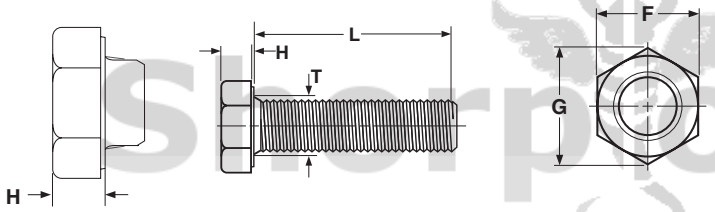
Hex Cap Screws DIN 933

CAP SCREWS & BOLTS



METRIC - DIN 933 Hex Head Fully Threaded Cap Screws, Coarse

DIN 933

Nominal Size	Thread Pitch	H		F		T		G
		Head Height		Width Across Flats		Body Diameter		Width Across Corners
		Max	Min	Max	Min	Max	Min	Min
M4	0.7	2.92	2.68	7	6.78	4	3.82	7.74
M5	0.8	3.65	3.35	8	7.78	5	4.82	8.87
M6	1	4.15	3.85	10	9.78	6	5.82	11.05
M7	1	4.95	4.65	11	10.73	7	6.78	12.12
M8	1.25	5.45	5.15	13	12.73	8	7.78	14.38
M10	1.5	6.58	6.22	17	16.73	10	9.78	17.77
M12	1.75	7.68	7.32	19	18.67	12	11.73	20.03
M14	2	8.98	8.62	22	21.67	14	13.73	24.49
M16	2	10.18	9.82	24	23.67	16	15.73	26.75
M18	2.5	11.72	11.28	27	26.67	18	16.73	30.14
M20	2.5	12.72	12.28	30	29.67	20	19.67	33.53
M24	3	15.22	14.78	36	35.38	24	23.67	39.98

Tolerance on Length				
	12-16mm: ±0.35	20-30mm: ±0.42	35-50mm: ±0.5	55-80mm: ±0.6
	90-120: ±0.7		130-180mm: ±0.8	

Description	A hex headed externally threaded fastener with washer-face beneath the head, a metric thread pitch, made from medium carbon steel and heat-treated. The threads on the shank extend all of the way to directly beneath the head.	A hex headed externally threaded fastener with washer-face beneath the head, a metric thread pitch, made from high alloy steel and heat-treated. The threads on the shank extend all of the way to directly beneath the head.
Applications/ Advantages	Used to mount motors to machinery. Also popular in automotive and truck repair.	Used in automotive and fleet industries where greater tensile strength is required than can be achieved with a Class 8.8 fastener.
Material	***Class 8.8***	***Class 10.9***
	Class 8.8 bolts can be made from a carbon steel which conforms to the following chemical composition-- ***Carbon***: 0.25-0.55%; ***Phosphorus***: 0.035% maximum; ***Sulfur***: 0.035% maximum.	Class 10.9 bolts can be made from an alloy steel which conforms to the following chemical composition-- ***Carbon***: 0.20-0.55%; ***Phosphorus***: 0.035% maximum; ***Sulfur***: 0.035% maximum; and shall contain one or more of the following elements: Chromium, Nickel, Molybdenum or Vanadium
Heat Treatment	Class 8.8 bolts shall be heat treated by quenching in a liquid medium from above the transformation temperature and reheating to a tempering temperature of 425°C.	Class 10.9 bolts shall be heat treated by quenching in oil from above the transformation temperature and reheating to a tempering temperature of 425°C.
Core Hardness	***For diameters less than or equal to 16mm:*** Rockwell C22 - 32 *For diameters greater than 16mm:* Rockwell C23 - 34	*All diameters:* Rockwell C32 - 39
Yield Strength	***For diameters less than or equal to 16mm:*** 92,800 psi. minimum *For diameters greater than 16mm:* 95,700 psi. minimum	*All diameters:* 136,300 psi. minimum
Tensile Strength	***For diameters less than or equal to 16mm:*** 116,000 psi. minimum *For diameters greater than 16mm:* 120,350 psi. minimum	*All diameters:* 150,800 psi. minimum
Plating	See Appendix-A for plating information	See Appendix-A for plating information