

ASTM Specifications

ASTM A193 Grade B7

Chromium molybdenum steel, normally AISI 4140, heat treated to 28-32 Rockwell Hardness, 125,000 PSI tensile strength, 105,000 PSI yield. It will hold its strength to 1,000 degrees F.

ASTM A193 Grade B&M

It has the same chemistry as B7. Physicals have max hardness of 235 Brinell or RC22. 100,000 PSI tensile and 80,000 PSI yield. Used in areas where H₂S is present.

ASTM A193 Grade B16

Chromium, molybdenum, vanadium steel. It has the same physicals as B7. Added vanadium allows it to hold its strength to 1,100 degrees F.

ASTM A193 Grade B8

18-8 grade stainless, non-magnetic, good corrosion resistance. 75,000 PSI tensile strength. Same material as AISI type 304 stainless steel.

ASTM A193 Grade B8M

This is similar to B8 fasteners, except with added molybdenum. It has better corrosion resistance than B8. Hex bolts, studs, and other fasteners are common to the B8M spec.

ASTM A193 Grade B8 (Class II)

Studs, bolts, and other fasteners found in this grade are considered the same as B8, except strained hardened. This is a cold working process which increases physical properties. 100,000 – 125,000 PSI tensile strength.

ASTM A193 Grade B8M (Class II)

Same as B8M, except strain hardened. 90,000 – 125,000 PSI tensile strength.

ASTM A193 Grade BC

18-8 grade stainless with additional element of columbium. Same as type 347 stainless steel.

ASTM A193 Grade B8T

18-8 grade stainless with additional element of titanium. Same as type 321 stainless steel.

ASTM A193 Grade B6

This has the same chemistry as AISI type 410 stainless steel, but is heat treated. 110,000 PSI tensile strength.

ASTM A193 Grade B5

Fasteners under B5 spec have the same chemistry as AISI type 501 stainless steel, but they are heat treated to 100,000 PSI tensile strength.

ASTM A320 Grade L7

Bolts, studs, and other fasteners under L7 grade have the same chemical and physical properties as B7, with an additional requirement that it meet a Charpy Test at 150 degrees F. Such fasteners are commonly used for low temperature service.

ASTM A320 Grade B8

Same in every way as A193 Grade B8.

ASTM A354 Grade BC

High strength bolts for normal atmospheric temperature. 125,000 PSI tensile strength. Lacks alloying elements of B7.



ASTM Specifications

ASTM A354 Grade BD

These hex bolts are the same as BC, except they have higher strength.

ASTM A449

Like A354, except has manganese added. 90,000 – 120,000 PSI tensile strength depending on size.