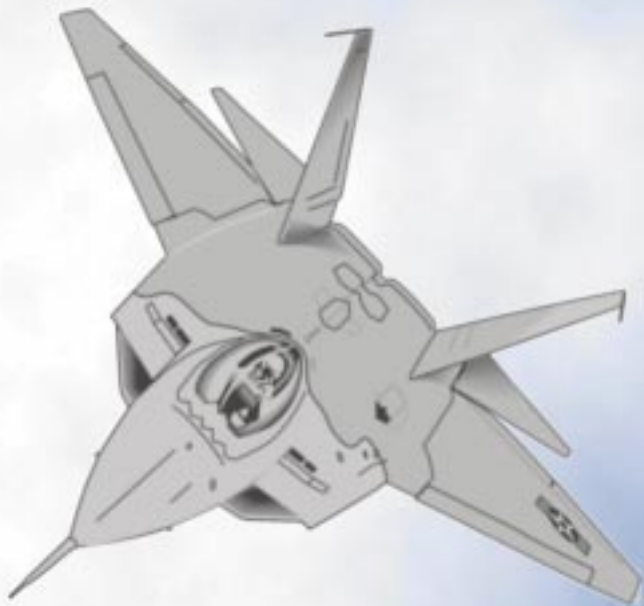


AC01



**THE MOTION - TRANSFER SPECIALISTS**



# AURORA BEARING COMPANY...

**Manufacturer and worldwide supplier  
of the highest quality rod ends,  
spherical bearings, and  
journal bushings  
anywhere!**

## General Information

In 1971 a new company entered the rod end and spherical bearing marketplace. This new firm, Aurora Bearing Company, soon became a major force in the rod end industry.

A strict "Quality discipline" covering all phases of business including basic product design, marketing efforts, engineering, customer concern, timely delivery, and all phases of manufacturing has advanced Aurora Bearing Company to the leadership role in the industrial marketplace.

By the middle of the 1980's this total quality reputation was recognized by the aircraft airframe industry, and Aurora Bearing Company was solicited by the most prestigious airframe manufacturers to build products for them to their specifications. This prompted the decision to seriously enter the aircraft market, and by 1988 Aurora Bearing Company was soliciting aircraft business on a controlled basis only, in order to insure consistent customer satisfaction. These efforts resulted in a smooth and successful entry into the aircraft marketplace.

Aurora Bearing Company now produces standard and special spherical bearings, rod ends and bushings, for aircraft manufacturers, their subcontractors, and approved aerospace

distributors. These customers span the entire aerospace industry including; Ultra Light Aircraft, General Aviation Aircraft, small and large Commercial Jet Liners, Military Aircraft, Space related applications up to and including critical areas of the International Space Station.

Incorporated into this catalog are the standard lines of spherical bearings, rod ends and bushings manufactured by Aurora Bearing Company. We also pride ourselves in working closely with aircraft and space designers and engineering groups relative to the most stringent requirements. A sample of these are pictured on the back cover of this catalog.

Aurora Bearing Company's quality system ABC-9000, has been surveyed, approved, and is subject to stringent ongoing reviews by many of the most prestigious aerospace customers.

A very competent international sales force, working with our dedicated engineering staff, is now in place for marketing these products worldwide, and is available and anxious to assist and provide practical and sound solutions to bearing application problems and challenges.

### SECTION ONE:

Military Approved Bearings.

We have received approval of our AT3200 PTFE Liner System (See page 31) to SAE-AS81820 (formerly Mil-B-81820), our spherical bearings to SAE-AS14101 through SAE-AS14104 (formerly MS14101 through MS14104), our rod ends to SAE-AS81935 (formerly Mil-B-81935), our PTFE lined bushings to SAE-AS81934 (formerly Mil-B-81934). Total traceabilities are maintained through manufacturing up to and including shipping.

### SECTION TWO:

Aircraft Bearings and Rod Ends not requiring Military Approval

These bearings and rod ends are manufactured under the same quality and SPC systems as the Military approved bearings. Aurora Bearing Company has not sought approval for bearings in this section. However, many of the bearings and rod ends have been approved to individual customer specifications and or standards. Total traceabilities are maintained through manufacturing up to and including shipping.

### SECTION THREE:

General Purpose Rod Ends and Spherical Bearings

Products listed in this section are used by the General Aviation, Experimental, Ultra Light aircraft industries, and in non-critical applications by Commercial Aircraft manufacturers. These bearings and rod ends are manufactured employing strict quality requirements. Total traceabilities are maintained on all parts except those on pages 28, 29, 30, and 31.

### SECTION FOUR:

Engineering Information

This section includes general engineering information frequently used by aircraft designers. For additional or more specific engineering needs, contact our engineering department.

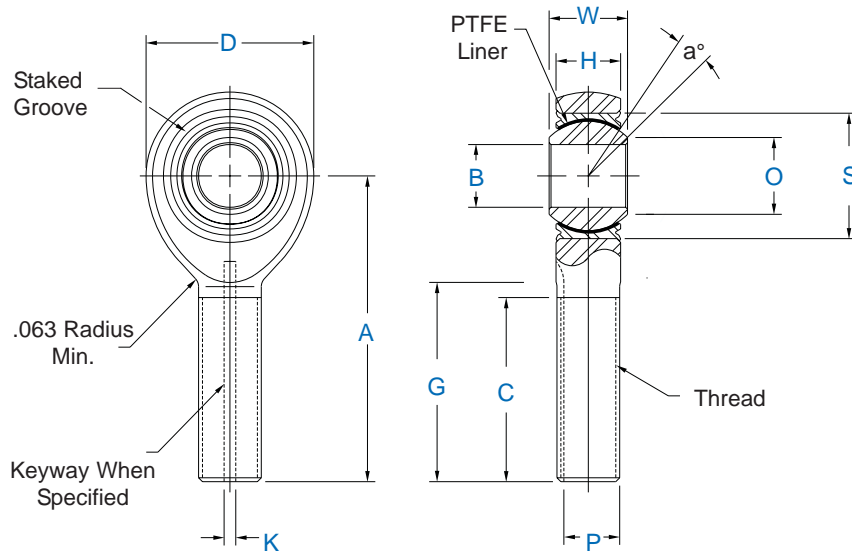


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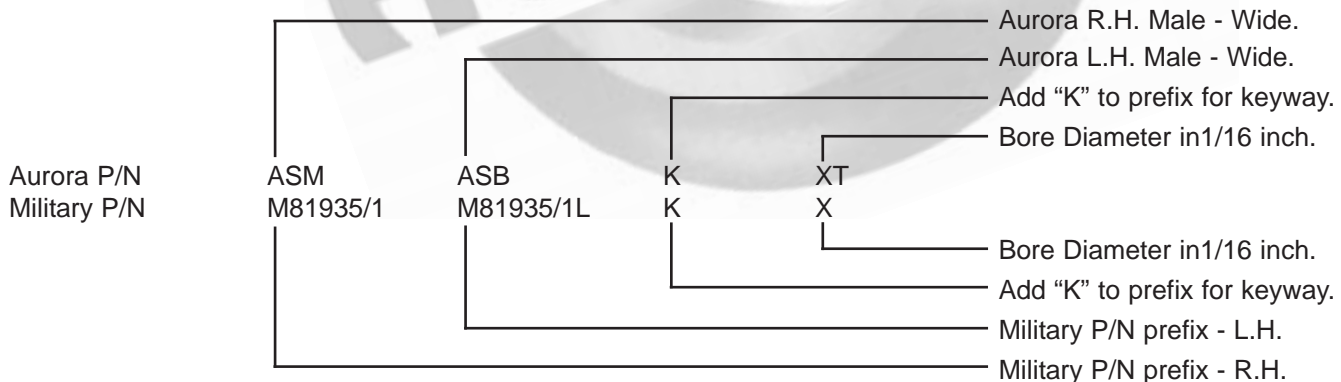
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**ASM-T & ASB-T Male Rod Ends**  
**High Strength - Aerospace Series**  
**SAE-AS81935/1**



| MILITARY NO. |              | AURORA NO. |           | DIMENSIONS IN INCHES  |                     |             |             |             |           |                              |                      |                     |                     |                     |
|--------------|--------------|------------|-----------|-----------------------|---------------------|-------------|-------------|-------------|-----------|------------------------------|----------------------|---------------------|---------------------|---------------------|
| Right Hand   | Left Hand    | Right Hand | Left Hand | B<br>+.0000<br>-.0005 | W<br>+.000<br>-.002 | H<br>± .005 | A<br>± .010 | D<br>± .010 | O<br>Min. | S<br>Max.<br>Housing<br>I.D. | Ball<br>Dia.<br>Ref. | G<br>+.000<br>-.020 | K<br>+.005<br>-.000 | P<br>+.000<br>-.005 |
| M81935/1-03  | M81935/1-03L | ASM-3T     | ASB-3T    | .1900                 | .437                | .337        | 1.562       | .806        | .300      | .6250                        | .531                 | .980                | .062                | .268                |
| M81935/1-04  | M81935/1-04L | ASM-4T     | ASB-4T    | .2500                 | .437                | .337        | 1.562       | .806        | .300      | .6250                        | .531                 | .980                | .062                | .268                |
| M81935/1-05  | M81935/1-05L | ASM-5T     | ASB-5T    | .3125                 | .437                | .327        | 1.875       | .900        | .360      | .6875                        | .593                 | 1.270               | .062                | .268                |
| M81935/1-06  | M81935/1-06L | ASM-6T     | ASB-6T    | .3750                 | .500                | .416        | 1.938       | 1.025       | .470      | .8125                        | .687                 | 1.235               | .093                | .319                |
| M81935/1-07  | M81935/1-07L | ASM-7T     | ASB-7T    | .4375                 | .562                | .452        | 2.125       | 1.150       | .540      | .9062                        | .781                 | 1.402               | .093                | .383                |
| M81935/1-08  | M81935/1-08L | ASM-8T     | ASB-8T    | .5000                 | .625                | .515        | 2.438       | 1.337       | .610      | 1.0000                       | .875                 | 1.589               | .093                | .445                |
| M81935/1-10  | M81935/1-10L | ASM-10T    | ASB-10T   | .6250                 | .750                | .577        | 2.625       | 1.525       | .750      | 1.1875                       | 1.062                | 1.683               | .125                | .541                |
| M81935/1-12  | M81935/1-12L | ASM-12T    | ASB-12T   | .7500                 | .875                | .640        | 2.875       | 1.775       | .850      | 1.3750                       | 1.250                | 1.808               | .125                | .663                |
| M81935/1-14  | M81935/1-14L | ASM-14T    | ASB-14T   | .8750                 | .875                | .765        | 3.375       | 2.025       | 1.000     | 1.6250                       | 1.375                | 2.121               | .156                | .777                |
| M81935/1-16  | M81935/1-16L | ASM-16T    | ASB-16T   | 1.0000                | 1.375               | 1.015       | 4.125       | 2.775       | 1.270     | 2.1250                       | 1.875                | 2.464               | .187                | 1.136               |





**ASM-T & ASB-T Male Rod Ends**  
**High Strength - Aerospace Series**  
**SAE-AS81935/1**

| Specifications |   |
|----------------|---|
| <b>BODY</b>    | 4340 Alloy Steel (AMS-S-5000)<br>Heat Treated<br>Cadmium Plated                               |
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated  |
| <b>LINER</b>   | AT 3200 Bearing Liner, Permanently Bonded to Race I.D.<br>Qualified to SAE-AS81820            |

| C<br>± .031 | Thread<br>UNJF-3A | a°<br>Misalign.<br>Angle<br>Min. | Approx.<br>Brg.<br>Wt.<br>Lbs. | Ult.<br>Static<br>Radial<br>Load<br>Lbs. | Fatigue<br>Load<br>Lbs. | Axial<br>Proof<br>Load<br>Lbs. | No Load<br>Rotational<br>Breakaway<br>Torque* In-Lbs. |      | AURORA NO.    |              | MILITARY NO.  |              |
|-------------|-------------------|----------------------------------|--------------------------------|--|-------------------------|--------------------------------|---|------|---------------|--------------|---------------|--------------|
|             |                   |                                  |                                |  |                         |                                | Min.  | Max. | Right<br>Hand | Left<br>Hand | Right<br>Hand | Left<br>Hand |
|             |                   |                                  |                                |  |                         |                                |   |      |               |              |               |              |
| .968        | 5/16-24           | 15                               | .072                           | 2,360                                    | 1,470                   | 1,000                          | .5  | 6    | ASM-3T        | ASB-3T       | M81935/1-03   | M81935/1-03L |
| .968        | 5/16-24           | 15                               | .072                           | 4,860                                    | 2,380                   | 1,000                          | .5  | 6    | ASM-4T        | ASB-4T       | M81935/1-04   | M81935/1-04L |
| 1.187       | 5/16-24           | 14                               | .087                           | 7,180                                    | 2,770                   | 1,100                          | 1   | 15   | ASM-5T        | ASB-5T       | M81935/1-05   | M81935/1-05L |
| 1.187       | 3/8-24            | 8                                | .136                           | 8,550                                    | 3,570                   | 1,660                          | 1   | 15   | ASM-6T        | ASB-6T       | M81935/1-06   | M81935/1-06L |
| 1.281       | 7/16-20           | 10                               | .183                           | 12,000                                   | 4,800                   | 1,850                          | 1   | 15   | ASM-7T        | ASB-7T       | M81935/1-07   | M81935/1-07L |
| 1.468       | 1/2-20            | 9                                | .278                           | 19,500                                   | 7,680                   | 2,040                          | 1   | 15   | ASM-8T        | ASB-8T       | M81935/1-08   | M81935/1-08L |
| 1.562       | 5/8-18            | 12                               | .424                           | 21,900                                   | 9,180                   | 2,430                          | 1   | 15   | ASM-10T       | ASB-10T      | M81935/1-10   | M81935/1-10L |
| 1.687       | 3/4-16            | 13                               | .639                           | 29,300                                   | 11,600                  | 2,810                          | 1   | 15   | ASM-12T       | ASB-12T      | M81935/1-12   | M81935/1-12L |
| 2.000       | 7/8-14            | 6                                | .963                           | 34,500                                   | 13,100                  | 3,320                          | 1   | 24   | ASM-14T       | ASB-14T      | M81935/1-14   | M81935/1-14L |
| 2.343       | 1 1/4-12          | 12                               | 2.546                          | 80,300                                   | 30,400                  | 4,340                          | 1   | 24   | ASM-16T       | ASB-16T      | M81935/1-16   | M81935/1-16L |

Rod End Bearings listed in above tables are qualified for procurement under SAE-AS81935/1 Stainless Steel bodies (not approved to military specs.) can be provided. Consult factory for materials substitutions or dimensional modification possibilities.

\*No load rotational breakaway torque can be varied to meet specific application requirements.

All threads are rolled and conform to UNJF-3A per MIL-S-8879.

AT 3200 Bearing Liner System is qualified for procurement under SAE-AS81820.

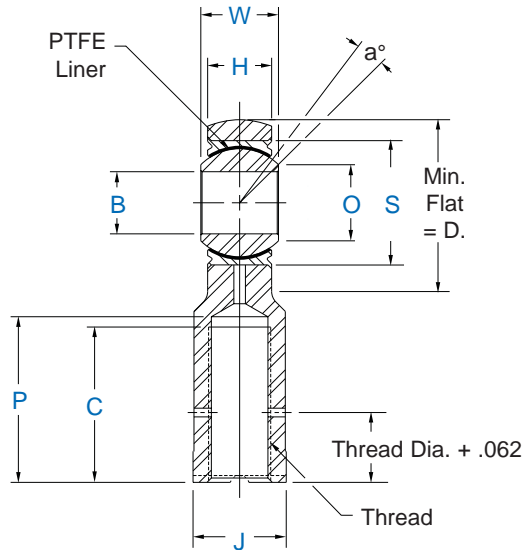
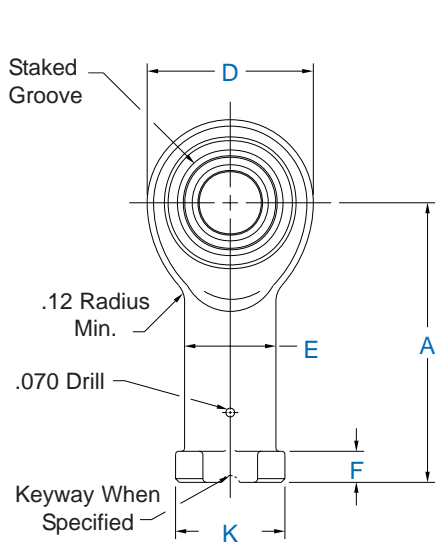
Operating temperature requirement per SAE-AS81820 is -65° to + 325° F (-54° to +163°C).

Wider temperature ranges are achievable.

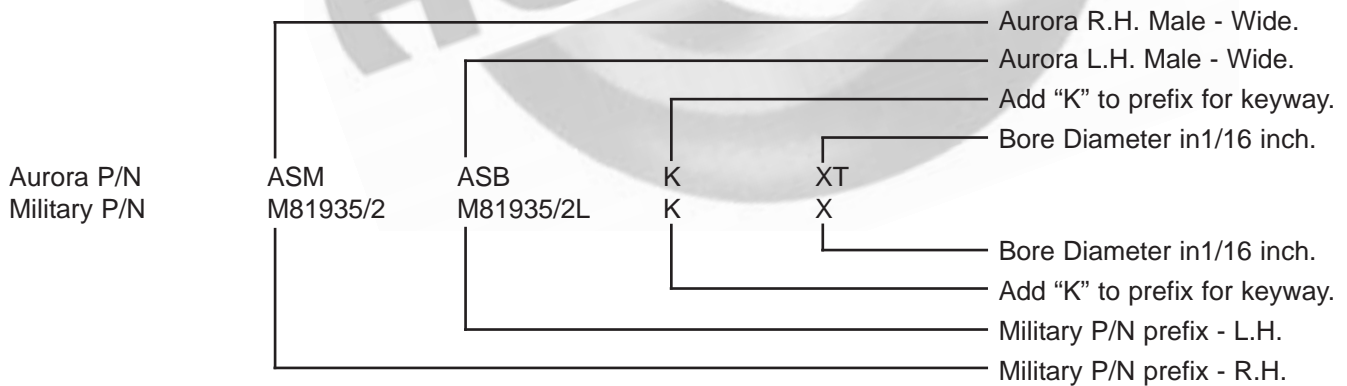
Consult factory for additional information.



**ASW-T & ASG-T Female Rod Ends**  
 High Strength - Aerospace Series  
 SAE-AS81935/2



| MILITARY NO. |              | AURORA NO. |           | DIMENSIONS IN INCHES  |                     |             |             |             |           |                              |             |                   |                     |                     |                      |
|--------------|--------------|------------|-----------|-----------------------|---------------------|-------------|-------------|-------------|-----------|------------------------------|-------------|-------------------|---------------------|---------------------|----------------------|
| Right Hand   | Left Hand    | Right Hand | Left Hand | B<br>+.0000<br>-.0005 | W<br>+.000<br>-.002 | H<br>± .005 | A<br>± .010 | D<br>± .010 | O<br>Min. | S<br>Max.<br>Housing<br>I.D. | E<br>± .010 | K<br>Ref.<br>Dia. | J<br>+.002<br>-.010 | F<br>+.010<br>-.062 | Ball<br>Dia.<br>Ref. |
| M81935/2-03  | M81935/2-03L | ASW-3T     | ASG-3T    | .1900                 | .437                | .337        | 1.375       | .806        | .300      | .6250                        | .422        | .500              | .437                | .188                | .531                 |
| M81935/2-04  | M81935/2-04L | ASW-4T     | ASG-4T    | .2500                 | .437                | .337        | 1.469       | .806        | .300      | .6250                        | .422        | .500              | .437                | .188                | .531                 |
| M81935/2-05  | M81935/2-05L | ASW-5T     | ASG-5T    | .3125                 | .437                | .327        | 1.625       | .900        | .360      | .6875                        | .485        | .580              | .500                | .250                | .593                 |
| M81935/2-06  | M81935/2-06L | ASW-6T     | ASG-6T    | .3750                 | .500                | .416        | 1.812       | 1.025       | .470      | .8125                        | .547        | .660              | .562                | .250                | .687                 |
| M81935/2-07  | M81935/2-07L | ASW-7T     | ASG-7T    | .4375                 | .562                | .452        | 2.000       | 1.150       | .540      | .9062                        | .610        | .720              | .625                | .250                | .781                 |
| M81935/2-08  | M81935/2-08L | ASW-8T     | ASG-8T    | .5000                 | .625                | .515        | 2.250       | 1.337       | .610      | 1.0000                       | .735        | .880              | .750                | .250                | .875                 |
| M81935/2-10  | M81935/2-10L | ASW-10T    | ASG-10T   | .6250                 | .750                | .577        | 2.500       | 1.525       | .750      | 1.1875                       | .860        | 1.020             | .875                | .375                | 1.062                |
| M81935/2-12  | M81935/2-12L | ASW-12T    | ASG-12T   | .7500                 | .875                | .640        | 2.875       | 1.775       | .850      | 1.3750                       | .985        | 1.160             | 1.000               | .375                | 1.250                |
| M81935/2-14  | M81935/2-14L | ASW-14T    | ASG-14T   | .8750                 | .875                | .765        | 3.375       | 2.025       | 1.000     | 1.6250                       | 1.110       | 1.300             | 1.125               | .500                | 1.375                |
| M81935/2-16  | M81935/2-16L | ASW-16T    | ASG-16T   | 1.0000                | 1.375               | 1.015       | 4.125       | 2.775       | 1.270     | 2.1250                       | 1.688       | 2.020             | 1.750               | .563                | 1.875                |





**ASW-T & ASG-T Female Rod Ends**  
**High Strength - Aerospace Series**  
**SAE-AS81935/2**

| Specifications |   |
|----------------|---|
| <b>BODY</b>    | 4340 Alloy Steel (AMS-S-5000)<br>Heat Treated<br>Cadmium Plated                               |
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated  |
| <b>LINER</b>   | AT 3200 Bearing Liner, Permanently Bonded to Race I.D.<br>Qualified to SAE-AS81820            |

| P<br>Max. | C<br>Min. | Thread<br>UNJF-3B | a°<br>Misalign.<br>Angle<br>Min. | Approx.<br>Brg.<br>Wt.<br>Lbs. | Ult.<br>Static<br>Radial<br>Load<br>Lbs. | Fatigue<br>Load<br>Lbs. | Axial<br>Proof<br>Load<br>Lbs. | No Load<br>Rotational<br>Breakaway<br>Torque* In-Lbs. |      | AURORA NO.    |              | MILITARY NO.  |              |
|-----------|-----------|-------------------|----------------------------------|--------------------------------|--|-------------------------|--------------------------------|---|------|---------------|--------------|---------------|--------------|
|           |           |                   |                                  |                                |  |                         |                                | Min.  | Max. | Right<br>Hand | Left<br>Hand | Right<br>Hand | Left<br>Hand |
|           |           |                   |                                  |                                |  |                         |                                |   |      |               |              |               |              |
| .875      | .750      | 5/16-24           | 15                               | .080                           | 2,360                                    | 1,470                   | 1,000                          | .5  | 6    | ASW-3T        | ASG-3T       | M81935/2-03   | M81935/2-03L |
| .875      | .750      | 5/16-24           | 15                               | .084                           | 4,860                                    | 2,380                   | 1,000                          | .5  | 6    | ASW-4T        | ASG-4T       | M81935/2-04   | M81935/2-04L |
| 1.000     | .875      | 3/8-24            | 14                               | .102                           | 7,180                                    | 3,020                   | 1,100                          | 1   | 15   | ASW-5T        | ASG-5T       | M81935/2-05   | M81935/2-05L |
| 1.125     | 1.000     | 3/8-24            | 8                                | .161                           | 8,550                                    | 3,570                   | 1,660                          | 1   | 15   | ASW-6T        | ASG-6T       | M81935/2-06   | M81935/2-06L |
| 1.250     | 1.125     | 7/16-20           | 10                               | .212                           | 12,000                                   | 4,800                   | 1,850                          | 1   | 15   | ASW-7T        | ASG-7T       | M81935/2-07   | M81935/2-07L |
| 1.375     | 1.250     | 1/2-20            | 9                                | .325                           | 19,500                                   | 8,260                   | 2,040                          | 1   | 15   | ASW-8T        | ASG-8T       | M81935/2-08   | M81935/2-08L |
| 1.500     | 1.375     | 5/8-18            | 12                               | .481                           | 21,900                                   | 9,180                   | 2,430                          | 1   | 15   | ASW-10T       | ASG-10T      | M81935/2-10   | M81935/2-10L |
| 1.750     | 1.625     | 3/4-16            | 13                               | .673                           | 29,300                                   | 11,600                  | 2,810                          | 1   | 15   | ASW-12T       | ASG-12T      | M81935/2-12   | M81935/2-12L |
| 2.062     | 1.875     | 7/8-14            | 6                                | .959                           | 34,500                                   | 13,100                  | 3,320                          | 1   | 24   | ASW-14T       | ASG-14T      | M81935/2-14   | M81935/2-14L |
| 2.312     | 2.125     | 1 1/4-12          | 12                               | 2.717                          | 80,300                                   | 30,400                  | 4,340                          | 1   | 24   | ASW-16T       | ASG-16T      | M81935/2-16   | M81935/2-16L |

Rod End Bearings listed in above tables are qualified for procurement under SAE-AS81935/2  
 Stainless Steel bodies (not approved to military specs.) can be provided. Consult factory for  
 materials substitutions or dimensional modification possibilities.

