FEDERAL SUPPLY CLASS
3110

RATIONALE

ADD AISI/SAE 1045 TO BALL RETAINER MATERIALS. MATERIALS SECTION WAS UPDATED DURING PREVIOUS REVISION AND MATERIAL THAT MANUFACTURERS HAVE HISTORICALLY MADE RETAINERS TO HAS BEEN OMITTED.

NOTICE

THE INITIAL SAE PUBLICATION OF THIS DOCUMENT WAS TAKEN DIRECTLY FROM U.S. MILITARY STANDARD MS27647E. THIS SAE STANDARD MAY RETAIN THE SAME PART NUMBERS ESTABLISHED BY THE ORIGINAL MILITARY DOCUMENT.

ANY REQUIREMENTS ASSOCIATED WITH QUALIFIED PRODUCTS LISTS (QPL'S) MAY CONTINUE TO BE MANDATORY FOR DoD CONTRACTS. REQUIREMENTS RELATING TO QPL'S HAVE NOT BEEN ADOPTED BY THE SAE FOR THIS STANDARD AND ARE NOT PART OF THIS SAE DOCUMENT.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS7949.

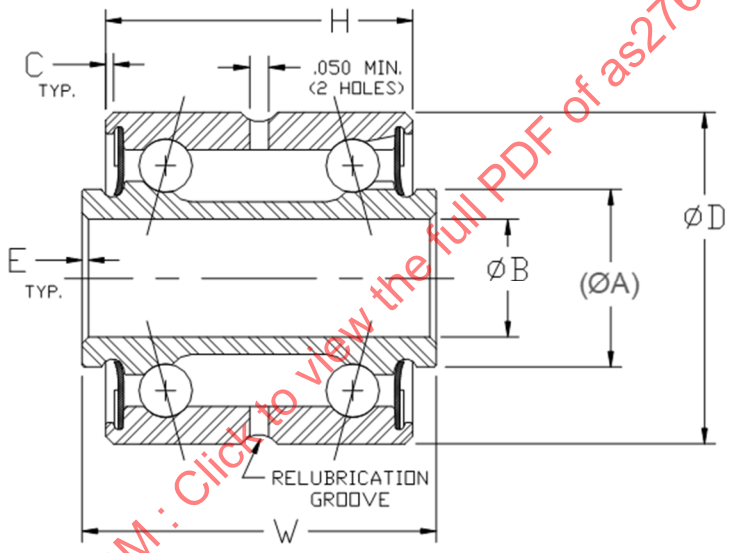
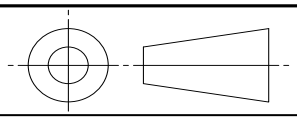


FIGURE 1 - PART CONFIGURATION

SHOWN WITH RELUBRICATION GROOVE
FOR WITHOUT RELUBRICATION GROOVE, OMIT "G" IN PART NUMBER

ISSUED 1998-04 REVISED 2022-03

THIRD ANGLE PROJECTION



For more information on this standard, visit
https://www.sae.org/standards/content/AS27647F/

CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS7949

TABLE 1 - DIMENSIONS AND LOADS

MS DASH NO. 8/	øB BORE +.0000 -.0005 2/	øD OUTSIDE DIAMETER +.0000 -.0005 1/ 2/	W WIDTH INNER RING +.000 -.005 1/	H WIDTH OUTER RING +.000 -.005 1/	(øA) SHOULDER DIAMETER INNER RING	E 4/ CORNER CHAMFER X 45° INNER RING BORE +.015 -.000	C 3/ CORNER CHAMFER X 45° OUTER RING OD +.015 -.000	RADIAL LIMIT LOAD RATING (LB)	THRUST LIMIT LOAD RATING (LB)	5/ 6/ RADIAL LOAD RATING (LB) FOR AVERAGE LIFE OF 10000 COMPLETE 90° CYCLES CASE I	5/ 6/ RADIAL LOAD RATING (LB) FOR AVERAGE LIFE OF 10000 COMPLETE 90° CYCLES CASE II	WEIGHT POUNDS (APPROX) LB/EA	7/ MAXIMUM STARTING TORQUE (IN_OZ)
-4A	.2500	.6250	.562	.500	.338	.005	.016	1400	500	1050	960	.02	1.0
-4	.2500	.7500	.875	.750	.372	.005	.016	2700	900	2070	1850	.04	1.0
-5	.3125	.8750	.938	.813	.466	.005	.016	5140	1600	2600	2320	.07	1.5
-6	.3750	1.0625	1.188	1.063	.570	.005	.016	8440	2600	4220	3740	.12	2.5
-8	.5000	1.4375	1.500	1.375	.709	.005	.032	15520	4700	7610	6520	.29	2.5

1/ ALL DIMENSIONS TO BE MET AFTER PLATING.
2/ OUT-OF-ROUND TOLERANCES: BORE: +.0002, -.0007; OUTER DIA: +.0005, -.0010.
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.
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.
8/ -4A AND -4 BALL RETAINER TYPE.

REQUIREMENTS:

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

   BALL RETAINER: (-4A AND -4 ONLY) 301 CRES PER AMS5519
   302 CRES PER AMS5515 OR AMS5516
   304 CRES PER AMS5513
   305 CRES PER AMS5514
   410 CRES PER AMS5504
   430 CRES PER AMS5503
   1008, 1010, 1012, OR 1015 PER ASTM A109
   AISI 1045

   SEALS: POLYTETRAFLUOROETHYLENE (PTFE) PER AMS3652

   SEAL RETAINERS: 301 CRES PER AMS5519
   302 CRES PER AMS5515, AMS5516, AMS5906, OR ASTM A313
   304 CRES PER AMS5513, AMS5913, OR ASTM A666
   430 CRES PER AMS5503

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 "L" AFTER THE MS27647 DASH NUMBER. MIL-PRF-23827 TYPE I SHALL NOT BE USED FOR OPERATION WHERE TEMPERATURES EXCEED 250 °F.

   WITH “G” DESIGNATOR PART NUMBER INDICATES RELUBRICATION GROOVE.

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

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

5. PLATING: ALL EXTERNAL SURFACES EXCEPT BORE, SEALS AND SEAL RETAINERS SHALL BE PLATED .0003 TO .0006 THICK WITH:

   (NO DESIGNATOR) CADMIUM IN ACCORDANCE WITH AMS-QQ-P-416, TYPE I, CLASS 2.

   DESIGNATOR “E” ZINC-NICKEL IN ACCORDANCE WITH AMS2417, TYPE 2, GRADE B.