

| REVISION | | | |
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| LTR | NO. | DATE | APPD |
| - | PROD. RELEASE | 10-08-10 | |

EXAMPLE OF GODFREY (GUANGZHOU) BEARINGS AND AEROSPACE STANDARD PART NUMBER CALL OUT

GG103BW -08 C P K T

MS14103 -8 C P K T = .500 NOMINAL BORE DIA, PH13-8 Mo BALL MATERIAL, ZINC-NICKEL PLATED, LOW TORQUE, .010 INCH OVERSIZE O.D. (DIMENSION ϕ D).

ABSENCE OF THE LETTER "T" AND "U" INDICATE STANDARD OUTER DIAMETER (ϕ D), (SEE TABLE 1).
 T = .010 OVERSIZE ϕ D (FOR REPAIR ONLY, SEE TABLE 3).
 U = .020 OVERSIZE ϕ D (FOR REPAIR ONLY, SEE TABLE 3).

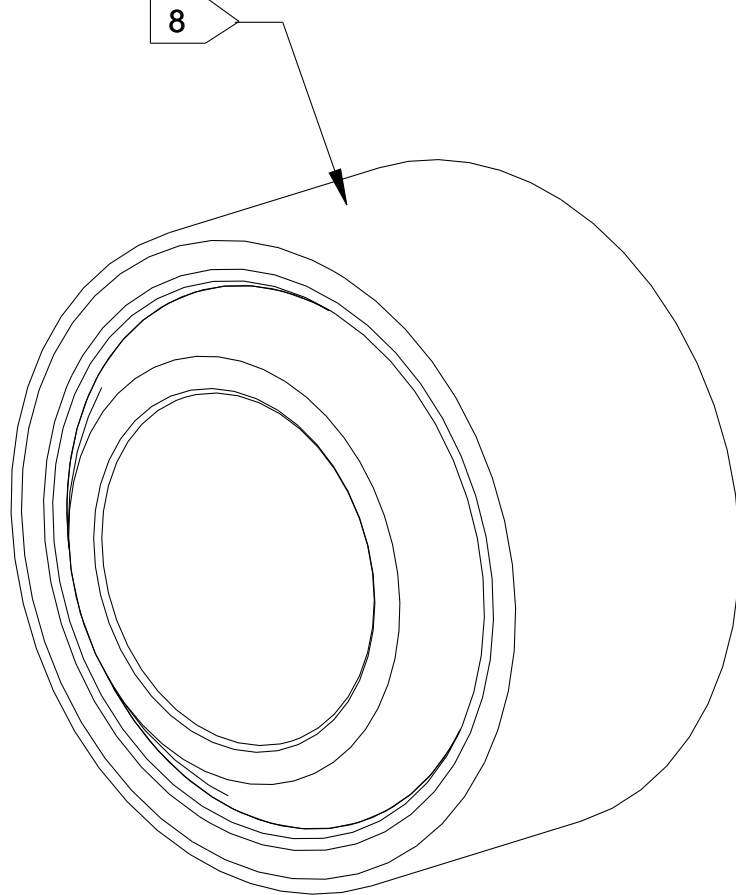
ABSENCE OF THE LETTER "K" INDICATES STANDARD BREAKAWAY TORQUE (SEE TABLE 1).
 LETTER "K" INDICATES LOW BREAKAWAY TORQUE (SEE TABLE 1 AND 7).

ABSENCE OF THE LETTER "P" INDICATES NO PLATING.
 LETTER "P" INDICATES ZINC-NIKEL OR CADMIUM PLATING (SEE REQUIREMENT 5).

ABSENCE OF THE LETTER "C" INDICATES 440C BALL MATERIAL.
 LETTER "C" INDICATES PH13-8Mo BALL MATERIAL.

SIZE - BORE DIAMETER (DASH NO. FROM TABLE 1).

BASIC PART NUMBER



3D VIEW
ENGRG. REFERENCE
SCALE: NONE

8 MARKING: ELCTRO-ETCH WITH GODFREY (GUANGZHOU) BEARINGS PART NUMBER AND MS14103 PART NUMBER AT LOCATION SHOWN.

7 NO LOAD TORQUE: SEE TABLE 1. WHEN THE LETTER "K" IS PRESENT IN THE P/N, 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 IN THE TABLE 2. THE INTERNAL AXIAL PLAY SHALL BE MEASURED FOR ALL "K" TYPE BEARINGS.