\*No load rotational breakaway torque can be varied to meet specific application requirements.

All threads conform to UNJF-3B per MIL-S-8879.

AT 3200 Bearing Liner System is qualified for procurement under SAE-AS81820.

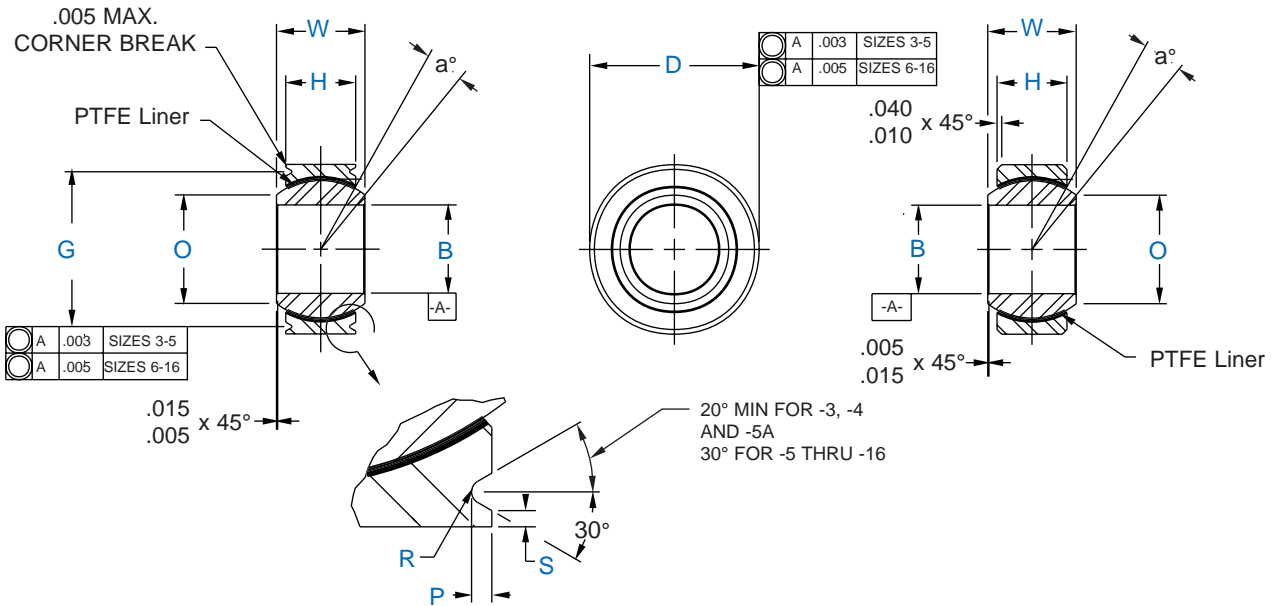
Operating temperature requirement per SAE-AS81820 is -65° to + 325° F (-54° to +163°C).

Wider temperature ranges are achievable.

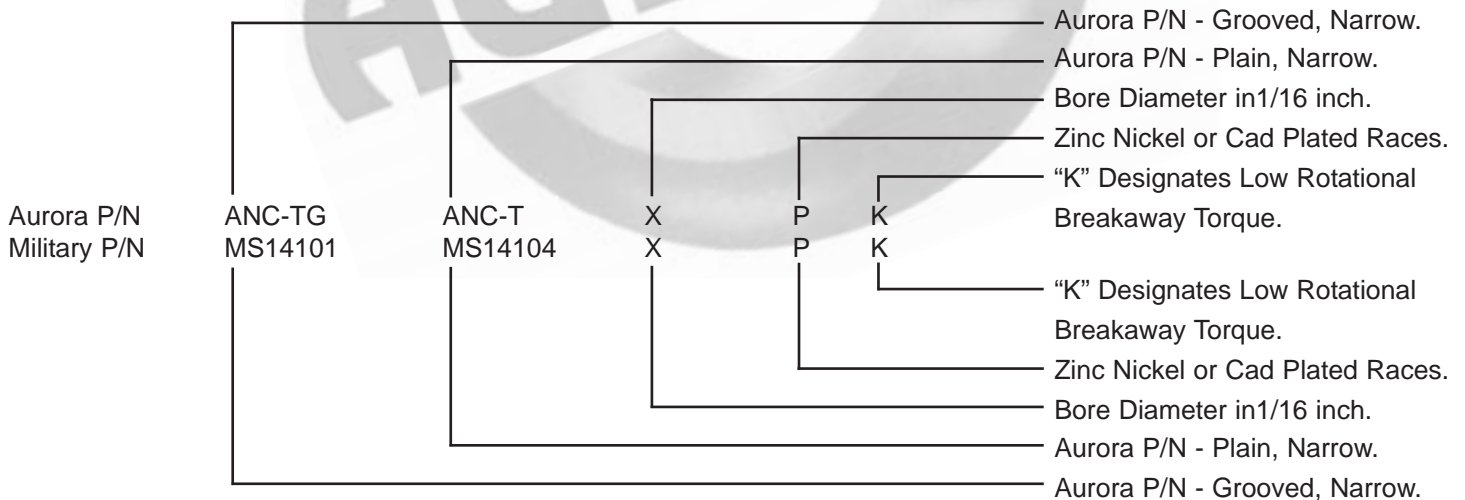
Consult factory for additional information.



## ANC-TG & ANC-T Spherical Bearings Narrow - Aerospace Series SAE-AS14101 and SAE-AS14104



| MILITARY NO. |            | AURORA NO. |         | DIMENSIONS IN INCHES  |                       |                     |            |           |                     |           |                     |                                  |                      |    |
|--------------|------------|------------|---------|-----------------------|-----------------------|---------------------|------------|-----------|---------------------|-----------|---------------------|----------------------------------|----------------------|----|
| GROOVED **   | PLAIN      | GROOVED ** | PLAIN   | B<br>+.0000<br>-.0005 | D<br>+.0000<br>-.0005 | W<br>+.000<br>-.002 | H<br>±.005 | O<br>Min. | P<br>+.000<br>-.010 | S<br>Min. | G<br>+.000<br>-.008 | R <sub>±</sub><br>+.002<br>-.005 | Ball<br>Dia.<br>Ref. | a° |
| MS14101-3    | MS14104-3  | ANC-3TG    | ANC-3T  | .1900                 | .5625                 | .281                | .218       | .293      | .025                | .010      | .500                | .010                             | .406                 | 10 |
| MS14101-4    | MS14104-4  | ANC-4TG    | ANC-4T  | .2500                 | .6562                 | .343                | .250       | .364      | .025                | .010      | .594                | .010                             | .500                 | 10 |
| MS14101-5†   | MS14104-5  | ANC-5TG†   | ANC-5T  | .3125                 | .7500                 | .375                | .281       | .419      | .035                | .020      | .650                | .010                             | .562                 | 10 |
| MS14101-6    | MS14104-6  | ANC-6TG    | ANC-6T  | .3750                 | .8125                 | .406                | .312       | .475      | .035                | .020      | .712                | .015                             | .625                 | 9  |
| MS14101-7    | MS14104-7  | ANC-7TG    | ANC-7T  | .4375                 | .9062                 | .437                | .343       | .530      | .035                | .020      | .806                | .015                             | .687                 | 8  |
| MS14101-8    | MS14104-8  | ANC-8TG    | ANC-8T  | .5000                 | 1.0000                | .500                | .390       | .600      | .055                | .020      | .876                | .015                             | .781                 | 8  |
| MS14101-9    | MS14104-9  | ANC-9TG    | ANC-9T  | .5625                 | 1.0937                | .562                | .437       | .670      | .055                | .020      | .970                | .015                             | .875                 | 8  |
| MS14101-10   | MS14104-10 | ANC-10TG   | ANC-10T | .6250                 | 1.1875                | .625                | .500       | .739      | .055                | .020      | 1.063               | .015                             | .968                 | 8  |
| MS14101-12   | MS14104-12 | ANC-12TG   | ANC-12T | .7500                 | 1.4375                | .750                | .593       | .920      | .055                | .020      | 1.313               | .015                             | 1.187                | 8  |
| MS14101-14   | MS14104-14 | ANC-14TG   | ANC-14T | .8750                 | 1.5625                | .875                | .703       | .980      | .055                | .020      | 1.438               | .015                             | 1.312                | 8  |
| MS14101-16   | MS14104-16 | ANC-16TG   | ANC-16T | 1.0000                | 1.7500                | 1.000               | .797       | 1.118     | .055                | .020      | 1.626               | .015                             | 1.500                | 9  |







**ANC-TG & ANC-T Spherical Bearings**  
**Narrow - Aerospace Series**  
**SAE-AS14101 and SAE-AS14104**

| Specifications |  |
|----------------|--|
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated              |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated                                 |
| <b>LINER</b>   | AT 3200 Bearing Liner, Permanently Bonded to Race I.D.<br>Qualified to SAE-AS81820 |



**GROOVED SERIES**



**PLAIN SERIES**

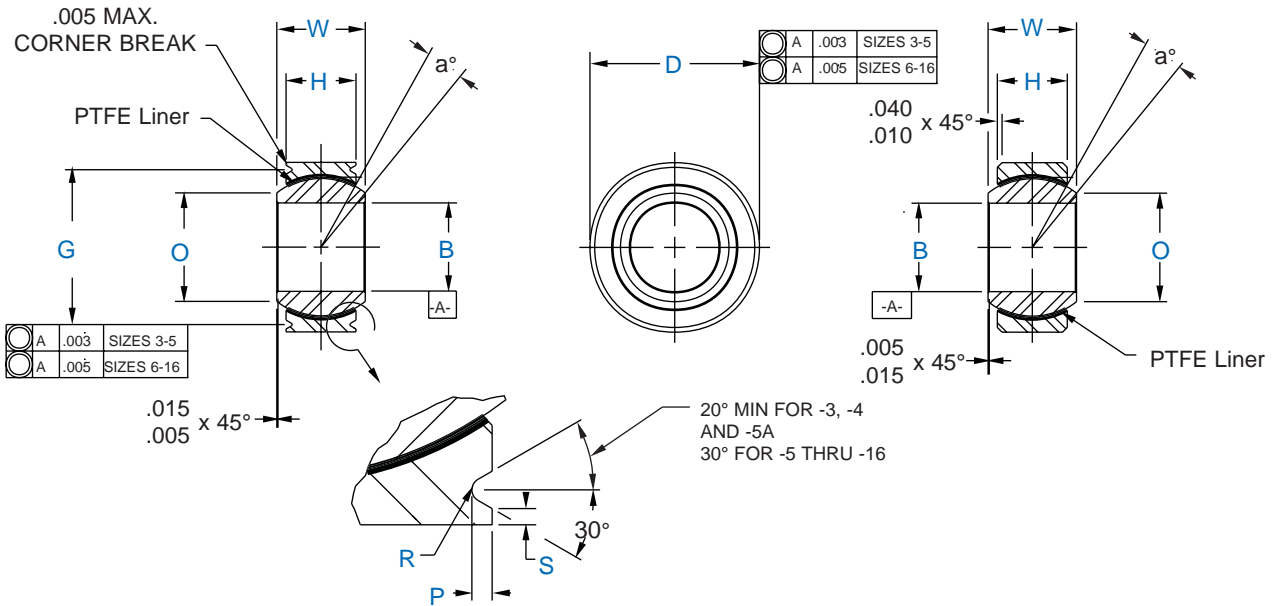
**Bearing Fits**

| Radial Lbs. | Axial Lbs. | Oscillating Load Lbs. | Bearing Fits                                     |  |                       |                      | Approx. Brg. Wt. Lbs. | AURORA NO. |         | MILITARY NO. |            |
|-------------|------------|-----------------------|--|--|-----------------------|----------------------|-----------------------|------------|---------|--------------|------------|
|             |            |                       | Standard Fit                                     | "K" Fit  |                       |                      |                       | GROOVED ** | PLAIN   | GROOVED **   | PLAIN      |
|             |            |                       | No Load Rotational Breakaway Torque Max. In-Lbs. | No Load Rotational Breakaway Torque Max. In-Lbs. | Radial Clearance Max. | Axial Clearance Max. |                       |            |         |              |            |
| 3,975       | 150        | 1,500                 | 0.25 - 5.0                                       | 0.5  | .0007                 | .0028                | .020                  | ANC-3TG    | ANC-3T  | MS14101-3    | MS14104-3  |
| 6,040       | 430        | 3,320                 | 0.25 - 5.0                                       | 0.5  | .0007                 | .0028                | .020                  | ANC-4TG    | ANC-4T  | MS14101-4    | MS14104-4  |
| 8,750       | 700        | 5,460                 | 0.25 - 8.0                                       | 1.0  | .0007                 | .0028                | .030                  | ANC-5TG†   | ANC-5T  | MS14101-5†   | MS14104-5  |
| 10,540      | 1,100      | 6,600                 | 0.25 - 8.0                                       | 1.0  | .0007                 | .0028                | .040                  | ANC-6TG    | ANC-6T  | MS14101-6    | MS14104-6  |
| 13,200      | 1,400      | 8,050                 | 0.25 - 8.0                                       | 1.0  | .0007                 | .0028                | .050                  | ANC-7TG    | ANC-7T  | MS14101-7    | MS14104-7  |
| 17,900      | 2,100      | 10,400                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0028                | .070                  | ANC-8TG    | ANC-8T  | MS14101-8    | MS14104-8  |
| 23,200      | 3,680      | 13,000                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0028                | .090                  | ANC-9TG    | ANC-9T  | MS14101-9    | MS14104-9  |
| 30,500      | 4,720      | 16,450                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0028                | .120                  | ANC-10TG   | ANC-10T | MS14101-10   | MS14104-10 |
| 46,400      | 6,750      | 23,600                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0028                | .210                  | ANC-12TG   | ANC-12T | MS14101-12   | MS14104-12 |
| 62,200      | 9,350      | 30,250                | 0.25 - 12.0                                      | 2.0  | .0010                 | .0040                | .270                  | ANC-14TG   | ANC-14T | MS14101-14   | MS14104-14 |
| 82,200      | 12,160     | 38,000                | 0.25 - 12.0                                      | 2.0  | .0010                 | .0040                | .390                  | ANC-16TG   | ANC-16T | MS14101-16   | MS14104-16 |

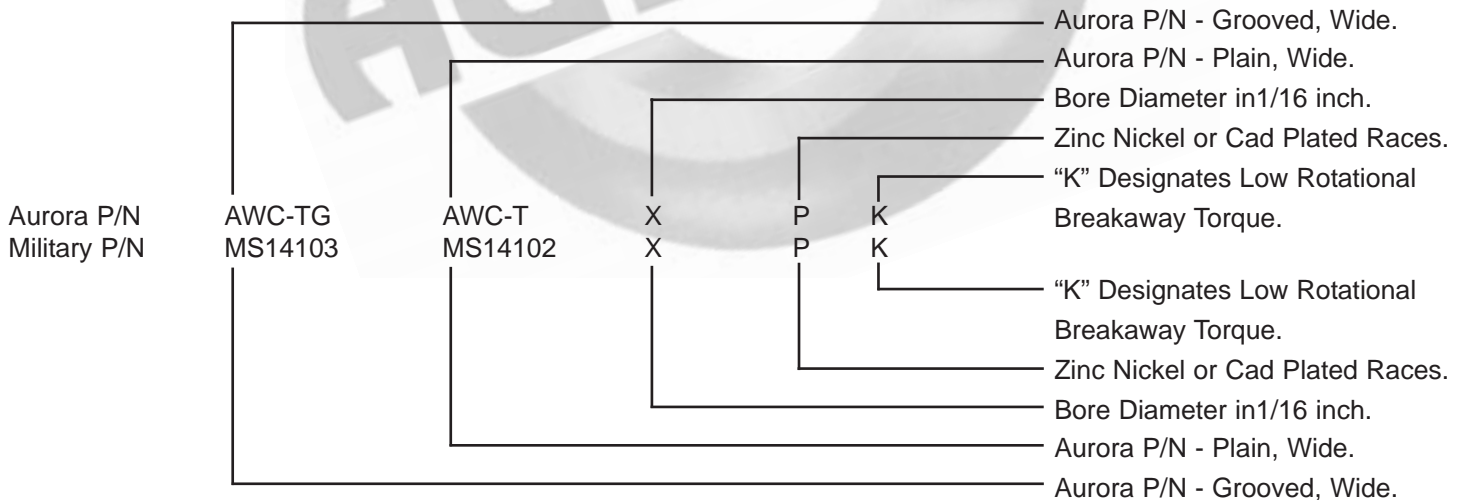
Bearings listed in above tables are qualified for procurement under SAE-AS14101 and SAE-AS14104.  
 "K" Type Low Torque Bearing fit requirements are listed above. Other variations of torque requirements can be varied to meet specific application requirements.  
 AT 3200 Bearing Liner System is qualified for procurement under SAE-AS81820.  
 Operating temperature requirement per SAE-AS81820 is -65° to + 325° F (-54° to +163°C).  
 Wider temperature ranges are achievable.  
 \*Standard fit bearings are void of any "radial" or "axial" clearance.  
 \*\*For further staking groove and assembly information, see pages 33 and 34  
 Consult factory for additional information.  
 †-5A is identical to -5 except "G" dimension is .660  
 ‡+.000, -.005 for -3, -4, -5A.



## AWC-TG & AWC-T Spherical Bearings Wide - Aerospace Series SAE-AS14102 and SAE-AS14103



| MILITARY NO. |            | AURORA NO. |         | DIMENSIONS IN INCHES  |                       |                     |             |           |                     |           |                     |                     |                      |    |
|--------------|------------|------------|---------|-----------------------|-----------------------|---------------------|-------------|-----------|---------------------|-----------|---------------------|---------------------|----------------------|----|
| GROOVED **   | PLAIN      | GROOVED ** | PLAIN   | B<br>+.0000<br>-.0005 | D<br>+.0000<br>-.0005 | W<br>+.000<br>-.002 | H<br>± .005 | O<br>Min. | P<br>+.000<br>-.010 | S<br>Min. | G<br>+.000<br>-.008 | R<br>+.002<br>-.005 | Ball<br>Dia.<br>Ref. | a° |
| MS14103-3    | MS14102-3  | AWC-3TG    | AWC-3T  | .1900                 | .6250                 | .437                | .327        | .300      | .025                | .010      | .563                | .010                | .531                 | 15 |
| MS14103-4    | MS14102-4  | AWC-4TG    | AWC-4T  | .2500                 | .6250                 | .437                | .327        | .300      | .025                | .010      | .563                | .010                | .531                 | 15 |
| MS14103-5    | MS14102-5  | AWC-5TG    | AWC-5T  | .3125                 | .6875                 | .437                | .317        | .360      | .025                | .010      | .625                | .010                | .593                 | 14 |
| MS14103-6    | MS14102-6  | AWC-6TG    | AWC-6T  | .3750                 | .8125                 | .500                | .406        | .466      | .035                | .020      | .712                | .015                | .687                 | 8  |
| MS14103-7†   | MS14102-7  | AWC-7TG†   | AWC-7T  | .4375                 | .9375                 | .562                | .442        | .537      | .035                | .020      | .837                | .015                | .781                 | 10 |
| MS14103-8    | MS14102-8  | AWC-8TG    | AWC-8T  | .5000                 | 1.0000                | .625                | .505        | .607      | .035                | .020      | .900                | .015                | .875                 | 9  |
| MS14103-9    | MS14102-9  | AWC-9TG    | AWC-9T  | .5625                 | 1.1250                | .687                | .536        | .721      | .035                | .020      | 1.025               | .015                | 1.000                | 10 |
| MS14103-10   | MS14102-10 | AWC-10TG   | AWC-10T | .6250                 | 1.1875                | .750                | .567        | .747      | .035                | .020      | 1.087               | .015                | 1.062                | 12 |
| MS14103-12   | MS14102-12 | AWC-12TG   | AWC-12T | .7500                 | 1.3750                | .875                | .630        | .845      | .055                | .020      | 1.251               | .015                | 1.250                | 13 |
| MS14103-14   | MS14102-14 | AWC-14TG   | AWC-14T | .8750                 | 1.6250                | .875                | .755        | .995      | .055                | .020      | 1.501               | .015                | 1.375                | 6  |
| MS14103-16   | MS14102-16 | AWC-16TG   | AWC-16T | 1.0000                | 2.1250                | 1.375               | 1.005       | 1.269     | .055                | .020      | 2.001               | .015                | 1.875                | 12 |





**AWC-TG & AWC-T Spherical Bearings**  
**Wide - Aerospace Series**  
**SAE-AS14102 and SAE-AS14103**

| Specifications |  |
|----------------|--|
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated              |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated                                 |
| <b>LINER</b>   | AT 3200 Bearing Liner, Permanently Bonded to Race I.D.<br>Qualified to SAE-AS81820 |



**GROOVED SERIES**



**PLAIN SERIES**

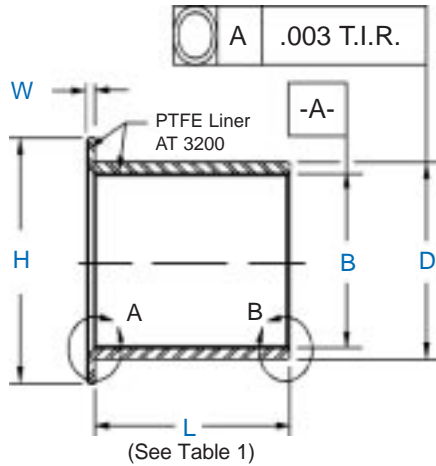
**Bearing Fits**

| Radial Lbs. | Axial Lbs. | Oscillating Load Lbs. | Standard Fit                                     |  | "K" Fit               |                      | Approx. Brg. Wt. Lbs. | AURORA NO. |         | MILITARY NO. |            |
|-------------|------------|-----------------------|--|--|-----------------------|----------------------|-----------------------|------------|---------|--------------|------------|
|             |            |                       | No Load Rotational Breakaway Torque Max. In-Lbs. | No Load Rotational Breakaway Torque Max. In-Lbs. | Radial Clearance Max. | Axial Clearance Max. |                       | GROOVED ** | PLAIN   | GROOVED **   | PLAIN      |
|             |            |                       |  |  |                       |                      |                       |            |         |              |            |
| 2,500       | 1,770      | 4,900                 | 0.25 - 5.0                                       | 0.5  | .0007                 | .0021                | .031                  | AWC-3TG    | AWC-3T  | MS14103-3    | MS14102-3  |
| 5,500       | 1,770      | 4,900                 | 0.25 - 5.0                                       | 0.5  | .0007                 | .0021                | .031                  | AWC-4TG    | AWC-4T  | MS14103-4    | MS14102-4  |
| 9,400       | 1,640      | 6,050                 | 0.25 - 8.0                                       | 1.0  | .0007                 | .0021                | .035                  | AWC-5TG    | AWC-5T  | MS14103-5    | MS14102-5  |
| 13,700      | 2,630      | 8,310                 | 0.25 - 8.0                                       | 1.0  | .0007                 | .0021                | .060                  | AWC-6TG    | AWC-6T  | MS14103-6    | MS14102-6  |
| 20,700      | 3,650      | 11,750                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0021                | .080                  | AWC-7TG†   | AWC-7T  | MS14103-7†   | MS14102-7  |
| 21,400      | 4,970      | 14,950                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0021                | .100                  | AWC-8TG    | AWC-8T  | MS14103-8    | MS14102-8  |
| 26,600      | 5,370      | 18,100                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0021                | .135                  | AWC-9TG    | AWC-9T  | MS14103-9    | MS14102-9  |
| 29,000      | 6,130      | 20,250                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0021                | .160                  | AWC-10TG   | AWC-10T | MS14103-10   | MS14102-10 |
| 37,000      | 7,730      | 26,200                | 0.25 - 8.0                                       | 1.0  | .0007                 | .0021                | .240                  | AWC-12TG   | AWC-12T | MS14103-12   | MS14102-12 |
| 65,200      | 10,800     | 33,600                | 0.25 - 12.0                                      | 2.0  | .0010                 | .0030                | .350                  | AWC-14TG   | AWC-14T | MS14103-14   | MS14102-14 |
| 104,000     | 19,300     | 56,250                | 0.25 - 12.0                                      | 2.0  | .0010                 | .0030                | .970                  | AWC-16TG   | AWC-16T | MS14103-16   | MS14102-16 |

Bearings listed in above tables are qualified for procurement under SAE-AS14102 and SAE-AS14103.  
 "K" Type Low Torque Bearing fit requirements are listed above. Other variations of torque requirements can be varied to meet specific application requirements.  
 AT 3200 Bearing Liner System is qualified for procurement under SAE-AS81820.  
 Operating temperature requirement per SAE-AS81820 is -65° to + 325° F (-54° to +163°C).  
 Wider temperature ranges are achievable.  
 \*Standard fit bearings are void of any "radial" or "axial" clearance.  
 \*\*For further staking groove and assembly information, see pages 32 and 33  
 Consult factory for additional information.  
 †-7A is identical to -7 except "G" dimension is .660



