

HEX NUT MARKINGS AND PROPERTIES

ASTM A194

Grade 2, 2H, 4 and 7

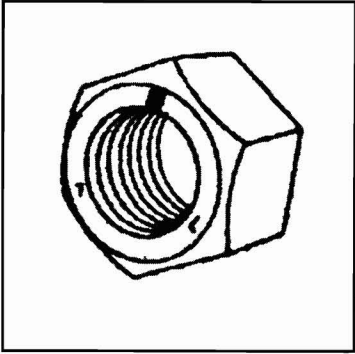
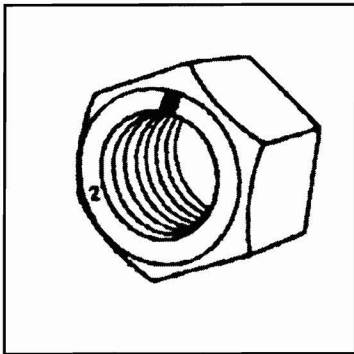
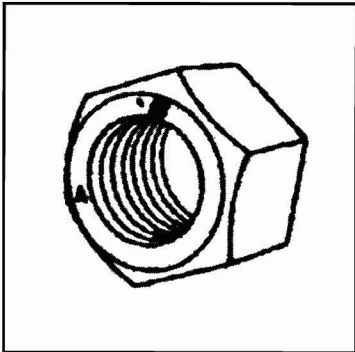
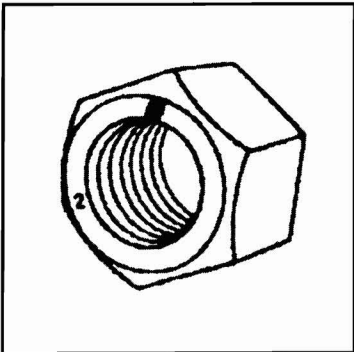
(Mechanical Properties)

AN Standard B18.2.2

(Dimensions)

For high-temperature, high-pressure in combination with alloy studs and bolts.

These nuts are tapped UNC-2B in sizes of 1" and under or BUN-2B over 1".



ASTM A194 - GRADE 2

Treated nuts suitable for moderate temperature and pressure conditions.

ASTM A194 - GRADE 2H

Quenched nuts suitable for high-temperature and high-pressure conditions.

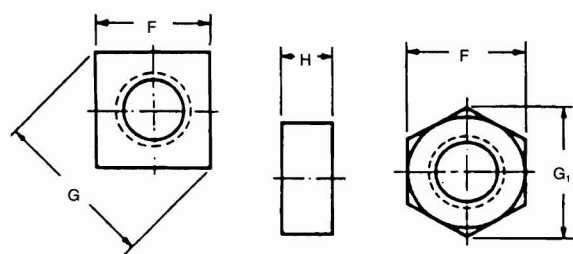
ASTM A194 - GRADES 4 and 7

Heat-treated carbon-molybdenum and chromium molybdenum steel nuts suitable for severe temperature and pressure conditions.

Chemical Composition							
Grade	C	Mn	P	S	Si	Mo	Cr
2 and 2H	0.40 min	—	0.04 max	0.05 max	—	—	—
4	0.40 to 0.50	0.70 to 0.90	0.035 max	0.04 max	0.20 to 0.35	0.20 to 0.30	—
7	0.38 to 0.48	0.75 to 1.00	0.04 max	0.04 max	0.20 to 0.35	0.15 to 0.25	0.80 to 1.10

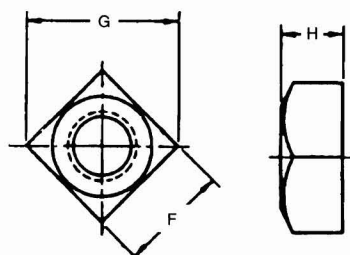
Hardness Requirements			
Grade	Brinell	Rockwell B	Rockwell C
2	159 to 352	84 min.	—
2H	248 to 352	—	24 to 38
4 and 7	248 to 352	—	24 to 38

