

ASTM A307

1. Scope

1.1 This specification covers the chemical and mechanical requirements of three grades of carbon steel bolts and studs in sizes 1/4 in. (6.35 mm) through 4 in. (104 mm). The fasteners are designated by "Grade" denoting tensile strength and intended use, as follows:

Grade	Description
Grade A	Bolts and studs having a minimum tensile strength of 60 ksi (414 MPa) and intended for general applications,
Grade B	Bolts and studs having a tensile strength of 60 to 100 ksi (414 to 690 MPa) and intended for flanged joints in piping systems with cast iron flanges, and
Grade C	Nonheaded anchor bolts, either bent or straight, having properties conforming to Specification A 36 (tensile strength of 58 to 80 ksi (400 to 550 MPa)) and intended for structural anchorage purposes.

1.1.1 The term *studs* includes stud stock, sometimes referred to as threaded rod.

1.2 This specification does not cover requirements for machine screws, thread cutting/forming screws, mechanical expansion anchors or similar externally threaded fasteners.

1.3 Suitable nuts are covered in Specification A 563. Unless otherwise specified, the grade and style of nut for each grade of fastener, of all surface finishes, shall be as follows:

Nuts of other grades and styles having specified proof load stresses (Specification A 563, Table 3) greater than the specified grade and style of nut are also suitable.

Fastener Grade and Size	Nut Grade and Style
A, C, 1/4 to 1 1/2 in.	A, hex
A, C, over 1 1/2 to 4 in.	A, heavy hex
B, 1/4 to 4 in.	A, heavy hex

1.4 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.5 Supplementary Requirement S1 of an optional nature is provided, which describes additional restrictions to be applied when bolts are to be welded. It shall apply only when specified in the inquiry, order, and contract.

2. Referenced Documents (*purchase separately*) The documents listed below are referenced within the subject standard but are not provided as part of the standard. ⓘ

ASTM Standards

[A563](#) Specification for Carbon and Alloy Steel Nuts

[A706/A706M](#) Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement

[A751](#) Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

[B695](#) Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

[D3951](#) Practice for Commercial Packaging

[F606](#) Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets

[F1470](#) Practice for Fastener Sampling for Specified Mechanical Properties and Performance Inspection

[F1554](#) Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

[F1789](#) Terminology for F16 Mechanical Fasteners

[F2329](#) Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

ASME Standards

ASME B18.24 Part Identifying Number (PIN) Code System Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990, <http://www.asme.org>.

Keywords

all thread rod; bolts; carbon steel; steel; studs; threaded rod;

ICS Code

ICS Number Code 21.060.10 (Bolts, screws, studs)