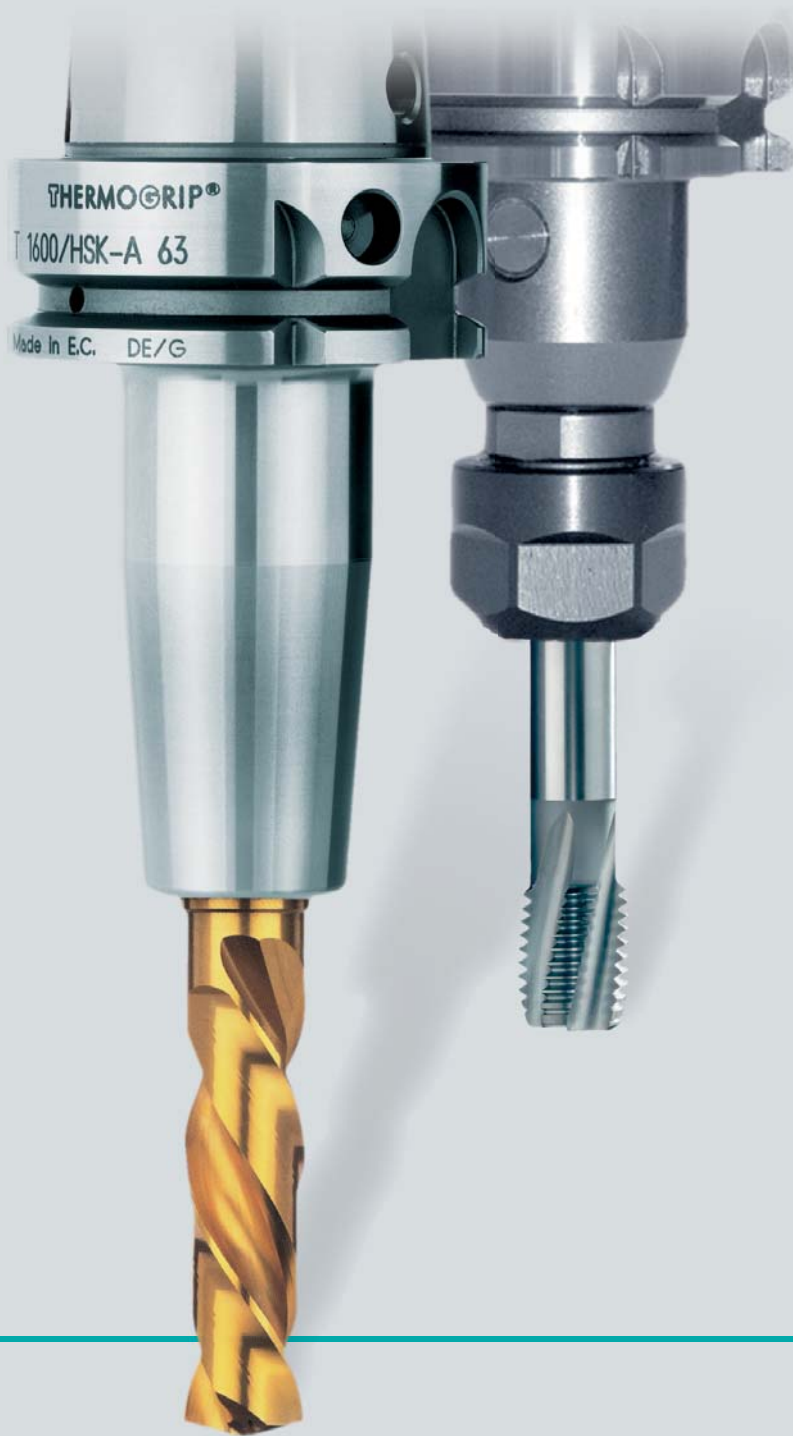




## Rotating Toolholders & Accessories



**BOEHLERIT**

**FETTE**  
**FETTE**

**BELIN**



**BILZ**

**ONSRUD**  
Onsrud  
Cutter

**KIENINGER**





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**BELIN**

**BILZ**

**BOEHLERIT**

**FETTE**

**KIENINGER**

**ONSRUD**

ISO 9001





## 6 Companies and What They Can Offer

Within LMT, the six companies operate autonomously. They owe their recognized competence as service providers with their own manufacturing facilities and as partners of high-tech manufacturers all over the world to the innovative methods with which they satisfy the very highest precision and quality demands. They can call upon an internally unique depth of practically-oriented experience. With precision tooling solutions, for instance, LMT companies have contributed to technical progress ever since industrial-scale automobile and aircraft production commenced. Thanks to the flexibility of the LMT companies, it is possible to provide your tailor-made answers to processing problems with no delay—and therefore maximize your economic advantage.

Each company remains fully autonomous—this is part of LMT success story. Tasks can be tackled individually in the engineering area or in the project management, research and development or reconditioning of specific tools. In every case there is direct access to the unrivaled skills of the relevant LMT company. There is an obvious benefit from combining the know-how of these six specialist sources, for instance in the complex processing of complete work pieces or for all kind of tool management tasks.

This approach, combined with the ability to adapt globally to all differences in market conditions and clients' wishes, is helping to set LMT apart from other tool suppliers—and to assure to you a maximum benefit.

## 6 Specialists and Their Strengths

### **BELIN**

Belin (France) is a technological leader for high-performance carbide reamers, PCD and CBN and high-precision grooving mills and all-carbide end milling cutters for plastics and aluminum alloys.

### **BILZ**

Bilz (Germany) operates in the field of tool clamping and is now the leading manufacturer of thread-tapping chucks and also of the Thermo-Grip™ system for the thermal clamping of rotating tools.

### **BOEHLERIT**

Boehlerit (Austria), a manufacturer of cutting materials for metal, composites, plastics and wood and of carbide metals for non-cutting applications, has a high worldwide reputation for ultimate precision in the processing of carbide metals and tools for lathe turning, milling, drilling and rotary peeling, and also for chipless forming.

### **FETTE**

Fette (Germany) has earned an outstanding position as a manufacturer of precision milling and hobbing tools and supplies an extensive program of carbide-metal and high-speed steel tools for metal and plastics processing and for thread rolling systems and thread tapping.

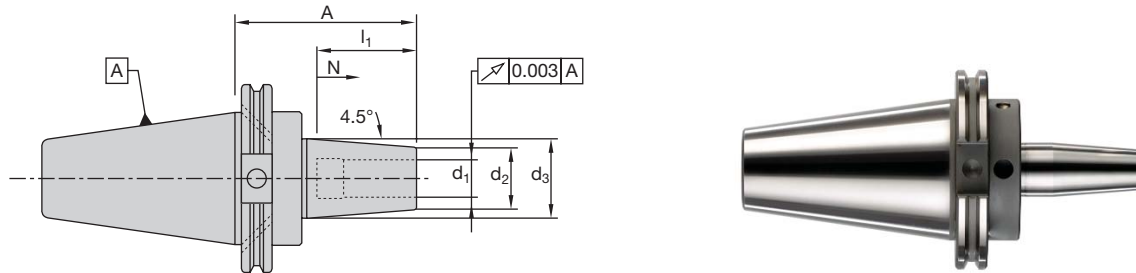
### **KIENINGER**

Kieninger (Germany) occupies a leading position on the market for special cutting systems used for more complex bore machining and precision machining work within the dies and moulds industries and for the machining of engine components for the automotive industry.

### **ONSRUD**

Onsrud (USA) specializes in the production of end-milling cutters for high-speed machining of aluminum, plastics and composite materials in the aerospace industries.

**CAT40 - Inch**



Balanced to G6.3 @ 15,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 0.1250                       | 12868   | 3.740 (95.0)           | 0.591 (15.0)   | 0.787 (20.0)   | 0.787 (20.0)   | 0.197 (5.0)  |
| 0.1875                       | 12871   | 3.740 (95.0)           | 0.591 (15.0)   | 0.787 (20.0)   | 0.787 (20.0)   | 0.197 (5.0)  |
| 0.2500                       | 79087   | 3.740 (95.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 12875   | 3.740 (95.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 50765   | 3.740 (95.0)           | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 50764   | 3.740 (95.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 79089   | 3.740 (95.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 79090   | 3.740 (95.0)           | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 90769   | 3.740 (95.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 79091   | 3.940 (100.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| 1.2500                       | 90772   | 3.940 (100.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 0.1250                       | 12869   | 4.724 (120.0)          | 0.591 (15.0)   | 0.787 (20.0)   | 0.787 (20.0)   | 0.197 (5.0)  |
| 0.1875                       | 12872   | 4.724 (120.0)          | 0.591 (15.0)   | 0.787 (20.0)   | 0.787 (20.0)   | 0.197 (5.0)  |
| 0.2500                       | 90759   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 12876   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 90761   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 90763   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 90765   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 90767   | 4.724 (120.0)          | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 32001   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 90770   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| 1.2500                       | 90773   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 0.1250                       | 12870   | 6.300 (160.0)          | 0.591 (15.0)   | 0.787 (20.0)   | 0.787 (20.0)   | 0.197 (5.0)  |
| 0.1875                       | 12873   | 6.300 (160.0)          | 0.591 (15.0)   | 0.787 (20.0)   | 0.787 (20.0)   | 0.197 (5.0)  |
| 0.2500                       | 90760   | 6.300 (160.0)          | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 12877   | 6.300 (160.0)          | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 90762   | 6.300 (160.0)          | 0.945 (24.0)   | 1.338 (34.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 90764   | 6.300 (160.0)          | 1.063 (27.0)   | 1.653 (42.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 90766   | 6.300 (160.0)          | 1.063 (27.0)   | 1.653 (42.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 90768   | 6.300 (160.0)          | 1.299 (33.0)   | 1.748 (44.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 12710   | 6.300 (160.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 90771   | 6.300 (160.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| 1.2500                       | 90774   | 6.300 (160.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |

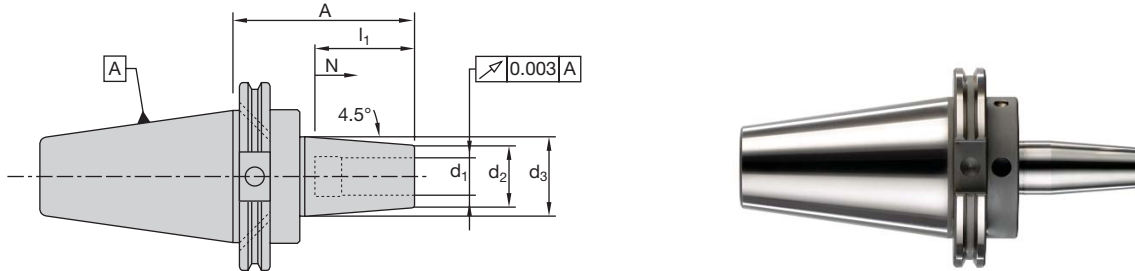
NOTE: All Holders Have 5/8" -11 UNC Thread for Retention Knob & DIN FORM "B" Flange Coolant Delivery Option Standard

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## CAT40 ThermoGrip™ Holders

### CAT40 - Metric



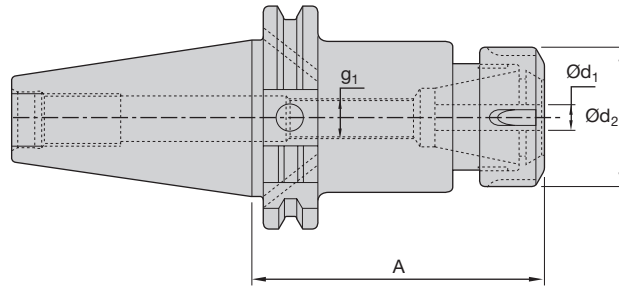
Balanced to G6.3 @ 15,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 3.0 (0.118)                  | 12878   | 95.0 (3.740)           | 15.0 (0.591)   | 20.0 (0.787)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 4.0 (0.158)                  | 12879   | 95.0 (3.740)           | 15.0 (0.591)   | 20.0 (0.787)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 5.0 (0.197)                  | 12880   | 95.0 (3.740)           | 15.0 (0.591)   | 20.0 (0.787)   | 25.0 (0.984)   | 5.0 (0.197)  |
| 6.0 (0.236)                  | 79045   | 95.0 (3.740)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 52602   | 95.0 (3.740)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 79046   | 95.0 (3.740)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 52603   | 95.0 (3.740)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 90784   | 95.0 (3.740)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 11233   | 95.0 (3.740)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 90789   | 95.0 (3.740)           | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 79047   | 95.0 (3.740)           | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 53484   | 100.0 (3.940)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 90796   | 100.0 (3.940)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.440)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 90775   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 90777   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 90780   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 90782   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 90785   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 90787   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 90790   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 90792   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 90794   | 120.0 (4.724)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 90797   | 120.0 (4.724)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.440)   | 10.0 (0.394) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 90776   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 90778   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 90781   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 90783   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 90786   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 90788   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 90791   | 160.0 (6.300)          | 33.0 (1.299)   | 44.40 (1.748)  | 52.0 (2.047)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 90793   | 160.0 (6.300)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 90795   | 160.0 (6.300)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.440)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 90798   | 160.0 (6.300)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.440)   | 10.0 (0.394) |

NOTE: All Holders Have 5/8" -11 UNC Thread for Retention Knob & DIN FORM "B" Flange Coolant Delivery Option Standard

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

**CAT40**



Balanced to G6.3 @ 8,000 RPM

| Type                         | EDP No. | Dimensions (inches/mm) |                    |                |                |                |
|------------------------------|---------|------------------------|--------------------|----------------|----------------|----------------|
|                              |         | A                      | d <sub>1</sub>     | d <sub>2</sub> | l <sub>1</sub> | g <sub>1</sub> |
| <b>SHORT PROJECTION</b>      |         |                        |                    |                |                |                |
| ER16                         | 90065   | 3.000 (76.20)          | .020-.393 (.50-10) | 1.110 (28.00)  | 2.000 (50.80)  | 7/16-20 LH     |
| ER20                         | 90069   | 3.000 (76.20)          | .039-.511 (1.0-13) | 1.259 (34.00)  | 2.000 (50.80)  | 9/16-18 LH     |
| ER32                         | 90077   | 3.000 (76.20)          | .078-.787 (2.0-20) | 1.970 (50.00)  | 2.000 (50.80)  | 13/16-16 LH    |
| <b>STANDARD PROJECTION</b>   |         |                        |                    |                |                |                |
| ER16                         | 90066   | 4.000 (101.60)         | .020-.393 (.50-10) | 1.110 (28.00)  | 3.000 (76.20)  | 7/16-20 LH     |
| ER20                         | 90070   | 4.000 (101.60)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 3.000 (76.20)  | 9/16-18 LH     |
| ER32                         | 90078   | 4.000 (101.60)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 3.000 (76.20)  | 13/16-16 LH    |
| <b>LONG PROJECTION</b>       |         |                        |                    |                |                |                |
| ER16                         | 90067   | 6.000 (152.40)         | .020-.393 (.50-10) | 1.110 (28.00)  | 4.000 (101.60) | 7/16-20 LH     |
| ER20                         | 90071   | 6.000 (152.40)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 4.000 (101.60) | 9/16-18 LH     |
| ER32                         | 90079   | 6.000 (152.40)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 4.000 (101.60) | 13/16-16 LH    |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                    |                |                |                |
| ER16                         | 90068   | 8.000 (203.20)         | .020-.393 (.50-10) | 1.110 (28.00)  | 4.000 (101.60) | 7/16-20 LH     |
| ER20                         | 90072   | 8.000 (203.20)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 4.000 (101.60) | 9/16-18 LH     |
| ER32                         | 90080   | 8.000 (203.20)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 4.000 (101.60) | 13/16-16 LH    |

NOTE: All Holders Have 5/8"-11 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option Standard

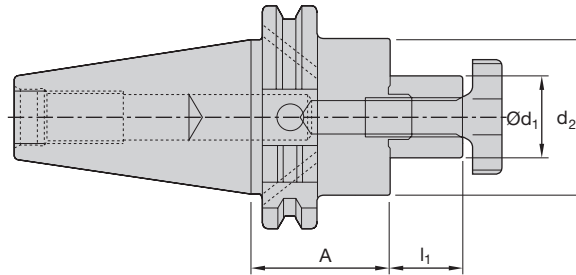
l<sub>1</sub> = Maximum Socket Depth Behind Collet with Back Up Screw Installed





## CAT40 Face Mill Holders

### CAT40 - Inch

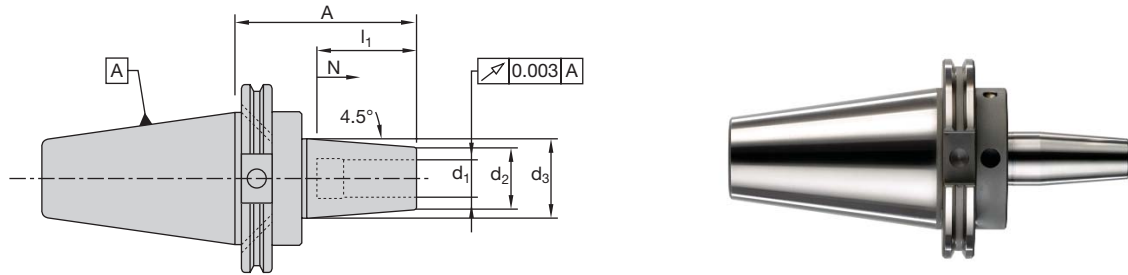


Balanced to G6.3 @ 8,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |             |            |
|------------------------------|---------|------------------------|----------------|----------------|-------------|------------|
|                              |         | A                      | d <sub>2</sub> | l <sub>1</sub> | Key         | Thread     |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |             |            |
| 0.750                        | 90085   | 2.000 (50.80)          | 1.750 (44.45)  | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF |
| 1.000                        | 90088   | 2.250 (57.20)          | 2.250 (57.20)  | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF |
| 1.250                        | 90091   | 2.250 (57.20)          | 2.750 (69.85)  | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF |
| 1.500                        | 90094   | 2.500 (63.50)          | 3.750 (95.25)  | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF |
| <b>LONG PROJECTION</b>       |         |                        |                |                |             |            |
| 0.750                        | 90086   | 4.000 (101.60)         | 1.750 (44.45)  | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF |
| 1.000                        | 90089   | 4.000 (101.60)         | 2.250 (57.20)  | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF |
| 1.250                        | 90092   | 4.000 (101.60)         | 2.750 (69.85)  | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF |
| 1.500                        | 90095   | 4.000 (101.60)         | 3.750 (95.25)  | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |             |            |
| 0.750                        | 90087   | 6.000 (152.40)         | 1.750 (44.45)  | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF |
| 1.000                        | 90090   | 6.000 (152.40)         | 2.250 (57.20)  | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF |
| 1.250                        | 90093   | 6.000 (152.40)         | 2.750 (69.85)  | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF |
| 1.500                        | 90096   | 6.000 (152.40)         | 3.750 (95.25)  | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF |

NOTE: All Holders Have 5/8" -11 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option Standard Coolant Delivery Through Face of Pilot

**CAT50 - Inch**



Balanced to G6.3 @ 15,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 0.2500                       | 79092   | 3.740 (95.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 12881   | 3.740 (95.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 79093   | 3.740 (95.0)           | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 79094   | 3.740 (95.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 79098   | 3.740 (95.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 79095   | 3.740 (95.0)           | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 90741   | 3.740 (95.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 79096   | 4.134 (105.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| 1.2500                       | 79097   | 4.134 (105.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 0.2500                       | 90734   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 12882   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 90735   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 90737   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 90739   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 17314   | 4.724 (120.0)          | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 32002   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 90742   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| 1.2500                       | 90744   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 0.2500                       | 17305   | 6.300 (160.0)          | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 12883   | 6.300 (160.0)          | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 90736   | 6.300 (160.0)          | 0.945 (24.0)   | 1.338 (34.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 90738   | 6.300 (160.0)          | 1.063 (27.0)   | 1.653 (42.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 13512   | 6.300 (160.0)          | 1.063 (27.0)   | 1.653 (42.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 90740   | 6.300 (160.0)          | 1.299 (33.0)   | 2.007 (51.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 32003   | 6.300 (160.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 90743   | 6.300 (160.0)          | 1.732 (44.0)   | 2.362 (60.0)   | 2.440 (62.0)   | 0.394 (10.0) |
| 1.2500                       | 90745   | 6.300 (160.0)          | 1.732 (44.0)   | 2.362 (60.0)   | 2.440 (62.0)   | 0.394 (10.0) |

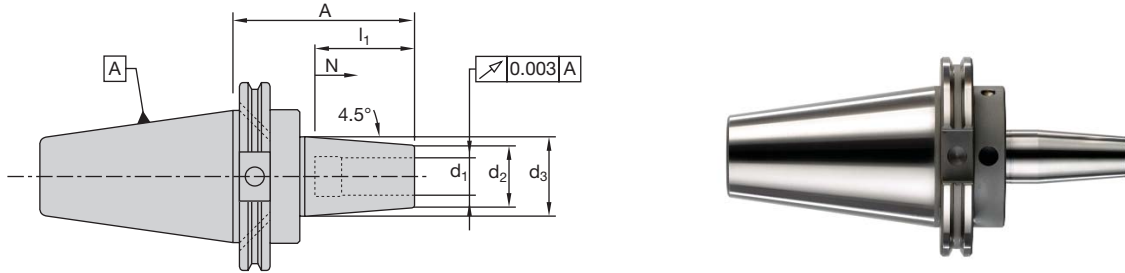
NOTE: All Holders Have 1"-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option Standard

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## CAT50 ThermoGrip™ Holders

### CAT50 - Metric



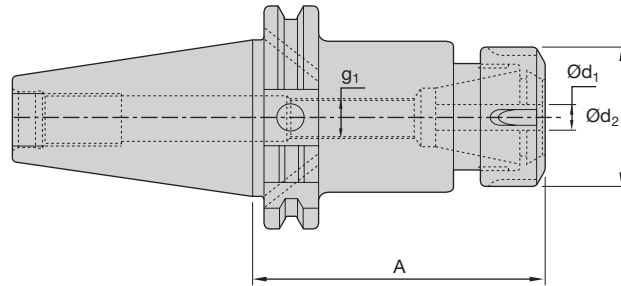
Balanced to G6.3 @ 15,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 79058   | 95.0 (3.740)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 79059   | 95.0 (3.740)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 17321   | 95.0 (3.740)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 79061   | 95.0 (3.740)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 79062   | 95.0 (3.740)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 79063   | 95.0 (3.740)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 79064   | 95.0 (3.740)           | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 79065   | 95.0 (3.740)           | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 79066   | 105.0 (4.130)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 79067   | 105.0 (4.130)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.440)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 90746   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 90748   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 17329   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 17331   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 90752   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 90754   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 90756   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 90758   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 17339   | 120.0 (4.724)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 17350   | 120.0 (4.724)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.440)   | 10.0 (0.394) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 90747   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 90749   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 90750   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 90751   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 90753   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 90755   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 90757   | 160.0 (6.300)          | 33.0 (1.299)   | 51.0 (2.007)   | 52.0 (2.047)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 17319   | 160.0 (6.300)          | 33.0 (1.299)   | 51.0 (2.007)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 17344   | 160.0 (6.300)          | 44.0 (1.732)   | 60.0 (2.362)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 17363   | 160.0 (6.300)          | 44.0 (1.732)   | 60.0 (2.362)   | 62.0 (2.440)   | 10.0 (0.394) |

NOTE: All Holders Have 1"-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option Standard

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

**CAT50**



Balanced to G6.3 @ 8,000 RPM

| Type                         | EDP No. | Dimensions (inches/mm) |                    |                |                |                |
|------------------------------|---------|------------------------|--------------------|----------------|----------------|----------------|
|                              |         | A                      | d <sub>1</sub>     | d <sub>2</sub> | l <sub>1</sub> | g <sub>1</sub> |
| <b>SHORT PROJECTION</b>      |         |                        |                    |                |                |                |
| ER16                         | 90191   | 3.000 (76.20)          | .020-.393 (.50-10) | 1.110 (28.00)  | 2.000 (50.80)  | 7/16-20 LH     |
| ER20                         | 90195   | 3.000 (76.20)          | .039-.511 (1.0-13) | 1.259 (34.00)  | 2.000 (50.80)  | 9/16-18 LH     |
| ER32                         | 90203   | 3.000 (76.20)          | .078-.787 (2.0-20) | 1.970 (50.00)  | 2.000 (50.80)  | 13/16-16 LH    |
| <b>STANDARD PROJECTION</b>   |         |                        |                    |                |                |                |
| ER16                         | 90192   | 4.000 (101.60)         | .020-.393 (.50-10) | 1.110 (28.00)  | 3.000 (76.20)  | 7/16-20 LH     |
| ER20                         | 90196   | 4.000 (101.60)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 3.000 (76.20)  | 9/16-18 LH     |
| ER32                         | 90204   | 4.000 (101.60)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 3.000 (76.20)  | 13/16-16 LH    |
| <b>LONG PROJECTION</b>       |         |                        |                    |                |                |                |
| ER16                         | 90193   | 6.000 (152.40)         | .020-.393 (.50-10) | 1.110 (28.00)  | 4.000 (101.60) | 7/16-20 LH     |
| ER20                         | 90197   | 6.000 (152.40)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 4.000 (101.60) | 9/16-18 LH     |
| ER32                         | 90205   | 6.000 (152.40)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 4.000 (101.60) | 13/16-16 LH    |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                    |                |                |                |
| ER16                         | 90194   | 8.000 (203.20)         | .020-.393 (.50-10) | 1.110 (28.00)  | 4.000 (101.60) | 7/16-20 LH     |
| ER20                         | 90198   | 8.000 (203.20)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 4.000 (101.60) | 9/16-18 LH     |
| ER32                         | 90206   | 8.000 (203.20)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 4.000 (101.60) | 13/16-16 LH    |

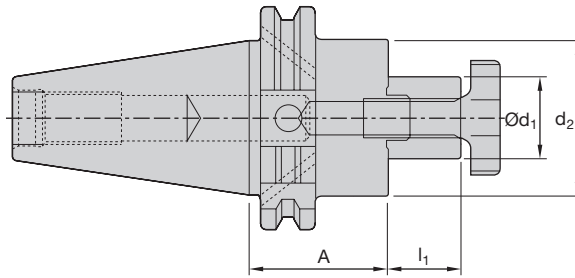
NOTE: All Holders Have 1"-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option Standard

l<sub>1</sub> = Maximum Socket Depth Behind Collet with Back Up Screw Installed



## CAT50 Face Mill Holders

### CAT50 - Inch



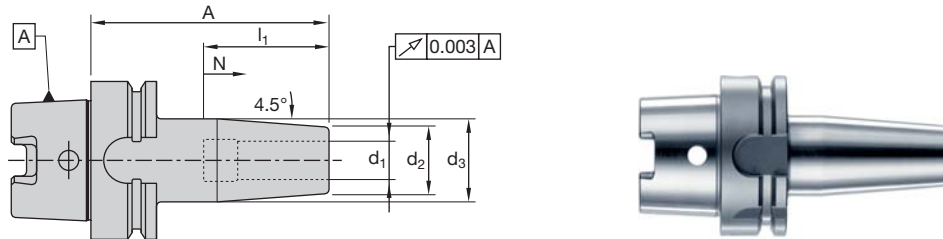
Balanced to G6.3 @ 8,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |             |             |
|------------------------------|---------|------------------------|----------------|----------------|-------------|-------------|
|                              |         | A                      | d <sub>2</sub> | l <sub>1</sub> | Key         | Thread      |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |             |             |
| 0.750                        | 90211   | 2.000 (50.80)          | 1.750 (44.45)  | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF  |
| 1.000                        | 90214   | 2.250 (57.20)          | 2.250 (57.20)  | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF  |
| 1.250                        | 90217   | 2.250 (57.20)          | 2.750 (69.85)  | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF  |
| 1.500                        | 90220   | 2.500 (63.50)          | 3.750 (95.25)  | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF  |
| 2.500                        | 90223   | 2.500 (63.50)          | 4.880 (123.95) | 1.120 (28.45)  | 1.00 X 1.00 | 1.00-14 UNF |
| <b>LONG PROJECTION</b>       |         |                        |                |                |             |             |
| 0.750                        | 90212   | 4.000 (101.6)          | 1.750 (44.45)  | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF  |
| 1.000                        | 90215   | 4.000 (101.6)          | 2.250 (57.20)  | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF  |
| 1.250                        | 90218   | 4.000 (101.6)          | 2.750 (69.85)  | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF  |
| 1.500                        | 90221   | 4.000 (101.6)          | 3.750 (95.25)  | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF  |
| 2.500                        | 90224   | 4.000 (101.6)          | 4.880 (123.95) | 1.120 (28.45)  | 1.00 X 1.00 | 1.00-14 UNF |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |             |             |
| 0.750                        | 90213   | 6.000 (152.4)          | 1.750 (44.45)  | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF  |
| 1.000                        | 90216   | 6.000 (152.4)          | 2.250 (57.20)  | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF  |
| 1.250                        | 90219   | 6.000 (152.4)          | 2.750 (69.85)  | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF  |
| 1.500                        | 90222   | 6.000 (152.4)          | 3.750 (95.25)  | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF  |
| 2.500                        | 32004   | 6.000 (152.4)          | 4.880 (123.95) | 1.120 (28.45)  | 1.00 X 1.00 | 1.00-14 UNF |

NOTE: All Holders Have 1"-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option Standard  
Coolant Delivery Through Face of Pilot



#### HSK40A – Inch



Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>             | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|----------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |              |
| 0.1250                     | 32005   | 3.150 (80.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                     | 32006   | 3.150 (80.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                     | 79103   | 3.150 (80.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                     | 32007   | 3.150 (80.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.3750                     | 79104   | 3.150 (80.0)           | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                     | 79105   | 3.540 (90.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                     | 79106   | 3.540 (90.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>     |         |                        |                |                |                |              |
| 0.1250                     | 32008   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                     | 32009   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                     | 32010   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                     | 32011   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.3750                     | 32012   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                     | 32013   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                     | 32014   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |

All holders can be run with internal coolant

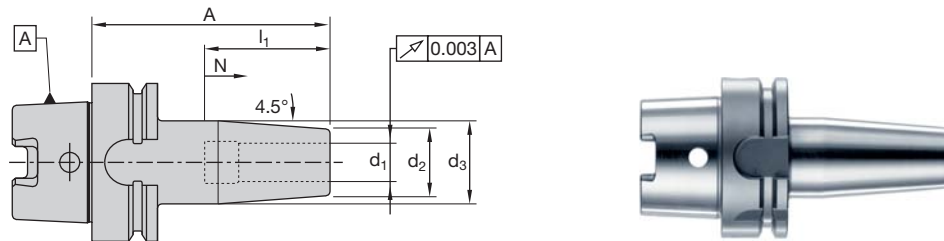
Please Order Coolant Tube EDP No. 56164 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK40A ThermoGrip™ Holders

### HSK40A – Metric



Balanced to G6.3 @ 18,000 RPM

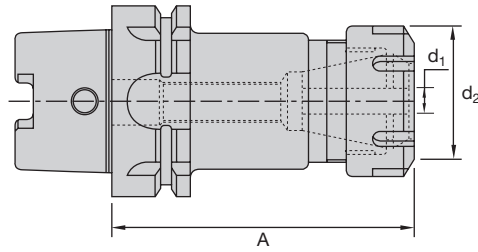
| d <sub>1</sub>             | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|----------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |              |
| 3.0 (0.118)                | 90264   | 60.0 (2.360)           | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 4.0 (0.158)                | 90265   | 60.0 (2.360)           | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 5.0 (0.197)                | 90266   | 60.0 (2.360)           | 15.0 (0.591)   | 21.0 (0.826)   | 25.0 (0.984)   | 5.0 (0.197)  |
| 6.0 (0.236)                | 90267   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                | 90270   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)               | 90273   | 80.0 (3.150)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)               | 90276   | 90.0 (3.540)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)               | 32015   | 90.0 (3.540)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)               | 90279   | 90.0 (3.540)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>     |         |                        |                |                |                |              |
| 6.0 (0.236)                | 90268   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                | 90271   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)               | 90274   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)               | 90277   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)               | 32016   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)               | 90280   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56164 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

#### HSK40A



Balanced to G6.3 @ 15,000 RPM

| Type                       | EDP No. | Dimensions (inches/mm) |                    |                |                |                |
|----------------------------|---------|------------------------|--------------------|----------------|----------------|----------------|
|                            |         | A                      | d <sub>1</sub>     | d <sub>2</sub> | l <sub>1</sub> | g <sub>1</sub> |
| <b>STANDARD PROJECTION</b> |         |                        |                    |                |                |                |
| ER16                       | 90283   | 3.150 (80.00)          | .020-.393 (.50-10) | 1.110 (28.00)  | 0.984 (25.00)  | M10 X 1.5 RH   |
| ER20                       | 90284   | 3.150 (80.00)          | .039-.511 (1.0-13) | 1.259 (34.00)  | 0.787 (20.00)  | M12 X 1.75 RH  |
| <b>LONG PROJECTION</b>     |         |                        |                    |                |                |                |
| ER32                       | 90286   | 3.937 (100.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 0.984 (25.00)  | M22 X 1.5 RH   |

