






Bolt Grade Markings & Strength

American Bolts

Head Marking	Grade or Class	Material	Nominal Size Range (inches)	Mechanical Properties		
				Proof Load (psi)	Yield Strength Min. (psi)	Tensile Strength Min. (psi)
No Markings 	Grade 2	Low or Medium Carbon Steel	1/4" thru 3/4"	55,000	57,000	74,000
			7/8" thru 1-1/2"	33,000	36,000	60,000
3 Radial Lines 	Grade 5	Medium Carbon Steel, Quenched & Tempered	1/4" thru 1"	85,000	92,000	120,000
			1-1/8" thru 1-1/2"	74,000	81,000	105,000
6 Radial Lines 	Grade 8	Medium Carbon Alloy Steel, Quenched & 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"	-	40,000 min. 80,000 – 90,000 typical	100,000 – 125,000 typical
			3/4" thru 1"	-	40,000 min. 45,000 – 70,000 typical	100,000 typical
			Above 1"	-		80,000 – 90,000 typical

Metric Bolts

Head Marking	Grade or Class	Material	Nominal Size Range (inches)	Mechanical Properties		
				Proof Load (psi)	Yield Strength Min. (psi)	Tensile Strength Min. (psi)
	Class 8.8	Medium Carbon Steel, Quenched & Tempered	All sizes thru 1-1/2"	85,000	92,000	120,000
	Class 10.9	Alloy Steel, Quenched & Tempered	All Sizes thru 1-1/2"	120,000	130,000	150,000
Stainless markings vary. Most stainless is non-magnetic.	A-2 Stainless	Alloy steel with 17-19% Chromium and 8-13% Nickel	1/4" thru 5/8"	-	40,000 min. 80,000 – 90,000 typical	100,000 – 125,000 typical
			3/4" thru 1"	-	40,000 min. 45,000 – 70,000 typical	100,000 typical
			Above 1"	-		80,000 – 90,000 typical

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.

