A 2G16MA...** Series.

Similar gearmotor is offered as
D33S57M35G...Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S57M35H0010 | 10.24 | 14.75 | 9.8 (1.4) | 744 | 859 |
| D33S57M35H0019 | 19.36 | 14.75 | 9.8 (1.4) | 422 | 455 |
| D33S57M35H0030 | 29.9 | 14.75 | 19.6 (2.8) | 267 | 294 |
| D33S57M35H0042 | 41.53 | 14.75 | 19.6 (2.8) | 198 | 212 |
| D33S57M35H0050 | 50.32 | 14.75 | 29.4 (4.2) | 161 | 175 |
| D33S57M35H0063 | 62.66 | 14.75 | 29.4 (4.2) | 131 | 140 |
| D33S57M35H0103 | 102.59 | 17.05 | 49 (6.9) | 79 | 86 |
| D33S57M35H0157 | 156.52 | 17.05 | 49 (6.9) | 53 | 56 |
| D33S57M35H0208 | 208.03 | 17.05 | 49 (6.9) | 41 | 42 |
| D33S57M35H0258 | 257.57 | 17.05 | 49 (6.9) | 33 | 34 |
| D33S57M35H0366 | 365.94 | 17.05 | 49 (6.9) | 23 | 24 |
| D33S57M35H0540 | 539.82 | 17.05 | 49 (6.9) | 16 | 16.3 |

*To be discontinued when present stock is depleted.

12 VOLTS
20 mm DIAMETER
FLAT ON SHAFT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

- Housing** - Aluminum
- Shafts & Gears** - Steel
- Bearings** - Bronze

OPERATING TEMPERATURE:

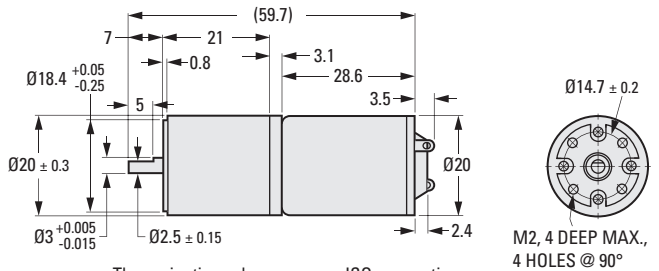
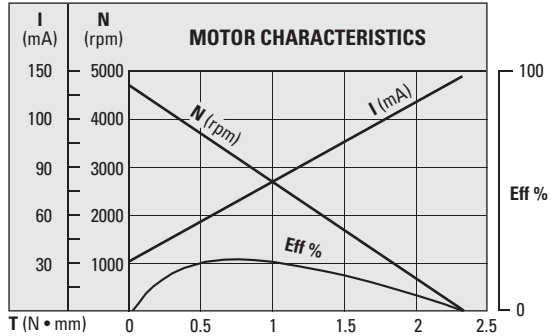
-10°C to +60°C

MOTOR SPECIFICATIONS:

- Rated Voltage:** 12V
- Rated Torque:** 0.59 N • mm
- Rated Speed:** 3500 rpm
- Rated Current:** ≤ 60 mA
- No Load Speed:** 4700 rpm
- No Load Current:** ≤ 30 mA
- Rated Output:** 0.21W

For replacement gearheads, see **A 2G10M...** Series.

See **D33S20ME20...** Series for the same gearmotor with no flat on output shaft.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M20K0005 | 5 | 4.4 (.6) | 716 | 940 |
| D33S57M20K0015 | 15 | 7.4 (1.1) | 237 | 313 |
| D33S57M20K0020 | 20 | 7.4 (1.1) | 178 | 235 |
| D33S57M20K0025 | 25 | 9.8 (1.4) | 142 | 188 |
| D33S57M20K0030 | 30 | 9.8 (1.4) | 123 | 157 |
| D33S57M20K0040 | 40 | 9.8 (1.4) | 98 | 117 |
| D33S57M20K0045 | 45 | 9.8 (1.4) | 82 | 104 |
| D33S57M20K0050 | 50 | 19.6 (2.8) | 74 | 94 |
| D33S57M20K0060 | 60 | 19.6 (2.8) | 61 | 78 |
| D33S57M20K0075 | 75 | 19.6 (2.8) | 49 | 63 |
| D33S57M20K0100 | 100 | 29.4 (4.2) | 36 | 47 |
| D33S57M20K0120 | 120 | 29.4 (4.2) | 30 | 39 |
| D33S57M20K0150 | 150 | 29.4 (4.2) | 26 | 31 |
| D33S57M20K0180 | 180 | 29.4 (4.2) | 23 | 26 |

*To be discontinued when present stock is depleted.

Continued on the next page

12 VOLTS
20 mm DIAMETER
FLAT ON SHAFT

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

➤ **OPERATING TEMPERATURE:**

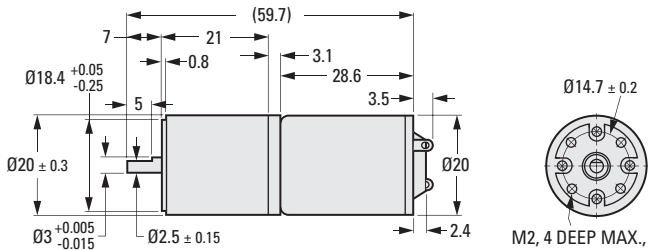
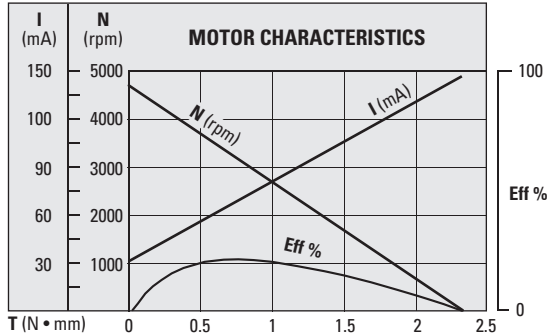
-10°C to +60°C

➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 0.59 N • mm
- Rated Speed: 3500 rpm
- Rated Current: ≤ 60 mA
- No Load Speed: 4700 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 0.21W

For replacement gearheads, see **A 2G10M...** Series.

See **D33S20ME20...** Series for the same gearmotor with no flat on output shaft.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M20K0200 | 200 | 29.4 (4.2) | 21 | 24 |
| D33S57M20K0250 | 250 | 49 (6.9) | 17 | 19 |
| D33S57M20K0300 | 300 | 49 (6.9) | 14 | 16 |
| D33S57M20K0360 | 360 | 49 (6.9) | 12 | 13 |
| D33S57M20K0450 | 450 | 49 (6.9) | 9.6 | 10.4 |
| D33S57M20K0500 | 500 | 49 (6.9) | 8.6 | 9.4 |
| D33S57M20K0750 | 750 | 49 (6.9) | 6 | 6.3 |
| D33S57M20K1000 | 1000 | 49 (6.9) | 4.5 | 4.7 |
| D33S57M20K1500 | 1500 | 49 (6.9) | 3 | 3.1 |
| D33S57M20K1800 | 1800 | 49 (6.9) | 2.5 | 2.6 |
| D33S57M20K3000 | 3000 | 49 (6.9) | 1.5 | 1.6 |
| D33S57M20K4000 | 4000 | 49 (6.9) | 1.12 | 1.17 |
| D33S57M20K6000 | 6000 | 49 (6.9) | 0.78 | 0.78 |

*To be discontinued when present stock is depleted.

Continued from the previous page

12 VOLTS
22 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

- Housing - Gearhead - Aluminum
- Motor - Stamped Steel
- Shafts & Gears - Steel
- Bearings - Bronze



► **OPERATING TEMPERATURE:**

-10°C to +60°C

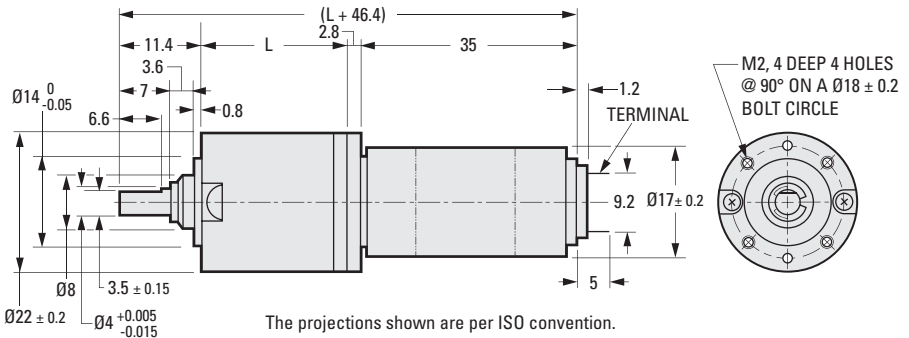
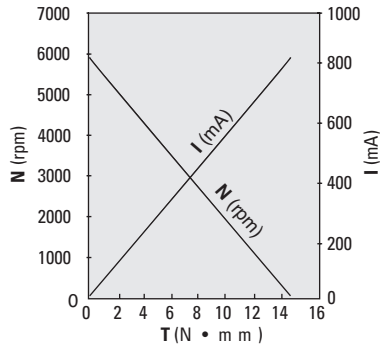
► **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 2.94 N • mm
- Rated Speed: 4700 rpm
- Rated Current: ≤ 200 mA
- No Load Speed: 5900 rpm
- No Load Current: ≤ 20 mA
- Rated Output: 1.45W

For replacement gearheads, see A 2G22MG...D Series

Same gearhead with different motor is offered as D33S57M46C..., D33S22MG24... & D33S22MG24...A Series. See Index.

MOTOR CHARACTERISTICS CHART



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Ratio to 1 | L | Rated Output Torque N • mm (ozf in.) | Output Speed rpm | |
|-----------------|------------|------|--------------------------------------|------------------|---------|
| | | | | Rated | No Load |
| D33S22MG120005A | 4.5 | 15.5 | 9.81 (1.39) | 1014 | 1258 |
| D33S22MG120016A | 15.58 | 15.5 | 29.4 (4.16) | 288 | 363 |
| D33S22MG120020A | 20.25 | 15.5 | 39.2 (5.55) | 220 | 280 |
| D33S22MG120024A | 23.88 | 15.5 | 44.1 (6.24) | 189 | 237 |
| D33S22MG120062A | 61.5 | 18.7 | 93.2 (13.20) | 73 | 92 |
| D33S22MG120107A | 107.48 | 18.7 | 98.1 (13.9) | 46 | 53 |
| D33S22MG120243A | 242.79 | 21.9 | 147 (20.8) | 21 | 23 |
| D33S22MG120326A | 326.46 | 21.9 | 147 (20.8) | 16 | 17 |
| D33S22MG120410A | 410.06 | 21.9 | 196 (27.8) | 13 | 14 |
| D33S22MG120484A | 483.66 | 21.9 | 196 (27.8) | 11 | 12 |

12 VOLTS
22 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

- Housing - Gearhead - Aluminum
- Motor - Stamped Steel
- Shafts & Gears - Steel
- Bearings - Bronze



► **OPERATING TEMPERATURE:**

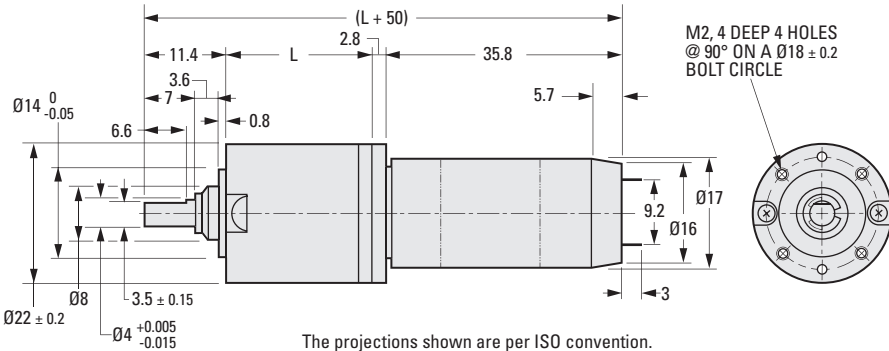
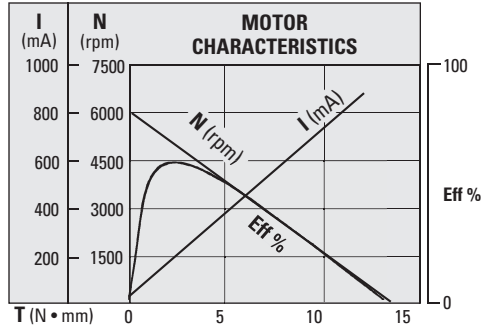
-10°C to +60°C

► **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 2.94 N • mm
- Rated Speed: 4700 rpm
- Rated Current: ≤ 210 mA
- No Load Speed: 8000 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 1.41W

For replacement gearheads,
see **A 2G22MG...D** Series.

Same gearhead with different motor is
offered as **D33S57M46C...**, **D33S22MG24...A**
and **D33S22MG12...A** Series. See index.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S22MG120005 | 4.5 | 15.5 | 9.81 (1.39) | 1011 | 1276 |
| D33S22MG120016 | 15.58 | 15.5 | 29.4 (4.16) | 287 | 368 |
| D33S22MG120020 | 20.25 | 15.5 | 39.2 (5.55) | 219 | 283 |
| D33S22MG120107 | 107.48 | 18.7 | 98.1 (13.9) | 46 | 53 |
| D33S22MG120243 | 242.79 | 21.9 | 147 (20.8) | 21 | 24 |
| D33S22MG120326 | 326.46 | 21.9 | 147 (20.8) | 16 | 18 |
| D33S22MG120410 | 410.06 | 21.9 | 196 (27.8) | 13 | 14 |
| D33S22MG120484 | 483.66 | 21.9 | 196 (27.8) | 11 | 12 |

*To be discontinued when present stock is depleted.

12 VOLTS
22 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Stamped Steel
- Shafts & Gears - Steel
- Bearings - Bronze

> OPERATING TEMPERATURE:

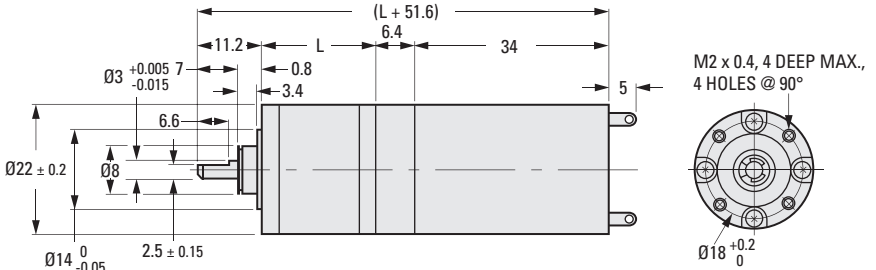
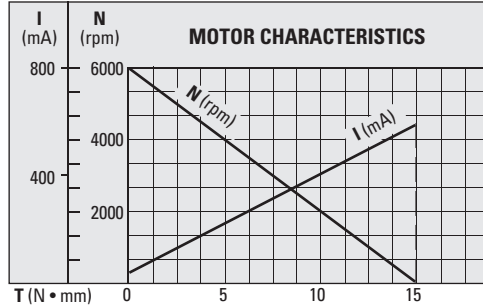
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 2.94 N • mm
- Rated Speed: 4750 rpm
- Rated Current: 210 mA
- No Load Speed: 6050 rpm
- No Load Current: 30 mA
- Rated Output: 1.5W
- Weight: 70 g

For similar replacement gearheads, see **A 2G22MG...D** Series.

Same performance, different shaft gearhead with different motor is offered as **D33S57M46C...** and **D33S22M...** Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S57M22M0016 | 15.58 | 15.5 | 29.4 (4.2) | 307 | 372 |
| D33S57M22M0024 | 23.88 | 15.5 | 49 (6.9) | 196 | 242 |
| D33S57M22M0062 | 61.5 | 18.7 | 88.3 (12.5) | 79 | 94 |
| D33S57M22M0107 | 107.48 | 18.7 | 98.1 (13.9) | 49 | 54 |
| D33S57M22M0243 | 242.79 | 21.9 | 147.1 (20.8) | 22 | 23.9 |
| D33S57M22M0326 | 326.46 | 21.9 | 147.1 (20.8) | 17 | 17.7 |
| D33S57M22M0484 | 483.66 | 21.9 | 196.1 (27.8) | 11.7 | 12 |

*To be discontinued when present stock is depleted.

12 VOLTS
22 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Stamped Steel
- Shafts & Gears - Steel
- Bearings - Bronze



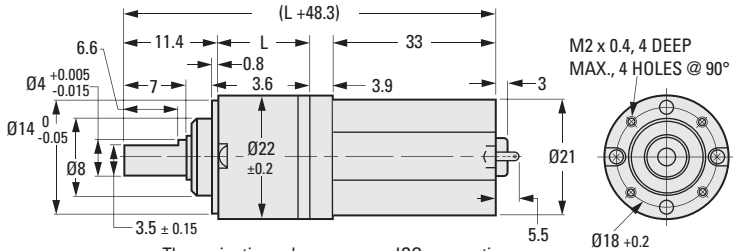
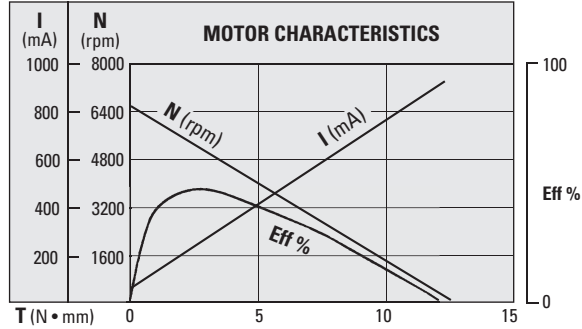
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 2.94 N • mm
- Rated Speed: 5150 rpm
- Rated Current: ≤ 280 mA
- No Load Speed: 6750 rpm
- No Load Current: ≤ 70 mA
- Rated Output: 1.55W

For similar replacement gearheads, see A 2G22MG...D Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S57M46C0005 | 4.5 | 15.5 | 9.8 (1.4) | 1104 | 1429 |
| D33S57M46C0016 | 15.58 | 15.5 | 29.4 (4.2) | 313 | 413 |
| D33S57M46C0020 | 20.25 | 15.5 | 39.2 (5.6) | 239 | 318 |
| D33S57M46C0024 | 23.88 | 15.5 | 44.1 (6.3) | 205 | 269 |
| D33S57M46C0062 | 61.5 | 18.7 | 93.2 (13.2) | 79 | 105 |
| D33S57M46C0107 | 107.48 | 18.7 | 98.1 (13.9) | 51 | 60 |
| D33S57M46C0243 | 242.79 | 21.9 | 147.1 (20.8) | 23 | 26 |
| D33S57M46C0326 | 326.46 | 21.9 | 147.1 (20.8) | 18 | 20 |
| D33S57M46C0410 | 410.06 | 21.9 | 196.1 (27.8) | 14 | 16 |
| D33S57M46C0484 | 483.66 | 21.9 | 196.1 (27.8) | 12 | 13 |

*To be discontinued when present stock is depleted.

24 VOLTS
22 mm DIAMETER

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> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Stamped Steel
- Shafts & Gears - Steel
- Bearings - Bronze



> OPERATING TEMPERATURE:

-10°C to +60°C

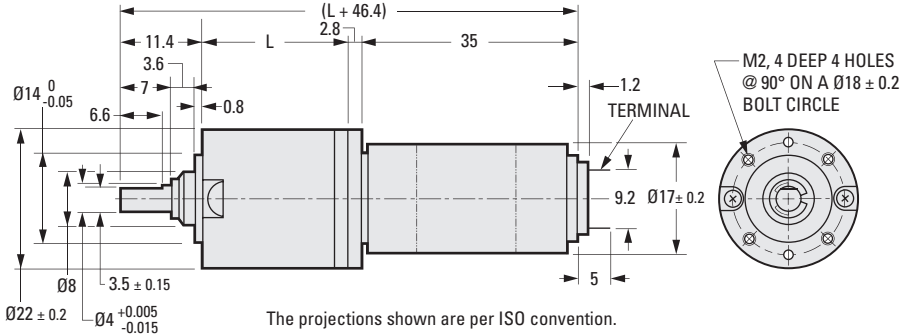
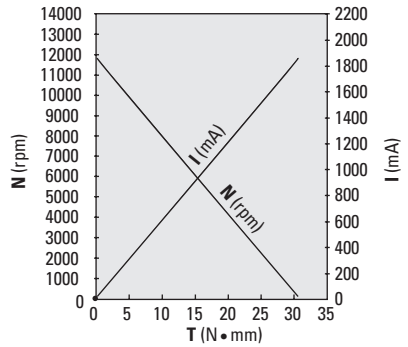
> MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 3.92 N • mm
- Rated Speed: 10300 rpm
- Rated Current: ≤ 260 mA
- No Load Speed: 11800 rpm
- No Load Current: ≤ 25 mA
- Rated Output: 4.23W

For replacement gearheads,
see A 2G22MG...D Series

Same gearhead with different motor is
offered as D33S57M46C..., D33S22MG12...
& D33S22MG12...A Series. See Index.

MOTOR CHARACTERISTICS CHART



METRIC COMPONENT

| Catalog Number | Ratio to 1 | L | Rated Output Torque N • mm (ozf in.) | Output Speed rpm | |
|-----------------|------------|------|--------------------------------------|------------------|---------|
| | | | | Rated | No Load |
| D33S22MG240005A | 4.5 | 15.5 | 9.81 (1.39) | 2344 | 2572 |
| D33S22MG240016A | 15.58 | 15.5 | 39.2 (5.55) | 649 | 743 |
| D33S22MG240020A | 20.25 | 15.5 | 49 (6.95) | 502 | 572 |
| D33S22MG240024A | 23.88 | 15.5 | 49 (6.95) | 435 | 485 |
| D33S22MG240062A | 61.5 | 18.7 | 98.1 (13.9) | 169 | 188 |
| D33S22MG240107A | 107.48 | 18.7 | 98.1 (13.9) | 102 | 108 |
| D33S22MG240243A | 242.79 | 21.9 | 147 (20.8) | 45 | 48 |
| D33S22MG240326A | 326.46 | 21.9 | 147 (20.8) | 34 | 35 |
| D33S22MG240410A | 410.06 | 21.9 | 196 (27.8) | 27 | 28 |
| D33S22MG240484A | 483.66 | 21.9 | 196 (27.8) | 23 | 24 |

24 VOLTS
22 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Stamped Steel
- Shafts & Gears - Steel
- Bearings - Bronze

> OPERATING TEMPERATURE:

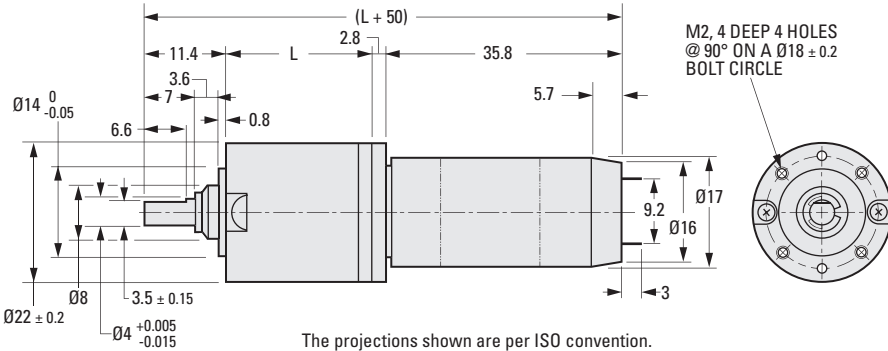
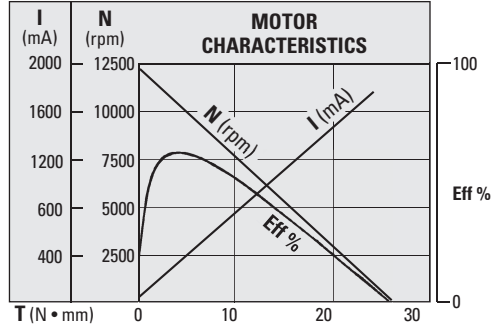
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 3.92 N • mm
- Rated Speed: 10400 rpm
- Rated Current: ≤ 290 mA
- No Load Speed: 12200 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 4.16W

For replacement gearheads, see A 2G22MG...D Series.

Same gearhead with different motor is offered as D33S57M46C..., D33S22MG12...A and D33S22MG24...A Series. See index.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S22MG240005 | 4.5 | 15.5 | 9.81 (1.39) | 2377 | 2651 |
| D33S22MG240016 | 15.58 | 15.5 | 39.2 (5.55) | 653 | 766 |
| D33S22MG240020 | 20.25 | 15.5 | 49 (6.95) | 506 | 589 |
| D33S22MG240243 | 242.79 | 21.9 | 147 (20.8) | 46 | 49 |
| D33S22MG240410 | 410.06 | 21.9 | 196 (27.8) | 28 | 29 |
| D33S22MG240484 | 483.66 | 21.9 | 196 (27.8) | 24 | 25 |

*To be discontinued when present stock is depleted.

12 VOLTS
27 mm DIAMETER

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> MATERIAL:

- Housing - Gearhead** - Aluminum, Black Anodized
- Motor** - Steel, Plated
- Shafts & Gears** - Steel
- Bearings** - Bronze



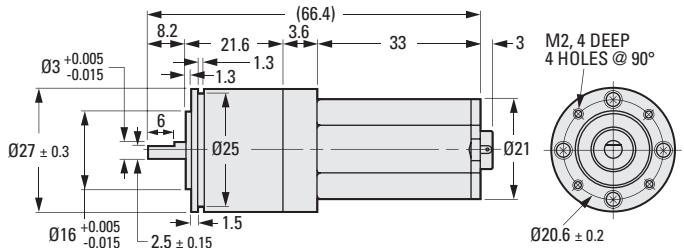
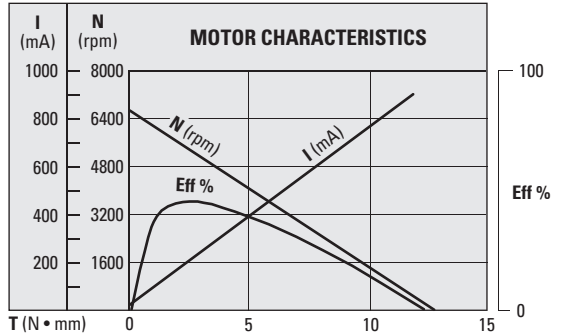
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage:** 12V
- Rated Torque:** 2.94 N • mm
- Rated Speed:** 5150 rpm
- Rated Current:** ≤ 280 mA
- No Load Speed:** 6750 rpm
- No Load Current:** ≤ 70 mA
- Rated Output:** 1.6W

For replacement gearheads, see **A 2G13M...** Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M46D0005 | 5 | 9.8 (1.4) | 1218 | 1350 |
| D33S57M46D0008 | 8 | 9.8 (1.4) | 761 | 844 |
| D33S57M46D0010 | 10 | 9.8 (1.4) | 609 | 675 |
| D33S57M46D0020 | 20 | 14.7 (2.1) | 307 | 338 |
| D33S57M46D0025 | 25 | 14.7 (2.1) | 248 | 270 |
| D33S57M46D0030 | 30 | 19.6 (2.8) | 207 | 225 |
| D33S57M46D0040 | 40 | 19.6 (2.8) | 155 | 169 |
| D33S57M46D0050 | 50 | 39.2 (5.6) | 125 | 135 |
| D33S57M46D0060 | 60 | 39.2 (5.6) | 104 | 113 |
| D33S57M46D0075 | 75 | 39.2 (5.6) | 84 | 90 |
| D33S57M46D0080 | 80 | 39.2 (5.6) | 79 | 84 |
| D33S57M46D0090 | 90 | 39.2 (5.6) | 70 | 75 |
| D33S57M46D0100 | 100 | 58.8 (8.3) | 63 | 68 |

*To be discontinued when present stock is depleted.

