

INCH-POUND

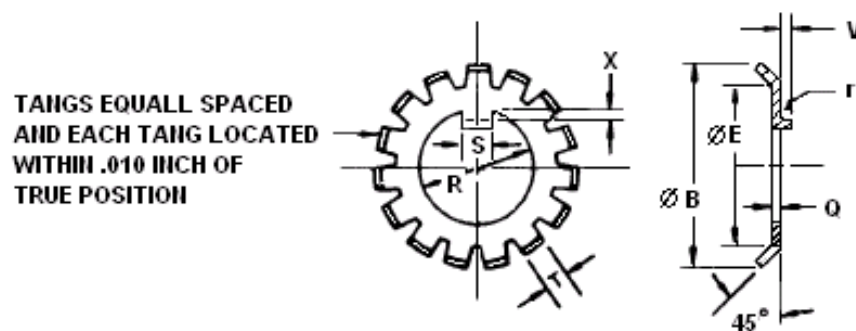
MS19070B
15 August 2011
SUPERSEDING
MS19070A
7 October 1987

DETAIL SPECIFICATION SHEET

WASHER, KEY RETAINING, BALL AND ROLLER BEARING, REGULAR SERIES

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-W-21338.



MS19070B

TABLE I. Dash Numbers and Dimensions.

DASH NO	Q THICKNESS		R BORE		ØE		ØB OVER TANGS MAX	KEY						TANGS			
	Q	TOL ±	MAX	MIN	E	TOL+		S WIDTH		X DEPTH		V PROJECTION		r RAD	NO.	T WIDTH	
								MAX	MIN	MAX	MIN	V	TOL+			T	TOL±
00	.042	.004	.421	.406	.625	.015	.875	.120	.110	.030	.020	.062	.031	.016	9	.115	.005
01	.042	.004	.499	.484	.719	.015	1.016	.120	.110	.030	.020	.062	.031	.016	9	.115	.005
02	.042	.004	.616	.601	.812	.015	1.156	.120	.110	.030	.020	.062	.031	.016	11	.115	.005
03	.042	.004	.694	.679	.938	.015	1.328	.120	.110	.030	.020	.062	.031	.016	11	.115	.005
04	.042	.004	.816	.801	1.125	.015	1.531	.176	.156	.030	.020	.062	.031	.016	11	.156	.010
05	.050	.004	1.009	.989	1.281	.015	1.719	.176	.156	.030	.020	.094	.031	.016	13	.156	.010
06	.050	.004	1.213	1.193	1.500	.015	1.922	.176	.156	.050	.035	.094	.031	.031	13	.156	.010
* 065	.050	.004	1.353	1.333	1.812	.015	2.250	.176	.156	.050	.035	.094	.031	.031	15	.156	.010
07	.050	.004	1.416	1.396	1.812	.015	2.250	.176	.156	.050	.035	.094	.031	.031	15	.156	.010
08	.058	.005	1.603	1.583	2.000	.030	2.469	.290	.250	.050	.035	.094	.031	.031	15	.219	.015
09	.058	.005	1.818	1.792	2.281	.030	2.734	.290	.250	.050	.035	.125	.031	.031	17	.219	.015
10	.058	.005	2.017	1.992	2.438	.030	2.922	.290	.250	.050	.035	.125	.031	.031	17	.219	.015
11	.063	.005	2.207	2.182	2.656	.030	3.109	.290	.250	.050	.035	.125	.031	.031	17	.219	.015
12	.063	.005	2.425	2.400	2.844	.030	3.344	.290	.250	.070	.055	.125	.031	.047	17	.219	.015
13	.063	.005	2.613	2.588	3.062	.030	3.578	.290	.250	.070	.055	.125	.031	.047	19	.219	.015
14	.063	.005	2.816	2.791	3.312	.030	3.828	.290	.250	.070	.055	.188	.062	.047	19	.219	.015
15	.072	.005	3.003	2.973	3.562	.030	4.109	.290	.250	.070	.055	.188	.062	.047	19	.313	.015
16	.072	.005	3.207	3.177	3.844	.030	4.375	.353	.313	.070	.055	.188	.062	.047	19	.313	.015
17	.072	.005	3.425	3.395	4.031	.030	4.625	.353	.313	.070	.055	.188	.062	.047	19	.313	.015
18	.094	.006	3.612	3.582	4.281	.045	4.938	.353	.313	.070	.055	.188	.062	.047	19	.313	.015
19	.094	.006	3.830	3.800	4.562	.045	5.219	.353	.313	.070	.055	.188	.062	.047	19	.313	.015
20	.094	.006	4.018	3.988	4.812	.045	5.500	.353	.313	.085	.065	.250	.062	.047	19	.313	.015
21	.094	.006	4.222	4.192	5.000	.045	5.703	.353	.313	.085	.065	.250	.062	.047	19	.375	.015
22	.125	.007	4.425	4.395	5.281	.045	6.062	.353	.313	.085	.065	.250	.062	.047	19	.375	.015
24	.125	.007	4.831	4.801	5.688	.045	6.469	.353	.313	.085	.065	.250	.062	.047	19	.375	.015
26	.125	.007	5.226	5.191	6.188	.045	7.031	.435	.375	.105	.085	.250	.062	.062	19	.500	.020
28	.125	.007	5.617	5.582	6.531	.045	7.438	.590	.500	.105	.085	.250	.062	.062	19	.500	.020
30	.156	.008	6.018	5.983	7.062	.060	8.062	.590	.500	.105	.085	.312	.062	.062	19	.500	.020
32	.156	.008	6.424	6.389	7.438	.060	8.438	.590	.500	.105	.085	.312	.062	.062	19	.500	.020
34	.156	.008	6.799	6.764	8.031	.060	9.062	.715	.625	.105	.085	.312	.062	.062	19	.500	.020
36	.156	.008	7.206	7.171	8.375	.060	9.438	.715	.625	.105	.085	.312	.062	.062	19	.625	.020
38	.156	.008	7.612	7.577	8.781	.060	9.875	.715	.625	.105	.085	.312	.062	.062	19	.625	.020
40	.156	.008	8.017	7.982	9.156	.060	10.312	.840	.750	.105	.085	.312	.062	.062	19	.625	.020

