

0.125 INCH MIN. CAGE CLEARANCE (SEE NOTE 13)				FED. SUP CLASS 3110												
Dash No.	AFBMA bearing number (See Note 12)	A	B	C	D	E	R	Y	T	P	S	O	K factor	Basic dynamic load ratings (lb) A		a A
														Radial	Thrust	
1	21075-21212	0.7500	2.1250	0.8750	0.8598	0.6250	0.06	0.09	1.24	1.04	1.69	1.97	0.99	1710	1730	-0.23
2	23100-23256	1.0000	2.5625	0.8750	0.8450	0.6250	0.06	0.06	1.54	1.36	2.09	2.48	0.80	2050	2560	-0.09
3	41126-41286	1.1250	2.8593	0.9688	0.9550	0.6875	0.06	0.06	1.63	1.45	2.40	2.68	0.97	2550	2620	-0.16
4	43132-43312	1.3125	3.1250	1.0000	0.9478	0.6875	0.08	0.06	1.89	1.66	2.64	2.91	0.87	2880	3320	-0.08
5	44162-44348	1.6250	3.4843	1.0000	0.9330	0.6875	0.09	0.06	2.24	2.00	2.95	3.31	0.75	3180	4250	0.09
*6	53176-53387	1.7500	3.8750	1.2188	1.1142	0.8125	0.05	0.03	2.32	2.08	3.23	3.58	0.79	3850	4900	-0.01
15	55200-55437	2.0000	4.3750	1.1875	1.0594	0.8125	0.14	0.13	2.80	2.52	3.62	4.13	0.66	4150	6300	0.28
16	72200-72487	2.0000	4.8750	1.4375	1.2910	1.0000	0.14	0.13	2.91	2.59	4.02	4.57	0.79	6250	7900	0.05
*7	55206-55437	2.0625	4.3750	1.1875	1.0594	0.8125	0.14	0.13	2.83	2.52	3.62	4.13	0.66	4150	6300	0.28
17	78215-78551	2.1250	5.5130	1.4375	1.3085	0.9260	0.14	0.09	3.19	2.95	4.61	5.20	0.67	6750	10100	0.31
8	66225-66462	2.2500	4.6250	1.3125	1.2500	0.9375	0.14	0.13	2.99	2.71	3.94	4.37	0.93	5750	6200	-0.01
18	HM911245-HM911210	2.3750	5.1250	1.4375	1.3125	0.9375	0.20	0.13	3.43	2.93	4.29	4.87	0.71	6500	9200	0.21
*9	HM911249-HM911210	2.4375	5.1250	1.4375	1.3125	0.9375	0.14	0.13	3.35	2.93	4.29	4.87	0.71	6500	9200	0.21
19	78250-78551	2.5000	5.5130	1.4375	1.3085	0.9260	0.09	0.09	3.35	3.11	4.61	5.20	0.67	6750	10100	0.31
20	9185-9121	2.6875	6.0000	1.8750	1.8125	1.2500	0.14	0.13	3.70	3.20	5.12	5.71	0.89	10900	12200	-0.15
10	H913849-H913810	2.7500	5.7500	1.6250	1.5625	1.0000	0.14	0.13	3.74	3.24	4.88	5.43	0.75	8900	11900	0.17
21	9285-9220	3.0000	6.3750	1.9375	1.8125	1.2500	0.14	0.13	4.06	3.56	5.43	6.03	0.82	11500	14000	0.00
11	9380-9321	3.0000	6.7500	1.9375	1.8125	1.2500	0.14	0.13	4.13	3.87	5.79	6.46	0.76	12000	15800	0.17
22	9385-9321	3.3125	6.7500	1.9375	1.8125	1.2500	0.14	0.13	4.37	3.87	5.79	6.46	0.76	12000	15800	0.17
12	98350-98788	3.5000	7.8740	2.0772	1.9375	1.3750	0.14	0.13	4.65	4.41	6.85	7.40	0.92	16500	17900	0.05

For NOTES see sheets 2 and 3

denotes changes

APPROVED 30 APR 59

REVISED A 20 MAR 1978

P. A. OS

Other Cost AT 11

INTERNATIONAL INTEREST

TITLE

BEARING, ROLLER, TAPERED, SINGLE ROW OF ROLLERS, STEEP ANGLE, TYPE 753 (TSS)

PROCUREMENT SPECIFICATION FF-B-187

SUPERSEDES:

MILITARY STANDARD

MS19083

SHEET 1 OF 3

For NOTES see sheets 2 and 3

 $\text{\textcircled{A}}$ denotes changesAPPROVED 30 Apr 59 REVISED $\text{\textcircled{A}}$ 20 Mar 1978

USER ACTIVITIES MC, AV, SA

PLANNED ACTIVITIES MI, IS, NS

For use as illustrated in all applications and for use of the proper seal of the Department of Defense. The seal of the Department of Defense is the symbol of the Department of Defense and shall be used in all applications and for use of the proper seal of the Department of Defense.