Continued on the next page

12 VOLTS
27 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing - Gearhead - Aluminum, Black Anodized
- Motor - Steel, Plated
- Shafts & Gears - Steel
- Bearings - Bronze



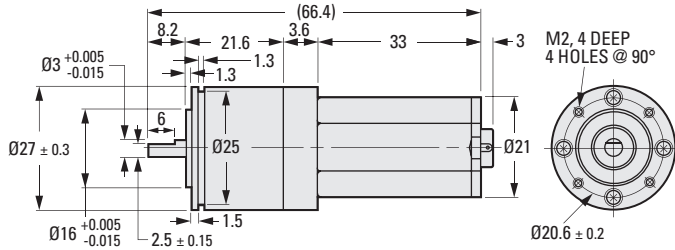
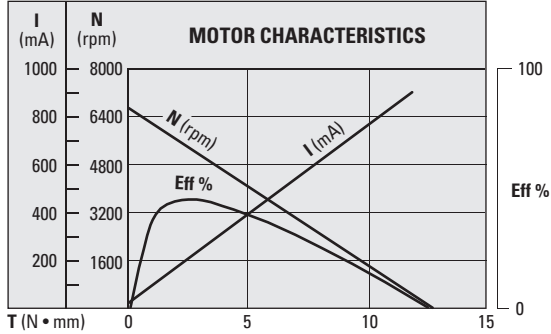
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 2.94 N • mm
- Rated Speed: 5150 rpm
- Rated Current: ≤ 280 mA
- No Load Speed: 6750 rpm
- No Load Current: ≤ 70 mA
- Rated Output: 1.6W

For replacement gearheads, see A 2G13M... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M46D0120 | 120 | 58.8 (8.3) | 54 | 56 |
| D33S57M46D0150 | 150 | 58.8 (8.3) | 43 | 45 |
| D33S57M46D0200 | 200 | 58.8 (8.3) | 32 | 34 |
| D33S57M46D0300 | 300 | 98.1 (13.9) | 21 | 23 |
| D33S57M46D0500 | 500 | 98.1 (13.9) | 13 | 14 |
| D33S57M46D0750 | 750 | 98.1 (13.9) | 8.8 | 9 |
| D33S57M46D1000 | 1000 | 98.1 (13.9) | 6.6 | 6.8 |
| D33S57M46D1200 | 1200 | 98.1 (13.9) | 5.5 | 5.6 |
| D33S57M46D1500 | 1500 | 58.8 (8.3) | 4.5 | 4.5 |
| D33S57M46D2000 | 2000 | 58.8 (8.3) | 3.4 | 3.4 |
| D33S57M46D3000 | 3000 | 58.8 (8.3) | 2.2 | 2.3 |
| D33S57M46D3600 | 3600 | 58.8 (8.3) | 1.8 | 1.9 |
| D33S57M46D6000 | 6000 | 58.8 (8.3) | 1.1 | 1.1 |

*To be discontinued when present stock is depleted.

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12 VOLTS
37 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze

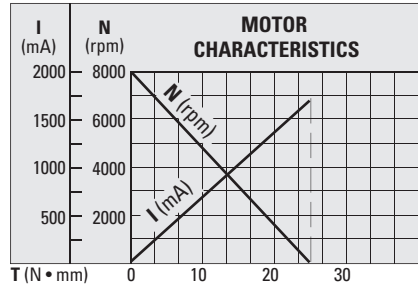


➤ **OPERATING TEMPERATURE:**

-10°C to +60°C

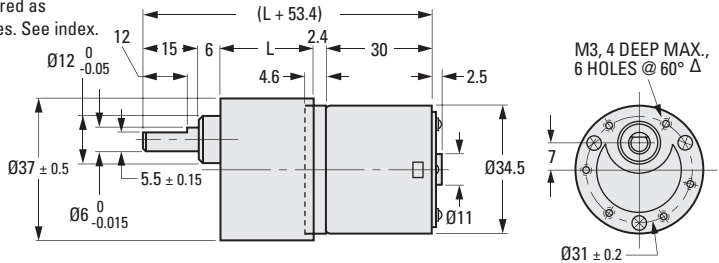
➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 2.45 N • mm
- Rated Speed: 7200 rpm
- Rated Current: ≤ 307 mA
- No Load Speed: 8000 rpm
- No Load Current: ≤ 100 mA
- Rated Output: 1.81W
- Weight: 100 g



For replacement gearheads, see **A 2G23MA...** Series.

Same gearhead with different motor is offered as **D33S57M35A...** Series. See index.



The projections shown are per ISO convention.

Δ 3 tapped holes until present stock is depleted.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S35ME350006C | 6 | 19 | 19.6 (2.8) | 1234 | 1333 |
| D33S35ME350010C | 10 | 19 | 19.6 (2.8) | 721 | 800 |
| D33S35ME350018C | 18 | 21.5 | 19.6 (2.8) | 405 | 444 |
| D33S35ME350030C | 30 | 21.5 | 49.1 (6.9) | 242 | 267 |
| D33S35ME350050C | 50 | 24 | 78.5 (11.1) | 144 | 160 |
| D33S35ME350060C | 60 | 24 | 98.1 (13.9) | 120 | 133 |
| D33S35ME350075C | 75 | 24 | 116.7 (16.5) | 96 | 107 |
| D33S35ME350100C | 100 | 24 | 147.1 (20.8) | 73 | 80 |
| D33S35ME350120C | 120 | 26.5 | 176.6 (25) | 60 | 67 |
| D33S35ME350150C | 150 | 26.5 | 196.1 (27.8) | 49 | 53 |
| D33S35ME350180C | 180 | 26.5 | 245.3 (34.7) | 40 | 44 |
| D33S35ME350200C | 200 | 26.5 | 294.2 (41.7) | 36 | 40 |
| D33S35ME350250C | 250 | 26.5 | 343.3 (40.6) | 29 | 32 |
| D33S35ME350300C | 300 | 26.5 | 441.3 (62.5) | 24 | 27 |
| D33S35ME350400C | 400 | 29 | 588.4 (83.3) | 19 | 20 |
| D33S35ME350500C | 500 | 29 | 588.4 (83.3) | 15 | 16 |
| D33S35ME350600C | 600 | 29 | 588.4 (83.3) | 13 | 13.3 |
| D33S35ME350750C | 750 | 29 | 588.4 (83.3) | 10 | 10.7 |
| D33S35ME351000C | 1000 | 29 | 588.4 (83.3) | 7.6 | 8 |
| D33S35ME351500C | 1500 | 31.5 | 588.4 (83.3) | 5.2 | 5.3 |
| D33S35ME353000C | 3000 | 31.5 | 588.4 (83.3) | 2.6 | 2.7 |

12 VOLTS
37 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze

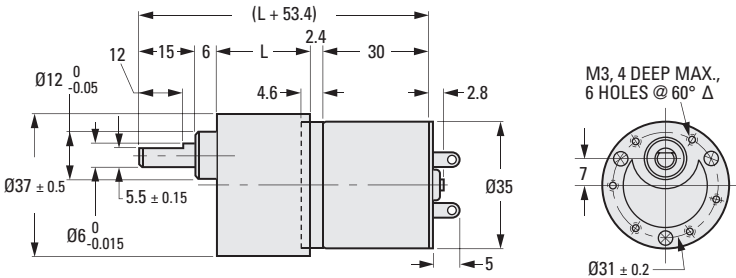
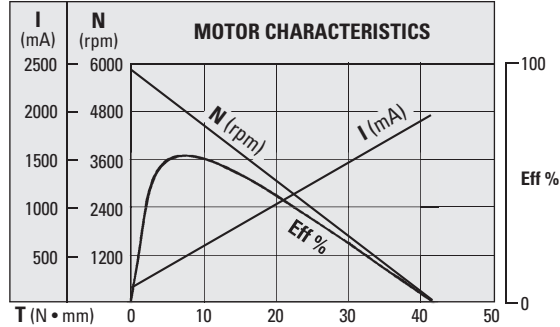
► OPERATING TEMPERATURE:

-10°C to +60°C

► MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 4.9 N • mm
- Rated Speed: 5200 rpm
- Rated Current: ≤ 370 mA
- No Load Speed: 5900 rpm
- No Load Current: ≤ 100 mA
- Rated Output: 2.6W

For replacement gearheads, see A 2G23MA... Series.



The projections shown are per ISO convention.

Δ 3 tapped holes until present stock is depleted.

METRIC COMPONENT

| Catalog Number | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|-----------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S57M35A0006A | 6 | 19 | 39.2 (5.6) | 890 | 1000 |
| D33S57M35A0010A | 10 | 19 | 39.2 (5.6) | 521 | 600 |
| D33S57M35A0018A | 18 | 21.5 | 39.2 (5.6) | 293 | 333 |
| D33S57M35A0030A | 30 | 21.5 | 98.1 (13.9) | 176 | 200 |
| D33S57M35A0050A | 50 | 24 | 157 (22.7) | 105 | 120 |
| D33S57M35A0060A | 60 | 24 | 180.4 (26.4) | 87 | 100 |
| D33S57M35A0075A | 75 | 24 | 220.7 (31.3) | 69 | 80 |
| D33S57M35A0100A | 100 | 24 | 223.7 (45.8) | 53 | 60 |
| D33S57M35A0120A | 120 | 26.5 | 367.7 (52.1) | 43 | 50 |
| D33S57M35A0150A | 150 | 26.5 | 431.6 (61.1) | 35 | 40 |
| D33S57M35A0180A | 180 | 26.5 | 588.4 (83.3) | 29 | 33 |
| D33S57M35A0200A | 200 | 26.5 | 578.6 (81.9) | 26 | 30 |
| D33S57M35A0250A | 250 | 26.5 | 588.4 (83.3) | 21 | 24 |
| D33S57M35A0300A | 300 | 26.5 | 588.4 (83.3) | 18 | 20 |
| D33S57M35A0400A | 400 | 29 | 588.4 (83.3) | 14 | 15 |
| D33S57M35A0500A | 500 | 29 | 588.4 (83.3) | 11 | 12 |
| D33S57M35A0600A | 600 | 29 | 588.4 (83.3) | 9.5 | 10 |
| D33S57M35A0750A | 750 | 29 | 588.4 (83.3) | 7.6 | 7.9 |
| D33S57M35A1000A | 1000 | 29 | 588.4 (83.3) | 5.7 | 5.9 |
| D33S57M35A1500A | 1500 | 31.5 | 588.4 (83.3) | 3.9 | 3.9 |
| D33S57M35A3000A | 3000 | 31.5 | 588.4 (83.3) | 1.9 | 2 |

24 VOLTS
37 mm DIAMETER

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> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze



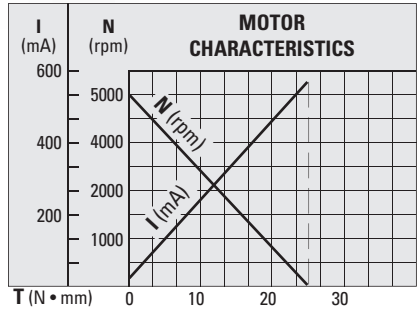
> OPERATING TEMPERATURE:

-10°C to +60°C

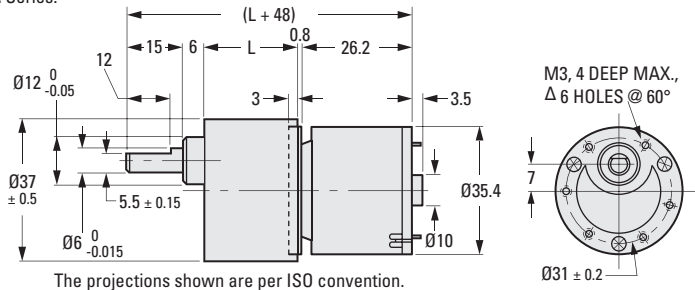
> MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 1.96 N • mm
- Rated Speed: 4600 rpm
- Rated Current: ≤ 90 mA
- No Load Speed: 5000 rpm
- No Load Current: ≤ 35 mA
- Rated Output: 0.9W

For replacement gearheads, see **A 2G23MA...** Series.



Same gearhead with different motor is offered as **D33S35MN54...** Series. See index.



The projections shown are per ISO convention.

Δ 3 tapped holes until present stock is depleted.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S35MF320006D | 6 | 19 | 14.7 (2.1) | 788 | 833 |
| D33S35MF320010D | 10 | 19 | 14.7 (2.1) | 463 | 500 |
| D33S35MF320018D | 18 | 21.5 | 14.7 (2.1) | 260 | 278 |
| D33S35MF320030D | 30 | 21.5 | 39.2 (5.6) | 154 | 167 |
| D33S35MF320050D | 50 | 24 | 58.8 (8.3) | 93 | 100 |
| D33S35MF320060D | 60 | 24 | 78.5 (11.1) | 77 | 83 |
| D33S35MF320075D | 75 | 24 | 88.3 (12.5) | 62 | 67 |
| D33S35MF320100D | 100 | 24 | 98.1 (13.9) | 47 | 50 |
| D33S35MF320120D | 120 | 26.5 | 117.7 (16.7) | 38 | 42 |
| D33S35MF320150D | 150 | 26.5 | 147.1 (20.8) | 31 | 33 |
| D33S35MF320180D | 180 | 26.5 | 176.5 (25) | 26 | 28 |
| D33S35MF320200D | 200 | 26.5 | 588.4 (83.3) | 23 | 25 |
| D33S35MF320250D | 250 | 26.5 | 588.4 (83.3) | 18 | 20 |
| D33S35MF320300D | 300 | 26.5 | 588.4 (83.3) | 16 | 17 |
| D33S35MF320400D | 400 | 29 | 588.4 (83.3) | 11.5 | 12.5 |
| D33S35MF320500D | 500 | 29 | 588.4 (83.3) | 9 | 10 |
| D33S35MF320600D | 600 | 29 | 588.4 (83.3) | 7.7 | 8.3 |
| D33S35MF320750D | 750 | 29 | 588.4 (83.3) | 6.3 | 6.7 |
| D33S35MF321000D | 1000 | 29 | 588.4 (83.3) | 4.8 | 5 |
| D33S35MF321500D | 1500 | 31.5 | 588.4 (83.3) | 3.2 | 3.3 |
| D33S35MF323000D | 3000 | 31.5 | 588.4 (83.3) | 1.6 | 1.7 |

MEDIUM-DUTY D.C. GEARMOTORS • SIZE 37



24 VOLTS
37 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze

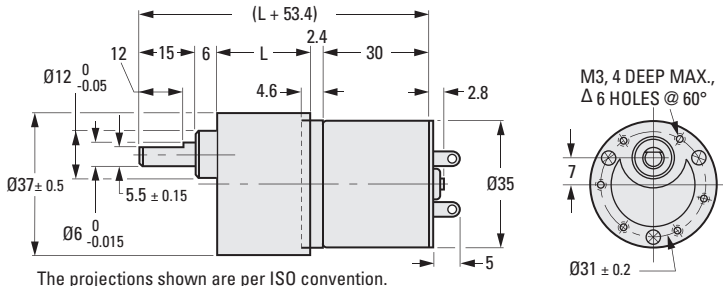
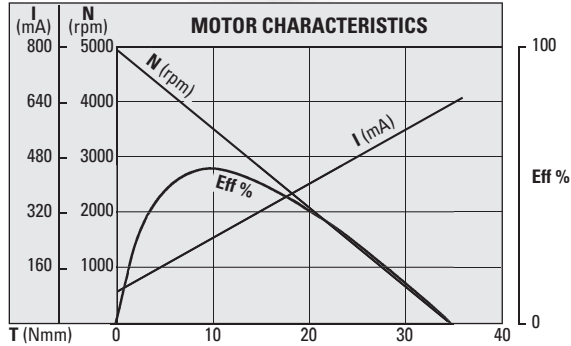
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 4.9 Nmm
- Rated Speed: 4200 rpm
- Rated Current: ≤ 180 mA
- No Load Speed: 4900 rpm
- No Load Current: ≤ 100 mA
- Rated Output: 2.1W

For replacement gearheads, see A 2G23MA... Series.



The projections shown are per ISO convention.

Δ 3 tapped holes until present stock is depleted.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque Nmm (ozf in.) | Speed rpm | |
|------------------|------------|------|----------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S35MS350006D | 6 | 19 | 39.2 (5.6) | 727 | 817 |
| D33S35MS350010D | 10 | 19 | 39.2 (5.6) | 421 | 490 |
| D33S35MS350018D | 18 | 21.5 | 39.2 (5.6) | 238 | 272 |
| D33S35MS350030D | 30 | 21.5 | 98.1 (13.9) | 142 | 163 |
| D33S35MS350050D | 50 | 24 | 157 (22.2) | 84 | 98 |
| D33S35MS350060D | 60 | 24 | 186.4 (26.4) | 70 | 82 |
| D33S35MS350075D | 75 | 24 | 220.7 (31.3) | 56 | 65 |
| D33S35MS350100D | 100 | 24 | 323.7 (45.8) | 42 | 49 |
| D33S35MS350120D | 120 | 26.5 | 367.7 (52.1) | 35 | 41 |
| D33S35MS350150D | 150 | 26.5 | 431.6 (61.1) | 28 | 33 |
| D33S35MS350180D | 180 | 26.5 | 588.4 (83.3) | 23 | 27 |
| D33S35MS350200D | 200 | 26.5 | 578.8 (81.9) | 21 | 25 |
| D33S35MS350250D | 250 | 26.5 | 588.4 (83.3) | 17 | 20 |
| D33S35MS350300D | 300 | 26.5 | 588.4 (83.3) | 15 | 16 |
| D33S35MS350400D | 400 | 29 | 588.4 (83.3) | 11.5 | 12 |
| D33S35MS350500D | 500 | 29 | 588.4 (83.3) | 9.2 | 9.8 |
| D33S35MS350600D | 600 | 29 | 588.4 (83.3) | 7.8 | 8 |
| D33S35MS350750D | 750 | 29 | 588.4 (83.3) | 6.3 | 6.5 |
| D33S35MS351000D | 1000 | 29 | 588.4 (83.3) | 4.7 | 4.9 |
| D33S35MS351500D | 1500 | 31.5 | 588.4 (83.3) | 3.2 | 3.3 |
| D33S35MS353000D | 3000 | 31.5 | 588.4 (83.3) | 1.6 | 1.6 |

* To be discontinued when present stock is depleted.



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MEDIUM-DUTY D.C. GEARMOTORS • SIZE 37



24 VOLTS
37 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

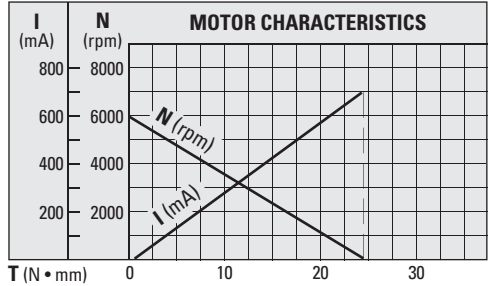
- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze

> OPERATING TEMPERATURE:

-10°C to +60°C

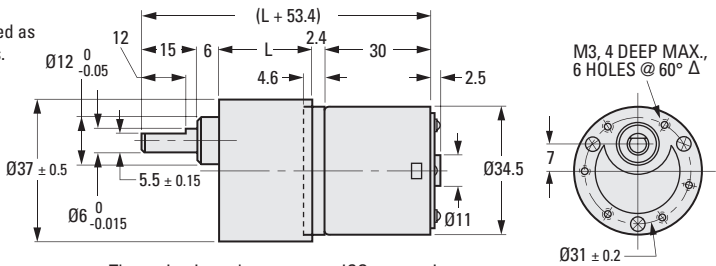
> MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 4.9 N • mm
- Rated Speed: 4500 rpm
- Rated Current: ≤ 203 mA
- No Load Speed: 5700 rpm
- No Load Current: ≤ 36 mA
- Rated Output: 2.3W
- Weight: 100 g



For replacement gearheads, see A 2G23MA... Series.

Same gearhead with different motor is offered as D33S35MS35...D Series. See index.



The projections shown are per ISO convention.

Δ 3 tapped holes until present stock is depleted.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S35ME350006D | 6 | 19 | 39.2 (5.6) | 771 | 950 |
| D33S35ME350010D | 10 | 19 | 39.2 (5.6) | 451 | 570 |
| D33S35ME350018D | 18 | 21.5 | 39.2 (5.6) | 255 | 317 |
| D33S35ME350030D | 30 | 21.5 | 98.1 (13.9) | 153 | 190 |
| D33S35ME350050D | 50 | 24 | 147.1 (20.8) | 92 | 114 |
| D33S35ME350060D | 60 | 24 | 196.1 (27.8) | 75 | 95 |
| D33S35ME350075D | 75 | 24 | 220.7 (31.3) | 60 | 76 |
| D33S35ME350100D | 100 | 24 | 294.2 (41.7) | 46 | 57 |
| D33S35ME350120D | 120 | 26.5 | 367.7 (52.1) | 37 | 47 |
| D33S35ME350150D | 150 | 26.5 | 441.3 (62.5) | 30 | 38 |
| D33S35ME350180D | 180 | 26.5 | 588.4 (83.3) | 25 | 32 |
| D33S35ME350200D | 200 | 26.5 | 588.4 (83.3) | 22 | 29 |
| D33S35ME350250D | 250 | 26.5 | 588.4 (83.3) | 19 | 23 |
| D33S35ME350300D | 300 | 26.5 | 588.4 (83.3) | 16 | 19 |
| D33S35ME350400D | 400 | 29 | 588.4 (83.3) | 12 | 14 |
| D33S35ME350500D | 500 | 29 | 588.4 (83.3) | 10 | 11 |
| D33S35ME350600D | 600 | 29 | 588.4 (83.3) | 8.6 | 9.5 |
| D33S35ME350750D | 750 | 29 | 588.4 (83.3) | 7 | 7.6 |
| D33S35ME351000D | 1000 | 29 | 588.4 (83.3) | 5.4 | 5.7 |
| D33S35ME351500D | 1500 | 31.5 | 588.4 (83.3) | 3.7 | 3.8 |
| D33S35ME353000D | 3000 | 31.5 | 588.4 (83.3) | 1.8 | 1.9 |

*To be discontinued when present stock is depleted.

MEDIUM-DUTY D.C. GEARMOTORS • SIZE 37

SDP/SI

24 VOLTS
37 mm DIAMETER
HIGH SPEED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Housing - Gearhead - Aluminum
- Motor - Stamped Steel, Zinc Chromate Finish
- Shafts & Gears - Steel
- Bearings - Bronze

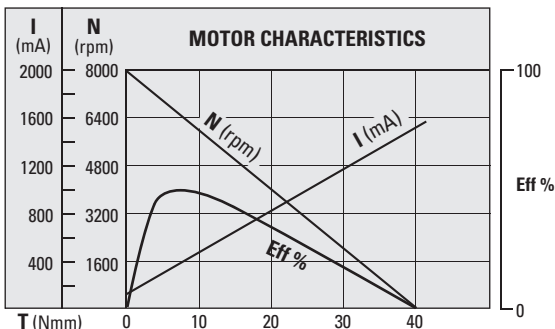


➤ **OPERATING TEMPERATURE:**

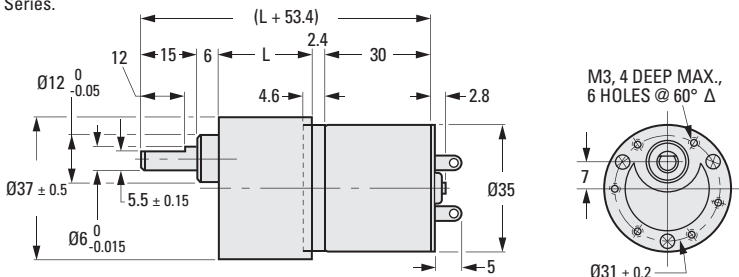
-10°C to +60°C

➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage: 24V
- Rated Torque: 4.9 Nmm
- Rated Speed: 6550 rpm
- Rated Current: ≤ 300 mA
- No Load Speed: 7450 rpm
- No Load Current: ≤ 100 mA
- Rated Output: 3.28W



For replacement gearheads, see **A 2G23MA...** Series.



The projections shown are per ISO convention.

Δ 3 tapped holes until present stock is depleted.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque Nmm (ozf in.) | Speed rpm | |
|------------------|------------|------|----------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S57M35A0006B | 6 | 19 | 39.2 (5.6) | 1092 | 1242 |
| D33S57M35A0010B | 10 | 19 | 39.2 (5.6) | 656 | 745 |
| D33S57M35A0018B | 18 | 21.5 | 39.2 (5.6) | 364 | 414 |
| D33S57M35A0030B | 30 | 21.5 | 98.1 (13.9) | 221 | 248 |
| D33S57M35A0050B | 50 | 24 | 156.9 (22.2) | 132 | 149 |
| D33S57M35A0060B | 60 | 24 | 186.3 (26.4) | 110 | 124 |
| D33S57M35A0075B | 75 | 24 | 220.7 (31.3) | 87 | 99 |
| D33S57M35A0100B | 100 | 24 | 323.6 (45.8) | 66 | 75 |
| D33S57M35A0120B | 120 | 26.5 | 367.7 (52.1) | 55 | 62 |
| D33S57M35A0150B | 150 | 26.5 | 431.5 (61.1) | 44 | 50 |
| D33S57M35A0180B | 180 | 26.5 | 588.4 (83.3) | 36 | 41 |
| D33S57M35A0200B | 200 | 26.5 | 578.8 (81.9) | 33 | 37 |
| D33S57M35A0250B | 250 | 26.5 | 588.4 (83.3) | 27 | 30 |
| D33S57M35A0300B | 300 | 26.5 | 588.4 (83.3) | 23 | 25 |
| D33S57M35A0400B | 400 | 29 | 588.4 (83.3) | 17 | 18.6 |
| D33S57M35A0500B | 500 | 29 | 588.4 (83.3) | 14 | 15 |
| D33S57M35A0600B | 600 | 29 | 588.4 (83.3) | 12 | 12.4 |
| D33S57M35A0750B | 750 | 29 | 588.4 (83.3) | 9.6 | 9.9 |
| D33S57M35A1000B | 1000 | 29 | 588.4 (83.3) | 7.2 | 7.5 |
| D33S57M35A1500B | 1500 | 31.5 | 588.4 (83.3) | 4.9 | 5 |
| D33S57M35A3000B | 3000 | 31.5 | 588.4 (83.3) | 2.5 | 2.5 |

* To be discontinued when present stock is depleted.



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24 VOLTS
37 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze



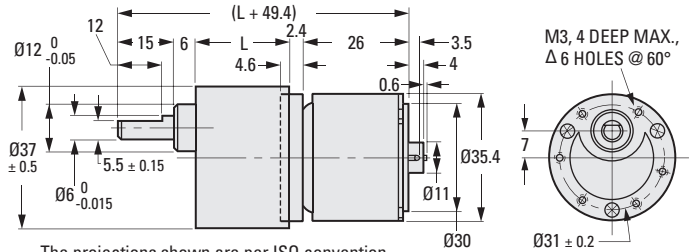
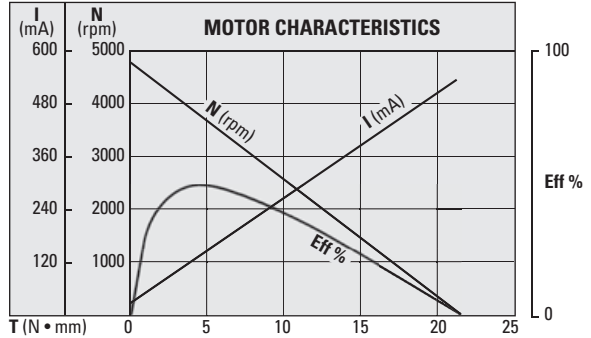
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 5.1 N • mm
- Rated Speed: 3600 rpm
- Rated Current: ≤ 160 mA
- No Load Speed: 4750 rpm
- No Load Current: ≤ 35 mA
- Rated Output: 1.87W

For replacement gearheads, see A 2G23MA... Series.



