

# How to Choose the Right CLoc® Fastener

The application will determine the correct fastener:

1) Is the application non-structural with no mass consideration?

Consider the CLoc® 2000 Series

2) Is the application semi-structural with some mass to consider?

Consider the CLoc® 4000 or 6000 Series (if lip or panel overlap greater than 1.00)

3) Is available lip or panel overlap restrictive? (width required to mount receptacle)

- .355 to .500 – Consider the CLoc® 2500 Series
- .500 to .710 – Consider the CLoc® 26000/2700/2800 Series
- .710\* or more – Consider the CLoc® 4000 Series (.860\* for SK244/245 Rec)

\*See diagram on Page 2 or Page 20 for panel configuration/restrictions.

4) Is weight a factor?

Consider the Skytanium® CLoc® ZG Series for 30% to 50% Weight savings (without sacrificing steel strength ratings)

5) Do you prefer a Rivet Receptacle? A crimp Receptacle? A Backing Nut Receptacle? Or a bonded Receptacle?

## Need Convincing From Current Skybolt Customer Applications?

What is the most demanding endurance application that also requires the absolute lightest fastener? Auto racing. Skybolt has engineered fasteners that are lighter but stronger than anything on the market. What works on Sundays also earns its wings 24/7 in the aerospace world, the defense world, the commercial applications world, and the marine world.

- Most NASCAR teams rely on Skybolt™ Skytanium® Series Fasteners for significant weight savings without any sacrifice in strength.
- One of the world's largest commercial aircraft companies found the perfect Avionics Fastener in the Skybolt™ Skytanium® CLoc® ZG2500 Series Fasteners – a 50% weight savings without sacrificing strength.
- The Cessna 150, 172, 177, and 182 fleet just found major relief in the new Skybolt™ SK2003 Cowling Mount using CLoc® 4000 Series Stainless Fasteners.
- The new Skybolt™ 6000 Series Fasteners are designed for IED (Explosive) applications and armor plating applications.
- One of the world's foremost producers of missile systems found the perfect CLoc® Adjustable Bonded Receptacle for composite structures.
- Another world leader in aerospace manufacturing found the perfect CLoc® Receptacle for an anti-abrasive application.

CLoc  
2000 Series



CLoc  
4000 Series



Platemounts



ZLoc



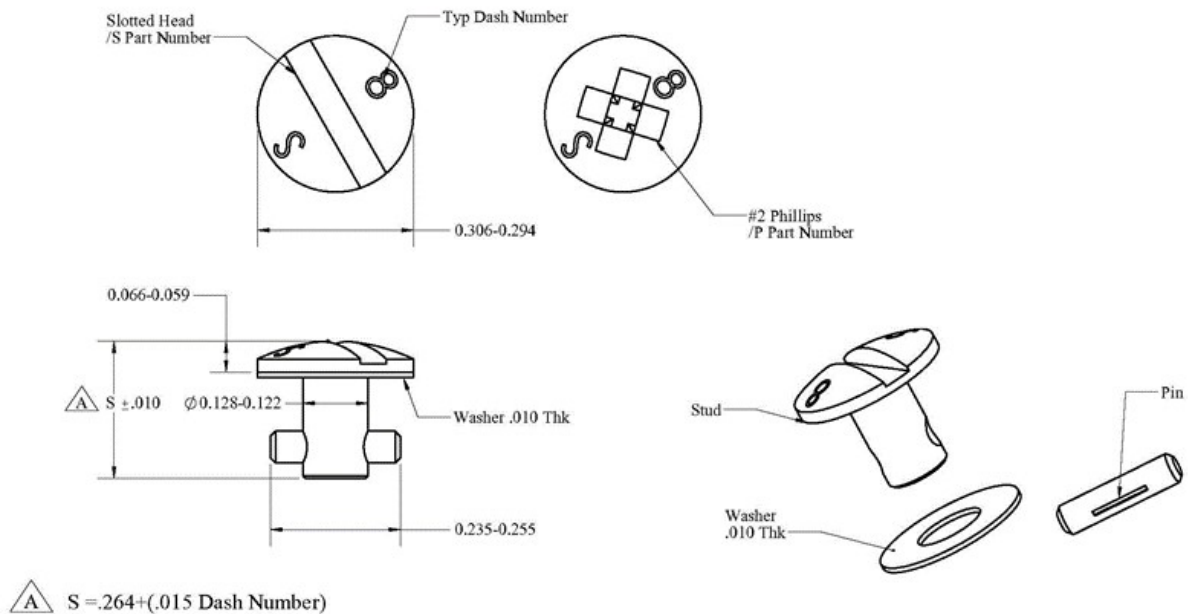
ALoc



Tools



# Cloc® Minature Series Stainless



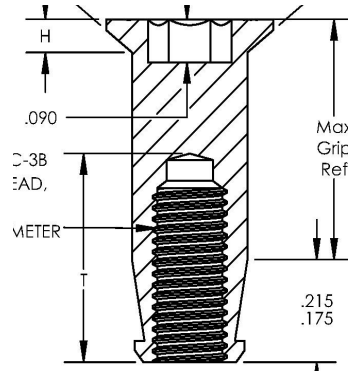
| Interchangeable Camloc 5S35-(x) | Interchangeable Camloc 5S15-(x) | Total Stud Length L |        | Grip 5R2 STD Mount       |       |            |       |
|---------------------------------|---------------------------------|---------------------|--------|--------------------------|-------|------------|-------|
|                                 |                                 |                     |        | Combined Panel Thickness |       |            |       |
| Stainless Slotted               | Stainless Phillips              |                     |        | Decimal                  |       | Millimeter |       |
| Part #                          | Part #                          | inches              | mm     | Min                      | Max   | Min        | Max   |
| SK5S5-1S                        | SK5S5-1P                        | 0.279               | 7.087  | 0.020                    | 0.034 | 0.508      | 0.864 |
| SK5S5-2S                        | SK5S5-2P                        | 0.294               | 7.468  | 0.035                    | 0.049 | 0.889      | 1.245 |
| SK5S5-3S                        | SK5S5-3P                        | 0.309               | 7.849  | 0.050                    | 0.064 | 1.270      | 1.626 |
| SK5S5-4S                        | SK5S5-4P                        | 0.324               | 8.230  | 0.065                    | 0.079 | 1.651      | 2.007 |
| SK5S5-5S                        | SK5S5-5P                        | 0.339               | 8.611  | 0.080                    | 0.094 | 2.032      | 2.388 |
| SK5S5-6S                        | SK5S5-6P                        | 0.354               | 8.992  | 0.095                    | 0.109 | 2.413      | 2.769 |
| SK5S5-7S                        | SK5S5-7P                        | 0.369               | 9.373  | 0.110                    | 0.124 | 2.794      | 3.150 |
| SK5S5-8S                        | SK5S5-8P                        | 0.384               | 9.754  | 0.125                    | 0.139 | 3.175      | 3.531 |
| SK5S5-9S                        | SK5S5-9P                        | 0.399               | 10.135 | 0.140                    | 0.154 | 3.556      | 3.912 |
| SK5S5-10S                       | SK5S5-10P                       | 0.414               | 10.516 | 0.155                    | 0.169 | 3.937      | 4.293 |
| SK5S5-11S                       | SK5S5-11P                       | 0.429               | 10.897 | 0.170                    | 0.184 | 4.318      | 4.674 |
| SK5S5-12S                       | SK5S5-12P                       | 0.444               | 11.278 | 0.185                    | 0.199 | 4.699      | 5.055 |
| SK5S5-13S                       | SK5S5-13P                       | 0.459               | 11.659 | 0.200                    | 0.214 | 5.080      | 5.436 |
| SK5S5-14S                       | SK5S5-14P                       | 0.474               | 12.040 | 0.215                    | 0.229 | 5.461      | 5.817 |
| SK5S5-15S                       | SK5S5-15P                       | 0.489               | 12.421 | 0.230                    | 0.244 | 5.842      | 6.198 |
| SK5S5-16S                       | SK5S5-16P                       | 0.504               | 12.802 | 0.245                    | 0.259 | 6.223      | 6.579 |
| SK5S5-17S                       | SK5S5-17P                       | 0.519               | 13.183 | 0.260                    | 0.274 | 6.604      | 6.960 |
| SK5S5-18S                       | SK5S5-18P                       | 0.534               | 13.564 | 0.275                    | 0.289 | 6.985      | 7.341 |
| SK5S5-19S                       | SK5S5-19P                       | 0.549               | 13.945 | 0.290                    | 0.304 | 7.366      | 7.722 |
| SK5S5-20S                       | SK5S5-20P                       | 0.564               | 14.326 | 0.305                    | 0.319 | 7.747      | 8.103 |

Cloc® assemblies use Stainless washer for 550° deg maximum service temperature

# Skybolt CLoc® SK 1820 Series Stud Nut

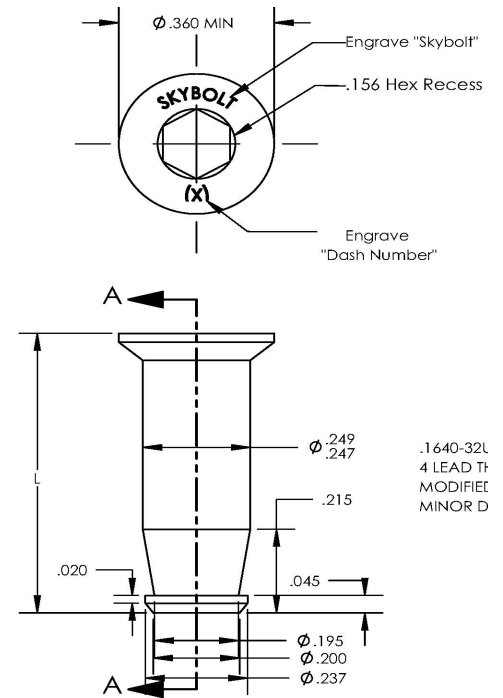
## Quad Lead Fastener

- Stainless 303 ASTM A582 Passivated AMS2700
- Ultimate Tensile - 1,650 lbs-f
- Ultimate Single Shear - 1,800 lbs-f



SECTION A-A

SCALE 3 : 1



### Notes

- Use Tridair® CA1810 Receptacle and CA1825, 1826-1, or 18377 Retaining Ring
- The mechanical properties are 1st Article tested.
- Contact Skybolt engineering for variations and materials/finishes.
- Stainless 303 Stock/1-week
- FAA-PMA; TSO-C148 Pending

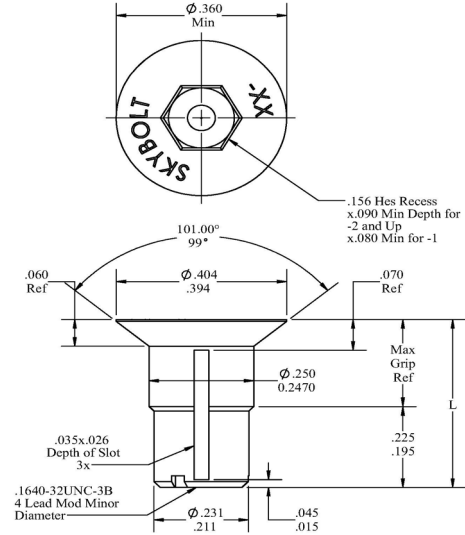
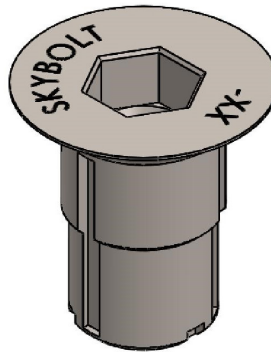
| "DASH NUMBER" | L     | Grip Range |       | "Weight LBS. 100" | T     |
|---------------|-------|------------|-------|-------------------|-------|
|               |       | MIN        | MAX   |                   |       |
| 0             | 0.375 | 0.095      | 0.155 | 0.20              | 0.437 |
| -1            | 0.437 | 0.156      | 0.250 | 0.33              |       |
| -2            | 0.531 | 0.251      | 0.343 | 0.46              |       |
| -3            | 0.625 | 0.344      | 0.437 | 0.52              |       |
| -4            | 0.718 | 0.438      | 0.531 | 0.63              |       |
| -5            | 0.812 | 0.532      | 0.625 | 0.74              |       |
| -6            | 0.906 | 0.626      | 0.718 | 0.85              |       |
| -7            | 1.000 | 0.719      | 0.812 | 0.96              |       |
| -8            | 1.093 | 0.813      | 0.906 | 1.07              |       |
| -9            | 1.187 | 0.907      | 1.000 | 1.18              |       |
| -10           | 1.281 | 1.001      | 1.093 | 1.29              |       |
| -11           | 1.375 | 1.094      | 1.187 | 1.40              |       |
| -12           | 1.468 | 1.188      | 1.281 | 1.51              |       |
| -13           | 1.562 | 1.282      | 1.375 | 1.62              |       |
| -14           | 1.656 | 1.376      | 1.468 | 1.73              |       |
| -15           | 1.750 | 1.469      | 1.562 | 1.84              |       |
| -16           | 1.843 | 1.563      | 1.656 | 1.95              |       |
| -17           | 1.936 | 1.657      | 1.750 | 2.06              |       |
| -18           | 2.032 | 1.751      | 1.843 | 2.17              |       |

# Skybolt CLoc® SK 18121 Series Stud Nut

## Quad Lead Fastener

Skybolt® CLoc® Zloc® Aloc® ArmorLoc® Skytanium® Dia

- 4140 Steel AMS6382 Cad Plate QQ-P-416  
Heat Treat 160,000 psi
- 17-4 Stainless ASTM A582 Passivated AMS2700  
Heat Treat 160,000 psi  
Ultimate Tensile - 1,900 lbs-f  
Ultimate Single Shear - 2,200 lbs-f
- 303 Stainless ASTM A582 Passivated AMS2700  
Ultimate Tensile - 1,650 lbs-f  
Ultimate Single Shear - 1,800 lbs-f



| "DASH NUMBER" | L     | "Grip Range Min" | "Grip Range Max" | "Weight LBS/100 Est" |
|---------------|-------|------------------|------------------|----------------------|
| -1            | 0.430 | 0.150            | 0.220            | 0.35                 |
| -2            | 0.500 | 0.221            | 0.290            | 0.43                 |
| -3            | 0.570 | 0.291            | 0.360            | 0.51                 |
| -4            | 0.640 | 0.361            | 0.430            | 0.59                 |
| -5            | 0.710 | 0.431            | 0.500            | 0.67                 |
| -6            | 0.780 | 0.501            | 0.570            | 0.75                 |
| -7            | 0.850 | 0.571            | 0.640            | 0.83                 |
| -8            | 0.920 | 0.641            | 0.710            | 0.91                 |
| -9            | 0.990 | 0.711            | 0.780            | 0.99                 |
| -10           | 1.060 | 0.781            | 0.850            | 1.07                 |
| -11           | 1.130 | 0.851            | 0.920            | 1.15                 |
| -12           | 1.200 | 0.921            | 0.990            | 1.23                 |
| -13           | 1.270 | 0.991            | 1.060            | 1.31                 |
| -14           | 1.340 | 1.061            | 1.130            | 1.39                 |

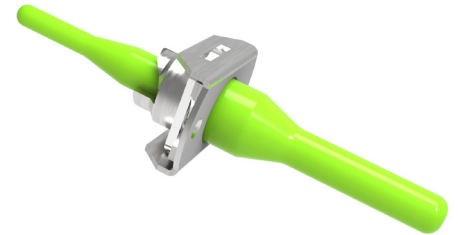
### Notes

- Use Tridair® CA18157 Receptacle and CA18132 Retaining Ring
- The mechanical properties are 1st Article tested.
- Contact Skybolt engineering for variations and materials/finishes.
- Lead times: Steel 4140 4-weeks; Stainless 17-4 3-weeks; Stainless 303 Stock/1-week
- FAA-PMA; TSO-C148 Pending

# Industry Standard Bonding Products

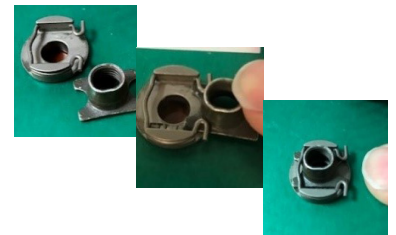
## Skybolt Cloc® Bonded Series - Includes Applicator Stem

| Part Number | Description   |
|-------------|---|
| SK212E10AB1 | 2000 Series Alum Fixed Reduced Area - Hard Anodized - Bonded              |
| SK212E12A   | Aluminum Fixed Bonded   |
| SK212E12S   | Stainless Fixed Bonded  |
| SK201A01A   | 2000 All Aluminum - Fixed Grip - Floating - 201 Receptacle - Bonded       |
| SK201C01    | 2000 All Stainless - Fixed Grip - Floating - 201 Receptacle - Bonded      |
| SK203A01A   | 2000 All Aluminum - Adjustable Grip - Floating - 203 Receptacle - Bonded  |
| SK203C01    | 2000 All Stainless - Adjustable Grip - Floating - 203 Receptacle - Bonded |
| SKE214-16S  | 4000 Series - Fixed Grip - Non-Floating - Machined - Bonded               |
| SKE40R17-1  | 4000 Series - Fixed Grip - Non-Floating - Formed - Bonded                 |
| SKE244C16C  | 4000 Series - Fixed Grip - Floating - Non-Removable Insert - Bonded       |
| SKE244C161C | 4000 Series - Fixed Grip - Floating - Removable Insert - Bonded           |
| SKE245C16C  | 4000 Series - Adjustable Grip - Floating - Non-Removable Insert - Bonded  |
| SKE245C161C | 4000 Series - Adjustable Grip - Floating - Removable Insert - Bonded      |



## Skybolt Cloc® Platenut Bonded Series - Includes Applicator Stem

| Part Number | Description   |
|-------------|---|
| SK21060L08  | #8-32 A286 Stainless - Dry Film - Standard Cage - Removable Insert - Bonded   |
| SK21060L3   | #10-32 A286 Stainless - Dry Film - Standard Cage - Removable Insert - Bonded  |
| SK21060L4   | #1/4-28 A286 Stainless - Dry Film - Standard Cage - Removable Insert - Bonded |
| SK21060LM4  | M4 A286 Stainless - Dry Film - Standard Cage - Removable Insert - Bonded      |
| SK21060LM5  | M5 A286 Stainless - Dry Film - Standard Cage - Removable Insert - Bonded      |
| SK21060LM6  | M6 A286 Stainless - Dry Film - Standard Cage - Removable Insert - Bonded      |
| SK31060L08  | #8-32 A286 Stainless - Dry Film - Quick Cage - Removable Insert - Bonded      |
| SK31060L3   | #10-32 A286 Stainless - Dry Film - Quick Cage - Removable Insert - Bonded     |
| SK31060L4   | #1/4-28 A286 Stainless - Dry Film - Quick Cage - Removable Insert - Bonded    |
| SK31060LM4  | M4 A286 Stainless - Dry Film - Quick Cage - Removable Insert - Bonded         |
| SK31060LM5  | M5 A286 Stainless - Dry Film - Quick Cage - Removable Insert - Bonded         |
| SK31060LM6  | M6 A286 Stainless - Dry Film - Quick Cage - Removable Insert - Bonded         |



## Skybolt Cloc® Adhesive & Applicator State of the Art Bonding Technology



2-Part Epoxy Metals, FRP, wood, rubber, other materials 1:1 Mix


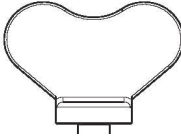




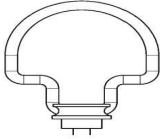

| Part Number | Description       |
|-------------|-------------------|
| SK700       | Dispenser Gun     |
| SK70011     | 1:1 Dispenser Ram |
| SK80011     | 1:1 Mixer Tip     |

| Part #                          | Heron® ClickBond® |            |
|---------------------------------|-------------------|------------|
|                                 | H375              | CB200      |
| Working Time - Minutes          | 10-15             | 5          |
| Fixture time - Minutes          | 5-10              | 30         |
| Full Cure - Hours               | 24                | 24         |
| Temp Range F                    | -67 to 250        | -67 to 250 |
| Cure Performance ASTM D1002 psi | 4000-6000         | 4400       |
| Reach Compliant                 | Yes               | No         |
| Ratio                           | 1:1               | 8:1        |



# CLoc® 2000 Series Fasteners

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

|   |   |   |   |   |
|---|---|---|---|---|
|  | ZG2500, ZG2600<br>See Page 8 and 11   |  | SK2500W, ZG2500W,<br>SK2600W, ZG2600W<br>See Page 10 and 13 |  |
|  | SK25S51, SK26S51<br>See Page 8 and 12<br>SK27S3, SK28S3, ZG28S3<br>See Page 18 and 19 |  | SK2500R, ZG2500R,<br>SK2600R, ZG2600R<br>See Page 10 and 14 |   |
|  | SK2500, SK2600<br>See Page 8 and 11<br>SK2700, SK2800<br>See Page 17 and 19           |  | SK26S22, ZG26S22<br>See Page 15                             |   |
|  | SK28T3<br>See Page 19   |   |   |   |

### SK2500 and ZG2500 Series

For SK and ZG2500 Series Studs -  
Drill panel to 1/4 (Precision -.257  
or 6.53mm)

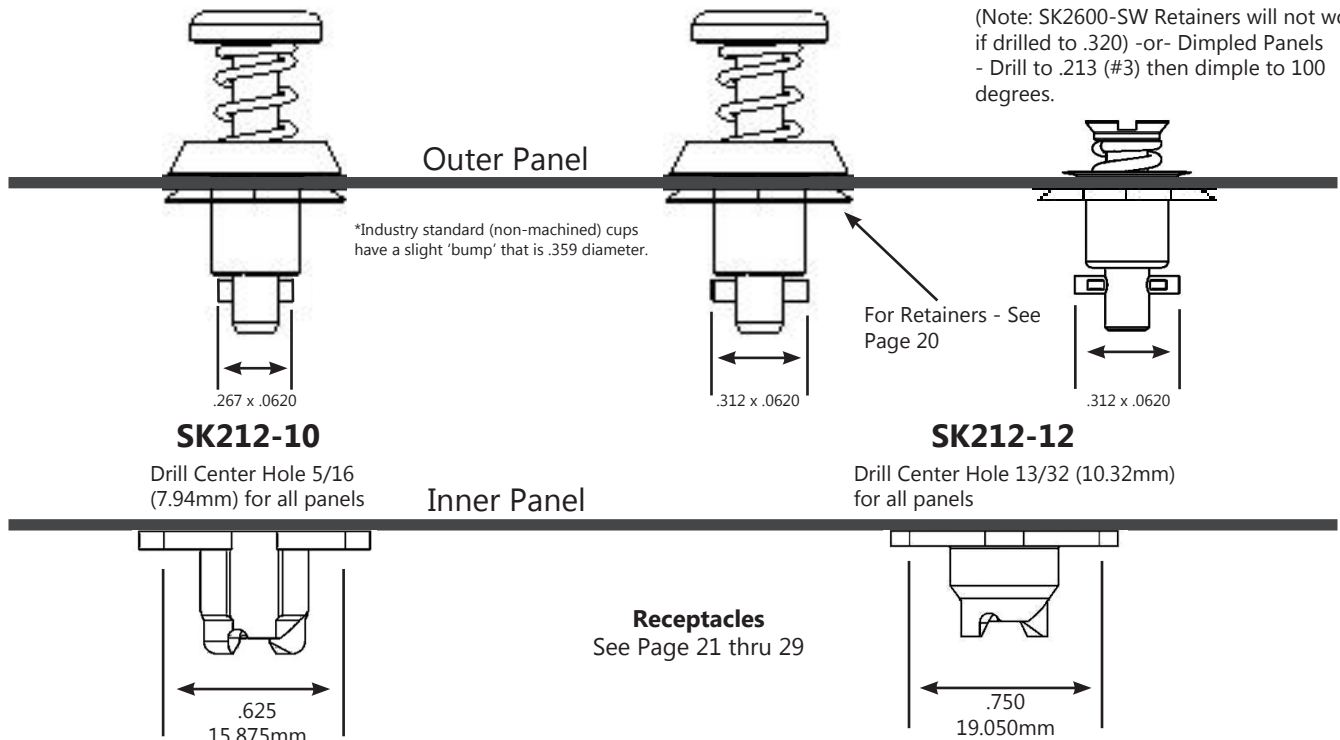
### SK2600 and ZG2600 Series

For SK and ZG2600 Series Studs -  
Drill panel to 1/4 (Precision -.257 or  
6.53mm)

### SK2700, SK2800 ZG2800 Series

For SK and ZG 2700/2800 Series Studs -  
Drill panel to 11/32 (Precision .328 or  
8.33mm)

(Note: SK2600-SW Retainers will not work  
if drilled to .320) -or- Dimpled Panels  
- Drill to .213 (#3) then dimple to 100  
degrees.



Note: Add .100 to receptacle depth to allow for fastener protrusion when cycled lock to unlock (.500 + .100) = Clearance Requirement

# CLoc® 2000 Series Common Sets

Forget Charts - The followings assemblies solve 99% of all applications



### Stainless Series - Flush Head

| <b>SK28S3-SET1</b>            | Grip Range | <b>ZG28S3-SET2</b>             | Grip Range |
|-------------------------------|------------|--------------------------------|------------|
| SK28S3-2S Phillips Stud       | .040-.400  | ZG28S3-2 Phillips Stud         | .040-.400  |
| SK2600 - LWS Stud Retainer    |            | SK2600 - LWS Stud Retainer     |            |
| SK213-2 Adjustable Receptacle |            | SK213-28 Adjustable Receptacle |            |
| 3/32" Rivets                  |            | 1/8" Rivets                    |            |

Most Common Aircraft Set

Most Common NASCAR Set



### Stainless Series - Protruding Head

| <b>SK26S51-SET1</b>           | Grip Range | <b>ZG2600-SET2</b>             | Grip Range |
|-------------------------------|------------|--------------------------------|------------|
| SK26S51-1S Phillips Stud      | .040-.400  | ZG2600-1 Collared Slot Stud    | .040-.400  |
| SK2600-LWS Stud Retainer      |            | SK2600-LWS Stud Retainer       |            |
| SK213-2 Adjustable Receptacle |            | SK213-28 Adjustable Receptacle |            |
| 3/32" Rivets                  |            | 1/8" Rivets                    |            |

Note: Order SET1 for SK213-2 (3/32 Rivets). Order SET2 for SK213-28 (1/8 Rivets)



ZG28S3/SK28S3



ZG2600



SK26S51



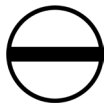
SK2600-LWS



SK213

# CLoc® SK2500 ZG2500 Protruding Head

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)



SK2500 Series Standard Slot  
(A= .302)



ZG2500 Series Collared Slot  
(A= .375)



SK25S51 Series Phillips  
(A= .302)

- LightWeight Aerospace Panel Fasteners - 50%Weight Savings
- Designed for Restrictive (Minimum Overlap) Mounting Surfaces
- Reduced Thru-Hole Diameter For Mounting Close to Edge
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Honeywell-Airbus Approvals - A380 Avionics (ZG2500 Series)
- Tensile/Shear Loads of 200 LBSWorking - 300 Lbs Plus Ultimate



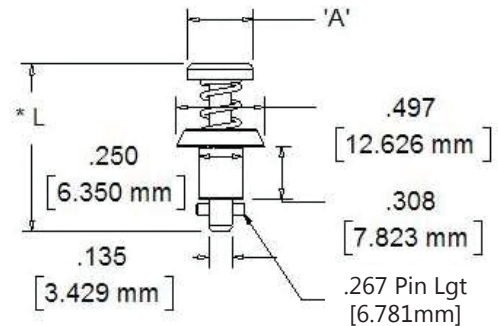
SK2500SC  
ZG2500



SK25S51  
ZG25S51



SK2500



Note: 2500 Series Studs may use SK212-10, SK212-12, or SK213 Series Receptacles.

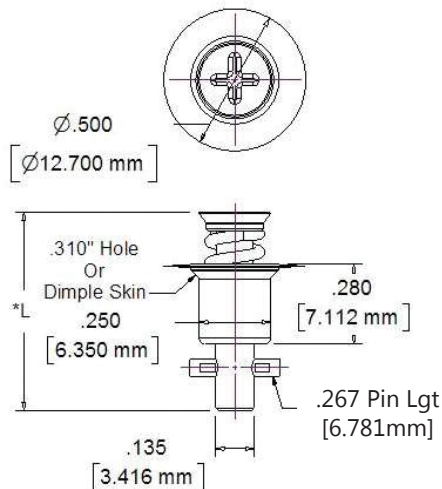
| Protruding Head<br>2500 Series Stud |                            |                       |                               |                          | SK212-10 Series<br>Fixed Depth Receptacle<br>Combined Panels |      |            |        | Total Stud Length<br>L |            |
|-------------------------------------|----------------------------|-----------------------|-------------------------------|--------------------------|--|------|------------|--------|------------------------|------------|
| Stainless<br>Standard<br>Slot       | Stainless<br>Collared Slot | Stainless<br>Phillips | Skytanium<br>Collared<br>Slot | Skytanium<br>Phillips(1) | Decimal  |      | Millimeter |        | Decimal                | Millimeter |
|                                     |                            |                       |                               |                          | Min  | Max  | Min        | Max    |                        |            |
| SK2500-1S                           | SK2500SC1S                 | SK25S51-1             | ZG2500-1                      | ZG25S51-1                | .030   | .059 | 0.762      | 1.499  | .760                   | 19.304     |
| SK2500-2S                           | SK2500SC2S                 | SK25S51-2             | ZG2500-2                      | ZG25S51-2                | .060   | .089 | 1.524      | 2.261  | .790                   | 20.066     |
| SK2500-3S                           | SK2500SC3S                 | SK25S51-3             | ZG2500-3                      | ZG25S51-3                | .090   | .119 | 2.286      | 3.023  | .820                   | 20.828     |
| SK2500-4S                           | SK2500SC4S                 | SK25S51-4             | ZG2500-4                      | ZG25S51-4                | .120   | .149 | 3.048      | 3.785  | .850                   | 21.590     |
| SK2500-5S                           | SK2500SC5S                 | SK25S51-5             | ZG2500-5                      | ZG25S51-5                | .150   | .179 | 3.810      | 4.547  | .880                   | 22.352     |
| SK2500-6S                           | SK2500SC6S                 | SK25S51-6             | ZG2500-6                      | ZG25S51-6                | .180   | .209 | 4.572      | 5.309  | .910                   | 23.114     |
| SK2500-7S                           | SK2500SC7S                 | SK25S51-7             | ZG2500-7                      | ZG25S51-7                | .210   | .239 | 5.334      | 6.071  | .940                   | 23.876     |
| SK2500-8S                           | SK2500SC8S                 | SK25S51-8             | ZG2500-8                      | ZG25S51-8                | .240   | .269 | 6.096      | 6.833  | .970                   | 24.638     |
| SK2500-9S                           | SK2500SC9S                 | SK25S51-9             | ZG2500-9                      | ZG25S51-9                | .270   | .299 | 6.858      | 7.595  | 1.000                  | 25.400     |
| SK2500-10S                          | SK2500SC10S                | SK25S51-10            | ZG2500-10                     | ZG25S51-10               | .300   | .329 | 7.620      | 8.357  | 1.030                  | 26.162     |
| SK2500-11S                          | SK2500SC11S                | SK25S51-11            | ZG2500-11                     | ZG25S51-11               | .330   | .359 | 8.382      | 9.119  | 1.060                  | 26.924     |
| SK2500-12S                          | SK2500SC12S                | SK25S51-12            | ZG2500-12                     | ZG25S51-12               | .360   | .389 | 9.144      | 9.881  | 1.090                  | 27.686     |
| SK2500-13S                          | SK2500SC13S                | SK25S51-13            | ZG2500-13                     | ZG25S51-13               | .390   | .419 | 9.906      | 10.643 | 1.120                  | 28.448     |
| SK2500-14S                          | SK2500SC14S                | SK25S51-14            | ZG2500-14                     | ZG25S51-14               | .420   | .449 | 10.668     | 11.405 | 1.150                  | 29.210     |
| SK2500-15S                          | SK2500SC15S                | SK25S51-15            | ZG2500-15                     | ZG25S51-15               | .450   | .479 | 11.430     | 12.167 | 1.180                  | 29.972     |

Note: See page 12 for plating options and part# suffix. Note (1) ZG25S51 use stainless Stud/Skytanium Cup.



# CLoc® SK2500 ZG2500 Flush Head

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)



- LightWeight Aerospace Panel Fasteners - 50% Weight Savings
- Designed for Restrictive (Minimum Overlap) Mounting Surfaces
- Reduced Thru-Hole Diameter For Mounting Close to Edge
- Tensile/Shear Loads of 200 LBS Working - 300 Lbs Plus Ultimate
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance



Note: 2500 Series Studs may use SK212-10, SK212-12, or SK213 Series Receptacles.

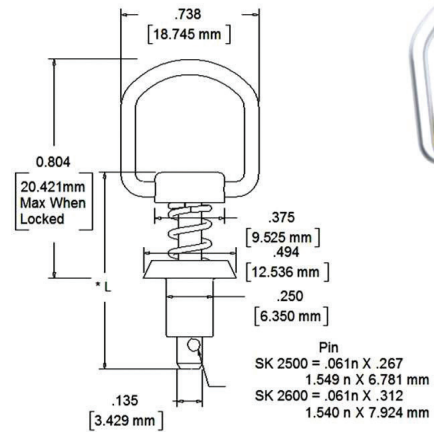
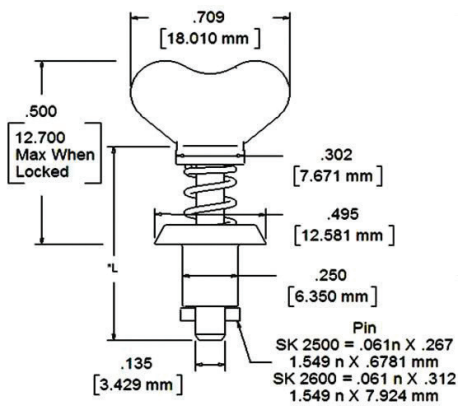
| Flush Head<br>2500 Series Stud |                          | Total Stud Length<br>L |            | SK212-10 Series<br>Fixed Depth Receptacle<br>Combined Panels |      |            |        |
|--------------------------------|--------------------------|------------------------|------------|--|------|------------|--------|
| Stainless<br>Phillips          | Skytanium<br>Phillips(1) | Decimal                | Millimeter | Decimal  |      | Millimeter |        |
|                                |                          |                        |            | Min  | Max  | Min        | Max    |
| SK25S3-1S                      | ZG25S3-1                 | .610                   | 15.494     | .010   | .029 | 0.254      | 0.737  |
| SK25S3-2S                      | ZG25S3-2                 | .640                   | 16.256     | .030   | .059 | 0.762      | 1.499  |
| SK25S3-3S                      | ZG25S3-3                 | .670                   | 17.018     | .060   | .089 | 1.524      | 2.261  |
| SK25S3-4S                      | ZG25S3-4                 | .700                   | 17.780     | .090   | .119 | 2.286      | 3.023  |
| SK25S3-5S                      | ZG25S3-5                 | .730                   | 18.542     | .120   | .149 | 3.048      | 3.785  |
| SK25S3-6S                      | ZG25S3-6                 | .760                   | 19.304     | .150   | .179 | 3.810      | 4.547  |
| SK25S3-7S                      | ZG25S3-7                 | .790                   | 20.066     | .180   | .209 | 4.572      | 5.309  |
| SK25S3-8S                      | ZG25S3-8                 | .820                   | 20.828     | .210   | .239 | 5.334      | 6.071  |
| SK25S3-9S                      | ZG25S3-9                 | .850                   | 21.590     | .240   | .269 | 6.096      | 6.833  |
| SK25S3-10S                     | ZG25S3-10                | .880                   | 22.352     | .270   | .299 | 6.858      | 7.595  |
| SK25S3-11S                     | ZG25S3-11                | .910                   | 23.114     | .300   | .329 | 7.620      | 8.357  |
| SK25S3-12S                     | ZG25S3-12                | .940                   | 23.876     | .330   | .359 | 8.382      | 9.119  |
| SK25S3-13S                     | ZG25S3-13                | .970                   | 24.638     | .360   | .389 | 9.144      | 9.881  |
| SK25S3-14S                     | ZG25S3-14                | 1.000                  | 25.400     | .390   | .419 | 9.906      | 10.643 |
| SK25S3-15S                     | ZG25S3-15                | 1.030                  | 26.162     | .420   | .449 | 10.668     | 11.405 |
| SK25S3-16S                     | ZG25S3-16                | 1.060                  | 26.924     | .450   | .479 | 11.430     | 12.167 |

Note: See page 12 for plating options and part# suffix Note (1) ZG25S3 use stainless stud/Skytanium cup.

# CLoc® SK2500 Winged & Folding Ring

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- LightWeight Aerospace Panel Fasteners - 50%Weight Savings
- Designed for Restrictive (Minimum Overlap) Mounting Surfaces
- Reduced Thru-Hole Diameter For Mounting Close to Edge
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- ZG2500R Series Honeywell-Airbus Approvals - A380 Avionics
- Tensile/Shear Loads of 200 LBSWorking - 300 Lbs Plus Ultimate



Note: 2500 Series Studs may use SK212-10, SK212-12, or SK213 Series Receptacles.

| Winged 2500 Series Studs |                | Stud Length (L) |        | Folding Ring 2500 Series |                        | Stud Length (L) |        | SK212 Series Fixed Depth Receptacle Combined Panels |      |            |        | SK213-1* and -2 Series Adjustable Depth Combined Panels |      |            |        |
|--------------------------|----------------|-----------------|--------|--------------------------|------------------------|-----------------|--------|---|------|------------|--------|---|------|------------|--------|
| Stainless Wing           | Skytanium Wing | Dec.            | mm     | Stainless Folding Ring   | Skytanium Folding Ring | Dec.            | mm     | Decimal   |      | Millimeter |        | Decimal   |      | Millimeter |        |
|                          |                |                 |        |                          |                        |                 |        | Min   | Max  | Min        | Max    | Min   | Max  | Min        | Max    |
| SK2500-1SW               | ZG2500-1W      | .760            | 19.304 | SK2500R1S                | ZG2500R1               | .825            | 20.955 | .030  | .059 | 0.762      | 1.499  | .020  | .320 | 0.508      | 8.128  |
| SK2500-2SW               | ZG2500-2W      | .790            | 20.066 | SK2500R2S                | ZG2500R2               | .855            | 21.717 | .060  | .089 | 1.524      | 2.261  | .020  | .350 | 0.508      | 8.890  |
| SK2500-3SW               | ZG2500-3W      | .820            | 20.828 | SK2500R3S                | ZG2500R3               | .885            | 22.479 | .090  | .119 | 2.286      | 3.023  | .050  | .380 | 1.270      | 9.652  |
| SK2500-4SW               | ZG2500-4W      | .850            | 21.590 | SK2500R4S                | ZG2500R4               | .915            | 23.241 | .120  | .149 | 3.048      | 3.785  | .080  | .410 | 2.032      | 10.414 |
| SK2500-5SW               | ZG2500-5W      | .880            | 22.352 | SK2500R5S                | ZG2500R5               | .945            | 24.003 | .150  | .179 | 3.810      | 4.547  | .110  | .440 | 2.794      | 11.176 |
| SK2500-6SW               | ZG2500-6W      | .910            | 23.114 | SK2500R6S                | ZG2500R6               | .975            | 24.765 | .180  | .209 | 4.572      | 5.309  | .140  | .470 | 3.556      | 11.938 |
| SK2500-7SW               | ZG2500-7W      | .940            | 23.876 | SK2500R7S                | ZG2500R7               | 1.005           | 25.527 | .210  | .239 | 5.334      | 6.071  | .170  | .500 | 4.318      | 12.700 |
| SK2500-8SW               | ZG2500-8W      | .970            | 24.638 | SK2500R8S                | ZG2500R8               | 1.035           | 26.289 | .240  | .269 | 6.096      | 6.833  | .200  | .530 | 5.080      | 13.462 |
| SK2500-9SW               | ZG2500-9W      | 1.000           | 25.400 | SK2500R9S                | ZG2500R9               | 1.065           | 27.051 | .270  | .299 | 6.858      | 7.595  | .230  | .560 | 5.842      | 14.224 |
| SK2500-10SW              | ZG2500-10W     | 1.030           | 26.162 | SK2500R10S               | ZG2500R10              | 1.095           | 27.813 | .300  | .329 | 7.620      | 8.357  | .260  | .590 | 6.604      | 14.986 |
| SK2500-11SW              | ZG2500-11W     | 1.060           | 26.924 | SK2500R11S               | ZG2500R11              | 1.125           | 28.575 | .330  | .359 | 8.382      | 9.119  | .290  | .620 | 7.366      | 15.748 |
| SK2500-12SW              | ZG2500-12W     | 1.090           | 27.686 | SK2500R12S               | ZG2500R12              | 1.155           | 29.337 | .360  | .389 | 9.144      | 9.881  | .320  | .650 | 8.128      | 16.510 |
| SK2500-13SW              | ZG2500-13W     | 1.120           | 28.448 | SK2500R13S               | ZG2500R13              | 1.185           | 30.099 | .390  | .419 | 9.906      | 10.643 | .350  | .680 | 8.890      | 17.272 |
| SK2500-14SW              | ZG2500-14W     | 1.150           | 29.210 | SK2500R14S               | ZG2500R14              | 1.215           | 30.861 | .420  | .449 | 10.668     | 11.405 | .380  | .710 | 9.652      | 18.034 |
| SK2500-15SW              | ZG2500-15W     | 1.180           | 29.972 | SK2500R15S               | ZG2500R15              | 1.245           | 31.623 | .450  | .479 | 11.430     | 12.167 | .410  | .740 | 10.414     | 18.796 |

Note: See page 12 for plating options and part# suffix.

# CLoc® SK2600 ZG2600 Slotted Head

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)



SK2600 Series Standard Slot  
(A= .302)



ZG2600 Series Collared Slot  
(A= .375)

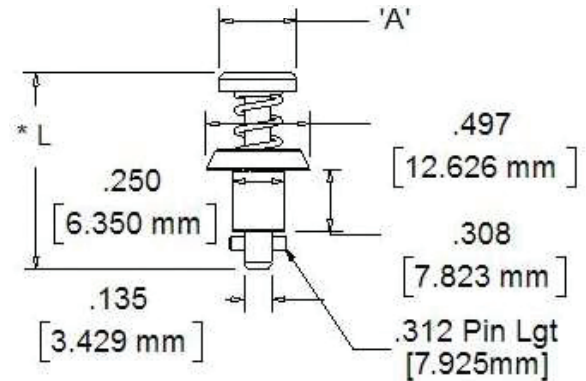
- TSO-C148 Approved. Designed to exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300\* Lbs Plus Ultimate



ZG2600



SK2600



| Replacements  | Stainless Slotted | Steel Slotted |
|---------------|-------------------|---------------|
| <b>Camloc</b> | 2600-(x)S         | 2600-(x)      |
| <b>Lisi</b>   | 1126007-(x)       | 1126000-(x)   |

Note: 2600 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

| Slotted Head<br>2600 Series Studs |                            |                            | Total<br>Stud Length<br>(L) |        | SK212 Series<br>Fixed Depth Receptacle<br>Combined Panels |       |            |        | SK213-1* and -2 Series<br>Adjustable Depth<br>Combined Panels |      |            |        |
|-----------------------------------|----------------------------|----------------------------|-----------------------------|--------|---|-------|------------|--------|---|------|------------|--------|
| Steel<br>Standard Slot            | Stainless<br>Standard Slot | Skytanium<br>Collared Slot | Dec                         | mm     | Decimal   |       | Millimeter |        | Decimal   |      | Millimeter |        |
|                                   |                            |                            |                             |        | Min   | Max   | Min        | Max    | Min   | Max  | Min        | Max    |
| 2600-1                            | SK2600-1S                  | ZG2600-1                   | .760                        | 19.304 | 0.030   | 0.059 | 0.762      | 1.499  | .020  | .320 | 0.508      | 8.128  |
| 2600-2                            | SK2600-2S                  | ZG2600-2                   | .790                        | 20.066 | 0.060   | 0.089 | 1.524      | 2.261  | .020  | .350 | 0.508      | 8.890  |
| 2600-3                            | SK2600-3S                  | ZG2600-3                   | .820                        | 20.828 | 0.090   | 0.119 | 2.286      | 3.023  | .050  | .380 | 1.270      | 9.652  |
| 2600-4                            | SK2600-4S                  | ZG2600-4                   | .850                        | 21.590 | 0.120   | 0.149 | 3.048      | 3.785  | .080  | .410 | 2.032      | 10.414 |
| 2600-5                            | SK2600-5S                  | ZG2600-5                   | .880                        | 22.352 | 0.150   | 0.179 | 3.810      | 4.547  | .110  | .440 | 2.794      | 11.176 |
| 2600-6                            | SK2600-6S                  | ZG2600-6                   | .910                        | 23.114 | 0.180   | 0.209 | 4.572      | 5.309  | .140  | .470 | 3.556      | 11.938 |
| 2600-7                            | SK2600-7S                  | ZG2600-7                   | .940                        | 23.876 | 0.210   | 0.239 | 5.334      | 6.071  | .170  | .500 | 4.318      | 12.700 |
| 2600-8                            | SK2600-8S                  | ZG2600-8                   | .970                        | 24.638 | 0.240   | 0.269 | 6.096      | 6.833  | .200  | .530 | 5.080      | 13.462 |
| 2600-9                            | SK2600-9S                  | ZG2600-9                   | 1.000                       | 25.400 | 0.270   | 0.299 | 6.858      | 7.595  | .230  | .560 | 5.842      | 14.224 |
| 2600-10                           | SK2600-10S                 | ZG2600-10                  | 1.030                       | 26.162 | 0.300   | 0.329 | 7.620      | 8.357  | .260  | .590 | 6.604      | 14.986 |
| 2600-11                           | SK2600-11S                 | ZG2600-11                  | 1.060                       | 26.924 | 0.330   | 0.359 | 8.382      | 9.119  | .290  | .620 | 7.366      | 15.748 |
| 2600-12                           | SK2600-12S                 | ZG2600-12                  | 1.090                       | 27.686 | 0.360   | 0.389 | 9.144      | 9.881  | .320  | .650 | 8.128      | 16.510 |
| 2600-13                           | SK2600-13S                 | ZG2600-13                  | 1.120                       | 28.448 | 0.390   | 0.419 | 9.906      | 10.643 | .350  | .680 | 8.890      | 17.272 |
| 2600-14                           | SK2600-14S                 | ZG2600-14                  | 1.150                       | 29.210 | 0.420   | 0.449 | 10.668     | 11.405 | .380  | .710 | 9.652      | 18.034 |
| 2600-15                           | SK2600-15S                 | ZG2600-15                  | 1.180                       | 29.972 | 0.450   | 0.479 | 11.430     | 12.167 | .410  | .740 | 10.414     | 18.796 |

\* For SK213-1 Receptacles, add .120 to Min Grip. Note (1) ZG26551 use stainless stud/Skytanium cup. Note: Cloc-Camloc grip charts are identical for 2600 Series parts. Physical dimensions are identical. See page 12 for plating options and part# suffix. Tested to 600 lbs. Skybolt stainless CLoc® testing exceeds NASM5591 standards for tensile/shear and endurance.

# CLoc® SK2600 ZG2600 Phillips Head

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

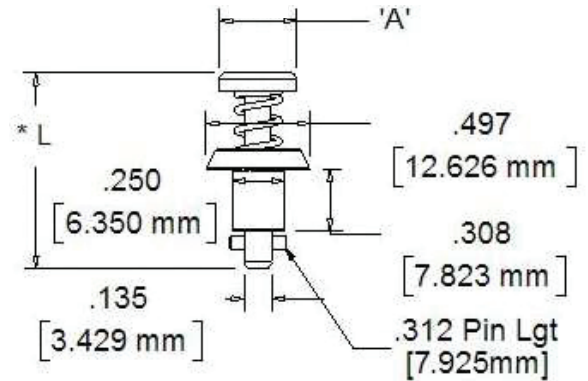


SK26S51 Series Phillips  
(A= .302)



SK26S51  
ZG26S51

- TSO-C148 Approved. Designed to exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300\* Lbs Plus Ultimate



| Replacements  | Stainless Phillips | Steel Phillips |
|---------------|--------------------|----------------|
| <b>Camloc</b> | 26S51-(x)          | 26S8-(x)       |
| <b>Lisi</b>   | 1126008-(x)        | 1126004-(x)    |

Note: 2600 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

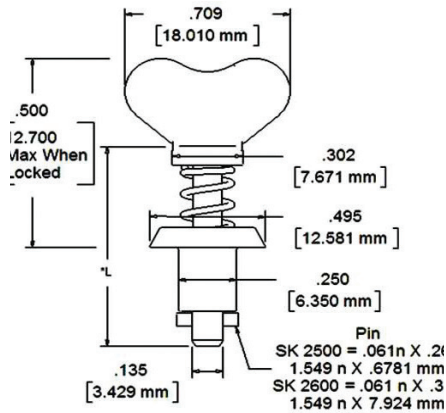
| Phillips Head<br>2600 Series Studs |                       |                       | Total<br>Stud Length<br>(L) |        | SK212 Series<br>Fixed Depth Receptacle<br>Combined Panels |       |            |        | SK213-1* and -2 Series<br>Adjustable Depth<br>Combined Panels |      |            |        |
|------------------------------------|-----------------------|-----------------------|-----------------------------|--------|---|-------|------------|--------|---|------|------------|--------|
| Steel<br>Phillips                  | Stainless<br>Phillips | Skytanium<br>Phillips | Dec                         | mm     | Decimal   |       | Millimeter |        | Decimal   |      | Millimeter |        |
|                                    |                       |                       |                             |        | Min   | Max   | Min        | Max    | Min   | Max  | Min        | Max    |
| SK26S8-1                           | SK26S51-1             | ZG26S51-1             | .760                        | 19.304 | 0.030   | 0.059 | 0.762      | 1.499  | .020  | .320 | 0.508      | 8.128  |
| SK26S8-2                           | SK26S51-2             | ZG26S51-2             | .790                        | 20.066 | 0.060   | 0.089 | 1.524      | 2.261  | .020  | .350 | 0.508      | 8.890  |
| SK26S8-3                           | SK26S51-3             | ZG26S51-3             | .820                        | 20.828 | 0.090   | 0.119 | 2.286      | 3.023  | .050  | .380 | 1.270      | 9.652  |
| SK26S8-4                           | SK26S51-4             | ZG26S51-4             | .850                        | 21.590 | 0.120   | 0.149 | 3.048      | 3.785  | .080  | .410 | 2.032      | 10.414 |
| SK26S8-5                           | SK26S51-5             | ZG26S51-5             | .880                        | 22.352 | 0.150   | 0.179 | 3.810      | 4.547  | .110  | .440 | 2.794      | 11.176 |
| SK26S8-6                           | SK26S51-6             | ZG26S51-6             | .910                        | 23.114 | 0.180   | 0.209 | 4.572      | 5.309  | .140  | .470 | 3.556      | 11.938 |
| SK26S8-7                           | SK26S51-7             | ZG26S51-7             | .940                        | 23.876 | 0.210   | 0.239 | 5.334      | 6.071  | .170  | .500 | 4.318      | 12.700 |
| SK26S8-8                           | SK26S51-8             | ZG26S51-8             | .970                        | 24.638 | 0.240   | 0.269 | 6.096      | 6.833  | .200  | .530 | 5.080      | 13.462 |
| SK26S8-9                           | SK26S51-9             | ZG26S51-9             | 1.000                       | 25.400 | 0.270   | 0.299 | 6.858      | 7.595  | .230  | .560 | 5.842      | 14.224 |
| SK26S8-10                          | SK26S51-10            | ZG26S51-10            | 1.030                       | 26.162 | 0.300   | 0.329 | 7.620      | 8.357  | .260  | .590 | 6.604      | 14.986 |
| SK26S8-11                          | SK26S51-11            | ZG26S51-11            | 1.060                       | 26.924 | 0.330   | 0.359 | 8.382      | 9.119  | .290  | .620 | 7.366      | 15.748 |
| SK26S8-12                          | SK26S51-12            | ZG26S51-12            | 1.090                       | 27.686 | 0.360   | 0.389 | 9.144      | 9.881  | .320  | .650 | 8.128      | 16.510 |
| SK26S8-13                          | SK26S51-13            | ZG26S51-13            | 1.120                       | 28.448 | 0.390   | 0.419 | 9.906      | 10.643 | .350  | .680 | 8.890      | 17.272 |
| SK26S8-14                          | SK26S51-14            | ZG26S51-14            | 1.150                       | 29.210 | 0.420   | 0.449 | 10.668     | 11.405 | .380  | .710 | 9.652      | 18.034 |
| SK26S8-15                          | SK26S51-15            | ZG26S51-15            | 1.180                       | 29.972 | 0.450   | 0.479 | 11.430     | 12.167 | .410  | .740 | 10.414     | 18.796 |

\* For SK213-1 Receptacles, add .120 to Min Grip. Note (1) ZG26S51 use stainless stud/Skytanium cup. Note: Cloc-Camloc grip charts are identical for 2600 Series parts. Physical dimensions are identical. See page 12 for plating options and part# suffix. Tested to 600 lbs. Skybolt stainless CLoc® testing exceeds NASM5591 standards for tensile/shear and endurance.

# Cloc® SK2600 Winged

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300\* Lbs Plus Ultimate



| Replacements | Stainless Wing | Steel Wing  |
|--------------|----------------|-------------|
| Camloc       | 2600-(x)SW     | 2600-(x)W   |
| Lisi         | 1126014-(x)    | 1126010-(x) |

Note: 2600 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

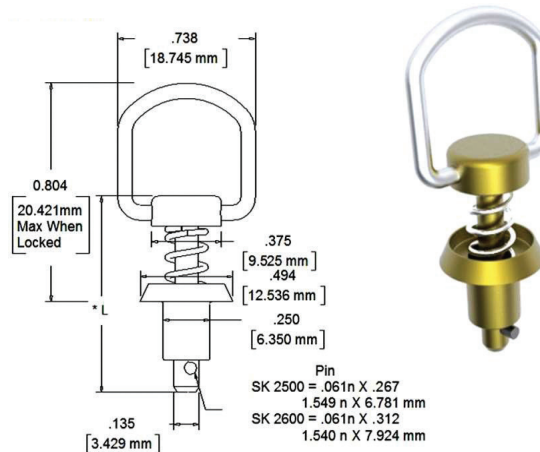
| Winged 2600 Series Studs |                |                | Stud Length (L) |        | SK212 Series Fixed Depth Receptacle Combined Panels |      |            |        | SK213-1* and -2 Series Adjustable Depth Combined Panels |      |            |        |
|--------------------------|----------------|----------------|-----------------|--------|---|------|------------|--------|---|------|------------|--------|
| Steel Wing               | Stainless Wing | Skytanium Wing | Dec.            | mm     | Decimal   |      | Millimeter |        | Decimal   |      | Millimeter |        |
|                          |                |                |                 |        | Min   | Max  | Min        | Max    | Min   | Max  | Min        | Max    |
| SK2600-1W                | SK2600-1SW     | ZG2600-1W      | .760            | 19.304 | .030  | .059 | 0.762      | 1.499  | .020  | .320 | 0.508      | 8.128  |
| SK2600-2W                | SK2600-2SW     | ZG2600-2W      | .790            | 20.066 | .060  | .089 | 1.524      | 2.261  | .020  | .350 | 0.508      | 8.890  |
| SK2600-3W                | SK2600-3SW     | ZG2600-3W      | .820            | 20.828 | .090  | .119 | 2.286      | 3.023  | .050  | .380 | 1.270      | 9.652  |
| SK2600-4W                | SK2600-4SW     | ZG2600-4W      | .850            | 21.590 | .120  | .149 | 3.048      | 3.785  | .080  | .410 | 2.032      | 10.414 |
| SK2600-5W                | SK2600-5SW     | ZG2600-5W      | .880            | 22.352 | .150  | .179 | 3.810      | 4.547  | .110  | .440 | 2.794      | 11.176 |
| SK2600-6W                | SK2600-6SW     | ZG2600-6W      | .910            | 23.114 | .180  | .209 | 4.572      | 5.309  | .140  | .470 | 3.556      | 11.938 |
| SK2600-7W                | SK2600-7SW     | ZG2600-7W      | .940            | 23.876 | .210  | .239 | 5.334      | 6.071  | .170  | .500 | 4.318      | 12.700 |
| SK2600-8W                | SK2600-8SW     | ZG2600-8W      | .970            | 24.638 | .240  | .269 | 6.096      | 6.833  | .200  | .530 | 5.080      | 13.462 |
| SK2600-9W                | SK2600-9SW     | ZG2600-9W      | 1.000           | 25.400 | .270  | .299 | 6.858      | 7.595  | .230  | .560 | 5.842      | 14.224 |
| SK2600-10W               | SK2600-10SW    | ZG2600-10W     | 1.030           | 26.162 | .300  | .329 | 7.620      | 8.357  | .260  | .590 | 6.604      | 14.986 |
| SK2600-11W               | SK2600-11SW    | ZG2600-11W     | 1.060           | 26.924 | .330  | .359 | 8.382      | 9.119  | .290  | .620 | 7.366      | 15.748 |
| SK2600-12W               | SK2600-12SW    | ZG2600-12W     | 1.090           | 27.686 | .360  | .389 | 9.144      | 9.881  | .320  | .650 | 8.128      | 16.510 |
| SK2600-13W               | SK2600-13SW    | ZG2600-13W     | 1.120           | 28.448 | .390  | .419 | 9.906      | 10.643 | .350  | .680 | 8.890      | 17.272 |
| SK2600-14W               | SK2600-14SW    | ZG2600-14W     | 1.150           | 29.210 | .420  | .449 | 10.668     | 11.405 | .380  | .710 | 9.652      | 18.034 |
| SK2600-15W               | SK2600-15SW    | ZG2600-15W     | 1.180           | 29.972 | .450  | .479 | 11.430     | 12.167 | .410  | .740 | 10.414     | 18.796 |

\* For SK213-1 Receptacles, add .120 to Min Grip. Note (1) ZG26S51 use stainless stud/Skytanium cup. Note: Cloc-Camloc grip charts are identical for 2600 Series parts. Physical dimensions are identical. See page 12 for plating options and part# suffix. Tested to 600 lbs. Skybolt stainless Cloc® testing exceeds NASM5591 standards for tensile/shear and endurance.

# Cloc® SK2600 Folding Ring

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300\* Lbs Plus Ultimate



Note: 2600 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

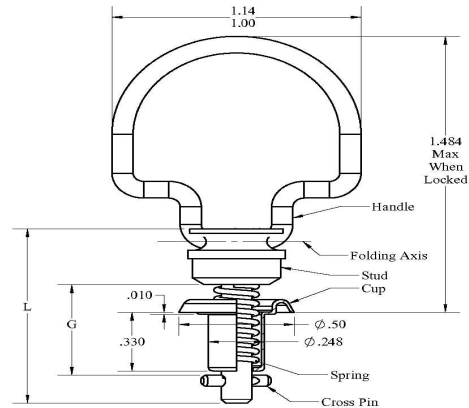
| Folding Ring<br>2600 Series |                           | SK212 Series       |        |   |      |            |        | SK213-1* and -2 Series              |      |            |        |
|-----------------------------|---------------------------|--------------------|--------|---|------|------------|--------|-------------------------------------|------|------------|--------|
|                             |                           | Stud Length<br>(L) |        | Fixed Depth Receptacle<br>Combined Panels |      |            |        | Adjustable Depth<br>Combined Panels |      |            |        |
| Stainless<br>Folding Ring   | Skytanium<br>Folding Ring | Dec.               | mm     | Decimal                                   |      | Millimeter |        | Decimal                             |      | Millimeter |        |
|                             |                           |                    |        | Min                                       | Max  | Min        | Max    | Min                                 | Max  | Min        | Max    |
| SK2600R1S                   | ZG2600R1                  | .825               | 20.955 | .030                                      | .059 | 0.762      | 1.499  | .020                                | .320 | 0.508      | 8.128  |
| SK2600R2S                   | ZG2600R2                  | .855               | 21.717 | .060                                      | .089 | 1.524      | 2.261  | .020                                | .350 | 0.508      | 8.890  |
| SK2600R3S                   | ZG2600R3                  | .885               | 22.479 | .090                                      | .119 | 2.286      | 3.023  | .050                                | .380 | 1.270      | 9.652  |
| SK2600R4S                   | ZG2600R4                  | .915               | 23.241 | .120                                      | .149 | 3.048      | 3.785  | .080                                | .410 | 2.032      | 10.414 |
| SK2600R5S                   | ZG2600R5                  | .945               | 24.003 | .150                                      | .179 | 3.810      | 4.547  | .110                                | .440 | 2.794      | 11.176 |
| SK2600R6S                   | ZG2600R6                  | .975               | 24.765 | .180                                      | .209 | 4.572      | 5.309  | .140                                | .470 | 3.556      | 11.938 |
| SK2600R7S                   | ZG2600R7                  | 1.005              | 25.527 | .210                                      | .239 | 5.334      | 6.071  | .170                                | .500 | 4.318      | 12.700 |
| SK2600R8S                   | ZG2600R8                  | 1.035              | 26.289 | .240                                      | .269 | 6.096      | 6.833  | .200                                | .530 | 5.080      | 13.462 |
| SK2600R9S                   | ZG2600R9                  | 1.065              | 27.051 | .270                                      | .299 | 6.858      | 7.595  | .230                                | .560 | 5.842      | 14.224 |
| SK2600R10S                  | ZG2600R10                 | 1.095              | 27.813 | .300                                      | .329 | 7.620      | 8.357  | .260                                | .590 | 6.604      | 14.986 |
| SK2600R11S                  | ZG2600R11                 | 1.125              | 28.575 | .330                                      | .359 | 8.382      | 9.119  | .290                                | .620 | 7.366      | 15.748 |
| SK2600R12S                  | ZG2600R12                 | 1.155              | 29.337 | .360                                      | .389 | 9.144      | 9.881  | .320                                | .650 | 8.128      | 16.510 |
| SK2600R13S                  | ZG2600R13                 | 1.185              | 30.099 | .390                                      | .419 | 9.906      | 10.643 | .350                                | .680 | 8.890      | 17.272 |
| SK2600R14S                  | ZG2600R14                 | 1.215              | 30.861 | .420                                      | .449 | 10.668     | 11.405 | .380                                | .710 | 9.652      | 18.034 |
| SK2600R15S                  | ZG2600R15                 | 1.245              | 31.623 | .450                                      | .479 | 11.430     | 12.167 | .410                                | .740 | 10.414     | 18.796 |

\* For SK213-1 Receptacles, add .120 to Min Grip. Note (1) ZG26S51 use stainless stud/Skytanium cup. Note: Cloc-Camloc grip charts are identical for 2600 Series parts. Physical dimensions are identical. See page 12 for plating options and part# suffix. Tested to 600 lbs. Skybolt stainless Cloc® testing exceeds NASM5591 standards for tensile/shear and endurance.

# Cloc® SK26S22 Bail Handle

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300\* Lbs Plus Ultimate



| Replacements  | Stainless Bail | Steel Bail  |
|---------------|----------------|-------------|
| <b>Camloc</b> | 26S22-(x)B     | 26S22-(x)   |
| <b>Lisi</b>   | 1126017        | 1126024-(x) |

Note: 26S22 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

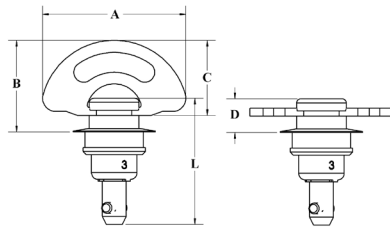
| Bail Handle<br>26S22 Series Studs |                          |                          | SK212 Series<br>Fixed Depth Receptacle<br>Combined Panels |        |         |      |            |        | SK213-1* and -2 Series<br>Adjustable Depth<br>Combined Panels |      |            |        |
|-----------------------------------|--------------------------|--------------------------|---|--------|---------|------|------------|--------|---|------|------------|--------|
| Steel<br>Bail Handle              | Stainless<br>Bail Handle | Skytanium<br>Bail Handle | Stud Length<br>(L)  |        | Decimal |      | Millimeter |        | Decimal   |      | Millimeter |        |
|                                   |                          |                          | Dec.  | mm     | Min     | Max  | Min        | Max    | Min   | Max  | Min        | Max    |
| SK26S22-1                         | SK26S22-1S               | ZG26S22-1                | 0.930   | 23.622 | .030    | .059 | 0.762      | 1.499  | .020  | .320 | 0.508      | 8.128  |
| SK26S22-2                         | SK26S22-2S               | ZG26S22-2                | 0.960   | 24.384 | .060    | .089 | 1.524      | 2.261  | .020  | .350 | 0.508      | 8.890  |
| SK26S22-3                         | SK26S22-3S               | ZG26S22-3                | 0.990   | 25.146 | .090    | .119 | 2.286      | 3.023  | .050  | .380 | 1.270      | 9.652  |
| SK26S22-4                         | SK26S22-4S               | ZG26S22-4                | 1.020   | 25.908 | .120    | .149 | 3.048      | 3.785  | .080  | .410 | 2.032      | 10.414 |
| SK26S22-5                         | SK26S22-5S               | ZG26S22-5                | 1.050   | 26.670 | .150    | .179 | 3.810      | 4.547  | .110  | .440 | 2.794      | 11.176 |
| SK26S22-6                         | SK26S22-6S               | ZG26S22-6                | 1.080   | 27.432 | .180    | .209 | 4.572      | 5.309  | .140  | .470 | 3.556      | 11.938 |
| SK26S22-7                         | SK26S22-7S               | ZG26S22-7                | 1.110   | 28.194 | .210    | .239 | 5.334      | 6.071  | .170  | .500 | 4.318      | 12.700 |
| SK26S22-8                         | SK26S22-8S               | ZG26S22-8                | 1.140   | 28.956 | .240    | .269 | 6.096      | 6.833  | .200  | .530 | 5.080      | 13.462 |
| SK26S22-9                         | SK26S22-9S               | ZG26S22-9                | 1.170   | 29.718 | .270    | .299 | 6.858      | 7.595  | .230  | .560 | 5.842      | 14.224 |
| SK26S22-10                        | SK26S22-10S              | ZG26S22-10               | 1.200   | 30.480 | .300    | .329 | 7.620      | 8.357  | .260  | .590 | 6.604      | 14.986 |
| SK26S22-11                        | SK26S22-11S              | ZG26S22-11               | 1.230   | 31.242 | .330    | .359 | 8.382      | 9.119  | .290  | .620 | 7.366      | 15.748 |
| SK26S22-12                        | SK26S22-12S              | ZG26S22-12               | 1.260   | 32.004 | .360    | .389 | 9.144      | 9.881  | .320  | .650 | 8.128      | 16.510 |
| SK26S22-13                        | SK26S22-13S              | ZG26S22-13               | 1.290   | 32.766 | .390    | .419 | 9.906      | 10.643 | .350  | .680 | 8.890      | 17.272 |
| SK26S22-14                        | SK26S22-14S              | ZG26S22-14               | 1.320   | 33.528 | .420    | .449 | 10.668     | 11.405 | .380  | .710 | 9.652      | 18.034 |
| SK26S22-15                        | SK26S22-15S              | ZG26S22-15               | 1.350   | 34.290 | .450    | .479 | 11.430     | 12.167 | .410  | .740 | 10.414     | 18.796 |

\* For SK213-1 Receptacles, add .120 to Min Grip. Note: Cloc-Camloc grip charts are identical for 26S22 Series parts.

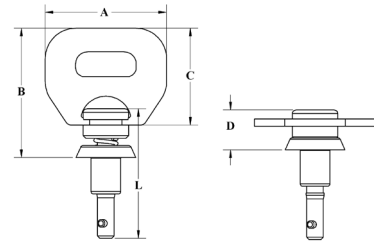
# Cloc® SK2600FW Folding Wing

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- Designed to Exceed NASM5591 Table II Performance. TSO Pending
- Tensile/Shear Loads of 200 LBS Working - 300 Lbs Plus Ultimate



SK2600 Style Folding Wing



SK2601 Style Folding Wing

| For All Dash #'s | A       |        | B(1)    |        | C       |        | D (1)   |       |
|------------------|---------|--------|---------|--------|---------|--------|---------|-------|
|                  | Decimal | mm     | Decimal | mm     | Decimal | mm     | Decimal | mm    |
| SK2600SFW        | 1.080   | 27.432 | .760    | 19.304 | .567    | 14.402 | .375    | 9.525 |
| SK2601SFW        | 1.000   | 25.400 | .993    | 25.222 | .800    | 20.320 | .375    | 9.525 |

Note (1) B & D dimensions - Nominal locked position

Note: 2600 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

| Folding Wing<br>2600 Series Studs |                       | Total<br>Stud Length<br>(L) |            | SK212 Series<br>Fixed Depth Receptacle<br>Combined Panels |      |            |        | SK213-1* and -2 Series<br>Adjustable Depth<br>Combined Panels |      |            |        |
|-----------------------------------|-----------------------|-----------------------------|------------|---|------|------------|--------|---|------|------------|--------|
| Stainless<br>Standard Slot        | Stainless<br>Phillips | Decimal                     | Millimeter | Decimal   |      | Millimeter |        | Decimal   |      | Millimeter |        |
|                                   |                       |                             |            | Min   | Max  | Min        | Max    | Min   | Max  | Min        | Max    |
| SK2600-1SFW                       | SK2601-1SFW           | 0.920                       | 23.368     | .030  | .059 | 0.762      | 1.499  | .020  | .320 | 0.508      | 8.128  |
| SK2600-2SFW                       | SK2601-2SFW           | 0.950                       | 24.130     | .060  | .089 | 1.524      | 2.261  | .020  | .350 | 0.508      | 8.890  |
| SK2600-3SFW                       | SK2601-3SFW           | 0.980                       | 24.892     | .090  | .119 | 2.286      | 3.023  | .050  | .380 | 1.270      | 9.652  |
| SK2600-4SFW                       | SK2601-4SFW           | 1.010                       | 25.654     | .120  | .149 | 3.048      | 3.785  | .080  | .410 | 2.032      | 10.414 |
| SK2600-5SFW                       | SK2601-5SFW           | 1.040                       | 26.416     | .150  | .179 | 3.810      | 4.547  | .110  | .440 | 2.794      | 11.176 |
| SK2600-6SFW                       | SK2601-6SFW           | 1.070                       | 27.178     | .180  | .209 | 4.572      | 5.309  | .140  | .470 | 3.556      | 11.938 |
| SK2600-7SFW                       | SK2601-7SFW           | 1.100                       | 27.940     | .210  | .239 | 5.334      | 6.071  | .170  | .500 | 4.318      | 12.700 |
| SK2600-8SFW                       | SK2601-8SFW           | 1.130                       | 28.702     | .240  | .269 | 6.096      | 6.833  | .200  | .530 | 5.080      | 13.462 |
| SK2600-9SFW                       | SK2601-9SFW           | 1.160                       | 29.464     | .270  | .299 | 6.858      | 7.595  | .230  | .560 | 5.842      | 14.224 |
| SK2600-10SFW                      | SK2601-10SFW          | 1.190                       | 30.226     | .300  | .329 | 7.620      | 8.357  | .260  | .590 | 6.604      | 14.986 |
| SK2600-11SFW                      | SK2601-11SFW          | 1.220                       | 30.988     | .330  | .359 | 8.382      | 9.119  | .290  | .620 | 7.366      | 15.748 |
| SK2600-12SFW                      | SK2601-12SFW          | 1.250                       | 31.750     | .360  | .389 | 9.144      | 9.881  | .320  | .650 | 8.128      | 16.510 |
| SK2600-13SFW                      | SK2601-13SFW          | 1.280                       | 32.512     | .390  | .419 | 9.906      | 10.643 | .350  | .680 | 8.890      | 17.272 |
| SK2600-14SFW                      | SK2601-14SFW          | 1.310                       | 33.274     | .420  | .449 | 10.668     | 11.405 | .380  | .710 | 9.652      | 18.034 |
| SK2600-15SFW                      | SK2601-15SFW          | 1.340                       | 34.036     | .450  | .479 | 11.430     | 12.167 | .410  | .740 | 10.414     | 18.796 |

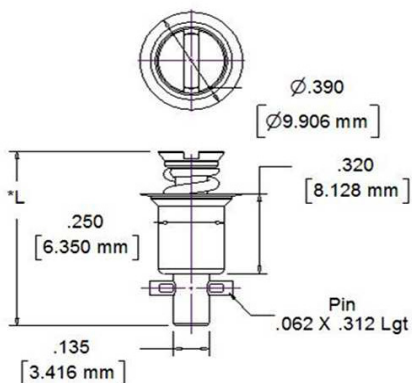
\* For SK213-1 Receptacles, add .120 to Min Grip. Note: Cloc-Camloc grip charts are identical for 2600 Series parts.



# CLoc® SK2700 Slotted Flush Head Series

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300\* Lbs Plus Ultimate



| Replacements  | Stainless Slotted | Steel Slotted |
|---------------|-------------------|---------------|
| <b>Camloc</b> | 2700-(x)S         | 2700-(x)      |
| <b>Lisi</b>   | 1127003-(x)       | 1127000-(x)   |

Note: 2700 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

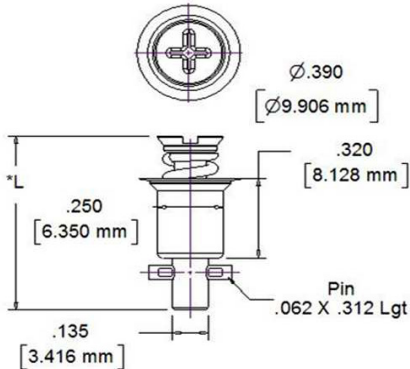
| Flush Head<br>2700 Series Stud |                   | Total Stud Length<br>L |            | SK212 Series<br>Fixed Depth Receptacle<br>Combined Panel Thickness |      |            |        | SK213-1 and -2 Series<br>Adjustable Depth Receptacle<br>Combined Panel Thickness |      |            |        |
|--------------------------------|-------------------|------------------------|------------|--|------|------------|--------|--|------|------------|--------|
| Steel<br>Slot                  | Stainless<br>Slot | Decimal                | Millimeter | Decimal  |      | Millimeter |        | Decimal  |      | Millimeter |        |
|                                |                   |                        |            | Min  | Max  | Min        | Max    | Min*   | Max  | Min        | Max    |
| SK2700-1                       | SK2700-1S         | .610                   | 15.494     | .010   | .029 | 0.254      | 0.737  | .020   | .270 | 0.508      | 6.858  |
| SK2700-2                       | SK2700-2S         | .640                   | 16.256     | .030   | .059 | 0.762      | 1.499  | .020   | .300 | 0.508      | 7.620  |
| SK2700-3                       | SK2700-3S         | .670                   | 17.018     | .060   | .089 | 1.524      | 2.261  | .050   | .330 | 1.270      | 8.382  |
| SK2700-4                       | SK2700-4S         | .700                   | 17.780     | .090   | .119 | 2.286      | 3.023  | .080   | .360 | 2.032      | 9.144  |
| SK2700-5                       | SK2700-5S         | .730                   | 18.542     | .120   | .149 | 3.048      | 3.785  | .110   | .390 | 2.794      | 9.906  |
| SK2700-6                       | SK2700-6S         | .760                   | 19.304     | .150   | .179 | 3.810      | 4.547  | .140   | .420 | 3.556      | 10.668 |
| SK2700-7                       | SK2700-7S         | .790                   | 20.066     | .180   | .209 | 4.572      | 5.309  | .170   | .450 | 4.318      | 11.430 |
| SK2700-8                       | SK2700-8S         | .820                   | 20.828     | .210   | .239 | 5.334      | 6.071  | .200   | .480 | 5.080      | 12.192 |
| SK2700-9                       | SK2700-9S         | .850                   | 21.590     | .240   | .269 | 6.096      | 6.833  | .230   | .510 | 5.842      | 12.954 |
| SK2700-10                      | SK2700-10S        | .880                   | 22.352     | .270   | .299 | 6.858      | 7.595  | .260   | .540 | 6.604      | 13.716 |
| SK2700-11                      | SK2700-11S        | .910                   | 23.114     | .300   | .329 | 7.620      | 8.357  | .290   | .570 | 7.366      | 14.478 |
| SK2700-12                      | SK2700-12S        | .940                   | 23.876     | .330   | .359 | 8.382      | 9.119  | .320   | .600 | 8.128      | 15.240 |
| SK2700-13                      | SK2700-13S        | .970                   | 24.638     | .360   | .389 | 9.144      | 9.881  | .350   | .630 | 8.890      | 16.002 |
| SK2700-14                      | SK2700-14S        | 1.000                  | 25.400     | .390   | .419 | 9.906      | 10.643 | .380   | .660 | 9.652      | 16.764 |
| SK2700-15                      | SK2700-15S        | 1.030                  | 26.162     | .420   | .449 | 10.668     | 11.405 | .410   | .690 | 10.414     | 17.526 |
| SK2700-16                      | SK2700-16S        | 1.060                  | 26.924     | .450   | .479 | 11.430     | 12.167 | .440   | .720 | 11.176     | 18.288 |

\* For SK213-1 Series Receptacles - Add .120 to min thickness (shorter barrel) Note: Cloc-Camloc grip charts are not identical for 2700 Series parts. Physical dimensions are identical. Note: See page 12 for plating options and part# suffix. Tested to 600 lbs. Skybolt stainless CLoc® testing exceeds NASM5591 standards for tensile/shear and endurance.

# Cloc® SK2700 Phillips Flush Head Series

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300\* Lbs Plus Ultimate



| Replacements  | Stainless Phillips | Steel Phillips |
|---------------|--------------------|----------------|
| <b>Camloc</b> | 27S3-(x)S          | 27S3-(x)       |
| <b>Lisi</b>   | 1127009-(x)        | 1127004-(x)    |

Note: 2700 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

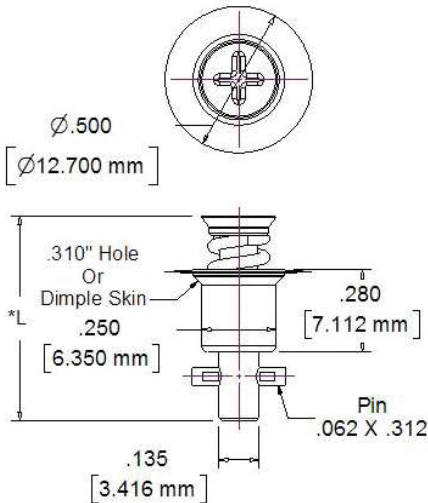
| Flush Head<br>2700 Series Stud |                       | Total Stud Length<br>L |            | SK212 Series<br>Fixed Depth Receptacle<br>Combined Panel Thickness |      |            |        | SK213-1 and -2 Series<br>Adjustable Depth Receptacle<br>Combined Panel Thickness |      |            |        |
|--------------------------------|-----------------------|------------------------|------------|--|------|------------|--------|--|------|------------|--------|
| Steel<br>Phillips              | Stainless<br>Phillips | Decimal                | Millimeter | Decimal  |      | Millimeter |        | Decimal  |      | Millimeter |        |
|                                |                       |                        |            | Min  | Max  | Min        | Max    | Min*   | Max  | Min        | Max    |
| SK27S3-1                       | SK27S3-1S             | .610                   | 15.494     | .010   | .029 | 0.254      | 0.737  | .020   | .270 | 0.508      | 6.858  |
| SK27S3-2                       | SK27S3-2S             | .640                   | 16.256     | .030   | .059 | 0.762      | 1.499  | .020   | .300 | 0.508      | 7.620  |
| SK27S3-3                       | SK27S3-3S             | .670                   | 17.018     | .060   | .089 | 1.524      | 2.261  | .050   | .330 | 1.270      | 8.382  |
| SK27S3-4                       | SK27S3-4S             | .700                   | 17.780     | .090   | .119 | 2.286      | 3.023  | .080   | .360 | 2.032      | 9.144  |
| SK27S3-5                       | SK27S3-5S             | .730                   | 18.542     | .120   | .149 | 3.048      | 3.785  | .110   | .390 | 2.794      | 9.906  |
| SK27S3-6                       | SK27S3-6S             | .760                   | 19.304     | .150   | .179 | 3.810      | 4.547  | .140   | .420 | 3.556      | 10.668 |
| SK27S3-7                       | SK27S3-7S             | .790                   | 20.066     | .180   | .209 | 4.572      | 5.309  | .170   | .450 | 4.318      | 11.430 |
| SK27S3-8                       | SK27S3-8S             | .820                   | 20.828     | .210   | .239 | 5.334      | 6.071  | .200   | .480 | 5.080      | 12.192 |
| SK27S3-9                       | SK27S3-9S             | .850                   | 21.590     | .240   | .269 | 6.096      | 6.833  | .230   | .510 | 5.842      | 12.954 |
| SK27S3-10                      | SK27S3-10S            | .880                   | 22.352     | .270   | .299 | 6.858      | 7.595  | .260   | .540 | 6.604      | 13.716 |
| SK27S3-11                      | SK27S3-11S            | .910                   | 23.114     | .300   | .329 | 7.620      | 8.357  | .290   | .570 | 7.366      | 14.478 |
| SK27S3-12                      | SK27S3-12S            | .940                   | 23.876     | .330   | .359 | 8.382      | 9.119  | .320   | .600 | 8.128      | 15.240 |
| SK27S3-13                      | SK27S3-13S            | .970                   | 24.638     | .360   | .389 | 9.144      | 9.881  | .350   | .630 | 8.890      | 16.002 |
| SK27S3-14                      | SK27S3-14S            | 1.000                  | 25.400     | .390   | .419 | 9.906      | 10.643 | .380   | .660 | 9.652      | 16.764 |
| SK27S3-15                      | SK27S3-15S            | 1.030                  | 26.162     | .420   | .449 | 10.668     | 11.405 | .410   | .690 | 10.414     | 17.526 |
| SK27S3-16                      | SK27S3-16S            | 1.060                  | 26.924     | .450   | .479 | 11.430     | 12.167 | .440   | .720 | 11.176     | 18.288 |

\* For SK213-1 Series Receptacles - Add .120 to min thickness (shorter barrel) Note: Cloc-Camloc grip charts are not identical for 2700 Series parts. Physical dimensions are identical. Note: See page 12 for plating options and part# suffix. Tested to 600 lbs. Skybolt stainless Cloc® testing exceeds NASM5591 standards for tensile/shear and endurance.

# CLoc® SK2800 Flush Head Series

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300 Lbs Plus Ultimate



SK28S3  
ZG28S3



SK2800



SK28T3  
ZG28T3

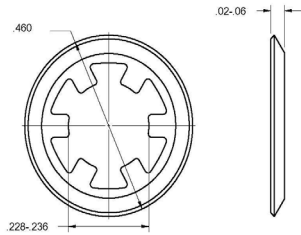
Note: 2800 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

| Flush Head<br>2800 Series Studs |                       |                           |                           | Total<br>Stud Length<br>(L) |        | SK212 Series<br>Fixed Depth Receptacle<br>Combined Panels |      |            |        | SK213-1* and -2 Series<br>Adjustable Depth<br>Combined Panels |      |            |        |
|---------------------------------|-----------------------|---------------------------|---------------------------|-----------------------------|--------|---|------|------------|--------|---|------|------------|--------|
| Stainless<br>Standard Slot      | Stainless<br>Phillips | Skytanium<br>Phillips (2) | Skytanium<br>#15 Torx (3) | Dec                         | mm     | Decimal   |      | Millimeter |        | Decimal   |      | Millimeter |        |
|                                 |                       |                           |                           |                             |        | Min   | Max  | Min        | Max    | Min   | Max  | Min        | Max    |
| SK2800-1S                       | SK28S3-1S             | ZG28S3-1                  | ZG28T3-1                  | .610                        | 15.494 | .010  | .029 | 0.254      | 0.737  | .020  | .270 | 0.508      | 6.858  |
| SK2800-2S                       | SK28S3-2S             | ZG28S3-2                  | ZG28T3-2                  | .640                        | 16.256 | .030  | .059 | 0.762      | 1.499  | .020  | .300 | 0.508      | 7.620  |
| SK2800-3S                       | SK28S3-3S             | ZG28S3-3                  | ZG28T3-3                  | .670                        | 17.018 | .060  | .089 | 1.524      | 2.261  | .050  | .330 | 1.270      | 8.382  |
| SK2800-4S                       | SK28S3-4S             | ZG28S3-4                  | ZG28T3-4                  | .700                        | 17.780 | .090  | .119 | 2.286      | 3.023  | .080  | .360 | 2.032      | 9.144  |
| SK2800-5S                       | SK28S3-5S             | ZG28S3-5                  | ZG28T3-5                  | .730                        | 18.542 | .120  | .149 | 3.048      | 3.785  | .110  | .390 | 2.794      | 9.906  |
| SK2800-6S                       | SK28S3-6S             | ZG28S3-6                  | ZG28T3-6                  | .760                        | 19.304 | .150  | .179 | 3.810      | 4.547  | .140  | .420 | 3.556      | 10.668 |
| SK2800-7S                       | SK28S3-7S             | ZG28S3-7                  | ZG28T3-7                  | .790                        | 20.066 | .180  | .209 | 4.572      | 5.309  | .170  | .450 | 4.318      | 11.430 |
| SK2800-8S                       | SK28S3-8S             | ZG28S3-8                  | ZG28T3-8                  | .820                        | 20.828 | .210  | .239 | 5.334      | 6.071  | .200  | .480 | 5.080      | 12.192 |
| SK2800-9S                       | SK28S3-9S             | ZG28S3-9                  | ZG28T3-9                  | .850                        | 21.590 | .240  | .269 | 6.096      | 6.833  | .230  | .510 | 5.842      | 12.954 |
| SK2800-10S                      | SK28S3-10S            | ZG28S3-10                 | ZG28T3-10                 | .880                        | 22.352 | .270  | .299 | 6.858      | 7.595  | .260  | .540 | 6.604      | 13.716 |
| SK2800-11S                      | SK28S3-11S            | ZG28S3-11                 | ZG28T3-11                 | .910                        | 23.114 | .300  | .329 | 7.620      | 8.357  | .290  | .570 | 7.366      | 14.478 |
| SK2800-12S                      | SK28S3-12S            | ZG28S3-12                 | ZG28T3-12                 | .940                        | 23.876 | .330  | .359 | 8.382      | 9.119  | .320  | .600 | 8.128      | 15.240 |
| SK2800-13S                      | SK28S3-13S            | ZG28S3-13                 | ZG28T3-13                 | .970                        | 24.638 | .360  | .389 | 9.144      | 9.881  | .350  | .630 | 8.890      | 16.002 |
| SK2800-14S                      | SK28S3-14S            | ZG28S3-14                 | ZG28T3-14                 | 1.000                       | 25.400 | .390  | .419 | 9.906      | 10.643 | .380  | .660 | 9.652      | 16.764 |
| SK2800-15S                      | SK28S3-15S            | ZG28S3-15                 | ZG28T3-15                 | 1.030                       | 26.162 | .420  | .449 | 10.668     | 11.405 | .410  | .690 | 10.414     | 17.526 |
| SK2800-16S                      | SK28S3-16S            | ZG28S3-16                 | ZG28T3-16                 | 1.060                       | 26.924 | .450  | .479 | 11.430     | 12.167 | .440  | .720 | 11.176     | 18.288 |

\* For SK213-1 Series Receptacles - Add .120 to min thickness (shorter barrel) Note: Cloc-Camloc grip charts are not identical for 2800 Series parts. Physical dimensions are identical. Note (2) ZG28S3 use stainless stud/Skytanium cup. (3) Skytanium stud/cup Note: See page 12 for plating options and part# suffix

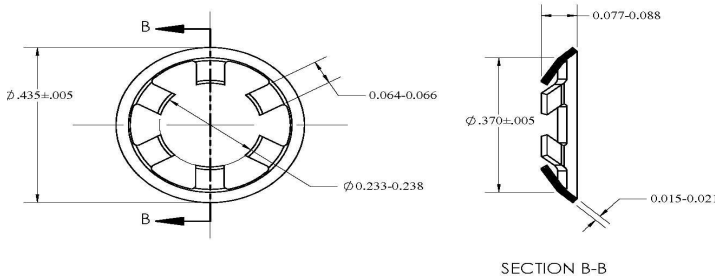
# Skybolt CLoc® 2000 Series Retainers

## SK2600-LW (Steel) SK2600-LWS (Stainless)



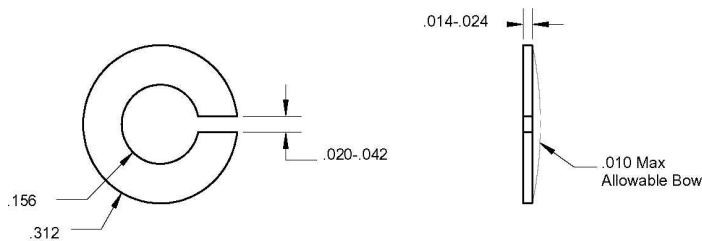
Designed as a general purpose retainer. Will not allow studs to retract when unlocked. Install with SK-T26 Tool. Check that all studs are properly fitted before installing reatiner.

## SK26S5-1 (Steel) SK27S5-1S (Stainless)



Designed for SK2700 or SK2800 Flush Studs installed in a thin dimpled panel. Will not allow studs to retract when unlocked. Install with SK-T26 Tool. Check that all studs are properly fitted before installing reatiner.

## SK2600-SW2 (Steel) SK2600-SW (Stainless)



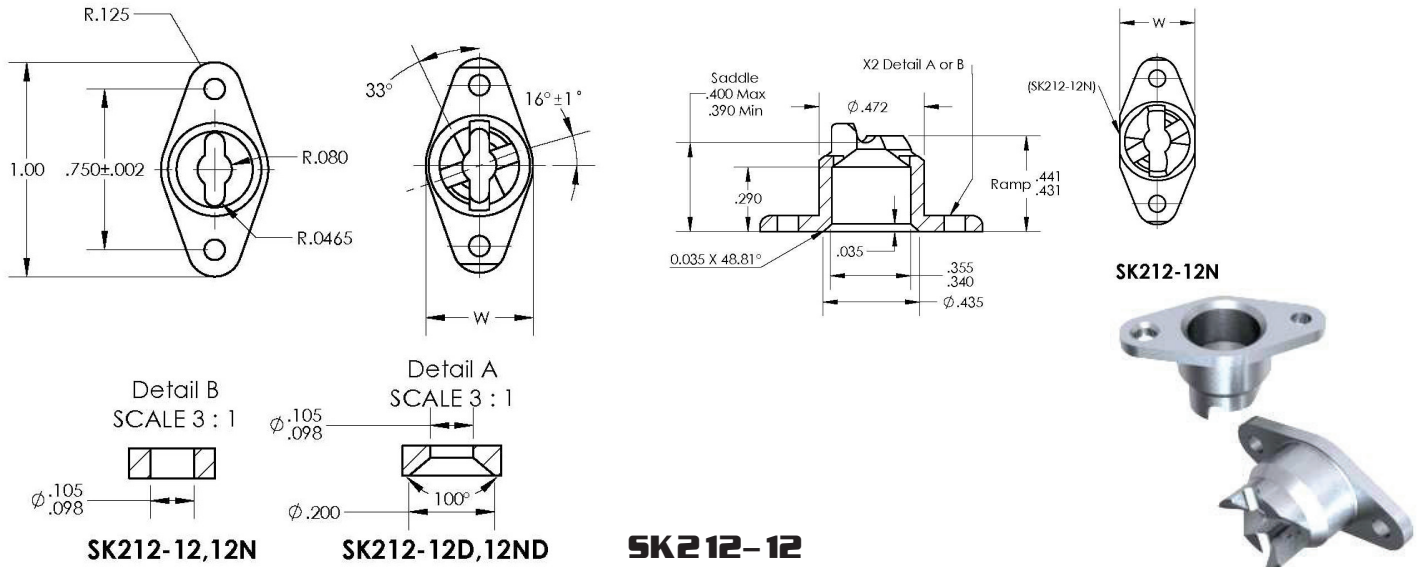
Designed for a curved panel application that require studs to retract when unlocked. They will not function with any 2700 or 2800 Series Studs with oversized drilled holes for the cup dimple. They will only work with .257 holes (after dimpling panel) or a countersunk panel with .257 hole. With pliers, bend open at the spilt; twist wahser around stud crosspin; bend close.

| Skybolt    | Camloc    | Lisi    | Material                              | Finish                         | Weight Lbs/100 |
|------------|-----------|---------|---------------------------------------|--------------------------------|----------------|
| SK2600-LW  | 2600-LW   | 1127700 | Carbon Steel 1070-1095 ASTM A682/A684 | Cad QQ-P-416, Type II, Class 2 | 0.04           |
| SK2600-LWS | 2600-LW-7 | 1127746 | Stainless 302 ASTM-A666               | Passivate AMS2700              | 0.04           |
| SK27S5-1   | 27S5-1    | 1127301 | Carbon Steel 1070-1095 ASTM A682/A684 | Cad QQ-P-416, Type II, Class 2 | 0.04           |
| SK27S5-1S  | None      | None    | Stainless 302 ASTM-A666               | Passivate AMS2700              | 0.04           |
| SK2600-SW2 | 2600-SW2  | 1127723 | Carbon Steel 1070-1095 ASTM A682/A684 | Cad QQ-P-416, Type II, Class 2 | 0.03           |
| SK2600-SW  | 2600-SW   | 1127722 | Stainless 302 ASTM-A666               | Passivate AMS2700              | 0.03           |

# CLoc® 2000 Series Rivet Receptacles

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

### Standard SK212 Fixed Depth Receptacles TSO-C148



SK212-12,12N

SK212-12D,12ND

SK212-12

| Part #       |          |          |           | Material          | TypeFinish | Rivet Size | Weight |
|--------------|----------|----------|-----------|-------------------|------------|------------|--------|
|              | Skybolt  | Camloc   | Lisi      |                   |            |            |        |
| SK212-12     | 212-12   | 1127701  | Metal     | Cast/Cad QQ-P-416 | 3/32       | .010/4.5g  |        |
| SK212-12D    | 212-12D  | 1127702  | Metal     | Cast/Cad QQ-P-416 | 3/32       | .010/4.5   |        |
| SK212-12N    | 212-12N  | 1127726  | Metal     | Cast/Cad QQ-P-416 | 3/32       | .010/4.5   |        |
| SK212-12ND   | 212-12ND | 1127729  | Metal     | Cast/Cad QQ-P-416 | 3/32       | .010/4.5   |        |
| SK212-12S    | 212-12S  | 1127711  | Stainless | Machined/Pass     | 3/32       | .0105/4.8  |        |
| SK212-12SD   | 212-12SD | 1127712  | Stainless | Machined/Pass     | 3/32       | .0105/4.8  |        |
| SK212-12NS   |          |          | Stainless | Machined/Pass     | 3/32       | .0105/4.8  |        |
| SK212-12NSD  |          |          | Stainless | Machined/Pass     | 3/32       | .0105/4.8  |        |
| SK212-12ACA  |          |          | Alum380   | Cast/None         | 3/32       | .0040/1.9  |        |
| SK212-12A8CA | None     | 1127709A | Alum380   | Cast/None         | 1/8        | .0040/1.9  |        |
| SK212-12A    | 212-12A  | 1127901A | Alum6061  | Machined/None     | 3/32       | .0035/1.7  |        |
| SK212-12A8   |          |          | Alum6061  | Machined/None     | 1/8        | .0035/1.7  |        |
| SK212-12AC   |          |          | Alum6061  | Anti Chafe        | 3/32       | .0040/1.8  |        |
| SK212-12AD   | 212-12AD | 1127708  | Alum6061  | Machined/None     | 3/32       | .0035/1.7  |        |
| SK212-12SENC |          |          | Stain303  | Encalsulated      | 3/32       | .0105/4.8  |        |
| SK21R17-1    | None     | 1127733  | Stain304  | Formed            | 3/32       | .0040/1.9  |        |
| SK21R17-18   |          |          | Stain304  | Formed            | 1/8        | .0040/1.9  |        |
| SK21R17-2    | None     | 1127734  | Stain304  | Formed/Dimpled    | 3/32       | .0040/1.9  |        |
| SK21R17-6N   | 26R6-6BB | 1127741  | Steel     | Formed/Narrow     | 3/32       | .0040/1.9  |        |

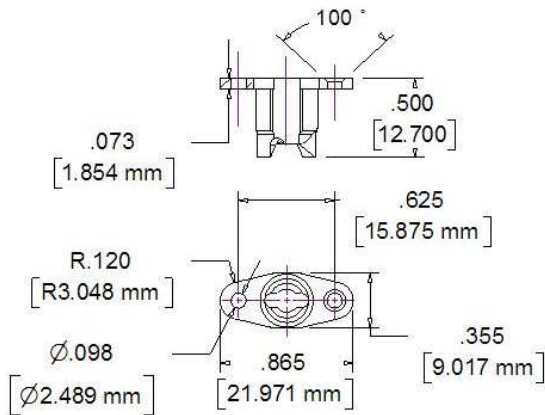
Call for other styles in stock

# CLoc® 2000 Series Rivet Receptacles

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

Standard SK212 Fixed Depth Receptacles TSO-C148

### SK212-10



| Part #     | Material | TypeFinish    | Rivet Size | Weight     |
|------------|----------|---------------|------------|------------|
| SK212-10   | Steel    | Machined/Zinc | 3/32       | .0100/4.5g |
| SK212-10A  | Alum6061 | Machined/None | 3/32       | .0030/1.4  |
| SK212-10AB | Alum6061 | Machined/Anod | 3/32       | .0030/1.4  |
| SK212-10S  | Stain303 | Machined/None | 3/32       | .0100/4.5  |

Require 2500 series studs

### MIL-A-8625 Anodizing

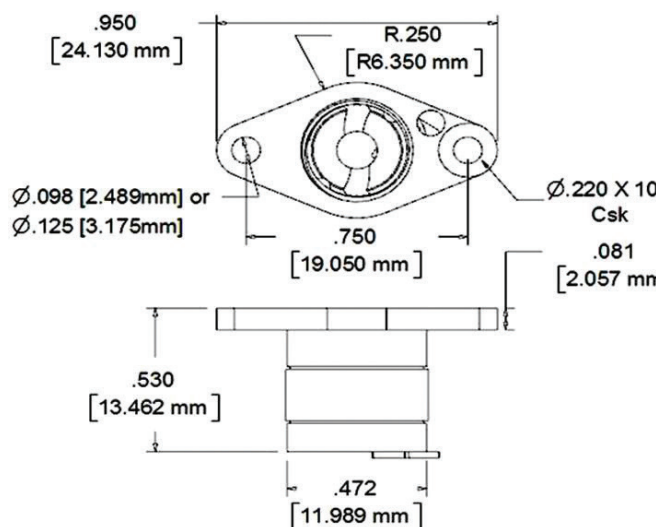
| Standard Anodizing MIL-A-8625, Type II, Class 1 |                 |  |
|---|-----------------|--|
| Finish  | Add Par# Suffix | Example                                  |
| Clear   | A               | ZG2500-4A Standard anodizing - Clear     |
| Standard Anodizing MIL-A-8625, Type II, Class 2 |                 |  |
| Finish  | Add Par# Suffix | Example                                  |
| Black   | A1BLK           | ZG2500-4A1BLK Standard anodizing - Black |
| Red   | A1RED           | ZG2500-4A1RED Standard anodizing - Red   |
| Hard Anodizing MIL-8625, Type III, Class 1      |                 |  |
| Finish  | Add Par# Suffix | Example                                  |
| Clear   | B               | ZG2500-4B Hard anodizing - Clear         |
| Hard Anodizing MIL-8625, Type III, Class 2      |                 |  |
| Finish  | Add Par# Suffix | Example                                  |
| Black   | B1BLK           | ZG2500-4B1BLK Hard anodizing - Black     |
| Red   | B1RED           | ZG2500-4B1RED Hard anodizing - Red       |

# CLoc® 2000 Series Rivet Receptacles

3 - Piece Series (Stud/Retainer - Locking Receptacle)

Standard SK213 Adjustable Receptacles TSO-C148

## SK213 Adjustable Receptacles



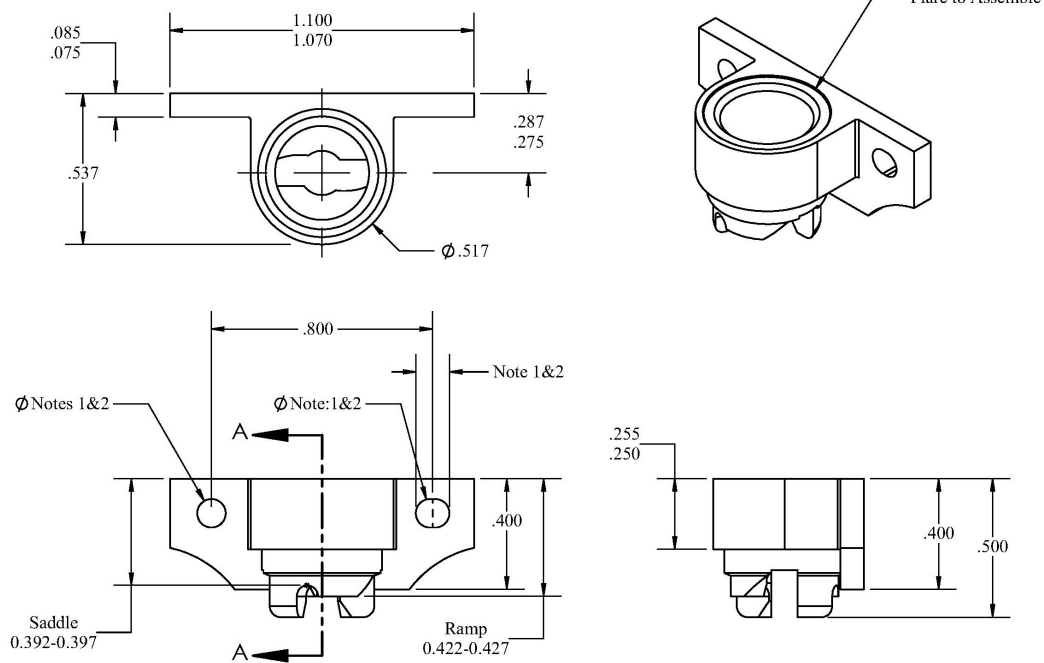
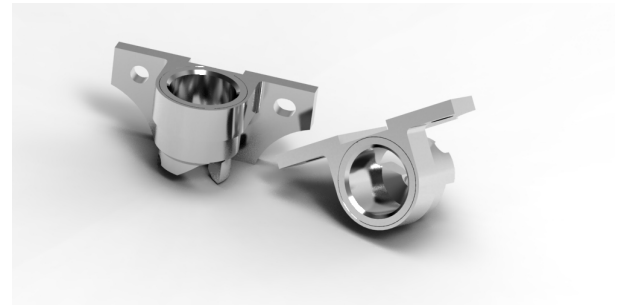
| Part #    | Material  | TypeFinish    | Rivet Size | Weight    | Length 'L' |
|-----------|-----------|---------------|------------|-----------|------------|
| SK213-1   | Skytanium | Machined/None | 3/32       | .0070/3.2 | .410       |
| SK213-1D  | Skytanium | Machined/None | 3/32       | .0070/3.2 | .410       |
| SK213-1S  | Stain303  | Machined/None | 3/32       | .0155/7.1 | .410       |
| SK213-1SD | Stain303  | Machined/None | 3/32       | .0155/7.1 | .410       |
| SK213-2   | Skytanium | Machined/None | 3/32       | .0070/3.2 | .530       |
| SK213-2D  | Skytanium | Machined/None | 3/32csk    | .0070/3.2 | .530       |
| SK213-26D | Skytanium | Machined/None | 3/32csk    | .0070/3.2 | .530       |
| SK213-28  | Skytanium | Machined/None | 1/8        | .0070/3.2 | .530       |
| SK213-28D | Skytanium | Machined/None | 1/8csk     | .0070/3.2 | .530       |

Note: SK213-26 has 11/16 Rivet Spacing

# CLoc® 26R Series Side Mount Receptacles

Use with any 2000 Series Sutds  
6061 Aluminum - Machined - Anodized Black  
4-Hole and 2-Hole - 3/32 Rivet Holes

SK26R3-1 Shown (Before Hard Anodizing)



| Part #   |        |         | Material                 | Rivet         |
|----------|--------|---------|--------------------------|---------------|
| Skybolt  | Camloc | Lisi    |                          |               |
| SK26R1-1 | 26R1-1 | 1127727 | 6061 Aluminum - Anodized | 3/32 - 4 Hole |
| SK26R1-5 | 26R1-5 |         | 6061 Aluminum - Anodized | 3/32 - 4 Hole |
| SK26R3-1 | 26R3-1 |         | 6061 Aluminum - Anodized | 3/32 - 2 Hole |

Note: To calculate grip range for a given stud, use standard grip charts but there is no support panel to calculate. The Grip is the thickness of the outer panel plus any gasket material used.



# CLoc® 2000 Series Floating Receptacles

## SK201 and SK203 Floating Receptacles

- Rivet - 3/32 and Bonded Versions
- Fixed Depth and Adjustable Versions
- Float +/- .050 (x and y)
- Removable - Replacable Insert
- Cage Dimensions - 1.020 x .630
- Panel Overlap - Max Float - Desired .650
- Easy install Insert Locking Clip - Easy to remove; easy to install/replace

### SK201 Floating Receptacle - Fixed Depth

| Fixed Depth Insert | Cage      | Insert    | Rivet/ Spacing | Height | Lbs   | Grams | Grip(1) SK28S3-2 | Grip(1) SK26S51-2 |
|--------------------|-----------|-----------|----------------|--------|-------|-------|------------------|-------------------|
| SK201C01           | Stainless | Stainless | Bonded         | .490   | .0180 | 8.2   | .030-.059        | .060-.089         |
| SK201C21           | Stainless | Stainless | 3/32x.75       | .490   | .0180 | 8.2   | .030-.059        | .060-.089         |
| SK201C01A          | Stainless | Aluminum  | Bonded         | .490   | .0110 | 5.9   | .030-.059        | .060-.089         |
| SK201C21A          | Stainless | Aluminum  | 3/32x.75       | .490   | .0110 | 5.9   | .030-.059        | .060-.089         |
| SK201A01A          | Aluminum  | Aluminum  | Bonded         | .490   | .0095 | 4.3   | .030-.059        | .060-.089         |
| SK201A21A          | Aluminum  | Aluminum  | 3/32x.75       | .490   | .0095 | 4.3   | .030-.059        | .060-.089         |

Note 1: Add or subtract .030 to grip values per dash number increase or decrease



### SK203 Floating Receptacle - Adjustable Depth

| Adjustable Depth Insert | Cage      | Insert    | Rivet/ Spacing | Height | Lbs   | Grams | Grip(1) SK28S3-2 | Grip(1) SK26S51-2 |
|-------------------------|-----------|-----------|----------------|--------|-------|-------|------------------|-------------------|
| SK203C01                | Stainless | Stainless | Bonded         | .540   | .0260 | 11.7  | .020-.320        | .020-.350         |
| SK203C21                | Stainless | Stainless | 3/32x.75       | .540   | .0260 | 11.7  | .020-.320        | .020-.350         |
| SK203C01A               | Stainless | Aluminum  | Bonded         | .540   | .0200 | 9.1   | .020-.320        | .020-.350         |
| SK203C21A               | Stainless | Aluminum  | 3/32x.75       | .540   | .0200 | 9.1   | .020-.320        | .020-.350         |
| SK203A01A               | Aluminum  | Aluminum  | Bonded         | .540   | .0110 | 8.16  | .020-.320        | .020-.350         |
| SK203A21A               | Aluminum  | Aluminum  | 3/32x.75       | .540   | .0110 | 8.16  | .020-.320        | .020-.350         |

Note 1: Add or subtract .030 to grip values per dash number increase or decrease



### SK201T2 and SK203T2 Bond - Gummy Worm

Secures and seals insert for bond setup and cure using traditional Gummy Worm - Reusable.

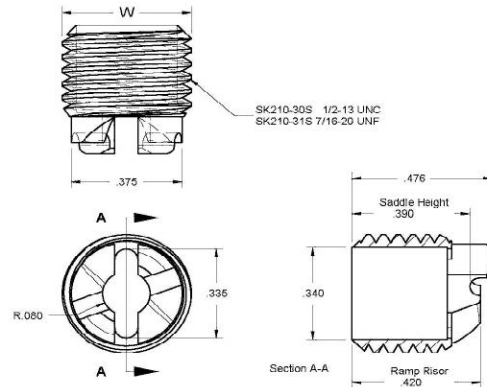
See Bonding Page 5



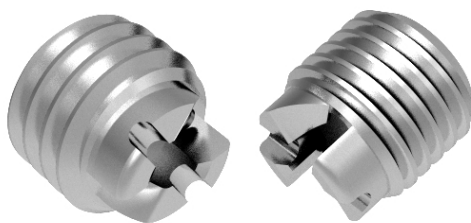
# CLoc® 2000 Series Threaded Receptacles

## SK210/230 Series Rivetless Receptacles - Adjustable Depth

- Excellent for any Non-Blind Mounting Application
- Ideal for Marine and Industrial Applications
- Adjustable Depth
- Use thread locking compound to secure insert



| Part #     | Stud Series | Material      | Thread-Type     | 'W'  | Alum,Brass,Plastic Drill Hole To(2) | Steel,SS,Iron Drill Hole To | Tap                                 | Minimum (1) Inner Panel |
|------------|-------------|---------------|-----------------|------|-------------------------------------|-----------------------------|-------------------------------------|-------------------------|
| SK209-31S  | 2500        | 303 Stainless | 3/8-24          | .375 | 21/64                               | Q                           | 3/8-24                              | .250 Min                |
| SK210-30A  | 2500        | 6061 Aluminum | 3/8-16          | .375 | 9/32                                | 5/16                        | Use with SK2000-150 or -312 Nutsert |                         |
| SK210-30S  | 2500        | 303 Stainless | 3/8-16          | .375 | 9/32                                | 5/16                        | Use with SK2000-150 or -312 Nutsert |                         |
| SK210-31A  | 2600/2700   | 6061 Aluminum | 7/16-20         | .438 | 11/32                               | 25/64                       | 7/16-20                             | .250 Min                |
| SK210-31S  | 2600/2700   | 303 Stainless | 7/16-20         | .438 | 11/32                               | 25/64                       | 7/16-20                             | .250 Min                |
| SK230-16A* | 2600/2700   | 6061 Aluminum | 3/8-16 Ext Nose | .375 | 9/32                                | 5/16                        | Use with SK2000-150 or -312 Nutsert |                         |
| SK230-16S* | 2600/2700   | 303 Stainless | 3/8-16 Ext Nose | .375 | 9/32                                | 5/16                        | Use with SK2000-150 or -312 Nutsert |                         |



All series - In addition to the charted value of .476, allow up to .580 clearance to accommodate the stud nose through it full locking action travel.

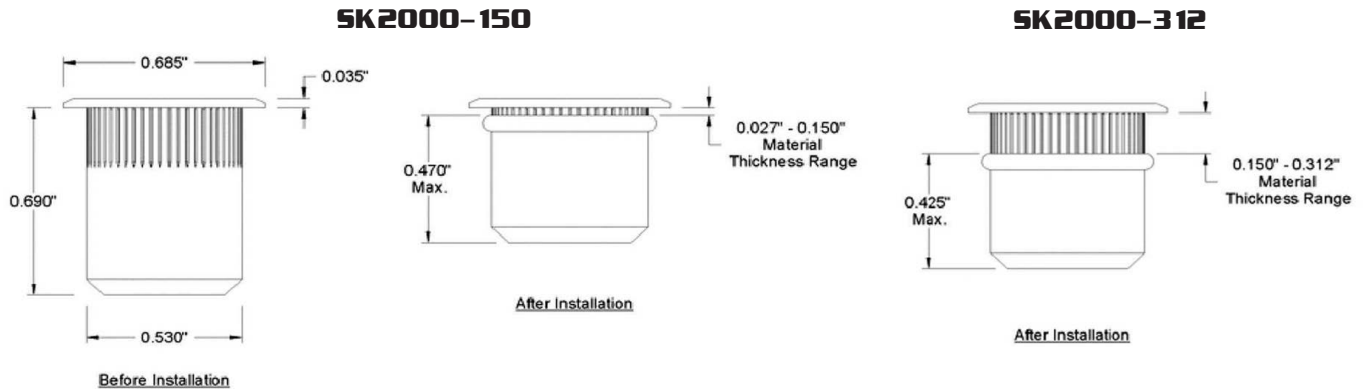
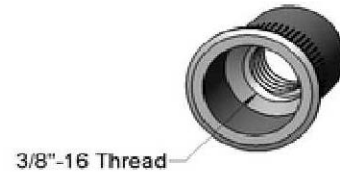
| Stud Grip Chart (Grip range increased based on insert setting) |                       |                |                       |
|--|-----------------------|----------------|-----------------------|
| Protruding Stud (3)  | Outer Panel Thickness | Flush Stud (3) | Outer Panel Thickness |
| SK26S51-1  | .075-.105             | SK27S3-1S      | .010-.019             |
| SK26S51-2  | .105-.135             | SK27S3-2S      | .020-.049             |
| SK26S51-3  | .135-.165             | SK27S3-3S      | .050-.079             |
| SK26S51-4  | .165-.195             | SK27S3-4S      | .080-.109             |
| SK26S51-5  | .195-.225             | SK27S3-5S      | .110-.139             |
| SK26S51-6  | .225-.255             | SK27S3-6S      | .140-.169             |
| SK26S51-7  | .255-.285             | SK27S3-7S      | .170-.199             |
| SK26S51-8  | .285-.315             | SK27S3-8S      | .200-.229             |
| SK26S51-9  | .315-.345             | SK27S3-9S      | .230-.259             |
| SK26S51-10   | .345-.375             | SK27S3-10S     | .260-.289             |
| SK26S51-11   | .375-.405             | SK27S3-11S     | .290-.319             |

(3) Charts also apply to all SK2600 Series and SK2700/2800 Series Studs.

# CLoc® 2000 Series Nutserts

## SK2000-150 and SK2000-312 Nutserts

- Excellent for any Blind or Non-Blind Mounting Application
- Ideal Industrial Applications
- Use thread locking compound to secure insert
- Use SK210-30S or SK230-16S Inserts - U.S. Patent 10,087,964



| Part #      | Material          | Hole Size  | Grip      | Body Dia | Length | Flange Dia | Thickness | L (Protrusion) Installed (max) |
|-------------|-------------------|------------|-----------|----------|--------|------------|-----------|--------------------------------|
| SK2000-150  | Steel-Yellow Zinc | 17/32-9/16 | .027-.150 | .530     | .690   | .685       | .035      | .470                           |
| SK2000-150A | Aluminum          | 17/32-9/16 | .027-.150 | .530     | .690   | .685       | .035      | .470                           |
| SK2000-312  | Steel-Yellow Zinc | 17/32-9/16 | .150-.312 | .530     | .805   | .685       | .035      | .425                           |

### SK2000-NST Nutsert Installation Tool

Use 271 Red Lockite® to lock threads when properly adjusted. Warning: Thread lockers set up in approximately 5 minutes. 2600 Series: Adjust insert so that the face of the cup is flush with the bottom of the stud head. 2700/2800 Series: Set insert so that the stud head is no deeper than flush with the face of the cup. If insert is set too deep with the stud locked, you will not be able to unlock the stud after 5 minutes.

| Protruding Stud (4) | Outer Panel Thickness | Flush Stud (4) | Outer Panel Thickness |
|---------------------|-----------------------|----------------|-----------------------|
| SK26S51-1           | .020-.300             | SK27S3-1S      | .020-.170             |
| SK26S51-2           | .020-.330             | SK27S3-2S      | .020-.200             |
| SK26S51-3           | .130-.360             | SK27S3-3S      | .020-.230             |
| SK26S51-4           | .160-.360             | SK27S3-4S      | .100-.260             |
| SK26S51-5           | .190-.420             | SK27S3-5S      | .130-.290             |
| SK26S51-6           | .220-.450             | SK27S3-6S      | .160-.320             |
| SK26S51-7           | .250-.480             | SK27S3-7S      | .190-.350             |
| SK26S51-8           | .280-.510             | SK27S3-8S      | .220-.380             |
| SK26S51-9           | .310-.540             | SK27S3-9S      | .250-.410             |
| SK26S51-10          | .340-.570             | SK27S3-10S     | .280-.440             |
| SK26S51-11          | .370-.600             | SK27S3-11S     | .310-.470             |

| Protruding Stud (4) | Outer Panel Thickness | Flush Stud (4) | Outer Panel Thickness |
|---------------------|-----------------------|----------------|-----------------------|
| SK26S51-1           | .390-.600             | SK27S3-1S      | .310-.470             |
| SK26S51-2           | .390-.630             | SK27S3-2S      | .340-.500             |
| SK26S51-3           | .430-.660             | SK27S3-3S      | .370-.530             |
| SK26S51-4           | .460-.690             | SK27S3-4S      | .400-.560             |
| SK26S51-5           | .490-.720             | SK27S3-5S      | .430-.590             |
| SK26S51-6           | .520-.750             | SK27S3-6S      | .460-.620             |
| SK26S51-7           | .550-.780             | SK27S3-7S      | .490-.650             |
| SK26S51-8           | .580-.810             | SK27S3-8S      | .520-.680             |
| SK26S51-9           | .610-.840             | SK27S3-9S      | .550-.710             |
| SK26S51-10          | .640-.870             | SK27S3-10S     | .580-.740             |
| SK26S51-11          | .670-.900             | SK27S3-11S     | .610-.770             |

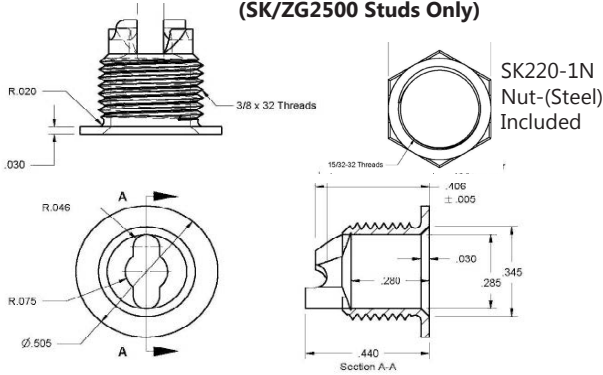
(4) Charts also apply to all SK2600 Series and SK2700/2800 Series Studs.

# CLoc® 2000 Series Threaded Receptacles

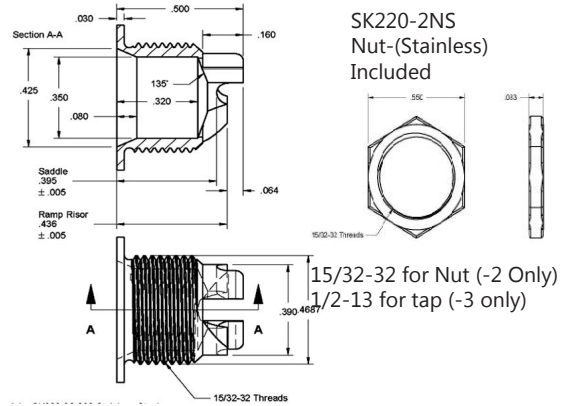
## SK220 Series Rivetless Receptacles - Straight Flange

- Excellent for any Non-Blind Mounting Application
- Non-Adjustable Depth
- Use thread locking compound to secure nut

### SK220-1 Series (SK/ZG2500 Studs Only)



### SK220-2 and SK220-3 Series



| Part #       | Replaces | Material      | Thread-Type                    | 'W'  | Drill Hole To | Tap    | Min-Max Inner Panel |
|--------------|----------|---------------|--------------------------------|------|---------------|--------|---------------------|
| SK220-1A (1) |          | 6061 Aluminum | 3/8-32 with Backing Nut        | .370 | 3/8           | NA     | .010-.250           |
| SK220-1S (1) |          | 303 Stainless | 3/8-32 with Backing Nut        | .370 | 3/8           | NA     | .010-.250           |
| SK220-2A     |          | 6061 Aluminum | 15/32-32 with Backing Nut      | .472 | 15/32         | NA     | .010-.250           |
| SK220-2S     | SK211-2S | 303 Stainless | Does not include Backing Nut   | .472 | 15/32         | NA     | .010-.250           |
| SK220-3S (2) |          | 303 Stainless | 1/2-13 Tapped (No Backing Nut) | .500 | 13/32 (3)     | 1/2-13 | .500 Min            |
| SK220-1N     |          | Steel         | 3/8-32 with Steel Backing Nut  | .500 | 3/8           | NA     | NA                  |
| SK220-1NS    |          | 303 Stainless | 15/32-32 SS Backing Nut        | .500 | 13/32         | NA     | NA                  |

(1) Min Total Thickness .045. (2) Course thread for tapped holes in wood/plastic/composite structures. (3) Drill Undersize.

