	PITCH TPI		Stress area in²				BOLT/SCREW & STUD ASTM A320 L7M									NUT ASTM A194Gr. 7M				
BOLT SIZE							SHANK DIAMETER	WIDTH ACCROS FLATS	HEAD HEIGHT	YIELD STRESS	YIELD LOAD	TENSILE STRESS	TORQUE *	REDUCTION OF AREA	HARDNESS	ELONG-ATION #	WIDTH ACCROSS FLATS	HEAD HEIGHT	PROOF STRESS	PROOF LOAD	HARDNESS
Inch	UNC	UNF	8UN	UNC	UNF	8UN	Inch	Inch	Inch	ksi	8UN lbf	ksi	ft. lbf	%	HRB	%	Inch	Inch	ksi	8UN lbf	HRB
1/4	20	28		0.0318	0.0364																
5/16	18	24		0.0524	0.0580																
3/8	16	24		0.0775	0.0878		0.360~0.388	0.669~0.688	0.226~0.268	80	6,200	100	26	50-	-99	18-	0.669~0.688	0.341~0.377	150	11,630	84~99
7/16	14	20		0.1063	0.1187					80	8,500	100	42	50-	-99	18-			150	15,950	84~99
1/2	13	20		0.1419	0.1599		0.482~0.515	0.850~0.875	0.302~0.364	80	11,350	100	64	50-	-99	18-	0.850~0.875	0.464~0.504	150	21,290	84~99
9/16	12	18		0.182	0.203					80	14,560	100	92	50-	-99	18-			150	27,300	84~99
5/8	11	18		0.226	0.256		0.605~0.642	1.031~1.062	0.378~0.444	80	18,080	100	126	50-	-99	18-	1.031~1.062	0.587~0.631	150	33,900	84~99
3/4	10	16		0.334	0.373		0.729~0.768	1.212~1.250	0.455~0.524	80	26,720	100	224	50-	-99	18-	1.212~1.250	0.710~0.758	150	50,100	84~99
7/8	9	14		0.462	0.509		0.852~0.895	1.394~1.438	0.531~0.604	80	36,960	100	362	50-	-99	18-	1.394~1.438	0.833~0.885	150	69,300	84~99
1	8	12	8	0.606	0.663	0.606	0.976~1.022	1.575~1.625	0.591~0.700	80	48,480	100	542	50-	-99	18-	1.575~1.625	0.956~1.012	150	90,900	84~99
1 1/8	7	12	8	0.763	0.856	0.790	1.098~1.149	1.756~1.812	0.658~0.780	80	63,200	100	795	50-	-99	18-	1.756~1.812	1.079~1.139	150	118,500	84~99
1 1/4	7	12	8	0.969	1.073	1.000	1.223~1.277	1.938~2.000	0.749~0.876	80	80,000	100	1,119	50-	-99	18-	1.938~2.000	1.187~1.251	150	150,000	84~99
1 3/8	6	12	8	1.155	1.315	1.233	1.345~1.404	2.119~2.188	0.810~0.940	80	98,720	100	1,519	50-	-99	18-	2.119~2.188	1.310~1.378	150	185,100	84~99
1 1/2	6	12	8	1.405	1.581	1.492	1.470~1.531	2.300~2.375	0.902~1.036	80	119,360	100	2,003	50-	-99	18-	2.300~2.375	1.433~1.505	150	223,800	84~99
1 5/8			8			1.78	1.591~1.658	2.481~2.562	0.978~1.116	80	141,600	100	2,574	50-	-99	18-	2.481~2.562	1.556~1.632	150	265,500	84~99
1 3/4	5		8	1.90		2.08	1.716~1.785	2.662~2.750	1.054~1.196	80	166,400	100	3,258	50-	-99	18-	2.662~2.750	1.679~1.759	150	312,000	84~99
1 7/8			8			2.41	1.839~1.912	2.844~2.938	1.130~1.276	80	193,800	100	4,044	50-	-99	18-	2.844~2.938	1.802~1.886	150	361,500	84~99
2	4 1/2		8	2.50		2.77	1.964~2.039	3.025~3.125	1.175~1.388	80	221,600	100	4,958	50-	-99	18-	3.025~3.125	1.925~2.013	150	415,500	84~99
2 1/4	4 1/2		8	3.25		3.56	2.214~2.305	3.388~3.500	1.327~1.548	80	284,800	100	7,169	50-	-99	18-	3.388~3.500	2.155~2.251	150	534,000	84~99
2 1/2	4		8	4.00		4.44	2.461~2.559	3.750~3.875	1.479~1.708	80	355,200	100	9,935	50-	-99	18-	3.750~3.875	2.401~2.505	150	666,000	84~99
2 3/4	4		8	4.93		5.43	2.711~2.827	4.112~4.250	1.632~1.869	80	434,400	100	13,365	50-	-99	18-	4.112~4.250	2.647~2.759	150	814,500	84~99
3	4		8	5.97		6.51	2.961~3.081	4.475~4.625	1.815~2.060	80	520,800	100	17,479	50-	-99	18-	4.475~4.625	2.893~3.013	150	976,500	84~99
3 1/4	4		8	7.10		7.69				80	615,200	100	22,368	50-	-99	18-	4.838~5.000	3.124~3.252	150	1,153,500	84~99
3 1/2	4		8	8.33		8.96				80	716,800	100	28,067	50-	-99	18-	5.200~5.375	3.370~3.506	150	1,344,000	84~99
3 3/4	4		8	9.66		10.34				80	827,200	100	34,704	50-	-99	18-	5.562~5.750	3.616~3.760	150	1,551,000	84~99
4	4		8	11.08		11.81				80	944,800	100	42,280	50-	-99	18-	5.925~6.125	3.862~4.014	150	1,771,500	84~99
Dimensions							HEAVY HEX as per ANSI/ASME B18.2.1										HEAVY HEX as per ANSI/ASME B18.2.2				
Markings							'FPI' 'L7M'										'FPI' '7ML'				
Tempering °C							1150 (620 °C)										1150 (620° C)				
Heating for 24 Hours for the Nut °C																	1100 (590 °C)				
Hardness After Heating																	84 HRB				
Charpy Test Specimen 10X10X55							27 J min (Avg)										27 J min (Avg)				
Charpy V Notch Impact test at							-73 °C Temp										-73 C Temp				
Carbon							0.38-0.48										0.37-0.49				
Manganese							0.75-1.0										0.65-1.10				
Sulfur							-0.04										-0.04				
Silicon							0.15-0.35										0.15-0.35				
Chromium							0.80-1.1										0.75-1.20				
Molybdenum							0.15-0.25										0.15-0.25				
Nickle																					
Vanadium																					
Boron																					
Copper																					
Nitrogen							-0.035										-0.035				
Phosphorus																					
Material							Chromium-molybdenum Steel										AISI 4140/4142/4145				

Notes:

1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
2. Left hand side of '-' is minium value right hand side of '-' is maximam value
   Eg. 0.5-0.7 min is 0.5 and max is 0.7
   Eg. -0.8 max is 0.8 no minimam value
   Eg. 2.0- min is 2.0 no maximam value

* Torque value based on 75% of proof load and finish as received steel
\# Elongation in length of 4 times Diameter