The projections shown are per ISO convention.

Δ 3 tapped holes until present stock is depleted.

METRIC COMPONENT

| Catalog Number | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|-----------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S35MN540006D | 6 | 19 | 39.2 (5.6) | 600 | 792 |
| D33S35MN540010D | 10 | 19 | 39.2 (5.6) | 366 | 475 |
| D33S35MN540018D | 18 | 21.5 | 14.7 (2.1) | 200 | 264 |
| D33S35MN540030D | 30 | 21.5 | 107.9 (25.3) | 121 | 158 |
| D33S35MN540050D | 50 | 24 | 106.8 (23.6) | 72 | 95 |
| D33S35MN540060D | 60 | 24 | 196.2 (27.8) | 61 | 79 |
| D33S35MN540075D | 75 | 24 | 88.3 (12.5) | 48 | 63 |
| D33S35MN540100D | 100 | 24 | 333.5 (47.2) | 36 | 48 |
| D33S35MN540120D | 120 | 26.5 | 117.7 (16.7) | 30 | 40 |
| D33S35MN540150D | 150 | 26.5 | 457.3 (69.8) | 24 | 32 |
| D33S35MN540180D | 180 | 26.5 | 176.5 (25) | 20 | 26 |
| D33S35MN540200D | 200 | 26.5 | 588.6 (83.4) | 18 | 24 |
| D33S35MN540250D | 250 | 26.5 | 588.6 (83.4) | 15 | 19 |
| D33S35MN540300D | 300 | 26.5 | 588.6 (83.4) | 13 | 16 |
| D33S35MN540400D | 400 | 29 | 588.6 (83.4) | 11 | 12 |
| D33S35MN540500D | 500 | 29 | 588.6 (83.4) | 8.5 | 9.5 |
| D33S35MN540600D | 600 | 29 | 588.6 (83.4) | 7.2 | 8 |
| D33S35MN540750D | 750 | 29 | 588.6 (83.4) | 5.9 | 6.3 |
| D33S35MN541000D | 1000 | 29 | 588.6 (83.4) | 4.5 | 4.8 |
| D33S35MN541500D | 1500 | 31.5 | 588.6 (83.4) | 3 | 3.2 |
| D33S35MN543000D | 3000 | 31.5 | 588.6 (83.4) | 1.6 | 1.6 |

6 VOLTS
42 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Housing - Stamped Steel,
Molded Brush Enclosure

> FINISH:

Zinc Chromate

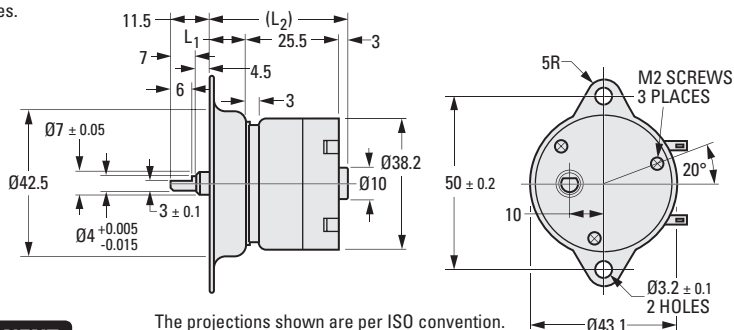
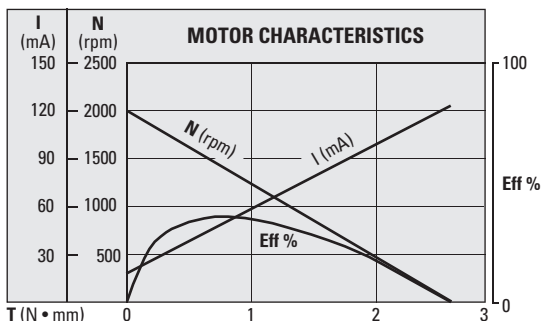
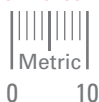
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

Rated Voltage: 6V
Rated Torque: 0.98 N • mm
Rated Speed: 1250 rpm
Rated Current: ≤ 60 mA
No Load Speed: 2000 rpm
No Load Current: ≤ 25 mA
Rated Output: 1.25W
Weight: 70 g

For replacement gearheads,
see A 2G15M... Series.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L ₁ | L ₂ | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|----------------|----------------|-------------------------------|-----------|---------|
| | | | | | Rated | No Load |
| A 3Z15M00020C | 20 | 11.3 | 39.8 | 9.8 (1.4) | 77 | 100 |
| A 3Z15M00030C | 30 | 11.3 | 39.8 | 19.6 (2.8) | 46 | 67 |
| A 3Z15M00050C | 50 | 11.3 | 39.8 | 34.3 (4.9) | 26 | 40 |
| A 3Z15M00060C | 60 | 11.3 | 39.8 | 39.2 (5.6) | 22 | 33 |
| A 3Z15M00100C | 100 | 11.3 | 39.8 | 58.8 (8.3) | 14 | 20 |
| A 3Z15M00150C | 150 | 11.3 | 39.8 | 58.8 (8.3) | 10 | 13.3 |
| A 3Z15M00200C | 200 | 11.3 | 39.8 | 78.5 (11.1) | 7.7 | 10 |
| A 3Z15M00250C | 250 | 11.3 | 39.8 | 78.5 (11.1) | 6.4 | 8 |
| A 3Z15M00300C | 300 | 11.3 | 39.8 | 78.5 (11.1) | 5.7 | 6.7 |
| A 3Z15M00400C | 400 | 11.3 | 39.8 | 78.5 (11.1) | 4.4 | 5 |
| A 3Z15M00500C | 500 | 11.3 | 39.8 | 98.1 (13.9) | 3.5 | 4 |
| A 3Z15M00750C | 750 | 11.3 | 39.8 | 98.1 (13.9) | 2.5 | 2.7 |
| A 3Z15M01000C | 1000 | 11.3 | 39.8 | 98.1 (13.9) | 1.9 | 2 |
| A 3Z15M01500C | 1500 | 11.3 | 39.8 | 98.1 (13.9) | 1.2 | 1.3 |
| A 3Z15M02000C | 2000 | 11.3 | 39.8 | 98.1 (13.9) | 1 | 1 |
| A 3Z15M03000C | 3000 | 11.3 | 39.8 | 98.1 (13.9) | 0.65 | 0.67 |
| A 3Z15M07500C | 7500 | 14.4 | 42.9 | 98.1 (13.9) | 0.25 | 0.27 |
| A 3Z15M15000C | 15000 | 14.4 | 42.9 | 98.1 (13.9) | 0.13 | 0.13 |
| A 3Z15M30000C | 30000 | 14.4 | 42.9 | 98.1 (13.9) | 0.07 | 0.07 |

*To be discontinued when present stock is depleted.



12 VOLTS
42 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:
Housing - Stamped Steel,
Molded Brush Enclosure

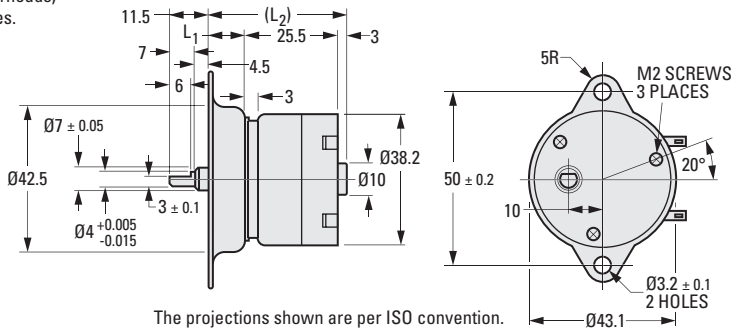
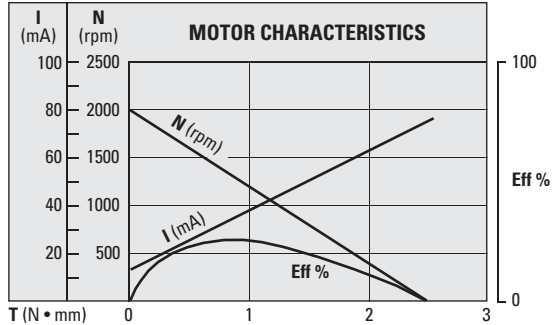
> FINISH:
Zinc Chromate

> OPERATING TEMPERATURE:
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 0.98 N • mm
- Rated Speed: 1200 rpm
- Rated Current: ≤ 39 mA
- No Load Speed: 2000 rpm
- No Load Current: ≤ 20 mA
- Rated Output: 1.20W
- Weight: 60 g
- Gearmotor Weight: 105 g

For replacement gearheads,
see A 2G15M... Series.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L ₁ | L ₂ | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|----------------|----------------|-------------------------------|-----------|---------|
| | | | | | Rated | No Load |
| A 3Z15M00020D | 20 | 11.3 | 39.8 | 9.8 (1.4) | 75 | 100 |
| A 3Z15M00030D | 30 | 11.3 | 39.8 | 19.6 (2.8) | 45 | 67 |
| A 3Z15M00050D | 50 | 11.3 | 39.8 | 34.3 (4.9) | 25 | 40 |
| A 3Z15M00060D | 60 | 11.3 | 39.8 | 39.2 (5.6) | 21 | 33 |
| A 3Z15M00100D | 100 | 11.3 | 39.8 | 58.8 (8.3) | 13 | 20 |
| A 3Z15M00150D | 150 | 11.3 | 39.8 | 58.8 (8.3) | 10 | 13.3 |
| A 3Z15M00200D | 200 | 11.3 | 39.8 | 78.5 (11.1) | 7.6 | 10 |
| A 3Z15M00250D | 250 | 11.3 | 39.8 | 78.5 (11.1) | 6.3 | 8 |
| A 3Z15M00300D | 300 | 11.3 | 39.8 | 78.5 (11.1) | 5.6 | 6.7 |
| A 3Z15M00400D | 400 | 11.3 | 39.8 | 78.5 (11.1) | 4.4 | 5 |
| A 3Z15M00500D | 500 | 11.3 | 39.8 | 98.1 (13.9) | 3.5 | 4 |
| A 3Z15M00750D | 750 | 11.3 | 39.8 | 98.1 (13.9) | 2.5 | 2.7 |
| A 3Z15M01000D | 1000 | 11.3 | 39.8 | 98.1 (13.9) | 1.9 | 2 |
| A 3Z15M01500D | 1500 | 11.3 | 39.8 | 98.1 (13.9) | 1.2 | 1.3 |
| A 3Z15M02000D | 2000 | 11.3 | 39.8 | 98.1 (13.9) | 1 | 1 |
| A 3Z15M03000D | 3000 | 11.3 | 39.8 | 98.1 (13.9) | 0.65 | 0.67 |
| A 3Z15M07500D | 7500 | 14.4 | 42.9 | 98.1 (13.9) | 0.25 | 0.27 |
| A 3Z15M15000D | 15000 | 14.4 | 42.9 | 98.1 (13.9) | 0.13 | 0.13 |
| A 3Z15M30000D | 30000 | 14.4 | 42.9 | 98.1 (13.9) | 0.07 | 0.07 |

*To be discontinued when present stock is depleted.

12 VOLTS
42 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze

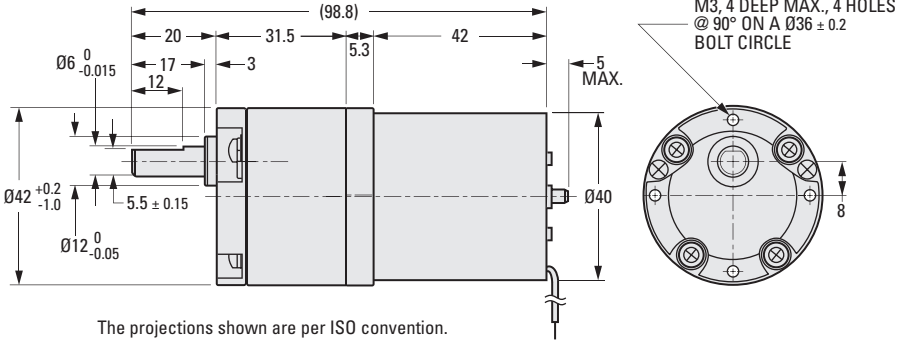
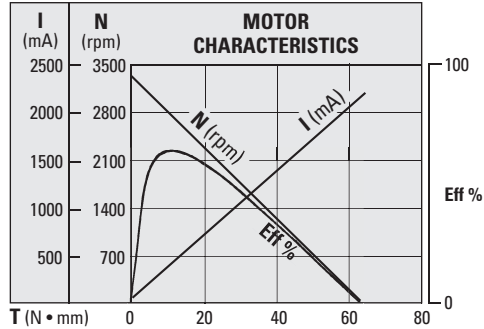
➤ **OPERATING TEMPERATURE:**

-10°C to +60°C

➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 14.7 N • mm
- Rated Speed: 2560 rpm
- Rated Current: ≤ 520 mA
- No Load Speed: 3310 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 3.84W

For replacement gearheads, see A 2G33M... Series.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S38MFST0011A | 11.73 | 118 (16.7) | 222 | 282 |
| D33S38MFST0030A | 30 | 284 (40.2) | 86 | 110 |
| D33S38MFST0033A | 33.16 | 314 (44.5) | 78 | 100 |
| D33S38MFST0062A | 62.31 | 598 (84.7) | 41 | 53 |
| D33S38MFST0099A | 99.47 | 863 (122.2) | 26 | 33 |
| D33S38MFST0150A | 150 | 981 (138.9) | 18 | 22 |
| D33S38MFST0186A | 186.92 | 981 (138.9) | 15 | 18 |
| D33S38MFST0270A | 270 | 981 (138.9) | 11 | 12 |

*To be discontinued when present stock is depleted.

12 VOLTS
42 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze



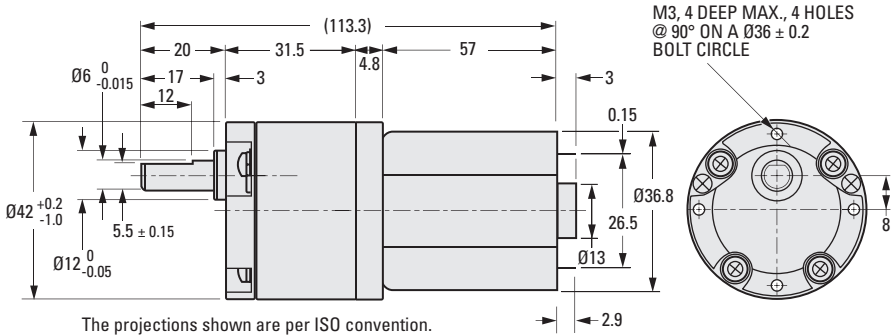
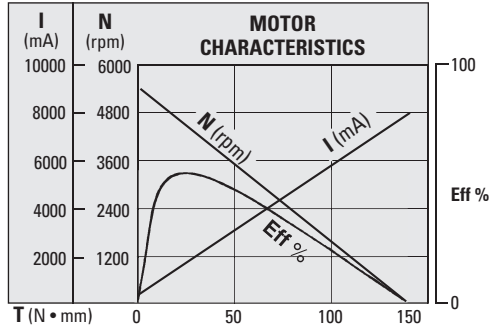
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 29.4 N • mm
- Rated Speed: 4300 rpm
- Rated Current: ≤ 2000 mA
- No Load Speed: 5400 rpm
- No Load Current: ≤ 430 mA
- Rated Output: 12.9W

For replacement gearheads, see **A 2G33M...** Series.



METRIC COMPONENT

| Catalog Number | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|----------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S38M4550011 | 11.73 | 245 (34.7) | 369 | 460 |
| D33S38M4550030 | 30 | 490 (69.4) | 149 | 180 |
| D33S38M4550033 | 33.16 | 490 (69.4) | 138 | 163 |
| D33S38M4550050 | 50 | 883 (125.0) | 88 | 108 |
| D33S38M4550062 | 62.31 | 981 (138.9) | 72 | 87 |
| D33S38M4550090 | 90 | 981 (138.9) | 53 | 60 |
| D33S38M4550099 | 99.47 | 981 (138.9) | 48 | 54 |
| D33S38M4550150 | 150 | 981 (138.9) | 33 | 36 |
| D33S38M4550186 | 186.92 | 981 (138.9) | 27 | 29 |
| D33S38M4550270 | 270 | 981 (138.9) | 19 | 20 |

24 VOLTS
42 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

Housing - Stamped Steel,
Molded Brush Enclosure

> OPERATING TEMPERATURE:

-10°C to +60°C

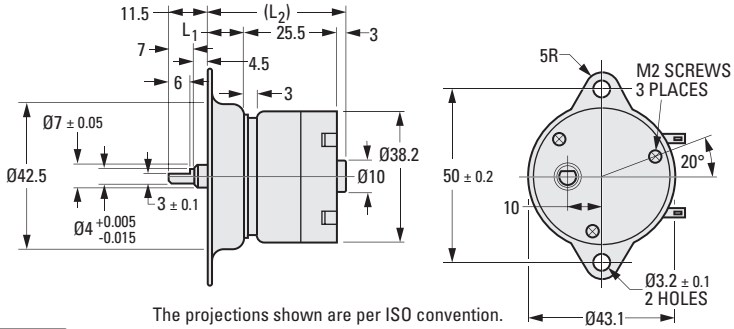
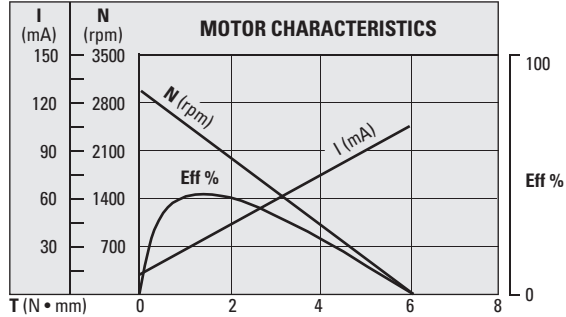
> FINISH:

Zinc Chromate

> MOTOR SPECIFICATIONS:

Rated Voltage: 24V
Rated Torque: 0.98 N • mm
Rated Speed: 2500 rpm
Rated Current: ≤ 26 mA
No Load Speed: 3000 rpm
No Load Current: ≤ 15 mA
Rated Output: 2.5W
Weight: 60 g
Gearmotor Weight: 105 g

For replacement gearheads,
see **A 2G15M...** Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L ₁ | L ₂ | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|----------------|----------------|-------------------------------|-----------|---------|
| | | | | | Rated | No Load |
| A 3Z15M00200E | 200 | 11.3 | 39.8 | 78.5 (11.1) | 13 | 15 |
| A 3Z15M00300E | 300 | 11.3 | 39.8 | 78.5 (11.1) | 9.3 | 10 |
| A 3Z15M00400E | 400 | 11.3 | 39.8 | 78.5 (11.1) | 7.1 | 7.5 |
| A 3Z15M00500E | 500 | 11.3 | 39.8 | 98.1 (13.9) | 5.7 | 6 |
| A 3Z15M00750E | 750 | 11.3 | 39.8 | 98.1 (13.9) | 3.9 | 4 |
| A 3Z15M01000E | 1000 | 11.3 | 39.8 | 98.1 (13.9) | 2.9 | 3 |
| A 3Z15M01500E | 1500 | 11.3 | 39.8 | 98.1 (13.9) | 1.9 | 2 |
| A 3Z15M02000E | 2000 | 11.3 | 39.8 | 98.1 (13.9) | 1.48 | 1.5 |
| A 3Z15M03000E | 3000 | 11.3 | 39.8 | 98.1 (13.9) | 0.99 | 1 |
| A 3Z15M07500E | 7500 | 14.4 | 42.9 | 98.1 (13.9) | 0.4 | 0.4 |
| A 3Z15M15000E | 15000 | 14.4 | 42.9 | 98.1 (13.9) | 0.2 | 0.2 |

*To be discontinued when present stock is depleted.

24 VOLTS
42 mm DIAMETER

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Steel, Zinc Plated
- Shafts & Gears - Steel
- Bearings - Bronze



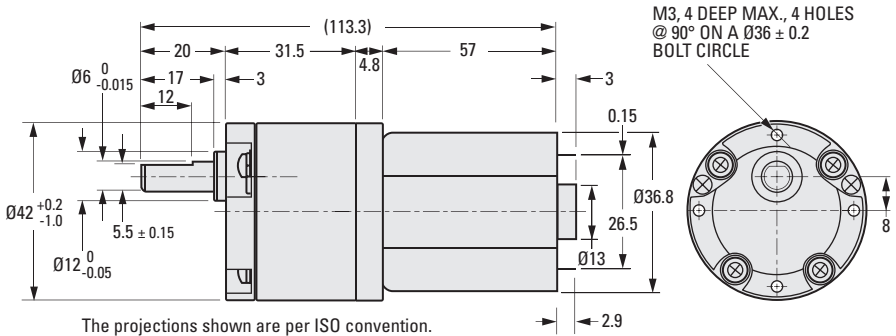
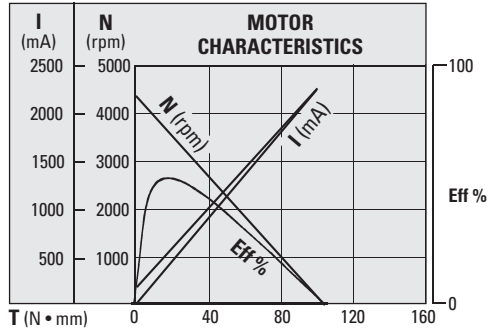
> OPERATING TEMPERATURE:

-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 19.6 N • mm
- Rated Speed: 3400 rpm
- Rated Current: ≤ 600 mA
- No Load Speed: 4200 rpm
- No Load Current: ≤ 200 mA
- Rated Output: 6.80W

For replacement gearheads, see **A 2G33M...** Series.



METRIC COMPONENT

| Catalog Number | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|----------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S38M5560011 | 11.73 | 167 (23.6) | 290 | 358 |
| D33S38M5560030 | 30 | 382 (54.1) | 114 | 140 |
| D33S38M5560033 | 33.16 | 422 (59.8) | 103 | 127 |
| D33S38M5560050 | 50 | 647 (91.6) | 68 | 84 |
| D33S38M5560062 | 62.31 | 804 (113.8) | 55 | 67 |
| D33S38M5560090 | 90 | 981 (138.9) | 39 | 47 |
| D33S38M5560099 | 99.47 | 981 (138.9) | 35 | 42 |
| D33S38M5560150 | 150 | 981 (138.9) | 25 | 28 |
| D33S38M5560186 | 186.92 | 981 (138.9) | 21 | 22 |
| D33S38M5560270 | 270 | 981 (138.9) | 15 | 16 |

12 VOLTS
43 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► MATERIAL:

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

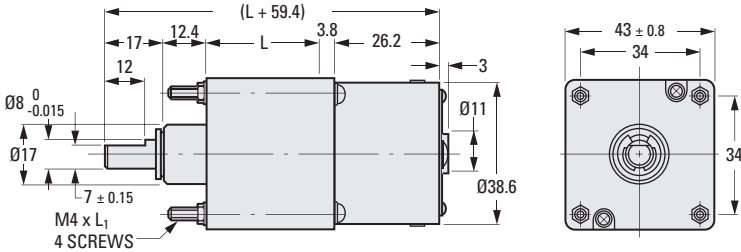
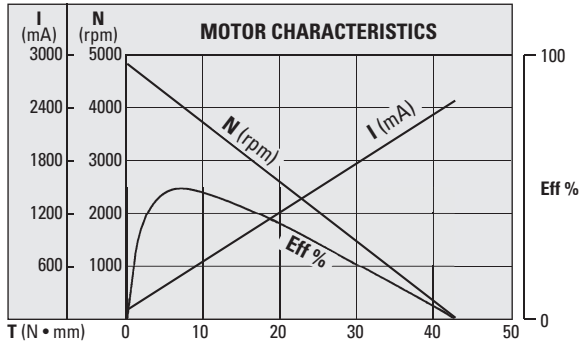
► OPERATING TEMPERATURE:

-10°C to +60°C

► MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 9.81 N • mm
- Rated Speed: 3750 rpm
- Rated Current: ≤ 650 mA
- No Load Speed: 4850 rpm
- No Load Current: ≤ 91 mA
- Rated Output: 3.75W
- Weight: 100 g

For replacement gearheads, see A 2G32ME... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | L ₁ Screw Length | Rated Torque N • m (lbf in.) | Speed rpm | |
|------------------|------------|------|-----------------------------|------------------------------|-----------|---------|
| | | | | | Rated | No Load |
| D33S43ME380014D | 14 | 25.9 | 45 | 0.088 (.78) | 254 | 331 |
| D33S43ME380017D | 17.4 | 25.9 | 45 | 0.11 (.95) | 206 | 268 |
| D33S43ME380024D | 24 | 25.9 | 45 | 0.15 (1.3) | 150 | 193 |
| D33S43ME380049D | 49 | 32.7 | 45 | 0.25 (2.2) | 73 | 94 |
| D33S43ME380061D | 60.7 | 32.7 | 45 | 0.31 (2.8) | 58 | 76 |
| D33S43ME380084D | 84 | 32.7 | 45 | 0.44 (3.9) | 42 | 55 |
| D33S43ME380104D | 104 | 32.7 | 45 | 0.54 (4.8) | 34 | 45 |
| D33S43ME380144D | 144 | 32.7 | 45 | 0.74 (6.5) | 25 | 32 |
| D33S43ME380212D | 212.3 | 39.4 | 55 | 0.89 (7.9) | 17 | 22 |
| D33S43ME380294D | 294 | 39.4 | 55 | 1.24 (10.9) | 12 | 16 |
| D33S43ME380624D | 624 | 39.4 | 55 | 1.96 (17.4) | 6 | 7 |
| D33S43ME380864D | 864 | 39.4 | 55 | 1.96 (17.4) | 5 | 5 |

*To be discontinued when present stock is depleted.

12 VOLTS
43 mm SQUARE HOUSING

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> **MATERIAL:**

Housing - Aluminum
Shafts & Gears - Steel
Bearings - Bronze

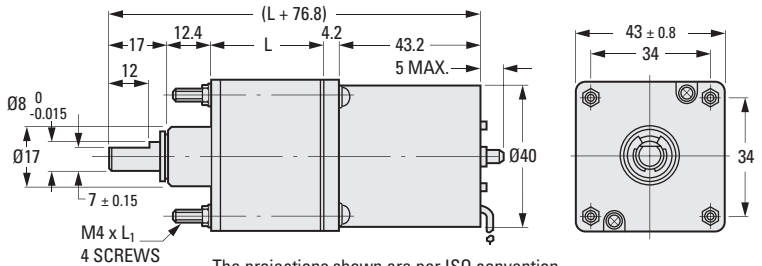
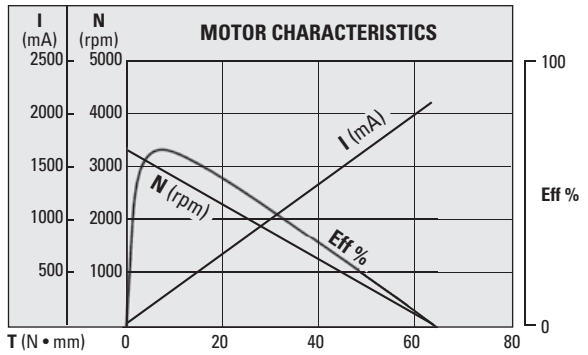
> **OPERATING TEMPERATURE:**

-10°C to +60°C

> **MOTOR SPECIFICATIONS:**

Rated Voltage: 12V
Rated Torque: 14.72 N • mm
Rated Speed: 2560 rpm
Rated Current: ≤ 520 mA
No Load Speed: 3310 rpm
No Load Current: ≤ 30 mA
Rated Output: 3.84W
Weight: 240 g

For replacement gearheads, see A 2G32ME... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | L ₁ Screw Length | Rated Torque N • m (lbf in.) | Speed rpm | |
|------------------|------------|------|-----------------------------|------------------------------|-----------|---------|
| | | | | | Rated | No Load |
| D33S43MFST0014D | 14 | 25.9 | 45 | 0.128 (1.13) | 179 | 229 |
| D33S43MFST0017D | 17.4 | 25.9 | 45 | 0.17 (1.5) | 143 | 186 |
| D33S43MFST0024D | 24 | 25.9 | 45 | 0.23 (2) | 103 | 134 |
| D33S43MFST0049D | 49 | 32.7 | 45 | 0.37 (3.3) | 51 | 66 |
| D33S43MFST0061D | 60.7 | 32.7 | 45 | 0.47 (4.2) | 41 | 53 |
| D33S43MFST0084D | 84 | 32.7 | 45 | 0.65 (5.7) | 29 | 38 |
| D33S43MFST0104D | 104 | 32.7 | 45 | 0.8 (7.1) | 24 | 31 |
| D33S43MFST0144D | 144 | 32.7 | 45 | 1.12 (9.9) | 17 | 22 |
| D33S43MFST0212D | 212.3 | 39.4 | 55 | 1.33 (11.8) | 12 | 15 |
| D33S43MFST0294D | 294 | 39.4 | 55 | 1.85 (16.4) | 8 | 11 |
| D33S43MFST0624D | 624 | 39.4 | 55 | 1.96 (17.4) | 5 | 5 |
| D33S43MFST0864D | 864 | 39.4 | 55 | 1.96 (17.4) | 3 | 4 |

*To be discontinued when present stock is depleted.