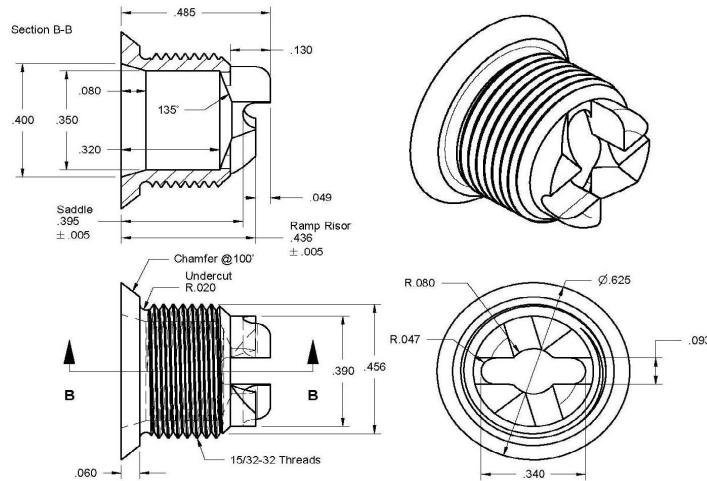
| Protruding Stud (4) | Outer Panel Thickness | Flush Stud (4) | Outer Panel Thickness |
|---------------------|-----------------------|----------------|-----------------------|
| SK25S51-1           | .075-.104             | SK25S3-1S      | .045-.074             |
| SK25S51-2           | .105-.134             | SK25S3-2S      | .075-.104             |
| SK25S51-3           | .135-.164             | SK25S3-3S      | .105-.134             |
| SK25S51-4           | .165-.194             | SK25S3-4S      | .135-.164             |
| SK25S51-5           | .195-.224             | SK25S3-5S      | .165-.194             |
| SK25S51-6           | .225-.254             | SK25S3-6S      | .195-.224             |
| SK25S51-7           | .255-.284             | SK25S3-7S      | .225-.254             |
| SK25S51-8           | .285-.314             | SK25S3-8S      | .255-.284             |
| SK25S51-9           | .315-.344             | SK25S3-9S      | .285-.314             |
| SK25S51-10          | .345-.374             | SK25S3-10S     | .315-.344             |
| SK25S51-11          | .375-.404             | SK25S3-11S     | .345-.374             |

| Protruding Stud (4) | Outer Panel Thickness | Flush Stud (4) | Outer Panel Thickness |
|---------------------|-----------------------|----------------|-----------------------|
| SK26S51-1           | .030-.059             | SK28S3-1S      | .010-.019             |
| SK26S51-2           | .060-.089             | SK28S3-2S      | .020-.049             |
| SK26S51-3           | .090-.119             | SK28S3-3S      | .050-.079             |
| SK26S51-4           | .120-.149             | SK28S3-4S      | .080-.109             |
| SK26S51-5           | .150-.179             | SK28S3-5S      | .110-.139             |
| SK26S51-6           | .180-.209             | SK28S3-6S      | .140-.169             |
| SK26S51-7           | .210-.239             | SK28S3-7S      | .170-.199             |
| SK26S51-8           | .240-.269             | SK28S3-8S      | .200-.229             |
| SK26S51-9           | .270-.299             | SK28S3-9S      | .230-.259             |
| SK26S51-10          | .300-.329             | SK28S3-10S     | .260-.289             |
| SK26S51-11          | .330-.359             | SK28S3-11S     | .290-.319             |

# CLoc® 2000 Series Threaded Receptacles

## SK221 Series Rivetless Receptacles - Countersunk Flange

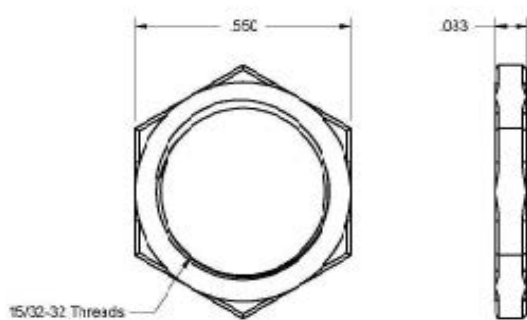
- Excellent for any Non-Blind Mounting Application
- Non-Adjustable Depth
- Use thread locking compound to secure nut



Notes: (1) Drill slightly undersized for "tight" thread tap.

| Part #    | Replaces  | Material      | Thread-Type                    | 'W'  | Drill Hole To | Tap    | Min-Max Inner Panel |
|-----------|-----------|---------------|--------------------------------|------|---------------|--------|---------------------|
| SK221-2AN | SK211-32A | 6061 Aluminum | 15/32-32 with Backing Nut      | .472 | 15/32         | NA     | .090-.250           |
| SK221-2SN |           | 303 Stainless | 15/32-32 with Backing Nut      | .472 | 15/32         | NA     | .090-.250           |
| SK221-3S* | SK210-2S  | 303 Stainless | 1/2-13 Tapped (No Backing Nut) | .500 | 13/32 (1)     | 1/2-13 | .500 Min            |

\* Course thread for tapped holes in wood/plastic/composite structures



SK220-2NS Nut- Stainless  
(Included with SK221-2 Series Receptacles)

| Stud Grip Chart     |                       |                |                       |
|---------------------|-----------------------|----------------|-----------------------|
| Protruding Stud (4) | Outer Panel Thickness | Flush Stud (4) | Outer Panel Thickness |
| SK26S51-1           | .030-.059             | SK28S3-1S      | .010-.019             |
| SK26S51-2           | .060-.089             | SK28S3-2S      | .020-.049             |
| SK26S51-3           | .090-.119             | SK28S3-3S      | .050-.079             |
| SK26S51-4           | .120-.149             | SK28S3-4S      | .080-.109             |
| SK26S51-5           | .150-.179             | SK28S3-5S      | .110-.139             |
| SK26S51-6           | .180-.209             | SK28S3-6S      | .140-.169             |
| SK26S51-7           | .210-.239             | SK28S3-7S      | .170-.199             |
| SK26S51-8           | .240-.269             | SK28S3-8S      | .200-.229             |
| SK26S51-9           | .270-.299             | SK28S3-9S      | .230-.259             |
| SK26S51-10          | .300-.329             | SK28S3-10S     | .260-.289             |
| SK26S51-11          | .330-.359             | SK28S3-11S     | .290-.319             |

# Cloc® SK4000 and ZG4000 Series

## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

1050 LB Ultimate Tensile Strength (Steel and Cloc® Stainless) Designed to Exceed NASM5591 Table II Performance  
1050 LB Ultimate Tensile Strength (ZG4000 Skytanium®) TSO-C148 Approved. SK215/245A will not meet NASM5591 endurance.

### STUDS

3/8" Head Diameter - All Studs

Note: Stud sizes thru -15 are self retaining in grommet. Studs require 4P3 Pliers to insert thru grommet.

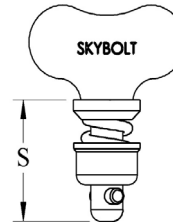
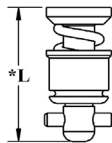
Stud Dash Number  
Stamped in Head



40S5 Steel  
SK40S5-( )S Stainless

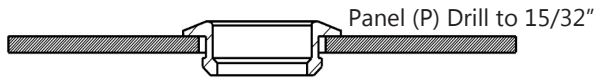


4002 Steel\*  
SK4002-( )S Stainless (Collared Slot)  
ZG4002 ( ) Skytanium® (Collared Slot)



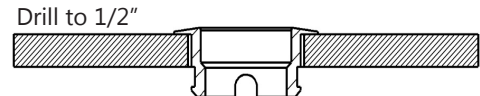
4002-( )W Steel  
SK4002-( )SW Stainless

### GROMMETS



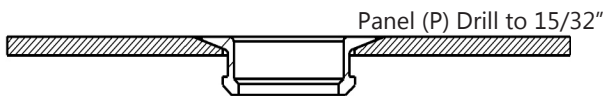
**Standard Plus Flush Grommets**

SK-N2 Steel  
SK-N2S Stainless  
SK-N Steel  
SK-NS Stainless  
SK-O Steel  
SK-OS Stainless  
ZG-094 Skytanium®



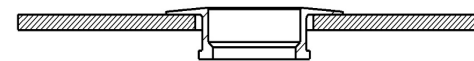
**Extended Depth Grommets**

SK-O18 Steel  
SK-O316 Steel  
SK-O14 Steel  
SK-O12 Steel  
SK-O18S Stainless  
SK-O316S Stainless  
SK-O14S Stainless  
SK-O12S Stainless



**Standard Flush Grommets**

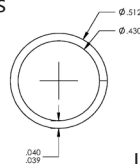
SK-G Steel  
SK-GS Stainless  
SK-H Steel  
SK-HS Stainless



**Wide Flange Grommets**

SK-N3 Steel  
SK-N3S Stainless  
SK-N316S Stainless  
ZG-094LA Skytanium®  
ZG-125LA Skytanium®  
ZG-187LA Skytanium®

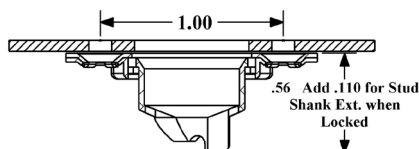
### Grommet Retainers



R4G Grommet Retainer  
R4T High Shear Grommet Retainer  
SK-R531 Backing Washer  
(for Oversize Holes)

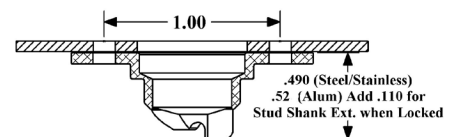
Use T26 Tool to install Retainers  
Drill center hole to 5/8"  
1/8" Rivets

### RECEPTACLES



#### Rigid Receptacles

SK214-16 Fixed Depth Steel/Stainless  
SK214-16D Fixed Depth Steel/Stainless Countersunk  
SK214-16ENC Fixed Depth Steel/Stainless Encapsulated  
SK214-16DENC Fixed Depth Steel/Stainless Encap/Csk  
SK40R17-1 Fixed Depth Lightweight Stainless  
SK40R17-2 Fixed Depth Lightweight Stainless/Csk  
SK215 Series Adjustable Depth



#### Floating Receptacles

SK244-16 Fixed Depth Steel/Stainless  
SK244-16D Fixed Depth Steel/Stainless Csk  
SK244-161 Fixed Depth Steel/Stainless Removal Insert  
SK245-16 Adjustable Depth Steel/Stainless  
SK245-16D Adjustable Depth Steel/Stainless Csk  
SK245-161 Fixed Depth Steel/Stainless Removal Insert

# CLoc® 4000 Series Common Sets

Forget Charts - The followings assemblies solve 99% of all applications



Stainless Series - Flush Head

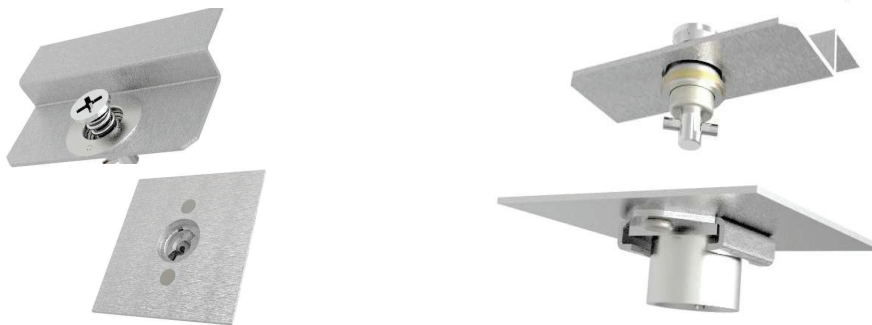
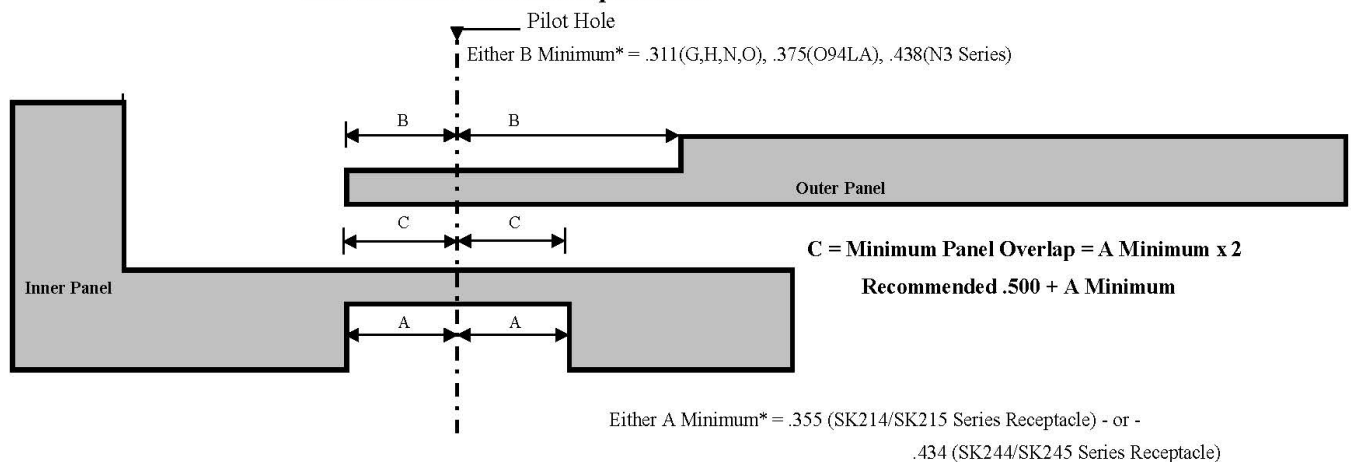
Skytanium® Series - Flush Head

| SK40S5-SET1                                  | Grip Range  | ZG4002-SET1                                  | Grip Range  |
|--|-------------|--|-------------|
| SK40S5-2S Phillips Head                      | .010 - .310 | ZG4002-2 Collared Slot                       | .010 - .310 |
| SK-OS Panel Grommet (.094 max thickness)     |             | ZG-094LA Panel Grommet (.094 max thickness)  |             |
| SK-R4G Stud/Grommet Retainer                 |             | SK-R4G Stud/Grommet Retainer                 |             |
| SK245A161A Adjustable Receptacle 1/8" Rivets |             | SK245A161A Adjustable Receptacle 1/8" Rivets |             |

Note 1 - OS Grommet Restrictions - Max Outer Panel Thickness = .094

Note 2 - See Dimension 'B' and 'C' below for minimum panel clearance and Overlap for SK245-4 Receptacle

**What does Overlap Mean? Work from the Inner Panel Out (Choose receptacle then grommet), then determine location of pilot hole.**



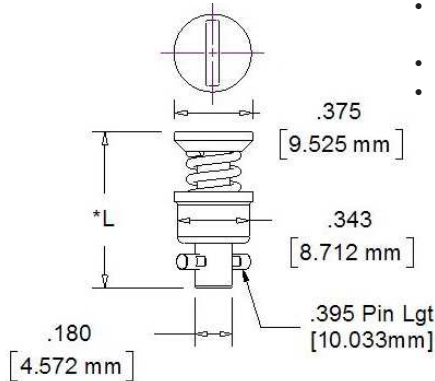
| Installation Tools (See Page 43) |   |
|----------------------------------|---|
| <b>4P3-T26 Tools</b>             | Tools to install studs through grommets and install grommet retainers |
| <b>SK4DJ</b>                     | Flex Handle Drill Jig to drill rivet holes with #30 Drill             |
| <b>Template-245</b>              | Template to expand center hole with Unibit-3 Stepdrill                |

# CLoc® SK4002 & ZG4002 Series

## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

All -6 and longer studs available with patented hold out feature - Minimizes protrusion when unlocked.

- Industry Standard Heavy Duty 1/4-Turn Panel Fastener Series
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 700 LBS Working - 1050 Lbs Ultimate
- Optional holdout feature - U.S. Patent 10,539,172



4002-[ ] Collared Slot Steel  
SK4002-[ ]S Collared Slot  
SK4002-[ ]S45 Collared Slot  
ZG4002-[ ] Skytanium®

| Replacements | Stainless   | Steel       | High Temp A286/Inconel | High Temp 300/Inconel |
|--------------|-------------|-------------|------------------------|-----------------------|
| Camloc       | 4002-(x)S   | 4002-(x)    | 40S45-(x)              | 40S45-(x)B            |
| Lisi         | 1142002-(x) | 1142000-(x) | 1142004-(x)            | 1142024-(x)           |

| Steel Collared Slot                                | Stainless Collared Slot | 300SS Stainless Collared Slot 700°F | Skytanium® Collared Slot | Total Stud Length L |       | Grip SK214/40R17 Series (1)<br>Fixed Depth Receptacle With G or H Flush Grommets |            |                          |            | Grip SK215 and SK245 Series<br>Adjustable Depth Receptacle |            |                          |            |
|--|-------------------------|-------------------------------------|--------------------------|---------------------|-------|--|------------|--------------------------|------------|--|------------|--------------------------|------------|
|  |                         |                                     |                          |                     |       | Combined Panel Thickness   |            | Combined Panel Thickness |            | Combined Panel Thickness                                   |            | Combined Panel Thickness |            |
|  |                         |                                     |                          |                     |       | Decimal  | Millimeter | Decimal                  | Millimeter | Decimal  | Millimeter | Decimal                  | Millimeter |
| Part #   | Part #                  | Part #                              | Part #                   | Dec                 | mm    | Min  | Max        | Min                      | Max        | Min  | Max        | Min                      | Max        |
| SK4002-2   | SK4002-2S               | SK4002-2S45                         | ZG4002-2                 | .690                | 17.27 | .081   | .110       | 2.06                     | 2.79       | .010   | .310       | 0.25                     | 7.87       |
| SK4002-3   | SK4002-3S               | SK4002-3S45                         | ZG4002-3                 | .720                | 18.03 | .111   | .140       | 2.82                     | 3.56       | .040   | .340       | 1.02                     | 8.64       |
| SK4002-4   | SK4002-4S               | SK4002-4S45                         | ZG4002-4                 | .750                | 18.80 | .141   | .170       | 3.58                     | 4.32       | .070   | .370       | 1.78                     | 9.40       |
| SK4002-5   | SK4002-5S               | SK4002-5S45                         | ZG4002-5                 | .780                | 19.56 | .171   | .200       | 4.34                     | 5.08       | .100   | .400       | 2.54                     | 10.16      |
| SK4002-6   | SK4002-6S               | SK4002-6S45                         | ZG4002-6                 | .810                | 20.32 | .200   | .230       | 5.08                     | 5.84       | .130   | .430       | 3.30                     | 10.92      |
| SK4002-7   | SK4002-7S               | SK4002-7S45                         | ZG4002-7                 | .840                | 21.08 | .231   | .260       | 5.87                     | 6.60       | .160   | .460       | 4.06                     | 11.68      |
| SK4002-8   | SK4002-8S               | SK4002-8S45                         | ZG4002-8                 | .870                | 21.84 | .261   | .290       | 6.63                     | 7.37       | .190   | .490       | 4.83                     | 12.45      |
| SK4002-9   | SK4002-9S               | SK4002-9S45                         | ZG4002-9                 | .900                | 22.61 | .291   | .320       | 7.39                     | 8.13       | .220   | .520       | 5.59                     | 13.21      |
| SK4002-10  | SK4002-10S              | SK4002-10S45                        | ZG4002-10                | .930                | 23.37 | .321   | .350       | 8.15                     | 8.89       | .250   | .550       | 6.35                     | 13.97      |
| SK4002-11  | SK4002-11S              | SK4002-11S45                        | ZG4002-11                | .960                | 24.13 | .351   | .380       | 8.92                     | 9.65       | .280   | .580       | 7.11                     | 14.73      |
| SK4002-12  | SK4002-12S              | SK4002-12S45                        | ZG4002-12                | .990                | 24.89 | .381   | .410       | 9.68                     | 10.41      | .310   | .610       | 7.87                     | 15.49      |
| SK4002-13  | SK4002-13S              | SK4002-13S45                        | ZG4002-13                | 1.020               | 25.65 | .411   | .440       | 10.44                    | 11.18      | .340   | .640       | 8.64                     | 16.26      |
| SK4002-14  | SK4002-14S              | SK4002-14S45                        | ZG4002-14                | 1.050               | 26.42 | .441   | .470       | 11.20                    | 11.94      | .370   | .670       | 9.40                     | 17.02      |
| SK4002-15  | SK4002-15S              | SK4002-15S45                        | ZG4002-15                | 1.080               | 27.18 | .471   | .500       | 11.96                    | 12.70      | .400   | .700       | 10.16                    | 17.78      |
| Studs -16 and longer must use SK4002-SWS Retainers |                         |                                     |                          |                     |       |  |            |                          |            |  |            |                          |            |
| SK4002-16  | SK4002-16S              | SK4002-16S45                        | ZG4002-16                | 1.110               | 27.94 | .501   | .530       | 12.73                    | 13.46      | .430   | .730       | 10.92                    | 18.54      |
| SK4002-17  | SK4002-17S              | SK4002-17S45                        | ZG4002-17                | 1.140               | 28.70 | .531   | .560       | 13.49                    | 14.22      | .460   | .760       | 11.68                    | 19.30      |
| SK4002-18  | SK4002-18S              | SK4002-18S45                        | ZG4002-18                | 1.170               | 29.46 | .561   | .590       | 14.25                    | 14.99      | .490   | .790       | 12.45                    | 20.07      |
| SK4002-19  | SK4002-19S              | SK4002-19S45                        | ZG4002-19                | 1.200               | 30.23 | .591   | .620       | 15.01                    | 15.75      | .520   | .820       | 13.21                    | 20.83      |
| SK4002-20  | SK4002-20S              | SK4002-20S45                        | ZG4002-20                | 1.230               | 30.99 | .621   | .650       | 15.77                    | 16.51      | .550   | .850       | 13.97                    | 21.59      |

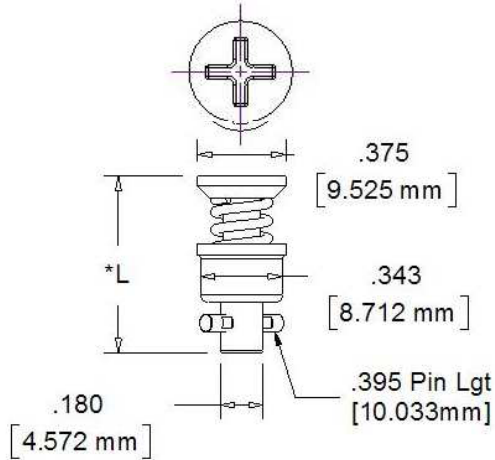
(1) For 244/SK244 Floating Series add .030 to total thickness. For all Grommets besides G and H, add .030 to total thickness.  
Example: Outer panel = .040, Inner panel = .060 - Total grip = .100. Using SK244-16 type receptacle and SK-OS grommet, add .060 = .160 total grip. From the chart, select -4 stud.



# CLoc® SK4055 Series

## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

All -6 and longer studs available with patented hold out feature - Minimizes protrusion when unlocked.



- Industry Standard Heavy Duty 1/4-Turn Panel Fastener Series
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 700 LBS Working - 1050 Lbs Ultimate
- Optional holdout feature - U.S. Patent 10,539,172



40S5-[ ] Phillips Head - Steel  
SK40S5-[ ]S Phillips Head - Hardened Diamondhead®  
SK40S5-[ ]S45 Phillips Head 700°F - Hardened Diamondhead

| Replacements | Stainless   | Steel       | High Strength* 410SS |
|--------------|-------------|-------------|----------------------|
| Camloc       | 40S5-(x)S   | 40S5-(x)    | 40S41-(x)SC          |
| Lisi         | 1142012-(x) | 1142005-(x) | 1142026-(x)          |

\*Note: Camloc 40S5(x)S and 40S41 ultimate tensile ratings are 735 lb-f. Standard Skybolt 40S5 and 40S5-(x)S are rated at 1050 lb-f

| Steel Phillips                                     | Stainless Phillips | Stainless Phillips 700°F | Total Stud Length L |       | Grip SK214/40R17 Series (1)<br>Fixed Depth Receptacle<br>With G or H Flush Grommets<br>Combined Panel Thickness |      |            |       | Grip SK215 and SK245 Series<br>Adjustable Depth Receptacle<br>Combined Panel Thickness |      |            |       |
|--|--------------------|--------------------------|---------------------|-------|---|------|------------|-------|--|------|------------|-------|
|  |                    |                          |                     |       | Decimal   |      | Millimeter |       | Decimal  |      | Millimeter |       |
| Part #   | Part #             | Part #                   | Decimal             | mm    | Min   | Max  | Min        | Max   | Min  | Max  | Min        | Max   |
| SK40S5-2   | SK40S5-2S          | SK40S5-2S45              | .690                | 17.27 | .081  | .110 | 2.06       | 2.79  | .010   | .310 | 0.25       | 7.87  |
| SK40S5-3   | SK40S5-3S          | SK40S5-3S45              | .720                | 18.03 | .111  | .140 | 2.82       | 3.56  | .040   | .340 | 1.02       | 8.64  |
| SK40S5-4   | SK40S5-4S          | SK40S5-4S45              | .750                | 18.80 | .141  | .170 | 3.58       | 4.32  | .070   | .370 | 1.78       | 9.40  |
| SK40S5-5   | SK40S5-5S          | SK40S5-5S45              | .780                | 19.56 | .171  | .200 | 4.34       | 5.08  | .100   | .400 | 2.54       | 10.16 |
| SK40S5-6   | SK40S5-6S          | SK40S5-6S45              | .810                | 20.32 | .200  | .230 | 5.08       | 5.84  | .130   | .430 | 3.30       | 10.92 |
| SK40S5-7   | SK40S5-7S          | SK40S5-7S45              | .840                | 21.08 | .231  | .260 | 5.87       | 6.60  | .160   | .460 | 4.06       | 11.68 |
| SK40S5-8   | SK40S5-8S          | SK40S5-8S45              | .870                | 21.84 | .261  | .290 | 6.63       | 7.37  | .190   | .490 | 4.83       | 12.45 |
| SK40S5-9   | SK40S5-9S          | SK40S5-9S45              | .900                | 22.61 | .291  | .320 | 7.39       | 8.13  | .220   | .520 | 5.59       | 13.21 |
| SK40S5-10  | SK40S5-10S         | SK40S5-10S45             | .930                | 23.37 | .321  | .350 | 8.15       | 8.89  | .250   | .550 | 6.35       | 13.97 |
| SK40S5-11  | SK40S5-11S         | SK40S5-11S45             | .960                | 24.13 | .351  | .380 | 8.92       | 9.65  | .280   | .580 | 7.11       | 14.73 |
| SK40S5-12  | SK40S5-12S         | SK40S5-12S45             | .990                | 24.89 | .381  | .410 | 9.68       | 10.41 | .310   | .610 | 7.87       | 15.49 |
| SK40S5-13  | SK40S5-13S         | SK40S5-13S45             | 1.020               | 25.65 | .411  | .440 | 10.44      | 11.18 | .340   | .640 | 8.64       | 16.26 |
| SK40S5-14  | SK40S5-14S         | SK40S5-14S45             | 1.050               | 26.42 | .441  | .470 | 11.20      | 11.94 | .370   | .670 | 9.40       | 17.02 |
| SK40S5-15  | SK40S5-15S         | SK40S5-15S45             | 1.080               | 27.18 | .471  | .500 | 11.96      | 12.70 | .400   | .700 | 10.16      | 17.78 |
| Studs -16 and longer must use SK4002-SWS Retainers |                    |                          |                     |       |   |      |            |       |  |      |            |       |
| SK40S5-16  | SK40S5-16S         | SK40S5-16S45             | 1.110               | 27.94 | .501  | .530 | 12.73      | 13.46 | .430   | .730 | 10.92      | 18.54 |
| SK40S5-17  | SK40S5-17S         | SK40S5-17S45             | 1.140               | 28.70 | .531  | .560 | 13.49      | 14.22 | .460   | .760 | 11.68      | 19.30 |
| SK40S5-18  | SK40S5-18S         | SK40S5-18S45             | 1.170               | 29.46 | .561  | .590 | 14.25      | 14.99 | .490   | .790 | 12.45      | 20.07 |
| SK40S5-19  | SK40S5-19S         | SK40S5-19S45             | 1.200               | 30.23 | .591  | .620 | 15.01      | 15.75 | .520   | .820 | 13.21      | 20.83 |
| SK40S5-20  | SK40S5-20S         | SK40S5-20S45             | 1.230               | 30.99 | .621  | .650 | 15.77      | 16.51 | .550   | .850 | 13.97      | 21.59 |

(1) For 244/SK244 Floating Series add .030 to total thickness. For all Grommets besides G and H, add .030 to total thickness.  
Example: Outer panel = .040, Inner panel = .060 - Total grip = .100. Using SK244-16 type receptacle and SK-OS grommet, add .060 = .160 total grip.  
From the chart, select -4 stud.

# CLoc® SK4002-[ ]SL Sealed Series

## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

All -6 and longer studs available with patented hold out feature - Minimizes protrusion when unlocked.



- Compatible with Camloc® 40S37-[ ] Fasteners
- 700 lb Working Load - 1050 lb Ultimate (Tensile)
- Water Proof to 1 meter/1 hour
- TSO-C148 Pending
- Optional holdout feature - U.S. Patent 10,539,172



Use with SK4N-4SL Sealed Grommet

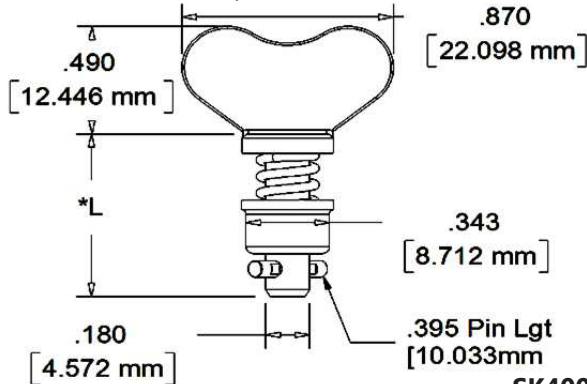
| Stainless Collared Slot Sealed<br>40S37-[ ] Series | Total Stud Length<br>L |       | Grip SK214/40R17 Series (1)<br>Fixed Depth Receptacle<br>Combined Panel Thickness |      |            |       | Grip SK215 and SK245 Series<br>Adjustable Depth Receptacle<br>Combined Panel Thickness |      |            |       |  |
|--|------------------------|-------|---|------|------------|-------|--|------|------------|-------|--|
|  |                        |       | Decimal   |      | Millimeter |       | Decimal  |      | Millimeter |       |  |
|  |                        |       | Min   | Max  | Min        | Max   | Min  | Max  | Min        | Max   |  |
| Part #   | Decimal                | mm    |   |      |            |       |  |      |            |       |  |
| SK4002-2SL   | .700                   | 17.78 | .081  | .110 | 2.06       | 2.79  | .010   | .310 | 0.25       | 7.87  |  |
| SK4002-3SL   | .730                   | 18.54 | .111  | .140 | 2.82       | 3.56  | .040   | .340 | 1.02       | 8.64  |  |
| SK4002-4SL   | .760                   | 19.30 | .141  | .170 | 3.58       | 4.32  | .070   | .370 | 1.78       | 9.40  |  |
| SK4002-5SL   | .790                   | 20.07 | .171  | .200 | 4.34       | 5.08  | .100   | .400 | 2.54       | 10.16 |  |
| SK4002-6SL   | .820                   | 20.83 | .200  | .230 | 5.08       | 5.84  | .130   | .430 | 3.30       | 10.92 |  |
| SK4002-7SL   | .850                   | 21.59 | .231  | .260 | 5.87       | 6.60  | .160   | .460 | 4.06       | 11.68 |  |
| SK4002-8SL   | .880                   | 22.35 | .261  | .290 | 6.63       | 7.37  | .190   | .490 | 4.83       | 12.45 |  |
| SK4002-9SL   | .910                   | 23.11 | .291  | .320 | 7.39       | 8.13  | .220   | .520 | 5.59       | 13.21 |  |
| SK4002-10SL  | .940                   | 23.88 | .321  | .350 | 8.15       | 8.89  | .250   | .550 | 6.35       | 13.97 |  |
| SK4002-11SL  | .970                   | 24.64 | .351  | .380 | 8.92       | 9.65  | .280   | .580 | 7.11       | 14.73 |  |
| SK4002-12SL  | 1.000                  | 25.40 | .381  | .410 | 9.68       | 10.41 | .310   | .610 | 7.87       | 15.49 |  |
| SK4002-13SL  | 1.030                  | 26.16 | .411  | .440 | 10.44      | 11.18 | .340   | .640 | 8.64       | 16.26 |  |
| SK4002-14SL  | 1.060                  | 26.92 | .441  | .470 | 11.20      | 11.94 | .370   | .670 | 9.40       | 17.02 |  |
| SK4002-15SL  | 1.090                  | 27.69 | .471  | .500 | 11.96      | 12.70 | .400   | .700 | 10.16      | 17.78 |  |
| SK4002-16SL  | 1.120                  | 28.45 | .501  | .530 | 12.73      | 13.46 | .430   | .730 | 10.92      | 18.54 |  |
| SK4002-17SL  | 1.150                  | 29.21 | .531  | .560 | 13.49      | 14.22 | .460   | .760 | 11.68      | 19.30 |  |
| SK4002-18SL  | 1.180                  | 29.97 | .561  | .590 | 14.25      | 14.99 | .490   | .790 | 12.45      | 20.07 |  |
| SK4002-19SL  | 1.210                  | 30.73 | .591  | .620 | 15.01      | 15.75 | .520   | .820 | 13.21      | 20.83 |  |
| SK4002-20SL  | 1.240                  | 31.50 | .621  | .650 | 15.77      | 16.51 | .550   | .850 | 13.97      | 21.59 |  |

# CLoc® SK4002 Winged

## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

All -6 and longer studs available with patented hold out feature - Minimizes protrusion when unlocked.

- Industry Standard Heavy Duty 1/4-Turn Panel Fastener Series
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 700 LBS Working - 1050 Lbs Ultimate
- Optional holdout feature - U.S. Patent 10,539,172



| Replacements | Stainless   | Steel       |
|--------------|-------------|-------------|
| Camloc       | 4002-(x)SW  | 4002-(x)W   |
| Lisi         | 1142016-(x) | 1142007-(x) |

### SK4002W Wing

| Steel Winged                                       | Stainless Winged | Total Stud Length L |       | Grip SK214/40R17 Series (1)<br>Fixed Depth Receptacle<br>Combined Panel Thickness |      |            |       | Grip SK215 and SK245 Series<br>Adjustable Depth Receptacle<br>Combined Panel Thickness |      |            |       |
|--|------------------|---------------------|-------|---|------|------------|-------|--|------|------------|-------|
|  |                  |                     |       | Decimal   |      | Millimeter |       | Decimal  |      | Millimeter |       |
|  |                  |                     |       | Min   | Max  | Min        | Max   | Min  | Max  | Min        | Max   |
| Part #   | Part #           | inches              | mm    |   |      |            |       |  |      |            |       |
| SK4002-2W  | SK4002-2SW       | .680                | 17.27 | .081  | .110 | 2.06       | 2.79  | .010   | .310 | 0.25       | 7.87  |
| SK4002-3W  | SK4002-3SW       | .710                | 18.03 | .111  | .140 | 2.82       | 3.56  | .040   | .340 | 1.02       | 8.64  |
| SK4002-4W  | SK4002-4SW       | .740                | 18.80 | .141  | .170 | 3.58       | 4.32  | .070   | .370 | 1.78       | 9.40  |
| SK4002-5W  | SK4002-5SW       | .770                | 19.56 | .171  | .200 | 4.34       | 5.08  | .100   | .400 | 2.54       | 10.16 |
| SK4002-6W  | SK4002-6SW       | .800                | 20.32 | .200  | .230 | 5.08       | 5.84  | .130   | .430 | 3.30       | 10.92 |
| SK4002-7W  | SK4002-7SW       | .830                | 21.08 | .231  | .260 | 5.87       | 6.60  | .160   | .460 | 4.06       | 11.68 |
| SK4002-8W  | SK4002-8SW       | .860                | 21.84 | .261  | .290 | 6.63       | 7.37  | .190   | .490 | 4.83       | 12.45 |
| SK4002-9W  | SK4002-9SW       | .890                | 22.61 | .291  | .320 | 7.39       | 8.13  | .220   | .520 | 5.59       | 13.21 |
| SK4002-10W   | SK4002-10SW      | .920                | 23.37 | .321  | .350 | 8.15       | 8.89  | .250   | .550 | 6.35       | 13.97 |
| SK4002-11W   | SK4002-11SW      | .950                | 24.13 | .351  | .380 | 8.92       | 9.65  | .280   | .580 | 7.11       | 14.73 |
| SK4002-12W   | SK4002-12SW      | .980                | 24.89 | .381  | .410 | 9.68       | 10.41 | .310   | .610 | 7.87       | 15.49 |
| SK4002-13W   | SK4002-13SW      | 1.010               | 25.65 | .411  | .440 | 10.44      | 11.18 | .340   | .640 | 8.64       | 16.26 |
| SK4002-14W   | SK4002-14SW      | 1.040               | 26.42 | .441  | .470 | 11.20      | 11.94 | .370   | .670 | 9.40       | 17.02 |
| SK4002-15W   | SK4002-15SW      | 1.070               | 27.18 | .471  | .500 | 11.96      | 12.70 | .400   | .700 | 10.16      | 17.78 |
| Studs -16 and longer must use SK4002-SWS Retainers |                  |                     |       |   |      |            |       |  |      |            |       |
| SK4002-16W   | SK4002-16SW      | 1.100               | 27.94 | .501  | .530 | 12.73      | 13.46 | .430   | .730 | 10.92      | 18.54 |
| SK4002-17W   | SK4002-17SW      | 1.130               | 28.70 | .531  | .560 | 13.49      | 14.22 | .460   | .760 | 11.68      | 19.30 |
| SK4002-18W   | SK4002-18SW      | 1.160               | 29.46 | .561  | .590 | 14.25      | 14.99 | .490   | .790 | 12.45      | 20.07 |
| SK4002-19W   | SK4002-19SW      | 1.190               | 30.23 | .591  | .620 | 15.01      | 15.75 | .520   | .820 | 13.21      | 20.83 |
| SK4002-20W   | SK4002-20SW      | 1.220               | 30.99 | .621  | .650 | 15.77      | 16.51 | .550   | .850 | 13.97      | 21.59 |

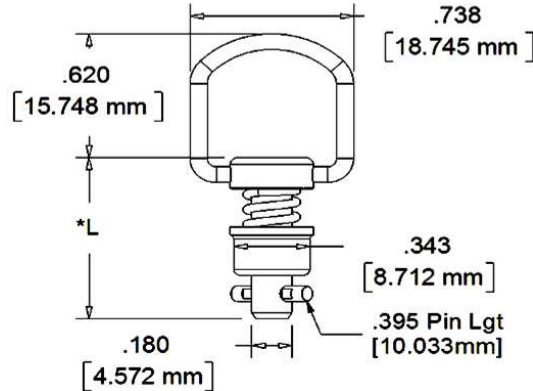
(1) For 244/SK244 Floating Series add .030 to total thickness. For all Grommets besides G and H, add .030 to total thickness.  
Example: Outer panel = .040, Inner panel = .060 - Total grip = .100. Using SK244-16 type receptacle and SK-OS grommet, add .060 = .160 total grip.  
From the chart, select -4 stud.

# CLoc® SK4002 Folding Ring

## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

All -6 and longer studs available with patented hold out feature - Minimizes protrusion when unlocked.

- Industry Standard Heavy Duty 1/4-Turn Panel Fastener Series
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 700 LBS Working - 1050 Lbs Ultimate
- Optional holdout feature - U.S. Patent 10,539,172



**SK4002R Folding Ring**

| Steel Folding Ring                                 | Stainless Folding Ring | Total Stud Length L |        | Grip SK214/40R17 Series (1)<br>Fixed Depth Receptacle |            |                          |            | Grip SK215 and SK245 Series<br>Adjustable Depth Receptacle |            |                          |            |
|--|------------------------|---------------------|--------|---|------------|--------------------------|------------|--|------------|--------------------------|------------|
|  |                        |                     |        | Combined Panel Thickness                              |            | Combined Panel Thickness |            | Combined Panel Thickness                                   |            | Combined Panel Thickness |            |
|  |                        |                     |        | Decimal   | Millimeter | Decimal                  | Millimeter | Decimal  | Millimeter | Decimal                  | Millimeter |
| Part #   | Part #                 | inches              | mm     | Min   | Max        | Min                      | Max        | Min  | Max        | Min                      | Max        |
| SK4002-2R  | SK4002-2SR             | .835                | 21.21  | .081  | .110       | 2.06                     | 2.79       | .010   | .310       | 0.25                     | 7.87       |
| SK4002-3R  | SK4002-3SR             | .865                | 21.97  | .111  | .140       | 2.82                     | 3.56       | .040   | .340       | 1.02                     | 8.64       |
| SK4002-4R  | SK4002-4SR             | .895                | 22.73  | .141  | .170       | 3.58                     | 4.32       | .070   | .370       | 1.78                     | 9.40       |
| SK4002-5R  | SK4002-5SR             | .925                | 23.50  | .171  | .200       | 4.34                     | 5.08       | .100   | .400       | 2.54                     | 10.16      |
| SK4002-6R  | SK4002-6SR             | .955                | 24.26  | .200  | .230       | 5.08                     | 5.84       | .130   | .430       | 3.30                     | 10.92      |
| SK4002-7R  | SK4002-7SR             | .985                | 25.02  | .231  | .260       | 5.87                     | 6.60       | .160   | .460       | 4.06                     | 11.68      |
| SK4002-8R  | SK4002-8SR             | 1.015               | 25.78  | .261  | .290       | 6.63                     | 7.37       | .190   | .490       | 4.83                     | 12.45      |
| SK4002-9R  | SK4002-9SR             | 1.045               | 26.54  | .291  | .320       | 7.39                     | 8.13       | .220   | .520       | 5.59                     | 13.21      |
| SK4002-10R   | SK4002-10SR            | 1.075               | 27.31  | .321  | .350       | 8.15                     | 8.89       | .250   | .550       | 6.35                     | 13.97      |
| SK4002-11R   | SK4002-11SR            | 1.105               | 28.07  | .351  | .380       | 8.92                     | 9.65       | .280   | .580       | 7.11                     | 14.73      |
| SK4002-12R   | SK4002-12SR            | 1.135               | 28.83  | .381  | .410       | 9.68                     | 10.41      | .310   | .610       | 7.87                     | 15.49      |
| SK4002-13R   | SK4002-13SR            | 1.165               | 29.59  | .411  | .440       | 10.44                    | 11.18      | .340   | .640       | 8.64                     | 16.26      |
| SK4002-14R   | SK4002-14SR            | 1.195               | 30.35  | .441  | .470       | 11.20                    | 11.94      | .370   | .670       | 9.40                     | 17.02      |
| SK4002-15R   | SK4002-15SR            | 1.225               | 31.12  | .471  | .500       | 11.96                    | 12.70      | .400   | .700       | 10.16                    | 17.78      |
| Studs -16 and longer must use SK4002-SWS Retainers |                        |                     |        |   |            |                          |            |  |            |                          |            |
| SK4002-16R   | SK4002-16SR            | 1.255               | 31.88  | .501  | .530       | 12.73                    | 13.46      | .430   | .730       | 10.92                    | 18.54      |
| SK4002-17R   | SK4002-17SR            | 1.285               | 32.64  | .531  | .560       | 13.49                    | 14.22      | .460   | .760       | 11.68                    | 19.30      |
| SK4002-18R   | SK4002-18SR            | 1.315               | 33.401 | .561  | .590       | 14.25                    | 14.99      | .490   | .790       | 12.45                    | 20.07      |
| SK4002-19R   | SK4002-19SR            | 1.345               | 34.163 | .591  | .620       | 15.01                    | 15.75      | .520   | .820       | 13.21                    | 20.83      |
| SK4002-20R   | SK4002-20SR            | 1.375               | 34.925 | .621  | .650       | 15.77                    | 16.51      | .550   | .850       | 13.97                    | 21.59      |

(1) For 244/SK244 Floating Series add .030 to total thickness. For all Grommets besides G and H, add .030 to total thickness.

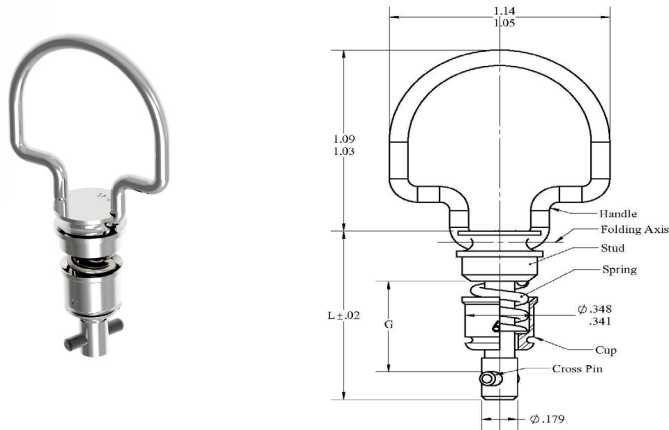
Example: Outer panel = .040, Inner panel = .060 - Total grip = .100. Using SK244-16 type receptacle and SK-OS grommet, add .060 = .160 total grip. From the chart, select -4 stud.

# CLoc® SK40S47 Bail Handle Series

## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

All -6 and longer studs available with patented hold out feature - Minimizes protrusion when unlocked.

- Industry Standard Heavy Duty 1/4-Turn Panel Fastener Series
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 700 LBS Working - 1050 Lbs Ultimate
- Optional holdout feature - U.S. Patent 10,539,172



| Replacements | Steel       | Steel Nickel Plate |
|--------------|-------------|--------------------|
| Camloc       | 40S47-(X)   | 40S47-(X)AR        |
| Lisi         | 1142014-(X) | 1142015-(X)        |

| Folding Bail Handle<br>SK40S47 Series Studs        |             |            | Total Stud Length<br>L |       | Grip<br>SK214/40R17 Series (1)<br>Fixed Depth Receptacle<br>Combined Panel Thickness |      |            |       | Grip<br>SK215 and SK245 Series<br>Adjustable Depth Receptacle<br>Combined Panel Thickness |      |            |       |
|--|-------------|------------|------------------------|-------|--|------|------------|-------|---|------|------------|-------|
| Steel  | Stainless   | Skytanium  |                        |       | Decimal  |      | Millimeter |       | Decimal   |      | Millimeter |       |
| Part #   | Part #      | Part #     | inches                 | mm    | Min  | Max  | Min        | Max   | Min   | Max  | Min        | Max   |
| SK40S47-2  | SK40S47-2S  | ZG40S47-2  | 0.870                  | 22.10 | .081   | .110 | 2.06       | 2.79  | .010  | .310 | 0.25       | 7.87  |
| SK40S47-3  | SK40S47-3S  | ZG40S47-3  | 0.900                  | 22.86 | .111   | .140 | 2.82       | 3.56  | .040  | .340 | 1.02       | 8.64  |
| SK40S47-4  | SK40S47-4S  | ZG40S47-4  | 0.930                  | 23.62 | .141   | .170 | 3.58       | 4.32  | .070  | .370 | 1.78       | 9.40  |
| SK40S47-5  | SK40S47-5S  | ZG40S47-5  | 0.960                  | 24.38 | .171   | .200 | 4.34       | 5.08  | .100  | .400 | 2.54       | 10.16 |
| SK40S47-6  | SK40S47-6S  | ZG40S47-6  | 0.990                  | 25.15 | .200   | .230 | 5.08       | 5.84  | .130  | .430 | 3.30       | 10.92 |
| SK40S47-7  | SK40S47-7S  | ZG40S47-7  | 1.020                  | 25.91 | .231   | .260 | 5.87       | 6.60  | .160  | .460 | 4.06       | 11.68 |
| SK40S47-8  | SK40S47-8S  | ZG40S47-8  | 1.050                  | 26.67 | .261   | .290 | 6.63       | 7.37  | .190  | .490 | 4.83       | 12.45 |
| SK40S47-9  | SK40S47-9S  | ZG40S47-9  | 1.080                  | 27.43 | .291   | .320 | 7.39       | 8.13  | .220  | .520 | 5.59       | 13.21 |
| SK40S47-10   | SK40S47-10S | ZG40S47-10 | 1.110                  | 28.19 | .321   | .350 | 8.15       | 8.89  | .250  | .550 | 6.35       | 13.97 |
| SK40S47-11   | SK40S47-11S | ZG40S47-11 | 1.140                  | 28.96 | .351   | .380 | 8.92       | 9.65  | .280  | .580 | 7.11       | 14.73 |
| SK40S47-12   | SK40S47-12S | ZG40S47-12 | 1.170                  | 29.72 | .381   | .410 | 9.68       | 10.41 | .310  | .610 | 7.87       | 15.49 |
| SK40S47-13   | SK40S47-13S | ZG40S47-13 | 1.200                  | 30.48 | .411   | .440 | 10.44      | 11.18 | .340  | .640 | 8.64       | 16.26 |
| SK40S47-14   | SK40S47-14S | ZG40S47-14 | 1.230                  | 31.24 | .441   | .470 | 11.20      | 11.94 | .370  | .670 | 9.40       | 17.02 |
| SK40S47-15   | SK40S47-15S | ZG40S47-15 | 1.260                  | 32.00 | .471   | .500 | 11.96      | 12.70 | .400  | .700 | 10.16      | 17.78 |
| Studs -16 and longer must use SK4002-SWS Retainers |             |            |                        |       |  |      |            |       |   |      |            |       |
| SK40S47-16   | SK40S47-16S | ZG40S47-16 | 1.290                  | 32.77 | .501   | .530 | 12.73      | 13.46 | .430  | .730 | 10.92      | 18.54 |
| SK40S47-17   | SK40S47-17S | ZG40S47-17 | 1.320                  | 33.53 | .531   | .560 | 13.49      | 14.22 | .460  | .760 | 11.68      | 19.30 |

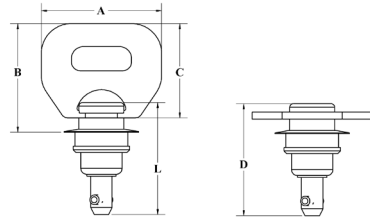
(1) For 244/SK244 Floating Series add .030 to total thickness. For all Grommets besides G and H, add .030 to total thickness.  
Example: Outer panel = .040, Inner panel = .060 - Total grip = .100. Using SK244-16 type receptacle and SK-OS grommet, add .060 = .160 total grip.  
From the chart, select -4 stud.

# CLoc® SK4002FW Folding Wing Series

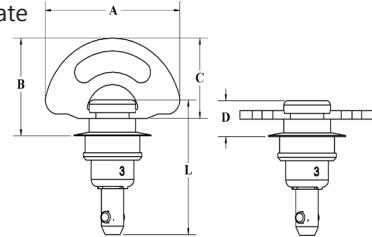
## 4 - Piece Series (Stud/Retainer - Grommet - Locking Receptacle)

All -6 and longer studs available with patented hold out feature - Minimizes protrusion when unlocked.

- Industry Standard Heavy Duty 1/4-Turn Panel Fastener Series
- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 700 LBS Working - 1050 Lbs Ultimate
- Optional holdout feature - U.S. Patent 10,539,172



**SK4002FW Style Folding Wing**  
US Patent Pending



**SK4001FW Style Folding Wing**

|              | A       |       | B(1)    |       | C       |       | D (1)   |      |
|--------------|---------|-------|---------|-------|---------|-------|---------|------|
|              | Decimal | mm    | Decimal | mm    | Decimal | mm    | Decimal | mm   |
| SK4002-(x)FW | 1.000   | 25.40 | 0.850   | 21.59 | 0.800   | 20.32 | 0.260   | 6.60 |
| SK4001-(x)FW | 1.073   | 27.25 | 0.660   | 16.76 | 0.567   | 14.40 | 0.260   | 6.60 |

| Folding Wing<br>SK4002FW Series Studs              |             | Total Stud Length<br>L |       | Grip<br>SK214/40R17 Series (1)<br>Fixed Depth Receptacle<br>Combined Panel Thickness |      |            |       | Grip<br>SK215 and SK245 Series<br>Adjustable Depth Receptacle<br>Combined Panel Thickness |      |            |       |
|--|-------------|------------------------|-------|--|------|------------|-------|---|------|------------|-------|
| 4002FW   | 4001FW      |                        |       | Decimal  |      | Millimeter |       | Decimal   |      | Millimeter |       |
| Part #   | Part #      | inches                 | mm    | Min  | Max  | Min        | Max   | Min   | Max  | Min        | Max   |
| SK4002-2FW   | SK4001-2FW  | 0.920                  | 23.37 | .081   | .110 | 2.06       | 2.79  | .010  | .310 | 0.25       | 7.87  |
| SK4002-3FW   | SK4001-3FW  | 0.950                  | 24.13 | .111   | .140 | 2.82       | 3.56  | .040  | .340 | 1.02       | 8.64  |
| SK4002-4FW   | SK4001-4FW  | 0.980                  | 24.89 | .141   | .170 | 3.58       | 4.32  | .070  | .370 | 1.78       | 9.40  |
| SK4002-5FW   | SK4001-5FW  | 1.010                  | 25.65 | .171   | .200 | 4.34       | 5.08  | .100  | .400 | 2.54       | 10.16 |
| SK4002-6FW   | SK4001-6FW  | 1.040                  | 26.42 | .200   | .230 | 5.08       | 5.84  | .130  | .430 | 3.30       | 10.92 |
| SK4002-7FW   | SK4001-7FW  | 1.070                  | 27.18 | .231   | .260 | 5.87       | 6.60  | .160  | .460 | 4.06       | 11.68 |
| SK4002-8FW   | SK4001-8FW  | 1.100                  | 27.94 | .261   | .290 | 6.63       | 7.37  | .190  | .490 | 4.83       | 12.45 |
| SK4002-9FW   | SK4001-9FW  | 1.130                  | 28.70 | .291   | .320 | 7.39       | 8.13  | .220  | .520 | 5.59       | 13.21 |
| SK4002-10FW  | SK4001-10FW | 1.160                  | 29.46 | .321   | .350 | 8.15       | 8.89  | .250  | .550 | 6.35       | 13.97 |
| SK4002-11FW  | SK4001-11FW | 1.190                  | 30.23 | .351   | .380 | 8.92       | 9.65  | .280  | .580 | 7.11       | 14.73 |
| SK4002-12FW  | SK4001-12FW | 1.220                  | 30.99 | .381   | .410 | 9.68       | 10.41 | .310  | .610 | 7.87       | 15.49 |
| SK4002-13FW  | SK4001-13FW | 1.250                  | 31.75 | .411   | .440 | 10.44      | 11.18 | .340  | .640 | 8.64       | 16.26 |
| SK4002-14FW  | SK4001-14FW | 1.280                  | 32.51 | .441   | .470 | 11.20      | 11.94 | .370  | .670 | 9.40       | 17.02 |
| SK4002-15FW  | SK4001-15FW | 1.310                  | 33.27 | .471   | .500 | 11.96      | 12.70 | .400  | .700 | 10.16      | 17.78 |
| Studs -16 and longer must use SK4002-SWS Retainers |             |                        |       |  |      |            |       |   |      |            |       |
| SK4002-16FW  | SK4001-16FW | 1.340                  | 34.04 | .501   | .530 | 12.73      | 13.46 | .430  | .730 | 10.92      | 18.54 |
| SK4002-17FW  | SK4001-17FW | 1.370                  | 34.80 | .531   | .560 | 13.49      | 14.22 | .460  | .760 | 11.68      | 19.30 |
| SK4002-18FW  | SK4001-18FW | 1.400                  | 35.56 | .561   | .590 | 14.25      | 14.99 | .490  | .790 | 12.45      | 20.07 |
| SK4002-19FW  | SK4001-19FW | 1.430                  | 36.32 | .591   | .620 | 15.01      | 15.77 | .520  | .820 | 13.21      | 20.83 |
| SK4002-20FW  | SK4001-20FW | 1.460                  | 37.08 | .621   | .650 | 15.77      | 16.54 | .550  | .850 | 13.97      | 21.59 |

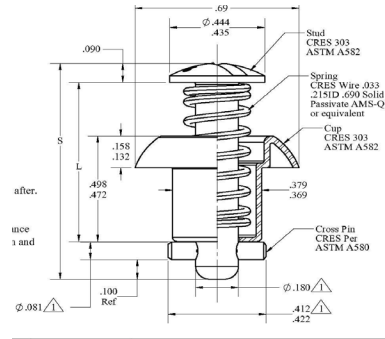
(1) For 244/SK244 Floating Series add .030 to total thickness. For all Grommets besides G and H, add .030 to total thickness.  
Example: Outer panel = .040, Inner panel = .060 - Total grip = .100. Using SK244-16 type receptacle and SK-OS grommet, add .060 = .160 total grip.  
From the chart, select -4 stud.

# CLoc® SK40S128 Grommetless Slotted Stud

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)



- Compatible with Camloc® 40S128-( )-1AA Fasteners
- 700 lb Working Load - 1050 lb Ultimate (Tensile)
- TSO-C148 Pending
- Available in Stainless & Skytanium®



| Skybolt® Part#  | Camloc® Part# | Skybolt® L min | Skybolt® L max | Camloc® L min | Camloc® L max | Skybolt® S Dim | Camloc® S Dim | Grip Min | Grip Max | Grip Min mm | Grip Max mm |
|-----------------|---------------|----------------|----------------|---------------|---------------|----------------|---------------|----------|----------|-------------|-------------|
| SK40S128-2-1AA  | 40S128-2-1AA  | 0.593          | 0.603          | 0.613         | 0.623         | 0.878          | 0.885         | 0.135    | 0.165    | 3.429       | 4.191       |
| SK40S128-3-1AA  | 40S128-3-1AA  | 0.623          | 0.633          | 0.643         | 0.653         | 0.908          | 0.915         | 0.165    | 0.195    | 4.191       | 4.953       |
| SK40S128-4-1AA  | 40S128-4-1AA  | 0.653          | 0.663          | 0.673         | 0.683         | 0.938          | 0.945         | 0.195    | 0.225    | 4.953       | 5.715       |
| SK40S128-5-1AA  | 40S128-5-1AA  | 0.683          | 0.693          | 0.703         | 0.713         | 0.968          | 0.975         | 0.225    | 0.255    | 5.715       | 6.477       |
| SK40S128-6-1AA  | 40S128-6-1AA  | 0.713          | 0.723          | 0.733         | 0.743         | 0.998          | 1.005         | 0.255    | 0.285    | 6.477       | 7.239       |
| SK40S128-7-1AA  | 40S128-7-1AA  | 0.743          | 0.753          | 0.763         | 0.773         | 1.028          | 1.035         | 0.285    | 0.315    | 7.239       | 8.001       |
| SK40S128-8-1AA  | 40S128-8-1AA  | 0.773          | 0.783          | 0.793         | 0.803         | 1.058          | 1.065         | 0.315    | 0.345    | 8.001       | 8.763       |
| SK40S128-9-1AA  | 40S128-9-1AA  | 0.803          | 0.813          | 0.823         | 0.833         | 1.088          | 1.095         | 0.345    | 0.375    | 8.763       | 9.525       |
| SK40S128-10-1AA | 40S128-10-1AA | 0.833          | 0.843          | 0.853         | 0.863         | 1.118          | 1.125         | 0.375    | 0.405    | 9.525       | 10.287      |
| SK40S128-11-1AA | 40S128-11-1AA | 0.863          | 0.873          | 0.883         | 0.893         | 1.148          | 1.155         | 0.405    | 0.435    | 10.287      | 11.049      |
| SK40S128-12-1AA | 40S128-12-1AA | 0.893          | 0.903          | 0.913         | 0.923         | 1.178          | 1.185         | 0.435    | 0.465    | 11.049      | 11.811      |
| SK40S128-13-1AA | 40S128-13-1AA | 0.923          | 0.933          | 0.943         | 0.953         | 1.208          | 1.215         | 0.465    | 0.495    | 11.811      | 12.573      |
| SK40S128-14-1AA | 40S128-14-1AA | 0.953          | 0.963          | 0.973         | 0.983         | 1.238          | 1.245         | 0.495    | 0.525    | 12.573      | 13.335      |
| SK40S128-15-1AA | 40S128-15-1AA | 0.983          | 0.993          | 1.003         | 1.013         | 1.268          | 1.275         | 0.525    | 0.555    | 13.335      | 14.097      |
| SK40S128-16-1AA | 40S128-16-1AA | 1.013          | 1.023          | 1.033         | 1.043         | 1.298          | 1.305         | 0.555    | 0.585    | 14.097      | 14.859      |
| SK40S128-17-1AA | 40S128-17-1AA | 1.043          | 1.053          | 1.063         | 1.073         | 1.328          | 1.335         | 0.585    | 0.615    | 14.859      | 15.621      |
| SK40S128-18-1AA | 40S128-18-1AA | 1.073          | 1.083          | 1.093         | 1.103         | 1.358          | 1.365         | 0.615    | 0.645    | 15.621      | 16.383      |
| SK40S128-19-1AA | 40S128-19-1AA | 1.103          | 1.113          | 1.123         | 1.133         | 1.388          | 1.395         | 0.645    | 0.675    | 16.383      | 17.145      |
| SK40S128-20-1AA | 40S128-20-1AA | 1.133          | 1.143          | 1.153         | 1.163         | 1.418          | 1.425         | 0.675    | 0.705    | 17.145      | 17.907      |

### Stud Retainer SK40S142S

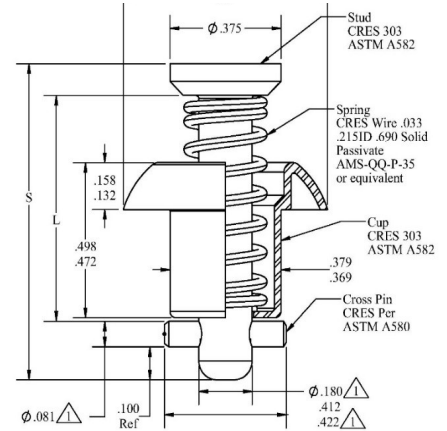


| Replacements | Stainless      |
|--------------|----------------|
| Camloc       | 40S128-(x)-1AA |
| Lisi         | 1142006-(x)    |

# CLoc® SK40S128 Grommetless Phillips Stud

## 3 - Piece Series (Stud/Retainer - Locking Receptacle)

- Compatible with Camloc® 40S128-( )-2AA Fasteners
- 700 lb Working Load - 1050 lb Ultimate (Tensile)
- TSO-C148 Pending
- Available in Stainless & Skytanium®



| Skybolt® Part#  | Camloc® Part# | Skybolt® L min | Skybolt® L max | Camloc® L min | Camloc® L max | Skybolt® S Dim | Camloc® S Dim | Grip Min | Grip Max | Grip Min mm | Grip Max mm |
|-----------------|---------------|----------------|----------------|---------------|---------------|----------------|---------------|----------|----------|-------------|-------------|
| SK40S128-2-2AA  | 40S128-2-2AA  | 0.593          | 0.603          | 0.613         | 0.623         | 0.878          | 0.885         | 0.135    | 0.165    | 3.429       | 4.191       |
| SK40S128-3-2AA  | 40S128-3-2AA  | 0.623          | 0.633          | 0.643         | 0.653         | 0.908          | 0.915         | 0.165    | 0.195    | 4.191       | 4.953       |
| SK40S128-4-2AA  | 40S128-4-2AA  | 0.653          | 0.663          | 0.673         | 0.683         | 0.938          | 0.945         | 0.195    | 0.225    | 4.953       | 5.715       |
| SK40S128-5-2AA  | 40S128-5-2AA  | 0.683          | 0.693          | 0.703         | 0.713         | 0.968          | 0.975         | 0.225    | 0.255    | 5.715       | 6.477       |
| SK40S128-6-2AA  | 40S128-6-2AA  | 0.713          | 0.723          | 0.733         | 0.743         | 0.998          | 1.005         | 0.255    | 0.285    | 6.477       | 7.239       |
| SK40S128-7-2AA  | 40S128-7-2AA  | 0.743          | 0.753          | 0.763         | 0.773         | 1.028          | 1.035         | 0.285    | 0.315    | 7.239       | 8.001       |
| SK40S128-8-2AA  | 40S128-8-2AA  | 0.773          | 0.783          | 0.793         | 0.803         | 1.058          | 1.065         | 0.315    | 0.345    | 8.001       | 8.763       |
| SK40S128-9-2AA  | 40S128-9-2AA  | 0.803          | 0.813          | 0.823         | 0.833         | 1.088          | 1.095         | 0.345    | 0.375    | 8.763       | 9.525       |
| SK40S128-10-2AA | 40S128-10-2AA | 0.833          | 0.843          | 0.853         | 0.863         | 1.118          | 1.125         | 0.375    | 0.405    | 9.525       | 10.287      |
| SK40S128-11-2AA | 40S128-11-2AA | 0.863          | 0.873          | 0.883         | 0.893         | 1.148          | 1.155         | 0.405    | 0.435    | 10.287      | 11.049      |
| SK40S128-12-2AA | 40S128-12-2AA | 0.893          | 0.903          | 0.913         | 0.923         | 1.178          | 1.185         | 0.435    | 0.465    | 11.049      | 11.811      |
| SK40S128-13-2AA | 40S128-13-2AA | 0.923          | 0.933          | 0.943         | 0.953         | 1.208          | 1.215         | 0.465    | 0.495    | 11.811      | 12.573      |
| SK40S128-14-2AA | 40S128-14-2AA | 0.953          | 0.963          | 0.973         | 0.983         | 1.238          | 1.245         | 0.495    | 0.525    | 12.573      | 13.335      |
| SK40S128-15-2AA | 40S128-15-2AA | 0.983          | 0.993          | 1.003         | 1.013         | 1.268          | 1.275         | 0.525    | 0.555    | 13.335      | 14.097      |
| SK40S128-16-2AA | 40S128-16-2AA | 1.013          | 1.023          | 1.033         | 1.043         | 1.298          | 1.305         | 0.555    | 0.585    | 14.097      | 14.859      |
| SK40S128-17-2AA | 40S128-17-2AA | 1.043          | 1.053          | 1.063         | 1.073         | 1.328          | 1.335         | 0.585    | 0.615    | 14.859      | 15.621      |
| SK40S128-18-2AA | 40S128-18-2AA | 1.073          | 1.083          | 1.093         | 1.103         | 1.358          | 1.365         | 0.615    | 0.645    | 15.621      | 16.383      |
| SK40S128-19-2AA | 40S128-19-2AA | 1.103          | 1.113          | 1.123         | 1.133         | 1.388          | 1.395         | 0.645    | 0.675    | 16.383      | 17.145      |
| SK40S128-20-2AA | 40S128-20-2AA | 1.133          | 1.143          | 1.153         | 1.163         | 1.418          | 1.425         | 0.675    | 0.705    | 17.145      | 17.907      |

### Stud Retainer SK40S142S



| Replacements | Stainless      |
|--------------|----------------|
| Camloc       | 40S128-(x)-2AA |
| Lisi         | None           |



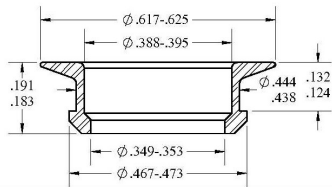
# CLoc® 4000 Series Stud Weights

| Dash # | SK4002S/40S5S |        | SK4002SW |         | SK4002SWF |         | Skytanium® ZG4002 |        |
|--------|---------------|--------|----------|---------|-----------|---------|-------------------|--------|
|        | Lbs           | Grams  | Lbs      | Grams   | Lbs       | Grams   | Lbs               | Grams  |
| -2     | .0095         | 4.3091 | 0.0145   | 6.5771  | 0.0240    | 10.8862 | 0.0045            | 2.0414 |
| -3     | .0100         | 4.5359 | 0.0155   | 7.0307  | 0.0245    | 11.1130 | 0.0047            | 2.1321 |
| -4     | .0105         | 4.7627 | 0.0160   | 7.2575  | 0.0245    | 11.1130 | 0.0050            | 2.2682 |
| -5     | .0110         | 4.9895 | 0.0165   | 7.4843  | 0.0255    | 11.5666 | 0.0055            | 2.4950 |
| -6     | .0120         | 5.4431 | 0.0175   | 7.9379  | 0.0263    | 11.9068 | 0.0060            | 2.7219 |
| -7     | .0130         | 5.8967 | 0.0185   | 8.3915  | 0.0270    | 12.2470 | 0.0065            | 2.9487 |
| -8     | .0135         | 6.1235 | 0.0190   | 8.6183  | 0.0278    | 12.5872 | 0.0067            | 3.0394 |
| -9     | .0140         | 6.3503 | 0.0195   | 8.8451  | 0.0285    | 12.9274 | 0.0069            | 3.1520 |
| -10    | .0150         | 6.8039 | 0.0205   | 9.2986  | 0.0295    | 13.3810 | 0.0074            | 3.3772 |
| -11    | .0155         | 7.0307 | 0.0210   | 9.5254  | 0.0303    | 13.7212 | 0.0077            | 3.4897 |
| -12    | .0165         | 7.4843 | 0.0220   | 9.9790  | 0.0310    | 14.0614 | 0.0082            | 3.7149 |
| -13    | .0170         | 7.7111 | 0.0225   | 10.2058 | 0.0318    | 14.4016 | 0.0084            | 3.8275 |
| -14    | .0175         | 7.9379 | 0.0230   | 10.4326 | 0.0325    | 14.7418 | 0.0087            | 3.9400 |
| -15    | .0185         | 8.3915 | 0.0240   | 10.8862 | 0.0333    | 15.0819 | 0.0092            | 4.1652 |
| -16    | .0130         | 5.8967 | 0.0185   | 8.3915  | 0.0340    | 15.4221 | 0.0065            | 2.9269 |
| -17    | .0132         | 5.9874 | 0.0187   | 8.4822  | 0.0348    | 15.7623 | 0.0066            | 2.9798 |
| -18    | .0135         | 6.1235 | 0.0190   | 8.6183  | 0.0355    | 16.1025 | 0.0067            | 3.0327 |
| -19    | .0137         | 6.2142 | 0.0192   | 8.7090  | 0.0363    | 16.4427 | 0.0068            | 3.0856 |
| -20    | .0139         | 6.3049 | 0.0194   | 8.7997  | 0.0375    | 17.0097 | 0.0069            | 3.1385 |
| -21    | .0142         | 6.4410 | 0.0197   | 8.9358  |           |         | 0.0070            | 3.1914 |
| -22    | .0144         | 6.5317 | 0.0199   | 9.0265  |           |         | 0.0072            | 3.2443 |
| -23    | .0146         | 6.6224 | 0.0201   | 9.1172  |           |         | 0.0073            | 3.2972 |
| -24    | .0149         | 6.7585 | 0.0204   | 9.2533  |           |         | 0.0074            | 3.3501 |
| -25    | .0151         | 6.8492 | 0.0206   | 9.3440  |           |         | 0.0075            | 3.4031 |
| -26    | .0153         | 6.9400 | 0.0208   | 9.4347  |           |         | 0.0076            | 3.4560 |
| -27    | .0156         | 7.0760 | 0.0211   | 9.5708  |           |         | 0.0077            | 3.5089 |
| -28    | .0158         | 7.1668 | 0.0213   | 9.6615  |           |         | 0.0079            | 3.5618 |
| -29    | .0160         | 7.2575 | 0.0215   | 9.7522  |           |         | 0.0080            | 3.6147 |
| -30    | .0162         | 7.3482 | 0.0217   | 9.8430  |           |         | 0.0081            | 3.6676 |
| -31    | .0165         | 7.4843 | 0.0220   | 9.9790  |           |         | 0.0082            | 3.7205 |
| -32    | .0168         | 7.6204 | 0.0223   | 10.1151 |           |         | 0.0083            | 3.7734 |
| -33    | .0170         | 7.7111 | 0.0225   | 10.2058 |           |         | 0.0084            | 3.8263 |
| -34    | .0172         | 7.8018 | 0.0227   | 10.2965 |           |         | 0.0086            | 3.8792 |
| -35    | .0175         | 7.9379 | 0.0230   | 10.4326 |           |         | 0.0087            | 3.9321 |
| -36    | .0177         | 8.0286 | 0.0232   | 10.5233 |           |         | 0.0088            | 3.9851 |
| -37    | .0179         | 8.1193 | 0.0234   | 10.6141 |           |         | 0.0089            | 4.0380 |
| -38    | .0182         | 8.2554 | 0.0237   | 10.7501 |           |         | 0.0090            | 4.0909 |
| -39    | .0184         | 8.3461 | 0.0239   | 10.8409 |           |         | 0.0091            | 4.1438 |
| -40    | .0186         | 8.4368 | 0.0241   | 10.9316 |           |         | 0.0093            | 4.1967 |
| -41    | .0189         | 8.5729 | 0.0244   | 11.0677 |           |         | 0.0094            | 4.2496 |
| -42    | .0191         | 8.6636 | 0.0246   | 11.1584 |           |         | 0.0095            | 4.3025 |
| -43    | .0193         | 8.7543 | 0.0248   | 11.2491 |           |         | 0.0096            | 4.3554 |
| -44    | .0196         | 8.8904 | 0.0251   | 11.3852 |           |         | 0.0097            | 4.4083 |
| -45    | .0198         | 8.9811 | 0.0253   | 11.4759 |           |         | 0.0098            | 4.4612 |

Weights are for Steel and Stainless or Skytanium as noted.

# CLoc® SK4000 Series Flush Grommets

Standard Grommets (For Panels up to .126)  
TSO-C148

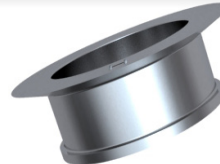
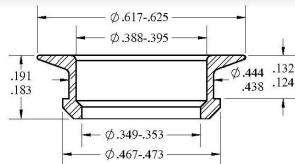


'G' Series - Panels to .068 Thickness  
Steel Stainless

|        |          |           |
|--------|----------|-----------|
| Camloc | 4002-G   | 4002-GS   |
| Lisi   | 114900-1 | 1142904-1 |

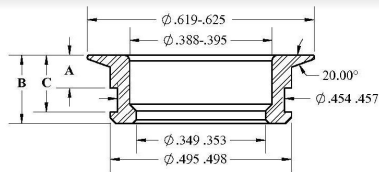
SK-GP (Ext-Flare)

|        |              |              |
|--------|--------------|--------------|
| Camloc | 4002-P2-(x)A | 4002-P2-(x)S |
| Lisi   | 1142915-(x)  |              |



'H' Series - Panels to .126 Thickness

|        |           |           |
|--------|-----------|-----------|
|        | Steel     | Stainless |
| Camloc | 4002-H    | 4002-HS   |
| Lisi   | 1142900-2 | 114904-2  |



SK40G1 High Shear Series

- Panels to .151 Thickness  
Steel Stainless

|        |             |      |
|--------|-------------|------|
| Camloc | 40G1-(x)    | None |
| Lisi   | 1142909-(x) | None |

Flush Grommets require 140° countersunk panels. Standard flush grommets are available in two thickness ranges, G for panels up to .083, and H for panels up to .126 in thickness. Many production aircraft installations used Flush Grommets.

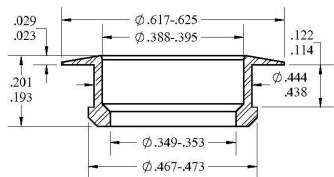
## Engineering Data for Flush Series CLoc® Grommets (Chart 1)

| Steel Grommet# | A    | B    | C    | Type               | Material | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|----------------|------|------|------|--------------------|----------|-------------------|------------|--|------------|
|                |      |      |      |                    |          | R4G               | R4T        | SK214-16   | SK215      |
|                |      |      |      |                    |          | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-G           |      | .191 | .124 | Flush - Standard   | Steel    | Up to .083        | Up to .064 | Skybolt CLoc® components have no minimum restriction |            |
| SK40G1-3       | .043 | .189 | .109 | Flush - High Shear | Steel    | Up to .068        | Up to .049 |  |            |
| SK40G1-4       | .053 | .189 | .119 | Flush - High Shear | Steel    | Up to .078        | Up to .059 |  |            |
| SK40G1-5       | .063 | .189 | .129 | Flush - High Shear | Steel    | Up to .088        | Up to .069 |  |            |
| SK40G1-6       | .073 | .189 | .139 | Flush - High Shear | Steel    | Up to .098        | Up to .079 |  |            |
| SK40G1-8       | .090 | .189 | .156 | Flush - High Shear | Steel    | Up to .115        | Up to .096 |  |            |
| SK40G1-10      | .111 | .218 | .177 | Flush - High Shear | Steel    | Up to .136        | Up to .117 |  |            |
| SK40G1-11      | .126 | .218 | .192 | Flush - High Shear | Steel    | Up to .151        | Up to .132 |  |            |
| SK-H           |      | .201 | .167 | Flush - Standard   | Steel    | Up to .126        | Up to .107 |  |            |

| Stainless Grommet# | A    | B    | C    | Type               | Material  | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|--------------------|------|------|------|--------------------|-----------|-------------------|------------|--|------------|
|                    |      |      |      |                    |           | R4G               | R4T        | SK214-16   | SK215      |
|                    |      |      |      |                    |           | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-GS              |      | .191 | .124 | Flush - Standard   | Stainless | Up to .083        | Up to .064 | Skybolt CLoc® components have no minimum restriction |            |
| SK40G1-3S          | .043 | .189 | .109 | Flush - High Shear | Stainless | Up to .068        | Up to .049 |  |            |
| SK40G1-4S          | .053 | .189 | .119 | Flush - High Shear | Stainless | Up to .078        | Up to .059 |  |            |
| SK40G1-5S          | .063 | .189 | .129 | Flush - High Shear | Stainless | Up to .088        | Up to .069 |  |            |
| SK40G1-6S          | .073 | .189 | .139 | Flush - High Shear | Stainless | Up to .098        | Up to .079 |  |            |
| SK40G1-8S          | .090 | .189 | .156 | Flush - High Shear | Stainless | Up to .115        | Up to .096 |  |            |
| SK40G1-10S         | .111 | .218 | .177 | Flush - High Shear | Stainless | Up to .136        | Up to .117 |  |            |
| SK40G1-11S         | .126 | .218 | .192 | Flush - High Shear | Stainless | Up to .151        | Up to .132 |  |            |
| SK-HS              |      | .201 | .167 | Flush - Standard   | Stainless | Up to .126        | Up to .107 |  |            |

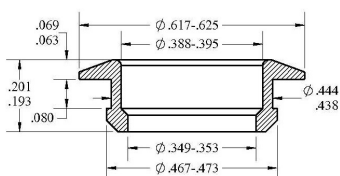
# CLoc® SK4000 Series PlusFlush Grommets

Standard Grommets (For Panels up to .073  
TSO-C148



### SK-N2 Series

|        | Steel     | Stainless |
|--------|-----------|-----------|
| Camloc | 4002-N2   | 4002-N2S  |
| Lisi   | 1142901-1 | 1142903-1 |



### SK-N Series

|        | Steel       | Stainless   |
|--------|-------------|-------------|
| Camloc | 4002-N      | 4002-NS     |
| Lisi   | 1142005-(x) | 1142012-(x) |

## Engineering Data for Flush Series CLoc® Grommets (Chart 2)

| Grommet# | 'L'         | Type     | Material | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|----------|-------------|----------|----------|-------------------|------------|--|------------|
|          |             |          |          | R4G               | R4T        | SK214-16   | SK215      |
|          |             |          |          | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-N2    | .184/4.68mm | Standard | Steel    | Up to .025        | Up to .011 | Skybolt CLoc® components have no minimum restriction |            |
| SK-N     | .197/5.00   | Standard | Steel    | Up to .079        | Up to .063 | Skybolt CLoc® components have no minimum restriction |            |

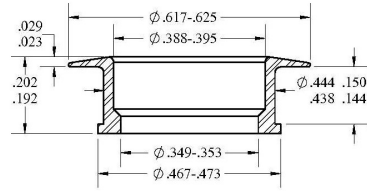
| Grommet# | 'L'         | Type     | Material  | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|----------|-------------|----------|-----------|-------------------|------------|--|------------|
|          |             |          |           | R4G               | R4T        | SK214-16   | SK215      |
|          |             |          |           | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-N2S   | .184/4.68mm | Standard | Stainless | Up to .025        | Up to .011 | Skybolt CLoc® components have no minimum restriction |            |
| SK-NS    | .197/5.00   | Standard | Stainless | Up to .079        | Up to .063 | Skybolt CLoc® components have no minimum restriction |            |

\*Minimum thickness applies to Camloc Receptacles when grommet length is too long for panels

# CLoc® SK4000 Series PlusFlush Grommets

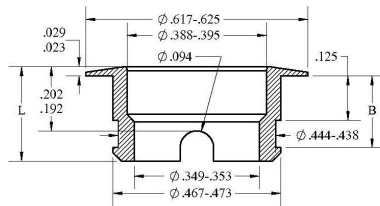
Standard Grommets (For Panels up to .103) | Extended Grommets (For Panels up to .546)

TSO-C148



### SK-O Series

|        | Steel     | Stainless |
|--------|-----------|-----------|
| Camloc | 4002-O    | 4002-OS   |
| Lisi   | 1142901-3 | 1142903-3 |



### SK-O Extended Length Series

|        | Steel     | Stainless  |
|--------|-----------|------------|
| Camloc | 40G16-(x) | 40G16-(x)S |
| Lisi   | 1142906-1 | 1142907-1  |

Skybolt N and O Series Grommets do not require dimpled or countersunk holes. These grommets, however, are almost flush (Plus Flush) so that drag considerations are minor. Traditional snap ring grommets are restricted in depth by the clearances required to insert the studs through the grommet. The SK-O Extended Depth Grommets utilize a milled slot in the grommet skirt to allow any stud to be easily inserted or removed while extending the grip range of the grommet. This is especially useful for thicker panels up through 1/2". The SK-O Extended Depth Grommet eliminates the requirement to back-counterbore holes in order to install R4G Retainers. This Grommet is the perfect substitution for expensive Flare Retained Grommets

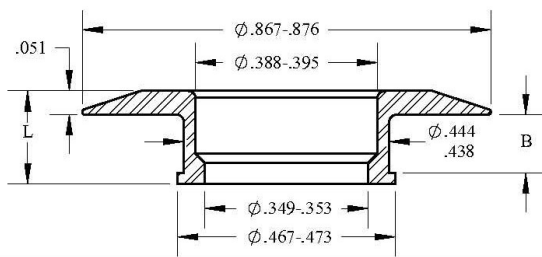
## Engineering Data for Flush Series CLoc® Grommets (Chart 3)

| Grommet# | 'B'  | 'L'  | Type         | Material | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|----------|------|------|--------------|----------|-------------------|------------|--|------------|
|          |      |      |              |          | R4G               | R4T        | SK214-16   | SK215      |
|          |      |      |              |          | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-O     | .144 | .202 | Standard     | Steel    | Up to .103        | Up to .084 | Skybolt CLoc® components have no minimum restriction |            |
| SK-OG1-8 | .144 | .202 | Non-Floating | Steel    | Up to .103        | Up to .084 |  |            |
| SK-O18   | .188 | .265 | Ext Length   | Steel    | Up to .147        | Up to .128 |  |            |
| SK-316   | .277 | .352 | Ext Length   | Steel    | Up to .236        | Up to .217 |  |            |
| SK-O14   | .325 | .428 | Ext Length   | Steel    | Up to .284        | Up to .265 |  |            |
| SK-O12   | .587 | .680 | Ext Length   | Steel    | Up to .546        | Up to .527 |  |            |

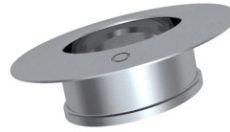
| Grommet#  | 'B'  | 'L'  | Type         | Material  | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|-----------|------|------|--------------|-----------|-------------------|------------|--|------------|
|           |      |      |              |           | R4G               | R4T        | SK214-16   | SK215      |
|           |      |      |              |           | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-OS     | .144 | .202 | Standard     | Stainless | Up to .103        | Up to .084 | Skybolt CLoc® components have no minimum restriction |            |
| SK-OSG1-8 | .144 | .202 | Non-Floating | Stainless | Up to .103        | Up to .084 |  |            |
| SK-O18S   | .233 | .265 | Ext Length   | Stainless | Up to .192        | Up to .173 |  |            |
| SK-316S   | .277 | .352 | Ext Length   | Stainless | Up to .236        | Up to .217 |  |            |
| SK-O14S   | .325 | .428 | Ext Length   | Stainless | Up to .284        | Up to .265 |  |            |
| SK-O12S   | .587 | .680 | Ext Length   | Stainless | Up to .546        | Up to .527 |  |            |

# CLoc® SK4000 Series Large Area Grommets

For panels from .065 to .546

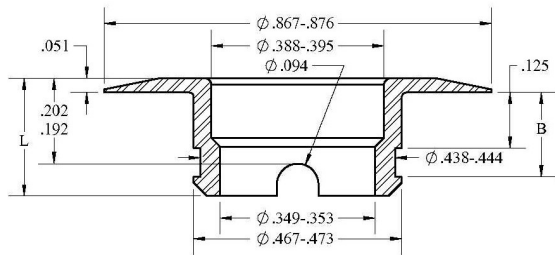


SO-C148



**SK-N3 Series**

|        | Steel   | Stainless |
|--------|---------|-----------|
| Camloc | 4002-N3 | 4002-N3-A |
| Lisi   | 1142931 | 1142927   |



**SK-N3 Extended Length Series  
ZG-LA Extended Length Series**

|        | Steel       | Stainless    |
|--------|-------------|--------------|
| Camloc | 4002-P4-(x) | 4002-P4-(x)A |
| Lisi   | 1142914-(x) | 1142926-(x)  |

Wide area grommets are used in panels under high tensile loads and any application where tensile loads need to be expanded over a larger area. N-Series Grommets have a .875 width. ZG-LA grommets have a .750 width.

**Engineering Data for CLoc® Grommets Plus Flush (Chart 4)**

| Steel Grommet# | 'B'  | 'L'  | 'W'  | Type       | Material | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|----------------|------|------|------|------------|----------|-------------------|------------|--|------------|
|                |      |      |      |            |          | R4G               | R4T        | SK214-16   | SK215      |
|                |      |      |      |            |          | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-N3          | .120 | .201 | .875 | Standard   | Steel    | Up to .079        | Up to .060 | Skybolt CLoc® components have no minimum restriction |            |
| SK-N318        | .188 | .265 | .875 | Ext Length | Steel    | Up to .147        | Up to .128 |  |            |
| SK-N316        | .277 | .352 | .875 | Ext Length | Steel    | Up to .236        | Up to .217 |  |            |
| SK-N314        | .325 | .428 | .875 | Ext Length | Steel    | Up to .284        | Up to .265 |  |            |
| SK-N312        | .587 | .680 | .875 | Ext Length | Steel    | Up to .546        | Up to .527 |  |            |

| Stainless Grommet# | 'B'  | 'L'  | 'W'  | Type       | Material  | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|--------------------|------|------|------|------------|-----------|-------------------|------------|--|------------|
|                    |      |      |      |            |           | R4G               | R4T        | SK214-16   | SK215      |
|                    |      |      |      |            |           | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| SK-N3S             | .120 | .201 | .875 | Standard   | Stainless | Up to .079        | Up to .060 | Skybolt CLoc® components have no minimum restriction |            |
| SK-N318S           | .188 | .265 | .875 | Ext Length | Stainless | Up to .147        | Up to .128 |  |            |
| SK-N316S           | .277 | .352 | .875 | Ext Length | Stainless | Up to .236        | Up to .217 |  |            |
| SK-N314S           | .325 | .428 | .875 | Ext Length | Stainless | Up to .284        | Up to .265 |  |            |
| SK-N312S           | .587 | .680 | .875 | Ext Length | Stainless | Up to .546        | Up to .527 |  |            |

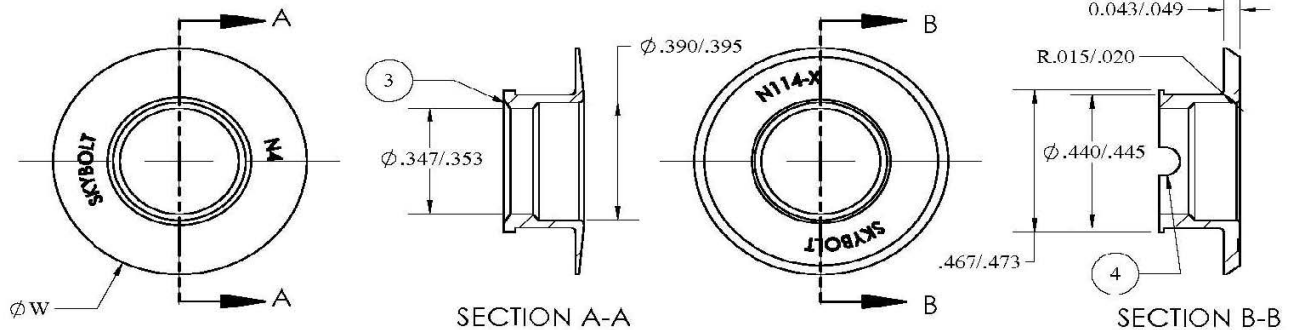
| Skytanium® Grommet# | 'B'  | 'L'  | 'W'  | Type       | Material  | Panel Depth Range |            | Minimum Total Thickness*                             |            |
|---------------------|------|------|------|------------|-----------|-------------------|------------|--|------------|
|                     |      |      |      |            |           | R4G               | R4T        | SK214-16   | SK215      |
|                     |      |      |      |            |           | Snap Ring         | Snap Ring  | SK244-16 Rec   | SK245* Rec |
| ZG-094LA            | .120 | .201 | .750 | Standard   | Skytanium | Up to .079        | Up to .060 | Skybolt CLoc® components have no minimum restriction |            |
| ZG-125LA            | .188 | .265 | .750 | Ext Length | Skytanium | Up to .147        | Up to .128 |  |            |
| ZG-187LA            | .277 | .352 | .750 | Ext Length | Skytanium | Up to .236        | Up to .217 |  |            |
| ZG-250LA            | .325 | .428 | .750 | Ext Length | Skytanium | Up to .284        | Up to .265 |  |            |

\*Minimum thickness applies to Camloc receipt: Ext Length.

# CLoc® SKN4 and SK-N114 Series Grommets

Wide Flange (.750) Grommets (For Panel Thickness up to .163)\*

TSO-C148



**SKN4 Series  
(TaperHead)**

**SK-N114 Series  
(FlatHead)**

Replace AirlocII 114295-4

The Skybolt SKN4 and SK-114 Grommets are the perfect balance between traditional grommet head size and the large area SK-N3 grommets. Ideal for "workhorse" aircraft panels. Common to Ag Aircraft.

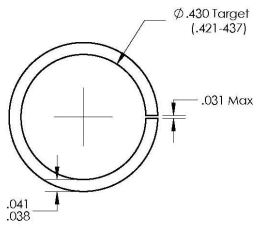
Notes: \*When used with SK-R4GS retainers Grip is less with SK-R4TS Retainers. Charted Grip ranges are conservative.

## Engineering Data for CLoc® Grommets Plus Flush (Chart 5)

| SKN4 Series<br>Taper Face<br>Grommet# | 'B min" | 'L'  | Type               | Material     | Weight<br>lb/g | Panel Depth Range |              | Minimum Total Thickness(1)                              |                            |  |
|---------------------------------------|---------|------|--------------------|--------------|----------------|-------------------|--------------|---|----------------------------|--|
|                                       |         |      |                    |              |                | R4G               | R4T          | SK214-16  | SK215                      |  |
|                                       |         |      |                    |              |                | Snap Ring         | Snap Ring    | SK244-16 Rec  | SK245* Rec                 |  |
| SKN4-2                                | .114    | .201 | Taper Plus Flush   | Steel/Cad    | .60            | Up to .073        | Up to .054   | Skybolt CLoc® components<br>have no minimum restriction |                            |  |
| SKN4-3                                | .137    | .201 | Taper Plus Flush   | Steel/Cad    | .60            | Up to .096        | Up to .077   |   |                            |  |
| SKN4-4                                | .174    | .239 | Taper Plus Flush   | Steel/Cad    | .70            | Up to .133        | Up to .114   |   |                            |  |
| SKN4-5                                | .204    | .269 | Taper Plus Flush   | Steel/Cad    | .80            | Up to .163        | Up to .144   |   |                            |  |
| SKN4-2G                               | .114    | .201 | Taper Plus Flush   | Steel/Primer | .70            | Up to .073        | Up to .054   |   |                            |  |
| SKN4-3G                               | .137    | .201 | Taper Plus Flush   | Steel/Primer | .70            | Up to .096        | Up to .077   |   |                            |  |
| SKN4-4G                               | .174    | .239 | Taper Plus Flush   | Steel/Primer | .80            | Up to .133        | Up to .114   |   |                            |  |
| SKN4-5G                               | .204    | .269 | Taper Plus Flush   | Steel/Primer | .90            | Up to .163        | Up to .144   |   |                            |  |
| SKN4-2S                               | .114    | .201 | Taper Plus Flush   | Stainless    | .60            | Up to .073        | Up to .054   |   |                            |  |
| SKN4-3S                               | .137    | .201 | Taper Plus Flush   | Stainless    | .60            | Up to .096        | Up to .077   |   |                            |  |
| SKN4-4S                               | .174    | .239 | Taper Plus Flush   | Stainless    | .70            | Up to .133        | Up to .114   |   |                            |  |
| SKN4-5S                               | .204    | .269 | Taper Plus Flush   | Stainless    | .80            | Up to .163        | Up to .144   |   |                            |  |
| SK-N114<br>Flat Face<br>Grommet#      | 'B min' | 'L'  | Type               | Material     | Weight<br>lb/g | Panel Depth Range |              |   | Minimum Total Thickness(1) |  |
| R4G                                   |         |      |                    |              |                | R4T               | SK214-16     |   | SK215                      |  |
| Snap Ring                             |         |      |                    |              |                | Snap Ring         | SK244-16 Rec |   | SK245* Rec                 |  |
| SK-N114-2                             | .114    | .201 | Flat Hd Plus Flush | Steel/Cad    | .60            | Up to .073        | Up to .054   | Skybolt CLoc® components<br>have no minimum restriction |                            |  |
| SK-N114-3                             | .137    | .201 | Flat Hd Plus Flush | Steel/Cad    | .60            | Up to .096        | Up to .077   |   |                            |  |
| SK-N114-4                             | .174    | .239 | Flat Hd Plus Flush | Steel/Cad    | .70            | Up to .133        | Up to .114   |   |                            |  |
| SK-N114-2S                            | .114    | .201 | Flat Hd Plus Flush | Stainless    | .60            | Up to .073        | Up to .054   |   |                            |  |
| SK-N114-3S                            | .137    | .201 | Flat Hd Plus Flush | Stainless    | .70            | Up to .096        | Up to .077   |   |                            |  |
| SK-N114-4S                            | .174    | .239 | Flat Hd Plus Flush | Stainless    | .70            | Up to .133        | Up to .114   |   |                            |  |

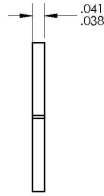
\*Less panel thickness allows grommet to jam against inside of receptacle when fastener is locked. SK245-4 REV B and subsequent have no restrictions.

# CLoc® 4000 Series Grommet Retainers



**SK-R4G Steel**  
**SK-R4GS Stainless**

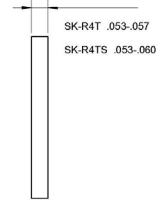
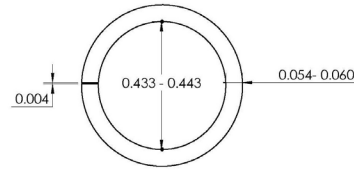
Replaces R4G, 40G26-1, or 1142905



**SK-R4T Steel**  
**SK-R4TS Stainless**

Replaces R4T or 1142913

Note: Industry standard R4T parts have an ID tolerance of .428 - .458.



Install with SK-T26

## Oversize or Worn Holes?

Simple solution to big problems. Simply insert over grommet skirt, install standard retainer, the hole is filled and the fastener assembly remains captive.

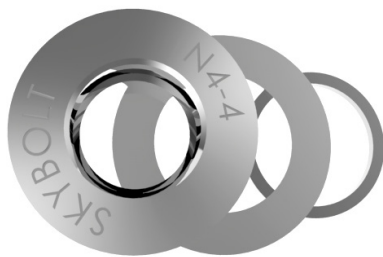


**SK-R560 Series**

Grommet Backing Washer  
Use with standard grommets and retainer

| Part#   | Min Hole Dia | Max Hole Dia |
|---------|--------------|--------------|
| SK-R560 | .530         | .600         |

Grip subtract .085 from charted grip for given grommet



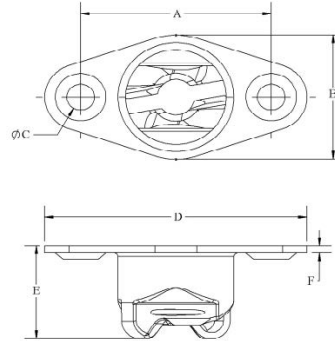
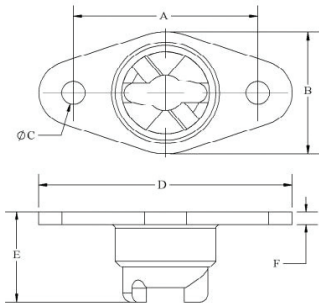
**SKN4S SET**

Grommet Backing Washer

| Part#       | Grip Range | Min Hole Dia | Max Hole Dia |
|-------------|------------|--------------|--------------|
| SKN4-2S SET | up to .030 | .472         | .625         |
| SKN4-3S SET | up to .062 | .472         | .625         |
| SKN4-4S SET | up to .103 | .472         | .625         |

# CLoc® SK4000 Non-Adjusting Receptacles

NASM5591 Performance Rated (unless noted) TSO-C148 Approved



**SK214 Steel/Stainless** -165  
-165D

**SK40R17 Stainless Lightweight**

| Part #        | A<br>dec/mm  | B<br>dec/mm  | C<br>frac/mm        | D<br>dec/mm  | E<br>dec/mm  | F<br>dec/mm | Weight<br>Lb/Grams |
|---------------|--------------|--------------|---------------------|--------------|--------------|-------------|--------------------|
| SK214-16      | 1.000/25.400 | 0.715/18.161 | 1/8/3.251           | 1.375/34.925 | 0.520/3.251  | 0.063/3.251 | .0110lb/5.1g       |
| SK214-16D     | 1.000/25.400 | 0.715/18.161 | 1/8/3.251           | 1.375/34.925 | 0.520/3.251  | 0.063/3.251 | .0105lb/4.9g       |
| SK214-16N     | 1.000/25.400 | 0.608/15.443 | 1/8/3.251           | 1.375/34.925 | 0.520/3.251  | 0.063/3.251 | .0110lb/5.0g       |
| SK214-16ND    | 1.000/25.400 | 0.608/15.443 | 1/8/3.251           | 1.375/34.925 | 0.520/3.251  | 0.063/3.251 | .0105lb/4.8g       |
| SK214-16A(1)* | 1.000/25.400 | 0.715/18.161 | 1/8/3.251           | 1.375/34.925 | 0.520/3.251  | 0.073/3.251 | .0060lb/2.8g       |
| SK214-16S     | 1.000/25.400 | 0.715/18.161 | 1/8/3.251           | 1.375/34.925 | 0.490/3.251  | 0.063/3.251 | .0160lb/7.2g       |
| SK214-16SD    | 1.000/25.400 | 0.715/18.161 | 1/8 Csk/3.251 Csk   | 1.375/34.925 | 0.490/3.251  | 0.063/3.251 | .0165lb/7.5g       |
| SK214-16SENC  | 1.000/25.400 | 0.715/18.161 | 1/8/3.251           | 1.375/34.925 | 0.700/17.780 | 0.063/3.251 | .0255lb/6.48g      |
| SK40R17-1     | 1.000/25.400 | 0.695/17.653 | 1/8/3.251           | 1.375/34.925 | 0.520/3.251  | 0.045/3.251 | .0130lb/5.9g       |
| SK40R17-2     | 1.000/25.400 | 0.695/17.653 | 1/8 Dimp/3.251 Dimp | 1.375/34.925 | 0.520/3.251  | 0.045/3.251 | .0130lb/5.9g       |

(1)\* SK214-16A meets NASM5591 Tensile/Shear, cycle limited to 3500.

| Part #        | Camloc Part# | LIST Part# | Material                 | Finish        |
|---------------|--------------|------------|--------------------------|---------------|
| SK214-16      | 214-16       | 1142700    | Zamac 5 Metal Casting(2) | CAD QQ-P-416  |
| SK214-16D     | 214-16D      | 1142701    | Zamac 5 Metal Casting    | CAD QQ-P-416  |
| SK214-16N     | 214-16N      | 1142723    | Zamac 5 Metal Casting    | CAD QQ-P-416  |
| SK214-16ND    | 214-16ND     | 1142724    | Zamac 5 Metal Casting    | CAD QQ-P-416  |
| SK214-16A(1)* | None         | None       | Alum6061                 | None          |
| SK214-16S     | 214-16S      | 1142710    | Stainless                | Passivated    |
| SK214-16SD    | 214-16SD     | 1142711    | Stainless/Countersunk    | Passivated    |
| SK214-16SENC  | 40R12-1S     |            | Stainless                | Passivated    |
| SK40R17-1     | 40R17-1      | 1142714(1) | Stainless                | Electropolish |
| SK40R17-2     | 40R17-2      | 1142715(1) | Stainless                | Electropolish |

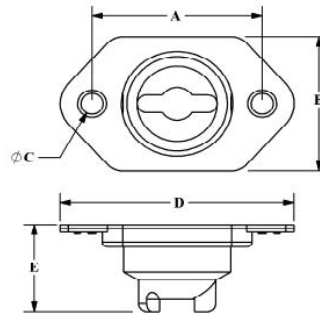
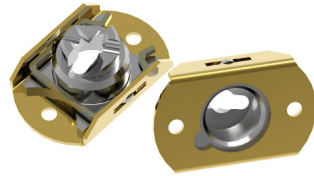
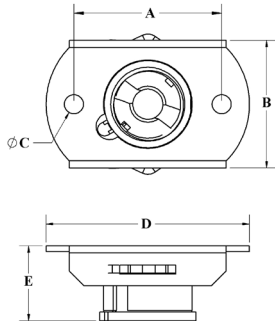
(1)\* SK214-16A meets NASM5591 Tensile/Shear, cycle limited to 3500.

(2)\* Advanced metal casting - lighter (40%) and stronger than industry standard parts



# CLoc® SK4000 Non-Adjusting Receptacles

NASM5591 Performance Rated (unless noted) TSO-C148 Approved



## SK244-161 Floating Series (Retainer Cage)

## SK244-16 Floating Series (Camloc Cage)

### SK244-161 Floating Series (Retainer Cage)

| Part #     | A<br>dec/mm  | B<br>dec/mm  | C<br>frac/mm | D<br>dec/mm  | E<br>dec/mm  | Weight<br>Lb/Grams |
|------------|--------------|--------------|--------------|--------------|--------------|--------------------|
| SK244A161S | 1.000/25.400 | 0.865/21.971 | 1/8/3.251    | 1.375/34.925 | 0.560/14.224 | .0235lb/10.659g    |
| SK244A161A | 1.000/25.400 | 0.865/21.971 | 1/8/3.251    | 1.375/34.925 | 0.560/14.224 | .0115lb/5.216g     |
| SK244C161C | 1.000/25.400 | 0.865/21.971 | 1/8/3.251    | 1.375/34.925 | 0.560/14.224 | .0235lb/10.659g    |

### SK244-16 Floating Series (Camloc Cage) 30% Lighter than Camloc

| Part #     | A<br>dec/mm  | B<br>dec/mm  | C<br>frac/mm | D<br>dec/mm  | E<br>dec/mm  | Weight<br>Lb/Grams |
|------------|--------------|--------------|--------------|--------------|--------------|--------------------|
| SK244C16C  | 1.000/25.400 | 0.865/21.971 | 1/8/3.251    | 1.375/34.925 | 0.560/14.224 | .0190lb/6.62g      |
| SK244C16CD | 1.000/25.400 | 0.865/21.971 | 1/8/3.251    | 1.375/34.925 | 0.560/14.224 | .0190lb/6.62g      |
| SK244-16   | 1.000/25.400 | 0.865/21.971 | 1/8/3.251    | 1.375/34.925 | 0.560/14.224 | .0190lb/6.62g      |
| SK244-16D  | 1.000/25.400 | 0.865/21.971 | 1/8/3.251    | 1.375/34.925 | 0.560/14.224 | .0190lb/6.62g      |

Maximum NASM25027 Push-Out Rating for platenuts is 125 lbs. SK244-161 tested to 130 lbs push-out.

### SK244-161 Floating Series (Retainer Cage)

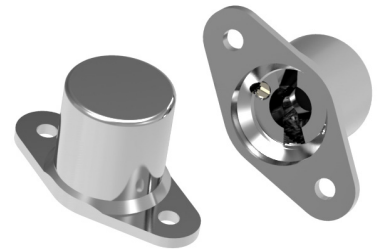
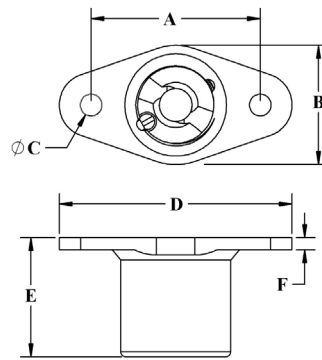
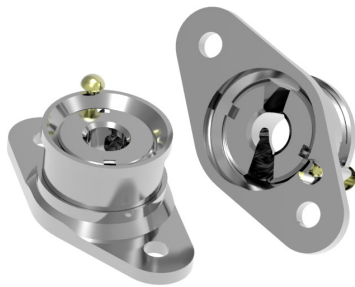
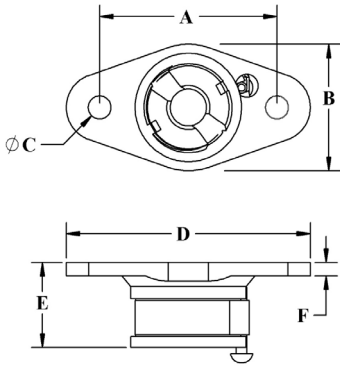
| Part #     | Revised Part# | Camloc Part# | Lisi Part# | Material  | Finish    |
|------------|---------------|--------------|------------|-----------|-----------|
| SK244A161S | SK244-16      | None         | None       | Steel     | Aluminum  |
| SK244A161A | SK244-16A     | None         | None       | Aluminum  | Aluminum  |
| SK244C161C | None          | None         | None       | Stainless | Stainless |

### SK244-16 Floating Series (Camloc Cage)

| Part #     | Revised Part# | Camloc Part# | Lisi Part# | Material  | Finish      |
|------------|---------------|--------------|------------|-----------|-------------|
| SK244C16C  | None          | 244-16S      | 1142717    | Stainless | Stainless   |
| SK244C16CD | None          | 244-16SD     | None       | Stainless | Stainless   |
| SK244-16   | None          | 244-16       | 1142706    | Steel     | Yellow Zinc |
| SK244-16D  | None          | 244-16D      | 1142701    | Steel     | Yellow Zinc |

# CLoc® SK4000 Adjustable Non-Floating Series

Dash 4 and Dash 7 Series Adjustable Receptacles TSO-C148



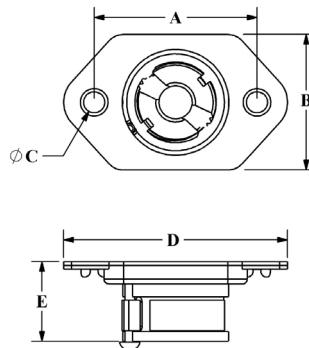
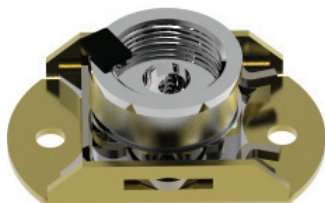
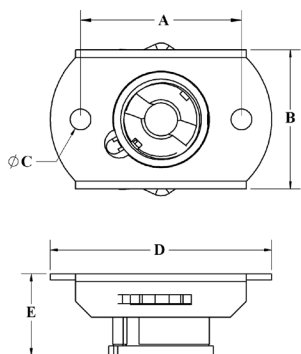
**SK215-4 Series  
Non-Floating  
(External Locking)**

**SK215-7ENC Series  
Non-Floating  
Encapsulated  
(Internal Locking)**

| Part #                            | Barrel/Insert Material | A<br>dec/mm | B<br>dec/mm | C<br>frac/mm | D<br>dec/mm | E<br>dec/mm | F<br>dec/mm | Weight<br>Lb/Grams |
|-----------------------------------|------------------------|-------------|-------------|--------------|-------------|-------------|-------------|--------------------|
| <b>SK215-4</b>                    | 6061/7075              | 1.000       | 0.865       | 1/8          | 1.375       | .470        | .073        | .012               |
| Rivet - Straight Holes            |                        | 25.400      | 21.971      | 3.251        | 34.925      | 11.938      | 1.854       | 5.44               |
| <b>SK215-4D</b>                   | 6061/7075              | 1.000       | 0.865       | 1/8          | 1.375       | .470        | .073        | .012               |
| Rivet - Csk Holes                 |                        | 25.400      | 21.971      | 3.251        | 34.925      | 11.938      | 1.854       | 5.44               |
| <b>SK215-4S</b>                   | 303/303                | 1.000       | 0.865       | 1/8          | 1.375       | .470        | .063        | .026               |
| Rivet - Straight Holes            |                        | 25.400      | 21.971      | 3.251        | 34.925      | 11.938      | 1.600       | 11.79              |
| <b>SK215-4SD</b>                  | 303/303                | 1.000       | 0.865       | 1/8          | 1.375       | .470        | .063        | .026               |
| Rivet - Csk Holes                 |                        | 25.400      | 21.971      | 3.251        | 34.925      | 11.938      | 1.600       | 11.79              |
| <b>SK215-435</b>                  | 6061/7075              | 1.000       | 0.865       | 1/8          | 1.375       | .470        | .170        | .0145              |
| #4-40 Tapped Holes-Thick Base     |                        | 25.400      | 21.971      | 3.251        | 34.925      | 11.938      | 4.318       | 6.58               |
| <b>SK215-435D</b>                 | 6061/7075              | 1.000       | 0.865       | 1/8          | 1.375       | .470        | .170        | .0145              |
| #4-40 Tapped Holes-Csk-Thick base |                        | 25.400      | 21.971      | 3.251        | 34.925      | 11.938      | 4.318       | 6.58               |
| <b>SK215-7ENC</b>                 | 6061/7075              | 1.000       | 0.865       | 1/8          | 1.375       | .690        | .073        | .0165              |
| Rivet-Encapsulated-Straight       |                        | 25.400      | 21.971      | 3.251        | 34.925      | 17.526      | 1.854       | 7.48               |
| <b>SK215-7ENC D</b>               | 6061/7075              | 1.000       | 0.865       | 1/8          | 1.375       | .690        | .073        | .0165              |
| Rivet-Encapsulated-Csk            |                        | 25.400      | 21.971      | 3.251        | 34.925      | 17.526      | 1.854       | 7.48               |

# CLoc® SK4000 Adjustable Floating Series

## Dash 4 and Dash 7 Series Adjustable Receptacles TSO-C148



### SK245A 161 Series Floating (External Locking)

(Can be installed without removing assembly)

### SK245-16 Series\* Floating (External Locking)

Insert depth easily adjusts in .015 increments. One fastener (stud) length covers a total thickness range of .300 or 10 dash#s (part#s) eliminating expensive inventory. Unlimited adjustment, even without removing the panel (Dash 5). Great for Pre-Load applications. New SK245-161 Series Receptacles have 18% weight advantages over any similar design.

### Adjustable – Floating – Retainer Cage Receptacle

| Part #     | Revised Part# | Insert Material | Cage Material | A<br>dec/mm | B<br>dec/mm | C<br>frac/mm | D<br>dec/mm | E<br>dec/mm | Weight<br>Lb/Grams |
|------------|---------------|-----------------|---------------|-------------|-------------|--------------|-------------|-------------|--------------------|
| SK245A161A | SK245-4       | 6061/7075       | 6061          | 1.000       | .865        | 1/8          | 1.375       | .510        | .0160              |
|            |               |                 |               | 25.400      | 21.971      | 3.251        | 34.925      | 12.954      | 7.26               |
| SK245C161C | SK245-4C      | 303/303         | 302           | 1.000       | .865        | 1/8          | 1.375       | .510        | .040               |
|            |               |                 |               | 25.400      | 21.971      | 3.251        | 34.925      | 12.954      | 18.14              |

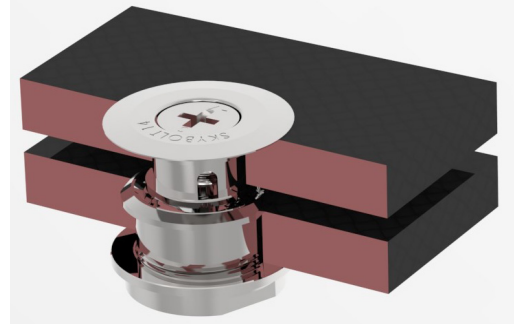
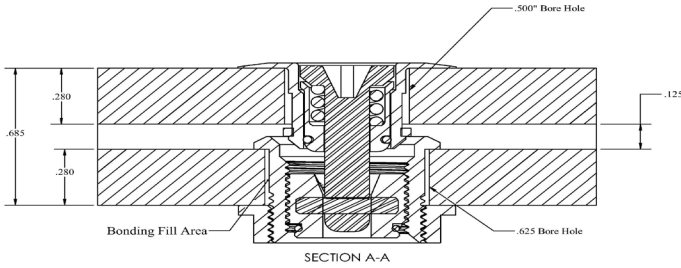
### Adjustable – Floating – Standard 2-Piece cage Receptacle (Camloc Style)

| Part #     | Revised Part# | Insert Material | Cage Material | A<br>dec/mm | B<br>dec/mm | C<br>frac/mm | D<br>dec/mm | E<br>dec/mm | Weight<br>Lb/Grams |
|------------|---------------|-----------------|---------------|-------------|-------------|--------------|-------------|-------------|--------------------|
| SK245-16   |               | 12L14/12L14     | ASTM A109     | 1.000       | .840        | 1/8          | 1.375       | .495        | .0320              |
|            |               |                 |               | 25.400      | 21.336      | 3.251        | 34.925      | 12.573      | 14.51              |
| SK245-16D  |               | 12L14/12L14     | ASTM A109     | 1.000       | .840        | 1/8          | 1.375       | .495        | .0320              |
|            |               |                 |               | 25.400      | 21.336      | 3.251        | 34.925      | 12.573      | 14.51              |
| SK245C16C  |               | 303/303         | 305           | 1.000       | .840        | 1/8          | 1.375       | .495        | .0320              |
|            |               |                 |               | 25.400      | 21.336      | 3.251        | 34.925      | 12.573      | 14.51              |
| SK245C16CD |               | 303/303         | 305           | 1.000       | .840        | 1/8          | 1.375       | .495        | .0320              |
|            |               |                 |               | 25.400      | 21.336      | 3.251        | 34.925      | 12.573      | 14.51              |

# SK422 & SK247 Series

## SK422 Series Honeycomb Panel Receptacle

Adjustable Receptacle - All stainless  
Locking Pin accessible from face of receptacle  
Variable Panel Thicknesses  
Simple installation with backing nut

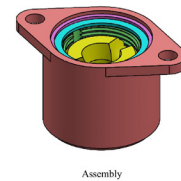
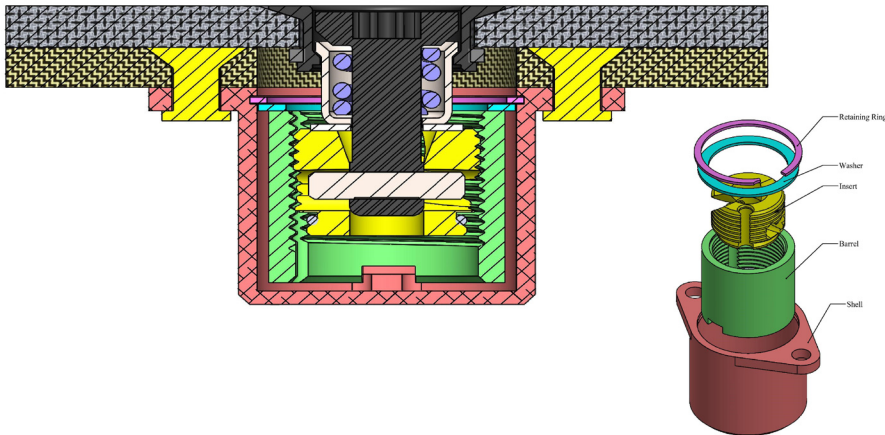


### SK422-280 Shown

| Part#     | Support Panel Thickness | Head Protrusion | Tail Protrusion |
|-----------|-------------------------|-----------------|-----------------|
| SK422-180 | .120-.220               | 0.063           | .190 - .250     |
| SK422-280 | .220-.320               | 0.063           | .190 - .250     |
| SK422-380 | .320-.420               | 0.063           | .190 - .250     |

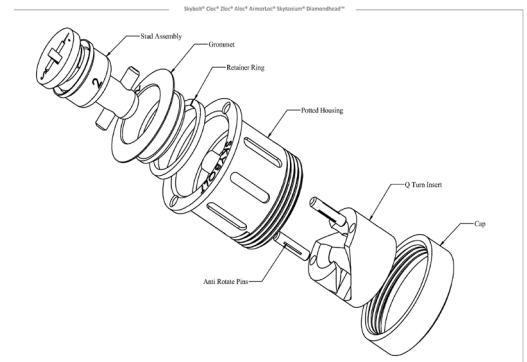
## SK247-51ADJ 4000 Series Floating Receptacle - Encapsulated

Adjustable Receptacle - Floating  
Locking Pin accessible from face of receptacle



## SK1835 Potted Fastener

For Honeycomb Panels  
4000 Series CLoc® - Floating  
NAS1835-4 Flange Size

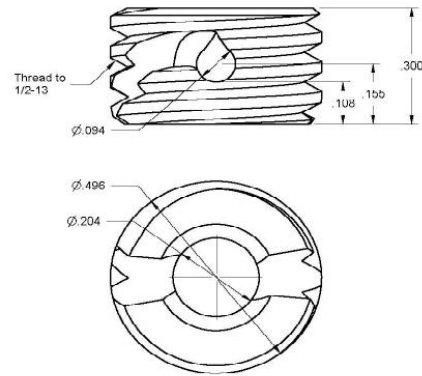


# CLoc® 4000 Series Rivetless Receptacles

## New - CLoc® Rivetless Easy Install Receptacles

### SK410 Series - Adjustable Depth Easy to Install rivetless Locking Receptacle

- SK410-28S Stainless 1/2-13 Thread For wood, composites
- SK410-29A Aluminum 1/2-20 Thread For non-ferrous metals
- SK410-29S Stainless 1/2-20 Thread For metals
- SK410-32S Stainless 1/2-32 Thread For SK4000-35032 Nutserts



| 'G' Outer Panel Thickness |      |       |       | Inner Support Panel Thickness (1) |       | Dash Number for SK4002 & SK40S5 Series |
|---------------------------|------|-------|-------|-----------------------------------|-------|--|
| inches                    |      | mm    |       | inches                            | mm    | STUD DASH#                             |
| Min                       | Max  | Min   | Max   | Min                               | Min   |  |
| .010                      | .310 | 0.25  | 7.87  | 0.660                             | 16.76 | -2                                     |
| .040                      | .340 | 1.02  | 8.64  | 0.630                             | 16.00 | -3                                     |
| .070                      | .370 | 1.78  | 9.40  | 0.600                             | 15.24 | -4                                     |
| .100                      | .400 | 2.54  | 10.16 | 0.570                             | 14.48 | -5                                     |
| .130                      | .430 | 3.30  | 10.92 | 0.540                             | 13.72 | -6                                     |
| .160                      | .460 | 4.06  | 11.68 | 0.510                             | 12.95 | -7                                     |
| .190                      | .490 | 4.83  | 12.45 | 0.480                             | 12.19 | -8                                     |
| .220                      | .520 | 5.59  | 13.21 | 0.450                             | 11.43 | -9                                     |
| .250                      | .550 | 6.35  | 13.97 | 0.420                             | 10.67 | -10                                    |
| .280                      | .580 | 7.11  | 14.73 | 0.390                             | 9.91  | -11                                    |
| .310                      | .610 | 7.87  | 15.49 | 0.360                             | 9.14  | -12                                    |
| .340                      | .640 | 8.64  | 16.26 | 0.330                             | 8.38  | -13                                    |
| .370                      | .670 | 9.40  | 17.02 | 0.320                             | 8.13  | -14                                    |
| .400                      | .700 | 10.16 | 17.78 | 0.320                             | 8.13  | -15                                    |
| .430                      | .730 | 10.92 | 18.54 | 0.320                             | 8.13  | -16                                    |
| .460                      | .760 | 11.68 | 19.30 | 0.320                             | 8.13  | -17                                    |
| .490                      | .790 | 12.45 | 20.07 | 0.320                             | 8.13  | -18                                    |
| .520                      | .820 | 13.21 | 20.83 | 0.320                             | 8.13  | -19                                    |
| .550                      | .850 | 13.97 | 21.59 | 0.320                             | 8.13  | -20                                    |
| .580                      | .880 | 14.73 | 22.35 | 0.320                             | 8.13  | -21                                    |
| .610                      | .910 | 15.49 | 23.11 | 0.320                             | 8.13  | -22                                    |
| .640                      | .940 | 16.26 | 23.88 | 0.320                             | 8.13  | -23                                    |

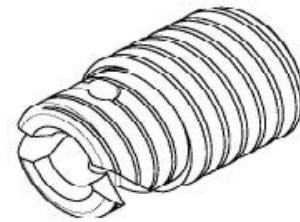
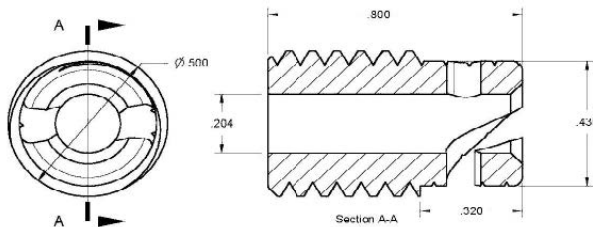
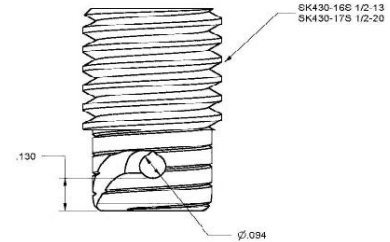
Note (1) Minimum Support Panel thickness is a value that assumes the outer panel thickness is the 'Min G' stated to the left. For every outer panel thickness value greater than the 'Min G', subtract that additional thickness from Inner Support Panel 'Min' value. Example: SK40S5-2 Stud - Outer Panel 'G' thickness is .032. (.032 - .010 = .022). Inner Support Panel 'Min' thickness is (.660 - .022 = .638). The support panel (normally) cannot be any thinner than the length of the receptacle or .320 as noted.

