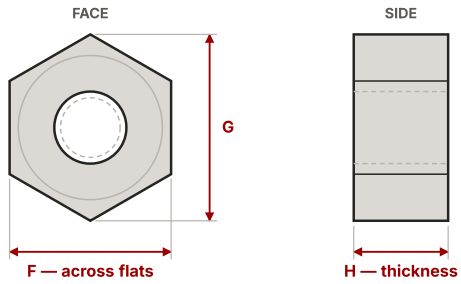
Hex Nut Dimensions

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Across flats, across corners and thickness for inch hex nuts, heavy hex nuts and hex jam nuts — with the wrench size for each. ASME B18.2.2.

A nut is sized by the **bolt it fits**: a ½″ nut goes on a ½″ bolt. The numbers below are the nut itself. **Across flats** is your wrench size; **across corners** is the room it needs to turn; **thickness** is how much thread it grips. Standard hex, heavy hex and jam nuts of the same size are three different nuts — check which one you have.



Letters match the table columns. **F** across flats (the wrench size), **G** across corners, **H** thickness.

Hex nuts (finished hex) — ASME B18.2.2 (inches)

SIZE	ACROSS FLATS F (WRENCH)	F MAX / MIN	ACROSS CORNERS G MAX / MIN	THICKNESS H	H MAX / MIN
1/4″	7/16″	.438 / .428	.505 / .488	7/32″	.226 / .212
5/16″	1/2″	.500 / .489	.577 / .557	17/64″	.273 / .258
3/8″	9/16″	.562 / .551	.650 / .628	21/64″	.337 / .320
7/16″	11/16″	.688 / .675	.794 / .768	3/8″	.385 / .365
1/2″	3/4″	.750 / .736	.866 / .840	7/16″	.448 / .427
9/16″	7/8″	.875 / .861	1.010 / .982	31/64″	.496 / .473
5/8″	15/16″	.938 / .922	1.083 / 1.051	35/64″	.559 / .535
3/4″	1-1/8″	1.125 / 1.088	1.299 / 1.240	41/64″	.665 / .617
7/8″	1-5/16″	1.312 / 1.269	1.516 / 1.447	3/4″	.776 / .724
1″	1-1/2″	1.500 / 1.450	1.732 / 1.653	55/64″	.887 / .831
1-1/8″	1-11/16″	1.688 / 1.631	1.949 / 1.859	31/32″	.999 / .939
1-1/4″	1-7/8″	1.875 / 1.812	2.165 / 2.066	1-1/16″	1.094 / 1.030
1-3/8″	2-1/16″	2.062 / 1.994	2.382 / 2.273	1-11/64″	1.206 / 1.138
1-1/2″	2-1/4″	2.250 / 2.175	2.598 / 2.480	1-9/32″	1.317 / 1.245

The everyday hex nut. Same wrench as a hex cap screw of the same size **except 7/16″ (11/16″) and 9/16″ (7/8″)**, where the nut is one size bigger.

Heavy hex nuts — ASME B18.2.2 (inches)

SIZE	ACROSS FLATS F (WRENCH)	F MAX / MIN	ACROSS CORNERS G MAX / MIN	THICKNESS H	H MAX / MIN
1/4″	1/2″	.500 / .488	.577 / .556	15/64″	.250 / .218
5/16″	9/16″	.562 / .546	.650 / .622	19/64″	.314 / .280
3/8″	11/16″	.688 / .669	.794 / .763	23/64″	.377 / .341
7/16″	3/4″	.750 / .728	.866 / .830	27/64″	.441 / .403
1/2″	7/8″	.875 / .850	1.010 / .969	31/64″	.504 / .464
9/16″	15/16″	.938 / .909	1.083 / 1.037	35/64″	.568 / .526
5/8″	1-1/16″	1.062 / 1.031	1.227 / 1.175	39/64″	.631 / .587
3/4″	1-1/4″	1.250 / 1.212	1.443 / 1.382	47/64″	.758 / .710
7/8″	1-7/16″	1.438 / 1.394	1.660 / 1.589	55/64″	.885 / .833
1″	1-5/8″	1.625 / 1.575	1.876 / 1.796	63/64″	1.012 / .956
1-1/8″	1-13/16″	1.812 / 1.756	2.093 / 2.002	1-7/64″	1.139 / 1.079
1-1/4″	2″	2.000 / 1.938	2.309 / 2.209	1-7/32″	1.251 / 1.187
1-3/8″	2-3/16″	2.188 / 2.119	2.526 / 2.416	1-11/32″	1.378 / 1.310
1-1/2″	2-3/8″	2.375 / 2.300	2.742 / 2.622	1-15/32″	1.505 / 1.433
1-5/8″	2-9/16″	2.562 / 2.481	2.959 / 2.828	1-19/32″	1.632 / 1.556
1-3/4″	2-3/4″	2.750 / 2.662	3.175 / 3.035	1-23/32″	1.759 / 1.679