12 VOLTS
48 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

> OPERATING TEMPERATURE:

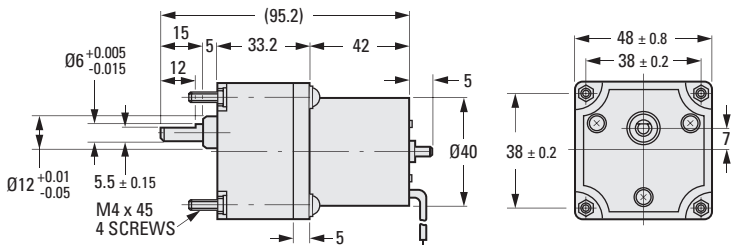
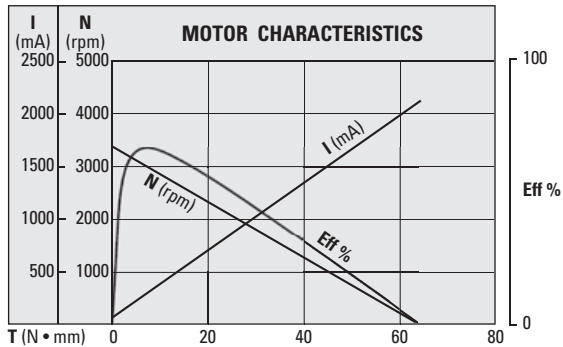
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 14.7 N • mm
- Rated Speed: 2560 rpm
- Rated Current: ≤ 520 mA
- No Load Speed: 3310 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 3.84W
- Weight: 240 g

For replacement gearheads, see **A 2G31MB...** Series.

Similar performance gearhead with different motor is offered as **D33S38M...** Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S40MSTB0026D | 26.31 | 294.2 (41.7) | 98 | 126 |
| D33S40MSTB0030D | 29.56 | 294.2 (41.7) | 87 | 112 |
| D33S40MSTB0051D | 50.67 | 490.3 (69.4) | 52 | 65 |
| D33S40MSTB0152D | 152 | 981 (139) | 18 | 22 |

*To be discontinued when present stock is depleted.

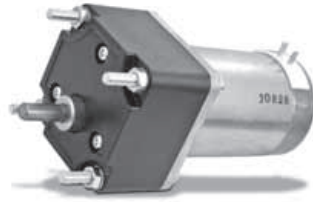
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- A

12 VOLTS
48 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> MATERIAL:

- Housing - Gearhead - Aluminum
- Motor - Steel
- Shafts & Gears - Steel
- Bearings - Bronze
- Spacer - Aluminum



> OPERATING TEMPERATURE:

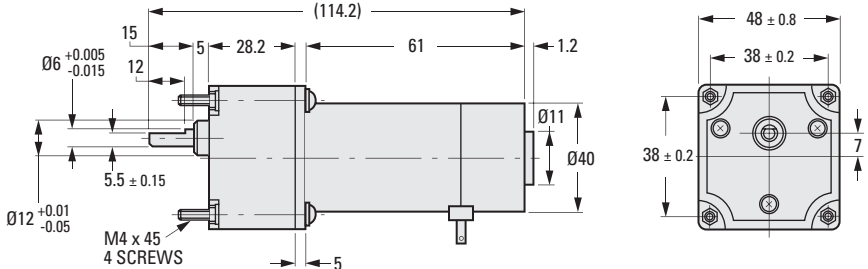
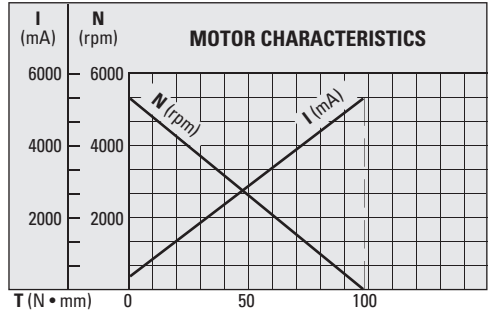
-10°C to +60°C

> MOTOR SPECIFICATIONS:

- Rated Voltage: 12V
- Rated Torque: 29.4 N • mm
- Rated Speed: 3800 rpm
- Rated Current: ≤ 2145 mA
- No Load Speed: 5300 rpm
- No Load Current: ≤ 250 mA
- Rated Output: 11.7W
- Weight: 290 g

For replacement gearheads, see **A 2G31MB...** Series.

Similar performance gearhead with different motor is offered as **D33S38M...** Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M40B0013D | 12.64 | 294.2 (41.7) | 303 | 419 |
| D33S57M40B0026D | 26.31 | 490.3 (69.4) | 152 | 202 |
| D33S57M40B0030D | 29.56 | 490.3 (69.4) | 140 | 179 |
| D33S57M40B0051D | 50.67 | 490.3 (69.4) | 91 | 105 |
| D33S57M40B0152D | 152 | 981 (139) | 31 | 35 |

*To be discontinued when present stock is depleted.

24 VOLTS
48 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

> **OPERATING TEMPERATURE:**

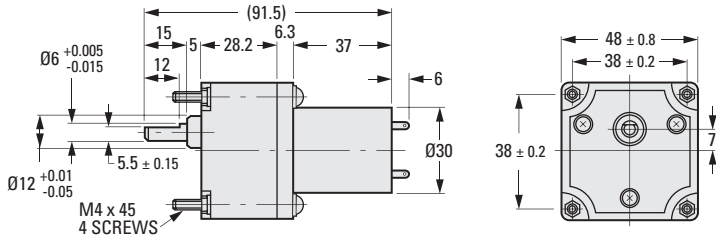
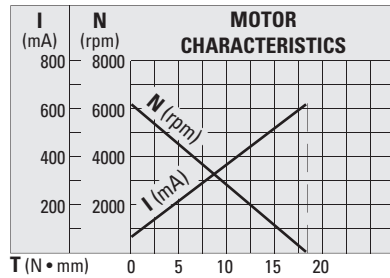
-10°C to +60°C

> **MOTOR SPECIFICATIONS:**

- Rated Voltage:** 24V
- Rated Torque:** 4.9 N • mm
- Rated Speed:** 4600 rpm
- Rated Current:** ≤ 210 mA
- No Load Speed:** 6300 rpm
- No Load Current:** ≤ 45 mA
- Rated Output:** 2.3W
- Weight:** 110 g

For replacement gearheads, see **A 2G31MB...** Series.

Same gearhead with different motor is offered as **D33S40MSTB...E** Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S40M30B0013E | 12.67 | 49 (6.9) | 367 | 498 |
| D33S40M30B0026E | 26.31 | 98.1 (13.9) | 172 | 240 |
| D33S40M30B0030E | 29.56 | 98.1 (13.9) | 160 | 213 |
| D33S40M30B0051E | 50.67 | 190 (26.9) | 90 | 124 |
| D33S40M30B0152E | 152 | 540 (76.5) | 31 | 41 |

*To be discontinued when present stock is depleted.

24 VOLTS
48 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

› MATERIAL:

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

› OPERATING TEMPERATURE:

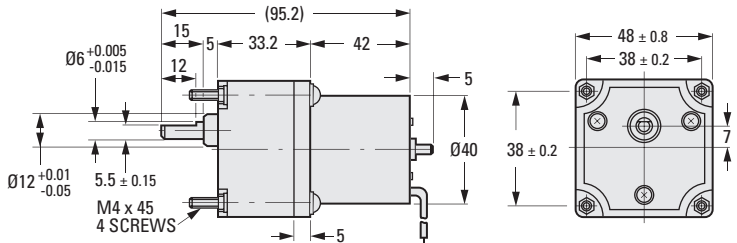
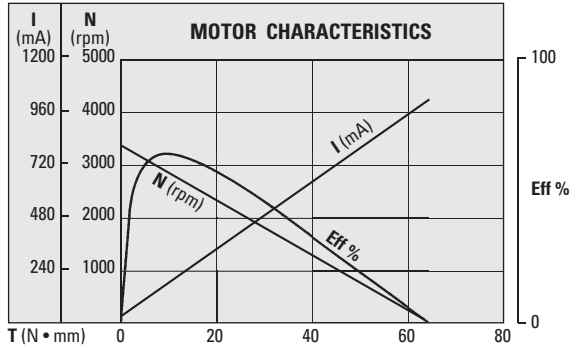
-10°C to +60°C

› MOTOR SPECIFICATIONS:

- Rated Voltage: 24V
- Rated Torque: 14.7 N • mm
- Rated Speed: 2560 rpm
- Rated Current: ≤ 265 mA
- No Load Speed: 3310 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 3.84W
- Weight: 240 g

For replacement gearheads, see A 2G31MB... Series.

Similar performance gearhead with different motor is offered as D33S38M... Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S40MSTB0013E | 12.67 | 147.1 (20.8) | 204 | 262 |
| D33S40MSTB0030E | 29.56 | 294.2 (41.7) | 88 | 112 |
| D33S40MSTB0051E | 50.67 | 490.3 (69.4) | 52 | 65 |
| D33S40MSTB0152E | 152 | 981 (139) | 19 | 22 |

*To be discontinued when present stock is depleted.

24 VOLTS
48 mm SQUARE HOUSING
HIGH-SPEED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



➤ MATERIAL:

- Housing** - Aluminum
- Shafts & Gears** - Steel
- Bearings** - Bronze

➤ OPERATING TEMPERATURE:

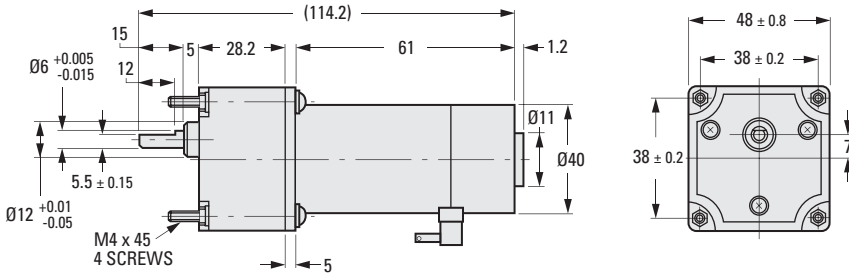
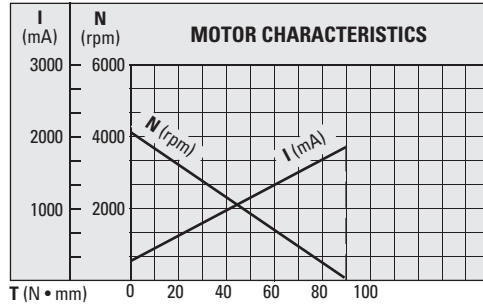
-10°C to +60°C

➤ MOTOR SPECIFICATIONS:

- Rated Voltage:** 24V
- Rated Torque:** 14.7 N • mm
- Rated Speed:** 3500 rpm
- Rated Current:** ≤ 419 mA
- No Load Speed:** 4200 rpm
- No Load Current:** ≤ 80 mA
- Rated Output:** 5.4W
- Weight:** 290 g

For replacement gearheads,
see **A 2G31MB...** Series.

Similar performance gearhead
with different motor is offered as
D33S38M...Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M40B0013E | 12.67 | 147.1 (20.8) | 278 | 332 |
| D33S57M40B0026E | 26.31 | 294.2 (41.7) | 132 | 160 |
| D33S57M40B0030E | 29.56 | 294.2 (41.7) | 120 | 142 |
| D33S57M40B0051E | 50.67 | 490.3 (69.4) | 70 | 83 |
| D33S57M40B0152E | 152 | 981 (139) | 25 | 28 |

*To be discontinued when present stock is depleted.

12 VOLTS
60 mm SQUARE HOUSING
HIGH-SPEED

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



► **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

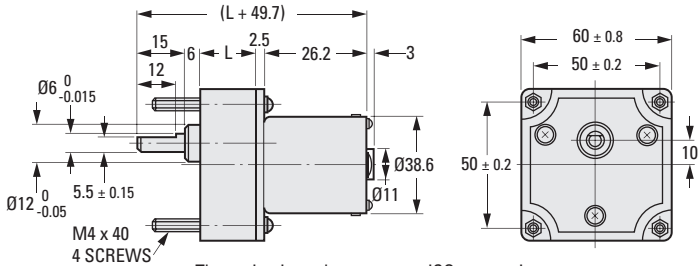
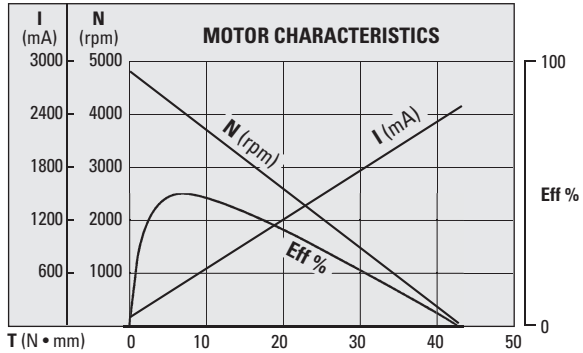
► **OPERATING TEMPERATURE:**

-10°C to +60°C

► **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 9.81 N • mm
- Rated Speed: 3750 rpm
- Rated Current: ≤ 650 mA
- No Load Speed: 4850 rpm
- No Load Current: ≤ 91 mA
- Rated Output: 3.75W
- Weight: 100 g

For replacement gearheads, see A 2G25M... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S54ME380200D | 200 | 24 | 981 (139) | 20 | 24 |
| D33S54ME380250D | 250 | 24 | 981 (139) | 16 | 19.4 |
| D33S54ME380300D | 300 | 24 | 981 (139) | 14 | 16 |
| D33S54ME380360D | 360 | 24 | 981 (139) | 12 | 13 |
| D33S54ME380450D | 450 | 24 | 981 (139) | 9.3 | 10.8 |
| D33S54ME380500D | 500 | 24 | 981 (139) | 9 | 9.7 |
| D33S54ME380750D | 750 | 26.5 | 981 (139) | 6.1 | 6.5 |
| D33S54ME380900D | 900 | 26.5 | 981 (139) | 4.9 | 5.4 |
| D33S54ME381000D | 1000 | 26.5 | 981 (139) | 4.7 | 4.9 |
| D33S54ME381200D | 1200 | 26.5 | 981 (139) | 3.5 | 4 |
| D33S54ME381500D | 1500 | 26.5 | 981 (139) | 3.1 | 3.2 |
| D33S54ME381800D | 1800 | 26.5 | 981 (139) | 2.6 | 2.7 |
| D33S54ME382000D | 2000 | 26.5 | 981 (139) | 2.4 | 2.4 |

*To be discontinued when present stock is depleted.

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12 VOLTS
60 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

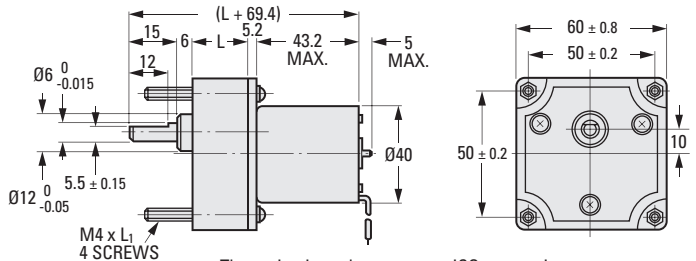
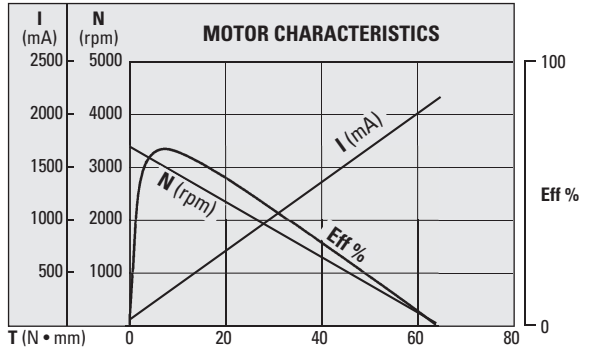
> **OPERATING TEMPERATURE:**

-10°C to +60°C

> **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 14.72 N • mm
- Rated Speed: 2560 rpm
- Rated Current: ≤ 520 mA
- No Load Speed: 3310 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 3.84W
- Weight: 240 g

For replacement gearheads, see **A 2G25M...** Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | L ₁ Screw Length | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-----------------------------|-------------------------------|-----------|---------|
| | | | | | Rated | No Load |
| D33S54MFST0006D | 6 | 19 | 35 | 68.7 (9.7) | 432 | 552 |
| D33S54MFST0008D | 7.5 | 19 | 35 | 88.3 (12.5) | 343 | 441 |
| D33S54MFST0010D | 10 | 19 | 35 | 117.7 (16.7) | 257 | 331 |
| D33S54MFST0020D | 20 | 19 | 35 | 245 (34.7) | 127 | 166 |
| D33S54MFST0030D | 30 | 21.5 | 35 | 313.9 (44.4) | 86 | 110 |
| D33S54MFST0040D | 40 | 21.5 | 35 | 392 (55.6) | 66 | 82 |
| D33S54MFST0050D | 50 | 21.5 | 35 | 540 (76.4) | 51 | 66 |
| D33S54MFST0060D | 60 | 21.5 | 35 | 637.4 (90.3) | 43 | 55 |
| D33S54MFST0100D | 100 | 21.5 | 35 | 981 (139) | 26 | 33 |
| D33S54MFST0120D | 120 | 24 | 40 | 981 (139) | 23 | 28 |
| D33S54MFST0150D | 150 | 24 | 40 | 981 (139) | 19 | 22 |
| D33S54MFST0180D | 180 | 24 | 40 | 981 (139) | 16 | 18 |

* To be discontinued when present stock is depleted.

Continued on the next page

12 VOLTS
60 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

► **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

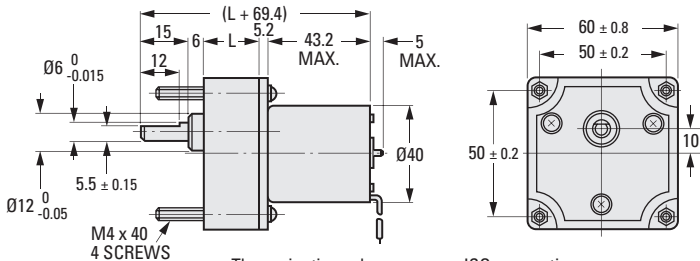
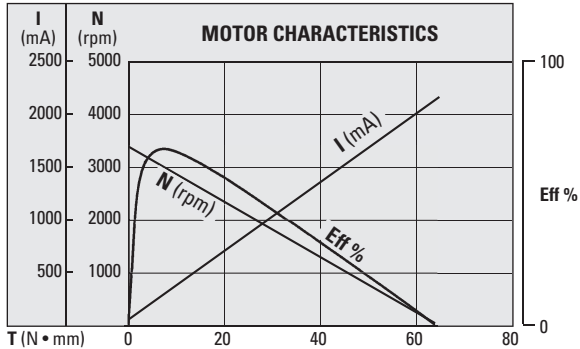
► **OPERATING TEMPERATURE:**

-10°C to +60°C

► **MOTOR SPECIFICATIONS:**

- Rated Voltage: 12V
- Rated Torque: 14.72 N • mm
- Rated Speed: 2560 rpm
- Rated Current: ≤ 520 mA
- No Load Speed: 3310 rpm
- No Load Current: ≤ 30 mA
- Rated Output: 3.84W
- Weight: 240 g

For replacement gearheads, see **A 2G25M...** Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S54MFST0200D | 200 | 24 | 981 (139) | 15 | 17 |
| D33S54MFST0250D | 250 | 24 | 981 (139) | 13 | 14 |
| D33S54MFST0300D | 300 | 24 | 981 (139) | 10.2 | 11 |
| D33S54MFST0360D | 360 | 24 | 981 (139) | 8.6 | 9.2 |
| D33S54MFST0450D | 450 | 24 | 981 (139) | 6.9 | 7.4 |
| D33S54MFST0500D | 500 | 24 | 981 (139) | 6.3 | 6.6 |
| D33S54MFST0750D | 750 | 26.5 | 981 (139) | 4.3 | 4.4 |
| D33S54MFST0900D | 900 | 26.5 | 981 (139) | 3.6 | 3.7 |
| D33S54MFST1000D | 1000 | 26.5 | 981 (139) | 3.2 | 3.3 |
| D33S54MFST1200D | 1200 | 26.5 | 981 (139) | 2.85 | 2.9 |
| D33S54MFST1500D | 1500 | 26.5 | 981 (139) | 2.29 | 2.3 |
| D33S54MFST1800D | 1800 | 26.5 | 981 (139) | 1.81 | 1.84 |
| D33S54MFST2000D | 2000 | 26.5 | 981 (139) | 1.63 | 1.66 |

* To be discontinued when present stock is depleted.

Continued from the previous page

HEAVY-DUTY D.C. GEARMOTORS • SIZE 60



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

12 VOLTS
60 mm SQUARE HOUSING
HIGH TORQUE



➤ **MATERIAL:**

- Housing** - Aluminum
- Shafts & Gears** - Steel
- Bearings** - Bronze

➤ **OPERATING TEMPERATURE:**

-10°C to +60°C

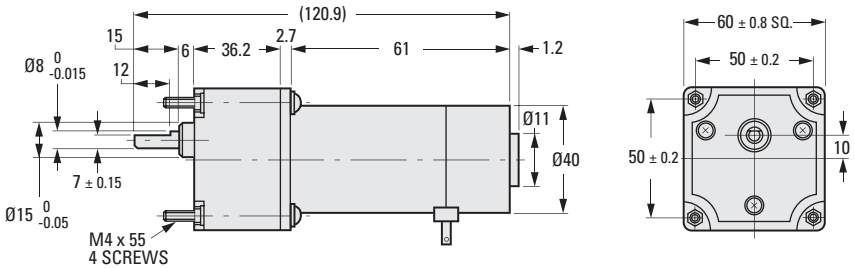
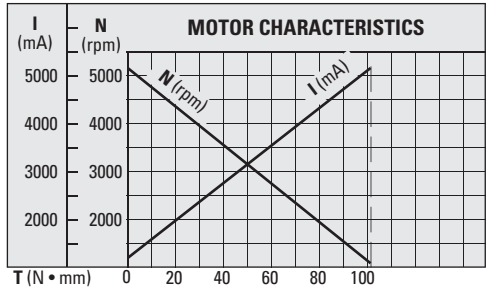


➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage:** 12V
- Rated Torque:** 29.43 N • mm
- Rated Speed:** 3800 rpm
- Rated Current:** ≤ 2145 mA
- No Load Speed:** 5300 rpm
- No Load Current:** ≤ 250 mA
- Rated Output:** 11.7W
- Weight:** 290 g

For replacement gearheads, see A 2G30MD... Series.

Same gearhead with different motor is offered as D33S54MFST...D Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S57M54D030 | 30 | 640 (91) | 127 | 177 |
| D33S57M54D060 | 60 | 1180 (167) | 63 | 88 |
| D33S57M54D090 | 90 | 1770 (251) | 42 | 59 |
| D33S57M54D140 | 140 | 1960 (277) | 30 | 38 |
| D33S57M54D160 | 160 | 1960 (277) | 27 | 33 |

*To be discontinued when present stock is depleted.

24 VOLTS
60 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

➤ **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

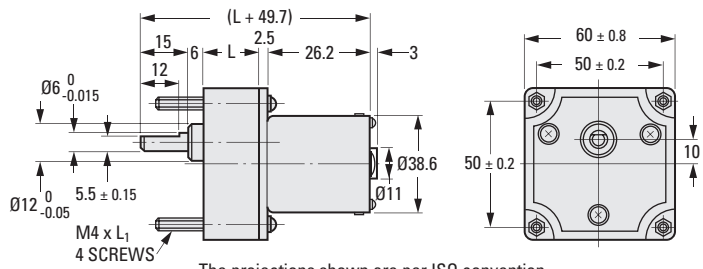
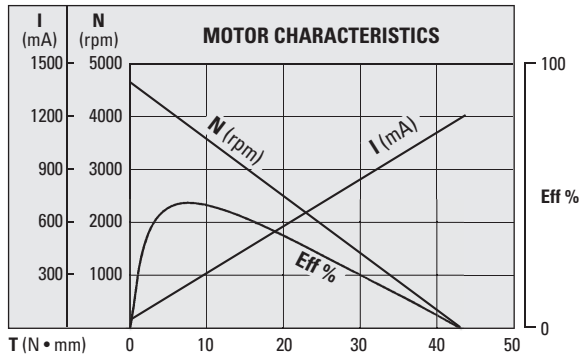
➤ **OPERATING TEMPERATURE:**

-10°C to +60°C

➤ **MOTOR SPECIFICATIONS:**

- Rated Voltage: 24V
- Rated Torque: 9.81 N • mm
- Rated Speed: 3590 rpm
- Rated Current: ≤ 319 mA
- No Load Speed: 4650 rpm
- No Load Current: ≤ 50 mA
- Rated Output: 3.59W
- Weight: 100 g

For replacement gearheads, see A 2G25M... Series.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | L ₁ Screw Length | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-----------------------------|-------------------------------|-----------|---------|
| | | | | | Rated | No Load |
| D33S54ME380008E | 7.5 | 19 | 35 | 68.6 (9.7) | 476 | 620 |
| D33S54ME380010E | 10 | 19 | 35 | 78.5 (11.1) | 360 | 465 |
| D33S54ME380020E | 20 | 19 | 35 | 147.2 (20.8) | 181 | 232 |
| D33S54ME380030E | 30 | 21.5 | 35 | 206.1 (29.2) | 123 | 155 |
| D33S54ME380040E | 40 | 21.5 | 35 | 294.2 (41.7) | 91 | 116 |
| D33S54ME380050E | 50 | 21.5 | 35 | 343.4 (48.6) | 72 | 93 |
| D33S54ME380060E | 60 | 21.5 | 35 | 421.8 (59.7) | 59 | 78 |
| D33S54ME380100E | 100 | 21.5 | 35 | 716.1 (101) | 36 | 47 |
| D33S54ME380120E | 120 | 24 | 40 | 971 (137) | 30 | 39 |
| D33S54ME380150E | 150 | 24 | 40 | 971 (137) | 24 | 31 |
| D33S54ME380180E | 180 | 24 | 40 | 971 (137) | 20 | 26 |

*To be discontinued when present stock is depleted.

