FEDERAL SUPPLY CLASS
3120

RATIONALE

THE REASON FOR UPDATING THIS DOCUMENT IS TO INCORPORATE AN “A” PART NUMBER DESIGNATION FOR A NEW LINER SYSTEM THAT HAS THE SAME WEAR LIMIT BUT 4 TIMES THE LIFE OF THE STANDARD LINER SYSTEM.

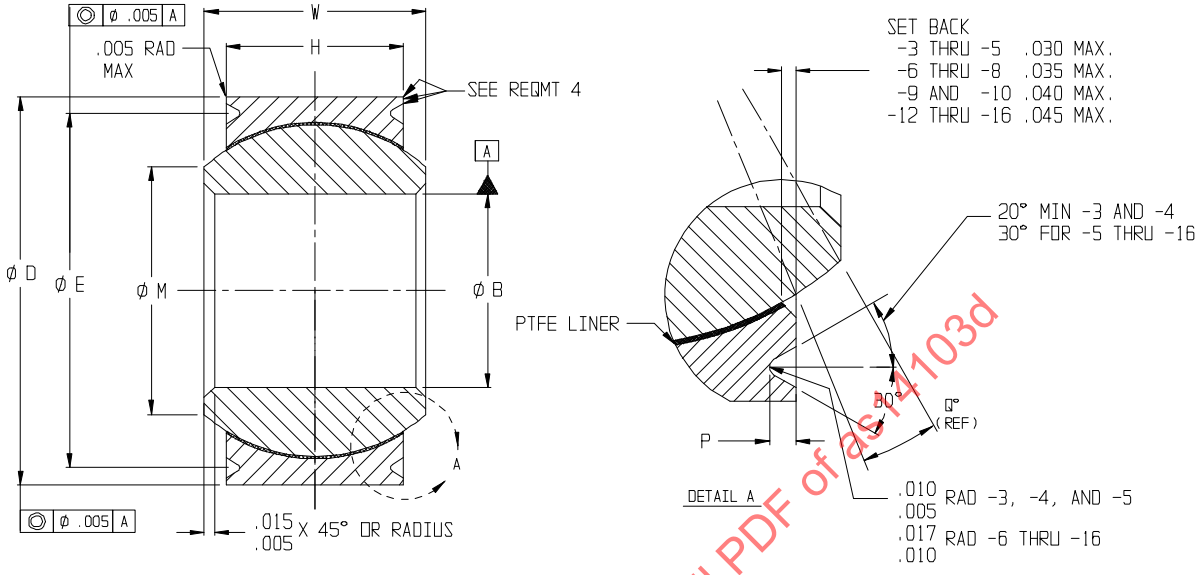


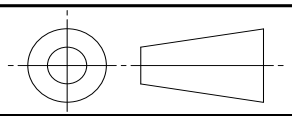
FIGURE 1

TABLE 1 - DIMENSIONS AND STRENGTHS

PART NO.***	ϕB +.0000 −.0005	ϕD** +.0000 −.0005	H** ±.005	ϕM MIN	P +.000 −.010	Q° (REF)	W +.000 −.002	ϕE +.000 −.008	STATIC LIMIT LOAD RADIAL LB	STATIC LIMIT LOAD AXIAL LB	OSCIL-LATING LOAD LB	NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB STANDARD	NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB * "K" TYPE	WT LB MAX (REF)
MS14103- 3	.1900	.6250	.327	.300	.025	15	.437	.563	2500	1770	4900	0.25- 5.0	0-0.5	.031
MS14103- 4	.2500	.6250	.327	.300	.025	15	.437	.563	5500	1770	4900	0.25- 5.0	0-0.5	.031
MS14103- 5	.3125	.6875	.317	.360	.025	14	.437	.625	9400	1640	6050	0.25- 8.0	0-1.0	.035
MS14103- 6	.3750	.8125	.406	.466	.035	8	.500	.712	13700	2630	8310	0.25- 8.0	0-1.0	.060
MS14103- 7	.4375	.9375	.442	.537	.035	10	.562	.837	20700	3650	11750	0.25- 8.0	0-1.0	.080
MS14103- 7A	.4375	.9062	.442	.537	.035	10	.562	.806	19700	3650	11750	0.25- 8.0	0-1.0	.080
MS14103- 8	.5000	1.0000	.505	.607	.035	9	.625	.900	21400	4970	14950	0.25- 8.0	0-1.0	.100
MS14103- 9	.5625	1.1250	.536	.721	.035	10	.687	1.025	26600	5370	18100	0.25- 8.0	0-1.0	.135
MS14103-10	.6250	1.1875	.567	.747	.035	12	.750	1.087	29000	6130	20250	0.25- 8.0	0-1.0	.160
MS14103-12	.7500	1.3750	.630	.845	.055	13	.875	1.251	37000	7730	26200	0.25- 8.0	0-1.0	.240
MS14103-14	.8750	1.6250	.755	.995	.055	6	.875	1.501	65200	10800	33600	0.25-12.0	0-2.0	.350
MS14103-16	1.0000	2.1250	1.005	1.269	.055	12	1.375	2.001	104000	19300	56250	0.25-12.0	0-2.0	.970

* SEE REQUIREMENT 5 "NO-LOAD TORQUE" AND NOTE 8.
** SEE NOTE 7.
*** FOR TYPE A BEARINGS, THE CORRESPONDING PART NUMBER WILL HAVE AN “A” DESIGNATION AFTER THE MS PART NUMBER (E.G., MS14103A-3).