All holders can be run with internal coolant

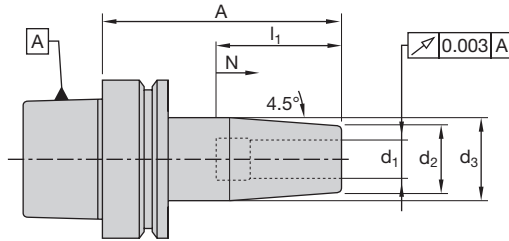
Please Order Coolant Tube EDP No. 56164 separately

l<sub>1</sub> = Maximum Socket Depth Behind Collet with Back Up Screw Installed



## HSK40E ThermoGrip™ Holders

### HSK40E - Inch



Balanced to G2.5 @ 25,000 RPM

| d <sub>1</sub>             | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|----------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |              |
| 0.1250                     | 32017   | 2.360 (60.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                     | 32018   | 3.150 (80.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                     | 32019   | 3.150 (80.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                     | 32020   | 3.150 (80.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.3750                     | 32021   | 3.150 (80.0)           | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                     | 32022   | 3.540 (90.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                     | 32023   | 3.540 (90.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>     |         |                        |                |                |                |              |
| 0.1250                     | 32024   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                     | 32025   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                     | 32026   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                     | 32027   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.3750                     | 32028   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                     | 32029   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                     | 32030   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |

All holders can be run with internal coolant

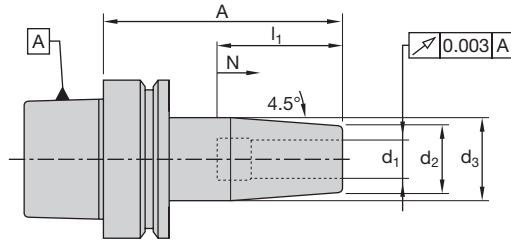
Please Order Coolant Tube EDP No. 56164 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK40E ThermoGrip™ Holders

### HSK40E - Metric



Balanced to G2.5 @ 25,000 RPM

| d <sub>1</sub>             | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|----------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |              |
| 3.0 (0.118)                | 11402   | 60.0 (2.360)           | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 4.0 (0.158)                | 11403   | 60.0 (2.360)           | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 5.0 (0.197)                | 11404   | 60.0 (2.360)           | 15.0 (0.591)   | 21.0 (0.826)   | 25.0 (0.984)   | 5.0 (0.197)  |
| 6.0 (0.236)                | 11405   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                | 11406   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)               | 11407   | 80.0 (3.150)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)               | 11408   | 90.0 (3.540)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)               | 32031   | 90.0 (3.540)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)               | 32032   | 90.0 (3.540)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>     |         |                        |                |                |                |              |
| 6.0 (0.236)                | 32033   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                | 32034   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)               | 32035   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)               | 32036   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 14.0 (0.551)               | 32037   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)               | 32038   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56164 separately

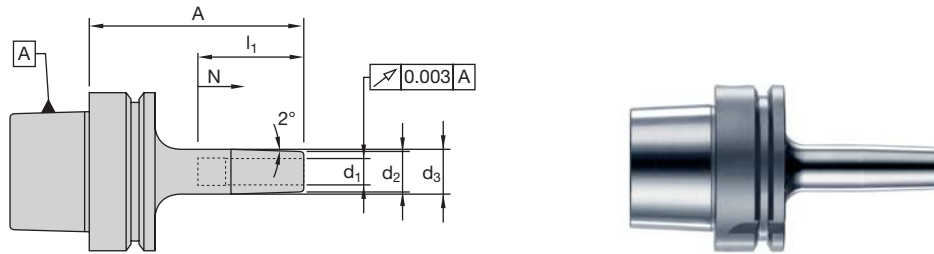
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm





## HSK40E Slimline ThermoGrip™ Holders

### HSK40E Slimline - Metric



Balanced to G2.5 @ 25,000 RPM

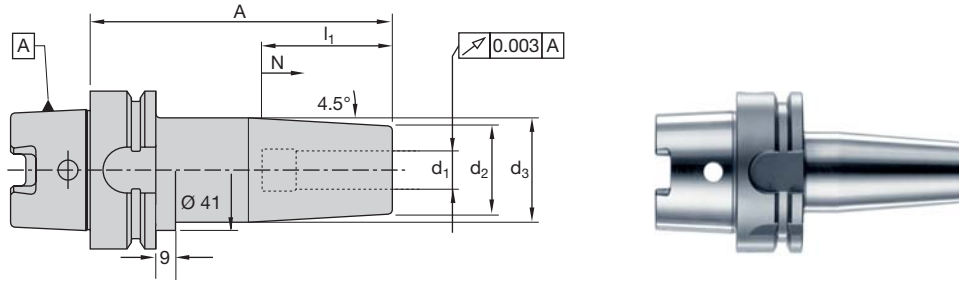
| d <sub>1</sub>             | EDP No. | Dimensions (mm/inches) |                |                |                |             |
|----------------------------|---------|------------------------|----------------|----------------|----------------|-------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N           |
| <b>SHORT PROJECTION</b>    |         |                        |                |                |                |             |
| 3.0 (0.118)                | 32213   | 64.0 (2.52)            | 11.0 (0.433)   | 13.0 (0.512)   | 20.0 (0.787)   | 5.0 (0.197) |
| 4.0 (0.158)                | 32214   | 64.0 (2.52)            | 11.0 (0.433)   | 14.0 (0.551)   | 20.0 (0.787)   | 5.0 (0.197) |
| 6.0 (0.236)                | 32215   | 84.0 (3.31)            | 12.0 (0.472)   | 18.0 (0.709)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.315)                | 32216   | 84.0 (3.31)            | 14.0 (0.551)   | 20.0 (0.787)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.394)               | 32217   | 84.0 (3.31)            | 16.0 (0.630)   | 22.0 (0.866)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.472)               | 32218   | 84.0 (3.31)            | 18.0 (0.709)   | 24.0 (0.945)   | 47.0 (1.850)   | 5.0 (0.197) |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |             |
| 3.0 (0.118)                | 32219   | 94.0 (3.70)            | 11.0 (0.433)   | 16.0 (0.630)   | 20.0 (0.787)   | 5.0 (0.197) |
| 4.0 (0.158)                | 32220   | 94.0 (3.70)            | 11.0 (0.433)   | 17.0 (0.669)   | 20.0 (0.787)   | 5.0 (0.197) |
| 6.0 (0.236)                | 32221   | 114.0 (4.49)           | 12.0 (0.472)   | 21.0 (0.826)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.315)                | 32222   | 114.0 (4.49)           | 14.0 (0.551)   | 23.0 (0.906)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.394)               | 32223   | 114.0 (4.49)           | 16.0 (0.630)   | 25.0 (0.984)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.472)               | 32224   | 114.0 (4.49)           | 18.0 (0.709)   | 27.0 (1.063)   | 47.0 (1.850)   | 5.0 (0.197) |
| <b>LONG PROJECTION</b>     |         |                        |                |                |                |             |
| 6.0 (0.236)                | 32225   | 144.0 (5.669)          | 12.0 (0.472)   | 24.0 (0.945)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.315)                | 32226   | 144.0 (5.669)          | 14.0 (0.551)   | 26.0 (1.024)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.394)               | 32227   | 144.0 (5.669)          | 16.0 (0.630)   | 28.0 (1.102)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.472)               | 32228   | 144.0 (5.669)          | 18.0 (0.709)   | 30.0 (1.181)   | 47.0 (1.850)   | 5.0 (0.197) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56164 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

## HSK50A - Inch



Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 0.1250                       | 32039   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                       | 32040   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 79107   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 32041   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 79108   | 3.34 (85.0)            | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 79109   | 3.54 (90.0)            | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 79110   | 3.74 (95.0)            | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 79111   | 3.94 (100.0)           | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 0.1250                       | 32042   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 32043   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 32044   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 32045   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 32046   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 32047   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 32048   | 4.724 (120.0)          | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 0.1250                       | 32049   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                       | 32050   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 32051   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 32052   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 32053   | 6.30 (160.0)           | 0.945 (24.0)   | 1.338 (34.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 32054   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 32055   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 32056   | 6.30 (160.0)           | 1.299 (33.0)   | 2.007 (51.0)   | 2.047 (52.0)   | 0.394 (10.0) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56165 separately

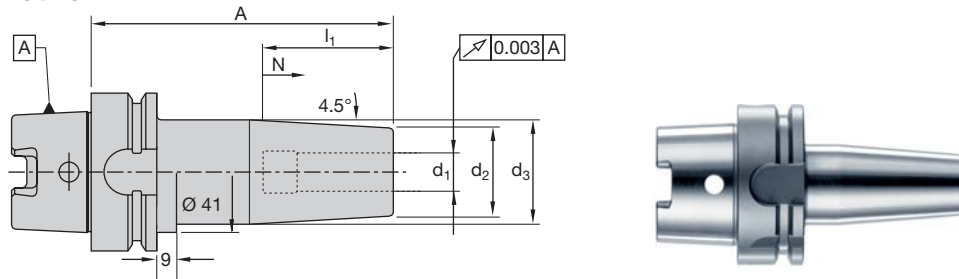
120mm and 160mm Projection Holders have 41mm Diameter Shoulder

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK50A ThermoGrip™ Holders

### HSK50A – Metric



Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 3.0 (0.118)                  | 32057   | 80.0 (3.15)            | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 10.0 (0.394) |
| 4.0 (0.158)                  | 32058   | 80.0 (3.15)            | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 10.0 (0.394) |
| 5.0 (0.197)                  | 32059   | 80.0 (3.15)            | 15.0 (0.591)   | 21.0 (0.826)   | 25.0 (0.984)   | 10.0 (0.394) |
| 6.0 (0.236)                  | 32060   | 80.0 (3.15)            | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 32061   | 80.0 (3.15)            | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 32062   | 85.0 (3.34)            | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 32063   | 90.0 (3.54)            | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32064   | 90.0 (3.54)            | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 32065   | 95.0 (3.74)            | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32066   | 95.0 (3.74)            | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 32067   | 100.0 (3.94)           | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 32068   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 32069   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 32070   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 32071   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32072   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 32073   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10 (0.394)   |
| 18.0 (0.709)                 | 32074   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 32075   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 32076   | 160.0 (6.30)           | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 32077   | 160.0 (6.30)           | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 32078   | 160.0 (6.30)           | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 32079   | 160.0 (6.30)           | 24.0 (0.945)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32080   | 160.0 (6.30)           | 27.0 (1.063)   | 42.0 (1.653)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 32081   | 160.0 (6.30)           | 27.0 (1.063)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32082   | 160.0 (6.30)           | 33.0 (1.299)   | 51.0 (2.007)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 32083   | 160.0 (6.30)           | 33.0 (1.299)   | 51.0 (2.007)   | 52.0 (2.047)   | 10.0 (0.394) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56165 separately

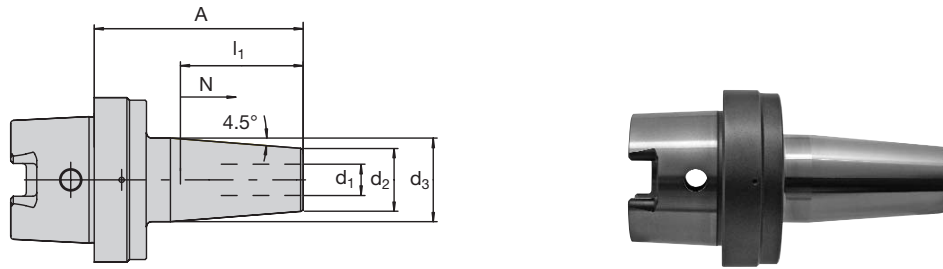
120mm and 160mm Projection Holders have 41mm Diameter Shoulder

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK50C ThermoGrip™ Holders

### HSK50C – Metric



Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>             | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|----------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                | 13108   | 70.0 (2.76)            | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                | 13109   | 70.0 (2.76)            | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)               | 13110   | 75.0 (2.95)            | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)               | 13111   | 80.0 (3.15)            | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)               | 13112   | 80.0 (3.15)            | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)               | 13113   | 85.0 (3.34)            | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)               | 13114   | 85.0 (3.34)            | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)               | 13116   | 90.0 (3.54)            | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |

All holders can be run with internal coolant

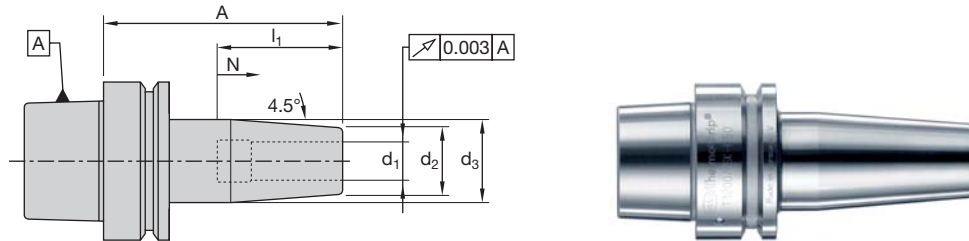
Please Order Coolant Tube EDP No. 56165 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK50E ThermoGrip™ Holders

### HSK50E - Inch



Balanced to G2.5 @ 25,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 0.1250                       | 32084   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                       | 32085   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 32086   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 32087   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 32088   | 3.34 (85.0)            | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 32089   | 3.54 (90.0)            | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 32090   | 3.74 (95.0)            | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 32091   | 3.94 (100.0)           | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 0.1250                       | 32092   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 32093   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 32094   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 32095   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 32096   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 32097   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 32098   | 4.724 (120.0)          | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 0.1250                       | 32099   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                       | 32100   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 32101   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 32102   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 32103   | 6.30 (160.0)           | 0.945 (24.0)   | 1.338 (34.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 32104   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 32105   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 32106   | 6.30 (160.0)           | 1.299 (33.0)   | 2.007 (51.0)   | 2.047 (52.0)   | 0.394 (10.0) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56165 separately

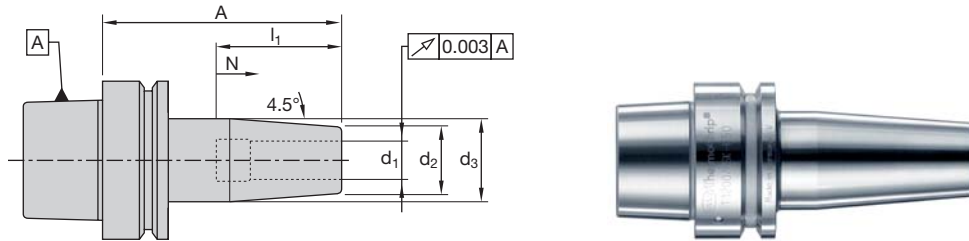
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm





## HSK50E ThermoGrip™ Holders

### HSK50E - Metric



Balanced to G2.5 @ 25,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 3.0 (0.118)                  | 32107   | 80.0 (3.150)           | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 10.0 (0.394) |
| 4.0 (0.156)                  | 32108   | 80.0 (3.150)           | 15.0 (0.591)   | 21.0 (0.826)   | 20.0 (0.787)   | 10.0 (0.394) |
| 5.0 (0.197)                  | 32109   | 80.0 (3.150)           | 15.0 (0.591)   | 21.0 (0.826)   | 25.0 (0.984)   | 10.0 (0.394) |
| 6.0 (0.236)                  | 32110   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 32111   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 32112   | 85.0 (3.340)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 32113   | 90.0 (3.540)           | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32114   | 90.0 (3.540)           | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 32115   | 95.0 (3.740)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32116   | 95.0 (3.740)           | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 32117   | 100.0 (3.937)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 32118   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 32119   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 32120   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 32121   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32122   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 32123   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32124   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 32125   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 32126   | 160.0 (6.30)           | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 32127   | 160.0 (6.30)           | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 32128   | 160.0 (6.30)           | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 32129   | 160.0 (6.30)           | 24.0 (0.945)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32130   | 160.0 (6.30)           | 27.0 (1.063)   | 42.0 (1.653)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 32131   | 160.0 (6.30)           | 27.0 (1.063)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32132   | 160.0 (6.30)           | 33.0 (1.299)   | 51.0 (2.007)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 32133   | 160.0 (6.30)           | 33.0 (1.299)   | 51.0 (2.007)   | 52.0 (2.047)   | 10.0 (0.394) |

All holders can be run with internal coolant

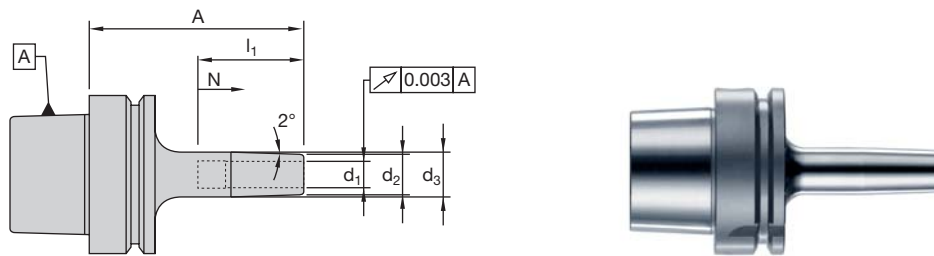
Please Order Coolant Tube EDP No. 56165 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK50E Slimline ThermoGrip™ Holders

### HSK50E Slimline - Metric



Balanced to G2.5 @ 25,000 RPM

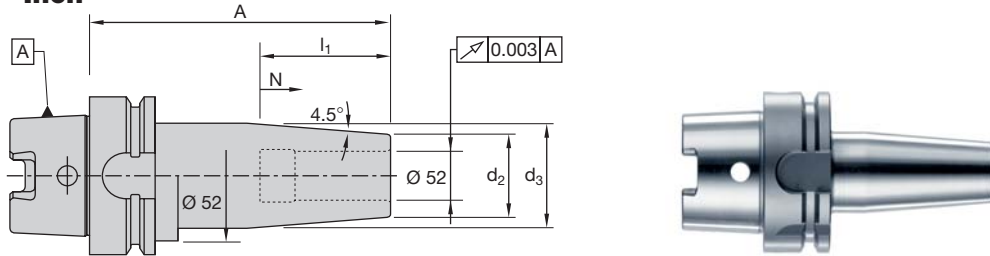
| d <sub>1</sub>             | EDP No. | Dimensions (mm/inches) |                |                |                |             |
|----------------------------|---------|------------------------|----------------|----------------|----------------|-------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N           |
| <b>SHORT PROJECTION</b>    |         |                        |                |                |                |             |
| 3.0 (0.1181)               | 32229   | 70.0 (2.760)           | 11.0 (0.433)   | 13.0 (0.512)   | 20.0 (0.787)   | 5.0 (0.197) |
| 4.0 (0.1575)               | 32230   | 70.0 (2.760)           | 11.0 (0.433)   | 14.0 (0.551)   | 20.0 (0.787)   | 5.0 (0.197) |
| 6.0 (0.2362)               | 32231   | 90.0 (3.540)           | 12.0 (0.472)   | 18.0 (0.709)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.3150)               | 32232   | 90.0 (3.540)           | 14.0 (0.551)   | 20.0 (0.787)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.3937)              | 32233   | 90.0 (3.540)           | 16.0 (0.630)   | 22.0 (0.866)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.4724)              | 32234   | 90.0 (3.540)           | 18.0 (0.709)   | 24.0 (0.945)   | 47.0 (1.850)   | 5.0 (0.197) |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |             |
| 3.0 (0.1181)               | 32235   | 100.0 (3.937)          | 11.0 (0.433)   | 16.0 (0.630)   | 20.0 (0.787)   | 5.0 (0.197) |
| 4.0 (0.1575)               | 32236   | 100.0 (3.937)          | 11.0 (0.433)   | 17.0 (0.669)   | 20.0 (0.787)   | 5.0 (0.197) |
| 6.0 (0.2362)               | 32237   | 120.0 (4.724)          | 12.0 (0.472)   | 21.0 (0.827)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.3150)               | 32238   | 120.0 (4.724)          | 14.0 (0.551)   | 23.0 (0.906)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.3937)              | 32239   | 120.0 (4.724)          | 16.0 (0.630)   | 25.0 (0.984)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.4724)              | 32240   | 120.0 (4.724)          | 18.0 (0.709)   | 27.0 (1.063)   | 47.0 (1.850)   | 5.0 (0.197) |
| <b>LONG PROJECTION</b>     |         |                        |                |                |                |             |
| 6.0 (0.2362)               | 32241   | 150.0 (5.906)          | 12.0 (0.472)   | 24.0 (0.945)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.3150)               | 32242   | 150.0 (5.906)          | 14.0 (0.551)   | 26.0 (1.024)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.3937)              | 32243   | 150.0 (5.906)          | 16.0 (0.630)   | 28.0 (1.102)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.4724)              | 32244   | 150.0 (5.906)          | 18.0 (0.709)   | 30.0 (1.181)   | 47.0 (1.850)   | 5.0 (0.197) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56165 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

#### HSK63A - Inch



Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 0.1250                       | 32134   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                       | 32135   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 79069   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 79070   | 3.15 (80.0)            | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 79071   | 3.34 (85.0)            | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 79073   | 3.54 (90.0)            | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 79075   | 3.74 (95.0)            | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 79077   | 3.94 (100.0)           | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 79076   | 4.52 (115.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 0.1250                       | 32136   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                       | 32137   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 79162   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 79164   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 79166   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 79168   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 79170   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 1.0000                       | 79078   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.2500                       | 79079   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 0.1250                       | 32138   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.1875                       | 32139   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.2500                       | 79163   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 79165   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 79167   | 6.30 (160.0)           | 0.945 (24.0)   | 1.338 (34.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 79169   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 79171   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 79173   | 6.30 (160.0)           | 1.299 (33.0)   | 2.007 (51.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 79174   | 6.30 (160.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 79175   | 6.30 (160.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.2500                       | 79176   | 6.30 (160.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56166 separately

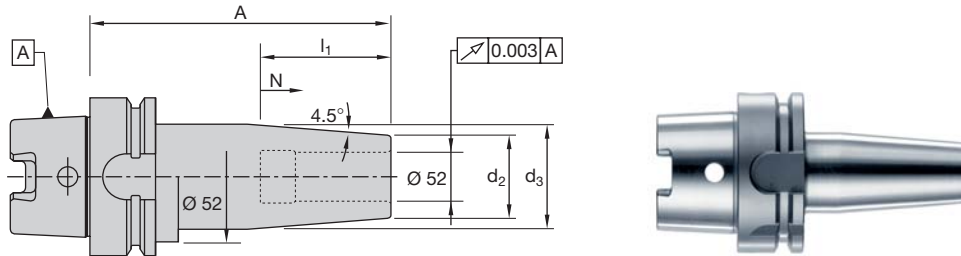
120mm and 160mm Projection Holders have 52mm Diameter Shoulder

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK63A ThermoGrip™ Holders

### HSK63A – Metric



Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 3.0 (0.118)                  | 32140   | 80.0 (3.150)           | 15.0 (0.591)   | 20.0 (0.787)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 4.0 (0.158)                  | 32141   | 80.0 (3.150)           | 15.0 (0.591)   | 20.0 (0.787)   | 20.0 (0.787)   | 5.0 (0.197)  |
| 5.0 (0.197)                  | 32142   | 80.0 (3.150)           | 15.0 (0.591)   | 20.0 (0.787)   | 25.0 (0.984)   | 5.0 (0.197)  |
| 6.0 (0.236)                  | 79048   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 79049   | 80.0 (3.150)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 79050   | 85.0 (3.340)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 79051   | 90.0 (3.540)           | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 79052   | 90.0 (3.540)           | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 79053   | 95.0 (3.740)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 79057   | 95.0 (3.740)           | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 79054   | 100.0 (3.937)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 79055   | 115.0 (4.520)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 79149   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 79151   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 51365   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 79153   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 79155   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 79157   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32143   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 79160   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 79056   | 120.0 (4.724)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 79150   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 51366   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 79152   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 79154   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 79156   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 79158   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 79159   | 160.0 (6.300)          | 33.0 (1.299)   | 51.0 (2.007)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 32144   | 160.0 (6.300)          | 33.0 (1.299)   | 51.0 (2.007)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 51368   | 160.0 (6.300)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 79161   | 160.0 (6.300)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56166 separately

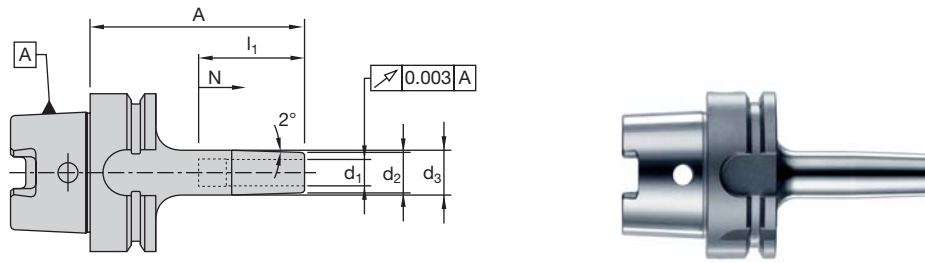
120mm and 160mm Projection Holders have 52mm Diameter Shoulder

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK63A Slimline ThermoGrip™ Holders

### HSK63A Slimline - Metric



Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (mm/inches) |                |                |                |             |
|------------------------------|---------|------------------------|----------------|----------------|----------------|-------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N           |
| <b>SHORT PROJECTION</b>      |         |                        |                |                |                |             |
| 3.0 (0.1181)                 | 32245   | 70.0 (2.760)           | 11.0 (0.433)   | 13.0 (0.512)   | 20.0 (0.787)   | 5.0 (0.197) |
| 4.0 (0.1575)                 | 32246   | 70.0 (2.760)           | 11.0 (0.433)   | 14.0 (0.551)   | 20.0 (0.787)   | 5.0 (0.197) |
| 6.0 (0.2362)                 | 32247   | 90.0 (3.540)           | 12.0 (0.472)   | 18.0 (0.709)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.3150)                 | 32248   | 90.0 (3.540)           | 14.0 (0.551)   | 20.0 (0.787)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.3937)                | 32249   | 90.0 (3.540)           | 16.0 (0.630)   | 22.0 (0.866)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.4724)                | 32250   | 90.0 (3.540)           | 18.0 (0.709)   | 24.0 (0.945)   | 47.0 (1.850)   | 5.0 (0.197) |
| 16.0 (0.6299)                | 32251   | 90.0 (3.540)           | 22.0 (0.866)   | 28.0 (1.102)   | 50.0 (1.967)   | 5.0 (0.197) |
| 20.0 (0.7874)                | 32252   | 100.0 (3.937)          | 27.0 (1.063)   | 34.0 (1.339)   | 52.0 (2.047)   | 5.0 (0.197) |
| 25.0 (0.9843)                | 32253   | 105.0 (4.130)          | 34.0 (1.339)   | 42.0 (1.653)   | 58.0 (2.283)   | 5.0 (0.197) |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |             |
| 3.0 (0.1181)                 | 32254   | 100.0 (3.940)          | 11.0 (0.433)   | 16.0 (0.630)   | 20.0 (0.787)   | 5.0 (0.197) |
| 4.0 (0.1575)                 | 32255   | 100.0 (3.940)          | 11.0 (0.433)   | 17.0 (0.669)   | 20.0 (0.787)   | 5.0 (0.197) |
| 6.0 (0.2362)                 | 32256   | 120.0 (4.724)          | 12.0 (0.472)   | 21.0 (0.827)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.3150)                 | 32257   | 120.0 (4.724)          | 14.0 (0.551)   | 23.0 (0.906)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.3937)                | 32258   | 120.0 (4.724)          | 16.0 (0.630)   | 25.0 (0.984)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.4724)                | 32259   | 120.0 (4.724)          | 18.0 (0.709)   | 27.0 (1.063)   | 47.0 (1.850)   | 5.0 (0.197) |
| 16.0 (0.6299)                | 32260   | 120.0 (4.724)          | 22.0 (0.866)   | 31.0 (1.220)   | 50.0 (1.967)   | 5.0 (0.197) |
| 20.0 (0.7874)                | 32261   | 130.0 (5.120)          | 27.0 (1.063)   | 37.0 (1.457)   | 52.0 (2.047)   | 5.0 (0.197) |
| 25.0 (0.9843)                | 32262   | 130.0 (5.120)          | 34.0 (1.339)   | 44.0 (1.732)   | 58.0 (2.283)   | 5.0 (0.197) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |             |
| 3.0 (0.1181)                 | 32263   | 130.0 (5.120)          | 11.0 (0.433)   | 19.0 (0.748)   | 20.0 (0.787)   | 5.0 (0.197) |
| 4.0 (0.1575)                 | 32264   | 130.0 (5.120)          | 11.0 (0.433)   | 20.0 (0.787)   | 20.0 (0.787)   | 5.0 (0.197) |
| 6.0 (0.2362)                 | 32265   | 150.0 (5.906)          | 12.0 (0.472)   | 24.0 (0.945)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.3150)                 | 32266   | 150.0 (5.906)          | 14.0 (0.551)   | 26.0 (1.024)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.3937)                | 32267   | 150.0 (5.906)          | 16.0 (0.630)   | 28.0 (1.102)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.4724)                | 32268   | 150.0 (5.906)          | 18.0 (0.709)   | 30.0 (1.181)   | 47.0 (1.850)   | 5.0 (0.197) |
| 16.0 (0.6299)                | 32269   | 150.0 (5.906)          | 22.0 (0.866)   | 34.0 (1.339)   | 50.0 (1.967)   | 5.0 (0.197) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |             |
| 6.0 (0.2362)                 | 32270   | 180.0 (7.087)          | 12.0 (0.472)   | 27.0 (1.063)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.3150)                 | 32271   | 180.0 (7.087)          | 14.0 (0.551)   | 29.0 (1.142)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.3937)                | 32272   | 180.0 (7.087)          | 16.0 (0.630)   | 31.0 (1.220)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.4724)                | 32273   | 180.0 (7.087)          | 18.0 (0.709)   | 33.0 (1.299)   | 47.0 (1.850)   | 5.0 (0.197) |
| 16.0 (0.6299)                | 32274   | 180.0 (7.087)          | 22.0 (0.866)   | 37.0 (1.457)   | 50.0 (1.967)   | 5.0 (0.197) |
| 20.0 (0.7874)                | 32275   | 180.0 (7.087)          | 27.0 (1.063)   | 42.0 (1.653)   | 52.0 (2.047)   | 5.0 (0.197) |
| 25.0 (0.9843)                | 32276   | 180.0 (7.087)          | 34.0 (1.339)   | 47.0 (1.850)   | 58.0 (2.283)   | 5.0 (0.197) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56166 separately

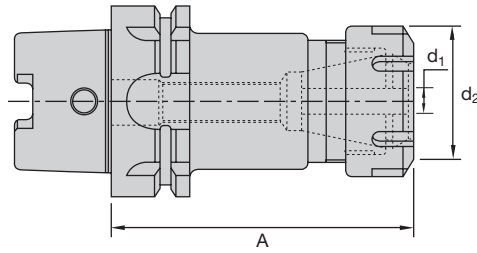
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm





## HSK63A ER Collet Chucks

### HSK63A



Balanced to G6.3 @ 15,000 RPM

| Type                         | EDP No. | Dimensions (inches/mm) |                    |                |                |                |
|------------------------------|---------|------------------------|--------------------|----------------|----------------|----------------|
|                              |         | A                      | d <sub>1</sub>     | d <sub>2</sub> | l <sub>1</sub> | g <sub>1</sub> |
| <b>SHORT PROJECTION</b>      |         |                        |                    |                |                |                |
| ER16                         | 90348   | 3.150 (80.00)          | .020-.393 (.50-10) | 1.110 (28.00)  | 0.787 (20.00)  | M10 X 1.5 RH   |
| ER20                         | 90351   | 3.150 (80.00)          | .039-.511 (1.0-13) | 1.259 (34.00)  | 0.591 (15.00)  | M12 X 1.75 RH  |
| ER32                         | 90357   | 3.150 (80.00)          | .078-.787 (2.0-20) | 1.970 (50.00)  | 0.591 (15.00)  | M22 X 1.5 RH   |
| <b>STANDARD PROJECTION</b>   |         |                        |                    |                |                |                |
| ER16                         | 90349   | 4.720 (120.00)         | .020-.393 (.50-10) | 1.110 (28.00)  | 2.000 (101.60) | M10 X 1.5 RH   |
| ER20                         | 90352   | 4.720 (120.00)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 1.570 (40.00)  | M12 X 1.75 RH  |
| ER32                         | 90358   | 4.720 (120.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 1.570 (40.00)  | M22 X 1.5 RH   |
| <b>LONG PROJECTION</b>       |         |                        |                    |                |                |                |
| ER16                         | 90350   | 6.300 (160.00)         | .020-.393 (.50-10) | 1.110 (28.00)  | 3.000 (76.20)  | M10 X 1.5 RH   |
| ER20                         | 90353   | 6.300 (160.00)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 3.000 (76.20)  | M12 X 1.75 RH  |
| ER32                         | 90359   | 6.300 (160.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 2.000 (101.60) | M22 X 1.5 RH   |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                    |                |                |                |
| ER16                         | 32145   | 7.870 (200.00)         | .020-.393 (.50-10) | 1.110 (28.00)  | 4.000 (101.60) | M10 X 1.5 RH   |
| ER20                         | 32146   | 7.870 (200.00)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 4.000 (101.60) | M12 X 1.75 RH  |
| ER32                         | 32147   | 7.870 (200.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 2.000 (101.60) | M22 X 1.5 RH   |

