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SPS-B-94701

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- ② 3/23/98
- ③ 6/23/98
- ④ 7/29/99
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- ⑦ 11/15/00
- ⑧ 3/12/01
- ⑨ 3/05/03

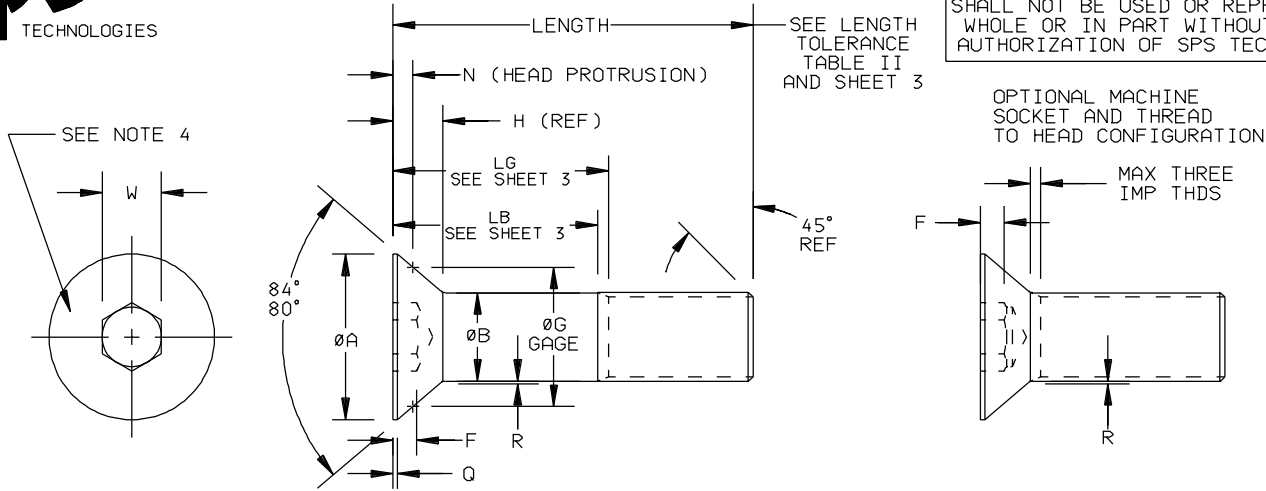


TABLE I

DASH NO	SIZE	THREAD DESIGNATION		ØA		ØB		F	ØG REF	H REF	N		Q	R	W NOM
		UNRF	CLASS	UNRC	CLASS	MAX (a)	MIN (b)				MAX	MIN			
90	#0	.060-80	3A	.138	.117	.060	.0568	.025	.0812	.044	.032	.027	.011	.006	.035
91	#1	.075-72	3A	.168	.143	.073	.0695	.031	.0942	.054	.042	.035	.014	.008	.050
92	#2	.086-64	3A	.197	.168	.086	.0822	.038	.1234	.064	.041	.034	.015	.010	.050
93	#3	.099-56	3A	.226	.193	.099	.0949	.044	.1444	.073	.046	.037	.018	.010	.0625
94	#4	.112-48	3A	.255	.218	.112	.1075	.055	.1652	.083	.051	.041	.021	.012	.0625
95	#5	.125-44	3A	.281	.240	.125	.1202	.061	.1795	.090	.057	.046	.022	.014	.0781
96	#6	.138-40	3A	.307	.263	.138	.1329	.066	.1985	.097	.061	.049	.024	.015	.0781
98	#8	.164-36	3A	.359	.311	.164	.1585	.076	.2400	.112	.067	.055	.026	.015	.0937
3	#10	.190-32	3A	.411	.359	.190	.1840	.087	.2440	.127	.095	.081	.028	.015	.1250
4	1/4"	.250-28	3A	.531	.480	.250	.2435	.111	.3314	.161	.113	.099	.029	.015	.1562
5	5/16"	.312-24	3A	.656	.600	.3125	.3053	.135	.4047	.198	.143	.128	.031	.015	.1875
6	3/8"	.375-24	3A	.781	.720	.375	.3678	.159	.4854	.234	.168	.152	.033	.015	.2187
7	7/16"	.437-20	3A	.844	.781	.4375	.4294	.159	.5698	.234	.155	.140	.034	.015	.2500
8	1/2"	.500-20	3A	.938	.872	.500	.4919	.172	.6500	.251	.162	.147	.034	.015	.3125
9	9/16"	.562-18	3A	1.063	.993	.5625	.5560	.220	.7200	.288	.194	.177	.036	.015	.3125
10	5/8"	.625-18	3A	1.188	1.112	.625	.6163	.220	.8012	.324	.219	.201	.040	.015	.3750
12	3/4"	.750-16	3A	1.438	1.355	.750	.7406	.220	1.1100	.396	.181	.165	.040	.015	.5000
14	7/8"	.875-14	3A	1.688	1.604	.875	.8647	.248	1.2896	.468	.221	.206	.040	.015	.56250
