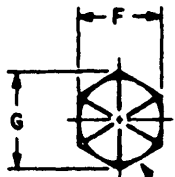
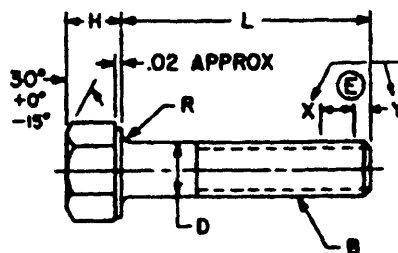


FED. SUP CLASS

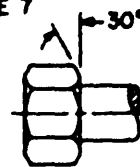
5305



SEE NOTE 6



SEE NOTE 7



OPTIONAL DESIGN

TABLE 1

NOMINAL SIZE		1/4	5/16	3/8	7/16	1/2	9/16	5/8
B THREAD	UNF-2A	28	24	24	20	20	18	18
D BODY DIAMETER	MAX MIN	.2500 .2450	.3125 .3065	.3750 .3690	.4375 .4305	.5000 .4930	.5625 .5545	.6250 .6170
F WIDTH ACROSS FLATS	MAX MIN	.4375 .4280	.5000 .4890	.5625 .5510	.6250 .6120	.7500 .7360	.8125 .7980	.9375 .9220
G WIDTH ACROSS CORNERS	MAX MIN	.505 .488	.577 .557	.650 .628	.722 .698	.866 .840	.938 .910	1.083 1.051
H HEAD HEIGHT	MAX MIN	.163 .150	.211 .195	.243 .226	.291 .272	.323 .302	.371 .348	.403 .378
R RADIUS	MAX MIN	.025 .015	.025 .015	.025 .015	.025 .015	.025 .015	.045 .020	.045 .020
* MIN TENSILE STRENGTH - LBS		5,450	8,700	13,200	17,800	24,000	30,400	38,400

L LENGTH	TOLERANCE	DASH NO.	DASH NO.	DASH NO.	DASH** NO.	DASH NO.	DASH** NO.	DASH NO.
.375		1	27	53	79			
.438		2	28	54	80	104		
.500		3	29	55	81	105	130	
.562	+0	4	30	56	82	106	131	155
.625	-.031	5	31	57	83	107	132	156
.750		6	32	58	84	108	133	157
.875		7	33	59	85	109	134	158
1.000		8	34	60				
1.125		9	35	61	86	110	135	159
1.250		10	36	62	87	111	136	160
1.375	+0	11	37	63	88	112	137	161
1.500	-.062	12	38	64	89	113	138	162
1.750		13	39	65	90	114	139	163
2.000		14	40	66	91	115	140	164
2.250		15	41	67	92	116	141	165
2.500		16	42	68	93	117	142	166
2.750		17	43	69	94	118	143	167
3.000		18	44	70	95	119	144	168
3.250		19	45	71	96	120	145	169
3.500	+0	20	46	72	97	121	146	170
3.750	-.094	21	47	73	98	122	147	171
4.000		22	48	74	99	123	148	172
4.250		23	49	75	100	124	149	173
4.500		24	50	76	101	125	150	174
4.750		25	51	77	102	126	151	175
5.000		26	52	78	103	127	152	176
5.500						128	153	177
6.000						129	154	178

NOTE: For notes and additional sizes see sheet 2.

CROSS REFERENCE OF PART NUMBERS

The screws covered by dash numbers given in MS35302, MS35304 and MS35306 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.

(E) For changes see sheets 1, 2, 3 and 4.

P.A. VC Other Case 82	TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), ALLOY STEEL, GRADE 8, CADMIUM PLATED, UNF-2A, (E) PLAIN AND SELF LOCKING	MILITARY STANDARD MS90727
PROCUREMENT SPECIFICATION FF-S-85	SUPERSEDES: See note 12	SHEET 1 OF 4

DD FORM 672-1 (Continued)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

5305-1179

* U.S. GOVERNMENT PRINTING OFFICE: 1981-703-023/3100

REVIEWED: AT AV MC DA
INDEX: ME MU PA CE UV CB MC MDA

This 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.

