WALL CHART · TRANSWORLD COMMERCIAL ENTERPRISES

Bolt property class chart

Sources: ISO 898-1:2013 Mechanical properties of fasteners made of carbon steel and alloy steel; ISO 3506-1:2020 Corrosion-resistant stainless steel fasteners; SAE J429; ASTM A193/A193M
Reviewed 11 Nov 2026. Reference values: the governing standard and your drawing take precedence.

Carbon and alloy steel, ISO 898-1 (MPa)

Class	Nominal tensile	Min. tensile Rm	Min. yield ReL / Rp0.2	Proof stress Sp	Notes
4.6	400	400	240	225	Low-carbon steel, general purpose
4.8	400	420	340	310	Low-carbon steel, cold-headed
5.6	500	500	300	280	Medium-carbon steel
5.8	500	520	420	380	Low or medium-carbon steel
6.8	600	600	480	440	Low or medium-carbon steel
8.8 (d ≤ 16)	800	800	640	580	Quenched and tempered; the common structural class
8.8 (d > 16)	800	830	660	600	Quenched and tempered
9.8 (d ≤ 16)	900	900	720	650	Quenched and tempered; up to M16 only
10.9	1000	1040	940	830	Quenched and tempered alloy or boron steel
12.9	1200	1220	1100	970	Quenched and tempered alloy steel; hydrogen-embrittlement risk if electroplated

Class 9.8 applies up to M16 only; 8.8 values change above M16. First number × 100 = nominal tensile strength; second × 10 = yield ratio in percent.

Stainless steel, ISO 3506-1 (MPa)

Class	Min. tensile Rm	Min. Rp0.2
A2-50 / A4-50	500	210
A2-70 / A4-70	700	450
A2-80 / A4-80	800	600

A2 = 304-type austenitic; A4 = 316-type with molybdenum for chlorides and marine use.

Inch grades, SAE J429 and ASTM A193 (ksi)

Grade	Sizes	Min. tensile	Min. yield	Nearest metric
SAE J429 Grade 2	1/4 to 3/4 in	74	57	4.6 to 5.6
SAE J429 Grade 5	1/4 to 1 in	120	92	8.8
SAE J429 Grade 5	over 1 to 1-1/2 in	105	81	8.8
SAE J429 Grade 8	1/4 to 1-1/2 in	150	130	10.9
ASTM A193 B7	up to 2-1/2 in	125	105	close to 8.8 / 10.9; specify A193 B7 by name

Equivalents are approximate: specify the grade the drawing calls for.