

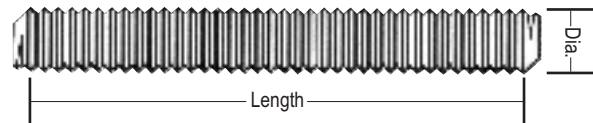
NOTES REGARDING FASTENER IDENTIFICATION MARKING

- In addition to the indicated grade marking, all grades included in this table must be marked for manufacturer identification.
- While hex heads are shown, grade markings apply equally to products with other head configurations.
- Hardness are Brindell Hardness numbers.
- A325 Type 1 bolts may also be marked with 3 radial lines 120 degrees apart in addition to the A325 marking.
- The bolt manufacturer, at his option, may add other markings to indicate the use of atmospheric corrosion resistant steel.
- A354 Grade BD products, in sizes 1-1/2" and smaller, are identified as shown and, at the manufacturer's option, may have the letters BD added. Larger sizes are marked only BD.
- Specifications:
 - SAE J429** Mechanical and material requirements for externally threaded fasteners
 - ASTM A307** Carbon steel externally threaded standard fasteners
 - ASTM A449** Quenched and tempered steel bolts and studs
 - ASTM 325** High strength bolts for structural steel joints
 - ASTM A354** Quenched and tempered alloy steel bolts, studs and other externally threaded fasteners
 - ASTM A490** Heat treated steel structural bolts, 150 ksi minimum tensile strength
 - ASTM A193-B7** Quenched and tempered alloy steel heavy hex bolts

STUD & BOLT THREAD PITCHES AND STUD BOLT MEASUREMENT INFORMATION

Bolt Diameter in Inches	Stud UN Threads Per Inch	Bolts UNC Threads Per Inch	Bolts UNF Threads Per Inch	Wrench Sizes
1/4	20	20	28	
5/16	18	18	24	
3/8	16	16	24	
7/16	14	14	20	
1/2	13	13	20	7/8
9/16	12	12	18	
5/8	11	11	18	1-1/6
3/4	10	10	16	1-1/4
7/8	9	9	14	1-7/16
1	8	8	12	1-5/8
1-1/8	8	7	12	1-13/16
1-1/4	8	7	12	2
1-3/8	8	6	12	2-3/16
1-1/2	8	6	12	2-3/8
1-5/8	8			2-9/16
1-3/4	8	5		2-3/4
1-7/8	8			2-15/16
2	8	4-1/2		3-1/8
2-1/4	8	4-1/2		3-1/2
2-1/2	8	4		3-7/8
2-3/4	8	4		4-1/4
3	8	4		4-5/8
3-1/4	8	4		
3-1/2	8	4		
3-3/4	8	4		
4	8	4		

MEASUREMENT INFORMATION



In order to avoid any confusion when ordering, we suggest conforming to the Industrial Fasteners Institute measures as shown here. Please be sure, when ordering by overall length, that it is clearly indicated as such.

TOLERANCES ON STUD BOLT LENGTHS

All our stud bolts have been manufactured according to the requirements of ANSI standard B16.5, as outlined by the Industrial Fasteners Institute. All studs are measured from the first full thread to the last full thread. Flat chamfer points are not included in this measurement. Actual length tolerances are as follows:

Length in Inches	Tolerances in Inches
Length up to 12	+ or - 1/16
Over 12 to 18	+ or - 1/8
Over 18	+ or - 1/8

Threads are UNC-2A for all sizes 1 inch and under and 8UN-2A for sizes over 1 inch.