SQUARE AND HEX MACHINE SCREW NUTS



Nominal Size or Basic Thread Diameter		F			G		G ₁		H	
		Width Across Flats			Width Across Corners				Thickness	
					Square		Hex			
		Basic	Max	Min	Max	Min	Max	Min	Max	Min
2	0.0860	3/16	0.188	0.180	0.265	0.247	0.217	0.205	0.066	0.057
3	0.0990	3/16	0.188	0.180	0.265	0.247	0.217	0.205	0.066	0.057
4	0.1120	1/4	0.250	0.241	0.354	0.331	0.289	0.275	0.098	0.087
5	0.1250	5/16	0.312	0.302	0.442	0.415	0.361	0.344	0.114	0.102
6	0.1380	5/16	0.312	0.302	0.442	0.415	0.361	0.344	0.114	0.102
8	0.1640	11/32	0.344	0.332	0.486	0.456	0.397	0.378	0.130	0.117
10	0.1900	3/8	0.375	0.362	0.530	0.497	0.433	0.413	0.130	0.117
12	0.2160	7/16	0.438	0.423	0.619	0.581	0.505	0.482	0.161	0.148
1/4	0.2500	7/16	0.438	0.423	0.619	0.581	0.505	0.482	0.193	0.178
5/16	0.3125	9/16	0.562	0.545	0.795	0.748	0.650	0.621	0.225	0.208
3/8	0.3750	5/8	0.625	0.607	0.884	0.833	0.722	0.692	0.257	0.239

REGULAR SQUARE NUTS



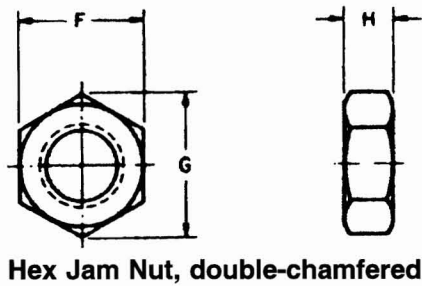
Nominal Size or Basic Major Thread Diameter		F			G		H		
		Width Across Flats			Width Across Corners		Thickness		
							Basic	Max	Min
1/4	0.2500	7/16	0.438	0.425	0.619	0.584	7/32	0.235	0.203
5/16	0.3125	9/16	0.562	0.547	0.795	0.751	17/64	0.283	0.249
3/8	0.3750	5/8	0.625	0.606	0.884	0.832	21/64	0.346	0.310
7/16	0.4375	3/4	0.750	0.728	1.061	1.000	3/8	0.394	0.356
1/2	0.5000	13/16	0.812	0.788	1.149	1.082	7/16	0.458	0.418
5/8	0.6250	1	1.000	0.969	1.414	1.330	35/64	0.569	0.525
3/4	0.7500	1-1/8	1.125	1.088	1.591	1.494	21/32	0.680	0.632
7/8	0.8750	1-5/16	1.312	1.269	1.856	1.742	49/64	0.792	0.740
1	1.0000	1-1/2	1.500	1.450	2.121	1.991	7/8	0.903	0.847

JAM NUTS - HEX AND HEAVY HEX
ASTM A307

Double-chamfered hex nuts are offered with UNC-2B or UNF-2B threads in diameters ranging from 1/4" to 1" inclusive.

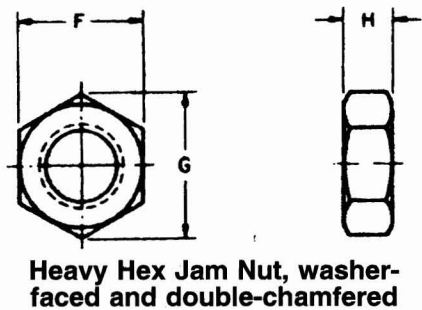
Heavy hex jam nuts are available with UNC-2B threads, double-chamfered in diameters of 1/4" to 1" inclusive, or washer-faced in diameters of 1-1/8" to 2" inclusive.

