

Bolt Tightening Calculation for Structural Bolts (Torque & Lubricity Vs Tension)

Nut Turn Resistance factor	Re-Lube	New	Dry	light rust	
	Low	Average	High	Very High	
Bolt Diameter	0.75	0.75	0.75	0.75	
Pre Tension Required in kips	35	35	35	35	
Snug Tight Torque in ft lbs	50	70	84	105	
Arbitration Torque Value in ft lbs	315	438	525	656	
Verification Torque Value in ft lbs	331	460	551	689	
Calculated snug tension in lbs	5600	5600	5600	5600	
Size	Est. Snug	PT & SC	Verification	Max Tensile	DTI Tension
5/8 inch .625 A325	3 kips	19 kips	20 kips	27.1 kips	1--2 Gaps
5/8 inch .625 A490	4 kips	24 kips	25 kips	33.9 kips	2--3 Gaps
3/4 inch .75 A325	4 kips	28 kips	29 kips	40.1 kips	2--3 Gaps
3/4 inch .75 A490	5 kips	35 kips	37 kips	50.1 kips	2--3 Gaps
7/8 inch .875 A325	6 kips	39 kips	41 kips	55.4 kips	2--3 Gaps
7/8 inch .875 A490	7 kips	49 kips	51 kips	69.3 kips	2--3 Gaps
1 inch A325	8 kips	51 kips	54 kips	72.7 kips	2--3 Gaps
1 inch A490	10 kips	64 kips	67 kips	90.9 kips	3--4 Gaps
1 1/4 inch A325	11 kips	71 kips	75 kips	101.7 kips	3--4 Gaps
1 1/4 inch A490	16 kips	102 kips	107 kips	145.3 kips	3--4 Gaps