

REV. B

SAE AS21441

FEDERAL SUPPLY CLASS  
3110

RATIONALE

AS21441 REVISION B IS A FIVE-YEAR REVIEW AND UPDATE OF THIS SPECIFICATION, FIGURE AND TABLES REFORMATTED, CAD PLATE WARNING ADDED, MATERIALS AND HEAT TREATMENTS CLARIFIED.

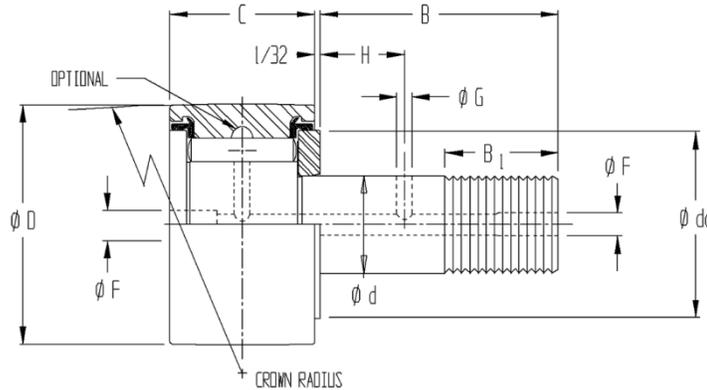


FIGURE 1

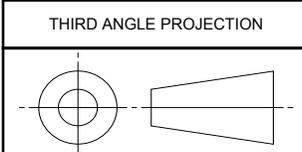
TABLE 1 - DIMENSIONS

DASH NO.	Ø d STUD DIA.	Ø D OUTSIDE DIA.	C OUTER RING WIDTH	B STUD LENGTH	B <sub>1</sub> MINIMUM PERFECT THREAD LENGTH	THREADS UNF - 3A	OIL HOLE		Ø F LUB FITTING SIZE	CROWN RADIUS REF.	Ø d <sub>a</sub> CLAMPING DIA. MIN.	TORQUE lbs.-in. MAX. 1/	CAPACITY AS A TRACK ROLLER	TRACK CAPACITY HR. 40 lb	LIMIT LOAD RATING lb	MASS (APPROX) lbs.
							Ø G HOLE DIA.	H HOLE CENTER								
-080	.2500	.5000	.375	.625	.2500	1/4 - 28	--	--	.125*	7	.40	10	700	508	1000	.03
-091		.5625					--	--						--		
-101	.3125	.6250	.438	.750	.3125	5/16 - 24	--	--	.188	8	.47	40	1100	718	1500	.05
-111		.6875					--	--						--		
-121	.4375	.7500	.500	.875	.3750	7/16 - 20	.094	.250	.188	10	.61	150	2000	1030	2600	.09
-141		.8750												1160		
-161	.6250	1.0000	.625	1.000	.5000	5/8 - 18	.125	.188	.188	12	.78	390	2900	1480	3900	.21
-181		1.1250												1670		
-201	.7500	1.2500	.750	1.250	.6250	3/4 - 16	.157	.188	.188	14	.97	750	4100	2330	5500	.39
-221		1.3750												2570		
-241	.8750	1.5000	.875	1.500	.7500	7/8 - 14	.157	.188	.188	20	1.10	900	5500	3380	7300	.65
-261		1.6250												3660		
-281	1.0000	1.7500	1.000	1.750	.8750	1 - 14	.157	.188	.188	20	1.30	1350	7700	4500	10300	1.02
-301		1.8750												4828		
-321	1.1250	2.0000	1.250	2.000	1.0000	1 1/8 - 12	.188	.188	.188	24	1.45	1650	10400	6550	13800	1.59
-361		2.2500												7370		
-401	1.2500	2.2500	1.500	2.250	1.1250	1 1/4 - 12	.188	.188	.188	24	1.70	2050	16200	9250	21600	2.78
-441		2.5000												10200		
-481	1.5000	2.7500	1.750	2.500	1.2500	1 1/2 - 12	.188	.188	.188	30	2.10	3000	24600	13400	32800	4.58
-521		3.0000												14500		
-561	1.7500	3.2500	2.000	2.750	1.3750	1 3/4 - 12	.188	.188	.188	30	2.44	3000	31200	18300	41700	7.13
-641		3.5000												24100		

\* OIL HOLE "F" DRILLED FROM THE FLANGE END OF THE STUD TO THE RADIAL OIL HOLE ONLY.

1/ INSTALLATION TORQUE LUBRICATED THREADS.

