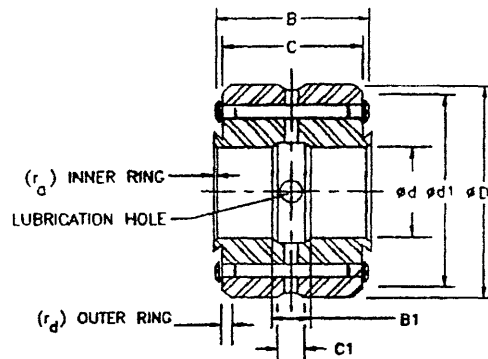


THE REQUIREMENTS FOR ACQUIRING THE PRODUCT(S) DESCRIBED HEREIN SHALL CONSIST OF THE SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DOWNS SPECIFIED IN THE SOLICITATION: MIL-B-3990

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

Form Approved  
OMB No. 0704-0188



INCH DESIGN

(H) TABLE I Dimensions in Inches

Dash No.	#d Bore	#D Outer Ring Outside Dia.	#B Over-all Width	c Outer Ring Width	#d1 Washer Outside Dia.	B1 Lubrication Groove Width	C1 Lubrication Groove Width	$r_a$ Fillet Max.	Total Radial Internal Clearance Max.	Clamp-ing Dia. Min.	Limit Load Rating lbf	Mass (approx) lb
-3	0.1900	0.6875	0.312	0.218	0.625	None	0.062	0.022	0.0017	0.438	1800	0.028
-4	0.2500	0.7500	0.375	0.281	0.687	None	0.093	0.022	0.0017	0.516	2870	0.040
-5	0.3125	0.8125	0.437	0.344	0.750	None	0.093	0.022	0.0017	0.578	4060	0.057
-6	0.3750	0.8750	0.562	0.469	0.812	0.188	0.125	0.022	0.0018	0.641	6330	0.075
-7	0.4375	0.9375	0.625	0.531	0.875	0.188	0.125	0.032	0.0018	0.703	8000	0.097
-8	0.5000	1.1250	0.750	0.656	1.031	0.188	0.125	0.032	0.0018	0.844	11600	0.165
-9	0.5625	1.1875	0.875	0.781	1.094	0.188	0.156	0.032	0.0019	0.891	15000	0.207
-10	0.6250	1.2500	1.000	0.906	1.156	0.375	0.156	0.032	0.0019	0.953	18900	0.252
-12	0.7500	1.3750	1.125	1.000	1.281	0.375	0.156	0.032	0.0019	1.078	23900	0.336
-14	0.8750	1.6250	1.250	1.125	1.500	0.375	0.156	0.032	0.0022	1.250	30500	0.423
-16	1.0000	1.7500	1.250	1.125	1.625	0.375	0.156	0.032	0.0026	1.375	33900	0.51
-20	1.2500	2.0000	1.250	1.049	1.906	0.375	0.156	0.032	0.0026	1.625	37900	0.60
-24	1.5000	2.2500	1.250	1.049	2.156	0.375	0.156	0.032	0.0026	1.875	44200	0.71
-28	1.7500	2.5000	1.250	1.049	2.406	0.375	0.156	0.032	0.0027	2.125	50500	0.78
-32	2.0000	2.7500	1.250	1.049	2.656	0.375	0.156	0.032	0.0028	2.375	56800	0.88
-36	2.2500	3.0000	1.250	1.049	2.906	0.375	0.156	0.032	0.0032	2.625	3.100	0.98
-40	2.5000	3.2500	1.250	1.049	3.156	0.375	0.156	0.032	0.0037	2.875	69400	1.06
-44	2.7500	3.5000	1.250	1.049	3.406	0.375	0.156	0.032	0.0039	3.125	75700	1.15
-48	3.0000	3.7500	1.250	1.049	3.656	0.375	0.156	0.032	0.0039	3.375	82000	1.24
-52	3.2500	4.0000	1.250	1.049	3.906	0.375	0.156	0.032	0.0039	3.641	88300	1.34
-56	3.5000	4.3750	1.250	1.049	4.219	0.375	0.156	0.044	0.0041	3.969	96700	1.73
-60	3.7500	4.6250	1.250	1.049	4.469	0.375	0.156	0.044	0.0041	4.218	103000	1.84
-64	4.0000	4.8750	1.250	1.049	4.719	0.375	0.156	0.044	0.0045	4.469	109000	1.99
-80	5.0000	5.8750	1.250	1.049	5.688	0.375	0.156	0.044	0.0045	5.438	135000	2.75