Hex jam nut dimensions (in.) ANSI B18.2.2



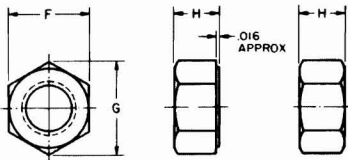
Nominal Size or Basic Major Diam of Thread		Width Across Flats F			Width Across Corners G		Thickness Hex Jam Nuts H		
		Basic	Max	Min	Max	Min	Basic	Max	Min
1/4	0.2500	7/16	0.438	0.428	0.505	0.488	5/32	0.163	0.150
5/16	0.3125	1/2	0.500	0.489	0.577	0.557	3/16	0.195	0.180
3/8	0.3750	9/16	0.562	0.551	0.650	0.628	7/32	0.227	0.210
7/16	0.4375	11/16	0.688	0.675	0.794	0.768	1/4	0.260	0.240
1/2	0.5000	3/4	0.750	0.736	0.866	0.840	5/16	0.323	0.302
9/16	0.5625	7/8	0.875	0.861	1.010	0.982	5/16	0.324	0.301
5/8	0.6250	15/16	0.938	0.922	1.083	1.051	3/8	0.387	0.363
3/4	0.7500	1 1/8	1.125	1.088	1.299	1.240	27/64	0.446	0.398
7/8	0.8750	1 5/16	1.312	1.269	1.516	1.447	31/64	0.510	0.458
1	1.0000	1 1/2	1.500	1.450	1.732	1.853	35/64	0.575	0.518

Heavy hex jam nut dimensions (in.) ANSI B18.2.2



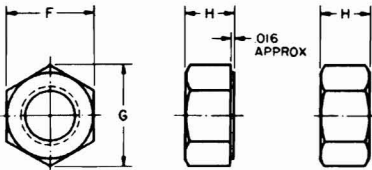
Nominal Size or Basic Major Diam of Thread		Width Across Flats F			Width Across Corners G		Thickness Heavy Hex Jam Nuts H		
		Basic	Max	Min	Max	Min	Basic	Max	Min
1/4	0.2500	1/2	0.500	0.488	0.577	0.556	11/64	0.188	0.156
5/16	0.3125	9/16	0.562	0.546	0.650	0.622	13/64	0.220	0.186
3/8	0.3750	11/16	0.688	0.669	0.794	0.763	15/64	0.252	0.216
7/16	0.4375	3/4	0.750	0.728	0.866	0.830	17/64	0.285	0.247
1/2	0.5000	7/8	0.875	0.850	1.010	0.969	19/64	0.317	0.277
9/16	0.5625	15/16	0.938	0.909	1.083	1.037	21/64	0.349	0.307
5/8	0.6250	1 1/16	1.062	1.031	1.227	1.175	23/64	0.381	0.337
3/4	0.7500	1 1/4	1.250	1.212	1.443	1.382	27/64	0.446	0.398
7/8	0.8750	1 7/16	1.438	1.394	1.660	1.589	31/64	0.510	0.458
1	1.0000	1 5/8	1.625	1.575	1.876	1.796	35/64	0.575	0.519
1 1/8	1.1250	1 13/16	1.812	1.756	2.093	2.002	39/64	0.639	0.579
1 1/4	1.2500	2	2.000	1.938	2.309	2.209	23/32	0.751	0.687
1 3/8	1.3750	2 3/16	2.188	2.119	2.526	2.416	25/32	0.815	0.747
1 1/2	1.5000	2 3/8	2.375	2.300	2.742	2.622	27/32	0.880	0.808
1 5/8	1.6250	2 9/16	2.562	2.481	2.959	2.828	29/32	0.944	0.868
1 3/4	1.7500	2 3/4	2.750	2.662	3.175	3.035	31/32	1.009	0.929
1 7/8	1.8750	2 15/16	2.938	2.844	3.392	3.242	1 1/16	1.073	0.989
2	2.0000	3 1/8	3.125	3.025	3.608	3.449	1 3/32	1.138	1.050

