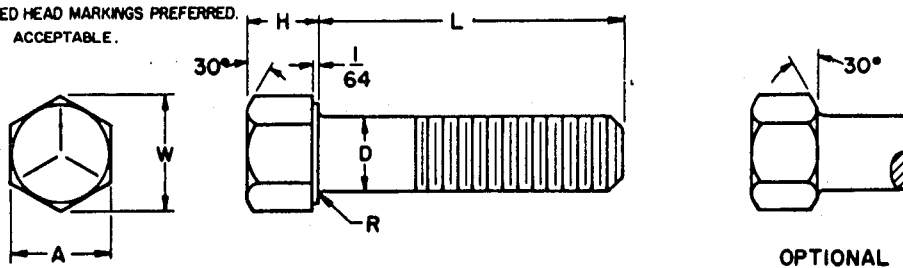


FED. SUP CLASS
5305

NOTE: RAISED HEAD MARKINGS PREFERRED.
STAMPING ACCEPTABLE.



NOMINAL SIZE	1/4	5/16	3/8	7/16	1/2	9/16	5/8		
THREADS PER INCH	20UNC	18UNC	16UNC	14UNC	13UNC	12UNC	11UNC		
BODY DIAMETER	D	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	
WIDTH ACROSS FLATS	A	Max .4375 Min .4280	Max .5000 Min .4890	Max .5625 Min .5510	Max .6250 Min .6120	Max .7500 Min .7360	Max .8125 Min .7930	Max .9375 Min .9220	
WIDTH ACROSS CORNERS	W	Max .5050 Min .4880	Max .5770 Min .5570	Max .6500 Min .6230	Max .7220 Min .6980	Max .8660 Min .8400	Max .9380 Min .9100	Max 1.0830 Min 1.0510	
HEAD HEIGHT	H	Max .1630 Min .1500	Max .2110 Min .1950	Max .2430 Min .2260	Max .2910 Min .2720	Max .3230 Min .3020	Max .3710 Min .3480	Max .4030 Min .3780	
RADIUS	R	Max .023 Min .009	Max .023 Min .009	Max .023 Min .009	Max .023 Min .009	Max .023 Min .009	Max .041 Min .021	Max .041 Min .021	
LENGTH	L	Tolerance	Dash Number	Dash Number	Dash Number	Dash Number	Dash Number	Dash Number	
3/8	+0 -1/32		1	27	53				
7/16			2	28	54	79			
1/2			3	29	55	80	104		
9/16			4	30	56	81	105	130	
5/8			5	31	57	82	106	131	155
3/4			6	32	58	83	107	132	156
7/8	+0 -1/16		7	33	59	84	108	133	
1			8	34	60	85	109	134	157
1-1/8			9	35	61	86	110	135	158
1-1/4			10	36	62	87	111	136	159
1-3/8			11	37	63	88	112	137	160
1-1/2			12	38	64	89	113	138	161
1-3/4	+0 -3/32		13	39	65	90	114	139	
2			14	40	66	91	115	140	163
2-1/4			15	41	67	92	116	141	164
2-1/2			16	42	68	93	117	142	165
2-3/4			17	43	69	94	118	143	166
3			18	44	70	95	119	144	167
3-1/4	+0 -3/32		19	45	71	96	120	145	
3-1/2			20	46	72	97	121	146	169
3-3/4			21	47	73	98	122	147	170
4			22	48	74	99	123	148	171
4-1/4			23	49	75	100	124	149	172
4-1/2			24	50	76	101	125	150	173
4-3/4	+0 -3/32		25	51	77	102	126	151	
5			26	52	78	103	127	152	175
5-1/2							128	153	176
6					129	154	177		

ⓐ CANCELLED
SEE SHEET 2

MATERIAL: Medium Carbon Steel, Grade 5 of procurement specification. Minimum tensile strengths: 120,000 psi for diameters through 3/4"; 110,000 psi for 7/8" and 1" diameters; 105,000 psi for diameters 1-1/8" through 1-1/2"; 90,000 psi for diameters over 1-1/2".

FINISH: Phosphate, Specification MIL-C-16232, Type II.

THREADS: The threads shall be in accordance with Screw-Thread Standards for Federal Services Handbook H-28.

MINIMUM THREAD LENGTH: Shall be twice the diameter plus 1/4" for lengths up to and including 6". The tolerance shall be plus 3/16" or 2-1/2 threads, whichever is greater. On products 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" and 3-1/2 threads for sizes larger than 1".

- NOTES:**
- Referenced documents of issue in effect on date of invitation for bids shall apply.
 - In case of conflict with any referenced document, this standard will govern.
 - The MS part number consists of the MS sheet number, plus the dash number. Example: MS35299-1.
 - All dimensions in inches.

ⓐ For Changes see Sheets 1, 2 and 3.

P.A.	WC	TITLE	MILITARY STANDARD
Other Cust	SHIPS ASD	SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), MEDIUM CARBON STEEL, PHOSPHATE FINISH, UNC-2A	MS35299
PROCUREMENT SPECIFICATION FF-S-85	SUPERSEDES:	SHEET	1 OF 3

APPROVED 4 MARCH 54 REVISED ⓐ 26 APRIL 63

NOTICE.—When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have furnished, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder, or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

This military standard is approved by the Department of Defense and is mandatory on all activities. Selection for all new engineering and design applications and for repetitive use shall be made from this document.