All holders can be run with internal coolant

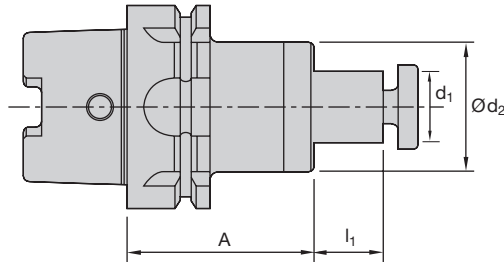
Please Order Coolant Tube EDP No. 56166 separately

l<sub>1</sub> = Maximum Socket Depth behind collet with backup screw installed



## HSK63A Face Mill Holders

### HSK63A - Inch



Balanced to G6.3 @ 15,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |             |            |
|------------------------------|---------|------------------------|----------------|----------------|-------------|------------|
|                              |         | A                      | d <sub>2</sub> | l <sub>1</sub> | Key         | Thread     |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |             |            |
| 0.750                        | 90363   | 2.360 (60.0)           | 1.75 (44.45)   | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF |
| 1.000                        | 90366   | 2.360 (60.0)           | 2.25 (57.20)   | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF |
| 1.250                        | 90369   | 2.360 (60.0)           | 2.75 (69.85)   | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF |
| 1.500                        | 90372   | 2.760 (70.0)           | 3.75 (95.25)   | 0.940 (23.88)  | .500 X .500 | 5/8-18 UNF |
| <b>LONG PROJECTION</b>       |         |                        |                |                |             |            |
| 0.750                        | 90364   | 3.937 (100.0)          | 1.75 (44.45)   | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF |
| 1.000                        | 90367   | 3.937 (100.0)          | 2.25 (57.2)    | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF |
| 1.250                        | 90370   | 3.937 (100.0)          | 2.75 (69.85)   | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF |
| 1.500                        | 90373   | 3.937 (100.0)          | 3.75 (95.25)   | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |             |            |
| 0.750                        | 90365   | 6.300 (160.0)          | 1.75 (44.45)   | 0.687 (17.45)  | .312 X .312 | 3/8-24 UNF |
| 1.000                        | 90368   | 6.300 (160.0)          | 2.25 (57.20)   | 0.687 (17.45)  | .375 X .375 | 1/2-20 UNF |
| 1.250                        | 90371   | 6.300 (160.0)          | 2.75 (69.85)   | 0.687 (17.45)  | .500 X .500 | 5/8-18 UNF |
| 1.500                        | 90374   | 6.300 (160.0)          | 3.75 (95.25)   | 0.940 (23.88)  | .625 X .625 | 3/4-16 UNF |

Please Order Coolant Tube EDP No. 56166 separately

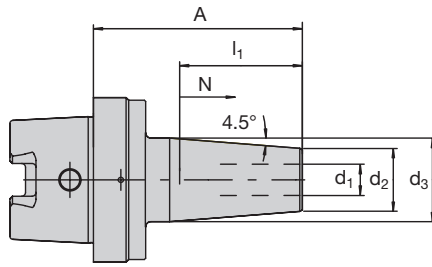
All holders can be run with internal coolant

Coolant Delivery Through Face of Pilot



## HSK63C ThermoGrip™ Holders

### HSK63C – Metric



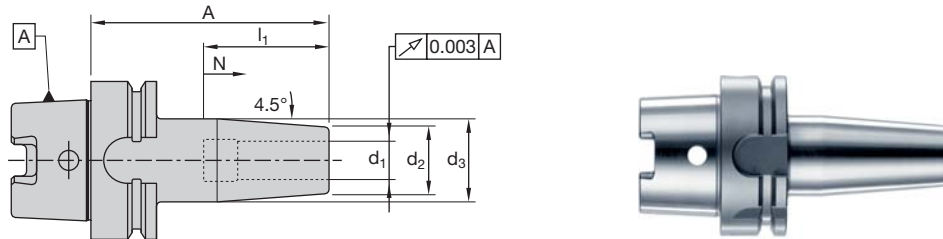
Balanced to G6.3 @ 18,000 RPM

| d <sub>1</sub>             | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|----------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                | 12031   | 70.0 (2.760)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                | 12032   | 70.0 (2.760)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)               | 12033   | 75.0 (2.950)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)               | 12034   | 80.0 (3.150)           | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)               | 12035   | 80.0 (3.150)           | 27.0 (1.063)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)               | 12036   | 85.0 (3.340)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)               | 12037   | 85.0 (3.340)           | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.788)               | 12041   | 90.0 (3.540)           | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)               | 12042   | 100.0 (3.940)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |

All holders can be run with internal coolant

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

**HSK100A - Inch**



Balanced to G6.3 @ 12,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 0.2500                       | 79080   | 3.340 (85.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 90408   | 3.340 (85.0)           | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 79081   | 3.540 (90.0)           | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 79082   | 3.740 (95.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 79083   | 3.740 (95.0)           | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 79099   | 4.130 (105.0)          | 1.299 (33.0)   | 1.653 (42.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 32148   | 4.520 (115.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 0.2500                       | 90407   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 90410   | 4.724 (120.0)          | 0.826 (21.0)   | 1.063 (27.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 90413   | 4.724 (120.0)          | 0.945 (24.0)   | 1.259 (32.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 90419   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 90422   | 4.724 (120.0)          | 1.063 (27.0)   | 1.338 (34.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 90425   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 79084   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.2500                       | 79086   | 4.724 (120.0)          | 1.732 (44.0)   | 2.086 (53.0)   | 2.441 (62.0)   | 0.394 (10.0) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 0.2500                       | 90406   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3125                       | 90409   | 6.30 (160.0)           | 0.826 (21.0)   | 1.259 (32.0)   | 1.417 (36.0)   | 0.394 (10.0) |
| 0.3750                       | 90412   | 6.30 (160.0)           | 0.945 (24.0)   | 1.338 (34.0)   | 1.653 (42.0)   | 0.394 (10.0) |
| 0.5000                       | 90418   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.850 (47.0)   | 0.394 (10.0) |
| 0.6250                       | 90421   | 6.30 (160.0)           | 1.063 (27.0)   | 1.653 (42.0)   | 1.968 (50.0)   | 0.394 (10.0) |
| 0.7500                       | 90424   | 6.30 (160.0)           | 1.299 (33.0)   | 2.007 (51.0)   | 2.047 (52.0)   | 0.394 (10.0) |
| 0.8750                       | 32149   | 6.30 (160.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.0000                       | 90428   | 6.30 (160.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.283 (58.0)   | 0.394 (10.0) |
| 1.2500                       | 90431   | 6.30 (160.0)           | 1.732 (44.0)   | 2.086 (53.0)   | 2.441 (62.0)   | 0.394 (10.0) |

All holders can be run with internal coolant

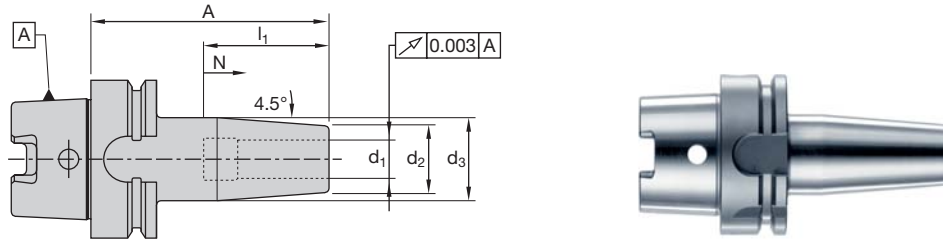
Please Order Coolant Tube EDP No. 56168 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm



## HSK100A ThermoGrip™ Holders

### HSK100A – Metric



Balanced to G6.3 @ 12,000 RPM

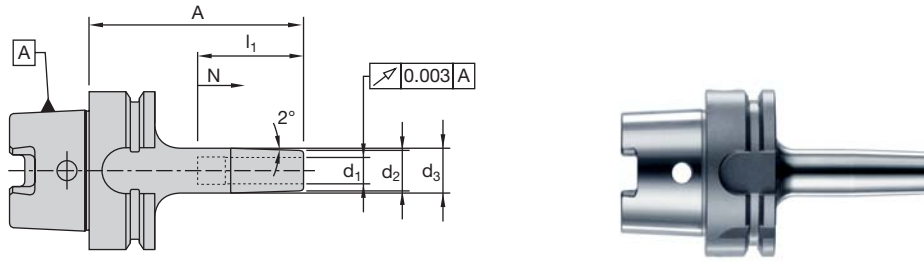
| d <sub>1</sub>               | EDP No. | Dimensions (mm/inches) |                |                |                |              |
|------------------------------|---------|------------------------|----------------|----------------|----------------|--------------|
|                              |         | A                      | d <sub>2</sub> | d <sub>3</sub> | l <sub>1</sub> | N            |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 90435   | 85.0 (3.340)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 90438   | 85.0 (3.340)           | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 90441   | 90.0 (3.540)           | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 90444   | 95.0 (3.740)           | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32150   | 95.0 (3.740)           | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 90447   | 100.0 (3.940)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32151   | 100.0 (3.940)          | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 90450   | 105.0 (4.130)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 90453   | 115.0 (4.520)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| <b>LONG PROJECTION</b>       |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 90437   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 90440   | 120.0 (4.724)          | 21.0 (0.826)   | 27.0 (1.063)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 90443   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 90446   | 120.0 (4.724)          | 24.0 (0.945)   | 32.0 (1.259)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32152   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 11182   | 120.0 (4.724)          | 27.0 (1.063)   | 34.0 (1.338)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32153   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 90452   | 120.0 (4.724)          | 33.0 (1.299)   | 42.0 (1.653)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 90455   | 120.0 (4.724)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 90456   | 120.0 (4.724)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.441)   | 10.0 (0.394) |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |                |              |
| 6.0 (0.236)                  | 90436   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 8.0 (0.315)                  | 90439   | 160.0 (6.300)          | 21.0 (0.826)   | 32.0 (1.259)   | 36.0 (1.417)   | 10.0 (0.394) |
| 10.0 (0.394)                 | 90442   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 42.0 (1.653)   | 10.0 (0.394) |
| 12.0 (0.472)                 | 90445   | 160.0 (6.300)          | 24.0 (0.945)   | 34.0 (1.338)   | 47.0 (1.850)   | 10.0 (0.394) |
| 14.0 (0.551)                 | 32154   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 47.0 (1.850)   | 10.0 (0.394) |
| 16.0 (0.630)                 | 90448   | 160.0 (6.300)          | 27.0 (1.063)   | 42.0 (1.653)   | 50.0 (1.968)   | 10.0 (0.394) |
| 18.0 (0.709)                 | 32155   | 160.0 (6.300)          | 33.0 (1.299)   | 51.0 (2.007)   | 52.0 (2.047)   | 10.0 (0.394) |
| 20.0 (0.787)                 | 90451   | 160.0 (6.300)          | 33.0 (1.299)   | 51.0 (2.007)   | 52.0 (2.047)   | 10.0 (0.394) |
| 25.0 (0.984)                 | 90454   | 160.0 (6.300)          | 44.0 (1.732)   | 53.0 (2.086)   | 58.0 (2.283)   | 10.0 (0.394) |
| 32.0 (1.260)                 | 90457   | 160.0 (6.300)          | 44.0 (1.732)   | 53.0 (2.086)   | 62.0 (2.441)   | 10.0 (0.394) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56168 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

**HSK100A Slimline - Metric**



Balanced to G6.3 @ 12,000 RPM

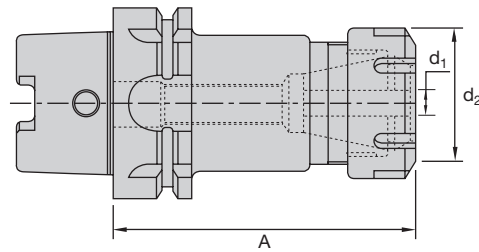
| d <sub>1</sub>             | EDP No. | Dimensions (mm/inches) |                |                |                |             |
|----------------------------|---------|------------------------|----------------|----------------|----------------|-------------|
|                            |         | A                      | d <sub>2</sub> | d <sub>3</sub> | I <sub>1</sub> | N           |
| <b>SHORT PROJECTION</b>    |         |                        |                |                |                |             |
| 6.0 (0.236)                | 32277   | 98.0 (3.860)           | 12.0 (0.472)   | 18.0 (0.709)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.315)                | 32278   | 98.0 (3.860)           | 14.0 (0.551)   | 20.0 (0.787)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.394)               | 32279   | 98.0 (3.860)           | 16.0 (0.630)   | 22.0 (0.866)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.472)               | 32280   | 98.0 (3.860)           | 18.0 (0.709)   | 24.0 (0.945)   | 47.0 (1.850)   | 5.0 (0.197) |
| 16.0 (0.630)               | 32281   | 98.0 (3.860)           | 22.0 (0.866)   | 28.0 (1.102)   | 50.0 (1.967)   | 5.0 (0.197) |
| 20.0 (0.787)               | 32282   | 105.0 (4.130)          | 27.0 (1.063)   | 34.0 (1.339)   | 52.0 (2.047)   | 5.0 (0.197) |
| 25.0 (0.984)               | 32283   | 108.0 (4.250)          | 34.0 (1.339)   | 40.0 (1.575)   | 58.0 (2.283)   | 5.0 (0.197) |
| <b>STANDARD PROJECTION</b> |         |                        |                |                |                |             |
| 6.0 (0.236)                | 32284   | 138.0 (5.430)          | 12.0 (0.472)   | 22.0 (0.866)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.315)                | 32285   | 138.0 (5.430)          | 14.0 (0.551)   | 24.0 (0.945)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.394)               | 32286   | 138.0 (5.430)          | 16.0 (0.630)   | 25.0 (0.984)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.472)               | 32287   | 138.0 (5.430)          | 18.0 (0.709)   | 27.0 (1.063)   | 47.0 (1.850)   | 5.0 (0.197) |
| 16.0 (0.630)               | 32288   | 138.0 (5.430)          | 22.0 (0.866)   | 32.0 (1.260)   | 50.0 (1.967)   | 5.0 (0.197) |
| 20.0 (0.787)               | 32289   | 135.0 (5.310)          | 27.0 (1.063)   | 37.0 (1.457)   | 52.0 (2.047)   | 5.0 (0.197) |
| 25.0 (0.984)               | 32290   | 133.0 (5.240)          | 34.0 (1.339)   | 44.0 (1.732)   | 58.0 (2.283)   | 5.0 (0.197) |
| <b>LONG PROJECTION</b>     |         |                        |                |                |                |             |
| 6.0 (0.236)                | 32291   | 188.0 (7.402)          | 12.0 (0.472)   | 27.0 (1.063)   | 36.0 (1.417)   | 5.0 (0.197) |
| 8.0 (0.315)                | 32292   | 188.0 (7.402)          | 14.0 (0.551)   | 29.0 (1.142)   | 36.0 (1.417)   | 5.0 (0.197) |
| 10.0 (0.394)               | 32293   | 188.0 (7.402)          | 16.0 (0.630)   | 31.0 (1.220)   | 42.0 (1.653)   | 5.0 (0.197) |
| 12.0 (0.472)               | 32294   | 188.0 (7.402)          | 18.0 (0.709)   | 33.0 (1.299)   | 47.0 (1.850)   | 5.0 (0.197) |
| 16.0 (0.630)               | 32295   | 188.0 (7.402)          | 22.0 (0.866)   | 37.0 (1.457)   | 50.0 (1.967)   | 5.0 (0.197) |
| 20.0 (0.787)               | 32296   | 185.0 (7.283)          | 27.0 (1.063)   | 42.0 (1.653)   | 52.0 (2.047)   | 5.0 (0.197) |
| 25.0 (0.984)               | 32297   | 183.0 (7.205)          | 34.0 (1.339)   | 49.0 (1.929)   | 58.0 (2.283)   | 5.0 (0.197) |

All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56168 separately

NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

#### HSK100A



Balanced to G6.3 @ 15,000 RPM

| Type                         | EDP No. | Dimensions (inches/mm) |                    |                |                |                |
|------------------------------|---------|------------------------|--------------------|----------------|----------------|----------------|
|                              |         | A                      | d <sub>1</sub>     | d <sub>2</sub> | l <sub>1</sub> | g <sub>1</sub> |
| <b>SHORT PROJECTION</b>      |         |                        |                    |                |                |                |
| ER16                         | 90462   | 3.937 (100.00)         | .020-.393 (.50-10) | 1.110 (28.00)  | 1.380 (35.00)  | M10 X 1.5 RH   |
| ER20                         | 90464   | 3.937 (100.00)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 0.984 (25.00)  | M12 X 1.75 RH  |
| ER32                         | 90468   | 3.937 (100.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 0.709 (18.00)  | M22 X 1.5 RH   |
| <b>STANDARD PROJECTION</b>   |         |                        |                    |                |                |                |
| ER16                         | 32156   | 4.720 (120.00)         | .020-.393 (.50-10) | 1.110 (28.00)  | 2.000 (50.80)  | M10 X 1.5 RH   |
| ER20                         | 32157   | 4.720 (120.00)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 2.000 (50.80)  | M12 X 1.75 RH  |
| ER32                         | 32158   | 4.720 (120.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 1.180 (30.00)  | M22 X 1.5 RH   |
| <b>LONG PROJECTION</b>       |         |                        |                    |                |                |                |
| ER16                         | 90463   | 6.300 (160.00)         | .020-.393 (.50-10) | 1.110 (28.00)  | 3.000 (76.20)  | M10 X 1.5 RH   |
| ER20                         | 90465   | 6.300 (160.00)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 3.000 (76.20)  | M12 X 1.75 RH  |
| ER32                         | 90469   | 6.300 (160.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 1.570 (40.00)  | M22 X 1.5 RH   |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                    |                |                |                |
| ER16                         | *32298  | 7.870 (200.00)         | .020-.393 (.50-10) | 1.110 (28.00)  | 4.000 (101.60) | M10 X 1.5 RH   |
| ER20                         | *32299  | 7.870 (200.00)         | .039-.511 (1.0-13) | 1.259 (34.00)  | 4.000 (101.60) | M12 X 1.75 RH  |
| ER32                         | *32300  | 7.870 (200.00)         | .078-.787 (2.0-20) | 1.970 (50.00)  | 3.000 (76.20)  | M22 X 1.5 RH   |

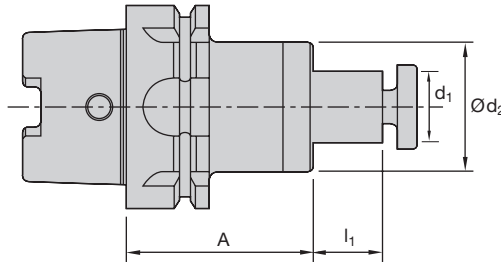
All holders can be run with internal coolant

Please Order Coolant Tube EDP No. 56168 separately

l<sub>1</sub> = Maximum Socket Depth Behind Collet with Back Up Screw Installed

\*Quoted Upon Request

#### HSK100A - Inch



Balanced to G6.3 @ 15,000 RPM

| d <sub>1</sub>               | EDP No. | Dimensions (inches/mm) |                |                |             |             |
|------------------------------|---------|------------------------|----------------|----------------|-------------|-------------|
|                              |         | A                      | d <sub>2</sub> | l <sub>1</sub> | Key         | Thread      |
| <b>STANDARD PROJECTION</b>   |         |                        |                |                |             |             |
| 0.750                        | 90472   | 2.360 (60.0)           | 1.75 (44.45)   | 0.687 (17.45)  | .312 × .312 | 3/8-24 UNF  |
| 1.000                        | 90475   | 2.360 (60.0)           | 2.25 (57.20)   | 0.687 (17.45)  | .375 × .375 | 1/2-20 UNF  |
| 1.250                        | 90478   | 2.360 (60.0)           | 2.75 (69.85)   | 0.687 (17.45)  | .500 × .500 | 5/8-18 UNF  |
| 1.500                        | 90481   | 2.760 (70.0)           | 3.75 (95.25)   | 0.940 (23.88)  | .625 × .625 | 3/4-16 UNF  |
| 2.500                        | 90484   | 3.150 (80.0)           | 4.88 (123.95)  | 1.120 (28.45)  | 1.00 × 1.00 | 1.00-14 UNF |
| <b>LONG PROJECTION</b>       |         |                        |                |                |             |             |
| 0.750                        | 90473   | 3.937 (100.0)          | 1.75 (44.45)   | 0.687 (17.45)  | .312 × .312 | 3/8-24 UNF  |
| 1.000                        | 90476   | 3.937 (100.0)          | 2.25 (57.20)   | 0.687 (17.45)  | .375 × .375 | 1/2-20 UNF  |
| 1.250                        | 90479   | 3.937 (100.0)          | 2.75 (69.85)   | 0.687 (17.45)  | .500 × .500 | 5/8-18 UNF  |
| 1.500                        | 90482   | 3.937 (100.0)          | 3.75 (95.25)   | 0.940 (23.88)  | .625 × .625 | 3/4-16 UNF  |
| 2.500                        | 90485   | 3.937 (100.0)          | 4.88 (123.95)  | 1.120 (28.45)  | 1.00 × 1.00 | 1.00-14 UNF |
| <b>EXTRA LONG PROJECTION</b> |         |                        |                |                |             |             |
| 0.750                        | 90474   | 6.300 (160.0)          | 1.75 (44.45)   | 0.687 (17.45)  | .312 × .312 | 3/8-24 UNF  |
| 1.000                        | 90477   | 6.300 (160.0)          | 2.25 (57.20)   | 0.687 (17.45)  | .375 × .375 | 1/2-20 UNF  |
| 1.250                        | 90480   | 6.300 (160.0)          | 2.75 (69.85)   | 0.687 (17.45)  | .500 × .500 | 5/8-18 UNF  |
| 1.500                        | 90483   | 6.300 (160.0)          | 3.75 (95.25)   | 0.940 (23.88)  | .625 × .625 | 3/4-16 UNF  |
| 2.500                        | 90486   | 6.300 (160.0)          | 4.88 (123.95)  | 1.120 (28.45)  | 1.00 × 1.00 | 1.00-14 UNF |

Please Order Coolant Tube EDP No. 56168 Separately  
Coolant Delivery Through Face of Pilot

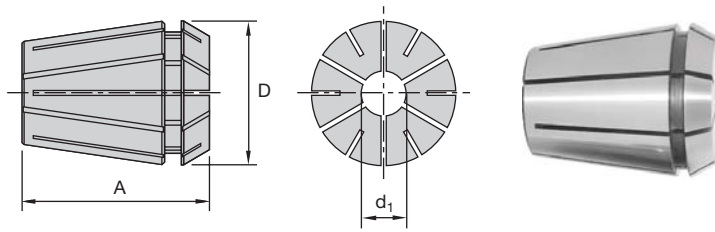




## ER Series High Precision Collets

### ER Series Collets

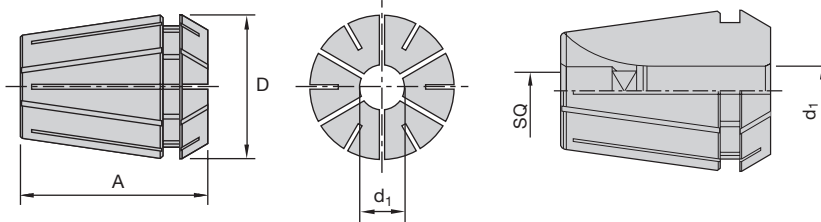
ID Runout 0.008-0.010mm @ 3 × Dia.



|      | D    | A    |
|------|------|------|
| ER16 | 16.8 | 27.5 |
| ER20 | 20.8 | 31.5 |
| ER32 | 32.8 | 40.0 |

| EDP No.             | Series | Description                | Size  | EDP No.             | Series | Description                | Size  |
|---------------------|--------|----------------------------|-------|---------------------|--------|----------------------------|-------|
| <b>ER16 COLLETS</b> |        |                            |       | <b>ER32 COLLETS</b> |        |                            |       |
| 90569               | ER16   | 0-1.00 MM ER16 COLLET      |       | 90610               | ER32   | 1.00-2.00 MM ER32 COLLET   | 1/16  |
| 90570               | ER16   | 1.00-1.50 MM ER16 COLLET   |       | 90611               | ER32   | 2.00-2.50 MM ER32 COLLET   | 3/32  |
| 90571               | ER16   | 1.00-2.00 MM ER16 COLLET   | 1/16  | 90612               | ER32   | 2.50-3.00 MM ER32 COLLET   |       |
| 90572               | ER16   | 2.00-2.50 MM ER16 COLLET   | 3/32  | 90613               | ER32   | 3.00-4.00 MM ER32 COLLET   | 1/8   |
| 90573               | ER16   | 2.50-3.00 MM ER16 COLLET   |       | 90614               | ER32   | 4.00-5.00 MM ER32 COLLET   | 3/16  |
| 90574               | ER16   | 3.00-4.00 MM ER16 COLLET   | 1/8   | 90615               | ER32   | 5.00-6.00 MM ER32 COLLET   | 7/32  |
| 90575               | ER16   | 4.00-5.00 MM ER16 COLLET   | 3/16  | 90616               | ER32   | 6.00-7.00 MM ER32 COLLET   | 1/4   |
| 90576               | ER16   | 5.00-6.00 MM ER16 COLLET   | 7/32  | 90617               | ER32   | 7.00-8.00 MM ER32 COLLET   | 5/16  |
| 90577               | ER16   | 6.00-7.00 MM ER16 COLLET   | 1/4   | 90618               | ER32   | 8.00-9.00 MM ER32 COLLET   | 11/32 |
| 90578               | ER16   | 7.00-8.00 MM ER16 COLLET   | 5/16  | 90619               | ER32   | 9.00-10.00 MM ER32 COLLET  | 3/8   |
| 90579               | ER16   | 8.00-9.00 MM ER16 COLLET   | 11/32 | 90620               | ER32   | 10.00-11.00 MM ER32 COLLET | 13/32 |
| 90580               | ER16   | 9.00-10.00 MM ER16 COLLET  | 3/8   | 90621               | ER32   | 11.00-12.00 MM ER32 COLLET | 7/16  |
| <b>ER20 COLLETS</b> |        |                            |       | 90622               | ER32   | 12.00-13.00 MM ER32 COLLET | 1/2   |
| 90581               | ER20   | 1.00-2.00 MM ER20 COLLET   | 1/16  | 90623               | ER32   | 13.00-14.00 MM ER32 COLLET | 17/32 |
| 90582               | ER20   | 2.50-3.00 MM ER20 COLLET   | 3/32  | 90624               | ER32   | 14.00-15.00 MM ER32 COLLET | 9/16  |
| 90583               | ER20   | 3.00-4.00 MM ER20 COLLET   | 1/8   | 90625               | ER32   | 15.00-16.00 MM ER32 COLLET | 5/8   |
| 90584               | ER20   | 4.00-5.00 MM ER20 COLLET   | 3/16  | 90626               | ER32   | 16.00-17.00 MM ER32 COLLET | 21/32 |
| 90585               | ER20   | 5.00-6.00 MM ER20 COLLET   | 7/32  | 90627               | ER32   | 17.00-18.00 MM ER32 COLLET | 11/16 |
| 90586               | ER20   | 6.00-7.00 MM ER20 COLLET   | 1/4   | 90628               | ER32   | 18.00-19.00 MM ER32 COLLET | 23/32 |
| 90587               | ER20   | 7.00-8.00 MM ER20 COLLET   | 5/16  | 90629               | ER32   | 19.00-20.00 MM ER32 COLLET | 3/4   |
| 90588               | ER20   | 8.00-9.00 MM ER20 COLLET   | 11/32 |                     |        |                            |       |
| 90589               | ER20   | 9.00-10.00 MM ER20 COLLET  | 3/8   |                     |        |                            |       |
| 90590               | ER20   | 10.00-11.00 MM ER20 COLLET | 13/32 |                     |        |                            |       |
| 90591               | ER20   | 11.00-12.00 MM ER20 COLLET | 7/16  |                     |        |                            |       |
| 90592               | ER20   | 12.00-13.00 MM ER20 COLLET | 1/2   |                     |        |                            |       |

**ER ANSI Tap Collets**



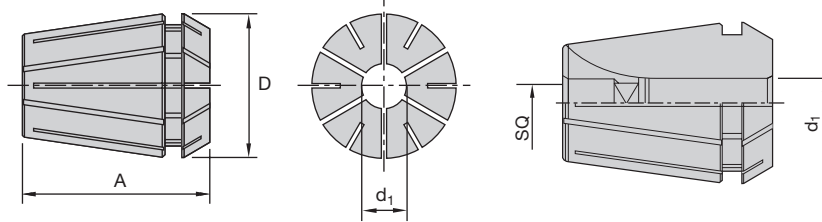
|      | <b>D</b> | <b>A</b> |
|------|----------|----------|
| ER16 | 16.8     | 27.5     |
| ER20 | 20.8     | 31.5     |
| ER32 | 32.8     | 40.0     |

| LMT No.                              | Series | Description           | Metric Size | d <sub>1</sub> Shank Dia.<br>(inches) | Square<br>(inches) |
|--------------------------------------|--------|-----------------------|-------------|---------------------------------------|--------------------|
| <b>ER16 TAP COLLETS (ANSI SHANK)</b> |        |                       |             |                                       |                    |
| 32159                                | ER16   | #8, 5/32 ER16 COLLET  | M4          | 0.168                                 | 0.131              |
| 32160                                | ER16   | #10, 3/16 ER16 COLLET | M4.5, M5    | 0.194                                 | 0.152              |
| 32161                                | ER16   | #12, 7/32 ER16 COLLET | #12         | 0.220                                 | 0.165              |
| 11245                                | ER16   | #14, 1/4 ER16 COLLET  | M6, M6.5    | 0.255                                 | 0.191              |
| 11246                                | ER16   | 5/16 ER16 COLLET      | M7, M8      | 0.318                                 | 0.238              |
| <b>ER20 TAP COLLETS (ANSI SHANK)</b> |        |                       |             |                                       |                    |
| 32162                                | ER20   | #8, 5/32 ER20 COLLET  | M4          | 0.168                                 | 0.131              |
| 52907                                | ER20   | #10, 3/16 ER20 COLLET | M4.5, M5    | 0.194                                 | 0.152              |
| 12088                                | ER20   | #12, 7/32 ER20 COLLET | #12         | 0.220                                 | 0.165              |
| 51832                                | ER20   | #14, 1/4 ER20 COLLET  | M6, M6.5    | 0.255                                 | 0.191              |
| 51833                                | ER20   | 5/16 ER20 COLLET      | M7, M8      | 0.318                                 | 0.238              |
| 51835                                | ER20   | 7/16 ER20 COLLET      | 7/16"       | 0.323                                 | 0.242              |
| 51834                                | ER20   | 3/8 ER20 COLLET       | M10         | 0.381                                 | 0.286              |
| 51836                                | ER20   | 1/2 ER20 COLLET       | M12, M12.5  | 0.367                                 | 0.275              |
| <b>ER32 TAP COLLETS (ANSI SHANK)</b> |        |                       |             |                                       |                    |
| 32163                                | ER32   | #8, 5/32 ER32 COLLET  | M4          | 0.168                                 | 0.131              |
| 32164                                | ER32   | #10, 3/16 ER32 COLLET | M4.5, M5    | 0.194                                 | 0.152              |
| 32165                                | ER32   | #12, 7/32 ER32 COLLET | #12         | 0.220                                 | 0.165              |
| 32166                                | ER32   | #14, 1/4 ER32 COLLET  | M6, M6.5    | 0.255                                 | 0.191              |
| 32167                                | ER32   | 5/16 ER32 COLLET      | M7, M8      | 0.318                                 | 0.238              |
| 32168                                | ER32   | 7/16 ER32 COLLET      | 7/16"       | 0.323                                 | 0.242              |
| 32169                                | ER32   | 3/8 ER32 COLLET       | M10         | 0.381                                 | 0.286              |
| 32170                                | ER32   | 1/2 ER20 COLLET       | M12, M12.5  | 0.367                                 | 0.275              |
| 50389                                | ER32   | 9/16 ER32 COLLET      | M14         | 0.429                                 | 0.322              |
| 32171                                | ER32   | 1/8 NPT ER32 COLLET   | 1/8" NPT    | 0.437                                 | 0.328              |
| 51837                                | ER32   | 5/8 ER32 COLLET       | M16         | 0.480                                 | 0.360              |
| 32172                                | ER32   | 11/16 ER32 COLLET     | M18         | 0.542                                 | 0.406              |
| 32173                                | ER32   | 1/4 NPT ER32 COLLET   | 1/4" NPT    | 0.562                                 | 0.421              |
| 51838                                | ER32   | 3/4 ER32 COLLET       | 3/4"        | 0.590                                 | 0.442              |
| 32174                                | ER32   | 13/16 ER32 COLLET     | M20         | 0.652                                 | 0.489              |



