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Nickel Systems Torque Tables

Incoloy 800

Min Yield Strength (σ_y)	35.0	KSI	35,000	PSI	UNS N08800 Fastener Torque

Bolt Nominal Diameter (D)	Threads	Stress Area (A)	Proof Load	Clamping Load	K value: Dry	K value: Lubricated
					0.22	0.13
					Dry	Lubricated
in	#/in	in^2	lbf	lbf	ft-lbf	ft-lbf
1/4	20	0.0318	1,001.7	751.3	3.4	2.0
1/4	28	0.0364	1,146.6	860.0	3.9	2.3
5/16	18	0.0524	1,687.3	1,265.5	7.3	4.3
5/16	24	0.0580	1,867.6	1,400.7	8.0	4.7
3/8	16	0.0775	2,495.5	1,871.6	12.9	7.6
3/8	24	0.0878	2,827.2	2,120.4	14.6	8.6
7/16	14	0.1063	3,422.9	2,567.1	20.6	12.2
7/16	20	0.1187	3,822.1	2,866.6	23.0	13.6
1/2	13	0.1419	4,569.2	3,426.9	31.4	18.6
1/2	20	0.1599	5,148.8	3,861.6	35.4	20.9
9/16	12	0.1820	5,860.4	4,395.3	45.3	26.8
9/16	18	0.2030	6,536.6	4,902.5	50.6	29.9
5/8	11	0.2260	7,277.2	5,457.9	62.5	37.0
5/8	18	0.2560	8,243.2	6,182.4	70.8	41.9
3/4	10	0.3340	10,754.8	8,066.1	110.9	65.5
3/4	16	0.3730	12,010.6	9,008.0	123.9	73.2
7/8	9	0.4620	14,876.4	11,157.3	179.0	105.8
7/8	14	0.5090	16,389.8	12,292.4	197.2	116.5
1	8	0.6060	19,513.2	14,634.9	268.3	158.5
1	12	0.6630	21,348.6	16,011.5	293.5	173.5
1 1/4	7	0.9690	31,201.8	23,401.4	536.3	316.9
1 1/4	12	1.0730	34,550.6	25,913.0	593.8	350.9
1 1/2	6	1.4050	45,241.0	33,930.8	933.1	551.4
1 1/2	12	1.5800	50,876.0	38,157.0	1,049.3	620.1

Equations	$= \pi / 4 * (D - 0.9743 / n)^2$	$= \sigma_y * A * 90\%$	= Proof Load * 75%	= k * D * Clamp Load * (1ft/12in)

Assumptions: (1) Yield Strength is chosen based on ASTM B 408 minimum standard for N08800 0.2% offset at room temperature for hot worked rods and bars. (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. Molybdenum disulfide-based and nickel-based anti-seize lubricants were 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.*