



***East Coast Aviation Supplies, Inc.***

**Distributor of AN, MS and NAS  
Aviation Hardware & Electrical Components**

***At 32,000 feet,  
there are no  
unimportant parts.***

**2013 - 2014**

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**ISO 9001:2008**



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## East Coast Aviation Supplies

ECAS, Inc. is a stocking distributor of Aircraft and Mil-Spec fasteners. Our product range is comprehensive enough to establish ECAS, Inc. as one of the largest stocking distributors of aircraft hardware in the United States. As you know, we stock an extensive inventory of AN, MS and NAS hardware. Our inventory of Cherry Rivets, Hi-loks, Camlocs and electrical products has grown so significantly that we can effectively compete as a major U.S. supplier.

Our ECAS, Inc. catalog is the most comprehensive aviation hardware catalog in the industry, providing a wealth of technical information for both mechanics and purchasing personnel. In an effort to control your hardware costs in these difficult economic times, our goal is to hold full stock specific to your needs and, in effect, make our warehouse an extension of your warehouse. We are heavily stocked with the inventory seen in both this catalog and on our website, [www.ecasinc.com](http://www.ecasinc.com).

Our pricing is extremely competitive. We have given top priority to reducing your hardware costs. We stock over 25,000 line items, buy in large quantities, receive excellent pricing and we will pass those savings on to our customers.

ECAS, Inc. has made a commitment to provide our customers with the highest level of service, second to none in the industry. Our dedicated professional staff maintains the highest level of competence and integrity and the needs and requirements of our customers will, as always, come first.

We realize the importance of quality in our industry and we want to assure you that manufacturer's certification is available on all Mil-Spec and Aerospace hardware. ECAS, Inc. is ISO 9001:2008 certified and is working toward AS9120 compliancy. Our quality system is audited yearly by an independent accredited company sponsored by the American Society for Quality Control and the American National Standards Institute. We keep records of all items we ship you for 10 years in the event the FAA requires you to produce traceability and manufacturer's certification.

In today's competitive environment, you should demand a level of commitment from your supplier that genuinely adds value to your business and visibly contributes to cost savings. ECAS, Inc. can accomplish this for you with on-time delivery and minimal, if any, backorders. We'll also keep you aware and updated on any issues affecting your shipments. We will give significant price breaks on quantity and schedule shipments to meet your requirements. We will strive for zero defects through stringent quality guidelines and most importantly keep our prices competitive to save your company money on hardware costs.

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## ECAS, Inc. Policies

Our ECAS catalog is one of the most comprehensive aviation hardware catalogs in the industry providing a wealth of technical information for both mechanics and purchasing personnel. All relevant dimensions and material designations are included for mechanics to reference and to facilitate the purchasing decision. Industry pricing has fluctuated very significantly over the past few years making it difficult to print prices. Visit [www.ecasinc.com](http://www.ecasinc.com) for all pricing as well as to place orders on-line. Our inventory is extensive and 98.5% of all items in this catalog are priced on our website and are in stock and available to ship immediately.

We will ship same day whenever necessary to meet your requirements. As a guideline, we will ship ground orders the same day if received by 2:00pm E.S.T. We will ship priority UPS Red and Blue, Federal Express Overnight and Economy the same day if order is received by 4:00pm E.S.T. Our minimum P.O. is \$35.00. We accept all major credit cards.

Manufacturer's certification is on file on all Mil-Spec and Aerospace fasteners. All parts are shipped with the manufacturer's name, lot# and/or control# on the parts label for your records. If you should require manufacturer's certification shipped with your parts, each part is subject to a \$10.00 line minimum. Manufacturer's certification requested after the parts have shipped may be subject to a charge to cover the administrative cost of accessing and processing the appropriate documents.

A Return of Merchandise (RMA) number issued by ECAS, Inc. must accompany any returned items. No credit will be issued on any parts returned without an RMA number.

ECAS, Inc. must be notified of any discrepancies or shortages within 30 days of receipt of your shipment for a credit to be issued. Credits and RMA's will not be issued beyond 30 days after items are shipped.

We generally do not charge a restocking fee if the parts you ordered are regular stock items for ECAS, Inc. If parts were brought in specifically to fill your order, if returnable, will be subject to a minimum 25% restocking fee.

If any items are backordered to you, we will ship those items to you in a timely manner. ECAS, Inc. will pay freight charges on all backordered items if they are normal stocking items for us. You will, however, be charged freight on backordered items that are not listed in the catalog that we brought in specifically to fill your order. We will combine as many shipments as possible to reduce your freight costs.

If you should require technical information on any part, call us. We have a full library of both government and proprietary prints and would be happy to forward any technical information you require.

We appreciate your business and we will do everything we can to give you the service you deserve.

Thank you,  
ECAS, Inc.



## ECAS QUALITY SYSTEMS

Our policy "Uncompromised Quality and Service" is a commitment to error free performance and continuous improvement to assure consistent conformance to our customers' expectations. Conformance to ISO 9001:2008 establishes the following guidelines on which we base our quality system.

### Quality Planning

- 1) Our Quality Policy is understood and implemented at all levels of our organization encompassing the quality of our product and the quality of our service.

### Quality Manual

- 2) Our Quality manual is available for review by our customers, governmental and regulatory agencies.

### Customer Purchase Order Review

- 3) Procedures are in place to review all customer orders and contracts to assure our customers' requirements will be met.

### Document and Data Control

- 4) All documents pertaining to methods and procedures used by ECAS are controlled and updated to ensure that only current revision documents are utilized.

### Purchasing

- 5) Purchasing procedures have been established to assure that ECAS will purchase only from approved vendors. Approved quality surveys are on file documenting compliance to ECAS standards of quality, thus insuring consistent high quality products sold by ECAS.

### Product Traceability

- 6) Product traceability is of paramount importance and procedures are in place to track, identify and trace all products through receiving, processing, stocking and delivery.

### Process Controls

- 7) Process control documents work instructions defining all methods to control quality of our product and service

### Inspection and Testing

- 8) Inspection and testing procedures establish methods to insure all incoming product is inspected to ensure conformance to prints prior to storage or being released. Statistical techniques are used to verify acceptability of products.

### Control of Inspection and Measuring Equipment

- 9) ECAS has established methods for the control and calibration of all inspection, measuring and test equipment and complete records are maintained in compliance with the National Institute of Standards and testing.

### Inspection Status

- 10) Procedures are established outlining the inspection of all products throughout all processes and records are maintained identifying the status of products from receiving through storage to delivery.

### Control of Non-Conforming Product

- 11) ECAS has developed procedures for control, identification, segregation, documentation, evaluation and disposition of non-conforming products.

### Corrective and Preventive

- 12) Corrective and preventive action procedures outline measures to eliminate causes of actual or potential non-conformities. Procedures are outlined determining the corrective action required to eliminate the cause of a non-conformity.

### Handling, Packaging and Delivery Procedures

- 13) Procedures have been established defining methods used for product handling, storage, packaging, preservation and delivery of products.

### Control of Quality Records

- 14) ECAS has procedures to control all quality records such as manufacturers' certifications, inspection records and all other records affecting quality for a minimum of 7 years.

### Training

- 15) Training records are kept on all employees to assure complete and ongoing training.

### Internal Quality Audits

- 16) Internal Quality Audits are continuously performed to verify that quality activities and related results comply with planned procedures and to determine the effectiveness of ECAS Quality Systems.

## ECAS PRODUCT LINE

|                        |                     |                           |
|------------------------|---------------------|---------------------------|
| AERODUCT DUCTING       | STRATOFLEX          | POP RIVETS & TOOLING      |
| AEROQUIP FIRESLEEVE    | FLOATING CLIP NUTS  | POTTER BRUMFIELD BREAKERS |
| AEROQUIP FITTINGS      | FUSES               | PULLEYS                   |
| AEROQUIP HOSE          | GASKETS             | PULLEY GUARD PIN          |
| AIRBOURNE FILTERS      | GREASE              | QUARTZ LAMPS              |
| AIRCRAFT WIRE          | GREASE FITTINGS     | RETAINING RINGS           |
| AIRLOC FASTENERS       | GROMMETS            | RIVETS                    |
| BEARINGS               | GROMMET EDGING      | RING TERMINALS            |
| BLACK BRASS SCREWS     | HARDWARE KITS       | RIVNUTS & TOOLING         |
| BRACKET AIR FILTERS    | HEAT SHRINK TUBING  | SAFETY WIRE               |
| BOLTS                  | HI-LOKS AND COLLARS | SCAT HOSE                 |
| AN, MS, NAS            | HI-LOK TOOLING      | SCREWLOCK ASSEMBLIES      |
| BONDING JUMPERS        | HINGES              | SCREWS                    |
| BUSHINGS               | HINGE PINS          | AN, MS & NAS              |
| BUTT SPLICES           | HUCK RIVETS         | DRIVE SCREWS              |
| CABLE CUTTERS          | HOSE                | FILLISTER HEAD            |
| CABLE HARDWARE         | HOSE CLAMPS         | HEX HEAD                  |
| CAMLOC PLIERS          | INDICATOR LIGHTS    | INSTRUMENT                |
| CAMLOCS                | INSERTS             | OHMSC                     |
| CAPPLUGS               | HELICOIL            | SET SCREWS                |
| CHERRY NUTPLATE RIVETS | KEENSERTS           | SHEET METAL               |
| CHERRY RIVETS          | SANDWICH PANEL      | SOCKET HEAD               |
| CHERRY RIVET TOOLING   | JO-BOLTS            | TAPPING                   |
| CIRCUIT BREAKERS       | KLIXON BREAKERS     | WASHER HEAD               |
| CLAMPS                 | KNIFE SPLICES       | SEALANTS (RTV & SILICONE) |
| CLEANERS & DEGREASERS  | LIGHTING/BULBS      | SEALED BEAM LAMPS         |
| CLECO FASTENERS        | LORD COWLING MOUNTS | SHACKLES                  |
| CLECO TOOLING          | LOCKING CLIPS, PINS | SILICONE COVER GASKETS    |
| CLEVIS BOLTS           | LPS PRODUCTS        | SOLDER SLEEVES            |
| CLEVIS PINS            | LYCOMING PRODUCTS   | SOLID RIVETS              |
| CLEVIS ROD ENDS        | MONEL RIVETS        | SOUTHCO FASTENERS         |
| CLEVELAND BRAKE PADS   | NICROPRESS SLEEVES  | SPACERS                   |
| CONTINENTAL GASKETS    | NIPPLE, ELECTRICAL  | SPIRAL WRAP               |
| CONTINENTAL PRODUCTS   | NUTS                | SPRING PINS               |
| CONTROL CABLE          | BARRELL NUTS        | STRATOFLEX FITTINGS       |
| CORROSION X            | CASTLE NUTS         | STRATOFLEX HOSE           |
| COTTER PINS            | CHECK NUTS          | SWITCH GUARDS             |
| COVER GASKETS          | CLIPNUTS            | SWITCHES                  |
| COWLING MOUNTS         | EB NUTS             | TEMPO PAINTS, PRIMERS     |
| CRIMP SPLICES          | EXHAUST NUTS        | TERMINAL BOARD ASSEMBLIES |
| CURTIS DRAIN VALVES    | INSTRUMENT NUTS     | TERMINAL LINKS            |
| DELRON INSERTS         | JAM NUTS            | THIMBLES, CABLES          |
| DRILL BITS             | NYLON CAP NUTS      | TIE WRAPS                 |
| DRILL JIGS (PLATE NUT) | PIPER CLIP NUTS     | TINNERMAN NUTS            |
| DRILL STOPS            | SELF LOCKING NUTS   | TINNERMAN WASHERS         |
| DZUS FASTENERS         | TINNERMAN NUTS      | TOGGLE SWITCHES           |
| ELECTRICAL COMPONENTS  | WING NUTS           | TOOLING                   |
| EXHAUST GASKETS        | 12 POINT NUTS       | TRIDAIR PRODUCTS          |
| EYE BOLTS              | NUTPLATES           | TURNBUCKLE HARDWARE       |
| FILLISTER HEAD SCREWS  | O'RINGS             | WARNING STREAMERS         |
| FITTINGS               | PAINTS              | WASHERS                   |
| AN & MS                | PANEL FASTENERS     | WIRE                      |
| AEROQUIP               | PANEL INSERTS       | WIRE CAPS                 |
| NYLON & BRASS          | PATCH PLATES        | WIRE CRIMPERS             |

# MANUFACTURER'S DIRECTORY

3V FASTENERS  
ABBOTT  
AEROQUIP  
AEROSPACE RIVET  
AIRFASCO  
AIR INDUSTRIES  
ALCOA  
ALLFAST  
ALLSTATES RUBBER  
AMERIFAST  
AMP  
ANATASE  
ANILLO  
ARVAN  
AVIBANK  
AVK  
BANDY HINGE  
BELL MEMPHIS  
BENDIX  
BREEZE  
BRISTOL  
BURNDY  
BUSSMAN  
CALIFORNIA SCREW  
CAMLOC  
CAPLUG  
CATAMOUNT  
CBS  
CHERRY TEXTRON  
CLECO  
CRESCENT  
DEUTSCH  
DZUS  
EATON  
EMPIRE  
ESNA/SPS  
ETC MOLEX  
FABER

FAFNER  
FAIRCHILD  
FASTENAIR  
GENIE  
GREER  
GUARDIAN  
HARTWELL  
HEARTLAND  
HEIM  
HELI-COIL  
HI-SHEAR  
HUCK  
IDEAL  
INTERNATIONAL SEAL  
J&M PRODUCTS  
KATO  
KAYNAR  
KEENSERT  
KLIXON  
LFC  
LITTLEFUSE  
LOCKWELL  
LONG-LOK  
LOOS  
MAC FASTENERS  
MICRO PLASTICS  
MICRODOT INSERT  
MICROSWITCH  
MID AMERICA  
MINI-MAC  
MOELLER  
MONADNOCK  
MONOGRAM  
MRL  
NATIONAL RIVET  
NEW HAMPSHIRE BEARING  
NELSON  
OHIO GASKET

OTT BROTHERS  
PAMCO  
PAOLO  
PANDUIT  
PARKER HANNIFIN  
PB FASTENERS  
PERMASWAGE  
PILGRIM SCREW  
POP  
POTTER & BRUMFIELD  
PRECISION FORM RIVET  
RALMARK  
RAMNUT  
RAYCHEM  
R.B.W.  
REPUBLIC  
RISCO, INC.  
ROSAN  
SATURN  
SCREWCORP  
SEASTROM  
SHURLOCK  
SIMMONDS  
SOUTHCO  
SPS  
STRATOFLEX  
SUPERIOR WASHER  
TEXAS INSTRUMENTS  
THOMAS & BETTS  
TINNERMAN  
TORRINGTON  
TRIDAIR  
UMPCO  
VAN PETTY  
VOISHAN  
WEST COAST LOCKWASHER  
WESTERN WIRE  
YOUNG ENGINEERS

## UNCOMPROMISED QUALITY

ISO 9001:2008  
MIL-I-45208A  
Cage Code 0WTF7  
Contract review  
Document Control  
Purchasing from Authorized Suppliers  
Lot Traceability  
Lot Integrity  
Inspection Control  
Measuring Equipment Calibration  
Control of Non-Conforming Product  
Corrective & Preventive Action  
Handling and Storage Procedures  
Control of Quality Records  
Internal Quality Audits

## COMMITMENT TO SERVICE

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## PRICING

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No Line Minimum  
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are Ahead of Our Own  
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Large Quantity Discounts  
Discounted Assorted Hardware Kits

# ALPHABETICAL LISTING

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Certificate Expiry Date: August 25, 2015

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## AN3 AIRFRAME BOLT (10-32 Thread)

AN3-#A (Undrilled Shank)  
AN3-# (Drilled Shank)



| DESCRIPTION |         | AN3-      | AN3-    |
|-------------|---------|-----------|---------|
| Length      | Grip    | Undrilled | Drilled |
| 15/32       | 1/16    | 3A        | 3       |
| 17/32       | 1/8     | 4A        | 4       |
| 21/32       | 1/4     | 5A        | 5       |
| 25/32       | 3/8     | 6A        | 6       |
| 29/32       | 1/2     | 7A        | 7       |
| 1 - 1/32    | 5/8     | 10A       | 10      |
| 1 - 5/32    | 3/4     | 11A       | 11      |
| 1 - 9/32    | 7/8     | 12A       | 12      |
| 1 - 13/32   | 1       | 13A       | 13      |
| 1 - 17/32   | 1 - 1/8 | 14A       | 14      |
| 1 - 21/32   | 1 - 1/4 | 15A       | 15      |
| 1 - 25/32   | 1 - 3/8 | 16A       | 16      |
| 1 - 29/32   | 1 - 1/2 | 17A       | 17      |
| 2 - 1/32    | 1 - 5/8 | 20A       | 20      |
| 2 - 5/32    | 1 - 3/4 | 21A       | 21      |
| 2 - 9/32    | 1 - 7/8 | 22A       | 22      |
| 2 - 13/32   | 2       | 23A       | 23      |
| 2 - 17/32   | 2 - 1/8 | 24A       | 24      |
| 2 - 21/32   | 2 - 1/4 | 25A       | 25      |
| 2 - 25/32   | 2 - 3/8 | 26A       | 26      |
| 2 - 29/32   | 2 - 1/2 | 27A       | 27      |
| 3 - 1/32    | 2 - 5/8 | 30A       | 30      |
| 3 - 5/32    | 2 - 3/4 | 31A       | 31      |
| 3 - 9/32    | 2 - 7/8 | 32A       | 32      |
| 3 - 13/32   | 3       | 33A       | 33      |
| 3 - 17/32   | 3 - 1/8 | 34A       | 34      |
| 3 - 21/32   | 3 - 1/4 | 35A       | 35      |
| 3 - 25/32   | 3 - 3/8 | 36A       | 36      |
| 3 - 29/32   | 3 - 1/2 | 37A       | 37      |
| 4 - 1/32    | 3 - 5/8 | 40A       | 40      |
| 4 - 5/32    | 3 - 3/4 | 41A       | 41      |
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| 4 - 21/32   | 4 - 1/4 | 45A       | 45      |

## AN3C AIRFRAME BOLT CORROSION RESISTANT (10-32 Thread)

AN3C #A (Undrilled Shank)  
AN3C # (Drilled Shank)



| DESCRIPTION |         | AN3C      | AN3C    |
|-------------|---------|-----------|---------|
| Length      | Grip    | Undrilled | Drilled |
| 15/32       | 1/16    | 3A        | 3       |
| 17/32       | 1/8     | 4A        | 4       |
| 21/32       | 1/4     | 5A        | 5       |
| 25/32       | 3/8     | 6A        | 6       |
| 29/32       | 1/2     | 7A        | 7       |
| 1 - 1/32    | 5/8     | 10A       | 10      |
| 1 - 5/32    | 3/4     | 11A       | 11      |
| 1 - 9/32    | 7/8     | 12A       | 12      |
| 1 - 13/32   | 1       | 13A       | 13      |
| 1 - 17/32   | 1 - 1/8 | 14A       | 14      |
| 1 - 21/32   | 1 - 1/4 | 15A       | 15      |
| 1 - 25/32   | 1 - 3/8 | 16A       | 16      |

## AN3H AIRFRAME BOLT DRILLED HEAD (10-32 Thread)

AN3H#A (Undrilled Shank)  
AN3H# (Drilled Shank)



| DESCRIPTION |         | Undrilled | Drilled |
|-------------|---------|-----------|---------|
| Length      | Grip    | AN3H      | AN3H    |
| 15/32       | 1/16    | 3A        | 3       |
| 17/32       | 1/8     | 4A        | 4       |
| 21/32       | 1/4     | 5A        | 5       |
| 25/32       | 3/8     | 6A        | 6       |
| 29/32       | 1/2     | 7A        | 7       |
| 1 - 1/32    | 5/8     | 10A       | 10      |
| 1 - 5/32    | 3/4     | 11A       | 11      |
| 1 - 9/32    | 7/8     | 12A       | 12      |
| 1 - 13/32   | 1       | 13A       | 13      |
| 1 - 17/32   | 1 - 1/8 | 14A       | 14      |
| 1 - 21/32   | 1 - 1/4 | 15A       | 15      |
| 1 - 25/32   | 1 - 3/8 | 16A       | 16      |

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## AN4 AIRFRAME BOLT (1/4-28 Thread)

AN4-#A (Undrilled Shank)

AN4-# (Drilled Shank)



| DESCRIPTION |           | AN4       | AN4     |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 15/32       | 1/16      | 3A        | 3       |
| 17/32       | 1/16      | 4A        | 4       |
| 21/32       | 3/16      | 5A        | 5       |
| 25/32       | 5/16      | 6A        | 6       |
| 29/32       | 7/16      | 7A        | 7       |
| 1 - 1/32    | 9/16      | 10A       | 10      |
| 1 - 5/32    | 11/16     | 11A       | 11      |
| 1 - 9/32    | 13/16     | 12A       | 12      |
| 1 - 13/32   | 15/16     | 13A       | 13      |
| 1 - 17/32   | 1 - 1/16  | 14A       | 14      |
| 1 - 21/32   | 1 - 3/16  | 15A       | 15      |
| 1 - 25/32   | 1 - 5/16  | 16A       | 16      |
| 1 - 29/32   | 1 - 7/16  | 17A       | 17      |
| 2 - 1/32    | 1 - 9/16  | 20A       | 20      |
| 2 - 5/32    | 1 - 11/16 | 21A       | 21      |
| 2 - 9/32    | 1 - 13/16 | 22A       | 22      |
| 2 - 13/32   | 1 - 15/16 | 23A       | 23      |
| 2 - 17/32   | 2 - 1/16  | 24A       | 24      |
| 2 - 21/32   | 2 - 3/16  | 25A       | 25      |
| 2 - 25/32   | 2 - 5/16  | 26A       | 26      |
| 2 - 29/32   | 2 - 7/16  | 27A       | 27      |
| 3 - 1/32    | 2 - 9/16  | 30A       | 30      |
| 3 - 5/32    | 2 - 11/16 | 31A       | 31      |
| 3 - 9/32    | 2 - 13/16 | 32A       | 32      |
| 3 - 13/32   | 2 - 15/16 | 33A       | 33      |
| 3 - 17/32   | 3 - 1/16  | 34A       | 34      |
| 3 - 21/32   | 3 - 3/16  | 35A       | 35      |
| 3 - 25/32   | 3 - 5/16  | 36A       | 36      |
| 3 - 29/32   | 3 - 7/16  | 37A       | 37      |
| 4 - 1/32    | 3 - 9/16  | 40A       | 40      |
| 4 - 5/32    | 3 - 11/16 | 41A       | 41      |
| 4 - 9/32    | 3 - 13/16 | 42A       | 42      |
| 4 - 13/32   | 3 - 15/16 | 43A       | 43      |
| 4 - 17/32   | 4 - 1/16  | 44A       | 44      |
| 4 - 21/32   | 4 - 3/16  | 45A       | 45      |
| 4 - 25/32   | 4 - 5/16  | 46A       | 46      |
| 4 - 29/32   | 4 - 7/16  | 47A       | 47      |
| 5 - 1/32    | 4 - 9/16  | 50A       | 50      |
| 5 - 5/32    | 4 - 11/16 | 51A       | 51      |
| 5 - 9/32    | 4 - 13/16 | 52A       | 52      |
| 5 - 13/32   | 4 - 15/16 | 53A       | 53      |
| 5 - 17/32   | 5 - 1/16  | 54A       | 54      |
| 5 - 21/32   | 5 - 3/16  | 55A       | 55      |
| 5 - 25/32   | 5 - 5/16  | 56A       | 56      |
| 5 - 29/32   | 5 - 7/16  | 57A       | 57      |
| 6 - 1/32    | 5 - 9/16  | 60A       | 60      |
| 6 - 5/32    | 5 - 11/16 | 61A       | 61      |
| 6 - 9/32    | 5 - 13/16 | 62A       | 62      |

## AN4C AIRFRAME BOLT CORROSION RESISTANT (1/4-28 Thread)

AN4C-#A Undrilled Shank

AN4C-# Drilled Shank



| DESCRIPTION |           | AN4C-     | AN4C-   |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 15/32       | 1/16      | 3A        | 3       |
| 17/32       | 1/16      | 4A        | 4       |
| 21/32       | 3/16      | 5A        | 5       |
| 25/32       | 5/16      | 6A        | 6       |
| 29/32       | 7/16      | 7A        | 7       |
| 1 - 1/32    | 9/16      | 10A       | 10      |
| 1 - 5/32    | 11/16     | 11A       | 11      |
| 1 - 9/32    | 13/16     | 12A       | 12      |
| 1 - 13/32   | 15/16     | 13A       | 13      |
| 1 - 17/32   | 1 - 1/16  | 14A       | 14      |
| 1 - 21/32   | 1 - 3/16  | 15A       | 15      |
| 1 - 25/32   | 1 - 5/16  | 16A       | 16      |
| 1 - 29/32   | 1 - 7/16  | 17A       | 17      |
| 2 - 1/32    | 1 - 9/16  | 20A       | 20      |
| 2 - 5/32    | 1 - 11/16 | 21A       | 21      |
| 2 - 9/32    | 1 - 13/16 | 22A       | 22      |
| 2 - 13/32   | 1 - 15/16 | 23A       | 23      |
| 2 - 17/32   | 2 - 1/16  | 24A       | 24      |
| 2 - 25/32   | 2 - 5/16  | 26A       | 26      |

## AN4H AIRFRAME BOLT (1/4-28 Thread)

AN4H-#A Drilled Head

With Undrilled Shank



| DESCRIPTION |           | AN4H-#A   |
|-------------|-----------|-----------|
| Length      | Grip      | Undrilled |
| 15/32       | 1/16      | 3A        |
| 17/32       | 1/16      | 4A        |
| 21/32       | 3/16      | 5A        |
| 25/32       | 5/16      | 6A        |
| 29/32       | 7/16      | 7A        |
| 1 - 1/32    | 9/16      | 10A       |
| 1 - 5/32    | 11/16     | 11A       |
| 1 - 9/32    | 13/16     | 12A       |
| 1 - 13/32   | 15/16     | 13A       |
| 1 - 17/32   | 1 - 1/16  | 14A       |
| 1 - 21/32   | 1 - 3/16  | 15A       |
| 1 - 25/32   | 1 - 5/16  | 16A       |
| 1 - 29/32   | 1 - 7/16  | 17A       |
| 2 - 1/32    | 1 - 9/16  | 20A       |
| 2 - 5/32    | 1 - 11/16 | 21A       |
| 2 - 9/32    | 1 - 13/16 | 22A       |
| 2 - 13/32   | 1 - 15/16 | 23A       |
| 2 - 17/32   | 2 - 1/16  | 24A       |
| 2 - 21/32   | 2 - 3/16  | 25A       |
| 2 - 25/32   | 2 - 5/16  | 26A       |
| 2 - 29/32   | 2-7/16    | 27A       |
| 3 - 1/32    | 2-9/16    | 30A       |

## AN5 AIRFRAME BOLT (5/16-24 Thread)

AN5-#A (Undrilled Shank)

AN5-# (Drilled Shank)



| DESCRIPTION |           | AN5       | AN5     |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 19/32       | 1/16      | 4A        | 4       |
| 23/32       | 3/16      | 5A        | 5       |
| 27/32       | 5/16      | 6A        | 6       |
| 31/32       | 7/16      | 7A        | 7       |
| 1 - 3/32    | 9/16      | 10A       | 10      |
| 1 - 7/32    | 11/16     | 11A       | 11      |
| 1 - 11/32   | 13/16     | 12A       | 12      |
| 1 - 15/32   | 15/16     | 13A       | 13      |
| 1 - 19/32   | 1 - 1/16  | 14A       | 14      |
| 1 - 23/32   | 1 - 3/16  | 15A       | 15      |
| 1 - 27/32   | 1 - 5/16  | 16A       | 16      |
| 1 - 31/32   | 1 - 7/16  | 17A       | 17      |
| 2 - 3/32    | 1 - 9/16  | 20A       | 20      |
| 2 - 7/32    | 1 - 11/16 | 21A       | 21      |
| 2 - 11/32   | 1 - 13/16 | 22A       | 22      |
| 2 - 15/32   | 1 - 15/16 | 23A       | 23      |
| 2 - 19/32   | 2 - 1/16  | 24A       | 24      |
| 2 - 23/32   | 2 - 3/16  | 25A       | 25      |
| 2 - 27/32   | 2 - 5/16  | 26A       | 26      |
| 2 - 31/32   | 2 - 7/16  | 27A       | 27      |
| 3 - 3/32    | 2 - 9/16  | 30A       | 30      |
| 3 - 7/32    | 2 - 11/16 | 31A       | 31      |
| 3 - 11/32   | 2 - 13/16 | 32A       | 32      |
| 3 - 15/32   | 2 - 15/16 | 33A       | 33      |
| 3 - 19/32   | 3 - 1/16  | 34A       | 34      |
| 3 - 23/32   | 3 - 3/16  | 35A       | 35      |
| 3 - 27/32   | 3 - 5/16  | 36A       | 36      |
| 3 - 31/32   | 3 - 7/16  | 37A       | 37      |
| 4 - 3/32    | 3 - 9/16  | 40A       | 40      |
| 4 - 7/32    | 3 - 11/16 | 41A       | 41      |
| 4 - 11/32   | 3 - 13/16 | 42A       | 42      |
| 4 - 15/32   | 3 - 15/16 | 43A       | 43      |
| 4 - 19/32   | 4 - 1/16  | 44A       | 44      |
| 4 - 23/32   | 4 - 3/16  | 45A       | 45      |
| 4 - 27/32   | 4 - 5/16  | 46A       | 46      |
| 4 - 31/32   | 4 - 7/16  | 47A       | 47      |
| 5 - 3/32    | 4 - 9/16  | 50A       | 50      |
| 5 - 7/32    | 4 - 11/16 | 51A       | 51      |
| 5 - 11/32   | 4 - 13/16 | 52A       | 52      |
| 5 - 15/32   | 4 - 15/16 | 53A       | 53      |
| 5 - 19/32   | 5 - 1/16  | 54A       | 54      |
| 5 - 23/32   | 5 - 3/16  | 55A       | 55      |
| 5 - 27/32   | 5 - 5/16  | 56A       | 56      |
| 5 - 31/32   | 5 - 7/16  | 57A       | 57      |

## AN6 AIRFRAME BOLT (3/8-24 Thread)

AN6-#A (Undrilled Shank)

AN6-# (Drilled Shank)



| DESCRIPTION |           | AN6       | AN6     |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 45/64       | 1/16      | 5A        | 5       |
| 53/64       | 3/16      | 6A        | 6       |
| 61/64       | 5/16      | 7A        | 7       |
| 1 - 5/64    | 7/16      | 10A       | 10      |
| 1 - 13/64   | 9/16      | 11A       | 11      |
| 1 - 21/64   | 11/16     | 12A       | 12      |
| 1 - 29/64   | 13/16     | 13A       | 13      |
| 1 - 37/64   | 15/16     | 14A       | 14      |
| 1 - 45/64   | 1 - 1/16  | 15A       | 15      |
| 1 - 53/64   | 1 - 3/16  | 16A       | 16      |
| 1 - 61/64   | 1 - 5/16  | 17A       | 17      |
| 2 - 5/64    | 1 - 7/16  | 20A       | 20      |
| 2 - 13/64   | 1 - 9/16  | 21A       | 21      |
| 2 - 21/64   | 1 - 11/16 | 22A       | 22      |
| 2 - 29/64   | 1 - 13/16 | 23A       | 23      |
| 2 - 37/64   | 1 - 15/16 | 24A       | 24      |
| 2 - 45/64   | 2 - 1/16  | 25A       | 25      |
| 2 - 53/64   | 2 - 3/16  | 26A       | 26      |
| 2 - 61/64   | 2 - 5/16  | 27A       | 27      |
| 3 - 5/64    | 2 - 7/16  | 30A       | 30      |
| 3 - 13/64   | 2 - 9/16  | 31A       | 31      |
| 3 - 21/64   | 2 - 11/16 | 32A       | 32      |
| 3 - 29/64   | 2 - 13/16 | 33A       | 33      |
| 3 - 37/64   | 2 - 15/16 | 34A       | 34      |
| 3 - 45/64   | 3 - 1/16  | 35A       | 35      |
| 3 - 53/64   | 3 - 3/16  | 36A       | 36      |
| 3 - 61/64   | 3 - 5/16  | 37A       | 37      |
| 4 - 5/64    | 3 - 7/16  | 40A       | 40      |
| 4 - 13/64   | 3 - 9/16  | 41A       | 41      |
| 4 - 21/64   | 3 - 11/16 | 42A       | 42      |
| 4 - 29/64   | 3 - 13/16 | 43A       | 43      |
| 4 - 37/64   | 3 - 15/16 | 44A       | 44      |
| 4 - 45/64   | 4 - 1/16  | 45A       | 45      |
| 4 - 53/64   | 4 - 3/16  | 46A       | 46      |
| 4 - 61/64   | 4 - 5/16  | 47A       | 47      |
| 5 - 5/64    | 4 - 7/16  | 50A       | 50      |
| 5 - 13/64   | 4 - 9/16  | 51A       | 51      |
| 5 - 21/64   | 4 - 11/16 | 52A       | 52      |
| 5 - 29/64   | 4 - 13/16 | 53A       | 53      |
| 5 - 37/64   | 4 - 15/16 | 54A       | 54      |
| 5 - 45/64   | 5 - 1/16  | 55A       | 55      |
| 5 - 53/64   | 5 - 3/16  | 56A       | 56      |
| 5 - 61/64   | 5 - 5/16  | 57A       | 57      |
| 6 - 5/64    | 5 - 7/16  | 60A       | 60      |
| 6 - 13/64   | 5 - 9/16  | 61A       | 61      |
| 6 - 29/64   | 5 - 13/16 | 63A       | 63      |

## AN5H#A (5/16-24 Thread)

Drilled Head, Undrilled Shank

## AN5C#A (5/16-24 Thread)

Corrosion Resistant Steel

## AN6H#A (3/8-24 Thread)

Drilled Head, Undrilled Shank

## AN6C#A (3/8-24 Thread)

Corrosion Resistant Steel

## AN7 AIRFRAME BOLT (7/16-20 Thread)

AN7-#A (Undrilled Shank)

AN7-# (Drilled Shank)



| DESCRIPTION |           | AN7       | AN7     |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 1 - 3/32    | 7/16      | 10A       | 10      |
| 1 - 7/32    | 9/16      | 11A       | 11      |
| 1 - 11/32   | 11/16     | 12A       | 12      |
| 1 - 15/32   | 13/16     | 13A       | 13      |
| 1 - 19/32   | 15/16     | 14A       | 14      |
| 1 - 23/32   | 1 - 1/16  | 15A       | 15      |
| 1 - 27/32   | 1 - 3/16  | 16A       | 16      |
| 1 - 31/32   | 1 - 5/16  | 17A       | 17      |
| 2 - 3/32    | 1 - 7/16  | 20A       | 20      |
| 2 - 7/32    | 1 - 9/16  | 21A       | 21      |
| 2 - 11/32   | 1 - 11/16 | 22A       | 22      |
| 2 - 15/32   | 1 - 13/16 | 23A       | 23      |
| 2 - 19/32   | 1 - 15/16 | 24A       | 24      |
| 2 - 23/32   | 2 - 1/16  | 25A       | 25      |
| 2 - 27/32   | 2 - 3/16  | 26A       | 26      |
| 2 - 31/32   | 2 - 5/16  | 27A       | 27      |
| 3 - 3/32    | 2 - 7/16  | 30A       | 30      |
| 3 - 7/32    | 2 - 9/16  | 31A       | 31      |
| 3 - 11/32   | 2 - 11/16 | 32A       | 32      |
| 3 - 15/32   | 2 - 13/16 | 33A       | 33      |
| 3 - 19/32   | 2 - 15/16 | 34A       | 34      |
| 3 - 23/32   | 3 - 1/16  | 35A       | 35      |
| 3 - 27/32   | 3 - 3/16  | 36A       | 36      |
| 3 - 31/32   | 3 - 5/16  | 37A       | 37      |
| 4 - 3/32    | 3 - 7/16  | 40A       | 40      |
| 4 - 7/32    | 3 - 9/16  | 41A       | 41      |
| 4 - 11/32   | 3 - 11/16 | 42A       | 42      |
| 4 - 15/32   | 3 - 13/16 | 43A       | 43      |
| 4 - 19/32   | 3 - 15/16 | 44A       | 44      |
| 4 - 23/32   | 4 - 1/16  | 45A       | 45      |
| 4 - 27/32   | 4 - 3/16  | 46A       | 46      |
| 4 - 31/32   | 4 - 5/16  | 47A       | 47      |
| 5 - 3/32    | 4 - 7/16  | 50A       | 50      |
| 5 - 7/32    | 4 - 9/16  | 51A       | 51      |
| 5 - 11/32   | 4 - 11/16 | 52A       | 52      |
| 5 - 15/32   | 4 - 13/16 | 53A       | 53      |
| 5 - 19/32   | 4 - 15/16 | 54A       | 54      |
| 5 - 23/32   | 5 - 1/16  | 55A       | 55      |
| 5 - 27/32   | 5 - 3/16  | 56A       | 56      |
| 5 - 31/32   | 5 - 5/16  | 57A       | 57      |
| 6 - 3/32    | 5 - 7/16  | 60A       | 60      |

## AN8 AIRFRAME BOLT (1/2-20 Thread)

AN8-#A

(Undrilled Shank)

AN8-#

(Drilled Shank)



| DESCRIPTION |           | AN8       | AN8     |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 1 - 7/32    | 7/16      | 11A       | 11      |
| 1 - 11/32   | 9/16      | 12A       | 12      |
| 1 - 15/32   | 11/16     | 13A       | 13      |
| 1 - 19/32   | 13/16     | 14A       | 14      |
| 1 - 23/32   | 15/16     | 15A       | 15      |
| 1 - 27/32   | 1 - 1/16  | 16A       | 16      |
| 1 - 31/32   | 1 - 3/16  | 17A       | 17      |
| 2 - 3/32    | 1 - 5/16  | 20A       | 20      |
| 2 - 7/32    | 1 - 7/16  | 21A       | 21      |
| 2 - 11/32   | 1 - 9/16  | 22A       | 22      |
| 2 - 15/32   | 1 - 11/16 | 23A       | 23      |
| 2 - 19/32   | 1 - 13/16 | 24A       | 24      |
| 2 - 23/32   | 1 - 15/16 | 25A       | 25      |
| 2 - 27/32   | 2 - 1/16  | 26A       | 26      |
| 2 - 31/32   | 2 - 3/16  | 27A       | 27      |
| 3 - 3/32    | 2 - 5/16  | 30A       | 30      |
| 3 - 7/32    | 2 - 7/16  | 31A       | 31      |
| 3 - 11/32   | 2 - 9/16  | 32A       | 32      |
| 3 - 15/32   | 2 - 11/16 | 33A       | 33      |
| 3 - 19/32   | 2 - 13/16 | 34A       | 34      |
| 3 - 23/32   | 2 - 15/16 | 35A       | 35      |
| 3 - 27/32   | 3 - 1/16  | 36A       | 36      |
| 3 - 31/32   | 3 - 3/16  | 37A       | 37      |
| 4 - 3/32    | 3 - 5/16  | 40A       | 40      |
| 4 - 7/32    | 3 - 7/16  | 41A       | 41      |
| 4 - 11/32   | 3 - 9/16  | 42A       | 42      |
| 4 - 15/32   | 3 - 11/16 | 43A       | 43      |
| 4 - 19/32   | 3 - 13/16 | 44A       | 44      |
| 4 - 23/32   | 3 - 15/16 | 45A       | 45      |
| 4 - 27/32   | 4 - 1/16  | 46A       | 46      |
| 4 - 31/32   | 4 - 3/16  | 47A       | 47      |
| 5 - 3/32    | 4 - 5/16  | 50A       | 50      |
| 5 - 7/32    | 4 - 7/16  | 51A       | 51      |
| 5 - 11/32   | 4 - 9/16  | 52A       | 52      |

### AN173

Close Tolerance Bolt  
.1900-32 Thread  
"A" Following Dash #  
Indicates Undrilled Shank



| Description |         | AN173     | AN173   |
|-------------|---------|-----------|---------|
| Length      | Grip    | Undrilled | Drilled |
| 15/32       | 1/16    | 3A        | 3       |
| 17/32       | 1/8     | 4A        | 4       |
| 21/32       | 1/4     | 5A        | 5       |
| 25/32       | 3/8     | 6A        | 6       |
| 29/32       | 1/2     | 7A        | 7       |
| 1 - 1/32    | 5/8     | 10A       | 10      |
| 1 - 5/32    | 3/4     | 11A       | 11      |
| 1 - 9/32    | 7/8     | 12A       | 12      |
| 1 - 13/32   | 1       | 13A       | 13      |
| 1 - 17/32   | 1 - 1/8 | 14A       | 14      |
| 1 - 21/32   | 1 - 1/4 | 15A       | 15      |
| 1 - 25/32   | 1 - 3/8 | 16A       | 16      |
| 1 - 29/32   | 1 - 1/2 | 17A       | 17      |
| 2 - 1/32    | 1 - 5/8 | 20A       | 20      |

### AN174

Close Tolerance Bolt  
.2500-28 Thread  
"A" Following Dash #  
Indicates Undrilled Shank



| Description |           | AN174     | AN174   |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 21/32       | 3/16      | 5A        | 5       |
| 25/32       | 5/16      | 6A        | 6       |
| 29/32       | 7/16      | 7A        | 7       |
| 1 - 1/32    | 9/16      | 10A       | 10      |
| 1 - 5/32    | 11/16     | 11A       | 11      |
| 1 - 9/32    | 13/16     | 12A       | 12      |
| 1 - 13/32   | 15/16     | 13A       | 13      |
| 1 - 17/32   | 1 - 1/16  | 14A       | 14      |
| 1 - 21/32   | 1 - 3/16  | 15A       | 15      |
| 1 - 25/32   | 1 - 5/16  | 16A       | 16      |
| 1 - 29/32   | 1 - 7/16  | 17A       | 17      |
| 2 - 1/32    | 1 - 9/16  | 20A       | 20      |
| 2 - 5/32    | 1 - 11/16 | 21A       | 21      |
| 2 - 9/32    | 1 - 13/16 | 22A       | 22      |
| 2 - 13/32   | 1 - 15/16 | 23A       | 23      |
| 2 - 17/32   | 2 - 1/16  | 24A       | 24      |
| 2 - 21/32   | 2 - 3/16  | 25A       | 25      |
| 2 - 25/32   | 2 - 5/16  | 26A       | 26      |
| 2 - 29/32   | 2 - 7/16  | 27A       | 27      |
| 3 - 1/32    | 2 - 9/16  | 30A       | 30      |
| 3 - 5/32    | 2 - 11/16 | 31A       | 31      |
| 3 - 9/32    | 2 - 13/16 | 32A       | 32      |
| 3 - 13/32   | 2 - 15/16 | 33A       | 33      |
| 3 - 17/32   | 3 - 1/16  | 34A       | 34      |
| 3 - 21/32   | 3 - 3/16  | 35A       | 35      |

### AN175

Close Tolerance Bolt  
.3125-24 Thread  
"A" Following Dash #  
Indicates Undrilled Shank



| Description |           | AN175     | AN175   |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 1 - 3/32    | 9/16      | 10A       | 10      |
| 1 - 7/32    | 11/16     | 11A       | 11      |
| 1 - 11/32   | 13/16     | 12A       | 12      |
| 1 - 15/32   | 15/16     | 13A       | 13      |
| 1 - 19/32   | 1 - 1/16  | 14A       | 14      |
| 1 - 23/32   | 1 - 3/16  | 15A       | 15      |
| 1 - 27/32   | 1 - 5/16  | 16A       | 16      |
| 1 - 31/32   | 1 - 7/16  | 17A       | 17      |
| 2 - 3/32    | 1 - 9/16  | 20A       | 20      |
| 2 - 7/32    | 1 - 11/16 | 21A       | 21      |
| 2 - 11/32   | 1 - 13/16 | 22A       | 22      |
| 2 - 15/32   | 1 - 15/16 | 23A       | 23      |
| 2 - 19/32   | 2 - 1/16  | 24A       | 24      |
| 2 - 23/32   | 2 - 3/16  | 25A       | 25      |
| 2 - 27/32   | 2 - 5/16  | 26A       | 26      |
| 2 - 31/32   | 2 - 7/16  | 27A       | 27      |
| 3 - 3/32    | 2 - 9/16  | 30A       | 30      |
| 3 - 7/32    | 2 - 11/16 | 31A       | 31      |
| 3 - 11/32   | 2 - 13/16 | 32A       | 32      |
| 3 - 15/32   | 2 - 15/16 | 33A       | 33      |

### AN176

Close Tolerance Bolt  
.3750-24 Thread  
"A" Following Dash #  
Indicates Undrilled Shank



| Description |           | AN176     | AN176   |
|-------------|-----------|-----------|---------|
| Length      | Grip      | Undrilled | Drilled |
| 1 - 5/64    | 7/16      | 10A       | 10      |
| 1 - 13/64   | 9/16      | 11A       | 11      |
| 1 - 21/64   | 11/16     | 12A       | 12      |
| 1 - 29/64   | 13/16     | 13A       | 13      |
| 1 - 37/64   | 15/16     | 14A       | 14      |
| 1 - 45/64   | 1 - 1/16  | 15A       | 15      |
| 1 - 53/64   | 1 - 3/16  | 16A       | 16      |
| 1 - 61/64   | 1 - 5/16  | 17A       | 17      |
| 2 - 5/64    | 1 - 7/16  | 20A       | 20      |
| 2 - 13/64   | 1 - 9/16  | 21A       | 21      |
| 2 - 21/64   | 1 - 11/16 | 22A       | 22      |
| 2 - 29/64   | 1 - 13/16 | 23A       | 23      |

Special Note: Uncommon AN175 & AN176 bolts may require a leadtime and factory minimums. Stock availability may be subject to a prior sale and significant price fluctuations.



## SPECIALTY CLOSE TOLERANCE BOLTS

"A" Following Dash Number Indicates Undrilled Shank

"C" Following Basic Part Number Indicates Corrosion Resistant Steel

"H" Following Basic Part Number Indicates Drilled Head



| Length    | Grip      | Part #    |
|-----------|-----------|-----------|
| 5/8       | 1/4       | AN173C5   |
| 5/8       | 1/4       | AN173C5A  |
| 3/4       | 3/8       | AN173C6A  |
| 1         | 5/8       | AN173C10A |
| 1 - 1/4   | 7/8       | AN173C12A |
| 7/8       | 7/16      | AN174C7A  |
| 5/8       | 3/16      | AN174H5A  |
| 3/4       | 5/16      | AN174H6A  |
| 7/8       | 7/16      | AN174H7A  |
| 1         | 9/16      | AN174H10A |
| 1 - 1/8   | 11/16     | AN174H11A |
| 1 - 1/4   | 13/16     | AN174H12A |
| 1 - 3/8   | 15/16     | AN174H13A |
| 1 - 17/32 | 1 - 1/16  | AN174H14A |
| 1 - 3/4   | 1 - 5/16  | AN174H16A |
| 2 - 1/4   | 1 - 13/16 | AN174H22A |
| 3 - 7/32  | 2 - 11/16 | AN175C32A |
| 2 - 9/32  | 2 - 3/16  | AN176-26  |
| 4 - 11/32 | 3 - 11/16 | AN176-42  |
| 5 - 3/64  | 4 - 7/16  | AN176-50  |
| 5 - 11/64 | 4 - 9/16  | AN176-51  |
| 9/32      | 3/16      | AN176H7A  |
| 2 - 5/16  | 1 - 11/16 | AN177-22  |
| 2 - 13/16 | 2 - 3/16  | AN177-26  |
| 2 - 15/16 | 2 - 5/16  | AN177-27  |
| 3 - 7/16  | 2 - 13/16 | AN177-33  |
| 3 - 15/16 | 3 - 5/16  | AN177-37  |
| 4 - 5/16  | 3 - 11/16 | AN177-42  |
| 2 - 13/16 | 2 - 1/16  | AN178-26  |
| 4 - 1/16  | 3 - 5/16  | AN178-40  |

## EYE BOLT

AN42B, AN43B

"A" Following Dash # Indicates  
Undrilled Shank



| Length    | Grip    | AN42B | Length    | Grip     | AN43B |
|-----------|---------|-------|-----------|----------|-------|
| 15/32     | 1/6     | 3A    | ---       | ---      | 3A    |
| 17/32     | 1/8     | 4A    | 17/32     | 1/16     | 4A    |
| 21/32     | 1/4     | 5A    | 21/32     | 3/16     | 5A    |
| 25/32     | 3/8     | 6A    | 25/32     | 5/16     | 6A    |
| 29/32     | 1/2     | 7A    | 29/32     | 7/16     | 7A    |
| 1 - 1/32  | 5/8     | 10A   | 1 - 1/32  | 9/16     | 10A   |
| 1 - 5/32  | 3/4     | 11A   | 1 - 5/32  | 11/16    | 11A   |
| 1 - 9/32  | 7/8     | 12A   | 1 - 9/32  | 13/16    | 12A   |
| 1 - 13/32 | 1       | 13A   | 1 - 13/32 | 15/16    | 13A   |
| 1 - 17/32 | 1 - 1/8 | 14A   | 1 - 17/32 | 1 - 1/16 | 14A   |
| 1 - 21/32 | 1 - 1/4 | 15A   | 1 - 21/32 | 1 - 3/16 | 15A   |
| 1 - 25/32 | 1 - 3/8 | 16A   | 1 - 25/32 | 1 - 5/16 | 16A   |
| 1 - 29/32 | 1 - 1/2 | 17A   | 1 - 29/32 | 1 - 7/16 | 17A   |
| 2 - 1/32  | 1 - 5/8 | 20A   | 2 - 1/32  | 1 - 9/16 | 20A   |

## CLEVIS BOLT

AN23-#A (10-32 Undrilled Shank) AN24-#A (1/4-28 Undrilled Shank)  
AN23-# (10-32 Drilled Shank) AN24-# (1/4-28 Drilled Shank)



| Length    | Grip     | AN23      |         | AN24      |         |
|-----------|----------|-----------|---------|-----------|---------|
|           |          | Undrilled | Drilled | Undrilled | Drilled |
| 17/32     | 3/16     | 8A        | 8       | 8A        | 8       |
| 19/32     | 1/4      | 9A        | 9       | 9A        | 9       |
| 21/32     | 5/16     | 10A       | 10      | 10A       | 10      |
| 23/32     | 3/8      | 11A       | 11      | 11A       | 11      |
| 25/32     | 7/16     | 12A       | 12      | 12A       | 12      |
| 27/32     | 1/2      | 13A       | 13      | 13A       | 13      |
| 29/32     | 9/16     | 14A       | 14      | 14A       | 14      |
| 31/32     | 5/8      | 15A       | 15      | 15A       | 15      |
| 1 - 1/32  | 11/16    | 16A       | 16      | 16A       | 16      |
| 1 - 3/32  | 3/4      | 17A       | 17      | 17A       | 17      |
| 1 - 5/32  | 13/16    | 18A       | 18      | 18A       | 18      |
| 1 - 7/32  | 7/8      | 19A       | 19      | 19A       | 19      |
| 1 - 9/32  | 15/16    | 20A       | 20      | 20A       | 20      |
| 1 - 11/32 | 1        | 21A       | 21      | 21A       | 21      |
| 1 - 13/32 | 1 - 1/16 | 22A       | 22      | 22A       | 22      |
| 1 - 15/32 | 1 - 1/8  | 23A       | 23      | 23A       | 23      |
| 1 - 17/32 | 1 - 3/16 | 24A       | 24      | 24A       | 24      |
| 1 - 19/32 | 1 - 1/4  | 25A       | 25      | 25A       | 25      |
| 1 - 21/32 | 1 - 5/16 | 26A       | 26      | 26A       | 26      |
| 1 - 23/32 | 1 - 3/8  | 27A       | 27      | 27A       | 27      |
| 1 - 27/32 | 1 - 1/2  | 29A       | 29      | 29A       | 29      |
| 1 - 31/32 | 1 - 5/8  | 31A       | 31      | 31A       | 31      |
| 2 - 17/32 | 2 - 3/16 | 40A       | 40      | 40A       | 40      |

## CLEVIS PIN

MS20392-1C, MS20392-2C, MS20392-3C



| Effective Length | MS20392 | MS20392 | MS20392 |
|------------------|---------|---------|---------|
| .219             | 1C7     | 2C7     | --      |
| .281             | 1C9     | 2C9     | --      |
| .344             | 1C11    | 2C11    | 3C11    |
| .406             | 1C13    | 2C13    | 3C13    |
| .469             | 1C15    | 2C15    | 3C15    |
| .531             | 1C17    | 2C17    | 3C17    |
| .594             | 1C19    | 2C19    | 3C19    |
| .656             | 1C21    | 2C21    | 3C21    |
| .719             | 1C23    | 2C23    | 3C23    |
| .781             | 1C25    | 2C25    | 3C25    |
| .844             | 1C27    | 2C27    | 3C27    |
| .906             | 1C29    | 2C29    | 3C29    |
| .969             | 1C31    | 2C31    | 3C31    |
| 1.031            | 1C33    | 2C33    | 3C33    |
| 1.094            | 1C35    | 2C35    | 3C35    |
| 1.156            | 1C37    | 2C37    | 3C37    |
| 1.219            | 1C39    | 2C39    | 3C39    |
| 1.281            | 1C41    | 2C41    | 3C41    |
| 1.344            | 1C43    | 2C43    | 3C43    |
| 1.406            | 1C45    | 2C45    | 3C45    |
| 1.469            | 1C47    | 2C47    | 3C47    |
| 1.531            | 1C49    | 2C49    | 3C49    |
| 1.656            | 1C53    | 2C53    | 3C53    |
| 1.719            | 1C55    | 2C55    | 3C55    |
| 1.781            | 1C57    | 2C57    | 3C57    |
| 1.969            | 1C63    | 2C63    | 3C63    |

## NAS6203

Close Tolerance Bolt

.1900-32 Thread

"D" Following Dash # for Drilled Shank

"H" Following Dash # for Drilled Head



| Description |            | NAS6203   | NAS6203 |
|-------------|------------|-----------|---------|
| Length      | Grip ±.010 | Undrilled | Drilled |
| .385        | .062       | 1         | 1D      |
| .448        | .125       | 2         | 2D      |
| .511        | .188       | 3         | 3D      |
| .573        | .250       | 4         | 4D      |
| .635        | .312       | 5         | 5D      |
| .698        | .375       | 6         | 6D      |
| .761        | .438       | 7         | 7D      |
| .823        | .500       | 8         | 8D      |
| .885        | .562       | 9         | 9D      |
| .948        | .625       | 10        | 10D     |
| 1.011       | .688       | 11        | 11D     |
| 1.073       | .750       | 12        | 12D     |
| 1.135       | .812       | 13        | 13D     |
| 1.198       | .875       | 14        | 14D     |
| 1.261       | .938       | 15        | 15D     |
| 1.323       | 1.000      | 16        | 16D     |
| 1.385       | 1.062      | 17        | 17D     |
| 1.448       | 1.125      | 18        | 18D     |
| 1.511       | 1.188      | 19        | 19D     |
| 1.573       | 1.250      | 20        | 20D     |
| 1.635       | 1.312      | 21        | 21D     |
| 1.698       | 1.375      | 22        | 22D     |
| 1.761       | 1.438      | 23        | 23D     |
| 1.823       | 1.500      | 24        | 24D     |
| 1.885       | 1.562      | 25        | 25D     |
| 1.948       | 1.625      | 26        | 26D     |
| 2.011       | 1.688      | 27        | 27D     |
| 2.073       | 1.750      | 28        | 28D     |
| 2.135       | 1.812      | 29        | 29D     |
| 2.198       | 1.875      | 30        | 30D     |
| 2.261       | 1.938      | 31        | 31D     |
| 2.323       | 2.000      | 32        | 32D     |
| 2.448       | 2.125      | 34        | 34D     |
| 2.573       | 2.250      | 36        | 36D     |
| 2.698       | 2.375      | 38        | 38D     |

Supersedes NAS464P3 and NAS1103 Series

## NAS6204

Close Tolerance Bolt

.2500-28 Thread

"D" Following Dash # for Drilled Shank

"H" Following Dash # for Drilled Head



| Description |            | NAS6204   | NAS6204 |
|-------------|------------|-----------|---------|
| Length      | Grip ±.010 | Undrilled | Drilled |
| .432        | .062       | 1         | 1D      |
| .495        | .125       | 2         | 2D      |
| .558        | .188       | 3         | 3D      |
| .620        | .250       | 4         | 4D      |
| .682        | .312       | 5         | 5D      |
| .745        | .375       | 6         | 6D      |
| .808        | .438       | 7         | 7D      |
| .870        | .500       | 8         | 8D      |
| .932        | .562       | 9         | 9D      |
| .995        | .625       | 10        | 10D     |
| 1.058       | .688       | 11        | 11D     |
| 1.120       | .750       | 12        | 12D     |
| 1.182       | .812       | 13        | 13D     |
| 1.245       | .875       | 14        | 14D     |
| 1.308       | .938       | 15        | 15D     |
| 1.370       | 1.000      | 16        | 16D     |
| 1.432       | 1.062      | 17        | 17D     |
| 1.495       | 1.125      | 18        | 18D     |
| 1.558       | 1.188      | 19        | 19D     |
| 1.620       | 1.250      | 20        | 20D     |
| 1.682       | 1.312      | 21        | 21D     |
| 1.745       | 1.375      | 22        | 22D     |
| 1.808       | 1.438      | 23        | 23D     |
| 1.870       | 1.500      | 24        | 24D     |
| 1.932       | 1.562      | 25        | 25D     |
| 1.995       | 1.625      | 26        | 26D     |
| 2.058       | 1.688      | 27        | 27D     |
| 2.120       | 1.750      | 28        | 28D     |
| 2.182       | 1.812      | 29        | 29D     |
| 2.245       | 1.875      | 30        | 30D     |
| 2.308       | 1.938      | 31        | 31D     |
| 2.370       | 2.000      | 32        | 32D     |
| 2.495       | 2.125      | 34        | 34D     |
| 2.620       | 2.250      | 36        | 36D     |
| 2.745       | 2.375      | 38        | 38D     |
| 2.870       | 2.500      | 40        | 40D     |
| 2.995       | 2.625      | 42        | 42D     |
| 3.120       | 2.750      | 44        | 44D     |
| 3.245       | 2.875      | 46        | 46D     |
| 3.370       | 3.000      | 48        | 48D     |
| 3.495       | 3.125      | 50        | 50D     |
| 3.620       | 3.250      | 52        | 52D     |
| 3.745       | 3.375      | 54        | 54D     |
| 3.870       | 3.500      | 56        | 56D     |

Supersedes NAS464P4 and NAS1104 Series

## NAS6205

Close Tolerance Bolt

.3125-24 Thread

"D" Following Dash # for Drilled Shank

"H" Following Dash # for Drilled Head



| Description |                 | NAS6205   | NAS6205 |
|-------------|-----------------|-----------|---------|
| Length      | Grip $\pm .010$ | Undrilled | Drilled |
| .563        | .125            | 2         | 2D      |
| .626        | .188            | 3         | 3D      |
| .688        | .250            | 4         | 4D      |
| .750        | .312            | 5         | 5D      |
| .813        | .375            | 6         | 6D      |
| .876        | .438            | 7         | 7D      |
| .938        | .500            | 8         | 8D      |
| 1.000       | .562            | 9         | 9D      |
| 1.063       | .625            | 10        | 10D     |
| 1.126       | .688            | 11        | 11D     |
| 1.188       | .750            | 12        | 12D     |
| 1.250       | .812            | 13        | 13D     |
| 1.313       | .875            | 14        | 14D     |
| 1.376       | .938            | 15        | 15D     |
| 1.438       | 1.000           | 16        | 16D     |
| 1.500       | 1.062           | 17        | 17D     |
| 1.563       | 1.125           | 18        | 18D     |
| 1.626       | 1.188           | 19        | 19D     |
| 1.688       | 1.250           | 20        | 20D     |
| 1.750       | 1.312           | 21        | 21D     |
| 1.813       | 1.375           | 22        | 22D     |
| 1.876       | 1.438           | 23        | 23D     |
| 1.938       | 1.500           | 24        | 24D     |
| 2.000       | 1.562           | 25        | 25D     |
| 2.063       | 1.625           | 26        | 26D     |
| 2.126       | 1.688           | 27        | 27D     |
| 2.188       | 1.750           | 28        | 28D     |
| 2.250       | 1.812           | 29        | 29D     |
| 2.313       | 1.875           | 30        | 30D     |
| 2.376       | 1.938           | 31        | 31D     |
| 2.438       | 2.000           | 32        | 32D     |
| 2.563       | 2.125           | 34        | 34D     |
| 2.688       | 2.250           | 36        | 36D     |
| 2.813       | 2.375           | 38        | 38D     |
| 2.938       | 2.500           | 40        | 40D     |

## NAS6206

Close Tolerance Bolt

.3750-24 Thread

"D" Following Dash # for Drilled Shank

"H" Following Dash # for Drilled Head



| Description |                 | NAS6206   | NAS6206 |
|-------------|-----------------|-----------|---------|
| Length      | Grip $\pm .010$ | Undrilled | Drilled |
| .642        | .188            | 3         | 3D      |
| .704        | .250            | 4         | 4D      |
| .766        | .312            | 5         | 5D      |
| .829        | .375            | 6         | 6D      |
| .892        | .438            | 7         | 7D      |
| .954        | .500            | 8         | 8D      |
| 1.016       | .562            | 9         | 9D      |
| 1.079       | .625            | 10        | 10D     |
| 1.142       | .688            | 11        | 11D     |
| 1.204       | .750            | 12        | 12D     |
| 1.266       | .812            | 13        | 13D     |
| 1.329       | .875            | 14        | 14D     |
| 1.392       | .938            | 15        | 15D     |
| 1.454       | 1.000           | 16        | 16D     |
| 1.516       | 1.062           | 17        | 17D     |
| 1.579       | 1.125           | 18        | 18D     |
| 1.642       | 1.188           | 19        | 19D     |
| 1.704       | 1.250           | 20        | 20D     |
| 1.766       | 1.312           | 21        | 21D     |
| 1.829       | 1.375           | 22        | 22D     |
| 1.892       | 1.438           | 23        | 23D     |
| 1.954       | 1.500           | 24        | 24D     |
| 2.016       | 1.562           | 25        | 25D     |
| 2.079       | 1.625           | 26        | 26D     |
| 2.142       | 1.688           | 27        | 27D     |
| 2.204       | 1.750           | 28        | 28D     |
| 2.266       | 1.812           | 29        | 29D     |
| 2.329       | 1.875           | 30        | 30D     |
| 2.392       | 1.938           | 31        | 31D     |
| 2.454       | 2.000           | 32        | 32D     |
| 2.579       | 2.125           | 34        | 34D     |
| 2.704       | 2.250           | 36        | 36D     |
| 2.829       | 2.375           | 38        | 38D     |
| 2.954       | 2.500           | 40        | 40D     |

Supersedes NAS464P5 Series and NAS1105 Series

Supersedes NAS464P6 Series and NAS1106 Series

## NAS6603

Close Tolerance Bolt

.1900-32 Thread

"D" Following Base # for Drilled Shank

"H" Following Base # for Drilled Head



| Description |                 | NAS6603   | NAS6603 |
|-------------|-----------------|-----------|---------|
| Length      | Grip $\pm .010$ | Undrilled | Drilled |
| .407        | .062            | 1         | D1      |
| .470        | .125            | 2         | D2      |
| .533        | .188            | 3         | D3      |
| .595        | .250            | 4         | D4      |
| .657        | .312            | 5         | D5      |
| .720        | .375            | 6         | D6      |
| .783        | .438            | 7         | D7      |
| .845        | .500            | 8         | D8      |
| .907        | .562            | 9         | D9      |
| .970        | .625            | 10        | D10     |
| 1.033       | .688            | 11        | D11     |
| 1.095       | .750            | 12        | D12     |
| 1.157       | .812            | 13        | D13     |
| 1.220       | .875            | 14        | D14     |
| 1.283       | .938            | 15        | D15     |
| 1.345       | 1.000           | 16        | D16     |
| 1.407       | 1.062           | 17        | D17     |
| 1.470       | 1.125           | 18        | D18     |
| 1.533       | 1.188           | 19        | D19     |
| 1.595       | 1.250           | 20        | D20     |
| 1.657       | 1.312           | 21        | D21     |
| 1.720       | 1.375           | 22        | D22     |
| 1.783       | 1.438           | 23        | D23     |
| 1.845       | 1.500           | 24        | D24     |
| 1.907       | 1.562           | 25        | D25     |
| 1.970       | 1.625           | 26        | D26     |
| 2.033       | 1.688           | 27        | D27     |
| 2.095       | 1.750           | 28        | D28     |
| 2.157       | 1.812           | 29        | D29     |
| 2.220       | 1.875           | 30        | D30     |
| 2.283       | 1.938           | 31        | D31     |
| 2.345       | 2.000           | 32        | D32     |
| 2.470       | 2.125           | 34        | D34     |
| 2.595       | 2.250           | 36        | D36     |
| 2.720       | 2.375           | 38        | D38     |

Supersedes NAS1303 Series

## NAS6604

Close Tolerance Bolt

.2500-28 Thread

"D" Following Base # for Drilled Shank

"H" Following Base # for Drilled Head



| Description |                 | NAS6604   | NAS6604 |
|-------------|-----------------|-----------|---------|
| Length      | Grip $\pm .010$ | Undrilled | Drilled |
| .487        | .062            | 1         | D1      |
| .550        | .125            | 2         | D2      |
| .613        | .188            | 3         | D3      |
| .675        | .250            | 4         | D4      |
| .737        | .312            | 5         | D5      |
| .800        | .375            | 6         | D6      |
| .863        | .438            | 7         | D7      |
| .925        | .500            | 8         | D8      |
| .987        | .562            | 9         | D9      |
| 1.050       | .625            | 10        | D10     |
| 1.113       | .688            | 11        | D11     |
| 1.175       | .750            | 12        | D12     |
| 1.237       | .812            | 13        | D13     |
| 1.300       | .875            | 14        | D14     |
| 1.364       | .938            | 15        | D15     |
| 1.425       | 1.000           | 16        | D16     |
| 1.487       | 1.062           | 17        | D17     |
| 1.550       | 1.125           | 18        | D18     |
| 1.613       | 1.188           | 19        | D19     |
| 1.675       | 1.250           | 20        | D20     |
| 1.737       | 1.312           | 21        | D21     |
| 1.800       | 1.375           | 22        | D22     |
| 1.863       | 1.438           | 23        | D23     |
| 1.925       | 1.500           | 24        | D24     |
| 1.987       | 1.562           | 25        | D25     |
| 2.050       | 1.625           | 26        | D26     |
| 2.113       | 1.688           | 27        | D27     |
| 2.175       | 1.750           | 28        | D28     |
| 2.237       | 1.812           | 29        | D29     |
| 2.300       | 1.875           | 30        | D30     |
| 2.363       | 1.938           | 31        | D31     |
| 2.425       | 2.000           | 32        | D32     |
| 2.550       | 2.125           | 34        | D34     |
| 2.675       | 2.250           | 36        | D36     |
| 2.800       | 2.375           | 38        | D38     |

Supersedes NAS1304 Series



## NAS6605

Close Tolerance Bolt

.3125-24 Thread

"D" Following Base # for Drilled Shank

"H" Following Base # for Drilled Head



| Description |            | NAS6605   | NAS6605 |
|-------------|------------|-----------|---------|
| Length      | Grip ±.010 | Undrilled | Drilled |
| .594        | .125       | 2         | D2      |
| .657        | .188       | 3         | D3      |
| .719        | .250       | 4         | D4      |
| .781        | .312       | 5         | D5      |
| .844        | .375       | 6         | D6      |
| .907        | .438       | 7         | D7      |
| .969        | .500       | 8         | D8      |
| 1.031       | .562       | 9         | D9      |
| 1.094       | .625       | 10        | D10     |
| 1.157       | .688       | 11        | D11     |
| 1.219       | .750       | 12        | D12     |
| 1.281       | .812       | 13        | D13     |
| 1.344       | .875       | 14        | D14     |
| 1.407       | .938       | 15        | D15     |
| 1.469       | 1.000      | 16        | D16     |
| 1.531       | 1.062      | 17        | D17     |
| 1.594       | 1.125      | 18        | D18     |
| 1.657       | 1.188      | 19        | D19     |
| 1.719       | 1.250      | 20        | D20     |
| 1.781       | 1.312      | 21        | D21     |
| 1.844       | 1.375      | 22        | D22     |
| 1.907       | 1.438      | 23        | D23     |
| 1.969       | 1.500      | 24        | D24     |
| 2.031       | 1.562      | 25        | D25     |
| 2.094       | 1.625      | 26        | D26     |
| 2.157       | 1.688      | 27        | D27     |
| 2.219       | 1.750      | 28        | D28     |
| 2.281       | 1.812      | 29        | D29     |
| 2.344       | 1.875      | 30        | D30     |
| 2.407       | 1.938      | 31        | D31     |
| 2.469       | 2.000      | 32        | D32     |
| 2.594       | 2.125      | 34        | D34     |
| 2.719       | 2.250      | 36        | D36     |
| 2.844       | 2.375      | 38        | D38     |
| 2.969       | 2.500      | 40        | D40     |

Supersedes NAS1305 Series

## NAS6606

Close Tolerance Bolt

.3750-24 Thread

"D" Following Base # for Drilled Shank

"H" Following Base # for Drilled Head



| Description |            | NAS6606   | NAS6606 |
|-------------|------------|-----------|---------|
| Length      | Grip ±.010 | Undrilled | Drilled |
| .890        | .312       | 5         | D5      |
| .954        | .375       | 6         | D6      |
| 1.016       | .438       | 7         | D7      |
| 1.078       | .500       | 8         | D8      |
| 1.140       | .562       | 9         | D9      |
| 1.203       | .625       | 10        | D10     |
| 1.266       | .688       | 11        | D11     |
| 1.328       | .750       | 12        | D12     |
| 1.390       | .812       | 13        | D13     |
| 1.453       | .875       | 14        | D14     |
| 1.516       | .938       | 15        | D15     |
| 1.578       | 1.000      | 16        | D16     |
| 1.640       | 1.062      | 17        | D17     |
| 1.703       | 1.125      | 18        | D18     |
| 1.766       | 1.188      | 19        | D19     |
| 1.828       | 1.250      | 20        | D20     |
| 1.890       | 1.312      | 21        | D21     |
| 1.953       | 1.375      | 22        | D22     |
| 2.016       | 1.438      | 23        | D23     |
| 2.078       | 1.500      | 24        | D24     |
| 2.140       | 1.562      | 25        | D25     |
| 2.203       | 1.625      | 26        | D26     |
| 2.266       | 1.688      | 27        | D27     |
| 2.328       | 1.750      | 28        | D28     |
| 2.390       | 1.812      | 29        | D29     |
| 2.453       | 1.875      | 30        | D30     |
| 2.516       | 1.938      | 31        | D31     |
| 2.578       | 2.000      | 32        | D32     |
| 2.703       | 2.125      | 34        | D34     |
| 2.828       | 2.250      | 36        | D36     |
| 2.953       | 2.375      | 38        | D38     |
| 3.016       | 2.438      | 39        | D39     |

Supersedes NAS1306 Series

### NAS1578 - FLAT PAN HEAD BOLT

“A” Following Basic Part # Indicates Alloy Steel  
 “C” Following Basic Part # Indicates A-286 Corrosion Resistant  
 “P” At the end of the #, Indicates type II, Class 2 Cadmium Plating  
 Offset Cruciform Recess per MS14191



| Grip ±.010 | Length | Basic Part Number |         |
|------------|--------|-------------------|---------|
|            |        | NAS1578           | NAS1578 |
| .125       | .487   | A3T2              | C3T2    |
| .187       | .549   | A3T3              | C3T3    |
| .250       | .613   | A3T4              | C3T4    |
| .312       | .675   | A3T5              | C3T5    |
| .375       | .738   | A3T6              | C3T6    |
| .438       | .801   | A3T7              | C3T7    |
| .500       | .863   | A3T8              | C3T8    |
| .562       | .925   | A3T9              | C3T9    |
| .625       | .988   | A3T10             | C3T10   |
| .688       | 1.051  | A3T11             | C3T11   |
| .750       | 1.113  | A3T12             | C3T12   |

### NAS1580 - 100° FLUSH HEAD BOLT

“A” Following Basic Part # Indicates Alloy Steel  
 “C” Following Basic Part # Indicates A-286 Corrosion Resistant  
 “P” At the end of the #, Indicates type II, Class 2 Cadmium Plating  
 Offset Cruciform Recess per MS14191



| Grip ±.010 | Length | Basic Part Number |         |         |
|------------|--------|-------------------|---------|---------|
|            |        | NAS1580           | NAS1580 | NAS1580 |
| .125       | .487   | A3T2              | C3T2    | C3T2P   |
| .187       | .549   | A3T3              | C3T3    | C3T3P   |
| .250       | .613   | A3T4              | C3T4    | C3T4P   |
| .312       | .675   | A3T5              | C3T5    | C3T5P   |
| .375       | .738   | A3T6              | C3T6    | C3T6P   |
| .438       | .801   | A3T7              | C3T7    | ---     |
| .500       | .863   | A3T8              | C3T8    | ---     |
| .562       | .925   | A3T9              | C3T9    | ---     |
| .625       | .988   | A3T10             | C3T10   | ---     |

### NAS1581 - 100° FLUSH REDUCED HEAD BOLT

“F” Following Basic Part # Indicates Alloy Steel  
 “C” Following Basic Part # Indicates A-286 Corrosion Resistant  
 “P” At the end of the #, Indicates type II, Class 2 Cadmium Plating  
 Offset Cruciform Recess per MS14191 10-32 Diameter



| Grip ±.010 | Length | Basic Part Number |         |         |
|------------|--------|-------------------|---------|---------|
|            |        | NAS1581           | NAS1581 | NAS1581 |
| .125       | .487   | F3T2              | C3T2    | C3T2P   |
| .187       | .549   | F3T3              | C3T3    | C3T3P   |
| .250       | .613   | F3T4              | C3T4    | C3T4P   |
| .312       | .675   | F3T5              | C3T5    | C3T5P   |
| .375       | .738   | F3T6              | C3T6    | C3T6P   |
| .438       | .801   | F3T7              | C3T7    | ---     |
| .500       | .863   | F3T8              | C3T8    | ---     |
| .562       | .925   | F3T9              | C3T9    | ---     |
| .625       | .988   | F3T10             | C3T10   | ---     |
| .688       | 1.051  | F3T11             | C3T11   | ---     |
| .750       | 1.113  | F3T12             | C3T12   | ---     |
| .875       | 1.238  | F3T14             | C3T14   | ---     |

### MS20004 thru MS20006

Internal Wrenching Bolt

Replaces NAS144, NAS145, NAS146



| Dash # | Grip $\pm .010$ | Basic Part #, Thread & Total Length |         |         |
|--------|-----------------|-------------------------------------|---------|---------|
|        |                 | MS20004                             | MS20005 | MS20006 |
|        |                 | 1/4-28                              | 5/16-24 | 3/8-24  |
| 4      | .250            | .750                                | ---     | ---     |
| 6      | .375            | .875                                | .938    | 1.062   |
| 8      | .500            | 1.000                               | 1.062   | 1.188   |
| 10     | .625            | 1.125                               | 1.188   | 1.312   |
| 12     | .750            | 1.250                               | 1.312   | 1.438   |
| 14     | .875            | 1.375                               | 1.438   | 1.562   |
| 16     | 1.000           | 1.500                               | 1.562   | 1.688   |
| 18     | 1.125           | 1.625                               | 1.688   | 1.812   |
| 20     | 1.250           | 1.750                               | 1.812   | 1.938   |
| 22     | 1.375           | 1.875                               | 1.938   | 2.062   |
| 24     | 1.500           | 2.000                               | 2.062   | 2.188   |
| 26     | 1.625           | 2.125                               | 2.188   | 2.312   |
| 28     | 1.750           | 2.250                               | 2.312   | 2.438   |
| 30     | 1.875           | 2.375                               | 2.438   | 2.562   |
| 32     | 2.000           | 2.500                               | 2.562   | 2.688   |

### MS21250

External Wrenching Bolt, Flanged

12 Point. 180 KSI



| MS21250<br>Second<br>Dash # | Grip $\pm .010$ | Thread, First Dash # & Total Length |          |          |          |
|-----------------------------|-----------------|-------------------------------------|----------|----------|----------|
|                             |                 | .1900-32                            | .2500-28 | .3125-24 | .3750-24 |
|                             |                 | -03                                 | -04      | -05      | -06      |
| 006                         | .375            | .815                                | .887     | .974     | 1.020    |
| 008                         | .500            | .940                                | 1.012    | 1.099    | 1.145    |
| 010                         | .625            | 1.065                               | 1.137    | 1.224    | 1.270    |
| 012                         | .750            | 1.190                               | 1.262    | 1.349    | 1.395    |
| 014                         | .875            | 1.315                               | 1.387    | 1.474    | 1.520    |
| 016                         | 1.000           | 1.440                               | 1.512    | 1.599    | 1.645    |
| 018                         | 1.125           | 1.565                               | 1.637    | 1.724    | 1.770    |
| 020                         | 1.250           | 1.690                               | 1.762    | 1.849    | 1.895    |
| 022                         | 1.375           | 1.815                               | 1.887    | 1.974    | 2.020    |
| 024                         | 1.500           | 1.940                               | 2.012    | 2.099    | 2.145    |

### NAS624 thru NAS626

External Wrenching

12 Point Bolt

180,000 PSI



| Dash # | Grip  | Basic Part #, Thread & Total Length |          |          |
|--------|-------|-------------------------------------|----------|----------|
|        |       | NAS624                              | NAS625   | NAS626   |
|        |       | .2500-28                            | .3125-24 | .3750-24 |
| 6      | .375  | .860                                | .947     | .994     |
| 8      | .500  | .965                                | 1.072    | 1.119    |
| 10     | .625  | 1.110                               | 1.197    | 1.244    |
| 12     | .750  | 1.235                               | 1.322    | 1.369    |
| 14     | .875  | 1.360                               | 1.447    | 1.494    |
| 16     | 1.000 | 1.485                               | 1.572    | 1.619    |
| 18     | 1.125 | 1.610                               | 1.697    | 1.744    |
| 20     | 1.250 | 1.735                               | 1.822    | 1.869    |
| 22     | 1.375 | 1.860                               | 1.947    | 1.994    |
| 24     | 1.500 | 1.985                               | 2.072    | 2.119    |

**MS9033**

 12 Point Machine  
 Bolt  
 Heat Resistant Steel

**MS9033 (.1900 - 32 Dia.)**

| MS9033 | Length | Grip |
|--------|--------|------|
| -05    | .438   | ---  |
| -06    | .500   | ---  |
| -07    | .562   | ---  |
| -08    | .625   | ---  |
| -09    | .688   | ---  |
| -10    | .750   | .125 |
| -11    | .812   | .188 |
| -12    | .875   | .250 |

**MS9432**

 Tee Head Bolt  
 AMS 5735,  
 Chamfered

**MS9432 (.1900- 32 Dia.)**

| MS9432 | Length | Grip        |
|--------|--------|-------------|
| -04    | .375   | .114 - .134 |
| -05    | .438   | .114 - .134 |
| -06    | .500   | .114 - .134 |
| -07    | .562   | .114 - .134 |
| -08    | .625   | .114 - .134 |
| -09    | .688   | .114 - .134 |
| -10    | .750   | .114 - .134 |

**MS9489**

 Machine Bolt  
 Hexagon Head

**MS9489 (.1900 - 32 Dia.)**

| MS9489 | Length | Grip      |
|--------|--------|-----------|
| -04    | .375   | .072-.092 |
| -05    | .438   | .072-.092 |
| -06    | .500   | .072-.092 |
| -07    | .562   | .072-.092 |
| -08    | .625   | .072-.092 |
| -09    | .688   | .072-.092 |
| -10    | .750   | .072-.120 |
| -11    | .812   | .122-.182 |
| -12    | .875   | .185-.245 |
| -13    | .938   | .248-.308 |
| -14    | 1.000  | .310-.370 |
| -15    | 1.062  | .372-.432 |

**MS9556**

 Double Hexagon  
 Machine Bolt,  
 Extended Washer Head

**MS9556 (.1900 - 32 Dia.)**

| MS9556 | Length | Grip      |
|--------|--------|-----------|
| -03    | .312   | .072-.092 |
| -04    | .375   | .072-.092 |
| -05    | .438   | .072-.092 |
| -06    | .500   | .072-.092 |
| -07    | .562   | .072-.092 |
| -08    | .625   | .072-.092 |
| -09    | .688   | .072-.092 |
| -10    | .750   | .072-.120 |
| -11    | .812   | .122-.182 |
| -12    | .875   | .185-.245 |
| -13    | .938   | .248-.308 |
| -14    | 1.000  | .310-.370 |

**MS9565**

 Double Hexagon  
 Machine Bolt  
 Drilled Head  
 Extended Washer Head

**MS9565 (.1900-32 Dia.)**

| MS9565 | Length | Grip      |
|--------|--------|-----------|
| -03    | .312   | .072-.092 |
| -04    | .375   | .072-.092 |
| -05    | .438   | .072-.092 |
| -06    | .500   | .072-.092 |
| -07    | .562   | .072-.092 |
| -08    | .625   | .072-.092 |
| -09    | .688   | .072-.092 |
| -10    | .750   | .072-.120 |

**MS9696**

 Double Hexagon  
 Machine Bolt, Corrosion  
 and Heat Resistant Steel  
 Extended Washer Head

**MS9696 (.1900- 32 Dia.)**

| MS9696 | Length | Grip      |
|--------|--------|-----------|
| -04    | .375   | .072-.092 |
| -05    | .438   | .072-.092 |
| -06    | .500   | .072-.092 |
| -07    | .562   | .072-.092 |
| -08    | .625   | .072-.092 |
| -09    | .688   | .072-.092 |
| -10    | .750   | .072-.120 |
| -11    | .812   | .122-.182 |

## MS20033 MS20034

Hexagon  
Machine Bolt  
1200° F



| Dash # | Grip | Thread, Basic Part # & Length |          |
|--------|------|-------------------------------|----------|
|        |      | .1900-32                      | .2500-28 |
|        |      | MS20033                       | MS20034  |
| 1      | 1/8  | 35/64                         | 41/64    |
| 2      | 1/4  | 43/64                         | 49/64    |
| 3      | 3/8  | 51/64                         | 57/64    |
| 4      | 1/2  | 59/64                         | 1-1/64   |

## MS20073

Drilled  
Head Bolt  
Fine Thread



| Dimensions |      | 10-32 Thread | 1/4-28 Thread |
|------------|------|--------------|---------------|
| Length     | Grip | MS20073      | MS20073       |
| .469       | .062 | -03-03       | -04-03        |
| .594       | .062 | -03-04       | -04-04        |
| .656       | .125 | -03-05       | -04-05        |
| .781       | .250 | -03-06       | -04-06        |
| .906       | .375 | -03-07       | -04-07        |
| 1.031      | .500 | -03-10       | -04-10        |
| 1.156      | .625 | -03-11       | -04-11        |
| 1.281      | .750 | -03-12       | -04-12        |

## MS20074

Drilled  
Head Bolt  
Coarse Thread



| Dimensions |       | 10-24 Thread | 1/4-20 Thread |
|------------|-------|--------------|---------------|
| Length     | Grip  | MS20074      | MS20074       |
| .344       | .062  | -03-02       | ---           |
| .469       | .062  | -03-03       | -04-03        |
| .594       | .062  | -03-04       | -04-04        |
| .656       | .125  | -03-05       | -04-05        |
| .781       | .250  | -03-06       | -04-06        |
| .906       | .375  | -03-07       | -04-07        |
| 1.031      | .500  | -03-10       | -04-10        |
| 1.156      | .625  | -03-11       | -04-11        |
| 1.281      | .750  | -03-12       | -04-12        |
| 1.406      | .875  | -03-13       | -04-13        |
| 2.156      | 1.625 | -03-21       | -04-21        |

## MS20074

Drilled  
Head Bolt  
Coarse Thread



| Dimensions |       | 5/16-18 Thread |
|------------|-------|----------------|
| Length     | Grip  | MS20074        |
| .609       | .062  | 05-04          |
| .672       | .125  | 05-05          |
| .797       | .250  | 05-06          |
| .922       | .375  | 05-07          |
| 1.047      | .500  | 05-10          |
| 1.172      | .625  | 05-11          |
| 1.297      | .750  | 05-12          |
| 1.422      | .875  | 05-13          |
| 1.547      | 1.000 | 05-14          |

## NAS428

Crowned  
Hexagon Head Bolt,  
Adjusting  
"K" Indicates Slotted Shank  
"KH" Indicates Slotted Shank  
and Drilled Head



| Length | .1900-32 | .2500-28 |
|--------|----------|----------|
|        | NAS428   | NAS428   |
| .500   | 3A4      | 4A4      |
| .625   | 3A5      | 4A5      |
| .750   | 3A6      | 4A6      |
| .875   | 3A7      | 4A7      |
| 1.000  | 3A10     | 4A10     |
| 1.125  | 3A11     | 4A11     |
| 1.250  | 3A12     | 4A12     |
| 1.375  | 3A13     | 4A13     |
| 1.500  | 3A14     | 4A14     |
| 1.750  | 3A16     | 4A16     |

## NAS333, NAS334

100° Close Tolerance Bolt  
CPA indicates Plated Phillips Recess  
Add -5 after last Dash # to indicate  
Length & Grip  
.062 Longer than Designated by DASH #



| DASH # | .1900-32 |       | .2500-28 |       |
|--------|----------|-------|----------|-------|
|        | NAS333   |       | NAS334   |       |
|        | Length   | Grip  | Length   | Grip  |
| 4      | .531     | .125  | ---      | ---   |
| 5      | .656     | .250  | .657     | .188  |
| 6      | .781     | .375  | .781     | .312  |
| 7      | .906     | .500  | .907     | .438  |
| 10     | 1.031    | .625  | 1.031    | .562  |
| 11     | 1.156    | .750  | 1.157    | .688  |
| 12     | 1.281    | .875  | 1.281    | .812  |
| 13     | 1.406    | 1.000 | 1.407    | .938  |
| 14     | 1.531    | 1.125 | 1.531    | 1.062 |



## NAS560HK

100° Flush Head  
Machine Screw  
Non-Magnetic, High Temp



| Second Dash # | Grip | Thread, Basic Part # & Length |           |
|---------------|------|-------------------------------|-----------|
|               |      | .1640-32                      | .1900-32  |
|               |      | NAS560HK2                     | NAS560HK3 |
| 00            | —    | .348                          | .400      |
| 0             | —    | .410                          | .463      |
| 1             | —    | .472                          | .526      |
| 2             | .125 | .535                          | .588      |
| 3             | .188 | .598                          | .651      |
| 4             | .250 | .660                          | .713      |
| 5             | .312 | .722                          | .775      |

## NAS4403 NAS4404

100° Close Tolerance Bolt,  
Tri-Slot Recess



| Dash # | Grip | .1900-32 | .2500-28 |
|--------|------|----------|----------|
|        |      | NAS4403  | NAS4404  |
| 2      | .125 | .448     | ---      |
| 3      | .188 | .511     | .558     |
| 4      | .250 | .573     | .620     |
| 5      | .312 | .635     | .682     |
| 6      | .375 | .698     | .745     |
| 7      | .438 | .761     | .808     |
| 8      | .500 | .823     | .870     |
| 9      | .562 | .885     | .932     |
| 10     | .625 | .948     | .995     |
| 11     | .688 | 1.011    | 1.058    |
| 12     | .750 | 1.073    | 1.120    |
| 14     | .875 | 1.198    | 1.245    |
| 15     | .938 | 1.261    | 1.305    |

## NAS1003 NAS1004

Hexagon Head Machine Bolt  
A 286 Corrosion Resistant Steel  
"A" After Dash # Indicates UNDRILLED



| Dash # | Grip | .1900-32 | .2500-28 |
|--------|------|----------|----------|
|        |      | NAS1003  | NAS1004  |
| 1      | .062 | .543     | .606     |
| 2      | .125 | .606     | .669     |
| 3      | .188 | .669     | .732     |
| 4      | .250 | .731     | .794     |
| 5      | .312 | .793     | .856     |
| 7      | .438 | .919     | .982     |
| 8      | .500 | .981     | 1.044    |
| 9      | .562 | 1.043    | 1.106    |
| 10     | .625 | 1.106    | 1.169    |

## NAS1202 NAS1203 NAS1204

100° Close Tolerance Bolt



| Dash # | Grip  | Thread, Basic Part # & Length |          |          |
|--------|-------|-------------------------------|----------|----------|
|        |       | .1640-32                      | .1900-32 | .2500-28 |
|        |       | NAS1202                       | NAS1203  | NAS1204  |
| 1      | .062  | .338                          | .338     | .378     |
| 2      | .125  | .401                          | .401     | .441     |
| 3      | .188  | .464                          | .464     | .504     |
| 4      | .250  | .526                          | .526     | .566     |
| 5      | .312  | .588                          | .588     | .628     |
| 6      | .375  | .651                          | .651     | .691     |
| 7      | .438  | .714                          | .714     | .754     |
| 8      | .500  | .776                          | .776     | .816     |
| 9      | .562  | .838                          | .838     | .878     |
| 10     | .625  | .901                          | .901     | .941     |
| 11     | .688  | .964                          | .964     | 1.004    |
| 12     | .750  | 1.026                         | 1.026    | 1.066    |
| 13     | .812  | 1.088                         | 1.088    | 1.128    |
| 14     | .875  | 1.151                         | 1.151    | 1.191    |
| 15     | .938  | 1.214                         | 1.214    | 1.254    |
| 16     | 1.000 | 1.276                         | 1.276    | 1.316    |
| 17     | 1.062 | 1.338                         | 1.338    | 1.378    |
| 21     | 1.312 | 1.588                         | 1.588    | 1.628    |
| 22     | 1.375 | 1.651                         | 1.651    | 1.691    |

## NAS1297

Shoulder Bolt, Hex Head  
.1900-32 Diameter



| Second Dash # | Grip | Basic Part # & Length |
|---------------|------|-----------------------|
|               |      | NAS1297-3             |
| 3             | .198 | .560                  |
| 4             | .260 | .622                  |
| 8             | .510 | .872                  |

## NAS1993 NAS1994

100° Reduced Head Bolt  
Torq Set® Recess (T)  
Add "C" for Corrosion Resistant  
Add "P" for Aluminum Coating



| Dash #            | Grip | Thread, Basic Part # & Length |          |
|-------------------|------|-------------------------------|----------|
|                   |      | .1900-32                      | .2500-28 |
|                   |      | NAS1993                       | NAS1994  |
| 2T<br>C2T         | .125 | .463                          | .550     |
| 3T<br>C3T         | .188 | .526                          | .613     |
| 4T<br>C4T<br>C4PT | .250 | .588                          | .675     |
| 5T                | .312 | .650                          | .737     |

### NAS4503U, NAS4504U

100° Close Tolerance Bolt  
Tri-Wing® Recess  
A286 CRES Unplated



| Dash # | Grip | .1900-32 | .2500-28 |
|--------|------|----------|----------|
|        |      | NAS4503  | NAS4504  |
| U2     | .125 | .448     | —        |
| U3     | .188 | .511     | .558     |
| U4     | .250 | .573     | .620     |
| U5     | .312 | .635     | .682     |
| U6     | .375 | .698     | .745     |

### NAS4703, NAS4704

100° Close Tolerance Bolt  
Tri-Wing® Recess  
Reduced Head, Alloy Steel



| Dash # | Grip | Thread, Basic Part # & Length |          |
|--------|------|-------------------------------|----------|
|        |      | .1900-32                      | .2500-28 |
|        |      | NAS4703                       | NAS4704  |
| 1      | .062 | .385                          | —        |
| 2      | .125 | .448                          | .495     |
| 3      | .188 | .511                          | .558     |
| 4      | .250 | .573                          | .620     |
| 5      | .312 | .635                          | .682     |
| 6      | .375 | .698                          | .745     |
| 7      | .438 | .761                          | .808     |
| 8      | .500 | .823                          | .870     |

### NAS5002, NAS5003

Pan Head Close Tolerance Bolt  
Alloy Steel, Short Thread  
Tri-Wing® Recess



| Dash # | Grip | Thread, Basic Part # & Length |          |
|--------|------|-------------------------------|----------|
|        |      | .1640-32                      | .1900-32 |
|        |      | NAS5002                       | NAS5003  |
| 2      | .125 | .448                          | .448     |
| 3      | .188 | .511                          | .511     |
| 4      | .250 | .573                          | .573     |
| 5      | .312 | .635                          | .635     |
| 6      | .375 | .686                          | .686     |

### NAS5903

Tri-Wing®  
Hex Head Screw  
Alloy Steel, Full Thread  
160 KSI Ultimate Tensile



| NAS5903 | Length | NAS5903 | Length |
|---------|--------|---------|--------|
| 6       | .36    | 14      | .88    |
| 7       | .44    | 18      | 1.12   |
| 8       | .50    | 22      | 1.38   |
| 9       | .56    | 24      | 1.50   |
| 10      | .62    | 26      | 1.62   |
| 12      | .78    | 28      | 1.75   |

### NAS6303U

Hex Head, Close Tolerance Bolt,  
A286 Corrosion Resistant Steel  
.1900-32 Thread  
"U" Indicates Unplated



| NAS6303 | Grip | Length |
|---------|------|--------|
| U1      | .062 | .385   |
| U2      | .125 | .448   |
| U4      | .250 | .573   |
| U5      | .312 | .635   |
| U6      | .375 | .698   |
| U7      | .438 | .761   |
| U8      | .500 | .823   |
| U9      | .562 | .885   |

### NAS6304

Close Tolerance Bolt,  
A286 Corrosion Resistant Steel  
.2500-28 Thread  
"U" Indicates Unplated



| NAS6304 | Grip | Length |
|---------|------|--------|
| U2      | .125 | .495   |
| U3      | .188 | .588   |
| U4      | .250 | .620   |
| U5      | .312 | .682   |
| U6      | .375 | .745   |
| U7      | .438 | .808   |
| U8      | .500 | .870   |
| U9      | .562 | .932   |

### NAS6406A102

### NAS6408A17D

### NAS6408A84

Hex Head Close Tolerance Bolt  
6AL -4V Titanium Alloy, Aluminum Coated  
160 - 180 KSI Ultimate Tensile  
95 KSI Minimum Ultimate Shear  
"D" Indicates Aluminum



### NAS6703

Close Tolerance Hex Head Bolt  
A286 CRES Corrosion Resistant Steel  
Long Threads "U" Indicates Unplated  
160 KSI Ultimate Tensile, 95 Ultimate Shear



| .1900-32 | Grip | Length |
|----------|------|--------|
|          |      |        |
| NAS6703  |      |        |
| U2       | .125 | .470   |
| U3       | .188 | .533   |
| U4       | .250 | .595   |
| U5       | .312 | .657   |
| U6       | .375 | .720   |
| U7       | .438 | .783   |
| U8       | .500 | .845   |
| U9       | .562 | .907   |

## NAS7403

100° Close Tolerance Bolt  
10-32 Thread, Phillips Recess,  
Alloy Steel, 160-180 KSI Ultimate  
Tensile, 95 KSI Min. Ultimate Shear



| NAS7403 | Grip  | Length |
|---------|-------|--------|
| 2       | .125  | .448   |
| 3       | .188  | .511   |
| 4       | .250  | .573   |
| 5       | .312  | .635   |
| 6       | .375  | .698   |
| 8       | .500  | .823   |
| 10      | .625  | .948   |
| 11      | .688  | 1.011  |
| 12      | .750  | 1.073  |
| 13      | .812  | 1.135  |
| 14      | .875  | 1.198  |
| 15      | .938  | 1.261  |
| 16      | 1.00  | 1.323  |
| 17      | 1.062 | 1.385  |
| 18      | 1.125 | 1.448  |
| 20      | 1.250 | 1.573  |
| 22      | 1.375 | 1.698  |
| 23      | 1.438 | 1.761  |
| 31      | 1.938 | 2.261  |

## NAS7503

100° Close Tolerance Bolt  
10-32 Thread, Cruciform Recess,  
A286 CRES, Short Thread  
160 KSI Min. Ultimate Tensile,  
95 KSI Min. Ultimate Shear



| NAS7503 | Grip | Length |
|---------|------|--------|
| 3       | .188 | .511   |
| 4       | .250 | .573   |
| 5       | .312 | .635   |
| 6       | .375 | .698   |
| 8       | .500 | .823   |
| 12      | .750 | 1.073  |

## NAS7703

Pan Head Bolt, Close Tolerance  
.1900-32 Diameter, Short Thread,  
Cruciform Recess, 160-180 KSI Min.  
Ultimate Tensile, 95 KSI Min. Ultimate Shear



| NAS7703 | Grip | Length |
|---------|------|--------|
| 1       | .062 | .385   |
| 2       | .125 | .448   |
| 3       | .188 | .511   |
| 4       | .250 | .573   |
| 5       | .312 | .635   |
| 6       | .375 | .698   |
| 7       | .438 | .761   |
| 8       | .500 | .823   |

## NAS8602, NAS8603

100° Close Tolerance Bolt  
Reduced Head, Phillips Recess  
Alloy Steel, Short Thread,  
160 KSI Ultimate Tensile, 95 KSI , Ultimate Shear



| Dash # | Grip | Thread, Basic Part # & Length |          |
|--------|------|-------------------------------|----------|
|        |      | .1640-32                      | .1900-32 |
|        |      | NAS8602                       | NAS8603  |
| 1      | .062 | .385                          | .385     |
| 2      | .125 | .448                          | .448     |
| 3      | .188 | .511                          | .511     |
| 4      | .250 | .573                          | .573     |
| 5      | .312 | .635                          | .635     |
| 6      | .375 | .698                          | .698     |
| 7      | .438 | .761                          | .761     |
| 8      | .500 | .823                          | .823     |
| 9      | .562 | .885                          | .885     |
| 10     | .625 | .948                          | .948     |
| 12     | .750 | 1.073                         | 1.073    |

## NAS8702, NAS8703

100° Close Tolerance Bolt  
Reduced Head, Phillips Recess  
A-286 CRES, Short Thread, "U" Indicates Unplated  
160 KSI Ultimate Tensile, 95 KSI Ultimate Shear



| Dash # | Grip | Thread, Basic Part # & Length |          |
|--------|------|-------------------------------|----------|
|        |      | .1640-32                      | .1900-32 |
|        |      | NAS8702                       | NAS8703  |
| 2      | .125 | .448                          | .448     |
| 3      | .188 | .511                          | .511     |
| 4      | .250 | .573                          | .573     |
| 5      | .312 | .635                          | .635     |
| 6      | .375 | .698                          | .698     |
| 7      | .438 | .761                          | .761     |
| 8      | .500 | .823                          | .823     |
| 9      | .562 | .885                          | .885     |
| 11     | .688 | 1.011                         | 1.011    |
| 12     | .750 | 1.073                         | 1.073    |

## NAS8803A

100° Close Tolerance Bolt  
6 Al - 4V Titanium Alloy  
Phillips Recess , Short Thread,  
Aluminum Coated



| NAS8803 | Grip | Length |
|---------|------|--------|
| A2      | .125 | .448   |
| A3      | .188 | .511   |
| A4      | .250 | .573   |
| A5      | .312 | .635   |
| A6      | .375 | .698   |
| A7      | .438 | .761   |
| A8      | .500 | .823   |
| A9      | .562 | .885   |
| A10     | .625 | .948   |
| A11     | .688 | 1.011  |
| A12     | .750 | 1.073  |
| A13     | .812 | 1.135  |
| A14     | .875 | 1.198  |

### NAS514P

Machine Screw, 100°  
Flat Head, Fully Threaded,  
Alloy Steel



| Diameter | Length | NAS514P  |
|----------|--------|----------|
| .1120-40 | .250   | 440-4P   |
|          | .312   | 440-5P   |
|          | .375   | 440-6P   |
|          | .500   | 440-8P   |
|          | .625   | 440-10P  |
|          | .750   | 440-12P  |
|          | .875   | 440-14P  |
|          | 1.00   | 440-16P  |
| .1380-32 | .250   | 632-4P   |
|          | .312   | 632-5P   |
|          | .375   | 632-6P   |
|          | .438   | 632-7P   |
|          | .500   | 632-8P   |
|          | .625   | 632-10P  |
|          | .750   | 632-12P  |
|          | .875   | 632-14P  |
| .1640-32 | 1.00   | 632-16P  |
|          | .250   | 832-4P   |
|          | .312   | 832-5P   |
|          | .375   | 832-6P   |
|          | .438   | 832-7P   |
|          | .500   | 832-8P   |
|          | .625   | 832-10P  |
|          | .750   | 832-12P  |
| .1900-32 | .875   | 832-14P  |
|          | 1.00   | 832-16P  |
|          | .375   | 1032-6P  |
|          | .438   | 1032-7P  |
|          | .500   | 1032-8P  |
|          | .625   | 1032-10P |
|          | .688   | 1032-11P |
|          | .750   | 1032-12P |
|          | .875   | 1032-14P |
|          | 1.00   | 1032-16P |

### NAS387

100° Oval Head  
Machine Screw  
Recessed Head,  
Fully Threaded



| Diameter | Length | NAS387   |
|----------|--------|----------|
| 6-32     | 1/2    | 632-8P   |
|          | 5/8    | 632-10P  |
|          | 3/4    | 632-12P  |
|          | 7/8    | 632-14P  |
|          | 1      | 632-16P  |
| 8-32     | 1/2    | 832-8P   |
|          | 5/8    | 832-10P  |
|          | 3/4    | 832-12P  |
|          | 7/8    | 832-14P  |
|          | 1      | 832-16P  |
| 10-32    | 1/2    | 1032-8P  |
|          | 5/8    | 1032-10P |
|          | 3/4    | 1032-12P |
|          | 7/8    | 1032-14P |
|          | 1      | 1032-16P |
|          | 1-1/8  | 1032-18P |
|          | 1-1/2  | 1032-24P |

### NAS600, NAS601 NAS602, NAS603 NAS604

Pan Head, Cruciform Recess  
Machine Screw  
Fully Threaded, Alloy Steel



| Thread | Length | NAS600 |
|--------|--------|--------|
| 4-40   | .250   | 4P     |
|        | .312   | 5P     |
|        | .375   | 6P     |
|        | .500   | 8P     |
|        | .625   | 10P    |
|        | .750   | 12P    |
| Thread | Length | NAS601 |
| 6-32   | .250   | 4P     |
|        | .375   | 6P     |
|        | .438   | 7P     |
|        | .500   | 8P     |
|        | .625   | 10P    |
|        | .750   | 12P    |
|        | .875   | 14P    |
|        | 1.00   | 16P    |
| Thread | Length | NAS602 |
| 8-32   | 25     | 4P     |
|        | 31     | 5P     |
|        | 38     | 6P     |
|        | 44     | 7P     |
|        | 50     | 8P     |
|        | 56     | 9P     |
|        | .62    | 10P    |
|        | .75    | 12P    |
|        | .875   | 14P    |
|        | 1.000  | 16P    |
|        | 1.250  | 20P    |
|        | 1.375  | 22P    |
|        | 1.500  | 24P    |
| Thread | Length | NAS603 |
| 10-32  | 25     | 4P     |
|        | 31     | 5P     |
|        | 38     | 6P     |
|        | 44     | 7P     |
|        | 50     | 8P     |
|        | 56     | 9P     |
|        | .62    | 10P    |
|        | .69    | 11P    |
|        | .75    | 12P    |
|        | .81    | 13P    |
|        | .88    | 14P    |
|        | 94     | 15P    |
|        | 1.0    | 16P    |
|        | 1.1    | 18P    |
|        | 1.25   | 20P    |
|        | 1.50   | 24P    |
| Thread | Length | NAS604 |
| 1/4-28 | 3/8    | 6P     |
|        | 1/2    | 8P     |
|        | 5/8    | 10P    |
|        | 3/4    | 12P    |
|        | 7/8    | 14P    |
|        | 1      | 16P    |



## MS24693 (AN507)

100° Flat Head  
Machine Screw,  
Non-Structural



| Thread Size | Length  | CARBON STEEL |         | CORROSION RESISTANT |
|-------------|---------|--------------|---------|---------------------|
|             |         | MS24693      | AN507   | MS24693             |
| 4-40        | 3/16    | S1           | 440R3   | C1                  |
|             | 1/4     | S2           | 440R4   | C2                  |
|             | 5/16    | S3           | 440R5   | C3                  |
|             | 3/8     | S4           | 440R6   | C4                  |
|             | 7/16    | S5           | 440R7   | C5                  |
|             | 1/2     | S6           | 440R8   | C6                  |
|             | 5/8     | S7           | 440R10  | C7                  |
|             | 3/4     | S8           | 440R12  | C8                  |
|             | 7/8     | S9           | 440R14  | C9                  |
|             | 1       | S10          | 440R16  | C10                 |
| 6-32        | 3/16    | S23          | 632R3   | C23                 |
|             | 1/4     | S24          | 632R4   | C24                 |
|             | 5/16    | S25          | 632R5   | C25                 |
|             | 3/8     | S26          | 632R6   | C26                 |
|             | 7/16    | S27          | 632R7   | C27                 |
|             | 1/2     | S28          | 632R8   | C28                 |
|             | 5/8     | S29          | 632R10  | C29                 |
|             | 3/4     | S30          | 632R12  | C30                 |
|             | 7/8     | S31          | 632R14  | C31                 |
|             | 1       | S32          | 632R16  | C32                 |
|             | 1-1/8   | S33          | 632R18  | C33                 |
|             | 1-1/4   | S34          | 632R20  | C34                 |
|             | 1-1/2   | S36          | 632R24  | ---                 |
| 8-32        | 1/4     | S46          | 832R4   | C46                 |
|             | 5/16    | S47          | 832R5   | C47                 |
|             | 3/8     | S48          | 832R6   | C48                 |
|             | 7/16    | S49          | 832R7   | C49                 |
|             | 1/2     | S50          | 832R8   | C50                 |
|             | 5/8     | S51          | 832R10  | C51                 |
|             | 3/4     | S52          | 832R12  | C52                 |
|             | 7/8     | S53          | 832R14  | C53                 |
|             | 1       | S54          | 832R16  | C54                 |
|             | 1-1/8   | S55          | 832R18  | C55                 |
|             | 1-1/4   | S56          | 832R20  | C56                 |
|             | 1-1/2   | S58          | 832R24  | C58                 |
| 10-32       | 1/4     | S268         | 1032R4  | C268                |
|             | 5/16    | S269         | 1032R5  | C269                |
|             | 3/8     | S270         | 1032R6  | C270                |
|             | 7/16    | S271         | 1032R7  | C271                |
|             | 1/2     | S272         | 1032R8  | C272                |
|             | 9/16    | ---          | 1032R9  | ---                 |
|             | 5/8     | S273         | 1032R10 | C273                |
|             | 3/4     | S274         | 1032R12 | C274                |
|             | 7/8     | S275         | 1032R14 | C275                |
|             | 1       | S276         | 1032R16 | C276                |
|             | 1 - 1/8 | S277         | 1032R18 | C277                |
|             | 1 - 1/4 | S278         | 1032R20 | C278                |
|             | 1 - 1/2 | S280         | 1032R24 | C280                |
|             | 1 - 5/8 | S281         | 1032R26 | C281                |
|             | 1 - 3/4 | S282         | 1032R28 | C282                |
|             | 2       | S284         | 1032R32 | C284                |
|             | 2 - 1/2 | S286         | 1032R40 | C286                |



## MS24693 (AN507)

100° Flat Head

Machine Screw, Non-Structural



| Thread Size | Length  | CARBON STEEL | CORROSION RESISTANT |
|-------------|---------|--------------|---------------------|
|             |         | MS24693      | MS24693             |
| 1/4-28      | 3/8     | S292         | C292                |
|             | 7/16    | S293         | C293                |
|             | 1/2     | S294         | C294                |
|             | 5/8     | S295         | C295                |
|             | 3/4     | S296         | C296                |
|             | 7/8     | S297         | --                  |
|             | 1       | S298         | --                  |
|             | 1 - 1/4 | S300         | --                  |

### NON-STRUCTURAL SCREW KIT #1

100 EA. AN526-632R4 THRU -632R12  
100 EA. AN526-832R4 THRU -832R12  
100 EA. AN526-1032R6 THRU -1032R16  
100 EA. MS24693S2 THRU MS24693S8  
100 EA. MS24693S24 THRU MS24693S30  
100 EA. MS24693S46 THRU MS24693S54  
100 EA. MS24693S270 THRU MS24693S276  
100 EA. MS35206-213 THRU MS35206-219  
100 EA. MS35206-226 THRU MS35206-232  
100 EA. MS35206-241 THRU MS35206-249  
100 EA. MS35207-261 THRU MS35207-267

### NON-STRUCTURAL SCREW KIT #2

100 EA. MS24693S24 THRU MS24693S30  
100 EA. MS24693S48 THRU MS24693S52  
100 EA. MS24693S270 THRU MS24693S274  
100 EA. MS24693C24 THRU MS24693C30  
100 EA. MS24693C48 THRU MS24693C52  
100 EA. MS24693C270 THRU MS24693C274

### NON-STRUCTURAL SCREW KIT #3

100 EA. AN526-632R6 THRU -632R12  
100 EA. AN526-832R6 THRU -832R12  
100 EA. AN526-1032R6 THRU -1032R12  
100 EA. AN526C632R6 THRU C632R12  
100 EA. AN526C832R6 THRU C832R12  
100 EA. AN526C1032R6 THRU C1032R12

### STAINLESS SCREW KIT #1

100 EA. MS24693C4 THRU MS24693C8  
100 EA. MS24693C24 THRU MS24693C30  
100 EA. MS24693C46 THRU MS24693C52  
100 EA. MS24693C270 THRU MS24693C276  
100 EA. MS24694C3 THRU MS24694C7  
100 EA. MS24694C48 THRU MS24694C52

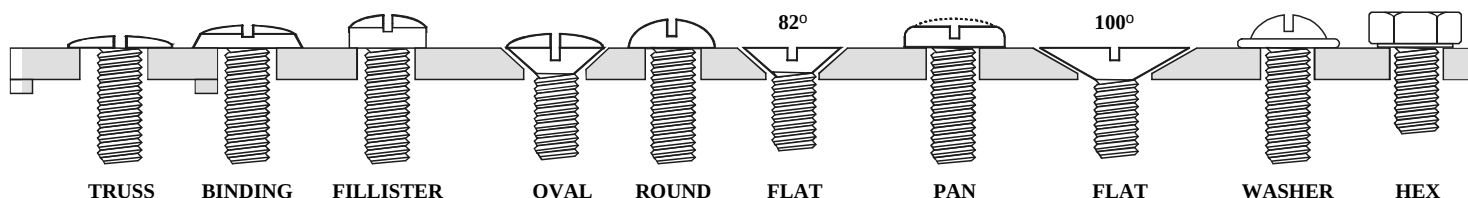
### STAINLESS SCREW KIT #2

100 EA. AN526C632R4 THRU C632R12  
100 EA. AN526C832R4 THRU C832R16  
100 EA. AN526C1032R6 THRU C1032R16  
100 EA. MS51957-30 AND MS51957-45  
100 EA. MS51958-63 AND MS51958-64

### STAINLESS SCREW KIT #3

100 EA. AN526C632R6 THRU C632R12  
100 EA. AN526C832R6 THRU C832R12  
100 EA. AN526C1032R6 THRU C1032R12  
100 EA. MS24693C24 AND MS24693C30  
100 EA. MS24693C46 THRU MS24693C54  
100 EA. MS24693C270 THRU MS24693C276  
100 EA. MS24694C5 THRU MS24694C9  
100 EA. MS24694C48 THRU MS24694C54

## FASTENER HEAD STYLES



## MS24694 (AN509)

100° Flat Head Screw  
Structural Machine Screw



| Thread Size | Length    | Grip      | CARBON STEEL |       | CORROSION RESISTANT |
|-------------|-----------|-----------|--------------|-------|---------------------|
|             |           |           | MS24694      | AN509 | MS24694             |
| 8-32        | 9/32      | 3/32      | S1           | 8R4   | C1                  |
|             | 11/32     | 3/32      | S2           | 8R5   | C2                  |
|             | 13/32     | 3/32      | S3           | 8R6   | C3                  |
|             | 15/32     | 3/32      | S4           | 8R7   | C4                  |
|             | 17/32     | 3/32      | S5           | 8R8   | C5                  |
|             | 19/32     | 5/32      | S6           | 8R9   | C6                  |
|             | 21/32     | 7/32      | S7           | 8R10  | C7                  |
|             | 23/32     | 9/32      | S8           | 8R11  | C8                  |
|             | 25/32     | 11/32     | S9           | 8R12  | C9                  |
|             | 27/32     | 13/32     | S10          | 8R13  | C10                 |
|             | 29/32     | 15/32     | S11          | 8R14  | C11                 |
|             | 31/32     | 17/32     | S12          | 8R15  | C12                 |
|             | 1 - 1/32  | 19/32     | S13          | 8R16  | C13                 |
|             | 1 - 3/32  | 21/32     | S14          | 8R17  | C14                 |
|             | 1 - 5/32  | 23/32     | S15          | 8R18  | C15                 |
|             | 1 - 7/32  | 25/32     | S16          | 8R19  | C16                 |
|             | 1 - 9/32  | 27/32     | S17          | 8R20  | C17                 |
|             | 1 - 11/32 | 29/32     | S18          | 8R21  | <del>C18</del>      |
|             | 1 - 13/32 | 31/32     | S19          | 8R22  | <del>C19</del>      |
|             | 1 - 15/32 | 1 - 1/32  | S20          | 8R23  | <del>C20</del>      |
| 10-32       | 9/32      | 7/64      | S46          | 10R4  | C46                 |
|             | 11/32     | 7/64      | S47          | 10R5  | C47                 |
|             | 13/32     | 7/64      | S48          | 10R6  | C48                 |
|             | 15/32     | 7/64      | S49          | 10R7  | C49                 |
|             | 17/32     | 7/64      | S50          | 10R8  | C50                 |
|             | 19/32     | 7/64      | S51          | 10R9  | C51                 |
|             | 21/32     | 3/16      | S52          | 10R10 | C52                 |
|             | 23/32     | 1/4       | S53          | 10R11 | C53                 |
|             | 25/32     | 5/16      | S54          | 10R12 | C54                 |
|             | 27/32     | 3/8       | S55          | 10R13 | C55                 |
|             | 29/32     | 7/16      | S56          | 10R14 | C56                 |
|             | 31/32     | 1/2       | S57          | 10R15 | C57                 |
|             | 1 - 1/32  | 9/16      | S58          | 10R16 | C58                 |
|             | 1 - 3/32  | 5/8       | S59          | 10R17 | C59                 |
|             | 1 - 5/32  | 11/16     | S60          | 10R18 | C60                 |
|             | 1 - 7/32  | 3/4       | S61          | 10R19 | C61                 |
|             | 1 - 9/32  | 13/16     | S62          | 10R20 | C62                 |
|             | 1 - 11/32 | 7/8       | S63          | 10R21 | C63                 |
|             | 1 - 13/32 | 15/16     | S64          | 10R22 | C64                 |
|             | 1 - 15/32 | 1         | S65          | 10R23 | C65                 |
|             | 1 - 17/32 | 1 - 1/16  | S66          | 10R24 | C66                 |
|             | 1 - 19/32 | 1 - 1/8   | S67          | 10R25 | C67                 |
|             | 1 - 21/32 | 1 - 3/16  | S68          | 10R26 | C68                 |
|             | 1 - 23/32 | 1 - 1/4   | S69          | 10R27 | C69                 |
|             | 1 - 25/32 | 1 - 5/16  | S70          | 10R28 | C70                 |
|             | 1 - 27/32 | 1 - 3/8   | S71          | 10R29 | ---                 |
|             | 1 - 29/32 | 1 - 7/16  | S72          | 10R30 | ---                 |
|             | 2 - 1/32  | 1 - 9/16  | S74          | 10R32 | ---                 |
|             | 2 - 5/32  | 1 - 11/16 | S76          | 10R34 | ---                 |
|             | 2 - 9/32  | 1 - 13/16 | S78          | 10R36 | ---                 |
|             | 2 - 11/32 | 1 - 7/8   | S79          | 10R37 | ---                 |
|             | 2 - 13/32 | 1 - 15/16 | S80          | 10R38 | ---                 |

## MS24694 (AN509)

100° Flat Head Screw,  
Structural Machine Screw



| Thread Size | Length  | Grip   | CARBON STEEL |        | CORROSION RESISTANT |
|-------------|---------|--------|--------------|--------|---------------------|
|             |         |        | MS24694      | AN509  | MS24694             |
| 1/4-28      | 17/32   | 9/64   | S95          | 416R8  | C95                 |
|             | 19/32   | 9/64   | S96          | 416R9  | ---                 |
|             | 21/32   | 9/64   | S97          | 416R10 | C97                 |
|             | 23/32   | 3/16   | S98          | 416R11 | C98                 |
|             | 25/32   | 1/4    | S99          | 416R12 | C99                 |
|             | 27/32   | 5/16   | S100         | 416R13 | C100                |
|             | 29/32   | 3/8    | S101         | 416R14 | ---                 |
|             | 31/32   | 7/16   | S102         | 416R15 | C102                |
|             | 1-1/32  | 1/2    | S103         | 416R16 | ---                 |
|             | 1-3/32  | 9/16   | S104         | 416R17 | ---                 |
|             | 1-5/32  | 5/8    | S105         | 416R18 | ---                 |
|             | 1-7/32  | 11/16  | S106         | 416R19 | ---                 |
|             | 1-9/32  | 3/4    | S107         | 416R20 | ---                 |
|             | 1-11/32 | 13/16  | S108         | 416R21 | ---                 |
|             | 1-13/32 | 7/8    | S109         | 416R22 | ---                 |
|             | 1-15/32 | 15/16  | S110         | 416R23 | ---                 |
|             | 1-17/32 | 1      | S111         | 416R24 | ---                 |
|             | 1-19/32 | 1-1/16 | S112         | 416R25 | ---                 |
|             | 1-21/32 | 1-1/8  | S113         | 416R26 | ---                 |
|             | 1-23/32 | 1-3/16 | S114         | 416R27 | ---                 |
|             | 1-25/32 | 1-1/4  | S115         | 416R28 | ---                 |
|             | 1-29/32 | 1-3/8  | S117         | 416R30 | ---                 |
|             | 1-31/32 | 1-7/16 | S118         | 416R31 | ---                 |
|             | 2-1/32  | 1-1/2  | S119         | 416R32 | ---                 |

## PE21101

130° Flat Head Screw,  
Torq Set Recess  
10-32 Diameter

"S" Indicates Steel Alloy  
"D" Indicates Cadmium Plated Steel Alloy  
"C" Indicates Corrosion Resistant Steel  
"P" Indicates Passivated, Corrosion Resistant Steel

(Image of: PE21101-3-10SD)



(Image of: PE21101-3-6CP)



| Part Number   | Length | Grip | Part Number    | Length | Grip |
|---------------|--------|------|----------------|--------|------|
| PE21101-3-1SD | 13/32  | 1/15 | PE21101-3-4SD  | 19/32  | 1/4  |
| PE21101-3-2CP | 15/32  | 1/8  | PE21101-3-6CP  | 23/32  | 3/8  |
| PE21101-3-2SD | 15/32  | 1/8  | PE21101-3-6SD  | 23/32  | 3/8  |
| PE21101-3-3CP | 17/32  | 3/16 | PE21101-3-8SD  | 27/32  | 1/2  |
| PE21101-3-3SD | 17/32  | 3/16 | PE21101-3-10SD | 29/32  | 5/8  |
| PE21101-3-4CP | 19/32  | 1/4  |                |        |      |

## STRUCTURAL SCREW KIT #1

|                      |      |              |
|----------------------|------|--------------|
| 100 ea. MS24694S3    | Thru | MS24694S7    |
| 100 ea. MS24694S48   | Thru | MS24694S54   |
| 100 ea. NAS517-3-2   | Thru | NAS517-3-8   |
| 100 ea. AN525-832R6  | Thru | AN525-832R12 |
| 100 ea. AN525-10R6   | Thru | AN525-10R12  |
| 100 ea. MS27039-0808 | And  | MS27039-1-08 |
| 100 ea. MS27039C0808 | And  | MS27039C1-08 |

## STRUCTURAL SCREW KIT #2

|                      |      |              |
|----------------------|------|--------------|
| 100 ea. MS24694S3    | Thru | MS24694S9    |
| 100 ea. MS24694S48   | Thru | MS24694S58   |
| 100 ea. AN525-832R6  | Thru | AN525-832R16 |
| 100 ea. AN525-10R6   | Thru | AN525-10R16  |
| 100 ea. MS27039-0804 | Thru | MS27039-0812 |
| 100 ea. MS27039-1-06 | Thru | MS27039-1-16 |
| 100 ea. NAS517-3-2   | Thru | NAS517-3-8   |

## STRUCTURAL SCREW KIT #3

|                      |      |              |
|----------------------|------|--------------|
| 100 ea. MS24694S3    | Thru | MS24694S7    |
| 100 ea. MS24694S48   | Thru | MS24694S54   |
| 100 ea. MS24694C3    | Thru | MS24694C7    |
| 100 ea. MS24694C48   | Thru | MS24694C54   |
| 100 ea. NAS517-3-3   | Thru | NAS517-3-8   |
| 100 ea. AN525-832R6  | Thru | AN525-832R12 |
| 100 ea. AN525-10R6   | Thru | AN525-10R12  |
| 100 ea. MS27039-0806 | Thru | MS27039-0812 |
| 100 ea. MS27039-1-06 | Thru | MS27039-1-12 |
| 100 ea. MS27039C0808 | And  | MS27039C1-08 |