## ER Series High Precision Collets

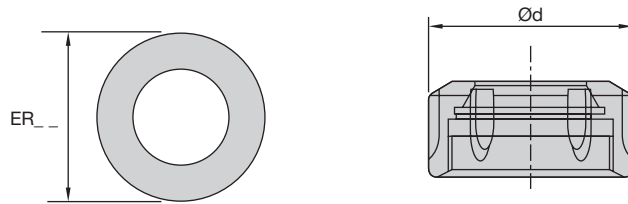
### ER DIN Tap Collets



|      | D    | A    |
|------|------|------|
| ER16 | 16.8 | 27.5 |
| ER20 | 20.8 | 31.5 |
| ER32 | 32.8 | 40.0 |

| LMT No.                             | Series | Description                  | Metric Size | d <sub>1</sub> Shank Dia.<br>(mm/inches) | Square<br>(mm/inches) |
|-------------------------------------|--------|------------------------------|-------------|--|-----------------------|
| <b>ER16 TAP COLLETS (DIN SHANK)</b> |        |                              |             |  |                       |
| 32175                               | ER16   | M4 ER16 COLLET               | M4          | 4.5 (0.177)                              | 3.4 (0.134)           |
| 32176                               | ER16   | M5, M6, M8 X 1.0 ER16 COLLET | M5, M6, M8  | 6.0 (0.236)                              | 4.9 (0.193)           |
| 32177                               | ER16   | M9, M10 ER16 COLLET          | M9, M10     | 7.0 (0.276)                              | 5.5 (0.217)           |
| 11713                               | ER16   | M8 X 1.25 ER16 COLLET        | M8 X 1.25   | 8.0 (0.315)                              | 6.2 (0.244)           |
| 32178                               | ER16   | M12 ER16 COLLET              | M12         | 9.0 (0.354)                              | 7.0 (0.276)           |
| <b>ER20 TAP COLLETS (DIN SHANK)</b> |        |                              |             |  |                       |
| 51828                               | ER20   | M5, M6, M8 X 1.0 ER20 COLLET | M5, M6, M8  | 6.0 (0.236)                              | 4.9 (0.193)           |
| 11619                               | ER20   | M9, M10 ER20 COLLET          | M9, M10     | 7.0 (0.276)                              | 5.5 (0.217)           |
| 51829                               | ER20   | M8 X 1.25 ER20 COLLET        | M8 X 1.25   | 8.0 (0.315)                              | 6.2 (0.244)           |
| 51831                               | ER20   | M12 ER20 COLLET              | M12         | 9.0 (0.354)                              | 7.0 (0.276)           |
| 51830                               | ER20   | M10 ER20 COLLET              | M10         | 10.0 (0.394)                             | 8.0 (0.315)           |
| 11617                               | ER20   | M14 ER20 COLLET              | M14         | 11.0 (0.433)                             | 9.0 (0.354)           |
| <b>ER32 TAP COLLETS (DIN SHANK)</b> |        |                              |             |  |                       |
| 32179                               | ER32   | M5, M6, M8 X 1.0 ER32 COLLET | M5, M6, M8  | 6.0 (0.236)                              | 4.9 (0.193)           |
| 32180                               | ER32   | M9, M10 ER32 COLLET          | M9, M10     | 7.0 (0.276)                              | 5.5 (0.217)           |
| 32181                               | ER32   | M8 X 1.25 ER32 COLLET        | M8 X 1.25   | 8.0 (0.315)                              | 6.2 (0.244)           |
| 32182                               | ER32   | M12 ER32 COLLET              | M12         | 9.0 (0.354)                              | 7.0 (0.276)           |
| 32210                               | ER32   | M10 ER32 COLLET              | M10         | 10.0 (0.394)                             | 8.0 (0.315)           |
| 32183                               | ER32   | M14 ER32 COLLET              | M14         | 11.0 (0.433)                             | 9.0 (0.354)           |
| 52877                               | ER32   | M16 ER32 COLLET              | M16         | 12.0 (0.472)                             | 9.0 (0.354)           |
| 32184                               | ER32   | M18 ER32 COLLET              | M18         | 14.0 (0.551)                             | 11.0 (0.433)          |
| 52878                               | ER32   | M20 ER32 COLLET              | M20         | 16.0 (0.630)                             | 12.0 (0.472)          |
| 32185                               | ER32   | M22, M24 ER32 COLLET         | M22, M24    | 18.0 (0.709)                             | 14.5 (0.571)          |

ER Coolant Seals and Nuts

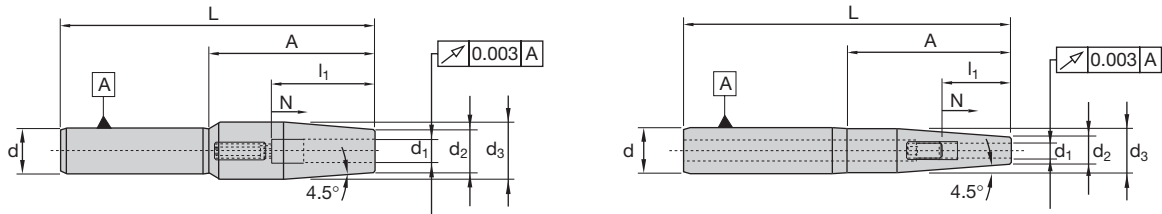


| EDP No.<br>ER16      | EDP No.<br>ER20 | EDP No.<br>ER32 | Description              | Inch Size |
|----------------------|-----------------|-----------------|--------------------------|-----------|
| <b>COOLANT SEALS</b> |                 |                 |                          |           |
| 90654                | 90663           | 90690           | 2.50-3.00 MM SEAL DISC   | 3/32      |
| 90655                | 90664           | 90691           | 3.00-3.50 MM SEAL DISC   | 1/8       |
| 32186                | 32192           | 32195           | 3.50-4.00 MM SEAL DISC   | 5/32      |
| 90656                | 90665           | 90692           | 4.00-4.50 MM SEAL DISC   |           |
| 32187                | 30867           | 32196           | 4.50-5.00 MM SEAL DISC   | 3/16      |
| 90657                | 90666           | 90693           | 5.00-5.50 MM SEAL DISC   | 7/32      |
| 32188                | 51839           | 32197           | 5.50-6.00 MM SEAL DISC   |           |
| 90658                | 51843           | 90694           | 6.00-6.50 MM SEAL DISC   | 1/4       |
| 32189                | 11618           | 32198           | 6.50-7.00 MM SEAL DISC   |           |
| 90659                | 90668           | 90695           | 7.00-7.50 MM SEAL DISC   | 9/32      |
| 32190                | 51840           | 32199           | 7.50-8.00 MM SEAL DISC   | 5/16      |
| 90660                | 51844           | 90696           | 8.00-8.50 MM SEAL DISC   |           |
| 32191                | 51842           | 32200           | 8.50-9.00 MM SEAL DISC   | 11/32     |
| 90661                | 51847           | 90697           | 9.00-9.50 MM SEAL DISC   | 3/8       |
| 90671                | 51841           | 32201           | 9.50-10.00 MM SEAL DISC  |           |
|                      | 90671           | 90698           | 10.00-10.50 MM SEAL DISC | 13/32     |
|                      | 11616           | 32202           | 10.50-11.00 MM SEAL DISC |           |
|                      | 90672           | 90699           | 11.00-11.50 MM SEAL DISC | 7/16      |
|                      | 32193           | 52879           | 11.50-12.00 MM SEAL DISC | 15/32     |
|                      | 90673           | 51848           | 12.00-12.50 MM SEAL DISC |           |
|                      | 32194           | 32203           | 12.50-13.00 MM SEAL DISC | 1/2       |
|                      |                 | 90701           | 13.00-13.50 MM SEAL DISC | 17/32     |
|                      |                 | 32204           | 13.50-14.00 MM SEAL DISC |           |
|                      |                 | 90702           | 14.00-14.50 MM SEAL DISC | 9/16      |
|                      |                 | 51849           | 14.50-15.00 MM SEAL DISC |           |
|                      |                 | 90703           | 15.00-15.50 MM SEAL DISC | 19/32     |
|                      |                 | 32205           | 15.50-16.00 MM SEAL DISC | 5/8       |
|                      |                 | 90704           | 16.00-16.50 MM SEAL DISC |           |
|                      |                 | 32206           | 16.50-17.00 MM SEAL DISC | 21/32     |
|                      |                 | 90705           | 17.00-17.50 MM SEAL DISC | 11/16     |
|                      |                 | 32207           | 17.50-18.00 MM SEAL DISC |           |
|                      |                 | 90706           | 18.00-18.50 MM SEAL DISC | 23/32     |
|                      |                 | 32208           | 18.50-19.00 MM SEAL DISC |           |
|                      |                 | 90707           | 19.00-19.50 MM SEAL DISC | 3/4       |
|                      |                 | 32209           | 19.50-20.00 MM SEAL DISC | 25/32     |
| <b>COOLANT NUTS</b>  |                 |                 |                          | <b>Ød</b> |
| 32211                |                 |                 | ER16 COOLANT NUT         | 28.0 mm   |
|                      | 51735           |                 | ER20 COOLANT NUT         | 34.0 mm   |
|                      |                 | 32212           | ER32 COOLANT NUT         | 50.0 mm   |



## ThermoGrip™ Extensions

### Straight Shank ThermoGrip™ Extensions for Clamping Chuck – Inch Diameter



| d <sub>1</sub> | EDP No. | Dimensions (inches) |                |                |              |              |               |                |
|----------------|---------|---------------------|----------------|----------------|--------------|--------------|---------------|----------------|
|                |         | d                   | d <sub>1</sub> | d <sub>2</sub> | N            | A            | L             | I <sub>1</sub> |
| 0.250          | 79145   | 0.629 (16.0)        | 0.591 (15.0)   | 0.787 (20.0)   | 0.394 (10.0) | 2.362 (60.0) | 4.330 (110.0) | 1.417 (36.0)   |
| 0.375          | 79146   | 0.787 (20.0)        | 0.787 (20.0)   | 1.063 (27.0)   | 0.394 (10.0) | 2.362 (60.0) | 4.330 (110.0) | 1.417 (36.0)   |
| 0.500          | 79147   | 0.787 (20.0)        | 0.591 (15.0)   | 0.787 (20.0)   | 0.394 (10.0) | 2.362 (60.0) | 4.330 (110.0) | 1.417 (36.0)   |
| 0.625          | 79148   | 0.984 (25.0)        | 0.591 (15.0)   | 0.787 (20.0)   | 0.394 (10.0) | 2.362 (60.0) | 4.330 (110.0) | 1.417 (36.0)   |

Length adjustment N for diameter 3, 4, 5: 5mm

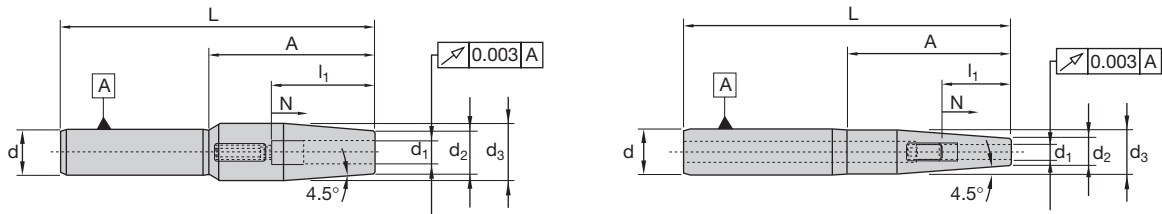
For diameter 3, 4 and 5 shank tolerance h4 or better

Length adjustment N for diameter 6-16: 10mm

For diameter 6-16 shank tolerance h6

All extensions can be run with internal coolant

### Straight Shank ThermoGrip™ Extensions for Clamping Chuck – Metric Diameter



| d <sub>1</sub> | EDP No. | Dimensions (inches) |                |                |              |              |               |                |
|----------------|---------|---------------------|----------------|----------------|--------------|--------------|---------------|----------------|
|                |         | d                   | d <sub>1</sub> | d <sub>2</sub> | N            | A            | L             | I <sub>1</sub> |
| 3.0 (0.118)    | 12884   | 12.0 (0.472)        | 9.0 (0.354)    | 11.8 (0.465)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 20.0 (0.787)   |
| 3.0 (0.118)    | 53473   | 16.0 (0.629)        | 9.0 (0.354)    | 15.0 (0.591)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 20.0 (0.787)   |
| 4.0 (0.157)    | 12885   | 12.0 (0.472)        | 9.0 (0.354)    | 11.8 (0.465)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 20.0 (0.787)   |
| 4.0 (0.157)    | 53474   | 16.0 (0.629)        | 9.0 (0.354)    | 15.0 (0.591)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 20.0 (0.787)   |
| 5.0 (0.197)    | 12886   | 12.0 (0.472)        | 9.0 (0.354)    | 11.8 (0.465)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 25.0 (0.984)   |
| 5.0 (0.197)    | 53475   | 16.0 (0.629)        | 9.0 (0.354)    | 15.0 (0.591)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 20.0 (0.787)   |
| 6.0 (0.236)    | 12887   | 12.0 (0.472)        | 15.0 (0.591)   | 11.8 (0.465)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 36.0 (1.417)   |
| 6.0 (0.236)    | 53476   | 16.0 (0.629)        | 9.0 (0.354)    | 15.0 (0.591)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 20.0 (0.787)   |
| 8.0 (0.315)    | 12888   | 12.0 (0.472)        | 15.0 (0.591)   | 19.0 (0.748)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 36.0 (1.417)   |
| 8.0 (0.315)    | 53477   | 16.0 (0.629)        | 15.0 (0.591)   | 20.0 (0.787)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 36.0 (1.417)   |
| 10.0 (0.394)   | 53478   | 20.0 (0.787)        | 20.0 (0.787)   | 27.0 (1.063)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 42.0 (1.654)   |
| 10.0 (0.394)   | 17365   | 25.0 (0.984)        | 22.0 (0.866)   | 25.0 (0.984)   | NA           | NA           | 160.0 (6.299) | NA             |
| 12.0 (0.472)   | 53479   | 20.0 (0.787)        | 20.0 (0.787)   | 27.0 (1.063)   | 10.0 (0.394) | 60.0 (2.362) | 110.0 (4.330) | 47.0 (1.850)   |
| 12.0 (0.472)   | 90548   | 25.0 (0.984)        | 22.0 (0.866)   | 25.0 (0.984)   | NA           | NA           | 160.0 (6.299) | NA             |
| 14.0 (0.551)   | 12889   | 25.0 (0.984)        | 27.0 (1.063)   | 32.0 (1.259)   | 10.0 (0.394) | 60.0 (2.362) | 120.0 (4.724) | 47.0 (1.850)   |
| 16.0 (0.630)   | 53480   | 25.0 (0.984)        | 27.0 (1.063)   | 32.0 (1.259)   | 10.0 (0.394) | 60.0 (2.362) | 120.0 (4.724) | 50.0 (1.969)   |
| 16.0 (0.630)   | 90554   | 32.0 (1.259)        | 27.0 (1.063)   | 32.0 (1.259)   | NA           | NA           | 160.0 (6.299) | NA             |
| 20.0 (0.787)   | 17376   | 32.0 (1.259)        | 27.0 (1.063)   | 32.0 (1.259)   | NA           | NA           | 160.0 (6.299) | NA             |

Length adjustment N for diameter 3, 4, 5: 5mm

For diameter 3, 4 and 5 shank tolerance h4 or better

Length adjustment N for diameter 6-16: 10mm

For diameter 6-16 shank tolerance h6

All extensions can be run with internal coolant

#### Coolant Pipe for HSK Chuck

For optimizing the internal coolant supply for HSK tools incl. round gasket DIN 3770 and union nut.

| HSK sizes | Designation | EDP No. |
|-----------|-------------|---------|
| HSK 32    | HSK 32-10   | 56163   |
| HSK 40    | HSK 40-12   | 56164   |
| HSK 50    | HSK 50-16   | 56165   |
| HSK 63    | HSK 63-18   | 56166   |
| HSK 80    | HSK 80-20   | 56167   |
| HSK 100   | HSK 100-24  | 56168   |



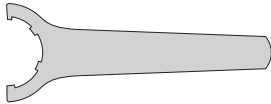
#### Installation Wrench for Coolant Pipe

| HSK sizes | EDP No. |
|-----------|---------|
| HSK 32    | 56169   |
| HSK 40    | 56170   |
| HSK 50    | 56171   |
| HSK 63    | 56172   |
| HSK 80    | 56173   |
| HSK 100   | 56174   |

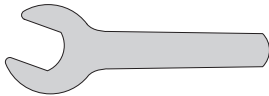


#### ER Collet Nut Wrench

##### Type E Wrench



##### Open End Wrench



| ER Collet Nut Size | Type E Wrench EDP No. | Open End Wrench EDP No. |
|--------------------|-----------------------|-------------------------|
| ER16               | 12759                 | 12762                   |
| ER20               | 12760                 | 12763                   |
| ER32               | 12761                 | 12764                   |

#### Tool Cart for ISG 3200/ISG 2000 – EDP No. 56175

The tool cart makes the ISG mobile. All accessories such as oils, tool holders, cooling and measuring adaptors, as well as the clamping chucks fit in the sliding racks.





### Application Area

Shrink-Fit technology was introduced primarily to compliment the relatively new introduction of high-speed machining to the North American market. In the die and mold industry, as well as in aerospace, the tremendous accuracy and repeatability of the Shrink-Fit concept has significantly reduced cycle times, improved work piece accuracy, and offered tremendous tool life. Because of these dramatic results, this technology is now showing up in the automotive industry, as well as the general machining market. Any high-volume, or tight tolerance milling or drilling application will benefit from the merits of Shrink-Fit technology. When used with solid carbide end mills or drills, one can expect to see improved work piece accuracy, and the noticeably improved tool life outlined above.

### Materials

Bilz ThermoGrip™ technology performs exceptionally in all materials. It is commonly used for machining P20, H13, and S7 in the die and mold industry, but also is heavily used in the machining of aluminum components in the aerospace and automotive industries.

### Advantages

As shown, ThermoGrip™ technology provides unsurpassed work piece accuracy, as well as tremendous tool life. The Bilz product line offers a choice of inexpensive units for the beginner in the ISG2200, as well as the universal, and slightly more expensive unit in the ISG3200. The ISG3200 features a unique coil changing system that allows you to optimize the performance of the unit for the tools you are using. Additionally, both products feature an automatic return mechanism for the coil, eliminating the possibility of overheating. For higher performance we are now able to offer the ISG 2200WK and ISG 3200WK units with liquid cooling capabilities. These machines offer faster cool down times and higher capacity.

ISG 2200



|                                       |                     |
|---------------------------------------|---------------------|
| Clamping range                        | 6–20 mm (1/4"–3/4") |
| Suitable tool shanks                  | carbide tools       |
| Operation                             | manual              |
| Tool setting                          | measuring adaptor   |
| Coil                                  | integrated          |
| Plate                                 | –                   |
| Max. tool length<br>(from gauge line) | 290 mm (11.417")    |
| Cooling stations                      | 1                   |
| Air pressure                          | –                   |
| Electric current supply               | 3 x 208 V           |

Mobile Unit for use in the tool presetting area or locally at the machine.

The mobile unit type ISG 2200, represents an inexpensive initial move into inductive shrinking technology. The low weight means that it can be used flexibly wherever it is required. Despite the compact design, it allows tool changing for diameters 1/4"–3/4" within seconds. The clamping range can be reduced down to 3 mm with the optional available plate changing kit. The integrated fan cools down the clamping chucks quickly. The ISG 2200 offers all the features for easy and safe use of shrinking technology in your facility.

**Suitable for carbide tools only.**

The coil is moved manually to the required heating position. There it is fixed by pressing the button. After the heating operation the coil returns automatically. Overheating of the coil and clamping chuck is therefore avoided.



| Technical Data: ISG 2200 |       |       |       |                          |                         |                         |          |             |
|--------------------------|-------|-------|-------|--------------------------|-------------------------|-------------------------|----------|-------------|
| EDP No.                  | D     | W     | H     | Clamping Range           | Suitable Tool Materials | Electric Current Supply | Power kW | Weight lbs. |
| 79010                    | 15.35 | 12.20 | 25.19 | 6 – 20 mm<br>1/4" – 3/4" | Carbide                 | 3 x 208 V/16 A          | 3        | 55          |



ISG 3200



|                                    |   |
|------------------------------------|---|
| Clamping range                     | 3–6 mm (1/8"–1/4" carbide)                  |
| Clamping range                     | 6–32 mm (1/4"–1-1/4" carbide+HSS)           |
| Clamping range                     | 32–50 mm (1-1/4"–2" - optional carbide+HSS) |
| Operation                          | automatic                                   |
| Tool setting                       | measuring adaptor                           |
| Coil                               | exchangeable                                |
| Plate                              | –   |
| Max. tool length (from gauge line) | 450 mm (17.71")                             |
| Cooling stations                   | 4   |
| Air pressure                       | 87 PSI                                      |
| Electric current supply            | 3 x 400 V                                   |

### Universal Table Unit

On the fully automatically controlled ISG 3200 unit all that needs to be done is simply to select the tool diameter range. After the start button is pressed, the induction coil moves automatically to the toolholder, heats this sufficiently and moves back again automatically.

**ISG 3200** is a universal shrinking unit for the professional use of shrinking technology. With its unique coil changing system, the power transfer adjusted to the different clamping chucks is guaranteed within a short period of time. Compared to other systems, this makes it possible to clamp the smallest diameters Ø 6-50 mm (1/4"–2") with high speed tools as well as down to Ø 3 mm (1/8") with carbide tools. With a range of special coils, the unit can be suited to other special tools. Four integrated fans make it possible to cool down the clamping chucks evenly in a short time. The fans are activated automatically by a light barrier as soon as the chuck is pushed into the cooling position. This means that constant preparation of a high number of tools can be guaranteed.

Because of the design of the working surface, the tools can be moved easily from the shrinking into the cooling position. Great importance was attached to the use of especially high-quality and resistant materials for continuous use in the workshop environment.

Operation of the ISG 3200 is completely menu assisted. The data is shown in the graphics display. All shrinking parameters are displayed simultaneously. Several languages can be preselected. The integrated processor controls not only the power and duration of heating automatically, it also enables the data for chucks with special geometry to be stored. Four LEDs indicate which fan is in operation.

The ISG 3200 shrinking unit has a coil system with fast changing mechanism in the standard version. This enables even tools in special dimensions to be shrunk in and out with correspondingly adapted coils. The area of application of the induction units can thus be extended permanently without having to invest constantly in new unit technology.

### Technical Data: ISG 3200

| EDP No. | D     | W     | H     | Clamping Range         | Suitable Tool Materials | Electric Current Supply | Power kW | Weight lbs. |
|---------|-------|-------|-------|------------------------|-------------------------|-------------------------|----------|-------------|
| 55781   | 22.99 | 23.31 | 40.55 | 3 – 50 mm<br>1/8" – 2" | Carbide+HSS             | 3 x 400 V/16 A          | 10       | 95          |

**Setting Pot**



For holding and correct positioning of the shrinking chuck on the shrink unit

| Clamping Chucks                          | Designation | EDP No. |
|--|-------------|---------|
| For HSK Clamping Chuck                   |             |         |
| HSK-32                                   | T3-W/HSK32  | 79017   |
| HSK-40                                   | T3-W/HSK40  | 79018   |
| HSK-50                                   | T3-W/HSK50  | 79019   |
| HSK-63                                   | T3-W/HSK63  | 79020   |
| HSK-80                                   | T3-W/HSK80  | 79021   |
| HSK-100                                  | T3-W/HSK100 | 79016   |
| For SK/BT/CAT Clamping chuck             |             |         |
| SK30/BT30/CAT30                          | T3-W/SK30   | 55755   |
| SK40/BT40/CAT40                          | T3-W/SK40   | 50756   |
| SK50/BT50/CAT50                          | T3-W/SK50   | 79022   |
| For ABS/Capto/Cylindrical Clamping Chuck |             |         |
| ABS25                                    | T3-W/25     | 55746   |
| ABS32/C3                                 | T3-W/32     | 55747   |
| ABS40/C4                                 | T3-W/40     | 55748   |
| ABS50/C5                                 | T3-W/50     | 55749   |
| ABS63/C6                                 | T3-W/63     | 55750   |
| For SCA Adaptors                         |             |         |
| SCA 1                                    | T3-W/SCA1   | 55766   |
| SCA 2                                    | T3-W/SCA2   | 55767   |
| For Quick Change Tapping Adaptors        |             |         |
| WE 1                                     | T3-W/WE1    | 79023   |
| WE 2                                     | T3-W/WE2    | 79024   |

**Cooling Adaptor**



For fast cooling of the heated shrinking chucks. Due to the precise design and the enclosure of the clamping area, the heat is rapidly diverted to the outside via the fins of the adaptor.

| Clamping Ø                                    | Designation        | EDP No. |
|---|--------------------|---------|
| Projection length up to 120 mm                |                    |         |
| 2-2.9   | T3-K/2-2.9         | 79039   |
| 3-5.9   | T3-K/3-5.9         | 50757   |
| 6-9   | T3-K/6-9           | 79027   |
| 9.1-12  | T3-K/9.1-12        | 50759   |
| 12.1-16                                       | T3-K/12.1-16       | 50760   |
| 16.1-22                                       | T3-K/16.1-22       | 79025   |
| ISG 3200 Only                                 |                    |         |
| 22.1-32                                       | T3-K/22.1-32       | 79026   |
| 32.1-40                                       | T3-K/32.1-40       | 79041   |
| 40.1-50                                       | T3-K/40.1-50       | 79044   |
| Projection length 120 – 200 mm                |                    |         |
| 3-5.9   | T3-K/3-5.9 L 200   | 12570   |
| 6-9   | T3-K/6-9 L 200     | 55758   |
| 9.1-12  | T3-K/9.1-12 L 200  | 55759   |
| 12.1-16                                       | T3-K/12.1-16 L 200 | 55760   |
| 16.1-22                                       | T3-K/16.1-22 L 200 | 55761   |
| ISG 3200 Only                                 |                    |         |
| 22.1-32                                       | T3-K/22.1-32 L 200 | 55762   |
| 32.1-40                                       | T3-K/32.1-40 L 200 | 55763   |
| Other projection lengths available on request |                    |         |

Please order accessories separately

**Changing Discs One-piece**  
(Included in delivery of unit)

For optimal shielding of the magnetic field between coil and tool shank



| Clamping Ø     | Designation | EDP No. |
|----------------|-------------|---------|
| 3.0 – 5.9 mm   | ISGS3201-0  | 56182   |
| 6.0 – 12.0 mm  | ISGS3201-1  | 55784   |
| 12.1 – 22.0 mm | ISGS3201-2  | 55785   |
| 22.1 – 32.0 mm | ISGS3201-3  | 55786   |

**Clamping Ring**  
(Included in delivery of unit)

For secure holding of the disc inside the coil



| Designation | EDP No. |
|-------------|---------|
| ISGS309     | 12566   |

**Induction Coil**  
(Included in delivery of unit)

Universal coil for a clamping range from Ø 3 – 32 mm which is supplied with 4 changing plates



| Clamping Ø | Designation | EDP No. |
|------------|-------------|---------|
| 3–32 mm    | ISGS3200-1  | 55782   |

**Protective Gloves**  
(Included in delivery of unit)

For protection against possible burns and cutting injuries



| Designation | EDP No. |
|-------------|---------|
| VA662-10    | 12571   |

**Cooling Adaptor Blanks**  
for Special Sizes



| Clamping Ø | Designation | EDP No. |
|------------|-------------|---------|
| 0          | T3-K/0-R    | 55765   |
| 18         | T3-K/18-R   | 79042   |
| 35         | T3-K/35-R   | 79043   |

**Changing Discs Two-piece**

For use when the cutting diameter is bigger than the shrinking diameter



| Clamping Ø     | Designation  | EDP No. |
|----------------|--------------|---------|
| 3.0 – 5.9 mm   | ISGS3201GT-0 | 12523   |
| 6.0 – 12.0 mm  | ISGS3201GT-1 | 12524   |
| 12.1 – 22.0 mm | ISGS3201GT-2 | 12525   |
| 22.1 – 32.0 mm | ISGS3201GT-3 | 12526   |

**Induction Coil**



| Clamping Ø   | Designation | EDP No. |
|--|-------------|---------|
| 32–50 mm   | ISGS3200-2  | 55783   |
| More special coils for different special tools are available on request                |             |         |
| Induction coils for the previous models ISG 3000 and ISG 3100 are available on request |             |         |

**Cooling Plate**  
for cutting tools

For depositing of shrunk out tools



| Designation | EDP No. |
|-------------|---------|
| T3-Z/WZ     | 79040   |

ISG 2200WK



- Processor controlled 8 KW high frequency generator
- Shrinking range Ø 3 – 20 mm solid carbide and Ø 6 – 20 mm HSS
- Maximum shrinking time of all Thermogrip chucks 5 seconds
- Cooling length for HSK-63 max. 239 mm
- Cooling of all shrinking chucks without separate cooling adaptors possible
- No danger of burning by touching the heated shrinking chucks
- No damage of the tool cutting edge by the cooling adaptors
- For all standard tool spindles by means of a simple change of the tool holder
- Optimal protection between coil and tool shank by means of 3 interchangeable discs with quick changing
- Fully automatic shrinking and cooling process, fast tool change times of 30 seconds
- Cooling time can be set between 1 and 99 seconds
- Adjustable delay time before cooling cycle
- Corrosion protection by use of emulsion
- 30 l coolant tank in the housing

The **ISG 2200WK** combines shrinking technology with water cooling. With the new all-in one solution the shrinking and cooling cycle is done in one position. Despite the compact design, a new processor-controlled high-frequency generator and the optimized coil geometry allow tool change times of carbide tools from Ø 3 – 20 mm and HSS tools from Ø 6 – 20 mm in a few seconds.

Due to the use of predetermined parameters, the overheating of chucks is not possible when handled correctly. The auto-mated process means that the heated chuck is moved down into the cooling position with a pneumatic cylinder after the heating time.

In the cooling position the chuck is flooded directly with emulsion. After the adjusted watercooling time the chuck moves upwards. During this movement the air is blown onto the chuck for drying. This completely new kind of cooling achieves a record tool change time. The contact with the heated chucks is not possible and so there is no danger of burns.



**Technical Data: ISG2200WK**

| EDP No. | Dimensions |     |      | Clamping Range Ø                  | Suitable Tool Shanks | Air Pressure | Electric Current Supply | Power kW | Weight kg |
|---------|------------|-----|------|-----------------------------------|----------------------|--------------|-------------------------|----------|-----------|
|         | D          | W   | H    |                                   |                      |              |                         |          |           |
| *50666  | 550        | 700 | 1540 | 3 – 20 mm (HM)<br>6 – 20 mm (HSS) | Carbide/HSS          | 6            | 3 x 400 V/16 A          | 8        | 100       |
| 52176   | 550        | 700 | 1540 | 3 – 20 mm (HM)<br>6 – 20 mm (HSS) | Carbide only         | 6            | 3 x 208 V/16 A          | 3.2      | 100       |

Extent of delivery: shrink-fit unit ISG2200WK with coil and 3 interchangeable discs, protective gloves as well as the 1 litre coolant emulsion (corresponds at 1:30 to one complete filling of the coolant tank).

\*Includes 400v Transformer EDP No. 50752



ISG 3200WK



- Processor controlled 10 KW high frequency generator
- Shrinking range Ø 3 – 32 mm solid carbide and Ø 6 – 32 mm HSS with only 1 coil
- Second coil for shrinking range till Ø 50 mm
- Max. shrinking length 450 mm (can be increased optionally by extending the guide unit)
- Max. cooling length 400 mm
- Cooling of all shrinking chucks without separate cooling adaptors possible
- No danger of burning by touching the heated shrinking chucks
- No damage of the tool blade by the cooling adaptors
- For all standard tool spindles by means of a simple change of the tool holder
- Fully automatic shrinking and cooling process, fast tool change times of less than 30 seconds
- No overheating of the shrinking chucks while using programmed parameters
- Manual shrinking cycle for free adjustment of generator power and heating time
- Easy control by graphic display with dialog function
- Adjustable delay time for every shrinking cycle
- Corrosion protection by use of emulsion
- 30 l coolant tank in the housing

The **ISG 3200 WK** combines shrinking technology with water cooling. With the new all-in one solution the shrinking and cooling cycle is done in one position. By the automated process the heated shrinking chuck is moved down in the cooling position with a pneumatic cylinder after the heating time. In the cooling position the chuck is flooded directly with emulsion. After the set water cooling time the chuck moves upwards. During the movement the air is blowing drying the chuck. This completely new kind of cooling achieves a record tool change time. Contact with the heated chucks is not possible and so there is no danger of burns.

The operation of the ISG 3200WK is completely menu assisted. Several languages can be preselected. The data is shown in the graphics display as dialog control. The actual action of the shrinking cycle is shown with symbols. All shrinking parameters are displayed simultaneously. Due to the use of predetermined parameters, overheating of the chuck is impossible when using correctly. These parameters include the shrinking time and generator power for all clamping diameters of the ThermoGrip® shrinking chucks, also the water cooling time according to the geometry and the clamping diameter. The water cooling time can be increased optionally by the user if necessary. For several special applications the shrinking time and generator power can be adjusted freely, when surrendering the automatic process safety.

The ISG 3200WK shrinking unit already has a coil system with fast change mechanism in the standard version. This enables even tools in special dimensions to be shrunk in and out with correspondingly adapted coils. The area of application of this induction unit can thus be extended permanently without having to invest constantly in new unit technology.



