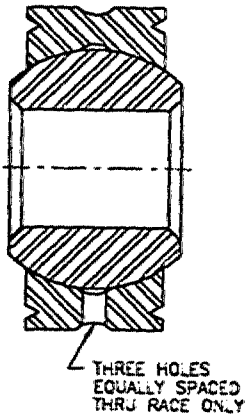


THE REQUIREMENTS FOR ACQUIRING THE PRODUCT(S) DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DODISS SPECIFIED IN THE SOLICITATION: MIL-B-81936

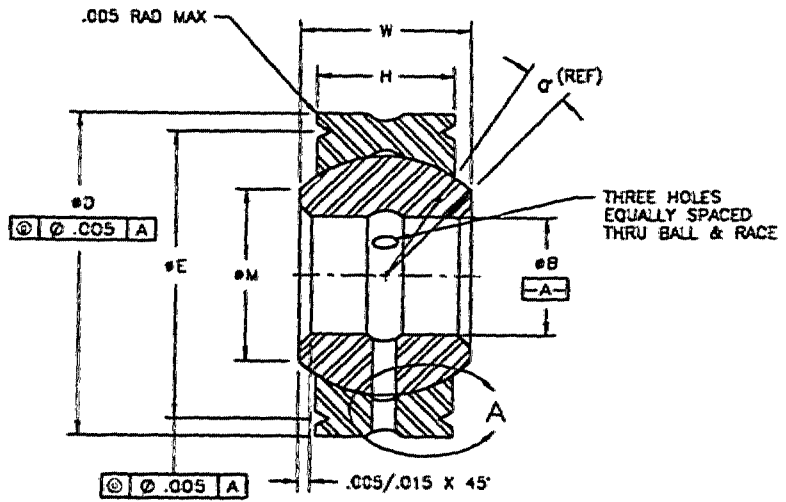
THIS SPECIFICATION IS APPROVED FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE.

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OMB NO. 0704-0188

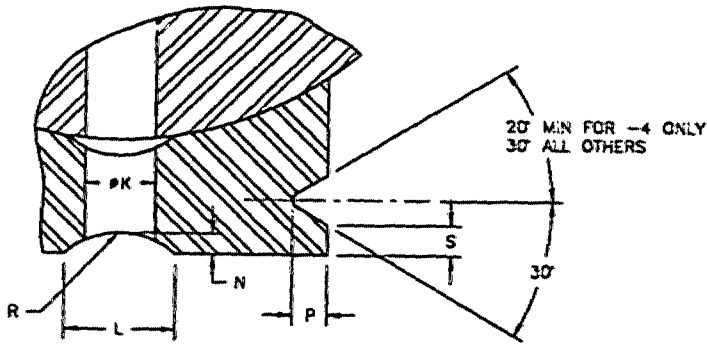
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DETAIL A

ⓑ DENOTES CHANGES

PREPARING ACTIVITY: NAVY - AS
CUSTODIANS: ARMY-AV NAVY-
AIR FORCE-11 OLA-
REVIEW: OLA-IS, AIR FORCE-99, ARMY-AR, MI
PROJECT NUMBER: 3120-0744-01

MILITARY SPECIFICATION SHEET

TITLE
BEARING, PLAIN, SELF-ALIGNING,
BE CU BALL, CRES RACE,
(WITH STACKING GROOVE) -65°F TO +350°F

SPECIFICATION SHEET NUMBER
MIL-B-81936/1 REV B
5 DEC 94

SUPERSEDING
MIL-B-81936/1A 22 NOV 93

AMSC - N/A FSC 3120

DISTRIBUTION STATEMENT A, APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