## AJB-TFA/ - TFC Flanged Journal Bushings SAE-AS81934/2



### Specifications

|     |   |
|-----|---|
| "A" | Aluminum Alloy QQ-A-200/3 or QQ-A-225/6 (2024T851 or 2024T8511), Chemical Film Treatment per MIL-C-5541                                     |
| "C" | Corrosion Resistant Steel, AMS 5643 (17-4 PH) Condition H-1150 per MIL-H-6875, Passivated per QQ-P-35 (Cad, or Zinc-Nickel plate optional). |
| "T" | AT 3200 Bearing Liner System, Permanently Bonded to Bushing I.D. Qualified to SAE-AS81820   |

| BUSHING NO. |                 | DIMENSIONS IN INCHES  |         |                    |                     |                     | Weight*<br>Lbs./Inch (Ref)<br>L-1.00 |      | Flange<br>Weight Lbs.<br>(Ref) |      |
|-------------|-----------------|-----------------------|---------|--------------------|---------------------|---------------------|--------------------------------------|------|--------------------------------|------|
| Aluminum    | Stainless Steel | B<br>+.0000<br>-.0010 | D       |                    | H<br>+.000<br>-.020 | W<br>+.000<br>-.005 | Alum.                                | CRES | Alum.                          | CRES |
|             |                 |                       | ± .0005 | + .0000<br>- .0005 |                     |                     |                                      |      |                                |      |
| AJB-4TFA    | AJB-4TFC        | .2515                 | .3760   | .750               | .0625               | .006                | .016                                 | .002 | .006                           |      |
| AJB-5TFA    | AJB-5TFC        | .3140                 | .4386   | .812               | .0625               | .007                | .019                                 | .003 | .007                           |      |
| AJB-6TFA    | AJB-6TFC        | .3765                 | .5012   | .875               | .0625               | .008                | .022                                 | .003 | .007                           |      |
| AJB-7TFA    | AJB-7TFC        | .4390                 | .5638   | .937               | .0625               | .009                | .025                                 | .003 | .008                           |      |
| AJB-7TFA-1  | AJB-7TFC-1      | .4390                 | .5638   | .745               | .0625               | .009                | .025                                 | .003 | .008                           |      |
| AJB-8TFA    | AJB-8TFC        | .5015                 | .6265   | 1.000              | .0625               | .011                | .028                                 | .003 | .009                           |      |
| AJB-9TFA    | AJB-9TFC        | .5640                 | .6892   | 1.125              | .0625               | .012                | .031                                 | .004 | .011                           |      |
| AJB-10TFA   | AJB-10TFC       | .6265                 | .8142   | 1.250              | .0625               | .021                | .056                                 | .005 | .014                           |      |
| AJB-11TFA   | AJB-11TFC       | .6890                 | .8767   | 1.375              | .0625               | .022                | .060                                 | .006 | .016                           |      |
| AJB-12TFA   | AJB-12TFC       | .7515                 | .9393   | 1.500              | .0625               | .024                | .065                                 | .007 | .020                           |      |
| AJB-14TFA   | AJB-14TFC       | .8765                 | 1.0645  | 1.625              | .0625               | .028                | .075                                 | .008 | .022                           |      |
| AJB-16TFA   | AJB-16TFC       | 1.0015                | 1.1898  | 1.750              | .0625               | .031                | .084                                 | .009 | .024                           |      |
| AJB-18TFA   | AJB-18TFC       | 1.1265                | 1.3148  | 1.875              | .0937               | .035                | .094                                 | .015 | .041                           |      |
| AJB-20TFA   | AJB-20TFC       | 1.2515                | 1.4398  | 2.000              | .0937               | .038                | .103                                 | .016 | .045                           |      |
| AJB-22TFA   | AJB-22TFC       | 1.3765                | 1.5648  | 2.125              | .0937               | .041                | .113                                 | .017 | .048                           |      |
| AJB-24TFA   | AJB-24TFC       | 1.5015                | 1.7523  | 2.250              | .0937               | .062                | .171                                 | .018 | .051                           |      |
| AJB-26TFA   | AJB-26TFC       | 1.6265                | 1.8773  | 2.375              | .0937               | .067                | .183                                 | .020 | .055                           |      |
| AJB-28TFA   | AJB-28TFC       | 1.7515                | 2.0023  | 2.500              | .0937               | .071                | .193                                 | .021 | .058                           |      |
| AJB-32TFA   | AJB-32TFC       | 2.0015                | 2.2523  | 2.750              | .0937               | .081                | .222                                 | .023 | .065                           |      |

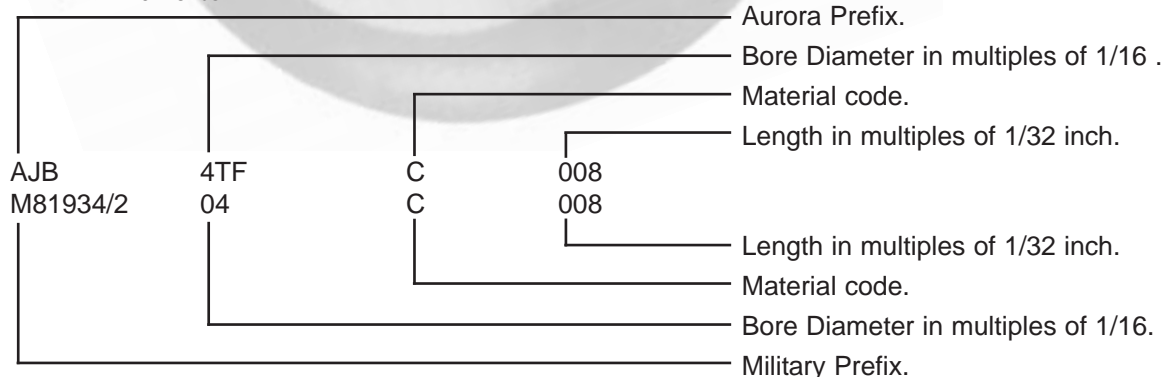
Example of weight calculation: AJB-16TF-016

Sleeve weight:  $(0.31 \text{ lb/in}) \times .500 = .0155 \text{ lbs}$

Flange weight = .009 lbs

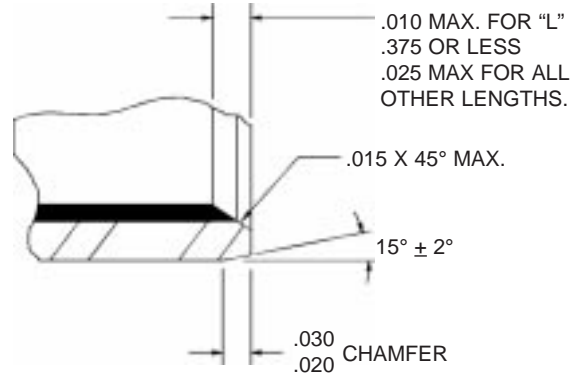
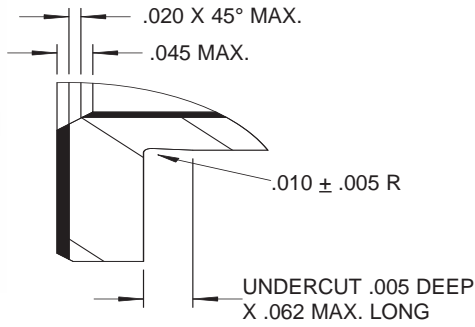
Total weight = .0245 lbs

Aurora P/N  
Military P/N





## AJB-TFA/ - TFC Flanged Journal Bushings SAE-AS81934/2



**TABLE 1A**

**DETAIL A**

**DETAIL B**

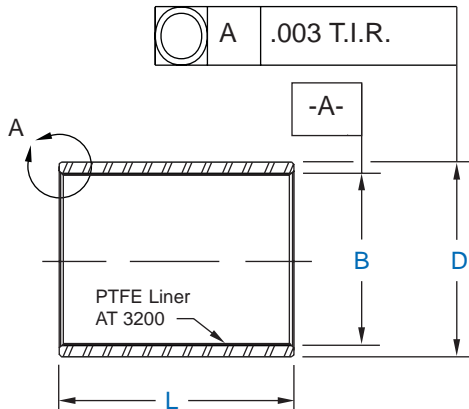
| DASH NO. | NOMINAL SIZE | Length L $\begin{smallmatrix} +.000 \\ -.010 \end{smallmatrix}$ |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
|----------|--------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
|          |              | .156  | .187 | .218 | .250 | .281 | .312 | .343 | .375 | .437 | .500 | .562 | .625 | .687 | .750 | .875 |  |
| -04      | 1/4          | 005   | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  |      |      |      |      |      |      |  |
| -05      | 5/16         | 005   | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  |      |      |      |      |  |
| -06      | 3/8          | 005   | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  |      |      |  |
| -07      | 7/16         | 005   | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -08      | 1/2          | 005   | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -09      | 9/16         | 005   | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -10      | 5/8          | 005   | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -11      | 11/16        |   |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -12      | 3/4          |   |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -14      | 7/8          |   |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -16      | 1            |   |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -18      | 1 1/8        |   |      |      |      |      | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -20      | 1 1/4        |   |      |      |      |      |      |      | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -22      | 1 3/8        |   |      |      |      |      |      |      | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -24      | 1 1/2        |   |      |      |      |      |      |      | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -26      | 1 5/8        |   |      |      |      |      |      |      |      | 016  | 018  | 020  | 022  | 024  | 028  |      |  |
| -28      | 1 3/4        |   |      |      |      |      |      |      |      | 016  | 018  | 020  | 022  | 024  | 028  |      |  |
| -32      | 2            |   |      |      |      |      |      |      |      | 016  | 018  | 020  | 022  | 024  | 028  |      |  |

**TABLE 1B**

| DASH NO. | NOMINAL SIZE | Length L $\begin{smallmatrix} +.000 \\ -.010 \end{smallmatrix}$ |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|----------|--------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|          |              | 1.000   | 1.125 | 1.250 | 1.375 | 1.500 | 1.625 | 1.750 | 1.875 | 2.000 | 2.125 | 2.250 | 2.375 | 2.500 | 2.750 | 3.000 |
| -04      | 1/4          |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| -05      | 5/16         |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| -06      | 3/8          |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| -07      | 7/16         |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| -08      | 1/2          |   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| -09      | 9/16         | 032   | 036   |       |       |       |       |       |       |       |       |       |       |       |       |       |
| -10      | 5/8          | 032   | 036   | 040   | 044   |       |       |       |       |       |       |       |       |       |       |       |
| -11      | 11/16        | 032   | 036   | 040   | 044   | 048   | 052   |       |       |       |       |       |       |       |       |       |
| -12      | 3/4          | 032   | 036   | 040   | 044   | 048   | 052   |       |       |       |       |       |       |       |       |       |
| -14      | 7/8          | 032   | 036   | 040   | 044   | 048   | 052   |       |       |       |       |       |       |       |       |       |
| -16      | 1            | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   |       |       |       |       |       |       |       |
| -18      | 1 1/8        | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   |       |       |       |       |       |       |       |
| -20      | 1 1/4        | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   |       |       |       |       |       |
| -22      | 1 3/8        | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   |       |       |       |       |       |
| -24      | 1 1/2        | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   |       |
| -26      | 1 5/8        | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   | 096   |
| -28      | 1 3/4        | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   | 096   |
| -32      | 2            | 032   | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   | 096   |



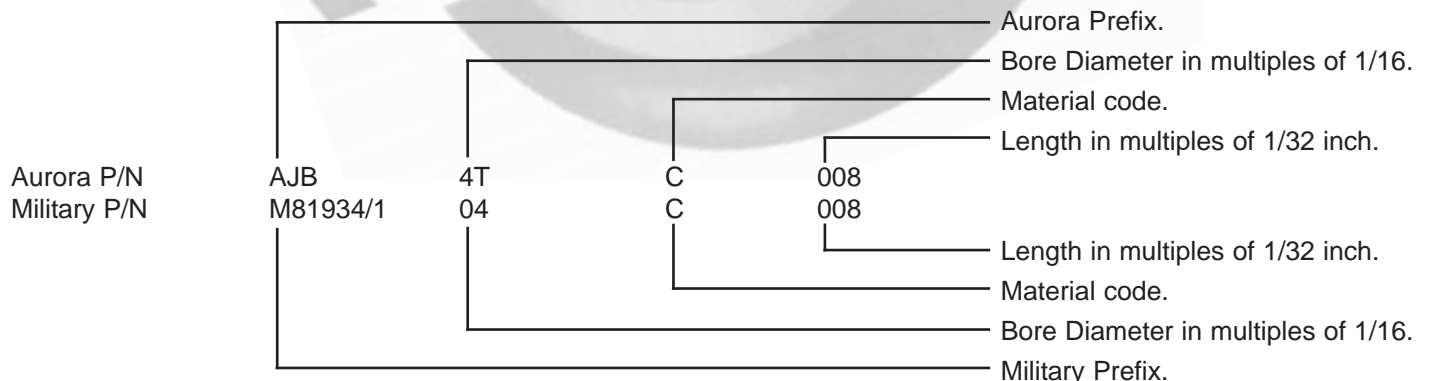
## AJB-TA/ - TC Journal Bushings SAE-AS81934/1



(See Table 2)

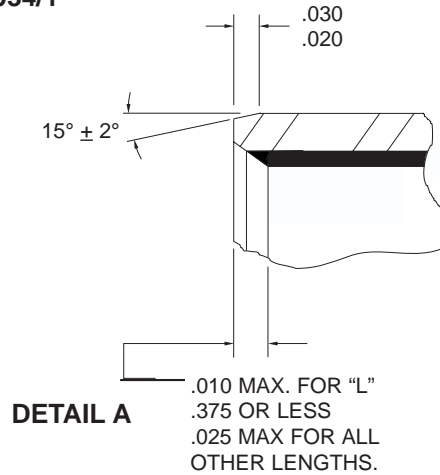
| Specifications |   |
|----------------|---|
| <b>"A"</b>     | Aluminum Alloy QQ-A-200/3 or QQ-A-225/6 (2024T851 or 2024T8511), Chemical Film Treatment per MIL-C-5541                                     |
| <b>"C"</b>     | Corrosion Resistant Steel, AMS 5643 (17-4 PH) Condition H-1150 per MIL-H-6875, Passivated per QQ-P-35 (Cad, or Zinc-Nickel plate optional). |
| <b>"T"</b>     | AT 3200 Bearing Liner System, Permanently Bonded to Bushing I.D. Qualified to SAE-AS81820   |

| BUSHING NO. |                 | DIMENSIONS IN INCHES  |              |      | Weight*<br>Lbs./Inch (Ref)<br>L-1.00 |      |
|-------------|-----------------|-----------------------|--------------|------|--------------------------------------|------|
| Aluminum    | Stainless Steel | B<br>+.0000<br>-.0010 | D<br>± .0005 |      | Alum.    CRES                        |      |
|             |                 |                       | Alum.        | CRES |                                      |      |
| AJB-4TA     | AJB-4TC         | .2515                 | .3760        |      | .006                                 | .016 |
| AJB-5TA     | AJB-5TC         | .3140                 | .4386        |      | .007                                 | .019 |
| AJB-6TA     | AJB-6TC         | .3765                 | .5012        |      | .008                                 | .022 |
| AJB-7TA     | AJB-7TC         | .4390                 | .5638        |      | .009                                 | .025 |
| AJB-8TA     | AJB-8TC         | .5015                 | .6265        |      | .011                                 | .028 |
| AJB-9TA     | AJB-9TC         | .5640                 | .6892        |      | .012                                 | .031 |
| AJB-10TA    | AJB-10TC        | .6265                 | .8142        |      | .021                                 | .056 |
| AJB-11TA    | AJB-11TC        | .6890                 | .8767        |      | .022                                 | .060 |
| AJB-12TA    | AJB-12TC        | .7515                 | .9393        |      | .024                                 | .065 |
| AJB-14TA    | AJB-14TC        | .8765                 | 1.0645       |      | .028                                 | .075 |
| AJB-16TA    | AJB-16TC        | 1.0015                | 1.1898       |      | .031                                 | .084 |
| AJB-18TA    | AJB-18TC        | 1.1265                | 1.3148       |      | .035                                 | .094 |
| AJB-20TA    | AJB-20TC        | 1.2515                | 1.4398       |      | .038                                 | .103 |
| AJB-22TA    | AJB-22TC        | 1.3765                | 1.5648       |      | .041                                 | .113 |
| AJB-24TA    | AJB-24TC        | 1.5015                | 1.7523       |      | .062                                 | .171 |
| AJB-26TA    | AJB-26TC        | 1.6265                | 1.8773       |      | .067                                 | .183 |
| AJB-28TA    | AJB-28TC        | 1.7515                | 2.0023       |      | .071                                 | .193 |
| AJB-32TA    | AJB-32TC        | 2.0015                | 2.2523       |      | .081                                 | .222 |





**AJB-TA/ - TC Straight Journal Bushings**  
SAE-AS81934/1



**TABLE 2A**

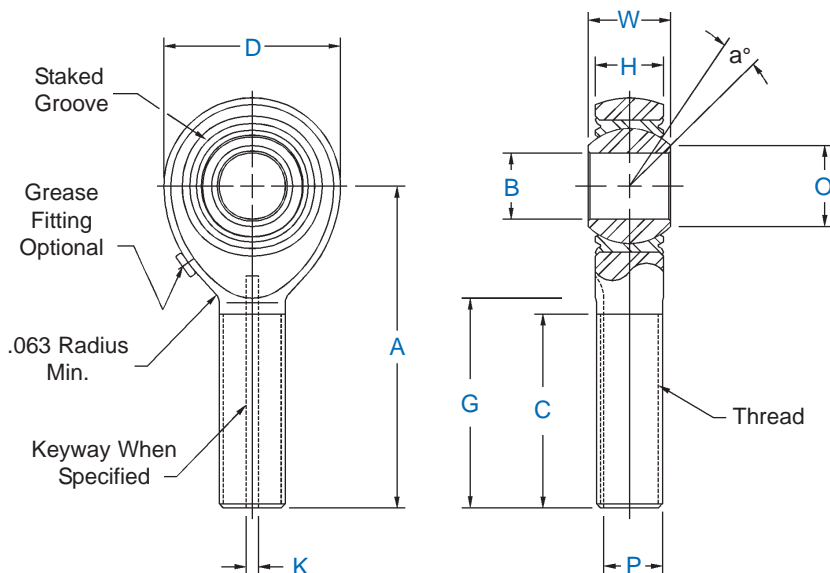
| DASH NO. | NOMINAL SIZE | Length L <sup>+0.00</sup> / <sub>-.010</sub> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
|----------|--------------|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
|          |              | .156   | .187 | .218 | .250 | .281 | .312 | .343 | .375 | .437 | .500 | .562 | .625 | .687 | .750 | .875 |  |
| -04      | 1/4          | 005  | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  |      |      |      |      |      |      |  |
| -05      | 5/16         | 005  | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  |      |      |      |      |  |
| -06      | 3/8          | 005  | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  |      |      |  |
| -07      | 7/16         | 005  | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -08      | 1/2          | 005  | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -09      | 9/16         | 005  | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -10      | 5/8          | 005  | 006  | 007  | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -11      | 11/16        |  |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -12      | 3/4          |  |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -14      | 7/8          |  |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -16      | 1            |  |      |      | 008  | 009  | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -18      | 1 1/8        |  |      |      |      |      | 010  | 011  | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -20      | 1 1/4        |  |      |      |      |      |      |      | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -22      | 1 3/8        |  |      |      |      |      |      |      | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -24      | 1 1/2        |  |      |      |      |      |      |      | 012  | 014  | 016  | 018  | 020  | 022  | 024  | 028  |  |
| -26      | 1 5/8        |  |      |      |      |      |      |      |      | 016  | 018  | 020  | 022  | 024  | 028  |      |  |
| -28      | 1 3/4        |  |      |      |      |      |      |      |      | 016  | 018  | 020  | 022  | 024  | 028  |      |  |
| -32      | 2            |  |      |      |      |      |      |      |      | 016  | 018  | 020  | 022  | 024  | 028  |      |  |

**TABLE 2B**

| DASH NO. | NOMINAL SIZE | Length L <sup>+0.00</sup> / <sub>-.010</sub> |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|----------|--------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|          |              | 1.000  | 1.125 | 1.250 | 1.375 | 1.500 | 1.625 | 1.750 | 1.875 | 2.000 | 2.125 | 2.250 | 2.375 | 2.500 | 2.750 | 3.000 |  |
| -04      | 1/4          |  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| -05      | 5/16         |  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| -06      | 3/8          |  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| -07      | 7/16         |  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| -08      | 1/2          |  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| -09      | 9/16         | 032  | 036   |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| -10      | 5/8          | 032  | 036   | 040   | 044   |       |       |       |       |       |       |       |       |       |       |       |  |
| -11      | 11/16        | 032  | 036   | 040   | 044   | 048   | 052   |       |       |       |       |       |       |       |       |       |  |
| -12      | 3/4          | 032  | 036   | 040   | 044   | 048   | 052   |       |       |       |       |       |       |       |       |       |  |
| -14      | 7/8          | 032  | 036   | 040   | 044   | 048   | 052   |       |       |       |       |       |       |       |       |       |  |
| -16      | 1            | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   |       |       |       |       |       |       |       |  |
| -18      | 1 1/8        | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   |       |       |       |       |       |       |       |  |
| -20      | 1 1/4        | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   |       |       |       |       |       |  |
| -22      | 1 3/8        | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   |       |       |       |       |       |  |
| -24      | 1 1/2        | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   |       |  |
| -26      | 1 5/8        | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   | 096   |  |
| -28      | 1 3/4        | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   | 096   |  |
| -32      | 2            | 032  | 036   | 040   | 044   | 048   | 052   | 056   | 060   | 064   | 068   | 072   | 076   | 080   | 088   | 096   |  |



## ASM & ASB Male Rod Ends High Strength - Aerospace Series Metal to Metal



SECTION TWO

| Rod End No. |           | DIMENSIONS IN INCHES    |                       |             |             |             |           |                |                       |                       |                       |             | a°             | Ult.                 | Approx.                |               |
|-------------|-----------|-------------------------|-----------------------|-------------|-------------|-------------|-----------|----------------|-----------------------|-----------------------|-----------------------|-------------|----------------|----------------------|------------------------|---------------|
| Right Hand  | Left Hand | B<br>+ .0000<br>- .0005 | W<br>+ .000<br>- .002 | H<br>± .005 | A<br>± .010 | D<br>± .010 | O<br>Min. | Ball Dia. Ref. | G<br>+ .000<br>- .020 | K<br>+ .005<br>- .000 | P<br>+ .000<br>- .010 | C<br>± .031 | Thread UNJF-3A | Misalign. Angle Min. | Static Radial Load Lbs | Brg. Wt. Lbs. |
| ASM-3       | ASB-3     | .1900                   | .437                  | .337        | 1.562       | .806        | .300      | .531           | .980                  | .062                  | .268                  | .968        | 5/16-24        | 15                   | 2,360                  | .072          |
| ASM-4       | ASB-4     | .2500                   | .437                  | .337        | 1.562       | .806        | .300      | .531           | .980                  | .062                  | .268                  | .968        | 5/16-24        | 15                   | 4,860                  | .072          |
| ASM-5       | ASB-5     | .3125                   | .437                  | .327        | 1.875       | .900        | .360      | .593           | 1.270                 | .062                  | .268                  | 1.187       | 5/16-24        | 14                   | 7,180                  | .087          |
| ASM-6       | ASB-6     | .3750                   | .500                  | .416        | 1.938       | 1.025       | .470      | .687           | 1.235                 | .093                  | .319                  | 1.187       | 3/8-24         | 8                    | 8,550                  | .136          |
| ASM-7       | ASB-7     | .4375                   | .562                  | .452        | 2.125       | 1.150       | .540      | .781           | 1.402                 | .093                  | .383                  | 1.281       | 7/16-20        | 10                   | 12,000                 | .183          |
| ASM-8       | ASB-8     | .5000                   | .625                  | .515        | 2.438       | 1.337       | .610      | .875           | 1.589                 | .093                  | .445                  | 1.468       | 1/2-20         | 9                    | 19,500                 | .278          |
| ASM-10      | ASB-10    | .6250                   | .750                  | .577        | 2.625       | 1.525       | .750      | 1.062          | 1.683                 | .125                  | .541                  | 1.562       | 5/8-18         | 12                   | 21,900                 | .424          |
| ASM-12      | ASB-12    | .7500                   | .875                  | .640        | 2.875       | 1.775       | .850      | 1.250          | 1.808                 | .125                  | .663                  | 1.687       | 3/4-16         | 13                   | 29,300                 | .639          |
| ASM-14      | ASB-14    | .8750                   | .875                  | .765        | 3.375       | 2.025       | 1.000     | 1.375          | 2.121                 | .156                  | .777                  | 2.000       | 7/8-14         | 6                    | 34,500                 | .963          |
| ASM-16      | ASB-16    | 1.0000                  | 1.375                 | 1.015       | 4.125       | 2.775       | 1.270     | 1.875          | 2.464                 | .187                  | 1.136                 | 2.343       | 1 1/4-12       | 12                   | 80,000                 | 2.546         |

| Specifications |   |
|----------------|---|
| <b>BODY</b>    | 4340 Alloy Steel (AMS-S-5000)<br>Heat Treated<br>Cadmium Plated                               |
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated  |

The metal to metal Rod End Bearings listed in above tables have the same envelop dimensions, materials (less PTFE Liners), basic tolerances, and load capacities as those that are approved to SAE-AS81935/1.

