

REV.
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AS27649™

RATIONALE

LIMITED SCOPE TO UPDATE RING AND BALL HARDNESS REQUIREMENT FROM 57 - 63 HRC TO 58 - 65 HRC

NOTICE

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

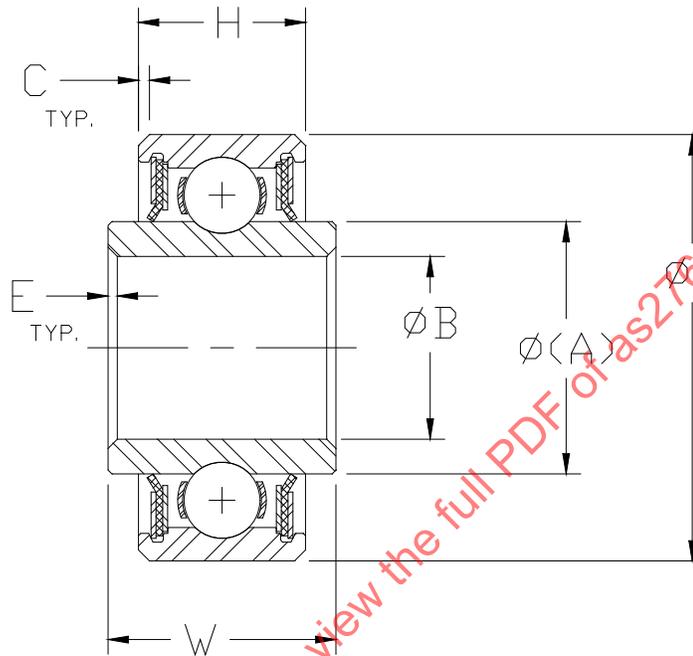
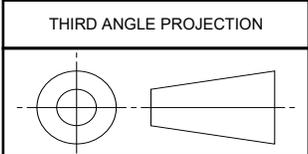


FIGURE 1 - PART CONFIGURATION

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For more information on this standard, visit
<https://www.sae.org/standards/content/AS27649F>



ISSUED 1998-04 REVISED 2023-12

CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS7949



AEROSPACE STANDARD

BEARING, BALL, AIRFRAME,
ANTIFRICTION, INTERMEDIATE DUTY

AS27649™
SHEET 1 OF 3

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TABLE 1 - DIMENSIONS AND LOADS

MS DASH NO.	1/ øB	1/ øD	W WIDTH INNER RING	H WIDTH OUTER RING	øA SHOULDER DIAMETER INNER RING (APPROX)	E 3/ INNER RING BORE	C 2/ OUTER RING OD	RADIAL LIMIT LOAD RATING (LB)	THRUST LIMIT LOAD RATING (LB)	4/ RADIAL LOAD RATING (POUND) FOR AVERAGE LIFE OF 10000 COMPLETE 90° CYCLES		5/ WEIGHT POUNDS (APPROX)	6/ MAXIMUM STARTING TORQUE (IN-OZ)
	+ .0000	+ .0000	+ .0000	+ .000		+	+			CASE I	CASE II		
	- .0005	- .0005	- .0025	- .005		-	-						
-3	.1900	.6250	.4060	.312	.317	.005	.016	450	210	440	440	.018	1.0
-4	.2500	.7500	.4380	.312	.415	.005	.016	525	250	510	510	.028	1.5
-5	.3125	.8125	.4690	.344	.462	.015	.016	820	380	800	800	.033	1.5
-6	.3750	.8750	.4690	.344	.520	.015	.016	820	380	800	800	.034	2.0
-8	.5000	1.1250	.5620	.438	.681	.015	.016	1350	630	1310	1310	.075	2.5
-10	.6250	1.3750	.5940	.469	.848	.015	.032	1840	860	1790	1790	.119	3.0
-12	.7500	1.6250	.6560	.531	1.052	.015	.032	2400	1120	2340	2340	.189	3.0
-16	1.0000	2.0000	.6880	.562	1.334	.015	.032	3000	1400	2920	2920	.296	4.0
-20	1.2500	2.2500	.6880	.562	1.615	.015	.032	3600	1680	3500	3270	.355	5.0

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

2/ A RADIUS GIVING APPROXIMATELY THE SAME GRIP FOR STAKING THE BEARING IN THE HOUSING WILL BE ACCEPTABLE.

3/ A RADIUS GIVING APPROXIMATELY THE SAME FILLET CLEARANCE WILL BE ACCEPTABLE.

4/ CASE I - LOAD FIXED WITH RESPECT TO OUTER RING.

CASE II - LOAD FIXED WITH RESPECT TO INNER RING.

5/ THESE RATINGS ARE FOR OPERATION UP TO 250 °F. FOR OPERATION UP TO 350 °F, THE RATINGS SHALL BE REDUCED BY 20%.

6/ 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: 440C CRES PER AMS5880 OR AMS5618.

BALL RETAINER: 301 CRES PER AMS5519
 302 CRES PER AMS5515, AMS5516, OR AMS5637
 304 CRES PER AMS5513 OR AMS5913
 305 CRES PER AMS5514
 410 CRES PER AMS5504
 430 CRES PER AMS5503

SEALS: POLYTETRAFLUOROETHYLENE (PTFE) PER AMS3652

SEAL RETAINERS: 301 CRES PER AMS5517 OR AMS5519
 302 CRES PER AMS5515, AMS5516, AMS5906, AMS5636, OR AMS5637
 304 CRES PER AMS5513, AMS5639, OR AMS5913
 305 CRES PER AMS5514
 410 CRES PER AMS5504
 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 "G" AFTER THE MS27649 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 58-65 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 ASME B46.1

5. FINISH (OPTIONAL): PASSIVATE RINGS AND BALLS IN ACCORDANCE WITH AMS2700, METHOD 1 (NITRIC ACID) OR METHOD 2 (CITRIC ACID), OR ASTM A967/A967M, CITRIC I, II, OR III.

AMS2700, METHOD 1, TYPE 8 SHALL NOT BE USED.

6. RADIAL INTERNAL CLEARANCE: .0003 TO .0009.

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

	AEROSPACE STANDARD		AS27649™ SHEET 2 OF 3	REV. F
	BEARING, BALL, AIRFRAME, ANTIFRICTION, INTERMEDIATE DUTY			