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 ASTM D4550 DOCUMENT SUPERSESSION.

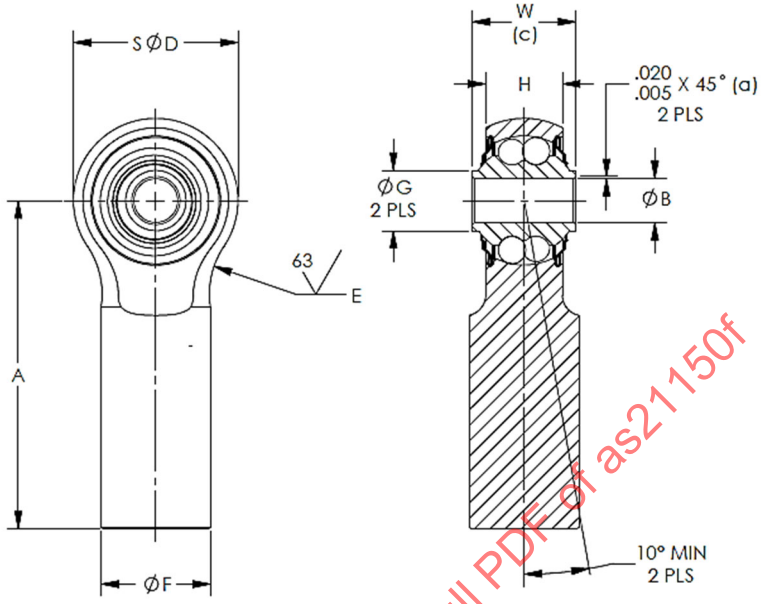


FIGURE 1 - PART CONFIGURATION

TABLE 1 - DIMENSIONS AND TOLERANCES

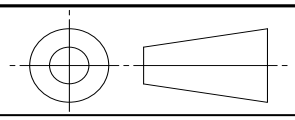
MS21150 DASH NUMBER	BORE SIZE NOM	A	ØB	ØD	E	ØF	H	ØG	W	WT LB APPROX
		±.010	+.0000 -.0003	±.010	NOM	+.000 -.002	±.010	MIN	+.000 -.005	
-1	3/16	1.375	.1900	.781	.390	.430	.328	.276	.437	.07
-2	1/4	1.875	.2500	.938	.500	.625	.438	.340	.593	.16

TABLE 2 - ENGINEERING DATA

MS21150 DASH NUMBER	RADIAL STRENGTH		AXIAL STRENGTH		RADIAL LOAD RATING 10000 COMPLETE 90° CYCLES (b) (d)		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	1720	2580	345	520	1720	1720	4.0

For more information on this standard, visit
https://www.sae.org/standards/content/AS21150F/

THIRD ANGLE PROJECTION



ISSUED 1998-01 REVISED 2022-06

CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS6039

AEROSPACE STANDARD

BEARING, BALL, ROD END, DOUBLE ROW, PRECISION, SOLID SHANK, SELF-ALIGNING, AIRFRAME, TYPE I, -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**

REQUIREMENTS:

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

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

(c) 10° MINIMUM MISALIGNMENT IN EITHER DIRECTION SHALL OCCUR WITHOUT INTERFERENCE BETWEEN BALL HOUSING AND SURFACES INDICATED BY DIMENSION “W”.

(d) 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 SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATION FOR BID.

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

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

5. MATERIAL:

   INNER RACE AND BALLS: AISI E52100 STEEL PER AMS6440 OR AMS6444; BALLS IAW ASTM F2215.

   ROD END BODY: AISI 4130 STEEL PER AMS-S-6758 OR AISI 8620 STEEL PER AMS6274.

   SEALS: POLYTETRAFLUOROETHYLENE PER AMS3652 OR AMS3666 TYPE 1 OR TYPE 2, TESTING FOR VOLUME RESISTIVITY AND ELECTRICAL FLAWS IS NOT REQUIRED, OR POLYETHER ESTER PER ASTM D6835, GROUP 4, CLASS 1, GRADE 1.

   SEAL RETAINERS: STEEL CORROSION RESISTANT, AISI 300 OR AISI 400 SERIES STEEL.

6. HEAT TREATMENT:

   INNER RACE AND BALLS: 60 TO 66 HRC.

   ROD END BODY RACEWAY: 59 TO 63 HRC: STABILIZE FOR OPERATION AT 250 °F. THE ROD END BODY RACEWAY SHALL BE CASE HARDENED TO ACHIEVE AN EFFECTIVE CASE DEPTH (50 HRC POINT) FROM A MINIMUM OF 25% TO A MAXIMUM OF 50% OF THE RING THICKNESS. THE ROD END SHANK SHALL HAVE A HARDNESS OF 92.5 HRB MINIMUM TO 45 HRC MAXIMUM AND THE ROD END HEAD OD SHALL HAVE A HARDNESS OF 32 TO 48 HRC.

7. FINISH CODE: (NO CODE) = INDICATES CADMIUM PLATE PER AMS-QQ-P-416, TYPE I, CLASS 2.
   E = INDICATES ZINC-NICKEL PLATE PER AMS2417, TYPE 2, GRADE B.

8. LUBRICANT: ALL BEARINGS SHALL BE PREPACKED 80 TO 100% FULL WITH GREASE QUALIFIED TO MIL-PRF-81322 OR MIL-PRF-23827 TYPE I. IF MIL-PRF-23827 TYPE I IS REQUIRED, ADD THE SUFFIX “G” TO THE AS PART NUMBER AND LIMIT BEARING OPERATION TO NOT MORE THAN 250 °F.

9. REMOVE ALL BURRS AND SHARP EDGES.