

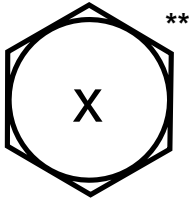
UNDERSIDE OF HEAD

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

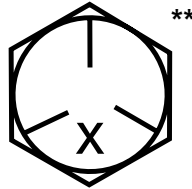
FULLY THREADED HEX TAP BOLTS									ASME B18.2.1-1996
Nominal or Basic Product Diameter	F			G		H			
	Width Across Flats			Width Across Corners		Head Height			
	Basic	Max.	Min.	Max.	Min.	Basic	Max.	Min.	
1/4	7/16	0.438	0.428	0.505	0.488	5/32	0.163	0.150	
5/16	1/2	0.500	0.489	0.577	0.557	13/64	0.211	0.195	
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	
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	

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.
	1/4 to 3/8	-0.03	-0.04	-0.06	-0.10
	7/16 and 1/2	-0.03	-0.06	-0.08	-0.10
9/16 to 3/4	-0.03	-0.08	-0.10	-0.10	

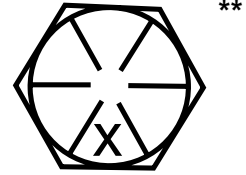
**Grade-2
Headmark**



**Grade-5
Headmark**



**Grade-8
Headmark**



Description	<p>Grade-2 Tap Bolt: A low carbon, hex head bolt with a machined point which is threaded to the head.</p> <p>Grade-5 Tap Bolt: A tap bolt made from medium carbon steel.</p> <p>Grade-8 Tap Bolt: A tap bolt made from medium carbon alloy steel and heat-treated.</p>
Applications/ Advantages	<p>Grade-2 Tap Bolt: To be used in drilled and tapped holes which are threaded full length. Used instead of a stud and a nut.</p> <p>Grade-5 Tap Bolt: Used to mount motors to machinery; also popular in automotive and truck repair.</p> <p>Grade-8 Tap Bolt: Used in automotive and fleet industries where greater tensile strength is required than can be met by a grade-5.</p>
Material	<p>Grade-2 Tap Bolt: AISI 1006 - 1025 or equivalent steel.</p> <p>Grade-5 Tap Bolt: AISI 1030 - 1541 or equivalent medium carbon steel. Use of an alloy such as 4037 modified steel is also acceptable.</p> <p>Grade-8 Tap Bolt: Medium carbon alloy steel. Note: For diameters 1/4 through 7/16 inch, it is permissible to use AISI 1541 steel.</p>
Heat Treatment	<p>Grade-5 Tap Bolt: 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>Grade-8 Tap Bolt: Bolts shall be heat treated, oil quenched and tempered at a minimum tempering temperature of 800°F.</p>
Core Hardness	<p>Grade-2 Tap Bolt: Rockwell B80 - B100</p> <p>Grade-5 Tap Bolt: Rockwell C25 - C34</p> <p>Grade-8 Tap Bolt: Rockwell C33 - C39</p>
Surface Hardness	<p>Grade-5 Tap Bolt: Rockwell 30N54 maximum</p> <p>Grade-8 Tap Bolt: Rockwell 30N58.6 maximum</p>
Proof Load	<p>Grade-2 Tap Bolt: 55,000 psi.</p> <p>Grade-5 Tap Bolt: 85,000 psi.</p> <p>Grade-8 Tap Bolt: 120,000 psi.</p>
Yield Strength*	<p>Grade-2 Tap Bolt: 57,000 psi. minimum</p> <p>Grade-5 Tap Bolt: 92,000 psi. minimum</p> <p>Grade-8 Tap Bolt: 130,000 psi. minimum</p>
Tensile Strength	<p>Grade-2 Tap Bolt: 74,000 psi. minimum</p> <p>Grade-5 Tap Bolt: 120,000 psi. minimum</p> <p>Grade-8 Tap Bolt: 150,000 psi. minimum</p>
Elongation*	<p>Grade-2 Tap Bolt: 18% minimum</p> <p>Grade-5 Tap Bolt: 14% minimum</p> <p>Grade-8 Tap Bolt: 12% minimum</p>
Reduction of Area*	<p>Grades-2, 5 & 8 Tap Bolts: 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.