## AN526

Truss Head  
Machine Screw  
Non-Structural



| Thread | Length  | Carbon Steel | Corrosion Resistant |
|--------|---------|--------------|---------------------|
|        |         | AN526        | AN526               |
| 4-40   | 3/8     | 440R6        | C440R6              |
|        | 1/2     | 440R8        | C440R8              |
| 6-32   | 1/4     | 632R4        | C632R4              |
|        | 5/16    | 632R5        | C632R5              |
|        | 3/8     | 632R6        | C632R6              |
|        | 7/16    | 632R7        | C632R7              |
|        | 1/2     | 632R8        | C632R8              |
|        | 9/16    | 632R9        | ---                 |
|        | 5/8     | 632R10       | C632R10             |
|        | 3/4     | 632R12       | C632R12             |
|        | 7/8     | 632R14       | C632R14             |
|        | 1       | 632R16       | C632R16             |
|        | 1 - 1/4 | 632R20       | ---                 |
| 8-32   | 1/4     | 832R4        | C832R4              |
|        | 5/16    | 832R5        | C832R5              |
|        | 3/8     | 832R6        | C832R6              |
|        | 7/16    | 832R7        | C832R7              |
|        | 1/2     | 832R8        | C832R8              |
|        | 9/16    | 832R9        | C832R9              |
|        | 5/8     | 832R10       | C832R10             |
|        | 3/4     | 832R12       | C832R12             |
|        | 7/8     | 832R14       | C832R14             |
|        | 1       | 832R16       | C832R16             |
|        | 1 - 1/8 | 832R18       | ---                 |
|        | 1 - 1/4 | 832R20       | C832R20             |
| 10-32  | 1/4     | 1032R4       | C1032R4             |
|        | 5/16    | 1032R5       | C1032R5             |
|        | 3/8     | 1032R6       | C1032R6             |
|        | 7/16    | 1032R7       | C1032R7             |
|        | 1/2     | 1032R8       | C1032R8             |
|        | 9/16    | 1032R9       | C1032R9             |
|        | 5/8     | 1032R10      | C1032R10            |
|        | 3/4     | 1032R12      | C1032R12            |
|        | 7/8     | 1032R14      | C1032R14            |
|        | 1       | 1032R16      | C1032R16            |
|        | 1 - 1/4 | 1032R20      | C1032R20            |
|        | 1 - 3/8 | 1032R22      | ---                 |
|        | 1 - 1/2 | 1032R24      | ---                 |
|        | 2       | 1032R32      | ---                 |

## NAS1100

Pan Head Machine Screw  
Full Thread, Offset Cruciform Recess



| Length | .1360-32 | .1640-32 | .1900-32 |
|--------|----------|----------|----------|
|        | NAS1100- | NAS1100- | NAS1100- |
| .250   | 06-4     | ---      | 3-4      |
| .375   | 06-6     | ---      | 3-6      |
| .438   | 06-7     | 08-7     | 3-7      |
| .500   | 06-8     | 08-8     | 3-8      |
| .563   | ---      | ---      | 3-9      |
| .625   | ---      | 08-10    | 3-10     |
| .750   | ---      | 08-12    | 3-12     |
| .875   | ---      | ---      | 3-14     |
| 1.00   | ---      | ---      | 3-16     |

## MS51957 MS51958

Machine Screw,  
Pan Head, Phillips  
Corrosion Resistant,  
Non-Structural



| Thread | Length  | MS51957 |
|--------|---------|---------|
| 2-56   | 3/16    | 2       |
|        | 1/4     | 3       |
|        | 5/16    | 4       |
|        | 3/8     | 5       |
|        | 7/16    | 6       |
|        | 1/2     | 7       |
|        | 5/8     | 8       |
|        | 3/4     | 9       |
| 4-40   | 3/16    | 12      |
|        | 1/4     | 13      |
|        | 5/16    | 14      |
|        | 3/8     | 15      |
|        | 7/16    | 16      |
|        | 1/2     | 17      |
|        | 5/8     | 18      |
|        | 3/4     | 19      |
|        | 7/8     | 20      |
| 6-32   | 1       | 21      |
|        | 1/4     | 26      |
|        | 5/16    | 27      |
|        | 3/8     | 28      |
|        | 7/16    | 29      |
|        | 1/2     | 30      |
|        | 5/8     | 31      |
|        | 3/4     | 32      |
|        | 7/8     | 33      |
| 8-32   | 1       | 34      |
|        | 1 - 1/4 | 35      |
|        | 1 - 1/2 | 36      |
|        | 1 - 3/4 | 37      |
|        | 2       | 38      |
|        | 1/4     | 41      |
|        | 5/16    | 42      |
|        | 3/8     | 43      |
|        | 7/16    | 44      |
| 10-32  | 1/2     | 45      |
|        | 5/8     | 46      |
|        | 3/4     | 47      |
|        | 7/8     | 48      |
|        | 1       | 49      |
|        | 1 - 1/4 | 50      |
|        | 1 - 1/2 | 51      |
|        | 1 - 3/4 | 52      |
|        | 5/16    | 60      |
| 10-32  | 3/8     | 61      |
|        | 7/16    | 62      |
|        | 1/2     | 63      |
|        | 5/8     | 64      |
|        | 3/4     | 65      |
|        | 7/8     | 66      |
|        | 1       | 67      |
|        | 1 - 1/4 | 68      |
|        | 1 - 1/2 | 69      |
| 10-32  | 1 - 3/4 | 70      |

### MS35206 (AN515)

Pan Head,  
Machine Screw,  
Coarse Thread



| Thread | Length  | MS35206 | AN515   |
|--------|---------|---------|---------|
| 2-56   | 1/4     | 203     | 2R4     |
|        | 5/16    | 204     | 2R5     |
|        | 3/8     | 205     | 2R6     |
|        | 7/16    | 206     | 2R7     |
|        | 1/2     | 207     | 2R8     |
|        | 5/8     | 208     | 2R10    |
|        | 3/4     | 209     | 2R12    |
|        |         |         |         |
| 4-40   | 3/16    | 212     | 4R3     |
|        | 1/4     | 213     | 4R4     |
|        | 5/16    | 214     | 4R5     |
|        | 3/8     | 215     | 4R6     |
|        | 7/16    | 216     | 4R7     |
|        | 1/2     | 217     | 4R8     |
|        | 5/8     | 218     | 4R10    |
|        | 3/4     | 219     | 4R12    |
|        | 7/8     | 220     | 4R14    |
|        | 1       | 221     | 4R16    |
|        | 1 - 1/4 | 222     | 4R20    |
|        | 1 - 1/2 | 223     | 4R24    |
|        |         |         |         |
|        | 1/8     | 224     | 6R2     |
|        | 3/16    | 225     | 6R3     |
|        | 1/4     | 226     | 6R4     |
|        | 5/16    | 227     | 6R5     |
| 6-32   | 3/8     | 228     | 6R6     |
|        | 7/16    | 229     | 6R7     |
|        | 1/2     | 230     | 6R8     |
|        | 5/8     | 231     | 6R10    |
|        | 3/4     | 232     | 6R12    |
|        | 7/8     | 233     | 6R14    |
|        | 1       | 234     | 6R16    |
|        | 1 - 1/8 | 328     | 6R18    |
|        | 1 - 1/4 | 235     | 6R20    |
|        | 1 - 1/2 | 236     | 6R24    |
|        | 1 - 3/4 | 237     | 6R28    |
|        | 2       | 238     | 6R32    |
|        |         |         |         |
|        | 3/16    | 240     | 8R3     |
|        | 1/4     | 241     | 8R4     |
|        | 5/16    | 242     | 8R5     |
| 8-32   | 3/8     | 243     | 8R6     |
|        | 7/16    | 244     | 8R7     |
|        | 1/2     | 245     | 8R8     |
|        | 5/8     | 246     | 8R10    |
|        | 3/4     | 247     | 8R12    |
|        | 7/8     | 248     | 8R14    |
|        | 1       | 249     | 8R16    |
|        | 1 - 1/4 | 250     | 8R20    |
|        | 1 - 1/2 | 251     | 8R24    |
|        | 1 - 3/4 | 252     | 8R28    |
|        | 2       | 253     | 8R32    |
|        | 2 - 1/4 | 254     | 8R36    |
|        |         |         |         |
|        | 5/16    | 260     | 1024R5  |
|        | 3/8     | 261     | 1024R6  |
|        | 7/16    | 262     | 1024R7  |
| 10-24  | 1/2     | 263     | 1024R8  |
|        | 5/8     | 264     | 1024R10 |
|        | 3/4     | 265     | 1024R12 |
|        | 1       | 267     | 1024R16 |
|        |         |         |         |
|        |         |         |         |

### MS35207 (AN520)

Pan Head, Machine Screw,  
Non-Structural, Fine Thread



| Thread | Length  | MS35207 | AN520  |
|--------|---------|---------|--------|
| 6-40   | 1/4     | 226     | 6R4    |
|        | 3/8     | 228     | 6R6    |
|        | 1/2     | 230     | 6R8    |
|        | 3/4     | 232     | 6R12   |
| 8-36   | 5/16    | 242     | 8R5    |
|        | 3/8     | 243     | 8R6    |
|        | 1/2     | 245     | 8R8    |
|        | 5/8     | 246     | 8R10   |
| 10-32  | 1/4     | 259     | 10R4   |
|        | 5/16    | 260     | 10R5   |
|        | 3/8     | 261     | 10R6   |
|        | 7/16    | 262     | 10R7   |
|        | 1/2     | 263     | 10R8   |
|        | 5/8     | 264     | 10R10  |
|        | 3/4     | 265     | 10R12  |
|        | 7/8     | 266     | 10R14  |
|        | 1       | 267     | 10R16  |
|        | 1 - 1/4 | 268     | 10R20  |
|        | 1 - 1/2 | 269     | 10R24  |
|        | 1 - 3/4 | 270     | 10R28  |
|        | 2       | 271     | 10R32  |
|        | 2 - 1/4 | 272     | 10R36  |
|        | 2 - 1/2 | 273     | 10R40  |
|        | 3       | 275     | 10R48  |
|        |         |         |        |
| 1/4-28 | 3/8     | 277     | 416R6  |
|        | 7/16    | 278     | 416R7  |
|        | 1/2     | 279     | 416R8  |
|        | 5/8     | 280     | 416R10 |
|        | 3/4     | 281     | 416R12 |
|        | 7/8     | 282     | 416R14 |
|        | 1       | 283     | 416R16 |
|        |         |         |        |

### NAS623

Pan Head, Machine Screw,  
Cross Recess, Short Thread,  
160,000 PSI, Alloy Steel



| Thread | Length | Grip  | NAS623 |
|--------|--------|-------|--------|
| 8-32   | .338   | .062  | 2-1    |
|        | .401   | .125  | 2-2    |
|        | .464   | .188  | 2-3    |
|        | .526   | .250  | 2-4    |
|        | .588   | .312  | 2-5    |
|        | .651   | .375  | 2-6    |
|        | .714   | .438  | 2-7    |
|        | .776   | .500  | 2-8    |
|        | .901   | .625  | 2-10   |
|        | 1.026  | .750  | 2-12   |
|        |        |       |        |
|        |        |       |        |
| 10-32  | .338   | .062  | 3-1    |
|        | .401   | .125  | 3-2    |
|        | .464   | .188  | 3-3    |
|        | .526   | .250  | 3-4    |
|        | .588   | .312  | 3-5    |
|        | .651   | .375  | 3-6    |
|        | .714   | .438  | 3-7    |
|        | .776   | .500  | 3-8    |
|        | .838   | .462  | 3-9    |
|        | .901   | .625  | 3-10   |
|        | 1.026  | .750  | 3-12   |
|        | 1.151  | .875  | 3-14   |
|        | 1.276  | 1.000 | 3-16   |



### MS27039

Structural Machine Screw,  
Crossed-Recessed



| Thread | Length | Grip  | MS27039 |
|--------|--------|-------|---------|
| 8-32   | .281   | ---   | 0804    |
|        | .344   | ---   | 0805    |
|        | .406   | ---   | 0806    |
|        | .469   | ---   | 0807    |
|        | .531   | .094  | 0808    |
|        | .594   | .156  | 0809    |
|        | .656   | .219  | 0810    |
|        | .719   | .281  | 0811    |
|        | .781   | .344  | 0812    |
|        | .844   | .406  | 0813    |
|        | .906   | .469  | 0814    |
|        | .969   | .531  | 0815    |
|        | 1.031  | .594  | 0816    |
|        | 1.094  | .656  | 0817    |
|        | 1.156  | .719  | 0818    |
|        | 1.219  | .781  | 0819    |
|        | 1.281  | .844  | 0820    |
|        | 1.406  | .969  | 0822    |
| 10-32  | .281   | ---   | 1-04    |
|        | .344   | ---   | 1-05    |
|        | .406   | ---   | 1-06    |
|        | .469   | ---   | 1-07    |
|        | .531   | .062  | 1-08    |
|        | .594   | .125  | 1-09    |
|        | .656   | .188  | 1-10    |
|        | .719   | .250  | 1-11    |
|        | .781   | .312  | 1-12    |
|        | .844   | .375  | 1-13    |
|        | .906   | .438  | 1-14    |
|        | .969   | .500  | 1-15    |
|        | 1.031  | .563  | 1-16    |
|        | 1.094  | .625  | 1-17    |
|        | 1.156  | .688  | 1-18    |
|        | 1.219  | .750  | 1-19    |
|        | 1.281  | .813  | 1-20    |
|        | 1.344  | .875  | 1-21    |
|        | 1.406  | .938  | 1-22    |
|        | 1.469  | 1.000 | 1-23    |
|        | 1.531  | 1.062 | 1-24    |
|        | 1.594  | 1.125 | 1-25    |
|        | 1.656  | 1.188 | 1-26    |
|        | 1.719  | 1.250 | 1-27    |
|        | 1.781  | 1.312 | 1-28    |
|        | 1.906  | 1.438 | 1-30    |
|        | 2.031  | 1.563 | 1-32    |
|        | 2.406  | 1.938 | 1-38    |
| 1/4-28 | .344   | ---   | 4-05    |
|        | .406   | ---   | 4-06    |
|        | .469   | ---   | 4-07    |
|        | .531   | ---   | 4-08    |
|        | .594   | .062  | 4-09    |
|        | .656   | .125  | 4-10    |
|        | .719   | .188  | 4-11    |
|        | .781   | .250  | 4-12    |
|        | .844   | .312  | 4-13    |
|        | .916   | .375  | 4-14    |
|        | .969   | .438  | 4-15    |
|        | 1.031  | .500  | 4-16    |

### MS27039C

Structural Machine Screw  
Corrosion Resistant



| Thread | Length | Grip | MS27039 |
|--------|--------|------|---------|
| 8-32   | .344   | ---  | C0805   |
|        | .406   | ---  | C0806   |
|        | .469   | ---  | C0807   |
|        | .531   | .094 | C0808   |
|        | .594   | .156 | C0809   |
|        | .656   | .219 | C0810   |
|        | .781   | .344 | C0812   |
|        | .844   | .406 | C0813   |
|        | .906   | .469 | C0814   |
|        | 1.031  | .594 | C0816   |
| 10-32  | .44    | ---  | C1-05   |
|        | .406   | ---  | C1-06   |
|        | .469   | ---  | C1-07   |
|        | .531   | .062 | C1-08   |
|        | .594   | .125 | C1-09   |
|        | .656   | .188 | C1-10   |
|        | .719   | .250 | C1-11   |
|        | .781   | .312 | C1-12   |
|        | .844   | .375 | C1-13   |
|        | .906   | .438 | C1-14   |
|        | 1.031  | .563 | C1-16   |
|        | 1.094  | .625 | C1-17   |
|        | 1.156  | .688 | C1-18   |
|        | 1.281  | .813 | C1-20   |
|        | 1.344  | .875 | C1-21   |

### MS27039DD

Structural Machine Screw,  
2024 Aluminum Alloy



| Thread | Length | Grip  | MS27039 |
|--------|--------|-------|---------|
| 8-32   | .406   | ---   | DD0806  |
|        | .469   | ---   | DD0807  |
|        | .531   | .094  | DD0808  |
|        | .656   | .219  | DD0810  |
|        | .781   | .344  | DD0812  |
|        | .906   | .469  | DD0814  |
|        | 1.031  | .594  | DD0816  |
| 10-32  | .406   | ---   | DD1-06  |
|        | .469   | ---   | DD1-07  |
|        | .531   | .062  | DD1-08  |
|        | .594   | .125  | DD1-09  |
|        | .656   | .188  | DD1-10  |
|        | .781   | .312  | DD1-12  |
|        | .906   | .438  | DD1-14  |
|        | 1.031  | .563  | DD1-16  |
|        | 1.156  | .688  | DD1-18  |
|        | 1.281  | .813  | DD1-20  |
|        | 1.531  | 1.062 | DD1-24  |
|        | 1.656  | 1.188 | DD1-26  |
|        | 1.781  | 1.312 | DD1-28  |
|        | 1.906  | 1.438 | DD1-30  |
|        | 2.031  | 1.563 | DD1-32  |

## AN525

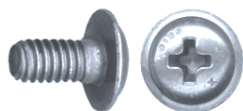
Washer Head Screw  
Structural, Alloy Steel



| Thread | Length  | Grip    | AN525  |
|--------|---------|---------|--------|
| 8-32   | 5/16    | 1/32    | 832R5  |
|        | 3/8     | 1/32    | 832R6  |
|        | 7/16    | 1/16    | 832R7  |
|        | 1/2     | 1/8     | 832R8  |
|        | 9/16    | 5/32    | 832R9  |
|        | 5/8     | 7/32    | 832R10 |
|        | 11/16   | 9/32    | 832R11 |
|        | 3/4     | 11/32   | 832R12 |
|        | 7/8     | 15/32   | 832R14 |
|        | 1       | 19/32   | 832R16 |
|        | 1 - 1/8 | 23/32   | 832R18 |
|        | 1 - 1/4 | 27/32   | 832R20 |
|        | 1 - 3/8 | 31/32   | 832R22 |
|        | 1 - 1/2 | 1-3/32  | 832R24 |
|        | 1 - 5/8 | 1-7/32  | 832R26 |
| 10-32  | 1/4     | 1/32    | 10R4   |
|        | 5/16    | 1/32    | 10R5   |
|        | 3/8     | 1/32    | 10R6   |
|        | 7/16    | 1/16    | 10R7   |
|        | 1/2     | 1/8     | 10R8   |
|        | 9/16    | 5/32    | 10R9   |
|        | 5/8     | 7/32    | 10R10  |
|        | 11/16   | 9/32    | 10R11  |
|        | 3/4     | 11/32   | 10R12  |
|        | 7/8     | 15/32   | 10R14  |
|        | 1       | 19/32   | 10R16  |
|        | 1 - 1/8 | 23/32   | 10R18  |
|        | 1 - 1/4 | 27/32   | 10R20  |
|        | 1 - 3/8 | 31/32   | 10R22  |
|        | 1 - 1/2 | 1-3/32  | 10R24  |
| 1/4-28 | 1 - 5/8 | 1-7/32  | 10R26  |
|        | 1 - 3/4 | 1-11/32 | 10R28  |
|        | 7/16    | 1/16    | 416R7  |
|        | 1/2     | 1/8     | 416R8  |
|        | 9/16    | 5/32    | 416R9  |
|        | 5/8     | 7/32    | 416R10 |
|        | 3/4     | 11/32   | 416R12 |
|        | 7/8     | 15/32   | 416R14 |
|        | 1       | 19/32   | 416R16 |
|        | 1 - 1/4 | 27/32   | 416R20 |
|        | 1 - 1/2 | 1-3/32  | 416R24 |

## AN525

Washer Head  
Machine Screw,  
Structural, Aluminum



| Thread | Length | Grip  | AN525  |
|--------|--------|-------|--------|
| 10-32  | 3/8    | 1/32  | D10R6  |
|        | 7/16   | 1/16  | D10R7  |
|        | 1/2    | 1/2   | D10R8  |
|        | 9/16   | 5/32  | D10R9  |
|        | 5/8    | 7/32  | D10R10 |
|        | 11/16  | 9/32  | D10R11 |
|        | 3/4    | 11/32 | D10R12 |

## NAS517

Close Tolerance  
100° Flat Head Screw



| Thread   | Length | Grip  | NAS517 |
|----------|--------|-------|--------|
| .1640-32 | .406   | ---   | 2-0    |
|          | .469   | ---   | 2-1    |
|          | .531   | .125  | 2-2    |
|          | .594   | .188  | 2-3    |
|          | .656   | .250  | 2-4    |
|          | .719   | .312  | 2-5    |
|          | .781   | .375  | 2-6    |
|          | .844   | .438  | 2-7    |
|          | .906   | .500  | 2-8    |
|          | 1.031  | .625  | 2-10   |
|          | 1.093  | .688  | 2-11   |
|          | 1.156  | .750  | 2-12   |
|          | 1.219  | .812  | 2-13   |
|          | 1.281  | .875  | 2-14   |
| .1900-32 | 1.343  | .938  | 2-15   |
|          | 1.406  | 1.000 | 2-16   |
|          | .343   | ---   | 3-00   |
|          | .406   | ---   | 3-0    |
|          | .469   | ---   | 3-1    |
|          | .531   | .125  | 3-2    |
|          | .594   | .188  | 3-3    |
|          | .656   | .250  | 3-4    |
|          | .719   | .312  | 3-5    |
|          | .781   | .375  | 3-6    |
|          | .844   | .438  | 3-7    |
|          | .906   | .500  | 3-8    |
|          | .969   | .562  | 3-9    |
|          | 1.031  | .625  | 3-10   |
| .2500-28 | 1.093  | .688  | 3-11   |
|          | 1.156  | .750  | 3-12   |
|          | 1.219  | .812  | 3-13   |
|          | 1.281  | .875  | 3-14   |
|          | 1.343  | .938  | 3-15   |
|          | 1.406  | 1.000 | 3-16   |
|          | 1.531  | 1.125 | 3-18   |
|          | 1.656  | 1.250 | 3-20   |
|          | 1.781  | 1.375 | 3-22   |
|          | 1.906  | 1.500 | 3-24   |
|          | 2.031  | 1.625 | 3-26   |
|          | .531   | ---   | 4-0    |
|          | .594   | .125  | 4-2    |
|          | .656   | .188  | 4-3    |
| .3125-24 | .719   | .250  | 4-4    |
|          | .781   | .312  | 4-5    |
|          | .844   | .375  | 4-6    |
|          | .906   | .438  | 4-7    |
|          | .969   | .500  | 4-8    |
|          | 1.031  | .562  | 4-9    |
|          | 1.093  | .625  | 4-10   |
|          | 1.156  | .688  | 4-11   |
|          | 1.219  | .750  | 4-12   |
|          | 1.281  | .812  | 4-13   |
|          | 1.343  | .875  | 4-14   |
|          | 1.468  | 1.000 | 4-16   |
|          | .781   | .250  | 5-4    |
|          | .844   | .312  | 5-5    |
|          | .906   | .375  | 5-6    |
|          | .969   | .438  | 5-7    |
|          | 1.031  | .500  | 5-8    |
|          | 1.093  | .562  | 5-9    |
|          | 1.156  | .625  | 5-10   |
|          | 1.219  | .688  | 5-11   |
|          | 1.281  | .750  | 5-12   |
|          | 1.531  | 1.000 | 5-16   |

## MS35214 (AN515B) (Coarse Thread)

## MS35215 (AN520B) (Fine Thread)

Black Brass Instrument  
Pan Head Screw



| Thread Size | Length | MS35214 | AN515B  |
|-------------|--------|---------|---------|
| 4-40        | 1/4"   | 12      | 440R4   |
|             | 5/16"  | 13      | 440R5   |
|             | 3/8"   | 14      | 440R6   |
|             | 5/16"  | 15      | 440R7   |
|             | 1/2"   | 16      | 440R8   |
|             | 5/8"   | 17      | 440R10  |
|             | 3/4"   | 18      | 440R12  |
|             | 1"     | 20      | 440R16  |
|             |        |         |         |
| 6-32        | 5/16"  | 24      | 632R5   |
|             | 3/8"   | 25      | 632R6   |
|             | 7/16"  | 26      | 632R7   |
|             | 1/2"   | 27      | 632R8   |
|             | 5/8"   | 28      | 632R10  |
|             | 3/4"   | 29      | 632R12  |
|             | 7/8"   | 30      | 632R14  |
|             | 1"     | 31      | 632R16  |
|             | 1-1/4" | 32      | 632R20  |
|             | 1-1/2" | 33      | 632R24  |
|             | 1-3/4" | 34      | 632R28  |
|             | 2"     | 35      | 632R32  |
|             |        |         |         |
|             | 3/8"   | 40      | 832R6   |
|             | 1/2"   | 42      | 832R8   |
|             | 5/8"   | 43      | 832R10  |
|             | 3/4"   | 44      | 832R12  |
|             | 7/8"   | 45      | 832R14  |
|             | 1"     | 46      | 832R16  |
|             | 1-1/4" | 47      | 832R20  |
|             | 1-1/2" | 48      | 832R24  |
|             | 2"     | 50      | 832R32  |
| Thread      | Length | MS35215 | AN520B  |
| 10-32       | 1/2"   | 55      | 1032R8  |
|             | 5/8"   | 56      | 1032R10 |
|             | 3/4"   | 57      | 1032R12 |
|             | 1"     | 59      | 1032R16 |
|             | 1-1/4" | 60      | 1032R20 |
|             | 1-1/2" | 61      | 1032R24 |

## MS24693BB

## (AN507B)

Black Brass Instrument  
Flat Head Screw



| Thread Size | Length | MS24693 | AN507B  |
|-------------|--------|---------|---------|
| 4-40        | 1/4"   | BB2     | 440R4   |
|             | 3/8"   | BB4     | 440R6   |
|             | 1/2"   | BB6     | 440R8   |
|             | 5/8"   | BB7     | 440R10  |
|             | 3/4"   | BB8     | 440R12  |
|             | 1"     | BB10    | 440R16  |
|             |        |         |         |
| 6-32        | 1/4"   | BB24    | 632R4   |
|             | 5/16"  | BB25    | 632R5   |
|             | 3/8"   | BB26    | 632R6   |
|             | 7/16"  | BB27    | 632R7   |
|             | 1/2"   | BB28    | 632R8   |
|             | 5/8"   | BB29    | 632R10  |
|             | 3/4"   | BB30    | 632R12  |
|             | 7/8"   | BB31    | 632R14  |
|             | 1"     | BB32    | 632R16  |
|             | 1-1/8" | BB33    | 632R18  |
|             | 1-1/4" | BB34    | 632R20  |
|             | 1-1/2" | BB36    | 632R24  |
|             | 2"     | BB40    | 632R32  |
|             |        |         |         |
|             | 3/8"   | BB48    | 832R6   |
|             | 1/2"   | BB50    | 832R8   |
|             | 5/8"   | BB51    | 832R10  |
|             | 3/4"   | BB52    | 832R12  |
|             | 7/8"   | BB53    | 832R14  |
|             | 1"     | BB54    | 832R16  |
|             | 1-1/4" | BB56    | 832R20  |
|             | 1-1/2" | BB58    | 832R24  |
|             | 2"     | BB62    | 832R32  |
| 10-32       | 1/2"   | BB272   | 1032R8  |
|             | 5/8"   | BB273   | 1032R10 |
|             | 3/4"   | BB274   | 1032R12 |
|             | 1"     | BB276   | 1032R16 |

## MS51957-#B (Coarse Thread)

## MS51958-#B (Fine Thread)

Machine Screw,  
Pan Head, Phillips  
Corrosion Resistant, Black Oxide Coating



| Thread | Length | MS51957 |
|--------|--------|---------|
| 4-40   | 1/4"   | 13B     |
|        | 5/16"  | 14B     |
|        | 3/8"   | 15B     |
|        | 1/2"   | 17B     |
| 6-32   | 7/16"  | 29B     |
|        | 1/2"   | 30B     |
|        | 3/4"   | 32B     |
| 8-32   | 3/8"   | 43B     |
|        | 1/2"   | 45B     |
|        | 5/8"   | 46B     |
|        | 3/4"   | 47B     |
| Thread | Length | MS51958 |
| 10-32  | 1/2"   | 63B     |
|        | 3/4"   | 65B     |

## MS24693-#B

100° Flat Head  
Machine Screw  
Corrosion Resistant Steel,  
Black Oxide Coating



| Thread Size | Length | MS24693 |
|-------------|--------|---------|
| 4-40        | 5/16"  | 3B      |
|             | 3/8"   | 4B      |
| 6-32        | 3/8"   | 26B     |
|             | 1/2"   | 28B     |
| 8-32        | 1/2"   | 50B     |
|             | 5/8"   | 51B     |
| 10-32       | 3/4"   | 274B    |

## MS35265 MS35266

Fillister Head, Machine Screw,  
Drilled, Slotted



| Thread Size | Length | MS35265 | AN500  |
|-------------|--------|---------|--------|
| 4-40        | 1/4"   | -13     | A4-4   |
|             | 5/16"  | -14     | A4-5   |
|             | 3/8"   | -15     | A4-6   |
|             | 7/16"  | -16     | A4-7   |
|             | 1/2"   | -17     | A4-8   |
|             | 3/4"   | -19     | A4-12  |
|             | 7/8"   | -20     | -      |
|             | 1"     | -21     | -      |
|             | 1-1/4" | -22     | -      |
| 6-32        | 3/16"  | -25     | A6-3   |
|             | 1/4"   | -26     | A6-4   |
|             | 5/16"  | -27     | A6-5   |
|             | 3/8"   | -28     | A6-6   |
|             | 7/16"  | -29     | A6-7   |
|             | 1/2"   | -30     | A6-8   |
|             | 5/8"   | -31     | A6-10  |
|             | 3/4"   | -32     | A6-12  |
|             | 1"     | -34     | A6-16  |
| 8-32        | 1-1/2" | -36     | A6-24  |
|             | 1/4"   | -41     | A8-4   |
|             | 5/16"  | -42     | A8-5   |
|             | 3/8"   | -43     | A8-6   |
|             | 7/16"  | -44     | A8-7   |
|             | 1/2"   | -45     | A8-8   |
|             | 5/8"   | -46     | A8-10  |
|             | 3/4"   | -47     | A8-12  |
|             | 7/8"   | -48     | A8-14  |
| 10-24       | 1"     | -49     | A8-16  |
|             | 1/4"   | -59     | A10-4  |
|             | 5/16"  | -60     | A10-5  |
|             | 3/8"   | -61     | A10-6  |
|             | 7/16"  | -62     | A10-7  |
|             | 1/2"   | -63     | A10-8  |
|             | 5/8"   | -64     | A10-10 |
|             | 3/4"   | -65     | A10-12 |
|             | 1"     | -67     | A10-16 |
| Thread Size | Length | MS35266 | AN501  |
| 10-32       | 1/4"   | -59     | A10-4  |
|             | 5/16"  | -60     | A10-5  |
|             | 3/8"   | -61     | A10-6  |
|             | 7/16"  | -62     | A10-7  |
|             | 1/2"   | -63     | A10-8  |
|             | 5/8"   | -64     | A10-10 |
|             | 3/4"   | -65     | A10-12 |
|             | 7/8"   | -66     | A10-14 |
|             | 1"     | -67     | A10-16 |
|             | 1-1/4" | -68     | ----   |

## AN502

Fillister Head Screw,  
Drilled, Slotted



| Thread | Length | AN502-10 |
|--------|--------|----------|
| 10-32  | 1/4"   | -4       |
|        | 3/8"   | -6       |
|        | 1/2"   | -8       |
|        | 5/8"   | -10      |
|        | 3/4"   | -12      |
|        | 7/8"   | -14      |
|        | 1"     | -16      |
|        | 1-1/8" | -18      |

## AN503

Fillister Head Screw,  
Drilled, Slotted



| Thread | Length | AN503-6   |
|--------|--------|-----------|
| 6-32   | 1/4"   | -4        |
|        | 3/8"   | -6        |
|        | 1/2"   | -8        |
|        | 5/8"   | -10       |
| Thread | Length | AN503-8   |
| 8-32   | 1/4"   | -4        |
|        | 3/8"   | -6        |
|        | 1/2"   | -8        |
|        | 5/8"   | -10       |
|        | 3/4"   | -12       |
|        | 7/8"   | -14       |
| 10-24  | 1"     | -16       |
|        | 1/4"   | -4        |
|        | 3/8"   | -6        |
|        | 1/2"   | -8        |
|        | 5/8"   | -10       |
| Thread | Length | AN503-10  |
| 10-24  | 3/8"   | -6        |
|        | 1/2"   | -8        |
|        | 5/8"   | -10       |
|        | 3/4"   | -12       |
|        | 1-1/8" | -18       |
| 1/4-28 | 1-1/2" | -24       |
|        | 3/4"   | -12       |
| Thread | Length | AN503-416 |
| 1/4-28 | 5/8"   | -10       |
|        | 3/4"   | -12       |

## NAS1101

Flat Fillister Head  
Full Thread Machine Screw  
Offset Cruciform Recess



| Thread   | Length | NAS1101- |
|----------|--------|----------|
| .1360-32 | .375   | 06-6     |
|          | .500   | 06-8     |
| .1640-32 | .500   | 08-8     |
| .1900-32 | .438   | 3-7      |
|          | .500   | 3-8      |
|          | .563   | 3-9      |
|          | .625   | 3-10     |
|          | .750   | 3-12     |
|          | 1.00   | 3-16     |
|          | 1.25   | 3-20     |

**NAS1351, NAS1352**  
**MS16995, MS16996, MS16997, MS16998**

Socket Head Screw - UNDRILLED



| Diameter | Length | ALLOY STEEL |         | STAINLESS STEEL |         |
|----------|--------|-------------|---------|-----------------|---------|
|          |        | NAS1352     | MS16997 | NAS1352         | MS16995 |
| .0860-56 | 1/4    | 02-4P       | 2       | C02-4           | 2       |
|          | 3/8    | 02-6P       | 3       | C02-6           | 3       |
|          | 1/2    | 02-8P       | 4       | C02-8           | 4       |
|          | 5/8    | 02-10P      | —       | C02-10          | —       |
|          | 3/4    | 02-12P      | —       | C02-12          | —       |
| .1120-40 | 1/4    | 04-4P       | 9       | C04-4           | 9       |
|          | 3/8    | 04-6P       | 10      | C04-6           | —       |
|          | 1/2    | 04-8P       | 11      | C04-8           | 10      |
|          | 5/8    | 04-10P      | 12      | C04-10          | 11      |
|          | 3/4    | 04-12P      | 13      | C04-12          | 12      |
| .1380-32 | 1/4    | 06-4P       | 18      | C06-4           | 16      |
|          | 3/8    | 06-6P       | 19      | C06-6           | 17      |
|          | 1/2    | 06-8P       | 20      | C06-8           | 18      |
|          | 5/8    | 06-10P      | 21      | C06-10          | 19      |
|          | 3/4    | 06-12P      | 22      | C06-12          | 20      |
| .1640-32 | 1/4    | 08-4P       | 30      | C08-4           | —       |
|          | 3/8    | 08-6P       | 31      | C08-6           | 25      |
|          | 1/2    | 08-8P       | 32      | C08-8           | 26      |
|          | 5/8    | 08-10P      | 33      | C08-10          | 27      |
|          | 3/4    | 08-12P      | 34      | C08-12          | 28      |
|          | 1      | 08-16P      | 36      | C08-16          | 30      |
| Diameter | Length | NAS1351     | MS16998 | NAS1351         | MS16996 |
| .1900-32 | 3/8    | 3-6P        | 26      | C3-6            | 9       |
|          | 1/2    | 3-8P        | 27      | C3-8            | 10      |
|          | 5/8    | 3-10P       | 28      | C3-10           | 11      |
|          | 3/4    | 3-12P       | 29      | C3-12           | 12      |
|          | 1      | 3-16P       | 31      | C3-16           | 13      |
| .2500-28 | 3/8    | 4-6P        | 40      | C4-6            | —       |
|          | 1/2    | 4-8P        | 41      | C4-8            | 21      |
|          | 5/8    | 4-10P       | 42      | C4-10           | 22      |
|          | 3/4    | 4-12P       | 43      | C4-12           | 23      |
|          | 1      | 4-16P       | 45      | C4-16           | 24      |
|          | 1-1/4  | 4-20P       | 46      | C4-20           | 25      |
|          | 1-1/2  | 4-24P       | 47      | C4-24           | 26      |

**NAS1351, NAS1352**  
**MS24673, MS24674, MS24677, MS24678**

Socket Head Screw - DRILLED



| Diameter | Length | ALLOY STEEL |         | STAINLESS STEEL |         |
|----------|--------|-------------|---------|-----------------|---------|
|          |        | NAS1352     | MS24677 | NAS1352         | MS24674 |
| .1380-32 | 3/8    | 06H6P       | 7       | C06H6           | 2       |
|          | 1/2    | 06H8P       | 8       | C06H8           | 3       |
|          | 5/8    | 06H10P      | 9       | C06H10          | 4       |
|          | 3/4    | 06H12P      | 10      | C06H12          | 5       |
| .1640-32 | 3/8    | 08H6P       | 14      | C08H6           | 7       |
|          | 1/2    | 08H8P       | 15      | C08H8           | 8       |
|          | 5/8    | 08H10P      | 16      | C08H10          | 9       |
| Diameter | Length | NAS1351     | MS24678 | NAS1351         | MS24673 |
| .1900-32 | 3/8    | 3H6P        | 9       | C3-6            | 1       |
|          | 1/2    | 3H8P        | 10      | C3-8            | 2       |
|          | 5/8    | 3H10P       | 11      | C3-10           | 3       |
|          | 3/4    | 3H12P       | 12      | C3-12           | 4       |
| .2500-28 | 3/8    | 4H6P        | 19      | —               | —       |
|          | 1/2    | 4H8P        | 20      | C4H8            | 9       |
|          | 5/8    | 4H10P       | 21      | C4H10           | 10      |
|          | 3/4    | 4H12P       | 22      | C4H12           | 11      |
|          | 1      | 4H16P       | 24      | C4H16           | 12      |



## NAS1801

Hex Head Screw  
Full Thread, Cruciform Recess  
Alloy Steel



| Length | 4-40 Dia.<br>NAS1801 | 6-32 Dia.<br>NAS1801 | 8-32 Dia.<br>NAS1801 | 10-32 Dia.<br>NAS1801 |
|--------|----------------------|----------------------|----------------------|-----------------------|
| .250   | -04-4                | -06-4                | -08-4                | -3-4                  |
| .312   | -04-5                | -06-5                | -08-5                | -3-5                  |
| .375   | -04-6                | -06-6                | -08-6                | -3-6                  |
| .437   | -04-7                | -06-7                | -08-7                | -3-7                  |
| .500   | -04-8                | -06-8                | -08-8                | -3-8                  |
| .563   | -04-9                | -06-9                | -08-9                | -3-9                  |
| .625   | -04-10               | -06-10               | -08-10               | -3-10                 |
| .750   | -04-12               | -06-12               | -08-12               | -3-12                 |
| .875   | ---                  | ---                  | -08-14               | -3-14                 |
| 1.00   | -04-16               | ---                  | -08-16               | -3-16                 |
| 1.12   | ---                  | ---                  | -08-18               | -3-18                 |
| 1.25   | ---                  | ---                  | -08-20               | -3-20                 |
| 1.375  | ---                  | ---                  | -08-22               | -3-22                 |
| 1.50   | ---                  | ---                  | -08-24               | -3-24                 |
| 1.625  | ---                  | ---                  | ---                  | -3-26                 |
| 1.75   | ---                  | ---                  | ---                  | -3-28                 |
| 1.875  | ---                  | ---                  | ---                  | -3-30                 |

## NAS1802

Hex Head Screw  
Full Thread, Cruciform Recess  
A286 CRES Steel



| Length | 4-40 Dia.<br>NAS1802 | 6-32 Dia.<br>NAS1802 | 10-32 Dia.<br>NAS1802 |
|--------|----------------------|----------------------|-----------------------|
| .375   | -04-6                | -06-6                | -3-6                  |
| .437   | -04-7                | -06-7                | -3-7                  |
| .500   | -04-8                | -06-8                | -3-8                  |

## MS35308

Hex Head Cap Screw  
Corrosion Resistant Steel  
Passivated, 1/4-28 Thread



| Length | Part Number | Length | Part Number |
|--------|-------------|--------|-------------|
| .500   | MS35308-303 | .875   | MS35308-307 |
| .562   | MS35308-304 | 1.00   | MS35308-308 |
| .625   | MS35308-305 | 1.25   | MS35308-310 |
| .750   | MS35308-306 | 1.50   | MS35308-312 |

## AN565

Set Screws, Hex Socket Head  
Length in 1/16 of an inch  
Add Point Style Type after Base #  
"A" after Base # for Flat Point  
"D" after Base # for Cup Point

Flat Point Cup Point



| 4-40 Dia.<br>AN565 | 6-32 Dia.<br>AN565 | 8-32 Dia.<br>AN565 | 10-32 Dia.<br>AN565 |
|--------------------|--------------------|--------------------|---------------------|
| A4H2               | A6H3               | A8H2               | A1032H4             |
| A4H3               | A6H4               | A8H3               | A1032H5             |
| A4H4               | A6H5               | A8H4               | A1032H6             |
| A4H5               | A6H6               | A8H5               | D1032H4             |
| D4H2               | D6H2               | D8H2               | D1032H5             |
| D4H3               | D6H3               | D8H3               | D1032H6             |
| D4H4               | D6H4               | D8H4               | D1032H8             |
| D4H5               | D6H5               | D8H6               | D1032H9             |

## NAS1096

Hex Head Recessed Screw  
Fully Threaded,  
125,000-145,000 PSI



| Length | 6-32 Dia.<br>NAS1096 | 8-32 Dia.<br>NAS1096 | 10-32 Dia.<br>NAS1096 |
|--------|----------------------|----------------------|-----------------------|
| 1/4    | 1-4                  | 2-4                  | 3-4                   |
| 5/16   | 1-5                  | 2-5                  | 3-5                   |
| 3/8    | 1-6                  | 2-6                  | 3-6                   |
| 7/16   | 1-7                  | 2-7                  | 3-7                   |
| 1/2    | 1-8                  | 2-8                  | 3-8                   |
| 9/16   | 1-9                  | 2-9                  | 3-9                   |
| 5/8    | 1-10                 | 2-10                 | 3-10                  |
| 3/4    | 1-12                 | 2-12                 | 3-12                  |
| 7/8    | 1-14                 | 2-14                 | 3-14                  |
| 1      | 1-16                 | 2-16                 | 3-16                  |
| 1-1/4  | ---                  | ---                  | 3-20                  |
| 2      | ---                  | ---                  | 3-32                  |

## NAS1153

100° Close Tolerance Machine Screw  
Short Thread, Offset Cruciform  
160,000 KSI  
Available in Steel, Titanium Alloy, & Corrosion Resistant

### Material Codes:

A Dash " - " after Base # designates Steel  
"E" after Base # designates A286 Corrosion Resistant Steel  
"V" after Base # designates Titanium Alloy (6Al-4V)

### Finish Codes:

Steel: No Code Letter after Dash # for Cad Plate, Type 2, Class 2 per QQ-P-416

Corrosion Resistant: No Letter after Dash # designates Passivated per QQ-P-35

Letter "P" after Dash # designates Cad Plate, Type 2, Class 2 per QQ-P-416

Letter "A" after Dash # designates Aluminum Coating per NAS4006

Titanium Alloy: No Code Letter after Dash # designates No Plating

Letter "A" after Dash # designates Aluminum Coating per NAS4006



| NAS1153 | Grip | Length |
|---------|------|--------|
| 2       | .125 | .401   |
| 3       | .188 | .464   |
| 4       | .250 | .526   |
| 5       | .312 | .588   |
| 6       | .375 | .651   |
| 7       | .438 | .714   |
| 8       | .500 | .776   |
| 9       | .562 | .838   |
| 10      | .625 | .901   |

**MS21207** (CAD II PLATING)  
**NAS548P** (CAD I PLATING)  
100° Flat Head Tapping Screw



| Diam.  | Length | MS21207 | NAS548P |
|--------|--------|---------|---------|
| No. 4  | 1/4    | 4-4     | 4-4     |
|        | 3/8    | 4-6     | 4-6     |
|        | 1/2    | 4-8     | 4-8     |
| No. 6  | 3/8    | 6-6     | 6-6     |
|        | 1/2    | 6-8     | 6-8     |
|        | 5/8    | 6-10    | 6-10    |
|        | 3/4    | 6-12    | 6-12    |
| No. 8  | 3/8    | 8-6     | 8-6     |
|        | 1/2    | 8-8     | 8-8     |
|        | 5/8    | 8-10    | 8-10    |
|        | 3/4    | 8-12    | 8-12    |
| No. 10 | 3/8    | 10-6    | 10-6    |
|        | 1/2    | 10-8    | 10-8    |
|        | 5/8    | 10-10   | 10-10   |
|        | 3/4    | 10-12   | 10-12   |

**MS21318**  
Drive Screw



| Length | Dia.<br>.058 | Dia.<br>.073 | Dia.<br>.098 | Dia.<br>.114 |
|--------|--------------|--------------|--------------|--------------|
| 1/8    | MS21318-1    | MS21318-7    | MS21318-13   | ----         |
| 3/16   | MS21318-2    | MS21318-8    | MS21318-14   | MS21318-20   |
| 1/4    | ----         | MS21318-9    | MS21318-15   | MS21318-21   |
| 5/16   | ----         | ----         | ----         | MS21318-22   |

**NAS1102**  
100° Flat Head  
Full Thread Machine Screw  
Offset Cruciform Recess



| Length | .1360-32 | .1640-32 | .1900-32 |
|--------|----------|----------|----------|
|        | NAS1102- | NAS1102- | NAS1102- |
| .250   | ---      | ---      | 3-4      |
| .312   | 06-5     | ---      | ---      |
| .375   | 06-6     | 08-6     | 3-6      |
| .438   | ---      | 08-7     | 3-7      |
| .500   | 06-8     | 08-8     | 3-8      |
| .625   | 06-10    | 08-10    | 3-10     |
| .750   | ---      | 08-12    | 3-12     |
| .875   | ---      | ---      | 3-14     |
| 1.00   | ---      | 08-16    | 3-16     |
| 1.25   | ---      | ---      | 3-20     |
| 1.50   | ---      | ---      | 3-24     |

**NAS1623**  
100° Flat Head Machine Screw  
Short Thread (10-32 Dia.)  
Offset Cruciform



| NAS1623 | Length | Grip |
|---------|--------|------|
| 2       | .401   | .125 |
| 3       | .464   | .188 |
| 4       | .526   | .250 |
| 5       | .588   | .312 |
| 6       | .651   | .375 |

**MS51861, AN530**

Pan Head Tapping Screw,  
MS51861 Type A Point,  
AN530 Type B Point  
Add "C" after Dash # for  
Corrosion Resistant (**MS51861 ONLY**)



| Diam.  | Length | MS51861 | AN530 |
|--------|--------|---------|-------|
| No. 4  | 1/4    | 12      | 4R4   |
|        | 3/8    | 14      | 4R6   |
|        | 1/2    | 15      | 4R8   |
|        | 5/8    | 16      | 4R10  |
|        | 3/4    | 17      | 4R12  |
| No. 6  | 1/4    | 22      | 6R4   |
|        | 3/8    | 24      | 6R6   |
|        | 1/2    | 25      | 6R8   |
|        | 5/8    | 26      | 6R10  |
|        | 3/4    | 27      | 6R12  |
|        | 7/8    | 28      | 6R14  |
|        | 1      | 29      | 6R16  |
| No. 8  | 3/8    | 34      | 8R6   |
|        | 1/2    | 35      | 8R8   |
|        | 5/8    | 36      | 8R10  |
|        | 3/4    | 37      | 8R12  |
|        | 1      | 38      | 8R14  |
| No. 10 | 3/8    | 44      | 10R6  |
|        | 1/2    | 45      | 10R8  |
|        | 5/8    | 46      | 10R10 |
|        | 3/4    | 47      | 10R12 |
|        | 1      | 48      | 10R16 |

**MS35190 (AN505)**  
**MS35191 (AN510)**

Machine Screw, 82 Flat Head  
Carbon Steel, Tensile Min. 60,000



| Thread | Length | MS35190 | AN505   |
|--------|--------|---------|---------|
| 4-40   | .250   | 221     | 440R4   |
|        | .312   | 222     | 440R5   |
|        | .375   | 223     | 440R6   |
|        | .438   | 224     | 440R7   |
|        | .500   | 225     | 440R8   |
|        | .625   | 226     | 440R10  |
|        | .750   | 227     | 440R12  |
| 6-32   | .250   | 234     | 632R4   |
|        | .375   | 236     | 632R6   |
|        | .500   | 238     | 632R8   |
|        | .625   | 239     | 632R10  |
|        | .750   | 240     | 632R12  |
| 8-32   | .312   | 250     | 832R5   |
|        | .375   | 251     | 832R6   |
|        | .438   | 252     | 832R7   |
|        | .500   | 253     | 832R8   |
|        | .625   | 254     | 832R10  |
|        | .750   | 255     | 832R12  |
|        | 1.000  | 257     | 832R16  |
| Thread | Length | MS35191 | AN510   |
| 10-32  | .250   | 268     | 1032R4  |
|        | .375   | 270     | 1032R6  |
|        | .500   | 272     | 1032R8  |
|        | .625   | 273     | 1032R10 |
|        | .750   | 274     | 1032R12 |

## SHEET METAL SCREW

Truss Head, Flat Head 82°  
& Pan Head, Phillips (Per 100)



| Truss Head |               | Flat Head |               | Pan Head  |               |
|------------|---------------|-----------|---------------|-----------|---------------|
| Steel      | Stainless     | Steel     | Stainless     | Steel     | Stainless     |
| 4X1/4THA   | 4X1/4THA S/S  | 4X1/4FHA  | 4X1/4FHA S/S  | 4X1/4PHA  | 4X1/4PHA S/S  |
| 4X3/8THA   | 4X3/8THA S/S  | 4X3/8FHA  | 4X3/8FHA S/S  | 4X3/8PHA  | 4X3/8PHA S/S  |
| 4X1/2THA   | 4X1/2THA S/S  | 4X1/2FHA  | 4X1/2FHA S/S  | 4X1/2PHA  | 4X1/2PHA S/S  |
| 4X5/8THA   | 4X5/8THA S/S  | 4X5/8FHA  | 4X5/8FHA S/S  | 4X5/8PHA  | 4X5/8PHA S/S  |
| 4X3/4THA   | 4X3/4THA S/S  | 4X3/4FHA  | 4X3/4FHA S/S  | 4X3/4PHA  | 4X3/4PHA S/S  |
| 6X3/8THA   | 6X3/8THA S/S  | 6X3/8FHA  | 6X3/8FHA S/S  | 6X3/8PHA  | 6X3/8PHA S/S  |
| 6X1/2THA   | 6X1/2THA S/S  | 6X1/2FHA  | 6X1/2FHA S/S  | 6X1/2PHA  | 6X1/2PHA S/S  |
| 6X5/8THA   | 6X5/8THA S/S  | 6X5/8FHA  | 6X5/8FHA S/S  | 6X5/8PHA  | 6X5/8PHA S/S  |
| 6X3/4THA   | 6X3/4THA S/S  | 6X3/4FHA  | 6X3/4FHA S/S  | 6X3/4PHA  | 6X3/4PHA S/S  |
| 6X1THA     | 6X1THA S/S    | 6X1FHA    | 6X1FHA S/S    | 6X1PHA    | 6X1PHA S/S    |
| 8X3/8THA   | 8X3/8THA S/S  | 8X3/8FHA  | 8X3/8FHA S/S  | 8X3/8PHA  | 8X3/8PHA S/S  |
| 8X1/2THA   | 8X1/2THA S/S  | 8X1/2FHA  | 8X1/2FHA S/S  | 8X1/2PHA  | 8X1/2PHA S/S  |
| 8X5/8THA   | 8X5/8THA S/S  | 8X5/8FHA  | 8X5/8FHA S/S  | 8X5/8PHA  | 8X5/8PHA S/S  |
| 8X3/4THA   | 8X3/4THA S/S  | 8X3/4FHA  | 8X3/4FHA S/S  | 8X3/4PHA  | 8X3/4PHA S/S  |
| 8X1THA     | 8X1THA S/S    | 8X1FHA    | 8X1FHA S/S    | 8X1PHA    | 8X1PHA S/S    |
| 10X1/2THA  | 10X1/2THA S/S | 10X1/2FHA | 10X1/2FHA S/S | 10X1/2PHA | 10X1/2PHA S/S |
| 10X5/8THA  | 10X5/8THA S/S | 10X5/8FHA | 10X5/8FHA S/S | 10X5/8PHA | 10X5/8PHA S/S |
| 10X3/4THA  | 10X3/4THA S/S | 10X3/4FHA | 10X3/4FHA S/S | 10X3/4PHA | 10X3/4PHA S/S |
| 10X1THA    | 10X1THA S/S   | 10X1FHA   | 10X1FHA S/S   | 10X1PHA   | 10X1PHA S/S   |

## OVALHEAD

Sheet Metal  
Screws



| Steel     | Stainless     |
|-----------|---------------|
| 4X3/8OHA  | 4X3/8OHA S/S  |
| 4X1/2OHA  | 4X1/2OHA S/S  |
| 4X5/8OHA  | 4X5/8OHA S/S  |
| 4X3/4OHA  | 4X3/4OHA S/S  |
| 6X3/8OHA  | 6X3/8OHA S/S  |
| 6X1/2OHA  | 6X1/2OHA S/S  |
| 6X5/8OHA  | 6X5/8OHA S/S  |
| 6X3/4OHA  | 6X3/4OHA S/S  |
| 6X1OHA    | 6X1OHA S/S    |
| 8X1/2OHA  | 8X1/2OHA S/S  |
| 8X5/8OHA  | 8X5/8OHA S/S  |
| 8X3/4OHA  | 8X3/4OHA S/S  |
| 8X1OHA    | 8X1OHA S/S    |
| 10X1/2OHA | 10X1/2OHA S/S |
| 10X5/8OHA | 10X5/8OHA S/S |
| 10X3/4OHA | 10X3/4OHA S/S |
| 10X1OHA   | 10X1OHA S/S   |

## PAN HEAD

Sheet Metal Screws  
Type "B"



| Steel     | Stainless     |
|-----------|---------------|
| 6X3/8PHB  | 6X3/8PHB S/S  |
| 6X1/2PHB  | 6X1/2PHB S/S  |
| 6X5/8PHB  | 6X5/8PHB S/S  |
| 6X3/4PHB  | 6X3/4PHB S/S  |
| 8X1/2PHB  | 8X1/2PHB S/S  |
| 8X5/8PHB  | 8X5/8PHB S/S  |
| 8X3/4PHB  | 8X3/4PHB S/S  |
| 8X1PHB    | 8X1PHB S/S    |
| 10X1/2PHB | 10X1/2PHB S/S |
| 10X5/8PHB | 10X5/8PHB S/S |
| 10X3/4PHB | 10X3/4PHB S/S |
| 10X1PHB   | 10X1PHB S/S   |

## FLAT HEAD 82°

Sheet Metal  
Screws  
Type "B"



| Steel     | Stainless     |
|-----------|---------------|
| 6X1/2FHB  | 6X1/2FHB S/S  |
| 6X3/4FHB  | 6X3/4FHB S/S  |
| 8X1/2FHB  | 8X1/2FHB S/S  |
| 8X3/4FHB  | 8X3/4FHB S/S  |
| 10X1/2FHB | 10X1/2FHB S/S |
| 10X3/4FHB | 10X3/4FHB S/S |

## OHMSC

Oval Head  
Machine Screw, Stainless



| Length | OHMSC  | OHMSC  | OHMSC  | OHMSC   |
|--------|--------|--------|--------|---------|
| 1/4    | 440R4  | 632R4  | 832R4  | 1032R4  |
| 3/8    | 440R6  | 632R6  | 832R6  | 1032R6  |
| 1/2    | 440R8  | 632R8  | 832R8  | 1032R8  |
| 5/8    | 440R10 | 632R10 | 832R10 | 1032R10 |
| 3/4    | 440R12 | 632R12 | 832R12 | 1032R12 |
| 1      | 440R16 | 632R16 | 832R16 | 1032R16 |

## FLAT HEAD 100°

Sheet Metal Screws  
Stainless  
Type "A"



| Stainless          |
|--------------------|
| 6X1/2FHA S/S 100°  |
| 8X1/2FHA S/S 100°  |
| 10X1/2FHA S/S 100° |

## POP RIVETS

Non-Structural,  
Commercial Grade, Domed



### Aluminum Rivet / Aluminum Mandrel - SMALL FLANGE

| Diameter | Grip Range                                                    | POP                                                 | Marson                                         |
|----------|---------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------|
| 3/32     | .032-.125<br>.126-.250                                        | AD32ABS<br>AD34ABS                                  | AB3-2A<br>AB3-4A                               |
| 1/8      | .063-.125<br>.126-.187<br>.188-.250<br>.251-.312<br>.313-.375 | AD42ABS<br>AD43ABS<br>AD44ABS<br>AD45ABS<br>AD46ABS | AB4-2A<br>AB4-3A<br>AB4-4A<br>AB4-5A<br>AB4-6A |
| 5/32     | .062-.125<br>.126-.187<br>.188-.250                           | AD52ABS<br>AD53ABS<br>AD54ABS                       | AB5-2A<br>AB5-3A<br>AB5-4A                     |

### Aluminum Rivet / Aluminum Mandrel - LARGE FLANGE

| Diameter | Grip Range                          | POP                                 | Marson                        |
|----------|-------------------------------------|-------------------------------------|-------------------------------|
| 1/8      | .032-.125<br>.126-.187<br>.188-.250 | AD42ABSFL<br>AD43ABSFL<br>AD44ABSFL | ABL4-2A<br>ABL4-3A<br>ABL4-4A |
| 5/32     | .188-.250                           | AD54ABSFL                           | ABL5-4A                       |

### Aluminum Rivet / Steel Mandrel - SMALL FLANGE

| Diameter | Grip Range                                                    | POP                                            | Marson                                    |
|----------|---------------------------------------------------------------|------------------------------------------------|-------------------------------------------|
| 3/32     | .032-.125<br>.126-.250                                        | AD32BS<br>AD34BS                               | AB3-2<br>AB3-4                            |
| 1/8      | .063-.125<br>.126-.187<br>.188-.250<br>.251-.312<br>.313-.375 | AD42BS<br>AD43BS<br>AD44BS<br>AD45BS<br>AD46BS | AB4-2<br>AB4-3<br>AB4-4<br>AB4-5<br>AB4-6 |
| 5/32     | .062-.125<br>.126-.187<br>.188-.250                           | AD52BS<br>AD53BS<br>AD54BS                     | AB5-2<br>AB5-3<br>AB5-4                   |

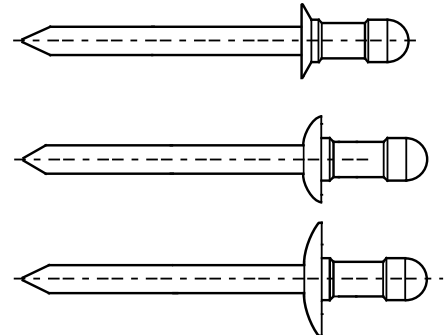
### Aluminum Rivet / Steel Mandrel - LARGE FLANGE

| Diameter | Grip Range                                       | POP                                          | Marson                               |
|----------|--------------------------------------------------|----------------------------------------------|--------------------------------------|
| 1/8      | .032-.125<br>.126-.187<br>.188-.250<br>.313-.375 | AD42BSFL<br>AD43BSFL<br>AD44BSFL<br>AD46BSFL | ABL4-2<br>ABL4-3<br>ABL4-4<br>ABL4-6 |
| 5/32     | .188-.250                                        | AD54BSFL                                     | ABL5-4                               |

## AVEX RIVETS

Non-Structural,  
Aluminum Body, Steel Stem

| Diameter | Grip Range | Part#                                  | Rivet Style        |
|----------|------------|----------------------------------------|--------------------|
| 1/8      | .046-.250  | 1604-0412                              | Countersunk Flange |
|          |            | 1691-0410 New Rev<br>1661-0410 Old Rev | Low Profile Head   |
|          | .031-.187  | 1692-0410 New Rev<br>1641-0410 Old Rev | Large Flange       |
|          |            | 1692-0414<br>1661-0512                 | Low Profile Head   |
| 5/32     | .125-.312  | 1601-0410 New Rev<br>1693-0410 Old Rev | Small Flange       |
| 1/8      | .031-.187  | 1693-0414                              |                    |
| 5/32     | .125-.312  | 1693-0512                              |                    |



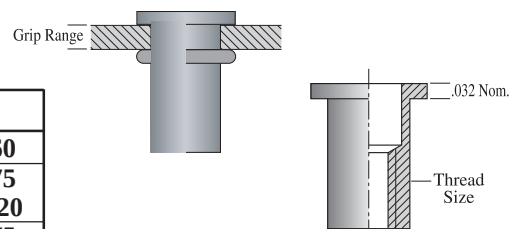


## NAS1329, MS27130

Rivnut, Flat Head, Internal Thread  
Keyed (K) and, Unkeyed

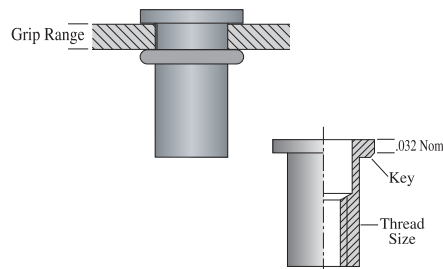
### UNKEYED

| Thread Size | Grip Range                                | Mfg. Part #                   | MS27130           | NAS1329                             |
|-------------|-------------------------------------------|-------------------------------|-------------------|-------------------------------------|
| 4-40        | .010 - .060                               | ---                           | A1                | NAS1329A04-60                       |
| 6-32        | .010 - .075<br>.075 - .120                | A6-75<br>A6-120               | A7<br>A8          | NAS1329A06-75<br>NAS1329A06-120     |
| 8-32        | .010 - .075<br>.075 - .120                | A8-75<br>A8-120               | A13<br>A14        | NAS1329A08-75<br>NAS1329A08-120     |
| 10-32       | .010 - .080<br>.010 - .080<br>.080 - .140 | A10-80<br>S10-80<br>AEA10-140 | A25<br>S25<br>--- | NAS1329A3-80<br>NAS1329S3-80<br>--- |



### KEYED

| Thread Size | Grip Range                                | Mfg. Part #                     | MS27130              | NAS1329                                           |
|-------------|-------------------------------------------|---------------------------------|----------------------|---------------------------------------------------|
| 6-32        | .010 - .075<br>.075 - .120<br>.120 - .160 | A6K-75<br>A6K-120<br>A6K-160    | A7K<br>A8K<br>A9K    | NAS1329A06K75<br>NAS1329A06K120<br>NAS1329A06K160 |
| 8-32        | .010 - .075<br>.075 - .120<br>.120 - .160 | A8K-75<br>A8K-120<br>A8K-160    | A13K<br>A14K<br>A15K | NAS1329A08K75<br>NAS1329A08K120<br>NAS1329A08K160 |
| 10-32       | .010 - .080<br>.080 - .130<br>.130 - .180 | A10K-80<br>A10K-130<br>A10K-180 | A25K<br>A26K<br>A27K | NAS1329A3K80<br>NAS1329A3K130<br>NAS1329A3K180    |

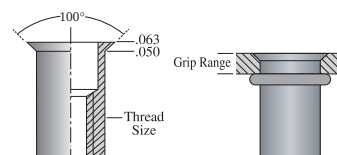


## NAS1330, MS27130

Rivnut, Countersunk Head, Internal Thread  
Keyed (K) and Unkeyed

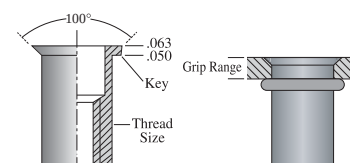
### UNKEYED

| Thread Size | Grip Range  | Mfg. Part # | MS27130 | NAS1330        |
|-------------|-------------|-------------|---------|----------------|
| 6-32        | .065 - .106 | A6-106      | A87     | NAS1330A06-106 |
| 8-32        | .065 - .106 | A8-106      | A93     | NAS1330A08-106 |



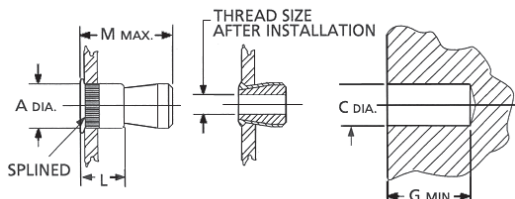
### KEYED

| Thread Size | Grip Range  | Mfg. Part # | MS27130 | NAS1330        |
|-------------|-------------|-------------|---------|----------------|
| 6-32        | .065 - .106 | A6K106      | A87K    | NAS1330A06K106 |
| 8-32        | .065 - .106 | A8K106      | A93K    | NAS1330A08K106 |



## NUTSERT

9505 Series, Splined Body  
Carbon Steel, Cadmium Plate



|             |         |        |         |        |  | Material Thickness |                  |                  |                  |
|-------------|---------|--------|---------|--------|--|--------------------|------------------|------------------|------------------|
| Thread Size | Part #  | A min. | L ± .05 | M max. |  | G Dim. .03-.09     | G Dim. .091-.124 | G Dim. .125-.186 | G Dim. .187-over |
| 4-40        | 9505-04 | .182   | .185    | .385   |  | .1875              | .1935            | .1935            | .1935            |
| 6-32        | 9505-06 | .214   | .185    | .385   |  | .2187              | .2210            | .2280            | .2280            |
| 8-32        | 9505-08 | .245   | .185    | .385   |  | .2500              | .2570            | .2656            | .2656            |
| 10-24       | 9505-10 | .276   | .185    | .385   |  | .2812              | .2900            | .2968            | .2968            |

\* Recommended min. hole size C



## NAS1669

### Jo Bolts, Blind Fastener

Internally Threaded, External Sleeve

"L" after First Dash # indicates Self-Locking Feature

"DL" after First Dash # indicates Self-Locking and Drive Nut Features



NAS1669

Protruding Head

| Grip Range  | Diameter | NAS1669 | NAS1669 | Diameter | NAS1669 | NAS1669 | Diameter | NAS1669 |
|-------------|----------|---------|---------|----------|---------|---------|----------|---------|
| .094 - .156 | .164     | 08L2    | 08DL2   | .200     | 3L2     | 3DL2    | .260     | 4L2     |
| .157 - .217 |          | 08L3    | 08DL3   |          | 3L3     | 3DL3    |          | 4L3     |
| .220 - .281 |          | 08L4    | 08DL4   |          | 3L4     | 3DL4    |          | 4L4     |
| .282 - .344 |          | 08L5    | 08DL5   |          | 3L5     | 3DL5    |          | 4L5     |
| .345 - .406 |          | 08L6    | 08DL6   |          | 3L6     | 3DL6    |          | 4L6     |
| .407 - .469 | .164     | 08L7    | ---     | .200     | 3L7     | ---     | .260     | 4L7     |
| .470 - .531 |          | 08L8    | ---     |          | 3L8     | ---     |          | 4L8     |
| .532 - .594 |          | 08L9    | ---     |          | 3L9     | ---     |          | 4L9     |
| .595 - .656 |          | 08L10   | ---     |          | 3L10    | ---     |          | ---     |

## NAS1670

### Jo Bolts, Blind Fastener

Internally Threaded, External Sleeve

"L" after First Dash # indicates Self-Locking Feature



NAS1670

Flush Head

| Grip Range  | Diameter | NAS1670 | Diameter | NAS1670 |
|-------------|----------|---------|----------|---------|
| .094 - .156 | .164     | 08L2    | .200     | 3L2     |
| .157 - .217 |          | 08L3    |          | 3L3     |
| .220 - .281 |          | 08L4    |          | 3L4     |
| .282 - .344 |          | 08L5    |          | 3L5     |
| .345 - .406 |          | 08L6    |          | 3L6     |
| .407 - .469 |          | 08L7    |          | 3L7     |
| .470 - .531 |          | 08L8    |          | 3L8     |

## NAS1750 NAS1751

### Jo Bolts, Blind Fastener

Internally Threaded, External Sleeve

NAS1750

Flush Head



NAS1751

Protruding Head



| Grip Range  | Diameter | NAS1750 | Diameter | NAS1750 |
|-------------|----------|---------|----------|---------|
| .094 - .156 | .164     | 08L2    | .200     | 3L2     |
| .157 - .217 |          | 08L3    |          | 3L3     |
| .220 - .281 |          | 08L4    |          | 3L4     |
| .282 - .344 |          | 08L5    |          | 3L5     |
| .345 - .406 |          | 08L6    |          | 3L6     |
| .407 - .469 |          | 08L7    |          | 3L7     |
| .470 - .531 |          | 08L8    |          | 3L8     |
| Grip Range  | Diameter | NAS1751 | Diameter | NAS1751 |
| .094 - .156 | .164     | 08L2    | .200     | 3L2     |
| .157 - .217 |          | 08L3    |          | 3L3     |
| .220 - .281 |          | 08L4    |          | 3L4     |
| .282 - .344 |          | 08L5    |          | 3L5     |
| .345 - .406 |          | 08L6    |          | 3L6     |
| .407 - .469 |          | 08L7    |          | 3L7     |
| .470 - .531 |          | 08L8    |          | 3L8     |

## MS90353

Blind Rivet, 100° Flush Head  
High Strength  
Alloy Steel 112KSI



| 1ST DASH NUMBER (DIAMETER) |               | NOM.<br>SIZE |
|----------------------------|---------------|--------------|
| DOUBLE ACTION              | SINGLE ACTION |              |
| -05                        | S05           | 5/32         |
| -06                        | S06           | 3/16         |

"-" after basic part # denotes installation with a double action tool.

"S" after basic part # denotes fastener installed with a single action tool.

"U" after basic part # denotes single action fasteners installed with a single action tool.

| Diameter | Minimum Grip | Maximum Grip | MS90353 | MS90353 | MS90353 |
|----------|--------------|--------------|---------|---------|---------|
| 5/32     | .156         | .220         | -0503   | S0503   | U0503   |
|          | .219         | .282         | -0504   | S0504   | U0504   |
|          | .281         | .345         | -0505   | S0505   | U0505   |
|          | .344         | .407         | -0506   | S0506   | U0506   |
|          | .406         | .470         | -0507   | S0507   | U0507   |
|          | .469         | .523         | -0508   | S0508   | U0508   |
| Diameter | Minimum Grip | Maximum Grip | MS90353 | MS90353 | MS90353 |
| 3/16     | .156         | .220         | -0603   | S0603   | U0603   |
|          | .219         | .282         | -0604   | S0604   | U0604   |
|          | .281         | .345         | -0605   | S0605   | U0605   |
|          | .344         | .407         | -0606   | S0606   | U0606   |
|          | .406         | .470         | -0607   | S0607   | U0607   |
|          | .469         | .523         | -0608   | S0608   | U0608   |

## MS90354

Blind Rivet, Protruding Head  
High Strength  
Alloy Steel 112KSI



| 1ST DASH NUMBER (DIAMETER) |               | NOM.<br>SIZE |
|----------------------------|---------------|--------------|
| DOUBLE ACTION              | SINGLE ACTION |              |
| -05                        | S05           | 5/32         |
| -06                        | S06           | 3/16         |

"-" after basic part # denotes installation with a double action tool.

"S" after basic part # denotes fastener installed with a single action tool.

"U" after basic part # denotes single action fasteners installed with a single action tool.

| Diameter | Minimum Grip | Maximum Grip | MS90354 | MS90354 | MS90354 |
|----------|--------------|--------------|---------|---------|---------|
| 5/32     | .094         | .157         | -0502   | S0502   | U0502   |
|          | .156         | .220         | -0503   | S0503   | U0503   |
|          | .219         | .282         | -0504   | S0504   | U0504   |
|          | .281         | .345         | -0505   | S0505   | U0505   |
|          | .344         | .407         | -0506   | S0506   | U0506   |
|          | .406         | .470         | -0507   | S0507   | U0507   |
|          | .469         | .523         | -0508   | S0508   | U0508   |
| Diameter | Minimum Grip | Maximum Grip | MS90354 | MS90354 | MS90354 |
| 3/16     | .094         | .157         | -0602   | S0602   | U0602   |
|          | .156         | .220         | -0603   | S0603   | U0603   |
|          | .219         | .282         | -0604   | S0604   | U0604   |
|          | .281         | .345         | -0605   | S0605   | U0605   |
|          | .344         | .407         | -0606   | S0606   | U0606   |
|          | .406         | .470         | -0607   | S0607   | U0607   |
|          | .469         | .523         | -0608   | S0608   | U0608   |

## NAS1436 (.190 Dia.) NAS1438 (.250 Dia.)

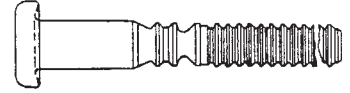
Pin, Swage Locking  
Steel, Standard  
100° Shear Head, Pull Type



| Grip Dash Number | Max. Grip | Grip Range |      |
|------------------|-----------|------------|------|
|                  |           | Min.       | Max. |
| 02               | .125      | .062       | .125 |
| 03               | .188      | .126       | .188 |
| 04               | .250      | .189       | .250 |
| 05               | .312      | .251       | .312 |
| 06               | .375      | .313       | .375 |
| 07               | .438      | .376       | .438 |
| 08               | .500      | .439       | .500 |
| 09               | .562      | .501       | .562 |
| 10               | .625      | .563       | .625 |

## NAS1446 (.190 Dia.) NAS1448 (.250 Dia.)

Pin Swage Locking  
Steel, Standard  
Protruding Head, Shear Pull Type



| Grip Dash Number | Max. Grip | Grip Range |      |
|------------------|-----------|------------|------|
|                  |           | Min.       | Max. |
| 02               | .125      | .062       | .125 |
| 03               | .188      | .126       | .188 |
| 04               | .250      | .189       | .250 |
| 05               | .312      | .251       | .312 |
| 06               | .375      | .313       | .375 |
| 07               | .438      | .376       | .438 |
| 08               | .500      | .439       | .500 |
| 09               | .562      | .501       | .562 |
| 10               | .625      | .563       | .625 |

## NAS1456 (.190 Dia.) NAS1458 (.250 Dia.)

Pin, Swage Locking  
Steel, Standard  
100° Head Tension, Pull Type



| Grip Dash Number | Max. Grip | Grip Range |      |
|------------------|-----------|------------|------|
|                  |           | Min.       | Max. |
| 02               | .125      | .095       | .156 |
| 03               | .188      | .157       | .219 |
| 04               | .250      | .220       | .281 |
| 05               | .312      | .282       | .344 |
| 06               | .375      | .345       | .406 |
| 07               | .438      | .407       | .469 |
| 08               | .500      | .470       | .531 |
| 09               | .562      | .532       | .592 |
| 10               | .625      | .595       | .656 |

## NAS1465 (.164 Dia.) NAS1466 (.190 Dia.) NAS1468 (.250 Dia.)

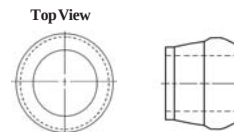
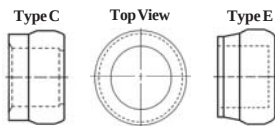
Pin, Swage Locking Steel,  
Standard & Protruding Head, Tension Pull-Type



| Grip Dash Number | Max. Grip | Grip Range |      |
|------------------|-----------|------------|------|
|                  |           | Min.       | Max. |
| 02               | .125      | .095       | .156 |
| 03               | .188      | .157       | .219 |
| 04               | .250      | .220       | .281 |
| 05               | .312      | .282       | .344 |
| 06               | .375      | .345       | .406 |
| 07               | .438      | .407       | .469 |
| 08               | .500      | .470       | .531 |
| 09               | .562      | .532       | .592 |
| 10               | .625      | .595       | .656 |

## NAS1080 Collar

Swage-Locking for Pull Type Lockbolts



| Shear                                                 |           |              |              | Tension                                 |           |              |      |
|-------------------------------------------------------|-----------|--------------|--------------|-----------------------------------------|-----------|--------------|------|
| NAS Part #                                            | Nom. Size | Total Length |              | NAS Part #                              | Nom. Size | Total Length |      |
|                                                       |           | Min.         | Max.         |                                         |           | Min.         | Max. |
| NAS1080C06<br>NAS1080E06<br>NAS1080G06<br>NAS1080AG06 | .190      | .185         | .205         | NAS1080-05<br>NAS1080AT05<br>NAS1080R05 | .164      | .170         | .200 |
| NAS1080C08<br>NAS1080E08<br>NAS1080G08<br>NAS1080AG08 | .250      | .220<br>.230 | .236<br>.250 | NAS1080-06<br>NAS1080R06                | .190      | .233         | .263 |
|                                                       |           |              |              | NAS1080-08<br>NAS1080R08                | .250      | .305         | .335 |

"C" indicates 2024 Aluminum  
"E" indicates Carbon steel

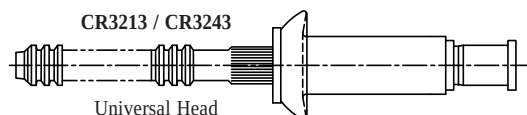
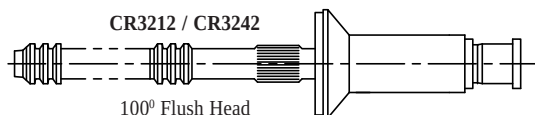
"G" indicates 2024 Aluminum alloy  
"AG" indicates 2219 Aluminum

"L" indicates 2024 Aluminum  
"R" indicates Carbon steel  
"AT" indicates 2219 Aluminum Alloy

## CHERRYMAX RIVET

**CR3212, CR3213**  
**CR3242, CR3243**

Alloy Steel Stem  
Aluminum Rivet

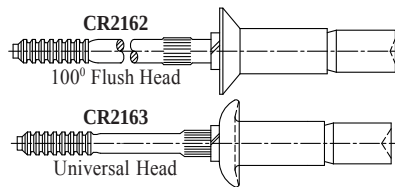


| Diameter | Grip Range  | CR3212 | Diameter | Grip Range  | CR3213 |
|----------|-------------|--------|----------|-------------|--------|
| 1/8      | .025 - .062 | ---    | 1/8      | .025 - .062 | 4-01   |
|          | .063 - .125 | 4-02   |          | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |          | .188 - .250 | 4-04   |
|          | .251 - .312 | 4-05   |          | .251 - .312 | 4-05   |
|          | .313 - .375 | 4-06   |          | .313 - .375 | 4-06   |
|          | .376 - .437 | 4-07   |          | .376 - .437 | 4-07   |
|          | .438 - .500 | 4-08   |          | .438 - .500 | 4-08   |
|          | .501 - .562 | 4-09   |          | .501 - .562 | 4-09   |
|          |             |        |          |             |        |
| 5/32     | .031 - .062 | ---    | 5/32     | .031 - .062 | 5-01   |
|          | .063 - .125 | 5-02   |          | .063 - .125 | 5-02   |
|          | .126 - .187 | 5-03   |          | .126 - .187 | 5-03   |
|          | .188 - .250 | 5-04   |          | .188 - .250 | 5-04   |
|          | .251 - .312 | 5-05   |          | .251 - .312 | 5-05   |
|          | .313 - .375 | 5-06   |          | .313 - .375 | 5-06   |
|          | .376 - .437 | 5-07   |          | .376 - .437 | 5-07   |
|          | .438 - .500 | 5-08   |          | .438 - .500 | 5-08   |
|          | .501 - .562 | 5-09   |          | .501 - .562 | 5-09   |
|          | .563 - .625 | 5-10   |          | .563 - .625 | 5-10   |
| 3/16     | .037 - .062 | ---    | 3/16     | .037 - .062 | 6-01   |
|          | .063 - .125 | 6-02   |          | .063 - .125 | 6-02   |
|          | .126 - .187 | 6-03   |          | .126 - .187 | 6-03   |
|          | .188 - .250 | 6-04   |          | .188 - .250 | 6-04   |
|          | .251 - .312 | 6-05   |          | .251 - .312 | 6-05   |
|          | .313 - .375 | 6-06   |          | .313 - .375 | 6-06   |
|          | .376 - .437 | 6-07   |          | .376 - .437 | 6-07   |
|          | .438 - .500 | 6-08   |          | .438 - .500 | 6-08   |
|          | .501 - .562 | 6-09   |          | .501 - .562 | 6-09   |
|          | .563 - .625 | 6-10   |          | .563 - .625 | 6-11   |
|          | .626 - .687 | 6-11   |          | .626 - .687 | 6-12   |
|          |             |        |          |             |        |
| Diameter | Grip Range  | CR3242 | Diameter | Grip Range  | CR3243 |
| .140     | .025 - .062 | 4-01   | .140     | .025 - .062 | 4-01   |
|          | .063 - .125 | 4-02   |          | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |          | .188 - .250 | 4-04   |
|          | .251 - .312 | 4-05   |          | .251 - .312 | 4-05   |
|          | .313 - .375 | 4-06   |          | .313 - .375 | 4-06   |
|          | .376 - .437 | 4-07   |          | .376 - .437 | 4-07   |
|          | .438 - .500 | 4-08   |          | .438 - .500 | 4-08   |
|          | .501 - .562 | 4-09   |          | .501 - .562 | 4-09   |
|          |             |        |          |             |        |
| .173     | .031 - .062 | ---    | .173     | .031 - .062 | 5-01   |
|          | .063 - .125 | 5-02   |          | .063 - .125 | 5-02   |
|          | .126 - .187 | 5-03   |          | .126 - .187 | 5-03   |
|          | .188 - .250 | 5-04   |          | .188 - .250 | 5-04   |
|          | .251 - .312 | 5-05   |          | .251 - .312 | 5-05   |
|          | .313 - .375 | 5-06   |          | .313 - .375 | 5-06   |
|          | .376 - .437 | 5-07   |          | .376 - .437 | 5-07   |
|          | .438 - .500 | 5-08   |          | .438 - .500 | 5-08   |
|          | .501 - .562 | 5-09   |          | .501 - .562 | 5-09   |
|          |             |        |          |             |        |
| .201     | .037 - .062 | ---    | .201     | .037 - .062 | 6-01   |
|          | .063 - .125 | 6-02   |          | .063 - .125 | 6-02   |
|          | .126 - .187 | 6-03   |          | .126 - .187 | 6-03   |
|          | .188 - .250 | 6-04   |          | .188 - .250 | 6-04   |
|          | .251 - .312 | 6-05   |          | .251 - .312 | 6-05   |
|          | .313 - .375 | 6-06   |          | .313 - .375 | 6-06   |
|          | .376 - .437 | 6-07   |          | .376 - .437 | 6-07   |
|          | .438 - .500 | 6-08   |          | .438 - .500 | 6-08   |
|          | .501 - .562 | 6-09   |          | .501 - .562 | 6-09   |
|          |             |        |          |             |        |

## CHERRYLOCK RIVET (WIREDRAW)

### CR2162 CR2163

7075 Aluminum Stem  
2017 Aluminum Sleeve

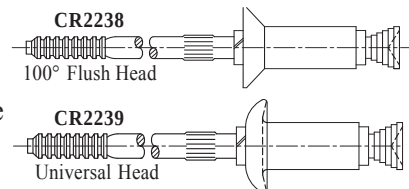


| Diameter | Grip Range  | CR2162 | CR2163 |
|----------|-------------|--------|--------|
| 1/8      | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
| 5/32     | .063 - .125 | 5-02   | 5-02   |
|          | .126 - .187 | 5-03   | 5-03   |
|          | .188 - .250 | 5-04   | 5-04   |
|          | .251 - .312 | 5-05   | 5-05   |

## CHERRYLOCK BULBED RIVET

### CR2238 CR2239

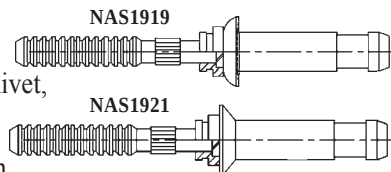
Inconel 600 Stem  
5056 Aluminum Sleeve  
Monel Lock Ring



| Diameter | Grip Range  | CR2238 | CR2239 |
|----------|-------------|--------|--------|
| 1/8      | .045 - .062 | ---    | 4-01   |
|          | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
|          | .251 - .312 | 4-05   | ---    |

## NAS1919M NAS1921M

100° Flush Head, Blind Rivet,  
Bulbed, Monel,  
Mechanically-Locked  
Spindle. "S" after first dash  
number indicates for use with single action, non-shifting tooling



| Diameter | Grip Range  | NAS1919 |
|----------|-------------|---------|
| .125     | .063 - .125 | M04-02  |
|          | .126 - .187 | M04-03  |
|          | .188 - .250 | M04-04  |
|          | .251 - .312 | M04-05  |
| .156     | .080 - .125 | M05-02  |
|          | .126 - .187 | M05-03  |
|          | .188 - .250 | M05-04  |
|          | .251 - .312 | M05-05  |
| .125     | .063 - .125 | M04S02  |
|          | .126 - .187 | M04S03  |
|          | .188 - .250 | M04S04  |
|          | .251 - .312 | M04S05  |
| .156     | .080 - .125 | M05S02  |
|          | .126 - .187 | M05S03  |
|          | .188 - .250 | M05S04  |
|          | .251 - .312 | M05S05  |

| Diameter | Grip Range  | NAS1921 |
|----------|-------------|---------|
| .125     | .063 - .125 | M04-02  |
|          | .126 - .187 | M04-03  |
|          | .188 - .250 | M04-04  |
|          | .251 - .312 | M04-05  |
| .156     | .080 - .125 | M05-02  |
|          | .126 - .187 | M05-03  |
|          | .188 - .250 | M05-04  |
|          | .251 - .312 | M05-05  |
| .125     | .063 - .125 | M04S02  |
|          | .126 - .187 | M04S03  |
|          | .188 - .250 | M04S04  |
|          | .251 - .312 | M04S05  |
| .156     | .080 - .125 | M05S02  |
|          | .126 - .187 | M05S03  |
|          | .188 - .250 | M05S04  |
|          | .251 - .312 | M05S05  |

## CHERRYLOCK BULBED RIVET

### CR2245

Aluminum Rivet  
8740 Steel Stem  
Unisink Head

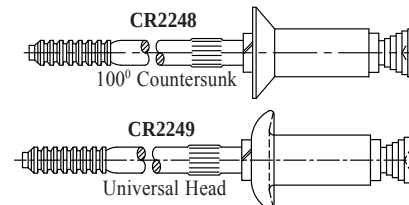


| Diameter | Grip Range  | CR2245 |
|----------|-------------|--------|
| 1/8      | .045 - .062 | 4-01   |
|          | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |
|          | .251 - .312 | 4-05   |

## CHERRYLOCK BULBED RIVET

### CR2248 CR2249

Alloy Steel Stem  
Aluminum Sleeve

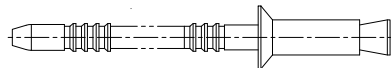


| Diameter | Grip Range  | CR2248 | CR2249 |
|----------|-------------|--------|--------|
| 1/8      | .020 - .062 | 4-01   | 4-01   |
|          | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
|          | .251 - .312 | 4-05   | 4-05   |
|          | .313 - .375 | 4-06   | 4-06   |
| 5/32     | .063 - .125 | 5-02   | 5-02   |
|          | .126 - .187 | 5-03   | 5-03   |
|          | .188 - .250 | 5-04   | 5-04   |
|          | .251 - .312 | 5-05   | 5-05   |
|          | .313 - .375 | 5-06   | 5-06   |
| 3/16     | .063 - .125 | 6-02   | 6-02   |
|          | .126 - .187 | 6-03   | 6-03   |
|          | .188 - .250 | 6-04   | 6-04   |
|          | .251 - .312 | 6-05   | 6-05   |
|          | .313 - .375 | 6-06   | 6-06   |



## CCR264

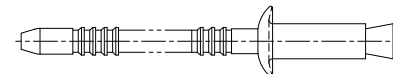
Cherry Nutplate Rivet  
MS20426 100°  
Countersunk Head



| Diameter | Grip Range  | Carbon Steel | Corrosion Resistant |
|----------|-------------|--------------|---------------------|
|          |             | CCR264       | CCR264              |
| 3/32     | .046 - .062 | SS3-01       | CS3-01              |
|          | .063 - .125 | SS3-02       | CS3-02              |
|          | .126 - .187 | SS3-03       | CS3-03              |
|          | .188 - .250 | SS3-04       | CS3-04              |
|          | .251 - .312 | SS3-05       | CS3-05              |
|          | .313 - .375 | SS3-06       | CS3-06              |
|          | .376 - .437 | SS3-07       | CS3-07              |
|          | .438 - .500 | SS3-08       | CS3-08              |
| 1/8      | .064 - .125 | SS4-02       | CS4-02              |
|          | .126 - .187 | SS4-03       | CS4-03              |
|          | .188 - .250 | SS4-04       | CS4-04              |
|          | .251 - .312 | SS4-05       | CS4-05              |
|          | .313 - .375 | SS4-06       | CS3-06              |

## CCR274

Cherry Nutplate Rivet  
Universal Head

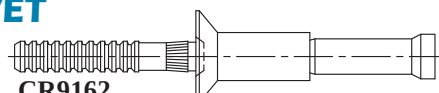


| Diameter | Grip Range  | Carbon Steel | Corrosion Resistant |
|----------|-------------|--------------|---------------------|
|          |             | CCR264       | CCR264              |
| 3/32     | .046 - .062 | SS3-01       | CS3-01              |
|          | .063 - .125 | SS3-02       | CS3-02              |
|          | .126 - .187 | SS3-03       | CS3-03              |
|          | .188 - .250 | SS3-04       | CS3-04              |
|          | .251 - .312 | SS3-05       | CS3-05              |
|          | .313 - .375 | SS3-06       | CS3-06              |
|          | .376 - .437 | SS3-07       | CS3-07              |
|          | .438 - .500 | SS3-08       | CS3-08              |

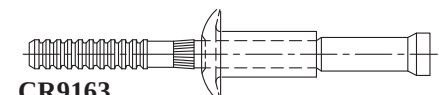
## CHERRY RIVET

### CR9162 CR9163

Self-Plugging,  
Serrated Stem  
Aluminum Stem  
& Rivet



CR9162  
100° Flush Head



CR9163  
Universal Head

| Diameter | Grip Range  | CR9162 | CR9163 |
|----------|-------------|--------|--------|
| 1/8      | .025 - .062 | 4-01   | 4-01   |
|          | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
|          | .251 - .312 | 4-05   | 4-05   |
|          | .313 - .375 | 4-06   | 4-06   |
| 5/32     | .063 - .125 | 5-02   | 5-02   |
|          | .126 - .187 | 5-03   | 5-03   |
|          | .188 - .250 | 5-04   | 5-04   |
|          | .251 - .312 | 5-05   | 5-05   |
|          | .313 - .375 | 5-06   | 5-06   |
| 3/16     | .063 - .125 | 6-02   | 6-02   |
|          | .126 - .187 | 6-03   | 6-03   |
|          | .188 - .250 | 6-04   | 6-04   |
|          | .251 - .312 | 6-05   | 6-05   |
|          | .313 - .375 | 6-06   | 6-06   |

## CHERRY "Q" RIVETS AAPQ

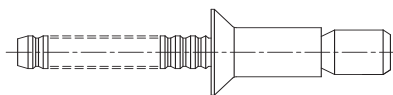
5056 Aluminum Rivet  
7178 Aluminum Mandrel



| Diameter | Grip Range  | Part#   |
|----------|-------------|---------|
| 1/8      | .063 - .125 | AAPQ-42 |
|          | .126 - .187 | AAPQ-43 |
|          | .188 - .250 | AAPQ-44 |

## CR1122

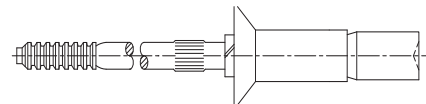
Self-Plugging Rivet  
A286 Stem  
Aluminum Sleeve



| Diameter | Grip        | CR1122 |
|----------|-------------|--------|
| 3/32     | .080 - .125 | 3-02   |
|          | .126 - .187 | 3-03   |
|          | .188 - .250 | 3-04   |
|          | .251 - .312 | 3-05   |

## CHERRY RIVET CR2662

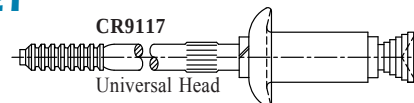
Wire Draw  
Countersunk Head  
Corrosion Resistant  
Monel Lock Ring



| Diameter | Grip Range  | CR2662 |
|----------|-------------|--------|
| 3/32     | .063 - .125 | 3-02   |
|          | .126 - .187 | 3-03   |
|          | .188 - .250 | 3-04   |
|          | .251 - .312 | 3-05   |
|          | .313 - .375 | 3-06   |

## CHERRY RIVET CR9117

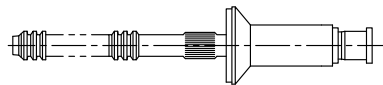
Serrated Stem  
Pull Through  
Aluminum Rivet  
Steel Stem



| Diameter | Grip Range  | CR9117 |
|----------|-------------|--------|
| 3/32     | .063 - .125 | 3-02   |
|          | .126 - .187 | 3-03   |
|          | .188 - .250 | 3-04   |
| 1/8      | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |

## CHERRYMAX RIVET CR3214

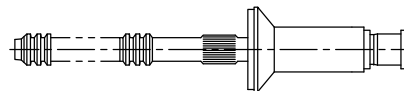
Alloy Steel Stem  
Aluminum Alloy Sleeve  
100° Flush Shear Head



| Diameter | Grip Range  | CR3214 |
|----------|-------------|--------|
| 1/8      | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |
|          | .251 - .312 | 4-05   |
|          | .313 - .375 | 4-06   |
|          | .376 - .437 | 4-07   |
|          | .438 - .500 | 4-08   |
|          | .501 - .562 | 4-09   |
| 5/32     | .065 - .125 | 5-02   |
|          | .126 - .187 | 5-03   |
|          | .188 - .250 | 5-04   |
|          | .251 - .312 | 5-05   |
|          | .313 - .375 | 5-06   |
|          | .376 - .437 | 5-07   |
|          | .438 - .500 | 5-08   |
|          | .501 - .562 | 5-09   |
| 3/16     | .080 - .125 | 6-02   |
|          | .126 - .187 | 6-03   |
|          | .188 - .250 | 6-04   |
|          | .251 - .312 | 6-05   |
|          | .313 - .375 | 6-06   |
|          | .376 - .437 | 6-07   |
|          | .438 - .500 | 6-08   |
| 1/4      | .126 - .187 | 8-03   |
|          | .188 - .250 | 8-04   |
|          | .251 - .312 | 8-05   |
|          | .313 - .375 | 8-06   |

## CHERRYMAX RIVET CR3224

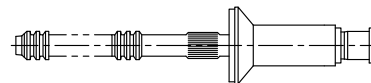
Corrosion Resistant Stem  
Aluminum Alloy Sleeve  
100° Flush Shear Head



| Diameter | Grip Range  | CR3224 |
|----------|-------------|--------|
| 1/8      | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |
|          | .251 - .312 | 4-05   |
|          | .313 - .375 | 4-06   |
|          | .376 - .437 | 4-07   |
|          | .438 - .500 | 4-08   |
| 5/32     | .065 - .125 | 5-02   |
|          | .126 - .187 | 5-03   |
|          | .188 - .250 | 5-04   |
|          | .251 - .312 | 5-05   |
|          | .313 - .375 | 5-06   |
|          | .376 - .437 | 5-07   |
|          | .438 - .500 | 5-08   |
| 3/16     | .080 - .125 | 6-02   |
|          | .126 - .187 | 6-03   |
|          | .188 - .250 | 6-04   |
|          | .251 - .312 | 6-05   |
|          | .313 - .375 | 6-06   |
|          | .376 - .437 | 6-07   |
|          | .438 - .500 | 6-08   |

## CHERRYMAX RIVET CR3524

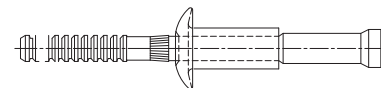
Corrosion Resistant Stem  
Monel Sleeve  
100° Flush Shear Head



| Diameter | Grip Range  | CR3524 |
|----------|-------------|--------|
| 1/8      | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |
|          | .251 - .312 | 4-05   |
|          | .313 - .375 | 4-06   |
| 5/32     | .065 - .125 | 5-02   |
|          | .126 - .187 | 5-03   |
|          | .188 - .250 | 5-04   |
|          | .251 - .312 | 5-05   |
|          | .313 - .375 | 5-06   |
| 3/16     | .080 - .125 | 6-02   |
|          | .126 - .187 | 6-03   |
|          | .188 - .250 | 6-04   |
|          | .251 - .312 | 6-05   |
|          | .313 - .375 | 6-06   |

## CR9179

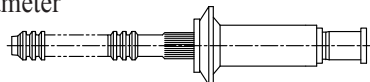
Self-Plugging Rivet  
2117 Aluminum Stem  
2017 Aluminum Sleeve



| Diameter | Grip Range  | CR9179 |
|----------|-------------|--------|
| 1/8      | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |

## CHERRYMAX RIVET CR3245

Unisink Head/ Oversize Diameter  
Alloy Steel Stem,  
Aluminum Alloy Sleeve

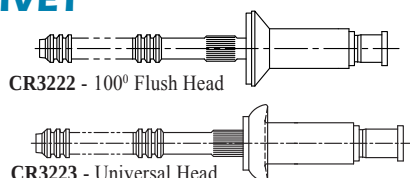


| Diameter | Grip Range  | CR3245 |
|----------|-------------|--------|
| .140     | .033 - .062 | 4-01   |
|          | .063 - .125 | 4-02   |
|          | .126 - .187 | 4-03   |
|          | .188 - .250 | 4-04   |
|          | .251 - .312 | 4-05   |
|          | .313 - .375 | 4-06   |
|          | .376 - .437 | 4-07   |
| .173     | .063 - .125 | 5-02   |
|          | .126 - .187 | 5-03   |
|          | .188 - .250 | 5-04   |
|          | .251 - .312 | 5-05   |
|          | .313 - .375 | 5-06   |
|          | .376 - .437 | 5-07   |
|          | .438 - .500 | 5-08   |
| .201     | .063 - .125 | 6-02   |
|          | .126 - .187 | 6-03   |
|          | .188 - .250 | 6-04   |
|          | .251 - .312 | 6-05   |
|          | .313 - .375 | 6-06   |
|          | .376 - .437 | 6-07   |

## CHERRYMAX RIVET

**CR3222**  
**CR3223**

Corrosion  
Resistant Stem  
Aluminum Alloy Rivet

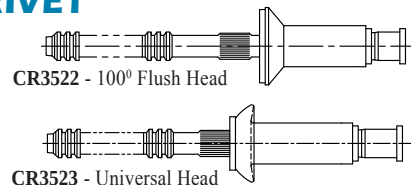


| Diameter | Grip Range  | CR3222 | CR3223 |
|----------|-------------|--------|--------|
| 1/8      | .025 - .062 | 4-01   | 4-01   |
|          | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
|          | .251 - .312 | 4-05   | 4-05   |
|          | .313 - .375 | 4-06   | 4-06   |
|          | .376 - .437 | 4-07   | 4-07   |
|          | .438 - .500 | 4-08   | 4-08   |
| 5/32     | .063 - .125 | 5-02   | 5-02   |
|          | .126 - .187 | 5-03   | 5-03   |
|          | .188 - .250 | 5-04   | 5-04   |
|          | .251 - .312 | 5-05   | 5-05   |
|          | .313 - .375 | 5-06   | 5-06   |
|          | .376 - .437 | 5-07   | 5-07   |
|          | .438 - .500 | 5-08   | 5-08   |
| 3/16     | .063 - .125 | 6-02   | 6-02   |
|          | .126 - .187 | 6-03   | 6-03   |
|          | .188 - .250 | 6-04   | 6-04   |
|          | .251 - .312 | 6-05   | 6-05   |
|          | .313 - .375 | 6-06   | 6-06   |
|          | .376 - .437 | 6-07   | 6-07   |
|          | .438 - .500 | 6-08   | 6-08   |

## CHERRYMAX RIVET

**CR3522**  
**CR3523**

Corrosion Resistant  
Stem  
Monel Rivet

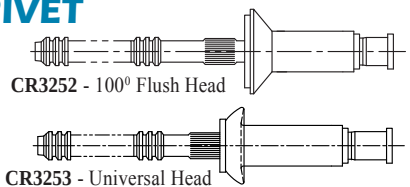


| Diameter | Grip Range  | CR3522 | CR3523 |
|----------|-------------|--------|--------|
| 1/8      | .025 - .062 | ---    | 4-01   |
|          | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
|          | .251 - .312 | 4-05   | 4-05   |
|          | .313 - .375 | 4-06   | 4-06   |
|          | .376 - .437 | 4-07   | 4-07   |
|          | .438 - .500 | 4-08   | 4-08   |
| 5/32     | .031 - .062 | ---    | 5-01   |
|          | .063 - .125 | 5-02   | 5-02   |
|          | .126 - .187 | 5-03   | 5-03   |
|          | .188 - .250 | 5-04   | 5-04   |
|          | .251 - .312 | 5-05   | 5-05   |
|          | .313 - .375 | 5-06   | 5-06   |
|          | .376 - .437 | 5-07   | 5-07   |
|          | .438 - .500 | 5-08   | 5-08   |
| 3/16     | .037 - .062 | ---    | 6-01   |
|          | .063 - .125 | 6-02   | 6-02   |
|          | .126 - .187 | 6-03   | 6-03   |
|          | .188 - .250 | 6-04   | 6-04   |
|          | .251 - .312 | 6-05   | 6-05   |
|          | .313 - .375 | 6-06   | 6-06   |
|          | .376 - .437 | 6-07   | 6-07   |
|          | .438 - .500 | 6-08   | 6-08   |

## CHERRYMAX RIVET

**CR3252**  
**CR3253**

Corrosion Resistant Stem  
Aluminum Alloy  
Rivet (Oversized)

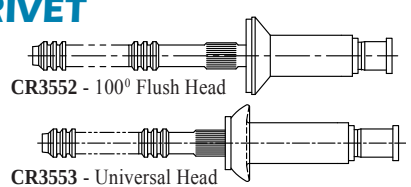


| Diameter | Grip Range  | CR3252 | CR3253 |
|----------|-------------|--------|--------|
| .140     | .025 - .062 | -      | 4-01   |
|          | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
|          | .251 - .312 | 4-05   | 4-05   |
|          | .313 - .375 | 4-06   | 4-06   |
|          | .376 - .437 | 4-07   | 4-07   |
|          | .438 - .500 | 4-08   | 4-08   |
| .173     | .031 - .062 | ---    | 5-01   |
|          | .063 - .125 | 5-02   | 5-02   |
|          | .126 - .187 | 5-03   | 5-03   |
|          | .188 - .250 | 5-04   | 5-04   |
|          | .251 - .312 | 5-05   | 5-05   |
|          | .313 - .375 | 5-06   | 5-06   |
|          | .376 - .437 | 5-07   | 5-07   |
|          | .438 - .500 | 5-08   | 5-08   |
| .201     | .063 - .125 | 6-02   | 6-02   |
|          | .126 - .187 | 6-03   | 6-03   |
|          | .188 - .250 | 6-04   | 6-04   |
|          | .251 - .312 | 6-05   | 6-05   |
|          | .313 - .375 | 6-06   | 6-06   |
|          | .376 - .437 | 6-07   | 6-07   |
|          | .438 - .500 | 6-08   | 6-08   |

## CHERRYMAX RIVET

**CR3552**  
**CR3553**

Corrosion  
Resistant Stem  
Monel Rivet (Oversized)



| Diameter | Grip Range  | CR3552 | CR3553 |
|----------|-------------|--------|--------|
| .140     | .045 - .062 | 4-01   | 4-01   |
|          | .063 - .125 | 4-02   | 4-02   |
|          | .126 - .187 | 4-03   | 4-03   |
|          | .188 - .250 | 4-04   | 4-04   |
|          | .251 - .312 | 4-05   | 4-05   |
|          | .313 - .375 | 4-06   | 4-06   |
| .173     | .031 - .062 | 5-01   | 5-01   |
|          | .063 - .125 | 5-02   | 5-02   |
|          | .126 - .187 | 5-03   | 5-03   |
|          | .188 - .250 | 5-04   | 5-04   |
|          | .251 - .312 | 5-05   | 5-05   |
|          | .313 - .375 | 5-06   | 5-06   |
| .201     | .376 - .437 | 5-07   | 5-07   |
|          | .063 - .125 | 6-02   | 6-02   |
|          | .126 - .187 | 6-03   | 6-03   |
|          | .188 - .250 | 6-04   | 6-04   |
|          | .251 - .312 | 6-05   | 6-05   |
|          | .313 - .375 | 6-06   | 6-06   |

## MS20426AD

Solid Rivet

2117-T4, Aluminum Alloy



### MS20426 - 100° Flush Head

| Diameter | Length   | MS20426 | Diameter | Length  | MS20426 |
|----------|----------|---------|----------|---------|---------|
| 3/32     | 1/8      | AD3-2   | 5/32     | 1/8     | AD5-2   |
|          | 5/32     | AD3-2.5 |          | 3/16    | AD5-3   |
|          | 3/16     | AD3-3   |          | 7/32    | AD5-3.5 |
|          | 7/32     | AD3-3.5 |          | 1/4     | AD5-4   |
|          | 1/4      | AD3-4   |          | 9/32    | AD5-4.5 |
|          | 9/32     | AD3-4.5 |          | 5/16    | AD5-5   |
|          | 5/16     | AD3-5   |          | 11/32   | AD5-5.5 |
|          | 11/32    | AD3-5.5 |          | 3/8     | AD5-6   |
|          | 3/8      | AD3-6   |          | 13/32   | AD5-6.5 |
|          | 13/32    | AD3-6.5 |          | 7/16    | AD5-7   |
|          | 7/16     | AD3-7   |          | 1/2     | AD5-8   |
|          | 1/2      | AD3-8   |          | 9/16    | AD5-9   |
|          | 9/16     | AD3-9   |          | 5/8     | AD5-10  |
|          | 5/8      | AD3-10  |          | 11/16   | AD5-11  |
|          | 11/16    | AD3-11  |          | 3/4     | AD5-12  |
|          | 3/4      | AD3-12  |          | 13/16   | AD5-13  |
|          | 7/8      | AD3-14  |          | 7/8     | AD5-14  |
|          | 1        | AD3-16  |          | 1       | AD5-16  |
|          | 1 - 1/4  | AD3-20  |          | 1 - 1/4 | AD5-20  |
|          | 1 - 1/2  | AD3-24  |          | 1 - 3/8 | AD5-22  |
| 1/8      | 1/8      | AD4-2   | 3/16     | 1 - 1/2 | AD5-24  |
|          | 5/32     | AD4-2.5 |          | 3/16    | AD6-3   |
|          | 3/16     | AD4-3   |          | 1/4     | AD6-4   |
|          | 7/32     | AD4-3.5 |          | 5/16    | AD6-5   |
|          | 1/4      | AD4-4   |          | 3/8     | AD6-6   |
|          | 9/32     | AD4-4.5 |          | 7/16    | AD6-7   |
|          | 5/16     | AD4-5   |          | 1/2     | AD6-8   |
|          | 11/32    | AD4-5.5 |          | 9/16    | AD6-9   |
|          | 3/8      | AD4-6   |          | 5/8     | AD6-10  |
|          | 13/32    | AD4-6.5 |          | 11/16   | AD6-11  |
|          | 7/16     | AD4-7   |          | 3/4     | AD6-12  |
|          | 1/2      | AD4-8   |          | 13/16   | AD6-13  |
|          | 9/16     | AD4-9   |          | 7/8     | AD6-14  |
|          | 5/8      | AD4-10  |          | 15/16   | AD6-15  |
|          | 11/16    | AD4-11  |          | 1       | AD6-16  |
|          | 3/4      | AD4-12  |          | 1 - 1/8 | AD6-18  |
|          | 13/16    | AD4-13  |          | 1 - 1/4 | AD6-20  |
|          | 7/8      | AD4-14  |          | 1 - 1/2 | AD6-24  |
|          | 15/16    | AD4-15  | 1/4      | 1/4     | AD8-4   |
|          | 1        | AD4-16  |          | 5/16    | AD8-5   |
|          | 1 - 1/16 | AD4-17  |          | 3/8     | AD8-6   |
|          | 1 - 1/8  | AD4-18  |          | 7/16    | AD8-7   |
|          | 1 - 1/4  | AD4-20  |          | 1/2     | AD8-8   |
|          | 1 - 3/8  | AD4-22  |          | 5/8     | AD8-10  |
|          | 1 - 1/2  | AD4-24  |          | 11/16   | AD8-11  |
|          | 1 - 3/4  | AD4-28  |          | 3/4     | AD8-12  |
|          |          |         |          | 1 - 3/8 | AD8-22  |
|          |          |         |          | 2       | AD8-32  |

## MS20470AD

Solid Rivet  
2117-T4, Aluminum Alloy



### MS20470 UNIVERSAL HEAD

| Diameter | Length   | MS20470 | Diameter | Length  | MS20470 |
|----------|----------|---------|----------|---------|---------|
| 3/32     | 1/8      | AD3-2   | 5/32     | 1/8     | AD5-2   |
|          | 5/32     | AD3-2.5 |          | 3/16    | AD5-3   |
|          | 3/16     | AD3-3   |          | 7/32    | AD5-3.5 |
|          | 7/32     | AD3-3.5 |          | 1/4     | AD5-4   |
|          | 1/4      | AD3-4   |          | 9/32    | AD5-4.5 |
|          | 9/32     | AD3-4.5 |          | 5/16    | AD5-5   |
|          | 5/16     | AD3-5   |          | 11/32   | AD5-5.5 |
|          | 11/32    | AD3-5.5 |          | 3/8     | AD5-6   |
|          | 3/8      | AD3-6   |          | 13/32   | AD5-6.5 |
|          | 13/32    | AD3-6.5 |          | 7/16    | AD5-7   |
|          | 7/16     | AD3-7   |          | 15/32   | AD5-7.5 |
|          | 15/32    | AD3-7.5 |          | 1/2     | AD5-8   |
|          | 1/2      | AD3-8   |          | 9/16    | AD5-9   |
|          | 17/32    | AD3-8.5 |          | 5/8     | AD5-10  |
|          | 9/16     | AD3-9   |          | 11/16   | AD5-11  |
|          | 5/8      | AD3-10  |          | 3/4     | AD5-12  |
|          | 11/16    | AD3-11  |          | 13/16   | AD5-13  |
|          | 3/4      | AD3-12  |          | 7/8     | AD5-14  |
|          | 7/8      | AD3-14  |          | 1       | AD5-16  |
|          | 1        | AD3-16  |          | 1-1/4   | AD5-20  |
|          | 1 - 1/4  | AD3-20  |          | 1-3/8   | AD5-22  |
| 1/8      | 1/8      | AD4-2   | 3/16     | 3/16    | AD6-3   |
|          | 5/32     | AD4-2.5 |          | 1/4     | AD6-4   |
|          | 3/16     | AD4-3   |          | 5/16    | AD6-5   |
|          | 7/32     | AD4-3.5 |          | 3/8     | AD6-6   |
|          | 1/4      | AD4-4   |          | 7/16    | AD6-7   |
|          | 9/32     | AD4-4.5 |          | 1/2     | AD6-8   |
|          | 5/16     | AD4-5   |          | 9/16    | AD6-9   |
|          | 11/32    | AD4-5.5 |          | 5/8     | AD6-10  |
|          | 3/8      | AD4-6   |          | 11/16   | AD6-11  |
|          | 13/32    | AD4-6.5 |          | 3/4     | AD6-12  |
|          | 7/16     | AD4-7   |          | 13/16   | AD6-13  |
|          | 15/32    | AD4-7.5 |          | 7/8     | AD6-14  |
|          | 1/2      | AD4-8   |          | 15/16   | AD6-15  |
|          | 9/16     | AD4-9   |          | 1       | AD6-16  |
|          | 5/8      | AD4-10  |          | 1 - 1/8 | AD6-18  |
|          | 11/16    | AD4-11  |          | 1 - 1/4 | AD6-20  |
|          | 3/4      | AD4-12  |          | 1 - 1/2 | AD6-24  |
|          | 13/16    | AD4-13  | 1/4      | 1/4     | AD8-4   |
|          | 7/8      | AD4-14  |          | 5/16    | AD8-5   |
|          | 15/16    | AD4-15  |          | 3/8     | AD8-6   |
|          | 1        | AD4-16  |          | 7/16    | AD8-7   |
|          | 1 - 1/16 | AD4-17  |          | 1/2     | AD8-8   |
|          | 1 - 1/8  | AD4-18  |          | 9/16    | AD8-9   |
|          | 1 - 3/16 | AD4-19  |          | 5/8     | AD8-10  |
|          | 1 - 1/4  | AD4-20  |          | 3/4     | AD8-12  |
|          | 1 - 3/8  | AD4-22  |          | 7/8     | AD8-14  |
|          | 1 - 1/2  | AD4-24  |          | 1       | AD8-16  |



### MS20426D, MS20470D

Solid Rivet, 2017-T4 Aluminum Alloy



| MS20426 100° FLUSH HEAD |        |         | MS20470 UNIVERSAL HEAD |        |         |
|-------------------------|--------|---------|------------------------|--------|---------|
| Diameter                | Length | MS20426 | Diameter               | Length | MS20470 |
| 1/8                     | 1/4    | D4-4    | 1/8                    | 1/4    | D4-4    |
|                         | 5/16   | D4-5    |                        | 5/16   | D4-5    |
|                         | 3/8    | D4-6    |                        | 3/8    | D4-6    |
|                         | 7/16   | D4-7    |                        | 7/16   | D4-7    |
|                         | 1/2    | D4-8    |                        | 1/2    | D4-8    |
| 5/32                    | 1/4    | D5-4    | 5/32                   | 1/4    | D5-4    |
|                         | 5/16   | D5-5    |                        | 5/16   | D5-5    |
|                         | 3/8    | D5-6    |                        | 3/8    | D5-6    |
|                         | 7/16   | D5-7    |                        | 7/16   | D5-7    |
|                         | 1/2    | D5-8    |                        | 1/2    | D5-8    |
|                         | 9/16   | D5-9    |                        | 9/16   | D5-9    |
| 3/16                    | 5/8    | D5-10   | 3/16                   | 5/8    | D5-10   |
|                         | 3/8    | D6-6    |                        | 3/8    | D6-6    |
|                         | 7/16   | D6-7    |                        | 7/16   | D6-7    |
|                         | 1/2    | D6-8    |                        | 1/2    | D6-8    |
|                         | 9/16   | D6-9    |                        | 9/16   | D6-9    |
|                         | 5/8    | D6-10   |                        | 5/8    | D6-10   |

### MS20426E, MS20470E

Solid Rivet, 7050-T73 Aluminum Alloy



| MS20426 100° FLUSH HEAD |        |       | MS20470 UNIVERSAL HEAD |        |         |
|-------------------------|--------|-------|------------------------|--------|---------|
| Diameter                | Length |       | Diameter               | Length | MS20470 |
| 5/32                    | 1/4    | E5-4  | 5/32                   | 1/4    | E5-4    |
|                         | 5/16   | E5-5  |                        | 5/16   | E5-5    |
|                         | 3/8    | E5-6  |                        | 3/8    | E5-6    |
|                         | 7/16   | E5-7  |                        | 7/16   | E5-7    |
|                         | 1/2    | E5-8  |                        | 1/2    | E5-8    |
|                         | 5/8    | E5-10 |                        | 5/8    | E5-10   |
| 3/16                    | 1/4    | E6-4  | 3/16                   | 1/4    | E6-4    |
|                         | 5/16   | E6-5  |                        | 5/16   | E6-5    |
|                         | 3/8    | E6-6  |                        | 3/8    | E6-6    |
|                         | 7/16   | E6-7  |                        | 7/16   | E6-7    |
|                         | 1/2    | E6-8  |                        | 1/2    | E6-8    |
|                         | 9/16   | E6-9  |                        | 9/16   | E6-9    |
|                         | 5/8    | E6-10 |                        | 5/8    | E6-10   |

### NAS1200M

Solid Rivet, 100° Flush Shear Head, Monel



| Diameter | Length | NAS1200 |
|----------|--------|---------|
| .125     | .188   | M4-3    |
|          | .250   | M4-4    |
|          | .312   | M4-5    |
|          | .375   | M4-6    |
|          | .438   | M4-7    |
|          | .500   | M4-8    |
| .156     | .125   | M5-2    |
|          | .188   | M5-3    |
|          | .250   | M5-4    |
|          | .312   | M5-5    |
|          | .375   | M5-6    |
|          | .438   | M5-7    |
|          | .500   | M5-8    |

### NAS1097KE

100° Flush Shear Head, 7050-T73 Aluminum Alloy



| Diameter | Length | NAS1097 |
|----------|--------|---------|
| .125     | .250   | KE4-4   |
|          | .312   | KE4-5   |
|          | .375   | KE4-6   |
| .156     | .188   | KE5-3   |
|          | .250   | KE5-4   |
|          | .312   | KE5-5   |
|          | .375   | KE5-6   |
|          | .438   | KE5-7   |
|          | .500   | KE5-8   |
| .188     | .250   | KE6-4   |
|          | .312   | KE6-5   |
|          | .375   | KE6-6   |
|          | .438   | KE6-7   |
|          | .500   | KE6-8   |

**MS20426A**  
**MS20470A**

Solid Rivet  
Soft Rivet, 1100-F  
Aluminum Alloy



| Dia. | Length  | MS20426<br>100° FLUSH HEAD | MS20470<br>UNIVERSAL HEAD |
|------|---------|----------------------------|---------------------------|
| 3/32 | 3/16    | A3-3                       | A3-3                      |
|      | 1/4     | A3-4                       | A3-4                      |
|      | 5/16    | A3-5                       | A3-5                      |
|      | 3/8     | A3-6                       | A3-6                      |
|      | 7/16    | A3-7                       | A3-7                      |
|      | 1/2     | A3-8                       | A3-8                      |
|      | 5/8     | A3-10                      | A3-10                     |
|      | 3/4     | A3-12                      | A3-12                     |
| 1/8  | 3/16    | A4-3                       | A4-3                      |
|      | 1/4     | A4-4                       | A4-4                      |
|      | 5/16    | A4-5                       | A4-5                      |
|      | 3/8     | A4-6                       | A4-6                      |
|      | 7/16    | A4-7                       | A4-7                      |
|      | 1/2     | A4-8                       | A4-8                      |
|      | 9/16    | A4-9                       | A4-9                      |
|      | 5/8     | A4-10                      | A4-10                     |
|      | 3/4     | A4-12                      | A4-12                     |
|      | 1       | A4-16                      | A4-16                     |
|      | 1 - 1/4 | A4-20                      | A4-20                     |
| 5/32 | 3/16    | A5-3                       | A5-3                      |
|      | 1/4     | A5-4                       | A5-4                      |
|      | 5/16    | A5-5                       | A5-5                      |
|      | 3/8     | A5-6                       | A5-6                      |
|      | 7/16    | A5-7                       | A5-7                      |
|      | 1/2     | A5-8                       | A5-8                      |
|      | 9/16    | A5-9                       | A5-9                      |
|      | 5/8     | A5-10                      | A5-10                     |
|      | 3/4     | A5-12                      | A5-12                     |
|      | 1       | A5-16                      | A5-16                     |
|      | 1 - 1/4 | A5-20                      | A5-20                     |
| 3/16 | 1/4     | A6-4                       | A6-4                      |
|      | 5/16    | A6-5                       | A6-5                      |
|      | 3/8     | A6-6                       | A6-6                      |
|      | 7/16    | A6-7                       | A6-7                      |
|      | 1/2     | A6-8                       | A6-8                      |
|      | 9/16    | A6-9                       | A6-9                      |
|      | 5/8     | A6-10                      | A6-10                     |
|      | 3/4     | A6-12                      | A6-12                     |
|      | 1       | A6-16                      | A6-16                     |
| 1/4  | 1/4     | A8-4                       | A8-4                      |
|      | 5/16    | A8-5                       | A8-5                      |
|      | 3/8     | A8-6                       | A8-6                      |
|      | 7/16    | A8-7                       | A8-7                      |
|      | 1/2     | A8-8                       | A8-8                      |
|      | 5/8     | A8-10                      | A8-10                     |

**MS20426B**  
**MS20470B**

Solid Rivet  
5056-H32  
Aluminum Alloy



| Dia. | Length | MS20426<br>100° FLUSH HEAD | MS20470<br>UNIVERSAL HEAD |
|------|--------|----------------------------|---------------------------|
| 3/32 | 3/16   | B3-3                       | B3-3                      |
|      | 1/4    | B3-4                       | B3-4                      |
|      | 5/16   | B3-5                       | B3-5                      |
|      | 3/8    | B3-6                       | B3-6                      |
|      | 7/16   | B3-7                       | B3-7                      |
|      | 1/2    | B3-8                       | B3-8                      |
|      | 9/16   | B3-9                       | B3-9                      |
|      | 5/8    | B3-10                      | B3-10                     |
|      | 3/4    | B3-12                      | B3-12                     |
|      | 1      | B3-16                      | B3-16                     |
| 1/8  | 3/16   | B4-3                       | B4-3                      |
|      | 1/4    | B4-4                       | B4-4                      |
|      | 5/16   | B4-5                       | B4-5                      |
|      | 3/8    | B4-6                       | B4-6                      |
|      | 7/16   | B4-7                       | B4-7                      |
|      | 1/2    | B4-8                       | B4-8                      |
|      | 9/16   | B4-9                       | B4-9                      |
|      | 5/8    | B4-10                      | B4-10                     |
|      | 3/4    | B4-12                      | B4-12                     |
|      | 1      | B4-16                      | B4-16                     |
| 5/32 | 1/4    | B5-4                       | B5-4                      |
|      | 5/16   | B5-5                       | B5-5                      |
|      | 3/8    | B5-6                       | B5-6                      |
|      | 7/16   | B5-7                       | B5-7                      |
|      | 1/2    | B5-8                       | B5-8                      |
|      | 9/16   | B5-9                       | B5-9                      |
|      | 5/8    | B5-10                      | B5-10                     |
|      | 3/4    | B5-12                      | B5-12                     |
|      | 7/8    | B5-14                      | B5-14                     |
| 3/16 | 1/4    | B6-4                       | B6-4                      |
|      | 5/16   | B6-5                       | B6-5                      |
|      | 3/8    | B6-6                       | B6-6                      |
|      | 7/16   | B6-7                       | B6-7                      |
|      | 1/2    | B6-8                       | B6-8                      |
|      | 9/16   | B6-9                       | B6-9                      |
|      | 5/8    | B6-10                      | B6-10                     |
|      | 11/16  | B6-11                      | B6-11                     |
|      | 3/4    | B6-12                      | B6-12                     |
|      | 1      | B6-16                      | B6-16                     |
| 1/4  | 3/8    | B8-6                       | B8-6                      |
|      | 7/16   | B8-7                       | B8-7                      |
|      | 1/2    | B8-8                       | B8-8                      |
|      | 5/8    | B8-10                      | B8-10                     |
|      | 3/4    | B8-12                      | B8-12                     |

