FASTENAL®

ASTM A193/A193M B8 and B8M Class 1 Torque-Tension Guide

Caution: Stainless steel fasteners tend to gall, especially with long run downs, prevailing torque fasteners, impact drivers, and lack of lubrication. It is highly encouraged to use a lubricant such as graphite-based anti-seize or molybdenum disulfide based anti-seize or other commercially available anti-galling compounds and assemble with a slow and continuously applied torque to avoid galling.

Nominal Dia. (in.)	Threads per inch	Tensile Stress Area (sq. in.)	ASTM A193/A193M B8 and B8M Class 1			
			Lubricated Clamp Load (lbs)	Tightening Torque		Dry Clamp Load (lbs.)
				Lubricated K = 0.16	Dry K = 0.35	
Coarse Thread Series						
1/4	20	0.0318	716	29 in-lbs	33 in-lbs	382
5/16	18	0.0524	1180	59	69	629
3/8	16	0.0775	1744	9 ft-lbs	10 ft-lbs	930
7/16	14	0.1063	2392	14	16	1276
1/2	13	0.1419	3193	21	25	1703
9/16	12	0.1819	4094	31	36	2183
5/8	11	0.2260	5085	42	49	2712
3/4	10	0.3345	7525	75	88	4014
7/8	9	0.4617	10389	121	141	5541
1	8	0.6057	13629	182	212	7269
UN8 Thread Series						
1 1/4	8	0.9997	22493	375	437	11996
1 3/8	8	1.2335	27754	509	594	14802
1 1/2	8	1.4918	33566	671	783	17902
Fine Thread Series						
1/4	28	0.0364	818	33 in-lbs	38 in-lbs	436
5/16	24	0.0581	1306	65	76	697
3/8	24	0.0878	1976	10 ft-lbs	12 ft-lbs	1054
7/16	20	0.1187	2671	16	18	1425
1/2	20	0.1600	3599	24	28	1919
9/16	18	0.2030	4567	34	40	2436
5/8	18	0.2560	5759	48	56	3071
3/4	16	0.3730	8392	84	98	4476
7/8	14	0.5095	11463	134	156	6114
1	14	0.6799	15297	204	238	8159
1 1/4	12	1.0729	24141	402	469	12875
1 3/8	12	1.3147	29581	542	633	15777
1 1/2	12	1.5810	53360	1067	1245	18972

Notes: Lubricated Clamp Load based on 75% of yield. Dry Clamp Load based on 40% of yield to avoid galling

The torque values can only be achieved if nut (or tapped hole) has a proof load greater than or equal to the bolt's minimum ultimate tensile strength.

Torque values calculated from formula T=KDF, where

K = 0.16 for "lubricated" conditions

K = 0.35 "dry"