

FASTENERS

Spira Power's market presence, vast experience & existing infrastructure in the related products have given us the confidence to manufacture and supply fasteners of various specifications.

Stringent, In-House Quality Control

As we know the quality is the key for any business success, products are thoroughly checked for dimensions, finishing and to meet all industry standards/clients specific requirements.

Quality Sourcing

Spira have lots of experience in the steel industry, that helps us to source the best raw materials, to create our high-quality fasteners.

Bolting style and material grades for flanged joints are selected by service temperature, and corrosivity of the environment.

Bolt Lengths and Sizes: Bolt length and diameter are determined by the flange standard used. Each of the flange standards has a method for the determination of bolt length.

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 use.
- **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.
- **Grade C** Non headed anchor bolts, either bent or straight having a tensile strength of 58 to 80 ksi (400 to 550 MPa) and intended for structural anchorage purposes

Finished hex nuts are the most common type. Heavy hex nuts are used in high temperature and high pressure applications. This is the most common type of nut for flanged joints. Heavy hex nuts are slightly larger and thicker than finished hex nuts.

ASTM A193 covers alloy and stainless steel bolting material for pressure vessels, Valves, flanges, and fittings for high temperature or high pressure service, or other special purpose applications.

ASTM A194 covers a variety of carbon, alloy, and martensitic and austenitic stainless steel nuts. These nuts are intended for high-pressure or high-temperature service, or both.

For pipe flange connections, the dimensions of the Stud Bolts are defined in the flange standard ASME B16m with the material qualities for studs are defined in the different ASTM standards, and are indicated by Grade.

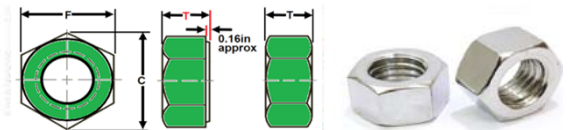
The nut and washer must be compatible with the selected stud-bolt material to avoid galvanic corrosion.



Marking of Stud Bolts Thread rods and nuts must be marked by the manufacturer with a unique identifier to identify the manufacturer or private label distributor, as appropriate. Below are a number of ASTM examples.



Hex Nuts (dimensional data) are defined in ASME B18.2.2, and even as bolts the threading in ASME B1.1. Depending on a customer specification, nuts must be both Sides chamfered or with on one side a washer-face.



Studs are measured parallel to the axis (L) from the first to the thread without the chamfers (points) (S) = free threads equals 1/3 time bolt dia.

Hex bolts are measured from under the head to the top of the bolt



Note.. To allow the use of hydraulic tensioning equipment, larger dimension studs shall be often one diameter longer than "standard". That bolts to have plastic end cap protection.

The common coating materials are:

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|----------------------|-------------------------|
| Electro zinc plating | Electro cadmium plating |
| PTFE Coating | Hot-dip galvanizing |
| Zinc-Nickel coating | Aluminum coating |
| Xylan | Xylar |
| Takecoat 1000 | |

