

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.

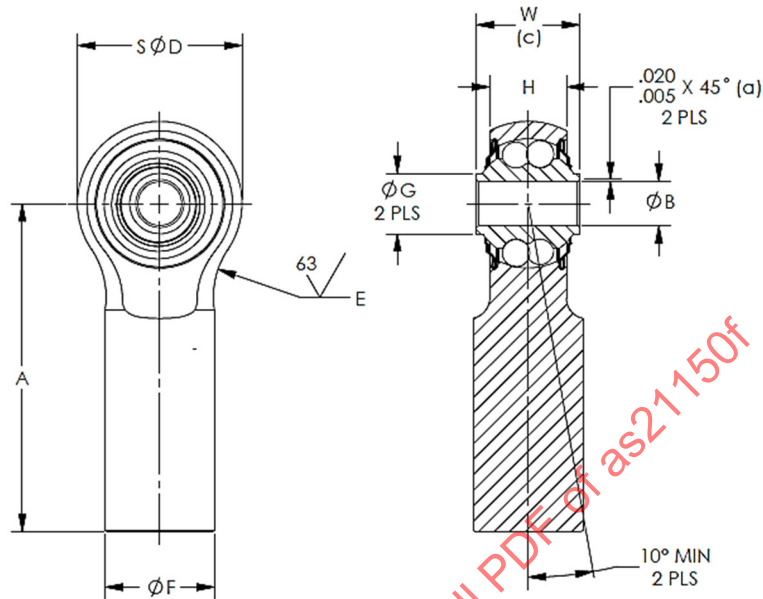


FIGURE 1 - PART CONFIGURATION

TABLE 1 - DIMENSIONS AND TOLERANCES

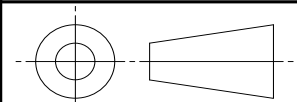
MS21150 DASH NUMBER	BORE SIZE NOM	A	ØB	ØD	E	ØF	H	ØG	W	WT LB APPROX
		±.010	+.0000 -.0003	±.010	NOM	+.000 -.002	±.010	MIN	+.000 -.005	
-1	3/16	1.375	.1900	.781	.390	.430	.328	.276	.437	.07
-2	1/4	1.875	.2500	.938	.500	.625	.438	.340	.593	.16

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



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

AS21150™
SHEET 1 OF 3

REV.
F

REQUIREMENTS:

- (a) A RADIUS GIVING THE SAME FILLET CLEARANCE WILL BE ACCEPTABLE. TOLERANCE OF 45° CHAMFER IS $\pm 2^\circ$.
- (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.

	AEROSPACE STANDARD	AS21150™ SHEET 2 OF 3	REV. F
	BEARING, BALL, ROD END, DOUBLE ROW, PRECISION, SOLID SHANK, SELF-ALIGNING, AIRFRAME, TYPE I, -65 TO 300 °F		