

TABLE I. DASH NUMBERS AND DIMENSIONS.

NOMINAL SIZE	1/4 .2500	5/16 .3125	3/8 .3750	7/16 .4375	1/2 .5000	9/16 .5625	5/8 .6250	3/4 .7500	7/8 .8750								
B THREADS PER INCH	20UNC-2A	18UNC-2A	16UNC-2A	14UNC-2A	13UNC-2A	12UNC-2A	11UNC-2A	10UNC-2A	9UNC-2A								
Ø D BODY DIAMETER	MAX MIN	.2500 .2450	.3125 .3065	.3750 .3690	.4375 .4305	.5000 .4930	.5625 .5545	.6250 .6170	.7500 .7410	.8750 .8660							
F WIDTH ACROSS FLATS	MAX MIN	.4375 .4280	.5000 .4890	.5625 .5510	.6250 .6120	.7500 .7360	.8125 .7980	.9375 .9220	1.1250 1.1000	1.3125 1.2850							
G WIDTH ACROSS CORNERS	MAX MIN	.505 .488	.577 .557	.650 .628	.722 .698	.866 .840	.938 .910	1.083 1.051	1.299 1.254	1.516 1.465							
H HEAD HEIGHT	MAX MIN	.163 .150	.211 .195	.243 .226	.291 .272	.323 .302	.371 .348	.405 .378	.483 .455	.563 .531							
R RADIUS	MAX MIN	.025 .015	.025 .015	.025 .015	.025 .015	.025 .015	.045 .020	.045 .020	.045 .020	.065 .040							
1/ MIN TENSILE STRENGTH - LBS		4,750	7,850	11,600	15,900	21,300	27,300	33,900	50,100	69,300							
L LENGTH	TOLERANCE		DASH NO.	DASH NO.	DASH NO.	DASH 2/ NO.	DASH NO.	DASH 2/ NO.	DASH NO.	DASH NO.	DASH 2/ NO.						
	SIZE .750 AND UNDER	SIZE .875															
.375	+0 -.031	+0 -.062	1	27	53	79	104	130	155	179	204						
.438			2	28	54							80	105	131	156	180	205
.500			3	29	55							81	106	132	157	181	206
.562			4	30	56							82	107	133	158	182	207
.625			5	31	57							83	108	134	159	183	208
.750			6	32	58							84	109	135	160	184	209
.875			7	33	59							85	110	136	161	185	210
1.000			8	34	60							86	111	137	162	186	211
1.125	+0 -.062	+0 -.125	9	35	61	87	112	138	163	187	212						
1.250			10	36	62	88	113	139	164	188	213						
1.375			11	37	63	89	114	140	165	189	214						
1.500			12	38	64	90	115	141	166	190	215						
1.750			13	39	65	91	116	142	167	191	216						
2.000			14	40	66	92	117	143	168	192	217						
2.250			15	41	67	93	118	144	169	193	218						
2.500	+0 -.094	+0 -.188	16	42	68	94	119	145	170	194	219						
2.750			17	43	69	95	120	146	171	195	220						
3.000			18	44	70	96	121	147	172	196	221						
3.250			19	45	71	97	122	148	173	197	222						
3.500			20	46	72	98	123	149	174	198	223						
3.750			21	47	73	99	124	150	175	199	224						
4.000			22	48	74	100	125	151	176	200	225						
4.250			23	49	75	101	126	152	177	201	226						
4.500			24	50	76	102	127	153	178	202	227						
4.750			25	51	77	103	128	154									
5.000			26	52	78		129										
5.500																	
6.000																	

1/ SEE NOTE 2
2/ INACTIVE FOR NEW DESIGN AFTER 21 JUN 76

ⓐ DENOTES CHANGES

P A	AR	INTERNATIONAL INTEREST	TITLE	MILITARY STANDARD
Other Cust	99		SCREW, CAP, HEXAGON HEAD (FINISH HEXAGON BOLT), ALLOY STEEL, GRADE 8, ZINC COATED PLAIN AND SELF-LOCKING, UNC-2A ⓐ	MS90728
PROCUREMENT SPECIFICATION	ANSI B18.2.1-1981	SUPP RESEDES	MS35301, MS35303, MS35305, BCVX7 IN PART, BUBX14, 14.1, 15, 15.1, 16 AND 16.1	PAGE 1 OF 3

USER ACTIVITIES:
ARMY - MC
NAVY - MC, OS, YD

REVIEWER ACTIVITIES:
ARMY - AT, AV, MI
AIR FORCE - 82
NSA - NS
DLA - IS

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Ⓐ 14 OCT 68
Ⓑ 1 MAY 69
Ⓒ 22 OCT 70
Ⓓ 21 JUNE 76
Ⓔ 20 DEC 83
Ⓕ 30 OCT 84
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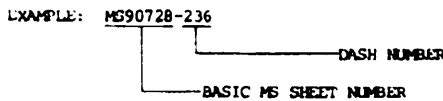
TABLE 1. DASH NUMBERS AND DIMENSIONS.

