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M36 · English · bolt-torque-chart-m36-en

Bolt Torque Chart — M36

M36 · 6 property classes · 5 friction states · N·m (typ / min–max) · coarse + fine thread

M36

N·m · As 817 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	**194.4**	1400 1260–1540	1190 1050–1400	1540 1260–1750	910 840–1050	700 560–840
8.8	640	**366**	2635 2372–2899	2240 1976–2635	2899 2372–3294	1713 1581–1976	1318 1054–1581
10.9	940	**537.6**	3871 3484–4258	3290 2903–3871	4258 3484–4838	2516 2322–2903	1935 1548–2322
12.9	1100	**629.1**	4529 4077–4982	3850 3397–4529	4982 4077–5662	2944 2718–3397	2265 1812–2718
A2-70	450	**257.4**	1853 1668–2038	1575 1390–1853	2038 1668–2316	1204 1112–1390	926 741–1112
A4-80	600	**343.1**	2471 2224–2718	2100 1853–2471	2718 2224–3088	1606 1482–1853	1235 988–1482

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 (M36 As = 817 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	**205.9**	1482 1334–1630	1260 1112–1482	1630 1334–1853	963 889–1112	741 593–889
8.8	640	**387.5**	2790 2511–3069	2372 2093–2790	3069 2511–3488	1814 1674–2093	1395 1116–1674
10.9	940	**569.2**	4098 3688–4508	3483 3074–4098	4508 3688–5123	2664 2459–3074	2049 1639–2459
12.9	1100	**666.1**	4796 4316–5275	4076 3597–4796	5275 4316–5994	3117 2877–3597	2398 1918–2877
A2-70	450	**272.5**	1962 1766–2158	1668 1471–1962	2158 1766–2452	1275 1177–1471	981 785–1177
A4-80	600	**363.3**	2616 2354–2877	2223 1962–2616	2877 2354–3270	1700 1569–1962	1308 1046–1569

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)

Disclaimer: This chart is an engineering estimation for selection and budgeting only. It does not constitute assembly instructions or acceptance criteria.

Bolt Torque Chart — M36 — 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/m36