6 DIMENSION " ϕ D" TO BE MET AFTER PLATING. DIMENSION "H" TO BE MET BEFORE PLATING WHEN APPLICABLE.

5 SURFACE FINISH:
 RACE: PLATING, WHEN SPECIFIED, SHALL BE ZINC-NICKEL PLATING PER AMS 2417, TYPE 2, OR CADMIUM PLATING PER AMS-QQ-P-416, TYPE II, CLASS 2, (.0003 TO .0006 INCHES).PLATE ON THE OUTSIDE DIAMETER SURFACE AND ON THE FLAT BETWEEN THE OUTSIDE DIAMETER AND THE GROOVE. PLATING RUNOUT MAY OCCURE EITHER IN THE GROOVE OR IN THE AREA BETWEEN THE GROOVE AND THE BALL.

BALL: 440C, PASSIVATE PER AMS 2700 OR ASTM A 967 (OPTIONAL).
 13-8 PH Mo, PASSIVATE PER AMS 2700 OR ASTM A 967.

4 BALL MATERIAL SHALL BE 440C (AMS 5630, AMS 5880 OR AMS 5618) UNLESS "C" CALLOUT IS PRESENT IN P/N. "C" INDICATES PH13-8 Mo (AMS 5629) COND. H1000 PER AMS-H-6875.

3 APPLY LINER ON INDICATED SURFACE. DIMENSIONS APPLY AFTER THE APPLICATION OF LINER.

2 LINER IS QUALIFIED TO SAE AS81820.

1 DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.

NOTES: UNLESS OTHERWISE SPECIFIED

| | | | | | | | |
|---------|---------|--------------|---|-------------------------|-----|-----|---|
| | XXXXX | RACE ASSY | 17-4PH CRES AMS 5643 | R/C 28-37 AMS 2759/3 | 3 | TAG | - |
| | XXXXX | BALL | 440C PER AMS 5630, AMS 5880 OR AMS 5618 | R/C 55-62 AMS-H-6875 | /// | TAG | 1 |
| SEE TAB | SEE TAB | BEARING ASSY | /// | /// | 5 7 | 8 | - |

| CUST. PART NO. | PART NO. | DESCRIPTION | MATERIAL | HEAT TREAT | PROCESS | PT.MK. | QTY. |
|--|------------------|--|--|--|--|----------------|------------------------|
| THIS DOCUMENT REMAINS THE PROPERTY OF GODFREY (GUANGZHOU) BEARINGS, AND IS PROVIDED TO THE RECIPIENT ON THE EXPRESS CONDITION THAT IT, OR ANY INFORMATION CONTAINED IN IT, IS NOT TO BE DISCLOSED OR REPRODUCED IN WHOLE OR IN PART, OR USED FOR MANUFACTURE BY THE RECIPIENT WITHOUT A WRITTEN CONSENT OR PURCHASE ORDER FROM GODFREY (GUANGZHOU) BEARINGS. | | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XX = ± .030 .XXX = ± .010 ANGLES = ± 1/2 ° | DRAWN NICHOLAS.NGUYEN CHK ENGRG NICHOLAS.NGUYEN MFG ENGRG | DATE 10-08-10 DATE 10-08-10 DATE | GODFREY (GUANGZHOU) BEARINGS | | |
| BREAK ALL SHARP EDGES .005 TO .015 MACHINE FILLETS .05 TO .030 R. | | BREAK ALL SHARP EDGES .005 TO .015 MACHINE FILLETS .05 TO .030 R. | CONFIG. CNTL | DATE | BEARINGS, PLAIN, SELF-LUBRICATING, SELF-ALIGNING, WIDE, GROOVED RACE -65° F TO +325° F | | |
| APPLICATION A/C | SERIES OR ENGINE | QTY. S/S | MACHINED SURFACE FINISHES M32 | AS14103 | SIZE C | CAGE NO. XXXXX | DWG.NO. GG103BW-XXXXXX |
| | | | | SCALE: 3/16 | ENGRG | 1 | 3 |