16	1"	1.000-12	3A	1.938	1.841	1.0000	.9886	.297	1.4682	.540	.260	.246	.040	.015	.6250
18	1-1/8"	1.125-12	2A	2.188	2.079	1.1250	1.1086	.325	1.6250	.611	.336	.319	.040	.031	.750
20	1-1/4"	1.250-12	2A	2.438	2.316	1.2500	1.2336	.358	1.6250	.683	.484	.464	.040	.031	.875
22	1-3/8"	1.375-12	2A	2.688	2.553	1.3750	1.3568	.402	1.8026	.755	.510	.485	.040	.031	.875
24	1-1/2"	1.500-12	2A	2.938	2.791	1.5000	1.4818	.435	2.1870	.827	.417	.387	.040	.031	1.000

(a) MAXIMUM - TO THEORETICAL SHARP CORNERS. (b) MINIMUM - ABSOLUTE WITH A FLAT.

SIZE	LENGTH TOLERANCE TABLE		TABLE II	
	UP TO 1" INCL.	OVER 1" TO 2-1/2 INCL.	OVER 2-1/2 TO 6" INCL.	OVER 6"
H0 THRU 3/8"	-.03	-.04	-.06	-.12
7/16" THRU 3/4"	-.03	-.06	-.08	-.12
7/8" AND UP	-.05	-.10	-.14	-.20

TABLE III

SIZE	TENSILE STRENGTH IN POUNDS		RECOMMENDED SEATING TORQUE IN INCH POUNDS		DOUBLE SHEAR STRENGTH OF BODY LBS. MIN.	X (e)
	UNRC	UNRF	UNRC	UNRF		
#0	---	100	---	1.0	260	.010
#1	150	160	1.7	1.8	380	.010
#2	210	220	2.8	3.0	520	.010
#3	270	290	4.3	4.5	700	.010
#4	340	370	6.0	6.6	880	.010
#5	450	470	8.9	9.3	1,100	.015
#6	510	570	11.0	12.0	1,340	.015
#8	790	830	20.0	21.0	1,900	.015
#10	980	1,120	30.0	34.0	2,560	.015
1/4"	1,780	2,040	71.0	81.0	4,400	.015
5/16"	2,940	3,250	123.0	136.0	6,900	.020
3/8"	4,390	4,920	218.0	247.0	9,940	.020
7/16"	5,950	6,650	349.0	388.0	13,520	.020
1/2"	7,950	8,950	532.0	600.0	17,680	.020
9/16"	10,200	11,400	767.0	856.0	22,400	.030
5/8"	12,700	14,300	1,060.0	1,200.0	27,600	.030
3/4"	18,700	20,900	1,880.0	2,100.0	39,800	.030
7/8"	25,900	28,500	3,030.0	3,340.0	54,200	.030
1"	33,900	37,100	4,550.0	5,000.0	70,600	.040

THE RECOMMENDED SEATING TORQUES LISTED SERVE AS GUIDELINES ONLY. EVEN WHEN USING THE RECOMMENDED SEATING TORQUES, THE INDUCED LOADS OBTAINED MAY VARY AS MUCH AS ±25% DEPENDING UPON THE UNCONTROLLED VARIABLES SUCH AS MATING MATERIAL, PLATING, LUBRICATION, SURFACE FINISH, HARDNESS, BOLT/JOINT COMPLIANCE, METHOD OF TIGHTENING, ETC.