Consult factory for material substitutions or dimensional modification possibilities.

Radial Clearance is .002 max (for .0005 max, use suffix-R Example: ASMK-6R).

Add Letter "K" to prefix to designate keyway (Example: ASMK-6).

Add letters "F" or "Z" to part size to designate flush or zerk type fittings respectively (Example ASM-6F or ASM-6Z).

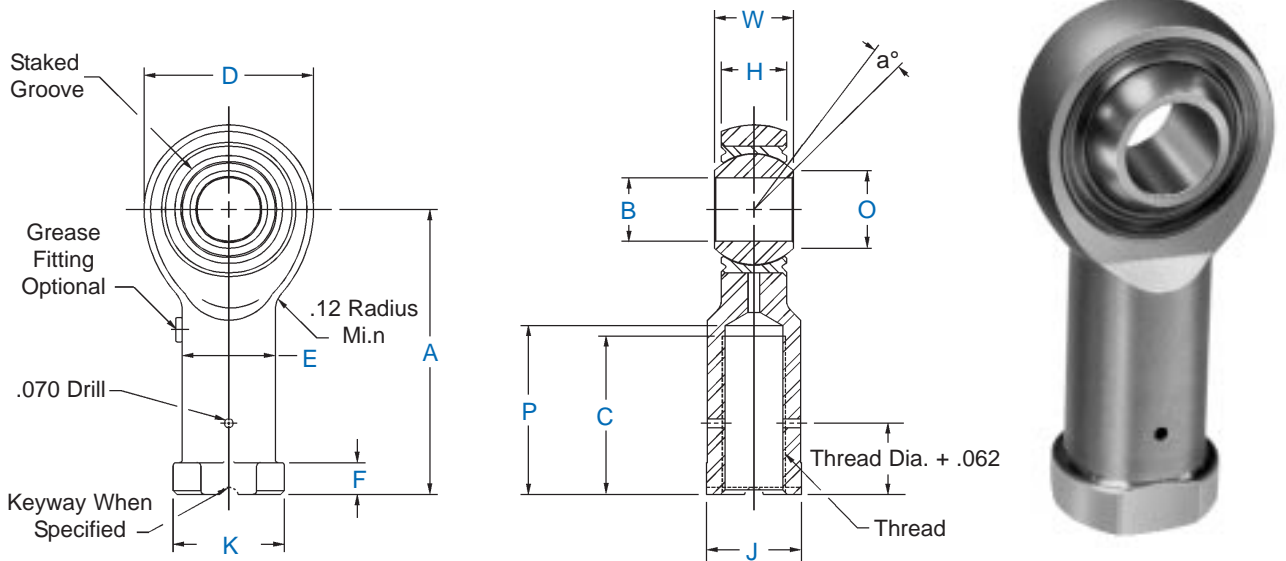
All threads are rolled and conform to MIL-S-8879.

For dry-film lubrication on the I.D. of races, use suffix D(Example ASMK-6D). For dry film on ball bore and/or O.D. contact factory.





## ASW & ASG Female Rod Ends High Strength - Aerospace Series Metal to Metal



| Rod End No. |           | DIMENSIONS IN INCHES  |                     |             |             |             |           |             |                |                     |                     |               |           |           |                | a°                   | Ult.                    | Approx.       |
|-------------|-----------|-----------------------|---------------------|-------------|-------------|-------------|-----------|-------------|----------------|---------------------|---------------------|---------------|-----------|-----------|----------------|----------------------|-------------------------|---------------|
| Right Hand  | Left Hand | B<br>+.0000<br>-.0005 | W<br>+.000<br>-.002 | H<br>± .005 | A<br>± .010 | D<br>± .010 | O<br>Min. | E<br>± .010 | K<br>Ref. Dia. | J<br>+.002<br>-.010 | F<br>+.010<br>-.062 | Ball Dia Ref. | P<br>Max. | C<br>Min. | Thread UNJF-3B | Misalign. Angle Min. | Static Radial Load Lbs. | Brg. Wt. Lbs. |
| ASW3        | ASG-3     | .1900                 | .437                | .337        | 1.375       | .806        | .300      | .422        | .500           | .437                | .188                | .531          | .875      | .750      | 5/16-24        | 15                   | 2,360                   | .080          |
| ASW-4       | ASG-4     | .2500                 | .437                | .337        | 1.469       | .806        | .300      | .422        | .500           | .437                | .188                | .531          | .875      | .750      | 5/16-24        | 15                   | 4,860                   | .084          |
| ASW-5       | ASG-5     | .3125                 | .437                | .327        | 1.625       | .900        | .360      | .485        | .580           | .500                | .250                | .593          | 1.000     | .875      | 3/8-24         | 14                   | 7,180                   | .102          |
| ASW-6       | ASG-6     | .3750                 | .500                | .416        | 1.812       | 1.025       | .470      | .547        | .660           | .562                | .250                | .687          | 1.125     | 1.000     | 3/8-24         | 8                    | 8,550                   | .161          |
| ASW-7       | ASG-7     | .4375                 | .562                | .452        | 2.000       | 1.150       | .540      | .610        | .720           | .625                | .250                | .781          | 1.250     | 1.125     | 7/16-20        | 10                   | 12,000                  | .212          |
| ASW-8       | ASG-8     | .5000                 | .625                | .515        | 2.250       | 1.337       | .610      | .735        | .880           | .750                | .250                | .875          | 1.375     | 1.250     | 1/2-20         | 9                    | 19,500                  | .325          |
| ASW-10      | ASG-10    | .6250                 | .750                | .577        | 2.500       | 1.525       | .750      | .860        | 1.020          | .875                | .375                | 1.062         | 1.500     | 1.375     | 5/8-18         | 12                   | 21,900                  | .481          |
| ASW-12      | ASG-12    | .7500                 | .875                | .640        | 2.875       | 1.775       | .850      | .985        | 1.160          | 1.000               | .375                | 1.250         | 1.750     | 1.625     | 3/4-16         | 13                   | 29,300                  | .673          |
| ASW-14      | ASG-14    | .8750                 | .875                | .765        | 3.375       | 2.025       | 1.000     | 1.110       | 1.300          | 1.125               | .500                | 1.375         | 2.062     | 1.875     | 7/8-14         | 6                    | 34,500                  | .959          |
| ASW-16      | ASG-16    | 1.0000                | 1.375               | 1.015       | 4.125       | 2.775       | 1.270     | 1.688       | 2.020          | 1.750               | .563                | 1.875         | 2.312     | 2.125     | 1 1/4-12       | 12                   | 80,300                  | 2.717         |

| Specifications |  |
|----------------|--|
| <b>BODY</b>    | 4340 Alloy Steel (AMS-S-5000)<br>Heat Treated<br>Cadmium Plated                              |
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320 Class 2) |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated   |

The metal to metal Rod End Bearings listed in above tables have the same envelop dimensions, materials (less PTFE Liners), basic tolerances, and load capacities as those that are approved to SAE-AS81935/2.

Consult factory for material substitutions or dimensional modification possibilities.

Radial Clearance is .002 max (for .0005 max, use suffix-R Example: ASMK-6R).

Add Letter "K" to prefix to designate keyway (Example: ASWK-6).

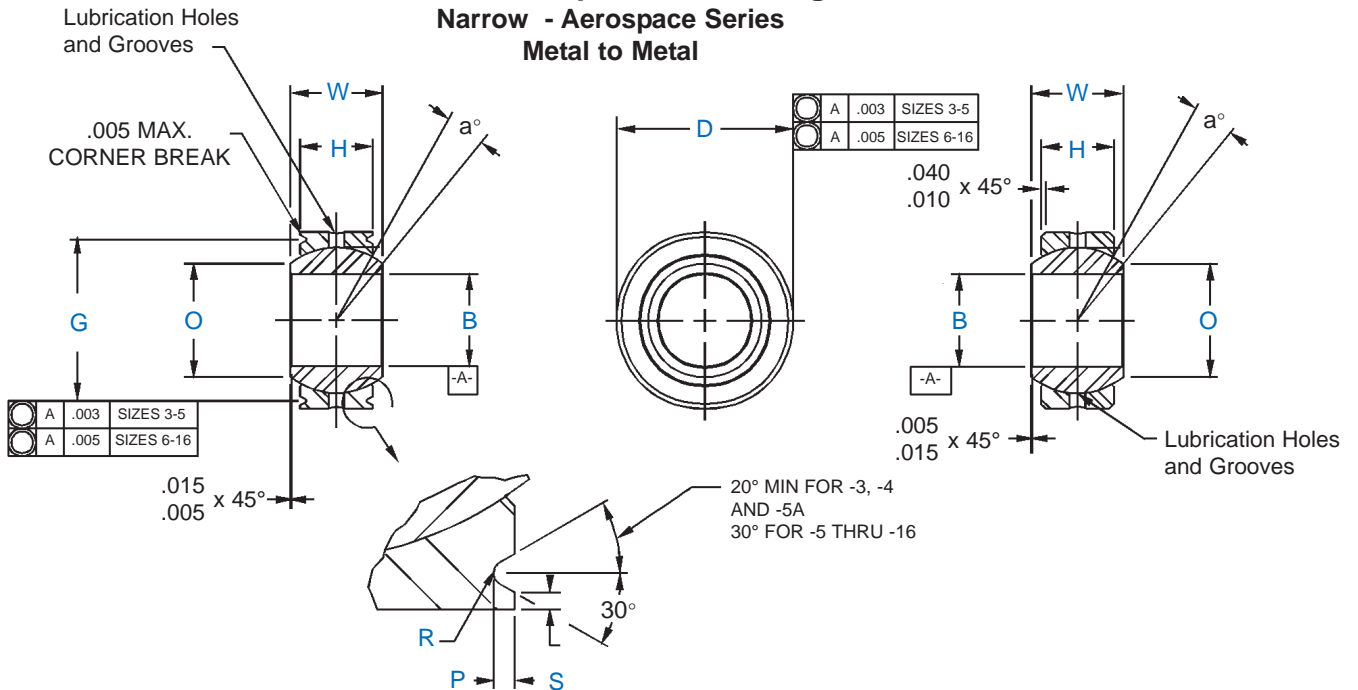
Add letters "F" or "Z" to part size to designate flush or zerk type fittings respectively (Example ASM-6F or ASW-6Z).

All threads conform to UNJF-3B per MIL-S-8879.

For dry-film lubrication on the I.D. of races, use suffix D(Example ASWK-6D). For dry film on ball bore and/or O.D. contact factory.



## NC-G & NC Spherical Bearings Narrow - Aerospace Series Metal to Metal



SECTION TWO

| Rod End No. |       | DIMENSIONS IN INCHES  |                       |                     |            |           |                      |           |                     |                     |                |             | Static Limit Load |            | Approx. Brg. Wt. Lbs. |
|-------------|-------|-----------------------|-----------------------|---------------------|------------|-----------|----------------------|-----------|---------------------|---------------------|----------------|-------------|-------------------|------------|-----------------------|
| Grooved     | Plain | B<br>+.0000<br>-.0005 | D<br>+.0000<br>-.0005 | W<br>+.000<br>-.002 | H<br>±.005 | O<br>Min. | P*<br>+.000<br>-.010 | S<br>Min. | G<br>+.000<br>-.008 | R<br>+.002<br>-.005 | Ball Dia. Ref. | \$a^\circ\$ | Radial Lbs.       | Axial Lbs. |                       |
| NC-3G       | NC-3  | .1900                 | .5625                 | .281                | .218       | .293      | .025                 | .010      | .500                | .010                | .406           | 10          | 3,975             | 150        | .020                  |
| NC-4G       | NC-4  | .2500                 | .6562                 | .343                | .250       | .364      | .025                 | .010      | .594                | .010                | .500           | 10          | 6,040             | 430        | .020                  |
| NC-5G       | NC-5  | .3125                 | .7500                 | .375                | .281       | .419      | .035                 | .020      | .650                | .010                | .562           | 10          | 8,750             | 700        | .030                  |
| NC-6G       | NC-6  | .3750                 | .8125                 | .406                | .312       | .475      | .035                 | .020      | .712                | .015                | .625           | 9           | 10,540            | 1,100      | .040                  |
| NC-7G       | NC-7  | .4375                 | .9062                 | .437                | .343       | .530      | .035                 | .020      | .806                | .015                | .687           | 8           | 13,200            | 1,400      | .050                  |
| NC-8G       | NC-8  | .5000                 | 1.0000                | .500                | .390       | .600      | .055                 | .020      | .876                | .015                | .781           | 8           | 17,900            | 2,100      | .070                  |
| NC-9G       | NC-9  | .5625                 | 1.0937                | .562                | .437       | .670      | .055                 | .020      | .970                | .015                | .875           | 8           | 23,200            | 3,680      | .090                  |
| NC-10G      | NC-10 | .6250                 | 1.1875                | .625                | .500       | .739      | .055                 | .020      | 1.063               | .015                | .968           | 8           | 30,500            | 4,720      | .120                  |
| NC-12G      | NC-12 | .7500                 | 1.4375                | .750                | .593       | .920      | .055                 | .020      | 1.313               | .015                | 1.187          | 8           | 46,400            | 6,750      | .210                  |
| NC-14G      | NC-14 | .8750                 | 1.5625                | .875                | .703       | .980      | .055                 | .020      | 1.438               | .015                | 1.312          | 8           | 62,200            | 9,350      | .270                  |
| NC-16G      | NC-16 | 1.0000                | 1.7500                | 1.000               | .797       | 1.118     | .055                 | .020      | 1.626               | .015                | 1.500          | 9           | 82,200            | 12,160     | .390                  |

| Specifications |   |
|----------------|---|
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated  |

The metal to metal Spherical Bearing listed in above tables have the same envelope dimensions, materials (less PTFE), basic tolerances (except fit-up), as those that are approved to SAE-AS14101 and SAE-AS14104.

Consult factory for material substitutions or dimensional modification possibilities.

Radial Clearance is .002 max. (for .0005 max., use suffix-R ex: NC-6R).

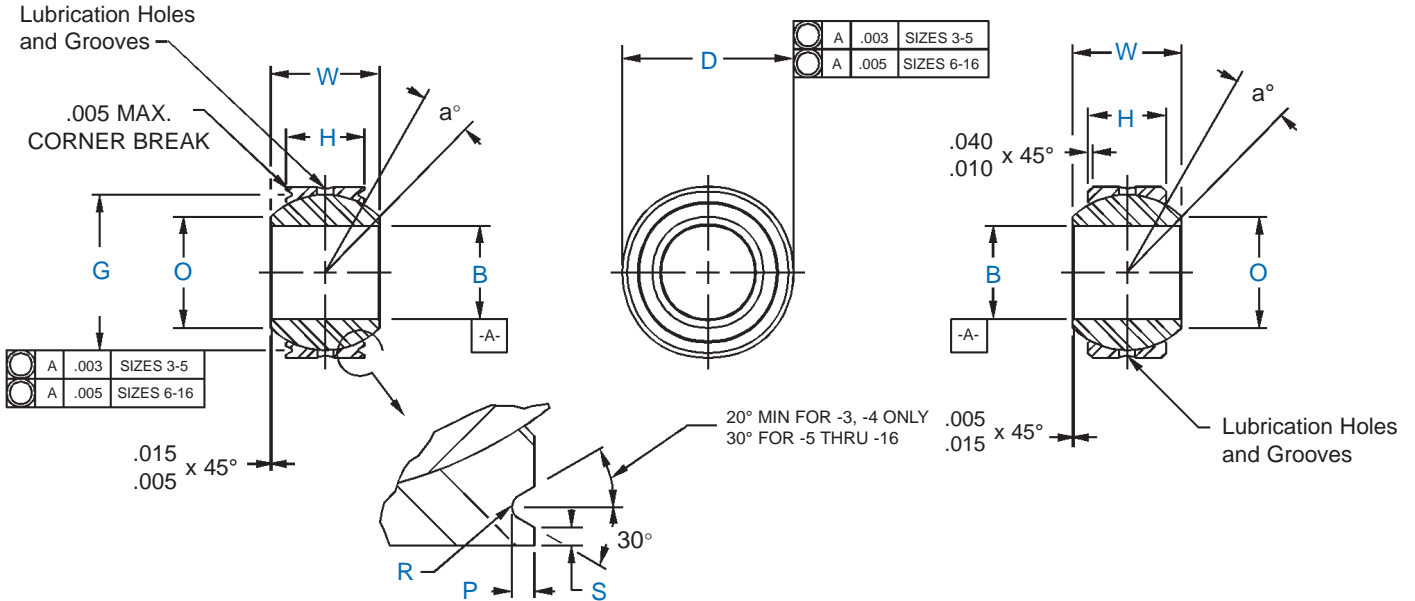
For dry-film lubrication on the I.D. of races, use suffix D (ex: NC-6D). For dry-film on ball bore and/or ball O.D. contact factory.

\*For further staking groove and assembly information, see pages 31-33.

Consult factory for additional information.



## WC-G & WC Spherical Bearings Wide - Aerospace Series Metal to Metal



SECTION TWO

| Rod End No. |       | DIMENSIONS IN INCHES      |                           |                        |               |              |                        |              |                        |                        |                |    | Static Limit Load |            | Approx. Brg. Wt. Lbs. |
|-------------|-------|---------------------------|---------------------------|------------------------|---------------|--------------|------------------------|--------------|------------------------|------------------------|----------------|----|-------------------|------------|-----------------------|
| Grooved     | Plain | B                         | D                         | W                      | H             | O            | P*                     | S            | G                      | R                      | Ball Dia. Ref. | a° | Radial Lbs.       | Axial Lbs. |                       |
| WC-3G       | WC-3  | .1900<br>+.0000<br>-.0005 | .6250<br>+.0000<br>-.0005 | .437<br>+.000<br>-.002 | .327<br>±.005 | .300<br>Min. | .025<br>+.000<br>-.010 | .010<br>Min. | .563<br>+.000<br>-.008 | .010<br>+.002<br>-.005 | .531           | 15 | 2,500             | 1,770      | .031                  |
| WC-4G       | WC-4  | .2500                     | .6250                     | .437                   | .327          | .300         | .025                   | .010         | .563                   | .010                   | .531           | 15 | 5,500             | 1,770      | .031                  |
| WC-5G       | WC-5  | .3125                     | .6875                     | .437                   | .317          | .360         | .025                   | .010         | .625                   | .010                   | .593           | 14 | 9,400             | 1,640      | .035                  |
| WC-6G       | WC-6  | .3750                     | .8125                     | .500                   | .406          | .466         | .035                   | .020         | .712                   | .015                   | .687           | 8  | 13,700            | 2,630      | .060                  |
| WC-7G       | WC-7  | .4375                     | .9375                     | .562                   | .442          | .537         | .035                   | .020         | .837                   | .015                   | .781           | 10 | 20,700            | 3,650      | .080                  |
| WC-8G       | WC-8  | .5000                     | 1.0000                    | .625                   | .505          | .607         | .035                   | .020         | .900                   | .015                   | .875           | 9  | 21,400            | 4,970      | .100                  |
| WC-9G       | WC-9  | .5625                     | 1.1250                    | .687                   | .536          | .721         | .035                   | .020         | 1.025                  | .015                   | 1.000          | 10 | 26,600            | 5,370      | .135                  |
| WC-10G      | WC-10 | .6250                     | 1.1875                    | .750                   | .567          | .747         | .035                   | .020         | 1.087                  | .015                   | 1.062          | 12 | 29,000            | 6,130      | .160                  |
| WC-12G      | WC-12 | .7500                     | 1.3750                    | .875                   | .630          | .845         | .055                   | .020         | 1.251                  | .015                   | 1.250          | 13 | 37,000            | 7,730      | .240                  |
| WC-14G      | WC-14 | .8750                     | 1.6250                    | .875                   | .755          | .995         | .055                   | .020         | 1.501                  | .015                   | 1.375          | 6  | 65,200            | 10,800     | .350                  |
| WC-16G      | WC-16 | 1.0000                    | 2.1250                    | 1.375                  | 1.005         | 1.269        | .055                   | .020         | 2.001                  | .015                   | 1.875          | 12 | 104,000           | 19,300     | .970                  |

| Specifications |   |
|----------------|---|
| <b>BALL</b>    | 440C Stainless Steel (AMS 5630)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | 17-4 PH Stainless Steel (AMS 5643)<br>Heat Treated  |

The metal to metal Spherical Bearing listed in above tables have the same envelope dimensions, materials (less PTFE), basic tolerances (except fit-up), as those that are approved to SAE-AS14102 and SAE-AS14103.

Consult factory for material substitutions or dimensional modification possibilities.

Radial Clearance is .002 max. (for .0005 max., use suffix-R ex: WC-6R).

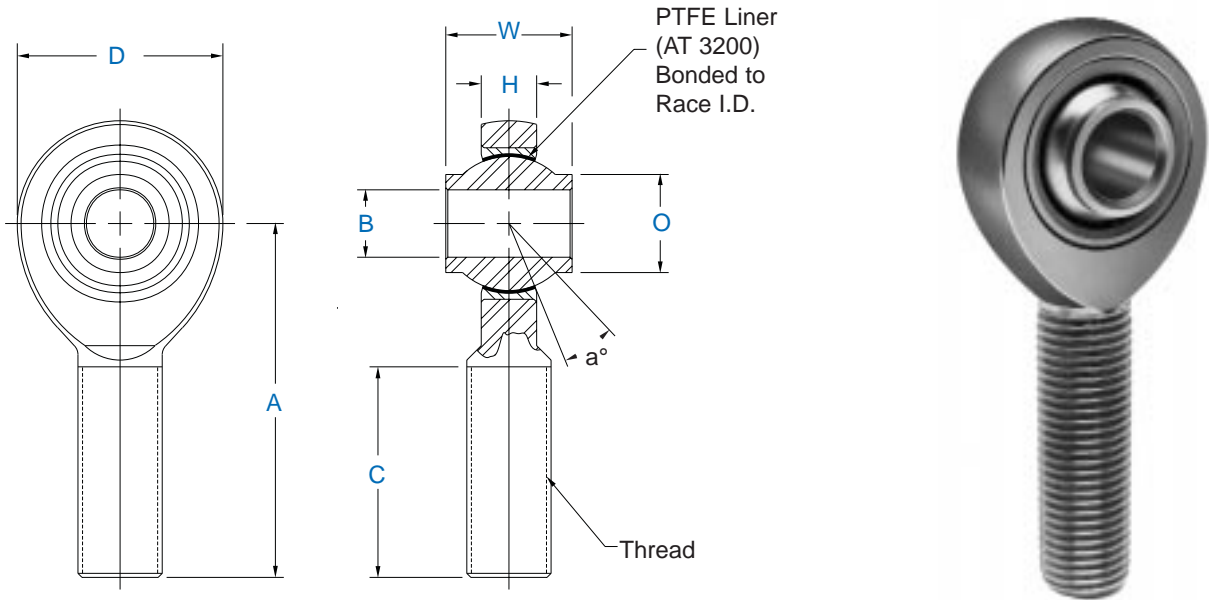
For dry-film lubrication on the I.D. of races, use suffix D (ex: WC-6D). For dry-film on ball bore and/or ball O.D. contact factory.

\*For further staking groove and assembly information, see pages 31-33.

Consult factory for additional information.



## HXAM-TM-500 & HXAB-TM-500 Series High Misalignment Male Rod Ends



SECTION TWO

| Rod End No.   |               | DIMENSIONS IN INCHES   |                      |                      |                      |                      |                      |                      |                   |                       | a°<br>Misalign.<br>Angle | Ultimate<br>Radial<br>Static Load<br>Capacity<br>Lbs. | Approx.<br>Brg.<br>Wt.<br>Lbs. |
|---------------|---------------|------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------------|-----------------------|--------------------------|---|--------------------------------|
| Right<br>Hand | Left<br>Hand  | B<br>+.0000<br>- .0005 | W<br>+.000<br>- .005 | H<br>+.005<br>- .005 | A<br>+.010<br>- .010 | D<br>+.010<br>- .010 | Ball<br>Dia.<br>Ref. | C<br>+.062<br>- .031 | Thread<br>UNJF-3A | O<br>Shoulder<br>Dia. |                          |   |                                |
| HXAM-4TM-500  | HXAB-4TM-500  | .2500                  | .593                 | .265                 | 1.938                | 1.025                | .593                 | 1.250                | 3/8-24            | .390                  | 23                       | 10,789  | .12                            |
| HXAM-5TM-500  | HXAB-5TM-500  | .3125                  | .813                 | .355                 | 2.125                | 1.150                | .781                 | 1.375                | 7/16-20           | .512                  | 22                       | 11,781  | .16                            |
| HXAM-6TM-500  | HXAB-6TM-500  | .3750                  | .813                 | .355                 | 2.125                | 1.150                | .781                 | 1.375                | 7/16-20           | .512                  | 22                       | 11,781  | .15                            |
| HXAM-7TM-500  | HXAB-7TM-500  | .4375                  | .875                 | .355                 | 2.438                | 1.337                | .875                 | 1.500                | 1/2-20            | .618                  | 21                       | 17,105  | .24                            |
| HXAM-8TM-500  | HXAB-8TM-500  | .5000                  | .937                 | .411                 | 2.625                | 1.525                | 1.000                | 1.625                | 5/8-18            | .730                  | 19                       | 23,720  | .39                            |
| HXAM-10TM-500 | HXAB-10TM-500 | .6250                  | 1.200                | .577                 | 2.875                | 1.775                | 1.250                | 1.750                | 3/4-16            | .856                  | 19                       | 32,067  | .60                            |
| HXAM-12TM-500 | HXAB-12TM-500 | .7500                  | 1.280                | .630                 | 3.375                | 2.025                | 1.375                | 2.000                | 7/8-14            | .970                  | 18                       | 38,660  | .89                            |

| Specifications |  |
|----------------|--|
| <b>BODY</b>    | 4340 Alloy Steel (AMS-S-5000)<br>Heat Treated<br>Cadmium Plated                            |
| <b>BALL</b>    | 52100 Alloy Steel (AMS 7440)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | Alloy Steel - Heat Treated<br>Plated for Corrosion Resistance                              |
| <b>LINER</b>   | AT 3200 Bearing Liner, Permanently<br>Bonded to Race I.D.<br>Qualified to SAE-AS81820      |

Rod End Bearings listed in above tables are shown with SAE-AS81820 PTFE liners. These Rod Ends are available less the PTFE liners. Omit "T" from the suffix in the part number. (Ex: HXAM-6M-500)

For non-PTFE lined units the radial clearance is .002 max. (for .0005 max use suffix R)(Ex: HXAM-6RM-500).