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24 VOLTS
60 mm SQUARE HOUSING

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

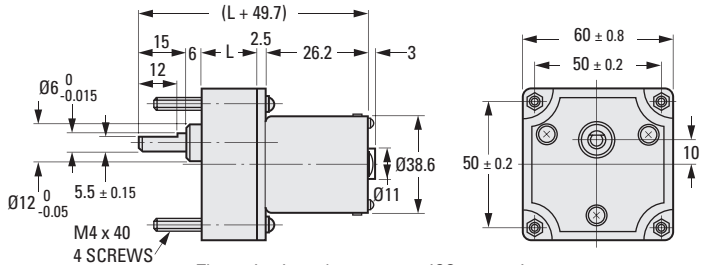
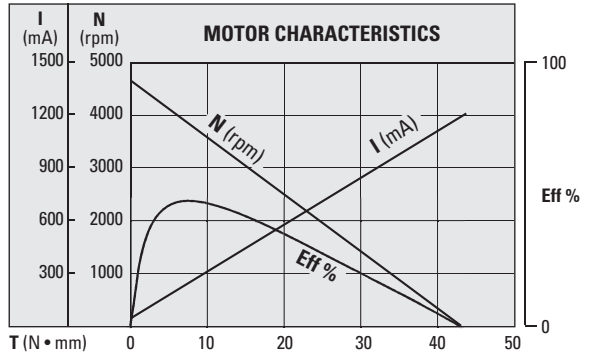
> **OPERATING TEMPERATURE:**

-10°C to +60°C

> **MOTOR SPECIFICATIONS:**

- Rated Voltage: 24V
- Rated Torque: 9.81 N • mm
- Rated Speed: 3590 rpm
- Rated Current: ≤ 319 mA
- No Load Speed: 4650 rpm
- No Load Current: ≤ 50 mA
- Rated Output: 3.59W
- Weight: 100 g

For replacement gearheads, see **A 2G25M...** Series.



METRIC COMPONENT

| Catalog Number * | Ratio to 1 | L | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|------|-------------------------------|-----------|---------|
| | | | | Rated | No Load |
| D33S54ME380200E | 200 | 24 | 981 (139) | 19 | 23 |
| D33S54ME380250E | 250 | 24 | 981 (139) | 16 | 19 |
| D33S54ME380300E | 300 | 24 | 981 (139) | 14 | 16 |
| D33S54ME380360E | 360 | 24 | 981 (139) | 12 | 13 |
| D33S54ME380450E | 450 | 24 | 981 (139) | 9.5 | 10.3 |
| D33S54ME380500E | 500 | 24 | 981 (139) | 8.7 | 9.3 |
| D33S54ME380750E | 750 | 26.5 | 981 (139) | 5.9 | 6.2 |
| D33S54ME380900E | 900 | 26.5 | 981 (139) | 4.9 | 5.2 |
| D33S54ME381000E | 1000 | 26.5 | 981 (139) | 4.5 | 4.7 |
| D33S54ME381200E | 1200 | 26.5 | 981 (139) | 3.8 | 3.9 |
| D33S54ME381500E | 1500 | 26.5 | 981 (139) | 3 | 3.1 |
| D33S54ME381800E | 1800 | 26.5 | 981 (139) | 2.5 | 2.6 |
| D33S54ME382000E | 2000 | 26.5 | 981 (139) | 2.3 | 2.3 |

*To be discontinued when present stock is depleted.

Continued from the previous page

HEAVY-DUTY D.C. GEARMOTORS • SIZE 60



PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

24 VOLTS
60 mm SQUARE HOUSING
HIGH-SPEED

› **MATERIAL:**

- Housing - Aluminum
- Shafts & Gears - Steel
- Bearings - Bronze

› **OPERATING TEMPERATURE:**

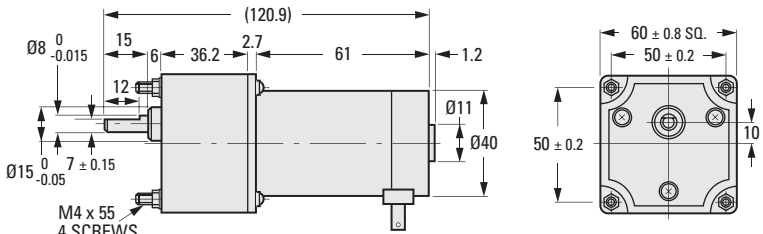
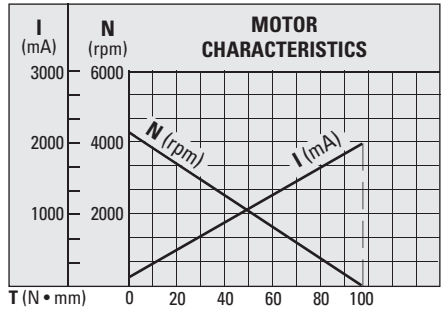
-10°C to +60°C

› **MOTOR SPECIFICATIONS:**

- Rated Voltage: 24V
- Rated Torque: 14.72 N • mm
- Rated Speed: 3500 rpm
- Rated Current: ≤ 419 mA
- No Load Speed: 4200 rpm
- No Load Current: ≤ 80 mA
- Rated Output: 5.4W
- Weight: 290 g

For replacement gearheads, see **A 2G30MD...** Series.

Similar gearmotors are offered as **D33S54ME38...E** Series. See index.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number * | Ratio to 1 | Rated Torque N • mm (ozf in.) | Speed rpm | |
|------------------|------------|-------------------------------|-----------|---------|
| | | | Rated | No Load |
| D33S52ME540030E | 30 | 290 (41) | 119 | 140 |
| D33S52ME540060E | 60 | 590 (83) | 58 | 70 |
| D33S52ME540090E | 90 | 880 (125) | 39 | 47 |
| D33S52ME540140E | 140 | 1370 (194) | 25 | 30 |
| D33S52ME540160E | 160 | 1570 (222) | 22 | 26 |

*To be discontinued when present stock is depleted.

115 VOLTS
REVERSIBLE
INDUCTION & HYSTERESIS TYPES

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> MATERIAL:

- Housing** - Machined Aluminum
- Shafts** - Steel
- Pinion** - Brass
- Bearings** - Bronze

For mating gearheads, see **A 2G25M...** Series.



> SPECIFICATIONS:

| Motor Type | Motor Torque Performance |
|------------------------|--|
| Single Phase Induction | Torque decreases to zero at synchronous speed. |
| Hysteresis | Torque is constant at all speeds from standstill to synchronization. |

WIRING DIAGRAM FOR INDUCTION & HYSTERESIS MOTORS

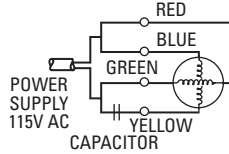
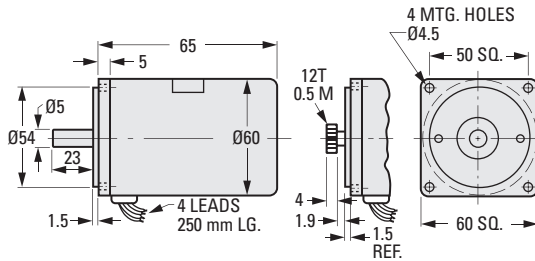


Diagram shown above is for CCW motor shaft rotation. For CW rotation, switch blue & yellow motor leads.



The projections shown are per ISO convention.

METRIC COMPONENT

| Catalog Number | Shaft/Pinion Option | H.P | rpm | Voltage | Watts | Amps | Max.* Cap | Wt. Approx. |
|-------------------------------|---------------------|-------|-------|------------------|-------|------|---------------|-------------|
| Single Phase Induction | | | | | | | | |
| A 3M25MISS | Plain Shaft | 1/250 | 1200/ | 115 (50...60 Hz) | 3 | 0.1 | 50 Hz - 1µF/ | 0.65 kg |
| A 3M25MISP | With Pinion | 1/250 | 1450 | 115 (50...60 Hz) | 3 | 0.1 | 60 Hz - 0.8µF | 0.65 kg |
| Hysteresis | | | | | | | | |
| ** A 3M25MHSS | Plain Shaft | 1/500 | 1800 | 115 (60 Hz) | 1.5 | 0.12 | 0.8 µF min. | 0.65 kg |
| ** A 3M25MHSP | With Pinion | 1/500 | 1800 | 115 (60 Hz) | 1.5 | 0.12 | 0.8 µF min. | 0.65 kg |

*Capacitor supplied with motors.

**To be discontinued when present stock is depleted.

D.C. MOTORS



6 & 12 VOLTS D.C.
REVERSIBLE

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



MATERIAL:

Housing - Stamped Steel
Molded Brush Enclosure

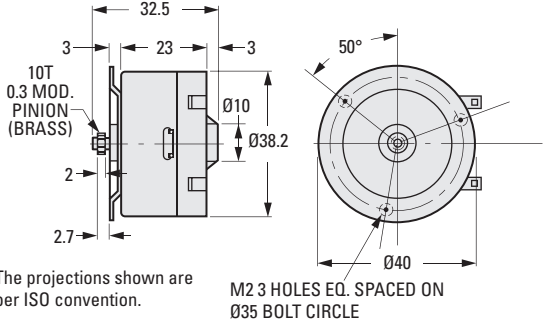
FINISH:

Zinc Chromate

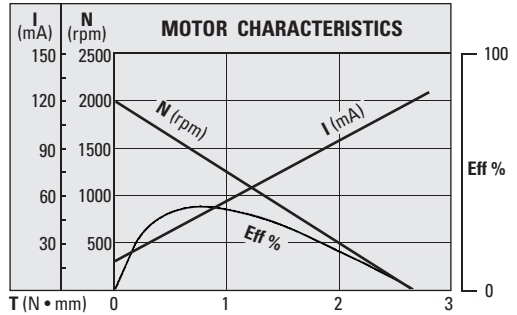
FEATURES:

Low Noise & Vibrations Levels
Lightweight - 64 grams

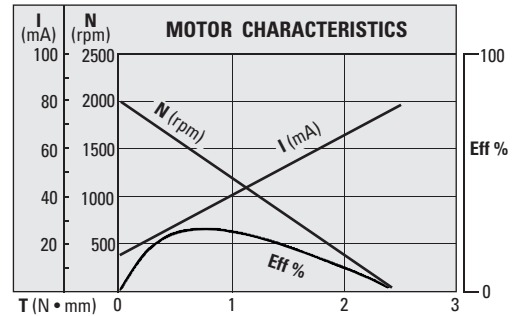
For mating gearheads,
see **A 2G15M...** Series.



6 Volts



12 Volts



METRIC COMPONENT

| Catalog Number | Volts D.C. | No Load | | Rated Load | | | |
|----------------|------------|------------|-----------|-------------|------------|-----------|--------------|
| | | Current mA | Speed rpm | Torque N·mm | Current mA | Speed rpm | Output Watts |
| A 3M15M006P1 | 6 | 20 | 2000 | 0.98 | 60 | 1250 | 0.1 |
| A 3M15M012P1 | 12 | 15 | 2000 | 0.98 | 39 | 1200 | 0.1 |

14-62



1-800-453-1692

www.aboveboardelectronics.com

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INERTIA CONVERSION TABLE

| A \ B | lb _m • ft ² | lbf • ft • s ² or slug-ft ² | lb _m • in ² | lbf • in • s ² | oz _m • in ² | ozf • in • s ² | kg • cm ² | kgf • cm • s ² | g • cm ² | gf • cm • s ² |
|-----------------------------------|-----------------------------------|---|-----------------------------------|---------------------------|-----------------------------------|---------------------------|-------------------------|---------------------------|--------------------------|---------------------------|
| lb _m • ft ² | 1 | 3.108 x 10 ⁻² | 144 | .373 | 2.304 x 10 ³ | 5.968 | 421.40 | 0.4297 | 4.214 x 10 ⁵ | 429.71 |
| lbf • ft • s ² | 32.174 | 1 | 4.633 x 10 ³ | 12 | 7.413 x 10 ⁴ | 192 | 1.356 x 10 ⁴ | 13.825 | 1.356 x 10 ⁷ | 1.383 x 10 ⁴ |
| lb _m • in ² | 6.944 x 10 ⁻³ | 2.158 x 10 ⁻⁴ | 1 | 2.590 x 10 ⁻³ | 16 | 4.144 x 10 ⁻² | 2.926 | 2.984 x 10 ⁻³ | 2.926 x 10 ³ | 2.984 |
| lbf • in • s ² | 2.681 | 8.333 x 10 ⁻² | 386.1 | 1 | 6.177 x 10 ³ | 16 | 1.130 x 10 ³ | 1.152 | 1.130 x 10 ⁶ | 1.152 x 10 ³ |
| oz _m • in ² | 4.34 x 10 ⁻⁴ | 1.349 x 10 ⁻⁵ | 6.25 x 10 ⁻² | 1.619 x 10 ⁻⁴ | 1 | 2.59 x 10 ⁻³ | 0.183 | 1.865 x 10 ⁻⁴ | 182.901 | 0.186 |
| ozf • in • s ² | 0.168 | 5.208 x 10 ⁻³ | 24.13 | 6.25 x 10 ⁻² | 386.088 | 1 | 70.616 | 7.201 x 10 ⁻² | 7.0616 x 10 ⁴ | 72.008 |
| kg • cm ² | 2.373 x 10 ⁻³ | 7.376 x 10 ⁻⁵ | 0.3417 | 8.851 x 10 ⁻⁴ | 5.467 | 1.416 x 10 ⁻² | 1 | 1.0197 x 10 ³ | 1000 | 1.0197 |
| kgf • cm • s ² | 2.327 | 7.233 x 10 ⁻² | 335.109 | 0.8679 | 5.362 x 10 ³ | 13.887 | 980.665 | 1 | 9.807 x 10 ⁵ | 1000 |
| g • cm ² | 2.373 x 10 ⁻⁶ | 7.376 x 10 ⁻⁸ | 3.417 x 10 ⁻⁴ | 8.851 x 10 ⁻⁷ | 5.467 x 10 ⁻³ | 1.416 x 10 ⁻⁵ | 10 ⁻³ | 1.0197 x 10 ⁻⁶ | 1 | 1.0197 x 10 ⁻³ |
| gf • cm • s ² | 2.327 x 10 ⁻³ | 7.233 x 10 ⁻⁵ | 0.3351 | 8.680 x 10 ⁻⁴ | 5.362 | 1.389 x 10 ⁻² | .9807 | 10 ⁻³ | 980.667 | 1 |

NOTE: To convert from A to B multiply by entry in table.

Example: Convert a rotor inertia of 90 g • cm² to ozf • in • sec²
 The multiplier from the table above is 1.416 x 10⁻³
 The new inertia = 90 x 1.416 x 10⁻³ = 1.27 x 10³ ozf • in • sec²

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Mechanical, Electrical and Environmental Specifications

| SIZE 11 | SIZE 14 | SIZE 17 | SIZE HT17 | SIZE 23 | SIZE HT23 | SIZE 34 | SIZE HT34 | SIZE 42 |
|---|---|--|---|--|---|---|---|---|
| Shaft Run-Out mm (inches) | | | | | | | | |
| 0.025 (.001) | 0.013 (.0005) | 0.013 (.0005) | 0.013 (.0005) | 0.025 (.001) | 0.051 (.002) | 0.051 (.002) | 0.051 (.002) | 0.051 (.002) |
| Radial Play mm / N (inch / lbf) | | | | | | | | |
| 0.025 max. @ 4.89 N (.001 max. @ 1.1 lbf) | 0.01 max. @ 4.45 N (.0004 max. @ 1 lbf) | 0.025 max. @ 19.57 N (.001 max. @ 4.4 lbf) | 0.02 max. @ 4.45 N (.0008 max. @ 1 lbf) | 0.025 max. @ 4.45 N (.001 max. @ 1 lbf) | 0.025 max. @ 4.45 N (.001 max. @ 1 lbf) | 0.025 max. @ 4.45 N (.001 max. @ 1 lbf) | 0.025 max. @ 4.89 N (.001 max. @ 1.1 lbf) | 0.025 max. @ 22.24 N (.001 max. @ 5 lbf) |
| End Play mm / N (inch / lb.) | | | | | | | | |
| 0.076 max. @ 9.79 N (.003 max. @ 2.2 lbf) | 0.01 max. @ 8.9 N (.0004 max. @ 2 lbf) | 0.025 max. @ 29.36 N (.001 max. @ 6.6 lbf) | 0.076 max. @ 9.79 N (.003 max. @ 2.2 lbf) | 0.025 max. @ 40.03 N (.001 max. @ 9 lbf) | 0.076 max. @ 9.79 N (.003 max. @ 2.2 lbf) | 0.025 max. @ 66.72 N (.001 max. @ 15 lbf) | 0.076 max. @ 9.79 N (.003 max. @ 2.2 lbf) | 0.025 max. @ 66.72 N (.001 max. @ 15 lbf) |
| Perpendicularity mm (inches) | | | | | | | | |
| 0.051 (.002) | 0.076 (.003) | 0.076 (.003) | 0.076 (.003) | 0.076 (.003) | 0.076 (.003) | 0.076 (.003) | 0.076 (.003) | 0.076 (.003) |
| Concentricity mm (inches) | | | | | | | | |
| 0.051 (.002) | 0.051 (.002) | 0.051 (.002) | 0.051 (.002) | 0.051 (.002) | 0.076 (.003) | 0.051 (.002) | 0.076 (.003) | 0.076 (.003) |
| Operating Temperature Range | | | | | | | | |
| -20°C to 40°C (-4°F to 104°F) | -20°C to 50°C (-4°F to 122°F) | -20°C to 50°C (-4°F to 122°F) | -20°C to 50°C (-4°F to 122°F) | -20°C to 50°C (-4°F to 122°F) | -20°C to 50°C (-4°F to 122°F) | -20°C to 50°C (-4°F to 122°F) | -70°C to 40°C (-94°F to 104°F) | -10°C to 40°C (14°F to 104°F) |
| Insulation Class | | | | | | | | |
| 130°C (266°F) Class B | 130°C (266°F) Class B | 130°C (266°F) Class B | 130°C (266°F) Class B | 130°C (266°F) Class B | 130°C (266°F) Class B | 130°C (266°F) Class B | 130°C (266°F) Class B | 130°C (266°F) Class B |
| Lead Wire Gauge | | | | | | | | |
| 26 AWG | 26 AWG | 26 AWG | 26 AWG | 26 AWG | 22 AWG | 18 AWG | 22 AWG | — |
| Max. Radial Load N (lbf) | | | | | | | | |
| 4.89 (1.1) | 22.24 (5) | 22.24 (5) | 22.24 (5) | 66.72 (15) | 66.72 (15) | 111.21 (25) | 427.03 (96) | 111.21 (25) |
| Max. Thrust Load N (lbf) | | | | | | | | |
| 9.79 (2.2) | 13.34 (3) | 13.34 (3) | 13.34 (3) | 111.21 (25) | 111.21 (25) | 222.41 (50) | 800.68 (180) | 222.41 (50) |

DESIGN TIPS:

- Series-connect lead wires for best torque at low speeds.
- Center tap to end or parallel-connect lead wires for best torque at higher speeds.
- Keep motor case temperature below 100°C. This can be achieved by lowering the motor current or limiting the duty cycle.
- Allow sufficient time to accelerate load.
- Size motor with 100% safety factor for required torque and speed.
- Do not disassemble motors. A significant reduction in motor performance will result.
- Do not machine shafts without consulting Sterling Instrument.
- Do not disconnect motor from drive while in operation.
- Do not use holding torque/detent torque of motor as fail-safe brake.

MOTOR INSTALLATION TIPS:

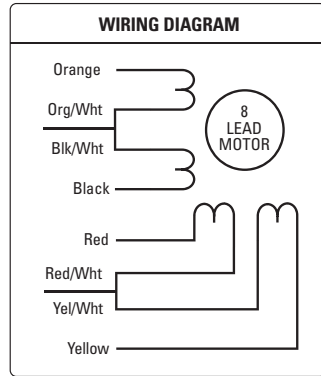
- Mount the motor securely against a surface with good thermal conductivity such as steel or aluminum.
- Properly align the motor with the load using a flexible coupling.
- Protect the motor shaft from excessive thrust, overhung and shock loads.



**8 Lead Wire Configuration
Unipolar Drive**

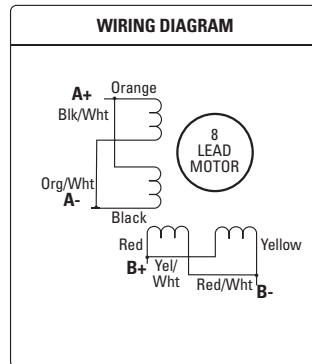
| STEP TABLE | | | | |
|------------|--------|-------|-----|--------|
| Step | Orange | Black | Red | Yellow |
| 0 | ON | OFF | ON | OFF |
| 1 | OFF | ON | ON | OFF |
| 2 | OFF | ON | OFF | ON |
| 3 | ON | OFF | OFF | ON |
| 4 | ON | OFF | ON | OFF |

Connect orange/white, black/white, red/white, and yellow/white to plus (+) voltage.
UNIPOLAR DRIVE ONLY!



**8 Lead Wire Configuration
Bipolar Drive / Parallel Connected**

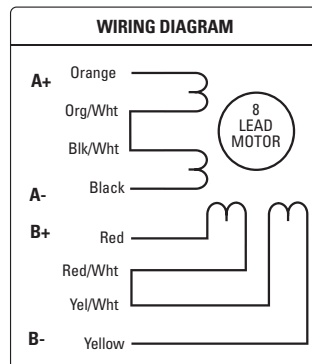
| STEP TABLE | | | | |
|------------|----|----|----|----|
| Step | A+ | A- | B+ | B- |
| 0 | + | - | + | - |
| 1 | - | + | + | - |
| 2 | - | + | - | + |
| 3 | + | - | - | + |
| 4 | + | - | + | - |



**8 Lead Wire Configuration
Bipolar Drive / Series Connected**

| STEP TABLE | | | | |
|------------|--------|-------|-----|--------|
| Step | Orange | Black | Red | Yellow |
| 0 | + | - | + | - |
| 1 | - | + | + | - |
| 2 | - | + | - | + |
| 3 | + | - | - | + |
| 4 | + | - | + | - |

Note: If wire configuration is setup step 0–4, shaft will turn cw (facing mounting end). If setup step 4–0, shaft will turn ccw (facing mounting end).



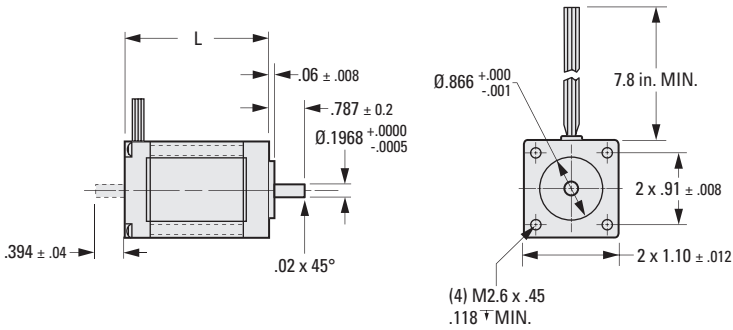
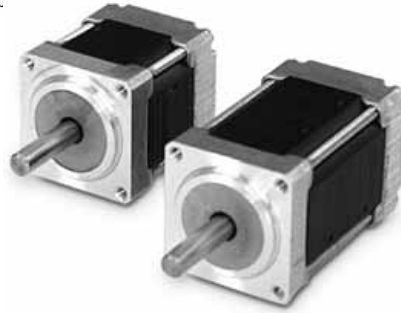
1.8° STEP ANGLE
SINGLE AND DOUBLE-ENDED SHAFTS

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> SPECIFICATIONS:

Maximum Drive Voltage - 24V DC
Leads - 4 (see previous page)
Optimized for microstep.



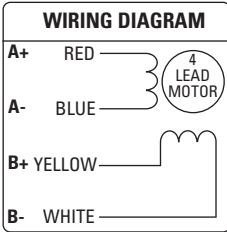
INCH COMPONENT

| Catalog Number * | Motor Conn. | L | Min. Holding Torque ozf in. | Phase Current amps | Phase Inductance mH $\pm 20\%$ | Phase Resistance ohms $\pm 10\%$ | Voltage V DC | Rotor Inertia oz. in. ² | Weight lb. |
|------------------|-------------|------|-----------------------------|--------------------|--------------------------------|----------------------------------|--------------|------------------------------------|------------|
| S9111M-D13 | Bipolar | 1.32 | 7.0 | 1.0 | 1.4 | 1.4 | 1.4 | .044 | .26 |
| S9111M-S13 | Bipolar | 1.32 | 7.0 | 1.0 | 1.4 | 1.4 | 1.4 | .044 | .26 |
| S9111M-D19 | Bipolar | 1.87 | 15.0 | 1.0 | 2.6 | 2.0 | 2.0 | .098 | .39 |
| S9111M-S19 | Bipolar | 1.87 | 15.0 | 1.0 | 2.6 | 2.0 | 2.0 | .098 | .39 |

* Catalog Numbers with **D** in the suffix have **double shafts**; **S** in the suffix denotes **single shaft**.



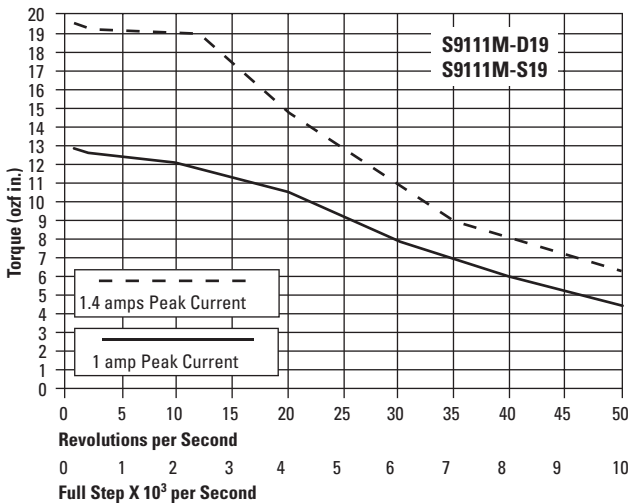
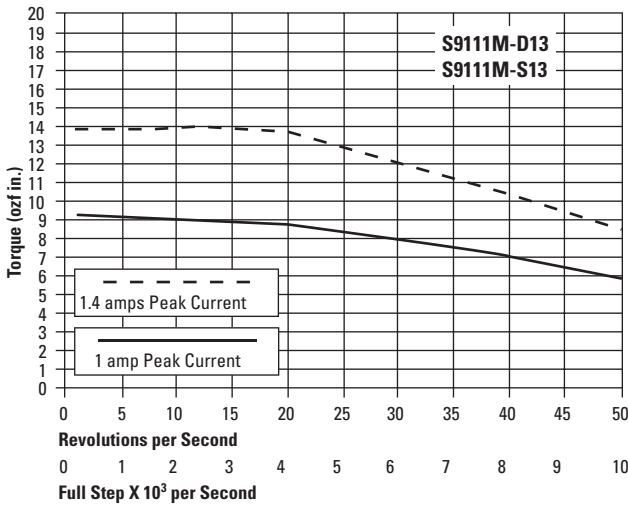
4 Lead Wire Configuration - Bipolar Drive



STEP TABLE

| STEP | RED | BLUE | YELLOW | WHITE |
|------|-----|------|--------|-------|
| 0 | + | - | + | - |
| 1 | - | + | + | - |
| 2 | - | + | - | + |
| 3 | + | - | - | + |
| 4 | + | - | + | - |

NOTE: If wire configuration is setup step 0-4, shaft will turn cw (facing mounting end).
If setup step 4-0, shaft will turn ccw (facing mounting end).



