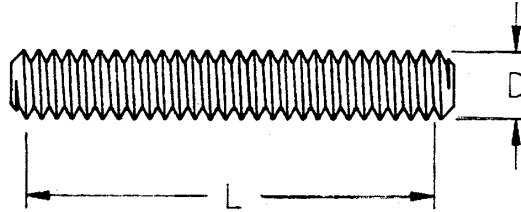




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## STUD BOLTS FOR PRESSURE-TEMPERATURE PIPING



Stud bolts for Pressure-Temperature Piping

### REFERENCE

Stud bolts for pressure-temperature applications conform to the requirements of ANSI/ASME B16.5, Steel Pipe Flanges and Flanged Fittings.

### LENGTH-FIRST TO FIRST

The length of stud bolt, measured parallel to the axis, is the distance from first thread to first thread. First thread is defined as the intersection of the major diameter of the thread with the base of the point. Please see the drawing above-this is confusing to most users!! Stud bolts are normally available in 1/4 in. length increments. Length tolerances, all stud bolt sizes, shall be as tabulated below:

Length, in.	Length Tolerance, in.
to 12	+/-0.062
over 12 to 18	+/-0.125
over 18	+/-0.250

### POINTS

Points shall be flat and chamfered, or sheared at option of the manufacturer. When points are flat and chamfered, the diameter of the flat shall not exceed the minor diameter of the thread, and shall be not less than one or more than two complete threads as measured from the extreme end parallel to the axis.

### THREADS

Threads shall be Unified inch coarse thread series (UNC), Class 2A, for all stud bolt sizes 1 in. and smaller, and Unified inch 8 thread series (8 UN), Class 2A, for all stud bolts larger than 1 in., in accordance with ANSI/ASME B1.1. Acceptability of screw threads shall be determined based on ANSI/ASME B1.3.

### MATERIAL

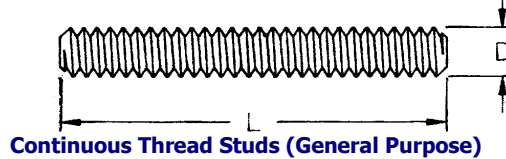
Chemical and mechanical requirements shall be specified by the purchaser and shall be in accordance with applicable ASME, ASTM, and ANSI codes and specifications current at the time of ordering.

### DESIGNATION

It is recommended that stud bolts be designated in the following sequence: product name, nominal size, threads per inch, length, material, and protective finish, if required.

Example: ANSI/ASME B16.5 stud bolt,  
5/8-11 x 3-1/2, ASTM A193, Grade B7, Zinc & Clear Chromate Plated

## GENERAL PURPOSE END-TO-END STUDS



### LENGTH

The length of stud, measured parallel to the axis, is the distance from extreme end to extreme end. The tolerance on length shall be tabulated below:

Nominal Stud Size in.	Tolerance on Length, in.	
	For Lengths 6 in. and Shorter	For Lengths Over 6 in.
To 5/16	+/-0.03	+/-0.06
over 5/16 to 3/4	+/-0.06	+/-0.12
over 3/4 to 1-1/4	+/-0.12	+/-0.19
over 1-1/4	+/-0.25	+/-0.25

### POINTS

Both ends of stud bolt shall be pointed. At manufacturer's option, points may be rounded (oval), or sheared at option of the manufacturer, or flat and chamfered. When rounded, the stud shall have an oval point with a radius equal to approximately one times the basic stud diameter. When flat and chamfered, the end shall be chamfered from a diameter not exceeding the minor diameter of the thread to produce a length of chamfer or incomplete thread approximately equivalent to 2 times the thread pitch.

### THREADS

Threads shall be Unified inch coarse or fine series (UNC or UNF series), Class 2A, in accordance with ANSI/ASME B1.1 for stud sizes 1 in. and smaller, and Unified coarse or 8 thread series (UNC or 8 UN series) for stud sizes larger than 1 in. Acceptability of screw threads shall be determined based on System 21 of ANSI/ASME B1.3.

