

MILITARY SPECIFICATION SHEET

SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT),
STEEL, GRADE 5, CADMIUM PLATED, UNC-2A

This amendment forms a part of MS90725D dated 2 July 1974, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 2

Note 3. Threads, after "with": Delete rest of sentence and substitute "FED-STD-H28/2. Acceptability of screw threads shall be in accordance with FED-STD-H28/20, System 21."

NOTES: Add, "12. Screws less than three diameters in length shall meet minimum and maximum hardness values as specified in procurement specification and shall be the only mechanical property requirement for acceptance of these sizes."

Custodians:

Army - AR
Navy - SH
Air Force - 99

Preparing activity:
Army - AR

Review activities:

Army - AT, AV, MI
Navy - OS
DLA - IS
NSA - NS

(Project 5305-1949)

User activities:

Army - ME
Navy - AS, MC

1 of 1

INCH-POUND

MS90725D
AMENDMENT 2
18 AUGUST 1998

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PAGE 2

Note 1. Material, after "Medium carbon": add "or alloy".

Note 3. Threads, after "with": Delete rest of sentence and substitute "FED-STD-H28/2. Acceptability of screw threads shall be in accordance with FED-STD-H28/20, System 21."

Note 4. Delete in its entirety and substitute, "THREAD LENGTH: The thread length shall be in accordance with ASME B18.2.1."

NOTES: Add, "12. Screws less than three diameters in length shall meet minimum and maximum hardness values as specified in procurement specification and shall be the only mechanical property requirement for acceptance of these sizes."

Custodians:

Army - AR
Navy - SH
Air Force - 99

Preparing activity:

DLA -IS

(Project 5305-2276)

Review activities:

Army - AT, AV, ME, MI
Navy - AS, MC, OS
NSA - NS

AMSC N/A

FSC 5305

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FED. SUP CLASS
5305

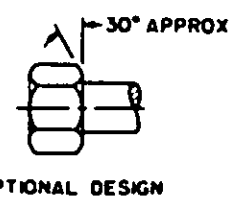
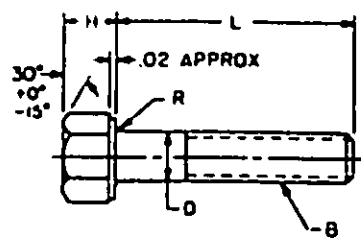
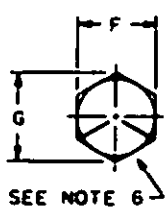


TABLE 1

NOMINAL SIZE		1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8
B THREAD	UNC-2A	20	18	16	14	13	12	11	10	9
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 .4290	.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	.844 .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 .228	.291 .272	.323 .302	.371 .348	.403 .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
MIN TENSILE STRENGTH - LBS		1,800	2,300	2,900	3,600	4,500	5,600	7,000	8,750	10,800

REVISION: AV, JS, AT, MJ, ML, MSA, OS, BS
SERIES: MS, CL, MC, YD, AS

L LENGTH	TOLERANCE		DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.
	SIZE 3/4 AND UNDER	SIZE 7/8									
.375	-.011	-.062	1	27	53						
.438			2	28	54	79					
.500			3	29	55	80	104				
.562			4	30	56	81	105	130			
.625			5	31	57	82	106	131	155		
.750			6	32	58	83	107	132	156	179	
.875			7	33	59	84	108	133	157	180	202
1.000			8	34	60	85	109	134	158	181	203
1.125	-.062	-.125	9	35	61	86	110	135	159	182	204
1.250			10	36	62	87	111	136	160	183	205
1.375			11	37	63	88	112	137	161	184	206
1.500			12	38	64	89	113	138	162	185	207
1.750			13	39	65	90	114	139	163	186	208
2.000			14	40	66	91	115	140	164	187	209
2.250			-.094	-.154	15	41	67	92	116	141	165
2.500	16	42			68	93	117	142	166	189	211
2.750	17	43			69	94	118	143	167	190	212
3.000	18	44			70	95	119	144	168	191	213
3.250	19	45			71	96	120	145	169	192	214
3.500	20	46			72	97	121	146	170	193	215
3.750	21	47			73	98	122	147	171	194	216
4.000	22	48			74	99	123	148	172	195	217
4.250	23	49			75	100	124	149	173	196	218
4.500	24	50			76	101	125	150	174	197	219
4.750	25	51	77	102	126	151	175	198	220		
5.000	-.180	---	26	52	78	103	127	152	176	199	221
5.500			27	53	79	104	128	153	177	200	222
6.000			28	54	80	105	129	154	178	201	223

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.

(D) CROSS REFERENCE OF PART NUMBERS

The screws covered by dash numbers given in MS15240, MS15291, MS15293, MS15295, MS15297 and MS15399 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.

(D) For changes see sheet 1.

