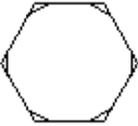


Bolt Grade Markings and Strength American

Head Markings	Grade or Class	Material	Nominal Size Range (Inches)	Mechanical Properties		
				Proof Load (psi)	Minimum Yield Strength (psi)	Minimum Tensile Strength (psi)
 No Markings	Grade 2	Low or Medium Carbon Steel	1/4 thru 3/4	55,000	57,000	74,000
			Over 3/4 thru 1-1/2	33,000	36,000	60,000
 3 Radial Lines	Grade 5	Medium Carbon Steel, Quenched and Tempered	1/4 thru 1	85,000	92,000	120,000
			Over 1 thru 1-1/2	74,000	81,000	105,000
 6 Radial Lines	Grade 8	Medium Carbon Alloy Steel, Quenched and Tempered	1/4 thru 1-1/2	120,000	130,000	150,000
Stainless markings vary. Most stainless is non-magnetic	18-8 Stainless	Steel alloy with 17-19% Chromium and 8-13% Nickel	1/4 thru 5/8		80,000 – 90,000	100,000 – 125,000
			3/4 thru 1		45,000 – 70,000	100,000
			Above 1			80,000 – 90,000

Tensile Strength: The maximum load in tension (pulling apart) which a material can withstand before breaking or fracturing.
Yield Strength: The maximum load at which a material exhibits a specific permanent deformation
Proof Load: An axial tensile load which the product must withstand without evidence of any permanent set.

Bolt Grade Markings and Strength

Metric

Head Markings	Grade or Class	Material	Nominal Size Range (Inches)	Mechanical Properties		
				Proof Load (psi)	Minimum Yield Strength (psi)	Minimum Tensile Strength (psi)
 8.8	Class 8.8	Medium Carbon Steel, Quenched and Tempered	All Sizes thru 1-1/2	85,000	92,000	120,000
 10.9	Class 10.9	Alloy Steel, Quenched and Tempered	All Sizes thru 1-1/2	120,000	130,000	150,000
Stainless markings vary. Most stainless is non-magnetic	A-2 Stainless	Steel alloy with 17-19% Chromium and 8-13% Nickel	1/4 thru 5/8		80,000 – 90,000	100,000 – 125,000
			3/4 thru 1			100,000
			Above 1		45,000 – 70,000	80,000 – 90,000

Tensile Strength: The maximum load in tension (pulling apart) which a material can withstand before breaking or fracturing.
Yield Strength: The maximum load at which a material exhibits a specific permanent deformation
Proof Load: An axial tensile load which the product must withstand without evidence of any permanent set.