THIRD ANGLE PROJECTION



ISSUED 1997-08 REVISED 2008-03

CUSTODIAN: SAE AIRFRAME CONTROL BEARINGS GROUP

PROCUREMENT SPECIFICATION: AS81820

SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) BEARING, PLAIN, SELF-LUBRICATING, SELF-ALIGNING, LOW SPEED, WIDE, GROOVED RACE, -65 TO +325 °F

TABLE 2 - OVERSIZE BEARING DIMENSIONS 1/ 2/
RESTRICTED USAGE FOR REPAIR WORK ONLY
.010 INCH AND .020 INCH OVERSIZE OUTSIDE DIAMETER FOR
REPLACEMENT OF BEARINGS SHOWN ON SHEET 1

PART NO. 3/	NOMINAL SIZE	1ST OVERSIZE (.010) ϕD
MS14103- 3T	.1875	.6350
MS14103- 4T	.2500	.6350
MS14103- 5T	.3125	.6975
MS14103- 6T	.3750	.8225
MS14103- 7T	.4375	.9475
MS14103- 7AT	.4375	.9162
MS14103- 8T	.5000	1.0100
MS14103- 9T	.5625	1.1350
MS14103-10T	.6250	1.1975
MS14103-12T	.7500	1.3850
MS14103-14T	.8750	1.6350
MS14103-16T	1.0000	2.1350

PART NO. 3/	NOMINAL SIZE	2ND OVERSIZE (.020) ϕD
MS14103- 3U	.1875	.6450
MS14103- 4U	.2500	.6450
MS14103- 5U	.3125	.7075
MS14103- 6U	.3750	.8325
MS14103- 7U	.4375	.9575
MS14103- 7AU	.4375	.9262
MS14103- 8U	.5000	1.0200
MS14103- 9U	.5625	1.1450
MS14103-10U	.6250	1.2075
MS14103-12U	.7500	1.3950
MS14103-14U	.8750	1.6450
MS14103-16U	1.0000	2.1450

1/ BEFORE INITIATING A REPAIR PROCEDURE TO USE AN OVERSIZE BEARING, APPROVAL FOR MODIFYING AND REIDENTIFYING THE BEARING HOUSING MUST BE OBTAINED FROM THE COGNIZANT ENGINEERING AUTHORITY.
2/ REFER TO NAS0331 FOR INSTALLATION PROCEDURE AND STAKING FORCES.
3/ FOR TYPE A BEARINGS, THE CORRESPONDING PART NUMBER WILL HAVE AN "A" DESIGNATION AFTER THE MS PART NUMBER (E.G., MS14103A-3).

REQUIREMENTS:

1. MATERIAL: BALL, 440C (AMS5630, AMS5880, OR AMS5618) OR PH13-8Mo AMS5629 H1000 (SEE NOTE 8a).
   RACE, 17-4PH (AMS5643).
   LINER, PTFE SHALL BE INCLUDED IN THE LINER.

2. SURFACE TEXTURE: BALL DIA Ra 8 MAX; BALL FACES, BALL BORE AND RACE DIA Ra 32 MAX; ALL OTHER METALLIC SURFACES Ra 125 MAX. LINER SURFACES ARE EXEMPT FROM SURFACE TEXTURE MEASUREMENTS.

3. HARDNESS: BALL, 440C HRC 55-62 OR PH13-8Mo HRC 43 MIN; RACE HRC 28 MIN/HRC 37 MAX BEFORE SWAGING.

4. SURFACE FINISH:

   RACE: PLATING, WHEN SPECIFIED, SHALL BE ZINC-NICKEL PLATING PER AMS2417, TYPE 2, OR CADMIUM PLATING PER AMS-QQ-P-416, TYPE II, CLASS 2, WITH A THICKNESS RANGE OF 0.0003 TO 0.0006 INCHES. PLATE ON THE OUTSIDE DIAMETER SURFACE AND ON THE FLAT BETWEEN THE OUTSIDE DIAMETER AND THE GROOVE. PLATING RUNOUT MAY OCCUR EITHER IN THE GROOVE OR IN THE AREA BETWEEN THE GROOVE AND THE BALL.

   BALL: PH13-8Mo, PASSIVATE PER AMS2700 OR ASTM A 967; 440C, PASSIVATE PER AMS2700 OR ASTM A 967, OPTIONAL. CHROME PLATING PER AMS2460 IS ALLOWED. BALL SHALL BE CHROME PLATED IF QUALIFIED WITH IT.