For keyway designation, consult our engineering department.

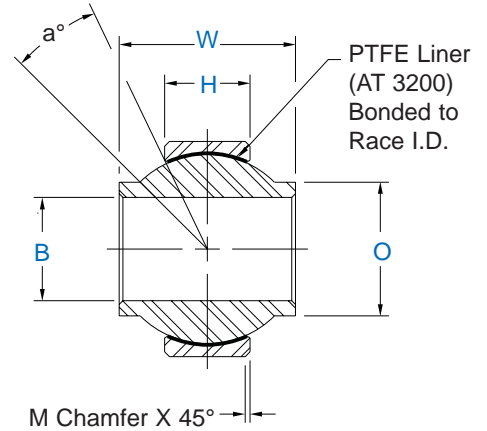
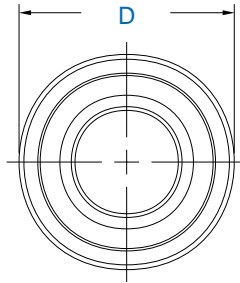
For dry-film lubrication on I.D. of races, use suffix D (Ex: HXAM-6DM-500). For dry-film on ball bore and or ball O.D., consult factory.

Consult factory for material substitutions or dimensional modification possibilities.

Rod Ends are traceable and magnetic particle inspected. For non-traceable and non-magnetic particle inspected, contact factory.



## HAB -T- 500 Series High Misalignment Spherical Bearings



SECTION TWO

| Bearing No. | DIMENSIONS IN INCHES  |                     |                     |             |           |           |                      | a°<br>Misalign.<br>Angle | Ultimate<br>Radial<br>Static Load<br>Lbs. | Approx.<br>Brg.<br>Wt.<br>Lbs. |
|-------------|-----------------------|---------------------|---------------------|-------------|-----------|-----------|----------------------|--------------------------|---|--------------------------------|
|             | B<br>+.0000<br>-.0005 | D<br>+.000<br>-.005 | W<br>+.005<br>-.005 | H<br>± .005 | M<br>Ref. | O<br>Ref. | Ball<br>Dia.<br>Ref. |                          |   |                                |
| HAB-4T-500  | .2500                 | .7400               | .593                | .255        | .020      | .390      | .593                 | 24                       | 7,560                                     | .036                           |
| HAB-5T-500  | .3125                 | .9060               | .813                | .345        | .030      | .512      | .781                 | 23                       | 16,975                                    | .068                           |
| HAB-6T-500  | .3750                 | .9060               | .813                | .345        | .030      | .512      | .781                 | 23                       | 16,975                                    | .068                           |
| HAB-7T-500  | .4375                 | 1.0000              | .875                | .345        | .030      | .618      | .875                 | 22                       | 19,018                                    | .095                           |
| HAB-8T-500  | .5000                 | 1.1250              | .937                | .401        | .030      | .730      | 1.000                | 20                       | 25,263                                    | .160                           |
| HAB-10T-500 | .6250                 | 1.3750              | 1.200               | .567        | .030      | .856      | 1.250                | 20                       | 44,651                                    | .245                           |
| HAB-12T-500 | .7500                 | 1.5625              | 1.280               | .620        | .035      | .970      | 1.375                | 18                       | 53,707                                    | .315                           |

| Specifications |   |
|----------------|---|
| <b>BALL</b>    | 52100 Alloy Steel (AMS 7440)<br>Heat Treated<br>Hard Chrome Plated (AMS-QQ-C-320 Class 2) |
| <b>LINER</b>   | AT3200 Bearing Liner, Permanently<br>Bonded to Race I.D.<br>Qualified to SAE-AS81820      |
| <b>RACE</b>    | Alloy Steel<br>Heat Treated   |

Spherical Bearings listed in above tables are shown with SAE-AS81820 PTFE liners. These bearings are available less the PTFE liners. Omit "T" from the suffix in the part number (Ex: HAB-6-500).

For non-PTFE lined units the radial clearance is .002 max. (for .0005 max use suffix R)(Ex: HXAM-6RM-500).

"V" groove-type bearings are available. Consult factory for dimensions and staking groove data.

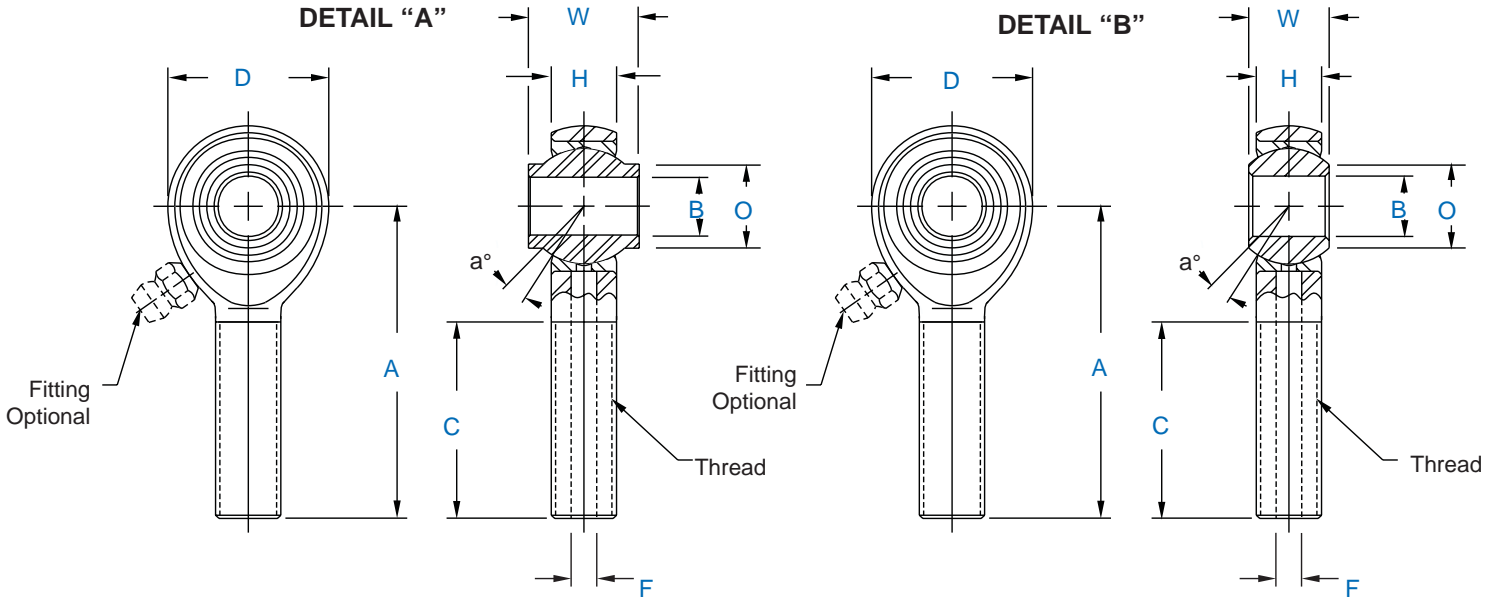
For dry-film lubrication on I.D. of races, use suffix D (Ex: HAB-6D-500). For dry-film on ball bore and or ball O.D., consult factory.

Consult factory for material substitutions, dimensional modification possibilities, lubrication holes and grooves in balls.

Bearings are traceable. For non-traceable units, contact factory.



## GMM-M & GMB-M Series Male Rod Ends General Aviation - Precision



DETAIL "A"



DETAIL "B"

| Specifications |  |
|----------------|--|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |
| <b>BALL</b>    | Alloy steel, Heat treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2). |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |

Note: Units are traceable and magnetic particle inspected after assembly.

SECTION THREE

| Rod End No.   |              | DIMENSIONS IN INCHES              |                       |                     |            |            |            |                          |                      |           |                                  |                  | a°<br>Misalign.<br>Angle | Ultimate<br>Radial<br>Static<br>Load<br>Capacity | Approx.<br>Brg.<br>Wt.<br>Lbs. |
|---------------|--------------|-----------------------------------|-----------------------|---------------------|------------|------------|------------|--------------------------|----------------------|-----------|----------------------------------|------------------|--------------------------|--|--------------------------------|
| Right<br>Hand | Left<br>Hand | Ball<br>Shoulder<br>Configuration | B<br>+.0015<br>-.0005 | W<br>+.000<br>-.005 | H<br>±.005 | A<br>±.015 | D<br>±.010 | Shoulder<br>Dia.<br>Ref. | Ball<br>Dia.<br>Ref. | C<br>Min. | F<br>Drilled<br>Hole Dia<br>Ref. | Thread<br>UNF-3A |                          |  |                                |
| GMM-3M-470    | GMB-3M-470   | See Detail "A"                    | .1900                 | .437                | .281       | 1.562      | .750       | .315                     | .500                 | .969      | -                                | 1/4-28           | 17                       | 2,158  | .05                            |
| GMM-3M-570    | GMB-3M-570   | See Detail "A"                    | .1900                 | .437                | .328       | 1.375      | .875       | .315                     | .500                 | .750      | .113                             | 5/16-24          | 10                       | 2,823  | .07                            |
| GMM-3M-670    | GMB-3M-670   | See Detail "A"                    | .1900                 | .437                | .328       | 1.375      | .750       | .315                     | .500                 | .750      | .113                             | 3/8-24           | 10                       | 2,850  | .08                            |
| GMM-3M-680    | GMB-3M-680   | See Detail "B"                    | .1900                 | .500                | .375       | 1.812      | .833       | .319                     | .593                 | 1.062     | .136                             | 3/8-24           | 18                       | 3,269  | .09                            |
| GMM-4M-470    | GMB-4M-470   | See Detail "B"                    | .2500                 | .437                | .304       | 1.562      | .812       | .353                     | .562                 | .969      | -                                | 1/4-28           | 18                       | 2,158  | .07                            |
| GMM-4M-675    | GMB-4M-675   | See Detail "B"                    | .2500                 | .484                | .335       | 2.312      | .875       | .395                     | .625                 | 1.500     | .136                             | 3/8-24           | 18                       | 3,160  | .11                            |
| GMM-4M-680    | GMB-4M-680   | See Detail "B"                    | .2500                 | .500                | .335       | 2.062      | .875       | .375                     | .625                 | 1.500     | .159                             | 3/8-24           | 21                       | 2,985  | .10                            |

Load ratings apply only to rod ends without grease fittings. For load ratings with fittings, please contact our engineering department. For Rod End bearings which are non-traceable or non-magnetic particle inspected, consult factory.

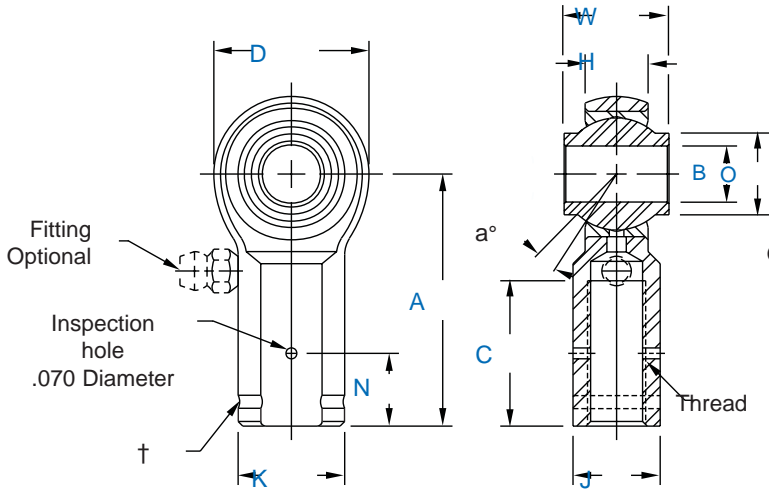
Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

Z Zerk type fitting                      Ex: GMM-3MZ-470  
F Flush type fitting                        Ex: GMM-3MF-470

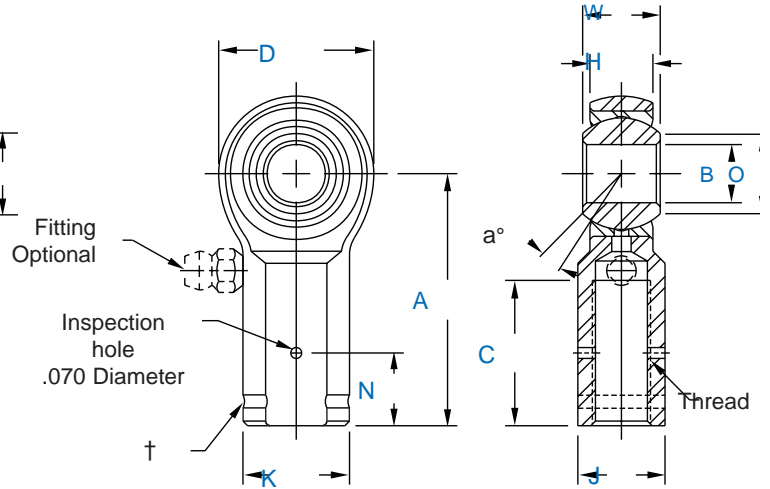


## GMW-M & GMG-M Series Female Rod Ends General Aviation - Precision

DETAIL "A"



DETAIL "B"



DETAIL "A"

| Specifications |  |
|----------------|--|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |
| <b>BALL</b>    | Alloy steel, Heat treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2). |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |



DETAIL "B"

Note: Units are traceable and magnetic particle inspected after assembly.

| Rod End No.   |              | DIMENSIONS IN INCHES              |                       |                     |            |            |            |            |            |            |                               |                      |                     |                  | a°<br>Misalign.<br>Angle | Ultimate<br>Radial<br>Static<br>Load<br>Capacity | Approx.<br>Brg.<br>Wt.<br>Lbs. |
|---------------|--------------|-----------------------------------|-----------------------|---------------------|------------|------------|------------|------------|------------|------------|-------------------------------|----------------------|---------------------|------------------|--------------------------|--|--------------------------------|
| Right<br>Hand | Left<br>Hand | Ball<br>Shoulder<br>Configuration | B<br>+.0015<br>-.0005 | W<br>+.000<br>-.005 | H<br>±.005 | A<br>±.015 | D<br>±.010 | K<br>±.010 | J<br>±.010 | N<br>±.005 | O<br>Shoulder<br>Dia.<br>Ref. | Ball<br>Dia.<br>Ref. | C<br>+.062<br>-.031 | Thread<br>UNF-3B |                          |  |                                |
| GMW-3M-470    | GMG-3M-470   | See Detail "A"                    | .1900                 | .437                | .328       | 1.375      | .750       | .468       | .375       | .312       | .315                          | .500                 | .750                | 1/4-28           | 10                       | 2,881  | .06                            |
| GMW-3M-471    | GMG-3M-471   | See Detail "A"                    | .1900                 | .437                | .328       | 1.062      | .750       | .375       | -          | -          | .315                          | .500                 | .437                | 1/4-28           | 10                       | 2,881  | .05                            |
| GMW-3M-480    | GMG-3M-480   | See Detail "A"                    | .1900                 | .500                | .375       | 1.375      | .812       | .468       | .375       | .312       | .312                          | .562                 | .750                | 1/4-28           | 15                       | 3,152  | .08                            |
| GMW-3M-570    | GMG-3M-570   | See Detail "A"                    | .1900                 | .437                | .328       | 1.375      | .750       | .500       | .437       | .312       | .315                          | .500                 | .750                | 5/16-24          | 10                       | 2,881  | .07                            |
| GMW-4M-470    | GMG-4M-470   | See Detail "B"                    | .2500                 | .437                | .304       | 1.375      | .812       | .468       | .437       | .312       | .353                          | .562                 | .750                | 1/4-28           | 18                       | 2,950  | .08                            |
| GMW-4M-595    | GMG-4M-595   | See Detail "A"                    | .2500                 | .593                | .406       | 1.469      | .938       | .500       | -          | .312       | .485                          | .687                 | .844                | 5/16-24          | 10                       | 3,359  | .10                            |

† Left hand units identification groove near end of shank.  
Rod End bearings which are non-traceable or non-magnetic particle inspected consult factory.

Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

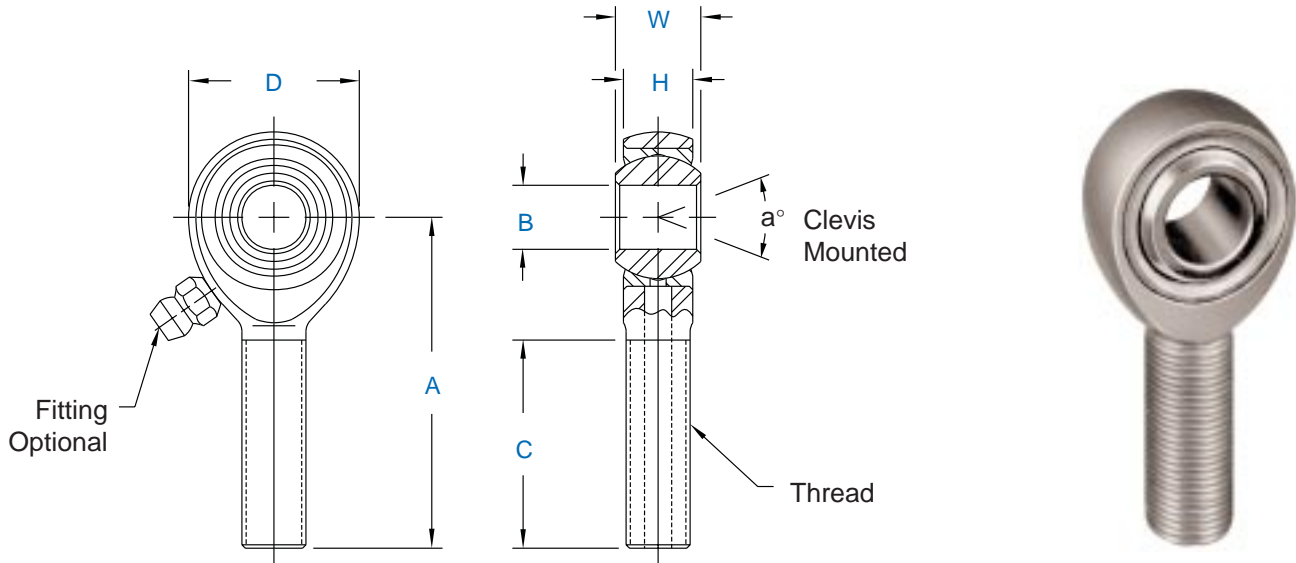
Z Zerk type fitting                      Ex: GMW-3MZ-470  
F Flush type fitting                      Ex: GMW-3MF-470

Load ratings apply only to rod ends without grease fittings. For load ratings with fittings, please consult our engineering department.



## MM-M-500 & MB-M-500 Series Male Rod Ends

General Aviation - Precision



| Specifications |  |
|----------------|--|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |
| <b>BALL</b>    | Alloy steel, Heat treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2). |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |

Note: Units are traceable and magnetic particle inspected after assembly.

| Aurora No.    |              | DIMENSIONS IN INCHES  |                     |             |             |             |                      |                     |                   | a°<br>Misalign.<br>Angle<br>Min. | Ultimate<br>Static<br>Radial<br>Load<br>Lbs. | Approx.<br>Brg.<br>Wt.<br>Lbs. |
|---------------|--------------|-----------------------|---------------------|-------------|-------------|-------------|----------------------|---------------------|-------------------|----------------------------------|--|--------------------------------|
| Right<br>Hand | Left<br>Hand | B<br>+.0015<br>-.0005 | W<br>+.000<br>.0005 | H<br>± .005 | A<br>± .015 | D<br>± .010 | Ball<br>Dia.<br>Ref. | C<br>+.062<br>-.031 | Thread<br>UNF-3A  |                                  |  |                                |
| MM-2M-500     | MB-2M-500    | .1250                 | .250                | .187        | .937        | .500        | .312                 | .562                | 6-32 <sup>1</sup> | 16                               | 502  | .013                           |
| MM-3M-500     | MB-3M-500    | .1900                 | .312                | .250        | 1.250       | .625        | .437                 | .750                | 10-32             | 13                               | 1,169  | .028                           |
| MM-4M-500     | MB-4M-500    | .2500                 | .375                | .281        | 1.562       | .750        | .500                 | 1.000               | 1/4-28            | 16                               | 2,158  | .043                           |
| MM-5M-500     | MB-5M-500    | .3125                 | .437                | .344        | 1.875       | .875        | .625                 | 1.250               | 5/16-24           | 14                               | 2,784  | .072                           |
| MM-6M-500     | MB-6M-500    | .3750                 | .500                | .406        | 1.938       | 1.000       | .719                 | 1.250               | 3/8-24            | 12                               | 3,915  | .112                           |
| MM-7M-500     | MB-7M-500    | .4375                 | .562                | .437        | 2.125       | 1.125       | .812                 | 1.375               | 7/16-20           | 14                               | 4,218  | .160                           |
| MM-8M-500     | MB-8M-500    | .5000                 | .625                | .500        | 2.438       | 1.312       | .937                 | 1.500               | 1/2-20            | 12                               | 6,660  | .249                           |
| MM-10M-500    | MB-10M-500   | .6250                 | .750                | .562        | 2.625       | 1.500       | 1.125                | 1.625               | 5/8-18            | 16                               | 7,364  | .382                           |
| MM-12M-500    | MB-12M-500   | .7500                 | .875                | .687        | 2.875       | 1.750       | 1.312                | 1.750               | 3/4-16            | 14                               | 11,518                                       | .602                           |
| MM-14M-500    | MB-14M-500   | .8750                 | .875                | .765        | 3.375       | 2.000       | 1.375                | 2.000               | 7/8-14            | 7                                | 18,476                                       | .906                           |
| MM-14M-1-500  | MB-14M-1-500 | .8750                 | .875                | .687        | 3.375       | 2.000       | 1.312                | 1.875               | 7/8-14            | 12                               | 22,843                                       | .906                           |
| MM-16M-500    | MB-16M-500   | 1.0000                | 1.375               | 1.000       | 4.125       | 2.750       | 1.875                | 2.125               | 1 1/4-12          | 17                               | 43,541                                       | 2.406                          |
| MM-16M-1-500  | MB-16M-1-500 | 1.0000                | 1.375               | 1.000       | 4.125       | 2.750       | 1.875                | 2.125               | 1-14 <sup>2</sup> | 17                               | 43,541                                       | 2.127                          |
| MM-16M-2-500  | MB-16M-2-500 | 1.0000                | 1.375               | 1.000       | 4.125       | 2.750       | 1.875                | 2.125               | 1-12              | 17                               | 43,541                                       | 2.127                          |

\* Grease fitting not available.

1 Threads 6-32 UNC.

2 Threads 1-14 UNS.

3 Tolerance variation: "D" ± .020, "A" ± .020, "B" + .0035, - .0005, "H" ± .010

3 Body material: 4130 steel not heat treated.

Solid shank add suffix "Y" (Ex: MM-6YM-500).

**THESE ROD ENDS NOT NORMALLY STOCKED - CHECK FOR AVAILABILITY.**

Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

Z Zerk type fitting Ex: MM-6Z

F Flush type fitting Ex: MM-6F

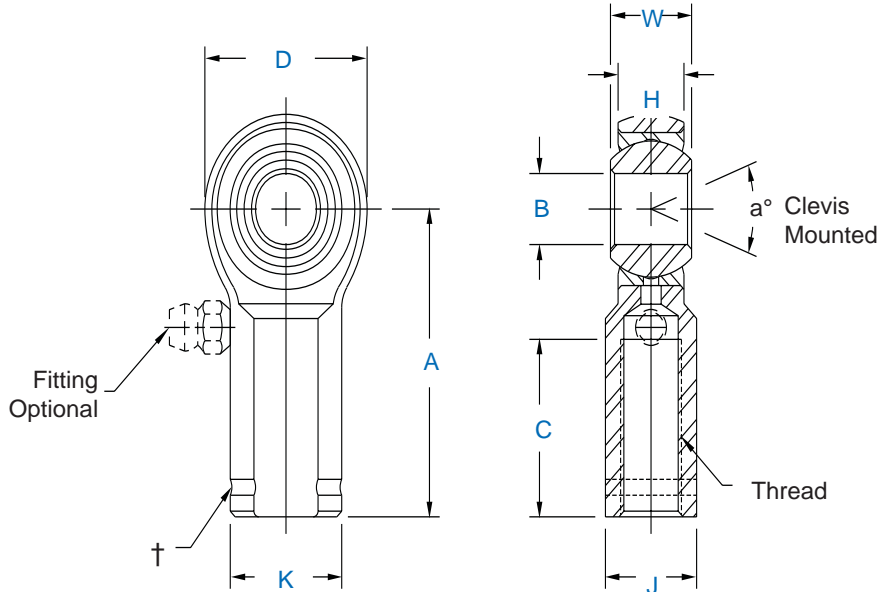
Load ratings apply only to rod ends without grease fittings. For load ratings with fittings, please consult our engineering department. For Rod End bearings which are non-traceable or non-magnetic particle inspected consult factory.





