

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

REV.
C

AS21428™/1

FEDERAL SUPPLY CLASS
3110

RATIONALE

REMOVED AMS5880 FROM BALL CALLOUT DUE TO MATERIAL PERFORMANCE NOT MEETING THE LOAD REQUIREMENTS. UPDATED CADMIUM PLATE NOTICE.

NOTICE

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

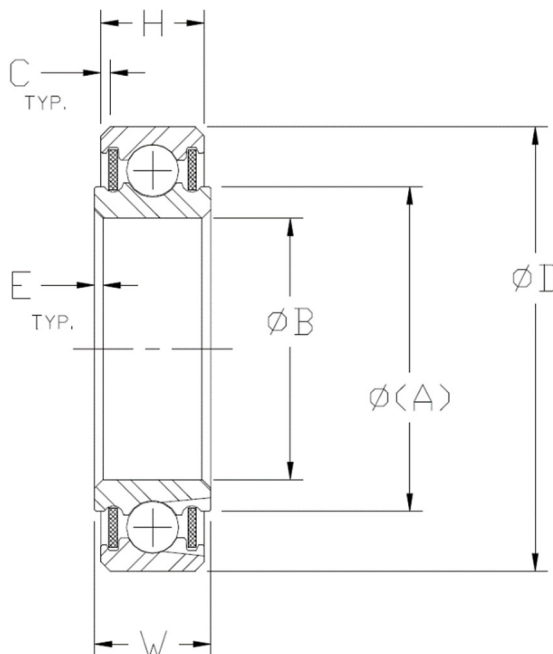
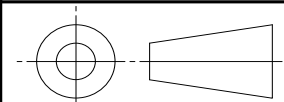


FIGURE 1 - CREN AIRFRAME BEARING

For more information on this standard, visit
<https://www.sae.org/standards/content/AS21428/1C/>

THIRD ANGLE PROJECTION



CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS7949



AEROSPACE STANDARD

BEARING, BALL, AIRFRAME,
ANTIFRICTION, EXTRA LIGHT DUTY, PRECISION
CORROSION-RESISTANT NITROGEN STEEL (CREN)

AS21428™/1
SHEET 1 OF 4

REV.
C

Copyright © 2026 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, or used for text and data mining, AI training, or similar technologies, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 1-877-606-7323 (U.S. and Canada only)

Fax: 724-776-0790

Tel: 1-724-776-4970 (outside U.S. and Canada)

Email: CustomerService@sae.org

SAE WEB ADDRESS: <http://www.sae.org>

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 (LB)	MAXIMUM STARTING TORQUE 9/ (IN-OZ)
	INNER 1/ ØB		OUTER 1/ 2/ ØD		INNER RING 2/ W	OUTER RING 2/ H	INNER RING 2/ ØA (REF)	INNER RING 2/ 3/ E	OUTER RING 2/ 4/ C	RADIAL (LB)	THRUST (LB)	CASE I 5/ 6/ 8/ (LB)	CASE II 5/ 7/ 8/ (LB)		
	NOMINAL DIM	TOL	NOMINAL DIM	TOL	+0.000 -0.0025	+0.000 -0.005		+0.015 -0.000	+0.015 -0.000						
-38	.6250	+0.0000 -0.0005	1.0625	+0.0000 -0.0005	.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	+0.0000 -0.0005	1.5000	+0.0000 -0.0005	.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	+0.0000 -0.0008	2.2500	+0.0000 -0.0007	.2810	.250	1.970	.015	.015	7980	3600	2300	2220	.11	6.0
-45	2.0625		2.6250		.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/ OUT-OF-ROUND TOLERANCES:

BORE

FOR -38 THROUGH -43: +0.0003, -0.0008

FOR -44 THROUGH -46: +0.0003, -0.0011

OUTSIDE DIA

FOR -38 THROUGH -43: +0.0005, -0.0010

FOR -44 THROUGH -46: +0.0005, -0.0012

2/ ALL DIMENSIONS TO BE MET AFTER SURFACE TREATMENT.

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

5/ LOAD RATINGS ARE FOR OPERATION UP TO 250 °F.

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 10000 COMPLETE 90° CYCLES.

9/ SPECIFIED LIMITS ARE FOR BEARINGS LUBRICATED WITH MIL-PRF-81322 GREASE. FOR BEARINGS LUBRICATED WITH MIL-PRF-23827 TYPE I GREASE OR EQUIVALENT, MULTIPLY THE SPECIFIED TORQUE VALUE BY 1.2.

REQUIREMENTS:

1. MATERIAL:

RINGS: CORROSION-RESISTANT NITROGEN STEEL (CREN) PER AMS5898 OR 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 GLASS FABRIC REINFORCED PTFE SHEET 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.

	AEROSPACE STANDARD		AS21428™/1 SHEET 2 OF 4	REV. C
	BEARING, BALL, AIRFRAME, ANTIFRICTION, EXTRA LIGHT DUTY, PRECISION CORROSION-RESISTANT NITROGEN STEEL (CREN)			



Documents

Document Sharing Hub