

# Bolt and Nut Torque Chart

Recommended torque values for SAE and Metric bolts (Dry vs. Lubricated).

## SAE Bolt Torque (ft-lbs)

Size	TPI	Gr 5 Dry	Gr 5 Lub	Gr 8 Dry	Gr 8 Lub
1/4"	20	9	6.3	13	9
1/4"	28	10	7.3	14	10
5/16"	18	18	13	25	18
5/16"	24	20	14	28	20
3/8"	16	33	23	45	33
3/8"	24	37	26	50	37
7/16"	14	52	37	75	52
7/16"	20	58	41	85	58
1/2"	13	80	57	115	80
1/2"	20	90	64	130	90
5/8"	11	159	112	225	159
5/8"	18	180	128	250	180
3/4"	10	282	200	400	282
3/4"	16	315	223	450	315

## Metric Bolt Torque (N-m)

Size	Pitch	8.8 Dry	8.8 Lub	10.9 Dry	10.9 Lub	12.9 Dry	12.9 Lub
M6	1.0	11	9.8	17	15	20	18
M8	1.25	28	25	41	38	49	45
M10	1.5	56	51	82	77	98	92
M12	1.75	96	87	143	130	170	160
M16	2.0	240	216	355	320	425	380
M20	2.5	460	414	690	621	825	770

### Important Notes:

- Values are general guidelines. Always follow manufacturer specifications.
- 'Lubricated' assumes use of oil, grease, or anti-seize (approx.  $K=0.15-0.18$ ).
- 'Dry' assumes plain, unplated bolts with no lubrication.
- Do not overtighten; use a calibrated torque wrench.