## MW-M-500 & MG-M-500 Series Female Rod Ends

General Aviation - Precision



| Specifications |  |
|----------------|--|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |
| <b>BALL</b>    | Alloy steel, Heat treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2). |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |

Note: Units are traceable and magnetic particle inspected after assembly.

| AURORA NO.     |              | DIMENSIONS IN INCHES  |                     |            |            |            |            |            |                |                     |                   | a° Misalign. Angle | Ult. Static Radial Load Lbs. | Approx. Brg. Wt. Lbs. |
|----------------|--------------|-----------------------|---------------------|------------|------------|------------|------------|------------|----------------|---------------------|-------------------|--------------------|------------------------------|-----------------------|
| Right Hand     | Left Hand    | B<br>+.0015<br>-.0005 | W<br>+.000<br>+.005 | H<br>±.005 | A<br>±.015 | D<br>±.010 | K<br>±.010 | J<br>±.010 | Ball Dia. Ref. | C<br>+.062<br>-.031 | Thread UNF-2B     |                    |                              |                       |
| * MW-2M-500    | MG-2M-500    | .1250                 | .250                | .187       | .812       | .500       | .312       | .250       | .312           | .437                | 6-32 <sup>1</sup> | 16                 | 1,202                        | .019                  |
| MW-3M-500      | MG-3M-500    | .1900                 | .312                | .250       | 1.062      | .625       | .406       | .312       | .437           | .562                | 10-32             | 13                 | 1,531                        | .038                  |
| MW-4M-500      | MG-4M-500    | .2500                 | .375                | .281       | 1.312      | .750       | .469       | .375       | .500           | .750                | 1/4-28            | 16                 | 2,539                        | .059                  |
| MW-5M-500      | MG-5M-500    | .3125                 | .437                | .344       | 1.375      | .875       | .500       | .437       | .625           | .750                | 5/16-24           | 14                 | 3,133                        | .092                  |
| MW-6M-500      | MG-6M-500    | .3750                 | .500                | .406       | 1.625      | 1.000      | .687       | .562       | .719           | .937                | 3/8-24            | 12                 | 3,915                        | .152                  |
| MW-7M-500      | MG-7M-500    | .4375                 | .562                | .437       | 1.812      | 1.125      | .750       | .625       | .812           | 1.062               | 7/16-20           | 14                 | 4,218                        | .198                  |
| MW-8M-500      | MG-8M-500    | .5000                 | .625                | .500       | 2.125      | 1.312      | .875       | .750       | .937           | 1.187               | 1/2-20            | 12                 | 6,660                        | .329                  |
| MW-10M-500     | MG-10M-500   | .6250                 | .750                | .562       | 2.500      | 1.500      | 1.000      | .875       | 1.125          | 1.500               | 5/8-18            | 16                 | 7,364                        | .477                  |
| MW-12M-500     | MG-12M-500   | .7500                 | .875                | .687       | 2.875      | 1.750      | 1.125      | 1.000      | 1.312          | 1.750               | 3/4-16            | 14                 | 11,518                       | .723                  |
| MW-14M-500     | MG-14M-500   | .8750                 | .875                | .765       | 3.375      | 2.000      | 1.300      | 1.125      | 1.375          | 1.875               | 7/8-14            | 7                  | 18,476                       | 1.030                 |
| MW-14M-1-500   | MG-14M-1-500 | .8750                 | .875                | .687       | 3.500      | 2.000      | 1.312      | 1.187      | 1.312          | 1.812               | 7/8-14            | 12                 | 22,843                       | 1.030                 |
| 3 MW-16M-500   | MG-16M-500   | 1.0000                | 1.375               | 1.000      | 4.125      | 2.750      | 1.625      | 1.500      | 1.875          | 2.125               | 1 1/4-12          | 17                 | 40,889                       | 2.125                 |
| 3 MW-16M-1-500 | MG-16M-1-500 | 1.0000                | 1.375               | 1.000      | 4.125      | 2.750      | 1.625      | 1.500      | 1.875          | 2.125               | 1-14 <sup>2</sup> | 17                 | 43,541                       | 2.410                 |
| 3 MW-16M-2-500 | MG-16M-2-500 | 1.0000                | 1.375               | 1.000      | 4.125      | 2.750      | 1.625      | 1.500      | 1.875          | 2.125               | 1-12              | 17                 | 43,541                       | 2.410                 |

† Left hand units have identification groove near end of shank.

\* Grease fitting not available.

1Threads 6-32 UNC .

2Threads 1-14 UNS.

3Tolerance variation: "D" ± .020, "A" ± .020 "B" + .0035, - .0005,

"H" ± .010, "K" ± .015, "J" ± .015

3 Body Material: 4130 steel not heat treated.

**THESE ROD ENDS NOT NORMALLY STOCKED - CHECK FOR AVAILABILITY.**

Units are supplied without grease fittings. When

grease fittings are required, specify by adding suffixes as designated.

Z Zerk type fitting

Ex: MW-3ZM-500

F Flush type fitting

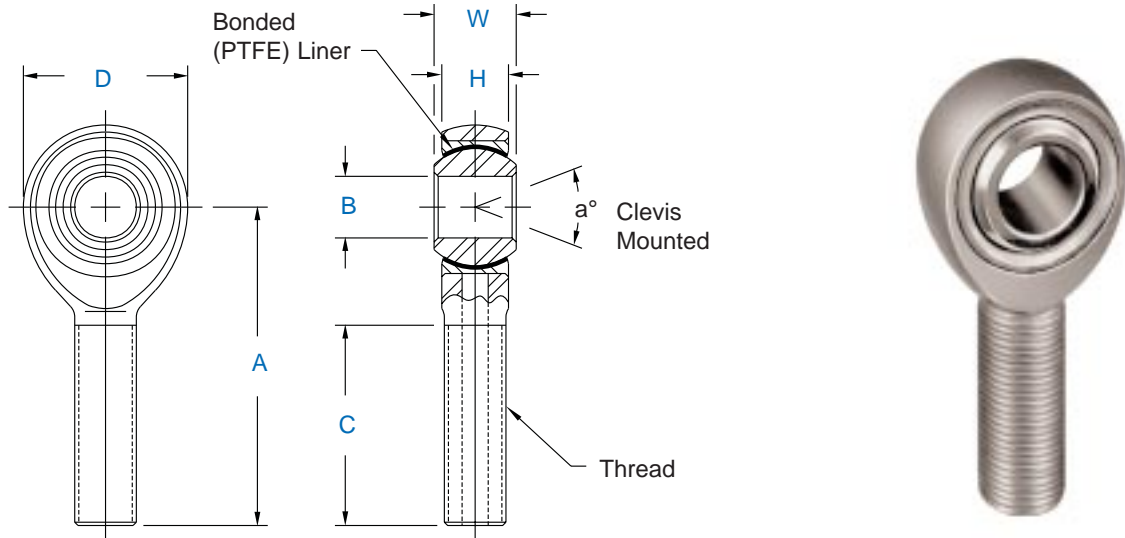
Ex: MW-3FM-500

For Rod End bearings which are non-traceable or non-magnetic particle inspected, consult factory.

SECTION THREE



**MM-TM-500 & MB-TM-500 Series**  
**Male Rod Ends (PTFE) Lined**  
 General Aviation - Precision



| Specifications |   |
|----------------|---|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance          |
| <b>BALL</b>    | Alloy Steel, Heat Treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance          |
| <b>LINER</b>   | PTFE Bearing Liner, Permanently Bonded to Race I.D.                   |

Note: Units are traceable and magnetic particle inspected after assembly.

| Aurora No.    |               | DIMENSIONS IN INCHES    |                       |             |             |             |                      |                       |                  | a°                         | Ultimate                         | Approx.             |
|---------------|---------------|-------------------------|-----------------------|-------------|-------------|-------------|----------------------|-----------------------|------------------|----------------------------|----------------------------------|---------------------|
| Right Hand    | Left Hand     | B<br>+ .0015<br>- .0005 | W<br>+ .000<br>- .005 | H<br>± .005 | A<br>± .015 | D<br>± .010 | Ball<br>Dia.<br>Ref. | C<br>+ .062<br>- .031 | Thread<br>UNF-3A | Misalign.<br>Angle<br>Min. | Static<br>Radial<br>Load<br>Lbs. | Brg.<br>Wt.<br>Lbs. |
| MM-3TM-500    | MB-3TM-500    | .1900                   | .312                  | .250        | 1.250       | .625        | .437                 | .750                  | 10-32            | 13                         | 1,169                            | .028                |
| MM-4TM-500    | MB-4TM-500    | .2500                   | .375                  | .281        | 1.562       | .750        | .500                 | 1.000                 | 1/4-28           | 16                         | 2,158                            | .043                |
| MM-5TM-500    | MB-5TM-500    | .3125                   | .437                  | .344        | 1.875       | .875        | .625                 | 1.250                 | 5/16-24          | 14                         | 2,784                            | .072                |
| MM-6TM-500    | MB-6TM-500    | .3750                   | .500                  | .406        | 1.938       | 1.000       | .719                 | 1.250                 | 3/8-24           | 12                         | 3,915                            | .112                |
| MM-7TM-500    | MB-7TM-500    | .4375                   | .562                  | .437        | 2.125       | 1.125       | .812                 | 1.375                 | 7/16-20          | 14                         | 4,218                            | .160                |
| MM-8TM-500    | MB-8TM-500    | .5000                   | .625                  | .500        | 2.438       | 1.312       | .937                 | 1.500                 | 1/2-20           | 12                         | 6,660                            | .249                |
| MM-10TM-500   | MB-10TM-500   | .6250                   | .750                  | .562        | 2.625       | 1.500       | 1.125                | 1.625                 | 5/8-18           | 16                         | 7,364                            | .382                |
| MM-12TM-500   | MB-12TM-500   | .7500                   | .875                  | .687        | 2.875       | 1.750       | 1.312                | 1.750                 | 3/4-16           | 14                         | 11,518                           | .602                |
| 1 MM-16TM-500 | 1 MB-16TM-500 | 1.0000                  | 1.375                 | 1.000       | 4.125       | 2.750       | 1.875                | 2.125                 | 1 1/4-12         | 17                         | 43,541                           | 2.406               |

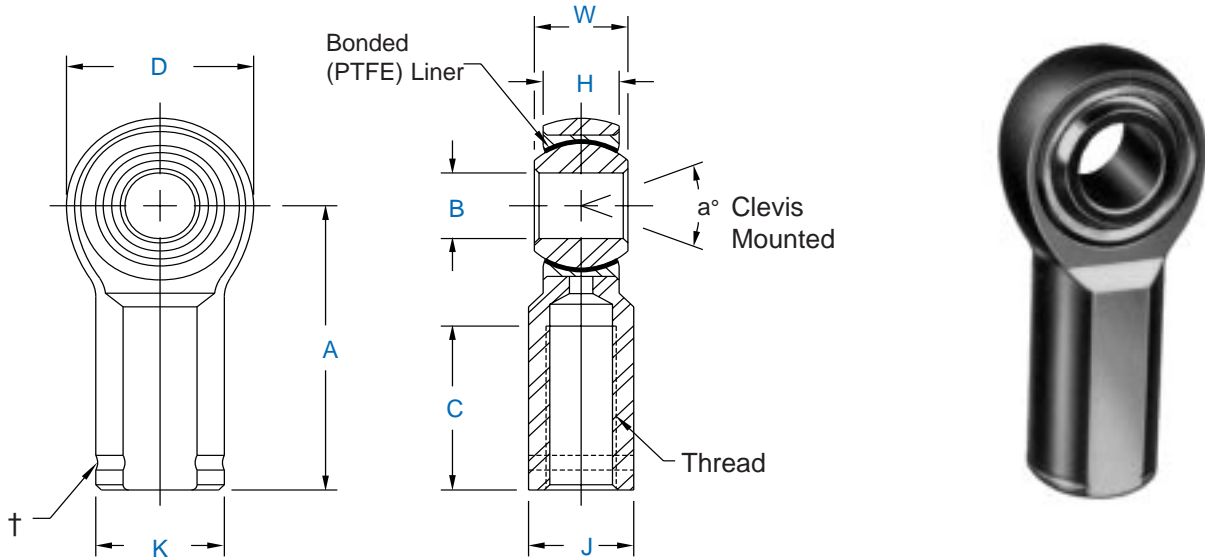
1 Tolerance variation: "D" ± .020, "A" ± .020, "B" + .0035, - .0005, "H" ± .010  
 1 Body Material: 4130 steel not heat treated.

Solid shank add suffix "Y" (Ex: MM - 6TYM-500)  
 For Rod End bearings which are non-traceable or non-magnetic particle inspected, consult factory.

SECTION THREE



**MW-TM-500 & MG-TM-500 Series**  
**Female Rod Ends (PTFE) Lined**  
 General Aviation - Precision



| Specifications |   |
|----------------|---|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance          |
| <b>BALL</b>    | Alloy Steel, Heat Treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2) |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance          |
| <b>LINER</b>   | PTFE Bearing Liner, Permanently Bonded to Race I.D.                   |

Note: Units are traceable and magnetic particle inspected after assembly.

| AURORA NO.    |             | DIMENSIONS IN INCHES  |                     |             |             |             |             |             |                |                     |               | a° Misalign. Angle | Ult. Static Radial Load Lbs. | Approx. Brg. Wt. Lbs. |
|---------------|-------------|-----------------------|---------------------|-------------|-------------|-------------|-------------|-------------|----------------|---------------------|---------------|--------------------|------------------------------|-----------------------|
| Right Hand    | Left Hand   | B<br>+.0015<br>-.0005 | W<br>+.000<br>+.005 | H<br>± .005 | A<br>± .015 | D<br>± .010 | K<br>± .010 | J<br>± .010 | Ball Dia. Ref. | C<br>+.062<br>-.031 | Thread UNF-2B |                    |                              |                       |
| MW-3TM-500    | MG-3TM-500  | .1900                 | .312                | .250        | 1.062       | .625        | .406        | .312        | .437           | .562                | 10-32         | 13                 | 1,531                        | .038                  |
| MW-4TM-500    | MG-4TM-500  | .2500                 | .375                | .281        | 1.312       | .750        | .469        | .375        | .500           | .750                | 1/4-28        | 16                 | 2,539                        | .059                  |
| MW-5TM-500    | MG-5TM-500  | .3125                 | .437                | .344        | 1.375       | .875        | .500        | .437        | .625           | .750                | 5/16-24       | 14                 | 3,133                        | .092                  |
| MW-6TM-500    | MG-6TM-500  | .3750                 | .500                | .406        | 1.625       | 1.000       | .687        | .562        | .719           | .937                | 3/8-24        | 12                 | 3,915                        | .152                  |
| MW-7TM-500    | MG-7TM-500  | .4375                 | .562                | .437        | 1.812       | 1.125       | .750        | .625        | .812           | 1.062               | 7/16-20       | 14                 | 4,218                        | .198                  |
| MW-8TM-500    | MG-8TM-500  | .5000                 | .625                | .500        | 2.125       | 1.312       | .875        | .750        | .937           | 1.187               | 1/2-20        | 12                 | 6,660                        | .329                  |
| MW-10TM-500   | MG-10TM-500 | .6250                 | .750                | .562        | 2.500       | 1.500       | 1.000       | .875        | 1.125          | 1.500               | 5/8-18        | 16                 | 7,364                        | .477                  |
| MW-12TM-500   | MG-12TM-500 | .7500                 | .875                | .687        | 2.875       | 1.750       | 1.125       | 1.000       | 1.312          | 1.750               | 3/4-16        | 14                 | 11,518                       | .723                  |
| 1 MW-16TM-500 | MG-16TM-500 | 1.0000                | 1.375               | 1.000       | 4.125       | 2.750       | 1.625       | 1.500       | 1.875          | 2.125               | 1 1/4-12      | 17                 | 40,889                       | 2.125                 |

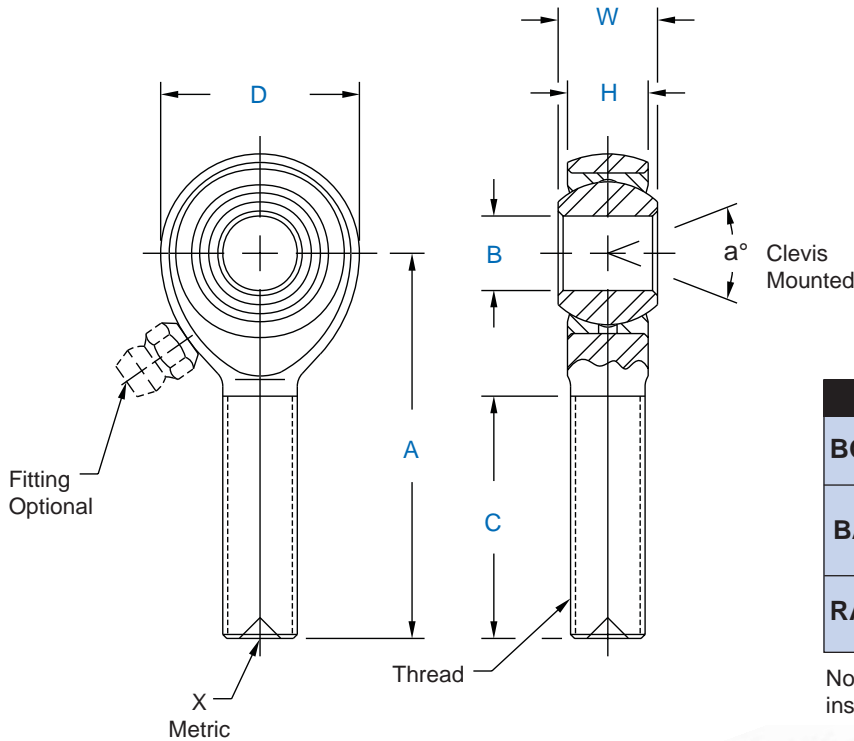
1Tolerance variation: "D" ± .020, "A" ± .020 "B" + .0035, - .0005, "H" ± .010, "K" ± .015, "J" ± .015  
 1 Body Material: 4130 steel not heat treated.

† Left hand units have identification groove near end of shank. For Rod End bearings which are non-traceable or non-magnetic particle inspected, consult factory.

SECTION THREE



**MM-M-M-500 & MB-M-M-500 Series**  
**Male Rod Ends - Metric**  
 General Aviation - Precision



| Specifications |  |
|----------------|--|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |
| <b>BALL</b>    | Alloy steel, Heat treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2). |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |

Note: Units are traceable and magnetic particle inspected after assembly.

SECTION THREE

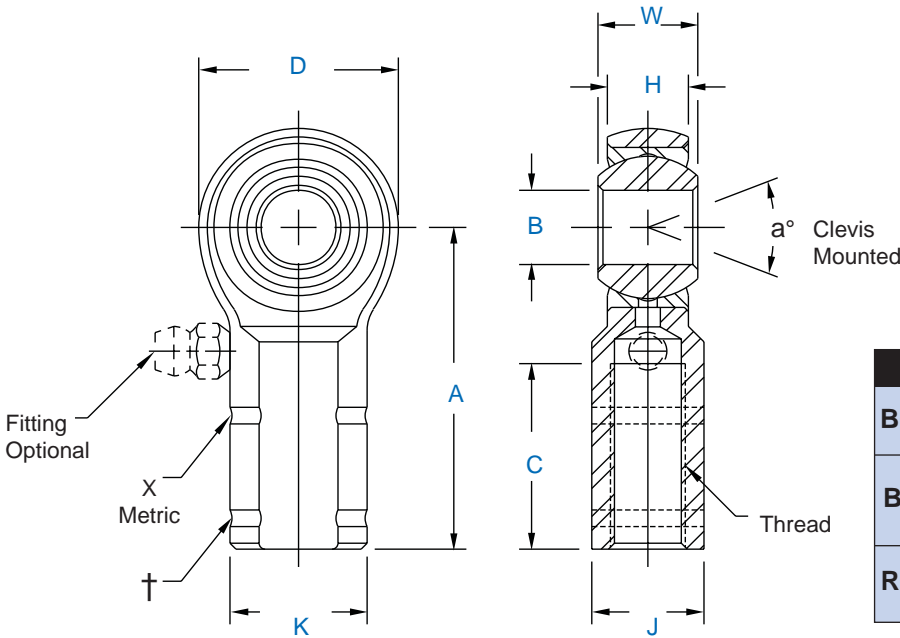
| AURORA NO.    |              | DIMENSIONS IN MILLIMETERS |            |            |            |            |                      |             |            | a°<br>Misalign.<br>Angle | Ult. Static<br>Radial<br>Load<br>Newtons | Approx.<br>Brg.<br>Wt.<br>Grams |
|---------------|--------------|---------------------------|------------|------------|------------|------------|----------------------|-------------|------------|--------------------------|--|---------------------------------|
| Right<br>Hand | Left<br>Hand | B<br>+ .065<br>- .013     | W<br>± .13 | H<br>± .13 | A<br>± .40 | D<br>± .38 | Ball<br>Dia.<br>Ref. | C<br>± 1.00 | Thread     |                          |  |                                 |
| MM-M3M-500    | MB-M3M-500   | 3                         | 6          | 4.75       | 27         | 12.50      | 7.93                 | 15          | M3 X 0.5   | 13                       | 1,775                                    | 7                               |
| MM-M5M-500    | MB-M5M-500   | 5                         | 8          | 6.25       | 33         | 16.00      | 11.10                | 20          | M5 X 0.8   | 14                       | 5,168                                    | 13                              |
| MM-M6M-500    | MB-M6M-500   | 6                         | 9          | 7.00       | 36         | 19.00      | 12.70                | 22          | M6 X 1.0   | 13                       | 7,296                                    | 18                              |
| MMF-M8M-500   | MBF-M8M-500  | 8                         | 12         | 8.75       | 42         | 22.25      | 15.88                | 25          | M8 X 1.0   | 18                       | 13,591                                   | 31                              |
| MM-M8M-500    | MB-M8M-500   |                           |            |            |            |            |                      |             | M8 X 1.25  |                          |  |                                 |
| MMF-M10M-500  | MBF-M10M-500 | 10                        | 14         | 10.50      | 48         | 27.00      | 19.05                | 29          | M10 X 1.25 | 17                       | 20,603                                   | 68                              |
| MM-M10M-500   | MB-M10M-500  |                           |            |            |            |            |                      |             | M10 X 1.5  |                          |  |                                 |
| MMF-M12M-500  | MBF-M12M-500 | 12                        | 16         | 12.00      | 54         | 30.00      | 22.23                | 33          | M12 X 1.25 | 17                       | 18,215                                   | 78                              |
| MM-M12M-500   | MB-M12M-500  |                           |            |            |            |            |                      |             | M12 X 1.75 |                          |  |                                 |
| MMF-M14M-500  | MBF-M14M-500 | 14                        | 19         | 13.50      | 60         | 34.75      | 25.40                | 36          | M14 X 1.5  | 21                       | 29,840                                   | 118                             |
| MM-M14M-500   | MB-M14M-500  |                           |            |            |            |            |                      |             | M14 X 2.0  |                          |  |                                 |
| MMF-M16M-500  | MBF-M16M-500 | 16                        | 21         | 14.25      | 66         | 38.00      | 28.58                | 40          | M16 X 1.5  | 23                       | 32,223                                   | 173                             |
| MM-M16M-500   | MB-M16M-500  |                           |            |            |            |            |                      |             | M16 X 2.0  |                          |  |                                 |
| MM-M18M-500   | MB-M18M-500  | 18                        | 23         | 16.25      | 72         | 42.00      | 31.75                | 44          | M18 X 1.5  | 21                       | 41,303                                   | 260                             |
| MMF-M20M-500  | MBF-M20M-500 | 20                        | 25         | 18.00      | 78         | 46.00      | 34.93                | 47          | M20 X 1.5  | 20                       | 50,952                                   | 290                             |
| MM-M20M-500   | MB-M20M-500  |                           |            |            |            |            |                      |             | M20 X 2.5  |                          |  |                                 |
| MM-M22M-500   | MB-M22M-500  | 22                        | 28         | 19.50      | 86         | 50.00      | 38.10                | 51          | M22 X 1.5  | 22                       | 56,238                                   | 315                             |
| MM-M25M-500   | MB-M25M-500  | 25                        | 31         | 22.00      | 95         | 60.00      | 42.86                | 57          | M24 X 2.0  | 19                       | 104,435                                  | 500                             |
| MM-M30M-500   | MB-M30M-500  | 30                        | 37         | 25.50      | 105        | 70.00      | 50.80                | 66          | M30 X 2.0  | 21                       | 147,238                                  | 1,090                           |

X Designates metric threads.  
 For Rod End bearings which are non-traceable or non-magnetic particle inspected, consult factory.  
**THESE ROD ENDS NOT NORMALLY STOCKED - CHECK FOR AVAILABILITY.**

Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.  
 Z Zerk type fitting Ex: MM-M10ZM-500  
 F Flush type fitting Ex: MM-M10FM-500  
 Load ratings apply only to rod ends without grease fittings. For load ratings with fittings, please consult our engineering department.