# CLoc® 4000 Series Rivetless Receptacles

## New - CLoc® Rivetless Easy Install Receptacles

### SK430 Series - Adjustable Depth - Extended Nose Easy to Install rivetless Locking Receptacle

- SK430-16S Stainless 1/2-13 Thread For wood, composites
- SK430-17S Stainless 1/2-20 Thread For non-ferrous metals
- SK430-32S Stainless 1/2-32 Thread For SK4000-35032 Nutsert



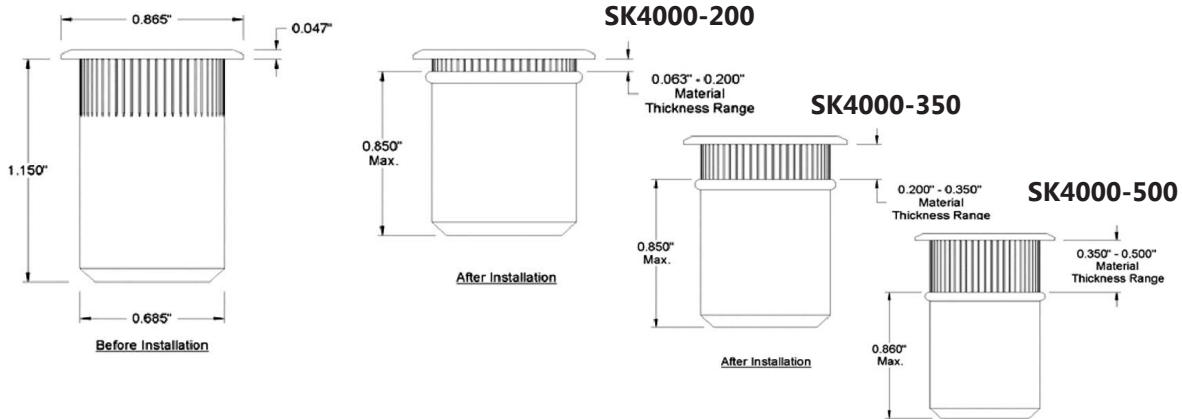
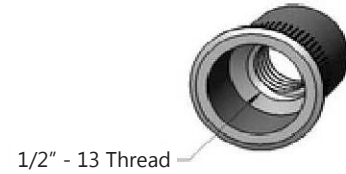
| Maximum Outer Panel Thickness                      |         |         |        |        |   |         |        |        |
|--|---------|---------|--------|--------|---|---------|--------|--------|
| Chart 1- Receptacle is flush with Inner Panel Face |         |         |        |        | Chart 2 - Receptacle is fully extended from Inner Panel Face (add .335* to "flush" numbers) |         |        |        |
| All  | Decimal | Decimal | mm     | mm     | Decimal   | Decimal | mm     | mm     |
| SK4000 Series                                      | min     | max     | min    | max    | min   | max     | min    | max    |
| -2S  | .350    | .360    | 8.890  | 9.144  | .665  | 0.695   | 16.891 | 17.653 |
| -3S  | .360    | .390    | 9.144  | 9.906  | .695  | 0.725   | 17.653 | 18.415 |
| -4S  | .390    | .420    | 9.906  | 10.668 | .725  | 0.755   | 18.415 | 19.177 |
| -5S  | .420    | .450    | 10.668 | 11.430 | .755  | 0.785   | 19.177 | 19.939 |
| -6S  | .450    | .480    | 11.430 | 12.192 | .785  | 0.815   | 19.939 | 20.701 |
| -7S  | .480    | .510    | 12.192 | 12.954 | .815  | 0.845   | 20.701 | 21.463 |
| -8S  | .510    | .540    | 12.954 | 13.716 | .845  | 0.875   | 21.463 | 22.225 |
| -9S  | .540    | .570    | 13.716 | 14.478 | .875  | 0.905   | 22.225 | 22.987 |
| -10S   | .570    | .600    | 14.478 | 15.240 | .905  | 0.935   | 22.987 | 23.749 |
| -11S   | .600    | .630    | 15.240 | 16.002 | .935  | 0.965   | 23.749 | 24.511 |
| -12S   | .630    | .660    | 16.002 | 16.764 | .965  | 0.995   | 24.511 | 25.273 |
| -13S   | .660    | .690    | 16.764 | 17.526 | .995  | 1.025   | 25.273 | 26.035 |
| -14S   | .690    | .720    | 17.526 | 18.288 | 1.025   | 1.055   | 26.035 | 26.797 |
| -15S   | .720    | .750    | 18.288 | 19.050 | 1.055   | 1.085   | 26.797 | 27.559 |
| -16S   | .750    | .780    | 19.050 | 19.812 | 1.085   | 1.115   | 27.559 | 28.321 |
| -17S   | .780    | .810    | 19.812 | 20.574 | 1.115   | 1.145   | 28.321 | 29.083 |
| -18S   | .810    | .840    | 20.574 | 21.336 | 1.145   | 1.175   | 29.083 | 29.845 |
| -19S   | .840    | .870    | 21.336 | 22.098 | 1.175   | 1.205   | 29.845 | 30.607 |
| -20S   | .870    | .900    | 22.098 | 22.860 | 1.205   | 1.235   | 30.607 | 31.369 |
| -21S   | .900    | .930    | 22.860 | 23.622 | 1.235   | 1.265   | 31.369 | 32.131 |
| -22S   | .930    | .960    | 23.622 | 24.384 | 1.265   | 1.295   | 32.131 | 32.893 |
| -23S   | .960    | .990    | 24.384 | 25.146 | 1.295   | 1.325   | 32.893 | 33.655 |
| -24S   | .990    | 1.020   | 25.146 | 25.908 | 1.325   | 1.355   | 33.655 | 34.417 |
| -25S   | 1.020   | 1.050   | 25.908 | 26.670 | 1.355   | 1.385   | 34.417 | 35.179 |

If you revert to Chart 2, using a longer stud than charted positions the SK430 receptacle back towards flush.

# CLoc® 4000 Series Nutserts

## SK4000-200, -350, -500 Nutserts

- Excellent for any Blind or Non-Blind Mounting Application
- Ideal Industrial Applications
- Use thread locking compound to secure insert
- Use SK410-28S or SK430-16S Inserts - Patent Pending



| Part #              | Thread | Material          | Hole Size | Grip      | Dia  | Length | Flange Dia | Flange Thickness | L (Protrusion) Installed (max) |
|---------------------|--------|-------------------|-----------|-----------|------|--------|------------|------------------|--------------------------------|
| <b>SK4000-200</b>   | 1/2-13 | Steel-Yellow Zinc | 11/16     | .063-.200 | .685 | 1.150  | .865       | .047             | .850                           |
| <b>SK4000-350</b>   | 1/2-13 | Steel-Yellow Zinc | 11/16     | .200-.350 | .685 | 1.300  | .865       | .047             | .850                           |
| <b>SK4000-35032</b> | 1/2-32 | Steel-Yellow Zinc | 11/16     | .200-.350 | .685 | 1.300  | .865       | .047             | .850                           |
| <b>SK4000-500</b>   | 1/2-13 | Steel-Yellow Zinc | 11/16     | .350-.500 | .685 | 1.450  | .865       | .047             | .860                           |

### SK4000-NST Nutsert Installation Tool

Use 271 Red Loctite® to lock threads when properly adjusted. Warning: Thread lockers set up in approximately 5 minutes. Adjust insert so that the standard stud (SK4002/40S5) head is no lower than flush with the grommet. For SK4002-FW Folding Wings, allow a minimum of .150 distance from the head surface to the grommet surface or use a .055 shim between the head and the grommet. If insert is set too deep with the stud locked, you will not be able to unlock the stud after 5 minutes.

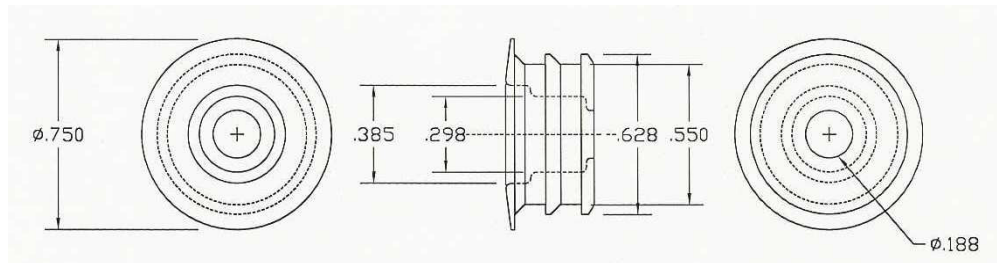
| Standard    | Folding Wing | Grip-Decimal | Grip-MM    |
|-------------|--------------|--------------|------------|
| SK4002/40S5 | SK4002-FW    | Min-Max      | Min-Max    |
| -2          | -3           | .080-.300    | 2.03-7.62  |
| -3          | -4           | .110-.330    | 2.79-8.38  |
| -4          | -5           | .140-.360    | 3.56-9.14  |
| -5          | -6           | .170-.390    | 4.32-9.91  |
| -6          | -7           | .200-.420    | 5.08-10.67 |
| -7          | -8           | .230-.450    | 5.84-11.43 |
| -8          | -9           | .260-.480    | 6.60-12.19 |
| -9          | -10          | .290-.510    | 7.37-12.95 |
| -10         | -11          | .320-.540    | 8.13-13.72 |
| -11         | -12          | .350-.570    | 8.89-14.48 |
| -12         | -13          | .380-.600    | 9.65-15.24 |

| Standard    | Folding Wing | Grip-Decimal | Grip-MM     |
|-------------|--------------|--------------|-------------|
| SK4002/40S5 | SK4002-FW    | Min-Max      | Min-Max     |
| -2          | -3           | .200-.600    | 5.08-15.24  |
| -3          | -4           | .410-.630    | 10.41-16.00 |
| -4          | -5           | .440-.660    | 11.18-16.76 |
| -5          | -6           | .470-.690    | 11.94-17.53 |
| -6          | -7           | .500-.720    | 12.70-18.29 |
| -7          | -8           | .530-.750    | 13.46-19.05 |
| -8          | -9           | .560-.780    | 14.22-19.81 |
| -9          | -10          | .590-.810    | 14.99-20.57 |
| -10         | -11          | .620-.840    | 15.75-21.34 |
| -11         | -12          | .650-.870    | 16.51-22.10 |
| -12         | -13          | .680-.900    | 17.27-22.86 |

# CLoc® 4003 Series Studs

2 - Piece Series (Stud/Grommet - Locking Receptacle)  
Stud/Grommet Assembly is bonded into Outer Panel

SK4003 Series



SK4003G1S Grommet - does not use separate cup like the SK4002/40S5 Series.



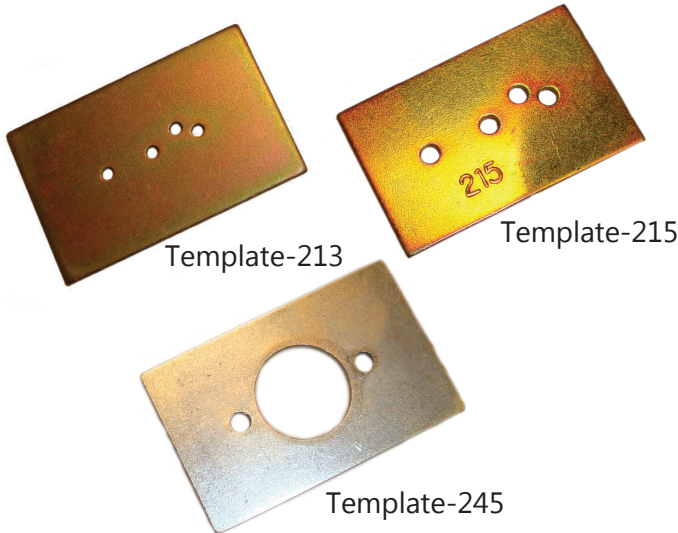
SK4003 (Stud/Grommet Assembly) used with SK430 Series receptacle



## CLoc® Drill Jigs



**Production Drill Jigs with Flex Handle.**  
**SK2DJ – 2000 Receptacles (.750)**  
**SK4DJ – 4000 Receptacles (1.00)**



Template-213

Template-215

Template-245

The first step to install CLoc® Fasteners (once fastener hole position is established with a 1/8" pilot hole in outer and inner panel...as if you were installing a POP rivet), is to drill the locking receptacle mounting holes (rivet holes) and center relief holes. Skybolt offers simple drill templates to drill receptacle rivet holes. For CLoc® 2000 Series, use Template-213 or SK2DG. Use a Unibit-1 to drill receptacle relief hole (13/32) and fastener hole (11/32) in the outer panel. For CLoc® 4000 Series, use Template-215 or SK4DG. You must use the Template-245 to drill the receptacle center relief hole (cleko from the back). Use a Unibit-3 or-4 to drill this large hole (9/16-11/16). If you attempt to drill this hole without the Template-245, the drill will "walk" and you will have an un-centered hole. For the outer panel grommet hole (4000 Series), the Unibit-1 (15/32 step) will easily expand the hole without "walking"

Note: The offset hole shown in Template-213 and -215 is to drill an optional access hole to adjust SK213-2 and SK215/SK245-4 Adjustable receptacles that use an external locking clip. It is important to note that these photos show the proper "front" face of the template (turn it over and the holes will not function with the receptacle. Use caution when drilling so that the holes are oriented properly).



**Unibits-1 and  
Unibit-3 or -4**



**120° 4000 Series Grommet Countersink Tool**  
Includes 3 Pilots – 7/16, 15/32, 1/2  
**SK4CS – Includes Microstop Cage**

## **Cloc® Installation Tools**



### **SK4P3 Pliers**

Compress 4000 Series cup to insert stud through grommet



### **SK-T26 Combination Tool**

(T-26 and T-98 Tools Combined)

Installs 2000 Series “2600-LWS” Retainers – or- 4000 Series SK-R4GS Grommet Retainers. Note: (a) the SK-R4G Retainer is punched towards the large end of the taper tool prior to pressing it into position with the handle. (b) this tool only works with stud not installed into the grommet (install the retainers onto the grommets 1st; then install the studs with SK-4P<sub>3</sub> Pliers.



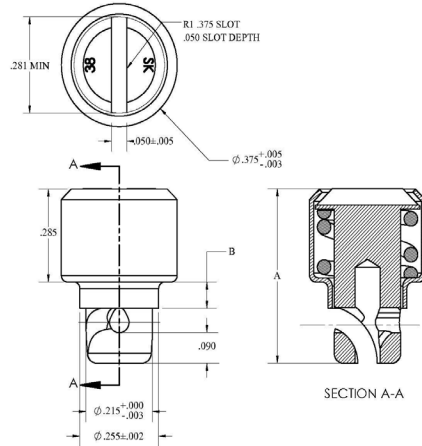
### **SK26022 Receptacle Adjustment Tool**

SK26022 Driver Tool is a quality screwdriver used to lock and unlock the internal locking pin for all Skybolt Dash 7 Adjustable Receptacles and SK2003-51ADJ Adjustable Platemarks.

# Skybolt ZLoc® Stainless Avionics 35 Series

Skybolt manufactures fasteners to the same dimensions and performance as OEM parts

The PFSC35 is a staple in commercial and military avionics panels  
Skybolt manufactures and stocks all listed part numbers



| Skybolt<br>Stainless<br>Passivated | Skybolt<br>Stainless<br>Black Oxide | Skybolt<br>Stainless<br>Airbus Blue | Skybolt<br>Stainless<br>Boeing Brown | Total<br>Length A | Skirt<br>Length B | Grip  |       |
|------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|-------------------|-------------------|-------|-------|
|                                    |                                     |                                     |                                      |                   |                   | Min   | Max   |
| SK35C37                            | SK35C37B1                           | SK35C37B1B2                         | SK35C37B1B3                          | 0.525             | 0.070             | 0.050 | 0.059 |
| SK35C38                            | SK35C38B1                           | SK35C38B1B2                         | SK35C38B1B3                          | 0.535             | 0.080             | 0.060 | 0.069 |
| SK35C39                            | SK35C39B1                           | SK35C39B1B2                         | SK35C39B1B3                          | 0.545             | 0.090             | 0.070 | 0.079 |
| SK35C40                            | SK35C40B1                           | SK35C40B1B2                         | SK35C40B1B3                          | 0.565             | 0.100             | 0.080 | 0.089 |
| SK35C41                            | SK35C41B1                           | SK35C41B1B2                         | SK35C41B1B3                          | 0.575             | 0.110             | 0.090 | 0.099 |
| SK35C42                            | SK35C42B1                           | SK35C42B1B2                         | SK35C42B1B3                          | 0.585             | 0.120             | 0.100 | 0.109 |
| SK35C43                            | SK35C43B1                           | SK35C43B1B2                         | SK35C43B1B3                          | 0.595             | 0.130             | 0.110 | 0.119 |
| SK35C44                            | SK35C44B1                           | SK35C44B1B2                         | SK35C44B1B3                          | 0.605             | 0.140             | 0.120 | 0.129 |



# ZLoc® Stainless Series Fasteners

Skybolt manufactures studs and buttons similar to existing designs. Dzus is a registered trademark of the Dzus Fastener Co. Skybolt has no affiliation with Dzus Fasteners.



Design Selection Procedure:

1. From the information in the following table, consider a Stud type.
2. Select type of retainer (grommet or GP type retainer).
3. From charts, select Stud and S Spring combination for the application.

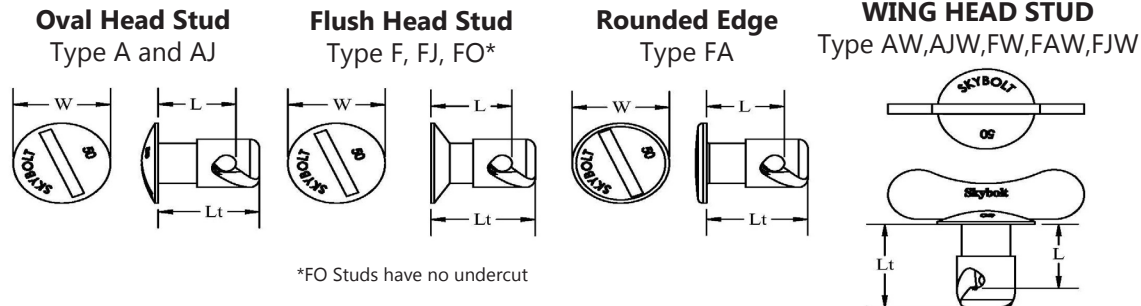
| Fastener Size                     | -3  | -4  | -5  | -6  | -7  |
|-----------------------------------|-----|-----|-----|-----|-----|
| Locked Service Tension (LBS)      | 20  | 30  | 45  | 55  | 65  |
| Max. Tension W/O Distortion (LBS) | 45  | 60  | 85  | 110 | 125 |
| Rated Shear (LBS)                 | 100 | 150 | 200 | 300 | 350 |
| Wear Life (Uses)                  | 5M  | 5M  | 25M | 40M | 40M |

Max. sheet separation at 150% of locked service tension = 3/64"

## STUD MATERIAL

- Hardened Carbon Steel - Cadmium Plated per QQ-P-416, Type II, Class 2
- 300 Series Stainless (Skybolt Stainless ZLoc® Series Fasteners are TSO-C148)

Note: SKYBOLT manufactures and stocks stainless ZLoc® Series studs



Note: AJ, FJ, AJW, and FJW studs have a long undercut and are a direct replacement for A and F studs. FA studs (common to WWII aircraft) available in 303 Stainless.

## STUD RETAINERS

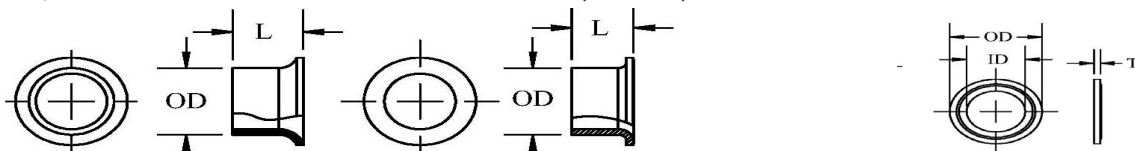
Type GA and GF Grommets are aluminum

Type GP Retainer is Nylon

**Type GA** - Full Grommet  
For use with all Studs  
except Flush Head

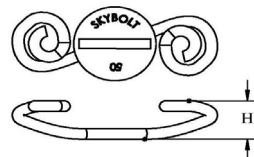
**Type GF** - Full Grommet  
For use with Flush  
Head Studs (FJ Studs)

**Type GP** - Half Grommet  
For use with all Studs



**RECEPTACLE - S SPRING** - Cadmium plated music wire

**Type SA Spring**



# ZLoc® Fastener Charts

## Studs

| Typical Stud Size | Lt    | L     | Head Size W | Drill Outer Panel A max | Drill Support Panel B* | Rivet Spacing G | Rivet Size |
|-------------------|-------|-------|-------------|-------------------------|------------------------|-----------------|------------|
| 3-25              | 0.325 | 0.250 | 5/16        | 7/32                    | 3/8                    | 5/8             | 3/32       |
| 3-30              | 0.375 | 0.300 |             |                         |                        |                 |            |
| 4-30              | 0.400 | 0.300 | 7/16        | 5/16                    | 3/4                    | 3/4             | 3/32       |
| 4-35              | 0.450 | 0.350 |             |                         |                        |                 |            |
| 4-40              | 0.500 | 0.400 |             |                         |                        |                 |            |
| 5-35              | 0.475 | 0.350 | 9/16        | 3/8                     | 5/8                    | 1"              | 1/8        |
| 5-40              | 0.525 | 0.400 |             |                         |                        |                 |            |
| 5-45              | 0.575 | 0.450 |             |                         |                        |                 |            |
| 5-50              | 0.625 | 0.500 |             |                         |                        |                 |            |
| 5-55              | 0.675 | 0.550 |             |                         |                        |                 |            |
| 6-40              | 0.550 | 0.400 | 5/8         | 7/16                    | 1                      | 1-3/8           | 1/8        |
| 6-45              | 0.600 | 0.450 |             |                         |                        |                 |            |
| 6-50              | 0.650 | 0.500 |             |                         |                        |                 |            |
| 6-55              | 0.700 | 0.550 |             |                         |                        |                 |            |
| 6.5-40            | 0.570 | 0.400 | 11/16       | 1/2                     | 1                      | 1-3/8           | 1/8        |
| 6.5-45            | 0.620 | 0.450 |             |                         |                        |                 |            |
| 6.5-50            | 0.670 | 0.500 |             |                         |                        |                 |            |
| 6.5-55            | 0.720 | 0.550 |             |                         |                        |                 |            |
| 7-40              | 0.575 | 0.400 | 3/4         | 17/32                   | 1-1/16                 | 1-7/16          | 1/8        |
| 7-50              | 0.675 | 0.500 |             |                         |                        |                 |            |
| 7-60              | 0.775 | 0.600 |             |                         |                        |                 |            |

Note: B\* is oversize to allow relief for grommet/retainer or dimpled panels.

## Grommets

| Stud Size | Panel (P) Thickness | Type GA   | Type GF   | OD    | T*    | GP Plastic Retainer Type |      |      |
|-----------|---------------------|-----------|-----------|-------|-------|--------------------------|------|------|
|           |                     |           |           |       |       | GP                       | OD   | T    |
| 3         | .015-.025           | GA3-175   | NA        | 7/32  | 0.015 | GP3B                     | 5/16 | .035 |
|           | .026-.050           | GA3-200   | NA        |       |       |                          |      |      |
|           | .051-.094           | GA3-250   | NA        |       |       |                          |      |      |
| 4         | .015-.025           | GA4-225   | GF4-125   | 5/16  | 0.025 | GP4B                     | 7/16 | .035 |
|           | .026-.050           | GA4-250   | GF4-150   |       |       |                          |      |      |
|           | .051-.075           | GA4-275   | GF4-175   |       |       |                          |      |      |
|           | .076-.100           | GA4-300   | GF4-200   |       |       |                          |      |      |
| 5         | .031-.062           | GA5-312   | GF5-175   | 3/8   | 0.028 | GP5B                     | 9/16 | .035 |
|           | .063-.094           | GA5-350   | GF5-225   |       |       |                          |      |      |
|           | .095-.125           | GA5-375   | GF5-250   |       |       |                          |      |      |
|           | .040-.065           | GA6-350   | GF6-218   |       |       |                          |      |      |
| 6         | .066-.100           | GA6-375   | GF6-250   | 7/16  | 0.028 | GP6B                     | 5/8  | .045 |
|           | .101-.135           | GA6-425   | GF6-300   |       |       |                          |      |      |
|           | Max .062            | GA6.5-218 | GF6.5-218 |       |       |                          |      |      |
| 6.5       | .063-.093           | GA6.5-375 | GF6.5-250 | 1/2   | 0.035 | GP6B                     | 5/8  | .045 |
|           | .094-.200           | GA6.5-500 |           |       |       |                          |      |      |
|           | .050-.095           | GA7-375   | GF7-250   |       |       |                          |      |      |
| 7         | .096-.156           | GA7-475   | GF7-325   | 17/32 | 0.040 | NA                       |      |      |
|           | .157-.218           | GA7-525   | GF7-400   |       |       |                          |      |      |
|           |                     |           |           |       |       |                          |      |      |



## 5 SPRING RECEPTACLES

| Stud Size    | Part#   |
|--------------|---------|
| Size 3       | S3-150  |
|              | S3-175  |
| Size 4       | S4-200  |
|              | S4-225  |
| Size 5       | S5A-200 |
|              | S5A-225 |
|              | S5A-250 |
|              | S5A-275 |
|              | S5A-300 |
|              | S5A-325 |
| Size 6 & 6.5 | S6A-225 |
|              | S6A-250 |
|              | S6A-275 |
|              | S6A-300 |
|              | S6A-400 |
| Size 7       | S6A-425 |
|              | S7A-225 |
|              | S7A-250 |
|              | S7A-275 |
|              | S7A-300 |

# ZLoc® Fastener Charts

## Total Thickness Charts

Choose correct chart for Stud Size. Enter Total Thickness column and select Stud/Spring combination

| Size 3 Stud SK3 Spring  |            |                  | Size 4 Stud, SK4 Spring |            |                  | Size 5 Stud, SK5 Spring |            |                  | Size 6 & 7 Stud, SK6 & 7 Spring |            |                  |
|---|------------|------------------|-------------------------|------------|------------------|-------------------------|------------|------------------|---------------------------------|------------|------------------|
| Total Thickness   | Stud Dim L | Use Spring Dim H | Total Thickness         | Stud Dim L | Use Spring Dim H | Total Thickness         | Stud Dim L | Use Spring Dim H | Total Thickness                 | Stud Dim L | Use Spring Dim H |
| .045-.069   | -20        | -175             | .100-.124               | -30        | -225             | .055-.079               | -30        | -275             | .140-.164                       | -40        | -300             |
| .070-.094   | -20        | -150             | .125-.149               | -30        | -200             | .080-.104               | -30        | -250             | .165-.189                       | -40        | -275             |
| .095-.119   | -25        | -175             | .150-.174               | -35        | -225             | .105-.129               | -30        | -225             | .190-.214                       | -40        | -250             |
| .120-.144   | -25        | -150             | .175-.199               | -35        | -200             | .130-.154               | -30        | -200             | .215-.239                       | -40        | -225             |
| .145-.169   | -30        | -175             | .200-.224               | -40        | -225             | .155-.179               | -40        | -275             | .240-.264                       | -50        | -300             |
| .170-.194   | -30        | -150             | .225-.249               | -40        | -200             | .180-.204               | -40        | -250             | .265-.289                       | -50        | -275             |
| Determine Total Thickness by adding:<br>1. Outside Panel Thickness (P)<br>2. Inside (Support) Panel Thickness (Q)<br>3. Grommet Thickness (T) if GA or GF grommet used.<br>4. Allow for gasket material or paint build-up. Allow for panel face misalignment. |            |                  |                         |            |                  | .205-.229               | -40        | -225             | .290-.314                       | -50        | -250             |
|   |            |                  |                         |            |                  | .230-.254               | -40        | -200             | .315-.339                       | -50        | -225             |
|   |            |                  |                         |            |                  | .255-.279               | -50        | -275             | .340-.364                       | -60        | -300             |
|   |            |                  |                         |            |                  |                         |            |                  |                                 |            |                  |

## Principle Design Options

One usually thinks of two components as part of the ZLoc® Fastener, the Stud and Spring Receptacle. In the case of the EHF Ejector Series Stud, it is retained in the panel, when unlocked by the flange being fastened to the outside panel. Standard ZLoc® Studs, typically use a Stud retainer to prevent them from falling from the panel when unlocked.

### Some helpful hints to remember about ZLoc® Fasteners:

- 1) Thicker panels require shorter Springs for a given stud. Likewise, thinner panels require a taller Spring for a given Stud.
- 2) When locked, the Stud slot or wing always aligns with the Spring mounting holes. Therefore, whatever angle you mount the Spring Receptacle, the Stud will align with it when locked.
- 3) SKEHF5 Studs should only use S5A or #5 Springs. SKEHF6 Studs can use either S5A or S6A Springs.
- 4) TOTAL THICKNESS is the summation of both the outside and inside panels plus allowances for gaskets, grommets, interference or panels that do not lay flat together. Panel facing can add greatly to charted values.
- 5) If springs are mounted to Weld Tabs or Plates, the Tab serves as the Inside Panel and adds .100 to Total Thickness
- 6) If locking torque is too tight or too loose, bend the spring with Skybolt Tool SK-7302. See below.
- 7) The Part number of a ZLoc® stud is the L Dimension measured from the head (beneath the head for Oval Head, on the top of the head for Flat Head) to the far end of the slot where the spring rests when locked. SKF65-50 is .50 from the flat of the head to the end of the slot saddle.
- 8) The Part number of the Spring is the height of the Spring. SK6-375 is .375 high.

# ALoc® Series Fasteners

## Airloc® Replacement TSO-C148

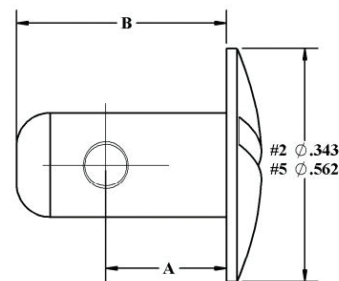
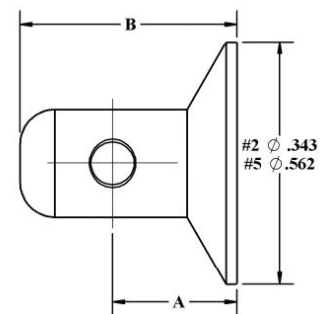
ALoc® Fasteners are common on Beechcraft® airplanes and latches on many cowlings. The design consists of a simple stud with a pin pressed in the shank. The pin must be installed after the stud is installed and removed prior to removing the stud. Some panel applications for #2, #5, and #7 studs may use a wear grommet. Unlike a ZLoc® Fastener, this grommet probably does not require replacement when replacing studs. ALoc® Fasteners are made in various stud blank lengths and this length is indicated by the 1st Dash#. Each length can have up to 10 2nd Dash#, or grip sizes. The 2nd Dash# indicates the maximum grip range in .010 increments. Note that the ALoc® design has the least grip range of all 1/4 turn fasteners. Skybolt primarily stocks certain sizes in Stainless Steel for replacement purposes only. See Conversion Kits for STCd Aloc to CLoc (Camloc style) conversions.

### ALoc® Studs

| Series | Flush Steel Hd# | Round Steel Hd# | Head Dia | Pin#      | Cloc® Conversion |
|--------|-----------------|-----------------|----------|-----------|------------------|
| 1      | 294426          | 294422          | 1/4      | 294424    |                  |
| 2      | 98264           | 98293           | 11/32    | SK99785-2 | 2000 Series      |
| 5      | 98265           | 98292           | 9/16     | SK99836   | 4000 Series      |
| 7      | 98266           | 98291           | 11/16    | 99799     |                  |



| Airloc Steel Part# | Skybolt Aloc Stainless Part# | Type     | Grip      | 'A'  | Length |
|--------------------|------------------------------|----------|-----------|------|--------|
| 98264-2-090        | SK112060-1-090               | #2 Flush | .081-.090 | .230 | .359   |
| 98293-1-060        | SK98293-1-060SS              | #2 Round | .051-.060 | .200 | .359   |
| 98265-1-070        | SK294186-1-070               | #5 Flush | .061-.070 | .257 | .500   |
| 98265-1-080        | SK294186-1-080               | #5 Flush | .071-.080 | .267 | .500   |
| 98265-1-100        | SK294186-1-100               | #5 Flush | .091-.100 | .287 | .500   |
| 98265-2-180        | SK294186-2-180               | #5 Flush | .171-.180 | .367 | .609   |
| 98265-2-190        | SK294186-2-190               | #5 Flush | .181-.190 | .377 | .609   |
| 98265-2-200        | SK294186-2-200               | #5 Flush | .191-.200 | .387 | .609   |
| 98265-2-210        | SK294186-2-210               | #5 Flush | .201-.210 | .397 | .609   |
| 98265-2-230        | SK294186-2-230               | #5 Flush | .220-.230 | .417 | .609   |
| 98265-2-240        | SK294186-2-240               | #5 Flush | .231-.240 | .427 | .609   |
| 98265-2-250        | SK294186-2-250               | #5 Flush | .241-.250 | .437 | .609   |
| 98292-1-080        | SK294290-1-080               | #5 Round | .071-.080 | .267 | .500   |
| 98292-1-090        | SK294290-1-090               | #5 Round | .081-.090 | .277 | .500   |
| 98292-2-170        | SK294290-2-170               | #5 Round | .161-.170 | .357 | .609   |
| 98292-2-250        | 294290-2-250                 | #5 Round | .241-.250 | .437 | .609   |



See [www.skybolt.com](http://www.skybolt.com) for complete list.

### ALoc® Grommets

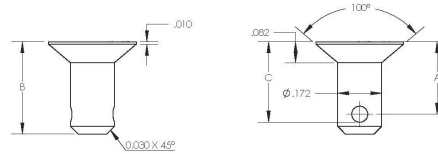
| Series | Panel Thickness | Flush Hd# | Round Hd# |
|--------|-----------------|-----------|-----------|
| 1      | None            |           |           |
| 2      | Up to .040      | 295846-1  |           |
|        | .041-.080       | 295846-2  | 98013     |
| 5      | .040-.121       | 295250-1  | 295902    |
|        | .122-.201       | 295250-2  | 99874-1   |
| 7      | Up to .040      | 295900-1  | 99874-2   |
|        | .041-.121       | 295900-2  | 295899-1  |
|        |                 |           | 295899-2  |

### ALoc® Receptacles

| Series | Solid, Plain Receptacle | Csk         | Plain Floating Rec | Csk        | Rivet | Rivet Space |
|--------|-------------------------|-------------|--------------------|------------|-------|-------------|
| 1      | 294420-P067             | 294420-C067 |                    |            | 1/16  | 1/2         |
|        | 294420-P098             |             |                    |            | 3/32  | 1/2         |
| 2      | 99871-P098              | 98871-C098  |                    | 99967-C098 | 3/32  | 3/4         |
| 5      | 99833-P098              | 99833-C098  | 99947-P098         | 99947-C098 | 3/32  | 1.0         |
|        | 99833-P130              | 99833-C130  | 99947-P130         | 99947-C130 | 1/8   | 1.0         |
| 7      | 99797-P098              | 99797-C098  |                    |            | 3/32  | 1-3/8       |
|        | 99797-P130              | 99948-P130  | 99948-P130         | 99948-C130 | 1/8   | 1-3/8       |

## #2 ALoc® Stud Identification

Attempting to determine the proper dash number for an Airloc® fastener can be very frustrating when layers of paint completely obstruct the head stamping. Take for instance, King Air Nose panels; The Beech IPC will call out certain sizes for each panel. But the IPC does not call out the location. And the IPC can be wrong. Therefore, you must be able to determine the stud dash number for each location on a panel *before removing the old studs*. Skybolt has developed this chart to determine the stud dash number by measuring the stud installed in the panel. Measured 'C'



### Measuring #2 Aloc (Airloc) Studs (Installed in panel)

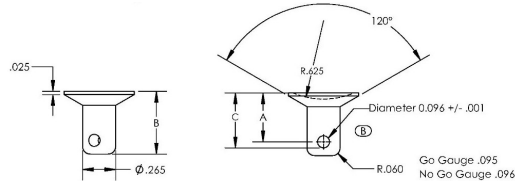
| Charted C Dim | Measured C Dim (1) | Steel Basic# | Stainless Basic# | Blank Size | Dash# | Charted A Dim | Charted B Dim | Pin Dia |
|---------------|--------------------|--------------|------------------|------------|-------|---------------|---------------|---------|
| 0.211         | 0.221              | 98264        | SK112060         | -1         | .040  | 0.180         | 0.359         | 0.063   |
| 0.221         | 0.231              | 98264        | SK112060         | -1         | .050  | 0.190         | 0.359         | 0.063   |
| 0.231         | 0.241              | 98264        | SK112060         | -1         | .060  | 0.200         | 0.359         | 0.063   |
| 0.241         | 0.251              | 98264        | SK112060         | -1         | .070  | 0.210         | 0.359         | 0.063   |
| 0.251         | 0.261              | 98264        | SK112060         | -1         | .080  | 0.220         | 0.359         | 0.063   |
| 0.261         | 0.271              | 98264        | SK112060         | -1         | .090  | 0.230         | 0.359         | 0.063   |
| 0.271         | 0.281              | 98264        | SK112060         | -1         | .100  | 0.240         | 0.359         | 0.063   |
| 0.281         | 0.291              | 98264        | SK112060         | -2         | .110  | 0.250         | 0.516         | 0.063   |
| 0.291         | 0.301              | 98264        | SK112060         | -2         | .120  | 0.260         | 0.516         | 0.063   |
| 0.301         | 0.311              | 98264        | SK112060         | -2         | .130  | 0.270         | 0.516         | 0.063   |
| 0.311         | 0.321              | 98264        | SK112060         | -2         | .140  | 0.280         | 0.516         | 0.063   |
| 0.321         | 0.331              | 98264        | SK112060         | -2         | .150  | 0.290         | 0.516         | 0.063   |
| 0.331         | 0.341              | 98264        | SK112060         | -2         | .160  | 0.300         | 0.516         | 0.063   |
| 0.341         | 0.351              | 98264        | SK112060         | -2         | .170  | 0.310         | 0.516         | 0.063   |
| 0.351         | 0.361              | 98264        | SK112060         | -2         | .180  | 0.320         | 0.516         | 0.063   |
| 0.361         | 0.371              | 98264        | SK112060         | -2         | .190  | 0.330         | 0.516         | 0.063   |
| 0.371         | 0.381              | 98264        | SK112060         | -2         | .200  | 0.340         | 0.516         | 0.063   |
| 0.381         | 0.391              | 98264        | SK112060         | -2         | .210  | 0.350         | 0.516         | 0.063   |
| 0.391         | 0.401              | 98264        | SK112060         | -2         | .220  | 0.360         | 0.516         | 0.063   |
| 0.401         | 0.411              | 98264        | SK112060         | -2         | .230  | 0.370         | 0.516         | 0.063   |
| 0.411         | 0.421              | 98264        | SK112060         | -2         | .240  | 0.380         | 0.516         | 0.063   |
| 0.421         | 0.431              | 98264        | SK112060         | -2         | .250  | 0.390         | 0.516         | 0.063   |
| 0.431         | 0.441              | 98264        | SK112060         | -3         | .260  | 0.400         | 0.656         | 0.063   |
| 0.441         | 0.451              | 98264        | SK112060         | -3         | .270  | 0.410         | 0.656         | 0.063   |
| 0.451         | 0.461              | 98264        | SK112060         | -3         | .280  | 0.420         | 0.656         | 0.063   |
| 0.461         | 0.471              | 98264        | SK112060         | -3         | .290  | 0.430         | 0.656         | 0.063   |
| 0.471         | 0.481              | 98264        | SK112060         | -3         | .300  | 0.440         | 0.656         | 0.063   |

Note (1) - Measured 'C' Dim assumes .010 paint on head of stud. Airloc stud lengths (dash #'s) vary by only .010 - very difficult to measure. Measure both sides of pin for accuracy. From Measured 'C' Dim (average), read to the right to determine complete part number. Example: 'C' measures .259 and .263; the stainless part number is SK112060-1-80. See "INSTRUCTIONS" at [www.skybolt.com](http://www.skybolt.com).



## #5 ALoc® Stud Identification

Attempting to determine the proper dash number for an Airloc® fastener can be very frustrating when layers of paint completely obstruct the head stamping. Take for instance, King Air Nose panels; The Beech IPC will call out certain sizes for each panel. But the IPC does not call out the location. And the IPC can be wrong. Therefore, you must be able to determine the stud dash number for each location on a panel *before removing the old studs*. Skybolt has developed this chart to determine the stud dash number by measuring the stud installed in the panel. Measured 'C'



### Measuring #5 Aloc (Airloc) Studs (Installed in panel)

| Charted C Dim | Measured C Dim (1) | Steel Basic# | Stainless Basic# | Blank Size | Dash# | Charted A Dim | Charted B Dim | Pin Dia |
|---------------|--------------------|--------------|------------------|------------|-------|---------------|---------------|---------|
| 0.276         | 0.286              | 98265        | SK294186         | -1         | .040  | 0.227         | 0.500         | 0.097   |
| 0.286         | 0.296              | 98265        | SK294186         | -1         | .050  | 0.237         | 0.500         | 0.097   |
| 0.296         | 0.306              | 98265        | SK294186         | -1         | .060  | 0.247         | 0.500         | 0.097   |
| 0.306         | 0.316              | 98265        | SK294186         | -1         | .070  | 0.257         | 0.500         | 0.097   |
| 0.316         | 0.326              | 98265        | SK294186         | -1         | .080  | 0.267         | 0.500         | 0.097   |
| 0.326         | 0.336              | 98265        | SK294186         | -1         | .090  | 0.277         | 0.500         | 0.097   |
| 0.336         | 0.346              | 98265        | SK294186         | -1         | .100  | 0.287         | 0.500         | 0.097   |
| 0.346         | 0.356              | 98265        | SK294186         | -1         | .110  | 0.297         | 0.500         | 0.097   |
| 0.356         | 0.366              | 98265        | SK294186         | -1         | .120  | 0.307         | 0.500         | 0.097   |
| 0.366         | 0.376              | 98265        | SK294186         | -1         | .130  | 0.317         | 0.500         | 0.097   |
| 0.376         | 0.386              | 98265        | SK294186         | -1         | .140  | 0.327         | 0.500         | 0.097   |
| 0.386         | 0.396              | 98265        | SK294186         | -1         | .150  | 0.337         | 0.500         | 0.097   |
| 0.396         | 0.406              | 98265        | SK294186         | -2         | .160  | 0.347         | 0.609         | 0.097   |
| 0.406         | 0.416              | 98265        | SK294186         | -2         | .170  | 0.357         | 0.609         | 0.097   |
| 0.416         | 0.426              | 98265        | SK294186         | -2         | .180  | 0.367         | 0.609         | 0.097   |
| 0.426         | 0.436              | 98265        | SK294186         | -2         | .190  | 0.377         | 0.609         | 0.097   |
| 0.436         | 0.446              | 98265        | SK294186         | -2         | .200  | 0.387         | 0.609         | 0.097   |
| 0.446         | 0.456              | 98265        | SK294186         | -2         | .210  | 0.397         | 0.609         | 0.097   |
| 0.456         | 0.466              | 98265        | SK294186         | -2         | .220  | 0.407         | 0.609         | 0.097   |
| 0.466         | 0.476              | 98265        | SK294186         | -2         | .230  | 0.417         | 0.609         | 0.097   |
| 0.476         | 0.486              | 98265        | SK294186         | -2         | .240  | 0.427         | 0.609         | 0.097   |
| 0.486         | 0.496              | 98265        | SK294186         | -2         | .250  | 0.437         | 0.609         | 0.097   |
| 0.496         | 0.506              | 98265        | SK294186         | -3         | .260  | 0.447         | 0.719         | 0.097   |
| 0.506         | 0.516              | 98265        | SK294186         | -3         | .270  | 0.457         | 0.719         | 0.097   |
| 0.516         | 0.526              | 98265        | SK294186         | -3         | .280  | 0.467         | 0.719         | 0.097   |
| 0.526         | 0.536              | 98265        | SK294186         | -3         | .290  | 0.477         | 0.719         | 0.097   |
| 0.536         | 0.546              | 98265        | SK294186         | -3         | .300  | 0.487         | 0.719         | 0.097   |

Note (1) - Measured 'C' Dim assumes .010 paint on head of stud. Airloc stud lengths (dash#s) vary by only .010 - very difficult to measure. Measure both sides of pin for accuracy. From Measured 'C' Dim (average), read to the right to determine complete part number. Example: 'C' measures .342 and .348; the stainless part number is SK294186-1-100.

See "INSTRUCTIONS" at [www.skybolt.com](http://www.skybolt.com)

# Dimpling and Staking Tools

Skybolt® has revolutionized panel dimpling and various fastener staking of grommets. Our tool system is designed to be used in a portable clamp tool and a production Arbor Press. All common dimple tools adapt into our system. All Skybolt staking tools for ZLoc®, ALoc®, Dzus®, and Airloc® grommets are designed into our system. Our tool adapters fit the new Skybolt SK-2018 Portable Clamp Tool and most common 2-Ton Arbor Presses. All tooling is interchangeable between the portable clamp and the Arbor Press



For production, use Skybolt tool dies with common 2-ton Arbor Presses.  
For installation video,  
see [www.skybolt.com/Instructions](http://www.skybolt.com/Instructions) -or- <https://youtu.be/2r0-D3k7UZs>



For portable field repair, use Skybolt tool dies with the Skybolt SK-2018 Clamp as shown here installing new ZLoc® studs/grommets on a Beech Bonanza.

**Skybolt Tool    OEM Tool    Description**

|                   |  |  |
|-------------------|--|--|
| <b>SK2018C*</b>   |  | Clamp (less dies and 3/8 drive Ratchet Handle) |
| SK2018-2AP        |  | 2-Ton Arbor Press                              |
| <b>SK2018-A2*</b> |  | Press adapter for all Skybolt die sets         |



|                    |  |   |
|--------------------|--|---|
| <b>SK2018-DA1*</b> |  | Dimple Adapter Set for all .187 shank die sets. For Clamp and Press |
|--------------------|--|---|

| Skybolt Tool      | OEM Tool | Description                | Quantity | Function                       |
|-------------------|----------|----------------------------|----------|--------------------------------|
| <b>SK2018A3*</b>  |          | Zloc® and Dzus® #3 Oval    | 4 Tools  | Installs grommet/stud assembly |
| <b>SK2018F3*</b>  |          | Zloc® and Dzus® #3 Flush   | 2 Tools  | Installs grommet/stud assembly |
| <b>SK2018A4*</b>  |          | Zloc® and Dzus® #4 Oval    | 4 Tools  | Installs grommet/stud assembly |
| <b>SK2018F4*</b>  |          | Zloc® and Dzus® #4 Flush   | 2 Tools  | Installs grommet/stud assembly |
| <b>SK2018A5**</b> |          | Zloc® and Dzus® #5 Oval    | 4 Tools  | Installs grommet/stud assembly |
| <b>SK2018F5*</b>  |          | Zloc® and Dzus® #5 Flush   | 2 Tools  | Installs grommet/stud assembly |
| <b>SK2018A6*</b>  |          | Zloc® and Dzus® #6 Oval    | 4 Tools  | Installs grommet/stud assembly |
| <b>SK2018F6*</b>  |          | Zloc® and Dzus® #6 Flush   | 2 Tools  | Installs grommet/stud assembly |
| <b>SK2018A65*</b> |          | Zloc® and Dzus® #6.5 Oval  | 4 Tools  | Installs grommet/stud assembly |
| <b>SK2018F65*</b> |          | Zloc® and Dzus® #6.5 Flush | 2 Tools  | Installs grommet/stud assembly |
| SK2018A7          |          | Zloc® and Dzus® #7 Flush   | 4 Tools  | Installs grommet/stud assembly |
| SK2018F7          |          | Zloc® and Dzus® #7 Flush   | 2 Tools  | Installs grommet/stud assembly |

|           |                    |   |
|-----------|--------------------|---|
| SK2018-35 | TP35AHT<br>TTPT35A | Crimp Zloc® 35/Dzus® PFSC35 Series avionics studs |
|-----------|--------------------|---|

|           |               |  |
|-----------|---------------|--|
| SK2018-26 | 2S200M/2S200F | Cloc®/Camloc® Dimple tool for 2700/2800 Series Studs (Panels up to .072 - Drill .213 hole) |
|-----------|---------------|--|

|           |               |   |
|-----------|---------------|---|
| SK2018-40 | 4G200M/4G200F | Cloc®/Camloc® Dimple tool for G and H Grommets (Panels up to .086 - Drill .4687 hole) |
|-----------|---------------|---|

|                 |             |                            |         |
|-----------------|-------------|----------------------------|---------|
| <b>SK29695*</b> | 29693/29695 | ALoc® and Airloc® #2 Flush | 2 Tools |
| <b>SK29667*</b> | 9529/29667  | ALoc® and Airloc® #5 Flush | 2 Tools |
| <b>SK29770*</b> | 9529/29770  | ALoc® and Airloc® #5 Round | 2 Tools |

|            |   |  |  |
|------------|---|--|--|
| SK2018 Set | Complete FBO Aircraft Tool Set - Includes all items in <b>BOLD*</b> . Does not include common .187 dimple dies. |  |  |
|------------|---|--|--|

\*Note: SK2018A5 Tools with SK2018C Clamp specifically Designed to install #5 Oval Studs on Beech Bonanza cowling.

## ZLoc® Tools

### Skybolt Zloc® Spring Tools

Skybolt® created the tools to “adjust” ZLoc® and Dzus® springs to accommodate variable panel thickness. The Dzus® fastening system is unique in that both the stud and the spring receptacle are available in variable grip ranges. By “adjusting” the spring height, many options are available for the application. As panel thickness and alignment vary, sometimes widely, by adjusting a given spring height, we can use one stud length and one spring to accommodate a variety of total thickness or grip in a given panel. By adjusting spring height allows one to tighten or loosen locking tension to the ideal setting.



**SK-7302**



### SK-7301 – Compact Tool for Tight Places

Skybolt developed this handy spring adjusting tool to effectively adjust spring depth. The SK730 I Tool eliminates the need for various length buttons (ZLoc® studs). Think about it, one stud size fits all hole applications! And, with properly adjusted springs, you eliminate troublesome fasteners that are either too tight or too loose. The Skybolt SK7301 tool can adjust springs outward without removing the outside panel; will not bend or even mar the thinnest panel or the finest paint. To tighten springs, the SK730 I tool is designed to pull against the spring legs, even with rivets in place. The SK7301 tool is designed for not only the chassis fabricator, it is designed for the car owner or aircraft owner as well. The SK7301 fits both #5 and #6 springs. It works great in compact areas.



### Skybolt Zloc® Dimple and Diver Tools

#### SK-DT1 Panel Dimpling Tool

Dimple any .375 diameter hole 100 to 120 degrees. Use with Size 5, 6, or ZGF65 Series studs. Simply place dies on opposite sides of the panel, insert bolt-nut, and tighten to desired depth.

#### SK-DT2 Panel Dimpling Tool

Dimple panels for SK221 Cloc Flush Receptacles.



#### SK-Driver

The best and most effective Zloc® and Dzus® Driver on the market.



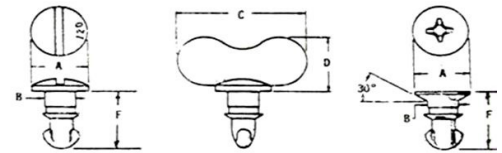
# Southco 1/4 Turn Fasteners

Southco Fasteners are very common to Cessna Airplanes.  
This product was previously known as a Lions Fastener.

| Series | A    | C     | D    |
|--------|------|-------|------|
| #82    | .375 | 7/8   | 7/16 |
| #85    | .562 | 1-1/8 | 7/16 |

## #82 Oval Head Studs - Convert to CLoc® 2000 Series

| Total Material Thickness | Slotted      |                 | Phillips     |                 | 'F'  |
|--------------------------|--------------|-----------------|--------------|-----------------|------|
|                          | Steel        | Stainless Steel | Steel        | Stainless Steel |      |
| .070-.089                | 82-11-080-16 | 82-11-080-20    | 82-19-080-16 | 82-19-080-20    | .375 |
| .090-.109                | 82-11-100-16 | 82-11-100-20    | 82-19-100-16 | 82-19-100-20    | .395 |
| .110-.129                | 82-11-120-16 | 82-11-120-20    | 82-19-120-16 | 82-19-120-20    | .415 |
| .130-.149                | 82-11-140-16 | 82-11-140-20    | 82-19-140-16 | 82-19-140-20    | .435 |
| .150-.169                | 82-11-160-16 | 82-11-160-20    | 82-19-160-16 | 82-19-160-20    | .455 |
| .170-.189                | 82-11-180-16 | 82-11-180-20    | 82-19-180-16 | 82-19-180-20    | .475 |
| .190-.209                | 82-11-200-16 | 82-11-200-20    | 82-19-200-16 | 82-19-200-20    | .495 |
| .210-.229                | 82-11-220-16 | 82-11-220-20    | 82-19-220-16 | 82-19-220-20    | .515 |
| .230-.249                | 82-11-240-16 | 82-11-240-20    | 82-19-240-16 | 82-19-240-20    | .535 |
| .250-.269                | 82-11-260-16 | 82-11-260-20    | 82-19-260-16 | 82-19-260-20    | .555 |
| .270-.289                | 82-11-280-16 | 82-11-280-20    | 82-19-280-16 | 82-19-280-20    | .575 |
| .290-.309                | 82-11-300-16 | 82-11-300-20    | 82-19-300-16 | 82-19-300-20    | .595 |



## #82 Wing Head Studs

| Total Material Thickness | Steel        | Stainless Steel | 'F'  |
|--------------------------|--------------|-----------------|------|
| .070-.089                | 82-12-080-16 | 82-12-080-20    | .375 |
| .090-.109                | 82-12-100-16 | 82-12-100-20    | .395 |
| .110-.129                | 82-12-120-16 | 82-12-120-20    | .415 |
| .130-.149                | 82-12-140-16 | 82-12-140-20    | .435 |
| .150-.169                | 82-12-160-16 | 82-12-160-20    | .455 |
| .170-.189                | 82-12-180-16 | 82-12-180-20    | .475 |
| .190-.209                | 82-12-200-16 | 82-12-200-20    | .495 |
| .210-.229                | 82-12-220-16 | 82-12-220-20    | .515 |
| .230-.249                | 82-12-240-16 | 82-12-240-20    | .535 |
| .250-.269                | 82-12-260-16 | 82-12-260-20    | .555 |
| .270-.289                | 82-12-280-16 | 82-12-280-20    | .575 |
| .290-.309                | 82-12-300-16 | 82-12-300-20    | .595 |

## #82 Flush Head Studs - Convert to CLoc® 2000 Series

| Total Material Thickness | Slotted      |                 | Phillips     |                 | 'F'  |
|--------------------------|--------------|-----------------|--------------|-----------------|------|
|                          | Steel        | Stainless Steel | Steel        | Stainless Steel |      |
| .070-.089                | 82-14-080-16 | 82-14-080-20    | 82-28-080-16 | 82-28-080-20    | .375 |
| .090-.109                | 82-14-100-16 | 82-14-100-20    | 82-28-100-16 | 82-28-100-20    | .395 |
| .110-.129                | 82-14-120-16 | 82-14-120-20    | 82-28-120-16 | 82-28-120-20    | .415 |
| .130-.149                | 82-14-140-16 | 82-14-140-20    | 82-28-140-16 | 82-28-140-20    | .435 |
| .150-.169                | 82-14-160-16 | 82-14-160-20    | 82-28-160-16 | 82-28-160-20    | .455 |
| .170-.189                | 82-14-180-16 | 82-14-180-20    | 82-28-180-16 | 82-28-180-20    | .475 |
| .190-.209                | 82-14-200-16 | 82-14-200-20    | 82-28-200-16 | 82-28-200-20    | .495 |
| .210-.229                | 82-14-220-16 | 82-14-220-20    | 82-28-220-16 | 82-28-220-20    | .515 |
| .230-.249                | 82-14-240-16 | 82-14-240-20    | 82-28-240-16 | 82-28-240-20    | .535 |
| .250-.269                | 82-14-260-16 | 82-14-260-20    | 82-28-260-16 | 82-28-260-20    | .555 |
| .270-.289                | 82-14-280-16 | 82-14-280-20    | 82-28-280-16 | 82-28-280-20    | .575 |
| .290-.309                | 82-14-300-16 | 82-14-300-20    | 82-28-300-16 | 82-28-300-20    | .595 |

# Southco 1/4 Turn Fasteners

## #85 Studs - Convert to CLoc® 4000 Series

| Total Material Thickness | Slotted      |                 | Phillips     |                 | 'F'  |
|--------------------------|--------------|-----------------|--------------|-----------------|------|
|                          | Steel        | Stainless Steel | Steel        | Stainless Steel |      |
| .070-.089                | 85-11-080-16 | 85-11-080-20    | 85-14-080-16 | 85-14-080-20    | .525 |
| .090-.109                | 85-11-100-16 | 85-11-100-20    | 85-14-100-16 | 85-14-100-20    | .545 |
| .110-.129                | 85-11-120-16 | 85-11-120-20    | 85-14-120-16 | 85-14-120-20    | .565 |
| .130-.149                | 85-11-140-16 | 85-11-140-20    | 85-14-140-16 | 85-14-140-20    | .585 |
| .150-.169                | 85-11-160-16 | 85-11-160-20    | 85-14-160-16 | 85-14-160-20    | .605 |
| .170-.189                | 85-11-180-16 | 85-11-180-20    | 85-14-180-16 | 85-14-180-20    | .625 |
| .190-.209                | 85-11-200-16 | 85-11-200-20    | 85-14-200-16 | 85-14-200-20    | .645 |
| .210-.229                | 85-11-220-16 | 85-11-220-20    | 85-14-220-16 | 85-14-220-20    | .665 |
| .230-.249                | 85-11-240-16 | 85-11-240-20    | 85-14-240-16 | 85-14-240-20    | .685 |
| .250-.269                | 85-11-260-16 | 85-11-260-20    | 85-14-260-16 | 85-14-260-20    | .705 |
| .270-.289                | 85-11-280-16 | 85-11-280-20    | 85-14-280-16 | 85-14-280-20    | .725 |
| .290-.309                | 85-11-300-16 | 85-11-300-20    | 85-14-300-16 | 85-14-300-20    | .745 |

## #85 Wing Head Studs

| Total Material Thickness | Steel        | Stainless Steel | 'F'  |
|--------------------------|--------------|-----------------|------|
| .070-.089                | 85-12-080-16 | 85-12-080-20    | .525 |
| .090-.109                | 85-12-100-16 | 85-12-100-20    | .545 |
| .110-.129                | 85-12-120-16 | 85-12-120-20    | .565 |
| .130-.149                | 85-12-140-16 | 85-12-140-20    | .585 |
| .150-.169                | 85-12-160-16 | 85-12-160-20    | .605 |
| .170-.189                | 85-12-180-16 | 85-12-180-20    | .625 |
| .190-.209                | 85-12-200-16 | 85-12-200-20    | .645 |
| .210-.229                | 85-12-220-16 | 85-12-220-20    | .665 |
| .230-.249                | 85-12-240-16 | 85-12-240-20    | .685 |
| .250-.269                | 85-12-260-16 | 85-12-260-20    | .705 |
| .270-.289                | 85-12-280-16 | 85-12-280-20    | .725 |
| .290-.309                | 85-12-300-16 | 85-12-300-20    | .745 |

## Retainers



| Part#        |
|--------------|
| 82-32-101-20 |
| 85-34-101-20 |



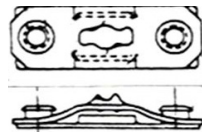
| Part#        |
|--------------|
| 82-32-201-20 |
| 85-34-201-20 |



| Part#        | Alt Part#    |
|--------------|--------------|
| 82-46-101-39 | NAS1515-H-4L |
| 85-46-101-39 | NAS1515-H-5L |

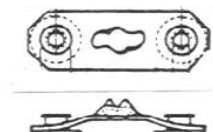
## Receptacles

#82 - 3/32 Rivets - .750 Spacing  
#85 - 1/8 Rivets - 1.0 Spacing



Leaf Spring with Base

| Part#        | Material  |
|--------------|-----------|
| 82-35-302-15 | Steel     |
| 85-35-295-15 | Steel     |
| 85-35-295-20 | Stainless |



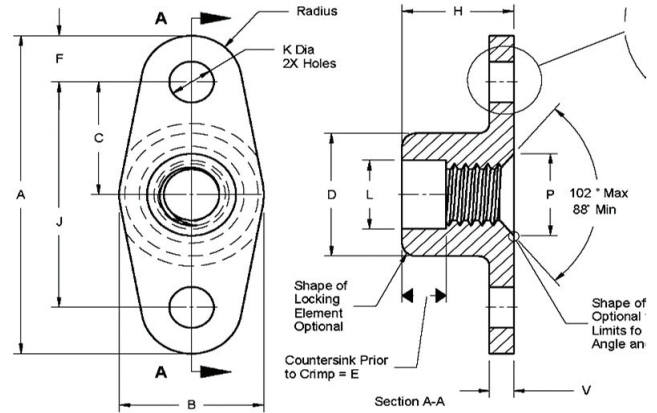
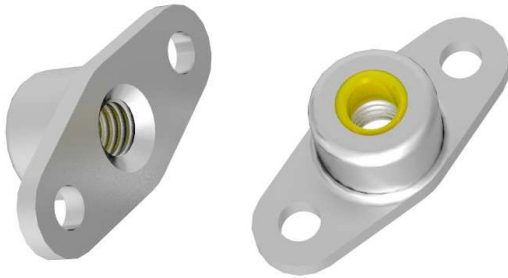
Leaf Spring with Base

| Part#        | Material  |
|--------------|-----------|
| 82-35-295-15 | Steel     |
| 82-35-295-20 | Stainless |

# Skybolt® MS21078 Platenuts

## Nylon Insert Platenuts - 6061 Aluminum - Steel

- Lightweight - Equivalent to Allmetal-Crimp Nuts
- Will not gall screw threads like allmetal platenuts
- Adds structure to panel
- Precision machined



| Part#          | A     | B    | H    | D    | Rivet | J     |
|----------------|-------|------|------|------|-------|-------|
| MS21078-04     | .970  | .404 | .215 | .373 | 3/32  | 11/16 |
| MS21078-06     | .970  | .404 | .255 | .373 | 3/32  | 11/16 |
| MS21078-08     | .970  | .404 | .285 | .373 | 3/32  | 11/16 |
| MS21078-3      | .970  | .404 | .295 | .373 | 3/32  | 11/16 |
| MS21078-3-8    | .970  | .406 | .295 | .373 | 1/8   | 11/16 |
| MS21078-324    | .970  | .406 | .295 | .373 | 1/8   | 11/16 |
| MS21078-324-8  | .970  | .406 | .295 | .373 | 1/8   | 11/16 |
| MS21078-420-8S | .970  | .406 | .295 | .373 | 1/8   | 11/16 |
| MS21078-420-8L | 1.296 | .516 | .250 | .465 | 1/8   | 1.000 |
| MS21078-428-L  | 1.296 | .516 | .250 | .465 | 1/8   | 1.000 |
| MS21078-428-8S | .970  | .406 | .250 | .465 | 3/32  | 11/16 |
| MS21078-428-8L | 1.296 | .516 | .250 | .465 | 1/8   | 1.000 |

Example Part #s

MS21078-3 12L14 Steel ASTM A29, A108 - Yellow Zinc plate  
MS21078-3A 6061 T651 Aluminum ASTM B221-12 - No plating

| MS21078               | Marking | AN366        | NAS1032    |  | Lbs. Alum | Grams Alum |
|-----------------------|---------|--------------|------------|--|-----------|------------|
| <b>MS21078-04</b>     | 4       | NA           | NAS1023N04 | #440 3/32 Rivets 11/16 Spacing 750 Axial Load      | .0035     | 1.587      |
| <b>MS21078-06</b>     | 6       | AN366-F632A  | NAS1023N06 | #632 3/32 Rivets 11/16 Spacing 1130 Axial Load     | .0035     | 1.587      |
| <b>MS21078-08</b>     | 2 or 8  | AN366-F832A  | NAS1023N08 | #832 3/32 Rivets 11/16 Spacing 1720 Axial Load     | .0035     | 1.587      |
| <b>MS21078-3</b>      | 3       | AN366-F1032A | NAS1023N3  | #10-32 3/32 Rivets 11/16 Spacing 2460 Axial Load   | .0035     | 1.587      |
| <b>MS21078-3-8</b>    | 3       | NA           | NA         | #10-32 1/8 Rivets 11/16 Spacing 2460 Axial Load    | .0035     | 1.587      |
| <b>MS21078-324</b>    | 34      |              |            | #10-24 3/32 Rivets 11/16 Spacing 2460 Axial Load   | .0035     | 1.587      |
| <b>MS21078-324-8</b>  | 34      |              |            | #10-24 1/8 Rivets 11/16 Spacing 2460 Axial Load    | .0035     | 1.587      |
| <b>MS21078-420-8S</b> | 20      | NA           | NA         | 1/4-20 1/8 Rivets 11/16 Spacing(S) 4580 Axial Load | .0045     | 2.041      |
| <b>MS21078-420-8L</b> | 20      |              |            | 1/4-20 1/8 Rivets 1.00 Spacing(L) 4580 Axial Load  | .0045     | 2.041      |
| <b>MS21078-428-L</b>  | 28      | AN366-F428A  | NAS1023N4  | 1/4-28 3/32 Rivets 1.00 Spacing(L) 4580 Axial Load | .0055     | 2.041      |
| <b>MS21078-428-8S</b> | 28      | NA           | NA         | 1/4-28 1/8 Rivets 11/16 Spacing(S) 4580 Axial Load | .0055     | 2.041      |
| <b>MS21078-428-8L</b> | 28      | NA           | NA         | 1/4-28 1/8 Rivets 1.00 Spacing(L) 4580 Axial Load  | .0055     | 2.041      |

## Skybolt Armorloc® Fasteners

**Key Skybolt Defense Conversions** – Skybolt Engineering has developed several retro-fit quick acting fastening systems for several defense vehicles. Many times, one of the first criteria is that our design fits the existing holes and configuration with little to no modification of the vehicle. In each case, our designs met all criteria including armor grade fasteners (ArmorLoc®). Improved lead times and costs objectives were always met on schedule and on budget.

Skybolt's defense engineering department has deployed top of the line fasteners for Air, Land, and Sea combat and rescue vehicles. Our parts have been designed to enhance:

- Stryker Fighting Vehicle
- Bradley Fighting Vehicle
- MQ1 and MQ9 UAVs for Air Force and Army
- Sikorsky Helicopters
- Coast Guard Cutter
- Joint Light Tactical Vehicle

Skybolt works with all branches of the military to design and mass produce the strongest and most accessible quarter turn fasteners on the market.



## Skybolt Commercial Fasteners

You will find Skybolt designs on Commercial Vehicles, particularly LNG vehicles throughout Southern California and the entire United States. Our unique Folding Wing fastener is designed for heavy duty applications; is adjustable; utilizing a patent pending Nutsert. This makes an effective One-Size-Fits-All fastening system that is perfect for heavy commercial applications.

Let Skybolt show your company that perfect design, tailored for your application.





# SKYBOLT

A E R O S P A C E F A S T E N E R S



## Skybolt Racing Fasteners

*Skybolt has served the Aerospace and Automotive Racing industries since 1982 through distribution and manufacturing of high quality, traceable, aerospace fasteners. We specialize in 1/4-Turn Panel and Cowling fasteners in steel, 303 stainless and our unique lightweight, high strength Skytanium® materials.*

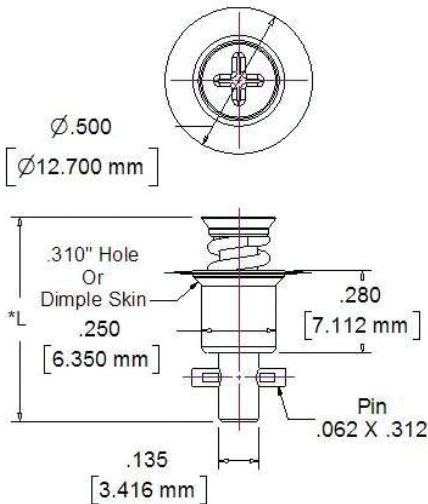
The unique Skybolt Skytanium Series Quick Release Fasteners target a 50% weight advantage with steel strength ratings. These engineering breakthroughs have become an industry standard, from Airbus to NASCAR, NASA to NHRA and IndyCar.

If it flies, races, or launches, it probably has a Skybolt fastener on it. Skybolt has set the “Rolex” standard for “Quick Release Fastener” manufacturing. A Skybolt fastener has quality you can see with performance you can feel.

# CLoc® SK2800 Flush Head Series

## 3 - Piece Series (Stud/Retainer - Locking Receptacle) Most Commonly used NASCAR Fasteners

- TSO-C148 Approved. Designed to Exceed NASM5591 Table II Performance
- Tensile/Shear Loads of 200 LBS Working - 300 Lbs Plus Ultimate



ZG2800



SK28T3  
ZG28T3

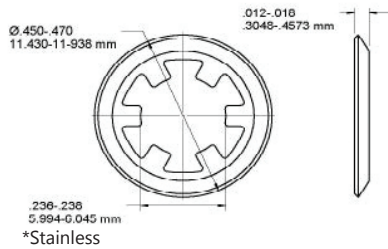
Note: 2800 Series Studs will not fit SK212-10 Series Receptacles. Use SK212-12 or SK213 Series Receptacle

| SK212 Series<br>Fixed Depth Receptacle<br>Combined Panels |      |            |        | SK213-1* and -2 Series<br>Adjustable Depth<br>Combined Panels |      |            |        | Total<br>Stud Length<br>(L) |            | Flush Head<br>2800 Series Studs |                        |                            |
|---|------|------------|--------|---|------|------------|--------|-----------------------------|------------|---------------------------------|------------------------|----------------------------|
| Decimal   |      | Millimeter |        | Decimal   |      | Millimeter |        | Decimal                     | Millimeter | Stainless<br>Phillips           | Skytanium®<br>Phillips | Skytanium®<br>#15 Torx (3) |
| Min   | Max  | Min        | Max    | Min   | Max  | Min        | Max    |                             |            |                                 |                        |                            |
| .010  | .029 | 0.254      | 0.737  | .020  | .270 | 0.508      | 6.858  | .610                        | 15.494     | SK28S3-1S                       | ZG28S3-1               | ZG28T3-1                   |
| .030  | .059 | 0.762      | 1.499  | .020  | .300 | 0.508      | 7.620  | .640                        | 16.256     | SK28S3-2S                       | ZG28S3-2               | ZG28T3-2                   |
| .060  | .089 | 1.524      | 2.261  | .050  | .330 | 1.270      | 8.382  | .670                        | 17.018     | SK28S3-3S                       | ZG28S3-3               | ZG28T3-3                   |
| .090  | .119 | 2.286      | 3.023  | .080  | .360 | 2.032      | 9.144  | .700                        | 17.780     | SK28S3-4S                       | ZG28S3-4               | ZG28T3-4                   |
| .120  | .149 | 3.048      | 3.785  | .110  | .390 | 2.794      | 9.906  | .730                        | 18.542     | SK28S3-5S                       | ZG28S3-5               | ZG28T3-5                   |
| .150  | .179 | 3.810      | 4.547  | .140  | .420 | 3.556      | 10.668 | .760                        | 19.304     | SK28S3-6S                       | ZG28S3-6               | ZG28T3-6                   |
| .180  | .209 | 4.572      | 5.309  | .170  | .450 | 4.318      | 11.430 | .790                        | 20.066     | SK28S3-7S                       | ZG28S3-7               | ZG28T3-7                   |
| .210  | .239 | 5.334      | 6.071  | .200  | .480 | 5.080      | 12.192 | .820                        | 20.828     | SK28S3-8S                       | ZG28S3-8               | ZG28T3-8                   |
| .240  | .269 | 6.096      | 6.833  | .230  | .510 | 5.842      | 12.954 | .850                        | 21.590     | SK28S3-9S                       | ZG28S3-9               | ZG28T3-9                   |
| .270  | .299 | 6.858      | 7.595  | .260  | .540 | 6.604      | 13.716 | .880                        | 22.352     | SK28S3-10S                      | ZG28S3-10              | ZG28T3-10                  |
| .300  | .329 | 7.620      | 8.357  | .290  | .570 | 7.366      | 14.478 | .910                        | 23.114     | SK28S3-11S                      | ZG28S3-11              | ZG28T3-11                  |
| .330  | .359 | 8.382      | 9.119  | .320  | .600 | 8.128      | 15.240 | .940                        | 23.876     | SK28S3-12S                      | ZG28S3-12              | ZG28T3-12                  |
| .360  | .389 | 9.144      | 9.881  | .350  | .630 | 8.890      | 16.002 | .970                        | 24.638     | SK28S3-13S                      | ZG28S3-13              | ZG28T3-13                  |
| .390  | .419 | 9.906      | 10.643 | .380  | .660 | 9.652      | 16.764 | 1.000                       | 25.400     | SK28S3-14S                      | ZG28S3-14              | ZG28T3-14                  |
| .420  | .449 | 10.668     | 11.405 | .410  | .690 | 10.414     | 17.526 | 1.030                       | 26.162     | SK28S3-15S                      | ZG28S3-15              | ZG28T3-15                  |
| .450  | .479 | 11.430     | 12.167 | .440  | .720 | 11.176     | 18.288 | 1.060                       | 26.924     | SK28S3-16S                      | ZG28S3-16              | ZG28T3-16                  |

\* For SK213-1 Series Receptacles - Add .120 to min thickness (shorter barrel) Note: Cloc-Camloc grip charts are not identical for 2800 Series parts. Physical dimensions are identical. Note (2) ZG28S3 use stainless stud/Skytanium cup. (3) Skytanium stud/cup Note: See page 12 for plating options and part# suffix

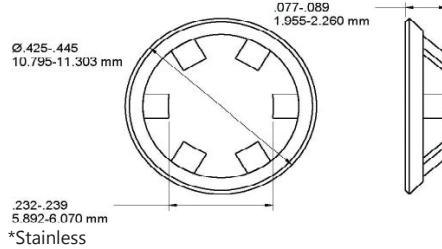
# Skybolt CLoc® 2000 Series Retainers

3 - Piece Series (Stud/Retainer - Locking Receptacle)  
Most Commonly used NASCAR Fasteners



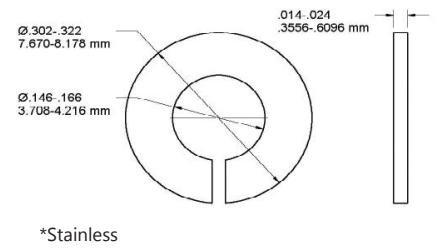
## SK2600-LWS

Solid Retaining Ring  
General Purpose



## SK2755-1S

Solid Retaining Ring  
for Dimpled Panels



## SK2600-SW

Split Ring Retainer

Designed as a general purpose retainer. Will not allow studs to retract when unlocked. Install with SK-T26 Tool.

Designed for SK2700 or SK2800 Flush Studs installed in a thin dimpled panel. Will not allow studs to retract when unlocked. Install with SK-T26 Tool

Designed for a curved panel application that require studs to retract when unlocked. They will not function with any 2700 or 2800 Series Studs with oversized drilled holes for the cup dimple. They will only work with .257 holes (after dimpling panel) or a countersunk panel with .257 hole.

Replaces 2600-LW or 1127700 (Steel)

Replaces 2755-1 or 1127301 (Steel)

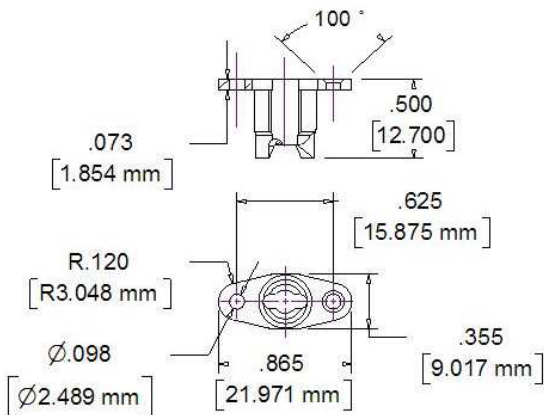
Replaces 2600-SW or 1127722 (Steel)

Install with SK-T26 Tool (see page 10). Only install after all studs have been fitted. Place retainer flat on the end of the stud cup; use slotted end of tool to push retainer until secure with the panel.

With pliers, bend open at the split; twist washer around stud crosspin; bend close. See [www.skybolt.com](http://www.skybolt.com) for details.

# CLoc® 2000 Series Rivet Receptacles

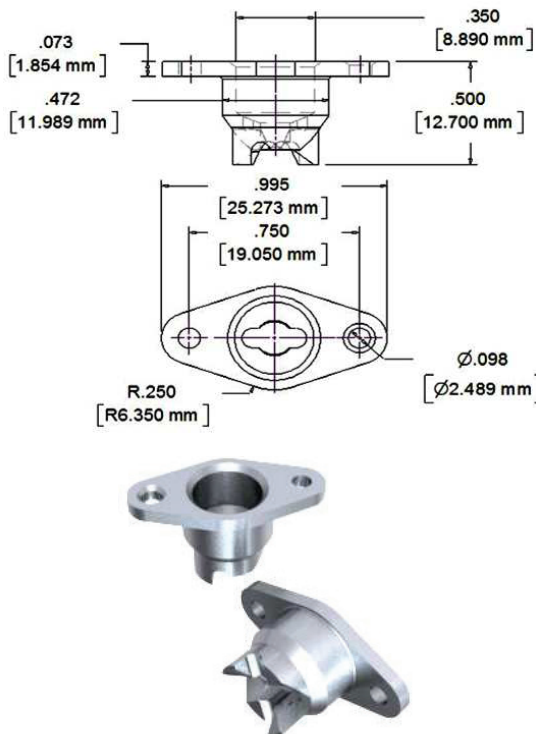
3 - Piece Series (Stud/Retainer - Locking Receptacle)  
Most Commonly used NASCAR Fasteners



## SK212-10

| Part #     | Material | TypeFinish    | Rivet Size | Weight     |
|------------|----------|---------------|------------|------------|
| SK212-10*  | Steel    | Machined/Zinc | 3/32       | .0100/4.5g |
| SK212-10A* | Alum6061 | Machined/None | 3/32       | .0030/1.4  |
| SK212-10AB | Alum6061 | Machined/Anod | 3/32       | .0030/1.4  |
| SK212-10S  | Stain303 | Machined/None | 3/32       | .0100/4.5  |

\*Most common NASCAR receptacles  
Require 2500 series studs



## SK212-12

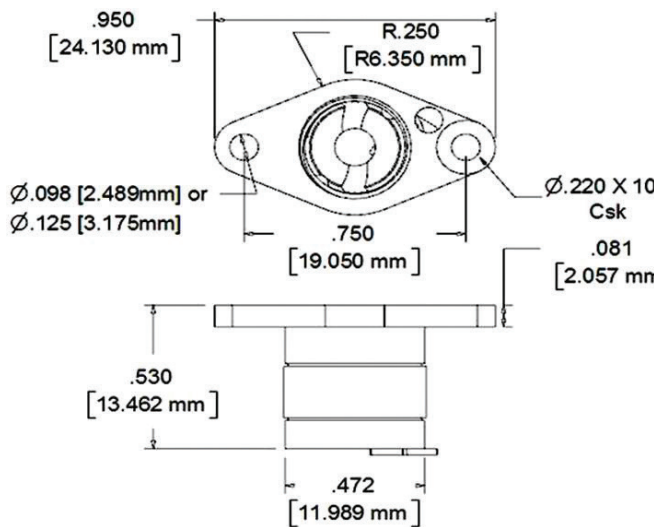
| Part #       | Material  | TypeFinish    | Rivet Size | Weight    |
|--------------|-----------|---------------|------------|-----------|
| SK212-12*    | Metal     | Cast/Chromate | 3/32       | .010/4.5g |
| SK212-12D    | Metal     | Cast/Chromate | 3/32       | .010/4.5g |
| SK212-12N    | Metal     | Cast/Chromate | 3/32       | .010/4.5g |
| SK212-12ND   | Metal     | Cast/Chromate | 3/32       | .010/4.5g |
| SK212-12S    | Stainless | Machined/Pass | 3/32       | .0105/4.8 |
| SK212-12SD   | Stainless | Machined/Pass | 3/32       | .0105/4.8 |
| SK212-12ACA  | Alum380   | Cast/None     | 3/32       | .0040/1.9 |
| SK212-12A8CA | Alum380   | Cast/None     | 1/8        | .0040/1.9 |
| SK212-12A*   | Alum6061  | Machined/None | 3/32       | .0035/1.7 |
| SK212-12A8*  | Alum6061  | Machined/None | 1/8        | .0035/1.7 |
| SK212-12AC*  | Alum6061  | Anti Chafe    | 1/8        | .0040/1.8 |
| SK212-12AC2  | Alum6061  | Anti Chafe    | 1/8        | .0040/1.8 |
| SK212-12SENC | Stain303  | Encalsulated  | 3/32       | .0105/4.8 |

\*Most common NASCAR receptacles  
Call for other styles in stock

# CLoc® 2000 Series Rivet Receptacles

3 - Piece Series (Stud/Retainer - Locking Receptacle)  
Most Commonly used NASCAR Fasteners

## SK213 Adjustable Receptacle



| Part #    | Material  | TypeFinish    | Rivet Size | Weight    | Length |
|-----------|-----------|---------------|------------|-----------|--------|
| SK213-1   | Skytanium | Machined/None | 3/32       | .0070/3.2 | .410   |
| SK213-1S  | Stain303  | Machined/None | 3/32       | .0155/7.1 | .410   |
| SK213-2*  | Skytanium | Machined/None | 3/32       | .0070/3.2 | .530   |
| SK213-2D  | Skytanium | Machined/None | 3/32csk    | .0070/3.2 | .530   |
| SK213-26D | Skytanium | Machined/None | 3/32csk    | .0070/3.2 | .530   |
| SK213-28* | Skytanium | Machined/None | 1/8        | .0070/3.2 | .530   |
| SK213-28D | Skytanium | Machined/None | 1/8csk     | .0070/3.2 | .530   |

\*Most commonly used NASCAR receptacles  
Note: SK213-26 has 11/16 Rivet Spacing

# ZLoc® Steel and Skytanium® Fasteners

**Oval Head Stud  
Type A**



**Flush Head Stud  
Type F**



**Wing Head Stud  
Type AW**



## Steel #5 Buttons NAS1515 Retainer

| Flush Head | L     | Retainer |
|------------|-------|----------|
| SKFO5-50   | 0.500 | N/A      |
| Oval Head  | L     | Retainer |
| SKAO5-50   | 0.500 | N/A      |

## Steel #6 Buttons NAS1515 Retainer

| Flush Head | L     | Retainer |
|------------|-------|----------|
| SKFO65-40  | 0.400 | -6L      |
| SKFO65-50  | 0.500 | -6L      |
| SKFO65-55  | 0.550 | -6L      |
| SKFO65-60  | 0.600 | -6L      |
| SKFO65-65  | 0.650 | -6L      |
| Oval Head  | L     | Retainer |
| SKAO65-40  | 0.400 | -6L      |
| SKAO65-50  | 0.500 | -6L      |
| SKAO65-55  | 0.550 | -6L      |
| SKAO65-60  | 0.600 | -6L      |
| SKAO65-65  | 0.650 | -6L      |

## Steel #6 Winged NAS1515 Retainer

| Flush Head | L     | Retainer |
|------------|-------|----------|
| SKAO65-50W | 0.500 | -6L      |

## Skytanium® #5 Buttons NAS1515 Retainer

| Flush Head | L     | Retainer |
|------------|-------|----------|
| ZGF5-40    | 0.400 | N/A      |
| ZGF5-50    | 0.500 | N/A      |
| ZGF5-55    | 0.550 | N/A      |
| Oval Head  | L     | Retainer |
| ZGO5-40    | 0.400 | N/A      |
| ZGO5-50    | 0.500 | N/A      |
| ZGO5-55    | 0.550 | N/A      |

## Skytanium® #6 Buttons NAS1515 Retainer

| Flush Head | L     | Retainer |
|------------|-------|----------|
| ZGF65-40   | 0.400 | -6L      |
| ZGF65-50   | 0.500 | -6L      |
| ZGF65-55   | 0.550 | -6L      |
| ZGF65-60   | 0.600 | -6L      |
| ZGF65-65   | 0.650 | -6L      |
| Oval Head  | L     | Retainer |
| ZGO65-40   | 0.400 | -6L      |
| ZGO65-50   | 0.500 | -6L      |
| ZGO65-55   | 0.550 | -6L      |
| ZGO65-60   | 0.600 | -6L      |
| ZGO65-65   | 0.650 | -6L      |

## ZLoc® Ejector Series

### Skybolt SK EHF Ejector Series

| SKEHF      | Diameter | L   | Thickness |
|------------|----------|-----|-----------|
| SKEHF5-40  | 5/8      | .40 | .075-.125 |
| SKEHF5-50  | 5/8      | .50 | .150-.225 |
| SKEHF5-50W | 5/8      | .50 | .150-.225 |
| SKEHF5-55  | 5/8      | .55 | .225-.275 |
| SKEHF5-60  | 5/8      | .60 | .275-.325 |
| SKEHF5-65  | 5/8      | .65 | .325-.425 |
| SKEHF6-40  | 3/4      | .40 | .050-.100 |
| SKEHF6-50  | 3/4      | .50 | .100-.175 |
| SKEHF6-55  | 3/4      | .55 | .200-.250 |
| SKEHF6-60  | 3/4      | .60 | .250-.300 |
| SKEHF6-65  | 3/4      | .65 | .300-.350 |

#### SKEHF5 and SKEHF6

Self Ejecting Fasteners provide ZLoc® 1/4-turn action with studs that eject from the receptacle when opened. Ejected studs won't hang up when sliding or curved panels are removed and give visual sign of unlocked fastener. The Stud assembly is riveted to the panel with 1/8" rivets or screws.



### Skybolt SK EJ Ejector Series

SKEJ Series Ejecting Fasteners utilize a threaded backing collar to secure fastener to outer panel. Made from exclusive Skytanium®, the fastener has the same strength rating as the SKEHF5 Series, is 30% lighter, with superior finish. No more ugly rivets!



| SKEJ   | Diameter                   | L   | Thickness |
|--|----------------------------|-----|-----------|
| SKEJ-40A   | 3/4                        | .50 | .075-.125 |
| SKEJ-50A   | 3/4                        | .60 | .150-.225 |
| SKEJ-50AW  | 3/4                        | .60 | .150-.225 |
| SKEJ-55A   | 3/4                        | .65 | .225-.275 |
| SKEJ-60A   | 3/4                        | .70 | .275-.325 |
| SKEJ-65A   | 3/4                        | .75 | .325-.425 |
| SK-BN1   | Standard Collar .125 Panel |     |           |
| SK-BN2   | Optional Collar .187 Panel |     |           |
| SK-BN3   | Optional Collar .250 Panel |     |           |
| <b>Use LockTite to retain threaded BN collar</b> |                            |     |           |

# ZLoc® Series Tabs and Springs

\*Tabs are welded to frame to serve as a spring mount  
\*Use SSP43 1/8 Steel Pop Rivets

## SK944

Button: All #4 Studs  
Spring: SK4-225  
Rivet Space: .750  
Thickness: .100  
Weight: .0115 lbs.



## SK945EHF

Button: All #5 & EHF/EJ Studs  
Spring: SK5-325  
Rivet Space: 1.000  
Thickness: .100  
Weight: .0220 lbs



## SK946

Button: All #5 or #6 & EHF Studs  
Spring: SK6-375  
Rivet Space: 1.375  
Thickness: .100  
Weight: .0260 lbs.



## SK945CL

CLoc SK214-16A, 244-16, SK245  
Rivet Space: 1.000  
Thickness: .100  
Weight: .0165 lbs.



## ZLoc® SPRINGS (Most Common)

|                   |                      |
|-------------------|----------------------|
| SK4-225 #4 Spring | 3/4" Rivet Spacing   |
| SK5-325 #5 Spring | 1" Rivet Spacing     |
| SK6-325 #6 Spring | 1-3/8 Rivet Spacing  |
| SK6-375 #6 Spring | 1-3/8" Rivet Spacing |



## SK-DP1 PANEL REINFORCEMENT PLATE

This aluminum Doubler Plate is used with all #6 SKFO65 and ZGF65 Flush Head ZLoc® Studs to add panel strength.





## ZLocker™ Series



New to the ZLoc® family, the ZLockerPro™ and ZLockerTF™. Skybolt's new button design features a rubber ball insert that maintains constant pressure on the spring, which means the stud will no longer unlock due to heavy vibration. The ZLocker™ studs also features a collar slot that prevents screwdriver slippage, as well as a new and improved ramp profile for maximum service life.

### ZLockerPro™ – Preset Locker

#### Oval Head



#### Flush Head



| Steel       | Skytanium®  | L    | NAS Retainer |
|-------------|-------------|------|--------------|
| SKO65-40PRO | ZGO65-40PRO | .400 | -6L          |
| SKO65-50PRO | ZGO65-50PRO | .500 | -6L          |
| SKO65-55PRO | ZGO65-55PRO | .550 | -6L          |
| SKO65-60PRO | ZGO65-60PRO | .600 | -6L          |
| SKO65-65PRO | ZGO65-60PRO | .650 | -6L          |

| Steel       | Skytanium®  | L    | NAS Retainer |
|-------------|-------------|------|--------------|
| SKF65-40PRO | ZGO65-40PRO | .400 | -6L          |
| SKF65-50PRO | ZGO65-50PRO | .500 | -6L          |
| SKF65-55PRO | ZGO65-55PRO | .550 | -6L          |
| SKF65-60PRO | ZGO65-60PRO | .600 | -6L          |
| SKF65-65PRO | ZGO65-60PRO | .650 | -6L          |

### ZLockerTF™ – Adjustable Set Screw Locker

#### Oval Head



#### Flush Head



| Steel      | Skytanium® | L    | NAS Retainer |
|------------|------------|------|--------------|
| SKO65-40TF | ZGO65-40TF | .400 | -6L          |
| SKO65-50TF | ZGO65-50TF | .500 | -6L          |
| SKO65-55TF | ZGO65-55TF | .550 | -6L          |
| SKO65-60TF | ZGO65-60TF | .600 | -6L          |
| SKO65-65TF | ZGO65-60TF | .650 | -6L          |

| Steel      | Skytanium® | L    | NAS Retainer |
|------------|------------|------|--------------|
| SKF65-40TF | ZGO65-40TF | .400 | -6L          |
| SKF65-50TF | ZGO65-50TF | .500 | -6L          |
| SKF65-55TF | ZGO65-55TF | .550 | -6L          |
| SKF65-60TF | ZGO65-60TF | .600 | -6L          |
| SKF65-65TF | ZGO65-60TF | .650 | -6L          |

# SK2003 Cowling

## SK203-TEM1

Skybolt developed the template alignment system to accurately determine the proper location of the mount to the corresponding cowling fastener. Simply locate all holes prior to removing the cowling by tracing the three holes onto the airframe. With the cowling removed the desired center can be determined for all locations.



## SK-AW4 Camwashers



CamWashers allow simple location adjustment of the Platemount location so that it is aligned with the corresponding cowling fastener. Simply modify any Skybolt SK2003A Series Mount for the CamWashers, install, and "dial" the location of the Platemount as determined by the template. No complex drilling of any aircraft components is required to perfectly align any Cessna cowling. The patented design allows full movement in both axis plus a center neutral location. Shown is the SK2003-51ADJ with baseplate holes drilled with a Unibit-1 drill to 7/16-inch.

SK2003-AW4S includes 2 ea CamWashers. Use with any Non-Adjusting Platemount



Camwashers dialed full left of center



Center default location



Camwashers dialed full right of center

# SK2003 Series Engine Cowling Mounts



The Skybolt SK2003 Series cowling mounts replace the OEM Cessna®/Lord® J7444 Series mounts with full FAA-PMA and FAA TSO-C148 approvals. The SK2003 mount is now the preferred mount for the world's largest flight school and is featured on all Yingling zero-time Ascend 172 airplanes. Our generation IV mounts have evolved as the flight school proven best ever mount on the market for strength and lasting durability. Skybolt's exclusive 100% stress test inspection insures that each and every mount will go the distance without transferring unwanted stress to the airframe components or firewall.

US Patents 7,997,843 and 8,282,329 FAA Form 8130-3 included withb mounts by request

### SK2003-14A

Replaces J7444-14  
Southco 82 Fastener  
67-On C150, 67-86 C172,  
C172XP, 68-78 C177 .0230lb

### SK2003-24A

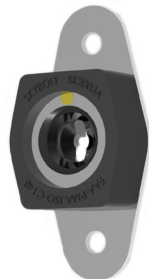
Replaces J7444-24  
CLoc® 27S3 Fastener  
73-86 C182 .0230 lb

### SK2003-42A

Replaces J7444-36/42  
Cloc® 40S5S Fastener  
C172 R/S, Skybolt SK203  
STCd Conversions .0230 lb

### SK2003-51ADJ

Adjustable Depth  
#82 Southco and all CLoc® Series  
Use SK2602 2.0 x 50mm to adjust



# SKYBOLT

## AEROSPACE FASTENERS

### **Skybolt Stainless Cowling Fastener Replacement Kits (T50-C148)**

Stainless Cowling Kits replace the old, worn and rusted parts originally installed on your cowlings and access panels with exclusive Skybolt CLoc®, ZLoc®, or ALoc® style stainless fasteners. Many kits depicted may only replace certain portions of the engine cowling. Optional kits to complete all panels are available.

The unique *Skybolt Cowling Fastener Replacement Kits* were developed over a span of 5 to 6 years utilizing Parts Manuals (IPC), field research, and customer feedback. We soon discovered that the Parts Manuals were very inaccurate and relied more on field experience. Despite exhaustive data, we also discovered that no two aircraft were ever the same. The Skybolt Cowling Fastener Kits will usually contain more of a selection than the aircraft may actually require so that a replacement project can efficiently move from start to finish. Like the Trim and Fuel Tank Kit development, many companies began to copy the Skybolt Cowling Kit product line only to discover just how difficult it is to understand each and every production aircraft produced from the 1940s to date. Without the supporting data to back up the fasteners required on most aircraft, the copy kits can supply about 70% of the required hardware. Skybolt's goal is 100% in all of our kits. Cowlings are our business. As many of these kits can cost hundreds of dollars, you deserve the best product on the market and a company that can stand by your investment for as long as you own the aircraft.

### **Skybolt Stainless Cessna Cowling Conversion Kits (STC'd)**

Skybolt 2800 Series Kits convert early Screw Cowlings to the Skybolt developed CLoc® SK25S4S Fastener. Skybolt 203 Series Kits convert all Platemount Cowlings to the CLoc® SK40S5 Fastener. Skybolt 4th Generation Conversion Kits (Southco® to CLoc®) utilize the new 2013 SK2003-42A Platemount (patent 7,997,843 and 8,282,329) with SK245-4 Series Adjustable Receptacles. With 30 years experience maintaining these cowlings, our developments address the "flex" feature unique to the J7444-42 Lord® mounts; our template based alignment process; and our (patented) SK2003-AW4 Camwashers easily position mounts for alignment in even extreme applications.

### **Skybolt Stainless Beech Bonanza Cowling Replacement and Conversion Kits (STC'd)**

Skybolt Stainless Bonanza Kits offer direct component replacement for Dzus® Fasteners in the Upper Cowl and/or the Airloc® Fasteners in the Lower Cheek Cowling. Bonanza Conversion Kits replace old school Dzus® and Airloc® Fasteners with CLoc® Fasteners for much improved performance and appearance. STC'd for TC A777 & 3A15.

### **Skybolt Stainless Trim Kits**

Trim Kits were created in the early 1980s as a convenient and cost effective hardware selection for non-structural exterior access panels and fairings. Note: Some aircraft depict structural panels (Some Mooney and KingAir wing panels). Skybolt supplies structural steel (AN509 Series) screws for these panels as AN509 stainless screws are not structural equivalent to the steel AN509 screws.

### **Skybolt Stainless Fuel Tank Kits**

Fuel Tank Kits offer the structural (and non-structural) screws common to fuel tanks in most production aircraft. Kits are sold Per Tank (1 Tank per Kit)





## Cessna Conversion Kits

### Screw Kits - SK25S4S Series SK203 Kits - Gen IV Platemarks - DiamondHead® Studs

STCd FAA-PMA Approved

| CESSNA MODEL                                   | YEAR           | SERIAL#                            | CONVERSION KIT          | KIT DESCRIPTION   |
|--|----------------|------------------------------------|-------------------------|---|
| <b>C150</b>                                    | 59-66          | 17001-64532                        | <b>C150C2800P</b>       | Screw Cowling - to SK25S4S Phillips   |
| <b>C150G-M</b><br><b>A150K-M</b>               | 67-On<br>70-77 | 64533-79405<br>A150001-A150685     | <b>SK203C150P4</b>      | SK40S5S Phillips - Complete Kit   |
|  |                |                                    | <b>SK203C150P4D*</b>    | SK40S5S Phillips - Complete Kit w/ Doublers   |
|  |                |                                    | <b>SK203C150P-FW4</b>   | SK40S5S Phillips - Firewall Kit   |
|  |                |                                    | <b>SK203C150P-SD2</b>   | SK28S3 Phillips - Side Kit  |
|  |                |                                    | <b>SK203C150P-RET</b>   | SK40S5S Phillips - Retro Kit  |
| <b>C172</b>                                    | 56-66          | 28000-54892                        | <b>C172C2800P</b>       | Screw Cowling - to SK25S4S Phillips   |
| <b>C172H-P</b>                                 | 67-81          | 54893-75034                        | <b>SK203C172P4</b>      | SK40S5S Phillips - Complete Kit   |
|  |                |                                    | <b>SK203C172P-FW4</b>   | SK40S5S Phillips - Firewall Kit   |
|  |                |                                    | <b>SK203C172P-SD4</b>   | SK40S5S Phillips - Side Kit   |
|  |                |                                    | <b>SK203C172P-RET</b>   | SK40S5S Phillips - Retro Kit  |
| <b>C172P</b><br><b>C172Q</b><br><b>C172P-Q</b> | 80-83          | 75035-76079                        | <b>SK203C172PQ4</b>     | SK40S5S Phillips - Complete Kit   |
|  | 83             | 75869-76079                        | <b>SK203C172P-FW4</b>   | SK40S5S Phillips - Firewall Kit   |
|  | 84-85          | 76080-76516                        | <b>SK203C172PQSD4</b>   | SK40S5S Phillips - Side Kit   |
|  |                |                                    | <b>SK203C172P-RET</b>   | SK40S5S Phillips - Retro Kit  |
|  |                |                                    |                         | Year 83 Southco FW, Camloc 40S5 across nose<br>Years 84-85 Camloc 27S3 FW, 40S5 across nose                           |
| <b>C172XP-XPII</b>                             | 77-81          | R1722000-3454<br>FR17200226-00675* | <b>SK203C172P-XP4</b>   | SK40S5S Phillips - Complete Kit   |
|  |                |                                    | <b>SK203C172P-FR4</b>   | SK40S5S Firewall - SK27S3S Side/Nose/Ctr  |
|  |                |                                    | <b>SK203C172PXPFW4</b>  | SK40S5S Phillips - Firewall Kit   |
|  |                |                                    | <b>SK203C172PXPSD4</b>  | SK40S5S Phillips - Side Kit   |
|  |                |                                    | <b>SK203C172PXP-RET</b> | SK40S5S Phillips - Retro Kit  |
|  |                |                                    |                         | Southco - Firewall, Camloc 40S5 - Sides, Nose, and Center Split. Will not fit T41<br>*FR17200001-00440 only 11 mounts |

\*Doublers Part #: SK-C150DL - Left Side | SK-C150DR - Right Side

| CESSNA MODEL                    | YEAR  | SERIAL#     | CONVERSION KIT  | KIT DESCRIPTION                      |
|---------------------------------|-------|-------------|---|--------------------------------------|
| <b>C172R &amp; S</b>            | 97-On | 80001-On    | <b>SK203C172P-RS4</b>   | SK40S5S Phillips - Complete Kit      |
|                                 |       |             | Note: Kit replaces J7444 mounts, all CLoc studs/grommets on firewall, sides, nose, service door, filter |                                      |
|                                 |       | 8001-On     | <b>SK203C172P-RS4FW</b>   | SK40S5S Phillips - Firewall Kit      |
|                                 |       |             | Camloc 4002 - firewall/sides  |                                      |
| <b>C175</b>                     | 58-62 | 55001-57119 | <b>C175C2800P</b>   | Screw Cowling - to SK25S4S Phillips  |
| <b>C177A-B</b><br><b>C177RG</b> | 68-78 | 00001-02752 | <b>SK203C177P4</b>  | SK40S5S Phillips - Complete Kit      |
|                                 |       |             | <b>SK203C177P-FW4</b>   | SK40S5S Phillips - Firewall Kit      |
|                                 | 71-78 | 00001-1366  | <b>SK203C177P-SD4</b>   | SK40S5S Phillips - Side Kit          |
|                                 |       |             | <b>SK203C177P-RET</b>   | SK40S5S Phillips - Retro Kit         |
| <b>C180</b>                     | 53-60 | 30000-50911 | <b>C180C2800P</b>   | Screw Cowling - to SK25S4S Phillips  |
| <b>C182</b>                     | 56-60 | 33000-53007 | <b>C182C2800P</b>   | Screw Cowling - to SK25S4S Phillips  |
| <b>C182P-RB</b>                 | 73-86 | 61426-68542 | <b>SK203C182P2</b>  | SK28S3/40S5S Phillips - Complete Kit |
|                                 |       |             | <b>SK203C182P4</b>  | SK40S5S Phillips - Complete Kit      |
|                                 |       |             | <b>SK203C182P-FW4</b>   | SK40S5S Phillips - Firewall Kit      |
|                                 |       |             | <b>SK203C182P-RET</b>   | SK40S5S Phillips - Retro Kit         |

**Note:** RET Kits are for customers who have previously installed SK245 Kits and want to convert back to the SK2003 rubber mounts. RET Kits include new SK2003 Mounts, SK2001AW Alignment Washers and all Hardware (No Studs or Grommets)

**Cessna Firewall Bracket Part#:** Upper: 0453003-3 | Lower: 0453003-2





## Beechcraft Conversion Kits

| BEECH MODEL  | YEAR      | SERIAL#                       | CONVERSION KIT   | KIT DESCRIPTION                   |
|--|-----------|-------------------------------|------------------|-----------------------------------|
| <b>Debonair 33,A</b>   | 60-61     | CD1-CD350                     | <b>B35UC40S</b>  | SK4002S Upper Conversion Kit      |
|  |           |                               | <b>B35UC40P</b>  | SK40S5S Upper Conversion Kit      |
| <b>Bonanza 35-N35</b>  | 47-61     | D1-D6567                      | <b>B35LC27S</b>  | SK2700S Lower Gill Conversion Kit |
|  |           |                               | <b>B35LC28P</b>  | SK28S5S Lower Gill Conversion Kit |
| (Models M-N Change from #2 Airloc to #5 Airloc on or about SN6567...Check) |           |                               |                  |                                   |
| <b>Debonair 33 A-C</b>   | 61-67     | CD351-CD1234                  | <b>B35UC40S</b>  | SK4002S Upper Conversion Kit      |
|  |           |                               | <b>B35UC40P</b>  | SK40S5S Upper Conversion Kit      |
| <b>Debonair C33A, E33A</b>   | 66-69     | CE1-CE289                     | <b>B35LC40S</b>  | SK4002S Lower Gill Conversion Kit |
| <b>Bonanza N-V35A</b>  | 61-69     | D6568-D9068                   | <b>B35LC40P</b>  | SK40S5S Lower Gill Conversion Kit |
| Designated Bonanza 68 E33, SN CD1119 68 E33A, SN CE180                     |           |                               |                  |                                   |
| <b>Bonanza F33,G33</b>   | 70-73     | CD1235-CD1304                 | No Kit for Upper |                                   |
| <b>Bonanza F33A,F33C</b>   | 70-Mid 73 | CE290-CE436 (No 418), CJ26-39 | <b>B35LC40S</b>  | SK4002S Lower Gill Conversion Kit |
| <b>Bonanza F33A,F33C</b>   | Mid 73-94 | CE418, CE436-On, CJ40-On      | <b>B35LC40S</b>  | SK4002S Lower Gill Conversion Kit |
| <b>Bonanza 36, A36</b>   | 68-73     | E1-E424                       | <b>B35LC40P</b>  | SK40S5S Lower Gill Conversion Kit |

| BEECH MODEL         | YEAR  | SERIAL#     | CONVERSION KIT   | KIT DESCRIPTION                   |
|---------------------|-------|-------------|------------------|-----------------------------------|
| <b>Bonanza V35B</b> | 70-82 | D9069-10403 | No Kit for Upper |                                   |
| <b>Bonanza A36</b>  | 73-87 | E425 On     | <b>B35LC40S</b>  | SK4002S Lower Gill Conversion Kit |
|                     |       |             | <b>B35LC40P</b>  | SK40S5S Lower Gill Conversion Kit |
| <b>A36TC,B36TC</b>  | 79-87 | EA1-On      | No Kit for Upper |                                   |
|                     |       |             | <b>B35LC40S</b>  | SK4002S Lower Gill Conversion Kit |
|                     |       |             | <b>B35LC40P</b>  | SK40S5S Lower Gill Conversion Kit |

## Beech Bonanza Cowling Fastener Configuration

| Type Certificate A-777 |       |             | Upper | Lower |
|------------------------|-------|-------------|-------|-------|
| Model                  | Years | SN          | Cowl  | Cowl  |
| 35                     | 47-48 | D1-D1210    | Dzus  | #2-90 |
| A35                    | 49    | D1501-D2200 | Dzus  | #2-90 |
| B35                    | 50    | D2201-D2680 | Dzus  | #2-90 |
| C35                    | 51-52 | D2681-D3400 | Dzus  | #2-90 |
| D35                    | 53    | D3401-D3698 | Dzus  | #2-90 |
| E35                    | 54    | D3699-D3998 | Dzus  | #2-90 |
| F35                    | 55    | D3999-D4391 | Dzus  | #2-90 |
| G35                    | 56    | D4392-D4865 | Dzus  | #2-90 |
| 35R                    | All   | All         | Dzus  | #2-90 |

| Type Certificate 3A15 |           |               | Upper | Lower  |
|-----------------------|-----------|---------------|-------|--------|
| Model                 | Years     | SN            | Cowl  | Cowl   |
| H35                   | 57        | D4866-D5330   | Dzus  | #2-90  |
| J35                   | 58        | D5331-D5725   | Dzus  | #2-90  |
| K35                   | 59        | D5726-D6161   | Dzus  | #2-90  |
| M35                   | 60        | D6162-D6567   | Dzus  | #2-90  |
| N35                   | 61        | D6568-D6841   | Dzus  | #5-80  |
| P35                   | 62        | D6842-D7066   | Dzus  | #5-80  |
| S35                   | 63-65     | D7067-D7976   | Dzus  | #5-80  |
| V35                   | 66-67     | D7977-D8598   | Dzus  | #5-80  |
| V35A                  | 68-69     | D8599-D9068   | Dzus  | #5-80  |
| V35B                  | 70-82     | D9069-On      | Latch | #5-100 |
| 35-33                 | 60        | CD2-250       | Dzus  | #2-90  |
| 35-A33                | 61        | CD251-350     | Dzus  | #2-90  |
| 35-A33                | 61        | CD351-CD387   | Dzus  | #5-80  |
| 35-B33                | 62-64     | CD388-CD813   | Dzus  | #5-80  |
| 35-C33                | 65-67     | CD814-CD1118  | Dzus  | #5-80  |
| 35-C33A               | 66-67     | CE1-CECE179   | Dzus  | #5-80  |
| E33                   | 68-69     | CD1119-CD1234 | Dzus  | #5-80  |
| E33A                  | 68-69     | CE180-CE289   | Dzus  | #5-80  |
| E33C                  | 68-69     | CJ1-CJ25      | Latch | #5-80  |
| F33                   | 70        | CD1235-CD1254 | Latch | #5-80  |
| F33A                  | 70-Mid 73 | CE290-CE435   | Latch | #5-80  |
| F33A                  | Mid 73-94 | CE418,436-On  | Latch | #5-100 |
| F33C                  | 70        | CJ26-CJ39     | Latch | #5-80  |
| F33C                  | 70 On     | CJ40-On       | Latch | #5-100 |
| G33                   | 72        | CD1255-CD1304 | Latch | #5-80  |
| 36                    | 68-69     | E1-E184       | Latch | #5-80  |
| A36                   | 70-73     | E185-E424     | Latch | #5-80  |
| A36                   | 73-On     | E425-On       | Latch | #5-100 |
| A36TC                 | 79-81     | EA1-EA272     | Latch | #5-100 |
| B36TC                 | 82-On     | EA273-On      | Latch | #5-100 |
| G36                   | All       | All           | Latch | #5-100 |





A E R O S P A C E F A S T E N E R S

## Cowling Fastener Replacement Kits

| CESSNA MODEL                              | YEAR       | SERIAL#                         | REPLACEMENT KIT  | KIT DESCRIPTION                            |
|---|------------|---------------------------------|------------------|--|
| <b>C150G-M</b>                            | 67-77      |                                 | <b>C150-C1</b>   | Slotted Southco                            |
| <b>A150 K-M Aerobat</b><br>(and Commuter) | 70-77      | 64533-79406                     | <b>C150-C1P</b>  | Phillips Southco                           |
| <b>A152 Early</b>                         | Early 78   | 0735-0779                       | <b>C152-C1</b>   | Collared Slotted                           |
| <b>C152 Early</b>                         | Early 78   | 79406-81195<br>F152-01429-01528 | <b>C152-C1P</b>  | Phillips                                   |
| <b>A152 Late 78-86</b>                    | Late 78-86 | 0780-1049                       | <b>C152-C2</b>   | Collared Slotted                           |
| <b>C152 Late</b>                          | Late 78-85 | 81196-86035<br>F152-01529 On    | <b>C152-C2P</b>  | Phillips                                   |
| <b>C172H-P</b>                            | 67-81      | 54893-75034                     | <b>C172-C1</b>   | Slotted Southco                            |
|   |            |                                 | <b>C172-C1P</b>  | Phillips Southco                           |
|   |            |                                 | <b>C100-EAD3</b> | <b>Option:</b> Eng Access Door (Original)  |
|   |            |                                 | <b>C100-EAD4</b> | <b>Option:</b> Eng Access Door (CLoc Conv) |
| <b>C172P,Q</b>                            | 84-86      | 76080-76516                     | <b>C172-C3</b>   | Slotted 2700/4002                          |
|   |            |                                 | <b>C172-C3P</b>  | Phillips 27S3/40S5                         |
| <b>C172P</b>                              | 86-On      | 76517 On                        | <b>C172-C4</b>   | Collared Slotted                           |
|   |            |                                 | <b>C172-C4P</b>  | Phillips                                   |
| <b>HawkXP,XPII</b>                        | 77-81      | R172-2000-3454                  | <b>C172-C5</b>   | Collared Slotted                           |
|   |            |                                 | <b>C172-C5P</b>  | Phillips                                   |
| <b>Cutlass RG</b>                         | 80-85      | All                             | <b>C172-C6</b>   | Collared Slotted                           |
|   |            |                                 | <b>C172-C6P</b>  | Phillips                                   |
| <b>C172R</b><br><b>C172S</b>              | 1996-On    | 80001 On<br>8001 On             | <b>C172-C8P</b>  | Phillips                                   |
| <b>C177, A, B &amp; RG</b>                | 71-81      | All                             | <b>C177-C1</b>   | Collared Slotted                           |
|   |            |                                 | <b>C177-C1P</b>  | Phillips                                   |

| CESSNA MODEL               | YEAR  | SERIAL#                  | REPLACEMENT KIT   | KIT DESCRIPTION                                   |
|----------------------------|-------|--------------------------|-------------------|---|
| <b>C180</b>                | 61-72 | 50912-52284              | <b>C180-C1</b>    | Collared Slotted                                  |
| <b>C185</b>                | 61-72 | 0001-02090               | <b>C180-C1P</b>   | Phillips  |
| <b>C180</b>                | 73-81 | 52285-53203              | <b>C180-C2</b>    | Collared Slotted                                  |
| <b>C185</b>                | 73-85 | 02091-On                 | <b>C180-C2P</b>   | Phillips  |
| <b>C180</b><br><b>C185</b> | 61-81 | 50912-53203              | <b>C100-EAD5</b>  | <b>Option:</b> Eng Access Door (Original)         |
|                            |       |                          | <b>C100-EAD4</b>  | <b>Option:</b> Eng Access Door (CLoc Conv) No STC |
|                            | 61-85 | 0001-On                  | <b>C100-AF1</b>   | <b>Option:</b> Air Filter Fastener Kit            |
|                            |       |                          | <b>C100-EPD1S</b> | <b>Option:</b> External Pwr Door (Slotted)        |
|                            |       |                          | <b>C100-EPD1P</b> | <b>Option:</b> External Pwr Door (Phillips)       |
| <b>C182D</b>               | 61    | 53008-53598              | <b>C182-C1</b>    | <b>Collared Slotted</b>                           |
|                            |       |                          | <b>C182-C1P</b>   | <b>Phillips</b>                                   |
|                            |       |                          | <b>C100-AF1</b>   | <b>Air Filter Fastener Kit</b>                    |
|                            |       |                          | <b>C100-EPD1S</b> | <b>External Pwr Door - Slotted</b>                |
|                            |       |                          | <b>C100-EPD1P</b> | <b>External Pwr Door - Phillips</b>               |
| <b>C182E-M</b>             | 62-69 | 53599-60055              | <b>C182-C2</b>    | Collared Slotted                                  |
|                            |       |                          | <b>C182-C2P</b>   | Phillips  |
|                            |       |                          | <b>C100-EPD1S</b> | <b>Option:</b> External Pwr Door - Slotted        |
|                            |       |                          | <b>C100-EPD1P</b> | <b>Option:</b> External Pwr Door - Phillips       |
| <b>C182N-P</b>             | 70-72 | 60056-61425              | <b>C182-C3</b>    | Collared Slotted                                  |
|                            |       |                          | <b>C182-C3P</b>   | Phillips  |
|                            |       |                          | <b>C100-EPD1S</b> | <b>Option:</b> External Pwr Door - Slotted        |
|                            |       |                          | <b>C100-EPD1P</b> | <b>Option:</b> External Pwr Door - Phillips       |
| <b>C182P-R</b>             | 73-86 | 60056-66590              | <b>C182-C4</b>    | Collared Slotted                                  |
|                            |       |                          | <b>C182-C4P</b>   | Phillips  |
|                            |       |                          | <b>C100-EPD1S</b> | <b>Option:</b> External Pwr Door - Slotted        |
|                            |       |                          | <b>C100-EPD1P</b> | <b>Option:</b> External Pwr Door - Phillips       |
| <b>T182,R,TR,RG</b>        | 78-86 | All                      | <b>C182-C5</b>    | Collared Slotted                                  |
|                            |       |                          | <b>C182-C5P</b>   | Phillips  |
|                            |       |                          | <b>C100-EPD1S</b> | <b>Option:</b> External Pwr Door - Slotted        |
|                            |       |                          | <b>C100-EPD1P</b> | <b>Option:</b> External Pwr Door - Phillips       |
| <b>C182S</b>               | 97-00 | 80004-80944<br>Non-Turbo | <b>C182-C6</b>    | Collared Slotted                                  |
| <b>C182T</b>               | 01-On | 8001-On<br>Non-Turbo     | <b>C182-C6P</b>   | Phillips  |
| <b>182T</b>                | 01-On | 80945-On Turbo           | <b>C182-C7</b>    | Collared Slotted                                  |
| <b>T182T</b>               | 01-On | 8001-On Turbo            | <b>C182-C7P</b>   | Phillips  |

| CESSNA MODEL                   | YEAR  | SERIAL#                   | REPLACEMENT KIT   | KIT DESCRIPTION                                      |
|--------------------------------|-------|---------------------------|-------------------|--|
| <b>C188 Agwagon</b>            | 66-83 | All                       | <b>C188-C1</b>    | Collared Slotted                                     |
|                                |       |                           | <b>C188-C1P</b>   | Phillips   |
|                                |       |                           | <b>C100-EPD1S</b> | <b>Option:</b> External Pwr Door - Slotted           |
|                                |       |                           | <b>C100-EPD1P</b> | <b>Option:</b> External Pwr Door - Phillips          |
|                                |       |                           | <b>C188-RSP1</b>  | <b>Option:</b> Fuselage ZLoc                         |
| <b>C205</b>                    | 63-64 | 0001-0577                 | <b>C205-C1</b>    | Collared Slotted                                     |
| <b>C206</b>                    | 64    | 0001-0275                 | <b>C205-C1P</b>   | Phillips   |
| <b>U,TU206</b>                 | 65-84 | 0276-06846                | <b>C200-2800</b>  | <b>Option:</b> Belly Panel (CLoc converted-Slotted)  |
| <b>P,TP206</b>                 | 65-70 | 091-0647                  | <b>C200-28S3</b>  | <b>Option:</b> Belly Panel (CLoc converted-Phillips) |
| <b>U206,TU</b>                 | 85-86 | 06847 On                  | <b>C206-C1</b>    | Collared Slotted                                     |
|                                |       |                           | <b>C206-C1P</b>   | Phillips   |
|                                |       |                           | <b>C200-2800</b>  | <b>Option:</b> Belly Panel (CLoc converted-Slotted)  |
|                                |       |                           | <b>C200-28S3</b>  | <b>Option:</b> Belly Panel (CLoc converted-Phillips) |
| <b>C206, T206</b>              | 97-On |                           | <b>C206-C2P</b>   | Collared Slotted                                     |
| <b>C207,T207</b>               | 69-84 | All                       | <b>C207-C1</b>    | Collared Slotted                                     |
|                                |       |                           | <b>C207-C1P</b>   | Phillips   |
|                                |       |                           | <b>C200-2800</b>  | <b>Option:</b> Belly Panel (CLoc converted-Slotted)  |
|                                |       |                           | <b>C200-28S3</b>  | <b>Option:</b> Belly Panel (CLoc converted-Phillips) |
| <b>C208</b>                    | 85-On | All                       | <b>C208C1P</b>    | Phillips   |
| <b>C210, A</b>                 | 60-61 | 57001-57840               | <b>C210-C1</b>    | Collared Slotted                                     |
| <b>C210 B-F</b>                | 62-66 | 57841-58818               |                   |  |
| <b>C210 G-J</b>                | 67-69 | 58819-59199               |                   |  |
| <b>C210 K-N</b>                | 70-81 | 59200-64535 No Air Cond   |                   |  |
| <b>T210 F</b>                  | 66    | 0001-0197                 |                   |  |
| <b>T210 G-J</b>                | 67-69 | 0198-0454                 |                   |  |
| <b>T210 K-L</b>                | 70-73 | 59200-60089 No Air Cond   |                   |  |
| <b>C210 L-N</b>                | 74-84 | 60090-64897 With Air Cond | <b>C210-C2</b>    | Collared Slotted                                     |
| <b>C210,T210 N</b>             | 74-84 | 60090-64897               | <b>C210-C2P</b>   | Phillips   |
| <b>P210 N</b>                  | 78-83 | 0001-00834                |                   |  |
| <b>T210R(Turbo)</b>            | 85-86 | 64898-65009               | <b>C210-C3</b>    | Collared Slotted                                     |
| <b>P210R</b>                   | 85-86 | 0835-0874                 | <b>C210-C3P</b>   | Phillips   |
| <b>C210R 85-86 (Non Turbo)</b> | 85-86 | 64898-65009 No Turbo      | <b>C210-C4</b>    | Collared Slotted                                     |
|                                |       |                           | <b>C210-C4P</b>   | Phillips   |

| CESSNA MODEL            | YEAR  | SERIAL#               | REPLACEMENT KIT | KIT DESCRIPTION                                |
|-------------------------|-------|-----------------------|-----------------|--|
| C303 T303 Crusader      | 82-84 | 00001-00315           | C303-C1         | Collared Slotted                               |
|                         |       |                       | C303-C1P        | Phillips                                       |
| C310                    | 54-57 | 35000-35546           | C310-C1         | Collared Slotted                               |
|                         |       |                       | C310-C1P        | Phillips                                       |
|                         |       |                       | C300-BA1        | <b>Option:</b> Battery Access Panel            |
|                         |       |                       | C300-OAD1S      | <b>Option:</b> Oil Access Door - Slotted       |
|                         |       |                       | C300-OAD1P      | <b>Option:</b> Oil Access Door - Phillips      |
| C310 B,C,D              | 58-60 | 35655-39299           | C310-C2         | Collared Slotted                               |
|                         |       |                       | C310-C2P        | Phillips                                       |
|                         |       |                       | C300-BA1        | <b>Option:</b> Battery Access Panel            |
|                         |       |                       | C300-OAD1S      | <b>Option:</b> Oil Access Door - Slotted       |
|                         |       |                       | C300-OAD1P      | <b>Option:</b> Oil Access Door - Phillips      |
| C310 E, F thru K        | 61-66 | F0001-K0245 Non Turbo | C310-C3         | Collared Slotted                               |
|                         |       |                       | C310-C3P        | Phillips                                       |
| C310 L thru N           | 67-68 | N0001-N0198 Non Turbo | C300-BA3        | <b>Option:</b> Battery Acces Panel             |
|                         |       |                       | C300-NA1S       | <b>Option:</b> Nose Access - Slotted K-Q Only  |
| C310 P thru Q           | 69-74 | P0001-Q1160 Non Turbo | C300-NA1P       | <b>Option:</b> Nose Access - Phillips K-Q Only |
|                         |       |                       | C300-OAD1S      | <b>Option:</b> Oil Access Door - Slotted       |
| C320A-E SkyKnight       | 62-68 | All                   | C300-OAD1P      | <b>Option:</b> Oil Access Door - Phillips      |
| C310P,Q,R               | 69-81 | P0001-R2140 All Turbo | C310-C5         | Collared Slotted                               |
|                         |       |                       | C310-C5P        | Phillips                                       |
|                         |       |                       | C300-BA3        | <b>Option:</b> Battery Acces Panel             |
|                         |       |                       | C300-NA1S       | <b>Option:</b> Nose Access - Slotted No C310R  |
|                         |       |                       | C300-NA1P       | <b>Option:</b> Nose Access - Phillips No C310R |
| C336 Skymaster          | 63-64 | 0001-0195 Fixed Gear  | C336-C1         | Collared Slotted                               |
|                         |       |                       | C336-C1P        | Phillips                                       |
| C337 Skymaster<br>C337P | 65-80 | 0002-01951            | C337-C1         | Collared Slotted                               |
|                         |       |                       | C337-C1P        | Phillips                                       |
|                         |       | 0001-0356             | C300-NA2        | <b>Option:</b> Avionics Panel                  |
|                         |       |                       | C300-NA3S       | <b>Option:</b> Avionics Panel - Slotted        |
|                         |       |                       | C300-NA3P       | <b>Option:</b> Avionics Panel - Phillips       |
| C340,A                  | All   |                       | C340-C1         | Collared Slotted                               |
|                         |       |                       | C340-C1P        | Phillips                                       |
|                         |       |                       | C300-NA4S       | <b>Option:</b> Nose Access Panel - Slotted     |
|                         |       |                       | C300-NA4P       | <b>Option:</b> Nose Access Panel - Phillips    |

| CESSNA MODEL                    | YEAR  | SERIAL#       | REPLACEMENT KIT | KIT DESCRIPTION                                       |
|---------------------------------|---|---------------|-----------------|---|
| C401,402,A,B                    | All   |               | C400-C1         | Collared Slotted                                      |
|                                 |   |               | C400-C1P        | Phillips  |
|                                 |   |               | C400-NF1        | <b>Option:</b> Nacelle Panels and Fairing             |
|                                 |   |               | C400-BA1S       | <b>Option:</b> Battery Acces Panel - Slotted          |
|                                 |   |               | C400-BA1P       | <b>Option:</b> Battery Acces Panel - Phillips         |
|                                 |   |               | C400-NP1S       | <b>Option:</b> Nose Panel - Slotted 402A0001-0046     |
|                                 |   |               | C400-NP1P       | <b>Option:</b> Nose Panel - Phillips 402A0001-0046    |
|                                 |   |               | C400-NP2S       | <b>Option:</b> Nose Panel - Slotted 402A0047-On       |
|                                 |   |               | C400-NP2P       | <b>Option:</b> Nose Panel - Phillips 402A0047-On      |
|                                 |   |               | C400-NP3S       | <b>Option:</b> Nose Panel - Slotted 402B              |
|                                 |   |               | C400-NP3P       | <b>Option:</b> Nose Panel - Phillips 402B             |
| C402C                           | 79-85   | 402C0001-0808 | C400-C2         | Collared Slotted                                      |
|                                 |   |               | C400-C2P        | Phillips  |
|                                 |   |               | C400-NF1        | <b>Option:</b> Nacelle Panels and Fairing             |
|                                 |   |               | C400-BA1S       | <b>Option:</b> Battery Acces Panel - Slotted          |
|                                 |   |               | C400-BA1P       | <b>Option:</b> Battery Acces Panel - Phillips         |
|                                 |   |               | C400-NP4S       | <b>Option:</b> Nose Panel w Avionics Door - Slotted   |
|                                 |   |               | C400-NP4P       | <b>Option:</b> Nose Panel w Avionics Door - Phillips  |
|                                 |   |               | C400-NP5S       | <b>Option:</b> Nose Panel No Avionics Door - Slotted  |
| C400-NP5P                       | <b>Option:</b> Nose Panel No Avionics Door - Phillips |               |                 |   |
| C404 Titan                      | 77-81   | 0001-0859     | C404-C1         | Collared Slotted                                      |
|                                 |   |               | C404-C1P        | Phillips  |
|                                 |   |               | C400-BA2S       | <b>Option:</b> Inverter/Battery Panel - Slotted       |
|                                 |   |               | C400-BA2P       | <b>Option:</b> Inverter/Battery Panel - Phillips      |
|                                 |   |               | C400-CP1S       | <b>Option:</b> Bottom Cowling Panels - Slotted        |
|                                 |   |               | C400-CP1P       | <b>Option:</b> Bottom Cowling Panels - Phillips       |
|                                 |   |               | C400-NP4S       | <b>Option:</b> Nose Panel w Avionics Door - Slotted   |
|                                 |   |               | C400-NP4P       | <b>Option:</b> Nose Panel w Avionics Door - Phillips  |
|                                 |   |               | C400-NP5S       | <b>Option:</b> Nose Panel No Avionics Door - Slotted  |
|                                 |   |               | C400-NP5P       | <b>Option:</b> Nose Panel No Avionics Door - Phillips |
| <b>For C411 - See Next Page</b> |   |               |                 |   |
| C414, C414 II                   | 70-77   | 0001-0965     | C414-C1         | Collared Slotted                                      |
|                                 |   |               | C414-C1P        | Phillips  |
| C414A Chancellor<br>C414A III   | 87-85   | 0001-1212     | C414-C2         | Collared Slotted                                      |
|                                 |   |               | C414-C2P        | Phillips  |

