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M14 · English · bolt-torque-chart-m14-en

Bolt Torque Chart — M14

M14 · **6 property classes** · **5 friction states** · **N·m (typ / min–max)** · **coarse + fine thread**

M14

N·m · As 115 mm²

Class	Rp0.2 (MPa)	Target preload (kN)	Dry / Black K 0.18–0.22 · N·m	Electro Zinc K 0.15–0.2 · N·m	Hot-Dip Galv. K 0.18–0.25 · N·m	Oiled K 0.12–0.15 · N·m	Wax / PTFE / Anti-seize K 0.08–0.12 · N·m
4.8	340	**27.4**	77 69–84	65 57–77	84 69–96	50 46–57	38 31–46
8.8	640	**51.5**	144 130–159	123 108–144	159 130–180	94 87–108	72 58–87
10.9	940	**75.7**	212 191–233	180 159–212	233 191–265	138 127–159	106 85–127
12.9	1100	**88.6**	248 223–273	211 186–248	273 223–310	161 149–186	124 99–149
A2-70	450	**36.2**	101 91–112	86 76–101	112 91–127	66 61–76	51 41–61
A4-80	600	**48.3**	135 122–149	115 101–135	149 122–169	88 81–101	68 54–81

Torque follows the K-factor (nut factor) method T = K·D·F: D is the nominal diameter and F the target preload = 70% of Rp0.2 × thread stress area (M14 As = 115 mm²). Yield strengths are published values from ISO 898-1 (carbon/alloy steel) and ISO 3506-1 (stainless A2/A4). K follows published empirical ranges per friction condition (Machinery's Handbook; the wax/PTFE/anti-seize band K≈0.10 follows Machine Design test data). The grease/MoS_2 band (K≈0.11) nearly overlaps anti-seize and is available in the calculator instead of a separate column.

Fine-Thread Torque Matrix

Class	Rp0.2 (MPa)	Target preload (kN)	Dry / Black K 0.18–0.22 · N·m	Electro Zinc K 0.15–0.2 · N·m	Hot-Dip Galv. K 0.18–0.25 · N·m	Oiled K 0.12–0.15 · N·m	Wax / PTFE / Anti-seize K 0.08–0.12 · N·m
4.8	340	**29.7**	83 75–92	71 62–83	92 75–104	54 50–62	42 33–50
8.8	640	**56**	157 141–172	133 118–157	172 141–196	102 94–118	78 63–94
10.9	940	**82.3**	230 207–253	196 173–230	253 207–288	150 138–173	115 92–138
12.9	1100	**96.3**	270 243–296	229 202–270	296 243–337	175 162–202	135 108–162
A2-70	450	**39.4**	110 99–121	94 83–110	121 99–138	72 66–83	55 44–66
A4-80	600	**52.5**	147 132–162	125 110–147	162 132–184	96 88–110	74 59–88

Cell shows the typical value; the small line below is the range (min–max).

Basis of Calculation & Sources

Boundary: this chart is a simplified K-factor estimate, not a full VDI 2230 analysis (which accounts for joint resilience, embedment and assembly method). Friction is the dominant variable — no single torque value exists without its friction state. Always follow the design specification or manufacturer torque table.

References

- ISO 898-1:2013 — Mechanical properties of fasteners made of carbon and alloy steel — https://www.iso.org/standard/60610.html
- ISO 3506-1:2020 — Mechanical properties of corrosion-resistant stainless steel fasteners (A2/A4) — https://www.iso.org/standard/70045.html
- GB/T 3098.1-2010 — Mechanical properties of bolts, screws and studs (CN national standard, official full text) — https://openstd.samr.gov.cn/bzgk/gb/std?std_no=GB%2FT%203098.1-2010
- GB/T 3098.6-2014 — Mechanical properties of stainless steel bolts, screws and studs (CN, official full text) — https://openstd.samr.gov.cn/bzgk/gb/std?std_no=GB%2FT%203098.6-2014
- ISO 16047:2005 — Fasteners: torque/clamp force testing (K-factor measurement method)
- Machinery's Handbook (30th ed.) — empirical K-factor ranges
- Machine Design — anti-seize compound friction test (K≈0.10)

Bolt Torque Chart — M14 — Yaxiio full-range reference PDF, pack v1 · generated 2026-09-10 · data source: yaxiio-customer/utils/fastenerCalc.ts (single source of truth) · methodology matches the online tool pages · https://www.yaxiio.com/en/tools/bolt-torque-chart/m14