**Technical Data: ISG 3200 WK**

| EDP No. | Dimensions |     |      | Clamping Range Ø                  | Suitable Tool Shanks | Air Pressure | Electric Current Supply | Power kW | Weight kg |
|---------|------------|-----|------|-----------------------------------|----------------------|--------------|-------------------------|----------|-----------|
|         | D          | W   | H    |                                   |                      |              |                         |          |           |
| 13263   | 620        | 700 | 1700 | 3 – 50 mm (HM)<br>6 – 50 mm (HSS) | Carbide/HSS          | 6 bar        | 3 x 480 V/16 A          | 10       | 120       |

Extent of delivery: shrink-fit unit ISG3200WK with coil and 4 interchangeable discs, protective gloves as well as the 1 litre coolant emulsion (corresponds to one complete filling of the coolant tank).

**Changing Discs One-piece**  
(Included in delivery of unit)

For optimal shielding of the magnetic field between coil and tool shank



| Clamping-Ø     | Designation | EDP No. |
|----------------|-------------|---------|
| 3.0 – 5.9 mm   | ISGS2201-1  | 12577   |
| 6.0 – 12.0 mm  | ISGS2201-2  | 12578   |
| 12.1 – 20.0 mm | ISGS2201-3  | 12579   |
|                |             |         |

**Clamping Ring**  
(Included in delivery of unit)

For secure holding of the disc inside the coil



| Designation | EDP No. |
|-------------|---------|
| ISGS309     | 12566   |
|             |         |

**Protective Gloves**  
(Included in delivery of unit)

For protection against possible burns and cutting injuries



| Designation | EDP No. |
|-------------|---------|
| VA662-10    | 12571   |
|             |         |

**Tool Holders**

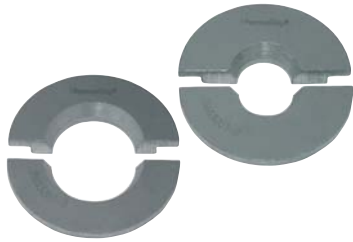
For holding and correct positioning of the clamping chuck on the shrink unit



| Clamping Chucks                       | Designation   | EDP No. |
|---------------------------------------|---------------|---------|
| For HSK Clamping chuck                |               |         |
| HSK-32                                | T2-WWK/HSK32  | 11981   |
| HSK-40                                | T2-WWK/HSK40  | 11398   |
| HSK-50                                | T2-WWK/HSK50  | 11988   |
| HSK-63                                | T2-WWK/HSK63  | 54632   |
| HSK-80                                | T2-WWK/HSK80  | 11990   |
| HSK-100                               | T2-WWK/HSK100 | 11991   |
| For SK/BT/CAT Clamping chuck          |               |         |
| SK30/BT30/CAT30                       | T2-WWK/SK30   | 11989   |
| SK40/BT40/CAT40                       | T2-WWK/SK40   | 11275   |
| SK50/BT50/CAT50                       | T2-WWK/SK50   | 11278   |
| More toolholders available on request |               |         |

**Changing Discs Two-piece**

For use when the cutting diameter is bigger than the shrinking diameter



| Clamping-Ø     | Designation  | EDP No. |
|----------------|--------------|---------|
| 3.0 – 5.9 mm   | ISGS2201GT-1 | 12527   |
| 6.0 – 12.0 mm  | ISGS2201GT-2 | 12528   |
| 12.1 – 20.0 mm | ISGS2201GT-3 | 12529   |

**Protective Cover**

For protection of the unit against dirt



| Designation | Ident No. |
|-------------|-----------|
| ISG2200-SH  | 12580     |

**Cooling Plate for cutting tools**

For depositing of shrunk out tools



| Designation | Ident No. |
|-------------|-----------|
| T3-Z/WZ     | 79040     |



**Tool Holders**

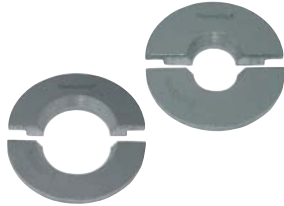
For holding and correct positioning of the clamping chuck on the shrink unit



| Clamping Chucks                       | Designation   | EDP No. |
|---------------------------------------|---------------|---------|
| For HSK Clamping Chuck                |               |         |
| HSK-32                                | T3-WWK/HSK32  | 11982   |
| HSK-40                                | T3-WWK/HSK40  | 11983   |
| HSK-50                                | T3-WWK/HSK50  | 11984   |
| HSK-63                                | T3-WWK/HSK63  | 11985   |
| HSK-80                                | T3-WWK/HSK80  | 11986   |
| HSK-100                               | T3-WWK/HSK100 | 11987   |
| For SK/BT/CAT Clamping chuck          |               |         |
| SK30/BT30/CAT30                       | T3-WWK/SK30   | 12573   |
| SK40/BT40/CAT40                       | T3-WWK/SK40   | 11716   |
| SK50/BT50/CAT50                       | T3-WWK/SK50   | 11717   |
| More toolholders available on request |               |         |

**Changing Discs Two-piece**

For use when the cutting diameter is bigger than the shrinking diameter



| Clamping Ø     | Designation  | EDP No. |
|----------------|--------------|---------|
| 3.0 – 5.9 mm   | ISGS3201GT-0 | 12523   |
| 6.0 – 12.0 mm  | ISGS3201GT-1 | 12524   |
| 12.1 – 22.0 mm | ISGS3201GT-2 | 12525   |
| 20.1 – 32.0 mm | ISGS3201GT-3 | 12526   |

**Deposit Plate**

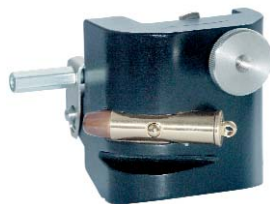
For safe depositing of changing discs, tool holders and shrunk out tools



| Designation | EDP No. |
|-------------|---------|
| ISG338-BG   | 12572   |

**Fixture for ISG3200  
(with laser pointer)**

When using special coils or slim version adaptors, the ISGF3200 is mounted as an axial fixture for the coil. The laser pointer is used to find the edge at the front of the chuck.



| Designation | EDP No. |
|-------------|---------|
| ISGF 3200   | 12346   |

**Ejection Device for Broken Tools**



The newly developed ejection unit enables broken tools to be removed simply from chucks. Even tools where the point of breakage is within the toolholder can be removed without difficulty. The basic toolholder can be adapted to all customary machine interfaces (HSK, CAT) by means of different adapters.\* Even with a tight fit (bore diameter/tool shank) the shrunk-in shanks can be removed without difficulty. Further interfaces on request.

\*Available upon request.

| Basic Toolholder |         |
|------------------|---------|
| Designation      | EDP No. |
| T3-WSG           | 56153   |

**Compressed Air Unit**



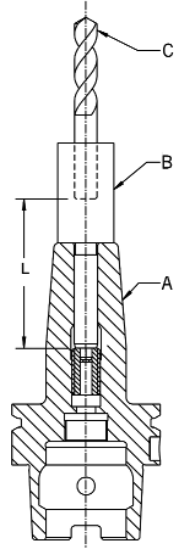
| Designation | EDP No. |
|-------------|---------|
| T3-WSD      | 56162   |

**Adapter**



| Interface | Designation   | EDP No. |
|-----------|---------------|---------|
| CAT/SK40  | T3-WSA/SK40   | 56154   |
| CAT/SK50  | T3-WSA/SK50   | 56155   |
| HSK63     | T3-WSA/HSK63  | 56156   |
| HSK100    | T3-WSA/HSK100 | 56157   |
| ABS32     | T3-WSA/ABS32  | 56158   |
| ABS40     | T3-WSA/ABS40  | 56159   |
| ABS50     | T3-WSA/ABS50  | 56160   |
| ABS63     | T3-WSA/ABS63  | 56161   |

#### Measuring Adaptor for length adjustment when cold

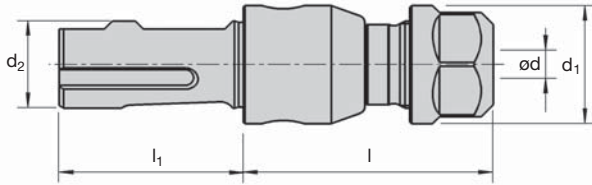


The length is preset prior to the shrinking process by means of a measuring adaptor (B). This is inserted together with the tool (C) in the chuck (A) and the tool length is determined using the adjusting screw in the chuck by turning the measuring adaptor. The measuring adaptor is then removed and the tool is shrunk in. The difference (L) must be taken into account when setting.

L = 80 mm

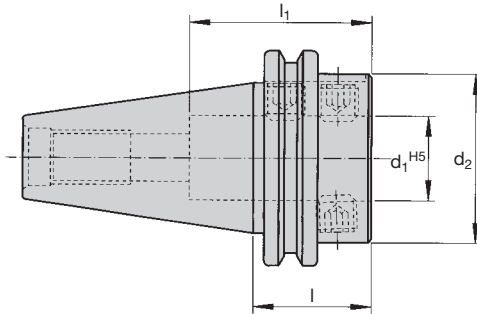
| Tool Shank Dia.                  | Designation | EDP No. |
|----------------------------------|-------------|---------|
| <b>Adapters for Inch Bores</b>   |             |         |
| 0.250                            | T3-M0635    | 55756   |
| 0.313                            | T3-M0794    | 55779   |
| 0.375                            | T3-M0953    | 55764   |
| 0.500                            | T3-M1270    | 55757   |
| 0.625                            | T3-M1588    | 55778   |
| 0.750                            | T3-M1905    | 55774   |
| 0.875                            | T3-M2223    | 55777   |
| 1.000                            | T3-M2540    | 55775   |
| 1.250                            | T3-M3175    | 55776   |
| <b>Adapters for Metric Bores</b> |             |         |
| 5.0 (0.197)                      | T3-M0500    | 55768   |
| 6.0 (0.236)                      | T3-M0600    | 79028   |
| 8.0 (0.315)                      | T3-M0600    | 79029   |
| 9.0 (0.354)                      | T3-M0900    | 55769   |
| 10.0 (0.394)                     | T3-M1000    | 79030   |
| 12.0 (0.472)                     | T3-M1200    | 79031   |
| 14.0 (0.551)                     | T3-M1400    | 79032   |
| 16.0 (0.630)                     | T3-M1600    | 79033   |
| 18.0 (0.709)                     | T3-M1800    | 79034   |
| 20.0 (0.787)                     | T3-M2000    | 79035   |
| 24.0 (0.945)                     | T3-M2400    | 55770   |
| 25.0 (0.984)                     | T3-M2500    | 79036   |
| 26.0 (1.624)                     | T3-M2600    | 55771   |
| 28.0 (1.102)                     | T3-M2800    | 55772   |
| 30.0 (1.181)                     | T3-M3000    | 55773   |
| 32.0 (1.260)                     | T3-M3200    | 79037   |

## Synchro Chucks SC/MS



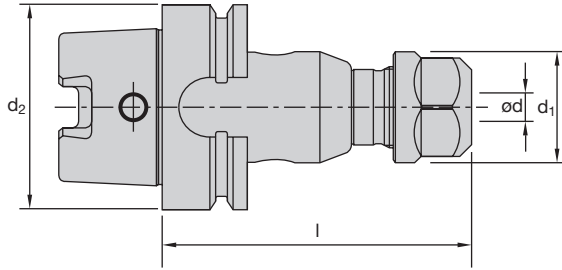
| EDP No.             | Description          | Dimensions (mm) |        |        |                |                |      |                |          |         |
|---------------------|----------------------|-----------------|--------|--------|----------------|----------------|------|----------------|----------|---------|
|                     |                      | Tap Size        | Comp   | od     | d <sub>1</sub> | d <sub>2</sub> | l    | l <sub>1</sub> | Collet   | Seal    |
| <b>Metric Shank</b> |                      |                 |        |        |                |                |      |                |          |         |
| 51826               | SC1/MS 25-ESX 20IC   | M3.5-M14        | ±0.08" | 4-11.2 | 34.0           | 25.0           | 68.5 | 53.0           | ESX20-GB | DS/ER20 |
| 51827               | SC2/MS 25-ESX 32IC   | M3.5-M30        | ±0.08" | 4-20.0 | 50.0           | 25.0           | 84.5 | 53.0           | ESX32-GB | DS/ER32 |
| <b>Inch Shank</b>   |                      |                 |        |        |                |                |      |                |          |         |
| 51850               | SC1/MS 25.4-ESX 20IC | M3.5-M14        | ±0.08" | 4-11.2 | 34.0           | 1.00"          | 68.5 | 53.0           | ESX20-GB | DS/ER20 |
| 51851               | SC2/MS 25.4-ESX 32IC | M3.5-M30        | ±0.08" | 4-20.0 | 50.0           | 1.00"          | 84.5 | 53.0           | ESX32-GB | DS/ER32 |

## Holders for Straight Shank Synchro Chucks



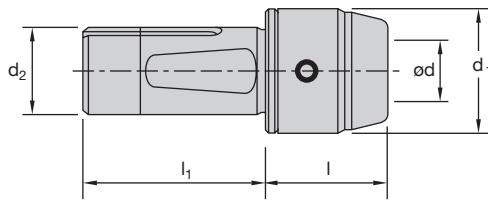
| EDP No. | Description           | Dimensions (mm) |                |                |      |
|---------|-----------------------|-----------------|----------------|----------------|------|
|         |                       | d <sub>1</sub>  | d <sub>2</sub> | l <sub>1</sub> | l    |
| 12596   | CAT40 V-Flange Holder | 25.4            | 45.0           | 68.5           | 38.0 |
| 53553   | CAT50 V-Flange Holder | 25.4            | 70.0           | 84.5           | 38.0 |

### Synchro Chucks SC/HSK



| EDP No. | Description           | Dimensions (mm) |        |        |                |                |       |                |          |         |
|---------|-----------------------|-----------------|--------|--------|----------------|----------------|-------|----------------|----------|---------|
|         |                       | Tap Size        | Comp   | ø d    | d <sub>1</sub> | d <sub>2</sub> | l     | l <sub>1</sub> | Collet   | Seal    |
| 30866   | SC1/HSK-A63-ESX 20IC  | M3.5-M14        | ±0.08" | 4-11.2 | 34.0           | 63.0           | 91.5  | -              | ESX20-GB | DS/ER20 |
| 12597   | SC2/HSK-A63-ESX 32IC  | M3.5-M30        | ±0.08" | 4-20.0 | 50.0           | 63.0           | 104.5 | -              | ESX32-GB | DS/ER32 |
| 12598   | SC1/HSK-A100-ESX 20IC | M3.5-M14        | ±0.08" | 4-11.2 | 34.0           | 100.0          | 101.0 | -              | ESX20-GB | DS/ER20 |
| 11593   | SC2/HSK-A100-ESX 32IC | M3.5-M30        | ±0.08" | 4-20.0 | 50.0           | 100.0          | 114.5 | -              | ESX32-GB | DS/ER32 |

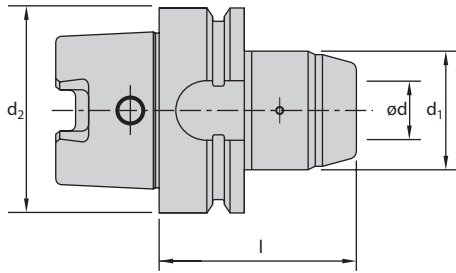
### Synchro Chucks SCC/MS



| EDP No.             | Description | Dimensions (mm) |        |      |                |                |      |                |             |
|---------------------|-------------|-----------------|--------|------|----------------|----------------|------|----------------|-------------|
|                     |             | Tap Size        | Comp   | ø d  | d <sub>1</sub> | d <sub>2</sub> | l    | l <sub>1</sub> | Front Piece |
| <b>Metric Shank</b> |             |                 |        |      |                |                |      |                |             |
| 12599               | SCC1/MS25   | M5-M12          | ±0.08" | 18.0 | 36.0           | 25.0           | 36.0 | 53.0           | SCA 1-T     |
| 12600               | SCC2/MS25   | M5-M20          | ±0.08" | 27.0 | 50.0           | 25.0           | 50.0 | 53.0           | SCA 2-T     |
| <b>Inch Shank</b>   |             |                 |        |      |                |                |      |                |             |
| 12601               | SCC1/MS25.4 | M5-M12          | ±0.08" | 18.0 | 36.0           | 1.00"          | 36.0 | 53.0           | SCA 1-T     |
| 12602               | SCC2/MS25.4 | M5-M20          | ±0.08" | 27.0 | 50.0           | 1.00"          | 50.0 | 53.0           | SCA 2-T     |

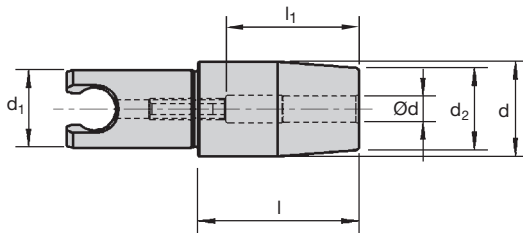
NOTE: Use with SCA Thermo-Grip Synchro Adapter on Page 56

### Synchro Chucks SCC/HSK



| EDP No. | Description | Dimensions (mm) |        |      |                |                |      |                | Front Piece |
|---------|-------------|-----------------|--------|------|----------------|----------------|------|----------------|-------------|
|         |             | Tap Size        | Comp   | ød   | d <sub>1</sub> | d <sub>2</sub> | l    | l <sub>1</sub> |             |
| 12603   | SCC1/HSK63  | M5-M12          | ±0.08" | 18.0 | 36.0           | 63.0           | 60.0 | -              | SCA 1-T     |
| 12605   | SCC2/HSK63  | M5-M20          | ±0.08" | 27.0 | 50.0           | 63.0           | 76.0 | -              | SCA 2-T     |
| 12606   | SCC1/HSK100 | M5-M12          | ±0.08" | 18.0 | 36.0           | 100.0          | 64.0 | -              | SCA 1-T     |
| 12607   | SCC2/HSK100 | M5-M20          | ±0.08" | 27.0 | 50.0           | 100.0          | 79.0 | -              | SCA 2-T     |

### ThermoGrip™ Synchro Adapter SCA

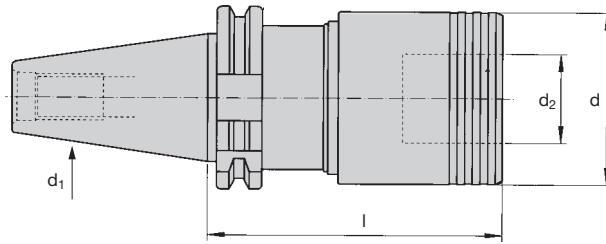


| EDP No. | Description | Dimensions (mm) |     |      |      |                |                |      |                |
|---------|-------------|-----------------|-----|------|------|----------------|----------------|------|----------------|
|         |             | Tap Size        | N   | ød   | d    | d <sub>1</sub> | d <sub>2</sub> | l    | l <sub>1</sub> |
| 12608   | SCA 1-T060  | M5-M6           | 5.0 | 6.0  | 22.0 | 18.0           | 19.0           | 38.0 | 31.0           |
| 12609   | SCA 1-T070  | M7              | 5.0 | 7.0  | 22.0 | 18.0           | 19.0           | 38.0 | 31.0           |
| 12610   | SCA 1-T080  | M8              | 5.0 | 8.0  | 22.0 | 18.0           | 19.0           | 38.0 | 32.0           |
| 12611   | SCA 1-T090  | M9              | 5.0 | 9.0  | 22.0 | 18.0           | 19.0           | 38.0 | 33.0           |
| 12612   | SCA 1-T100  | M10             | 5.0 | 10.0 | 22.0 | 18.0           | 19.0           | 38.0 | 34.0           |
| 12613   | SCA 1-T120  | M12             | 5.0 | 12.0 | 22.0 | 18.0           | 19.0           | 38.0 | 46.0           |
| 12614   | SCA 2-T060  | M5-M6           | 5.0 | 6.0  | 22.0 | 27.0           | 19.0           | 55.0 | 31.0           |
| 12616   | SCA 2-T070  | M7              | 5.0 | 7.0  | 22.0 | 27.0           | 19.0           | 55.0 | 31.0           |
| 12617   | SCA 2-T080  | M8              | 5.0 | 8.0  | 22.0 | 27.0           | 19.0           | 55.0 | 32.0           |
| 12618   | SCA 2-T090  | M9              | 5.0 | 9.0  | 22.0 | 27.0           | 19.0           | 55.0 | 33.0           |
| 12619   | SCA 2-T100  | M10             | 5.0 | 10.0 | 22.0 | 27.0           | 19.0           | 55.0 | 34.0           |
| 12620   | SCA 2-T120  | M12             | 5.0 | 12.0 | 22.0 | 27.0           | 19.0           | 55.0 | 46.0           |
| 12621   | SCA 2-T140  | M14             | 5.0 | 14.0 | 34.0 | 27.0           | 27.0           | 55.0 | 48.0           |
| 12622   | SCA 2-T160  | M16             | 5.0 | 16.0 | 34.0 | 27.0           | 27.0           | 55.0 | 49.0           |



## High Performance Tapping Units

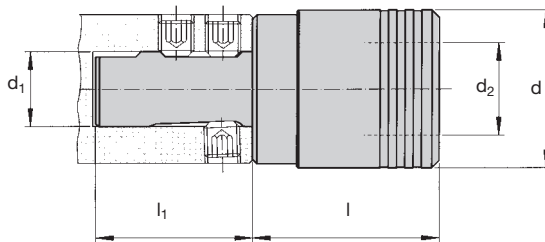
### Bilz Quick Change-Rigid Tap Chucks WF Series Cat V-Flange



| LMT No. | Bilz No. | Description      | Shank (d <sub>1</sub> ) | Coolant Fed | Adapter Size (d <sub>2</sub> ) | Inch Tap Range | Metric Tap Range | Pipe Tap Range | D     | l    |
|---------|----------|------------------|-------------------------|-------------|--------------------------------|----------------|------------------|----------------|-------|------|
| 13010   | 117011   | WF 1 IKP M/CAT40 | CAT40                   | YES         | 1                              | #0-9/16        | M3-M12           | 1/8            | 1.260 | 2.90 |
| 51600   | 117012   | WF 1 IKP M/CAT50 | CAT50                   | YES         | 1                              | #0-9/16        | M3-M12           | 1/8            | 1.260 | 2.90 |
| 11018   | 117021   | WF 2 IKP M/CAT40 | CAT40                   | YES         | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 1.968 | 3.50 |
| 13008   | 117022   | WF 2 IKP M/CAT50 | CAT50                   | YES         | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 1.968 | 3.50 |
| 13009   | 117032   | WF 3 IKP M/CAT50 | CAT50                   | YES         | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 2.812 | 4.81 |

NOTE: Coolant Thru @ 50 BAR/725 PSI

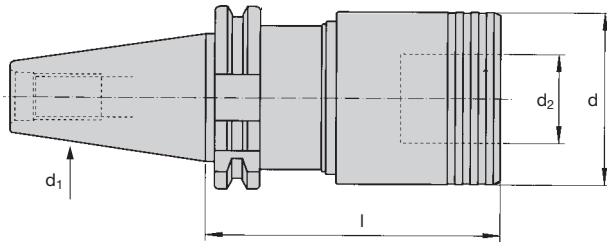
### Bilz Quick Change-Rigid Tap Chucks WF Series Straight Shank



| LMT No.             | Bilz No.   | Description    | Shank (d <sub>1</sub> ) | Coolant Fed | Adapter Size (d <sub>2</sub> ) | Inch Tap Range | Metric Tap Range | Pipe Tap Range | D     | l     |
|---------------------|------------|----------------|-------------------------|-------------|--------------------------------|----------------|------------------|----------------|-------|-------|
| <b>INCH SHANK</b>   |            |                |                         |             |                                |                |                  |                |       |       |
| 12269               | 11 700 624 | WF 1 IKP M/1   | 1.00                    | YES         | 1                              | #0-9/16        | M3-M12           | 1/8            | 1.260 | 1.457 |
| 13006               | 11 700 625 | WF 2 IKP M/1   | 1.00                    | YES         | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 1.968 | 2.126 |
| 13007               | 11 700 626 | WF 3 IKP M/1.5 | 1.50                    | YES         | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 2.812 | 3.437 |
| <b>METRIC SHANK</b> |            |                |                         |             |                                |                |                  |                |       |       |
| 55288               | 11 700 702 | WF 1 IKP MS/25 | 25MM                    | YES         | 1                              | #0-9/16        | M3-M12           | 1/8            | 1.260 | 1.457 |
| 13030               | 11 700 703 | WF 2 IKP MS/25 | 25MM                    | YES         | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 1.968 | 2.126 |
| 13031               | 11 700 704 | WF 3 IKP MS/32 | 32MM                    | YES         | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 2.812 | 3.437 |

NOTE: Coolant Thru @ 50 BAR/725 PSI

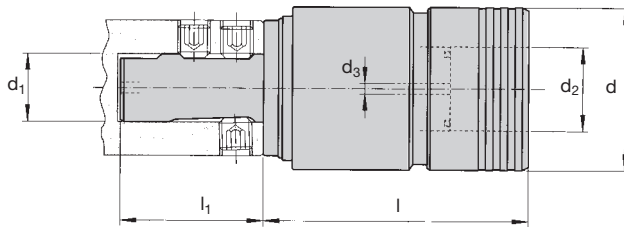
#### Bilz Quick Change Tension & Compression Chucks WFLK Tension & Compression Taper Shank



| LMT No. | Bilz No. | Description       | Shank (d <sub>1</sub> ) | Coolant Fed | Adapter Size (d <sub>2</sub> ) | Inch Tap Range | Metric Tap Range | Pipe Tap Range | Comp. (Inch) | Tension (Inch) | D     | I     |
|---------|----------|-------------------|-------------------------|-------------|--------------------------------|----------------|------------------|----------------|--------------|----------------|-------|-------|
| 13015   | 100 001  | WFLK 013 BM/CAT40 | CAT40                   | NO          | 0                              | #0-5/16        | M3-M10           | NA             | 0.260        | 0.260          | 1.024 | 2.755 |
| 13016   | 100 003  | WFLK 013 BM/CAT50 | CAT50                   | NO          | 0                              | #0-5/16        | M3-M10           | NA             | 0.300        | 0.300          | 1.024 | 2.955 |
| 13017   | 100 011  | WFLK 115 BM/CAT40 | CAT40                   | NO          | 1                              | #0-9/16        | M3-M12           | 1/8            | 0.300        | 0.300          | 1.417 | 2.955 |
| 13018   | 100 013  | WFLK 115 BM/CAT50 | CAT50                   | NO          | 1                              | #0-9/16        | M3-M12           | 1/8            | 0.490        | 0.490          | 1.417 | 3.855 |
| 53283   | 100 021  | WFLK 225 BM/CAT40 | CAT40                   | NO          | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 0.490        | 0.490          | 2.087 | 3.855 |
| 13019   | 100 023  | WFLK 225 BM/CAT50 | CAT50                   | NO          | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 0.790        | 0.790          | 2.087 | 3.855 |
| 13020   | 100 030  | WFLK 340 BM/CAT50 | CAT50                   | NO          | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 0.790        | 0.790          | 3.071 | 5.780 |
| 13021   | 100 040  | WFLK 445 BM/CAT50 | CAT50                   | NO          | 4                              | 1-1-7/8        | M22-M45          | 3/4-1-7/8      | 0.890        | 0.890          | 6.410 | 5.780 |

NOTE: Also available in tension only

#### Bilz Quick Change Tension & Compression Chucks WFLK/WFLC Tension & Compression Straight Shank



| LMT No.       | Bilz No.   | Description        | Shank (d <sub>1</sub> ) | Coolant Fed | Adapter Size (d <sub>2</sub> ) | Inch Tap Range | Metric Tap Range | Pipe Tap Range | Comp. (Inch) | Tension (Inch) | D     | I     |
|---------------|------------|--------------------|-------------------------|-------------|--------------------------------|----------------|------------------|----------------|--------------|----------------|-------|-------|
| <b>Inch</b>   |            |                    |                         |             |                                |                |                  |                |              |                |       |       |
| 13022         | 12 008 082 | WFLK 013 BM/1      | 1.00                    | NO          | 0                              | #0-5/16        | M3-M10           | NA             | 0.260        | 0.260          | 1.024 | 1.580 |
| 56435         | 12 018 298 | WFLK 115 BM/1      | 1.00                    | NO          | 1                              | #0-9/16        | M3-M12           | 1/8            | 0.300        | 0.300          | 1.417 | 1.580 |
| 13023         | 12 018 486 | WFLK 115-0 BM/1    | 1.00                    | NO          | 1                              | #0-9/16        | M3-M12           | 1/8            | 0.000        | 0.600          | 1.417 | 1.580 |
| 13024         | 38 218 003 | WFLC 115 IKP 1 SS  | 1.00                    | YES         | 1                              | #0-9/16        | M3-M12           | 1/8            | 0.300        | 0.300          | 1.417 | 2.441 |
| 52615         | 12 028 377 | WFLK 225 BM/1      | 1.00                    | NO          | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 0.490        | 0.490          | 2.087 | 2.480 |
| 52568         | 12 028 429 | WFLK 225-0 BM/1    | 1.00                    | NO          | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 0.000        | 0.980          | 2.087 | 2.480 |
| 13025         | 38 228 002 | WFLC 220 IKP M/1   | 1.00                    | YES         | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 0.490        | 0.490          | 2.087 | 3.858 |
| 13026         | 12 038 247 | WFLK 340 BM/1.5    | 1.50                    | NO          | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 0.790        | 0.790          | 3.071 | 3.780 |
| 13027         | 38 038 027 | WFLC 335 IKP M/1.5 | 1.50                    | YES         | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 0.790        | 0.790          | 3.071 | 5.787 |
| 13028         | 12 048 164 | WFLK 445 BM/1.5    | 1.50                    | NO          | 4                              | 1-1-7/8        | M22-M45          | 3/4-1-7/8      | 0.890        | 0.890          | 3.780 | 4.410 |
| 13029         | 38 248 002 | WFLC 440 IKP M/1.5 | 1.50                    | YES         | 4                              | 1-1-7/8        | M22-M45          | 3/4-1-7/8      | 0.890        | 0.890          | 3.780 | 4.410 |
| <b>Metric</b> |            |                    |                         |             |                                |                |                  |                |              |                |       |       |
| 13032         | 38 118 002 | WFLC 115 / MS25    | 25                      | NO          | 1                              | #0-9/16        | M3-M12           | 1/8            | 7.5          | 7.5            | 39    | 45    |
| 13033         | 38 118 003 | WFLC 115-0 / MS25  | 25                      | NO          | 1                              | #0-9/16        | M3-M12           | 1/8            | 0            | 15.0           | 39    | 37.5  |
| 13034         | 38 218 002 | WFLC 115-K / MS25  | 25                      | YES         | 1                              | #0-9/16        | M3-M12           | 1/8            | 7.5          | 7.5            | 39    | 62    |
| 13035         | 38 218 005 | WFLC 115-OK / MS25 | 25                      | YES         | 1                              | #0-9/16        | M3-M12           | 1/8            | 0            | 15.0           | 39    | 54.5  |
| 13036         | 38 128 001 | WFLC 220 / MS25    | 25                      | NO          | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 10.0         | 10.0           | 60    | 68    |
| 13037         | 38 128 003 | WFLC 220-0 / MS25  | 25                      | NO          | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 0            | 20.0           | 60    | 58    |
| 13038         | 38 228 001 | WFLC 220-K / MS25  | 25                      | YES         | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 10.0         | 10.0           | 60    | 98    |
| 13039         | 38 228 004 | WFLC 220-OK / MS25 | 25                      | YES         | 2                              | 1/4-7/8        | M8-M20           | 1/8-1/2        | 0            | 20.0           | 60    | 88    |
| 13040         | 38 138 001 | WFLC 335 / MS32    | 32                      | NO          | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 17.5         | 17.5           | 86    | 99    |
| 13041         | 38 138 002 | WFLC 335-0 / MS32  | 32                      | NO          | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 0            | 35.0           | 86    | 81.5  |
| 52158         | 38 238 001 | WFLC 335-K / MS32  | 32                      | YES         | 3                              | 13/16-1-3/8    | M14-M33          | 1/2-1.00       | 17.5         | 17.5           | 86    | 147   |

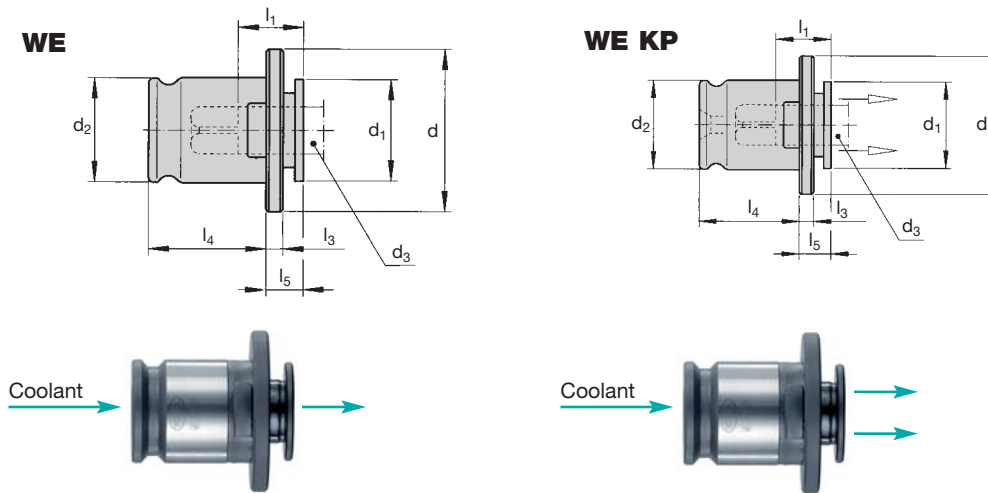
NOTE: All holders with -0 in description are tension only