APPROVED 6 MAY 63 REVISED (A) 1 AUG 67 (B) 14 OCT 68 (C) 1 MAY 1969 (D) 22 OCT 1970 (E) 21 JUNE 1978

TABLE II							FED. SUP CLASS 5305	
NOMINAL SIZE		3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2
B THREAD	UNF-2A	16	14	12	12	12	12	12
D BODY DIAMETER	MAX MIN	.7500 .7410	.8750 .8660	1.0000 .9900	1.1250 1.1140	1.2500 1.2390	1.3750 1.3630	1.5000 1.4880
F WIDTH ACROSS FLATS	MAX MIN	1.1250 1.1000	1.3125 1.2850	1.5000 1.4690	1.6875 1.6310	1.8750 1.8120	2.0625 1.9940	2.2500 2.1750
G WIDTH ACROSS CORNERS	MAX MIN	1.299 1.254	1.516 1.465	1.732 1.675	1.949 1.859	2.165 2.066	2.382 2.273	2.598 2.480
H HEAD HEIGHT	MAX MIN	.483 .455	.563 .531	.627 .591	.718 .658	.813 .749	.878 .810	.974 .902
R RADIUS	MAX MIN	.045 .020	.065 .040	.095 .060	.095 .060	.095 .060	.095 .060	.095 .060
* MIN TENSILE STRENGTH - LBS		56,000	76,400	99,400	128,400	161,000	197,200	237,200

L LENGTH	TOLERANCE		DASH NO.	DASH #1 NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.
	SIZE .750	SIZE .875 AND OVER							
.750	+0 -.031	+0 -.062	179	202 203	224				
.875			180						
1.000			181						
1.125	+0 -.062	+0 -.125	182	204	225	245	265	284	302
1.250			183	205	226	246			
1.375			184	206	227	247			
1.500			185	207	228	248			
1.750			186	208	229	249			
2.000			187	209	230	250			
2.250	+0 -.094	+0 -.189	188	210	231	251	270	288	305
2.500			189	211	232	252	271	289	306
2.750			190	212	233	253	272	290	307
3.000			191	213	234	254	273	291	308
3.250			192	214	235	255	274	292	309
3.500			193	215	236	256	275	293	310
3.750			194	216	237	257	276	294	311
4.000			195	217	238	258	277	295	312
4.250			196	218	239	259	278	296	313
4.500			197	219	240	260	279	297	314
4.750			198	220	241	261	280	298	315
5.000			199	221	242	262	281	299	316
5.500	200	222	243	263	282	300	317		
6.000	201	223	244	264	283	301	318		

NOTES:

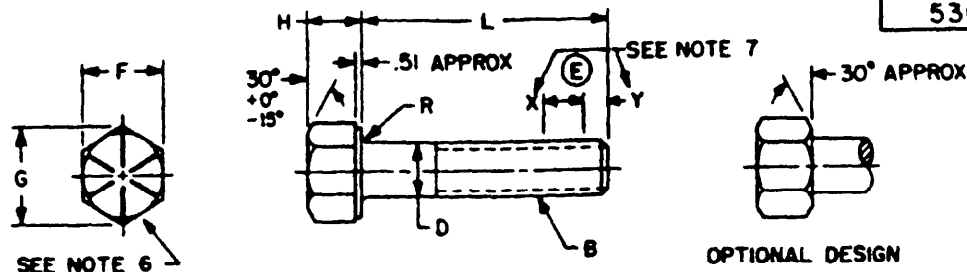
- MATERIAL: Alloy steel, Grade 8, in accordance with procurement specification.
- PROTECTIVE COATING: Cadmium plating in accordance with procurement specification.
- THREADS: The threads shall be in accordance with Screw-Thread Standards for Federal Services, Handbook H28.
- THREAD LENGTH: Minimum thread length shall be twice the diameter plus 1/4 inch. The tolerance shall be plus 3/16 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.
- SELF-LOCKING ELEMENT: (a) The self-locking element shall be a patch type or longitudinal strip in accordance with MIL-F-18240.
(b) For "X" and "Y" dimensions and design and usage limitations, see MS15981.
(c) 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 MS part number consists of the MS number, plus the dash number.
For screws with self-locking element add the letter "L" after the dash number.
Example: MS90727-1 Plain screw.
MS90727-1L Self-locking screw.
- Based on minimum ultimate tensile strength of 150,000 p.s.i. 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: MS35302 in part, MS35304 and MS35306, BCX18, BCY17 in part, BQLI4, BUXI17, 17.1, 18.18.1.19 and 19.1.
- * 13. INACTIVE FOR NEW DESIGN AFTER 21 JUNE 1976.

