



# HEX CAP SCREWS

ZINC, GALVANIZED & STAINLESS STEEL

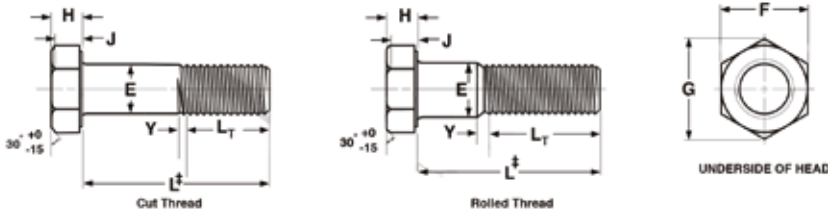
Hex Cap Screws are low or medium carbon steel, externally threaded mechanical fasteners 1/4" diameter shank or larger, with a trimmed hex head and a washer face on the underside of the head. Grade 2 Hex Cap Screws are common for use in noncritical applications where the fastener is not subject to extreme temperatures or stress beyond the material strengths listed in this document. Grade 5 Hex Cap Screws have greater tensile strength than Grade 2 Hex Cap Screws, and are designed for use in high stress applications. Stainless Steel Hex Cap Screws are used in products that require general atmospheric corrosion resistance and outdoor applications.



## AVAILABILITY

- Course Thread (UNC)
- Partial Thread
- Zinc Plated - Grade 2
- Zinc Plated - Grade 5 (Heat Treated)
- Stainless Steel - Type 304 and Typ 316

## DIMENSIONAL DATA



Hex Cap Screws													ASME B18.2.1-1996		
Nominal or Basic Product Diameter		E		F			G		H			J	L <sub>T</sub>		Y
		Body Diameter		Width Across Flats			Width Across Corners		Head Height			Wrenching Height	Thread Length		Transition Thread Length
													For Screw Lengths ≤ 6 in.	For Screw Lengths > 6 in.	
Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Min	Ref	Ref	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	5/16	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	0.371	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	2.000	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	1.0000	1.0000	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 CAP SCREWS**  
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**DIMENSIONAL DATA (CONT'D)**

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

Length of a cap screw is measured from the underhead bearing surface to the extreme end of the screw.

**DIMENSIONAL DATA**

ZINC PLATED - GRADE 2

GRADE 2



D= Nominal diameter of the screw in inches; \*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 cap screws 1/4" diameter or larger. "X" represents on location such a marking may appear.

Material	AISI 1006 - 1050 or equivalent steel.
Hardness	1/4 through 3/4in. diameter, 6in. and shorter in length: Rockwell B80 - B100. 1/4 through 3/4in. diameter, over 6in. length: Rockwell B70 - B100. 7/8 through 1-1/2in. diameter, all lengths: Rockwell B70 - B100.
Proof Load	1/4 through 3/4in. diameter, 6in. and shorter in length: 55,000 psi 1/4 through 3/4in. diameter, over 6in. length: 33,000 psi 7/8 through 1-1/2in. diameter, all lengths: 33,000 psi
Yield Strength*	1/4 through 3/4in. diameter, 6in. and shorter in length: 57,000 psi 1/4 through 3/4in. diameter, over 6in. length: 36,000 psi 7/8 through 1-1/2in. diameter, all lengths: 36,000 psi
Tensile Strength	1/4 through 3/4in. diameter, 6in. and shorter in length: 74,000 psi 1/4 through 3/4in. diameter, over 6in. length: 60,000 psi 7/8 through 1-1/2in. diameter, all lengths: 60,000 psi
Elongation*	18% minimum (all diameters)
Reduction of Area*	35% minimum (all sizes)



# HEX CAP SCREWS

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## DIMENSIONAL DATA

ZINC PLATED - GRADE 5

GRADE 5



D= Nominal diameter of the screw in inches; \*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 cap screws 1/4" diameter or larger. "X" represents on location such a marking may appear.

