ASTM A193 Grade B8M Stud Bolts

ASTM A193 specification covers alloy and stainless steel bolting for pressure vessels, valves, flanges, and fittings for high temperature or high pressure service, or other special purpose applications. Several grades are covered, including ferritic steels and austenitic stainless steels designated B5, B6, B7, B8, B8M, etc. Selection will depend upon design, service conditions, mechanical properties, and high temperature characteristics.

Grade	Tensile Class	Raw Material Description
B8M	Class 1	AISI 316 Stainless Steel, Carbide Solution Treated
B8M	Class 2	AISI 316 Stainless Steel, Carbide Solution Treated and Strain Hardened

ASTM A193 Grade B8M Chemical Composition(SS316)

Carbon, max	Manganese, max	Phosphorus, max	Sulfur, max	Silicon, max	Nickel	Chromium	Molybdenum
0.08	2	0.045	0.03	1	10.0-14.0	16.0 - 18.0	2.00 - 3.00

ASTM A193 Grade B8M Mechanical Properties

Grade	Diameter	Tensile Strength	Yield Strength	Elongation	Reduction	Hardness
Grade B8M, Class 1	All Diameters	515	205	30	50	223 HBW or 96 HRB

Class 1 are made from solution-treated material. Class 1A products (B8A, B8CA, B8MA, B8PA, B8FA, and B8TA) are solution-treated in the finished condition. Class2 products are solution-treated and strain-hardened.

ASTM A194 Grade 8M/8MA Hex Nuts Specification

ASTM A194 Grade 8M Chemical Components

Grade	Material	UNS Number	C, %	Mn, %	Ph, %	S, %	Si, %	Cr, %	Ni, %	Mo, %
8M/8MA	Type 316	S31600	0.08	2	0.045	0.03	1	16.0-18.0	10.0-14.0	2.00-3.00

ASTM A194 Grade 8M/8MA Hardness Requirement

Grade & Type	Brinell Hardness	Rockwell Hardness	
		C Scale	B Scale
8M/8MA	126-192	32 max	60 -90

Grades 8MA nuts shall be hot- or cold-forged or shall be machined from hot-forged, hot-rolled, or cold-drawn bars and the nuts shall subsequently be carbide-solution treated by heating them for a sufficient time at a temperature to dissolve chromium carbides followed by cooling at a rate sufficient to prevent reprecipitation of the carbides.