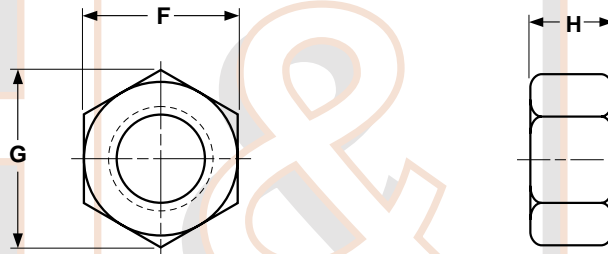


# Nuts

# METRIC

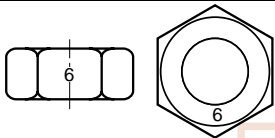
# Hex Nuts Style 1 & Class 6



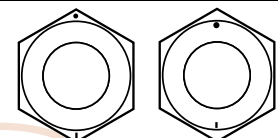
## METRIC - HEX NUTS, STYLE 1

ISO 4032

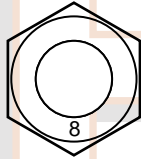
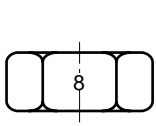
Nominal Size	Thread Pitch	F		G	H	
		Width Across Flats		Width Across Corners	Thickness	
		Max	Min	Min	Max	Min
M1.6	0.35	3.2	3.02	3.41	1.3	1.05
M2	0.4	4	3.82	4.32	1.6	1.35
M2.5	0.45	5	4.82	5.45	2	1.75
M3	0.5	5.5	5.32	6.01	2.4	2.15
M4	0.7	7	6.78	7.66	3.2	2.9
M5	0.8	8	7.78	8.79	4.7	4.4
M6	1	10	9.78	11.05	5.2	4.9
M8	1.25	13	12.73	14.38	6.8	6.44
M10	1.5	16	15.73	17.77	8.4	8.04
M12	1.75	18	17.73	20.03	10.8	10.37
M14	2	21	20.67	23.35	12.8	12.1
M16	2	24	23.67	26.75	14.8	14.1
M20	2.5	30	29.16	32.95	18	16.9
M24	3	36	35	39.55	21.5	20.2
M30	3.5	46	45	50.85	25.6	24.3
M36	4	55	53.8	60.79	31	29.4
M42	4.5	65	63.1	71.3	34	32.4
M48	5	75	73.1	82.6	38	36.4
M56	5.5	85	82.8	93.56	45	43.4
M64	6	95	92.8	104.86	51	49.1



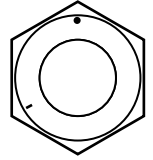
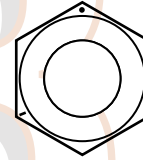
## CLASS 6 HEX NUTS



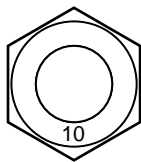
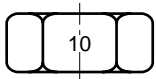
<b>Description</b>	A six-sided internally threaded, non-heat treated fastener with a metric thread pitch. Nuts M16 and smaller are chamfered on the top and the bearing surface. Nuts M18 and larger may be either double chamfered, or have a washer face on one side and a chamfered surface on the opposite side.
<b>Applications/Advantages</b>	Class 6 nuts are intended for use with screws and bolts of property class 6.8 or lower. They are the most popular nut for use with metric machine screws.
<b>Material</b>	Class 6 nuts shall be made of a steel which conforms to the following chemical composition-- <i>Carbon: 0.50% maximum; Phosphorus: 0.060% maximum; Sulfur: 0.150% maximum.</i>  Class 6 nuts may also be made from free-cutting steel which conforms to the following chemical composition-- <i>Carbon: 0.50% maximum; Sulfur: 0.34% minimum; Phosphorus: 0.11% minimum; Lead: 0.35% minimum.</i>
<b>Hardness</b>	<b>Diam. thru M16:</b> Vickers HV 150 - 302 (Rockwell B78.7 - C30); <b>Diam. M18 thru M39:</b> Vickers HV 170 - 302 (Rockwell B85 - C30)
<b>Proof Load</b>	<b>Diameters M1.6 through M4:</b> 600 N/mm <sup>2</sup> <b>Diameters M5 through M7:</b> 670 N/mm <sup>2</sup> <b>Diameters M8 through M10:</b> 680 N/mm <sup>2</sup> <b>Diameters M12 through M16:</b> 700 N/mm <sup>2</sup> <b>Diameters M18 through M36:</b> 720 N/mm <sup>2</sup>
<b>Plating</b>	See Appendix-A for plating information