## MS20615

Monel Rivet  
Universal Head



| Diameter | Length | MS20615 |
|----------|--------|---------|
| 3/32     | 1/8    | 3M2     |
|          | 3/16   | 3M3     |
|          | 1/4    | 3M4     |
|          | 5/16   | 3M5     |
|          | 3/8    | 3M6     |
|          | 7/16   | 3M7     |
|          | 1/2    | 3M8     |
|          | 9/16   | 3M9     |
|          | 5/8    | 3M10    |
|          | 3/4    | 3M12    |
| 1/8      | 1/8    | 4M2     |
|          | 3/16   | 4M3     |
|          | 1/4    | 4M4     |
|          | 5/16   | 4M5     |
|          | 3/8    | 4M6     |
|          | 7/16   | 4M7     |
|          | 1/2    | 4M8     |
|          | 9/16   | 4M9     |
|          | 5/8    | 4M10    |
|          | 3/4    | 4M12    |
|          | 7/8    | 4M14    |
|          | 1      | 4M16    |
| 5/32     | 1/8    | 5M2     |
|          | 3/16   | 5M3     |
|          | 1/4    | 5M4     |
|          | 5/16   | 5M5     |
|          | 3/8    | 5M6     |
|          | 7/16   | 5M7     |
|          | 1/2    | 5M8     |
|          | 9/16   | 5M9     |
|          | 5/8    | 5M10    |
|          | 3/4    | 5M12    |
|          | 1      | 5M16    |
| 3/16     | 1/4    | 6M4     |
|          | 5/16   | 6M5     |
|          | 3/8    | 6M6     |
|          | 7/16   | 6M7     |
|          | 1/2    | 6M8     |
|          | 5/8    | 6M10    |
|          | 3/4    | 6M12    |
|          | 7/8    | 6M14    |

## MS20427F

Solid Rivet 100° Countersunk  
Corrosion Resistant (F)



| Diameter | Length | MS20427 |
|----------|--------|---------|
| 3/32     | 3/16   | F3-3    |
|          | 1/4    | F3-4    |
|          | 5/16   | F3-5    |
|          | 3/8    | F3-6    |
|          | 7/16   | F3-7    |
|          | 1/2    | F3-8    |
| 1/8      | 3/16   | F4-3    |
|          | 1/4    | F4-4    |
|          | 5/16   | F4-5    |
|          | 3/8    | F4-6    |
|          | 7/16   | F4-7    |
|          | 1/2    | F4-8    |
| 5/32     | 3/8    | F5-6    |
|          | 7/16   | F5-7    |
|          | 1/2    | F5-8    |

## MS20427M

Solid Rivet 100° Countersunk  
Monel (M)



| Diameter | Length | MS20427 |
|----------|--------|---------|
| 3/32     | 1/8    | M3-2    |
|          | 5/32   | M3-2.5  |
|          | 3/16   | M3-3    |
|          | 1/4    | M3-4    |
|          | 5/16   | M3-5    |
|          | 3/8    | M3-6    |
|          | 7/16   | M3-7    |
|          | 1/2    | M3-8    |
| 1/8      | 1/8    | M4-2    |
|          | 3/16   | M4-3    |
|          | 1/4    | M4-4    |
|          | 5/16   | M4-5    |
|          | 3/8    | M4-6    |
|          | 7/16   | M4-7    |
|          | 1/2    | M4-8    |
|          | 9/16   | M4-9    |
|          | 5/8    | M4-10   |
|          | 3/4    | M4-12   |
|          | 1      | M4-16   |
| 5/32     | 3/16   | M5-3    |
|          | 1/4    | M5-4    |
|          | 5/16   | M5-5    |
|          | 3/8    | M5-6    |
|          | 7/16   | M5-7    |
|          | 1/2    | M5-8    |
|          | 9/16   | M5-9    |
|          | 5/8    | M5-10   |
|          | 11/16  | M5-11   |
|          | 3/4    | M5-12   |
|          | 1      | M5-16   |
| 3/16     | 5/16   | M6-5    |
|          | 3/8    | M6-6    |
|          | 7/16   | M6-7    |
|          | 1/2    | M6-8    |
|          | 5/8    | M6-10   |
|          | 3/4    | M6-12   |
|          | 1      | M6-16   |

## MS20613

Solid Rivet, Universal Head  
Corrosion Resistant (C)  
Carbon Steel (P)



| Diameter | Length | MS20613 |
|----------|--------|---------|
| 3/32     | 3/16   | 3C3     |
|          | 1/4    | 3C4     |
|          | 5/16   | 3C5     |
|          | 3/8    | 3C6     |
|          | 1/2    | 3C8     |
| 1/8      | 3/16   | 4C3     |
|          | 1/4    | 4C4     |
|          | 1/4    | 4P4     |
|          | 5/16   | 4C5     |
|          | 5/16   | 4P5     |
|          | 3/8    | 4C6     |
|          | 7/16   | 4P7     |
|          | 1/2    | 4C8     |
|          | 1/2    | 4P8     |
|          | 9/16   | 4C9     |
| 5/32     | 5/16   | 5C5     |
|          | 3/8    | 5C6     |
|          | 1/2    | 5C8     |

## NAS1097AD

100° Flush Shear Head,  
2117-T4 Aluminum Alloy



### NAS1097AD 100° FLUSH SHEAR HEAD

| Diameter | Length | NAS1097 | Diameter | Length | NAS1097 |
|----------|--------|---------|----------|--------|---------|
| .094     | .125   | AD3-2   | .188     | .125   | AD6-2   |
|          | .188   | AD3-3   |          | .188   | AD6-3   |
|          | .250   | AD3-4   |          | .250   | AD6-4   |
|          | .312   | AD3-5   |          | .281   | AD6-4.5 |
|          | .375   | AD3-6   |          | .312   | AD6-5   |
|          | .438   | AD3-7   |          | .344   | AD6-5.5 |
|          | .500   | AD3-8   |          | .375   | AD6-6   |
|          | .562   | AD3-9   |          | .407   | AD6-6.5 |
|          | .625   | AD3-10  |          | .438   | AD6-7   |
|          | .750   | AD3-12  |          | .500   | AD6-8   |
|          | 1.00   | AD3-16  |          | .562   | AD6-9   |
| .125     | .125   | AD4-2   | .250     | .625   | AD6-10  |
|          | .188   | AD4-3   |          | .688   | AD6-11  |
|          | .219   | AD4-3.5 |          | .750   | AD6-12  |
|          | .250   | AD4-4   |          | .8125  | AD6-13  |
|          | .281   | AD4-4.5 |          | .875   | AD6-14  |
|          | .312   | AD4-5   |          | .938   | AD6-15  |
|          | .344   | AD4-5.5 |          | 1.00   | AD6-16  |
|          | .375   | AD4-6   |          | 1.250  | AD6-20  |
|          | .407   | AD4-6.5 |          | 1.500  | AD6-24  |
|          | .438   | AD4-7   |          | 1.750  | AD6-28  |
|          | .500   | AD4-8   |          | .250   | AD8-4   |
|          | .562   | AD4-9   |          | .312   | AD8-5   |
|          | .625   | AD4-10  |          | .375   | AD8-6   |
|          | .6875  | AD4-11  |          | .438   | AD8-7   |
|          | .750   | AD4-12  |          | .500   | AD8-8   |
|          | .875   | AD4-14  |          | .562   | AD8-9   |
| .156     | 1.00   | AD4-16  |          | .625   | AD8-10  |
|          | 1.25   | AD4-20  |          | .688   | AD8-11  |
|          | .125   | AD5-2   |          | .750   | AD8-12  |
|          | .188   | AD5-3   |          | .813   | AD8-13  |
|          | .219   | AD5-3.5 |          | .875   | AD8-14  |
|          | .250   | AD5-4   |          | .938   | AD8-15  |
|          | .281   | AD5-4.5 |          | 1.00   | AD8-16  |
|          | .312   | AD5-5   |          | 1.25   | AD8-20  |
|          | .344   | AD5-5.5 |          | --     | --      |
|          | .375   | AD5-6   |          | --     | --      |
|          | .407   | AD5-6.5 |          | --     | --      |
|          | .438   | AD5-7   |          | --     | --      |
|          | .500   | AD5-8   |          | --     | --      |
|          | .562   | AD5-9   |          | --     | --      |
|          | .625   | AD5-10  |          | --     | --      |
|          | .688   | AD5-11  |          | --     | --      |
|          | .750   | AD5-12  |          | --     | --      |
|          | 1.00   | AD5-16  |          | --     | --      |
|          | 1.25   | AD5-20  |          | --     | --      |

## NAS1097D

100° Flush Shear Head,  
2017-T4 Aluminum Alloy



### NAS1097D 100° FLUSH SHEAR HEAD

| Diameter | Length | NAS1097 | Diameter | Length | NAS1097 |
|----------|--------|---------|----------|--------|---------|
| .125     | .250   | D4-4    | .188     | .1875  | D6-3    |
|          | .312   | D4-5    |          | .250   | D6-4    |
|          | .375   | D4-6    |          | .312   | D6-5    |
|          | .438   | D4-7    |          | .375   | D6-6    |
|          | .500   | D4-8    |          | .438   | D6-7    |
| .156     | .250   | D5-4    |          | .500   | D6-8    |
|          | .312   | D5-5    |          | .562   | D6-9    |
|          | .375   | D5-6    |          | .625   | D6-10   |
|          | .438   | D5-7    |          | .750   | D6-12   |
|          | .500   | D5-8    |          | 1.00   | D6-16   |

### NAS1241

Solid Rivet  
100° Flush Shear Head  
2117-T4 Aluminum Alloy  
MS20426 Repair



| Diameter | Length | NAS1241 |
|----------|--------|---------|
| .140     | .188   | AD4-3   |
|          | .250   | AD4-4   |
|          | .312   | AD4-5   |
|          | .375   | AD4-6   |
|          | .438   | AD4-7   |
|          | .500   | AD4-8   |
|          | .562   | AD4-9   |
|          | .625   | AD4-10  |
| .172     | .750   | AD4-12  |
|          | .250   | AD5-4   |
|          | .312   | AD5-5   |
|          | .375   | AD5-6   |
|          | .438   | AD5-7   |
|          | .500   | AD5-8   |
|          | .562   | AD5-9   |
|          | .625   | AD5-10  |
| .219     | .750   | AD5-12  |
|          | .250   | AD6-4   |
|          | .312   | AD6-5   |
|          | .375   | AD6-6   |
|          | .438   | AD6-7   |
|          | .500   | AD6-8   |
|          | .562   | AD6-9   |
|          | .625   | AD6-10  |
|          | .750   | AD6-12  |

### NAS1242

Solid Rivet  
Universal Head  
2117-T4 Aluminum Alloy  
MS20470 Repair



| Diameter | Length | NAS1242 |
|----------|--------|---------|
| .140     | .188   | AD4-3   |
|          | .250   | AD4-4   |
|          | .312   | AD4-5   |
|          | .375   | AD4-6   |
|          | .438   | AD4-7   |
|          | .500   | AD4-8   |
|          | .562   | AD4-9   |
|          | .625   | AD4-10  |
| .172     | .750   | AD4-12  |
|          | .188   | AD5-3   |
|          | .250   | AD5-4   |
|          | .312   | AD5-5   |
|          | .375   | AD5-6   |
|          | .438   | AD5-7   |
|          | .500   | AD5-8   |
|          | .562   | AD5-9   |
| .219     | .625   | AD5-10  |
|          | .750   | AD5-12  |
|          | .250   | AD6-4   |
|          | .312   | AD6-5   |
|          | .375   | AD6-6   |
|          | .438   | AD6-7   |
|          | .500   | AD6-8   |
|          | .562   | AD6-9   |
|          | .625   | AD6-10  |
|          | .750   | AD6-12  |

### S4579428AD (McDonnell Part #)

AF138AD (Allfast Part #)  
100° Crown Flush Shear Head  
2117-T4 Aluminum Alloy



| Diameter | Length | Part Number    | Allfast P/N | Diameter | Length | Part Number    | Allfast P/N |
|----------|--------|----------------|-------------|----------|--------|----------------|-------------|
| .094     | .250   | S4579428AD3-4  | AF138AD3-4  | .156     | .188   | S4579428AD5-3  | AF138AD5-3  |
|          | .312   | S4579428AD3-5  | AF138AD3-5  |          | .250   | S4579428AD5-4  | AF138AD5-4  |
|          | .375   | S4579428AD3-6  | AF138AD3-6  |          | .312   | S4579428AD5-5  | AF138AD5-5  |
|          | .500   | S4579428AD3-8  | AF138AD3-8  |          | .375   | S4579428AD5-6  | AF138AD5-6  |
| .125     | .188   | S4579428AD4-3  | AF138AD4-3  |          | .438   | S4579428AD5-7  | AF138AD5-7  |
|          | .250   | S4579428AD4-4  | AF138AD4-4  |          | .500   | S4579428AD5-8  | AF138AD5-8  |
|          | .312   | S4579428AD4-5  | AF138AD4-5  |          | .562   | S4579428AD5-9  | AF138AD5-9  |
|          | .375   | S4579428AD4-6  | AF138AD4-6  |          | .625   | S4579428AD5-10 | AF138AD5-10 |
|          | .438   | S4579428AD4-7  | AF138AD4-7  | .188     | .188   | S4579428AD6-3  | AF138AD6-3  |
|          | .500   | S4579428AD4-8  | AF138AD4-8  |          | .250   | S4579428AD6-4  | AF138AD6-4  |
|          | .562   | S4579428AD4-9  | AF138AD4-9  |          | .312   | S4579428AD6-5  | AF138AD6-5  |
|          | .625   | S4579428AD4-10 | AF138AD4-10 |          | .375   | S4579428AD6-6  | AF138AD6-6  |
|          |        |                |             |          | .438   | S4579428AD6-7  | AF138AD6-7  |
|          |        |                |             |          | .500   | S4579428AD6-8  | AF138AD6-8  |
|          |        |                |             |          | .562   | S4579428AD6-9  | AF138AD6-9  |
|          |        |                |             |          | .625   | S4579428AD6-10 | AF138AD6-10 |



## RIVETS PER POUND REFERENCE TABLE

| <b>MS20426</b> (Aluminum) |      | LENGTH |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|
| Dia.                      | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
| 3                         | 5500 | 4900   | 4025 | 3420 | 2975 | 2635 | 2360 | 2140 | 1950 | 1800 | 1735 | 1555 | 1460 | 1370 |
| 4                         | 3077 | 2754   | 2265 | 1930 | 1675 | 1485 | 1330 | 1200 | 1100 | 1000 | 940  | 875  | 820  | 775  |
| 5                         | 1850 | 1670   | 1390 | 1190 | 1040 | 925  | 830  | 755  | 690  | 640  | 595  | 555  | 520  | 490  |
| 6                         | 1200 | 1090   | 910  | 790  | 700  | 620  | 560  | 510  | 465  | 430  | 404  | 375  | 350  | 330  |

| <b>MS20470</b> (Aluminum) |      | LENGTH |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|
| Dia.                      | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
| 3                         | 4460 | 4040   | 3435 | 2990 | 2645 | 2375 | 2150 | 1960 | 1800 | 1680 | 1575 | 1460 | 1380 | 1300 |
| 4                         | 2240 | 2065   | 1780 | 1565 | 1390 | 1260 | 1145 | 1055 | 970  | 900  | 850  | 790  | 745  | 700  |
| 5                         | 1300 | 1210   | 1050 | 935  | 840  | 760  | 690  | 645  | 600  | 550  | 500  | 490  | 465  | 440  |
| 6                         | 880  | 745    | 700  | 630  | 570  | 520  | 475  | 440  | 400  | 380  | 350  | 335  | 315  | 300  |

| <b>MS20427</b> (Monel) |      | LENGTH |      |      |     |     |     |     |     |     |     |     |     |     |
|------------------------|------|--------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dia.                   | 3    | 4      | 5    | 6    | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| 3                      | 1925 | 1510   | 1230 | 1045 | 905 | 800 | 720 | 650 | 595 | 550 | 500 | 475 | 445 | 420 |
| 4                      | 1075 | 845    | 690  | 590  | 510 | 450 | 405 | 365 | 335 | 310 | 285 | 265 | 245 | 220 |
| 5                      | 660  | 520    | 430  | 370  | 325 | 285 | 255 | 230 | 210 | 195 | 180 | 165 | 158 | 148 |
| 6                      | 450  | 360    | 297  | 254  | 220 | 195 | 176 | 160 | 145 | 135 | 125 | 117 | 110 | 100 |

| <b>MS20615</b> (Monel) |      | LENGTH |     |     |     |     |     |     |     |     |     |     |     |     |
|------------------------|------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dia.                   | 3    | 4      | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| 3                      | 1370 | 1170   | 980 | 860 | 750 | 675 | 610 | 565 | 525 | 490 | 460 | 430 | 405 | 380 |
| 4                      | 660  | 565    | 490 | 435 | 390 | 365 | 325 | 300 | 280 | 260 | 245 | 230 | 215 | 205 |
| 5                      | 375  | 325    | 290 | 255 | 235 | 215 | 195 | 182 | 170 | 160 | 150 | 140 | 133 | 126 |
| 6                      | 230  | 203    | 182 | 165 | 151 | 138 | 128 | 118 | 112 | 105 | 100 | 95  | 90  | 81  |

| <b>MS20427</b> (Corrosion Resistant) |      | LENGTH |      |      |      |     |     |     |     |     |     |     |     |     |
|--------------------------------------|------|--------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dia.                                 | 3    | 4      | 5    | 6    | 7    | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| 3                                    | 2175 | 1705   | 1390 | 1180 | 1020 | 905 | 815 | 735 | 670 | 620 | 570 | 535 | 500 | 475 |
| 4                                    | 1215 | 955    | 780  | 665  | 575  | 510 | 480 | 410 | 375 | 350 | 320 | 300 | 280 | 255 |
| 5                                    | 745  | 585    | 485  | 420  | 365  | 320 | 285 | 260 | 240 | 220 | 205 | 190 | 180 | 167 |
| 6                                    | 510  | 405    | 335  | 285  | 250  | 220 | 200 | 180 | 165 | 153 | 141 | 132 | 125 | 116 |

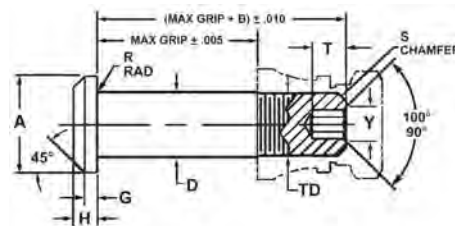
| <b>MS20613</b> (Corrosion Resistant) |      | LENGTH |      |     |     |     |     |     |     |     |     |     |     |     |
|--------------------------------------|------|--------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dia.                                 | 3    | 4      | 5    | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  |
| 3                                    | 1550 | 1320   | 1100 | 970 | 855 | 760 | 690 | 640 | 595 | 555 | 520 | 485 | 455 | 430 |
| 4                                    | 745  | 640    | 555  | 490 | 440 | 400 | 365 | 340 | 315 | 295 | 278 | 259 | 245 | 230 |
| 5                                    | 425  | 385    | 325  | 292 | 265 | 240 | 223 | 206 | 192 | 180 | 168 | 159 | 150 | 142 |
| 6                                    | 261  | 229    | 209  | 186 | 171 | 156 | 145 | 133 | 127 | 119 | 112 | 105 | 100 | 95  |

| <b>NAS1097</b> (Aluminum) |      | LENGTH |      |      |      |      |      |      |      |      |      |      |      |      |
|---------------------------|------|--------|------|------|------|------|------|------|------|------|------|------|------|------|
| Dia.                      | 3    | 4      | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
| 3                         | 5900 | 5300   | 4430 | 3765 | 3275 | 2900 | 2600 | 2355 | 2160 | 2000 | 1910 | 1710 | 1600 | 1510 |
| 4                         | 3375 | 3030   | 2495 | 2120 | 1845 | 1630 | 1465 | 1320 | 1210 | 1120 | 1038 | 965  | 900  | 850  |
| 5                         | 2045 | 1845   | 1530 | 1310 | 1145 | 1020 | 915  | 830  | 765  | 705  | 655  | 610  | 570  | 540  |
| 6                         | 1330 | 1200   | 1010 | 870  | 765  | 680  | 610  | 560  | 515  | 475  | 440  | 415  | 390  | 365  |

**THE ABOVE QUANTITIES ARE FOR YOUR CONVENIENCE AND ARE APPROXIMATED**

## HL18 HI-LOK

Protruding Shear Head  
95,000 PSI Shear MIN  
160,000 - 180,000 PSI,  
Tensile Strength, Alloy Steel

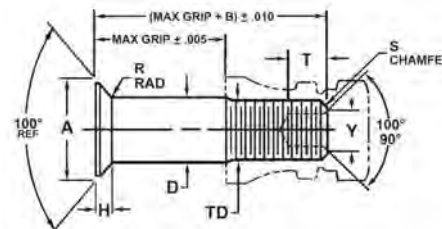


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|---------------------------|--------------------------|---------------------|
| -5           | 5/32      | .262<br>.242 | .312   | .1635<br>.1625 | .1595<br>.1570 | .020   | .047<br>.037 | 8-32UNJC-3A<br>Modified   | 4,010                    | 1,940               |
| -6           | 3/16      | .315<br>.295 | .325   | .1895<br>.1885 | .1840<br>.1810 | .025   | .055<br>.045 | 10-32-UNJF-3A<br>Modified | 5,380                    | 2,500               |
| -8           | 1/4       | .412<br>.387 | .395   | .2495<br>.2485 | .2440<br>.2410 | .030   | .069<br>.059 | 1/4-28UNJF-3A<br>Modified | 9,300                    | 4,300               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL18PB5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL18PB6-# | 1/4-28 Thread<br>1/4 Nominal Diameter<br>HL18PB8-# |
|----------|---------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| 1/8      | HL18PB5-2                                         | HL18PB6-2                                          | HL18PB8-2                                          |
| 3/16     | HL18PB5-3                                         | HL18PB6-3                                          | HL18PB8-3                                          |
| 1/4      | HL18PB5-4                                         | HL18PB6-4                                          | HL18PB8-4                                          |
| 5/16     | HL18PB5-5                                         | HL18PB6-5                                          | HL18PB8-5                                          |
| 3/8      | HL18PB5-6                                         | HL18PB6-6                                          | HL18PB8-6                                          |
| 7/16     | HL18PB5-7                                         | HL18PB6-7                                          | HL18PB8-7                                          |
| 1/2      | HL18PB5-8                                         | HL18PB6-8                                          | HL18PB8-8                                          |
| 9/16     | HL18PB5-9                                         | HL18PB6-9                                          | HL18PB8-9                                          |
| 5/8      | HL18PB5-10                                        | HL18PB6-10                                         | HL18PB8-10                                         |
| 11/16    | HL18PB5-11                                        | HL18PB6-11                                         | HL18PB8-11                                         |
| 3/4      | HL18PB5-12                                        | HL18PB6-12                                         | HL18PB8-12                                         |
| 13/16    | HL18PB5-13                                        | HL18PB6-13                                         | HL18PB8-13                                         |
| 7/8      | HL18PB5-14                                        | HL18PB6-14                                         | HL18PB8-14                                         |
| 15/16    | HL18PB5-15                                        | HL18PB6-15                                         | HL18PB8-15                                         |
| 1        | HL18PB5-16                                        | HL18PB6-16                                         | HL18PB8-16                                         |

## HL19 HI-LOK

100° Flush Shear Head  
95,000 PSI Shear MIN  
160,000 - 180,000 PSI,  
Tensile Strength, Alloy Steel

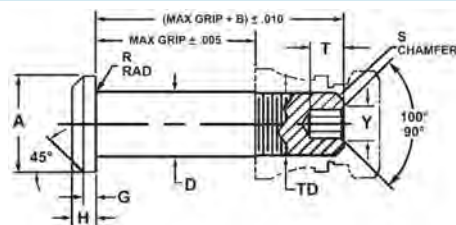


| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|---------------------------|--------------------------|---------------------|
| -5           | 5/32      | .2612<br>.2564 | .312   | .1635<br>.1625 | .1595<br>.1570 | .0410<br>.0390 | 8-32UNJC-3A<br>Modified   | 4,010                    | 1,290               |
| -6           | 3/16      | .3016<br>.2966 | .325   | .1895<br>.1885 | .1840<br>.1810 | .0470<br>.0450 | 10-32-UNJF-3A<br>Modified | 5,380                    | 2,000               |
| -8           | 1/4       | .3948<br>.3898 | .395   | .2495<br>.2485 | .2440<br>.2410 | .0610<br>.0590 | 1/4-28UNJF-3A<br>Modified | 9,300                    | 3,700               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL19PB5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL19PB6-# | 1/4-28 Thread<br>1/4 Nominal Diameter<br>HL19PB8-# |
|----------|---------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| 1/8      | HL19PB5-2                                         | HL19PB6-2                                          | HL19PB8-2                                          |
| 3/16     | HL19PB5-3                                         | HL19PB6-3                                          | HL19PB8-3                                          |
| 1/4      | HL19PB5-4                                         | HL19PB6-4                                          | HL19PB8-4                                          |
| 5/16     | HL19PB5-5                                         | HL19PB6-5                                          | HL19PB8-5                                          |
| 3/8      | HL19PB5-6                                         | HL19PB6-6                                          | HL19PB8-6                                          |
| 7/16     | HL19PB5-7                                         | HL19PB6-7                                          | HL19PB8-7                                          |
| 1/2      | HL19PB5-8                                         | HL19PB6-8                                          | HL19PB8-8                                          |
| 9/16     | HL19PB5-9                                         | HL19PB6-9                                          | HL19PB8-9                                          |
| 5/8      | HL19PB5-10                                        | HL19PB6-10                                         | HL19PB8-10                                         |
| 11/16    | HL19PB5-11                                        | HL19PB6-11                                         | HL19PB8-11                                         |
| 3/4      | HL19PB5-12                                        | HL19PB6-12                                         | HL19PB8-12                                         |
| 13/16    | HL19PB5-13                                        | HL19PB6-13                                         | HL19PB8-13                                         |
| 7/8      | HL19PB5-14                                        | HL19PB6-14                                         | HL19PB8-14                                         |
| 15/16    | HL19PB5-15                                        | HL19PB6-15                                         | HL19PB8-15                                         |

## HL20 HI-LOK

Protruding Tension Head  
160,000 - 180,000 PSI  
Tensile Strength  
Alloy Steel

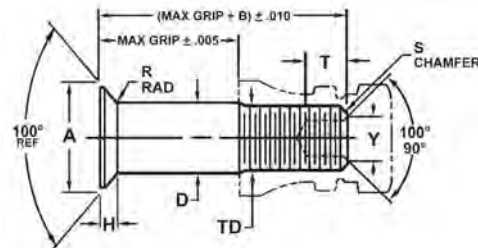


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|---------------------------|--------------------------|---------------------|
| -5           | 5/32      | .322<br>.306 | .312   | .1635<br>.1625 | .1595<br>.1570 | .030   | .060<br>.055 | 8-32UNJC-3A<br>Modified   | 4,010                    | 2,180               |
| -6           | 3/16      | .377<br>.357 | .325   | .1895<br>.1885 | .1840<br>.1810 | .035   | .074<br>.064 | 10-32-UNJF-3A<br>Modified | 5,380                    | 3,180               |
| -8           | 1/4       | .440<br>.415 | .395   | .2495<br>.2485 | .2440<br>.2410 | .045   | .090<br>.077 | 1/4-28UNJF-3A<br>Modified | 9,300                    | 5,820               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL20PB5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL20PB6-# | 1/4-28 Thread<br>1/4 Nominal Diameter<br>HL20PB8-# |
|----------|---------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| 1/8      | HL20PB5-2                                         | HL20PB6-2                                          | HL20PB8-2                                          |
| 3/16     | HL20PB5-3                                         | HL20PB6-3                                          | HL20PB8-3                                          |
| 1/4      | HL20PB5-4                                         | HL20PB6-4                                          | HL20PB8-4                                          |
| 5/16     | HL20PB5-5                                         | HL20PB6-5                                          | HL20PB8-5                                          |
| 3/8      | HL20PB5-6                                         | HL20PB6-6                                          | HL20PB8-6                                          |
| 7/16     | HL20PB5-7                                         | HL20PB6-7                                          | HL20PB8-7                                          |
| 1/2      | HL20PB5-8                                         | HL20PB6-8                                          | HL20PB8-8                                          |
| 9/16     | HL20PB5-9                                         | HL20PB6-9                                          | HL20PB8-9                                          |
| 5/8      | HL20PB5-10                                        | HL20PB6-10                                         | HL20PB8-10                                         |
| 11/16    | HL20PB5-11                                        | HL20PB6-11                                         | HL20PB8-11                                         |
| 3/4      | HL20PB5-12                                        | HL20PB6-12                                         | HL20PB8-12                                         |
| 13/16    | HL20PB5-13                                        | HL20PB6-13                                         | HL20PB8-13                                         |
| 7/8      | HL20PB5-14                                        | HL20PB6-14                                         | HL20PB8-14                                         |
| 15/16    | HL20PB5-15                                        | HL20PB6-15                                         | HL20PB8-15                                         |

## HL21 HI-LOK

100° Flush Tension Head  
160,000 - 180,000 PSI,  
Tensile Strength, Alloy Steel

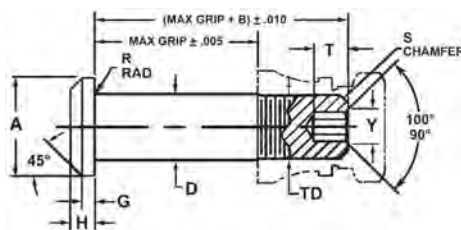


| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|---------------------------|--------------------------|---------------------|
| -5           | 5/32      | .3304<br>.3256 | .312   | .1635<br>.1625 | .1595<br>.1570 | .0700<br>.0680 | 8-32UNJC-3A<br>Modified   | 4,010                    | 2,180               |
| -6           | 3/16      | .3813<br>.3765 | .325   | .1895<br>.1885 | .1840<br>.1810 | .0805<br>.0785 | 10-32-UNJF-3A<br>Modified | 5,380                    | 3,180               |
| -8           | 1/4       | .5066<br>.5018 | .395   | .2495<br>.2485 | .2440<br>.2410 | .1080<br>.1060 | 1/4-28UNJF-3A<br>Modified | 9,300                    | 5,820               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL21PB5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL21PB6-# | 1/4-28 Thread<br>1/4 Nominal Diameter<br>HL21PB8-# |
|----------|---------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| 1/8      | HL21PB5-2                                         | HL21PB6-2                                          | HL21PB8-2                                          |
| 3/16     | HL21PB5-3                                         | HL21PB6-3                                          | HL21PB8-3                                          |
| 1/4      | HL21PB5-4                                         | HL21PB6-4                                          | HL21PB8-4                                          |
| 5/16     | HL21PB5-5                                         | HL21PB6-5                                          | HL21PB8-5                                          |
| 3/8      | HL21PB5-6                                         | HL21PB6-6                                          | HL21PB8-6                                          |
| 7/16     | HL21PB5-7                                         | HL21PB6-7                                          | HL21PB8-7                                          |
| 1/2      | HL21PB5-8                                         | HL21PB6-8                                          | HL21PB8-8                                          |
| 9/16     | HL21PB5-9                                         | HL21PB6-9                                          | HL21PB8-9                                          |
| 5/8      | HL21PB5-10                                        | HL21PB6-10                                         | HL21PB8-10                                         |
| 11/16    | HL21PB5-11                                        | HL21PB6-11                                         | HL21PB8-11                                         |
| 3/4      | HL21PB5-12                                        | HL21PB6-12                                         | HL21PB8-12                                         |
| 13/16    | HL21PB5-13                                        | HL21PB6-13                                         | HL21PB8-13                                         |
| 7/8      | HL21PB5-14                                        | HL21PB6-14                                         | HL21PB8-14                                         |

## HL62 HI-LOK

Protruding Shear Head  
1/64 Oversize for HL18  
95,000 PSI Shear min.  
Alloy Steel  
160,000 - 180,000  
PSI Tensile Strength

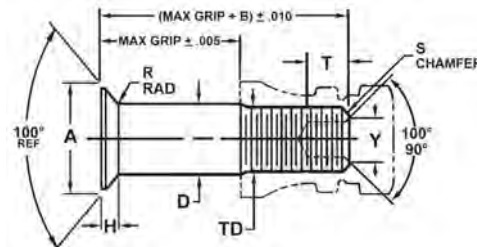


| First Dash #             | Nom. Dia. | A Dia.       | B Ref. | D Dia.       | TD Dia.        | G Ref. | H            | R Dia.       | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------------------|-----------|--------------|--------|--------------|----------------|--------|--------------|--------------|---------------------------|--------------------------|---------------------|
| -5                       |           |              |        |              |                |        |              |              |                           |                          |                     |
| <b>NOTE: Use HL18PB6</b> |           |              |        |              |                |        |              |              |                           |                          |                     |
| -6                       | 13/64     | .315<br>.295 | .325   | 2026<br>2016 | .1840<br>.1810 | .025   | .055<br>.045 | .025<br>.015 | 10-32-UNJF-3A<br>Modified | 6,130                    | 2,500               |
| -8                       | 17/64     | .412<br>.387 | .395   | 2651<br>2641 | .2440<br>.2410 | .030   | .069<br>.059 | .025<br>.015 | 1/4-28UNJF-3A<br>Modified | 10,490                   | 4,300               |

| Max Grip | 10-32 Thread<br>13/64 Nominal Diameter<br>HL62PB6-# | 1/4-28 Thread<br>17/64 Nominal Diameter<br>HL62PB8-# |
|----------|-----------------------------------------------------|------------------------------------------------------|
| 1/8      | HL62PB6-2                                           | HL62PB8-2                                            |
| 3/16     | HL62PB6-3                                           | HL62PB8-3                                            |
| 1/4      | HL62PB6-4                                           | HL62PB8-4                                            |
| 5/16     | HL62PB6-5                                           | HL62PB8-5                                            |
| 3/8      | HL62PB6-6                                           | HL62PB8-6                                            |
| 7/16     | HL62PB6-7                                           | HL62PB8-7                                            |
| 1/2      | HL62PB6-8                                           | HL62PB8-8                                            |
| 9/16     | HL62PB6-9                                           | HL62PB8-9                                            |
| 5/8      | HL62PB6-10                                          | HL62PB8-10                                           |
| 11/16    | HL62PB6-11                                          | HL62PB8-11                                           |
| 3/4      | HL62PB6-12                                          | HL62PB8-12                                           |
| 13/16    | HL62PB6-13                                          | HL62PB8-13                                           |
| 7/8      | HL62PB6-14                                          | HL62PB8-14                                           |
| 15/16    | HL62PB6-15                                          | HL62PB8-15                                           |
| 1        | HL62PB6-16                                          | HL62PB8-16                                           |

## HL63 HI-LOK

100° Flush Shear Head  
1/64 Oversize for HL19  
95,000 PSI Shear MIN.  
Alloy Steel, 160,000 - 180,000  
PSI Tensile Strength



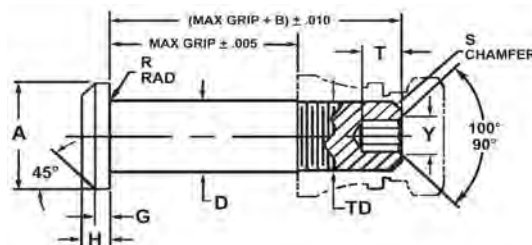
| First Dash #             | Nom. Dia. | A Dia.         | B Ref. | D Dia.       | TD Dia.        | G Ref. | H            | R Dia.       | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------------------|-----------|----------------|--------|--------------|----------------|--------|--------------|--------------|---------------------------|--------------------------|---------------------|
| -5                       |           |                |        |              |                |        |              |              |                           |                          |                     |
| <b>NOTE: Use HL19PB6</b> |           |                |        |              |                |        |              |              |                           |                          |                     |
| -6                       | 13/64     | .3016<br>.2966 | .325   | 2026<br>2016 | .1840<br>.1810 | .035   | .074<br>.064 | .025<br>.015 | 10-32-UNJF-3A<br>Modified | 6,130                    | 2,000               |
| -8                       | 17/64     | .3948<br>.3898 | .395   | 2651<br>2641 | .2440<br>.2410 | .045   | .080<br>.077 | .025<br>.015 | 1/4-28UNJF-3A<br>Modified | 10,490                   | 3,700               |

| Max Grip | 10-32 Thread<br>13/64 Nominal Diameter<br>HL63PB6-# | 1/4-28 Thread<br>17/64 Nom. Dia.<br>HL63PB8-# |
|----------|-----------------------------------------------------|-----------------------------------------------|
| 1/8      | HL63PB6-2                                           | HL63PB8-2                                     |
| 3/16     | HL63PB6-3                                           | HL63PB8-3                                     |
| 1/4      | HL63PB6-4                                           | HL63PB8-4                                     |
| 5/16     | HL63PB6-5                                           | HL63PB8-5                                     |
| 3/8      | HL63PB6-6                                           | HL63PB8-6                                     |
| 7/16     | HL63PB6-7                                           | HL63PB8-7                                     |
| 1/2      | HL63PB6-8                                           | HL63PB8-8                                     |
| 9/16     | HL63PB6-9                                           | HL63PB8-9                                     |
| 5/8      | HL63PB6-10                                          | HL63PB8-10                                    |
| 11/16    | HL63PB6-11                                          | HL63PB8-11                                    |
| 3/4      | HL63PB6-12                                          | HL63PB8-12                                    |



## HL64 HI-LOK

Protruding Tension Head  
1/64 Oversize for HL20  
Alloy Steel,  
160,000 - 180,000  
PSI Tensile Strength

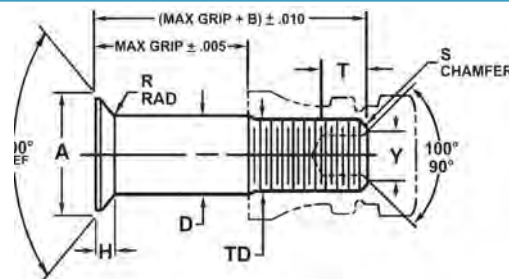


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                   | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|--------------------------|--------------------------|---------------------|
| -5           |           |              |        |                |                |        |              | <b>NOTE: Use HL20PB6</b> |                          |                     |
| -6           | 13/64     | .377<br>.357 | .325   | .2026<br>.2016 | .1840<br>.1810 | .035   | .074<br>.064 | 10-32-UNJF-3A Modified   | 6,130                    | 3,180               |
| -8           | 17/64     | .440<br>.415 | .395   | .2651<br>.2641 | .2440<br>.2410 | .045   | .090<br>.077 | 1/4-28UNJF-3A Modified   | 10,490                   | 5,820               |

| Max Grip | 10-32 Thread<br>13/64 Nominal Diameter<br>HL64PB6-# | 1/4-28 Thread<br>17/64 Nominal Diameter<br>HL64PB8-# |
|----------|-----------------------------------------------------|------------------------------------------------------|
| 1/8      | HL64PB6-2                                           | HL64PB8-2                                            |
| 3/16     | HL64PB6-3                                           | HL64PB8-3                                            |
| 1/4      | HL64PB6-4                                           | HL64PB8-4                                            |
| 5/16     | HL64PB6-5                                           | HL64PB8-5                                            |
| 3/8      | HL64PB6-6                                           | HL64PB8-6                                            |
| 7/16     | HL64PB6-7                                           | HL64PB8-7                                            |
| 1/2      | HL64PB6-8                                           | HL64PB8-8                                            |
| 9/16     | HL64PB6-9                                           | HL64PB8-9                                            |
| 5/8      | HL64PB6-10                                          | HL64PB8-10                                           |
| 11/16    | HL64PB6-11                                          | HL64PB8-11                                           |
| 3/4      | HL64PB6-12                                          | HL64PB8-12                                           |
| 13/16    | HL64PB6-13                                          | HL64PB8-13                                           |
| 7/8      | HL64PB6-14                                          | HL64PB8-14                                           |

## HL65 HI-LOK

100° Flush Tension Head  
1/64 Oversize for HL21  
Alloy Steel  
160,000 - 180,000  
PSI Tensile Strength



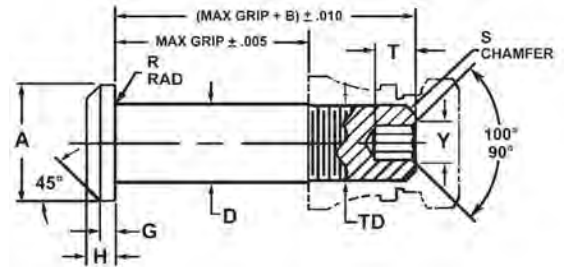
| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                   | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|--------------------------|--------------------------|---------------------|
| -5           |           |                |        |                |                |                | <b>NOTE: Use HL21PB6</b> |                          |                     |
| -6           | 13/64     | .3813<br>.3765 | .325   | .2026<br>.2016 | .1840<br>.1810 | .0750<br>.0730 | 10-32-UNJF-3A Modified   | 6,130                    | 3,180               |
| -8           | 17/64     | .5066<br>.5018 | .395   | .2651<br>.2641 | .2440<br>.2410 | .1013<br>.0993 | 1/4-28UNJF-3A Modified   | 10,490                   | 5,820               |

| Max Grip | 10-32 Thread<br>13/64 Nominal Diameter<br>HL65PB6-# | 1/4-28 Thread<br>17/64 Nominal Diameter<br>HL65PB8-# |
|----------|-----------------------------------------------------|------------------------------------------------------|
| 1/8      | HL65PB6-2                                           | HL65PB8-2                                            |
| 3/16     | HL65PB6-3                                           | HL65PB8-3                                            |
| 1/4      | HL65PB6-4                                           | HL65PB8-4                                            |
| 5/16     | HL65PB6-5                                           | HL65PB8-5                                            |
| 3/8      | HL65PB6-6                                           | HL65PB8-6                                            |
| 7/16     | HL65PB6-7                                           | HL65PB8-7                                            |
| 1/2      | HL65PB6-8                                           | HL65PB8-8                                            |
| 9/16     | HL65PB6-9                                           | HL65PB8-9                                            |
| 5/8      | HL65PB6-10                                          | HL65PB8-10                                           |
| 11/16    | HL65PB6-11                                          | HL65PB8-11                                           |
| 3/4      | HL65PB6-12                                          | HL65PB8-12                                           |
| 13/16    | HL65PB6-13                                          | HL65PB8-13                                           |



## HL218 HI-LOK

Protruding Shear Head  
1/32 Oversize for HL18  
95,000 PSI Shear  
160,000 - 180,000 PSI  
Tensile Strength



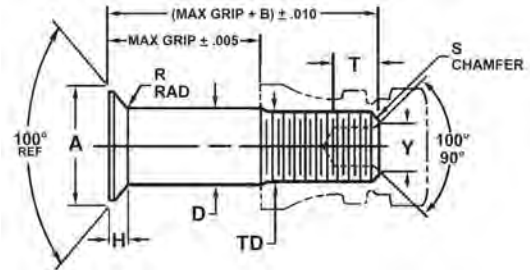
| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | R Rad.       | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|--------------|---------------------------|--------------------------|---------------------|
| -5           | 13/64     |              |        |                |                |        |              |              |                           |                          |                     |
| -6           | 7/32      | .315<br>.295 | .325   | .2182<br>.2172 | .1840<br>.1810 | .025   | .055<br>.045 | .025<br>.015 | 10-32-UNJF-3A<br>Modified | 7,100                    | 2,500               |
| -8           | 9/32      | .412<br>.387 | .395   | .2807<br>.2797 | .2440<br>.2410 | .030   | .069<br>.059 | .025<br>.015 | 1/4-28UNJF-3A<br>Modified | 11,800                   | 4,300               |

**NOTE: Use HL62PB6**

| Max Grip | 10/32 Thread<br>7/32 Nominal Diameter<br>HL218-6-# | 1/4-28 Thread<br>9/32 Nominal Diameter<br>HL218-8-# |
|----------|----------------------------------------------------|-----------------------------------------------------|
| 3/16     | HL218-6-3                                          | HL218-8-3                                           |
| 1/4      | HL218-6-4                                          | HL218-8-4                                           |
| 5/16     | HL218-6-5                                          | HL218-8-5                                           |
| 3/8      | HL218-6-6                                          | HL218-8-6                                           |
| 7/16     | HL218-6-7                                          | HL218-8-7                                           |
| 1/2      | HL218-6-8                                          | HL218-8-8                                           |
| 9/16     | HL218-6-9                                          | HL218-8-9                                           |
| 5/8      | HL218-6-10                                         | HL218-8-10                                          |
| 11/16    | HL218-6-11                                         | HL218-8-11                                          |
| 3/4      | HL218-6-12                                         | HL218-8-12                                          |

## HL219 HI-LOK

100° Flush Shear Head  
1/32 Oversize for HL19  
95,000 PSI Shear  
160,000 - 180,000 PSI  
Tensile Strength



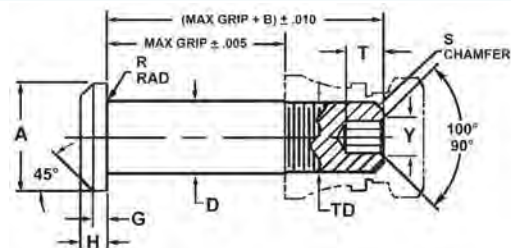
| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|---------------------------|--------------------------|---------------------|
| -5           | 13/64     |                |        |                |                |                |                           |                          |                     |
| -6           | 7/32      | .3303<br>.3253 | .325   | .2182<br>.2172 | .1840<br>.1810 | .0470<br>.0449 | 10-32-UNJF-3A<br>Modified | 7,100                    | 2,000               |
| -8           | 9/32      | .4260<br>.4210 | .395   | .2807<br>.2797 | .2440<br>.2410 | .0610<br>.0589 | 1/4-28UNJF-3A<br>Modified | 11,800                   | 3,700               |

**NOTE: Use HL63PB6**

| Max Grip | 10-32 Thread<br>7/32 Nominal Diameter<br>HL219-6-# | 1/4-28 Thread<br>9/32 Nominal Diameter<br>HL219-8-# |
|----------|----------------------------------------------------|-----------------------------------------------------|
| 3/16     | HL219-6-3                                          | HL219-8-3                                           |
| 1/4      | HL219-6-4                                          | HL219-8-4                                           |
| 5/16     | HL219-6-5                                          | HL219-8-5                                           |
| 3/8      | HL219-6-6                                          | HL219-8-6                                           |
| 7/16     | HL219-6-7                                          | HL219-8-7                                           |
| 1/2      | HL219-6-8                                          | HL219-8-8                                           |
| 9/16     | HL219-6-9                                          | HL219-8-9                                           |
| 5/8      | HL219-6-10                                         | HL219-8-10                                          |
| 11/16    | HL219-6-11                                         | HL219-8-11                                          |
| 3/4      | HL219-6-12                                         | HL219-8-12                                          |

## HL220 HI-LOK

Protruding Tension Head  
1/32 Oversize for HL20  
95,000 PSI Shear  
160,000 - 180,000 PSI  
Tensile Strength

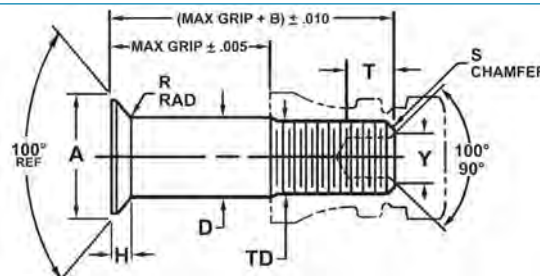


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|---------------------------|--------------------------|---------------------|
| -5           | 13/64     |              |        |                |                |        |              | <b>NOTE: Use HL64PB6</b>  |                          |                     |
| -6           | 7/32      | .390<br>.370 | .325   | .2182<br>.2172 | .1840<br>.1810 | .035   | .074<br>.064 | 10-32-UNJF-3A<br>Modified | 7,100                    | 3,180               |
| -8           | 9/32      | .460<br>.435 | .395   | .2807<br>.2797 | .2440<br>.2410 | .045   | .090<br>.077 | 1/4-28UNJF-3A<br>Modified | 11,800                   | 5,820               |

| Max Grip | 10-32 Thread<br>7/32 Nominal Diameter<br>HL220-6-# | 1/4-28 Thread<br>9/32 Nominal Diameter<br>HL220-8-# |
|----------|----------------------------------------------------|-----------------------------------------------------|
| 3/16     | HL220-6-3                                          | HL220-8-3                                           |
| 1/4      | HL220-6-4                                          | HL220-8-4                                           |
| 5/16     | HL220-6-5                                          | HL220-8-5                                           |
| 3/8      | HL220-6-6                                          | HL220-8-6                                           |
| 7/16     | HL220-6-7                                          | HL220-8-7                                           |
| 1/2      | HL220-6-8                                          | HL220-8-8                                           |
| 9/16     | HL220-6-9                                          | HL220-8-9                                           |
| 5/8      | HL220-6-10                                         | HL220-8-10                                          |
| 11/16    | HL220-6-11                                         | HL220-8-11                                          |
| 3/4      | HL220-6-12                                         | HL220-8-12                                          |

## HL221 HI-LOK

100° Flush Tension Head  
1/32 Oversize for HL21  
95,000 PSI Shear  
160,000 - 180,000 PSI  
Tensile Strength

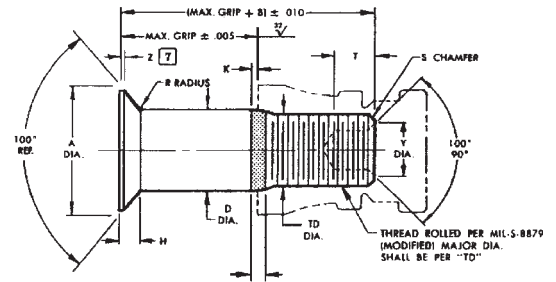


| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|---------------------------|--------------------------|---------------------|
| -5           | 13/64     |                |        |                |                |                | <b>NOTE: Use HL65PB6</b>  |                          |                     |
| -6           | 7/32      | .3813<br>.3765 | .325   | .2182<br>.2172 | .1840<br>.1810 | .0684<br>.0664 | 10-32-UNJF-3A<br>Modified | 7,100                    | 3,180               |
| -8           | 9/32      | .5066<br>.5018 | .395   | .2807<br>.2797 | .2440<br>.2410 | .0948<br>.0928 | 1/4-28UNJF-3A<br>Modified | 11,800                   | 5,820               |

| Max Grip | 10-32 Thread<br>7/32 Nominal Diameter<br>HL221-6-# | 1/4-28 Thread<br>9/32 Nominal Diameter<br>HL221-8-# |
|----------|----------------------------------------------------|-----------------------------------------------------|
| 3/16     | HL221-6-3                                          | HL221-8-3                                           |
| 1/4      | HL221-6-4                                          | HL221-8-4                                           |
| 5/16     | HL221-6-5                                          | HL221-8-5                                           |
| 3/8      | HL221-6-6                                          | HL221-8-6                                           |
| 7/16     | HL221-6-7                                          | HL221-8-7                                           |
| 1/2      | HL221-6-8                                          | HL221-8-8                                           |
| 9/16     | HL221-6-9                                          | HL221-8-9                                           |
| 5/8      | HL221-6-10                                         | HL221-8-10                                          |
| 11/16    | HL221-6-11                                         | HL221-8-11                                          |
| 3/4      | HL221-6-12                                         | HL221-8-12                                          |

## HL325 HI-LOK

100° Flush Shear Head  
MS20426 Head Style  
Interference Application  
180,000 - 200,000  
PSI Tensile Strength

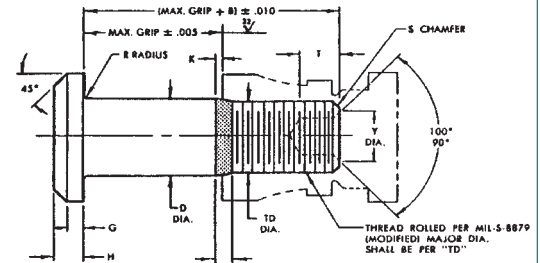


| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | F    | H              | Thread                 | Double Shear Pounds Min. | Tension Pounds Min. | Min. Grip Length |
|--------------|-----------|----------------|--------|----------------|----------------|------|----------------|------------------------|--------------------------|---------------------|------------------|
| -5           | 5/32      | .2922<br>.2874 | .312   | .1650<br>.1640 | .1595<br>.1570 | .004 | .0534<br>.0514 | 8-32UNJC-3A Modified   | 4,560                    | 2,100               | -2               |
| -6           | 3/16      | .3536<br>.3486 | .325   | .1895<br>.1885 | .1840<br>.1810 | .005 | .0688<br>.0667 | 10-32-UNJF-3A Modified | 6,100                    | 3,100               | -3               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL325-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL325-6-# |
|----------|---------------------------------------------------|----------------------------------------------------|
| 1/8      | HL325-5-2                                         | HL325-6-2                                          |
| 3/16     | HL325-5-3                                         | HL325-6-3                                          |
| 1/4      | HL325-5-4                                         | HL325-6-4                                          |
| 5/16     | HL325-5-5                                         | HL325-6-5                                          |
| 3/8      | HL325-5-6                                         | HL325-6-6                                          |
| 7/16     | HL325-5-7                                         | HL325-6-7                                          |
| 1/2      | HL325-5-8                                         | HL325-6-8                                          |
| 9/16     | HL325-5-9                                         | HL325-6-9                                          |
| 5/8      | HL325-5-10                                        | HL325-6-10                                         |

## HL326 HI-LOK

Protruding Tension Head  
Interference Application  
160,000 - 180,000 PSI  
Tensile Strength

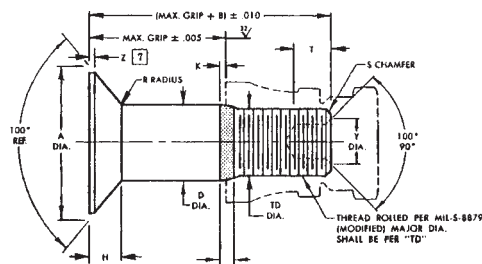


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                 | Double Shear Pounds Min. | Tension Pounds Min. | Min. Grip Length |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|------------------------|--------------------------|---------------------|------------------|
| -5           | 5/32      | .322<br>.306 | .312   | .1650<br>.1640 | .1595<br>.1570 | .030   | .065<br>.055 | 8-32UNJC-3A Modified   | 4,010                    | 2,180               | -2               |
| -6           | 3/16      | .377<br>.357 | .325   | .1895<br>.1885 | .1840<br>.1810 | .035   | .074<br>.064 | 10-32-UNJF-3A Modified | 5,380                    | 2,750               | -2               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL326-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL326-6-# |
|----------|---------------------------------------------------|----------------------------------------------------|
| 1/8      | HL326-5-2                                         | HL326-6-2                                          |
| 3/16     | HL326-5-3                                         | HL326-6-3                                          |
| 1/4      | HL326-5-4                                         | HL326-6-4                                          |
| 5/16     | HL326-5-5                                         | HL326-6-5                                          |
| 3/8      | HL326-5-6                                         | HL326-6-6                                          |
| 7/16     | HL326-5-7                                         | HL326-6-7                                          |
| 1/2      | HL326-5-8                                         | HL326-6-8                                          |
| 9/16     | HL326-5-9                                         | HL326-6-9                                          |
| 5/8      | HL326-5-10                                        | HL326-6-10                                         |

## HL327 HI-LOK

100° Flush Tension Head  
MS24694 Head Style  
Interference Application  
160,000 - 180,000 PSI  
Tensile Strength

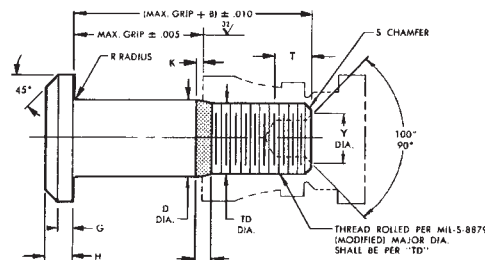


| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. | Min. Grip Length |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|---------------------------|--------------------------|---------------------|------------------|
| -5           | 5/32      | .3304<br>.3256 | .312   | .1650<br>.1640 | .1595<br>.1570 | .0694<br>.0674 | 8-32UNJC-3A<br>Modified   | 4,010                    | 2,180               | -2               |
| -6           | 3/16      | .3813<br>.3765 | .325   | .1895<br>.1885 | .1840<br>.1810 | .0805<br>.0785 | 10-32-UNJF-3A<br>Modified | 5,380                    | 2,750               | -3               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL327-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL327-6-# |
|----------|---------------------------------------------------|----------------------------------------------------|
| 3/16     | HL327-5-3                                         | HL327-6-3                                          |
| 1/4      | HL327-5-4                                         | HL327-6-4                                          |
| 5/16     | HL327-5-5                                         | HL327-6-5                                          |
| 3/8      | HL327-5-6                                         | HL327-6-6                                          |
| 7/16     | HL327-5-7                                         | HL327-6-7                                          |
| 1/2      | HL327-5-8                                         | HL327-6-8                                          |
| 9/16     | HL327-5-9                                         | HL327-6-9                                          |
| 5/8      | HL327-5-10                                        | HL327-6-10                                         |

## HL328 HI-LOK

Protruding Shear Head  
Interference Application  
108,000 PSI Shear Min  
180,000 - 200,000 PSI  
Tensile Strength

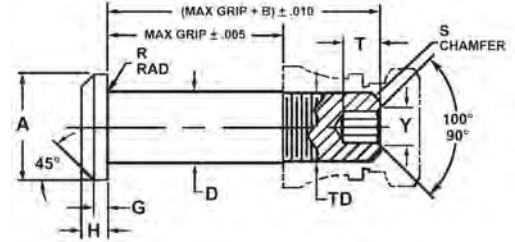


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. | Min. Grip Length |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|---------------------------|--------------------------|---------------------|------------------|
| -5           | 5/32      | .262<br>.242 | .312   | .1650<br>.1640 | .1595<br>.1570 | .020   | .047<br>.037 | 8-32UNJC-3A<br>Modified   | 4,580                    | 2,200               | -2               |
| -6           | 3/16      | .315<br>.295 | .325   | .1895<br>.1885 | .1840<br>.1810 | .025   | .055<br>.045 | 10-32-UNJF-3A<br>Modified | 6,100                    | 2,900               | -2               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL327-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL328-6-# |
|----------|---------------------------------------------------|----------------------------------------------------|
| 1/8      | HL328-5-2                                         | HL328-6-2                                          |
| 3/16     | HL328-5-3                                         | HL328-6-3                                          |
| 1/4      | HL328-5-4                                         | HL328-6-4                                          |
| 5/16     | HL328-5-5                                         | HL328-6-5                                          |
| 3/8      | HL328-5-6                                         | HL328-6-6                                          |
| 7/16     | HL328-5-7                                         | HL328-6-7                                          |
| 1/2      | HL328-5-8                                         | HL328-6-8                                          |
| 9/16     | HL328-5-9                                         | HL328-6-9                                          |
| 5/8      | HL328-5-10                                        | HL328-6-10                                         |

## HL22 HI-LOK

Protruding Shear Head  
Aluminum Alloy  
45,000 PSI Shear Strength

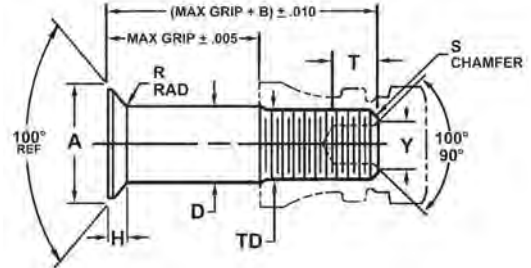


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|---------------------------|--------------------------|---------------------|
| -5           | 5/32      | .262<br>.242 | .312   | .1635<br>.1625 | .1595<br>.1570 | .030   | .060<br>.045 | 8-32UNJC-3A<br>Modified   | 1760                     | 940                 |
| -6           | 3/16      | .315<br>.295 | .325   | .1895<br>.1885 | .1840<br>.1810 | .035   | .074<br>.055 | 10-32-UNJF-3A<br>Modified | 2540                     | 1240                |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL22-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL22-6-# |
|----------|--------------------------------------------------|---------------------------------------------------|
| 1/8      | HL22-5-2                                         | HL22-6-2                                          |
| 3/16     | HL22-5-3                                         | HL22-6-3                                          |
| 1/4      | HL22-5-4                                         | HL22-6-4                                          |
| 5/16     | HL22-5-5                                         | HL22-6-5                                          |
| 3/8      | HL22-5-6                                         | HL22-6-6                                          |
| 7/16     | HL22-5-7                                         | HL22-6-7                                          |
| 1/2      | HL22-5-8                                         | HL22-6-8                                          |
| 9/16     | HL22-5-9                                         | HL22-6-9                                          |
| 5/8      | HL22-5-10                                        | HL22-6-10                                         |

## HL23 HI-LOK

100° Flush Shear Head  
Aluminum Alloy  
45,000 PSI Shear Strength



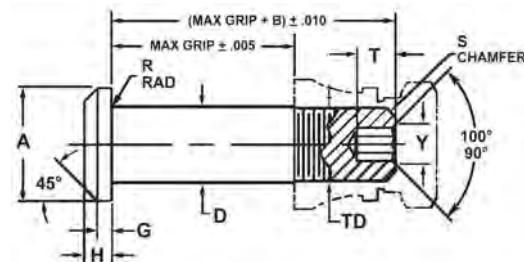
| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|---------------------------|--------------------------|---------------------|
| -5           | 5/32      | .2922<br>.2874 | .312   | .1635<br>.1625 | .1595<br>.1570 | .0540<br>.0520 | 8-32UNJC-3A<br>Modified   | 1700                     | 860                 |
| -6           | 3/16      | .3536<br>.3486 | .325   | .1895<br>.1885 | .1840<br>.1810 | .0688<br>.0667 | 10-32-UNJF-3A<br>Modified | 2540                     | 1150                |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL23-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL23-6-# |
|----------|--------------------------------------------------|---------------------------------------------------|
| 1/8      | HL23-5-2                                         | HL23-5-2                                          |
| 3/16     | HL23-5-3                                         | HL23-5-3                                          |
| 1/4      | HL23-5-4                                         | HL23-5-4                                          |
| 5/16     | HL23-5-5                                         | HL23-5-5                                          |
| 3/8      | HL23-5-6                                         | HL23-5-6                                          |
| 7/16     | HL23-5-7                                         | HL23-5-7                                          |
| 1/2      | HL23-5-8                                         | HL23-5-8                                          |
| 9/16     | HL23-5-9                                         | HL23-5-9                                          |
| 5/8      | HL23-5-10                                        | HL23-5-10                                         |



## HL30 HI-LOK

Protruding Shear Head  
431 Stainless Steel

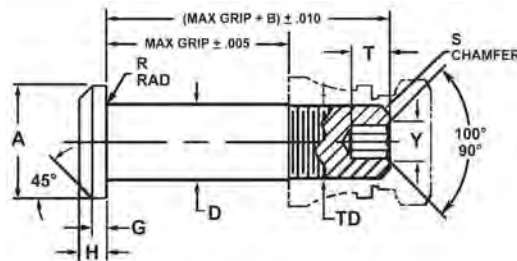


| First Dash # | Nom. Dia. | A Dia. | B Ref. | D Diameter                         |                                 | TD Dia. | G Ref. | H    | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|--------|--------|------------------------------------|---------------------------------|---------|--------|------|--------|--------------------------|---------------------|
|              |           |        |        | without coating or solid film lube | with coating or solid film lube |         |        |      |        |                          |                     |
| -5           | 5/32      | .262   | .325   | .1635                              | .1635                           | .1595   | .020   | .047 | 8-32   | 5,280                    | 2,000               |
|              |           | .242   |        | .1630                              | .1625                           | .1570   |        |      |        |                          |                     |
| -6           | 3/16      | .315   | .325   | .1895                              | .1895                           | .1840   | .025   | .055 | 10-32  | 7,060                    | 3,000               |
|              |           | .295   |        | .1890                              | .1885                           | .1810   |        |      |        |                          |                     |

| Max Grip | 8-32 Thread<br>5/32" Nominal Diameter<br>HL30-5-# | 10-32 Thread<br>3/16" Nominal Diameter<br>HL30-6-# |
|----------|---------------------------------------------------|----------------------------------------------------|
| 1/8      | HL30-5-2                                          | HL30-6-2                                           |
| 3/16     | HL30-5-3                                          | HL30-6-3                                           |
| 1/4      | HL30-5-4                                          | HL30-6-4                                           |
| 5/16     | HL30-5-5                                          | HL30-6-5                                           |
| 3/8      | HL30-5-6                                          | HL30-6-6                                           |

## HL40 HI-LOK

Protruding Shear Head  
A-286 High Temp Alloy  
1/16<sup>th</sup> Grip Variation

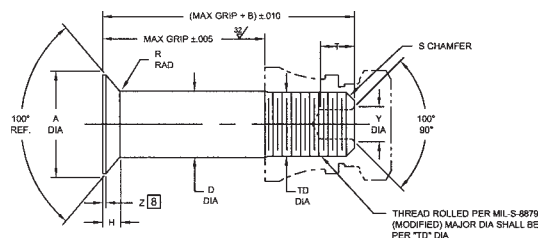


| First Dash # | Nom. Dia. | A Dia. | B Ref. | D Diameter                         |                                 | TD Dia. | G Ref. | H    | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|--------|--------|------------------------------------|---------------------------------|---------|--------|------|--------|--------------------------|---------------------|
|              |           |        |        | without coating or solid film lube | with coating or solid film lube |         |        |      |        |                          |                     |
| -4           | 1/8       | .240   | .294   | .1375                              | .1375                           | .1335   | .020   | .042 | 6-32   | 2,840                    | 1,350               |
|              |           | .225   |        | .1370                              | .1365                           | .1310   |        | .032 |        |                          |                     |
| -5           | 5/32      | .262   | .312   | .1635                              | .1635                           | .1595   | .020   | .047 | 8-32   | 4,010                    | 1,940               |
|              |           | .242   |        | .1630                              | .1625                           | .1570   |        | .037 |        |                          |                     |
| -6           | 3/16      | .315   | .325   | .1895                              | .1895                           | .1840   | .025   | .055 | 10-32  | 5,380                    | 2,500               |
|              |           | .295   |        | .1890                              | .1885                           | .1810   |        | .045 |        |                          |                     |

| Max Grip | 6-32 Thread<br>1/8" Nominal Diameter<br>HL40-4-# | 8-32 Thread<br>5/32" Nominal Diameter<br>HL40-5-# | 10-32 Thread<br>3/16" Nominal Diameter<br>HL40-6-# |
|----------|--------------------------------------------------|---------------------------------------------------|----------------------------------------------------|
| 1/8      | HL40-4-2                                         | HL40-5-2                                          | HL40-6-2                                           |
| 3/16     | HL40-4-3                                         | HL40-5-3                                          | HL40-6-3                                           |
| 1/4      | HL40-4-4                                         | HL40-5-4                                          | HL40-6-4                                           |
| 5/16     | HL40-4-5                                         | HL40-5-5                                          | HL40-6-5                                           |
| 3/8      | HL40-4-6                                         | HL40-5-6                                          | HL40-6-6                                           |
| 7/16     | HL40-4-7                                         | HL40-5-7                                          | HL40-6-7                                           |
| 1/2      | HL40-4-8                                         | HL40-5-8                                          | HL40-6-8                                           |

## HL41 HI-LOK

100° Flush Shear Head  
A-286 High Temp Alloy  
95,000 PSI Shear Min.

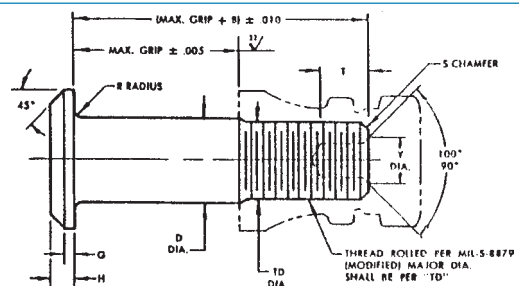


| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Diameter                         |                                 | TD Dia.        | H              | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|----------------|--------|------------------------------------|---------------------------------|----------------|----------------|--------|--------------------------|---------------------|
|              |           |                |        | without coating or solid film lube | with coating or solid film lube |                |                |        |                          |                     |
| -4           | 1/8       | .2219<br>.2171 | .294   | .1375<br>.1370                     | .1375<br>.1365                  | .1335<br>.1310 | .0354<br>.0334 | 6-32   | 2,840                    | 950                 |
| -5           | 5/32      | .2612<br>.2564 | .312   | .1635<br>.1630                     | .1635<br>.1625                  | .1595<br>.1570 | .0410<br>.0390 | 8-32   | 4,010                    | 1,750               |
| -6           | 3/16      | .3016<br>.2966 | .325   | .1895<br>.1890                     | .1895<br>.1885                  | .1840<br>.1810 | .0470<br>.0449 | 10-32  | 5,380                    | 2,000               |

| Max Grip | 6-32 Thread<br>1/8" Nominal Diameter<br>HL41-4-# | 8-32 Thread<br>5/32" Nominal Diameter<br>HL41-5-# | 10-32 Thread<br>3/16" Nominal Diameter<br>HL41-6-# |
|----------|--------------------------------------------------|---------------------------------------------------|----------------------------------------------------|
| 1/8      | ---                                              | HL41-5-2                                          | HL41-6-2                                           |
| 3/16     | HL41-4-3                                         | HL41-5-3                                          | HL41-6-3                                           |
| 1/4      | HL41-4-4                                         | HL41-5-4                                          | HL41-6-4                                           |
| 5/16     | HL41-4-5                                         | HL41-5-5                                          | HL41-6-5                                           |
| 3/8      | HL41-4-6                                         | HL41-5-6                                          | HL41-6-6                                           |
| 7/16     | HL41-4-7                                         | HL41-5-7                                          | HL41-6-7                                           |
| 1/2      | HL41-4-8                                         | HL41-5-8                                          | HL41-6-8                                           |
| 9/16     | HL41-4-9                                         | HL41-5-9                                          | HL41-6-9                                           |
| 5/8      | HL41-4-10                                        | HL41-5-10                                         | HL41-6-10                                          |
| 11/16    | HL41-4-11                                        | HL41-5-11                                         | HL41-6-11                                          |
| 3/4      | HL41-4-12                                        | HL41-5-12                                         | HL41-6-12                                          |
| 13/16    | HL41-4-13                                        | HL41-5-13                                         | HL41-6-13                                          |
| 7/8      | HL41-4-14                                        | HL41-5-14                                         | HL41-6-14                                          |
| 15/16    | ---                                              | HL41-5-15                                         | HL41-6-15                                          |

## HL48 HI-LOK

Protruding Shear Head  
A-286 High Temp Alloy  
1/16<sup>th</sup> Grip Variation

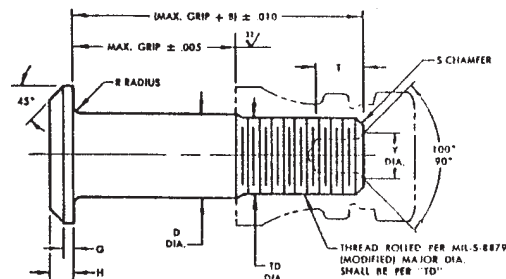


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Diameter                         |                                 | TD Dia.        | G Ref. | H            | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|--------------|--------|------------------------------------|---------------------------------|----------------|--------|--------------|--------|--------------------------|---------------------|
|              |           |              |        | without coating or solid film lube | with coating or solid film lube |                |        |              |        |                          |                     |
| -5           | 5/32      | .322<br>.308 | .312   | .1635<br>.1630                     | .1635<br>.1625                  | .1595<br>.1570 | .030   | .060<br>.055 | 8-32   | 4,010                    | 2,180               |
| -6           | 3/16      | .377<br>.357 | .325   | .1895<br>.1890                     | .1895<br>.1885                  | .1840<br>.1810 | .035   | .074<br>.084 | 10-32  | 5,380                    | 3,180               |

| Max Grip | 8-32 Thread<br>5/32" Nominal Diameter<br>HL48-5-# | 10-32 Thread<br>3/16" Nominal Diameter<br>HL48-6-# |
|----------|---------------------------------------------------|----------------------------------------------------|
| 1/8      | HL48-5-2                                          | HL48-6-2                                           |
| 3/16     | HL48-5-3                                          | HL48-6-3                                           |
| 1/4      | HL48-5-4                                          | HL48-6-4                                           |
| 5/16     | HL48-5-5                                          | HL48-6-5                                           |
| 3/8      | HL48-5-6                                          | HL48-6-6                                           |

## HL50 HI-LOK

Protruding Shear Head  
Alloy Steel, 3/32 Grip Variation  
95,000 PSI Shear Min.  
160,000 - 180,000  
PSI Tensile Strength

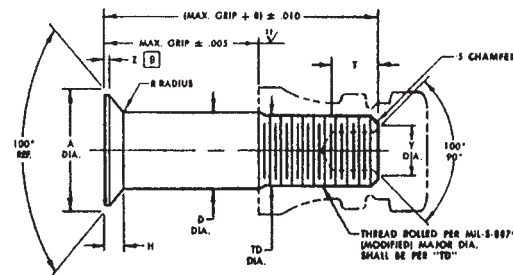


| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | H            | Thread                    | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------------|---------------------------|--------------------------|---------------------|
| -5           | 5/32      | .262<br>.242 | .342   | .1635<br>.1625 | .1595<br>.1570 | .047<br>.037 | 8-32UNJC-3A<br>Modified   | 4,010                    | 1,940               |
| -6           | 3/16      | .315<br>.295 | .355   | .1895<br>.1885 | .1840<br>.1810 | .055<br>.045 | 10-32-UNJF-3A<br>Modified | 5,380                    | 2,500               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL50-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL50-6-# |
|----------|--------------------------------------------------|---------------------------------------------------|
| 1/8      | HL50-5-2                                         | HL50-6-2                                          |
| 3/16     | HL50-5-3                                         | HL50-6-3                                          |
| 1/4      | HL50-5-4                                         | HL50-6-4                                          |
| 5/16     | HL50-5-5                                         | HL50-6-5                                          |
| 3/8      | HL50-5-6                                         | HL50-6-6                                          |
| 7/16     | HL50-5-7                                         | HL50-6-7                                          |
| 1/2      | HL50-5-8                                         | HL50-6-8                                          |
| 9/16     | HL50-5-9                                         | HL50-6-9                                          |

## HL51 HI-LOK

100° Reduced Flush Shear  
Alloy Steel, 3/32 Grip Variation  
95,000 PSI Shear Min.  
160,000 - 180,000  
PSI Tensile Strength



| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Dia.         | TD Dia.        | H              | Thread                   | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|----------------|--------|----------------|----------------|----------------|--------------------------|--------------------------|---------------------|
| -5           | 5/32      | .2612<br>.2564 | .342   | .1635<br>.1625 | .1595<br>.1570 | .0410<br>.0390 | 8-32UNJC-3A<br>Modified  | 4,010                    | 1,290               |
| -6           | 3/16      | .3036<br>.2966 | .355   | .1895<br>.1885 | .1840<br>.1810 | .0470<br>.0450 | 10-32UNJF-3A<br>Modified | 5,380                    | 2,000               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HL51-5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HL51-6-# |
|----------|--------------------------------------------------|---------------------------------------------------|
| 1/8      | HL51-5-2                                         | HL51-6-2                                          |
| 3/16     | HL51-5-3                                         | HL51-6-3                                          |
| 1/4      | HL51-5-4                                         | HL51-6-4                                          |
| 5/16     | HL51-5-5                                         | HL51-6-5                                          |
| 3/8      | HL51-5-6                                         | HL51-6-6                                          |
| 7/16     | HL51-5-7                                         | HL51-6-7                                          |
| 1/2      | HL51-5-8                                         | HL51-6-8                                          |
| 9/16     | HL51-5-9                                         | HL51-6-9                                          |

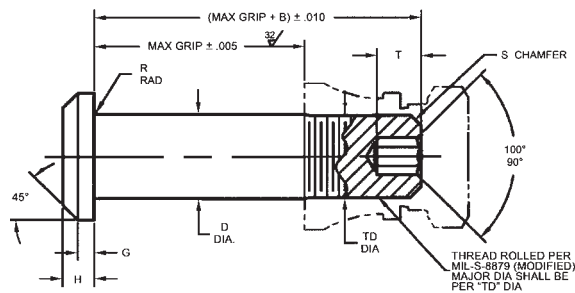
## HST10AG HI-LOK

Protruding Shear Head

Titanium, 1/16 Grip Variation

95,000 PSI Shear Min.

"AG" Hi-Kote 1 Aluminum coating per  
Hi Shear Spec. 294 and cetyl alcohol  
lube per Hi Shear spec. 305



| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         |                | TD Dia.        | G Ref. | H            | Thread                   | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|----------------|--------|--------------|--------------------------|--------------------------|---------------------|
|              |           |              |        | w/out lube     | w/ lube        |                |        |              |                          |                          |                     |
| -5           | 5/32      | .262<br>.242 | .280   | .1635<br>.1630 | .1635<br>.1625 | .1595<br>.1570 | .020   | .047<br>.037 | 8-32UNJC-3A<br>Modified  | 4,010                    | 1,940               |
| -6           | 3/16      | .315<br>.295 | .290   | .1895<br>.1890 | .1895<br>.1885 | .1840<br>.1810 | .025   | .055<br>.045 | 10-32UNJF-3A<br>Modified | 5,380                    | 2,500               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HST10AG5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HST10AG6-# |
|----------|----------------------------------------------------|-----------------------------------------------------|
| 1/8      | HST10AG5-2                                         | HST10AG6-2                                          |
| 3/16     | HST10AG5-3                                         | HST10AG6-3                                          |
| 1/4      | HST10AG5-4                                         | HST10AG6-4                                          |
| 5/16     | HST10AG5-5                                         | HST10AG6-5                                          |
| 3/8      | HST10AG5-6                                         | HST10AG6-6                                          |
| 7/16     | HST10AG5-7                                         | HST10AG6-7                                          |
| 1/2      | HST10AG5-8                                         | HST10AG6-8                                          |
| 9/16     | HST10AG5-9                                         | HST10AG6-9                                          |

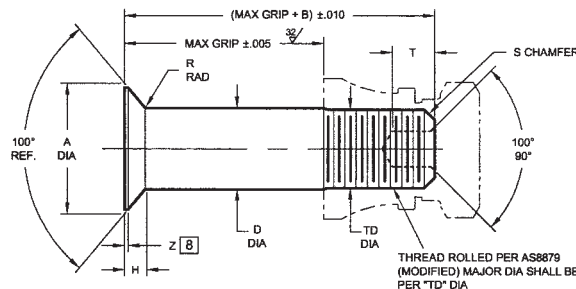
## HST11AG HI-LOK

100° Reduced Flush Shear Head

Titanium, 1/16 Grip Variation

95,000 PSI Shear Min.

"AG" Hi-Kote 1 Aluminum coating per  
Hi Shear Spec. 294 and cetyl alcohol  
lube per Hi Shear spec. 305



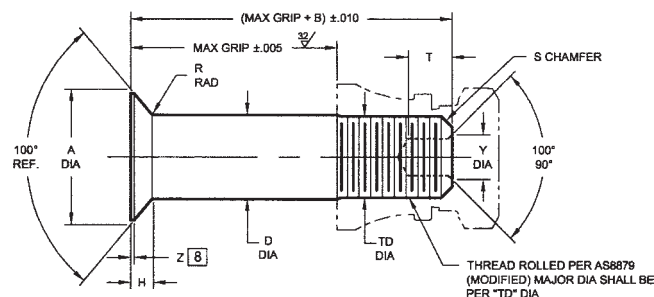
| First Dash # |      | A Dia.         | B Ref. | D Dia.         |                | TD Dia.        | H              | Thread                   | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|------|----------------|--------|----------------|----------------|----------------|----------------|--------------------------|--------------------------|---------------------|
|              |      |                |        | w/out lube     | w/ lube        |                |                |                          |                          |                     |
| -5           | 5/32 | .2612<br>.2564 | .280   | .1635<br>.1630 | .1635<br>.1625 | .1595<br>.1570 | .0410<br>.0390 | 8-32UNJC-3A<br>Modified  | 4,010                    | 1,650               |
| -6           | 3/16 | .3016<br>.2966 | .290   | .1895<br>.1890 | .1895<br>.1885 | .1840<br>.1810 | .0470<br>.0450 | 10-32UNJF-3A<br>Modified | 5,380                    | 2,000               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HST11AG5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HST11AG6-# |
|----------|----------------------------------------------------|-----------------------------------------------------|
| 1/8      | HST11AG5-2                                         | HST11AG6-2                                          |
| 3/16     | HST11AG5-3                                         | HST11AG6-3                                          |
| 1/4      | HST11AG5-4                                         | HST11AG6-4                                          |
| 5/16     | HST11AG5-5                                         | HST11AG6-5                                          |
| 3/8      | HST11AG5-6                                         | HST11AG6-6                                          |
| 7/16     | HST11AG5-7                                         | HST11AG6-7                                          |
| 1/2      | HST11AG5-8                                         | HST11AG6-8                                          |
| 9/16     | HST11AG5-9                                         | HST11AG6-9                                          |

## HLT900 HI-LOK

100° Flush Special Shear Head  
Titanium, 1/16 Grip Variation  
95,000 PSI Shear Min.

"AP" Hi-Kote1 Aluminum coating per  
Hi Shear Spec. 294 and cetyl alcohol  
lube per Hi Shear spec. 305



| First Dash # | Nom. Dia. | A Dia. | A <sup>1</sup> Dia. | B Ref. | D Dia.         | TD Dia.        | H            | Z Max | Thread                 | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------|---------------------|--------|----------------|----------------|--------------|-------|------------------------|--------------------------|---------------------|
| -6           | 3/16      | .3277  | .2963               | .341   | .1895<br>.1885 | .1840<br>.1810 | .047<br>.037 | .015  | 10-32UNJF-3A Modified  | 5,380                    | 2,400               |
| -8           | 1/4       | .4283  | .3969               | .416   | .2495<br>.2485 | .2440<br>.2410 | .055<br>.045 | .015  | 1/4-28UNJF-3A Modified | 9,300                    | 4,500               |

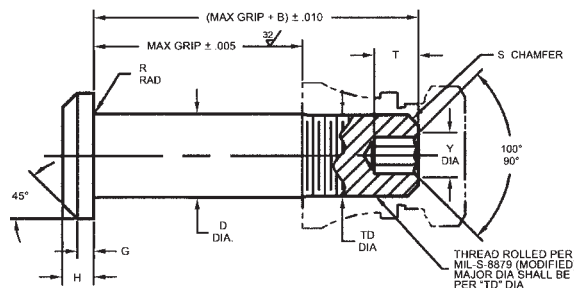
| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HLT900AP6-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HLT900AP8-# |
|----------|-----------------------------------------------------|------------------------------------------------------|
| 3/16     | HLT900AP6-3                                         | HLT900AP8-3                                          |
| 1/4      | HLT900AP6-4                                         | HLT900AP8-4                                          |
| 5/16     | HLT900AP6-5                                         | HLT900AP8-5                                          |
| 3/8      | HLT900AP6-6                                         | HLT900AP8-6                                          |
| 7/16     | HLT900AP6-7                                         | HLT900AP8-7                                          |
| 1/2      | HLT900AP6-8                                         | HLT900AP8-8                                          |

## HLT912 HI-LOK

Protruding Tension Head  
Titanium, 1/16 Grip Variation  
95,000 PSI Shear Min.

160,000 PSI Tensile Min.

"AP" Hi-Kote1 Aluminum coating per  
Hi Shear Spec. 294 and cetyl alcohol  
lube per Hi Shear spec. 305



| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Dia.         | TD Dia.        | G Ref. | H            | Thread                | Double Shear Pounds Min. | Tension Pounds Min. |
|--------------|-----------|--------------|--------|----------------|----------------|--------|--------------|-----------------------|--------------------------|---------------------|
| -5           | 5/32      | .322<br>.306 | .328   | .1635<br>.1625 | .1595<br>.1570 | .030   | .065<br>.055 | 8-32UNJC-3A Modified  | 4,010                    | 2,180               |
| -6           | 3/16      | .377<br>.357 | .341   | .1895<br>.1885 | .1840<br>.1810 | .035   | .074<br>.064 | 10-32UNJF-3A Modified | 5,380                    | 3,180               |

| Max Grip | 8-32 Thread<br>5/32 Nominal Diameter<br>HLT912AP5-# | 10-32 Thread<br>3/16 Nominal Diameter<br>HLT912AP6-# |
|----------|-----------------------------------------------------|------------------------------------------------------|
| 3/16     | HLT912AP5-3                                         | HLT912AP6-3                                          |
| 1/4      | HLT912AP5-4                                         | HLT912AP6-4                                          |
| 5/16     | HLT912AP5-5                                         | HLT912AP6-5                                          |
| 3/8      | HLT912AP5-6                                         | HLT912AP6-6                                          |
| 7/16     | HLT912AP5-7                                         | HLT912AP6-7                                          |
| 1/2      | HLT912AP5-8                                         | HLT912AP6-8                                          |

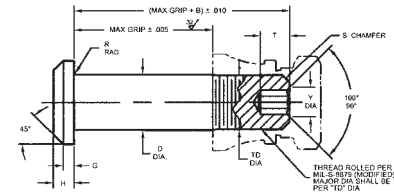


## HL10 HI-LOK

Protruding Shear Head  
Titanium  
95,000 PSI Shear Minimum



The 2nd Dash # indicates Grip Length in 1/16th's of an inch



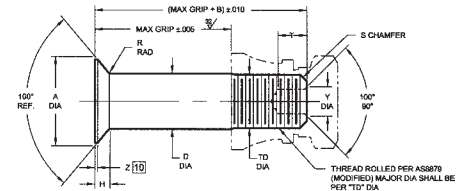
| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Diameter                         |                                 | TD Dia.        | G Ref. | H            | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|--------------|--------|------------------------------------|---------------------------------|----------------|--------|--------------|--------|--------------------------|---------------------|
|              |           |              |        | without coating or solid film lube | with coating or solid film lube |                |        |              |        |                          |                     |
| -5           | 5/32      | .262<br>.242 | .312   | .1635<br>.1630                     | .1635<br>.1625                  | .1595<br>.1570 | .020   | .047<br>.037 | 8-32   | 4,010                    | 1,940               |
| -6           | 3/16      | .315<br>.295 | .325   | .1895<br>.1890                     | .1895<br>.1885                  | .1840<br>.1810 | .025   | .055<br>.045 | 10-32  | 5,380                    | 2,500               |
| -8           | 1/4       | .412<br>.387 | .395   | .2495<br>.2490                     | .2495<br>.2485                  | .2440<br>.2410 | .030   | .069<br>.059 | 1/4-28 | 9,300                    | 4,300               |

## HL11 HI-LOK

100° Flush Shear Head  
Titanium  
95,000 PSI Shear Minimum



The 2nd Dash # indicates Grip Length in 1/16th's of an inch



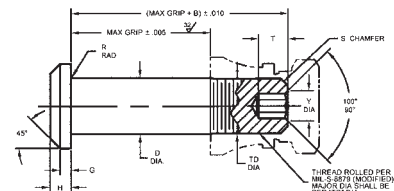
| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Diameter                         |                                 | TD Dia.        | H            | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|----------------|--------|------------------------------------|---------------------------------|----------------|--------------|--------|--------------------------|---------------------|
|              |           |                |        | without coating or solid film lube | with coating or solid film lube |                |              |        |                          |                     |
| -5           | 5/32      | .2612<br>.2564 | .312   | .1635<br>.1630                     | .1635<br>.1625                  | .1595<br>.1570 | .041<br>.039 | 8-32   | 4,010                    | 1,650               |
| -6           | 3/16      | .3016<br>.2966 | .325   | .1895<br>.1890                     | .1895<br>.1885                  | .1840<br>.1810 | .047<br>.045 | 10-32  | 5,380                    | 2,000               |
| -8           | 1/4       | .3948<br>.3898 | .395   | .2495<br>.2490                     | .2495<br>.2485                  | .2440<br>.2410 | .061<br>.059 | 1/4-28 | 9,300                    | 3,700               |

## HL110 HI-LOK

Protruding Shear Head  
Titanium, 95,000 PSI  
Shear Minimum  
1/64 Oversized for HL10



The 2nd Dash # indicates Grip Length in 1/16th's of an inch



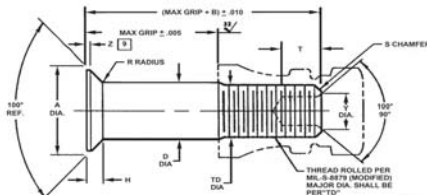
| First Dash # | Nom. Dia. | A Dia.       | B Ref. | D Diameter                         |                                 | TD Dia.            | G Ref. | H            | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|--------------|--------|------------------------------------|---------------------------------|--------------------|--------|--------------|--------|--------------------------|---------------------|
|              |           |              |        | without coating or solid film lube | with coating or solid film lube |                    |        |              |        |                          |                     |
| -5           |           |              |        |                                    |                                 | NOTE: Use HL10VAZ6 |        |              |        |                          |                     |
| -6           | 13/64     | .315<br>.295 | .325   | .2026<br>.2021                     | .2026<br>.2016                  | .1840<br>.1810     | .025   | .055<br>.045 | 10-32  | 6,130                    | 2,500               |

## HL111 HI-LOK

100° Flush Shear Head  
Titanium, 95,000 PSI  
Shear Minimum  
1/64 Oversized for HL11



The 2nd Dash # indicates Grip Length in 1/16th's of an inch



| First Dash # | Nom. Dia. | A Dia.         | B Ref. | D Diameter                         |                                 | TD Dia.            | H            | Thread | Double Shear Pounds min. | Tension Pounds min. |
|--------------|-----------|----------------|--------|------------------------------------|---------------------------------|--------------------|--------------|--------|--------------------------|---------------------|
|              |           |                |        | without coating or solid film lube | with coating or solid film lube |                    |              |        |                          |                     |
| -5           |           |                |        |                                    |                                 | NOTE: Use HL11VAZ6 |              |        |                          |                     |
| -6           | 13/64     | .3016<br>.2966 | .325   | .2026<br>.2021                     | .2026<br>.2016                  | .1840<br>.1810     | .055<br>.045 | 10-32  | 6,130                    | 2,500               |

## HI-LOK & COLLAR QUICK REFERENCE GUIDE

| Stud   | Head Style                   | Material              | Pin Description                                    |
|--------|------------------------------|-----------------------|----------------------------------------------------|
| HL10   | PROTRUDING SHEAR             | 6AL-4V                | STANDARD SHANK DIAMETER<br><br>1/16 GRIP VARIATION |
| HL11   | 100º FLUSH SHEAR             | TITANIUM              |                                                    |
| HL18   | PROTRUDING SHEAR             | ALLOY STEEL           |                                                    |
| HL19   | 100º FLUSH SHEAR             |                       |                                                    |
| HL20   | PROTRUDING TENSION           |                       |                                                    |
| HL21   | 100º FLUSH TENSION HEAD      |                       |                                                    |
| HL22   | PROTRUDING SHEAR HEAD        | 7075-T6               |                                                    |
| HL23   | 100º FLUSH SHEAR HEAD        | ALUMINUM ALLOY        |                                                    |
| HL30   | PROTRUDING SHEAR HEAD        | 431 STAINLESS STEEL   |                                                    |
| HL40   | PROTRUDING SHEAR HEAD        | A-286 HIGH TEMP ALLOY |                                                    |
| HL41   | 100º FLUSH SHEAR HEAD        |                       |                                                    |
| HL48   | PROTRUDING TENSION HEAD      |                       |                                                    |
| HL50   | PROTRUDING SHEAR HEAD        | ALLOY STEEL           | 3/32 GRIP VARIATION                                |
| HL51   | 100º FLUSH SHEAR HEAD        |                       | 1/64 OVERSIZE FOR HL18                             |
| HL62   | PROTRUDING SHEAR HEAD        |                       | 1/64 OVERSIZE FOR HL19                             |
| HL63   | 100º FLUSH SHEAR HEAD        |                       | 1/64 OVERSIZE FOR HL20                             |
| HL64   | PROTRUDING TENSION HEAD      |                       | 1/64 OVERSIZE FOR HL21                             |
| HL65   | 100º FLUSH TENSION HEAD      |                       | 1/64 OVERSIZE FOR HL10                             |
| HL110  | PROTRUDING SHEAR HEAD        | 6AL-4V                | 1/64 OVERSIZE FOR HL11                             |
| HL111  | 100º FLUSH SHEAR HEAD        | TITANIUM              | 1/32 OVERSIZE FOR HL18                             |
| HL218  | PROTRUDING SHEAR HEAD        | ALLOY STEEL           | 1/32 OVERSIZE FOR HL19                             |
| HL219  | 100º FLUSH SHEAR HEAD        |                       | 1/32 OVERSIZE FOR HL20                             |
| HL220  | PROTRUDING TENSION HEAD      |                       | 1/32 OVERSIZE FOR HL21                             |
| HL221  | 100º FLUSH TENSION HEAD      |                       | LEAD IN RADIUS<br>INTERFERENCE APPLICATION         |
| HL325  | 100º FLUSH SHEAR HEAD        |                       |                                                    |
| HL326  | PROTRUDING TENSION HEAD      |                       |                                                    |
| HL327  | 100º FLUSH TENSION HEAD      |                       |                                                    |
| HL328  | PROTRUDING SHEAR HEAD        |                       |                                                    |
| HLT900 | 100º FLUSH SHEAR SPECIALHEAD | 6AL-4V                | STANDARD SHANK DIAMETER                            |
| HLT912 | PROTRUDING TENSION HEAD      | TITANIUM              | 1/16 GRIP VARIATION                                |

## HI-LOK COLLARS

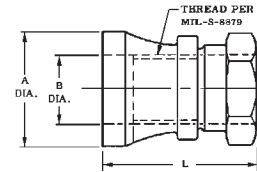
| Part # | Material                             | Application | Description                                       |
|--------|--------------------------------------|-------------|---------------------------------------------------|
| HL70   | 2024-T6 ALUMINUM ALLOY               | SHEAR       | STANDARD COLLAR FOR HL18 AND HL19                 |
| HL75   | 303 STAINLESS STEEL                  | TENSION     | SELF ALIGNING COLLAR ASSEMBLY                     |
| HL77   | 2024-T6 ALUMINUM ALLOY               | SHEAR       | FOR USE ON STANDARD SIZE ALUMINUM ALLOY PINS      |
| HL79   | 2024-T6 ALUMINUM ALLOY               | SHEAR       | FOR USE ON STANDARD AND 1/64 OVERSIZE HI-LOK PINS |
| HL82   | ALUM. COLLAR, STAINLESS STEEL WASHER | SHEAR       | SELF ALIGNING COLLAR ASSEMBLY                     |
| HL84   | 2024-T6 ALUMINUM ALLOY               | SHEAR       | FOR USE ON 1/32 OVERSIZE HI-LOK PINS              |
| HL86   | 303 STAINLESS STEEL                  | TENSION     | FOR USE ON HL20 AND HL21                          |
| HL87   | 303 STAINLESS STEEL                  | TENSION     | FOR USE ON 1/64 OVERSIZE HI-LOK PINS              |
| HL90   | 2024-T6 ALUMINUM                     | SHEAR       | FOR USE ON HL50 AND HL51                          |
| HL93   | 303 STAINLESS STEEL                  | TENSION     | FOR USE ON 1/32 OVERSIZE HI-LOK PINS              |
| HL94   | 303 STAINLESS STEEL                  | SHEAR       | FOR USE ON STANDARD AND 1/64 OVERSIZE HI-LOKS     |
| HLT77  | 2024-T6 ALUMINUM                     | SHEAR       | FOR USE ON HL325 AND HL328                        |

## RECOMMENDED COLLARS

| Hi-Lok Pin | Recommended Collars                 | Hi-Lok Pin | Recommended Collars    |
|------------|-------------------------------------|------------|------------------------|
| HL18       | HL70, HL79, HL82, HL94              | HL64       | HL75, HL87             |
| HL19       | HL70, HL79, HL82, HL94              | HL65       | HL75, HL87             |
| HL20       | HL75, HL86, HL87                    | HL218      | HL84                   |
| HL21       | HL75, HL86, HL87                    | HL219      | HL84                   |
| HL22       | HL77                                | HL220      | HL93                   |
| HL23       | HL77                                | HL221      | HL93                   |
| HL30       | HL70, HL79, HL82, HL94              | HL325      | HLT77                  |
| HL40       | HL70, HL79, HL82, HL94, HL97, HL297 | HL326      | HL386                  |
| HL41       | HL70, HL79, HL82, HL94              | HL327      | HL386                  |
| HL48       | HL75, HL78, HL86                    | HL328      | HLT77                  |
| HL50       | HL83, HL90                          | HL10VAZ    | HL70, HL79, HL82, HL94 |
| HL51       | HL83, HL90                          | HL11VAZ    | HL70, HL79, HL82, HL94 |
| HL62       | HL79, HL82, HL94                    | HL110VAZ   | HL79, HL82, HL94       |
| HL63       | HL79, HL82, HL94                    | HL111VAZ   | HL79, HL82, HL94       |

## HL70 COLLAR

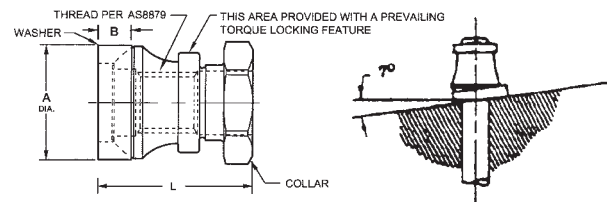
Shear Application  
Aluminum Alloy



| HL70 | PIN.<br>NOM.<br>DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | L            | UTS<br>LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|----------------------|----------------|--------------|--------------|--------------|---------------------|------------------------|
| -5   | 5/32                 | 8-32UNJC-3B    | .292<br>.288 | .173<br>.166 | .447<br>.427 | 1,400               | 15-25                  |
| -6   | 3/16                 | 10-32UNJF-3B   | .307<br>.303 | .200<br>.192 | .457<br>.437 | 1,600               | 25-35                  |
| -8   | 1/4                  | 1/4-28UNJF-3B  | .412<br>.408 | .261<br>.252 | .552<br>.532 | 3,000               | 60-80                  |
| -10  | 5/16                 | 5/16-24UNJF-3B | .518<br>.512 | .325<br>.314 | .672<br>.652 | 5,000               | 130-160                |

## HL75 COLLAR

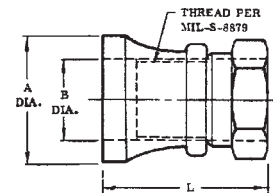
Self-Aligning Collar Assembly  
Tension Application  
303 Stainless Steel



| HL75                                        | PIN.<br>NOM.<br>DIA. | THREAD          | A<br>DIA.    | B            | L            | UTS<br>LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|---------------------------------------------|----------------------|-----------------|--------------|--------------|--------------|---------------------|------------------------|
| -5A                                         | 5/32                 | 8-32 UNJC-3B    | .365<br>.355 | .095<br>.085 | .457<br>.427 | 2,300               | 30-40                  |
| <b>HL75-5AW - Collar/Washer Combination</b> |                      |                 |              |              |              |                     |                        |
| -6A                                         | 3/16                 | 10-32 UNJF-3B   | .365<br>.355 | .095<br>.085 | .457<br>.427 | 2,750               | 40-50                  |
| <b>HL75-6W - Washer Only</b>                |                      |                 |              |              |              |                     |                        |
| -8A                                         | 1/4                  | 1/4-28 UNJF-3B  | .475<br>.465 | .120<br>.110 | .552<br>.522 | 5,000               | 115-130                |
| <b>HL75-8W - Washer Only</b>                |                      |                 |              |              |              |                     |                        |
| -10A                                        | 5/16                 | 5/16-24 UNJF-3B | .620<br>.610 | .130<br>.120 | .672<br>.642 | 8,300               | 200-250                |

## HL77 COLLAR

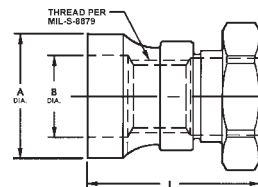
Shear Application  
Aluminum Alloy



| HL77 | PIN.<br>NOM.<br>DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | L            | TENSION<br>PRELOAD LBS.<br>MIN. | UTS<br>LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|----------------------|----------------|--------------|--------------|--------------|---------------------------------|---------------------|------------------------|
| -5   | 5/32                 | 8-32-UNJC-3B   | .292<br>.288 | .173<br>.166 | .447<br>.427 | 350                             | 1,400               | 10-20                  |
| -6   | 3/16                 | 10-32UNJF-3B   | .307<br>.303 | .200<br>.192 | .457<br>.437 | 500                             | 1,600               | 20-30                  |
| -8   | 1/4                  | 1/4-28UNJF-3B  | .412<br>.408 | .261<br>.252 | .552<br>.532 | 1,000                           | 3,000               | 55-70                  |
| -10  | 5/16                 | 5/16-24UNJF-3B | .518<br>.512 | .325<br>.314 | .672<br>.652 | 1,650                           | 5,000               | 100-125                |

## HL78 COLLAR

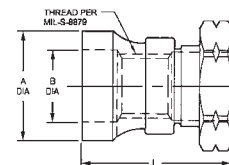
Tension Application  
A-286 High Temp. Alloy  
1/16th Grip Variation



| HL78 | PIN.<br>NOM.<br>DIA. | THREAD        | A<br>DIA.    | B<br>DIA.    | L            | UTS<br>LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|----------------------|---------------|--------------|--------------|--------------|---------------------|------------------------|
| -5   | 5/32                 | 8-32UNJC-3B   | .287<br>.283 | .173<br>.166 | .447<br>.427 | 2,300               | 30-40                  |
| -6   | 3/16                 | 10-32UNJF-3B  | .307<br>.303 | .212<br>.208 | .457<br>.437 | 2,750               | 40-50                  |
| -8   | 1/4                  | 1/4-28UNJF-3B | .412<br>.408 | .272<br>.268 | .552<br>.532 | 5,000               | 110-130                |

## HL79 COLLAR

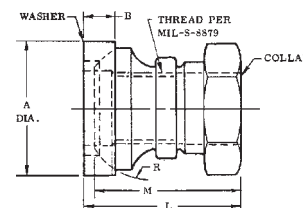
Shear Application  
Aluminum Alloy  
For Use on Standard and  
1/64 Oversized Hi-Loks



| HL79 | PIN.<br>NOM.<br>DIA. | THREAD                                  | A<br>DIA.    | B<br>DIA.    | L            | UTS<br>LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|----------------------|-----------------------------------------|--------------|--------------|--------------|---------------------|------------------------|
| -5   | 5/32                 | NOTE: FOR 5 DIAMETER HI-LOKS USE HL70-5 |              |              |              |                     |                        |
| -6   | 13/64                | 10-32UNJF-3B                            | .322<br>.318 | .212<br>.208 | .457<br>.437 | 1,600               | 25-35                  |
| -8   | 17/64                | 1/4-28UNJF-3B                           | .422<br>.418 | .272<br>.268 | .552<br>.532 | 3,000               | 60-80                  |
| -10  | 21/64                | 5/16-24UNJF-3B                          | .538<br>.532 | .336<br>.330 | .672<br>.652 | 5,000               | 130-160                |

## HL82 COLLAR

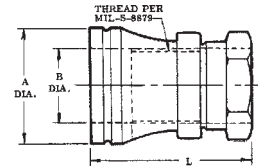
Shear Application  
Self-Aligning Collar Assembly  
Aluminum Collar, Stainless Washer  
APBW Indicates Collar Washer Combination  
CAD II Plated Washer



| HL82   | PIN.<br>NOM.<br>DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | M            | L    | UTS<br>LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|--------|----------------------|----------------|--------------|--------------|--------------|------|---------------------|------------------------|
| -5AW   | 5/32                 | 8-32UNJC-3B    | .365<br>.355 | .095<br>.085 | .420<br>.400 | .445 | 1,400               | 22-32                  |
| -6APBW | 3/16                 | 10-32UNJF-3B   | .365<br>.355 | .095<br>.085 | .420<br>.400 | .445 | 1,600               | 32-42                  |
| -6A    | 3/16                 | 10-32UNJF-3B   | .365<br>.355 | .095<br>.085 | .420<br>.400 | .445 | 1,600               | 32-42                  |
| -6AW   | 3/16                 | 10-32UNJF-3B   | .365<br>.355 | .095<br>.085 | .420<br>.400 | .445 | 1,600               | 32-42                  |
| -8APBW | 1/4                  | 1/4-28UNJF-3B  | .475<br>.465 | .120<br>.110 | .540<br>.520 | .570 | 3,000               | 75-90                  |
| -8A    | 1/4                  | 1/4-28UNJF-3B  | .475<br>.465 | .120<br>.110 | .540<br>.520 | .570 | 3,000               | 75-90                  |
| -10A   | 5/16                 | 5/16-24UNJF-3B | .620<br>.610 | .130<br>.120 | .647<br>.627 | .690 | 5,000               | 140-170                |

## HL84 COLLAR

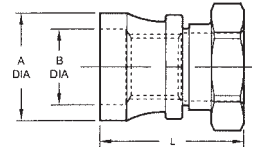
Shear Application  
Aluminum Alloy  
For Use on 1/32 Oversized Hi-Loks



| HL84 | PIN.<br>NOM. DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|-------------------|----------------|--------------|--------------|--------------|------------------|------------------------|
| -6   | 7/32              | 10-32UNJF-3B   | .335<br>.325 | .227<br>.223 | .457<br>.437 | 1,600            | 25-35                  |
| -8   | 9/32              | 1/4-28UNJF-3B  | .430<br>.420 | .290<br>.286 | .552<br>.532 | 3,000            | 60-80                  |
| -10  | 11/32             | 5/16-24UNJF-3B | .580<br>.570 | .353<br>.347 | .672<br>.652 | 5,000            | 130-160                |

## HL86 COLLAR

Tension Application  
303 Stainless Steel

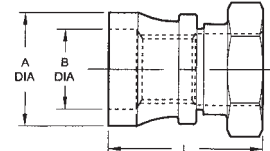


| HL86 | PIN.<br>NOM. DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|-------------------|----------------|--------------|--------------|--------------|------------------|------------------------|
| -5   | 5/32              | 8-32-UNJC-3B   | .287<br>.283 | .173<br>.166 | .447<br>.427 | 2,300            | 30-40                  |
| -6   | 3/16              | 10-32UNJF-3B   | .307<br>.303 | .200<br>.192 | .457<br>.437 | 2,750            | 40-50                  |
| -8   | 1/4               | 1/4-28UNJF-3B  | .412<br>.408 | .261<br>.252 | .552<br>.532 | 5,000            | 115-130                |
| -10  | 5/16              | 5/16-24UNJF-3B | .518<br>.512 | .325<br>.314 | .672<br>.652 | 8,300            | 200-250                |

## HL87 COLLAR

Tension Application  
303 Stainless Steel  
For Use on 1/64 Oversized Hi-Loks

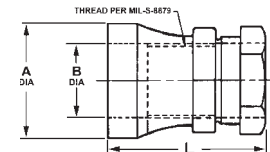
NOTE: For HL87-5 Diameter Pin, Use HL86-5



| HL87 | PIN.<br>NOM. DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|-------------------|----------------|--------------|--------------|--------------|------------------|------------------------|
| -6   | 13/64             | 10-32UNJF-3B   | .307<br>.303 | .212<br>.208 | .457<br>.437 | 2,750            | 40-50                  |
| -8   | 17/64             | 1/4-28UNJF-3B  | .412<br>.408 | .272<br>.268 | .552<br>.532 | 5,000            | 115-130                |
| -10  | 21/64             | 5/16-24UNJF-3B | .518<br>.512 | .336<br>.330 | .672<br>.652 | 8,300            | 200-250                |

## HL90 COLLAR

Shear Application  
Aluminum Alloy



| HL90 | PIN.<br>NOM. DIA. | THREAD       | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|-------------------|--------------|--------------|--------------|--------------|------------------|------------------------|
| LP5A | 5/32              | 8-32-UNJC-3B | .292<br>.288 | .173<br>.166 | .447<br>.427 | 1,400            | 15-25                  |
| LP6A | 3/16              | 10-32UNJF-3B | .307<br>.303 | .200<br>.192 | .457<br>.437 | 1,600            | 25-35                  |

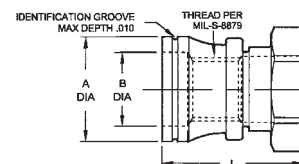


## HL93 COLLAR

Tension Application

303 Stainless Steel

For Use on 1/32 Oversize Hi-Loks



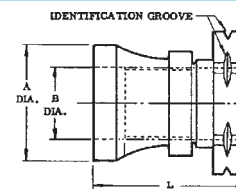
| HL93 | PIN.<br>NOM. DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|-------------------|----------------|--------------|--------------|--------------|------------------|------------------------|
| -6   | 7/32              | 10-32-UNJF-3B  | .332<br>.328 | .227<br>.223 | .457<br>.437 | 2,750            | 40-50                  |
| -8   | 9/32              | 1/4-28UNJF-3B  | .427<br>.423 | .290<br>.286 | .552<br>.532 | 5,000            | 115-130                |
| -10  | 11/32             | 5/16-24UNJF-3B | .578<br>.572 | .353<br>.347 | .672<br>.652 | 8,300            | 200-250                |

## HL94 COLLAR

Shear Application

303 Stainless Steel

For Use on Standard  
and 1/64 Oversized Hi-Loks



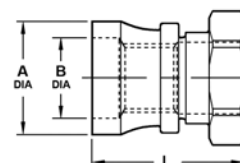
| HL94 | PIN.<br>NOM. DIA. | THREAD         | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|-------------------|----------------|--------------|--------------|--------------|------------------|------------------------|
| -5   | 5/32              | 8-32-UNJC-3B   | .292<br>.288 | .173<br>.166 | .447<br>.427 | 2,300            | 15-25                  |
| -6   | 13/64             | 10-32UNJF-3B   | .322<br>.318 | .212<br>.208 | .457<br>.437 | 2,750            | 25-35                  |
| -8   | 17/64             | 1/4-28UNJF-3B  | .422<br>.418 | .272<br>.268 | .552<br>.532 | 5,000            | 60-80                  |
| -10  | 21/64             | 5/16-24UNJF-3B | .538<br>.532 | .336<br>.330 | .672<br>.652 | 8,300            | 130-160                |

## HL97 COLLAR

Shear Application

A-286 High Temp. Alloy

1/16th Grip Variation

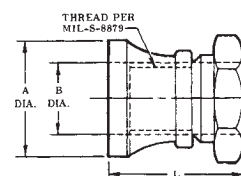


| HL97 | PIN.<br>NOM. DIA. | THREAD       | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|------|-------------------|--------------|--------------|--------------|--------------|------------------|------------------------|
| -4   | 1/8               | 6-32 UNJC-3B | .240<br>.235 | .147<br>.143 | .420<br>.400 | 1,350            | 10-20                  |
| -5   | 5/32              | 8-32 UNJC-3B | .287<br>.283 | .173<br>.166 | .447<br>.427 | 1,940            | 15-25                  |
| -6   | 3/16              | 10-32UNJF-3B | .307<br>.303 | .200<br>.195 | .457<br>.437 | 2,500            | 25-35                  |

## HLT77 COLLAR

Shear Application

Aluminum Alloy



| HLT77 | PIN.<br>NOM. DIA. | THREAD     | A<br>DIA.    | B<br>DIA.    | L            | UTS LBS.<br>MIN. | TORQUE OFF<br>IN. LBS. |
|-------|-------------------|------------|--------------|--------------|--------------|------------------|------------------------|
| -5    | 5/32              | 8-32-UNJC  | .292<br>.288 | .179<br>.175 | .447<br>.427 | 1,400            | 15-25                  |
| -6    | 3/16              | 10-32UNJF  | .307<br>.303 | .205<br>.201 | .457<br>.437 | 1,600            | 25-35                  |
| -8    | 1/4               | 1/4-28UNJF | .412<br>.408 | .265<br>.261 | .550<br>.530 | 3,000            | 60-80                  |

## CAMLOC

### 2600 Series

Protruding Head Carbon Steel

### MONADNOCK

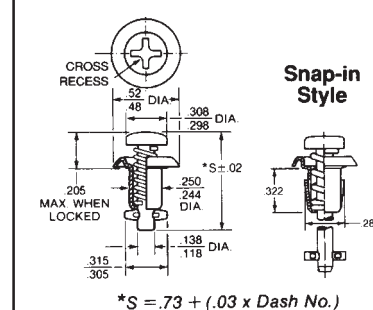
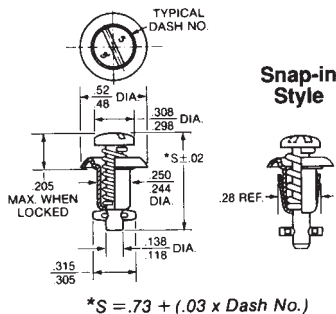
Slotted 1126000-#

Phillips 1126004-#

\* see Stainless Steel (below) for Winged Stud



| Total Panel Thickness<br>Using 212-12<br>Receptacle | CARBON STEEL |          |
|-----------------------------------------------------|--------------|----------|
|                                                     | Slotted      | Phillips |
| .060-.089                                           | 2600-2       | 26S8-2   |
| .090-.119                                           | 2600-3       | 26S8-3   |
| .120-.149                                           | 2600-4       | 26S8-4   |
| .150-.179                                           | 2600-5       | 26S8-5   |
| .180-.209                                           | 2600-6       | 26S8-6   |
| .210-.239                                           | 2600-7       | 26S8-7   |
| .240-.269                                           | 2600-8       | 26S8-8   |
| .270-.299                                           | 2600-9       | 26S8-9   |
| .300-.329                                           | 2600-10      | 26S8-10  |
| .330-.359                                           | 2600-11      | 26S8-11  |
| .360-.389                                           | 2600-12      | 26S8-12  |
| .420-.449                                           | 2600-14      | 26S8-14  |
| .450-.479                                           | 2600-15      | 26S8-15  |
| .480-.509                                           | 2600-16      | 26S8-16  |
| .540-.569                                           | 2600-18      | ---      |



## CAMLOC

### 2600 Series

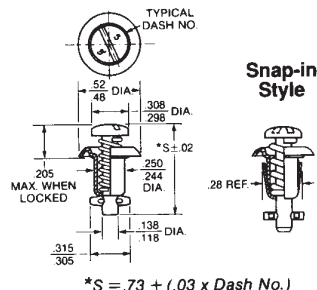
Protruding Head Stainless Steel

### MONADNOCK

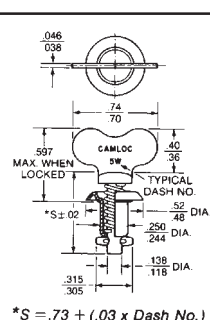
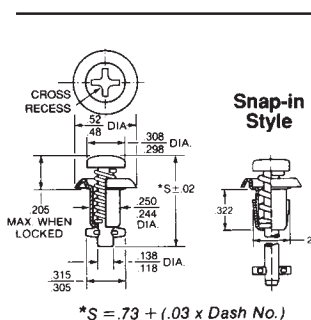
Slotted 1126007-#

Phillips 1126008-#

Winged 1126014-#



| Total Panel Thickness<br>Using 212-12<br>Receptacle | STAINLESS STEEL |          |          |
|-----------------------------------------------------|-----------------|----------|----------|
|                                                     | Slotted         | Phillips | Winged   |
| .030-.059                                           | 2600-1S         | ---      | 2600-1SW |
| .060-.089                                           | 2600-2S         | 26S51-2  | 2600-2SW |
| .090-.119                                           | 2600-3S         | 26S51-3  | 2600-3SW |
| .120-.149                                           | 2600-4S         | 26S51-4  | 2600-4SW |
| .150-.179                                           | 2600-5S         | 26S51-5  | 2600-5SW |
| .180-.209                                           | 2600-6S         | 26S51-6  | 2600-6SW |
| .210-.239                                           | 2600-7S         | 26S51-7  | 2600-7SW |
| .240-.269                                           | 2600-8S         | 26S51-8  | 2600-8SW |

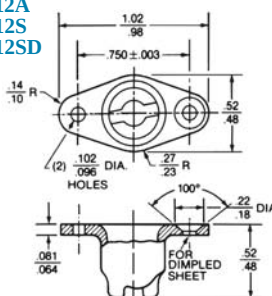


## CAMLOC RECEPTACLE FOR 2600/2700 SERIES

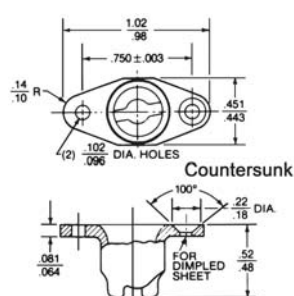
Monadnock with same Fit, Form & Function  
may be substituted for Camloc if cost effective

| Part #   | Rivet Hole  | Material                       | Monadnock # |
|----------|-------------|--------------------------------|-------------|
| 212-12   | Plain       | Silicon Bronze<br>(Cad Plated) | 1127701     |
| 212-12D  | Countersunk |                                | 1127702     |
| 212-12N  | Plain       |                                | 1127726     |
| 212-12A  |             | Aluminum                       | 1127707     |
| 212-12S  |             | Stainless Steel                | 1127711     |
| 212-12SD | Dimpled     |                                | 1127712     |

212-12  
212-12D  
212-12A  
212-12S  
212-12SD



212-12N  
Narrow Width



## CAMLOC

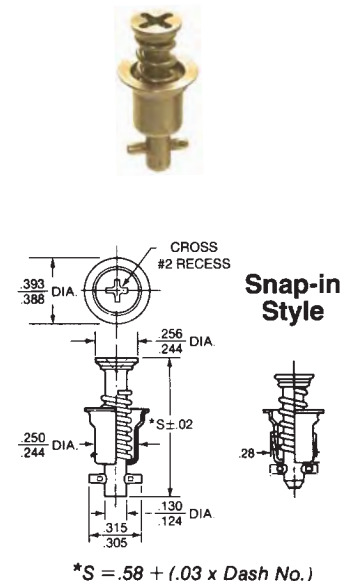
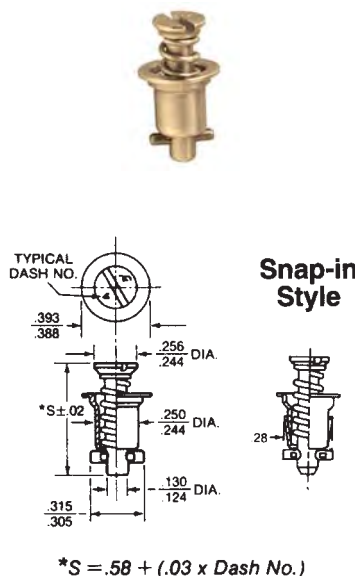
### 2700 Series

Flush Head Carbon Steel

### MONADNOCK

Slotted 1127000-#, Phillips 1127004-#

| Total Panel Thickness<br>Using 212-12<br>Receptacle | Slotted | Phillips |
|-----------------------------------------------------|---------|----------|
|                                                     | Part #  | Part #   |
| .060-.089                                           | 2700-2  | 27S3-2   |
| .090-.119                                           | 2700-3  | 27S3-3   |
| .120-.149                                           | 2700-4  | 27S3-4   |
| .150-.179                                           | 2700-5  | 27S3-5   |
| .180-.209                                           | 2700-6  | 27S3-6   |
| .210-.239                                           | 2700-7  | 27S3-7   |
| .240-.269                                           | 2700-8  | 27S3-8   |
| .270-.299                                           | 2700-9  | 27S3-9   |
| .300-.329                                           | 2700-10 | 27S3-10  |
| .330-.359                                           | 2700-11 | 27S3-11  |
| .360-.389                                           | 2700-12 | 27S3-12  |
| .390-.419                                           | 2700-13 | 27S3-13  |
| .420-.449                                           | 2700-14 | 27S3-14  |
| .450-.479                                           | 2700-15 | --       |
| .480-.509                                           | 2700-16 | --       |
| .510-.539                                           | 2700-17 | --       |
| .540-.569                                           | 2700-18 | --       |
| .570-.599                                           | 2700-19 | --       |



## CAMLOC

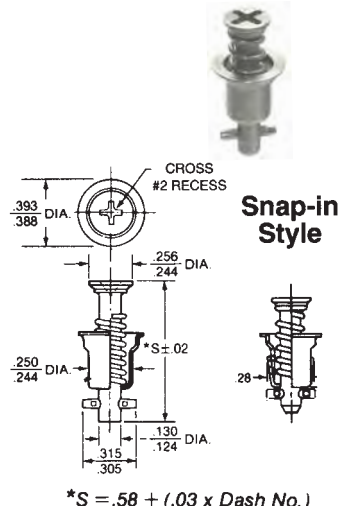
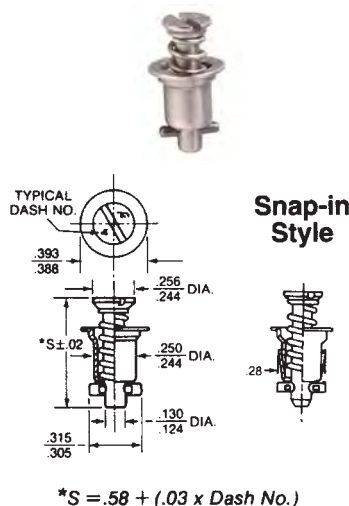
### 2700 Series

Flush Head Stainless Steel

### MONADNOCK

Slotted 1127003-#, Phillips 1127009-#

| Total Panel Thickness<br>Using 212-12<br>Receptacle | Slotted  | Phillips |
|-----------------------------------------------------|----------|----------|
|                                                     | Part #   | Part #   |
| .060-.089                                           | 2700-2S  | 27S3-2S  |
| .090-.119                                           | 2700-3S  | 27S3-3S  |
| .120-.149                                           | 2700-4S  | 27S3-4S  |
| .150-.179                                           | 2700-5S  | 27S3-5S  |
| .180-.209                                           | 2700-6S  | 27S3-6S  |
| .210-.239                                           | 2700-7S  | 27S3-7S  |
| .240-.269                                           | 2700-8S  | 27S3-8S  |
| .270-.299                                           | 2700-9S  | 27S3-9S  |
| .300-.329                                           | 2700-10S | --       |

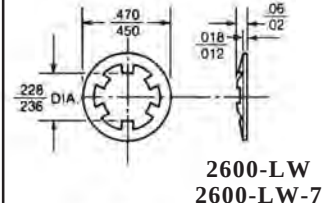
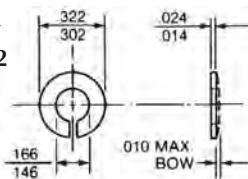


## CAMLOC RETAINING RINGS FOR 2600/2700 SERIES

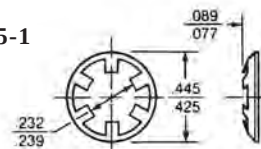
Monadnock with same Fit, Form & Function  
may be substituted for Camloc if cost effective

| Part #    | Type       | Material        | Monadnock # |
|-----------|------------|-----------------|-------------|
| 2600-SW   | Split Ring | Stainless Steel | 1127722     |
| 2600-SW2  | Split Ring | Cad. Plated     | 1127723     |
| 2600-LW   | Solid Ring | Cad. Plated     | 1127700     |
| 2600-LW-7 | Solid Ring | Stainless Steel | 1127746     |
| 27S5-1    | Solid Ring | Cad. Plated     | 1127301     |

2600-SW  
2600-SW2



27S5-1



## CAMLOC 4002 Series

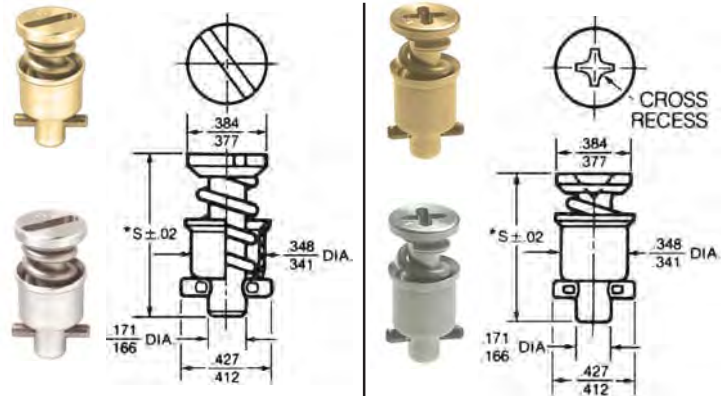
Heavy Duty  
Carbon Steel & Stainless Steel

## Monadnock Equivalent Part #'s

**Carbon Steel**  
Slotted 1142000-#  
Phillips 1142005-#

**Stainless Steel**  
Slotted 1142002-#  
Phillips 1142012-#

| Panel Thickness<br>Using Receptacles |           | CARBON STEEL |          | STAINLESS<br>STEEL |          |
|--------------------------------------|-----------|--------------|----------|--------------------|----------|
| 214-16                               | 244-16    | Slotted      | Phillips | Slotted            | Phillips |
| .081-.110                            | .051-.080 | 4002-2       | 40S5-2   | 4002-2S            | 40S5-2S  |
| .111-.140                            | .081-.110 | 4002-3       | 40S5-3   | 4002-3S            | 40S5-3S  |
| .141-.170                            | .111-.140 | 4002-4       | 40S5-4   | 4002-4S            | 40S5-4S  |
| .171-.200                            | .141-.170 | 4002-5       | 40S5-5   | 4002-5S            | 40S5-5S  |
| .201-.230                            | .171-.200 | 4002-6       | 40S5-6   | 4002-6S            | 40S5-6S  |
| .231-.260                            | .201-.230 | 4002-7       | 40S5-7   | 4002-7S            | 40S5-7S  |
| .261-.290                            | .231-.260 | 4002-8       | 40S5-8   | 4002-8S            | 40S5-8S  |
| .291-.320                            | .261-.290 | 4002-9       | 40S5-9   | 4002-9S            | 40S5-9S  |
| .321-.350                            | .291-.320 | 4002-10      | 40S5-10  | 4002-10S           | 40S5-10S |
| .351-.380                            | .321-.350 | 4002-11      | 40S5-11  | 4002-11S           | 40S5-11S |
| .381-.410                            | .351-.380 | 4002-12      | 40S5-12  | 4002-12S           | 40S5-12S |
| .411-.440                            | .381-.410 | 4002-13      | 40S5-13  | 4002-13S           | 40S5-13S |
| .441-.470                            | .411-.440 | 4002-14      | 40S5-14  | 4002-14S           | 40S5-14S |
| .471-.500                            | .441-.470 | 4002-15      | 40S5-15  | ---                | ---      |
| .501-.530                            | .471-.500 | 4002-16      | 40S5-16  | ---                | ---      |
| .531-.560                            | .501-.530 | 4002-17      | 40S5-17  | ---                | ---      |

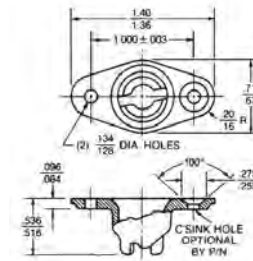


\*S = .63 + (.03 x Dash No.)

