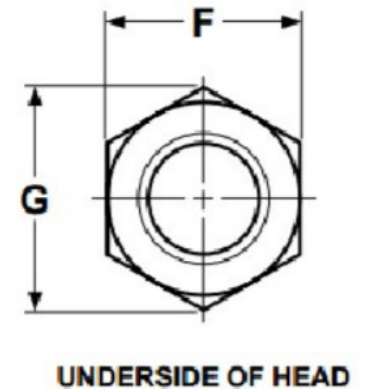
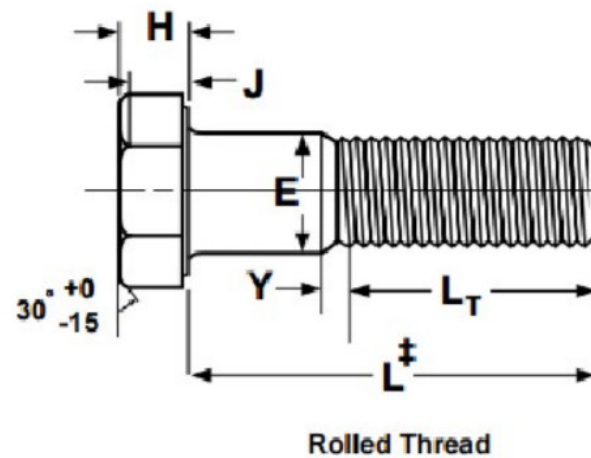
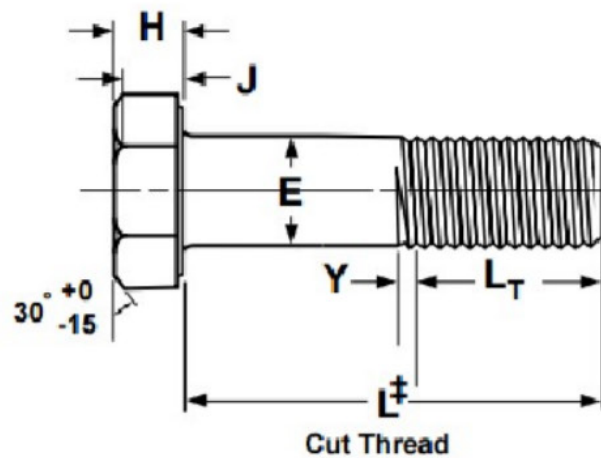




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# HEX HEAD BOLTS - GRADE 2, STAINLESS STEEL



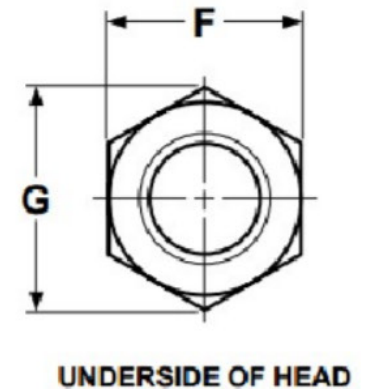
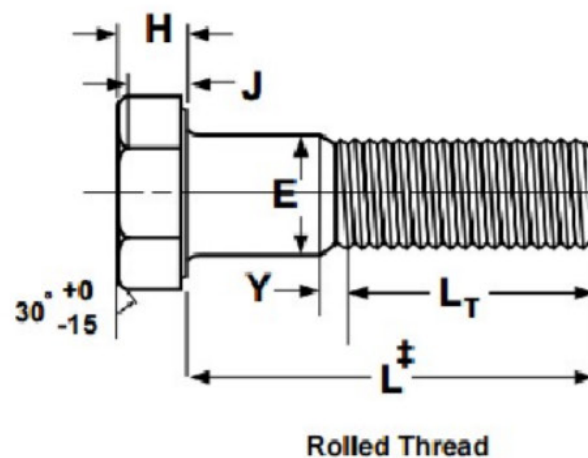
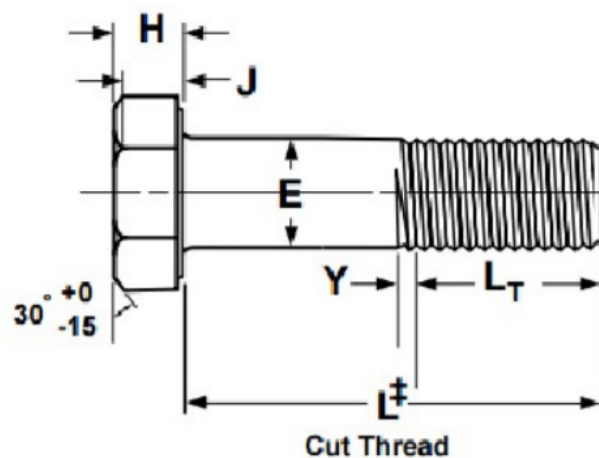