NOMINAL SIZE		1	1-1/8	1-1/4	1-3/8	1-1/2	1-3/4	2	2-1/4	2-1/2		
B THREADS PER INCH		8UNC-2A	7UNC-2A	7UNC-2A	6UNC-2A	6UNC-2A	5UNC-2A	4-1/2UNC-2A	4-1/2UNC-2A	4UNC-2A		
Ø D	BODY DIAMETER	MAX MIN	1.0000 .9900	1.1250 1.1140	1.2500 1.2380	1.3750 1.3630	1.5000 1.4880	1.7500 1.7380	2.0000 1.9880	2.2500 2.2380	2.5000 2.4880	
	F	WIDTH ACROSS FLATS	MAX MIN	1.5000 1.4690	1.6875 1.6310	1.8750 1.8120	2.0625 1.9940	2.2500 2.1750	2.6250 2.5380	3.0000 2.9000	3.3730 3.2670	3.7500 3.6250
G	WIDTH ACROSS CORNERS	MAX MIN	1.732 1.675	1.949 1.859	2.165 2.066	2.382 2.273	2.598 2.480	3.031 2.893	3.464 3.306	3.897 3.719	4.390 4.133	
	H	HEAD HEIGHT	MAX MIN	.627 .591	.718 .658	.813 .749	.878 .810	.974 .902	1.134 1.054	1.263 1.175	1.423 1.327	1.583 1.479
R	RADIUS	MAX MIN	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	
	1/2	MIN TENSILE STRENGTH - LBS	90,900	114,400	145,400	173,200	210,800	227,900	299,750	399,700	479,850	
L	LENGTH	TOLERANCE	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.		
1.000		+0	224									
		-.062										
			225	245								
			226	246	265							
		+0	227	247	266	284						
		-.125	228	248	267	285	302					
1.125			229	249	268	286	303	319				
			230	250	269	287	304	320				
			231	251	270	288	305	321	335			
			232	252	271	289	306	322	336			
			233	253	272	290	307	323	337	349	361	
			234	254	273	291	308	324	338	350	362	
1.250			235	255	274	292	309	325	339	351	363	
			236	256	275	293	310	326	340	352	364	
		+0	237	257	276	294	311	327	341	353	365	
		-.188	238	258	277	295	312	328	342	354	366	
			239	259	278	296	313	329	343	355	367	
			240	260	279	297	314	330	344	356	368	
1.375			241	261	280	298	315	331	345	357	369	
			242	262	281	299	316	332	346	358	370	
			243	263	282	300	317	333	347	359	371	
			244	264	283	301	318	334	348	360	372	

1/2 SEE NOTE 2

REQUIREMENTS:

- MATERIAL: ALLOY STEEL, SAE GRADE 8, IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.
- PROTECTIVE COATING: ZINC COATING IN ACCORDANCE WITH ASTM B633, TYPE 11, SC3.
- THREADS: THE THREADS SHALL BE IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.
- IDENTIFICATION MARKING: HEADS SHALL BE MARKED IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.
- SELF-LOCKING ELEMENT:
 - THE SELF-LOCKING ELEMENT SHALL BE A PATCH TYPE OR LONGITUDINAL STRIP IN ACCORDANCE WITH MIL-F-18240.
 - FOR "X" AND "Y" DIMENSIONS AND DESIGN AND USAGE LIMITATIONS, SEE MS15981.
 - MAXIMUM RING GAGE DIAMETER THAT LOCKING REGION OF SCREW MUST PASS THRU FREELY OR WITH FINGER PRESSURE SHALL BE THE NOMINAL SIZE PLUS 0.010.
- PART NUMBER: THE PART NUMBER SHALL CONSIST OF THE BASIC MS SHEET NUMBER PLUS THE DASH NUMBER TAKEN FROM TABLE I OR II AS APPLICABLE. FOR SCREWS WITH SELF-LOCKING ELEMENT ADD THE LETTER "L" AFTER THE DASH NUMBER.



