

REV.  
C

SAE AS21438

RATIONALE

AS21438 REV C IS A LIMITED SCOPE CHANGE ADDING GRADE B FOR ZINC NICKEL PLATING.

NOTICE

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THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF SAE AS39901.

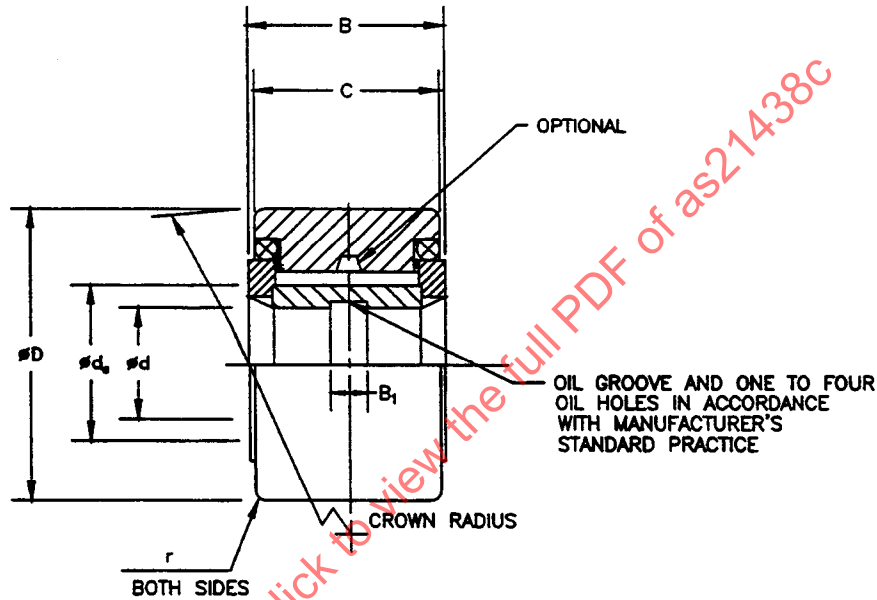
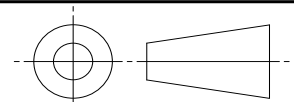


FIGURE 1

SAENORM.COM : Click to view the full PDF of as21438C

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THIRD ANGLE PROJECTION



CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: NONE

**SAE Aerospace**  
An SAE International Group

**AEROSPACE STANDARD**

BEARING, ROLLER, NEEDLE, SINGLE ROW, HEAVY DUTY, TRACK ROLLER, SEALED, TYPE V ANTIFRICTION, INCH

**SAE AS21438**  
SUPERSEDES AS24465  
SHEET 1 OF 4

REV.  
C

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ISSUED 1998-07 REVISED 2013-01

TABLE 1 - DIMENSIONS

Dash No.	—d Bore	—D Outer Ring Outside Diameter	C Outer Ring Width	B Overall Width	—d <sub>c</sub> Clamping Diameter Min	r Rad Min 1/	B <sub>1</sub> Lubrication Groove Width	Crown Radius Ref.	Total Capacity Clearance Max.	Capacity As a Track Roller Lb.	Track Capacity 40 HRC lb.	Limit Load Rating Lb.	Mass (Approx) lbs.
-103	.1900	.7500	.280	0.312	0.438	0.022	0.094	10.000	0.0018	900	290	1200	0.03
-104	.2500	.8750	.345	0.375	0.516	0.022	0.125	10.000	0.0018	1430	575	1910	0.05
-106	.3750	1.0625	.455	0.500	0.672	0.022	0.188	10.000	0.0018	2700	1000	3600	0.10
-108	.5000	1.3125	.580	0.625	0.844	0.032	0.188	12.500	0.0018	4300	1785	5780	0.18
-110	.6250	1.5000	.705	0.750	0.953	0.032	0.250	17.500	0.0018	6400	2600	8500	0.28
-112	.7500	1.7500	.950	1.000	1.109	0.032	0.250	25.000	0.0018	18700	4050	14200	0.52
-114	.8750	2.0000	1.075	1.125	1.219	0.032	0.250	27.500	0.0018	14400	5350	19300	0.75
-120	1.2500	2.5000	1.200	1.250	1.625	0.032	0.375	30.000	0.0018	18900	7100	25300	1.16
-124	1.5000	3.0000	1.440	1.500	2.000	0.032	0.375	60.000	0.0018	28400	18900	37900	2.36
-128	1.7500	3.4375	1.440	1.500	2.281	0.032	0.375	60.000	0.0018	33000	12400	44100	2.71
-132	2.0000	3.8750	1.440	1.500	2.562	0.032	0.375	60.000	0.0018	36700	14000	48900	3.42
-136	2.2500	4.3125	1.440	1.500	2.859	0.032	0.375	60.000	0.0018	41200	15600	55000	4.23
-140	2.2000	4.7500	1.440	1.500	3.109	0.032	0.375	60.000	0.0020	44900	17200	59900	5.14
-144	2.7500	5.0000	1.440	1.500	3.344	0.032	0.375	60.000	0.0020	46800	18100	64800	5.49

TABLE 2 - TOLERANCE VALUES

Dimensions in inches

—d Basic Bore		Allowable Deviation From d of Single Mean Dia., d <sub>mp</sub>		Allowable Deviation From Overall Width B		Allowable Deviation From Lubrication Groove Width B <sub>1</sub>		—D Basic Outside Dia.		Allowable Deviation From d of Single Dia., D <sub>mp</sub>		Allowable Deviation From Outer Ring Width C	
Over	Incl	High	Low	High	Low	High	Low	Over	Incl	High	Low	High	Low
0.1250	2.7500	0	-0.0007	0	-0.010	0	-0.062	0.6875	5.0000	+0.001	-0.001	0	-0.015

