FEDERAL SUPPLY CLASS
3110

RATIONALE

AS21438 REV D IS BEING UPDATED FOR FIVE-YEAR REVIEW. FIGURE 1 HAS BEEN UPDATED FOR CLARITY. TABLES HAVE BEEN REFORMATTED. RING AND ENDWASHER SUPERSEDED MATERIAL OPTIONS UPDATED, OUTER RING AND INNER RING FINISH REQUIREMENTS HAVE BEEN CLARIFIED. LUBRICATION OPTIONS FORMATTED FOR CLARITY. ADDED RADIAL INTERNAL CLEARANCE REQUIREMENT. CORRECTED TYPO IN TABLE 1 TRACK CAPACITY.

NOTICE

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

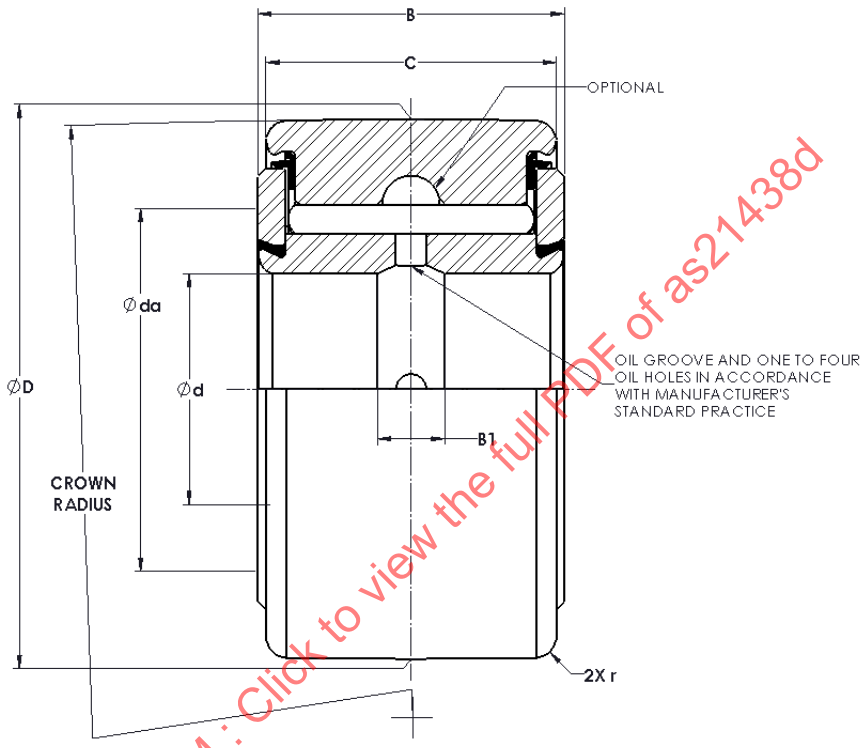
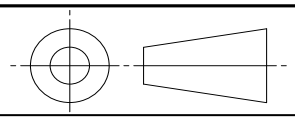


FIGURE 1

ISSUED 1998-07 REVISED 2020-07

For more information on this standard, visit
https://www.sae.org/standards/content/AS21438D

THIRD ANGLE PROJECTION



CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS39901

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)** **Tel: +1 724-776-4970 (outside USA)**
Fax: 724-776-0790 **Email: CustomerService@sae.org** **SAE WEB ADDRESS: http://www.sae.org**

TABLE 1 - DIMENSIONS

DASH NO.	d BORE	D OUTER RING OUTSIDE DIA	C OUTER RING WIDTH	B OVERALL WIDTH	d_a CLAMPING DIA MIN	r RAD MIN	B_1 LUBRICATION GROOVE WIDTH	CROWN RADIUS REF	TOTAL CAPACITY CLEARANCE MAX	CAPACITY AS A TRACK ROLLER LBS	TRACK CAPACITY 40 HRC LBS	LIMIT LOAD RATING LBS	MASS (APPROX) LBS
-103	.1900	.7500	.280	.312	.438	.022	.094	10.000	.0018	900	290	1200	.03
-104	.2500	.8750	.345	.375	.516	.022	.125	10.000	.0018	1430	575	1910	.05
-106	.3750	1.0625	.455	.500	.672	.022	.188	10.000	.0018	2700	1000	3600	.10
-108	.5000	1.3125	.580	.625	.844	.032	.188	12.500	.0018	4300	1785	5780	.18
-110	.6250	1.5000	.705	.750	.953	.032	.250	17.500	.0018	6400	2600	8500	.28
-112	.7500	1.7500	.950	1.000	1.109	.032	.250	25.000	.0018	18700	4050	14200	.52
-114	.8750	2.0000	1.075	1.125	1.219	.032	.250	27.500	.0018	14400	5350	19300	.75
-120	1.2500	2.5000	1.200	1.250	1.625	.032	.375	30.000	.0018	18900	7100	25300	1.16
-124	1.5000	3.0000	1.440	1.500	2.000	.032	.375	60.000	.0018	28400	10900	37900	2.36
-128	1.7500	3.4375	1.440	1.500	2.281	.032	.375	60.000	.0018	33000	12400	44100	2.71
-132	2.0000	3.8750	1.440	1.500	2.562	.032	.375	60.000	.0018	36700	14000	48900	3.42
-136	2.2500	4.3125	1.440	1.500	2.859	.032	.375	60.000	.0018	41200	15600	55000	4.23
-140	2.5000	4.7500	1.440	1.500	3.109	.032	.375	60.000	.0020	44900	17200	59900	5.14
-144	2.7500	5.0000	1.440	1.500	3.344	.032	.375	60.000	.0020	46800	18100	64800	5.49

1/ ALL DIMENSIONS TO BE MET AFTER PLATING.

