

REV.
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SAE AS27641

FEDERAL SUPPLY CLASS
3110

RATIONALE

IN ORDER TO BRING THE AS27641 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

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 OF: SAE AS7949.

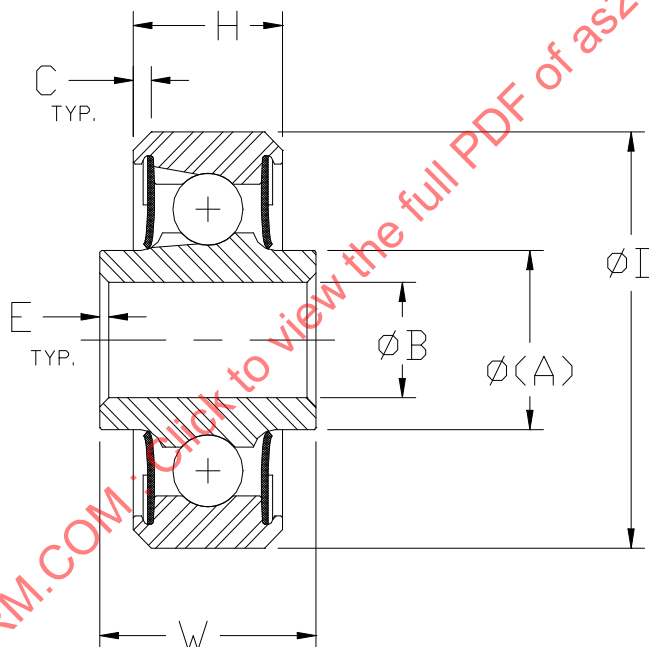
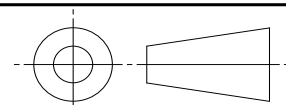


FIGURE 1 - PART CONFIGURATION

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/AS27641C>

THIRD ANGLE PROJECTION



CUSTODIAN: SAE AIRFRAME CONTROL BEARINGS GROUP

PROCUREMENT SPECIFICATION: SAE AS7949

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) BEARING, BALL, AIRFRAME,
ANTI-FRICTION, INTERMEDIATE DUTY

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TABLE 1 - DIMENSIONS AND LOADS

MS DASH NO.	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 (APPROX)	E 4/ C 3/		RADIAL LIMIT LOAD RATING LB	THRUST LIMIT LOAD RATING LB	5/ RADIAL LOAD RATING (LB) FOR AVERAGE LIFE OF 10 000 COMPLETE 90° CYCLES		WEIGHT POUNDS (APPROX)	7/ MAXIMUM STARTING TORQUE (in. oz)
						CORNER CHAMFER X 45°							
						INNER RING BORE + .015 - .000	OUTER RING OD + .015 - .000			CASE I	CASE II		
-3	.1900	.6250	.297	.234	.297	.005	.016	1560	700	1500	1250	.01	1.0
-4	.2500	.7500	.281	.219	.380	.005	.016	1880	900	1690	1450	.02	1.5
-5	.3125	.8125	.297	.234	.415	.015	.016	2190	1000	1820	1600	.02	1.5
-6	.3750	.8750	.313	.250	.495	.015	.016	2500	1100	1920	1710	.03	2.0
-8	.5000	1.1250	.375	.313	.616	.015	.016	3910	1700	2870	2550	.05	2.5
-10	.6250	1.3750	.406	.344	.768	.015	.032	6700	3000	4980	4360	.08	3.0
-12	.7500	1.6250	.437	.375	.919	.015	.032	8790	3900	5980	5320	.13	3.0
-16	1.0000	2.0000	.500	.438	1.241	.015	.032	11 900	5200	7070	6400	.22	4.0
-20	1.2500	2.2500	.500	.438	1.478	.015	.032	13 800	6100	7400	6810	.26	5.0

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.

REQUIREMENTS:

- MATERIAL:** RINGS AND BALLS: 52100 STEEL PER AMS6440 OR AMS6444

SEALS: POLYTETRAFLUOROETHYLENE (PTFE) PER AMS3652

SEAL RETAINERS: ANY CORROSION RESISTANT STEEL
- 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 MS27641 DASH NUMBER. MIL-PRF-23827 TYPE I SHALL NOT BE USED FOR OPERATION WHERE TEMPERATURES EXCEED 250 °F.
- HARDNESS:** HEAT TREAT RINGS AND BALLS TO 60-66 HRC AND STABILIZE FOR OPERATION AT 250 °F
- SURFACE ROUGHNESS:** RACEWAYS AND BALL SHALL HAVE A MAXIMUM SURFACE ROUGHNESS OF 8 μ in Ra PER ANSI/ASME B46.1
- 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
- RADIAL INTERNAL CLEARANCE:** WITHOUT "R" DESIGNATOR PART NUMBER INDICATES .0004 TO .0010 WITH "R" DESIGNATOR PART NUMBER INDICATES .0002 TO .0005
- RADIAL ECCENTRICITY:** INNER RING, .0010 MAX, OUTER RING, .0016 MAX.
- LATERAL ECCENTRICITY:** INNER RING, .0010 MAX, OUTER RING, .0016 MAX.

 An SAE International Group	AEROSPACE STANDARD		SAE AS27641 SHEET 2 OF 3	REV. C
	(R) BEARING, BALL, AIRFRAME, ANTI-FRICTION, INTERMEDIATE DUTY			