FEDERAL SUPPLY CLASS
3110

RATIONALE

AS27645 REV C IS A FIVE YEAR REVIEW AND UPDATE OF THIS SPECIFICATION. IN ORDER TO BRING THE AS27645 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. SEAL MATERIAL POLYTETRAFLUOROETHYLENE SHEET PER AMS3666 WAS REMOVED.

NOTICE

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

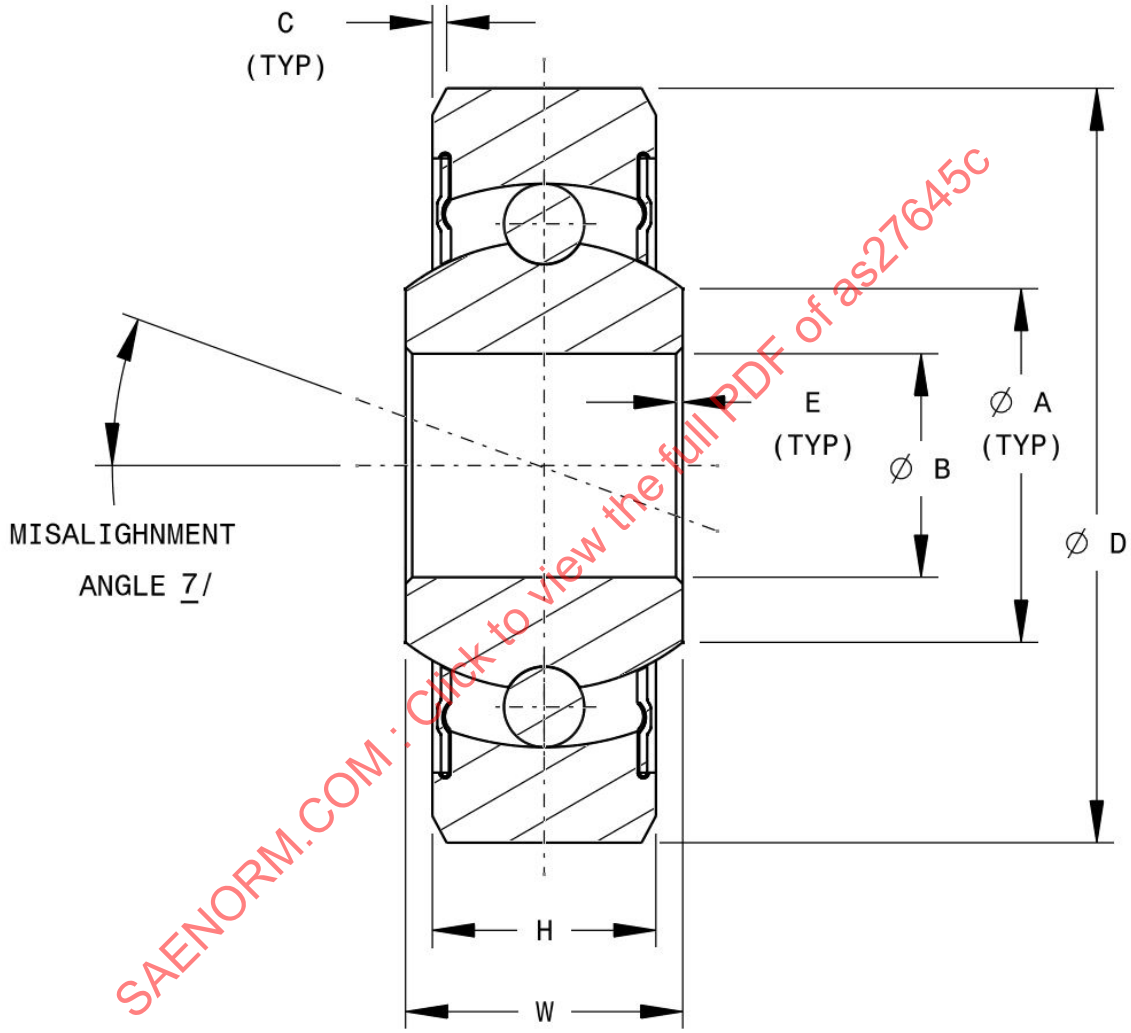

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FIGURE 1 - PART CONFIGURATION

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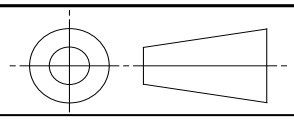
THIRD ANGLE PROJECTION



ISSUED 1998-04 REVISED 2016-01

CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS7949

SAE INTERNATIONAL

AEROSPACE STANDARD

(R) BEARING, BALL, AIRFRAME,
ANTI-FRICTION, SELF-ALIGNING,
LIGHT AND HEAVY DUTY

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TABLE 1 - DIMENSIONS AND LOADS

DASH NO.	ØB /2/ BORE +.0000 -.0005	ØD /1/ /2/ OUTSIDE DIAMETER +.0000 -.0005	W /1/ WIDTH INNER RING +.000 -.005	H /1/ WIDTH OUTER RING +.000 -.005	(ØA) SHOULDER DIAMETER INNER RING (APPROX)	E /4/ INNER RING CORNER CHAMFER +.015 -.000	C /3/ OUTER RING CORNER CHAMFER +.015 -.000
-3A	.1900	.6250	.245	.203	.253	.005	.016
-4A	.2500	.7500	.281	.219	.321	.005	.016
-5A	.3125	.8125	.297	.234	.381	.015	.016
-6A	.3750	.8750	.313	.250	.453	.016	.016
-3	.1900	.7774	.297	.270	.290	.005	.022
-4	.2500	.9014	.484	.335	.390	.005	.032
-5	.3125	1.2500	.558	.375	.561	.015	.032
-6	.3750	1.4375	.620	.469	.607	.015	.032
-8	.5000	1.6875	.620	.500	.791	.015	.044
-10	.6250	1.9375	.813	.625	.916	.015	.044