HOWEVER, THE BEST WAY TO DETERMINE THE CORRECT TORQUE IS TO RUN TESTS ON THE PARTICULAR JOINT BY TIGHTENING SAMPLE BOLTS UNTIL THEY JUST BEGIN TO YIELD. THE OPTIMUM TORQUE IS 80% OF THIS VALUE.

(c) THE TENSILE STRENGTH IS BASED ON 56 KSI AND THE TENSILE STRESS AREA PER ASME B1.1.
 (d) TORQUE VALUES LISTED ARE FOR PLAIN SCREWS. FOR CADMIUM PLATED SCREWS, MULTIPLY RECOMMENDED SEATING TORQUE BY .75; FOR ZINC PLATED SCREWS MULTIPLY BY 1.40
 (e) RUNOUT - SOCKET TO BODY WITHIN "X" T. I. R.

TOLERANCES ±.010 AND ±2°	FSCM NO. 56878	TITLE	STANDARDS AND SPECIFICATIONS
SURFACE ROUGHNESS 125	CUSTODIAN: JENKINTOWN, PA.	SCREW, 82° FLAT HEAD HEXAGON RECESS AUSTENITIC STAINLESS STEEL, 56 KSI U. T. S.	FF-S-86 EXCEPT AS NOTED
UNLESS OTHERWISE NOTED	DRAFTED IN ACCORDANCE WITH ASME Y14.5M		PART NUMBER: 94701()-()-()-()
APPROVED:	DATE: 4/12/97		
APPROVED: L KLINE	DATE: 3/12/03		SHEET 1 OF 3



DRAWING NUMBER
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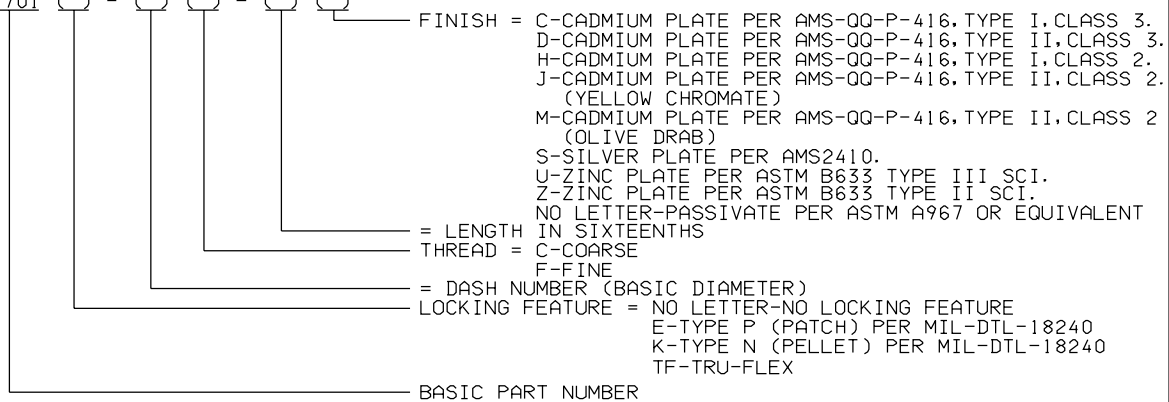
TABLE IV

FOR LENGTHS SHORTER THAN LISTED, (LENGTHS ABOVE HEAVY LINE) SCREWS WILL BE THREADED TO WITHIN 3 THREAD PITCHES OF THE HEAD.

