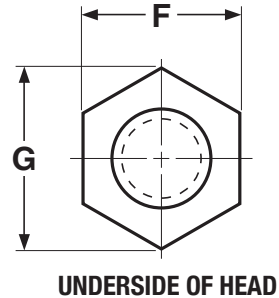
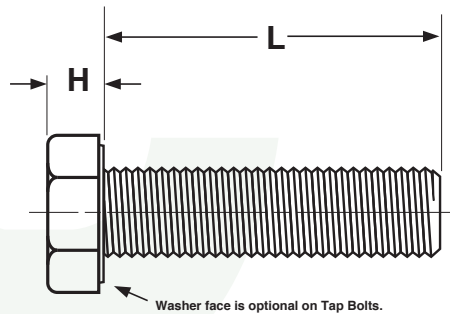


## CAP SCREWS &amp; BOLTS

## HEX TAP BOLTS

A307, Grades 5 &amp; 8



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

FULLY THREADED HEX TAP BOLTS									IFI-199 (2014)
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	0.425	0.505	0.484	11/64	0.188	0.150	
5/16	1/2	0.500	0.484	0.577	0.552	7/32	0.235	0.195	
3/8	9/16	0.562	0.544	0.650	0.620	1/4	0.268	0.226	
7/16	5/8	0.625	0.603	0.722	0.687	19/64	0.316	0.272	
1/2	3/4	0.750	0.725	0.866	0.826	11/32	0.364	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	0.906	1.083	1.033	27/64	0.444	0.378	
3/4	1 1/8	1.125	1.088	1.299	1.240	1/2	0.524	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	

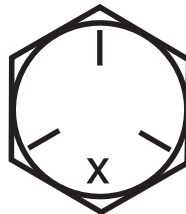
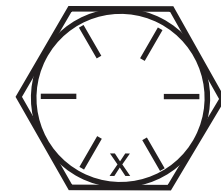
Tolerance on Length	Nominal Screw Size	Nominal Size				
		Up to 1 in., incl.	Over 1 in. to 2-1/2 in., incl.	Over 2-1/2 in. to 4 in., incl.	Over 4 in. to 6 in., incl.	Over 6 in.
	1/4 to 3/8	+0.02 -0.03	+0.02 -0.04	+0.04 -0.06	+0.06 -0.10	+0.10 -0.18
7/16 and 1/2	+0.02 -0.03	+0.04 -0.06	+0.06 -0.08	+0.08 -0.10	+0.12 -0.18	
9/16 to 3/4	+0.02 -0.03	+0.06 -0.08	+0.08 -0.10	+0.10 -0.10	+0.14 -0.18	
7/8 and 1	...	+0.08 -0.10	+0.10 -0.14	+0.12 -0.16	+0.16 -0.20	
1 1/4	...	+0.12 -0.12	+0.16 -0.16	+0.18 -0.18	+0.22 -0.22	

\* Dimensions for 9/16" nominal diameter are independent of the IFI-199 standard.

## CAP SCREWS &amp; BOLTS

## A307, Grades 5, 8 &amp; 18-8 SS

## HEX TAP BOLTS

A307  
HeadmarkGrade-5  
HeadmarkGrade-8  
Headmark

<b>Description</b>	<p><b>ASTM A307 Tap Bolt:</b> A low carbon, hex head bolt with a machined point which is threaded to the head.</p> <p><b>Grade-5 Tap Bolt:</b> A tap bolt made from medium carbon steel.</p> <p><b>Grade-8 Tap Bolt:</b> A tap bolt made from medium carbon alloy steel and heat-treated.</p> <p><b>Stainless Tap Bolt:</b> A tap bolt made from 18-8 stainless steel.</p>
<b>Applications/ Advantages</b>	<p><b>ASTM A307 Tap Bolt:</b> To be used in drilled and tapped holes which are threaded full length. Used instead of a stud and a nut.</p> <p><b>Grade-5 Tap Bolt:</b> Used to mount motors to machinery; also popular in automotive and truck repair.</p> <p><b>Grade-8 Tap Bolt:</b> Used in automotive and fleet industries where greater tensile strength is required than can be met by a grade-5.</p> <p><b>Stainless Tap Bolt:</b> Used in environments corrosive to carbon steel, in tapped holes that are threaded full length.</p>
<b>Material</b>	<p><b>ASTM A307 Tap Bolt:</b> Bolts shall be made from a carbon steel which conforms to the following chemical composition requirements-- <i>Carbon:</i> 0.33 maximum; <i>Manganese:</i> 0.93; <i>Phosphorous:</i> 0.041</p> <p><b>Grade-5 Tap Bolt:</b> AISI 1030 - 1541 or equivalent medium carbon steel. Use of an alloy such as 4037 modified steel is also acceptable.</p> <p><b>Grade-8 Tap Bolt:</b> Medium carbon alloy steel. Note: For diameters 1/4 thru 7/16 inch, it is permissible to use AISI 1541 steel.</p> <p><b>Stainless Tap Bolt:</b> 18-8 Stainless steel</p>
<b>Heat Treatment</b>	<p><b>Grade-5 Tap Bolt:</b> 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.</p> <p><b>Grade-8 Tap Bolt:</b> Bolts shall be heat treated, oil quenched and tempered at a minimum tempering temperature of 800°F.</p>
<b>Core Hardness</b>	<p><b>ASTM A307 Tap Bolt:</b> Rockwell B69 - B100</p> <p><b>Grade-5 Tap Bolt:</b> Rockwell C25 - C34</p> <p><b>Grade-8 Tap Bolt:</b> Rockwell C33 - C39</p> <p><b>Stainless Tap Bolt:</b> 1/4 thru 5/8" diam: Rockwell B95 - C32</p>
<b>Surface Hardness</b>	<p><b>Grade-5 Tap Bolt:</b> Rockwell 30N54 maximum</p> <p><b>Grade-8 Tap Bolt:</b> Rockwell 30N58.6 maximum</p>
<b>Proof Load</b>	<p><b>Grade-5 Tap Bolt:</b> 85,000 psi.</p> <p><b>Grade-8 Tap Bolt:</b> 120,000 psi.</p>
<b>Yield Strength*</b>	<p><b>Grade-5 Tap Bolt:</b> 92,000 psi. minimum</p> <p><b>Grade-8 Tap Bolt:</b> 130,000 psi. minimum</p> <p><b>Stainless Tap Bolt:</b> 1/4 thru 5/8" diam: 60,000 psi. minimum</p>
<b>Tensile Strength</b>	<p><b>ASTM A307 Tap Bolt:</b> 60,000 psi. minimum</p> <p><b>Grade-5 Tap Bolt:</b> 120,000 psi. minimum</p> <p><b>Grade-8 Tap Bolt:</b> 150,000 psi. minimum</p> <p><b>Stainless Tap Bolt:</b> 1/4 thru 5/8" diam: 95,000 psi. minimum</p>
<b>Elongation*</b>	<p><b>ASTM A307 Tap Bolt:</b> 18% minimum</p> <p><b>Grade-5 Tap Bolt:</b> 14% minimum</p> <p><b>Grade-8 Tap Bolt:</b> 12% minimum</p>
<b>Reduction of Area*</b>	<p><b>Grades 5 &amp; 8 Tap Bolts:</b> 35% minimum (all sizes)</p>
<b>Plating</b>	See Appendix-A for plating information.

\* 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.