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Nominal Size or Basic Product Diameter	E		F		G		H			J	L		Y		
	Body Diameter		Width Across Flats		Width Across Corners		Head Height			Wrenching Height	Thread Length		Transition Thread Length		
	Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Ref	For Screw Lengths < 6 inches	For Screw Lengths > 6 inches	Max	
1/4	0.2500	0.2500	0.2450	7/16	0.438	0.428	0.505	0.488	5/32	0.163	0.150	0.106	0.750	1.000	0.250
5/16	0.3125	0.3125	0.3065	1/2	0.500	0.489	0.577	0.557	13/64	0.211	0.195	0.140	0.875	1.125	0.278
3/8	0.3750	0.3750	0.3690	9/16	0.562	0.551	0.650	0.628	15/64	0.243	0.226	0.160	1.000	1.250	0.312
7/16	0.4375	0.4375	0.4305	5/8	0.625	0.612	0.722	0.698	9/32	0.291	0.272	0.195	1.125	1.375	0.357
1/2	0.5000	0.5000	0.4930	3/4	0.750	0.736	0.866	0.840	2/16	0.323	0.302	0.215	1.250	1.500	0.385
9/16	0.5625	0.5625	0.5545	13/16	0.812	0.798	0.938	0.910	23/64	0.3371	0.348	0.250	1.375	1.625	0.417
5/8	0.6250	0.6250	0.6170	15/16	0.938	0.922	1.083	1.051	25/64	0.403	0.378	0.269	1.500	1.750	0.455
3/4	0.7500	0.7500	0.7410	1-1/8	1.125	1.100	1.299	1.254	15/32	0.483	0.455	0.324	1.750	2.00	0.500
7/8	0.8750	0.8750	0.8660	1-5/16	1.312	1.285	1.516	1.465	35/64	0.563	0.531	0.378	2.000	2.250	0.556
1	1.000	1.000	0.9900	1-1/2	1.500	1.469	1.732	1.675	39/64	0.627	0.591	0.416	2.250	2.500	0.625
1-1/8	1.1250	1.1250	1.1140	1-11/16	1.688	1.631	1.949	1.859	11/16	0.718	0.658	0.461	2.500	2.750	0.714
1-1/4	1.2500	1.2500	1.2390	1-7/8	1.875	1.812	2.165	2.066	25/32	0.813	0.749	0.530	2.750	3.000	0.714
1-1/2	1.5000	1.5000	1.4880	2-1/4	2.250	2.175	2.598	2.480	1-5/16	0.974	0.902	0.640	3.250	3.500	0.833

# HEX HEAD BOLTS - GRADE 2, STAINLESS STEEL



	Nominal Screw Size	Nominal Screw Length				
		Up to In., Incl.	Over 1 in. to 2-1/2 in. Inc.	Over 2-1/2 in. to 4 in., Incl.	Over 4 in. to 6 in., incl.	Longer than 6 in.
<b>Tolerance on Length</b>	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
	1-1/8 to 1-1/2	-	-0.12	-0.16	-0.18	-0.22



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# HEX HEAD BOLTS - GRADE 2, STAINLESS STEEL

## *Grade 2*

**DESCRIPTION:** A low or medium carbon steel, externally threaded mechanical device 1/4" diameter or larger, with a trimmed hex head and a washer face on the bearing surface.

