

REV.
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SAE AS21152

FEDERAL SUPPLY CLASS
3110

RATIONALE

AS21152 REV D IS A FIVE YEAR REVIEW. UPDATED SPECIFICATIONS TO CURRENT REQUIREMENTS, REFORMATTED GRAPHICS, TABLES AND NOTES, ADDED ZINC-NICKEL CODE, ADDED OPTIONAL MATERIAL FOR INNER RACE AND BALLS AND REMOVED "OR AN APPROVED EQUIVALENT" TO SEAL MATERIAL

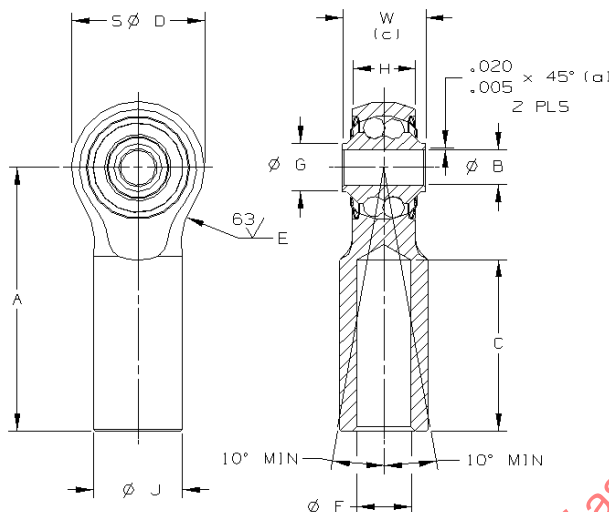


FIGURE 1

TABLE 1 - DIMENSIONS AND TOLERANCES

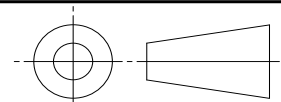
MS21152 DASH NUMBER	BORE SIZE NOM.	A	ϕB	C	ϕD	E	F	H	ϕJ	ϕG	W	WT LB APPROX
		$\pm .010$	$+.0000$ $-.0003$	$\pm .031$	$\pm .010$	NOM	$\pm .010$	$\pm .010$	$+.000$ $-.002$	MIN	$+.000$ $-.005$	
-1	3/16	1.375	.1900	.875	.781	.390	.272	.328	.430	.276	.437	.06
-2	1/4	1.875	.2500	1.219	.938	.490	.386	.438	.625	.340	.593	.12
-3		1.625		.875		.500	.515		.438			.08
-4		1.875		.760		.468	.346		.625			.12
-5		1.875		1.125		.500	.500		.625			.09

TABLE 2 - ENGINEERING DATA

MS21152 DASH NUMBER	RADIAL STRENGTH		AXIAL STRENGTH		RADIAL LOAD RATING 10 000 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
-3							
-4							
-5							

SAE values your input. To provide feedback
on this Technical Report, please visit
<http://www.sae.org/technical/standards/AS21152D>

THIRD ANGLE PROJECTION



CUSTODIAN: SAE AIRFRAME CONTROL BEARINGS GROUP

PROCUREMENT SPECIFICATION: AS6039

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) BEARING, BALL, ROD END, DOUBLE ROW,
PRECISION, HOLLOW SHANK, SELF-ALIGNING,
AIRFRAME, TYPE III, -65 TO 300 °F

SAE AS21152
SHEET 1 OF 3

REV.
D

REQUIREMENTS:

- (a) A RADIUS GIVING THE SAME FILLET CLEARANCE WILL BE ACCEPTABLE.
- (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° MIN. 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 LB FULLY REVERSING GAGE LOAD.
- 4. AXIAL CLEARANCE: .0000 TO .003 INCHES UNDER 5.5 LB FULLY REVERSING GAGE LOAD.
- 5. MATERIAL:

INNER RACE AND BALLS: AISI E52100 STEEL PER AMS6440 OR AMS6444; BALLS IAW ASTM F 2215

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

SEALS: POLYTETRAFLUORETHYLENE PER AMS3652 OR AMS3666 OR POLYETHERESTER PER ASTM D 4550, GROUP 4, CLASS 1, GRADE 1.

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

- 6. HEAT TREATMENT:

INNER RACE AND BALLS: 60-66 HRC

ROD END BODY RACEWAY: 59-63 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 O.D. 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.

- 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 IS REQUIRED ADD THE SUFFIX "G" TO THE MS PART NUMBER AND LIMIT BEARING OPERATION TO NOT MORE THAN 250 °F.

 An SAE International Group	AEROSPACE STANDARD	SAE AS21152 SHEET 2 OF 3	REV. D
	(R) BEARING, BALL, ROD END, DOUBLE ROW, PRECISION, HOLLOW SHANK, SELF-ALIGNING, AIRFRAME, TYPE III, -65 TO 300 °F		