

IFI NOTE:

Tap Bolts have been in existence and have had significant use for many years, but have not been officially covered in an industrial standard. After fielding many questions about this product, the IFI technical staff created IFI-199 in 2014. This standard has been submitted to the ASME B18 Fastener Committee for possible incorporation in future revision of ASME B18.2.1.

1 INTRODUCTION

1.1 Scope

1.1.1 This Standard covers the dimensional requirements for inch series tap bolts made of carbon steel and stainless steel in sizes ranging from 1/4 through 4 inches.

1.1.2 The inclusion of dimensional data in this Standard is not intended to imply that all of the products described herein are stock production sizes. Consumers should consult with suppliers concerning lists of stock production sizes.

1.1.3 There is no comparable ISO document for inch tap bolts.

1.2 Dimensions

All dimensions in this standard are in inches and apply to unplated or uncoated product. Symbols specifying geometric characteristics are in accord with ASME Y14.5.

1.3 Terminology

For definitions of terminology not specified in this standard, refer to ASME B18.12.

1.4 Referenced Standards

For a complete list of referenced standards, see the STANDARDS AND SPECIFICATION REFERENCE LIST on Page 1217.

2 GENERAL DATA FOR TAP BOLTS

2.1 Heads

Tap bolt heads shall be trimmed hex bolt heads same as those in ASME B18.2.1 and as indicated in Table 1.

2.1.1 Top of Head. Top of head shall be full form and chamfered, with the diameter of chamfer circle equal to the maximum width across flats and a tolerance of minus 15%.

2.1.2 Width Across Flats. The width across flats of head shall be the overall distance measured perpendicular to the axis of product between two opposite sides of the head in accordance with the notes in respective dimensional tables.

2.1.3 Head Taper. Maximum width across flats and corners shall not be exceeded. No transverse section

IFI-199-2014 TAP BOLTS (INCH SERIES)

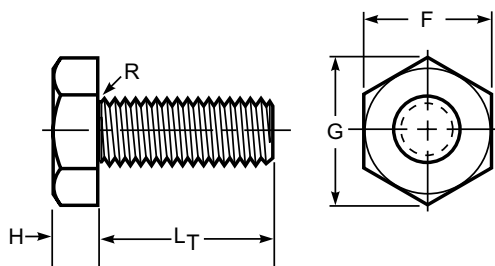


Table 1 Dimensions of Hex Tap Bolts

Nominal Size or Basic Product Diameter		F			G		H			R	
		Width Across Flats			Width Across Corners		Head Height			Radius of Fillet	
		Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min
1/4	0.2500	7/16	0.438	0.425	0.505	0.484	11/64	0.188	0.150	0.03	0.01
5/16	0.3125	1/2	0.500	0.484	0.577	0.552	7/32	0.235	0.195	0.03	0.01
3/8	0.3750	9/16	0.562	0.544	0.650	0.620	1/4	0.268	0.226	0.03	0.01
7/16	0.4375	5/8	0.625	0.603	0.722	0.687	19/64	0.316	0.272	0.03	0.01
1/2	0.5000	3/4	0.750	0.725	0.866	0.826	11/32	0.364	0.302	0.03	0.01
5/8	0.6250	15/16	0.938	0.906	1.083	1.033	27/64	0.444	0.378	0.06	0.02
3/4	0.7500	1-1/8	1.125	1.088	1.299	1.240	1/2	0.524	0.455	0.06	0.02
7/8	0.8750	1-5/16	1.312	1.269	1.516	1.447	37/64	0.604	0.531	0.06	0.02
1	1.0000	1-1/2	1.500	1.450	1.732	1.653	43/64	0.700	0.591	0.09	0.03
1-1/8	1.1250	1-11/16	1.688	1.631	1.949	1.859	3/4	0.780	0.658	0.09	0.03
1-1/4	1.2500	1-7/8	1.875	1.812	2.165	2.066	27/32	0.876	0.749	0.09	0.03
1-3/8	1.3750	2-1/16	2.062	1.994	2.382	2.273	29/32	0.940	0.810	0.09	0.03
1-1/2	1.5000	2-1/4	2.250	2.175	2.598	2.480	1	1.036	0.902	0.09	0.03
1-5/8	1.6250	2-7/16	2.438	2.356	2.815	2.616	1-3/32	1.116	0.978	0.09	0.03
1-3/4	1.7500	2-5/8	2.625	2.538	3.031	2.893	1-5/32	1.196	1.054	0.12	0.04
1-7/8	1.8750	2-13/16	2.812	2.719	3.248	3.099	1-1/4	1.276	1.130	0.12	0.04
2	2.0000	3	3.000	2.900	3.464	3.306	1-11/32	1.388	1.175	0.12	0.04
2-1/4	2.2500	3-3/8	3.375	3.262	3.897	3.719	1-1/2	1.548	1.327	0.19	0.06
2-1/2	2.5000	3-3/4	3.750	3.625	4.330	4.133	1-21/32	1.708	1.479	0.19	0.06
2-3/4	2.7500	4-1/8	4.125	3.988	4.763	4.546	1-13/16	1.869	1.632	0.19	0.06
3	3.0000	4-1/2	4.500	4.350	5.196	4.959	2	2.060	1.815	0.19	0.06
3-1/4	3.2500	4-7/8	4.875	4.712	5.629	5.372	2-3/16	2.251	1.936	0.19	0.06
3-1/2	3.5000	5-1/4	5.250	5.075	6.062	5.786	2-5/16	2.380	2.057	0.19	0.06
3-3/4	3.7500	5-5/8	5.625	5.437	6.495	6.198	2-1/2	2.572	2.241	0.19	0.06
4	4.0000	6	6.000	5.800	6.928	6.612	2-11/16	2.764	2.424	0.19	0.06

through the head between 25% and 75% of actual head height, as measured from the bearing surface, shall be less than the minimum across flats and corners requirements.

2.1.4 Head Height. The head height shall be the overall distance measured parallel to the axis of product from the top of the head, not including raised markings, to the bearing surface.

2.1.5 Position of Head. The runnout of the flats of the head shall be no greater than 6% of the maximum width across flats or lobes. For reference purposes, the evaluation shall be made by indicating on the flats or outer surface of lobes while holding the body one bolt diameter from under the head and rotating the part.