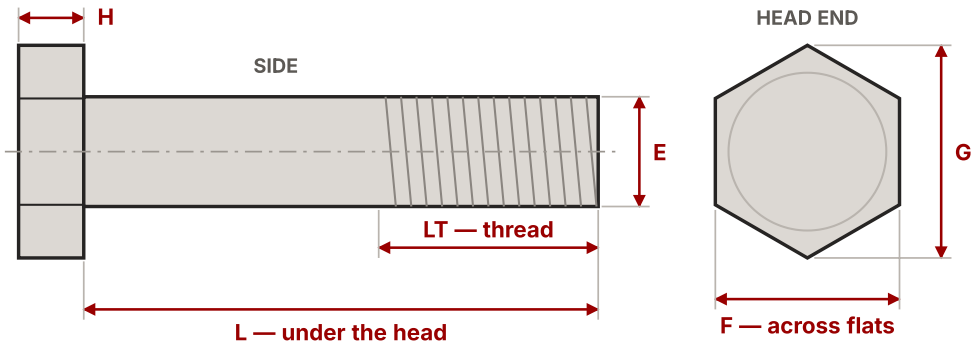
Heavy Hex Bolt Dimensions

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Across flats, across corners, head height and thread length for heavy hex bolts — structural (A325 / A490, ASME B18.2.6) and heavy hex (ASME B18.2.1) — with the wrench size for each.

A heavy hex bolt has a **bigger head** than a regular hex cap screw of the same size — one wrench size up — so it bears on more steel and matches a heavy hex nut. There are two kinds. **Structural bolts** (A325, A490) have a slightly shorter head and a **short thread**, so the threads stay out of the joint. **Heavy hex bolts** to ASME B18.2.1 (B7, A449 and other grades) carry a longer thread that depends on the bolt's length. Same wrench for both.



Letters match the table columns; G and H are max / min. **F** across flats (the wrench size), **G** across corners, **H** head height, **E** body diameter (the bolt's size), **LT** thread length, **L** length — measured from under the head to the end.

Structural bolts (A325 / A490) — ASME B18.2.6 (inches)

SIZE	WRENCH F	F MAX / MIN	CORNERS G	HEAD H	THREAD LT
1/2"	7/8"	.875 / .850	1.010 / .969	.323 / .302	1"
5/8"	1-1/16"	1.062 / 1.031	1.227 / 1.175	.403 / .378	1-1/4"
3/4"	1-1/4"	1.250 / 1.212	1.443 / 1.383	.483 / .455	1-3/8"
7/8"	1-7/16"	1.438 / 1.394	1.660 / 1.589	.563 / .531	1-1/2"
1"	1-5/8"	1.625 / 1.575	1.876 / 1.796	.627 / .591	1-3/4"
1-1/8"	1-13/16"	1.812 / 1.756	2.093 / 2.002	.718 / .658	2"
1-1/4"	2"	2.000 / 1.938	2.309 / 2.209	.813 / .749	2"
1-3/8"	2-3/16"	2.188 / 2.119	2.526 / 2.416	.878 / .810	2-1/4"
1-1/2"	2-3/8"	2.375 / 2.300	2.742 / 2.622	.974 / .902	2-1/4"

The thread length is the same whatever the bolt's length (ASME B18.2.6 gives it as a reference dimension). A325 made fully threaded is marked **A325T**. Strength: A325 · A490.

Heavy hex bolts — ASME B18.2.1 (inches)

SIZE	WRENCH F	F MAX / MIN	CORNERS G	HEAD H	THREAD LT, TO 6" LONG	LT, OVER 6"
1/2"	7/8"	.875 / .850	1.010 / .969	.364 / .302	1-1/4"	1-1/2"
5/8"	1-1/16"	1.062 / 1.031	1.227 / 1.175	.444 / .378	1-1/2"	1-3/4"
3/4"	1-1/4"	1.250 / 1.212	1.443 / 1.383	.524 / .455	1-3/4"	2"
7/8"	1-7/16"	1.438 / 1.394	1.660 / 1.589	.604 / .531	2"	2-1/4"

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SIZE	WRENCH F	F MAX / MIN	CORNERS G	HEAD H	THREAD LT, TO 6″ LONG	LT, OVER 6″
1″	1-5/8″	1.625 / 1.575	1.876 / 1.796	.700 / .591	2-1/4″	2-1/2″
1-1/8″	1-13/16″	1.812 / 1.756	2.093 / 2.002	.780 / .658	2-1/2″	2-3/4″
1-1/4″	2″	2.000 / 1.938	2.309 / 2.209	.876 / .749	2-3/4″	3″
1-3/8″	2-3/16″	2.188 / 2.119	2.526 / 2.416	.940 / .810	3″	3-1/4″
1-1/2″	2-3/8″	2.375 / 2.300	2.742 / 2.622	1.036 / .902	3-1/4″	3-1/2″
1-3/4″	2-3/4″	2.750 / 2.662	3.175 / 3.035	1.196 / 1.054	3-3/4″	4″
2″	3-1/8″	3.125 / 3.025	3.608 / 3.449	1.388 / 1.175	4-1/4″	4-1/2″
2-1/4″	3-1/2″	3.500 / 3.388	4.041 / 3.862	1.548 / 1.327	4-3/4″	5″
2-1/2″	3-7/8″	3.875 / 3.750	4.474 / 4.275	1.708 / 1.479	5-1/4″	5-1/2″

Same across the flats and corners as the structural bolt; a taller head limit and a longer thread. A bolt too short for the thread length is threaded full length. Strength: B7 · A449 · SAE grades.

Heavy hex or regular hex?

Put a wrench on it. A ½″ bolt that takes a **3/4″** wrench is a regular hex cap screw; **7/8″** is a heavy hex. Then read the head: **A325** or **A490** is a structural bolt — use it with a heavy hex nut (A563 DH or A194 2H) and an F436 washer. Regular hex heads are on the hex cap screw dimensions chart, nuts on hex nut dimensions, and every wrench size on the wrench size chart.

Quick answers

What size wrench fits a 3/4" heavy hex bolt?

A 3/4″ heavy hex bolt (A325, A490, B7) takes a **1-1/4″** wrench — one size bigger than a regular 3/4″ hex bolt.

What wrench size goes with each structural bolt size?

Across the flats: 1/2″ – 7/8″, 5/8″ – 1-1/16″, 3/4″ – 1-1/4″, 7/8″ – 1-7/16″, 1″ – 1-5/8″, 1-1/8″ – 1-13/16″, 1-1/4″ – 2″, 1-3/8″ – 2-3/16″, 1-1/2″ – 2-3/8″.

How long is the thread on an A325 bolt?

A short, set length by size (ASME B18.2.6), whatever the bolt's length: 1/2″ – 1″, 5/8″ – 1-1/4″, 3/4″ – 1-3/8″, 7/8″ – 1-1/2″, 1″ – 1-3/4″, 1-1/8″ – 2″, 1-1/4″ – 2″, 1-3/8″ – 2-1/4″, 1-1/2″ – 2-1/4″.

What is the difference between a heavy hex bolt and a hex bolt?

The heavy hex head is wider — one wrench size up (a 1/2″ heavy hex takes 7/8″, a regular 1/2″ hex takes 3/4″) — to match a heavy hex nut and spread the load. Structural bolts (A325 / A490) are heavy hex.

How tall is the head on a 1" A325 bolt?

.627″ maximum, .591″ minimum (ASME B18.2.6).

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