5. NO-LOAD TORQUE: WHEN THE LETTER "K" IS PRESENT IN THE PART NUMBER, LOWER VALUES OF NO-LOAD TORQUE ARE SPECIFIED PER TABLE 1. IF THE MEASURED TORQUE OF A "K" TYPE BEARING IS LESS THAN 0.1 INCH-POUND, THE INTERNAL RADIAL PLAY SHALL BE MEASURED AND SHALL NOT EXCEED THE FOLLOWING:

DASH NO.	MAXIMUM RADIAL PLAY	MAXIMUM AXIAL PLAY
-3K THRU -12K	0.0007 INCH	0.0021 INCH
-14K THRU -16K	0.0010 INCH	0.0030 INCH

   THE INTERNAL AXIAL PLAY SHALL BE MEASURED FOR ALL "K" TYPE BEARINGS.

NOTES:

NOTICE

THIS DOCUMENT REFERENCES A PART WHICH CONTAINS CADMIUM AS A PLATING MATERIAL. CONSULT LOCAL OFFICIALS IF YOU HAVE QUESTIONS CONCERNING CADMIUM'S USE.

1. DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE; DECIMALS ±.010 AND ANGLES ±0.5°.

2. BREAK SHARP EDGES AND CORNERS AND REMOVE ALL BURRS AND SLIVERS.

3. THE -3 SIZE BEARING IS EXEMPT FROM THE "RADIAL STATIC LIMIT LOAD" TEST BECAUSE THE LOAD CAPACITY OF THE BEARING IS PIN CRITICAL.

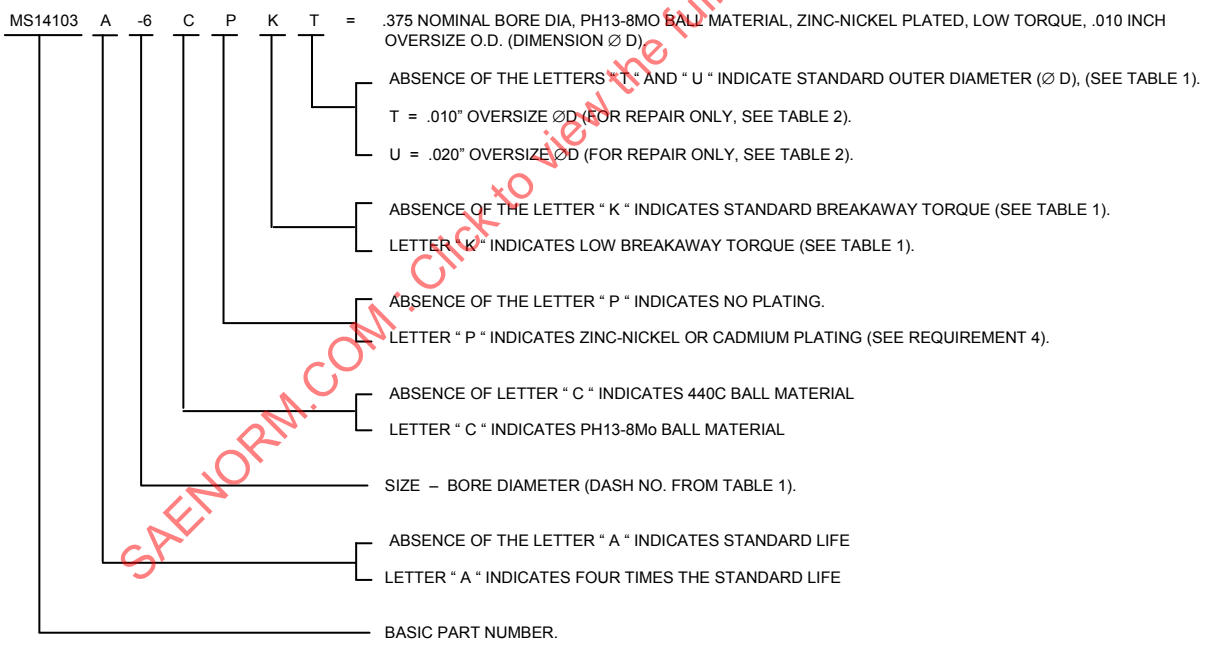
4. WHEN TESTED TO THE FLUID CONTAMINATION AND SUB-ZERO TEMPERATURE REQUIREMENTS OF THE PROCUREMENT SPECIFICATION, THE OSCILLATING LOAD SHALL BE DECREASED TO 75% OF THE SPECIFIED LOAD.

5. WHEN FLUIDS AND ELEVATED TEMPERATURES (ABOVE 200 °F) ARE BOTH PRESENT IN AN APPLICATION, THEN REDUCTIONS IN OPERATING LOADS OR BEARING LIFE MAY BE REQUIRED.

6. DASH NUMBER DESIGNATES NOMINAL BORE DIA IN SIXTEENTHS OF AN INCH.

7. DIMENSION “øD” TO BE MET AFTER PLATING. DIMENSION "H" TO BE MET BEFORE PLATING WHEN APPLICABLE.

8. EXAMPLE OF PART NO.



8a. BALL MATERIAL SHALL BE 440C (AMS5630, AMS5880, OR AMS5618) UNLESS "C" CALLOUT IS PRESENT IN PART NUMBER. "C" INDICATES PH13-8Mo (AMS5629) H1000.

9. IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL TAKE PRECEDENCE.