## High Performance Tapping Units

### Bilz WE / WE KP Style ANSI Quick Change Tap Adapters

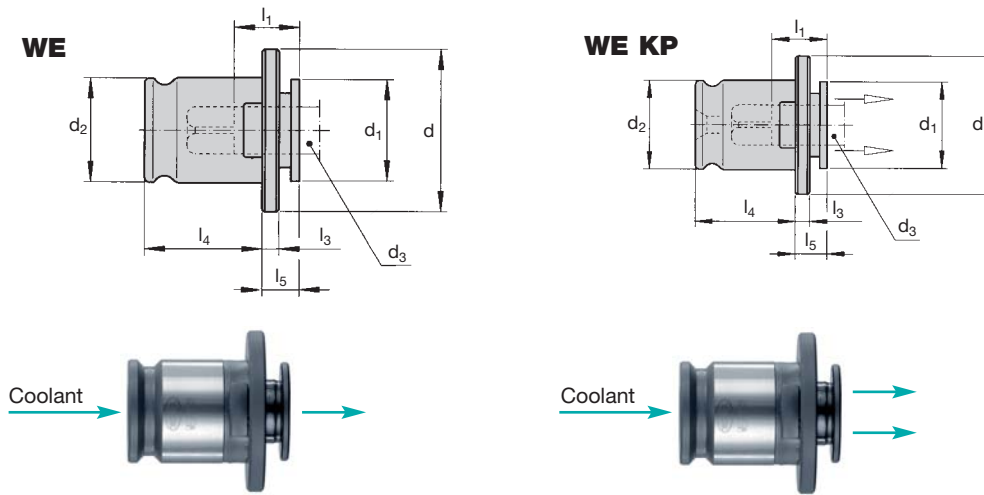


| Designation    | Tap Size    |         | d            | d <sub>1</sub> | d <sub>2</sub> | l <sub>1</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |
|----------------|-------------|---------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                | Inch        | Metric  |              |                |                |                |                |                |                |
| WE 0           | #0-5/16     | M1-M10  | 22.0 (0.787) | 13.0 (.5118)   | 13.0 (.5118)   | 15.0 (0.591)   | 4.0 (.1575)    | 19.5 (.7677)   | 7.0 (.2756)    |
| WE 1 / WE 1 KP | #0-9/16     | M3-M12  | 30.0 (1.181) | 19.0 (0.748)   | 19.0 (0.748)   | 17.0 (0.669)   | 4.0 (.1575)    | 21.5 (.8465)   | 7.0 (.2756)    |
| WE 2 / WE 2 KP | 1/4-7/8     | M8-M20  | 48.0 (1.890) | 30.0 (1.181)   | 31.0 (1.220)   | 30.0 (1.181)   | 5.0 (.1969)    | 35.0 (1.378)   | 11.0 (.4331)   |
| WE 3 / WE 3 KP | 13/16-1 3/8 | M14-M33 | 70.0 (2.756) | 48.0 (1.890)   | 48.0 (1.890)   | 44.0 (1.732)   | 6.0 (.2362)    | 55.5 (2.185)   | 14.0 (.5512)   |

| Inch Size        | Metric Size | Shank Dia. | Square | WE 0       | WE 1       | WE 1 KP    | WE 2       | WE 2 KP    | WE 3       | WE 3 KP    |
|------------------|-------------|------------|--------|------------|------------|------------|------------|------------|------------|------------|
|                  |             |            |        | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  |
| #0-6             | M3          | 0.141      | 0.110  | 29 100 028 | 21 100 019 | 21 184 032 |            |            |            |            |
| #8, 5/32         | M4          | 0.168      | 0.131  | 29 100 041 | 21 100 027 | 21 184 031 |            |            |            |            |
| #10, 3/16        | M4.5, M5    | 0.194      | 0.152  | 29 100 052 | 21 100 038 | 21 184 029 |            |            |            |            |
| #12, 7/32        | #12         | 0.220      | 0.165  | 29 100 062 | 21 100 046 | 21 184 036 |            |            |            |            |
| #14, 1/4         | M6, M6.5    | 0.255      | 0.191  | 29 100 077 | 21 100 063 | 21 184 019 | 22 100 010 |            |            |            |
| 5/16             | M7, M8      | 0.318      | 0.238  | 29 100 101 | 21 100 089 | 21 184 020 | 22 100 022 | 22 167 430 |            |            |
| 3/8              | M10         | 0.381      | 0.286  |            | 21 100 112 | 21 184 021 | 22 100 040 | 22 167 424 |            |            |
| 7/16             | 7/16        | 0.323      | 0.242  |            | 21 100 091 | 21 184 022 | 22 100 023 | 22 167 433 |            |            |
| 1/2              | M12, M12.5  | 0.367      | 0.275  |            | 21 100 105 | 21 184 023 | 22 100 033 | 22 167 418 |            |            |
| 9/16             | M14         | 0.429      | 0.322  |            | 21 100 119 |            | 22 100 043 | 22 167 428 |            |            |
| 5/8              | M16         | 0.480      | 0.360  |            |            |            | 22 100 058 | 22 167 419 |            |            |
| 11/16            | M18         | 0.542      | 0.406  |            |            |            | 22 100 067 | 22 167 438 |            |            |
| 3/4              | 3/4         | 0.590      | 0.442  |            |            |            | 22 100 147 | 22 167 420 | 23 100 013 |            |
| 13/16            | M20         | 0.652      | 0.489  |            |            |            | 22 100 089 | 22 167 436 | 23 100 018 | 23 156 430 |
| 7/8              | M22         | 0.697      | 0.523  |            |            |            | 22 100 093 | 22 167 434 | 23 100 021 | 23 156 419 |
| 15/16            | M24         | 0.760      | 0.570  |            |            |            |            |            | 23 100 028 | 23 156 429 |
| 1.00             | M25         | 0.800      | 0.600  |            |            |            |            |            | 23 100 031 | 23 156 420 |
| 1-1/8            |             | 0.896      | 0.672  |            |            |            |            |            | 23 100 038 | 23 156 436 |
| 1-1/4            |             | 1.021      | 0.766  |            |            |            |            |            | 23 100 045 | 23 156 434 |
| 1-3/8            |             | 1.108      | 0.831  |            |            |            |            |            | 23 100 053 | 23 156 430 |
| <b>Pipe Taps</b> |             |            |        |            |            |            |            |            |            |            |
| 1/8 NPT          | SMALL SHANK | 0.3125     | 0.234  |            | 21 100 081 |            |            |            |            |            |
| 1/8 NPT          | LARGE SHANK | 0.4370     | 0.328  |            | 21 100 124 |            | 22 102 016 |            |            |            |
| 1/4 NPT          | 1/4 NPT     | 0.5620     | 0.421  |            |            |            | 22 102 002 | 22 185 402 |            |            |
| 3/8 NPT          | 3/8 NPT     | 0.7000     | 0.531  |            |            |            | 22 102 005 | 22 185 405 | 23 102 035 | 23 157 435 |
| 1/2 NPT          | 1/2 NPT     | 0.6875     | 0.515  |            |            |            | 22 102 004 | 22 185 404 | 23 102 049 | 23 157 436 |
| 3/4 NPT          | 3/4 NPT     | 0.9060     | 0.679  |            |            |            |            |            | 23 102 004 | 23 157 404 |
| 1.00 NPT         | 1.00 NPT    | 1.1250     | 0.843  |            |            |            |            |            | 23 102 007 | 23 157 407 |

NOTE: WE style also suitable for taps with axial coolant hole  
 WE KP style delivers coolant around tap shank for noncoolant taps

## Bilz WE / WE KP Style DIN 371/376 Quick Change Tap Adapters

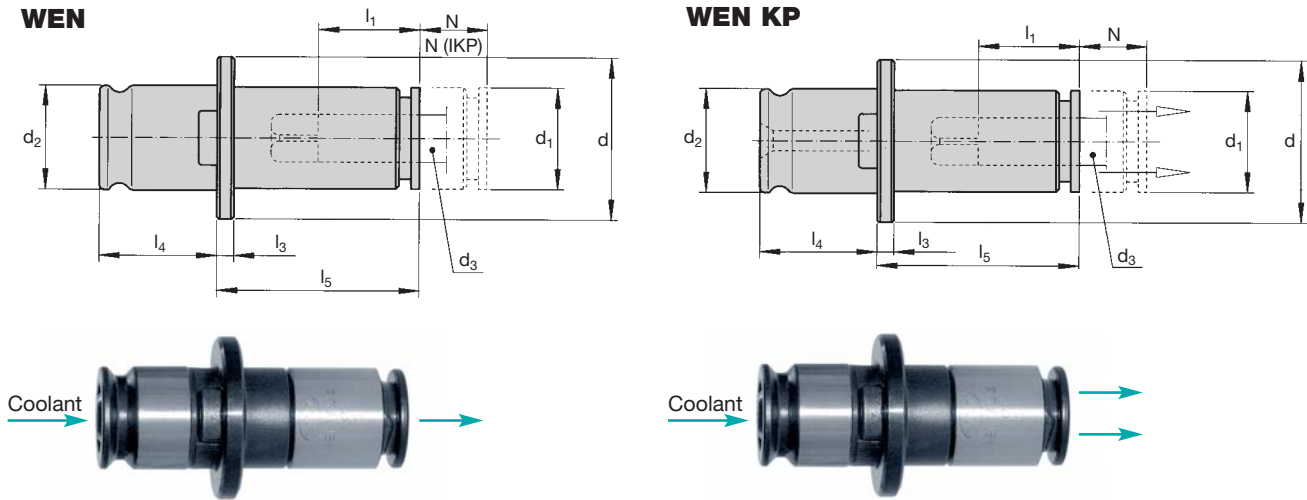


| Designation    | Tap Size    |         | d            | d <sub>1</sub> | d <sub>2</sub> | l <sub>1</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |
|----------------|-------------|---------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                | Inch        | Metric  |              |                |                |                |                |                |                |
| WE 0           | #0-5/16     | M1-M10  | 22.0 (0.787) | 13.0 (.5118)   | 13.0 (.5118)   | 15.0 (0.591)   | 4.0 (.1575)    | 19.5 (.7677)   | 7.0 (.2756)    |
| WE 1 / WE 1 KP | #0-9/16     | M3-M12  | 30.0 (1.181) | 19.0 (0.748)   | 19.0 (0.748)   | 17.0 (0.669)   | 4.0 (.1575)    | 21.5 (.8465)   | 7.0 (.2756)    |
| WE 2 / WE 2 KP | 1/4-7/8     | M8-M20  | 48.0 (1.890) | 30.0 (1.181)   | 31.0 (1.220)   | 30.0 (1.181)   | 5.0 (.1969)    | 35.0 (1.378)   | 11.0 (.4331)   |
| WE 3 / WE 3 KP | 13/16-1-3/8 | M14-M33 | 70.0 (2.756) | 48.0 (1.890)   | 48.0 (1.890)   | 44.0 (1.732)   | 6.0 (.2362)    | 55.5 (2.185)   | 14.0 (.5512)   |

| Metric Size | Shank        |              | DIN Spec | WE 0 Bilz EDP# | WE 1 Bilz EDP# | WE 1 KP Bilz EDP# | WE 2 Bilz EDP# | WE 2 KP Bilz EDP# | WE 3 Bilz EDP# | WE 3 KP Bilz EDP# |
|-------------|--------------|--------------|----------|----------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|
|             | Dia.         | Square       |          |                |                |                   |                |                   |                |                   |
| M3          | 3.5 (0.138)  | 2.7 (0.106)  | DIN 371  | 29 100 025     | 21 100 017     | 21 184 013        |                |                   |                |                   |
| M4          | 4.5 (0.177)  | 3.4 (0.134)  | DIN 371  | 29 100 044     | 21 100 030     | 21 184 010        |                |                   |                |                   |
| M5          | 6.0 (0.236)  | 4.9 (0.193)  | DIN 371  | 29 100 0671    | 21 100 0541    | 21 184 0111       |                |                   |                |                   |
| M6          | 6.0 (0.236)  | 4.9 (0.193)  | DIN 371  | 29 100 0672    | 21 100 0542    | 21 184 0112       | 22 100 0041    | 22 167 4211       |                |                   |
| M7          | 7.0 (0.276)  | 5.5 (0.217)  | DIN 371  | 29 100 082     | 21 100 068     | 21 184 009        | 22 100 011     | 22 167 423        |                |                   |
| M8          | 8.0 (0.315)  | 6.2 (0.244)  | DIN 371  | 29 100 087     | 21 100 086     | 21 184 001        | 22 100 020     | 22 167 402        |                |                   |
| M9          | 9.0 (0.354)  | 7.0 (0.276)  | DIN 371  |                | 21 100 099     | 21 184 003        | 22 100 031     | 22 167 404        |                |                   |
| M10 X 1.5   | 10.0 (0.394) | 8.0 (0.315)  | DIN 371  |                | 21 100 115     | 21 184 005        | 22 100 041     | 22 167 406        |                |                   |
| M8 X 1.25   | 6.0 (0.236)  | 4.9 (0.193)  | DIN 376  | 29 100 0673    | 21 100 0543    | 21 184 0113       | 22 100 0042    | 22 167 4212       |                |                   |
| M10         | 7.0 (0.276)  | 5.5 (0.217)  | DIN 376  | 29 100 082     | 21 100 068     | 21 184 009        | 22 100 011     | 22 167 423        |                |                   |
| M12         | 9.0 (0.354)  | 7.0 (0.276)  | DIN 376  |                | 21 100 099     | 21 184 003        | 22 100 031     | 22 167 404        |                |                   |
| M14         | 11.0 (0.433) | 9.0 (0.354)  | DIN 376  |                | 21 100 123     | 21 184 006        | 22 100 046     | 22 167 407        | 23 100 004     | 23 156 402        |
| M16         | 12.0 (0.472) | 9.0 (0.354)  | DIN 376  |                |                |                   | 22 100 056     | 22 167 409        | 23 100 006     | 23 156 410        |
| M18         | 14.0 (0.551) | 11.0 (0.433) | DIN 376  |                |                |                   | 22 100 069     | 22 167 411        | 23 100 011     | 23 156 403        |
| M20         | 16.0 (0.630) | 12.0 (0.472) | DIN 376  |                |                |                   | 22 100 084     | 22 167 413        | 23 100 016     | 23 156 413        |
| M22         | 18.0 (0.709) | 14.5 (0.571) | DIN 376  |                |                |                   |                |                   | 23 100 0241    | 23 156 4011       |
| M24         | 18.0 (0.709) | 14.5 (0.571) | DIN 376  |                |                |                   |                |                   | 23 100 0242    | 23 156 4012       |
| M27         | 20.0 (0.787) | 16.0 (0.630) | DIN 376  |                |                |                   |                |                   | 23 100 030     | 23 156 406        |
| M30         | 22.0 (0.866) | 18.0 (0.709) | DIN 376  |                |                |                   |                |                   | 23 100 035     | 23 156 404        |
| M33         | 25.0 (0.984) | 20.0 (0.787) | DIN 376  |                |                |                   |                |                   | 23 100 044     | 23 156 407        |

NOTE: WE style also suitable for taps with axial coolant hole  
 WE KP style delivers coolant around tap shank for noncoolant taps

## Bilz WEN / WEN KP Style ANSI Quick Change Adjustable Length Tap Adapters

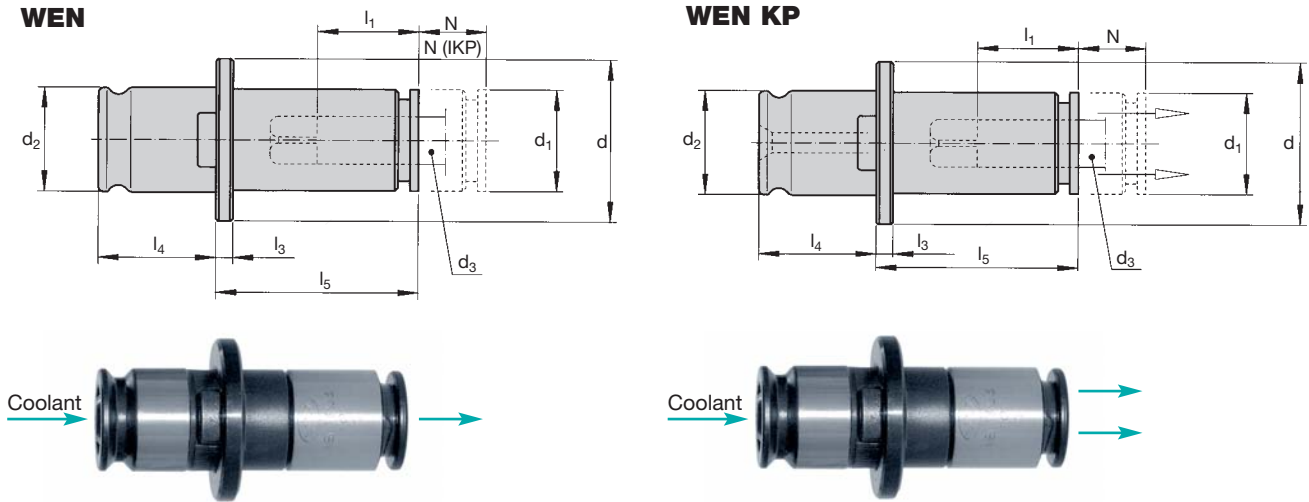


| Designation      | Tap Size (Inch) | d            | d <sub>1</sub> | d <sub>2</sub> | l <sub>1</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | N            | N (KP)       |
|------------------|-----------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------|
| WEN 0            | #0-5/16         | 22.0 (0.787) | 13.0 (.5118)   | 13.0 (.5118)   | 15.0 (0.591)   | 4.0 (.1575)    | 19.5 (.7677)   | 29.0 (1.142)   | 8.0 (.3150)  | NA           |
| WEN 1 / WEN 1 KP | #0-9/16         | 30.0 (1.181) | 19.0 (0.748)   | 19.0 (0.748)   | 17.0 (0.669)   | 4.0 (.1575)    | 21.5 (.8465)   | 34.0 (1.339)   | 10.0 (.3937) | 6.5 (0.256)  |
| WEN 2 / WEN 2 KP | 1/4-7/8         | 48.0 (1.890) | 30.0 (1.181)   | 31.0 (1.220)   | 30.0 (1.181)   | 5.0 (.1969)    | 35.0 (1.378)   | 60.0 (2.362)   | 15.0 (.5906) | 10.0 (0.551) |
| WEN 3 / WEN 3 KP | 13/16-1-3/8     | 70.0 (2.756) | 48.0 (1.890)   | 48.0 (1.890)   | 44.0 (1.732)   | 6.0 (.2362)    | 55.5 (2.185)   | 83.0 (3.267)   | 25.0 (.9843) | 25.0 (.9843) |

| Inch Size        | Metric Size | Shank Dia. | Square | WEN 0 Bilz EDP# | WEN 1 Bilz EDP# | WEN 1 KP Bilz EDP# | WEN 2 Bilz EDP# | WEN 2 KP Bilz EDP# | WEN 3 Bilz EDP# | WEN 3 KP Bilz EDP# |
|------------------|-------------|------------|--------|-----------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| #0-6             | M3          | 0.141      | 0.110  | 29 300 028      | 21 300 019      | CALL               |                 |                    |                 |                    |
| #8, 5/32         | M4          | 0.168      | 0.131  | 29 300 041      | 21 300 027      | CALL               |                 |                    |                 |                    |
| #10, 3/16        | M4.5, M5    | 0.194      | 0.152  | 29 300 052      | 21 300 038      | CALL               |                 |                    |                 |                    |
| #12, 7/32        | #12         | 0.220      | 0.165  | 29 300 062      | 21 300 046      | CALL               |                 |                    |                 |                    |
| #14, 1/4         | M6, M6.5    | 0.255      | 0.191  | 29 300 077      | 21 300 063      | CALL               | 22 300 010      | CALL               |                 |                    |
| 5/16             | M7, M8      | 0.318      | 0.238  | 29 300 101      | 21 300 089      | CALL               | 22 300 022      | CALL               |                 |                    |
| 3/8              | M10         | 0.381      | 0.286  |                 | 21 300 112      | CALL               | 22 300 040      | CALL               |                 |                    |
| 7/16             | 7/16        | 0.323      | 0.242  |                 | 21 300 091      | CALL               | 22 300 023      | CALL               |                 |                    |
| 1/2              | M12, M12.5  | 0.367      | 0.275  |                 | 21 300 105      | CALL               | 22 300 033      | CALL               |                 |                    |
| 9/16             | M14         | 0.429      | 0.322  |                 | 21 300 119      | CALL               | 22 300 043      | CALL               |                 |                    |
| 5/8              | M16         | 0.480      | 0.360  |                 |                 |                    | 22 300 058      | CALL               |                 |                    |
| 11/16            | M18         | 0.542      | 0.406  |                 |                 |                    | 22 300 067      | CALL               |                 |                    |
| 3/4              | 3/4         | 0.590      | 0.442  |                 |                 |                    | 22 300 147      | CALL               |                 |                    |
| 13/16            | M20         | 0.652      | 0.489  |                 |                 |                    | 22 300 089      | CALL               | 23 300 018      | CALL               |
| 7/8              | M22         | 0.697      | 0.523  |                 |                 |                    | 22 300 093      | CALL               | 23 300 021      | CALL               |
| 15/16            | M24         | 0.760      | 0.570  |                 |                 |                    |                 |                    | 23 300 028      | CALL               |
| 1.00             | M25         | 0.800      | 0.600  |                 |                 |                    |                 |                    | 23 300 031      | CALL               |
| 1-1/8            |             | 0.896      | 0.672  |                 |                 |                    |                 |                    | 23 300 038      | CALL               |
| 1-1/4            |             | 1.021      | 0.766  |                 |                 |                    |                 |                    | 23 300 045      | CALL               |
| 1-3/8            |             | 1.108      | 0.831  |                 |                 |                    |                 |                    | 23 300 053      | CALL               |
| <b>Pipe Taps</b> |             |            |        |                 |                 |                    |                 |                    |                 |                    |
| 1/8 NPT          | SMALL SHANK | 0.3125     | 0.234  |                 | 21 300 081      |                    |                 |                    |                 |                    |
| 1/8 NPT          | LARGE SHANK | 0.437      | 0.328  |                 | 21 300 124      |                    | 22 302 016      |                    |                 |                    |
| 1/4 NPT          | 1/4 NPT     | 0.562      | 0.421  |                 |                 |                    | 22 302 002      |                    |                 |                    |
| 3/8 NPT          | 3/8 NPT     | 0.700      | 0.531  |                 |                 |                    | 22 302 005      |                    | 23 302 035      |                    |
| 1/2 NPT          | 1/2 NPT     | 0.6875     | 0.515  |                 |                 |                    | 22 302 004      |                    | 23 302 049      |                    |
| 3/4 NPT          | 3/4 NPT     | 0.906      | 0.679  |                 |                 |                    |                 |                    | 23 302 004      |                    |
| 1.00 NPT         | 1.00 NPT    | 1.125      | 0.843  |                 |                 |                    |                 |                    | 23 302 007      |                    |

NOTE: WEN style offer adjustable length for taps with axial coolant hole  
 WEN KP style delivers coolant around tap shank for noncoolant taps

## Bilz WEN / WEN KP Style DIN 371/376 Quick Change Adjustable Length Tap Adapters



| Designation      | Tap Size (Metric) | d            | d <sub>1</sub> | d <sub>2</sub> | l <sub>1</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> | N            | N (KP)       |
|------------------|-------------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------|
| WEN 0            | M1-M10            | 22.0 (.787)  | 13.0 (.5118)   | 13.0 (.5118)   | 15.0 (0.591)   | 4.0 (.1575)    | 19.5 (.7677)   | 7.0 (.2756)    | 8.0 (.3150)  | NA           |
| WEN 1 / WEN 1 KP | M3-M12            | 30.0 (1.181) | 19.0 (0.748)   | 19.0 (0.748)   | 17.0 (0.669)   | 4.0 (.1575)    | 21.5 (.8465)   | 7.0 (.2756)    | 10.0 (.3937) | 6.5 (0.256)  |
| WEN 2 / WEN 2 KP | M8-M20            | 48.0 (1.890) | 30.0 (1.181)   | 31.0 (1.220)   | 30.0 (1.181)   | 5.0 (.1969)    | 35.0 (1.378)   | 11.0 (.4331)   | 15.0 (.5906) | 10.0 (0.551) |
| WEN 3 / WEN 3 KP | M14-M33           | 70.0 (2.756) | 48.0 (1.890)   | 48.0 (1.890)   | 44.0 (1.732)   | 6.0 (.2362)    | 55.5 (2.185)   | 14.0 (.5512)   | 25.0 (.9843) | 25.0 (.9843) |

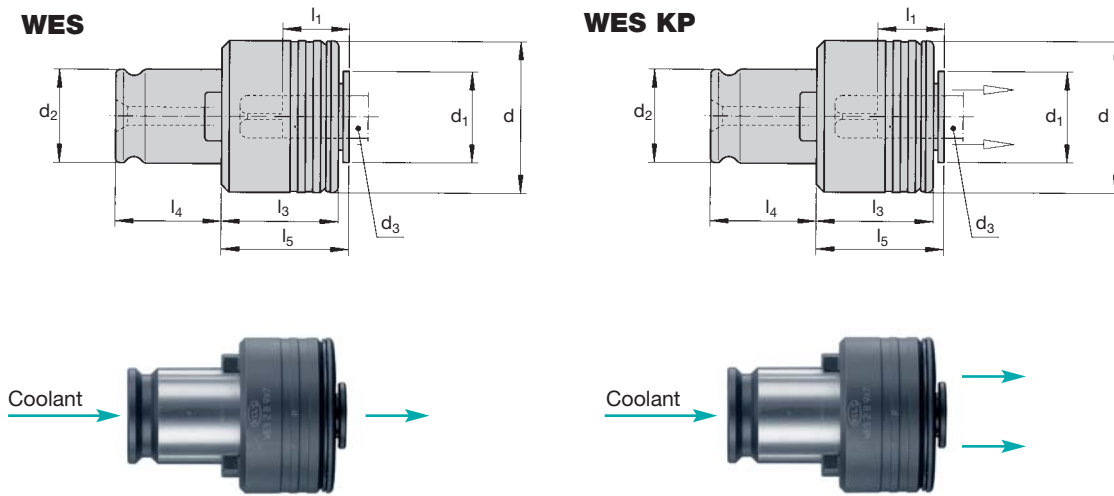
| Metric Size | Shank Dia.   | Square       | DIN Spec | WEN 0 Bilz EDP# | WEN 1 Bilz EDP# | WEN 1 KP Bilz EDP# | WEN 2 Bilz EDP# | WEN 2 KP Bilz EDP# | WEN 3 Bilz EDP# | WEN 3 KP Bilz EDP# |
|-------------|--------------|--------------|----------|-----------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| M3          | 3.5 (0.138)  | 2.7 (0.106)  | DIN 371  | 29 300 025      | 21 300 017      | CALL               |                 |                    |                 |                    |
| M4          | 4.5 (0.177)  | 3.4 (0.134)  | DIN 371  | 29 300 044      | 21 300 030      | CALL               |                 |                    |                 |                    |
| M5          | 6.0 (0.236)  | 4.9 (0.193)  | DIN 371  | 29 300 0671     | 21 300 0541     | CALL               |                 |                    |                 |                    |
| M6          | 6.0 (0.236)  | 4.9 (0.193)  | DIN 371  | 29 300 0672     | 21 300 0542     | CALL               | 22 300 0041     | CALL               |                 |                    |
| M7          | 7.0 (0.276)  | 5.5 (0.217)  | DIN 371  | 29 300 082      | 21 300 068      | CALL               | 22 300 011      | CALL               |                 |                    |
| M8          | 8.0 (0.315)  | 6.2 (0.244)  | DIN 371  | 29 300 087      | 21 300 086      | CALL               | 22 300 020      | CALL               |                 |                    |
| M9          | 9.0 (0.354)  | 7.0 (0.276)  | DIN 371  |                 | 21 300 099      | CALL               | 22 300 031      | CALL               |                 |                    |
| M10 X 1.5   | 10.0 (0.394) | 8.0 (0.315)  | DIN 371  |                 | 21 300 115      | CALL               | 22 300 041      | CALL               |                 |                    |
| M8 X 1.25   | 6.0 (0.236)  | 4.9 (0.193)  | DIN 376  | 29 300 0673     | 21 300 0543     | CALL               | 22 300 0042     | CALL               |                 |                    |
| M10         | 7.0 (0.276)  | 5.5 (0.217)  | DIN 376  | 29 300 082      | 21 300 068      | CALL               | 22 300 011      | CALL               |                 |                    |
| M12         | 9.0 (0.354)  | 7.0 (0.276)  | DIN 376  |                 | 21 300 099      | CALL               | 22 300 031      | CALL               |                 |                    |
| M14         | 11.0 (0.433) | 9.0 (0.354)  | DIN 376  |                 | 21 300 123      | CALL               | 22 300 046      | CALL               | 23 300 004      | CALL               |
| M16         | 12.0 (0.472) | 9.0 (0.354)  | DIN 376  |                 |                 |                    | 22 300 056      | CALL               | 23 300 006      | CALL               |
| M18         | 14.0 (0.551) | 11.0 (0.433) | DIN 376  |                 |                 |                    | 22 300 069      | CALL               | 23 300 011      | CALL               |
| M20         | 16.0 (0.630) | 12.0 (0.472) | DIN 376  |                 |                 |                    | 22 300 084      | CALL               | 23 300 016      | CALL               |
| M22         | 18.0 (0.709) | 14.5 (0.571) | DIN 376  |                 |                 |                    |                 |                    | 23 300 0241     | CALL               |
| M24         | 18.0 (0.709) | 14.5 (0.571) | DIN 376  |                 |                 |                    |                 |                    | 23 300 0242     | CALL               |
| M27         | 20.0 (0.787) | 16.0 (0.630) | DIN 376  |                 |                 |                    |                 |                    | 23 300 030      | CALL               |
| M30         | 22.0 (0.866) | 18.0 (0.709) | DIN 376  |                 |                 |                    |                 |                    | 23 300 035      | CALL               |
| M33         | 25.0 (0.984) | 20.0 (0.787) | DIN 376  |                 |                 |                    |                 |                    | 23 300 044      | CALL               |

NOTE: WEN style offer adjustable length for taps with axial coolant hole  
WEN KP style delivers coolant around tap shank for noncoolant taps



