


























Bolt & Stud Grade Markings

ID Grade Mark	Specification	Material	Nominal Size Range (inches)	Tensile Min. (ksi)	Yield Min. (ksi)	Proof Load (ksi)
	SAE J429 Grade 2	Low or Medium Carbon Steel	1/4 - 3/4 7/8 - 1-1/2	74 60	57 36	55 33
	ASTM A307 Grade A	Low Carbon Steel	1/4 - 4	60	-	-
	ASTM A307 Grade B	Low Carbon Steel	1/4 - 4	Min. 60 Max 100	-	-
	SAE J429 Grade 5	Medium Carbon Steel - Quenched & Tempered	1/4 - 1 1-1/8 - 1-1/2	120 105	92 81	85 74
	ASTM A449 Type 1	Medium Carbon Steel - Quenched & Tempered	1/4 - 1 1-1/8 - 1-1/2 1-5/8 - 3	120 105 90	92 81 58	84 74 55
	SAE J429 Grade 8	Medium Alloy Steel - Quenched & Tempered	1/4 - 1-1/2	150	130	120
	ASTM A354 Grade BD	Alloy Steel - Quenched & Tempered	1/4 - 1-1/2 Over 2-1/2 - 4	150 140	130 115	120 105
	ASTM A193 Grade B7	AISI 4140, 4142, or 4145	1/4 - 1-1/2 2-3/4 - 4 4 - 7	125 115 100	105 95 75	- - -
	ASTM A193 Grade B7M 100% Hardness Tested	AISI 4140, 4142, or 4145	1/4 - 4 4 - 7	100 100	80 75	- -
	ASTM A193 Grade B16	Chrome Molybdenum Vanadium Alloy Steel	1/4 - 1-1/2 2-3/4 - 4 4 - 8	125 110 100	105 95 85	- - -
	ASTM A320 Grade L7	AISI 4140, 4142, or 4145	1/4 - 2-1/2	125	105	-
	ASTM A320 Grade L7M 100% Hardness Tested	AISI 4140, 4142, or 4145	1/4 - 2-1/2	100	80	-

Bolt & Stud Grade Markings (cont'd)

ID Grade Mark	Specification	Material	Nominal Size Range (inches)	Tensile Min. (ksi)	Yield Min. (ksi)	Proof Load (ksi)
	ASTM A193 ASTM A320 Grade B8	AISI 304	1/4 & Larger	75	30	–
	ASTM A193 ASTM A320 Grade B8 Class 2	AISI 304 Strain Hardened	1/4 – 3/4 7/8 – 1 1-1/8 – 1-1/4 1-1/4 – 1-1/2	125 115 105 100	100 80 65 50	– – – –
	ASTM A193 ASTM A320 Grade B8C	AISI 347	1/4 & Larger	75	30	–
	ASTM A193 ASTM A320 Grade B8C Class 2	AISI 347 Strain Hardened	1/4 – 3/4 7/8 – 1 1-1/8 – 1-1/4 1-1/4 – 1-1/2	125 115 105 100	100 80 65 50	– – – –
	ASTM A193 ASTM A320 Grade B8M	AISI 316	1/4 & Larger	75	30	–
	ASTM A193 ASTM A320 Grade B8M Class 2	AISI 316 Strain Hardened	1/4 – 3/4 7/8 – 1 1-1/8 – 1-1/4 1-1/4 – 1-1/2	110 100 95 90	95 80 65 50	– – – –
	ASTM A193 ASTM A320 Grade B8T	AISI 321	1/4 & Larger	75	30	–
	ASTM A193 ASTM A320 Grade B8T Class 2	AISI 321 Strain Hardened	1/4 – 3/4 7/8 – 1 1-1/8 – 1-1/4 1-1/4 – 1-1/2	125 115 105 100	100 80 65 50	– – – –
	ASTM A325 Type 1	Medium Carbon Steel Quenched & Tempered	1/2 – 1 1-1/8 – 1-1/2	120 105	92 81	85 74
	ASTM A325 Type 3	Atmospheric Corrosion Resisting Steel - Quenched & Tempered	1/2 – 1 1-1/8 – 1-1/2	120 105	92 81	85 74
	ASTM A490 Type 1	Alloy Steel Quenched & Tempered	1/2 – 1-1/2	Min. 150 Max 173	130	120
	ISO R898 Class 8.8	Medium Carbon Steel Quenched & Tempered	4mm & Larger	830 MPa (120 (ksi))	660 MPa (95 (ksi))	600 MPa (87 (ksi))
	ISO R898 Class 10.9	Alloy Steel - Quenched & Tempered	4mm & Larger	1040 MPa (150 (ksi))	940 MPa (136 (ksi))	830 MPa (120 (ksi))