

TABLE 1. 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 .2500 MIN .2450	MAX .3125 MIN .3065	MAX .3750 MIN .3690	MAX .4375 MIN .4305	MAX .5000 MIN .4930	MAX .5625 MIN .5545	MAX .6250 MIN .6170	MAX .7500 MIN .7410	MAX .8750 MIN .8660
F WIDTH ACROSS FLATS	MAX .4375 MIN .4280	MAX .5000 MIN .4890	MAX .5625 MIN .5510	MAX .6250 MIN .6120	MAX .7500 MIN .7360	MAX .8125 MIN .7980	MAX .9375 MIN .9220	MAX 1.1250 MIN 1.1000	MAX 1.3125 MIN 1.2850
G WIDTH ACROSS CORNERS	MAX .505 MIN .488	MAX .577 MIN .557	MAX .650 MIN .628	MAX .722 MIN .698	MAX .866 MIN .840	MAX .938 MIN .910	MAX 1.083 MIN 1.051	MAX 1.299 MIN 1.254	MAX 1.516 MIN 1.465
H HEAD HEIGHT	MAX .163 MIN .150	MAX .211 MIN .195	MAX .243 MIN .226	MAX .291 MIN .272	MAX .323 MIN .302	MAX .371 MIN .348	MAX .405 MIN .378	MAX .483 MIN .455	MAX .563 MIN .531
R RADIUS	MAX .025 MIN .015	MAX .025 MIN .015	MAX .025 MIN .015	MAX .025 MIN .015	MAX .025 MIN .015	MAX .045 MIN .020	MAX .045 MIN .020	MAX .045 MIN .020	MAX .065 MIN .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							81	105	131	156	180	205
.500			3	29	55							82	106	132	157	181	206
.562			4	30	56							83	107	133	158	182	207
.625			5	31	57							84	108	134	159	183	208
.750			6	32	58							85	109	135	160	184	209
.875			7	33	59							86	110	136	161	185	210
1.000			8	34	60							87	111	137	162	186	211
1.125	+0 -.062	+0 -.125	9	35	61	88	112	138	163	187	212						
1.250			10	36	62	89	113	139	164	188	213						
1.375			11	37	63	90	114	140	165	189	214						
1.500			12	38	64	91	115	141	166	190	215						
1.750			13	39	65	92	116	142	167	191	216						
1.750			14	40	66	93	117	143	168	192	217						
2.000			15	41	67	94	118	144	169	193	218						
2.250	+0 -.094	+0 -.188	16	42	68	95	119	145	170	194	219						
2.500			17	43	69	96	120	146	171	195	220						
2.750			18	44	70	97	121	147	172	196	221						
3.000			19	45	71	98	122	148	173	197	222						
3.250			20	46	72	99	123	149	174	198	223						
3.500			21	47	73	100	124	150	175	199	224						
3.750			22	48	74	101	125	151	176	200	225						
4.000			23	49	75	102	126	152	177	201	226						
4.250			24	50	76	103	127	153	178	202	227						
4.500			25	51	77		128	154									
4.750			26	52	78		129										
5.000																	
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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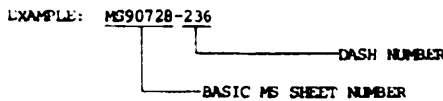
TABLE 1. DASH NUMBERS AND DIMENSIONS.

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
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
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.	
			DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	
1.000		+0 -.062	224								
1.125		+0 -.125	225	245							
			226	246	265						
1.250		+0 -.125	227	247	266	284					
			228	248	267	285	302				
1.375		+0 -.125	229	249	268	286	303	319			
			230	250	269	287	304	320			
1.500		+0 -.188	231	251	270	288	305	321	335		
			232	252	271	289	306	322	336		
1.750		+0 -.188	233	253	272	290	307	323	337	349	
			234	254	273	291	308	324	338	350	
2.000		+0 -.188	235	255	274	292	309	325	339	351	
			236	256	275	293	310	326	340	352	
2.250		+0 -.188	237	257	276	294	311	327	341	353	
			238	258	277	295	312	328	342	354	
2.500		+0 -.188	239	259	278	296	313	329	343	355	
			240	260	279	297	314	330	344	356	
2.750		+0 -.188	241	261	280	298	315	331	345	357	
			242	262	281	299	316	332	346	358	
3.000		+0 -.188	243	263	282	300	317	333	347	359	
			244	264	283	301	318	334	348	360	

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 (G) 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:
ARMY - ME
NAVY - MC, OS, YD

REVIEWER ACTIVITIES:
ARMY - AT, AV, MI
AIR FORCE - 82
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P.A. AR Other Cust 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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