Heat Treatment	Grade-5 cap screws shall be heat treated, oil or water quenched, at the option of the manufacturer, and tempered at a minimum tempering temperature of 800° F.
Material	Medium carbon steel. Use if an alloy steel is also acceptable.
Core Hardness	1/4 through 1 in. diameter, all lengths: Rockwell C25 - C34. 1-1/8 through 1-1/2 in., all lengths: Rockwell C19 - C30.
Surface Hardness	1/4 through 1 in. diameter, all lengths: Rockwell 30N54 maximum. 1-1/8 through 1-1/2 in. diameter, all lengths: Rockwell 30N50 maximum.
Proof Load	1/4 through 1 in. diameter, all lengths: 85,000 psi. 1-1/8 through 1-1/2 in. diameter, all lengths: 74,000 psi.
Yield Strength*	1/4 through 1 in. diameter, all lengths: 92,000 psi. minimum 1-1/8 through 1-1/2 in. diameter, all lengths: 81,000 psi. minimum
Tensile Strength	1/4 through 1 in. diameter, all lengths: 120,000 psi. minimum 1-1/8 through 1-1/2 in. diameter, all lengths: 105,000 psi. minimum
Elongation*	14% minimum (all diameters)
Reduction of Area*	35% minimum (all sizes)

## DIMENSIONAL DATA

STAINLESS STEEL - 304 (18-8) & 316

STAINLESS  
STEEL - 304  
(18-8) & 316



D= Nominal diameter of the screw in inches; \*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 cap screws 1/4" diameter or larger. "X" represents on location such a marking may appear.

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 austenitic 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 is 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 in. diameter: Rockwell B95 - C32. 3/4 through 1 in. diameter: Rockwell B80 - C32.
Yield Strength*	1/4 through 5/8 in. diameter, 2.25D and longer: 65,000 psi 3/4" (2.25D & longer) & 7/8 through 1 in. diameter (3D & longer): 45,000 psi
Tensile Strength	1/4 through 5/8 in. diameter, 2.25D and longer: 100,000 - 150,000 psi 3/4" (2.25D & longer) & 7/8 through 1 in. diameter (3D & longer): 85,000 - 140,000 psi
Elongation in 4D*	1/4 through 5/8 in. diameter: 20% minimum; 3/4 through 1 in. diameter: 25% minimum



**HEX CAP SCREWS**  
ZINC, GALVANIZED & STAINLESS STEEL

**ORDERING INFORMATION**

ZINC PLATED - GRADE 2

PART #	SIZE	QUANTITY / BOX
2HCS14012	1/4-20 x 1/2	100 / BOX
2HCS14058	1/4-20 x 5/8	100 / BOX
2HCS14034	1/4-20 x 3/4	100 / BOX
2HCS14100	1/4-20 x 1	100 / BOX
2HCS14114	1/4-20 x 1-1/4	100 / BOX
2HCS14112	1/4-20 x 1-1/2	100 / BOX
2HCS14200	1/4-20 x 2	100 / BOX
2HCS14300	1/4-20 x 3	100 / BOX
2HCS14400	1/4-20 x 4	100 / BOX
2HCS14500	1/4-20 x 5	100 / BOX
2HCS56012	5/16-18 x 1/2	100 / BOX
2HCS56034	5/16-18 x 3/4	100 / BOX
2HCS56100	5/16-18 x 1	100 / BOX
2HCS56114	5/16-18 x 1-1/4	100 / BOX
2HCS56112	5/16-18 x 1-1/2	100 / BOX
2HCS56200	5/16-18 x 2	100 / BOX
2HCS56212	5/16-18 x 2-1/2	100 / BOX
2HCS56312	5/16-18 x 3-1/2	50 / BOX
2HCS56412	5/16-18 x 4-1/2	50 / BOX
2HCS56500	5/16-18 x 5	50 / BOX
2HCS38012	3/8-16 x 1/2	100 / BOX
2HCS38034	3/8-16 x 3/4	100 / BOX
2HCS38100	3/8-16 x 1	100 / BOX
2HCS38114	3/8-16 x 1-1/4	100 / BOX
2HCS38112	3/8-16 x 1-1/2	100 / BOX
2HCS38134	3/8-16 x 1-3/4	100 / BOX
2HCS38200	3/8-16 x 2	100 / BOX
2HCS38212	3/8-16 x 2-1/2	50 / BOX
2HCS38312	3/8-16 x 3-1/2	50 / BOX
2HCS38400	3/8-16 x 4	50 / BOX
2HCS38412	3/8-16 x 4-1/2	50 / BOX
2HCS38500	3/8-16 x 5	50 / BOX
2HCS38512	3/8-16 x 5-1/2	50 / BOX
2HCS38600	3/8-16 x 6	50 / BOX
2HCS12034	1/2-13 x 3/4	50 / BOX
2HCS12100	1/2-13 x 1	50 / BOX
2HCS12114	1/2-13 x 1-1/4	50 / BOX
2HCS12200	1/2-13 x 2	50 / BOX
2HCS12212	1/2-13 x 2-1/2	50 / BOX
2HCS12300	1/2-13 x 3	50 / BOX

