

A drill press will make you a better woodworker

A HANDHELD DRILL CAN'T MATCH ITS POWER AND ACCURACY

BY ASA CHRISTIANA

There's no disputing the usefulness of a handheld drill. It's perfect in situations when you need to bring the tool to the work. It can drill pilot holes and drive screws at the bench or inside cabinets.

But that flexibility comes at a cost. A handheld drill is prone to tearout and lacks the power to drive larger bits. And even with careful layout, drilling in exactly the right place at the right angle can be hit-or-miss.

To do your best work, you need a drill press.

The drill press is all about control. It lets you precisely determine the placement and angle of the hole as well as its depth. It also provides power and leverage to drive the bit easily, even in hard stock, and it lets you raise and lower the bit repeatedly without altering the shape of the hole.

The table supports the workpiece nicely, and makes it easy to place a backer board below the hole, which prevents ugly blowout on the bottom side. You'll end up with perfect holes, plus counterbores and countersinks that are precise and chatter-free.

The drill press is a useful machine, but not an especially expensive one. It's designed for metalworking, so even the less-expensive models have plenty of power and stability for woodwork. And they are hard to damage, so it is easy to find a good used one. I bought a big,

Start by expanding the work surface. A larger table will give you plenty of room for bigger workpieces. Store-bought versions include a fence.

strong benchtop model out of the local classifieds for \$100.

You won't want to throw out your cordless drill, but once you have a drill press in your shop, you'll appreciate the power, accuracy, and control of a real drilling machine.

First things first

The first thing to do with a new drill press is to fit it with an auxiliary table. That's because the typical drill-press table is too small to support big workpieces. The stock table also has a big hole in the center for bit clearance. That big opening allows far too much tearout on the bottom of the workpiece.

To eliminate that problem, and to give yourself plenty of room to work, you can install one of the snazzy auxiliary tables available in woodworking catalogs. These typically feature accessories like zero-clearance plates in the middle, and handy fences that lock down quickly and accurately. Or just make your own table. It can be as simple as a piece of MDF, with the occasional fence clamped on for repetitive work. Two other accessories you'll love are a clip-on light (the top of a drill press tends to cast a shadow on the work area), and a foot-activated switch.

Know the controls

The three adjustments you'll make most often are speed, table height, and plunge depth. Each of these takes less than a minute.

You can buy a variable-speed model for on-the-fly speed changes—and spend a lot more money—but I think the old-fashioned pulley-style machines offer plenty of speed settings for woodworking tasks.

On pulley-driven drill presses, you'll find a speed guide somewhere near the top of the machine, often inside the pulley cover. The recommended speed varies with the size of the bit. To quote *FWW* contributing editor Roland Johnson, "Basically, you should not run any bit faster than 3,000 rpm, and you should slow the speed considerably for bigger bits. For example, a 1-in.-dia. bit



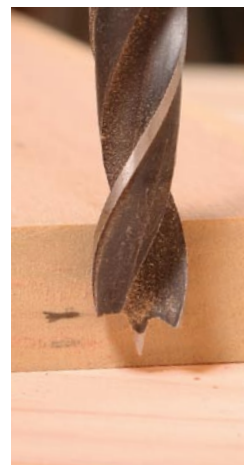
Setting up

1. ADJUST THE TABLE HEIGHT

You can raise or lower the table to accommodate any drilling task. Set the height so you'll have enough room for the bit to clear the work, but not so much travel that it makes drilling inconvenient.



2. SET THE DRILLING DEPTH



A stop on the drill-press column (far left) lets you make repeated cuts at the same depth. Mark the desired depth on the side of the stock, plunge the bit to that point, then adjust and lock the depth stop. Plunge the bit once more to be sure it stops at the right spot.

3. ADD A FENCE FOR ALIGNMENT



Once you've established the distance between the bit and the edge of the workpiece, you can lock down the fence and drill dozens of holes in a row.