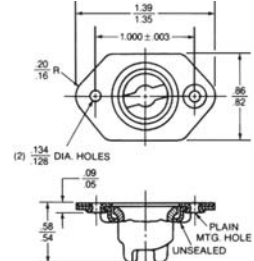
## CAMLOC RECEPTACLE FOR 4002 SERIES

Silicon Bronze

| Part #  | Rivet Hole      | Material          | Monadnock # |
|---------|-----------------|-------------------|-------------|
| 214-16  | Plain           | Silicone          | 1142700     |
| 214-16D | Countersunk     | Bronze, Cad Pltg. | 1142701     |
| 244-16  | Plain, Floating | Steel             | 1142706     |
| 244-16D | Countersunk     | Cad Plated        | 1142716     |
| 244-16S | Plain, Floating | Stainless Steel   | 1142717     |



214-16



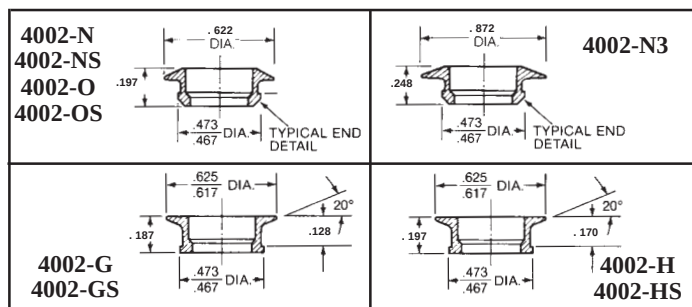
244-16

## CAMLOC GROMMETS FOR 4002 SERIES

Heavy Duty Series

Monadnock with same Fit, Form & Function  
may be substituted for Camloc if cost effective

| Max Panel Thickness | Part #  | Material   | Monadnock # |
|---------------------|---------|------------|-------------|
| .065                | 4002-N  | Cad Plated | 1142901-2   |
| .065                | 4002-NS | Stainless  | 1142903-2   |
| .074                | 4002-G  | Cad Plated | 1142900-1   |
| .074                | 4002-GS | Stainless  | 1142904-1   |
| .094                | 4002-O  | Cad Plated | 1142901-3   |
| .094                | 4002-OS | Stainless  | 1142903-3   |
| .117                | 4002-H  | Cad Plated | 1142900-2   |
| .117                | 4002-HS | Stainless  | 1142904-2   |
| .072                | 4002-N3 | Cad Plated | 1142922-1   |



## CAMLOC RETAINING RINGS FOR 4002 SERIES

Heavy Duty Series

| Part #        | Material                 | Monadnock # |
|---------------|--------------------------|-------------|
| R4G           | Cad Plated               | 1142902     |
| 40G26-1       | Stainless                | 1142905     |
| R4T(Hi Shear) | Alloy Steel, Cad Plated  | 1142913     |
| 4002-SW       | Spring Steel, Cad Plated | 1142703     |
| 4002-SW-SS    | Stainless Steel          | 1142721     |

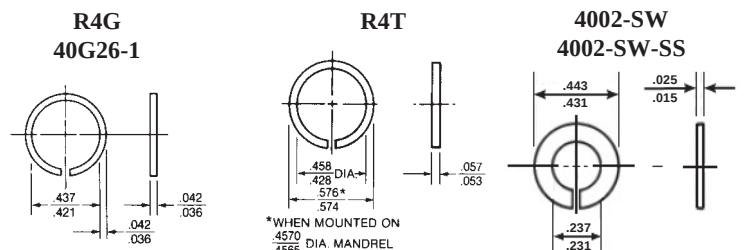


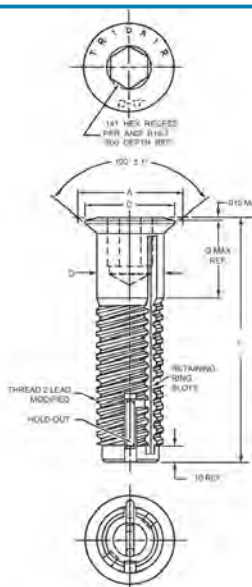


Diagram illustrating the bolt-in-place assembly in its hold-out position. The assembly consists of a STUD BOLT ASSEMBLY (HOLD-OUT POSITION) passing through a PANEL, a GROMMET, and a SUBSTRUCTURE, secured by a FORM-IN-PLACE GASKET and a RETAINING RING. The entire assembly is mounted into a RECEPTACLE.

- ◆ Superior strength
- ◆ Positive stud bolt hold-out
- ◆ Grommet design for composite metal
- ◆ Grommet is great for gasketed applications, provides hard seat surface, superior load transfer and counterbore for retaining ring.
- ◆ Retaining ring is replaceable and no tool is necessary to install
- ◆ Unthreaded lead on stud bolt offers probing ability
- ◆ Accommodates large variations in grip

- Hex Socket Recess
- L = 1.532;
- grip max = .850
- 1/4 size
- Basic Part Number

| First Dash # | Thread Size | A Dia.      | C Dia. | D Dia.       |
|--------------|-------------|-------------|--------|--------------|
| <b>- 4</b>   | 2500-28     | <u>.440</u> | .375   | <u>.2495</u> |
|              | 2 Lead      | .430        |        | .2470        |
| <b>- 6</b>   | .3750-24    | <u>.564</u> | .505   | <u>.3745</u> |
|              | 2 Lead      | .554        |        | .3730        |
|              |             | Max. / Min. |        | Max. / Min.  |



| Second Dash # | G - Grip |      | - 4 Size Length | -6 Size Length |
|---------------|----------|------|-----------------|----------------|
|               | Min.     | Max. |                 |                |
| - 2           | .150     | .290 | .972            | 1.170          |
| - 4           | .291     | .430 | 1.112           | 1.210          |
| - 6           | .431     | .570 | 1.252           | 1.350          |
| - 8           | .571     | .710 | 1.392           | 1.490          |

2500-28 UNF-3B  
2 LEAD THREAD  
MODIFIED

NUT

SWIVEL  
NUT BASE

CAGE

536  
436

630  
620

690  
685

615 MAX

55 REF

44 REF

103 DIA  
TYP.

| Nominal Size | Part Number | A Dia. | Finish                      |
|--------------|-------------|--------|-----------------------------|
| 1/4          | CA21037-4R  | .355   | Passivated                  |
|              | CA21037C-4R |        | Cad Plated, Type II Class 2 |
| 3/8          | CA21037-6R  | .480   | Passivated                  |
|              | CA21037C-6R |        | Cad Plated, Type II Class 2 |

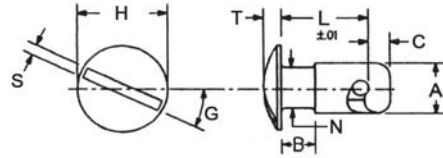
| Nom. Size | Part Number | L    | Grip | A            | C            | E    |
|-----------|-------------|------|------|--------------|--------------|------|
| 1/4       | CA21038-4-1 | .115 | .085 | .505<br>max. | .255<br>max. | .310 |
|           | CA21038-4-2 | .135 | .105 |              |              |      |
|           | CA21038-4-3 | .155 | .125 |              |              |      |
| 3/8       | CA21038-6-1 | .105 | .085 | .630<br>max. | .395<br>max. | .465 |
|           | CA21038-6-2 | .125 | .105 |              |              |      |
|           | CA21038-6-3 | .145 | .125 |              |              |      |



## SLOTTED HEAD

DZUS Stud

**Alternate #**  
**121J-#-Z3CT**



| Part # | A    | B    | C    | G   | H    | L    | N    | S    | T    |
|--------|------|------|------|-----|------|------|------|------|------|
| AJ3-25 | 3/16 | .075 | .075 | 25° | .312 | .250 | .150 | .038 | .080 |
| AJ3-30 |      | .100 |      |     |      | .300 |      |      |      |
| AJ3-35 |      | .150 |      |     |      | .350 |      |      |      |
| AJ3-40 |      | .200 |      |     |      | .400 |      |      |      |
| AJ3-45 |      | .225 |      |     |      | .450 |      |      |      |
| AJ4-25 | 1/4  | .100 | .100 | 28° | .437 | .250 | .200 | .050 | .085 |
| AJ4-30 |      | .100 |      |     |      | .300 |      |      |      |
| AJ4-35 |      | .150 |      |     |      | .350 |      |      |      |
| AJ4-40 |      | .200 |      |     |      | .400 |      |      |      |
| AJ4-45 |      | .225 |      |     |      | .450 |      |      |      |
| AJ4-50 |      | .250 |      |     |      | .500 |      |      |      |
| AJ5-30 | 5/16 | .125 | .125 | 30° | .562 | .300 | .250 | .062 | .102 |
| AJ5-35 |      | .125 |      |     |      | .350 |      |      |      |
| AJ5-40 |      | .190 |      |     |      | .400 |      |      |      |
| AJ5-45 |      | .190 |      |     |      | .450 |      |      |      |
| AJ5-50 |      | .250 |      |     |      | .500 |      |      |      |

## FULL GROMMETS

**Alternate #**  
**1271-#**



| Stud Size | Panel Thickness | GA      | GF      |
|-----------|-----------------|---------|---------|
| 3         | .015 - .025     | GA3-175 | ---     |
|           | .026 - .050     | GA3-200 | ---     |
|           | .051 - .094     | GA3-250 | ---     |
| 4         | .026 - .050     | GA4-250 | GF4-150 |
|           | .051 - .075     | GA4-275 | GF4-175 |
| 5         | .031 - .062     | GA5-312 | GF5-175 |
|           | .063 - .094     | GA5-350 | GF5-225 |
|           | .095 - .125     | GA5-375 | GF5-250 |

## SPRING RECEPTACLES



| Stud Size | Part #  | Alt. #<br>1219- | Rivet Hole Space | Height |
|-----------|---------|-----------------|------------------|--------|
| 3         | S3-150  | 3150-Z3Y        | 5/8              | .150   |
|           | S3-175  | 3175-Z3Y        |                  | .175   |
|           | S3-200  | 3200-Z3Y        |                  | .200   |
|           | S3-225  | 3225-Z3Y        |                  | .225   |
| 4         | S4-200  | 4200-Z3Y        | 3/4              | .200   |
|           | S4-225  | 4225-Z3Y        |                  | .225   |
|           | S4-250  | 4250-Z3Y        |                  | .250   |
|           | S5A-200 | A5200-Z3CT      |                  | .200   |
| 5         | S5A-225 | A5225-Z3CT      | 1                | .225   |
|           | S5A-250 | A5250-Z3Y       |                  | .250   |

## HALF GROMMET



| GP-Thermoplastic |         | GH-Aluminum |         |
|------------------|---------|-------------|---------|
| Part #           | Alt. #  | Part #      | Alt. #  |
| GP3B             | 127P-3B | GH3         | 127H-3B |
| GP4B             | 127P-4B | GH4         | 127H-4B |
| GP5B             | 127P-5B | GH5         | 127H-5B |

## RETAINING SPRING



| Part #  | Stud |
|---------|------|
| SX520SS | 3    |
| SX523SS | 4    |
| SX510SS | 5    |

## RETAINING RING

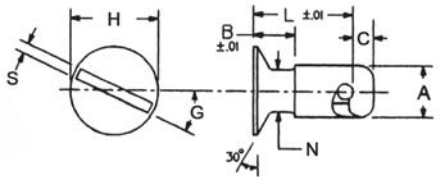


| Part # | Stud |
|--------|------|
| SR3SS  | 3    |
| SR4SS  | 4    |
| SR5SS  | 5    |

## FLUSH HEAD

DZUS Stud

**Alternate #**  
**126J-#-Z3CT**

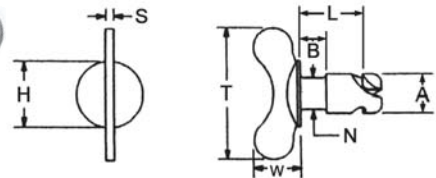


| Part # | A    | B    | C    | G   | H    | L    | N    | S    |
|--------|------|------|------|-----|------|------|------|------|
| FJ4-30 | 1/4  | .150 | .100 | 28° | .437 | .300 | .200 | .050 |
| FJ4-35 |      | .175 |      |     |      | .350 |      |      |
| FJ4-40 |      | .200 |      |     |      | .400 |      |      |
| FJ5-30 | 5/16 | .200 | .125 | 30° | .562 | .300 | .250 | .062 |
| FJ5-40 |      | .225 |      |     |      | .400 |      |      |
| FJ5-50 |      | .250 |      |     |      | .500 |      |      |

## WING HEAD

DZUS Stud

**Alternate #**  
**121J-W#-Z3CT**



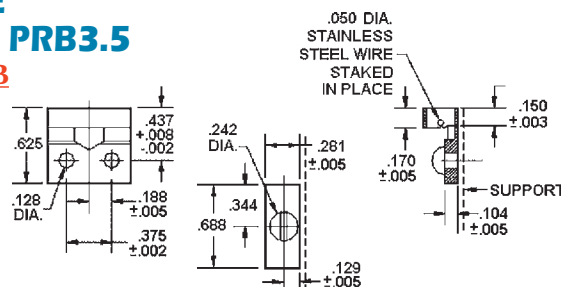
| Part #  | A    | B    | H    | L    | N    | S    | T     | W    |
|---------|------|------|------|------|------|------|-------|------|
| AJW4-25 | 1/4  | .100 | .437 | .250 | .200 | .050 | .875  | .312 |
| AJW4-30 |      | .100 |      | .300 |      |      |       |      |
| AJW4-35 |      | .150 |      | .350 |      |      |       |      |
| AJW5-30 | 5/16 | .125 | .562 | .300 | .235 | .062 | 1.125 | .437 |
| AJW5-40 |      | .190 |      | .400 |      |      |       |      |
| AJW5-50 |      | .250 |      | .500 |      |      |       |      |

## CAPTIVE 1/4-TURN FASTENERS

- ¼-Turn fastening action offers operating convenience, predictable clamping force, and locked vibration resistance.
- Panel line fasteners combine those features with the versatility of continuous and closely-spaced panel fastening points, and the ease of flare-in stud installation.
- Receptacle strips are installed to frame out the console opening, serving as offset supports for the stud panel. Continuous stud holes and installation rivet holes are available every 3/8".

## RIGHT ANGLE SINGLE HOLE RECEPTACLE PRB3.5

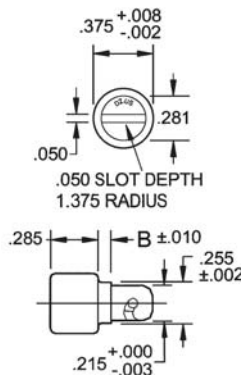
## Alternate # 3518-B



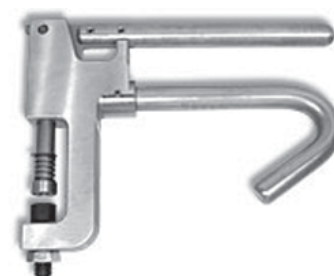
## PFSC 35 STUD ASSEMBLY



| Stud Assembly | Alternate       | Panel Thick | B Dim |
|---------------|-----------------|-------------|-------|
| PFSC35-37A    | 3506-SC37A-Z3CT | .050 - .059 | .070  |
| PFSC35-38A    | 3506-SC38A-Z3CT | .060 - .069 | .080  |
| PFSC35-38AZBB | 3506-SC38A-Z3BT | .060 - .069 | .080  |
| PFSC35-39A    | 3506-SC39A-Z3CT | .070 - .079 | .090  |
| PFSC35-40A    | 3506-SC40A-Z3CT | .080 - .089 | .100  |
| PFSC35-44A    | 3506-SC44A-Z3CT | .120 - .129 | .140  |

**TP35AHT**

Hand-squeeze tool for PFSC35 pre-assembled fasteners.



## PR35 RIGHT-ANGLE STRIP

For mounting against a support member at right angle to the fastened panel or removable part. Material: Strip is aluminum alloy (6061-T6). Wire is stainless steel Type 316. Available in 3, 5, 7, and 9 foot lengths.

## Typical Studs

PFSC35-#

Alt. # 3506-SC#A-C3C

PF35-#

Alt. # 3506-38-C3C

### 3 Foot Length

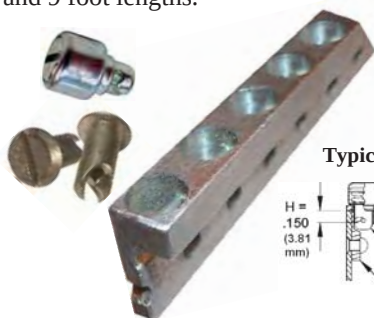
PR35SX3

**Alt. # 3590-S3**

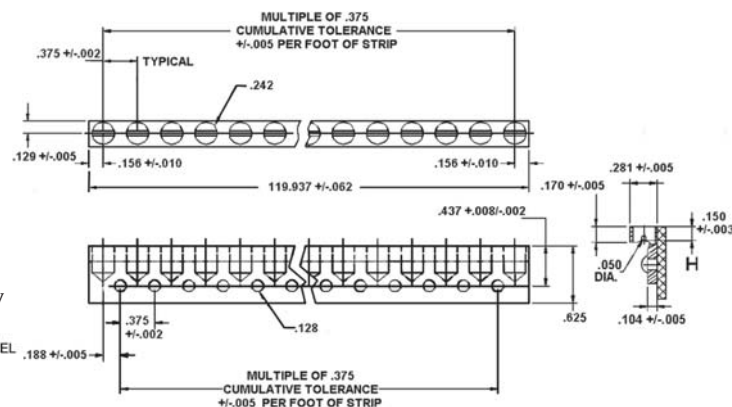
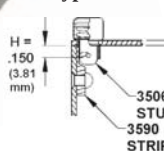
## 5 Foot Length

PR35SX5

**Alt. # 3590-S5**



## Typical Assembly



## PR35-1 FLAT STRIP

For mounting against a support member in a plane with the fastened panel or removable part. Material: Strip is aluminum alloy(6061-T6), Wire is stainless steel Type 316. Available in 3, 5, and 7 foot lengths.

### Flat Strip

### 3 Foot Length

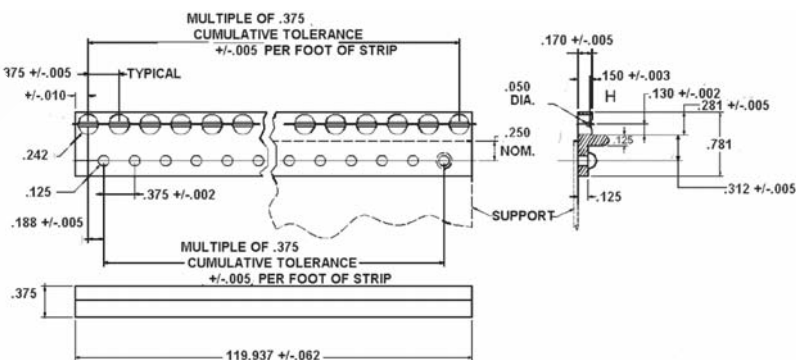
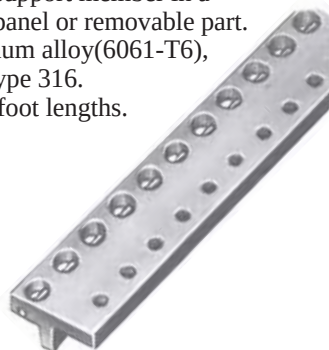
PR35-1S3

**Alt. # 3595-S3**

## 5 Foot Length

PR35-1S5

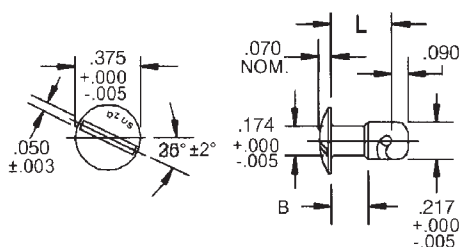
Alt. # 3595-S5



## DZUS A3.5T Series (A35T, A3-1/2T)

| T<br>Total<br>Thickness | Stud Shank<br>Dimensions |      | Stud<br>A3.5 |
|-------------------------|--------------------------|------|--------------|
|                         | L                        | B    |              |
| .031 - .060             | .290                     | .170 | T6           |
| .061 - .090             | .320                     | .170 | T9           |
| .091 - .102             | .350                     | .210 | T12          |
| .121 - .150             | .380                     | .250 | T15          |
| .151 - .180             | .410                     | .290 | T18          |
| .181 - .210             | .440                     | .290 | T21          |
| .211 - .240             | .470                     | .330 | T24          |
| .241 - .270             | .500                     | .370 | T27          |
| .271 - .300             | .530                     | .410 | T30          |
| .301 - .330             | .560                     | .410 | T33          |
| .331 - .360             | .590                     | .450 | T36          |

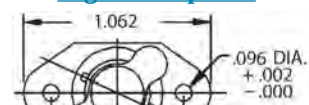
### A3.5T



#### Alternate Part #

2351-20-##-Z3CT (Zinc Trivalent Chromate)  
2351-20-##-C3C (Cadmium Electroplated)

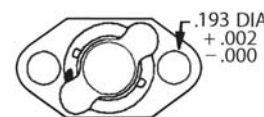
### Rigid Receptacle



#### R35 (Class B)

Alternate # - 2350-18-Z3CT

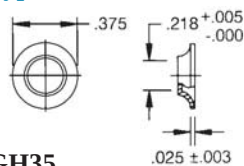
### Floating Receptacle



#### RF35 (Class A)

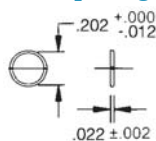
Alternate # - 2350-18F-ZCT

### Type GH Half Grommet



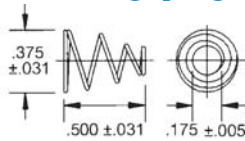
#### GH35

### Snap Ring



#### SR35SS

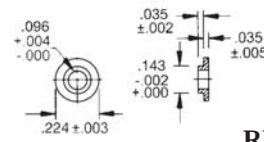
### Retaining Spring



#### SX551SS

### Spacer

2 Included with RF35 Receptacle

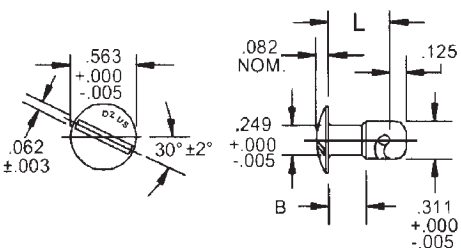


#### RF35-5

## DZUS A5T Series

| T<br>Total<br>Thickness | Stud Shank<br>Dimensions |      | Stud<br>A5 |
|-------------------------|--------------------------|------|------------|
|                         | L                        | B    |            |
| .021 - .050             | .350                     | .170 | T5         |
| .051 - .080             | .380                     | .210 | T8         |
| .081 - .110             | .410                     | .250 | T11        |
| .111 - .140             | .440                     | .250 | T14        |
| .141 - .170             | .470                     | .290 | T17        |
| .171 - .200             | .500                     | .330 | T20        |
| .201 - .230             | .530                     | .370 | T23        |
| .231 - .260             | .560                     | .370 | T26        |
| .261 - .290             | .590                     | .410 | T29        |
| .291 - .320             | .620                     | .450 | T32        |
| .321 - .350             | .650                     | .490 | T35        |
| .351 - .380             | .680                     | .490 | T38        |

### A5T



#### Alternate #

2501-20-##-Z3CT (Zinc Trivalent Chromate)  
2501-20-##-C3C (Cadmium Electroplated)

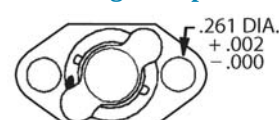
### Rigid Receptacle



#### R5 (Class B)

Alternate # - 2500-18-Z3CT

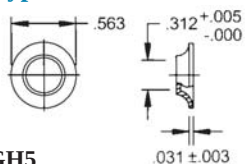
### Floating Receptacle



#### RF5 (Class A)

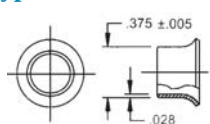
Alternate # - 2500-18F-Z3CT

### Type GH Half Grommet



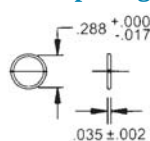
#### GH5

### Type GA Full Grommet



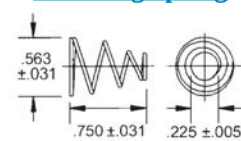
#### GA5 Series

### Snap Ring



#### SR5SS

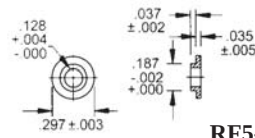
### Retaining Spring



#### SX510SS

### Spacer

2 Included with RF5 Receptacle



#### RF5-5

## DZUS TOOLING

- For replacement of Dzus studs with grommets
- Will not set winged studs

| Part#  | Stud |
|--------|------|
| TP835A | AJ3  |
| TP835B | AJ4  |
| TP835C | FJ4  |
| TP835D | AJ5  |
| TP835E | FJ5  |



TP835A



TP835B - Old Style



TP835B - New Style



TP835C



TP835D



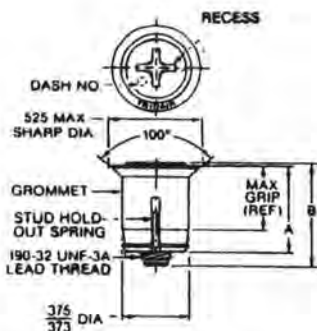
TP835E



## TRIDAIR STRUCTURAL PANEL FASTENERS

### FX10-1558 SERIES

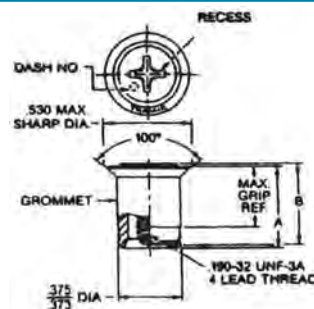
Flush Head Style



| Basic Stud Assembly Part No. | A Ref. | B Ref. | Grip Range |      | Weight lbs / ea. |
|------------------------------|--------|--------|------------|------|------------------|
|                              |        |        | Min        | Max  |                  |
| FX10-1558-1P                 | .35    | .41    | .150       | .220 | .010             |
| FX10-1558-2P                 | .42    | .48    | .221       | .290 | .013             |

### FX10-15010 SERIES

Fully Retractable  
Flush Head Style



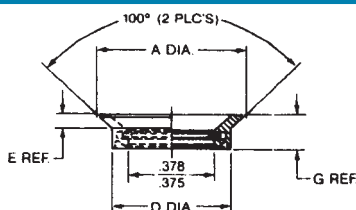
| Stud Assembly Part No. | A Ref. | B Ref. | Grip Range |      | Weight lbs/ ea. |
|------------------------|--------|--------|------------|------|-----------------|
|                        |        |        | Min        | Max  |                 |
| FX10-15010-1P          | .42    | .41    | .230       | .290 | .013            |

### FX10-15030-1P

CORROSION RESISTANT STEEL

### HOLD-OUT GROMMET FX10-15009 SERIES

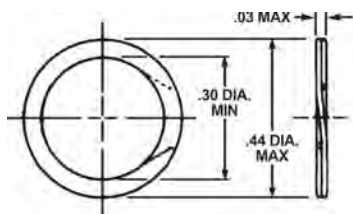
Corrosion Resistant



| Part No.     | A    | D Dia. | E    | G    |
|--------------|------|--------|------|------|
| FX10-15009-1 | .630 | .500   | .050 | .128 |

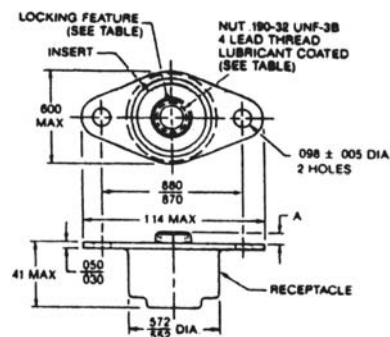
### RETAINING RING FX10-1525 CORROSION RESISTANT

| Part No.  |
|-----------|
| FX10-1525 |



### RECEPTACLE ASSEMBLIES

### FX10-1502 SERIES

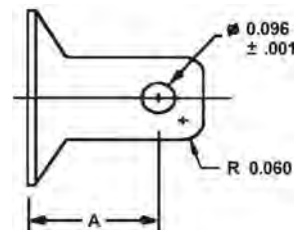


| Locking Feature                     | Part No.  | A* Ref. | Lubricant Coating |
|-------------------------------------|-----------|---------|-------------------|
| High** Prevailing Torque Elliptical | FX10-1502 | None    | Per MIL-L-25681   |

## AIRLOC® FASTENERS AND SKYLOC FASTENERS

Flush Head Length .609 Head Dia. 9/16

| Grip        | A    | Steel       | Stainless Steel |
|-------------|------|-------------|-----------------|
| .171 - .180 | .367 | 98265-2-180 | SK294186-2-180  |
| .181 - .190 | .377 | 98265-2-190 | SK294186-2-190  |
| .191 - .200 | .387 | 98265-2-200 | SK294186-2-200  |
| .201 - .210 | .397 | 98265-2-210 | SK294186-2-210  |
| .221 - .230 | .417 | 98265-2-230 | SK294186-2-230  |
| .231 - .240 | .427 | 98265-2-240 | SK294186-2-240  |



### PINS



| Part Number | Material  |
|-------------|-----------|
| 99836       | Steel     |
| SK99836S    | Stainless |

### RECEPTACLE



| Steel Part No. |
|----------------|
| 99947P130      |

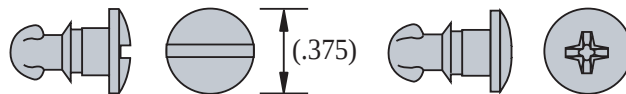
### GROMMET



| Steel Part No. |
|----------------|
| 295250-1       |

## SOUTHCO

No. 82 Series  
1/4 Turn Fasteners  
Oval Head



| DACROTIZED   |              | STAINLESS    |              |
|--------------|--------------|--------------|--------------|
| Slotted      | Phillips     | Slotted      | Phillips     |
| Part #       | Part #       | Part #       | Part #       |
| 82-11-100-16 | 82-19-100-16 | 82-11-100-20 | 82-19-100-20 |
| 82-11-120-16 | 82-19-120-16 | 82-11-120-20 | 82-19-120-20 |
| 82-11-140-16 | 82-19-140-16 | 82-11-140-20 | 82-19-140-20 |
| 82-11-160-16 | 82-19-160-16 | 82-11-160-20 | 82-19-160-20 |
| 82-11-180-16 | 82-19-180-16 | 82-11-180-20 | 82-19-180-20 |
| 82-11-200-16 | 82-19-200-16 | 82-11-200-20 | 82-19-200-20 |
| 82-11-220-16 | 82-19-220-16 | 82-11-220-20 | 82-19-220-20 |

## NO. 82 STUD SELECTION CHART

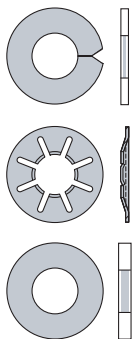
| Total Material Thickness | Stud Size |
|--------------------------|-----------|
| .090-.109                | 100       |
| .110-.129                | 120       |
| .130-.149                | 140       |
| .150-.169                | 160       |
| .170-.189                | 180       |
| .190-.209                | 200       |
| .210-.229                | 220       |

## RETAINERS

82-32-101-20  
Split Ring - Stainless

82-32-201-20  
Push-On - Stainless

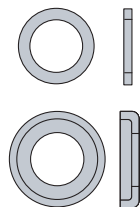
82-32-301-12  
Thermoplastic - Black



## WASHERS

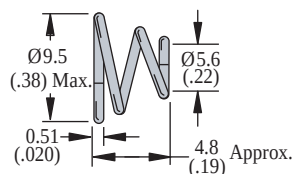
82-43-201-38  
Black Synthetic Rubber

82-46-101-39  
Thermoplastic Cupped Wear Washer



## EJECTOR SPRING

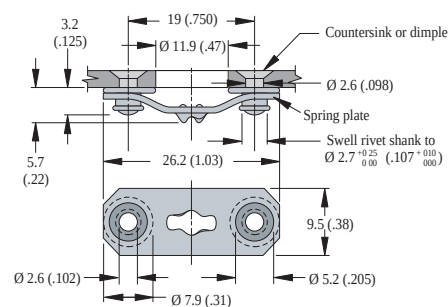
43-13-1-24  
Ejector Spring



## LEAF SPRING RECEPTACLES

For riveting  
- with base

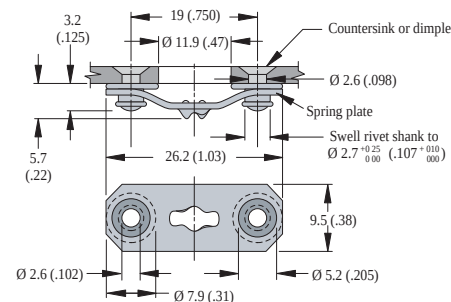
82-35-302-15



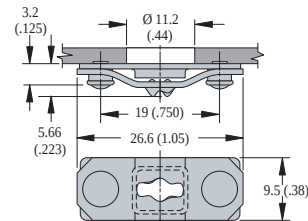
For riveting  
- without base

Steel  
82-35-295-15

Stainless  
82-35-295-20



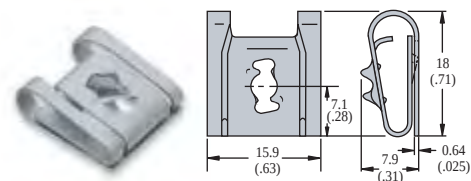
For welding  
82-35-303-15



Rivet must not melt over onto spring.

## CLIP-ON RECEPTACLE

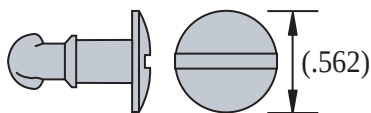
82-47-113-15  
Steel





## SOUTHCO

No. 85 Series  
1/4 Turn Fasteners  
Slotted, Oval Head



| DACROTIZED   | STAINLESS    |
|--------------|--------------|
| Part #       | Part #       |
| 85-11-120-16 | 85-11-120-20 |
| 85-11-140-16 | 85-11-140-20 |
| 85-11-160-16 | 85-11-160-20 |
| 85-11-180-16 | 85-11-180-20 |
| 85-11-200-16 | 85-11-200-20 |
| 85-11-220-16 | 85-11-220-20 |
| 85-11-240-16 | 85-11-240-20 |
| 85-11-260-16 | 85-11-260-20 |

## NO. 85 STUD SELECTION CHART

| Total Material Thickness | Stud Size |
|--------------------------|-----------|
| .090 - .109              | 100       |
| .110 - .129              | 120       |
| .130 - .149              | 140       |
| .150 - .169              | 160       |
| .170 - .189              | 180       |
| .190 - .209              | 200       |
| .210 - .229              | 220       |
| .230 - .249              | 240       |
| .250 - .269              | 260       |
| .270 - .289              | 280       |
| .290 - .309              | 300       |

## RETAINERS

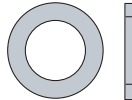
85-34-101-20  
Split Ring, Stainless



85-34-201-20  
Push-On, Stainless

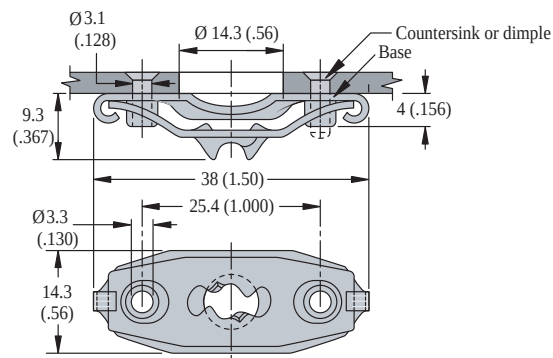


85-34-301-12  
Nylon, Black

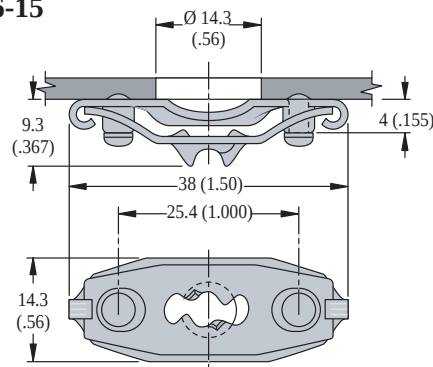


## LEAF SPRING RECEPTACLES

For riveting  
85-35-295-15 - Steel  
85-35-295-20 - Stainless

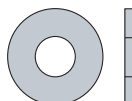


For welding  
85-35-296-15

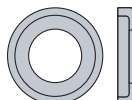


## WASHERS

85-43-201-38  
Sealing Washer



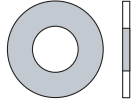
85-46-101-39  
Cupped Natural Wear Washer



85-46-101-41  
Cupped Black Wear Washer

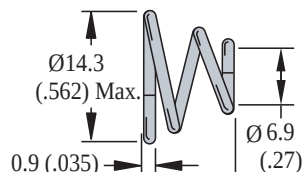


85-46-103-39  
Flat Wear Washer



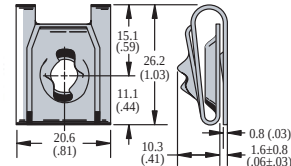
## EJECTOR SPRING

14-18-150-24/5  
Ejector Spring



## CLIP-ON RECEPTACLE

85-47-101-15  
Steel



## AN960 / NAS1149 CROSS REFERENCE CHART

| CARBON STEEL   |         | CORROSION RESISTANT STEEL                          |         | ANODIZED ALUMINUM                          |         |
|----------------|---------|----------------------------------------------------|---------|--------------------------------------------|---------|
| AN960          | NAS1149 | AN960                                              | NAS1149 | AN960                                      | NAS1149 |
| 2L             | FN216P  | C2L                                                | CN216R  | JD2L                                       | DN216J  |
| 2              | FN232P  | C2                                                 | CN232R  | JD2                                        | DN232J  |
| 3L             | FN316P  | C3L                                                | CN316R  | JD3L                                       | DN316J  |
| 3              | FN332P  | C3                                                 | CN332R  | JD3                                        | DN332J  |
| 4L             | FN416P  | C4L                                                | CN416R  | JD4L                                       | DN416J  |
| 4              | FN432P  | C4                                                 | CN432R  | JD4                                        | DN432J  |
| 5              | FN542P  | C5                                                 | CN542R  | JD5                                        | DN542J  |
| 6L             | FN616P  | C6L                                                | CN616R  | JD6L                                       | DN616J  |
| 6              | FN632P  | C6                                                 | CN632R  | JD6                                        | DN632J  |
| 8L             | FN816P  | C8L                                                | CN816R  | JD8L                                       | DN816J  |
| 8              | FN832P  | C8                                                 | CN832R  | JD8                                        | DN832J  |
| 10L            | F0332P  | C10L                                               | C0332R  | JD10LL                                     | D0316J  |
| 10             | F0363P  | C10                                                | C0363R  | JD10L                                      | D0332J  |
| 416L           | F0432P  | C416L                                              | C0432R  | JD10                                       | D0363J  |
| 416            | F0463P  | C416                                               | C0463R  | JD416L                                     | D0416J  |
| 516L           | F0532P  | C516L                                              | C0532R  | JD416                                      | D0463J  |
| 516            | F0563P  | C516                                               | C0563R  | JD516L                                     | D0516J  |
| 616LL          | F0616P  | C616L                                              | C0632R  | JD516                                      | D0563J  |
| 616L           | F0632P  | C616                                               | C0663R  | JD616L                                     | D0616J  |
| 616            | F0663P  | C716L                                              | C0732R  | JD616                                      | D0663J  |
| 716L           | F0732P  | C716                                               | C0763R  | JD716L                                     | D0716J  |
| 716            | F0763P  | C816L                                              | C0832R  | JD716                                      | D0763J  |
| 816L           | F0832P  | C816                                               | C0863R  | JD816L                                     | D0816J  |
| 816            | F0863P  | C916L                                              | C0932R  | JD816                                      | D0863J  |
| 916L           | F0932P  | C916                                               | C0963R  | JD916L                                     | D0916J  |
| 916            | F0963P  | C1016L                                             | C1032R  | JD916                                      | D0963J  |
| 1016L          | F1032P  | C1016                                              | C1063R  | JD1016L                                    | D1016J  |
| 1016           | F1063P  | C1216L                                             | C1232R  | JD1016                                     | D1063J  |
| 1216L          | F1232P  | C1216                                              | C1290R  | JD1216L                                    | D1216J  |
| 1216           | F1290P  | C1416L                                             | C1432R  | JD1216                                     | D1290J  |
| 1416L          | F1432P  | C1416                                              | C1490R  | JD1416L                                    | D1416J  |
| 1416           | F1490P  | C1616L                                             | C1632R  | JD1416                                     | D1490J  |
| 1616L          | F1632P  | C1616                                              | C1690R  | JD1616L                                    | D1616J  |
| 1616           | F1690P  | ---                                                | ---     | JD1616                                     | D1690J  |
| ALUMINUM ALLOY |         | ANODIZED ALUMINUM<br>ELECTRICALLY<br>NONCONDUCTIVE |         | CORROSION RESISTANT<br>BLACK OXIDE COATING |         |
| AN960          | NAS1149 | AN960                                              | NAS1149 | AN960                                      | NAS1149 |
| D2L            | DN216H  | KD2L                                               | DN216K  | XC2L                                       | CN216B  |
| D2             | DN232H  | KD2                                                | DN232K  | XC2                                        | CN232B  |
| D3L            | DN316H  | KD3L                                               | DN316K  | XC3L                                       | CN316B  |
| D3             | DN332H  | KD3                                                | DN332K  | XC3                                        | CN332B  |
| D4L            | DN416H  | KD4L                                               | DN416K  | XC4L                                       | CN416B  |
| D4             | DN432H  | KD4                                                | DN432K  | XC4                                        | CN432B  |
| D5             | DN542H  | KD5                                                | DN542K  | XC5                                        | CN542B  |
| D6L            | DN616H  | KD6L                                               | DN616K  | XC6L                                       | CN616B  |
| D6             | DN632H  | KD6                                                | DN632K  | XC6                                        | CN632B  |
| D8L            | DN816H  | KD8L                                               | DN816K  | XC8L                                       | CN816B  |
| D8             | DN832H  | KD8                                                | DN832K  | XC8                                        | CN832B  |
| D10L           | D0316H  | KD10LL                                             | D0316K  | XC10LL                                     | C0316B  |
| D10            | D0363H  | KD10L                                              | D0332K  | XC10L                                      | C0332B  |
| D416L          | D0416H  | KD10                                               | D0363K  | XC10                                       | C0363B  |
| D416           | D0463H  | KD416L                                             | D0416K  | XC416L                                     | C0432B  |
| D516L          | D0516H  | KD416                                              | D0463K  | XC416                                      | C0463B  |
| D516           | D0563H  | KD516L                                             | D0516K  | XC516L                                     | C0532B  |
| D616L          | D0616H  | KD516                                              | D0563K  | XC516                                      | C0563B  |
| D616           | D0663H  | KD616L                                             | D0616K  | XC616L                                     | C0632B  |
| D716L          | D0716H  | KD616                                              | D0663K  | XC616                                      | C0663B  |
| D716           | D0763H  | KD716L                                             | D0716K  | XC716L                                     | C0732B  |
| D816L          | D0816H  | KD716                                              | D0763K  | XC716                                      | C0763B  |
| D816           | D0863H  | KD816L                                             | D0816K  | XC816L                                     | C0832B  |
| D916L          | D0916H  | KD816                                              | D0863K  | XC816                                      | C0863B  |
| D916           | D0963H  | KD916L                                             | D0916K  | XC916L                                     | C0932B  |
| D1016L         | D1016H  | KD916                                              | D0963K  | XC916                                      | C0963B  |
| D1016          | D1063H  | KD1016L                                            | D1016K  | XC1016L                                    | C1032B  |
| D1216L         | D1216H  | KD1016                                             | D1063K  | XC1016                                     | C1063B  |
| D1216          | D1290H  | KD1216L                                            | D1216K  | XC1216L                                    | C1232B  |
| D1416L         | D1416H  | KD1216                                             | D1290K  | XC1216                                     | C1290B  |
| D1416          | D1490H  | KD1416L                                            | D1416K  | XC1416L                                    | C1432B  |
| D1616L         | D1616H  | KD1416                                             | D1490K  | XC1416                                     | C1490B  |
| D1616          | D1690H  | KD1616L                                            | D1616K  | ---                                        | ---     |
| ---            | ---     | KD1616                                             | D1690K  | ---                                        | ---     |

## AN960

Airframe Washer, (Per 100)



| To Fit Dia. | CARBON STEEL             |                  | CORROSION RESISTANT      |                   |
|-------------|--------------------------|------------------|--------------------------|-------------------|
|             | AN960#<br>Std. Thickness | AN960#L<br>Light | AN960C<br>Std. Thickness | AN960C#L<br>Light |
| # 2         | 2                        | 2L               | C2                       | C2L               |
| # 3         | 3                        | 3L               | C3                       | C3L               |
| # 4         | 4                        | 4L               | C4                       | C4L               |
| # 6         | 6                        | 6L               | C6                       | C6L               |
| # 8         | 8                        | 8L               | C8                       | C8L               |
| # 10        | 10                       | 10L              | C10                      | C10L              |
| 1/4         | 416                      | 416L             | C416                     | C416L             |
| 5/16        | 516                      | 516L             | C516                     | C516L             |
| 3/8         | 616                      | 616L             | C616                     | C616L             |
| 7/16        | 716                      | 716L             | C716                     | C716L             |
| 1/2         | 816                      | 816L             | C816                     | C816L             |
| 9/16        | 916                      | 916L             | C916                     | C916L             |
| 5/8         | 1016                     | 1016L            | C1016                    | C1016L            |
| 3/4         | 1216                     | 1216L            | C1216                    | C1216L            |
| 7/8         | 1416                     | 1416L            | C1416                    | C1416L            |

(ALL AN960 SERIES WASHERS SOLD BY E.C.A.S. ARE DUALY CERTIFIED TO BOTH AN960 AND NAS1149 SERIES)

## AN960

Airframe Washer,  
Aluminum (Per 100)



| To Fit Dia | ANODIZED FINISH           |                    | NATURAL FINISH            |                   |
|------------|---------------------------|--------------------|---------------------------|-------------------|
|            | AN960JD<br>Std. Thickness | AN960JD#L<br>Light | AN960D#<br>Std. Thickness | AN960D#L<br>Light |
| # 3        | JD3                       | JD3L               | D3                        | D3L               |
| # 4        | JD4                       | JD4L               | D4                        | D4L               |
| # 6        | JD6                       | JD6L               | D6                        | D6L               |
| # 8        | JD8                       | JD8L               | D8                        | D8L               |
| # 10       | JD10                      | JD10L              | D10                       | D10L              |
| 1/4        | JD416                     | JD416L             | D416                      | D416L             |
| 5/16       | JD516                     | JD516L             | D516                      | D516L             |
| 3/8        | JD616                     | JD616L             | D616                      | D616L             |
| 7/16       | JD716                     | JD716L             | D716                      | D716L             |
| 1/2        | JD816                     | JD816L             | D816                      | D816L             |
| 9/16       | JD916                     | JD916L             | D916                      | D916L             |
| 5/8        | JD1016                    | JD1016L            | D1016                     | D1016L            |
| 3/4        | JD1216                    | JD1216L            | ---                       | ---               |

## AN960

Airframe Washer,  
Black Oxide Coat Cover  
Corrosion Resistant Steel (Per 100)



| To Fit Dia | AN960XC<br>Std. Thickness | AN960XC#L<br>Light |
|------------|---------------------------|--------------------|
| # 4        | XC4                       | XC4L               |
| # 6        | XC6                       | XC6L               |
| # 8        | XC8                       | XC8L               |
| # 10       | XC10                      | XC10L              |
| 1/4        | XC416                     | XC416L             |
| 5/16       | XC516                     | XC516L             |
| 3/8        | XC616                     | XC616L             |
| 7/16       | XC716                     | XC716L             |
| 1/2        | XC816                     | XC816L             |

## AN960

Airframe Washer,  
Anodized Aluminum  
Anodized per MIL-A-8625 (Per 100)



| To Fit Dia | AN960KD<br>Std. Thickness | AN960KD#L<br>Light |
|------------|---------------------------|--------------------|
| # 4        | KD4                       | KD4L               |
| # 6        | KD6                       | KD6L               |
| # 8        | KD8                       | KD8L               |
| # 10       | KD10                      | KD10L              |
| 1/4        | KD416                     | KD416L             |
| 5/16       | KD516                     | KD516L             |
| 3/8        | KD616                     | KD616L             |
| 7/16       | KD716                     | KD716L             |
| 1/2        | KD816                     | KD816L             |

## AN970

Wide Area Washer



| Bolt Size | AN970 | AN970                                                    |
|-----------|-------|----------------------------------------------------------|
| AN3       | 3     | C3S                                                      |
| AN4       | 4     | C4S                                                      |
| AN5       | 5     | C5S                                                      |
| AN6       | 6     | C6S                                                      |
| AN7       | 7     | C#S FOR 304<br>CORROSION<br>RESISTANT STEEL<br>(SPECIAL) |
| AN8       | 8     |                                                          |
| AN9       | 9     |                                                          |
| AN10      | 10    |                                                          |

## MS20002

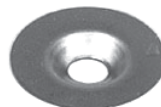
High Strength Washer



| To Fit Dia | PLAIN   | COUNTERSUNK |
|------------|---------|-------------|
|            | MS20002 | MS20002     |
| 1/4        | 4       | C4          |
| 5/16       | 5       | C5          |
| 3/8        | 6       | C6          |
| 7/16       | 7       | C7          |
| 1/2        | 8       | C8          |
| 9/16       | 9       | C9          |
| 5/8        | 10      | C10         |
| 3/4        | 12      | C12         |

## NAS1169

Structural Washer  
100° Dimpled Washer



| Diameter | CARBON STEEL |         | CORROSION RESISTANT |         | ALUMINUM |         |
|----------|--------------|---------|---------------------|---------|----------|---------|
|          | NAS1169      | NAS1169 | NAS1169             | NAS1169 | NAS1169  | NAS1169 |
| #6       | -6           | -6L     | C6                  | C6L     | DD6      | DD6L    |
| #8       | -8           | -8L     | C8                  | C8L     | DD8      | DD8L    |
| #10      | -10          | -10L    | C10                 | C10L    | DD10     | DD10L   |
| # 416    | -416         | -416L   | C416                | C416L   | DD416    | DD416L  |

## CA3105

Fairing Washer Assembly  
Non-structural



| Thread | Length | CA3105  |
|--------|--------|---------|
| 6-32   | 3/8    | 632-6   |
|        | 1/2    | 632-8   |
| 8-32   | 1/2    | 832-8   |
|        | 5/8    | 832-10  |
| 10-32  | 1/2    | 1032-8  |
|        | 9/16   | 1032-9  |
|        | 5/8    | 1032-10 |
|        | 11/16  | 1032-11 |
|        | 3/4    | 1032-12 |

## MS9549

Flat Washer  
Corrosion Resistant  
Steel, AMS 5510



| Part Number | Nominal Size | A Dia.<br>± .005 | B Dia.<br>± .005 |
|-------------|--------------|------------------|------------------|
| MS9549-08   | .164         | .184             | .375             |
| MS9549-09   | .190         | .213             | .438             |
| MS9549-10   | .250         | .276             | 500              |

## NAS390 NAS391

Interior Finishing Washer



| To Fit Dia. | FLUSH      | COUNTERSUNK |
|-------------|------------|-------------|
|             | Part #     | Part #      |
| #4          | NAS390B4P  | NAS391B4P   |
| #6          | NAS390B6P  | NAS391B6P   |
| #8          | NAS390B8P  | NAS391B8P   |
| #10         | NAS390B10P | NAS391B10P  |

### MS35333 (AN936A)

Lockwasher  
Internal Tooth



| To Fit Dia. | CARBON STEEL |       | CORROSION RESISTANT |       |
|-------------|--------------|-------|---------------------|-------|
|             | MS35333      | AN936 | MS35333             | AN936 |
| #2          | 35           | A2    | 69                  | A2C   |
| #4          | 36           | A4    | 70                  | A4C   |
| #6          | 37           | A6    | 71                  | A6C   |
| #8          | 38           | A8    | 72                  | A8C   |
| #10         | 39           | A10   | 73                  | A10C  |
| 1/4         | 40           | A416  | 74                  | A416C |
| 5/16        | 41           | A516  | 75                  | A516C |
| 3/8         | 42           | A616  | 76                  | A616C |
| 7/16        | 43           | A716  | 77                  | A716C |
| 1/2         | 44           | A816  | 78                  | A816C |
| 9/16        | 45           | A916  | 79                  | A916C |

### MS35335 (AN936B)

Lockwasher  
External Tooth



| To Fit Dia. | MS35335 | AN936 |
|-------------|---------|-------|
| #4          | -29     | B4    |
| #6          | -30     | B6    |
| #8          | -31     | B8    |
| #10         | -32     | B10   |
| 1/4         | -33     | B416  |
| 5/16        | -34     | B516  |
| 3/8         | -35     | B616  |
| 7/16        | -36     | B716  |
| 1/2         | -37     | B816  |

### MS35338 (AN935)

Split Washer



| CARBON STEEL |       | CORROSION RESISTANT |
|--------------|-------|---------------------|
| MS35338      | AN935 | MS35338             |
| -40          | -4    | -135                |
| -41          | -6    | -136                |
| -42          | -8    | -137                |
| -43          | -10   | -138                |
| -44          | -416  | -139                |
| -45          | -516  | -140                |
| -46          | -616  | -141                |
| -47          | -716  | -----               |
| -48          | -816  | -----               |

### TINNERMAN WASHER

100° Countersunk



| To Fit Dia. | Thickness | CARBON STEEL  | STAINLESS STEEL |
|-------------|-----------|---------------|-----------------|
|             |           | Part #        | Part #          |
| #6          | .012      | A3236-012-24A | EC1075-012-06SS |
| #8          | .017      | A3135-017-24A | EC1080-017-08SS |
| #10         | .020      | A3235-020-24A | EC1085-020-10SS |
| #10         | .028      | A3235-028-24A | -----           |

### INTERIOR FINISHING WASHER

601-# & 603-#



| To Fit Dia. | Countersunk | Flush |
|-------------|-------------|-------|
|             | 601         | 603   |
| #4          | -4          | -4    |
| #6          | -6          | -6    |
| #8          | -8          | -8    |
| #10         | -10         | -10   |



## AN975

Taper Pin Washer



| To Fit Diameter | Part #  |
|-----------------|---------|
| #10             | AN975-3 |
| #1/4            | AN975-4 |
| #5/16           | AN975-5 |

## MS9276

Key Washer  
Corrosion Resistant,  
180° Locking



| Diameter | MS9276 |
|----------|--------|
| .190     | -09    |
| .250     | -10    |
| .312     | -11    |

## MS9581

Key Washer  
Corrosion Resistant,  
90° Locking



| Diameter | MS9581 |
|----------|--------|
| .190     | -09    |
| .250     | -10    |

## MS9582

Key Washer  
Corrosion Resistant,  
270° Locking



| Diameter | MS9582 |
|----------|--------|
| .190     | -09    |
| .250     | -10    |
| .312     | -11    |

## MS9320

Nickel Cad Plated  
Steel Washer



| Diameter | MS9320 |
|----------|--------|
| .190     | -09    |
| .250     | -10    |
| .312     | -11    |
| .375     | -12    |

## MS9321

Corrosion Resistant  
Washer



| Diameter | MS9321 |
|----------|--------|
| .190     | -09    |
| .250     | -10    |
| .312     | -11    |

## NAS549

Non-Metallic Washer  
Insulating, Electrical  
Absence of "F" indicates Phenolic Paper  
"F" after basic # indicates Fiber Insulation  
"L" indicates .031 Thickness



| To Fit Diameter | Part #    | Part #     | Part #    |
|-----------------|-----------|------------|-----------|
| #6              | NAS549F6  | NAS549FL6  | NAS549L6  |
| #8              | NAS549F8  | NAS549FL8  | NAS549L8  |
| #10             | NAS549F10 | NAS549FL10 | NAS549L10 |

## A1638-5

Vulcanized Fiber  
Bone White



| To Fit Dia. | Thickness |
|-------------|-----------|
| .190        | .031      |

## 140-001-#

Aluminum Washer



| Part #     | I.D. | O.D.  | Thickness |
|------------|------|-------|-----------|
| 140-001-1  | .140 | .438  | .032      |
| 140-001-3  | .124 | .500  | .040      |
| 140-001-5  | .203 | .625  | .040      |
| 140-001-9  | .140 | .3125 | .032      |
| 140-001-11 | .110 | .3125 | .032      |

## NAS620

Flat Washer  
Thickness .032 / .016(L)



| To Fit Dia. | CARBON STEEL |        | CORROSION RESISTANT |        | ALUMINUM ALLOY |        |
|-------------|--------------|--------|---------------------|--------|----------------|--------|
|             | NAS620       | NAS620 | NAS620              | NAS620 | NAS620         | NAS620 |
| .1120       | -4           | -4L    | C4                  | C4L    | A4             | A4     |
| .1380       | -6           | -6L    | C6                  | C6L    | A6             | A6     |
| .1640       | -8           | -8L    | C8                  | C8L    | A8             | A8     |
| .1900       | -10          | -10L   | C10                 | C10L   | A10            | A10    |
| .2500       | -416         | -416L  | C416                | C416L  | A416           | A416   |

## NAS1252

Aluminum Washer

| To Fit Dia. | .032 THICKNESS | .063 THICKNESS |
|-------------|----------------|----------------|
|             | NAS1252        | NAS1252        |
| # 4         | -4L            | -4H            |
| # 6         | -6L            | -6H            |
| # 8         | -8L            | -8H            |
| # 10        | -10L           | -10H           |
| # 1/4       | -416L          | -416H          |



## NAS1515

Nylon Washer "H"  
Teflon Washer "M"  
Thickness .063 / .031



| To Fit Dia. | NYLON WASHER |         | TEFLON WASHER |         |
|-------------|--------------|---------|---------------|---------|
|             | NAS1515      | NAS1515 | NAS1515       | NAS1515 |
| .1120       | H04L         | H04     | M04L          | M04     |
| .1380       | H06L         | H06     | M06L          | M06     |
| .1640       | H08L         | H08     | M08L          | M08     |
| .1900       | H3L          | H3      | M3L           | M3      |
| .2500       | H4L          | H4      | M4L           | M4      |

## NAS1197

Aluminum Alloy Washer

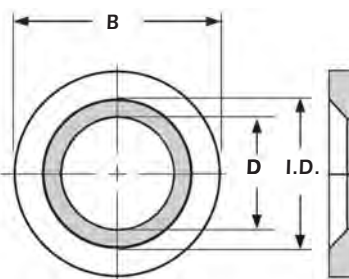
| I.D. | NAS1197 | THICKNESS | NAS1197 | THICKNESS |
|------|---------|-----------|---------|-----------|
| #6   | -6      | .032      | -6L     | .016      |
| #8   | -8      | .032      | -8L     | .016      |
| #10  | -10     | .063      | -10L    | .016      |
| 1/4  | -416    | .063      | -416L   | .016      |
| 5/16 | -516    | .063      | -516L   | .016      |
| 3/8  | -616    | .063      | -616L   | .016      |



## MS21206C

Corrosion Resistant Washer  
45° Countersunk Design  
Alloy Steel, Cadmium Plate Type II, Class 2

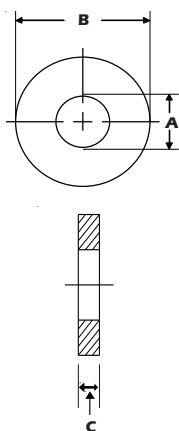
| Nominal Size | MS21206 | B Max | D Max | I.D. Max |
|--------------|---------|-------|-------|----------|
| #10          | C3      | .372  | .195  | .290     |
| 1/4          | C4      | .470  | .255  | .350     |
| 5/16         | C5      | .573  | .318  | .412     |
| 3/8          | C6      | .679  | .380  | .507     |
| 1/2          | C8      | .898  | .505  | .632     |



### MS15795

Flat Washer  
Corrosion Resistant Steel

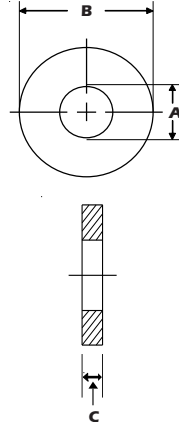
| MS15795- | A    | B    | C    |
|----------|------|------|------|
| 801      | .078 | .188 | .020 |
| 802      | .094 | .250 | .020 |
| 803      | .125 | .250 | .022 |
| 804      | .125 | .312 | .032 |
| 805      | .156 | .312 | .035 |
| 806      | .156 | .375 | .049 |
| 845      | .172 | .281 | .031 |
| 856      | .172 | .312 | .031 |
| 807      | .188 | .375 | .049 |
| 841      | .188 | .438 | .049 |
| 846      | .203 | .375 | .020 |
| 847      | .203 | .562 | .032 |
| 849      | .203 | .625 | .040 |
| 808      | .219 | .438 | .049 |
| 842      | .219 | .500 | .049 |
| 809      | .250 | .562 | .065 |
| 810      | .281 | .625 | .065 |
| 811      | .312 | .734 | .065 |
| 812      | .344 | .688 | .065 |



### MS27183

Flat Washer  
Steel (Cad II Plating)

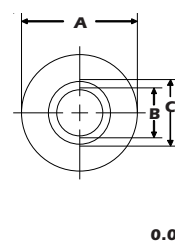
| MS27183- | A    | B    | C    |
|----------|------|------|------|
| 3        | .125 | .250 | .022 |
| 4        | .125 | .312 | .032 |
| 5        | .156 | .312 | .035 |
| 43       | .156 | .250 | .016 |
| 6        | .156 | .375 | .049 |
| 7        | .188 | .375 | .049 |
| 8        | .219 | .438 | .049 |
| 42       | .219 | .500 | .049 |
| 9        | .250 | .562 | .065 |
| 10       | .281 | .625 | .065 |
| 11       | .312 | .734 | .065 |
| 12       | .344 | .688 | .065 |
| 13       | .375 | .875 | .083 |
| 14       | .406 | .812 | .065 |
| 15       | .438 | 1.0  | .083 |
| 16       | .469 | .922 | .065 |
| 17       | .500 | 1.25 | .083 |



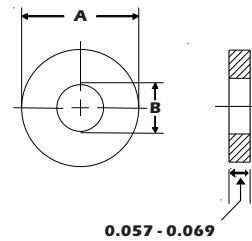
### MS21299

Washer, Plain & Countersunk

| Nominal Size | Dash # |       | A Outside Diameter | B Inside Diameter | C Csk. Diameter |
|--------------|--------|-------|--------------------|-------------------|-----------------|
|              | Csk    | Plain |                    |                   |                 |
| .1900        | C3     | 3     | .382               | .193              | .285            |
| .2500        | C4     | 4     | .486               | .253              | .345            |
| .3125        | C5     | 5     | .593               | .316              | .407            |
| .3750        | C6     | 6     | .707               | .378              | .502            |
| .4375        | C7     | 7     | .826               | .441              | .564            |
| .5000        | C8     | 8     | .945               | .503              | .627            |



0.057 - 0.069



0.057 - 0.069

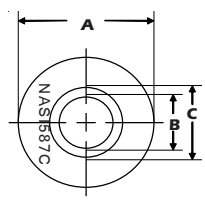
### NAS1587

High Temp. Washer (1200°F)  
Plain & Countersunk

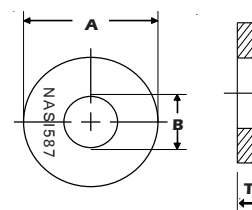


Dash number designates thread size  
Add "C" after dash number for countersunk  
Add "L" after dash number for plain light washer.  
Thickness = 1/2 T (Not applicable to countersunk washer).

| Dash # | Thread Size | A Outside Dia. | B Inside Dia. | C Csk. Dia. | D Thickness Csk. | T Thickness Csk. |
|--------|-------------|----------------|---------------|-------------|------------------|------------------|
| A3C    | .1900       | .469           | .195          | .270        | .062             | N/A              |
| 3      | .1900       | .469           | .195          | N/A         | N/A              | .032             |
| 4      | .2500       | .531           | .256          | .339        | .078             | .062             |
| 5      | .3125       | .593           | .320          | .401        | .078             | .062             |
| 6      | .3750       | .687           | .383          | .489        | .078             | .062             |
| 7      | .4375       | .781           | .446          | .550        | .078             | .062             |
| 8      | .5000       | .875           | .509          | .612        | .078             | .062             |



Countersunk



Plain

Light washer 1/2 T (see above)

## PLUG BUTTON

**OLD NAS451-#**

1010 STEEL

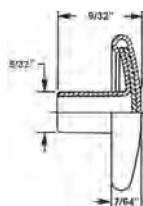


| Part #  | For Your Reference Only<br>NAS451-# | Hole  | Panel Thickness | Head Diameter | Head Thickness | # of Prongs |
|---------|-------------------------------------|-------|-----------------|---------------|----------------|-------------|
| SS48192 | NAS451-7                            | 0.375 | .037-.078       | 0.500         | 0.062          | 6           |
| SS51003 | NAS451-8                            | 0.391 | .078-.093       | 0.500         | 0.062          |             |
| SS51043 | NAS451-10                           | 0.438 | .037-.047       | 0.656         | 0.078          |             |
| SS51051 | NAS451-11                           | 0.469 | .083-.125       | 0.625         | 0.062          | 8           |
| SS48152 | NAS451-43                           | 0.500 | .037-.062       | 0.656         | 0.078          |             |
| SS48172 | NAS451-16                           | 0.625 | .062-.078       | 0.797         | 0.078          |             |
| SS50727 | NAS451-46                           | 0.688 | .037-.062       | 0.875         | 0.078          | 12          |
| SS51026 | NAS451-17                           | 0.750 | .037-.093       | 0.938         | 0.094          |             |
| SS48165 | NAS451-48                           | 0.750 | .078-.109       | 0.938         | 0.094          |             |
| SS51045 | NAS451-18                           | 0.812 | .048-.078       | 1.063         | 0.062          |             |
| SS50685 | NAS451-49                           | 0.875 | .094-.171       | 1.063         | 0.078          |             |
| SS48155 | NAS451-56                           | 0.875 | .031-.093       | 1.063         | 0.062          |             |
| SS50726 | NAS451-30                           | 1.250 | .062-.093       | 1.438         | 0.094          |             |
| SS51058 | NAS451-31                           | 1.375 | .037-.078       | 1.562         | 0.094          |             |
| SS48132 | NAS451-54                           | 1.375 | .109-.141       | 1.562         | 0.094          |             |
| SS50834 | NAS451-55                           | 1.500 | .038-.141       | 1.641         | 0.094          |             |
| SS50841 | NAS451-33                           | 1.625 | .062-.078       | 1.797         | 0.125          |             |
| SS50890 | NAS451-58                           | 1.750 | .037-.094       | 1.938         | 0.125          |             |

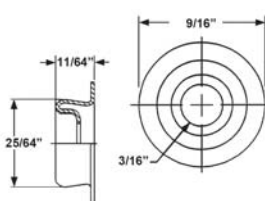
## MS27980 SNAP FASTENERS

Style 2, Available in Bright Brass, Gov't Black, & Nickel Plate

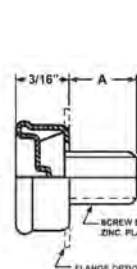
### MS27980-1 Button



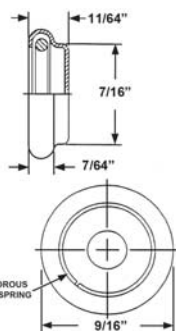
### MS27980-7 Stud



### Stud - Machine Screw Base

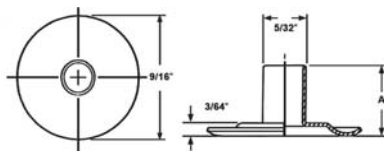


### MS27980-6 Socket



### Eyelets

Size 2 & 3 Not avail. in brass



| Part #     | A Dim. | Size |
|------------|--------|------|
| MS27980-12 | 5/16"  | 1    |
| MS27980-13 | 3/8"   | 2    |
| MS27980-14 | 5/8"   | 3    |

### Stud-Eyelet Combo



| Part #     | Length | Size |
|------------|--------|------|
| MS27980-26 | 11/32" | 1    |
| MS27980-27 | 25/64" | 2    |

**\*\* When ordering Snap Fasteners \*\***

At the end of the part # place a:

B for Gov't Black finish

N for Nickel Plate finish

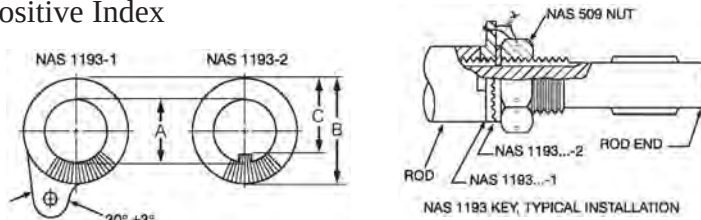
Leave blank for Brass finish

| Part #     | Size | A Dim. |
|------------|------|--------|
| MS27980-8  | 1    | 9/32"  |
| MS27980-9  | 2    | 11/32" |
| MS27980-10 | 3    | 13/32" |



## NAS1193

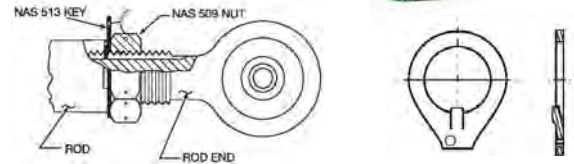
Locking Device  
Positive Index



| To Fit Dia. | A<br>Dia. | B<br>Dia. | C    | NAS1193 |
|-------------|-----------|-----------|------|---------|
| .2500-28    | .260      | .44       | .211 | K4C     |
| .3125-24    | .323      | .50       | .270 | K5C     |
| .3750-24    | .385      | .56       | .321 | K6C     |
| .4375-20    | .448      | .63       | .380 | K7C     |

## NAS513

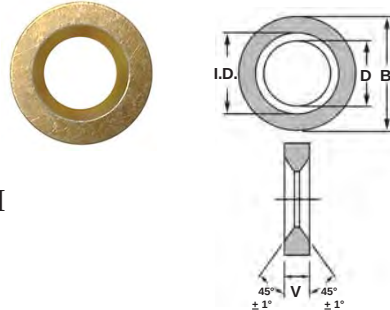
Washer-Rod End  
Locking



| Terminal<br>Thread Size | NAS513 |
|-------------------------|--------|
| 1/4-28                  | 4      |
| 5/16-24                 | 5      |
| 3/8-24                  | 6      |
| 1/2-20                  | 8      |
| 5/8-18                  | 10     |

## MS14155

Washer, Recessed  
Countersunk On  
Both Surfaces,  
Used with Wheel  
Bolts and Nuts  
Up to & including 180KSI



| MS14155 | Nominal<br>Size | B<br>± .005 | D<br>± .002 | I.D.<br>± .005 | V           |
|---------|-----------------|-------------|-------------|----------------|-------------|
| -4      | 1/4             | .500        | .253        | .342           | .119 ± .005 |
| -5      | 5/16            | .615        | .316        | .404           | .119 ± .005 |
| -6      | 3/8             | .761        | .378        | .499           | .151 ± .007 |
| -7      | 7/16            | .873        | .441        | .561           | .151 ± .007 |
| -8      | 1/2             | .999        | .503        | .624           | .156 ± .007 |

## MS16624

Retaining Rings



| Basic Inverted<br>MS16624 |         | Basic Internal<br>MS16625 |       |
|---------------------------|---------|---------------------------|-------|
| -1025                     | -1100   | -1025                     | -1118 |
| -1031                     | -4025   | -1031                     | -1125 |
| -1037                     | -4031   | -1037                     | -1143 |
| -1040                     | -4037   | -1043                     | -1150 |
| -1043                     | -4043   | -1050                     | -1168 |
| -1050                     | -4050   | -1062                     | -1187 |
| -1062                     | -5012   | -1068                     | -1200 |
| -1066                     | -5012-1 | -1090                     | -1206 |
| -1087                     | -5018-1 | -1112                     | -4125 |

## MS16562

Spring Pin,  
Tubular, Slotted



| Length | Corrosion Resistant Steel |      |      |      | Carbon Steel  |      |
|--------|---------------------------|------|------|------|---------------|------|
|        | Diameter & Dash #         |      |      |      | Dia. & Dash # |      |
|        | .062                      | .094 | .125 | .188 | .094          | .125 |
| .250   | -190                      | -209 | ---- | ---- | ---           | ---  |
| .312   | -191                      | -210 | ---- | ---- | -22           | ---  |
| .375   | -192                      | -211 | -219 | ---- | -23           | -31  |
| .438   | -193                      | -212 | -220 | -233 | ---           | -32  |
| .500   | -194                      | -213 | -221 | -234 | -25           | -33  |
| .562   | -195                      | -214 | ---- | ---- | -26           | -34  |
| .625   | -196                      | -215 | -223 | -235 | -27           | -35  |
| .750   | ----                      | -216 | -224 | -236 | -28           | -36  |
| .875   | ----                      | ---- | ---- | ---- | -29           | -37  |
| 1.00   | ----                      | -218 | -226 | ---- | -30           | -38  |

## MS9245

Cotter Pin  
Corrosion & Heat  
Resistant Steel



| Length | 1/16" Dia. | 3/32" Dia. | 1/8" Dia. |
|--------|------------|------------|-----------|
| 1/4"   | MS9245-21  | ----       | ----      |
| 5/16"  | MS9245-22  | ----       | ----      |
| 3/8"   | MS9245-23  | ----       | ----      |
| 7/16"  | MS9245-24  | ----       | ----      |
| 1/2"   | MS9245-25  | MS9245-42  | ----      |
| 9/16"  | MS9245-26  | ----       | ----      |
| 5/8"   | MS9245-27  | MS9245-44  | ----      |
| 3/4"   | MS9245-28  | MS9245-45  | ----      |
| 7/8"   | MS9245-29  | MS9245-46  | ----      |
| 1"     | MS9245-30  | MS9245-47  | MS9245-64 |
| 1-1/8" | ----       | MS9245-48  | ----      |
| 1-1/4" | ----       | MS9245-49  | ----      |
| 1-1/2" | ----       | ----       | MS9245-68 |
| 2"     | ----       | ----       | MS9245-71 |



**COTTER PIN MS24665**  
(AN380, AN381)



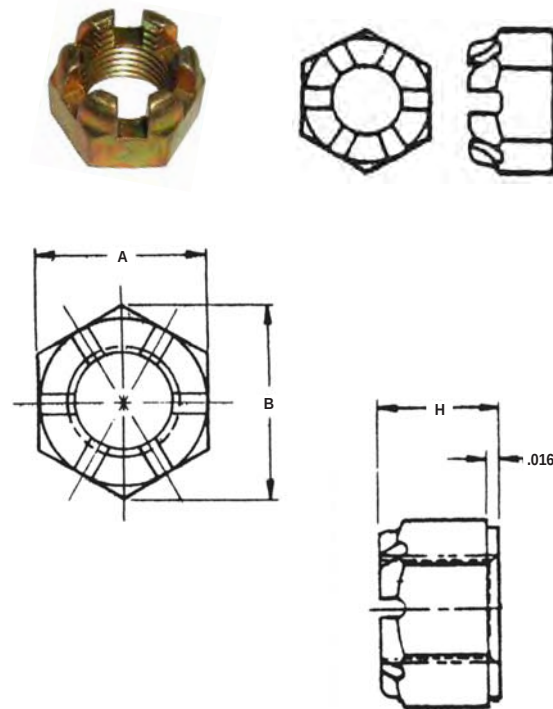
| Diameter | Length | CARBON STEEL |       | CORRISION RESISTANT STEEL |       |
|----------|--------|--------------|-------|---------------------------|-------|
|          |        | MS24665      | AN380 | MS24665                   | AN381 |
| 1/32     | ---    | ---          | ---   | 18                        | 1-4   |
|          | 1/2"   | 5            | 1-2   | 22                        | 1-8   |
|          | 3/4"   | 7            | 1-3   | 24                        | 1-12  |
|          | 1"     | 9            | 1-4   | 26                        | 1-16  |
|          | 1-1/4" | 10           | 1-5   | 27                        | 1-20  |
|          | 1-1/2" | ---          | 1-6   | 28                        | 1-24  |
| 3/64     | 1/4"   | 65           | ---   | 82                        | ---   |
|          | 1/2"   | 69           | ---   | 86                        | 15-8  |
|          | 3/4"   | 71           | ---   | 88                        | 15-12 |
|          | 1"     | 73           | ---   | 90                        | 15-16 |
| 1/16     | 1/4"   | ---          | ---   | 1011                      | 2-5   |
|          | 3/8"   | ---          | 2-1   | 1012                      | 2-6   |
|          | 7/16"  | ---          | ---   | 1013                      | 2-7   |
|          | 1/2"   | 132          | 2-2   | 151                       | 2-8   |
|          | 3/4"   | 134          | 2-3   | 153                       | 2-12  |
|          | 1"     | 136          | 2-4   | 155                       | 2-16  |
|          | 1-1/4" | 138          | 2-5   | 157                       | 2-20  |
|          | 1-1/2" | 140          | 2-6   | 159                       | 2-24  |
|          | 1-3/4" | 142          | 2-7   | 161                       | 2-28  |
|          | 2"     | 143          | 2-8   | 162                       | 2-32  |
|          | 2-1/2" | 144          | 2-10  | 163                       | 2-40  |
|          | 3"     | 145          | 2-12  | 164                       | 2-48  |
| 5/64     | 1/2"   | 208          | ---   | 227                       | 25-8  |
|          | 3/4"   | 210          | ---   | 229                       | 25-12 |
|          | 1"     | 212          | ---   | 231                       | 25-16 |
|          | 1-1/4" | 214          | ---   | 233                       | 25-20 |
|          | 1-1/2" | 216          | ---   | 235                       | 25-24 |
|          | 1-3/4" | 218          | ---   | 237                       | 25-28 |
|          | 2"     | 219          | ---   | 238                       | 25-32 |
| 3/32     | 1/2"   | 281          | 3-2   | 298                       | 3-8   |
|          | 3/4"   | 283          | 3-3   | 300                       | 3-12  |
|          | 1"     | 285          | 3-4   | 302                       | 3-16  |
|          | 1-1/4" | 287          | 3-5   | 304                       | 3-20  |
|          | 1-1/2" | 289          | 3-6   | 306                       | 3-24  |
|          | 1-3/4" | 291          | 3-7   | 308                       | 3-28  |
|          | 2"     | 292          | 3-8   | 309                       | 3-32  |
|          | 2-1/4" | 293          | 3-9   | 310                       | 3-36  |
|          | 2-1/2" | 294          | 3-10  | 311                       | 3-40  |
|          | 3"     | 295          | 3-12  | 312                       | 3-48  |
| 1/8      | 1/2"   | 349          | 4-2   | 366                       | 4-8   |
|          | 3/4"   | 351          | 4-3   | 368                       | 4-12  |
|          | 1"     | 353          | 4-4   | 370                       | 4-16  |
|          | 1-1/4" | 355          | 4-5   | 372                       | 4-20  |
|          | 1-1/2" | 357          | 4-6   | 374                       | 4-24  |
|          | 1-3/4" | 359          | 4-7   | 376                       | 4-28  |
|          | 2"     | 360          | 4-8   | 377                       | 4-32  |
|          | 2-1/4" | 361          | ---   | 378                       | 4-36  |
|          | 2-1/2" | 362          | 4-10  | 379                       | 4-40  |
|          | 3"     | 363          | 4-12  | 380                       | 4-48  |
| 5/32     | 1-1/4" | 421          | 5-5   | 439                       | 5-20  |
|          | 1-1/2" | 423          | 5-6   | 441                       | 5-24  |
|          | 1-3/4" | 425          | 5-7   | 443                       | 5-28  |
|          | 2"     | 426          | 5-8   | 444                       | 5-32  |
|          | 2-1/2" | 428          | 5-10  | 446                       | 5-40  |
|          | 2-3/4" | 429          | 5-11  | 447                       | 5-44  |
|          | 3"     | 430          | 5-12  | 448                       | 5-48  |
|          | 3-1/2" | 431          | 5-14  | 449                       | 5-56  |
|          | 4"     | 432          | 5-16  | 450                       | 5-64  |

## AN310

### Castellated Nut

| AN310    | THREAD<br>T | ULTIMATE TENSILE<br>STRENGTH<br>MIN LBS.<br>STEEL | A<br>+ .002<br>- .010 | B      | H     |
|----------|-------------|---------------------------------------------------|-----------------------|--------|-------|
| AN310-3  | 10-32       | 2,210                                             | .375                  | 7/16   | 1/4   |
| AN310-4  | 1/4-28      | 4,080                                             | .438                  | 1/2    | 9/32  |
| AN310-5  | 5/16-24     | 6,500                                             | .500                  | 37/64  | 21/64 |
| AN310-6  | 3/8-24      | 10,100                                            | .563                  | 21/32  | 13/32 |
| AN310-7  | 7/16-20     | 13,600                                            | .625                  | 23/32  | 29/64 |
| AN310-8  | 1/2-20      | 18,500                                            | .750                  | 7/8    | 9/16  |
| AN310-9  | 9/16-18     | 23,600                                            | .875                  | 1-1/64 | 39/64 |
| AN310-10 | 5/8-18      | 30,100                                            | 1.000                 | 1-5/32 | 23/32 |

| Thread<br>Size | CARBON STEEL | CORROSION RESISTANT |
|----------------|--------------|---------------------|
|                | AN310        | AN310               |
| 10-32          | 3            | C3                  |
| 1/4-28         | 4            | C4                  |
| 5/16-24        | 5            | C5                  |
| 3/8-24         | 6            | C6                  |
| 7/16-20        | 7            | C7                  |
| 1/2-20         | 8            | C8                  |
| 9/16-18        | 9            | C9                  |
| 5/8-18         | 10           | C10                 |

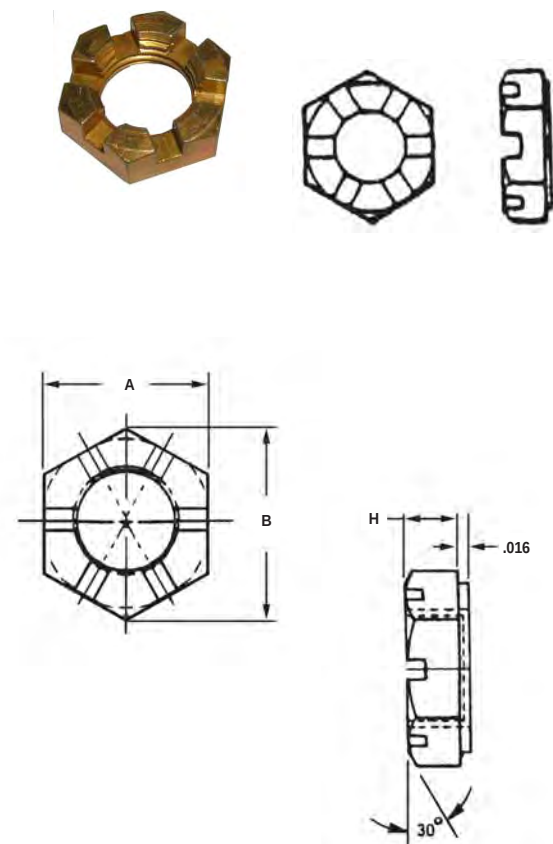


## AN320

### Shear Castellated Nut

| AN320    | THREAD<br>T | ULTIMATE TENSILE<br>STRENGTH<br>MIN LBS.<br>STEEL | A<br>+ .002<br>- .010 | B     | H    |
|----------|-------------|---------------------------------------------------|-----------------------|-------|------|
| AN320-1  | .1380-40    | --                                                | .313                  | .359  | .156 |
| AN320-2  | .1640-32    | --                                                | .344                  | .391  | .156 |
| AN320-3  | .1900-32    | 1,105                                             | .375                  | .438  | .188 |
| AN320-4  | .2500-28    | 2,040                                             | .438                  | .500  | .188 |
| AN320-5  | .3125-24    | 3,250                                             | .500                  | .578  | .188 |
| AN320-6  | .3750-24    | 5,050                                             | .563                  | .656  | .219 |
| AN320-7  | .4375-20    | 6,800                                             | .625                  | .719  | .219 |
| AN320-8  | .5000-20    | 9,250                                             | .750                  | .875  | .250 |
| AN320-9  | .5625-18    | 11,800                                            | .875                  | 1.016 | .313 |
| AN320-10 | .6250-18    | 15,050                                            | 1.000                 | 1.156 | .313 |

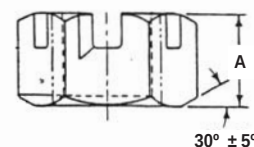
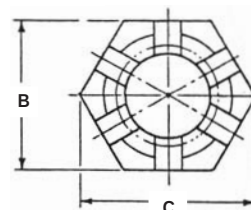
| Thread<br>Size | CARBON STEEL | CORROSION RESISTANT |
|----------------|--------------|---------------------|
|                | AN320        | AN320               |
| 6-40           | 1            | C1                  |
| 8-32           | 2            | C2                  |
| 10-32          | 3            | C3                  |
| 1/4-28         | 4            | C4                  |
| 5/16-24        | 5            | C5                  |
| 3/8-24         | 6            | C6                  |
| 7/16-20        | 7            | C7                  |
| 1/2-20         | 8            | C8                  |
| 9/16-18        | 9            | C9                  |
| 5/8-18         | 10           | C10                 |



## MS17825

Self Locking Castellated Nut  
Nonmetallic Insert

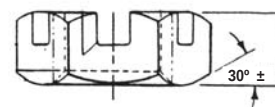
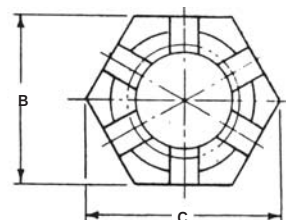
| SIZE<br>DASH<br>NO. | THREAD<br>MIL-S-8879 | A    |      | B     |       | C     | ULTIMATE<br>TENSILE<br>STRENGTH<br>LB MIN | TEST<br>WRENCHING<br>TORQUE<br>(INCH LBS)<br>MIN |
|---------------------|----------------------|------|------|-------|-------|-------|-------------------------------------------|--------------------------------------------------|
|                     |                      | MAX  | MIN  | MAX   | MIN   | MIN   |                                           |                                                  |
| 3                   | .1900-32             | .265 | .235 | .376  | .367  | .410  | 1,950                                     | 35                                               |
| 4                   | .2500-28             | .296 | .266 | .439  | .430  | .482  | 3,500                                     | 80                                               |
| 5                   | .3125-24             | .343 | .313 | .502  | .492  | .552  | 5,500                                     | 225                                              |
| 6                   | .3750-24             | .421 | .391 | .564  | .553  | .622  | 9,000                                     | 325                                              |
| 7                   | .4375-20             | .468 | .438 | .690  | .679  | .766  | 12,200                                    | 575                                              |
| 8                   | .5000-20             | .578 | .548 | .752  | .741  | .837  | 16,600                                    | 900                                              |
| 9                   | .5625-18             | .624 | .594 | .877  | .865  | .978  | 21,200                                    | 1,100                                            |
| 10                  | .6250-18             | .734 | .704 | .940  | .928  | 1.051 | 27,400                                    | 1,600                                            |
| 12                  | .7500-16             | .828 | .798 | 1.064 | 1.052 | 1.191 | 40,000                                    | 2,800                                            |



## MS17826

Self Locking Castellated Nut  
Low Height, Nonmetallic Insert

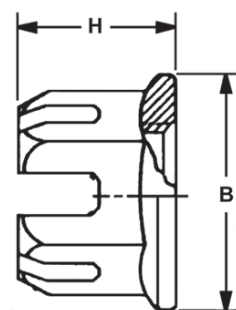
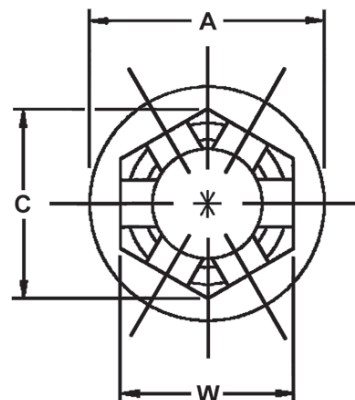
| SIZE<br>DASH<br>NO. | THREAD<br>MIL-S-8879 | A    |      | B     |       | C     | ULTIMATE<br>TENSILE<br>STRENGTH<br>LB MIN | TEST<br>WRENCHING<br>TORQUE<br>(INCH LBS)<br>MIN |
|---------------------|----------------------|------|------|-------|-------|-------|-------------------------------------------|--------------------------------------------------|
|                     |                      | MAX  | MIN  | MAX   | MIN   | MIN   |                                           |                                                  |
| 3                   | .1900-32             |      |      | .376  | .367  | .410  | 1,000                                     | 20                                               |
| 4                   | .2500-28             | .203 | .173 | .439  | .430  | .482  | 1,800                                     | 45                                               |
| 5                   | .3125-24             |      |      | .502  | .492  | .552  | 2,900                                     | 90                                               |
| 6                   | .3750-24             | .234 | .204 | .564  | .553  | .622  | 4,100                                     | 125                                              |
| 7                   | .4375-20             |      |      | .690  | .679  | .766  | 5,000                                     | 225                                              |
| 8                   | .5000-20             | .265 | .235 | .752  | .741  | .837  | 5,600                                     | 300                                              |
| 9                   | .5625-18             |      |      | .877  | .865  | .978  | 7,800                                     | 400                                              |
| 10                  | .6250-18             | .328 | .298 | .940  | .928  | 1.051 | 10,000                                    | 600                                              |
| 12                  | .7500-16             | .390 | .360 | 1.064 | 1.052 | 1.191 | 15,500                                    | 1,100                                            |



| Thread Size | MS17825 | MS17826 |
|-------------|---------|---------|
| #10-32      | 3       | 3       |
| 1/4-28      | 4       | 4       |
| 5/16-24     | 5       | 5       |
| 3/8-24      | 6       | 6       |
| 7/16-20     | 7       | 7       |
| 1/2-20      | 8       | 8       |
| 9/16-18     | 9       | 9       |
| 5/8-18      | 10      | 10      |
| 3/4-16      | 12      | 12      |

### MS14144

Self Locking Castellated Nut  
Lightweight, 450° F

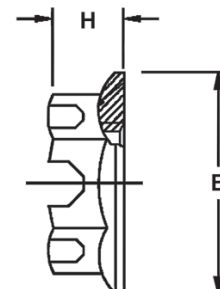
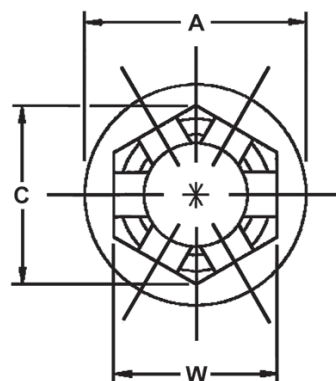


| DASH NUMBER        |             | THREAD<br>MIL-S-8879 | A    | B    | C    | H    |      | W    |      |
|--------------------|-------------|----------------------|------|------|------|------|------|------|------|
| NON<br>DRY<br>LUBE | DRY<br>LUBE |                      |      |      |      | MAX  | MIN  | MAX  | MIN  |
| 3                  | L3          | .1900-32             | .325 | .291 | .277 | .265 | .235 | .252 | .243 |
| 4                  | L4          | .2500-28             | .420 | .386 | .348 | .296 | .266 | .315 | .305 |
| 5                  | L5          | .3125-24             | .520 | .482 | .419 | .343 | .313 | .378 | .367 |
| 6                  | L6          | .3750-24             | .579 | .539 | .480 | .421 | .391 | .440 | .429 |
| 7                  | L7          | .4375-20             | .645 | .600 | .552 | .468 | .438 | .504 | .492 |
| 8                  | L8          | .5000-20             | .770 | .725 | .623 | .578 | .548 | .566 | .554 |
| 9                  | L9          | .5625-18             | .850 | .815 | .765 | .624 | .594 | .692 | .678 |
| 10                 | L10         | .6250-18             | .910 | .875 | .836 | .734 | .704 | .755 | .741 |

| Thread Size | MS14144 |
|-------------|---------|
| .1900-32    | L3      |
| .2500-28    | L4      |
| .3125-24    | L5      |
| .3750-24    | L6      |
| .4375-20    | L7      |
| .5000-20    | L8      |
| .5625-18    | L9      |
| .6250-18    | L10     |

### MS14145

Self-Locking Castellated Nut  
Thin, Lightweight, 450°

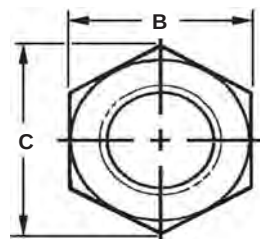
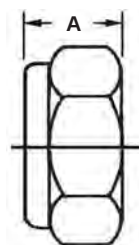


| DASH NUMBER        |             | THREAD<br>MIL-S-8879 | A    | B    | C    | H    |      | W    |      |
|--------------------|-------------|----------------------|------|------|------|------|------|------|------|
| NON<br>DRY<br>LUBE | DRY<br>LUBE |                      |      |      |      | MAX  | MIN  | MAX  | MIN  |
| 3                  | L3          | .1900-32             | .325 | .291 | .277 | .203 | .173 | .252 | .243 |
| 4                  | L4          | .2500-28             | .420 | .386 | .348 | .203 | .173 | .315 | .305 |
| 5                  | L5          | .3125-24             | .520 | .482 | .419 | .203 | .173 | .378 | .367 |
| 6                  | L6          | .3750-24             | .579 | .539 | .480 | .234 | .204 | .440 | .429 |
| 7                  | L7          | .4375-20             | .645 | .600 | .552 | .234 | .204 | .504 | .492 |
| 8                  | L8          | .5000-20             | .770 | .725 | .623 | .265 | .235 | .566 | .554 |
| 9                  | L9          | .5625-18             | .850 | .815 | .765 | .328 | .298 | .692 | .678 |
| 10                 | L10         | .6250-18             | .910 | .875 | .836 | .328 | .298 | .755 | .741 |

| Thread Size | MS14145 |
|-------------|---------|
| .1900-32    | L3      |
| .2500-28    | L4      |
| .3125-24    | L5      |
| .3750-24    | L6      |
| .4375-20    | L7      |
| .5000-20    | L8      |
| .5625-18    | L9      |
| .6250-18    | L10     |

## MS21044

Self Locking Nut, Regular Height, Nylon Insert, 250°F

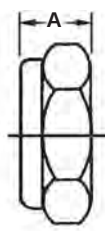
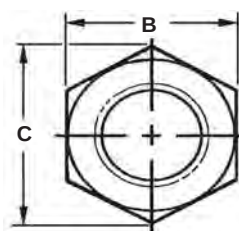


| MS21044<br>NON-METALLIC INSERT |       |      | THREAD<br>MIL-S-8879 | A    |      | B    |      | C     |
|--------------------------------|-------|------|----------------------|------|------|------|------|-------|
| AL ALLOY                       | STEEL | CRES |                      | MAX  | MIN  | MAX  | MIN  | MIN   |
| D04                            | N04   | C04  | .1120-40             | .157 | .133 | .251 | .243 | .268  |
| D06                            | N06   | C06  | .1380-32             | .188 | .160 | .313 | .305 | .339  |
| D08                            | N08   | C08  | .1640-32             | .281 | .219 | .345 | .336 | .374  |
| D3                             | N3    | C3   | .1900-32             | .281 | .208 | .376 | .367 | .410  |
| D4                             | N4    | C4   | .2500-28             | .360 | .240 | .439 | .430 | .482  |
| D5                             | N5    | C5   | .3125-24             | .360 | .271 | .502 | .492 | .552  |
| D6                             | N6    | C6   | .3750-24             | .469 | .318 | .564 | .553 | .622  |
| D7                             | N7    | C7   | .4375-20             | .469 | .435 | .690 | .679 | .766  |
| D8                             | N8    | C8   | .5000-20             | .610 | .575 | .752 | .741 | .837  |
| D9                             | N9    | C9   | .5625-18             | .704 | .623 | .877 | .865 | .978  |
| D10                            | N10   | C10  | .6250-18             | .766 | .732 | .940 | .928 | 1.051 |

| Thread<br>Size | CARBON STEEL |         | CORROSION RESISTANT | ALUMINUM |
|----------------|--------------|---------|---------------------|----------|
|                | MS21044      | MS20365 | MS21044             | MS21044  |
| 4-40           | N04          | 440A    | C04                 | D04      |
| 6-32           | N06          | 632A    | C06                 | D06      |
| 8-32           | N08          | 832A    | C08                 | D08      |
| 10-32          | N3           | 1032A   | C3                  | D3       |
| 1/4-28         | N4           | 428A    | C4                  | D4       |
| 5/16-24        | N5           | 524A    | C5                  | D5       |
| 3/8-24         | N6           | 624A    | C6                  | D6       |
| 7/16-20        | N7           | 720A    | C7                  | D7       |
| 1/2-20         | N8           | 820A    | C8                  | D8       |
| 9/16-18        | N9           | 918A    | ---                 | ---      |
| 5/8-18         | N10          | 1018A   | ---                 | ---      |

## MS21083

Self Locking Nut, Low Height, Nylon Insert, 250°F



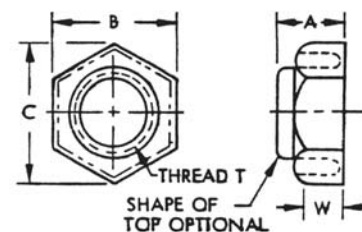
| MS21083<br>NON-METALLIC INSERT |       |      | "T"<br>THREAD<br>MIL-S-8879 | A    |      | B    |      | C     |
|--------------------------------|-------|------|-----------------------------|------|------|------|------|-------|
| AL ALLOY                       | STEEL | CRES |                             | MAX  | MIN  | MAX  | MIN  | MIN   |
| D04                            | N04   | C04  | .1120-40                    | .125 | .094 | .251 | .243 | .268  |
| D06                            | N06   | C06  | .1380-32                    | .141 | .110 | .313 | .305 | .339  |
| D08                            | N08   | C08  | .1640-32                    | .188 | .157 | .345 | .336 | .374  |
| D3                             | N3    | C3   | .1900-32                    | .188 | .157 | .376 | .367 | .410  |
| D4                             | N4    | C4   | .2500-28                    | .219 | .188 | .439 | .430 | .482  |
| D5                             | N5    | C5   | .3125-24                    | .266 | .235 | .502 | .492 | .552  |
| D6                             | N6    | C6   | .3750-24                    | .282 | .251 | .564 | .553 | .622  |
| D7                             | N7    | C7   | .4375-20                    | .328 | .298 | .690 | .679 | .766  |
| D8                             | N8    | C8   | .5000-20                    | .328 | .298 | .752 | .741 | .837  |
| D9                             | N9    | C9   | .5625-18                    | .375 | .344 | .877 | .865 | .978  |
| D10                            | N10   | C10  | .6250-18                    | .407 | .376 | .940 | .928 | 1.051 |

| Thread<br>Size | CARBON STEEL |         | CORROSION RESISTANT | ALUMINUM |
|----------------|--------------|---------|---------------------|----------|
|                | MS21083      | MS20364 | MS21083             | MS21083  |
| 4-40           | N04          | 440A    | C04                 | D04      |
| 6-32           | N06          | 632A    | C06                 | D06      |
| 8-32           | N08          | 832A    | C08                 | D08      |
| 10-32          | N3           | 1032A   | C3                  | D3       |
| 1/4-28         | N4           | 428A    | C4                  | D4       |
| 5/16-24        | N5           | 524A    | C5                  | D5       |
| 3/8-24         | N6           | 624A    | C6                  | D6       |
| 7/16-20        | N7           | 720A    | C7                  | D7       |
| 1/2-20         | N8           | 820A    | C8                  | D8       |
| 9/16-18        | N9           | 918A    | ---                 | ---      |
| 5/8-18         | N10          | 1018A   | ---                 | ---      |



## NAS679

Self Locking Nut, Low Height  
"A" After Base # Indicates All Metal  
"W" Indicates Internal Wrenching Feature  
"C" Indicates A286 CRES, Silver Plated for 800°F  
"M" Indicates Dry Film Lubricant for 450°F Use



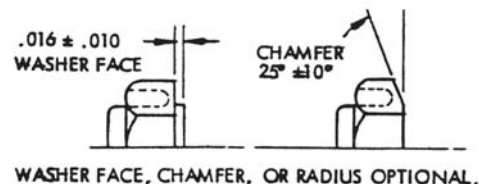
| DASH NO. |          |          | (c)<br>Thread<br>T | (a)<br>A<br>MAX | B    |      | C<br>REF |
|----------|----------|----------|--------------------|-----------------|------|------|----------|
| 450°F    |          | 800°F    |                    |                 | MAX  | MIN  |          |
| STEEL    | CRES (d) | CRES (d) |                    |                 |      |      |          |
| A04      | C04M     | C04      | .1120-40           | .125            | .252 | .240 | .289     |
| A06      | C06M     | C06      | .1380-32           | .141            | .314 | .302 | .361     |
| A08      | C08M     | C08      | .1640-32           | .188            | .346 | .334 | .390     |
| A3       | C3M      | C3       | .1900-32           | .188            | .377 | .365 | .430     |
| A4       | C4M      | C4       | .2500-28           | .219            | .439 | .430 | .506     |
| A5       | C5M      | C5       | .3125-24           | .266            | .502 | .492 | .580     |
| A6       | C6M      | C6       | .3750-24           | .282            | .564 | .553 | .650     |
| A7       | C7M      | C7       | .4375-20           | .328            | .690 | .679 | .790     |

| Thread Size | NAS679A |
|-------------|---------|
| 4-40        | A04W    |
| 6-32        | A06W    |
| 8-32        | A08W    |
| 10-32       | A3W     |
| 1/4-28      | A4W     |
| 5/16-24     | A5      |
| 3/8-24      | A6      |
| 7/16-20     | A7      |

## NAS679C

Hexagon Nut  
Self-Locking A286 CRES  
"C#M" Indicates 450° Use, Dry Film Lube  
"C" Indicates Silver Plated for 800° Use  
"W" Indicates Internal Wrenching Feature

| Thread Size | NAS679C |
|-------------|---------|
| 6-32        | C06M    |
| 8-32        | C08M    |
|             | C08MW   |
| 10-32       | C3MW    |
|             | C3W     |
| 1/4-28      | C4MW    |
|             | C4W     |
| 5/16-24     | C5      |

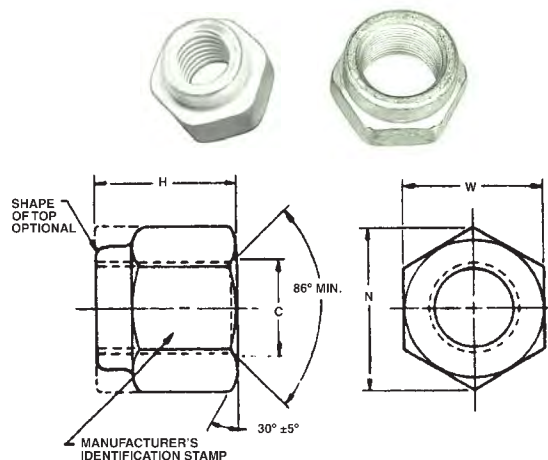


## MS20500

Self Locking Nut  
Heat Resistant, Corrosion Resistant, 1200°F, Silver Plated

| DASH<br># | THREAD<br>MIL-S-8879 | C<br>.020 | H    |      | N<br>MIN | W    |      |
|-----------|----------------------|-----------|------|------|----------|------|------|
|           |                      |           | MAX  | MIN  |          | MAX  | MIN  |
| 1032      | 10-32                | .210      | .250 | .202 | .413     | .376 | .367 |
| 428       | 1/4-28               | .273      | .328 | .280 | .488     | .439 | .430 |
| 524       | 5/16-24              | .336      | .360 | .312 | .557     | .502 | .492 |
| 624       | 3/8-24               | .398      | .469 | .421 | .628     | .564 | .553 |

| Thread Size | MS20500 |
|-------------|---------|
| 10-32       | -1032   |
| 1/4-28      | -428    |
| 5/16-24     | -524    |
| 3/8-24      | -624    |



## EXHAUST MANIFOLD NUTS



| Part#           | Thread Size | Material                   | Engine      |
|-----------------|-------------|----------------------------|-------------|
| 22022           | 5/16-24     | BRASS                      | CONTINENTAL |
| STD1410         | 5/16-18     | STEEL                      | LYCOMING    |
| 643967<br>21247 | 1/4-28      | REPLACED BY<br>MS20500-428 |             |

## MISC. NUTS

| Part#     |
|-----------|
| AN3066-12 |
| BACN10JC8 |
| BACN10YD2 |
| BACN10YD3 |
| BACN10YD4 |
| GYN145    |
| H22-4     |

## MS27151 (Old #) Pal Nut

(MS27151 for Ref. only)

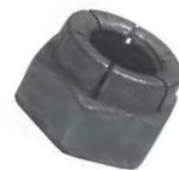


| Thread Size | Old #<br>MS27151 | New<br>Commercial # |
|-------------|------------------|---------------------|
| 10 - 32     | -7               | RM103200SOG         |
| 1/4 - 28    | -13              | RF142800SOG         |
| 5/16 - 24   | -16              | RF516240SOG         |
| 3/8 - 24    | -19              | RF382400SOG         |
| 7/16 - 20   | -21              | RL716200SOG         |

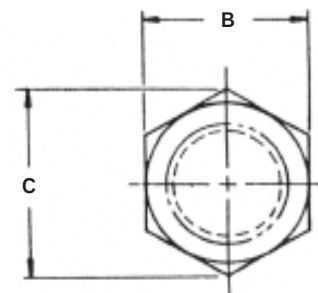
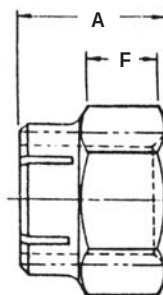
## MS21045 (AN363)

Self Locking Nut, Regular Height, All Metal, 450°F

| Dash Number          |                  |                        | Thread<br>MIL-S-8879 | A    |      | B    |      | C     | F    |
|----------------------|------------------|------------------------|----------------------|------|------|------|------|-------|------|
| Steel                |                  |                        |                      | MAX  | MIN  | MAX  | MIN  | MIN   | MIN  |
| Non-Dry<br>Lubricant | Dry<br>Lubricant | Corrosion<br>Resistant |                      |      |      |      |      |       |      |
| 04                   | L04              | C04                    | .1120-40             | .167 | .133 | .243 | .243 | .268  | .044 |
| 06                   | L06              | C06                    | .1380-32             | .188 | .160 | .305 | .305 | .339  | .072 |
| 08                   | L08              | C08                    | .1640-32             | .250 | .219 | .336 | .336 | .374  | .091 |
| 3                    | L3               | C3                     | .1900-32             | .250 | .208 | .367 | .367 | .410  | .085 |
| 4                    | L4               | C4                     | .2500-28             | .328 | .240 | .430 | .430 | .482  | .116 |
| 5                    | L5               | C5                     | .3125-24             | .360 | .271 | .492 | .492 | .552  | .123 |
| 6                    | L6               | C6                     | .3750-24             | .469 | .318 | .553 | .553 | .622  | .153 |
| 7                    | L7               | C7                     | .4375-20             | .469 | .435 | .679 | .679 | .766  | .178 |
| 8                    | L8               | C8                     | .5000-20             | .610 | .575 | .741 | .741 | .837  | .221 |
| 9                    | L9               | C9                     | .5625-18             | .705 | .623 | .865 | .865 | .978  | .243 |
| 10                   | L10              | C10                    | .6250-18             | .766 | .732 | .928 | .928 | 1.051 | .274 |
| AN363-720            |                  |                        | .4375-20             | .469 | .453 | .615 | .615 | .705  | .178 |



| Thread<br>Size | Carbon Steel   |                  | Corrosion Resistant<br>Dry Film Lube |
|----------------|----------------|------------------|--------------------------------------|
|                | <b>MS21045</b> | <b>AN363</b>     | <b>MS21045</b>                       |
| 4-40           | <b>04</b>      | 440              | <b>C04</b>                           |
| 6-32           | <b>06</b>      | 632              | <b>C06</b>                           |
| 8-32           | <b>08</b>      | 832              | <b>C08</b>                           |
| 10-32          | <b>3</b>       | 1032             | <b>C3</b>                            |
| 1/4-28         | <b>4</b>       | 428              | <b>C4</b>                            |
| 5/16-24        | <b>5</b>       | 524              | <b>C5</b>                            |
| 3/8-24         | <b>6</b>       | 624              | <b>C6</b>                            |
| 7/16-20        | <b>7</b>       | ---              | <b>C7</b>                            |
| 7/16-20        | ---            | <b>AN363-720</b> | ---                                  |
| 1/2-20         | <b>8</b>       | 820              | <b>C8</b>                            |
| 9/16-18        | <b>9</b>       | 918              | ---                                  |
| 5/8-18         | <b>10</b>      | 1018             | ---                                  |



## MS21045L

All Metal, Dry Film Lube



| Thread Size | <b>MS21045</b> |
|-------------|----------------|
| 4-40        | <b>L04</b>     |
| 6-32        | <b>L06</b>     |
| 8-32        | <b>L08</b>     |
| 10-32       | <b>L3</b>      |
| 1/4-28      | <b>L4</b>      |
| 5/16-24     | <b>L5</b>      |
| 3/8-24      | <b>L6</b>      |
| 7/16-20     | <b>L7</b>      |
| 1/2-20      | <b>L8</b>      |

## MS21046C

All Metal 800° Full Height

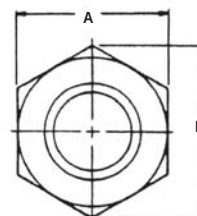
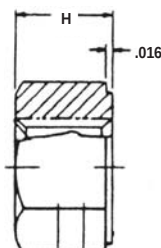


| Thread Size | <b>MS21046</b> |
|-------------|----------------|
| 4-40        | <b>C04</b>     |
| 6-32        | <b>C06</b>     |
| 8-32        | <b>C08</b>     |
| 10-32       | <b>C3</b>      |
| 1/4-28      | <b>C4</b>      |
| 5/16-24     | <b>C5</b>      |
| 3/8-24      | <b>C6</b>      |
| 7/16-20     | <b>C7</b>      |
| 1/2-20      | <b>C8</b>      |

## AN121501, AN121502, AN121503

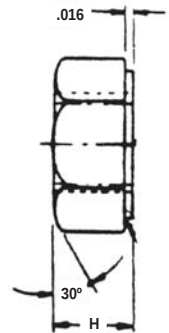
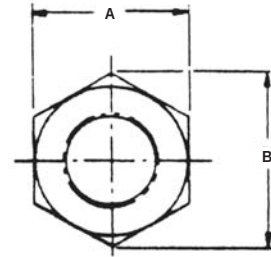
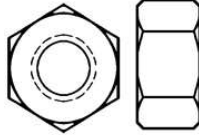
Plain Nut, Steel AMS 6322  
(Old AN360 Engine Nut)

| Thread<br>Size | A    |      | B<br>Min | H    | PART #          |
|----------------|------|------|----------|------|-----------------|
|                | Min  | Max  |          |      |                 |
| .190-32        | .367 | .376 | .419     | .156 | <b>AN121501</b> |
| .250-28        | .430 | .439 | .491     | .219 | <b>AN121502</b> |
| .3125-24       | .492 | .502 | .561     | .266 | <b>AN121503</b> |



## AN315

Hexagon Plain Nut

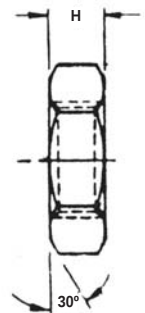
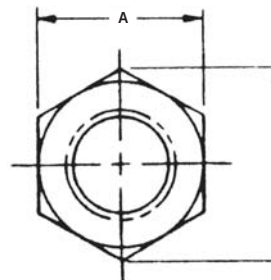
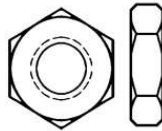


| AN315    | THREAD<br>T | TENSILE<br>STRENGTH<br>STEEL | A<br>+.002<br>-.010 | B<br>APPROX | H     |
|----------|-------------|------------------------------|---------------------|-------------|-------|
| AN315-3  | 10-32       | 2,210                        | .375                | 7/16        | 9/64  |
| AN315-4  | 1/4-28      | 4,080                        | .438                | 1/2         | 3/16  |
| AN315-5  | 5/16-24     | 6,500                        | .500                | 37/64       | 15/64 |
| AN315-6  | 3/8-24      | 10,100                       | .563                | 21/32       | 9/32  |
| AN315-7  | 7/16-20     | 13,600                       | .625                | 23/32       | 21/64 |
| AN315-8  | 1/2-20      | 18,500                       | .750                | 7/8         | 3/8   |
| AN315-9  | 9/16-18     | 23,600                       | .875                | 1-1/64      | 27/64 |
| AN315-10 | 5/8-18      | 30,100                       | 1.000               | 1-5/32      | 15/32 |

| Thread Size | AN315 | AN315 | AN315 |
|-------------|-------|-------|-------|
| 10-32       | 3R    | 3L    | C3R   |
| 1/4-28      | 4R    | 4L    | C4R   |
| 5/16-24     | 5R    | 5L    | C5R   |
| 3/8-24      | 6R    | 6L    | C6R   |
| 7/16-20     | 7R    | 7L    | ---   |
| 1/2-20      | 8R    | 8L    | ---   |
| 9/16-18     | 9R    | 9L    | ---   |
| 5/8-18      | 10R   | 10L   | ---   |

## AN316

Hexagon Jam Nut

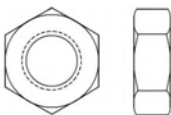


| AN316    | THREAD<br>T | TENSILE<br>STRENGTH | A<br>+.002<br>-.010 | B<br>APPROX | H    |
|----------|-------------|---------------------|---------------------|-------------|------|
| AN316-4  | 1/4-28      | 2,040               | .438                | 1/2         | 1/8  |
| AN316-5  | 5/16-24     | 3,250               | .500                | 37/64       | 5/32 |
| AN316-6  | 3/8-24      | 5,050               | .563                | 21/32       | 3/16 |
| AN316-7  | 7/16-20     | 6,800               | .625                | 23/32       | 7/32 |
| AN316-8  | 1/2-20      | 9,250               | .750                | 7/8         | 1/4  |
| AN316-9  | 9/16-18     | 11,800              | .875                | 1-1/64      | 9/32 |
| AN316-10 | 5/8-18      | 15,050              | 1.00                | 1-5/32      | 5/16 |

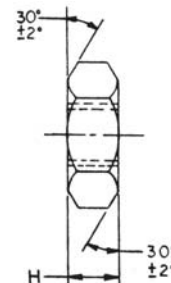
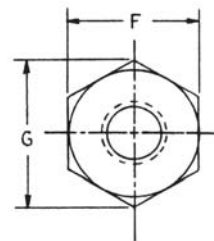
| Thread Size | AN316       | AN316       |
|-------------|-------------|-------------|
| 10-32       | (Use AN315) | (Use AN315) |
| 1/4-28      | 4R          | 4L          |
| 5/16-24     | 5R          | 5L          |
| 3/8-24      | 6R          | 6L          |
| 7/16-20     | 7R          | 7L          |
| 1/2-20      | 8R          | 8L          |
| 9/16-18     | 9R          | 9L          |
| 5/8-18      | 10R         | 10L         |

