



ASTM A307 Bolts

Carbon-steel bolts & studs · general purpose · sizes 1/4" through 4"



Grade A
General use



Grade B
Flanged joints

Grade C (nonheaded anchor bolts) was superseded by ASTM F1554 Grade 36 in 2007; still furnished by many suppliers on request.

Grades

Grade	Typical Use	Head Marking
Grade A	Headed bolts, threaded rods, and bent bolts for general applications.	307A
Grade B	Heavy hex bolts and studs for flanged joints in cast-iron piping systems.	307B
Grade C	Nonheaded anchor bolts, bent or straight (superseded — see above).	—

Mechanical properties

Grade	Size Range	Tensile	Yield, min	Elongation, min
Grade A	1/4" thru 4"	60,000 psi min	—	18%
Grade B	1/4" thru 4"	60,000–100,000 psi	—	18%
Grade C	1/4" thru 4"	58,000–80,000 psi	36,000 psi	23%

Grade B carries a tensile range because it mates with cast-iron flanges, where excess strength is undesirable. Grades A and B have no specified yield.

Chemical requirements

Element	Grade A, max	Grade B, max
Carbon	0.29%	0.29%
Manganese	1.20%	1.20%
Phosphorus	0.04%	0.04%
Sulfur	0.15%	0.05%

Recommended nuts & equivalent

Bolt Grade	Size	Nut
Grades A & C	1/4" – 1-1/2"	ASTM A563 Grade A hex
Grades A & C	1-5/8" – 4"	ASTM A563 Grade A heavy hex
Grade B	1/4" – 4"	ASTM A563 Grade A heavy hex

Washers are unspecified for A307. In the SAE system, A307 is the usual equivalent to a Grade 2 fastener.