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5305

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NOMINAL SIZE		3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	
THREADS PER INCH		10UNC	9UNC	8UNC	7UNC	7UNC	6UNC	6UNC	
BODY DIAMETER	D	{Max Min	.7500 .7410	.8750 .8660	1.0000 0.9900	1.1250 1.1140	1.2500 1.2390	1.3750 1.3630	1.5000 1.4880
WIDTH ACROSS FLATS	A	{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
WIDTH ACROSS CORNERS	W	{Max Min	1.2990 1.2540	1.5160 1.4650	1.7320 1.6750	1.9490 1.8590	2.1650 2.0660	2.3820 2.2730	2.5980 2.4800
HEAD HEIGHT	H	{Max Min	.4830 .4550	.5630 .5310	.6270 .5910	.7180 .6580	.8130 .7490	.8780 .8100	.9740 .9020
RADIUS	R	{Max Min	.041 .021	.062 .041	.093 .062	.093 .062	.093 .062	.093 .062	.093 .062
LENGTH	L	TOLERANCE		Dash Number	Dash Number	Dash Number	Dash Number	Dash Number	Dash Number
		Size 3/4 and under	Size 7/8 and over						
3/4 7/8		+0 -1/32	+0 -1/16	179					
				180	202				
1-1/8 1-1/4 1-3/8		+0 -1/16	+0 -1/8	181	203	224			
				182	204	225	245		
				183	205	226	246	265	
				184	206	227	247	266	284
1-1/2 1-3/4				185	207	228	248	267	285
				186	208	229	249	268	286
2 2-1/4				187	209	230	250	269	287
				188	210	231	251	270	288
2-1/2 2-3/4				189	211	232	252	271	289
				190	212	233	253	272	290
3 3-1/4		+0 -3/32	+0 -3/16	191	213	234	254	273	291
				192	214	235	255	274	292
3-1/2 3-3/4				193	215	236	256	275	293
				194	216	237	257	276	294
4 4-1/4				195	217	238	258	277	295
				196	218	239	259	278	296
4-1/2 4-3/4				197	219	240	260	279	297
				198	220	241	261	280	298
5 5-1/2				199	221	242	262	281	299
				200	222	243	263	282	300
6				201	223	244	264	283	301

NOTE: For illustration, material, finish and other pertinent data, see sheet 1.

Ⓐ CANCELLED AFTER 26 April 1963. USE MS90725. INTERCHANGEABILITY RELATIONSHIP - MS90725 can replace the cancelled screws of the same size. The cancelled MS35299 cannot always replace MS90725 and should be used until existing stock is depleted. Then use only the superseding MS screws of the same size for design and replacement.

Ⓐ CANCELLED
SEE NOTE

This military standard is approved by the Department of Defense and is mandatory on all activities. Selection for all new engineering and design applications and for repetitive use shall be made from this document.

P.A.	WC	TITLE	MILITARY STANDARD
Other Cust	SHIPS ASD	SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), MEDIUM CARBON STEEL, PHOSPHATE FINISH, UNC-2A	MS35299
PROCUREMENT SPECIFICATION FF-S-85	SUPERSEDES:		SHEET 2 OF

FED. SUP CLASS
5305

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NOMINAL SIZE	1-3/4	2	2-1/4	2-1/2				
THREADS PER INCH	5UNC	4-1/2UNC	4-1/2UNC	4UNC				
BODY DIAMETER D	Max 1.7500 Min 1.7380	2.0000 1.9880	2.2500 2.2380	2.5000 2.4880				
WIDTH ACROSS FLATS A	Max 2.6250 Min 2.5380	3.0000 2.9000	3.3750 3.2620	3.7500 3.6250				
WIDTH ACROSS CORNERS W	Max 3.0310 Min 2.8930	3.4640 3.3060	3.8970 3.7190	4.3300 4.1330				
HEAD HEIGHT H	Max 1.1340 Min 1.0540	1.2630 1.1750	1.4230 1.3270	1.5830 1.4790				
RADIUS R	Max .093 Min .062	.093 .062	.093 .062	.093 .062				
LENGTH L	Tolerance	Dash Number	Dash Number	Dash Number	Dash Number	Dash Number	Dash Number	Dash Number
1-3/4 2	+0 -1/8	319 320						
2-1/4 2-1/2 2-3/4 3		321 322 323 324	335 336 337 338	349 350	361 362			
3-1/4 3-1/2 3-3/4 4 4-1/4 4-1/2	+0 -3/16	325 326 327 328 329 330	339 340 341 342 343 344	351 352 353 354 355 356	363 364 365 366 367 368			
4-3/4 5 5-1/2 6		331 332 333 334	345 346 347 348	357 358 359 360	369 370 371 372			

NOTE: For illustration, material, finish and other pertinent data, see sheet 1.

Ⓐ CANCELLED
SEE SHEET 2

This military standard is approved by the Department of Defense and is mandatory on all activities. Selection for all new engineering and design applications and for repetitive use shall be made from this document.

P.A. Other Cust	WC SHIPS ASD	TITLE SCREW, CAP, HEXAGON HEAD (FINISHED HEXAGON BOLT), MEDIUM CARBON STEEL, PHOSPHATE FINISH, UNC-2A	MILITARY STANDARD MS35299
PROCUREMENT SPECIFICATION PF-S-85	SUPERSEDES:	SHEET 3	OF

APPROVED 4 MARCH 54 REVISED Ⓐ FOR CHANGES SEE SHEETS 1, 2, AND 3.