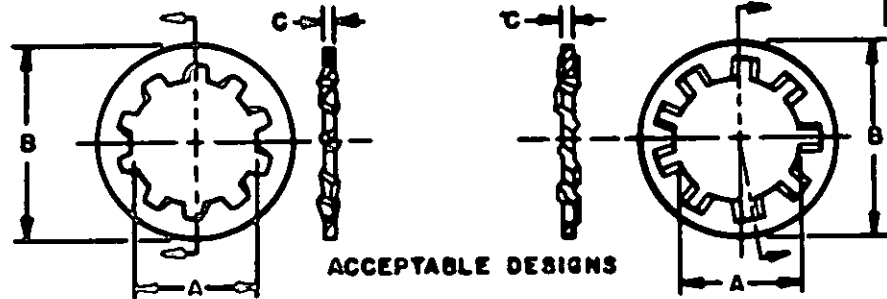


FED. SUP CLASS
5310



ACCEPTABLE DESIGNS

TABLE I

NOMINAL SIZE	A		B		C		STEEL			TIN-BRASS OR PHOSPHOR BRONZE
	INSIDE DIAMETER		OUTSIDE DIAMETER		THICKNESS		CARBON	CORROSION RES		
	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.		COMP 2 FF-W-100	300 SER.	
#2 .086	.095	.089	.200	.175	.015	.010	35	69		103
#4 .112	.123	.115	.270	.255	.019	.015	36	70	153	104
#6 .138	.150	.141	.295	.275	.021	.017	37	71	154	105
#8 .164	.176	.168	.30	.325	.023	.018	38	72	155	106
#10 .190	.204	.195	.381	.365	.025	.020	39	73		107
1/4 .250	.267	.256	.470	.460	.023	.023	40	74		108
5/16 .312	.332	.320	.610	.595	.028	.028	41	75		109
3/8 .375	.395	.383	.652	.635	.040	.032	42	76		110
7/16 .438	.458	.445	.782	.768	.048	.032	43	77		111
1/2 .500	.520	.512	.900	.887	.065	.037	44	78		112
5/8 .625	.653	.645	1.071	1.045	.090	.042	45	80		115
3/4 .750	.785	.769	1.245	1.220	.095	.047	47	81		116
7/8 .875	.927	.909	1.410	1.386	.090	.052	48	82		117
1 1.000	1.066	1.049	1.637	1.620	.067	.059	49	83		118
1-1/8 1.125	1.225	1.205	1.975	1.921	.067	.059	51	85		120

TABLE II

NOMINAL SIZE	A		B		C		STEEL			TIN-BRASS OR PHOSPHOR BRONZE
	INSIDE DIAMETER		OUTSIDE DIAMETER		THICKNESS		CARBON	CORROSION RES		
	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.		DASH NO.	DASH NO.	
1/4 .250	.267	.256	.410	.395	.020	.016	125	135	167	145
5/8 .375	.392	.383	.507	.493	.030	.020	131	134		151
7/16 .437	.448	.440	.592	.580	.020	.018	126	141		146
15/32 .468	.483	.472	.607	.593	.023	.013	127	136		147
9/16 .563	.580	.570	.690	.680	.023	.013	128	137		148
5/8 .625	.640	.630	.800	.790	.027	.017	129	138		149
3/4 .750	.785	.775	1.077	1.047	.027	.017	130	139		150
1 1.000	1.020	1.010	1.390	1.360	.028	.023		140		

*Washers shown in Table II are generally to be considered for use in mounting electronic components
 *FOR CARBON STEEL WASHERS WITH BLACK FINISH REQUIREMENT ADD LETTER "B" AFTER DASH NUMBER.
 SEE REQUIREMENT 2.1 AND NOTE 4.

