



Nickel Systems Torque Tables

2507 Super Duplex

Min Yield Strength (σ_y)	80.0	KSI	80,000	PSI	UNS S32507 Fastener Torque	
Bolt Nominal Diameter (D)	Threads	Stress Area (A)	Proof Load	Clamping Load	K value	
					Dry	0.18
					Lubricated	0.12
					Dry	Lubricated
in	#/in	in ²	lbf	lbf	ft-lbf	ft-lbf
1/4	20	0.0318	2,289.6	1,717.2	6.4	4.3
1/4	28	0.0364	2,620.8	1,965.6	7.4	4.9
5/16	18	0.0524	3,856.6	2,892.5	13.6	9.0
5/16	24	0.0580	4,268.8	3,201.6	15.0	10.0
3/8	16	0.0775	5,704.0	4,278.0	24.1	16.0
3/8	24	0.0878	6,462.1	4,846.6	27.3	18.2
7/16	14	0.1063	7,823.7	5,867.8	38.5	25.7
7/16	20	0.1187	8,736.3	6,552.2	43.0	28.7
1/2	13	0.1419	10,443.8	7,832.9	58.7	39.2
1/2	20	0.1599	11,768.6	8,826.5	66.2	44.1
9/16	12	0.1820	13,395.2	10,046.4	84.8	56.5
9/16	18	0.2030	14,940.8	11,205.6	94.5	63.0
5/8	11	0.2260	16,633.6	12,475.2	117.0	78.0
5/8	18	0.2560	18,841.6	14,131.2	132.5	88.3
3/4	10	0.3340	24,582.4	18,436.8	207.4	138.3
3/4	16	0.3730	27,452.8	20,589.6	231.6	154.4
7/8	9	0.4620	34,003.2	25,502.4	334.7	223.1
7/8	14	0.5090	37,462.4	28,096.8	368.8	245.8
1	8	0.6060	44,601.6	33,451.2	501.8	334.5
1	12	0.6630	48,796.8	36,597.6	549.0	366.0
1 1/4	7	0.9690	71,318.4	53,488.8	1,002.9	668.6
1 1/4	12	1.0730	78,972.8	59,229.6	1,110.6	740.4
1 1/2	6	1.4050	103,408.0	77,556.0	1,745.0	1,163.3
1 1/2	12	1.5800	116,288.0	87,216.0	1,962.4	1,308.2

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 A276 minimum standard for S32507 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. Anti-seize or moly lubricant 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.*