BODY AND GRIP LENGTHS FOR FLAT HEAD SOCKET SCREWS																		
SIZE	#0		#1		#2		#3		#4		#5		#6		#8		#10	
NOM. LENGTH	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B
3/4	0.250	0.190																
7/8	0.250	0.190																
1	0.500	0.440	0.250	0.170	0.250	0.160	0.250	0.150										
1-1/4	0.750	0.690	0.620	0.550	0.620	0.540	0.620	0.520	0.500	0.380	0.500	0.380	0.500	0.340	0.380	0.220		
1-1/2			0.880	0.800	0.880	0.790	0.880	0.770	0.500	0.380	0.500	0.380	0.500	0.340	0.380	0.220	0.620	0.420
1-3/4					1.120	1.040	1.120	1.020	1.000	0.880	1.000	0.880	1.000	0.840	0.880	0.720	0.620	0.420
2							1.380	1.270	1.000	0.880	1.000	0.880	1.000	0.840	0.880	0.720	0.620	0.420
2-1/4									1.500	1.380	1.500	1.380	1.500	1.340	1.380	1.220	1.120	0.920
2-1/2													1.500	1.340	1.380	1.220	1.120	0.920
2-3/4													2.000	1.840	1.880	1.720	1.620	1.420
3															1.880	1.720	1.620	1.420
3-1/4															2.380	2.222	2.120	1.920
3-1/2																	2.620	2.420
3-3/4																	2.620	2.420
4																	3.120	2.920