## High Performance Tapping Units

### Bilz WES / WES KP Style ANSI Torque Control Quick Change Tap Adapters



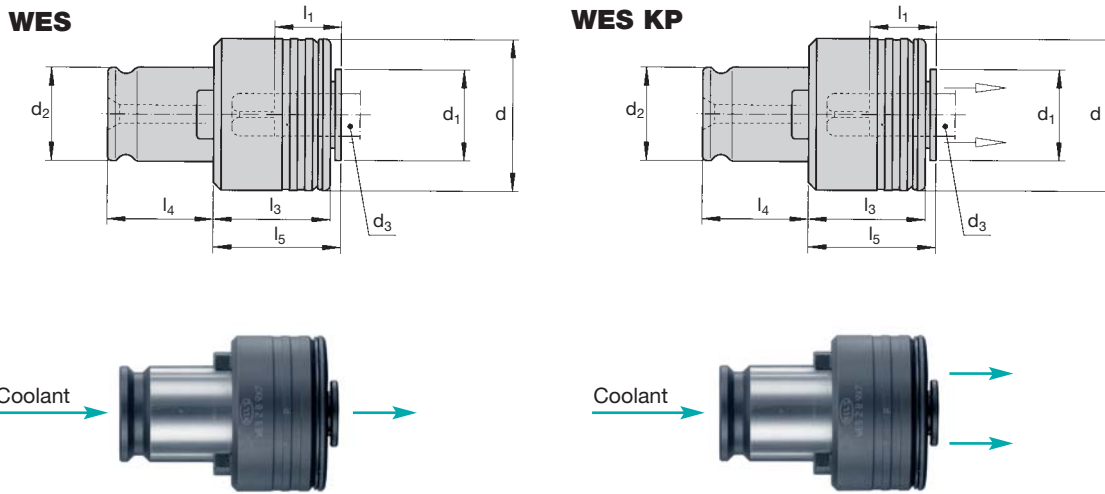
| Designation        | Tap Size    |         | d            | d <sub>1</sub> | d <sub>2</sub> | l <sub>1</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |
|--------------------|-------------|---------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                    | Inch        | Metric  |              |                |                |                |                |                |                |
| WES 0B             | #0-5/16     | M1-M10  | 23.0 (0.906) | 13.0 (.5118)   | 13.0 (.5118)   | 15.0 (0.591)   | 20.0 (.7874)   | 19.5 (.7677)   | 7.0 (.2756)    |
| WES 1B / WES 1B KP | #0-9/16     | M3-M12  | 32.0 (1.259) | 19.0 (0.748)   | 19.0 (0.748)   | 17.0 (0.669)   | 25.0 (.9843)   | 21.5 (.8465)   | 7.0 (.2756)    |
| WES 2B / WES 2B KP | 1/4-7/8     | M8-M20  | 50.0 (1.969) | 30.0 (1.181)   | 31.0 (1.220)   | 30.0 (1.181)   | 31.0 (1.220)   | 35.0 (1.378)   | 11.0 (.4331)   |
| WES 3B / WES 3B KP | 13/16-1-3/8 | M14-M33 | 72.0 (2.835) | 48.0 (1.890)   | 48.0 (1.890)   | 44.0 (1.732)   | 41.0 (1.614)   | 55.5 (2.185)   | 14.0 (.5512)   |

| Inch Size | Metric Size | Shank Dia. | Square | WES 0 Bilz EDP# | WES 1 Bilz EDP# | WES 1 KP Bilz EDP# | WES 2 Bilz EDP# | WES 2 KP Bilz EDP# | WES 3 Bilz EDP# | WES 3 KP Bilz EDP# |
|-----------|-------------|------------|--------|-----------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| #0-6      | M3          | 0.141      | 0.110  | 29 200 028      | 21 200 019      | 21 658 432         |                 |                    |                 |                    |
| #8, 5/32  | M4          | 0.168      | 0.131  | 29 200 041      | 21 200 027      | 21 658 431         |                 |                    |                 |                    |
| #10, 3/16 | M4.5, M5    | 0.194      | 0.152  | 29 200 052      | 21 200 038      | 21 658 449         |                 |                    |                 |                    |
| #12, 7/32 | #12         | 0.220      | 0.165  | 29 200 062      | 21 200 046      | 21 658 436         |                 |                    |                 |                    |
| #14, 1/4  | M6, M6.5    | 0.255      | 0.191  | 29 200 077      | 21 200 063      | 21 658 419         | 22 200 010      |                    |                 |                    |
| 5/16      | M7, M8      | 0.318      | 0.238  | 29 200 101      | 21 200 089      | 21 658 420         | 22 200 022      | 22 651 430         |                 |                    |
| 3/8       | M10         | 0.381      | 0.286  |                 | 21 200 112      | 21 658 421         | 22 200 040      | 22 651 424         |                 |                    |
| 7/16      | 7/16        | 0.323      | 0.242  |                 | 21 200 091      | 21 658 422         | 22 200 023      | 22 651 433         |                 |                    |
| 1/2       | M12, M12.5  | 0.367      | 0.275  |                 | 21 200 105      | 21 658 423         | 22 200 033      | 22 651 418         |                 |                    |
| 9/16      | M14         | 0.429      | 0.322  |                 | 21 200 119      |                    | 22 200 043      | 22 651 428         |                 |                    |
| 5/8       | M16         | 0.480      | 0.360  |                 |                 |                    | 22 200 058      | 22 651 419         |                 |                    |
| 11/16     | M18         | 0.542      | 0.406  |                 |                 |                    | 22 200 067      | 22 651 438         |                 |                    |
| 3/4       | 3/4         | 0.590      | 0.442  |                 |                 |                    | 22 200 147      | 22 651 420         | 23 200 040      |                    |
| 13/16     | M20         | 0.652      | 0.489  |                 |                 |                    | 22 200 089      |                    | 23 200 018      | 23 651 430         |
| 7/8       | M22         | 0.697      | 0.523  |                 |                 |                    | 22 200 093      | 22 651 434         | 23 200 021      | 23 651 419         |
| 15/16     | M24         | 0.760      | 0.570  |                 |                 |                    |                 |                    | 23 200 028      | 23 651 429         |
| 1.00      | M25         | 0.800      | 0.600  |                 |                 |                    |                 |                    | 23 200 031      | 23 651 420         |
| 1-1/8     |             | 0.896      | 0.672  |                 |                 |                    |                 |                    | 23 200 038      | 23 651 436         |
| 1-1/4     |             | 1.021      | 0.766  |                 |                 |                    |                 |                    | 23 200 045      | 23 651 434         |
| 1-3/8     |             | 1.108      | 0.831  |                 |                 |                    |                 |                    | 23 200 053      | 23 651 430         |
| Pipe Taps |             |            |        |                 |                 |                    |                 |                    |                 |                    |
| 1/8 NPT   | SMALL SHANK | 0.3125     | 0.234  |                 | 21 200 081      |                    |                 |                    |                 |                    |
| 1/8 NPT   | LARGE SHANK | 0.437      | 0.328  |                 | 21 200 124      |                    | 22 200 048      |                    |                 |                    |
| 1/4 NPT   | 1/4 NPT     | 0.562      | 0.421  |                 |                 |                    | 22 602 002      | 22 653 402         |                 |                    |
| 3/8 NPT   | 3/8 NPT     | 0.700      | 0.531  |                 |                 |                    | 22 602 005      | 22 653 405         |                 |                    |
| 1/2 NPT   | 1/2 NPT     | 0.6875     | 0.515  |                 |                 |                    | 22 602 004      | 22 653 404         | 23 602 036      | 23 655 436         |
| 3/4 NPT   | 3/4 NPT     | 0.906      | 0.679  |                 |                 |                    |                 |                    | 23 602 004      | 23 655 404         |
| 1.00 NPT  | 1.00 NPT    | 1.125      | 0.843  |                 |                 |                    |                 |                    | 23 602 007      | 23 655 407         |

NOTE: WES style offers torque control

WES style also suitable for taps with axial coolant hole. WES KP style delivers coolant around tap shank for noncoolant taps

## Bilz WES / WES KP Style DIN 371/376 Torque Control Quick Change Tap Adapters



| Designation        | Tap Size    |         | d            | d <sub>1</sub> | d <sub>2</sub> | l <sub>1</sub> | l <sub>3</sub> | l <sub>4</sub> | l <sub>5</sub> |
|--------------------|-------------|---------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                    | Inch        | Metric  |              |                |                |                |                |                |                |
| WES 0B             | #0-5/16     | M1-M10  | 23.0 (.906)  | 13.0 (.5118)   | 13.0 (.5118)   | 15.0 (.591)    | 20.0 (.7874)   | 19.5 (.7677)   | 7.0 (.2756)    |
| WES 1B / WES 1B KP | #0-9/16     | M3-M12  | 32.0 (1.259) | 19.0 (.748)    | 19.0 (.748)    | 17.0 (.669)    | 25.0 (.9843)   | 21.5 (.8465)   | 7.0 (.2756)    |
| WES 2B / WES 2B KP | 1/4-7/8     | M8-M20  | 50.0 (1.969) | 30.0 (1.181)   | 31.0 (1.220)   | 30.0 (1.181)   | 31.0 (1.220)   | 35.0 (1.378)   | 11.0 (.4331)   |
| WES 3B / WES 3B KP | 13/16-1 3/8 | M14-M33 | 72.0 (2.835) | 48.0 (1.890)   | 48.0 (1.890)   | 44.0 (1.732)   | 41.0 (1.614)   | 55.5 (2.185)   | 14.0 (.5512)   |

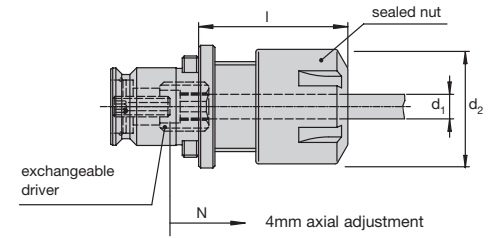
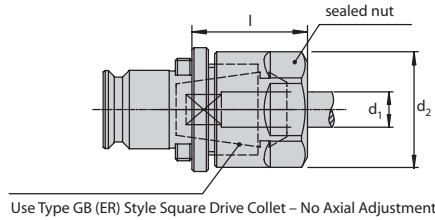
| Metric Size | Shank         |               | DIN Spec | WES 0      | WES 1      | WES 1 KP   | WES 2      | WES 2 KP   | WES 3      | WES 3 KP    |
|-------------|---------------|---------------|----------|------------|------------|------------|------------|------------|------------|-------------|
|             | Dia.          | Square        |          | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#  | Bilz EDP#   |
| M3          | 3.5 (0.138)   | 2.7 (0.106)   | DIN 371  | 29 201 025 | 21 200 017 |            |            |            |            |             |
| M4          | 4.5 (0.177)   | 3.4 (0.134)   | DIN 371  | 29 201 044 | 21 200 030 | 21 658 428 |            |            |            |             |
| M5          | 6.0 (0.236)   | 4.9 (0.193)   | DIN 371  | 29 201 067 | 21 200 054 | 21 658 413 |            |            |            |             |
| M6          | 6.0 (0.236)   | 4.9 (0.193)   | DIN 371  | 29 202 067 | 21 202 054 | 21 658 410 | 22 201 004 |            |            |             |
| M7          | 7.0 (0.276)   | 5.5 (0.217)   | DIN 371  | 29 201 082 | 21 201 068 | 21 658 409 | 22 201 011 |            |            |             |
| M8          | 8.0 (0.315)   | 6.2 (0.244)   | DIN 371  | 29 201 087 | 21 201 086 | 21 658 401 | 22 201 020 | 22 651 402 |            |             |
| M9          | 9.0 (0.354)   | 7.0 (0.276)   | DIN 371  |            | 21 201 099 | 21 658 403 | 22 201 031 | 22 651 404 |            |             |
| M10 X 1.5   | 10.0 (0.394)  | 8.0 (0.315)   | DIN 371  |            | 21 201 115 | 21 658 405 | 22 201 041 | 22 651 406 |            |             |
| M8 X 1.25   | 6.0 (0.236)   | 4.9 (0.193)   | DIN 376  | 29 201 067 | 21 203 054 | 21 658 411 | 22 202 004 | 22 651 421 |            |             |
| M10         | 7.0 (0.276)   | 5.5 (0.217)   | DIN 376  | 29 201 082 | 21 201 068 | 21 658 409 | 22 201 011 | 22 651 423 |            |             |
| M12         | 9.0 (0.354)   | 7.0 (0.276)   | DIN 376  |            | 21 201 099 | 21 658 403 | 22 201 031 | 22 651 404 |            |             |
| M14         | 11.0 (0.433)  | 9.0 (0.354)   | DIN 376  |            | 21 201 123 |            | 22 201 046 | 22 651 407 | 23 201 004 | 23 657 402  |
| M16         | 12.0 (0.472)  | 9.0 (0.354)   | DIN 376  |            |            |            | 22 201 056 | 22 651 409 | 23 201 006 | 23 657 410  |
| M18         | 14.0 (0.551)  | 11.0 (0.433)  | DIN 376  |            |            |            | 22 201 069 | 22 651 411 | 23 201 011 | 23 657 403  |
| M20         | 16.0 (0.630)  | 12.0 (0.472)  | DIN 376  |            |            |            | 22 201 084 | 22 651 413 | 23 201 016 | 23 657 413  |
| M22         | 18.0 (0.7087) | 14.5 (0.5709) | DIN 376  |            |            |            |            |            | 23 201 024 | 23 657 4011 |
| M24         | 18.0 (0.7087) | 14.5 (0.5709) | DIN 376  |            |            |            |            |            | 23 202 024 | 23 657 4012 |
| M27         | 20.0 (.7874)  | 16.0 (.6299)  | DIN 376  |            |            |            |            |            | 23 201 030 | 23 657 406  |
| M30         | 22.0 (.8661)  | 18.0 (0.7087) | DIN 376  |            |            |            |            |            | 23 201 035 | 23 657 404  |
| M33         | 25.0 (.9843)  | 20.0 (.7874)  | DIN 376  |            |            |            |            |            | 23 201 044 | 23 657 407  |

NOTE: WES style offers torque control  
WES style also suitable for taps with axial coolant hole.  
WES KP style delivers coolant around tap shank for noncoolant taps  
WESN with length adjustment available



## High Performance Tapping Units

### ESX (ER Type) ANSI Quick Change Tap Collets

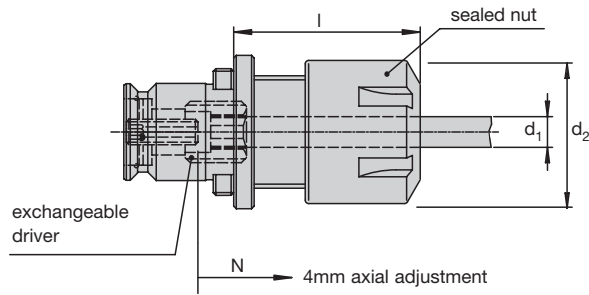


| EDP No.   | Series | Description                 | Inch Range           | Metric Range                      | Seal Disc     | d <sub>2</sub>       | l (mm)        | Collet Nut    |
|---|--------|-----------------------------|----------------------|-----------------------------------|---------------|----------------------|---------------|---------------|
| <b>ADAPTER BODY FOR SQUARE DRIVE ER TAP COLLETS (TYPE GB)</b> |        |                             |                      |                                   |               |                      |               |               |
| 11247   | ER16   | WE1-IKP/ESX16GB             | #8-5/16              | M4-M10                            | DS/ER16       | 28.0                 | 28.0          | ER16CN        |
| 52229   | ER20   | WE1-IKP/ESX20GB             | #8-1/2               | M4-M12                            | DS/ER20       | 34.0                 | 38.0          | ER20CN        |
| 13042   | ER25   | WE2-IKP/ESX25GB             | #8-3/4               | M4-M20                            | DS/ER25       | 42.0                 | 37.0          | ER25CN        |
| 11974   | ER32   | WE2-IKP/ESX32GB             | #8-3/4               | M4-M20                            | DS/ER32       | 50.0                 | 40.0          | ER32CN        |
| <b>SIZED COLLETS</b>  |        |                             | <b>Inch Size Tap</b> | <b>Shank Dia. (d<sub>1</sub>)</b> | <b>Square</b> | <b>d<sub>2</sub></b> | <b>l (mm)</b> | <b>Driver</b> |
| 13054   | ER16   | WE1-IKP/ESX16-0.168 X 0.131 | #8, 5/32             | 0.168                             | 0.131         | 28.0                 | 36.5          | BN1716-4      |
| 13055   | ER16   | WE1-IKP/ESX16-0.194 X 0.152 | #10, 3/16            | 0.194                             | 0.152         | 28.0                 | 36.5          | BN1716-4      |
| 13056   | ER16   | WE1-IKP/ESX16-0.220 X 0.165 | #12, 7/32            | 0.220                             | 0.165         | 28.0                 | 36.5          | BN1716-4.5    |
| 11248   | ER16   | WE1-IKP/ESX16-0.255 X 0.191 | #14, 1/4             | 0.255                             | 0.191         | 28.0                 | 36.5          | BN1716-5      |
| 11249   | ER16   | WE1-IKP/ESX16-0.318 X 0.238 | 5/16                 | 0.318                             | 0.238         | 28.0                 | 36.5          | BN1716-6.5    |
| 13057   | ER20   | WE1-IKP/ESX20-0.168 X 0.131 | #8, 5/32             | 0.168                             | 0.131         | 34.0                 | 40.0          | BN1720-4      |
| 13058   | ER20   | WE1-IKP/ESX20-0.194 X 0.152 | #10, 3/16            | 0.194                             | 0.152         | 34.0                 | 40.0          | BN1720-4      |
| 13059   | ER20   | WE1-IKP/ESX20-0.220 X 0.165 | #12, 7/32            | 0.220                             | 0.165         | 34.0                 | 40.0          | BN1720-4.5    |
| 13060   | ER20   | WE1-IKP/ESX20-0.255 X 0.191 | #14, 1/4             | 0.255                             | 0.191         | 34.0                 | 40.0          | BN1720-5      |
| 13061   | ER20   | WE1-IKP/ESX20-0.318 X 0.238 | 5/16                 | 0.318                             | 0.238         | 34.0                 | 40.0          | BN1720-6.5    |
| 13062   | ER20   | WE1-IKP/ESX20-0.323 X 0.242 | 7/16                 | 0.323                             | 0.242         | 34.0                 | 40.0          | BN1720-6.5    |
| 12065   | ER20   | WE1-IKP/ESX20-0.381 X 0.286 | 3/8                  | 0.381                             | 0.286         | 34.0                 | 40.0          | BN1720-7.5    |
| 13063   | ER20   | WE1-IKP/ESX20-0.367 X 0.275 | 1/2                  | 0.367                             | 0.275         | 34.0                 | 40.0          | BN1720-7      |
| CALL  | ER25   | WE2-IKP/ESX25-0.168 X 0.131 | #8, 5/32             | 0.168                             | 0.131         | 42.0                 | 48.0          | BN1725-4      |
| CALL  | ER25   | WE2-IKP/ESX25-0.194 X 0.152 | #10, 3/16            | 0.194                             | 0.152         | 42.0                 | 48.0          | BN1725-4      |
| CALL  | ER25   | WE2-IKP/ESX25-0.220 X 0.165 | #12, 7/32            | 0.220                             | 0.165         | 42.0                 | 48.0          | BN1725-4.5    |
| CALL  | ER25   | WE2-IKP/ESX25-0.255 X 0.191 | #14, 1/4             | 0.255                             | 0.191         | 42.0                 | 48.0          | BN1725-5      |
| CALL  | ER25   | WE2-IKP/ESX25-0.318 X 0.238 | 5/16                 | 0.318                             | 0.238         | 42.0                 | 48.0          | BN1725-6.5    |
| CALL  | ER25   | WE2-IKP/ESX25-0.323 X 0.242 | 7/16                 | 0.323                             | 0.242         | 42.0                 | 48.0          | BN1725-6.5    |
| CALL  | ER25   | WE2-IKP/ESX25-0.381 X 0.286 | 3/8                  | 0.381                             | 0.286         | 42.0                 | 48.0          | BN1725-7.5    |
| CALL  | ER25   | WE2-IKP/ESX25-0.367 X 0.275 | 1/2                  | 0.367                             | 0.275         | 42.0                 | 48.0          | BN1725-7      |
| CALL  | ER25   | WE2-IKP/ESX25-0.429 X 0.322 | 9/16                 | 0.429                             | 0.322         | 42.0                 | 48.0          | BN1725-8.5    |
| CALL  | ER25   | WE2-IKP/ESX25-0.437 X 0.328 | 1/8 NPT              | 0.437                             | 0.328         | 42.0                 | 48.0          | BN1725-8.5    |
| CALL  | ER25   | WE2-IKP/ESX25-0.480 X 0.360 | 5/8                  | 0.480                             | 0.360         | 42.0                 | 48.0          | BN1725-9.5    |
| CALL  | ER25   | WE2-IKP/ESX25-0.542 X 0.406 | 11/16                | 0.542                             | 0.406         | 42.0                 | 48.0          | BN1725-10.5   |
| CALL  | ER25   | WE2-IKP/ESX25-0.562 X 0.421 | 1/4 NPT              | 0.562                             | 0.421         | 42.0                 | 48.0          | BN1725-11     |
| CALL  | ER25   | WE2-IKP/ESX25-0.590 X 0.442 | 3/4                  | 0.590                             | 0.442         | 42.0                 | 48.0          | BN1725-11.5   |
| 13064   | ER32   | WE2-IKP/ESX32-0.168 X 0.131 | #8, 5/32             | 0.168                             | 0.131         | 50.0                 | 60.0          | BN1732-4      |
| 13065   | ER32   | WE2-IKP/ESX32-0.194 X 0.152 | #10, 3/16            | 0.194                             | 0.152         | 50.0                 | 60.0          | BN1732-4      |
| 13066   | ER32   | WE2-IKP/ESX32-0.220 X 0.165 | #12, 7/32            | 0.220                             | 0.165         | 50.0                 | 60.0          | BN1732-4.5    |
| 13068   | ER32   | WE2-IKP/ESX32-0.255 X 0.191 | #14, 1/4             | 0.255                             | 0.191         | 50.0                 | 60.0          | BN1732-5      |
| 13069   | ER32   | WE2-IKP/ESX32-0.318 X 0.238 | 5/16                 | 0.318                             | 0.238         | 50.0                 | 60.0          | BN1732-6.5    |
| 13070   | ER32   | WE2-IKP/ESX32-0.323 X 0.242 | 7/16                 | 0.323                             | 0.242         | 50.0                 | 60.0          | BN1732-6.5    |
| 13071   | ER32   | WE2-IKP/ESX32-0.381 X 0.286 | 3/8                  | 0.381                             | 0.286         | 50.0                 | 60.0          | BN1732-7.5    |
| 13072   | ER32   | WE2-IKP/ESX32-0.367 X 0.275 | 1/2                  | 0.367                             | 0.275         | 50.0                 | 60.0          | BN1732-7      |
| 13073   | ER32   | WE2-IKP/ESX32-0.429 X 0.322 | 9/16                 | 0.429                             | 0.322         | 50.0                 | 60.0          | BN1732-8.5    |
| 13074   | ER32   | WE2-IKP/ESX32-0.437 X 0.328 | 1/8 NPT              | 0.437                             | 0.328         | 50.0                 | 60.0          | BN1732-8.5    |
| 13075   | ER32   | WE2-IKP/ESX32-0.480 X 0.360 | 5/8                  | 0.480                             | 0.360         | 50.0                 | 60.0          | BN1732-9.5    |
| 13076   | ER32   | WE2-IKP/ESX32-0.542 X 0.406 | 11/16                | 0.542                             | 0.406         | 50.0                 | 60.0          | BN1732-10.5   |
| 13077   | ER32   | WE2-IKP/ESX32-0.562 X 0.421 | 1/4 NPT              | 0.562                             | 0.421         | 50.0                 | 60.0          | BN1732-11     |
| 13078   | ER32   | WE2-IKP/ESX32-0.590 X 0.442 | 3/4                  | 0.590                             | 0.442         | 50.0                 | 60.0          | BN1732-11.5   |

NOTE: All are designed for thru coolant



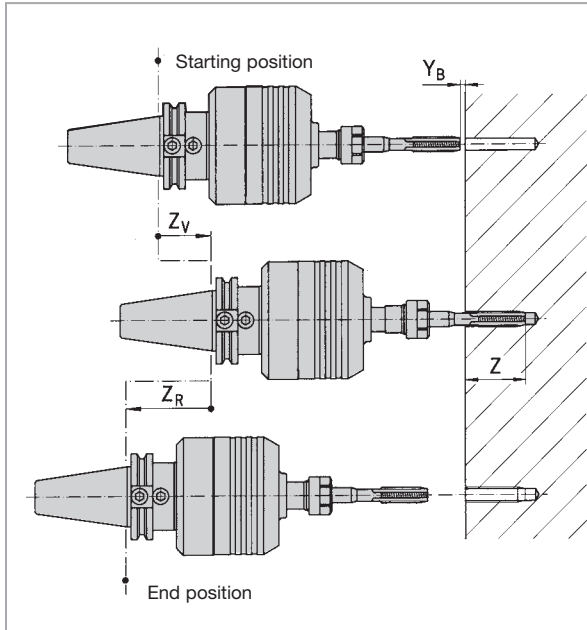
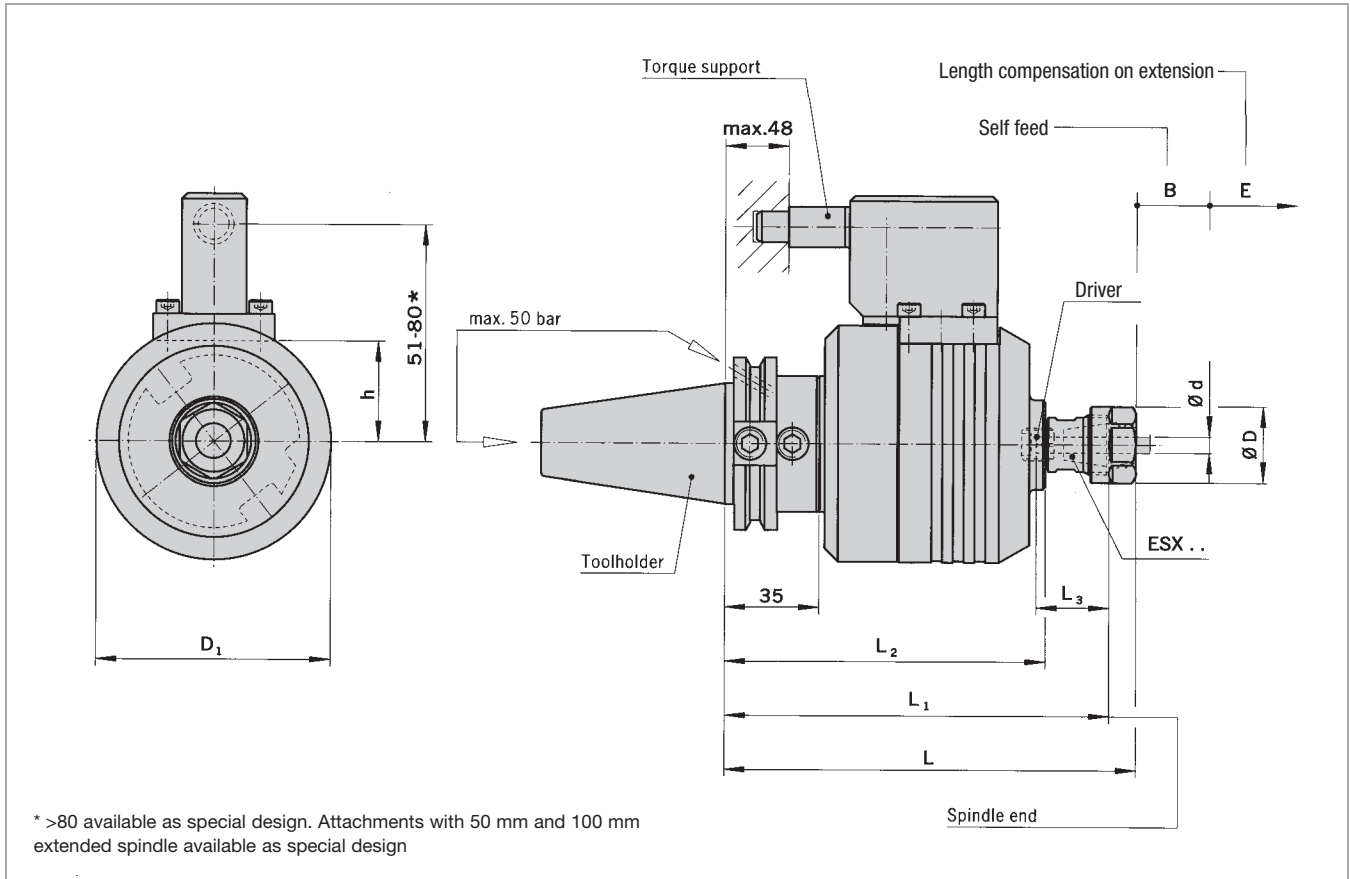
### ESX (ER Type) DIN Quick Change Tap Collets



| EDP No. | Series | Description             | MM Size Tap | Shank Dia. (d <sub>1</sub> ) | Square       | d <sub>2</sub> | l (mm) | Driver      |
|---------|--------|-------------------------|-------------|------------------------------|--------------|----------------|--------|-------------|
| 13079   | ER16   | WE1-IKP/ESX16-4.5X3.4   | M4          | 4.5 (0.177)                  | 3.4 (0.134)  | 28.0           | 36.5   | BN1716-4    |
| 13080   | ER16   | WE1-IKP/ESX16-5.0X4.0   |             | 5.0 (0.197)                  | 4.0 (0.158)  | 28.0           | 36.5   | BN1716-4    |
| 13081   | ER16   | WE1-IKP/ESX16-6.0X4.9   | M5, M6, M8  | 6.0 (0.236)                  | 4.9 (0.193)  | 28.0           | 36.5   | BN1716-5    |
| 13082   | ER16   | WE1-IKP/ESX16-7.0X5.5   | M9, M10     | 7.0 (0.276)                  | 5.5 (0.217)  | 28.0           | 36.5   | BN1716-5.6  |
| 11253   | ER16   | WE1-IKP/ESX16-8.0X6.2   | M8 X 1.25   | 8.0 (0.315)                  | 6.2 (0.244)  | 28.0           | 36.5   | BN1716-6.3  |
| 13083   | ER16   | WE1-IKP/ESX16-8.0X6.3   |             | 8.0 (0.315)                  | 6.3 (0.248)  | 28.0           | 36.5   | BN1716-6.3  |
| 13084   | ER16   | WE1-IKP/ESX16-9.0X7.0   | M12         | 9.0 (0.354)                  | 7.0 (0.276)  | 28.0           | 36.5   | BN1716-7.1  |
| 13085   | ER20   | WE1-IKP/ESX20-4.5X3.4   | M4          | 4.5 (0.177)                  | 3.4 (0.134)  | 34.0           | 40.0   | BN1720-4    |
| 13086   | ER20   | WE1-IKP/ESX20-5.0X4.0   |             | 5.0 (0.197)                  | 4.0 (0.158)  | 34.0           | 40.0   | BN1720-4    |
| 13087   | ER20   | WE1-IKP/ESX20-6.0X4.9   | M5, M6, M8  | 6.0 (0.236)                  | 4.9 (0.193)  | 34.0           | 40.0   | BN1720-5    |
| 13088   | ER20   | WE1-IKP/ESX20-7.0X5.5   | M9, M10     | 7.0 (0.276)                  | 5.5 (0.217)  | 34.0           | 40.0   | BN1720-5.6  |
| 13089   | ER20   | WE1-IKP/ESX20-8.0X6.2   | M8 X 1.25   | 8.0 (0.315)                  | 6.2 (0.244)  | 34.0           | 40.0   | BN1720-6.3  |
| 13090   | ER20   | WE1-IKP/ESX20-8.0X6.3   |             | 8.0 (0.315)                  | 6.3 (0.248)  | 34.0           | 40.0   | BN1720-6.3  |
| 13091   | ER20   | WE1-IKP/ESX20-9.0X7.0   | M12         | 9.0 (0.354)                  | 7.0 (0.276)  | 34.0           | 40.0   | BN1720-7.1  |
| 13092   | ER20   | WE1-IKP/ESX20-10.0X8.0  | M10         | 10.0 (0.394)                 | 8.0 (0.315)  | 34.0           | 40.0   | BN1720-8    |
| CALL    | ER25   | WE2-IKP/ESX25-4.5X3.4   | M4          | 4.5 (0.177)                  | 3.4 (0.134)  | 42.0           | 48.0   | BN1725-4    |
| CALL    | ER25   | WE2-IKP/ESX25-5.0X4.0   |             | 5.0 (0.197)                  | 4.0 (0.158)  | 42.0           | 48.0   | BN1725-4    |
| CALL    | ER25   | WE2-IKP/ESX25-6.0X4.9   | M5, M6, M8  | 6.0 (0.236)                  | 4.9 (0.193)  | 42.0           | 48.0   | BN1725-5    |
| CALL    | ER25   | WE2-IKP/ESX25-7.0X5.5   | M9, M10     | 7.0 (0.276)                  | 5.5 (0.217)  | 42.0           | 48.0   | BN1725-5.6  |
| CALL    | ER25   | WE2-IKP/ESX25-8.0X6.2   | M8 X 1.25   | 8.0 (0.315)                  | 6.2 (0.244)  | 42.0           | 48.0   | BN1725-6.3  |
| CALL    | ER25   | WE2-IKP/ESX25-8.0X6.3   |             | 8.0 (0.315)                  | 6.3 (0.248)  | 42.0           | 48.0   | BN1725-6.3  |
| CALL    | ER25   | WE2-IKP/ESX25-9.0X7.0   | M12         | 9.0 (0.354)                  | 7.0 (0.276)  | 42.0           | 48.0   | BN1725-7.1  |
| CALL    | ER25   | WE2-IKP/ESX25-10.0X8.0  | M10         | 10.0 (0.394)                 | 8.0 (0.315)  | 42.0           | 48.0   | BN1725-8    |
| CALL    | ER25   | WE2-IKP/ESX25-11.0X9.0  | M14         | 11.0 (0.433)                 | 9.0 (0.354)  | 42.0           | 48.0   | BN1725-9    |
| CALL    | ER25   | WE2-IKP/ESX25-11.2X9.0  |             | 11.2 (0.441)                 | 9.0 (0.354)  | 42.0           | 48.0   | BN1725-9    |
| CALL    | ER25   | WE2-IKP/ESX25-12.0X9.0  | M16         | 12.0 (0.472)                 | 9.0 (0.354)  | 42.0           | 48.0   | BN1725-9    |
| CALL    | ER25   | WE2-IKP/ESX25-12.5X10.0 |             | 12.5 (0.492)                 | 10.0 (0.394) | 42.0           | 48.0   | BN1725-10   |
| CALL    | ER25   | WE2-IKP/ESX25-14.0X11.0 | M18         | 14.0 (0.551)                 | 11.0 (0.433) | 42.0           | 48.0   | BN1725-11.2 |
| CALL    | ER25   | WE2-IKP/ESX25-16.0X12.0 | M20         | 16.0 (0.630)                 | 12.0 (0.472) | 42.0           | 48.0   | BN1725-12   |
| 13094   | ER32   | WE2-IKP/ESX32-4.5X3.4   | M4          | 4.5 (0.177)                  | 3.4 (0.134)  | 50.0           | 60.0   | BN1732-4    |
| 13095   | ER32   | WE2-IKP/ESX32-5.0X4.0   |             | 5.0 (0.197)                  | 4.0 (0.158)  | 50.0           | 60.0   | BN1732-4    |
| 13096   | ER32   | WE2-IKP/ESX32-6.0X4.9   | M5, M6, M8  | 6.0 (0.236)                  | 4.9 (0.193)  | 50.0           | 60.0   | BN1732-5    |
| 13097   | ER32   | WE2-IKP/ESX32-7.0X5.5   | M9, M10     | 7.0 (0.276)                  | 5.5 (0.217)  | 50.0           | 60.0   | BN1732-5.6  |
| 13098   | ER32   | WE2-IKP/ESX32-8.0X6.2   | M8 X 1.25   | 8.0 (0.315)                  | 6.2 (0.244)  | 50.0           | 60.0   | BN1732-6.5  |
| 13099   | ER32   | WE2-IKP/ESX32-8.0X6.3   |             | 8.0 (0.315)                  | 6.3 (0.248)  | 50.0           | 60.0   | BN1732-6.5  |
| 13100   | ER32   | WE2-IKP/ESX32-9.0X7.0   | M12         | 9.0 (0.354)                  | 7.0 (0.276)  | 50.0           | 60.0   | BN1732-7.1  |
| 13101   | ER32   | WE2-IKP/ESX32-10.0X8.0  | M10         | 10.0 (0.394)                 | 8.0 (0.315)  | 50.0           | 60.0   | BN1732-8    |
| 13102   | ER32   | WE2-IKP/ESX32-11.0X9.0  | M14         | 11.0 (0.433)                 | 9.0 (0.354)  | 50.0           | 60.0   | BN1732-9    |
| 13103   | ER32   | WE2-IKP/ESX32-11.2X9.0  |             | 11.2 (0.441)                 | 9.0 (0.354)  | 50.0           | 60.0   | BN1732-9    |
| 13104   | ER32   | WE2-IKP/ESX32-12.0X9.0  | M16         | 12.0 (0.472)                 | 9.0 (0.354)  | 50.0           | 60.0   | BN1732-9    |
| 13105   | ER32   | WE2-IKP/ESX32-12.5X10.0 |             | 12.5 (0.492)                 | 10.0 (0.394) | 50.0           | 60.0   | BN1732-10   |
| 13106   | ER32   | WE2-IKP/ESX32-14.0X11.0 | M18         | 14.0 (0.551)                 | 11.0 (0.433) | 50.0           | 60.0   | BN1732-11.2 |
| 13107   | ER32   | WE2-IKP/ESX32-16.0X12.0 | M20         | 16.0 (0.630)                 | 12.0 (0.472) | 50.0           | 60.0   | BN1732-12   |



## Self Reversing Tapping Attachments GNCN and GNCK with Coolant Feed



At the starting position with a selected safety margin  $Y_B$  the following equations give:

$$Z_V = Y_B + Z - 0.5 B$$

$$Z_R = Z + E + 0.5 B + 1$$

For tapping operations on machining centres using GNCN/GNCK, the following should be taken into account when programming the machine:

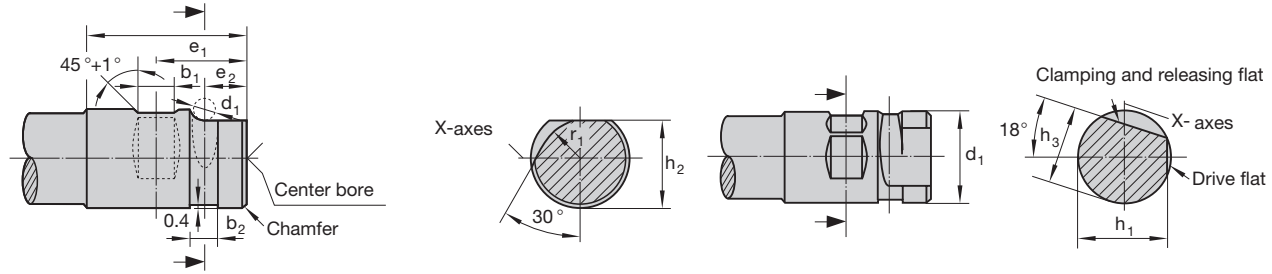
- No change in direction of rotation of the machine spindle, as this is carried out by the GNCN/GNCK.
- Feed = 95 - 98% of thread pitch.
- No dwelling time.
- Varying cutting geometry of the tap.
- Self speed.
- Compensation on extension after release.