PART #	SIZE	QUANTITY / BOX
2HCS12312	1/2-13 x 3-1/2	25 / BOX
2HCS12400	1/2-13 x 4	25 / BOX
2HCS12412	1/2-13 x 4-1/2	25 / BOX
2HCS12500	1/2-13 x 5	25 / BOX
2HCS12512	1/2-13 x 5-1/2	25 / BOX
2HCS12600	1/2-13 x 6	25 / BOX
2HCS12700	1/2-13 x 7	25 / BOX
2HCS12800	1/2-13 x 8	25 / BOX
2HCS12900	1/2-13 x 9	25 / BOX
2HCS12010	1/2-13 x 10	25 / BOX
2HCS12120	1/2-13 x 12	25 / BOX
2HCS58100	5/8-11 x 1	25 / BOX
2HCS58114	5/8-11 x 1-1/4	25 / BOX
2HCS58112	5/8-11 x 1-1/2	25 / BOX
2HCS58134	5/8-11 x 1-3/4	25 / BOX
2HCS58200	5/8-11 x 2	25 / BOX
2HCS58212	5/8-11 x 2-1/2	25 / BOX
2HCS58234	5/8-11 x 2-3/4	25 / BOX
2HCS58300	5/8-11 x 3	25 / BOX
2HCS58400	5/8-11 x 4	25 / BOX
2HCS58412	5/8-11 x 4-1/2	25 / BOX
2HCS58512	5/8-11 x 5-1/2	25 / BOX
2HCS58600	5/8-11 x 6	25 / BOX
2HCS34114	3/4-10 x 1-1/4	20 / BOX
2HCS34112	3/4-10 x 1-1/2	20 / BOX
2HCS34134	3/4-10 x 1-3/4	20 / BOX
2HCS34212	3/4-10 x 2-1/2	20 / BOX
2HCS34334	3/4-10 x 3-3/4	15 / BOX
2HCS34400	3/4-10 x 4	15 / BOX
2HCS34412	3/4-10 x 4-1/2	15 / BOX
2HCS34500	3/4-10 x 5	15 / BOX
2HCS34512	3/4-10 x 5-1/2	15 / BOX
2HCS34600	3/4-10 x 6	15 / BOX
2HCS78112	7/8-9 x 1-1/2	15 / BOX
2HCS78200	7/8-9 x 2	15 / BOX
2HCS78214	7/8-9 x 2-1/4	15 / BOX
2HCS78212	7/8-9 x 2-1/2	15 / BOX
2HCS78234	7/8-9 x 2-3/4	15 / BOX
2HCS78300	7/8-9 x 3	15 / BOX
2HCS78312	7/8-9 x 3-1/2	15 / BOX
2HCS78334	7/8-9 x 3-3/4	15 / BOX
2HCS78400	7/8-9 x 4	15 / BOX