**MW-M-M-500 & MG-M-M-500 Series**  
**Female Rod Ends - Metric**  
 General Aviation - Precision



| Specifications |  |
|----------------|--|
| <b>BODY</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |
| <b>BALL</b>    | Alloy steel, Heat treated, Hard Chrome Plated (AMS-QQ-C-320, Class 2). |
| <b>RACE</b>    | Low Carbon Steel, Protective Coated for Corrosion Resistance.          |

Note: Units are traceable and magnetic particle inspected after assembly.

| Rod End No.  |              | DIMENSIONS IN MILLIMETERS |            |            |            |            |            |            |                |             |            | a°              | Ult. Static         | Approx.        |
|--------------|--------------|---------------------------|------------|------------|------------|------------|------------|------------|----------------|-------------|------------|-----------------|---------------------|----------------|
| Right Hand   | Left Hand    | B<br>+ .065<br>- .013     | W<br>± .13 | H<br>± .13 | A<br>± .40 | D<br>± .38 | K<br>± .25 | J<br>± .25 | Ball Dia. Ref. | C<br>± 1.00 | Thread     | Misalign. Angle | Radial Load Newtons | Brg. Wt. Grams |
| MW-M3M-500   | MG-M3M-500   | 3                         | 6          | 4.75       | 21         | 12.50      | 8          | 7          | 7.93           | 10          | M3 X 0.5   | 13              | 4,972               | 10             |
| MW-M5M-500   | MG-M5M-500   | 5                         | 8          | 6.25       | 27         | 16.00      | 11         | 9          | 11.10          | 14          | M5 X 0.8   | 14              | 7,090               | 17             |
| MW-M6M-500   | MG-M6M-500   | 6                         | 9          | 7.00       | 30         | 19.00      | 13         | 11         | 12.70          | 14          | M6 X 1.0   | 13              | 10,573              | 25             |
| MWF-M8M-500  | MGF-M8M-500  | 8                         | 12         | 8.75       | 36         | 22.25      | 16         | 14         | 15.88          | 17          | M8 X 1.0   | 18              | 14,072              | 40             |
| MW-M8M-500   | MG-M8M-500   |                           |            |            |            |            |            |            |                |             | M8 X 1.25  |                 |                     |                |
| MWF-M10M-500 | MGF-M10M-500 | 10                        | 14         | 10.50      | 43         | 27.00      | 19         | 17         | 19.05          | 21          | M10 X 1.25 | 17              | 20,603              | 80             |
| MW-M10M-500  | MG-M10M-500  |                           |            |            |            |            |            |            |                |             | M10 X 1.5  |                 |                     |                |
| MWF-M12M-500 | MGF-M12M-500 | 12                        | 16         | 12.00      | 50         | 30.00      | 22         | 19         | 22.23          | 24          | M12 X 1.25 | 17              | 18,215              | 95             |
| MW-M12M-500  | MG-M12M-500  |                           |            |            |            |            |            |            |                |             | M12 X 1.75 |                 |                     |                |
| MWF-M14M-500 | MGF-M14M-500 | 14                        | 19         | 13.50      | 57         | 34.75      | 25         | 22         | 25.40          | 27          | M14 X 1.5  | 21              | 29,840              | 160            |
| MW-M14M-500  | MG-M14M-500  |                           |            |            |            |            |            |            |                |             | M14 X 2.0  |                 |                     |                |
| MWF-M16M-500 | MGF-M16M-500 | 16                        | 21         | 14.25      | 64         | 38.00      | 27         | 22         | 28.58          | 33          | M16 X 1.5  | 23              | 32,223              | 215            |
| MW-M16M-500  | MG-M16M-500  |                           |            |            |            |            |            |            |                |             | M16 X 2.0  |                 |                     |                |
| MW-M18M-500  | MG-M18M-500  | 18                        | 23         | 16.25      | 71         | 42.00      | 31         | 27         | 31.75          | 36          | M18 X 1.5  | 21              | 41,303              | 300            |
| MWF-M20M-500 | MGF-M20M-500 | 20                        | 25         | 18.00      | 77         | 46.00      | 34         | 30         | 34.93          | 40          | M20 X 1.5  | 20              | 50,952              | 350            |
| MW-M20M-500  | MG-M20M-500  |                           |            |            |            |            |            |            |                |             | M20 X 2.5  |                 |                     |                |
| MW-M22M-500  | MG-M22M-500  | 22                        | 28         | 19.50      | 86         | 50.00      | 37         | 32         | 38.10          | 43          | M22 X 1.5  | 22              | 56,238              | 390            |
| MW-M25M-500  | MG-M25M-500  | 25                        | 31         | 22.00      | 95         | 60.00      | 42         | 36         | 42.86          | 48          | M24 X 2.0  | 19              | 104,435             | 700            |
| MW-M30M-500  | MG-M30M-500  | 30                        | 37         | 25.50      | 105        | 70.00      | 50         | 41         | 50.80          | 56          | M30 X 2.0  | 21              | 147,238             | 970            |

X Designates metric threads.

For Rod End bearings which are non-traceable or non-magnetic particle inspected, consult factory.

†Left hand units have identification groove.

**THESE ROD ENDS NOT NORMALLY STOCKED - CHECK FOR AVAILABILITY.**

Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

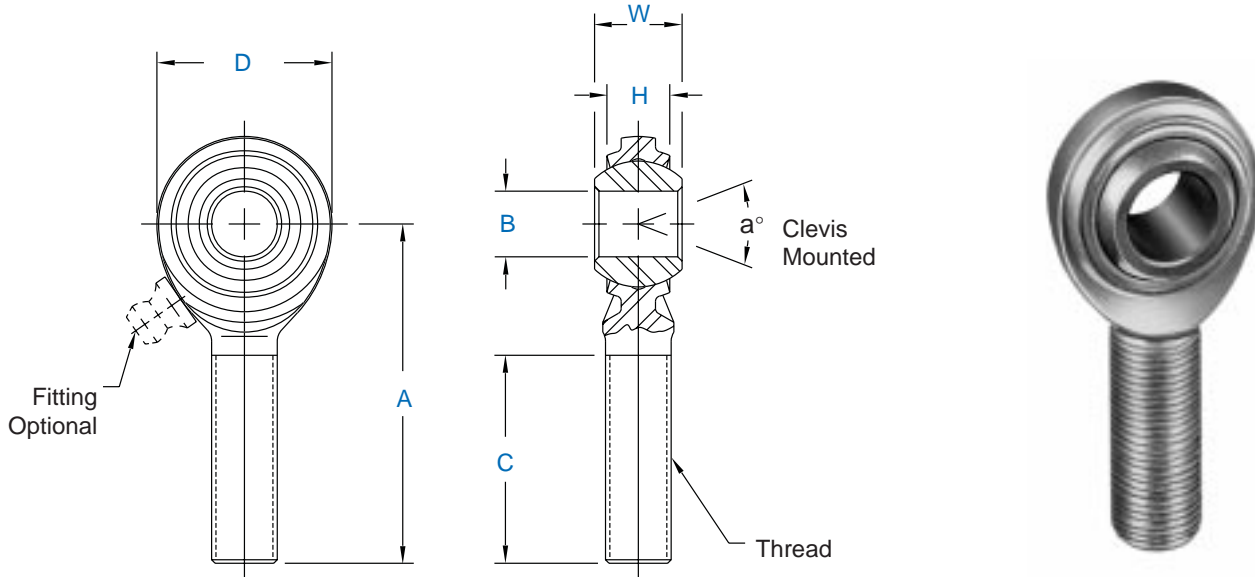
Z Zerk type fitting Ex: MW-M10ZM-500  
 F Flush type fitting Ex: MW-M10FM-500

SECTION THREE



## CM & CB Series Male Rod Ends

General Aviation - Economy



| Specifications        |   |
|-----------------------|---|
| <b>BODY</b>           | Low Carbon Steel, Protective Coated for Corrosion Resistance. |
| <b>BALL</b>           | Sintered steel, Heat treated, Oil Impregnated.                |
| <b>ALTERNATE BALL</b> | Alloy Steel, Heat Treated, Hard Chrome Plated.                |

Note: Units are **NOT** traceable and **NOT** magnetic particle inspected.

SECTION THREE

| Rod End No. |           | DIMENSIONS IN INCHES  |             |           |             |             |                |                     |                  | a°              | Ult. Static Radial Load Lbs. | Approx. Brg. Wt. Lbs. |
|-------------|-----------|-----------------------|-------------|-----------|-------------|-------------|----------------|---------------------|------------------|-----------------|------------------------------|-----------------------|
| Right Hand  | Left Hand | B<br>+.0025<br>-.0005 | W<br>± .005 | H<br>Ref. | A<br>± .015 | D<br>± .010 | Ball Dia. Ref. | C<br>+.062<br>-.031 | Thread<br>UNF-3A | Misalign. Angle |                              |                       |
| * CM-3      | CB-3      | .1900                 | .312        | .234      | 1.250       | .625        | .437           | .750                | 10-32            | 20              | 1,204                        | .03                   |
| * CM-4      | CB-4      | .2500                 | .375        | .250      | 1.562       | .750        | .500           | 1.000               | 1/4-28           | 27              | 2,212                        | .04                   |
| * CM-5      | CB-5      | .3125                 | .437        | .312      | 1.875       | .875        | .625           | 1.250               | 5/16-24          | 22              | 3,577                        | .07                   |
| CM-6        | CB-6      | .3750                 | .500        | .359      | 1.938       | 1.000       | .719           | 1.250               | 3/8-24           | 22              | 5,068                        | .11                   |
| CM-7        | CB-7      | .4375                 | .562        | .406      | 2.125       | 1.125       | .812           | 1.375               | 7/16-20          | 21              | 6,345                        | .15                   |
| CM-8        | CB-8      | .5000                 | .625        | .453      | 2.438       | 1.312       | .937           | 1.500               | 1/2-20           | 20              | 8,338                        | .24                   |
| CM-10       | CB-10     | .6250                 | .750        | .484      | 2.625       | 1.500       | 1.125          | 1.625               | 5/8-18           | 26              | 9,713                        | .36                   |
| CM-12       | CB-12     | .7500                 | .875        | .593      | 2.875       | 1.750       | 1.312          | 1.750               | 3/4-16           | 24              | 14,207                       | .57                   |

\* Grease fitting not available.  
If Magnetic Particle Inspection is required, add suffix "M".  
(Ex: CM-6M)

Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

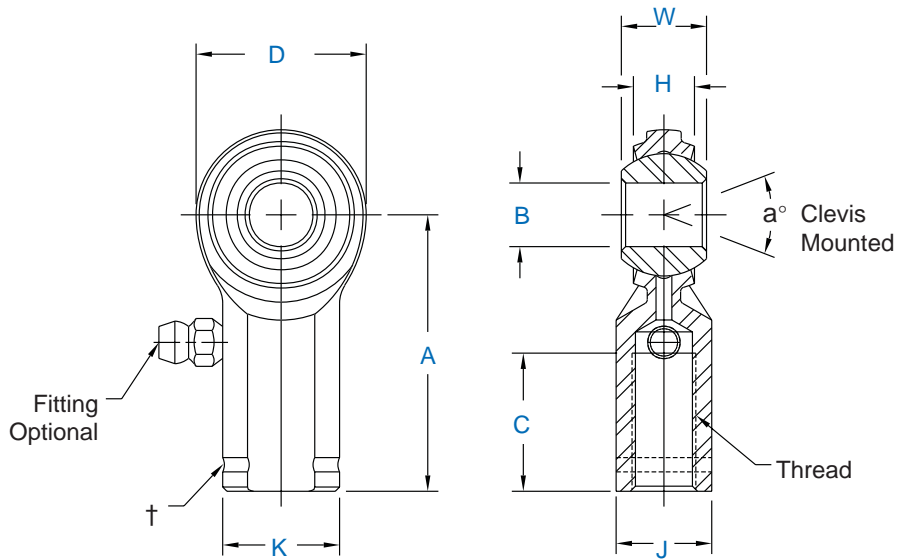
Z Zerk type fitting      Ex: CM-6Z  
F Flush type fitting      Ex: CM-6F

Load ratings apply to rod ends without grease fittings. For load ratings with fittings, please consult our engineering department.



## CW & CG Series Female Rod Ends

General Purpose - Economy



| Specifications        |   |
|-----------------------|---|
| <b>BODY</b>           | Low Carbon Steel, Protective Coated for Corrosion Resistance. |
| <b>BALL</b>           | Sintered steel, Heat treated, Oil Impregnated.                |
| <b>ALTERNATE BALL</b> | Alloy Steel, Heat Treated, Hard Chrome Plated.                |

Note: Units are **NOT** traceable and **NOT** magnetic particle inspected.

| Rod End No.   |              | DIMENSIONS IN INCHES  |             |           |             |             |             |             |                      |                       |                  | a°<br>Misaln.<br>Angle | Ult.<br>Static<br>Radial<br>Load<br>Lbs. | Approx.<br>Brg.<br>Wt.<br>Lbs. |
|---------------|--------------|-----------------------|-------------|-----------|-------------|-------------|-------------|-------------|----------------------|-----------------------|------------------|------------------------|--|--------------------------------|
| Right<br>Hand | Left<br>Hand | B<br>+.0025<br>-.0005 | W<br>± .005 | H<br>Ref. | A<br>± .015 | D<br>± .010 | K<br>± .010 | J<br>± .010 | Ball<br>Dia.<br>Ref. | C<br>+ .062<br>- .031 | Thread<br>UNF-2B |                        |  |                                |
| CW-3          | CG-3         | .1900                 | .312        | .234      | 1.062       | .625        | .406        | .312        | .437                 | .500                  | 10-32            | 20                     | 2,079                                    | .04                            |
| CW-4          | CG-4         | .2500                 | .375        | .250      | 1.312       | .750        | .469        | .375        | .500                 | .687                  | 1/4-28           | 27                     | 3,208                                    | .05                            |
| CW-5          | CG-5         | .3125                 | .437        | .312      | 1.375       | .875        | .500        | .437        | .625                 | .687                  | 5/16-24          | 22                     | 3,824                                    | .08                            |
| CW-6          | CG-6         | .3750                 | .500        | .359      | 1.625       | 1.000       | .687        | .562        | .719                 | .812                  | 3/8-24           | 22                     | 5,087                                    | .13                            |
| CW-7          | CG-7         | .4375                 | .562        | .406      | 1.812       | 1.125       | .750        | .625        | .812                 | .937                  | 7/16-20          | 21                     | 6,385                                    | .18                            |
| CW-8          | CG-8         | .5000                 | .625        | .453      | 2.125       | 1.312       | .875        | .750        | .937                 | 1.062                 | 1/2-20           | 20                     | 9,096                                    | .29                            |
| CW-10         | CG-10        | .6250                 | .750        | .484      | 2.500       | 1.500       | 1.000       | .875        | 1.125                | 1.375                 | 5/8-18           | 26                     | 9,713                                    | .43                            |
| CW-12         | CG-12        | .7500                 | .875        | .593      | 2.875       | 1.750       | 1.125       | 1.000       | 1.312                | 1.562                 | 3/4-16           | 24                     | 14,207                                   | .65                            |

\* Grease fitting not available

† Left hand units have identification groove near end of shank.  
If Magnetic Particle Inspection is required, add suffix "M".  
(Ex: CW-6M)

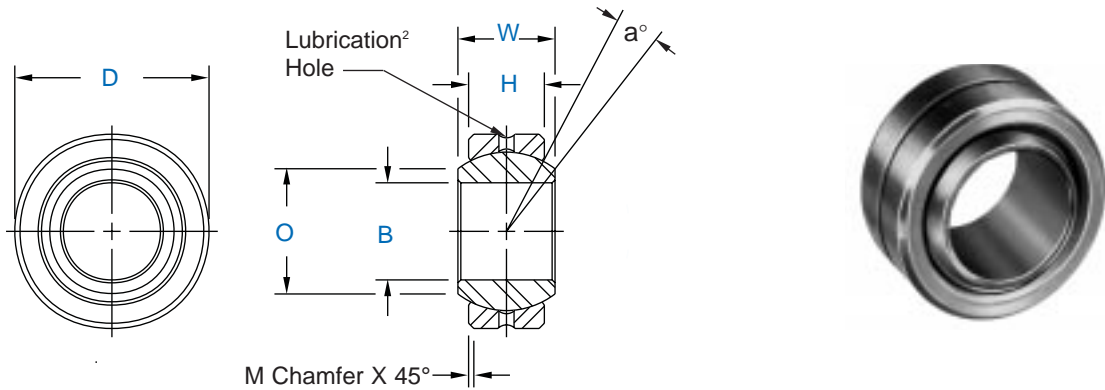
Units are supplied without grease fittings. When grease fittings are required, specify by adding suffixes as designated.

Z Zerk type fitting      Ex: CW-6Z  
F Flush type fitting      Ex: CW-6F

SECTION THREE



**COM- & HCOM- Series**  
Spherical Bearings (PTFE Liners Available)<sup>1</sup>



| Specifications                 |   |
|--------------------------------|---|
| <b>BALL</b>                    | Through Hardened Steel, Heat Treated<br>Hard Chrome Plated. |
| <b>RACE<br/>(Outer Member)</b> | Carbon Steel, Protective Coated for<br>Corrosion Resistance |

Note: Units are **NOT** traceable and **NOT** magnetic particle inspected.

SECTION THREE

| AURORA NO. | DIMENSIONS IN MILLIMETERS |                         |             |             |                    |                   |                | a° Misalign. Angle | Radial Static Load Capacity Lbs. | Approx. Brg. Wt. Lbs. |
|------------|---------------------------|-------------------------|-------------|-------------|--------------------|-------------------|----------------|--------------------|----------------------------------|-----------------------|
|            | B<br>+ .0015<br>- .0005   | D<br>+ .0000<br>- .0007 | H<br>± .005 | W<br>± .005 | O<br>Flat Dia Ref. | M<br>Chamfer Ref. | Ball Dia. Ref. |                    |                                  |                       |
| COM-3      | .1900                     | .5625                   | .218        | .281        | .293               | .015              | .406           | 11                 | 3,250                            | .014                  |
| COM-4      | .2500                     | .6562                   | .250        | .343        | .364               | .022              | .500           | 13.5               | 4,950                            | .022                  |
| COM-5      | .3125                     | .7500                   | .281        | .375        | .419               | .032              | .562           | 12                 | 6,475                            | .030                  |
| COM-6      | .3750                     | .8125                   | .312        | .406        | .516               | .032              | .656           | 10                 | 8,400                            | .038                  |
| COM-7      | .4375                     | .9062                   | .343        | .437        | .530               | .032              | .687           | 8                  | 9,453                            | .047                  |
| COM-8      | .5000                     | 1.0000                  | .390        | .500        | .640               | .032              | .813           | 9.5                | 13,250                           | .065                  |
| COM-9      | .5625                     | 1.0937                  | .437        | .562        | .710               | .032              | .906           | 9.5                | 16,630                           | .086                  |
| COM-10     | .6250                     | 1.1875                  | .500        | .625        | .780               | .032              | 1.000          | 8.5                | 21,280                           | .110                  |
| COM-12     | .7500                     | 1.4375                  | .593        | .750        | .920               | .044              | 1.187          | 9                  | 31,920                           | .204                  |
| COM-14     | .8750                     | 1.5625                  | .703        | .875        | .980               | .044              | 1.312          | 9.5                | 41,960                           | .263                  |
| *COM-16    | 1.0000                    | 1.7500                  | .797        | 1.000       | 1.118              | .044              | 1.500          | 10                 | 55,200                           | .386                  |
| *HCOM-16   | 1.0000                    | 2.0000                  | .781        | 1.000       | 1.360              | .032              | 1.687          | 9                  | 70,820                           | .553                  |
| *HCOM-19   | 1.1875                    | 2.3750                  | .937        | 1.187       | 1.610              | .032              | 2.000          | 8.5                | 100,730                          | .895                  |
| *HCOM-20   | 1.2500                    | 2.3750                  | .937        | 1.187       | 1.610              | .032              | 2.000          | 8.5                | 100,730                          | .895                  |
| *HCOM-24   | 1.5000                    | 2.7500                  | 1.094       | 1.375       | 1.860              | .032              | 2.312          | 8.5                | 135,950                          | 1.358                 |
| *HCOM-28   | 1.7500                    | 3.1250                  | 1.250       | 1.562       | 2.110              | .044              | 2.625          | 8                  | 176,370                          | 1.948                 |
| *HCOM-32   | 2.0000                    | 3.5000                  | 1.750       | 1.750       | 2.360              | .044              | 2.937          | 8.5                | 217,060                          | 2.650                 |

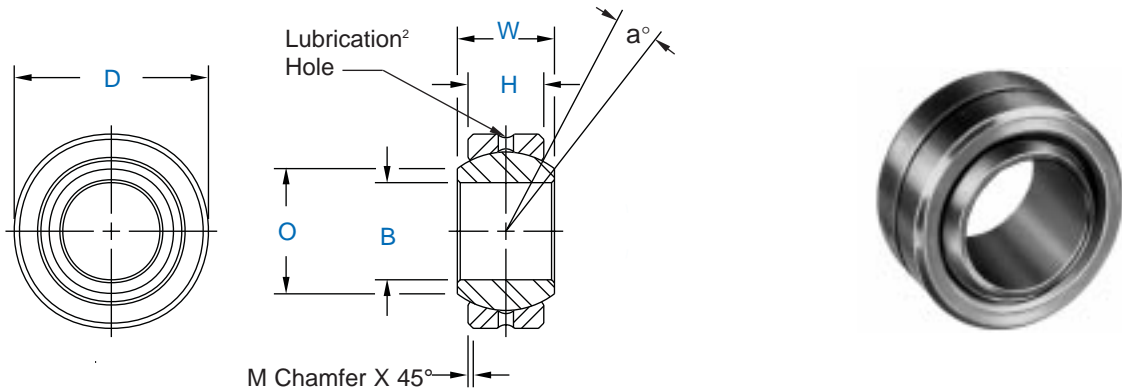
\* Bore tolerance on these items is as follows - INCH: +.0025, -.0005.  
If Magnetic Particle Inspection is required, add suffix "M" (Ex: COM-6M)

1 PTFE Liners use suffix T- Ex: COM-8T  
2 PTFE Liners have no lubrication holes or groove in race.





**AIB, SIB, MIB and MIB-T Series  
Spherical Bearings (PTFE Liners Available)<sup>1</sup>**



| Specifications     |  |   |
|--------------------|--|---|
| SERIES             | BALL   | RACE<br>(OUTER MEMBER)  |
| MIB-               | Alloy steel, heat treated, hard chrome plated. | Carbon steel, I.D. protective coated for corrosion resistance, oil coated.              |
| MIB-T <sup>1</sup> | Alloy steel, heat treated, hard chrome plated. | Carbon steel, PTFE Lined.   |
| AIB-               | Alloy steel, heat treated, hard chrome plated. | Alloy steel, heat treated, I.D. protective coated for corrosion resistance, oil coated. |
| SIB-               | Alloy steel, heat treated, hard chrome plated. | Stainless steel, heat treated, oil coated.  |

Note: Units are **NOT** traceable and **NOT** magnetic particle inspected.

| AURORA NO. |         |         |          | DIMENSIONS IN INCHES  |                       |             |             |                        |                      |                      | a°<br>Misalign.<br>Angle | Radial Static Load Capacity Lbs. |         | Approx. Brg. Wt. Lbs. |
|------------|---------|---------|----------|-----------------------|-----------------------|-------------|-------------|------------------------|----------------------|----------------------|--------------------------|----------------------------------|---------|-----------------------|
|            |         |         |          | B<br>+.0015<br>-.0005 | D<br>+.0000<br>-.0007 | H<br>± .005 | W<br>± .005 | O<br>Flat Dia.<br>Ref. | M<br>Chamfer<br>Ref. | Ball<br>Dia.<br>Ref. |                          | MIB-MIB-T                        | AIB-SIB |                       |
|            |         |         |          | AIB-3                 | SIB-3                 | MIB-3       | MIB-3T      | .1900                  | .5312                | .250                 |                          | .312                             | .307    |                       |
| AIB-4      | SIB-4   | MIB-4   | MIB-4T   | .2500                 | .6094                 | .281        | .375        | .331                   | .020                 | .500                 | 14.5                     | 5,620                            | 8,430   | .023                  |
| AIB-5      | SIB-5   | MIB-5   | MIB-5T   | .3125                 | .7500                 | .344        | .437        | .448                   | .020                 | .625                 | 11.0                     | 8,600                            | 12,900  | .039                  |
| AIB-6      | SIB-6   | MIB-6   | MIB-6T   | .3750                 | .8437                 | .406        | .500        | .516                   | .020                 | .719                 | 9.5                      | 11,677                           | 17,516  | .059                  |
| AIB-7      | SIB-7   | MIB-7   | MIB-7T   | .4375                 | 1.0000                | .437        | .562        | .587                   | .020                 | .812                 | 11.0                     | 14,194                           | 21,291  | .079                  |
| AIB-8      | SIB-8   | MIB-8   | MIB-8T   | .5000                 | 1.0937                | .500        | .625        | .699                   | .020                 | .937                 | 9.5                      | 18,740                           | 28,110  | .110                  |
| AIB-10     | SIB-10  | MIB-10  | MIB-10T  | .6250                 | 1.3125                | .562        | .750        | .839                   | .030                 | 1.125                | 12.0                     | 25,290                           | 37,935  | .165                  |
| AIB-12     | SIB-12  | MIB-12  | MIB-12T  | .7500                 | 1.5000                | .687        | .875        | .978                   | .030                 | 1.312                | 10.0                     | 32,448                           | 48,672  | .252                  |
| AIB-14     | SIB-14  | MIB-14  | MIB-14T  | .8750                 | 1.6250                | .750        | .875        | 1.061                  | .035                 | 1.375                | 6.0                      | 39,653                           | 58,653  | .350                  |
| AIB-16*    | SIB-16* | MIB-16* | MIB-16T* | 1.0000                | 2.1250                | 1.000       | 1.375       | 1.275                  | .060                 | 1.875                | 15.0                     | 60,000                           | 90,000  | .788                  |

\* Bore tolerance on these items is as follows - INCH: +.0035, -.0005.  
If Magnetic Particle Inspection is required, add suffix "M" (Ex: AIB-6M)

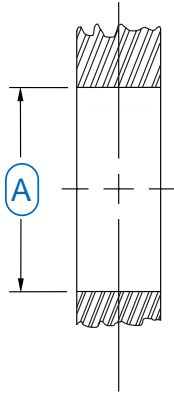
<sup>1</sup> PTFE Liners use suffix T - Ex: AIB-8T

<sup>2</sup> PTFE Liners have no lubrication holes or groove in race.

