

What drill bits do you really need?

HOW TO PICK THE RIGHT BIT FOR EVERY TASK

BY ROLAND JOHNSON



No matter what kind of woodworking you are doing, eventually you'll have to drill a hole in something. Tasks can range from drilling pilot and clearance holes for screws to mortising for chair legs. There are a few basic requirements for drilling accurate, concentric holes: The bit must create a clean entry, run concentrically so that it produces an accurate bore, and have appropriate cutters and geometry for the material being cut. Finally, it should clear away waste during the cut.

There are many types of drill bits out there, and it can be tough to make the right choices, especially if you're just starting out as a woodworker. But don't worry. I've been woodworking for decades, and I've drilled holes in all sorts of materials and in every situation imaginable. So here I'll give you some time-

tested guidance on which bits you need and why. Before I get to the recommendations, though, here's some money-saving advice.

I purchase bits in sets because it's a good value. Buying a single bit gets expensive, especially if shipping costs are involved, and invariably the one bit you don't have will be the one you urgently need in the middle of a project when time is of the essence. Yes, I have bits that have never been captured by a drill chuck and may never be, but having full sets of bits in my shop, ready for use, gives me peace of mind. Another big advantage to buying sets is that most come with a case that will keep your bits organized and protected. By the way, all of the drill-bit sets I'll talk about here are readily available at most woodworking-supply stores.

Roland Johnson is a contributing editor.

Brad-point bits

Brad-point bits look like slightly modified twist bits. The bit has spurs machined on the tips of the flutes (some designs simply have the tips sharpened at an angle, resulting in a point at the outside edge) and a centering spur that is slightly longer. The spurs cleanly shear the fibers and the helical flutes efficiently transport waste from the bore. Brad-point bits create clean bores both on entry and during the cut.

Brad-point bits have a downside. They aren't very good at drilling end grain cleanly. They will cut most angled holes cleanly and efficiently, but if the angle is too shallow (5° to 10° off center), you won't get good results.



BRAD POINTS

7-bit set: 1/8 in. to 1/2 in.

This kit covers the gamut of sizes for furniture making.



Clean and easy. Brad-point bits make a very clean entry, leave clean hole walls, and don't wander at the start or during a cut. They are perfect for shelf-pin holes that will be visible and must be precise.



Superior chip ejection. Ideal for peg holes, the brad-point bit removes chips as you go. Use a tape flag stop (left) when you don't need to be ultraprecise. But use a wooden stop (above) when you need to prevent the bit from breaking through the other side.

Twist bits

A jack of all bits, the common twist bit does a good job at cutting a variety of materials—wood, plastics, and sheet goods. However, these bits excel at drilling shallow, small-diameter holes in wood (for hinges and hardware) and for drilling clean holes in end grain.



There are limitations, too. First, unless you're cutting into end grain, these bits leave some tearout. Twist bits also can meander at the start of the cut if there isn't a starter hole or center point for the bit to register in. Plus, they're not great at evacuating chips because of their rather small flutes and they tend to scorch the wood, on occasion creating enough heat to damage the bit. That means they're not great for deep holes—use brad points for those. Twist bits also are not good for cutting flat-bottomed holes or drilling at angles over 45°.



Follow the leader. Because of its web, or V-angle point of the bit, a twist bit is the bit of choice for drilling multiple steps because it follows the center of a pre-drilled hole or the centerpoint a Forstner bit leaves.

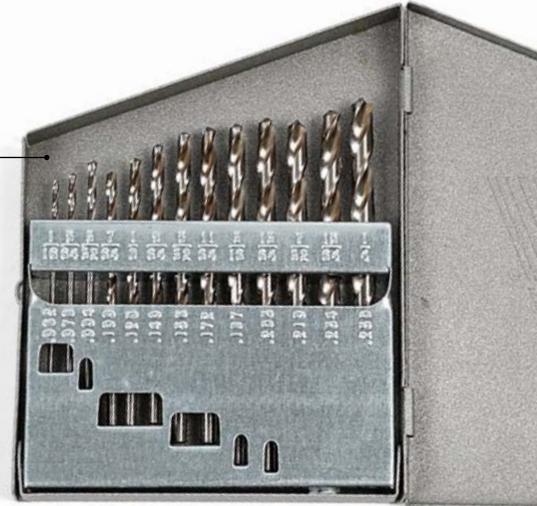
Center perfect. A Vix bit has a spring-loaded sleeve that surrounds a twist bit. The beveled end of the sleeve automatically aligns the bit to the center of the mounting hole in the hardware.