P.O. No. 82	TITLE	MILITARY STANDARD
	SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), ALLOY STEEL, GRADE 8, CADMIUM PLATED, UNF-2A, E PLAIN AND SELF LOCKING	MS90727
PROCUREMENT SPECIFICATION FF-S-85	SUPERSEDES: See note 12.	SHEET 2 OF 4

REVIEWER: AE AY MI BA
UNCLAS: ME MD PA QZ WY CB MC NDA

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.

APPROVED 6 MAY 63 REVISED 1 AUG 67 14 OCT 68 1 MAY 1969 22 OCT 1970 FOR CHANGES SEE SHEETS 1, 2, 3, AND 4

FED. SUP CLASS
5305TABLE III
METRIC TRANSLATION OF TABLE I

NOMINAL SIZE	MM	6.350	7.938	9.525	11.112	12.700	14.288	15.875
B THREAD PITCH	(E)	0.907	1.058	1.058	1.270	1.270	1.411	1.411
D BODY DIAMETER	MAX MIN	6.350 6.223	7.938 7.785	9.525 9.373	11.112 10.935	12.700 12.522	14.288 14.084	15.875 15.672
F WIDTH ACROSS FLATS	MAX MIN	11.112 10.871	12.700 12.421	14.288 13.995	15.875 15.545	17.463 17.194	19.050 18.694	20.638 20.269
G WIDTH ACROSS CORNERS	MAX MIN	12.827 12.395	14.656 14.148	16.510 15.951	18.339 17.729	20.168 19.536	22.000 21.284	23.825 23.085
H HEAD HEIGHT	MAX MIN	4.140 3.810	5.359 4.953	6.172 5.740	7.391 6.909	8.204 7.671	9.423 8.839	10.236 9.601
R RADIUS	MAX MIN	.635 .381	.635 .381	.635 .381	.635 .381	.635 .381	1.143 .508	1.143 .508
R * MIN TENSILE STRENGTH-KN		24.525	39.150	59.400	80.100	108.000	136.800	172.800
L LENGTH	TOLERANCE	DASH NO.	DASH NO.	DASH NO.	DASH NO**	DASH NO.	DASH NO**	DASH NO.
9.525	+0 -.787	1	27	53	79	104	130	155
11.125		2	28	54				
12.700		3	29	55				
14.275		4	30	56				
15.875	+0 -1.575	5	31	57	82	106	131	156
19.050		6	32	58				
22.225		7	33	59				
25.400		8	34	60				
28.575	+0 -1.575	9	35	61	86	110	135	159
31.750		10	36	62				
34.925		11	37	63				
38.100		12	38	64				
44.450	+0 -2.388	13	39	65	90	114	139	163
50.800		14	40	66				
57.150		15	41	67				
63.500		16	42	68				
69.850	+0 -2.388	17	43	69	94	118	143	167
76.200		18	44	70				
82.550		19	45	71				
88.900		20	46	72				
95.250	+0 -2.388	21	47	73	97	121	146	170
101.600		22	48	74				
107.950		23	49	75				
114.300		24	50	76				
120.650	+0 -2.388	25	51	77	102	126	151	175
127.000		26	52	78				
133.350								
139.700								
146.050	+0 -2.388				103	127	152	176
152.400								

NOTE:

- All dimensions are in millimetres (mm), unless otherwise specified and are based on an approximate conversion factor of 25.4 mm equal one inch.
- For additional sizes see sheet 4.

(E) 003. INACTIVE FOR NEW DESIGN AFTER 21 JUNE 1976.