## MS35649

Plain Hexagon Nut  
Coarse Thread



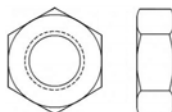
| DASH NUMBER         |            |       | THREAD SIZE | F<br>WIDTH ACROSS CORNERS |      | G<br>WIDTH ACROSS CORNERS |      | H<br>THICKNESS |      |
|---------------------|------------|-------|-------------|---------------------------|------|---------------------------|------|----------------|------|
| CARBON STEEL<br>CAD | CRES STEEL | BRASS |             | MAX                       | MIN  | MAX                       | MIN  | MAX            | MIN  |
| 222                 | 224        | 225   | .0860-56    | .187                      | .180 | .217                      | .205 | .066           | .057 |
| 242                 | 244        | 245   | .1120-40    | .250                      | .241 | .289                      | .275 | .098           | .087 |
| 262                 | 264        | 265   | .1380-32    | .312                      | .302 | .361                      | .344 | .114           | .102 |
| 282                 | 284        | 286   | .1640-32    | .344                      | .332 | .397                      | .378 | .130           | .117 |
| 202                 | 204        | 205   | .1900-24    | .375                      | .362 | .433                      | .413 | .130           | .117 |
| 2252                | 2254       | 2255  | .2500-20    | .437                      | .423 | .505                      | .482 | .193           | .178 |
| 2312                | 2314       | 2315  | .3125-18    | .562                      | .545 | .650                      | .621 | .225           | .208 |



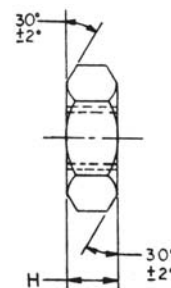
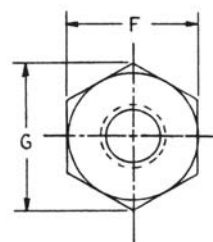
| Thread Size | Steel   | Corrosion Resistant | Brass, Black Oxide |
|-------------|---------|---------------------|--------------------|
|             | MS35649 | MS35649             | MS35649            |
| 2-56        | 222     | 224                 | 225B               |
| 4-40        | 242     | 244                 | 245B               |
| 6-32        | 262     | 264                 | 265B               |
| 8-32        | 282     | 284                 | 286B               |
| 10-24       | 202     | 204                 | 205B               |
| 1/4-20      | 2252    | 2254                | 2255B              |
| 5/16-18     | 2312    | 2314                | 2315B              |

## MS35650

Plain Hex Nut  
Fine Thread



| DASH NUMBER         |            |       | THREAD SIZE | F<br>WIDTH ACROSS CORNERS |      | G<br>WIDTH ACROSS CORNERS |      | H<br>THICKNESS |      |
|---------------------|------------|-------|-------------|---------------------------|------|---------------------------|------|----------------|------|
| CARBON STEEL<br>CAD | CRES STEEL | BRASS |             | MAX                       | MIN  | MAX                       | MIN  | MAX            | MIN  |
| 342                 | 344        | 345   | .1120-48    | .250                      | .241 | .289                      | .275 | .098           | .087 |
| 362                 | 364        | 365   | .1380-40    | .312                      | .302 | .361                      | .344 | .114           | .102 |
| 382                 | 384        | 386   | .1640-36    | .344                      | .332 | .397                      | .378 | .130           | .117 |
| 302                 | 304        | 305   | .1900-32    | .375                      | .362 | .433                      | .413 | .130           | .117 |
| 3252                | 3254       | 3255  | .2500-28    | .437                      | .423 | .505                      | .482 | .193           | .178 |
| 3312                | 3314       | 3315  | .3125-24    | .562                      | .545 | .650                      | .621 | .225           | .208 |
| 3382                | 3384       | 3385  | .3750-24    | .625                      | .607 | .722                      | .692 | .257           | .239 |



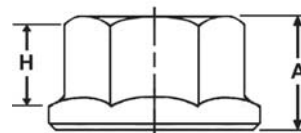
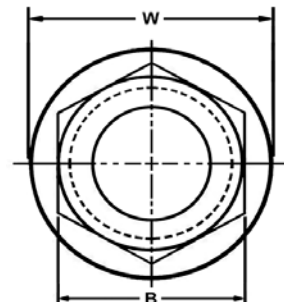
| Thread Size | Steel   | Corrosion Resistant | Brass, Black Oxide |
|-------------|---------|---------------------|--------------------|
|             | MS35650 | MS35650             | MS35650            |
| 4-48        | 342     | 344                 | 345B               |
| 6-40        | 362     | 364                 | 365B               |
| 8-36        | 382     | 384                 | 386B               |
| 10-32       | 302     | 304                 | 305B               |
| 1/4-28      | 3252    | 3254                | 3255B              |
| 5/16-24     | 3312    | 3314                | 3315B              |
| 3/8-24      | 3382    | 3384                | 3385B              |



## NAS1291

Self Locking Nut  
Low Height, Lightweight

"M" indicates Dry Film Lube  
"C" indicates Corrosion Resistant Steel

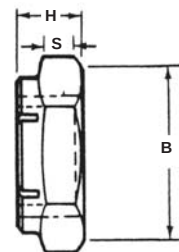
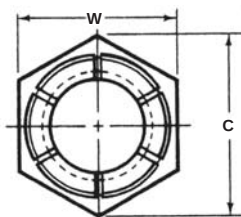


| THREAD   | DASH NUMBER |             |            | A          | B          | H    | W     |
|----------|-------------|-------------|------------|------------|------------|------|-------|
|          | 450° F      |             | 800° F     |            |            |      |       |
|          | STEEL       | A286 CRES   | A286 CRES  |            |            |      |       |
| .1380-32 | ---         | <b>C06M</b> | ---        | 141<br>115 | 190<br>181 | .055 | .244  |
| .1640-32 | ---         | <b>C08M</b> | ---        | 188<br>125 | 221<br>213 | .060 | .290  |
| .1900-32 | ---         | <b>C3M</b>  | ---        | 188<br>154 | 252<br>243 | .065 | .330  |
| .2500-28 | ---         | <b>C4M</b>  | ---        | 219<br>204 | 316<br>304 | .090 | .420  |
| .3125-24 | ---         | <b>C5M</b>  | ---        | 266<br>251 | 378<br>367 | .120 | .520  |
| .3750-24 | ---         | <b>C6M</b>  | ---        | 282<br>267 | 440<br>430 | .125 | .620  |
| .4375-20 | 7           | <b>C7M</b>  | <b>C7</b>  | 328<br>313 | 504<br>494 | .160 | .708  |
| .5000-20 | 8           | <b>C8M</b>  | <b>C8</b>  | 410<br>350 | 566<br>556 | .225 | .814  |
| .5625-18 | 9           | <b>C9M</b>  | <b>C9</b>  | 480<br>420 | 692<br>680 | .320 | .912  |
| .6250-18 | 10          | <b>C10M</b> | <b>C10</b> | 550<br>490 | 755<br>743 | .365 | 1.014 |

| Thread Size | Corrosion Resistant 450°F | Steel   | Corrosion Resistant 800°F |
|-------------|---------------------------|---------|---------------------------|
|             | NAS1291                   | NAS1291 | NAS1291                   |
| 8-32        | <b>C08M</b>               | -       | -                         |
| 10-32       | <b>C3M</b>                | -       | -                         |
| 1/4-28      | <b>C4M</b>                | -       | -                         |
| 5/16-24     | <b>C5M</b>                | -       | -                         |
| 3/8-24      | <b>C6M</b>                | -       | -                         |
| 7/16-20     | <b>C7M</b>                | 7       | <b>C7</b>                 |
| 1/2-20      | <b>C8M</b>                | 8       | <b>C8</b>                 |
| 5/8-18      | <b>C10M</b>               | 10      | <b>C10</b>                |

## 27 FT

Self Locking Hexagon Nut, Thin, Carbon Steel 450° F

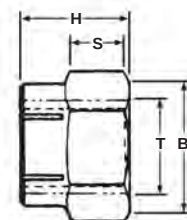
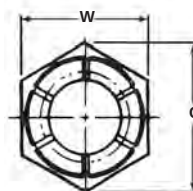


| DASH NO. | THREAD SIZE | B MIN DIA | C MIN | H MAX | S MIN | W    |      |
|----------|-------------|-----------|-------|-------|-------|------|------|
|          |             |           |       |       |       | MAX  | MIN  |
| 632      | .138-32     | .305      | .347  | .141  | .036  | .313 | .305 |
| 832      | .164-32     | .336      | .383  | .188  | .070  | .345 | .336 |
| 1032     | .190-32     | .367      | .419  | .188  | .065  | .376 | .367 |
| 428      | .250-28     | .430      | .481  | .219  | .075  | .439 | .430 |
| 524      | .312-24     | .492      | .561  | .266  | .097  | .502 | .492 |
| 624      | .375-24     | .553      | .631  | .282  | .108  | .564 | .553 |

| SPS PART # | FOR REF ONLY |
|------------|--------------|
|            | MS20364      |
| 27FT632    | 632C         |
| 27FT832    | 832C         |
| 27FT1032   | 1032C        |
| 27FT428    | 428C         |
| 27FT524    | 524C         |
| 27FT624    | 624C         |

## 22 FH

Self Locking Flexloc Nut, Hexagon  
Regular Height, Carbon Steel 450° F



| DASH NO. | T THREAD SIZE | B MIN DIA | C MIN | H MAX | S MIN | W    |      |
|----------|---------------|-----------|-------|-------|-------|------|------|
|          |               |           |       |       |       | MAX  | MIN  |
| 524      | .312-24       | .492      | .561  | .353  | .150  | .502 | .492 |
| 624      | .375-24       | .553      | .631  | .482  | .210  | .564 | .553 |

| SPS PART # |  |
|------------|--|
| 22FH524    |  |
| 22FH624    |  |



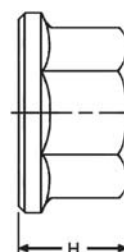
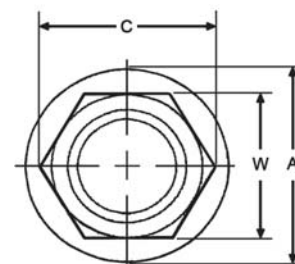
## MS21042

Self Locking Nut, Reduced Hexagon, Reduced Height  
Non-Corrosion Resistant Steel 450°

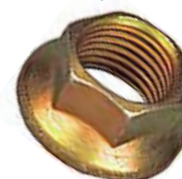
| SIZE<br>DASH<br>NO. | THREAD   | A<br>MAX<br>DIA | C<br>MIN | H    |      | W<br>ACROSS<br>FLATS |      |
|---------------------|----------|-----------------|----------|------|------|----------------------|------|
|                     |          |                 |          | MAX  | MIN  | MAX                  | MIN  |
| -02                 | .0860-56 | .167            | .138     | .100 | .080 | .127                 | .122 |
| -04                 | .1120-40 | .206            | .171     | .125 | .103 | .158                 | .150 |
| -06                 | .1380-32 | .244            | .207     | .141 | .115 | .190                 | .181 |
| -08                 | .1640-32 | .290            | .244     | .188 | .125 | .221                 | .213 |
| -3                  | .1900-32 | .330            | .277     | .188 | .154 | .252                 | .243 |
| -4                  | .2500-28 | .420            | .347     | .219 | .204 | .316                 | .304 |
| -5                  | .3125-24 | .520            | .419     | .266 | .251 | .378                 | .367 |
| -6                  | .3750-24 | .620            | .491     | .282 | .267 | .440                 | .430 |

| Thread Size | with Dry Film Lube | without Dry Film Lube |
|-------------|--------------------|-----------------------|
|             | MS21042            | MS21042               |
| 2-56        | L02                | -02                   |
| 4-40        | L04                | -04                   |
| 6-32        | L06                | -06                   |
| 8-32        | L08                | -08                   |
| 10-32       | L3                 | -3                    |
| 1/4-28      | L4                 | -4                    |
| 5/16-24     | L5                 | -5                    |
| 3/8-24      | L6                 | -6                    |

with Dry Film Lube



without Dry Film Lube

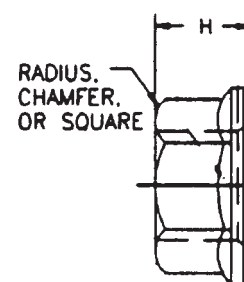
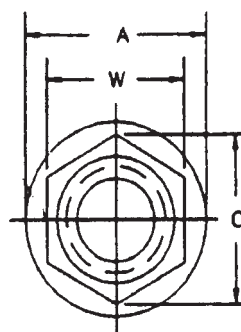


## MS21043

Self Locking Nut  
Heat Resistant, Reduced Hexagon, Reduced Height  
Corrosion Resistant, 800° F, Silver Plated

| DASH<br>NO. | THREAD  | A<br>MAX<br>DIA | C<br>MIN | H    |      | W    |      |
|-------------|---------|-----------------|----------|------|------|------|------|
|             |         |                 |          | MAX  | MIN  | MAX  | MIN  |
| -04         | 4-40    | .206            | .171     | .125 | .103 | .158 | .150 |
| -06         | 6-32    | .244            | .207     | .141 | .115 | .190 | .181 |
| -08         | 8-32    | .290            | .244     | .188 | .125 | .221 | .213 |
| -3          | 10-32   | .330            | .277     | .188 | .154 | .252 | .243 |
| -4          | 1/4-28  | .420            | .347     | .219 | .204 | .316 | .304 |
| -5          | 5/16-24 | .520            | .419     | .266 | .251 | .378 | .367 |
| -6          | 3/8-24  | .620            | .491     | .282 | .267 | .440 | .430 |

| Thread Size | MS21043 |
|-------------|---------|
| 4-40        | 04      |
| 6-32        | 06      |
| 8-32        | 08      |
| 10-32       | 3       |
| 1/4-28      | 4       |
| 5/16-24     | 5       |
| 3/8-24      | 6       |

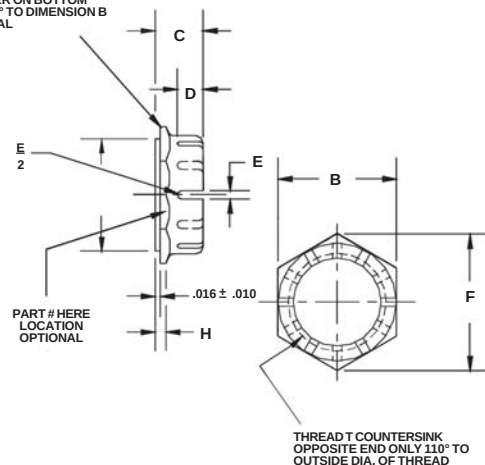


## MS21025

Castellated Hexagon Nut  
Alloy Steel 450°



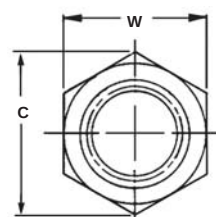
CHAMFER ON BOTTOM  
FACE 15° TO DIMENSION B  
OPTIONAL



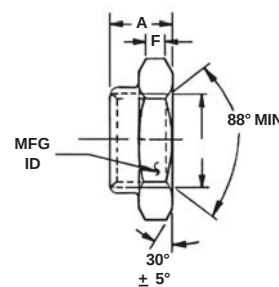
| MS21025 | Thread   |         | B     | C    | D    | E    | F     |
|---------|----------|---------|-------|------|------|------|-------|
|         | Size     | Pitch   |       |      |      |      |       |
| 15      | .9375-16 | .8969   | 1.250 | .531 | .219 | .156 | 1.448 |
| 16      | 1.000-16 | .9594   | 1.250 | .500 | .250 | .156 | 1.448 |
| 20      | 1.250-16 | .1.2094 | 1.500 | .562 | .250 | .156 | 1.732 |
| 24      | 1.500-16 | 1.4594  | 1.750 | .562 | .312 | .156 | 2.021 |
| 28      | 1.750-16 | 1.7094  | 2.125 | .562 | .312 | .172 | 2.454 |
| 32      | 2.000-16 | 1.9594  | 2.250 | .656 | .312 | .172 | 2.596 |

## MS21245

SelfLocking Nut  
Hexagon, Thin  
450°, 80 KSI

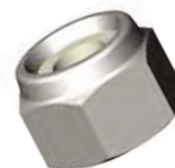


| Thread<br>Size | NON-DRY<br>LUBE | DRY<br>LUBE | A    | C     | D    |      | F    | W     |       |
|----------------|-----------------|-------------|------|-------|------|------|------|-------|-------|
|                | MS21245         | MS21245     |      |       | MIN  | MAX  |      | MIN   | MAX   |
| .4375-20       | 7               | L7          | .328 | .765  | .448 | .478 | .458 | .679  | .690  |
| .5000-20       | 8               | L8          | .328 | .836  | .521 | .551 | .531 | .741  | .752  |
| .5625-18       | 9               | L9          | .375 | .978  | .584 | .614 | .594 | .865  | .877  |
| .6250-18       | 10              | L10         | .407 | 1.050 | .646 | .676 | .656 | .928  | .940  |
| .7500-16       | 11              | L12         | .422 | 1.192 | .777 | .807 | .787 | 1.052 | 1.064 |
| .8750-14       | 12              | L14         | .485 | 1.405 | .903 | .933 | .913 | 1.239 | 1.252 |

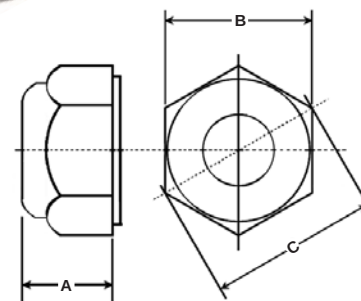


## NAS1022

SelfLocking Nut  
Hexagon Low Height  
Low Strength Steel 450°



| Thread Size | NAS1022 | A    | B     |       | C     | D     |
|-------------|---------|------|-------|-------|-------|-------|
|             |         |      | MIN   | MAX   |       |       |
| .4375-20    | A7      | .328 | .679  | .690  | .790  | .458  |
| .5000-20    | A8      | .328 | .741  | .752  | .870  | .531  |
| .5625-18    | A9      | .375 | .865  | .877  | 1.010 | .594  |
| .6250-18    | A10     | .407 | .928  | .940  | 1.080 | .656  |
| .7500-16    | A12     | .422 | 1.052 | 1.064 | 1.230 | .787  |
| .8750-14    | A14     | .485 | 1.239 | 1.252 | 1.440 | .913  |
| 1.000-12    | A16     | .578 | 1.427 | 1.440 | 1.660 | 1.039 |

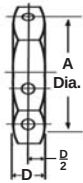
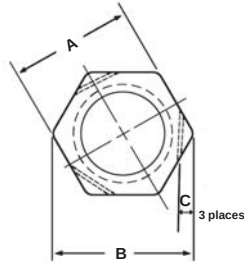


## NAS509

Drilled Jam Nut

"C" Indicates A286 CRES

"L" Indicates Left Hand Thread



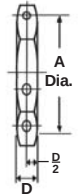
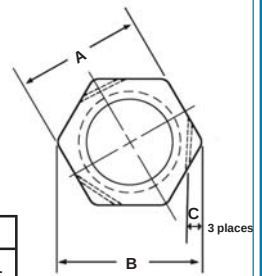
| NAS509 | T<br>Thread | A    | C    | B    | D    |
|--------|-------------|------|------|------|------|
| 3      | .1900-32    | .375 | .053 | .411 | .156 |
| 4      | .2500-28    | .438 | .056 | .484 | .188 |
| 5      | .3125-24    | .500 | .058 | .555 | .219 |
| 6      | .3750-24    | .563 | .060 | .628 | .250 |
| 7      | .4375-20    | .625 | .063 | .700 | .281 |
| 8      | .5000-20    | .750 | .093 | .844 | .313 |

## NAS1423

Drilled Jam Nut

"LH" Indicates

Left Hand Thread

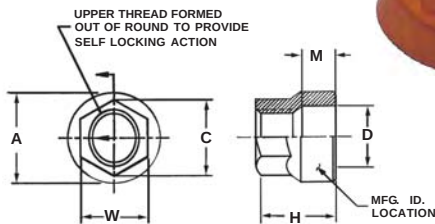


| NAS1423  | Thread   | A     | B     | C    | D    |
|----------|----------|-------|-------|------|------|
| 3<br>3LH | .1900-32 | .375  | .411  | .053 | .125 |
| 4<br>4LH | .2500-28 | .438  | .484  | .056 | .125 |
| 5<br>5LH | .3125-24 | .500  | .555  | .058 | .125 |
| 6<br>6LH | .3750-24 | .563  | .628  | .060 | .125 |
| 8        | .5000-20 | .750  | .844  | .093 | .156 |
| 10       | .6250-18 | 1.000 | 1.128 | .093 | .203 |
| 12       | .7500-16 | 1.125 | 1.271 | .125 | .250 |

## KFN587

K-Fast Nut, 6 Point, Self-Locking

7075 Aluminum Alloy {QQ-A-225/9}



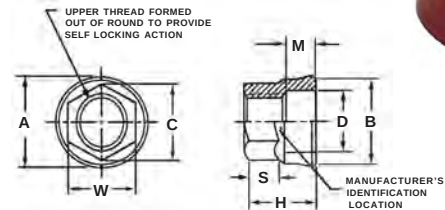
| KFN587 | T<br>Thread | A    | C    | D    | H    | M    | W    | Tensile<br>Strength |
|--------|-------------|------|------|------|------|------|------|---------------------|
| 08     | .1640-32    | .290 | .242 | .171 | .230 | .087 | .216 | 1,400               |
| 3      | .1900-32    | .304 | .277 | .198 | .240 | .087 | .247 | 1,600               |
| 4      | .2500-28    | .410 | .348 | .259 | .280 | .092 | .309 | 3,000               |
| 5      | .3125-24    | .515 | .419 | .322 | .325 | .097 | .371 | 5,000               |

## KFN600

K-Fast Nut, 6 Point, Shear Pin

7075 Aluminum Alloy {QQ-A-225/9} or

7175 Aluminum Alloy {QQ-A-430}



| KFN600 | T<br>Thread | A    | B    | C    | D    | H    | M    | S    | W    | Tensile<br>Strength |
|--------|-------------|------|------|------|------|------|------|------|------|---------------------|
| 08     | .1640-32    | .290 | .273 | .242 | .200 | .270 | .107 | .060 | .216 | 1,400               |
| 3      | .1900-32    | .320 | .295 | .277 | .226 | .280 | .107 | .070 | .247 | 1,600               |
| 4      | .2500-28    | .420 | .398 | .348 | .286 | .340 | .112 | .090 | .309 | 3,000               |
| 5      | .3125-24    | .535 | .497 | .419 | .348 | .430 | .122 | .160 | .371 | 5,000               |

## F22NKM, F22NKT

Hex Nut with Nylon Cap

Cadmium II plated



NKM



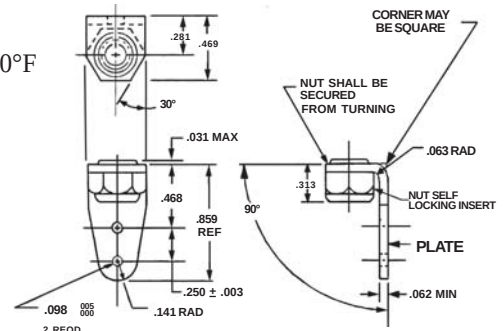
NKTM

| Part<br>Number | Thread<br>Size | Approx.<br>Height |
|----------------|----------------|-------------------|
| F22NKM-62      | 6-32           | .297              |
| F22NKM-82      | 8-32           | .353              |
| F22NKM-02      | 10-32          | .363              |
| F22NKT-62      | 6-32           | .249              |
| F22NKT-82      | 8-32           | .308              |
| F22NKT-02      | 10-32          | .308              |

## AN256

Right Angle Nut

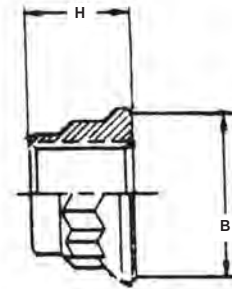
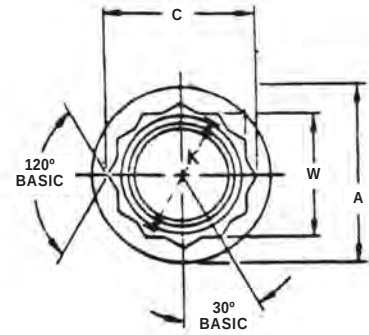
Self-Locking, 250°F



| Thread<br>Size | Part Number |          |
|----------------|-------------|----------|
|                | Aluminum    | Steel    |
| 6-32           | AN256-6     | AN256F6  |
| 8-32           | AN256-8     | AN256F8  |
| 10-32          | AN256-10    | AN256F10 |

## NAS1804

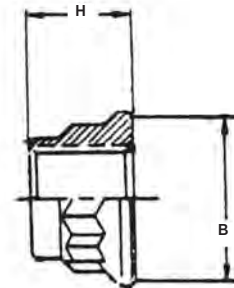
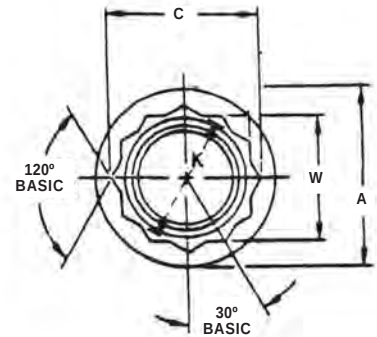
SelfLocking Nut  
Extended Washer  
Double Hexagon  
Alloy Steel - 180 KSI, 450°F



| DASH NO. | THREAD NOTE 1 | A DIA | B DIA MIN | C MIN | H MAX | W    |      |
|----------|---------------|-------|-----------|-------|-------|------|------|
|          |               |       |           |       |       | MAX  | MIN  |
| 3        | .1900-32      | .339  | .299      | .277  | .190  | .251 | .243 |
| 4        | .2500-28      | .434  | .394      | .347  | .250  | .313 | .305 |
| 5        | .3125-24      | .532  | .492      | .418  | .312  | .376 | .367 |
| 6        | .3750-24      | .631  | .591      | .490  | .375  | .439 | .430 |
| 6N       | .3750-24      | .631  | .591      | .490  | .375  | .439 | .430 |
| 7        | .4375-20      | .729  | .689      | .631  | .438  | .564 | .553 |
| 8        | .5000-20      | .828  | .788      | .703  | .500  | .627 | .616 |

## NAS1805

SelfLocking Nut  
Extended Washer  
Double Hexagon  
A286 CRES, 180 KSI, 450°F and 800°F  
No Letter Indicates Unplated, Passivated  
"L" Indicates Dry Film Lubricant, Cadmium Plated  
"P" Indicates Silver Plated, No Lubricant



| DASH NO. | THREAD NOTE 1 | A DIA | B DIA MIN | C    | H MAX | W    |      |
|----------|---------------|-------|-----------|------|-------|------|------|
|          |               |       |           |      |       | MAX  | MIN  |
| 3        | .1900-32      | .339  | .299      | .277 | .190  | .251 | .243 |
| 4        | .2500-28      | .434  | .394      | .347 | .250  | .313 | .305 |
| 4L       | .2500-28      | .434  | .394      | .347 | .250  | .313 | .305 |
| 4P       | .2500-28      | .434  | .394      | .347 | .250  | .313 | .305 |
| 5        | .3125-24      | .532  | .492      | .418 | .312  | .376 | .367 |
| 5L       | .3125-24      | .532  | .492      | .418 | .312  | .376 | .367 |
| 5P       | .3125-24      | .532  | .492      | .418 | .312  | .376 | .367 |
| 6        | .3750-24      | .631  | .591      | .490 | .375  | .439 | .430 |
| 6L       | .3750-24      | .631  | .591      | .490 | .375  | .439 | .430 |
| 6P       | .3750-24      | .631  | .591      | .490 | .375  | .439 | .430 |
| 7        | .4375-20      | .729  | .689      | .631 | .438  | .564 | .553 |
| 7L       | .4375-20      | .729  | .689      | .631 | .438  | .564 | .553 |
| 8        | .5000-20      | .828  | .788      | .703 | .500  | .627 | .616 |

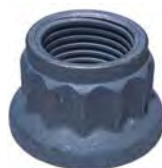


## 42FLW (CAD I PLATED) 47FLW (CAD II PLATED)

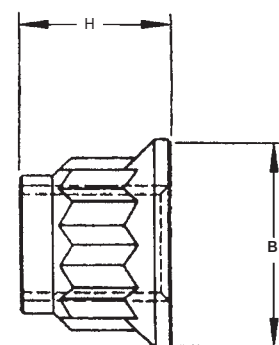
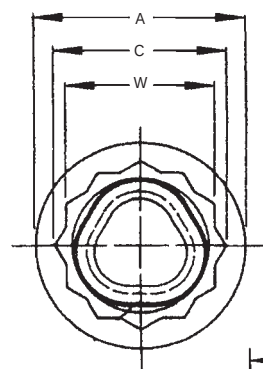
Double Hexagon, Flexloc

Self-Locking Alloy Steel

Flanged, 180 KSI Lightweight 450



| DASH NO. | THREAD SIZE | A MAX | B MIN | C MIN | H MAX | W    |      | AXIAL STRENGTH LBS. MIN. |
|----------|-------------|-------|-------|-------|-------|------|------|--------------------------|
|          |             |       |       |       |       | MAX  | MIN  |                          |
| 428      | .250-28     | .444  | .414  | .419  | .290  | .376 | .367 | 7,270                    |
| 524      | .312-24     | .547  | .517  | .491  | .363  | .439 | .430 | 11,500                   |
| 624      | .375-24     | .654  | .624  | .561  | .438  | .502 | .492 | 17,100                   |
| 720      | .437-20     | .753  | .713  | .631  | .506  | .564 | .553 | 23,200                   |
| 820      | .500-20     | .863  | .823  | .703  | .549  | .627 | .616 | 30,900                   |
| 918      | .562-18     | .938  | .898  | .775  | .600  | .690 | .676 | 39,100                   |
| 1018     | .625-18     | 1.050 | 1.000 | .881  | .650  | .783 | .772 | 49,100                   |



| Part #   | Thread Size |
|----------|-------------|
| 42FLW428 | 1/4-28      |
| 42FLW524 | 5/16-24     |
| 42FLW624 | 3/8-24      |
| 47FLW524 | 5/16-24     |
| 47FLW624 | 3/8-24      |
| 47FLW720 | 7/16-20     |
| 47FLW820 | 1/2-20      |

## EB - DOUBLE HEX NUT

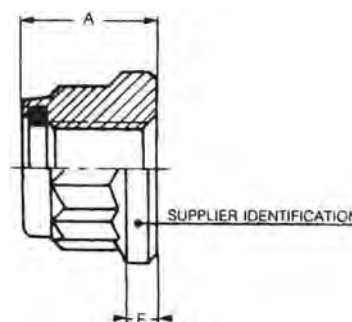
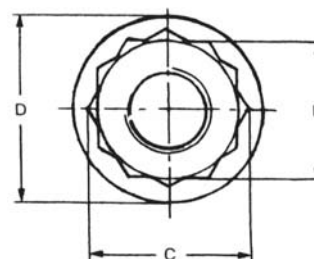
High Tensile 180,000 PSI (250F)

This Table is For Reference Only.

We May Quote SPS, Bristol, or Other Equivalent



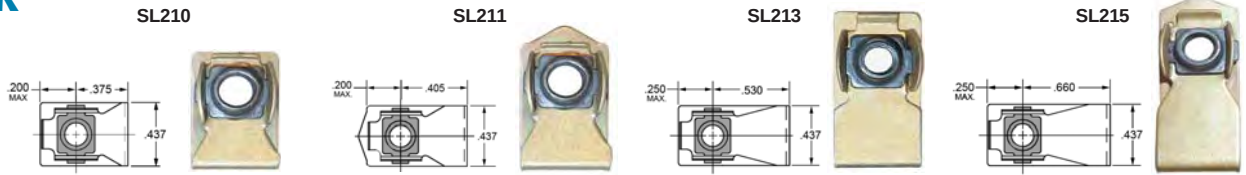
| ESNA PART NO. | BRISTOL PART NO. | THREAD SIZE | A MAX | B MIN       | C REF | D +.000 - .010 | F REF | ULTIMATE TENSILE STRENGTH LB. MIN |
|---------------|------------------|-------------|-------|-------------|-------|----------------|-------|-----------------------------------|
| EB-048        | DHN35-4          | .2500-28    | .334  | .376 - .367 | .420  | .531           | .090  | 6,980                             |
| EB-054        | DHN35-5          | .3125-24    | .396  | .439 - .430 | .491  | .593           | .090  | 11,100                            |
| EB-064        | DHN35-6          | .3750-24    | .453  | .502 - .492 | .562  | .687           | .099  | 17,100                            |
| EB-070        | DHN35-7          | .4375-20    | .516  | .564 - .553 | .633  | .781           | .107  | 23,200                            |
| EB-080        | DHN35-8          | .5000-20    | .563  | .627 - .616 | .704  | .875           | .118  | 30,900                            |
| EB-098        | DHN35-9          | .5625-18    | .625  | .690 - .679 | .774  | .968           | .127  | 39,200                            |



| ESNA PART NO. | BRISTOL PART NO. | Thread Size |
|---------------|------------------|-------------|
| EB-048        | DHN35-4          | 1/4-28      |
| EB-054        | DHN35-5          | 5/16-24     |
| EB-064        | DHN35-6          | 3/8-24      |
| EB-070        | DHN35-7          | 7/16-20     |
| EB-080        | DHN35-8          | 1/2-20      |
| EB-098        | DHN35-9          | 9/16-18     |



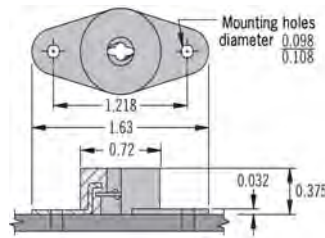
## SHUR-LOK CLIP NUT



| Shur-Lok Part # | Thread Size | Max. Edge Distance | Installation Hole Size | Panel Thickness | Shur-Lok Part # | Thread Size | Max. Edge Distance | Installation Hole Size | Panel Thickness |
|-----------------|-------------|--------------------|------------------------|-----------------|-----------------|-------------|--------------------|------------------------|-----------------|
| SL210-06-1      | 6-32        | .250               | .190 - .229            | .020 - .060     | SL211-06-1      | 6-32        | .375               | .190 - .229            | .020 - .125     |
| SL210-06-2      | 6-32        | .250               | .190 - .229            | .060 - .125     | SL211-08-1      | 8-32        | .375               | .190 - .229            | .020 - .125     |
| SL210-08-2      | 8-32        | .250               | .190 - .229            | .060 - .125     | SL211-3-1       | 10-32       | .375               | .218 - .261            | .020 - .125     |
| SL210-3-1       | 10-32       | .250               | .218 - .261            | .020 - .060     | SL213-08-1      | 8-32        | .500               | .190 - .229            | .020 - .160     |
| SL210-3-2       | 10-32       | .250               | .218 - .261            | .060 - .125     | SL215-3-1       | 10-32       | .620               | .218 - .261            | .020 - .160     |
| SL210-3-3       | 10-32       | .250               | .218 - .261            | .125 - .187     |                 |             |                    |                        |                 |

## SOUTHCO

Cowling Mount  
82-35-306-10



## LORD COWLING MOUNTS

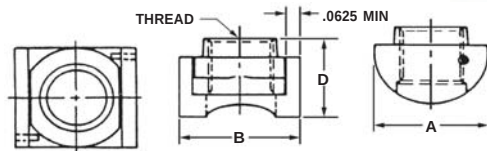
Part#

J7444-14  
J7444-24  
J7444-36



## NAS577B

Floating Barrel Nut  
Self Locking,  
180 KSI



| NAS577B | Thread   | A    | Hole Min / Max | B     | D    |
|---------|----------|------|----------------|-------|------|
| 4A      | .2500-28 | .513 | .531 - .535    | .625  | .406 |
| 5A      | .3125-24 | .575 | .594 - .599    | .688  | .468 |
| 6A      | .3750-24 | .669 | .688 - .693    | .750  | .531 |
| 7A      | .4375-20 | .763 | .781 - .788    | .875  | .625 |
| 8A      | .5000-20 | .857 | .875 - .882    | 1.000 | .703 |

## MS21063

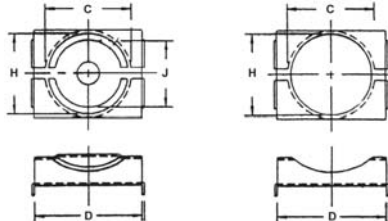
Gang Channel  
Self Locking Nuts, Floating  
Low Height, Steel, 125KSI, 250° F,  
.190-32 Thread, 6 Ft. Length



| Part Number MS21063L | Nut Element Spacing | Max # of Nut Element |
|----------------------|---------------------|----------------------|
| 3-6                  | .750                | 96                   |
| 3-7                  | .875                | 82                   |
| 3-8                  | 1.000               | 72                   |
| 3-9                  | 1.125               | 64                   |
| 3-10                 | 1.250               | 57                   |
| 3-11                 | 1.375               | 52                   |
| 3-12                 | 1.500               | 48                   |
| 3-16                 | 2.000               | 36                   |

## NAS578

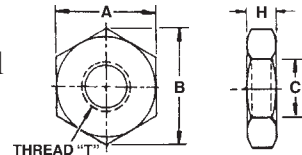
Floating Barrel  
Nut Retainer



| NAS578 | D     | J    | H    | C    | H    |
|--------|-------|------|------|------|------|
| 4A     | .625  | .275 | .406 | .453 | .406 |
| 5A     | .688  | .335 | .469 | .500 | .469 |
| 6A     | .750  | .400 | .531 | .594 | .531 |
| 7A     | .875  | .464 | .594 | .672 | .594 |
| 8A     | 1.000 | .527 | .656 | .750 | .656 |

## MS25082

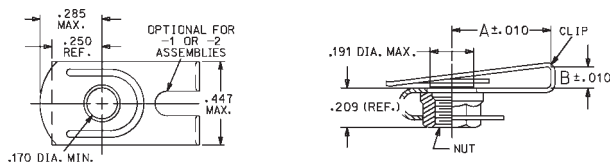
Hexagon Nut  
Thin Electrical



| MS25082 | Thread Size | A    | B    | C    | H    |
|---------|-------------|------|------|------|------|
| 2       | .1640-32    | .338 | .388 | .194 | .078 |
| 3       |             | .369 | .423 | .220 | .078 |
| 12      | .1900-32    | .246 | .282 | .220 | .078 |
| 4       |             | .433 | .495 | .280 | .089 |
| 13      | .2500-28    | .307 | .352 | .280 | .078 |

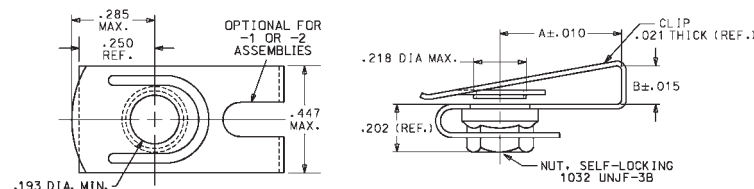
## MONADNOCK CLIP NUTS

### 13080000-#



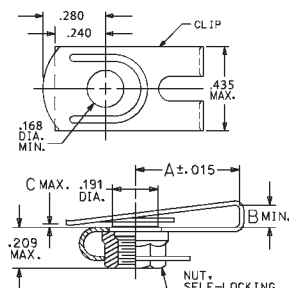
| PART #     | Thread Size | A<br>±.010 | B<br>±.010 | Nominal Edge<br>Distance | Mounting Sheet<br>Thickness | Recommended<br>Installation Hole Dia. |
|------------|-------------|------------|------------|--------------------------|-----------------------------|---------------------------------------|
| 13080000-3 | 8-32        | .395       | .163       | .375                     | .020-.120                   | .192-.202                             |
| 13080000-4 | 8-32        | .520       | .190       | .500                     | .020-.120                   | .192-.202                             |
| 13080000-5 | 8-32        | .665       | .190       | .625                     | .020-.120                   | .192-.202                             |

### 13100000-#

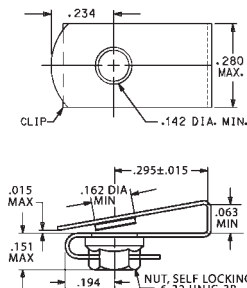


| PART #     | Thread Size | A<br>±.010 | B<br>±.010 | Nominal Edge<br>Distance | Mounting Sheet<br>Thickness | Recommended<br>Installation Hole Dia. |
|------------|-------------|------------|------------|--------------------------|-----------------------------|---------------------------------------|
| 13100000-2 | 10-32       | .300       | .130       | .281                     | .020-.120                   | .220-.230                             |
| 13100000-3 | 10-32       | .395       | .163       | .375                     | .020-.090                   | .220-.230                             |
| 13100000-4 | 10-32       | .520       | .190       | .500                     | .020-.120                   | .220-.230                             |
| 13100000-5 | 10-32       | .665       | .190       | .625                     | .020-.120                   | .220-.230                             |
| 13100000-6 | 10-32       | .749       | .280       | .705                     | .140-.250                   | .220-.230                             |

### 130007, 130008

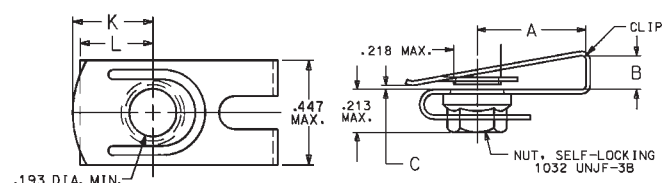


### 294667



| PART # | Thread Size | A    | B    | C    | Sheet Thickness | Nom. Edge Margin | PART # | Thread Size | Sheet Thickness | Nom. Edge Margin |
|--------|-------------|------|------|------|-----------------|------------------|--------|-------------|-----------------|------------------|
| 130007 | 8-32        | .520 | .095 | .015 | .020-.090       | .310-.500        | 294667 | 6-32        | .030-.062       | .280-.310        |
| 130008 | 8-32        | .395 | .075 | .015 | .020-.070       | .250-.380        |        |             |                 |                  |

### 130061, 130062, 130068

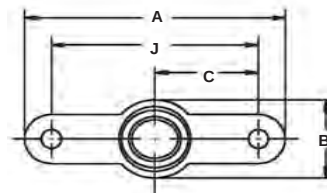


| PART # | Thread Size | A ±.015 | B Min. | C Max. | C Min. | K Max. | L Max. | Sheet Thickness | Nominal Edge Margin |
|--------|-------------|---------|--------|--------|--------|--------|--------|-----------------|---------------------|
| 130061 | 10-32       | .515    | .095   | .015   | .000   | .338   | .281   | .020-.090       | .350-.500           |
| 130062 | 10-32       | .665    | .095   | .015   | .000   | .338   | .281   | .020-.090       | .510-.650           |
| 130068 | 10-32       | .740    | .235   | .120   | .010   | .338   | .281   | .140-.230       | .600-.710           |

### MS21047 - TWO LUG, LOW HEIGHT NUTPLATE

"K" After Dash # Indicates Countersunk Riveting Holes

| Thread Size | A Max | B Max | C Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|-------|------------|--------------------|
|             |       |       |       |       |            | MS21047            |
| 6-32        | .948  | .265  | .344  | .688  | .171       | L06                |
| 6-32        | .948  | .265  | .344  | .688  | .250       | L06K               |
| 8-32        | .948  | .297  | .344  | .688  | .250       | L08                |
| 8-32        | .948  | .297  | .344  | .688  | .250       | L08K               |
| 10-32       | .948  | .328  | .344  | .688  | .250       | L3                 |
| 10-32       | .948  | .328  | .344  | .688  | .250       | L3K                |
| 1/4-28      | 1.260 | .414  | .500  | 1.00  | .281       | L4                 |
| 5/16-24     | 1.292 | .505  | .500  | 1.00  | .328       | L5                 |



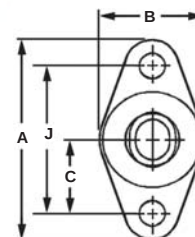
MS21047 is available without Dry Film Lube

MS21048 - Two Lug Nutplate Corrosion Resistant

### MS21049 - TWO LUG, LOW HEIGHT 100° COUNTERSUNK

"K" After Dash # Indicates Countersunk Riveting Holes

| Thread Size | A Max | B Max | C Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|-------|------------|--------------------|
|             |       |       |       |       |            | MS21049            |
| 8-32        | .948  | .422  | .344  | .688  | .272       | L08                |
| 8-32        | .948  | .422  | .344  | .688  | .272       | L08K               |
| 10-32       | .948  | .453  | .344  | .688  | .281       | L3                 |
| 10-32       | .948  | .453  | .344  | .688  | .281       | L3K                |
| 1/4-28      | 1.260 | .619  | .500  | 1.00  | .340       | L4                 |



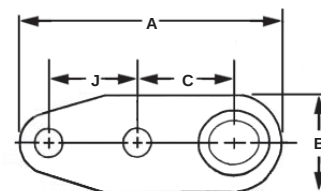
MS21049 is available without Dry Film Lube

MS21050 - Two Lug, Low Height Nutplate Corrosion Resistant

### MS21051 - ONE LUG NUTPLATE

"K" After Dash # Indicates Countersunk Riveting Holes

| Thread Size | A Max | B Max | C Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|-------|------------|--------------------|
|             |       |       |       |       |            | MS21051            |
| 6-32        | .935  | .297  | .344  | .312  | .171       | L06                |
| 6-32        | .935  | .297  | .344  | .312  | .171       | L06K               |
| 8-32        | .935  | .297  | .344  | .312  | .250       | L08                |
| 8-32        | .935  | .297  | .344  | .312  | .250       | L08K               |
| 10-32       | .950  | .328  | .344  | .312  | .250       | L3                 |
| 10-32       | .950  | .328  | .344  | .312  | .250       | L3K                |
| 1/4-28      | .993  | .414  | .344  | .312  | .281       | L4                 |



MS21051 is available without Dry Film Lube

MS21052 - One Lug Nutplate Corrosion Resistant

## MS21055 - CORNER NUTPLATE

"K" After Dash # Indicates Countersunk Riveting Holes

| Thread Size | A Max | C Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|------------|--------------------|
|             |       |       |       |            | MS21055            |
| 6-32        | .637  | .344  | .486  | .171       | L06                |
| 8-32        | .637  | .344  | .486  | .250       | L08                |
| 8-32        | .637  | .344  | .486  | .250       | L08K               |
| 10-32       | .653  | .344  | .486  | .250       | L3                 |
| 10-32       | .653  | .344  | .486  | .250       | L3K                |
| 1/4-28      | .852  | .500  | .707  | .281       | L4                 |

MS21055 is available without Dry Film Lube

MS21056 - Corner Nutplate Corrosion Resistant



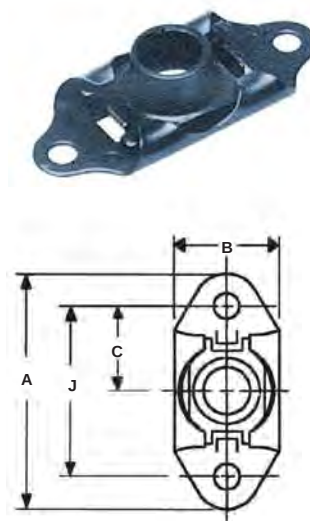
## MS21059 - TWO LUG, LOW HEIGHT, FLOATING NUTPLATE

"K" After Dash # Indicates Countersunk Riveting Holes

| Thread Size | A Max | B Max | C Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|-------|------------|--------------------|
|             |       |       |       |       |            | MS21059            |
| 4-40        | .948  | .416  | .344  | .688  | .175       | L04                |
| 6-32        | .948  | .416  | .344  | .688  | .203       | L06                |
| 6-32        | .948  | .416  | .344  | .688  | .203       | L06K               |
| 8-32        | .948  | .416  | .344  | .688  | .250       | L08                |
| 8-32        | .948  | .416  | .344  | .688  | .250       | L08K               |
| 10-32       | .948  | .416  | .344  | .688  | .250       | L3                 |
| 10-32       | .948  | .416  | .344  | .688  | .250       | L3K                |
| 1/4-28      | 1.292 | .516  | .500  | 1.00  | .281       | L4                 |
| 1/4-28      | 1.292 | .516  | .500  | 1.00  | .281       | L4K                |
| 5/16-24     | 1.292 | .609  | .500  | 1.00  | .328       | L5                 |
| 3/8-24      | 1.292 | .680  | .500  | 1.00  | .344       | L6                 |

MS21059 is available without Dry Film Lube

MS21060 - Two Lug, Low Height, Floating Corrosion Resistant



## MS21061 - ONE LUG, FLOATING NUTPLATE

"K" After Dash # Indicates Countersunk Riveting Holes

| Thread Size | A Max | B Max | C Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|------------|--------------------|
|             |       |       |       |            | MS21061            |
| 6-32        | 1.051 | .422  | .344  | .203       | L06                |
| 6-32        | 1.051 | .422  | .344  | .203       | L06K               |
| 8-32        | 1.051 | .422  | .344  | .250       | L08                |
| 8-32        | 1.051 | .422  | .344  | .250       | L08K               |
| 10-32       | 1.051 | .422  | .344  | .250       | L3                 |
| 10-32       | 1.051 | .422  | .344  | .250       | L3K                |
| 1/4-28      | 1.306 | .531  | .500  | .281       | L4                 |

MS21061 is available without Dry Film Lube

MS21062 - One Lug, Floating Nutplate Corrosion Resistant





## MS21069 - TWO LUG, LOW HEIGHT MINIATURE NUTPLATE

"K" After Dash # Indicates Countersunk Riveting Holes

| Thread Size | A Max | B Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|------------|--------------------|
|             |       |       |       |            | MS21069            |
| 4-40        | .630  | .260  | .406  | .143       | L04                |
| 6-32        | .661  | .265  | .437  | .171       | L06                |
| 6-32        | .661  | .265  | .437  | .171       | L06K               |
| 8-32        | .692  | .297  | .468  | .250       | L08                |
| 8-32        | .692  | .297  | .468  | .250       | L08K               |
| 10-32       | .724  | .328  | .500  | .250       | L3                 |
| 10-32       | .724  | .328  | .500  | .250       | L3K                |
| 1/4-28      | .786  | .414  | .562  | .281       | L4                 |
| 5/16-24     | 1.006 | .505  | .718  | .328       | L5                 |



MS21069 is available without Dry Film Lube

MS21070 - Two Lug, Low Height Miniature Corrosion Resistant

## MS21071 - ONE LUG, LOW HEIGHT MINIATURE NUTPLATE

| Thread Size | A Max | B Max | C Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|------------|--------------------|
|             |       |       |       |            | MS21071            |
| 4-40        | .667  | .260  | .203  | .143       | L04                |
| 6-32        | .684  | .265  | .218  | .171       | L06                |
| 6-32        | .684  | .265  | .218  | .171       | L06K               |
| 8-32        | .716  | .297  | .234  | .250       | L08                |
| 8-32        | .716  | .297  | .234  | .250       | L08K               |
| 10-32       | .745  | .328  | .250  | .250       | L3                 |
| 10-32       | .745  | .328  | .250  | .250       | L3K                |
| 1/4-28      | .822  | .414  | .281  | .281       | L4                 |



MS21071 is available without Dry Film Lube

MS21072 - One Lug, Low Height Miniature Corrosion Resistant

## MS21073 - CORNER, LOW HEIGHT MINIATURE NUTPLATE

| Thread Size | A Max | C Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|------------|--------------------|
|             |       |       |       |            | MS21073            |
| 4-40        | .448  | .203  | .287  | .143       | L04                |
| 6-32        | .463  | .218  | .308  | .171       | L06                |
| 8-32        | .497  | .234  | .331  | .250       | L08                |
| 10-32       | .526  | .250  | .354  | .250       | L3                 |
| 10-32       | .526  | .250  | .354  | .250       | L3K                |
| 1/4-28      | .603  | .281  | .398  | .281       | L4                 |
| 5/16-24     | .757  | .359  | .508  | .328       | L5                 |

MS21074 - Corner, Low Height Miniature Corrosion Resistant

(NAS698C) Reference MS21073 for Sizes



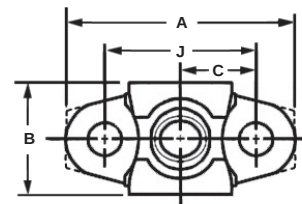


## MS21075 - TWO LUG, LOW HEIGHT MINIATURE FLOATING NUTPLATE

| Thread Size | A Max | B Max | C Max | J Max | Height Max | with Dry Film Lube |
|-------------|-------|-------|-------|-------|------------|--------------------|
|             |       |       |       |       |            | MS21075            |
| 4-40        | .651  | .315  | .203  | .406  | .153       | L04N               |
| 6-32        | .682  | .357  | .218  | .437  | .171       | L06N               |
| 8-32        | .707  | .367  | .234  | .468  | .250       | L08N               |
| 10-32       | .739  | .416  | .250  | .500  | .250       | L3N                |
| 1/4-28      | .801  | .500  | .281  | .562  | .281       | L4N                |
| 5/16-24     | 1.010 | .581  | .359  | .718  | .328       | L5N                |

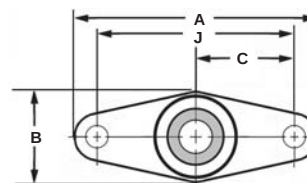
MS21075 is Available Without Dry Film Lube

MS21076 - Two Lug, Low Height Miniature Corrosion Resistant



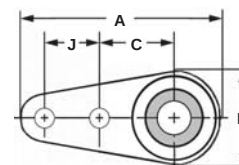
## MS21078 - TWO LUG NUTPLATE WITH NYLON INSERT

| Thread Size | A Max | B Max | C Max | J Max | Height Max | MS21078 |
|-------------|-------|-------|-------|-------|------------|---------|
| 6-32        | .984  | .406  | .344  | .688  | .234       | -06     |
| 8-32        | .984  | .406  | .344  | .688  | .297       | -08     |
| 10-32       | .984  | .406  | .344  | .688  | .312       | -3      |



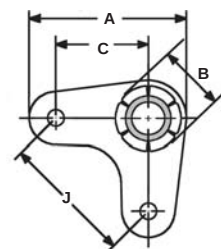
## MS21080 - ONE LUG NUTPLATE WITH NYLON INSERT

| Thread Size | A Max | B Max | C Max | J Max | Height Max | MS21080 |
|-------------|-------|-------|-------|-------|------------|---------|
| 8-32        | 1.031 | .406  | .344  | .312  | .297       | -08     |
| 10-32       | 1.031 | .406  | .344  | .312  | .312       | -3      |
| 1/4-28      | 1.062 | .516  | .344  | .312  | .375       | -4      |



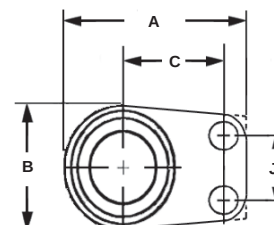
## MS21081 - CORNER NUTPLATE WITH NYLON INSERT

| Thread Size | A Max | B Max | C Max | J Max | Height Max | MS21081 |
|-------------|-------|-------|-------|-------|------------|---------|
| 6-32        | .703  | .406  | .344  | .486  | .234       | -06     |
| 8-32        | .703  | .406  | .344  | .486  | .297       | -08     |
| 10-32       | .703  | .406  | .344  | .486  | .312       | -3      |
| 1/4-28      | .906  | .514  | .500  | .707  | .375       | -4      |

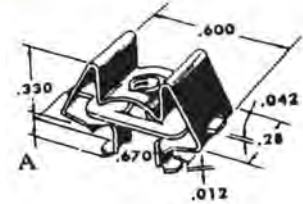


## MS21086 - SIDE BY SIDE REDUCED RIVET SPACING NUT PLATE

| Thread Size | A Max | B Max | C Max | J Max | Height Max | MS21086 |
|-------------|-------|-------|-------|-------|------------|---------|
| 8-32        | .486  | .297  | .234  | .219  | .250       | L08     |
| 10-32       | .521  | .328  | .250  | .219  | .250       | L3      |
| 1/4-28      | .591  | .414  | .281  | .219  | .281       | L4      |

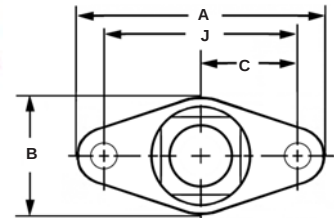


## MS33737-# INSTRUMENT MOUNTING NUT



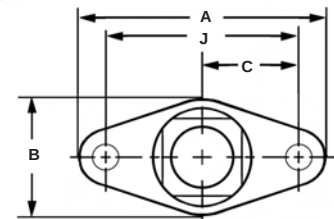
| Panel Range | A Max | MS33737 | For Ref. Only<br>NAS487 |
|-------------|-------|---------|-------------------------|
| .062        | .438  | 9C      | 13                      |
| .093        | .469  | 10C     | 14                      |
| .125        | .500  | 11C     | 15                      |
| .187        | .562  | 12C     | 16                      |
| .250        | .625  | 13C     | 17                      |
| .312        | .688  | 14C     | 18                      |
| .375        | .750  | 15C     | 20                      |
| .375+       | .750  | 16C     | 21                      |

## NAS1473 - TWO LUG, FLOATING, CAPPED NUTPLATE



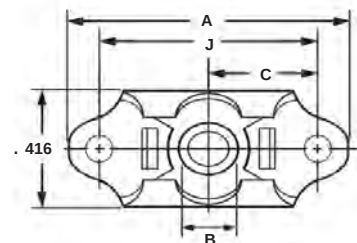
| Thread Size | A Max | B Max | C Max | J Max | Height Max | NAS1473 | NAS1473 |
|-------------|-------|-------|-------|-------|------------|---------|---------|
| 8-32        | .989  | .568  | .344  | .688  | .640       | A08     | C08     |
| 10-32       | .989  | .568  | .344  | .688  | .640       | A3      | C3      |
| 1/4-28      | 1.296 | .668  | .500  | 1.000 | .755       | A4      | C4      |
| 5/16-24     | 1.296 | .762  | .500  | 1.000 | .823       | A5      | C5      |

## NAS1474 - TWO LUG, FLOATING, CAPPED NUTPLATE, WITH REDUCED RIVET SPACING



| Thread Size | A Max | B Max | C Max | J Max | Height Max | NAS1474 | NAS1474 |
|-------------|-------|-------|-------|-------|------------|---------|---------|
| 6-32        | .840  | .443  | .295  | .590  | .405       | A06     | —       |
| 8-32        | .840  | .443  | .295  | .590  | .405       | A08     | C08     |
| 10-32       | .840  | .443  | .295  | .590  | .405       | A3      | C3      |
| 1/4-28      | 1.000 | .635  | .376  | .752  | .560       | A4      | C4      |

## NAS1870 - TWO LUG FLOATING, DEEP COUNTERBORE



| Thread Size | A Max | B Max | C Max | J Max | Height Max | NAS1870 |
|-------------|-------|-------|-------|-------|------------|---------|
| 10-32       | .948  | .250  | .344  | .688  | .312       | -3-2    |
| 10-32       | .948  | .250  | .344  | .688  | .375       | -3-3    |
| 10-32       | .948  | .250  | .344  | .688  | .438       | -3-4    |

## TINNERMAN NUT

"U" Type (Pre-packaged bags quantity of 50)

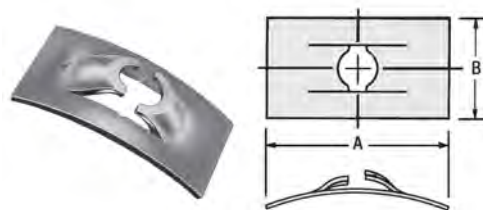
| Tinnerman Part # | Screw Size | For Your Reference Only | A Length | B Width |
|------------------|------------|-------------------------|----------|---------|
| A1784-6Z1D       | #6         | NAS395-6                | .610     | .440    |
| A1785-6Z1D       | #6         | NAS395-7                | .840     | .440    |
| A1786-8Z1D       | #8         | NAS395-12               | .530     | .500    |
| D1274-8-1        | #8         | NAS395-14               | .500     | .500    |
| A1789-8Z1D       | #8         | NAS395-16               | .610     | .440    |
| A1348-8Z1D       | #8         | NAS395-17               | .730     | .500    |
| A1787-8Z1D       | #8         | NAS395-18               | .840     | .440    |
| A1788-8Z1D       | #8         | ---                     | .840     | .440    |
| A1758-10Z1D      | #10        | NAS395-24               | .620     | .440    |
| A1787-10Z1D      | #10        | ---                     | .840     | .440    |
| A1932-8Z1D       | #8         | ---                     | .580     | .500    |



## TINNERMAN NUT

"Flat" Type (Pre-packaged bags quantity of 50)

| Tinnerman Part # | Screw Size | For Your Reference Only | A Length | B Width |
|------------------|------------|-------------------------|----------|---------|
| A1776-4Z1D       | #4         | NAS446-1                | .500     | .312    |
| A1777-6Z1D       | #6         | --                      | .630     | .437    |
| A1778-8Z1D       | #8         | NAS446-4                | .625     | .437    |
| A1779-10Z1D      | #10        | NAS446-5                | .875     | .500    |



## TINNERMAN NUTPLATE

50 pcs. min.

| Tinnerman Part # | Screw Size |
|------------------|------------|
| A6195-6Z1D       | #6         |
| A6195-8Z1D       | #8         |



## PIPER CLIPNUT

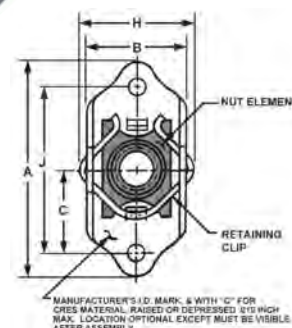


| Part #        | Piper Part # | Diameter |
|---------------|--------------|----------|
| 11204 New Rev | 477-640      | 8-32     |
| 11202 Old Rev |              |          |

## NAS1791 - TWO LUG, SELF-LOCKING, FLOATING, VARIABLE COUNTERBORE NUTPLATE

Replaceable Nut Element,  
125 KSI, 450°F & 800°F

| Thread Size | A Max | B Max | C ±.005 | H Max | J ±.002 | Height Max | NAS1791 | NAS1791 |
|-------------|-------|-------|---------|-------|---------|------------|---------|---------|
| 10-32       | .948  | .445  | .344    | .484  | .688    | .640       | A3-1    | C3-1    |
|             |       |       |         |       |         | .640       | A3-2    | C3-2    |
|             |       |       |         |       |         | .755       | A3-3    | C3-3    |
|             |       |       |         |       |         | .823       | A3-4    | C3-4    |
| 1/4-28      | 1.292 | .547  | .500    | .584  | 1.00    | .640       | A4-1    | C4-1    |
|             |       |       |         |       |         | .640       | A4-2    | C4-2    |
|             |       |       |         |       |         | .755       | A4-3    | C4-3    |
|             |       |       |         |       |         | .823       | A4-4    | C4-4    |

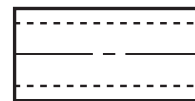
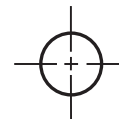


## NAS43DD

Spacers

"FC" Indicates Chemical Film Finish

"N" Indicates Gray Anodized Finish



Use For #8 & #10 - 3 (Dia. .164 & .190) and 4 (Dia. .250)

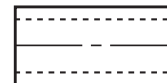
| Length | NAS43DD3- | Length | NAS43DD3- | Length | NAS43DD3- | Length | NAS43DD4- |
|--------|-----------|--------|-----------|--------|-----------|--------|-----------|
| 1/16   | 4FC       | 11/32  | 22FC      | 21/32  | 42FC      | 1/8    | 8FC       |
| 5/64   | 5FC       | 23/64  | 23FC      | 11/16  | 44FC      | 5/32   | 10FC      |
| 3/32   | 6FC       | 3/8    | 24FC      | 3/4    | 48FC      | 3/16   | 12FC      |
| 7/32   | 7FC       | 3/8    | 24N       | 3/4    | 48N       | 1/4    | 16FC      |
| 1/8    | 8FC       | 13/32  | 26FC      | 13/16  | 52N       | 5/16   | 20FC      |
| 1/8    | 8N        | 7/16   | 28FC      | 27/32  | 54FC      | 3/8    | 24FC      |
| 5/32   | 10FC      | 15/32  | 30FC      | 7/8    | 56FC      | 13/32  | 26FC      |
| 3/16   | 12FC      | 1/2    | 32FC      | 29/32  | 58FC      | 7/16   | 28FC      |
| 3/16   | 12N       | 1/2    | 32N       | 1      | 64FC      | 15/32  | 30FC      |
| 7/32   | 14FC      | 17/36  | 34FC      | 1      | 64N       | 1/2    | 32FC      |
| 15/64  | 15FC      | 35/64  | 35FC      | 1-1/4  | 80N       | 9/16   | 36FC      |
| 1/4    | 16FC      | 9/16   | 36FC      | 1-1/2  | 96FC      | 5/8    | 40FC      |
| 1/4    | 16N       | 19/32  | 38FC      | 1-3/4  | 112FC     | 21/32  | 42FC      |
| 9/32   | 18FC      | 5/8    | 40FC      | 2      | 128FC     | 3/4    | 48FC      |
| 5/16   | 20FC      | 5/8    | 40N       |        |           | 1      | 64FC      |

## NAS43HT

Spacers

"HT" Indicates Heat Treated

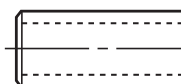
Alloy Steel



| Length | NAS43HT | Length | NAS43HT |
|--------|---------|--------|---------|
| 1/8    | 0-8     | 3/8    | 3-24    |
| 1/8    | 3-8     | 3-3/8  | 3-216   |
| 10/64  | 3-10    | 1/2    | 3-32    |
| 3/16   | 3-12    | 3/4    | 3-48    |
| 7/32   | 3-14    | 3/32   | 4-6     |
| 1/4    | 3-16    | 1/8    | 4-8     |
| 9/32   | 3-18    | 10/64  | 4-10    |
| 5/16   | 3-20    | 3/16   | 4-12    |
| 11/32  | 3-22    | 1/4    | 4-16    |

## NAS75

Bushings



| Length | .190 Dia.<br>NAS75-3 | Length | .250 Dia.<br>NAS75-4 | Length | .3125 Dia.<br>NAS75-5 |
|--------|----------------------|--------|----------------------|--------|-----------------------|
| 3/32   | -003                 | 3/32   | -003                 | 3/32   | ---                   |
| 1/8    | -004                 | 1/8    | -004                 | 1/8    | -004                  |
| 5/32   | -005                 | 5/32   | -005                 | 5/32   | ---                   |
| 3/16   | -006                 | 3/16   | -006                 | 3/16   | -006                  |
| 7/32   | -007                 | 7/32   | -007                 | 7/32   | -007                  |
| 1/4    | -008                 | 1/4    | -008                 | 1/4    | -008                  |
| 9/32   | -009                 | 9/32   | -009                 | 9/32   | -009                  |
| 5/16   | -010                 | 5/16   | -010                 | 5/16   | -010                  |
| 11/32  | ---                  | 11/32  | -011                 | 11/32  | -011                  |
| 3/8    | -012                 | 3/8    | -012                 | 3/8    | -012                  |
| 13/32  | -013                 | 13/32  | -013                 | 13/32  | -013                  |
| 7/16   | -014                 | 7/16   | ---                  | 7/16   | -014                  |
| 15/32  | ---                  | 15/32  | ---                  | 15/32  | -015                  |
| 1/2    | -016                 | 1/2    | -016                 | 1/2    | ---                   |

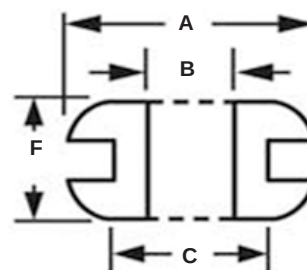
## GROMMETS MS35489

**AN931** - Alternate #

No Code (after dash #) - Synthetic Rubber

X (after dash #) - Silicone Rubber

| MS35489 | AN931  | B Hole | C Groove | A Outside | F Dimension |
|---------|--------|--------|----------|-----------|-------------|
| 140     | --     | .125   | .188     | .312      | .188        |
| 1       | --     | .125   | .250     | .344      | .188        |
| 2       | 2-9    | .125   | .562     | .750      | .188        |
| 3       | 2-16   | .125   | 1.000    | 1.250     | .250        |
| 3X      | --     | .125   | 1.000    | 1.250     | .250        |
| 4       | 3-5    | .188   | .312     | .438      | .188        |
| 4X      | --     | .188   | .312     | .438      | .188        |
| 134     | 3-9    | .188   | .562     | .750      | .188        |
| 134X    | --     | .188   | .562     | .750      | .188        |
| 5       | 3-10   | .188   | .625     | .875      | .188        |
| 6       | 4-7    | .250   | .438     | .625      | .188        |
| 7       | 4-12   | .250   | .750     | 1.000     | .250        |
| 8       | 4-16   | .250   | 1.000    | 1.250     | .250        |
| 8X      | --     | .250   | 1.000    | 1.250     | .250        |
| 9       | 5-9    | .312   | .562     | .812      | .312        |
| 10      | 5-12   | .312   | .750     | 1.000     | .312        |
| 118     | 5-13   | .312   | .812     | 1.062     | .312        |
| 141     | --     | .375   | .500     | .656      | .250        |
| 11      | 6-10   | .375   | .625     | .875      | .312        |
| 12      | 6-16   | .375   | 1.000    | 1.250     | .250        |
| 13      | 7-11   | .438   | .688     | .938      | .312        |
| 149     | --     | .500   | .750     | 1.000     | .250        |
| 14      | 8-13   | .500   | .812     | 1.062     | .312        |
| 14X     | --     | .500   | .812     | 1.062     | .312        |
| 15      | 8-20   | .500   | 1.250    | 1.500     | .250        |
| 16      | 9-13   | .562   | .812     | 1.062     | .312        |
| 17      | 10-14  | .625   | .875     | 1.125     | .312        |
| 18      | 10-20  | .625   | 1.250    | 1.500     | .250        |
| 19      | 11-16  | .688   | 1.000    | 1.312     | .375        |
| 20      | 12-17  | .750   | 1.062    | 1.375     | .375        |
| 135     | 12-20  | .750   | 1.250    | 1.625     | .250        |
| 21      | 12-23  | .750   | 1.438    | 1.812     | .375        |
| 22      | 14-20  | .875   | 1.250    | 1.625     | .438        |
| 121     | 14-26  | .875   | 1.625    | 2.000     | .438        |
| 23      | 16-22  | 1.000  | 1.375    | 1.750     | .438        |
| 24      | 16-30  | 1.000  | 1.875    | 2.250     | .438        |
| 27      | 24-28  | 1.500  | 1.750    | 2.125     | .438        |
| 142     | --     | .125   | .250     | .344      | .218        |
| 150     | --     | .500   | .750     | 1.000     | .281        |
| 33      | A3-5   | .188   | .312     | .438      | .250        |
| 34      | A3-10  | .188   | .625     | .875      | .250        |
| 35      | A4-7   | .250   | .438     | .625      | .250        |
| 36      | A4-12  | .250   | .750     | 1.000     | .312        |
| 38      | A5-9   | .312   | .562     | .812      | .375        |
| 39      | A5-12  | .312   | .750     | 1.000     | .375        |
| 40      | A6-10  | .375   | .625     | .875      | .375        |
| 41      | A6-16  | .375   | 1.000    | 1.250     | .312        |
| 42      | A11-16 | .438   | .688     | .938      | .375        |
| 43      | A8-13  | .500   | .812     | 1.062     | .375        |
| 48      | B2-9   | .688   | 1.000    | 1.312     | .438        |
| 50      | A12-23 | .750   | 1.438    | 1.812     | .438        |
| 52      | A16-22 | 1.000  | 1.375    | 1.750     | .500        |
| 56      | A24-28 | 1.500  | 1.750    | 2.125     | .500        |
| 64      | B4-7   | .250   | .438     | .625      | .312        |
| 69      | B6-10  | .375   | .625     | .875      | .438        |
| 93      | C4-7   | .250   | .438     | .625      | .375        |





### MS28775 O'Ring

| Thickness | Inside Dia. | MS28775 |
|-----------|-------------|---------|
| .070      | .070        | 004     |
|           | .102        | 005     |
|           | .113        | 006     |
|           | .145        | 007     |
|           | .176        | 008     |
|           | .208        | 009     |
|           | .239        | 010     |
|           | .301        | 011     |
|           | .364        | 012     |
|           | .426        | 013     |
|           | .489        | 014     |
|           | .551        | 015     |
|           | .614        | 016     |
|           | .676        | 017     |
|           | .739        | 018     |
|           | .801        | 019     |
|           | .864        | 020     |
|           | .932        | 021     |
|           | .989        | 022     |
|           | 1.051       | 023     |
|           | 1.114       | 024     |
|           | 1.176       | 025     |
|           | 1.239       | 026     |
|           | 1.301       | 027     |
|           | 1.364       | 028     |
|           | 1.489       | 029     |
| .103      | .362        | 110     |
|           | .424        | 111     |
|           | .487        | 112     |
|           | .549        | 113     |
|           | .612        | 114     |
|           | .674        | 115     |
|           | .737        | 116     |
|           | .799        | 117     |
|           | .862        | 118     |
|           | .924        | 119     |
|           | .987        | 120     |
|           | 1.049       | 121     |
|           | 1.112       | 122     |
|           | 1.174       | 123     |
|           | 1.237       | 124     |
|           | 1.299       | 125     |
|           | 1.362       | 126     |
|           | 1.424       | 127     |
|           | 1.487       | 128     |
|           | 1.549       | 129     |
|           | 1.549       | 130     |
|           | 1.674       | 131     |
|           | 1.737       | 132     |
|           | 1.799       | 133     |
|           | 1.862       | 134     |
|           | 1.925       | 135     |
|           | 1.987       | 136     |
|           | 2.050       | 137     |
|           | 2.112       | 138     |
|           | 2.175       | 140     |
|           | 2.300       | 141     |
|           | 2.362       | 142     |
|           | 2.425       | 143     |
|           | 2.487       | 144     |
|           | 2.550       | 145     |
|           | 2.612       | 146     |
|           | 2.675       | 147     |
|           | 2.737       | 148     |
|           | 3.987       | 155     |
| .139      | .234        | 202     |
|           | .734        | 210     |
|           | .796        | 211     |

### MS28775 O'Ring

| Thickness | Inside Dia. | MS28775 |
|-----------|-------------|---------|
| .139      | .859        | 212     |
|           | .921        | 213     |
|           | .984        | 214     |
|           | 1.046       | 215     |
|           | 1.109       | 216     |
|           | 1.171       | 217     |
|           | 1.234       | 218     |
|           | 1.296       | 219     |
|           | 1.359       | 220     |
|           | 1.421       | 221     |
|           | 1.484       | 222     |
|           | 1.609       | 223     |
|           | 1.726       | 224     |
|           | 1.850       | 225     |
|           | 1.980       | 226     |
|           | 2.110       | 227     |
|           | 2.334       | 228     |
|           | 2.359       | 229     |
|           | 2.484       | 230     |
|           | 2.609       | 231     |
|           | 2.734       | 232     |
|           | 2.859       | 233     |
|           | 2.984       | 234     |
|           | 3.109       | 235     |
|           | 3.234       | 236     |
|           | 3.359       | 237     |
|           | 3.484       | 238     |
|           | 3.609       | 239     |
|           | 3.734       | 240     |
|           | 3.859       | 241     |
|           | 3.984       | 242     |
| .210      | 4.109       | 243     |
|           | 4.234       | 244     |
|           | 4.609       | 247     |
|           | 5.984       | 258     |
|           | 6.507       | 260     |
|           | 6.711       | 261     |
|           | 7.984       | 266     |
|           | 8.204       | 267     |
|           | 8.734       | 269     |
|           | 10.48       | 275     |
|           | 1.425       | 325     |
|           | 1.600       | 326     |
|           | 1.725       | 327     |
|           | 1.850       | 328     |
|           | 1.975       | 329     |
|           | 2.100       | 330     |
|           | 2.225       | 331     |
|           | 2.350       | 332     |
|           | 2.475       | 333     |
|           | 2.600       | 334     |
|           | 2.725       | 335     |
|           | 2.855       | 336     |
|           | 2.975       | 337     |
|           | 3.100       | 338     |
|           | 3.225       | 339     |
|           | 3.350       | 340     |
|           | 3.475       | 341     |
|           | 3.725       | 343     |

### MS28773

Back Up Retainer  
Material - Teflon



| Thickness | Width | Nom. Tube O.D. | MS28773 |
|-----------|-------|----------------|---------|
| 1/4       | 1/4   | 1/4            | -04     |
| 5/16      | 5/16  | 5/16           | -05     |
| 3/8       | 3/8   | 3/8            | -06     |
| 1/2       | 1/2   | 1/2            | -08     |
| 5/8       | 5/8   | 5/8            | -10     |
| 3/4       | 3/4   | 3/4            | -12     |
| 1         | 1     | 1              | -16     |

### MS28774

Back Up Retainer  
Material - Teflon



| Thickness    | Width        | I.D.  | MS28774 |
|--------------|--------------|-------|---------|
| .045<br>.052 | .052<br>.054 | .100  | -004    |
|              |              | .148  | -006    |
|              |              | .171  | -007    |
|              |              | .202  | -008    |
|              |              | .265  | -010    |
|              |              | .327  | -011    |
|              |              | .390  | -012    |
|              |              | .455  | -013    |
|              |              | .518  | -014    |
|              |              | .580  | -015    |
|              | .085<br>.087 | .643  | -016    |
|              |              | .768  | -018    |
|              |              | .830  | -019    |
|              |              | 1.023 | -022    |
|              |              | 1.273 | -026    |
|              |              | .398  | -110    |
|              |              | .452  | -111    |
|              |              | .515  | -112    |
|              |              | .577  | -113    |
|              |              | .648  | -114    |
| .065<br>.075 | .118<br>.120 | .765  | -116    |
|              |              | .832  | -117    |
|              |              | 1.459 | -127    |
|              |              | 1.522 | -128    |
|              |              | 1.834 | -133    |
|              |              | 2.022 | -136    |
|              | .182<br>.184 | .766  | -210    |
|              |              | .828  | -211    |
|              |              | .891  | -212    |
|              |              | .953  | -213    |
|              |              | 1.016 | -214    |
|              |              | 1.078 | -215    |
|              |              | 1.141 | -216    |
|              |              | 1.203 | -217    |
|              |              | 1.459 | -221    |
|              |              | 1.522 | -222    |
|              |              | 1.647 | -223    |
|              |              | 1.772 | -224    |
|              |              | 2.022 | -226    |
|              |              | 2.147 | -227    |
|              |              | 2.272 | -228    |
|              |              | 2.522 | -230    |
|              |              | 1.638 | -326    |
|              |              | 1.763 | -327    |
|              |              | 1.888 | -328    |
|              |              | 2.013 | -329    |
|              |              | 2.138 | -330    |
|              |              | 2.268 | -331    |
|              |              | 2.393 | -332    |

### MS28776

Scraper Piston Rod  
Material - Metal



Cross-section of MS28776

| MS28776      | Rod O.D. | Scraper O.D. | Thickness |
|--------------|----------|--------------|-----------|
| MS28776M2-21 | 2        | 2.282        | .094      |
| MS28776M2-22 | 2-1/8    | 2.407        | .094      |
| MS28776M2-23 | 2-1/4    | 2.532        | .094      |

### MS28777

Back Up Washer  
Material - Leather



| Thickness | Tubing O.D. | Inside Dia. | MS28777 |
|-----------|-------------|-------------|---------|
| .094      | 3/16        | .2960       | -3      |
|           | 1/4         | .3430       | -4      |
|           | 5/16        | .4060       | -5      |
|           | 3/8         | .4680       | -6      |
|           | 1/2         | .6400       | -8      |

### MS28778 Packing

Material - Nitrile 90



| Thickness | Tubing O.D. | Inside Dia. | MS28778 |
|-----------|-------------|-------------|---------|
| .064      | 1/8         | .239        | -2      |
|           | 3/16        | .301        | -3      |
| .072      | 1/4         | .351        | -4      |
|           | 5/16        | .414        | -5      |
| .078      | 3/8         | .468        | -6      |
|           | 1/2         | .644        | -8      |
| .087      | 5/8         | .755        | -10     |
|           | 3/4         | .924        | -12     |
| .116      | 7/8         | 1.047       | -14     |
|           | 1           | 1.171       | -16     |
| .118      | 1-1/4       | 1.475       | -20     |

## MS29512 PACKING

| Thickness | Tubing O.D. | MS29512 | Thickness | Tubing O.D. | MS29512 |
|-----------|-------------|---------|-----------|-------------|---------|
| .064      | 1/8         | -02     | .097      | 9/16        | -09     |
| .064      | 3/16        | -03     | .097      | 5/8         | -10     |
| .072      | 1/4         | -04     | .116      | 3/4         | -12     |
| .072      | 5/16        | -05     | .116      | 7/8         | -14     |
| .078      | 3/8         | -06     | .116      | 1           | -16     |
| .082      | 7/16        | -07     | .118      | 1-1/4       | -20     |
| .087      | 1/2         | -08     |           |             |         |

## MS29513 O'Ring

| Thickness | Inside Dia. | MS29513 | Thickness | Inside Dia. | MS29513 |
|-----------|-------------|---------|-----------|-------------|---------|
| .070      | .101        | -005    | .103      | 1.549       | -129    |
|           | .114        | -006    |           | 1.612       | -130    |
|           | .145        | -007    |           | 1.674       | -131    |
|           | .176        | -008    |           | 1.737       | -132    |
|           | .208        | -009    |           | 1.799       | -133    |
|           | .239        | -010    |           | 1.862       | -134    |
|           | .301        | -011    |           | 1.925       | -135    |
|           | .364        | -012    |           | 1.987       | -136    |
|           | .426        | -013    |           | 2.050       | -137    |
|           | .489        | -014    |           | 2.112       | -138    |
|           | .551        | -015    |           | 2.737       | -148    |
|           | .614        | -016    | .139      | .734        | -210    |
|           | .676        | -017    |           | .859        | -212    |
|           | .739        | -018    |           | .921        | -213    |
|           | .801        | -019    |           | .984        | -214    |
|           | .864        | -020    |           | 1.046       | -215    |
|           | .926        | -021    |           | 1.109       | -216    |
|           | .986        | -022    |           | 1.171       | -217    |
|           | 1.051       | -023    |           | 1.234       | -218    |
|           | 1.114       | -024    |           | 1.296       | -219    |
|           | 1.176       | -025    |           | 1.359       | -220    |
|           | 1.239       | -026    |           | 1.484       | -222    |
|           | 1.301       | -027    |           | 1.609       | -223    |
|           | 1.489       | -029    |           | 1.734       | -224    |
|           | 1.739       | -031    |           | 1.859       | -225    |
|           | 2.114       | -034    |           | 1.984       | -226    |
|           |             |         |           | 2.109       | -227    |
|           | .362        | -110    |           | 2.484       | -230    |
|           | .424        | -111    |           | 2.609       | -231    |
|           | .487        | -112    |           | 2.734       | -232    |
|           | .549        | -113    |           | 2.859       | -233    |
|           | .612        | -114    |           | 2.984       | -234    |
|           | .674        | -115    |           | 3.109       | -235    |
|           | .737        | -116    |           | 3.234       | -236    |
|           | .799        | -117    |           | 3.359       | -237    |
|           | .862        | -118    |           | 3.484       | -238    |
|           | .924        | -119    |           | 3.734       | -240    |
|           | .987        | -120    |           | 3.859       | -241    |
|           | 1.049       | -121    |           | 4.109       | -243    |
|           | 1.112       | -122    | .210      | 1.725       | -327    |
|           | 1.174       | -123    |           | 3.100       | -338    |
| .103      | 1.362       | -126    |           |             |         |
|           | 1.424       | -127    |           |             |         |
|           |             |         |           |             |         |
|           |             |         |           |             |         |
|           |             |         |           |             |         |
|           |             |         |           |             |         |
|           |             |         |           |             |         |

**Thickness and Inside Diameter Dimensions Deviate  $\pm .003$  to  $\pm .005$**   
**Larger O'Ring Dimensions Deviate  $\pm .01$  on I.D.**

### MS29561 O'Ring

| Thick | Inside Dia. | MS29561 |
|-------|-------------|---------|
| .070  | .176        | -008    |
|       | .239        | -010    |
|       | .301        | -011    |
|       | .364        | -012    |
|       | .426        | -013    |
|       | .489        | -014    |
|       | .551        | -015    |
|       | .676        | -017    |
|       | .864        | -020    |
|       | .926        | -021    |
|       | .989        | -022    |
|       | 1.114       | -024    |
|       | 1.176       | -025    |
|       | 1.239       | -026    |
| .103  | .362        | -110    |
|       | .424        | -111    |
|       | .487        | -112    |
|       | .549        | -113    |
|       | .612        | -114    |
|       | .674        | -115    |
|       | .737        | -116    |
|       | .924        | -119    |
|       | 1.049       | -121    |
|       | 1.925       | -135    |
|       | 2.112       | -138    |
| .139  | .734        | -210    |
|       | .859        | -212    |
|       | .859        | -213    |
|       | .984        | -214    |
|       | 1.046       | -215    |
|       | 1.234       | -218    |
|       | 1.296       | -219    |
|       | 2.484       | -230    |
|       | 2.734       | -232    |
|       | 2.984       | -234    |
|       | 3.109       | -235    |
|       | 3.234       | -236    |
|       | 3.359       | -237    |
|       | 3.484       | -238    |
|       | 3.609       | -239    |
|       | 4.734       | -244    |
|       | 4.234       | -248    |

### MS9385 O'Ring

| MS9385 |
|--------|
| -03    |
| -04    |
| -05    |
| -06    |
| -07    |
| -08    |
| -09    |
| -12    |

### M25988/1 O'Ring

| M25988/1 |
|----------|
| -010     |
| -011     |
| -012     |
| -015     |
| -016     |
| -017     |
| -022     |
| -026     |
| -037     |
| -111     |
| -115     |
| -134     |
| -138     |
| -142     |
| -152     |
| -153     |
| -212     |
| -235     |
| -271     |
| -382     |
| -902     |
| -903     |
| -904     |
| -906     |
| -908     |
| -912     |
| -916     |
| -928     |

### M25988/2 O'Ring

|              |
|--------------|
| M25988/2-032 |
| M25988/2-904 |
| M25988/3-009 |
| M25988/3-013 |
| M25988/3-014 |
| M25988/4-010 |
| M25988/4-904 |

### M83461/1 O'Ring

| M83461/1 | M83461/1 |
|----------|----------|
| -010     | -136     |
| -011     | -141     |
| -012     | -210     |
| -013     | -212     |
| -014     | -215     |
| -015     | -216     |
| -016     | -218     |
| -018     | -222     |
| -020     | -224     |
| -024     | -226     |
| -110     | -227     |
| -111     | -236     |
| -112     | -326     |
| -117     | -328     |
| -130     | -330     |
| -135     |          |

### M83248/1 O'Ring

| M83248/1 | M83248/1 |
|----------|----------|
| -002     | -140     |
| -003     | -141     |
| -004     | -142     |
| -006     | -143     |
| -007     | -144     |
| -008     | -145     |
| -009     | -146     |
| -010     | -151     |
| -011     | -152     |
| -012     | -153     |
| -013     | -154     |
| -014     | -157     |
| -015     | -158     |
| -016     | -159     |
| -017     | -162     |
| -018     | -208     |
| -019     | -210     |
| -020     | -212     |
| -021     | -213     |
| -022     | -214     |
| -023     | -215     |
| -024     | -216     |
| -025     | -217     |
| -026     | -218     |
| -027     | -219     |
| -028     | -220     |
| -029     | -222     |
| -030     | -224     |
| -031     | -226     |
| -032     | -227     |
| -033     | -228     |
| -034     | -230     |
| -035     | -231     |
| -036     | -232     |
| -037     | -234     |
| -038     | -235     |
| -039     | -236     |
| -040     | -237     |
| -041     | -238     |
| -043     | -239     |
| -110     | -240     |
| -111     | -241     |
| -112     | -242     |
| -113     | -243     |
| -114     | -244     |
| -115     | -246     |
| -116     | -247     |
| -117     | -248     |
| -118     | -249     |
| -119     | -251     |
| -120     | -254     |
| -121     | -258     |
| -122     | -259     |
| -123     | -264     |
| -125     | -266     |
| -126     | -277     |
| -127     | -278     |
| -128     | -902     |
| -129     | -903     |
| -130     | -904     |
| -131     | -905     |
| -133     | -906     |
| -134     | -907     |
| -135     | -908     |
| -136     | -910     |
| -137     | -912     |
| -138     | -916     |
| -139     | -920     |

Thickness and Inside Diameter Dimensions Deviate  $\pm .003$  to  $\pm .005$   
Larger O'Ring Dimensions Deviate  $\pm .01$  on I.D.

### NAS617 Packing

| Thickness | Tubing O.D. | NAS617 |
|-----------|-------------|--------|
| .064      | 1/8         | -2     |
| .064      | 3/16        | -3     |
| .072      | 1/4         | -4     |
| .072      | 5/16        | -5     |
| .078      | 3/8         | -6     |
| .087      | 1/2         | -8     |
| .097      | 5/8         | -10    |
| .116      | 3/4         | -12    |
| .116      | 1           | -16    |
| .118      | 1-1/4       | -20    |

### NAS1611

#### Pre Formed O'Ring Packing

| NAS1611 | NAS1611 |
|---------|---------|
| -009    | -110A   |
| -009A   | -111    |
| -010    | -112    |
| -010A   | -114    |
| -012    | -116    |
| -012A   | -117    |
| -014A   | -120    |
| -015    | -132A   |
| -017A   | -214A   |
| -018A   | -216A   |
| -020A   | -218    |
| -024A   | -220    |
| -026A   | -223    |
| -028A   | -228A   |
| -110    | -260A   |

### NAS1523

#### Packing with Retainer

"C" after Base Part # indicates  
Corrosion Resistant Retainer

"-" after Base Part # indicates Steel Retainer

"R" after Dash # indicates Fluorinated Silicone  
Materials Per MIL-R-25988

"Y" after Dash # indicates Buna -N Material Per  
MIL-R-7362 Type I

"AA" after Base Part # indicates Aluminum Alloy

| Screw Size | O.D. | I.D. | NAS1523 |
|------------|------|------|---------|
| #8         | .375 | .156 | -08Y    |
| #10        | .438 | .190 | -3R     |
|            |      |      | -3Y     |
|            |      |      | AA3R    |
|            |      |      | C3R     |
| 1/4        | .500 | .240 | C3Y     |
|            |      |      | -4R     |
|            |      |      | -4Y     |
|            |      |      | AA4R    |
| 5/16       | .593 | .301 | C4N     |
|            |      |      | C4R     |
|            |      |      | C4Y     |
|            |      |      | -5Y     |
|            |      |      | C5R     |

### NAS1612 Packing

| O.D. | I.D. | NAS1612 |
|------|------|---------|
| 1/8  | .239 | -2A     |
| 3/16 | .301 | -3A     |
| 1/4  | .351 | -4A     |
| 5/16 | .414 | -5A     |
| 3/8  | .468 | -6A     |
| 1/2  | .644 | -8A     |
| 5/8  | .755 | -10A    |
| 3/4  | .924 | -12A    |

### AS3084

| AS3084 |
|--------|
| -03    |
| -04    |
| -05    |
| -06    |
| -08    |
| -12    |

### AS3085 O'Ring

| AS3085 | AS3085 |
|--------|--------|
| -007   | -023   |
| -008   | -024   |
| -010   | -028   |
| -011   | -031   |
| -012   | -041   |
| -013   | -111   |
| -014   | -113   |
| -015   | -116   |
| -016   | -119   |
| -017   | -122   |
| -018   | -123   |
| -019   | -124   |
| -020   | -126   |
| -022   | -158   |

### AS3209 O'Ring

| AS3209 | AS3209 |
|--------|--------|
| -008   | -030   |
| -009   | -038   |
| -010   | -040   |
| -011   | -043   |
| -012   | -113   |
| -013   | -114   |
| -014   | -115   |
| -015   | -116   |
| -016   | -120   |
| -017   | -122   |
| -018   | -126   |
| -019   | -139   |
| -020   | -140   |
| -022   | -143   |
| -024   | -145   |
| -025   | -146   |
| -028   | -214   |
| -029   | -224   |

### AS3578 O'Ring

(Supersedes MS9021)

| AS3578 |
|--------|
| -010   |
| -016   |
| -017   |
| -034   |
| -035   |
| -038   |
| -251   |
| -268   |
| -903   |
| -904   |
| -905   |
| -906   |
| -908   |

### AS3582 O'Ring

| AS3582 |
|--------|
| -012   |
| -013   |
| -014   |
| -116   |
| -119   |

### AS3208 O'Ring

| AS3208 | AS3208 |
|--------|--------|
| -03    | -06    |
| -04    | -08    |
| -05    | -10    |

### S9412 O'Ring

| S9412 | S9412 |
|-------|-------|
| -010  | -136  |
| -011  | -139  |
| -012  | -212  |
| -013  | -552  |
| -014  | -553  |
| -015  | -554  |
| -021  | -555  |
| -028  | -556  |
| -032  | -558  |



## O'RINGS

### Government and Military Specifications

| Drawing Number | Compound Specification Number | Temperature Range, °F | Description                                                                                                            |
|----------------|-------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------|
| AN6227B        | MIL-P-5516 Class B            | -65 to 275            | PACKING, O'Rings for use in hydraulic systems and shock absorbers using MIL-H-5606 fluids.                             |
| AN6230B        | MIL-P-5516 Class B            | -65 to 275            | GASKET, O'Ring - O'Rings for use in hydraulic systems using MIL-H-5606 fluids                                          |
| NAS1593        | MIL-R-25897 Type 1, Class 1   | -20 to 400            | PACKING PREFORMED - 75 Shore "A" harness fluoroelastomer O'Rings for aircraft and aerospace applications               |
| MS9020         | AMS 7271                      | -65 to 225            | PACKING PREFORMED - AMS 7271. O'Ring for straight thread tube fitting boss gaskets with hydrocarbon fuels.             |
| MS9021         | AMS 7271                      | -65 to 225            | PACKING PREFORMED - AMS 7271, O'Rings - Fuel and low temperature resistant.                                            |
| MS9068         | AMS 3304                      | -80 to 450            | PACKING PREFORMED - AMS 3304, O'Ring - For air and gases. Static seals only.                                           |
| MS9385         | AMS 7267                      | -80 to 500 in air     | GASKET - STRAIGHT THREAD TUBE FITTING, BOSS - Silicone rubber.                                                         |
| MS9386         | AMS 7267                      | -80 to 500 in air     | RINGS, SEALING, SILICONE RUBBER - Heat Resistant. Low Compression Set.                                                 |
| MS9388         | AMS 7278                      | -20 to 400            | RINGS, SEALING - High Temperature Fluid Resistant, Fluorocarbon Type.                                                  |
| MS28775        | MIL-P-25732                   | -65 to 275            | PREFORMED PACKING O'Rings for hydraulic systems                                                                        |
| MS28778        | MIL-P-5510                    | -65 to 212            | PREFORMED PACKING STRAIGHT THREAD TUBE FITTING BOSS. O'Ring for + 160 °F hydraulic fluid systems per MIL-H-5606        |
| MS29512        | MIL-P-5315                    | -65 to 200            | PREFORMED PACKING, HYDROCARBON FUEL RESISTANT, TUBE FITTING, O'Rings of the sizes shown in MS29512 and one grade only. |
| MS29513        | MIL-P-5315                    | -65 to 200            | PREFORMED PACKING, HYDROCARBON FUEL RESISTANT, O'Ring of the sizes shown on MS29513 and one grade only.                |
| MS29561        | MIL-R-7362 Type 1             | -65 to 257            | PREFORMED PACKING, SYNTHETIC LUBRICANT RESISTANT O'Ring for MIL-L-7807 fluids. (Use NAS617 for tube fitting gaskets).  |
| M25988/1       | MIL-R-25988 Class 1, Grade 70 | -80 to 350            | FLUOROSILICONE O'Rings - Oil and Fuel Resistant                                                                        |
| M25988/3       | MIL-R-25988 Class 1, Grade 60 | -80 to 350            | FLUOROSILICONE O'Rings - Oil and Fuel Resistant                                                                        |
| M25988/4       | MIL-R-25988 Class 1, Grade 80 | -80 to 350            | FLUOROSILICONE O'Rings - Oil and Fuel Resistant                                                                        |
| M83248/1       | MIL-R-83248 Class 1           | -20 to 400            | FLUOROCARBON O'Rings - High Temperature, Fluid and Compression Set Resistant.                                          |
| M83248/2       | MIL-R-83248 Class 2           | -20 to 400            | FLUOROCARBON O'Rings - High Temperature, Fluid and Compression Set Resistant                                           |
| NAS617         | MIL-R-7362                    | -65 to 257            | PREFORMED PACKING, STRAIGHT THREAD TUBE FITTING BOSS O'Ring for use with MIL-L-6387 or MIL-L-7808 fluids.              |
| NAS1611        | NAS1613 Class 1               | -65 to 300            | PREFORMED PACKING, O'Ring, PHOSPHATE ESTER RESISTANT. Dash numbers correspond to AS568A Universal Series.              |
| NAS1612        | NAS1613 Class 2               | -65 to 300            | PACKING PREFORMED, STRAIGHT THREAD TUBE FITTING BOSS, PHOSPHATE ESTER RESISTANT. Dash numbers correspond to MS28778    |
| S9412          | N/A                           | N/A                   | GARRETT PART NUMBERS: For O'Rings used in fuel systems. Blue in color.                                                 |
| S9413          | N/A                           | N/A                   | GARRETT PART NUMBER: For O'Rings used in the propeller section of the engine. Blue in color.                           |

**O'RING KIT #1**

10 pcs. of each

|                          |      |             |
|--------------------------|------|-------------|
| MS28775-006              | THRU | MS28775-015 |
| MS28775-110              | THRU | MS28775-116 |
| MS28775-210              | THRU | MS28775-235 |
| MS28775-238, MS28775-260 |      |             |
| MS28775-327              | THRU | MS28775-330 |

**O'RING KIT #2**

10 pcs. of each

|           |
|-----------|
| MS28778-2 |
| MS28778-3 |
| MS28778-4 |
| MS28778-5 |
| MS28778-5 |
| MS28778-6 |
| MS28778-8 |

**O'RING KIT #3**

10 pcs. of each

|            |
|------------|
| MS29512-04 |
| MS29512-05 |
| MS29512-06 |
| MS29512-08 |
| MS29512-10 |
| MS29512-12 |

**O'RING KIT #4**

10 pcs. of each

|             |             |
|-------------|-------------|
| MS29513-010 | MS29513-137 |
| MS29513-011 | MS29513-138 |
| MS29513-012 | MS29513-232 |
| MS29513-017 | MS29513-238 |
| MS29513-020 | MS29513-338 |
| MS29513-111 | MS29513-338 |

**O'RING KIT #5**

10 pcs. of each

|              |              |
|--------------|--------------|
| M83248/1-010 | M83248/1-114 |
| M83248/1-011 | M83248/1-115 |
| M83248/1-012 | M83248/1-214 |
| M83248/1-013 | M83248/1-904 |
| M83248/1-014 | M83248/1-905 |
| M83248/1-024 | M83248/1-906 |
| M83248/1-113 | M83248/1-908 |

**O'RING KIT #6**

10 pcs. of each

|            |            |
|------------|------------|
| AS3084-03  | AS3085-028 |
| AS3084-04  | AS3085-041 |
| AS3084-05  | AS3085-113 |
| AS3085-014 | AS3208-04  |
| AS3085-015 | AS3209-009 |
| AS3085-016 | AS3578-251 |
| AS3085-017 | AS3582-012 |
| AS3085-018 | AS3582-013 |

**ASSORTED O'RING KIT #1**

10 pcs. of each

|             |             |             |
|-------------|-------------|-------------|
| MS28778-2   | MS28775-006 | MS29512-02  |
| MS28778-3   | MS28775-007 | MS29512-04  |
| MS28778-4   | MS28775-008 | MS29512-05  |
| MS28778-5   | MS28775-009 | MS29512-06  |
| MS28778-6   | MS28775-010 | MS29512-08  |
| MS28778-7   | MS28775-011 | MS29512-10  |
| MS28778-8   | MS28775-012 | MS29512-12  |
| MS28778-10  | MS28775-013 |             |
| MS28778-12  | MS28775-014 |             |
|             | MS28775-015 |             |
| MS29513-010 | MS29513-214 | MS29513-238 |
| MS29513-011 | MS29513-232 | MS29513-338 |

**ASSORTED O'RING KIT #2**

10 pcs. of each

|             |            |              |
|-------------|------------|--------------|
| MS28775-006 | MS28778-2  | M83248/1-010 |
| MS28775-007 | MS28778-3  | M83248/1-011 |
| MS28775-008 | MS28778-4  | M83248/1-012 |
| MS28775-009 | MS28778-5  | M83248/1-013 |
| MS28775-010 | MS28778-6  | M83248/1-014 |
| MS28775-011 | MS28778-7  | M83248/1-015 |
| MS28775-012 | MS28778-8  | M83248/1-016 |
| MS28775-013 | MS28778-10 | M83248/1-017 |
| MS28775-014 | MS28778-12 | M83248/1-018 |
| MS28775-015 | MS29512-02 | M83248/1-113 |
| MS29513-010 | MS29512-04 | M83248/1-904 |
| MS29513-011 | MS29512-05 | M83248/1-905 |
| MS29513-214 | MS29512-06 | M83248/1-906 |
| MS29513-232 | MS29512-08 | M83248/1-908 |
| MS29513-338 | MS29512-10 |              |
|             | MS29512-12 |              |

**ASSORTED O'RING KIT #3**

This kit contains all parts from:

**O'ring Kit #1**  
**O'ring Kit #2**  
**O'ring Kit #3**

**ASSORTED O'RING KIT #4**

This kit contains all parts from:

**O'ring Kit #1**  
**O'ring Kit #2**  
**O'ring Kit #3**  
**O'ring Kit #4**

## LIGHTING - LAMPS & BULBS

### SEALED BEAM LAMPS

Landing and Taxi Lighting



Sealed Beam Lamps

Quartz Lamps

4313  
4509  
4522  
4551  
4552  
4553  
4557  
4559  
4570

4580  
4581  
4587  
4591  
4594  
4595  
4596  
4626

Q4509  
Q4554  
Q4559  
Q4559X  
Q4591  
Q4566  
Q4681  
Q4631

### MINIATURE & SUBMINIATURE BULBS

Panel, Warning and Tail Lighting



Lamp #

303  
304  
305  
307  
308  
313  
327

328  
330  
334  
356  
387  
1495  
1683

1777  
1940  
1495X  
1939X  
6838  
6839  
A4174-24  
M6363/2-2

## FUSES & FUSE HOLDERS

### FUSES

Glass Enclosed



#### AGC SERIES

(1/4 x 1-1/4 inches)

Standard, Single Element, Glass tube, Fast-acting to protect sensitive instruments and radio.

| Part #    | Amps  | Part #    | Amps  |
|-----------|-------|-----------|-------|
| AGC-1/8   | 1/8   | AGC-5     | 5     |
| AGC-1/4   | 1/4   | AGC-7     | 7     |
| AGC-1/2   | 1/2   | AGC-7-1/2 | 7-1/2 |
| AGC-3/4   | 3/4   | AGC-10    | 10    |
| AGC-1     | 1     | AGC-15    | 15    |
| AGC-1-1/2 | 1-1/2 | AGC-20    | 20    |
| AGC-2     | 2     | AGC-25    | 25    |
| AGC-3     | 3     | AGC-30    | 30    |
| AGC-4     | 4     | AGC-35    | 35    |

#### MDL SERIES

(1/4 x 1-1/4 inches)

Slow Blow, Dual Element. Fuse link operates on very high overloads to avoid needless blows. Thermal cutout functions on low overload.

| Slow Blow Type Part # | Amps | Slow Blow Type Part # | Amps |
|-----------------------|------|-----------------------|------|
| MDL-1/2               | 1/2  | MDL-5                 | 5    |
| MDL-1                 | 1    | MDL-10                | 10   |
| MDL-2                 | 2    | MDL-15                | 15   |
| MDL-3                 | 3    | MDL-20                | 20   |
| MDL-4                 | 4    | MDL-30                | 30   |

### FUSE HOLDERS

#### HKP

Standard for 1/4" x 1-1/4" Fuses



#### HRJ

In-Line Fuseholder for SFE and 1/4" x various length fuses (Includes SFE-20 Fuse)



## M39029 CONNECTOR CONTACTS



| Part Number   | Configuration | Size | Fits Series                                                          |
|---------------|---------------|------|----------------------------------------------------------------------|
| M39029/1-100  | PIN           | 16   | MIL-T-81714<br>TERMINAL<br>JUNCTION                                  |
| M39029/1-101  |               | 16   |                                                                      |
| M39029/1-102  |               | 14   |                                                                      |
| M39029/1-103  |               | 12   |                                                                      |
| M39029/4-110  |               | 20   | MIL-C-26482 SER II<br>MIL-C-81703 SER III<br>MIL-C-83723 SER I & III |
| M39029/4-111  | SOCKET        | 16   |                                                                      |
| M39029/5-115  |               | 20   |                                                                      |
| M39029/5-116  |               | 16   | MIL-C-26482 SER II<br>MIL-C-81703 SER III<br>MIL-C-83723 SER I & III |
| M39029/5-117  |               | 16   |                                                                      |
| M39029/5-118  |               | 12   |                                                                      |
| M39029/5-119  |               | 12   |                                                                      |
| M39029/10-141 | SOCKET        | 20   | MIL-C-83723 SER III<br>MIL-C-83733                                   |
| M39029/10-142 |               | 20   | MIL-C-26482 SER II<br>MIL-C-81703 SER III<br>MIL-C-83723 SER I & III |
| M39029/11-144 | PIN           | 22   | MIL-C-81659<br>SERIES II R                                           |
| M39029/11-145 |               | 20   |                                                                      |
| M39029/12-148 | SOCKET        | 22   | MIL-C-81569<br>SERIES II<br>INACTIVE NEW DESIGN                      |
| M39029/12-149 |               | 20   |                                                                      |
| M39029/22-191 | SOCKET        | 22   | MIL-T-81714<br>TERMINAL<br>JUNCTION SYSTEM                           |
| M39029/22-192 |               | 20   |                                                                      |
| M39029/22-193 |               | 16   |                                                                      |
| M39029/29-212 | PIN           | 16   | MIL-T-5015 SERIES<br>MS3450                                          |
| M39029/29-213 |               | 12   | MIL-C-83723 SER II                                                   |
| M39029/30-217 | SOCKET        | 16   | MIL-T-5015 SERIES<br>MS3450<br>MIL-C-83733 SER II                    |
| M39029/30-218 |               | 16   |                                                                      |
| M39029/30-219 |               | 12   |                                                                      |

| Part Number   | Configuration        | Size | Fits Series                                                          |
|---------------|----------------------|------|----------------------------------------------------------------------|
| M39029/31-229 | PIN                  | 16   | MIL-C-26482 SER I<br>MIL-C-26500<br>MIL-C-26518                      |
| M39029/31-240 | PIN                  | 20   |                                                                      |
| M39029/31-241 |                      | 20   |                                                                      |
| M39029/32-248 | SOCKET               | 16   |                                                                      |
| M39029/32-259 |                      | 20   |                                                                      |
| M39029/32-260 |                      | 20   |                                                                      |
| M39029/56-348 | SOCKET               | 22   | MIL-C-38999<br>SERIES<br>I, III, & IV                                |
| M39029/56-351 |                      | 20   |                                                                      |
| M39029/56-352 |                      | 16   |                                                                      |
| M39029/56-353 |                      | 12   |                                                                      |
| M39029/57-354 |                      | 22   | MIL-C-24308<br>MIL-C-38999 SER II<br>MIL-C-83733                     |
| M39029/57-357 |                      | 20   |                                                                      |
| M39029/57-358 |                      | 16   |                                                                      |
| M39029/57-359 |                      | 12   |                                                                      |
| M39029/58-360 | PIN                  | 22   | MIL-C-24308<br>MIL-C-38999 SER I-IV<br>MIL-C-55302/69<br>MIL-C-83733 |
| M39029/58-363 |                      | 20   |                                                                      |
| M39029/58-364 |                      | 16   |                                                                      |
| M39029/58-365 |                      | 12   |                                                                      |
| M39029/63-368 | SOCKET<br>(SHIELDED) | 20   | MIL-C-38999<br>SERIES<br>I, III, & IV                                |
| M39029/75-416 | SOCKET<br>(SHIELDED) | 12   | MIL-C-38999<br>SERIES<br>I, III, & IV                                |
| M39029/75-417 |                      | 12   |                                                                      |
| M39029/75-422 |                      | 12   |                                                                      |
| M39029/76-424 | PIN<br>(SHIELDED)    | 16   | MIL-C-38999 SERIES<br>I, II, III, & IV                               |

## MS27488 CONNECTOR SEALING PLUGS



| Part Number  | Contact Size | Color Code |
|--------------|--------------|------------|
| MS27488-22-1 | 22           | Black      |
| MS27488-20-1 | 20           | Red        |
| MS27488-16-1 | 16           | Blue       |
| MS27488-12-1 | 12           | Yellow     |
| MS27488-8-1  | 8            | Red        |

## M81969 INSERTION/EXTRACTION TOOL

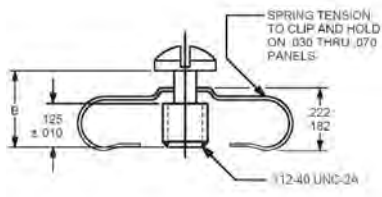


| Part Number  | Contact Size | Color Code   |
|--------------|--------------|--------------|
| M81969/1-01  | 22           | Green/White  |
| M81969/1-02  | 20           | Red/White    |
| M81969/1-03  | 16           | Blue/White   |
| M81969/1-04  | 22D          | Green/White  |
| M81969/14-01 | 22           | Green/White  |
| M81969/14-02 | 20           | Red/White    |
| M81969/14-03 | 16           | Blue/White   |
| M81969/14-04 | 12           | Yellow/White |
| M81969/14-10 | 20           | Red/Orange   |
| M81969/14-11 | 20           | Red/White    |



## M24308/25

Male screwlock assembly. Electric, miniature, rectangular, polarized shell, rack and panel



**Suffix**  
A=Pure electrodeposited aluminum  
F=Cadmium finish  
K=Zinc nickel  
P=Passivated stainless steel  
T=Nickel fluorocarbon polymer  
None=Zinc

M24308/25-7, -8, -9 AND -10

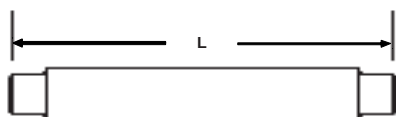
## M24308/26

Female screwlock assembly for miniature, rectangular, electric, rack and panel

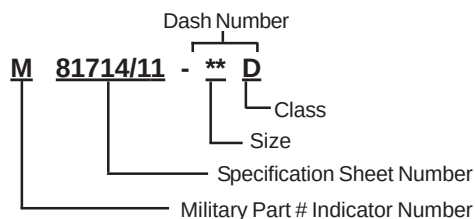


## M81714/11- #D

Terminal junction blocks, Sectional, Wire in-line junctions, Single, Series I



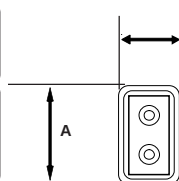
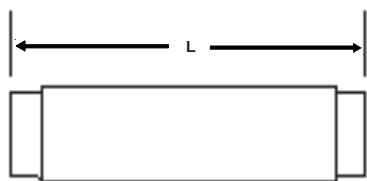
### Part Number Example



| Part Number   | A Dia.<br>+ .025 | Body<br>B Dia.<br>Max | L<br>Max | Contact<br>Part<br>Number | Installation/<br>Removal Tool |
|---------------|------------------|-----------------------|----------|---------------------------|-------------------------------|
| M81714/11-22D | .250             | .225                  | 1.552    | M39029/1-100              | M81969/14-02                  |
| M81714/11-20D | .250             | .225                  | 1.552    | M39029/1-101              | M81969/14-02                  |
| M81714/11-16D | .281             | .256                  | 1.922    | M39029/1-102              | M81969/14-03                  |
| M81714/11-12D | .344             | .319                  | 1.922    | M39029/1-103              | M81969/14-04                  |

## M81714/12- #D

Terminal junction blocks, Sectional, Wire in-line junctions, Double, Series I

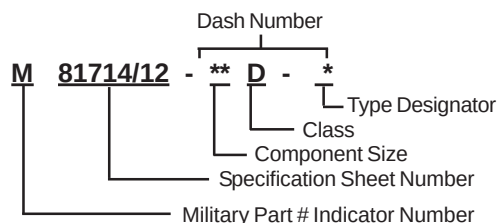


Type 1

Bussing Indicators

Type 2

### Part Number Example



| Part Number   | Type   | Body          |               |            |          | Contact<br>Part<br>Number | Installation/<br>Removal Tool |
|---------------|--------|---------------|---------------|------------|----------|---------------------------|-------------------------------|
|               |        | A Dia.<br>Max | B Dia.<br>Max | C<br>± .01 | L<br>Max |                           |                               |
| M81714/12-22D | 1 or 2 | .400          | .275          | .13        | 1.552    | M39029/1-100              | M81969/14-02                  |
| M81714/12-20D | 1 or 2 | .400          | .275          | .13        | 1.552    | M39029/1-101              | M81969/14-02                  |
| M81714/12-16D | 1 or 2 | .500          | .300          | .18        | 1.922    | M39029/1-102              | M81969/14-03                  |
| M81714/12-12D | 1 or 2 | .620          | .370          | .25        | 1.922    | M39029/1-103              | M81969/14-04                  |



## AIRCRAFT WIRE

Per MIL-W-22759/16

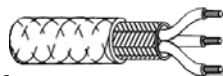
(-9 indicates white) (-0 indicates black)



| Part #           | AWG Size | Part #           | AWG Size |
|------------------|----------|------------------|----------|
| M22759 / 16-22-9 | 22       | M22759 / 16-12-9 | 12       |
| M22759 / 16-20-9 | 20       | M22759 / 16-10-9 | 10       |
| M22759 / 16-18-9 | 18       | M22759 / 16-8-9  | 8        |
| M22759 / 16-16-9 | 16       | M22759 / 16-6-9  | 6        |
| M22759 / 16-14-9 | 14       |                  |          |

## M27500 TEFZEL CABLE

Shielded & Jacketed, MIL-W-22759



| M27500    | Conductors | AWG Size |
|-----------|------------|----------|
| -16TG1T14 | 1          | 16       |
| -18TG1T14 | 1          | 18       |
| -20TG1T14 | 1          | 20       |
| -20TG2T14 | 2          | 20       |
| -22TG1T14 | 1          | 22       |
| -22TG2T14 | 2          | 22       |
| -22TG3T14 | 3          | 22       |

## TERMINAL END SPLICE

Closed End Wire Cap  
PIDG Series,  
Tin Plated Copper,  
Nylon Insulated



| Part # | AWG   | Color Code |
|--------|-------|------------|
| 324484 | 26-16 | Clear      |
| 324485 | 22-16 | Red        |
| 324486 | 16-14 | Blue       |

## D436

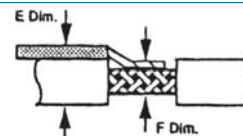
Mini-Seal  
Crimp Splices



| Part #  | Gauge Size |
|---------|------------|
| D436-36 | 20-26      |
| D436-37 | 16-20      |
| D436-38 | 12-18      |

## D142

Solder Sleeves



| Part #  | E Dim. | F Dim. |
|---------|--------|--------|
| D142-50 | .125   | .055   |
| D142-51 | .200   | .100   |
| D142-52 | .300   | .160   |

## SPIRAL WRAP

Per MIL-P-20693 Type I  
Operating Temp - 85°C to 93°C



SPN - Natural/Nylon

SPB - Black/U/V Resistan Polyethylene

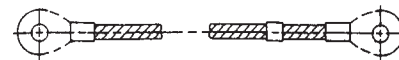
SPT - Teflon - Call for Pricing

| SPN     |       | SPB     |       | Nom.<br>O.D. | Wall<br>Thickness | Pitch | Diameter |
|---------|-------|---------|-------|--------------|-------------------|-------|----------|
| Old #   | New # | Old #   | New # |              |                   |       |          |
| SPN-1/8 | SW-20 | SPB-1/8 | SW-40 | .125         | .015              | 1/16  | 1/2      |
| SPN-1/4 | SW-21 | SPB-1/4 | SW-41 | .250         | .025              | 9/32  | 2        |
| SPN-3/8 | SW-22 | SPB-3/8 | SW-42 | .375         | .035              | 3/8   | 3        |
| SPN-1/2 | SW-23 | SPB-1/2 | SW-43 | .500         | .035              | 1/2   | 4        |

## MS25083

Bonding Jumpers

Call for prints if technical information is required.



| MS25083 | MS25083 | MS25083 | MS25083 |
|---------|---------|---------|---------|
| 1BB7    | 2AB6    | 2BC4    | 5BB8    |
| 1BB8    | 2AB7    | 2BC5    | 5BB9    |
| 2AA3    | 2AB8    | 2BC6    | 5BB10   |
| 2AA4    | 2BB2    | 2BC7    | 5BB12   |
| 2AA5    | 2BB3    | 2BC8    | 5BB15   |
| 2AA6    | 2BB4    | 2BC9    | 6DD5    |
| 2AA7    | 2BB5    | 5BB4    | 6DE7    |
| 2AA8    | 2BB6    | 5BB5    | 7AB10   |
| 2AB3    | 2BB7    | 5BB6    | 7BB6    |
| 2AB4    | 2BB8    | 5BB7    | 7BB8    |
| 2AB5    | 2BB10   |         |         |

### MS25274

Wire Cap



| MS25274 | Amp #  | Wire Size | Color  |
|---------|--------|-----------|--------|
| -2      | 328307 | 22-18-AWG | RED    |
| -3      | 328308 | 16-14-AWG | BLUE   |
| -4      | 328309 | 12-10-AWG | YELLOW |

### MS25171-#S

Nipple, Electrical



| MS25171 - | Length |
|-----------|--------|
| 1S        | 1.38   |
| 2S        | 2.50   |
| 3S        | 2.50   |
| 4S        | 2.50   |

### MS3367

Tie Wraps / Thomas & Betts  
Clear Color or Black (T&B - Metal Clip)  
For Clear use (-9), For Black use (-0)



| MS3367 | T & B Part # | MS3367 | T & B Part # | Max Dia. | Length (inches) | Width | Tensile Strength |
|--------|--------------|--------|--------------|----------|-----------------|-------|------------------|
| -1-9   | TY25M        | -1-0   | TY25MX       | 1-3/4    | 7               | .190  | 50 lb.           |
| -2-9   | TY28M        | -2-0   | TY28MX       | 4        | 14              | .192  | 50 lb.           |
| -3-9   | TY27M        | -3-0   | TY27MX       | 3-1/2    | 13-1/8          | .310  | 120 lb.          |
| -4-9   | TY23M        | -4-0   | TY23MX       | 5/8      | 3-1/2           | .100  | 18 lb.           |
| -5-9   | TY24M        | -5-0   | TY24MX       | 1-1/4    | 5-1/4           | .146  | 30 lb.           |
| -6-9   | TY29M        | -6-0   | TY29MX       | 8        | 30              | .310  | 120 lb.          |
| -7-9   | TY253M       | -7-0   | TY253MX      | 3        | 11-3/8          | .192  | 50 lb.           |

### TY-Rap® Identification Cable Ties



TY551M



TY553M



TY546M

| Part#  | Max Dia. | Length | Marking Pad Size | Tensile Strength |
|--------|----------|--------|------------------|------------------|
| TY551M | .625     | 3.60   | 1 x .313         | 18 lb.           |
| TY553M | .625     | 4.00   | .813 x .359      | 18 lb.           |
| TY546M | 1.75     | 7.25   | 5 x .875         | 50 lb.           |

### TY-Rap® Mounting Head Cable Ties



TY533MX



TY534MX



TY535MX

| Part#   | Body Width | Length | Mounting Hole | Tensile Strength |
|---------|------------|--------|---------------|------------------|
| TY533MX | .091       | 4.00   | #4            | 18               |
| TY534MX | .140       | 6.00   | #8            | 40               |
| TY535MX | .184       | 7.80   | #10           | 50               |

### Nylon 6/6 Weather Resistant Cable Ties

Recommended for outdoor use



| Part#    | Body Width | Length | Tensile Strength |
|----------|------------|--------|------------------|
| TY5244MX | .140       | 14.50  | 30 lb.           |
| TY526MX  | .140       | 11.10  | 30 lb.           |
| TY5272MX | .270       | 8.75   | 50 lb.           |

## Potter & Brumfield Circuit Breakers

### Series W23

Single Pole with white band around body of reset button that is visible if breaker trips.



| Part #        | Rating   | Part #       | Rating  |
|---------------|----------|--------------|---------|
| W23-X1A1G-5   | 1/2 amp  | W23-X1A1G-15 | 15 amps |
| W23-X1A1G-1   | 1 amp    | W23-X1A1G-20 | 20 amps |
| W23-X1A1G-2   | 2 amps   | W23-X1A1G-25 | 25 amps |
| W23-X1A1G-3   | 3 amps   | W23-X1A1G-30 | 30 amps |
| W23-X1A1G-5   | 5 amps   | W23-X1A1G-35 | 35 amps |
| W23-X1A1G-7.5 | 7.5 amps | W23-X1A1G-40 | 40 amps |
| W23-X1A1G-10  | 10 amps  | W23-X1A1G-50 | 50 amps |

## Potter & Brumfield Circuit Breakers

### Series W58

Single pole with recessed reset button. Red band around reset button for visible trip indication.



| Part #        | Rating | Part #         | Rating  |
|---------------|--------|----------------|---------|
| W58-XC4C12A-1 | 1 amp  | W58-XC4C12A-8  | 8 amps  |
| W58-XC4C12A-2 | 2 amps | W58-XC4C12A-10 | 10 amps |
| W58-XC4C12A-3 | 3 amps | W58-XC4C12A-15 | 15 amps |
| W58-XC4C12A-4 | 4 amps | W58-XC4C12A-20 | 20 amps |
| W58-XC4C12A-5 | 5 amps | W58-XC4C12A-25 | 25 amps |
| W58-XC4C12A-7 | 7 amps | W58-XC4C12A-30 | 30 amps |

## Potter & Brumfield Circuit Breakers

### Series W31

Combination single pole switch and circuit breaker



| Part #        | Rating   | Part #       | Rating  |
|---------------|----------|--------------|---------|
| W31-X2M1G-2   | 2 amps   | W31-X2M1G-25 | 25 amps |
| W31-X2M1G-5   | 5 amps   | W31-X2M1G-30 | 30 amps |
| W31-X2M1G-7.5 | 7.5 amps | W31-X2M1G-35 | 35 amps |
| W31-X2M1G-10  | 10 amps  | W31-X2M1G-40 | 40 amps |
| W31-X2M1G-15  | 15 amps  | W31-X2M1G-50 | 50 amps |
| W31-X2M1G-20  | 20 amps  |              |         |

## Klixon Circuit Breakers

### Series 7277-2

Low amperage general application



| Part #       | Rating   | Part #       | Rating   |
|--------------|----------|--------------|----------|
| 7277-2-1/2   | 1/2 amp  | 7277-2-5     | 5 amps   |
| 7277-2-1     | 1 amp    | 7277-2-7-1/2 | 7.5 amps |
| 7277-2-2     | 2 amps   | 7277-2-10    | 10 amps  |
| 7277-2-2-1/2 | 2.5 amps | 7277-2-15    | 15 amps  |
| 7277-2-3     | 3 amps   | 7277-2-20    | 20 amps  |
| 7277-2-4     | 4 amps   |              |          |

## Klixon Circuit Breakers

### Series 7274

Low Amperage  
High Performance



| Klixon Part # | MS #        | Klixon Part # | MS #        |
|---------------|-------------|---------------|-------------|
| 7274-2-1      | MS26574-1   | 7274-11-1     | MS22073-1   |
| 7274-2-2      | MS26574-2   | 7274-11-1.5   | MS22073-1.5 |
| 7274-2-3      | MS26574-3   | 7274-11-2     | MS22073-2   |
| 7274-2-4      | MS26574-4   | 7274-11-2.5   | MS22073-2.5 |
|               |             | 7274-11-3     | MS22073-3   |
| 7274-2-5      | MS26574-5   | 7274-11-4     | MS22073-4   |
| 7274-2-7.5    | MS26574-7.5 | 7274-11-5     | MS22073-5   |
| 7274-2-10     | MS26574-10  | 7274-11-7.5   | MS22073-7.5 |
| 7274-2-15     | MS26574-15  | 7274-11-10    | MS22073-10  |
|               |             | 7274-11-15    | -----       |

## MS3320

### Circuit Breaker

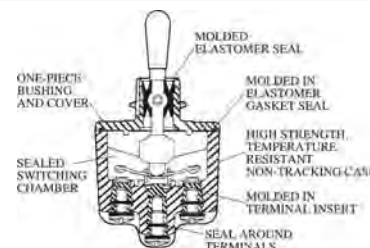
Series 2TC2,  
Miniature,  
Trip Free



| Klixon Part # | MS #       |
|---------------|------------|
| 2TC2-1        | MS3320-1   |
| 2TC2-2        | MS3320-2   |
| 2TC2-3        | MS3320-3   |
| 2TC2-5        | MS3320-5   |
| 2TC2-7.5      | MS3320-7.5 |
| 2TC2-10       | MS3320-10  |
| 2TC2-15       | MS3320-15  |
| 2TC2-20       | MS3320-20  |

## MS24523 MS24524

Toggle Switch  
Environmentally Sealed  
Maintained and Momentary Toggle Action



| MS24523 - 2 Position, 1 Pole |                 |                 | MS24524 - 2 Position, 2 Poles |                 |                 | MS24524 - 3 Position, 2 Poles |                 |                 |                 |
|------------------------------|-----------------|-----------------|-------------------------------|-----------------|-----------------|-------------------------------|-----------------|-----------------|-----------------|
| MS24523                      | Keyway Position | Opposite Keyway | MS24524                       | Keyway Position | Opposite Keyway | MS24524                       | Keyway Position | Center Position | Opposite Keyway |
| -22                          | OFF             | 2-3             | -22                           | OFF             | 2-3, 5-6        | -21                           | 1-2, 4-5        | OFF             | 2-3, 5-6        |
| -29                          | OFF*            | 2-3             | -30                           | 1-2, 4-5*       | OFF             | -31                           | 1-2, 4-5*       | OFF             | 2-3, 5-6        |
| -30                          | 1-2*            | OFF             | -23                           | 1-2, 4-5        | 2-3, 5-6        |                               |                 |                 |                 |
| -23                          | 1-2             | 2-3             | -26                           | 1-2, 4-5*       | 2-3, 5-6        | -27                           | 1-2, 4-5*       | OFF             | 2-3, 5-6        |

\*These positions only are momentary. All other positions are maintained.