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SIZE	ACROSS FLATS F (WRENCH)	F MAX / MIN	ACROSS CORNERS G MAX / MIN	THICKNESS H	H MAX / MIN
2″	3-1/8″	3.125 / 3.025	3.608 / 3.449	1-31/32″	2.013 / 1.925
2-1/4″	3-1/2″	3.500 / 3.388	4.041 / 3.862	2-13/64″	2.251 / 2.155
2-1/2″	3-7/8″	3.875 / 3.750	4.474 / 4.275	2-29/64″	2.505 / 2.401
2-3/4″	4-1/4″	4.250 / 4.112	4.907 / 4.688	2-45/64″	2.759 / 2.647
3″	4-5/8″	4.625 / 4.475	5.340 / 5.102	2-61/64″	3.013 / 2.893
3-1/4″	5″	5.000 / 4.838	5.774 / 5.515	3-3/16″	3.252 / 3.124
3-1/2″	5-3/8″	5.375 / 5.200	6.207 / 5.928	3-7/16″	3.506 / 3.370
3-3/4″	5-3/4″	5.750 / 5.562	6.640 / 6.341	3-11/16″	3.760 / 3.616
4″	6-1/8″	6.125 / 5.925	7.073 / 6.755	3-15/16″	4.014 / 3.862

One size wider across the flats and thicker than a standard nut — the nut for structural and high-strength bolting (A325, A490, B7 studs). See the nut compatibility chart.

Hex jam nuts — ASME B18.2.2 (inches)

SIZE	ACROSS FLATS F (WRENCH)	THICKNESS H	H MAX / MIN
1/4″	7/16″	5/32″	.163 / .150
5/16″	1/2″	3/16″	.195 / .180
3/8″	9/16″	7/32″	.227 / .210
7/16″	11/16″	1/4″	.260 / .240
1/2″	3/4″	5/16″	.323 / .302
9/16″	7/8″	5/16″	.324 / .301
5/8″	15/16″	3/8″	.387 / .363
3/4″	1-1/8″	27/64″	.446 / .398
7/8″	1-5/16″	31/64″	.510 / .458
1″	1-1/2″	35/64″	.575 / .519
1-1/8″	1-11/16″	39/64″	.639 / .579
1-1/4″	1-7/8″	23/32″	.751 / .687
1-3/8″	2-1/16″	25/32″	.815 / .747
1-1/2″	2-1/4″	27/32″	.880 / .808

A thin hex nut: same across flats and corners as the standard hex nut above, a little over half as thick. Run against a second nut to lock it, or use where a full nut won't fit.

Heavy hex jam nuts — ASME B18.2.2 (inches)

SIZE	ACROSS FLATS F (WRENCH)	THICKNESS H	H MAX / MIN
1/4″	1/2″	11/64″	.188 / .156
5/16″	9/16″	13/64″	.220 / .186
3/8″	11/16″	15/64″	.252 / .216
7/16″	3/4″	17/64″	.285 / .247
1/2″	7/8″	19/64″	.317 / .277
9/16″	15/16″	21/64″	.349 / .307
5/8″	1-1/16″	23/64″	.381 / .337
3/4″	1-1/4″	27/64″	.446 / .398
7/8″	1-7/16″	31/64″	.510 / .458
1″	1-5/8″	35/64″	.575 / .519
1-1/8″	1-13/16″	39/64″	.639 / .579
1-1/4″	2″	23/32″	.751 / .687
1-3/8″	2-3/16″	25/32″	.815 / .747
1-1/2″	2-3/8″	27/32″	.880 / .808
1-5/8″	2-9/16″	29/32″	.944 / .868
1-3/4″	2-3/4″	31/32″	1.009 / .929
2″	3-1/8″	1-3/32″	1.138 / 1.050
2-1/4″	3-1/2″	1-13/64″	1.251 / 1.155
2-1/2″	3-7/8″	1-29/64″	1.505 / 1.401
2-3/4″	4-1/4″	1-37/64″	1.634 / 1.522
3″	4-5/8″	1-45/64″	1.763 / 1.643
3-1/4″	5″	1-13/16″	1.876 / 1.748

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SIZE	ACROSS FLATS F (WRENCH)	THICKNESS H	H MAX / MIN
3-1/2″	5-3/8″	1-15/16″	2.006 / 1.870
3-3/4″	5-3/4″	2-1/16″	2.134 / 1.990
4″	6-1/8″	2-3/16″	2.264 / 2.112

A thin heavy hex nut: same across flats and corners as the heavy hex nut above. Run against a heavy hex nut to lock it.