PAGE 1 OF 4

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ⓑ TABLE I. DIMENSIONS

DASH NUMBER	ØB	ØD	ØE	H	ØK	L	ØM	N	P	Q	R	S	W		
LUBE GROOVES AND HOLES IN RACE ONLY	LUBE GROOVES AND HOLES IN BALL AND RACE	BORE +.0000 -.0005	OUTSIDE DIA +.0000 -.0005	+ .000 - .010	RACE WIDTH +.000 -.005	BALL DIA MAX	LUBE HOLE DIA THRU RACE AND BALL	GROOVE WIDTH ID & OD OF RACE & OD OF BALL	MIN	GROOVE DEPTH ID & OD OF RACE & OD OF BALL	+ .000 - .015	REF	GROOVE RADIUS ID & OD OF RACE & OD OF BALL	+ .000 - .010	BALL WIDTH +.000 -.005
4R	4	.2500	.6562	.596	.250	.501	.032/.062	.042/.078	.357	.010/.015	.030	12	.030/.062	.020	.343
5R	5	.3125	.7500	.652	.281	.563	.042/.062	.042/.078	.413	.010/.015	.040	11	.030/.062	.030	.375
6R	6	.3750	.8125	.714	.312	.657	.042/.062	.042/.078	.509	.010/.015	.040	9	.030/.062	.030	.406
7R	7	.4375	.9062	.808	.343	.719	.052/.062	.065/.094	.563	.010/.015	.040	8	.060/.094	.030	.437
8R	8	.5000	1.0000	.878	.390	.814	.052/.062	.065/.094	.634	.010/.015	.060	8	.060/.094	.030	.500
9R	9	.5625	1.0937	.972	.437	.876	.052/.062	.065/.094	.664	.010/.015	.060	8	.060/.094	.030	.562
10R	10	.6250	1.1875	1.065	.500	.969	.062/.078	.073/.109	.732	.010/.015	.060	8	.070/.125	.030	.625
12R	12	.7500	1.4375	1.315	.593	1.188	.062/.078	.073/.109	.913	.010/.015	.060	8	.070/.125	.030	.750
13R	13	.8125	1.5625	1.440	.650	1.282	.062/.078	.073/.109	.984	.010/.015	.060	8	.070/.125	.030	.812
14R	14	.8750	1.6562	1.534	.703	1.376	.062/.078	.073/.109	1.054	.010/.015	.060	8	.070/.125	.030	.875
16R	16	1.0000	1.8750	1.753	.797	1.563	.078/.093	.082/.109	1.193	.010/.015	.060	8	.090/.125	.030	1.000
18R	18	1.1250	2.1250	2.003	.900	1.751	.078/.093	.082/.109	1.334	.010/.015	.060	8	.090/.125	.030	1.125
20R	20	1.2500	2.3125	2.190	1.000	1.938	.078/.093	.082/.109	1.473	.010/.015	.060	8	.090/.125	.030	1.250
22R	22	1.3750	2.5625	2.440	1.100	2.157	.078/.093	.082/.109	1.654	.010/.015	.060	8	.090/.125	.030	1.375
24R	24	1.5000	2.8125	2.690	1.200	2.345	.078/.093	.082/.109	1.794	.010/.015	.060	8	.090/.125	.030	1.500

TABLE II. STRENGTHS

DASH NO.	RADIAL STATIC LIMIT LOAD LB	RADIAL STATIC LIMIT LOAD LB	PEAK RADIAL LOAD MODE I LB.	PEAK RADIAL LOAD MODE II LB.
4	4R	6330	1930	2570
5	5R	8460	2450	3520
6	6R	11400	3090	4570
7	7R	14800	3740	5750
8	8R	20400	4860	7500
9	9R	26700	6100	9500
10	10R	33100	8080	11750
12	12R	50000	11440	16900
13	13R	59000	13800	19800
14	14R	70300	16160	23000
16	16R	77700	20850	30000
18	18R	121500	26740	38000
20	20R	152000	33065	46900
22	22R	186000	40120	56900
24	24R	224000	47820	67500

THIS SPECIFICATION IS APPROVED FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE.

PREPARING ACTIVITY: NAVY - AS
CUSTODIANS: ARMY- AV NAVY-
AIR FORCE-11 DLA-
REVIEW: DLA-IS, AIR FORCE-99, ARMY-AR, MI
PROJECT NUMBER: 3120-0744-01

MILITARY SPECIFICATION SHEET
TITLE
BEARING, PLAIN, SELF-ALIGNING,
BE CU BALL, CRES RACE,
(WITH STACKING GROOVE) -65°F TO +350°F

SPECIFICATION SHEET NUMBER
MIL-B-81936/1 REV B
5 DEC 94
SUPERSEDING
MIL-B-81936/1A 22 NOV 93
AMSC - N/A FSC 3120

②

TABLE 02. OVERSIZE BEARING DIMENSIONS 1/ 2/

RESTRICTED USAGE FOR REPAIR WORK ONLY.010 AND .020 OVERSIZE OUTSIDE DIAMETER FOR
REPLACEMENT OF BEARINGS SHOWN ON SHEET 1