MS35058 (One Pole) and MS35059 (Two Pole) are inactive for new design but ECAS stocks the series for older aircraft requiring older callout.

## MS25223 & MS25224

Switch Guard



| Part #    | Type Mounting | Panel Thickness |
|-----------|---------------|-----------------|
| MS25223-2 | 1 Hole        | .050-.248       |
| MS25224-1 | 1 Hole        | .050-.248       |
| MS25224-2 | 3 Hole        | .050-.081       |
| MS25224-3 | 1 Hole        | .050-.248       |

## MS25041

Indicator Light  
Press to Test

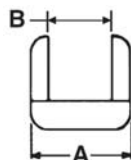


| MS25041<br>With Dimmer | MS25041<br>Without Dimmer | Lens Color |
|------------------------|---------------------------|------------|
| -1                     | -5                        | Colorless  |
| -2                     | -6                        | Red        |
| -3                     | -7                        | Green      |
| -4                     | -8                        | Yellow     |
| -10                    | -11                       | Blue       |

## MS21266

Grommet Edging (1 Ft. Lengths)

| MS21266 | Sheet Thickness | A Width | B Width |
|---------|-----------------|---------|---------|
| -1N     | .015-.052       | .150    | .056    |
| -2N     | .052-.085       | .175    | .090    |
| -3N     | .085-.128       | .220    | .131    |
| -4N     | .128-.192       | .325    | .195    |



## HEAT SHRINK TUBING

Per MIL-I-23053/5 (Sold in 4 Ft. Sections)

Add "-0" to indicate Black

Add "-9" to indicate White

Add "-C" to indicate Clear



| Part #<br>For Black & White | Part #<br>For Clear | Diameter | Inner Diameter |              |
|-----------------------------|---------------------|----------|----------------|--------------|
|                             |                     |          | Before Shrink  | After Shrink |
| M23053/5-102-()             | M23053/5-202-()     | 1/16     | .0625          | .031         |
| M23053/5-103-()             | M23053/5-203-()     | 3/32     | .0938          | .046         |
| M23053/5-104-()             | M23053/5-204-()     | 1/8      | .125           | .062         |
| M23053/5-105-()             | M23053/5-205-()     | 3/16     | .1875          | .093         |
| M23053/5-106-()             | M23053/5-206-()     | 1/4      | .25            | .125         |
| M23053/5-107-()             | M23053/5-207-()     | 3/8      | .375           | .187         |
| M23053/5-108-()             | M23053/5-208-()     | 1/2      | .5             | .25          |
| M23053/5-109-()             | M23053/5-209-()     | 3/4      | .75            | .375         |
| M23053/5-110-()             | M23053/5-210-()     | 1        | 1              | .5           |



## THOMAS & BETTS STA-KON® TERMINALS

### Sta-Kon® Nylon Insulated Ring - Insulation Grip



| Part#   | Wire Range | Bolt Hole |
|---------|------------|-----------|
| RZ22-4  | 26-22      | #4        |
| RZ22-6  |            | #6        |
| RZ22-8  |            | #8        |
| RZ22-10 |            | #10       |
| RA18-4  | 22-16      | #4        |
| RA18-6  |            | #6        |
| RA18-8  |            | #8        |
| RA18-10 |            | #10       |
| RA18-14 |            | 1/4       |
| RB14-4  | 18-14      | #4        |
| RB14-6  |            | #6        |
| RB14-8  |            | #8        |
| RB14-10 |            | #10       |
| RB14-14 |            | 1/4       |
| RC10-6  | 12-10      | #6        |
| RC10-8  |            | #8        |
| RC10-10 |            | #10       |
| RC10-14 |            | 1/4       |

### Sta-Kon® Wristlock Disconnect



| Part# | Wire Range |
|-------|------------|
| RA18D | 22-18      |
| RB14D | 16-14      |

### Vinyl Insulated Ring - Insulation Support



| Part#   | Alternate | Wire Range | Bolt Hole |
|---------|-----------|------------|-----------|
| 18RA-6  | RA857     | 22-16      | #6        |
| 14RB-6  | RB857     | 18-14      | #6        |
| 14RB-8  | RB867     |            | #8        |
| 10RC-10 | RC367     | 12-10      | #10       |

### Sta-Kon® Nylon Insulated Splices - Aircraft System Splices



| Part# | Wire Range |
|-------|------------|
| 2RAA  | 22-18      |
| 2RBB  | 16-14      |
| 2RCC  | 12-10      |

### Sta-Kon® Nylon Insulated Splices - Butt Type - Insulation Support



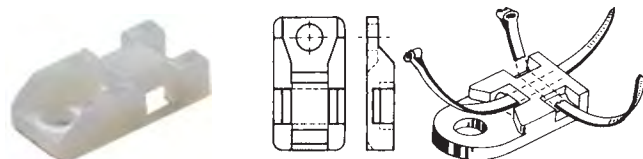
| Part# | Wire Range |
|-------|------------|
| 2RA18 | 22-18      |
| 2RB14 | 16-14      |
| 2RC10 | 12-10      |

### Non-Insulated Ring



| Part# | Wire Range | Bolt Hole |
|-------|------------|-----------|
| F4-14 | 4-3        | 1/4"      |
| F71*  |            | 1/4"      |

### Ty-Rap® Two Direction Mounting Base



| Part#  | Alternate | Screw Size | Max Width | Length |
|--------|-----------|------------|-----------|--------|
| TC5828 | TC828-T13 | #8         | .390      | .875   |

### Nylon Insulated Ring



| Part#   | Wire Range | Bolt Hole |
|---------|------------|-----------|
| RD8-10  | 9-8-7      | #10       |
| RD8-38  |            | 3/8"      |
| RF4-10  | 4-3        | #10       |
| RF4-14  |            | 1/4"      |
| RF4-516 |            | 5/16"     |
| RF4-38  |            | 3/8"      |
| RG2-10  | 2-1        | #10       |
| RG2-14  |            | 1/4"      |
| RG2-38  |            | 3/8"      |



## MS25036

Ring Terminal, Insulated



| MS25036 | AMP #   | Stud Size | Terminal Size | Style/Color         |
|---------|---------|-----------|---------------|---------------------|
| 148     | 320553  | #4        | 22 - 18 AWG   | PIDG / RED          |
| 101     | 36149   | #6        | 22 - 18 AWG   | PIDG / RED          |
| 102     | 51863   | #6        | 22 - 18 AWG   | PIDG / RED          |
| 149     | 320551  | #8        | 22 - 18 AWG   | PIDG / RED          |
| 103     | 36153   | #10       | 22 - 18 AWG   | PIDG / RED          |
| 150     | 320571  | 1/4       | 22 - 18 AWG   | PIDG / RED          |
| 104     | 320572  | 5/16      | 22 - 18 AWG   | PIDG / RED          |
| 105     | 320573  | 3/8       | 22 - 18 AWG   | PIDG / RED          |
| 152     | 324159  | #4        | 16 - 14 AWG   | PIDG / BLUE         |
| 106     | 320561  | #6        | 16 - 14 AWG   | PIDG / BLUE         |
| 153     | 51864-1 | #8        | 16 - 14 AWG   | PIDG / BLUE         |
| 108     | 51864-2 | #10       | 16 - 14 AWG   | PIDG / BLUE         |
| 154     | 320563  | 1/4       | 16 - 14 AWG   | PIDG / BLUE         |
| 110     | 320564  | 3/8       | 16 - 14 AWG   | PIDG / BLUE         |
| 156     | 320568  | #8        | 12 - 10 AWG   | PIDG / YELLOW       |
| 112     | 36161   | #10       | 12 - 10 AWG   | PIDG / YELLOW       |
| 157     | 320569  | 1/4       | 12 - 10 AWG   | PIDG / YELLOW       |
| 113     | 320576  | 5/16      | 12 - 10 AWG   | PIDG / YELLOW       |
| 115     | 322128  | #10       | 8 AWG         | AMPLI-BOND / RED    |
| 116     | 322049  | 1/4       | 8 AWG         | AMPLI-BOND / RED    |
| 117     | 322003  | 5/16      | 8 AWG         | AMPLI-BOND / RED    |
| 118     | 322004  | 3/8       | 8 AWG         | AMPLI-BOND / RED    |
| 120     | 322051  | 1/4       | 6 AWG         | AMPLI-BOND / BLUE   |
| 121     | 324048  | 5/16      | 6 AWG         | AMPLI-BOND / BLUE   |
| 123     | 322053  | 1/4       | 4 AWG         | AMPLI-BOND / YELLOW |
| 124     | 324051  | 5/16      | 4 AWG         | AMPLI-BOND / YELLOW |
| 125     | 322011  | 3/8       | 4 AWG         | AMPLI-BOND / YELLOW |

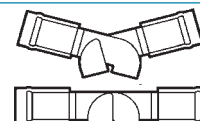
## M7928/5

Butt Splice, Knife Splice

Butt Splice  
M7928/5-



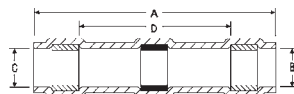
Knife Splice



| MIL #     | AMP #  | Wire Size   | Style/ Color  | Type         |
|-----------|--------|-------------|---------------|--------------|
| M7928/5-2 | 323975 | 24 - 20 AWG | PIDG / TRANS. | Butt Splice  |
| M7928/5-3 | 320559 | 22 - 18 AWG | PIDG / RED    | Butt Splice  |
| M7928/5-4 | 320562 | 16 - 14 AWG | PIDG / BLUE   | Butt Splice  |
| M7928/5-5 | 320570 | 12 - 10 AWG | PIDG / YELLOW | Butt Splice  |
| ---       | 32446  | 22 - 18 AWG | PIDG / RED    | Knife Splice |
| ---       | 32448  | 16 - 14 AWG | PIDG / BLUE   | Knife Splice |

## M83519

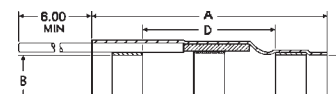
Terminal Shield  
Solder Style  
Insulated Heat Shrinkable



M83519/1 (No wire)



M83519/2 (With wire)



| Part #     | A<br>±.07 | B<br>Min. | C<br>Min. | D<br>Min. | Part #     | A<br>±.07 | B<br>Min. | C<br>Min. | D<br>Min. |
|------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|
| M83519/1-1 | .650      | 0.075     | 0.105     | 0.325     | M83519/2-2 | .650      | 0.105     | 0.145     | 0.325     |
| M83519/1-2 | .650      | 0.105     | 0.145     | 0.325     | M83519/2-3 | .650      | 0.170     | 0.200     | 0.325     |
| M83519/1-3 | .650      | 0.170     | 0.200     | 0.325     | M83519/2-4 | .750      | 0.235     | 0.255     | 0.325     |
| M83519/1-4 | .750      | 0.235     | 0.255     | 0.325     | M83519/2-5 | .750      | 0.275     | 0.300     | 0.325     |
| M83519/1-5 | .750      | 0.275     | 0.300     | 0.325     | M83519/2-6 | .650      | 0.075     | 0.105     | 0.325     |
|            |           |           |           |           | M83519/2-7 | .650      | 0.105     | 0.145     | 0.325     |
|            |           |           |           |           | M83519/2-8 | .650      | 0.170     | 0.200     | 0.325     |

## MS27212

Terminal Board Assembly  
Molded-In Stud  
Diallylisophthalate Plastic

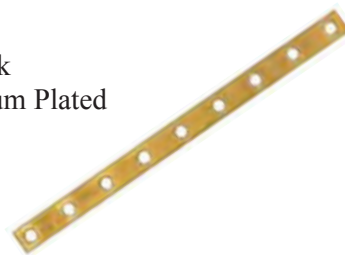


| Assembly No.  | Thread   | Max. # of Studs |
|---------------|----------|-----------------|
| MS27212-1-(N) | .138-32  | 20              |
| MS27212-2-(N) | .1900-32 | 16              |
| MS27212-3-(N) | .2500-28 | 8               |

(N) indicates the number of studs in assembly, used in conjunction with MS18029 Cover Assembly and MS25226 Terminal Connecting Link Bus Bar.

## MS25226

Terminal Connecting Link  
Bus Bar, Copper, Cadmium Plated



| Part #        | Stud Size |
|---------------|-----------|
| MS25226-2-(N) | No. 6     |
| MS25226-4-(N) | No. 10    |
| MS25226-6-(N) | 1/4       |

(N) indicates the number of stud holes required to be compatible with studs on MS27212

## MS18029

Cover Assembly (Type S)  
for MS27212, Plastic Laminate  
Available with or without Knobs  
(N) indicates number of studs

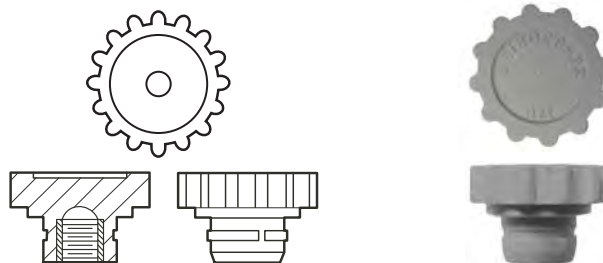
| Assembly No.<br>With Knobs | Stud Size | Assembly No.<br>Without Knobs |
|----------------------------|-----------|-------------------------------|
| MS18029-1S(N)              | .138-32   | MS18029-11S(N)                |
| MS18029-2S(N)              | .1900-32  | MS18029-12S(N)                |
| MS18029-3S(N)              | .2500-28  | MS18029-13S(N)                |



## MS18029

Nut Assembly for MS27212

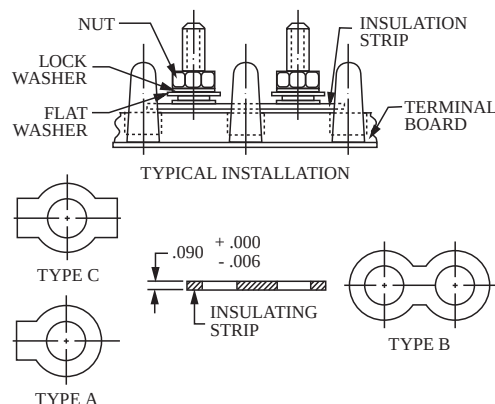
| Part #     | Thread   |
|------------|----------|
| MS18029-21 | .138-32  |
| MS18029-22 | .1900-32 |
| MS18029-23 | .2500-28 |



## MS3373

Insulating Mounting  
Nut Strip for MS27212

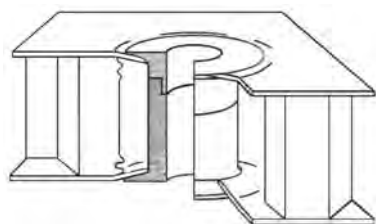
| MS3373   | Used on MS27212 |
|----------|-----------------|
| A1<br>B1 | -1              |
| A2<br>B2 | -2              |
| A3<br>B3 | -3              |



## PANEL INSERTS

102 Series - Thru Bolt

### Typical Assembly



Series 102, Thru-Bolt Plug & Sleeve assembly.

| Head Style | D - Flush | F - Non-Flush | C - Flush, C'sink Hole |
|------------|-----------|---------------|------------------------|
| Plug       |           |               |                        |
| Sleeve     |           |               |                        |

\* See Table B

Table A

| Size | A<br>Hole Dia | B<br>Body Dia | C<br>Head Dia | D<br>C'Sink Dia | E°<br>Head Angle |
|------|---------------|---------------|---------------|-----------------|------------------|
| 8    | .169          | .278          | .500          | .332            | 13°              |
| 10   | .194          | .309          | .625          | .382            | 13°              |

### Part Number Selection

Two part numbers-Sleeve & Plug-are required.

#### Example:

TYE S 1 0 2 F 10 - 08

TYE P 1 0 2 C 10 - 1

- Length Dash Number: See Table B
- Size: See Table A
- Head Style: C = Flush Head, Countersunk Hole  
D = Flush Head  
F = Non-Flush Head
- Type: Thru-Bolt
- Material: Q = Aluminum Alloy
- Part Type: P = Plug, S = Sleeve

### Plug and Sleeve Dash Number Selection

Select Sleeve and Plug Dash Number from Table B by determining the thickness closest to the panel being used.

#### Example:

Requirements: #10 Thru-Bolt, Aluminum Alloy, Non-Flush Head for a .375 overall panel.

From table select: -0 Plug = TYEP102F10-0

-06 Sleeve = TYES102F10-06

Table B

|               | Plug Dash # | -0   | -1   |
|---------------|-------------|------|------|
| Sleeve Dash # | H G         | .085 | .116 |
| -04           | .165        | .250 | .281 |
| -06           | .290        | .375 | .406 |
| -08           | .415        | .500 | .531 |
| -10           | .540        | .625 | .656 |
| -12           | .665        | .750 | .781 |

■ = Panel Thickness

| Young Eng.<br>Part # | Delron<br>Part # | Part<br>Type | Head<br>Style      | G<br>Height | Hole<br>Diameter |
|----------------------|------------------|--------------|--------------------|-------------|------------------|
| TYEP102C10-0         | P102C10-0        | Plug         | Flush, C'Sunk Hole | .085        | .194             |
| TYEP102D10-0         | P102D10-0        | Plug         | Flush              | .085        | .194             |
| TYEP102D10-1         | P102D10-1        | Plug         | Flush              | .116        | .194             |
| TYEP102F10-0         | P102F10-0        | Plug         | Non-Flush          | .085        | .194             |
| Young Eng.<br>Part # | Delron<br>Part # | Part<br>Type | Head<br>Style      | H<br>Height | Hole<br>Diameter |
| TYES102D10-04        | S102D10-04       | Sleeve       | Flush              | .165        | .194             |
| TYES102D10-06        | S102D10-06       | Sleeve       | Flush              | .290        | .194             |
| TYES102D10-08        | S102D10-08       | Sleeve       | Flush              | .415        | .194             |
| TYES102D10-10        | S102D10-10       | Sleeve       | Flush              | .540        | .194             |
| TYES102F10-04        | S102F10-04       | Sleeve       | Non-Flush          | .165        | .194             |
| TYES102F10-06        | S102F10-06       | Sleeve       | Non-Flush          | .290        | .194             |
| TYES102F10-08        | S102F10-08       | Sleeve       | Non-Flush          | .415        | .194             |

## NAS1130

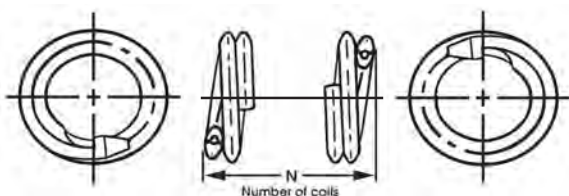
Tangless Insert, Helical Coil  
Screw Thread, Free Running, Self-Locking  
Type 304 Corrosion Resistant Steel



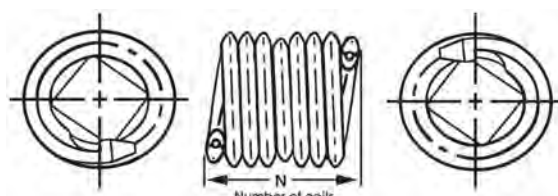
No Letter after the First Dash # designates: Free Running  
"L" after the First Dash # designates: Self-Locking  
Add a "D" after the Second Dash # to designate: Dry Film Lubricant  
Add a "P" after the Second Dash # to designate: Cadmium Plating  
No Letter after the Second Dash # designates: No Finish

### Insert Color Identification:

- No Finish, Free Running: None
- No Finish, Self-Locking: Red (Dye)
- Dry Film Lube, Free Running: Dark Gray
- Dry Film Lube, Self-Locking: Dark



Free Running Insert



Self-Locking Insert

\* Note - Length dimensions are for reference only

| Nominal Thread Size | 1 - Diameter Nom. Length |                  | 1.5 - Diameter Nom. Length |                  | 2 - Diameter Nom. Length |                  | 2.5 - Diameter Nom. Length |                  | 3 - Diameter Nom. Length |                  |
|---------------------|--------------------------|------------------|----------------------------|------------------|--------------------------|------------------|----------------------------|------------------|--------------------------|------------------|
|                     | Length                   | NAS1130          | Length                     | NAS1130          | Length                   | NAS1130          | Length                     | NAS1130          | Length                   | NAS1130          |
| .086-56             | .086                     | -02-10<br>-02L10 | .129                       | -02-15<br>-02L15 | .172                     | -02-20<br>-02L20 | .215                       | -02-25<br>---    | .258                     | -02-30<br>---    |
| .112-40             | .112                     | -04-10<br>-04L10 | .168                       | -04-15<br>-04L15 | .224                     | -04-20<br>-04L20 | .280                       | -04-25<br>---    | .336                     | -04-30<br>---    |
| .138-32             | .138                     | -06-10<br>-06L10 | .207                       | -06-15<br>-06L15 | .276                     | -06-20<br>-06L20 | .345                       | -06-25<br>---    | .414                     | -06-30<br>-06L30 |
| .164-32             | .164                     | -08-10<br>-08L10 | .246                       | -08-15<br>-08L15 | .328                     | -08-20<br>---    | .410                       | -08-25<br>-08L25 | .492                     | -08-30<br>---    |
| .190-32             | .190                     | -3-10<br>-3L10   | .285                       | -3-15<br>-3L15   | .380                     | -3-20<br>-3L20   | .475                       | -3-25<br>-3L25   | .570                     | -3-30<br>-3L30   |
| .250-20             | .250                     | -4-10<br>-4L10   | .375                       | -4-15<br>-4L15   | .500                     | -4-20<br>---     | .625                       | -4-25<br>---     | .750                     | -4-30<br>---     |
| .250-28             | .250                     | -4F10<br>-4FL10  | .375                       | -4F15<br>-4FL15  | .500                     | -4F20<br>-4FL20  | .625                       | -4F25<br>---     | .750                     | -4F30<br>-4FL30  |

## NAS1394

Insert, Lightweight  
Self-Locking &  
Non Self-Locking,  
Threaded Metal

"-" Indicates Alloy Steel,  
"C" Indicates Corrosion Resistant Steel  
Add an "L" after Dash # for Self-Locking

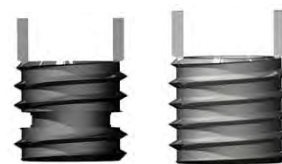


| Internal Thread | External Thread | Length | NAS1394 | NAS1394 |
|-----------------|-----------------|--------|---------|---------|
| .1640-32        | .2500-20        | .250   | C08     | C08L    |
| .1900-32        | .3125-18        | .3125  | C3      | C3L     |
| .2500-28        | .3750-16        | .375   | C4      | C4L     |
| .3125-24        | .4375-14        | .4375  | C5      | C5L     |

## NAS1395

Insert, Heavy Duty  
Self-Locking &  
Non Self-Locking,  
Threaded Metal

"-" Indicates Alloy Steel,  
"C" Indicates Corrosion Resistant Steel  
Add an "L" after Dash # for Self-Locking



| Internal Thread | External Thread | Length | NAS1395 |
|-----------------|-----------------|--------|---------|
| .1380-32        | .2500-20        | .250   | C06L    |
| .1640-32        | .3125-18        | .3125  | C08L    |
| .1900-32        | .3750-16        | .3125  | C3L     |
| .2500-28        | .4375-14        | .375   | C4L     |



## MS21209

Helicoil Insert

"C" indicates Coarse Thread

"F" indicates Fine Thread

"L" indicates Dry Film Lube

"P" indicates Cadmium Plating



| Coarse Thread Size | Length | MS21209                   | Length | MS21209                   | Length | MS21209                   | Length | MS21209                   |
|--------------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|
| .086-56            | .086   | C0210                     | .129   | C0215                     | .172   | C0220                     | .215   | C0225                     |
| .112-40            | .112   | C0410<br>C0410L<br>C0410P | .168   | C0415<br>C0415L<br>C0415P | .224   | C0420<br>C0420L<br>C0420P | .280   | C0425<br>C0425L<br>C0425P |
| .138-32            | .138   | C0610<br>C0610L<br>C0610P | .207   | C0615<br>C0615L<br>C0615P | .276   | C0620<br>C0620L<br>C0620P | .345   | C0625<br>C0625L<br>C0625P |
| .164-32            | .164   | C0810<br>C0810L<br>C0810P | .246   | C0815<br>C0815L<br>C0815P | .328   | C0820<br>C0820L<br>C0820P | .410   | C0825<br>C0825L<br>C0825P |
| .190-24            | .190   | C1-10                     | .285   | C1-15                     | .380   | C1-20                     | .475   | C1-25                     |
| .250-20            | .250   | C4-10                     | .375   | C4-15                     | .500   | C4-20                     | .625   | C4-25                     |

| Fine Thread Size | Length | MS21209                   | Length | MS21209                   | Length | MS21209                   | Length | MS21209                   |
|------------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|--------|---------------------------|
| .138-40          | .138   | F0610                     | .207   | F0615                     | .276   | F0620                     | .345   | F0625                     |
| .164-36          | .164   | F0810                     | .246   | F0815                     | .328   | F0820                     | .410   | F0825                     |
| .190-32          | .190   | F1-10<br>F1-10L<br>F1-10P | .285   | F1-15<br>F1-15L<br>F1-15P | .380   | F1-20<br>F1-20L<br>F1-20P | .475   | F1-25<br>F1-25L<br>F1-25P |
| .250-28          | .250   | F4-10<br>F4-10L<br>F4-10P | .375   | F4-15<br>F4-15L<br>F4-15P | .500   | F4-20<br>F4-20L<br>F4-20P | .625   | F4-25<br>F4-25L<br>F4-25P |
| .3125-24         | .312   | F5-10                     | .469   | F5-15                     | .625   | F5-20                     | .781   | F5-25                     |
| .375-24          | .375   | F6-10                     | .562   | F6-15                     | .750   | F6-20                     | .938   | F6-25                     |

## MS51830

Insert, Mini & Lightweight  
Locked In, Key Locked  
Corrosion Resistant Steel

Alternate # - NAS1394

"A" in lieu of "-" for Alloy Steel

"L" after Dash # for Internal Thread Lock



| Internal Thread | External Thread | Length | Locking Tabs | MS51830       |
|-----------------|-----------------|--------|--------------|---------------|
| .086- 56        | .1640- 32       | .120   | 2            | -101<br>-101L |
| .112- 40        | .1900- 32       | .170   | 2            | -102<br>-102L |
| .138- 32        | .2160- 28       | .170   | 2            | -103<br>-103L |
| .190- 32        | .3125- 18       | .312   | 2            | -201<br>-201L |
| .250- 28        | .3750- 16       | .375   | 2            | -202<br>-202L |
| .3125- 24       | .4375- 14       | .437   | 4            | -203<br>-203L |

## MS51831

Insert, Heavy Duty  
Locked In, Key Locked  
Corrosion Resistant Steel

Alternate # - NAS1395

"A" in lieu of "-" for Alloy Steel

"L" after Dash # for Internal Thread Lock



| Internal Thread | External Thread | Length | Locking Tabs | MS51831                |
|-----------------|-----------------|--------|--------------|------------------------|
| .1900- 32       | .3750- 16       | .312   | 2            | -201<br>-201L<br>A201L |
| .2500- 28       | .4375- 14       | .375   | 2            | -202<br>-202L          |
| .3125- 24       | .5000- 13       | .437   | 4            | -203L                  |
| .3750- 24       | .5625- 12       | .500   | 4            | -204L                  |



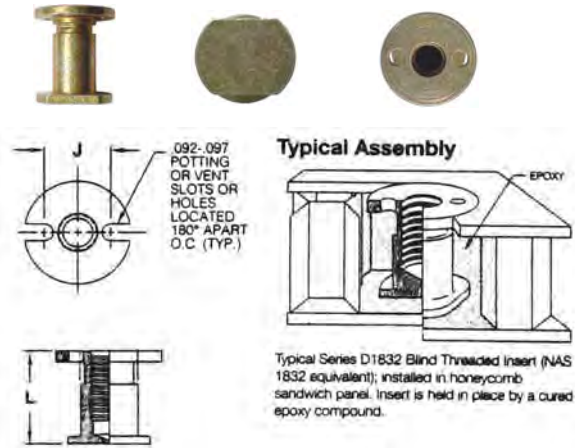
## INSERTS

### NAS1832 INSERT

#### Blind Threaded / Sandwich Panel

No letter after Basic Part # indicates Carbon Steel  
Add "C" after Basic Part # for Corrosion Resistant  
"M" after Second Dash # indicates Dry Film Lubricant

| Part #        | Thread   | Length | J    |
|---------------|----------|--------|------|
| NAS1832-08-3  | .1640-32 | .375   | .367 |
| NAS1832-08-3M |          | .375   |      |
| NAS1832-08-4  |          | .500   |      |
| NAS1832-08-6  |          | .750   |      |
| NAS1832-3-3   | .1900-32 | .375   | .367 |
| NAS1832-3-3M  |          | .375   |      |
| NAS1832-3-4   |          | .500   |      |
| NAS1832-3-5   |          | .625   |      |
| NAS1832-3-6   |          | .750   |      |
| NAS1832-3-7   |          | .875   |      |
| NAS1832-4-4   | .2500-28 | .500   | .467 |

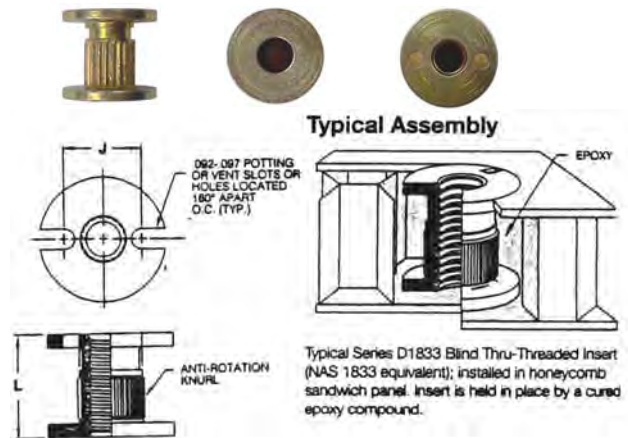


### NAS1833 INSERT

#### Thru Threaded / Sandwich Panel

No Letter after Basic Part # indicates Carbon Steel  
Add "A" after Basic Part # for Aluminum  
Add "C" after Basic Part # for Corrosion Resistant

| Part #         | Thread   | Length | J    |
|----------------|----------|--------|------|
| NAS1833-08-250 | .1640-32 | .250   | .367 |
| NAS1833-08-375 |          | .375   |      |
| NAS1833-08-500 |          | .500   |      |
| NAS1833-3-250  | .1900-32 | .250   | .367 |
| NAS1833-3-300  |          | .300   |      |
| NAS1833-3-375  |          | .375   |      |
| NAS1833-3-500  |          | .500   |      |
| NAS1833-3-750  |          | .750   |      |

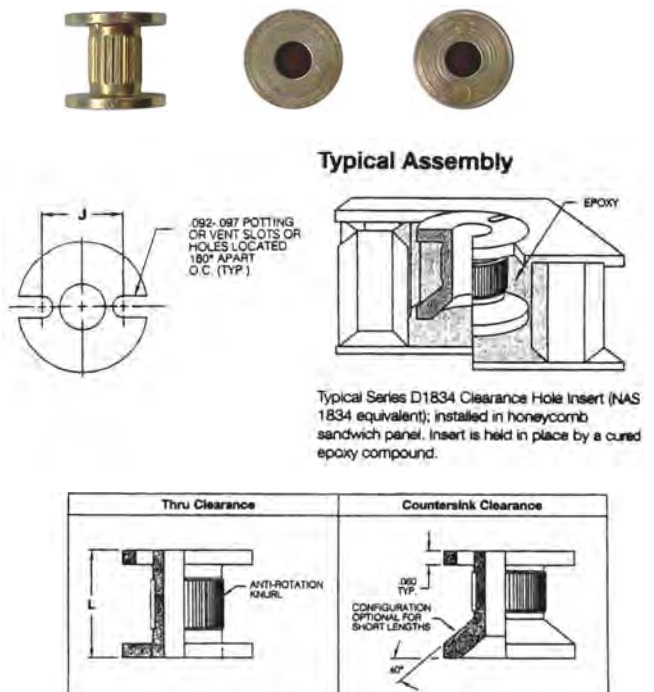


### NAS1834 INSERT

#### Countersunk and Thru Clearance Hole Sandwich Panel

Suffix "K" after 1st Dash # indicates Countersunk  
"A" after Basic Part # indicates Aluminum  
"C" after Basic Part # indicates Corrosion Resistant

| Part #         | Clearance Hole | Length | J    |
|----------------|----------------|--------|------|
| NAS1834-08-250 | .168 - .174    | .250   | .367 |
| NAS1834-08K250 |                | .250   |      |
| NAS1834-08K375 |                | .375   |      |
| NAS1834-08-500 |                | .500   |      |
| NAS1834-08K500 |                | .500   |      |
| NAS1834-3-250  | .195 - .201    | .250   | .367 |
| NAS1834-3K250  |                | .250   |      |
| NAS1834A3-250  |                | .250   |      |
| NAS1834-3-375  |                | .375   |      |
| NAS1834-3K375  |                | .375   |      |
| NAS1834-3K400  |                | .400   |      |
| NAS1834-3-500  |                | .500   |      |
| NAS1834-3K500  |                | .500   |      |
| NAS1834-3K750  |                | .750   |      |
| NAS1834-4-375  | .256 - .263    | .375   | .467 |
| NAS1834-4-500  |                | .500   |      |
| NAS1834-4K500  |                | .500   |      |
| NAS1834-4-750  |                | .750   |      |
| NAS1834-4K750  |                | .750   |      |



## INSERTS

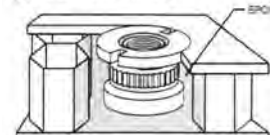
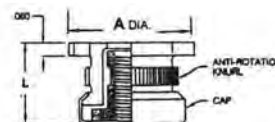
### NAS1835 INSERT

#### Molded In, Blind Threaded Floating Sandwich Panel

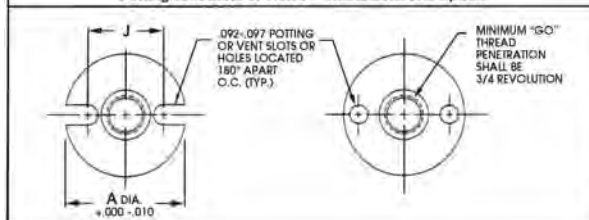
No Letter after Basic Part # indicates Carbon Steel  
"A" after Basic Part # indicates Aluminum Alloy Housing  
"C" indicates Corrosion Resistant  
"M" indicates Solid Film Lubricant



Typical Assembly



Potting Vent Slots or Holes — Manufacturer's Option



| Part #     | Thread   | A    | J    | L   |
|------------|----------|------|------|-----|
| NAS1835-08 | .1640-32 | .685 | .500 | .37 |
| NAS1835C08 |          |      |      |     |
| NAS1835-3M | .1900-32 | .685 | .500 | .43 |
| NAS1835A3  |          |      |      |     |
| NAS1835-3  |          |      |      |     |

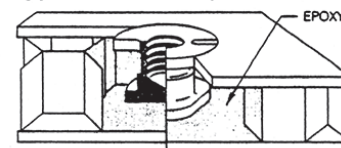
### NAS1836 INSERT

#### Blind Threaded/ Lightweight Sandwich Panel

No Letter after Basic Part # indicates Carbon Steel  
"A" after Basic Part # indicates Aluminum Alloy Housing  
"C" indicates Corrosion Resistant

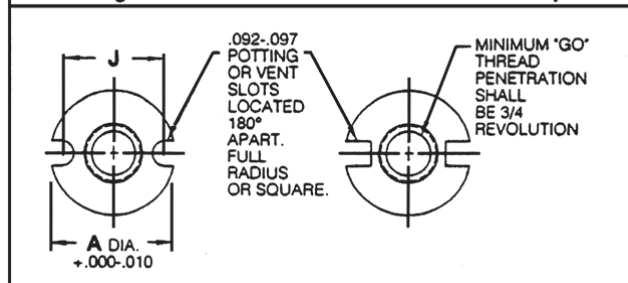


Typical Assembly



Typical Series D1836 Lightweight Threaded Insert (NAS 1836 equivalent); installed in honeycomb sandwich panel. Insert is held in place by a cured epoxy compound.

Potting Vent Slots or Holes — Manufacturer's Option



| Part #        | Thread   | Length |
|---------------|----------|--------|
| NAS1836-06-07 | .1380-32 | .219   |
| NAS1836-06-08 |          | .250   |
| NAS1836-06-09 |          | .281   |
| NAS1836-06-11 |          | .343   |
| NAS1836-06-12 |          | .375   |
| NAS1836-06-14 |          | .437   |
| NAS1836-06-15 |          | .469   |
| NAS1836-06-16 |          | .500   |
| NAS1836-08-07 | .1640-32 | .219   |
| NAS1836-08-08 |          | .250   |
| NAS1836-08-09 |          | .281   |
| NAS1836-08-10 |          | .312   |
| NAS1836-08-11 |          | .343   |
| NAS1836C08-11 |          | .343   |
| NAS1836-08-12 |          | .375   |
| NAS1836-08-13 |          | .406   |
| NAS1836-08-14 |          | .437   |
| NAS1836-08-15 |          | .465   |
| NAS1836-08-16 |          | .500   |
| NAS1836-08-20 |          | .620   |
| NAS1836-3-07  | .1900-32 | .219   |
| NAS1836-3C07  |          | .219   |
| NAS1836-3-08  |          | .250   |
| NAS1836-3-09  |          | .281   |
| NAS1836-3-10  |          | .312   |
| NAS1836-3-11  |          | .343   |
| NAS1836-3-12  |          | .375   |
| NAS1836C3-12  |          | .375   |
| NAS1836-3-13  |          | .406   |
| NAS1836-3-14  |          | .437   |
| NAS1836-3-16  |          | .500   |
| NAS1836-3-18  |          | .563   |
| NAS1836-3-20  |          | .620   |

## HOSE CLAMPS

### QS200M#S

All Stainless  
Slotted Safety Collar



### QS200M#H

All Stainless  
Slotted Hex Head Screw



| Diameter |        | QS200M#S | QS200M#H |
|----------|--------|----------|----------|
| Min      | Max    | Dash #   | Dash #   |
| 7/16     | 25/32  | 06S      | 06H      |
| 1/2      | 29/32  | 08S      | 08H      |
| 9/16     | 1-1/16 | 10S      | 10H      |
| 11/16    | 1-1/4  | 12S      | 12H      |
| 13/16    | 1-1/2  | 16S      | 16H      |
| 15/16    | 1-3/4  | 20S      | 20H      |
| 1-1/16   | 2      | 24S      | 24H      |
| 1-5/16   | 2-1/4  | 28S      | 28H      |
| 1-9/16   | 2-1/2  | 32S      | 32H      |
| 1-13/16  | 2-3/4  | 36S      | 36H      |
| 2-1/16   | 3      | 40S      | 40H      |
| 2-5/16   | 3-1/4  | 44S      | 44H      |
| 2-9/16   | 3-1/2  | 48S      | 48H      |
| 2-13/16  | 3-3/4  | 52S      | 52H      |
| 3-1/16   | 4      | 56S      | 56H      |
| 3-5/16   | 4-1/4  | 60S      | 60H      |
| 3-9/16   | 4-1/2  | 64S      | 64H      |
| 4-1/16   | 5      | 72S      | 72H      |
| 4-5/16   | 5-1/2  | 80S      | 80H      |
| 5-1/8    | 6      | 88S      | 88H      |
| 5-9/16   | 6-1/2  | 96S      | 96H      |

## HOSE CLAMPS

### QS100M#S

Carbon Steel  
Slotted Safety Collar



### QS100M#H

Carbon Steel  
Slotted Hex Head Screw

| Diameter |        | QS100M#S                                                                    | QS100M#H |
|----------|--------|-----------------------------------------------------------------------------|----------|
| Min      | Max    | Dash #                                                                      | Dash #   |
| 7/16     | 25/32  | C<br>A<br>N<br>C<br>E<br>L<br>L<br>E<br>D<br><br>S<br>E<br>R<br>I<br>E<br>S | 06H      |
| 1/2      | 29/32  |                                                                             | 08H      |
| 9/16     | 1-1/16 |                                                                             | 10H      |
| 11/16    | 1-1/4  |                                                                             | 12H      |
| 13/16    | 1-1/2  |                                                                             | 16H      |
| 15/16    | 1-3/4  |                                                                             | 20H      |
| 1-1/16   | 2      |                                                                             | 24H      |
| 1-5/16   | 2-1/4  |                                                                             | 28H      |
| 1-9/16   | 2-1/2  |                                                                             | 32H      |
| 1-13/16  | 2-3/4  |                                                                             | 36H      |
| 2-1/16   | 3      |                                                                             | 40H      |
| 2-5/16   | 3-1/4  |                                                                             | 44H      |
| 2-9/16   | 3-1/2  |                                                                             | 48H      |
| 2-13/16  | 3-3/4  |                                                                             | 52H      |
| 3-1/16   | 4      |                                                                             | 56H      |
| 3-5/16   | 4-1/4  |                                                                             | 60H      |
| 3-9/16   | 4-1/2  |                                                                             | 64H      |
| 4-1/16   | 5      |                                                                             | 72H      |
| 4-5/16   | 5-1/2  |                                                                             | 80H      |
| 5-1/8    | 6      |                                                                             | 88H      |
| 5-9/16   | 6-1/2  |                                                                             | 96H      |

## HOSE CLAMPS

### Miniature



| Diameter |        | Heavy Duty | Stainless |
|----------|--------|------------|-----------|
| Min      | Max    | Part #     | Part #    |
| 7/32     | 5/8    | 6504       | 6604      |
| 7/16     | 25/32  | 6506       | 6606      |
| 1/2      | 29/32  | 6508       | 6608      |
| 9/16     | 1-1/16 | 6510       | 6610      |

## AN737 HOSE CLAMPS



| Diameter |         | AN737TW |
|----------|---------|---------|
| Min      | Max     |         |
| 7/16     | 11/16   | 22      |
| 1/2      | 3/4     | 24      |
| 9/16     | 13/16   | 26      |
| 11/16    | 15/16   | 30      |
| 13/16    | 1-1/16  | 34      |
| 15/16    | 1-3/16  | 38      |
| 61/64    | 1-3/8   | 44      |
| 1        | 1-7/16  | 46      |
| 1-5/64   | 1-1/2   | 48      |
| 1-21/64  | 1-3/4   | 56      |
| 1-3/8    | 1-13/16 | 58      |
| 1-5/8    | 2-1/16  | 66      |
| 1-7/8    | 2-5/16  | 74      |
| 2-1/8    | 2-9/16  | 82      |
| 2-13/32  | 2-27/32 | 91      |
| 2-5/8    | 3-1/16  | 98      |
| 2-29/32  | 3-11/32 | 107     |
| 3-1/8    | 3-9/16  | 114     |

## MS35842

Hose Clamp  
Low Pressure



| Hose Diameter Range |       | MS35842 |
|---------------------|-------|---------|
| Min                 | Max   |         |
| 7/16                | 25/32 | -10     |
| 11/16               | 1-1/4 | -11     |
| 1-1/16              | 2     | -12     |
| 1-13/16             | 2-3/4 | -13     |
| 2-9/16              | 3-1/2 | -14     |
| 3-5/16              | 4-1/4 | -15     |
| 4-1/8               | 7     | -16     |

### MS21919WDG CLAMP

Aluminum Band,  
Chloroprene Cushion (212°F)



| To Fit Diameter | MS21919WDG | To Fit Diameter | MS21919WDG |
|-----------------|------------|-----------------|------------|
| 1/8             | 2          | 1-5/16          | 21         |
| 3/16            | 3          | 1-3/8           | 22         |
| 1/4             | 4          | 1-7/16          | 23         |
| 5/16            | 5          | 1-1/2           | 24         |
| 3/8             | 6          | 1-9/16          | 25         |
| 7/16            | 7          | 1-5/8           | 26         |
| 1/2             | 8          | 1-11/16         | 27         |
| 9/16            | 9          | 1-3/4           | 28         |
| 5/8             | 10         | 1-13/16         | 29         |
| 11/16           | 11         | 1-7/8           | 30         |
| 3/4             | 12         | 2               | 32         |
| 13/16           | 13         | 2-1/8           | 34         |
| 7/8             | 14         | 2-3/16          | 35         |
| 15/16           | 15         | 2-1/4           | 36         |
| 1               | 16         | 2-3/8           | 38         |
| 1-1/16          | 17         | 2-1/2           | 40         |
| 1-1/8           | 18         | 2-21/32         | 42         |
| 1-3/16          | 19         | 2-3/4           | 44         |
| 1-1/4           | 20         | 3               | 48         |

### MS21919WH

Steel Band,  
White Silicone Cushion  
(400°F)



| Dia. | MS21919WH | Dia.    | MS21919WH |
|------|-----------|---------|-----------|
| 1/8  | 2         | 11/16   | 11        |
| 3/16 | 3         | 3/4     | 12        |
| 1/4  | 4         | 13/16   | 13        |
| 5/16 | 5         | 7/8     | 14        |
| 3/8  | 6         | 15/16   | 15        |
| 7/16 | 7         | 1       | 16        |
| 1/2  | 8         | 1-11/16 | 17        |
| 9/16 | 9         | 1-1/8   | 18        |
| 5/8  | 10        | 1-1/4   | 20        |

### MS21919WCH

Corrosion Resistant Band,  
White Silicone Cushion (400°F)



| Dia.  | MS21919WCH | Dia.   | MS21919WCH |
|-------|------------|--------|------------|
| 1/8   | 2          | 3/4    | 12         |
| 3/16  | 3          | 13/16  | 13         |
| 1/4   | 4          | 7/8    | 14         |
| 5/16  | 5          | 15/16  | 15         |
| 3/8   | 6          | 1      | 16         |
| 7/16  | 7          | 1-1/16 | 17         |
| 1/2   | 8          | 1-1/8  | 18         |
| 9/16  | 9          | 1-1/4  | 20         |
| 5/8   | 10         | 1-3/8  | 22         |
| 11/16 | 11         | 1-1/2  | 24         |

### MS21919WCJ

Corrosion Resistant Band,  
Fluorosilicone Cushion  
(450°F)



| To Fit Dia. | MS21919WCJ |
|-------------|------------|
| 1/8         | 2          |
| 3/16        | 3          |
| 1/4         | 4          |
| 5/16        | 5          |
| 3/8         | 6          |
| 7/16        | 7          |
| 1/2         | 8          |
| 9/16        | 9          |
| 5/8         | 10         |
| 11/16       | 11         |
| 3/4         | 12         |

### MS21919WDF

Aluminum Band,  
Nitrile Cushion  
(212°F)



| To Fit Dia. | MS21919WDF |
|-------------|------------|
| 1/8         | 2          |
| 3/16        | 3          |
| 1/4         | 4          |
| 5/16        | 5          |
| 3/8         | 6          |
| 7/16        | 7          |
| 1/2         | 8          |
| 5/8         | 10         |
| 3/4         | 12         |



## AN742D

Clamp, Plain, Steel,  
"D" after Base# is Aluminum



| To Fit Diameter | AN742 | AN742D |
|-----------------|-------|--------|
| 1/8             | 2     | 2      |
| 3/16            | 3     | 3      |
| 1/4             | 4     | 4      |
| 5/16            | 5     | 5      |
| 3/8             | 6     | 6      |
| 7/16            | 7     | 7      |
| 1/2             | 8     | 8      |
| 9/16            | 9     | 9      |
| 5/8             | 10    | 10     |
| 11/16           | 11    | 11     |
| 3/4             | 12    | 12     |

## M85052/2

Clamp, Loop  
Fluid Resistant, Tube



| To Fit Diameter | M85052/2- |
|-----------------|-----------|
| 1/8             | 2         |
| 3/16            | 3         |
| 1/4             | 4         |
| 5/16            | 5         |
| 3/8             | 6         |
| 7/16            | 7         |
| 1/2             | 8         |
| 9/16            | 9         |
| 5/8             | 10        |
| 11/16           | 11        |
| 3/4             | 12        |

## AN735D

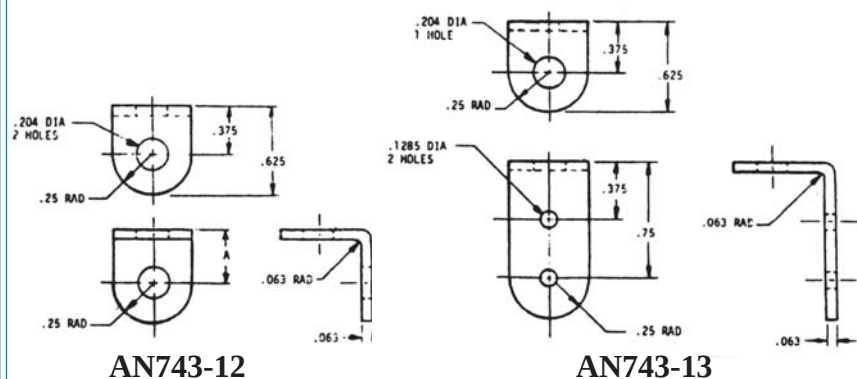
Clamp Loop  
Type Bonding  
Aluminum



| Fits Dia. | AN735D | Fits Dia. | AN735D |
|-----------|--------|-----------|--------|
| .125      | 2      | 1.25      | 18     |
| .1875     | 3      | 1.88      | 19     |
| .250      | 4      | 1.25      | 20     |
| .313      | 5      | 1.35      | 22     |
| .375      | 6      | 1.50      | 24     |
| .4375     | 7      | 1.625     | 26     |
| .500      | 8      | 1.688     | 27     |
| .625      | 10     | 1.750     | 28     |
| .688      | 11     | 1.875     | 30     |
| .750      | 12     | 2.000     | 32     |
| 1.00      | 16     | 2.500     | 40     |

## AN743

Bracket  
Support Clamp



## 12-02588

Adel Clamp Keeper  
Spring steel, notched on both ends.  
Allows mechanic to thread a nut  
onto the screw much easier than  
without this important tool.



## MS25281

Wire Loop Clamp,  
Plastic



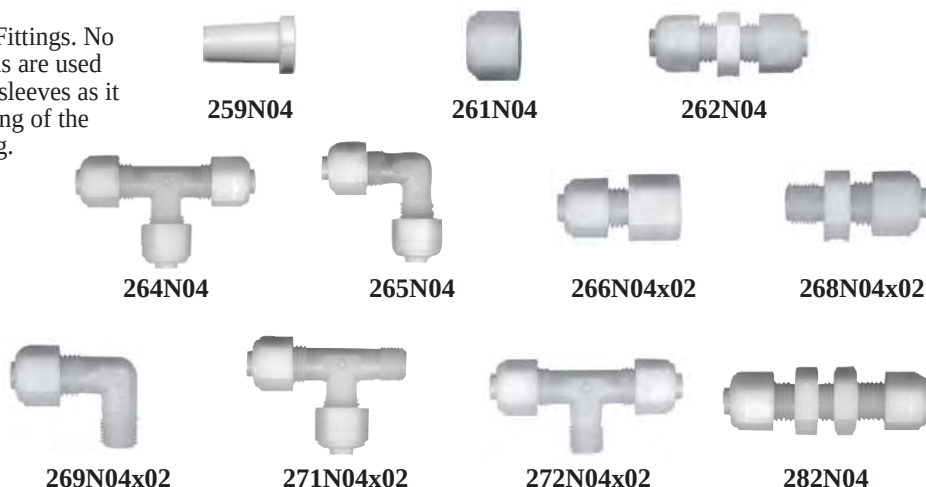
| Dia. | MS25281 | Dia.  | MS25281 |
|------|---------|-------|---------|
| 1/8  | R2      | 5/8   | R10     |
| 3/16 | R3      | 11/16 | R11     |
| 1/4  | R4      | 3/4   | R12     |
| 5/16 | R5      | 13/16 | R13     |
| 3/8  | R6      | 7/8   | R14     |
| 7/16 | R7      | 15/16 | R15     |
| 1/2  | R8      | 1     | R16     |
| 9/16 | R9      | 1-1/8 | R18     |



## NYLON FITTINGS

Imperial Eastman Nylo-Seal Flareless Tube Fittings. No wrenches, flaring tools, benders or other tools are used for installation. The nut revolves around the sleeves as it is tightened, prevented twisting and weakening of the plastic tubing. For use with Poly-Flow tubing.

| Part No.  | Description      |
|-----------|------------------|
| 259N04    | Insert           |
| 261N04    | Nut/Sleeve       |
| 262N04    | Union            |
| 264N04    | Union Tee        |
| 265N04    | Union Elbow      |
| 266N04x02 | Female Connector |
| 268N04x02 | Male Connector   |
| 269N04x02 | Male Elbow       |
| 271N04x02 | Male Run Tee     |
| 272N04x02 | Male Branch Tee  |
| 282N04    | Bulkhead Union   |



## BRASS FITTINGS

Imperial Eastman Brass Flareless Tube Fittings. The nut revolves around the sleeve as it is tightened, preventing twisting and weakening of the plastic tubing. For use with Poly-Flow tubing.

| Part No.  | Description      |
|-----------|------------------|
| 261P04    | Nut/Sleeve       |
| 262P04    | Union            |
| 264P04    | Union Tee        |
| 266P04x02 | Female Connector |
| 268P04x02 | Male Connector   |
| 269P04x02 | Male Elbow       |
| 272P04x02 | Male Branch Tee  |



## POLY-FLOW TUBING

Imperial Eastman Poly-Flo Tubing. No wrenches, flaring tools, benders or other tools are used for installation. To be used with Imperial Eastman Nylon and Brass Fittings.

| Part No. | Description            |
|----------|------------------------|
| 44PN     | Clear Poly-Flo Tubing  |
| 44PB     | Blue Poly-Flo Tubing   |
| 44PGN    | Green Poly-Flo Tubing  |
| 44PO     | Orange Poly-Flo Tubing |



## POLY-FLOW TUBE CUTTER

The "Snip," plastic tube and hose shear is a compact tool designed to evenly cut Poly-Flo tubing. Shear is spring loaded with a replaceable hardened steel blade.

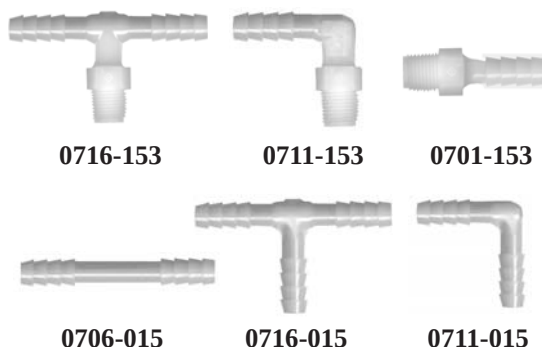
| Part No. | Description          |
|----------|----------------------|
| 307-FP   | Poly-Flo Tube Cutter |



## NYLON INSERT FITTINGS

Used with 1/4" hose or tubing.

| Part No. | Description      |
|----------|------------------|
| 0716-153 | Tee Connector    |
| 0711-153 | Elbow Connector  |
| 0701-153 | Inline Connector |
| 0716-015 | Tee              |
| 0711-015 | Elbow            |
| 0706-015 | Inline           |



## NORPRENE BLACK TUBING

0023-071

Norprene thermoplastic elastomer tubing is a rubber-like black tubing that will not weaken or crack, even after years of heat or ozone exposure. For use with insert type fittings.



## AN804-TEE

37° Flared Tube, Bulkhead

Tee / Bulkhead on Run

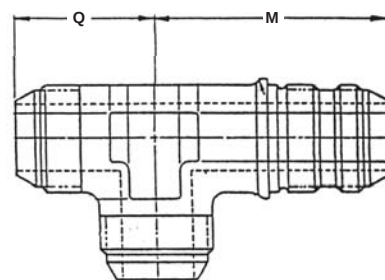
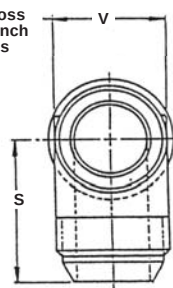
AN804D# (Aluminum)

AN804# (Steel)

AN804J# (Corrosion Resistant)



Across  
Wrench  
Pads



| Dash No.<br>AN804 | Tube O.D. | Thread Size<br>(Ref.) | M<br>-.047 | Q<br>-.047 | S<br>-.047 | V     |
|-------------------|-----------|-----------------------|------------|------------|------------|-------|
| 2                 | .125      | .312-24               | 1.406      | .766       | .828       | .312  |
| 3                 | .188      | .375-24               | 1.437      | .828       | .891       | .375  |
| 4                 | .250      | .437-20               | 1.578      | .891       | .953       | .437  |
| 5                 | .312      | .500-20               | 1.609      | .953       | 1.016      | .500  |
| 6                 | .375      | .562-18               | 1.797      | 1.062      | 1.078      | .562  |
| 8                 | .500      | .750-16               | 2.094      | 1.250      | 1.344      | .750  |
| 10                | .625      | .875-14               | 2.375      | 1.453      | 1.547      | .875  |
| 12                | .750      | 1.062-12              | 2.656      | 1.656      | 1.766      | 1.602 |

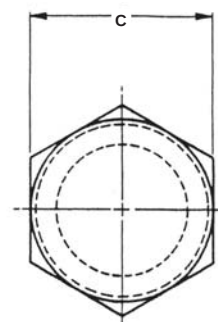
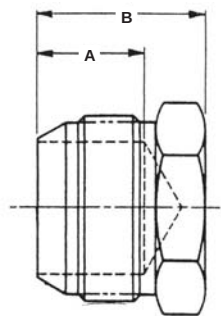
## AN806-PRESSURE PLUG

37° Flared Tube

AN806D# (Aluminum)

AN806# (Steel)

AN806J# (Corrosion Resistant)



| Dash No.<br>AN806 | Tube O.D. | Thread Size<br>(Ref.) | A     | B       | C     |
|-------------------|-----------|-----------------------|-------|---------|-------|
| 2                 | 1/8       | 5/16 - 24             | 15/32 | 41/64   | .438  |
| 3                 | 3/16      | 3/8 - 24              |       | 43/64   |       |
| 4                 | 1/4       | 7/16 - 20             |       | 47/64   |       |
| 5                 | 5/16      | 1/2 - 20              | 17/32 | 49/64   | .500  |
| 6                 | 3/8       | 9/16 - 18             | 9/16  | 13/16   | .563  |
| 8                 | 1/2       | 3/4 - 16              | 5/8   | 15/16   | .750  |
| 10                | 5/8       | 7/8 - 14              | 49/64 | 1-7/64  | .875  |
| 12                | 3/4       | 1-1/16 - 12           | 13/16 | 1-13/64 | 1.125 |
| 16                | 1         | 1-5/16 - 12           |       | 1-9/32  | 1.375 |

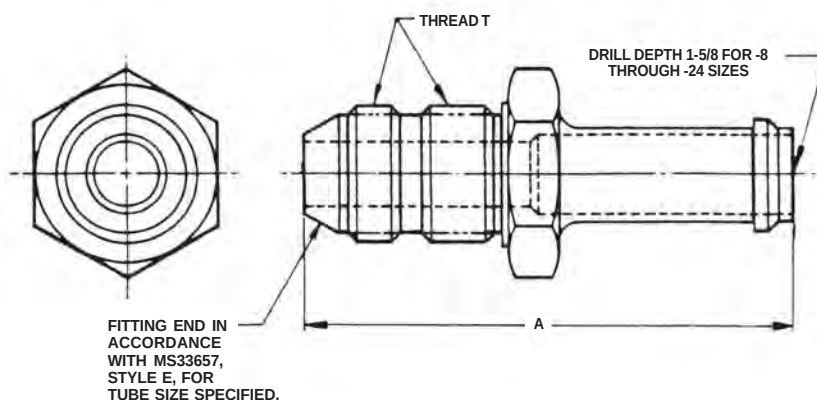
## AN807-ADAPTER

Straight, Tube to Hose

AN807-#D (Aluminum)

AN807-# (Copper Alloy)

AN807-#J (Corrosion Resistant)



| Dash No.<br>AN807 | Tube O.D. and<br>Hose I.D. | Thread Size<br>(Ref.) | A       |
|-------------------|----------------------------|-----------------------|---------|
| 4                 | 1/4                        | 7/16-20               | 2-13/16 |
| 6                 | 3/8                        | 9/16-18               | 2-61/64 |
| 8                 | 1/2                        | 3/4-16                | 3-7/64  |
| 10                | 5/8                        | 7/8-14                | 3-17/64 |
| 12                | 3/4                        | 1-1/16-12             | 3-31/64 |
| 16                | 1                          | 1-5/16-12             | 3-31/64 |

## AN814-BLEEDER PLUG

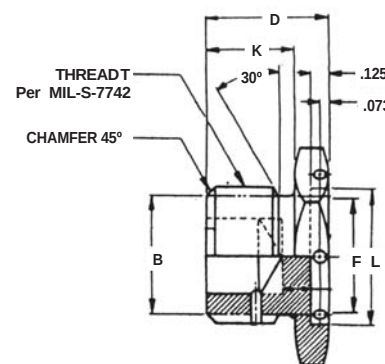
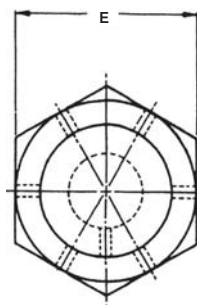
Screw Thread

AN814-#D (Aluminum)

AN814-# (Steel)

AN814-#J (Corrosion Resistant)

Add an "L" at end of Part # for Lockwire Holes



| Dash No.<br>AN814 | Tube O.D. | Thread Size<br>(Ref.) | B<br>Dia. | D     | E     | F<br>Dia.<br>+ .002<br>- .003 | K     | L     |
|-------------------|-----------|-----------------------|-----------|-------|-------|-------------------------------|-------|-------|
| 2                 | 1/8       | 5/16-24               | 7/32      | 35/64 | .563  | +.004                         | .250  | 5/16  |
| 3                 | 3/16      | 3/8-24                | 9/32      | 9/16  | .625  |                               | .313  | 21/64 |
| 4                 | 1/4       | 7/16-20               | 11/32     | 5/8   | .688  |                               | .364  | 7/16  |
| 5                 | 5/16      | 1/2-20                | 13/32     |       | .750  |                               | .427  | 3/8   |
| 6                 | 3/8       | 9/16-18               | 15/32     | 23/32 | .813  |                               | .482  | 27/64 |
| 8                 | 1/2       | 3/4-16                | 5/8       | 25/32 | 1.000 | +.005                         | .660  | 15/32 |
| 10                | 5/8       | 7/8-14                | 3/4       |       | 1.125 |                               | .773  | 17/32 |
| 12                | 3/4       | 1- 1/16-12            | 15/16     | 1     | 1.375 | +.016                         | .945  | 1-1/8 |
| 16                | 1         | 1- 5/16-12            | 1-3/16    |       | 1.625 |                               | 1.195 | 1-3/8 |
| 20                | 1-1/4     | 1- 5/8-12             | 1-1/2     |       | 1.875 |                               | 1.507 | 1-5/8 |

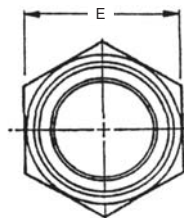
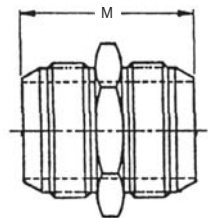
## AN815-UNION

37° Flare, Male to Male

AN815-#D (Aluminum)

AN815-# (Steel)

AN815-#J (Corrosion Resistant)



| Dash No.<br>AN815 | Tube O.D. | Thread Size<br>(Ref.) | E<br>(Ref.) | M       |
|-------------------|-----------|-----------------------|-------------|---------|
| 2                 | 1/8       | 5/16-24               | .563        | 1-7/32  |
| 3                 | 3/16      | 3/8-24                | .625        |         |
| 4                 | 1/4       | 7/16-20               | .688        | 1-1/4   |
| 5                 | 5/16      | 1/2-20                | .750        |         |
| 6                 | 3/8       | 9/16-18               | .813        | 1-3/8   |
| 8                 | 1/2       | 3/4-16                | 1.000       | 1-9/16  |
| 10                | 5/8       | 7/8-14                | 1.125       | 1-53/64 |
| 12                | 3/4       | 1 1/16-12             | 1.375       | 2-7/64  |
| 16                | 1         | 1 5/16-12             | 1.625       | 2-3/16  |

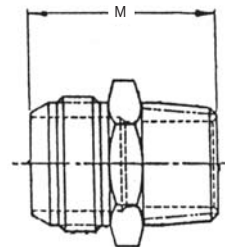
## AN816-ADAPTER

Straight, Pipe to 37° Flared

AN816-#D (Aluminum)

AN816-# (Steel)

AN816-#J (Corrosion Resistant)



| Dash No.<br>AN816 | Tube O.D. | THD P<br>AMPT<br>+016 | Thread T<br>(Ref.) | G     |                | M<br>+016 |       |
|-------------------|-----------|-----------------------|--------------------|-------|----------------|-----------|-------|
| 2                 | 1/8       | .125                  | .3125-24           | .438  | +.003<br>-.004 | 1.016     |       |
| 3                 | 3/16      |                       | .3750-24           |       |                | 1.047     |       |
| 4                 | 1/4       |                       | .4375-20           |       |                | .500      | 1.109 |
| 4-4               |           | .250                  | .563               | 1.375 |                |           |       |
| 5                 | 5/16      | .125                  | .5000-20           | .562  | +.004          | 1.141     |       |
| 5-4               |           | .250                  |                    | .563  |                | 1.375     |       |
| 6-2               | 3/8       | .125                  | .5625-18           | .625  |                | 1.187     |       |
| 6                 |           | .250                  |                    |       |                | 1.375     |       |
| 6-6               |           | .375                  |                    | .750  |                | 1.406     |       |
| 6-8               |           | .500                  |                    | .875  |                | 1.625     |       |
| 7                 | 1/2       | .250                  | .7500-16           | .813  |                | 1.500     |       |
| 8                 |           | .375                  |                    |       |                |           |       |
| 10                | 5/8       | .500                  | .8750-14           | .938  | 1.828          |           |       |
| 10-12             |           | .750                  |                    |       | 1.844          |           |       |
| 12-8              | 3/4       | .500                  | 1.0625-12          | 1.125 | +.005          | 1.953     |       |
| 12                |           | .750                  |                    |       |                |           | 2.187 |
| 12-16             |           | 1.000                 |                    |       |                |           | 2.031 |
| 16-12             | 1         | .750                  | 1.3125-12          | 1.375 |                | 2.219     |       |
| 16                |           | 1.000                 |                    |       |                |           |       |



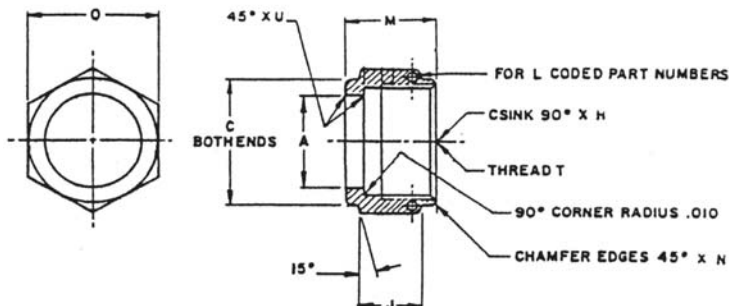
## AN818-NUT

Flared Tube Nut

AN818-#D (Aluminum)

AN818-# (Steel)

AN818-#J (Corrosion Resistant)



| Dash No.<br>AN818 | Tube O.D. | Thread<br>T<br>MIL-S-8879 | A<br>Dia.<br>+.003<br>-.000 | C<br>Dia.<br>+.000<br>-.010 | J    | M     | O     |
|-------------------|-----------|---------------------------|-----------------------------|-----------------------------|------|-------|-------|
| 2                 | .125      | .3125-24                  | .180                        | .375                        | .312 | .542  | .375  |
| 3                 | .188      | .3750-24                  | .242                        | .437                        | .375 | .604  | .438  |
| 4                 | .250      | .4375-20                  | .305                        | .562                        | .400 | .620  | .563  |
| 5                 | .312      | .5000-20                  | .374                        | .625                        | .484 | .683  | .625  |
| 6                 | .375      | .5625-18                  | .440                        | .687                        | .500 | .724  | .688  |
| 8                 | .500      | .7500-16                  | .570                        | .875                        | .578 | .849  | .875  |
| 10                | .625      | .8750-14                  | .698                        | 1.000                       | .688 | .974  | 1.000 |
| 12                | .750      | 1.0625-12                 | .834                        | 1.250                       | .750 | 1.021 | 1.250 |
| 16                | 1.000     | 1.3125-12                 | 1.089                       | 1.500                       | .766 | 1.131 | 1.500 |

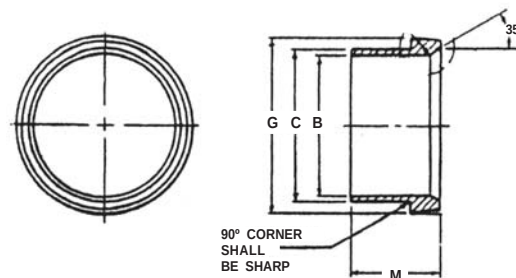
## MS20819-SLEEVE

Flared Tube Fitting

MS20819-#D (Aluminum)

MS20819-# (Steel)

MS20819-#J (Corrosion Resistant)



| Dash No.<br>MS20819 | Tube O.D. | B<br>Dia.<br>+.003<br>-.000 | C<br>Dia.<br>+.000<br>-.010 | G<br>Dia.<br>+.000<br>-.010 | M<br>+.016 |
|---------------------|-----------|-----------------------------|-----------------------------|-----------------------------|------------|
| 2                   | 1/8       | .130                        | .172                        | .267                        | .344       |
| 3                   | 3/16      | .193                        | .234                        | .329                        | .406       |
| 4                   | 1/4       | .255                        | .297                        | .383                        | .438       |
| 5                   | 5/16      | .318                        | .366                        | .445                        | .500       |
| 6                   | 3/8       | .380                        | .432                        | .502                        | .562       |
| 8                   | 1/2       | .505                        | .562                        | .682                        | .656       |
| 10                  | 5/8       | .631                        | .690                        | .797                        | .688       |
| 12                  | 3/4       | .756                        | .826                        | .972                        | .781       |
| 16                  | 1         | 1.006                       | 1.081                       | 1.222                       |            |



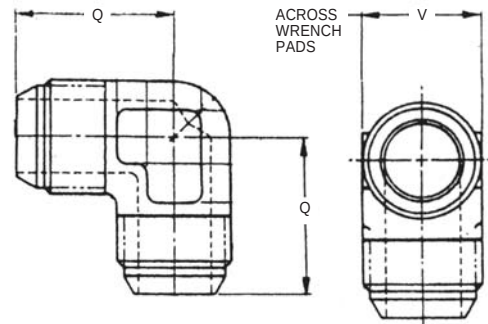
## AN821 ELBOW-90°

37° Flared Tube

AN821-#D (Aluminum)

AN821-# (Steel)

AN821-#J (Corrosion Resistant)



| Dash No.<br>AN821 | Tube O.D. | Thread<br>T | Q       | V      |
|-------------------|-----------|-------------|---------|--------|
| 2                 | 1/8       | 5/16-24     | 49/64   | 5/16   |
| 3                 | 3/16      | 3/8-24      | 53/64   | 3/8    |
| 4                 | 1/4       | 7/16-20     | 57/64   | 7/16   |
| 5                 | 5/16      | 1/4-20      | 61/64   | 1/2    |
| 6                 | 3/8       | 9/16-18     | 1-1/16  | 9/16   |
| 8                 | 1/2       | 3/4-16      | 1-1/4   | 3/4    |
| 10                | 5/8       | 7/8-14      | 1-29/64 | 7/8    |
| 12                | 3/4       | 1-1/16-12   | 1-21/32 | 1-1/16 |

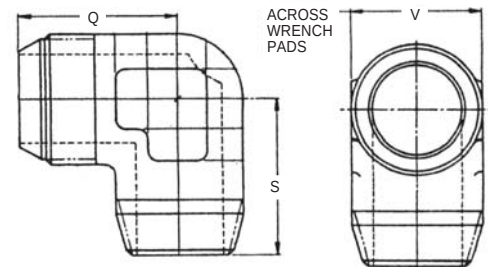
## MS20822 ELBOW-90°

Pipe to 37° Flared Tube

MS20822-#D (Aluminum)

MS20822-# (Steel)

MS20822-#J (Corrosion Resistant)



| Dash No.<br>MS20822 | Thread<br>T<br>(REF) | Tube O.D. | Pipe Thread End | Q<br>+.047<br>-.000 | S<br>+.047<br>-.000 | V     |
|---------------------|----------------------|-----------|-----------------|---------------------|---------------------|-------|
|                     |                      |           | THD P<br>ANPT   |                     |                     |       |
| 2                   | .312-24              | 1/8       | 1/8             | .766                | .719                | .312  |
| 3                   | .375-24              | 3/16      |                 | .828                |                     | .375  |
| 4                   | .437-20              | 1/4       |                 | .891                |                     | .438  |
| 4-4                 |                      |           | 1/4             | 1.031               | 1.062               | .562  |
| 5                   | .500-20              | 5/16      | 1/8             | .953                | .781                | .500  |
| 5-4                 |                      |           | 1/4             | 1.031               | 1.062               | .562  |
| 6-2                 |                      |           | 1/8             |                     | .875                |       |
| 6                   | .562-18              | 3/8       | 1/4             | 1.062               | 1.094               |       |
| 6-6                 |                      |           | 3/8             | 1.188               | 1.188               | .750  |
| 6-8                 |                      |           | 1/2             | 1.312               | 1.438               | .875  |
| 8                   | .750-16              | 1/2       | 3/8             | 1.250               | 1.219               | .750  |
| 10                  | .875-14              | 5/8       | 1/2             | 1.453               | 1.469               | .875  |
| 10-12               |                      |           | 3/4             |                     |                     |       |
| 12-8                | 1.062-12             | 3/4       | 1/2             | 1.625               | 1.562               | 1.062 |
| 12                  |                      |           | 3/4             | 1.656               | 1.594               |       |
| 12-16               |                      |           | 1               | 1.781               | 1.938               |       |
| 16-12               | 1.312-12             | 1         | 3/4             |                     | 1.719               | 1.312 |
| 16                  |                      |           | 1               | 1.812               | 1.969               |       |

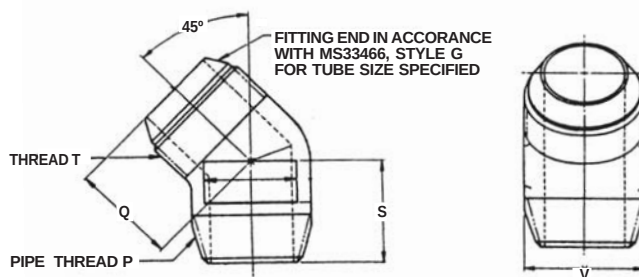
## MS20823 ELBOW - 45°

Pipe to 37° Flared Tube

MS20823-#D (Aluminum)

MS20823-# (Steel)

MS20823-#J (Corrosion Resistant)



| Dash No.<br>MS20823 | Thread<br>T<br>(REF) | Tube O.D. | Pipe Thread End |                  | Q<br>+.047<br>-.000 | S     | V     |
|---------------------|----------------------|-----------|-----------------|------------------|---------------------|-------|-------|
|                     |                      |           | THD P<br>ANPT   | MS33677<br>STYLE |                     |       |       |
| 2                   | 5/16-24              | 1/8       | 1/8             | B                | .641                | .500  | .312  |
| 3                   | 3/8-24               | 3/16      |                 |                  |                     |       | .375  |
| 4                   | 7/16-20              | 1/4       |                 | A                | .703                | .625  | .438  |
| 5                   | 1/2-20               | 5/16      |                 |                  | .750                |       | .500  |
| 6                   | 9/16-18              | 3/8       | 1/4             |                  | .812                | .844  | .562  |
| 8                   | 3/4-16               | 1/2       | 3/8             |                  | .969                | .938  | .750  |
| 10                  | 7/8-14               | 5/8       | 1/2             | 1.094            | 1.156               | .875  |       |
| 12                  | 1-1/16-12            | 3/4       | 3/4             | B                | 1.266               | 1.188 | 1.062 |
| 16-12               | 1-5/16-12            | 1         |                 | A                | 1.453               | 1.250 | 1.312 |
| 16                  |                      |           |                 | B                |                     | 1.469 |       |

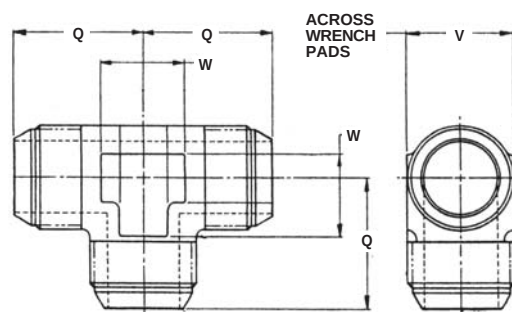
## AN824 TEE

37° Flared Tube

AN824-#D (Aluminum)

AN824-# (Steel)

AN824-#J (Corrosion Resistant)



| Dash No.<br>AN824 | Tube O.D. | Thread<br>T<br>(REF) | Q<br>+3/64<br>-0 | W<br>Approximate | V<br>Approximate |
|-------------------|-----------|----------------------|------------------|------------------|------------------|
| 2                 | 1/8       | 5/16-24              | 47/64            | 5/16             | 5/16             |
| 3                 | 3/16      | 3/8-24               | 51/64            | 3/8              | 3/8              |
| 4                 | 1/4       | 7/16-20              | 55/64            |                  | 7/16             |
| 5                 | 5/16      | 1/2-20               | 59/64            | 15/32            | 1/2              |
| 6                 | 3/8       | 9/16-18              | 1-1/32           | 1/2              | 9/16             |
| 8                 | 1/2       | 3/4-16               | 1-7/32           | 11/16            | 3/4              |
| 10                | 5/8       | 7/8-14               | 1-27/64          | 25/32            | 7/8              |
| 12                | 3/4       | 1-1/16-12            | 1-5/8            | 29/32            | 1-1/16           |
| 16                | 1         | 1-5/16-12            | 1-25/32          | 1-3/32           | 1-5/16           |

## MS20825-TEE

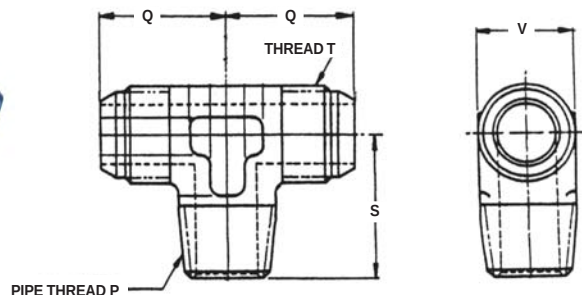
Pipe to Tube

Pipe Thread on Side

MS20825-#D (Aluminum)

MS20825-# (Steel)

MS20825-#J (Corrosion Resistant)



| Dash No.<br>MS20825 | Thread<br>T<br>(REF) | Tube O.D. | Pipe Thread End | Q<br>+.047<br>-.000 | S<br>+.047<br>-.000 | V<br>+.016<br>-.000 |
|---------------------|----------------------|-----------|-----------------|---------------------|---------------------|---------------------|
|                     |                      |           | THD P<br>ANPT   |                     |                     |                     |
| 2                   | 5/16-24              | 1/8       | 1/8             | .734                | .688                | .312                |
| 3                   | 3/8-24               | 3/16      |                 | .797                |                     | .375                |
| 4                   | 7/16-20              | 1/4       |                 | .859                |                     | .438                |
| 5                   | 1/2-20               | 5/16      |                 | .922                |                     | .500                |
| 6                   | 9/16-18              | 3/8       | 1/4             | 1.031               | 1.062               | .562                |
| 8                   | 3/4-16               | 1/2       | 3/8             | 1.219               | 1.188               | .750                |
| 10                  | 7/8-14               | 5/8       | 1/2             | 1.422               | 1.438               | .875                |
| 12                  | 1-1/16-12            | 3/4       | 3/4             | 1.652               | 1.562               | 1.062               |

## MS20826-TEE

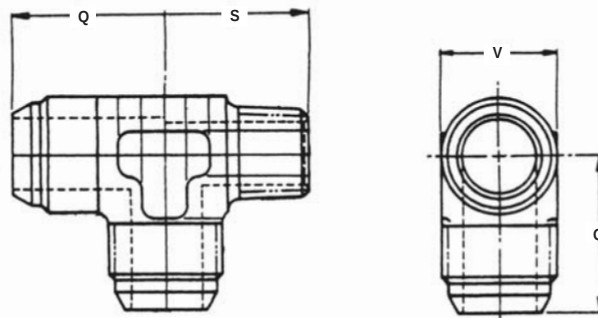
Pipe to Tube

Pipe Thread on Run

MS20826-#D (Aluminum)

MS20826-# (Steel)

MS20826-#J (Corrosion Resistant)



| Dash No.<br>MS20826 | Thread<br>T<br>(REF) | Tube O.D. | Pipe Thread End | Q<br>+.047<br>-.000 | S<br>+.047<br>-.000 | V<br>+.016<br>-.000 |
|---------------------|----------------------|-----------|-----------------|---------------------|---------------------|---------------------|
|                     |                      |           | THD P<br>ANPT   |                     |                     |                     |
| 2                   | 5/16-24              | 1/8       | 1/8             | .734                | .688                | .312                |
| 3                   | 3/8-24               | 3/16      |                 | .797                |                     | .375                |
| 4                   | 7/16-20              | 1/4       |                 | .859                |                     | .438                |
| 5                   | 1/2-20               | 5/16      |                 | .922                |                     | .500                |
| 6                   | 9/16-18              | 3/8       | 1/4             | 1.031               | 1.062               | .562                |
| 8                   | 3/4-16               | 1/2       | 3/8             | 1.219               | 1.188               | .750                |
| 10                  | 7/8-14               | 5/8       | 1/2             | 1.422               | 1.438               | .875                |
| 12                  | 1-1/16-12            | 3/4       | 3/4             | 1.625               | 1.562               | 1.062               |
| 16-12               | 1-5/16-12            | 1         | 1               | 1.781               | 1.688               | 1.312               |
| 16                  |                      |           | 1               | 1.781               | 1.938               | 1.312               |

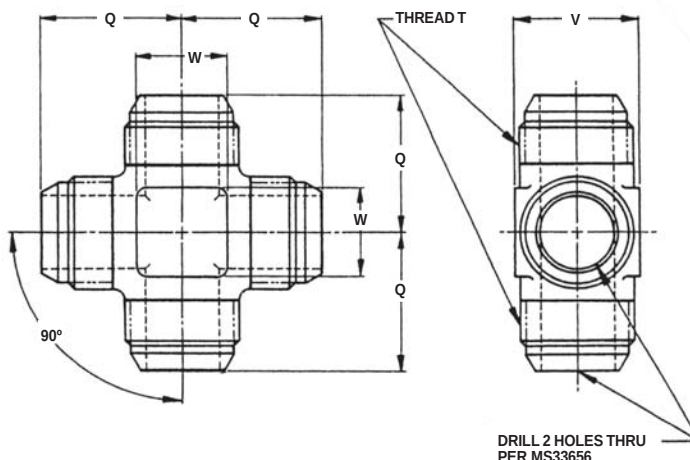
## AN827-CROSS

Flared Tube

AN827-#D (Aluminum)

AN827-# (Steel)

AN827-#J (Corrosion Resistant)



| Dash No.<br>AN827 | Tube O.D. | Thread<br>T<br>(REF) | Q<br>+3/64<br>-0 | V    | W     |
|-------------------|-----------|----------------------|------------------|------|-------|
| 4                 | 1/4       | 7/16-20              | 55/64            | 7/16 | 3/8   |
| 5                 | 5/16      | 1/2-20               | 59/64            | 1/2  | 15/32 |
| 6                 | 3/8       | 9/16-18              | 1-1/32           | 9/16 | 1/2   |
| 8                 | 1/2       | 3/4-16               | 1-7/32           | 3/4  | 11/16 |

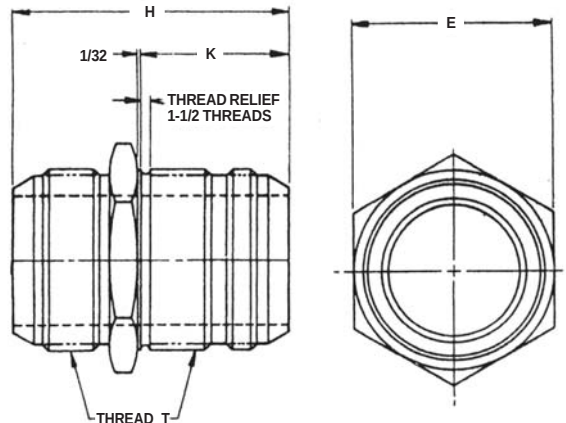
## AN832-UNION

Flared Tube - 3/8 Bulkhead  
& Universal

AN832-#D (Aluminum)

AN832-# (Steel)

AN832-#J (Corrosion Resistant)



| Dash No.<br>AN832 | Tube O.D. | Thread<br>T<br>(REF) | E<br>(REF) | H       | K       |
|-------------------|-----------|----------------------|------------|---------|---------|
| 2                 | 1/8       | 5/16-24              | .563       | 1-53/64 | 1-7/64  |
| 3                 | 3/16      | 3/8-24               | .625       | 1-55/64 |         |
| 4                 | 1/4       | 7/16-20              | .688       | 2-3/64  | 1-13/64 |
| 5                 | 5/16      | 1/2-20               | .750       | 2-7/32  | 1-9/32  |
| 6                 | 3/8       | 9/16-18              | .813       | 2-29/64 | 1-7/16  |
| 8                 | 1/2       | 3/4-16               | 1.000      | 2-23/32 | 1-37/64 |
| 10                | 5/8       | 7/8-14               | 1.125      | 3-1/32  | 1-3/4   |
| 12                | 3/4       | 1-1/16-12            | 1.375      | 3-5/64  |         |
| 16                | 1         | 1-5/16-12            | 1.625      |         |         |



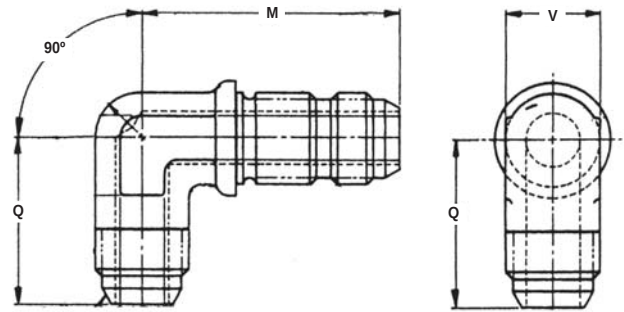
## AN833-ELBOW

Flared Tube and  
Bulkhead Universal, 90°

AN833-#D (Aluminum)

AN833-# (Steel)

AN833-#J (Corrosion Resistant)



| Dash No.<br>AN833 | Tube O.D. | Thread<br>T<br>(REF) | M<br>+3/64<br>-0 | Q<br>+3/64<br>-0 | V      |
|-------------------|-----------|----------------------|------------------|------------------|--------|
| 2                 | 1/8       | 5/16-24              | 1-13/32          | 53/64            | 5/16   |
| 3                 | 3/16      | 3/8-24               | 1-7/16           | 57/64            | 3/8    |
| 4                 | 1/4       | 7/16-20              | 1-37/64          | 61/64            | 7/16   |
| 5                 | 5/16      | 1/2-20               | 1-39/64          | 1-1/64           | 1/2    |
| 6                 | 3/8       | 9/16-18              | 1-51/64          | 1-5/64           | 9/16   |
| 8                 | 1/2       | 3/4-16               | 2-3/32           | 1-11/32          | 3/4    |
| 10                | 5/8       | 7/8-14               | 2-3/8            | 1-35/64          | 7/8    |
| 12                | 3/4       | 1-1/16-12            | 2-21/32          | 1-49/64          | 1-1/16 |

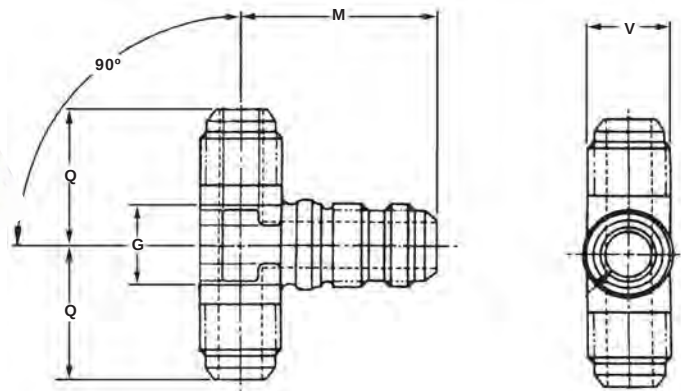
## AN834-TEE

Bulkhead and  
Universal Flared Tube

AN834-#D (Aluminum)

AN834-# (Steel)

AN834-#J (Corrosion Resistant)



| Dash No.<br>AN834 | Tube O.D. | G<br>Dia. | Thread<br>T<br>(REF) | M<br>+3/64<br>-0 | Q<br>+3/64<br>-0 | V      |
|-------------------|-----------|-----------|----------------------|------------------|------------------|--------|
| 2                 | 1/8       | 5/16      | 5/16-24              | 1-13/32          | 53/64            | 5/16   |
| 3                 | 3/16      | 3/8       | 3/8-24               | 1-7/16           | 57/64            | 3/8    |
| 4                 | 1/4       | 7/16      | 7/16-20              | 1-37/64          | 61/64            | 7/16   |
| 5                 | 5/16      | 1/2       | 1/2-20               | 1-39/64          | 1-1/64           | 1/2    |
| 6                 | 3/8       | 9/16      | 9/16-18              | 1-51/64          | 1-5/64           | 9/16   |
| 8                 | 1/2       | 3/4       | 3/4-16               | 2-3/32           | 1-11/32          | 3/4    |
| 10                | 5/8       | 7/8       | 7/8-14               | 2-3/8            | 1-35/64          | 7/8    |
| 12                | 3/4       | 1-1/16    | 1-1/16-12            | 2-21/32          | 1-49/64          | 1-1/16 |



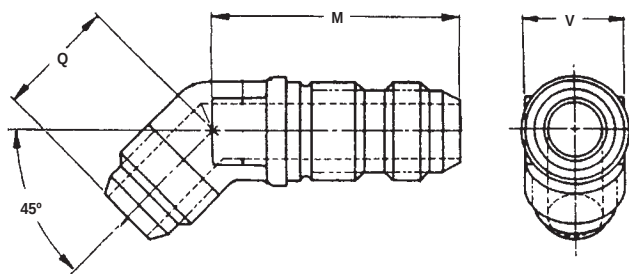
## AN837-ELBOW

Flared Tube  
Universal, 45°

AN837-#D (Aluminum)

AN837-# (Steel)

AN837-#J (Corrosion Resistant)



| Dash No.<br>AN837 | Tube O.D. | Thread<br>T<br>(REF) | M<br>+3/64<br>-0 | Q<br>+3/64<br>-0 | V    |
|-------------------|-----------|----------------------|------------------|------------------|------|
| 2                 | 1/8       | 5/16 - 24            | 1 - 3/8          | 41/64            | 5/16 |
| 3                 | 3/16      | 3/8 - 24             |                  |                  | 3/8  |
| 4                 | 1/4       | 7/16 - 20            |                  |                  | 7/16 |
| 5                 | 5/16      | 1/2 - 20             | 1 - 17/32        | 3/4              | 1/2  |
| 6                 | 3/8       | 9/16 - 18            | 1 - 43/64        | 13/16            | 9/16 |
| 8                 | 1/2       | 3/4 - 16             | 1 - 15/16        | 31/32            | 3/4  |
| 10                | 5/8       | 7/8 - 14             | 2 - 11/64        | 1-3/32           | 7/8  |

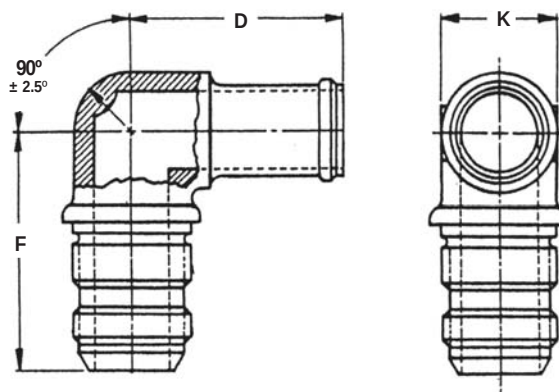
## AN838-ELBOW

Flared Tube to Hose, 90°

AN838-#D (Aluminum)

AN838-# (Copper Alloy)

AN838-#J (Corrosion Resistant)

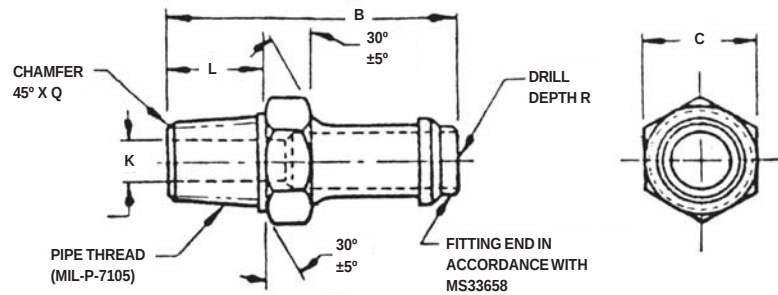


| Dash No.<br>AN838 | Hose<br>I.D. | Tube<br>O.D. | Thread<br>T<br>(REF) | D<br>+3/64<br>-0 | F<br>+3/64<br>-0 | K      |
|-------------------|--------------|--------------|----------------------|------------------|------------------|--------|
| 4                 | 1/4          | 1/4          | 7/16-20              | 1-27/32          | 1-9/16           | 7/16   |
| 6                 | 3/8          | 3/8          | 9/16-18              | 1-15/16          | 1-47/64          | 9/16   |
| 8                 | 1/2          | 1/2          | 3/4-16               | 2-1/32           | 2-1/32           | 3/4    |
| 10                | 5/8          | 5/8          | 7/8-14               | 2-3/32           | 2-9/32           | 7/8    |
| 12                | 3/4          | 3/4          | 1-1/16-12            | 2-1/4            | 2-9/16           | 1-1/16 |

## AN840-ADAPTER

Straight,  
Pipe to Hose

AN840-#D (Aluminum)  
AN840-# (Copper Alloy)  
AN840-#S (Steel)

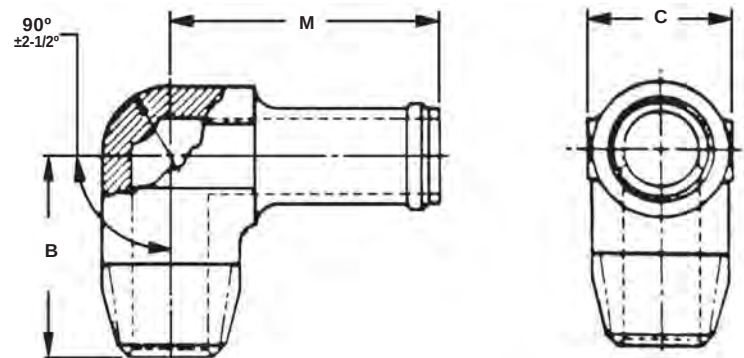


| Dash No.<br>AN840 | Hose<br>I.D. | Pipe<br>THD<br>ANPT | B<br>+1/32<br>-0 | C     | L     |
|-------------------|--------------|---------------------|------------------|-------|-------|
| 4                 | 1/4          | 1/8                 | 2-5/64           | .437  | 25/64 |
| 6                 | 3/8          | 1/4                 | 2-11/32          | .625  | 19/32 |
| 8                 | 1/2          | 3/8                 | 2-3/8            | .750  | 19/32 |
| 10                | 5/8          | 1/2                 | 2-37/64          | .937  | 49/64 |
| 11                | 3/4          | 3/8                 | 2-13/32          | 1.000 | 19/32 |
| 12                | 3/4          | 3/4                 | 2-5/8            | 1.125 | 25/32 |
| 16                | 1            | 3/4                 | 2-5/8            | 1.250 | 25/32 |

## AN842-ELBOW

Pipe to Hose, 90°

AN842-#D (Aluminum)  
AN842-# (Copper Alloy)  
AN842-#S (Steel)



| Dash No.<br>AN842 | Hose<br>I.D. | Pipe<br>THD<br>ANPT | B<br>+1/32<br>-0 | C     | M<br>+3/64<br>-0 |
|-------------------|--------------|---------------------|------------------|-------|------------------|
| 4                 | 1/4          | 1/8                 | 25/32            | 7/16  | 1-25/32          |
| 6                 | 3/8          | 1/4                 | 1-3/32           | 5/8   | 1-29/32          |
| 8                 | 1/2          | 3/8                 | 1-3/16           | 3/4   | 1-63/64          |
| 10                | 5/8          | 1/2                 | 1-13/64          | 15/16 | 2-11/64          |
| 12                | 3/4          | 3/4                 | 1-19/32          | 1-1/8 | 2-13/64          |
| 16                | 1            |                     |                  |       |                  |

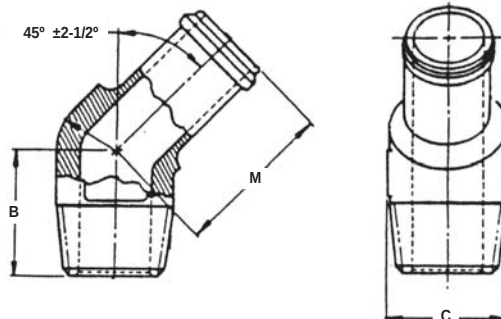
## AN844-ELBOW

Pipe to Hose, 45°

AN844-#D (Aluminum)

AN844-# (Copper Alloy)

AN844-#S (Steel)



| Dash No.<br>AN844 | Hose<br>I.D. | Pipe<br>THD<br>NPT | B<br>+3/64<br>-0 | C     | M<br>+3/64<br>-0 |
|-------------------|--------------|--------------------|------------------|-------|------------------|
| 4                 | 1/4          | 1/8                | 5/8              | 7/16  | 1-5/8            |
| 6                 | 3/8          | 1/4                | 7/8              | 5/8   | 1-11/16          |
| 8                 | 1/2          | 3/8                | 59/64            | 3/4   | 1-23/32          |
| 10                | 5/8          | 1/2                | 1-5/32           | 15/16 | 1-25/32          |
| 12                | 3/4          | 3/4                | 1-13/64          | 1-1/8 | 1-13/16          |
| 16                | 1            |                    |                  |       |                  |

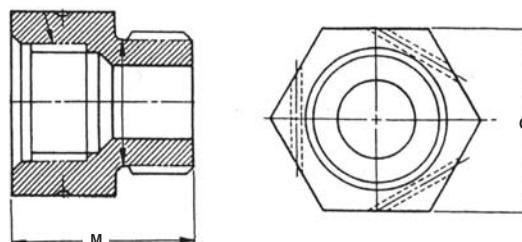
## AN893-BUSHING

Female Straight to Male Straight  
Screw Thread Reducer

AN893-#D (Aluminum)

AN893-# (Steel)

AN893-#J (Corrosion Resistant)



| Dash No.<br>AN893 | Internally<br>Threaded End |                   | Externally<br>Threaded End |                   | Overall |        |
|-------------------|----------------------------|-------------------|----------------------------|-------------------|---------|--------|
|                   | Tube<br>O.D.               | Thread S<br>(REF) | Tube<br>O.D.               | Thread T<br>(REF) | G       | M      |
| 1                 | 1/4                        | .4375-20          | 5/16                       | 1/2-20            | .750    | 1-7/64 |
| 2                 |                            |                   | 3/8                        | 9/16-18           | .813    |        |
| 3                 |                            |                   | 1/2                        | 3/4-16            | 1.000   |        |
| 4                 |                            |                   | 3/4                        | 1-1/16-12         | 1.375   | 31/32  |
| 5                 |                            |                   | 1                          | 1-5/16-12         | 1.625   |        |
| 6                 |                            |                   | 1-1/4                      | 1-5/8-12          | 1.875   |        |
| 7                 | 5/16                       | .5000-20          | 3/8                        | 9/16-18           | .813    | 1-7/64 |
| 8                 |                            |                   | 1/2                        | 3/4-16            | 1.000   |        |
| 9                 |                            |                   | 3/4                        | 1-1/16-12         | 1.375   |        |
| 10                |                            |                   | 1                          | 1-5/16-12         | 1.625   | 31/32  |
| 11                |                            |                   | 1-1/4                      | 1-5/8-12          | 1.875   |        |
| 12                |                            |                   | 1/2                        | 3/4-16            | 1.000   |        |
| 121               | 3/8                        | .5625-18          | 5/8                        | 7/8-14            | 1.125   | 1-7/32 |
| 13                |                            |                   | 3/4                        | 1-1/16-12         | 1.375   |        |
| 14                |                            |                   | 1                          | 1-5/16-12         | 1.625   |        |
| 15                |                            |                   | 1-1/4                      | 1-5/8-12          | 1.875   | 31/32  |
| 151               |                            |                   | 5/8                        | 7/8-14            | 1.125   |        |
| 16                |                            |                   | 3/4                        | 1-1/16-12         | 1.375   |        |

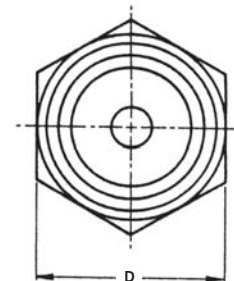
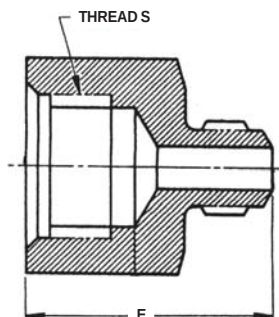
## AN894-BUSHING

Female Straight to Male 37°  
Screw Thread Expander

AN894D-# (Aluminum)

AN894-# (Steel)

AN894J-# (Corrosion Resistant)



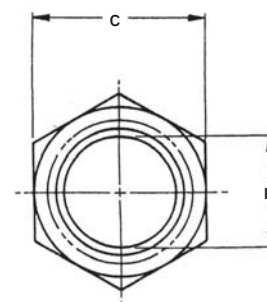
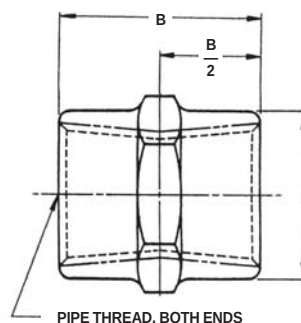
| Dash No.<br>AN894 | Internally Threaded<br>End |                   | Externally Threaded<br>End |                   | Overall |         |
|-------------------|----------------------------|-------------------|----------------------------|-------------------|---------|---------|
|                   | Tube<br>O.D.               | Thread S<br>(REF) | Tube<br>O.D.               | Thread T<br>(REF) | D       | E       |
| 3-2               | 3/16                       | .3750-24          | 1/8                        | .3125-24          | .625    | 1-3/16  |
| 4-2               | 1/4                        | .4375-20          |                            | 3/16              | .375-24 | .688    |
| 4-3               |                            |                   |                            |                   |         |         |
| 5-4               | 5/16                       | .5000-20          | 1/4                        | .4375-20          | .750    | 1-1/2   |
| 6-4               | 3/8                        | .5625-18          |                            | 5/16              | .500-20 | .813    |
| 6-5               |                            |                   |                            |                   |         |         |
| 8-4               | 1/2                        | .7500-16          | 1/4                        | .4375-20          | 1.000   | 1-37/64 |
| 8-5               |                            |                   | 5/16                       | .500-20           |         | 1-35/64 |
| 8-6               |                            |                   | 3/8                        | .5625-18          |         |         |
| 10-4              | 5/8                        | .8750-14          | 1/4                        | .4375-20          | 1.125   | 1-43/64 |
| 10-5              |                            |                   | 5/16                       | .500-20           |         | 1-21/32 |
| 10-6              |                            |                   | 3/8                        | .5625-18          |         | 1-41/64 |
| 10-8              |                            |                   | 1/2                        | .750-16           |         | 1-3/4   |

## AN910-COUPLING

Female to Female Pipe Thread

AN910-#D (Aluminum)

AN910-# (Copper Alloy)



| Dash No.<br>AN910 | Pipe Thread | B<br>+1/32<br>-0 | C     | K<br>Dia. | P<br>Dia. |
|-------------------|-------------|------------------|-------|-----------|-----------|
| 1                 | 1/8         | 27/32            | .625  | .327      | 37/64     |
| 2                 | 1/4         | 1-1/8            | .813  | .423      | 25/32     |
| 3                 | 3/8         | 1-7/32           | .938  | .557      | 59/64     |
| 4                 | 1/2         | 1-19/32          | 1.188 | .688      | 1-5/32    |
| 6                 | 3/4         | 1-5/8            | 1.375 | .897      | 1-23/64   |
| 8                 | 1           | 1-15/16          | 1.750 | 1.128     | 1-11/16   |
| 10                | 1-1/4       |                  | 2.125 | 1.471     | 2-3/32    |

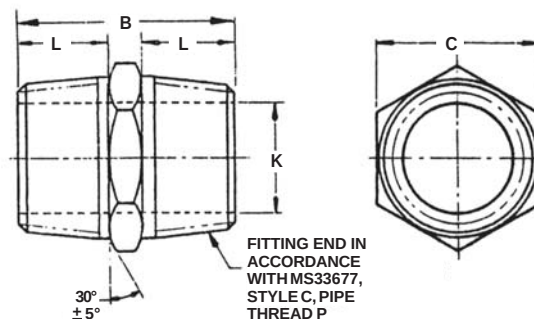
## AN911-NIPPLE

Pipe

AN911-#D (Aluminum)

AN911-# (Copper Alloy)

AN911-#J (Corrosion Resistant)



| Dash No.<br>AN911 | Thread P<br>ANPT | B<br>±1/32 | C     |                 | K<br>Dia. |                 | L     |
|-------------------|------------------|------------|-------|-----------------|-----------|-----------------|-------|
| 1                 | 1/8              | 31/32      | .438  | +0.003<br>-.004 | .203      | +0.003<br>-.004 | 25/64 |
| 2                 | 1/4              | 1-7/16     | .625  | +0.004          | .279      | +0.004          | 25/64 |
| 3                 | 3/8              | 1-15/32    | .750  |                 | .418      | +0.003<br>-.004 |       |
| 4                 | 1/2              | 1-27/32    | .938  |                 | .508      | +0.004          |       |
| 6                 | 3/4              | 1-29/32    | 1.125 | +0.005          | .727      | +0.003<br>-.004 | 25/32 |
| 8                 | 1                | 2-5/16     | 1.375 |                 | .914      | +0.004          | 31/32 |
| 10                | 1-1/4            | 2-11/32    | 1.750 | +0.016          | 1.256     | +0.004          | 63/64 |

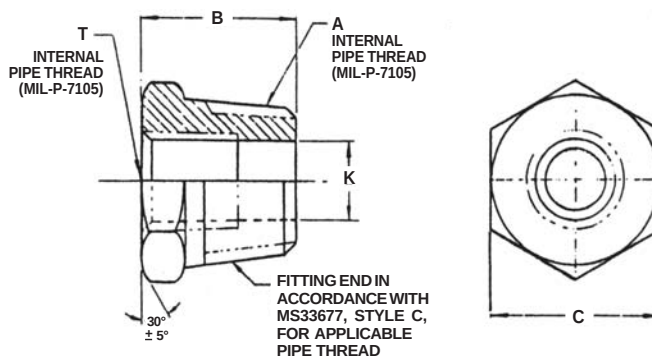
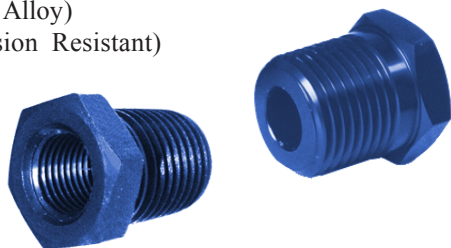
## AN912-BUSHING

Pipe

AN912-#D (Aluminum)

AN912-# (Copper Alloy)

AN912-#J (Corrosion Resistant)



| Dash No.<br>AN912 | A   | T   | B<br>±1/32 | C     |       | K<br>Dia. |                 |
|-------------------|-----|-----|------------|-------|-------|-----------|-----------------|
| 1                 | 1/4 | 1/8 | 25/32      | .625  | +.004 | .327      | +0.000<br>-.016 |
| 2                 | 3/8 | 1/4 |            | .750  |       | .423      | +0.000<br>-.019 |
| 3                 |     | 1/8 |            |       |       | .327      | +0.000<br>-.016 |
| 4                 | 1/2 | 3/8 | 1-1/64     | .937  | +.004 | .557      | +0.000<br>-.028 |
| 5                 |     | 1/4 |            |       |       | .423      | +0.000<br>-.019 |
| 6                 |     | 1/8 |            |       |       | .327      | +0.000<br>-.016 |
| 7                 | 3/4 | 1/2 | 1-1/16     | 1.125 | +.005 | .688      | +0.000<br>-.034 |
| 8                 |     | 3/8 |            |       |       | .557      | +0.000<br>-.028 |
| 9                 |     | 1/4 |            |       |       | .423      | +0.000<br>-.019 |
| 10                | 1   | 3/4 | 1-1/4      | 1.375 | +.005 | .897      | +0.000<br>-.049 |
| 11                |     | 1/2 |            |       |       | .688      | +0.000<br>-.034 |
| 12                |     | 3/8 |            |       |       | .557      | +0.000<br>-.028 |



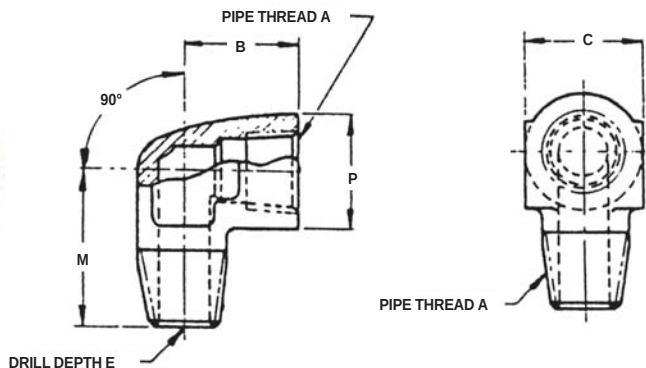
## AN914-ELBOW

Pipe Internal and  
External Thread, 90°

AN914-#D (Aluminum)

AN914-# (Copper Alloy)

AN914-#J (Corrosion Resistant)



| Dash No.<br>AN914 | THD<br>A<br>ANPT | B<br>+3/64<br>-0 | C      | M<br>+3/64<br>-0 | P<br>Dia. |
|-------------------|------------------|------------------|--------|------------------|-----------|
| 1                 | 1/8              | 39/64            | 5/8    | 55/64            | 37/64     |
| 2                 | 1/4              | 57/64            | 13/16  | 1-7/32           | 25/32     |
| 3                 | 3/8              | 15/16            | 15/16  | 1-19/64          | 59/64     |
| 4                 | 1/2              | 1-11/64          | 1-3/16 | 1-39/64          | 1-5/32    |
| 6                 | 3/4              | 1-11/32          | 1-3/8  | 1-47/64          | 1-23/64   |

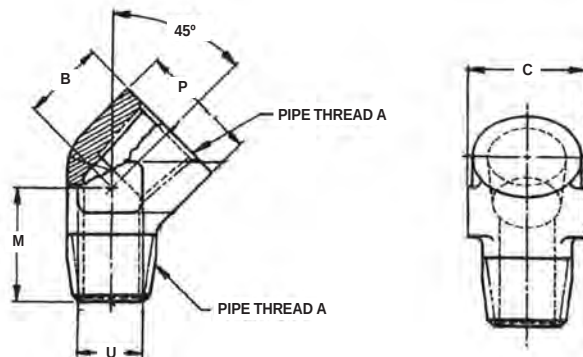
## AN915-ELBOW

Pipe 45°

AN915-#D (Aluminum)

AN915-# (Copper Alloy)

AN915-#J (Corrosion Resistant)



| Dash No.<br>AN915 | THD<br>A<br>ANPT | B<br>+3/64<br>-0 | C      | M<br>+3/64<br>-0 | P<br>Dia. | U<br>Approximate |
|-------------------|------------------|------------------|--------|------------------|-----------|------------------|
| 1                 | 1/8              | 15/32            | 5/8    | 23/32            | 37/64     | 5/16             |
| 2                 | 1/4              | 5/8              | 13/16  | 1-3/64           | 25/32     | 7/16             |
| 3                 | 3/8              | 23/32            | 15/16  | 1-1/16           | 59/64     | 1/2              |
| 4                 | 1/2              | 29/32            | 1-3/16 | 1-11/32          | 1-5/32    | 5/8              |
| 6                 | 3/4              | 31/32            | 1-3/8  | 1-3/8            | 1-23/64   | 3/4              |
| 8                 | 1                | 1-1/8            | 1-3/4  | 1-23/32          | 1-11/16   | 7/8              |

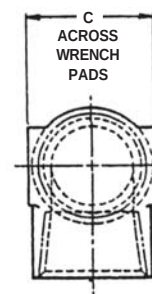
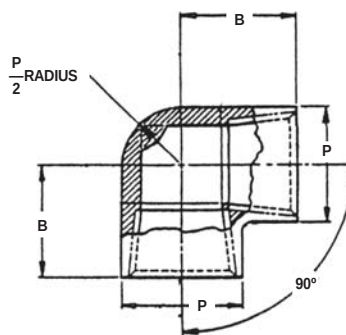
## AN916-ELBOW

Pipe Internal Thread, 90°

AN916-#D (Aluminum)

AN916-# (Copper Alloy)

AN916-#J (Corrosion Resistant)



| Dash No.<br>AN916 | Pipe<br>THD<br>ANPT | B<br>$+3/64$<br>-0 | C     | P<br>Dia. |
|-------------------|---------------------|--------------------|-------|-----------|
| 1                 | .125                | .641               | .625  | .578      |
| 2                 | .250                | .891               | .813  | .781      |
| 3                 | .375                | .969               | .936  | .922      |
| 4                 | .500                | 1.234              | 1.188 | 1.156     |
| 6                 | .750                | 1.344              | 1.375 | 1.359     |

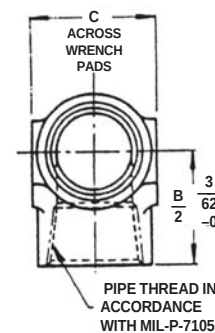
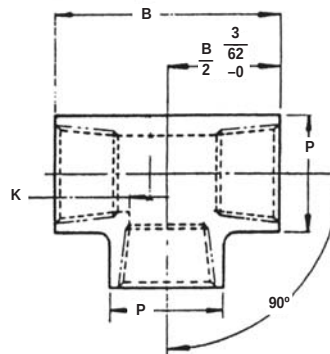
## AN917-TEE

Pipe Internal Thread

AN917-#D (Aluminum)

AN917-# (Copper Alloy)

AN917-#J (Corrosion Resistant)



| Dash No.<br>AN917 | Pipe<br>THD<br>ANPT | B<br>$+3/64$<br>-0 | C      | P<br>Dia. |
|-------------------|---------------------|--------------------|--------|-----------|
| 1                 | 1/8                 | 1-9/32             | 5/8    | 37/64     |
| 2                 | 1/4                 | 1-25/32            | 13/16  | 25/32     |
| 3                 | 3/8                 | 1-15/16            | 15/16  | 59/64     |
| 4                 | 1/2                 | 2-15/32            | 1-3/16 | 1-5/32    |
| 6                 | 3/4                 | 2-11/16            | 1-3/8  | 1-23/64   |
| 8                 | 1                   | 3-1/4              | 1-3/4  | 1-11/16   |

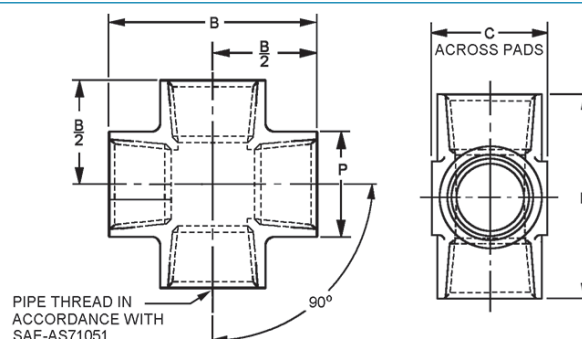
## AN918-FEMALE CROSS

Pipe Internal Thread

AN918-#D (Aluminum)

AN918-# (Steel)