(H) TABLE II Dimensions in Millimeters

Dash No.	#d Bore	#D Outer Ring Outside Dia.	#B Over-all Width	c Outer Ring Width	#d1 Washer Outside Dia.	B1 Lubrication Groove Width	C1 Lubrication Groove Width	$r_a$ Fillet Max.	Total Radial Internal Clearance Max.	Clamp-ing Dia. Min.	Limit Load Rating lbf	Mass (approx) lb
-3	4.826	17.462	7.92	5.54	15.88	None	1.52	0.6	0.043	11.13	8700	0.013
-4	6.350	19.050	9.52	7.14	17.45	None	2.35	0.6	0.043	13.11	12700	0.018
-5	7.935	20.638	11.10	8.74	19.05	None	3.18	0.6	0.043	14.68	18100	0.026
-6	9.525	22.225	14.27	11.91	20.62	4.78	3.18	0.6	0.046	16.28	28100	0.034
-7	11.112	23.812	15.88	13.49	22.22	4.78	3.18	0.8	0.046	17.86	35600	0.044
-8	12.700	28.575	19.05	16.66	26.19	4.78	3.96	0.8	0.046	21.44	51600	0.075
-9	14.288	30.162	22.22	19.84	27.79	6.35	3.96	0.8	0.048	22.63	66700	0.094
-10	15.875	31.750	25.40	23.01	29.36	6.35	3.96	0.8	0.048	24.21	84000	0.115
-12	19.050	34.925	28.58	25.40	32.54	9.52	3.96	0.8	0.048	27.38	106000	0.153
-14	22.225	41.275	31.75	28.57	38.10	9.52	3.96	0.8	0.056	31.75	136000	0.192
-16	25.400	44.450	31.75	26.64	41.28	9.52	3.96	0.8	0.066	34.92	151000	0.23
-20	31.750	50.800	31.75	26.64	48.41	9.52	3.96	0.8	0.066	41.28	169000	0.27
-24	38.100	57.150	31.75	26.64	54.76	9.52	3.96	0.8	0.066	47.62	197000	0.32
-28	44.450	63.500	31.75	26.64	61.11	9.52	3.96	0.8	0.069	53.98	225000	0.35
-32	50.800	69.850	31.75	26.64	67.46	9.52	3.96	0.8	0.071	60.32	253000	0.40
-36	57.150	76.200	31.75	26.64	73.81	9.52	3.96	0.8	0.081	66.66	280000	0.45
-40	63.500	82.550	31.75	26.64	80.16	9.52	3.96	0.8	0.094	73.02	309000	0.48
-44	68.850	88.900	31.75	26.64	86.51	9.52	3.96	0.8	0.099	79.38	337000	0.52
-48	76.200	95.250	31.75	26.64	92.86	9.52	3.96	0.8	0.099	85.72	365000	0.56
-52	82.550	101.600	31.75	26.64	99.21	9.52	3.96	0.8	0.099	92.48	393000	0.61
-56	88.900	111.125	31.75	26.64	107.16	9.52	3.96	1.1	0.104	100.81	430000	0.79
-60	92.250	117.475	31.75	26.64	113.51	9.52	3.96	1.1	0.104	107.14	458000	0.84
-64	101.600	123.825	31.75	26.64	119.86	9.52	3.96	1.1	0.114	113.51	487000	0.90
-80	127.000	149.225	31.75	26.52	144.45	9.52	3.96	1.1	0.114	138.10	600000	1.25

(H) DENOTES CHANGES

1/ The chamfer on bearings must clear the maximum fillet radius given in the table. This specification does not control bearing chamfer contours.

