ASTM A193 Grade B7

CHROMIUM-MOLYBDENUM ALLOY STEEL BOLTING

ASTM A193 Grade B7 is a quenched-and-tempered chromium-molybdenum alloy steel bolting grade used for bolts, studs, stud bolts, threaded rods and related components in high-temperature or high-pressure service. Typical applications include pressure vessels, valves, flanges, fittings, refineries, power plants and process piping systems.

Chemical composition

Element	C	Mn	P	S	Si	Cr	Mo
Minimum, %	0.36	0.65	-	-	0.15	0.75	0.15
Maximum, %	0.49	1.10	0.035	0.040	0.35	1.20	0.25

Mechanical properties

Property	2 1/2 in. and under	Over 2 1/2 to 4 in.	Over 4 to 8 in.
Tensile strength, min	125 ksi (860 MPa)	115 ksi (795 MPa)	100 ksi (690 MPa)
Yield strength, min	105 ksi (720 MPa)	95 ksi (655 MPa)	75 ksi (515 MPa)
Elongation, min	16%	16%	18%
Reduction of area, min	50%	50%	50%
Hardness, max	321 HBW / 35 HRC	321 HBW / 35 HRC	321 HBW / 35 HRC
Minimum tempering temperature	1100 F (593 C)	1100 F (593 C)	1100 F (593 C)

Available product forms

STUD BOLTS	HEX BOLTS	THREADED RODS	CUSTOM FASTENERS

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