C414 Continued →

| CESSNA MODEL  | YEAR  | SERIAL#       | REPLACEMENT KIT   | KIT DESCRIPTION                                       |
|---|-------|---------------|-------------------|---|
| <b>C414, C414 II<br/>C414A Chancellor<br/>C414A III</b> | 70-77 | 0001-0965     | <b>C400-NF1</b>   | <b>Option:</b> Nacelle Panels and Fairing             |
|   |       |               | <b>C400-BA1S</b>  | <b>Option:</b> Battery Acces Panel - Slotted          |
|   |       |               | <b>C400-BA1P</b>  | <b>Option:</b> Battery Acces Panel - Phillips         |
|   |       |               | <b>C400-CP2S</b>  | <b>Option:</b> Bottom Cowling Panels - Slotted        |
|   | 87-85 | 0001-1212     | <b>C400-CP2P</b>  | <b>Option:</b> Bottom Cowling Panels - Phillips       |
|   |       |               | <b>C400-NP6S</b>  | <b>Option:</b> Nose Panel w Avionics Door - Slotted   |
|   |       |               | <b>C400-NP6P</b>  | <b>Option:</b> Nose Panel w Avionics Door - Phillips  |
|   |       |               | <b>C400-NP7S</b>  | <b>Option:</b> Nose Panel No Avionics Door - Slotted  |
|   |       |               | <b>C400-NP7P</b>  | <b>Option:</b> Nose Panel No Avionics Door - Phillips |
| <b>C411<br/>C421,A,B</b>                                | 65-68 | 0002-0300     | <b>C421-C1</b>    | Collared Slotted                                      |
|   |       |               | <b>C421-C1P</b>   | Phillips  |
|   |       |               | <b>C400-RAD1S</b> | <b>Option:</b> Radome - Slotted                       |
|   |       |               | <b>C400-RAD1P</b> | <b>Option:</b> Radome - Phillips                      |
|   | 68-75 | 0001-0970     | <b>C400-BA2S</b>  | <b>Option:</b> Battery Acces Panel - Slotted          |
|   |       |               | <b>C400-BA2P</b>  | <b>Option:</b> Battery Acces Panel - Phillips         |
|   |       |               | <b>C400-NP8S</b>  | <b>Option:</b> Nose Panel No Avionics Door - Slotted  |
|   |       |               | <b>C400-NP8P</b>  | <b>Option:</b> Nose Panel No Avionics Door - Phillips |
| <b>C421 C Golden Eagle</b>                              | 76-85 | 0001-1807     | <b>C421-C2</b>    | Collared Slotted                                      |
|   |       |               | <b>C421-C2P</b>   | Phillips  |
|   |       |               | <b>C400-OD1S</b>  | <b>Option:</b> Oil Drain Door - Slotted               |
|   |       |               | <b>C400-OD1P</b>  | <b>Option:</b> Oil Drain Door - Phillips              |
|   |       |               | <b>C400-BA2S</b>  | <b>Option:</b> Inverter/Battery Panel - Slotted       |
|   |       |               | <b>C400-BA2P</b>  | <b>Option:</b> Inverter/Battery Panel - Phillips      |
|   |       |               | <b>C400-NP6S</b>  | <b>Option:</b> Nose Panel w Avionics Door - Slotted   |
|   |       |               | <b>C400-NP6P</b>  | <b>Option:</b> Nose Panel w Avionics Door - Phillips  |
|   |       |               | <b>C400-NP7S</b>  | <b>Option:</b> Nose Panel No Avionics Door - Slotted  |
|   |       |               | <b>C400-NP7P</b>  | <b>Option:</b> Nose Panel No Avionics Door - Phillips |
| <b>C425 Corsair/Conquest I<br/>PT6 81-86</b>            | 81-86 | 425-0001-0236 | <b>C425-C1</b>    | Collared Slotted                                      |
|   |       |               | <b>C425C1P</b>    | Phillips  |
|   |       |               | <b>C400-NP6S</b>  | <b>Option:</b> Nose Panel w Avionics Door - Slotted   |
|   |       |               | <b>C400-NP6P</b>  | <b>Option:</b> Nose Panel w Avionics Door - Phillips  |
|   |       |               | <b>C400-NP7S</b>  | <b>Option:</b> Nose Panel No Avionics Door - Slotted  |
|   |       |               | <b>C400-NP7P</b>  | <b>Option:</b> Nose Panel No Avionics Door - Phillips |
| <b>C441 Conquest/II<br/>Garrett</b>                     | 78-86 | 441-0001-0362 | <b>C441-C1</b>    | Collared Slotted                                      |
|   |       |               | <b>C441-C1P</b>   | Phillips  |

C441 Options Continued →

| CESSNA MODEL                    | YEAR  | SERIAL#       | REPLACEMENT KIT  | KIT DESCRIPTION                                       |
|---------------------------------|-------|---------------|------------------|---|
| <b>C441 Conquest/II Garrett</b> | 78-86 | 441-0001-0362 | <b>C400-NP6S</b> | <b>Option:</b> Nose Panel w Avionics Door - Slotted   |
|                                 |       |               | <b>C400-NP6P</b> | <b>Option:</b> Nose Panel w Avionics Door - Phillips  |
|                                 |       |               | <b>C400-NP7S</b> | <b>Option:</b> Nose Panel No Avionics Door - Slotted  |
|                                 |       |               | <b>C400-NP7P</b> | <b>Option:</b> Nose Panel No Avionics Door - Phillips |
| <b>CIT I,II Citation</b>        | 72-94 | All           | <b>C500-C1</b>   | Collared Slotted                                      |
|                                 |       |               | <b>C500-C1P</b>  | Phillips  |
| <b>CIT III Citation</b>         | 83-91 | 0002-0206     | <b>C500-C2</b>   | Collared Slotted                                      |
|                                 |       |               | <b>C500-C2P</b>  | Phillips  |

| BEECHCRAFT MODEL          | YEAR      | SERIAL#                       | REPLACEMENT KIT   | KIT DESCRIPTION                            |  |
|---------------------------|-----------|-------------------------------|---|--|--|
| <b>Musketeer23</b>        | 63-66     | M1-900                        | <b>BM-C1S</b>   | MS27039C                                   |  |
| <b>Musketeer23A,B</b>     | 66-69     | M901-1284                     | <b>BM-C1</b>  | Collared Slotted                           |  |
| <b>Musketeer24</b>        | 66-69     | MA1-363                       |   | Phillips                                   |  |
| <b>Sport150</b>           | 66-69     | MB1-480                       |   | <b>BM-C1P</b>                              |  |
| <b>Musketeer23C</b>       | 70-On     | M1285-1361                    | <b>BM-C2</b>  | Collared Slotted                           |  |
| <b>Musketeer24</b>        | 70        | MA364-On                      |   | Phillips                                   |  |
| <b>Sport150</b>           | 70-78     | MB481-905                     |   | <b>BM-C2P</b>                              |  |
| <b>Sundowner 180</b>      | 72-83     | M1362-2392                    |   |  |  |
| <b>Sierra 200</b>         | 70-83     | MC2-795                       |   |  |  |
| <b>Debonair 33,A</b>      | 60-61     | CD1-CD350                     | <b>B35UC530</b>   | AJ5 Dzus-Upper                             |  |
| <b>Bonanza 35-N35</b>     | 47-61     | D1-D6567                      | <b>B35LC2090</b>  | #2 Airloc - Gills - Includes Grommets      |  |
|                           |           |                               | <b>(Models M-N Change from #2 Airloc to #5 Airloc on or about SN6567.....Check)</b> |  |  |
| <b>Debonair 33 A-C</b>    | 61-67     | CD351-CD1234                  | <b>B35UC530</b>   | AJ5 Dzus-Upper                             |  |
| <b>Debonair C33A,E33A</b> | 66-69     | CE1-CE289                     | <b>B35LC5080</b>  | #5 Airloc - Gills - Includes Grommets      |  |
| <b>Bonanza N-V35A</b>     | 61-69     | D6568-D9068                   | <b>Designated Bonanza 68 E33, SN CD1119 68 E33A, SN CE180</b>                       |  |  |
| <b>Bonanza F33,G33</b>    | 70-73     | CD1235-CD1304                 | <b>Latch Upper</b>  | No Kit for Upper                           |  |
| <b>Bonanza F33A,F33C</b>  | 70-Mid 73 | CE290-CE436 (No 418), CJ26-39 |   | <b>B35LC5080</b>                           | #5 Airloc - Gills Only - Includes Grommets |
| <b>Bonanza F33A,F33C</b>  | Mid 73-94 | CE418, CE436-On, CJ40-On      |   | <b>B35LC5100</b>                           | #5 Airloc - Gills Only - Includes Grommets |
| <b>Bonanza 36, A36</b>    | 68-73     | E1-E424                       |   |  |  |
| <b>Bonanza V35B</b>       | 70-82     | D9069-10403                   | <b>Latch Upper</b>  | No Kit for Upper                           |  |
| <b>Bonanza A36</b>        | 73-87     | E425 On                       | <b>B35LC5100</b>  | #5 Airloc - Gills Only - Includes Grommets |  |
| <b>A36TC,B36TC</b>        | 79-87     | EA1-On                        | <b>Latch Upper</b>  | No Kit for Upper                           |  |
|                           |           |                               | <b>B35LC5100</b>  | #5 Airloc - Gills Only - Includes Grommets |  |

| BEECHCRAFT MODEL  | YEAR  | SERIAL#                    | REPLACEMENT KIT | KIT DESCRIPTION   |
|---|-------|----------------------------|-----------------|---|
| <b>Twin Bonanza B50</b>   | 52-62 | H1-DH347                   | <b>B50-C1</b>   | Airloc  |
| <b>Baron 55,A55,B55,B55A</b><br><b>Baron C55, D55, E55</b><br><b>Baron 58</b> | 61-82 | TC1 On<br>TE1 On<br>TH1 On | <b>B55-C1</b>   | Collared Slotted  |
|   |       |                            | <b>B55-C1P</b>  | Phillips  |
|   |       |                            | <b>B55-NC</b>   | <b>Option:</b> Lower Nose Cowling #5 ZLoc (No later B58)      |
|   |       |                            | <b>B55-EP</b>   | <b>Option:</b> Filter Access Panels #4 ZLoc (B55 Only)        |
|   |       |                            | <b>B55-NP1</b>  | <b>Option:</b> Nacelle Panels #4 ZLoc                         |
|   |       |                            | <b>B55-EPD</b>  | <b>Option:</b> External Pwr Door #4 ZLoc                      |
|   |       |                            | <b>B55-RAD</b>  | <b>Option:</b> Radome #5 ALoc                                 |
|   |       |                            | <b>B55-BD</b>   | <b>Option:</b> Bag Door #5 Aloc Wing (TE-1 - 451)             |
|   |       |                            | <b>B55-FG</b>   | <b>Option:</b> Fuel Gage Panels #5 Aloc (Not all airframes)   |
|   |       |                            | <b>B55-AFP</b>  | <b>Option:</b> Aft Fuselage Panel #5 Aloc (Not all airframes) |
|   |       |                            | <b>B55-AS1</b>  | <b>Option:</b> Air Scoop (TE1 - TE1078, TH1 - TH740, No B55)  |
|   |       |                            | <b>B55-AS2</b>  | <b>Option:</b> Air Scoop (TE1079 Up, TH741 Up, No B55)        |
| <b>Baron 58P</b><br><b>Baron 58TC</b>   | 76-86 | TJ3 On<br>TK1 On           | <b>B55-C2</b>   | Collared Slotted  |
|   |       |                            | <b>B55-C2P</b>  | Phillips  |
|   |       |                            | <b>B55-NP1</b>  | <b>Option:</b> Nacelle Panels #4 ZLoc                         |
|   |       |                            | <b>B55-EPD</b>  | <b>Option:</b> External Pwr Door #4 ZLoc                      |
|   |       |                            | <b>B55-RAD</b>  | <b>Option:</b> Radome #5 ALoc                                 |
|   |       |                            | <b>B58P-AS1</b> | <b>Option:</b> Air Scoops #4 ZLoc                             |
| <b>Baron 56</b>   | 67-71 | TG1-TG94                   | <b>B56-C1</b>   | Collared Slotted  |
|   |       |                            | <b>B56-C1P</b>  | Phillips  |
|   |       |                            | <b>B55-NC</b>   | <b>Option:</b> Lower Nose Cowling #5 ZLoc                     |
|   |       |                            | <b>B55-NP2</b>  | <b>Option:</b> Nacelle Panels #2 ALoc                         |
|   |       |                            | <b>B55-EPD</b>  | <b>Option:</b> External Pwr Door #4 ZLoc                      |
|   |       |                            | <b>B55-RAD</b>  | <b>Option:</b> Radome #5 ALoc                                 |
|   |       |                            | <b>B55-AS3</b>  | <b>Option:</b> Air Scoops #2 and #5 ALoc                      |
| <b>Duke 60,A60</b><br><b>Duke B60</b>   | 68-73 | P4-P246                    | <b>B60-C1</b>   | Collared Slotted  |
|   | 74-82 | P247-597                   | <b>B60-C1P</b>  | Phillips  |
|   |       |                            | <b>B60-LP1S</b> | <b>Option:</b> Lower Panels - Slotted P4-P144                 |
|   |       |                            | <b>B60-LP1P</b> | <b>Option:</b> Lower Panels - Phillips P4-P144                |
|   |       |                            | <b>B60-LP2S</b> | <b>Option:</b> Lower Panels - Slotted P145-P247               |
|   |       |                            | <b>B60-LP2P</b> | <b>Option:</b> Lower Panel - Phillips P145-P247               |
| <b>Dutchess B76</b>   | 78-82 | ME1-ME437                  | <b>B76-C1</b>   | Collared Slotted  |
|   |       |                            | <b>B76-C1P</b>  | Phillips  |
| <b>Travelair 95</b>   | 58-68 | TD2-TD722                  | <b>B95-C1</b>   | Airloc  |



| PIPER MODEL                          | YEAR                      | SERIAL#                       | REPLACEMENT KIT | KIT DESCRIPTION                                 |
|--------------------------------------|---------------------------|-------------------------------|-----------------|---|
| PA-18 Super Cub                      | 50-83                     | 105HP                         | PA18-C1         | Eng Side Panels Slotted                         |
|                                      |                           | 125HP                         | PA18-C2         | Eng Side Panels Slotted                         |
|                                      |                           | Continental                   | PA18-C3         | Eng Side Panels Slotted                         |
| PA23-150 Apache                      | 54-57                     | 23-5 - 1163                   | PA23-C1         | Slotted   |
| PA23-160 Apache                      | 58-62                     | 23-1164 - 2040                | PA23-C1P        | Phillips  |
| PA23-235 Apache<br>PA23-250 Aztec, B | 62-65                     | 27-505 - 622                  | PA23-C2         | Slotted   |
|                                      |                           |                               | PA23-C2P        | Phillips  |
|                                      |                           |                               | PA-NP1S         | Option: Nose Panels Apache/Aztec No Six Place   |
|                                      |                           |                               | PA-NP1P         | Option: Nose Panels Apache/Aztec No Six Place   |
|                                      | 60-64                     | 27-1 - 2504                   | PA-NP2S         | Option: Nose Panels Aztec Six Place No Ice      |
|                                      |                           |                               | PA-NP2P         | Option: Nose Panels Aztec Six Place No Ice      |
|                                      |                           |                               | PA-NP3S         | Option: Nose Panels Aztec Six Place Ice Shields |
|                                      |                           |                               | PA-NP3P         | Option: Nose Panels Aztec Six Place Ice Shields |
| PA-FD1W                              | Option: Fuel Doors Winged |                               |                 |   |
| PA23-250 Aztec Early C               | 64                        | 27-2505 - 2736                | PA23-C3         | Southco Slotted                                 |
|                                      |                           |                               | PA-NP2S         | Option: Nose Panels Aztec Six Place No Ice      |
|                                      |                           |                               | PA-NP2P         | Option: Nose Panels Aztec Six Place No Ice      |
|                                      |                           |                               | PA-NP3S         | Option: Nose Panels Aztec Six Place Ice Shields |
|                                      |                           |                               | PA-NP3P         | Option: Nose Panels Aztec Six Place Ice Shields |
|                                      |                           |                               | PA-FD1W         | Option: Fuel Doors Winged                       |
| PA23-250 Aztec C-F                   | 64-81                     | 27-2737 thru<br>8154029       | PA23-C4         | Collared Slotted                                |
|                                      |                           |                               | PA23-C4P        | Phillips  |
|                                      |                           |                               | PA-NAC1S        | Option: Nacelle Panels 27-4426, 27-4574 On      |
|                                      |                           |                               | PA-NAC1P        | Option: Nacelle Panels 27-4426, 27-4574 On      |
|                                      |                           |                               | PA-NP2S         | Option: Nose Panels Aztec Six Place No Ice      |
|                                      |                           |                               | PA-NP2P         | Option: Nose Panels Aztec Six Place No Ice      |
|                                      |                           |                               | PA-NP3S         | Option: Nose Panels Aztec Six Place Ice Shields |
|                                      |                           |                               | PA-NP3P         | Option: Nose Panels Aztec Six Place Ice Shields |
| PA-FD1W                              | Option: Fuel Doors Winged |                               |                 |   |
| PA28-201T Turbo Dakota               | 79                        | 28-7921002 -<br>7921091       | PA28-C1         | Collared Slotted                                |
|                                      |                           |                               | PA28-C1P        | Phillips  |
| PA28R-201,T<br>ArrowII,III           | 77-78                     | 28R7635001 -<br>7803373       | PA28-C1         | Collared Slotted                                |
| PA28RT-201,T<br>Arrow IV             | 79-87                     | 28R7918001 -<br>86R8631001 On | PA28-C1P        | Phillips  |

| PIPER MODEL                     | YEAR  | SERIAL#                           | REPLACEMENT KIT | KIT DESCRIPTION                             |
|---------------------------------|-------|-----------------------------------|-----------------|---|
| PA30 Twin Comanche              | 63-65 | 30-1 thru 793,<br>799-901         | PA30-C1         | Southco                                     |
|                                 |       |                                   | PA30-NP1        | Nose Panel - Slotted Southco                |
| PA30 Twin Comanche              | 66-68 | 30-794 thru 798,<br>902 thru 2000 | PA30-C2         | Collared Slotted                            |
| PA39 Twin Comanche<br>CR        | 70-72 | 39-1 - 152                        | PA30-C2P        | Phillips                                    |
|                                 |       |                                   | PA30-NP1        | <b>Option:</b> Nose Panel - Slotted Southco |
| PA32-301 Saratoga               | 80-87 | 32-8006001 On                     | PA32-C1         | Collared Slotted                            |
| PA32R-301T Saratoga             | 80-87 | 32R8029001 On                     | PA32-C1P        | Phillips                                    |
| PA34-200T Seneca II             | 75-78 | 34-7570001-<br>7870474            | PA34-C2         | Slotted                                     |
|                                 |       |                                   | PA34-C2P        | Phillips                                    |
|                                 |       |                                   | PA34-OPTION-1S  | <b>Option:</b> Turtleback - Slotted CLoc    |
|                                 |       |                                   | PA34-OPTION-1P  | <b>Option:</b> Turtleback - Phillips CLoc   |
| PA34-200T Seneca II             | 79-81 | 34-7970001 - 8170085              | PA34-C3         | Collared Slotted                            |
| PA34-220T Seneca III            | 81-93 | 34-8133001 - 8633020              | PA34-C3P        | Phillips                                    |
| PA34-220T Seneca IV             | 94-96 | 34-48038 - 34-49000               | PA34-OPTION-1S  | <b>Option:</b> Turtleback - Slotted CLoc    |
|                                 |       |                                   | PA34-OPTION-1P  | <b>Option:</b> Turtleback - Phillips CLoc   |
| PA34-200T Seneca V              | 97-08 | 34-49001 On                       | PA34-C4         | Collared Slotted                            |
|                                 |       |                                   | PA34-C4P        | Phillips                                    |
|                                 |       |                                   | PA34-OPTION-4S  | Turtleback - Slotted CLoc                   |
|                                 |       |                                   | PA34-OPTION-4P  | Turtleback - Phillips CLoc                  |
| <b>PA42 Cheyenne - See PA31</b> |       |                                   |                 |   |
| PA44-180,T Seminole             | 79-82 | 44-7995001 thru<br>8207020        | PA44-C1         | Collared Slotted                            |
|                                 |       |                                   | PA44-C1P        | Phillips                                    |
| PA46 Malibu                     | 84-On | 46-8408001 On                     | PA46-C1         | Collared Slotted                            |
|                                 |       |                                   | PA46-C1P        | Phillips                                    |
| PA60-700P Aerostar              | 83-84 | 60-8423001 On                     | PA700-C1        | Collared Slotted                            |
|                                 |       |                                   | PA700-C1P       | Phillips                                    |

| MITSUBISHI MODEL | YEAR  | SERIAL#       | REPLACEMENT KIT | KIT DESCRIPTION  |
|------------------|-------|---------------|-----------------|------------------|
| MU2 B thru P     | 67-78 | 6 thru 459    | MU2-C1          | Collared Slotted |
| MU2 Solitaire    | 79-85 |               | MU2-C1P         | Phillips         |
| MU2 Marquise     | 79-85 | 700 thru 1569 | MU2-C2          | Collared Slotted |
|                  |       |               | MU2-C2P         | Phillips         |

| MOONEY MODEL  | YEAR  | SERIAL#      | REPLACEMENT KIT | KIT DESCRIPTION  |
|---|-------|--------------|-----------------|--|
| Mark20A,B Super21   | 55-64 | All          | M20-BAT1P       | Battery Access Panel - Phillips Southco                |
| M20C,D,E,F  | 1965  | All          | M20-C2          | Collared Slotted                                       |
|   |       |              | M20-C2P         | Phillips   |
|   |       |              | M20-BAT1S       | <b>Option:</b> Battery Access Panel - Slotted Southco  |
|   |       |              | M20-BAT1P       | <b>Option:</b> Battery Access Panel - Phillips Southco |
| M20C  |       | All          | M20-C3          | Collared Slotted                                       |
| M20E,F,G 66-78  | 66-78 | All          | M20-C3P         | Phillips   |
| M20C Ranger, M20E Chaparral, M20F Super21/Executive, M20G Statesman |       |              |                 |  |
| M201 M20J   | 77-84 | 24-0001-1458 | M20-C5          | Collared Slotted                                       |
|   |       |              | M20-C5P         | Phillips   |
|   |       |              | M20-BAT1S       | <b>Option:</b> Battery Access Panel - Slotted Southco  |
|   |       |              | M20-BAT1P       | <b>Option:</b> Battery Access Panel - Phillips Southco |
|   |       |              | M20-BP1S        | <b>Option:</b> Belly Access Panel - Slotted CLoc       |
|   |       |              | M20-BP1P        | <b>Option:</b> Belly Access Panel - Phillips CLoc      |
| M201 M20J-L/M   | 77-87 | 24-1459 On   | M20-C6          | Collared Slotted                                       |
|   |       |              | M20-C6P         | Phillips   |
|   |       |              | M20-BAT2S       | <b>Option:</b> Battery Access Panel - Slotted CLoc     |
|   |       |              | M20-BAT2P       | <b>Option:</b> Battery Access Panel - Phillips CLoc    |
|   |       |              | M20-BP1S        | <b>Option:</b> Belly Access Panel - Slotted CLoc       |
|   |       |              | M20-BP1P        | <b>Option:</b> Belly Access Panel - Phillips CLoc      |
| M231 M20K-L/M   | 79-85 | 25-0001 On   | M20-C6A         | Collared Slotted                                       |
|   |       |              | M20-C6AP        | Phillips   |
|   |       |              | M20-BAT1S       | <b>Option:</b> Battery Access Panel - Slotted Southco  |
|   |       |              | M20-BAT1P       | <b>Option:</b> Battery Access Panel - Phillips Southco |
|   |       |              | M20-BP1S        | <b>Option:</b> Belly Access Panel - Slotted CLoc       |
|   |       |              | M20-BP1P        | <b>Option:</b> Belly Access Panel - Phillips CLoc      |
| M252 TSE M20K   | 85-On | 25-1000 On   | M20-C7          | Collared Slotted                                       |
|   |       |              | M20-C7P         | Phillips   |
|   |       |              | M20-BAT2S       | <b>Option:</b> Battery Access Panel - Slotted CLoc     |
|   |       |              | M20-BAT2P       | <b>Option:</b> Battery Access Panel - Phillips CLoc    |

| AERO COMMANDER       | YEAR  | SERIAL# | REPLACEMENT KIT | KIT DESCRIPTION  |
|----------------------|-------|---------|-----------------|------------------|
| 500,520,560,720      | 52-60 | All     | AC500-C1        | Collared Slotted |
| 680, 680E Round Cowl |       |         | AC500-C1P       | Phillips         |

| AERO COMMANDER                | YEAR  | SERIAL#                               | REPLACEMENT KIT   | KIT DESCRIPTION                             |
|-------------------------------|-------|---------------------------------------|-------------------|---|
| <b>500A,B,U,560F,680</b>      | 60-69 | All                                   | <b>AC500-C2</b>   | Collared Slotted                            |
| <b>560FP,FL,FLP Flat Cowl</b> |       |                                       | <b>AC500-C2P</b>  | Phillips                                    |
| <b>685</b>                    | 72-74 | 12000 - 12066                         | <b>AC500-C2A</b>  | Collared Slotted                            |
|                               |       |                                       | <b>AC500-C2AP</b> | Phillips                                    |
| <b>690</b>                    | 72-85 | 1101 thru 11565,<br>15001 thru 15042  | <b>AC500-C4</b>   | Collared Slotted                            |
|                               |       |                                       | <b>AC500-C4P</b>  | Phillips                                    |
| <b>695</b>                    | 80-85 | 95000 thru 95084,<br>96000 thru 96208 | <b>AC690-NA1S</b> | <b>Option:</b> Nose Access Panel - Slotted  |
|                               |       |                                       | <b>AC690-NA1P</b> | <b>Option:</b> Nose Access Panel - Phillips |





A E R O S P A C E F A S T E N E R S

**Trim & Fuel Tank Kits**

| CESSNA MODEL                    | YEAR    | SERIAL#               | TRIM KIT    | FUEL TANK KIT         |
|---------------------------------|---------|-----------------------|-------------|-----------------------|
| C120/140                        |         | All                   | C-120/140   | None                  |
| C150                            |         | 17001-79406           | C-150/152   | C150-FT1<br>C150-FTLR |
| A150 K-M Aerobat (and Commuter) | 70-77   |                       |             |                       |
| C152                            | 78-85   | 79406-86035           |             |                       |
| A152                            | 78-86   | 0735-1049             |             |                       |
| C170                            |         | All                   | C-170       | None                  |
| C172-172 G-Q                    | 56-On   | 28000-On              | C-172/172RG | C172-FT1              |
| Hawk XP,XPII                    | 77-81   | R172-2000-3454        |             |                       |
| Cutlass RG                      | 80-85   | All                   |             |                       |
| C172R                           | 1996-On | 80001 On              |             |                       |
| C172S                           |         | 8001 On               |             |                       |
| C175                            | 58-62   | 55001-57119           | C-172/172RG | C172-FT1              |
| C177 A, B & RG                  | 71-81   | All                   | C-177/177RG | None                  |
| C180                            | 53-62   | 30000-51183           | C-180/185   | C180-FT1              |
| C180                            | 63-78   | 51184-53000           | C-180/185   | C180-FT2              |
| C185                            | 61-78   | 0001-03683            |             |                       |
| C180                            | 79-81   | 53001-53203           | C-180/185   | C180-FT2 or FT3       |
| C185                            | 79-85   | 03684-On              |             |                       |
| C182 A-D                        | 53-61   | 33000-53598           | C-182/182RG | C182-FT1              |
| C182 E-Q                        | 62-78   | 53599-61425           | C-182/182RG | C182-FT2              |
|                                 |         |                       |             | C182-FT2LR            |
| C182 Q, R                       | 79-86   | 66591-On              | C-182/182RG | C182-FT3              |
| T182 R,TR,RG                    | 78-86   | All                   | C-182/182RG | None                  |
| C182 S                          | 97-00   | 80004-80944 Non-Turbo |             |                       |
| C182 T                          | 01-On   | 8001-On Non-Turbo     |             |                       |

| CESSNA MODEL                | YEAR  | SERIAL#                    | TRIM KIT           | FUEL TANK KIT                        |
|-----------------------------|-------|----------------------------|--------------------|--------------------------------------|
| 182T                        | 01-On | 80945 On Turbo             | <b>C-182/182RG</b> | None                                 |
| T182T                       | 01-On | 8001 On Turbo              |                    |                                      |
| <b>C188 Agwagon</b>         | 66-83 | All                        | <b>C-Agwagon</b>   | None                                 |
| <b>C205</b>                 | 63-64 | 0001-0577                  | <b>C-206/207</b>   | <b>C206-FT1</b><br><b>C206-FT1LR</b> |
| <b>C206</b>                 | 64    | 0001-0275                  |                    |                                      |
| <b>U,TU206</b>              | 65-84 | 0276-06846                 |                    |                                      |
| <b>P,TP206</b>              | 65-70 | 091-0647                   |                    |                                      |
| <b>U206,TU</b>              | 85-86 | 06847-On                   |                    |                                      |
| <b>C206, T206</b>           | 97-On | 08000-On                   |                    |                                      |
| <b>C207, T207</b>           | 69-84 | All                        |                    |                                      |
| <b>C208</b>                 | 85-On | All                        | <b>C-208</b>       | None                                 |
| <b>C210 A</b>               | 60-61 | 57001-57840                | <b>C-210</b>       | <b>C210-FT1</b>                      |
| <b>C210 B-F</b>             | 62-66 | 57841-58818                | <b>C-210</b>       | <b>C210-FT2</b>                      |
| <b>T210 F</b>               | 66    | 0001-0197                  |                    | <b>C210-FT2LR</b>                    |
| <b>C210 G-J</b>             | 67-69 | 58819-59199                | <b>C-210</b>       | <b>C210-FT3</b>                      |
| <b>T210 G-J</b>             | 67-69 | 0198-0454                  |                    |                                      |
| <b>C210 K-N</b>             | 70-81 | 59200-64535 No Air Cond.   | <b>C-210</b>       | <b>C210-FT4</b>                      |
| <b>C210 L-N</b>             | 74-84 | 60090-64897 With Air Cond. |                    |                                      |
| <b>C210, T210 N</b>         | 74-84 | 60090-64897                |                    |                                      |
| <b>P210 N</b>               | 78-83 | 0001-00834                 |                    |                                      |
| <b>T210 R (Turbo)</b>       | 85-86 |                            |                    |                                      |
| <b>P210 R</b>               | 85-86 | 0835-0874                  |                    |                                      |
| <b>C210 R (Non Turbo)</b>   | 85-86 | 64898-65009                |                    |                                      |
| <b>C310</b>                 | 55-63 | 35000-35546                | <b>C-310-1</b>     | <b>C310-FT1</b>                      |
| <b>C310 B-K</b>             | 58-66 | 35655-39299                | <b>C-310-2</b>     | <b>C310-FT1</b>                      |
| <b>C310 L-N</b>             | 67-68 | N0001-N0198 Non Turbo      | <b>C-310-2</b>     | <b>C310-FT2</b>                      |
| <b>C310 P-R</b>             | 69-81 | P0001-R2140 Non Turbo      |                    |                                      |
|                             |       | All Turbo                  |                    |                                      |
| <b>C320 A-E SkyKnight</b>   | 62-68 | All                        | <b>C-310-2</b>     | <b>C310-FT3</b>                      |
| <b>C310 P-R</b>             | 69-81 | P0001-R2140                |                    |                                      |
|                             |       | All Turbo                  |                    |                                      |
| <b>C336 Skymaster 63-64</b> | 63-64 | 0001-0195 Fixed Gear       | <b>C-336/337</b>   | <b>C337-FT1</b>                      |
| <b>C337 Skymaster 65-80</b> | 65-80 | 0002-01951                 |                    |                                      |
| <b>C337 P</b>               |       | 0001-0356                  |                    |                                      |
| <b>C340 A</b>               | All   |                            | <b>C-335/340</b>   | <b>C340-FT1</b>                      |

| CESSNA MODEL        | YEAR  | SERIAL#       | TRIM KIT  | FUEL TANK KIT |
|---------------------|-------|---------------|-----------|---------------|
| C401, 402 A, B      |       | All           | C-401/402 | C400-FT1      |
| C402 C              | 79-85 | 402C0001-0808 | C-401/402 | C402C-FT1     |
| C404 Titan          | 77-81 | 0001-0859     | C-401/402 | None          |
| C411                | 65-68 | 0002-0300     | C-411/414 | C411-FT1      |
| C414, C414 II       | 70-77 | 0001-0965     |           |               |
| C414 A Chancellor   |       | 0001-1212     | C-411/414 | C414-FT2      |
| C414 A III          | 78-85 |               |           |               |
| C421 A, B           | 68-75 | 0001-0970     | C-421     | C400-FT1      |
| C421 C Golden Eagle | 76-85 | 0001-1807     |           |               |

| BEECHCRAFT MODEL      | YEAR  | SERIAL#           | TRIM KIT     | FUEL TANK KIT |
|-----------------------|-------|-------------------|--------------|---------------|
| Musketeer23           | 63-66 | M1-900            | BE-Musketeer | None          |
| Musketeer23 A,B       | 66-69 | M901-1284         |              |               |
| Musketeer24           | 66-69 | MA1-363           |              |               |
| Sport150              | 66-69 | MB1-480           |              |               |
| Musketeer23 C         | 70-On | M1285-1361        |              |               |
| Musketeer24           | 70    | MA364-On          |              |               |
| Sport150              | 70-78 | MB481-905         |              |               |
| Sundowner 180         | 72-83 | M1362-2392        |              |               |
| Sierra 200            | 70-83 | MC2-795           |              |               |
| Debonair33 A-C        | 60-67 | CD1-CD1234        | BE-Bonanza   | None          |
| Debonair C33A, E33A   | 66-69 | CE1-CE289         |              |               |
| Bonanza 35-N35        | 47-61 | D1-D6567          |              |               |
| Bonanza N-V35A        | 61-69 | D6568-D9068       |              |               |
| Bonanza F33,G33       | 70-73 | CD1235-CD1304     |              |               |
| Bonanza F33A,F33C     | 70-94 | CE290-On, CJ26-On |              |               |
| Bonanza 36, A36       | 68-87 | E1-On             |              |               |
| Bonanza V35B          | 70-82 | D9069-10403       |              |               |
| A36TC, B36TC          | 79-87 | EA1-On            | BE-Baron55   | None          |
| Baron 55,A55,B55,B55A | 61-82 | TC1 On            |              |               |
| Baron C55, D55, E55   |       | TE1 On            |              |               |
| Baron 58              |       | TH1 On            | BE-Baron58   | None          |
| Baron 58P             | 76-86 | TJ3 On            |              |               |
| Baron 58TC            |       | TK1 On            |              |               |
| Baron 56              | 67-71 | TG1-TG94          |              |               |

| BEECHCRAFT MODEL | YEAR  | SERIAL#   | TRIM KIT            | FUEL TANK KIT |
|------------------|-------|-----------|---------------------|---------------|
| Duke 60, A60     | 68-73 | P4-P246   | <b>BE-Baron58</b>   | None          |
| Duke B60         | 74-82 | P247-597  |                     |               |
| King Air         |       |           | <b>BE-Kingair</b>   | None          |
| Travelair 95     | 58-68 | TD2-TD722 | <b>BE-Travelair</b> | None          |

| PIPER MODEL               | YEAR  | SERIAL#                    | TRIM KIT            | FUEL TANK KIT   |
|---------------------------|-------|----------------------------|---------------------|-----------------|
| PA-J3 Cub                 | 45-47 |                            | <b>PA-J3 Cub</b>    | None            |
| PA-11                     | 47-49 |                            | <b>PA-Super Cub</b> | None            |
| PA-12 Cruiser             | 46-47 |                            |                     |                 |
| PA-14 Cruiser             | 48    |                            |                     |                 |
| PA-16 Clipper             | 49    |                            |                     |                 |
| PA-18 Super Cub           | 50-83 |                            |                     |                 |
| PA-20 Pacer               | 50-54 | 20-3 thru 1121             |                     |                 |
| PA22 TriPacer             | 51-63 | 22-1 thru 9848             |                     |                 |
| PA23-150 Apache           | 54-57 | 23-5 thru 1163             | <b>PA-Apache</b>    | None            |
| PA23-160 Apache           | 58-62 | 23-1164 thru 2040          |                     |                 |
| PA23-235 Apache           | 62-65 | 27-505 thru 622            | <b>PA-Aztec</b>     | None            |
| PA23-250 Aztec, B-F       | 60-81 | 27-1 thru 8154029          |                     |                 |
| PA24-180 Comanche         | 58-64 | 24-1 thru 3687             | <b>PA-Comanche</b>  | None            |
| PA24-250 Comanche         | 58-64 | 24-1 thru 3687             |                     |                 |
| PA24-260 Comanche B, C    | 65-68 | 24-4000 thru 5028 On       |                     |                 |
| PA25 Pawnee B, C, D       | 60-81 | 25-3 thru 8156001 On       | <b>PA-Pawnee</b>    | None            |
| PA28-140 Cherokee         | 64-77 | 28-20001 thru 7725290      | <b>PA-140-235</b>   | <b>PA28-FT1</b> |
| PA28-150/160 Cherokee     | 62-67 | 28-1 thru 4377 On          |                     |                 |
| PA28-151 Warrior          | 74-77 | 28-7415001 thru 7715314    |                     |                 |
| PA28-161 Warrior          | 77-86 | 28-7716001 thru 16099 On   |                     |                 |
| PA28-180 Cherokee         | 63-75 | 28-671 thru 7505259        |                     |                 |
| PA28-235 Charger, Pathf   | 68-77 | 28-11040 thru 7710089      |                     |                 |
| PA28R-180 Arrow           | 67-71 | 28-30004 thru 7135229      | <b>PA-Arrow</b>     | <b>PA28-FT1</b> |
| PA28R-200 Arrow           | 72-76 | 28R723500 thru 7635545     |                     |                 |
| PA28R-201, T ArrowII, III | 77-78 | 28R7635001 thru 7803373    |                     |                 |
| PA28RT-201, T Arrow IV    | 79-87 | 28R7918001 - On            |                     |                 |
| PA28-181 Archer           | 76-87 | 28-7690001 thru 8690021    | <b>PA-Warrior</b>   | <b>PA28-FT2</b> |
| PA28-201T Turbo Dakota    | 79    | 28-7921002 thru 7921091    |                     |                 |
| PA28-236 Dakota           | 79-87 | 28-7911001 thru 8611004 On |                     |                 |



| CESSNA MODEL                  | YEAR  | SERIAL#                        | TRIM KIT        | FUEL TANK KIT |
|-------------------------------|-------|--------------------------------|-----------------|---------------|
| PA30 Twin Comanche            | 63-65 | 30-1 thru 793, 799-901         | PA-T Comanche   | None          |
| PA30 Twin Comanche            | 66-68 | 30-794 thru 798, 902 thru 2000 |                 |               |
| PA39 Twin Comanche CR         | 70-72 | 39-1 thru 152                  |                 |               |
| PA31-300,310,325 Navajo       | 67-84 | 31-2 On                        | PA-Navajo       | None          |
| PA31-350 Chieftain            | 73-84 | 31-7305001 thru 8452021        |                 |               |
| PA31P Press Navajo            | 70-77 | 31P-3 thru 7730012             |                 |               |
| PA31T Cheyenne I, II, III     | 48-84 | 31T-7804001 On                 | PA-Cheyenne     | None          |
| PA42-720 Cheyenne III         | 80-87 | 42-7801001 On                  |                 |               |
| PA32-260 Cherokee 6           | 65-78 | 32-1 thru 7800008              | PA-Cherokee Six | PA32-FT1      |
| PA32-300 Cherokee 6           | 65-78 | 32-40000 thru 780222           |                 |               |
| PA32-300 Cherokee             | 79    | 32-7940001 Up                  | PA-Cherokee Six | PA32-FT2      |
| PA32R-300, Lance              | 76-79 | 32R7680001 thru 7987126        | PA-Cherokee Six | PA32-FT3      |
| PA32R-300T Lance T Tail       | 78-79 | 32R-7885001 Up                 | PA-Cherokee Six | PA32-FT4      |
| PA32R-300T Turbo Lance T Tail |       | 32R-7887001 Up                 |                 |               |
| PA32-301 Saratoga             | 80-87 | 32-8006001 On                  | PA-Cherokee Six | PA32-FT5      |
| PA32R-301T Saratoga           | 80-87 | 32R8029001 On                  |                 |               |
| PA34-200 Seneca               | 72-74 | 34-7250001 thru 7450220        | PA-Seneca       | PA34-FT1      |
| PA34-200T Seneca II           | 75-78 | 34-7570001-7870474             |                 |               |
| PA34-200T Seneca II           | 79-81 | 34-7970001 thru 8170085        | PA-Seneca       | PA34-FT2      |
| PA34-220T Seneca III          | 81-93 | 34-8133001 thru 8633020 On     |                 |               |
| PA34-220T Seneca IV           | 94-96 | 34-48038 thru 34-49000         |                 |               |
| PA34-200T Seneca V            | 97-08 | 34-49001 On                    |                 |               |
| PA36 Pawnee, Brave            | 73-83 | 36-7360001 thru 8302025        | PA-Pawnee       | None          |
| PA38-112 Tomahawk             | 78-82 | 38-78A0001 thru 82A0122        | PA-Tomahawk     | None          |
| PA44-180, T Seminole          | 79-82 | 44-7995001 thru 8207020        | PA-Seminole     | None          |
| PA46 Malibu                   | 84-On | 46-8408001 On                  | PA-Malibu       | None          |
| PA60-600/601/602 Aerostar     | 69-83 | 60-0001 On                     | PA-Aerostar     | None          |
| PA60-700P Aerostar            | 83-84 | 60-8423001 On                  |                 |               |

| MITSUBISHI MODEL | YEAR  | SERIAL#       | TRIM KIT | FUEL TANK KIT |
|------------------|-------|---------------|----------|---------------|
| MU2 B thru P     | 67-78 | 6 thru 459    | MU2      | MU2-FT1       |
| MU2 Solitaire    | 79-85 |               |          |               |
| MU2 Marquise     | 79-85 | 700 thru 1569 |          |               |

| MOONEY MODEL           | YEAR  | SERIAL#      | TRIM KIT  | FUEL TANK KIT |
|------------------------|-------|--------------|-----------|---------------|
| Mark20 A, B Super21    | 55-64 | All          | M-20B     | None          |
| M20 C, D, E, F         | 65    | All          | M-20C/D   | None          |
|                        |       |              | M-20E/G   | None          |
| M20 C                  |       | All          | M-20C/D   | None          |
| M20 E, F, G            | 66-78 | All          | M-20E/G   | None          |
| M20C Ranger            |       |              |           |               |
| M20E Chaparral         |       |              |           |               |
| M20F Super21/Executive |       |              |           |               |
| M20G Statesman         |       |              |           |               |
| M201 M20J 77-84        |       | 24-0001-1458 | M-201/231 | None          |
| M201 M20J-L/M 77-87    |       | 24-1459 On   |           |               |
| M231 M20K-L/M 79-85    |       | 25-0001 On   |           |               |
| M252 TSE M20K 85 On    |       | 25-1000 On   | M-252     | None          |

| AERO COMMANDER MODEL     | YEAR  | SERIAL#                               | TRIM KIT        | FUEL TANK KIT |
|--------------------------|-------|---------------------------------------|-----------------|---------------|
| 500, 520, 560, 720       |       | All                                   | R-Commander 500 | None          |
| 680, 680E Round Cowl     | 52-60 |                                       |                 |               |
| 500A, B, U, 560F,680     |       | All                                   |                 |               |
| 560FP, FL, FLP Flat Cowl | 60-69 |                                       |                 |               |
| 685                      | 72-74 | 12000 thru 12066                      |                 |               |
| 500S                     | 68-80 | 1755 thru 3327                        |                 |               |
| 690                      | 72-85 | 1101 thru 11565,<br>15001 thru 15042  |                 |               |
| 695                      | 80-85 | 95000 thru 95084,<br>96000 thru 96208 |                 |               |

| OTHER AIRCRAFT | YEAR | SERIAL# | TRIM KIT     | FUEL TANK KIT |
|----------------|------|---------|--------------|---------------|
| Bel-Citabria   |      |         | Bel-Citabria | None          |
| Bel-Scout      |      |         | Bel-Scout    | None          |
| Bel-Viking     |      |         | Bel-Viking   | None          |
| Ercoupe        |      |         | Ercoupe      | None          |
| G-AA1/AA1B     |      |         | G-AA1/AA1B   | None          |
| G-Ag Cat       |      |         | G-Ag Cat     | None          |
| G-Tiger        |      |         | G-Tiger      | None          |
| Lake Amp       |      |         | Lake Amp     | None          |



A E R O S P A C E F A S T E N E R S

## Vans RV Fastener Kits

2020 Kits Include Diamondhead® Fasteners, High Shear Anti-Float Grommets, SK-RVFS1 Interlocking Flanges, SK-RVC1 Cleko Adapters, Rivet Kit.

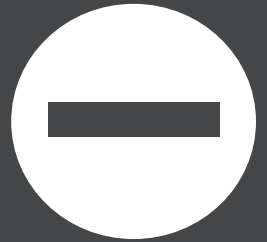
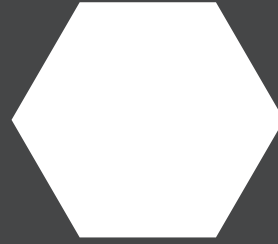
| KIT W/FLANGE | KIT W/O FLANGE | DESCRIPTION                           | STUDS                         | WEIGHT/LBS. |
|--------------|----------------|---------------------------------------|-------------------------------|-------------|
| RV4J-C1S     | RV4-C1S        | Vans RV4 - Complete Kit               | 38 Collared Slotted Fasteners | 1.919       |
| RV4J-C1P     | RV4-C1P        | Vans RV4 - Complete Kit               | Phillips                      |             |
| RV4J-C1S-U   | RV4-C1S-U      | Vans RV4 - Upper (FW/Side) Kit        | 30 Collared Slotted Fasteners | 1.515       |
| RV4J-C1P-U   | RV4-C1P-U      | Vans RV4 - Upper (FW/Side) Kit        | Phillips                      |             |
| RV4J-C1S-F   | RV4-C1S-F      | Vans RV4 - Complete Firewall Kit      | 18 Collared Slotted Fasteners | 0.909       |
| RV4J-C1P-F   | RV4-C1P-F      | Vans RV4 - Complete Firewall Kit      | Phillips                      |             |
| RV4J-C1S-UF  | RV4-C1S-UF     | Vans RV4 - Upper Firewall Kit         | 10 Collared Slotted Fasteners | 0.505       |
| RV4J-C1P-UF  | RV4-C1P-UF     | Vans RV4 - Upper Firewall Kit         | Phillips                      |             |
| RV4J-C1S-S   | RV4-C1S-S      | Vans RV4 - Side Kit                   | 20 Collared Slotted Fasteners | 1.010       |
| RV4J-C1P-S   | RV4-C1P-S      | Vans RV4 - Side Kit                   | Phillips                      |             |
| RV4J-C1S-C   | RV4-C1S-C      | Vans RV4 - Cheek Cowl Kit             | 8 Collared Slotted Fasteners  | 0.404       |
| RV4J-C1P-C   | RV4-C1P-C      | Vans RV4 - Cheek Cowl Kit             | Phillips                      |             |
| RV8J-C1S     | RV8-C1S        | Vans RV8 - Complete Kit               | 50 Collared Slotted Fasteners | 2.525       |
| RV8J-C1P     | RV8-C1P        | Vans RV8 - Complete Kit               | Phillips                      |             |
| RV8J-C1S-U   | RV8-C1S-U      | Vans RV8 - Upper (FW/Side) Kit        | 34 Collared Slotted Fasteners | 1.717       |
| RV8J-C1P-U   | RV8-C1P-U      | Vans RV8 - Upper (FW/Side) Kit        | Phillips                      |             |
| RV8J-C1S-F   | RV8-C1S-F      | Vans RV8 - Complete Firewall Kit      | 30 Collared Slotted Fasteners | 1.515       |
| RV8J-C1P-F   | RV8-C1P-F      | Vans RV8 - Complete Firewall Kit      | Phillips                      |             |
| RV8J-C1S-UF  | RV8-C1S-UF     | Vans RV8 - Upper Firewall Kit         | 14 Collared Slotted Fasteners | 0.707       |
| RV8J-C1P-UF  | RV8-C1P-UF     | Vans RV8 - Upper Firewall Kit         | Phillips                      |             |
| RV8J-C1S-S   | RV8-C1S-S      | Vans RV8 - Side Kit                   | 20 Collared Slotted Fasteners | 1.010       |
| RV8J-C1P-S   | RV8-C1P-S      | Vans RV8 - Side Kit                   | Phillips                      |             |
| RV679J-C1S   | RV679-C1S      | Vans RV6,7,9,12 - Complete Kit        | 52 Collared Slotted Fasteners | 2.626       |
| RV679J-C1P   | RV679-C1P      | Vans RV6,7,9,12 - Complete Kit        | Phillips                      |             |
| RV679J-C1S-U | RV679-C1S-U    | Vans RV6,7,9,12 - Upper (FW/Side) Kit | 36 Collared Slotted Fasteners | 1.818       |
| RV679J-C1P-U | RV679-C1P-U    | Vans RV6,7,9,12 - Upper (FW/Side) Kit | Phillips                      |             |

| KIT W/FLANGE   | KIT W/O FLANGE | DESCRIPTION                             | STUDS                         | WEIGHT/LBS. |
|----------------|----------------|---|-------------------------------|-------------|
| RV679J-C1S-F   | RV679-C1S-F    | Vans RV6,7,9,12 - Complete Firewall Kit | 32 Collared Slotted Fasteners | 1.616       |
| RV679J-C1P-F   | RV679-C1P-F    | Vans RV6,7,9,12 - Complete Firewall Kit | Phillips                      |             |
| RV679J-C1S-UF  | RV679-C1S-UF   | Vans RV6,7,9,12 - Upper Firewall Kit    | 17 Collared Slotted Fasteners | 0.808       |
| RV679J-C1P-UF  | RV679-C1P-UF   | Vans RV6,7,9,12 - Upper Firewall Kit    | Phillips                      |             |
| RV679J-C1S-S   | RV679-C1S-S    | Vans RV6,7,9,12 - Side Kit              | 20 Collared Slotted Fasteners | 1.010       |
| RV679J-C1P-S   | RV679-C1P-S    | Vans RV6,7,9,12 - Side Kit              | Phillips                      |             |
| RV1014J-C1S    | RV1014-C1S     | Vans RV10,14 - Complete Kit             | 62 Collared Slotted Fasteners | 3.131       |
| RV1014J-C1P    | RV1014-C1P     | Vans RV10,14 - Complete Kit             | Phillips                      |             |
| RV1014J-C1S-U  | RV1014-C1S-U   | Vans RV10,14 - Upper (FW/Side) Kit      | 45 Collared Slotted Fasteners | 2.273       |
| RV1014J-C1P-U  | RV1014-C1P-U   | Vans RV10,14 - Upper (FW/Side) Kit      | Phillips                      |             |
| RV1014J-C1S-F  | RV1014-C1S-F   | Vans RV10,14 - Complete Firewall Kit    | 36 Collared Slotted Fasteners | 1.818       |
| RV1014J-C1P-F  | RV1014-C1P-F   | Vans RV10,14 - Complete Firewall Kit    | Phillips                      |             |
| RV1014J-C1S-UF | RV1014-C1S-UF  | Vans RV10,14 - Upper Firewall Kit       | 19 Collared Slotted Fasteners | 0.960       |
| RV1014J-C1P-UF | RV1014-C1P-UF  | Vans RV10,14 - Upper Firewall Kit       | Phillips                      |             |
| RV1014J-C1S-S  | RV1014-C1S-S   | Vans RV10,14 - Side Kit                 | 26 Collared Slotted Fasteners | 1.313       |
| RV1014J-C1P-S  | RV1014-C1P-S   | Vans RV10,14 - Side Kit                 | Phillips                      |             |

| RV KIT         | DESCRIPTION                  | STUDS                                       | WEIGHT/LBS. |
|----------------|------------------------------|---|-------------|
| LANCAIR-C1S    | Lancair - Complete Kit       | 62 Collared Slotted Fasteners (Inc SK2800S) | 0.000       |
| LANCAIR-C1P    | Lancair - Complete Kit       | Phillips (Inc SK28S3S around gear well)     |             |
| LANCAIR-C1S-U  | Lancair - Upper Cowl Kit     | 45 Collared Slotted Fasteners               | 0.000       |
| LANCAIR-C1P-U  | Lancair - Upper Cowl Kit     | Phillips                                    |             |
| LANCAIR-C1S-F  | Lancair - Firewall Kit       | 36 Collared Slotted Fasteners               | 0.000       |
| LANCAIR-C1P-F  | Lancair - Firewall Kit       | Phillips                                    |             |
| LANCAIR-C1S-UF | Lancair - Upper Firewall Kit | 19 Collared Slotted Fasteners               | 0.000       |
| LANCAIR-C1P-UF | Lancair - Upper Firewall Kit | Phillips                                    |             |
| LANCAIR-C1S-S  | Lancair - Side Kit           | 26 Collared Slotted Fasteners               | 0.000       |
| LANCAIR-C1P-S  | Lancair - Side Kit           | Phillips                                    |             |

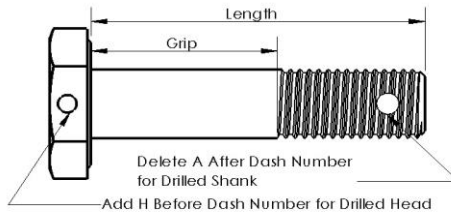
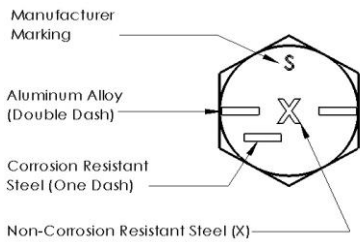
| OPTIONS    | DESCRIPTION                                 |   |
|------------|---|---|
| RV-OD1     | Oil Door Winged Fasteners (Skytanium)       | 2 ea ZG2600-1W, SK213-2, Drill Template |
| RV-OD2     | Oil Door SK28S3 Flush Fasteners (Stainless) | 2 ea SK28S3-2S, SK213-2, Drill Template |
| SKYBEAM-40 | Composite Reinforcement Strip 3"x40"        | Per Strip                               |
| SK-RVFS1   | Inter-connecting Flange (Patent Pending)    | 1ea Flange                              |
| SK-RVC     | Cleko insert with no Magnet                 | 1ea Insert                              |
| SK-RVCI    | Cleko insert with Magnet                    | 1ea Insert                              |
| SK-RVC114  | Clecko Insert with Magnet Kit (RV3,4,8)     | 14 Sets                                 |
| SK-RVC119  | Clecko Insert with Magnet Kit (RV6,7,9,10)  | 19 Sets                                 |

# AN-MS-NAS Aircraft Hardware



# Skybolt AN-MS-NAS Fastener Index

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| ALoc Fasteners           | 63-65          | Eyebolt                            | 119            | MS21043          | 125        | Clip-On                              | 125          |
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| AN173-AN186              | 121            | Cap Nuts                           | 124            | MS21251          | 170        | <b>P Patch Plates</b>                | <b>132</b>   |
| AN210-AN221              | 175            | CAT-SCAT Duct                      | 177            | MS21252-MS21254  | 171        | Platenuts                            | 70,128-131   |
| AN252-AN253              | 131            | CHERRYMAX                          | 152-153        | MS21255          | 172        | PINS, Clevis                         | 143          |
| AN256                    | 128            | CLAMPS, Screw                      | 178            | MS21259-MS21260  | 173        | Cotter                               | 144          |
| AN310                    | 124            | Cushioned                          | 179            | MS21919          | 179        | Locking                              | 142          |
| AN315                    | 124            | Plain                              | 179            | MS24566          | 175        | Pulleys                              | 175          |
| AN316                    | 124            | Tinnerman                          | 132,134        | MS24665          | 144        | <b>R Rivet Application Chart</b>     | <b>153</b>   |
| AN320                    | 124            | CLEKO                              | 145            | MS24693          | 136        | RIVETS, Blind                        | 150-153      |
| AN340                    | 126            | Clevis Pins                        | 143            | MS24693BB        | 141        | CHERRYMAX                            | 152-153      |
| AN345                    | 126            | Clip Nuts                          | 125            | MS24694          | 137        | CHERRY N and Q                       | 150          |
| AN350                    | 124            | Control Hardware                   | 167-175        | MS25171          | 181        | POP Type                             | 151          |
| AN360                    | 124            | Cotter Pins                        | 144            | MS27039          | 138        | Solid                                | 147-149      |
| AN361                    | 128            | COWLING KITS                       | 85-108         | MS27129          | 134        | RIVNUTS                              | 154          |
| AN362                    | 128            | Cowling Pins                       | 142            | MS27151          | 125        | <b>S Safety Wire</b>                 | <b>117</b>   |
| AN363                    | 124            | <b>D Decimal Conversion Chart</b>  | <b>R Cover</b> | MS27975-MS27976  | 174        | Safety Wire Tools                    | 117          |
| AN364                    | 124            | Dimpled Washers                    | 134            | MS28775          | 176        | SCREWS, Instrument                   | 141          |
| AN365                    | 124            | Drill Bits                         | 146            | MS28778          | 179        | Machine                              | 135-141      |
| AN366                    | #####          | (Dzus (Zloc) Fasteners             | 59-81          | MS29513          | 176        | Sheet Metal                          | 142          |
| AN373                    | 128            | <b>E ELECTRICAL, Terminals</b>     | <b>180-181</b> | MS35206-MS35207  | 140        | Shackles                             | 175          |
| AN380                    | 144            | Heat Shrink Tubing,                | 181            | MS35214-MS35215  | 141        | SK203 Conversion Kits                | 84-88        |
| AN381                    | 144            | Spiral Wrap, PVC Tubing            | 181            | MS35265-MS35266  | 141        | SK2003 Cowling Mount                 | 82-83        |
| AN392-AN396              | 143            | Exhaust Nuts                       | 125            | MS35333-MS35335  | 134        | SOUTHCO Fasteners                    | 58-59        |
| AN415                    | 174            | Eyebolts                           | 119            | MS35338          | 133        | STAINLESS, (See Bolts,               | 115-142      |
| AN416                    | 174            | <b>F Firesleeve</b>                | <b>165-166</b> | MS35489-MS35490  | 177        | Nuts, Screws, Pins                   | 115-142      |
| AN426                    | 148            | FITTINGS                           | 159-163        | MS35769          | 179        | Clamps, Washers)                     | 115-142      |
| AN470                    | 149            | Fraction Conversion Chart          | R Cover        | MS35842          | 178        | STRATOFLEX Hose                      | 164-166      |
| AN481                    | 174            | <b>G GASKETS, AN-MS</b>            | <b>179</b>     | MS51957-MS51958  | 140        | Stud Nuts 1820, 18121                | 3-4          |
| AN486                    | 174            | Grommets                           | 177            | <b>N NAS143</b>  | <b>133</b> | <b>T 12 Point Nuts</b>               | <b>126</b>   |
| AN490                    | 174            | <b>H HARDWARE KITS</b>             | <b>155-158</b> | NAS144-NAS158    | 123        | Thread Size Chart                    | 140          |
| AN500                    | 141            | Hinges                             | 131            | NAS390-NAS391    | 134        | TINNERMAN                            | 132,134      |
| AN501                    | 141            | HOSE, Aeroquip,Stratoflex          | 164-166        | NAS395-NAS397    | 132        | Torque Chart                         | 127          |
| AN507                    | 136            | <b>I INSTRUMENT, Nuts</b>          | <b>104</b>     | NAS446           | 132        | TRIM KITS                            | 101-106      |
| AN509                    | 137            | Screws                             | 108-113        | NAS464           | 123        | Turnbuckles                          | 167-175      |
| AN515                    | 140            | <b>K KITS - Hardware</b>           | <b>155-158</b> | NAS487           | 132        | Tubing                               |              |
| AN520                    | 140            | <b>L Lockwire</b>                  | <b>117</b>     | NAS548           | 113        | <b>W WASHERS, CSK, Finishing</b>     | <b>134</b>   |
| AN525                    | 135            | LORDMOUNTS                         | 82-83          | NAS549           | 134        | Fiber, Flat, Nylon                   | 134          |
| AN526                    | 135            | <b>M Machine Screws</b>            | <b>135-141</b> | NAS645-NAS648    | 171        | <b>Z Zloc (Dzus) Panel Fasteners</b> | <b>59-52</b> |
| AN530                    | 142            | Mandrels                           | 166            | NAS649           | 170        |                                      |              |
| AN6227                   | 176            | MS17825                            | 126            | NAS650           | 173        |                                      |              |
| AN6230                   | 176            | MS17826                            | 126            | NAS679           | 125        |                                      |              |
| AN6289                   | 163            | MS20001                            | 131            | NAS680-NAS683    | 128        |                                      |              |
| AN658-AN669              | 172            | MS20002                            | 133            | NAS684-NAS687    | 129        |                                      |              |
| AN737                    | 178            | MS20004-MS20020                    | 123            | NAS696           | 130        |                                      |              |
| AN742                    | 179            | MS20073                            | 120            | NAS697           | 129        |                                      |              |
| AN804-AN894              | 160-162        | MS20074                            | 120            | NAS698           | 130        |                                      |              |
| AN900                    | 179            | MS20115                            | 175            | NAS1023-NAS1025  | 130        |                                      |              |
| AN901                    | 179            | MS20219                            | 175            | NAS1027          | 131        |                                      |              |
| AN910-AN911              | 162            | MS20220                            | 175            | NAS1067          | 131        |                                      |              |
| AN912-AN929              | 163            | MS20221                            | 175            | NAS1068          | 130        |                                      |              |
| AN931                    | 177            | MS20253                            | 131            | NAS1097          | 118        |                                      |              |
| AN935                    | 133            | MS20257                            | 131            | NAS1100-NAS1120  | 122        |                                      |              |
| AN936                    | 134            | MS20364                            | 124            | NAS1241-NAS1242  | 147        |                                      |              |
| AN960                    | 133            | MS20365                            | 124            | NAS1303-NAS1320  | 123        |                                      |              |
| AN970                    | 133            | MS20392                            | 143            | NAS1580-NAS1581  | 139        |                                      |              |
| <b>B BOLTS, Airframe</b> | <b>111-123</b> | MS20426                            | 148            | NAS1804          | 126        |                                      |              |
| Clevis                   | 118            | MS20470                            | 149            | NAS Bolts        | 122-123    |                                      |              |
| Close Tolerance          | 121-123        | MS20501                            | 100            | NICOPRESS Sleeve | 167        |                                      |              |
| Drilled Head             | 113-120        | MS20658-MS20668                    | 172-173        |                  |            |                                      |              |



**Steel**  
Undrilled - Drilled Shank

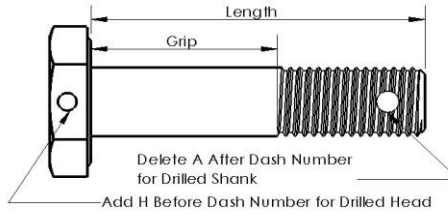
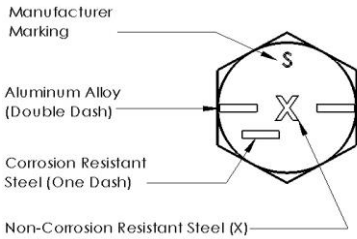
## AN3 thru AN20 - AIRFRAME BOLTS

Steel - Cadmium plated per QQ-P-416, Type II, Class 3.

Minimum Tensile Strength (Steel and CRES) - 125,000psi. See Chart

| (3/16) #1032<br>(.186-.189)<br><b>AN3</b><br>AN42 AN42B |                    |               |                       | 1/4-28<br>(.246-.249)<br><b>AN4</b><br>AN43 AN43B |                    |               |                       | 5/16-24<br>(.309-.312)<br><b>AN5</b><br>AN44 AN45 |                    |               |                       |
|---|--------------------|---------------|-----------------------|---|--------------------|---------------|-----------------------|---|--------------------|---------------|-----------------------|
| Dash#<br>Drilled  | Dash#<br>Undrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                  | Dash#<br>Undrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                  | Dash#<br>Undrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 |
| AN3-3   | AN3-3A             | 1/16          | 15/32                 | AN4-3   | AN4-3A             | 1/16          | 15/32                 | AN5-4   | AN5-4A             | 1/16          | 19/32                 |
| AN3-4   | AN3-4A             | 1/8           | 17/32                 | AN4-4   | AN4-4A             | 1/16          | 17/32                 | AN5-5   | AN5-5A             | 3/16          | 23/32                 |
| AN3-5   | AN3-5A             | 1/4           | 21/32                 | AN4-5   | AN4-5A             | 3/16          | 21/32                 | AN5-6   | AN5-6A             | 5/16          | 27/32                 |
| AN3-6   | AN3-6A             | 3/8           | 25/32                 | AN4-6   | AN4-6A             | 5/16          | 25/32                 | AN5-7   | AN5-7A             | 7/16          | 31/32                 |
| AN3-7   | AN3-7A             | 1/2           | 29/32                 | AN4-7   | AN4-7A             | 7/16          | 29/32                 | AN5-10  | AN5-10A            | 9/16          | 1-3/32                |
| AN3-10  | AN3-10A            | 5/8           | 1-1/32                | AN4-10  | AN4-10A            | 9/16          | 1-1/32                | AN5-11  | AN5-11A            | 11/16         | 1-7/32                |
| AN3-11  | AN3-11A            | 3/4           | 1-5/32                | AN4-11  | AN4-11A            | 11/16         | 1-5/32                | AN5-12  | AN5-12A            | 13/16         | 1-11/32               |
| AN3-12  | AN3-12A            | 7/8           | 1-9/32                | AN4-12  | AN4-12A            | 13/16         | 1-9/32                | AN5-13  | AN5-13A            | 15/16         | 1-15/32               |
| AN3-13  | AN3-13A            | 1             | 1-13/32               | AN4-13  | AN4-13A            | 15/16         | 1-13/32               | AN5-14  | AN5-14A            | 1-1/16        | 1-19/32               |
| AN3-14  | AN3-14A            | 1-1/8         | 1-17/32               | AN4-14  | AN4-14A            | 1-1/16        | 1-17/32               | AN5-15  | AN5-15A            | 1-3/16        | 1-23/32               |
| AN3-15  | AN3-15A            | 1-1/4         | 1-21/32               | AN4-15  | AN4-15A            | 1-3/16        | 1-21/32               | AN5-16  | AN5-16A            | 1-5/16        | 1-27/32               |
| AN3-16  | AN3-16A            | 1-3/8         | 1-25/32               | AN4-16  | AN4-16A            | 1-5/16        | 1-25/32               | AN5-17  | AN5-17A            | 1-7/16        | 1-31/32               |
| AN3-17  | AN3-17A            | 1-1/2         | 1-29/32               | AN4-17  | AN4-17A            | 1-7/16        | 1-29/32               | AN5-20  | AN5-20A            | 1-9/16        | 2-3/32                |
| AN3-20  | AN3-20A            | 1-5/8         | 2-1/32                | AN4-20  | AN4-20A            | 1-9/16        | 2-1/32                | AN5-21  | AN5-21A            | 1-11/16       | 2-7/32                |
| AN3-21  | AN3-21A            | 1-3/4         | 2-5/32                | AN4-21  | AN4-21A            | 1-11/16       | 2-5/32                | AN5-22  | AN5-22A            | 1-13/16       | 2-11/32               |
| AN3-22  | AN3-22A            | 1-7/8         | 2-9/32                | AN4-22  | AN4-22A            | 1-13/16       | 2-9/32                | AN5-23  | AN5-23A            | 1-15/16       | 2-15/32               |
| AN3-23  | AN3-23A            | 2             | 2-13/32               | AN4-23  | AN4-23A            | 1-15/16       | 2-13/32               | AN5-24  | AN5-24A            | 2-1/16        | 2-19/32               |
| AN3-24  | AN3-24A            | 2-1/8         | 2-17/32               | AN4-24  | AN4-24A            | 2-1/16        | 2-17/32               | AN5-25  | AN5-25A            | 2-3/16        | 2-23/32               |
| AN3-25  | AN3-25A            | 2-1/4         | 2-21/32               | AN4-25  | AN4-25A            | 2-3/16        | 2-21/32               | AN5-26  | AN5-26A            | 2-5/16        | 2-27/32               |
| AN3-26  | AN3-26A            | 2-3/8         | 2-25/32               | AN4-26  | AN4-26A            | 2-5/16        | 2-25/32               | AN5-27  | AN5-27A            | 2-7/16        | 2-31/32               |
| AN3-27  | AN3-27A            | 2-1/2         | 2-29/32               | AN4-27  | AN4-27A            | 2-7/16        | 2-29/32               | AN5-30  | AN5-30A            | 2-9/16        | 3-3/32                |
| AN3-30  | AN3-30A            | 2-5/8         | 3-1/32                | AN4-30  | AN4-30A            | 2-9/16        | 3-1/32                | AN5-31  | AN5-31A            | 2-11/16       | 3-7/32                |
| AN3-31  | AN3-31A            | 2-3/4         | 3-5/32                | AN4-31  | AN4-31A            | 2-11/16       | 3-5/32                | AN5-32  | AN5-32A            | 2-13/16       | 3-11/32               |
| AN3-32  | AN3-32A            | 2-7/8         | 3-9/32                | AN4-32  | AN4-32A            | 2/13/16       | 3-9/32                | AN5-33  | AN5-33A            | 2-15/16       | 3-15/32               |
| AN3-33  | AN3-33A            | 3             | 3-13/32               | AN4-33  | AN4-33A            | 2-15/16       | 3-13/32               | AN5-34  | AN5-34A            | 3-1/16        | 3-19/32               |
| AN3-34  | AN3-34A            | 3-1/8         | 3-17/32               | AN4-34  | AN4-34A            | 3-1/16        | 3-17/32               | AN5-35  | AN5-35A            | 3-3/16        | 3-23/32               |
| AN3-35  | AN3-35A            | 3-1/4         | 3-21/32               | AN4-35  | AN4-35A            | 3-3/16        | 3-21/32               | AN5-36  | AN5-36A            | 3-5/16        | 3-27/32               |
| AN3-36  | AN3-36A            | 3-3/8         | 3-25/32               | AN4-36  | AN4-36A            | 3-5/16        | 3-25/32               | AN5-37  | AN5-37A            | 3-7/16        | 3-31/32               |
| AN3-37  | AN3-37A            | 3-1/2         | 3-29/32               | AN4-37  | AN4-37A            | 3-7/16        | 3-29/32               | AN5-40  | AN5-40A            | 3-9/16        | 4-3/32                |
| AN3-40  | AN3-40A            | 3-5/8         | 4-1/32                | AN4-40  | AN4-40A            | 3-9/16        | 4-1/32                | AN5-41  | AN5-41A            | 3-11/16       | 4-7/32                |
| AN3-41  | AN3-41A            | 3-3/4         | 4-5/32                | AN4-41  | AN4-41A            | 3-11/16       | 4-5/32                | AN5-42  | AN5-42A            | 3-13/16       | 4-11/32               |
| AN3-42  | AN3-42A            | 3-7/8         | 4-9/32                | AN4-42  | AN4-42A            | 3-13/16       | 4-9/32                | AN5-43  | AN5-43A            | 3-15/16       | 4-15/32               |
| AN3-43  | AN3-43A            | 4             | 4-13/32               | AN4-43  | AN4-43A            | 3-15/16       | 4-13/32               | AN5-44  | AN5-44A            | 4-1/16        | 4-19/32               |
| AN3-44  | AN3-44A            | 4-1/8         | 4/17/32               | AN4-44  | AN4-44A            | 4-1/16        | 4/17/32               | AN5-45  | AN5-45A            | 4-3/16        | 4-23/32               |
| AN3-45  | AN3-45A            | 4-1/4         | 4-21/32               | AN4-45  | AN4-45A            | 4-3/16        | 4-21/32               | AN5-46  | AN5-46A            | 4-5/16        | 4-27/32               |
| AN3-46  | AN3-46A            | 4-3/8         | 4-25/32               | AN4-46  | AN4-46A            | 4-5/16        | 4-25/32               | AN5-47  | AN5-47A            | 4-7/16        | 4-31/32               |
| AN3-47  | AN3-47A            | 4-1/2         | 4-29/32               | AN4-47  | AN4-47A            | 4-7/16        | 4-29/32               | AN5-50  | AN5-50A            | 4-9/16        | 5-3/32                |
| AN3-50  | AN3-50A            | 4-5/8         | 5-1/32                | AN4-50  | AN4-50A            | 4-9/16        | 5-1/32                | AN5-51  | AN5-51A            | 4-11/16       | 5-7/32                |
| AN3-51  | AN3-51A            | 4-3/4         | 5-5/32                | AN4-51  | AN4-51A            | 4-11/16       | 5-5/32                | AN5-52  | AN5-52A            | 4-13/16       | 5-11/32               |
| AN3-52  | AN3-52A            | 4-7/8         | 5-9/32                | AN4-52  | AN4-52A            | 4/13/16       | 5-9/32                | AN5-53  | AN5-53A            | 4-15/16       | 5-15/32               |
| AN3-53  | AN3-53A            | 5             | 5-13/32               | AN4-53  | AN4-53A            | 4-15/16       | 5-13/32               | AN5-54  | AN5-54A            | 5-1/16        | 5-19/32               |
| AN3-54  | AN3-54A            | 5-1/8         | 5-17/32               | AN4-54  | AN4-54A            | 5-1/16        | 5-17/32               | AN5-55  | AN5-55A            | 5-3/16        | 5-23/32               |
| AN3-55  | AN3-55A            | 5-1/4         | 5-21/32               | AN4-55  | AN4-55A            | 5-3/16        | 5-21/32               | AN5-56  | AN5-56A            | 5-5/16        | 5-27/32               |
| AN3-56  | AN3-56A            | 5-3/8         | 5-25/32               | AN4-56  | AN4-56A            | 5-5/16        | 5-25/32               | AN5-57  | AN5-57A            | 5-7/16        | 5-31/32               |
| AN3-57  | AN3-57A            | 5-1/2         | 5-29/32               | AN4-57  | AN4-57A            | 5-7/16        | 5-29/32               | AN5-60  | AN5-60A            | 5-9/16        | 6-3/32                |
| AN3-60  | AN3-60A            | 5-5/8         | 6-1/32                | AN4-60  | AN4-60A            | 5-9/16        | 6-1/32                |   |                    |               |                       |

|            | AN3           | AN4          | AN5          |
|------------|---------------|--------------|--------------|
| Washer     | AN960-10      | AN960-416    | AN960-516    |
| Nut        | MS20365-1032A | MS20365-428A | MS20365-524A |
| Cotter Pin | AN380-2-1     | AN380-2-2    | AN380-2-2    |
| Hole       | 1/16          | 1/16         | 1/16         |



**Steel**  
Un drilled - Drilled Shank

## AN6 thru AN8 - AIRFRAME BOLTS

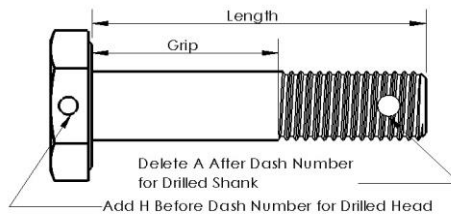
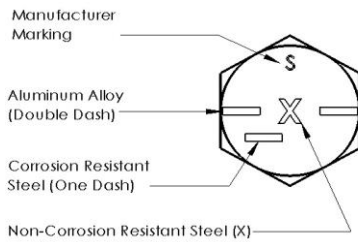
Steel - Cadmium plated per QQ-P-416, Type II, Class 3.

Minimum Tensile Strength (Steel and CRES) - 125,000psi. See Chart

| 3/8-24<br>(.371-.374)<br><b>AN6</b><br><b>AN46</b> |                    |               |                       | 7/16-20<br>(.433-.437)<br><b>AN7</b><br><b>AN47</b> |                    |               |                       | 1/2-20<br>(.495-.499)<br><b>AN8</b><br><b>AN48</b> |                    |               |                       |
|--|--------------------|---------------|-----------------------|---|--------------------|---------------|-----------------------|--|--------------------|---------------|-----------------------|
| Dash#<br>Drilled                                   | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                    | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                   | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 |
| AN6-5  | AN6-5A             | 1/16          | 45/64                 | AN7-5   | AN7-5A             | 1/16          | 23/32                 | AN8-6  | AN8-6A             | 1/16          | 27/32                 |
| AN6-6  | AN6-6A             | 3/16          | 53/64                 | AN7-6   | AN7-6A             | 3/16          | 27/32                 | AN8-7  | AN8-7A             | 3/16          | 31/32                 |
| AN6-7  | AN6-7A             | 5/16          | 61/64                 | AN7-7   | AN7-7A             | 5/16          | 31/32                 | AN8-10   | AN8-10A            | 5/16          | 1-1/32                |
| AN6-10   | AN6-10A            | 7/16          | 1-5/64                | AN7-10  | AN7-10A            | 7/16          | 1-1/32                | AN8-11   | AN8-11A            | 7/16          | 1-7/32                |
| AN6-11   | AN6-11A            | 9/16          | 1-13/64               | AN7-11  | AN7-11A            | 9-16          | 1-7/32                | AN8-12   | AN8-12A            | 9/16          | 1-11/32               |
| AN6-12   | AN6-12A            | 11/16         | 1-21/64               | AN7-12  | AN7-12A            | 11/16         | 1-11/32               | AN8-13   | AN8-13A            | 11/16         | 1-15/32               |
| AN6-13   | AN6-13A            | 13/16         | 1-29/64               | AN7-13  | AN7-13A            | 13/16         | 1-15/32               | AN8-14   | AN8-14A            | 13/16         | 1-19/32               |
| AN6-14   | AN6-14A            | 15/16         | 1-37/64               | AN7-14  | AN7-14A            | 15/16         | 1-19/32               | AN8-15   | AN8-15A            | 15/16         | 1-23/32               |
| AN6-15   | AN6-15A            | 1-1/16        | 1-45/64               | AN7-15  | AN7-15A            | 1-1/16        | 1-23/32               | AN8-16   | AN8-16A            | 1-1/16        | 1-27/32               |
| AN6-16   | AN6-16A            | 1-3/16        | 1-53/64               | AN7-16  | AN7-16A            | 1-3/16        | 1-27/32               | AN8-17   | AN8-17A            | 1-3/16        | 1-31/32               |
| AN6-17   | AN6-17A            | 1-5/16        | 1-61/64               | AN7-17  | AN7-17A            | 1-5/16        | 1-31/32               | AN8-20   | AN8-20A            | 1-5/16        | 2-3/32                |
| AN6-20   | AN6-20A            | 1-7/16        | 2-5/64                | AN7-20  | AN7-20A            | 1-7/16        | 2-3/32                | AN8-21   | AN8-21A            | 1-7/16        | 2-7/32                |
| AN6-21   | AN6-21A            | 1-9/16        | 2-13/64               | AN7-21  | AN7-21A            | 1-6/16        | 2-7/32                | AN8-22   | AN8-22A            | 1-9/16        | 2-11/32               |
| AN6-22   | AN6-22A            | 1-11/16       | 2-21/64               | AN7-22  | AN7-22A            | 1-11/16       | 2-11/32               | AN8-23   | AN8-23A            | 1-11/16       | 2-15/32               |
| AN6-23   | AN6-23A            | 1-13/16       | 2-29/64               | AN7-23  | AN7-23A            | 1-13/16       | 2-15/32               | AN8-24   | AN8-24A            | 1-13/16       | 2-19/32               |
| AN6-24   | AN6-24A            | 1-15/16       | 2-37/64               | AN7-24  | AN7-24A            | 1-15/16       | 2-16/32               | AN8-25   | AN8-25A            | 1-15/16       | 2-23/32               |
| AN6-25   | AN6-25A            | 2-1/16        | 2-45/64               | AN7-25  | AN7-25A            | 2-1/16        | 2-23/32               | AN8-26   | AN8-26A            | 2-1/16        | 2-27/32               |
| AN6-26   | AN6-26A            | 2-3/16        | 2-53/64               | AN7-26  | AN7-26A            | 2-3/16        | 2-27/32               | AN8-27   | AN8-27A            | 2-3/16        | 2-31/32               |
| AN6-27   | AN6-27A            | 2-5/16        | 2-61/64               | AN7-27  | AN7-27A            | 2-5/16        | 2-31/32               | AN8-30   | AN8-30A            | 2-5/16        | 3-3/32                |
| AN6-30   | AN6-30A            | 2-7/16        | 3-5/64                | AN7-30  | AN7-30A            | 2-7/16        | 3-3/32                | AN8-31   | AN8-31A            | 2-7/16        | 3-7/32                |
| AN6-31   | AN6-31A            | 2-9/16        | 3-13/64               | AN7-31  | AN7-31A            | 2-9/16        | 3-7/32                | AN8-32   | AN8-32A            | 2-9/16        | 3-11/32               |
| AN6-32   | AN6-32A            | 2-11/16       | 3-21/64               | AN7-32  | AN7-32A            | 2-11/16       | 3-11/32               | AN8-33   | AN8-33A            | 2-11/16       | 3-15/32               |
| AN6-33   | AN6-33A            | 2-13/16       | 3-29/64               | AN7-33  | AN7-33A            | 2-13/16       | 3-15/32               | AN8-34   | AN8-34A            | 2-13/16       | 3-19/32               |
| AN6-34   | AN6-34A            | 2-15/16       | 3-37/64               | AN7-34  | AN7-34A            | 2-15/16       | 3-19/32               | AN8-35   | AN8-35A            | 2-15/16       | 3-23/32               |
| AN6-35   | AN6-35A            | 3-1/16        | 3-45/64               | AN7-35  | AN7-35A            | 3-1/16        | 3-23/32               | AN8-36   | AN8-36A            | 3-1/16        | 3-27/32               |
| AN6-36   | AN6-36A            | 3-3/16        | 3-53/64               | AN7-36  | AN7-36A            | 3-3/16        | 3-27/32               | AN8-37   | AN8-37A            | 3-3/16        | 3-31/32               |
| AN6-37   | AN6-37A            | 3-5/16        | 3-61/64               | AN7-37  | AN7-37A            | 3-5/16        | 3-31/32               | AN8-40   | AN8-40A            | 3-5/16        | 4-3/32                |
| AN6-40   | AN6-40A            | 3-7/16        | 4-5/64                | AN7-40  | AN7-40A            | 3-7/16        | 4-3/32                | AN8-41   | AN8-41A            | 3-7/16        | 4-7/32                |
| AN6-41   | AN6-41A            | 3-6/16        | 4-13/64               | AN7-41  | AN7-41A            | 3-9/16        | 4-7/32                | AN8-42   | AN8-42A            | 3-9/16        | 4-11/32               |
| AN6-42   | AN6-42A            | 3-11/16       | 4-21/64               | AN7-42  | AN7-42A            | 3-11/16       | 4-11/32               | AN8-43   | AN8-43A            | 3-11/16       | 4-15/32               |
| AN6-43   | AN6-43A            | 3-13/16       | 4-29/64               | AN7-43  | AN7-43A            | 3-13/16       | 4-15/32               | AN8-44   | AN8-44A            | 3-13/16       | 4-19/32               |
| AN6-44   | AN6-44A            | 3-15/16       | 4-37/64               | AN7-44  | AN7-44A            | 3-15/16       | 4-19/32               | AN8-45   | AN8-45A            | 3-15/16       | 4-23/32               |
| AN6-45   | AN6-45A            | 4-1/16        | 4-45/64               | AN7-45  | AN7-45A            | 4-1/16        | 4-23/32               | AN8-46   | AN8-46A            | 4-1/16        | 4-27/32               |
| AN6-46   | AN6-46A            | 4-3/16        | 4-53/64               | AN7-46  | AN7-46A            | 4-3/16        | 4-27/32               | AN8-47   | AN8-47A            | 4-3/16        | 4-31/32               |
| AN6-47   | AN6-47A            | 4-5/16        | 4-61/64               | AN7-47  | AN7-47A            | 4-5/16        | 4-31/32               | AN8-50   | AN8-50A            | 4-5/16        | 5-3/32                |
| AN6-50   | AN6-50A            | 4-7/16        | 5-5/64                | AN7-50  | AN7-50A            | 4-7/16        | 5-3/32                | AN8-51   | AN8-51A            | 4-7/16        | 5-7/32                |
| AN6-51   | AN6-51A            | 4-9/16        | 5-13/64               | AN7-51  | AN7-51A            | 4-9/16        | 5-7/32                | AN8-52   | AN8-52A            | 4-9/16        | 5-11/32               |
| AN6-52   | AN6-52A            | 4-11/16       | 5-21/64               | AN7-52  | AN7-52A            | 4-11/16       | 5-11/32               | AN8-53   | AN8-53A            | 4-11/16       | 5-15/32               |
| AN6-53   | AN6-53A            | 4-13/16       | 5-29/64               | AN7-53  | AN7-53A            | 4-13/16       | 5-15/32               | AN8-54   | AN8-54A            | 4-13/16       | 5-19/32               |
| AN6-54   | AN6-54A            | 4-15/16       | 5-37/64               | AN7-54  | AN7-54A            | 4-15/16       | 5-19/32               | AN8-55   | AN8-55A            | 4-15/16       | 5-23/32               |
| AN6-55   | AN6-55A            | 5-1/16        | 5-45/64               | AN7-55  | AN7-55A            | 5-1/16        | 5-23/32               | AN8-56   | AN8-56A            | 5-1/16        | 5-27/32               |
| AN6-56   | AN6-56A            | 5-3/16        | 5-53/64               | AN7-56  | AN7-56A            | 5-3/16        | 5-27/32               | AN8-57   | AN8-57A            | 5-3/16        | 5-31/32               |
| AN6-57   | AN6-57A            | 5-5/16        | 5-61/64               | AN7-57  | AN7-57A            | 5-5/16        | 5-31/32               | AN8-60   | AN8-60A            | 5-5/16        | 6-3/32                |
| AN6-60   | AN6-60A            | 5-7/16        | 6-5/64                | AN7-60  | AN7-60A            | 5-7/16        | 6-3/32                |  |                    |               |                       |

|            | AN6       | AN7       | AN8       |
|------------|-----------|-----------|-----------|
| Washer     | AN960-616 | AN960-716 | AN960-816 |
| Nut        | AN365-624 | AN365-720 | AN365-820 |
| Cotter Pin | AN380-3-3 | AN380-3-3 | AN380-3-3 |
| Hole       | 3/32      | 3/32      | 3/32      |





**Steel - Drilled Head**  
Undrilled - Drilled Shank

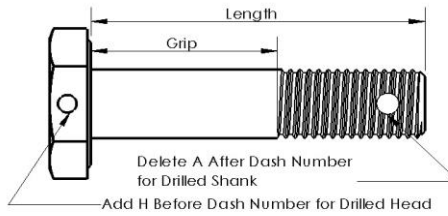
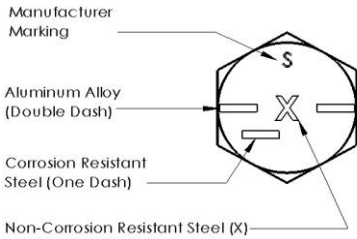
**AN3H thru AN5H - AIRFRAME BOLTS**

Steel - Cadmium plated per QQ-P-416, Type II, Class 3.

Minimum Tensile Strength (Steel and HRES) - 125,000psi. See Chart

| (3/16) #1032<br>(.186-.189)<br><b>AN3H - Drilled Head</b> |                    |               |                       | 1/4-28<br>(.246-.249)<br><b>AN4H - Drilled Head</b> |                    |               |                       | 5/16-24<br>(.309-.312)<br><b>AN5H - Drilled Head</b> |                    |               |                       |
|---|--------------------|---------------|-----------------------|---|--------------------|---------------|-----------------------|--|--------------------|---------------|-----------------------|
| Dash#<br>Drilled  | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                    | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                     | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 |
| AN3H3   | AN3H3A             | 1/16          | 15/32                 | AN4H3   | AN4H3A             | 1/16          | 15/32                 | AN5H4  | AN5H4A             | 1/16          | 19/32                 |
| AN3H4   | AN3H4A             | 1/8           | 17/32                 | AN4H4   | AN4H4A             | 1/16          | 17/32                 | AN5H5  | AN5H5A             | 3/16          | 23/32                 |
| AN3H5   | AN3H5A             | 1/4           | 21/32                 | AN4H5   | AN4H5A             | 3/16          | 21/32                 | AN5H6  | AN5H6A             | 5/16          | 27/32                 |
| AN3H6   | AN3H6A             | 3/8           | 25/32                 | AN4H6   | AN4H6A             | 5/16          | 25/32                 | AN5H7  | AN5H7A             | 7/16          | 31/32                 |
| AN3H7   | AN3H7A             | 1/2           | 29/32                 | AN4H7   | AN4H7A             | 7/16          | 29/32                 | AN5H10   | AN5H10A            | 9/16          | 1-3/32                |
| AN3H10  | AN3H10A            | 5/8           | 1-1/32                | AN4H10  | AN4H10A            | 9/16          | 1-1/32                | AN5H11   | AN5H11A            | 11/16         | 1-7/32                |
| AN3H11  | AN3H11A            | 3/4           | 1-5/32                | AN4H11  | AN4H11A            | 11/16         | 1-5/32                | AN5H12   | AN5H12A            | 13/16         | 1-11/32               |
| AN3H12  | AN3H12A            | 7/8           | 1-9/32                | AN4H12  | AN4H12A            | 13/16         | 1-9/32                | AN5H13   | AN5H13A            | 15/16         | 1-15/32               |
| AN3H13  | AN3H13A            | 1             | 1-13/32               | AN4H13  | AN4H13A            | 15/16         | 1-13/32               | AN5H14   | AN5H14A            | 1-1/16        | 1-19/32               |
| AN3H14  | AN3H14A            | 1-1/8         | 1-17/32               | AN4H14  | AN4H14A            | 1-1/16        | 1-17/32               | AN5H15   | AN5H15A            | 1-3/16        | 1-23/32               |
| AN3H15  | AN3H15A            | 1-1/4         | 1-21/32               | AN4H15  | AN4H15A            | 1-3/16        | 1-21/32               | AN5H16   | AN5H16A            | 1-5/16        | 1-27/32               |
| AN3H16  | AN3H16A            | 1-3/8         | 1-25/32               | AN4H16  | AN4H16A            | 1-5/16        | 1-25/32               | AN5H17   | AN5H17A            | 1-7/16        | 1-31/32               |
| AN3H17  | AN3H17A            | 1-1/2         | 1-29/32               | AN4H17  | AN4H17A            | 1-7/16        | 1-29/32               | AN5H20   | AN5H20A            | 1-9/16        | 2-3/32                |
| AN3H20  | AN3H20A            | 1-5/8         | 2-1/32                | AN4H20  | AN4H20A            | 1-9/16        | 2-1/32                | AN5H21   | AN5H21A            | 1-11/16       | 2-7/32                |
| AN3H21  | AN3H21A            | 1-3/4         | 2-5/32                | AN4H21  | AN4H21A            | 1-11/16       | 2-5/32                | AN5H22   | AN5H22A            | 1-13/16       | 2-11/32               |
| AN3H22  | AN3H22A            | 1-7/8         | 2-9/32                | AN4H22  | AN4H22A            | 1-13/16       | 2-9/32                | AN5H23   | AN5H23A            | 1-15/16       | 2-15/32               |
| AN3H23  | AN3H23A            | 2             | 2-13/32               | AN4H23  | AN4H23A            | 1-15/16       | 2-13/32               | AN5H24   | AN5H24A            | 2-1/16        | 2-19/32               |
| AN3H24  | AN3H24A            | 2-1/8         | 2-17/32               | AN4H24  | AN4H24A            | 2-1/16        | 2-17/32               | AN5H25   | AN5H25A            | 2-3/16        | 2-23/32               |
| AN3H25  | AN3H25A            | 2-1/4         | 2-21/32               | AN4H25  | AN4H25A            | 2-3/16        | 2-21/32               | AN5H26   | AN5H26A            | 2-5/16        | 2-27/32               |
| AN3H26  | AN3H26A            | 2-3/8         | 2-25/32               | AN4H26  | AN4H26A            | 2-5/16        | 2-25/32               | AN5H27   | AN5H27A            | 2-7/16        | 2-31/32               |
| AN3H27  | AN3H27A            | 2-1/2         | 2-29/32               | AN4H27  | AN4H27A            | 2-7/16        | 2-29/32               | AN5H30   | AN5H30A            | 2-9/16        | 3-3/32                |
| AN3H30  | AN3H30A            | 2-5/8         | 3-1/32                | AN4H30  | AN4H30A            | 2-9/16        | 3-1/32                | AN5H31   | AN5H31A            | 2-11/16       | 3-7/32                |
| AN3H31  | AN3H31A            | 2-3/4         | 3-5/32                | AN4H31  | AN4H31A            | 2-11/16       | 3-5/32                | AN5H32   | AN5H32A            | 2-13/16       | 3-11/32               |
| AN3H32  | AN3H32A            | 2-7/8         | 3-9/32                | AN4H32  | AN4H32A            | 2/13/16       | 3-9/32                | AN5H33   | AN5H33A            | 2-15/16       | 3-15/32               |
| AN3H33  | AN3H33A            | 3             | 3-13/32               | AN4H33  | AN4H33A            | 2-15/16       | 3-13/32               | AN5H34   | AN5H34A            | 3-1/16        | 3-19/32               |
| AN3H34  | AN3H34A            | 3-1/8         | 3-17/32               | AN4H34  | AN4H34A            | 3-1/16        | 3-17/32               | AN5H35   | AN5H35A            | 3-3/16        | 3-23/32               |
| AN3H35  | AN3H35A            | 3-1/4         | 3-21/32               | AN4H35  | AN4H35A            | 3-3/16        | 3-21/32               | AN5H36   | AN5H36A            | 3-5/16        | 3-27/32               |
| AN3H36  | AN3H36A            | 3-3/8         | 3-25/32               | AN4H36  | AN4H36A            | 3-5/16        | 3-25/32               | AN5H37   | AN5H37A            | 3-7/16        | 3-31/32               |
| AN3H37  | AN3H37A            | 3-1/2         | 3-29/32               | AN4H37  | AN4H37A            | 3-7/16        | 3-29/32               | AN5H40   | AN5H40A            | 3-9/16        | 4-3/32                |
| AN3H40  | AN3H40A            | 3-5/8         | 4-1/32                | AN4H40  | AN4H40A            | 3-9/16        | 4-1/32                | AN5H41   | AN5H41A            | 3-11/16       | 4-7/32                |
| AN3H41  | AN3H41A            | 3-3/4         | 4-5/32                | AN4H41  | AN4H41A            | 3-11/16       | 4-5/32                | AN5H42   | AN5H42A            | 3-13/16       | 4-11/32               |
| AN3H42  | AN3H42A            | 3-7/8         | 4-9/32                | AN4H42  | AN4H42A            | 3-13/16       | 4-9/32                | AN5H43   | AN5H43A            | 3-15/16       | 4-15/32               |
| AN3-H43   | AN3H43A            | 4             | 4-13/32               | AN4H43  | AN4H43A            | 3-15/16       | 4-13/32               | AN5H44   | AN5H44A            | 4-1/16        | 4-19/32               |
| AN3H44  | AN3H44A            | 4-1/8         | 4/17/32               | AN4H44  | AN4H44A            | 4-1/16        | 4/17/32               | AN5H45   | AN5H45A            | 4-3/16        | 4-23/32               |
| AN3H45  | AN3H45A            | 4-1/4         | 4-21/32               | AN4H45  | AN4H45A            | 4-3/16        | 4-21/32               | AN5H46   | AN5H46A            | 4-5/16        | 4-27/32               |
| AN3H46  | AN3H46A            | 4-3/8         | 4-25/32               | AN4H46  | AN4H46A            | 4-5/16        | 4-25/32               | AN5H47   | AN5H47A            | 4-7/16        | 4-31/32               |
| AN3H47  | AN3H47A            | 4-1/2         | 4-29/32               | AN4H47  | AN4H47A            | 4-7/16        | 4-29/32               | AN5H50   | AN5H50A            | 4-9/16        | 5-3/32                |
| AN3H50  | AN3H50A            | 4-5/8         | 5-1/32                | AN4H50  | AN4H50A            | 4-9/16        | 5-1/32                | AN5H51   | AN5H51A            | 4-11/16       | 5-7/32                |
| AN3H51  | AN3H51A            | 4-3/4         | 5-5/32                | AN4H51  | AN4H51A            | 4-11/16       | 5-5/32                | AN5H52   | AN5H52A            | 4-13/16       | 5-11/32               |
| AN3H52  | AN3H52A            | 4-7/8         | 5-9/32                | AN4H52  | AN4H52A            | 4/13/16       | 5-9/32                | AN5H53   | AN5H53A            | 4-15/16       | 5-15/32               |
| AN3H53  | AN3H53A            | 5             | 5-13/32               | AN4H53  | AN4H53A            | 4-15/16       | 5-13/32               | AN5H54   | AN5H54A            | 5-1/16        | 5-19/32               |
| AN3H54  | AN3H54A            | 5-1/8         | 5-17/32               | AN4H54  | AN4H54A            | 5-1/16        | 5-17/32               | AN5H55   | AN5H55A            | 5-3/16        | 5-23/32               |
| AN3H55  | AN3H55A            | 5-1/4         | 5-21/32               | AN4H55  | AN4H55A            | 5-3/16        | 5-21/32               | AN5H56   | AN5H56A            | 5-5/16        | 5-27/32               |
| AN3H56  | AN3H56A            | 5-3/8         | 5-25/32               | AN4H56  | AN4H56A            | 5-5/16        | 5-25/32               | AN5H57   | AN5H57A            | 5-7/16        | 5-31/32               |
| AN3H57  | AN3H57A            | 5-1/2         | 5-29/32               | AN4H57  | AN4H57A            | 5-7/16        | 5-29/32               | AN5H60   | AN5H60A            | 5-9/16        | 6-3/32                |
| AN3H60  | AN3H60A            | 5-5/8         | 6-1/32                | AN4H60  | AN4H60A            | 5-9/16        | 6-1/32                |  |                    |               |                       |

|            | AN3           | AN4          | AN5          |
|------------|---------------|--------------|--------------|
| Washer     | AN960-10      | AN960H416    | AN960H516    |
| Nut        | MS20365-1032A | MS20365-428A | MS20365-524A |
| Cotter Pin | AN381-2-6     | AN381-2-8    | AN380-2-8    |
| Hole       | 1/16          | 1/16         | 1/16         |



**Steel - Drilled Head**  
Un drilled - Drilled Shank

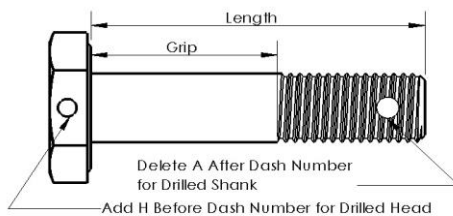
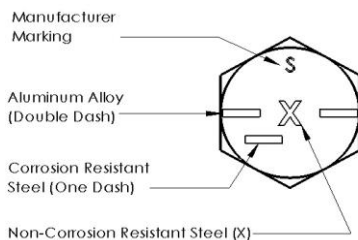
**AN6H thru AN8H - AIRFRAME BOLTS**

Steel - Cadmium plated per QQ-P-416, Type II, Class 3.

Minimum Tensile Strength (Steel and CRES) - 125,000psi. See Chart

| 3/8-24<br>(.371-.374)<br><b>AN6H - Drilled Head</b> |                    |               |                       | 7/16-20<br>(.433-.437)<br><b>AN7H - Drilled Head</b> |                    |               |                       | 1/2-20<br>(.495-.499)<br><b>AN8H - Drilled Head</b> |                    |               |                       |
|---|--------------------|---------------|-----------------------|--|--------------------|---------------|-----------------------|---|--------------------|---------------|-----------------------|
| Dash#<br>Drilled                                    | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                     | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                                    | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 |
| AN6H5   | AN6H5A             | 1/16          | 45/64                 | AN7H5  | AN7H5A             | 1/16          | 23/32                 | AN8H6   | AN8H6A             | 1/16          | 27/32                 |
| AN6H6   | AN6H6A             | 3/16          | 53/64                 | AN7H6  | AN7H6A             | 3/16          | 27/32                 | AN8H7   | AN8H7A             | 3/16          | 31/32                 |
| AN6H7   | AN6H7A             | 5/16          | 61/64                 | AN7H7  | AN7H7A             | 5/16          | 31/32                 | AN8H10  | AN8H10A            | 5/16          | 1-1/32                |
| AN6H10  | AN6H10A            | 7/16          | 1-5/64                | AN7H10   | AN7H10A            | 7/16          | 1-1/32                | AN8H11  | AN8H11A            | 7/16          | 1-7/32                |
| AN6H11  | AN6H11A            | 9/16          | 1-13/64               | AN7H11   | AN7H11A            | 9-16          | 1-7/32                | AN8H12  | AN8H12A            | 9/16          | 1-11/32               |
| AN6H12  | AN6H12A            | 11/16         | 1-21/64               | AN7H12   | AN7H12A            | 11/16         | 1-11/32               | AN8H13  | AN8H13A            | 11/16         | 1-15/32               |
| AN6H13  | AN6H13A            | 13/16         | 1-29/64               | AN7H13   | AN7H13A            | 13/16         | 1-15/32               | AN8H14  | AN8H14A            | 13/16         | 1-19/32               |
| AN6H14  | AN6H14A            | 15/16         | 1-37/64               | AN7H14   | AN7H14A            | 15/16         | 1-19/32               | AN8H15  | AN8H15A            | 15/16         | 1-23/32               |
| AN6H15  | AN6H15A            | 1-1/16        | 1-45/64               | AN7H15   | AN7H15A            | 1-1/16        | 1-23/32               | AN8H16  | AN8H16A            | 1-1/16        | 1-27/32               |
| AN6H16  | AN6H16A            | 1-3/16        | 1-53/64               | AN7H16   | AN7H16A            | 1-3/16        | 1-27/32               | AN8H17  | AN8H17A            | 1-3/16        | 1-31/32               |
| AN6H17  | AN6H17A            | 1-5/16        | 1-61/64               | AN7H17   | AN7H17A            | 1-5/16        | 1-31/32               | AN8H20  | AN8H20A            | 1-5/16        | 2-3/32                |
| AN6H20  | AN6H20A            | 1-7/16        | 2-5/64                | AN7H20   | AN7H20A            | 1-7/16        | 2-3/32                | AN8H21  | AN8H21A            | 1-7/16        | 2-7/32                |
| AN6H21  | AN6H21A            | 1-9/16        | 2-13/64               | AN7H21   | AN7H21A            | 1-6/16        | 2-7/32                | AN8H22  | AN8H22A            | 1-9/16        | 2-11/32               |
| AN6H22  | AN6H22A            | 1-11/16       | 2-21/64               | AN7H22   | AN7H22A            | 1-11/16       | 2-11/32               | AN8H23  | AN8H23A            | 1-11/16       | 2-15/32               |
| AN6H23  | AN6H23A            | 1-13/16       | 2-29/64               | AN7H23   | AN7H23A            | 1-13/16       | 2-15/32               | AN8H24  | AN8H24A            | 1-13/16       | 2-19/32               |
| AN6H24  | AN6H24A            | 1-15/16       | 2-37/64               | AN7H24   | AN7H24A            | 1-15/16       | 2-16/32               | AN8H25  | AN8H25A            | 1-15/16       | 2-23/32               |
| AN6H25  | AN6H25A            | 2-1/16        | 2-45/64               | AN7H25   | AN7H25A            | 2-1/16        | 2-23/32               | AN8H26  | AN8H26A            | 2-1/16        | 2-27/32               |
| AN6H26  | AN6H26A            | 2-3/16        | 2-53/64               | AN7H26   | AN7H26A            | 2-3/16        | 2-27/32               | AN8H27  | AN8H27A            | 2-3/16        | 2-31/32               |
| AN6H27  | AN6H27A            | 2-5/16        | 2-61/64               | AN7H27   | AN7H27A            | 2-5/16        | 2-31/32               | AN8H30  | AN8H30A            | 2-5/16        | 3-3/32                |
| AN6H30  | AN6H30A            | 2-7/16        | 3-5/64                | AN7H30   | AN7H30A            | 2-7/16        | 3-3/32                | AN8H31  | AN8H31A            | 2-7/16        | 3-7/32                |
| AN6H31  | AN6H31A            | 2-9/16        | 3-13/64               | AN7H31   | AN7H31A            | 2-9/16        | 3-7/32                | AN8H32  | AN8H32A            | 2-9/16        | 3-11/32               |
| AN6H32  | AN6H32A            | 2-11/16       | 3-21/64               | AN7H32   | AN7H32A            | 2-11/16       | 3-11/32               | AN8H33  | AN8H33A            | 2-11/16       | 3-15/32               |
| AN6H33  | AN6H33A            | 2-13/16       | 3-29/64               | AN7H33   | AN7H33A            | 2-13/16       | 3-15/32               | AN8H34  | AN8H34A            | 2-13/16       | 3-19/32               |
| AN6H34  | AN6H34A            | 2-15/16       | 3-37/64               | AN7H34   | AN7H34A            | 2-15/16       | 3-19/32               | AN8H35  | AN8H35A            | 2-15/16       | 3-23/32               |
| AN6H35  | AN6H35A            | 3-1/16        | 3-45/64               | AN7H35   | AN7H35A            | 3-1/16        | 3-23/32               | AN8H36  | AN8H36A            | 3-1/16        | 3-27/32               |
| AN6H36  | AN6H36A            | 3-3/16        | 3-53/64               | AN7H36   | AN7H36A            | 3-3/16        | 3-27/32               | AN8H37  | AN8H37A            | 3-3/16        | 3-31/32               |
| AN6H37  | AN6H37A            | 3-5/16        | 3-61/64               | AN7H37   | AN7H37A            | 3-5/16        | 3-31/32               | AN8H40  | AN8H40A            | 3-5/16        | 4-3/32                |
| AN6H40  | AN6H40A            | 3-7/16        | 4-5/64                | AN7H40   | AN7H40A            | 3-7/16        | 4-3/32                | AN8H41  | AN8H41A            | 3-7/16        | 4-7/32                |
| AN6H41  | AN6H41A            | 3-6/16        | 4-13/64               | AN7H41   | AN7H41A            | 3-9/16        | 4-7/32                | AN8H42  | AN8H42A            | 3-9/16        | 4-11/32               |
| AN6H42  | AN6H42A            | 3-11/16       | 4-21/64               | AN7H42   | AN7H42A            | 3-11/16       | 4-11/32               | AN8H43  | AN8H43A            | 3-11/16       | 4-15/32               |
| AN6H43  | AN6H43A            | 3-13/16       | 4-29/64               | AN7H43   | AN7H43A            | 3-13/16       | 4-15/32               | AN8H44  | AN8H44A            | 3-13/16       | 4-19/32               |
| AN6H44  | AN6H44A            | 3-15/16       | 4-37/64               | AN7H44   | AN7H44A            | 3-15/16       | 4-19/32               | AN8H45  | AN8H45A            | 3-15/16       | 4-23/32               |
| AN6H45  | AN6H45A            | 4-1/16        | 4-45/64               | AN7H45   | AN7H45A            | 4-1/16        | 4-23/32               | AN8H46  | AN8H46A            | 4-1/16        | 4-27/32               |
| AN6H46  | AN6H46A            | 4-3/16        | 4-53/64               | AN7H46   | AN7H46A            | 4-3/16        | 4-27/32               | AN8H47  | AN8H47A            | 4-3/16        | 4-31/32               |
| AN6H47  | AN6H47A            | 4-5/16        | 4-61/64               | AN7H47   | AN7H47A            | 4-5/16        | 4-31/32               | AN8H50  | AN8H50A            | 4-5/16        | 5-3/32                |
| AN6H50  | AN6H50A            | 4-7/16        | 5-5/64                | AN7H50   | AN7H50A            | 4-7/16        | 5-3/32                | AN8H51  | AN8H51A            | 4-7/16        | 5-7/32                |
| AN6H51  | AN6H51A            | 4-9/16        | 5-13/64               | AN7H51   | AN7H51A            | 4-9/16        | 5-7/32                | AN8H52  | AN8H52A            | 4-9/16        | 5-11/32               |
| AN6H52  | AN6H52A            | 4-11/16       | 5-21/64               | AN7H52   | AN7H52A            | 4-11/16       | 5-11/32               | AN8H53  | AN8H53A            | 4-11/16       | 5-15/32               |
| AN6H53  | AN6H53A            | 4-13/16       | 5-29/64               | AN7H53   | AN7H53A            | 4-13/16       | 5-15/32               | AN8H54  | AN8H54A            | 4-13/16       | 5-19/32               |
| AN6H54  | AN6H54A            | 4-15/16       | 5-37/64               | AN7H54   | AN7H54A            | 4-15/16       | 5-19/32               | AN8H55  | AN8H55A            | 4-15/16       | 5-23/32               |
| AN6H55  | AN6H55A            | 5-1/16        | 5-45/64               | AN7H55   | AN7H55A            | 5-1/16        | 5-23/32               | AN8H56  | AN8H56A            | 5-1/16        | 5-27/32               |
| AN6H56  | AN6H56A            | 5-3/16        | 5-53/64               | AN7H56   | AN7H56A            | 5-3/16        | 5-27/32               | AN8H57  | AN8H57A            | 5-3/16        | 5-31/32               |
| AN6H57  | AN6H57A            | 5-5/16        | 5-61/64               | AN7H57   | AN7H57A            | 5-5/16        | 5-31/32               | AN8H60  | AN8H60A            | 5-5/16        | 6-3/32                |
| AN6H60  | AN6H60A            | 5-7/16        | 6-5/64                | AN7H60   | AN7H60A            | 5-7/16        | 6-3/32                |   |                    |               |                       |

|            | AN6          | AN7          | AN8          |
|------------|--------------|--------------|--------------|
| Washer     | AN960-616    | AN960-716    | AN960-816    |
| Nut        | MS20365-624A | MS20365-720A | MS20365-820A |
| Cotter Pin | AN380-3-12   | AN380-3-12   | AN380-3-12   |
| Hole       | 3/32         | 3/32         | 3/32         |



**Stainless**  
Undrilled - Drilled Shank

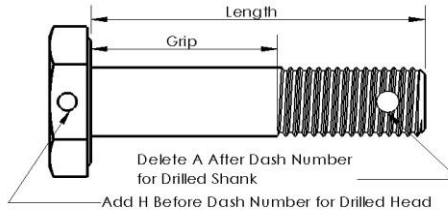
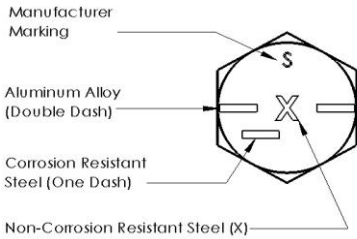
## AN3C thru AN5C - AIRFRAME BOLTS

431 Stainless Steel (CRES).

Minimum Tensile Strength (Steel and CRES) - 125,000psi. See Chart

| (3/16) #1032<br>(.186-.189)<br>AN3C - Stainless |                    |               |                       | 1/4-28<br>(.246-.249)<br>AN4C - Stainless |                    |               |                       | 5/16-24<br>(.309-.312)<br>AN5C - Stainless |                    |               |                       |
|---|--------------------|---------------|-----------------------|---|--------------------|---------------|-----------------------|--|--------------------|---------------|-----------------------|
| Dash#<br>Drilled                                | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                          | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled                           | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 |
| AN3C3   | AN3C3A             | 1/16          | 15/32                 | AN4C3                                     | AN4C3A             | 1/16          | 15/32                 | AN5C4                                      | AN5C4A             | 1/16          | 19/32                 |
| AN3C4   | AN3C4A             | 1/8           | 17/32                 | AN4C4                                     | AN4C4A             | 1/16          | 17/32                 | AN5C5                                      | AN5C5A             | 3/16          | 23/32                 |
| AN3C5   | AN3C5A             | 1/4           | 21/32                 | AN4C5                                     | AN4C5A             | 3/16          | 21/32                 | AN5C6                                      | AN5C6A             | 5/16          | 27/32                 |
| AN3C6   | AN3C6A             | 3/8           | 25/32                 | AN4C6                                     | AN4C6A             | 5/16          | 25/32                 | AN5C7                                      | AN5C7A             | 7/16          | 31/32                 |
| AN3C7   | AN3C7A             | 1/2           | 29/32                 | AN4C7                                     | AN4C7A             | 7/16          | 29/32                 | AN5C10                                     | AN5C10A            | 9/16          | 1-3/32                |
| AN3C10  | AN3C10A            | 5/8           | 1-1/32                | AN4C10                                    | AN4C10A            | 9/16          | 1-1/32                | AN5C11                                     | AN5C11A            | 11/16         | 1-7/32                |
| AN3C11  | AN3C11A            | 3/4           | 1-5/32                | AN4C11                                    | AN4C11A            | 11/16         | 1-5/32                | AN5C12                                     | AN5C12A            | 13/16         | 1-11/32               |
| AN3C12  | AN3C12A            | 7/8           | 1-9/32                | AN4C12                                    | AN4C12A            | 13/16         | 1-9/32                | AN5C13                                     | AN5C13A            | 15/16         | 1-15/32               |
| AN3C13  | AN3C13A            | 1             | 1-13/32               | AN4C13                                    | AN4C13A            | 15/16         | 1-13/32               | AN5C14                                     | AN5C14A            | 1-1/16        | 1-19/32               |
| AN3C14  | AN3C14A            | 1-1/8         | 1-17/32               | AN4C14                                    | AN4C14A            | 1-1/16        | 1-17/32               | AN5C15                                     | AN5C15A            | 1-3/16        | 1-23/32               |
| AN3C15  | AN3C15A            | 1-1/4         | 1-21/32               | AN4C15                                    | AN4C15A            | 1-3/16        | 1-21/32               | AN5C16                                     | AN5C16A            | 1-5/16        | 1-27/32               |
| AN3C16  | AN3C16A            | 1-3/8         | 1-25/32               | AN4C16                                    | AN4C16A            | 1-5/16        | 1-25/32               | AN5C17                                     | AN5C17A            | 1-7/16        | 1-31/32               |
| AN3C17  | AN3C17A            | 1-1/2         | 1-29/32               | AN4C17                                    | AN4C17A            | 1-7/16        | 1-29/32               | AN5C20                                     | AN5C20A            | 1-9/16        | 2-3/32                |
| AN3C20  | AN3C20A            | 1-5/8         | 2-1/32                | AN4C20                                    | AN4C20A            | 1-9/16        | 2-1/32                | AN5C21                                     | AN5C21A            | 1-11/16       | 2-7/32                |
| AN3C21  | AN3C21A            | 1-3/4         | 2-5/32                | AN4C21                                    | AN4C21A            | 1-11/16       | 2-5/32                | AN5C22                                     | AN5C22A            | 1-13/16       | 2-11/32               |
| AN3C22  | AN3C22A            | 1-7/8         | 2-9/32                | AN4C22                                    | AN4C22A            | 1-13/16       | 2-9/32                | AN5C23                                     | AN5C23A            | 1-15/16       | 2-15/32               |
| AN3C23  | AN3C23A            | 2             | 2-13/32               | AN4C23                                    | AN4C23A            | 1-15/16       | 2-13/32               | AN5C24                                     | AN5C24A            | 2-1/16        | 2-19/32               |
| AN3C24  | AN3C24A            | 2-1/8         | 2-17/32               | AN4C24                                    | AN4C24A            | 2-1/16        | 2-17/32               | AN5C25                                     | AN5C25A            | 2-3/16        | 2-23/32               |
| AN3C25  | AN3C25A            | 2-1/4         | 2-21/32               | AN4C25                                    | AN4C25A            | 2-3/16        | 2-21/32               | AN5C26                                     | AN5C26A            | 2-5/16        | 2-27/32               |
| AN3C26  | AN3C26A            | 2-3/8         | 2-25/32               | AN4C26                                    | AN4C26A            | 2-5/16        | 2-25/32               | AN5C27                                     | AN5C27A            | 2-7/16        | 2-31/32               |
| AN3C27  | AN3C27A            | 2-1/2         | 2-29/32               | AN4C27                                    | AN4C27A            | 2-7/16        | 2-29/32               | AN5C30                                     | AN5C30A            | 2-9/16        | 3-3/32                |
| AN3C30  | AN3C30A            | 2-5/8         | 3-1/32                | AN4C30                                    | AN4C30A            | 2-9/16        | 3-1/32                | AN5C31                                     | AN5C31A            | 2-11/16       | 3-7/32                |
| AN3C31  | AN3C31A            | 2-3/4         | 3-5/32                | AN4C31                                    | AN4C31A            | 2-11/16       | 3-5/32                | AN5C32                                     | AN5C32A            | 2-13/16       | 3-11/32               |
| AN3C32  | AN3C32A            | 2-7/8         | 3-9/32                | AN4C32                                    | AN4C32A            | 2-13/16       | 3-9/32                | AN5C33                                     | AN5C33A            | 2-15/16       | 3-15/32               |
| AN3C33  | AN3C33A            | 3             | 3-13/32               | AN4C33                                    | AN4C33A            | 2-15/16       | 3-13/32               | AN5C34                                     | AN5C34A            | 3-1/16        | 3-19/32               |
| AN3C34  | AN3C34A            | 3-1/8         | 3-17/32               | AN4C34                                    | AN4C34A            | 3-1/16        | 3-17/32               | AN5C35                                     | AN5C35A            | 3-3/16        | 3-23/32               |
| AN3C35  | AN3C35A            | 3-1/4         | 3-21/32               | AN4C35                                    | AN4C35A            | 3-3/16        | 3-21/32               | AN5C36                                     | AN5C36A            | 3-5/16        | 3-27/32               |
| AN3C36  | AN3C36A            | 3-3/8         | 3-25/32               | AN4C36                                    | AN4C36A            | 3-5/16        | 3-25/32               | AN5C37                                     | AN5C37A            | 3-7/16        | 3-31/32               |
| AN3C37  | AN3C37A            | 3-1/2         | 3-29/32               | AN4C37                                    | AN4C37A            | 3-7/16        | 3-29/32               | AN5C40                                     | AN5C40A            | 3-9/16        | 4-3/32                |
| AN3C40  | AN3C40A            | 3-5/8         | 4-1/32                | AN4C40                                    | AN4C40A            | 3-9/16        | 4-1/32                | AN5C41                                     | AN5C41A            | 3-11/16       | 4-7/32                |
| AN3C41  | AN3C41A            | 3-3/4         | 4-5/32                | AN4C41                                    | AN4C41A            | 3-11/16       | 4-5/32                | AN5C42                                     | AN5C42A            | 3-13/16       | 4-11/32               |
| AN3C42  | AN3C42A            | 3-7/8         | 4-9/32                | AN4C42                                    | AN4C42A            | 3-13/16       | 4-9/32                | AN5C43                                     | AN5C43A            | 3-15/16       | 4-15/32               |
| AN3-C43   | AN3C43A            | 4             | 4-13/32               | AN4C43                                    | AN4C43A            | 3-15/16       | 4-13/32               | AN5C44                                     | AN5C44A            | 4-1/16        | 4-19/32               |
| AN3C44  | AN3C44A            | 4-1/18        | 4/17/32               | AN4C44                                    | AN4C44A            | 4-1/16        | 4/17/32               | AN5C45                                     | AN5C45A            | 4-3/16        | 4-23/32               |
| AN3C45  | AN3C45A            | 4-1/14        | 4-21/32               | AN4C45                                    | AN4C45A            | 4-3/16        | 4-21/32               | AN5C46                                     | AN5C46A            | 4-5/16        | 4-27/32               |
| AN3C46  | AN3C46A            | 4-3/8         | 4-25/32               | AN4C46                                    | AN4C46A            | 4-5/16        | 4-25/32               | AN5C47                                     | AN5C47A            | 4-7/16        | 4-31/32               |
| AN3C47  | AN3C47A            | 4-1/2         | 4-29/32               | AN4C47                                    | AN4C47A            | 4-7/16        | 4-29/32               | AN5C50                                     | AN5C50A            | 4-9/16        | 5-3/32                |
| AN3C50  | AN3C50A            | 4-5/8         | 5-1/32                | AN4C50                                    | AN4C50A            | 4-9/16        | 5-1/32                | AN5C51                                     | AN5C51A            | 4-11/16       | 5-7/32                |
| AN3C51  | AN3C51A            | 4-3/4         | 5-5/32                | AN4C51                                    | AN4C51A            | 4-11/16       | 5-5/32                | AN5C52                                     | AN5C52A            | 4-13/16       | 5-11/32               |
| AN3C52  | AN3C52A            | 4-7/8         | 5-9/32                | AN4C52                                    | AN4C52A            | 4/13/16       | 5-9/32                | AN5C53                                     | AN5C53A            | 4-15/16       | 5-15/32               |
| AN3C53  | AN3C53A            | 5             | 5-13/32               | AN4C53                                    | AN4C53A            | 4-15/16       | 5-13/32               | AN5C54                                     | AN5C54A            | 5-1/16        | 5-19/32               |
| AN3C54  | AN3C54A            | 5-1/18        | 5-17/32               | AN4C54                                    | AN4C54A            | 5-1/16        | 5-17/32               | AN5C55                                     | AN5C55A            | 5-3/16        | 5-23/32               |
| AN3C55  | AN3C55A            | 5-1/14        | 5-21/32               | AN4C55                                    | AN4C55A            | 5-3/16        | 5-21/32               | AN5C56                                     | AN5C56A            | 5-5/16        | 5-27/32               |
| AN3C56  | AN3C56A            | 5-3/8         | 5-25/32               | AN4C56                                    | AN4C56A            | 5-5/16        | 5-25/32               | AN5C57                                     | AN5C57A            | 5-7/16        | 5-31/32               |
| AN3C57  | AN3C57A            | 5-1/2         | 5-29/32               | AN4C57                                    | AN4C57A            | 5-7/16        | 5-29/32               | AN5C60                                     | AN5C60A            | 5-9/16        | 6-3/32                |
| AN3C60  | AN3C60A            | 5-5/8         | 6-1/32                | AN4C60                                    | AN4C60A            | 5-9/16        | 6-1/32                |  |                    |               |                       |

|            | AN3       | AN4       | AN5       |
|------------|-----------|-----------|-----------|
| Washer     | AN960C10  | AN960C416 | AN960C516 |
| Nut        | MS21044C3 | MS21044C4 | MS21044C5 |
| Cotter Pin | AN381-2-6 | AN381-2-8 | AN380-2-8 |
| Hole       | 1/16      | 1/16      | 1/16      |



**Stainless**  
Undrilled - Drilled Shank

## AN6C thru AN8C - AIRFRAME BOLTS

431 Stainless Steel (CRES).

Minimum Tensile Strength (Steel and CRES) - 125,000psi. See Chart

| 3/8-24<br>(.371-.374)<br>AN6C |                    |               |                       | 7/16-20<br>(.433-.437)<br>AN7C |                    |               |                       | 1/2-20<br>(.495-.499)<br>AN8C |                    |               |                       |
|-------------------------------|--------------------|---------------|-----------------------|--------------------------------|--------------------|---------------|-----------------------|-------------------------------|--------------------|---------------|-----------------------|
| Dash#<br>Drilled              | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled               | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 | Dash#<br>Drilled              | Dash#<br>UnDrilled | Grip<br>±1/64 | Length<br>+1/32 -1/64 |
| AN6C5                         | AN6C5A             | 1/16          | 45/64                 | AN7C5                          | AN7C5A             | 1/16          | 23/32                 | AN8C6                         | AN8C6A             | 1/16          | 27/32                 |
| AN6C6                         | AN6C6A             | 3/16          | 53/64                 | AN7C6                          | AN7C6A             | 3/16          | 27/32                 | AN8C7                         | AN8C7A             | 3/16          | 31/32                 |
| AN6C7                         | AN6C7A             | 5/16          | 61/64                 | AN7C7                          | AN7C7A             | 5/16          | 31/32                 | AN8C10                        | AN8C10A            | 5/16          | 1-1/32                |
| AN6C10                        | AN6C10A            | 7/16          | 1-5/64                | AN7C10                         | AN7C10A            | 7/16          | 1-1/32                | AN8C11                        | AN8C11A            | 7/16          | 1-7/32                |
| AN6C11                        | AN6C11A            | 9/16          | 1-13/64               | AN7C11                         | AN7C11A            | 9/16          | 1-7/32                | AN8C12                        | AN8C12A            | 9/16          | 1-11/32               |
| AN6C12                        | AN6C12A            | 11/16         | 1-21/64               | AN7C12                         | AN7C12A            | 11/16         | 1-11/32               | AN8C13                        | AN8C13A            | 11/16         | 1-15/32               |
| AN6C13                        | AN6C13A            | 13/16         | 1-29/64               | AN7C13                         | AN7C13A            | 13/16         | 1-15/32               | AN8C14                        | AN8C14A            | 13/16         | 1-19/32               |
| AN6C14                        | AN6C14A            | 15/16         | 1-37/64               | AN7C14                         | AN7C14A            | 15/16         | 1-19/32               | AN8C15                        | AN8C15A            | 15/16         | 1-23/32               |
| AN6C15                        | AN6C15A            | 1-1/16        | 1-45/64               | AN7C15                         | AN7C15A            | 1-1/16        | 1-23/32               | AN8C16                        | AN8C16A            | 1-1/16        | 1-27/32               |
| AN6C16                        | AN6C16A            | 1-3/16        | 1-53/64               | AN7C16                         | AN7C16A            | 1-3/16        | 1-27/32               | AN8C17                        | AN8C17A            | 1-3/16        | 1-31/32               |
| AN6C17                        | AN6C17A            | 1-5/16        | 1-61/64               | AN7C17                         | AN7C17A            | 1-5/16        | 1-31/32               | AN8C20                        | AN8C20A            | 1-5/16        | 2-3/32                |
| AN6C20                        | AN6C20A            | 1-7/16        | 2-5/64                | AN7C20                         | AN7C20A            | 1-7/16        | 2-3/32                | AN8C21                        | AN8C21A            | 1-7/16        | 2-7/32                |
| AN6C21                        | AN6C21A            | 1-9/16        | 2-13/64               | AN7C21                         | AN7C21A            | 1-6/16        | 2-7/32                | AN8C22                        | AN8C22A            | 1-9/16        | 2-11/32               |
| AN6C22                        | AN6C22A            | 1-11/16       | 2-21/64               | AN7C22                         | AN7C22A            | 1-11/16       | 2-11/32               | AN8C23                        | AN8C23A            | 1-11/16       | 2-15/32               |
| AN6C23                        | AN6C23A            | 1-13/16       | 2-29/64               | AN7C23                         | AN7C23A            | 1-13/16       | 2-15/32               | AN8C24                        | AN8C24A            | 1-13/16       | 2-19/32               |
| AN6C24                        | AN6C24A            | 1-15/16       | 2-37/64               | AN7C24                         | AN7C24A            | 1-15/16       | 2-16/32               | AN8C25                        | AN8C25A            | 1-15/16       | 2-23/32               |
| AN6C25                        | AN6C25A            | 2-1/16        | 2-45/64               | AN7C25                         | AN7C25A            | 2-1/16        | 2-23/32               | AN8C26                        | AN8C26A            | 2-1/16        | 2-27/32               |
| AN6C26                        | AN6C26A            | 2-3/16        | 2-53/64               | AN7C26                         | AN7C26A            | 2-3/16        | 2-27/32               | AN8C27                        | AN8C27A            | 2-3/16        | 2-31/32               |
| AN6C27                        | AN6C27A            | 2-5/16        | 2-61/64               | AN7C27                         | AN7C27A            | 2-5/16        | 2-31/32               | AN8C30                        | AN8C30A            | 2-5/16        | 3-3/32                |
| AN6C30                        | AN6C30A            | 2-7/16        | 3-5/64                | AN7C30                         | AN7C30A            | 2-7/16        | 3-3/32                | AN8C31                        | AN8C31A            | 2-7/16        | 3-7/32                |
| AN6C31                        | AN6C31A            | 2-9/16        | 3-13/64               | AN7C31                         | AN7C31A            | 2-9/16        | 3-7/32                | AN8C32                        | AN8C32A            | 2-9/16        | 3-11/32               |
| AN6C32                        | AN6C32A            | 2-11/16       | 3-21/64               | AN7C32                         | AN7C32A            | 2-11/16       | 3-11/32               | AN8C33                        | AN8C33A            | 2-11/16       | 3-15/32               |
| AN6C33                        | AN6C33A            | 2-13/16       | 3-29/64               | AN7C33                         | AN7C33A            | 2-13/16       | 3-15/32               | AN8C34                        | AN8C34A            | 2-13/16       | 3-19/32               |
| AN6C34                        | AN6C34A            | 2-15/16       | 3-37/64               | AN7C34                         | AN7C34A            | 2-15/16       | 3-19/32               | AN8C35                        | AN8C35A            | 2-15/16       | 3-23/32               |
| AN6C35                        | AN6C35A            | 3-1/16        | 3-45/64               | AN7C35                         | AN7C35A            | 3-1/16        | 3-23/32               | AN8C36                        | AN8C36A            | 3-1/16        | 3-27/32               |
| AN6C36                        | AN6C36A            | 3-3/16        | 3-53/64               | AN7C36                         | AN7C36A            | 3-3/16        | 3-27/32               | AN8C37                        | AN8C37A            | 3-3/16        | 3-31/32               |
| AN6C37                        | AN6C37A            | 3-5/16        | 3-61/64               | AN7C37                         | AN7C37A            | 3-5/16        | 3-31/32               | AN8C40                        | AN8C40A            | 3-5/16        | 4-3/32                |
| AN6C40                        | AN6C40A            | 3-7/16        | 4-5/64                | AN7C40                         | AN7C40A            | 3-7/16        | 4-3/32                | AN8C41                        | AN8C41A            | 3-7/16        | 4-7/32                |
| AN6C41                        | AN6C41A            | 3-9/16        | 4-13/64               | AN7C41                         | AN7C41A            | 3-9/16        | 4-7/32                | AN8C42                        | AN8C42A            | 3-9/16        | 4-11/32               |
| AN6C42                        | AN6C42A            | 3-11/16       | 4-21/64               | AN7C42                         | AN7C42A            | 3-11/16       | 4-11/32               | AN8C43                        | AN8C43A            | 3-11/16       | 4-15/32               |
| AN6C43                        | AN6C43A            | 3-13/16       | 4-29/64               | AN7C43                         | AN7C43A            | 3-13/16       | 4-15/32               | AN8C44                        | AN8C44A            | 3-13/16       | 4-19/32               |
| AN6C44                        | AN6C44A            | 3-15/16       | 4-37/64               | AN7C44                         | AN7C44A            | 3-15/16       | 4-19/32               | AN8C45                        | AN8C45A            | 3-15/16       | 4-23/32               |
| AN6C45                        | AN6C45A            | 4-1/16        | 4-45/64               | AN7C45                         | AN7C45A            | 4-1/16        | 4-23/32               | AN8C46                        | AN8C46A            | 4-1/16        | 4-27/32               |
| AN6C46                        | AN6C46A            | 4-3/16        | 4-53/64               | AN7C46                         | AN7C46A            | 4-3/16        | 4-27/32               | AN8C47                        | AN8C47A            | 4-3/16        | 4-31/32               |
| AN6C47                        | AN6C47A            | 4-5/16        | 4-61/64               | AN7C47                         | AN7C47A            | 4-5/16        | 4-31/32               | AN8C50                        | AN8C50A            | 4-5/16        | 5-3/32                |
| AN6C50                        | AN6C50A            | 4-7/16        | 5-5/64                | AN7C50                         | AN7C50A            | 4-7/16        | 5-3/32                | AN8C51                        | AN8C51A            | 4-7/16        | 5-7/32                |
| AN6C51                        | AN6C51A            | 4-9/16        | 5-13/64               | AN7C51                         | AN7C51A            | 4-9/16        | 5-7/32                | AN8C52                        | AN8C52A            | 4-9/16        | 5-11/32               |
| AN6C52                        | AN6C52A            | 4-11/16       | 5-21/64               | AN7C52                         | AN7C52A            | 4-11/16       | 5-11/32               | AN8C53                        | AN8C53A            | 4-11/16       | 5-15/32               |
| AN6C53                        | AN6C53A            | 4-13/16       | 5-19/64               | AN7C53                         | AN7C53A            | 4-13/16       | 5-15/32               | AN8C54                        | AN8C54A            | 4-13/16       | 5-19/32               |
| AN6C54                        | AN6C54A            | 4-15/16       | 5-37/64               | AN7C54                         | AN7C54A            | 4-15/16       | 5-19/32               | AN8C55                        | AN8C55A            | 4-15/16       | 5-23/32               |
| AN6C55                        | AN6C55A            | 5-1/16        | 5-45/64               | AN7C55                         | AN7C55A            | 5-1/16        | 5-23/32               | AN8C56                        | AN8C56A            | 5-1/16        | 5-27/32               |
| AN6C56                        | AN6C56A            | 5-3/16        | 5-53/64               | AN7C56                         | AN7C56A            | 5-3/16        | 5-27/32               | AN8C57                        | AN8C57A            | 5-3/16        | 5-31/32               |
| AN6C57                        | AN6C57A            | 5-5/16        | 5-61/64               | AN7C57                         | AN7C57A            | 5-5/16        | 5-31/32               | AN8C60                        | AN8C60A            | 5-5/16        | 6-3/32                |
| AN6C60                        | AN6C60A            | 5-7/16        | 6-5/64                | AN7C60                         | AN7C60A            | 5-7/16        | 6-3/32                |                               |                    |               |                       |

|            | AN6        | AN7        | AN8        |
|------------|------------|------------|------------|
| Washer     | AN960C616  | AN960C716  | AN960C816  |
| Nut        | MS21044C6  | MS21044C7  | MS21044C8  |
| Cotter Pin | AN381-3-12 | AN381-3-12 | AN381-3-12 |
| Hole       | 3/32       | 3/32       | 3/32       |

# AIRFRAME BOLTS AN3 Thru AN7



Undrilled shank bolts have the letter 'A' after dash number. Drilled head bolts have the letter 'H' after the AN number (See previous page).

