



Tightening Torque for UNC Grade 5 Bolts

Bolt Diameter	Tebstile Stress Area inch	Tensile Strength lb	Proof Load lbs	Clamp Load lbs	Zinc Plated	Unplated (lightly oiled)	Unplated (wax coated)
					Plain (Dry) lbf.ft	Lightly Lubricated lbf.ft	Well Lubricated lbf.ft
1/4-20	0.0318	3800	2700	2025	8	6	4
5/16-18	0.0524	6300	4450	3338	17	13	9
3/8-16	0.0775	9300	6600	4950	31	23	15
7/16-14	0.1063	12800	9050	6788	49	35	25
1/2-13	0.1419	17000	12100	9038	75	55	38
9/16-12	0.1820	21800	15500	11588	109	80	54
5/8-11	0.2260	27100	19200	14400	150	110	75
3/4-10	0.3340	40100	28400	21300	266	200	133
7/8-9	0.4620	55400	39300	29438	429	320	215
1-8	0.6060	72700	51500	38625	644	480	322
1 1/8-7	0.7630	80100	56500	42338	794	600	397
1 1/4-7	0.9690	101700	71700	53775	1120	840	560
1 3/8-6	1.1550	121300	85500	64088	1469	1100	734
1 1/2-6	1.4050	147500	104000	78000	1950	1460	975



Tightening Torque For UNC Grade 8 Bolts

Bolt Diameter	Tebstile Stress Area inch	Tensile Strength lb	Proof Load lbs	Clamp Load lbs	Zinc Plated	Unplated (lightly oiled)	Unplated (wax coated)
					Plain (Dry) lbf.ft	Lightly Lubricated lbf.ft	Well Lubricated lbf.ft
1/4-20	0.0318	4750	3800	2850	12	9	6
5/16-18	0.0524	7850	6300	4725	25	18	12
3/8-16	0.0775	11600	9300	6975	44	35	22
7/16-14	0.1063	15900	12800	9563	70	55	35
1/2-13	0.1419	21300	11700	12788	107	80	53
9/16-12	0.1820	27300	21800	16388	154	110	77
5/8-11	0.2260	33900	27100	20325	212	170	106
3/4-10	0.3340	50100	40100	30075	376	280	188
7/8-9	0.4620	69300	50400	41588	606	460	303
1-8	0.6060	90900	72700	54525	909	680	454
1 1/8-7	0.7630	114400	91600	68663	1287	960	644
1 1/4-7	0.9690	145400	116300	90000	1875	1360	938
1 3/8-6	1.1550	173200	138600	103950	2382	1780	1191
1 1/2-6	1.4050	210800	168600	126450	3163	2360	1581