Hex slotted nuts — ASME B18.2.2 (inches)

SIZE	ACROSS FLATS F (WRENCH)	THICKNESS H	UNSLOTTED T MAX / MIN	SLOT WIDTH S MAX / MIN
1/4″	7/16″	7/32″	.14 / .12	.10 / .07
5/16″	1/2″	17/64″	.18 / .16	.12 / .09
3/8″	9/16″	21/64″	.21 / .19	.15 / .12
7/16″	11/16″	3/8″	.23 / .21	.15 / .12
1/2″	3/4″	7/16″	.29 / .27	.18 / .15
9/16″	7/8″	31/64″	.31 / .29	.18 / .15
5/8″	15/16″	35/64″	.34 / .32	.24 / .18
3/4″	1-1/8″	41/64″	.40 / .38	.24 / .18
7/8″	1-5/16″	3/4″	.52 / .49	.24 / .18
1″	1-1/2″	55/64″	.59 / .56	.30 / .24
1-1/8″	1-11/16″	31/32″	.64 / .61	.33 / .24
1-1/4″	1-7/8″	1-1/16″	.70 / .67	.40 / .31
1-3/8″	2-1/16″	1-11/64″	.82 / .78	.40 / .31
1-1/2″	2-1/4″	1-9/32″	.86 / .82	.46 / .37

A standard hex nut with three slots across the top for a cotter pin. Same wrench, corners and thickness as the hex nut; **T** is the solid part under the slots.

Heavy hex slotted nuts — ASME B18.2.2 (inches)

SIZE	ACROSS FLATS F (WRENCH)	THICKNESS H	UNSLOTTED T MAX / MIN	SLOT WIDTH S MAX / MIN
1/2″	7/8″	31/64″	.34 / .32	.18 / .15
5/8″	1-1/16″	39/64″	.40 / .38	.24 / .18
3/4″	1-1/4″	47/64″	.49 / .47	.24 / .18
7/8″	1-7/16″	55/64″	.62 / .59	.24 / .18
1″	1-5/8″	63/64″	.72 / .69	.30 / .24
1-1/8″	1-13/16″	1-7/64″	.78 / .75	.33 / .24
1-1/4″	2″	1-7/32″	.86 / .83	.40 / .31
1-3/8″	2-3/16″	1-11/32″	.99 / .95	.40 / .31
1-1/2″	2-3/8″	1-15/32″	1.05 / 1.01	.46 / .37

The heavy hex nut, slotted. 1/2″ to 1-1/2″ — the sizes both our sources list.

Proof load stress — SAE J995 hex nuts (psi)

NUT GRADE	SIZES	UNC AND 8UN	UNF
Grade 2	1/4 – 1-1/2″	90,000	—
Grade 5	1/4 – 1″	120,000	109,000
Grade 5	over 1 – 1-1/2″	105,000	94,000
Grade 8	1/4 – 1-1/2″	150,000	150,000

For standard (finished) hex nuts. A nut's proof load in pounds = this stress × the thread's tensile stress area (on the hex cap screw chart). Jam, slotted, castle and heavy nuts are rated differently. A dash: only one of our sources lists it — give us a call at 405-670-1234.

Hex castle nuts — ASME B18.2.2 (inches)

SIZE	FLATS F (WRENCH)	F MAX / MIN	CORNERS G MAX / MIN	THICKNESS H	H MAX / MIN	UNSLOTTED T MAX / MIN	SLOT S MAX / MIN
1/4″	7/16″	.438 / .428	.505 / .488	9/32″	.288 / .274	.20 / .18	.10 / .07
5/16″	1/2″	.500 / .489	.577 / .557	21/64″	.336 / .320	.24 / .22	.12 / .09
3/8″	9/16″	.562 / .551	.650 / .628	13/32″	.415 / .398	.29 / .27	.15 / .12
7/16″	11/16″	.688 / .675	.794 / .768	29/64″	.463 / .444	.31 / .29	.15 / .12

