877-844-8595
www.AFTFasteners.com

Suggested Starting Torque Values

ASTM A354 Grade BD / SAE Grade 8

Bolt Size (in)	TPI	Tension (lbs)		Tightening Torque Range (ft lbs) (Min - Max)	
		Min.	Max.	Lubricated	Plain
1/4	20	3,800	2,850	6	12
5/16	18	6,300	4,725	12	25
3/8	16	9,300	6,975	22	44
7/16	14	12,750	9,563	35	70
1/2	13	17,050	12,788	53	107
9/16	12	21,850	16,388	77	154
5/8	11	27,100	20,325	106	212
3/4	10	40,100	30,075	188	376
7/8	9	55,450	41,577	303	606
1	8	72,700	54,525	454	909
1-1/8	7	91,550	68,663	644	1,287
1-1/4	7	120,000	90,000	938	1,875
1-3/8	6	138,600	103,950	1,191	2,382
1-1/2	6	168,600	126,450	1,581	3,161
1-3/4	5	228,000	171,000	2,494	4,988
2	4-1/2	300,000	225,000	3,750	7,500
2-1/4	4-1/2	390,000	292,500	5,484	10,969
2-1/2	4	480,000	360,000	7,500	15,000
2-3/4	4	517,650	388,238	8,897	17,794
3	4	626,850	470,138	11,753	23,507
3-1/4	4	745,500	559,125	15,143	30,286
3-1/2	4	874,650	655,988	19,133	38,266
3-3/4	4	1,014,300	760,725	23,773	47,545
4	4	1,163,400	872,550	29,085	58,100

Notes:

1. Values calculated using industry acepted formula T = KDP where T = torque, K = torque coefficient (dimensionless), D = nominal diameter (inches), P = bolt clamp load (lbs).
2. K values: waxed (e.g. pressure wax as supplied on high strength nuts) = .10, hot dip galvanized = .25, and plain non-plated bolts (as received) = .20.
3. Torque has been converted into ft/lbs by dividing the result of the formula by 12.
4. All calculations are for Coarse Thread Series (UNC).
5. Grade 2 calculations only cover fasteners ¼" - ¾" in diameter up to 6" long. For longer fasteners, the torque is reduced significantly.
6. Clamp loads are based on 75% of the minimum proof loads for each grade and size.
7. Proof load, stress area, yield strength, and other data is based on IFI 7th Edition (2003) Technical Data N-68, SAE J429, ASTM A307, A325, A354, A449, and A490.

These torque calculations are estimates and are only offered as a guide. Because there are many variables that affect the torque-tension relationship, the only way to determine the correct torque is through experimentation under actual joint and assembly conditions.

Providing solutions to your sourcing needs

© 2014 Copyright. AFT Fasteners