## RATED STRENGTH (POUNDS)\*

| AN Bolt | Thread           | Tensile | Tensile  | Yield | Yield    | Single Shear |          |
|---------|------------------|---------|----------|-------|----------|--------------|----------|
|         |                  | Steel   | Aluminum | Steel | Aluminum | Steel        | Aluminum |
| AN3     | No. 10-32 NF -3A | 2210    | 1100     | 1690  | 710      | 2125         | 990      |
| AN4     | 1/4 -28 UNE-3A   | 4080    | 2030     | 3130  | 1310     | 3680         | 1715     |
| AN5     | 5/16-24 UNF-3A   | 6500    | 3220     | 4980  | 2080     | 5750         | 2685     |
| AN6     | 3/8 -24 UNF -3A  | 10100   | 5020     | 7740  | 3240     | 8280         | 3870     |
| AN7     | 7/16-20 UNF -3A  | 13600   | 6750     | 10430 | 4350     | 11250        | 5250     |
| AN8     | 1/2 -20 UNF -3A  | 18500   | 9/80     | 14190 | 5920     | 14700        | 6850     |
| AN9     | 9/16-18 UNF -3A  | 23600   | 11700    | 18100 | 7550     | 18700        | 8700     |
| AN10    | 5/8 -18 UNF-3A   | 30100   | 14900    | 23080 | 9610     | 23000        | 10750    |
| AN12    | 3/4 -16 UNF -3A  | 44000   | 21800    | 33730 | 14100    | 33150        | 15500    |
| AN14    | 7/8 -14 UNF-3A   | 60000   | 29800    | 46000 | 19200    | 45050        | 21050    |
| AN16    | 1 -14 NF -3A     | 80700   | 40000    | 61870 | 25800    | 58900        | 27500    |
| AN17    | 1 -12 UNF -3A    | 80700   | 40000    | 61870 | 25800    | 58900        | 27500    |
| AN18    | 1-1/8 -12 UNF-3A | 101800  | 50500    | 78050 | 32600    | 73750        | 34500    |
| AN20    | 1-1/4 -12 UNF-3A | 130200  | 64400    | 99820 | 41500    | 91050        | 42500    |

\*All AN Bolts meet minimum Tensile Strength Values of 125,000 PSI  
 Commercial Grade 8 Bolts Have a Comparitive Strength of 150,000 PSI  
 Commercial Grade 5 Bolts Have a Comparitive Strength of 120,000 PSI  
 Dropping to 110.000 PSI for Diameters Greater Than 1-Inch  
 Commercial Grade 2 Bolts Have a Comparitive Strength of 70.000 PSI  
 Dropping to 60.000 PSI for Diameters Greater Than 3/4"

NF -National Fine Thread  
 UNF-Unified National Fine Thread

## Safety Wire



1LB Dispensing Can

| Part#       | Dia  | Length |
|-------------|------|--------|
| MS20995C20  | .020 | 937ft  |
| MS20995C25  | .025 | 599    |
| MS20995C32  | .032 | 366    |
| MS20995C41  | .041 | 223    |
| 016-COPPER* | .016 |        |

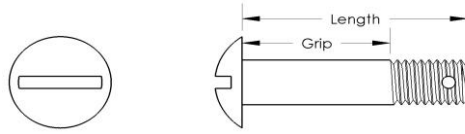
\*Break-a-way Wire

## Safety Wire Tools

| Tool     | Type           | Manufactured |
|----------|----------------|--------------|
| SK197    | 9" Auto Return | USA          |
| SK196    | 6" Auto return | USA          |
| SK48UV51 | 10" Manual     | Asia         |



# CLEVIS BOLT AN21 Thru AN36



Rated Strength- Pounds

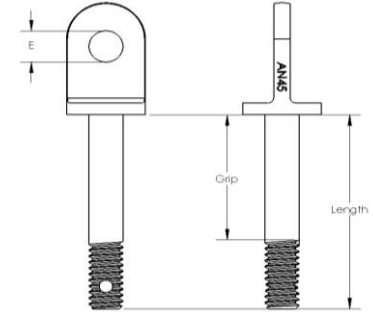
| AN#  | Size    | Shear  | Tensile | AN#         | Size    | Shear  | Tensile |
|------|---------|--------|---------|-------------|---------|--------|---------|
| AN21 | 6-40    | 1,060  | 510     | <b>AN28</b> | 1/2-20  | 14,700 | 9,250   |
| AN22 | 8-32    | 1,050  | 760     | <b>AN29</b> | 9/16-18 | 18,700 | 11,800  |
| AN23 | 10-32   | 2,125  | 1,105   | <b>AN30</b> | 5/8-18  | 23,000 | 15,050  |
| AN24 | 1/4-28  | 3,680  | 2,040   | <b>AN32</b> | 3/4-16  | 33,150 | 22,000  |
| AN25 | 5/16-24 | 5,750  | 3,250   | <b>AN34</b> | 7/8-14  | 45,050 | 30,000  |
| AN26 | 3/8-24  | 8,280  | 5,050   | <b>AN37</b> | 1-12    | 58,900 | 40,350  |
| AN27 | 7/16-20 | 11,250 | 6,800   |             |         |        |         |

|         |         | <b>AN23</b><br>(3/16) #10-32 |           | <b>AN24</b><br>1/4-28 |           | <b>AN25</b><br>5/16-24 |           | <b>AN26</b><br>3/8-24 |           |
|---------|---------|------------------------------|-----------|-----------------------|-----------|------------------------|-----------|-----------------------|-----------|
| Grip    | Length  | Drilled                      | Undrilled | Drilled               | Undrilled | Drilled                | Undrilled | Drilled               | Undrilled |
| 3/16    | 17/32   | AN23-8                       | AN23-8A   | AN24-8                | AN24-8A   |                        |           |                       |           |
| 1/4     | 19/32   | AN23-9                       | AN23-9A   | AN24-9                | AN24-9A   | AN25-9                 | AN25-9A   |                       |           |
| 5/16    | 21/32   | AN23-10                      | AN23-10A  | AN24-10               | AN24-10A  | AN25-10                | AN25-10A  | AN26-10               | AN26-10A  |
| 3/8     | 23/32   | AN23-11                      | AN23-11A  | AN24-11               | AN24-11A  | AN25-11                | AN25-11A  | AN26-11               | AN26-11A  |
| 7/16    | 25/32   | AN23-12                      | AN23-12A  | AN24-12               | AN24-12A  | AN25-12                | AN25-12A  | AN26-12               | AN26-12A  |
| 1/2     | 27/32   | AN23-13                      | AN23-13A  | AN24-13               | AN24-13A  | AN25-13                | AN25-13A  | AN26-13               | AN26-13A  |
| 9/16    | 29/32   | AN23-14                      | AN23-14A  | AN24-14               | AN24-14A  | AN25-14                | AN25-14A  | AN26-14               | AN26-14A  |
| 5/8     | 31/32   | AN23-15                      | AN23-15A  | AN24-15               | AN24-15A  | AN25-15                | AN25-15A  | AN26-15               | AN26-15A  |
| 11/16   | 1-1/32  | AN23-16                      | AN23-16A  | AN24-16               | AN24-16A  | AN25-16                | AN25-16A  | AN26-16               | AN26-16A  |
| 3/4     | 1-3/32  | AN23-17                      | AN23-17A  | AN24-17               | AN24-17A  | AN25-17                | AN25-17A  | AN26-17               | AN26-17A  |
| 13/16   | 1-5/32  | AN23-18                      | AN23-18A  | AN24-18               | AN24-18A  | AN25-18                | AN25-18A  | AN26-18               | AN26-18A  |
| 7/8     | 1-7/32  | AN23-19                      | AN23-19A  | AN24-19               | AN24-19A  | AN25-19                | AN25-19A  | AN26-19               | AN26-19A  |
| 15/16   | 1-9/32  | AN23-20                      | AN23-20A  | AN24-20               | AN24-20A  | AN25-20                | AN25-20A  | AN26-20               | AN26-20A  |
| 1       | 1-11/32 | AN23-21                      | AN23-21A  | AN24-21               | AN24-21A  | AN25-21                | AN25-21A  | AN26-21               | AN26-21A  |
| 1-1/16  | 1-13/32 | AN23-22                      | AN23-22A  | AN24-22               | AN24-22A  | AN25-22                | AN25-22A  | AN26-22               | AN26-22A  |
| 1-1/8   | 1-15/32 | AN23-23                      | AN23-23A  | AN24-23               | AN24-23A  | AN25-23                | AN25-23A  | AN26-23               | AN26-23A  |
| 1-3/16  | 1-17/32 | AN23-24                      | AN23-24A  | AN24-24               | AN24-24A  | AN25-24                | AN25-24A  | AN26-24               | AN26-24A  |
| 1-1/4   | 1-19/32 | AN23-25                      | AN23-25A  | AN24-25               | AN24-25A  | AN25-25                | AN25-25A  | AN26-25               | AN26-25A  |
| 1-5/16  | 1-21/32 | AN23-26                      | AN23-26A  | AN24-26               | AN24-26A  | AN25-26                | AN25-26A  | AN26-26               | AN26-26A  |
| 1-3/8   | 1-23/32 | AN23-27                      | AN23-27A  | AN24-27               | AN24-27A  | AN25-27                | AN25-27A  | AN26-27               | AN26-27A  |
| 1-7/16  | 1-25/32 | AN23-28                      | AN23-28A  | AN24-28               | AN24-28A  | AN25-28                | AN25-28A  | AN26-28               | AN26-28A  |
| 1-1/2   | 1-27/32 | AN23-29                      | AN23-29A  | AN24-29               | AN24-29A  | AN25-29                | AN25-29A  | AN26-29               | AN26-29A  |
| 1-9/16  | 1-29/32 | AN23-30                      | AN23-30A  | AN24-30               | AN24-30A  | AN25-30                | AN25-30A  | AN26-30               | AN26-30A  |
| 1-5/8   | 1-31/32 | AN23-31                      | AN23-31A  | AN24-31               | AN24-31A  | AN25-31                | AN25-31A  | AN26-31               | AN26-31A  |
| 1-11/16 | 2-1/32  | AN23-32                      | AN23-32A  | AN24-32               | AN24-32A  | AN25-32                | AN25-32A  | AN26-32               | AN26-32A  |
| 1-13/16 | 2-5/32  | AN23-34                      | AN23-34A  | AN24-34               | AN24-34A  | AN25-34                | AN25-34A  | AN26-34               | AN26-34A  |
| 1-15/16 | 2-9/32  | AN23-36                      | AN23-36A  | AN24-36               | AN24-36A  | AN25-36                | AN25-36A  | AN26-36               | AN26-36A  |
| 2-1/16  | 2-13/32 | AN23-38                      | AN23-38A  | AN24-38               | AN24-38A  | AN25-38                | AN25-38A  | AN26-38               | AN26-38A  |
| 2-3/16  | 2-17/32 | AN23-40                      | AN23-40A  | AN24-40               | AN24-40A  | AN25-40                | AN25-40A  | AN26-40               | AN26-40A  |

# EYEBOLT AN42 Thru AN49



| AN#   | Size    | E    |      | Pin Size | Rated Tensile of eye | Yield Strength of eye |
|-------|---------|------|------|----------|----------------------|-----------------------|
|       |         | Min  | Max  |          |                      |                       |
| AN42B | 10-32   | .190 | .192 | 3/16     | 1,150 lbs            | 880 lbs               |
| AN43B | 1/4-28  | .190 | .192 | 3/16     | 2,450                | 1,880                 |
| AN44  | 5/16-24 | .250 | .253 | 1/4      | 3,910                | 3,000                 |
| AN45  | 5/16-24 | .313 | .316 | 5/16     | 5,290                | 4,055                 |
| AN46  | 3/8-24  | .375 | .378 | 3/8      | 7,015                | 5,375                 |
| AN47  | 7/16-20 | .375 | .378 | 3/8      | 9,200                | 7,055                 |
| AN48  | 1/2-20  | .375 | .441 | 7/16     | 14,375               | 11,020                |
| AN49  | 9/16-18 | .500 | .503 | 1/2      | 20,125               | 15,430                |



Refer to AN3-AN9 Chart for length Data and Dash Numbers.

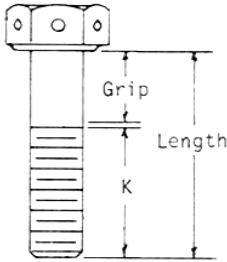
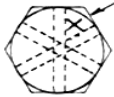
|       |             | (3/16) #1032<br>(.186-.189)<br><b>AN42B</b> |           | 1/4-28<br>(.246-.249)<br><b>AN43B</b> |           | 5/16-24<br>(.309-.312)<br><b>AN44</b> |           | 3/8-24<br>(.371-.374)<br><b>AN46</b> |           |
|-------|-------------|---|-----------|---------------------------------------|-----------|---------------------------------------|-----------|--------------------------------------|-----------|
| Grip  | Length      | Dash#                                       | Dash#     | Dash#                                 | Dash#     | Dash#                                 | Dash#     | Dash#                                | Dash#     |
| ±1/64 | +1/32 -1/64 | Drilled                                     | UnDrilled | Drilled                               | UnDrilled | Drilled                               | UnDrilled | Drilled                              | UnDrilled |
| 1/16  | 15/32       | AN42B3                                      | AN42B3A   | AN43B3                                | AN43B3A   | AN44-3                                | AN44-3A   | AN46-3                               | AN46-3A   |
| 1/8   | 17/32       | AN42B4                                      | AN42B4A   | AN43B4                                | AN43B4A   | AN44-4                                | AN44-4A   | AN46-4                               | AN46-4A   |
| 1/4   | 21/32       | AN42B5                                      | AN42B5A   | AN43B5                                | AN43B5A   | AN44-5                                | AN44-5A   | AN46-5                               | AN46-5A   |
| 3/8   | 25/32       | AN42B6                                      | AN42B6A   | AN43B6                                | AN43B6A   | AN44-6                                | AN44-6A   | AN46-6                               | AN46-6A   |
| 1/2   | 29/32       | AN42B7                                      | AN42B7A   | AN43B7                                | AN43B7A   | AN44-7                                | AN44-7A   | AN46-7                               | AN46-7A   |
| 5/8   | 1-1/32      | AN42B10                                     | AN42B10A  | AN43B10                               | AN43B10A  | AN44-10                               | AN44-10A  | AN46-10                              | AN46-10A  |
| 3/4   | 1-5/32      | AN42B11                                     | AN42B11A  | AN43B11                               | AN43B11A  | AN44-11                               | AN44-11A  | AN46-11                              | AN46-11A  |
| 7/8   | 1-9/32      | AN42B12                                     | AN42B12A  | AN43B12                               | AN43B12A  | AN44-12                               | AN44-12A  | AN46-12                              | AN46-12A  |
| 1     | 1-13/32     | AN42B13                                     | AN42B13A  | AN43B13                               | AN43B13A  | AN44-13                               | AN44-13A  | AN46-13                              | AN46-13A  |
| 1-1/8 | 1-17/32     | AN42B14                                     | AN42B14A  | AN43B14                               | AN43B14A  | AN44-14                               | AN44-14A  | AN46-14                              | AN46-14A  |
| 1-1/4 | 1-21/32     | AN42B15                                     | AN42B15A  | AN43B15                               | AN43B15A  | AN44-15                               | AN44-15A  | AN46-15                              | AN46-15A  |
| 1-3/8 | 1-25/32     | AN42B16                                     | AN42B16A  | AN43B16                               | AN43B16A  | AN44-16                               | AN44-16A  | AN46-16                              | AN46-16A  |
| 1-1/2 | 1-29/32     | AN42B17                                     | AN42B17A  | AN43B17                               | AN43B17A  | AN44-17                               | AN44-17A  | AN46-17                              | AN46-17A  |
| 1-5/8 | 2-1/32      | AN42B20                                     | AN42B20A  | AN43B20                               | AN43B20A  | AN44-20                               | AN44-20A  | AN46-20                              | AN46-20A  |
| 1-3/4 | 2-5/32      | AN42B21                                     | AN42B21A  | AN43B21                               | AN43B21A  | AN44-21                               | AN44-21A  | AN46-21                              | AN46-21A  |
| 1-7/8 | 2-9/32      | AN42B22                                     | AN42B22A  | AN43B22                               | AN43B22A  | AN44-22                               | AN44-22A  | AN46-22                              | AN46-22A  |
| 2     | 2-13/32     | AN42B23                                     | AN42B23A  | AN43B23                               | AN43B23A  | AN44-23                               | AN44-23A  | AN46-23                              | AN46-23A  |
| 2-1/8 | 2-17/32     | AN42B24                                     | AN42B24A  | AN43B24                               | AN43B24A  | AN44-24                               | AN44-24A  | AN46-24                              | AN46-24A  |
| 2-1/4 | 2-21/32     | AN42B25                                     | AN42B25A  | AN43B25                               | AN43B25A  | AN44-25                               | AN44-25A  | AN46-25                              | AN46-25A  |
| 2-3/8 | 2-25/32     | AN42B26                                     | AN42B26A  | AN43B26                               | AN43B26A  | AN44-26                               | AN44-26A  | AN46-26                              | AN46-26A  |
| 2-1/2 | 2-29/32     | AN42B27                                     | AN42B27A  | AN43B27                               | AN43B27A  | AN44-27                               | AN44-27A  | AN46-27                              | AN46-27A  |
| 2-5/8 | 3-1/32      | AN42B30                                     | AN42B30A  | AN43B30                               | AN43B30A  | AN44-30                               | AN44-30A  | AN46-30                              | AN46-30A  |
| 2-3/4 | 3-5/32      | AN42B31                                     | AN42B31A  | AN43B31                               | AN43B31A  | AN44-31                               | AN44-31A  | AN46-31                              | AN46-31A  |
| 2-7/8 | 3-9/32      | AN42B32                                     | AN42B32A  | AN43B32                               | AN43B32A  | AN44-32                               | AN44-32A  | AN46-32                              | AN46-32A  |
| 3     | 3-13/32     | AN42B33                                     | AN42B33A  | AN43B33                               | AN43B33A  | AN44-33                               | AN44-33A  | AN46-33                              | AN46-33A  |
| 3-1/8 | 3-17/32     | AN42B34                                     | AN42B34A  | AN43B34                               | AN43B34A  | AN44-34                               | AN44-34A  | AN46-34                              | AN46-34A  |
| 3-1/4 | 3-21/32     | AN42B35                                     | AN42B35A  | AN43B35                               | AN43B35A  | AN44-35                               | AN44-35A  | AN46-35                              | AN46-35A  |
| 3-3/8 | 3-25/32     | AN42B36                                     | AN42B36A  | AN43B36                               | AN43B36A  | AN44-36                               | AN44-36A  | AN46-36                              | AN46-36A  |
| 3-1/2 | 3-29/32     | AN42B37                                     | AN42B37A  | AN43B37                               | AN43B37A  | AN44-37                               | AN44-37A  | AN46-37                              | AN46-37A  |
| 3-5/8 | 4-1/32      | AN42B40                                     | AN42B40A  | AN43B40                               | AN43B40A  | AN44-40                               | AN44-40A  | AN46-40                              | AN46-40A  |

# DRILLED HEAD BOLTS AN73 Thru AN81

Superceded by MS20073 ( Fine Thread )  
or MS20074 ( Course Thread )  
MS20073 and MS 20074 parts and AN73  
thru AN81 parts of like thread and  
grip are interchanganable. Rated  
strengths are similar to AN3 thru  
AN20 with minium tensile of 125K.



Head marked with "X"



| Dash<br>No. | AN73<br>MS20073-03<br>10-32 |                          |                   | AN73A<br>MS20073-05<br>10-24 |                          |                   | AN75<br>MS20073-05<br>5/16-24 |                          |                   | AN75A<br>MS20074-05<br>5/16-18 |                          |                   | AN76<br>MS20073-06<br>3/8-24 |                          |                   | AN76A<br>MS20074-06<br>3/8-16 |  |  |
|-------------|-----------------------------|--------------------------|-------------------|------------------------------|--------------------------|-------------------|-------------------------------|--------------------------|-------------------|--------------------------------|--------------------------|-------------------|------------------------------|--------------------------|-------------------|-------------------------------|--|--|
|             | 1/4-28                      |                          |                   | 1/4-20                       |                          |                   | Grip                          |                          |                   | Grip                           |                          |                   | Grip                         |                          |                   | Grip                          |  |  |
|             | Grip<br>+/- .016            | Length<br>+.031<br>-.016 | K<br>Ref<br>(MIN) | Grip<br>+/- .016             | Length<br>+.031<br>-.016 | K<br>Ref<br>(MIN) | Grip<br>+/- .016              | Length<br>+.031<br>-.016 | K<br>Ref<br>(MIN) | Grip<br>+/- .016               | Length<br>+.031<br>-.016 | K<br>Ref<br>(MIN) | Grip<br>+/- .016             | Length<br>+.031<br>-.016 | K<br>Ref<br>(MIN) |                               |  |  |
| 02          | .062                        | .344                     | .250              |                              |                          |                   |                               |                          |                   |                                |                          |                   |                              |                          |                   |                               |  |  |
| 03          | .062                        | .469                     | .375              |                              |                          |                   |                               |                          |                   |                                |                          |                   |                              |                          |                   |                               |  |  |
| 04          | .062                        | .594                     | .500              | .062                         | .609                     | .515              |                               |                          |                   |                                |                          |                   |                              |                          |                   |                               |  |  |
| 05          | .125                        | .656                     | .499              | .125                         | .672                     | .515              | .062                          | .734                     | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 06          | .250                        | .781                     | .499              | .250                         | .797                     | .515              | .125                          | .797                     | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 07          | .375                        | .906                     | .499              | .375                         | .922                     | .515              | .250                          | .922                     | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 10          | .500                        | 1.031                    | .499              | .500                         | 1.047                    | .515              | .375                          | 1.047                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 11          | .625                        | 1.156                    | .499              | .625                         | 1.172                    | .515              | .500                          | 1.172                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 12          | .750                        | 1.281                    | .499              | .750                         | 1.297                    | .515              | .625                          | 1.297                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 13          | .875                        | 1.406                    | .499              | .875                         | 1.422                    | .515              | .750                          | 1.422                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 14          | 1.000                       | 1.531                    | .499              | 1.000                        | 1.547                    | .515              | .875                          | 1.547                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 15          | 1.125                       | 1.656                    | .499              | 1.125                        | 1.672                    | .515              | 1.000                         | 1.672                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 16          | 1.250                       | 1.781                    | .499              | 1.250                        | 1.797                    | .515              | 1.125                         | 1.797                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 17          | 1.375                       | 1.906                    | .499              | 1.375                        | 1.922                    | .515              | 1.250                         | 1.922                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 20          | 1.500                       | 2.031                    | .499              | 1.500                        | 2.047                    | .515              | 1.375                         | 2.047                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 21          | 1.625                       | 2.156                    | .499              | 1.625                        | 2.172                    | .515              | 1.500                         | 2.172                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 22          | 1.750                       | 2.281                    | .499              | 1.750                        | 2.297                    | .515              | 1.625                         | 2.297                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 23          | 1.875                       | 2.406                    | .499              | 1.875                        | 2.422                    | .515              | 1.750                         | 2.422                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 24          | 2.000                       | 2.531                    | .499              | 2.000                        | 2.547                    | .515              | 1.875                         | 2.547                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 25          | 2.125                       | 2.656                    | .499              | 2.125                        | 2.672                    | .515              | 2.000                         | 2.672                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 26          | 2.250                       | 2.781                    | .499              | 2.250                        | 2.797                    | .515              | 2.125                         | 2.797                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 27          | 2.250                       | 2.906                    | .499              | 2.375                        | 2.922                    | .515              | 2.250                         | 2.922                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |
| 30          | 2.500                       | 3.031                    | .499              | 2.500                        | 3.049                    | .515              | 2.375                         | 3.049                    | .640              |                                |                          |                   |                              |                          |                   |                               |  |  |

| AN73<br>MS20073-03<br>10-32 |        | AN74<br>MS20073-04<br>1/4-28 |               | AN75<br>MS20073-05<br>5/16-24 |        | AN76<br>MS20073-06<br>3/8-24 |        |       |               |
|-----------------------------|--------|------------------------------|---------------|-------------------------------|--------|------------------------------|--------|-------|---------------|
| Grip                        | Length | Grip                         | Length        | Grip                          | Length | Grip                         | Length |       |               |
| .062                        | .344   | MS20073-03-02                | MS20073-04-02 |                               |        |                              |        |       |               |
| .062                        | .469   | MS20073-03-03                | MS20073-04-03 |                               |        |                              |        |       |               |
| .062                        | .594   | MS20073-03-04                | MS20073-04-04 | .062                          | .609   | MS20073-05-04                |        |       |               |
| .125                        | .656   | MS20073-03-05                | MS20073-04-05 | .125                          | .672   | MS20073-05-05                | .062   | .734  | MS20073-06-05 |
| .250                        | .781   | MS20073-03-06                | MS20073-04-06 | .250                          | .797   | MS20073-05-06                | .125   | .797  | MS20073-06-06 |
| .375                        | .906   | MS20073-03-07                | MS20073-04-07 | .375                          | .922   | MS20073-05-07                | .250   | .922  | MS20073-06-07 |
| .500                        | 1.031  | MS20073-03-10                | MS20073-04-10 | .500                          | 1.047  | MS20073-05-10                | .375   | 1.047 | MS20073-06-10 |
| .625                        | 1.156  | MS20073-03-11                | MS20073-04-11 | .625                          | 1.172  | MS20073-05-11                | .500   | 1.172 | MS20073-06-11 |
| .750                        | 1.281  | MS20073-03-12                | MS20073-04-12 | .750                          | 1.297  | MS20073-05-12                | .625   | 1.297 | MS20073-06-12 |
| .875                        | 1.406  | MS20073-03-13                | MS20073-04-13 | .875                          | 1.422  | MS20073-05-13                | .750   | 1.422 | MS20073-06-13 |
| 1.000                       | 1.531  | MS20073-03-14                | MS20073-04-14 | 1.000                         | 1.547  | MS20073-05-14                | .875   | 1.547 | MS20073-06-14 |
| 1.125                       | 1.656  | MS20073-03-15                | MS20073-04-15 | 1.125                         | 1.672  | MS20073-05-15                | 1.000  | 1.672 | MS20073-06-15 |
| 1.250                       | 1.781  | MS20073-03-16                | MS20073-04-16 | 1.250                         | 1.797  | MS20073-05-16                | 1.125  | 1.797 | MS20073-06-16 |
| 1.375                       | 1.906  | MS20073-03-17                | MS20073-04-17 | 1.375                         | 1.922  | MS20073-05-17                | 1.250  | 1.922 | MS20073-06-17 |
| 1.500                       | 2.031  | MS20073-03-20                | MS20073-04-20 | 1.500                         | 2.047  | MS20073-05-20                | 1.375  | 2.047 | MS20073-06-20 |
| 1.625                       | 2.156  | MS20073-03-21                | MS20073-04-21 | 1.625                         | 2.172  | MS20073-05-21                | 1.500  | 2.172 | MS20073-06-21 |
| 1.750                       | 2.281  | MS20073-03-22                | MS20073-04-22 | 1.750                         | 2.297  | MS20073-05-22                | 1.625  | 2.297 | MS20073-06-22 |
| 1.875                       | 2.406  | MS20073-03-23                | MS20073-04-23 | 1.875                         | 2.422  | MS20073-05-23                | 1.750  | 2.422 | MS20073-06-23 |
| 2.000                       | 2.531  | MS20073-03-24                | MS20073-04-24 | 2.000                         | 2.547  | MS20073-05-24                | 1.875  | 2.547 | MS20073-06-24 |
| 2.125                       | 2.656  | MS20073-03-25                | MS20073-04-25 | 2.125                         | 2.672  | MS20073-05-25                | 2.000  | 2.672 | MS20073-06-25 |
| 2.250                       | 2.781  | MS20073-03-26                | MS20073-04-26 | 2.250                         | 2.797  | MS20073-05-26                | 2.125  | 2.797 | MS20073-06-26 |
| 2.275                       | 2.906  | MS20073-03-27                | MS20073-04-27 | 2.375                         | 2.922  | MS20073-05-27                | 2.250  | 2.922 | MS20073-06-27 |
| 2.500                       | 3.031  | MS20073-03-30                | MS20073-04-30 | 2.500                         | 3.049  | MS20073-05-30                | 2.375  | 3.049 | MS20073-06-30 |

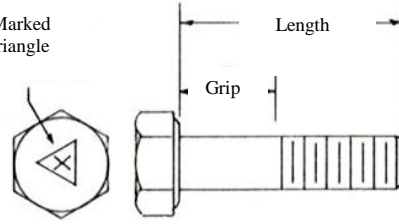


# CLOSE TOLERANCE BOLTS AN173 thru AN186



MIL-B-6812 Specifications Similar to AN3-AN8 Bolts except machined after plating to closer tolerance. Coated as per MIL-C-11796 or -16173. Same strength values as AN3- AN8 bolts. Available with drilled shank and/head.

Head Marked with Triangle



**Example Part#s**

- AN176-10 3/8-24 x 1-5/64, Steel, Drilled Shank, Undrilled Head
- AN176C10 3/8-24 x 1-5/64, CRES, Drilled Shank, Undrilled Head
- AN176DD10A 3/8-24 x 1-5/64, Alum, UnDrilled Shank, Undrilled Head
- AN176DDH10 3/8-24 x 1-5/64, Alum, Drilled Shank, Drilled Head

| AN173<br>3/16-32 |             |          |           | AN174<br>1/4-28 |             |          |           | AN175<br>5/16-24 |             |          |           |
|------------------|-------------|----------|-----------|-----------------|-------------|----------|-----------|------------------|-------------|----------|-----------|
| Grip             | Length      | Drilled  | Undrilled | Grip            | Length      | Drilled  | Undrilled | Grip             | Length      | Drilled  | Undrilled |
| +/-1/64          | +1/32 -1/64 |          |           | +/-1/64         | +1/32 -1/64 |          |           | +/-1/64          | +1/32 -1/64 |          |           |
| 1/16             | 15/32       | AN173-3  | AN173-3A  | 1/16            | 15/32       | AN174-3  | AN174-3A  | 1/16             | 19/32       | AN175-4  | AN175-4A  |
| 1/8              | 17/32       | AN173-4  | AN173-4A  | 1/16            | 17/32       | AN174-4  | AN174-4A  | 3/16             | 23/32       | AN175-5  | AN175-5A  |
| 1/4              | 21/32       | AN173-5  | AN173-5A  | 3/16            | 21/32       | AN174-5  | AN174-5A  | 5/16             | 27/32       | AN175-6  | AN175-6A  |
| 3/8              | 25/32       | AN173-6  | AN173-6A  | 5/16            | 25/32       | AN174-6  | AN174-6A  | 7/16             | 31/32       | AN175-7  | AN175-7A  |
| 1/2              | 29/32       | AN173-7  | AN173-7A  | 7/16            | 29/32       | AN174-7  | AN174-7A  | 9/16             | 1-3/32      | AN175-10 | AN175-10A |
| 5/8              | 1-1/32      | AN173-10 | AN173-10A | 9/16            | 1-1/32      | AN174-10 | AN174-10A |                  |             |          |           |
| 3/4              | 1-5/32      | AN173-11 | AN173-11A | 11/16           | 1-5/32      | AN174-11 | AN174-11A | 11/16            | 1-7/32      | AN175-11 | AN175-11A |
| 7/8              | 1-9/32      | AN173-12 | AN173-12A | 13/16           | 1-9/32      | AN174-12 | AN174-12A | 13/16            | 1-11/32     | AN175-12 | AN175-12A |
| 1                | 1-13/32     | AN173-13 | AN173-13A | 15/16           | 1-13/32     | AN174-13 | AN174-13A | 15/16            | 1-15/32     | AN175-13 | AN175-13A |
| 1-1/8            | 1-17/32     | AN173-14 | AN173-14A | 1-1/16          | 1-17/32     | AN174-14 | AN174-14A | 1-1/16           | 1-19/32     | AN175-14 | AN175-14A |
| 1-1/4            | 1-21/32     | AN173-15 | AN173-15A | 1-3/16          | 1-21/32     | AN174-15 | AN174-15A | 1-3/16           | 1-23/32     | AN175-15 | AN175-15A |
| 1-3/8            | 1-25/32     | AN173-16 | AN173-16A | 1-5/16          | 1-25/32     | AN174-16 | AN174-16A | 1-5/16           | 1-27/32     | AN175-16 | AN175-16A |
| 1-1/2            | 1-29/32     | AN173-17 | AN173-17A | 1-7/16          | 1-29/32     | AN174-17 | AN174-17A | 1-7/16           | 1-31/32     | AN175-17 | AN175-17A |
| 1-5/8            | 2-1/32      | AN173-20 | AN173-20A | 1-9/16          | 2-1/32      | AN174-20 | AN174-20A | 1-9/16           | 2-3/32      | AN175-20 | AN175-20A |
| 1-3/4            | 2-5/32      | AN173-21 | AN173-21A | 1-11/16         | 2-5/32      | AN174-21 | AN174-21A | 1-11/16          | 2-7/32      | AN175-21 | AN175-21A |
| 1-7/8            | 2-9/32      | AN173-22 | AN173-22A | 1-13/16         | 2-9/32      | AN174-22 | AN174-22A | 1-13/16          | 2-11/32     | AN175-22 | AN175-22A |
| 2                | 2-13/32     | AN173-23 | AN173-23A | 1-15/16         | 2-13/32     | AN174-23 | AN174-23A | 1-15/16          | 2-15/32     | AN175-23 | AN175-23A |
| 2-1/8            | 2-17/32     | AN173-24 | AN173-24A | 2-1/16          | 2-17/32     | AN174-24 | AN174-24A | 2-1/16           | 2-19/32     | AN175-24 | AN175-24A |
| 2-1/4            | 2-21/32     | AN173-25 | AN173-25A | 2-3/16          | 2-21/32     | AN174-25 | AN174-25A | 2-3/16           | 2-23/32     | AN175-25 | AN175-25A |
| 2-3/8            | 2-25/32     | AN173-26 | AN173-26A | 2-5/16          | 2-25/32     | AN174-26 | AN174-26A | 2-5/16           | 2-27/32     | AN175-26 | AN175-26A |
| 2-1/2            | 2-29/32     | AN173-27 | AN173-27A | 2-7/16          | 2-29/32     | AN174-27 | AN174-27A | 2-7/16           | 2-31/32     | AN175-27 | AN175-27A |
| 2-5/8            | 3-1/32      | AN173-30 | AN173-30A | 2-9/16          | 3-1/32      | AN174-30 | AN174-30A | 2-9/16           | 3-3/32      | AN175-30 | AN175-30A |

| AN176<br>3/8-24 |             |          |           | AN177<br>7/16-20 |             |          |           | AN178<br>1/2-20 |             |          |           |
|-----------------|-------------|----------|-----------|------------------|-------------|----------|-----------|-----------------|-------------|----------|-----------|
| Grip            | Length      | Drilled  | Undrilled | Grip             | Length      | Drilled  | Undrilled | Grip            | Length      | Drilled  | Undrilled |
| +/-1/64         | +1/32 -1/64 |          |           | +/-1/64          | +1/32 -1/64 |          |           | +/-1/64         | +1/32 -1/64 |          |           |
| 1/16            | 45/64       | AN176-5  | AN176-5A  | 1/16             | 23/32       | AN177-5  | AN177-5A  | 1/16            | 27/32       | AN178-6  | AN178-6A  |
| 3/16            | 53/64       | AN176-6  | AN176-6A  | 3/16             | 27/32       | AN177-6  | AN177-6A  | 3/16            | 31/32       | AN178-7  | AN178-7A  |
| 5/16            | 61/64       | AN176-7  | AN176-7A  | 5/16             | 31/32       | AN177-7  | AN177-7A  | 5/16            | 1-3/32      | AN178-10 | AN178-10A |
| 7/16            | 1-5/64      | AN176-10 | AN176-10A | 7/16             | 1-3/32      | AN177-10 | AN177-10A |                 |             |          |           |
| 9/16            | 1-13/64     | AN176-11 | AN176-11A | 9/16             | 1-7/32      | AN177-11 | AN177-11A | 7/16            | 1-7/32      | AN178-11 | AN178-11A |
| 11/16           | 1-21/64     | AN176-12 | AN176-12A | 11/16            | 1-11/32     | AN177-12 | AN177-12A | 9/16            | 1-11/32     | AN178-12 | AN178-12A |
| 13/16           | 1-29/64     | AN176-13 | AN176-13A | 13/16            | 1-15/32     | AN177-13 | AN177-13A | 11/16           | 1-15/32     | AN178-13 | AN178-13A |
| 16/16           | 1-37/64     | AN176-14 | AN176-14A | 16/16            | 1-19/32     | AN177-14 | AN177-14A | 13/16           | 1-19/32     | AN178-14 | AN178-14A |
| 1-1/16          | 1-45/64     | AN176-15 | AN176-15A | 1-1/16           | 1-23/32     | AN177-15 | AN177-15A | 16/16           | 1-23/32     | AN178-15 | AN178-15A |
| 1-3/16          | 1-53/64     | AN176-16 | AN176-16A | 1-3/16           | 1-27/32     | AN177-16 | AN177-16A | 1-1/16          | 1-27/32     | AN178-16 | AN178-16A |
| 1-5/16          | 1-61/64     | AN176-17 | AN176-17A | 1-5/16           | 1-31/32     | AN177-17 | AN177-17A | 1-3/16          | 1-31/32     | AN178-17 | AN178-17A |
| 1-7/16          | 2-5/64      | AN176-20 | AN176-20A | 1-7/16           | 2-3/32      | AN177-20 | AN177-20A | 1-5/16          | 2-3/32      | AN178-20 | AN178-20A |
| 1-9/16          | 2-13/64     | AN176-21 | AN176-21A | 1-9/16           | 2-7/32      | AN177-21 | AN177-21A | 1-7/16          | 2-7/32      | AN178-21 | AN178-21A |
| 1-11/16         | 2-21/64     | AN176-22 | AN176-22A | 1-11/16          | 2-11/32     | AN177-22 | AN177-22A | 1-9/16          | 2-11/32     | AN178-22 | AN178-22A |
| 1-13/16         | 2-29/64     | AN176-23 | AN176-23A | 1-13/16          | 2-15/32     | AN177-23 | AN177-23A | 1-11/16         | 2-15/32     | AN178-23 | AN178-23A |
| 1-15/16         | 2-37/64     | AN176-24 | AN176-24A | 1-15/16          | 2-19/32     | AN177-24 | AN177-24A | 1-13/16         | 2-19/32     | AN178-24 | AN178-24A |
| 2-1/16          | 2-45/64     | AN176-25 | AN176-25A | 2-1/16           | 2-23/32     | AN177-25 | AN177-25A | 1-15/16         | 2-23/32     | AN178-25 | AN178-25A |
| 2-3/16          | 2-53/64     | AN176-26 | AN176-26A | 2-3/16           | 2-27/32     | AN177-26 | AN177-26A | 2-1/16          | 2-27/32     | AN178-26 | AN178-26A |
| 2-5/16          | 2-61/64     | AN176-27 | AN176-27A | 2-5/16           | 2-31/32     | AN177-27 | AN177-27A | 2-3/16          | 2-31/32     | AN178-27 | AN178-27A |
| 2-7/16          | 3-5/64      | AN176-30 | AN176-30A | 2-7/16           | 3-3/32      | AN177-30 | AN177-30A | 2-5/16          | 3-3/32      | AN178-30 | AN178-30A |



# MS-NAS High Strength Bolts -continued-



(Special Order Only)

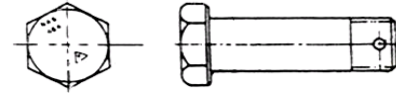
## NAS464 BOLT - SHEAR CLOSE TOLERANCE ALLOY STEEL

160,000 PSI Minimum Tensile Strength

|                 |                        |                 |                       |                 |                   |
|-----------------|------------------------|-----------------|-----------------------|-----------------|-------------------|
| <b>NAS464-3</b> | <b>NAS464-4</b>        | <b>NAS464-5</b> | <b>NAS464-5L</b>      | <b>NAS464-6</b> | <b>NAS464-6L</b>  |
| #10-32          | 1/4-28                 | 5/16-24         | 5/16-24               | 3/8-24          | 3/8-24            |
| <b>NAS464-7</b> | <b>NAS464-7L</b>       | <b>NAS464-8</b> | <b>NAS464-8L</b>      | Thru            | <b>NAS464-16L</b> |
| 7/16-20         | 7/16-20<br>Long Thread | 1/2-20          | 1/2-20<br>Long Thread |                 | 1-12              |

Example Part#s

- NAS464-3-11 #10-32 x 1-1/32, Unplated Shank, Drilled Shank
- NAS464P3-11 #10-32 x 1-1/32, Plated Shank, Drilled Shank
- NAS464-6L16 3/8-24 x 1-7/16, Long Thread, Unplated, Drilled Shank
- NAS464P6LA29 3/8-24 x 2-1/4, Long Thread, Plated Shank, Undrilled Shank



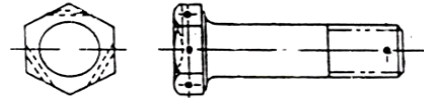
## NAS1303 THRU NAS1320 BOLT - SHEAR, HEXAGON HEAD, LONG THREAD Alloy Steel

160,000 PSI Minimum Tensile Strength

|                |                |                |                |                |                |
|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>NAS1303</b> | <b>NAS1304</b> | <b>NAS1305</b> | <b>NAS1306</b> | <b>NAS1307</b> | <b>NAS1308</b> |
| #10-32         | 1/4-24         | 5/16-24        | 3/8-24         | 7/16-20        | 1/2-20         |
| <b>NAS1309</b> | <b>NAS1310</b> | <b>NAS1312</b> | <b>NAS1314</b> | Thru           | <b>NAS1320</b> |
| 9/16-18        | 5/8-18         | 3/4-16         | 7/8-14         |                | 1-1/4-12       |

Example Part#s

- NAS1308-10 1/2-20 X 1.360, Undrilled Shank, Undrilled Head
- NAS1310-27D 5/8-18 x 2.590, Drilled Shank, Undrilled Head
- NAS1310-96DH 5/8-18 x 6.902, Drilled Shank, Drilled Head
- NOTE: NAS1103/NAS1303 Series Bolts have the same grip values per dash#.
- NAS1303 have longer threads, hence longer length per dash#.



## INTERNAL WRENCHING BOLTS

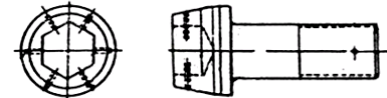
### MS20004 THRU MS20024 BOLT- INTERNAL WRENCHING ALLOY STEEL

160,000 PSI Minimum Tensile Strength, 96,000 PSI Minimum Shear Strength

|                |                |                |                |                |                |
|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>MS20004</b> | <b>MS20005</b> | <b>MS20006</b> | <b>MS20007</b> | <b>MS20008</b> | <b>MS20009</b> |
| 1/4-28         | 5/16-24        | 3/8-24         | 7/16-20        | 1/2-20         | 9/16-18        |
| <b>MS20010</b> | <b>MS20012</b> | <b>MS20014</b> | <b>MS20016</b> | Thru           | <b>MS20024</b> |
| 5/8-18         | 3/4-16         | 7/8-14         | 1-14           |                | 1-1/2-12       |

Example Part#s

- MS20006-18 3/8-24 X 1.812, Undrilled Head
- MS20008H96 1/2-20 X 6.812, Drilled Head



### NAS144 THRU NAS158 BOLT - INTERNAL WRENCHING ALLOY STEEL

160,000 PSI Minimum Tensile Strength

|               |               |               |               |               |               |               |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>NAS144</b> | <b>NAS145</b> | <b>NAS146</b> | <b>NAS147</b> | <b>NAS148</b> | <b>NAS149</b> | <b>NAS150</b> |
| 1/4-28        | 5/16-24       | 3/8-24        | 7/16-20       | 1/2-20        | 9/16-18       | 5/8-18        |
| <b>NAS152</b> | <b>NAS154</b> | <b>NAS156</b> | <b>NAS158</b> |               |               |               |
| 3/4-16        | 7/8-14        | 1-1/4         | 1-1/8-12      |               |               |               |

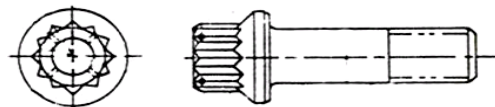
Example Part#s

- NAS144-25 1/4-28 x 1-9/16, Undrilled Shank, Undrilled Head
- NAS148DH-127 1/2-20 x 7-15/16, Undrilled Shank, Drilled Head
- NAS150ADH-49 5/8-18 x 3-1/16, Drilled Shank, Drilled Head

## EXTERNAL WRENCHING (12 POINT) BOLTS

|                 |   |                 |                              |
|-----------------|---|-----------------|------------------------------|
| <b>BACB30MR</b> | 6AL-4V                                      | <b>TITANIUM</b> | 160,000 PSI Tensile Strength |
| <b>MS21250</b>  | Alloy Steel 180,000 PSI Tensile Strength    |                 |                              |
| <b>BACB30LE</b> | A286 Stainless 200,000 PSI Tensile Strength |                 |                              |

The above bolts are available with Drilled or Undrilled Head.



**NOTES** MS-NAS bolts may be special order items as stocking levels and availability may be limited.  
 NAS Bolts - To determine the dash # of most NAS bolts and screws, divide the dimensional thickness of parts being joined ( or measure the bolt grip to the end of the full cylindrical portion of shank ) and divide by .0625. Example: Grip= .250/.0625 =4. MS bolts must be chart referenced.

Skybolt Stocks limited NAS Bolts - Call - We will source

# STANDARD LOCKNUTS

| THIN NUT (250F)<br>MS20364A (AN364) MS21083 NAS1022<br>Steel-Nylon Insert<br>Stainless - Nylon Insert<br>MS20364C (AN364C)<br>All-Metal<br>See MS21245 |               | REGULAR NUT (250F)<br>MS20365A (AN365) MS21044N<br>Steel-Nylon Insert<br>MS20365C (AN365)<br>All-Metal (Steel)<br>MS21044C<br>Stainless-Nylon Insert |                       | HIGH TEMP ALL-METAL LOCKNUT<br>MS21045 (450F)<br>(AN363,NAS1021) Steel<br>MS21045C (450F)<br>(AN363C,NAS1021A)CRES<br>MS21046 (800F)<br>(NAS1021C) CRES-Silver Plate |               |                     |
|--|---------------|--|-----------------------|--|---------------|---------------------|
|  |               |  |                       |  |               |                     |
|  | MS20364 (Ste) | MS2183 (CRES)  | MS20365 (Steel-Nylon) | MS21044C (Stainless-Nylon)   | AN363 (Steel) | MS21046 (Stainless) |
| SIZE   | Part#         |  | Part#                 | Part#  | Part#         | Part#               |
| #4-40  | MS20364-440A  | MS21083C04   | MS20365-440A          | MS21044C04   | AN363-440     | MS21046C04          |
| #6-32  | MS20364-632A  | MS21083C06   | MS20365-632A          | MS21044C06   | AN363-632     | MS21046C06          |
| #8-32  | MS20364-832A  | MS21083C08   | MS20364-832A          | MS21044C08   | AN363-832     | MS21046C08          |
| #10-32   | MS20364-1032A | MS21083C3  | MS20364-1032A         | MS21044C3  | AN363-1032    | MS21046C3           |
| 1/4-28   | MS20364-428A  | MS21083C4  | MS20364-428A          | MS21044C4  | AN363-428     | MS21046C4           |
| 5/16-24  | MS20364-524A  | MS21083C5  | MS20364-524A          | MS21044C5  | AN363-524     | MS21046C5           |
| 3/8-24   | MS20364-624A  | MS21083C6  | MS20364-624A          | MS21044C6  | AN363-624     | MS21046C6           |
| 7/16-20  | MS20364-720A  | MS21083C7  | MS20364-720A          | MS21044C7  | AN363-720     | MS21046C7           |
| 1/2-20   | MS20364-820A  | MS21083C8  | MS20364-820A          | MS21044C8  | AN363-820     | MS21046C8           |
| 9/16-18  | MS20364-918A  | MS21083C9  | MS20364-918A          | MS21044C9  | AN363-918     | MS21046C9           |
| 5/8-18   | MS20364-1018A | MS21083C10   | MS20364-1018A         | MS21044C10   | AN363-1018    | MS21046C10          |

Note: AN365C or MS20365C denote All-Metal (Steel) nuts. Stainless Nylon Locknuts should be ordered as MS21044C. MS20364/AN364 and MS20365/AN365 are interchangeable. MS21044 can replace AN363/NAS1021, but MS20365/AN365 cannot replace MS21044 (not interchangeable). MS21045 can replace AN363C/NAS1021C but are not interchangeable. Because of supply, pricing for AN363C can and does exceed MS21046C.

| PLAIN NUTS   |          |                     |                      |                    |                     |                    |                    |                     |  |  |  |
|--|----------|---------------------|----------------------|--------------------|---------------------|--------------------|--------------------|---------------------|--|--|--|
| Procurement Specification<br>FF-N-836<br>Cadmium Plated<br>Per QQ-P-416<br>AN360 Meets<br>Specs AN-N-2 |          | AN310<br>CASTLE NUT | AN310C<br>CASTLE NUT | AN320<br>SHEAR NUT | AN320C<br>SHEAR NUT | AN315<br>PLAIN NUT | AN316<br>CHECK NUT | AN360<br>ENGINE NUT |  |  |  |
| Dash#  | SIZE     |                     |                      |                    |                     |                    |                    |                     |  |  |  |
| -632   | #6-32    | AN310-632           | AN310C632            | AN320-632          | AN320C632           | AN315-632          | AN316-632          | AN360-632           |  |  |  |
| -832   | #8-32    | AN310-832           | AN310 C832           | AN320-832          | AN320C832           | AN315-832          | AN316-832          | AN360-832           |  |  |  |
| -3   | #10-32   | AN310-3             | AN310 C3             | AN320-3            | AN320C3             | AN315-3            | AN316-3            | AN360-3             |  |  |  |
| -4   | 1/4-28   | AN310-4             | AN310 C4             | AN320-4            | AN320C4             | AN315-4            | AN316-4            | AN360-4             |  |  |  |
| -5   | 5/16-24  | AN310-5             | AN310 C5             | AN320-5            | AN320C5             | AN315-5            | AN316-5            | AN360-5             |  |  |  |
| -6   | 3/8-24   | AN310-6             | AN310 C6             | AN320-6            | AN320C6             | AN315-6            | AN316-6            | AN360-6             |  |  |  |
| -7   | 7/16-20  | AN310-7             | AN310 C7             | AN320-7            | AN320C7             | AN315-7            | AN316-7            | AN360-7             |  |  |  |
| -8   | 1/2-20   | AN310-8             | AN310 C8             | AN320-8            | AN320C8             | AN315-8            | AN316-8            | AN360-8             |  |  |  |
| -9   | 9/16-18  | AN310-9             | AN310 C9             | AN320-9            | AN320C9             | AN315-9            | AN316-9            | AN360-9             |  |  |  |
| -10  | 5/8-18   | AN310-10            | AN310 C10            | AN320-10           | AN320C10            | AN315-10           | AN316-10           | AN360-10            |  |  |  |
| -3L  | #10-32L  |                     |                      |                    |                     | AN315-3L           | AN316-3L           |                     |  |  |  |
| -4L  | 1/4-28L  |                     |                      |                    |                     | AN315-4L           | AN316-4L           |                     |  |  |  |
| -5L  | 5/16-24L |                     |                      |                    |                     | AN315-5L           | AN316-5L           |                     |  |  |  |
| -6L  | 3/8-24L  |                     |                      |                    |                     | AN315-6L           | AN316-6L           |                     |  |  |  |
| -7L  | 7/16-20L |                     |                      |                    |                     | AN315-7L           | AN316-7L           |                     |  |  |  |

Note: AN360 Nuts are designed specifically for engines and should not be used on airframes as per drawing. AN360 Nuts have base countersunk 90Deg to the threads verses 110Deg for other AN Nuts.

| NYLON CAP LOCKNUT<br>Nylon Cap and Insert 250 Deg 80PSI Steel<br>Cadmium Plated per QQ-P-416 |        | AC CAP NUT<br>Brass cap nut |        | AN350 WING NUT<br>Cadmium plated per QQ-P-416 |         |
|--|--------|-----------------------------|--------|---|---------|
|  |        |                             |        |   |         |
| Part#  | Size   | Part#                       | Size   | Part#   | Size    |
| F22NKTM-62   | #6-32  | AC632                       | #6-32  | AN350-632                                     | #6-32   |
| F22NKTM-82   | #8-32  | AC832                       | #8-32  | AN350-832                                     | #8-32   |
| F22NKTM-02   | #1032  | AC1032                      | #10-32 | AN350-3                                       | #10-32  |
| F22NKTE-048  | 1/4-28 |                             |        | AN350-4                                       | 1/4-28  |
|  |        |                             |        | AN350-5                                       | 5/16-24 |
|  |        |                             |        | AN350-6                                       | 3/8-24  |

## REDUCED DIMENSION LOCKNUT MS21042 (450F) MS21043 (800F)



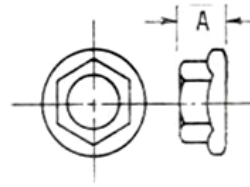
MS21042 - 160,000 PSI Tensile Strength Steel - Cadmium plated per QQ-P-416

Replace (-) with (L) for Dry Film Lubricant.

MS21043 - 125,000 PSI Tensile Strength CRES - Silver plated

Supersedes MS21040, NAS679, NAS1021, NAS1022, NAS1291

| MS21042    | Thread  | Amax | Strength | Weight |
|------------|---------|------|----------|--------|
| MS21042-02 | #2-56   | .100 | 660LB    | .09g   |
| MS21042-04 | #4-40   | .125 | 1,110    | .23    |
| MS21042-06 | #6-32   | .141 | 1,670    | .36    |
| MS21042-08 | #8-32   | .188 | 2,490    | .68    |
| MS21042-3  | #10-32  | .188 | 3,470    | .82    |
| MS21042-4  | 1/4-28  | .219 | 6,200    | 1.59   |
| MS21042-5  | 5/16-24 | .260 | 9,820    | 2.72   |
| MS21042-6  | 3/8-24  | .282 | 15,200   | 3.63   |



Note: MS20365-1032A = 2.3grams MS21042 Cadmium Plated Steel are stock items.

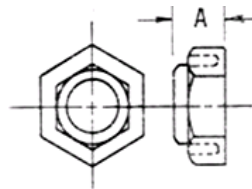
MS21042 Nuts are sometimes referred to as Jet Nuts or Kaynuts.

| MS21043    | Thread  | Amax | Strength | Weight |
|------------|---------|------|----------|--------|
| MS21043-04 | #4-40   | .125 | 750LB    | .23g   |
| MS21043-06 | #6-32   | .141 | 1,136    | .36    |
| MS21043-08 | #8-32   | .188 | 1,720    | .68    |
| MS21043-3  | #10-32  | .188 | 2,460    | .82    |
| MS21043-4  | 1/4-28  | .219 | 4,580    | 1.59   |
| MS21043-5  | 5/16-24 | .266 | 7,390    | 2.72   |
| MS21043-6  | 3/8-24  | .282 | 11,450   | 3.63   |

## LOW HEIGHT HEX LOCKNUT NAS679 (450F AND 800F)

125,000 PSI Tensile Strength Steel - Cadmium plated per QQ-P-416 with Dry Film Lubricant. Replace (A) with (X) for Cadmium plate without Dry Film Lubricant. CRES - Replace (A) with (C). Add (W) to dash# to indicate internal wrenching feature.

| NAS679    | Thread  | Amax | Strength | Weight |
|-----------|---------|------|----------|--------|
| NAS679A04 | #4-40   | .125 | 750LB    | .59g   |
| NAS679A06 | #6-32   | .141 | 1,130    | 1.04   |
| NAS679A08 | #8-32   | .188 | 1,720    | 1.27   |
| NAS679A3  | #10-32  | .188 | 2,460    | 1.59   |
| NAS679A4  | 1/4-28  | .219 | 4,580    | 2.41   |
| NAS679A5  | 5/16-24 | .266 | 7,390    | 3.86   |
| NAS679A6  | 3/8-24  | .282 | 11,450   | 4.99   |
| NAS679A7  | 7/16-20 | .328 | 15,450   | 8.84   |

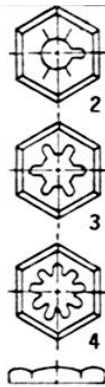


## PAL NUT MS27151 and USAF 356

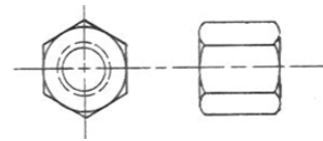
SAE 1050 Spring Steel (MS27151)

Cadmium Plated per QQ-P-416

| MS27151    | Type | Size    | USAF 356 |
|------------|------|---------|----------|
| MS27151-5  | 2    | #6-32   | -632     |
| MS27151-6  | 2    | #8-32   | -832     |
| MS27151-7  | 2    | #10-32  | -1032    |
| MS27151-8  | 2    | #10-24  | -1024    |
| MS27151-12 | 3    | 1/4-20  | -420     |
| MS27151-13 | 3    | 1/4-28  | -428     |
| MS27151-15 | 3    | 5/16-18 | -518     |
| MS27151-16 | 4    | 5/16-24 | -524     |
| MS27151-18 | 3    | 3/8-16  | -616     |
| MS27151-19 | 4    | 3/8-24  | -624     |
| MS27151-21 | 4    | 7/16-20 | -720     |
| MS27151-23 | 3    | 1/2-13  | -813     |
| MS27151-24 | 4    | 1/2-20  | -820     |



## EXHAUST MANIFOLD NUTS

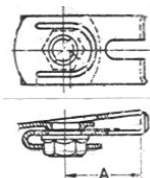


| Part#                   | Size    | Application                           |
|-------------------------|---------|---------------------------------------|
| NAF213790-4<br>or 21247 | 1/4-28  | Cont 0470                             |
| NAF213790-5<br>or 22022 | 5/16-24 | Cont A65,C75<br>thru C90,O200<br>O300 |
| CONT 643967             | 1/4-28  | Cont 0470                             |
| STD1410                 | 5/16-18 | Steel Lycoming                        |

Sheet

## FLOATING CLIP-ON NUTS

MIL-N-25027 125,000 PSI  
Hardened SAE 1050 Steel  
Cadmium Plated per QQ-P-416  
(Nut and Clip)



| Part#  | Size   | Thickness | 'A'  |
|--------|--------|-----------|------|
| 294667 | #6-32  | .030-.051 | .295 |
| 130007 | #8-32  | .020-.090 | .515 |
| 130008 | #8-32  | .020-.070 | .400 |
| 130061 | #10-32 | .020-.090 | .515 |
| 130062 | #10-32 | .020-.090 | .665 |
| 130068 | #10-32 | .140-.230 | .740 |

## MS17825 - CASTELLATED NUT, LOCKING, Regular Height

Steel - Cadmium plated per QQ-P-416, Nylon Insert 250 Deg F

## MS17826 - CASTELLATED NUT, LOCKING, Thin

Steel - Cadmium plated per QQ-P-416, Nylon Insert 250 Deg F

| MS17825    |         |      |          |        | MS17826    |      |          |        |
|------------|---------|------|----------|--------|------------|------|----------|--------|
|            | Thread  | Amax | Strength | Weight |            | Amax | Strength | Weight |
| MS17825-3  | #10-32  | .265 | 1950LB   | 1.81g  | MS17826-3  | .203 | 1000LB   | 1.54g  |
| MS17825-4  | 1/4-28  | .296 | 3500     | 2.95   | MS17826-4  | .203 | 1800     | 1.81   |
| MS17825-5  | 5/16-24 | .343 | 5500     | 4.54   | MS17826-5  | .203 | 2900     | 2.49   |
| MS17825-6  | 3/8-24  | .421 | 9000     | 6.35   | MS17826-6  | .234 | 4100     | 3.40   |
| MS17825-7  | 7/16-20 | .468 | 12200    | 9.07   | MS17826-7  | .234 | 5000     | 3.86   |
| MS17825-8  | 1/2-20  | .578 | 16600    | 17.69  | MS17826-8  | .265 | 5600     | 7.26   |
| MS17825-9  | 9/16-18 | .624 | 21200    | 31.30  | MS17826-9  | .328 | 7800     | 13.61  |
| MS17825-10 | 5/8-18  | .734 | 27400    | 51.71  | MS17826-10 | .328 | 10000    | 18.14  |
| MS17825-12 | 3/4-16  | .828 | 40000    | 76.66  | MS17826-12 | .390 | 15500    | 26.54  |



MS17825



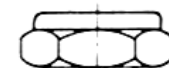
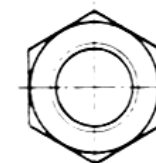
MS17826

## MS21245 (MS20364C) - NUT, LOCKING Thin

Steel - Cadmium plated per QQ-P-416, Allmetal Nut 450 Deg F

80,000 PSI Tensile Strength

| MS21245    | MS20364       | Thread  | Amax | Strength | Weight |
|------------|---------------|---------|------|----------|--------|
|            | MS20364-632C  | #6-32   | .125 |          |        |
|            | MS20364-832C  | #8-32   | .172 |          |        |
|            | MS20364-1032C | #10-32  | .172 |          |        |
|            | MS20364-428C  | 1/4-28  | .203 |          |        |
|            | MS20364-524C  | 5/16-24 | .250 |          |        |
|            | MS20364-624C  | 3/8-24  | .266 |          |        |
| MS21245-7  | MS20364-720C  | 7/16-20 | .328 | 10300    | 8.75g  |
| MS21245-8  | MS20364-820C  | 1/2-20  | .328 | 13750    | 9.89   |
| MS21245-9  | MS20364-918C  | 9/16-18 | .375 | 17400    | 15.47  |
| MS21245-10 | MS20364-1018C | 5/8-18  | .407 | 21800    | 18.00  |
| MS21245-12 | MS20364-1216C | 3/4-16  | .422 | 31800    | 24.99  |



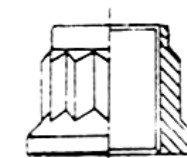
## NAS1804

### BACN10GW - 12 POINT NUT, LOCKING

Alloy Steel per ANS6304 Heat Treated, Cadmium plated per QQ-P-416, 450 Deg F

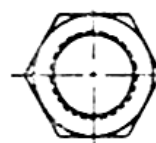
180,000 PSI Tensile Strength

| NAS1804    | Thread  | Amax | Strength | Weight |
|------------|---------|------|----------|--------|
| NAS1804-3  | #10-32  | .190 | 4035LB   | .95g   |
| NAS1804-4  | 1/4-28  | .250 | 7200     | 1.91   |
| NAS1804-5  | 5/16-24 | .285 | 11400    | 3.22   |
| NAS1804-6  | 3/8-24  | .375 | 17000    | 5.72   |
| NAS1804-7  | 7/16-20 | .438 | 23000    | 9.62   |
| NAS1804-8  | 1/2-20  | .500 | 30700    | 13.65  |
| NAS1804-9  | 9/16-18 | .562 | 38900    | 18.69  |
| NAS1804-10 | 5/8-18  | .625 | 48700    | 24.31  |
| NAS1804-12 | 3/4-16  | .750 | 70800    | 43.86  |



## MACHINE SCREW NUT AN340 and AN345

| SIZE    | AN340     | MS35649 | SIZE    | AN345     | MS35650 |
|---------|-----------|---------|---------|-----------|---------|
| #4-40   | AN340-4   | -242    | #8-36   | AN345-8   | -382    |
| #4-40   | AN340B4   | -245    | #10-32  | AN345-10  | -302    |
| #4-40   | AN340C4   | -244    | #10-32  | AN345C10  | -304    |
| #6-32   | AN340-6   | -262    | #10-32  | AN345B10  | -305    |
| #6-32   | AN340C6   | -264    | 1/4-28  | AN345-416 | -3252   |
| #6-32   | AN340B6   | -265    | 1/4-28  | AN345C416 | -3254   |
| #8-32   | AN340-8   | -282    | 5/16-24 | AN345-516 | -3312   |
| #8-32   | AN340C8   | -284    | 3/8-24  | AN345-616 | -3382   |
| #8-32   | AN340B8   | -286    |         |           |         |
| #10-24  | AN340-10  | -202    |         |           |         |
| #10-24  | AN340C10  | -204    |         |           |         |
| 1/4-20  | AN340-416 | -2252   |         |           |         |
| 1/4-20  | AN340C416 | -2254   |         |           |         |
| 5/16-18 | AN340-516 | -2312   |         |           |         |
| 3/8-16  | AN340-616 | -2382   |         |           |         |



# Recommended Torque Values for Nut-Bolt Combinations



(Without Lubrication) Reference - AC 43.13-1A

| Bolts<br>Steel Tension  |  | Bolts<br>Steel Tension  |  | Bolts<br>Aluminum  |  |
|---|--|---|--|--|--|
| AN 3 thru AN 20<br>AN 42 thru AN 49<br>AN 173 thru AN 186<br>MS 20033 thru MS 20046<br>MS20073<br>MS20074<br>AN509<br>MS24694<br>AN 525<br>MS27039                            |  | MS20004 thru 20024<br>NAS 144 thru NAS 158<br>NAS 333 thru 340<br>NAS 583 thru NAS 590<br>NAS 624 thru NAS 644<br>NAS 1303 thru NAS 1320<br>NAS 172<br>NAS 174<br>NAS 517<br><br>NAS464 |  | AN 3DD thru AN 20DD<br>AN 173DD thru AN 186 DD<br>AN 509DD<br>AN525D<br>MS 27039D<br>MS24694DD |  |
| Nuts<br>Steel Tension      Steel Shear  |  | Nuts<br>Steel Tension      Steel Shear  |  | Nuts<br>Aluminum Tension      Aluminum Shear   |  |
| AN 310      AN 320<br>AN 315      AN 634<br>AN 363      NAS 1022<br>AN 365      MS 17826<br>NAS 1021      MS 20364<br>MS 17825<br>MS 21045<br>MS 20365<br>MS 20500<br>NAS 679 |  | AN 310      AN 320<br>AN 315      AN 364<br>AN 363      NAS 1022<br>AN 365      MS 17826<br>MS 17825      MS 20364<br>MS 20365<br>MS 21045<br>NAS 1021<br>NAS 679<br>NAS 1291           |  | AN 365 D      AN 320 D<br>AN 310 D      AN 364 D<br>NAS 1021 D      NAS 1022 D                 |  |

## FINE THREAD SERIES

| Nut Bolt<br>size | Torque Limits<br>in lbs. |        | Torque Limits<br>in lbs. |       | Torque Limits<br>in lbs. |        | Torque Limits<br>in lbs. |       | Torque Limits<br>in lbs. |       | Torque Limits<br>in lbs. |       |
|------------------|--------------------------|--------|--------------------------|-------|--------------------------|--------|--------------------------|-------|--------------------------|-------|--------------------------|-------|
|                  | Min.                     | Max    | Min.                     | Max   | Min.                     | Max    | Min.                     | Max   | Min.                     | Max   | Min.                     | Max   |
| 8-36             | 12                       | 15     | 7                        | 9     | -----                    | -----  | -----                    | ----- | 5                        | 10    | 3                        | 6     |
| 10-32            | 20                       | 25     | 12                       | 15    | 25                       | 30     | 15                       | 20    | 10                       | 15    | 5                        | 10    |
| 1/4-28           | 50                       | 70     | 30                       | 40    | 80                       | 100    | 50                       | 60    | 30                       | 45    | 15                       | 30    |
| 5/16-24          | 100                      | 140    | 60                       | 85    | 120                      | 145    | 70                       | 90    | 40                       | 65    | 25                       | 40    |
| 3/8-24           | 160                      | 190    | 95                       | 110   | 200                      | 250    | 120                      | 150   | 75                       | 110   | 45                       | 70    |
| 7/16-20          | 450                      | 500    | 270                      | 300   | 520                      | 630    | 300                      | 400   | 180                      | 280   | 110                      | 170   |
| 1/2-20           | 480                      | 690    | 290                      | 410   | 770                      | 950    | 450                      | 550   | 280                      | 410   | 160                      | 260   |
| 9/16-18          | 800                      | 1,000  | 480                      | 600   | 1,100                    | 1,300  | 650                      | 800   | 380                      | 580   | 230                      | 360   |
| 5/8-18           | 1,100                    | 1,300  | 660                      | 780   | 1,250                    | 1,550  | 750                      | 950   | 550                      | 670   | 270                      | 420   |
| 3/4-16           | 2,300                    | 2,500  | 1,300                    | 1,500 | 2,650                    | 3,200  | 1,600                    | 1,900 | 950                      | 1,250 | 560                      | 880   |
| 7/8-14           | 2,500                    | 3,000  | 1,500                    | 1,800 | 3,550                    | 4,350  | 2,100                    | 2,600 | 250                      | 1,900 | 750                      | 1,200 |
| 1-14             | 3,700                    | 4,500  | 2,200                    | 3,300 | 4,500                    | 5,500  | 2,700                    | 3,300 | 600                      | 2,400 | 950                      | 1,500 |
| 1 1/8-12         | 5,000                    | 7,000  | 3,000                    | 4,200 | 6,000                    | 7,300  | 3,600                    | 4,400 | 100                      | 3,200 | 1,250                    | 2,000 |
| 1 1/4-12         | 9,000                    | 11,000 | 5,400                    | 6,600 | 11,000                   | 13,400 | 6,600                    | 8,000 | 900                      | 5,600 | 2,300                    | 3,650 |

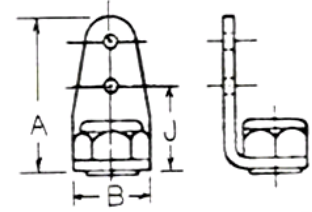
## COARSE THREAD SERIES

| Nut Bolt<br>size | Torque Limits<br>in lbs. |       | Torque Limits<br>in lbs. |       |
|------------------|--------------------------|-------|--------------------------|-------|
|                  | Min.                     | Max   | Min.                     | Max   |
| 8-32             | 12                       | 15    | 7                        | 9     |
| 10-24            | 20                       | 25    | 12                       | 15    |
| 1/4-20           | 40                       | 50    | 25                       | 30    |
| 5/16-18          | 80                       | 90    | 48                       | 55    |
| 2/8-16           | 160                      | 185   | 95                       | 110   |
| 7/16-14          | 235                      | 255   | 140                      | 155   |
| 1/2-13           | 400                      | 480   | 240                      | 290   |
| 9/16-12          | 500                      | 700   | 300                      | 420   |
| 5/8-11           | 700                      | 900   | 420                      | 540   |
| 3/4-10           | 1,150                    | 1,600 | 700                      | 950   |
| 7/4-9            | 2.2                      | 3,000 | 1,300                    | 1,800 |
| 1-8              | 3,700                    | 5,000 | 2,200                    | 3,000 |
| 1 1/8-8          | 5,500                    | 6,500 | 3,300                    | 4,000 |
| 1 1/4-8          | 6,500                    | 8,000 | 4,000                    | 5,000 |

# PLATENUTS

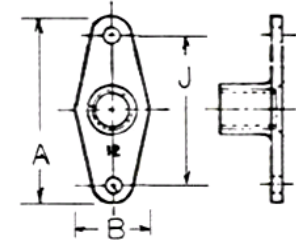
## AN256 RIGHT ANGLE PLATENUT (NYLON INSERT) 250 Deg F

| AN256    | Thread | A    | B    | J    |
|----------|--------|------|------|------|
| AN256F6  | #6-32  | .859 | .438 | .468 |
| AN256F8  | #8-32  | .859 | .438 | .468 |
| AN256F10 | #10-32 | .859 | .438 | .468 |



## MS20501 TWO LUG PLATENUT (ALL METAL) 1200 Deg F

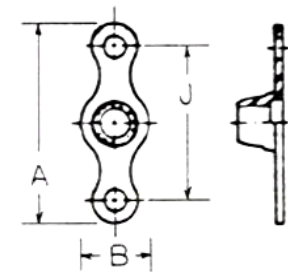
| Dash#        | Thread  | A Max | B Max | J Min | J Max |
|--------------|---------|-------|-------|-------|-------|
| MS20501-632  | #6-32   | .986  | .407  | .686  | .690  |
| MS20501-832  | #8-32   | .986  | .407  | .686  | .690  |
| MS20501-1032 | #10-32  | .986  | .407  | .686  | .690  |
| MS20501-428  | 1/4-28  | 1.298 | .516  | .998  | 1.002 |
| MS20501-524  | 5/16-24 | 1.298 | .532  | .998  | 1.002 |
| MS20501-624  | 3/8-24  | 1.298 | .641  | .998  | 1.002 |



## MS21047 TWO LUG PLATENUT (ALL METAL) 450 Deg F

Add K to Dash# to denote Dimpled rivet holes.

| Dash#      | AN362 NAS |     |       | Thread  | A Max | B Min | B Max | J     |
|------------|-----------|-----|-------|---------|-------|-------|-------|-------|
|            | AN366     | 680 | K1000 |         |       |       |       |       |
| MS21047L04 |           |     |       | #4-40   | .948  | .195  | .260  | .688  |
| MS21047L06 | F632      | 06  | -06   | #6-32   | .948  | .239  | .265  | .688  |
| MS21047L08 | F832      | 08  | -08   | #8-32   | .948  | .277  | .297  | .688  |
| MS21047L3  | F1032     | 3   | -3    | #10-32  | .948  | .308  | .328  | .688  |
| MS21047L4  | F428      | 4   | -4    | 1/4-28  | 1.260 | .308  | .414  | 1.000 |
| MS21047L5  | F524      | 5   | -5    | 5/16-24 | 1.292 | .375  | .505  | 1.000 |
| MS21047L6  | F624      | 6   |       | 3/8-24  | 1.292 | .485  | .614  | 1.000 |

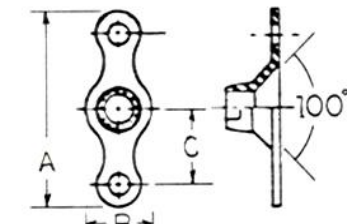


MS21048 Same as MS21047 except: Stainless 450F or 800F with Silver Plating  
 Supercedes AN362, AN366, NAS680

## MS21049 TWO LUG 100Deg CSK PLATENUT (ALL METAL) 450 Deg F

Add K to Dash# to denote Dimpled rivet holes.

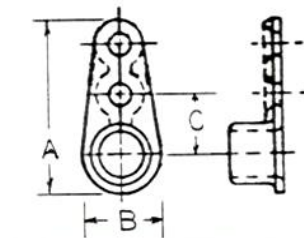
| Dash#      | AN361 NAS |     |  | Thread  | A Max | B Min | B Max | C    |
|------------|-----------|-----|--|---------|-------|-------|-------|------|
|            | AN373F    | 681 |  |         |       |       |       |      |
| MS21049L08 | -832      | -08 |  | #8-32   | .948  | .360  | .422  | .344 |
| MS21049L3  | -1032     | -3  |  | #10-32  | .948  | .406  | .453  | .344 |
| MS21049L4  | -428      | -4  |  | 1/4-28  | 1.260 | .535  | .619  | .500 |
| MS21049L5  | -524      | -5  |  | 5/16-24 | 1.292 | .681  | .766  | .500 |



MS21050 Same as MS21049 except: Stainless 450F or 800F with Silver Plating  
 Supercedes NAS681 and AN361

## MS21051 ONE LUG PLATENUT (ALL METAL) 450 Deg F

| Dash#      | NAS |       | Thread  | A Max | B Min | B Max | C    |
|------------|-----|-------|---------|-------|-------|-------|------|
|            | 682 | K2000 |         |       |       |       |      |
| MS21051L06 | -06 | -06   | #6-32   | .935  | .239  | .297  | .344 |
| MS21051L08 | -08 | -08   | #8-32   | .935  | .277  | .297  | .344 |
| MS21051L3  | -3  | -3    | #10-32  | .950  | .308  | .328  | .344 |
| MS21051L4  | -4  | -4    | 1/4-28  | .993  | .375  | .414  | .344 |
| MS21051L5  | -5  | -5    | 5/16-24 | 1.210 | .485  | .505  | .500 |
| MS21051L6  | -6  | -6    | 3/8-24  | 1.264 | .594  | .614  | .500 |

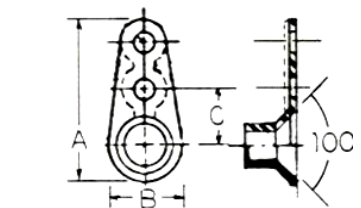


MS21052 Same as MS21051 except: Stainless 450F or 800F with Silver Plating  
 Supercedes NAS682

## MS21053 ONE LUG 100 Deg CSK PLATENUT (ALL METAL) 450 Deg F

Add K to Dash# to denote Dimpled rivet holes.

| Dash#      | NAS |  | Thread  | A Max | B Min | B Max | C    |
|------------|-----|--|---------|-------|-------|-------|------|
|            | 683 |  |         |       |       |       |      |
| MS21053L08 | -08 |  | #8-32   | .997  | .360  | .422  | .344 |
| MS21053L3  | -3  |  | #10-32  | 1.013 | .406  | .453  | .344 |
| MS21053L4  | -4  |  | 1/4-28  | 1.252 | .535  | .619  | .500 |
| MS21053L5  | -5  |  | 5/16-24 | 1.340 | .681  | .766  | .500 |



MS21054 Same as MS21053 except: Stainless 450F or 800F with Silver Plating  
 Supercedes NAS683



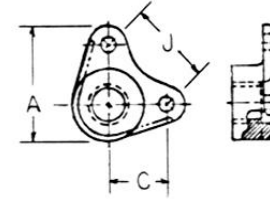
# PLATENUTS



## MS21055 CORNER PLATENUT (All Metal) 450Deg F

| Dash#      | NAS |       | Thread  | A     | C    | J    |
|------------|-----|-------|---------|-------|------|------|
|            | 684 | K3000 |         | Max   |      |      |
| MS21055L06 | 06  | -06   | #6-32   | .637  | .344 | .486 |
| MS21055L08 | 08  | -08   | #8-32   | .637  | .344 | .486 |
| MS21055L3  | 3   | -3    | #10-32  | .653  | .344 | .486 |
| MS21055L4  | 4   | -4    | 1/4-28  | .852  | .500 | .707 |
| MS21055L5  | 5   | -5    | 5/16-24 | .914  | .500 | .707 |
| MS21055L6  | 6   |       | 3/8-24  | .968  | .500 | .707 |
| MS21055L7  | 7   |       | 7/16-20 | 1.101 | .562 | .795 |

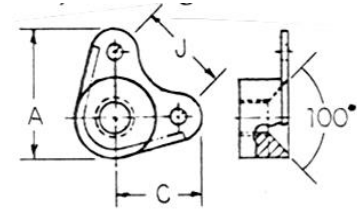
MS21056 Same as MS21055 except: Stainless 450F or 800F with Silver Plating  
Supersedes NAS684



## MS21057 CORNER 100 Deg CSK PLATENUT (All Metal) 450Deg F

| Dash#      | NAS |  | Thread  | A     | C    | J    |
|------------|-----|--|---------|-------|------|------|
|            | 685 |  |         | Max   |      |      |
| MS21057L06 | -06 |  | #6-32   | .700  | .344 | .486 |
| MS21057L08 | -08 |  | #8-32   | .700  | .344 | .486 |
| MS21057L3  | -3  |  | #10-32  | .716  | .344 | .486 |
| MS21057L4  | -4  |  | 1/4-28  | .955  | .500 | .707 |
| MS21057L5  | -5  |  | 5/16-24 | 1.044 | .500 | .707 |

MS21058 Same as MS21057 except: Stainless 450F or 800F with Silver Plating  
Supersedes NAS685

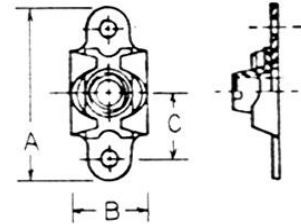


## MS21059 TWO LUG FLOATING PLATENUT (All Metal) 450Deg F

Add K to Dash# to denote Dimpled rivet and center holes.

| Dash#      | NAS |       | Thread  | A     | B    | B    | C    |
|------------|-----|-------|---------|-------|------|------|------|
|            | 686 | F5000 |         | Max   | Min  | Max  |      |
| MS21059L04 | -04 | -04   | #4-40   | .948  | .290 | .416 | .344 |
| MS21059L06 | -06 | -06   | #6-32   | .948  | .290 | .416 | .344 |
| MS21059L08 | -08 | -08   | #8-32   | .948  | .290 | .416 | .344 |
| MS21059L3  | -3  | -3    | #10-32  | .948  | .290 | .416 | .344 |
| MS21059L4  | -4  | -4    | 1/4-28  | 1.292 | .350 | .516 | .500 |
| MS21059L5  | -5  | -5    | 5/16-24 | 1.292 | .412 | .609 | .500 |
| MS21059L6  | -6  | -6    | 3/8-24  | 1.292 | .475 | .680 | .500 |

MS21060 Same as MS21059 except: Stainless 450F or 800F with Silver Plating  
Supersedes NAS686

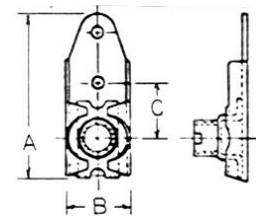


## MS21061 ONE LUG FLOATING PLATENUT (All Metal) 450Deg F

Add K to Dash# to denote Dimpled rivet and center holes.

| Dash#      | NAS |       | Thread  | A     | B    | B    | C    |
|------------|-----|-------|---------|-------|------|------|------|
|            | 687 | F2000 |         | Max   | Min  | Max  |      |
| MS21061L04 | -04 | -04   | #4-40   | 1.051 | .290 | .422 | .344 |
| MS21061L06 | -06 | -06   | #6-32   | 1.051 | .290 | .422 | .344 |
| MS21061L08 | -08 | -08   | #8-32   | 1.051 | .290 | .422 | .344 |
| MS21061L3  | -3  | -3    | #10-32  | 1.051 | .290 | .422 | .344 |
| MS21061L4  | -4  | -4    | 1/4-28  | 1.306 | .350 | .531 | .500 |
| MS21061L5  | -5  | -5    | 5/16-24 | 1.306 | .412 | .641 | .500 |

MS21062 Same as MS21061 except: Stainless 450F or 800F with Silver Plating  
Supersedes NAS687

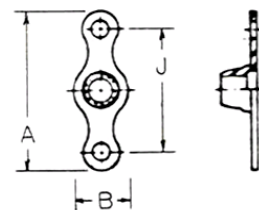


## MS21069 TWO LUG PLATENUT - MINIATURE (All Metal) 450Deg F

Add K to dash# to denote Dimpled rivet and center holes.

| Dash#      | NAS |        | Thread  | A     | B    | B    | J    |
|------------|-----|--------|---------|-------|------|------|------|
|            | 697 | MK1000 |         | Max   | Min  | Max  |      |
| MS21069L02 | -02 | -02    | #2-56   | .410  | .140 | .162 | .250 |
| MS21069L04 | -04 | -04    | #4-40   | .630  | .140 | .260 | .406 |
| MS21069L06 | -06 | -06    | #6-32   | .661  | .195 | .265 | .437 |
| MS21069L08 | -08 | -08    | #8-32   | .692  | .230 | .297 | .468 |
| MS21069L3  | -3  | -3     | #10-32  | .724  | .298 | .328 | .500 |
| MS21069L4  | -4  | -4     | 1/4-28  | .786  | .380 | .414 | .562 |
| MS21069L5  | -5  | -5     | 5/16-24 | 1.006 | .475 | .505 | .718 |
| MS21069L6  | -6  | -6     | 3/8-24  | 1.116 | .580 | .614 | .828 |

MS21070 Same as MS21069 except: Stainless 450F or 800F with Silver Plating  
Supersedes NAS697



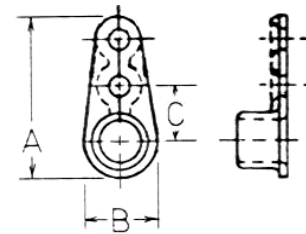
# PLATENUTS



## MS21071 ONE LUG - MINIATURE (ALL METAL) 450 Deg F

Add K to Dash# to denote Dimpled rivet and center holes.

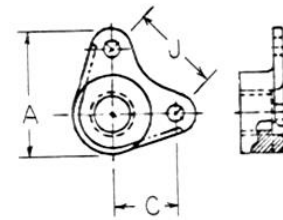
| Dash#      | NAS |        |         | A    | B    | B    | C    |
|------------|-----|--------|---------|------|------|------|------|
|            | 696 | MK2000 | Thread  | Max  | Min  | Max  |      |
| MS21071L02 | 02  | -02    | #2-56   | .507 | .140 | .162 | .125 |
| MS21071L04 | 04  | -04    | #4-40   | .667 | .140 | .260 | .203 |
| MS21071L06 | 06  | -06    | #6-32   | .684 | .195 | .265 | .218 |
| MS21071L08 | 08  | -08    | #8-32   | .716 | .235 | .297 | .234 |
| MS21071L3  | 3   | -3     | #10-32  | .745 | .298 | .328 | .250 |
| MS21071L4  | 4   | -4     | 1/4-28  | .822 | .380 | .414 | .281 |
| MS21071L5  | 5   | -5     | 5/16-24 | 1.06 | .475 | .505 | .359 |
| MS21071L6  | 6   | -6     | 3/8-24  | 1.39 | .580 | .614 | .414 |



MS21072 Same as MS21071 except: Stainless 450F or 800F with Silver Plating  
Supercedes NAS696

## MS21073 CORNER PLATENUT - MINIATURE

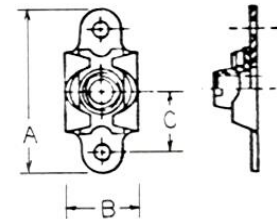
| Dash#      | NAS |  | Thread  | A    | C    | J    |
|------------|-----|--|---------|------|------|------|
|            | 698 |  |         | Max  |      |      |
| MS21031L02 | -02 |  | #2-56   | .288 | .125 | .177 |
| MS21031L04 | -04 |  | #4-40   | .448 | .203 | .287 |
| MS21031L06 | -06 |  | #6-32   | .463 | .218 | .308 |
| MS21031L08 | -08 |  | #8-32   | .497 | .234 | .331 |
| MS21031L3  | -3  |  | #10-32  | .526 | .250 | .354 |
| MS21031L4  | -4  |  | 1/4-28  | .603 | .281 | .398 |
| MS21031L5  | -5  |  | 5/16-24 | .757 | .359 | .508 |
| MS21031L6  | -6  |  | 3/8-24  | .870 | .414 | .585 |



MS21074 Same as MS21073 except: Stainless 450F or 800F with Silver Plating  
Supercedes NAS698

## MS21075 TWO LUG FLOATING - MINIATURE

| Dash#      | NAS  |        |         | A     | B    | B    | C    |
|------------|------|--------|---------|-------|------|------|------|
|            | 1068 | MF5000 | Thread  | Max   | Min  | Max  |      |
| MS21075L04 | -04  | -04    | #4-40   | .651  | .275 | .315 | .203 |
| MS21075L06 | -06  | -06    | #6-32   | .682  | .290 | .357 | .218 |
| MS21075L08 | -08  | -08    | #8-32   | .707  | .290 | .367 | .234 |
| MS21075L3  | -3   | -3     | #10-32  | .739  | .290 | .416 | .250 |
| MS21075L4  | -4   | -4     | 1/4-28  | .801  | .350 | .500 | .281 |
| MS21075L5  | -5   | -5     | 5/16-24 | 1.010 | .412 | .581 | .359 |



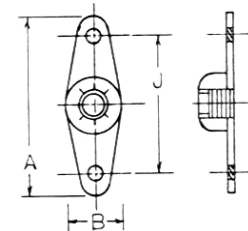
MS21076 Same as MS21075 except: Stainless 450F or 800F with Silver Plating  
Supercedes NAS1068

MS21077 Same as MS21075 except: Stainless 450F or 800F with Silver Plating  
Supercedes NAS1031D and NAS1031N

## MS21078 TWO LUG PLATENUT (NYLON INSERT)

| Dash#      | NAS   |       |        | A       | B     | B    | J    |       |
|------------|-------|-------|--------|---------|-------|------|------|-------|
|            | AN366 | 1023N | F22NA1 | Thread  | Max   | Min  | Max  |       |
| MS21078-04 | -04   | -04   | -04    | #4-40   | .984  | .375 | .406 | .688  |
| MS21078-06 | F632  | -06   | -06    | #6-32   | .984  | .375 | .406 | .688  |
| MS21078-08 | F832  | -08   | -08    | #8-32   | .984  | .375 | .406 | .688  |
| MS21078-3  | F1032 | -3    | -3     | #10-32  | .984  | .375 | .406 | .688  |
| MS21078-4  | F428  | -4    | -4     | 1/4-28  | 1.296 | .484 | .516 | 1.000 |
| MS21078-5  | F524  | -5    | -5     | 5/16-24 | 1.296 | .500 | .531 | 1.000 |
| MS21078-6  | F624  | -6    | -6     | 3/8-24  | 1.296 | .609 | .641 | 1.000 |

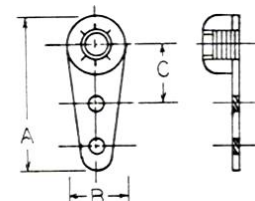
Use MS21047 if applicable



## MS21080 ONE LUG PLATENUT (NYLON INSERT)

| Dash#      | NAS   |  | Thread  | A     | B    | B    | C    |
|------------|-------|--|---------|-------|------|------|------|
|            | 1025N |  |         | Max   | Min  | Max  |      |
| MS21080-06 | -06   |  | #6-32   | 1.031 | .375 | .406 | .344 |
| MS21080-08 | -08   |  | #8-32   | 1.031 | .375 | .406 | .344 |
| MS21080-3  | -3    |  | #10-32  | 1.031 | .375 | .406 | .344 |
| MS21080-4  | -4    |  | 1/4-28  | 1.062 | .438 | .516 | .344 |
| MS21080-5  | -5    |  | 5/16-24 | 1.250 | .500 | .531 | .500 |
| MS21080-6  | -6    |  | 3/8-24  | 1.344 | .609 | .641 | .500 |

Use MS21051 if applicable

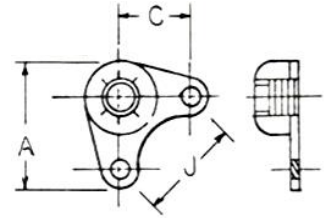


# PLATENUTS

## MS21081 CORNER PLATENUT (NYLON INSERT) 250 Deg F



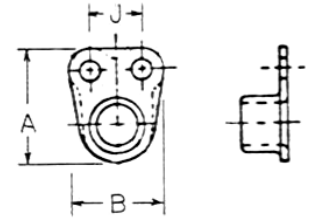
| Dash#      | NAS   |       | Thread  | A     | B    | J    |
|------------|-------|-------|---------|-------|------|------|
|            | 1027N | 22NA5 |         | Max   | Min  |      |
| MS21081-06 | 06    | -62   | #6-32   | .703  | .344 | .486 |
| MS21081-08 | 08    | -82   | #8-32   | .703  | .344 | .486 |
| MS21081-3  | 3     | -02   | #10-32  | .703  | .344 | .486 |
| MS21081-4  | 4     | -048  | 1/4-28  | .906  | .500 | .486 |
| MS21081-5  | 5     | -054  | 5/16-24 | .937  | .500 | .707 |
| MS21081-6  | 6     | -064  | 3/8-24  | 1.008 | .500 | .707 |



MS21082 Same as MS21080 except with Floating Nut 250 Deg F  
 Supersedes NAS1032N

## MS21086 SIDE BY SIDE RIVET SPACED PLATENUT (ALL METAL) 450 Deg F

| Dash#      | NAS | Thread  | A    | B    | B    | J    |
|------------|-----|---------|------|------|------|------|
|            |     |         | Max  | Min  | Max  |      |
| MS21086-08 | -08 | #8-32   | .486 | .235 | .297 | .219 |
| MS21086-3  | -3  | #10-32  | .521 | .298 | .328 | .219 |
| MS21086-4  | -4  | 1/4-28  | .591 | .380 | .414 | .219 |
| MS21086-5  | -5  | 5/16-24 | .747 | .475 | .505 | .269 |
| MS21086-6  | -6  | 3/8-24  | .856 | .580 | .614 | .269 |



MS21087 Same as MS21086 except: Stainless 450F or 800F with Silver Plating  
 Supersedes NAS1067

AN Notes: No letter - Denotes Aluminum plate. F - Denotes Steel Plate.

MS Notes: No letter - Non Dry Film Lubricant, Plain holes. L - Dry Film Lubricant. K - Countersunk or Dimpled holes. W - Welding projection. All MS Platenuts meet MIL-N-25027 Specifications, 125 KSI except MS20501 which meets MIL-N-7873 Specifications, 125 KSI.

NAS Notes: No letter - Cadmium Plated with Dry Film Lubricant.

Sample Manufacturer's Part Numbers: ESNA - F22NA1. Kaynar - K3000. SPS - NS103185S. Republic - BR3100A. Voi-Shan - VN111D1. Cherry or Boots - T8121S.

# HINGES

Sold as Standard 72" Lengths Only.

## MS20001 Supersedes AN252 - EXTRUDED HINGE, STRUCTURAL

Aluminum Alloy - 2024-T3511 per QQ-A-200/3, Anodized.

Aluminum Alloy - 7075-T73511 per QQ-A-200/11, Anodized.

Denote 7075 Aluminum by adding 'A' to part number.

'P' denotes anodized finish. Denote 'L' after dash#

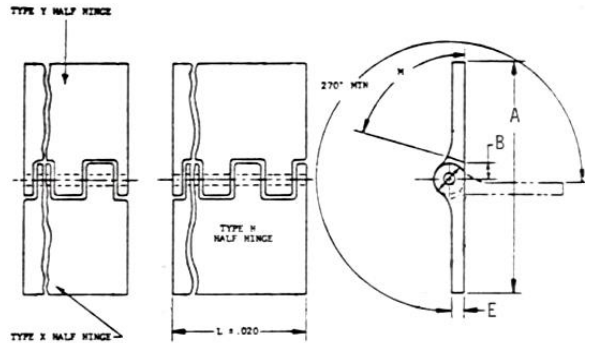
in inches and hundreds. EX: MS20001P4-12.00 denotes

2024 Alum., Anodized, 12" long. Part numbers listed

are interchangeable.

| MS20001   | AN252 | A ref      |      | E    |      | Pin |
|-----------|-------|------------|------|------|------|-----|
|           |       | Width Open | Max  | Min  | B    |     |
| MS20001P2 | -2    | 1.062      | .056 | .044 | .135 | 2   |
| MS20001P3 |       | 1.250      | .056 | .044 | .135 | 2   |
| MS20001P4 | -4    | 1.500      | .056 | .044 | .135 | 2   |
| MS20001P5 |       | 1.750      | .056 | .044 | .135 | 2   |
| MS20001P6 | -6    | 2.000      | .056 | .044 | .135 | 2   |

Note: Hinges may be special order only



## MS20257 - CONTINUOUS HINGE

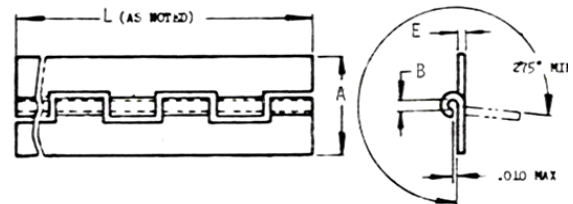
Aluminum Alloy - 5052 H24 or H34 per QQ-P-A-250/8,

Anodized. CRES. 'P' denotes anodized aluminum.

'C' denotes CRES.

| MS20257   | A ref      |      | E    |      | B    |       | Pin* |
|-----------|------------|------|------|------|------|-------|------|
|           | Width Open | Alum | CRES | Alum | CRES | Dash# |      |
| MS20257P1 | .750       | .032 | .031 | .169 | .166 | 1     |      |
| MS20257P2 | 1.062      | .040 | .037 | .220 | .211 | 2     |      |
| MS20257P3 | 1.250      | .040 | .050 | .220 | .278 | 2     |      |
| MS20257P4 | 1.500      | .040 | .062 | .220 | .314 | 2     |      |
| MS20257P5 | 2.000      | .051 | .062 | .253 | .376 | 2     |      |
| MS20257P6 | 2.000      | .064 | .062 | .382 | .376 | 4     |      |

\*For Aluminum Hinge Only



## MS20253 - STAINLESS HINGE PIN

For Use With:

| MS20253   | Dia  | MS20001     | MS20257P | MS20257C |
|-----------|------|-------------|----------|----------|
| MS20253-1 | .062 |             | 1        | 1        |
| MS20253-2 | .089 | 1,2,3,4,5,6 | 2,3,4,5  | 2        |
| MS20253-3 | .117 |             |          | 3,4      |
| MS20253-4 | .179 |             | 4        | 5,6      |

# TINNERMAN NUTS

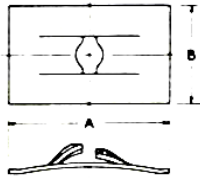
Spring Steel - Phosphate Coated, Olive Drab Paint

Use with AN530, AN531, or MS21207 Screws

## FLAT TYPE NAS446

| Part#       | NAS446 | A    | B   | Size |
|-------------|--------|------|-----|------|
| A1776-4Z-1  | -1     | .500 | .31 | #4   |
| A1181-6Z-1  | -2     | .510 | .31 | #6   |
| A1777-6Z-1  | --     | .630 | .44 | #6   |
| A1778-8Z-1  | -4     | .630 | .44 | #8   |
| A1779-10Z-1 | -5     | .880 | .50 | #10  |

Standard Package 25



## ANGLE BRACKET

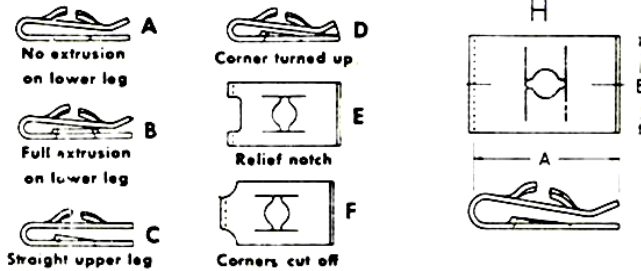
| Part#      | Screw Size |
|------------|------------|
| A6083-8Z-1 | #8         |

Note: Standard design has locking extrusion on lower leg unless noted by "TYPE" variation

## U TYPE NAS395 NAS396

| Part#       | NAS    | A    | B   | Size | Type |
|-------------|--------|------|-----|------|------|
| A6187-4Z-1  | 395-1  | .380 | .31 | #4   | D    |
| A1784-6Z-1  | 395-6  | .610 | .44 | #6   | E    |
| A1785-6Z-1  | 395-7  | .840 | .44 | #6   | E    |
| A1274-8Z-1  | 395-14 | .500 | .50 | #8   | DEH  |
| A1348-8Z-1  | 395-17 | .730 | .50 | #8   | AE   |
| A1786-8Z-1  | 395-12 | .530 | .50 | #8   | CEH  |
| A1787-8Z-1  | 395-18 | .840 | .44 | #8   | E    |
| A1789-8Z-1  | 395-16 | .610 | .44 | #8   | E    |
| A1932-8Z-1  | 395-4  | .580 | .50 | #8   | BE   |
| A1350-10Z-1 | 395-25 | .730 | .50 | #10  | AE   |
| A1758-10Z-1 | 395-24 | .620 | .44 | #10  | E    |
| A1787-10Z-1 | --     | .840 | .44 | #10  | E    |
| A1791-10Z-1 | --     | .600 | .63 | #10  | EH   |

### DESIGN VARIATIONS AVAILABLE



## ANCHOR TYPE

| Part#       | A*   | Size | Style   |
|-------------|------|------|---------|
| A6191-4Z-1  | .687 | #4   | Flat    |
| A6162-6Z-1  | .687 | #6   | Dimpled |
| A6163-6Z-1  | .312 | #6   | Dimpled |
| A6191-6Z-1  | .687 | #6   | Flat    |
| A6195-6Z-1  | .687 | #6   | Dimpled |
| A6162-8Z-1  | .687 | #8   | Dimpled |
| A6163-8Z-1  | .312 | #8   | Dimpled |
| A6191-8Z-1  | .687 | #8   | Flat    |
| A6195-8Z-1  | .687 | #8   | Dimpled |
| A6196-8Z-1  | .312 | #8   | Dimpled |
| A6191-10Z-1 | .687 | #10  | Dimpled |

\*Distance between mounting holes.



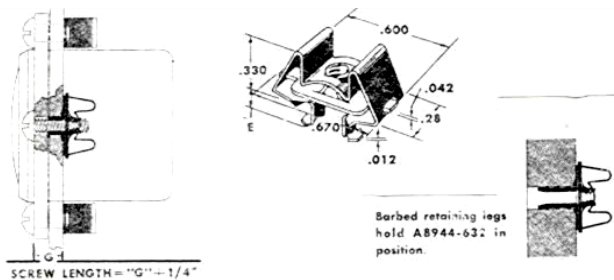
## INSTRUMENT MOUNTING NUT NAS487

BRASS - Cadmium Plated per QQ-P-416

Panel

| Part#     | NAS487 | Thickness |
|-----------|--------|-----------|
| A8939-632 | -14    | .086-.096 |
| A6939-632 | -15    | .115-.125 |
| A8940-632 | -16    | .177-.187 |
| A8941-632 | -17    | .240-.250 |
| A8942-632 | -18    | .303-.313 |
| A8943-632 | -20    | .365-.375 |
| A8944-632 | -21    | > .390    |

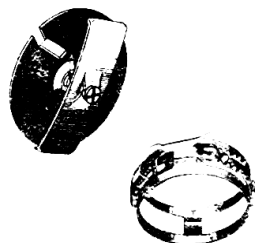
Note: All Instrument Nuts use #6-32 Brass Screws.



## PATCH PLATES

Used as inspection hole covers and for sealing holes left after equipment removal.

| Part#        | Screw Size | Hole Dia |
|--------------|------------|----------|
| A6912-832-1  | #8-32      | .906     |
| A6913-1024-1 | #10-24     | 1.125    |
| A6914-1024-1 | #10-24     | 1.375    |



## HOSE CLAMPS

Self-locking, ratchet-type hose clamps  
Fast, easy installation and removal on  
low-and medium-pressure connections.

| Part#       | NAS#   | Hose OD |       |
|-------------|--------|---------|-------|
|             |        | Min     | Max   |
| A3122-8-1J  | 397-8  | 15/32   | 1/2   |
| A3122-10-1J | 397-10 | 9/16    | 5/8   |
| A3122-12-1J | 397-12 | 11/16   | 3/4   |
| A3122-14-1J | 397-14 | 13/16   | 7/8   |
| A3122-16-1J | 397-16 | 15/16   | 1     |
| A3122-18-1J | 397-18 | 1-1/16  | 1-1/8 |
| A3122-22-1J | 397-22 | 1-1/4   | 1-3/8 |
| A3122-24-1J | 397-24 | 1-11/32 | 1-1/2 |
| A3122-28-1J | 397-28 | 1-19/32 | 1-3/4 |

Note: Tinnerman part numbers are becoming increasingly difficult to obtain and some parts may not be available at any price.

