

RATIONALE

THIS STANDARD DEFINES A CORROSION RESISTANT NITROGEN (CREN) STEEL VERSION OF THE AS27646 (B500DD) AIRFRAME BEARING SERIES.

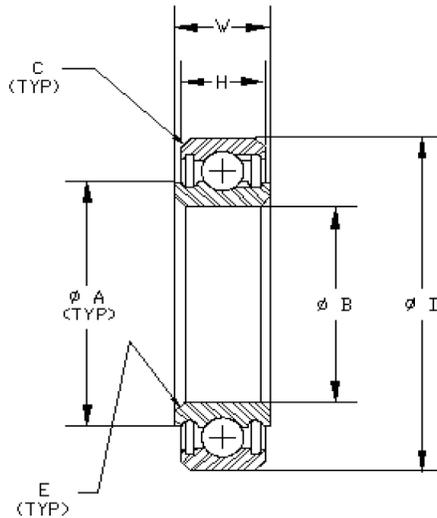


FIGURE 1 – CREN AIRFRAME BEARING

GENERAL NOTES:

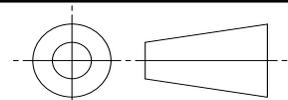
1. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
2. THIS SPECIFICATION TAKES PRECEDENCE OVER ANY OTHER DOCUMENTS REFERENCED HEREIN.
3. UNLESS OTHERWISE SPECIFIED, REFERENCED DOCUMENTS ARE THE ISSUES IN EFFECT AT THE DATE OF INVITATION FOR BID.

DEPARTMENT OF DEFENSE (DoD) SOLICITATIONS: THE APPLICABLE REVISION OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DoDISS) SPECIFIED IN THE SOLICITATION SHALL INDICATE THE GOVERNING REVISION OF ANCILLARY DOCUMENTS SPECIFIED HEREIN.

4. A CHANGE BAR (I) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES, HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT, INCLUDING TECHNICAL REVISIONS. CHANGE BARS AND (R) ARE NOT USED IN ORIGINAL PUBLICATIONS, NOR IN DOCUMENTS THAT CONTAIN EDITORIAL CHANGES ONLY.
5. THIS DOCUMENT INCLUDES CADMIUM AS A PLATING MATERIAL. THE USE OF CADMIUM HAS BEEN RESTRICTED AND/OR BANNED FOR USE IN MANY COUNTRIES DUE TO ENVIRONMENTAL AND HEALTH CONCERNS. THE USER SHOULD CONSULT WITH LOCAL OFFICIALS ON APPLICABLE HEALTH AND ENVIRONMENTAL REGULATIONS REGARDING ITS USE.
6. BEARINGS CONFORMING TO THIS STANDARD SHALL MEET THE MANUFACTURING, PERFORMANCE, AND QUALIFICATION REQUIREMENTS OF AEROSPACE STANDARD AS7949.

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/AS27646/1>

THIRD ANGLE PROJECTION



CUSTODIAN: AIRFRAME CONTROL BEARINGS GROUP

PROCUREMENT SPECIFICATION: AS7949

SAE Aerospace
An SAE International Group

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

SAE AS27646/1
SHEET 1 OF 4

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SAE AS27646/1

TABLE 1 - DIMENSIONS AND LOADS

AS DASH NO.	DIAMETER		WIDTH		SHOULDER DIAMETER	CORNER CHAMFER X 45 DEG		STATIC LIMIT LOAD RATING		DYNAMIC RADIAL LOAD RATING		APPROX. WEIGHT	MAXIMUM STARTING TORQUE
	INNER	OUTER	INNER RING	OUTER RING		INNER RING	OUTER RING	RADIAL	THRUST	CASE I	CASE II		
(1)	(1)	(2)	(2)	(2)	(2)	(2)(4)	(2)(4)	(2)(4)	(5)(6)(8)	(5)(7)(8)	(9)		
Ø B		Ø D	W	H	Ø A	E	C						
	NOMINAL DIM.	TOL.	NOMINAL DIM.	TOL.	(REF)	+0.015	+0.015	[LBS]	[LBS]	[LBS]	[LBS]	[LBS]	[IN-OZ]
						-0.000	-0.000						

-38	.6250		1.0625		.777	.015	.015	3280	1500	1990	1820	.03	2.0
-39	.7500		1.1875		.895	.015	.015	3750	1700	2050	1900	.04	2.0
-40	.8750	+0.007	1.3125	+0.000	1.016	.015	.015	4220	1900	2110	1970	.05	3.0
-41	1.0625	-0.007	1.5000	-0.010	1.216	.015	.015	5000	2200	2170	2020	.06	4.0
-42	1.3125		1.7500		1.451	.015	.015	5950	2700	2220	2130	.09	4.0
-43	1.5625		2.0000		1.702	.015	.015	6880	3200	2260	2180	.10	5.0
-44	1.8125	+0.010	2.2500	+0.000	1.970	.015	.015	7960	3600	2300	2220	.11	6.0
-45	2.0625	-0.010	2.6250	-0.015	2.266	.015	.015	9220	4000	2340	2260	.15	7.0
-46	2.3125		2.8750		2.527	.015	.015	10150	4400	2360	2280	.17	8.0

(1) OUT-OF-ROUND TOLERANCES:

ID

FOR -38 THROUGH -43: ± .0010

FOR -44 THROUGH -46: ± .0016

OD

FOR -38 THROUGH -43: +.0005, -.0015

FOR -44 THROUGH -46: +.0008, -.0023

(2) ALL DIMENSIONS TO BE MET AFTER PLATING.