INCH-POUND

PREPARING ACTIVITY: NAVY-AS	MILITARY SPECIFICATION SHEET	SPECIFICATION SHEET NUMBER
CUSTODIANS: ARMY- AT NAVY- AS	TITLE	MS24461 05 DEC 94 REV H
AIR FORCE- 99 DLA-	BEARING, ROLLER, NEEDLE, SINGLE ROW, HEAVY DUTY, TYPE I, ANTIFRICTION, INCH	SUPERSEDING MS24461G 16 JUN 77
REVIEW: ARMY-MI, AF-84, DLA-IS		AMSC- N/A FSC 3110
USER:		
PROJECT NUMBER: 3110-0854		
DISTRIBUTION STATEMENT	A. Approved for public release; distribution is unlimited.	Page 1 of 2

DD Form 672, MAY 88

PREVIOUS EDITIONS ARE OBSOLETE

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-3980

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

(H) TABLE III - Tolerance Limits

D Basic Outside Dia.	Allowable Deviation From D of Single Mean Dia., Dap		Allowable Deviation From Outer Ring Width C		Allowable Deviation From Lubrication Groove Width, C1	
	Over	Incl.	High	Low	High	Low
0.5000	1.7500	+0	-0.0008	+0	-0.005	+0.031
0.5000	1.7500	+0	-0.0008	+0	-0.005	+0.031
1.7500	3.0000	+0	-0.0008	+0	-0.005	+0.031
3.0000	4.6250	+0	-0.0010	+0	-0.005	+0.031
4.6250	5.8750	+0	-0.0010	+0	-0.005	+0.031

(H) TABLE IV

D Basic Outside Dia.	Allowable Deviation From D of Single Mean Dia., Dap		Allowable Deviation From Outer Ring Width C		Allowable Deviation From Lubrication Groove Width, C1	
	Over	Incl.	High	Low	High	Low
0.5000	1.7500	+0	-0.0008	+0	-0.005	+0.031
1.7500	3.0000	+0	-0.0008	+0	-0.005	+0.031
3.0000	4.6250	+0	-0.0008	+0	-0.005	+0.031
4.6250	5.8750	+0	-0.0010	+0	-0.005	+0.031

TABLE II - Oil Hole Data

Bore-Dash No.	Number of Holes	
	Incl.	Over
2	5	None
5	10	2
10	80	4

# REQUIREMENTS:

- (H) 1. MATERIAL: Steel, MIL-S-8690, QQ-S-624, QQ-S-631, QQ-S-700, Fed Std No. 66, AISI/SAE Steel No. 50100, 51100, 52100
- (H) 2. PLATING: Zinc-nickel in accordance with AMS 2417 Type 2, or cadmium plated in accordance with QQ-P-416, type II, class 2, to a thickness of .0003 inches, to .0006 inches.
3. MACHINE FINISH: ANSI/ASME B46.1 See Procurement Specification
4. LUBRICATION: Grease conforming to MIL-G-81322 or MIL-C-23827 at suppliers option unless either specified on order.
5. The limit load rating listed can be defined as the maximum radial load which can be applied to a bearing without impairing the subsequent functioning of the bearing in airframe applications. The ultimate or static fracture load rating is not less than 1.5 times the limit load rating.
6. Remove all burrs and sharp corners
7. Dimensions to meet after plating

## NOTES:

1. This standard takes precedence over any other documents referenced herein.
2. Referenced documents are the issues in effect at the date of invitation for bid.

PREPARING ACTIVITY: NAVY-AS

CUSTODIANS: ARMY- AT NAVY- AS

AIR FORCE- 99 DLA-

REVIEW: ARMY-MI, AF-84, DLA-IS

USER:

PROJECT NUMBER: 3110-0854

DISTRIBUTION STATEMENT

## MILITARY SPECIFICATION SHEET

TITLE

BEARING, ROLLER, NEEDLE, SINGLE ROW, HEAVY DUTY, TYPE I, ANTIFRICTION, INCH

SPECIFICATION SHEET NUMBER

MS24461

05 DEC 94

REV H

SUPERSEDING  
MS24461G

16 JUN 77

AMSC- N/A

FSC 3110

Page 2 of 2

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