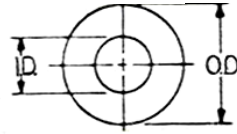
# FLAT WASHER AN960 and AN960L SERIES

MIL-S-7952 - Steel - Cadmium plated per QQ-P-416

Stainless 300 Series 18-8

Aluminum Alloy 2024 per QQ-A250/4

Aluminum Alloy, Anodized per MIL-8625 or MIL-C-5541



DASH NUMBERS

Washer Pricing per 100 or .10 ea

Standard Package - 100

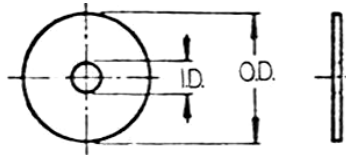
| Carbon Steel | CRES        | Alum        | Alum         | SIZE | ID    | OD    | T     |
|--------------|-------------|-------------|--------------|------|-------|-------|-------|
| AN960-3L     | AN960C3L    | AN960D3L    | AN960PD3L    | #3   | 0.105 | 0.25  | 0.016 |
| AN960-3      | AN960C3     | AN960D3     | AN960PD3     | #3   | 0.105 | 0.25  | 0.032 |
| AN960-4L     | AN960C4L    | AN960D4L    | AN960PD4L    | #4   | 0.125 | 0.312 | 0.016 |
| AN960-4      | AN960C4     | AN960D4     | AN960PD4     | #4   | 0.125 | 0.312 | 0.032 |
| AN960-6L     | AN960C6L    | AN960D6L    | AN960PD6L    | #6   | 0.149 | 0.375 | 0.016 |
| AN960-6      | AN960C6     | AN960D6     | AN960PD6     | #6   | 0.149 | 0.375 | 0.032 |
| AN960-8L     | AN960C8L    | AN960D8L    | AN960PD8L    | #8   | 0.174 | 0.375 | 0.016 |
| AN960-8      | AN960C8     | AN960D8     | AN960PD8     | #8   | 0.174 | 0.375 | 0.032 |
| AN960-10L    | AN960C10L   | AN960D10L   | AN960PD10L   | #10  | 0.203 | 0.438 | 0.032 |
| AN960-10     | AN960C10    | AN960D10    | AN960PD10    | #10  | 0.203 | 0.438 | 0.063 |
| AN960-416L   | AN960C416L  | AN960D416L  | AN960PD416L  | 1/4  | 0.265 | 0.5   | 0.032 |
| AN960-416    | AN960C416   | AN960D416   | AN960PD416   | 1/4  | 0.265 | 0.5   | 0.063 |
| AN960-516L   | AN960C516L  | AN960D516L  | AN960PD516L  | 5/16 | 0.328 | 0.562 | 0.032 |
| AN960-516    | AN960C516   | AN960D516   | AN960PD516   | 5/16 | 0.328 | 0.562 | 0.063 |
| AN960-616L   | AN960C616L  | AN960D616L  | AN960PD616L  | 3/8  | 0.39  | 0.625 | 0.032 |
| AN960-616    | AN960C616   | AN960D616   | AN960PD616   | 3/8  | 0.39  | 0.625 | 0.063 |
| AN960-716L   | AN960C716L  | AN960D716L  | AN960PD716L  | 7/16 | 0.453 | 0.75  | 0.032 |
| AN960-716    | AN960C716   | AN960D716   | AN960PD716   | 7/16 | 0.453 | 0.75  | 0.063 |
| AN960-816L   | AN960C816L  | AN960D816L  | AN960PD816L  | 1/2  | 0.515 | 0.875 | 0.032 |
| AN960-816    | AN960C816   | AN960D816   | AN960PD816   | 1/2  | 0.515 | 0.875 | 0.063 |
| AN960-916L   | AN960C916L  | AN960D916L  | AN960PD916L  | 9/16 | 0.578 | 1.062 | 0.032 |
| AN960-916    | AN960C916   | AN960D916   | AN960PD916   | 9/16 | 0.578 | 1.062 | 0.063 |
| AN960-1016L  | AN960C1016L | AN960D1016L | AN960PD1016L | 5/8  | 0.64  | 1.188 | 0.032 |
| AN960-1016   | AN960C1016  | AN960D1016  | AN960PD1016  | 5/8  | 0.64  | 1.188 | 0.063 |
| AN960-1216L  | AN960C1216L | AN960D1216L | AN960PD1216L | 3/4  | 0.765 | 1.312 | 0.032 |
| AN960-1216   | AN960C1216  | AN960D1216  | AN960PD1216  | 3/4  | 0.765 | 1.312 | 0.090 |

Note: AN960 washers are an SAE equivalent fit.

## LARGE AREA FLAT WASHER AN970

Steel - Cadmium Plated per QQ-P-416, Type II, Class 2

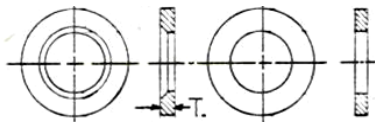
| AN970    | Bolt Size | I.D. | O.D.  | Thickness |
|----------|-----------|------|-------|-----------|
| AN970-3  | #10       | .203 | .875  | .063      |
| AN970-4  | 1/4       | .265 | 1.125 | .063      |
| AN970-5  | 5/16      | .328 | 1.375 | .063      |
| AN970-6  | 3/8       | .390 | 1.625 | .063      |
| AN970-7  | 7/16      | .453 | 1.812 | .109      |
| AN970-8  | 1/2       | .515 | 2.000 | .109      |
| AN970-9  | 9/16      | .578 | 2.188 | .125      |
| AN970-10 | 5/8       | .640 | 2.375 | .125      |



## HIGH STRENGTH PLAIN & CSK WASHER MS20002 NAS143

### MS20002 NAS143

Heat Treated to 145,000 PSI Cadmium Plated per QQ-P-416 Type II, Class 2.



| COUNTERSUNK |        | PLAIN     |        | BOLT |      |
|-------------|--------|-----------|--------|------|------|
| MS20002     | NAS143 | MS20002   | NAS143 | SIZE | T    |
| MS20002C4   | -4C    | MS20002-4 | -4     | 1/4  | .078 |
| MS20002C5   | -5C    | MS20002-5 | -5     | 5/16 | .078 |
| MS20002C6   | -6C    | MS20002-6 | -6     | 3/8  | .078 |
| MS20002C7   | -7C    | MS20002-7 | -7     | 7/16 | .078 |
| MS20002C8   | -8C    | MS20002-8 | -8     | 1/2  | .078 |

Note: Sizes continue to 1-1/4 inch bolt size.

## SPRING WASHER MS35338 or AN935

Steel - Cadmium Plated per QQ-P-416, Type II, Class 2. CRES - 300 Series



| Steel      | AN935 | SIZE | Stainless   |
|------------|-------|------|-------------|
| MS35338    |       |      | MS35338     |
| MS35338-39 | -2    | #2   | MS35338-134 |
| MS35338-40 | -4    | #4   | MS35338-135 |
| MS35338-41 | -6    | #6   | MS35338-136 |
| MS35338-42 | -8    | #8   | MS35338-137 |
| MS35338-43 | -10   | #10  | MS35338-138 |
| MS35338-44 | -416  | 1/4  | MS35338-139 |
| MS35338-45 | -516  | 5/16 | MS35338-140 |
| MS35338-46 | -616  | 3/8  | MS35338-141 |
| MS35338-47 | -716  | 7/16 | MS35338-142 |
| MS35338-48 | -816  | 1/2  | MS35338-143 |

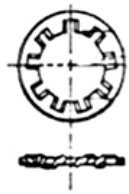
Note: Sizes continue to 1-1/2 inch I.D.

# AN-MS-NAS Washers - Continued -



**INTERNAL TOOTH LOCKWASHER** Steel - Cadmium Plated per QQ-P-416, Type II, Class 2  
**MS35333 or AN936A** Corrosion Resistant Steel - 410H Stainless

**EXTERNAL TOOTH LOCKWASHER**  
**MS35335 or AN936B**



| MS35333    |        | MS35333    |  | Screw or  | MS35335    |        | MS35335    |   |
|------------|--------|------------|--|-----------|------------|--------|------------|---|
| Steel      | AN936A | CRES       |  | Bolt Size | Steel      | AN936B | CRES       |   |
| MS35333-35 | 2      | MS35333-69 |  | #2        | -          | -      | -          | - |
| MS35333-36 | 4      | MS35333-70 |  | #4        | MS35335-29 | 4      | MS35335-57 |   |
| MS35333-37 | 6      | MS35333-71 |  | #6        | MS35335-30 | 6      | MS35335-58 |   |
| MS35333-38 | 8      | MS35333-72 |  | #8        | MS35335-31 | 8      | MS35335-59 |   |
| MS35333-39 | 10     | MS35333-73 |  | #10       | MS35335-32 | 10     | MS35335-60 |   |
| MS35333-40 | 416    | MS35333-74 |  | 1/4       | MS35335-33 | 416    | MS35335-61 |   |
| MS35333-41 | 516    | MS35333-75 |  | 5/16      | MS35335-34 | 516    | MS35335-62 |   |
| MS35333-42 | 616    | MS35333-76 |  | 3/8       | MS35335-35 | 616    | MS35335-63 |   |
| MS35333-43 | 716    | MS35333-77 |  | 7/16      | MS35335-36 | 716    | MS35335-64 |   |
| MS35333-44 | 816    | MS35333-78 |  | 1/2       | MS35335-37 | 816    | MS35335-65 |   |

Sizes continue to 1-1/4 inch I.D. Sizes continue to 1 inch I.D.



## FINISHING WASHER

Countersunk

### MS27129 NAS391 #601

Brass - Nickel Plated per  
 QQ-N-290 or Chromium Plated  
 per QQ-C-320

Stainless - 300 Series 18-8



Flush

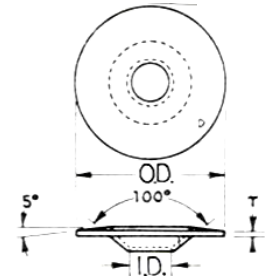
### NAS390 #603

Brass - Nickel Plated per  
 QQ-N-290 or Chromium Plated  
 per QQ-C-320



| MS27129    | NAS391B | #601  | MS27129    | Screw | NAS390B    | #603  |
|------------|---------|-------|------------|-------|------------|-------|
| Brass      | Brass   | Brass | Stainless  | Size  | Brass      | Brass |
| MS27129-1  | 4P      | -4    | MS27129-3  | #4    | NAS390B4P  | -4    |
| MS27129-4  | 6P      | -6    | MS27129-6  | #6    | NAS390B6P  | -6    |
| MS27129-7  | 8P      | -8    | MS27129-9  | #8    | NAS390B8P  | -8    |
| MS27129-10 | 10P     | -10   | MS27129-12 | #10   | NAS390B10P | -10   |

Note: Both washer types may be used with 82 or 100 degree countersunk screws.



## 100 DEGREE DIMPLED (TINNERMAN) WASHER

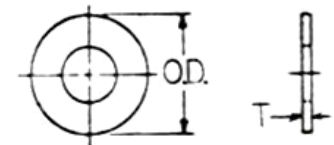
Spring Steel - Heat Treated, Cadmium Plated  
 Stainless - 300 Series - High Luster Polished

| Screw or Bolt Size |     |           |      | Steel     |               | STAINLESS   |                |
|--------------------|-----|-----------|------|-----------|---------------|-------------|----------------|
|                    | OD  | ID        | T    | PART#     | TINNERMAN#    | PART#       | TINNERMAN#     |
| #6                 | .50 | .140-.147 | .012 | DP1075-12 | A3235-012-24A | DP1075-12SS |                |
| #8                 | .56 | .171      | .017 | DP1080-17 | A3134-017-24A | DP1080-17SS | A1334SS017-24A |
| #10                | .75 | .196      | .020 | DP1085-20 | A3235-020-24A | DP1085-20SS | A3235SS020-24A |
| #10                | .75 | .196      | .028 | DP1085-28 | A3235-028-24A | DP1085-28SS | A3235SS028-24A |
| 1/4                | .81 | .255-.260 | .020 | DP1095-20 | A3475-020-24A | DP1095-20SS | A3475SS020-24A |
| 1/4                | .81 | .255-.260 | .028 | DP1095-28 | A3475-028-24A | DP1095-28SS | A3475SS028-24A |

## NAS1515 NYLON WASHER 101 NYLON 6/6

## NAS549 FIBER WASHER Insulating, Electrical MIL-F-1148-CH

| NAS1515       | SIZE | ID   | OD   | T    | NAS549      |
|---------------|------|------|------|------|-------------|
| NAS1515-H-02L | #2   | .105 | .250 | .031 | NAS549FL3   |
| NAS1515-H-02  | #2   | .105 | .250 | .063 | NAS549F3    |
| NAS1515-H-04L | #4   | .125 | .312 | .031 | NAS549FL4   |
| NAS1515-H-04  | #4   | .125 | .312 | .063 | NAS549F4    |
| NAS1515-H-06L | #6   | .149 | .375 | .031 | NAS549FL6   |
| NAS1515-H-06  | #6   | .149 | .375 | .063 | NAS549F6    |
| NAS1515-H-08L | #8   | .174 | .375 | .031 | NAS549FL8   |
| NAS1515-H-08  | #8   | .174 | .375 | .063 | NAS549F8    |
|               |      |      |      | .090 | NAS549FH10  |
| NAS1515-H-3L  | #10  | .203 | .438 | .031 | NAS549FL10  |
| NAS1515-H-3   | #10  | .203 | .438 | .063 | NAS549F10   |
| NAS1515-H-4L  | 1/4  | .265 | .500 | .031 | NAS549FL416 |
| NAS1515-H-4   | 1/4  | .265 | .500 | .063 | NAS549F416  |
| NAS1515-H-5L  | 5/16 | .328 | .562 | .031 | NAS549FL516 |
| NAS1515-H-5   | 5/16 | .328 | .562 | .063 | NAS549F516  |
| NAS1515-H-6L  | 3/8  | .390 | .625 | .031 | NAS549FL616 |
| NAS1515-H-6   | 3/8  | .390 | .625 | .063 | NAS549F616  |



# WASHER HEAD MACHINE SCREW AN525

Steel - Cadmium Plated 125,000 PSI Tensile Strength

Stainless - Passivated 125,000 PSI

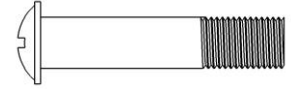
'R' Denotes Cross Recessed (Phillips) Head

Note: MS27039 is a direct replacement for AN525



## AN525 Dash Numbers

| Length | Grip    | Thread                       |             |              |
|--------|---------|------------------------------|-------------|--------------|
|        |         | #8-32                        | #10-32      | 1/4-28       |
| 3/8    | 1/32    | AN525-832R6                  | AN525-10R6  | AN525-416R6  |
| 7/16   | 1/16    | AN525-832R7                  | AN525-10R7  | AN525-416R7  |
| 1/2    | 1/8     | AN525-832R8                  | AN525-10R8  | AN525-416R8  |
| 9/16   | 5/32    | AN525-832R9                  | AN525-10R9  | AN525-416R9  |
| 5/8    | 7/32    | AN525-832R10<br>AN525C832R10 | AN525-10R10 | AN525-416R10 |
| 11/16  | 9/32    | AN525-832R11                 | AN525-10R11 | AN525-416R11 |
| 3/4    | 11/32   | AN525-832R12                 | AN525-10R12 | AN525-416R12 |
| 7/8    | 13/32   | AN525-832R14                 | AN525-10R14 | AN525-416R14 |
| 1      | 19/32   | AN525-832R16                 | AN525-10R16 | AN525-416R16 |
| 1-1/8  | 23/32   | AN525-832R18                 | AN525-10R18 | AN525-416R18 |
| 1-1/4  | 27/32   | AN525-832R20                 | AN525-10R20 | AN525-416R20 |
| 1-3/8  | 31/32   | AN525-832R22                 | AN525-10R22 | AN525-416R22 |
| 1-1/2  | 1-3/32  | AN525-832R24                 | AN525-10R24 | AN525-416R24 |
| 1-5/8  | 1-7/32  | AN525-832R26                 | AN525-10R26 | AN525-416R26 |
| 1-3/4  | 1-11/32 | AN525-832R28                 | AN525-10R28 | AN525-416R28 |
| 1-7/8  | 1-15/32 | AN525-832R30                 | AN525-10R30 | AN525-416R30 |
| 2      | 1-19/32 | AN525-832R32                 | AN525-10R32 | AN525-416R32 |



# TRUSS HEAD MACHINE SCREW AN526

Steel - Cadmium Plated 55,000 PSI Tensile Strength

Stainless - 300 Series 18-8 Stainless

'R' Denotes Cross Recessed (Phillips) Head

## AN526 Dash Numbers

Standard Package 100



| Length | Thread #4-40 |              | Thread #6-32 |              | Thread #8-32 |              | Thread #10-32 |               | Thread 1/4-28 |
|--------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|
|        | Steel        | Stainless    | Steel        | Stainless    | Steel        | Stainless    | Steel         | Stainless     | Steel         |
| 1/4    | AN526-440R4  | AN526C440R4  | AN526-632R4  | AN526C632R4  | AN526-832R4  | AN526C832R4  | AN526-1032R4  | AN526C1032R4  |               |
| 5/16   | AN526-440R5  | AN526C440R5  | AN526-632R5  | AN526C632R5  | AN526-832R5  | AN526C832R5  | AN526-1032R5  | AN526C1032R5  |               |
| 3/8    | AN526-440R6  | AN526C440R6  | AN526-632R6  | AN526C632R6  | AN526-832R6  | AN526C832R6  | AN526-1032R6  | AN526C1032R6  | AN526-428R6   |
| 7/16   | AN526-440R7  | AN526C440R7  | AN526-632R7  | AN526C632R7  | AN526-832R7  | AN526C832R7  | AN526-1032R7  | AN526C1032R7  | AN526-428R7   |
| 1/2    | AN526-440R8  | AN526C440R8  | AN526-632R8  | AN526C632R8  | AN526-832R8  | AN526C832R8  | AN526-1032R8  | AN526C1032R8  | AN526-428R8   |
| 9/16   | AN526-440R9  | AN526C440R9  | AN526-632R9  | AN526C632R9  | AN526-832R9  | AN526C832R9  | AN526-1032R9  | AN526C1032R9  | AN526-428R9   |
| 5/8    | AN526-440R10 | AN526C440R10 | AN526-632R10 | AN526C632R10 | AN526-832R10 | AN526C832R10 | AN526-1032R10 | AN526C1032R10 | AN526-428R10  |
| 3/4    | AN526-440R12 | AN526C440R12 | AN526-632R12 | AN526C632R12 | AN526-832R12 | AN526C832R12 | AN526-1032R12 | AN526C1032R12 | AN526-428R12  |
| 7/8    | AN526-440R14 | AN526C440R14 | AN526-632R14 | AN526C632R14 | AN526-832R14 | AN526C832R14 | AN526-1032R14 | AN526C1032R14 | AN526-428R14  |
| 1      | AN526-440R16 | AN526C440R16 | AN526-632R16 | AN526C632R16 | AN526-832R16 | AN526C832R16 | AN526-1032R16 | AN526C1032R16 | AN526-428R16  |
| 1-1/8  | AN526-440R18 | AN526C440R18 | AN526-632R18 | AN526C632R18 | AN526-832R18 | AN526C832R18 | AN526-1032R18 | AN526C1032R18 | AN526-428R18  |
| 1-1/4  | AN526-440R20 | AN526C440R20 | AN526-632R20 | AN526C632R20 | AN526-832R20 | AN526C832R20 | AN526-1032R20 | AN526C1032R20 | AN526-428R20  |
| 1-3/8  | AN526-440R22 | AN526C440R22 | AN526-632R22 | AN526C632R22 | AN526-832R22 | AN526C832R22 | AN526-1032R22 | AN526C1032R22 | AN526-428R22  |
| 1-1/2  | AN526-440R24 | AN526C440R24 | AN526-632R24 | AN526C632R24 | AN526-832R24 | AN526C832R24 | AN526-1032R24 | AN526C1032R24 | AN526-428R24  |
| 1-5/8  | AN526-440R26 | AN526C440R26 | AN526-632R26 | AN526C632R26 | AN526-832R26 | AN526C832R26 | AN526-1032R26 | AN526C1032R26 | AN526-428R26  |
| 1-3/4  | AN526-440R28 | AN526C440R28 | AN526-632R28 | AN526C632R28 | AN526-832R28 | AN526C832R28 | AN526-1032R28 | AN526C1032R28 | AN526-428R28  |
| 1-7/8  | AN526-440R30 | AN526C440R30 | AN526-632R30 | AN526C632R30 | AN526-832R30 | AN526C832R30 | AN526-1032R30 | AN526C1032R30 | AN526-428R30  |
| 2      | AN526-440R32 | AN526C440R32 | AN526-632R32 | AN526C632R32 | AN526-832R32 | AN526C832R32 | AN526-1032R32 | AN526C1032R32 | AN526-428R32  |
| 2-1/4  | AN526-440R36 | AN526C440R36 | AN526-632R36 | AN526C632R36 | AN526-832R36 | AN526C832R36 | AN526-1032R36 | AN526C1032R36 | AN526-428R36  |
| 2-1/2  | AN526-440R40 | AN526C440R40 | AN526-632R40 | AN526C632R40 | AN526-832R40 | AN526C832R40 | AN526-1032R40 | AN526C1032R40 | AN526-428R40  |
| 2-3/4  | AN526-440R44 | AN526C440R44 | AN526-632R44 | AN526C632R44 | AN526-832R44 | AN526C832R44 | AN526-1032R44 | AN526C1032R44 | AN526-428R44  |
| 3      | AN526-440R48 | AN526C440R48 | AN526-632R48 | AN526C632R48 | AN526-832R48 | AN526C832R48 | AN526-1032R48 | AN526C1032R48 | AN526-428R48  |

# FLAT HEAD MACHINE SCREW (100 Degree) AN507 MS24693

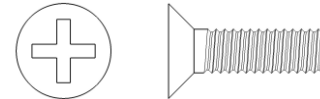
Steel - Cadmium Plated 60,000 PSI Tensile Strength

Brass - Black Oxide Coating 55,000 PSI Tensile Strength

Stainless - 300 Series 18-8 Stainless 80,000 PSI Tensile Strength



| MS24693 Dash Numbers |                    |             |             |                    |             |             |
|----------------------|--------------------|-------------|-------------|--------------------|-------------|-------------|
| Length               | AN507 Thread #4-40 |             |             | AN507 Thread #6-32 |             |             |
|                      | Steel              | Stainless   |             | Steel              | Stainless   |             |
| 3/16                 | 440R3              | MS24693-S1  | MS24693-C1  | 632R3              | MS24693-S23 | MS24693-C23 |
| 1/4                  | 440R4              | MS24693-S2  | MS24693-C2  | 632R4              | MS24693-S24 | MS24693-C24 |
| 5/16                 | 440R5              | MS24693-S3  | MS24693-C3  | 632R5              | MS24693-S25 | MS24693-C25 |
| 3/8                  | 440R6              | MS24693-S4  | MS24693-C4  | 632R6              | MS24693-S26 | MS24693-C26 |
| 7/16                 | 440R7              | MS24693-S5  | MS24693-C5  | 632R7              | MS24693-S27 | MS24693-C27 |
| 1/2                  | 440R8              | MS24693-S6  | MS24693-C6  | 632R8              | MS24693-S28 | MS24693-C28 |
| 5/8                  | 440R10             | MS24693-S7  | MS24693-C7  | 632R10             | MS24693-S29 | MS24693-C29 |
| 3/4                  | 440R12             | MS24693-S8  | MS24693-C8  | 632R12             | MS24693-S30 | MS24693-C30 |
| 7/8                  | 440R14             | MS24693-S9  | MS24693-C9  | 632R14             | MS24693-S31 | MS24693-C31 |
| 1                    | 440R16             | MS24693-S10 | MS24693-C10 | 632R16             | MS24693-S32 | MS24693-C32 |
| 1-1/8                | 440R18             | MS24693-S11 | MS24693-C11 | 632R18             | MS24693-S33 | MS24693-C33 |
| 1-1/4                | 440R20             | MS24693-S12 | MS24693-C12 | 632R20             | MS24693-S34 | MS24693-C34 |
| 1-1/2                | 440R24             | MS24693-S14 | MS24693-C14 | 632R24             | MS24693-S36 | MS24693-C36 |
| 1-3/4                |                    |             |             | 632R28             | MS24693-S38 | MS24693-C38 |
| 2                    |                    |             |             | 632R32             | MS24693-S40 | MS24693-C40 |
| 1-1/2                |                    |             |             | 632R40             | MS24693-S42 | MS24693-C42 |

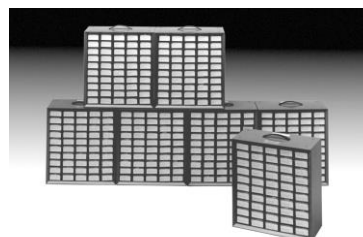


| Length | AN507 Thread #8-32 |             |             | AN507 Thread #10-32 |              |              | AN507 Thread 1/4-28 |              |              |
|--------|--------------------|-------------|-------------|---------------------|--------------|--------------|---------------------|--------------|--------------|
|        | Steel              | Stainless   |             | Steel               | Stainless    |              | Steel               | Stainless    |              |
| 3/16   |                    |             |             |                     |              |              |                     |              |              |
| 1/4    | 832R4              | MS24693-S46 | MS24693-C46 | 1032R4              | MS24693-S268 | MS24693-C268 |                     |              |              |
| 5/16   | 832R5              | MS24693-S47 | MS24693-C47 | 1032R5              | MS24693-S269 | MS24693-C269 |                     |              |              |
| 3/8    | 832R6              | MS24693-S48 | MS24693-C48 | 1032R6              | MS24693-S270 | MS24693-C270 | 428R6               | MS24693-S292 | MS24693-C292 |
| 7/16   | 832R7              | MS24693-S49 | MS24693-C49 | 1032R7              | MS24693-S271 | MS24693-C271 | 428R7               | MS24693-S293 | MS24693-C293 |
| 1/2    | 832R8              | MS24693-S50 | MS24693-C50 | 1032R8              | MS24693-S272 | MS24693-C272 | 428R8               | MS24693-S294 | MS24693-C294 |
| 5/8    | 832R10             | MS24693-S51 | MS24693-C51 | 1032R10             | MS24693-S273 | MS24693-C273 | 428R10              | MS24693-S295 | MS24693-C295 |
| 3/4    | 832R12             | MS24693-S52 | MS24693-C52 | 1032R12             | MS24693-S274 | MS24693-C274 | 428R12              | MS24693-S296 | MS24693-C296 |
| 7/8    | 832R14             | MS24693-S53 | MS24693-C53 | 1032R14             | MS24693-S275 | MS24693-C275 | 428R14              | MS24693-S297 | MS24693-C297 |
| 1      | 832R16             | MS24693-S54 | MS24693-C54 | 1032R16             | MS24693-S276 | MS24693-C276 | 428R16              | MS24693-S298 | MS24693-C298 |
| 1-1/8  | 832R18             | MS24693-S55 | MS24693-C55 | 1032R18             | MS24693-S277 | MS24693-C277 | 428R18              | MS24693-S299 | MS24693-C299 |
| 1-1/4  | 832R20             | MS24693-S56 | MS24693-C56 | 1032R20             | MS24693-S278 | MS24693-C278 | 428R20              | MS24693-S300 | MS24693-C300 |
| 1-3/8  |                    |             |             | 1032R22             | MS24693-S279 | MS24693-C279 | 428R22              | MS24693-S301 | MS24693-C301 |
| 1-1/2  | 832R24             | MS24693-S58 | MS24693-C58 | 1032R24             | MS24693-S280 | MS24693-C280 | 428R24              | MS24693-S302 | MS24693-C302 |
| 1-5/8  |                    |             |             | 1032R26             | MS24693-S281 | MS24693-C281 | 428R26              | MS24693-S303 | MS24693-C303 |
| 1-3/4  | 832R28             | MS24693-S60 | MS24693-C60 | 1032R28             | MS24693-S282 | MS24693-C282 | 428R28              | MS24693-S304 | MS24693-C304 |
| 1-7/8  |                    |             |             | 1032R30             | MS24693-S283 | MS24693-C283 | 428R30              | MS24693-S305 | MS24693-C305 |
| 2      |                    |             |             | 1032R32             | MS24693-S284 | MS24693-C284 | 428R32              | MS24693-S306 | MS24693-C306 |
| 2-1/4  |                    |             |             | 1032R36             | MS24693-S285 | MS24693-C285 | 428R36              | MS24693-S307 | MS24693-C307 |
| 2-1/2  | 832R40             | MS24693-S64 | MS24693-C64 | 1032R40             | MS24693-S286 | MS24693-C286 | 428R40              | MS24693-S308 | MS24693-C308 |
| 2-3/4  |                    |             |             | 1032R44             | MS24693-S287 | MS24693-C287 | 428R44              | MS24693-S309 | MS24693-C309 |
| 3      | 832R48             | MS34693-S66 |             | 1032R48             | MS24693-S288 | MS24693-C288 | 428R48              | MS24693-S310 | MS24693-C310 |

Example part numbers: MS24693-C49 = #8-32 Steel screw, 7/16" long. MS24693-BB30 = #6-32 Brass screw with black Oxide Coating, 3/4" long. (Refer to BRASS INSTRUMENT SCREW CHART for common brass screws). MS24693-C272 = #1032 CRES screw, 1/2" long.

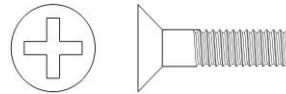
## Stainless Assortment Kits

See Pages 155 thru 158





# FLAT HEAD MACHINE SCREW 100 Degree STRUCTURAL AN509 MS24694



Steel - Cadmium Plated 125,000 PSI Tensile Strength  
Stainless - 300 Series Stainless 85,000 PSI Tensile Strength

| Length  | Grip    | AN509 Thread #8-32 |             | AN509 Thread #10-32 |              |             |             |
|---------|---------|--------------------|-------------|---------------------|--------------|-------------|-------------|
|         |         | Steel              | Stainless   | Steel               | Stainless    |             |             |
| 9/32    | 3/32    | 8R4                | MS24694-S1  | MS24694-C1          | 7/64 10R4    | MS24694-S46 | MS24694-C46 |
| 11/32   | 3/32    | 8R5                | MS24694-S2  | MS24694-C2          | 7/64 10R5    | MS24694-S47 | MS24694-C47 |
| 13/32   | 3/32    | 8R6                | MS24694-S3  | MS24694-C3          | 7/64 10R6    | MS24694-S48 | MS24694-C48 |
| 15/32   | 3/32    | 8R7                | MS24694-S4  | MS24694-C4          | 7/64 10R7    | MS24694-S49 | MS24694-C49 |
| 17/32   | 3/32    | 8R8                | MS24694-S5  | MS24694-C5          | 7/64 10R8    | MS24694-S50 | MS24694-C50 |
| 19/32   | 5/32    | 8R9                | MS24694-S6  | MS24694-C6          | 7/64 10R9    | MS24694-S51 | MS24694-C51 |
| 21/32   | 7/32    | 8R10               | MS24694-S7  | MS24694-C7          | 3/16 10R10   | MS24694-S52 | MS24694-C52 |
| 23/32   | 9/32    | 8R11               | MS24694-S8  | MS24694-C8          | 1/4 10R11    | MS24694-S53 | MS24694-C53 |
| 25/32   | 11/32   | 8R12               | MS24694-S9  | MS24694-C9          | 5/16 10R12   | MS24694-S54 | MS24694-C54 |
| 27/32   | 13/32   | 8R13               | MS24694-S10 | MS24694-C10         | 3/8 10R13    | MS24694-S55 | MS24694-C55 |
| 29/32   | 15/32   | 8R14               | MS24694-S11 | MS24694-C11         | 7/16 10R14   | MS24694-S56 | MS24694-C56 |
| 31/32   | 17/32   | 8R15               | MS24694-S12 | MS24694-C12         | 1/2 10R15    | MS24694-S57 | MS24694-C57 |
| 1-1/32  | 19/32   | 8R16               | MS24694-S13 | MS24694-C13         | 9/16 10R16   | MS24694-S58 | MS24694-C58 |
| 1-3/32  | 21/32   | 8R17               | MS24694-S14 | MS24694-C14         | 5/8 10R17    | MS24694-S59 | MS24694-C59 |
| 1-5/32  | 23/32   | 8R18               | MS24694-S15 | MS24694-C15         | 11/16 10R18  | MS24694-S60 | MS24694-C60 |
| 1-7/32  | 25/32   | 8R19               | MS24694-S16 | MS24694-C16         | 3/4 10R19    | MS24694-S61 | MS24694-C61 |
| 1-9/32  | 27/32   | 8R20               | MS24694-S17 | MS24694-C17         | 13/16 10R20  | MS24694-S62 | MS24694-C62 |
| 1-11/32 | 29/32   | 8R21               | MS24694-S18 | MS24694-C18         | 7/8 10R21    | MS24694-S63 | MS24694-C63 |
| 1-13/32 | 31/32   | 8R22               | MS24694-S19 | MS24694-C19         | 15/16 10R22  | MS24694-S64 | MS24694-C64 |
| 1-15/32 | 1-1/32  | 8R23               | MS24694-S20 | MS24694-C20         | 1 10R23      | MS24694-S65 | MS24694-C65 |
| 1-17/32 | 1-3/32  | 8R24               | MS24694-S21 | MS24694-C21         | 1-1/16 10R24 | MS24694-S66 | MS24694-C66 |
| 1-19/32 | 1-5/32  | 8R25               | MS24694-S22 | MS24694-C22         | 1-1/8 10R25  | MS24694-S67 | MS24694-C67 |
| 1-21/32 | 1-7/32  | 8R26               | MS24694-S23 | MS24694-C23         | 1-3/16 10R26 | MS24694-S68 | MS24694-C68 |
| 1-23/32 | 1-9/32  | 8R27               | MS24694-S24 | MS24694-C24         | 1-1/4 10R27  | MS24694-S69 | MS24694-C69 |
| 1-25/32 | 1-11/32 | 8R28               | MS24694-S25 | MS24694-C25         | 1-5/16 10R28 | MS24694-S70 | MS24694-C70 |
| 1-27/32 | 1-13/32 | 8R29               | MS24694-S26 | MS24694-C26         | 1-3/8 10R29  | MS24694-S71 | MS24694-C71 |
| 1-29/32 | 1-15/32 | 8R30               | MS24694-S27 | MS24694-C27         | 1-7/16 10R30 | MS24694-S72 | MS24694-C72 |

Example part numbers: MS24694-S24 = Steel screw, 1-23/32 long. MS24694-C65 = CRES screw, 1-15/32" long.

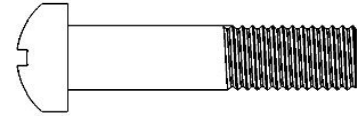
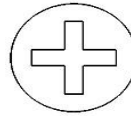
| Length  | Grip   | AN509 Thread 1/4-28 |              |              |
|---------|--------|---------------------|--------------|--------------|
|         |        | Steel               | Stainless    |              |
| 11/32   | 9/64   | 416R5               | MS24694-S92  | MS24694-C92  |
| 13/32   | 9/64   | 416R6               | MS24694-S93  | MS24694-C93  |
| 15/32   | 9/64   | 416R7               | MS24694-S94  | MS24694-C94  |
| 17/32   | 9/64   | 416R8               | MS24694-S95  | MS24694-C95  |
| 19/32   | 9/64   | 416R9               | MS24694-S96  | MS24694-C96  |
| 21/32   | 9/64   | 416R10              | MS24694-S97  | MS24694-C97  |
| 23/32   | 3/16   | 416R11              | MS24694-S98  | MS24694-C98  |
| 25/32   | 1/4    | 416R12              | MS24694-S99  | MS24694-C99  |
| 27/32   | 5/16   | 416R13              | MS24694-S100 | MS24694-C100 |
| 29/32   | 3/8    | 416R14              | MS24694-S101 | MS24694-C101 |
| 31/32   | 7/16   | 416R15              | MS24694-S102 | MS24694-C102 |
| 1-1/32  | 1/2    | 416R16              | MS24694-S103 | MS24694-C103 |
| 1-3/32  | 9/16   | 416R17              | MS24694-S104 | MS24694-C104 |
| 1-5/32  | 5/8    | 416R18              | MS24694-S105 | MS24694-C105 |
| 1-7/32  | 11/16  | 416R19              | MS24694-S106 | MS24694-C106 |
| 1-9/32  | 3/4    | 416R20              | MS24694-S107 | MS24694-C107 |
| 1-11/32 | 13/16  | 416R21              | MS24694-S108 | MS24694-C108 |
| 1-13/32 | 7/8    | 416R22              | MS24694-S109 | MS24694-C109 |
| 1-15/32 | 15/16  | 416R23              | MS24694-S110 | MS24694-C110 |
| 1-17/32 | 1      | 416R24              | MS24694-S111 | MS24694-C111 |
| 1-19/32 | 1-1/16 | 416R25              | MS24694-S112 | MS24694-C112 |
| 1-21/32 | 1-1/8  | 416R26              | MS24694-S113 | MS24694-C113 |
| 1-23/32 | 1-3/16 | 416R27              | MS24694-S114 | MS24694-C114 |
| 1-25/32 | 1-1/4  | 416R28              | MS24694-S115 | MS24694-C115 |
| 1-27/32 | 1-5/16 | 416R29              | MS24694-S116 | MS24694-C116 |
| 1-29/32 | 1-3/8  | 416R30              | MS24694-S117 | MS24694-C117 |

**Note: When substituting AN509 (MS24694) steel screws with stainless, beware of reduction in tensile strength as noted.**

# PAN HEAD MACHINE SCREW STRUCTURAL MS27039



Steel - Cadmium plated 125,000 PSI Tensile Strength  
Stainless - A286 Stainless 125,000 PSI Tensile Strength



## MS27039 Dash Numbers - Steel

|        |       | MS27039       |       | MS27039       |       | MS27039       |      | MS27039       |  |
|--------|-------|---------------|-------|---------------|-------|---------------|------|---------------|--|
| Length | Grip  | #8-32         | Grip  | #10-32        | Grip  | 1/4-28        | Grip | 5/16-24       |  |
| .281   | .032  | MS27039-S0804 | .032  | MS27039-S1-04 | .032  | MS27039-S4-04 | .032 | MS27039-S5-04 |  |
| .344   | .032  | MS27039-S0805 | .032  | MS27039-S1-05 | .032  | MS27039-S4-05 | .032 | MS27039-S5-05 |  |
| .406   | .032  | MS27039-S0806 | .032  | MS27039-S1-06 | .032  | MS27039-S4-06 | .032 | MS27039-S5-06 |  |
| .469   | .032  | MS27039-S0807 | .032  | MS27039-S1-07 | .032  | MS27039-S4-07 | .032 | MS27039-S5-07 |  |
| .531   | .094  | MS27039-S0808 | .062  | MS27039-S1-08 | .032  | MS27039-S4-08 | .032 | MS27039-S5-08 |  |
| .594   | .156  | MS27039-S0809 | .125  | MS27039-S1-09 | .062  | MS27039-S4-09 | .062 | MS27039-S5-09 |  |
| .656   | .219  | MS27039-S0810 | .188  | MS27039-S1-10 | .125  | MS27039-S4-10 | .094 | MS27039-S5-10 |  |
| .719   | .281  | MS27039-S0811 | .250  | MS27039-S1-11 | .188  | MS27039-S4-11 | .156 | MS27039-S5-11 |  |
| .781   | .344  | MS27039-S0812 | .312  | MS27039-S1-12 | .250  | MS27039-S4-12 | .219 | MS27039-S5-12 |  |
| .844   | .406  | MS27039-S0813 | .375  | MS27039-S1-13 | .312  | MS27039-S4-13 | .281 | MS27039-S5-13 |  |
| .906   | .469  | MS27039-S0814 | .438  | MS27039-S1-14 | .375  | MS27039-S4-14 | .344 | MS27039-S5-14 |  |
| .969   | .531  | MS27039-S0815 | .500  | MS27039-S1-15 | .438  | MS27039-S4-15 | .406 | MS27039-S5-15 |  |
| 1.031  | .594  | MS27039-S0816 | .563  | MS27039-S1-16 | .500  | MS27039-S4-16 | .469 | MS27039-S5-16 |  |
| 1.094  | .656  | MS27039-S0817 | .625  | MS27039-S1-17 | .563  | MS27039-S4-17 | .531 | MS27039-S5-17 |  |
| 1.156  | .719  | MS27039-S0818 | .688  | MS27039-S1-18 | .625  | MS27039-S4-18 | .594 | MS27039-S5-18 |  |
| 1.219  | .781  | MS27039-S0819 | .750  | MS27039-S1-19 | .688  | MS27039-S4-19 | .656 | MS27039-S5-19 |  |
| 1.281  | .844  | MS27039-S0820 | .813  | MS27039-S1-20 | .750  | MS27039-S4-20 | .719 | MS27039-S5-20 |  |
| 1.405  | .970  | MS27039-S0822 | .938  | MS27039-S1-22 | .875  | MS27039-S4-22 | .844 | MS27039-S5-22 |  |
| 1.469  | 1.031 | MS27039-S0823 | 1.000 | MS27039-S1-23 | .938  | MS27039-S4-23 | .906 | MS27039-S5-23 |  |
| 1.531  | 1.094 | MS27039-S0824 | 1.062 | MS27039-S1-24 | 1.000 | MS27039-S4-24 | .969 | MS27039-S5-24 |  |
| 1.844  | 1.406 |               | 1.375 | MS27039-S1-29 |       |               |      |               |  |

Lengths continue to -.0838 (2.406"), -1-48 (3.031"), -4-48 (3.031"), and sizes to 1/2-20.

## MS27039 Dash Numbers - Stainless

|        |       | MS27039       |       | MS27039       |       | MS27039       |      | MS27039       |  |
|--------|-------|---------------|-------|---------------|-------|---------------|------|---------------|--|
| Length | Grip  | #8-32         | Grip  | #10-32        | Grip  | 1/4-28        | Grip | 5/16-24       |  |
| .281   | .032  | MS27039-C0804 | .032  | MS27039-C1-04 | .032  | MS27039-C4-04 | .032 | MS27039-C5-04 |  |
| .344   | .032  | MS27039-C0805 | .032  | MS27039-C1-05 | .032  | MS27039-C4-05 | .032 | MS27039-C5-05 |  |
| .406   | .032  | MS27039-C0806 | .032  | MS27039-C1-06 | .032  | MS27039-C4-06 | .032 | MS27039-C5-06 |  |
| .469   | .032  | MS27039-C0807 | .032  | MS27039-C1-07 | .032  | MS27039-C4-07 | .032 | MS27039-C5-07 |  |
| .531   | .094  | MS27039-C0808 | .062  | MS27039-C1-08 | .032  | MS27039-C4-08 | .032 | MS27039-C5-08 |  |
| .594   | .156  | MS27039-C0809 | .125  | MS27039-C1-09 | .062  | MS27039-C4-09 | .062 | MS27039-C5-09 |  |
| .656   | .219  | MS27039-C0810 | .188  | MS27039-C1-10 | .125  | MS27039-C4-10 | .094 | MS27039-C5-10 |  |
| .719   | .281  | MS27039-C0811 | .250  | MS27039-C1-11 | .188  | MS27039-C4-11 | .156 | MS27039-C5-11 |  |
| .781   | .344  | MS27039-C0812 | .312  | MS27039-C1-12 | .250  | MS27039-C4-12 | .219 | MS27039-C5-12 |  |
| .844   | .406  | MS27039-C0813 | .375  | MS27039-C1-13 | .312  | MS27039-C4-13 | .281 | MS27039-C5-13 |  |
| .906   | .469  | MS27039-C0814 | .438  | MS27039-C1-14 | .375  | MS27039-C4-14 | .344 | MS27039-C5-14 |  |
| .969   | .531  | MS27039-C0815 | .500  | MS27039-C1-15 | .438  | MS27039-C4-15 | .406 | MS27039-C5-15 |  |
| 1.031  | .594  | MS27039-C0816 | .563  | MS27039-C1-16 | .500  | MS27039-C4-16 | .469 | MS27039-C5-16 |  |
| 1.094  | .656  | MS27039-C0817 | .625  | MS27039-C1-17 | .563  | MS27039-C4-17 | .531 | MS27039-C5-17 |  |
| 1.156  | .719  | MS27039-C0818 | .688  | MS27039-C1-18 | .625  | MS27039-C4-18 | .594 | MS27039-C5-18 |  |
| 1.219  | .781  | MS27039-C0819 | .750  | MS27039-C1-19 | .688  | MS27039-C4-19 | .656 | MS27039-C5-19 |  |
| 1.281  | .844  | MS27039-C0820 | .813  | MS27039-C1-20 | .750  | MS27039-C4-20 | .719 | MS27039-C5-20 |  |
| 1.405  | .970  | MS27039-C0822 | .938  | MS27039-C1-22 | .875  | MS27039-C4-22 | .844 | MS27039-C5-22 |  |
| 1.469  | 1.031 | MS27039-C0823 | 1.000 | MS27039-C1-23 | .938  | MS27039-C4-23 | .906 | MS27039-C5-23 |  |
| 1.531  | 1.094 | MS27039-C0824 | 1.062 | MS27039-C1-24 | 1.000 | MS27039-C4-24 | .969 | MS27039-C5-24 |  |
| 1.844  | 1.406 |               | 1.375 | MS27039-C1-29 |       |               |      |               |  |

Lengths continue to -.0838 (2.406"), -1-48 (3.031"), -4-48 (3.031"), and sizes to 1/2-20.

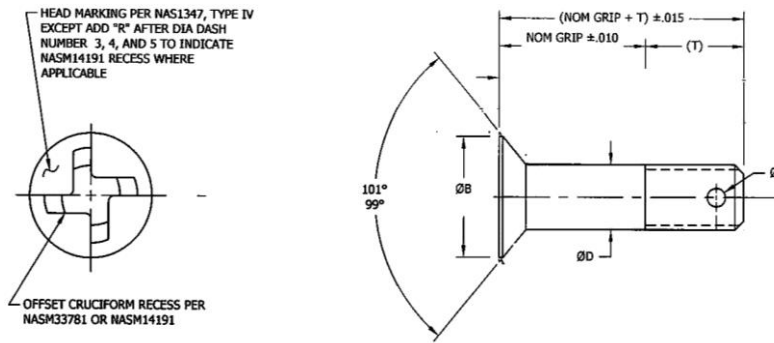
# NAS1580 and NAS1581 Close Tolerance Structural Screw

Stainless - A286 Series Stainless 180,000 PSI Tensile Strength

Cruciform® Head



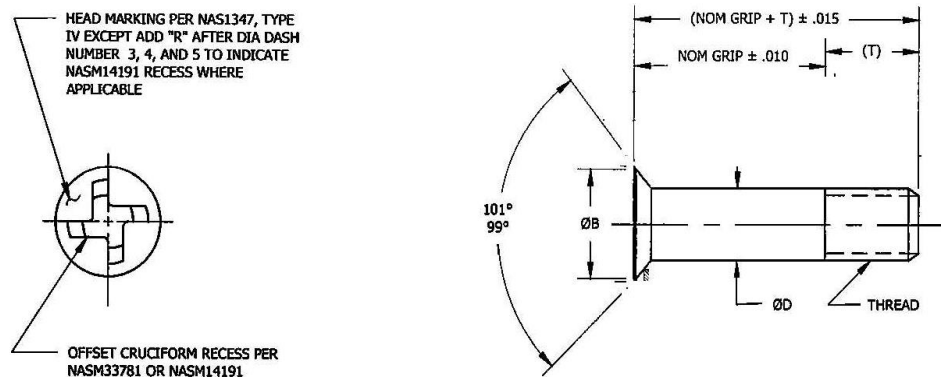
## NAS1580



Drilled Shank Optional

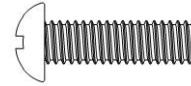
| Part Number | Description - Head Diameter $\varnothing B$                              | Thread-Length       | Nom Grip  |
|-------------|--|---------------------|-----------|
| NAS1580C3T2 | High Strength, CRES, Close Tolerance Shear, Standard (Tensile) Head .339 | 10-32 - Length .487 | Grip .125 |
| NAS1580C3T3 | High Strength, CRES, Close Tolerance Shear, Standard (Tensile) Head .339 | 10-32 - Length .549 | Grip .187 |
| NAS1580C3T4 | High Strength, CRES, Close Tolerance Shear, Standard (Tensile) Head .339 | 10-32 - Length .613 | Grip .250 |
| NAS1580C3T5 | High Strength, CRES, Close Tolerance Shear, Standard (Tensile) Head .339 | 10-32 - Length .675 | Grip .312 |
| NAS1580C3T6 | High Strength, CRES, Close Tolerance Shear, Standard (Tensile) Head .339 | 10-32 - Length .738 | Grip .375 |
| NAS1580C3T7 | High Strength, CRES, Close Tolerance Shear, Standard (Tensile) Head .339 | 10-32 - Length .801 | Grip .438 |
| NAS1580C3T8 | High Strength, CRES, Close Tolerance Shear, Standard (Tensile) Head .339 | 10-32 - Length .863 | Grip .500 |

## NAS1581



| Part Number | Description - Head Diameter $\varnothing B$                     | Thread-Length       | Nom Grip  |
|-------------|---|---------------------|-----------|
| NAS1581C3T2 | High Strength, CRES, Close Tolerance, Reduced (Shear) Head .257 | 10-32 - Length .487 | Grip .125 |
| NAS1581C3T3 | High Strength, CRES, Close Tolerance, Reduced (Shear) Head .257 | 10-32 - Length .549 | Grip .187 |
| NAS1581C3T4 | High Strength, CRES, Close Tolerance, Reduced (Shear) Head .257 | 10-32 - Length .613 | Grip .250 |
| NAS1581C3T5 | High Strength, CRES, Close Tolerance, Reduced (Shear) Head .257 | 10-32 - Length .675 | Grip .312 |
| NAS1581C3T6 | High Strength, CRES, Close Tolerance, Reduced (Shear) Head .257 | 10-32 - Length .738 | Grip .375 |
| NAS1581C3T7 | High Strength, CRES, Close Tolerance, Reduced (Shear) Head .257 | 10-32 - Length .801 | Grip .438 |
| NAS1581C3T8 | High Strength, CRES, Close Tolerance, Reduced (Shear) Head .257 | 10-32 - Length .863 | Grip .500 |

# PAN HEAD MACHINE SCREW - NonStructural



**MS35206 AN515** Course STEEL (60,000 **MS51957** 300 Series STAINLESS (80,000 PSI)  
**MS35207 AN520** Fine STEEL (60,000 **MS51958** 300 Series STAINLESS (80,000 PSI)

| MS35206 Dash Numbers |        |             |        |             |        |             |            |        |             |            |
|----------------------|--------|-------------|--------|-------------|--------|-------------|------------|--------|-------------|------------|
| Length               | AN515  |             | AN515  |             | AN515  |             | AN515      |        | AN515       |            |
|                      | Thread |             | Thread | STEEL       | Thread | STEEL       |            | Thread | STEEL       | CRES       |
|                      | #2-56  | MS35206     | #4-40  | MS35206     | #6-32  | MS35206     | MS51957    | #8-32  | MS35206     | MS51957    |
| 1/8                  | -2R2   | MS35206-201 |        |             |        |             |            |        |             |            |
| 3/16                 | -2R3   | MS35206-202 | -4R3   | MS35206-212 | -6R3   | MS35206-224 |            |        |             |            |
| 1/4                  | -2R4   | MS35206-203 | -4R4   | MS35206-213 | -6R4   | MS35206-226 | MS51957-26 | -8R4   | MS35206-241 |            |
| 5/16                 | -2R5   | MS35206-204 | -4R5   | MS35206-214 | -6R5   | MS35206-227 |            | -8R5   | MS35206-242 |            |
| 3/8                  | -2R6   | MS35206-205 | -4R6   | MS35206-215 | -6R6   | MS35206-228 | MS51957-28 | -8R6   | MS35206-243 | MS51957-43 |
| 7/16                 | -2R7   | MS35206-206 | -4R7   | MS35206-216 | -6R7   | MS35206-229 |            | -8R7   | MS35206-244 | MS51957-44 |
| 1/2                  | -2R8   | MS35206-207 | -4R8   | MS35206-217 | -6R8   | MS35206-230 | MS51957-30 | -8R8   | MS35206-245 | MS51957-45 |
| 9/16                 |        | MS35206-320 |        | MS35206-323 |        | MS35206-327 |            |        | MS35206-331 |            |
| 5/8                  | -2R10  | MS35206-208 | -4R10  | MS35206-218 | -6R10  | MS35206-231 | MS51957-31 | -8R10  | MS35206-246 | MS51957-46 |
| 3/4                  | -2R12  | MS35206-209 | -4R12  | MS35206-219 | -6R12  | MS35206-232 |            | -8R12  | MS35206-247 |            |
| 7/8                  |        | MS35206-210 | -4R14  | MS35206-220 | -6R14  | MS35206-233 |            | -8R14  | MS35206-248 | MS51957-48 |
| 1                    |        | MS35206-321 | -4R16  | MS35206-221 | -6R16  | MS35206-234 |            | -8R16  | MS35206-249 |            |
| 1-1/8                |        |             | -4R18  | MS35206-324 | -6R18  | MS35206-328 |            | -8R18  | MS35206-332 |            |
| 1-1/4                |        |             | -4R20  | MS35206-222 | -6R20  | MS35206-235 |            | -8R20  | MS35206-250 |            |
| 1-3/8                |        |             | -4R22  | MS35206-325 | -6R22  | MS35206-329 |            | -8R22  | MS35206-333 |            |
| 1-1/2                |        |             | -4R24  | MS35206-223 | -6R24  | MS35206-236 |            | -8R24  | MS35206-251 | MS51957-51 |
| 1-3/4                |        |             | -4R28  | MS35206-326 | -6R28  | MS35206-237 |            | -8R28  | MS35206-252 |            |
| 1-7/8                |        |             |        |             | -6R30  | MS35206-361 |            | -8R30  | MS35206-334 |            |
| 2                    |        |             |        |             | -6R32  | MS35206-238 |            | -8R32  | MS35206-253 |            |
| 2-1/4                |        |             |        |             | -6R36  | MS35206-330 |            | -8R36  | MS35206-254 |            |
| 2-1/2                |        |             |        |             |        |             |            | -8R40  | MS35206-255 |            |
| 2-3/4                |        |             |        |             |        |             |            | -8R44  | MS35206-256 |            |
| 3                    |        |             |        |             |        |             |            | -8R48  | MS35206-257 |            |

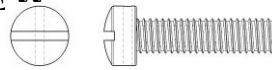
| MS35207 Dash Numbers |        |             |            |         |                        |
|----------------------|--------|-------------|------------|---------|------------------------|
| Length               | AN520  |             | AN520      |         |                        |
|                      | Thread |             | Thread     |         |                        |
|                      | #10-32 | MS35207     | MS51958    | 1/4-28  | MS35207 MS51958        |
| 1/4                  | -10R4  | MS35207-259 |            |         |                        |
| 5/16                 | -10R5  | MS35207-260 |            |         |                        |
| 3/8                  | -10R6  | MS35207-261 |            | -416R6  | MS35207-277            |
| 7/16                 | -10R7  | MS35207-262 |            | -416R7  | MS35207-278 MS51958-78 |
| 1/2                  | -10R8  | MS35207-263 | MS51958-63 | -416R8  | MS35207-279 MS51958-79 |
| 5/8                  | -10R10 | MS35207-264 | MS51958-64 | -416R10 | MS35207-280            |
| 3/4                  | -10R12 | MS35207-265 |            | -416R12 | MS35207-281            |
| 7/8                  | -10R14 | MS35207-266 |            | -416R14 | MS35207-282            |
| 1                    | -10R16 | MS35207-267 |            | -416R16 | MS35207-283            |
| 1-1/4                | -10R20 | MS35207-268 |            | -416R20 | MS35207-284            |
| 1-1/2                | -10R24 | MS35207-269 |            | -416R24 | MS35207-285            |
| 1-3/4                | -10R28 | MS35207-270 |            | -416R28 | MS35207-286            |
| 2                    | -10R32 | MS35207-271 |            | -416R32 | MS35207-287            |
| 2-1/4                | -10R36 | MS35207-272 |            | -416R36 | MS35207-288            |
| 2-1/2                | -10R40 | MS35207-273 |            | -416R40 | MS35207-289            |
| 2-3/4                | -10R44 | MS35207-274 |            | -416R44 | MS35207-290            |
| 3                    | -10R48 | MS35207-275 |            | -416R48 | MS35207-291            |

## COMMON THREAD SIZES

| Bolt or Screw Size | Diameter | Course Thread | Fine (SAE) Thread | Bolt or Screw Size | Diameter | Course Thread | Fine (SAE) Thread |
|--------------------|----------|---------------|-------------------|--------------------|----------|---------------|-------------------|
| #0                 | .060     | -             | 80                | #10(3/16)          | .190     | 24            | 32                |
| #1                 | .073     | 64            | 72                | 1/4                | .250     | 20            | 28                |
| #2                 | .086     | 56            | 64                | 5/16               | .3125    | 18            | 24                |
| #4                 | .112     | 40            | 48                | 3/8                | .375     | 16            | 24                |
| #6                 | .138     | 32            | 40                | 7/16               | .4375    | 14            | 20                |
| #8                 | .164     | 32            | 36                | 1/2                | .500     | 13            | 20                |

# DRILLED FILLISTER HEAD MACHINE SCREW MS35265 (AN500) MS35266 (AN501)

Steel - Cadmium Plated 60,000 PSI Tensile Strength



## MS35265 Dash Numbers

| Length | AN500  | AN500      |        | AN500      |        | AN500      |        |            |
|--------|--------|------------|--------|------------|--------|------------|--------|------------|
|        | Thread | MS35265    | Thread | MS35265    | Thread | MS35265    | Thread |            |
|        | #2-56  |            | #4-40  |            | #6-32  |            | #8-32  |            |
| .12    |        | MS35265-1  |        | MS35265-11 |        | MS35265-24 |        | MS35265-39 |
| .19    | A2-3   | MS35265-2  | A4-3   | MS35265-12 | A6-3   | MS35265-25 |        | MS35265-40 |
| .25    | A2-4   | MS35265-3  | A4-4   | MS35265-13 | A6-4   | MS35265-26 | A8-4   | MS35265-41 |
| .31    | A2-5   | MS35265-4  | A4-5   | MS35265-14 | A6-5   | MS35265-27 | A8-5   | MS35265-42 |
| .38    | A2-6   | MS35265-5  | A4-6   | MS35265-15 | A6-6   | MS35265-28 | A8-6   | MS35265-43 |
| .44    | A2-7   | MS35265-6  | A4-7   | MS35265-16 | A6-7   | MS35265-29 | A8-7   | MS35265-44 |
| .50    | A2-8   | MS35265-7  | A4-8   | MS35265-17 | A6-8   | MS35265-30 | A8-8   | MS35265-45 |
| .62    | A2-10  | MS35265-8  | A4-10  | MS35265-18 | A6-10  | MS35265-31 | A8-10  | MS35265-46 |
| .75    | A2-12  | MS35265-9  | A4-12  | MS35265-19 | A6-12  | MS35265-32 | A8-12  | MS35265-47 |
| .88    |        | MS35265-10 |        | MS35265-20 | A6-14  | MS35265-33 | A8-14  | MS35265-48 |
| 1.00   |        |            |        | MS35265-21 | A6-16  | MS35265-34 | A8-16  | MS35265-49 |
| 1.25   |        |            |        | MS35265-22 | A6-20  | MS35265-35 | A8-20  | MS35265-50 |
| 1.50   |        |            |        | MS35265-23 | A6-24  | MS35265-36 | A8-24  | MS35265-51 |
| 1.75   |        |            |        |            | A6-28  | MS35265-37 | A8-28  | MS35265-52 |
| 2.00   |        |            |        |            | A6-32  | MS35265-38 | A8-32  | MS35265-54 |

## MS35265 Dash Numbers

## MS35266 Dash Numbers

| Length | AN500  | AN500      |         | AN501      |        | AN501      |         |            |
|--------|--------|------------|---------|------------|--------|------------|---------|------------|
|        | Thread | MS35265    | Thread  | MS35265    | Thread | MS35266    | Thread  |            |
|        | #10-24 |            | 1/4-20  |            | #10-32 |            | 1/4-28  |            |
| .19    |        | MS35265-58 |         |            |        | MS35266-58 |         |            |
| .25    | A10-4  | MS35265-59 |         |            | A10-4  | MS35266-59 |         |            |
| .31    | A10-5  | MS35265-60 |         | MS35265-76 | A10-5  | MS35266-60 | A416-5  | MS35266-76 |
| .38    | A10-6  | MS35265-61 | A416-6  | MS35265-77 | A10-6  | MS35266-61 | A416-6  | MS35266-77 |
| .44    | A10-7  | MS35265-62 | A416-7  | MS35265-78 | A10-7  | MS35266-62 | A416-7  | MS35266-78 |
| .50    | A10-8  | MS35265-63 | A416-8  | MS35265-79 | A10-8  | MS35266-63 | A416-8  | MS35266-79 |
| .62    | A10-10 | MS35265-64 | A416-10 | MS35265-80 | A10-10 | MS35266-64 | A416-10 | MS35266-80 |
| .75    | A10-12 | MS35265-65 | A416-12 | MS35265-81 | A10-12 | MS35266-65 | A416-12 | MS35266-81 |
| .88    | A10-14 | MS35265-66 | A416-14 | MS35265-82 | A10-14 | MS35266-66 | A416-14 | MS35266-82 |
| 1.00   | A10-16 | MS35265-67 | A416-16 | MS35265-83 | A10-16 | MS35266-67 | A416-16 | MS35266-83 |
| 1.25   | A10-20 | MS35265-68 | A416-20 | MS35265-84 | A10-20 | MS35266-68 | A416-20 | MS35266-84 |
| 1.50   | A10-24 | MS35265-69 | A416-24 | MS35265-85 | A10-24 | MS35266-69 | A416-24 | MS35266-85 |
| 1.75   | A10-28 | MS35265-70 | A416-28 | MS35265-86 | A10-28 | MS35266-70 | A416-28 | MS35266-86 |
| 2.00   | A10-32 | MS35265-71 | A416-32 | MS35265-87 | A10-32 | MS35266-71 | A416-32 | MS35266-87 |
| 2.25   |        | MS35265-72 |         | MS35265-88 |        | MS35266-72 |         | MS35266-88 |
| 2.50   | A10-40 | MS35265-73 | A416-40 | MS35265-89 | A10-40 | MS35266-73 | A416-40 | MS35266-89 |
| 3.75   |        | MS35265-74 |         | MS35265-90 |        | MS35266-74 |         | MS35266-90 |
| 3.00   | A10-48 | MS35265-75 | A416-48 | MS35265-91 | A10-48 | MS35266-75 | A416-48 | MS35266-91 |

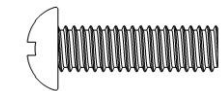
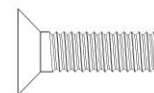
# BRASS INSTRUMENT SCREWS MS24693 MS35214 MS35215

Brass per QQ-W-321, QQ-B-613, or QQ-B-626: Black Oxide Coating  
55,000 PSI Tensile Strength

FLAT HEAD Phillips

PAN HEAD Phillips

| MS24693BB    | AN507B  | Size   | Length | MS35214    | Size  | Length |
|--------------|---------|--------|--------|------------|-------|--------|
| MS24693BB6   | 440R8   | #4-40  | 1/2    | MS35214-16 | #4-40 | 1/2    |
| MS24693BB10  | 440R16  | #4-40  | 1      | MS35214-23 | #6-32 | 3/4    |
| MS24693BB24  | 632R4   | #6-32  | 1/4    | MS35214-25 | #6-32 | 3/8    |
| MS24693BB26  | 632R6   | #6-32  | 3/8    | MS35214-26 | #6-32 | 7/16   |
| MS24693BB28  | 632R8   | #6-32  | 1/2    | MS35214-27 | #6-32 | 1/2    |
| MS24693BB29  | 632R10  | #6-32  | 5/8    | MS35214-28 | #6-32 | 5/8    |
| MS24693BB30  | 632R12  | #6-32  | 3/4    | MS35214-29 | #6-32 | 3/4    |
| MS24693BB31  | 632R14  | #6-32  | 7/8    | MS35214-30 | #6-32 | 7/8    |
| MS24693BB32  | 632R16  | #6-32  | 1      | MS35214-31 | #6-32 | 1      |
| MS24693BB34  | 632R20  | #6-32  | 1-1/4  | MS35214-32 | #6-32 | 1-1/4  |
| MS24693BB36  | 632R24  | #6-32  | 1-1/2  | MS35214-33 | #6-32 | 1-1/2  |
| MS24693BB50  | 832R8   | #8-32  | 1/2    | MS35214-42 | #8-32 | 1/2    |
| MS24693BB51  | 832R10  | #8-32  | 5/8    | MS35214-46 | #8-32 | 1      |
| MS24693BB52  | 832R12  | #8-32  | 3/4    | MS35214-47 | #8-32 | 1-1/4  |
| MS24693BB54  | 832R16  | #8-32  | 1      | MS35214-48 | #8-32 | 1-1/2  |
| MS24693BB56  | 832R20  | #8-32  | 1-1/4  |            |       |        |
| MS24693BB58  | 832R24  | #8-32  | 1-1/2  | MS35215-55 | #1032 | 1/2    |
| MS24693BB272 | 1032R8  | #10-32 | 1/2    | MS35215-56 | #1032 | 5/8    |
| MS24693BB273 | 1032R10 | #10-32 | 5/8    | MS35215-57 | #1032 | 3/4    |
| MS24693BB274 | 1032R12 | #10-32 | 3/4    | MS35215-59 | #1032 | 1      |
| MS24693BB276 | 1032R16 | #1032  | 1      | MS35215-60 | #1032 | 1-1/4  |



Note: Several additional MS24693BB and MS35214 sizes in stock

# SHEET METAL SCREWS (PK) Self Tapping

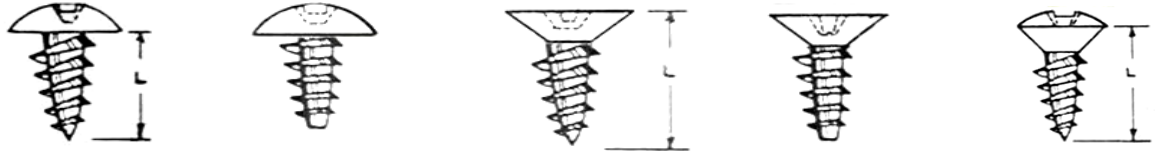
## Type A and Type B



Use Type A screws for wood applications. Use B screws for sheet metal applications and Tinnerman nuts.

Note pitch difference between Type A and B screws. Add S to part# for all 300 series stainless screws.

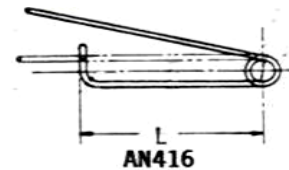
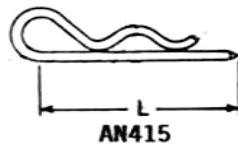
Example: 8RX1/2THAS



| SIZE | Length | TRUSS HEAD<br>Type A |                   | TRUSS HEAD<br>AN530 Type B |                   | FLAT HEAD A                 | FLAT HEAD B                           |                             | OVAL HEAD                  |
|------|--------|----------------------|-------------------|----------------------------|-------------------|-----------------------------|---------------------------------------|-----------------------------|----------------------------|
|      |        | THA<br>Steel         | THAS<br>Stainless | THB<br>Steel               | THBS<br>Stainless | FHAS<br>100deg<br>Stainless | MS21207<br>NAS548P<br>100deg<br>Steel | FHBS<br>100deg<br>Stainless | OHAS<br>82deg<br>Stainless |
| #4   | 1/4    | 4RX1/4THA            | 4RX1/4THAS        | 4RX1/4THB                  | 4RX1/4THBS        | 4RX1/4FHAS100               | MS21207-4-4                           | 4RX1/4FHBS100               | 4RX1/4OHAS                 |
| #4   | 3/8    | 4RX3/8THA            | 4RX3/8THAS        | 4RX3/8THB                  | 4RX3/8THBS        | 4RX3/8FHAS100               | MS21207-4-6                           | 4RX3/8FHBS100               | 4RX3/8OHAS                 |
| #4   | 1/2    | 4RX1/2THA            | 4RX1/2THAS        | 4RX1/2THB                  | 4RX1/2THBS        | 4RX1/2FHAS100               | MS21207-4-8                           | 4RX1/2FHBS100               | 4RX1/2OHAS                 |
| #4   | 5/8    | 4RX5/8THA            | 4RX5/8THAS        | 4RX5/8THB                  | 4RX5/8THBS        | 4RX5/8FHAS100               | MS21207-4-10                          | 4RX5/8FHBS100               | 4RX5/8OHAS                 |
| #6   | 3/8    | 6RX3/8THA            | 6RX3/8THAS        | 6RX3/8THB                  | 6RX3/8THBS        | 6RX3/8FHAS100               | MS21207-6-6                           | 6RX3/8FHBS100               | 6RX3/8OHAS                 |
| #6   | 1/2    | 6RX1/2THA            | 6RX1/2THAS        | 6RX1/2THB                  | 6RX1/2THBS        | 6RX1/2FHAS100               | MS21207-6-8                           | 6RX1/2FHBS100               | 6RX1/2OHAS                 |
| #6   | 5/8    | 6RX5/8THA            | 6RX5/8THAS        | 6RX5/8THB                  | 6RX5/8THBS        | 6RX5/8FHAS100               | MS21207-6-10                          | 6RX5/8FHBS100               | 6RX5/8OHAS                 |
| #6   | 3/4    | 6RX3/4THA            | 6RX3/4THAS        | 6RX3/4THB                  | 6RX3/4THBS        | 6RX3/4FHAS100               | MS21207-6-12                          | 6RX3/4FHBS100               | 6RX3/4OHAS                 |
| #6   | 1      | 6RX1THA              | 6RX1THAS          | 6RX1THB                    | 6RX1THBS          | 6RX1FHAS100                 | MS21207-6-16                          | 6RX1FHBS100                 | 6RX1OHAS                   |
| #6   | 1-1/2  | 6RX1-1/2THA          | 6RX1-1/2THAS      | 6RX1-1/2THB                | 6RX1-1/2THBS      | 6RX1-1/2FHAS100             | MS21207-6-24                          | 6RX1-1/2FHBS100             | 6RX1-1/2OHAS               |
| #8   | 3/8    | 8RX3/8THA            | 8RX3/8THAS        | 8RX3/8THB                  | 8RX3/8THBS        | 8RX3/8FHAS100               | MS21207-8-6                           | 8RX3/8FHBS100               | 8RX3/8OHAS                 |
| #8   | 1/2    | 8RX1/2THA            | 8RX1/2THAS        | 8RX1/2THB                  | 8RX1/2THBS        | 8RX1/2FHAS100               | MS21207-8-8                           | 8RX1/2FHBS100               | 8RX1/2OHAS                 |
| #8   | 5/8    | 8RX5/8THA            | 8RX5/8THAS        | 8RX5/8THB                  | 8RX5/8THBS        | 8RX5/8FHAS100               | MS21207-8-10                          | 8RX5/8FHBS100               | 8RX5/8OHAS                 |
| #8   | 3/4    | 8RX3/4THA            | 8RX3/4THAS        | 8RX3/4THB                  | 8RX3/4THBS        | 8RX3/4FHAS100               | MS21207-8-12                          | 8RX3/4FHBS100               | 8RX3/4OHAS                 |
| #8   | 1      | 8RX1THA              | 8RX1THAS          | 8RX1THB                    | 8RX1THBS          | 8RX1FHAS100                 | MS21207-8-16                          | 8RX1FHBS100                 | 8RX1OHAS                   |
| #8   | 1-1/4  | 8RX1-1/4THA          | 8RX1-1/4THAS      | 8RX1-1/4THB                | 8RX1-1/4THBS      | 8RX1-1/4FHAS100             |                                       | 8RX1-1/4FHBS100             | 8RX1-1/4OHAS               |
| #8   | 1-1/2  | 8RX1-1/2THA          | 8RX1-1/2THAS      | 8RX1-1/2THB                | 8RX1-1/2THBS      | 8RX1-1/2FHAS100             | MS21207-8-24                          | 8RX1-1/2FHBS100             | 8RX1-1/2OHAS               |
| #8   | 1-3/4  | 8RX1-3/4THA          | 8RX1-3/4THAS      | 8RX1-3/4THB                | 8RX1-3/4THBS      | 8RX1-3/4FHAS100             | MS21207-8-28                          | 8RX1-3/4FHBS100             | 8RX1-3/4OHAS               |
| #8   | 2      | 8RX2THA              | 8RX2THAS          | 8RX2THB                    | 8RX2THBS          | 8RX2FHAS100                 | MS21207-8-32                          | 8RX2FHBS100                 | 8RX2OHAS                   |
| #10  | 1/2    | 10RX1/2THA           | 10RX1/2THAS       | 10RX1/2THB                 | 10RX1/2THBS       | 10RX1/2FHAS100              | MS21207-10-8                          | 10RX1/2FHBS100              | 10RX1/2OHAS                |
| #10  | 5/8    | 10RX5/8THA           | 10RX5/8THAS       | 10RX5/8THB                 | 10RX5/8THBS       | 10RX5/8FHAS100              | MS21207-10-10                         | 10RX5/8FHBS100              | 10RX5/8OHAS                |
| #10  | 3/4    | 10RX3/4THA           | 10RX3/4THAS       | 10RX3/4THB                 | 10RX3/4THBS       | 10RX3/4FHAS100              | MS21207-10-12                         | 10RX3/4FHBS100              | 10RX3/4OHAS                |
| #10  | 1      | 10RX1THA             | 10RX1THAS         | 10RX1THB                   | 10RX1THBS         | 10RX1FHAS100                | MS21207-10-16                         | 10RX1FHBS100                | 10RX1OHAS                  |
| #10  | 1-1/2  | 10RX1-1/2THA         | 10RX1-1/2THAS     | 10RX1-1/2THB               | 10RX1-1/2THBS     | 10RX1-1/2FHAS100            | MS21207-10-24                         | 10RX1-1/2FHBS100            | 10RX1-1/2OHAS              |
| #10  | 1-3/4  | 10RX1-3/4THA         | 10RX1-3/4THAS     | 10RX1-3/4THB               | 10RX1-3/4THBS     | 10RX1-3/4FHAS100            | MS21207-10-28                         | 10RX1-3/4FHBS100            | 10RX1-3/4OHAS              |
| #10  | 2      | 10RX2THA             | 10RX2THAS         | 10RX2THB                   | 10RX2THBS         | 10RX2FHAS100                | MS21207-10-32                         | 10RX2FHBS100                | 10RX2OHAS                  |
| 1/4  | 5/8    | 12RX5/8THA           | 12RX5/8THAS       | 12RX5/8THB                 | 12RX5/8THBS       | 12RX5/8FHAS100              | MS21207-14-10                         | 12RX5/8FHBS100              | 12RX5/8OHAS                |
| 1/4  | 3/4    | 12RX3/4THA           | 12RX3/4THAS       | 12RX3/4THB                 | 12RX3/4THBS       | 12RX3/4FHAS100              | MS21207-14-12                         | 12RX3/4FHBS100              | 12RX3/4OHAS                |
| 1/4  | 1      | 12RX1THA             | 12RX1THAS         | 12RX1THB                   | 12RX1THBS         | 12RX1FHAS100                | MS21207-14-16                         | 12RX1FHBS100                | 12RX1OHAS                  |

NOTE: \*Use in place of AN531 82 degree screws. When ordering SMS (sheet metal screws) indicate alternate lengths acceptable. Also indicate if stainless screws are acceptable as a substitute for steel screws.

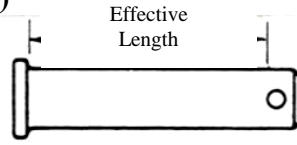
## LOCKING PINS



| Part#   | Wire Dia | Material | L       |
|---------|----------|----------|---------|
| AN415-2 | .080     | CRES     | 1-15/16 |
| AN415-3 | .0295    | CRES     | 19/32   |
| AN416-1 | .051     | Steel    | 1-1/16  |
| AN416-2 | .041     | Steel    | 3/4     |
| WW11    | .125     | Steel    | 2-9/16  |
| WW16    | .125     | Steel    | 1-15/16 |

# CLEVIS PIN MS20392 (AN392 thru AN396)

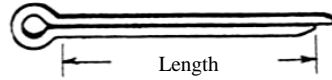
Also Supersedes AN400, AN404, and AN406  
 Steel Alloy - 4037, 4130, or 8630 - Cadmium Plated.  
 CRES - PH13-8Mo, Passivated and Crome Plated.  
 Titanium - Alloy, TI-6AL-4V.



| Effective Length  | 1/8 (.125) Diameter          |                     | 3/16 (.188) Diameter         |                     | 1/4 (.250) Diameter          |              |
|---|------------------------------|---------------------|------------------------------|---------------------|------------------------------|--------------|
|   | AN392                        | Steel<br>MS20392    | AN393                        | MS20392             | AN394                        | MS20392      |
| 7/32  | -7                           | MS20392-1C7         | -7                           | MS20392-2C7         |                              |              |
| 9/32  | -9                           | MS20392-1C9         | -9                           | MS20392-2C9         |                              |              |
| 11/32   | -11                          | MS20392-1C11        | -11                          | MS20392-2C11        | -11                          | MS20392-3C11 |
| 13/32   | -13                          | MS20392-1C13        | -13                          | MS20392-2C13        | -13                          | MS20392-3C13 |
| 15/32   | -15                          | MS20392-1C15        | -15                          | MS20392-2C15        | -15                          | MS20392-3C15 |
| 17/32   | -17                          | MS20392-1C17        | -17                          | MS20392-2C17        | -17                          | MS20392-3C17 |
| 19/32   | -19                          | MS20392-1C19        | -19                          | MS20392-2C19        | -19                          | MS20392-3C19 |
| 21/32   | -21                          | MS20392-1C21        | -21                          | MS20392-2C21        | -21                          | MS20392-3C21 |
| 23/32   | -23                          | MS20392-1C23        | -23                          | MS20392-2C23        | -23                          | MS20392-3C23 |
| 25/32   | -25                          | MS20392-1C25        | -25                          | MS20392-2C25        | -25                          | MS20392-3C25 |
| 27/32   | -27                          | MS20392-1C27        | -27                          | MS20392-2C27        | -27                          | MS20392-3C27 |
| 29/32   | -29                          | MS20392-1C29        | -29                          | MS20392-2C29        | -29                          | MS20392-3C29 |
| 31/32   | -31                          | MS20392-1C31        | -31                          | MS20392-2C31        | -31                          | MS20392-3C31 |
| 1-1/32  | -33                          | MS20392-1C33        | -33                          | MS20392-2C33        | -33                          | MS20392-3C33 |
| 1-3/32  | -35                          | MS20392-1C35        | -35                          | MS20392-2C35        | -35                          | MS20392-3C35 |
| 1-5/32  | -37                          | MS20392-1C37        | -37                          | MS20392-2C37        | -37                          | MS20392-3C37 |
| 1-7/32  | -39                          | MS20392-1C39        | -39                          | MS20392-2C39        | -39                          | MS20392-3C39 |
| 1-9/32  | -41                          | MS20392-1C41        | -41                          | MS20392-2C41        | -41                          | MS20392-3C41 |
| 1-11/32   | -43                          | MS20392-1C43        | -43                          | MS20392-2C43        | -43                          | MS20392-3C43 |
| 1-13/32   | -45                          | MS20392-1C45        | -45                          | MS20392-2C45        | -45                          | MS20392-3C45 |
| 1-15/32   | -47                          | MS20392-1C47        | -47                          | MS20392-2C47        | -47                          | MS20392-3C47 |
| 1-17/32   | -49                          | MS20392-1C49        | -49                          | MS20392-2C49        | -49                          | MS20392-3C49 |
| 1-19/32   | -51                          | MS20392-1C51        | -51                          | MS20392-2C51        | -51                          | MS20392-3C51 |
| 1-21/32   | -53                          | MS20392-1C53        | -53                          | MS20392-2C53        | -53                          | MS20392-3C53 |
| 1-23/32   | -55                          | MS20392-1C55        | -55                          | MS20392-2C55        | -55                          | MS20392-3C55 |
| 1-25/32   | -57                          | MS20392-1C57        | -57                          | MS20392-2C57        | -57                          | MS20392-3C57 |
| 1-27/32   | -59                          | MS20392-1C59        | -59                          | MS20392-2C59        | -59                          | MS20392-3C59 |
| 1-29/32   | -61                          | MS20392-1C61        | -61                          | MS20392-2C61        | -61                          | MS20392-3C61 |
| 1-31/32   | -63                          | MS20392-1C63        | -63                          | MS20392-2C63        | -63                          | MS20392-3C63 |
| 2-1/32  | -65                          | MS20392-1C65        | -65                          | MS20392-2C65        | -65                          | MS20392-3C65 |
| 2-3/32  | -67                          | MS20392-1C67        | -67                          | MS20392-2C67        | -67                          | MS20392-3C67 |
| 2-5/32  |                              |                     | -69                          | MS20392-2C69        | -69                          | MS20392-3C69 |
| 2-7/32  |                              |                     | -71                          | MS20392-2C71        | -71                          | MS20392-3C71 |
| 2-9/32  |                              |                     | -73                          | MS20392-2C73        | -73                          | MS20392-3C73 |
| 2-11/32   |                              |                     | -75                          | MS20392-2C75        | -75                          | MS20392-3C75 |
| 2-13/32   |                              |                     | -77                          | MS20392-2C77        | -77                          | MS20392-3C77 |
| 2-15/32   |                              |                     | -79                          | MS20392-2C79        | -79                          | MS20392-3C79 |
| 2-17/32   |                              |                     | -81                          | MS20392-2C81        | -81                          | MS20392-3C81 |
| 2-19/32   |                              |                     | -83                          | MS20392-2C83        | -83                          | MS20392-3C83 |
| 2-21/32   |                              |                     | -85                          | MS20392-2C85        | -85                          | MS20392-3C85 |
| 2-23/32   |                              |                     | -87                          | MS20392-2C87        | -87                          | MS20392-3C87 |
| 2-25/32   |                              |                     | -89                          | MS20392-2C89        | -89                          | MS20392-3C89 |
| 2-27/32   |                              |                     | -91                          | MS20392-2C91        | -91                          | MS20392-3C91 |
| 2-29/32   |                              |                     | -93                          | MS20392-2C93        | -93                          | MS20392-3C93 |
| 2-31/32   |                              |                     | -95                          | MS20392-2C95        | -95                          | MS20392-3C95 |
| 3-1/32  |                              |                     |                              |                     | -97                          | MS20392-3C97 |
| Steel<br>CRES<br>Titanium<br>Use Washer<br>Use Cotter Pin | <b>Double Shear Strength</b> |                     | <b>Double Shear Strength</b> |                     | <b>Double Shear Strength</b> |              |
|   | 1,840 LBS                    |                     | 4,140 LBS                    |                     | 7,360 LBS                    |              |
|   | 3,080                        |                     | 6,900                        |                     | 12,280                       |              |
|   | 2,340                        |                     | 5,240                        |                     | 9,320                        |              |
|   | AN960-4                      |                     | AN960-10                     |                     | AN960-416                    |              |
| MS24665-130 (Steel)                                       |                              | MS24665-130 (Steel) |                              | MS24665-130 (Steel) |                              |              |
| MS24665-149 (CRES)  |                              | MS24665-149 (CRES)  |                              | MS24665-149 (CRES)  |                              |              |

# COTTER PIN MS24665 (AN380 and AN381)

Steel - Cadmium Plated per QQ-P-416, Type II, Class 3  
 CRES - 300 Series Stainless Steel



Standard Package - 100

| Diameter       | Length         | Cadmium Plated Steel |             | Stainless Steel |             | Hole Size<br>Recommended | Use with:*    |          |
|----------------|----------------|----------------------|-------------|-----------------|-------------|--------------------------|---------------|----------|
|                |                | AN380                | MS24665     | AN381           | MS24665     |                          | AN310/320     | MS20392  |
| 1/32<br>(.031) | 3/8            | -1-1                 | MS24665-3   | -1-6            | MS24665-20  | (.047)                   |               |          |
|                | 1/2            | -1-2                 | MS24665-5   | -1-8            | MS24665-22  |                          |               |          |
|                | 3/4            | -1-3                 | MS24665-7   | -1-12           | MS24665-24  |                          |               |          |
|                | 1              | -1-4                 | MS24665-9   | -1-16           | MS24665-26  |                          |               |          |
|                | 1-1/4          | -1-5                 | MS24665-10  | -1-20           | MS24665-27  |                          |               |          |
|                | 1-1/2          | -1-6                 | MS24665-11  | -1-24           | MS24665-28  |                          |               |          |
| 1/16<br>(.062) | 3/8            | -2-1                 | MS24665-130 | -2-6            | MS24665-149 | (.078)                   | -3<br>-4,-5   | -1,-2,-3 |
|                | 1/2            | -2-2                 | MS24665-132 | -2-8            | MS24665-151 |                          |               |          |
|                | 3/4            | -2-3                 | MS24665-134 | -2-12           | MS24665-153 |                          |               |          |
|                | 1              | -2-4                 | MS24665-136 | -2-16           | MS24665-155 |                          |               |          |
|                | 1-1/4          | -2-5                 |             | -2-20           | MS24665-157 |                          |               |          |
|                | 1-1/2          | -2-6                 | MS24665-140 | -2-24           | MS24665-159 |                          |               |          |
|                | 1-3/4          | -2-7                 | MS24665-142 | -2-28           | MS24665-161 |                          |               |          |
|                | 2              | -2-8                 | MS24665-143 | -2-32           | MS24665-162 |                          |               |          |
|                | 2-1/2          | -2-10                | MS24665-144 | -2-40           | MS24665-163 |                          |               |          |
|                | 3              | -2-12                | MS24665-145 | -2-48           | MS24665-164 |                          |               |          |
| 3/32<br>(.094) | 1/2            | -3-2                 | MS24665-281 | -3-8            | MS24665-298 | (.109)                   | -6,-7,-8      | -4,-5    |
|                | 3/4            | -3-3                 | MS24665-283 | -3-12           | MS24665-300 |                          |               |          |
|                | 1              | -3-4                 | MS24665-285 | -3-16           | MS24665-302 |                          |               |          |
|                | 1-1/4          | -3-5                 | MS24665-287 | -3-20           | MS24665-304 |                          |               |          |
|                | 1-1/2          | -3-6                 | MS24665-289 | -3-24           | MS24665-306 |                          |               |          |
|                | 1-3/4          | -3-7                 | MS24665-291 | -3-28           | MS24665-308 |                          |               |          |
|                | 2              | -3-8                 | MS24665-292 | -3-32           | MS24665-309 |                          |               |          |
|                | 2-1/2          | -3-10                | MS24665-294 | -3-40           | MS24665-311 |                          |               |          |
|                | 3              | -3-12                | MS24665-295 | -3-48           | MS24665-312 |                          |               |          |
| 1/8<br>(.125)  | 1/2            | -4-2                 | MS24665-349 | -4-8            | MS24665-366 | (.141)                   | -9,-10<br>-12 |          |
|                | 3/4            | -4-3                 | MS24665-351 | -4-12           | MS24665-368 |                          |               |          |
|                | 1              | -4-4                 | MS24665-353 | -4-16           | MS24665-370 |                          |               |          |
|                | 1-1/4          | -4-5                 | MS24665-355 | -4-20           | MS24665-372 |                          |               |          |
|                | 1-1/2          | -4-6                 | MS24665-357 | -4-24           | MS24665-374 |                          |               |          |
|                | 1-3/4          | -4-7                 | MS24665-359 | -4-28           | MS24665-376 |                          |               |          |
|                | 2              | -4-8                 | MS24665-360 | -4-32           | MS24665-377 |                          |               |          |
|                | 2-1/2          | -4-10                | MS24665-362 | -4-40           | MS24665-379 |                          |               |          |
|                | 3              | -4-12                | MS24665-363 | -4-48           | MS24665-380 |                          |               |          |
| 5/32<br>(.156) | 1/2            | -5-2                 | MS24665-417 | -5-8            | MS24665-435 | (.172)                   |               |          |
|                | 3/4            | -5-3                 | MS24665-418 | -5-12           | MS24665-436 |                          |               |          |
|                | 1              | -5-4                 | MS24665-419 | -5-16           | MS24665-437 |                          |               |          |
|                | 1-1/4          | -5-5                 | MS24665-421 | -5-20           | MS24665-439 |                          |               |          |
|                | 1-1/2          | -5-6                 | MS24665-423 | -5-24           | MS24665-441 |                          |               |          |
|                | 1-3/4          | -5-7                 | MS24665-425 | -5-28           | MS24665-443 |                          |               |          |
|                | 2              | -5-8                 | MS24665-426 | -5-32           | MS24665-444 |                          |               |          |
|                | 2-1/4          | -5-9                 | MS24665-427 | -5-36           | MS24665-445 |                          |               |          |
|                | 2-1/2          | -5-10                | MS24665-428 | -5-40           | MS24665-446 |                          |               |          |
|                | 3              | -5-12                | MS24665-430 | -5-48           | MS24665-448 |                          |               |          |
|                | 3-1/2          | -5-14                | MS24665-431 | -5-56           | MS24665-449 |                          |               |          |
|                | 4              | -5-16                | MS24665-432 | -5-64           | MS24665-450 |                          |               |          |
|                | 3/16<br>(.188) | 3/4                  | -6-3        | MS24665-490     | -6-12       |                          |               |          |
| 1              |                | -6-4                 | MS24665-491 | -6-16           | MS24665-509 |                          |               |          |
| 1-1/4          |                | -6-5                 | MS24665-493 | -6-20           | MS24665-511 |                          |               |          |
| 1-1/2          |                | -6-6                 | MS24665-495 | -6-24           | MS24665-513 |                          |               |          |
| 1-3/4          |                | -6-7                 | MS24665-497 | -6-28           | MS24665-515 |                          |               |          |
| 2              |                | -6-8                 | MS24665-498 | -6-32           | MS24665-516 |                          |               |          |
| 2-1/2          |                | -6-10                | MS24665-500 | -6-40           | MS24665-518 |                          |               |          |
| 3              |                | -6-12                | MS24665-502 | -6-48           | MS24665-520 |                          |               |          |
| 3-1/2          |                | -6-14                | MS24665-503 | -6-56           | MS24665-521 |                          |               |          |
| 4              |                | -6-16                | MS24665-504 | -6-64           | MS24665-522 |                          |               |          |

Note: \*Reference MS33540



# CLECO FASTENERS



## C" SERIES CLECO

The "C" series fasteners are the standard (button) plunger type "cleco". Plier operated, spring loaded with a strong, durable steel, plated body. Designed for sheets that require precise holding of the material while other operations are completed.



| Part#  | Color Code | G(grip) | Dia  | Drill Size |
|--------|------------|---------|------|------------|
| C-3/32 | zinc       |         | 3/32 | #40        |
| C-1/8  | copper     | 0-1/4"  | 1/8  | #30        |
| C-5/32 | black      |         | 5/32 | #20        |
| C-3/16 | brass      |         | 3/16 | #10        |

## SIDE GRIP CLAMPS

Side grip clamps are designed to clamp at the edge of the work area. Ideal for holding workpieces of all types, particularly during bonding, sealing, or glueing operations.

- Plier operated
- Spring loaded
- Constant clamping force
- Use C-200 installation plier



| Part# | Grip   | Reach | Length  |
|-------|--------|-------|---------|
| 123SG | 0-1/2" | 1/2"  | 2-3/16" |
| 124SG | 0-3/4" | 1/2"  | 2-7/16" |
| 125SG | 0-1/2" | 1"    | 2-3/16" |
| 126SG | 0-3/4" | 1"    | 2-7/16" |

## WINGED SERIES CLAMPS

The Winged type Cleco allows wide ranges of clamping thickness and the ability to apply a desired clamping pressure.

| Part#    | Alternate#  | G(grip) | Diameter |
|----------|-------------|---------|----------|
| WNX-3/32 | KWN-FW-3/32 |         | 3/32     |
| WNX-18   | KWN-FW-1/8  | 0-1/2"* | 1/8      |
| WNX-5/32 | KWN-FW-5/32 |         | 5/32     |
| WNX-3/16 | KWN-FW-3/16 |         | 3/16     |
| WNX-1/4  | KWN-FW-1/4  |         | 1/4      |

\*Clamps with greater grip range in stock.



## DRILL STOPS



Designed as a versatile aid that helps eliminate drill bit breakage and sure stop to regulate hole depth.

- Locks in drill with set screws
- Unique rounded face eliminates surface marring.
- Color coded and permanently marked by size.

| Part#     | Color Code | Drill Size |
|-----------|------------|------------|
| CLDS-50   | Black      | #50        |
| CLDS-40   | Zinc       | #40        |
| CLDS-30   | Copper     | #30        |
| CLDS-28   | Zinc       | #28        |
| CLDS-21   | Black      | #21        |
| CLDS-20   | Zinc       | #20        |
| CLDS-12   | Brass      | #12        |
| CLDS-10   | Brass      | #10        |
| CLDS-1/4  | Copper     | 1/4        |
| CLDS-5/16 | Black      | 5/16       |

## INSTALLATION TOOLS - Model C-200

For installing all Cleco plier operated fasteners.



# HEAVY DUTY JOBBERS LENGTH DRILL BITS AIRCRAFT EXTENSION DRILLS (135 Deg) LEFT HAND DRILLS (118 Deg)

(135 Deg)



## High Speed Steel, Surface Treated, 135Deg Split Point

Originally designed to drill cotter pin holes, these heavy duty drills are suitable for drilling high tensile strength steels. The 135Deg split point is self centering, and reduces "walking" at the drill point.

Made in USA



| R18HD Wire Sizes<br>Standard Package 12 |     |           |            | R10HD FRACTIONAL SIZES<br>Standard Package 12 (6ea 19/64 to 1/2) |       |           |
|---|-----|-----------|------------|--|-------|-----------|
| Part#                                   | Dia | Dec Equiv | Rivet Size | Part#  | Dia   | Dec Equiv |
| 18454                                   | #54 | .0550     |            | 10404  | 1/16  | .0625     |
| 18453                                   | #53 | .0595     |            | 10405  | 5/64  | .0781     |
| 18452                                   | #52 | .0635     |            | 10406  | 3/32  | .0938     |
| 18451                                   | #51 | .0679     |            | 10407  | 7/64  | .1094     |
| 18450                                   | #50 | .0700     |            | 10408  | 1/8   | .1250     |
| 18449                                   | #49 | .0730     |            | 10409  | 9/64  | .1406     |
| 18448                                   | #48 | .0760     |            | 10410  | 5/32  | .1562     |
| 18447                                   | #47 | .0785     |            | 10411  | 11/64 | .1719     |
| 18446                                   | #46 | .0810     |            | 10412  | 3/16  | .1875     |
| 18445                                   | #45 | .0820     |            | 10413  | 13/64 | .2031     |
| 18444                                   | #44 | .0860     |            | 10414  | 7/32  | .2188     |
| 18443                                   | #43 | .0890     |            | 10415  | 15/64 | .2344     |
| 18442                                   | #42 | .0935     |            | 10416  | 1/4   | .2500     |
| 18441                                   | #41 | .0960     | 3/32 Nom   | 10417  | 17/64 | .2656     |
| 18440                                   | #40 | .0980     |            | 10418  | 9/32  | .2812     |
| 18439                                   | #39 | .0995     |            | 10419  | 19/64 | .2969     |
| 18438                                   | #38 | .1015     |            | 10420  | 5/16  | .3125     |
| 18437                                   | #37 | .1040     |            | 10421  | 21/64 | .3281     |
| 18436                                   | #36 | .1065     |            | 10422  | 11/32 | .3438     |
| 18435                                   | #35 | .1100     |            | 10423  | 23/64 | .3594     |
| 18434                                   | #34 | .1110     |            | 10424  | 3/8   | .3750     |
| 18433                                   | #33 | .1130     |            | 10425  | 25/64 | .3906     |
| 18432                                   | #32 | .1160     |            | 10426  | 13/32 | .4062     |
| 18431                                   | #31 | .1200     |            | 10427  | 27/64 | .4219     |
| 18430                                   | #30 | .1285     | 1/8 Nom    | 10428  | 7/16  | .4375     |
| 18429                                   | #29 | .1360     |            | 10429  | 29/64 | .4531     |
| 18428                                   | #28 | .1405     |            | 10430  | 15/32 | .4688     |
| 18427                                   | #27 | .1440     | 1/8 O/S    | 10431  | 31/64 | .4844     |
| 18426                                   | #26 | .1470     |            | 10432  | 1/2   | .5000     |
| 18425                                   | #25 | .1495     |            | 10433  | 33/64 | .5156     |
| 18424                                   | #24 | .1520     |            | 10434  | 17/32 | .5312     |
| 18423                                   | #23 | .1540     |            | 10435  | 35/64 | .5469     |
| 18422                                   | #22 | .1570     |            | 10436  | 9/16  | .5625     |
| 18421                                   | #21 | .1590     |            | 10437  | 37/64 | .5781     |
| 18420                                   | #20 | .1610     | 5/32 Nom   | 10438  | 19/32 | .5937     |
| 18419                                   | #19 | .1660     |            | 10439  | 39/64 | .6094     |
| 18418                                   | #18 | .1695     |            | 10440  | 5/8   | .6250     |
| 18417                                   | #17 | .1730     |            | 10441  | 41/64 | .6406     |
| 18416                                   | #16 | .1770     | 5/32 O/S   | 10442  | 21/32 | .6562     |
| 18415                                   | #15 | .1800     |            | 10443  | 43/64 | .6719     |
| 18414                                   | #14 | .1820     |            | 10444  | 11/16 | .6875     |
| 18413                                   | #13 | .1850     |            | 10445  | 45/64 | .7031     |
| 18412                                   | #12 | .1890     |            | 10446  | 23/32 | .7187     |
| 18411                                   | #11 | .1910     |            | 10447  | 47/64 | .7344     |
| 18410                                   | #10 | .1935     | 3/16 Nom   | 10448  | 3/4   | .7500     |
| 18409                                   | #9  | .1960     |            | 10449  | 49/64 | .7656     |
| 18408                                   | #8  | .1990     |            | 10450  | 25/32 | .7812     |
| 18407                                   | #7  | .2010     |            | 10451  | 51/64 | .7969     |
| 18406                                   | #6  | .2040     |            | 10452  | 13/16 | .8125     |
| 18405                                   | #5  | .2055     | 3/16 O/S   | 10453  | 53/64 | .8281     |
| 18404                                   | #4  | .2090     |            | 10454  | 27/32 | .8438     |
| 18403                                   | #3  | .2130     |            | 10455  | 55/64 | .8594     |
| 18402                                   | #2  | .2210     |            | 10456  | 7/8   | .8750     |
| 18401                                   | #1  | .2230     |            | 10457  | 57/64 | .8906     |



### Unibit Step Drills

| Part#    | Hole  |       |          |
|----------|-------|-------|----------|
|          | Sizes | Steps | Sizes    |
| Unibit-1 | 13    | 32nds | 1/8-1/2  |
| Unibit-4 | 12.00 | 1/8   | 3/16-7/8 |

6" Extension Drills - Add -6 to Part#. 12" Extension Drills - Add -12 to Part#. Left Hand Drills - Add -L to Part#.

# SOLID RIVETS - Aluminum MS20470 and MS20426



Type A =1100 Soft , Low strength. Type AD=2117-t4 Medium Strength, 26,000 PSI\*. Type B =5056-H32, for magnesium Alloys, 24,000PSI. Type DD=2024-T4, High Strength, 37,000PSI. Type D=2017-T4, High Shear Strength,33,000PSI. Type E=7050-T73, High Shear, High Temp, 41,000PSI. Type K=2219-T81, High Strength, High Temp., 32,000PSI. Type T= Titanium,45CB, Ultimate Strength and Temp.,50,000PSI Note: \*Undriven Shear Strength.

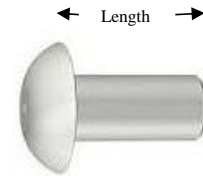
All Rivets sold by pound or 100 pc Count. To order by 100 pc, add '\_100' to part number (MS20470AD4-3\_100)

## Common Rivet Diameter/Length Chart

### MS20470

#### Universal Head - Approximate Pieces Per Pound

| LENGTH | DASH# | Nominal Diameter Dash# |           |           |           |           |           |            |            |
|--------|-------|------------------------|-----------|-----------|-----------|-----------|-----------|------------|------------|
|        |       | 1/16                   | 3/32      | 1/8       | 5/32      | 3/16      | 1/4       | 5/16       | 3/8        |
|        |       | 0.062                  | 0.094     | 0.125     | 0.156     | 0.187     | 0.250     | 0.312      | 0.375      |
|        |       | <b>-2</b>              | <b>-3</b> | <b>-4</b> | <b>-5</b> | <b>-6</b> | <b>-8</b> | <b>-10</b> | <b>-12</b> |
| 1/16   | -1    | 24390                  | 8457      | 3968      |           |           |           |            |            |
| 3/32   | -1.5  | 19608                  | 7194      | 3436      | 1908      | 1261      |           |            |            |
| 1/8    | -2    | 16667                  | 6250      | 3040      | 1712      | 1136      |           |            |            |
| 3/16   | -3    | 12658                  | 4926      | 2457      | 1418      | 952       | 427       |            |            |
| 1/4    | -4    | 10204                  | 4049      | 2066      | 1212      | 813       | 377       | 214        | 149        |
| 5/16   | -5    | 8547                   | 3436      | 1783      | 1057      | 714       | 338       | 193        | 135        |
| 3/8    | -6    | 7353                   | 2994      | 1565      | 935       | 633       | 306       | 177        | 123        |
| 7/16   | -7    | 6452                   | 2646      | 1397      | 840       | 571       | 279       | 163        | 114        |
| 1/2    | -8    | 5747                   | 2375      | 1261      | 763       | 521       | 257       | 151        | 105        |
| 9/16   | -9    | 5181                   | 2151      | 1148      | 699       | 476       | 238       | 141        | 98         |
| 5/8    | -10   | 5717                   | 1969      | 1055      | 645       | 441       | 222       | 132        | 92         |
| 11/16  | -11   | 4329                   | 1811      | 971       | 599       | 408       | 207       | 124        | 86         |
| 3/4    | -12   | 4000                   | 1681      | 909       | 559       | 382       | 195       | 117        | 81         |
| 7/8    | -14   | 3472                   | 1466      | 794       | 493       | 337       | 174       | 105        | 73         |
| 1      | -16   | 3067                   | 1300      | 709       | 441       | 301       | 157       | 95         | 66         |
| 1-1/8  | -18   | 2488                   | 1168      | 637       | 398       | 273       | 143       | 87         | 61         |
| 1-1/4  | -20   | 2092                   | 1059      | 581       | 364       | 249       | 132       | 81         | 56         |
| 1-3/8  | -22   |                        | 971       | 535       | 334       | 229       | 122       | 75         | 52         |
| 1-1/2  | -24   |                        | 893       | 493       | 310       | 212       | 113       | 69         | 49         |
| 1-3/4  | -28   |                        | 775       | 427       | 270       | 185       | 99        | 61         | 43         |
| 2      | -32   |                        | 680       | 377       | 238       | 163       | 88        | 55         | 38         |
| 2-1/4  | -36   |                        |           | 338       | 214       | 147       | 80        | 50         | 34         |
| 2-1/2  | -40   |                        |           | 306       | 194       | 133       | 73        | 45         | 31         |
| 2-3/4  | -44   |                        |           | 279       | 177       | 122       | 67        | 41         | 29         |
| 3      | -48   |                        |           | 257       | 163       | 112       | 62        | 38         | 27         |
| 3-1/4  | -52   |                        |           |           | 151       | 104       | 57        | 36         | 25         |
| 3-1/2  | -56   |                        |           |           | 141       | 97        | 53        | 33         | 23         |
| 3-3/4  | -60   |                        |           |           | 132       | 91        | 50        | 31         | 22         |
| 4      | -64   |                        |           |           | 124       | 85        | 47        | 30         | 21         |
| 4-1/4  | -68   |                        |           |           |           | 81        | 45        | 28         | 20         |
| 4-1/2  | -72   |                        |           |           |           | 76        | 42        | 27         | 19         |
| 4-3/4  | -76   |                        |           |           |           | 72        | 40        | 25         | 18         |
| 5      | -80   |                        |           |           |           | 69        | 38        | 24         | 17         |
| 5-1/4  | -84   |                        |           |           |           |           | 36        | 23         | 16         |
| 5-1/2  | -88   |                        |           |           |           |           | 35        | 22         | 15         |



MS20470

NAS1242 (1/64 Oversize)

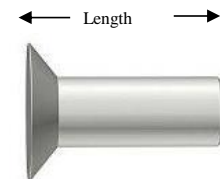
Typical Part#  
MS20470AD4-4

### MS20426

#### NAS1097

#### 100 Deg Countersunk Head - Approximate Pieces per Pound

| LENGTH | DASH# | -2    | -3   | -4   | -5   | -6   | -8  | -10 | -12 |
|--------|-------|-------|------|------|------|------|-----|-----|-----|
| 1/8    | -2    | 22727 |      |      |      |      |     |     |     |
| 3/16   | -3    | 15873 | 6211 |      |      |      |     |     |     |
| 1/4    | -4    | 12195 | 4901 | 2754 | 1677 | 1094 |     |     |     |
| 5/16   | -5    | 9900  | 4032 | 2267 | 1394 | 917  |     |     |     |
| 3/8    | -6    | 8333  | 3424 | 1930 | 1194 | 793  | 413 | 268 |     |
| 7/16   | -7    | 7194  | 2976 | 1677 | 1043 | 699  | 366 | 239 |     |
| 1/2    | -8    | 6329  | 2638 | 1485 | 925  | 621  | 328 | 215 | 140 |
| 9/16   | -9    | 5649  | 2364 | 1331 | 833  | 561  | 298 | 194 | 127 |
| 5/8    | -10   | 5102  | 2141 | 1207 | 757  | 512  | 273 | 178 | 117 |
| 11/16  | -11   | 4651  | 1956 | 1103 | 694  | 469  | 251 | 164 | 108 |
| 3/4    | -12   | 4273  | 1805 | 1017 | 641  | 434  | 234 | 152 | 101 |
| 7/8    | -14   | 3676  | 1557 | 877  | 555  | 378  | 204 | 132 | 88  |
| 1      | -16   | 3225  | 1371 | 775  | 490  | 334  | 181 | 117 | 79  |
| 1-1/8  | -18   | 2873  | 1223 | 689  | 438  | 299  | 163 | 105 | 71  |
| 1-1/4  | -20   | 2577  | 1106 | 625  | 395  | 271  | 148 | 95  | 65  |
| 1-3/8  | -22   |       | 1008 | 568  | 361  | 248  | 135 | 88  | 59  |
| 1-1/2  | -24   |       | 925  | 523  | 332  | 228  | 125 | 81  | 55  |
| 1-3/4  | -28   |       | 798  | 444  | 286  | 197  | 108 | 70  | 47  |
| 2      | -32   |       | 701  | 392  | 251  | 173  | 95  | 61  | 42  |
| 2-1/2  | -40   |       |      | 315  | 200  | 139  | 77  | 50  | 34  |
| 3      | -48   |       |      | 264  | 168  | 117  | 64  | 42  | 29  |
| 3-1/2  | -56   |       |      |      | 145  | 100  | 55  | 35  | 24  |



MS20426

NAS1241 (1/64 Oversize)

Typical Part#  
MS20426AD5-4

# SOLID RIVETS - Aluminum MS20426AD - Pound



## MS20426AD

### Flush Head

Nominal Diameter Dash#

|        | 1/16           | 3/32           | 1/8            | 5/32           | 3/16           | 1/4            |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|
|        | 0.062          | 0.094          | 0.125          | 0.156          | 0.187          | .250           |
| Length | -2             | -3             | -4             | -5             | -6             | -8             |
| 1/16   |                |                |                |                |                |                |
| 3/32   |                |                |                |                |                |                |
| 1/8    | MS20426AD2-2   |                |                |                |                |                |
| 5/32   | MS20426AD2-2.5 |                |                |                |                |                |
| 3/16   | MS20426AD2-3   | MS20426AD3-3   |                |                |                |                |
| 7/32   | MS20426AD2-3.5 | MS20426AD3-3.5 |                |                |                |                |
| 1/4    | MS20426AD2-4   | MS20426AD3-4   | MS20426AD4-4   | MS20426AD5-4   | MS20426AD6-4   |                |
| 9/32   | MS20426AD2-4.5 | MS20426AD3-4.5 | MS20426AD4-4.5 | MS20426AD5-4.5 | MS20426AD6-4.5 |                |
| 5/16   | MS20426AD2-5   | MS20426AD3-5   | MS20426AD4-5   | MS20426AD5-5   | MS20426AD6-5   |                |
| 11/32  | MS20426AD2-5.5 | MS20426AD3-5.5 | MS20426AD4-5.5 | MS20426AD5-5.5 | MS20426AD6-5.5 |                |
| 3/8    | MS20426AD2-6   | MS20426AD3-6   | MS20426AD4-6   | MS20426AD5-6   | MS20426AD6-6   | MS20426AD8-6   |
| 13/32  | MS20426AD2-6.5 | MS20426AD3-6.5 | MS20426AD4-6.5 | MS20426AD5-6.5 | MS20426AD6-6.5 | MS20426AD8-6.5 |
| 7/16   | MS20426AD2-7   | MS20426AD3-7   | MS20426AD4-7   | MS20426AD5-7   | MS20426AD6-7   | MS20426AD8-7   |
| 1/2    | MS20426AD2-8   | MS20426AD3-8   | MS20426AD4-8   | MS20426AD5-8   | MS20426AD6-8   | MS20426AD8-8   |
| 9/16   | MS20426AD2-9   | MS20426AD3-9   | MS20426AD4-9   | MS20426AD5-9   | MS20426AD6-9   | MS20426AD8-9   |
| 5/8    | MS20426AD2-10  | MS20426AD3-10  | MS20426AD4-10  | MS20426AD5-10  | MS20426AD6-10  | MS20426AD8-10  |
| 11/16  | MS20426AD2-11  | MS20426AD3-11  | MS20426AD4-11  | MS20426AD5-11  | MS20426AD6-11  | MS20426AD8-11  |
| 3/4    | MS20426AD2-12  | MS20426AD3-12  | MS20426AD4-12  | MS20426AD5-12  | MS20426AD6-12  | MS20426AD8-12  |
| 7/8    | MS20426AD2-14  | MS20426AD3-14  | MS20426AD4-14  | MS20426AD5-14  | MS20426AD6-14  | MS20426AD8-14  |
| 1      | MS20426AD2-16  | MS20426AD3-16  | MS20426AD4-16  | MS20426AD5-16  | MS20426AD6-16  | MS20426AD8-16  |
| 1-1/8  | MS20426AD2-18  | MS20426AD3-18  | MS20426AD4-18  | MS20426AD5-18  | MS20426AD6-18  | MS20426AD8-18  |
| 1-1/4  | MS20426AD2-20  | MS20426AD3-20  | MS20426AD4-20  | MS20426AD5-20  | MS20426AD6-20  | MS20426AD8-20  |
| 1-3/8  | MS20426AD2-22  | MS20426AD3-22  | MS20426AD4-22  | MS20426AD5-22  | MS20426AD6-22  | MS20426AD8-22  |
| 1-1/2  | MS20426AD2-24  | MS20426AD3-24  | MS20426AD4-24  | MS20426AD5-24  | MS20426AD6-24  | MS20426AD8-24  |
| 1-3/4  | MS20426AD2-28  | MS20426AD3-28  | MS20426AD4-28  | MS20426AD5-28  | MS20426AD6-28  | MS20426AD8-28  |
| 2      | MS20426AD2-32  | MS20426AD3-32  | MS20426AD4-32  | MS20426AD5-32  | MS20426AD6-32  | MS20426AD8-32  |
| 2-1/4  | MS20426AD2-36  | MS20426AD3-36  | MS20426AD4-36  | MS20426AD5-36  | MS20426AD6-36  | MS20426AD8-36  |
| 2-1/2  | MS20426AD2-40  | MS20426AD3-40  | MS20426AD4-40  | MS20426AD5-40  | MS20426AD6-40  | MS20426AD8-40  |
| 2-3/4  | MS20426AD2-44  | MS20426AD3-44  | MS20426AD4-44  | MS20426AD5-44  | MS20426AD6-44  | MS20426AD8-44  |
| 3      | MS20426AD2-48  | MS20426AD3-48  | MS20426AD4-48  | MS20426AD5-48  | MS20426AD6-48  | MS20426AD8-48  |

# SOLID RIVETS - Aluminum MS20426AD - 100 Piece Bag

## MS20426AD

### Flush Head

Nominal Diameter Dash#

|        | 1/16            | 3/32            | 1/8             | 5/32            | 3/16            | 1/4             |
|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|        | 0.062           | 0.094           | 0.125           | 0.156           | 0.187           | .250            |
| Length | -2              | -3              | -4              | -5              | -6              | -8              |
| 1/16   |                 |                 |                 |                 |                 |                 |
| 3/32   |                 |                 |                 |                 |                 |                 |
| 1/8    | MS20426AD2-2C   |                 |                 |                 |                 |                 |
| 5/32   | MS20426AD2-2.5C |                 |                 |                 |                 |                 |
| 3/16   | MS20426AD2-3C   | MS20426AD3-3C   |                 |                 |                 |                 |
| 7/32   | MS20426AD2-3.5C | MS20426AD3-3.5C |                 |                 |                 |                 |
| 1/4    | MS20426AD2-4C   | MS20426AD3-4C   | MS20426AD4-4C   | MS20426AD5-4C   | MS20426AD6-4C   |                 |
| 9/32   | MS20426AD2-4.5C | MS20426AD3-4.5C | MS20426AD4-4.5C | MS20426AD5-4.5C | MS20426AD6-4.5C |                 |
| 5/16   | MS20426AD2-5C   | MS20426AD3-5C   | MS20426AD4-5C   | MS20426AD5-5C   | MS20426AD6-5C   |                 |
| 11/32  | MS20426AD2-5.5C | MS20426AD3-5.5C | MS20426AD4-5.5C | MS20426AD5-5.5C | MS20426AD6-5.5C |                 |
| 3/8    | MS20426AD2-6C   | MS20426AD3-6C   | MS20426AD4-6C   | MS20426AD5-6C   | MS20426AD6-6C   | MS20426AD8-6C   |
| 13/32  | MS20426AD2-6.5C | MS20426AD3-6.5C | MS20426AD4-6.5C | MS20426AD5-6.5C | MS20426AD6-6.5C | MS20426AD8-6.5C |
| 7/16   | MS20426AD2-7C   | MS20426AD3-7C   | MS20426AD4-7C   | MS20426AD5-7C   | MS20426AD6-7C   | MS20426AD8-7C   |
| 1/2    | MS20426AD2-8C   | MS20426AD3-8C   | MS20426AD4-8C   | MS20426AD5-8C   | MS20426AD6-8C   | MS20426AD8-8C   |
| 9/16   | MS20426AD2-9C   | MS20426AD3-9C   | MS20426AD4-9C   | MS20426AD5-9C   | MS20426AD6-9C   | MS20426AD8-9C   |
| 5/8    | MS20426AD2-10C  | MS20426AD3-10C  | MS20426AD4-10C  | MS20426AD5-10C  | MS20426AD6-10C  | MS20426AD8-10C  |
| 11/16  | MS20426AD2-11C  | MS20426AD3-11C  | MS20426AD4-11C  | MS20426AD5-11C  | MS20426AD6-11C  | MS20426AD8-11C  |
| 3/4    | MS20426AD2-12C  | MS20426AD3-12C  | MS20426AD4-12C  | MS20426AD5-12C  | MS20426AD6-12C  | MS20426AD8-12C  |
| 7/8    | MS20426AD2-14C  | MS20426AD3-14C  | MS20426AD4-14C  | MS20426AD5-14C  | MS20426AD6-14C  | MS20426AD8-14C  |
| 1      | MS20426AD2-16C  | MS20426AD3-16C  | MS20426AD4-16C  | MS20426AD5-16C  | MS20426AD6-16C  | MS20426AD8-16C  |
| 1-1/8  | MS20426AD2-18C  | MS20426AD3-18C  | MS20426AD4-18C  | MS20426AD5-18C  | MS20426AD6-18C  | MS20426AD8-18C  |
| 1-1/4  | MS20426AD2-20C  | MS20426AD3-20C  | MS20426AD4-20C  | MS20426AD5-20C  | MS20426AD6-20C  | MS20426AD8-20C  |
| 1-3/8  | MS20426AD2-22C  | MS20426AD3-22C  | MS20426AD4-22C  | MS20426AD5-22C  | MS20426AD6-22C  | MS20426AD8-22C  |
| 1-1/2  | MS20426AD2-24C  | MS20426AD3-24C  | MS20426AD4-24C  | MS20426AD5-24C  | MS20426AD6-24C  | MS20426AD8-24C  |
| 1-3/4  | MS20426AD2-28C  | MS20426AD3-28C  | MS20426AD4-28C  | MS20426AD5-28C  | MS20426AD6-28C  | MS20426AD8-28C  |
| 2      | MS20426AD2-32C  | MS20426AD3-32C  | MS20426AD4-32C  | MS20426AD5-32C  | MS20426AD6-32C  | MS20426AD8-32C  |
| 2-1/4  | MS20426AD2-36C  | MS20426AD3-36C  | MS20426AD4-36C  | MS20426AD5-36C  | MS20426AD6-36C  | MS20426AD8-36C  |
| 2-1/2  | MS20426AD2-40C  | MS20426AD3-40C  | MS20426AD4-40C  | MS20426AD5-40C  | MS20426AD6-40C  | MS20426AD8-40C  |
| 2-3/4  | MS20426AD2-44C  | MS20426AD3-44C  | MS20426AD4-44C  | MS20426AD5-44C  | MS20426AD6-44C  | MS20426AD8-44C  |
| 3      | MS20426AD2-48C  | MS20426AD3-48C  | MS20426AD4-48C  | MS20426AD5-48C  | MS20426AD6-48C  | MS20426AD8-48C  |

# SOLID RIVETS - Aluminum MS20470AD - Pound



## MS20470AD Universal Head

Nominal Diameter Dash#

|        | 1/16           | 3/32           | 1/8            | 5/32           | 3/16           | 1/4            |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|
| Length | 0.062          | 0.094          | 0.125          | 0.156          | 0.187          | .250           |
|        | -2             | -3             | -4             | -5             | -6             | -8             |
| 1/16   | MS20470AD2-1   | MS20470AD3-1   | MS20470AD4-1   |                |                |                |
| 3/32   | MS20470AD2-1.5 | MS20470AD3-1.5 | MS20470AD4-1.5 | MS20470AD5-1.5 | MS20470AD6-1.5 |                |
| 1/8    | MS20470AD2-2   | MS20470AD3-2   | MS20470AD4-2   | MS20470AD5-2   | MS20470AD6-2   |                |
| 5/32   | MS20470AD2-2.5 | MS20470AD3-2.5 | MS20470AD4-2.5 | MS20470AD5-2.5 | MS20470AD6-2.5 |                |
| 3/16   | MS20470AD2-3   | MS20470AD3-3   | MS20470AD4-3   | MS20470AD5-3   | MS20470AD6-3   | MS20470AD8-3   |
| 7/32   | MS20470AD2-3.5 | MS20470AD3-3.5 | MS20470AD4-3.5 | MS20470AD5-3.5 | MS20470AD6-3.5 | MS20470AD8-3.5 |
| 1/4    | MS20470AD2-4   | MS20470AD3-4   | MS20470AD4-4   | MS20470AD5-4   | MS20470AD6-4   | MS20470AD8-4   |
| 9/32   | MS20470AD2-4.5 | MS20470AD3-4.5 | MS20470AD4-4.5 | MS20470AD5-4.5 | MS20470AD6-4.5 | MS20470AD8-4.5 |
| 5/16   | MS20470AD2-5   | MS20470AD3-5   | MS20470AD4-5   | MS20470AD5-5   | MS20470AD6-5   | MS20470AD8-5   |
| 11/32  | MS20470AD2-5.5 | MS20470AD3-5.5 | MS20470AD4-5.5 | MS20470AD5-5.5 | MS20470AD6-5.5 | MS20470AD8-5.5 |
| 3/8    | MS20470AD2-6   | MS20470AD3-6   | MS20470AD4-6   | MS20470AD5-6   | MS20470AD6-6   | MS20470AD8-6   |
| 13/32  | MS20470AD2-6.5 | MS20470AD3-6.5 | MS20470AD4-6.5 | MS20470AD5-6.5 | MS20470AD6-6.5 | MS20470AD8-6.5 |
| 7/16   | MS20470AD2-7   | MS20470AD3-7   | MS20470AD4-7   | MS20470AD5-7   | MS20470AD6-7   | MS20470AD8-7   |
| 1/2    | MS20470AD2-8   | MS20470AD3-8   | MS20470AD4-8   | MS20470AD5-8   | MS20470AD6-8   | MS20470AD8-8   |
| 9/16   | MS20470AD2-9   | MS20470AD3-9   | MS20470AD4-9   | MS20470AD5-9   | MS20470AD6-9   | MS20470AD8-9   |
| 5/8    | MS20470AD2-10  | MS20470AD3-10  | MS20470AD4-10  | MS20470AD5-10  | MS20470AD6-10  | MS20470AD8-10  |
| 11/16  | MS20470AD2-11  | MS20470AD3-11  | MS20470AD4-11  | MS20470AD5-11  | MS20470AD6-11  | MS20470AD8-11  |
| 3/4    | MS20470AD2-12  | MS20470AD3-12  | MS20470AD4-12  | MS20470AD5-12  | MS20470AD6-12  | MS20470AD8-12  |
| 7/8    | MS20470AD2-14  | MS20470AD3-14  | MS20470AD4-14  | MS20470AD5-14  | MS20470AD6-14  | MS20470AD8-14  |
| 1      | MS20470AD2-16  | MS20470AD3-16  | MS20470AD4-16  | MS20470AD5-16  | MS20470AD6-16  | MS20470AD8-16  |
| 1-1/8  | MS20470AD2-18  | MS20470AD3-18  | MS20470AD4-18  | MS20470AD5-18  | MS20470AD6-18  | MS20470AD8-18  |
| 1-1/4  | MS20470AD2-20  | MS20470AD3-20  | MS20470AD4-20  | MS20470AD5-20  | MS20470AD6-20  | MS20470AD8-20  |
| 1-3/8  | MS20470AD2-22  | MS20470AD3-22  | MS20470AD4-22  | MS20470AD5-22  | MS20470AD6-22  | MS20470AD8-22  |
| 1-1/2  | MS20470AD2-24  | MS20470AD3-24  | MS20470AD4-24  | MS20470AD5-24  | MS20470AD6-24  | MS20470AD8-24  |
| 1-3/4  | MS20470AD2-28  | MS20470AD3-28  | MS20470AD4-28  | MS20470AD5-28  | MS20470AD6-28  | MS20470AD8-28  |
| 2      | MS20470AD2-32  | MS20470AD3-32  | MS20470AD4-32  | MS20470AD5-32  | MS20470AD6-32  | MS20470AD8-32  |
| 2-1/4  | MS20470AD2-36  | MS20470AD3-36  | MS20470AD4-36  | MS20470AD5-36  | MS20470AD6-36  | MS20470AD8-36  |
| 2-1/2  | MS20470AD2-40  | MS20470AD3-40  | MS20470AD4-40  | MS20470AD5-40  | MS20470AD6-40  | MS20470AD8-40  |
| 2-3/4  | MS20470AD2-44  | MS20470AD3-44  | MS20470AD4-44  | MS20470AD5-44  | MS20470AD6-44  | MS20470AD8-44  |
| 3      | MS20470AD2-48  | MS20470AD3-48  | MS20470AD4-48  | MS20470AD5-48  | MS20470AD6-48  | MS20470AD8-48  |

# SOLID RIVETS - Aluminum MS20470AD - 100 Piece Bag

## MS20470AD Universal Head

Nominal Diameter Dash#

|        | 1/16            | 3/32            | 1/8             | 5/32            | 3/16            | 1/4             |
|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Length | 0.062           | 0.094           | 0.125           | 0.156           | 0.187           | .250            |
|        | -2              | -3              | -4              | -5              | -6              | -8              |
| 1/16   | MS20470AD2-1C   | MS20470AD3-1C   | MS20470AD4-1C   |                 |                 |                 |
| 3/32   | MS20470AD2-1.5C | MS20470AD3-1.5C | MS20470AD4-1.5C | MS20470AD5-1.5C | MS20470AD6-1.5C | MS20470AD8-1.5C |
| 1/8    | MS20470AD2-2C   | MS20470AD3-2C   | MS20470AD4-2C   | MS20470AD5-2C   | MS20470AD6-2C   | MS20470AD8-2C   |
| 5/32   | MS20470AD2-2.5C | MS20470AD3-2.5C | MS20470AD4-2.5C | MS20470AD5-2.5C | MS20470AD6-2.5C | MS20470AD8-2.5C |
| 3/16   | MS20470AD2-3C   | MS20470AD3-3C   | MS20470AD4-3C   | MS20470AD5-3C   | MS20470AD6-3C   | MS20470AD8-3C   |
| 7/32   | MS20470AD2-3.5C | MS20470AD3-3.5C | MS20470AD4-3.5C | MS20470AD5-3.5C | MS20470AD6-3.5C | MS20470AD8-3.5C |
| 1/4    | MS20470AD2-4C   | MS20470AD3-4C   | MS20470AD4-4C   | MS20470AD5-4C   | MS20470AD6-4C   | MS20470AD8-4C   |
| 9/32   | MS20470AD2-4.5C | MS20470AD3-4.5C | MS20470AD4-4.5C | MS20470AD5-4.5C | MS20470AD6-4.5C | MS20470AD8-4.5C |
| 5/16   | MS20470AD2-5C   | MS20470AD3-5C   | MS20470AD4-5C   | MS20470AD5-5C   | MS20470AD6-5C   | MS20470AD8-5C   |
| 11/32  | MS20470AD2-5.5C | MS20470AD3-5.5C | MS20470AD4-5.5C | MS20470AD5-5.5C | MS20470AD6-5.5C | MS20470AD8-5.5C |
| 3/8    | MS20470AD2-6C   | MS20470AD3-6C   | MS20470AD4-6C   | MS20470AD5-6C   | MS20470AD6-6C   | MS20470AD8-6C   |
| 13/32  | MS20470AD2-6.5C | MS20470AD3-6.5C | MS20470AD4-6.5C | MS20470AD5-6.5C | MS20470AD6-6.5C | MS20470AD8-6.5C |
| 7/16   | MS20470AD2-7C   | MS20470AD3-7C   | MS20470AD4-7C   | MS20470AD5-7C   | MS20470AD6-7C   | MS20470AD8-7C   |
| 1/2    | MS20470AD2-8C   | MS20470AD3-8C   | MS20470AD4-8C   | MS20470AD5-8C   | MS20470AD6-8C   | MS20470AD8-8C   |
| 9/16   | MS20470AD2-9C   | MS20470AD3-9C   | MS20470AD4-9C   | MS20470AD5-9C   | MS20470AD6-9C   | MS20470AD8-9C   |
| 5/8    | MS20470AD2-10C  | MS20470AD3-10C  | MS20470AD4-10C  | MS20470AD5-10C  | MS20470AD6-10C  | MS20470AD8-10C  |
| 11/16  | MS20470AD2-11C  | MS20470AD3-11C  | MS20470AD4-11C  | MS20470AD5-11C  | MS20470AD6-11C  | MS20470AD8-11C  |
| 3/4    | MS20470AD2-12C  | MS20470AD3-12C  | MS20470AD4-12C  | MS20470AD5-12C  | MS20470AD6-12C  | MS20470AD8-12C  |
| 7/8    | MS20470AD2-14C  | MS20470AD3-14C  | MS20470AD4-14C  | MS20470AD5-14C  | MS20470AD6-14C  | MS20470AD8-14C  |
| 1      | MS20470AD2-16C  | MS20470AD3-16C  | MS20470AD4-16C  | MS20470AD5-16C  | MS20470AD6-16C  | MS20470AD8-16C  |
| 1-1/8  | MS20470AD2-18C  | MS20470AD3-18C  | MS20470AD4-18C  | MS20470AD5-18C  | MS20470AD6-18C  | MS20470AD8-18C  |
| 1-1/4  | MS20470AD2-20C  | MS20470AD3-20C  | MS20470AD4-20C  | MS20470AD5-20C  | MS20470AD6-20C  | MS20470AD8-20C  |
| 1-3/8  | MS20470AD2-22C  | MS20470AD3-22C  | MS20470AD4-22C  | MS20470AD5-22C  | MS20470AD6-22C  | MS20470AD8-22C  |
| 1-1/2  | MS20470AD2-24C  | MS20470AD3-24C  | MS20470AD4-24C  | MS20470AD5-24C  | MS20470AD6-24C  | MS20470AD8-24C  |
| 1-3/4  | MS20470AD2-28C  | MS20470AD3-28C  | MS20470AD4-28C  | MS20470AD5-28C  | MS20470AD6-28C  | MS20470AD8-28C  |
| 2      | MS20470AD2-32C  | MS20470AD3-32C  | MS20470AD4-32C  | MS20470AD5-32C  | MS20470AD6-32C  | MS20470AD8-32C  |
| 2-1/4  | MS20470AD2-36C  | MS20470AD3-36C  | MS20470AD4-36C  | MS20470AD5-36C  | MS20470AD6-36C  | MS20470AD8-36C  |
| 2-1/2  | MS20470AD2-40C  | MS20470AD3-40C  | MS20470AD4-40C  | MS20470AD5-40C  | MS20470AD6-40C  | MS20470AD8-40C  |
| 2-3/4  | MS20470AD2-44C  | MS20470AD3-44C  | MS20470AD4-44C  | MS20470AD5-44C  | MS20470AD6-44C  | MS20470AD8-44C  |
| 3      | MS20470AD2-48C  | MS20470AD3-48C  | MS20470AD4-48C  | MS20470AD5-48C  | MS20470AD6-48C  | MS20470AD8-48C  |

# NON-STRUCTURAL BLIND RIVETS



## Commercial Series

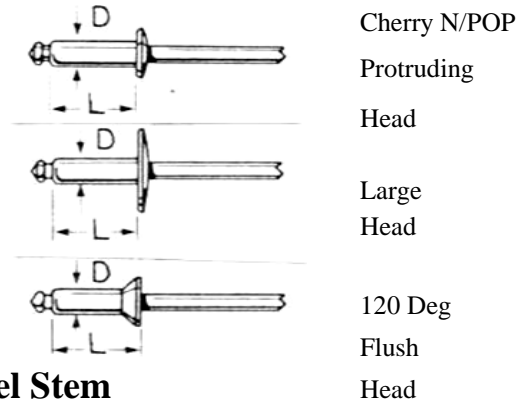
CHERRY N and AFC type rivets are very similar to USM 'POP' rivets. CHERRY N conforms to IFI-114 Standards, are nonstructural, break mandrel rivets. AVEX rivets are similar to both POP and Cherry N, but only available with a steel mandrel. AVEX rivets are designed slightly oversize in diameter.