- Z = Tapping depth
- $Z_V$  = Spindle advance
- $Z_R$  = Spindle return
- $Y_{(A, B)}$  = Safety margin
- B = Self feed
- E = Compensation on extension

NOTE: CAT V-Flange must be ordered separately

**Straight shanks Posi-Lock Feature (Weldon)**

(Illustration shows R. H. cutting tools)

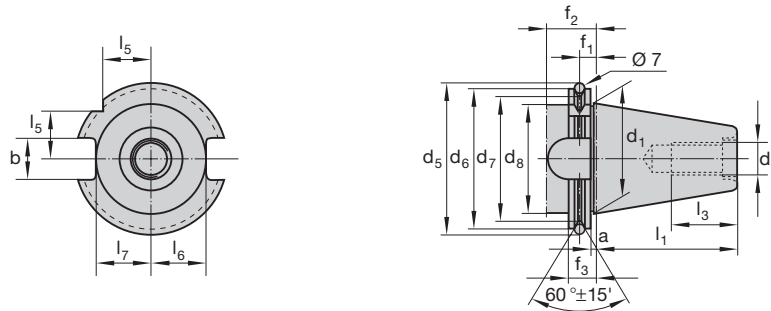


DIN 1835 C

DIN 332 A

| $d_1$      | $b_1$         | $b_2$                    | $e_1$                  | $e_2$                    | $d_1$      | $h_1$       | $h_2$      | $h_3$       | $l_1$                  | $r_1$ |
|------------|---------------|--------------------------|------------------------|--------------------------|------------|-------------|------------|-------------|------------------------|-------|
| <b>h 6</b> | <b>± 0.05</b> | <b>+ 0.5</b><br><b>0</b> | <b>0</b><br><b>- 1</b> | <b>+ 0.5</b><br><b>0</b> | <b>F 8</b> | <b>h 13</b> | <b>f 9</b> | <b>h 13</b> | <b>+ 2</b><br><b>0</b> |       |
| 40         | 14            | 12                       | 40                     | 17                       | 10         | 38          | 35         | 36          | 70                     | 15    |
| 50         | 18            | 14                       | 45                     | 21                       | 12         | 47.8        | 44         | 45          | 80                     | 19    |
| 63         | 18            | 14                       | 50                     | 21                       | 12         | 60.8        | 57         | 58          | 90                     | 25.5  |

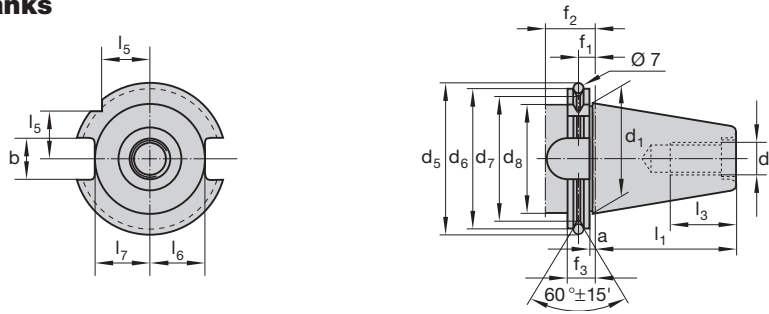
**7/24 CAT taper shanks**



CAT V-FLANGE

| CAT | a<br>(±0.004) | b<br>H12 | $d_1$ | $d_2$   | $d_5$<br>(±0.002) | $d_6$ | $d_7$ | $d_8$ | $f_1$ | $f_2$<br>MIN. | $f_3$ | $l_1$ | $l_3$<br>MIN. | $l_5$ | $l_6$ | $l_7$ |
|-----|---------------|----------|-------|---------|-------------------|-------|-------|-------|-------|---------------|-------|-------|---------------|-------|-------|-------|
| 30  | 0.126         | 0.638    | 1.25  | 1/2-13  | 2.334             | 1.812 | 1.744 | 1.25  | 0.437 | 1.375         | 0.750 | 1.875 | 0.945         | NA    | 0.640 | 0.735 |
| 40  | 0.126         | 0.640    | 1.75  | 5/8-11  | 2.846             | 2.500 | 2.215 | 1.75  | 0.437 | 1.375         | 0.750 | 2.687 | 1.259         | NA    | 0.890 | 0.984 |
| 50  | 0.126         | 1.015    | 2.75  | 1-8     | 4.222             | 3.875 | 3.592 | 2.75  | 0.437 | 1.375         | 0.750 | 4.000 | 1.850         | NA    | 1.390 | 1.478 |
| 60  | 0.126         | 1.020    | 4.25  | 1-1/4-7 | 5.862             | 5.500 | 5.215 | 4.25  | 0.437 | 1.500         | 0.750 | 6.375 | 2.250         | NA    | 2.104 | 2.235 |

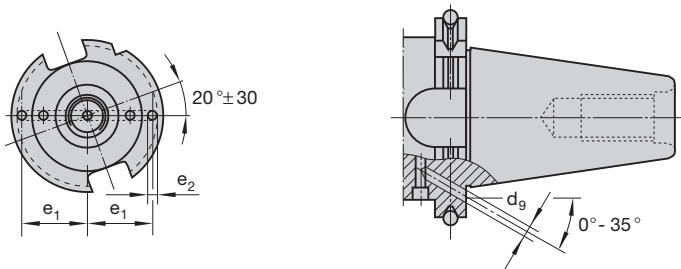
#### 7/24 SK taper shanks



#### DIN 69871 A

| SK | a     | b    | d <sub>1</sub> | d <sub>2</sub> | d <sub>5</sub> | d <sub>6</sub> | d <sub>7</sub> | d <sub>8</sub> | f <sub>1</sub> | f <sub>2</sub> | f <sub>3</sub> | l <sub>1</sub> | l <sub>3</sub> | l <sub>5</sub> | l <sub>6</sub> | l <sub>7</sub> |
|----|-------|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|    | ± 0.1 | H 12 |                |                | ± 0.05         | - 0.1          | - 0.5          | max.           | ± 0.1          | min.           | - 0.1          | 0              | min.           | 0              | - 0.4          | - 0.4          |
| 30 | 3.2   | 16.1 | 31.75          | M 12           | 59.30          | 50.00          | 44.30          | 45             | 11.1           | 35             | 19.1           | 47.80          | 24             | 15             | 16.4           | 19             |
| 40 | 3.2   | 16.1 | 44.45          | M 16           | 72.30          | 63.55          | 56.25          | 50             | 11.1           | 35             | 19.1           | 68.40          | 32             | 18.5           | 22.8           | 25             |
| 45 | 3.2   | 19.3 | 57.15          | M 20           | 91.35          | 82.55          | 75.25          | 63             | 11.1           | 35             | 19.1           | 82.70          | 40             | 24             | 29.1           | 31.3           |
| 50 | 3.2   | 25.7 | 69.85          | M 24           | 107.25         | 97.50          | 91.25          | 80             | 11.1           | 35             | 19.1           | 101.75         | 47             | 30             | 35.5           | 37.7           |

#### 7/24 taper shanks with trapezoidal groove and central coolant supply over shoulder



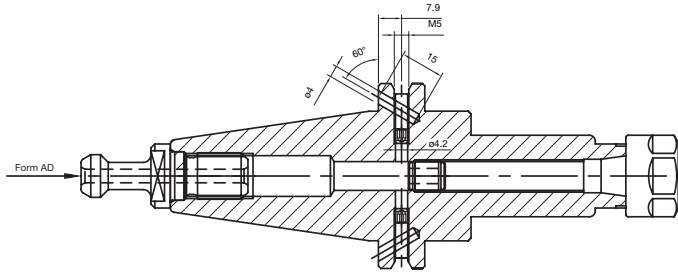
The supplement on Form B has to be sealed for pressure of 50 bar. Design in accordance with the selection manufactures.  
Included taper angle tolerance quality of the 7/24 taper shank AT 4 to DIN 2080 Part 1.

For use with pull studs DIN 69872

All other dimensions such as for 7/24 taper shanks to DIN 69871 A

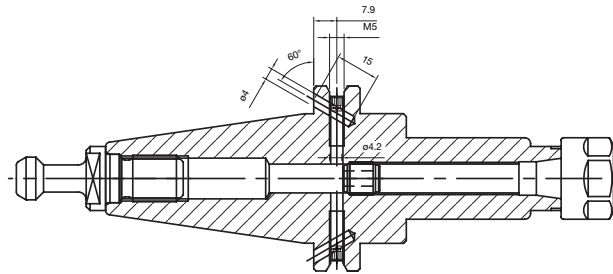
#### DIN 69871 B

| SK | d <sub>9</sub> | e <sub>1</sub> | e <sub>2</sub> |
|----|----------------|----------------|----------------|
|    |                | ± 0.1          | max.           |
| 30 | 4              | 21             | 5              |
| 40 | 4              | 27             | 5              |
| 45 | 5              | 35             | 6              |
| 50 | 6              | 42             | 7              |



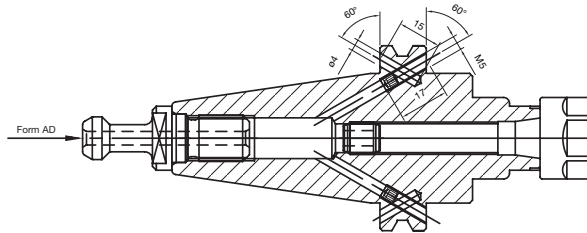
Drawing shows the Screw position when the Form AD type coolant is in use.

**Figure 1 Set Screws in AD Axial Coolant Position**



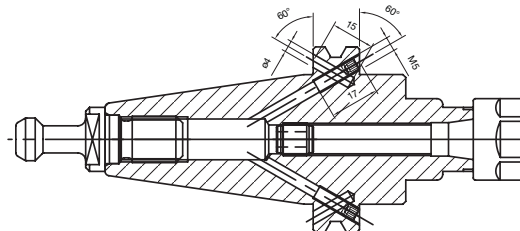
Drawing shows the Screw position when the Form B type coolant is in use.

**Figure 2 Set Screws in DIN B Flange Coolant Position**



Drawing shows the Screw position when the Form AD type coolant is in use.

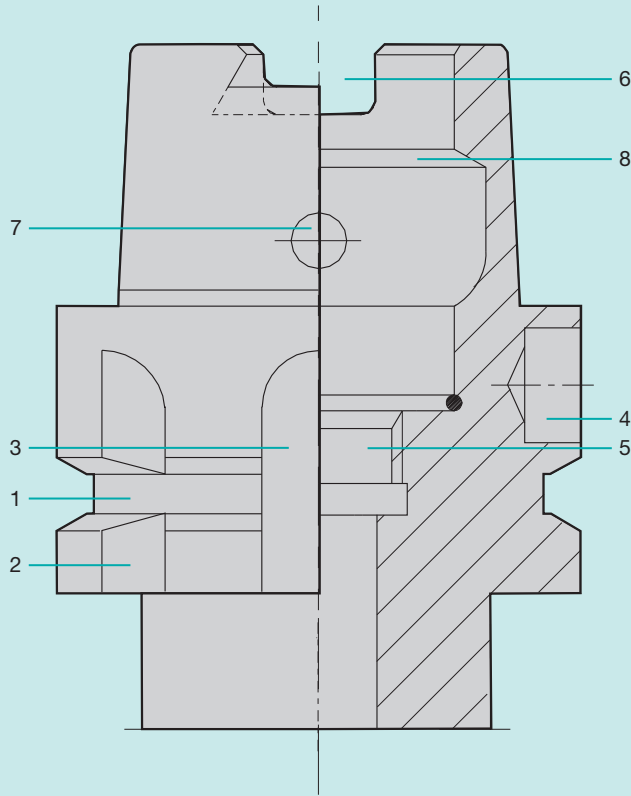
**Figure 3 Set Screws in AD Axial Coolant Position**



Drawing shows the Screw position when the Form B type coolant is in use.

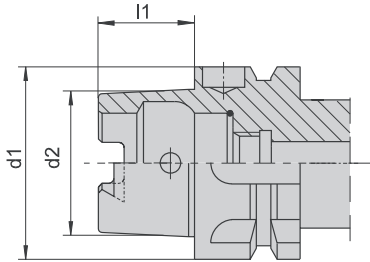
**Figure 4 Set Screws in DIN B Flange Coolant Position**

NOTE: Set Screws are M5 x 5 DIN 913, Figure 3 & 4 is designed for 3.00" and 4.00" Projection ER Collet Chucks

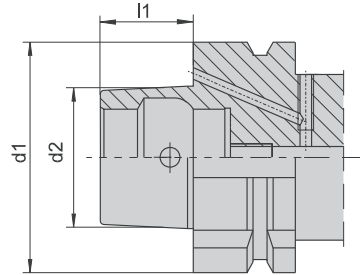


- 1 Gripper groove – circular groove
- 2 Index notch – sickle-shaped notch across gripper groove
- 3 Keyway on collar – index notch e.g. for tool magazines. Form closed torque transmission to spindle for HSK-B/D
- 4 Coding/identification – hole in collar for attachment of identification system (code chip)
- 5 Thread for coolant tube – for attachment of coolant tube
- 6 Keyway on taper shank – form closed torque transmission to spindle
- 7 Radial bore in taper shank – necessary for manual clamping systems
- 8 Clamping shoulder – circular chamfer for clamping

Shape A

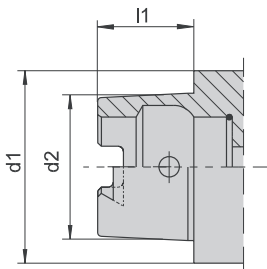


Shape B

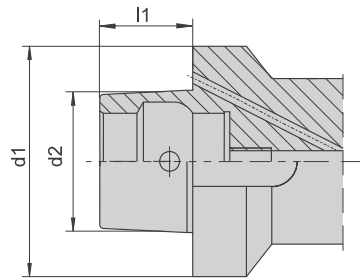


Hollow-shank taper for automatic tool changing with gripping and locating groove. Manual operation is possible through the access hole in the taper. Torque is transmitted both positively and non-positively.

Shape C

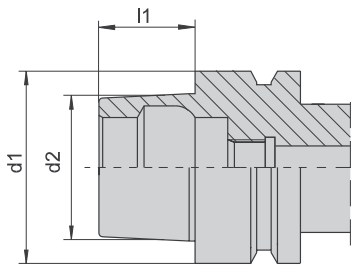


Shape D

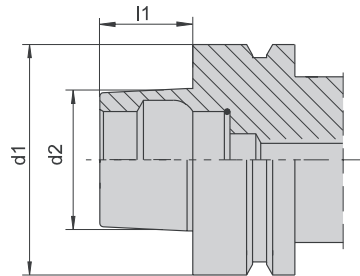


Hollow-shank taper for manual tool changing. Operation is possible through the access hole in the taper. Torque is transmitted both positively and non-positively.

Shape E



Shape F



Hollow-shank taper for automatic tool changing (manual operation through access hole in taper not possible). Torque is transmitted both positively and non-positively.

| HSK Shape A, C, E                 |                           |                                | HSK Shape B, D, F                 |                           |                                |
|-----------------------------------|---------------------------|--------------------------------|-----------------------------------|---------------------------|--------------------------------|
| Nominal size<br>d <sub>1</sub> mm | Taper-Ø<br>d <sub>2</sub> | Shank length<br>l <sub>1</sub> | Nominal size<br>d <sub>1</sub> mm | Taper-Ø<br>d <sub>2</sub> | Shank length<br>l <sub>1</sub> |
| 25                                | 19                        | 13                             | -                                 | -                         | -                              |
| 32                                | 24                        | 16                             | -                                 | -                         | -                              |
| 40                                | 30                        | 20                             | 40                                | 24                        | 16                             |
| 50                                | 38                        | 25                             | 50                                | 30                        | 20                             |
| 63                                | 48                        | 32                             | 63                                | 38                        | 25                             |
| 80                                | 60                        | 40                             | 80                                | 48                        | 32                             |
| 100                               | 75                        | 50                             | 100                               | 60                        | 40                             |



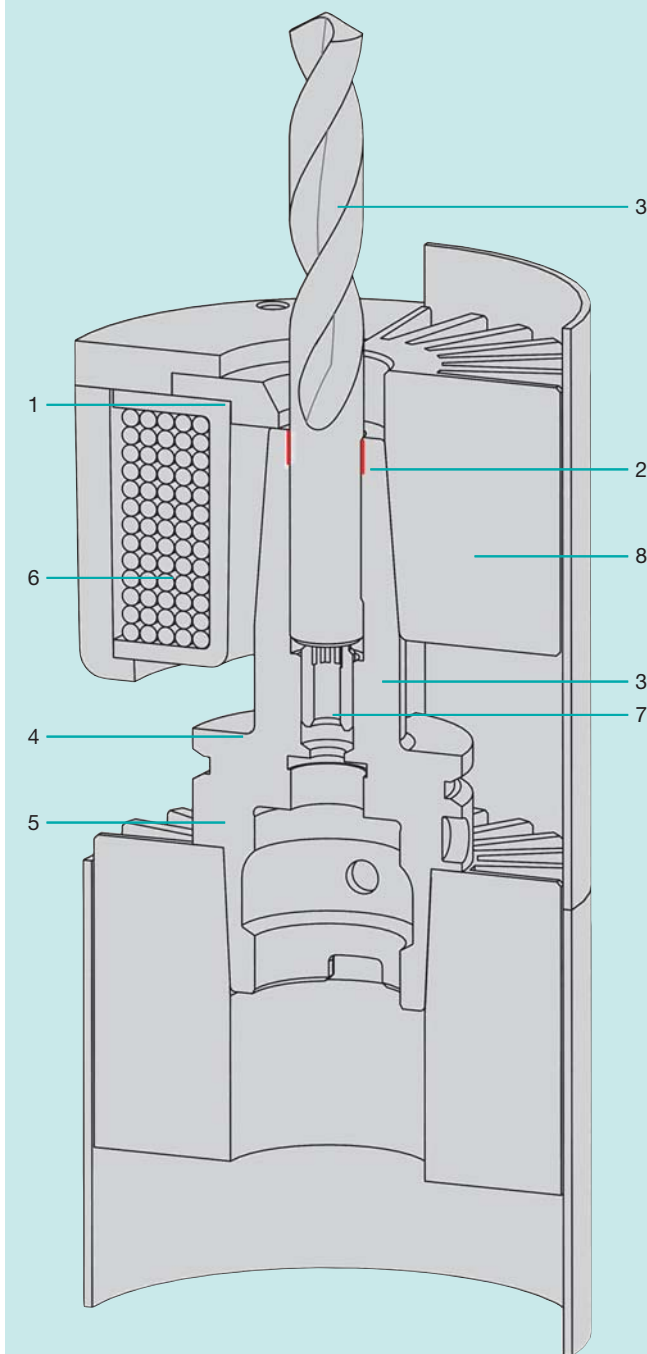
## **ThermoGrip®—One Name—Worldwide Standard**

Tool changing in seconds through inductive heating  
Long tool life through carefully chosen procedures and materials  
Highest clamping force  
Easy and secure handling  
Clamping of high speed and solid carbide tools  
Operator independent safe function  
Clamping chucks with high flexural strength  
Extensive programme of units and accessories  
Concentricity < 0.003 mm  
Group of strong partners

### **ThermoGrip® Clamping Chucks—The Advantages**

- Optimum taper angle of the chuck nose for contacting cooling systems
- Excellent ratio of flexural strength to dimension
- Cylindrical counterbore to enable the insertion of the tool in cold condition
- Manufactured out of high alloy hot working steel for highest temperature stability and tool life
- Almost unlimited tool life through special heat treatment with ensuing freezing process
- Manufactured in air conditioned areas under the highest quality standards for best tolerances and a guaranteed concentricity < 0.003 mm
- Less vibrations due to “Balanced by Design” and fine balancing
- Suitable for highest speeds

**ThermoGrip®—the key to your success!**

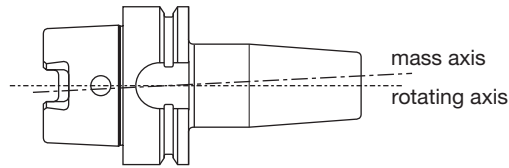


- 1 The patented ferrite plate system avoids the heating-up of the tool. This makes it possible to clamp solid carbide tools from Ø 3–50 mm as well as high speed tools easily
- 2 Easy insertion of tools by means of the patented counterbore
- 3 Concentricity of the clamping chucks < 3 µm
- 4 All clamping chucks are balanced
- 5 High tool life and stability of the clamping chuck due to the use of a special hot work steel
- 6 Transferring the energy locally protects the tool and the clamping chuck and reduces the cooling time
- 7 Tool presetting by measuring adaptor
- 8 Short cooling time for tool and clamping chuck with cooling adaptors or direct watercoolant. High working safety by shielding of the heated clamping chucks



### What is unbalance?

Unbalance is the condition of a rotating part where the mass axis is not equal to the rotating axis.



rotating axis  $\neq$  mass axis : this automatically creates a centrifugal force.

**What causes unbalance:**

- center misalignment (production tolerances)
- design (e.g. driving grooves)
- fitting tolerances (e.g. collets, nuts)
- additional components (e.g. cutting tools)

This always results in vibrations which are caused by the centrifugal force. To calculate the centrifugal force, the rpms must be exponentiated. The centrifugal force is multiplied proportionally to the increasing rpm.

**The consequences of the vibrations caused by the centrifugal force are:**

- inferior surface quality
- unreliable tolerances
- damage to spindle bearings
- reduced tool life
- increased noise
- reduced cutting speed

$$F = \frac{\text{mass of unbalance} \times \text{radius} (2 \times \pi \times \text{rpm})^2}{60^2}$$

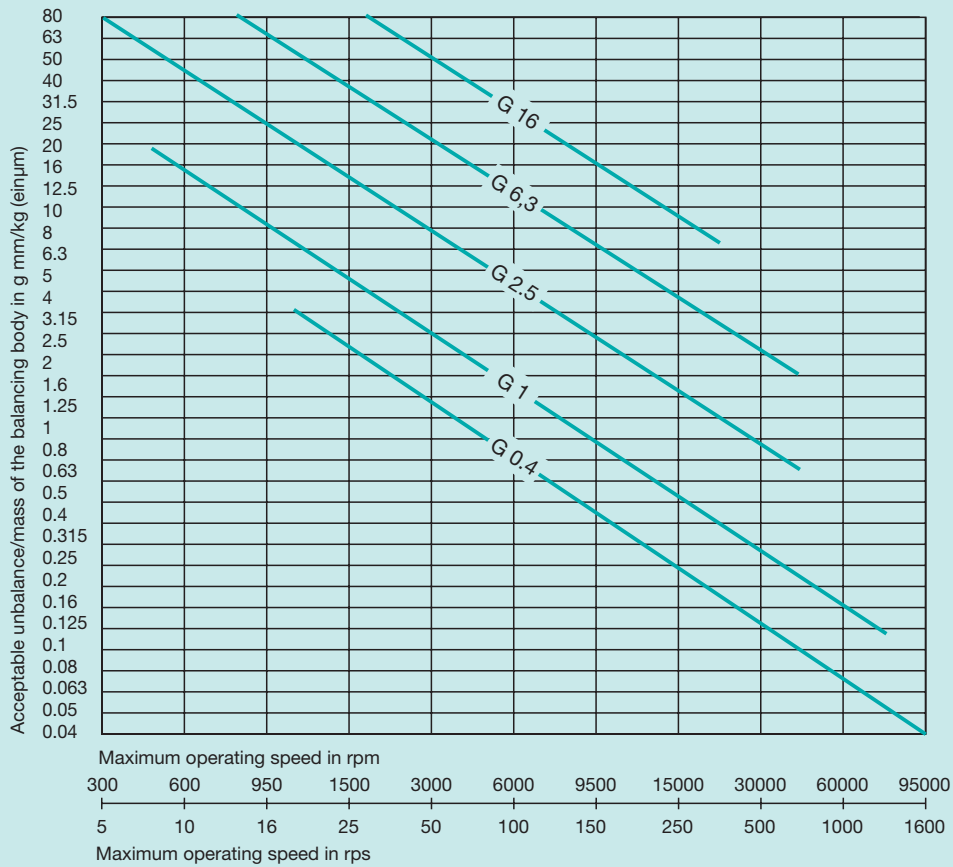
### What are the dimensions of unbalance?

For example, for a tool adapter with a weight of 1kg and a diameter of 50mm with 1g unbalance on the outside diameter there is a calculated difference between the axis of 0.025mm. (Difference between mass and rotating axis.) This corresponds to an unbalance of 1000 g x 0.025 mm = 25 gmm.

### Types of unbalance

- static unbalance (parallel difference between mass and rotating axis)
- moment unbalance (misalignment of axis at an angle, axis crossing in the middle)
- dynamic unbalance (combination of static and moment unbalance)

When measuring during rotation, static unbalance and moment unbalance are measured together. This means a dynamic balance is only possible when measuring during rotation.



- $U_{acc}$  = acceptable rest unbalance of the rotor in g mm
- G = balance quality (former: Q)
- M = mass of the rotor in kg (~2.2lbs/kg)
- n = operating speed in 1/min (rpm)
- 9549 = constant value, a result from the conversion of units
- $e_{acc}$  = acceptable measure of eccentricity in  $\mu\text{m}$
- r = compensation radius in mm (the compensation is the radius of drilling when balancing).
- $m_r$  = rest mass in g

**Example of calculation:**

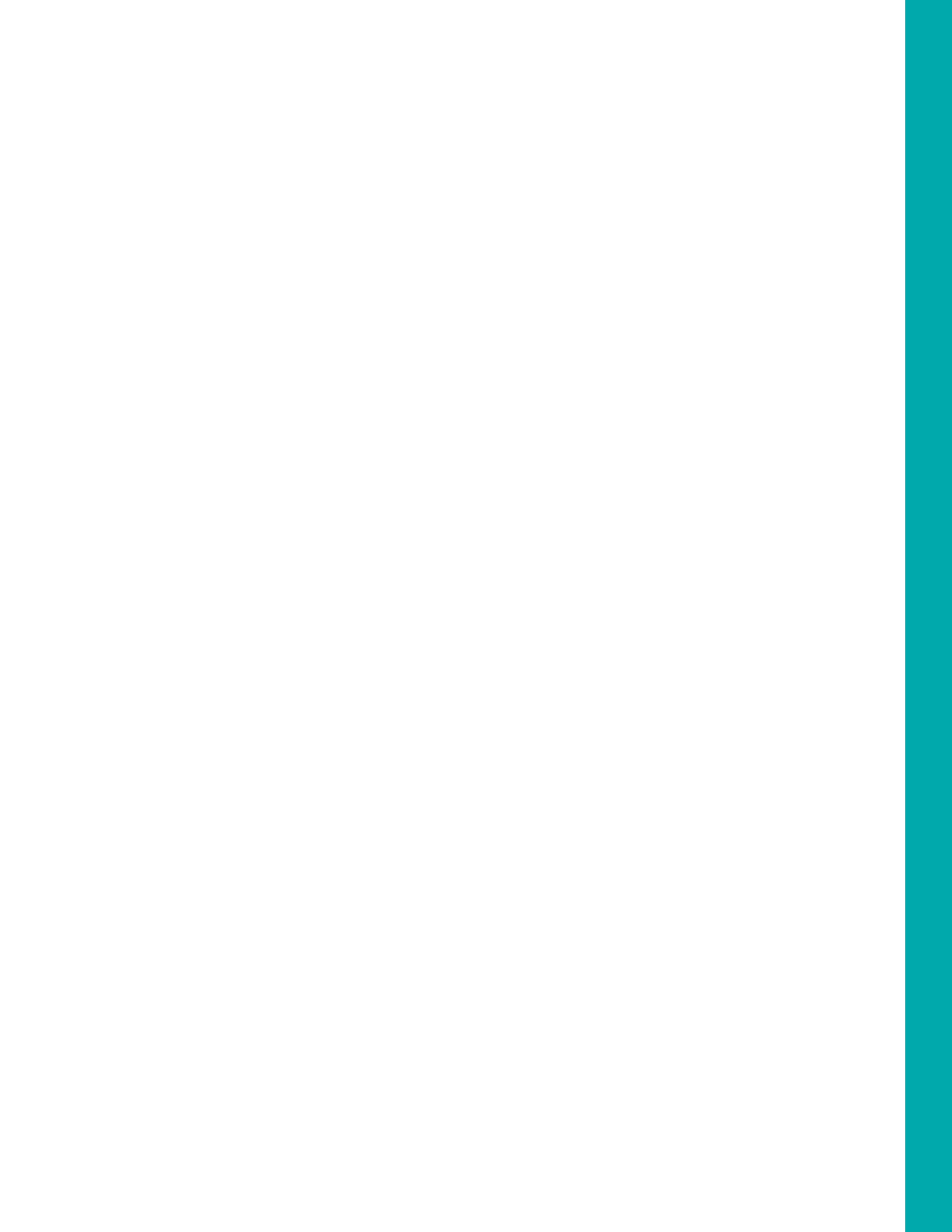
Weight of toolholder M = 0.9 kg  
 Operating speed n = 18.000 1/min  
 Balance quality G = 6.3  
 Compensation radius r = 16 mm

$$U_{acc} = \frac{(G \times M) \times 9549}{n} = 3.005 \text{ g mm}$$

(you can also obtain the value from the balance nomogram)

$$e_{acc} = \frac{U_{acc}}{M} = 3.34 \mu\text{m}$$

The centre of gravity may have a max. offset to the rotating axis of 3.34  $\mu\text{m}$





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