



# Torque For Flange Bolting (B7/L7 Studs)\*

ANSI / API 6A / ISO 10423:2003 Feb. 1, 2005

ASTM A193 Grade B7 Tensile and Yield Strength  
 2 1/2" and under - tensile 125 ksi; yield strength 105 ksi  
 Over 2 1/2" to 4" - tensile 115 ksi; yield 95 ksi  
 Over 4" to 7" - tensile 100; yield 75 ksi

ASTM A320 L7 Tensile and Yield Strength  
 Only covers 2 1/2" and under - tensile 125 ksi; yield strength 105 ksi

Source: API 6-A, 19th Appendix D, Table D1 & D2

Stud Diameter	Tension	PTFE Coated Bolt coefficient of Friction		Plain Bolt coefficient of Friction	
		Torque	Torque	Torque	Torque
Size	lbf	Nm	Ft. lbs	Nm	Ft. lbs
Inch		$f=0.07$	$f=0.07$	$f=0.13$	$f=0.13$
1/2"	7450	48	35	80	59
5/8"	11865	92	68	155	115
3/4"	17559	160	118	270	200
7/8"	24241	253	188	429	319
1"	31802	376	279	639	474
1 1/8"	41499	540	401	925	686
1 1/4"	52484	745	553	1285	953
1 3/8"	64759	996	739	1727	1281
1 1/2"	78322	1297	962	2261	1677
1 5/8"	93173	1653	1226	2894	2146
1 3/4"	109313	2069	1534	3636	2696
1 7/8"	126741	2549	1890	4493	3332
2"	145458	3097	2297	5476	4061
2 1/4"	186758	4418	3276	7851	5822
2 1/2"	233212	6068	4500	10828	8030
2 5/8"	233765	6394	4716	11429	8430
2 3/4"	257694	7354	5424	13168	9712
3"	309050	9555	7047	17156	12654
3 1/4"	365070	12154	8965	21878	16136
3 3/4"	491099	18685	13782	33766	24905
3 7/8"	525521	20620	15208	37293	27506
4"	561108	22683	16730	41057	30282

\*This chart is for general practice purposes only and should not be used in the engineering or design of any products. The most current edition of the API specification may be obtained on the API Standards website to make sure you have the most current edition of API 6A. For most the accurate references in critical situations torque values should be replaced with field measured tension values. Accurate stud tension is difficult to attain using torque, because friction has a significant effect on the torque-tension relationship. Any thread damage (however minor), additional lubrication, or standard deviations within the range can change friction and thereby the expected outcome.

**Sigma Fasteners, Inc.**  
 16723 Aldine Westfield  
 Houston, Texas 77032  
 Phone: (281) 214-8800  
 Sales@SigmaFasteners.com