SECTION THREE



## Suggested Housing Bores Spherical Bearings



### RADIAL STATIC LOAD CAPACITY

These loads are maximum static based on maximum permanent set in the bearing race of 0.2% of the ball diameter. If a greater permanent set can be allowed or if alternate race materials are used consult our engineering department for change factors.

### AXIAL STATIC LOAD CAPACITY

These loads are approximately 20% of the radial loads listed when the load bearing surfaces are properly supported.

### ALTERNATE RACE AND BALL MATERIALS

Materials other than those listed can be incorporated in bearings manufactured by Aurora Bearing Company. Stainless steels, to improve corrosion resistance, and heat treated alloy steels, to increase wear life, are frequently used in special applications.

PTFE lined races are also available in this series to provide service requiring no relubrication and improved frictional characteristics. Tables are representative of Metal to Metal parts, please consult our engineering department for PTFE lined parts.

### COM & HCOM Series

| Bearing Series<br>COM<br>HCOM | DIMENSIONS IN INCHES   |               |        |                  |        |
|-------------------------------|--|---------------|--------|------------------|--------|
|                               | A Suggested Housing Bore For Press Fit of Spherical Bearings |               |        |                  |        |
|                               | Bearing Outside Diameter<br>+.0000<br>-.0007                 | Steel Housing |        | Aluminum Housing |        |
|                               |  | Max.          | Min.   | Max.             | Min.   |
| 3                             | .5625  | .5619         | .5614  | .5618            | .5612  |
| 4                             | .6562  | .6556         | .6551  | .6555            | .6549  |
| 5                             | .7500  | .7494         | .7489  | .7493            | .7487  |
| 6                             | .8125  | .8119         | .8114  | .8118            | .8112  |
| 7                             | .9062  | .9056         | .9051  | .9055            | .9049  |
| 8                             | 1.0000   | .9994         | .9989  | .9993            | .9987  |
| 9                             | 1.0937   | 1.0931        | 1.0925 | 1.0930           | 1.0923 |
| 10                            | 1.1875   | 1.1869        | 1.1863 | 1.1868           | 1.1861 |
| 12                            | 1.4375   | 1.4369        | 1.4363 | 1.4368           | 1.4361 |
| 14                            | 1.5625   | 1.5619        | 1.5613 | 1.5618           | 1.5611 |
| 16                            | 1.7500   | 1.7494        | 1.7488 | 1.7493           | 1.7485 |
| 16                            | 2.0000   | 1.9994        | 1.9988 | 1.9993           | 1.9985 |
| 19                            | 2.3750   | 2.3744        | 2.3738 | 2.3743           | 2.3735 |
| 20                            | 2.3750   | 2.3744        | 2.3738 | 2.3743           | 2.3735 |
| 24                            | 2.7500   | 2.7494        | 2.7488 | 2.7493           | 2.7485 |
| 28                            | 3.1250   | 3.1244        | 3.1238 | 3.1243           | 3.1235 |
| 32                            | 3.5000   | 3.4994        | 3.4988 | 3.4993           | 3.4985 |

### MIB, AIB, SIB, MIB-T Series

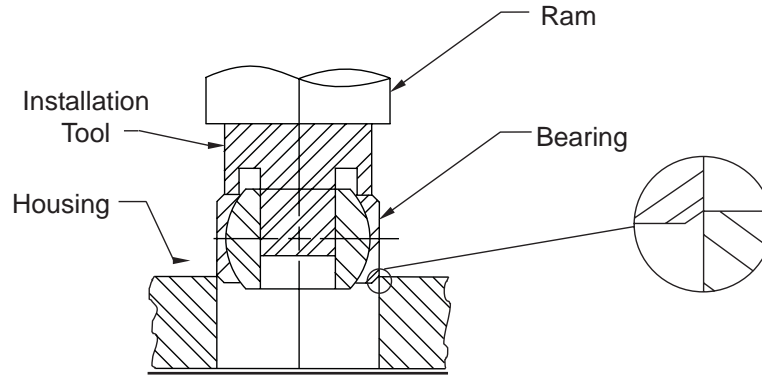
| Bearing Series<br>MIB<br>AIB<br>SIB<br>MIB-T | DIMENSIONS IN INCHES   |               |        |                  |        |
|--|--|---------------|--------|------------------|--------|
|  | A Suggested Housing Bore For Press Fit of Spherical Bearings |               |        |                  |        |
|  | Bearing Outside Diameter<br>+.0000<br>-.0007                 | Steel Housing |        | Aluminum Housing |        |
|  |  | Max.          | Min.   | Max.             | Min.   |
| 3  | .5312  | .5306         | .5301  | .5305            | .5299  |
| 4  | .6094  | .6088         | .6083  | .6087            | .6081  |
| 5  | .7500  | .7494         | .7489  | .7493            | .7487  |
| 6  | .8437  | .8431         | .8426  | .8430            | .8424  |
| 7  | 1.0000   | .9994         | .9989  | .9993            | .9987  |
| 8  | 1.0937   | 1.0931        | 1.0925 | 1.0930           | 1.0923 |
| 10   | 1.3125   | 1.3119        | 1.3113 | 1.3118           | 1.3111 |
| 12   | 1.5000   | 1.4994        | 1.4988 | 1.4993           | 1.4986 |
| 14   | 1.6250   | 1.6244        | 1.6238 | 1.6243           | 1.6235 |
| 16   | 2.1250   | 2.1244        | 2.1238 | 2.1243           | 2.1235 |

Dimensions given in the above tables are for bearings fabricated of standard race materials. Should other materials be used, consult our engineering department for modification of these dimensions.



## INSTALLATION OF SPHERICAL BEARING

FIGURE 1

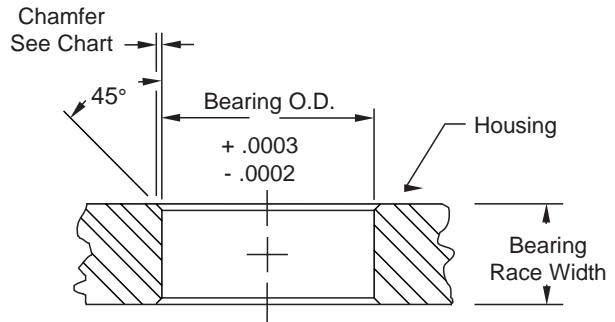


### SPHERICAL BEARING INSTALLATION

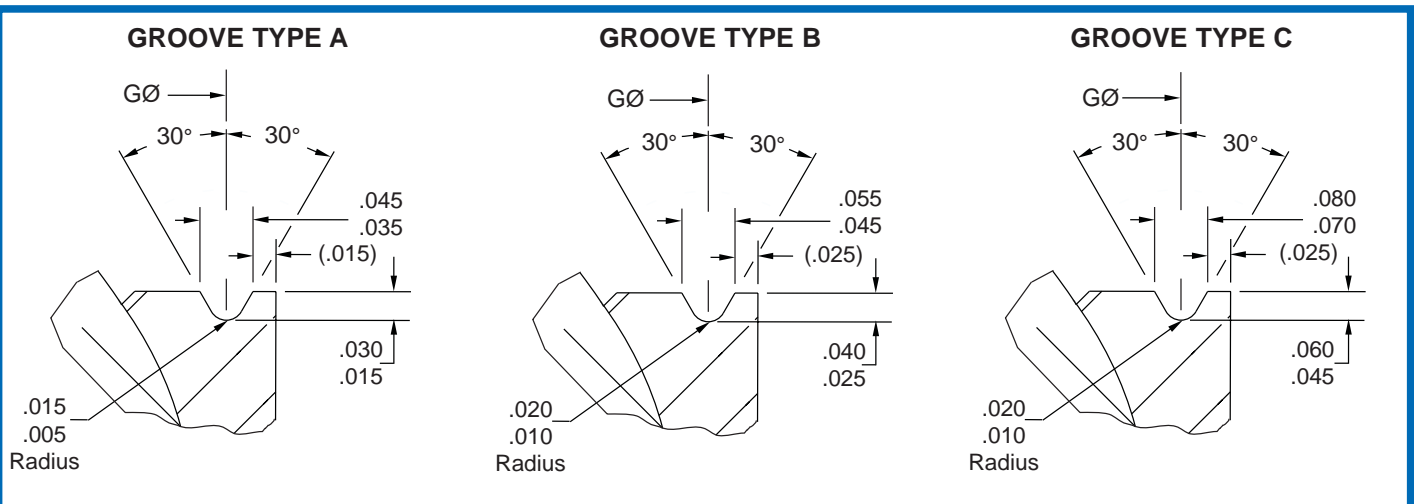
Proper installation of the bearing is important to prevent bearing failure as well as housing damage. Under no circumstances should a tool that induces shock or impact to the bearing be used. The use of an arbor press or hydraulic press is recommended. A tool as shown above (Figure 1) is advised. All force is to be applied on the bearing race face (not on ball). A lead chamfer or radius on the bearing and/or housing is vital.

### HOUSING CHAMFER - GROOVED BEARINGS

| CHAMFER FOR GROOVE TYPES |             |
|--------------------------|-------------|
| GROOVE TYPE A            | .020 ± .005 |
| GROOVE TYPE B            | .030 ± .005 |
| GROOVE TYPE C            | .050 ± .005 |



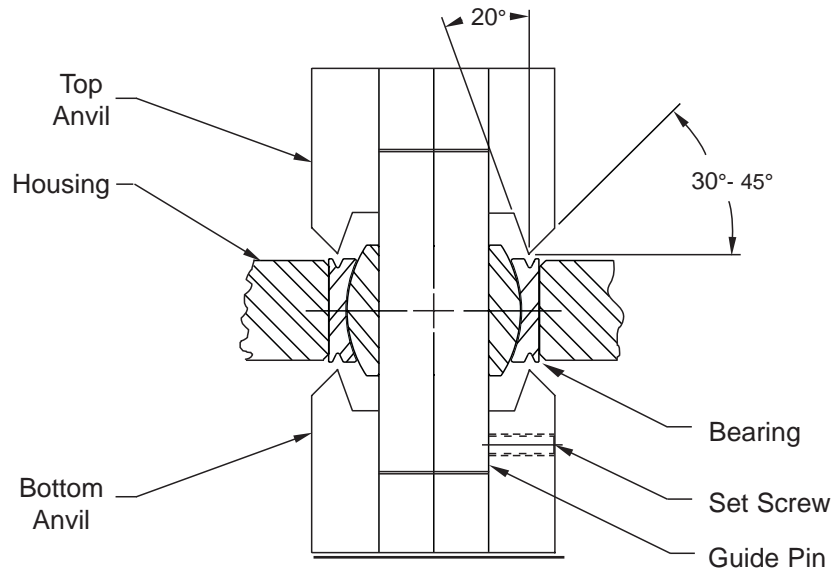
### STAKING GROOVE TYPES





## INSTALLATION OF SPHERICAL BEARING WITH STAKING GROOVES TOOLS AND STAKING METHODS

FIGURE 2

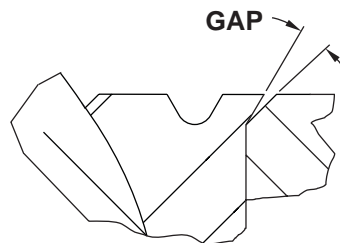


### SPHERICAL BEARING INSTALLATION

The bearings have grooves in each side of the bearing race face, leaving a small lip. Staking tools (as shown above in Figure 2) are then used to stake the lip over the chamfer edges of the housing. A typical arrangement consists of two identical anvils and one guide pin which is secured by a set screw in the bottom anvil.

### PROCEDURES

1. Install bearing into housing as shown in Figure 1 and position bearing symmetrical about housing centerline.
2. Align bearing with staking tool and guide pin as shown in Figure 2.
3. A trial stake assembly should be made to determine staking force necessary to meet thrust load requirements. Proper staking force is required because excessive pressure could result in bearing distortion along with life.
4. Pressure established by trail assembly is to be applied. After first stake is completed rotate assembly 90° and re-apply. Repeat operation through a minimum of three rotations to insure 360° uniformity of stake.
5. After staking, a slight gap may exist between race lip and housing chamfer. This slight gap (shown below) may not be cause for rejection if bearing meets or exceeds thrust loads.





| Liner Designation | AT1400   | AT2100  | AT2300  | AT3200  |
|-------------------|--|---|---|---|
| Construction      | PTFE/Dacron Laminate   | PTFE/Fiberglass Weave   | PTFE/Dacron Weave   | PTFE/Nomex Laminate   |
| Thickness (in.)   | .011 - .013  | .010 - .012   | .013 - .015   | .014 - .016   |
| Temperature (°F)  | -65° to 350°   | -65° to 250°  | -65° to 250°  | -65° to 350°  |
| Static Limit Load | 80,000 PSI   | 60,000 PSI  | 60,000 PSI  | 80,000 PSI  |
| Stiffness         | Medium to High   | Medium  | Low   | Medium to High  |
| Typical           | 37,500 PSI @ ±25° & 10-20 cpm  | 25,000 PSI @ ±25° & 10-20 cpm   | Contact Aurora Engineering  | 37,500 PSI @ ±25° & 10-20 cpm   |
| Performance       | .0045 wear max.@ 25,000 cycles   | .0060 wear max.@ 5,000 cycles   | Department  | .0045 wear max.@ 25,000 cycles  |
| Dynamic           | Light to heavy, unidirectional or alternating loads. Low speed,                  | Light unidirectional loads. Low speed, intermittent to continuous                                 | Light to medium, alternating or reversing loads. Medium to High speed, intermittent to continuous | Light to heavy, unidirectional or alternating loads. Low speed,                         |
| Capabilities      | intermittent to continuous misalignment, intermittent to continuous oscillation. | misalignment, intermittent to continuous oscillation  | misalignment, intermittent to continuous oscillation.   | intermittent to continuous misalignment, intermittent to continuous oscillation.        |
| Comments          | Good multi-purpose system  | Excellent stick-slip properties<br>Usually recommended for high splash or underwater applications | Excellent stick-slip properties<br>Good vibratory conditions                                      | Highest performance<br>characteristics for all applications<br>Qualified to SAE-AS81820 |



# MAJOR SPECIFICATION APPROVALS

## MILITARY STANDARDS

|         |          |          |
|---------|----------|----------|
| MS14101 | M81935/1 | M81934/1 |
| MS14102 | M81935/2 | M81934/2 |
| MS14103 |          |          |
| MS14104 |          |          |

## BOEING SPECIFICATIONS

|          |          |          |
|----------|----------|----------|
| BACB10A  | BACB10ES | BACB10J  |
| BACB10AB | BACB10FH | BACB10W  |
| BACB10AG | BACB10FJ | BACB10X  |
| BACB10CL | BACB10GB | BACB10Y  |
| BACB10CN | BACB10GC | BACB10Z  |
| BACB10ER | BACB10GD |          |
| 10-60516 | 60B10009 | 60B80103 |
| 10-60545 | 60B10024 | S012T235 |
| 10-60779 | 60B50350 | S012T237 |
| 60B00180 | 60B50351 | 162T4005 |
| 60B10007 |          |          |

## AIRBUS SPECIFICATIONS

|         |         |         |
|---------|---------|---------|
| ABS0569 | ABS0570 | ABS0571 |
|---------|---------|---------|

## LOCKHEED SPECIFICATIONS

|        |       |       |
|--------|-------|-------|
| C11653 | C631  | C7537 |
| C20308 | C633  | C7546 |
| C2959  | C657  | C7547 |
| C347   | C658  | C7937 |
| C555   | C7504 | C806  |



## INCH/METRIC CONVERSION TABLE

| INCH        |               | MM.           | INCH        |               | MM.            | INCH       |               | MM.           | INCH   |        | MM.    |
|-------------|---------------|---------------|-------------|---------------|----------------|------------|---------------|---------------|--------|--------|--------|
| FRACT.      | DEC.          |               | FRACT.      | DEC.          |                | FRACT.     | DEC.          |               | FRACT. | DEC.   |        |
|             | 0.00004       | 0.001         | 17/64       | 0.2656        | 6.746          |            | 0.6693        | 17.0          |        | 1.3780 | 35.0   |
|             | 0.00039       | 0.01          |             | 0.2756        | 7.0            | 43/64      | 0.6719        | 17.066        |        | 1.4173 | 36.0   |
|             | 0.0010        | 0.025         | 9/32        | 0.2812        | 7.1437         | 11/16      | 0.6875        | 17.4625       | 1 1/2  | 1.5000 | 38.1   |
|             | 0.0020        | 0.051         | 19/64       | 0.2969        | 7.5406         | 45/64      | 0.7031        | 17.859        |        | 1.5354 | 39.0   |
|             | 0.0030        | 0.0762        | <b>5/16</b> | <b>0.3125</b> | <b>7.9375</b>  |            | 0.7086        | 18.0          |        | 1.5748 | 40.0   |
|             | 0.00394       | 0.1           |             | 0.3150        | 8.0            | 23/32      | 0.7187        | 18.256        |        | 1.6535 | 42.0   |
|             | 0.0050        | 0.1270        | 21/64       | 0.3281        | 8.334          | 47/64      | 0.7334        | 18.653        | 1 3/4  | 1.7500 | 44.45  |
|             | 0.00984       | 0.25          | 11/32       | 0.3437        | 8.731          |            | 0.7480        | 19.0          |        | 1.7717 | 45.0   |
|             | 0.0100        | 0.254         |             | 0.3543        | 9.0            | <b>3/4</b> | <b>0.7500</b> | <b>19.05</b>  |        | 1.8898 | 48.0   |
| 1/64        | 0.0156        | 0.396         | 23/64       | 0.3594        | 9.1281         | 49/64      | 0.7656        | 19.446        |        | 1.9685 | 50.0   |
| 1/32        | 0.0312        | 0.793         | <b>3/8</b>  | <b>0.3750</b> | <b>9.525</b>   | 25/32      | 0.7815        | 19.843        | 2      | 2.0000 | 50.8   |
|             | 0.03937       | 1.0           | 25/64       | 0.3906        | 9.9219         |            | 0.7874        | 20.0          |        | 2.0472 | 52.0   |
| 3/64        | 0.0469        | 1.191         |             | 0.3937        | 10.0           | 51/64      | 0.7969        | 20.240        |        | 2.1654 | 55.0   |
|             | 0.0591        | 1.5           | 13/32       | 0.4062        | 10.318         | 13/16      | 0.8125        | 20.6375       |        | 2.2047 | 56.0   |
| 1/16        | 0.0625        | 1.5875        | 27/64       | 0.4219        | 10.716         |            | 0.8268        | 21.0          | 2 1/4  | 2.2500 | 57.15  |
| 5/64        | 0.0781        | 1.984         |             | 0.4331        | 11.0           | 53/64      | 0.8281        | 21.034        |        | 2.3622 | 60.0   |
|             | 0.0787        | 2.0           | <b>7/16</b> | <b>0.4375</b> | <b>11.1125</b> | 27/32      | 0.8437        | 21.431        | 2 1/2  | 2.5000 | 63.5   |
| 3/32        | 0.0937        | 2.381         | 29/64       | 0.4531        | 11.509         | 55/64      | 0.8594        | 21.828        |        | 2.5197 | 64.0   |
|             | 0.0984        | 2.5           | 15/32       | 0.4687        | 11.906         |            | 0.8661        | 22.0          | 2 3/4  | 2.7500 | 69.85  |
|             | 0.1000        | 2.54          |             | 0.4724        | 12.0           | <b>7/8</b> | <b>0.8750</b> | <b>22.225</b> |        | 2.8346 | 72.0   |
| 7/64        | 0.1094        | 2.778         | 31/64       | 0.4844        | 12.303         | 57/64      | 0.8906        | 22.621        |        | 2.9528 | 75.0   |
|             | 0.1181        | 3.0           | <b>1/2</b>  | <b>0.5000</b> | <b>12.7</b>    |            | 0.9055        | 23.0          | 3      | 3.0000 | 76.2   |
| <b>1/8</b>  | <b>0.1250</b> | <b>3.175</b>  |             | 0.5118        | 13.0           | 29/32      | 0.9062        | 23.018        |        | 3.1496 | 80.0   |
|             | 0.1387        | 3.5           | 33/64       | 0.5156        | 13.096         | 59/64      | 0.9219        | 23.416        | 3 1/4  | 3.2500 | 82.55  |
| 9/64        | 0.1406        | 3.571         | 17/32       | 0.5312        | 13.493         | 15/16      | 0.9375        | 23.8125       | 3 1/2  | 3.5000 | 88.9   |
| 5/32        | 0.1562        | 3.968         | 35/64       | 0.5469        | 13.891         |            | 0.9449        | 24.0          |        | 3.5433 | 90.0   |
|             | 0.1575        | 4.0           |             | 0.5512        | 14.0           | 61/64      | 0.9531        | 24.209        | 3 3/4  | 3.7500 | 95.25  |
| 11/64       | 0.1719        | 4.366         | <b>9/16</b> | <b>0.5625</b> | <b>14.2875</b> | 31/32      | 0.9687        | 24.606        |        | 3.9370 | 100.0  |
|             | 0.1772        | 4.5           | 37/64       | 0.5781        | 14.684         |            | 0.9843        | 25.0          | 4      | 4.0000 | 101.6  |
| <b>3/16</b> | <b>0.1875</b> | <b>4.7625</b> |             | 0.5906        | 15.0           | 63/64      | 0.9844        | 25.003        | 4 1/4  | 4.2500 | 107.95 |
|             | 0.1969        | 5.0           | 19/32       | 0.5937        | 15.081         | <b>1</b>   | <b>1.0000</b> | <b>25.4</b>   |        | 4.3307 | 110.0  |
| 13/64       | 0.2031        | 5.159         | 39/64       | 0.6094        | 15.478         |            | 1.0630        | 27.0          | 4 1/2  | 4.5000 | 114.3  |
| 7/32        | 0.2187        | 5.556         | <b>5/8</b>  | <b>0.6250</b> | <b>15.875</b>  |            | 1.1024        | 28.0          |        | 4.7244 | 120.0  |
| 15/64       | 0.2334        | 5.953         |             | 0.6299        | 16.0           |            | 1.1811        | 30.0          | 4 3/4  | 4.7500 | 120.65 |
|             | 0.2362        | 6.0           | 41/64       | 0.6406        | 16.271         | 1 1/4      | 1.2500        | 31.75         | 5      | 5.0000 | 127.0  |
| <b>1/4</b>  | <b>0.2500</b> | <b>6.35</b>   | 21/32       | 0.6562        | 16.668         |            | 1.2992        | 33.0          | 5 1/2  | 5.5000 | 139.7  |

### INCH/METRIC CONVERSION FACTORS

Inches x 25.4 = Millimeters

Millimeters x .03937 = Inches

Sq. Inches x 6.4515 = Sq. Centimeters

Sq. Centimeters x .155 = Sq. Inches

Pounds x .4536 = Kilograms

Kilograms x 2.2046 = Pounds

Lbs. per In.<sup>2</sup> x .0703 = kg per cm<sup>2</sup>

kg per cm<sup>2</sup> x 14.2231 = Lbs. per In.<sup>2</sup>

Pounds(Force) x 4.448 =Newtons

Newtons x .2248 =Pounds(Force)

Temperature Conversion (Approximate)

Degrees C = (Degrees F -32)(.5556)

Degrees F = (Degrees C)(1.8)+ 32

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