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REV.
B

AS27646™/1

FEDERAL SUPPLY CLASS
3110

RATIONALE

AS27646/1B IS BEING REVIEWED AS PART OF SAE'S FIVE-YEAR POLICY REVIEW. THIS DOCUMENT REVISION INCLUDES EDITORIAL CHANGES AS WELL AS REMOVAL OF THE ALLOWANCE FOR AMS5880 BALL MATERIAL. ASSEMBLIES WERE TESTED WITH AMS5880 BALLS WHICH RESULTED IN A BALL FAILURE, WHEREAS ASSEMBLIES TESTED WITH AMS5618 BALLS PASSED.

NOTICE

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

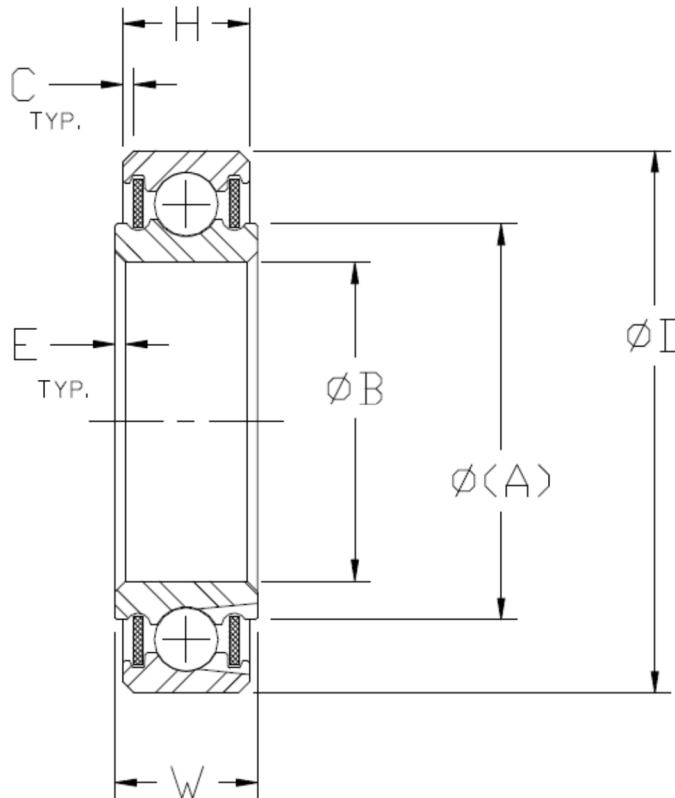
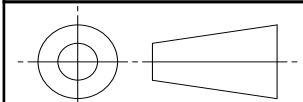


FIGURE 1 - CREN AIRFRAME BEARING

For more information on this standard, visit
<https://www.sae.org/standards/content/AS27646/1B>

THIRD ANGLE PROJECTION



CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS7949



AEROSPACE STANDARD

BEARING, BALL, AIRFRAME,
ANTI-FRICTION, EXTRA LIGHT DUTY, CORROSION
RESISTANT NITROGEN STEEL (CREN)

AS27646™/1
SHEET 1 OF 3

REV.
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TABLE 1 - DIMENSIONS, LOAD RATINGS, WEIGHT, AND TORQUE

AS DASH NO.	DIAMETER				WIDTH		SHOULDER DIAMETER	CORNER CHAMFER X 45°		STATIC LIMIT LOAD RATING		DYNAMIC RADIAL LOAD RATING		APPROX WEIGHT	MAXIMUM STARTING TORQUE
	INNER 2/ ØB		OUTER 1/ 2/ ØD		INNER RING 1/ W	OUTER RING 1/ H	INNER RING (ØA)	INNER RING 4/ E	OUTER RING 3/ C	RADIAL (LB)	THRUST (LB)	CASE I 5/ (LB)	CASE II 6/ (LB)	(LB)	Z/ (IN-OZ)
	NOMINAL DIM	TOL	NOMINAL DIM	TOL	+ .000 - .005	+ .000 - .005		+ .015 - .000	+ .015 - .000						
-38	.6250	+ .0007	1.0625	+ .0000	.2810	.250	.777	.015	.015	3280	1500	1990	1820	.03	2.0
-39	.7500		1.1875		.2810	.250	.895	.015	.015	3750	1700	2050	1900	.04	2.0
-40	.8750		1.3125		.2810	.250	1.016	.015	.015	4220	1900	2110	1970	.05	3.0
-41	1.0625	- .0007	1.5000	- .0010	.2810	.250	1.216	.015	.015	5000	2200	2170	2020	.06	4.0
-42	1.3125		1.7500		.2810	.250	1.451	.015	.015	5950	2700	2220	2130	.09	4.0
-43	1.5625		2.0000		.2810	.250	1.702	.015	.015	6880	3200	2260	2180	.10	5.0
-44	1.8125	+ .0010	2.2500	+ .0000	.2810	.250	1.970	.015	.015	7980	3600	2300	2220	.11	6.0
-45	2.0625	- .0010	2.6250	- .0015	.2810	.250	2.286	.015	.015	9220	4000	2340	2260	.15	7.0
-46	2.3125		2.8750		.2810	.250	2.527	.015	.015	10150	4400	2360	2280	.17	8.0

1/ ALL DIMENSIONS TO BE MET AFTER SURFACE TREATMENT.

2/ OUT-OF-ROUND TOLERANCES: BORE: -38 THROUGH -43: ±.0010, -44 THROUGH -46: ±.0016; OUTER DIAMETER: -38 THROUGH -43: +.0005, -.0015; -44 THROUGH -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.

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.

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: CORROSION RESISTANT NITROGEN STEEL (CREN) PER AMS5898, AMS5925, OR AISI 422 STEEL PER AMS5655.

BALLS: NO SUFFIX CODE: CORROSION RESISTANT NITROGEN STEEL (CREN) PER AMS5898 OR AMS5925.

SUFFIX CODE "T": CORROSION RESISTANT STEEL (CRES) PER AMS5618. CRES BALLS SHALL BE PASSIVATED 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.

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. HARDNESS:

RINGS: STEEL PER AMS5898 AND AMS5925: THROUGH HARDEN TO 58 HRC MINIMUM.

STEEL PER AMS5655: RING WALL THICKNESS .090 OR LESS: CASE HARDEN TO 58 HRC MINIMUM AT A CASE DEPTH OF 1/3 OF THE WALL THICKNESS.

RING WALL THICKNESS GREATER THAN .090: CASE HARDEN TO 58 HRC MINIMUM AT A CASE DEPTH OF .030.

BALLS: 58 HRC MINIMUM.

3. STABILITY:

RINGS AND BALLS SHALL BE STABILIZED FOR OPERATION UP TO 250 °F.

4. 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 DESIGNATOR "G" AFTER THE AS27646/1 DASH NUMBER. MIL-PRF-23827 TYPE I SHALL NOT BE USED FOR OPERATION WHERE TEMPERATURES EXCEED 250 °F.

	AEROSPACE STANDARD	AS27646™/1 SHEET 2 OF 3	REV. 1
	BEARING, BALL, AIRFRAME, ANTI-FRICTION, EXTRA LIGHT DUTY, CORROSION RESISTANT NITROGEN STEEL (CREN)		



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