



Nickel Systems Torque Tables

Hastelloy C276

Min Yield Strength (σ_y)	41.0	KSI	41,000	PSI	UNS N10276 Fastener Torque	
Bolt Nominal Diameter (D)	Threads	Stress Area (A)	Proof Load	Clamping Load	K value	
					Dry	0.20
					Lubricated	0.15
					Dry	Lubricated
in	#/in	in ²	lbf	lbf	ft-lbf	ft-lbf
1/4	20	0.0318	1,173.4	880.1	3.7	2.8
1/4	28	0.0364	1,343.2	1,007.4	4.2	3.1
5/16	18	0.0524	1,976.5	1,482.4	7.7	5.8
5/16	24	0.0580	2,187.8	1,640.8	8.5	6.4
3/8	16	0.0775	2,923.3	2,192.5	13.7	10.3
3/8	24	0.0878	3,311.8	2,483.9	15.5	11.6
7/16	14	0.1063	4,009.6	3,007.2	21.9	16.4
7/16	20	0.1187	4,477.4	3,358.0	24.5	18.4
1/2	13	0.1419	5,352.5	4,014.4	33.5	25.1
1/2	20	0.1599	6,031.4	4,523.6	37.7	28.3
9/16	12	0.1820	6,865.0	5,148.8	48.3	36.2
9/16	18	0.2030	7,657.2	5,742.9	53.8	40.4
5/8	11	0.2260	8,524.7	6,393.5	66.6	49.9
5/8	18	0.2560	9,656.3	7,242.2	75.4	56.6
3/4	10	0.3340	12,598.5	9,448.9	118.1	88.6
3/4	16	0.3730	14,069.6	10,552.2	131.9	98.9
7/8	9	0.4620	17,426.6	13,070.0	190.6	143.0
7/8	14	0.5090	19,199.5	14,399.6	210.0	157.5
1	8	0.6060	22,858.3	17,143.7	285.7	214.3
1	12	0.6630	25,008.4	18,756.3	312.6	234.5
1 1/4	7	0.9690	36,550.7	27,413.0	571.1	428.3
1 1/4	12	1.0730	40,473.6	30,355.2	632.4	474.3
1 1/2	6	1.4050	52,996.6	39,747.5	993.7	745.3
1 1/2	12	1.5800	59,597.6	44,698.2	1,117.5	838.1

Equations

$$= \pi / 4 * (D - 0.9743 / n)^2$$

$$= \sigma_y * A * 90\%$$

$$= \text{Proof Load} * 75\%$$

$$= k * D * \text{Clamp Load} * (1\text{ft}/12\text{in})$$

Assumptions: (1) Yield Strength is chosen based on ASTM B574 minimum standard for N10276 0.2% offset at room temperature. (2) This is for standard bolt, washer and nut connection. (3) This is for uniform materials for the bolt, washer & the nut. (4) This is for full thread engagement. (5) This is for new bolts and nuts without corrosion. (6) Our k values are typical. Typical machine oil was considered for lubrication. These values can fluctuate depending upon the source, type of oil and a variety of other factors. (7) This is considered under static load. Other factors such as vibration or dynamic applications were not considered. (8) These values are only appropriate for bolts under 6 inches. *This table was reviewed by an engineer & is believed by Nickel Systems to be accurate. However, it is not to be used as a substitute for professional engineering bolt design. Please consult a professional engineer. Nickel Systems assumes no liability for any use of this table beyond its intended purpose.*