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| - SEE SH 1 | 10-08-10 | |

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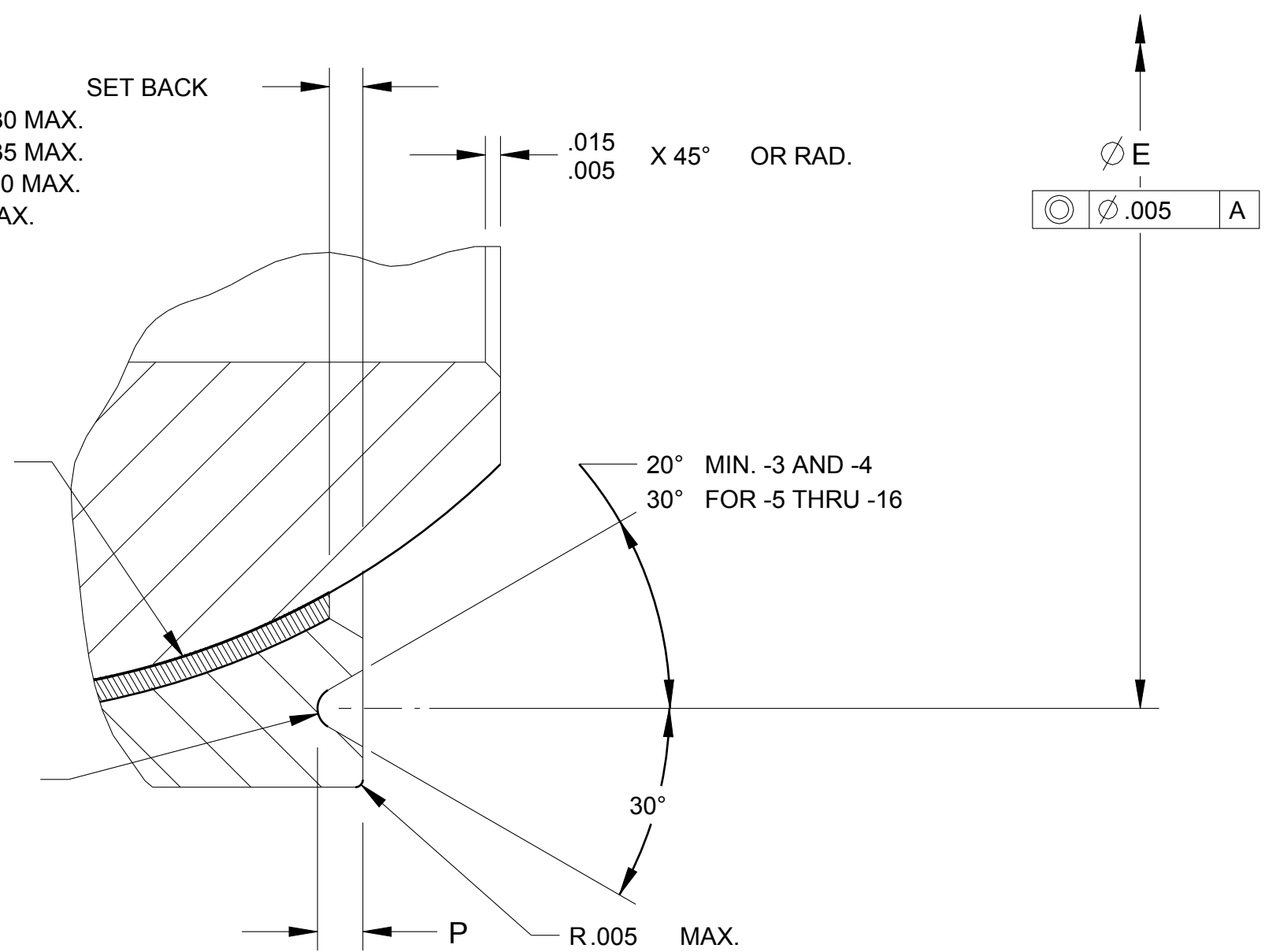
-3 THRU -5 .030 MAX.
-6 THRU -8 .035 MAX.
-9 AND -10 .040 MAX.
-12 THRU -16 .045 MAX.

.015
.005 X 45° OR RAD.