FINISHED
HEX NUTS



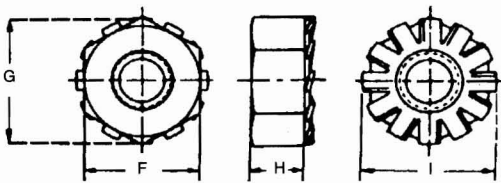
Nominal Size or Basic Major Thread Diameter		F			G		H		
		Width Across Flats			Width Across Corners		Thickness Hex Nuts		
		Basic	Max	Min	Max	Min	Basic	Max	Min
1/4	0.2500	7/16	0.438	0.428	0.505	0.488	7/32	0.226	0.212
5/16	0.3125	1/2	0.500	0.489	0.577	0.557	17/64	0.273	0.258
3/8	0.3750	9/16	0.562	0.551	0.650	0.628	21/64	0.337	0.320
7/16	0.4375	11/16	0.688	0.675	0.794	0.768	3/8	0.385	0.365
1/2	0.5000	3/4	0.750	0.736	0.866	0.840	7/16	0.448	0.427
9/16	0.5625	7/8	0.875	0.861	1.010	0.982	31/64	0.496	0.473
5/8	0.6250	15/16	0.938	0.922	1.083	1.051	35/64	0.559	0.535
3/4	0.7500	1 1/8	1.125	1.088	1.299	1.240	41/64	0.665	0.617
7/8	0.8750	1 5/16	1.312	1.269	1.516	1.447	3/4	0.776	0.724
1	1.0000	1 1/2	1.500	1.450	1.732	1.653	55/64	0.887	0.831
1 1/8	1.1250	1 11/16	1.688	1.631	1.949	1.859	31/32	0.999	0.939
1 1/4	1.2500	1 7/8	1.875	1.812	2.165	2.066	1 1/16	1.094	1.030
1 3/8	1.3750	2 1/16	2.062	1.994	2.382	2.273	1 11/64	1.206	1.138
1 1/2	1.5000	2 1/4	2.250	2.175	2.598	2.480	1 9/32	1.317	1.245

HEAVY
HEX
NUTS



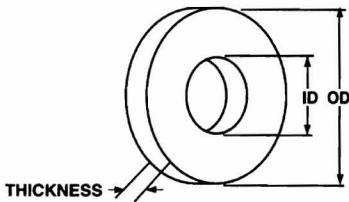
Nominal Size or Basic Major Thread Diameter	F				G		H		
	Width Across Flats			Width Across Corners		Thickness Heavy Hex Nuts			
	Basic	Max	Min	Max	Min	Basic	Max	Min	
1/4 0.2500	1/2	0.500	0.488	0.577	0.556	15/64	0.250	0.218	
5/16 0.3125	9/16	0.562	0.546	0.650	0.622	19/64	0.314	0.280	
3/8 0.3750	11/16	0.688	0.669	0.794	0.763	23/64	0.377	0.341	
7/16 0.4375	3/4	0.750	0.728	0.866	0.830	27/64	0.441	0.403	
1/2 0.5000	7/8	0.875	0.850	1.010	0.969	31/64	0.504	0.464	
9/16 0.5625	15/16	0.938	0.909	1.083	1.037	35/64	0.568	0.526	
5/8 0.6250	1 1/16	1.062	1.031	1.227	1.175	39/64	0.631	0.587	
3/4 0.7500	1 1/4	1.250	1.212	1.443	1.382	47/64	0.758	0.710	
7/8 0.8750	1 7/16	1.438	1.394	1.660	1.589	55/64	0.885	0.833	
1 1.0000	1 5/8	1.625	1.575	1.876	1.796	63/64	1.012	0.956	
1 1/8 1.1250	1 13/16	1.812	1.756	2.093	2.002	1 7/64	1.139	1.079	
1 1/4 1.2500	2	2.000	1.938	2.309	2.209	1 7/32	1.251	1.187	
1 3/8 1.3750	2 3/16	2.188	2.119	2.526	2.416	1 11/32	1.378	1.310	
1 1/2 1.5000	2 3/8	2.375	2.300	2.742	2.622	1 15/32	1.505	1.433	
1 5/8 1.6250	2 9/16	2.562	2.481	2.959	2.828	1 19/32	1.632	1.556	
1 3/4 1.7500	2 3/4	2.750	2.662	3.175	3.035	1 23/32	1.759	1.679	
1 7/8 1.8750	2 15/16	2.938	2.844	3.392	3.242	1 27/32	1.886	1.802	
2 2.0000	3 1/8	3.125	3.025	3.608	3.449	1 31/32	2.013	1.925	
2 1/4 2.2500	3 1/2	3.500	3.388	4.041	3.862	2 13/64	2.251	2.155	
2 1/2 2.5000	3 7/8	3.875	3.750	4.474	4.275	2 29/64	2.505	2.401	
2 3/4 2.7500	4 1/4	4.250	4.112	4.907	4.688	2 45/64	2.759	2.647	
3 3.0000	4 5/8	4.625	4.475	5.340	5.102	2 61/64	3.013	2.893	
3 1/4 3.2500	5	5.000	4.838	5.774	5.515	3 3/16	3.252	3.124	
3 1/2 3.5000	5 3/8	5.375	5.200	6.207	5.928	3 7/16	3.506	3.370	
3 3/4 3.7500	5 3/4	5.750	5.562	6.640	6.341	3 11/16	3.760	3.616	
4 4.0000	6 1/8	6.125	5.925	7.073	6.755	3 15/16	4.014	3.862	