AN918-#J (Corrosion Resistant)



| Dash No.<br>AN918 | Pipe THD<br>ANPT | B<br>+3/32<br>-0 | C      | P<br>Dia. |
|-------------------|------------------|------------------|--------|-----------|
| 1                 | 1/8              | 1-9/32           | 5/8    | 37/64     |
| 2                 | 1/4              | 1-25/32          | 13/16  | 25/32     |
| 3                 | 3/8              | 1-15/16          | 15/16  | 59/64     |
| 4                 | 1/2              | 2-15/32          | 1-3/16 | 1-5/32    |
| 6                 | 3/4              | 2-11/16          | 1-3/8  | 1-23/64   |
| 8                 | 1                | 3-1/4            | 1-3/4  | 1-11/16   |

## AN919-REDUCER - MALE TO MALE

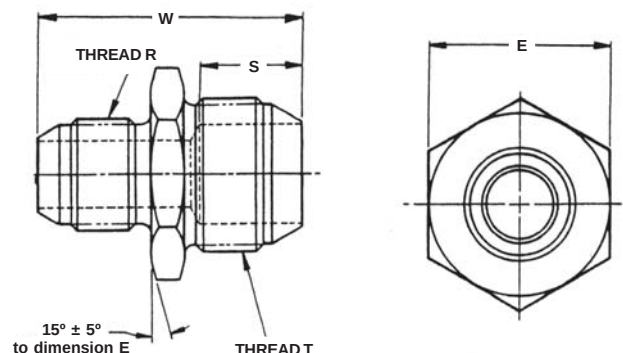
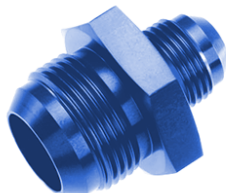
External Thread

Flared Tube, 37° Flare

AN919-#D (Aluminum)

AN919-# (Steel)

AN919-#J (Corrosion Resistant)



| Dash No.<br>AN919 | Large End |                | Small End |                | E     | W       | S     |         |         |        |
|-------------------|-----------|----------------|-----------|----------------|-------|---------|-------|---------|---------|--------|
|                   | Tube O.D. | Thread T (REF) | Tube O.D. | Thread R (REF) |       |         |       |         |         |        |
| 0                 | 3/16      | 3/8-24         | 1/8       | 5/16-24        | .625  | 1-11/64 | 5/8   |         |         |        |
| 1                 | 1/4       | 7/16-20        |           |                | .688  | 1-1/4   | 11/16 |         |         |        |
| 2                 |           |                | 3/16      | 3/8-24         |       |         |       | 1-9/32  | 37/64   |        |
| 3                 | 5/16      | 1/2-20         | 1/4       | 7/16-20        | .750  | 1-23/64 | 39/64 |         |         |        |
| 4                 | 3/8       | 9/16-18        | 1/8       | 5/16-24        | .813  | 1-19/64 | 5/8   |         |         |        |
| 5                 |           |                | 3/16      | 3/8-24         |       | 1-21/64 |       |         |         |        |
| 6                 |           |                | 1/4       | 7/16-20        |       | 1-13/32 |       |         |         |        |
| 7                 |           |                | 5/16      | 1/2-20         |       | 1-27/64 |       |         |         |        |
| 8                 | 1/2       | 3/4-16         | 1/8       | 5/16-24        | 1.000 | 1-29/64 | 23/32 |         |         |        |
| 9                 |           |                | 3/16      | 3/8-24         |       | 1-17/32 |       |         |         |        |
| 10                |           |                | 1/4       | 7/16-20        |       | 1.125   |       | 1-21/32 | 51/64   |        |
| 11                |           |                | 5/16      | 1/2-20         |       |         |       |         |         |        |
| 12                | 5/8       | 7/8-14         | 3/8       | 9/16-18        | 1.375 | 1-51/64 | 57/64 |         |         |        |
| 13                |           |                | 1/4       | 7/16-20        |       |         |       | 1.625   | 1-27/32 | 2-3/64 |
| 14                |           |                | 3/8       | 9/16-18        |       |         |       |         |         |        |
| 15                |           |                | 1/2       | 3/4-16         |       |         |       | 1-27/32 | 2-3/64  |        |
| 16                | 3/4       | 1-1/16-12      | 1/4       | 7/16-20        | 1.625 | 2-5/32  | 57/64 |         |         |        |
| 17                |           |                | 5/16      | 1/2-20         |       |         |       | 1-27/32 | 2-3/64  |        |
| 18                |           |                | 3/8       | 9/16-18        |       |         |       | 1-27/32 | 2-3/64  |        |
| 19                |           |                | 1/2       | 3/4-16         |       |         |       | 1-27/32 | 2-3/64  |        |
| 20                | 1         | 1-5/16-12      | 5/8       | 7/8-14         | 1.625 | 2-5/32  | 57/64 |         |         |        |
| 21                |           |                | 1/4       | 7/16-20        |       |         |       | 1-27/32 | 2-3/64  |        |
| 22                |           |                | 5/8       | 7/8-14         |       |         |       | 1-27/32 | 2-3/64  |        |
| 23                |           |                | 3/4       | 1-1/16-12      |       |         |       |         |         |        |

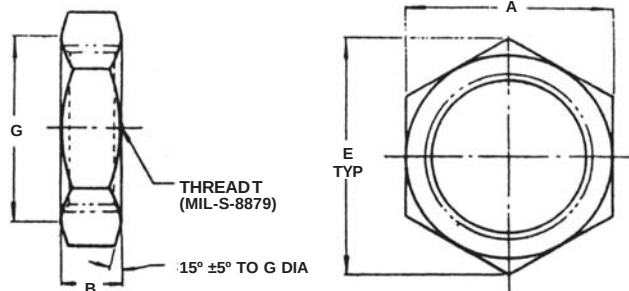
## AN924-NUT

Tube, Bulkhead and  
Universal Fitting

AN924- #D (Aluminum)

AN924- # (Steel)

AN924-#J (Corrosion Resistant)



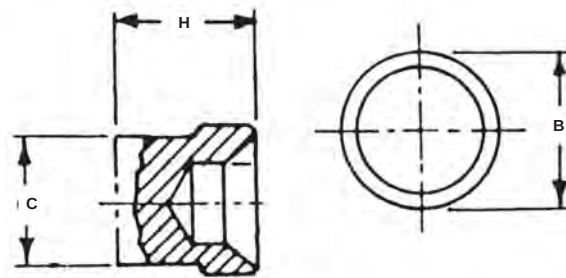
| Dash No.<br>AN924 | Tube<br>O.D. | Thread T<br>(REF) | G<br>Dia. | A     |                  | B     | E     |
|-------------------|--------------|-------------------|-----------|-------|------------------|-------|-------|
| 2                 | 1/8          | 5/16-24           | .500      | .563  | + .003<br>- .004 | 7/32  | .629  |
| 3                 | 3/16         | 3/8-24            | .562      | .625  |                  |       | .699  |
| 4                 | 1/4          | 7/16-20           | .625      | .688  |                  | 1/4   | .771  |
| 5                 | 5/16         | 1/2-20            | .687      | .750  |                  |       | .842  |
| 6                 | 3/8          | 9/16-18           | .750      | .813  |                  | 17/64 | .914  |
| 8                 | 1/2          | 3/4-16            | .937      | 1.000 |                  | 5/16  | 1.127 |
| 10                | 5/8          | 7/8-14            | 1.062     | 1.125 |                  | 23/64 | 1.270 |
| 12                | 3/4          | 1-1/16-12         | 1.274     | 1.375 | ± .016           | 13/32 | 1.555 |
| 16                | 1            | 1-5/16-12         | 1.524     | 1.625 |                  |       | 1.827 |
| 20                | 1-1/4        | 1-5/8-12          | 1.838     | 1.938 |                  |       | 2.184 |
| 24                | 1-1/2        | 1-7/8-12          | 2.093     | 2.188 |                  |       | 2.465 |

## AN929-CAP ASSEMBLY

Pressure Seal  
Flared Tube Fitting

AN929- # (Aluminum)

AN929-#J (Corrosion Resistant)



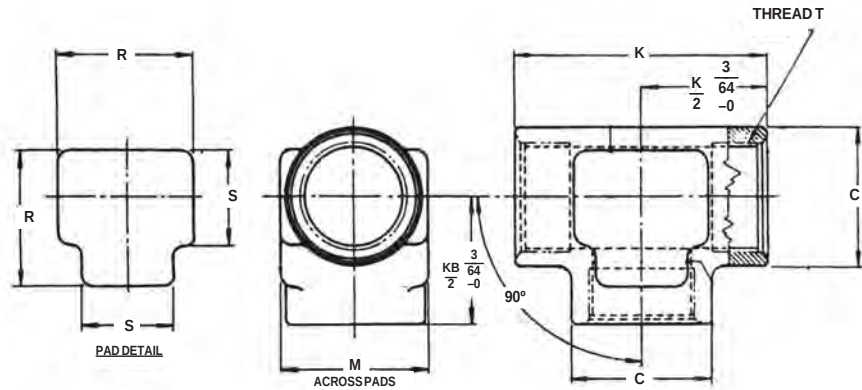
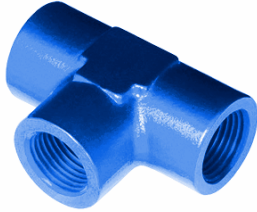
| Dash No.<br>AN929 | Tube<br>O.D. | B<br>Dia.<br>+ .000<br>- .003 | C<br>Dia. | H     |
|-------------------|--------------|-------------------------------|-----------|-------|
| 2                 | 1/8          | .263                          | 5/32      | 17/32 |
| 3                 | 3/16         | .325                          | 7/32      |       |
| 4                 | 1/4          | .378                          | 9/32      |       |
| 5                 | 5/16         | .441                          | 11/32     | 9/16  |
| 6                 | 3/8          | .503                          | 27/64     | 5/8   |
| 8                 | 1/2          | .683                          | 35/64     | 3/4   |
| 10                | 5/8          | .799                          | 43/64     |       |
| 12                | 3/4          | .974                          | 13/16     | 7/8   |
| 16                | 1            | 1.224                         | 1-1/16    |       |

## AN938-TEE

Tube, Internal Thread

AN938D# (Aluminum)

AN938-# (Steel)



| Dash No.<br>AN938 | Tube<br>O.D. | Thread<br>T<br>(REF) | C<br>Dia. | H<br>Approx. | K<br>$\frac{+3}{32}$<br>$\frac{-0}{0}$ | R<br>Approx. | S<br>Approx. |
|-------------------|--------------|----------------------|-----------|--------------|----------------------------------------|--------------|--------------|
| 4                 | 1/4          | 7/16-20              | 11/16     | 3/4          | 1-1/2                                  | 3/4          | 1/2          |
| 5                 | 5/16         | 1/2-20               | 3/4       |              |                                        | 7/8          | 9/16         |
| 6                 | 3/8          | 9/16-18              | 13/16     | 13/16        | 1-5/8                                  |              |              |
| 8                 | 1/2          | 3/4-16               | 1-1/16    | 1-1/16       | 2                                      | 1-1/16       | 11/16        |
| 10                | 5/8          | 7/8-14               | 1-3/16    | 1-3/16       | 2-5/16                                 | 1-3/16       | 3/4          |

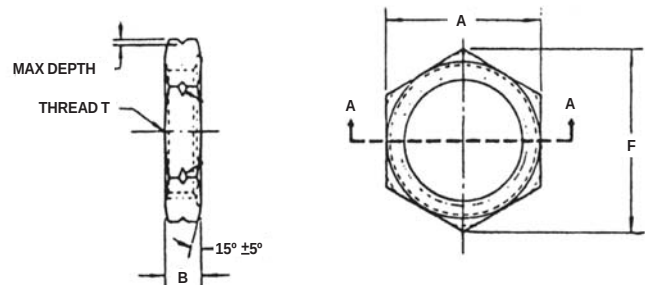
## AN6289-NUT

Tube with Groove  
for O-Ring

AN6289D# (Aluminum)

AN6289-# (Steel)

AN6289J# (Corrosion Resistant)

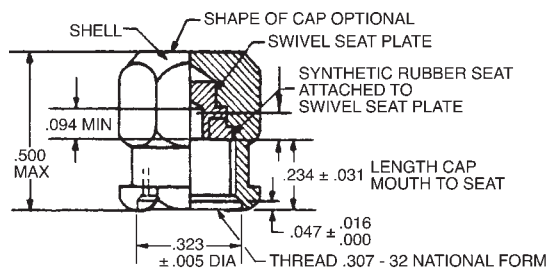
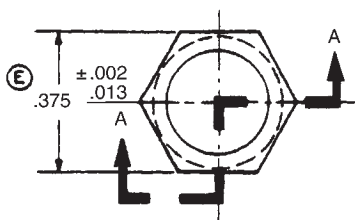


| Dash No.<br>AN6289 | Tube<br>O.D. | Thread<br>T<br>(REF) | A     | B     | F    |
|--------------------|--------------|----------------------|-------|-------|------|
| 2                  | 1/8          | 5/16-24              | .563  | 1/4   | .65  |
| 3                  | 3/16         | 3/8-24               | .625  |       | .72  |
| 4                  | 1/4          | 7/16-20              | .688  |       | .79  |
| 5                  | 5/16         | 1/2-20               | .750  | 9/32  | .87  |
| 6                  | 3/8          | 9/16-18              | .813  |       | .94  |
| 8                  | 1/2          | 3/4-16               | 1.000 | 11/32 | 1.15 |
| 10                 | 5/8          | 7/8-14               | 1.125 | 25/64 | 1.30 |
| 12                 | 3/4          | 1-1/16-12            | 1.375 | 7/16  | 1.59 |
| 16                 | 1            | 1-5/16-12            | 1.625 |       | 1.88 |



## MS20813-1 CAP

Pneumatic Valve Cap, High Pressure



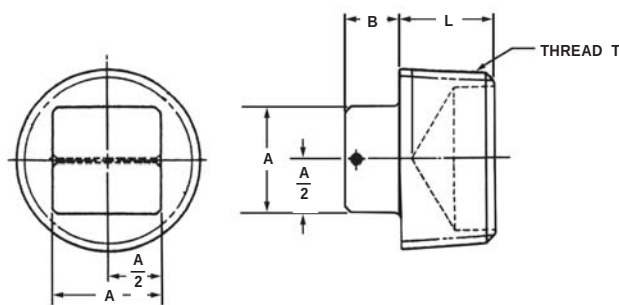
## MS20913-PLUG

Square Head  
Safety Wire Hole

MS20913-#D (Aluminum)

MS20913-# (Copper)

MS20913-#S (Steel)



| Dash No.<br>MS20913 | Thread T<br>NPT | A<br>+.002 / -.010 | B    | L    |
|---------------------|-----------------|--------------------|------|------|
| 0                   | 1/16-27         | .188               | .188 | .312 |
| 1                   | 1/8-27          | .281               | .250 | .328 |
| 2                   | 1/4-18          | .375               | .281 | .484 |
| 3                   | 3/8-18          | .438               | .312 |      |
| 4                   | 1/2-14          | .563               | .375 | .625 |
| 6                   | 3/4-14          | .625               | .438 | .641 |
| 8                   | 1-11-1/2        | .813               | .500 | .797 |

## MS21900 ADAPTER

Adapter, Flareless  
Tube to a Flared Tube

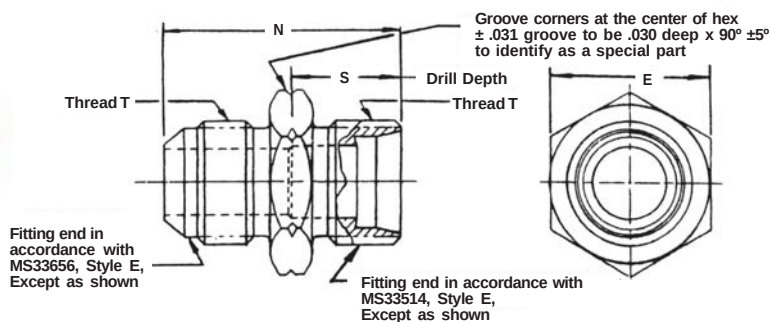
MS21900D# (Aluminum 2024)

MS21900-# (Steel)

MS21900J# (Corrosion Resistant)

MS21900W# (Aluminum 7075)

MS21900V#P (CRES Steel, Cad Plated)



| Dash No.<br>MS21900 | Tube<br>O.D. | Thread T<br>(REF) | E     | N     | S    |
|---------------------|--------------|-------------------|-------|-------|------|
| 3                   | 3/16         | .3750-24          | .625  | 1.156 | THRU |
| 4                   | 1/4          | .4375-20          | .688  | 1.188 | .563 |
| 5                   | 5/16         | .5000-20          | .750  | 1.156 | THRU |
| 6                   | 3/8          | .5625-18          | .813  | 1.281 |      |
| 8                   | 1/2          | .7500-16          | 1.000 | 1.469 | .688 |
| 10                  | 5/8          | .8750-14          | 1.125 | 1.688 | .781 |
| 12                  | 3/4          | 1.0625-12         | 1.375 | 1.938 | .875 |

## MS21902 UNION

Flareless Tube

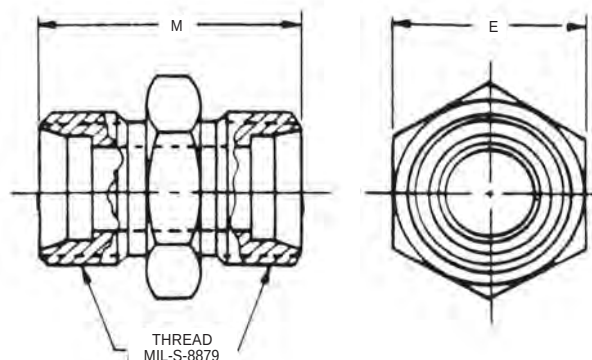
MS21902D# (Aluminum 2024)

MS21902-# (Steel)

MS21902J# (CRES Steel 304)

MS21902W# (Aluminum 7075)

MS21902V#P (CRES Steel, Cad Plated)



| Dash No.<br>MS21902 | Tube<br>O.D. | Thread<br>T (REF)<br>MIL-S-8879 | E<br>(REF) | M     |
|---------------------|--------------|---------------------------------|------------|-------|
| 2                   | 1/8          | .3125-24                        | .563       | 1.063 |
| 3                   | 3/16         | .3750-24                        | .625       | 1.094 |
| 4                   | 1/4          | .4375-20                        | .688       | 1.063 |
| 5                   | 5/16         | .5000-20                        | .750       | 1.063 |
| 6                   | 3/8          | .5625-18                        | .813       | 1.188 |
| 8                   | 1/2          | .7500-16                        | 1.000      | 1.375 |
| 10                  | 5/8          | .8750-14                        | 1.125      | 1.563 |
| 12                  | 3/4          | 1.0625-12                       | 1.375      | 1.750 |

## MS21904 ELBOW

Flareless Tube, 90°

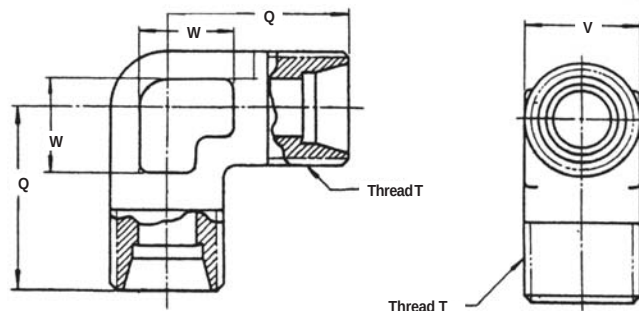
MS21904D# (Aluminum 2024)

MS21904-# (Steel)

MS21904J# (CRES Steel 304)

MS21904W# (Aluminum 7075)

MS21904V#P (CRES Steel, Cad Plated)



| Dash No.<br>MS21904 | Tube<br>O.D. | Thread<br>T<br>MIL-S-8879 | Q<br>+3/64<br>-0 | V      | W<br>Approximate |
|---------------------|--------------|---------------------------|------------------|--------|------------------|
| 2                   | 1/8          | .3125-24                  | 3/4              | 5/16   | 5/16             |
| 3                   | 3/16         | .3750-24                  | 13/16            | 3/8    | 3/8              |
| 4                   | 1/4          | .4375-20                  | 7/8              | 7/16   | 1/2              |
| 5                   | 5/16         | .5000-20                  | 15/16            | 1/2    | 5/8              |
| 6                   | 3/8          | .5625-18                  | 1-1/32           | 9/16   | 3/4              |
| 8                   | 1/2          | .7500-16                  | 1-1/4            | 3/4    | 7/8              |
| 10                  | 5/8          | .8750-14                  | 1-13/32          | 7/8    | 7/8              |
| 12                  | 3/4          | 1.0625-12                 | 1-9/16           | 1-1/16 | 7/8              |

## MS21907 ELBOW

Bulkhead Universal

45° Flareless Tube

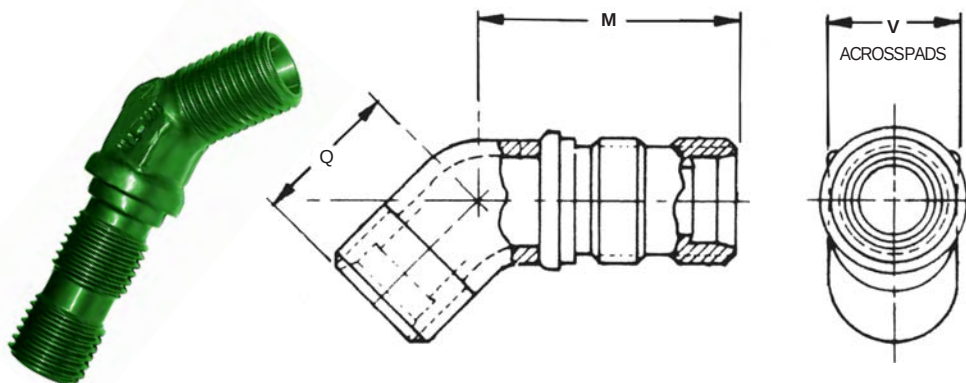
MS21907D# (Aluminum 2024)

MS21907-# (Steel)

MS21907J# (Corrosion Resistant)

MS21907W# (Aluminum 7075)

MS21907V#P (CRES Steel, Cad Plated)



| Dash No.<br>MS21907 | Tube<br>O.D. | Thread<br>T<br>MIL-S-8879 | M<br>+.047<br>-0 | Q<br>+.047<br>-0 | V     |
|---------------------|--------------|---------------------------|------------------|------------------|-------|
| 2                   | 1/8          | .3125-24                  | 1.281            | .625             | .312  |
| 3                   | 3/16         | .3750-24                  | 1.328            | .656             | .375  |
| 4                   | 1/4          | .4375-20                  | 1.453            | .687             | .437  |
| 5                   | 5/16         | .5000-20                  |                  | .719             | .500  |
| 6                   | 3/8          | .5625-18                  | 1.562            | .812             | .562  |
| 8                   | 1/2          | .7500-16                  | 1.812            | .969             | .750  |
| 10                  | 5/8          | .8750-14                  | 2.047            | 1.062            | .875  |
| 12                  | 3/4          | 1.0625-12                 | 2.250            | 1.250            | 1.062 |

## MS21908 ELBOW

Bulkhead Universal

90° Flareless Tube

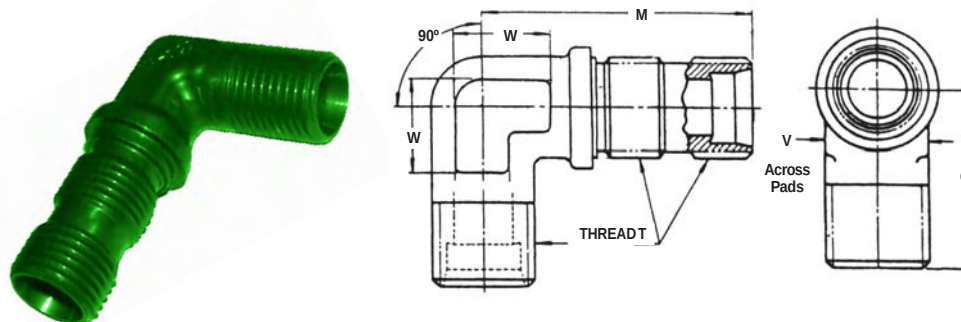
MS21908D# (Aluminum 2024)

MS21908-# (Steel)

MS21908J# (CRES Steel 304)

MS21908W# (Aluminum 7075)

MS21908V#P (CRES Steel, Cad Plated)



| Dash No.<br>MS21908 | Tube<br>O.D. | Thread<br>T<br>MIL-S-8879 | M<br>+3/64<br>-0 | Q<br>+3/64<br>-0 | V      | W<br>Approximate |
|---------------------|--------------|---------------------------|------------------|------------------|--------|------------------|
| 2                   | 1/8          | .3125-24                  | 1-5/16           | 25/32            | 5/16   | 5/16             |
| 3                   | 3/16         | .3750-24                  | 1-25/64          | 29/32            | 3/8    | 5/16             |
| 4                   | 1/4          | .4375-20                  | 1-1/2            | 15/16            | 7/16   | 3/8              |
| 5                   | 5/16         | .5000-20                  | 1-17/32          | 1-1/32           | 1/2    | 1/2              |
| 6                   | 3/8          | .5625-18                  | 1-11/16          | 1-1/16           | 9/16   | 1/2              |
| 8                   | 1/2          | .7500-16                  | 1-31/32          | 1-5/16           | 3/4    | 5/8              |
| 10                  | 5/8          | .8750-14                  | 2-1/4            | 1-1/2            | 7/8    | 3/4              |
| 12                  | 3/4          | 1.0625-12                 | 2-15/32          | 1-5/8            | 1-1/16 | 7/8              |

## MS21913 PLUG

Hex Head, Flareless Tube

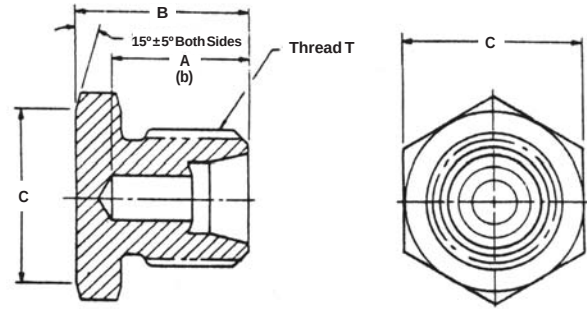
MS21913D# (Aluminum 2024)

MS21913-# (Steel)

MS21913J# (CRES Steel 304)

MS21913W# (Aluminum 7075)

MS21913V#P (CRES Steel, Cad Plated)



| Dash No.<br>MS21913 | Tube<br>O.D. | Thread<br>T<br>MIL-S-8879 | A<br>+3/64<br>-0 | B      | C     |
|---------------------|--------------|---------------------------|------------------|--------|-------|
| 2                   | 1/8          | .3125-24                  | 3/8              | 9/16   | .438  |
| 3                   | 3/16         | .3750-24                  | 7/16             | 39/64  |       |
| 4                   | 1/4          | .4375-20                  |                  | 41/64  | .500  |
| 5                   | 5/16         | .5000-20                  | 1/2              | 43/64  | .563  |
| 6                   | 3/8          | .5625-18                  |                  | 23/32  | .625  |
| 8                   | 1/2          | .7500-16                  | 9/16             | 27/32  | .812  |
| 10                  | 5/8          | .8750-14                  | 5/8              | 63/64  | .968  |
| 12                  | 3/4          | 1.0625-12                 | 11/16            | 1-1/32 | 1.125 |
| 16                  | 1            | 1.3125-12                 |                  | 1-1/16 | 1.375 |

## MS21914 CAP

Pressure Seal,  
Flareless Tube Fitting

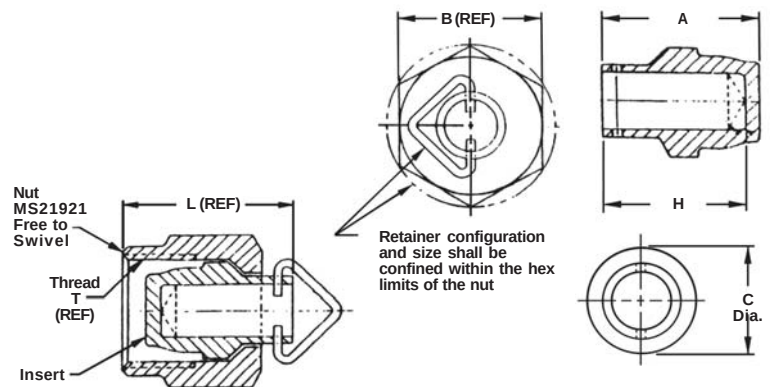
MS21914-D (Aluminum 2024)

MS21914-# (Steel)

MS21914-J (CRES Steel 304)

MS21914-W (Aluminum 7075)

MS21914V#P (CRES Steel, Cad Plated)



| Dash No.<br>MS21914 | Tube<br>O.D. | Thread<br>T<br>MIL-S-8879 | A<br>+.010 | B<br>(REF) | C<br>Dia.<br>+.005 | H<br>+.010 | L<br>(REF) |
|---------------------|--------------|---------------------------|------------|------------|--------------------|------------|------------|
| 2                   | 1/8          | .3125-24                  | .600       | .375       | .256               | -          | .720       |
| 3                   | 3/16         | .3750-24                  | .672       | .438       | .318               | -          | .767       |
| 4                   | 1/4          | .4375-20                  | .745       | .562       | .371               | .600       | .893       |
| 5                   | 5/16         | .5000-20                  | .845       | .625       | .434               | .700       | .977       |
| 6                   | 3/8          | .5625-18                  | .885       | .688       | .490               | .740       | .965       |
| 8                   | 1/2          | .7500-16                  | .935       | .875       | .670               | .790       | 1.077      |
| 10                  | 5/8          | .8750-14                  | 1.062      | 1.000      | .786               | .917       | 1.210      |
| 12                  | 3/4          | 1.0625-12                 | 1.082      | 1.250      | .960               | .937       | 1.208      |
| 16                  | 1            | 1.3125-12                 | 1.218      | 1.500      | 1.210              | 1.073      | 1.189      |



## MS21921 NUT

Sleeve Coupling, Flareless

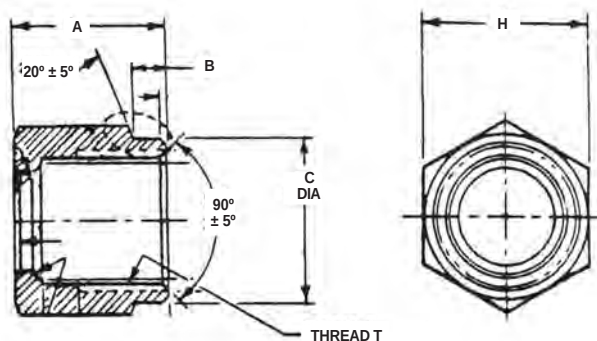
MS21921-#D (Aluminum 2024)

MS21921-# (Steel)

MS21921-#J (CRES Steel 304)

MS21921-#W (Aluminum 7075)

MS21921V#P (CRES Steel, Cad Plated)



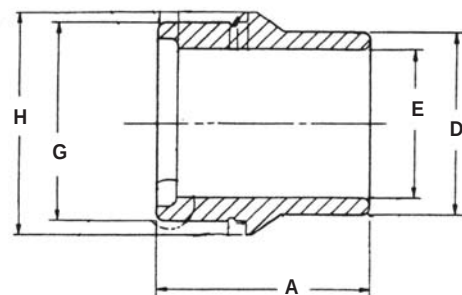
| Dash No.<br>MS21921 | Tube<br>O.D. | Thread<br>T<br>MIL-S-8879 | A<br>+.010 | B<br>+.010 | C<br>+.005<br>-.000 | H     |
|---------------------|--------------|---------------------------|------------|------------|---------------------|-------|
| 2                   | 1/8          | .3125-24                  | .53        | .14        | .365                | .375  |
| 3                   | 3/16         | .3750-24                  | .58        | .10        | .427                | .438  |
| 4                   | 1/4          | .4375-20                  | .72        | .18        | .552                | .562  |
| 5                   | 5/16         | .5000-20                  | .76        |            | .615                | .625  |
| 6                   | 3/8          | .5625-18                  | .80        |            | .677                | .688  |
| 8                   | 1/2          | .7500-16                  | .86        |            | .865                | .875  |
| 10                  | 5/8          | .8750-14                  | .98        | .22        | .990                | 1.000 |
| 12                  | 3/4          | 1.0625-12                 | 1.00       | .24        | 1.240               | 1.250 |
| 16                  | 1            | 1.3125-12                 | 1.05       | .26        | 1.490               | 1.500 |

## MS21922 SLEEVE

Coupling, Flareless

MS21922-# (Steel)

MS21922#C (CRES Steel)



| Dash No.<br>MS21922 |                | Tube<br>O.D. | A<br>+.01 | D     | E<br>+.003<br>-.000 | G<br>+.004<br>-.000 | H     |
|---------------------|----------------|--------------|-----------|-------|---------------------|---------------------|-------|
| Steel               | Corrosion Res. |              |           |       |                     |                     |       |
| 2                   | 2C             | 1/8          | .41       | .164  | .129                | .175                | .256  |
| 3                   | 3C             | 3/16         | .45       | .226  | .193                | .252                | .299  |
| 4                   | 4C             | 1/4          | .52       | .294  | .255                | .309                | .359  |
| 5                   | 5C             | 5/16         | .59       | .360  | .318                | .373                | .422  |
| 6                   | 6C             | 3/8          | .66       | .419  | .380                | .435                | .484  |
| 8                   | 8C             | 1/2          | .75       | .546  | .506                | .585                | .619  |
| 10                  | 10C            | 5/8          | .80       | .682  | .633                | .707                | .750  |
| 12                  | 12C            | 3/4          | .75       | .817  | .758                | .836                | .938  |
| 16                  | 16C            | 1            | .80       | 1.065 | 1.008               | 1.086               | 1.156 |



Cap, Pressure  
Fuel Servicing  
Nominal  
2-1/2 inch Dia.  
Non-Flush Type



## CAPPLUGS

### CD SERIES

Threaded Plastic Caps  
for Flared Fittings



### PD SERIES

Threaded Plastic Plugs  
for Flared Fittings



| CD Series | Tube Size | To Fit Thread | PD Series | Tube Size | To Fit Thread |
|-----------|-----------|---------------|-----------|-----------|---------------|
| CD3       | 3/16      | 3/8-24        | PD20      | 1/8       | 5/16-24       |
| CD4       | 1/4       | 7/16-20       | PD30      | 3/16      | 3/8-24        |
| CD5       | 5/16      | 1/2-20        | PD40      | 1/4       | 7/16-20       |
| CD6       | 3/8       | 9/16-18       | PD50      | 5/16      | 1/2-20        |
| CD8       | 1/2       | 3/4-16        | PD60      | 3/8       | 9/16-18       |
| CD10      | 5/8       | 7/8-14        | PD80      | 1/2       | 3/4-16        |
| CD12      | 3/4       | 1-1/16 -12    | PD100     | 5/8       | 7/8-14        |
| CD16      | 1         | 1-5/16 -12    | PD120     | 3/4       | 1-1/16 -12    |

### ASC SERIES

Aluminum Caps for  
Threaded Flared Fittings



### ASP SERIES

Threaded Aluminum Plugs  
for 37° Flared Fittings



| ASC Series | Tube Size | To Fit Thread | ASP Series | Tube Size | To Fit Thread |
|------------|-----------|---------------|------------|-----------|---------------|
| ASC-4      | 1/4       | 7/16-20       | ASP-4      | 1/4       | 7/16-20       |
| ASC-5      | 5/16      | 1/2-20        | ASP-5      | 5/16      | 1/2-20        |
| ASC-6      | 3/8       | 9/16-18       | ASP-6      | 3/8       | 9/16-18       |
| ASC-8      | 1/2       | 3/4-16        | ASP-8      | 1/2       | 3/4-16        |
| ASC-10     | 5/8       | 7/8-14        | ASP-10     | 5/8       | 7/8-14        |
| ASC-12     | 3/4       | 1-1/16 -12    | ASP-12     | 3/4       | 1-1/16 -12    |
| ASC-16     | 1         | 1-5/16 -12    | ASP-16     | 1         | 1-5/16 -12    |

### EC SERIES

Electric-Static-Free Caps  
for Threaded Connector



### EP SERIES

Electro-Static-Free Plugs  
for Threaded Connector



| EC Series | Will Cap Thread Size | EP Series | Will Plug Nominal Thread Size |
|-----------|----------------------|-----------|-------------------------------|
| EC-6      | 3/8                  | EP-8      | 1/4-28                        |
| EC-8      | 1/2                  | EP-10     | 5/8-24                        |
| EC-10     | 5/8                  | EP-12     | 3/4-20                        |
| EC-12     | 3/4                  | EP-14     | 7/8-20                        |
| EC-14     | 7/8                  | EP-16     | 1-20                          |
| EC-16     | 1                    | EP-20     | 1-1/4-18                      |

### PDE SERIES

Threaded Plastic Plugs  
For Flareless Tubes and  
Nut Assemblies



### ADP SERIES

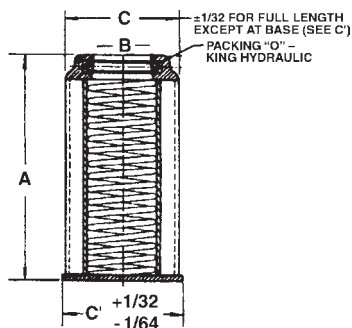
Threaded Aluminum Plugs  
for Flareless Tube and  
Hose Assemblies



| PDE Series | Tube Size | To Fit Thread | ADP Series | Tube Size | To Fit Thread |
|------------|-----------|---------------|------------|-----------|---------------|
| PDE4       | 1/4       | 7/16-20       | ADP-4      | 1/4       | 7/16-20       |
| PDE5       | 5/16      | 1/2-20        | ADP-5      | 5/16      | 1/2-20        |
| PDE6       | 3/8       | 9/16-18       | ADP-6      | 3/8       | 9/16-18       |
| PDE8       | 1/2       | 3/4-16        | ADP-7      | 7/16      | 5/8-18        |
| PDE10      | 5/8       | 7/8-14        | ADP-8      | 1/2       | 3/4-16        |
| PDE12      | 3/4       | 1-1/16 -12    | ADP-10     | 5/8       | 7/8-14        |
| PDE16      | 1         | 1-5/16 -12    | ADP-12     | 3/4       | 1-1/16 -12    |

## AN6235

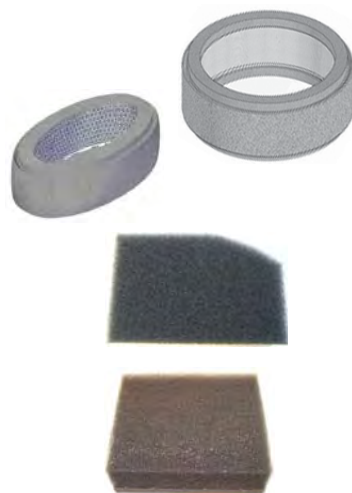
Filter  
Element



| Part #    | A<br>+1/16<br>-0 | B<br>+1/64<br>-DIA | C<br>AND<br>C<br>DIA | Capacity<br>GPM | Packing<br>"O" - Ring<br>Hydraulic |
|-----------|------------------|--------------------|----------------------|-----------------|------------------------------------|
| AN6235-1A | 1-7/8            | 25/64              | 53/64                | 1/2             | AN6227-7                           |
| AN6235-2A | 4-5/8            | 41/64              | 1-1/8                | 3               | AN6227-12                          |
| AN6235-3A | 3-7/16           | 57/64              | 1-5/8                | 6               | AN6227-17                          |

## BRACKETT AIR FILTERS

TYPE II - Foam element  
on outside of steel  
screen cylinder or oval

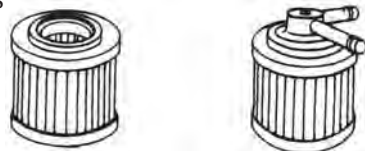


### Part Numbers

|          |           |
|----------|-----------|
| BA-3     | BA-5110   |
| BA-16    | BA-5110A  |
| BA-104   | BA-6108   |
| BA-2205L | BA-7110   |
| BA-4106  | BA-8103-1 |
| BA-4108  | BA-8110   |

## 1J7-1

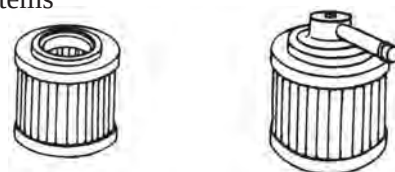
Airbourne Filter  
For Vacuum Systems



Filter replacement element Part # D9-18-1

## 1J7-2

Airbourne Filter  
For Vacuum Systems



Filter replacement element Part # D9-18-1

## SAF-AIR DRAIN VALVES

Push-Type Quick Fuel Drain Valve,  
Cadmium Plated Steel, -60° to +260°F  
60 PSI max

| Part #  | Thread Type          |
|---------|----------------------|
| CAV-110 | 1/8" NPT Drain Valve |
| CAV-160 | 1/4" NPT Drain Valve |
| CAV-170 | 7/16-20 NF-3         |
| CAV-180 | 3/8-24 NF-3          |



CAV-110



CAV-160



CAV-170



CAV-180

## CURTIS DRAIN VALVES

Quick Opening for Oil and  
Fuel System

| Part #   | Thread Size    |
|----------|----------------|
| CCA-1550 | 1/8" NPT       |
| CCA-1600 | 1/4" NPT       |
| CCA-1650 | 3/8" NPT       |
| CCA-3400 | 1/2" I.D. Hose |
| CCA-4850 | 1/8" NPT       |
| CCA-7450 | 1/8" NPT       |



CCA-1550

Material - Brass  
Length - 1.358"  
Action - Push to Open  
Turn to Lock Open



CCA-1600

Material - Brass  
Length - 1.690"  
Action - Push to Open  
Turn to Lock Open



CCA-1650

Material - Brass  
Length - 1.920"  
Action - Push to Open  
Turn to Lock Open



CCA-3400

Material - Brass  
Length - 1.643"  
Action - Spiral,  
Lock Open



CCA-4850

Material - Brass  
Cadmium-Plated  
Length - 1.358"  
Action - Spiral  
Lock Open

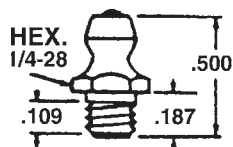


CCA-7450

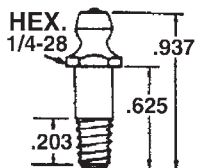
Material - Brass  
Cadmium-Plated  
Length - 1.358"  
Action - Spiral  
Lock Open

## GREASE FITTINGS

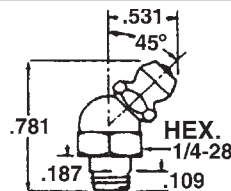
AS15001P, AS15002P  
AS15003P, AS15006P



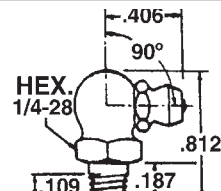
AS15001-1P



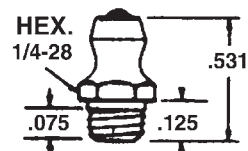
AS15001-2P



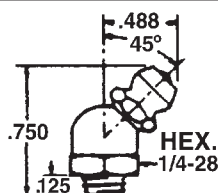
AS15001-3P



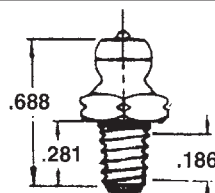
AS15001-4P



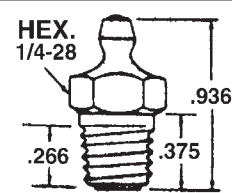
AS15002-1P



AS15002-3P



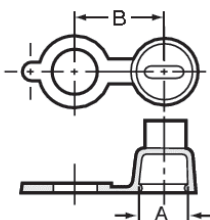
AS15003-1P



AS15006-1P

## GC-5 CAPPLUG

Grease cap with retaining collar.  
Securely snaps over fittings to  
seal out dirt and moisture



A Dia.

B Dia.

0.234

0.47

## MS51523B4

TEE, Tube to Swivel  
on Run, 37° Flared



Thread

Tube O.D.

Length

7/16 - 20

1/4

1.890

## AEROQUIP & STRATOFLEX FITTINGS

491 (300) - For Use On  
Aeroquip 303 &  
Stratoflex 111 Hose



| Aeroquip<br>491 | Stratoflex<br>300 | Tube<br>O.D. | Thread<br>Size |
|-----------------|-------------------|--------------|----------------|
| 3               | 3S                | 3/16         | 3/8-24         |
| 4               | 4S                | 1/4          | 7/16-20        |
| 5               | 5S                | 5/16         | 1/2-20         |
| 6               | 6S                | 3/8          | 9/16-18        |
| 8D              | 8D                | 1/2          | 3/4-16         |

## AEROQUIP & STRATOFLEX FITTINGS

471 (311) - For Use On  
Aeroquip 306 &  
Stratoflex 193 Hose



| Aeroquip<br>471 | Stratoflex<br>311 | Tube<br>O.D. | Thread<br>Size |
|-----------------|-------------------|--------------|----------------|
| 2D              | 2D                | 1/8          | 5/16-24        |
| 3D              | 3D                | 3/16         | 3/8-24         |
| 4D              | 4D                | 1/4          | 7/16-20        |
| 6D              | 6D                | 3/8          | 9/16-18        |
| 8D              | 8D                | 1/2          | 3/4-16         |



## AEROQUIP 303 MEDIUM PRESSURE HOSE & FITTINGS



### 303 HOSE {MIL-H-8794} CONSTRUCTION:

Inner tube is made of a seamless synthetic rubber compound reinforced by a synthetic-impregnated single wire braid over a single cotton braid. Outer cover is synthetic impregnated oil-resistant braid.

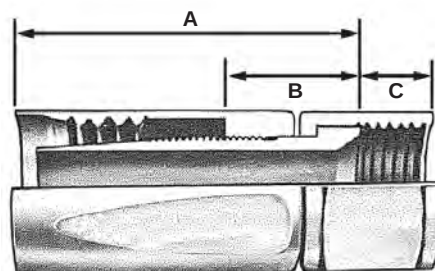
**OPERATING TEMP:** -65°F to +250°F

**APPLICATION:** Medium pressure hydraulic, pneumatic, fuel, oil and coolant systems {specified in MS33620}.

**IDENTIFICATION:** Grey-black braided cover, a yellow marking with symbol "MIL-H-8794", size, date of manufacture (quarter year/year) and hose manufacturer's code. 90° from this is a yellow indicator stripe with "Aeroquip 303". All markings are spaced 9 inches apart.

| Hose        |             |              |             | Hose Fitting |       |       |       |
|-------------|-------------|--------------|-------------|--------------|-------|-------|-------|
| Part Number | Inside Dia. | Outside Dia. | Nom. P.S.I. | Part Number  | Max A | Max B | Max C |
| 303-3       | .125        | .453         | 3,000       | 491-3        | 1.43  | .65   | .32   |
| 303-4       | .188        | .516         | 3,000       | 491-4        | 1.51  | .65   | .35   |
| 303-5       | .250        | .578         | 3,000       | 491-5        | 1.64  | .74   | .38   |
| 303-6       | .313        | .672         | 2,000       | 491-6        | 1.79  | .77   | .38   |
| 303-8       | .406        | .766         | 2,000       | 491-8D       | 2.22  | .94   | .43   |
| 303-10      | .500        | .922         | 1,750       | 491-10D      | 2.42  | 1.0   | .51   |
| 303-12      | .625        | 1.078        | 1,500       | 491-12D      | 2.70  | 1.0   | .57   |

### 491 HOSE FITTING



## 350 COMPLETE HOSE ASSEMBLY



### ASSEMBLY SAMPLE PART NUMBER

Base # 350 - 6 \* 012 3  
 Size \_\_\_\_\_  
 Length in Eighths ( 3/8")  
 Length in Inches (12")

\* use D instead of (-) after size for -8 & larger

| Assembly Part Number | Tube Size O.D. | Fittings 2 Per Assy. | Hose Part Number | Hose Size I.D. | Hose Size O.D. | Max oper. P.S.I. | Max proof P.S.I. | Max burst P.S.I. | Max bend radii |
|----------------------|----------------|----------------------|------------------|----------------|----------------|------------------|------------------|------------------|----------------|
| 350-3-L              | 3/16           | 491-3                | 303-3            | .125           | .453           | 3000             | 6000             | 12000            | 3.00           |
| 350-4-L              | 1/4            | 491-4                | 303-4            | .188           | .516           | 3000             | 6000             | 12000            | 3.00           |
| 350-5-L              | 5/16           | 491-5                | 303-5            | .250           | .578           | 3000             | 5000             | 10000            | 3.38           |
| 350-6-L              | 3/8            | 491-6                | 303-6            | .313           | .672           | 2000             | 4500             | 9000             | 4.00           |
| 350-8DL              | 1/2            | 471-8                | 303-8            | .406           | .766           | 2000             | 4000             | 8000             | 4.62           |
| 350-10DL             | 5/8            | 471-10               | 303-10           | .500           | .922           | 1750             | 3500             | 7000             | 5.50           |



## AEROQUIP 306 LOW PRESSURE HOSE & FITTINGS



### 306 HOSE {MIL-H-5593} CONSTRUCTION:

Inner tube is made of a seamless synthetic rubber compound reinforced by a single cotton braid. Outer cover is also synthetic rubber compound.

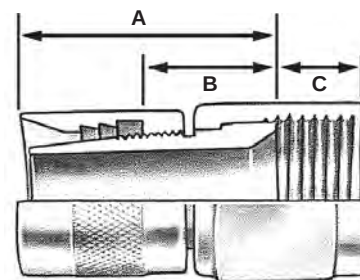
**OPERATING TEMP:** -65°F to +160°F

**APPLICATION:** Air or vacuum instrument systems, automatic pilots & lines to pressure gauges used with these systems {specified in MS33620}.

**IDENTIFICATION:** Black cover, a yellow indicator stripe with symbol "LP", manufacturer's code, size, and date of manufacture (quarter year/year). 180° from this is "Aeroquip 306" in a white stripe. All markings are spaced 6 inches apart.

| Hose        |             |              |             | Hose Fitting |       |       |       |
|-------------|-------------|--------------|-------------|--------------|-------|-------|-------|
| Part Number | Inside Dia. | Outside Dia. | Nom. P.S.I. | Part Number  | Max A | Max B | Max C |
| 306-2       | .125        | .344         | 300         | 471-2D       | .88   | .40   | .34   |
| 306-3       | .188        | .406         | 250         | 471-3D       | 1.00  | .44   | .32   |
| 306-4       | .250        | .469         | 200         | 471-4D       | 1.04  | .47   | .35   |
| 306-6       | .375        | .594         | 150         | 471-6D       | 1.15  | .54   | .38   |
| 306-8       | .500        | .750         | 150         | 471-8D       | 1.37  | .67   | .43   |
| 306-10      | .625        | .875         | 150         | 471-10D      | 1.57  | .72   | .51   |

### 471 HOSE FITTING



## 359 COMPLETE HOSE ASSEMBLY



### ASSEMBLY SAMPLE PART NUMBER

359 - 4 D - 012 3  
 Base # \_\_\_\_\_ Length in Eighths ( 3/8")  
 Size \_\_\_\_\_ Length in Inches (12")  
 \_\_\_\_\_ Material Code

| Assembly Part Number | Tube Size O.D. | Fittings 2 Per Assy. | Hose Part Number | Hose Size I.D. | Hose Size O.D. | Max oper. P.S.I. | Max proof P.S.I. | Max burst P.S.I. | Max bend radii |
|----------------------|----------------|----------------------|------------------|----------------|----------------|------------------|------------------|------------------|----------------|
| 359-2DL              | 1/8            | 471-2D               | 306-2            | .125           | .344           | 300              | 600              | 2000             | 2.00           |
| 359-3DL              | 3/16           | 471-3D               | 306-3            | .188           | .406           | 250              | 500              | 1700             | 2.00           |
| 359-4DL              | 1/4            | 471-4D               | 306-4            | .250           | .469           | 200              | 400              | 1250             | 4.00           |
| 359-6DL              | 3/8            | 471-6D               | 306-6            | .375           | .594           | 150              | 300              | 1000             | 4.00           |
| 359-8DL              | 1/2            | 471-8D               | 306-8            | .500           | .750           | 150              | 250              | 750              | 6.00           |

## AEROQUIP FIRE SLEEVE

**Construction:** Specially developed to meet the fire resistance requirements of FAATSO-C53 or TSO-C75. Uniform layer of fiberglass tubing impregnated and overlaid with a flame resistant silicone rubber. Asbestos yarn used in the braid is closely spun to provide maximum protection. The silicone rubber will not soften, peel, blister or harden after contact with MIL-H-5606, distilled water, MIL-L-7808, MIL-L-6082, or Skydrol 500.

**Operating Temperatures:** -65°F to +500°F

**Identification:** Outer surface is orange in color, with a simple black layline consisting of "Aeroquip AE102/624-size-code" every 10 inches.

**Application:** Can be used for all fuel, oil, hydraulic, fire extinguisher and propeller feathering lines. {Use 900591B Clamps to secure firesleeve material}



| Aeroquip Part # | Inside Dia. | Use with Clamp | Use w/ Hose# 303 / 111 | Use w/ Hose #601 | Use w/ Hose # AE246 | Use w/ Hose # MIL-H-6000 | Use w/ Hose # 666 | Weight lbs. per ft |
|-----------------|-------------|----------------|------------------------|------------------|---------------------|--------------------------|-------------------|--------------------|
| AE102-8         | 1/2         | 900591B-1C     | -3                     | -4               | -4                  | 1/4                      | -3, -4, -5        | .112               |
| AE102-9         | 9/16        | 900591B-2C     | -4                     | -5               | ---                 | 1/4                      | ---               | .122               |
| AE102-10        | 5/8         | 900591B-2C     | -5                     | -6               | ---                 | ---                      | ---               | .142               |
| AE102-11        | 11/16       | 900591B-2C     | ---                    | ---              | -6                  | 3/8                      | -6                | .158               |
| AE102-12        | 3/4         | 900591B-2C     | -6                     | -8               | ---                 | 1/2                      | ---               | .166               |
| AE102-13        | 13/16       | 900591B-2C     | ---                    | ---              | -8                  | ---                      | -8                | .175               |
| AE102-14        | 7/8         | 900591B-2C     | -8                     | ---              | ---                 | 5/8                      | -10               | .187               |
| AE102-16        | 1           | 900591B-3C     | -10                    | -10              | -10                 | 3/4                      | ---               | .195               |
| AE102-18        | 1-1/8       | 900591B-3C     | -12                    | -12              | ---                 | ---                      | ---               | .226               |
| AE102-20        | 1-1/4       | 900591B-3C     | ---                    | ---              | ---                 | ---                      | ---               | .248               |

## AERODUCT DUCTING

**SCAT** - One ply silicone rubber impregnation with helical copper-coated high carbon steel wire inside from -80° F to +500° F. (Red) Available in 11 ft. lengths.

**SCEET** - Two ply silicone rubber impregnation with helical copper-coated wire inside with wire between plies from -80° F to +500° F. (Red) Available in 11 ft. lengths.

| Inside Diameter | Scat    | Sceet    |
|-----------------|---------|----------|
| 3/4"            | SCAT-3  | SCEET-3  |
| 1"              | SCAT-4  | SCEET-4  |
| 1-1/4"          | SCAT-5  | SCEET-5  |
| 1-1/2"          | SCAT-6  | SCEET-6  |
| 1-3/4"          | SCAT-7  | SCEET-7  |
| 2"              | SCAT-8  | SCEET-8  |
| 2-1/2"          | SCAT-10 | SCEET-10 |
| 3"              | SCAT-12 | SCEET-12 |

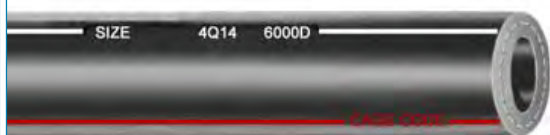
## BAND-IT CLAMPS

Use with Aeroquip Firesleeve



| Aeroquip Part # | Band-It Part # |
|-----------------|----------------|
| 900591B-1C      | JS242          |
| 900591B-2C      | JS252          |
| 900591B-3C      | JS253          |

## MIL-DTL-6000 OIL AND COOLANT HOSE



**Construction:** Inner tube is made of a seamless synthetic rubber compound reinforced by high strength mildew resistant yarn. Outer cover consists of a polychloroprene rubber reinforced and compounded.

**Operating Temp:** -40°F to +250°F

**Application:** Designed to handle the effects of oil, alcohol, coolant, and water. Lightweight and flexibility make MIL-DTL-6000 great for use on the hard-to-reach spots in tight engine compartments.

**Identification:** Black cover, shall have a red stripe consisting of the (CAGE) code and a white stripe consisting of the size, cure date in quarter and year, and specification.

| Part Number       | Tube Size | Inside Diameter | Outside Diameter | Operating P.S.I. | Proof P.S.I. | Burst P.S.I. |
|-------------------|-----------|-----------------|------------------|------------------|--------------|--------------|
| MIL-DTL-6000D-1/4 | 1/4       | .250            | .585             | 250              | 500          | 1000         |
| MIL-DTL-6000D-3/8 | 3/8       | .375            | .713             | 250              | 500          | 1000         |
| MIL-DTL-6000D-1/2 | 1/2       | .500            | .840             | 250              | 500          | 1000         |
| MIL-DTL-6000D-5/8 | 5/8       | .625            | .965             | 250              | 500          | 1000         |
| MIL-DTL-6000D-3/4 | 3/4       | .750            | 1.09             | 250              | 500          | 1000         |
| MIL-DTL-6000D-1   | 1         | 1.0             | 1.34             | 250              | 500          | 1000         |

## AE246 HIGH PRESSURE TEFLON HOSE

AEROQUIP WIRE REINFORCED TEFLON HOSE ASSEMBLIES  
SWIVEL FLARED TO SWIVEL FLARED

### Design Features:

- Superior vibration resistance, low volumetric expansion, and high temperature resistant
- High Pressure
- Lightweight
- Meets performance requirements of AS1339
- 50% tighter bend radius
- Improved flexing characteristics
- Fluid temperatures: -67°F to +400°F
- Available in sizes -4 thru -10
- Available with "super gem" or "super-C" fittings
- Capable of conducting current up to 12 micro amps with a potential of 1,000 volts.

### AE246 Hose



**Construction:** Teflon hose reinforced with Hi-Pac™ single wire braid.

**Conductivity:** Designed to eliminate electrostatically induced hose failures. The tube is capable of conducting a direct current equal to or greater than 6 µA in sizes -4, -6, and -8; 12 µA in -10 size and up, with a potential of 1,000 volts.

**Application:** High pressure and high temperature service. Unaffected by fuels, oils, coolants or solvents. Ideal for hydraulic systems.

**Basic Spec:** exceeds all requirements of AS1339

**Identification:** Identification bands show specification numbers, manufacturer's code numbers, operating pressure, assembly date and other required information

|                                     | Hose Size |        |        |        |
|-------------------------------------|-----------|--------|--------|--------|
|                                     | -4        | -6     | -8     | -10    |
| Tube Size                           | 1/4       | 3/8    | 1/2    | 5/8    |
| Hose I.D. (Min)                     | .212      | .298   | .391   | .485   |
| Hose O.D. (Max)                     | .390      | .475   | .605   | .720   |
| Minimum Bend Radius (Inches)        | 1.50      | 2.50   | 2.88   | 3.25   |
| Operating Pressure (PSI)            | 3,000     | 3,000  | 3,000  | 3,000  |
| Proof Pressure (PSI)                | 6,000     | 6,000  | 6,000  | 6,000  |
| Min High Temp. Burst Pressure (PSI) | 12,000    | 10,500 | 10,500 | 9,000  |
| Min Room Temp. Burst Pressure (PSI) | 16,000    | 14,000 | 14,000 | 12,000 |

### 3-PIECE FITTING "super gem"



The "super gem" fitting provides permanent protection against leakage, after high temperature aging and pressure up to 250,000 cycles or more. The reason for this performance is the separation of the sealing function from the retention function.

"Super Gem" fitting's have a dry lube (molybdenum disulfide) coating on the nipple male threads, a permanent coating that requires no additional lubrication during assembly.

| Fitting Part | Material                 | Specification |
|--------------|--------------------------|---------------|
| Nut          | Crescent steel (304)     | QQ-S-763      |
| Wire         | Crescent steel (305)     | AMS5685       |
| Nipple       | Crescent steel (304)     | QQ-S-763      |
| Sleeve       | Crescent steel (17-4 PH) | AMS5643       |
| Socket       | Crescent steel (304)     | QQ-S-763      |

### 2-PIECE FITTING "super-C"



Aeroquip "super-C" permanently attached fittings consist of a nipple assembly and a socket which become an integral assembly when attached to AE246 hose.

The service proven "super-C" fittings also feature corrosion resistant materials and reduced envelope dimensions. Its weight saving construction makes it the lightest fitting available in most sizes.

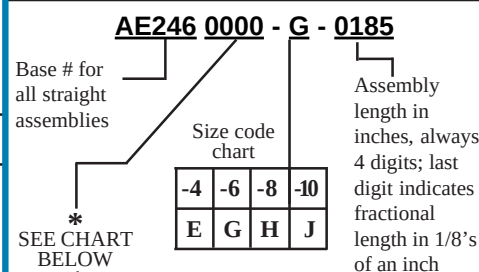
| Fitting Part | Material             | Specification |
|--------------|----------------------|---------------|
| Nut          | Crescent steel (304) | QQ-S-763      |
| Wire         | Crescent steel (305) | AMS5685       |
| Nipple       | Crescent steel (304) | QQ-S-763      |
| Socket       | Crescent steel (304) | QQ-S-763      |

### THREAD

| Size | Thread   |
|------|----------|
| -4   | .4375-20 |
| -6   | .5625-18 |
| -8   | .750-16  |
| -10  | .875-14  |

### STRAIGHT ASSEMBLIES

#### Part Number Key

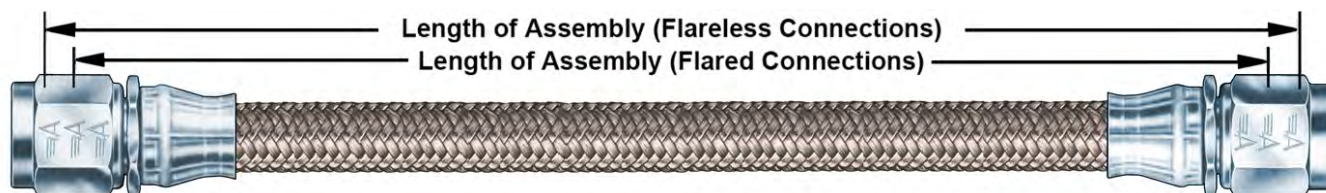


### AE102 FIRE SLEEVE

available on AE246 assemblies



| Lockwire Holes | Fitting Ends | * Sleeving * |       |
|----------------|--------------|--------------|-------|
|                |              | None         | AE102 |
| 0              | 37° Flared   | 0500         | 0501  |
| 2              | 37° Flared   | 0550         | 0551  |





## 601/AE701 MEDIUM PRESSURE RUBBER HOSE

AEROQUIP WIRE REINFORCED SYNTHETIC RUBBER HOSE ASSEMBLIES  
SWIVEL FLARED TO SWIVEL FLARED

- Design Features:**
- Flexibility
  - Light weight
  - Non-age sensitive
  - Fluid temperatures: -65°F to +300°F
  - TSO C53a, Type A & Type C approvals (fire sleeved)
  - Mil-Spec Approvals:
    - Mil-H-8379L/1 through Mil-H-83796/9 Assemblies
    - Mil-H-83797 Hose, Mil-F-83798 Fittings
  - Available in sizes -3 thru -10
  - Available with polyester/integral sleeve
  - Field attachable fittings

**601/AE701 Hose**



**Construction:** Synthetic rubber inner tube w/ 2 layers of stainless steel wire braid reinforcement.

**Application:** Fuel, oil, & coolants.

**Basic Spec:** MIL-H-83797, TSO C53a, Type A

**AE501 Hose-Integral Abrasion Resistant Cover**

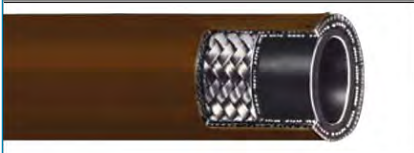


**Construction:** 601/AE701 hose overlaid w/ a blue braided chafeguard cover of tough polyester yarn.

**Application:** Fuel, oil, & coolants.

**Basic Spec:** MIL-H-83797, TSO C53a, Type A

**AE401 Hose-Integral Fire Sleeve**



**Construction:** 601/AE701 hose with an integral cover of silicone rubber compound.

**Application:** Fuel, oil, & coolants.

**Basic Spec:** MIL-H-83797, TSO C53a, Type C

|                                     | Hose Size |      |      |      |      |      |
|-------------------------------------|-----------|------|------|------|------|------|
|                                     | -3        | -4   | -5   | -6   | -8   | -10  |
| <b>601/AE701 Hose O.D. (Max)</b>    | .398      | .462 | .508 | .571 | .673 | .820 |
| <b>AE501 Hose O.D. (Max)</b>        | ---       | .550 | ---  | .659 | .761 | .895 |
| <b>AE401 Hose O.D. (Max)</b>        | ---       | .755 | ---  | .864 | .966 | 1.11 |
| <b>Hose I.D. (Min)</b>              | .141      | .204 | .266 | .329 | .415 | .539 |
| <b>Minimum Bend Radius (Inches)</b> | 1.75      | 2.00 | 2.25 | 2.50 | 3.50 | 4.00 |
| <b>Operating Pressure (PSI)</b>     | 1000      | 1000 | 1000 | 1000 | 1000 | 1000 |
| <b>Proof Pressure (PSI)</b>         | 3000      | 3000 | 3000 | 3000 | 2500 | 2500 |
| <b>Minimum Burst Pressure (PSI)</b> | 6000      | 6000 | 6000 | 6000 | 5000 | 5000 |

### END FITTING



**Nut:** -3, -4, & -5 are steel, AMS 5024 (C1137)  
-6 & up are aluminum, AMS 4119 (2024)

**Nut Wire:** Crescent steel, AMS 5685 (305)

**Nipple:** -3, -4, & -5 are steel, AMS5024 (C1137)  
-6 & up are aluminum, AMS 4119 (2024)

**Elbow:** -3, -4, & -5 are steel, AMS 5024 (C1137)  
-6 & up are aluminum, AMS 4117 (6061)

**Socket:** all sizes are aluminum AMS 4117 (6061)

### THREAD

| Size | Thread   |
|------|----------|
| -3   | .375-24  |
| -4   | .4375-20 |
| -5   | .500-20  |
| -6   | .5625-18 |
| -8   | .750-16  |
| -10  | .875-14  |

### STRAIGHT ASSEMBLIES

#### Part Number Key

**AE701XXXX - G - 0185**

Base # for  
all straight  
assemblies

Size code  
(see below)

Assembly length in  
inches, always 4  
digits; last digit  
indicates fractional  
length in 1/8's of an  
inch

| Dash Size   | 3 | 4 | 5 | 6 | 8 | 10 |
|-------------|---|---|---|---|---|----|
| Letter Code | B | E | F | G | H | J  |



| Hose Size   | 601/AE701<br>Hose Assembly<br>Base Number | AE401<br>Hose Assembly<br>Base Number | AE501<br>Hose Assembly<br>Base Number | 601/AE701 w/ AE102<br>Firesleeve Hose Assembly<br>Base Number |
|-------------|-------------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------------------------------|
| -3 thru -10 | AE7010000                                 | AE7013106                             | AE7013110                             | AE7010001                                                     |

## 666 MEDIUM PRESSURE TEFLON HOSE

AEROQUIP WIRE REINFORCED TEFLON HOSE ASSEMBLIES  
SWIVEL FLARED TO SWIVEL FLARED

### Design Features:

- Flexibility
- Lightweight
- Available in sizes 3 thru 8
- Fluid temperatures: -65°F to +275°F
- Able to withstand prolonged flexing and vibration
- Capable of conducting a direct current
- Mil-Spec Approvals:
  - Mil-DTL-25579C Assemblies
  - Mil-DTL-27267 Hose
- Essentially zero moisture absorption
- Chemical inertness & anti-adhesive characteristics
- Aluminum CompressionCrimp fittings

### 666 Hose



**Construction:** Inner tube is made of a spiral extruded Teflon resin reinforced with stainless steel and covered with a Type 300 Series steel wire braid.

**Conductivity:** The Teflon liner has sufficient conductivity to prevent electrostatically induced hose failures. The tube is capable of conducting a direct current equal to or greater than 10 micro amps in sizes 4 thru 8, and 20 micro amps in size 10 and above, with a potential of 1,000 volts.

**Application:** Aeroquip brand Teflon hoses are unaffected by all fuels, oils, alcohols, coolants or solvents and are also inert to acids both concentrated and diluted, and propellants used in missiles. This is why the 666 Teflon hose may be used for all hydrocarbon fuel systems at pressures up to 600 psi.

**Basic Spec:** 666 hose assemblies and compression fittings all comply with the MIL-DTL-25579C industry standard for 1500 psi, high temperature line for aircraft and missile fluid systems.

**Identification:** Identification bands show specification numbers, manufacturer's code numbers, operating pressure, assembly date and other required information.

### Hose Size

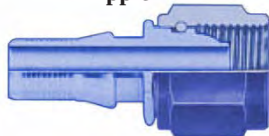
|                              | -3      | -4     | -5     | -6    | -8    |
|------------------------------|---------|--------|--------|-------|-------|
| Part Number                  | AE240-3 | 666-4  | 666-5  | 666-6 | 666-8 |
| Hose I.D. (Min)              | .125    | .188   | .250   | .313  | .406  |
| Hose O.D. (Max)              | .268    | .343   | .406   | .469  | .585  |
| Operating Pressure (PSI)     | 1,500   | 1,500  | 1,500  | 1,500 | 1,500 |
| Proof Pressure (PSI)         | 3,000   | 3,000  | 3,000  | 3,000 | 3,000 |
| Minimum Burst Pressure (PSI) | 7,500   | 12,000 | 10,000 | 9,000 | 8,000 |
| Bend Radius (Min)            | 1.50    | 2.00   | 2.00   | 4.00  | 4.62  |

### COMPRESSIONCRIMP FITTING

#### Socket



#### Nipple



Crimped

The unique combination of the "ramped" nipple and the crimping pattern used on the aluminum compression crimp fitting results in superior fitting retention under pressure. The fitting design effectively traps and holds the wire reinforcement of the hose in the area of the ramp on the fitting nipple.

### THREAD

| Size | Thread   |
|------|----------|
| -3   | .375-24  |
| -4   | .4375-20 |
| -5   | .500-20  |
| -6   | .5625-18 |
| -8   | .750-16  |

When ordering fitting: Socket MUST BE ordered separately under Aeroquip # AE21498(code) size code

### STRAIGHT ASSEMBLIES

#### Part Number Key

**AE3660000 - G - 0185**

Base # for all straight assemblies

Size code (see below)

Assembly length in inches, always 4 digits; last digit indicates fractional length in 1/8's of an inch

| Fitting Part | Material             | Specification          |
|--------------|----------------------|------------------------|
| Nut          | 2024-T851 Aluminum   | QQ-A-225/6 or AMS 4119 |
| Wire         | Crescent Steel (305) | AMS 5685               |
| Nipple       | 2024-T851 Aluminum   | QQ-A-225/6 or AMS 4119 |
| Socket       | Crescent Steel (304) | QQ-S-763 or AMS 5565   |

| Dash Size   | 3 | 4 | 5 | 6 | 8 |
|-------------|---|---|---|---|---|
| Letter Code | B | E | F | G | H |



| Dash Size  | Material                  | MS Style Code | Assembly Base Number | Nipple A Part Number | Nipple B Part Number |
|------------|---------------------------|---------------|----------------------|----------------------|----------------------|
| -3 & -4    | Corrosion-resistant Steel | A             | AE3660240            | AE21740              | AE21740              |
| -4 thru -8 | Corrosion-resistant Steel | A             | AE3660000            | AE21496              | AE21496              |



## STRATOFLEX 111 MEDIUM PRESSURE HOSE & FITTINGS

### 111 HOSE {MIL-H-8794} CONSTRUCTION:

Inner tube is made of a seamless synthetic rubber compound reinforced by one fiber braid and one high tensile steel wire braid. Outer cover is a fiber braid impregnated with oil and mildew resistant rubber adhesive.



**OPERATING TEMP:** -65°F to +250°F

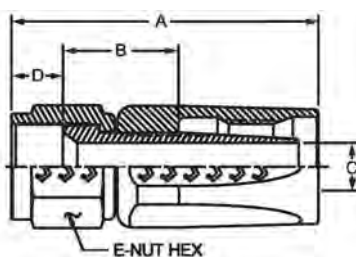
**APPLICATION:** Aircraft hydraulic, coolant, pneumatic, oil and fuel systems. {specified in MS33620}

**IDENTIFICATION:** Stratoflex name and part number, specification number, size, quarter and year of manufacture, and federal ID number.

| Part Number | Tube Size | Inside Dia. | Outside Dia. | Nom. P.S.I. |
|-------------|-----------|-------------|--------------|-------------|
| 111-3       | .125      | .125        | .450         | 3,000       |
| 111-4       | .188      | .188        | .520         | 3,000       |
| 111-5       | .250      | .250        | .580         | 3,000       |
| 111-6       | .312      | .312        | .670         | 2,000       |
| 111-8       | .406      | .406        | .770         | 2,000       |
| 111-10      | .500      | .500        | .920         | 1,750       |

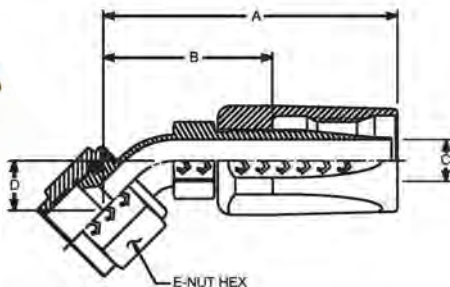
### Straight Flared Fitting

| Part Number | A    | B   | C   | D   | Hose Size | Thread Size |
|-------------|------|-----|-----|-----|-----------|-------------|
| 300-3S      | 1.62 | .65 | .13 | .32 | 111-3     | .375-24     |
| 300-4S      | 1.74 | .63 | .17 | .35 | 111-4     | .4375-20    |
| 300-5S      | 1.90 | .74 | .23 | .38 | 111-5     | .500-20     |
| 300-6S      | 2.04 | .76 | .30 | .38 | 111-6     | .5625-18    |
| 300-8D      | 2.51 | .93 | .39 | .43 | 111-8     | .750-16     |
| 300-10D     | 2.79 | .99 | .49 | .51 | 111-10    | .875-14     |



### 45° Elbow Flared Fitting

| Part Number | A    | B    | C   | D   | Hose Size | Thread Size |
|-------------|------|------|-----|-----|-----------|-------------|
| 646-4S      | 1.87 | 1.12 | .13 | .35 | 111-4     | .4375-20    |
| 646-5S      | 2.12 | 1.34 | .17 | .42 | 111-5     | .500-20     |
| 646-6S      | 2.28 | 1.38 | .24 | .44 | 111-6     | .5625-18    |
| 646-8D      | 2.70 | 1.55 | .36 | .46 | 111-8     | .750-16     |
| 646-10D     | 2.99 | 1.70 | .46 | .54 | 111-10    | .875-14     |



## 111 HOSE ASSEMBLIES



| Assembly Part Number | Hose Part Number | Fittings 2 Per Assembly | Min Bend Radius | Fitting Thread Size |
|----------------------|------------------|-------------------------|-----------------|---------------------|
| 111417-3S-L          | 111-3            | 300-3S                  | 3.00            | .375-24             |
| 111417-4S-L          | 111-4            | 300-4S                  | 3.00            | .4375-20            |
| 111417-5S-L          | 111-5            | 300-5S                  | 3.38            | .500-20             |
| 111417-6S-L          | 111-6            | 300-6S                  | 4.00            | .5625-18            |
| 111417-8D-L          | 111-8            | 300-8D                  | 4.63            | .750-16             |
| 111417-10D-L         | 111-10           | 300-10D                 | 5.50            | .875-14             |

### EXAMPLE OF PART NUMBER

**111417 - 8 D - 018 5**

Base # \_\_\_\_\_  
 Size \_\_\_\_\_  
 Fitting material code \_\_\_\_\_  
 Assembly Length (L)  
 in Inches \_\_\_\_\_  
 in Eighths \_\_\_\_\_

## STRATOFLEX 193 LOW PRESSURE HOSE & FITTINGS



### 193 HOSE {MIL-H-5593} CONSTRUCTION:

Inner tube is made of a seamless Buna-N reinforced by a braid of high tensile fiber cord. Outer cover is a synthetic rubber compound.

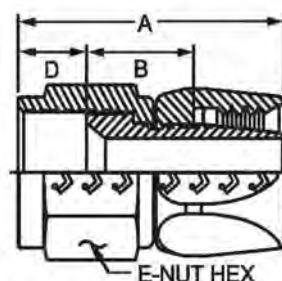
**OPERATING TEMP:** -65°F to +165°F

**APPLICATION:** Low pressure air or vacuum instrument systems, automatic pilots & lines to pressure gauges used with these systems {specified in MS33620}. Vacuum service 20"Hg sizes -2 thru -6; 10"Hg sizes -8 and -10.

**IDENTIFICATION:** Black cover, a yellow symbol "LP-MIL-H-5593-size", date of manufacture (quarter year/year) and manufacturer's code. "Stratoflex 193-size" is marked on other side of hose. Yellow markings are repeated every 12 inches.

| Hose        |             |              |             | Hose Fitting |      |     |     |     |
|-------------|-------------|--------------|-------------|--------------|------|-----|-----|-----|
| Part Number | Inside Dia. | Outside Dia. | Nom. P.S.I. | Part Number  | A    | B   | C   | D   |
| 193-2       | .125        | .350         | 300         | 311-2D       | 1.09 | .39 | .06 | .34 |
| 193-3       | .188        | .410         | 250         | 311-3D       | 1.18 | .46 | .13 | .32 |
| 193-4       | .250        | .480         | 200         | 311-4D       | 1.26 | .46 | .17 | .35 |
| 193-6       | .375        | .600         | 150         | 311-6D       | 1.40 | .54 | .30 | .38 |
| 193-8       | .500        | .750         | 150         | 311-8D       | 1.66 | .67 | .39 | .43 |
| 193-10      | .625        | .870         | 150         | 311-10D      | 1.94 | .72 | .48 | .51 |

### 311 HOSE FITTING



## 193 HOSE ASSEMBLIES



| Assembly Part Number | Hose Part Number | Fittings 2 Per Assembly | Min Bend Radius | Fitting Thread Size |
|----------------------|------------------|-------------------------|-----------------|---------------------|
| 193000-2D-L          | 193-2            | 311-2D                  | 2.00            | .3125-24            |
| 193000-3D-L          | 193-3            | 311-3D                  | 2.00            | .375-24             |
| 193000-4D-L          | 193-4            | 311-4D                  | 4.00            | .4375-20            |
| 193000-6D-L          | 193-6            | 311-6D                  | 4.00            | .5625-18            |
| 193000-8D-L          | 193-8            | 311-8D                  | 6.00            | .750-16             |
| 193000-10D-L         | 193-10           | 311-10D                 | 6.00            | .875-14             |

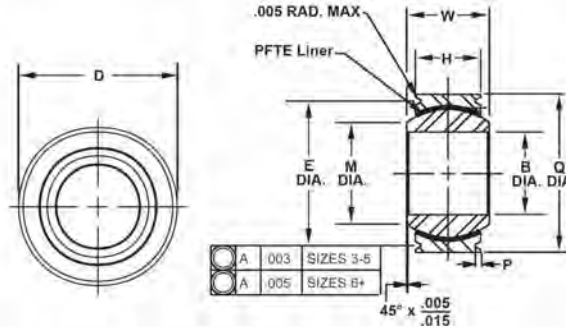
### EXAMPLE OF PART NUMBER

**193000 - 8 D - 018 5**

Base # \_\_\_\_\_  
 Size \_\_\_\_\_  
 Fitting material code \_\_\_\_\_  
 Assembly Length (L)  
 in Inches \_\_\_\_\_  
 in Eighths \_\_\_\_\_

### MS14101

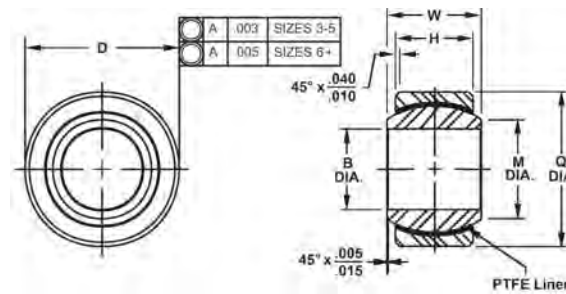
Bearing, Self-Lubricating,  
Self-Aligning, Narrow,  
Grooved, Outer Ring



| MS14101 | B<br>+.0000<br>-.0005 | D<br>+.0000<br>-.0005 | H<br>+.005 | M<br>MIN | P<br>+.000<br>-.015 | Q<br>MIN | W<br>+.000<br>-.002 | E<br>+.000<br>-.010 | Static Limit Load (lbs) |       | Oscillating Load (lbs) | No-Load Rotational Breakaway Torque |          | WT. Lb. Max (Ref) |
|---------|-----------------------|-----------------------|------------|----------|---------------------|----------|---------------------|---------------------|-------------------------|-------|------------------------|-------------------------------------|----------|-------------------|
|         |                       |                       |            |          |                     |          |                     |                     | Radial                  | Axial |                        | Standard                            | "K" Type |                   |
| -3      | .1900                 | .5625                 | .218       | .293     | .025                | 10       | .281                | .500                | 3975                    | 150   | 1500                   | 0.25 - 5.0                          | 0 - 0.5  | .020              |
| -4      | .2500                 | .6562                 | .250       | .364     |                     |          | .343                | .594                | 6040                    | 430   | 3320                   |                                     |          |                   |
| -5A     | .3125                 | .7500                 | .281       | .419     |                     |          | .375                | .660                | 8750                    | 700   | 5460                   | 0.25 - 8.0                          | 0 - 1.0  | .030              |
| -6      | .3750                 | .8125                 | .312       | .475     | .035                | 9        | .406                | .702                | 10540                   | 1100  | 6600                   |                                     |          |                   |

### MS14102

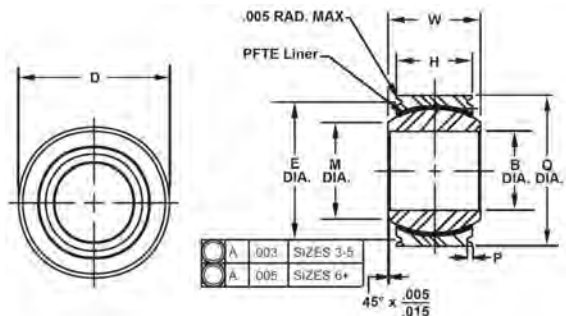
Bearing, Self-Lubricating,  
Self-Aligning, Narrow,  
Chamfered, Outer Ring



| MS14102 | B<br>+.0000<br>-.0005 | D<br>+.0000<br>-.0005 | H<br>+.005 | M<br>MIN | Q<br>MIN | W<br>+.000<br>-.002 | Static Limit Load (lbs) |       | Oscillating Load (lbs) | No-Load Rotational Breakaway Torque |          | WT. Lb. Max (Ref) |
|---------|-----------------------|-----------------------|------------|----------|----------|---------------------|-------------------------|-------|------------------------|-------------------------------------|----------|-------------------|
|         |                       |                       |            |          |          |                     | Radial                  | Axial |                        | Standard                            | "K" Type |                   |
| -4      | .2500                 | .6250                 | .327       | .300     | 15       | .437                | 5500                    | 1770  | 4900                   | 0.25 - 5.0                          | 0 - 0.5  | .031              |
| -5      | .3125                 | .6875                 | .317       | .360     | 14       | .437                | 9400                    | 1640  | 6050                   |                                     |          |                   |
| -6      | .3750                 | .8125                 | .406       | .46      | 8        | .500                | 13700                   | 2630  | 8310                   | 0.25 - 8.0                          | 0 - 1.0  | .060              |

### MS14103

Bearing, Self-Lubricating,  
Self-Aligning, Wide,  
Grooved Outer Ring

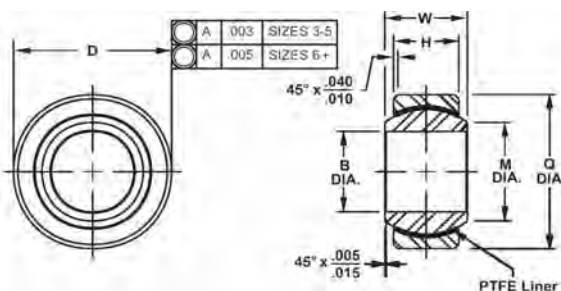


| MS14103 | B<br>+.0000<br>-.0005 | D<br>+.0000<br>-.0005 | H<br>+.005 | M<br>MIN | P<br>+.000<br>-.015 | Q<br>MIN | W<br>+.000<br>-.002 | E<br>+.000<br>-.010 | Static Limit Load (lbs) |       | Oscillating Load (lbs) | No-Load Rotational Breakaway Torque |          | WT. Lb. Max (Ref) |
|---------|-----------------------|-----------------------|------------|----------|---------------------|----------|---------------------|---------------------|-------------------------|-------|------------------------|-------------------------------------|----------|-------------------|
|         |                       |                       |            |          |                     |          |                     |                     | Radial                  | Axial |                        | Standard                            | "K" Type |                   |
| -4      | .2500                 | .6250                 | .327       | .300     | .025                | 15       | .437                | .563                | 5500                    | 1770  | 4900                   | 0.25 - 5.0                          | 0 - 0.5  | .031              |
| -5      | .3125                 | .6875                 | .317       | .360     |                     | 14       |                     | .625                | 9400                    | 1640  | 6050                   |                                     |          |                   |
| -6      | .3750                 | .8125                 | .406       | .466     | .035                | 8        | .750                | .712                | 13700                   | 2630  | 8310                   | 0.25 - 8.0                          | 0 - 1.0  | .060              |
| -10     | .6250                 | 1.1875                | .567       | .747     |                     | 12       |                     | 1.087               | 29000                   | 6130  | 20250                  |                                     |          |                   |



## MS14104

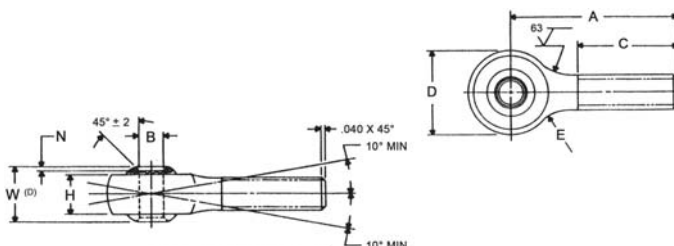
Bearing, Self-Lubricating,  
Self-Aligning, Narrow,  
Chamfered Outer Ring



| MS14104 | B<br>+.0000<br>-.0005 | D<br>+.0000<br>-.0005 | H<br>+.005 | M<br>MIN | Q<br>MIN | W<br>+.000<br>-.002 | Static Limit Load (lbs) |       | Oscillating Load (lbs) | No-Load Rotational Breakaway Torque |          | WT. Lb. Max (Ref) |
|---------|-----------------------|-----------------------|------------|----------|----------|---------------------|-------------------------|-------|------------------------|-------------------------------------|----------|-------------------|
|         |                       |                       |            |          |          |                     | Radial                  | Axial |                        | Standard                            | "K" Type |                   |
| -3      | .1900                 | .5625                 | .218       | .293     | 10       | .281                | 3975                    | 150   | 1500                   | 0.25 - 5.0                          | 0 - 0.5  | .020              |
| -4      | .2500                 | .6562                 | .250       | .364     | 10       | .343                | 6040                    | 430   | 3320                   |                                     |          | .020              |
| -5      | .3125                 | .7500                 | .271       | .419     | 10       | .375                | 8750                    | 700   | 5460                   | 0.25 - 8.0                          | 0 - 1.0  | .030              |
| -6      | .3750                 | .8125                 | .312       | .475     | 9        | .406                | 10540                   | 1100  | 6600                   |                                     |          | .040              |

## MS21151

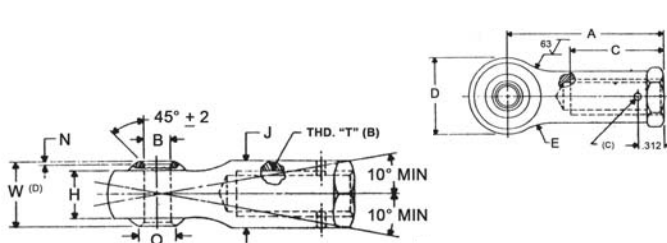
Bearing, Double Row  
Rod End External Thread  
Self-Aligning, Anti Friction  
"C" After Dash #  
Indicates Key Slot



| MS21151 | Bore Size Nom. | A<br>± .031 | B<br>+.0000<br>-.0003 | C<br>± .031 | D<br>± .010 | E<br>Nom. Radius | H<br>± .010 | N<br>+.015<br>-.000 | O<br>Min. Dia. | T<br>Thread<br>UNJF-31 | W<br>+.000<br>-.005 |
|---------|----------------|-------------|-----------------------|-------------|-------------|------------------|-------------|---------------------|----------------|------------------------|---------------------|
| -2      | #10            | 1.375       | .1900                 | .750        | .781        | .422             | .328        | .005                | .276           | .1900-32RH             | .437                |
| -4      | #10            | 1.375       | .1900                 | .750        | .781        | .390             | .328        | .005                | .276           | .3750-24RH             | .437                |
| -6      | #10            | 1.812       | .1900                 | .938        | .781        | .562             | .438        | .005                | .307           | .2500-28RH             | .500                |
| -7      | #10            | 1.563       | .1900                 | 1.00        | .781        | .344             | .328        | .005                | .276           | .2500-28RH             | .437                |
| -8      | 1/4            | 1.875       | .2500                 | 1.125       | .938        | .469             | .438        | .005                | .340           | .3750-24RH             | .593                |
| -9      | 1/4            | 1.875       | .2500                 | 1.125       | .938        | .469             | .438        | .005                | .340           | .3750-24LH             | .593                |

## MS21153

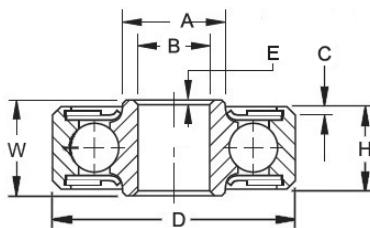
Bearing, Double Row  
Internal Thread  
Self-Aligning, Anti Friction  
"C" After Dash #  
Indicates Locking Slot



| MS21153 | Bore Size Nom. | A<br>± .031 | B<br>+.0000<br>-.0003 | C<br>± .031 | D<br>± .010 | E<br>Nom. Radius | H<br>± .010 | J<br>Dia.<br>± .010 | K<br>Bead or Hex Dia. | N<br>+.015<br>-.000 | O<br>Min. Dia. | T<br>Thread<br>UNJF-31 | W<br>+.000<br>-.005 |
|---------|----------------|-------------|-----------------------|-------------|-------------|------------------|-------------|---------------------|-----------------------|---------------------|----------------|------------------------|---------------------|
| -1      | #10            | 1.375       | .1900                 | .750        | .781        | .390             | .328        | .375                | Bead .438             | .005                | .276           | .2500-28RH             | .437                |
| -3      | #10            | 1.375       | .1900                 | .750        | .781        | .390             | .328        | .375                | Bead .438             | .005                | .276           | .2500-28RH             | .500                |
| -5      | #10            | 1.375       | .1900                 | .750        | .781        | .390             | .328        | .375                | Bead .438             | .005                | .276           | .2500-28LH             | .437                |
| -6      | 1/4            | 1.469       | .2500                 | .750        | .938        | .468             | .436        | .436                | Hex .438              | .005                | .340           | .3125-24RH             | .593                |
| -7      | 1/4            | 1.469       | .2500                 | .750        | .938        | .468             | .436        | .436                | Hex .438              | .005                | .340           | .3125-24LH             | .593                |

### MS27640

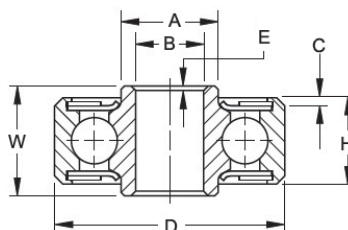
Airframe Bearing  
Antifriction, Heavy Duty



| MS<br>Dash #<br>MS27640 | MFG.<br>P/N | B<br>BORE<br>(b)<br>+.0000<br>-.0005 | D<br>OUTSIDE<br>DIAMETER<br>(a) (b)<br>+.0000<br>-.0005 | W<br>WIDTH<br>INNER<br>RING (a)<br>+.000<br>-.005 | H<br>WIDTH<br>OUTER<br>RING (a)<br>+.000<br>-.005 | A<br>SHOULDER<br>DIAMETER<br>INNER<br>APPROX | E<br>INNER<br>RING BORE<br>CHAMFER<br>+.015<br>-.000 | C<br>OUTER<br>(c) RING OD<br>CHAMFER<br>+.015<br>-.000 | RADIAL<br>LIMIT<br>LOAD<br>RATING<br>LBS | THRUST<br>LIMIT<br>LOAD<br>RATING<br>LBS | RADIAL LOAD<br>RATING (LBS)<br>FOR AVERAGE LIFE OF 10,000<br>COMPLETE 90° CYCLES |         |
|-------------------------|-------------|--------------------------------------|---------------------------------------------------------|---------------------------------------------------|---------------------------------------------------|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------|---------|
|                         |             |                                      |                                                         |                                                   |                                                   |                                              |                                                      |                                                        |                                          |                                          | CASE I                                                                           | CASE II |
| -3A                     | KP3L        | .1900                                | .6250                                                   | .245                                              | .203                                              | .280                                         | .005                                                 | .010                                                   | 1880                                     | 900                                      | 1700                                                                             | 1450    |
| -4                      | KP4         | .2500                                | .9014                                                   | .484                                              | .335                                              | .390                                         |                                                      | .032                                                   | 2680                                     | 1200                                     | 2410                                                                             | 2030    |
| -5                      | KP5         | .3125                                | 1.2500                                                  | .558                                              | .375                                              | .469                                         |                                                      |                                                        | 5620                                     | 2500                                     | 4900                                                                             | 3970    |
| -6                      | KP6         | .3750                                | 1.4375                                                  | .620                                              | .469                                              | .591                                         | .015                                                 |                                                        | 7910                                     | 3500                                     | 6540                                                                             | 5410    |

### MS27641

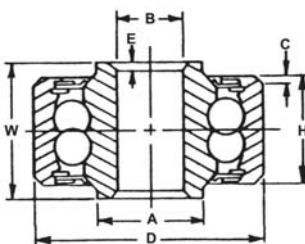
Airframe Bearing  
Antifriction Intermediate Duty



| MS<br>Dash #<br>MS27641 | MFG.<br>P/N | B<br>BORE<br>+.0000<br>-.0005 | D<br>OUTSIDE<br>DIAMETER<br>+.0000<br>-.0005 | W<br>WIDTH<br>INNER<br>RING<br>+.000<br>-.005 | H<br>WIDTH<br>OUTER<br>RING<br>+.000<br>-.005 | A<br>SHOULDER<br>DIAMETER<br>INNER<br>APPROX | E<br>INNER<br>RING BORE<br>CHAMFER<br>+.015<br>-.000 | C<br>OUTER<br>(c) RING OD<br>CHAMFER<br>+.015<br>-.000 | RADIAL<br>LIMIT<br>LOAD<br>RATING<br>LBS | THRUST<br>LIMIT<br>LOAD<br>RATING<br>LBS | RADIAL LOAD<br>RATING (LBS)<br>FOR AVERAGE LIFE OF 10,000<br>COMPLETE 90° CYCLES (e) |         |
|-------------------------|-------------|-------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------|---------|
|                         |             |                               |                                              |                                               |                                               |                                              |                                                      |                                                        |                                          |                                          | CASE I                                                                               | CASE II |
| -3                      | KP3A        | .1900                         | .6250                                        | .297                                          | .234                                          | .297                                         | .005                                                 | .016                                                   | 1560                                     | 700                                      | 1500                                                                                 | 1250    |
| -4                      | KP4A        | .2500                         | .7500                                        | .281                                          | .219                                          | .380                                         | .005                                                 | .016                                                   | 1880                                     | 900                                      | 1690                                                                                 | 1450    |
| -5                      | KP5A        | .3125                         | .8125                                        | .297                                          | .234                                          | .415                                         | .015                                                 | .016                                                   | 2190                                     | 1000                                     | 1820                                                                                 | 1600    |
| -6                      | KP6A        | .3750                         | .8750                                        | .313                                          | .250                                          | .495                                         | .015                                                 | .016                                                   | 2500                                     | 1100                                     | 1920                                                                                 | 1710    |
| -8                      | KP8A        | .5000                         | 1.125                                        | .375                                          | .313                                          | .616                                         | .015                                                 | .016                                                   | 3910                                     | 1700                                     | 2870                                                                                 | 2550    |
| -10                     | KP10A       | .6250                         | 1.375                                        | .406                                          | .344                                          | .768                                         | .015                                                 | .032                                                   | 6700                                     | 3000                                     | 4980                                                                                 | 4360    |

### MS27643

Airframe Bearing  
Antifriction, Self-Aligning  
Light and Heavy Duty

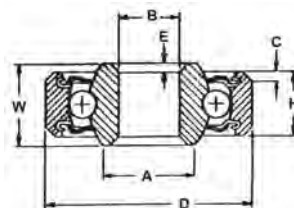


| MS<br>Dash #<br>MS27643 | MFG.<br>P/N | B<br>BORE<br>+.0000<br>-.0005 | D<br>OUTSIDE<br>DIAMETER<br>+.0000<br>-.0005 | W<br>WIDTH<br>INNER<br>RING<br>+.000<br>-.005 | H<br>WIDTH<br>OUTER<br>RING<br>+.000<br>-.005 | A<br>SHOULDER<br>DIAMETER<br>INNER<br>APPROX | E<br>INNER<br>RING BORE<br>CHAMFER<br>+.015<br>-.000 | C<br>OUTER<br>(c) RING OD<br>CHAMFER<br>+.015<br>-.000 | RADIAL<br>LIMIT<br>LOAD<br>RATING<br>LBS | THRUST<br>LIMIT<br>LOAD<br>RATING<br>LBS | RADIAL LOAD<br>RATING (LBS)<br>FOR AVERAGE LIFE OF 10,000<br>COMPLETE 90° CYCLES (e) |         | AXIAL<br>PLAY<br>INCH<br>MAX |
|-------------------------|-------------|-------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------|---------|------------------------------|
|                         |             |                               |                                              |                                               |                                               |                                              |                                                      |                                                        |                                          |                                          | CASE I                                                                               | CASE II |                              |
| -3                      | DSP3        | .1900                         | .7774                                        | .500                                          | .392                                          | .304                                         | .005                                                 | .022                                                   | 1420                                     | 200                                      | 1420                                                                                 | 1220    | .0055                        |
| -4                      | DSP4        | .2500                         | .9014                                        | .687                                          | .454                                          | .430                                         | .005                                                 | .032                                                   | 1780                                     | 300                                      | 1780                                                                                 | 1600    | .0055                        |
| -5                      | DSP5        | .3125                         | 1.250                                        | .812                                          | .656                                          | .515                                         | .015                                                 | .032                                                   | 3740                                     | 600                                      | 3740                                                                                 | 3300    | .0060                        |



### MS27645

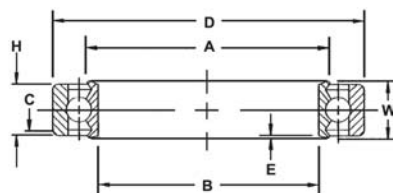
Airframe Bearing  
Antifriction, Self-Aligning  
Light and Heavy Duty



| MS<br>Dash #<br>MS27645 | MFG.<br>P/N | B<br>BORE<br>+.0000<br>-.0005 | D<br>OUTSIDE<br>DIAMETER<br>+.0000<br>-.0005 | W<br>WIDTH<br>INNER<br>RING<br>+.000<br>-.005 | H<br>WIDTH<br>OUTER<br>RING<br>+.000<br>-.005 | A<br>SHOULDER<br>DIAMETER<br>INNER<br>APPROX | E<br>INNER<br>RING BORE<br>CHAMFER<br>+.015<br>-.000 | C<br>OUTER<br>(c) RING OD<br>CHAMFER<br>+.015<br>-.000 | RADIAL<br>LIMIT<br>LOAD<br>RATING<br>LBS | THRUST<br>LIMIT<br>LOAD<br>RATING<br>LBS | RADIAL LOAD<br>RATING(LBS)<br>FOR AVERAGE LIFE OF 10,000<br>COMPLETE 90° CYCLES (e) |         | AXIAL<br>PLAY<br>INCH<br>MAX |
|-------------------------|-------------|-------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|---------|------------------------------|
|                         |             |                               |                                              |                                               |                                               |                                              |                                                      |                                                        |                                          |                                          | CASE I                                                                              | CASE II |                              |
| -3A                     | KSP3L       | .1900                         | .6250                                        | .245                                          | .303                                          | .253                                         | .005                                                 | .016                                                   | 550                                      | 100                                      | 550                                                                                 | 480     | .023                         |
| -4A                     | KSP4A       | .2500                         | .7500                                        | .281                                          | .219                                          | .321                                         | .005                                                 | .016                                                   | 900                                      | 200                                      | 900                                                                                 | 770     | .025                         |
| -5A                     | KSP5A       | .3125                         | .8125                                        | .297                                          | .234                                          | .381                                         | .015                                                 | .016                                                   | 1000                                     | 200                                      | 950                                                                                 | 815     | .028                         |
| -6A                     | KSP6A       | .3750                         | .8750                                        | .313                                          | .250                                          | .453                                         | .016                                                 | .016                                                   | 1120                                     | 200                                      | 1120                                                                                | 990     | .030                         |
| -3                      | KSP3        | .1900                         | .7774                                        | .297                                          | .270                                          | .290                                         | .005                                                 | .022                                                   | 900                                      | 200                                      | 900                                                                                 | 770     | .023                         |
| -4                      | KSP4        | .2500                         | .9014                                        | .484                                          | .335                                          | .390                                         | .005                                                 | .032                                                   | 1410                                     | 300                                      | 1230                                                                                | 1230    | .025                         |
| -5                      | KSP5        | .3125                         | 1.250                                        | .558                                          | .375                                          | .561                                         | .015                                                 | .032                                                   | 2190                                     | 300                                      | 2190                                                                                | 1890    | .028                         |
| -6                      | KSP6        | .3750                         | 1.438                                        | .620                                          | .469                                          | .607                                         | .015                                                 | .032                                                   | 2980                                     | 400                                      | 2980                                                                                | 2580    | .030                         |

### MS27646

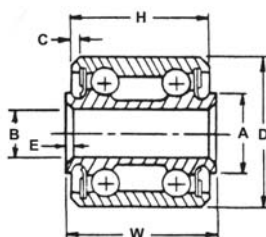
Airframe Bearing  
Antifriction, Extra Light Duty



| MS<br>Dash #<br>MS27646 | B<br>BORE<br>+.0000<br>-.0005 | D<br>OUTSIDE<br>DIAMETER<br>+.0000<br>-.0005 | W<br>WIDTH<br>INNER<br>RING<br>+.000<br>-.005 | H<br>WIDTH<br>OUTER<br>RING<br>+.000<br>-.005 | A<br>SHOULDER<br>DIAMETER<br>INNER<br>APPROX | E AND C<br>CORNER CHAMFER<br>x 45°<br>(c) +.020<br>-.000 | RADIAL<br>LIMIT<br>LOAD<br>RATING<br>LBS | THRUST<br>LIMIT<br>LOAD<br>RATING<br>LBS | RADIAL LOAD<br>RATING(LBS)<br>FOR AVERAGE LIFE OF 10,000<br>COMPLETE 90° CYCLES (e) |         |
|-------------------------|-------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|----------------------------------------------------------|------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|---------|
|                         |                               |                                              |                                               |                                               |                                              |                                                          |                                          |                                          | CASE I                                                                              | CASE II |
| -38                     | .6250                         | 1.065                                        | .281                                          | .250                                          | .777                                         | .015                                                     | 3280                                     | 1500                                     | 1990                                                                                | 1820    |
| -39                     | .7500                         | 1.1875                                       | .281                                          | .250                                          | .895                                         | .015                                                     | 3750                                     | 1700                                     | 2050                                                                                | 1900    |
| -41                     | 1.0625                        | 1.5000                                       | .281                                          | .250                                          | 1.216                                        | .015                                                     | 5000                                     | 2200                                     | 2170                                                                                | 2020    |

### MS27647

Airframe Bearing  
Antifriction, Self-Aligning  
Light and Heavy Duty



Without lubrication groove



With lubrication groove



| MS<br>Dash #<br>MS27647 | B<br>BORE<br>+.0000<br>-.0005 | D<br>OUTSIDE<br>DIAMETER<br>+.0000<br>-.0005 | W<br>WIDTH<br>INNER<br>RING<br>+.000<br>-.005 | H<br>WIDTH<br>OUTER<br>RING<br>+.000<br>-.005 | A<br>SHOULDER<br>DIAMETER<br>INNER<br>APPROX | E<br>INNER<br>RING BORE<br>CHAMFER<br>+.015<br>-.000 | C<br>OUTER<br>(c) RING OD<br>CHAMFER<br>+.015<br>-.000 | RADIAL<br>LIMIT<br>LOAD<br>RATING<br>LBS | THRUST<br>LIMIT<br>LOAD<br>RATING<br>LBS | RADIAL LOAD<br>RATING(LBS)<br>FOR AVERAGE LIFE OF 10,000<br>COMPLETE 90° CYCLES (e) |         |
|-------------------------|-------------------------------|----------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|---------|
|                         |                               |                                              |                                               |                                               |                                              |                                                      |                                                        |                                          |                                          | CASE I                                                                              | CASE II |
| -4A                     | .2500                         | .6250                                        | .562                                          | .500                                          | .338                                         | .005                                                 | .016                                                   | 1400                                     | 500                                      | 1050                                                                                | 960     |
| -4                      | .2500                         | .7500                                        | .875                                          | .750                                          | .372                                         | .005                                                 | .016                                                   | 2700                                     | 900                                      | 2070                                                                                | 1850    |
| -5                      | .3125                         | .8750                                        | .938                                          | .813                                          | .466                                         | .005                                                 | .016                                                   | 5140                                     | 1600                                     | 2600                                                                                | 2320    |
| -6                      | .3750                         | 1.063                                        | 1.188                                         | 1.063                                         | .570                                         | .005                                                 | .016                                                   | 8440                                     | 2600                                     | 4220                                                                                | 3740    |
| -8                      | .5000                         | 1.438                                        | 1.500                                         | 1.375                                         | .709                                         | .005                                                 | .032                                                   | 15520                                    | 4700                                     | 7610                                                                                | 6520    |

## 3M™ PRODUCT LINE

### ELECTRICAL TAPE

Black, Premium grade vinyl electrical tape  
Highly conformable, Super stretchy  
Resists UV rays, abrasion and corrosion

| Part Number       | Size | Length  |
|-------------------|------|---------|
| 3M-SUPER33+3/4X20 | 3/4" | 20 ft.  |
| 3M-SUPER33+3/4X44 | 3/4" | 44 ft.  |
| 3M-SUPER33+3/4X36 | 3/4" | 36 yds. |
| 3M-SUPER33+1X36   | 1"   | 36 yds. |



### 5958FRVHB™ FLAME RETARDANT TAPE

Black, Pressure Sensitive, Very conformable, Double-sided  
High strength, Durable, Used for bonding,  
attaching, cushioning, dampening, and  
impact resistance  
40.0 mil thick

| Part Number   | Size    |
|---------------|---------|
| 3M-5958FR-1X3 | 1" x 3" |
| 3M-5958FR-3X3 | 3" x 3" |



### ELECTRICAL TAPE WITH DISPENSER

Black, Premium grade vinyl electrical tape  
10 rolls of tape per dispenser.



| Part Number  | Size | Length |
|--------------|------|--------|
| 3M-SUPER33+D | 3/4" | 66 ft. |

### VHB™ TAPE - 4920

White, High Strength  
Double-sided, Pressure Sensitive, 15.0 mil thick,  
72 Yds per roll

| Part Number    | Size |
|----------------|------|
| 3M-VHB4920-3/4 | 3/4" |
| 3M-VHB4920-1   | 1"   |



### VHB™ TAPE - 4950

White, High Strength  
Double-sided, Pressure Sensitive, 45.0 mil thick,  
36 Yds per roll

| Part Number    | Size |
|----------------|------|
| 3M-VHB4950-1/2 | 1/2" |
| 3M-VHB4950-3/4 | 3/4" |
| 3M-VHB4950-1   | 1"   |



### PAINTER'S TAPE - 2090

ScotchBlue™ Multi-use Masking Tape  
60 yds. per roll



| Part Number   | Size   |
|---------------|--------|
| 3M-2090-3/4   | 3/4"   |
| 3M-2090-1     | 1"     |
| 3M-2090-1-1/2 | 1-1/2" |
| 3M-2090-2     | 2"     |

### SCOTCH® PERFORMANCE MASKING TAPE - 232

Performance, Premium grade paper tape. Natural rubber adhesive for good instant adhesion. 60 yds per roll

| Part #     | Size |
|------------|------|
| 3M-232-3/4 | 3/4" |
| 3M-232-1   | 1"   |
| 3M-232-2   | 2"   |



### SCOTCH® FINE LINE - 218

Pin striping tape  
Thin, conformable green polypropylene film  
Instant adhesion  
60 yds per roll

| Part #     | Size |
|------------|------|
| 3M-218-1/4 | 1/4" |
| 3M-218-1/2 | 1/2" |
| 3M-218-1   | 1"   |



### ALUMINUM FOIL TAPE - 425

Dead-soft aluminum foil backing  
Applications include masking of sensitive parts to protect from damage during aircraft paint stripping. 60 yds/roll



| Part Number | Size |
|-------------|------|
| 3M-425-1/2  | 1/2" |
| 3M-425-3/4  | 3/4" |
| 3M-425-2    | 2"   |

### THERMOSETTABLE GLASS CLOTH TAPE - 365

Rubber resin adhesive  
For many applications requiring high adhesion  
8.3 mil, 60 yds per roll

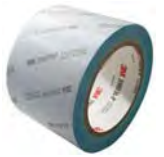
| Part Number | Size |
|-------------|------|
| 3M-365-1    | 1"   |
| 3M-365-2    | 2"   |



### GLASS CLOTH TAPE 398-FRP

Strong, High Temp. resistance,  
Tough, Durable, Superior Abrasion resistance  
Flame retardant  
36 yds per roll

| Part Number | Size |
|-------------|------|
| 3M-398FRP-2 | 2"   |
| 3M-398FRP-3 | 3"   |



### SCOTCH® ADHESIVE TRANSFER TAPE - 950

Attaches foam & gaskets  
Excellent adhesion to most plastics, high tack  
60 yds per roll



| Part Number | Size |
|-------------|------|
| 3M-950-1    | 1"   |
| 3M-950-2    | 2"   |

### POLY MASKING TAPE - 5903

Poly tape comprised of heavy duty polyethylene film & synthetic rubber adhesive.  
UV weather resistant  
Color: Red, 60 yds/roll

| Part #        | Size   |
|---------------|--------|
| 3M-5903-1-7/8 | 1.875" |
| 3M-5903-4     | 4"     |



### EROSION TAPE - 8672

Thermoplastic polyurethane elastomer.  
Scratch, puncture and impact resistant.  
36 yds per roll

| Part Number   | Size   |
|---------------|--------|
| 3M-8672-1-1/4 | 1-1/4" |
| 3M-8672-2     | 2"     |
| 3M-8672-3     | 3"     |
| 3M-8672-4     | 4"     |



## 3M™ PRODUCT LINE

### GREEN CORPS™ CUT OFF WHEEL

Provide high cut rates and long life on most materials including: fiberglass, stainless steel, steel, and Aerospace alloys.



| Part Number | Dia. | Thk   | Hole Size |
|-------------|------|-------|-----------|
| 3M-01985    | 3"   | 1/32" | 3/8"      |
| 3M-01986    | 3"   | 1/16" | 3/8"      |
| 3M-01994    | 4"   | 1/32" | 3/8"      |
| 3M-82238    | 3"   | 1/32" | 1/4"      |
| 3M-88755    | 4"   | 1/32" | 1/4"      |

### ROLOC™ TR DISC

Scotch-Brite™ Surface Conditioning Disc. For cleaning, finishing, blending, and deburring applications.



| Part Number   | Size | Grade | Part Number | Size | Grade |
|---------------|------|-------|-------------|------|-------|
| 3M-TR-1-1/2-F | 1.5" | AVFN  | 3M-TR-2-M   | 2"   | AMED  |
| 3M-TR-1-1/2-M | 1.5" | AMED  | 3M-TR-3-F   | 3"   | AVFN  |
| 3M-TR-1-1/2-C | 1.5" | ACRS  | 3M-TR-3-M   | 3"   | AMED  |
| 3M-TR-2-F     | 2"   | AVFN  | 3M-TR-3-C   | 3"   | ACRS  |

### DEBURRING WHEEL

Scotch-Brite™ Cut & Polish Wheel. Gives uniform brushed satin finish to parts and deburrs quick & easy 6" x 1"



| Part Number | Grade | Hole Size |
|-------------|-------|-----------|
| 3M-WHEEL-7A | Med   | 1/2"      |
| 3M-WHEEL-7S | Fine  | 1"        |

### ROLOC™ TREX UNITIZED WHEEL

Scotch-Brite™ Surface Conditioning Wheel. High performance and durability for deburring and finishing applications



| Part Number     | Size | Grade  |
|-----------------|------|--------|
| 3M-TR-EXL-2-M2A | 1.5" | MED 2A |
| 3M-TR-EXL-2-M6A | 1.5" | MED 6A |
| 3M-TR-EXL-3-M2A | 1.5" | MED 2A |
| 3M-TR-EXL-3-M6A | 2"   | MED 6A |

### LIGHT DUTY HAND PAD

Scotch-Brite™ Sanding Pad For light cleaning and fine finishing. 6" x 9"



| Part #  | Grade |
|---------|-------|
| 3M-7445 | Fine  |

### HEAVY DUTY HAND PAD

Scotch-Brite™ Sanding Pad For heavy cleaning, deburring, & finishing. 6" x 9"



| Part #  | Grade |
|---------|-------|
| 3M-7440 | Med   |

### FLEXIBLE SANDING PAD

For dry or wet sanding paint, metal, plastic, or wood. Abrasive on both sides. 4-3/4" x 3-3/4" x 1/2"



| Part Number | Grade |
|-------------|-------|
| 3M-CPFSP-F  | Fine  |
| 3M-CPFSP-M  | Med   |

### RUBBER & GASKET ADHESIVE - 847

Scotch-Grip™ Adhesive Premium, reddish brown, multi-purpose. Bonding, gluing & joining.



| Part Number |
|-------------|
| 3M-847-5OZ  |

### THREADLOCKER

Scotch-Weld™ For locking, sealing gluing & bonding threaded fasteners.



Comparable to:  
Loctite Threadlocker

| Part #     | Color  |
|------------|--------|
| 3M-TL22-50 | Purple |
| 3M-TL42-50 | Blue   |
| 3M-TL62-50 | Red    |
| 3M-TL77-50 | Red    |

### SCOTCHMATE FASTENERS

Hook and Loop, Black Sticky Back 2" x 50 yds per Roll



| Part Number  | Type |
|--------------|------|
| 3M-SJ3572-2H | Hook |
| 3M-SJ3572-2L | Loop |

### CONTACT ADHESIVE

Scotch-Grip HP 1357 High performance, long bonding range & excellent initial strength. 1 pint cans



| Part Number | Color      |
|-------------|------------|
| 3M-1357-G   | Grey/Olive |
| 3M-1357-N   | Natural    |

### NOVEC™ CONTACT CLEANER

Removes light oils, greases, silicones, & dust from electrical equipment.



| Part #   | Size   |
|----------|--------|
| 3M-NOVEC | 11 oz. |

### EPOXY ADHESIVE

Scotch-Weld™ 2216 B/A Flexible, 2 Part Epoxy Gray



| Part Number   | Size   |
|---------------|--------|
| 3M-2216BA-2OZ | 2 oz.  |
| 3M-2216BA-1PT | 1 pint |



## DOW CORNING SILICONE SEALANT

Multi-purpose RTV Sealant



| Part #         | Color |
|----------------|-------|
| RTV732-CLR-3OZ | Clear |
| RTV732-WHI-3OZ | White |
| RTV732-BLK-3OZ | Black |

## MOMENTIVE SILICONE SEALANTS (Formerly GE)

Available in 3 Colors



| Part #         | Color |
|----------------|-------|
| RTV102-WHI-3OZ | White |
| RTV103-BLK-3OZ | Black |
| RTV108-CLR-3OZ | Clear |

## AVBLEND

Micro-lube Oil Supplement  
4 cylinder engines require 1 can  
per oil change, 6 cylinder engines  
require 2.



| Part #  | Size       |
|---------|------------|
| AVBLEND | 12 oz. Can |

## CRC SILICONE SEALANTS

For general-purpose sealing, bonding,  
protecting, & waterproofing. White is  
for high moisture, indoor/outdoor  
applications. Clear forms a barely  
visible, water-tight seal.



| Part #      | Color |
|-------------|-------|
| RTV-WHI-8OZ | White |
| RTV-CLR-8OZ | Clear |

## 20214

Plexus™ Anti-Static  
Plastic Cleaner,  
Protectant, & Polish  
13 Oz. Aerosol Can



## PHF204

Prist® Hi-Flash™ Hi-Flo™  
Anti-Icing Aviation  
Fuel Additive  
20 Oz. Can  
MIL-I-85470



## PGC13

Prist® Acrylic, Plastic,  
and Glass Cleaner  
13 Oz. Aerosol Can  
MIL-P-008184D



## LPS PRODUCTS

11 oz. Aerosol Cans



| Part # | Product                               |
|--------|---------------------------------------|
| LPS-1  | LPS-1 - Greaseless Lubricant          |
| LPS-2  | LPS-2 - Industrial Strength Lubricant |
| LPS-3  | LPS-3 - Rust Inhibitor                |

## LPS PRODUCTS

Cleaners & Anti-seize  
15 oz. Cans



| Part # | Product                                         |
|--------|-------------------------------------------------|
| 01420  | LPS PreSolve® - Orange Degreaser (15 oz.)       |
| 02908  | LPS Copper Anti-Seize (1/2 lb. Can)             |
| 03520  | LPS ZeroTri® - Heavy Duty Degreaser (15 oz.)    |
| 04016  | LPS NoFlash® - Electro Contact Cleaner (15 oz.) |

## AEROSHELL GREASE

Aviation Grease  
14 oz. Cartridges



| Part Number        |
|--------------------|
| AEROSHELL 5 GREASE |
| AEROSHELL 6 GREASE |
| AEROSHELL 7 GREASE |

## MOBIL GREASE 28

Aviation Grease  
13.7 oz. Cartridge



| Part Number     |
|-----------------|
| MOBIL GREASE 28 |

## ROYCO 22 CF

Aviation Grease  
14 oz. Cartridge



| Part Number        |
|--------------------|
| ROYCO 22 CF (14oz) |



## TEMPO AIRCRAFT ENAMEL

Recommended for Interior and Exterior Aluminum or Steel Surfaces

| Product     | Part # |
|-------------|--------|
| Black       | A1100  |
| Flatblack   | A1102  |
| Medium Gray | A1105  |
| Gloss White | A1109  |
| Red         | A1120  |



## TEMPO AIRCRAFT ENGINE ENAMEL

16 oz. Spray Cans

| Product          | Part # |
|------------------|--------|
| Lycoming Gray    | A219   |
| Continental Gold | A239   |
| Gloss Black      | A241   |



## TEMPO ZINC PHOSPHATE PRIMERS

For bare Aluminum and Steel - 11 oz. Cans

| Product         | Part # | Old #    |
|-----------------|--------|----------|
| Yellow - Primer | A701   | A7-6889  |
| Green - Primer  | A702   | A7-6889A |



## TEMPO EPOXY PROPELLER COATING

12 oz. Cans

| Product     | Part # |
|-------------|--------|
| Flat Black  | A150   |
| Medium Gray | A151   |
| White       | A152   |



## LACING CORD

MIL-T-43435B

Black, Type 1



## CORROSION X

Part # 80102

Corrosion Inhibitor

16 oz. Cans



## NAS1756-24

Warning Streamer



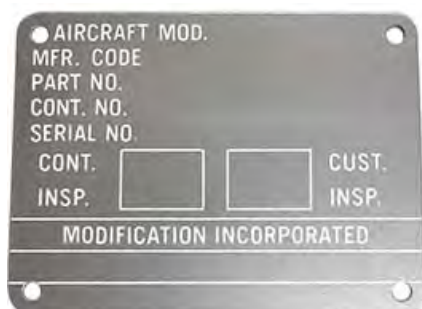
## BRAKE LINING RIVET

105002-00



## ID PLATE

MS27253-1



## CLEVELAND BRAKE PADS



| New #     | Old Part #       |
|-----------|------------------|
| 066-10500 | 066-105<br>66-30 |



## MS20001

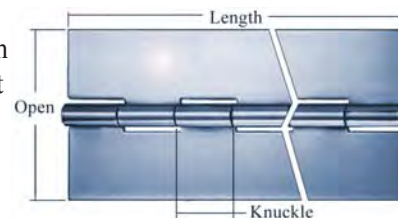
Hinge,  
Structural  
Extruded  
6 Ft. Length



| MS20001 | A<br>WIDTH | THICKNESS |      | G     |       |
|---------|------------|-----------|------|-------|-------|
|         |            | MAX       | MIN  | MAX   | MIN   |
| -2      | 1.062      | .056      | .044 | .630  | .612  |
| -3      | 1.250      |           |      | .724  | .706  |
| -4      | 1.500      |           |      | .850  | .830  |
| -5      | 1.750      |           |      | .975  | .955  |
| -6      | 2.000      |           |      | 1.102 | 1.078 |

## MS20257

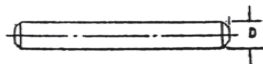
Hinge, Continuous  
(P) Anodized Aluminum  
(C) Corrosion Resistant  
6 Ft. Length



| MS20257<br>7200<br>ALUMINUM |    | CRES | A<br>WIDTH<br>(OPEN) | THICKNESS   |      |
|-----------------------------|----|------|----------------------|-------------|------|
|                             |    |      |                      | AL<br>ALLOY | CRES |
| -1                          | P1 | C1   | .750                 | .032        | .031 |
| -2                          | P2 | C2   | 1.062                |             | .037 |
| -3                          | P3 | C3   | 1.250                | .040        | .050 |
| -4                          | P4 | C4   | 1.500                |             |      |
| -5                          | P5 | C5   | 2.000                | .051        | .062 |
| -6                          | P6 | C6   | 2.000                | .064        |      |

## MS20253

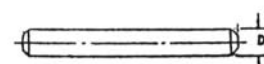
Hinge Pin, 6 ft.  
Passivated



| Diameter | MS20253 |
|----------|---------|
| .062     | 1-7200  |
| .089     | 2-7200  |
| .117     | 3-7200  |
| .179     | 4-7200  |
| .129     | 5-7200  |

## MS20253P

Hinge Pin, 6 ft.  
Cad Plated



| Diameter | MS20253 |
|----------|---------|
| .062     | P1-7200 |
| .089     | P2-7200 |
| .117     | P3-7200 |
| .179     | P4-7200 |
| .129     | P5-7200 |

**\*\* U.P.S. imposes a handling fee for hinges. \*\***

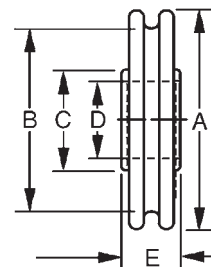
**Please consider longer term usage when ordering hinges to reduce your per each cost.**

## AIRCRAFT PULLEYS

MS20219 - Secondary Control Pulley

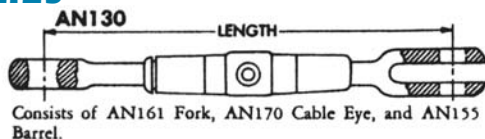
MS20220 - Flight Control Pulley

MS24566 - Anti-friction Bearing, Control Pulley

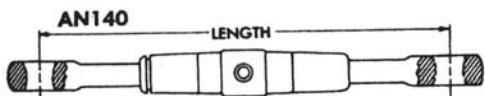


| Pulley     | Cable Size       | A<br>Dia. | B<br>Dia. | C<br>Dia. | D<br>Dia. | E<br>Dia. | Allowable Load<br>Limit (Lbs.) |
|------------|------------------|-----------|-----------|-----------|-----------|-----------|--------------------------------|
| MS20219-1  | 1/16, 3/32       | 1.312     | 1.000     | .373      | .2500     | .438      | 480                            |
| MS20219-2  | 1/16, 3/32       | 1.750     | 1.438     | .423      | .2500     | .438      | 480                            |
| MS20219-3  | 1/16, 3/32       | 1.750     | 1.438     | .769      | .6250     | .438      | 480                            |
| MS20219-4  | 1/16, 3/32       | 2.625     | 2.312     | .423      | .2500     | .438      | 920                            |
| MS20220-1  | 1/8, 5/32, 3/16  | 1.750     | 1.255     | .465      | .3125     | .625      | 500                            |
| MS20220-2  | 1/8, 5/32, 3/16  | 3.000     | 2.500     | .474      | .3125     | .625      | 1680                           |
| MS20220-3  | 1/8, 5/32, 3/16  | 4.250     | 3.750     | .474      | .3125     | .625      | 2500                           |
| MS20220-4  | 1/8, 5/32, 3/16  | 5.500     | 5.000     | .474      | .3125     | .625      | 2500                           |
| MS24566-1B | 1/16, 5/64, 3/32 | 1.250     | .972      | .297      | .1900     | .297      | 185                            |
| MS24566-2B | 1/16, 5/64, 3/32 | 2.500     | 2.222     | .332      | .1900     | .297      | 500                            |
| MS24566-3B | 1/8, 5/32, 3/16  | 2.000     | 1.510     | .390      | .2500     | .484      | 450                            |
| MS24566-4B | 1/8, 5/32, 3/16  | 3.500     | 3.010     | .390      | .2500     | .484      | 1200                           |
| MS24566-5B | 3/16, 1/4        | 5.000     | 4.374     | .591      | .3750     | .625      | 2000                           |

## COMPLETE TURNBUCKLE ASSEMBLIES



Consists of AN161 Fork, AN170 Cable Eye, and AN155 Barrel.