SIZE	1/4		5/16		3/8		7/16		1/2		5/8		3/4		7/8		1	
NOM. LENGTH	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B	L _G	L _B
1-3/4	0.750	0.500																
2	0.750	0.500	0.880	0.600														
2-1/4	1.250	1.000	0.880	0.600	1.000	0.690												
2-1/2	1.250	1.000	1.380	1.100	1.000	0.690	1.120	0.770	1.000	0.620								
2-3/4	1.750	1.500	1.380	1.100	1.500	1.190	1.120	0.770	1.000	0.620								
3	1.750	1.500	1.880	1.600	1.500	1.190	1.620	1.270	1.000	0.620								
3-1/4	2.250	2.000	1.880	1.600	2.000	1.690	1.620	1.270	1.750	1.360	1.500	1.040						
3-1/2	2.250	2.000	2.380	2.100	2.000	1.690	2.120	1.770	1.750	1.360	1.500	1.040	1.500	1.000				
3-3/4	2.750	2.500	2.380	2.100	2.500	2.190	2.120	1.770	1.750	1.360	1.500	1.040	1.500	1.000	1.500	0.940		
4	2.750	2.500	2.880	2.600	2.500	2.190	2.620	2.270	2.500	2.120	2.250	1.800	1.500	1.000	1.500	0.940	1.500	0.880
4-1/4	3.250	3.000	2.880	2.600	3.000	2.690	2.620	2.270	2.500	2.120	2.250	1.800	1.500	1.000	1.500	0.940	1.500	0.880
4-1/2	3.250	3.000	3.380	3.100	3.000	2.690	3.120	2.770	2.500	2.120	2.250	1.800	2.500	2.000	1.500	0.940	1.500	0.880
4-3/4	3.750	3.500	3.380	3.100	3.500	3.190	3.120	2.770	3.250	2.860	3.000	2.540	2.500	2.000	2.500	1.940	1.500	0.880
5	3.750	3.500	3.880	3.600	3.500	3.190	3.620	3.270	3.250	2.860	3.000	2.540	2.500	2.000	2.500	1.940	2.500	1.880
5-1/4	4.250	4.000	3.880	3.600	4.000	3.690	3.620	3.270	3.250	2.860	3.000	2.540	2.500	2.000	2.500	1.940	2.500	1.880
5-1/2			4.380	4.100	4.000	3.690	4.120	3.770	4.000	3.620	3.750	3.300	3.500	3.000	2.500	1.940	2.500	1.880
5-3/4			4.380	4.100	4.500	4.190	4.120	3.770	4.000	3.620	3.750	3.300	3.500	3.000	3.500	2.940	2.500	1.880
6			4.880	4.600	4.500	4.190	4.620	4.270	4.000	3.620	3.750	3.300	3.500	3.000	3.500	2.940	3.500	2.880
6-1/4			4.880	4.600	5.000	4.690	4.620	4.270	4.750	4.360	4.500	4.040	3.500	3.000	3.500	2.940	3.500	2.880
6-1/2			5.380	5.100	5.000	4.690	5.120	4.770	4.750	4.360	4.500	4.040	4.500	4.000	3.500	2.940	3.500	2.880
6-3/4					5.500	5.190	5.120	4.770	4.750	4.360	4.500	4.040	4.500	4.000	4.500	3.940	3.500	2.880
7					5.500	5.190	5.620	5.270	5.500	5.120	5.250	4.800	4.500	4.000	4.500	3.940	4.500	3.880
7-1/4					6.000	5.690	5.620	5.270	5.500	5.120	5.250	4.800	4.500	4.000	4.500	3.940	4.500	3.880
7-1/2					6.000	5.690	6.120	5.770	5.500	5.120	5.250	4.800	5.500	5.000	4.500	3.940	4.500	3.880
7-3/4					6.500	6.120	6.120	5.770	6.250	5.860	6.000	5.540	5.500	5.000	5.500	4.940	4.500	3.880
8						6.620	6.270	6.250	5.860	6.000	5.540	5.500	5.000	5.500	4.940	5.500	4.880	
8-1/2						7.120	6.770	7.000	6.620	6.750	6.300	6.500	6.000	5.500	4.940	5.500	4.880	
9						7.620	7.270	7.000	6.620	6.750	6.300	6.500	6.000	6.750	6.90	6.500	5.880	
9-1/2						8.000	7.620	7.750	7.300	7.750	7.300	7.500	7.000	6.750	6.90	6.500	5.880	
10								8.000	7.620	7.750	7.300	7.500	7.000	7.750	7.90	7.500	6.880	
11										9.250	8.800	9.000	8.500	8.750	8.90	8.500	7.880	
12										10.250	9.800	10.000	9.500	9.750	9.90	9.500	8.880	
13												1.000	0.500	1.000	0.90	0.500	0.880	
14												2.000	1.500	1.750	1.90	1.500	0.880	
15												3.000	2.500	2.750	2.90	2.500	1.880	
16														3.750	3.90	3.500	2.880	
17														4.750	4.90	4.500	3.880	
18														5.750	5.90	5.500	4.880	
19																6.500	5.880	
20																	7.500	6.880

1. MATERIAL: AUSTENITIC STAINLESS STEEL PER CHEMISTRY OF ASTM A493.
2. FINISH: SEE NOTE 5.
3. DIMENSIONS AND GEOMETRIC TOLERANCING PER ASME B18.3 - INCLUDING MANUFACTURING NOTES NOT LISTED IN THIS DRAWING.
4. MARK SPS' MANUFACTURER'S IDENTIFICATION.
5. PART NUMBERING: 94701 () - () () - () ()



TOLERANCES ±.010 AND ±2°
SURFACE ROUGHNESS 125
UNLESS OTHERWISE NOTED

DRAFTED
IN ACCORDANCE
WITH ASME Y14.5M



PART NUMBER:
94701()-() ()-() ()



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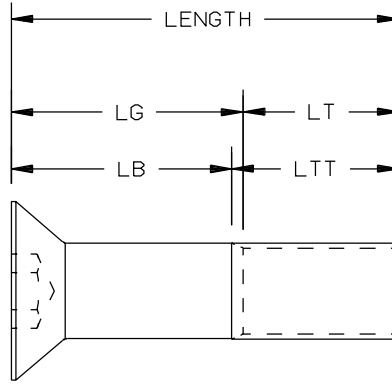


