FEDERAL SUPPLY CLASS
3110

RATIONALE

IN ORDER TO BRING THE AS27646 DOCUMENT UP TO DATE WITH ALL THE REFERENCE DOCUMENTS, REVISION WAS CREATED. THE CHANGES MADE WERE EDITORIAL AND TO MAKE THE FORMAT THE SAME AS SIMILAR DOCUMENTS WITHIN THE WORKING GROUP. A CODE “E” FOR USE OF ZINC-NICKEL PLATING WAS IMPLEMENTED. THE ADDITION OF SPECIFYING TYPE I FOR MIL-PRF-23827 GREASE AND THE ADDITION OF THE CADMIUM NOTE WAS ALSO ADDED.

NOTICE

UNDER DEPARTMENT OF DEFENSE POLICIES AND PROCEDURES, ANY QUALIFICATION REQUIREMENTS AND ASSOCIATED QUALIFIED PRODUCTS LIST ARE MANDATORY FOR DOD CONTRACTS. ANY REQUIREMENT RELATING TO QUALIFIED PRODUCTS LISTS / DATABASES (QPL/QPD'S) HAS NOT BEEN ADOPTED BY SAE AND IS NOT PART OF THIS TECHNICAL REPORT.

THE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE LATEST ISSUE: SAE AS7949.

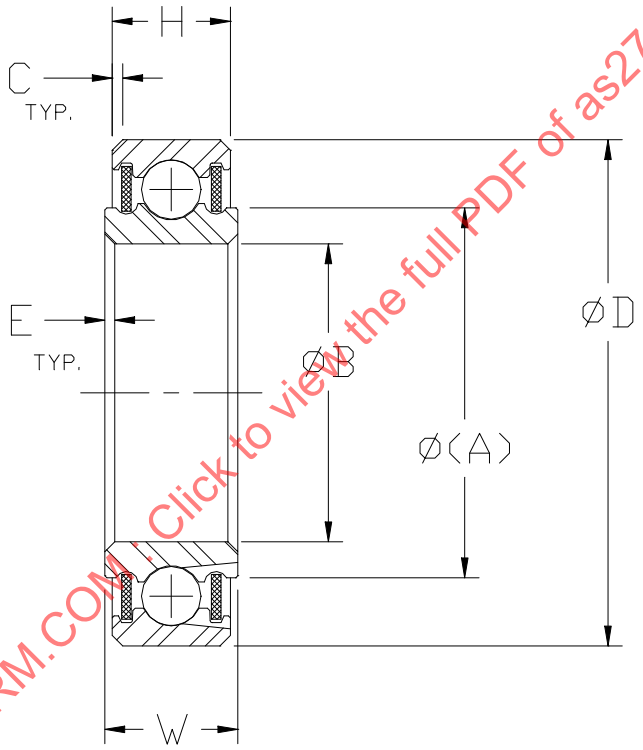
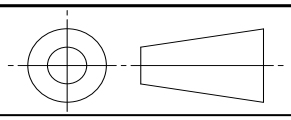


FIGURE 1 - PART CONFIGURATION

THIRD ANGLE PROJECTION



ISSUED 1998-04 REVISED 2012-07

CUSTODIAN: SAE AIRFRAME CONTROL BEARINGS GROUP

PROCUREMENT SPECIFICATION: AS7949

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) BEARING, BALL, AIRFRAME, ANTI-FRICTION, EXTRA LIGHT DUTY

TABLE 1 - DIMENSIONS

MS DASH NO.	øB BORE	BORE TOLERANCE 2/	øD OUTSIDE DIAMETER 1/	OUTSIDE DIAMETER TOLERANCE 2/	W WIDTH INNER RING +.000 -.005 1/	H WIDTH OUTER RING +.000 -.005 1/	(øA) SHOULDER DIAMETER INNER RING (APPROX)	E 4/ CORNER CHAMFER X 45° INNER RING BORE +.015 -.000	C 3/ CORNER CHAMFER X 45° OUTER RING OD +.015 -.000	WEIGHT POUNDS (APPROX) LB
-38	.6250	+.0007 -.0007	1.0625	+.0000 -.0010	.281	.250	.777	.015	.015	.03
-39	.7500		1.1875				.895			.04
-40	.8750		1.3125				1.016			.05
-41	1.0625		1.5000				1.216			.06
-42	1.3125		1.7500				1.451			.09
-43	1.5625		2.0000				1.702			.10
-44	1.8125	+.0010 -.0010	2.2500	+.0000 -.0015			1.970			.11
-45	2.0625		2.6250				2.286			.15
-46	2.3125		2.8750				2.527			.17