3 FABRIC LINER

.010
.005 RAD -3, -4 AND -5

.017
.010 RAD -6 THRU -16



DETAIL B
SCALE 10/1
TYPICAL-ON BOTH SIDES

TABLE 3*

| CODE (T) | | | | CODE (U) | | | |
|--|---------------------|------------------------------|--|--|---------------------|------------------------------|--|
| GODFREY (GUANGZHOU) BEARINGS PART NUMBER | AS14103 PART NUMBER | ϕ B +.0000 -.0005 | ϕ D +.0000 -.0005 .010 1st OVERSIZE | GODFREY (GUANGZHOU) BEARINGS PART NUMBER | AS14103 PART NUMBER | ϕ B +.0000 -.0005 | ϕ D +.0000 -.0005 .020 2nd OVERSIZE |
| GG103BW-03XXXT | MS14103-3XXXT | .1900 | .6350 | GG103BW-03XXXU | MS14103-3XXXU | .1900 | .6450 |
| GG103BW-04XXXT | MS14103-4XXXT | .2500 | .6350 | GG103BW-04XXXU | MS14103-4XXXU | .2500 | .6450 |
| GG103BW-05XXXT | MS14103-5XXXT | .3125 | .6975 | GG103BW-05XXXU | MS14103-5XXXU | .3125 | .7075 |
| GG103BW-06XXXT | MS14103-6XXXT | .3750 | .8225 | GG103BW-06XXXU | MS14103-6XXXU | .3750 | .8325 |
| GG103BW-07XXXT | MS14103-7XXXT | .4375 | .9475 | GG103BW-07XXXU | MS14103-7XXXU | .4375 | .9575 |
| GG103BW-07AXXXT | MS14103-7AXXXT | .4375 | .9162 | GG103BW-07AXXXU | MS14103-7AXXXU | .4375 | .9262 |
| GG103BW-08XXXT | MS14103-8XXXT | .5000 | 1.0100 | GG103BW-08XXXU | MS14103-8XXXU | .5000 | 1.0200 |
| GG103BW-09XXXT | MS14103-09XXXT | .5625 | 1.1350 | GG103BW-09XXXU | MS14103-09XXXU | .5625 | 1.1450 |
| GG103BW-10XXXT | MS14103-10XXXT | .6250 | 1.1975 | GG103BW-10XXXU | MS14103-10XXXU | .6250 | 1.2075 |
| GG103BW-12XXXT | MS14103-12XXXT | .7500 | 1.3850 | GG103BW-12XXXU | MS14103-12XXXU | .7500 | 1.3950 |
| GG103BW-14XXXT | MS14103-14XXXT | .8750 | 1.6350 | GG103BW-14XXXU | MS14103-14XXXU | .8750 | 1.6450 |
| GG103BW-16XXXT | MS14103-16XXXT | 1.0000 | 2.1350 | GG103BW-16XXXU | MS14103-16XXXU | 1.0000 | 2.1450 |

* TABLE 3-OVERSIZE BEARING DIMENSIONS RESTRICTED USAGE FOR REPAIR WORK ONLY.
.010 AND .020 INCH OVERSIZE OUTSIDE DIAMETER FOR REPLACEMENT OF BEARINGS
SHOWN ON TABLE 1.

| | | | |
|------------------------------|----------|----------------|------|
| GODFREY (GUANGZHOU) BEARINGS | | | |
| SIZE | CAGE NO. | DWG.NO. | REV. |
| C | XXXX | GG103BW-XXXXXX | - |
| SCALE: 2/18 UNIFIED 3 3 | | | |