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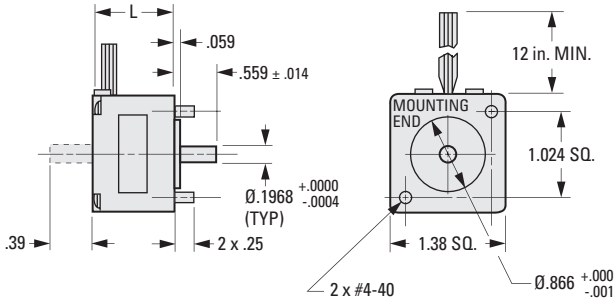
1.8° STEP ANGLE
SINGLE- OR DOUBLE-ENDED SHAFTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> SPECIFICATIONS:

- Maximum Drive Voltage - 80V DC
- Leads - 4 (see previous page)
- Optimized for microstepping



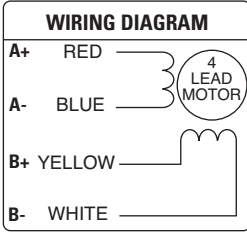
INCH COMPONENT

| Catalog Number * | Motor Conn. | L | Min. Holding Torque ozf in. | Phase Current amps | Phase Inductance mH ± 20% | Phase Resistance ohms ± 10% | Voltage V DC | Rotor Inertia oz. in. ² | Weight lb. |
|------------------|-------------|------|-----------------------------|--------------------|---------------------------|-----------------------------|--------------|------------------------------------|------------|
| S9114M-D10 | Bipolar | 1.00 | 8 | .35 | 8.0 | 8.5 | 3.2 | .051 | .33 |
| S9114M-S10 | Bipolar | 1.00 | 8 | .35 | 8.0 | 8.5 | 3.2 | .051 | .33 |
| S9114M-D16 | Bipolar | 1.57 | 26 | 1.00 | 5.5 | 4.3 | 4.8 | .109 | .47 |
| S9114M-S16 | Bipolar | 1.57 | 26 | 1.00 | 5.5 | 4.3 | 4.8 | .109 | .47 |

* Catalog Numbers with **D** in the suffix have **double shafts**; **S** in the suffix denotes **single shaft**.



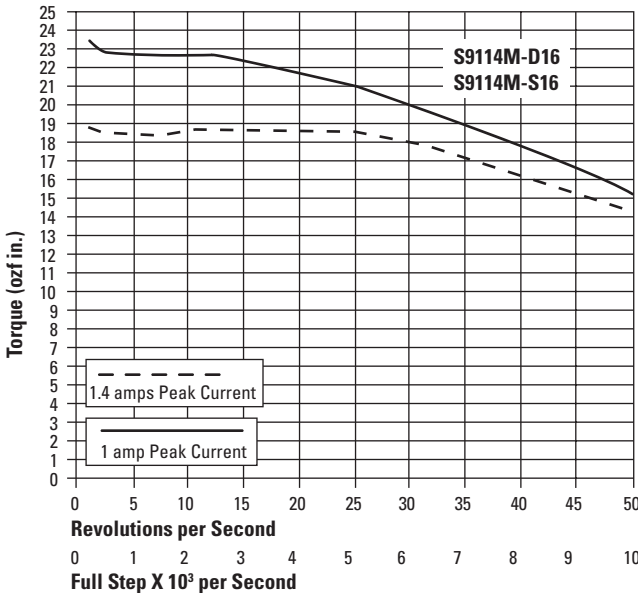
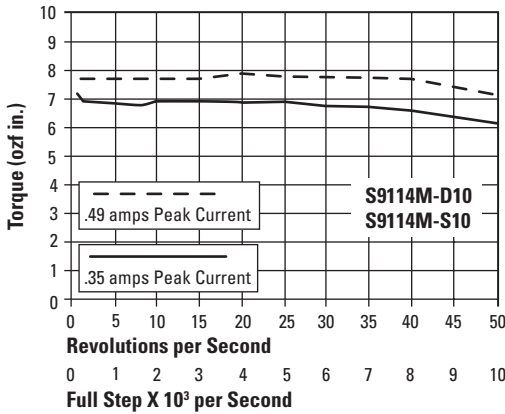
4 Lead Wire Configuration - Bipolar Drive



STEP TABLE

| STEP | RED | BLUE | YELLOW | WHITE |
|------|-----|------|--------|-------|
| 0 | + | - | + | - |
| 1 | - | + | + | - |
| 2 | - | + | - | + |
| 3 | + | - | - | + |
| 4 | + | - | + | - |

NOTE: If wire configuration is setup step 0-4, shaft will turn cw (facing mounting end).
If setup step 4-0, shaft will turn ccw (facing mounting end).



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.9 & 1.8° STEP ANGLES
SINGLE- OR DOUBLE-ENDED SHAFTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> SPECIFICATIONS:

Maximum Drive Voltage - 80V DC
Leads - 8 (see wiring diagram page)
Catalog number **S9117MMS15**
is a 4 lead motor.
Optimized for microstepping

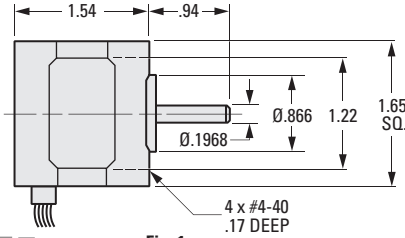


Fig. 1

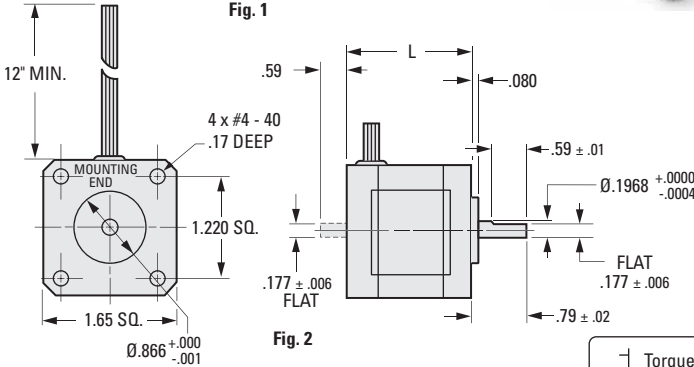
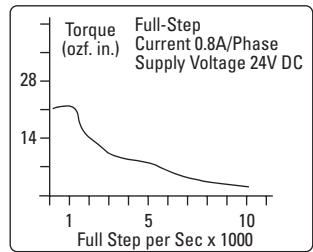


Fig. 2



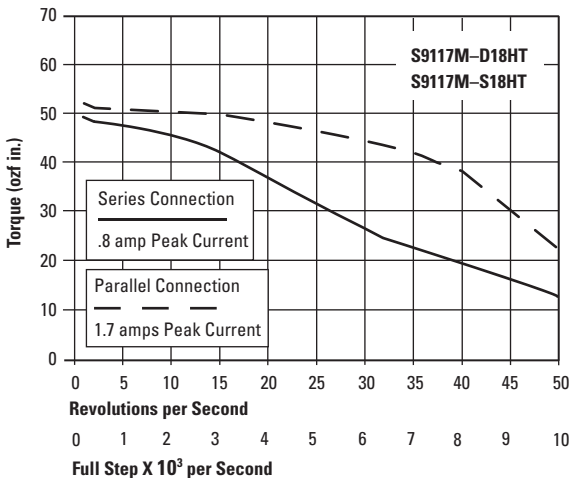
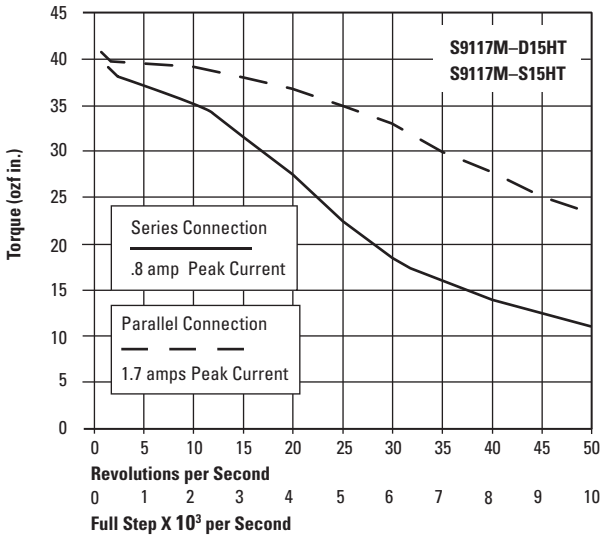
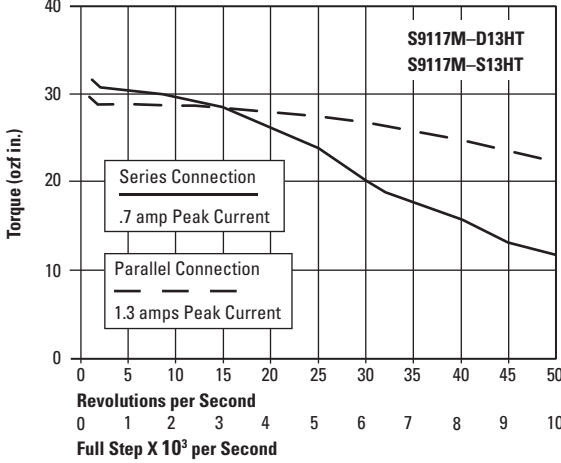
INCH COMPONENT

| Catalog Number * | | Motor Conn. | L | Min. Holding Torque ozf in. | Step Angle | Phase Current amps | Phase Inductance mH ± 20% | Phase Resistance ohms ± 10% | Voltage V DC | Rotor Inertia oz. in. ² | Weight lb. |
|--|----------|-------------|------|-----------------------------|------------|--------------------|---------------------------|-----------------------------|--------------|------------------------------------|------------|
| Fig No. 1 | | | | | | | | | | | |
| S9117MMS15 | | Parallel | 1.54 | 17.0 | .9 | 1.40 | 4.6 | 2.4 | 3.4 | .13 | .55 |
| Fig No. 2 | | | | | | | | | | | |
| S9117M-D13HT S9117M-S13HT | Series | 1.3 | 31.4 | 1.8 | .67 | 11.2 | 8.4 | 5.7 | .19 | .44 | |
| | Parallel | 1.3 | 31.4 | 1.8 | 1.34 | 2.8 | 2.1 | 2.8 | .19 | .44 | |
| | Unipolar | 1.3 | 22.2 | 1.8 | .95 | 2.8 | 4.2 | 4.0 | .19 | .44 | |
| S9117M-D15HT S9117M-S15HT | Series | 1.54 | 51.0 | 1.8 | .85 | 14.4 | 6.6 | 5.7 | .29 | .57 | |
| | Parallel | 1.54 | 51.0 | 1.8 | 1.70 | 3.6 | 1.7 | 2.8 | .29 | .57 | |
| | Unipolar | 1.54 | 36.1 | 1.8 | 1.20 | 3.6 | 3.3 | 4.0 | .29 | .57 | |
| S9117M-D18HT S9117M-S18HT | Series | 1.85 | 62.8 | 1.8 | .85 | 12.0 | 6.6 | 5.7 | .37 | .73 | |
| | Parallel | 1.85 | 62.8 | 1.8 | 1.70 | 3.0 | 1.7 | 2.8 | .37 | .73 | |
| | Unipolar | 1.85 | 44.4 | 1.8 | 1.20 | 3.0 | 3.3 | 4.0 | .37 | .73 | |

* Catalog Numbers with **D** in the suffix have **double shafts**; **S** in the suffix denotes **single shaft**.
Fig. 1 only available with a single shaft.

MAXIMUM THEORETICAL TORQUE CURVES
DRIVE SETTING 80V DC

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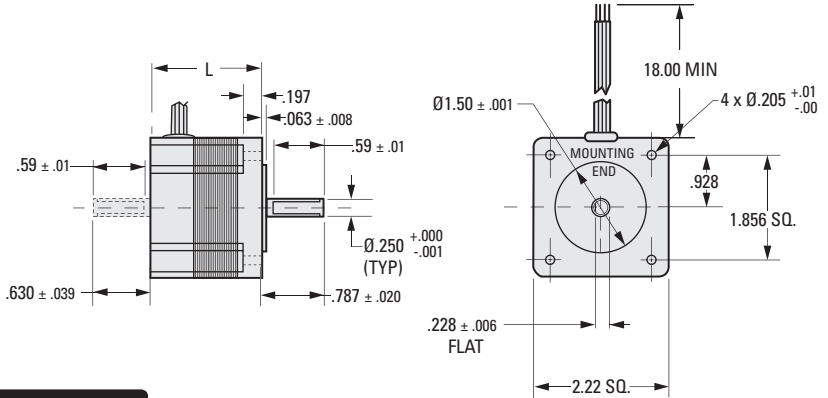
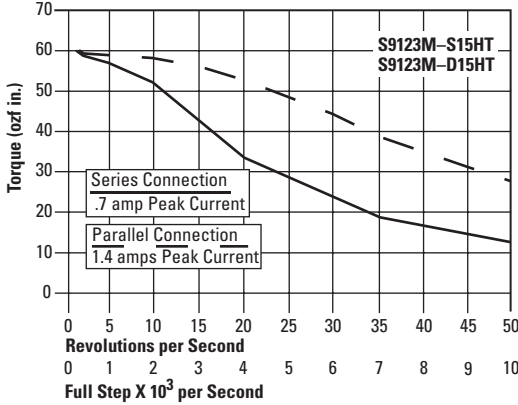
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1.8° STEP ANGLE
SINGLE- OR DOUBLE-ENDED SHAFTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM

> SPECIFICATIONS:

Maximum Drive Voltage - 80V DC
Leads - 8 (see wiring diagram page)
Optimized for microstepping



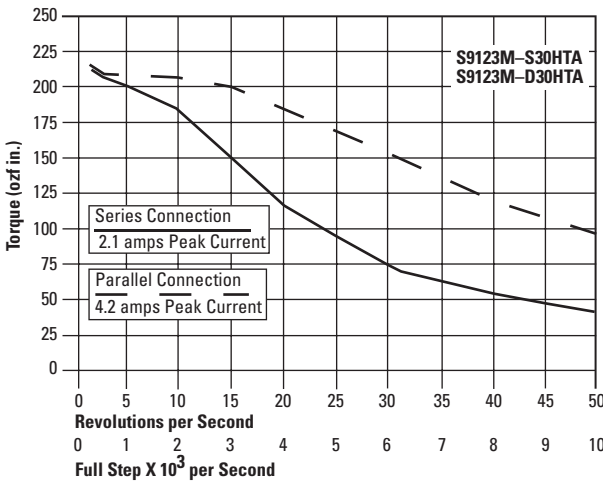
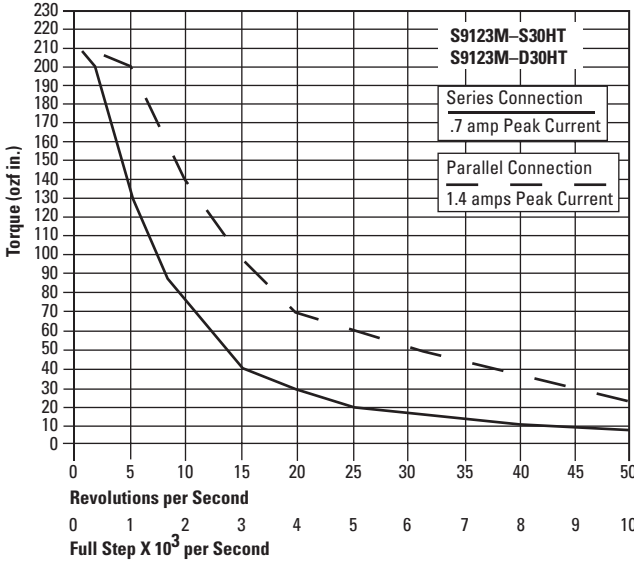
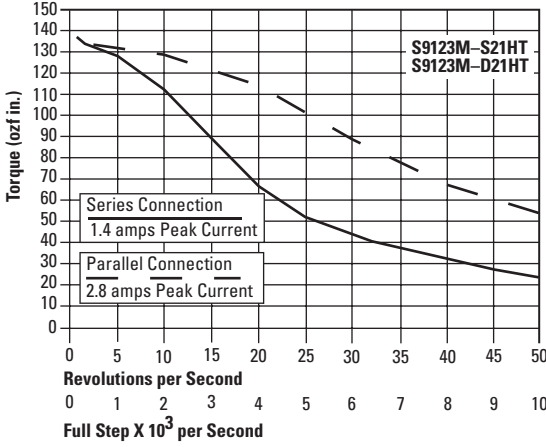
INCH COMPONENT

| Catalog Number * | Motor Conn. | L | Min. Holding Torque ozf in. | Phase Current amps | Phase Inductance mH ± 20% | Phase Resistance ohms ± 10% | Voltage V DC | Rotor Inertia oz. in. ² | Weight lb. |
|--------------------------------|-------------|------|-----------------------------|--------------------|---------------------------|-----------------------------|--------------|------------------------------------|------------|
| S9123M-D15HT S9123M-S15HT | Series | 1.54 | 76.6 | .71 | 21.6 | 10.4 | 7.4 | .66 | 1.00 |
| | Parallel | 1.54 | 76.6 | 1.41 | 5.4 | 2.6 | 3.7 | .66 | 1.00 |
| S9123M-D21HT S9123M-S21HT | Unipolar | 1.54 | 54.2 | 1.00 | 5.4 | 5.2 | 5.2 | .66 | 1.00 |
| | Series | 2.13 | 177.0 | 1.41 | 10.0 | 3.6 | 5.1 | 1.64 | 1.54 |
| S9123M-D30HT S9123M-S30HT | Parallel | 2.13 | 177.0 | 2.83 | 2.5 | .9 | 2.5 | 1.64 | 1.54 |
| | Unipolar | 2.13 | 125.0 | 2.00 | 2.5 | 1.8 | 3.6 | 1.64 | 1.54 |
| S9123M-D30HTA S9123M-S30HTA | Series | 2.99 | 264.0 | .71 | 56.0 | 16.4 | 11.6 | 2.62 | 2.20 |
| | Parallel | 2.99 | 264.0 | 1.41 | 14.0 | 4.1 | 5.8 | 2.62 | 2.20 |
| | Unipolar | 2.99 | 187.0 | 1.00 | 14.0 | 8.2 | 8.2 | 2.62 | 2.20 |
| S9123M-D30HTA S9123M-S30HTA | Series | 2.99 | 264.0 | 2.12 | 6.4 | 2.0 | 4.2 | 2.62 | 2.20 |
| | Parallel | 2.99 | 264.0 | 4.24 | 1.6 | .5 | 2.1 | 2.62 | 2.20 |
| | Unipolar | 2.99 | 187.0 | 3.00 | 1.6 | 1.0 | 3.0 | 2.62 | 2.20 |

*Catalog Numbers with D in the suffix have double shafts; S in the suffix denotes single shaft.

MAXIMUM THEORETICAL TORQUE CURVES
DRIVE SETTING 80V DC

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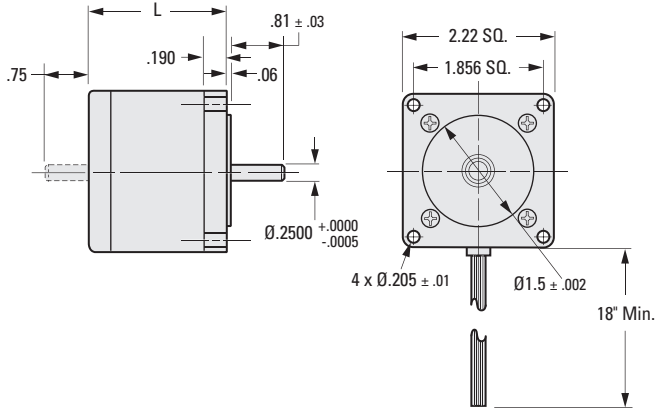
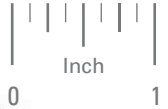
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1.8° STEP ANGLE
SINGLE- OR DOUBLE-ENDED SHAFTS

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> SPECIFICATIONS:

- Maximum Drive Voltage - 160V DC
- Leads - 8 (see wiring diagram page)
- Optimized for microstepping



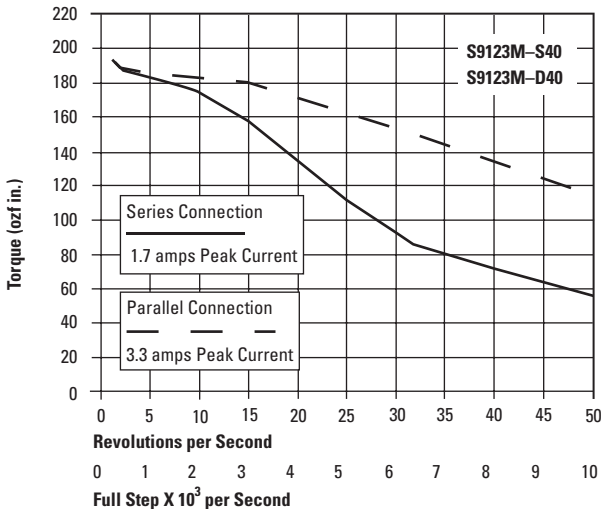
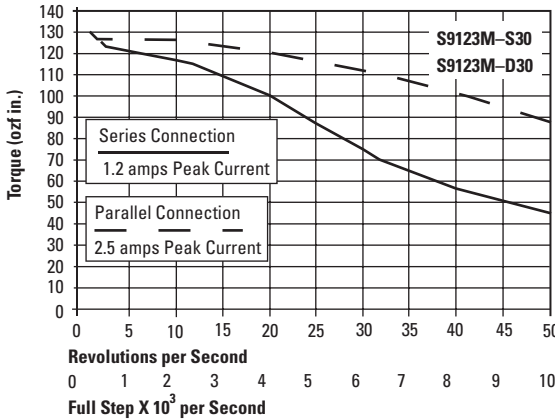
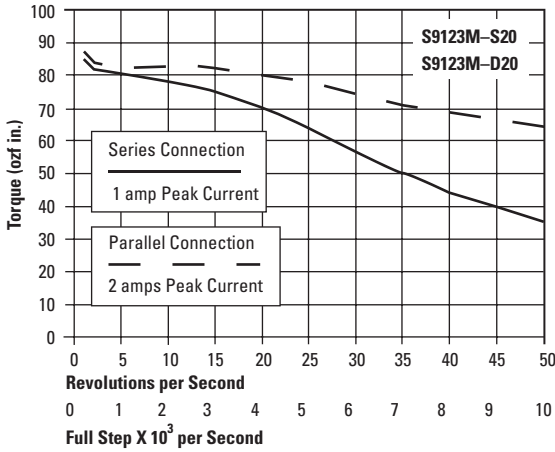
INCH COMPONENT

| Catalog Number * | Motor Conn. | L | Min. Holding Torque ozf in. | Phase Current amps | Phase Inductance mH ± 20% | Phase Resistance ohms ± 10% | Voltage V DC | Rotor Inertia oz. in. ² | Weight lb. |
|--------------------------|-------------|---|-----------------------------|--------------------|---------------------------|-----------------------------|--------------|------------------------------------|------------|
| S9123M-D20 S9123M-S20 | Series | 2 | 74.9 | .99 | 17.2 | 5.00 | 4.9 | .55 | 1.17 |
| | Parallel | 2 | 74.9 | 1.98 | 4.3 | 1.30 | 2.5 | .55 | 1.17 |
| | Unipolar | 2 | 69.0 | 1.40 | 4.3 | 2.50 | 3.5 | .55 | 1.17 |
| S9123M-D30 S9123M-S30 | Series | 3 | 141.0 | 1.26 | 18.8 | 4.60 | 5.9 | 1.14 | 2.00 |
| | Parallel | 3 | 141.0 | 2.52 | 4.7 | 1.20 | 3.0 | 1.14 | 2.00 |
| | Unipolar | 3 | 100.0 | 1.78 | 4.7 | 2.30 | 4.2 | 1.14 | 2.00 |
| S9123M-D40 S9123M-S40 | Series | 4 | 212.0 | 1.75 | 16.8 | 3.30 | 5.7 | 1.72 | 2.80 |
| | Parallel | 4 | 212.0 | 3.29 | 4.2 | .80 | 2.8 | 1.72 | 2.80 |
| | Unipolar | 4 | 150.0 | 2.47 | 4.2 | 1.63 | 4.0 | 1.72 | 2.80 |

*Catalog Numbers with **D** in the suffix have **double shafts**; **S** in the suffix denotes **single shaft**.