MS90728-236 INDICATES - SCREW, CAP, HEXAGON HEAD, ALLOY STEEL, SAE GRADE 8, ZINC COATED, NOMINAL SIZE 1.000-8UNC-2A, LENGTH 3.500, NO SELF-LOCKING ELEMENT.

USER ACTIVITIES:
 ARMY - ME
 NAVY - MC, OS, YD
 REVIEWER ACTIVITIES:
 ARMY - AT, AV, MI
 AIR FORCE - 82
 NSA - NS
 DLA - IS
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P.A.	AR	INTERNATIONAL INTEREST	TITLE	MILITARY STANDARD
Other Cust	99		SCREW, CAP, HEXAGON HEAD (FINISH HEXAGON BOLT), ALLOY STEEL, GRADE 8, ZINC COATED PLAIN AND SELF-LOCKING, UNC-2A	MS90728
PROCUREMENT SPECIFICATION	ANSI B18.2.1-1981	SUPERSEDES	MS35301, MS35303, MS35305, BCVX7 IN PART, BUBX14, 14.1, 15, 15.1, 16 AND 16.1	PAGE 2 OF 3

APPROVED 7 MAY 63
 REVISED FOR CHANGES SEE PAGES 1, 2 AND 3

- 7. **QUALITY ASSURANCE PROVISIONS:** QUALITY ASSURANCE PROVISIONS SHALL BE IN ACCORDANCE WITH ANSI B18.18.1M-1982. THREAD INSPECTION METHOD ACCEPTABILITY SHALL BE IN ACCORDANCE WITH FED-STD-H28/20, SYSTEM 21 AND ANSI B18.18.1M-1982, INSPECTION LEVEL B.
- 8. **PACKAGING:** PACKAGING SHALL BE IN ACCORDANCE WITH ASTM D3951-82.
- 9. **THREAD LENGTH:** MINIMUM THREAD LENGTH SHALL BE TWICE THE DIAMETER PLUS .250 INCH. THE TOLERANCE SHALL BE .187 INCH OR 2-1/2 THREADS WHICHEVER IS GREATER. ON SCREWS THAT ARE TOO SHORT FOR MINIMUM THREAD LENGTHS, THE DISTANCE FROM THE BEARING SURFACE OF THE HEAD TO THE FIRST COMPLETE THREAD SHALL NOT EXCEED THE LENGTH OF 2-1/2 THREADS FOR SIZES UP TO AND INCLUDING 1 INCH AND 3-1/2 THREADS FOR SIZES LARGER THAN 1 INCH.

NOTES:

- 1. ALL DIMENSIONS ARE IN INCHES.
- 2. BASED ON MINIMUM ULTIMATE TENSILE STRENGTH OF 150,000 PSI FOR DIAMETERS THRU 1-1/2 INCHES AND 120,000 PSI FOR DIAMETERS OVER 1-1/2 INCHES, TENSILE STRENGTHS ARE CALCULATED BY THE STRESS AREAS INDICATED IN FED-STD-H28, APPENDIX A5, 3, STRENGTH FACTORS.
- 3. **CROSS REFERENCE OF PART NUMBERS:** THE SCREWS COVERED BY DASH NUMBERS GIVEN IN MS35301, MS35303 AND MS35305, ARE CANCELLED AFTER THE DATES INDICATED ON THE CANCELLED DOCUMENTS. USE DASH NUMBERS USED IN THIS STANDARD. THE CANCELLED SCREWS CANNOT ALWAYS REPLACE THE NEW SCREWS AND SHOULD BE USED UNTIL EXISTING STOCKS ARE DEPLETED. USE ONLY THE NEW SCREWS FOR DESIGN AND REPLACEMENT. DASH NUMBERS REPRESENTING OLD AND NEW SCREWS ARE IDENTICAL, MAKING IT UNNECESSARY TO PREPARE AN INTERCHANGEABILITY TABLE.
- 4. 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.
- 5. FOR DESIGN FEATURE PURPOSES THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN.
- ⑥ 6. THIS MILITARY STANDARD IS NOT INTENDED FOR USE IN AIRBORNE APPLICATIONS.

USER ACTIVITIES:
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NAVY - MC, OS, YD

REVIEWER ACTIVITIES:
ARMY - AT, AV, MI
AIR FORCE - 82
NSA - NS
DLA - IS

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P.A. Other Cust	AR 99	INTERNATIONAL INTEREST	TITLE SCREW, CAP, HEXAGON HEAD (FINISH HEXAGON BOLT), ALLOY STEEL, GRADE 8, ZINC COATED PLAIN AND SELF-LOCKING, UNC-2A ⑥	MILITARY STANDARD MS90728
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