FEDERAL SUPPLY CLASS
3110

RATIONALE

ADDED GRADE B TO ZINC-NICKEL PLATING, ADDED TOLERANCE TO 45° BORE CHAMFER AND TYPE I OR TYPE II TO AMS3666 SEAL MATERIAL AS AGREED TO BY THE COMMITTEE. UPDATED SEAL MATERIAL SPECIFICATION TO ASTM D6835 PER DOCUMENT SUPERSESSION.

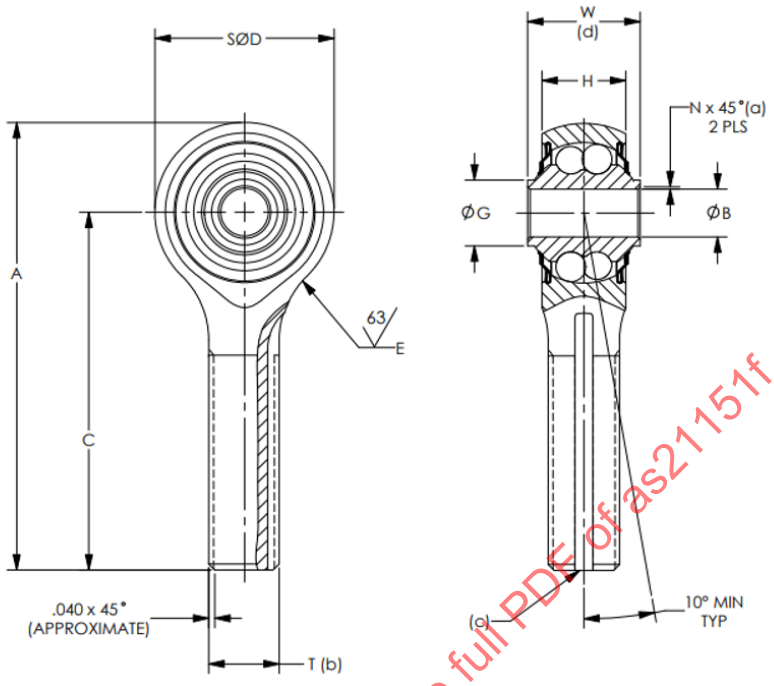



*FIGURE 1 - PART CONFIGURATION*

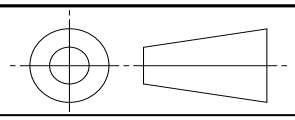
*TABLE 1 - DIMENSIONS AND TOLERANCES*

| MS21151 DASH NUMBER (c) | BORE SIZE NOM | A ±.010 | ØB +.0000 −.0003 | C ±.031 | ØD ±.010 | E NOM | H ±.010 | N +.015 −.000 | ØG MIN | T THREAD UNJF-3A | W +.000 −.005 | WT LB APPROX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -1 | 3/16 | 1.375 | .1900 | .750 | .781 | .422 | .328 | .005 | .276 | .1900-32 LH<br>.1900-32 RH | .437 | .04 |
| -2 | | | | | | | | | | | | |
| -3 | | 2.031 | | 1.313 | .969 | .500 | .407 | | .299 | .3750-24 RH | .500 | .05 |
| -4 | | | | | | | | | | | | |
| -5 | | | | .750 | | .390 | .328 | | .276 | .3750-24 LH | .437 | |
| -6 | | 1.812 | | .938 | | .562 | .438 | | .307 | .2500-28 RH | .500 | .10 |
| -7 | | 1.563 | | 1.000 | | .344 | .328 | | .276 | | .437 | .05 |
| -8 | 1/4 | 1.875 | .2500 | 1.125 | .938 | .469 | .438 | | .340 | .3750-24 RH<br>.3750-24 LH | .593 | .10 |
| -9 | | | | | | | | | | | | |
| -10 | 5/16 | 2.438 | .3125 | 1.563 | 1.250 | .500 | .656 | .015 | .501 | .3750-24 RH<br>.4375-20 RH<br>.6250-18 RH | .870 | .24 |
| -11 | | | | | | | | | | | | |
| -12 | | | | | | | | | | | | |
| -13 | 5/8 | 2.750 | .6250 | 1.500 | 2.000 | .500 | .938 | .015 | .875 | .6250-18 RH | 1.125 | .71 |