TABLE 1 - DIMENSIONS AND LOADS (CONTINUED)

DASH NO.	RADIAL LIMIT LOAD RATING LB	THRUST LIMIT LOAD RATING LB	/5/ /6/ RADIAL LOAD RATING FOR AVERAGE LIFE OF 10,000 COMPLETE 90 CYCLES LB		AXIAL INTERNAL CLEARANCE MAX	/8/ MAXIMUM STARTING TORQUE INCH-OZ	MINIMUM TORQUE TO DISLODGE SEAL IN-LB	WEIGHT LB APPROX
			CASE I	CASE II				
-3A	550	100	550	480	.023	1	4	.01
-4A	900	200	900	770	.025	1	6	.01
-5A	1,000	200	950	815	.028	2	10	.02
-6A	1,120	200	1,120	990	.030	3	8	.02
-3	900	200	900	770	.023	1	6	.03
-4	1,410	300	1,230	1,230	.025	1	5	.04
-5	2,190	300	2,190	1,890	.028	2	16	.10
-6	2,980	400	2,980	2,580	.030	3	18	.15
-8	3,670	500	3,670	3,290	.032	4	20	.23
-10	5,320	600	4,980	4,360	.034	5	25	.37

/1/ DIMENSIONS TO BE MET AFTER PLATING.

/2/ OUT-OF-ROUND TOLERANCES: BORE +.0002, -.0007; OUTER DIA.: +.0005, -.0010.

/3/ 45° CHAMFER OR RADIUS GIVING APPROXIMATELY THE SAME GRIP FOR STAKING THE BEARING IN THE HOUSING WILL BE ACCEPTABLE.

/4/ 45° CHAMFER OR 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/ THESE BEARINGS ARE INTERNAL SELF-ALIGNING FOR 10° MINIMUM IN EITHER DIRECTION EXCEPT MS-4A, -5A, AND -6A WHICH ARE SELF-ALIGNING FOR 8° IN EITHER DIRECTION. MISALIGNMENT ANGLE IS NOT TO EXCEED MINIMUM REQUIREMENT IN DESIGN OR APPLICATION.

/8/ SPECIFIED LIMITS ARE FOR BEARINGS LUBRICATED WITH MIL-PRF-81322 GREASE. FOR BEARINGS LUBRICATED WITH MIL-PRF-23827 TYPE 1 GREASE, THE TORQUE LIMIT SHALL BE THE SPECIFIED VALUE IN TABLE 1 MULTIPLIED BY 1.2.

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REQUIREMENTS:

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

   SEALS: POLYTETRAFLUOROETHYLENE PER AMS3652.

   SEAL RETAINERS: ANY CORROSION RESISTANT STEEL.

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 DESIGNATOR "G" AFTER THE MS27645 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 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.

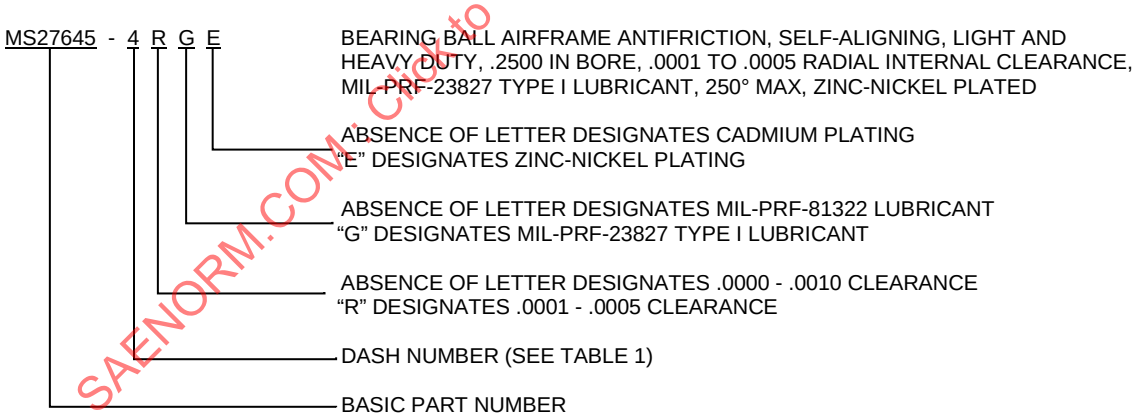
   DESIGNATOR “E” ZINC-NICKEL IN ACCORDANCE WITH AMS2417, TYPE 2, GRADE B.

6. RADIAL INTERNAL CLEARANCE: WITHOUT DESIGNATOR "R" PART NUMBER INDICATES .0000 TO .0010.
   WITH DESIGNATOR "R" THE PART NUMBER INDICATES .0001 TO .0005.

7. RADIAL ECCENTRICITY: INNER RING, .0010 MAX, OUTER RING, .0016 MAX.

8. PART NUMBER: THE PART NUMBER SHALL BE SEQUENCED LEFT TO RIGHT WITH DESIGNATIONS IN THE FOLLOWING SEQUENCE:

   EXAMPLE OF PART NUMBER:



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