SIZE	FLATS F (WRENCH)	F MAX / MIN	CORNERS G MAX / MIN	THICKNESS H	H MAX / MIN	UNSLOTTED T MAX / MIN	SLOT S MAX / MIN
1/2"	3/4"	.750 / .736	.866 / .840	9/16"	.573 / .552	.42 / .40	.18 / .15
9/16"	7/8"	.875 / .861	1.010 / .982	39/64"	.621 / .598	.43 / .41	.18 / .15
5/8"	15/16"	.938 / .922	1.083 / 1.051	23/32"	.731 / .706	.51 / .49	.24 / .18
3/4"	1-1/8"	1.125 / 1.088	1.299 / 1.240	13/16"	.827 / .798	.57 / .55	.24 / .18
7/8"	1-5/16"	1.312 / 1.269	1.516 / 1.447	29/32"	.922 / .890	.67 / .64	.24 / .18
1"	1-1/2"	1.500 / 1.450	1.732 / 1.653	1"	1.018 / .982	.73 / .70	.30 / .24
1-1/4"	1-7/8"	1.875 / 1.812	2.165 / 2.066	1-1/4"	1.272 / 1.228	.89 / .86	.40 / .31

A thick hex nut with a round crown on top, slotted for a cotter pin. Same wrench as a standard hex nut, taller; **T** is the solid part under the slots.

Hex machine screw nuts — ASME B18.6.3 (inches)

SIZE	ACROSS FLATS F (WRENCH)	F MAX / MIN	THICKNESS H	H MAX / MIN
#0	5/32"	.156 / .150	3/64"	.050 / .043
#1	5/32"	.156 / .150	3/64"	.050 / .043
#2	3/16"	.188 / .180	1/16"	.066 / .057
#3	3/16"	.188 / .180	1/16"	.066 / .057
#4	1/4"	.250 / .241	3/32"	.098 / .087
#5	5/16"	— / —	7/64"	— / —
#6	5/16"	.312 / .302	7/64"	.114 / .102
#8	11/32"	— / .332	1/8"	.130 / .117
#10	3/8"	.375 / .362	1/8"	.130 / .117
#12	7/16"	.438 / .423	5/32"	.161 / .148
1/4"	7/16"	.438 / .423	3/16"	.193 / .178
5/16"	9/16"	.562 / .545	7/32"	.225 / .208
3/8"	5/8"	.625 / .607	1/4"	.257 / .239

The small hex nut for machine screws, #0 to 3/8". At 1/4" and up it is thinner than a finished hex nut, and narrower at 5/16" and 3/8". A dash: our sources differ — give us a call at 405-670-1234.

Which nut do I have?
Measure across the flats and compare with the bolt size: a ½" nut that takes a **3/4"** wrench is a standard hex; **7/8"** is a heavy hex. A nut noticeably thinner than the table's standard thickness is a jam nut. More nut styles on Nut Types & When to Use Them; which grade of nut goes on which bolt is on the nut compatibility chart; bolt heads are on the hex cap screw dimensions chart.

Quick answers

What size wrench fits a 1/2" hex nut?
A 1/2" hex nut takes a **3/4"** wrench. A 1/2" **heavy** hex nut takes 7/8".

What wrench size goes with each hex nut size?
Across the flats (the wrench): 1/4" nut – 7/16", 5/16" nut – 1/2", 3/8" nut – 9/16", 7/16" nut – 11/16", 1/2" nut – 3/4", 9/16" nut – 7/8", 5/8" nut – 15/16", 3/4" nut – 1-1/8", 7/8" nut – 1-5/16", 1" nut – 1-1/2", 1-1/8" nut – 1-11/16", 1-1/4" nut – 1-7/8", 1-3/8" nut – 2-1/16", 1-1/2" nut – 2-1/4".

Is a heavy hex nut bigger than a regular hex nut?
Yes — wider across the flats and thicker. A 3/4" hex nut is 1-1/8" across and 41/64" thick; a 3/4" heavy hex nut is 1-1/4" across and 47/64" thick.

How thick is a jam nut?
Thinner than a regular hex nut, same wrench. A 1/2" jam nut is 5/16" thick against 7/16" for a regular 1/2" hex nut.

What is the proof load of a Grade 8 nut?
SAE J995 Grade 8 hex nuts carry a proof load stress of 150,000 psi, coarse or fine thread, 1/4" to 1-1/2". Multiply by the thread's stress area for pounds.

Reference values drawn from the governing standards. For critical applications, confirm against the standard and the manufacturer's published data. Technical information disclaimer →