## HEX CAP SCREWS

ZINC, GALVANIZED &amp; STAINLESS STEEL

## ORDERING INFORMATION

ZINC PLATED - GRADE 5

PART #	SIZE	QUANTITY / BOX
2HCS14114G5	1/4-20 x 1-1/4	100 / BOX
2HCS14112G5	1/4-20 x 1-1/2	100 / BOX
2HCS56100G5	5/16-18 x 1	100 / BOX
2HCS56212G5	5/16-18 x 2-1/2	100 / BOX
2HCS38100G5	3/8-16 x 1	100 / BOX
2HCS38114G5	3/8-16 x 1-1/4	100 / BOX
2HCS38112G5	3/8-16 x 1-1/2	100 / BOX
2HCS38312G5	3/8-16 x 3-1/2	50 / BOX
2HCS12100G5	1/2-13 x 1	50 / BOX
2HCS12114G5	1/2-13 x 1-1/4	50 / BOX
2HCS12200G5	1/2-13 x 2	50 / BOX
2HCS12414G5	1/2-13 x 4-1/4	25 / BOX
2HCS12500G5	1/2-13 x 5	25 / BOX
2HCS58100G5	5/8-11 x 1	25 / BOX
2HCS58114G5	5/8-11 x 1-1/4	25 / BOX
2HCS58200G5	5/8-11 x 2	25 / BOX
2HCS14114G5	1/4-20 x 1-1/4	100 / BOX
2HCS14112G5	1/4-20 x 1-1/2	100 / BOX
2HCS56100G5	5/16-18 x 1	100 / BOX
2HCS56212G5	5/16-18 x 2-1/2	100 / BOX
2HCS38100G5	3/8-16 x 1	100 / BOX
2HCS38114G5	3/8-16 x 1-1/4	100 / BOX
2HCS38112G5	3/8-16 x 1-1/2	100 / BOX
2HCS38312G5	3/8-16 x 3-1/2	50 / BOX
2HCS12100G5	1/2-13 x 1	50 / BOX
2HCS12114G5	1/2-13 x 1-1/4	50 / BOX
2HCS12200G5	1/2-13 x 2	50 / BOX
2HCS12414G5	1/2-13 x 4-1/4	25 / BOX
2HCS12500G5	1/2-13 x 5	25 / BOX
2HCS58100G5	5/8-11 x 1	25 / BOX
2HCS58114G5	5/8-11 x 1-1/4	25 / BOX
2HCS58200G5	5/8-11 x 2	25 / BOX
2HCS58214G5	5/8-11 x 2-1/4	25 / BOX