(3) A RADIUS GIVING APPROXIMATELY THE SAME FILLET CLEARANCE AND MAINTAINING DIMENSION "E" IS ACCEPTABLE IN LIEU OF THE 45 DEGREE FLAT CHAMFER SURFACE.

(4) A RADIUS GIVING APPROXIMATELY THE SAME GRIP FOR STAKING THE BEARING AND MAINTAINING DIMENSION "C" IS ACCEPTABLE IN LIEU OF THE 45 DEGREE FLAT SURFACE CHAMFER.

(5) LOAD RATINGS ARE FOR OPERATION UP TO 250 °F. REDUCE LOAD RATING BY 20% FOR OPERATION IN THE 250 °F TO 350 °F RANGE.

(6) CASE I: LOAD IS FIXED WITH RESPECT TO THE OUTER RING.

(7) CASE II: LOAD IS FIXED WITH RESPECT TO THE INNER RING.

(8) DYNAMIC RADIAL LOAD RATINGS FOR AN AVERAGE LIFE OF 10,000 COMPLETE 90 DEGREE CYCLES.

(9) SPECIFIED LIMITS ARE FOR BEARINGS LUBRICATED WITH MIL-PRF-81322 GREASE. FOR BEARINGS LUBRICATED WITH AEROSHELL® 33 GREASE OR EQUIVALENT, MULTIPLY THE SPECIFIED TORQUE VALUE BY 1.2.

REQUIREMENTS

1. MATERIAL

RINGS: CORROSION RESISTANT NITROGEN STEEL (CREN) PER AMS5898 OR AMS5925.

BALLS: CORROSION RESISTANT NITROGEN STEEL (CREN) PER AMS5898 OR AMS5925.

SEALS: POLYTETRAFLUOROETHYLENE (PTFE) PER AMS3652 OR GLASS FABRIC REINFORCED PTFE SHEET PER AMS3666.

2. HARDNESS

RINGS AND BALLS, ROCKWELL "C" 58 MINIMUM.

3. STABILITY

RINGS AND BALLS SHALL BE STABILIZED FOR OPERATION UP TO 350 °F.

4. LUBRICANT

NO LUBRICANT SUFFIX CODE MIL-PRF-81322 GREASE, 80 % MINIMUM FULL

OR

SUFFIX CODE "G" AEROSHELL® GREASE 33 OR EQUIVALENT, 80 % MINIMUM FULL. BEARINGS LUBRICATED WITH AEROSHELL® GREASE 33 SHALL BE MARKED WITH LUBRICANT SUFFIX CODE "G".

AEROSHELL® GREASE 33 IS A REGISTERED TRADEMARK OF THE SHELL OIL PRODUCTS COMPANY, ONE SHELL PLAZA. P.O. BOX 2463, HOUSTON, TX 77001.

CAUTION: AEROSHELL® GREASE 33 OR EQUIVALENT SHALL NOT BE USED FOR OPERATIONAL TEMPERATURES IN EXCESS OF 250 °F.

5. SURFACE TEXTURE

RACEWAYS AND BALLS, 8 μ - INCH Ra MAX. PER ANSI/ABMA B46.1

6. SURFACE TREATMENT

NO SURFACE TREATMENT SUFFIX CODE ALL EXTERNAL SURFACES EXCEPT BORE AND SEALS SHALL BE PLATED WITH ONE OF THE FOLLOWING MATERIALS:

- a. ZINC-NICKEL PER AMS2417, TYPE 2, .0003 TO .0006 THICK.
- b. CADMIUM PER AMS-QQ-P-416, TYPE I, CLASS 2, .0003 TO .0006 THICK.

OR

SUFFIX CODE "P" ALL SURFACES SHALL BE PASSIVATED IN ACCORDANCE WITH AMS2700, METHOD 2 (CITRIC ACID), OR ASTM A 967, CITRIC I, II, OR III. PASSIVATED BEARINGS SHALL BE MARKED WITH SURFACE TREATMENT SUFFIX CODE "P".

CAUTION: INNER AND OUTER RING COMPONENTS SHALL HAVE THE SAME TYPE OF SURFACE TREATMENT.

7. RADIAL INTERNAL CLEARANCE

.0008 TO .0018 UNDER A 5.5 LB. RADIAL LOAD.

8. ECCENTRICITIES

RADIAL

INNER RING: .0020 MAXIMUM
OUTER RING: .0016 MAXIMUM

LATERAL

INNER RING: .0020 MAXIMUM
OUTER RING: .0016 MAXIMUM

 An SAE International Group	AEROSPACE STANDARD	SAE AS27646/1 SHEET 3 OF 4
	BEARING, BALL, AIRFRAME, ANTI-FRICTION, EXTRA LIGHT DUTY, CORROSION RESISTANT NITROGEN STEEL (CREN)	