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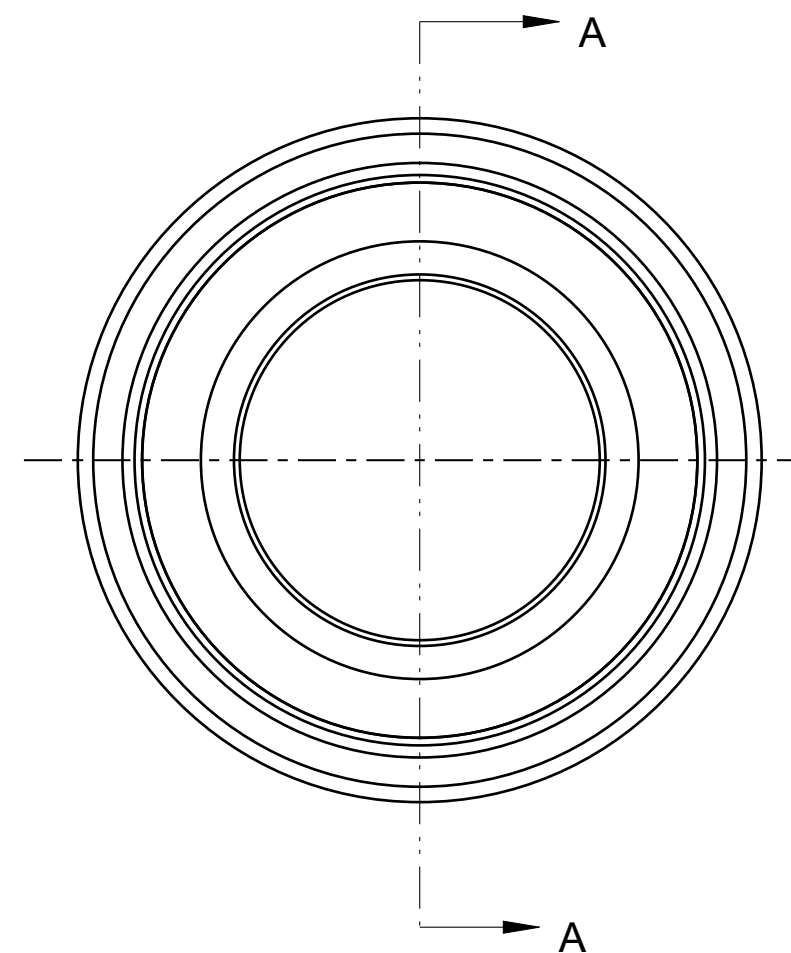
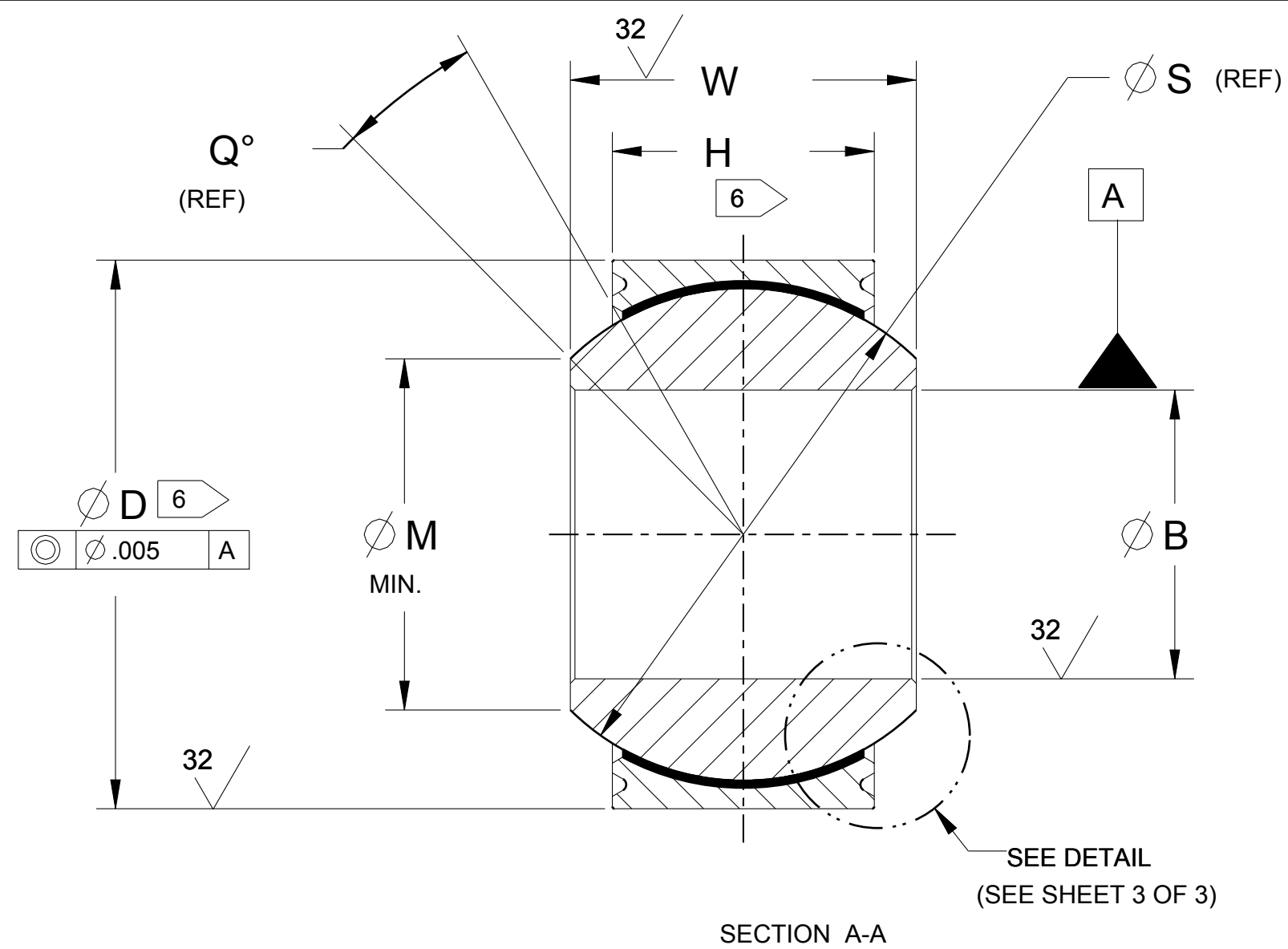