### MATERIAL

Chemical and mechanical requirements shall be agreed upon by the manufacturer and purchaser. Properties of carbon steel studs are covered in SAE J429, ASTM A307, ASTM A449, and ASTM A354. Properties of several grades of stainless steel are covered in ASTM 593, and of several nonferrous materials in ASTM F468.

### DESIGNATION

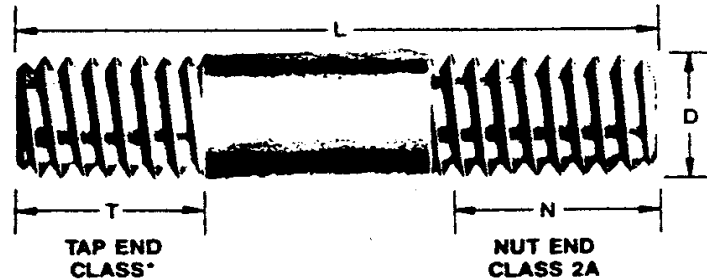
To avoid misunderstanding when specifying continuous thread studs, it is recommended that they be designated in the following sequence: product name, nominal size, threads per inch, stud length, material, and protective finish, if required.

Example: Continuous thread stud, 7/8-9 x 8, End-to-End,  
ASTM A307, zinc plated



## TAP END STUD BOLTS

Dimensions per AWHEM\*\* Standards



**D** Diameter – Nominal Stud Sizes

**L** Length – Measured end to end

**T** For 6B & 6BX studded flange connections with R, RX & BX gaskets, thread length maximum on end = 1 diameter + 1.5 pitch + 1/16-0

**N** Nut end thread length for 6B & 6BX studded flange connections with R, RX & BX gaskets shall be 2-1/2 diameters of full thread minimum.

\* Class of Threads – Tap end threads may be furnished in any class thread specified. Nut end threads shall be American Standard Coarse or Fine series, Class 2A or 8 UN.

When ordering, please specify:

Diameter (D); Length (L); End-to-end dimension. (If length is figured first thread to first thread, order must so specify.)

Tap end thread length (T) and thread series

Nut end thread length (N) and thread series

Double End or Tap End Studs are available in either rolled or cut threads. When the threads are rolled, the full thread dimensions will increase slightly, and the diameter of the bodies will be undersized to the pitch diameter of the thread.

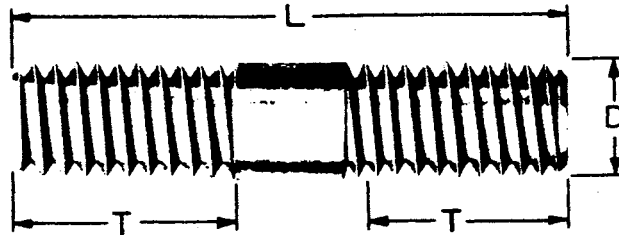
Tap End Studs are available in ASTM A193 Grades of material or special materials. Sigma stocks the most frequently used sizes of tap end studs in ASTM A193 Grade B7. Tap end studs can also be plated or coated if allowances are made for coating thickness and thread fit.

Prints should be furnished on Double end or Tap End studs whenever possible.

\*\* American Association of Wellhead Manufacturers



## DOUBLE END STUD BOLTS



**D** Diameter – Nominal Stud Sizes

**L** Length – Measured end to end

**T** Thread Lengths –  $2 \times D$  plus  $1/4$ " thru 6" in length and  $2 \times D$  plus  $1/2$ " for length over 6", full usable thread

Class of Threads – Threads shall be American Standard Class 2A tolerance for UNC, UNF, or 8 UN thread series.

When ordering, please specify:

Diameter (D); Length (L); End-to-end dimension. (If length is figured first thread to first thread, order must so specify.)

Thread length (T) and thread series

Double End studs are available in cut or rolled threads, and in any grade of material. They may be furnished plain, plated or coated at the customer's request.

Prints should be furnished on Double End or Tap End studs whenever possible.