



BEST BITS for Big Holes

Get drilling done right with these boring details.

By Asa Christiana

In any workshop or homeowner's toolbox, you're sure to find a good selection of small bits—a set of standard twist drills and, if you're lucky, a full set of brad-point bits also. But that bit kit tends to peter out when you get to larger diameters, let's say $\frac{3}{4}$ " or greater. There are plenty of tasks that require big bits (sidebar, right), but it's not always easy to choose the bit you need, because of the bewildering array of types available.

To solve the big bit puzzle, I ordered a bunch of plus-sized bits and collected plenty of wood to use for various drilling assignments. You'll find plenty of helpful information in the chart on the facing page, and in the write-ups that follow. With these details, you'll be able to match the bit to the job and get the best value from every bit of money you spend on these tools.

Big boring tasks

- Counterboring for screws, nuts and bolts
- Roughing-out large mortises
- Drilling ports for vacuum hoses
- Drilling dog holes in a workbench
- Remodeling jobs
- A wide variety of unique tasks, from decorative cutouts to finger pulls






Choosing big bits: What's important?

Anatomical details vary greatly when you move from one big bit type to another. So it's not surprising that there are differences in cost and performance. By considering the following factors, you can make sure that you get the results you're after, and that you're not using an expensive bit to do work that a more affordable bit can tackle effectively.

- **Price.** You can expect larger bits to cost more, but big bit prices also vary greatly by type.
- **Size.** Some types come in larger diameters than others, so your choice may depend on the diameter of the holes you need to drill.
- **Smoothness/tearout.** In many cases you'll want clean holes, with smooth sides and a tearout-free entry. But sometimes perfection isn't critical.
- **Drill press and/or freehand use.** Some bits and cutters can only be used safely in a drill press, while others work with handheld drills too.
- **Deep holes.** Some bits excel at boring deep holes, while others are better suited to making shallow holes.
- **Stopped and/or through holes.** Some big bits enable you to drill a stopped hole with a flat bottom. Others can cut through holes only.
- **Angled holes.** Some drill bits can drill angled holes cleanly and accurately. Others will wander, flex, or even break when asked to do this, which can be dangerous.
- **Overlapping holes.** The ability to overlap without wandering is valuable when boring a series of stopped holes to clean out a mortise or other recess.

Big bits at a glance

These five types of big bits look very different from each other, and perform differently as a result. This chart gives you their basic capabilities at a glance, but be sure to read the full write-ups that follow for all the important details. Price ranges are for individual bits.

Type	Price	Sizes	Smoothness/ tearout	Drill Press	Freehand	Through holes	Stopped holes	Angled holes	Overlapping holes
 Forstner	\$10-40	Up to 3"	Excellent	Yes	Yes	Good	Excellent	Excellent	Excellent
 Circle Cutter	\$33	Variable to 6"	Excellent	Yes	No	Up to 1"	No	No	No
 Spade	\$5-10	Up to 1½"	Good	Yes	Yes	Good	Fair	Good	Fair
 Holesaw	\$8-40	Up to 6"	Moderate	Yes	Yes	Up to 2"	No	Poor	Good
 Auger	\$10-40	Up to 1½"	Good	No	Yes	Excellent	Fair	Excellent	Good



Forstner bits are the smoothest cutters, with unique capabilities

For many reasons, I consider a set of Forstner bits to be a must-have in any woodworking shop. Although there are slight differences in Forstner bits made by different manufacturers, the basic cutting geometry features a precisely machined rim, a center spur, and a chipper. These cutting elements work together to produce tearout-free, flat-bottomed holes in any type of wood. What's more, Forstner bits can bore straight, angled, or overlapping holes. You can even bore a partial hole on the edge of a board, as shown in the photo at left. Count on these bits for perfect counterbores, smooth dog holes, decorative cutouts, and round recesses of all kinds—and for clearing the waste out of mortises without wandering.

Contrary to popular wisdom, Forstner bits can be used with handheld drills, but be sure to go in straight and square and start with a light touch. Forstner bits can bore deep holes, but you'll need to withdraw the bit frequently to clear chips and help prevent overheating. The same geometry that cuts clean-sided holes puts a lot of steel in contact with wood, producing extra friction. If your bits will be subjected to heavy use, consider spending the extra money for carbide Forstners that can take the heat without getting dull.