**APPLICATION / ADVANTAGES:** Economical for use in non-critical applications where the fastener is subject to extreme temperatures or stress beyond the limits listed herein.

**MATERIAL:** AISI 1006-1050 or equivalent steel

**HARDNESS:** 1/4 through 3/4 in diameter, 6 inches and shorter in length: Rockwell B80-B100. 1/4 through 3/4 through 3/4 in. diameter, over 6 inches in length: Rockwell B70-B100. 7/8 through 1-1/2 inches in diameter, all lengths: Rockwell B70-B100.

**PROOF LOAD:** 1/4 through 3/4 inches diameter, 6 inches and shorter in length: 55,000 psi minimum. 1/4 through 3/4 inches diameter, over 6 inches in length: 33,000 psi minimum. 7/8 through 1-1/2 inches diameter, all lengths: 33,000 psi minimum.

**YIELD STRENGTH:** 1/4 through 3/4 inches diameter, 6 inches and shorter in length: 57,000 psi minimum. 1/4 through 3/4 inches diameter, over 6 inches in length: 36,000 psi minimum. 7/8 through 1-1/2 inches diameter, all lengths: 60,000 psi minimum.

**TENSILE STRENGTH:** : 1/4 through 3/4 inches diameter, 6 inches and shorter in length: 74,000 psi minimum. 1/4 through 3/4 inches diameter, over 6 inches in length: 60,000 psi minimum. 7/8 through 1-1/2 inches diameter, all lengths: 60,000 psi minimum.

**ELONGATION\*:** 18% minimum (All Diameters)

**REDUCTION OF AREA\*:** 35% minimum (All Sizes)



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# HEX HEAD BOLTS - GRADE 2, STAINLESS STEEL

## Stainless Steel — 18-8 & 316

**DESCRIPTION:** 18-8 and 316 stainless steel cap screws are both made from austenitic alloys as described below.

**APPLICATIONS / ADVANTAGES:** Used in structural steel joints in heavy construction when greater yield and tensile strengths than those of an A325 bolt are required. A Type 3 bolt is approximately twice as resistant to corrossions as a Type 1 bolt.

**MATERIAL:**

**18-8:** A cap screw made from one of the following austenitic alloys: 303, 303Se, 304, XM7, all of which are characterized as having a chromium content of 17-19% and nickel content of 8-10%

**316:** A cap screw made from 316 stainless steel, an ustenitic alloy which differs from 18-8 by its molybdenum content (2-3%) and a higher nickel content (10-14%)

**HEAT TREATMENT:** The austenitic alloys develop their strength through work hardening during the fastener manufacturing process, as seen from the hardness properties below. The only heat treatment normally available on austenitic stainless alloys in annealing, which is done at approximately 1900\* F to a dead soft condition and is not normally thermally reversible.

**HARDNESS:** *1/4 through 5/8 inches diameter, 2.25D and longer:* 65,000 psi minimum. *3/4" (2.25 D & Longer) & 7/8 through 1 inch diameter (3D & Longer):* 45,000 psi minimum.

**TENSILE STRENGTH:** *1/4 through 5/8 inch diameter, 2.25 D and longer:* 100,000 - 150,000 psi minimum. *3/4" (2.25D & longer) & 7/8 through 1 inch diameter (3D & longer):* 85,000 - 140,000 psi minimum.

**ELONGATION IN 4D\*:** *1/4 through 5/8 inch diameter:* 20% minimum. *3/4" through 1 inch diameter:* 25% minimum.