Ⓢ denotes changes

USER ACTIVITIES
 ARMY - ME
 NAVY - MC, OS YD

REVIEW ACTIVITIES
 ARMY - AT, AV, ER, GL
 CL - IS, ES
 NSA - NS

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

RA. AR.	TITLE	MILITARY STANDARD
OTHER CUST AS 99	WASHER, LOCK, FLAT-INTERNAL TOOTH	MS 35333
FF-W-100	ANODS IN PORT, BEAK 1 AND BEAK 2	BRETT 1 07 2

APPROVED 4 MARCH 1984 REVISED 5 6 DECEMBER 1977 4 22 AUGUST 1960 J 9 FEB 81

User Activities:
Army - AE
Navy - NE, OS, YD

Revised Activities:
Army - AT, AN, ER, GL
DLA-15, E5
NSA-NS

REQUIREMENTS:

- MATERIAL:** Carbon Steel, Composition 1 in accordance with procurement specification.
Corrosion-resisting Steel, Composition 2 in accordance with procurement specification.
Corrosion-resisting Steel, 300 series, Rockwell C35-43 in accordance with Fed-STD-Co. 66.
Phosphor Bronze, Composition 3 in accordance with procurement specification.
Tin-brass, Composition 4 in accordance with procurement specification.
- PROTECTIVE COATING:** Carbon steel-Cadmium plated in accordance with QQ-P-416-Type 11 Class 2.
Corrosion-resisting steel - Passivate in accordance with procurement specification.
- BLACK PROTECTIVE COATING:** When required for Carbon steel, Composition 1 shall be black (Electrodeposited) chromium plating in accordance with MIL-C-14538.

NOTES:

- DIMENSIONS:** All dimensions are in inches.
- The number of teeth shall be at the option of the manufacture.
- Washer, dash numbers 121 and 112 only, have the alternate teeth twisted in a direction opposite to that of the other teeth.
- PART NUMBER:** The MS part number consists of the MS number, plus the dash number, plus the code letter, when applicable.

CODE LETTERS:

Add "BF" as suffix to dash number for black finish per requirement 2.1. Example: MS 15333-131B Washer, Carbon Steel, Black Finish.

- For design feature purposes, this standard takes precedence over Procurement documents referenced herein.
- Referenced documents shall be of the issue in effect on date of invitations for bids or request for proposal, except that referenced adopted industry documents shall give the date of the issue adopted.

**LINED THROUGH NUMBERS ARE INACTIVE FOR
NEW DESIGN AFTER DEC. 1977**

INTERCLASSABILITY TABLE

The following dash numbers of MS35333 AND A9336 are cancelled after 5 Dec 1963. The cancelled washers cannot always replace the new washers and should be used until existing stocks are depleted. Use only the new washers for design and engineering. Replacement shall be in accordance with this table.

TABLE III

PART NUMBERS											
CANCELLED		NEW	CANCELLED		NEW	CANCELLED		NEW	CANCELLED		NEW
ANS36	MS35333	MS35333	ANS36	MS35333	MS35333	ANS36	MS35333	MS35333	ANS36	MS35333	MS35333
A2	1	35	--	57	40	A1016	12	46	--	86	103
--	18	35	AA16H	--	44	--	29	46	A48	87	104
--	52	35	A516	7	51	--	63	46	A68	88	105
A3	--	36	--	35	51	A1216	13	47	A88	89	106
A4	2	36	--	53	51	--	33	47	A108	90	107
--	--	36	A616	0	52	--	65	47	A168	91	108
--	19	36	--	--	53	A216	14	48	A268	92	109
A6	3	37	--	38	53	--	31	48	A616	93	110
--	20	37	A716	9	53	--	65	48	A716B	94	111
--	54	37	--	26	53	A1616	15	49	A716B	--	112
A8	--	38	--	--	53	--	32	49	--	95	113
--	21	38	A716C	10	121	--	66	49	--	96	114
--	55	38	A816	10	53	--	16	50	--	97	115
A10	5	39	--	27	53	--	33	50	--	98	116
--	22	39	--	61	53	--	67	50	--	99	117
--	56	39	A916	11	55	--	17	51	--	100	118
AA16	6	40	--	28	55	--	52	51	--	101	119
--	23	40	--	62	55	--	68	51	--	102	120

also replacement

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PA. AR.	TITLE	MILITARY STANDARD
OTHER CUST AS 99	WASHER, LOCK, FLAT-INTERNAL TOOTH	MS 35333
PROCUREMENT SPECIFICATION FF-W-100	SUPERSEDES ANS36 IN PART, DEAX 1 AND DEAX 2	SHEET 2 OF 2

APPROVED 4 MARCH 1954 REVISED FOR CHANGES SEE SHEET 1