I tested a variety of Forstner bits; some had wavy teeth around the rim, while others had straight teeth or simply a sharp bevel. The performance differences I noticed were slight, with mid-priced Forstners performing as well as more expensive versions. To get the most for your money, buy a set of Forstner bits instead of acquiring them individually.

Smooth operators.

Forstner bits cut cleanly and accurately, and offer excellent versatility for many woodworking tasks.



Call for backup.

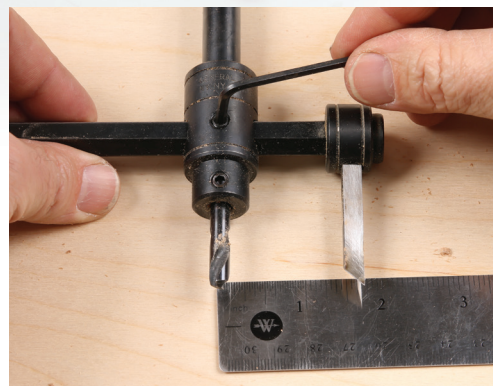
Whenever possible, place a sacrificial board behind whatever you are drilling. It will support the wood at the back of the hole, leaving a clean exit.

One circle cutter will cut many diameters

You'll need a drill press to use this tool safely, but for holes larger than a Forstner can manage, you can't beat a circle cutter. Infinitely adjustable for diameters up to 6", this big-hole specialist replaces a pile of expensive holesaws, for example, and cuts cleaner, smoother holes in the bargain. Use it to cut snug-fitting openings for vac hoses in shopmade jigs, fences, etc. As a bonus, you can invert the cutter to create toy wheels and other perfect disks. The cutter is also very easy to sharpen. To use a circle cutter safely, choose a low speed on your drill press, clamp down the work, keep your fingers clear, and feed the tool slow and steady. You'll be amazed at the results.



Use it safely. Use a circle cutter in the drill press only. Set the speed well under 500 rpm, clamp down the workpiece, and feed the cutter slowly for great results.



Infinitely adjustable. The swing arm can be adjusted for holes from 2" to 6" in diameter. Always lock the arm tightly.

Spade bits provide great bore-for-the-buck value

A contractor's favorite, spade bits offer the least expensive path to moderately large holes, and they work in handheld drills and drill presses alike. Although they're designed to bore quickly through soft construction lumber, they drilled surprisingly clean holes in hardwoods in my tests. But the paddle-shaped design makes spade bits prone to vibration and rough cuts when they get dull, which they do relatively quickly. Also, while they can drill flat-bottomed holes, the long center tip leaves a deep, narrow hole on the middle. For all these reasons, buy spade bits in a pinch, but get a set of Forstners when you can afford them.



Check the tip. The screw tip on some spade bits can cause an aggressive feed rate. Don't use these bits in a drill press, and be wary of jamming.

Stopped holes, sort of. A spade bit can drill a stopped hole, but the long center spur leaves a deep, narrow hole in the middle.



Holesaws need a powerful drill

A holesaw won't cut as cleanly as a circle cutter, but it can make holes just as big. You can use these bits in a handheld drill, but make it a powerful one. These hefty bits demand high torque and a firm grip. In my tests, I found that holesaws with fewer teeth—and long slots ahead of those teeth to eject chips—cut worlds better than those with continuous teeth around the rim. Like circle-cutters, holesaws can only drill through holes, in materials up to about 2" thick. If you don't own a drill press, or you are facing a remodeling job that requires big holes in construction lumber, a holesaw is right for you. Holesaws equipped with "bi-metal" or carbide teeth can also drill through thin metal.



Fewer teeth, faster action. Holesaws with fewer teeth have long slots for clearing chips, which makes them work much better than holesaws with continuous teeth around the rim.



Pull the plug. After a holesaw cuts through the workpiece, you'll have to pry out the plug buried inside the bit.

Auger bits are construction and chairmaking specialists

With a lead screw that keeps them on track and pulls them through the wood, plus deep flutes for ejecting chips efficiently, auger bits drill deep, smooth holes, even if you enter the wood at an angle. The lead screw forces a feed rate that works well in softwoods, letting contractors bore big holes through a stack of studs at once, for plumbing and electrical components. But that aggressive feed rate can be a problem in hardwoods, causing auger bits to jam in a drill press or cordless drill. Put them in a hand-powered brace, however, and they are a chairmaking champion, boring round mortises in square or round legs, at any angle. ■



Hex or square-shaped ends will work better in a hand brace than round ends.



Hand power. Using an auger bit in a hand brace gives you more control than using a power drill.

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