MAXIMUM THEORETICAL TORQUE CURVES
DRIVE SETTING 160V DC

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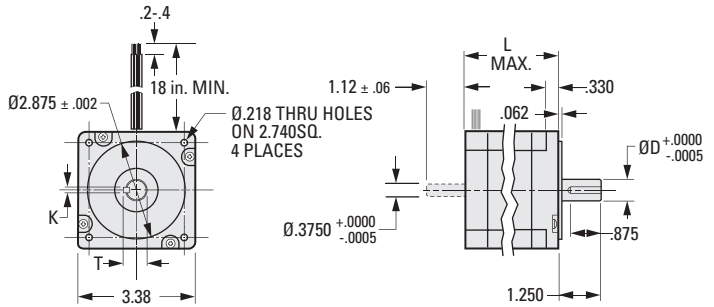
1.8° STEP ANGLE
SINGLE- OR DOUBLE-ENDED SHAFTS
HEAVY-DUTY

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► SPECIFICATIONS:

Maximum Drive Voltage - 160V DC
Leads - 8 (see wiring diagram page)
Optimized for microstepping

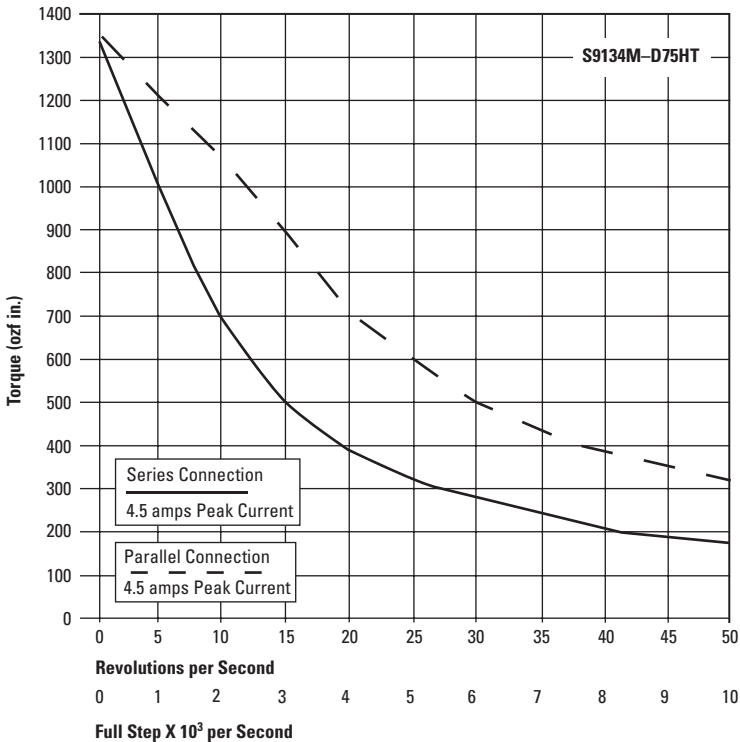
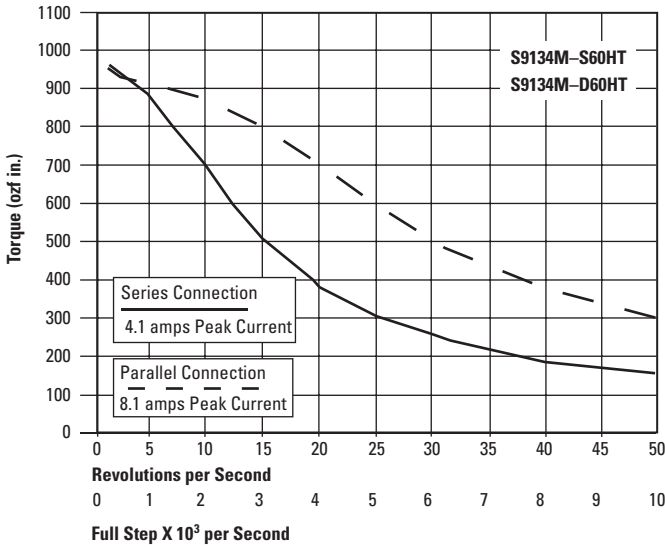


INCH COMPONENT

| Catalog Number * Δ | Motor Conn. | Min. Holding Torque ozf in. | Phase Current amps | Phase Inductance mH $\pm 20\%$ | Phase Resistance ohms $\pm 10\%$ | Voltage | Rotor Inertia oz. in. ² |
|------------------------------|-------------|-----------------------------|--------------------|--------------------------------|----------------------------------|---------|------------------------------------|
| S9134M-D60HT S9134M-S60HT | Series | 1200 | 4.1 | 10.3 | 1.03 | 4.2 | 14.6 |
| | Parallel | 1200 | 8.1 | 2.6 | .26 | 2.1 | 14.6 |
| | Unipolar | 850 | 5.7 | 2.6 | .52 | 2.9 | 14.6 |
| S9134M-D75HT | Series | 1845 | 4.5 | 13.6 | 1.06 | 4.8 | 21.9 |
| | Parallel | 1845 | 9.0 | 3.4 | .26 | 2.3 | 21.9 |
| | Unipolar | 1305 | 6.3 | 3.4 | 1.53 | 9.6 | 21.9 |

*Catalog Numbers with **D** in the suffix have **double shafts**; **S** in the suffix denotes **single shaft**.
 Δ To be discontinued when present stock is depleted.

| Catalog Number Ref. | D Dia. | K | T | L Max. | Weight g |
|---------------------|--------|-------|------|--------|----------|
| S9134M-D60HT | .5000 | .1250 | .555 | 4.65 | 8.4 |
| S9134M-S60HT | .5000 | .1250 | .555 | 4.65 | 8.4 |
| S9134M-D75HT | .6250 | .1875 | .705 | 6.17 | 11.9 |



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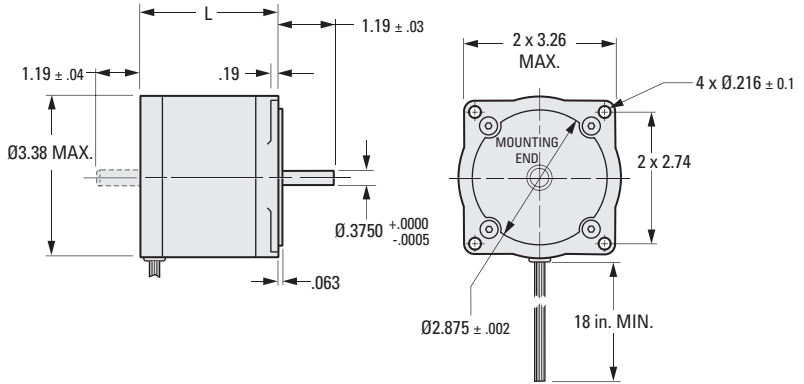
1.8° STEP ANGLE
SINGLE- OR DOUBLE-ENDED SHAFTS

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> SPECIFICATIONS:

- Maximum Drive Voltage - 160V DC
- Leads - 8 (see wiring diagram page)
- Optimized for microstepping



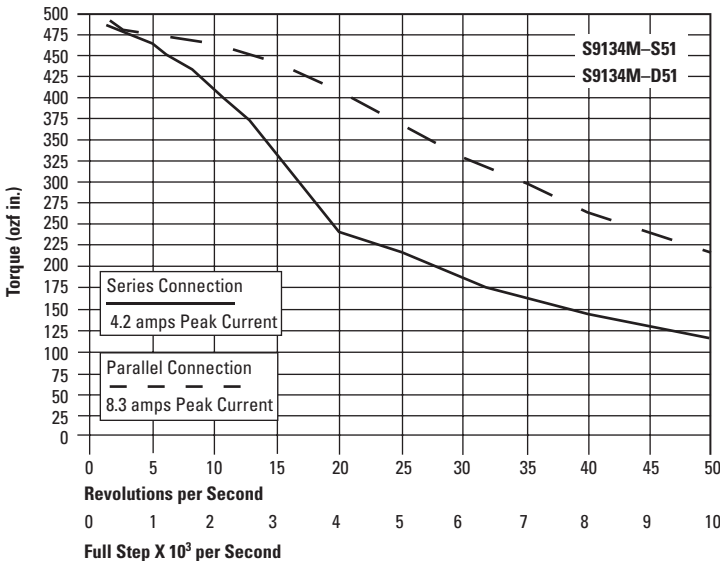
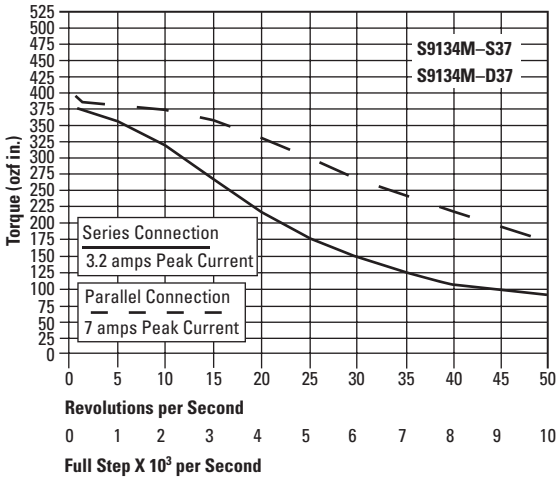
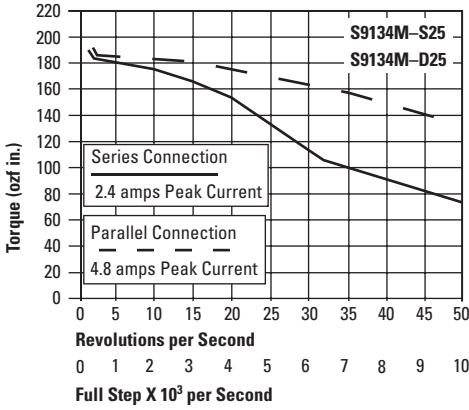
INCH COMPONENT

| Catalog Number * | Motor Conn. | L | Min. Holding Torque ozf in. | Phase Current amps | Phase Inductance mH $\pm 20\%$ | Phase Resistance ohms $\pm 10\%$ | Voltage V DC | Rotor Inertia oz. in. ² | Weight lb. |
|--------------------------|-------------|-----|-----------------------------|--------------------|--------------------------------|----------------------------------|--------------|------------------------------------|------------|
| S9134M-D25 S9134M-S25 | Series | 2.5 | 212 | 2.42 | 10.0 | 1.3 | 3.0 | 3.66 | 3.0 |
| | Parallel | 2.5 | 212 | 4.84 | 2.5 | .3 | 1.5 | 3.66 | 3.0 |
| | Unipolar | 2.5 | 150 | 3.42 | 2.5 | .6 | 2.1 | 3.66 | 3.0 |
| S9134M-D37 S9134M-S37 | Series | 3.7 | 424 | 3.24 | 11.6 | 1.0 | 3.5 | 6.72 | 5.4 |
| | Parallel | 3.7 | 424 | 7.07 | 2.9 | .3 | 1.8 | 6.72 | 5.4 |
| | Unipolar | 3.7 | 300 | 5.00 | 2.9 | .5 | 2.5 | 6.72 | 5.4 |
| S9134M-D51 S9134M-S51 | Series | 5.1 | 636 | 4.17 | 10.4 | .8 | 3.5 | 10.2 | 7.7 |
| | Parallel | 5.1 | 636 | 8.34 | 2.6 | .2 | 1.8 | 10.2 | 7.7 |
| | Unipolar | 5.1 | 450 | 5.90 | 2.6 | .4 | 2.5 | 10.2 | 7.7 |

*Catalog Numbers with **D** in the suffix have **double shafts**; **S** in the suffix denotes **single shaft**.

MAXIMUM THEORETICAL TORQUE CURVES
DRIVE SETTING 160V DC

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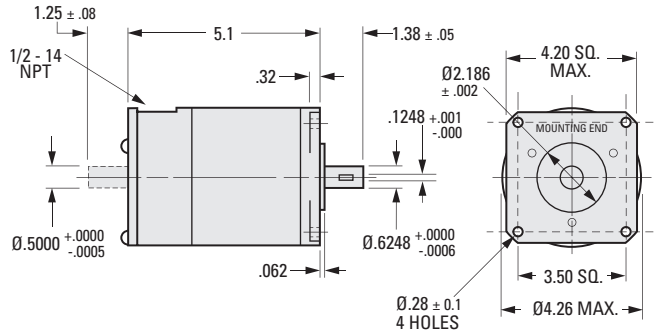
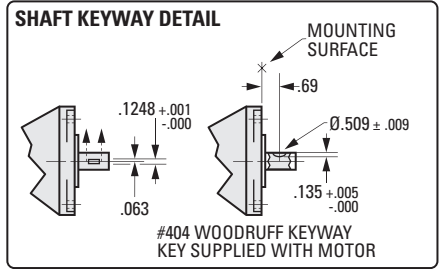
1.8° STEP ANGLE
SINGLE- OR DOUBLE-ENDED SHAFTS

PHONE: 516.328.3300 • FAX: 516.326.8827 • WWW.SDP-SI.COM



> SPECIFICATIONS:

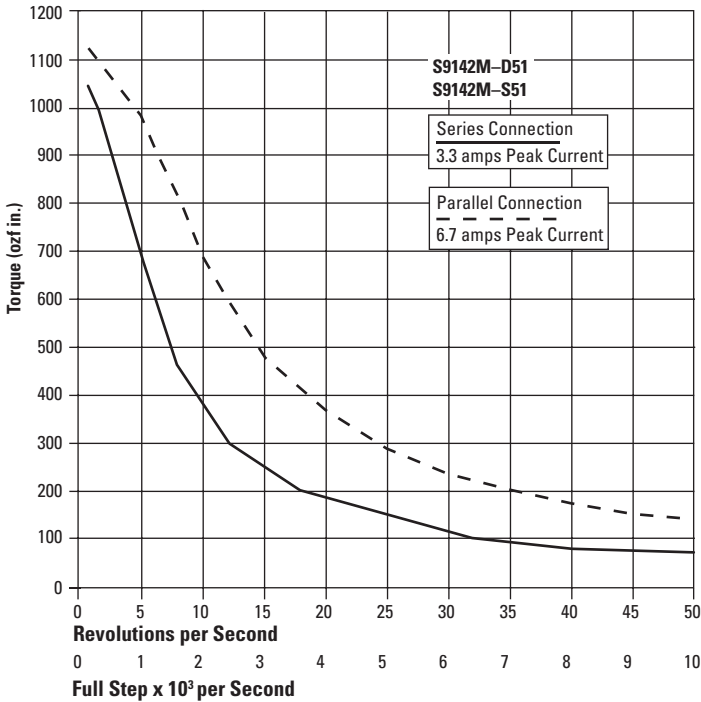
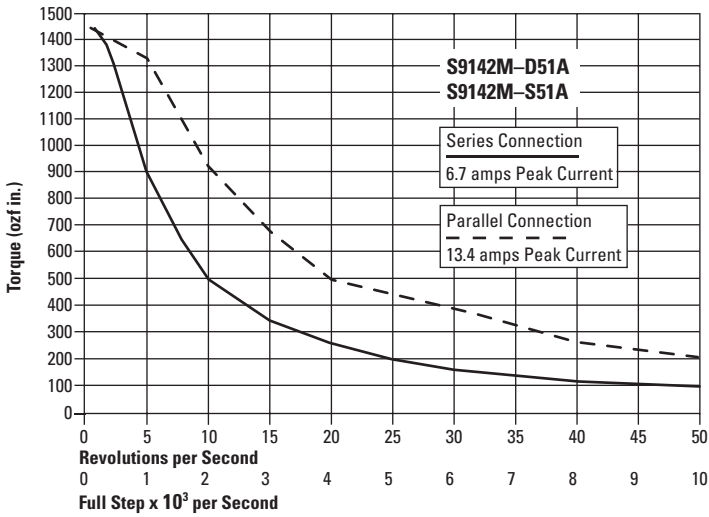
Maximum Drive Voltage - 160V DC
Leads - 8 (see wiring diagram page)
Optimized for microstepping



INCH COMPONENT

| Catalog Number * | Motor Conn. | Min. Holding Torque ozf in. | Phase Current amps | Phase Inductance mH ± 20% | Phase Resistance ohms ± 10% | Voltage V DC | Rotor Inertia oz. in. ² | Weight lb. |
|----------------------------|-------------|-----------------------------|--------------------|---------------------------|-----------------------------|--------------|------------------------------------|------------|
| S9142M-D51A S9142M-S51A | Series | 1591 | 6.70 | 7.6 | .60 | 3.8 | 49.2 | 18.3 |
| | Parallel | 1591 | 13.40 | 1.9 | .10 | 1.9 | 49.2 | 18.3 |
| | Unipolar | 1125 | 9.50 | 1.9 | .28 | 2.7 | 49.2 | 18.3 |
| S9142M-D51 S9142M-S51 | Series | 1591 | 3.32 | 35.2 | 2.00 | 6.6 | 49.2 | 18.3 |
| | Parallel | 1591 | 6.65 | 8.8 | .50 | 3.3 | 49.2 | 18.3 |
| | Unipolar | 1125 | 4.70 | 8.8 | 1.00 | 4.7 | 49.2 | 18.3 |

*Catalog Numbers with **D** in the suffix have **double shafts**; **S** in the suffix denotes **single shaft**.



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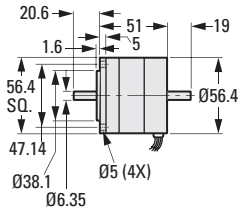


Fig. 1

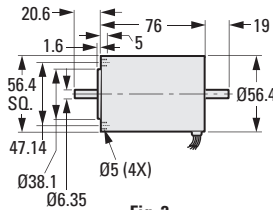


Fig. 2

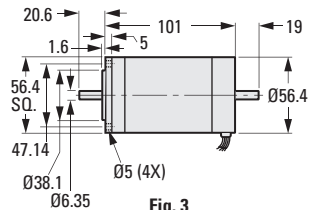


Fig. 3

| SPECIFICATIONS | Catalog Number | | |
|------------------------|-------------------------|-------------------------|-------------------------|
| | HL2100M473020 | HL2100M473030 | HL2100M473040 |
| Figure Number | 1 | 2 | 3 |
| Holding Torque | 40 N • cm | 88 N • cm | 106 N • cm |
| Step Angle | 1.8° | 1.8° | 1.8° |
| Coil Resistance | 0.72 ohm | 1 ohm | 1 ohm |
| Coil Inductance | 1 mH | 1.9 mH | 2.2 mH |
| Coil Current, Series | 1.9A | 2.0A | 2.4A |
| Coil Current, Parallel | 3.8A | 4.0A | 4.8A |
| Insulation, Class B | Max. 130°C | Max. 130°C | Max. 130°C |
| Radial Load | Max. 33 N | Max. 33 N | Max. 33 N |
| Rotor Inertia | 110 g • cm ² | 234 g • cm ² | 320 g • cm ² |
| Number of Leads | 8 | 8 | 8 |
| Weight | 0.54 kg | 1 kg | 1.2 kg |

SPEED vs. TORQUE CHARACTERISTICS

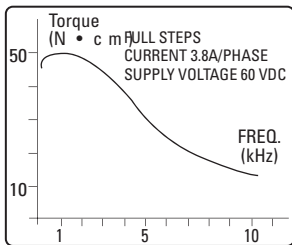


Fig. 1

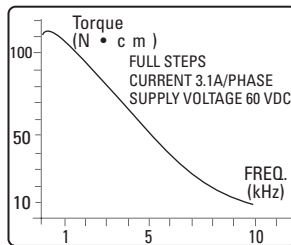


Fig. 2

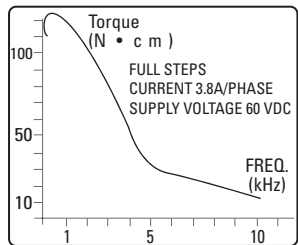


Fig. 3

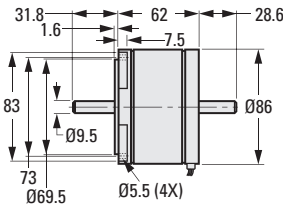


Fig. 1

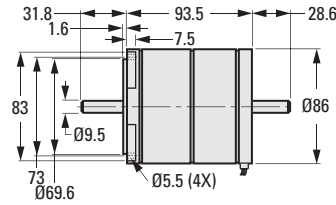


Fig. 2

| SPECIFICATIONS | Catalog Number | |
|------------------------|-------------------------|--------------------------|
| | HL2100M473050 | HL2100M473061 |
| Figure Number | 1 | 2 |
| Holding Torque | 123 N • cm | 350 N • cm |
| Step Angle | 1.8° | 1.8° |
| Coil Resistance | 0.46 ohm | 0.39 ohm |
| Coil Inductance | 1.5 mH | 1.5 mH |
| Coil Current, Series | 2.9A | 6A |
| Coil Current, Parallel | 5.9A | 12A |
| Insulation, Class B | Max. 130°C | Max. 130°C |
| Radial Load | Max. 43 N | Max. 43 N |
| Rotor Inertia | 560 g • cm ² | 1100 g • cm ² |
| Number of Leads | 8 | 8 |
| Weight | 1.5 kg | 2.6 kg |

SPEED vs. TORQUE CHARACTERISTICS

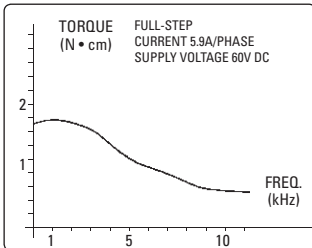


Fig. 1

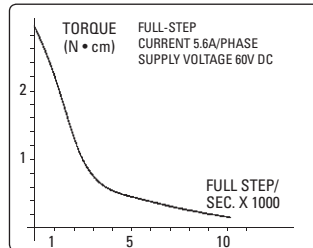


Fig. 2

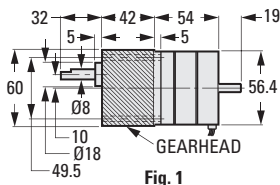
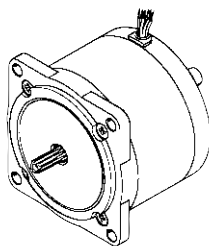
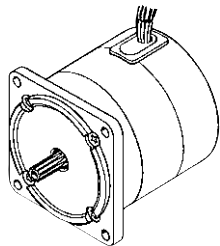


Fig. 1

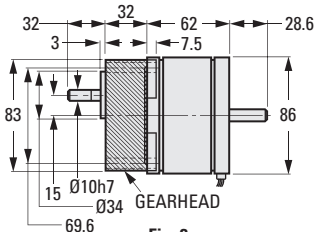


Fig. 2

See table at right if gearhead is desired.

GEARHEAD SELECTION TABLE

| SPECIFICATIONS | Catalog Number | |
|------------------------|-------------------------|-------------------------|
| | HL2100M473110 | HL2100M473120 |
| Figure Number | 1 | 2 |
| Holding Torque | 58 N • cm | 123 N • cm |
| Step Angle | 1.8° | 1.8° |
| Coil Resistance | 5 ohm | 0.75 ohm |
| Coil Inductance | 9 mH | 3.9 mH |
| Coil Current, Series | 0.85A | 2.8A |
| Coil Current, Parallel | 1.7A | 5.6A |
| Insulation, Class B | Max. 130°C | Max. 130°C |
| Radial Load | Max. 33 N | Max. 43 N |
| Rotor Inertia | 135 g • cm ² | 560 g • cm ² |
| Number of Leads | 8 | 8 |
| Weight | 1 kg | 2.15 kg |

| Catalog Number | Gear Ratio | Max. Torque N • cm | Max. Axial Load kg |
|--|------------|--------------------|--------------------|
| For use with motor HL2100M473110 (Fig. 1) | | | |
| HL2700M473216 | 1:5 | 16 | 8 |
| HL2700M473210 | 1:9 | 29 | 8 |
| HL2700M473212 | 1:25 | 73 | 15 |
| HL2700M473214 | 1:50 | 132 | 15 |
| For use with motor HL2100M473120 (Fig. 2) | | | |
| HL2700M473220 | 1:5 | 64 | 15 |
| HL2700M473222 | 1:9 | 116 | 15 |
| HL2700M473224 | 1:25 | 292 | 30 |
| HL2700M473226 | 1:50 | 528 | 30 |

NOTE: There is approximately 2° of backlash at the output shaft; therefore these gearheads are not recommended for high-precision applications.

SPEED vs TORQUE CHARACTERISTICS

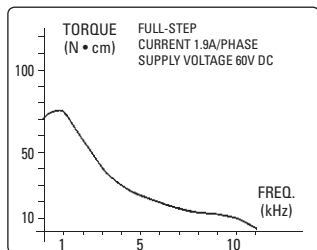


Fig. 1

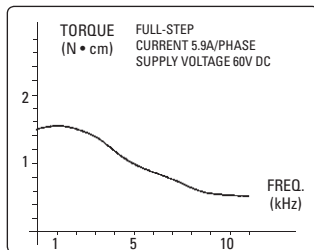
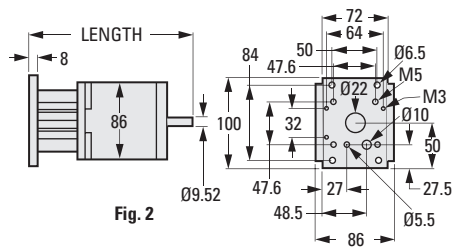
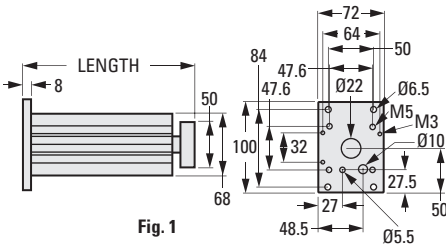


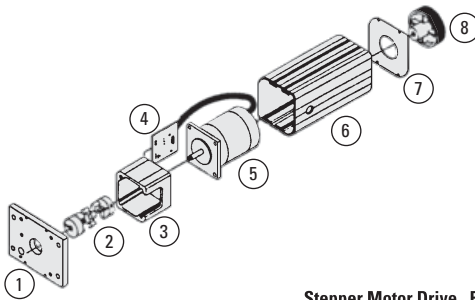
Fig. 2

1.8° STEP ANGLE
COMPLETE ASSEMBLY WITH 6.35 mm SHAFT COUPLINGS

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The projections shown are per ISO convention.



1. Mounting Plate
2. Coupling 6.35 mm Bore
3. Coupling Housing
4. P.C. Board for Motor Power and Home Switch
5. Stepper Motor
6. Motor Housing
7. Housing Cover
8. Knob

Stepper Motor Drive, Fig. 1

METRIC COMPONENT

| Catalog Number | Motor (see pages 14-82 and 14-83 for data) | Fig. No. | Holding Torque N • cm | Length mm | Weight kg |
|----------------|--|-------------|-----------------------------|--------------|--------------|
| HL2600M210000 | HL2100M473020 | 1 | 41 | 142 | 1 |
| HL2600M210001 | HL2100M473030 | 1 | 88 | 167 | 1.2 |
| HL2600M210002 | HL2100M473040 | 1 | 106 | 190.5 | 1.4 |
| HL2600M210005 | HL2100M473050 | 2 | 123 | 153.6 | 2.5 |
| HL2600M210006 | HL2100M473061 | 2 | 216 | 185.1 | 2.8 |

SCREW MACHINE PRODUCTS

By now, you know SDP/SI has one of the largest inventories of stock drive components in the business. But sometimes a stock component will not do and a custom part is necessary. Don't despair, SDP/SI is a manufacturer of custom screw machine products, making us your complete stop for all your drive component needs.

Our state-of-the-art CNC multi-axis and CNC swiss style turning machines are capable of turning out large quantities of custom designed shafts, gears, sprockets, screws or any other customized parts our inventive customers dream up.