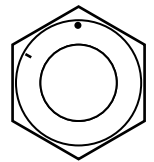
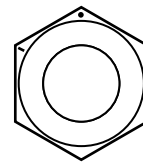
**CLASS 8 HEX NUTS**



<b>Description</b>	A Style 1 hex nut with a metric thread pitch. Nuts M16 and smaller are chamfered top and bottom, and are not heat-treated. Nuts M18 and larger are (1) heat-treated and (2) may be double chamfered, or have a washer face on one side and a chamfered surface on the opposite side.
<b>Applications/ Advantages</b>	Class 8 nuts are intended for use with screws and bolts of property class 8.8 or lower. They are widely used in the automotive and electronics industries.
<b>Material</b>	Class 8 nuts shall be made of a steel which conforms to the following chemical composition-- <i>Carbon: 0.58% maximum; Manganese: 0.25% minimum; Phosphorus: 0.060% maximum; Sulfur: 0.150% maximum.</i>
<b>Heat Treatment</b>	Class 8 nuts of diameter 18mm or greater shall be heat treated by quenching in a liquid medium from a temperature above the transformation temperature and tempering at a temperature of at least 425°C.
<b>Hardness</b>	<b>Diameters M1.6 through M4:</b> Vickers HV 180 - 302 (Rockwell B87.1 - C30) <b>Diameters M5 through M16:</b> Vickers HV 200 - 302 (Rockwell B91.5 - C30) <b>Diameters through M18 through M39:</b> Vickers HV 233 - 353 (Rockwell C18 - 36)
<b>Proof Load</b>	<b>Diameters M1.6 through M4:</b> 800 N/mm <sup>2</sup> <b>Diameters M5 through M7:</b> 855 N/mm <sup>2</sup> <b>Diameters M8 through M10:</b> 870 N/mm <sup>2</sup> <b>Diameters M12 through M16:</b> 880 N/mm <sup>2</sup> <b>Diameters M18 through M36:</b> 920 N/mm <sup>2</sup>
<b>Plating</b>	See Appendix-A for plating information



**CLASS 10 HEX NUTS**



<b>Description</b>	A Style 1, heat treated fastener with a metric thread pitch. Nuts M16 and smaller are chamfered on the top and the bearing surface. Nuts M20 and larger may be either double chamfered, or have a washer face on one side and a chamfered surface on the opposite side.
<b>Applications/ Advantages</b>	Class 10 nuts are intended for use with screws and bolts of property classes 10.9 and lower. They are widely used in farm equipment.
<b>Material</b>	Class 10 nuts shall be made of a steel which conforms to the following chemical composition-- <i>Carbon: 0.58% maximum; Manganese: 0.30% minimum; Phosphorus: 0.048% maximum; Sulfur: 0.058% maximum.</i>
<b>Heat Treatment</b>	Class 10 nuts shall be heat treated by quenching in a liquid medium from a temperature above the transformation temperature and tempering at a temperature of at least 425°C.
<b>Hardness</b>	Rockwell C26 - 36 (Vickers HV 272 - 353)
<b>Proof Load</b>	<b>Diameters through M10:</b> 1040 N/mm <sup>2</sup> <b>Diameters M12 through M16:</b> 1050 N/mm <sup>2</sup> <b>Diameters M18 through M39:</b> 1060 N/mm <sup>2</sup>
<b>Plating</b>	See Appendix-A for plating information