



⊥Length of a tap bolt is measured from the underhead bearing surface to the extreme end of the bolt.

FULLY THREADED HEX TAP BOLTS									ASME B18.2.1-1996
Nominal or Basic Product Diameter	F			G		H			
	Width Across Flats			Width Across Corners		Head Height			
	Basic	Max.	Min.	Max.	Min.	Basic	Max.	Min.	
1/4	7/16	0.438	0.428	0.505	0.488	5/32	0.163	0.150	
5/16	1/2	0.500	0.489	0.577	0.557	13/64	0.211	0.195	
3/8	9/16	0.562	0.551	0.650	0.628	15/64	0.243	0.226	
7/16	5/8	0.625	0.612	0.722	0.698	9/32	0.291	0.272	
1/2	3/4	0.750	0.736	0.866	0.840	5/16	0.323	0.302	
9/16	13/16	0.812	0.798	0.938	0.910	23/64	0.371	0.348	
5/8	15/16	0.938	0.922	1.083	1.051	25/64	0.403	0.378	
3/4	1 1/8	1.125	1.100	1.299	1.254	15/32	0.483	0.455	
7/8	1 5/16	1.312	1.269	1.516	1.447	37/64	0.604	0.531	
1	1 1/2	1.500	1.450	1.732	1.653	43/64	0.700	0.591	
1 1/4	1 7/8	1.875	1.812	2.165	2.066	27/32	0.876	0.749	

Tolerance on Length	Nominal Screw Size	Nominal Size				
		Up to 1 in., incl.	Over 1 in. to 2-1/2 in., incl.	Over 2-1/2 in. to 4 in., incl.	Over 4 in. to 6 in., incl.	Over 6 in.
	1/4 to 3/8	-0.03	-0.04	-0.06	-0.10	-0.18
7/16 and 1/2	-0.03	-0.06	-0.08	-0.10	-0.18	
9/16 to 3/4	-0.03	-0.08	-0.10	-0.10	-0.18	
7/8 and 1	...	-0.10	-0.14	-0.16	-0.20	
1 1/4	...	-0.12	-0.16	-0.16	-0.18	

Low-Carbon
Headmark



Grade-5
Headmark



Grade-8
Headmark



Description	<p><i>Low Carbon Tap Bolt:</i> A low carbon, hex head bolt with a machined point which is threaded to the head. <i>Grade-5 Tap Bolt:</i> A tap bolt made from medium carbon steel. <i>Grade-8 Tap Bolt:</i> A tap bolt made from medium carbon alloy steel and heat-treated. <i>Stainless Tap Bolt:</i> A tap bolt made from 18-8 stainless steel.</p>
Applications/ Advantages	<p><i>Low Carbon Tap Bolt:</i> To be used in drilled and tapped holes which are threaded full length. Used instead of a stud and a nut. <i>Grade-5 Tap Bolt:</i> Used to mount motors to machinery; also popular in automotive and truck repair. <i>Grade-8 Tap Bolt:</i> Used in automotive and fleet industries where greater tensile strength is required than can be met by a grade-5. <i>Stainless Tap Bolt:</i> Used in environments corrosive to carbon steel, in tapped holes that are threaded full length.</p>
Material	<p><i>Low Carbon Tap Bolt:</i> Shall be made from a steel conforming to the following chemical composition: Carbon- 0.33% max.; Manganese- 0.93% max.; Phosphorous: 0.041% max. <i>Grade-5 Tap Bolt:</i> AISI 1030 - 1541 or equivalent medium carbon steel. Use of an alloy such as 4037 modified steel is also acceptable. <i>Grade-8 Tap Bolt:</i> Medium carbon alloy steel. Note: For diameters 1/4 through 7/16 inch, it is permissible to use AISI 1541 steel. <i>Stainless Tap Bolt:</i> 18-8 Stainless steel</p>
Heat Treatment	<p><i>Grade-5 Tap Bolt:</i> Bolts shall be heat treated, oil or water quenched, at the option of the manufacturer, and tempered at a minimum tempering temperature of 800°F. <i>Grade-8 Tap Bolt:</i> Bolts shall be heat treated, oil quenched and tempered at a minimum tempering temperature of 800°F.</p>
Core Hardness	<p><i>Low Carbon Tap Bolt:</i> Rockwell B69 - B100 <i>Grade-5 Tap Bolt:</i> Rockwell C25 - C34 <i>Grade-8 Tap Bolt:</i> Rockwell C33 - C39 <i>Stainless Tap Bolt:</i> 1/4 thru 5/8" diam: Rockwell B95 - C32</p>
Surface Hardness	<p><i>Grade-5 Tap Bolt:</i> Rockwell 30N54 maximum <i>Grade-8 Tap Bolt:</i> Rockwell 30N58.6 maximum</p>
Proof Load	<p><i>Grade-5 Tap Bolt:</i> 85,000 psi. <i>Grade-8 Tap Bolt:</i> 120,000 psi.</p>
Yield Strength*	<p><i>Grade-5 Tap Bolt:</i> 92,000 psi. minimum <i>Grade-8 Tap Bolt:</i> 130,000 psi. minimum <i>Stainless Tap Bolt:</i> 1/4 thru 5/8" diam: 60,000 psi. minimum</p>
Tensile Strength	<p><i>Low Carbon Tap Bolt:</i> 60,000 psi. minimum <i>Grade-5 Tap Bolt:</i> 120,000 psi. minimum <i>Grade-8 Tap Bolt:</i> 150,000 psi. minimum <i>Stainless Tap Bolt:</i> 1/4 thru 5/8" diam: 95,000 psi. minimum</p>
Elongation*	<p><i>Low Carbon Tap Bolt:</i> 18% minimum <i>Grade-5 Tap Bolt:</i> 14% minimum <i>Grade-8 Tap Bolt:</i> 12% minimum</p>
Reduction of Area*	<p><i>Low Carbon, Grades 5 & 8 Tap Bolts:</i> 35% minimum (all sizes)</p>
Plating	<p>See Appendix-A for plating information.</p>

* These properties are tested only on machined specimens when the testing machine cannot provide for full testing of the parts.

**Product standards require the manufacturer's head marking to appear on the top of all bolts 1/4" diameter and larger. "X" represents one location such a marking may appear.