1/ ALL DIMENSIONS TO BE MET AFTER PLATING.
2/ OUT-OF-ROUND TOLERANCES: BORE: -38 THRU -43 ±.0010; -44 THRU -46 ±.0016
OUTER DIAMETER: -38 THRU -43 +.0005, -.0015; -44 THRU -46 +.0008, -.0023
3/ A RADIUS GIVING APPROXIMATELY THE SAME GRIP FOR STAKING THE BEARING IN THE HOUSING WILL BE ACCEPTABLE.
4/ A RADIUS GIVING APPROXIMATELY THE SAME FILLET CLEARANCE WILL BE ACCEPTABLE.

TABLE 2 - RATINGS

MS DASH NO.	RADIAL LIMIT LOAD RATING LB	THRUST LIMIT LOAD RATING LB	5/ 6/ RADIAL LOAD RATING (LB) FOR AVERAGE LIFE OF 10 000 COMPLETE 90° CYCLES CASE I	CASE II	7/ MAXIMUM STARTING TORQUE (in_oz)
-38	3280	1500	1990	1820	2.0
-39	3750	1700	2050	1900	2.0
-40	4220	1900	2110	1970	3.0
-41	5000	2200	2170	2020	4.0
-42	5950	2700	2220	2130	4.0
-43	6880	3200	2260	2180	5.0
-44	7980	3600	2300	2220	6.0
-45	9220	4000	2340	2260	7.0
-46	10 150	4400	2360	2280	8.0

5/ CASE I - LOAD FIXED WITH RESPECT TO OUTER RING.
CASE II - LOAD FIXED WITH RESPECT TO INNER RING.
6/ THESE RATINGS ARE FOR OPERATION UP TO 250 °F. FOR OPERATION UP TO 350 °F, THE RATINGS SHALL BE REDUCED BY 20%.
7/ SPECIFIED LIMITS ARE FOR BEARINGS LUBRICATED WITH MIL-PRF-81322 GREASE. FOR BEARINGS LUBRICATED WITH MIL-PRF-23827 TYPE I GREASE, THE TORQUE LIMIT SHALL BE THE SPECIFIED VALUE IN THE TABLE MULTIPLIED BY 1.2.

REQUIREMENTS:

1. MATERIAL: RINGS AND BALLS: 52100 STEEL PER AMS6440 OR AMS6444

   SEALS: POLYTETRAFLUOROETHYLENE (PTFE) PER AMS3652 OR POLYTETRAFLUOROETHYLENE (PTFE) GLASS CLOTH REINFORCED PER AMS3666 TYPE 1 OR TYPE 2.

   TESTING FOR VOLUME RESISTIVITY AND ELECTRICAL FLAWS IS NOT REQUIRED. NOMINAL THICKNESS .020 WARP BREAKING STRENGTH SHALL BE 300 LB/IN WIDTH MINIMUM.

2. LUBRICANT: MIL-PRF-81322 OR MIL-PRF-23827 TYPE I. ALL BEARINGS SHALL BE PACKED WITH AN 80% MINIMUM GREASE FILL CONFORMING TO MIL-PRF-81322 UNLESS OTHERWISE SPECIFIED. IF MIL-PRF-23827 TYPE I IS REQUIRED, ADD THE LETTER "G" AFTER THE MS27646 DASH NUMBER. MIL-PRF-23827 TYPE I SHALL NOT BE USED FOR OPERATION WHERE TEMPERATURES EXCEED 250 °F.

3. HARDNESS: HEAT TREAT RINGS AND BALLS TO 60-66 HRC AND STABILIZE FOR OPERATION AT 250 °F.

4. SURFACE ROUGHNESS: RACEWAYS AND BALL SHALL HAVE A MAXIMUM SURFACE ROUGHNESS OF 8 µin Ra PER ANSI/ASME B46.1.