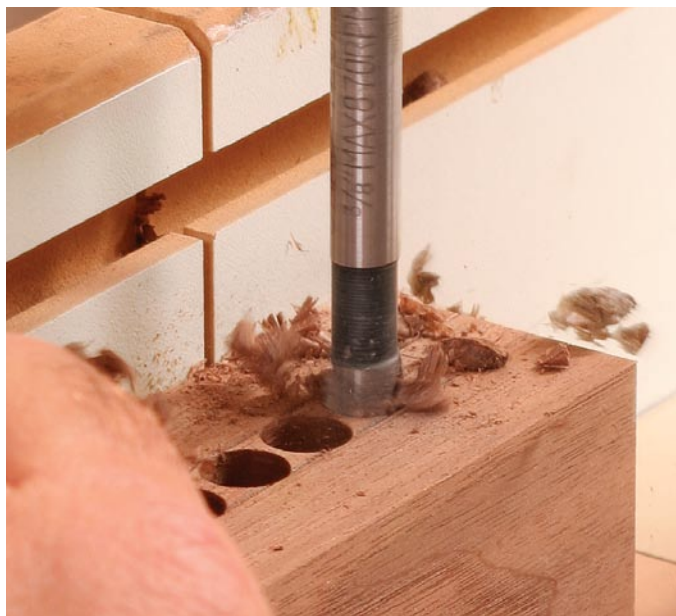


Drilling tips



How tearout happens. *If the surface fibers are unsupported where the bit exits the work, you'll get tearout on the bottom of the piece. (Board is inverted to show tearout.)*

A tip for efficient drilling. *Most bits tend to clog with chips. To prevent this, pull the bit partially out of the work to clear the chips. But don't bring the bit all the way out of the work or you risk tearing the rim.*



Prevention is painless. *Placing a backer board underneath the workpiece supports the surface fibers, resulting in a cleaner rim at the exit.*

should run at 300 rpm to 500 rpm in hardwood.”

After setting the speed, put the bit in the chuck and tighten it. Unlike modern handheld drills with keyless chucks, most drill presses still use a keyed chuck that must be tightened manually to hold the bit in place. Be sure the bit isn't bottomed out in the chuck, or hung up between two of the three jaws.

The chuck is self-centering, meaning that all three jaws move in unison when the key is turned. This means it is not necessary to tighten each jaw individually. Always remove the chuck key right away! You don't want any surprises when you hit the “on” switch. Also, find a way to keep track of the chuck key. Mine hangs on a chain, but I've also seen lots of ideas for

chuck-key holders, using magnets, pen caps, etc.

Now, with the bit in place and the workpiece on the table, you'll know where to set the table's height. For deep holes, you want the tip of the bit just above the workpiece so you can take advantage of the drill press's full plunge depth.

Finally, if you are not drilling all the way through the workpiece, you'll need to set the depth stop. This is easy, too: Mark the desired depth on the side of the stock, plunge the bit down to that point, spin the depth stop down until it is snug, and lock it there. Plunge the bit once to be sure it stops at precisely the right spot, and you are set.

Location, location

Another great thing about a drill press is that you can put a fence on it. This means that once you've dialed in the distance between the bit and the edge of the workpiece, you can lock down the fence and drill dozens of holes in a row. Add a stop block to the fence, and you've locked in the hole location in both directions.

I still recommend laying out the holes carefully (or at least the first one in a series) using a crisscross mark, and sighting carefully along both axes as you bring the tip of the bit down. When it looks perfect, turn on the machine, and touch the tip down lightly to double-check the position. Fine-tune the fence or the stop if necessary.

Even if I have only one hole to drill, I still use the fence in most cases. If nothing else, it keeps the stock from spinning when the going gets tough. By the way, the lower the fence the better; tall fences sometimes get in the way of the crank handles.