TABLE V

BASIC THREAD DIAMETER	LT THREAD LENGTH MIN	LTT TOTAL THREAD LENGTH MAX
#0	0.50	0.62
#1	0.62	0.77
#2	0.62	0.80
#3	0.62	0.83
#4	0.75	0.99
#5	0.75	1.00
#6	0.75	1.05
#8	0.88	1.19
#10	0.88	1.27
1/4	1.00	1.50
5/16	1.12	1.71
3/8	1.25	1.94
7/16	1.38	2.17
1/2	1.50	2.38
5/8	1.75	2.82
3/4	2.00	3.25
7/8	2.25	3.69
1	2.50	4.12
1-1/8	2.81	4.65
1-1/4	3.12	5.09
1-3/8	3.44	5.65
1-1/2	3.75	6.08

- A) THE LENGTH OF THE THREAD SHALL BE MEASURED, PARALLEL TO THE AXIS OF THE SCREW, FROM THE EXTREME POINT TO THE LAST COMPLETE (FULL-FORM) THREAD. THREAD LENGTH, ON SOCKET FLAT COUNTERSUNK HEAD CAP SCREWS, SHALL BE AS DEFINED BY TABLE IV AND APPLICABLE NOTES.
- B) GRIP GAGING LENGTH (LG): GRIP GAGING LENGTH IS THE DISTANCE, MEASURED PARALLEL TO THE AXIS OF THE SCREW, FROM THE TOP OF THE HEAD TO THE FIRST COMPLETE (FULL-FORM) THREAD UNDER THE HEAD - SEE SHEET 3.
- C) BODY LENGTH (LB): BODY LENGTH IS THE LENGTH, MEASURED PARALLEL TO THE AXIS OF THE SCREW, OF THE UNTHREADED PORTION OF THE SHANK AND THE HEAD HEIGHT - SEE SHEET 3.
- D) TABULATED (LG) VALUES ARE MAXIMUM AND REPRESENT THE MINIMUM DESIGN GRIP LENGTH, INCLUDING THE REFERENCE HEAD HEIGHT, OF THE SCREW. THEY SHALL BE MEASURED FROM THE TOP OF THE HEAD TO THE FACE OF A GO THREAD RING GAGE, HAVING THE THREAD COUNTERSINK AND/OR COUNTERBORE REMOVED, WHICH HAS BEEN ASSEMBLED BY HAND AS FAR AS THE THREAD WILL PERMIT. THE TABULATED (LB) VALUES ARE MINIMUM AND REPRESENT THE MINIMUM BODY LENGTH, INCLUDING THE REFERENCE HEAD HEIGHT OF THE SCREW. THEY ARE EQUAL TO (LG) MINUS 5 TIMES THE PITCH OF THE UNRC THREAD FOR THE RESPECTIVE SCREW SIZE.
- E) SCREWS HAVING NOMINAL LENGTHS FALLING BETWEEN THOSE FOR WHICH (LG) AND (LB) VALUES ARE TABULATED IN TABLE IV SHALL HAVE (LG) AND (LB) DIMENSIONS CONFORMING WITH THOSE OF THE NEXT SHORTER TABULATED NOMINAL LENGTH FOR THE RESPECTIVE SCREW SIZE.
- F) FOR SCREWS OF NOMINAL LENGTHS LONGER THAN THOSE FOR WHICH (LG) AND (LB) VALUES ARE TABULATED IN TABLE IV AND FOR SCREWS OVER 1 INCH IN DIAMETER, THE MAXIMUM GRIP GAGING LENGTH (LG) AND THE MINIMUM BODY LENGTH (LB) OF THE SCREWS SHALL BE DETERMINED AS SHOWN IN TABLE V.

$LG = L - LT$
 $LB = L - LTT$
 WHERE: L = NOMINAL LENGTH; LT = MINIMUM THREAD LENGTH; LTT = MAXIMUM TOTAL THREAD LENGTH