TABLE 2 - TOLERANCE VALUES

d BASIC BORE		ALLOWABLE DEVIATION FROM d OF SINGLE MEAN DIA, d_{mp}		ALLOWABLE DEVIATION FROM OVERALL WIDTH B		ALLOWABLE DEVIATION FROM LUBRICATION GROOVE WIDTH B_1		D BASIC OUTSIDE DIA		ALLOWABLE DEVIATION FROM d OF SINGLE DIA, D_{mp}		ALLOWABLE DEVIATION FROM OUTER RING WIDTH C	
OVER	INCL	HIGH	LOW	HIGH	LOW	HIGH	LOW	OVER	INCL	HIGH	LOW	HIGH	LOW
.1250	2.7500	0	-.0007	0	-.010	0	-.062	.6875	5.0000	+.001	-.001	0	-.015

REQUIREMENTS

1. MATERIAL:

   a. INNER RING, OUTER RING, AND NEEDLES: 52100 STEEL PER AMS6440, AMS6444, AMS6447, OR ASTM A295/A295M.

   b. ENDWASHERS: 52100 STEEL PER AMS6440, AMS6444, AMS6447, OR ASTM A295/A295M. AISI 1074 STEEL PER ASTM A684/A684M.

   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 (OPTIONAL): BRASS.

2. HEAT TREAT:

   a. OUTER RING: HARDEN AND TEMPER TO 58 TO 62 HRC.

   b. INNER RING: HARDEN AND TEMPER TO 60 TO 64 HRC OR INDUCTION HARDEN TO 60 TO 64 HRC FOR .015 INCH MINIMUM DEPTH AND 50 HRC AT .030 INCH MINIMUM DEPTH.

   c. NEEDLES: HARDEN AND TEMPER TO 60 TO 64 HRC.

   d. ENDWASHERS: HARDEN AND TEMPER TO 51 TO 56 HRC.

3. PLATING OR FINISH:

   a. OUTER RING: OUTER RING CHROME PLATED PER AMS-QQ-C-320, CLASS 2, OR AMS2460, CLASS 2, OD AND OD CORNERS .0004 TO .0010 INCH THICKNESS, FACES MINIMUM .0003 INCH THICKNESS.

   b. INNER RING: BLACK OXIDE ALL EXPOSED SURFACES PER MIL-DTL-13924, CLASS 1.

   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 INCH.

      IF ZINC-NICKEL PLATING IS REQUIRED, ADD THE LETTER "E" AFTER THE MS21438 DASH NUMBER. NO CODE DESIGNATES CADMIUM PLATED ENDPLATE IS REQUIRED.

4. SURFACE TEXTURE, IN ACCORDANCE WITH ASME B46.1:

   RACEWAYS - 16 MICROINCHES MAXIMUM Ra
   BORE AND OD - 40 MICROINCHES MAXIMUM Ra
   NEEDLE OD - 8 MICROINCHES MAXIMUM Ra

5. LUBRICANT:

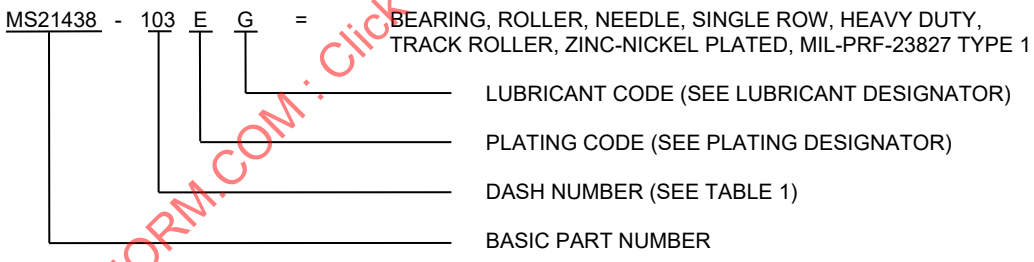
   a. NO SUFFIX CODE: BEARINGS SHALL BE PREPACKED 80% MINIMUM WITH GREASE CONFORMING TO MIL-PRF-81322. OPERATING TEMPERATURE RANGE -65 TO 350 °F FOR MIL-PRF-81322 LUBRICATED BEARINGS.

   b. SUFFIX CODE "G": BEARINGS SHALL BE PREPACKED 80% MINIMUM WITH GREASE CONFORMING TO MIL-PRF-23827 TYPE 1. OPERATING TEMPERATURE RANGE -65 TO 250 °F FOR MIL-PRF-23827 LUBRICATED BEARINGS.

   c. SUFFIX CODE "J": BEARINGS SHALL BE PREPACKED 80% MINIMUM WITH GREASE CONFORMING TO MIL-PRF-23827 TYPE 2. OPERATING TEMPERATURE RANGE -65 TO 250 °F FOR MIL-PRF-23827 LUBRICATED BEARINGS.

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 PART NUMBER FOLLOWED BY A DASH NUMBER TAKEN FROM TABLE 1 AND APPLICABLE SUFFIXES. FINISH SUFFIX TO BE DESIGNATED BEFORE LUBRICANT SUFFIX.



8. PACKAGING: BEARINGS SHALL BE INDIVIDUALLY PACKAGED TO THE REQUIREMENTS OF MIL-DTL-197. PACKAGE MARKED WITH MANUFACTURER'S NAME OR TRADEMARK, DATE OF LUBRICATION BY MONTH AND YEAR, AND LOT CONTROL NUMBER.

9. 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 20000 REVOLUTIONS.

10. RADIAL INTERNAL CLEARANCE SHALL BE .0018 INCH MAXIMUM.

11. REMOVE ALL BURRS AND SHARP EDGES.