* Inactive for new design after 1987.

NOTES:

1. MATERIALS:

(a) Carbon steel, AISI 1010 to 1035 (UNS G10100 to G10350), or 1116 to 1118 (UNS G11160 to G11180).

(b) Corrosion resisting steel AISI 302, 303 or 304 (UNS S30200, S30300, or S30400).

2. TEMPER: Each washer shall be of such temper as to permit its being bent 180°, without fracture, either way of the grain, over a radius equal to one half the stock thickness.

3. PROTECTIVE COATING:

(a) Carbon steel washers are available either zinc plated or unplated. Zinc plated washers shall be plated in accordance with ASTM B633, Class 5, Type II. Cadmium plating in accordance with SAE-AMS-QQ-P-416, Type II, Class 3 shall no longer be furnished.

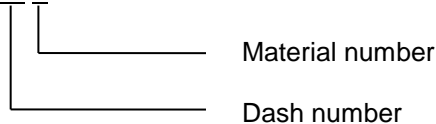
(b) Corrosion resisting steel washers shall be passivated in accordance with SAE-AMS2700, Method I, Type 2.

MS19070B

4. DIMENSIONS: All dimensions are in inches. Tolerances: decimals $\pm .010$, angles $\pm 2^\circ$ unless otherwise specified.
5. PART NUMBER: The MS part number is the MS number, plus the dash and the material number. The material numbers are:

- 1 - unplated carbon steel
- 2 - zinc plated carbon steel
- 3 - corrosion resisting steel

Example: MS19070 – 00 2



6. NUTS: See MS19068 for applicable nuts. Applicable nuts should have size numbers corresponding to washer dash numbers: e.g. washer size 00 should be used with nut size number 00.
7. 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.
8. Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:
 Army - AT
 Navy - OS
 Air Force - 11

Preparing activity:
 DLA - IS

(Project 5310-2011-007)

Review activities:
 Navy – AS, SA

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.daps.dla.mil>