FEDERAL SUPPLY CLASS
3110

RATIONALE

AS21440 REV A IS A FIVE YEAR REVIEW AND UPDATE OF THIS SPECIFICATION. FIGURE AND TABLES REFORMATTED, CAD PLATE WARNING ADDED, MATERIALS AND HEAT TREATMENTS CLARIFIED.

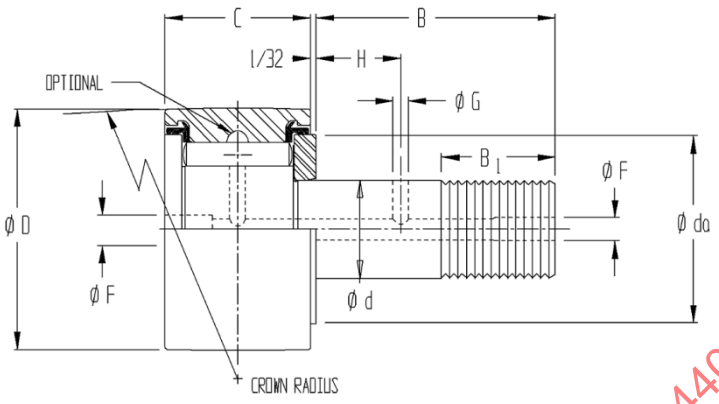


FIGURE 1 - PART CONFIGURATION

TABLE 1 - DIMENSIONS

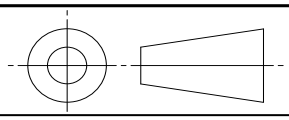
DASH NO.	Ø d STUD DIA.	Ø D OUTSIDE DIA.	C OUTER RING WIDTH	B STUD LENGTH	B_1 MINIMUM PERFECT THREAD LENGTH	THREADS UNF - 3A	OIL HOLE Ø G HOLE DIA.	OIL HOLE H HOLE CENTER	Ø F LUB FITTING SIZE	CROWN RADIUS REF.	Ø d_a CLAMPING DIA. MIN.	TORQUE lbs.-in. MAX. 1/	CAPACITY AS A TRACK ROLLER	TRACK CAPACITY HR_c 40 lb_f	LIMIT LOAD RATING lb_f	MASS (APPROX) lbs.
-080	.1900	.5000	.344	.500	.2500	10 - 32	--	--	.125*	6	.30	8	600	460	600	.02
-081			.375	.625						7			700	508	700	
-091		.5625												575		.03
-101	.2500	.6250	.406	.750	.3125	1/4 - 28				8	.36	10	1000	657	1000	.04
-102			.438										1100	718	1100	.05
-111		.6875												865		.06
-121	.3750	.7500	.500	.875	.3750	3/8 - 24	.094	.250	.188	10	.50	55	2000	1030	2000	.08
-141		.8750												1160		.10
-161	.4375	1.0000	.625	1.000	.5000	7/16 - 20	.125			12	.64	150	2900	1480	2900	.16
-181		1.1250												1670		.20
-201	.5000	1.2500	.750	1.250	.6250	1/2 - 20		.312		14	.77	205	4100	2330	4100	.30
-221		1.3750												2570		.35
-241	.6250	1.5000	.875	1.500	.7500	5/8 - 18	.157	.375		20	.89	390	5500	3380	5500	.53
-261		1.6250												3660		.61
-281	.7500	1.7500	1.000	1.750	.8750	3/4 - 16		.438			1.05	750	7700	4500	7700	.85
-301		1.8750												4820		.95
-321	.8750	2.0000	1.250	2.000	1.0000	7/8 - 14	.188	.500		24	1.20	900	10 400	6550	10 400	1.37
-361		2.2500												7370		1.67
-401	1.0000	2.5000	1.500	2.250	1.1250	1- 14		.562			1.31	1350	16 200	9250	16 200	2.50
-441		2.7500												10 200		2.93
-481	1.2500	3.0000	1.750	2.500	1.2500	1 1/4 - 12		.625	.250	30	1.75	2050	24 600	13 400	24 600	4.20
-521		3.2500												14 500		4.81
-561	1.3750	3.5000	2.000	2.750	1.3750	13/8 - 12		.688			1.92	2500	31200	18 300	31200	6.42
-641	1.5000	4.0000	2.250	3.500	1.5000	1 1/2 - 12		.750			2.28	3000	41000	24 100	41000	9.46

* 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/AS21440A

THIRD ANGLE PROJECTION



ISSUED 2002-02 REVISED 2012-12

CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS39901

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) BEARING, ROLLER, NEEDLE, TRACK ROLLER
INTEGRAL STUD, SEALED, TYPE VIII
ANTIFRICTION, INCH

TABLE 2 - TOLERANCE LIMITS

ø d BASIC STUD DIAMETER		ALLOWABLE DEVIATION FROM d OF SINGLE MEAN DIA., d_{mp}		ø D BASIC OUTER RING OUTSIDE DIAMETER		ALLOWABLE DEVIATION FROM D OFSINGLE MEAN DIA,D_{mp}		ALLOWABLE DEVIATION FROM OUTER RING WIDTH, C	
OVER	INCL	HIGH	LOW	OVER	INCL	HIGH	LOW	HIGH	LOW
.1250	1.5000	+.0015	-.0000	.4375	4.0000	+.0020	-.0005	+.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. OD AND OD CORNERS .0004 TO .0010 INCH THICKNESS, FACES MINIMUM .0003 INCH THICKNESS.

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

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

   IF ZINC-NICKEL PLATE IS REQUIRED ADD CODE DESIGNATOR “E” AFTER THE MS21440 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-23827 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.