






Bolt Grade Markings and Strength Chart

Head Marking	Grade and Material	Nominal Size Range (inch / mm)	Mechanical Properties		
			Proof Load (psi / MPa)	Min. Yield Strength (psi / MPa)	Min. Tensile Strength (psi / MPa)
US Bolts					
 No Markings	Grade 2 Low or medium carbon steel	1/4 thru 3/4	55,000 / 380	57,000 / 395	74,000 / 510
		Over 3/4 thru 1-1/2	33,000 / 230	36,000 / 250	60,000 / 415
 3 Radial Lines	Grade 5 Medium Carbon Steel, Quenched and Tempered	1/4 thru 3/4	85,000 / 585	92,000 / 630	120,000 / 830
		Over 3/4 thru 1-1/2	74,000 / 510	81,000 / 560	105,000 / 725
 6 Radial Lines	Grade 8 Medium Carbon Alloy Steel, Quenched and Tempered	1/4 thru 1-1/2	120,000 / 830	130,000 / 895	150,000 / 1,035
Metric Bolts					
 8.8	Class 8.8 Medium Carbon Steel, Quenched and Tempered	All Sizes below 16mm	84,000 / 580	93,000 / 640	116,000 / 800
		16mm - 72mm	87,000 / 600	96,000 / 660	120,000 / 830
 10.9	Class 10.9 Alloy Steel, Quenched and Tempered	5mm - 100mm	120,000 / 830	136,000 / 940	151,000 / 1040
12.9	Class 12.9 Alloy Steel, Quenched and Tempered	1.6mm - 100mm	141,000 / 970	160,000 / 1100	177,000 / 1220
<ul style="list-style-type: none">• 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.					