P.A. VC	TITLE	MILITARY STANDARD
Other Code 82	SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), ALLOY STEEL, GRADE 8, CADMIUM PLATED, UNF-2A, (E) PLAIN AND SELF LOCKING	MS90727
PROCUREMENT SPECIFICATION 77-S-85	REPLACES See note 12	SHEET 3 OF 4

DD FORM 672-1 (Change 1)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

5305-1179

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APPROVED 6 MAY 1963 REVISED (A) 1 AUG 1967 (B) 14 OCT 1968 (C) 1 MAY 1969 (D) 22 OCT 1970 (E) FOR CHANGES SEE SHEETS 1, 2, 3, AND 4

FED. SUP CLASS
5305TABLE IX
METRIC TRANSLATION OF TABLE II

NOMINAL SIZE	MM	19.050	22.225	25.400	28.575	31.750	34.925	38.100
B THREAD PITCH	⑤	1.588	1.814	2.117	2.117	2.117	2.117	2.117
D BODY DIAMETER	MAX MIN	19.050 18.821	22.225 21.996	25.400 25.146	28.575 28.296	31.750 31.471	34.925 34.620	38.100 37.795
F WIDTH ACROSS FLATS	MAX MIN	28.575 27.940	33.338 32.639	38.100 37.313	42.862 41.427	47.625 46.025	52.388 50.648	57.150 55.245
G WIDTH ACROSS CORNERS	MAX MIN	32.995 31.852	38.506 37.221	43.993 42.545	49.505 47.219	54.991 52.476	60.503 57.734	65.989 62.992
H HEAD HEIGHT	MAX MIN	12.268 11.557	14.300 13.487	15.926 15.011	18.237 16.713	20.650 19.025	22.301 20.574	24.740 22.911
R RADIUS	MAX MIN	1.143 .508	1.651 1.016	2.413 1.524	2.413 1.524	2.413 1.524	2.413 1.524	2.413 1.524
⑥ MIN TENSILE STRENGTH-KN		252.000	343.800	447.300	577.800	724.500	887.400	1067.400
L LENGTH	TOLERANCE		DASH NO.	DASH ^⑦ NO.	DASH NO.	DASH NO.	DASH NO.	DASH NO.
	SIZE 19.050	SIZE 22.225 AND OVER						
19.050	+0	+0	179	202 203				
22.225	-1.767	-1.575	180					
25.400			181		224			
28.575			182		225	245		
31.750	+0	+0	183		226	246	265	
34.925	-1.575	-3.175	184		227	247	266	284
38.100			185		228	248	267	285
44.450			186	208	229	249	268	286
50.800			187	209	230	250	269	287
57.150			188	210	231	251	270	288
63.500			189	211	232	252	271	289
69.850			190	212	233	253	272	290
76.200			191	213	234	254	273	291
82.550			192	214	235	255	274	292
88.900	+0	+0	193	215	236	256	275	293
95.250	-2.388	-4.775	194	216	237	257	276	294
101.600			195	217	238	258	277	295
107.950			196	218	239	259	278	296
114.300			197	219	240	260	279	297
120.650			198	220	241	261	280	298
127.000			199	221	242	262	281	299
133.700			200	222	243	263	282	300
152.400			201	223	244	264	283	301

NOTE:

- All dimensions are in millimetres (mm), unless otherwise specified and are based on an approximate conversion factor of 25.4 mm equal one inch.
- THREAD LENGTH: Minimum thread length shall be twice the diameter plus 6.350 mm. The tolerance shall be plus 4.775 mm 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 25.400 mm and 3-1/2 threads for sizes larger than 25.400 mm.

⑦ ⑧. INACTIVE FOR NEW DESIGN AFTER 21 JUNE 1976.

U.S. GOVERNMENT PRINTING OFFICE: 1976-803-766/5000

P.A. 6C Other Case 82	TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), ALLOY STEEL, GRADE 8, CADMIUM PLATED, UNF-2A, ⑤ PLAIN AND SELF LOCKING	MILITARY STANDARD MS 90727
PROCUREMENT SPECIFICATION FF-S-85	SUPERSEDES: See note 12	SHEET 4 OF 4

DD FORM 672-1 (Continued)

PROVIDED ON FILE OF THE FORM AND SERIALS

5305-1179

APPROVED 6 MAY 1963 REVISED ① AUG 1967 ② 14 OCT 1968 ③ 1 MAY 1969 ④ 22 OCT 1970 ⑤ FOR CHANGES SEE SHEETS 1, 2, 3, AND 4

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REVIEWER: AT AV NI RA
USER: ME MU PA CL VV OS MC MEA