1. MATERIAL:

- a. INNER RING, OUTER RING AND NEEDLES: 52100 STEEL PER AMS6440, AMS6444, AMS6447, OR ASTM A295.
- b. ENDWASHERS: 52100 STEEL PER AMS6440, AMS6444, AMS6447, OR ASTM A295. AISI 1074 STEEL PER ASTM A684.
- c. SEALS AND BACKING RINGS - ACETAL RESIN PER ASTM D6778 POM 111 OR NYLON PER L-P-410, TYPE 6/6, WEAR RESISTANT GRADE, OR POLYESTER ELASTOMER. CONSTRUCTION OPTIONAL.
- d. RETAINING RINGS: BRASS (OPTIONAL)

2. HEAT TREAT:

- a. OUTER RING: HARDEN AND TEMPER TO 58-62 HRC
- b. INNER RING: HARDEN AND TEMPER TO 60-64 HRC OR INDUCTION HARDEN TO 60-64 HRC FOR .015 INCH MINIMUM DEPTH AND 50 HRC AT .030 INCH MINIMUM DEPTH.
- c. NEEDLES: HARDEN AND TEMPER TO 60-64 HRC
- d. ENDWASHERS: HARDEN AND TEMPER TO 51-56 HRC

3. FINISH OR PLATING:

- a. OUTER RING - OUTER RING CHROME PLATED PER AMS-QQ-C-320, CLASS 2. O.D. AND O.D. CORNERS .0004 TO .0010 INCH THICKNESS, FACES MINIMUM .0003 INCH THICKNESS.
- b. INNER RING - ALL EXTERNAL SURFACES BLACK OXIDE PER MIL-DTL-13924.
- c. ENDPLATES - ALL EXPOSED SURFACES ZINC-NICKEL IN ACCORDANCE AMS2417, TYPE 2, GRADE B OR CADMIUM PLATED IN ACCORDANCE WITH AMS-QQ-P-416, TYPE I, CLASS 2, WITH A THICKNESS OF .0003 TO .0006 INCHES. IF ZINC-NICKEL PLATING IS REQUIRED, ADD THE LETTER "E" AFTER THE MS21438 DASH NUMBER. NO CODE DESIGNATES CADMIUM PLATING IS REQUIRED.

4. SURFACE TEXTURE:

RACEWAYS - 16 MICROINCHES MAXIMUM Ra

BORE AND O.D. - 40 MICROINCHES MAXIMUM Ra

NEEDLE O.D. - 8 MICROINCHES MAXIMUM Ra

- 5. LUBRICANT: MIL-PRF-81322 OR MIL-PRF-23827. ALL BEARINGS SHALL BE PREPACKED WITH GREASE CONFORMING TO MIL-PRF-81322 UNLESS OTHERWISE SPECIFIED. IF MIL-PRF-23827 TYPE 1 GREASE IS REQUIRED, ADD THE SUFFIX "G" TO THE MS DASH NUMBER. IF MIL-PRF-23827 TYPE 2 GREASE IS REQUIRED, ADD THE SUFFIX "J" TO THE MS DASH NUMBER.
- 6. MARKING: THE MARKING SHALL CONSIST OF THE MS PART NUMBER AND THE MANUFACTURER'S CAGE CODE MARKED IN ACCORDANCE WITH MIL-STD-130 AND A LOT CONTROL NUMBER IF SPACE IS AVAILABLE.
- 7. PART NUMBER: THE PART NUMBER SHALL CONSIST OF THE MS SPECIFICATION NUMBER FOLLOWED BY A DASH NUMBER TAKEN FROM TABLE 1 AND APPLICABLE SUFFIXES. FINISH SUFFIX TO BE DESIGNATED BEFORE LUBRICANT SUFFIX.  
  
EXAMPLE: MS21438-103EG
- 8. PACKAGING: BEARINGS SHALL BE INDIVIDUALLY PACKAGED TO THE REQUIREMENTS OF MIL-DTL-197. PACKAGE MARKED WITH MANUFACTURER'S NAME OR TRADEMARK, AND DATE OF LUBRICATION BY MONTH AND YEAR AND LOT CONTROL NUMBER.
- 9. DIMENSIONS: ALL DIMENSIONS ARE AFTER PLATING AND ARE IN INCHES.
- 10. LOAD RATING: THE LIMIT LOAD RATING LISTED CAN BE DEFINED AS THE MAXIMUM RADIAL LOAD WHICH CAN BE APPLIED TO A BEARING WITHOUT IMPAIRING THE SUBSEQUENT FUNCTIONING OF THE BEARING. THE ULTIMATE OR STATIC FRACTURE LOAD RATING IS NOT LESS THAN 1.5 TIMES THE LIMIT LOAD RATING. THE LOAD RATING AS A TRACK ROLLER IS THE LOAD THE BEARING WILL CARRY AS A TRACK ROLLER FOR AN L -10 LIFE OF 20 000 REVOLUTIONS.

11. TEMPERATURE:

OPERATING TEMPERATURE RANGE -65 TO 350 °F FOR MIL-PRF-81322 LUBRICATED BEARINGS OPERATING TEMPERATURE RANGE -65 TO 250 °F FOR MIL-PRF-23827 LUBRICATED BEARINGS.

12. REMOVE ALL BURRS AND SHARP EDGES.

 An SAE International Group	<b>AEROSPACE STANDARD</b>	<b>SAE AS21438</b> SHEET 3 OF 4	<b>REV.</b> <b>C</b>
	BEARING, ROLLER, NEEDLE, SINGLE ROW, HEAVY DUTY, TRACK ROLLER, SEALED, TYPE V ANTIFRICTION, INCH		