Dash No.	AFBMA bearing number (See Note 12)	A	B	C	D	E	R	Y	T	P	S	O	K factor	Basic dynamic load ratings (lb) ^(a)		a ^(a) Effective load center
														Radial	Thrust	
13	98400-98788	4.0000	7.8740	2.0772	1.9375	1.3750	0.14	0.13	5.04	4.76	6.85	7.40	0.92	16500	17900	0.05
23	HH923649-HH923610	4.0000	9.8750	3.0000	2.8750	2.0000	0.25	0.25	5.87	5.15	8.15	9.01	0.84	27900	33200	-0.13
24	37425-37625	4.2500	6.2500	0.9063	0.8440	0.6250	0.14	0.13	4.80	4.53	5.63	5.98	0.96	5050	5250	0.54
*25	37431-37625	4.3125	6.2500	0.9063	0.8440	0.6250	0.14	0.13	4.84	4.57	5.63	5.98	0.96	5050	5250	0.54
14	HM926740-HM926710	4.5000	9.0000	2.1250	1.9460	1.5000	0.14	0.13	5.75	5.59	7.87	8.63	0.79	20500	25900	0.53
26	HM926747-HM926710	5.0000	9.0000	2.1250	1.9460	1.5000	0.14	0.13	6.14	5.63	7.87	8.63	0.79	20500	25900	0.53
27	48506-48750	5.0625	7.5000	1.3750	1.2500	1.0000	0.14	0.13	5.67	5.43	6.69	7.20	0.89	8150	9150	0.65
28	HH932145-HH932110	5.7500	12.0000	3.5000	3.2500	2.2500	0.25	0.25	7.68	6.87	10.24	11.34	0.80	39400	49500	0.07

*Inactive for new design after 20 Mar 1978.

NOTES:

1. MATERIAL: Cones, cups, and rollers: bearing quality - carburizing grade alloy or through-hardening grade alloy steel in accordance with FED-STD-66. Cage; carbon steel (one piece stamped).
2. HARDNESS: Cones, cups and rollers: 58 to 64 Rockwell C.
3. TOLERANCES: Standard grade (AFBMA Class 4) (allowable tolerances are in 0.0001 inch).

Cone bore (A)			Cup diameter (B)			Bearing width (C)		
Size range	Incl.	Tolerance	Size range	Incl.	Tolerance	Bore size range	Incl.	Tolerance
Over			Over			Over		
0	3.0000	5	0	0.0000	10	0	4.0000	80
3.0000	6.0000	10	12.0000	24.0000	20	0	6.0000	140
								100

4. DIMENSIONS: All dimensions are in inches. Dimensions T, P, S, and O are recommended shaft and housing shoulder diameters. Dimensions R and Y are the maximum fillet radii on the shaft and the housing respectively, which will be cleared by the bearing corners.

5. EFFECTIVE LOAD CENTER: Dimension (a) locates a point on the cone axis which is the center of pressure of all resisting forces set up by the bearing rollers. All moments should be calculated from this point when determining bearing loading and shaft stresses. A minus value of (a) indicates that the center is inside the cone backface.

6. OPERATING TEMPERATURE: Recommended operating temperature not to exceed 121° Celsius (250° Fahrenheit).

7. LUBRICATION: Bearings shall be furnished without lubrication. Bearings shall be furnished with preservative per MIL-C-11736, Class 3.

8. BASIC DYNAMIC LOAD RATING: Basic dynamic load rating is that constant stationary load which a group of apparently identical bearings with stationary cups (outer rings) can endure for a rating life of 90 million revolutions of the cone (inner ring). The basic dynamic load ratings listed herein are based on a rated life of 90 million revolutions or 3000 hours at 500 rpm.

APPROVED 30 Apr 59 REVISED 2 For changes see sheets 1 thru 3

DD FORM 672-1 (COORDINATED)

3110-0514

USER ACTIVITIES: ML, AV, SA

REV. ACTIVITIES: P11, D2, INO

This standard is approved for use by all Departments and Agencies of the Department of Defense for all design, engineering and design applications and for repetitive use shall be made from this standard.

P. A. OS Other Cat. AT 11		INTERNATIONAL INTEREST	TITLE BEARING, ROLLER, TAPERED, SINGLE ROW OF ROLLERS, STEEP ANGLE, TYPE 753 (TSS)	MILITARY STANDARD MS19083
PROCUREMENT SPECIFICATION FF-B-187		SUPERSEDES:		SHEET 3 OF 3

9. **RATING LIFE (HOURS):** Rating life is the number of hours at some constant speed of the cone (inner ring) that 90 percent of a group of apparently identical bearings will complete or exceed before first evidence of fatigue develops. The magnitude of the rated life in hours is found from the following:

$$L_{10} = \frac{1.5 \times 10^6}{R} \left(\frac{C}{P} \right)^{10/3} \text{ hours}$$

where:

C = Basic dynamic load rating, lb.
P = Equivalent load (combined radial and thrust load), lb.
R = Revolutions per minute.

The average life is approximately five times the rating life.

10. **K FACTOR:** The K factor is the ratio of the basic radial dynamic load rating to basic thrust dynamic load rating.

11. **STEEP ANGLE:** A steep angle bearing has a contact angle (α) between 22 and 31 degrees. The contact angle is the angle between the line of action of the roller load and a plane perpendicular to the bearing axis.

12. **PART NUMBER:** The MS part number consists of the MS number, plus the dash number. Example: MS19083-17. The AFBMA (Anti-Friction Bearing Manufacturers Association) cup and cone numbers are for reference only and are not to be used for ordering purposes.

13. **CAGE CLEARANCE:** Designers should provide a clearance of .125 inch minimum between the outside edge of the cage and the housing counterbore.

14. For design feature purposes, this standard takes preference over procurement documents referenced herein.

15. Referenced documents shall be of the issue in effect on the date of invitation for bids, or request for proposal.

FED. SUP CLASS
3110

APPROVED 30 Apr 59 REVISED A For changes see sheets 1 thru 3