DASH NO.		NOMINAL SIZE	1st OVERSIZE (.010) #D
4R	4	.2500	.6662
5R	5	.3125	.7600
6R	6	.3750	.8225
7R	7	.4375	.9162
8R	8	.5000	1.0100
9R	9	.5625	1.1037
10R	10	.6250	1.1975
12R	12	.7500	1.4475
13R	13	.8125	1.5725
14R	14	.8750	1.6662
16R	16	1.000	1.8850
18R	18	1.1250	2.1350
20R	20	1.2500	2.2000
22R	22	1.3750	2.5725
24R	24	1.5000	2.8225

DASH NO.		NOMINAL SIZE	2nd OVERSIZE (.020) #D
4R	4	.2500	.6762
5R	5	.3125	.7700
6R	6	.3750	.8325
7R	7	.4375	.9262
8R	8	.5000	1.0200
9R	9	.5625	1.1137
10R	10	.6250	1.2075
12R	12	.7500	1.4575
13R	13	.8125	1.5825
14R	14	.8750	1.6762
16R	16	1.000	1.8950
18R	18	1.1250	2.1450
20R	20	1.2500	2.2100
22R	22	1.3750	2.5825
24R	24	1.5000	2.8325

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 STACKING FORCES.

REQUIREMENTS:

- MATERIAL:**
BALL: BERYLLIUM COPPER ROD OR BAR PER ASTM-B194 OR B196, TEMPER TH04.
RACE: 17-4 PH PER AMS-5643 CONDITION H1150 PER MIL-H-6875.
- SURFACE TEXTURE**
SPHERICAL SURFACE OF BALL AND BORE: 16 RHR.
BALL FACE AND OUTER RACE O.D.: 32 RHR.
OUTER RACE I.D.: 64 RHR
ALL OTHER SURFACES: 125 RHR
- HARDNESS:**
BALL: RC 37 MIN. MIN.
RACE: RC 28 TO 36 BEFORE SWAGING.
- INTERNAL PLAY BETWEEN RACE AND BALL:**
AXIAL PLAY: FREE TURNING TO .005 INCH.
RADIAL PLAY: FREE TURNING TO .001 INCH.
- LUBRICATION:** PREPACKED WITH MIL-G-81322.
- TEMPERATURE:** -65°F TO 350°F
- BREAK SHARP EDGES AND CORNERS AND REMOVE ALL BURRS AND SLIVERS.**
- DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. TOLERANCES ARE DECIMALS ±.010 AND ANGLES ±0.5°.**
GROOVE DIMENSIONS ON I.D. OF RACE AND GREASE HOLE DIMENSIONS THROUGH RACE ARE BEFORE BEARING ASSEMBLY; SWAGING RACE SHALL NOT RESTRICT GREASE FLOW.

PREPARING ACTIVITY: NAVY - AS
CUSTODIANS: ARMY-AV NAVY-
AIR FORCE-11 DIA-
REVIEW: DLA-AS, A.R. FORCE-99, ARMY-AR, M
PROJECT NUMBER: 3120-0744-01

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AMSC - N/A

FSC 3120

PAGE 3 OF 4

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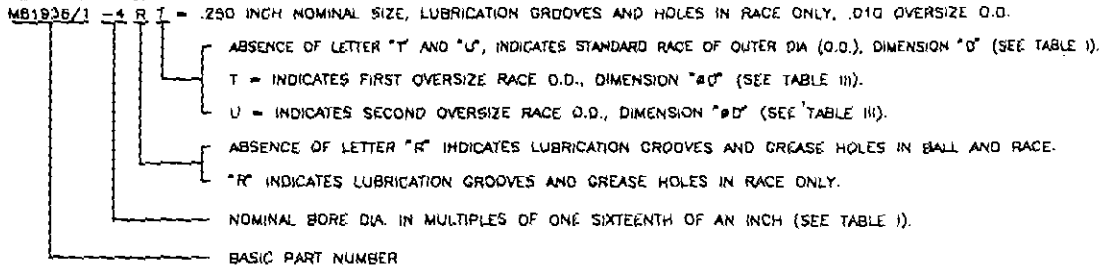
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FORM APPROVED
OMB NO. 0704-0188

NOTES:

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

2. EXAMPLE OF PART NO.



3. 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.

4. REFERENCED GOVERNMENT (OR NON-GOVERNMENT) DOCUMENTS OF THE ISSUE LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS DODISS SPECIFIED IN THE SOLICITATION FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN.

PREPARING ACTIVITY: NAVY - AS
 CUSTODIANS: ARMY-AV NAVY-
 AIR FORCE-11 DLA-
 REVIEW: DLA-AS, AIR FORCE-99, ARMY-AR, MI
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