P.A. VC	TITLE	MILITARY STANDARD
Other Cont. SH 82	SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), STEEL, GRADE 5, CADMIUM PLATED, UNC-2A	MS90725
PROCUREMENT SPECIFICATION PF-3-85	SUPERSEDES See note 11	SHEET 1 OF 2

DD FORM 672-1 (Continued)

APPROVED 26 APR 63 REVISED 1 AUG 67 14 OCT 68 1 MAY 1969 2 JUL 1974

REVISOR: AV, 15, AT, MI, MU, NSA, OS, 85
 15 APR 68

TABLE 11										FED. SUP CLASS 5305	
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	THREAD UNC-2A	6	7	7	6	6	5	4-1/2	4-1/2	4	
D	BODY DIAMETER	MAX 1.0000 MIN .9900	1.1250 1.1140	1.2500 1.2390	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 1.5000 MIN 1.4690	1.6875 1.6810	1.8750 1.8120	2.0625 1.9940	2.2500 2.1750	2.6250 2.5380	3.0000 2.9000	3.3750 3.2620	3.7500 3.6250	
G	WIDTH ACROSS CORNERS	MAX 1.732 MIN 1.675	1.949 1.849	2.165 2.066	2.382 2.273	2.598 2.488	3.011 2.893	3.464 3.306	3.897 3.719	4.330 4.133	
H	HEAD HEIGHT	MAX .627 MIN .591	.714 .656	.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 .095 MIN .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060	
* MIN TENSILE STRENGTH - LBS		72,700	80,100	101,700	121,300	147,500	171,000	225,000	292,500	360,000	

L LENGTH	TOLERANCE	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.
1.000	+0, -.002	224								
1.125	+0 -.125	225	245							
1.250		226	246	265						
1.375		227	247	266	284					
1.500		228	248	267	285	302				
1.750		229	249	268	286	303	319			
2.000		230	250	269	287	304	320			
2.250	+0 -.188	231	251	270	288	305	321	335		
2.500		232	252	271	289	306	322	336		
2.750		233	253	272	290	307	323	337	349	361
3.000		234	254	273	291	308	324	338	350	362
3.250		235	255	274	292	309	325	339	351	363
3.500		236	256	275	293	310	326	340	352	364
3.750		237	257	276	294	311	327	341	353	365
4.000		238	258	277	295	312	328	342	354	366
4.250		239	259	278	296	313	329	343	355	367
4.500		240	260	279	297	314	330	344	356	368
4.750		241	261	280	298	315	331	345	357	369
5.000		242	262	281	299	316	332	346	358	370
5.500		243	263	282	300	317	333	347	359	371
6.000		244	264	283	301	318	334	348	360	372

NOTES:

- MATERIAL:** Medium carbon steel, Grade 5, in accordance with procurement specification.
- PROTECTIVE COATING:** Cadmium plating in accordance with procurement specification.
- THREADS:** The threads shall be in accordance with Screw-Thread Standards for Federal Services, Handbook H28.
- THREAD LENGTH:** Minimum thread length shall be twice the diameter plus 1/4 inch. The tolerance shall be plus 1/16 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.
- DIMENSIONS:** All dimensions are in inches, unless otherwise specified.
- HEAD MARKING:** Heads shall be marked in accordance with MIL-HDBK-131. Raised markings are preferred, stampings are acceptable.
- PART NUMBER:** The MS part number consists of the MS number, plus the dash number.
Example: MS90725-1.
- Based on minimum ultimate tensile strength of 120,000 p.s.i. for diameters thru 1 inch; 105,000 p.s.i. for 1-1/8 inch thru 1-1/2 inch diameters; 90,000 p.s.i. for diameters over 1-1/2 inches. Tensile strengths are calculated by the stress areas indicated in Screw-Thread Standards for Federal Services, Handbook H28.
- Referenced documents shall be of the issue in effect on date of invitations for bid.
- For design feature purposes, this standard takes precedence over procurement documents referenced herein.
- Supersedes: MS15289, MS15291, MS15291, MS15295 in part, MS15297 and MS15299; (BCX12, 2.1, 3, 3.1, 3.2, 3.3, 4.2) in part; BCX12, 2.1, 4, 4.1, 4.2, 4.3, 4.8, 4.9, 10; (BCX12, 2.1, 2.2, 2.9, 10.2, 10.3) in part; BQLX12 in part, 4QLX2, 3; 9WR12, 2.1, 2.2, 3, 3.1, 4, 4.1, 8, 8.1, 9, 9.1, 10, 10.1.

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APPROVED 26 APR 63 REVISED (A) 1 AUG 67 (B) 14 OCT 68 (C) 1 MAY 1969 (D) FOR CHANGES SEE SHEET 1.

P.A. WC Other Code SH 92	TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), STEEL, GRADE 5, CADMIUM PLATED, UNC-2A	MILITARY STANDARD MS 90725
PROCUREMENT SPECIFICATION FF-3-d)	SUPERSEDES: See note 11	SHEET 2 OF