

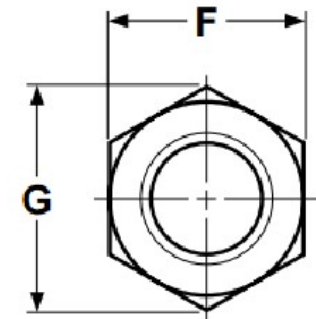
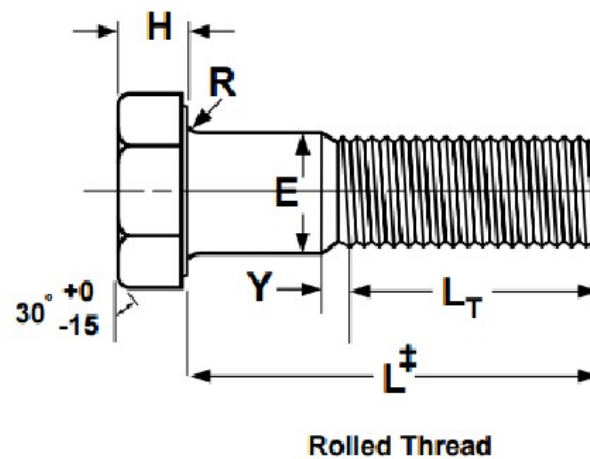
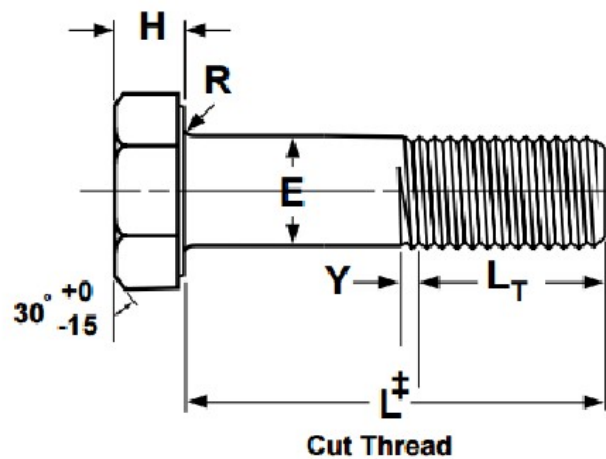


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## LOW CARBON STEEL HEAVY HEX CAP SCREWS





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Nominal Size or Basic Product Dia.	E Body Dia.		F Width Across Flats			G Width Across Corners			H Head Height			R Radius of Fillet		L Thread Length	Y Transition Thread Length
	Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min	Ref	Max, Ref	
	1/2	0.5000	0.515	0.482	7/8	0.875	0.850	1.010	0.969	5/16	0.323	0.302	0.031	0.009	1.00
5/8	0.6250	0.642	0.605	1-1/16	1.062	1.031	1.227	1.175	25/64	0.403	0.378	0.062	0.021	1.25	0.22
3/4	0.7500	0.768	0.729	1-1/4	1.250	1.212	1.443	1.383	15/32	0.483	0.455	0.062	0.21	1.38	0.25
7/8	0.8750	0.895	0.852	1-7/16	1.438	1.394	1.660	1.589	35/64	0.563	0.531	0.062	0.031	1.50	0.28
1	1.0000	1.022	0.976	1-5/8	1.625	1.575	1.876	1.796	39/64	0.627	0.591	0.093	0.062	1.75	0.31
1-1/8	1.1250	1.149	1.098	1-13/16	1.812	1.756	2.093	2.002	11/16	0.718	0.658	0.093	0.062	2.00	0.34
1-1/4	1.2500	1.277	1.223	2	2.000	1.938	2.309	2.209	25/32	0.813	0.749	0.093	0.062	2.00	0.38
1-3/8	1.3750	1.404	1.345	2-3/16	2.188	2.119	2.526	2.416	27/32	0.878	0.810	0.093	0.062	2.25	0.44
1-1/2	1.5000	1.531	1.470	2-3/8	2.375	2.300	2.742	2.622	15/16	0.974	0.902	0.093	0.062	2.25	0.44