Consists of two AN170 Cable Eyes, and a AN155 Barrel.

## MS21260

(AN669)

Stud Terminal,  
Long Wire Rope



| MS21260 |       | Length | Thread  | Cable Dia. (In.) |
|---------|-------|--------|---------|------------------|
| Left    | Right |        |         |                  |
| -L2LH   | -L2RH | 3.67   | 6-40    | 1/16             |
| -L3LH   | -L3RH | 3.86   | 10-32   | 3/32             |
| -L4LH   | -L4RH | 4.28   | 1/4-28  | 1/8              |
| -L5LH   | -L5RH | 4.66   | 1/4-28  | 5/32             |
| -L6LH   | -L6RH | 4.78   | 5/16-24 | 3/16             |

## MS21251

(AN155)

Turnbuckle Barrel



| MS21251 Dash # | AN155 Dash # | Thread  | Length (In.) | Dia. |
|----------------|--------------|---------|--------------|------|
| -B2S           | 8S           | 6-40    | 2 1/4        | .250 |
| -B2L           | 8L           |         | 4            |      |
| -B3S           | 16S          | 10-32   | 2 1/4        | .344 |
| -B3L           | 16L          |         | 4            |      |
| -B5S           | 32S          | 1/4-28  | 2 1/4        | .438 |
| -B5L           | 32L          |         | 4            |      |
| -B6S           | 46S          | 5/16-24 | 2 1/4        | .500 |
| -B6L           | 46L          |         | 4            |      |

## MS21260

(AN669)

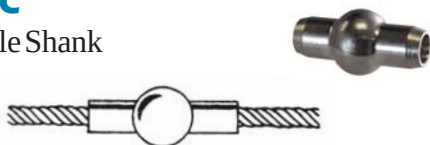
Turnbuckle End Short



| MS21260 |       | Length | Thread  | Cable Dia. (In.) |
|---------|-------|--------|---------|------------------|
| Left    | Right |        |         |                  |
| -S2LH   | -S2RH | 2.79   | 6-40    | 1/16             |
| -S3LH   | -S3RH | 2.98   | 10-32   | 3/32             |
| -S4LH   | -S4RH | 3.40   | 1/4-28  | 1/8              |
| -S5LH   | -S5RH | 3.78   | 1/4-28  | 5/32             |
| -S6LH   | -S6RH | 3.90   | 5/16-24 | 3/16             |

## MS20663C

Ball and Double Shank

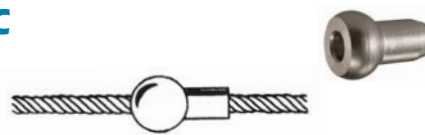


| MS20663 | Cable Dia. (In.) | Minimum Breaking Strength | Hole Size (In.) |
|---------|------------------|---------------------------|-----------------|
| C2      | 1/16             | 480                       | .073            |
| C3      | 3/32             | 920                       | .104            |
| C4      | 1/8              | 2,000                     | .139            |
| C5      | 5/32             | 2,800                     | .169            |
| C6      | 3/16             | 4,200                     | .201            |

## MS20664C

Ball and Shank

Cable End



| MS20664 | Cable Dia. (In.) | Minimum Breaking Strength | Hole Size (In.) |
|---------|------------------|---------------------------|-----------------|
| C2      | 1/16             | 480                       | .073            |
| C3      | 3/32             | 920                       | .104            |
| C4      | 1/8              | 2,000                     | .139            |
| C5      | 5/32             | 2,800                     | .169            |
| C6      | 3/16             | 4,200                     | .201            |

## MS20667

(AN667)

Fork End



| MS20667 | Length | Cable Dia. (In.) | Pin Hole Dia (In.) |
|---------|--------|------------------|--------------------|
| -2      | 1.572  | 1/16             | .190               |
| -3      | 1.945  | 3/32             | .190               |
| -4      | 2.352  | 1/8              | .190               |
| -5      | 2.655  | 5/32             | .250               |
| -6      | 3.071  | 3/16             | .313               |

## MS20668

(AN668)

Eye End



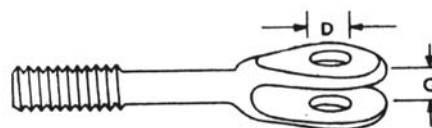
| MS20668 | Length | Cable Dia. (In.) | Pin Hole Dia (In.) |
|---------|--------|------------------|--------------------|
| -2      | 1.80   | 1/16             | .190               |
| -3      | 2.16   | 3/32             | .190               |
| -4      | 2.60   | 1/8              | .190               |
| -5      | 3.00   | 5/32             | .250               |
| -6      | 3.19   | 3/16             | .313               |



## MS21252

(AN161)

Turnbuckle Fork

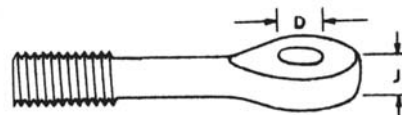


| MS Dash #   | AN161      | Thread | Length | Cable       | G    | D    |
|-------------|------------|--------|--------|-------------|------|------|
| MS21252-2RS | AN161-8RS  | 6-40   | 1.500  | 1/16        | .109 | .190 |
| MS21252-2LS | AN161-8LS  |        | 1.500  |             |      |      |
| MS21252-3RS | AN161-16RS | 10-32  | 1.625  | 3/32        | .156 | .190 |
| MS21252-3LS | AN161-16LS |        | 1.625  |             |      |      |
| MS21252-4RS | AN161-22RS | 1/4-28 | 1.844  | 1/8         | .195 | .190 |
| MS21252-4LS | AN161-22LS |        | 1.844  |             |      |      |
| MS21252-5RS | AN161-32RS | 1/4-28 | 1.844  | 1/8 or 5/32 | .218 | .250 |
| MS21252-5LS | AN161-32LS |        | 1.844  |             |      |      |

## MS21254

(AN165)

Pin Eye



1st Letter Following Dash # Indicates Right or Left.

| MS Dash #   | AN165      | Thread | Length | Cable Dia. | J    | D    |
|-------------|------------|--------|--------|------------|------|------|
| MS21254-2RS | AN165-8RS  | 6-40   | 1.500  | 1/16       | .125 | .190 |
| MS21254-2LS | AN165-8LS  |        | 1.500  |            |      |      |
| MS21254-3RS | AN165-16RS | 10-32  | 1.625  | 3/32       | .188 | .190 |
| MS21254-3LS | AN165-16LS |        | 1.625  |            |      |      |
| MS21254-5RS | AN165-32RS | 1/4-28 | 1.750  | 5/32       | .219 | .250 |
| MS21254-5LS | AN165-32LS |        | 1.750  |            |      |      |

## MS21255

(AN170)

Cable Eye



1st Letter Following Dash # Indicates Right or Left.  
Last Letter Indicates Short or Long.

| MS Dash #   | AN170      | Thread | Length | Cable | J    | D    |
|-------------|------------|--------|--------|-------|------|------|
| MS21255-2RS | AN170-8RS  | 6-40   | 1.500  | 1/16  | .125 | .188 |
| MS21255-2LS | AN170-8LS  |        | 1.500  |       |      |      |
| MS21255-3RS | AN170-16RS | 10-32  | 1.625  | 3/32  | .188 | .219 |
| MS21255-3LS | AN170-16LS |        | 1.625  |       |      |      |
| MS21255-5RS | AN170-32RS | 1/4-28 | 1.750  | 5/32  | .219 | .281 |
| MS21255-5LS | AN170-32LS |        | 1.750  |       |      |      |

## MS21259

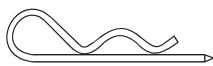
Stud End



| Right Hand Thread | Left Hand Thread | Length | Thread Size | Cable Dia. (In.) |
|-------------------|------------------|--------|-------------|------------------|
| MS21259-2RH       | MS21259-2LH      | 2.65   | 6-40        | 1/16             |
| MS21259-3RH       | MS21259-3LH      | 3.00   | 10-32       | 3/32             |
| MS21259-4RH       | MS21259-4LH      | 3.59   | 1/4-28      | 1/8              |
| MS21259-5RH       | MS21259-5LH      | 3.79   | 1/4-28      | 5/32             |
| MS21259-6RH       | MS21259-6LH      | 4.002  | 5/16-24     | 3/16             |

## AN415 AN416

Locking Pins



AN415



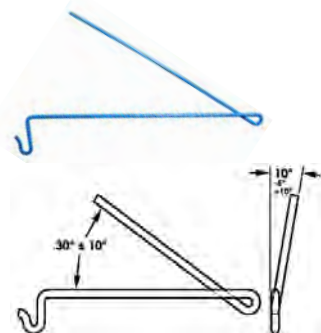
AN416

| Part #    | Dash #  | Wire Dia. | Length  |
|-----------|---------|-----------|---------|
| AA55487-2 | AN415-2 | .080      | 1-15/16 |
| AA55487-3 | AN415-3 | .0295     | 1-9/32  |
| AA55488-1 | AN416-1 | .051      | 1-1/16  |
| AA55488-2 | AN416-2 | .041      | 3/4     |

## MS21256

Locking Clip  
Stainless Steel

Sold in 50 or  
100 Quantities



| MS21256 | Length |
|---------|--------|
| 1       | 1.078  |
| 2       | 1.955  |
| 3       | 2.015  |

## AN100

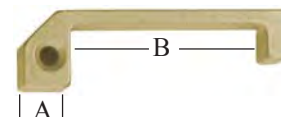
Cable Thimble



| To Fit<br>Cable Dia. | Steel   | Stainless |
|----------------------|---------|-----------|
|                      | Part#   | Part #    |
| 1/16-5/64            | AN100-3 | AN100C3   |
| 3/32-1/8             | AN100-4 | AN100C4   |
| 5/32                 | AN100-5 | AN100C5   |
| 3/16                 | AN100-6 | AN100C6   |

## NAS559

Lock Rod-End



| NAS559 | Thread O.D. | A    | B    |
|--------|-------------|------|------|
| 1      | 1/4 & 5/16  | .036 | .250 |
| 2      | 3/8         | .036 | .281 |
| 3      | 7/16 & 12   | .049 | .344 |

## NICOPRESS SLEEVE

### MS51844

18- Unplated Copper  
28 - Plated Copper



| To Fit<br>Cable Dia. | Unplated |        | Plated  |        |
|----------------------|----------|--------|---------|--------|
|                      | MS51844  | Mfr.#  | MS51844 | Mfr.#  |
| 1/16                 | -42      | 18-1-C | -22     | 28-1-C |
| 3/32                 | -43      | 18-2-G | -23     | 28-2-G |
| 1/8                  | -44      | 18-3-M | -24     | 28-3-M |
| 5/32                 | -45      | 18-4-P | -25     | 28-4-P |

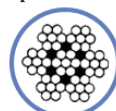
## CONTROL CABLE

Per MIL-W83420

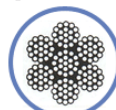
Stainless Steel

| 7 X 7 Cable  | Max. Strength (Lbs.) |
|--------------|----------------------|
| 1/16 DIA.    | 480                  |
| 3/32 DIA.    | 920                  |
| 7 X 19 Cable | Max. Strength (Lbs.) |
| 1/16 DIA.    | 480                  |
| 3/32 DIA.    | 920                  |
| 1/8 DIA.     | 1700                 |
| 5/32 DIA.    | 2400                 |

Close-up view of 7x7 cable



Close-up view of 7x19 cable



## MS27975

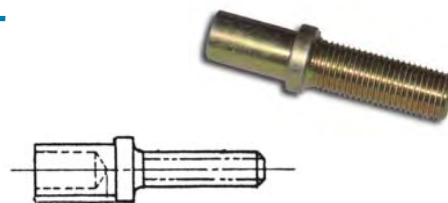
Clevis Rod End



| MS27975 | Type Fork | Hole Dia. | Ultimate Axial Load |
|---------|-----------|-----------|---------------------|
| 1       | WIDE      | .250      | 3800 lbs.           |
| 2       | NARROW    | .250      | 2850 lbs.           |
| 3       | WIDE      | .188      | 4700 lbs.           |
| 4       | NARROW    | .188      | 3500 lbs.           |

## AN490HT

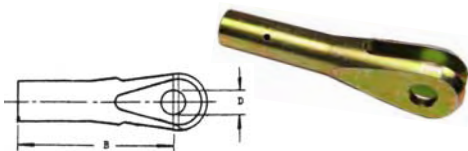
Rod End  
Threaded



| Part #    | Thread | Diameter | Tube Size |
|-----------|--------|----------|-----------|
| AN490HT6P | 1/4-28 | .375     | 3/8       |
| AN490HT8P |        | .500     | 1/2       |

## AN665

Clevis Type  
Tie Rod



| PART #    | Thread  | D Dia | B Length |
|-----------|---------|-------|----------|
| AN665-21R | 10-32   | .190  | 1.537    |
| AN665-34R | 1/4-28  | .250  | 1.813    |
| AN665-46R | 5/16-24 | .313  | 1.875    |

## AN115

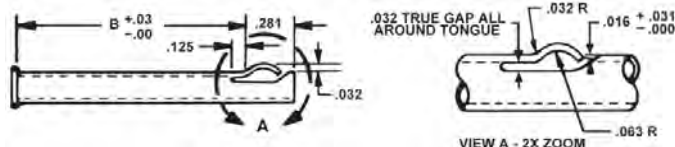
Shackle



| Part #   | A Diameter | Strength  |
|----------|------------|-----------|
| AN115-8  | .188       | 800 lbs.  |
| AN115-16 | .188       | 1600 lbs. |
| AN115-21 | .188       | 2100 lbs. |
| AN115-32 | .250       | 3200 lbs. |

## NAS427

Pulley Guard Pin



| NAS427K | Length | NAS427K | Length |
|---------|--------|---------|--------|
| -6      | .38    | -18     | 1.12   |
| -9      | .56    | -20     | 1.25   |
| -10     | .62    | -21     | 1.31   |
| -11     | .69    | -24     | 1.50   |
| -12     | .75    | -26     | 1.62   |
| -13     | .81    | -34     | 2.12   |
| -14     | .88    | -42     | 2.62   |
| -16     | 1.00   | -46     | 2.88   |

## MS20995

Safety Wire

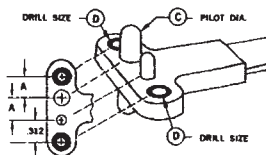
| Wire Dia. | Corrosion Resistant (C) | Copper (CU) | Nickel-Copper Alloy (N) |
|-----------|-------------------------|-------------|-------------------------|
|           | MS20995                 | MS20995     | MS20995                 |
| .020      | C20                     | CU20        | N20                     |
| .021      | C21                     | CU21        | N21                     |
| .025      | C25                     | CU25        | N25                     |
| .032      | C32                     | CU32        | N32                     |
| .040      | C40                     | CU40        | N40                     |
| .041      | C41                     | CU41        | N41                     |



## DRILL SIZE #40

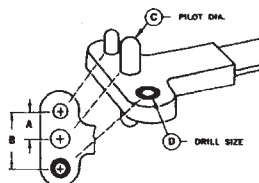
## PLATE NUT DRILL JIGS

### ONE LUG NUT PLATE



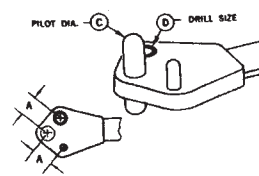
| Part No. | Bolt Size Ref. | A    | C    |
|----------|----------------|------|------|
| AIT518G  | #6             | .344 | .139 |
| AIT518H  | #8             | .344 | .164 |
| AIT518J  | #10            | .344 | .191 |
| AIT518K  | 1/4"           | .344 | .248 |

### TWO LUG NUT PLATE



| Part No. | Bolt Size Ref. | A    | C     |
|----------|----------------|------|-------|
| AIT518A  | #6             | .344 | .688  |
| AIT518B  | #8             | .344 | .688  |
| AIT518C  | #10            | .344 | .688  |
| AIT518D  | 1/4"           | .500 | 1.000 |

### CORNER NUT PLATE

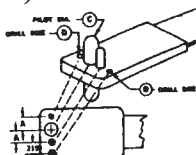


\*Drill size #30

| Part No. | Bolt Size Ref. | A    | C    |
|----------|----------------|------|------|
| AIT518S  | #8             | .344 | .164 |
| AIT518T  | #10            | .344 | .191 |
| AIT518U  | 1/4"           | .500 | .248 |
| AIT518V* | 5/16"          | .500 | .372 |

### ONE LUG NUT PLATE

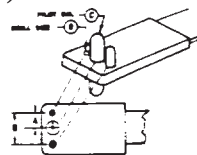
(Miniature)



| Part No.  | Bolt Size Ref. | A    | C    |
|-----------|----------------|------|------|
| AIT518-PA | #4             | .203 | .122 |
| AIT518-PB | #6             | .218 | .139 |
| AIT518-PC | #8             | .234 | .164 |
| AIT518-PD | #10            | .250 | .191 |
| AIT518-PE | #1/4"          | .281 | .248 |

### TWO LUG NUT PLATE

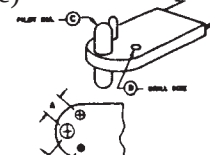
(Miniature)



| Part No.  | Bolt Size Ref. | A    | C    |
|-----------|----------------|------|------|
| AIT518-NA | #4             | .203 | .122 |
| AIT518-NB | #6             | .218 | .139 |
| AIT518-NC | #8             | .234 | .164 |
| AIT518-ND | #10            | .250 | .191 |
| AIT518-NE | #1/4"          | .281 | .248 |

### CORNER NUT PLATE

(Miniature)



| Part No.  | Bolt Size Ref. | A    | C    |
|-----------|----------------|------|------|
| AIT518-SA | #4             | .203 | .122 |
| AIT518-SB | #6             | .218 | .139 |
| AIT518-SC | #8             | .234 | .164 |
| AIT518-SD | #10            | .250 | .191 |

## STRAP DUPLICATORS - LENGTH 6-1/4"

### BUSHING TYPE



| Part No.  | Size |
|-----------|------|
| TPMM250-1 | #40  |
| TPMM250-2 | #30  |
| TPMM250-3 | #21  |
| TPMM250-5 | #10  |
| TPMM250-7 | #F   |

### INVERTED TYPE



| Part No.  | Size |
|-----------|------|
| TPMM255-1 | #40  |
| TPMM255-2 | #30  |
| TPMM255-3 | #21  |
| TPMM255-5 | #10  |
| TPMM255-7 | #F   |

### PUNCH TYPE



| Part No.  | Size |
|-----------|------|
| TPMM260-1 | #40  |
| TPMM260-2 | #30  |
| TPMM260-3 | #21  |
| TPMM260-5 | #10  |

## PRECISION DRILL GAUGE

### TP565A

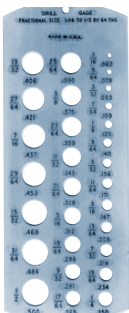
Fractional size gauge 1/16" to 1/2" in 64ths.

### TP565B

Drill & tap gauge #1 to #60, including table for tap size, tap drill & body drill for machine screws from 2-56 to 1/4"-28.

### TP565C

Letter A-Z size gauge



## UNIBIT® DRILL

High Speed Steel, 1/4" Shank  
Drills through metal and plastic  
Automatically de-burrs drilled hole



| Part #  | Number of Hole Sizes | Hole Sizes    | Step Depth | Shank Size |
|---------|----------------------|---------------|------------|------------|
| TPA5610 | 9                    | 1/4" to 3/4"  | 1/16"      | 3/8        |
| TPA5611 | 13                   | 1/8" to 1/2"  | 1/32"      | 1/4        |
| TPA5612 | 6                    | 3/16" to 1/2" | 1/16"      | 1/4        |



## AIRCRAFT DRILL BITS

Per NAS907 Specifications,  
Cobalt Extension Drill Bits,  
High Speed Steel Extension Drill Bits



| COBALT         |        |                                              |        | HIGH SPEED STEEL |
|----------------|--------|----------------------------------------------|--------|------------------|
| Jobbers Length |        | Aircraft Extension Bits<br>6" Overall Length |        | Jobbers Length   |
| SIZE           | PART#  | SIZE                                         | PART#  | R18A             |
| #10            | 01-010 | #10                                          | 05-209 | #10              |
| #16            | 01-016 | #16                                          | 05-215 | #16              |
| #20            | 01-020 | #20                                          | 05-219 | #20              |
| #21            | 01-021 | #21                                          | 05-220 | #21              |
| #27            | 01-027 | #27                                          | 05-226 | #27              |
| #30            | 01-030 | #30                                          | 05-229 | #30              |
| #40            | 01-040 | #40                                          | 05-239 | #40              |
| SIZE           | PART#  | SIZE                                         | PART#  | R10A             |
| 3/32           | 02-063 | 3/32                                         | 04-102 | 3/32             |
| 1/8            | 02-065 | 1/8                                          | 04-104 | 1/8              |
| 5/32           | 02-067 | 5/32                                         | 04-106 | 5/32             |
| 3/16           | 02-069 | 3/16                                         | 04-108 | 3/16             |
| 1/4            | 02-073 | 1/4                                          | 04-112 | 1/4              |

Drill Bit Manufacturer's Part Number may vary throughout the year.

## INSERT BITS - PHILLIPS

| 440-#                                                                             |        | 446-#                                                                             |        | TORQ-SET                                                                          |        | 1/4" Power Bit                                                                                       |         |            |
|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------|---------|------------|
|  |        |  |        |  |        |  |         |            |
| 1/4" Hex Insert                                                                   |        | 1/4" Hex Insert,<br>Limited Clearance                                             |        | 1/4" Hex Shank, Overall Length 1"                                                 |        |                                                                                                      |         |            |
| Point Size                                                                        | Part#  | Point Size                                                                        | Part#  | Point Size                                                                        | Part#  | Part#                                                                                                | Length  | Point Size |
| 1                                                                                 | 440-1X | 1                                                                                 | 446-1X | 2                                                                                 | 212-2  | 491X                                                                                                 | 1-15/16 | 1          |
|                                                                                   |        |                                                                                   |        | 3                                                                                 | 212-3  | 492X                                                                                                 | 1-15/16 | 2          |
| 2                                                                                 | 440-2X | 2                                                                                 | 446-2X | 4                                                                                 | 212-4  | 493X                                                                                                 | 1-15/16 | 3          |
|                                                                                   |        |                                                                                   |        | 6                                                                                 | 212-6  | 491AX                                                                                                | 2-1/2   | 1          |
| 3                                                                                 | 440-3X | 3                                                                                 | 446-3X | 8                                                                                 | 212-8  | 492AX                                                                                                | 2-1/2   | 2          |
|                                                                                   |        |                                                                                   |        | 10                                                                                | 212-10 | 493AX                                                                                                | 2-1/2   | 3          |

## INSERT BITS - TRIWING

| 1/4" Hex Insert, Overall Length 1"                                                                                                                          |       | POWERBIT                                                                            |       | 1/4" Hex Shank, Overall Length 2 3/8"                                                                                                                                  |            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|  |       |  |       |  |            |
| Point Size                                                                                                                                                  | Part# | Point Size                                                                          | Part# | Point Size                                                                                                                                                             | Part#      |
| #4                                                                                                                                                          | TWD-2 | #4                                                                                  | TW-2  | #4                                                                                                                                                                     | TW-2-2 3/8 |
| #6                                                                                                                                                          | TWD-3 | #6                                                                                  | TW-3  | #6                                                                                                                                                                     | TW-3-2 3/8 |
| #8                                                                                                                                                          | TWD-4 | #8                                                                                  | TW-4  | #8                                                                                                                                                                     | TW-4-2 3/8 |
| #10                                                                                                                                                         | TWD-5 | #10                                                                                 | TW-5  | #10                                                                                                                                                                    | TW-5-2 3/8 |

## CLECO FASTENERS



| STANDARD |            |          |            | SIDE CLAMP    |     |       |        |
|----------|------------|----------|------------|---------------|-----|-------|--------|
| Part #   | Color Code | Diameter | Drill Size | Part #        | Gap | Reach | Length |
| C-3/32   | ZINC       | 3/32     | #40        | CSG 1/2 x 1/2 | 1/2 | 1/2   | 2-3/16 |
| C-1/8    | COPPER     | 1/8      | #30        | CSG 3/4 x 1/2 | 3/4 | 1/2   | 2-7/16 |
| C-5/32   | BLACK      | 5/32     | #20        | CSG 1/2 x 1   | 1/2 | 1     | 2-3/16 |
| C-3/16   | BRASS      | 3/16     | #10        | CSG 3/4 x 1   | 3/4 | 1     | 2-7/16 |

## THREADED SHANK TAPER ROUTER BITS



| Part Number | Size | Small End Diam. | Length |
|-------------|------|-----------------|--------|
| 15-305      | 1    | .0810           | 1-1/4" |
| 15-306      | 2    | .1100           | 1-1/4" |
| 15-307      | 3    | .1650           | 1-1/4" |

## A/C TAPER ROUTER

Hi-speed R.H. Helix, R.H. Cut  
Taper - 1/4 per ft.



| Part Number | Size | Shank Dia. | Nom. Dia. Small End | Flute End (Inches) | Overall Length |
|-------------|------|------------|---------------------|--------------------|----------------|
| 15-301      | 1    | .0980      | .0810               | 13/16"             | 2"             |
| 15-302      | 2    | .1280      | .1100               | 7/8"               | 2-1/4"         |
| 15-303      | 3    | .1875      | .1650               | 1-1/16"            | 2-1/2"         |
| 15-304      | 4    | .2500      | .2240               | 1-1/4"             | 2-3/4"         |

## STEP DRILLS

Titanium Nitride coated



| Part Number | Size | Number of Hole Sizes | Hole Sizes  | Shank Size | Step Depth |
|-------------|------|----------------------|-------------|------------|------------|
| 38-301Tin   | 1    | 13                   | 1/8 to 1/2  | 1/4        | 1/8        |
| 38-302Tin   | 2    | 6                    | 3/16 to 1/2 | 1/4        | 3/8        |
| 38-303Tin   | 3    | 9                    | 1/4 to 3/4  | 1/8        | 1/8        |
| 38-304Tin   | 4    | 12                   | 3/16 to 7/8 | 1/8        | 1/8        |

## COBALT STOVE BURNER DRILLS

NAS937, Jobber Length M 42  
8% Cobalt, 135° Split Point



| Part Number | Drill Size | Decimal Equivalent | Flute Length | Overall Length |
|-------------|------------|--------------------|--------------|----------------|
| 13-SB10     | #10        | .1935              | 2-7/16"      | 3-5/8"         |
| 13-SB16     | #16        | .1770              | 2-3/16"      | 3-3/8"         |
| 13-SB21     | #21        | .1590              | 2-1/8"       | 3-1/4"         |
| 13-SB27     | #27        | .1440              | 1-7/8"       | 3"             |
| 13-SB30     | #30        | .1285              | 1-5/8"       | 2-3/4"         |
| 13-SB40     | #40        | .0980              | 1-3/8"       | 2-3/8"         |

## AEROSPACE TAPS



| Part Number | Description | Part Number | Description  |
|-------------|-------------|-------------|--------------|
| 23-408      | 6/32 Taper  | 23-413      | 8/32 Bottom  |
| 23-409      | 6/32 Plug   | 23-417      | 10/32 Taper  |
| 23-410      | 6/32 Bottom | 23-418      | 10/32 Plug   |
| 23-411      | 8/32 Taper  | 23-419      | 10/32 Bottom |
| 23-412      | 8/32 Plug   |             |              |

## HSS STOP COUNTERSINKS 82°

Three Flute, Integral Pilot  
1/4-28 Threaded Shank



| Part Number | Size | Decimal Equivalent | Part Number | Size | Decimal Equivalent |
|-------------|------|--------------------|-------------|------|--------------------|
| 18-038      | #40  | .0980              | 18-045      | 3/16 | .1875              |
| 18-042      | #30  | .1280              | 18-048      | #13  | .1850              |
| 18-021      | #27  | .1440              | 18-044      | #10  | .1935              |
| 18-043      | #21  | .1590              | 18-027      | 1/4  | .2500              |

## DRILL STOPS

Reduces drill breakage by controlling depth of drilled hole.



| Part Number | Drill Size | Hole Diameter | Color  |
|-------------|------------|---------------|--------|
| 30-635      | #40        | .099          | Zinc   |
| 30-636      | #30        | .130          | Copper |
| 30-633      | #27        | .146          | Zinc   |
| 30-639      | #21        | .161          | Black  |
| 30-641      | #10        | .195          | Brass  |

## TOGGLE CLAMPS

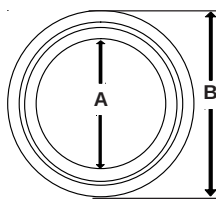
Squeeze Action,  
1/4-20 Spindle Thread,  
Neoprene Spindle



| Part Number | Holding Capacity | Jaw Reach | Jaw Gap | Overall Length |
|-------------|------------------|-----------|---------|----------------|
| 04-99210    | 100 lbs.         | 2-5/16"   | 1-1/16" | 6-7/8"         |
| 04-99211    | 200 lbs.         | 1-1/4"    | 1-1/16" | 4-5/16"        |
| 04-99215    | 200 lbs.         | 1-1/4"    | 1-1/16" | 4-5/16"        |

## MS35769 (AN900)

Gasket - Copper, Annular



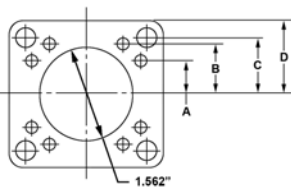
| MS35769 | AN900 | A Dia | B Dia  | Thickness | MS35769 | AN900 | A Dia   | B Dia   | Thickness |
|---------|-------|-------|--------|-----------|---------|-------|---------|---------|-----------|
| 2       | 4     | 1/4   | 1/2    | 3/32"     | 20      | 15    | 15/16   | 1-3/16  | 3/32"     |
| 5       | 5     | 5/16  | 9/16   | 3/32"     | 21      | 16    | 1       | 1-1/4   | 3/32"     |
| 6       | 6     | 3/8   | 5/8    | 3/32"     | 24      | 17    | 1-1/16  | 1-5/16  | 3/32"     |
| 8       | 7     | 7/16  | 11/16  | 3/32"     | 26      | 18    | 1-1/8   | 1-3/8   | 3/32"     |
| 9       | 8     | 1/2   | 3/4    | 3/32"     | 29      | 19    | 1-3/16  | 1-7/16  | 3/32"     |
| 10      | 9     | 9/16  | 13/16  | 3/32"     | 31      | 20    | 1-1/4   | 1-1/2   | 3/32"     |
| 11      | 10    | 5/8   | 7/8    | 3/32"     | 35      | 22    | 1-3/8   | 1-5/8   | 3/32"     |
| 12      | ---   | 5/8   | 1      | 5/64"     | 39      | 24    | 1-1/2   | 1-3/4   | 3/32"     |
| 13      | 11    | 11/16 | 15/16  | 3/32"     | 42      | 26    | 1-5/8   | 1-7/8   | 3/32"     |
| 15      | 12    | 3/4   | 1      | 3/32"     | 46      | 27    | 1-11/16 | 1-15/16 | 3/32"     |
| 17      | 13    | 13/16 | 1-1/16 | 3/32"     | 48      | 28    | 1-3/4   | 2       | 3/32"     |
| 18      | 14    | 7/8   | 1-1/8  | 3/32"     | 51      | 29    | 1-13/16 | 2-1/16  | 3/32"     |

## AS3491-01 (MS9134-01)

Gasket - Engine Accessory Drive



| AS3491-01 |        |
|-----------|--------|
| A         | 0.562" |
| B         | 0.844" |
| C         | 0.938" |
| D         | 1.219" |



## AN901

AN901-#A (Aluminum)

AN901-#C (Copper)



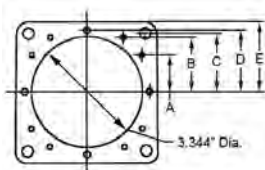
| Tube O.D. | AN901 | AN901 |
|-----------|-------|-------|
| 1/4       | 4A    | 4C    |
| 5/16      | 5A    | 5C    |
| 3/8       | 6A    | 6C    |
| 1/2       | 8A    | 8C    |
| 5/8       | 10A   | 10C   |
| 3/4       | 12A   | —     |
| 1         | 16A   | —     |

## AS3492-01 (MS9135-01)

Gasket - Engine Accessory Drive



| AS3492-01 |        |
|-----------|--------|
| A         | 1.109" |
| B         | 1.656" |
| C         | 1.768" |
| D         | 1.875" |
| E         | 2.112" |



## MS9371

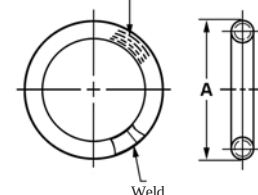
## MS9372

Gasket, Corrosion & Heat Resistant Steel Tubing, Silver Plated



| Part #     | A    | Tube Size   |
|------------|------|-------------|
| MS9371-07  | .375 | .034 - .037 |
| MS9371-11  | .500 | .034 - .037 |
| MS9371-16  | .812 | .034 - .037 |
| Part #     | A    | Tube Size   |
| MS9372-016 | .531 | .061 - .064 |
| MS9372-017 | .562 | .061 - .064 |
| MS9372-019 | .625 | .061 - .064 |
| MS9372-021 | .688 | .061 - .064 |

Surface roughness lay must be in direction shown for this distance - both sides

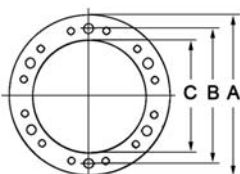


## AS3493-01 (MS9136-01)

Gasket - Engine Accessory Drive



| AS3493-01 |        |
|-----------|--------|
| A Dia.    | 6.000" |
| B Dia.    | 5.000" |
| C Dia.    | 4.188" |



## ALUMINUM SNIPS

**TP792** (12" O.A.L., 1 lb)

**TP793** (14" O.A.L., 1.31 lbs.)

- Strong & Lightweight with inlaid steel blades
- Resharpenable blades that replace easily when necessary
- Baked enamel finish
- Cuts both straight and curves



## AVIATION SNIPS COMBINATION

**TP51K** (12" O.A.L., 1 lb)

- Buy all three pieces and save
- This unique lightweight design allows cutting to be fast and easy

**TP51** • Cuts left, red grips, .80 lb.

**TP52** • Cuts right, green grips, .80 lb.

**TP53** • Cuts straight, yellow grips, .80 lb.



## FLUTING PLIERS

**TP722**

- .40 lb.
- Polished mechanical jaws
- Forged steel construction and hardened cushion grip handles
- Ideal for kit builders
- 9-1/2 length

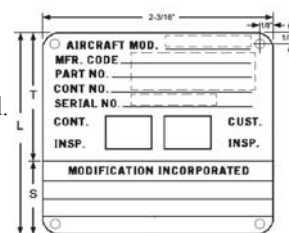


## IDENTIFICATION PLATES

**MS27253**

- Plain dash # for aluminum.
- C before dash for corrosion-resistant steel.
- F before dash for aluminum foil decal.
- P before dash for plastic plate.

| Dash # | Total Length L | Total Spaces S | Top Length T |
|--------|----------------|----------------|--------------|
| -1     | 1-5/8"         | 3              | 1-1/8"       |
| -2     | 3"             | 11             | 1-1/8"       |
| -3     | 1-3/4"         | 3              | 1-1/4"       |
| -4     | 3"             | 10             | 1-1/4"       |



## POP RIVET TOOL

**PS15-CS**

- Installs Pop Rivets up to 3/16" Dia.
- Durable and Heavy Duty



## RIVNUT TOOL

**CN/12**

- Installs Aluminum Rivnuts Sizes 6-32, 8-32, 10-32, 10-24, & 1/4
- Able to change mandrels quickly



# CHERRYMAX/CHERRYLOCK RIVETING TOOLS

## CHERRY HAND RIVETER

**G27** • Lightweight hand riveter

- Can install most aluminum Cherrymax blind rivets up to 1/8" diameter
- Includes pulling head
- Rugged plastic case

**G29** • Lightweight, compact

- Installs Cherry nutplate rivets
- Equipped with 728A9-3 nose piece to install 3/32 rivets
- Can install 1/8 rivets with 728A9-104 nose piece also included



## CHERRY PNEUMATIC RIVETER

**G747**

- Lightweight, ergonomic
- Air powered
- Installs -4, -5 and -6 dia. Cherrymax rivets
- Can install 3/32" nutplate rivets with H747-3NPR pulling head
- Sold without pulling head



## CHERRY RIVET GAUGE

**269C3**



## FOR INSTALLING 1/8", 5/32" & 3/16" CHERRYMAX RIVETS

**H701B-456 STRAIGHT**

- For use with G747 Riveters

**H753A-456 RIGHT ANGLE**

- For use with G747 Riveters

**H781-456 OFFSET**

- For use with G747 Riveters





## SAFETY WIRE TWISTERS

### TP68SR

- Three-in-one tool:  
Plier, Twister & Cutter
- Automatic Spring Return



## SWAGING TOOL

### TP64

- Swages 1/16, 3/32, 1/8 cable
- Wrench used to tighten bolts



## NICOPRESS SLEEVE SWAGING TOOL

### HS-5

- Swaging sizes 1/16, 3/32, 1/8, 5/32, 3/16



## FELCO CABLE CUTTERS

### C-7

- Cutter up to 3/16 diameter cable
- Cuts clean and leaves no frayed ends



## DZUS TOOLING

- For replacement of Dzus studs with grommets
- Will not set winged studs

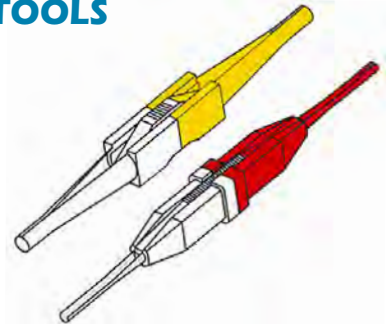
| Part#  | Stud |
|--------|------|
| TP835A | A1#3 |
| TP835B | A1#4 |
| TP835C | F1#4 |
| TP835D | A1#5 |
| TP835E | F1#5 |



## EXTRACTING TOOLS

### Part #

M81969/1-01  
M81969/1-02  
M81969/14-01  
M81969/14-02  
M81969/14-03  
M81969/14-04  
M81969/14-10  
M81969/14-11



## CLECO PLIERS

### TP74 & TP74V

- Installs 3/32, 1/8, 5/32, 3/16 Clecros



## CAMLOC PLIERS

### 4P3

- Installs 2600, 2700, 4002 Series Camlocs



## WRENCH TYPE RIVNUT HEADER

### L845 Old # C845

- For Field Repair
- Mandrels available for sizes 4-40, 6-32, 8-32, 10-32
- Mandrel Part #  
60-1000 (thread size)



## RIVET CUTTER

### TP96

- Cuts 3/32 to 1/4
- Hardened cutting edges
- Rubber Grips



## HI-LOK INSTALLATION/REMOVAL TOOLS

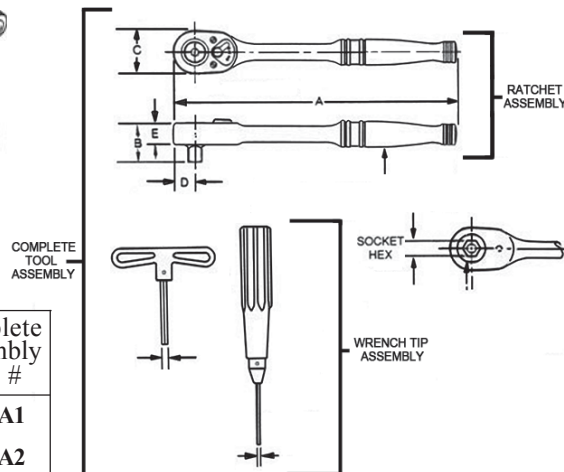
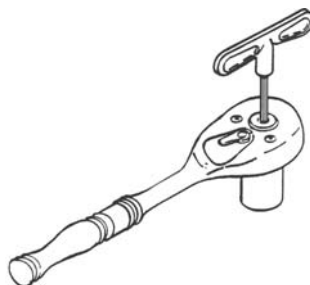
### HI-LOK TOOL ASSEMBLY

**ATHA** - Tool kit Part # - which contains  
Ratchet, Socket, & Hex Key.

**ATHS** - Socket Part #

**ATRR250** - Ratchet 1/4" Sq. Drive

**ATHK062** - Hex Key Part #

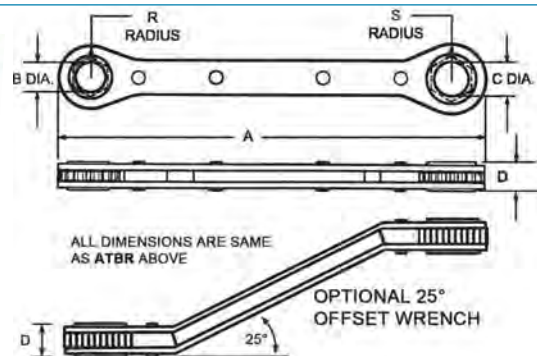


| Socket<br>Hex | Socket<br>Part # | Ratchet<br>Dimensions |        |        |       |      | Ratchet<br>Part # | Hex<br>Key<br>Size | Hex<br>Key<br>Part # | Complete<br>Assembly<br>Part # |
|---------------|------------------|-----------------------|--------|--------|-------|------|-------------------|--------------------|----------------------|--------------------------------|
|               |                  | A                     | B      | C      | D     | E    |                   |                    |                      |                                |
| 3/16"         | ATHS187          |                       |        |        |       |      |                   |                    |                      | ATHA1                          |
| 7/32"         | ATHS218          | 5"                    | 1-1/4" | 15/64" | 7/16" | 3/8" | ATRR250           | 1/16"              | ATHK062              | ATHA2                          |
| 1/4"          | ATHS250          |                       |        |        |       |      |                   |                    |                      | ATHA3                          |

### DOUBLE BOX RATCHET WRENCH

**ATBR** - For installation of collars  
onto threaded pins

**ATBRO** - 25° offset version of the  
ratchet above. All dimensions for offset  
wrench are the same as **ATBR**.



| Part #   | A      | B     | C     | D    | R<br>Radius | S<br>Radius |
|----------|--------|-------|-------|------|-------------|-------------|
| ATBR2125 | 4-1/4" | 7/32" | 1/4"  | 3/8" | 19/64"      | 21/64"      |
| ATBR2528 |        | 1/4"  | 9/32" |      |             |             |

### COLLAR REMOVAL TOOL

**REM100** - Removes all threaded collars.  
Also will remove 'rounded-off' nuts.



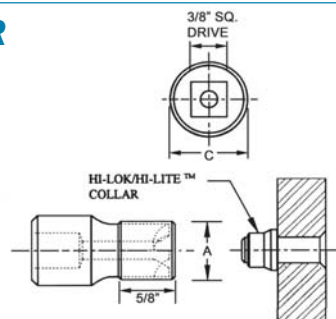
| Pin<br>Diameter | Part #    | Nom. Pin<br>Diameter | H    | R    | L    | W    |
|-----------------|-----------|----------------------|------|------|------|------|
| -5              | REM100-56 | 5/32"                | 0.25 | 0.28 | 5.60 | 0.42 |
| -6              | REM100-56 | 3/16"                | 0.25 | 0.28 | 5.60 | 0.42 |
| -8              | REM100-8  | 1/4"                 | 0.31 | 0.35 | 5.80 | 0.55 |



### REMOVABLE SOCKET FOR COLLAR REMOVAL

**OMAR100** - Tool has 3 'teeth'  
that bite into collar to unscrew.

| Nom. Pin<br>Diameter | Part #    | A      | C    |
|----------------------|-----------|--------|------|
| -5                   | OMAR100-5 | 5/8"   | 0.25 |
| -6                   | OMAR100-6 | 5/8"   | 0.25 |
| -8                   | OMAR100-8 | 13/16" | 0.31 |



### HI LOK GAUGE

2-612



## ASSORTED HARDWARE KITS

|                                                          |              |                                                          |              |                                                          |        |
|----------------------------------------------------------|--------------|----------------------------------------------------------|--------------|----------------------------------------------------------|--------|
| <b>SOLID RIVET KIT #1</b><br>Quantity of 1 pound of each |              | <b>SOLID RIVET KIT #1</b><br>Quantity of 1 pound of each |              | <b>RIVNUT KIT</b><br>Quantity of 50 each                 |        |
| MS20426AD3-4                                             | MS20426AD4-6 | MS20470AD3-4                                             | MS20470AD4-6 | A6-75                                                    | A6K75  |
| MS20426AD3-5                                             | MS20426AD4-8 | MS20470AD3-5                                             | MS20470AD4-8 | A6-120                                                   | A6K120 |
| MS20426AD3-6                                             | MS20426AD5-6 | MS20470AD3-6                                             | MS20470AD5-6 | A8-75                                                    | A8K75  |
| MS20426AD4-3                                             | MS20426AD5-8 | MS20470AD4-3                                             | MS20470AD5-8 | A8-120                                                   | A8K120 |
| MS20426AD4-4                                             | MS20426AD6-6 | MS20470AD4-4                                             | MS20470AD6-6 | A10-80                                                   | A10K80 |
| MS20426AD4-5                                             | MS20426AD6-8 | MS20470AD4-5                                             | MS20470AD6-8 |                                                          |        |
|                                                          |              |                                                          |              | <b>GROMMET KIT</b><br>Quantity of 10 each                |        |
|                                                          |              |                                                          |              | MS35489-1 THRU -22                                       |        |
|                                                          |              |                                                          |              | MS35489-118, -134, -135                                  |        |
| <b>SOLID RIVET KIT #3</b><br>COMBINATION OF KITS #1 & 2  |              |                                                          |              | <b>CLAMP KIT</b><br>25 MS21919WDG2 THRU -16              |        |
| <b>TINNERMAN KIT</b><br>Quantity of 50 each              |              |                                                          |              | <b>COTTER PIN KIT</b><br>Quantity of 100 each            |        |
| A1348-8Z1D                                               | A1785-6Z1D   | MS24665-132                                              |              |                                                          |        |
| A1758-10Z1D                                              | A1786-8Z1D   | MS24665-134                                              |              |                                                          |        |
| A1776-4Z1D                                               | A1787-8Z1D   | MS24665-136                                              |              |                                                          |        |
| A1777-6Z1D                                               | A1787-10Z1D  | MS24665-138                                              |              |                                                          |        |
| A1778-8Z1D                                               | A1788-8Z1D   | MS24665-140                                              |              |                                                          |        |
| A1779-10Z1D                                              | A1789-8Z1D   | MS24665-151                                              |              |                                                          |        |
| A1784-6Z1D                                               |              | MS24665-153                                              |              |                                                          |        |
|                                                          |              | MS24665-155                                              |              |                                                          |        |
|                                                          |              | MS24665-22                                               |              |                                                          |        |
|                                                          |              | MS24665-281                                              |              |                                                          |        |
|                                                          |              | MS24665-283                                              |              |                                                          |        |
|                                                          |              | MS24665-285                                              |              |                                                          |        |
|                                                          |              | MS24665-287                                              |              |                                                          |        |
|                                                          |              | MS24665-289                                              |              |                                                          |        |
|                                                          |              | MS24665-302                                              |              |                                                          |        |
|                                                          |              | MS24665-360                                              |              |                                                          |        |
|                                                          |              | MS24665-362                                              |              |                                                          |        |
|                                                          |              | MS24665-363                                              |              |                                                          |        |
|                                                          |              | MS24665-9                                                |              |                                                          |        |
|                                                          |              | MS24665-1012                                             |              |                                                          |        |
| <b>SHEET METAL SCREW KIT</b><br>Quantity of 100 each     |              |                                                          |              | <b>CAPLUG KIT</b><br>Quantity of 50 each                 |        |
| 4R X 1/4                                                 | 6R X 1/4     | 8R X 3/8                                                 | 10R X 1/2    | CD3                                                      | PD20   |
| 4R X 3/8                                                 | 6R X 3/8     | 8R X 1/2                                                 | 10R X 5/8    | CD4                                                      | PD30   |
| 4R X 1/2                                                 | 6R X 1/2     | 8R X 5/8                                                 | 10R X 3/4    | CD5                                                      | PD40   |
| 4R X 5/8                                                 | 6R X 5/8     | 8R X 3/4                                                 | 10R X 1      | CD6                                                      | PD50   |
| 4R X 3/4                                                 | 6R X 3/4     | 8R X 1                                                   |              | CD8                                                      | PD60   |
| KIT #1                                                   | TRUSS HEAD   | ZINC                                                     |              | CD10                                                     | PD80   |
| KIT #2                                                   | TRUSS HEAD   | STAINLESS                                                |              | CD12                                                     | PD100  |
| KIT #3                                                   | FLAT HEAD    | ZINC                                                     |              |                                                          | PD120  |
| KIT #4                                                   | FLAT HEAD    | STAINLESS                                                |              |                                                          |        |
| KIT #5                                                   | OVAL HEAD    | ZINC                                                     |              |                                                          |        |
| KIT #6                                                   | OVAL HEAD    | STAINLESS                                                |              |                                                          |        |
| KIT #7                                                   | PAN HEAD     | STAINLESS                                                |              |                                                          |        |
| <b>GASKET KIT</b>                                        |              |                                                          |              | <b>RING TERMINAL KIT</b><br>Quantity of 25 each          |        |
| 10 EA. MS35769-2, 6, 8, 9, 10, 13, 15, 18 ,24, 51        |              |                                                          |              | MS25036-110, 112, 113, 115, 148, 149, 153, 154, 156, 157 |        |
| 25 EA. MS35769-31, 48                                    |              |                                                          |              | M7928/5-2, 3, 4, 5                                       |        |
| 50 EA. MS35769-11, 21                                    |              |                                                          |              | <b>SPACER KIT</b><br>Quantity of 25 each                 |        |
|                                                          |              |                                                          |              | NAS43DD3-8, 12, 16, 20, 24, 28, 32, 34, 36, 40, 48, 64   |        |

**NON STRUCTURAL  
SCREW KIT #1**

100 EA. AN526-632R4 THRU -632R12  
100 EA. AN526-832R4 THRU -832R12  
100 EA. AN526-1032R6 THRU -1032R16  
100 EA. MS24693S2 THRU S8  
100 EA. MS24693S24 THRU S30  
100 EA. MS24693S46 THRU S54  
100 EA. MS24693S270 THRU S276  
100 EA. MS35206-213 THRU -219  
100 EA. MS35206-226 THRU -232  
100 EA. MS35206-241 THRU -249  
100 EA. MS35207-261 THRU -267

**NON STRUCTURAL  
SCREW KIT #2**

100 EA. MS24693S24 THRU S30  
100 EA. MS24693S48 THRU S52  
100 EA. MS24693S270 THRU S274  
100 EA. MS24693C24 THRU C30  
100 EA. MS24693C48 THRU C52  
100 EA. MS24693C270 THRU C274

**NON-STRUCTURAL  
SCREW KIT #3**

100 EA. AN526-632R6 THRU AN526-632R12  
100 EA. AN526-832R6 THRU AN526-832R12  
100 EA. AN526-1032R6 THRU AN526-1032R12  
100 EA. AN526C632R6 THRU AN526C632R12  
100 EA. AN526C832R6 THRU AN526C832R12  
100 EA. AN526C1032R6 THRU AN526C1032R12  
**\*\* This kit no longer contains: AN526-632R9**

**STAINLESS  
SCREW KIT #1**

100 EA. MS24693C4 THRU C8  
100 EA. MS24693C24 THRU C30  
100 EA. MS24693C46 THRU C52  
100 EA. MS24693C270 THRU C276  
100 EA. MS24694C3 THRU C7  
100 EA. MS24694C48 THRU C52

**STAINLESS  
SCREW KIT #2**

100 EA. AN526C632R4 THRU C632R12  
100 EA. AN526C832R6 THRU C832R16  
100 EA. AN526C1032R6 THRU C1032R16  
100 EA. MS51957-30 AND MS51957-45  
100 EA. MS51958-64 AND MS51958-65

**STAINLESS  
SCREW KIT #3**

100 EA. AN526C632R6 THRU C632R12  
100 EA. AN526C832R6 THRU C832R12  
100 EA. AN526C1032R6 THRU C1032R12  
100 EA. MS24693C24 AND MS24693C30  
100 EA. MS24693C46 THRU C54  
100 EA. MS24693C270 THRU C276  
100 EA. MS24694C5 THRU C9  
100 EA. MS24694C48 THRU C54

**BLACK BRASS  
SCREW KIT**

100 EA. MS35214-14, 16, 20  
100 EA. MS35214-25 THRU -33  
100 EA. MS35214-42 THRU -47  
100 EA. MS24693BB2, 6, 26, 28  
100 EA. MS24693BB30 THRU BB36  
100 EA. MS24693BB50, 52, 54, 58

**INSTRUMENT SCREW/  
NUT KIT**

100 EA. MS24693BB28 THRU BB36  
100 EA. MS24693BB50 THRU BB54  
100 EA. MS35214-14 THRU -16  
100 EA. MS35214-25 THRU -33  
100 EA. MS35214-42 THRU -46  
25 EA. MS33737-9C THRU -16C

**CLEVIS PIN KIT**

5 EA. MS20392-1C7 THRU -1C35  
5 EA. MS20392-2C7 THRU -2C45  
5 EA. MS20392-3C11 THRU -3C41  
100 EA. MS24665-132  
100 EA. MS24665-283

**CHERRYMAX  
RIVET KIT #1**

100 EA. CR3212-4-02  
100 EA. CR3212-4-03  
100 EA. CR3212-4-04  
100 EA. CR3213-4-02  
100 EA. CR3213-4-03  
100 EA. CR3213-4-04  
100 EA. CR3242-4-02  
100 EA. CR3242-4-03  
100 EA. CR3242-4-04  
100 EA. CR3243-4-02  
100 EA. CR3243-4-03  
100 EA. CR3243-4-04

**CHERRYMAX  
RIVET KIT #2**

100 EA. CR3212-5-02  
100 EA. CR3212-5-03  
100 EA. CR3212-5-04  
100 EA. CR3213-5-02  
100 EA. CR3213-5-03  
100 EA. CR3213-5-04  
100 EA. CR3242-5-02  
100 EA. CR3242-5-03  
100 EA. CR3242-5-04  
100 EA. CR3243-5-02  
100 EA. CR3243-5-03  
100 EA. CR3243-5-04

**CHERRY NUTPLATE  
RIVET KIT**

100 EA. CCR264CS3-02  
100 EA. CCR264CS3-03  
100 EA. CCR264CS3-04  
100 EA. CCR264SS3-02  
100 EA. CCR264SS3-03  
100 EA. CCR264SS3-04



### **"AN" BOLT KIT #1 (UNDRILLED)**

|    |     |         |      |         |
|----|-----|---------|------|---------|
| 25 | EA. | AN3-3A  | THRU | AN3-12A |
| 15 | EA. | AN3-13A | THRU | AN3-22A |
| 10 | EA. | AN3-23A | THRU | AN3-30A |
| 25 | EA. | AN4-3A  | THRU | AN4-12A |
| 10 | EA. | AN4-13A | THRU | AN4-26A |
| 5  | EA. | AN4-27A | THRU | AN4-35A |

### **"AN" BOLT KIT #2 (DRILLED)**

|    |     |        |      |        |
|----|-----|--------|------|--------|
| 25 | EA. | AN3-3  | THRU | AN3-12 |
| 10 | EA. | AN3-13 | THRU | AN3-20 |
| 10 | EA. | AN3-21 | THRU | AN3-30 |
| 25 | EA. | AN4-4  | THRU | AN4-12 |
| 10 | EA. | AN4-13 | THRU | AN4-20 |

### **"AN" BOLT KIT #3 (UNDRILLED)**

|    |     |         |      |         |
|----|-----|---------|------|---------|
| 10 | EA. | AN5-4A  | THRU | AN5-20A |
| 5  | EA. | AN5-21A | THRU | AN5-35A |
| 10 | EA. | AN6-5A  | THRU | AN6-20A |
| 5  | EA. | AN6-21A | THRU | AN6-35A |

### **"AN" BOLT KIT #4 (DRILLED)**

|     |     |             |      |        |
|-----|-----|-------------|------|--------|
| 10  | EA. | AN5-4       | THRU | AN5-12 |
| 5   | EA. | AN5-13      | THRU | AN5-30 |
| 10  | EA. | AN6-5       | THRU | AN6-12 |
| 5   | EA. | AN6-13      | THRU | AN6-30 |
| 50  | EA. | AN310-5     |      |        |
| 50  | EA. | AN310-6     |      |        |
| 100 | EA. | MS24665-132 |      |        |
| 100 | EA. | MS24665-283 |      |        |

### **"AN" ASSORTED BOLT KIT**

|    |     |         |      |         |
|----|-----|---------|------|---------|
| 25 | EA. | AN3-3A  | THRU | AN3-12A |
| 15 | EA. | AN3-13A | THRU | AN3-24A |
| 25 | EA. | AN3-3   | THRU | AN3-12  |
| 15 | EA. | AN3-13  | THRU | AN3-20  |
| 25 | EA. | AN4-4A  | THRU | AN4-12A |
| 10 | EA. | AN4-13A | THRU | AN4-20A |
| 10 | EA. | AN4-4   | THRU | AN4-20  |
| 10 | EA. | AN5-5A  | THRU | AN5-20A |
| 10 | EA. | AN5-5   | THRU | AN5-20  |
| 10 | EA. | AN6-5A  | THRU | AN6-20A |
| 10 | EA. | AN6-5   | THRU | AN6-20  |

### **WASHER KIT #1**

|     |     |            |      |             |
|-----|-----|------------|------|-------------|
| 100 | EA. | AN960-4    | THRU | AN960-616   |
| 100 | EA. | AN960-4L   | THRU | AN960-616L  |
| 100 | EA. | AN960C4    | THRU | AN960C616   |
| 100 | EA. | AN960C4L   | THRU | AN960C616L  |
| 100 | EA. | AN960JD4   | THRU | AN960JD616  |
| 100 | EA. | AN960JD4L  | THRU | AN960JD616L |
| 100 | EA. | AN970-3    | AND  | AN970-4     |
| 50  | EA. | AN970-5    | AND  | AN970-6     |
| 100 | EA. | MS35333-36 | THRU | MS35333-42  |
| 100 | EA. | MS35335-29 | THRU | MS35335-35  |
| 100 | EA. | MS35338-40 | THRU | MS35338-46  |

### **ASST. NUT/NUTPLATE KIT #1**

|     |     |                       |      |           |
|-----|-----|-----------------------|------|-----------|
| 100 | EA. | MS21044N06            | THRU | MS21044N4 |
| 100 | EA. | MS21045-06            | THRU | MS21045-4 |
| 25  | EA. | AN310-3               | AND  | AN310-4   |
| 25  | EA. | AN320-3               | AND  | AN320-4   |
| 25  | EA. | MS17825-3             | AND  | MS17825-4 |
| 25  | EA. | MS17826-3             | AND  | MS17826-4 |
| 100 | EA. | AN315-3R              | AND  | AN315-4R  |
| 100 | EA. | MS35649-242,-262,-282 |      |           |
| 100 | EA. | MS35650-302           | AND  | -3252     |
| 100 | EA. | MS21042L06            | THRU | MS21042L4 |
| 25  | EA. | NAS679A06W            | THRU | NAS679A4W |
| 25  | EA. | MS21047L06,L08,L3     |      |           |
| 25  | EA. | MS21059L06,L08,L3     |      |           |
| 25  | EA. | MS21061L08            | AND  | MS21061L3 |
| 25  | EA. | MS21071L06,L08,L3     |      |           |
| 25  | EA. | MS21075L06N,L08N,L3N  |      |           |

### **ASST. NUT/NUTPLATE KIT #2**

|     |     |                      |      |           |
|-----|-----|----------------------|------|-----------|
| 100 | EA. | MS21044N06           | THRU | MS21044N4 |
| 100 | EA. | MS21045-06           | THRU | MS21045-4 |
| 100 | EA. | MS21083N06           | THRU | MS21083N4 |
| 25  | EA. | AN310-3              | AND  | AN310-4   |
| 25  | EA. | AN320-3              | AND  | AN320-4   |
| 100 | EA. | AN315-3R             | AND  | AN315-4R  |
| 25  | EA. | NAS679A06W           | THRU | NAS679A4W |
| 25  | EA. | MS21047L06,L08,L3    |      |           |
| 25  | EA. | MS21059L06,L08,L3    |      |           |
| 25  | EA. | MS21075L06N,L08N,L3N |      |           |

### **WASHER KIT #2**

|     |     |                           |      |            |
|-----|-----|---------------------------|------|------------|
| 100 | EA. | AN960-4                   | THRU | AN960-616  |
| 100 | EA. | AN960-4L                  | THRU | AN960-616L |
| 100 | EA. | AN970-3                   | AND  | AN970-4    |
| 100 | EA. | NAS1515H06L,08L,3L        |      |            |
| 100 | EA. | SKIN WASHER #6,#8,#10     |      |            |
| 100 | EA. | SKIN WASHER S/S #6,#8,#10 |      |            |
| 100 | EA. | 601-4,-6,-8,-10           |      |            |
| 100 | EA. | 603-6,-8,-10              |      |            |

### **CASTLE/PLAIN NUT KIT (NON-SELF LOCKING)**

|     |     |                         |      |          |
|-----|-----|-------------------------|------|----------|
| 25  | EA. | AN310-3                 | THRU | AN310-6  |
| 25  | EA. | AN320-3                 | THRU | AN320-6  |
| 100 | EA. | AN315-3R                | THRU | AN315-6R |
| 100 | EA. | AN316-4R                | THRU | AN316-6R |
| 100 | EA. | MS35649-242,-262,-282   |      |          |
| 100 | EA. | MS35650-302,-3252,-3312 |      |          |

### **SELF LOCKING NUT KIT**

|     |     |            |      |           |
|-----|-----|------------|------|-----------|
| 100 | EA. | MS21044N06 | THRU | MS21044N6 |
| 100 | EA. | MS21045-3  | AND  | MS21045-4 |
| 50  | EA. | MS21045-5  | AND  | MS21045-6 |
| 100 | EA. | MS21083N06 | THRU | MS21083N4 |
| 50  | EA. | MS21083N5  | AND  | MS21083N6 |
| 100 | EA. | MS21042L06 | THRU | MS21042L4 |
| 50  | EA. | MS21042-06 | THRU | MS21042-4 |

### **NUTPLATE KIT**

|    |     |                      |  |  |
|----|-----|----------------------|--|--|
| 25 | EA. | MS21047L06,L08,L3    |  |  |
| 25 | EA. | MS21049L08,L3        |  |  |
| 25 | EA. | MS21051L06,L08,L3    |  |  |
| 25 | EA. | MS21055L06,L08,L3    |  |  |
| 25 | EA. | MS21059L06,L08,L3    |  |  |
| 25 | EA. | MS21061L06,L08,L3    |  |  |
| 25 | EA. | MS21071L06,L08,L3    |  |  |
| 25 | EA. | MS21073L06,L08,L3    |  |  |
| 25 | EA. | MS21075L06N,L08N,L3N |  |  |

**THOMAS & BETTS  
TIE WRAP KIT**

|         |       |         |        |
|---------|-------|---------|--------|
| 100 EA. | TY25M | 100 EA. | TY23M  |
| 100 EA. | TY28M | 100 EA. | TY24M  |
| 100 EA. | TY27M | 100 EA. | TY253M |

**MS24693 KIT**

|         |             |      |             |
|---------|-------------|------|-------------|
| 100 EA. | MS24693S2   | THRU | MS24693S8   |
| 100 EA. | MS24693S24  | THRU | MS24693S30  |
| 100 EA. | MS24693S46  | THRU | MS24693S52  |
| 100 EA. | MS24693S270 | THRU | MS24693S276 |

**WASHER/COTTER PIN KIT**

|         |           |         |            |         |             |
|---------|-----------|---------|------------|---------|-------------|
| 100 EA. | AN960-6   | 100 EA. | AN960-6L   | 100 EA. | MS24665-132 |
| 100 EA. | AN960-8   | 100 EA. | AN960-8L   | 100 EA. | MS24665-134 |
| 100 EA. | AN960-10  | 100 EA. | AN960-10L  | 100 EA. | MS24665-136 |
| 100 EA. | AN960-416 | 100 EA. | AN960-416L | 100 EA. | MS24665-283 |
| 100 EA. | AN960-516 | 100 EA. | AN960-516L | 100 EA. | MS24665-285 |
| 100 EA. | AN960-616 | 100 EA. | AN960-616L | 100 EA. | MS24665-360 |

**WASHER/COTTER PIN KIT STAINLESS STEEL**

|         |           |         |            |         |             |
|---------|-----------|---------|------------|---------|-------------|
| 100 EA. | AN960C6   | 100 EA. | AN960C6L   | 100 EA. | MS24665-151 |
| 100 EA. | AN960C8   | 100 EA. | AN960C8L   | 100 EA. | MS24665-153 |
| 100 EA. | AN960C10  | 100 EA. | AN960C10L  | 100 EA. | MS24665-155 |
| 100 EA. | AN960C416 | 100 EA. | AN960C416L | 100 EA. | MS24665-300 |
| 100 EA. | AN960C516 | 100 EA. | AN960C516L | 100 EA. | MS24665-302 |
| 100 EA. | AN960C616 | 100 EA. | AN960C616L | 100 EA. | MS24665-304 |

**MS21044 NUT KIT**

|         |            |
|---------|------------|
| 100 EA. | MS21044N04 |
| 100 EA. | MS21044N06 |
| 100 EA. | MS21044N08 |
| 100 EA. | MS21044N3  |
| 100 EA. | MS21044N4  |
| 50 EA.  | MS21044N5  |
| 25 EA.  | MS21044N6  |

**MS21045 NUT KIT**

|         |            |
|---------|------------|
| 100 EA. | MS21045-04 |
| 100 EA. | MS21045-06 |
| 100 EA. | MS21045-08 |
| 100 EA. | MS21045-3  |
| 50 EA.  | MS21045-4  |
| 25 EA.  | MS21045-5  |
| 25 EA.  | MS21045-6  |

**MS21083 NUT KIT**

|         |            |
|---------|------------|
| 100 EA. | MS21083N04 |
| 100 EA. | MS21083N06 |
| 100 EA. | MS21083N08 |
| 100 EA. | MS21083N3  |
| 100 EA. | MS21083N4  |
| 50 EA.  | MS21083N5  |
| 25 EA.  | MS21083N6  |

**MS21042 NUT KIT**

|         |            |
|---------|------------|
| 100 EA. | MS21042L04 |
| 100 EA. | MS21042L06 |
| 100 EA. | MS21042L08 |
| 100 EA. | MS21042L3  |
| 100 EA. | MS21042L4  |
| 100 EA. | MS21042-04 |
| 100 EA. | MS21042-06 |
| 100 EA. | MS21042-08 |
| 100 EA. | MS21042-3  |
| 100 EA. | MS21042-4  |

**MS24694 KIT**

|         |            |      |            |
|---------|------------|------|------------|
| 100 EA. | MS24694S2  | THRU | MS24694S13 |
| 100 EA. | MS24694S47 | THRU | MS24694S58 |

**AN525 KIT**

|         |             |      |              |
|---------|-------------|------|--------------|
| 100 EA. | AN525-832R6 | THRU | AN525-832R12 |
| 100 EA. | AN525-10R6  | THRU | AN525-10R16  |

**AN526 S/S KIT**

|         |              |      |               |
|---------|--------------|------|---------------|
| 100 EA. | AN526C632R6  | THRU | AN526C632R12  |
| 100 EA. | AN526C832R6  | THRU | AN526C832R12  |
| 100 EA. | AN526C1032R6 | THRU | AN526C1032R12 |

**MS27039 S/S KIT**

|         |              |      |              |
|---------|--------------|------|--------------|
| 100 EA. | MS27039C0807 | THRU | C0809        |
| 100 EA. | MS27039C0812 |      |              |
| 100 EA. | MS27039C1-07 | THRU | MS27039C1-11 |

**Structural Screw Kits are on Page 23**

### FITTING KIT #1

Quantity of 5 each

|         |          |          |         |            |
|---------|----------|----------|---------|------------|
| AN806D2 | AN818-2D | AN924-3D | AN929-2 | MS20819-2D |
| AN806D3 | AN818-3D | AN924-4D | AN929-3 | MS20819-3D |
| AN806D4 | AN818-4D | AN924-5D | AN929-4 | MS20819-4D |
| AN806D5 | AN818-5D | AN924-6D | AN929-5 | MS20819-5D |
| AN806D6 | AN818-6D | AN924-8D | AN929-6 | MS20819-6D |
| AN806D8 | AN818-8D |          | AN929-8 | MS20819-8D |

### FITTING KIT #2

Quantity of 2 each

|          |          |            |            |
|----------|----------|------------|------------|
| AN815-2D | AN816-3D | AN824-6D   | MS20822-6D |
| AN815-3D | AN816-4D | AN833-4D   | MS20823-4D |
| AN815-4D | AN816-5D | AN833-6D   | MS20823-6D |
| AN815-5D | AN816-6D | MS20822-3D | MS20825-4D |
| AN815-6D | AN821-4D | MS20822-4D | MS20825-6D |
| AN815-8D | AN824-4D | MS20822-5D | MS20826-4D |

### FITTING KIT #3

Quantity of 5 each

|          |          |            |        |
|----------|----------|------------|--------|
| AN806D4  | AN924-4D | MS20819-4D | 471-2D |
| AN806D6  | AN924-6D | MS20819-6D | 471-4D |
| AN806D8  | AN924-8D | MS20819-8D | 471-6D |
| AN818-4D | AN929-4  | MS20822-4D | 491-4  |
| AN818-6D | AN929-6  | MS20823-4D | 491-6  |
| AN818-8D | AN929-8  | MS20823-6D | 491-8D |

### FITTING KIT #4

Quantity of 5 each

|          |          |            |
|----------|----------|------------|
| AN806D4  | AN924-4D | MS20819-4D |
| AN806D6  | AN924-6D | MS20819-6D |
| AN806D8  | AN924-8D | MS20819-8D |
| AN818-4D | AN929-4  | MS20822-4D |
| AN818-6D | AN929-6  | MS20823-4D |
| AN818-8D | AN929-8  | MS20825-4D |

### FITTING KIT #5

Quantity of 5 each

|           |            |            |
|-----------|------------|------------|
| MS20813-1 | MS21913D6  | MS21914-6D |
| MS21913-4 | MS21914-4  | MS21921-4D |
| MS21913-5 | MS21914-5  | MS21921-6D |
| MS21913-6 | MS21914-6  | MS21922-4  |
| MS21913D4 | MS21914-4D | MS21922-6  |
| MS21913D5 | MS21914-5D |            |

**FBO STAINLESS STARTER KIT #1 (128 Pieces)**

|     |     |                 |      |               |    |     |             |      |              |
|-----|-----|-----------------|------|---------------|----|-----|-------------|------|--------------|
| 100 | EA. | MS24693C26      | THRU | MS24693C30    | 25 | EA. | AN3C3A      | THRU | AN3C10A      |
| 100 | EA. | MS24693C48      | THRU | MS24693C52    | 25 | EA. | AN4C4A      | THRU | AN4C10A      |
| 100 | EA. | MS24693C272     | THRU | MS24693C274   | 25 | EA. | MS21059L06  |      |              |
| 100 | EA. | AN526C632R6     | THRU | AN526C632R12  | 25 | EA. | MS21059L08  |      |              |
| 100 | EA. | AN526C832R6     | THRU | AN526C832R12  | 25 | EA. | MS21059L3   |      |              |
| 100 | EA. | AN526C1032R6    | THRU | AN526C1032R12 | 25 | EA. | MS21060L06  |      |              |
| 100 | EA. | MS27039C0808    | THRU | MS27039C0810  | 25 | EA. | MS21060L08  |      |              |
| 100 | EA. | MS27039C1-08    | THRU | MS27039C1-10  | 25 | EA. | MS21060L3   |      |              |
| 100 | EA. | MS24694C3       | THRU | MS24694C7     | 25 | EA. | MS21075L06N |      |              |
| 100 | EA. | MS24694C50      | THRU | MS24694C54    | 25 | EA. | MS21075L08N |      |              |
| 100 | EA. | MS24665-151     |      |               | 25 | EA. | MS21075L3N  |      |              |
| 100 | EA. | MS24665-153     |      |               | 25 | EA. | MS21076L08N |      |              |
| 100 | EA. | MS24665-155     |      |               | 25 | EA. | MS21076L3N  |      |              |
| 100 | EA. | MS24665-300     |      |               | 25 | EA. | AN310C3     |      |              |
| 100 | EA. | MS24665-302     |      |               | 25 | EA. | AN310C4     |      |              |
| 100 | EA. | MS24665-304     |      |               | 25 | EA. | AN320C3     |      |              |
| 100 | EA. | AN960C6         |      |               | 25 | EA. | AN320C4     |      |              |
| 100 | EA. | AN960C8         |      |               | 25 | EA. | MS21044C06  |      |              |
| 100 | EA. | AN960C10        |      |               | 25 | EA. | MS21044C08  |      |              |
| 100 | EA. | AN960C416       |      |               | 25 | EA. | MS21044C3   |      |              |
| 100 | EA. | AN960C6L        |      |               | 25 | EA. | MS21045C06  |      |              |
| 100 | EA. | AN960C8L        |      |               | 25 | EA. | MS31045C08  |      |              |
| 100 | EA. | AN960C10L       |      |               | 25 | EA. | MS21045C3   |      |              |
| 100 | EA. | AN960C416L      |      |               | 25 | EA. | MS35489-10  | THRU | MS35489-12   |
| 100 | EA. | EC1075-012-06SS |      |               | 25 | EA. | MS35489-134 |      |              |
| 100 | EA. | EC1080-017-08SS |      |               | 25 | EA. | MS35489-14  |      |              |
| 100 | EA. | EC1085-020-10SS |      |               | 25 | EA. | A6K75       |      |              |
| 100 | EA. | MS35333-71      |      |               | 25 | EA. | A8K75       |      |              |
| 100 | EA. | MS35333-72      |      |               | 25 | EA. | A10K80      |      |              |
| 100 | EA. | MS35333-73      |      |               | 25 | EA. | A6-75       |      |              |
| 100 | EA. | MS35333-74      |      |               | 25 | EA. | A8-75       |      |              |
| 100 | EA. | MS35338-136     |      |               | 25 | EA. | A10-80      |      |              |
| 100 | EA. | MS35338-137     |      |               | 10 | EA. | MS21919WDG2 | THRU | MS21919WDG12 |
| 100 | EA. | MS35338-138     |      |               | 10 | EA. | MS35769-11  |      |              |
| 100 | EA. | MS35338-139     |      |               | 10 | EA. | MS35769-21  |      |              |
| 100 | EA. | 601-6           |      |               | 10 | EA. | MS35769-31  |      |              |
| 100 | EA. | 601-8           |      |               | 10 | EA. | MS35769-48  |      |              |
| 100 | EA. | 601-10          |      |               |    |     |             |      |              |

**FBO STAINLESS STARTER KIT #2 (77 Pieces)**

|     |     |              |      |               |     |     |                 |      |         |
|-----|-----|--------------|------|---------------|-----|-----|-----------------|------|---------|
| 100 | EA. | MS24693C26   | THRU | MS24693C30    | 100 | EA. | AN960C6L        |      |         |
| 100 | EA. | MS24693C48   | THRU | MS24693C52    | 100 | EA. | AN960C8L        |      |         |
| 100 | EA. | MS24693C272  | THRU | MS24693C274   | 100 | EA. | AN960C10L       |      |         |
| 100 | EA. | AN526C632R6  | THRU | AN526C632R12  | 100 | EA. | AN960C416L      |      |         |
| 100 | EA. | AN526C832R6  | THRU | AN526C832R12  | 100 | EA. | EC1075-012-06SS |      |         |
| 100 | EA. | AN526C1032R6 | THRU | AN526C1032R12 | 100 | EA. | EC1080-017-08SS |      |         |
| 100 | EA. | MS24694C3    | THRU | MS24694C7     | 100 | EA. | EC1085-020-10SS |      |         |
| 100 | EA. | MS24694C50   | THRU | MS24694C54    | 25  | EA. | AN3C3A          | THRU | AN3C10A |
| 100 | EA. | MS24665-151  |      |               | 25  | EA. | AN4C4A          | THRU | AN4C10A |
| 100 | EA. | MS24665-153  |      |               | 25  | EA. | AN310C3         |      |         |
| 100 | EA. | MS24665-155  |      |               | 25  | EA. | AN310C4         |      |         |
| 100 | EA. | MS24665-300  |      |               | 25  | EA. | AN320C3         |      |         |
| 100 | EA. | MS24665-302  |      |               | 25  | EA. | AN320C4         |      |         |
| 100 | EA. | MS24665-304  |      |               | 25  | EA. | MS21044C06      |      |         |
| 100 | EA. | AN960C6      |      |               | 25  | EA. | MS21044C08      |      |         |
| 100 | EA. | AN960C8      |      |               | 25  | EA. | MS21044C3       |      |         |
| 100 | EA. | AN960C10     |      |               | 25  | EA. | MS21045C08      |      |         |
| 100 | EA. | AN960C416    |      |               | 25  | EA. | MS21045C3       |      |         |



## FBO STARTER KIT #1 (173 Pieces)

\*\* This kit no longer contains: AN526-632R9

|         |              |      |               |
|---------|--------------|------|---------------|
| 100 EA. | MS24693S26   | THRU | MS24693S30    |
| 100 EA. | MS24693S48   | THRU | MS24693S52    |
| 100 EA. | MS24693S272  | THRU | MS24693S274   |
| 100 EA. | AN526-632R6  | THRU | AN526-632R12  |
| 100 EA. | AN526-832R6  | THRU | AN526-832R12  |
| 100 EA. | AN526-1032R6 | THRU | AN526-1032R12 |
| 100 EA. | AN525-832R6  | THRU | AN525-832R12  |
| 100 EA. | AN525-10R6   | THRU | AN525-10R12   |
| 100 EA. | MS24694S4    | THRU | MS24694S9     |
| 100 EA. | MS24694S50   | THRU | MS24694S54    |
| 100 EA. | MS24665-132  |      |               |
| 100 EA. | MS24665-134  |      |               |
| 100 EA. | MS24665-136  |      |               |
| 100 EA. | MS24665-151  |      |               |
| 100 EA. | MS24665-153  |      |               |
| 100 EA. | MS24665-155  |      |               |
| 100 EA. | MS24665-283  |      |               |
| 100 EA. | MS24665-285  |      |               |
| 100 EA. | MS24665-287  |      |               |
| 100 EA. | MS24665-300  |      |               |
| 100 EA. | MS21044N06   |      |               |
| 100 EA. | MS21044N08   |      |               |
| 100 EA. | MS21044N3    |      |               |
| 100 EA. | MS21044N4    |      |               |
| 100 EA. | MS21045-06   |      |               |
| 100 EA. | MS21045-08   |      |               |
| 100 EA. | MS21045-3    |      |               |
| 100 EA. | AN960-6      |      |               |
| 100 EA. | AN960-8      |      |               |
| 100 EA. | AN960-10     |      |               |
| 100 EA. | AN960-416    |      |               |
| 100 EA. | AN960-6L     |      |               |
| 100 EA. | AN960-8L     |      |               |
| 100 EA. | AN960-10L    |      |               |
| 100 EA. | AN960-416L   |      |               |
| 100 EA. | MS35333-37   | THRU | MS35333-40    |
| 100 EA. | MS35335-31   | THRU | MS35335-33    |
| 100 EA. | MS35338-41   | THRU | MS35338-44    |

|        |             |      |              |
|--------|-------------|------|--------------|
| 25 EA. | AN3-3A      | THRU | AN3-12A      |
| 25 EA. | AN4-4A      | THRU | AN4-12A      |
| 25 EA. | MS21047L06  |      |              |
| 25 EA. | MS21047L08  |      |              |
| 25 EA. | MS21047L3   |      |              |
| 25 EA. | MS21059L06  |      |              |
| 25 EA. | MS21059L08  |      |              |
| 25 EA. | MS21059L3   |      |              |
| 25 EA. | MS21075L06N |      |              |
| 25 EA. | MS21075L08N |      |              |
| 25 EA. | MS21075L3N  |      |              |
| 25 EA. | AN310-3     |      |              |
| 25 EA. | AN310-4     |      |              |
| 25 EA. | AN320-3     |      |              |
| 25 EA. | AN320-4     |      |              |
| 25 EA. | A6K75       |      |              |
| 25 EA. | A8K75       |      |              |
| 25 EA. | A10K80      |      |              |
| 25 EA. | A6-75       |      |              |
| 25 EA. | A8-75       |      |              |
| 25 EA. | A10-80      |      |              |
| 10 EA. | AN3-3       | THRU | AN3-12       |
| 10 EA. | AN4-4       | THRU | AN4-12       |
| 10 EA. | MS35489-10  | THRU | MS35489-12   |
| 10 EA. | MS35489-134 |      |              |
| 10 EA. | MS35489-14  |      |              |
| 10 EA. | MS21919WDG2 | THRU | MS21919WDG12 |
| 10 EA. | MS35769-11  |      |              |
| 10 EA. | MS35769-21  |      |              |
| 10 EA. | MS35769-31  |      |              |
| 10 EA. | MS35769-48  |      |              |
| 10 EA. | MS28775-010 | THRU | MS28775-013  |
| 10 EA. | MS28775-111 | THRU | MS28775-116  |
| 10 EA. | MS29513-010 |      |              |
| 10 EA. | MS29513-111 |      |              |
| 10 EA. | MS29513-138 |      |              |

## FBO STARTER KIT #2 (91 Pieces)

\*\* This kit no longer contains: AN526-632R9

|         |              |      |               |
|---------|--------------|------|---------------|
| 100 EA. | MS24693S26   | THRU | MS24693S30    |
| 100 EA. | MS24693S48   | THRU | MS24693S52    |
| 100 EA. | MS24693S272  | THRU | MS24693S274   |
| 100 EA. | AN526-632R6  | THRU | AN526-632R12  |
| 100 EA. | AN526-832R6  | THRU | AN526-832R12  |
| 100 EA. | AN526-1032R6 | THRU | AN526-1032R12 |
| 100 EA. | AN525-832R6  | THRU | AN525-832R12  |
| 100 EA. | AN525-10R6   | THRU | AN525-10R12   |
| 100 EA. | MS24694S4    | THRU | MS24694S9     |
| 100 EA. | MS24694S50   | THRU | MS24694S54    |
| 100 EA. | MS24665-132  |      |               |
| 100 EA. | MS24665-134  |      |               |
| 100 EA. | MS24665-136  |      |               |
| 100 EA. | MS24665-151  |      |               |
| 100 EA. | MS24665-153  |      |               |
| 100 EA. | MS24665-155  |      |               |
| 100 EA. | MS24665-283  |      |               |
| 100 EA. | MS24665-285  |      |               |
| 100 EA. | MS24665-287  |      |               |

|         |             |      |            |
|---------|-------------|------|------------|
| 100 EA. | MS24665-300 |      |            |
| 100 EA. | MS21044N06  |      |            |
| 100 EA. | MS21044N08  |      |            |
| 100 EA. | MS21044N3   |      |            |
| 100 EA. | MS21044N4   |      |            |
| 100 EA. | MS21045-06  |      |            |
| 100 EA. | MS21045-08  |      |            |
| 100 EA. | MS21045-3   |      |            |
| 100 EA. | AN960-6     |      |            |
| 100 EA. | AN960-8     |      |            |
| 100 EA. | AN960-10    |      |            |
| 100 EA. | AN960-416   |      |            |
| 100 EA. | AN960-6L    |      |            |
| 100 EA. | AN960-8L    |      |            |
| 100 EA. | AN960-10L   |      |            |
| 100 EA. | AN960-416L  |      |            |
| 100 EA. | MS35333-37  | THRU | MS35333-40 |
| 100 EA. | MS35335-31  | THRU | MS35335-33 |
| 100 EA. | MS35338-41  | THRU | MS35338-44 |

**FBO STARTER BIN KIT (144 Pieces)**

|                   |                 |                |               |
|-------------------|-----------------|----------------|---------------|
| 100 MS24693S26    | 100 AN525-10R10 | 100 AN310-4    | 50 AN3-7A     |
| 100 MS24693S27    | 100 AN525-10R11 | 100 AN320-3    | 25 AN3-10A    |
| 100 MS24693S28    | 100 AN525-10R12 | 100 AN320-4    | 25 AN3-11A    |
| 100 MS24693S29    | 100 MS24694S4   | 100 AN960-6    | 25 AN3-12A    |
| 100 MS24693S30    | 100 MS24694S5   | 100 AN960-8    | 25 AN4-4A     |
| 100 MS24693S48    | 100 MS24694S6   | 100 AN960-10   | 25 AN4-5A     |
| 100 MS24693S49    | 100 MS24694S7   | 100 AN960-416  | 25 AN4-6A     |
| 100 MS24693S50    | 100 MS24694S8   | 100 AN960-6L   | 25 AN4-7A     |
| 100 MS24693S51    | 100 MS24694S9   | 100 AN960-8L   | 25 AN4-10A    |
| 100 MS24693S52    | 100 MS24694S50  | 100 AN960-10L  | 25 AN4-11A    |
| 100 MS24693S272   | 100 MS24694S51  | 100 AN960-416L | 25 AN4-12A    |
| 100 MS24693S273   | 100 MS24694S52  | 100 MS35333-37 | 25 AN3-3      |
| 100 MS24693S274   | 100 MS24694S53  | 100 MS35333-38 | 25 AN3-4      |
| 100 AN526-632R6   | 100 MS24694S54  | 100 MS35333-39 | 25 AN3-5      |
| 100 AN526-632R8   | 100 MS24665-132 | 100 MS35333-40 | 25 AN3-6      |
| 100 AN526-632R10  | 100 MS24665-134 | 100 MS35335-31 | 25 AN3-7      |
| 100 AN526-632R12  | 100 MS24665-136 | 100 MS35335-32 | 25 AN3-10     |
| 100 AN526-832R6   | 100 MS24665-151 | 100 MS35335-33 | 25 AN3-11     |
| 100 AN526-832R8   | 100 MS24665-153 | 100 MS35335-34 | 25 AN3-12     |
| 100 AN526-832R10  | 100 MS24665-155 | 100 MS35338-41 | 25 AN4-4      |
| 100 AN526-832R12  | 100 MS24665-283 | 100 MS35338-42 | 25 AN4-5      |
| 100 AN526-1032R6  | 100 MS24665-285 | 100 MS35338-43 | 25 AN4-6      |
| 100 AN526-1032R8  | 100 MS24665-300 | 100 MS35338-44 | 25 AN4-7      |
| 100 AN526-1032R10 | 100 MS21044N06  | 25 MS21047L06  | 25 AN4-10     |
| 100 AN526-1032R12 | 100 MS21044N08  | 25 MS21047L08  | 25 AN4-11     |
| 100 AN525-832R6   | 100 MS21044N3   | 25 MS21047L3   | 25 AN4-12     |
| 100 AN525-832R7   | 100 MS21044N4   | 50 MS21059L06  | 50 A6K75      |
| 100 AN525-832R8   | 100 MS21045-06  | 50 MS21059L08  | 50 A8K75      |
| 100 AN525-832R9   | 100 MS21045-08  | 50 MS21059L3   | 50 A10K80     |
| 100 AN525-832R10  | 100 MS21045-3   | 50 MS21075L06N | 50 A6-75      |
| 100 AN525-832R11  | 100 MS21045-4   | 50 MS21075L08N | 50 A8-75      |
| 100 AN525-832R12  | 100 MS21083N06  | 50 MS21075L3N  | 50 A10-80     |
| 100 AN525-10R6    | 100 MS21083N08  | 50 AN3-3A      | 25 MS35769-11 |
| 100 AN525-10R7    | 100 MS21083N3   | 50 AN3-4A      | 25 MS35769-21 |
| 100 AN525-10R8    | 100 MS21083N4   | 50 AN3-5A      | 25 MS35489-11 |
| 100 AN525-10R9    | 100 AN310-3     | 50 AN3-6A      | 25 MS35489-12 |

**FBO STARTER BIN KIT (96 Pieces)**

|                   |                   |                 |                |
|-------------------|-------------------|-----------------|----------------|
| 100 MS24693S26    | 100 AN526-1032R12 | 100 MS24694S53  | 100 AN960-8    |
| 100 MS24693S27    | 100 AN525-832R6   | 100 MS24694S54  | 100 AN960-10   |
| 100 MS24693S28    | 100 AN525-832R7   | 100 MS24665-132 | 100 AN960-416  |
| 100 MS24693S29    | 100 AN525-832R8   | 100 MS24665-134 | 100 AN960-6L   |
| 100 MS24693S30    | 100 AN525-832R9   | 100 MS24665-136 | 100 AN960-8L   |
| 100 MS24693S48    | 100 AN525-832R10  | 100 MS24665-151 | 100 AN960-10L  |
| 100 MS24693S49    | 100 AN525-832R11  | 100 MS24665-153 | 100 AN960-416L |
| 100 MS24693S50    | 100 AN525-832R12  | 100 MS24665-155 | 100 MS35333-37 |
| 100 MS24693S51    | 100 AN525-10R6    | 100 MS24665-283 | 100 MS35333-38 |
| 100 MS24693S52    | 100 AN525-10R7    | 100 MS24665-285 | 100 MS35333-39 |
| 100 MS24693S272   | 100 AN525-10R8    | 100 MS24665-300 | 100 MS35333-40 |
| 100 MS24693S273   | 100 AN525-10R9    | 100 MS21044N06  | 100 MS35338-41 |
| 100 MS24693S274   | 100 AN525-10R10   | 100 MS21044N08  | 100 MS35338-42 |
| 100 AN526-632R6   | 100 AN525-10R11   | 100 MS21044N3   | 100 MS35338-43 |
| 100 AN526-632R8   | 100 AN525-10R12   | 100 MS21044N4   | 100 MS35338-44 |
| 100 AN526-632R10  | 100 MS24694S4     | 100 MS21045-06  | 25 MS21047L06  |
| 100 AN526-632R12  | 100 MS24694S5     | 100 MS21045-08  | 25 MS21047L08  |
| 100 AN526-832R6   | 100 MS24694S6     | 100 MS21045-3   | 25 MS21047L3   |
| 100 AN526-832R8   | 100 MS24694S7     | 100 MS21045-4   | 25 MS21059L06  |
| 100 AN526-832R10  | 100 MS24694S8     | 100 MS21083N06  | 25 MS21059L08  |
| 100 AN526-832R12  | 100 MS24694S9     | 100 MS21083N08  | 25 MS21059L3   |
| 100 AN526-1032R6  | 100 MS24694S50    | 100 MS21083N3   | 25 MS21075L06N |
| 100 AN526-1032R8  | 100 MS24694S51    | 100 MS21083N4   | 25 MS21075L08N |
| 100 AN526-1032R10 | 100 MS24694S52    | 100 AN960-6     | 25 MS21075L3N  |

## HARDWARE BIN KITS

Compartment bins and Hardware Bin Kits are sold separately.



COMPARTMENT BIN

6 BIN CASE

4 BIN CASE

TABLE BASE

| SPECIFICATIONS | COMPARTMENT BIN         | 6 BIN CASE              | 4 BIN CASE              | TABLE BASE              |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Width, Inches  | 13 3/8                  | 15 1/4                  | 15 1/4                  | 15 1/2                  |
| Height, Inches | 2                       | 16 3/8                  | 11 1/4                  | 15 1/8                  |
| Depth, Inches  | 9 1/4                   | 11 3/4                  | 11 3/4                  | 12 1/8                  |
| Material       | Prime Cold Rolled Steel | Prime Cold Rolled Steel | Prime Cold Rolled Steel | Prime Cold Rolled Steel |
| Color          | Gray Baked Enamel       | Gray Baked Enamel       | Gray Baked Enamel       | Gray Baked Enamel       |
| Compartments   | 24                      | Holds 6 Bins            | Holds 4 Bins            | N/A                     |

E.C.A.S. compartment bins and bin cases are designed to hold small scoop compartment boxes. They are manufactured of prime cold rolled steel and are finished in rust and acid resistant baked enamel. All parts, including cradles which support scoop boxes, and coated slides and tracks, are tooled for quality and uniformity. A center panel on each cradle supports boxes and special stops prevent units from being accidentally pulled from the rack. Racks are reinforced for strength and support loaded boxes in the open position without tilting.

### SHEET METAL, S/S SCREW BIN KIT

|     |                |     |                |
|-----|----------------|-----|----------------|
| 100 | 4RX1/2THA S/S  | 100 | 4RX1/2FHA S/S  |
| 100 | 4RX5/8THA S/S  | 100 | 4RX5/8FHA S/S  |
| 100 | 4RX3/4THA S/S  | 100 | 4RX3/4FHA S/S  |
| 100 | 6RX1/2THA S/S  | 100 | 6RX1/2FHA S/S  |
| 100 | 6RX5/8THA S/S  | 100 | 6RX5/8FHA S/S  |
| 100 | 6RX3/4THA S/S  | 100 | 6RX3/4FHA S/S  |
| 100 | 8RX1/2THA S/S  | 100 | 8RX1/2FHA S/S  |
| 100 | 8RX5/8THA S/S  | 100 | 8RX5/8FHA S/S  |
| 100 | 8RX3/4THA S/S  | 100 | 8RX3/4FHA S/S  |
| 100 | 10RX1/2THA S/S | 100 | 10RX1/2FHA S/S |
| 100 | 10RX5/8THA S/S | 100 | 10RX5/8FHA S/S |
| 100 | 10RX3/4THA S/S | 100 | 10RX3/4FHA S/S |

### SHEET METAL STEEL BIN KIT

|     |            |     |            |
|-----|------------|-----|------------|
| 100 | 4RX1/2THA  | 100 | 4RX1/2FHA  |
| 100 | 4RX5/8THA  | 100 | 4RX5/8FHA  |
| 100 | 4RX3/4THA  | 100 | 4RX3/4FHA  |
| 100 | 6RX1/2THA  | 100 | 6RX1/2FHA  |
| 100 | 6RX5/8THA  | 100 | 6RX5/8FHA  |
| 100 | 6RX3/4THA  | 100 | 6RX3/4FHA  |
| 100 | 8RX1/2THA  | 100 | 8RX1/2FHA  |
| 100 | 8RX5/8THA  | 100 | 8RX5/8FHA  |
| 100 | 8RX3/4THA  | 100 | 8RX3/4FHA  |
| 100 | 10RX1/2THA | 100 | 10RX1/2FHA |
| 100 | 10RX5/8THA | 100 | 10RX5/8FHA |
| 100 | 10RX3/4THA | 100 | 10RX3/4FHA |

### UNDRILLED BOLT BIN KIT #1

|    |         |    |         |
|----|---------|----|---------|
| 25 | AN3-3A  | 25 | AN4-3A  |
| 25 | AN3-4A  | 25 | AN4-4A  |
| 25 | AN3-5A  | 25 | AN4-4A  |
| 25 | AN3-6A  | 25 | AN4-6A  |
| 25 | AN3-7A  | 25 | AN4-7A  |
| 25 | AN3-10A | 25 | AN4-10A |
| 20 | AN3-11A | 20 | AN4-11A |
| 20 | AN3-12A | 20 | AN4-12A |
| 20 | AN3-13A | 20 | AN4-13A |
| 20 | AN3-14A | 20 | AN4-14A |
| 20 | AN3-15A | 20 | AN4-15A |
| 20 | AN3-16A | 20 | AN4-16A |

### UNDRILLED BOLT BIN KIT #2

|     |         |     |         |
|-----|---------|-----|---------|
| 100 | AN3-3A  | 25  | AN4-10A |
| 100 | AN3-4A  | 25  | AN4-11A |
| 100 | AN3-5A  | 25  | AN4-12A |
| 50  | AN3-6A  | 100 | AN3C3A  |
| 50  | AN3-7A  | 100 | AN3C4A  |
| 50  | AN3-10A | 100 | AN3C5A  |
| 50  | AN3-11A | 50  | AN4C4A  |
| 50  | AN3-12A | 50  | AN4C5A  |
| 50  | AN4-4A  | 100 | AN3H3A  |
| 50  | AN4-5A  | 100 | AN3H4A  |
| 50  | AN4-6A  | 50  | AN4H4A  |
| 50  | AN4-7A  | 50  | AN4H5A  |

### DRILLED BOLT BIN KIT #1

|    |        |    |        |
|----|--------|----|--------|
| 25 | AN3-3  | 25 | AN4-3  |
| 25 | AN3-4  | 25 | AN4-4  |
| 25 | AN3-5  | 25 | AN4-4  |
| 25 | AN3-6  | 25 | AN4-6  |
| 25 | AN3-7  | 25 | AN4-7  |
| 25 | AN3-10 | 25 | AN4-10 |
| 20 | AN3-11 | 20 | AN4-11 |
| 20 | AN3-12 | 20 | AN4-12 |
| 20 | AN3-13 | 20 | AN4-13 |
| 20 | AN3-14 | 20 | AN4-14 |
| 20 | AN3-15 | 20 | AN4-15 |
| 20 | AN3-16 | 20 | AN4-16 |

### DRILLED BOLT BIN KIT #2

|     |        |     |             |
|-----|--------|-----|-------------|
| 100 | AN3-3  | 25  | AN4-10      |
| 100 | AN3-4  | 25  | AN4-11      |
| 100 | AN3-5  | 25  | AN4-12      |
| 50  | AN3-6  | 25  | AN5-6       |
| 50  | AN3-7  | 25  | AN5-7       |
| 50  | AN3-10 | 25  | AN5-10      |
| 50  | AN3-11 | 20  | AN5-11      |
| 50  | AN3-12 | 20  | AN5-12      |
| 50  | AN4-4  | 100 | AN310-3     |
| 50  | AN4-5  | 100 | AN310-4     |
| 50  | AN4-6  | 50  | AN310-5     |
| 50  | AN4-7  | 500 | MS24665-132 |

### WASHER BIN KIT #1

|     |            |     |            |
|-----|------------|-----|------------|
| 100 | AN960-6    | 100 | MS35333-37 |
| 100 | AN960-8    | 100 | MS35333-38 |
| 100 | AN960-10   | 100 | MS35333-39 |
| 100 | AN960-416  | 100 | MS35333-40 |
| 100 | AN960-516  | 100 | MS35338-41 |
| 100 | AN960-616  | 100 | MS35338-42 |
| 100 | AN960-6L   | 100 | MS35338-43 |
| 100 | AN960-8L   | 100 | MS35338-44 |
| 100 | AN960-10L  | 100 | AN970-3    |
| 100 | AN960-416L | 50  | AN970-4    |
| 100 | AN960-516L | 25  | AN970-5    |
| 100 | AN960-616L | 25  | AN970-6    |

### WASHER BIN KIT #2

|     |            |     |            |
|-----|------------|-----|------------|
| 100 | AN960C6    | 100 | MS35333-37 |
| 100 | AN960C8    | 100 | MS35333-38 |
| 100 | AN960C10   | 100 | MS35333-39 |
| 100 | AN960C416  | 100 | MS35333-40 |
| 100 | AN960C516  | 100 | MS35338-41 |
| 100 | AN960C616  | 100 | MS35338-42 |
| 100 | AN960C6L   | 100 | MS35338-43 |
| 100 | AN960C8L   | 100 | MS35338-44 |
| 100 | AN960C10L  | 100 | AN970-3    |
| 100 | AN960C416L | 50  | AN970-4    |
| 100 | AN960C516L | 25  | AN970-5    |
| 100 | AN960C616L | 25  | AN970-6    |

### COTTER PIN BIN KIT

|     |              |     |             |
|-----|--------------|-----|-------------|
| 100 | MS24665-1012 | 100 | MS24665-212 |
| 100 | MS24665-1013 | 100 | MS24665-22  |
| 100 | MS24665-132  | 100 | MS24665-229 |
| 100 | MS24665-134  | 100 | MS34665-231 |
| 100 | MS24665-136  | 100 | MS24665-283 |
| 100 | MS24665-138  | 100 | MS24665-285 |
| 100 | MS24665-140  | 100 | MS24665-287 |
| 100 | MS24665-151  | 100 | MS24665-289 |
| 100 | MS24665-153  | 100 | MS24665-300 |
| 100 | MS24665-155  | 100 | MS24665-302 |
| 100 | MS24665-157  | 100 | MS24665-360 |
| 100 | MS24665-210  | 100 | MS24665-362 |

### WASHER/COTTER PIN S/S BIN KIT

|     |             |     |                 |
|-----|-------------|-----|-----------------|
| 100 | AN960C6     | 100 | MS24665-302     |
| 100 | AN960C8     | 100 | MS24665-304     |
| 100 | AN960C10    | 100 | EC1075-012-06SS |
| 100 | AN960C416   | 100 | EC1080-017-08SS |
| 100 | AN960C6L    | 100 | EC1085-020-10SS |
| 100 | AN960C8L    | 100 | MS35333-71      |
| 100 | AN960C10L   | 100 | MS35333-72      |
| 100 | AN960C416L  | 100 | MS35333-73      |
| 100 | MS24665-151 | 100 | MS35333-74      |
| 100 | MS24665-153 | 100 | MS35338-136     |
| 100 | MS24665-155 | 100 | MS35338-137     |
| 100 | MS24665-300 | 100 | MS35338-138     |



### MS24693 BIN KIT

|     |            |     |             |
|-----|------------|-----|-------------|
| 100 | MS24693S2  | 100 | MS24693S46  |
| 100 | MS24693S3  | 100 | MS24693S47  |
| 100 | MS24693S4  | 100 | MS24693S48  |
| 100 | MS24693S6  | 100 | MS24693S49  |
| 100 | MS24693S7  | 100 | MS24693S50  |
| 100 | MS24693S24 | 100 | MS24693S51  |
| 100 | MS24693S25 | 100 | MS24693S52  |
| 100 | MS24693S26 | 100 | MS24693S270 |
| 100 | MS24693S27 | 100 | MS24693S271 |
| 100 | MS24693S28 | 100 | MS24693S272 |
| 100 | MS24693S29 | 100 | MS24693S273 |
| 100 | MS24693S30 | 100 | MS24693274  |

### MS24693 S/S BIN KIT

|     |            |     |             |
|-----|------------|-----|-------------|
| 100 | MS24693C2  | 100 | MS24693C46  |
| 100 | MS24693C3  | 100 | MS24693C47  |
| 100 | MS24693C4  | 100 | MS24693C48  |
| 100 | MS24693C6  | 100 | MS24693C49  |
| 100 | MS24693C7  | 100 | MS24693C50  |
| 100 | MS24693C24 | 100 | MS24693C51  |
| 100 | MS24693C25 | 100 | MS24693C52  |
| 100 | MS24693C26 | 100 | MS24693C270 |
| 100 | MS24693C27 | 100 | MS24693C271 |
| 100 | MS24693C28 | 100 | MS24693C272 |
| 100 | MS24693C29 | 100 | MS24693C273 |
| 100 | MS24693C30 | 100 | MS24693C274 |

### MS24694 BIN KIT

|     |            |     |            |
|-----|------------|-----|------------|
| 100 | MS24694S2  | 100 | MS24694S47 |
| 100 | MS24694S3  | 100 | MS24694S48 |
| 100 | MS24694S4  | 100 | MS24694S49 |
| 100 | MS24694S5  | 100 | MS24694S50 |
| 100 | MS24694S6  | 100 | MS24694S51 |
| 100 | MS24694S7  | 100 | MS24694S52 |
| 100 | MS24694S8  | 100 | MS24694S53 |
| 100 | MS24694S9  | 100 | MS24694S54 |
| 100 | MS24694S10 | 100 | MS24694S55 |
| 100 | MS24694S11 | 100 | MS24694S56 |
| 100 | MS24694S12 | 100 | MS24694S57 |
| 100 | MS24694S13 | 100 | MS24694S58 |

### AN525 BIN KIT

|     |              |     |              |
|-----|--------------|-----|--------------|
| 100 | AN525-832R5  | 100 | AN525-10R7   |
| 100 | AN525-832R6  | 100 | AN525-10R8   |
| 100 | AN525-832R7  | 100 | AN525-10R9   |
| 100 | AN525-832R8  | 100 | AN525-10R10  |
| 100 | AN525-832R9  | 100 | AN525-10R11  |
| 100 | AN525-832R10 | 100 | AN525-10R12  |
| 100 | AN525-832R11 | 100 | AN525-10R14  |
| 100 | AN525-832R12 | 100 | AN525-10R16  |
| 100 | AN525-832R14 | 100 | AN525-10R18  |
| 100 | AN525-832R16 | 100 | AN525-10R20  |
| 100 | AN525-10R5   | 50  | AN525-416R8  |
| 100 | AN525-10R6   | 25  | AN525-416R10 |

### STRUCTURAL PAN HD BIN KIT

|     |              |     |              |
|-----|--------------|-----|--------------|
| 100 | MS27039-0804 | 100 | MS27039-1-07 |
| 100 | MS27039-0805 | 100 | MS27039-1-08 |
| 100 | MS27039-0806 | 100 | MS27039-1-09 |
| 100 | MS27039-0807 | 100 | MS27039-1-10 |
| 100 | MS27039-0808 | 100 | MS27039-1-11 |
| 100 | MS27039-0809 | 100 | MS27039-1-12 |
| 100 | MS27039-0810 | 100 | MS27039-1-14 |
| 100 | MS27039-0811 | 100 | MS27039-1-15 |
| 100 | MS27039-0812 | 100 | MS27039-1-16 |
| 100 | MS27039-1-04 | 100 | MS27039C0808 |
| 100 | MS27039-1-05 | 100 | MS27039C0809 |
| 100 | MS27039-1-06 | 100 | MS27039C1-08 |

### PAN HD BIN KIT

|     |             |     |             |
|-----|-------------|-----|-------------|
| 100 | MS35206-213 | 100 | MS35206-241 |
| 100 | MS35206-215 | 100 | MS35206-242 |
| 100 | MS35206-216 | 100 | MS35206-243 |
| 100 | MS35206-217 | 100 | MS35206-244 |
| 100 | MS35206-218 | 100 | MS35206-245 |
| 100 | MS35206-219 | 100 | MS35206-246 |
| 100 | MS35206-226 | 100 | MS35207-261 |
| 100 | MS35206-228 | 100 | MS35207-262 |
| 100 | MS35206-229 | 100 | MS35207-263 |
| 100 | MS35206-230 | 100 | MS35207-264 |
| 100 | MS35206-231 | 100 | MS35207-265 |
| 100 | MS35206-232 | 100 | MS35207-267 |

### NON-STRUCTURAL SCREW BIN KIT

|     |             |     |               |
|-----|-------------|-----|---------------|
| 100 | MS24693S26  | 100 | AN526-632R10  |
| 100 | MS24693S28  | 100 | AN526-832R6   |
| 100 | MS24693S29  | 100 | AN526-832R8   |
| 100 | MS24693S48  | 100 | AN526-832R10  |
| 100 | MS24693S50  | 100 | AN526-1032R8  |
| 100 | MS24693S51  | 100 | AN526-1032R10 |
| 100 | MS24693S52  | 100 | AN526-1032R12 |
| 100 | MS24693S272 | 100 | MS35206-228   |
| 100 | MS24693S273 | 100 | MS35206-230   |
| 100 | MS24693S274 | 100 | MS35206-245   |
| 100 | AN526-632R6 | 100 | MS35207-263   |
| 100 | AN526-632R8 | 100 | MS35207-264   |

### NON-STRUCTURAL S/S SCREW BIN KIT

|     |             |     |               |
|-----|-------------|-----|---------------|
| 100 | MS24693C26  | 100 | AN526C632R6   |
| 100 | MS24693C28  | 100 | AN526C632R8   |
| 100 | MS25693C29  | 100 | AN526C632R10  |
| 100 | MS24693C30  | 100 | AN526C632R12  |
| 100 | MS24693C48  | 100 | AN526C832R6   |
| 100 | MS24693C50  | 100 | AN526C832R8   |
| 100 | MS24693C51  | 100 | AN526C832R10  |
| 100 | MS24693C52  | 100 | AN526C832R12  |
| 100 | MS24693C270 | 100 | AN526C1032R8  |
| 100 | MS24693C272 | 100 | AN526C1032R10 |
| 100 | MS24693C273 | 100 | AN526C1032R12 |
| 100 | MS24693C274 | 100 | AN526C1032R16 |

## E.C.A.S. Kits do not include compartment bins or cases.

E.C.A.S., Inc. kits include manufacturer name and lot numbers for traceability purposes. All hardware kits consist of 24 items of the most common hardware in the industry. Each kit is discounted 8% less expensive than if parts were purchased separately. Please allow 1 week to ship.

### STRUCTURAL SCREW BIN KIT

|     |             |     |              |
|-----|-------------|-----|--------------|
| 100 | MS24694S4   | 100 | AN525-832R8  |
| 100 | MS24694S5   | 100 | AN525-832R10 |
| 100 | MS24694S6   | 100 | AN525-10R7   |
| 100 | MS24694S7   | 100 | AN525-10R8   |
| 100 | MS24694S49  | 100 | AN525-10R9   |
| 100 | MS24694S50  | 100 | AN525-10R10  |
| 100 | MS24694S51  | 100 | AN525-10R12  |
| 100 | MS24694S52  | 100 | MS27039-0807 |
| 100 | MS24694S53  | 100 | MS27039-0808 |
| 100 | MS24694S54  | 100 | MS27039-1-08 |
| 100 | AN525-832R6 | 100 | MS27039-1-09 |
| 100 | AN525-832R7 | 100 | MS27039-1-10 |

### INSTRUMENT SCREW/NUT BIN KIT

|     |            |     |             |
|-----|------------|-----|-------------|
| 100 | MS35214-16 | 100 | MS24693BB28 |
| 100 | MS35214-20 | 100 | MS24693BB30 |
| 100 | MS35214-25 | 100 | MS24693BB32 |
| 100 | MS35214-27 | 100 | MS24693BB34 |
| 100 | MS35214-28 | 100 | MS24693BB36 |
| 100 | MS35214-29 | 25  | MS33737-10C |
| 100 | MS35214-30 | 25  | MS33737-11C |
| 100 | MS35214-31 | 25  | MS33737-12C |
| 100 | MS35214-32 | 25  | MS33737-13C |
| 100 | MS35214-33 | 25  | MS33737-14C |
| 100 | MS35214-42 | 25  | MS33737-15C |
| 100 | MS35214-46 | 25  | MS33737-16C |

### TRUSS HD BIN KIT

|     |               |     |               |
|-----|---------------|-----|---------------|
| 100 | AN526-632R6   | 100 | AN526C632R6   |
| 100 | AN526-632R8   | 100 | AN526C632R8   |
| 100 | AN526-632R10  | 100 | AN526C632R10  |
| 100 | AN526-632R12  | 100 | AN526C632R12  |
| 100 | AN526-832R6   | 100 | AN526C832R6   |
| 100 | AN526-832R8   | 100 | AN526C832R8   |
| 100 | AN526-832R10  | 100 | AN526C832R10  |
| 100 | AN526-832R12  | 100 | AN526C832R12  |
| 100 | AN526-1032R6  | 100 | AN526C1032R6  |
| 100 | AN526-1032R8  | 100 | AN526C1032R8  |
| 100 | AN526-1032R10 | 100 | AN526C1032R10 |
| 100 | AN526-1032R12 | 100 | AN526C1032R12 |

### LOCKNUT/CASTLE NUT BIN KIT

|     |            |     |            |
|-----|------------|-----|------------|
| 100 | MS21044N06 | 100 | MS21083N08 |
| 100 | MS21044N08 | 100 | MS21083N3  |
| 100 | MS21044N3  | 100 | MS21083N4  |
| 100 | MS21044N4  | 100 | AN310-3    |
| 50  | MS21044N5  | 100 | AN310-4    |
| 25  | MS21044N6  | 50  | AN310-5    |
| 100 | MS21045-06 | 25  | AN310-6    |
| 100 | MS21045-08 | 100 | MS21042L06 |
| 100 | MS21045-3  | 100 | MS21042L08 |
| 100 | MS21045-4  | 100 | MS21042L3  |
| 50  | MS21045-5  | 100 | MS21042L4  |
| 25  | MS21045-6  | 50  | MS21042L5  |

### CASTLE/PLAIN NUT BIN KIT

|     |         |     |              |
|-----|---------|-----|--------------|
| 100 | AN310-3 | 100 | AN315-3R     |
| 100 | AN310-4 | 100 | AN315-4R     |
| 50  | AN310-5 | 50  | AN315-5R     |
| 25  | AN310-6 | 25  | AN315-6R     |
| 10  | AN310-7 | 100 | AN316-4R     |
| 5   | AN310-8 | 50  | AN316-5R     |
| 100 | AN320-3 | 25  | AN316-6R     |
| 100 | AN320-4 | 100 | MS35649-242  |
| 50  | AN320-5 | 100 | MS35649-262  |
| 25  | AN320-6 | 100 | MS35649-282  |
| 10  | AN320-7 | 100 | MS35650-302  |
| 5   | AN320-8 | 100 | MS35650-3252 |

### NUTPLATE BIN KIT

|     |            |     |             |
|-----|------------|-----|-------------|
| 100 | MS21047L06 | 100 | MS21069L06  |
| 100 | MS21047L08 | 100 | MS21069L08  |
| 100 | MS21047L3  | 100 | MS21069L3   |
| 100 | MS21049L08 | 100 | MS21071L06  |
| 100 | MS21049L3  | 100 | MS21071L08  |
| 100 | MS21055L3  | 100 | MS21071L3   |
| 100 | MS21059L06 | 100 | MS21073L06  |
| 100 | MS21059L08 | 100 | MS21073L08  |
| 100 | MS21059L3  | 100 | MS21073L3   |
| 50  | MS21059L4  | 100 | MS21075L06N |
| 100 | MS21061L08 | 100 | MS21075L08N |
| 100 | MS21061L3  | 100 | MS21075L3N  |

### TINNERMAN BIN KIT

|    |             |     |               |
|----|-------------|-----|---------------|
| 50 | D6187-4Z1   | 50  | A1932-8Z1D    |
| 50 | A1784-6Z1D  | 50  | A1776-4Z1D    |
| 50 | A1785-6Z1D  | 50  | A1181-6Z1D    |
| 50 | A1786-8Z1D  | 50  | A1777-6Z1D    |
| 50 | A1274-8-1   | 50  | A1778-8Z1D    |
| 50 | A1789-8Z1D  | 50  | A1779-10Z1D   |
| 50 | A1348-8Z1D  | 50  | A6195-6Z1D    |
| 50 | A1787-8Z1D  | 50  | A6195-8Z1D    |
| 50 | A1788-8Z1D  | 5   | A6912-832-502 |
| 50 | A1758-10Z1D | 100 | A3236-012-24A |
| 50 | A1350-10Z1D | 100 | A3135-017-24A |
| 50 | A1787-10Z1D | 100 | A3235-020-24A |

### GROMMET/GASKET BIN KIT

|     |             |     |            |
|-----|-------------|-----|------------|
| 100 | MS35489-4   | 10  | MS35489-15 |
| 25  | MS35489-5   | 10  | MS35489-16 |
| 50  | MS35489-6   | 10  | MS35489-17 |
| 25  | MS35489-7   | 10  | MS35489-18 |
| 10  | MS35489-8   | 10  | MS35489-19 |
| 25  | MS35489-9   | 10  | MS35489-20 |
| 10  | MS35489-10  | 5   | MS35489-22 |
| 10  | MS35489-11  | 100 | MS35769-6  |
| 10  | MS35489-12  | 100 | MS35769-8  |
| 25  | MS35489-13  | 50  | MS35769-11 |
| 25  | MS35489-134 | 25  | MS35769-21 |
| 25  | MS35489-14  | 25  | MS35769-48 |

### RING TERMINAL WIRE CAP BIN KIT

|     |             |     |           |
|-----|-------------|-----|-----------|
| 100 | MS25036-101 | 100 | M7928/5-3 |
| 100 | MS25036-102 | 50  | M7928/5-4 |
| 100 | MS25036-103 | 25  | M7928/5-5 |
| 100 | MS25036-106 | 100 | 32446     |
| 100 | MS25036-108 | 100 | 32448     |
| 100 | MS25036-112 | 100 | MS25274-2 |
| 100 | MS25036-148 | 100 | MS25274-3 |
| 100 | MS25036-149 | 25  | D436-36   |
| 100 | MS25036-150 | 25  | D436-37   |
| 100 | MS25036-153 | 25  | D436-38   |
| 50  | MS25036-156 | 25  | D142-50   |
| 100 | M7928/5-2   | 25  | D142-51   |

### FITTING BIN KIT

|    |          |    |            |
|----|----------|----|------------|
| 10 | AN806D4  | 10 | AN929-2    |
| 10 | AN806D5  | 10 | AN929-3    |
| 10 | AN806D6  | 10 | AN929-4    |
| 10 | AN815-4D | 10 | AN929-5    |
| 5  | AN815-6D | 10 | AN929-6    |
| 10 | AN816-4D | 25 | MS20819-2D |
| 5  | AN816-6D | 25 | MS20819-3D |
| 10 | AN818-4D | 25 | MS20819-4D |
| 10 | AN818-6D | 25 | MS20819-5D |
| 5  | AN824-4D | 25 | MS20819-6D |
| 5  | AN824-6D | 5  | MS20822-4D |
| 5  | AN833-6D | 5  | MS20823-6D |

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