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Friction Drive Wheels
pg. 15-2



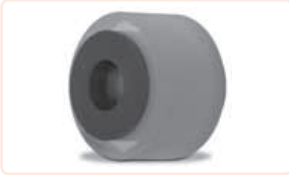
Feed Rollers Without Bearing
pg. 15-3



Feed Rollers Without Bearing
pg. 15-4



Idler Rollers With Sintered Bronze
Bearing
pg. 15-5



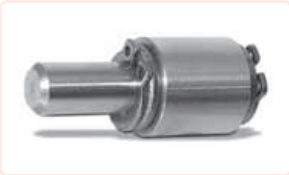
Idler Rollers With Polymer Bearing
pg. 15-6



Idler Rollers with Double-Shielded
ABEC 3 Bearing
pg. 15-7



Prototype Building Engineering Kit
pg. 15-8



Low Cost Idlers with Sintered Bronze
Bearings
pg. 15-9



Stud Type Cam Followers
pg. 15-10



Cam Followers, Shallow Head
pg. 15-11



Molded Cams with Metal Insert
pg. 15-12



Molded Cams
pg. 15-13

4.8 mm FACE

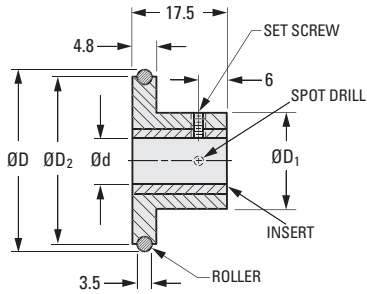
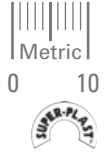
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> MATERIAL:

Body – Acetal

Insert – Brass

Roller – Buna “N”, 70 Durometer



METRIC COMPONENT

| Catalog Number | D Dia. | d Bore +0.025 0 | D ₁ Hub Dia. | D ₂ Dia. | Set Screw |
|----------------|--------|-----------------|-------------------------|---------------------|-----------|
| A 6Z10M131304 | 15.9 | 4 | 16 | 12.7 | M3 |
| A 6Z10M131904 | 22.3 | 4 | 16 | 19.1 | M3 |
| A 6Z10M132504 | 28.6 | 4 | 16 | 25.4 | M3 |
| A 6Z10M133804 | 41.3 | 4 | 19 | 38.1 | M3 |
| A 6Z10M135104 | 54 | 4 | 25 | 50.8 | M3 |
| A 6Z10M131306 | 15.9 | 6 | 16 | 12.7 | M3 |
| A 6Z10M131906 | 22.3 | 6 | 16 | 19.1 | M3 |
| A 6Z10M132506 | 28.6 | 6 | 16 | 25.4 | M3 |
| A 6Z10M133806 | 41.3 | 6 | 19 | 38.1 | M3 |
| A 6Z10M135106 | 54 | 6 | 25 | 50.8 | M3 |
| A 6Z10M131908 | 22.3 | 8 | 16 | 19.1 | M4 |
| A 6Z10M132508 | 28.6 | 8 | 25 | 25.4 | M4 |
| A 6Z10M135108 | 54 | 8 | 25 | 50.8 | M4 |

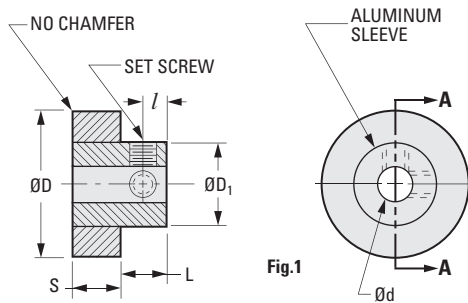
URETHANE SURFACE
WITHOUT BEARING

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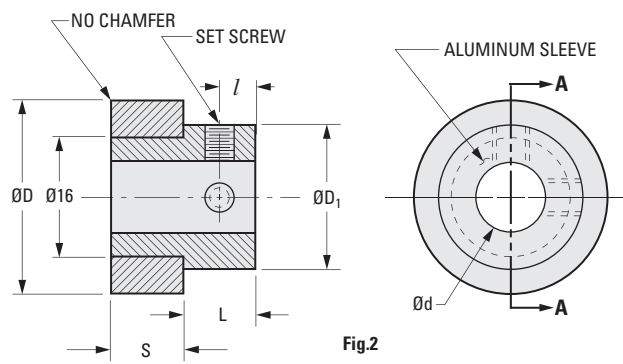
> MATERIAL:

- Roller** - Urethane 60 Durometer
Ground Outside Diameter
- Sleeve** - Aluminum

All feed rollers supplied with 2 set screws



SECTION A-A



SECTION A-A

METRIC COMPONENT

| Catalog Number | Fig. No. | D Dia. ± 0.075 | d Bore +0.0127 0 | S Face Width ± 0.25 | L Hub Proj. | l | D ₁ Sleeve O.D. | Set Screw |
|----------------|----------|----------------|------------------|---------------------|-------------|------|----------------------------|-----------|
| A 7T 5MUR1405 | 1 | 14 | 5 | 6.35 | 6.35 | 3.17 | 11.1 | M3 |
| A 7T 5MUR1905 | 1 | 19 | 5 | 6.35 | 6.35 | 3.17 | 11.1 | M3 |
| A 7T 5MUR1606 | 1 | 16 | 6 | 9.52 | 6.35 | 3.17 | 12.7 | M4 |
| A 7T 5MUR1906 | 1 | 19 | 6 | 9.52 | 6.35 | 3.17 | 12.7 | M4 |
| A 7T 5MUR2206 | 1 | 22 | 6 | 9.52 | 6.35 | 3.17 | 12.7 | M4 |
| A 7T 5MUR2510 | 2 | 25 | 10 | 9.52 | 9.52 | 4.76 | 19 | M4 |
| A 7T 5MUR3210 | 1 | 32 | 10 | 9.52 | 9.52 | 4.76 | 20.62 | M5 |
| A 7T 5MUR3810 | 1 | 38 | 10 | 9.52 | 9.52 | 4.76 | 25.4 | M5 |
| A 7T 5MUR3812 | 1 | 38 | 12 | 12.7 | 12.7 | 6.35 | 25.4 | M6 |
| A 7T 5MUR4412 | 1 | 44 | 12 | 12.7 | 12.7 | 6.35 | 31.75 | M6 |
| A 7T 5MUR5012 | 1 | 50 | 12 | 12.7 | 12.7 | 6.35 | 34.9 | M6 |

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FEED ROLLERS

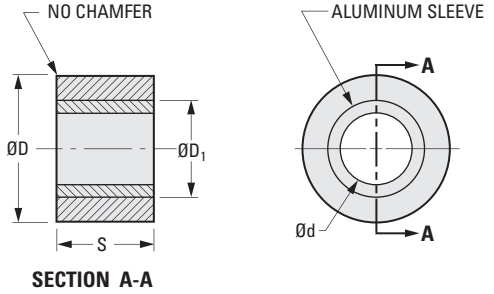


URETHANE SURFACE
WITHOUT BEARING

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> MATERIAL:

- Roller** - Urethane 60 Durometer
Ground Outside Diameter
- Sleeve** - Aluminum



METRIC COMPONENT

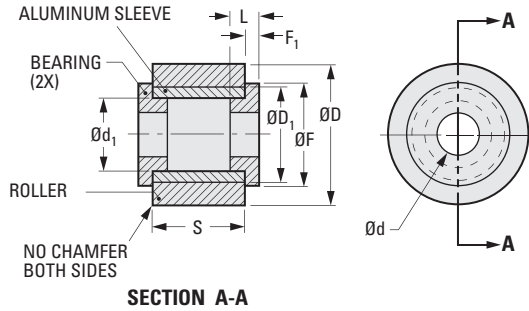
| Catalog Number | D Dia. ± 0.075 | d Bore +0.013 0 | S Face Width ± 0.25 | D ₁ Sleeve O.D. |
|----------------|----------------------|--------------------------|------------------------------|----------------------------------|
| A 7M 5MUR1206A | 12 | 6 | 6.35 | 8.74 |
| A 7M 5MUR1206B | 12 | 6 | 18.2 | 8.74 |
| A 7M 5MUR1206C | 12 | 6 | 12.7 | 8.74 |
| A 7M 5MUR1710 | 17 | 10 | 6.35 | 12.7 |
| A 7M 5MUR1910 | 19 | 10 | 12.7 | 12.7 |
| A 7M 5MUR2010 | 20 | 10 | 12.7 | 12.7 |
| A 7M 5MUR2310 | 23 | 10 | 12.3 | 17.47 |
| A 7M 5MUR2810A | 28 | 10 | 11.12 | 12.7 |
| A 7M 5MUR2810B | 28 | 10 | 17.47 | 12.7 |
| A 7M 5MUR5010 | 50 | 10 | 17.47 | 34.92 |
| A 7M 5MUR5012A | 50 | 12 | 19.05 | 34.92 |
| A 7M 5MUR5012B | 50 | 12 | 25.4 | 34.92 |

URETHANE SURFACE
WITH SINTERED BRONZE BEARING

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> MATERIAL:

- Roller** - Urethane 60 Durometer
Ground Outside Diameter
- Sleeve** - Aluminum Alloy
- Bearing** - Sintered Bronze



METRIC COMPONENT

| Catalog Number | D O.D. | d Bore +0.038 0 | S Face Width ± 0.25 | L Bearing Length | F Flange Dia. | F ₁ Flange Thickness | d ₁ Sleeve I.D. | D ₁ Sleeve O.D. |
|----------------|-----------|--------------------------|------------------------------|------------------------|---------------------|---------------------------------------|----------------------------------|----------------------------------|
| A 7Z 5MUR1203A | 12 | 3 | 6.35 | 4 | 9 | 1.5 | 6 | 8.74 |
| A 7Z 5MUR1203B | 12 | 3 | 18.2 | 4 | 9 | 1.5 | 6 | 8.74 |
| A 7Z 5MUR1203C | 12 | 3 | 12.7 | 4 | 9 | 1.5 | 6 | 8.74 |
| A 7Z 5MUR1706 | 17 | 6 | 6.35 | 4 | 14 | 2 | 10 | 12.7 |
| A 7Z 5MUR1906 | 19 | 6 | 12.7 | 4 | 14 | 2 | 10 | 12.7 |
| A 7Z 5MUR2006 | 20 | 6 | 12.7 | 4 | 14 | 2 | 10 | 12.7 |
| A 7Z 5MUR2306 | 23 | 6 | 12.3 | 4 | 14 | 2 | 10 | 17.47 |
| A 7Z 5MUR2806A | 28 | 6 | 11.12 | 4 | 14 | 2 | 10 | 12.7 |
| A 7Z 5MUR2806B | 28 | 6 | 17.47 | 4 | 14 | 2 | 10 | 12.7 |
| A 7Z 5MUR5006 | 50 | 6 | 17.47 | 4 | 16 | 3 | 10 | 34.92 |
| A 7Z 5MUR5008A | 50 | 8 | 19.05 | 8 | 16 | 3 | 12 | 34.92 |
| A 7Z 5MUR5008B | 50 | 8 | 25.4 | 8 | 16 | 3 | 12 | 34.92 |

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IDLER ROLLERS



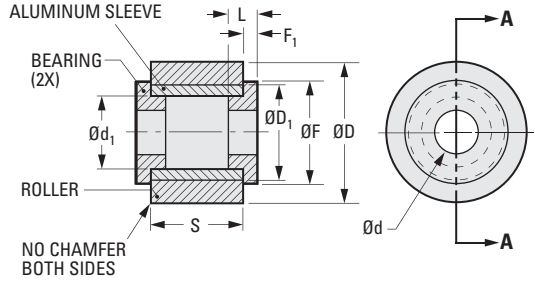
URETHANE SURFACE
WITH POLYMER BEARING

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> MATERIAL:

- Roller** - Urethane 60 Durometer
Ground Outside Diameter
- Sleeve** - Aluminum Alloy
- Bearing** - M250® Polymer



SECTION A-A

METRIC COMPONENT

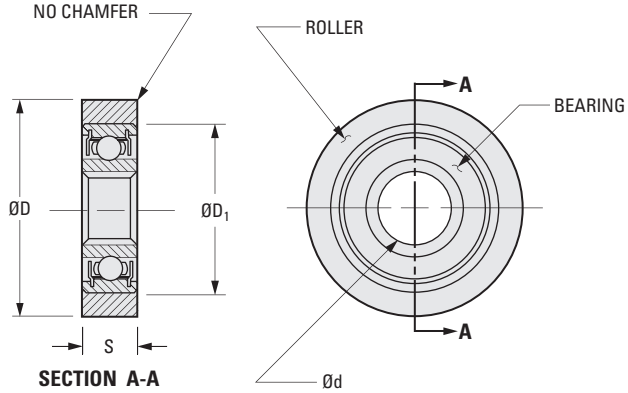
| Catalog Number | D O.D. | d Bore | S Face Width ± 0.25 | L Bearing Length | F Flange Dia. | F1 Flange Thickness Ref. | d1 Sleeve I.D. | D1 Sleeve O.D. |
|-----------------|--------|--|---------------------|------------------|---------------|--------------------------|----------------|----------------|
| A 7ZB5MURG1203A | 12 | 3 ^{+0.080} _{+0.020} | 6.35 | 4 | 9 | 1.5 | 6 | 8.74 |
| A 7ZB5MURG1203B | 12 | | 18.2 | 4 | 9 | 1.5 | 6 | 8.74 |
| A 7ZB5MURG1203C | 12 | | 12.7 | 4 | 9 | 1.5 | 6 | 8.74 |
| A 7ZB5MURG1706 | 17 | 6 ^{+0.105} _{+0.030} | 6.35 | 4 | 14 | 2 | 10 | 12.7 |
| A 7ZB5MURG1906 | 19 | | 12.7 | 4 | 14 | 2 | 10 | 12.7 |
| A 7ZB5MURG2006 | 20 | | 12.7 | 4 | 14 | 2 | 10 | 12.7 |
| A 7ZB5MURG2306 | 23 | | 12.3 | 4 | 14 | 2 | 10 | 17.47 |
| A 7ZB5MURG2806A | 28 | | 11.12 | 4 | 14 | 2 | 10 | 12.7 |
| A 7ZB5MURG2806B | 28 | | 17.47 | 4 | 14 | 2 | 10 | 12.7 |
| A 7ZB5MURG5006 | 50 | 8 ^{+0.120} _{+0.040} | 17.47 | 4 | 16 | 2 | 10 | 34.92 |
| A 7ZB5MURG5008A | 50 | | 19.05 | 6 | 16 | 2 | 12 | 34.92 |
| A 7ZB5MURG5008B | 50 | | 25.4 | 6 | 16 | 2 | 12 | 34.92 |

URETHANE SURFACE
WITH DOUBLE-SHIELDED ABEC 3 BEARING

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> MATERIAL:

- Roller** - Urethane 60 Durometer
Ground Outside Diameter
- Bearing, Double-Shielded** - Stainless Steel



METRIC COMPONENT

| Catalog Number | D Dia. ± 0.075 | d Bore 0 -0.005 | S Face Width ± 0.25 | D ₁ Dia. |
|-----------------|-------------------|-----------------------|------------------------|---------------------|
| A 7Z 8MURBB1205 | 12 | 5 | 3 | 9 |
| A 7Z 8MURBB1905 | 19 | 5 | 3 | 9 |
| A 7Z 8MURBB1606 | 16 | 6 | 5 | 13 |
| A 7Z 8MURBB1906 | 19 | 6 | 5 | 13 |
| A 7Z 8MURBB2810 | 28 | 10 | 7 | 19 |
| A 7Z 8MURBB3810 | 38 | 10 | 7 | 19 |
| A 7Z 8MURBB3812 | 38 | 12 | 8 | 28 |
| A 7Z 8MURBB4412 | 44 | 12 | 8 | 28 |

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BASIC KIT

Catalog Number: A 4Z 1M01000*

This model contains 2,600 parts housed in a wooden case (52 cm long x 42 cm wide x 13 cm high) weighing 20 kg. A top-notch educational tool for larger teams of students or an instructor wishing to build several working models to demonstrate principles of physics, mechanical drawing or kinematics.



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*To be discontinued when present stock is depleted.

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Request Info



1-800-453-1692

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STAINLESS STEEL
SINTERED BRONZE BEARINGS

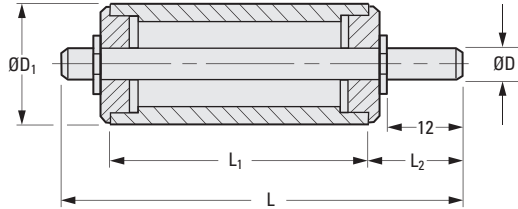
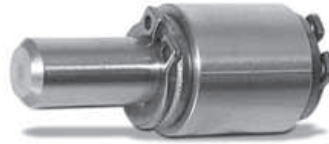
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> MATERIAL:

- Shaft - 303 Stainless Steel
- Housing - 303 Series Stainless Steel
- Bearings - Sintered Bronze

> SPECIFICATIONS:

- Idlers with:
- 5 and 6 dia. shaft have a tolerance of -0.004/-0.012
- 8 dia. shaft have a tolerance of -0.005/-0.014



METRIC COMPONENT

| Catalog Number | L | L ₁ | L ₂ | D Dia. g6 | D ₁ Dia. | Clearance Dia. |
|-------------------|----|----------------|----------------|-----------------|------------------------|-------------------|
| Δ S7AYPAM32120510 | 32 | 12 | 14.3 | 5 | 10 | 10.2 |
| S7AYPAM32120512 | 32 | 12 | 14.3 | 5 | 12 | 12 |
| Δ S7AYPAM32120612 | 32 | 12 | 15 | 6 | 12 | 14 |
| S7AYPAM32120618 | 32 | 12 | 15 | 6 | 18 | 18 |
| Δ S7AYPAM50250510 | 50 | 25 | 14.3 | 5 | 10 | 10.2 |
| S7AYPAM50250512 | 50 | 25 | 14.3 | 5 | 12 | 12 |
| S7AYPAM50250515 | 50 | 25 | 14.3 | 5 | 15 | 15 |
| S7AYPAM50250618 | 50 | 25 | 15 | 6 | 18 | 18 |
| S7AYPAM50250818 | 50 | 25 | 16.2 | 8 | 18 | 18 |
| S7AYPAM50250820 | 50 | 25 | 16.2 | 8 | 20 | 20 |

Δ Retaining ring clearance diameter or bronze bearing flange diameter is larger than diameter "D₁"

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STUD TYPE CAM FOLLOWERS



NEEDLE BEARINGS
CAGE-GUIDED
FULL-COMPLEMENT

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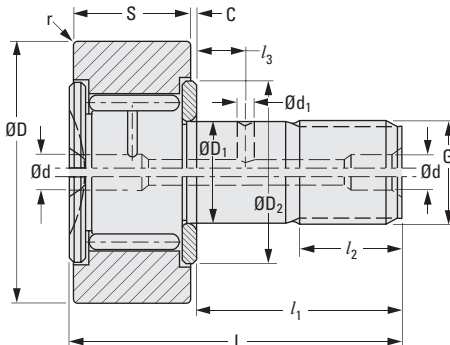
> MATERIAL:

Roller & Needles - 52100 Steel
Stud - 1055 Steel



| Catalog Number | Load Ratings* N | | | |
|----------------|-----------------|----------------------|---------------------|-----------------------|
| | Dyn. C | Stat. C ₀ | Dyn. C _w | Stat. C _{0w} |
| S9930AMKRV16 | 6400 | 8500 | 4850 | 6500 |
| S9930AMKRV19 | 7300 | 10800 | 5500 | 7900 |
| S9930AMKRV22 | 8600 | 12900 | 6300 | 9100 |
| S9930AMKRV26 | 8600 | 12900 | 7300 | 11300 |
| S9930AMKRV30 | 12200 | 19000 | 9500 | 14600 |
| S9930AMKRV32 | 12200 | 19000 | 10000 | 15800 |
| S9930AMKRV35 | 18300 | 35000 | 12800 | 23000 |
| S9930AMKRV40 | 21000 | 39500 | 14800 | 26500 |

*The basic load ratings C and C₀ apply if the bearing outer ring (with cylindrical outside surface) is mounted into a housing with standard bearing fit; when used as track roller, the load rating C_w and C_{0w} apply.



METRIC COMPONENT

| Catalog Number | I ₁ Stud Length | D Roller Dia. | D ₁ Stud Dia. h7 | S Roller Width | L Length | G Thread Size | I ₂ Thread Length | Lubrication Holes Dia. | |
|----------------|----------------------------|---------------|-----------------------------|----------------|----------|---------------|------------------------------|------------------------|----------------|
| | | | | | | | | d | d ₁ |
| S9930AMKRV16 | 16 | 16 | 6 | 11 | 28 | M6 x 1 | 8 | 4Δ | — |
| S9930AMKRV19 | 20 | 19 | 8 | 11 | 32 | M8 x 1.25 | 10 | 4Δ | — |
| S9930AMKRV22 | 23 | 22 | 10 | 12 | 36 | M10 x 1 | 12 | 4 | — |
| S9930AMKRV26 | 23 | 26 | 10 | 12 | 36 | M10 x 1 | 12 | 4 | — |
| S9930AMKRV30 | 25 | 30 | 12 | 14 | 40 | M12 x 1.5 | 13 | 6 | 3 |
| S9930AMKRV32 | 25 | 32 | 12 | 14 | 40 | M12 x 1.5 | 13 | 6 | 3 |
| S9930AMKRV35 | 32.5 | 35 | 16 | 18 | 52 | M16 x 1.5 | 17 | 6 | 3 |
| S9930AMKRV40 | 36.5 | 40 | 18 | 20 | 58 | M18 x 1.5 | 19 | 6 | 3 |

Δ Relubrication via stud end face only.

| Catalog Number | I ₃ Location | r Corner Radius Min. | C | Max. Speed rpm | Stud Housing Dia. | | D ₂ Clamp. Dia. | Max. Clamp. Torque N • m |
|----------------|-------------------------|----------------------|-----|----------------|-------------------|--------|----------------------------|--------------------------|
| | | | | | Min. | Max. | | |
| S9930AMKRV16 | — | 0.15 | 0.6 | 8500 | 8.964 | 9.000 | 12 | 3 |
| S9930AMKRV19 | — | 0.15 | 0.6 | 7000 | 10.957 | 11.000 | 14 | 8 |
| S9930AMKRV22 | — | 0.3 | 0.6 | 6000 | 12.957 | 13.000 | 17 | 15 |
| S9930AMKRV26 | — | 0.3 | 0.6 | 6000 | 12.957 | 13.000 | 17 | 15 |
| S9930AMKRV30 | 6 | 0.6 | 0.6 | 4500 | 14.957 | 15.000 | 23 | 22 |
| S9930AMKRV32 | 6 | 0.6 | 0.6 | 4500 | 14.957 | 15.000 | 23 | 22 |
| S9930AMKRV35 | 8 | 0.6 | 0.8 | 3400 | 19.948 | 20.000 | 27 | 58 |
| S9930AMKRV40 | 8 | 0.1 | 0.8 | 2900 | 21.948 | 22.000 | 32 | 87 |

**Limiting speeds shown are for grease lubrication. With oil lubrication, the speed can be increased by approximately 30% except for sealed versions (which are available on special order).

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Request Info



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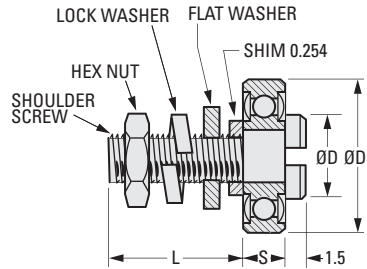
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SHALLOW HEAD

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> MATERIAL:

Bearing - 440C Stainless Steel, ABEC-3, Double Shield
Hardware - 303 Stainless Steel



METRIC COMPONENT

| Catalog Number | Dimension | | | | Thread |
|----------------|-----------|----|----------------|---|----------|
| | L | D | D ₁ | S | |
| A 7Y 5MCF0803 | 6 | 5 | 8 | 4 | M2 x 0.4 |
| A 7Y 5MCF1004 | 8 | 6 | 10 | 4 | M3 x 0.5 |
| A 7Y 5MCF1304 | 8 | 6 | 13 | 5 | M3 x 0.5 |
| A 7Y 5MCF1306 | 12 | 8 | 13 | 5 | M5 x 0.8 |
| A 7Y 5MCF1608 | 16 | 10 | 16 | 5 | M6 x 1.0 |

> MATERIAL:
 Cam - Acetal, Black
 Insert - Brass

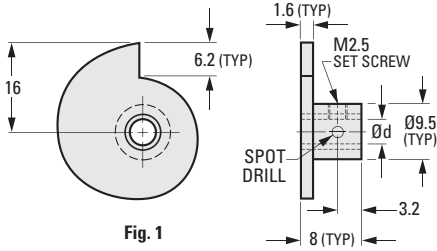


Fig. 1

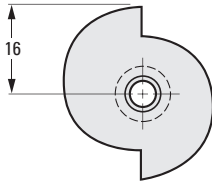


Fig. 2

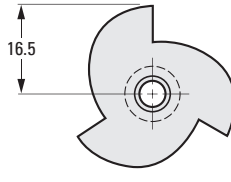


Fig. 3

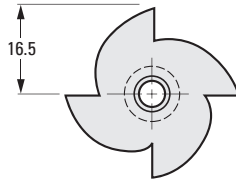


Fig. 4

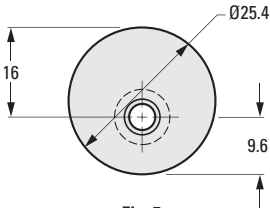


Fig. 5

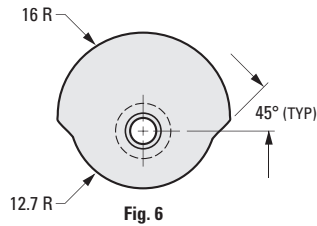


Fig. 6

METRIC COMPONENT

| Catalog Number | Fig. No. | d Bore +0.025 0 | Rise per 15° |
|----------------|----------|-----------------|--------------|
| A 3Y 3M1Z03 | 1 | 3 | 0.25 |
| A 3Y 3M1Z04 | 1 | 4 | 0.25 |
| A 3Y 3M2Z03 | 2 | 3 | 0.5 |
| A 3Y 3M2Z04 | 2 | 4 | 0.5 |
| A 3Y 3M3Z03 | 3 | 3 | 0.75 |
| A 3Y 3M3Z04 | 3 | 4 | 0.75 |
| A 3Y 3M4Z03 | 4 | 3 | 1 |
| A 3Y 3M4Z04 | 4 | 4 | 1 |
| A 3Y 3M5Z03 | 5 | 3 | — |
| A 3Y 3M5Z04 | 5 | 4 | — |
| A 3Y 3M6Z03 | 6 | 3 | — |
| A 3Y 3M6Z04 | 6 | 4 | — |

MOLDED

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> **MATERIAL:**
Acetal, Black

> **SPECIFICATIONS:**
Bore is sized for press fit on standard shafting.
Use straight knurl for maximum torques.

Other bore sizes available on special order.

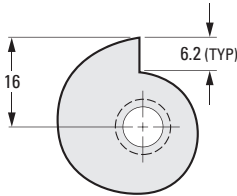


Fig. 1

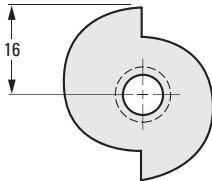
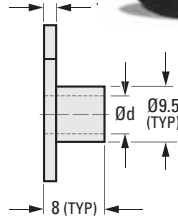


Fig. 2

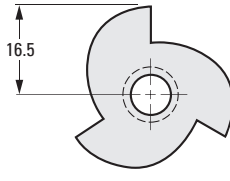


Fig. 3

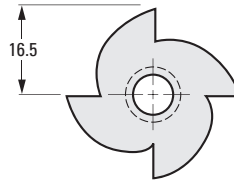


Fig. 4

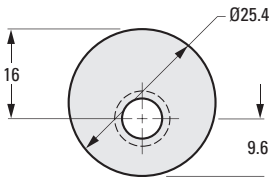


Fig. 5

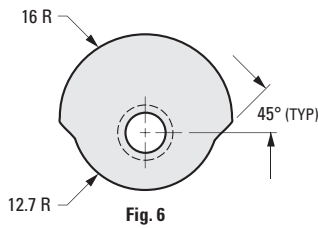


Fig. 6

METRIC COMPONENT

| Catalog Number | Fig. No. | d Bore | Rise per 15° |
|----------------|----------|--------|--------------|
| A 3Y 3M1M06 | 1 | 6 | 0.25 |
| A 3Y 3M2M06 | 2 | 6 | 0.5 |
| A 3Y 3M3M06 | 3 | 6 | 0.75 |
| A 3Y 3M4M06 | 4 | 6 | 1 |
| A 3Y 3M5M06 | 5 | 6 | — |
| A 3Y 3M6M06 | 6 | 6 | — |



THE BETTER WAY TO FASTEN ROTATING COMPONENTS.

Solves...Phasing, Timing, Positioning and Frequent Removal Problems



› **HERE'S HOW IT WORKS:**

Two slots are machined into the hub, one oriented radially, the other angularly, to create a transverse wedge which remains attached to the solid portion of the hub on one side. The resultant cantilevered clamping section has a tapped hole to accept a cap screw which passes through a clearance hole in the solid portion of the hub, and into a threaded hole in the transverse wedge section. As the screw is tightened, the cantilevered section clamps the shaft securely. The screw can be tightened and released repeatedly without marring the shaft or affecting its torque transmitting abilities.



› **PROVED MOST EFFECTIVE:**

For precision application – Lab tests proved Fairloc® to be superior to all other comparable fasteners. For high torque application – Torques up to 400 lb.in. are obtained with a 5/8" bore Fairloc® hub.

› **TYPICAL APPLICATION AREAS FOR FAIRLOC® INCLUDE:**

Computer Tape Drives, Aerospace Components, Aircraft Instrumentation, Aircraft Fuel Control Systems, Machine Tools, N/C Machines, Computer Input / Output Systems, Military Fire Control Systems, Medical Equipment, Business Machines, Optical Equipment, Power Drives.

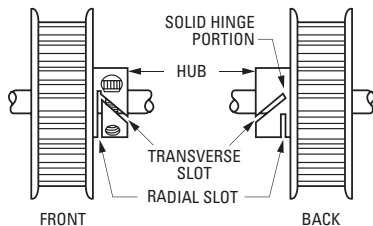
› **FEATURES:**

Full Use Of The Bore - Gives maximum support to the component, reduces wobble or misalignment.

Easy Adjustment - Fairloc® replaces set screws and clamps, eliminates marred shafts; components can be repositioned with a single hex key adjustment.

Compact, Self-Contained Design - When available space or access is limited, Fairloc's® small hub envelope is a distinct advantage.

Very High Reliability



Call on our Engineering Department to discuss the advantages of applying the Fairloc® concept to your designs.

| FASTENER SELECTOR GUIDE | | | | | | Legend |
|-------------------------|-----|-----|-----|-----|-----|--|
| Fastening Method | A | B | C | D | E | |
| Clamps | Yes | No | No | Yes | No | A – Shaft remains smooth B – Self-contained (no additional inventory) C – Component is fully supported D – Easy adjustment E – Can be pinned if desired |
| *Fairloc® | Yes | Yes | Yes | Yes | Yes | |
| Keys | No | No | No | No | No | |
| Pins | No | No | No | No | Yes | |
| Set Screws | No | No | No | No | Yes | |

* Patented
 ® Registered trademark



› **DID YOU KNOW?**

That you can see a video showing how the Fairloc® integral fastener works and how it can benefit your application. It is located at: www.sdp-si.com/fairloc.

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Stock Drive Products/Sterling Instrument

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