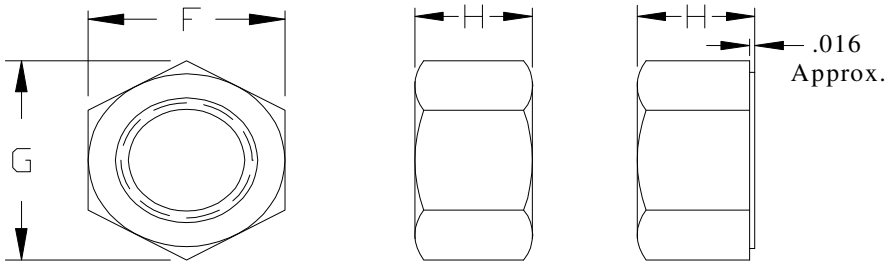
Full HexNuts



Finished Full Hex Nut

Table I: Dimensions for Hex Nuts (ASME/ANSI B18.2.2)

Nominal Diameter	F Width Across Flats		H Thickness (Full Nut)		G Width Across Corners	Bearing Surface Diameter	Counter-sink Diameter	T.I.R	
	Nom	Max / Min	Nom	Max / Min	Max / Min	Min	Max	Gr 5	Gr 8
1/4	7/16	.438/.428	7/32	.226/.212	.505/.488	.438/.407	.280	.015	.010
5/16	1/2	.500/.489	17/64	.273/.258	.577/.557	.500/.465	.342	.016	.011
3/8	9/16	.562/.551	21/64	.337/.320	.650/.628	.562/.523	.405	.017	.012
7/16	11/16	.688/.675	3/8	.385/.365	.794/.768	.688/.641	.472	.018	.013
1/2	3/4	.750/.736	7/16	.448/.427	.866/.840	.750/.699	.540	.019	.014
9/16	7/8	.875/.861	31/64	.496/.473	1.010/.982	.875/.818	.607	.020	.015
5/8	15/16	.938/.922	35/64	.559/.535	1.083/1.051	.938/.876	.675	.021	.016
3/4	1 1/8	1.125/1.088	41/64	.665/.617	1.299/1.240	1.125/1.034	.810	.023	.018
7/8	1 5/16	1.312/1.269	3/4	.776/.724	1.516/1.447	1.312/1.206	.945	.025	.020
1	1 1/2	1.500/1.450	55/64	.887/.831	1.732/1.653	1.500/1.377	1.080	.027	.022
1 1/8	1 11/16	1.688/1.631	31/32	.999/.939	1.949/1.859	1.688/1.549	1.215	.030	.025
1 1/4	1 7/8	1.875/1.812	1 1/16	1.094/1.030	2.165/2.066	1.875/1.721	1.350	.033	.028
1 3/8	2 1/16	2.062/1.994	1 11/64	1.206/1.138	2.382/2.273	2.060/1.894	1.485	.036	.031
1 1/2	2 1/4	2.250/2.175	1 9/32	1.317/1.245	2.598/2.480	2.250/2.066	1.620	.039	.034
1 5/8	2 7/16	2.438/2.356	1 13/32	1.444/1.353	2.815/2.686	2.438/2.238	1.755	.044	.038
1 3/4	2 5/8	2.625/2.538	1 1/2	1.540/1.460	3.031/2.893	2.625/2.411	1.890	.048	.041
1 7/8	2 13/16	2.812/2.718	1 11/16	1.667/1.567	3.248/3.100	2.812/2.582	2.025	.051	.044
2	3	3.000/2.900	1 33/32	1.763/1.675	3.464/3.306	3.000/2.755	2.160	.055	.047
2 1/4	3 3/8	3.375/3.262	1 15/16	1.986/1.890	3.897/3.719	3.375/3.099	2.430	.061	.052
2 1/2	3 3/4	3.750/3.625	2 5/32	2.209/2.104	4.330/4.133	3.750/3.444	2.700	.068	.058
2 3/4	4 1/8	4.125/3.988	2 3/8	2.431/2.319	4.763/4.546	4.125/3.789	2.970	.074	.064
3	4 1/2	4.500/4.350	2 5/8	2.685/2.534	5.196/4.959	4.500/4.132	3.240	.081	.070

Hex Nuts-Finished Full Nuts

1.) Manufacture: Full hex nuts are manufactured in accordance with the latest revision of the following industry standards:

ASME B18.2.2	Dimensional Requirements
SAE J995	Material and Physical Properties
ASME B1.1	Thread Requirements
SAE J122	Surface Discontinuities
ASME B18.18.1	Inspection and Quality Assurance for General Purpose Fasteners

2.) Threads: Threads are to be made to the requirements of ANSI B1.1 Unified Threads, 2B Fit. Thread acceptance shall be based on ANSI B1.3, System 21.

3.) Material and Physical Properties: Hex nuts are made to the following requirements for the grade specified per SAE J995.

Note: SAE J995 applies to product 1/4" thru 1 1/2" diameter. This specification applies to product 1/4" thru 3" in diameter. For diameters that exceed the SAE J995 sizes the mechanical requirements specified for the 1 1/2" diameter product shall apply.

Grade 8

Chemical Composition Requirements

Carbon (C)	Manganese (Mn)	Phosphorus (P)	Sulfur (S)
Max	Min	Max	Max
0.55	0.30	0.04	0.05

Hardness

Nominal Nut Size	Hardness
1/4 thru 5/8	Rc 24 – 32
Over 5/8 thru 1	Rc 26 – 34
Over 1"	Rc 26 – 36

Proof Load: 150,000 psi min

Grade 5

Chemical Composition Requirements

Carbon (C)	Manganese (Mn)	Phosphorus (P)	Sulfur (S)
Max	Min	Max	Max
0.55	0.30	0.05	0.15

Hardness: Rc 32 max

Proof Load:

Size	
1/4" to 1", Coarse (UNC) Thread	120,000 psi
1 1/8 and larger, Coarse (UNC) Thread	109,000 psi
1/4" to 1", Fine (UNF) Thread	105,000 osi
1 1/8 and larger, Fine (UNF) Thread	94,000 psi

Hex Nuts-Finished Full Nuts

Grade 2

Chemical Composition Requirements

Carbon (C)	Manganese (Mn)	Phosphorus (P)	Sulfur (S)
Max	Min	Max	Max
0.47	-	0.12	0.15

Hardness: Rc 32 max

Proof Load: (not defined for Grade 2 hex nuts

4.) Plating:

Zinc with Trivalent Clear Chromate
per ASTM B633 Type III SC1 or ASTM F1941 Fe/ZN 5A or 5B
Plating thickness - .0002" (5 micron) min

Zinc with Yellow Chromate
per ASTM B633 Type II SC1 or ASTM F1941 Fe/ZN 5C
Plating thickness - .0002" (5 micron) min