Bolt Grade Chart - Property Classes to ISO 898-1

Minimum values to ISO 898-1 for steel bolts, EN ISO 3506-1 for stainless. Nominal values from the marking: first figure x 100 = tensile strength, both figures x 10 = yield strength.
EKINSUN LTD - bolts and special fasteners machined to a stated class, MOQ 1 - https://www.ekinsun.com/custom-fasteners/bolt-grade-chart/

Property classes - ISO 898-1 minima

Class	Rm min N/mm2	Re min N/mm2	HV min	A min %	Material
4.6	400	240	120	22	Carbon steel, not heat-treated
4.8	420	340	130	-	Carbon steel, not heat-treated
5.6	500	300	155	20	Carbon steel, not heat-treated
5.8	520	420	160	-	Carbon steel, not heat-treated
6.8	600	480	190	-	Carbon steel, not heat-treated
8.8	800	640	250	12	Carbon steel, quenched and tempere
9.8	900	720	290	10	Carbon steel, quenched and tempere
10.9	1040	940	320	9	Alloy steel, quenched and tempered
12.9	1220	1100	385	8	Alloy steel, quenched and tempered
8.8 > M16	830	660	255	12	Carbon steel, quenched and tempere

Stainless - EN ISO 3506-1

Class	Rm min	Rp0.2 min	What it is
A2-50 / A4-50	500	210	soft, as machined or formed - corrosion resistance, not stre
A2-70 / A4-70	700	450	cold-worked - the normal stock class for stainless bolts
A2-80 / A4-80	800	600	highly cold-worked - the strongest stainless class

Nut classes - ISO 898-2

Nut class	Carries bolt class
Nut class 5	5.6 / 5.8
Nut class 6	6.8
Nut class 8	8.8
Nut class 10	10.9
Nut class 12	12.9

SAE / ASTM grades vs metric classes

Grade	Tensile min	Yield min	Nearest class
SAE J429 Grade 2	74 ksi (510 MPa)	57 ksi (393 MPa)	~ class 5.8
SAE J429 Grade 5	120 ksi (827 MPa)	92 ksi (634 MPa)	~ class 8.8
SAE J429 Grade 8	150 ksi (1034 MPa)	130 ksi (896 MPa)	~ class 10.9
ASTM A325 Type 1	120 ksi (827 MPa)	92 ksi (634 MPa)	~ class 8.8 (structural)
ASTM A490	150 ksi (1034 MPa)	130 ksi (896 MPa)	~ class 10.9 (structural)

Notes: 10.9 and 12.9 are sensitive to hydrogen embrittlement - electroplated parts must be baked. 12.9 is also sensitive to stress corrosion cracking; in corrosive service a high class is not automatically the safe choice. Class values apply at room temperature. Shear: EN 1993-1-8 uses alpha_v = 0.6 (4.6, 5.6, 8.8) and 0.5 (4.8, 5.8, 6.8, 10.9) on Rm.