TABLE 1-DIMENSIONS AND STRENGTHS

| GODFREY (GUANGZHOU) BEARINGS PART NUMBER | AS14103 PART NUMBER | ϕ B +.0000 -.0005 | ϕ D +.0000 -.0005 | H ± .005 | ϕ M MIN. | P +.000 -.010 | Q° (REF) | W +.000 -.002 | ϕ E +.000 -.008 | ϕ S (REF) | STATIC LIMIT LOAD | | OSCIL- LATING LOAD LB | NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB | | WT LB MAX. (REF) |
|---|---------------------------|------------------------------|------------------------------|-------------|------------------|---------------------|-------------|---------------------|----------------------------|-------------------|----------------------|-------------|--------------------------------|--|----------|---------------------------|
| | | | | | | | | | | | RADIAL LB | AXIAL LB | | STANDARD | "K" TYPE | |
| GG103BW-03XXXX | MS14103-3XXXX | .1900 | .6250 | .327 | .300 | .025 | 15° | .437 | .563 | | 2500 | 1770 | 4900 | 0.25-5.0 | 0-0.5 | .031 |
| GG103BW-04XXXX | MS14103-4XXXX | .2500 | .6250 | .327 | .300 | .025 | 15° | .437 | .563 | | 5500 | 1770 | 4900 | 0.25-5.0 | 0-0.5 | .031 |
| GG103BW-05XXXX | MS14103-5XXXX | .3125 | .6875 | .317 | .360 | .025 | 14° | .437 | .625 | | 9400 | 1640 | 6050 | 0.25-8.0 | 0-1.0 | .035 |
| GG103BW-06XXXX | MS14103-6XXXX | .3750 | .8125 | .406 | .466 | .035 | 8° | .500 | .712 | | 13700 | 2630 | 8310 | 0.25-8.0 | 0-1.0 | .060 |
| GG103BW-07XXXX | MS14103-7XXXX | .4375 | .9375 | .442 | .537 | .035 | 10° | .562 | .837 | | 20700 | 3650 | 11750 | 0.25-8.0 | 0-1.0 | .080 |
| GG103BW-07AXXXX | MS14103-7AXXXX | .4375 | .9062 | .442 | .537 | .035 | 10° | .562 | .806 | | 19700 | 3650 | 11750 | 0.25-8.0 | 0-1.0 | .080 |
| GG103BW-08XXXX | MS14103-8XXXX | .5000 | 1.0000 | .505 | .607 | .035 | 9° | .625 | .900 | | 21400 | 4970 | 14950 | 0.25-8.0 | 0-1.0 | .100 |
| GG103BW-09XXXX | MS14103-9XXXX | .5625 | 1.1250 | .536 | .721 | .035 | 10° | .687 | 1.025 | | 26600 | 5370 | 18100 | 0.25-8.0 | 0-1.0 | .135 |
| GG103BW-10XXXX | MS14103-10XXXX | .6250 | 1.1875 | .567 | .747 | .035 | 12° | .750 | 1.087 | 1.066 | 29000 | 6130 | 20250 | 0.25-8.0 | 0-1.0 | .160 |
| GG103BW-12XXXX | MS14103-12XXXX | .7500 | 1.3750 | .630 | .845 | .055 | 13° | .875 | 1.251 | | 37000 | 7730 | 26200 | 0.25-8.0 | 0-1.0 | .240 |
| GG103BW-14XXXX | MS14103-14XXXX | .8750 | 1.6250 | .755 | .995 | .055 | 6° | .875 | 1.501 | | 65200 | 10800 | 33600 | 0.25-12.0 | 0-2.0 | .350 |
| GG103BW-16XXXX | MS14103-16XXXX | 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 |

TABLE 2

| 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 |

| | | | |
|--|----------|----------------|------|
| GODFREY (GUANGZHOU) BEARINGS | | | |
| SIZE | CAGE NO. | DWG. NO. | REV. |
| C | XXXX | GG103BW-XXXXXX | - |
| SCALE: 3/16" = 1" UNLESS NOTED OTHERWISE | | | |