

Cap screw markings and torque values

Current Usage	Much Used	Much Used	Used at Times
Minimum Tensile Strength	64,000 PSI	105,000	150,000 PSI
Quality of Material	Indeterminate	Min. Commercial	Best Commercial
S.A.E. GRADE NUMBER	Grade 1 or 2	Grade 5	Grade 8
			
Bolt size (Inches / Thread)	Torque (foot pounds)	Torque (foot pounds)	Torque (foot pounds)
1/4 - 20	5	8	12
1/4 - 28	6	10	14
5/16 - 18	11	17	24
5/16 - 24	13	19	27
3/8 - 16	18	31	44
3/8 - 24	20	35	49
7/16 - 14	28	49	70
7/16 - 20	30	55	78
1/2 - 13	39	75	105
1/2 - 20	41	85	120
9/16 - 12	51	110	155
9/16 - 18	55	120	170
5/8 - 11	83	150	210
5/8 - 18	95	170	240
3/4 - 10	105	270	375
3/4 - 16	115	295	420
7/8 - 9	160	395	605
7/8 - 14	175	435	675
1 - 8	235	590	910
1 - 14	250	660	990

Important Notes

- 1). Values shown above are **typical dry torque** for general reference.
- 2). Lubricated threads usually require **20-30% less torque**.
- 3). Critical joints (lifting, pressure, structural) must use **engineer-specified torque**.
- 4). Inspect threads, washers, and bolt condition before tightening.
- 5). Replace damaged or stretched fasteners immediately.
- 6). Manufactures marks vary. All of these are grade 5.




- 7). Bolts threaded into aluminum may require reductions in torque of 30% or more unless inserts are used.
- 8). Reduce torque 10% when engine oil is used as a lubricant
- 9). **DO NOT USE TORQUE VALUES ABOVE WHEN ENGINEERING TORQUE VALUES ARE SPECIFIED**
- 10). Torque values above are **not** to be used for Brass, Bronze or Stainless Steel.