

TABLE I. Dash numbers and dimensions.

ØD NOMINAL BALL DIAMETER	BASIC DIAMETER ¹	GRADE					
		3	5	10 ²	16	24	48
DASH NUMBER							
1/32	.031250	0301	0501	1001	1601	2401	4801
3/64	.046875	0302	0502	1002	1602	2402	4802
1/16	.062500	0303	0503	1003	1603	2403	4803
5/64	.078125	0304	0504	1004	1604	2404	4804
3/32	.093750	0305	0505	1005	1605	2405	4805
7/64	.109375	0306	0506	1006	1606	2406	4806
1/8	.125000	0307	0507	1007	1607	2407	4807
9/64	.140625	0308	0508	1008	1608	2408	4808
5/32	.156250	0309	0509	1009	1609	2409	4809
11/64	.171875	0310	0510	1010	1610	2410	4810
3/16	.187500	0311	0511	1011	1611	2411	4811
7/32	.218750	0312	0512	1012	1612	2412	4812
15/64	.234375	0313	0513	1013	1613	2413	4813
1/4	.250000	0314	0514	1014	1614	2414	4814
17/64	.265625	0315	0515	1015	1615	2415	4815
9/32	.281250	0316	0516	1016	1616	2416	4816
19/64	.296875	0317	0517	1017	1617	2417	4817
5/16	.312500	0318	0518	1018	1618	2418	4818
11/32	.343750	0319	0519	1019	1619	2419	4819
23/64	.359375	0320	0520	1020	1620	2420	4820
3/8	.375000	0321	0521	1021	1621	2421	4821
25/64	.390625	0322	0522	1022	1622	2422	4822
13/32	.406250	0323	0523	1023	1623	2423	4823
7/16	.437500	0324	0524	1024	1624	2424	4824
29/64	.453125	0325	0525	1025	1625	2425	4825
15/32	.468750	0326	0526	1026	1626	2426	4826
31/64	.484375	0327	0527	1027	1627	2427	4827

¹See Table III for tolerances.²See Note 2.

Ⓐ ENTIRE STANDARD REVISED

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APPROVED 3 AUG 1976 REVISED Ⓐ 31 JUL 87

P.A. OS Other cust AT, 99	International interest	Title BALLS, BEARING, AIRCRAFT QUALITY STEEL	MILITARY STANDARD MS3224
PROCUREMENT SPECIFICATION MIL-B-1083	SUPERSEDES	PAGE 1 OF 3	

TABLE I. Dash numbers and dimensions. - Continued

OD NOMINAL BALL DIAMETER	BASIC DIAMETER ^{1/}	GRADE					
		3	5	10 ²	16	24	48
		DASH NUMBER					
1/2	.500000	0328	0528	1028	1628	2428	4828
17/32	.531250	—	0529	1029	1629	2429	4829
9/16	.562500	—	0530	1030	1630	2430	4830
19/32	.593750	—	0531	1031	1631	2431	4831
5/8	.625000	—	0532	1032	1632	2432	4832
21/32	.656250	—	0533	1033	1633	2433	4833
11/16	.687500	—	0534	1034	1634	2434	4834
23/32	.718750	—	0535	1035	1635	2435	4835
3/4	.750000	—	0536	1036	1636	2436	4836
25/32	.781250	—	0537	1037	1637	2437	4837
13/16	.812500	—	0538	1038	1638	2438	4838
27/32	.843750	—	0539	1039	1639	2439	4839
7/8	.875000	—	0540	1040	1640	2440	4840
29/32	.906250	—	0541	1041	1641	2441	4841
15/16	.937500	—	0542	1042	1642	2442	4842
31/32	.968750	—	0543	1043	1643	2443	4843
1	1.000000	—	0544	1044	1644	2444	4844
1-1/16	1.062500	—	0545	1045	1645	2445	4845
1-1/8	1.125000	—	0546	1046	1646	2446	4846
1-3/16	1.187500	—	0547	1047	1647	2447	4847
1-1/4	1.250000	—	0548	1048	1648	2448	4848
1-5/16	1.312500	—	0549	1049	1649	2449	4849
1-3/8	1.375000	—	0550	1050	1650	2450	4850
1-7/16	1.437500	—	0551	1051	1651	2451	4851
1-1/2	1.500000	—	0552	1052	1652	2452	4852
1-9/16	1.562500	—	0553	1053	1653	2453	4853
1-5/8	1.625000	—	0554	1054	1654	2454	4854

^{1/}See Table III for tolerances
^{2/}See Note 2

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P.A. OS Other cust AT, 99	International interest	Title BALLS, BEARING, AIRCRAFT QUALITY STEEL	MILITARY STANDARD
			MS3224
PROCUREMENT SPECIFICATION MIL-B-1083	SUPERSEDES	PAGE 2 OF 3	

TABLE II. Tolerance by grade for individual balls.
(Tolerance in millionths of an inch)

GRADE	ALLOWABLE BALL DIAMETER VARIATION V_D	ALLOWABLE DEVIATION FROM SPHERICAL FORM W	MAXIMUM SURFACE ROUGHNESS (ARITHMETICAL AVERAGE)
3	3	3	0.5
5	5	5	0.8
10	10	10	1.0
16	16	16	1.0
24	24	24	2.0
48	48	48	3.0

TABLE III. Tolerances by grade for lots of balls.
(Tolerance in millionths of an inch)

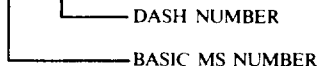
GRADE	ALLOWABLE LOT DIAMETER VARIATION	BASIC DIAMETER TOLERANCE	ALLOWABLE BALL GAGE DEVIATION		CONTAINER MARKING INCREMENT
			HIGH	LOW	
3	5	± 30	+ 30	- 30	10
5	10	± 50	+ 50	- 40	10
10	20	± 100	+ 50	- 40	10
16	32	± 100	+ 50	- 40	10
24	48	± 100	+ 100	- 100	10
48	96	± 200	1/	1/	50

1/Not applicable.

REQUIREMENTS:

- MATERIAL:** AIRCRAFT QUALITY STEEL CONFORMING TO THE CHEMICAL COMPOSITION OF UNS T11350 IN ACCORDANCE WITH AMS 6491A AND AS SPECIFIED IN PROCUREMENT DOCUMENT.
- HARDNESS:** SHALL BE 61-64 HRC OR EQUIVALENT.
- SURFACE ROUGHNESS:** TOLERANCE LIMITS FOR SURFACE ROUGHNESS AS SPECIFIED IN TABLE II, AND IN ACCORDANCE WITH ANSI B46.1.
- MATERIAL DENSITY:** SHALL BE .279 POUND PER CUBIC INCH.
- PART NUMBER:** CONSISTS OF THE BASIC MS NUMBER FOLLOWED BY A DASH NUMBER FROM TABLE I.

EXAMPLE: MS3224-0301



MS3224-0301 INDICATES A GRADE 3 BEARING BALL OF AIRCRAFT-QUALITY STEEL WITH A BASIC DIAMETER OF 0.03125 INCH.

NOTES:

- ALL DIMENSIONS ARE IN INCHES. COLUMN HEADINGS IN TOLERANCE TABLES ARE IN ACCORDANCE WITH AFBMA-STD-10.
- GRADE 10 BALLS ARE PREFERRED IN MOST MILITARY APPLICATIONS.
- IN THE EVENT OF A CONFLICT BETWEEN THE TEST OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL TAKE PRECEDENCE.
- REFERENCED GOVERNMENT (OR NONGOVERNMENT) 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.

USER ACTIVITIES:
AIR FORCE - 17

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