Some homebuilt designs utilize Cherry Q rivets, a semi-structural self-plugging rivet with sealing capability. Only limited sizes and types are available. USM POP ADH series rivets are similar to Cherry BSPQ, but do not have a mechanically locked stem and is not a true substitute.

## POP Rivets - Non-Structural Blind Rivets

### Non Structural Blind Rivets

See next page for Part Numbers

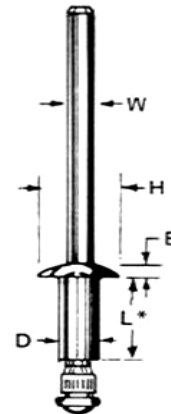
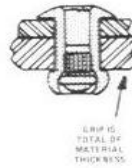


## Cherry Q Rivets - Semi-Structural Blind Rivets

### 5056 Aluminum Sleeve Mechanically Locked Steel Stem

Commercial Grade, Semi-Structural, Self Plugging, Sealing

| Part#  | Grip Range | Shear Lbs | Tensile Lbs |
|--------|------------|-----------|-------------|
| BSPQ41 | .025-.062  | 350       | 325         |
| BSPQ42 | .063-.125  | 350       | 325         |
| BSPQ43 | .126-.187  | 350       | 325         |
| BSPQ44 | .188-.250  | 350       | 325         |



## Cherry Nut Plate Rivet

| Part#        | Head | Dia  | Grip |
|--------------|------|------|------|
| CCR264SS-3-1 | Csk  | 3/32 | .062 |
| CCR264SS-3-2 | Csk  | 3/32 | .125 |
| CCR264SS-3-3 | Csk  | 3/32 | .187 |
| CCR264SS-3-4 | Csk  | 3/32 | .250 |
| CCR274SS-3-1 | Prot | 3/32 | .062 |
| CCR274SS-3-2 | Prot | 3/32 | .125 |
| CCR274SS-3-3 | Prot | 3/32 | .187 |
| CCR274SS-3-4 | Prot | 3/32 | .250 |

## Blind Rivet Backing Washers

100-Pc Bag - Aluminum

| Part#    | Rivet | ID   | OD   | Thickness |
|----------|-------|------|------|-----------|
| SK-BW18  | 1/8   | .133 | .375 | .062      |
| SK-BW532 | 5/32  | .165 | .437 | .062      |
| SK-BW316 | 3/16  | .197 | .500 | .062      |



# Non-Structural Blind Rivets



| HEAD            |                 | ALUM/ALUM |         | ALUM/STEEL |          | STEEL/STEEL |          | STAINLESS |        | GRIP  |       |       |
|-----------------|-----------------|-----------|---------|------------|----------|-------------|----------|-----------|--------|-------|-------|-------|
| DIA             | STYLE           | POP       | CHERRY  | POP        | CHERRY   | POP         | CHERRY   | POP       | CHERRY | MIN   | MAX   |       |
| 3/32            | DOME            | AD32ABS   | AAP32   | AD32BS     | BSP32    | SD32BS      | SSP32    |           | CCP32  | 0.031 | 0.125 |       |
|                 |                 | AD34ABS   | AAP34   | AD32BS     | BSP34    | SD34BS      | SSP34    |           | CCP34  | 0.126 | 0.250 |       |
|                 |                 |           | AAP36   |            | BSP36    |             | SSP36    |           |        | 0.251 | 0.375 |       |
|                 | CSK             |           | AAC32   |            | BSC32    |             | SSC32    |           |        | 0.063 | 0.125 |       |
|                 |                 |           | AAC33   |            | BSC33    |             | SSC33    |           |        | 0.126 | 0.187 |       |
|                 |                 |           | AAC34   |            | BSC34    |             | SSC34    |           |        | 0.188 | 0.250 |       |
|                 |                 |           | AAC36   |            | BSC36    |             | SSC36    |           |        | 0.251 | 0.375 |       |
| 1/8             | DOME            | AD41ABS   | AAP41   | AD41BS     | BSP41    | SD41BS      | SSP41    |           | CCP41  | 0.031 | 0.062 |       |
|                 |                 | AD42ABS   | AAP42   | AD42BS     | BSP42    | SD42BS      | SSP42    | SSD42SSBS | CCP42  | 0.063 | 0.125 |       |
|                 |                 | AD43ABS   | AAP43   | AD43BS     | BSP43    | SD43BS      | SSP43    | SSD43SSBS | CCP43  | 0.126 | 0.187 |       |
|                 |                 | AD44ABS   | AAP44   | AD44BS     | BSP44    | SD44BS      | SSP44    | SSD44SSBS | CCP44  | 0.188 | 0.250 |       |
|                 |                 | AD45ABS   | AAP45   | AD45BS     | BSP45    | SD45BS      | SSP45    |           | CCP45  | 0.251 | 0.312 |       |
|                 |                 | AD46ABS   | AAP46   | AD46BS     | BSP46    | SD46BS      | SSP46    | SSD46SSBS | CCP46  | 0.313 | 0.375 |       |
|                 |                 | AD48ABS   | AAP48   | AD48BS     | BSP48    | SD48BS      | SSP48    |           |        | 0.376 | 0.500 |       |
|                 | AD410ABS        | AAP410    | AD410BS | BSP410     |          |             |          |           | 0.501  | 0.625 |       |       |
|                 |                 | CSK       | AK42ABS | AAC42      | AK42BS   | BSC42       | SK42BS   | SSC42     |        | CCC42 | 0.063 | 0.125 |
|                 |                 |           |         | AAC43      | AK43BS   | BSC43       |          | SSC43     |        | CCC43 | 0.126 | 0.187 |
|                 |                 |           | AAC44   | AK44BS     | BSC44    | SK44BS      | SSC44    |           | CCC44  | 0.188 | 0.250 |       |
|                 |                 |           | AAC45   | AK45BS     | BSC45    |             | SSC45    |           | CCC45  | 0.251 | 0.312 |       |
|                 |                 |           |         |            |          |             | SSC46    |           | CCC46  | 0.313 | 0.375 |       |
| LARGE<br>FLANGE | AD42ABSLF       | AAL42     |         | AD42BSLF   | BSL42    | SD42BSLF    | SSL42    |           |        | 0.031 | 0.125 |       |
|                 |                 |           |         | AD43BSLF   |          |             |          |           |        | 0.126 | 0.187 |       |
|                 |                 | AD44ABSLF | AAL44   | AD44BSLF   | BSL44    | SD44BSLF    | SSL44    |           |        | 0.126 | 0.250 |       |
|                 |                 |           |         |            |          | SSL46       |          |           | 0.251  | 0.375 |       |       |
|                 |                 |           |         |            |          | SSL48       |          |           | 0.376  | 0.500 |       |       |
| 5/32            | DOME            | AD52ABS   | AAP52   | AD52BS     | BSP52    | SD52BS      | SSP52    | SSD52SSBS | CCP52  | 0.063 | 0.125 |       |
|                 |                 | AD53ABS   | AAP53   | AD53BS     | BSP53    |             |          |           |        | 0.126 | 0.187 |       |
|                 |                 | AD54ABS   | AAP54   | AD54BS     | BSP54    | SD54BS      | SSP54    | SSD54SSBS | CCP54  | 0.188 | 0.250 |       |
|                 |                 | AD56ABS   | AAP56   | AD56BS     | BSP56    | SD56BS      | SSP56    |           | CCP56  | 0.251 | 0.375 |       |
|                 |                 | AD58ABS   | AAP58   | AD58BS     | BSP58    |             |          |           |        | 0.376 | 0.500 |       |
|                 | CSK             |           | AAC54   | AK54BS     | BSC54    |             | SSC54    |           | CCC54  | 0.188 | 0.250 |       |
|                 |                 |           | AAC56   | AK56BS     | BSC56    |             | SSC56    |           | CCC56  | 0.251 | 0.375 |       |
|                 |                 |           |         |            |          |             | SSC58    |           |        | 0.376 | 0.500 |       |
|                 |                 |           |         |            |          |             | SSC510   |           |        | 0.501 | 0.625 |       |
| LARGE<br>FLANGE | AD54ABSLF       | AAL54     |         | AD54BSLF   | BSL54    | SD54BSLF    | SSL54    |           | CCL54  | 0.188 | 0.250 |       |
|                 |                 |           | AAL56   |            | BSL56    |             | SSL56    |           | CCL56  | 0.251 | 0.375 |       |
|                 |                 |           | AAL58   |            | BSL58    |             | SSL58    |           |        | 0.376 | 0.500 |       |
|                 |                 |           | AAL510  |            | BSL510   |             |          |           |        | 0.501 | 0.625 |       |
| 3/16            | DOME            | AD62ABS   | AAP62   | AD62BS     | BSP62    | SD62BS      | SSP62    | SSD62SSBS | CCP62  | 0.063 | 0.125 |       |
|                 |                 | AD64ABS   | AAP64   | AD64BS     | BSP64    | SD64BS      | SSP64    | SSD64SSBS | CCP64  | 0.126 | 0.250 |       |
|                 |                 | AD66ABS   | AAP66   | AD66BS     | BSP66    | SD66BS      | SSP66    | SSD66SSBS | CCP66  | 0.251 | 0.375 |       |
|                 |                 | AD68ABS   | AAP68   | AD68BS     | BSP68    | SD68BS      | SSP68    | SSD68SSBS | CCP68  | 0.376 | 0.500 |       |
|                 |                 | AD610ABS  | AAP610  | AD610BS    | BSP610   | SD610BS     | SSP610   |           |        | 0.501 | 0.625 |       |
|                 |                 | AD612ABS  | AAP612  | AD612BS    | BSP612   | SD612BS     | SSP612   |           |        | 0.626 | 0.750 |       |
|                 | LARGE<br>FLANGE | AD64ABSLF | AAL64   |            | AD64BSLF | BSL64       | SD64BSLF | SSL64     |        | CCL64 | 0.126 | 0.250 |
|                 |                 |           | AAL66   | AD66BSLF   | BSL66    | SD66BSLF    | SSL66    |           | CCL66  | 0.251 | 0.375 |       |
|                 |                 |           | AAL68   | AD68BSLF   | BSL68    | SD68BSLF    | SSL68    |           | CCL68  | 0.376 | 0.500 |       |
|                 |                 |           | AAL610  | AD610BSLF  | BSL610   | SD610BSLF   | SSL610   |           |        | 0.501 | 0.625 |       |
|                 |                 |           | AAL612  | AD612BSLF  | BSL612   | SD612BSLF   | SSL612   |           |        | 0.626 | 0.750 |       |

# CherryMax Rivets



**Traditional “Cherry Rivets”** were originally designed with a knob stem, the most commonly used was the CR162/CR163 MS Series. These rivets require special tooling to install and leave a protruding break stem that must be trimmed. Cherry developed the CR9162/CR9163 MS Series rivet to replace the knob stem, thus simple pulling tools could be used. The CherryLock rivet was developed to gain strength ratings equivalent to solid AD rivets. The CherryLock rivet required double action pulling tools to install. CherryLock rivets are all oversize diameters. The CherryMax rivet was developed to replace the CherryLock, required simple pulling tools to install, and are also available in Nominal and Oversize shank. The Oversize CherryMax has strength ratings that meet or exceed solid AD rivets. The drawback to the CherryMax is removal. The Break Stem is constructed of 8740 Alloy Steel and is very difficult to drill out. However, by drilling the head center, a punch can drive the break stem out allowing the shank to be drilled and removed.

## Considerations for using Cherry Blind Rivets

- 1) CherryMax is a structural rivet, Cherry Q or POP rivets are not.
- 2) Panels should be clamped before installing CherryMax rivets as they are not designed for excessive panel “takeup”.
- 3) CherryMax can be substituted for specifications calling for CR162/CR163 or CherryLock.
- 4) CherryMax is an approved substitute for solid AD rivets in a structural application

Skybolt only supplies Factory New Cherry products with full traceability, no surplus, no sweepings, no aftermarket parts.

## CherryMax

**5056 Aluminum Sleeve 8740 Alloy Steel Stem**

Common Sizes

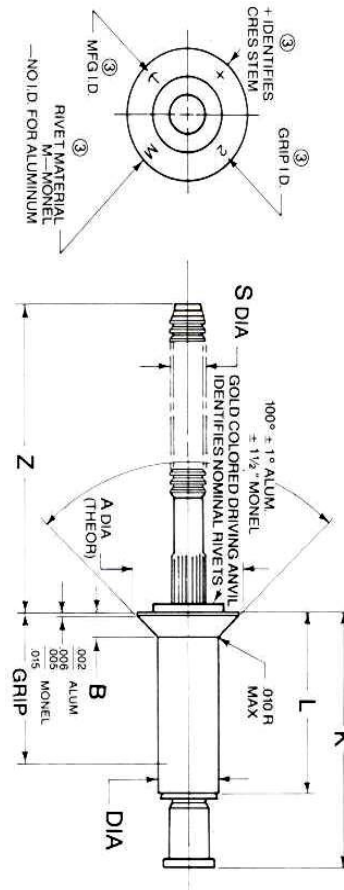
### 100 Degree Flush Head - Nominal Shank (.126) #30 Drill

| Part#      | Size | Grip Limits | Shear |     | Tensile |     |
|------------|------|-------------|-------|-----|---------|-----|
|            |      |             | Lbs   | Lbs | Lbs     | Lbs |
| CR3212-4-2 | 1/8  | .063-.125   | 411   | 285 |         |     |
| CR3212-4-3 | 1/8  | .126-.187   | 531   | 285 |         |     |
| CR3212-4-4 | 1/8  | .188-.250   | 651   | 285 |         |     |
| CR3212-4-5 | 1/8  | .251-.312   | 664   | 285 |         |     |
| CR3212-5-2 | 5/32 | .065-.125   | -     | 445 |         |     |
| CR3212-5-3 | 5/32 | .126-.187   | 714   | 445 |         |     |
| CR3212-5-4 | 5/32 | .188-.250   | 862   | 445 |         |     |
| CR3212-5-5 | 5/32 | .251-.312   | 1012  | 445 |         |     |
| CR3212-5-6 | 5/32 | .313-.375   | 1030  | 445 |         |     |

### 100 Degree Flush Head - Oversize Shank (.140) #27 Drill

| Part#      | Size | Grip Limits | Shear |     | Tensile |     |
|------------|------|-------------|-------|-----|---------|-----|
|            |      |             | Lbs   | Lbs | Lbs     | Lbs |
| CR3242-4-2 | 1/8  | .063-.125   | 480   | 345 |         |     |
| CR3242-4-3 | 1/8  | .126-.187   | 614   | 345 |         |     |
| CR3242-4-4 | 1/8  | .188-.250   | 741   | 345 |         |     |
| CR3242-4-5 | 1/8  | .251-.312   | 814   | 345 |         |     |
| CR3242-5-2 | 5/32 | .065-.125   | -     | 530 |         |     |
| CR3242-5-3 | 5/32 | .126-.187   | 815   | 530 |         |     |
| CR3242-5-4 | 5/32 | .188-.250   | 977   | 530 |         |     |
| CR3242-5-5 | 5/32 | .251-.312   | 1137  | 530 |         |     |
| CR3242-5-6 | 5/32 | .313-.375   | 1245  | 530 |         |     |

Larger Sizes in stock





# CherryMax

Common Sizes

## Universal Head - Nominal Shank (.126) #30 Drill

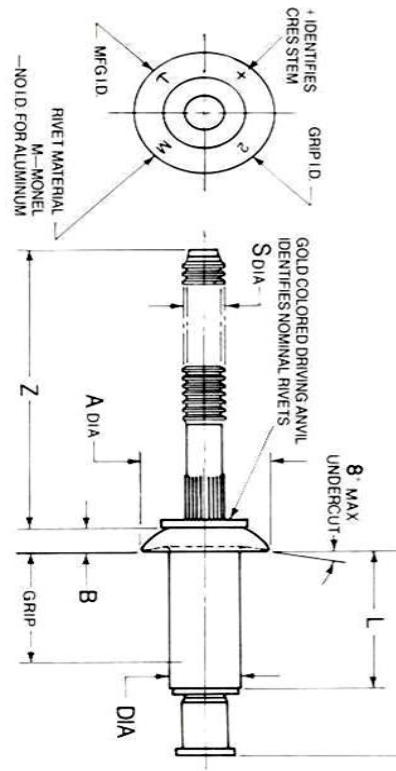
| Part#      | Size | Grip Limits | Shear Lbs | Tensile Lbs |
|------------|------|-------------|-----------|-------------|
| CR3213-4-1 | 1/8  | .025-.062   | -         | 285         |
| CR3213-4-2 | 1/8  | .063-.125   | 411       | 285         |
| CR3213-4-3 | 1/8  | .126-.187   | 531       | 285         |
| CR3213-4-4 | 1/8  | .188-.250   | 651       | 285         |
| CR3213-4-5 | 1/8  | .251-.312   | 664       | 285         |
| CR3213-5-1 | 5/32 | .031-.062   | -         | 445         |
| CR3213-5-2 | 5/32 | .065-.125   | -         | 445         |
| CR3213-5-3 | 5/32 | .126-.187   | 714       | 445         |
| CR3213-5-4 | 5/32 | .188-.250   | 862       | 445         |
| CR3213-5-5 | 5/32 | .251-.312   | 1012      | 445         |
| CR3213-5-6 | 5/32 | .313-.375   | 1030      | 445         |

Larger Sizes in stock

## Universal Head - Oversize Shank (.140) #27 Drill

| Part#      | Size | Grip Limits | Shear Lbs | Tensile Lbs |
|------------|------|-------------|-----------|-------------|
| CR3243-4-1 | 1/8  | .025-.062   | -         | 345         |
| CR3243-4-2 | 1/8  | .063-.125   | 480       | 345         |
| CR3243-4-3 | 1/8  | .126-.187   | 614       | 345         |
| CR3243-4-4 | 1/8  | .188-.250   | 741       | 345         |
| CR3243-4-5 | 1/8  | .251-.312   | 814       | 345         |
| CR3243-5-1 | 5/32 | .031-.062   | -         | 530         |
| CR3243-5-2 | 5/32 | .065-.125   | -         | 530         |
| CR3243-5-3 | 5/32 | .126-.187   | 815       | 530         |
| CR3243-5-4 | 5/32 | .188-.250   | 977       | 530         |
| CR3243-5-5 | 5/32 | .251-.312   | 1137      | 530         |
| CR3243-5-6 | 5/32 | .313-.375   | 1245      | 530         |

Larger Sizes in stock

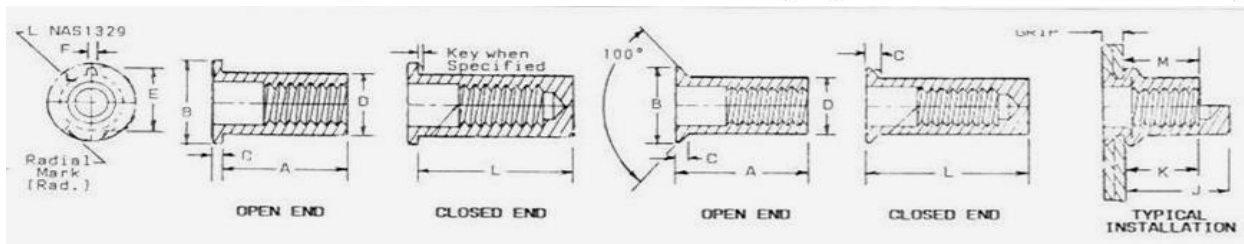
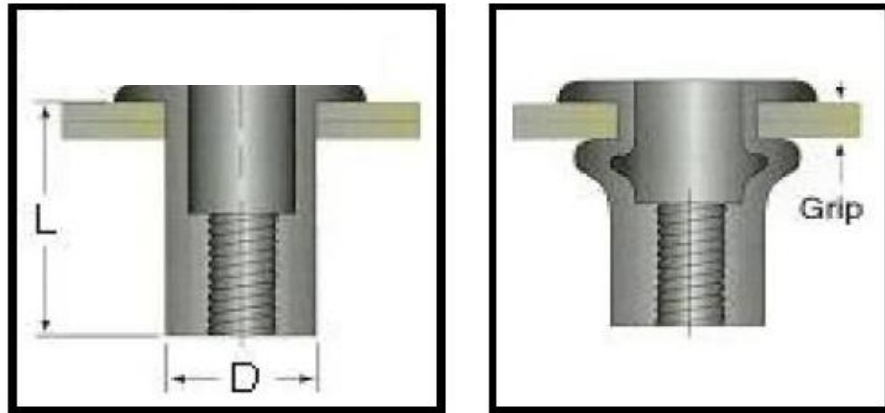


## RIVET REQUIREMENT CHART Dzus Camloc Southco Airloc

| Stud Type | Receptacle  | Thickness    | Rivet Size | Head Type    | Solid Rivet/Blind Rivet |         |         |         |                    |
|-----------|---|--------------|------------|--------------|-------------------------|---------|---------|---------|--------------------|
|           |   |              |            |              | .020                    | .032    | .040    | .063    | .100               |
| ZLoc      | S3  | .100         | 3/32       | CSK          | 3-3, 32*                | 3-3, 32 | 3-3, 32 | 3-3, 32 |                    |
|           | S4  | .100         | 3/32       | CSK          | 3-3, 32                 | 3-3, 32 | 3-3, 32 | 3-3, 32 |                    |
|           | S5A   | .110         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-4, 43 | 4-4, 43 | 4-4, 44            |
|           | S6A   | .110         | 1/8        | CSK          | 4-4, 43                 | 4-4, 43 | 4-4, 43 | 4-4, 43 | 4-4, 44            |
|           | S7A   | .110         | 1/8        | CSK          | 4-4, 43                 | 4-4, 43 | 4-4, 43 | 4-4, 43 | 4-4, 44            |
|           | EHF Stud  | .020         | 1/8        | UNIV         | 4-3, 42                 | 4-3, 42 | 4-4, 43 | 4-4, 43 | 4-4, 44            |
|           | 945/946 Plate<br>with S5,S6,214<br>with 244,SK215,SK245 | .100<br>.100 | 1/8<br>1/8 | UNIV<br>UNIV |                         |         |         |         | 4-4, 44<br>4-5, 44 |
| CLoc      | 212, SK213-2  | .075         | 3/32       | CSK          | 3-3, 32                 | 3-3, 32 | 3-4, 33 | 3-4, 33 | 3-4, 33            |
|           | 214, SK213-28   | .090         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-4, 43 | 4-4, 43 | 4-4, 44            |
|           | 244,SK215,SK245   | .100         | 1/8        | CSK          | 4-4, 43                 | 4-4, 43 | 4-4, 43 | 4-4, 43 | 4-5, 44            |
| Southco   | 82-35-295-20  | .120         | 3/32       | CSK          | 3-4, 33                 | 3-4, 33 | 3-5, 34 | 3-5, 34 | 3-5, 34            |
|           | 82-35-302-15  | .130         | 3/32       | CSK          | 3-4, 33                 | 3-5, 34 | 3-5, 34 | 3-5, 34 | 3-5, 34            |
|           | 85-35-295-20  | .160         | 1/8        | CSK          | 4-5, 44                 | 4-5, 44 | 4-5, 44 | 4-5, 44 | 4-6, 45            |
| Lord      | J7444 Series (#832)                                     | .055         | 5/32(Ream) | UNIV         | 5-3, 52                 | 5-3, 52 | 5-3, 52 | 5-3, 52 | 5-4, 53            |
|           | SK2003 Series (#832)                                    | .055         | 5/32       | UNIV         | 5-3, 52                 | 5-3, 52 | 5-3, 52 | 5-3, 52 | 5-4, 53            |
| ALoc      | 99797-P130  | .032         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-3, 42 | 4-3, 42 | 4-4, 43            |
|           | 99871-C098  | .075         | 3/32       | CSK          | 3-3, 32                 | 3-3, 32 | 3-4, 33 | 3-4, 33 | 3-4, 33            |
|           | 99833-C098  | .075         | 3/32       | CSK          | 3-3, 32                 | 3-3, 32 | 3-4, 33 | 3-4, 33 | 3-4, 33            |
|           | 99833-P098  | .032         | 3/32       | CSK          | 3-3, 32                 | 3-3, 32 | 3-3, 32 | 3-3, 32 | 3-4, 33            |
|           | 99833-C130  | .075         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-4, 43 | 4-4, 43 | 4-4, 43            |
|           | 99833-P130  | .032         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-3, 42 | 4-3, 42 | 4-4, 43            |
|           | 99947-C130  | .090         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-4, 43 | 4-4, 43 | 4-5, 44            |
|           | 99947-P130  | .050         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-3, 42 | 4-3, 42 | 4-4, 43            |
|           | 99948-C130  | .090         | 1/8        | CSK          | 4-3, 42                 | 4-3, 42 | 4-4, 43 | 4-4, 43 | 4-5, 44            |

\*Example: To Mount a Dzus Spring to a .020 Panel - Use a Solid Rivet MS20470AD3-3 or Blind Rivet SSP32

# Rivnuts



| Size | Thread | Flat Head |      | Countersunk |      |      | Drill Size | Hole Size |     |      |      |
|------|--------|-----------|------|-------------|------|------|------------|-----------|-----|------|------|
|      |        | B         | C    | B           | C    | D    |            | E         | F   | Min  | Max  |
| 6    | #6-32  | .325      | .032 | .323        | .063 | .189 | .240       | .054      | #12 | .189 | .193 |
| 8    | #8-32  | .357      | .032 | .355        | .063 | .221 | .271       | .054      | #2  | .221 | .226 |
| 10   | #10-32 | .406      | .038 | .391        | .065 | .250 | .302       | .054      | E   | .250 | .256 |
| 1/4  | 1/4-28 | .475      | .058 | .529        | .089 | .332 | .382       | .054      | Q   | .332 | .338 |

### Common Rivnut Sizes

Standard Package - 10

#### Flat Head - Open End - Keyed

#### Countersunk - Open End - Keyed

| Part#   | Grip      |      |      | Part#   | Grip      |      |      |
|---------|-----------|------|------|---------|-----------|------|------|
|         | Range     | A    | M    |         | Range     | A    | M    |
| A6K75   | .010-.075 | .438 | .300 | A6K106  | .065-.106 | .500 | .325 |
| A6K120  | .075-.120 | .500 | .315 | A8K106  | .065-.106 | .500 | .325 |
| A8K75   | .010-.075 | .438 | .300 | A10K116 | .065-.116 | .578 | .395 |
| A8K120  | .075-.120 | .500 | .315 | A10K166 | .116-.166 | .625 | .385 |
| A10K80  | .010-.080 | .531 | .380 |         |           |      |      |
| A10K130 | .080-.130 | .594 | .390 |         |           |      |      |
| A10K180 | .130-.180 | .641 | .390 |         |           |      |      |

### 200RNC Rivet Nutter Tool

Inserts Rivnuts and Threadserts. #632,#832,#1032

1/4-20, 5/16-18, 3/8-16.

|               |
|---------------|
| Part#         |
| <b>200RNC</b> |





# FBO Plus

## HARDWARE KIT SYSTEM (Options)



| Kit#          | Kit#           | Kit#       | Kit#       | Kit#        | Kit#               |         |     |             |     |            |     |
|---------------|----------------|------------|------------|-------------|--------------------|---------|-----|-------------|-----|------------|-----|
| FBO CHERRYMAX | FBO ELECTRICAL | FBO CLEKO  | FBO RIVNUT | FBO GROMMET | FBO STAINLESS BOLT |         |     |             |     |            |     |
| Part#         | Qty            | Part#      | Qty        | Part#       | Qty                | Part#   | Qty | Part#       | Qty | Part#      | Qty |
| CR3212-4-2    | 25             | FND2622-3  | 50         | C-3/32      | 25                 | A6K75   | 10  | MS35489-1   | 5   | AN3C3A     | 10  |
| CR3212-4-3    | 25             | FND2216-S3 | 50         | C-1/8       | 25                 | A6K120  | 10  | MS35489-2   | 5   | AN3C4A     | 10  |
| CR3212-4-4    | 25             | FND2216-4  | 50         | C-5/32      | 25                 | A8K75   | 10  | MS35489-4   | 5   | AN3C5A     | 10  |
| CR3212-4-5    | 25             | FND2216-5  | 50         | C-3/16      | 25                 | A8K120  | 10  | MS35489-134 | 5   | AN3C6A     | 10  |
| CR3213-4-1    | 25             | FND2216-6  | 50         | WNX-3/32    | 3                  | A10K80  | 10  | MS35489-5   | 5   | AN3C7A     | 10  |
| CR3213-4-2    | 25             | FND2216-8  | 50         | WNX-1/8     | 3                  | A10K130 | 10  | MS35489-6   | 5   | AN3C10A    | 10  |
| CR3213-4-3    | 25             | FND1614-M3 | 50         | WNX-5/32    | 3                  | A6K106  | 10  | MS35489-7   | 5   | AN3C11A    | 10  |
| CR3213-4-4    | 25             | FND1614-4  | 50         | WNX-3/16    | 3                  | A8K106  | 10  | MS35489-8   | 5   | AN3C12A    | 10  |
| CR3213-4-5    | 25             | FND1614-M5 | 50         | 125SG       | 5                  | A10K116 | 10  | MS35489-9   | 5   | AN3C13A    | 10  |
| CR3242-4-2    | 25             | FND1614-6  | 50         | 126SG       | 5                  | 200RNC  | 1   | MS35489-10  | 5   | AN4C4A     | 10  |
| CR3242-4-3    | 25             | FND1614-8  | 50         | C-200       | 1                  |         |     | MS35489-118 | 5   | AN4C5A     | 10  |
| CR3242-4-4    | 25             | FND1210-4  | 25         |             |                    |         |     | MS35489-11  | 5   | AN4C6A     | 10  |
| CR3242-4-5    | 25             | FND1210-S6 | 25         |             |                    |         |     | MS35489-12  | 5   | AN4C7A     | 10  |
| CR3243-4-1    | 25             | FND1210-9  | 25         |             |                    |         |     | MS35489-13  | 5   | AN4C10A    | 10  |
| CR3243-4-2    | 25             | FN8-8      | 10         |             |                    |         |     | MS35489-14  | 5   | AN4C11A    | 10  |
| CR3243-4-3    | 25             | FN4-9      | 10         |             |                    |         |     | MS35489-15  | 5   | AN4C12A    | 10  |
| CR3243-4-4    | 25             | 1582       | 10         |             |                    |         |     | MS35489-16  | 5   | AN4C13A    | 10  |
| CR3243-4-5    | 25             | WS2216K    | 50         |             |                    |         |     | MS35489-17  | 5   | AN4C14A    | 10  |
|               |                | WS1614K    | 50         |             |                    |         |     | MS35489-18  | 5   | MS21044C3  | 50  |
|               |                | WS1210K    | 25         |             |                    |         |     | MS35489-19  | 5   | MS21044C4  | 50  |
|               |                | NCL2622    | 25         |             |                    |         |     | MS35489-20  | 5   | AN960C10   | 100 |
|               |                | NDCW1614   | 25         |             |                    |         |     | MS35489-135 | 5   | AN960C10L  | 100 |
|               |                | NDCW2216   | 25         |             |                    |         |     | MS35489-21  | 5   | AN960C416  | 100 |
|               |                | C1210      | 25         |             |                    |         |     | MS35489-22  | 5   | AN960C416L | 100 |
|               |                | 2218SDB    | 50         |             |                    |         |     |             |     |            |     |
|               |                | 1614SDB    | 50         |             |                    |         |     |             |     |            |     |
|               | 450            |            | 980        |             | 123                |         | 91  |             | 120 |            | 680 |

| Kit#          | Kit#           | Kit#           | Kit#          | Kit#          | Kit#           |
|---------------|----------------|----------------|---------------|---------------|----------------|
| FBO WDG CLAMP | FBO PLATENUT-1 | FBO PLATENUT-2 | FBO TINNERMAN | FBO POP RIVET | FBO INSTRUMENT |

| Note (1)     |     |            |     |            |     |             |     |         |      |             |      |
|--------------|-----|------------|-----|------------|-----|-------------|-----|---------|------|-------------|------|
| Part#        | Qty | Part#      | Qty | Part#      | Qty | Part#       | Qty | Part#   | Qty  | Part#       | Qty  |
| MS21919WDG2  | 5   | MS21047L06 | 10  | MS21069L02 | 10  | A1776-4Z-1  | 25  | AAC-32  | 100  | MS24693BB4  | 25   |
| MS21919WDG3  | 5   | MS21047L08 | 10  | MS21069L04 | 10  | A1181-6Z-1  | 25  | AAC-34  | 100  | MS24693BB5  | 100  |
| MS21919WDG4  | 5   | MS21047L3  | 10  | MS21069L06 | 10  | A1777-6Z-1  | 25  | AAC-42  | 100  | MS24693BB26 | 25   |
| MS21919WDG5  | 5   | MS21049L06 | 10  | MS21069L08 | 10  | A1778-8Z-1  | 25  | AAC-43  | 100  | MS24693BB28 | 100  |
| MS21919WDG6  | 5   | MS21049L08 | 10  | MS21069L3  | 10  | A1779-10Z-1 | 25  | AAC-44  | 100  | MS24693BB29 | 25   |
| MS21919WDG7  | 5   | MS21049L3  | 10  | MS21071L04 | 10  | A6162-6Z-1  | 25  | AAC-45  | 100  | MS24693BB30 | 100  |
| MS21919WDG8  | 5   | MS21051L06 | 10  | MS21071L06 | 10  | A6195-8Z-1  | 25  | AAC-54  | 100  | MS24693BB31 | 25   |
| MS21919WDG9  | 5   | MS21051L08 | 10  | MS21071L08 | 10  | A6191-10Z-1 | 25  | AAC-64  | 100  | MS24693BB32 | 100  |
| MS21919WDG10 | 5   | MS21051L3  | 10  | MS21071L3  | 10  | A6196-6Z-1  | 25  | AAP-32  | 100  | MS24693BB34 | 25   |
| MS21919WDG11 | 5   | MS21053L06 | 10  | MS21073L04 | 10  | A6196-8Z-1  | 25  | AAP-34  | 100  | MS24693BB36 | 25   |
| MS21919WDG12 | 5   | MS21053L08 | 10  | MS21073L06 | 10  | A6187-4Z-1  | 25  | AAP-36  | 100  | MS24693BB50 | 25   |
| MS21919WDG13 | 5   | MS21053L3  | 10  | MS21073L08 | 10  | A1784-6Z-1  | 25  | AAP-41  | 100  | MS24693BB52 | 100  |
| MS21919WDG14 | 5   | MS21055L06 | 10  | MS21073L3  | 10  | A1785-6Z-1  | 25  | AAP-42  | 100  | MS35214-16  | 100  |
| MS21919WDG15 | 5   | MS21055L08 | 10  | MS21075L04 | 10  | A1274-8Z-1  | 25  | AAP-43  | 100  | MS35214-18  | 25   |
| MS21919WDG16 | 5   | MS21055L3  | 10  | MS21075L06 | 10  | A1348-8Z-1  | 25  | AAP-44  | 100  | MS35214-27  | 100  |
| MS21919WDG17 | 5   | MS21057L06 | 10  | MS21075L08 | 10  | A1786-8Z-1  | 25  | AAP-46  | 100  | MS35214-29  | 100  |
| MS21919WDG18 | 5   | MS21057L08 | 10  | MS21075L3  | 10  | A1787-8Z-1  | 25  | AAP-52  | 100  | MS35214-31  | 100  |
| MS21919WDG19 | 5   | MS21057L3  | 10  | MS21086L08 | 10  | A1788-8Z-1  | 25  | AAP-54  | 100  | MS35214-32  | 25   |
| MS21919WDG20 | 5   | MS21059L06 | 10  | MS21086L3  | 10  | A1789-8Z-1  | 25  | AAP-56  | 100  | MS35214-33  | 25   |
| MS21919WDG21 | 5   | MS21059L08 | 10  |            |     | A1932-8Z-1  | 25  | AAP-64  | 100  | MS35214-42  | 25   |
| MS21919WDG22 | 5   | MS21059L3  | 10  |            |     | A1350-10Z-1 | 25  | AAL-44  | 100  | MS35214-44  | 25   |
| MS21919WDG23 | 5   | MS21061L06 | 10  |            |     | A1758-10Z-1 | 25  | AAL-46  | 100  | MS35214-47  | 25   |
| MS21919WDG24 | 5   | MS21061L08 | 10  |            |     | A1787-10Z-1 | 25  | AAL-64  | 100  | MS35214-56  | 25   |
| MS21919WDG25 | 5   | MS21061L3  | 10  |            |     | A1791-10Z-1 | 25  | AAL-612 | 100  | MS35214-60  | 25   |
|              | 110 |            | 240 |            | 190 |             | 600 |         | 2400 |             | 1275 |

Note (1) Many **Tinnerman** parts are no longer available. Some items may be deleted or substituted.

# HARDWARE PACK SYSTEM

SKYBOLT created the Hardware Pack System to offer packaged hardware selections that are very economical. Selections include common hardware in both Steel and Stainless. Each Pack contains extra labels for use on your own cabinets.



## SYSTEM SPECIAL

Purchase the Basic Pack System & Receive Discount

PK-AN3A      PK-SMS2      See On-Line Purchasing  
 PK-AN960    PK-SMS3  
 PK-AN365    PK-AN507C  
 PK-AN380    PK-AN526C  
 PK-RIVET

| PK-SMS1<br>Steel |     | PK-SMS2<br>Stainless |     | PK-SMS3<br>Stainless |     | PK-AN507<br>Steel |     | PK-AN507C<br>Stainless |     | PK-AN526<br>Steel |     |
|------------------|-----|----------------------|-----|----------------------|-----|-------------------|-----|------------------------|-----|-------------------|-----|
| Part#            | Qty | Part#                | Qty | Part#                | Qty | Part#             | Qty | Part#                  | Qty | Part#             | Qty |
| 6RX1/2THA        | 100 | 6RX1/2THAS           | 100 | 6RX1/2FHAS100        | 100 | AN507-632R8       | 100 | AN507C632R8            | 100 | AN526-440R8       | 100 |
| 8RX1/2THA        | 100 | 8RX1/2THAS           | 100 | 8RX1/2FHAS100        | 100 | AN507-832R8       | 100 | AN507C832R8            | 100 | AN526-632R6       | 100 |
| 10RX1/2THA       | 100 | 10RX1/2THAS          | 100 | 10RX1/2FHAS100       | 100 | AN507-832R10      | 100 | AN507C832R10           | 100 | AN526-832R8       | 100 |
| 10RX5/8THA       | 100 | 10RX5/8THAS          | 100 | 6RX1/2FHBS100        | 100 | AN507-1032R8      | 100 | AN507C1032R8           | 100 | AN526-832R10      | 100 |
| 6RX1/2THB        | 100 | 6RX1/2THBS           | 100 | 8RX1/2FHBS100        | 100 | AN507-1032R10     | 100 | AN507C1032R10          | 100 | AN526-1032R8      | 100 |
| 8RX1/2THB        | 100 | 8RX1/2THBS           | 100 | 10RX1/2FHBS100       | 100 |                   |     |                        |     | AN526-1032R10     | 100 |
| 10RX1/2THB       | 100 | 10RX1/2THBS          | 100 |                      |     |                   |     |                        |     |                   |     |
| 10RX5/8THB       | 100 | 10RX1/2THBS          | 100 |                      |     |                   |     |                        |     |                   |     |
| 800              |     | 800                  |     | 600                  |     | 500               |     | 500                    |     | 600               |     |

| PK-AN526C<br>Stainless |     | PK-AN310<br>Steel |     | PK-AN363<br>Steel |     | PK-AN364<br>Steel |     | PK-AN365<br>Steel |     | PK-AN380<br>Steel |     |
|------------------------|-----|-------------------|-----|-------------------|-----|-------------------|-----|-------------------|-----|-------------------|-----|
| Part#                  | Qty | Part#             | Qty | Part#             | Qty | Part#             | Qty | Part#             | Qty | Part#             | Qty |
| AN526C440R8            | 100 | AN310-4           | 25  | AN363-632         | 25  | AN364-440         | 25  | AN365-632         | 25  | AN380-1-3         | 100 |
| AN526C632R6            | 100 | AN310-5           | 25  | AN363-832         | 25  | AN364-632         | 25  | AN365-832         | 25  | AN380-2-1         | 100 |
| AN526C832R8            | 100 | AN310-6           | 25  | AN363-1032        | 25  | AN364-832         | 25  | AN365-1032        | 25  | AN380-2-2         | 100 |
| AN526C832R10           | 100 | AN320-3           | 25  | AN363-428         | 25  | AN364-1032        | 25  | AN365-428         | 25  | AN380-2-3         | 100 |
| AN526C1032R8           | 100 | AN320-4           | 25  | AN363-516         | 25  | AN364-428         | 25  | AN365-524         | 25  | AN380-3-3         | 100 |
| AN526C1032R10          | 100 |                   |     | AN363-616         | 25  |                   |     |                   |     | AN380-3-4         | 100 |
| 600                    |     | 125               |     | 150               |     | 125               |     | 125               |     | 600               |     |

| PK-AN960<br>Steel |     | PK-AN960C<br>Stainless |     | PK-AN3A<br>Steel |     | PK-AN3<br>Steel |     | PK-RIVET<br>Alum |     | PK-AN381<br>Stainless |     |
|-------------------|-----|------------------------|-----|------------------|-----|-----------------|-----|------------------|-----|-----------------------|-----|
| Part#             | Qty | Part#                  | Qty | Part#            | Qty | Part#           | Qty | Part#            | Qty | Part#                 | Qty |
| AN960-6           | 100 | AN960C6                | 100 | AN3-3A           | 25  | AN3-4           | 10  | MS20426AD3-3     | 1/8 | AN381-1-6             | 100 |
| AN960-8           | 100 | AN960C8                | 100 | AN3-4A           | 25  | AN3-5           | 10  | MS20426AD3-4     | 1/8 | AN381-2-6             | 100 |
| AN960-10          | 100 | AN960C10               | 100 | AN3-5A           | 25  | AN3-6           | 10  | MS20426AD3-6     | 1/8 | AN381-2-8             | 100 |
| AN960-416         | 100 | AN960C416              | 100 | AN3-6A           | 25  | AN3-7           | 10  | MS20426AD4-4     | 1/8 | AN381-3-8             | 100 |
| AN960-516         | 100 | AN960C6L               | 100 | AN3-7A           | 25  | AN3-10          | 10  | MS20426AD4-5     | 1/8 | AN381-3-12            | 100 |
| AN960-616         | 100 | AN960C8L               | 100 | AN3-10A          | 25  | AN3-11          | 10  | MS20426AD4-6     | 1/8 |                       | 500 |
| AN960-6L          | 100 | AN960C10L              | 100 | AN3-11A          | 10  | AN3-12          | 10  | MS20426AD5-6     | 1/8 |                       |     |
| AN960-8L          | 100 | AN960C416L             | 100 | AN3-12A          | 10  | AN3-13          | 5   | MS20426AD3-3     | 1/8 |                       |     |
| AN960-10L         | 100 |                        |     | AN3-13A          | 10  | AN3-14          | 5   | MS20470AD4-4     | 1/8 |                       |     |
| AN960-416L        | 100 |                        |     | AN3-14A          | 10  | AN3-15          | 5   | MS20470AD4-5     | 1/8 |                       |     |
| AN960-516L        | 100 |                        |     | AN3-15A          | 10  | AN4-4           | 10  | MS20470AD4-6     | 1/8 |                       |     |
| AN960-616L        | 100 |                        |     | AN3-16A          | 10  | AN4-5           | 10  | MS20470AD4-8     | 1/8 |                       |     |
| 1200              |     | 800                    |     | AN3-17A          | 10  | AN4-6           | 10  | MS20470AD4-12    | 1/8 |                       |     |
|                   |     |                        |     | AN3-20A          | 10  | AN4-7           | 10  | MS20470AD5-4     | 1/8 |                       |     |
|                   |     |                        |     | AN4-4A           | 25  | AN4-10          | 10  | MS20470AD5-5     | 1/8 |                       |     |
|                   |     |                        |     | AN4-5A           | 25  | AN4-11          | 10  | MS20470AD5-6     | 1/8 |                       |     |
|                   |     |                        |     | AN4-6A           | 25  | AN4-12          | 10  | MS20470AD5-8     | 1/8 |                       |     |
|                   |     |                        |     | AN4-7A           | 25  | AN4-13          | 5   | MS20470AD5-12    | 1/8 |                       |     |
|                   |     |                        |     | AN4-10A          | 25  | AN4-14          | 5   |                  |     |                       |     |
|                   |     |                        |     | AN4-11A          | 10  | AN4-15          | 5   |                  |     |                       |     |
|                   |     |                        |     | AN4-12A          | 10  | AN4-16          | 5   |                  |     |                       |     |
|                   |     |                        |     | AN4-13A          | 10  | AN4-17          | 5   |                  |     |                       |     |
|                   |     |                        |     | AN4-14A          | 10  | AN4-20          | 5   |                  |     |                       |     |
|                   |     |                        |     | AN4-15A          | 10  |                 |     |                  |     |                       |     |
|                   |     |                        |     | AN4-16A          | 10  |                 |     |                  |     |                       |     |
|                   |     |                        |     | AN4-17A          | 10  |                 |     |                  |     |                       |     |
|                   |     |                        |     | AN4-20A          | 10  |                 |     |                  |     |                       |     |
| 90                |     | 90                     |     | 435              |     | 185             |     |                  |     | 1200                  |     |

| PK-HALF PAK<br>Half Length Rivets |     |
|-----------------------------------|-----|
| Part#                             | Qty |
| MS20426AD3-3.5C                   | 100 |
| MS20426AD3-4.5C                   | 100 |
| MS20426AD3-5.5C                   | 100 |
| MS20426AD4-3.5C                   | 100 |
| MS20426AD4-4.5C                   | 100 |
| MS20426AD4-5.5C                   | 100 |
| MS20470AD3-3.5C                   | 100 |
| MS20470AD3-4.5C                   | 100 |
| MS20470AD3-5.5C                   | 100 |
| MS20470AD4-3.5C                   | 100 |
| MS20470AD4-4.5C                   | 100 |
| MS20470AD4-5.5C                   | 100 |

# HARDWARE PACK SYSTEM



| PK-AN806D |     | PK-AN815D |     | PK-AN816D |     | PK-AN822D |     | PK-AN929D |     | PK-NICOPRESS |     |
|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|--------------|-----|
| Part#     | Qty | Part#     | Qty | Part#     | Qty | Part#     | Qty | Part#     | Qty | Part#        | Qty |
| AN806-2D  | 2   | AN815-2D  | 2   | AN816-2D  | 2   | AN822-2D  | 2   | AN929-2D  | 2   | 428-2-VC     | 25  |
| AN806-3D  | 2   | AN815-3D  | 2   | AN816-3D  | 2   | AN822-3D  | 2   | AN929-3D  | 2   | 428-3-VG     | 25  |
| AN806-4D  | 2   | AN815-4D  | 2   | AN816-4D  | 2   | AN822-4D  | 2   | AN929-4D  | 2   | 428-4-VM     | 25  |
| AN806-5D  | 2   | AN815-5D  | 2   | AN816-5D  | 2   | AN822-5D  | 2   | AN929-5D  | 2   | 428-6-VX     | 10  |
| AN806-6D  | 2   | AN815-6D  | 2   | AN816-6D  | 2   | AN822-6D  | 2   | AN929-6D  | 2   | 18-2-G       | 25  |
| AN806-8D  | 2   | AN815-8D  | 2   | AN816-8D  | 2   | AN822-8D  | 2   | AN929-8D  | 2   | 18-3-M       | 25  |
| AN806-10D | 2   | AN815-10D | 2   | AN816-10D | 2   | AN822-10D | 2   | AN929-10D | 2   |              |     |
| AN806-12D | 2   | AN815-12D | 2   | AN816-12D | 2   | AN822-12D | 2   | AN929-12D | 2   |              |     |
|           | 16  |           | 16  |           | 16  |           | 16  |           | 16  |              | 135 |

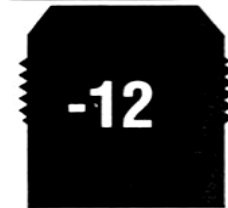
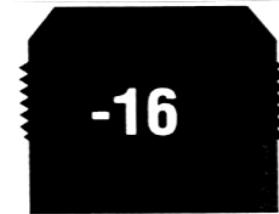
| PK-AN340  |     | PK-AN936A |     | PK-AN525    |     | PK-AN509    |     | PK-MS27039   |     | PK-DIMPLE WASHER |     |
|-----------|-----|-----------|-----|-------------|-----|-------------|-----|--------------|-----|------------------|-----|
| Part#     | Qty | Part#     | Qty | Part#       | Qty | Part#       | Qty | Part#        | Qty | Part#            | Qty |
| AN340-4   | 50  | AN936A4   | 100 | AN525-832R7 | 50  | AN509-8R6   | 50  | MS27039-0806 | 50  | DP1075-12SS      | 50  |
| AN340-6   | 50  | AN936A6   | 100 | AN525-832R8 | 50  | AN509-8R8   | 50  | MS27039-0807 | 50  | DP1080-17SS      | 50  |
| AN340B6   | 25  | AN936A8   | 100 | AN525-832R9 | 50  | AN509-10R6  | 50  | MS27039-0809 | 50  | DP1085-20SS      | 50  |
| AN340-8   | 50  | AN936A10  | 100 | AN525-10R7  | 50  | AN509-10R7  | 50  | MS27039-0812 | 50  | MS27129-6        | 100 |
| AN340-10  | 25  | AN936A416 | 100 | AN525-10R8  | 50  | AN509-10R8  | 50  | MS27039-1-08 | 50  | MS27129-9        | 100 |
| AN340-416 | 50  | AN936A516 | 100 | AN525-10R10 | 50  | AN509-416R7 | 50  | MS27039-1-09 | 50  | MS27129-12       | 100 |
|           | 250 |           | 600 |             | 300 |             | 300 |              | 300 |                  | 450 |

| PK-AN515    |     | PK-MS35214  |     | PK-POP RIVET |     | PK-ZLoc1 |     | PK-ZLoc2 |     |
|-------------|-----|-------------|-----|--------------|-----|----------|-----|----------|-----|
| Part#       | Qty | Part#       | Qty | Part#        | Qty | Part#    | Qty | Part#    | Qty |
| AN515-4R6   | 50  | MS24693BB32 | 50  | AAP-32       | 100 | ZGO65-40 | 10  | ZGF65-40 | 10  |
| AN515-6R8   | 50  | MS35214-16  | 50  | AAP-43       | 100 | ZGO65-50 | 10  | ZGF65-50 | 10  |
| AN515-8R8   | 50  | MS35214-27  | 50  | AAP-44       | 100 | ZGO65-55 | 10  | ZGF65-55 | 10  |
| AN515-8R10  | 50  | MS35214-29  | 50  | AAP-54       | 100 | ZGO65-60 | 10  | ZGF65-60 | 10  |
| AN515-10R8  | 50  | MS35214-30  | 50  | AAL-44       | 100 | SK6-375  | 25  | SK6-375  | 25  |
| AN515-10R10 | 50  | MS35214-31  | 50  | AAL-66       | 100 |          |     |          |     |
|             | 300 |             | 300 |              | 600 |          | 65  |          | 65  |

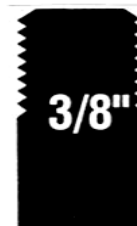
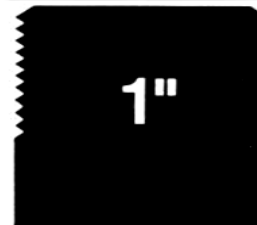
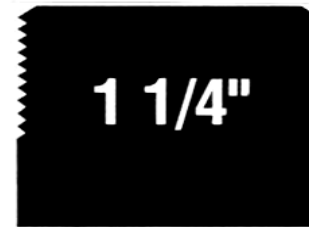
| PK-CLEKO |     | PK-EHF5   |     | PK-EHF6   |     | PK-SOUTHCO1  |     | PK-SOUTHCO2  |     |
|----------|-----|-----------|-----|-----------|-----|--------------|-----|--------------|-----|
| Part#    | Qty | Part#     | Qty | Part#     | Qty | Part#        | Qty | Part#        | Qty |
| C-3/32   | 25  | SKEHF5-40 | 10  | SKEHF6-50 | 10  | 82-11-120-20 | 10  | 82-19-120-20 | 10  |
| C-1/8    | 25  | SKEHF5-50 | 10  | SKEHF6-55 | 10  | 82-11-140-20 | 10  | 82-19-140-20 | 10  |
| C-5/32   | 25  | SKEHF5-55 | 10  | SKEHF6-60 | 10  | 82-11-160-20 | 10  | 82-19-160-20 | 10  |
| C-3/16   | 25  | SKEHF5-60 | 10  | SKEHF6-65 | 10  | 82-11-180-20 | 10  | 82-19-180-20 | 10  |
|          |     | SK5-325   | 25  | SK6-375   | 25  | 82-11-200-20 | 10  | 82-19-200-20 | 10  |
|          |     |           |     |           |     | 82-32-201-20 | 50  | 82-32-201-20 | 50  |
|          | 100 |           | 65  |           | 65  |              | 100 |              | 100 |

| PK-ELEC    |     | PK-HST |     | PK-INTERIOR |      | SK-6SS       |     | SK-24SS        |     |
|------------|-----|--------|-----|-------------|------|--------------|-----|----------------|-----|
| Part#      | Qty | Part#  | Qty | Part#       | Qty  | Part#        | Qty | Part#          | Qty |
| FND1210-S6 | 25  | HST-16 | 5   | MS27129-3   | 100  | AN526C832R8  | 25  | AN526C632R6    | 25  |
| FND1210-9  | 25  | HST-32 | 5   | MS27129-6   | 100  | AN526C1032R8 | 25  | AN526C632R8    | 25  |
| FND1614-4  | 25  | HST-18 | 5   | MS27129-12  | 100  | MS24693-C50  | 25  | AN526C832R8    | 25  |
| FND2216-4  | 25  | HST-36 | 5   | NAS390B4P   | 100  | MS24693-C272 | 25  | AN526C1032R10  | 25  |
| FND2622-3  | 25  | HST-14 | 5   | NAS390B6P   | 100  | 8RX1/2THBS   | 25  | AN526C832R10   | 25  |
| NCL1210    | 25  | HST-56 | 5   | NAS390B8P   | 100  | 10RX1/2THBS  | 25  | MS24693-C26    | 25  |
| NCL1614    | 25  | HST-38 | 5   | 4RX3/8OHAS  | 100  |              |     | MS24693-C28    | 25  |
| NCL2216    | 25  | HST-12 | 5   | 4RX1/2OHAS  | 100  |              |     | MS24693-C50    | 25  |
| NCL2622    | 25  |        |     | 4RX5/8OHAS  | 100  |              |     | MS24693-C51    | 25  |
| 1614SDB    | 25  |        |     | 6RX3/8OHAS  | 100  |              |     | MS24693-C272   | 25  |
| 2218SDB    | 25  |        |     | 6RX1/2OHAS  | 100  |              |     | MS24693-C273   | 25  |
| FV2216L    | 25  |        |     | 6RX5/8OHAS  | 100  |              |     | 6RX1/2THBS     | 25  |
| FV1614K    | 25  |        |     | 6RX3/4OHAS  | 100  |              |     | 8RX1/2THBS     | 25  |
|            |     |        |     | 8RX1/2OHAS  | 100  |              |     | 10RX1/2THBS    | 25  |
|            |     |        |     | 8RX5/8OHAS  | 100  |              |     | 6RX1/2FHBS100  | 25  |
|            |     |        |     | 8RX3/4OHAS  | 100  |              |     | 8RX1/2FHBS100  | 25  |
|            |     |        |     | 8RX1OHAS    | 100  |              |     | 10RX1/2FHBS100 | 25  |
|            |     |        |     | 10RX1/2OHAS | 50   |              |     | 10RX5/8FHBS100 | 25  |
|            |     |        |     | 10RX5/8OHAS | 50   |              |     | DP1075-12SS    | 25  |
|            |     |        |     | 10RX3/4OHAS | 50   |              |     | DP1080-17SS    | 25  |
|            |     |        |     | 10RX1OHAS   | 50   |              |     | DP1085-20SS    | 25  |
|            |     |        |     |             |      |              |     | NAS1515-H-06L  | 100 |
|            |     |        |     |             |      |              |     | NAS1515-H-08L  | 100 |
|            |     |        |     |             |      |              |     | NAS1515-H-3L   | 100 |
|            | 325 |        | 40  |             | 1900 |              | 150 |                | 825 |

### AN Fitting Chart



### Pipe Thread Chart



# AN-MS Aircraft Fittings (JIC 37Deg Flare)





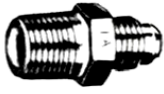

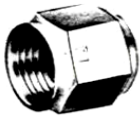




SKYBOLT maintains one of the best fitting inventories available. We are heavily committed to fluid transfer components.

Example Fitting Code:

**AN816-8-6D**

-8 refers to Tube Size (AN Flare) -6 refers to Pipe Size

| AN804   |  |           |         | AN806   |             |  |              | AN814   |             |          |  |           |         |             |
|---|--|-----------|---------|---|-------------|--|--------------|---|-------------|----------|--|-----------|---------|-------------|
|    |  |           |         |    |             |  |              |    |             |          |  |           |         |             |
| Steel   |  | Alum      | Tube OD | Thread Size   | Steel       |  | Alum         | Tube OD   | Thread Size | Steel    |  | Alum      | Tube OD |             |
| AN804-2   |  | AN804D2   | 1/8     | 5/16-24   | AN806-2     |  | AN8062D      | 1/8   | 5/16-24     | AN814-2  |  | AN814-2D  | 1/8     |             |
| AN804-3   |  | AN804D3   | 3/16    | 3/8-24  | AN806-3     |  | AN8063D      | 3/16  | 3/8-24      | AN814-3  |  | AN814-3D  | 3/16    |             |
| AN804-4   |  | AN804D4   | 1/4     | 7/16-20   | AN806-4     |  | AN8064D      | 1/4   | 7/16-20     | AN814-4  |  | AN814-4D  | 1/4     |             |
| AN804-5   |  | AN804D5   | 5/16    | 1/2-20  | AN806-5     |  | AN8065D      | 5/16  | 1/2-20      | AN814-5  |  | AN814-5D  | 5/16    |             |
| AN804-6   |  | AN804D6   | 3/8     | 9/16-18   | AN806-6     |  | AN8066D      | 3/8   | 9/16-18     | AN814-6  |  | AN814-6D  | 3/8     |             |
| AN804-8   |  | AN804D8   | 1/2     | 3/4-16  | AN806-8     |  | AN8068D      | 1/2   | 3/4-16      | AN814-8  |  | AN814-8D  | 1/2     |             |
| AN804-10  |  | AN804D10  | 5/8     | 7/8-14  | AN806-10    |  | AN80610D     | 5/8   | 7/8-14      | AN814-10 |  | AN814-10D | 5/8     |             |
| AN804-12  |  | AN804D12  | 3/4     | 1-1/16-12   | AN806-12    |  | AN80612D     | 3/4   | 1-1/16-12   | AN814-12 |  | AN814-12D | 3/4     |             |
| AN804-16  |  | AN804D16  | 1       | 1-5/16-12   | AN806-16    |  | AN80616D     | 1   | 1-5/16-12   | AN814-16 |  | AN814-16D | 1       |             |
| AN815   |  |           |         | AN816   |             |  |              | AN817   |             |          |  |           |         |             |
|    |  |           |         |    |             |  |              |    |             |          |  |           |         |             |
| Steel   |  | Alum      | Tube OD | Thread Size   | Steel       |  | Alum         | Tube OD   | Pipe Size   | Steel    |  | Alum      | Tube OD | Thread Size |
| AN815-2   |  | AN815-2D  | 1/8     | 5/16-24   | AN816-2     |  | AN816-2D     | 1/8   | 1/8         | AN817-2  |  | AN817-2D  | 1/8     | 5/16-24     |
| AN815-3   |  | AN815-3D  | 3/16    | 3/8-24  | AN816-3     |  | AN816-3D     | 3/16  | 1/8         | AN817-3  |  | AN817-3D  | 3/16    | 3/8-24      |
| AN815-4   |  | AN815-4D  | 1/4     | 7/16-20   | AN816-4     |  | AN816-4D     | 1/4   | 1/8         | AN817-4  |  | AN817-4D  | 1/4     | 7/16-20     |
| AN815-5   |  | AN815-5D  | 5/16    | 1/2-20  | AN816-4-4   |  | AN816-4-4D   | 1/4   | 1/4         | AN817-5  |  | AN817-5D  | 5/16    | 1/2-20      |
| AN815-6   |  | AN815-6D  | 3/8     | 9/16-18   | AN816-5     |  | AN816-5D     | 5/16  | 1/8         | AN817-6  |  | AN817-6D  | 3/8     | 9/16-18     |
| AN815-8   |  | AN815-8D  | 1/2     | 3/4-16  | AN816-5-4   |  | AN816-5-4D   | 5/16  | 1/4         | AN817-8  |  | AN817-8D  | 1/2     | 3/4-16      |
| AN815-10  |  | AN815-10D | 5/8     | 7/8-14  | AN816-6-2   |  | AN816-6-2D   | 3/8   | 1/8         | AN817-10 |  | AN817-10D | 5/8     | 7/8-14      |
| AN815-12  |  | AN815-12D | 3/4     | 1-1/16-12   | AN816-6-2   |  | AN816-6-2D   | 3/8   | 1/4         | AN817-12 |  | AN817-12D | 3/4     | 1-1/16-12   |
| AN815-16  |  | AN815-16D | 1       | 1-5/16-12   | AN816-6-6   |  | AN816-6-6D   | 3/8   | 3/8         | AN817-16 |  | AN817-16D | 1       | 1-5/16-12   |
|   |  |           |         |   | AN816-6-8   |  | AN816-6-8D   | 3/8   | 1/2         |          |  |           |         |             |
|   |  |           |         |   | AN816-7     |  | AN816-7D     | 1/2   | 1/4         |          |  |           |         |             |
|   |  |           |         |   | AN816-8     |  | AN816-8D     | 1/2   | 3/8         |          |  |           |         |             |
|   |  |           |         |   | AN816-10    |  | AN816-10D    | 5/8   | 1/2         |          |  |           |         |             |
|   |  |           |         |   | AN816-10-12 |  | AN816-10-12D | 5/8   | 3/4         |          |  |           |         |             |
|   |  |           |         |   | AN816-12-8  |  | AN816-12-8D  | 3/4   | 1/2         |          |  |           |         |             |
|   |  |           |         |   | AN816-12    |  | AN816-12D    | 3/4   | 3/4         |          |  |           |         |             |
|   |  |           |         |   | AN816-12-16 |  | AN816-12-16D | 3/4   | 1           |          |  |           |         |             |
|   |  |           |         |   | AN816-16-12 |  | AN816-16-12D | 1   | 3/4         |          |  |           |         |             |
|   |  |           |         |   | AN816-16    |  | AN816-16D    | 1   | 1           |          |  |           |         |             |
| AN818   |  |           |         | AN819   |             |  |              | AN820   |             |          |  |           |         |             |
|  |  |           |         |  |             |  |              |  |             |          |  |           |         |             |
| Steel   |  | Alum      | Tube OD | Thread Size   | Steel       |  | Alum         | Tube OD   |             | Steel    |  | Alum      | Tube OD | Thread Size |
| AN818-2   |  | AN818-2D  | 1/8     | 5/16-24   | AN819-2     |  | AN819-2D     | 1/8   |             | AN820-2  |  | AN820-2D  | 1/8     | 5/16-24     |
| AN818-3   |  | AN818-3D  | 3/16    | 3/8-24  | AN819-3     |  | AN819-3D     | 3/16  |             | AN820-3  |  | AN820-3D  | 3/16    | 3/8-24      |
| AN818-4   |  | AN818-4D  | 1/4     | 7/16-20   | AN819-4     |  | AN819-4D     | 1/4   |             | AN820-4  |  | AN820-4D  | 1/4     | 7/16-20     |
| AN818-5   |  | AN818-5D  | 5/16    | 1/2-20  | AN819-5     |  | AN819-5D     | 5/16  |             | AN820-5  |  | AN820-5D  | 5/16    | 1/2-20      |
| AN818-6   |  | AN818-6D  | 3/8     | 9/16-18   | AN819-6     |  | AN819-6D     | 3/8   |             | AN820-6  |  | AN820-6D  | 3/8     | 9/16-18     |
| AN818-8   |  | AN818-8D  | 1/2     | 3/4-16  | AN819-8     |  | AN819-8D     | 1/2   |             | AN820-8  |  | AN820-8D  | 1/2     | 3/4-16      |
| AN818-10  |  | AN818-10D | 5/8     | 7/8-14  | AN819-10    |  | AN819-10D    | 5/8   |             | AN820-10 |  | AN820-10D | 5/8     | 7/8-14      |
| AN818-12  |  | AN818-12D | 3/4     | 1-1/16-12   | AN819-12    |  | AN819-12D    | 3/4   |             | AN820-12 |  | AN820-12D | 3/4     | 1-1/16-12   |
| AN818-16  |  | AN818-16D | 1       | 1-5/16-12   | AN819-16    |  | AN819-16D    | 1   |             | AN820-16 |  | AN820-16D | 1       | 1-5/16-12   |



# AN-MS Aircraft Fittings (JIC 37Deg Flare)









SKYBOLT maintains one of the best fitting inventories available. We are heavily committed to fluid transfer components.


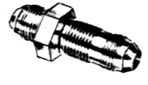


Example Fitting Code:



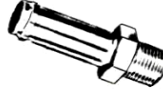
**AN816-8-6D**





-8 refers to Tube Size (AN Flare) -6 refers to Pipe Size



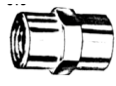
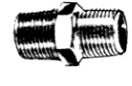
| AN821   |           |      |           | AN822   |              |      |      | AN823  |              |      |      |
|---|-----------|------|-----------|---|--------------|------|------|--|--------------|------|------|
|    |           |      |           |    |              |      |      |   |              |      |      |
| <b>Elbow<br/>Flared Tube 90Deg</b>  |           |      |           | <b>Elbow-Flared Tube<br/>and Pipe Thread 90Deg</b>                                  |              |      |      | <b>Elbow-Flared Tube<br/>and Pipe Thread 45Deg</b>                                   |              |      |      |
| AN821   |           | Tube | Thread    | AN822   |              | Tube | Pipe | AN823  |              | Tube | Pipe |
| Steel   | Alum      | OD   | Size      | Steel   | Alum         | OD   | Size | Steel  | Alum         | OD   | Size |
| AN821-2   | AN821-2D  | 1/8  | 5/16-24   | AN822-2   | AN822-2D     | 1/8  | 1/8  | AN823-2  | AN823-2D     | 1/8  | 1/8  |
| AN821-3   | AN821-3D  | 3/16 | 3/8-24    | AN822-3   | AN822-3D     | 3/16 | 1/8  | AN823-3  | AN823-3D     | 3/16 | 1/8  |
| AN821-4   | AN821-4D  | 1/4  | 7/16-20   | AN822-4   | AN822-4D     | 1/4  | 1/8  | AN823-4  | AN823-4D     | 1/4  | 1/8  |
| AN821-5   | AN821-5D  | 5/16 | 1/2-20    | AN822-4-4   | AN822-4-4D   | 1/4  | 1/4  | AN823-4-4  | AN823-4-4D   | 1/4  | 1/4  |
| AN821-6   | AN821-6D  | 3/8  | 9/16-18   | AN822-5   | AN822-5D     | 5/16 | 1/8  | AN823-5  | AN823-5D     | 5/16 | 1/8  |
| AN821-8   | AN821-8D  | 1/2  | 3/4-16    | AN822-5-4   | AN822-5-4D   | 5/16 | 1/4  | AN823-5-4  | AN823-5-4D   | 5/16 | 1/4  |
| AN821-10  | AN821-10D | 5/8  | 7/8-14    | AN822-6-2   | AN822-6-2D   | 3/8  | 1/8  | AN823-6-2  | AN823-6-2D   | 3/8  | 1/8  |
| AN821-12  | AN821-12D | 3/4  | 1-1/16-12 | AN822-6   | AN822-6D     | 3/8  | 1/4  | AN823-6  | AN823-6D     | 3/8  | 1/4  |
| AN821-16  | AN821-16D | 1    | 1-5/16-12 | AN822-6-6   | AN822-6-6D   | 3/8  | 3/8  | AN823-6-6  | AN823-6-6D   | 3/8  | 3/8  |
|   |           |      |           | AN822-6-8   | AN822-6-8D   | 3/8  | 1/2  | AN823-6-8  | AN823-6-8D   | 3/8  | 1/2  |
|   |           |      |           | AN822-7   | AN822-7D     | 1/2  | 1/4  | AN823-7  | AN823-7D     | 1/2  | 1/4  |
|   |           |      |           | AN822-8   | AN822-8D     | 1/2  | 3/8  | AN823-8  | AN823-8D     | 1/2  | 3/8  |
|   |           |      |           | AN822-10  | AN822-10D    | 5/8  | 1/2  | AN823-10   | AN823-10D    | 5/8  | 1/2  |
|   |           |      |           | AN822-10-12   | AN822-10-12D | 5/8  | 3/4  | AN823-10-12  | AN823-10-12D | 5/8  | 3/4  |
|   |           |      |           | AN822-12-8  | AN822-12-8D  | 3/4  | 1/2  | AN823-12-8   | AN823-12-8D  | 3/4  | 1/2  |
|   |           |      |           | AN822-12-8  | AN822-12-8D  | 3/4  | 3/4  | AN823-12-8   | AN823-12-8D  | 3/4  | 3/4  |
|   |           |      |           | AN822-12-16   | AN822-12-16D | 3/4  | 1    | AN823-12-16  | AN823-12-16D | 3/4  | 1    |
|   |           |      |           | AN822-16-12   | AN822-16-12D | 1    | 3/4  | AN823-16-12  | AN823-16-12D | 1    | 3/4  |
|   |           |      |           | AN822-16  | AN822-16 D   | 1    | 1    | AN823-16   | AN823-16 D   | 1    | 1    |
| AN824   |           |      |           | AN825   |              |      |      | AN826  |              |      |      |
|  |           |      |           |  |              |      |      |  |              |      |      |
| <b>Tee<br/>Flared Tube</b>  |           |      |           | <b>Tee-Flared Tube<br/>with Pipe Thread on Side</b>                                 |              |      |      | <b>Tee-Flared Tube<br/>with Pipe Thread on Run</b>                                   |              |      |      |
| AN824   |           | Tube |           | AN825   |              | Tube | Pipe | AN826  |              | Tube | Pipe |
| Steel   | Alum      | OD   |           | Steel   | Alum         | OD   | Size | Steel  | Alum         | OD   | Size |
| AN824-2   | AN824-2D  | 1/8  |           | AN825-2   | AN825-2D     | 1/8  | 1/8  | AN826-2  | AN826-2D     | 1/8  | 1/8  |
| AN824-3   | AN824-3D  | 3/16 |           | AN825-3   | AN825-3D     | 3/16 | 1/8  | AN826-3  | AN826-3D     | 3/16 | 1/8  |
| AN824-4   | AN824-4D  | 1/4  |           | AN825-4   | AN825-4D     | 1/4  | 1/8  | AN826-4  | AN826-4D     | 1/4  | 1/8  |
| AN824-5   | AN824-5D  | 5/16 |           | AN825-4-4   | AN825-4-4D   | 1/4  | 1/4  | AN826-4-4  | AN826-4-4D   | 1/4  | 1/4  |
| AN824-6   | AN824-6D  | 3/8  |           | AN825-5   | AN825-5D     | 5/16 | 1/8  | AN826-5  | AN826-5D     | 5/16 | 1/8  |
| AN824-8   | AN824-8D  | 1/2  |           | AN825-5-4   | AN825-5-4D   | 5/16 | 1/4  | AN826-5-4  | AN826-5-4D   | 5/16 | 1/4  |
| AN824-10  | AN824-10D | 5/8  |           | AN825-6-2   | AN825-6-2D   | 3/8  | 1/8  | AN826-6-2  | AN826-6-2D   | 3/8  | 1/8  |
| AN824-12  | AN824-12D | 3/4  |           | AN825-6   | AN825-6D     | 3/8  | 1/4  | AN826-6  | AN826-6D     | 3/8  | 1/4  |
| AN824-16  | AN824-16D | 1    |           | AN825-6-6   | AN825-6-6D   | 3/8  | 3/8  | AN826-6-6  | AN826-6-6D   | 3/8  | 3/8  |
|   |           |      |           | AN825-6-8   | AN825-6-8D   | 3/8  | 1/2  | AN826-6-8  | AN826-6-8D   | 3/8  | 1/2  |
|   |           |      |           | AN825-7   | AN825-7D     | 1/2  | 1/4  | AN826-7  | AN826-7D     | 1/2  | 1/4  |
|   |           |      |           | AN825-8   | AN825-8D     | 1/2  | 3/8  | AN826-8  | AN826-8D     | 1/2  | 3/8  |
|   |           |      |           | AN825-10  | AN825-10D    | 5/8  | 1/2  | AN826-10   | AN826-10D    | 5/8  | 1/2  |
|   |           |      |           | AN825-10-12   | AN825-10-12D | 5/8  | 3/4  | AN826-10-12  | AN826-10-12D | 5/8  | 3/4  |
|   |           |      |           | AN825-12-8  | AN825-12-8D  | 3/4  | 1/2  | AN826-12-8   | AN826-12-8D  | 3/4  | 1/2  |
|   |           |      |           | AN825-12-8  | AN825-12-8D  | 3/4  | 3/4  | AN826-12-8   | AN826-12-8D  | 3/4  | 3/4  |
|   |           |      |           | AN825-12-16   | AN825-12-16D | 3/4  | 1    | AN826-12-16  | AN826-12-16D | 3/4  | 1    |
|   |           |      |           | AN825-16-12   | AN825-16-12D | 1    | 3/4  | AN826-16-12  | AN826-16-12D | 1    | 3/4  |
|   |           |      |           | AN825-16  | AN825-16 D   | 1    | 1    | AN826-16   | AN826-16 D   | 1    | 1    |

# AN-MS Aircraft Fittings














| AN827   |           |      |           | AN832   |             |       |           | AN833  |           |         |             | AN834   |           |      |           |         |             |
|---|-----------|------|-----------|---|-------------|-------|-----------|--|-----------|---------|-------------|---|-----------|------|-----------|---------|-------------|
|  |           |      |           |  |             |       |           |  |           |         |             |  |           |      |           |         |             |
| Steel   |           | Alum |           | Tube OD   | Thread Size | Steel |           | Alum   |           | Tube OD | Thread Size | Steel   |           | Alum |           | Tube OD | Thread Size |
| AN827-2   | AN827-2D  | 1/8  | 5/16-24   | AN832-2   | AN832-2D    | 1/8   | 5/16-24   | AN833-2  | AN833-2D  | 1/8     | 5/16-24     | AN834-2   | AN834-2D  | 1/8  | 5/16-24   |         |             |
| AN827-3   | AN827-3D  | 3/16 | 3/8-24    | AN832-3   | AN832-3D    | 3/16  | 3/8-24    | AN833-3  | AN833-3D  | 3/16    | 3/8-24      | AN834-3   | AN834-3D  | 3/16 | 3/8-24    |         |             |
| AN827-4   | AN827-4D  | 1/4  | 7/16-20   | AN832-4   | AN832-4D    | 1/4   | 7/16-20   | AN833-4  | AN833-4D  | 1/4     | 7/16-20     | AN834-4   | AN834-4D  | 1/4  | 7/16-20   |         |             |
| AN827-5   | AN827-5D  | 5/16 | 1/2-20    | AN832-5   | AN832-5D    | 5/16  | 1/2-20    | AN833-5  | AN833-5D  | 5/16    | 1/2-20      | AN834-5   | AN834-5D  | 5/16 | 1/2-20    |         |             |
| AN827-6   | AN827-6D  | 3/8  | 9/16-18   | AN832-6   | AN832-6D    | 3/8   | 9/16-18   | AN833-6  | AN833-6D  | 3/8     | 9/16-18     | AN834-6   | AN834-6D  | 3/8  | 9/16-18   |         |             |
| AN827-8   | AN827-8D  | 1/2  | 3/4-16    | AN832-8   | AN832-8D    | 1/2   | 3/4-16    | AN833-8  | AN833-8D  | 1/2     | 3/4-16      | AN834-8   | AN834-8D  | 1/2  | 3/4-16    |         |             |
| AN827-10  | AN827-10D | 5/8  | 7/8-14    | AN832-10  | AN832-10D   | 5/8   | 7/8-14    | AN833-10   | AN833-10D | 5/8     | 7/8-14      | AN834-10  | AN834-10D | 5/8  | 7/8-14    |         |             |
| AN827-12  | AN827-12D | 3/4  | 1-1/16-12 | AN832-12  | AN832-12D   | 3/4   | 1-1/16-12 | AN833-12   | AN833-12D | 3/4     | 1-1/16-12   | AN834-12  | AN834-12D | 3/4  | 1-1/16-12 |         |             |
| AN827-16  | AN827-16D | 1    | 1-5/16-12 | AN832-16  | AN832-16D   | 1     | 1-5/16-12 | AN833-16   | AN833-16D | 1       | 1-5/16-12   | AN834-16  | AN834-16D | 1    | 1-5/16-12 |         |             |

| AN837   |           |      |           | AN838   |             |       |       | AN840   |          |           |           |       |  |      |  |         |           |
|---|-----------|------|-----------|---|-------------|-------|-------|---|----------|-----------|-----------|-------|--|------|--|---------|-----------|
|  |           |      |           |  |             |       |       |  |          |           |           |       |  |      |  |         |           |
| Steel   |           | Alum |           | Tube OD   | Thread Size | Steel |       | Alum  |          | Hose ID   | Pipe Size | Steel |  | Alum |  | Hose ID | Pipe Size |
| AN837-2   | AN837-2D  | 1/8  | 5/16-24   | AN838-4   | AN838-4D    | 1/4   | 1/4   | 7/16-20   | AN840-4  | AN840-4D  | 1/4       | 1/8   |  |      |  |         |           |
| AN837-3   | AN837-3D  | 3/16 | 3/8-24    | AN838-6   | AN838-6D    | 3/8   | 3/8   | 1/2-20  | AN840-6  | AN840-6D  | 3/8       | 1/4   |  |      |  |         |           |
| AN837-4   | AN837-4D  | 1/4  | 7/16-20   | AN838-8   | AN838-8D    | 1/2   | 1/2   | 9/16-18   | AN840-8  | AN840-8D  | 1/2       | 3/8   |  |      |  |         |           |
| AN837-5   | AN837-5D  | 5/16 | 1/2-20    | AN838-10  | AN838-10D   | 5/8   | 5/8   | 3/4-16  | AN840-9  | AN840-9D  | 5/8       | 3/8   |  |      |  |         |           |
| AN837-6   | AN837-6D  | 3/8  | 9/16-18   | AN838-12  | AN838-12D   | 3/4   | 3/4   | 7/8-14  | AN840-10 | AN840-10D | 5/8       | 1/2   |  |      |  |         |           |
| AN837-8   | AN837-8D  | 1/2  | 3/4-16    | AN838-16  | AN838-16D   | 1     | 1     | 1-1/16-12   | AN840-11 | AN840-11D | 3/4       | 3/8   |  |      |  |         |           |
| AN837-10  | AN837-10D | 5/8  | 7/8-14    | AN838-20  | AN838-20D   | 1-1/4 | 1-1/4 | 1-5/16-12   | AN840-12 | AN840-12D | 3/4       | 3/4   |  |      |  |         |           |
| AN837-12  | AN837-12D | 3/4  | 1-1/16-12 | AN838-24  | AN838-24D   | 1-1/2 | 1-1/2 | 1-7/8-12  | AN840-13 | AN840-13D | 1         | 3/8   |  |      |  |         |           |
| AN837-16  | AN837-16D | 1    | 1-5/16-12 |   |             |       |       |   | AN840-16 | AN840-16D | 1         | 3/4   |  |      |  |         |           |

| AN842  |           |       |       | AN844  |           |       |       | Weld Bung - Pipe Thread   |           | AN871  |           |           |
|--|-----------|-------|-------|--|-----------|-------|-------|---|-----------|--|-----------|-----------|
|  |           |       |       |  |           |       |       |  |           |  |           |           |
| Steel  |           | Alum  |       | Hose ID  | Pipe Size | Steel |       | Alum  |           | Thread Size  |           |           |
| AN842-2  | AN842-2D  | 1/4   | 1/8   | AN844-4  | AN844-4D  | 1/4   | 1/8   | SK870-2D  | SK870-2D  | AN871-4  | AN871-4D  | 7/16-20   |
| AN842-6  | AN842-6D  | 3/8   | 1/4   | AN844-6  | AN844-6D  | 3/8   | 1/4   | SK870-4D  | SK870-4D  | AN871-6  | AN871-6D  | 1/2-20    |
| AN842-8  | AN842-8D  | 1/2   | 3/8   | AN844-8  | AN844-8D  | 1/2   | 3/8   | SK870-6D  | SK870-6D  | AN871-8  | AN871-8D  | 9/16-18   |
| AN842-10   | AN842-10D | 5/8   | 1/2   | AN844-10   | AN844-10D | 5/8   | 1/2   | SK870-8D  | SK870-8D  | AN871-10   | AN871-10D | 3/4-16    |
| AN842-12   | AN842-12D | 3/4   | 3/4   | AN844-12   | AN844-12D | 3/4   | 3/4   | SK870-10D   | SK870-10D | AN871-12   | AN871-12D | 7/8-14    |
| AN842-16   | AN842-16D | 1     | 3/4   | AN844-16   | AN844-16D | 1     | 3/4   | SK870-12D   | SK870-12D | AN871-16   | AN871-16D | 1-1/16-12 |
| AN842-17   | AN842-17D | 1     | 1     | AN844-17   | AN844-17D | 1     | 1     | SK870-16D   | SK870-16D | AN871-20   | AN871-20D | 1-5/16-12 |
| AN842-20   | AN842-20D | 1-1/4 | 1-1/4 | AN844-20   | AN844-20D | 1-1/4 | 1-1/4 |   |           | AN871-24   | AN871-24D | 1-7/8-12  |
| AN842-21   | AN842-21D | 1-1/4 | 1     | AN844-21   | AN844-21D | 1-1/4 | 1     |   |           |  |           |           |

| AN893   |            |      |       | AN894   |                  |       |      | AN910  |           |           | AN911   |           |       |  |           |
|---|------------|------|-------|---|------------------|-------|------|--|-----------|-----------|---|-----------|-------|--|-----------|
|  |            |      |       |  |                  |       |      |  |           |           |  |           |       |  |           |
| Steel   |            | Alum |       | Internal Tube OD  | External Tube OD | Steel |      | Alum   |           | Pipe Size | Copper  |           | Alum  |  | Pipe Size |
| AN893-1   | AN893-1D   | 1/4  | 5/16  | AN894-3-3   | AN894D3-2        | 3/16  | 1/8  | AN910-1  | AN910-1D  | 1/8       | AN911-1   | AN911-1D  | 1/8   |  |           |
| AN893-2   | AN893-2D   | 1/4  | 3/8   | AN894-4-2   | AN894D4-2        | 1/4   | 1/8  | AN910-2  | AN910-2D  | 1/4       | AN911-2   | AN911-2D  | 1/4   |  |           |
| AN893-3   | AN893-3D   | 1/4  | 1/2   | AN894-4-3   | AN894D4-3        | 1/4   | 3/16 | AN910-3  | AN910-3D  | 3/8       | AN911-3   | AN911-3D  | 3/8   |  |           |
| AN893-31  | AN893-31D  | 1/4  | 5/8   | AN894-5-4   | AN894D5-4        | 5/16  | 1/4  | AN910-4  | AN910-4D  | 1/2       | AN911-4   | AN911-4D  | 1/2   |  |           |
| AN893-4   | AN893-4D   | 1/4  | 3/4   | AN894-6-4   | AN894D6-4        | 3/8   | 1/4  | AN910-6  | AN910-6D  | 3/4       | AN911-6   | AN911-6D  | 3/4   |  |           |
| AN893-5   | AN893-5D   | 1/4  | 1     | AN894-6-5   | AN894D6-5        | 3/8   | 5/16 | AN910-8  | AN910-8D  | 1         | AN911-8   | AN911-8D  | 1     |  |           |
| AN893-6   | AN893-6D   | 1/4  | 1-1/4 | AN894-8-4   | AN894D8-4        | 1/2   | 1/4  | AN910-10   | AN910-10D | 1-1/4     | AN911-10  | AN911-10D | 1-1/4 |  |           |
| AN893-7   | AN893-7D   | 5/16 | 3/8   | AN894-8-5   | AN894D8-5        | 1/2   | 5/16 |  |           |           |   |           |       |  |           |
| AN893-8   | AN893-8D   | 5/16 | 1/2   | AN894-8-6   | AN894D8-6        | 1/2   | 3/8  |  |           |           |   |           |       |  |           |
| AN893-81  | AN893-81D  | 5/16 | 5/8   | AN894-10-4  | AN894D10-4       | 5/8   | 1/4  |  |           |           |   |           |       |  |           |
| AN893-9   | AN893-9D   | 5/16 | 3/4   | AN894-10-5  | AN894D10-5       | 5/8   | 5/16 |  |           |           |   |           |       |  |           |
| AN893-10  | AN893-10D  | 5/16 | 1     | AN894-10-6  | AN894D10-6       | 5/8   | 3/8  |  |           |           |   |           |       |  |           |
| AN893-11  | AN893-11D  | 5/16 | 1-1/4 | AN894-10-8  | AN894D10-8       | 5/8   | 1/2  |  |           |           |   |           |       |  |           |
| AN893-12  | AN893-12D  | 3/8  | 1/2   | AN894-12-6  | AN894D12-6       | 3/4   | 3/8  |  |           |           |   |           |       |  |           |
| AN893-121   | AN893-121D | 3/8  | 5/8   | AN894-12-8  | AN894D12-8       | 3/4   | 1/2  |  |           |           |   |           |       |  |           |
| AN893-13  | AN893-13D  | 3/8  | 3/4   | AN894-12-10   | AN894D12-10      | 3/4   | 5/8  |  |           |           |   |           |       |  |           |
| AN893-14  | AN893-14D  | 3/8  | 1     | AN894-16-6  | AN894D16-6       | 1     | 3/8  |  |           |           |   |           |       |  |           |
| AN893-15  | AN893-15D  | 3/8  | 1-1/4 | AN894-16-8  | AN894D16-8       | 1     | 1/2  |  |           |           |   |           |       |  |           |
| AN893-151   | AN893-151D | 1/2  | 5/8   | AN894-16-10   | AN894D16-10      | 1     | 5/8  |  |           |           |   |           |       |  |           |
| AN893-16  | AN893-16D  | 1/2  | 3/4   | AN894-16-12   | AN894D16-12      | 1     | 3/4  |  |           |           |   |           |       |  |           |
| AN893-17  | AN893-17D  | 1/2  | 1     |   |                  |       |      |  |           |           |   |           |       |  |           |

# AN-MS Aircraft Fittings

| AN912   |            |                 |                   | AN913   |            |                            |                   | AN914  |               |                 |                    | AN915   |            |  |                  |             |                  |                                     |  |
|---|------------|-----------------|-------------------|---|------------|----------------------------|-------------------|--|---------------|-----------------|--------------------|---|------------|--|------------------|-------------|------------------|-------------------------------------|--|
|    |            |                 |                   |    |            |                            |                   |    |               |                 |                    |  |            |  |                  |             |                  |                                     |  |
| Bushing Reducer Pipe  |            | Pipe Size OD    | Pipe Size ID      | Plug-Square Head Pipe Thread  |            | Pipe Size                  |                   | Elbow-Internal and External Pipe Thread 90Deg  |               | 304 CRES        |                    | Pipe Size   |            | Elbow-Internal and External Pipe 45Deg |                  | 304 CRES    |                  | Pipe Size                           |  |
| AN912 Copper  | AN912 Alum | AN912 304 CRES  | AN912 Pipe Size   | AN913 Copper  | AN913 Alum | AN913 Steel                | AN913 Pipe Size   | AN914 Copper   | AN914 Alum    | AN914 304 CRES  | AN914 Pipe Size    | AN915 Copper  | AN915 Alum | AN915 304 CRES                         | AN915 Pipe Size  | AN915 Steel | AN915 Large Tube | AN915 Small Tube                    |  |
| AN912-1   | AN912-1D   | 1/4             | 1/8               | AN913-1   | AN913-1D   | 1S                         | 1/8               | AN914-1  | AN914-1D      | 1J              | 1/8                | AN915-1   | AN915-1D   | 1J                                     | 1/8              |             |                  |                                     |  |
| AN912-2   | AN912-2D   | 3/8             | 1/4               | AN913-2   | AN913-2D   | 2S                         | 1/4               | AN914-2  | AN914-2D      | 2J              | 1/4                | AN915-2   | AN915-2D   | 2J                                     | 1/4              |             |                  |                                     |  |
| AN912-3   | AN912-3D   | 3/8             | 1/8               | AN913-3   | AN913-3D   | 3S                         | 3/8               | AN914-3  | AN914-3D      | 3J              | 3/8                | AN915-3   | AN915-3D   | 3J                                     | 3/8              |             |                  |                                     |  |
| AN912-4   | AN912-4D   | 1/2             | 3/8               | AN913-4   | AN913-4D   | 4S                         | 1/2               | AN914-4  | AN914-4D      | 4J              | 1/2                | AN915-4   | AN915-4D   | 4J                                     | 1/2              |             |                  |                                     |  |
| AN912-5   | AN912-5D   | 1/2             | 1/4               | AN913-6   | AN913-6D   | 6S                         | 3/4               | AN914-6  | AN914-6D      | 6J              | 3/4                | AN915-6   | AN915-6D   | 6J                                     | 3/4              |             |                  |                                     |  |
| AN912-6   | AN912-6D   | 1/2             | 1/8               | AN913-8   | AN913-8D   | 8S                         | 1                 | AN914-8  | AN914-8D      | 8J              | 1                  | AN915-8   | AN915-8D   | 8J                                     | 1                |             |                  |                                     |  |
| AN912-7   | AN912-7D   | 3/4             | 1/2               | AN913-10  | AN913-10D  | 10S                        | 1-1/4             | AN914-10   | AN914-10D     | 10J             | 1-1/4              | AN915-10  | AN915-10D  | 10J                                    | 1-1/4            |             |                  |                                     |  |
| AN912-8   | AN912-8D   | 3/4             | 3/8               |   |            |                            |                   |  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| AN912-9   | AN912-9D   | 3/4             | 1/4               |   |            |                            |                   |  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| AN912-10  | AN912-10D  | 1               | 3/4               |   |            |                            |                   |  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| AN912-11  | AN912-11D  | 1               | 1/2               |   |            |                            |                   |  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| AN912-12  | AN912-12D  | 1               | 3/8               |   |            |                            |                   |  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| AN912-13  | AN912-13D  | 1-1/4           | 3/4               |   |            |                            |                   |  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| AN916   |            |                 |                   | AN917   |            |                            |                   | AN918  |               |                 |                    | AN919   |            |  |                  |             |                  |                                     |  |
|    |            |                 |                   |    |            |                            |                   |    |               |                 |                    |  |            |  |                  |             |                  |                                     |  |
| Elbow - Internal Pipe Thread 90Deg  |            | 304 CRES        |                   | Pipe Size   |            | Tee - Internal Pipe Thread |                   | 304 CRES   |               | Pipe Size       |                    | Cross-Internal Pipe Thread  |            | 304 CRES                               |                  | Pipe Size   |                  | Reducer-External Thread Flared Tube |  |
| AN916 Copper  | AN916 Alum | AN916 304 CRES  | AN916 Pipe Size   | AN917 Copper  | AN917 Alum | AN917 304 CRES             | AN917 Pipe Size   | AN918 Copper   | AN918 Alum    | AN918 304 CRES  | AN918 Pipe Size    | AN919 Steel   | AN919 Alum | AN919 Large Tube                       | AN919 Small Tube |             |                  |                                     |  |
| AN916-1   | AN916-1D   | 1J              | 1/8               | AN917-1   | AN917-1D   | 1J                         | 1/8               | AN918-1  | AN918-1D      | 1J              | 1/8                | AN919-0   | AN919-0D   | 3/16                                   | 1/8              |             |                  |                                     |  |
| AN916-2   | AN916-2D   | 2J              | 1/4               | AN917-2   | AN917-2D   | 2J                         | 1/4               | AN918-2  | AN918-2D      | 2J              | 1/4                | AN919-1   | AN919-1D   | 1/4                                    | 1/8              |             |                  |                                     |  |
| AN916-3   | AN916-3D   | 3J              | 3/8               | AN917-3   | AN917-3D   | 3J                         | 3/8               | AN918-3  | AN918-3D      | 3J              | 3/8                | AN919-2   | AN919-2D   | 1/4                                    | 3/16             |             |                  |                                     |  |
| AN916-4   | AN916-4D   | 4J              | 1/2               | AN917-4   | AN917-4D   | 4J                         | 1/2               | AN918-4  | AN918-4D      | 4J              | 1/2                | AN919-3   | AN919-3D   | 5/16                                   | 1/4              |             |                  |                                     |  |
| AN916-6   | AN916-6D   | 6J              | 3/4               | AN917-6   | AN917-6D   | 6J                         | 3/4               | AN918-6  | AN918-6D      | 6J              | 3/4                | AN919-4   | AN919-4D   | 3/8                                    | 1/8              |             |                  |                                     |  |
| AN916-8   | AN916-8D   | 8J              | 1                 | AN917-8   | AN917-8D   | 8J                         | 1                 | AN918-8  | AN918-8D      | 8J              | 1                  | AN919-5   | AN919-5D   | 3/8                                    | 3/16             |             |                  |                                     |  |
| AN916-10  | AN916-10D  | 10J             | 1-1/4             | AN917-10  | AN917-10D  | 10J                        | 1-1/4             | AN918-10   | AN918-10D     | 10J             | 1-1/4              | AN919-6   | AN919-6D   | 3/8                                    | 1/4              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-7   | AN919-7D   | 3/8                                    | 5/16             |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-8   | AN919-8D   | 1/2                                    | 1/8              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-9   | AN919-9D   | 1/2                                    | 3/16             |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-10  | AN919-10D  | 1/2                                    | 1/4              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-11  | AN919-11D  | 1/2                                    | 5/16             |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-12  | AN919-12D  | 1/2                                    | 3/8              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-13  | AN919-13D  | 5/8                                    | 1/4              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-14  | AN919-14D  | 5/8                                    | 3/8              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-15  | AN919-15D  | 5/8                                    | 1/2              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-16  | AN919-16D  | 3/4                                    | 1/4              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-17  | AN919-17D  | 3/4                                    | 5/16             |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-18  | AN919-18D  | 3/4                                    | 3/8              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-19  | AN919-19D  | 3/4                                    | 1/2              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-20  | AN919-20D  | 3/4                                    | 5/8              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-21  | AN919-21D  | 1                                      | 1/4              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-22  | AN919-22D  | 1                                      | 5/8              |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   |  |               |                 |                    | AN919-23  | AN919-23D  | 1                                      | 3/4              |             |                  |                                     |  |
| AN924   |            |                 |                   | AN929   |            |                            |                   | AN6289   |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
|  |            |                 |                   |  |            |                            |                   |  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| Nut-Flared Tube Bulkhead Fitting  |            | 304 Thread Size |                   | Cap Assembly Pressure Seal  |            | Tube Thread Size           |                   | Nut (Undercut)-Flared Tube Bulkhead Fitting  |               | 304 Thread Size |                    |   |            |  |                  |             |                  |                                     |  |
| AN924 Steel   | AN924 Alum | AN924 304 CRES  | AN924 Thread Size | AN929 Alum  | AN929 CRES | AN929 Tube OD              | AN929 Thread Size | AN6289 Steel   | AN6289 Alum   | AN6289 304 CRES | AN6289 Thread Size |   |            |  |                  |             |                  |                                     |  |
| AN924-2   | AN924-2D   | 2J              | 5/16-24           | AN929-2   | AN929-2J   | 1/8                        | 5/16-24           | AN6289-2   | AN6289-2D     | AN6289-J2       | 5/16-24            |   |            |  |                  |             |                  |                                     |  |
| AN924-3   | AN924-3D   | 3J              | 3/8-24            | AN929-3   | AN929-3J   | 3/16                       | 3/8-24            | AN6289-3   | AN6289-3D     | AN6289-J3       | 3/8-24             |   |            |  |                  |             |                  |                                     |  |
| AN924-4   | AN924-4D   | 4J              | 7/16-20           | AN929-4   | AN929-4J   | 1/4                        | 7/16-20           | AN6289-4   | AN6289-4D     | AN6289-J4       | 7/16-20            |   |            |  |                  |             |                  |                                     |  |
| AN924-5   | AN924-5D   | 5J              | 1/2-20            | AN929-5   | AN929-5J   | 5/16                       | 1/2-20            | AN6289-5   | AN6289-5D     | AN6289-J5       | 1/2-20             |   |            |  |                  |             |                  |                                     |  |
| AN924-6   | AN924-6D   | 6J              | 9/16-18           | AN929-6   | AN929-6J   | 3/8                        | 9/16-18           | AN6289-6   | AN6289-6D     | AN6289-J6       | 9/16-18            |   |            |  |                  |             |                  |                                     |  |
| AN924-8   | AN924-8D   | 8J              | 3/4-16            | AN929-8   | AN929-8J   | 1/2                        | 3/4-16            | AN6289-8   | AN6289-8D     | AN6289-J8       | 3/4-16             |   |            |  |                  |             |                  |                                     |  |
| AN924-10  | AN924-10D  | 10J             | 7/8-14            | AN929-10  | AN929-10J  | 5/8                        | 7/8-14            | AN6289-10  | AN6289-10D    | AN6289-J10      | 7/8-14             |   |            |  |                  |             |                  |                                     |  |
| AN924-12  | AN924-12D  | 12J             | 1-1/16-12         | AN929-12  | AN929-12J  | 3/4                        | 1-1/16-12         | AN6289-12  | AN6289-12D    | AN6289-J12      | 1-1/16-12          |   |            |  |                  |             |                  |                                     |  |
| AN924-16  | AN924-16D  | 16J             | 1-5/16-12         | AN929-16  | AN929-16J  | 1                          | 1-5/16-12         | AN6289-16  | AN6289-16D    | AN6289-J16      | 1-5/16-12          |   |            |  |                  |             |                  |                                     |  |
| Female Flare Swivel Fitting   |            |                 |                   | Fuel Pressure Adapter   |            |                            |                   | Oring Requirement  |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
|  |            |                 |                   |  |            |                            |                   | (AN871, AN893, AN894, AN938)   |               |                 |                    |   |            |  |                  |             |                  |                                     |  |
| FCM Series  | Flare Size | Tube OD         | Thread Size       | FCM Series  | Flare Size | Tube OD                    | Pipe Size         | Tube OD  | MS29513 Dash# |                 |                    |   |            |  |                  |             |                  |                                     |  |
| FCM2914   | -4         | 1/4             | 7/16-20           | FCM2183   | -6         | 3/8                        | 1/8               | 1/4  | -012          |                 |                    |   |            |  |                  |             |                  |                                     |  |
| FCM2915   | -6         | 3/8             | 9/16-18           | FCM2184   | -8         | 1/2                        | 1/8               | 5/16   | -013          |                 |                    |   |            |  |                  |             |                  |                                     |  |
| FCM2916   | -8         | 1/2             | 3/4-16            |   |            |                            |                   | 3/8  | -112          |                 |                    |   |            |  |                  |             |                  |                                     |  |
| FCM2917   | -10        | 5/8             | 7/8-14            |   |            |                            |                   | 1/2  | -114          |                 |                    |   |            |  |                  |             |                  |                                     |  |
| FCM2918   | -12        | 3/4             | 1-1/16-12         |   |            |                            |                   | 5/8  | -116          |                 |                    |   |            |  |                  |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   | 3/4  | -213          |                 |                    |   |            |  |                  |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   | 1  | -217          |                 |                    |   |            |  |                  |             |                  |                                     |  |
|   |            |                 |                   |   |            |                            |                   | 1-1/4  | -220          |                 |                    |   |            |  |                  |             |                  |                                     |  |

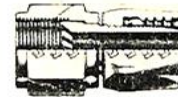
## Aerospace Hoses, Hose Fittings, and Hose Assemblies

Aircraft hoses can be classified as either Rubber-Fiber or Stainless Braided. Rubber-Fiber hoses utilize reusable fittings which means that the hose can be user assembled. Stainless Braided hose is available in a user assembled series or machine assembled series.

**Never equate any hose ID or OD with its Dash Number.** The Dash Number of most hose series only references the OD of the tubing it is associated with. For instance, a -4 hose is commonly referred to as 1/4" hose. As a rule, no ID or OD of that hose equates to 1/4" (Stratoflex 193 ID actually is 1/4"). **Never Measure the ID or OD of a hose and directly relate it to a Dash Number. Refer to the Charted ID to convert any hose ID to a Dash Number.**

### Stratoflex 193 or Aeroquip 306 Buna-N Low Pressure Hose

Application: Low pressure air and vacuum instrument systems. May also be used for low Pressure oil lines.  
 Construction: Seamless Buna-n  
 Reinforcement: One Braid of high tensile fiber cord. Covered with synthetic rubber.  
 Specifications: Hose meets or exceeds the requirements for MIL-H-5593  
 Temperature Range: -65F to 165F



| Hose        |           |           |      | Working Press | Burst Press | Straight Fittings |           |
|-------------|-----------|-----------|------|---------------|-------------|-------------------|-----------|
| Strato Flex | Aero Quip | Tube Size | ID   | PSI           | PSI         | Strato Flex       | Aero Quip |
| 193-2       | 306-2     | 1/8       | 1/8  | 300           | 2000        | 311-2D            | 471-2D    |
| 193-3       | 306-3     | 3/16      | 3/16 | 250           | 1700        | 311-3D            | 471-3D    |
| 193-4       | 306-4     | 1/4       | 1/4  | 200           | 1250        | 311-4D            | 471-4D    |
| 193-6       | 306-6     | 3/8       | 3/8  | 150           | 1000        | 311-6D            | 471-6D    |
| 193-8       | 306-8     | 1/2       | 1/2  | 150           | 750         | 311-8D            | 471-8D    |
| 193-10      | 306-10    | 5/8       | 5/8  | 150           | 700         | 311-10D           | 471-10D   |

### Stratoflex 111 or Aeroquip 303 Fiber Braided Hose

Application: Aircraft hydraulic, pneumatic, coolant, fuel and oil systems specified in MS33620  
 Construction: Tube - Seamless synthetic rubber  
 Reinforcement: One fiber braid and one high tensile steel wire band. Cover - Fiber Braid impregnated with oil and mildew resistant rubber  
 Specifications: Hose meets or exceeds the requirements of MIL-H-8794  
 Temperature Range: -40F to 250F



| Hose        |           |           |       | Working Press | Burst Press | Straight Fittings |           |
|-------------|-----------|-----------|-------|---------------|-------------|-------------------|-----------|
| Strato Flex | Aero Quip | Tube Size | ID    | PSI           | PSI         | Strato Flex       | Aero Quip |
| 111-3       | 303-3     | 1/8       | 1/8   | 3000          | 12000       | 300-3S            | 491-3     |
| 111-4       | 303-4     | 3/16      | 3/16  | 3000          | 12000       | 300-4S            | 491-4     |
| 111-5       | 303-5     | 1/4       | 1/4   | 3000          | 10000       | 300-5S            | 491-5     |
| 111-6       | 303-6     | 3/8       | 5/16  | 2000          | 9000        | 300-6S            | 491-6     |
| 111-8       | 303-8     | 1/2       | 13/16 | 2000          | 8000        | 300-8D            | 491-8     |
| 111-10      | 303-10    | 5/8       | 1/2   | 1750          | 7000        | 300-10D           | 491-10    |
| 111-12      | 303-12    | 3/4       | 5/8   | 1500          | 6000        | 300-12D           | 491-12    |
| 111-16      | 303-16    | 7/8       | 7/8   | 800           | 3200        | 300-16D           | 491-16    |

| Hose        |           | 45 Fittings |            | 90 Fittings |            |
|-------------|-----------|-------------|------------|-------------|------------|
| Strato Flex | Aero Quip | Strato Flex | Aero Quip  | Strato Flex | Aero Quip  |
| 111-3       | 303-3     |             |            | 649-3       | 980005-3   |
| 111-4       | 303-4     | 646-4S      | 980006-4   | 649-4       | 980005-4   |
| 111-5       | 303-5     | 646-5S      | 980006-5   | 649-5       | 980005-5   |
| 111-6       | 303-6     | 646-6S      | 980006-6   | 649-6       | 980005-6   |
| 111-8       | 303-8     | 646-8D      | 980006-8D  | 649-8D      | 980005-8D  |
| 111-10      | 303-10    | 646-10D     | 980006-10D | 649-10D     | 980005-10D |
| 111-12      | 303-12    | 646-12D     | 980006-12D | 649-12D     | 980005-12D |
| 111-16      | 303-16    | 646-16D     | 980006-16D | 649-16D     | 980005-16D |

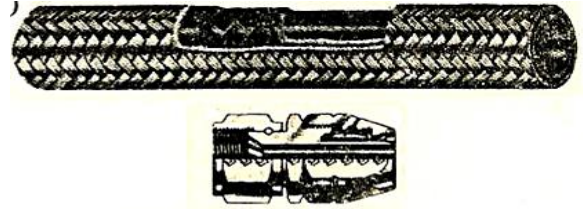
# Aerospace Hoses and Hose Fittings



## Stratoflex 156 or Aeroquip 601 Stainless Braided Hose

(Identical to Aeroquip AQP-FBA Hose except 601 Hose utilizes a different elastomer)

Application: Aircraft hydraulic, pneumatic, coolant, fuel and oil systems specified in MS33620  
 Construction: Tube - Seamless synthetic rubber  
 Reinforcement: One and one half corrosion resistant stainless steel wire band.  
 Specifications: Hose meets or exceeds the requirements of MIL-H-83797  
 Temperature Range: -40F to 300F



| Hose        |           |           |       | Working Press | Burst Press | Straight Fittings |           |
|-------------|-----------|-----------|-------|---------------|-------------|-------------------|-----------|
| Strato Flex | Aero Quip | Tube Size | ID    | PSI           | PSI         | Strato Flex       | Aero Quip |
| 156-3       | 601-3     | 3/16      | 5/32  | 1500          | 6000        | 676-3S            | 816-3     |
| 156-4       | 601-4     | 1/4       | 7/32  | 1500          | 6000        | 676-4S            | 816-4     |
| 156-5       | 601-5     | 5/16      | 9/32  | 1500          | 6000        | 676-5S            | 816-5     |
| 156-6       | 601-6     | 3/8       | 11/32 | 1500          | 6000        | 676-6D            | 816-6D    |
| 156-8       | 601-8     | 1/2       | 7/16  | 1250          | 5000        | 676-8D            | 816-8D    |
| 156-10      | 601-10    | 5/8       | 9/16  | 1250          | 5000        | 676-10D           | 816-10D   |
| 156-12      | 601-12    | 3/4       | 11/16 | 950           | 4000        | 676-12D           | 816-12D   |
| 156-16*     | 601-16    | 1         | 7/8   | 625           | 3000        | 676-16D*          | 816-16D*  |
| 156-20*     | 601-20    | 1-1/4     | 1-1/8 | 800           | 2000        | 676-20D*          | 816-20D*  |

| Hose        |           | 45 Fittings |           | 90 Fittings |           |
|-------------|-----------|-------------|-----------|-------------|-----------|
| Strato Flex | Aero Quip | Strato Flex | Aero Quip | Strato Flex | Aero Quip |
| 156-3       | 601-3     | 678-3S      | 8846-3    | 680-3S      | 8891-3    |
| 156-3       | 601-4     | 678-4S      | 8846-4    | 680-4S      | 8891-4    |
| 156-5       | 601-5     | 678-5S      | 8846-5    | 680-5S      | 8891-5    |
| 156-6       | 601-6     | 678-6D      | 8846-6D   | 680-6D      | 8891-6D   |
| 156-8       | 601-8     | 678-8D      | 8846-8D   | 680-8D      | 8891-8D   |
| 156-10      | 601-10    | 678-10D     | 8846-10D  | 680-10D     | 8891-10D  |
| 156-12      | 601-12    | 678-12D     | 8846-12D  | 680-12D     | 8891-12D  |
| 156-16*     | 601-16*   | 678-16D*    | 8846-16D* | 680-16D*    | 8891-16D* |
| 156-20*     | 601-20*   | 678-20D*    | 8846-20D* | 680-20D*    | 8891-20D* |

\* Special Order

## AE102 FIRESLEEVE - Application Chart

| AE102 | Clamp | 111/303 | MILH6000 | FBA/156 | FBC   |
|-------|-------|---------|----------|---------|-------|
| -6    | JS242 |         |          |         | -3&-4 |
| -7    | JS242 |         |          |         | -6    |
| -8    | JS242 | -3      |          | -3&-4   | -8    |
| -9    | JS242 | -4      | -3       | -6      |       |
| -10   | JS242 | -5      | -4       |         |       |
| -12   | JS253 | -6      | -5       | -8      |       |
| -14   |       |         |          |         |       |
| -13   | JS253 | -8      | -6       | -10     |       |
| -16   | JS253 | -10     | -8       | -12     |       |
| -18   |       |         |          |         |       |
| -20   | JS253 | -12     | -10      |         |       |
| -22   | JS253 |         | -12      | -16     |       |
| -24   |       |         |          |         |       |
| -26   | JS257 |         |          | -20     |       |

## HOSE ASSEMBLY MANDRELS

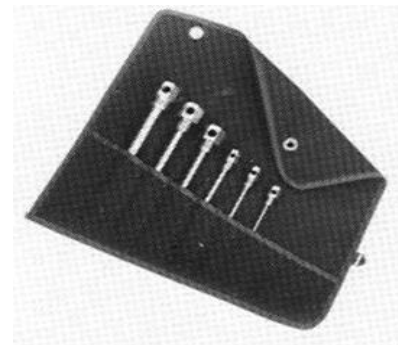
Use these mandrel tools to assemble Stratoflex 111 Hose or Aeroquip 303 Hose.



**Individual Mandrels**

| Part#    | Description              |
|----------|--------------------------|
| SK-3M    | -3 Mandrel               |
| SK-4M    | -4 Mandrel               |
| SK-5M    | -5 Mandrel               |
| SK-6M    | -6 Mandrel               |
| SK-8M    | -8 Mandrel               |
| SK-10M   | -10 Mandrel              |
| SK-12M   | -12 Mandrel              |
| SK-16M   | -16 Mandrel              |
| SK-1599M | -3 thru -16 Mandrel Set* |

\*Includes Canvas Tool Bag

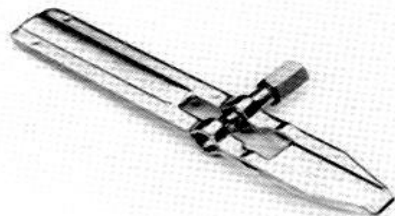


**SK-1599M Set**

## FIRESLEEVE CLAMPING TOOLS

### Thrifttool J070

The Thrifttool is a small inexpensive functional tool for use with 1/4" or 3/8" width band. Ideal for JS242 and JS253 clamps. It must be used in conjunction with a 1/2" wrench to apply tension and has no built-in cutter.



**J070 Tool**

### Pok-It II Tool J020

Lightweight pocket size tool for use with 1/4" or 3/8" width band. Also ideal for JS242 and JS253 clamps. Tool has a ratchet tension feature and built in cutter.

## FIRESLEEVE CLAMPS

SKYBOLT offers the JS242 and JS253 clamps that cover all common firesleeve requirements. Both clamps are 1/4" width. Clamps are referenced in the FIRESLEEVE APPLICATION CHART on the opposite page.



**J020 Tool**

## IF YOU ARE CONSIDERING USING FIRESLEEVE -

All charted sizes assume that firesleeve is installed prior to the last hose fitting. Charted sizes will not allow clearance to slide firesleeve over hose fitting.

# CONTROL CABLE

- 1x19** NON-FLEXIBLE AIRCRAFT CABLE- Made to specifications MIL-C-69040 (galvanized and MIL-C-5693 ( stainless). 1x19 cable has one strand of nineteen wires. It has more metallic area than 7x7 or 7x19 cable which makes it stronger but least flexible. 1x19 cable is generally used for bracing purposes.
- 7x7** FLEXIBLE AIRCRAFT CABLE- Made to specification MIL-W-83420\* (galvanized and stainless). 7x7 cable has seven strands of seven wires each. It is used for control purposes where extreme flexibility is not required but abrasion is a factor.
- 7x19** FLEXIBLE AIRCRAFT CABLE- Made to specifications MIL-W-83420\* ( galvanized and stainless 7x19 cable has seven strands of nineteen wires each. Its great metallic area makes it stronger than 7x7 cable. Because of its fine wires, the best service is obtained where abrasion is not too severe. The 7x19 cable is the most flexible to meet severe bending requirements.



1x19



7x7



7x19

| Cable Part# | Breaking Strength Stainless |
|-------------|-----------------------------|
| 1X19-1/16S  | 500lbs                      |
| 1X19-3/32S  | 1200                        |
| 1X191/8S    | 2100                        |
| 1X19-5/32S  | 3300                        |
| 1X19-3/16S  | 4700                        |

| Cable Part# | Breaking Strength Stainless |
|-------------|-----------------------------|
| 7X7-1/16S   | 480lbs                      |
| 7X7-3/32S   | 920                         |
| 7X7-1/8S    | 1700                        |
| 7X7-5/32S   | 2600                        |
| 7X7-3/16S   | 3700                        |

| Cable Dia  | Breaking Strength Stainless |
|------------|-----------------------------|
| 7X19-1/16S |                             |
| 7X19-3/32S | 920lbs                      |
| 7X19-1/8S  | 1760                        |
| 7X19-5/32S | 2400                        |
| 7X19-3/16S | 3700                        |

\*MIL-W-83420 replaces MIL-W-1511 and MIL-w-5424B. Note: Aircraft and commercial cable differ. Aircraft cable utilizes special lubricants for better fatigue life. **SKYBOLT** will only provide certified aircraft cable meeting military specifications.