**For more information on this standard, visit**
https://www.sae.org/standards/content/AS21151F/

THIRD ANGLE PROJECTION



ISSUED 1998-01 REVISED 2024-07

CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS6039

SAE INTERNATIONAL

# AEROSPACE STANDARD

BEARING, BALL, ROD END, DOUBLE ROW, PRECISION, EXTERNAL THREAD, SELF-ALIGNING, AIRFRAME, TYPE II, -65 TO 300 °F





**TO PLACE A DOCUMENT ORDER:** **Tel: 877-606-7323 (inside USA and Canada)** **Tel: +1 724-776-4970 (outside USA)**
**Fax: 724-776-0790** **Email: CustomerService@sae.org** **SAE WEB ADDRESS: http://www.sae.org**

***TABLE 2 - ENGINEERING DATA***

| MS21151 DASH NUMBER (c) | RADIAL STRENGTH | | AXIAL STRENGTH | | RADIAL LOAD RATING 10000 COMPLETE 90° CYCLES (e) (f) | | MAXIMUM STARTING TORQUE |
|---|---|---|---|---|---|---|---|
| | LIMIT LOAD LBF | FRACTURE LOAD LBF | LIMIT LOAD LBF | FRACTURE LOAD LBF | CASE I | CASE II | IN-OZ |
| -1 | 1000 | 1500 | 200 | 300 | 1000 | 1000 | 3.0 |
| -2 | | | | | | | |
| -3 | 1200 | 1800 | 240 | 360 | 1200 | 1200 | |
| -4 | 1000 | 1500 | 200 | 300 | 1000 | 1000 | |
| -5 | | | | | | | |
| -6 | | | | | | | |
| -7 | | | | | | | |
| -8 | 1720 | 2580 | 345 | 520 | 1720 | 1720 | 4.0 |
| -9 | | | | | | | |
| -10 | 2920 | 4375 | 585 | 880 | 2920 | 2600 | 6.0 |
| -11 | | | | | | | |
| -12 | | | | | | | |
| -13 | 7090 | 10600 | 1420 | 2130 | 6160 | 5340 | 8.0 |

REQUIREMENTS:

(a) A RADIUS GIVING THE SAME FILLET CLEARANCE WILL BE ACCEPTABLE. TOLERANCE OF 45° CHAMFER IS ±2°.

(b) THREADS SHALL CONFORM TO UNJF-3A IN ACCORDANCE WITH AS8879. EXTERNAL THREADS SHALL BE FULLY FORMED BY A SINGLE ROLLING PROCESS. THREAD LENGTH SHALL BE TOTAL LENGTH "C" ALLOWING A MAXIMUM OF TWO IMPERFECT THREADS.

(c) KEYWAY SLOT, IF REQUIRED, SHALL BE IN ACCORDANCE WITH NASM14198 AND SHALL BE DESIGNATED BY ADDING SUFFIX "C" TO THE DASH NUMBER (-3 THROUGH -13 ONLY). THE KEYWAY SLOT SHALL BE ORIENTATED ALONG THE CENTERLINE OF THE SHANK AND PERPENDICULAR TO THE ROD END HOOP FACE.

(d) 10° OF MINIMUM MISALIGNMENT IN ANY DIRECTION SHALL OCCUR WITHOUT INTERFERENCE BETWEEN BALL HOUSING AND SURFACES INDICATED BY DIMENSION "W."

(e) CASE I - LOAD FIXED WITH RESPECT TO OUTER RACE (AVERAGE LIFE RATING).
CASE II - LOAD FIXED WITH RESPECT TO INNER RACE (AVERAGE LIFE RATING).

(f) THESE RATINGS ARE FOR OPERATIONS UP TO 250 °F MAXIMUM. WHEN SUBJECTED TO OPERATION ABOVE 250 °F, THE RATINGS SHOULD BE REDUCED BY 20%.

NOTES:

NOTICE

THIS DOCUMENT REFERENCES A PART WHICH CONTAINS CADMIUM AS A PLATING MATERIAL. CONSULT LOCAL OFFICIALS IF YOU HAVE QUESTIONS CONCERNING CADMIUM'S USE.

1. FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER ANY OTHER DOCUMENTS REFERENCED HEREIN.

2. REFERENCED DOCUMENTS ARE THE ISSUES IN EFFECT ON DATE OF INVITATIONS FOR BID.

3. RADIAL CLEARANCE: .0000 TO .0004 INCH UNDER 5.5 POUNDS FULLY REVERSING GAGE LOAD.

4. AXIAL CLEARANCE: .0000 TO .003 INCH UNDER 5.5 POUNDS FULLY REVERSING GAGE LOAD.