Tolerance on Length	Nominal Screw Size	Nominal Screw Length	
		Through 6 in.	Over 6 in.
	1/2	-0.12	-0.19
	5/8	-0.12	-0.25
	3/4 through 1	-0.19	-0.25
	1-1/8 through 1-1/2	-0.25	-0.25



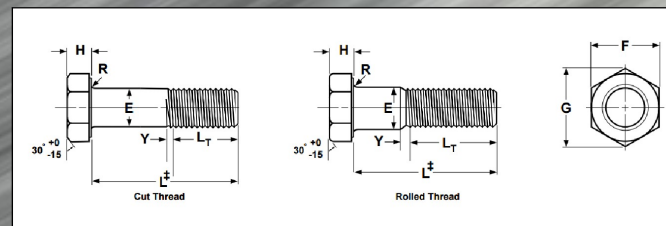
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# LOW CARBON STEEL HEAVY HEX CAP SCREWS

## ASTM A325 Bolts, Type 1



**DESCRIPTION:** A heavy hex bolt made of medium carbon steel. The bearing surface shall be flat and washer faced, and the point is chamfered.

**APPLICATIONS / ADVANTAGES:** Commonly used in structural steel joints in heavy construction

**MATERIAL:** Type 1 bolt shall be made from a carbon steel which conforms to the following chemical requirements — Carbon 0.25-0.58%, Manganese 0.57% minimum, Phosphorus 0.048% maximum, Sulfur 0.058% maximum

**HEAT TREATMENT:** Type 1 bolts shall be heat treated by quenching in a liquid medium from above the austenitizing temperature and then tempering by reheating to a temperature of at least 800\* F.

**HARDNESS:** 1/2" through 1" diameter, inclusive: Rockwell C24-35; 1-1/8" through 1-1/2" diameter, inclusive: Rockwell C19-31

**PROOF LOAD:** 1/2" through 1" diameter, inclusive: 85,000 psi; 1-1/8" through 1-1/2" diameter, inclusive: 74,000 psi

**YIELD STRENGTH:** 1/2" through 1" diameter, inclusive: 92,000 psi minimum; 1-1/8" through 1-1/2" diameter, inclusive: 81,000 psi minimum

**TENSILE STRENGTH:** 1/2" through 1" diameter, inclusive: 120,000 psi minimum; 1-1/8" through 1-1/2" diameter, inclusive: 105,000 psi minimum



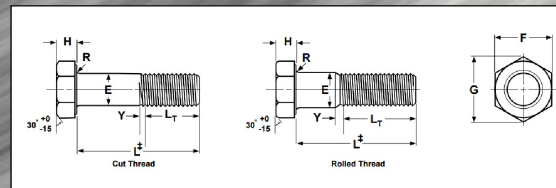
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# LOW CARBON STEEL HEAVY HEX CAP SCREWS

## ASTM A490 Bolts, Type 1 & 3



**DESCRIPTION:** A heavy hex bolt made of alloy steel. The bearing surface shall be flat and washer-faced, and the point is chamfered.

**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:** Type 1 bolts shall be made from an alloy steel which conforms to the following chemical composition requirements — *Carbon 0.28-0.50% (for 1-1/2" diameter: 0.33-0.55%), Phosphorus 0.045% maximum, Sulfur 0.045% maximum.* Type 3 bolts shall be made from a corrosion resistant steel which conforms to the following chemical composition requirements — *Carbon 0.19-0.55%, Manganese 0.37% minimum, Phosphorus 0.045% maximum, Sulfur 0.055% maximum, Copper 0.63% maximum, Chromium 0.42% minimum, Nickel 0.17% minimum, Molybdenum 0.14% minimum.*

**HEAT TREATMENT:** Type 1 bolts shall be heat treated by quenching oil from above the transformation temperature. Type 3 bolts shall be quenched in a suitable liquid from above the transformation temperature. Type 1 and Type 3 bolts shall be tempered by reheating to a temperature of at least 800\* F.

**HARDNESS:** Rockwell C33-38

**PROOF LOAD:** 120,000 psi

**YIELD STRENGTH:** 130,000 psi minimum

**TENSILE STRENGTH:** 150,000—170,000 psi