PART #	SIZE	QUANTITY / BOX
2HCS58212G5	5/8-11 x 2-1/2	25 / BOX
2HCS58234G5	5/8-11 x 2-3/4	25 / BOX
2HCS58300G5	5/8-11 x 3	25 / BOX
2HCS58400G5	5/8-11 x 4	25 / BOX
2HCS58414G5	5/8-11 x 4-1/4	25 / BOX
2HCS58412G5	5/8-11 x 4-1/2	25 / BOX
2HCS58500G5	5/8-11 x 5	25 / BOX
2HCS58700G5	5/8-11 x 7	25 / BOX
2HCS34112G5	3/4-10 x 1-1/2	20 / BOX
2HCS34200G5	3/4-10 x 2	20 / BOX
2HCS34212G5	3/4-10 x 2-1/2	20 / BOX
2HCS34300G5	3/4-10 x 3	20 / BOX
2HCS34314G5	3/4-10 x 3-1/4	20 / BOX
2HCS34312G5	3/4-10 x 3-1/2	15 / BOX
2HCS34334G5	3/4-10 x 3-3/4	15 / BOX
2HCS34400G5	3/4-10 x 4	15 / BOX
2HCS34414G5	3/4-10 x 4-1/4	15 / BOX
2HCS34412G5	3/4-10 x 4-1/2	15 / BOX
2HCS34512G5	3/4-10 x 5-1/2	15 / BOX
2HCS34600G5	3/4-10 x 6	15 / BOX
2HCS34700G5	3/4-10 x 7	15 / BOX
2HCS78200G5	7/8-9 x 2	15 / BOX
2HCS78234G5	7/8-9 x 2-3/4	15 / BOX
2HCS78300G5	7/8-9 x 3	15 / BOX
2HCS78400G5	7/8-9 x 4	15 / BOX
2HCS78412G5	7/8-9 x 4-1/2	15 / BOX
2HCS78500G5	7/8-9 x 5	15 / BOX
2HCS01300G5	1-8 x 3	10 / BOX
2HCS01400G5	1-8 x 4	10 / BOX
2HCS01412G5	1-8 x 4-1/2	10 / BOX
2HCS01612G5	1-8 x 6-1/2	10 / BOX
2HCS01800G5	1-8 x 8	10 / BOX



## HEX CAP SCREWS

ZINC, GALVANIZED &amp; STAINLESS STEEL

## ORDERING INFORMATION

STAINLESS STEEL - GRADE 304

PART #	SIZE	QUANTITY / BOX
2HCSS212100	1/2-13 x 1	50 / BOX
2HCSS212114	1/2-13 x 1-1/4	50 / BOX
2HCSS212112	1/2-13 x 1-1/2	50 / BOX
2HCSS212200	1/2-13 x 2	50 / BOX
2HCSS212214	1/2-13 x 2-1/4	50 / BOX
2HCSS212212	1/2-13 x 2-1/2	50 / BOX
2HCSS212300	1/2-13 x 3	50 / BOX
2HCSS212400	1/2-13 x 4	25 / BOX
2HCSS258112	5/8-11 x 1-1/2	25 / BOX
2HCSS258200	5/8-11 x 2	25 / BOX
2HCSS258212	5/8-11 x 2-1/2	25 / BOX
2HCSS258234	5/8-11 x 2-3/4	25 / BOX
2HCSS258300	5/8-11 x 3	25 / BOX
2HCSS258312	5/8-11 x 3-1/2	25 / BOX
2HCSS234212	3/4-10 x 2-1/2	20 / BOX
2HCSS234300	3/4-10 x 3	20 / BOX
2HCSS234312	3/4-10 x 3-1/2	15 / BOX
2HCSS212100	1/2-13 x 1	50 / BOX

PART #	SIZE	QUANTITY / BOX
2HCSS212100	1/2-13 x 1	50 / BOX
2HCSS212114	1/2-13 x 1-1/4	50 / BOX
2HCSS212112	1/2-13 x 1-1/2	50 / BOX
2HCSS212200	1/2-13 x 2	50 / BOX
2HCSS212214	1/2-13 x 2-1/4	50 / BOX
2HCSS212212	1/2-13 x 2-1/2	50 / BOX
2HCSS212300	1/2-13 x 3	50 / BOX
2HCSS212400	1/2-13 x 4	25 / BOX
2HCSS258112	5/8-11 x 1-1/2	25 / BOX
2HCSS258200	5/8-11 x 2	25 / BOX
2HCSS258212	5/8-11 x 2-1/2	25 / BOX
2HCSS258234	5/8-11 x 2-3/4	25 / BOX
2HCSS258300	5/8-11 x 3	25 / BOX
2HCSS258312	5/8-11 x 3-1/2	25 / BOX
2HCSS234212	3/4-10 x 2-1/2	20 / BOX
2HCSS234300	3/4-10 x 3	20 / BOX
2HCSS234312	3/4-10 x 3-1/2	15 / BOX