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/AS21441B>



CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS39901

**SAE Aerospace**  
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**AEROSPACE STANDARD**

(R) BEARING, ROLLER, NEEDLE, TRACK ROLLER, INTEGRAL HEAVY STUD, TYPE IX, ANTI-FRICTION, INCH

**SAE AS21441**  
SHEET 1 OF 3

**REV. B**

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ISSUED 1999-07 REVISED 2013-01

TABLE 2 - TOLERANCE LIMITS

ø d BASIC STUD DIAMETER		ALLOWABLE DEVIATION FROM d OF SINGLE MEAN DIA., d <sub>mp</sub>		ø D BASIC OUTER RING OUTSIDE DIAMETER		ALLOWABLE DEVIATION FROM D OF SINGLE MEAN DIA, D <sub>mp</sub>		ALLOWABLE DEVIATION FROM OUTER RING WIDTH, C	
OVER	INCL	HIGH	LOW	OVER	INCL	HIGH	LOW	HIGH	LOW
.1250	1.5000	+0.015	-.0000	.4375	3.5000	+0.020	-.0005	+0.005	-.005

REQUIREMENTS:

1. MATERIAL:

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

STUD: 52100 STEEL PER AMS6440, AMS6444, AMS6447 OR ASTM A295/A295M, OR AISI 8620 STEEL PER AMS6274.

ENDWASHER: 52100 STEEL PER AMS6440, AMS6444, AMS6447 OR ASTM A295/A295M, AISI 1070-1095 PER ASTM A108 OR AISI 1010, 1018, 1117 OR 1231 STEEL PER AMS-STD-66.

SEALS: ACETAL RESIN PER ASTM D6778 POM 111 OR NYLON PER L-P-410, OR PTFE PER AMS3652, OR PTFE IMPREGNATED FIBERGLASS PER AMS3666.

2. HEAT TREAT:

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

NEEDLES: HARDEN AND TEMPER TO 60-64 HRC.

STUD (RACEWAY): CARBURIZE WITH A SURFACE HARDNESS OF 60 HRC MINIMUM OR INDUCTION HARDEN TO 60 HRC MINIMUM.

STUD (FLANGE): SURFACE HARDNESS 51 HRC MINIMUM.

STUD (SHANK): HARDEN AND TEMPER TO 36-46 HRC.

ENDWASHER: HARDEN AND TEMPER TO 52-56 HRC, EXCEPT AISI 1010, 1018, 1117, OR 1213 HARDENED TO A DEPTH OF .005 MINIMUM WITH A SURFACE HARDNESS OF 51-59 HRC ON THE WEAR SURFACE. REMAINDER MAY BE SOFTENED FOR MANUFACTURING.

3. FINISH OR PLATING:

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

b. STUD: ALL EXTERNAL SURFACES, EXCEPT FOR THE UNTHREADED PORTION OF STUD SHANK, ZINC- NICKEL IN ACCORDANCE WITH AMS2417, TYPE 2, GRADE B, OR CADMIUM PLATED IN ACCORDANCE AMS-QQ-P-416, TYPE I, CLASS 2, .0003 TO .0006 INCH THICK.

c. ENDPLATES - ALL EXPOSED SURFACES ZINC-NICKEL IN ACCORDANCE WITH AMS2417, TYPE 2, GRADE B, OR CADMIUM PLATED IN ACCORDANCE WITH AMS-QQ-P-416, TYPE I, CLASS 2, .0003 TO .0006 INCH THICK.

IF ZINC-NICKEL PLATE IS REQUIRED ADD CODE DESIGNATOR "E" AFTER THE MS21441 DASH NUMBER.

4. LUBRICANT: MIL-PRF-81322 OR MIL-PRF-23827 TYPE 1. ALL BEARINGS SHALL BE PREPACKED WITH GREASE CONFORMING TO MIL-PRF-81322 UNLESS OTHERWISE SPECIFIED. IF MIL-PRF-TYPE 1 IS REQUIRED, ADD THE LETTER "G" AFTER THE MS PART NUMBER.

5. MARKING: THE MARKING SHALL CONSIST OF THE MS PART NUMBER AND THE MANUFACTURER'S IDENTIFICATION IN ACCORDANCE WITH MIL-STD-130.

 An SAE International Group	<b>AEROSPACE STANDARD</b>	<b>SAE AS21441</b> SHEET 2 OF 3	<b>REV.</b> <b>B</b>
	(R) BEARING, ROLLER, NEEDLE, TRACK ROLLER, INTEGRAL HEAVY STUD, TYPE IX, ANTI-FRICTION, INCH		