TWIST BITS

13-piece set, 1/16 in. to 1/4 in.

Twist bits are superb for use in all hardwoods and metals, except hardened steel. High-speed steel bits are the best general-purpose bits.



VIX BITS

3-piece set for screw sizes 5 through 10

Twist bits with a spring-loaded sleeve are used for drilling centered holes for hardware.



COUNTERBORES

5-piece set for screw sizes 5 through 10

These three-in-one bits drill clearance holes, pilot holes, and counterbores all at once for installing flat-head screws.



Another variation on the twist bit. The counterbore bit is an all-in-one bit for screws. Combined with a countersink and depth stop, the tapered twist bit does an exemplary job of drilling holes that allow the screw head to be flush with the surrounding wood.



Forstner bits

The ideal wood-cutting bits, Forstner-style bits circumscribe the rim with a slicing cutter and follow the scribe with low-angle shearing wings that leave a flat, clean bottom and a smooth wall. They can be used effectively for overlapping holes and can produce clean, accurate angled holes even when the bit enters the board at a steep angle.



A drawback with Forstner-style bits is the lack of chip extraction in deep bores. As the bore deepens, the chips tend to clog around the bit shank. If the bit isn't retracted from the bore at regular intervals, the detritus packs tight, sealing the bit in the bore.

Toothed Forstner-style bits are excellent for boring large holes. Sawteeth cut into the rim do an effective job of shearing the end grain, and gullets between the teeth help control the debris. Toothed bits cut much faster than a continuous-rim Forstner but don't leave as crisp a shoulder.

Big holes are no problem. Forstner bits make a clean entry and don't wander during the cut, so wider holes are easy. Make sure to back the bit out of the hole frequently to clear the waste, or the bit will jam in the hole and burn the wood.



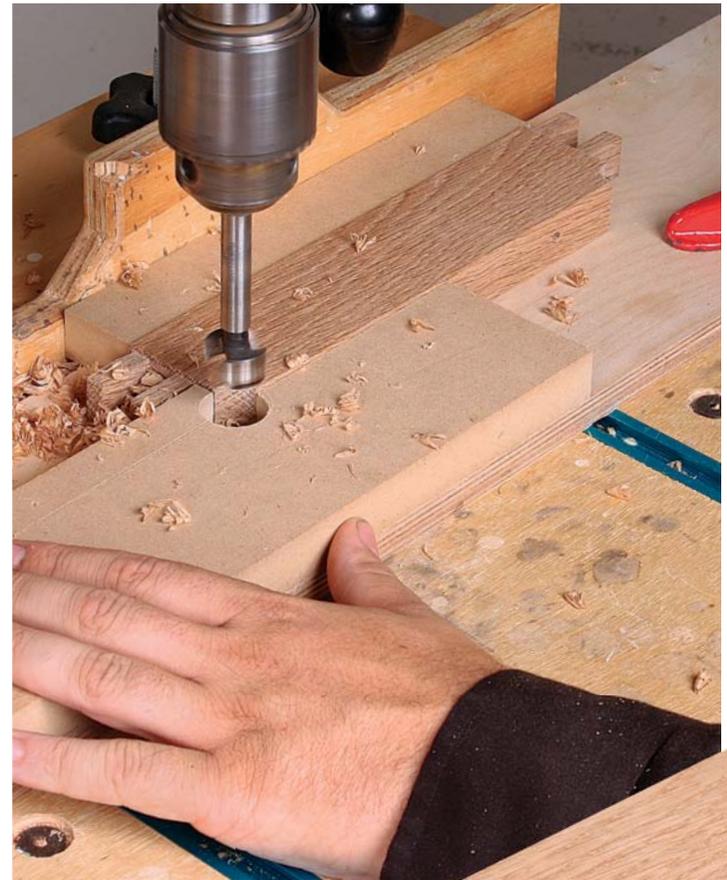
Steep angle overachiever. Forstner bits excel at cutting severe angles accurately and cleanly. Just be sure you give the workpiece solid support.



FORSTNERS

7-bit HSS Forstner set (1/4 in., 3/8 in., 1/2 in., 5/8 in., 3/4 in., 7/8 in., 1 in.)

When buying a set, stick with smooth-sided bits.



Partial holes are easy. An MDF scrap offers additional protection against tearout and helps register the bit.