

REVIEWER: AV, IS, AT, NSA, OS, 85  
USER: ME, GL, MC, MI, YD, AS

## NOTES:

FED. SUP CLASS  
5305

1. **MATERIAL:** Medium carbon steel, grade 5, in accordance with procurement specification. Minimum ultimate tensile strength: 120,000 psi.
2. **PROTECTIVE COATING:** Cadmium plating in accordance with procurement specification.
3. **THREADS:** The threads shall be in accordance with Screw-Thread Standards for Federal Services, Handbook H28.
4. **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.
5. **DIMENSIONS:** All dimensions are in inches, unless otherwise specified.
6. **HEAD MARKING:** Heads shall be marked in accordance with MIL-HDBK-131. Raised markings are preferred, stampings are acceptable.
7. **PART NUMBER:** The MS part number consists of the MS number, plus the dash number.  
Example: MS51106-301.
8. Referenced documents shall be of the issue in effect on date of invitations for bid.
9. For design feature purposes, this standard takes precedence over procurement documents referenced herein.

## INTERCHANGEABILITY TABLE

The following table shows the interchangeability relationship between the former dash numbers of MS51104, MS51106 and the present dash numbers. Existing stock of screws may be used until depleted. Use only the screws shown as present dash numbers in new design.

TABLE II

DASH NUMBERS			DASH NUMBERS			DASH NUMBERS			DASH NUMBERS		
FORMER	PRESENT		FORMER	PRESENT		FORMER	PRESENT		FORMER	PRESENT	
MS51104	MS51106	MS51106	MS51104	MS51106	MS51106	MS51104	MS51106	MS51106	MS51104	MS51106	MS51106
1	1	301	50	50	350	115	115	415	167	167	467
2	2	302	55	55	355	116	116	416	168	168	468
3	3	303	56	56	356	117	117	417	169	169	469
4	4	304	57	57	357	118	118	418	170	170	470
5	5	305	58	58	358	119	119	419	171	171	471
6	6	306	59	59	359	120	120	420	172	172	472
7	7	307	60	60	360	121	121	421	173	173	473
8	8	308	61	61	361	122	122	422	174	174	474
9	9	309	62	62	362	123	123	423	175	175	475
10	10	310	63	63	363	124	124	424	182	182	482
11	11	311	64	64	364	125	125	425	183	183	483
12	12	312	65	65	365	126	126	426	184	184	484
13	13	313	66	66	366	127	127	427	185	185	485
14	14	314	67	67	367	128	128	428	186	186	486
15	15	315	68	68	368	129	129	429	187	187	487
16	16	316	69	69	369	130	130	430	188	188	488
17	17	317	70	70	370	133	133	433	189	189	489
18	18	318	71	71	371	134	134	434	190	190	490
19	19	319	72	72	372	135	135	435	191	191	491
20	20	320	73	73	373	136	136	436	192	192	492
21	21	321	74	74	374	137	137	437	193	193	493
22	22	322	75	75	375	138	138	438	194	194	494
23	23	323	76	76	376	139	139	439	195	195	495
24	24	324	84	84	384	140	140	440	196	196	496
27	27	327	85	85	385	141	141	441	197	197	497
28	28	328	86	86	386	142	142	442	198	198	498
29	29	329	87	87	387	143	143	443	199	199	499
30	30	330	88	88	388	144	144	444	206	206	506
31	31	331	89	89	389	145	145	445	207	207	507
32	32	332	90	90	390	146	146	446	208	208	508
33	33	333	91	91	391	147	147	447	209	209	509
34	34	334	92	92	392	148	148	448	210	210	510
35	35	335	93	93	393	149	149	449	211	211	511
36	36	336	94	94	394	150	150	450	212	212	512
37	37	337	95	95	395	151	151	451	213	213	513
38	38	338	96	96	396	152	152	452	214	214	514
39	39	339	97	97	397	153	153	453	215	215	515
40	40	340	98	98	398	157	157	457	216	216	516
41	41	341	99	99	399	158	158	458	217	217	517
42	42	342	100	100	400	159	159	459	218	218	518
43	43	343	101	101	401	160	160	460	219	219	519
44	44	344	102	102	402	161	161	461	220	220	520
45	45	345	110	110	410	162	162	462	221	221	521
46	46	346	111	111	411	163	163	463	222	222	522
47	47	347	112	112	412	164	164	464	223	223	523
48	48	348	113	113	413	165	165	465			
49	49	349	114	114	414	166	166	466			

P.A. WC

Other Cost SH  
82

## TITLE

SCREW, CAP, HEXAGON HEAD (FINISHED) HEXAGON BOLT,  
SHANK DRILLED FOR COTTER PIN,  
STEEL, GRADE 5, CADMIUM PLATED, UNF-2A

MILITARY STANDARD

MS51106

PROCUREMENT SPECIFICATION  
FF-S-85

SUPERSEDES: MS51104; BCBX7, 7.1, 8, 8.1, 9, 10; BCYX4.22;  
BQLX7, 7.1; RUBX22, 22.1, 23 and 30.