## NICOPRESS OVAL SLEEVES

Copper, Zinc plated Copper, and Tin plated Copper (specifically designed for stainless cable)

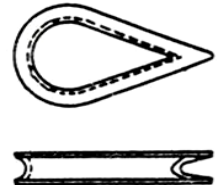
| Copper   | Zinc Copper | Tin Copper | Cable Dia |
|----------|-------------|------------|-----------|
| 18-1-C   | 28-1-C      | 428-2-VC   | 1/16      |
| 18-2-G   | 28-2-G      | 428-3-VG   | 3/32      |
| 18-3-M   | 28-3-M      | 428-4-VM   | 1/8       |
| 18-4-P   | 28-4-P      | 428-5-VP   | 5/32      |
| 18-6-X   | 28-6-X      | 428-6-VX   | 3/16      |
| 18-10-F6 | 28-10-F6    | 428-8-VF6  | 1/4       |



## AN100-Thimble

Carbon Steel- Cadmium plated per QQ-P-416 CRES. Replace dash(-) with C to denote CRES.

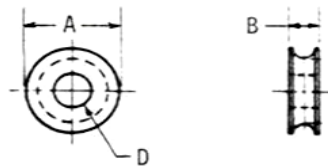
| AN100 Cable Dia | AN100 Dia       |
|-----------------|-----------------|
| AN100-3         | 1/16, 5/64      |
| AN100-4         | 3/32, 7/64, 1/8 |
| AN100-5         | 5/32            |
| AN100-6         | 3/16            |
| AN100-7         | 7/32            |
| AN100-8         | 1/4             |
| AN100-10        | 5/16            |



## AN111- CABLE BUSHING. Low Carbon Steel - Cadmium Plated per QQ-P-421. CRES.

Replace dash with C for CRES.

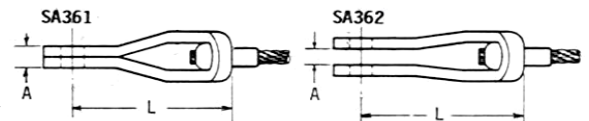
| AN111 Cable Size | A                | B     | D    |      |
|------------------|------------------|-------|------|------|
| AN111-3          | 1/16, 5/64, 3/32 | .437  | .156 | .187 |
| AN111-4          | 1/8              | .468  | .187 | .187 |
| AN111-5          | 5/32             | .562  | .218 | .250 |
| AN111-6          | 3/16             | .687  | .250 | .312 |
| AN111-7          | 7/32             | .875  | .270 | .375 |
| AN111-8          | 1/4              | 1.000 | .312 | .375 |
| AN111-10         | 5/16             | 1.312 | .375 | .437 |
| AN111-12         | 3/8              | 1.500 | .437 | .500 |

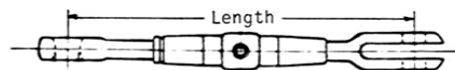


## SA361 EYE END STRAP. CRES

## SA632 FORK END STRAP. CRES.

| SA361   | SA362   | Wire Rope Diameter | Pin Hole Diameter | L      | SA361 A | SA362 A |
|---------|---------|--------------------|-------------------|--------|---------|---------|
| SA361-2 | SA361-2 | 1/16               | .188              | 1.0625 | .088    | .093    |
| SA361-3 | SA361-3 | 3/32               | .188              | 1.5000 | .103    | .108    |
| SA361-4 | SA361-4 | 1/8                | .188              | 1.6250 | .190    | .195    |





**AN130-** AN170 Cable Eye, AN161 Fork, AN155 Barrel

| AN130<br>Dash # | Length  | (Min)  | Takeup |        | Thread  | Strength |
|-----------------|---------|--------|--------|--------|---------|----------|
|                 | AN130   | Others | AN130  | Others |         |          |
| AN130-5S        | 2-3/8   | 2-1/8  | 3/8    | 7/16   | #4-48   | 550LBS   |
| AN130-8S        | 4-1/2   | 4-1/2  | 1-1/4  | 1-3/8  | #6-40   | 800      |
| AN130-16S       | 4-1/2   | 4-1/2  | 1-1/8  | 1-1/8  | #10-32  | 1600     |
| AN130-16L       | 8       | 8      | 2-7/8  | 2-7/8  | #10-32  | 1600     |
| AN130-22S       | 4-17/32 | 4-1/2  | 1      | 1      | 1/4-28  | 2200     |
| AN130-22L       | 8-1/32  | 8      | 2-3/4  | 2-3/4  | 1/4-28  | 2200     |
| AN130-32S       | 4-19/32 | 4-1/2  | 7/8    | 7/8    | 1/4-28  | 3200     |
| AN130-32L       | 8-7/64  | 8      | 2-5/8  | 2-5/8  | 1/4-28  | 3200     |
| AN130-46S       | 4-21-32 | 4-1/2  | 5/8    | 5/8    | 5/16-24 | 4600     |
| AN130-46L       | 8-5/32  | 8      | 2-3/8  | 2-3/8  | 5/16-24 | 4600     |
| AN130-61L       | 8-9/32  | 8      | 2-1/8  | 2-1/8  | 3/8-24  | 6100     |
| AN130-80L       | 8-5/16  | 8      | 2-1/8  | 2/18   | 3/8-24  | 8000     |
| AN130-125L      | 9-1/16  | 9      | 2-1/16 | 2-1/16 | 7/16-20 | 12500    |
| AN130-175L      | 9-9/16  | 9-1/2  | 2-1/16 | 2-1/16 | 1/2-20  | 17500    |

Replace-22S & -22L with -32S & -32L.

| AN135<br>Dash # | Length  | (Min)  | Takeup |        | Thread  | Strength |
|-----------------|---------|--------|--------|--------|---------|----------|
|                 | AN135   | Others | AN135  | Others |         |          |
| AN135-5S*       | 2-3/8   | 2-1/8  | 3/8    | 7/16   | #4-48   | 550LBS   |
| AN135-8S        | 4-1/2   | 4-1/2  | 1-1/4  | 1-3/8  | #6-40   | 800      |
| AN135-16S       | 4-1/2   | 4-1/2  | 1-1/8  | 1-1/8  | #10-32  | 1600     |
| AN135-16L       | 8       | 8      | 2-7/8  | 2-7/8  | #10-32  | 1600     |
| AN135-22S       | 4-17/32 | 4-1/2  | 1      | 1      | 1/4-28  | 2200     |
| AN135-22L       | 8-1/32  | 8      | 2-3/4  | 2-3/4  | 1/4-28  | 2200     |
| AN135-32S       | 4-19/32 | 4-1/2  | 7/8    | 7/8    | 1/4-28  | 3200     |
| AN135-32L       | 8-7/64  | 8      | 2-5/8  | 2-5/8  | 1/4-28  | 3200     |
| AN135-46S       | 4-21-32 | 4-1/2  | 5/8    | 5/8    | 5/16-24 | 4600     |
| AN135-46L       | 8-5/32  | 8      | 2-3/8  | 2-3/8  | 5/16-24 | 4600     |
| AN135-61L       | 8-9/32  | 8      | 2-1/8  | 2-1/8  | 3/8-24  | 6100     |
| AN135-80L       | 8-5/16  | 8      | 2-1/8  | 2/18   | 3/8-24  | 8000     |
| AN135-125L      | 9-1/16  | 9      | 2-1/16 | 2-1/16 | 7/16-20 | 12500    |
| AN135-175L      | 9-9/16  | 9-1/2  | 2-1/16 | 2-1/16 | 1/2-20  | 17500    |

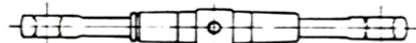
\* AN135S not available. AN150-5s Length =2-5/8", Takeup =5/16". Replace-22S & -22L with -32S & -32L.



**AN135-** AN170 Cable Eye, AN165 Pin Eye, AN155 Barrel

| AN140<br>Dash # | Length  | (Min)  | Takeup |        | Thread  | Strength |
|-----------------|---------|--------|--------|--------|---------|----------|
|                 | AN140   | Others | AN140  | Others |         |          |
| AN140-5S        | 2-3/8   | 2-1/8  | 3/8    | 7/16   | #4-48   | 550LBS   |
| AN140-8S        | 4-1/2   | 4-1/2  | 1-1/4  | 1-3/8  | #6-40   | 800      |
| AN140-16S       | 4-1/2   | 4-1/2  | 1-1/8  | 1-1/8  | #10-32  | 1600     |
| AN140-16L       | 8       | 8      | 2-7/8  | 2-7/8  | #10-32  | 1600     |
| AN140-22S       | 4-17/32 | 4-1/2  | 1      | 1      | 1/4-28  | 2200     |
| AN140-22L       | 8-1/32  | 8      | 2-3/4  | 2-3/4  | 1/4-28  | 2200     |
| AN140-32S       | 4-19/32 | 4-1/2  | 7/8    | 7/8    | 1/4-28  | 3200     |
| AN140-32L       | 8-7/64  | 8      | 2-5/8  | 2-5/8  | 1/4-28  | 3200     |
| AN140-46S       | 4-21-32 | 4-1/2  | 5/8    | 5/8    | 5/16-24 | 4600     |
| AN140-46L       | 8-5/32  | 8      | 2-3/8  | 2-3/8  | 5/16-24 | 4600     |
| AN140-61L       | 8-9/32  | 8      | 2-1/8  | 2-1/8  | 3/8-24  | 6100     |
| AN140-80L       | 8-5/16  | 8      | 2-1/8  | 2/18   | 3/8-24  | 8000     |
| AN140-125L      | 9-1/16  | 9      | 2-1/16 | 2-1/16 | 7/16-20 | 12500    |
| AN140-175L      | 9-9/16  | 9-1/2  | 2-1/16 | 2-1/16 | 1/2-20  | 17500    |

Replace-22S & -22L with -32S & -32L.



**AN140-** AN170 Cable Eye(2), AN155 Barrel

| AN150<br>Dash # | Length  | (Min)  | Takeup |        | Thread  | Strength |
|-----------------|---------|--------|--------|--------|---------|----------|
|                 | AN150   | Others | AN150  | Others |         |          |
| AN150-5S        | 2-3/8   | 2-1/8  | 3/8    | 7/16   | #4-48   | 550LBS   |
| AN150-8S        | 4-1/2   | 4-1/2  | 1-1/4  | 1-3/8  | #6-40   | 800      |
| AN150-16S       | 4-1/2   | 4-1/2  | 1-1/8  | 1-1/8  | #10-32  | 1600     |
| AN150-16L       | 8       | 8      | 2-7/8  | 2-7/8  | #10-32  | 1600     |
| AN150-22S       | 4-17/32 | 4-1/2  | 1      | 1      | 1/4-28  | 2200     |
| AN150-22L       | 8-1/32  | 8      | 2-3/4  | 2-3/4  | 1/4-28  | 2200     |
| AN150-32S       | 4-19/32 | 4-1/2  | 7/8    | 7/8    | 1/4-28  | 3200     |
| AN150-32L       | 8-7/64  | 8      | 2-5/8  | 2-5/8  | 1/4-28  | 3200     |
| AN150-46S       | 4-21-32 | 4-1/2  | 5/8    | 5/8    | 5/16-24 | 4600     |
| AN150-46L       | 8-5/32  | 8      | 2-3/8  | 2-3/8  | 5/16-24 | 4600     |
| AN150-61L       | 8-9/32  | 8      | 2-1/8  | 2-1/8  | 3/8-24  | 6100     |
| AN150-80L       | 8-5/16  | 8      | 2-1/8  | 2/18   | 3/8-24  | 8000     |
| AN150-125L      | 9-1/16  | 9      | 2-1/16 | 2-1/16 | 7/16-20 | 12500    |
| AN150-175L      | 9-9/16  | 9-1/2  | 2-1/16 | 2-1/16 | 1/2-20  | 17500    |

Replace-22S & -22L with -32S & -32L.



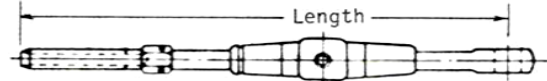
**AN150-** AN161 Fork(2), AN155 Barrel



## AN145

| Part#      | Length (Min) | Takeup | Thread  | Strength |
|------------|--------------|--------|---------|----------|
| AN145-8S   | 5-5/8        | 1-3/8  | #6-40   | 480LBS   |
| AN145-8L*  | -----        | 3-1/8  | #10-32  | 480      |
| AN145-16S  | 5-3/4        | 1-1/8  | #10-32  | 920      |
| AN145-16L  | 9-1/4        | 2-7/8  | 1/4-28  | 920      |
| AN145-22S  | 5-15/16      | 1      | 1/4-28  | 2000     |
| AN145-22L  | 9-7/16       | 2-3/4  | 1/4-28  | 2000     |
| AN145-32S  | 6-3/16       | 7/8    | 1/4-28  | 2800     |
| AN145-32L  | 9-11/16      | 2-5/8  | 1/4-28  | 2800     |
| AN145-46S  | 6-3/8        | 5/8    | 5/16-24 | 4200     |
| AN145-46L  | 9-7/8        | 2-3/8  | 5/16-24 | 4200     |
| AN145-61L  | 10-1/16      | 2-1/8  | 3/8-24  | 5600     |
| AN145-80L  | 10-3/8       | 2-1/8  | 3/8-24  | 7000     |
| AN145-125L | 11-3/16      | 2-1/16 | 7/16-20 | 8000     |
| AN145-175L | 11-3/4       | 2-1/16 | 1/2-20  | 9800     |

**SKYBOLT**  
AEROMOTIVE CORP.

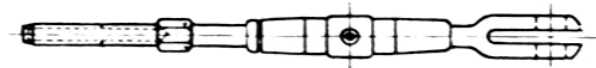


AN145- AN669 Terminal, AN165 Pin Eye, AN155 Barrel

\* Size 8L available as AN147 only. Part#s listed are for Cres Swaging terminals. Replace-22S & -22L with -32S & -32L.

## AN146

| Part#      | Length Min | Takeup | Thread  | Strength |
|------------|------------|--------|---------|----------|
| AN146-8S   | 5-5/8      | 1-3/8  | #6-40   | 480LBS   |
| AN146-8L*  | -----      | 3-1/8  | #10-32  | 480      |
| AN146-16S  | 5-3/4      | 1-1/8  | #10-32  | 920      |
| AN146-16L  | 9-1/4      | 2-7/8  | 1/4-28  | 920      |
| AN146-22S  | 5-15/16    | 1      | 1/4-28  | 2000     |
| AN146-22L  | 9-7/16     | 2-3/4  | 1/4-28  | 2000     |
| AN146-32S  | 6-3/16     | 7/8    | 1/4-28  | 2800     |
| AN146-32L  | 9-11/16    | 2-5/8  | 1/4-28  | 2800     |
| AN146-46S  | 6-3/8      | 5/8    | 5/16-24 | 4200     |
| AN146-46L  | 9-7/8      | 2-3/8  | 5/16-24 | 4200     |
| AN146-61L  | 10-1/16    | 2-1/8  | 3/8-24  | 5600     |
| AN146-80L  | 10-3/8     | 2-1/8  | 3/8-24  | 7000     |
| AN146-125L | 11-3/16    | 2-1/16 | 7/16-20 | 8000     |
| AN146-175L | 11-3/4     | 2-1/16 | 1/2-20  | 9800     |

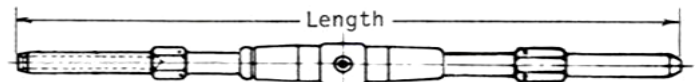


AN146- AN669 Terminal, AN161 Fork, AN155 Barrel

\* Size 8L available as AN147 only. Part#s listed are for Cres Swaging terminals. Replace-22S

## AN147

| Part#       | Length (Min) | Takeup | Thread  | Strength |
|-------------|--------------|--------|---------|----------|
| AN147--8S   | 6-3/4        | 1-3/8  | #6-40   | 480LBS   |
| AN147--8L*  | 11-1/4       | 3-1/8  | #10-32  | 480      |
| AN147--16S  | 7            | 1-1/8  | #10-32  | 920      |
| AN147--16L  | 10-1/2       | 2-7/8  | 1/4-28  | 920      |
| AN147--22S  | 7-7/16       | 1      | 1/4-28  | 2000     |
| AN147--22L  | 10-15/16     | 2-3/4  | 1/4-28  | 2000     |
| AN147--32S  | 7-7/8        | 7/8    | 1/4-28  | 2800     |
| AN147--32L  | 11-3/8       | 2-5/8  | 1/4-28  | 2800     |
| AN147--46S  | 8-1/4        | 5/8    | 5/16-24 | 4200     |
| AN147--46L  | 11-3/4       | 2-3/8  | 5/16-24 | 4200     |
| AN147--61L  | 12-1/16      | 2-1/8  | 3/8-24  | 5600     |
| AN147--80L  | 12-11/16     | 2-1/8  | 3/8-24  | 7000     |
| AN147--125L | 13-5/16      | 2-1/16 | 7/16-20 | 8000     |
| AN147--175L | 14           | 2-1/16 | 1/2-20  | 9800     |



AN147- AN669 Terminal(2), AN155 Barrel

\* Size 8L available as AN147 only. Part#s listed are for Cres Swaging terminals. Replace-22S

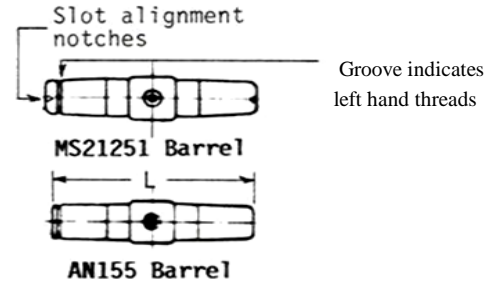
## MS21251

Supercedes AN155 and NAS649 - **TURNBUCKLE BARREL.**

Brass per QQ-B-637. Aluminum per Aluminum per WW-T-700/3. Letter following dash# indicates length ( short or long ). MS21251 items can replace AN155 items. MS21251 items are interchangeable with NAS649 items.



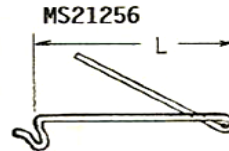
| Use Cliplock |           | Wire Rope  |          |        |          |
|--------------|-----------|------------|----------|--------|----------|
| MS21251      | MS21256   | AN155      | Diameter | L      | Strength |
| ---          | --        | AN155-5S   | ----     | 1-3/16 | 550LBS   |
| MS21251B2S   | MS21256-1 | AN155-8S   | 1/16     | 2-1/4  | 800      |
| MS21251B2L   | MS21256-2 | AN155-8L   | 1/16     | 4      | 800      |
| MS21251B3S   | MS21256-1 | AN155-16S  | 3/32     | 2-1/4  | 1600     |
| MS21251B3L   | MS21256-2 | AN155-16L  | 3/32     | 4      | 1600     |
| MS21251B5S   | MS21256-1 | AN155-32S  | 5/32     | 2-1/4  | 3200     |
| MS21251B5L   | MS21256-2 | AN155-32L  | 5/32     | 4      | 3200     |
| MS21251B6S   | MS21256-1 | AN155-46S  | 3/16     | 2-1/4  | 4600     |
| MS21251B6L   | MS21256-2 | AN155-46L  | 3/16     | 4      | 4600     |
| MS21251B8L   | MS21256-2 | AN155-80L  | 1/4      | 4      | 8000     |
| MS21251B9L   | MS21256-3 | AN155-125L | 9/32     | 4-1/4  | 12500    |
| MS21251B10L  | MS21256-3 | AN155-175L | 5/16     | 4-1/4  | 17500    |



Note: Use -5 parts with 1/8" diameter wire rope, minimum breaking strength 2200 LBS as per drawing. For applications requiring AN155-22S or -22L use AN155-32S or 32L respectively. Replace B with A to denote aluminum.

## MS21256- TURNBUCKLE LOCKING CLIP. CRES.

| MS21256-  | L     | Use With MS21251        |
|-----------|-------|-------------------------|
| MS21256-1 | 1.115 | B2S, B3S, B5S, B6S      |
| MS21256-2 | 2.000 | B2L, B3L, B5L, B6L, B8L |
| MS21256-3 | 2.140 | B9L, B10L               |



## Safety Wire



1LB Dispensing Can

| Part#       | Dia  | Length |
|-------------|------|--------|
| MS20995C20  | .020 | 937ft  |
| MS20995C25  | .025 | 599    |
| MS20995C32  | .032 | 366    |
| MS20995C41  | .041 | 223    |
| 016-COPPER* | .016 |        |

\*Break-a-way Wire

## Safety Wire Tools

| Tool     | Type           | Manufactured |
|----------|----------------|--------------|
| SK197    | 9" Auto Return | USA          |
| SK196    | 6" Auto return | USA          |
| SK48UV51 | 10" Manual     | Asia         |



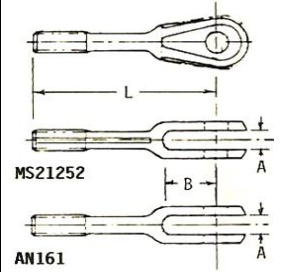
# TURNBUCKLE COMPONENTS



## MS21252 Supercedes AN161 and NAS645- TURNBUCKLE FORK.

Steel- Cadmium plated per QQ-PP-41+. First letter denotes thread ( Left or Right). Second letter denotes long or short. MS21252 can replace AN161.

| MS21252-     |              | AN161 |       | Wire Rope | Pin Hole |           |         |          |         | Strength |
|--------------|--------------|-------|-------|-----------|----------|-----------|---------|----------|---------|----------|
| RH           | LH           | RH    | LH    | Diameter  | Dia      | L         | A       | B        | Thread  | Lbs      |
| -----        | -----        | 5RS   | 5LS   | -----     | .164     | 1.063     | .150    | .375     | #4-48   | 500      |
| MS21252-2RS  | MS21252-2LS  | 8RS   | 8LS   | 1/16      | .190     | 1.500     | .109    | .375     | #6-40   | 800      |
| MS21252-3RS  | MS21252-3LS  | 16RS  | 16LS  | 3/32      | .190     | 1.625     | .156    | .375     | #10-32  | 1600     |
| MS21252-3RL  | MS21252-3LL  | 16RL  | 16LL  | 3/32      | .190     | 2.500     | .156    | .375     | #10-32  | 1600     |
| MS21252-4RS  | MS21252-4LS  | 22RS  | 22LS  | 1/8       | .190     | 1.844 (1) | .195(4) | .531 (5) | 1/4-28  | 2200     |
| MS21252-4RL  | MS21252-4LL  | 22RL  | 22LL  | 1/8       | .190     | 2.734 (2) | .195(4) | .531 (5) | 1/4-28  | 2200     |
| MS21252-5RS  | MS21252-5LS  | 32RS  | 32LS  | 5/32      | .250     | 1.844     | .218    | .531     | 1/4-28  | 3200     |
| MS21252-5RL  | MS21252-5LL  | 32RL  | 32LL  | 5/32      | .250     | 2.734     | .218    | .531     | 1/4-28  | 3200     |
| MS21252-6RS  | MS21252-6LS  | 46RS  | 46LS  | 3/16      | .313     | 2.031     | .250    | .656     | 5/16-24 | 4600     |
| MS21252-6RL  | MS21252-6LL  | 46RL  | 46LL  | 3/16      | .313     | 2.906     | .250    | .656     | 5/16-24 | 4600     |
| MS21252-8RL  | MS21252-8LL  | 61RL  | 61LL  | 1/4       | .375     | 3.188 (3) | .270    | .875 (6) | 3/8-24  | 6100     |
| MS21252-8RL  | MS21252-8LL  | 80RL  | 80LL  | 1/4       | .375     | 3.188     | .312    | .875     | 3/8-24  | 8000     |
| MS21252-9RL  | MS21252-9LL  | 125RL | 125LL | 9/32      | .438     | 3.438     | .375    | 1.000    | 7/16-20 | 12500    |
| MS21252-10RL | MS21252-10LL | 175RL | 175LL | 5/16      | .500     | 3.688     | .437    | 1.188    | 1/2-20  | 17500    |



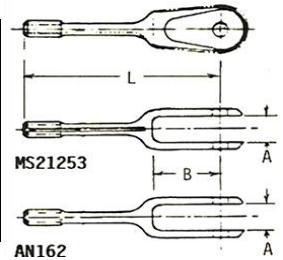
(1) AN161=1.17MS21252-9 (2) AN161=2.5MS21252-94 (3) AN161=3.156 (4) AN161=.187 (5) AN161=.46MS21252-9 (6) AN161=.843

## MS21253 Supercedes AN162 and NAS646- CLEVIS END TURNBUCKLE, FOR BEARING.

Steel- Cadmium plated per QQ-P-416. First letter denotes thread ( Left or Right). Second letter denotes long or short. MS21253 can replace AN162.

MS21253 and NAS646 are interchangeable.

| MS21253-<br>or AN162- |             | MS/AN   | Wire Rope | Pin      |      |       |      |       | Strength |      |
|-----------------------|-------------|---------|-----------|----------|------|-------|------|-------|----------|------|
| RH                    | LH          | Bearing | Diameter  | Pin Hole | Dia  | L     | A    | B     | Thread   | Lbs  |
| MS21253-3RS           | MS21253-3LS | 200KP3  | 3/32      |          | .190 | 2.312 | .312 | 1.062 | #10-32   | 1600 |
| MS21253-3RL           | MS21253-3LL | 200KP3  | 3/32      |          | .190 | 3.187 | .312 | 1.062 | 1/4-28   | 2200 |
| MS21253-4RS           | MS21253-4LS | 200KP4  | 1/8       |          | .250 | 2.562 | .500 | 1.188 | 1/4-28   | 2200 |
| MS21253-4RL           | MS21253-4LL | 200KP4  | 1/8       |          | .250 | 3.437 | .500 | 1.188 | 5/16-24  | 3200 |
| MS21253-5RS           | MS21253-5LS | 200KP4  | 5/32      |          | .250 | 2.687 | .500 | 1.188 | 5/16-24  | 3200 |
| MS21253-5RL           | MS21253-5LL | 200KP4  | 5/32      |          | .250 | 3.562 | .500 | 1.188 | 5/16-24  | 3200 |
| MS21253-6RS           | MS21253-6LS | 200KP5  | 3/16      |          | .313 | 2.750 | .563 | 1.313 | 5/16-24  | 4600 |
| MS21253-6RL           | MS21253-6LL | 200KP5  | 3/16      |          | .313 | 3.625 | .563 | 1.313 | 5/16-24  | 4600 |

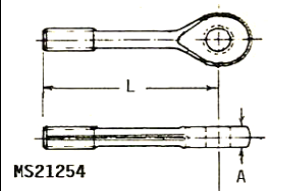


## MS21254 Supercedes AN165 and NAS648- EYE END TURNBUCKLE, FOR PIN

Steel- Cadmium plated per QQ-P-416. First letter denotes thread (left of right).

Second letter denotes long or short. MS parts can replace AN parts. MS parts are interchangeable with NAS parts.

| MS21254-<br>MS21255- |              | AN165-<br>AN170- |       | Wire Rope | Hole  | Hole     |           |          |         |       | Strength |
|----------------------|--------------|------------------|-------|-----------|-------|----------|-----------|----------|---------|-------|----------|
| RH                   | LH           | RH               | LH    | Diameter  | Dia.  | Dia.     | L         | A        | Thread  | Lbs   |          |
| -----                | -----        | 5RS              | 5LS   | 1/16      | ----- | .172     | .813      | .125     | #4-48   | 550   |          |
| MS21254-2RS          | MS21254-2LS  | 8RS              | 8LS   | 1/16      | .190  | .188     | 1.500     | .125     | #6-40   | 800   |          |
| MS21254-2RL          | MS21254-2LL  | -----            | ----- | 1/16      | .190  | .188     | 2.375     | .125     | #6-40   | 800   |          |
| MS21254-3RS          | MS21254-3LS  | 16RS             | 16LS  | 3/32      | .190  | .219     | 1.625     | .188     | #10-32  | 1600  |          |
| MS21254-3RL          | MS21254-3LL  | 16RL             | 16LL  | 3/32      | .190  | .219     | 2.500     | .188     | #10-32  | 1600  |          |
| MS21254-5RS          | MS21254-5LS  | 22RS             | 22LS  | 5/32      | .250  | .281 (1) | 1.750 (3) | .219     | 1/4-28  | 2200  |          |
| MS21254-5RL          | MS21254-5LL  | 22RL             | 22LL  | 5/32      | .250  | .281 (1) | 2.625 (4) | .219     | 1/4-28  | 2200  |          |
| MS21254-5RS          | MS21254-5LS  | 32RS             | 32LS  | 5/32      | .250  | .281     | 1.750     | .219     | 1/4-28  | 3200  |          |
| MS21254-5RL          | MS21254-5LL  | 32RL             | 32LL  | 5/32      | .250  | .281     | 2.625     | .219     | 1/4-28  | 3200  |          |
| MS21254-6RS          | MS21254-6LS  | 46RS             | 46LS  | 3/16      | .313  | .313     | 1.875     | .281     | 5/16-24 | 4600  |          |
| MS21254-6RL          | MS21254-6LL  | 46RL             | 46LL  | 3/16      | .313  | .313     | 2.750     | .281     | 5/16-24 | 4600  |          |
| MS21254-8RL          | MS21254-8LL  | 61RL             | 61LL  | 1/4       | .375  | .375 (2) | 2.875     | .328 (5) | 3/8-24  | 6100  |          |
| MS21254-8RL          | MS21254-8LL  | 80RL             | 80LL  | 1/4       | .375  | .375     | 2.875     | .328     | 3/8-24  | 8000  |          |
| MS21252-9RL          | MS21252-9LL  | 125RL            | 125LL | 9/32      | .438  | .469     | 3.375     | .375     | 7/16-20 | 12500 |          |
| MS21254-10RL         | MS21254-10LL | 175RL            | 175LL | 5/16      | .500  | .563     | 3.625     | .469     | 1/2-20  | 17500 |          |



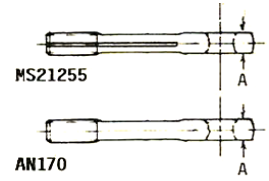
# TURNBUCKLE COMPONENTS



## MS21255 Supersedes AN170 and NAS647 EYE END TURNBUCKLE, FOR WIRE ROPE.

Steel- Cadmium plated per QQ-P-416. First letter denotes thread (left of right). are interchangeable with NAS parts.

|              |              | AN170 |       |      | Dia. | Dia.     | L         | A        | Thread  | Lbs   |
|--------------|--------------|-------|-------|------|------|----------|-----------|----------|---------|-------|
| RH           | LH           | RH    | LH    |      |      |          |           |          |         |       |
|              |              | 5RS   | 5LS   | 1/16 |      | .172     | .813      | .125     | #4-48   | 550   |
| MS21254-2RS  | MS21254-2LS  | 8RS   | 8LS   | 1/16 | .190 | .188     | 1.500     | .125     | #6-40   | 800   |
| MS21254-2RL  | MS21254-2LL  |       |       | 1/16 | .190 | .188     | 2.375     | .125     | #6-40   | 800   |
| MS21255-3RS  | MS21255-3LS  | 16RS  | 16LS  | 3/32 | .190 | .219     | 1.625     | .188     | #10-32  | 1600  |
| MS21255-3RL  | MS21255-3LL  | 16RL  | 16LL  | 3/32 | .190 | .219     | 2.500     | .188     | #10-32  | 1600  |
| MS21255-5RS  | MS21255-5LS  | 22RS  | 22LS  | 5/32 | .250 | .281 (1) | 1.750 (3) | .219     | 1/4-28  | 2200  |
| MS21255-5RL  | MS21255-5LL  | 22RL  | 22LL  | 5/32 | .250 | .281 (1) | 2.625 (4) | .219     | 1/4-28  | 2200  |
| MS21255-5RS  | MS21255-5LS  | 32RS  | 32LS  | 5/32 | .250 | .281     | 1.750     | .219     | 1/4-28  | 3200  |
| MS21255-5RL  | MS21255-5LL  | 32RL  | 32LL  | 5/32 | .250 | .281     | 2.625     | .219     | 1/4-28  | 3200  |
| MS21255-6RS  | MS21255-6LS  | 46RS  | 46LS  | 3/16 | .313 | .313     | 1.875     | .281     | 5/16-24 | 4600  |
| MS21255-6RL  | MS21255-6LL  | 46RL  | 46LL  | 3/16 | .313 | .313     | 2.750     | .281     | 5/16-24 | 4600  |
| MS21255-8RL  | MS21255-8LL  | 61RL  | 61LL  | 1/4  | .375 | .375 (2) | 2.875     | .328 (5) | 3/8-24  | 6100  |
| MS21255-8RL  | MS21255-8LL  | 80RL  | 80LL  | 1/4  | .375 | .375     | 2.875     | .328     | 3/8-24  | 8000  |
| MS21255-10RL | MS21255-10LL | 175RL | 175LL | 5/16 | .500 | .563     | 3.625     | .469     | 1/2-20  | 17500 |



## MS20658

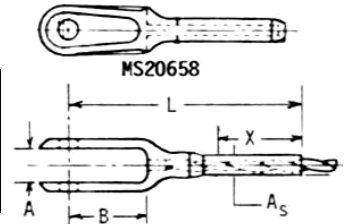
Supersedes AN658

- Terminal, Wire Rope swaging, Fork End, For Bearing

Carbon Steel - Cadmium plated per QQ-P-416. Cres - Passivated. Parts are interchangeable. Replace dash (-) with F to denote Carbon Steel.

| MS20658   | AN/MS BEARING | Wire Rope Diameter | Pin Hole Diameter | L     | A    | B     | X    |      | Strength |
|-----------|---------------|--------------------|-------------------|-------|------|-------|------|------|----------|
|           |               |                    |                   |       |      |       | Min* | As*  |          |
| MS20658-3 | 200KP3        | 3/32               | .190              | 2.531 | .302 | 1.062 | .80  | .190 | 920LBS   |
| MS20658-4 | 200KP4        | 1/8                | .250              | 3.062 | .489 | 1.188 | 1.05 | .219 | 2000     |
| MS20658-5 | 200KP4        | 5/32               | .250              | 3.313 | .489 | 1.188 | 1.29 | .250 | 2800     |
| MS20658-6 | 200KP4        | 3/16               | .250              | 3.562 | .489 | 1.188 | 1.31 | .313 | 4200     |
| MS20658-7 | 200KP5        | 3/16               | .313              | 3.687 | .563 | 1.313 | 1.31 | .313 | 4200     |

\*Swaged terminal shall conform to As diameter for length 'X'.



## MS20663

Supersedes AN663

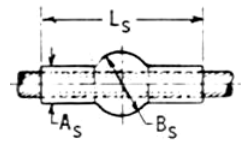
- Swaging Terminal, Double Shank.

Carbon Steel - Cadmium plated per QQ-PP-416. Cres - Passivated. Part are interchangeable. Replace dash (-) with C to denote CRES.

| MS20663    | Cable Dia. | Ls      |      | Strength |      |
|------------|------------|---------|------|----------|------|
|            |            | MS20663 | As   | Bs       | Lbs  |
| MS20663-2  | 1/16       | .390    | .112 | .190     | 480  |
| MS20663-3  | 3/32       | .578    | .143 | .253     | 920  |
| MS20663-4  | 1/8        | .765    | .190 | .315     | 2000 |
| MS20663-5  | 5/32       | .953    | .222 | .379     | 2800 |
| MS20663-6  | 3/16       | 1.140   | .255 | .442     | 4200 |
| MS20663-7  | 7/32       | 1.328   | .302 | .505     | 5600 |
| MS20663-8  | 1/4        | 1.515   | .348 | .567     | 7000 |
| MS20663-9  | 9/32       | 1.719   | .382 | .632     | 8000 |
| MS20663-10 | 5/16       | 1.875   | .413 | .694     | 9800 |

Note: Dimensions are after swaging.

MS20663



## MS20664

Supersedes AN664

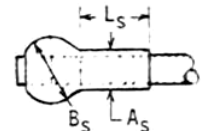
- Swaging Terminal, Single Shank.

Carbon Steel - Cadmium plated per QQ-PP-416. Cres - Passivated. Part are interchangeable. Replace dash (-) with C to denote CRES.

| MS20664    | Cable Dia. | Ls      |      | Strength |      |
|------------|------------|---------|------|----------|------|
|            |            | MS20664 | As   | Bs       | Lbs  |
| MS20664-2  | 1/16       | .156    | .112 | .190     | 480  |
| MS20664-3  | 3/32       | .234    | .143 | .253     | 920  |
| MS20664-4  | 1/8        | .313    | .190 | .315     | 2000 |
| MS20664-5  | 5/32       | .391    | .222 | .379     | 2800 |
| MS20664-6  | 3/16       | .469    | .255 | .442     | 4200 |
| MS20664-7  | 7/32       | .547    | .302 | .505     | 5600 |
| MS20664-8  | 1/4        | .625    | .348 | .567     | 7000 |
| MS20664-9  | 9/32       | .750    | .382 | .632     | 8000 |
| MS20664-10 | 5/16       | .813    | .413 | .694     | 9800 |

Note: Dimensions are after swaging.

MS20664



# TURNBUCKLE COMPONENTS



## MS20667

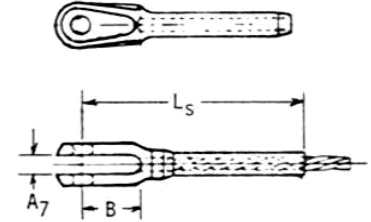
Supersedes AN667

-Terminal, Wire Rope Swaging, Fork End.

Carbon Steel - Cadmium plated per QQ-P-416. 300 Series CRES-Passivated.

Parts are interchangeable. Replace dash ( - ) with F to denote Carbon Steel.

| MS20667    | Wire Rope | Pin Hole | Ls   | A7   | A8   | B     | C    | Strength |
|------------|-----------|----------|------|------|------|-------|------|----------|
|            | Diameter  | Diameter |      |      |      |       |      |          |
| MS20667-2  | 1/16      | .190     | 1.75 | .093 | .088 | .500  | .180 | 480      |
| MS20667-3  | 3/32      | .190     | 2.06 | .108 | .103 | .670  | .219 | 920      |
| MS20667-4  | 1/8       | .190     | 2.61 | .195 | .190 | .735  | .250 | 2000     |
| MS20667-5  | 5/32      | .250     | 3.00 | .202 | .197 | .800  | .320 | 2800     |
| MS20667-6  | 3/16      | .313     | 3.24 | .260 | .255 | .880  | .391 | 4200     |
| MS20667-7  | 7/32      | .313     | 3.74 | .296 | .291 | .970  | .407 | 5600     |
| MS20667-8  | 1/4       | .375     | 4.10 | .313 | .307 | 1.070 | .484 | 7000     |
| MS20667-9  | 9/32      | .438     | 4.48 | .327 | .322 | 1.170 | .555 | 8000     |
| MS20667-10 | 5/16      | .438     | 4.86 | .348 | .343 | 1.268 | .609 | 9800     |



MS20667

## MS20668

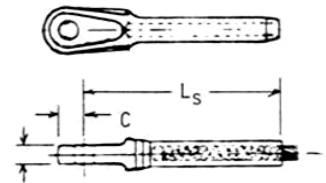
Supersedes AN668

-Terminal, Wire, Rope Swaging, Eye End.

Carbon Steel - Cadmium plated per QQ-P-416. 300 Series CRES-Passivated.

Parts are interchangeable. Replace dash ( - ) with F to denote Carbon Steel.

| MS20668    | Wire Rope | Pin Hole | Ls   | A7   | A8   | B     | C    | Strength |
|------------|-----------|----------|------|------|------|-------|------|----------|
|            | Diameter  | Diameter |      |      |      |       |      |          |
| MS20668-2  | 1/16      | .190     | 1.75 | .093 | .088 | .500  | .180 | 480      |
| MS20668-3  | 3/32      | .190     | 2.06 | .108 | .103 | .670  | .219 | 920      |
| MS20668-4  | 1/8       | .190     | 2.61 | .195 | .190 | .735  | .250 | 2000     |
| MS20668-5  | 5/32      | .250     | 3.00 | .202 | .197 | .800  | .320 | 2800     |
| MS20668-6  | 3/16      | .313     | 3.24 | .260 | .255 | .880  | .391 | 4200     |
| MS20668-7  | 7/32      | .313     | 3.74 | .296 | .291 | .970  | .407 | 5600     |
| MS20668-8  | 1/4       | .375     | 4.10 | .313 | .307 | 1.070 | .484 | 7000     |
| MS20668-9  | 9/32      | .438     | 4.48 | .327 | .322 | 1.170 | .555 | 8000     |
| MS20668-10 | 5/16      | .438     | 4.86 | .348 | .343 | 1.268 | .609 | 9800     |



MS20668

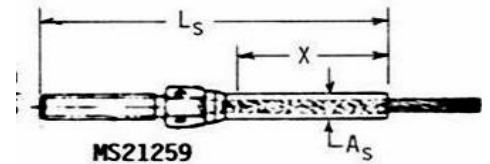
## MS21259

Supersedes AN666

-Terminal, Wire Rope Stud ( Not for use with Turnbuckle Barrels).

Carbon Steel- Cadmium plated per QQ-P-416. 300 Series CRES-Passivated. MS parts can replace AN parts. MS parts are interchangeable with Nas parts. Hexagonal facing may be eliminated by optional design.

| MS21259      |              | Wire Rope | Ls   | X    |      |         | Strength |
|--------------|--------------|-----------|------|------|------|---------|----------|
| RH           | LH           | Diameter  |      | Min* | As   | Thread  |          |
| MS21259-2RH  | MS21259-2LH  | 1/16      | 2.65 | .70  | .138 | #6-40   | 480      |
|              |              | 1/16      |      | .70  | .138 | #6-40   | 480      |
| MS21259-3RH  | MS21259-3LH  | 3/32      | 3.00 | .80  | .190 | #10-32  | 920      |
|              |              | 3/32      |      | .80  | .190 | #10-32  | 920      |
| MS21259-4RH  | MS21259-4LH  | 1/8       | 3.59 | 1.05 | .219 | 1/4-28  | 2000     |
|              |              | 1/8       |      | 1.05 | .219 | 1/4-28  | 2000     |
| MS21259-5RH  | MS21259-5LH  | 5/32      | 3.97 | 1.29 | .250 | 1/4-28  | 2800     |
|              |              | 5/32      |      | 1.29 | .250 | 1/4-28  | 2800     |
| MS21259-6RH  | MS21259-6LH  | 3/16      | 4.17 | 1.31 | .313 | 5/16-24 | 4200     |
|              |              | 3/16      |      | 1.31 | .313 | 5/16-24 | 4200     |
| MS21259-7RH  | MS21259-7LH  | 7/32      | 4.81 | 1.55 | .375 | 3/8-24  | 5600     |
| MS21259-8RH  | MS21259-8LH  | 1/4       | 5.24 | 1.70 | .438 | 3/8-24  | 7000     |
| MS21259-9RH  | MS21259-9LH  | 9/32      | 5.75 | 1.89 | .500 | 7/16-20 | 8000     |
| MS21259-10RH | MS21259-10LH | 5/16      | 6.27 | 2.06 | .563 | 1/2-20  | 9800     |



MS21259

\* Swaged terminal shall conform to As diameter for length 'X'. Sizes continue to -32RH/LH for 1" diameter cable. Ls dimensions are after swaging.

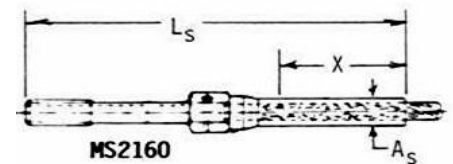
## MS21260

Supersedes AN669 and NAS650

- Terminal, Wire Rope Stud.

Carbon Steel- Cadmium plated per QQ-P-416. 300 Series CRES-Passivated. MS parts can replace AN parts. MS parts are interchangeable with Nas parts. Hexagonal facing may be eliminated by optional design.

| MS21260      |              | Wire Rope | Ls   | X    |      |         | Strength |
|--------------|--------------|-----------|------|------|------|---------|----------|
| RH           | LH           | Diameter  |      | Min* | As   | Thread  |          |
| MS21260-L2RH | MS21260-L2LH | 1/16      | 3.67 | .70  | .138 | #6-40   | 480      |
| MS21260-S2RH | MS21260-S2LH | 1/16      | 2.79 | .70  | .138 | #6-40   | 480      |
| MS21260-L3RH | MS21260-L3LH | 3/32      | 3.86 | .80  | .190 | #10-32  | 920      |
| MS21260-S3RH | MS21260-S3LH | 3/32      | 2.98 | .80  | .190 | #10-32  | 920      |
| MS21260-L4RH | MS21260-L4LH | 1/8       | 4.28 | 1.05 | .219 | 1/4-28  | 2000     |
| MS21260-S4RH | MS21260-S4LH | 1/8       | 3.40 | 1.05 | .219 | 1/4-28  | 2000     |
| MS21260-L5RH | MS21260-L5LH | 5/32      | 4.66 | 1.29 | .250 | 1/4-28  | 2800     |
| MS21260-S5RH | MS21260-S5LH | 5/32      | 3.78 | 1.29 | .250 | 1/4-28  | 2800     |
| MS21260-L6RH | MS21260-L6LH | 3/16      | 4.78 | 1.31 | .313 | 5/16-24 | 4200     |
| MS21260-S6RH | MS21260-S6LH | 3/16      | 3.90 | 1.31 | .313 | 5/16-24 | 4200     |
| MS21260-7RH  | MS21260-7LH  | 7/32      | 5.21 | 1.55 | .375 | 3/8-24  | 5600     |
| MS21260-8RH  | MS21260-8LH  | 1/4       | 5.52 | 1.70 | .438 | 3/8-24  | 7000     |
| MS21260-9RH  | MS21260-9LH  | 9/32      | 5.90 | 1.89 | .500 | 7/16-20 | 8000     |
| MS21260-10RH | MS21260-10LH | 5/16      | 6.30 | 2.06 | .563 | 1/2-20  | 9800     |



MS21260

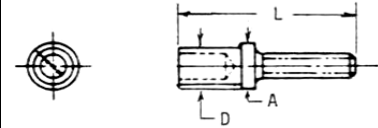
\* Swaged terminal shall conform to As diameter for length 'X'. Sizes continue to -32RH/LH for 1" diameter cable. Ls dimensions are after swaging.

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## AN490 -THREADED ROD END. 4130 Steel- Cadmium Plated per QQ-P-416.



| AN490      | L     | A    | D    | Tube Size | Thread         |
|------------|-------|------|------|-----------|----------------|
| AN490HT5P  | 1.750 | .312 | .242 | 5/16      | x .035 1/4-28  |
| AN490HT6P  | 1.750 | .375 | .305 | 3/8       | x .035 1/4-28  |
| AN490HT8P  | 1.750 | .500 | .430 | 1/2       | x .035 1/4-28  |
| AN490HT10P | 1.812 | .625 | .555 | 5/8       | x .035 5/16-24 |
| AN490HT11P | 1.812 | .750 | .680 | 3/4       | x .035 5/16-24 |
| AN490HT13P | 1.812 | .625 | .555 | 5/8       | x .035 3/8-24  |
| AN490HT14P | 1.812 | .750 | .680 | 3/4       | x .035 3/8-24  |
| AN490HT15P | 1.812 | .500 | .372 | 1/2       | x .035 5/16-24 |
| AN490HT16P | 1.812 | .500 | .372 | 1/2       | x .035 3/8-24  |

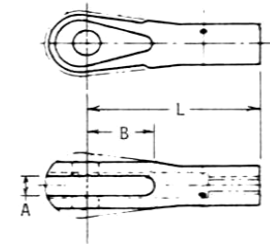


\* HT 15 replaces HT9. HT16 replaces HT12.

## AN665 - TERMINAL, THREADED CLEVIS TIE ROD.

Steel. Letter R denotes right threads. Letter L denotes left threads.

| AN665      |            | Pin hole |       | Dia  | L     | A       | B      | Thread | Strength |
|------------|------------|----------|-------|------|-------|---------|--------|--------|----------|
| RH         | LH         |          |       |      |       |         |        |        |          |
| AN665-10R  | AN665-10L  | .190     | 1.313 | .109 | .375  | #6-40   | 1200LB |        |          |
| AN665-12R  | AN665-12L  | .190     | 1.531 | .150 | .150  | #10-32  | 2400   |        |          |
| AN665-34R  | AN665-34L  | .250     | 1.813 | .203 | .625  | 1/4-28  | 4200   |        |          |
| AN665-46R  | AN665-46L  | .313     | 1.875 | .203 | .656  | 5/16-24 | 4600*  |        |          |
| AN665-61R  | AN665-61L  | .375     | 2.000 | .203 | .844  | 5/16-24 | 6900   |        |          |
| AN665-80RA | AN665-80LA | .375     | 2.250 | .266 | .875  | 3/8-24  | 10000  |        |          |
| AN665-115R | AN665-115L | .438     | 2.500 | .344 | 1.000 | 7/16-20 | 13700  |        |          |
| AN665-155R | AN665-155L | .500     | 2.813 | .406 | 1.188 | 1/2-20  | 18500  |        |          |
| AN665-202R | AN665-202L | .563     | 3.125 | .453 | 1.375 | 9/16-18 | 24000  |        |          |
| AN665-247R | AN665-247L | .625     | 3.375 | .516 | 1.500 | 5/8-18  | 29500  |        |          |
| AN665-430R | AN665-430L | .750     | 4.125 | .656 | 1.938 | 3/4-16  | 42000  |        |          |
| AN665-580R | AN665-580L | .875     | 4.875 | .781 | 2.313 | 7/8-14  | 58000  |        |          |
| AN665-780R | AN665-780L | 1.000    | 5.750 | .906 | 2.688 | 1/12    | 76000  |        |          |

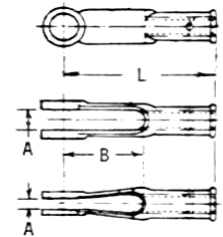


\*Special for use with 6900LB rod with 4600LB rating.

## MS27975 Supersedes AN486 - CLEVIS, ROD END ADJUSTING. Parts are interchangeable.

Carbon Steel- Cadmium Plated per QQ-P-416.

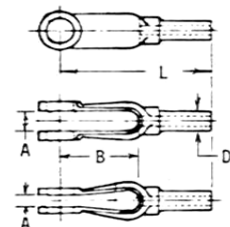
| MS27975   |         | AN486  |                 | Pin hole |      | Type  | Dia    | L    | A | B | Thread | Ultimate (MIN) |
|-----------|---------|--------|-----------------|----------|------|-------|--------|------|---|---|--------|----------------|
| MS27975   | AN486   | Type   | Axial Load (LB) |          |      |       |        |      |   |   |        |                |
| MS27975-1 | AN486-1 | Wide   | .250            | 1.875    | .266 | 1.000 | 1/4-28 | 3800 |   |   |        |                |
| MS27975-2 | AN486-2 | Narrow | .250            | 1.875    | .141 | 1.000 | 1/4-28 | 2850 |   |   |        |                |
| MS27975-3 | AN486-3 | Wide   | .188            | 1.875    | .266 | 1.000 | 1/4-28 | 4700 |   |   |        |                |
| MS27975-4 | AN486-4 | Narrow | .188            | 1.875    | .141 | 1.000 | 1/4-28 | 3500 |   |   |        |                |



## MS27976 Supersedes AN481 - CLEVIS, ROD END, PLAIN. Parts are interchangeable.

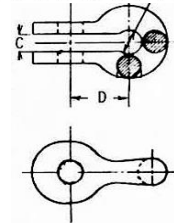
Steel- Unplated. Steel- Cadmium plated per QQ-P-416.

| MS27976    |          | AN481  |                 | Hole  |      | Type  | Dia  | L    | A | B | D | Ultimate (Min) |
|------------|----------|--------|-----------------|-------|------|-------|------|------|---|---|---|----------------|
| MS27976    | AN481    | Type   | Axial Load(LBS) |       |      |       |      |      |   |   |   |                |
| MS27976-1  | AN481-1  | Wide   | .250            | 1.875 | .266 | 1.000 | .305 | 3800 |   |   |   |                |
| MS27976-2  | AN481-2  | Narrow | .250            | 1.875 | .141 | 1.000 | .305 | 2850 |   |   |   |                |
| MS27976-3  | AN481-3  | Wide   | .188            | 1.875 | .266 | 1.000 | .305 | 4700 |   |   |   |                |
| MS27976-4  | AN481-4  | Narrow | .188            | 1.875 | .141 | 1.000 | .305 | 3500 |   |   |   |                |
| MS27976-5  | AN481-5  | Wide   | .250            | 1.875 | .266 | 1.000 | .242 | 3800 |   |   |   |                |
| MS27976-6  | AN481-6  | Narrow | .250            | 1.875 | .141 | 1.000 | .242 | 2850 |   |   |   |                |
| MS27976-7  | AN481-7  | Wide   | .188            | 1.875 | .266 | 1.000 | .242 | 4700 |   |   |   |                |
| MS27976-8  | AN481-8  | Narrow | .188            | 1.875 | .141 | 1.000 | .242 | 3500 |   |   |   |                |
| MS27976-9  | AN481-9  | Wide   | .250            | 1.875 | .266 | 1.000 | .430 | 3800 |   |   |   |                |
| MS27976-10 | AN481-10 | Narrow | .250            | 1.875 | .141 | 1.000 | .430 | 2850 |   |   |   |                |
| MS27976-11 | AN481-11 | Wide   | .188            | 1.875 | .266 | 1.000 | .430 | 4700 |   |   |   |                |
| MS27976-12 | AN481-12 | Narrow | .188            | 1.875 | .141 | 1.000 | .430 | 3500 |   |   |   |                |



**MS20115** Supercedes **AN115**- WIRE ROPE SHACKLE. Parts are not interchangeable.

Example part # : MS20115-3 (CRES) , MS20115F3 ( CROME STEEL) , MS20115K3 (Nickel Copper Aluminum Alloy ) , AN115-16 (Cadmium Plated Steel), AN115C21 ( CRES), AN115K32 ( Nickel Copper Aluminum Alloy).



| MS20115    | Wire Rope Dia. | Pin Hole Dia. | A    | B     | C    | Min. Break Strength | AN115     | Pin Hole Dia. | A    | B     | C    | Min Break Strength |
|------------|----------------|---------------|------|-------|------|---------------------|-----------|---------------|------|-------|------|--------------------|
|            |                |               |      |       |      |                     |           |               |      |       |      |                    |
| MS20115-3  | 3/32           | .190          | .219 | .562  | .108 | 920                 | AN115-16  | .188          | .250 | .563  | .150 | 1600               |
| MS20115-4  | 1/8            | .190          | .250 | .562  | .195 | 2000                | AN115-21  | .188          | .250 | .563  | .150 | 2100               |
| MS20115-5  | 5/32           | .250          | .281 | .750  | .202 | 2800                | AN115-32  | .250          | .375 | .750  | .203 | 3200               |
| MS20115-6  | 3/16           | .313          | .75  | .812  | .260 | 4200                | AN115-46  | .313          | .438 | .813  | .203 | 4600               |
| MS20115-7  | 7/32           | .313          | .406 | .875  | .296 | 5600                | AN115-61  | .375          | .500 | .875  | .203 | 6100               |
| MS20115-8  | 1/4            | .375          | .438 | 1.000 | .313 | 7000                | AN115-80  | .375          | .438 | 1.000 | .266 | 8000               |
| MS20115-9  | 9/32           | .438          | .500 | 1.000 | .327 | 8000                | AN115-125 | .438          | .625 | 1.125 | .344 | 12500              |
| MS20115-10 | 5/16           | .438          | .594 | 1.125 | .348 | 9800                | AN115-175 | .500          | .625 | 1.250 | .406 | 17500              |
| MS20115-12 | 3/8            | .500          | .625 | 1.250 | .380 | 14000               |           |               |      |       |      |                    |

**AIRCRAFT PULLEYS**

**MS20219** Supercedes **AN219**- Secondary Control Pulley.

Metallic Sheaves : Aluminum alloy -T351 or AMS, T351. Anodized per MIL-A-8625.

Nonmetallic Sheaves: Phenolic. Replace dash ( - ) with A to denote metallic sheaves.

NOTE: Pulleys smaller than 2- shall not be installed in flight control systems.

**MS20220** Supercedes **AN220** - Flight Control Pulley.

Metallic Sheaves: Aluminum alloy - T351 or AMS 4037,T351. Anodized per MIL-A-8625.

Non metallic Sheaves: Phenolic. Replace dash ( - ) with A to denote metallic sheave.

**MS20221** Supercedes **AN221** - Heavy Duty Control Pulley.

Metallic Sheaves : Aluminum alloy - T351 or AMS4037, T351. Anodized per MIL-A-8625.

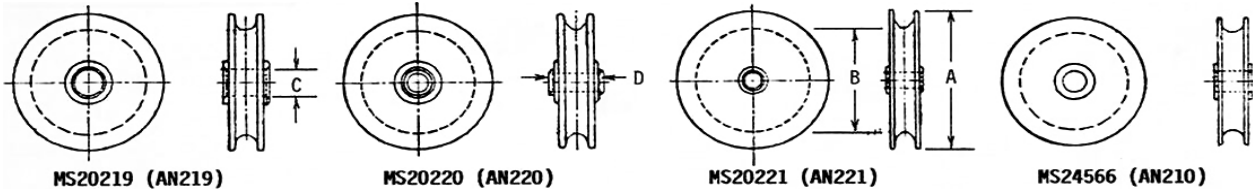
Nonmetallic Sheaves: Phenolic. Replace dash ( - ) with A to denote metallic sheaves.

Note: The -1 nonmetallic pulley removed from this standard and applicable specification.

**MS24566** Supercedes **AN210** - Anti- Friction Bearing Control Pulley.

Phenolic.

NOTE: -1B and -3B shall not be installed on frequently used aircraft controls to bend cable more 15 from a straight line.



| Part #                          | Cable Dia.    | A     | B     | C     | D    | Allowable Limit Load | Limit Load on Cable Independent of Wrap Angle |            | Bearing ( Ref ) |       |
|---------------------------------|---------------|-------|-------|-------|------|----------------------|---|------------|-----------------|-------|
|                                 |               |       |       |       |      |                      | 1/16 cable                                    | 3/32 cable |                 |       |
| MS20219-1                       | 1/16,3/32     | 1.312 | 1.000 | .2500 | .438 | 480LBS               | 307LBS  | 460LBS     | W4AK(1)         |       |
| MS20219-2                       | 1/16,3/32     | 1.750 | 1.438 | .2500 | .438 | 480                  | 307   | 460        | P4K             |       |
| MS20219-3                       | 1/16,3/32     | 1.750 | 1.438 | .6250 | .438 | 480                  | 307   | 460        | P10K            |       |
| MS20219-4                       | 1/16,3/32     | 2.625 | 2.312 | .2500 | .438 | 920                  | 307   | 460        | P4K             |       |
| MS20219-5                       | 1/16,3/32     | 2.625 | 2.312 | .6250 | .438 | 920                  | 307   | 460        | P10K            |       |
| 1/8 cable 5/32 cable 3/16 cable |               |       |       |       |      |                      |   |            |                 |       |
| MS20220-1                       | 1/8,5/32,3/16 | 1.750 | 1.250 | .3125 | .625 | 500                  | 830   | 1040       | 1250            | P5K   |
| MS20220-2                       | 1/8,5/32,3/16 | 3.000 | 2.500 | .3125 | .625 | 1680                 | 830   | 1040       | 1250            | PD5K  |
| MS20220-3                       | 1/8,5/32,3/16 | 4.250 | 3.750 | .3125 | .625 | 2500                 | 830   | 1040       | 1250            | PD5K  |
| MS20220-4                       | 1/8,5/32,3/16 | 5.500 | 5.000 | .3125 | .625 | 2500                 | 830   | 1040       | 1250            | PD5K  |
| 3/16 cable 7/32 cable 1/4 cable |               |       |       |       |      |                      |   |            |                 |       |
| MS20221A1                       | 3/16,7/32,1/4 | 2.625 | 2.000 | .3125 | .625 | 2800                 | 2620  | 3060       | 3500            | PD5K  |
| MS20221A2                       | 3/16,7/32,1/4 | 4.125 | 3.500 | .5000 | .750 | 4900                 | 2620  | 3060       | 3500            | P8    |
| MS20221A3                       | 3/16,7/32,1/4 | 5.625 | 5.000 | .5000 | .750 | 7000                 | 2620  | 3060       | 3500            | P8    |
| MS24566-1B                      | 1/16,3/32     | 1.250 | .972  | .1900 | .297 | 300                  |   |            |                 | KP3AK |
| MS24566-2B                      | 1/16,3/32     | 2.500 | 2.222 | .1900 | .297 | 500                  |   |            |                 | KP3K  |
| MS24566-3B                      | 1/8,5/32,3/16 | 2.000 | 1.510 | .2500 | .484 | 600                  |   |            |                 | KP4K  |
| MS24566-4B                      | 1/8,5/32,3/16 | 3.500 | 3.010 | .2500 | .484 | 1200                 |   |            |                 | KP4K  |
| MS24566-5B                      | 3/16,7/32,1/4 | 5.000 | 4.374 | .3750 | .620 | 3000                 |   |            |                 | KP6   |
| MS24566-6B                      | 3/16,7/32,1/4 | 6.000 | 5.374 | .3750 | .620 | 4000                 |   |            |                 | KP6   |

(1) P4K is an approved alternate for W4AK.

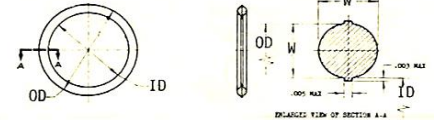
# MS28775 Supersedes AN6227 (O'Ring Packing) and AN6230

(O'Ring Gasket) for Hydraulic Oils (MIL-H-5606B).

TYPE II SYSTEMS @-65 to 275 F.

**MS29513-** O'Ring Packing for Jet Fuels @-65 TO 275 F.

All AN-MS-NAS Mil-Spec O'Rings are available with manufacturer certification.



| 1/16" WIDTH  |           |                    |        | 3/32" WIDTH |                    |         | 1/8" WIDTH       |                    |         | 3/16" WIDTH |                    |         |
|--------------|-----------|--------------------|--------|-------------|--------------------|---------|------------------|--------------------|---------|-------------|--------------------|---------|
| ID           | AN6227    | MS28775<br>MS29513 | OD     | AN6227      | MS28775<br>MS29513 | OD      | AN6227<br>AN6230 | MS28775<br>MS29513 | OD      | AN6227      | MS28775<br>MS29513 | OD      |
| 1/16         |           | MS28775-003        | 3/16   |             | MS28775-102        | 1/4     |                  |                    |         |             |                    |         |
| 5/64         |           | MS28775-004        | 13/64  |             |                    |         |                  |                    |         |             |                    |         |
| 3/32         |           | MS28775-005        | 7/32   |             | MS28775-103        | 9/32    |                  |                    |         |             |                    |         |
| 1/8          | <b>B1</b> | MS28775-006        | 1/4    |             | MS28775-104        | 5/16    |                  |                    |         |             |                    |         |
| 5/32         | <b>B2</b> | MS28775-007        | 9/32   |             | MS28775-105        | 11/32   |                  |                    |         |             |                    |         |
| 3/16         | <b>B3</b> | MS28775-008        | 5/16   |             | MS28775-106        | 3/8     |                  | MS28775-201        | 7/16    |             |                    |         |
| 7/32         | <b>B4</b> | MS28775-009        | 11/32  |             | MS28775-107        | 13/32   |                  |                    |         |             |                    |         |
| 1/4          | <b>B5</b> | MS28775-010        | 3/8    |             | MS28775-108        | 7/16    |                  | MS28775-202        | 1/2     |             |                    |         |
| 5/16         | <b>B6</b> | MS28775-011        | 7/16   |             | MS28775-109        | 1/2     |                  | MS28775-203        | 9/16    |             |                    |         |
| 3/8          | <b>B7</b> | MS28775-012        | 1/2    | <b>B8</b>   | MS28775-110        | 9/16    |                  | MS28775-204        | 5/8     |             |                    |         |
| 7/16         |           | MS28775-013        | 9/16   | <b>B9</b>   | MS28775-111        | 5/8     |                  | MS28775-205        | 11/16   |             | MS28775-309        | 13/16   |
| 1/2          |           | MS28775-014        | 5/8    | <b>B10</b>  | MS28775-112        | 11/16   |                  | MS28775-206        | 3/4     |             | MS28775-310        | 7/8     |
| 9/16         |           | MS28775-015        | 11/16  | <b>B11</b>  | MS28775-113        | 3/4     |                  | MS28775-207        | 13/16   |             | MS28775-311        | 15/16   |
| 5/8          |           | MS28775-016        | 3/4    | <b>B12</b>  | MS28775-114        | 13/16   |                  | MS28775-208        | 7/8     |             | MS28775-312        | 1       |
| 11/16        |           | MS28775-017        | 13/16  | <b>B13</b>  | MS28775-115        | 7/8     | 6227             | MS28775-209        | 15/16   |             | MS28775-313        | 1-1/16  |
| 3/4          |           | MS28775-018        | 7/8    | <b>B14</b>  | MS28775-116        | 15/16   | <b>B15</b>       | MS28775-210        | 1       |             | MS28775-314        | 1-1/8   |
| 13/16        |           | MS28775-019        | 15/16  |             | MS28775-117        | 1       | <b>B16</b>       | MS28775-211        | 1-1/16  |             | MS28775-315        | 1-3/16  |
| 7/8          |           | MS28775-020        | 1      |             | MS28775-118        | 1-1/16  | <b>B17</b>       | MS28775-212        | 1-1/8   |             | MS28775-316        | 1-1/4   |
| 15/16        |           | MS28775-021        | 1-1/16 |             | MS28775-119        | 1-1/8   | <b>B18</b>       | MS28775-213        | 1-3/16  |             | MS28775-317        | 1-5/16  |
| 1            |           | MS28775-022        | 1-1/8  |             | MS28775-120        | 1-3/16  | <b>B19</b>       | MS28775-214        | 1-1/4   |             | MS28775-318        | 1-3/8   |
| 1-1/16       |           | MS28775-023        | 1-3/16 |             | MS28775-121        | 1-1/4   | <b>B20</b>       | MS28775-215        | 1-5/16  |             | MS28775-319        | 1-7/16  |
| 1-1/8        |           | MS28775-024        | 1-1/4  |             | MS28775-122        | 1-5/16  | <b>B21</b>       | MS28775-216        | 1-3/8   |             | MS28775-320        | 1-1/2   |
| 1-3/16       |           | MS28775-025        | 1-5/16 |             | MS28775-123        | 1-3/8   | <b>B22</b>       | MS28775-217        | 1-7/16  |             | MS28775-321        | 1-9/16  |
| 1-1/4        |           | MS28775-026        | 1-3/8  |             | MS28775-124        | 1-7/16  | <b>B23</b>       | MS28775-218        | 1-1/2   |             | MS28775-322        | 1-5/8   |
| 1-5/16       |           | MS28775-027        | 1-7/16 |             | MS28775-125        | 1-1/2   | <b>B24</b>       | MS28775-219        | 1-9/16  |             | MS28775-323        | 1-11/16 |
| 1-3/8        |           | MS28775-028        | 1-1/2  |             | MS28775-126        | 1-9/16  | <b>B25</b>       | MS28775-220        | 1-5/8   |             | MS28775-324        | 1-3/4   |
| 1-7/16       |           |                    |        |             | MS28775-127        | 1-5/8   | <b>B26</b>       | MS28775-221        | 1-11/16 |             |                    |         |
| 1-1/2        |           | MS28775-029        | 1-5/8  |             | MS28775-128        | 1-11/16 | <b>B27</b>       | MS28775-222        | 1-3/4   | <b>B28</b>  | MS28775-325        | 1-7/8   |
| 1-9/16       |           |                    |        |             | MS28775-129        | 1-3/4   | 6230             |                    |         |             |                    |         |
| 1-5/8        |           | MS28775-30         | 1-3/4  |             | MS28775-130        | 1-13/16 | <b>B1</b>        | MS28775-223        | 1-7/8   | <b>B29</b>  | MS28775-326        | 2       |
| 1-11/16      |           |                    |        |             | MS28775-131        | 1-7/8   |                  |                    |         |             |                    |         |
| 1-3/4        |           | MS28775-31         | 1-7/8  |             | MS28775-132        | 1-15/16 | <b>B2</b>        | MS28775-224        | 2       | <b>B30</b>  | MS28775-327        | 2-1/8   |
| 1-13/16      |           |                    |        |             | MS28775-133        | 2       |                  |                    |         |             |                    |         |
| 1-7/8        |           | MS28775-32         | 2      |             | MS28775-134        | 2-1/16  | <b>B3</b>        | MS28775-225        | 2-1/8   | <b>B31</b>  | MS28775-328        | 2-1/4   |
| 1-15/16      |           |                    |        |             | MS28775-135        | 2-1/8   |                  |                    |         |             |                    |         |
| 2            |           | MS28775-33         | 2-1/8  |             | MS28775-136        | 2-3/16  | <b>B4</b>        | MS28775-226        | 2-1/4   | <b>B32</b>  | MS28775-329        | 2-3/8   |
| 2-1/16       |           |                    |        |             | MS28775-137        | 2-1/4   |                  |                    |         |             |                    |         |
| 2-1/8        |           | MS28775-34         | 2-1/4  |             | MS28775-138        | 2-5/16  | <b>B5</b>        | MS28775-227        | 2-3/8   | <b>B33</b>  | MS28775-330        | 2-1/2   |
| 2-3/16       |           |                    |        |             | MS28775-139        | 2-3/8   |                  |                    |         |             |                    |         |
| 2-1/4        |           | MS28775-35         | 2-3/8  |             | MS28775-140        | 2-7/16  | <b>B6</b>        | MS28775-228        | 2-1/2   | <b>B34</b>  | MS28775-331        | 2-5/8   |
| 2-5/16       |           |                    |        |             | MS28775-141        | 2-1/2   |                  |                    |         |             |                    |         |
| 2-3/8        |           | MS28775-36         | 2-3/4  |             | MS28775-142        | 2-9/16  | <b>B7</b>        | MS28775-229        | 2-5/8   | <b>B35</b>  | MS28775-332        | 2-3/4   |
| 2-7/16       |           |                    |        |             | MS28775-143        | 2-5/8   |                  |                    |         |             |                    |         |
| 2-1/2        |           | MS28775-37         | 2-5/8  |             | MS28775-144        | 2-11/16 | <b>B8</b>        | MS28775-230        | 2-3/4   | <b>B36</b>  | MS28775-333        | 2-7/8   |
| 2-9/16       |           |                    |        |             | MS28775-145        | 2-3/4   |                  |                    |         |             |                    |         |
| 2-5/8        |           | MS28775-38         | 2-3/4  |             | MS28775-146        | 2-13/16 | <b>B9</b>        | MS28775-231        | 2-7/8   | <b>B37</b>  | MS28775-334        | 3       |
| 2-11/16      |           |                    |        |             | MS28775-147        | 2-7/8   |                  |                    |         |             |                    |         |
| 2-3/4        |           | MS28775-39         | 2-7/8  |             | MS28775-148        | 2-15/16 | <b>B10</b>       | MS28775-232        | 3       | <b>B38</b>  | MS28775-335        | 3-1/8   |
| 2-13/16      |           |                    |        |             | MS28775-149        | 3       |                  |                    |         |             |                    |         |
| 2-7/8        |           | MS28775-40         | 3      |             | MS28775-150        | 3-1/16  | <b>B11</b>       | MS28775-233        | 3-1/8   | <b>B39</b>  | MS28775-336        | 3-1/4   |
| 3            |           |                    |        |             | MS28775-151        | 3-3/16  | <b>B12</b>       | MS28775-234        | 3-1/4   | <b>B40</b>  | MS28775-337        | 3-3/8   |
| Continue to: |           | MS28775-50         | 5-3/8  |             | MS28775-178        | 9-15/16 |                  | MS28775-284        | 18-1/4  |             | MS28775-395        | 26-3/8  |

\* Sizes (-029 thru -050), (-102 thru -178),(-201 thru -209),(-248 thru -270), (-271 thru -284), (-309 thru -324, (-350 thru -365), (-366 thru -395), and (-461 thru -465), do not have installation control per MIL -G-5514 and are not recommended for use in hydraulic systems. These sizes are only recommended for use in low pressure static or face seal application. O'Ring sizes (-013 thru -028), (-117 thru -149), and (-223 thru -247 ) are intended only for use as static seal and are not to be used in applications involving reciprocating or rotary involvement.



# MILITARY SPECIFICATION GROMMETS



## MS35489 Supercedes MS35490 and AN931 - GROMMET.

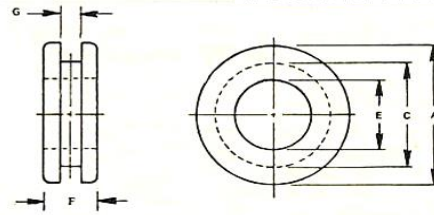
Rubber - Synthetic, composition A, per MIL-G-3036.

Rubber - Silicone, composition B, per MIL-G-3036.

Add 'X' after dash (-) number to denote silicone.

MS35489 and AN931 parts are interchangeable.

Do not use MS35490 (Split Grommets) to replace MS35489 or AN931 grommets.



How to read this chart: Determine 'E' dimension, then 'C' & 'A'. Enter column for groove width to determine dash number.

| Dimensions |       |       | 1/16<br>.062 Groove Width (G) |        |      | 1/8<br>.125 Groove Width |         |      | 3/16<br>.188 Groove Width |         |      | 1/4<br>.250 Groove Width |         |      |
|------------|-------|-------|-------------------------------|--------|------|--------------------------|---------|------|---------------------------|---------|------|--------------------------|---------|------|
| E          | C     | A     | MS35489                       | AN931  | F    | MS35489                  | AN931   | F    | MS35489                   | AN931   | F    | MS35489                  | AN931   | F    |
| .125       | .250  | .344  | MS35489-1                     |        | .188 |                          |         |      |                           |         |      |                          |         |      |
| .125       | .562  | .750  | MS35489-2                     | -2-9   | .188 | MS35489-31               | -A2-9   | .250 | MS35489-60                | -B2-9   | .312 | MS35489-89               | -C2-9   | .375 |
| .125       | 1.000 | 1.250 | MS35489-3                     | -2-16  | .250 | MS35489-32               | -A2-16  | .312 | MS35489-61                | -B2-16  | .375 | MS35489-90               | -C2-16  | .438 |
| .188       | .312  | .438  | MS35489-4                     | -3-5   | .188 | MS35489-33               | -A3-5   | .250 | MS35489-62                | -B3-5   | .312 | MS35489-91               | -C3-5   | .375 |
| .188       | .562  | .750  | MS35489-134                   | -3-9   | .188 | MS35489-137              | -A3-9   | .250 | MS35489-138               | -B3-9   | .312 | MS35489-139              | -C3-9   | .375 |
| .188       | .625  | .875  | MS35489-5                     | -3-10  | .188 | MS35489-34               | -A3-10  | .250 | MS35489-63                | -B3-10  | .312 | MS35489-92               | -C3-10  | .375 |
| .250       | .438  | .625  | MS35489-6                     | -4-7   | .188 | MS35489-35               | -A4-7   | .250 | MS35489-64                | -B4-7   | .312 | MS35489-93               | -C4-7   | .375 |
| .250       | .750  | 1.000 | MS35489-7                     | -4-12  | .250 | MS35489-36               | -A4-12  | .312 | MS35489-65                | -B4-12  | .375 | MS35489-94               | -C4-12  | .438 |
| .250       | 1.000 | 1.250 | MS35489-8                     | -4-16  | .250 | MS35489-37               | -A4-16  | .312 | MS35489-66                | -B4-16  | .375 | MS35489-95               | -C4-16  | .438 |
| .312       | .562  | .812  | MS35489-9                     | -5-9   | .312 | MS35489-38               | -A5-9   | .375 | MS35489-67                | -B5-9   | .438 | MS35489-96               | -C5-9   | .500 |
| .312       | .750  | 1.000 | MS35489-10                    | -5-12  | .312 | MS35489-39               | -A5-12  | .375 | MS35489-68                | -B5-12  | .438 | MS35489-97               | -C5-12  | .500 |
| .312       | .812  | 1.062 | MS35489-118                   | -5-13  | .312 | MS35489-122              | -A5-13  | .375 | MS35489-136               | -B5-13  | .438 | MS35489-130              | -C5-13  | .500 |
| .375       | .625  | .875  | MS35489-11                    | -6-10  | .312 | MS35489-40               | -A6-10  | .375 | MS35489-69                | -B6-10  | .438 | MS35489-98               | -C6-10  | .500 |
| .375       | 1.000 | 1.250 | MS35489-12                    | -6-16  | .250 | MS35489-41               | -A6-16  | .312 | MS35489-70                | -B6-16  | .375 | MS35489-99               | -C6-16  | .438 |
| .438       | .688  | .938  | MS35489-13                    | -7-11  | .312 | MS35489-42               | -A7-11  | .375 | MS35489-71                | -B7-11  | .438 | MS35489-100              | -C7-11  | .500 |
| .500       | .812  | 1.062 | MS35489-14                    | -8-13  | .312 | MS35489-43               | -A8-13  | .375 | MS35489-72                | -B8-13  | .438 | MS35489-101              | -C8-13  | .500 |
| .500       | 1.250 | 1.500 | MS35489-15                    | -8-20  | .250 | MS35489-44               | -A8-20  | .312 | MS35489-73                | -B8-20  | .375 | MS35489-102              | -C8-20  | .438 |
| .562       | .812  | 1.062 | MS35489-16                    | -9-13  | .312 | MS35489-45               | -A9-13  | .375 | MS35489-74                | -B9-13  | .438 | MS35489-103              | -C9-13  | .500 |
| .625       | .875  | 1.125 | MS35489-17                    | -10-14 | .312 | MS35489-46               | -A10-14 | .375 | MS35489-75                | -B10-14 | .438 | MS35489-104              | -C10-14 | .500 |
| .625       | 1.250 | 1.500 | MS35489-18                    | -10-20 | .250 | MS35489-47               | -A10-20 | .312 | MS35489-76                | -B10-20 | .375 | MS35489-105              | -C10-20 | .438 |
| .688       | 1.000 | 1.312 | MS35489-19                    | -11-16 | .375 | MS35489-48               | -A11-16 | .438 | MS35489-77                | -B11-16 | .500 | MS35489-106              | -C11-16 | .562 |
| .750       | 1.062 | 1.375 | MS35489-20                    | -12-17 | .375 | MS35489-49               | -A12-17 | .438 | MS35489-78                | -B12-17 | .500 | MS35489-107              | -C12-17 | .562 |
| .750       | 1.250 | 1.625 | MS35489-135                   | -12-20 | .250 | MS35489-123              | -A12-20 | .312 | MS35489-127               | -B12-20 | .375 | MS35489-131              | -C12-20 | .438 |
| .750       | 1.438 | 1.812 | MS35489-21                    | -12-23 | .375 | MS35489-50               | -A12-23 | .438 | MS35489-79                | -B12-23 | .500 | MS35489-108              | -C12-23 | .562 |
| .750       | 1.625 | 2.000 | MS35489-120                   | -12-26 | .375 | MS35489-124              | -A12-26 | .438 | MS35489-128               | -B12-26 | .500 | MS35489-132              | -C12-26 | .562 |
| .875       | 1.250 | 1.625 | MS35489-22                    | -14-20 | .438 | MS35489-51               | -A14-20 | .500 | MS35489-80                | -B14-20 | .562 | MS35489-109              | -C14-20 | .625 |
| .875       | 1.625 | 2.000 | MS35489-121                   | -14-26 | .438 | MS35489-125              | -A14-26 | .500 | MS35489-129               | -B14-26 | .562 | MS35489-133              | -C14-26 | .625 |
| 1.000      | 1.375 | 1.750 | MS35489-23                    | -16-22 | .438 | MS35489-52               | -A16-22 | .500 | MS35489-81                | -B16-22 | .562 | MS35489-110              | -C16-22 | .625 |
| 1.000      | 1.875 | 2.250 | MS35489-24                    | -16-30 | .438 | MS35489-53               | -A16-30 | .500 | MS35489-82                | -B16-30 | .562 | MS35489-111              | -C16-30 | .625 |
| 1.250      | 2.375 | 2.750 | MS35489-25                    | -20-38 | .438 | MS35489-54               | -A20-38 | .500 | MS35489-83                | -B20-38 | .562 | MS35489-112              | -C20-38 | .625 |
| 1.250      | 2.500 | 2.875 | MS35489-26                    | -20-40 | .438 | MS35489-55               | -A20-40 | .500 | MS35489-84                | -B20-40 | .562 | MS35489-113              | -C20-40 | .625 |
| 1.500      | 1.750 | 2.125 | MS35489-27                    | -24-28 | .438 | MS35489-56               | -A24-28 | .500 | MS35489-85                | -B24-28 | .562 | MS35489-114              | -C24-28 | .625 |
| 1.500      | 2.750 | 3.250 | MS35489-28                    | -24-44 | .438 | MS35489-57               | -A24-44 | .500 | MS35489-86                | -B24-44 | .562 | MS35489-115              | -C24-44 | .625 |
| 1.750      | 3.250 | 3.750 | MS35489-29                    | -28-52 | .500 | MS35489-58               | -A28-52 | .562 | MS35489-87                | -B28-52 | .625 | MS35489-116              | -C28-52 | .688 |
| 2.000      | 3.500 | 4.000 | MS35489-30                    | -32-56 | .500 | MS35489-59               | -A32-56 | .562 | MS35489-88                | -B32-56 | .625 | MS35489-117              | -C32-56 | .688 |

## FLEXIBLE DUCTING

SCAT Red. Single ply same as CAT except with silicone rubber impregnation.

VenaHT From -67 Deg F to over 500 Deg F.

**Sold in Standard 13-Foot Lengths Only**

| Part#   | Inside Diameter |
|---------|-----------------|
| SCAT-2A | 5/8             |
| SCAT-3  | 3/4             |
| SCAT-3A | 7/8             |
| SCAT-4  | 1               |
| SCAT-5  | 1-1/4           |
| SCAT-6  | 1-1/2           |
| SCAT-7  | 1-3/4           |
| SCAT-8  | 2               |
| SCAT-9  | 2-1/4           |
| SCAT-10 | 2-1/2           |
| SCAT-11 | 2-3/4           |
| SCAT-12 | 3               |
| SCAT-13 | 3-1/2           |
| SCAT-14 | 4               |



# BREEZE

## Aero-Seal Aircraft Clamps

The original stainless steel worm-drive clamp. Heavy-duty four-piece Quadra-Lock construction enables far more tightening torque to be delivered to the band perforations. Band is constructed of 300 series half hard stainless steel. 200 series clamps are constructed of 410 stainless. SKYBOLT stocks 200 series clamps with safety collared screws.



AN737TW

MS35842

Standard Package - 10

| QS200M     | Effective Diameter |         |
|------------|--------------------|---------|
|            | Min                | Max     |
| QS200M06S  | 7/16               | 25/32   |
| QS200M08S  | 1/2                | 29/32   |
| QS200M10S  | 9/16               | 1- 1/16 |
| QS200M12S  | 11/16              | 1- 1/4  |
| QS200M16S  | 13/16              | 1- 1/2  |
| QS200M20S  | 13/16              | 1- 3/4  |
| QS200M24S  | 1- 1/16            | 2       |
| QS200M28S  | 1- 5/16            | 2- 1/4  |
| QS200M32S  | 1- 9/16            | 2- 1/2  |
| QS200M36S  | 1-13/16            | 2- 3/4  |
| QS200M40S  | 2- 1/16            | 3       |
| QS200M44S  | 2- 5/16            | 3- 1/4  |
| QS200M48S  | 2- 9/16            | 3- 1/2  |
| QS200M52S  | 2-13/16            | 3- 3/4  |
| QS200M56S  | 3- 1/16            | 4       |
| QS200M60S  | 3- 5/16            | 4- 1/4  |
| QS200M64S  | 3- 9/16            | 4- 1/2  |
| QS200M72S  | 4- 1/8             | 5       |
| QS200M80S  | 4- 5/8             | 5- 1/2  |
| QS200M88S  | 5- 1/8             | 6       |
| QS200M96S  | 5- 5/8             | 6- 1/2  |
| QS200M104S | 6- 1/8             | 7       |
| QS200M128S | 5- 5/8             | 8- 1/2  |
| QS200M152S | 7- 1/8             | 10      |
| QS200M188S | 9- 3/8             | 12-1/4  |

| AN737TW*      | Effective Diameter |         |
|---------------|--------------------|---------|
|               | Min                | Max     |
| AN737TW22     | 7/16               | 11/16   |
| AN737TW24     | 1/2                | 3/4     |
| AN737TW26     | 9/16               | 13/16   |
| AN737TW30     | 11/16              | 15/16   |
| AN737TW34     | 13/16              | 1- 1/16 |
| AN737TW38     | 15/16              | 1- 3/16 |
| AN737TW44     | 61/64              | 1- 3/8  |
| AN737TW46     | 1                  | 1- 7/16 |
| AN737TW48     | 1- 3/64            | 1- 1/2  |
| AN737TW44-48  | 61/64              | 1- 1/2  |
| AN737TW56     | 1-21/64            | 1- 3/4  |
| AN737TW58     | 1- 3/8             | 1-13/16 |
| AN737TW66     | 1- 5/8             | 2- 1/16 |
| AN737TW56-66  | 1-21/64            | 2- 1/16 |
| AN737TW74     | 1- 7/8             | 2- 5/16 |
| AN737TW82     | 2- 1/8             | 2- 9/16 |
| AN737TW91     | 2-13/32            | 2-27/32 |
| AN737TW74-91  | 1- 7/8             | 2-27/32 |
| AN737TW98     | 2- 5/8             | 3- 1/16 |
| AN737TW107    | 2-29/32            | 3-11/32 |
| AN737TW114    | 3- 1/8             | 3- 9/16 |
| AN737TW98-114 | 2- 5/8             | 3- 9/16 |

| MS35842    | Effective Diameter |        |
|------------|--------------------|--------|
|            | Min                | Max    |
| MS35842-10 | 7/16               | 25/32  |
| MS35842-11 | 11/16              | 1- 1/4 |
| MS35842-12 | 1- 1/16            | 2      |
| MS35842-13 | 1-13/16            | 2- 3/4 |
| MS35842-14 | 2- 9/16            | 3- 1/2 |
| MS35842-15 | 3- 5/16            | 4- 1/4 |
| MS35842-16 | 4- 1/8             | 7      |

### AeroSeal MINIATURES



Miniatures-Lightweight, streamlined clamps generally used for small (under 1") diameters. These clamps can handle pressures up to 1000psi with less than 15 in/lbs of torque

SKYBOLT stocks miniature clamps with 4-piece construction of 300 series stainless band and 410 series stainless hex screw.

### MINIATURE CLAMPS

Standard Package - 10

| Part# | Effective Diameter |         |
|-------|--------------------|---------|
|       | Min                | Max     |
| 6604  | 7/32               | 5/8     |
| 6606  | 7/16               | 25/32   |
| 6608  | 1/2                | 29/32   |
| 6610  | 9/16               | 1- 1/16 |



### MS21919 CUSHIONED CLAMP

Aluminum band with Chloroprene cushion (212F). For general purpose in areas contaminated with petroleum based hydraulic fluids and occasional fuel splash. Available CRES with silicone cushion (400F) or fluorosilicone cushion (450F).

Note: List depicts WDG (wedged) clamps. Unless specified, DG clamps may be supplied at reduced pricing until stocks are depleted.

### AN742 PLAIN CLAMP

Steel - Cadmium plated per QQ-P-416  
Aluminum Alloy (D), CRES(F), High Temp(H).

Standard Package - 10

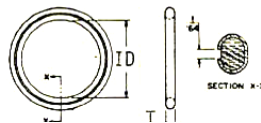
| AN742    | Tube Dia | AN742    | Tube Dia |
|----------|----------|----------|----------|
| AN742D2  | 1/8      | AN742D27 |          |
| AN742D3  | 3/16     | AN742D28 | 1- 3/4   |
| AN742D4  | 1/4      | AN742D29 |          |
| AN742D5  | 5/16     | AN742D30 | 1- 7/8   |
| AN742D6  | 3/8      | AN742D31 |          |
| AN742D7  | 7/16     | AN742D32 | 2        |
| AN742D8  | 1/2      | AN742D33 |          |
| AN742D9  | 9/16     | AN742D34 | 2- 1/8   |
| AN742D10 | 5/8      | AN742D35 |          |
| AN742D11 | 11/16    | AN742D36 | 2- 1/4   |
| AN742D12 | 3/4      | AN742D37 |          |
| AN742D13 | 13/16    | AN742D38 | 2- 3/8   |
| AN742D14 | 7/8      | AN742D39 | 2- 1/2   |
| AN742D15 | 15/16    | AN742D40 |          |
| AN742D16 | 1        | AN742D41 | 2- 3/4   |
| AN742D17 | 1- 1/16  | AN742D42 |          |
| AN742D18 | 1- 1/8   | AN742D43 |          |
| AN742D19 | 1- 3/16  | AN742D44 | 3        |
| AN742D20 | 1- 1/4   | AN742D45 |          |
| AN742D21 | 1- 5/16  | AN742D46 | 3- 1/4   |
| AN742D22 | 1- 3/8   | AN742D47 |          |
| AN742D23 | 1- 7/16  | AN742D48 | 3- 1/2   |
| AN742D24 | 1- 1/2   | AN742D49 |          |
| AN742D25 | 1- 9/16  | AN742D50 |          |
| AN742D26 | 1- 5/8   | AN742D51 |          |

Standard Package - 10

| MS21919      | Tube Dia | MS21919      | Tube Dia |
|--------------|----------|--------------|----------|
| MS21919WDG1  | 1/16     | MS21919WDG27 |          |
| MS21919WDG2  | 1/8      | MS21919WDG28 | 1- 3/4   |
| MS21919WDG3  | 3/16     | MS21919WDG29 |          |
| MS21919WDG4  | 1/4      | MS21919WDG30 | 1- 7/8   |
| MS21919WDG5  | 5/16     | MS21919WDG31 |          |
| MS21919WDG6  | 3/8      | MS21919WDG32 | 2        |
| MS21919WDG7  | 7/16     | MS21919WDG33 |          |
| MS21919WDG8  | 1/2      | MS21919WDG34 | 2- 1/8   |
| MS21919WDG9  | 9/16     | MS21919WDG35 |          |
| MS21919WDG10 | 5/8      | MS21919WDG36 | 2- 1/4   |
| MS21919WDG11 | 11/16    | MS21919WDG37 |          |
| MS21919WDG12 | 3/4      | MS21919WDG38 | 2- 3/8   |
| MS21919WDG13 | 13/16    | MS21919WDG39 | 2- 1/2   |
| MS21919WDG14 | 7/8      | MS21919WDG40 |          |
| MS21919WDG15 | 15/16    | MS21919WDG41 | 2- 3/4   |
| MS21919WDG16 | 1        | MS21919WDG42 |          |
| MS21919WDG17 | 1- 1/16  | MS21919WDG43 | 3        |
| MS21919WDG18 | 1- 1/8   | MS21919WDG44 |          |
| MS21919WDG19 | 1- 3/16  | MS21919WDG45 | 3- 1/4   |
| MS21919WDG20 | 1- 1/4   | MS21919WDG46 |          |
| MS21919WDG21 | 1- 5/16  | MS21919WDG47 | 3- 1/2   |
| MS21919WDG22 | 1- 3/8   | MS21919WDG48 |          |
| MS21919WDG23 | 1- 7/16  | MS21919WDG49 | 3- 1/2   |
| MS21919WDG24 | 1- 1/2   | MS21919WDG50 |          |
| MS21919WDG25 | 1- 9/16  | MS21919WDG51 | 4        |
| MS21919WDG26 | 1- 5/8   | MS21919WDG52 |          |

### MS35769 Supercedes AN900 GASKET

Copper-Asbestos. Temperature to 500F  
Pressure to 200PSI. Ring width = 1/4"  
Thickness = 3/32"



Standard Package - 10

| MS35769    | AN900    | ID    | MS35769    | AN900    | ID      |
|------------|----------|-------|------------|----------|---------|
| MS35769-1  | AN900-3  | 3/16  | MS35769-24 | AN900-17 | 1- 1/16 |
| MS35769-2  | AN900-4  | 1/4   | MS35769-26 | AN900-18 | 1- 1/8  |
| MS35769-5  | AN900-5  | 5/16  | MS35769-29 | AN900-19 | 1- 3/16 |
| MS35769-6  | AN900-6  | 3/8   | MS35769-31 | AN900-20 | 1- 1/4  |
| MS35769-8  | AN900-7  | 7/16  | MS35769-33 | AN900-21 | 1- 5/16 |
| MS35769-9  | AN900-8  | 1/2   | MS35769-35 | AN900-22 | 1- 3/8  |
| MS35769-10 | AN900-9  | 9/16  | MS35769-38 | AN900-23 | 1- 7/16 |
| MS35769-11 | AN900-10 | 5/8   | MS35769-39 | AN900-24 | 1- 1/2  |
| MS35769-13 | AN900-11 | 11/16 | MS35769-41 | AN900-25 | 1- 9/16 |
| MS35769-15 | AN900-12 | 3/4   | MS35769-42 | AN900-26 | 1- 5/8  |
| MS35769-17 | AN900-13 | 13/16 | MS35769-46 | AN900-27 | 1-11/16 |
| MS35769-20 | AN900-15 | 15/16 | MS35769-51 | AN900-29 | 1-13/16 |
| MS35769-21 | AN900-16 | 1     | MS35769-52 | AN900-30 | 1- 7/8  |

Note: This is not a complete list. Continental engine applications:  
A-65 thru O-200: AN900-10, Oil sump drain plug, oil temp probe,  
suction tube assembly. AN900-14, Oil Relief valve. AN900-22,  
Tach drive housing. AN900-28, Oil Screen.

### AN901 GASKET

For Tube Connections  
1100 Aluminum Alloy or Copper  
Replace A with C to denote copper.

Standard Package - 10

| AN901     | Tube OD |
|-----------|---------|
| AN901-4A  | 1/4     |
| AN901-5A  | 5/16    |
| AN901-6A  | 3/8     |
| AN901-8A  | 1/2     |
| AN901-10A | 5/8     |



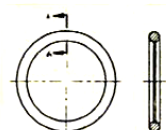
### MS28778

Supercedes AN6290 Gasket

For Tube Fittings

Standard Package - 10

| MS28778-<br>AN6290- | Tube OD |
|---------------------|---------|
| MS28778-2           | 1/8     |
| MS28778-3           | 3/16    |
| MS28778-4           | 1/4     |
| MS28778-5           | 5/16    |
| MS28778-6           | 3/8     |
| MS28778-8           | 1/2     |
| MS28778-10          | 5/8     |



# ELECTRICAL TERMINALS

## NYLON RING TERMINALS MS20659 Type II

Flared Nylon with Internal Sleeve



| Part#      | Wire  |      |        | STD |
|------------|-------|------|--------|-----|
|            | Size  | Stud | Color  | PKG |
| FND2622-2  | 26-22 | 2    |        | 100 |
| FND2622-3  | 26-22 | 4    |        | 100 |
| FND2622-M3 | 26-22 | 6    |        | 100 |
| FND2216-S3 | 22-18 | 4    | Red    | 100 |
| FND2216-M3 | 22-18 | 6    | Red    | 100 |
| FND2216-4  | 22-18 | 8    | Red    | 100 |
| FND2216-5  | 22-18 | 10   | Red    | 100 |
| FND2216-6  | 22-18 | 1/4  | Red    | 100 |
| FND2216-8  | 22-18 | 5/16 | Red    | 100 |
| FND2216-9  | 22-18 | 3/8  | Red    | 100 |
| FND1614-M3 | 16-14 | 6    | Blue   | 100 |
| FND1614-4  | 16-14 | 8    | Blue   | 100 |
| FND1614-M5 | 16-14 | 10   | Blue   | 100 |
| FND1614-6  | 16-14 | 1/4  | Blue   | 100 |
| FND1614-8  | 16-14 | 5/16 | Blue   | 100 |
| FND1614-9  | 16-14 | 3/8  | Blue   | 100 |
| FND1210-S3 | 12-10 | 6    | Yellow | 100 |
| FND1210-4  | 12-10 | 8    | Yellow | 50  |
| FND1210-5  | 12-10 | 10   | Yellow | 100 |
| FND1210-S6 | 12-10 | 1/4  | Yellow | 50  |
| FND1210-S8 | 12-10 | 5/16 | Yellow | 100 |
| FND1210-9  | 12-10 | 3/8  | Yellow | 50  |
| FN8-8      | 8     | 5/16 |        | 10  |
| FN4-9      | 4     | 3/8  |        | 10  |
| 1582       | 2     | 3/8  |        | 10  |



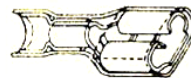
FND Terminals



1582 Terminals

### FULLY INSULATED SPADE CONNECTOR

| Part#          | Wire  |        |           | STD |
|----------------|-------|--------|-----------|-----|
|                | Size  | Type   | TAB       | PKG |
| LNDF2216T-250M | 22-18 | Female | .032X.250 | 100 |
| LNDF1614T-250M | 16-14 | Female | .032X.250 | 100 |
| LNDM2216T-250M | 22-18 | Male   | .032X.250 | 100 |
| LNDM1614T-250M | 16-14 | Male   | .032X.250 | 100 |



### BUTT CONNECTOR

| Part#     | Wire  |              |        | STD |
|-----------|-------|--------------|--------|-----|
|           | Size  | Type         | Color  | PKG |
| NDCW2216  | 22-18 | Window,Nylon | Red    | 50  |
| NDCW1614  | 16-14 | Window,Nylon | Blue   | 50  |
| NDCW1210  | 12-10 | Window,Nylon | Yellow | 50  |
| NCL2622   | 26-22 | Clear,Nylon  | Yellow | 100 |
| NCL2216   | 22-18 | Clear,Nylon  | Red    | 100 |
| NCL1614   | 16-14 | Clear,Nylon  | Blue   | 100 |
| NCL1210   | 12-10 | Clear,Nylon  | Yellow | 100 |
| FVC2216WS | 22-18 | Insul,Vinyl  | Red    | 100 |
| FVC1614WS | 16-14 | Insul,Vinyl  | Blue   | 100 |
| FVC1210WS | 12-10 | Insul,Vinyl  | Yellow | 100 |
| C1210     | 12-10 | Uninsulated  |        | 50  |



CRIMP CONNECTOR - NYLON

### KNIFE DISCONNECT - VINYL



| Part#   | Wire  |           |        | STD |
|---------|-------|-----------|--------|-----|
|         | Size  | Type      | Color  | PKG |
| FV2216K | 22-18 | Insulated | Red    | 100 |
| FV1614K | 16-14 | Insulated | Blue   | 100 |
| FV1210K | 12-10 | Insulated | Yellow | 100 |

| Part#   | Wire  |
|---------|-------|
|         | Size  |
| 2218SDB | 22-18 |
| 1614SDB | 16-14 |
| 1210SDB | 12-10 |

# ELECTRICAL - TUBING, SPIRAL WRAP, CABLE TIES



**HEAT SHRINK TUBING** - When placed over wire strand, Heat Shrink Tubing, when heated, shrinks to a neat insulating splice cover.

Packaged - Sea 10" Lengths

| Part#  | Expanded |         | Fully Recovered |      |
|--------|----------|---------|-----------------|------|
|        | Size     | ID(Max) | Nominal         | Wall |
| HST-16 | 1/16     | .031    | .017            |      |
| HST-32 | 3/32     | .046    | .020            |      |
| HST-18 | 1/8      | .062    | .020            |      |
| HST-36 | 3/16     | .093    | .020            |      |
| HST-14 | 1/4      | .125    | .025            |      |
| HST-56 | 5/16     | .156    | .025            |      |
| HST-38 | 3/8      | .187    | .025            |      |
| HST-12 | 1/2      | .250    | .025            |      |
| HST-10 | 1        |         | .035            |      |

**VINYL TUBING** - For harnessing, cabling, and conduit protection on electrical equipment requiring clear tubing with good flexibility at low temperatures. Temperature range is -73C to 85C. Made to MIL-I-7444B, Type 1.

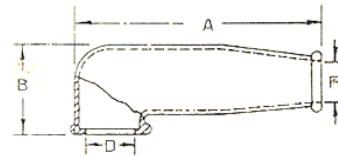
| Part#       | AWG  | Nom  | Nom  | Wire |
|-------------|------|------|------|------|
|             | Size | ID   | Wall | Size |
| PVC-80-12   | 12   | .085 | .016 |      |
| PVC-80-8    | 8    | .133 | .020 | 18   |
| PVC-80-7    | 7    | .148 | .020 | 16   |
| PVC-80-6    | 6    | .166 | .020 | 14   |
| PVC-80-5    | 5    | .186 | .020 | 12   |
| PVC-80-4    | 4    | .208 | .020 | 10   |
| PVC-80-7/16 | 7/16 | .438 | .025 |      |
| PVC-80-1/2  | 1/2  | .500 | .025 | 2    |



**PLASTIC SPIRAL WRAP TU** - An effective way to bundle wire harnesses. Non-flame retardant. Clear

| Part#    | Bundle Dia |
|----------|------------|
| HT-1/4-C | 3/16 to 2" |
| HT-3/8-C | 5/16 to 3" |
| HT-1/2-C | 3/8 to 4"  |

**ELECTRICAL TERMINAL NIPPLE - MS25171**  
Class II Grade 50 Silicone.



| Part#      | A    | B    | D   | F   |
|------------|------|------|-----|-----|
| MS25171-1S | 1.38 | .56  | .40 | .16 |
| MS25171-2S | 2.50 | 1.00 | .56 | .31 |
| MS25171-3S | 2.50 | 1.00 | .56 | .43 |
| MS25171-4S | 2.50 | 1.00 | .56 | .56 |



## CABLE TIES

| PART#   | ALT#  | Color | Length | Strength | MIN MAX |       |
|---------|-------|-------|--------|----------|---------|-------|
|         |       |       |        |          | DIA     | DIA   |
| HT102-O | 8800B | Black | 4"     | 18Lb     | 1/16    | 15/16 |
| HT104-O | 8801B | Black | 5 1/2" | 40       | 1/16    | 1-1/4 |
| HT107-O | 8802B | Black | 7 1/2" | 50       | 1/16    | 2-1/8 |
| HT108-O | 8803B | Black | 11"    | 50       | 1/16    | 3     |
| HT109-O | 8804B | Black | 15"    | 50       | 1/16    | 4     |

**FBO Electrical Kit**  
(See Hardware Kits)

## The Skybolt Team



**Ned & Debra Bowers**

....The Real Deal. Together, Ned and Debra bring decades of aviation experience, business, and engineering expertise to our manufacturing business.



**Delta Air Lines CAPT. Ned C. Bowers**  
**Homecoming - JAN. 13, 2017 Munich to Atlanta**

Some History...As a young aviator, Ned built his first airplane in the family basement in Goose Bay, Labrador at age 5, where his father, Lt. Col. Win Bowers, was stationed after WWII during his career in the United States Air Force. Ned's first engineering job was with NASA on the Saturn V during Apollo, Skylab, and the Shuttle design program. Ned was hired by National Airlines in 1979 and is a recently retired Boeing 767-400ER Delta Air Lines Captain. All said and done, between National, Pan Am and Delta, Ned flew over 1,000 Atlantic crossings, 25,000 hours with a perfect safety record, spanning 38 years flying for major airlines. "This kind of record was not by chance; it came from accepting the responsibility, and the consistent respect I have for the profession and the many support people dedicated to policy and integrity". Ned brings that same dedication to Skybolt and to our incredible team every day.

As Vice President & General Manager, Debra oversees and manages the daily operations of Skybolt, since February, 2001. Her background includes many years of experience in sales, marketing, and event management within the aviation market, including her position as Programs & Development Director for the Sun 'n Fun Air Museum from 1988. In 1993, Debra joined Kermit Weeks as a member of his Opening Team at Fantasy of Flight as the Director of Marketing until 2001, before coming on board with Skybolt. Debra is a volunteer and member of the EAA Air Operations Team in Oshkosh, WI, working with the Air Ops Chairmen, Performers, and special guests and continues to work with Stallion 51 Corp. during special events throughout the year. An aviation professional with a keen instinct for customer appreciation and service, Debra rounds out a purposeful management team that represents the absolute finest in aviation expertise.

Between Ned and Debra Bowers, there is an immense amount of experience in aviation, aerospace, and performance racing they have shared through the years. "It is not by chance that we have set out to become a major player in aerospace manufacturing while cherishing the relationships with our customers, our friends, and the many great legends in the industries we serve."



### Founders Win, Dotty and Ned Bowers.

Dad's A2 jacket (on the left) was made in 1942 and saw a lot of combat in the 15th Air Force. Ned's A2 jacket (on the right), was made in 1990. Ned honorably flew with the Collings Foundation for over 9-years which included hundreds of B17 and B24 veteran flights, reunions, and memorials all across America.



Skybolt built a highly successful racing team in the 1990s through 2010 with driver Matt Bowers. Many thanks to Sean Tucker for the encouragement and 'words of wisdom' he has shared with all of our team during those years.

## Skybolt Team Members

|                 |   |                     |
|-----------------|---|---------------------|
| April Braun     | Sales Manager, Purchasing, Training         | Joined Skybolt 2003 |
| Christy Exum    | Shipping Manager, Invoicing & Sales         | Joined Skybolt 2007 |
| Josh Meier      | Sales                                       | Joined Skybolt 2017 |
| Brenda Fleming  | AS9100 Quality Control                      | Joined Skybolt 2016 |
| Betty Carr      | Receiving - Quality Control                 | Joined Skybolt 2005 |
| John Falarski   | Machining Operations, SolidWorks and IT     | Joined Skybolt 2014 |
| Blair Good      | Production and Assembly Team                | Joined Skybolt 2019 |
| Dan Albert      | Production and Assembly Team                | Joined Skybolt 2016 |
| Kim Keenan      | Production and Assembly Team                | Joined Skybolt 2020 |
| Susan Martin    | Production and Assembly Team                | Joined Skybolt 2018 |
| Jody Perine     | Production and Assembly Manager             | Joined Skybolt 2019 |
| Theresa Davis   | Accounting and Administration               | Joined Skybolt 2020 |
| Carlos Osorio   | Manager of Machining Operations             | Joined Skybolt 1993 |
| Jeff Branch     | Tool & Die, Machining Operations            | Joined Skybolt 2015 |
| Russ Ortner     | SolidWorks Engineering, Product Development | Joined Skybolt 1998 |
| Orestes Lorenzo | Flight Operations, Chief Pilot              | Joined Skybolt 2014 |
| Matt Bowers     | Marketing - Aviation, Racing                | Joined Skybolt 1991 |
| Doug Hutton     | AS9100 Quality Control                      | Joined Skybolt 2020 |
| Dave Mischia    | Special Projects                            | Joined Skybolt 2019 |

## Tap Chart – UNC/UNF Threads

| Tap size | NF/NC UNF/<br>UNC | Threads per<br>inch | Basic major<br>dia (inches) | Basic<br>effective dia<br>(inches) | Minor dia of<br>ext. threads<br>(inches) | Minor dia of<br>int. threads<br>(inches) | Drill size |
|----------|-------------------|---------------------|-----------------------------|------------------------------------|--|--|------------|
| 0-80     | UNF               | 80                  | 0.06                        | 0.0519                             | 0.0447                                   | 0.0465                                   | 3/64       |
| 1-64     | UNC               | 64                  | 0.073                       | 0.0629                             | 0.0538                                   | 0.0561                                   | #54        |
| 2-56     | UNC               | 56                  | 0.086                       | 0.0744                             | 0.0641                                   | .0667                                    | #50        |
| 2-64     | UNF               | 64                  | 0.086                       | 0.0759                             | 0.0668                                   | .0691                                    | #50        |
| 4-40     | UNC               | 40                  | 0.112                       | 0.0958                             | 0.0813                                   | .0849                                    | #43        |
| 4-48     | UNF               | 48                  | 0.112                       | 0.0985                             | 0.0864                                   | .0894                                    | #42        |
| 5-40     | UNC               | 40                  | 0.125                       | 0.1088                             | 0.0943                                   | .0979                                    | #38        |
| 5-44     | UNF               | 44                  | 0.125                       | 0.1102                             | 0.0971                                   | .1004                                    | #37        |
| 6-32     | UNC               | 32                  | 0.136                       | 0.1177                             | 0.0997                                   | .1042                                    | #36        |
| 6-40     | UNF               | 40                  | 0.136                       | 0.1218                             | 0.1073                                   | .1109                                    | #33        |
| 8-32     | UNC               | 32                  | 0.164                       | 0.1437                             | 0.1257                                   | .1302                                    | #29        |
| 8-36     | UNF               | 36                  | 0.164                       | 0.146                              | 0.1299                                   | .1339                                    | #29        |
| 10-24    | UNC               | 24                  | 0.19                        | 0.1629                             | 0.1389                                   | .1449                                    | #25        |
| 10-32    | UNF               | 32                  | 0.19                        | 0.1697                             | 0.1517                                   | .1562                                    | #21        |
| 1/4-20   | UNC               | 20                  | 0.25                        | 0.2175                             | 0.1887                                   | .1959                                    | #7         |
| 1/4-28   | UNF               | 28                  | 0.25                        | 0.2268                             | 0.2062                                   | .2113                                    | #3         |
| 5/16-18  | UNC               | 18                  | 0.3125                      | 0.2764                             | 0.2443                                   | .2524                                    | F          |
| 5/16-24  | UNF               | 24                  | 0.3125                      | 0.2854                             | 0.2614                                   | .2674                                    | I          |
| 3/8-16   | UNC               | 16                  | 0.375                       | 0.3344                             | 0.2983                                   | .3073                                    | 5/16       |
| 3/8-24   | UNF               | 24                  | 0.375                       | 0.3479                             | 0.3239                                   | .3299                                    | Q          |
| 7/16-14  | UNC               | 14                  | 0.4375                      | 0.3911                             | 0.3499                                   | .3602                                    | U          |
| 7/16-20  | UNF               | 20                  | 0.4375                      | 0.405                              | 0.3762                                   | .3834                                    | 25/64      |
| 1/2-13   | UNC               | 13                  | 0.5                         | 0.45                               | 0.4056                                   | .4167                                    | 27/64      |
| 1/2-20   | UNF               | 20                  | 0.5                         | 0.4675                             | 0.4387                                   | .4459                                    | 29/64      |
| 9/16-12  | UNC               | 12                  | 0.5625                      | 0.5084                             | 0.4603                                   | .4723                                    | 31/64      |
| 9/16-18  | UNF               | 18                  | 0.5625                      | 0.5264                             | 0.4943                                   | .5024                                    | 33/64      |
| 5/8-11   | UNC               | 11                  | 0.625                       | 0.566                              | 0.5135                                   | .5266                                    | 17/32      |
| 5/8-18   | UNF               | 18                  | 0.625                       | 0.5869                             | 0.5568                                   | .5649                                    | 37/64      |
| 3/4-10   | UNC               | 10                  | 0.75                        | 0.665                              | 0.6273                                   | .6417                                    | 21/32      |
| 3/4-16   | UNF               | 16                  | 0.75                        | 0.7094                             | 0.6733                                   | .6823                                    | 11/16      |
| 7/8-9    | UNC               | 9                   | 0.875                       | 0.8028                             | 0.7387                                   | .7547                                    | 49/64      |
| 7/8-14   | UNF               | 14                  | 0.875                       | 0.8286                             | 0.7874                                   | .7977                                    | 13/16      |
| 1-8      | UNC               | 8                   | 1                           | 0.9188                             | 0.8466                                   | .8647                                    | 7/8        |
| 1-14     | UNF               | 14                  | 1                           | 0.9459                             | 0.8978                                   | .9098                                    | 15/16      |
| 1 1/8-7  | UNC               | 7                   | 1.125                       | 1.0322                             | 0.9497                                   | .9704                                    | 63/64      |
| 1 1/8-12 | UNF               | 12                  | 1.125                       | 1.0709                             | 1.0228                                   | 1.0348                                   | 1 3/64     |
| 1 1/4-7  | UNC               | 7                   | 1.25                        | 1.1572                             | 1.0747                                   | 1.0954                                   | 1 7/64     |
| 1 3/8-6  | UNC               | 6                   | 1.375                       | 1.2667                             | 1.1705                                   | 1.1946                                   | 1 13/64    |
| 1 1/2-6  | UNC               | 6                   | 1.5                         | 1.3917                             | 1.2955                                   | 1.3196                                   | 1 11/32    |
| 1 3/4-5  | UNC               | 5                   | 1.75                        | 1.6201                             | 1.5046                                   | 1.5335                                   | 1 35/64    |
| 2-4.5    | UNC               | 4.5                 | 2                           | 1.8557                             | 1.7274                                   | 1.7594                                   | 1 25/32    |



# Tap Chart – Metric Threads

| Tap size    | Basic major dia (mm) | Basic major dia (inch) | mm per thread | Drill size (mm) | Drill size (inch) |
|-------------|----------------------|------------------------|---------------|-----------------|-------------------|
| M1.6 x 0.35 | 1,6mm                | 0.063                  | 0.35          | 1,25mm          | #55               |
| M2 x 0.4    | 2mm                  | 0.0787                 | 0.4           | 1,6mm           | #52               |
| M2.5 x 0.45 | 2,5mm                | 0.0984                 | 0.45          | 2,05mm          | #46               |
| M3 x 0.5    | 3mm                  | 0.1181                 | 0.5           | 2,5mm           | #39               |
| M3.5 x 0.6  | 3,5mm                | 0.1378                 | 0.6           | 2,9mm           | #32               |
| M4 x 0.7    | 4mm                  | 0.1575                 | 0.7           | 3,3mm           | #30               |
| M5 x 0.8    | 5mm                  | 0.1969                 | 0.8           | 4,2mm           | #19               |
| M6 x 1      | 6mm                  | 0.2362                 | 1             | 5mm             | #8                |
| M8 x 1.25   | 8mm                  | 0.315                  | 1.25          | 6,8mm           | H                 |
| M8 x 1      | 8mm                  | 0.315                  | 1             | 7mm             | J                 |
| M10 x 1.5   | 10mm                 | 0.3937                 | 1.5           | 8,5mm           | R                 |
| M10 x 1.25  | 10mm                 | 0.3937                 | 1.25          | 8,8mm           | Nov-32            |
| M12 x 1.75  | 12mm                 | 0.4724                 | 1.75          | 10,2mm          | 13/32             |
| M12 x 1.25  | 12mm                 | 0.4724                 | 1.25          | 10,8mm          | 27/64             |
| M14 x 2     | 14mm                 | 0.5512                 | 2             | 12mm            | 15/32             |
| M14 x 1.5   | 14mm                 | 0.5512                 | 1.5           | 12,5mm          | 2-Jan             |
| M16 x 2     | 16mm                 | 0.6299                 | 2             | 14mm            | 35/64             |
| M16 x 1.5   | 16mm                 | 0.6299                 | 1.5           | 14,5mm          | 37/64             |
| M18 x 2.5   | 18mm                 | 0.7087                 | 2.5           | 15,5mm          | 39/64             |
| M18 x 1.5   | 18mm                 | 0.7087                 | 1.5           | 16,5mm          | 21/32             |
| M20 x 2.5   | 20mm                 | 0.7874                 | 2.5           | 17,5mm          | 16-Nov            |
| M20 x 1.5   | 20mm                 | 0.7874                 | 1.5           | 18,5mm          | 47/64             |
| M22 x 2.5   | 22mm                 | 0.8661                 | 2.5           | 19,5mm          | 49/64             |
| M22 x 1.5   | 22mm                 | 0.8661                 | 1.5           | 20,5mm          | 13/16             |
| M24 x 3     | 24mm                 | 0.9449                 | 3             | 21mm            | 53/64             |
| M24 x 2     | 24mm                 | 0.9449                 | 2             | 22mm            | 8-Jul             |
| M27 x 3     | 27mm                 | 1.063                  | 3             | 24mm            | 15/16             |
| M27 x 2     | 27mm                 | 1.063                  | 2             | 25mm            | 1                 |



### Decimal Equivalents - Lettered Drills

| No. Drill | In. Diam | No. Drill | In. Diam. | No. Drill | In. Diam |
|-----------|----------|-----------|-----------|-----------|----------|
| A         | .234     | J         | .277      | S         | .348     |
| B         | .238     | K         | .281      | T         | .358     |
| C         | .242     | L         | .290      | U         | .368     |
| D         | .246     | M         | .295      | V         | .377     |
| E         | .250     | N         | .302      | W         | .386     |
| F         | .257     | O         | .316      | X         | .397     |
| G         | .261     | P         | .323      | Y         | .404     |
| H         | .266     | Q         | .332      | Z         | .413     |
| I         | .272     | R         | .339      |           |          |



### Decimal Equivalents - Numbered Drills

| No. Drill | Size In. | No. Drill | Size In. | No. Drill | Size In. | No. Drill | Size In. |
|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
| 1         | 0.2230   | 21        | 0.1590   | 41*       | 0.0960   | 61        | 0.0390   |
| 2         | 0.2210   | 22        | 0.1570   | 42        | 0.0935   | 62        | 0.0380   |
| 3         | 0.2130   | 23        | 0.1540   | 43        | 0.0890   | 63        | 0.0370   |
| 4         | 0.2090   | 24        | 0.1520   | 44        | 0.0860   | 64        | 0.0360   |
| 5         | 0.2055   | 25        | 0.1495   | 45        | 0.0820   | 65        | 0.0350   |
| 6         | 0.2040   | 26        | 0.1470   | 46        | 0.0810   | 66        | 0.0330   |
| 7         | 0.2010   | 27        | 0.1440   | 47        | 0.0785   | 67        | 0.0320   |
| 8         | 0.1990   | 28        | 0.1405   | 48        | 0.0760   | 68        | 0.0310   |
| 9         | 0.1960   | 29        | 0.1360   | 49        | 0.0730   | 69        | 0.9292   |
| 10        | 0.1935   | 30*       | 0.1285   | 50        | 0.0700   | 70        | 0.0280   |
| 11        | 0.1910   | 31        | 0.1200   | 51        | 0.0670   | 71        | 0.0260   |
| 12        | 0.1890   | 32        | 0.1160   | 52        | 0.0635   | 72        | 0.0250   |
| 13        | 0.1850   | 33        | 0.1130   | 53        | 0.0595   | 73        | 0.0240   |
| 14        | 0.1820   | 34        | 0.1110   | 54        | 0.0550   | 74        | 0.0225   |
| 15        | 0.1800   | 35        | 0.1100   | 55        | 0.0520   | 75        | 0.0210   |
| 16        | 0.1770   | 36        | 0.1065   | 56        | 0.0465   | 76        | 0.0200   |
| 17        | 0.1730   | 37        | 0.1040   | 57        | 0.0430   | 77        | 0.0180   |
| 18        | 0.1695   | 38        | 0.1015   | 58        | 0.0420   | 78        | 0.0160   |
| 19        | 0.1660   | 39        | 0.0995   | 59        | 0.0410   | 79        | 0.0145   |
| 20        | 0.1610   | 40        | 0.0980   | 60        | 0.0400   | 80        | 0.0135   |
|           |          |           |          |           |          |           |          |
|           |          |           |          |           |          |           |          |

\*Common 1/8 and 3/32 drills

### Decimal Equivalents Chart

| Inch Fraction | Decimal Equiv | Inch Fraction | Decimal Equiv. | Inch Fraction | Decimal Equiv |
|---------------|---------------|---------------|----------------|---------------|---------------|
| 1/64          | .0156         | 23/64         | .3594          | 45/64         | .7031         |
| 1/32          | .0312         | 3/8           | .375           | 23/32         | .7187         |
| 3/64          | .0469         | 25/64         | .3906          | 47/64         | .7344         |
| 1/16          | .0625         | 13/32         | .4062          | 3/4           | .75           |
| 5/64          | .0781         | 27/64         | .4219          | 49/64         | .7656         |
| 3/32          | .0937         | 7/16          | .4375          | 25/32         | .7812         |
| 7/64          | .1094         | 29/64         | .4531          | 51/64         | .7969         |
| 1/8           | .125          | 15/32         | .4687          | 13/16         | .8125         |
| 9/64          | .1406         | 31/64         | .4844          | 53/64         | .8281         |
| 5/32          | .1562         | 1/2           | .5             | 27/32         | .8437         |
| 11/64         | .1719         | 33/64         | .5156          | 55/64         | .8594         |
| 3/16          | .1875         | 17/32         | .5312          | 7/8           | .875          |
| 13/64         | .2031         | 35/64         | .5469          | 57/64         | .8906         |
| 7/32          | .2187         | 9/16          | .5625          | 29/32         | .9062         |
| 15/64         | .2344         | 37/64         | .5781          | 59/64         | .9219         |
| 1/4           | .25           | 19/32         | .5937          | 15/16         | .9375         |
| 17/64         | .2656         | 39/64         | .6094          | 61/64         | .9531         |
| 9/32          | .2812         | 5/8           | .625           | 31/32         | .9687         |
| 19/64         | .2969         | 41/64         | .6406          | 63/64         | .9844         |
| 5/16          | .3125         | 21/32         | .6562          | 1             | 1.00          |
| 21/64         | .3281         | 43/64         | .6719          |               |               |
| 11/32         | .3437         | 11/16         | .6875          |               |               |

### Sheet Stock Gauge

| No. of Gauge | Gauge Alum (B & S) | Steel (U.S. Std.) | No. of Gauge | Gauge Alum (B & S) | Steel (U.S. Std.) | No. of Gauge | Gauge Alum (B & S) | Steel (U.S. Std.) |
|--------------|--------------------|-------------------|--------------|--------------------|-------------------|--------------|--------------------|-------------------|
| 10           | .1019              | .1345             | 17           | .0453              | .0538             | 24           | .0201              | .0239             |
| 11           | .0907              | .1196             | 18           | .0403              | .0478             | 25           | .0179              | .0206             |
| 12           | .0808              | .1046             | 19           | .0359              | .0418             | 26           | .0159              | .0179             |
| 13           | .0720              | .0897             | 20           | .0320              | .0359             | 27           | .0142              | .0164             |
| 14           | .0641              | .0747             | 21           | .0285              | .0329             | 28           | .0126              | .0149             |
| 15           | .0571              | .0673             | 22           | .0253              | .0299             | 29           | .0113              | .0135             |
| 16           | .0508              | .0598             | 23           | .0226              | .0269             | 30           | .0100              | .0120             |

### Conversions

|                        |
|------------------------|
| .0394 inches = 1 mm    |
| 25.4 mm = 1 inch       |
| Inches x 25.4 = mm     |
| mm ÷ 25.4 = Inches     |
| 1 LB = 453.59 Grams    |
| 1 Gram = .0022 LB      |
| LB x 453.59237 = Grams |
| Grams ÷ 453.59237 = LB |