“K” LOCK NUTS



Nominal Size or Basic Thread Diameter		F			G		H		I
		Width Across Flats			Width Across Corners		Thickness		Washer Diameter
					Hex				Ref
		Basic	Max	Min	Max	Min	Max	Min	
4	0.1120	1/4	0.250	0.241	0.289	0.275	0.098	0.087	0.281
6	0.1380	5/16	0.312	0.302	0.361	0.344	0.114	0.102	0.344
8	0.1640	11/32	0.344	0.332	0.397	0.378	0.130	0.117	0.375
10	0.1900	3/8	0.375	0.362	0.433	0.413	0.130	0.117	0.406
1/4	0.2500	7/16	0.438	0.423	0.505	0.482	0.193	0.178	0.500
5/16	0.3125	1/2	0.500	0.489	0.577	0.557	0.273	0.258	0.578
3/8	0.3750	9/16	0.562	0.551	0.650	0.628	0.385	0.365	0.656

FLAT WASHERS



SAE WASHERS

Bolt Size	Inches		Gauge	Est. Pcs. per 1 lb.	Wt. per M pcs.
	I.D.	O.D.			
#4	1/8	5/16	#21 (1/32)	1650	0.6
#6	5/32	3/8	#18 (3/64)	790	1.26
#8	3/16	7/16	#18 (3/64)	585	1.7
#10	7/32	1/2	#18 (3/64)	435	2.3
#12	1/4	9/16	#16 (1/16)	280	3.7
1/4	9/32	5/8	#16 (1/16)	222	4.5
5/16	11/32	11/16	#16 (1/16)	192	5.2
3/8	13/32	13/16	#16 (1/16)	140	7.2
7/16	15/32	59/64	#16 (1/16)	105	9.5
1/2	17/32	1 1/16	#13 (3/32)	55	18.3
9/16	19/32	1 3/16	#13 (3/32)	43	23.4
5/8	21/32	1 5/16	#13 (3/32)	36	27.7
3/4	13/16	1 1/2	#10 (9/64)	21	47.4
7/8	15/16	1 3/4	#10 (9/64)	16	63
1	1 1/16	2	#10 (9/64)	12	83
1 1/8	1 3/16	2 1/4	#10 (9/64)	9.2	109
1 1/4	1 5/16	2 1/2	#9 (5/32)	6.3	160
1 3/8	1 7/16	2 3/4	#9 (5/32)	5.25	190
1 1/2	1 9/16	3	#9 (5/32)	4.25	240

USS STANDARD WASHERS

Bolt Size	Inches		Gauge	Est. Pcs. per 1 lb.	Wt. per M pcs.
	I.D.	O.D.			
3/16	1/4	9/16	#18 (3/64)	361	2.8
1/4	5/16	3/4	#16 (1/16)	149	6.7
5/16	3/8	7/8	#14 (5/64)	87	11.5
3/8	7/16	1	#14 (5/64)	67	14.9
7/16	1/2	1 1/4	#14 (5/64)	41	24.4
1/2	9/16	1 3/8	#12 (7/64)	26	38.5
9/16	5/8	1 1/2	#12 (7/64)	22	45.5
5/8	11/16	1 3/4	#10 (9/64)	13	77
3/4	13/16	2	#9 (5/32)	9.1	110
7/8	15/16	2 1/4	#8 (11/64)	6.5	153
1	1 1/16	2 1/2	#8 (11/64)	5.3	188
1 1/8	1 1/4	2 3/4	#8 (11/64)	4.5	220
1 1/4	1 3/8	3	#8 (11/64)	3.8	260
1 3/8	1 1/2	3 1/4	#7 (3/16)	3.0	333
1 1/2	1 5/8	3 1/2	#7 (3/16)	2.6	385
1 5/8	1 3/4	3 3/4	#7 (3/16)	2.3	448
1 3/4	1 7/8	4	#7 (3/16)	2.0	500
1 7/8	2	4 1/4	#7 (3/16)	1.8	569
2	2 1/8	4 1/2	#7 (3/16)	1.6	630
2 1/4	2 3/8	4 3/4	#5 (7/32)	1.2	826