SHEET 2 OF

DD FORM 672-1 (Continued)

PREVIOUS EDITIONS ARE OBSOLETE.

APPROVED 16 JUL 58 REVISED (A) 16 FEB 65 (B) 14 OCT 68 (C) FOR CHANGES SEE SHEET 2.

This military standard is mandatory 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.

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		FED. SUP CLASS 5305											
<p>SEE NOTE 6</p>				<p>OPTIONAL DESIGN</p>									
TABLE I													
NOMINAL SIZE		1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1			
B THREAD UNF-2A		28	24	24	20	20	18	16	14	12			
D BODY DIAMETER		MAX MIN	.2500 .2450	.3125 .3065	.3750 .3690	.4375 .4305	.5000 .4930	.6250 .6170	.7500 .7410	.8750 .8660	1.0000 .9900		
F WIDTH ACROSS FLATS		MAX MIN	.4375 .4280	.5000 .4890	.5625 .5510	.6250 .6120	.7500 .7360	.9375 .9220	1.1250 1.1000	1.3125 1.2850	1.5000 1.4690		
G WIDTH ACROSS CORNERS		MAX MIN	.505 .488	.577 .557	.650 .628	.722 .698	.866 .840	1.083 1.051	1.299 1.254	1.516 1.465	1.732 1.675		
H HEAD HEIGHT		MAX MIN	.163 .150	.211 .195	.243 .226	.291 .272	.323 .302	.403 .378	.483 .455	.563 .531	.627 .591		
J HOLE DIAMETER		+.006 -.002	.076	.076	.107	.107	.107	.140	.140	.140	.140		
K ±.010			.109	.125	.156	.156	.172	.188	.219	.250	.250		
R RADIUS		MAX MIN	.025 .015	.025 .015	.025 .015	.025 .015	.025 .015	.045 .020	.045 .020	.065 .040	.095 .060		
MIN TENSILE STRENGTH - LBS			4,350	6,950	10,500	14,200	19,200	30,700	44,800	61,100	79,600		
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 AND OVER											
.375	+.0 -.031	---	301	327									
.438			302	328									
.500			303	329	355								
.562			304	330	356								
.625			305	331	357								
.750			306	332	358	384	410	433					
.875	+.0 -.062	+.0 -.125	307	333	359	385	411	434					
1.000			308	334	360	386	412	435	457				
1.250			309	335	361	387	413	436	458	482	506		
1.500			310	336	362	388	414	437	459	483	507		
1.750			311	337	363	389	415	438	460	484	508		
2.000			312	338	364	390	416	439	461	485	509		
2.250			+.0 -.094	+.0 -.188	313	339	365	391	417	440	462	486	510
2.500					314	340	366	392	418	441	463	487	511
2.750					315	341	367	393	419	442	464	488	512
3.000					316	342	368	394	420	443	465	489	513
3.250					317	343	369	395	421	444	466	490	514
3.500					318	344	370	396	422	445	467	491	515
3.750	319	345			371	397	423	446	468	492	516		
4.000	320	346			372	398	424	447	469	493	517		
4.250	321	347			373	399	425	448	470	494	518		
4.500	322	348			374	400	426	449	471	495	519		
4.750	323	349			375	401	427	450	472	496	520		
5.000	324	350			376	402	428	451	473	497	521		
5.500					429	452	474	498	522				
6.000					430	453	475	499	523				
NOTE: For notes and Interchangeability Table see sheet 2.													
(C) For changes see sheet 2.													
P.A. WC Other Cust SH 82		TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), SHANK DRILLED FOR COTTER PIN, STEEL, GRADE 5, CADMIUM PLATED, UNF-2A						MILITARY STANDARD MS51106					
PROCUREMENT SPECIFICATION FF-S-85		SUPERSEDES: MS51104, BCX17, 7.1, 8, 8.1, 9, 10; BCY14.22; BQLX7, 7.1; BURX22, 22.1, 23 and 30						SHEET 1 OF 2					

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APPROVED 16 JUL 58 REVISED (A) 16 FEB 65 (B) 14 OCT 68 (C) 1 MAY 1969