How to drill clean holes

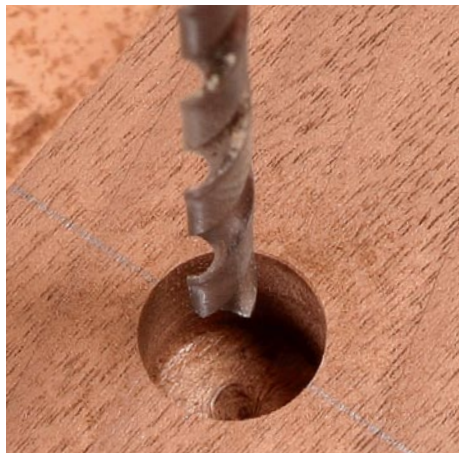
Even with all this heavy-duty drilling hardware at your fingertips, getting the best results calls for some attention to the details.

To avoid burning the stock, be sure to use a sharp, high-quality bit. Also, don't set the bit speed too

Bits matter, too



Get a set of brad-point bits. Brad-points center easily on a mark, tend not to wander, and will handle most of your drilling tasks in wood.

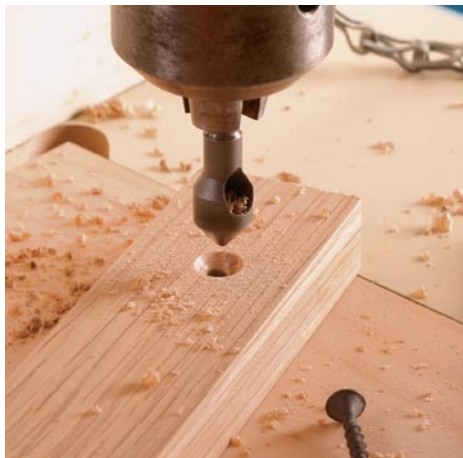


And a set of twist bits. You'll need them to drill metal and plastic. They also stay centered well when drilling a small hole below a larger one.

fast or lower the bit into the work too slowly.

Clogged chips are the only other thing that will cause burning. The solution is simple: As you feel the bit start to hesitate in the hole, withdraw it momentarily to allow the flutes to clear themselves. But here's the trick: Don't bring the bit all the way out of the hole. If you do, it will sometimes tear the rim. Just bring it up high enough to let the packed chips fly free.

Tearout is more of a problem on the bottom of the workpiece, but again prevention is painless: Make sure there is a fresh wood surface under the workpiece at the exit point. Some auxiliary tables have removable panels



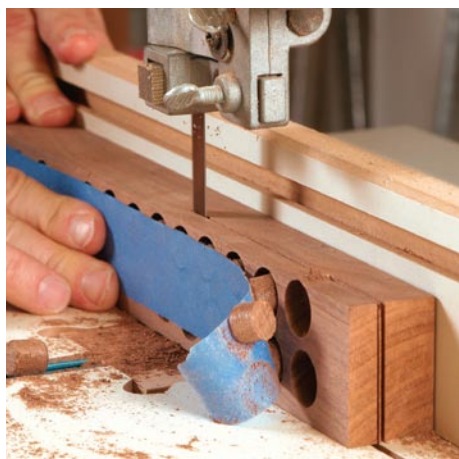
Cleaner countersinks. The drill press makes it easy to bore even countersinks of precise depth. The single-edge type with a diagonal hole through the tip makes chatter-free cuts.



Fun with Forstners. With the drill press's control over location and depth, it's an ideal setup for mortising with a Forstner bit, which can drill partial or overlapping holes (left) without wandering. The drill press also handles large Forstner bits, making it easy to drill holes as large as 2½ in. diameter. The hole's flat bottom makes it ideal for applications like this hardware mortise (right).



How to use a plug cutter. Use a thick board so the cutter doesn't go through (left). Then use the bandsaw (right) to free the plugs. A piece of tape keeps the plugs on the table.



in the middle, and these can be flipped around to find a fresh surface. Or you can loosen the drill-press table and shift it sideways.

A simpler approach is just to keep a big piece of MDF or plywood on the table, shifting it around to find a fresh surface. When it becomes riddled with holes, you can just replace it.

There are lots more things you can do with your drill press, like tilting the table or making ramp-like jigs to drill angled holes, but I'll leave it to you to discover those. □

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