

TOOL TEST

Drill Presses

Floor-standing models have more power, capacity, and convenience than benchtop models

BY WILLIAM PECK



NARROWING THE FIELD

Most drill presses are designed for machinists, so we insisted on these two woodworker-friendly features.



Extra quill travel. We looked for at least 4 in. of travel, for mortising this big trestle foot, for example.



Table tilt. Machines with at least 45° of table tilt allow angled holes like those in this Windsor chair seat.

Photos, except where noted: Asa Christiana

While a benchtop drill press will be adequate for the majority of holes you drill, there will be times you'll want the power and capacity of a full-size machine. On average, floor-mounted drill presses offer more power, larger tables, and more swing (the distance between the post and the chuck). Most importantly, many of today's machines have 4-in.-plus of quill travel (the distance they can plunge a drill bit), which not only makes deeper holes possible but also means you won't have to adjust the table height as often—still an awkward process on any drill press. Finally, a floor-mounted drill press might actually save space in your shop, by sitting in a corner vs. taking up valuable countertop space.

Drill presses haven't evolved far from their machine-shop roots, so I focused on models with two woodworker-friendly features: quill travel of at least 4 in. and a table that tilts 45° in both directions. That narrowed an enormous field to 10 machines from six manufacturers. (Jet, Powermatic, and Shop Fox had machines that fit our criteria, but they declined to participate.) Chucks ranged from 5/8 in. to 3/4 in., all plenty big for woodworking bits. All came prewired for 120 volts.

Clean, consistent holes of any size

The main reasons I choose a drill press over a handheld drill are power and precision, so I looked at those attributes first. To test power, I used a 2-in.-dia. high-speed steel (HSS) Forstner bit to drill through 2 in. of hard maple. I used Lee Valley and Veritas bits for all the tests, as they have done very well in *FWW*'s past tool tests.

I ran the bit as close to the recommended 400 rpm as each model allowed, and I drilled with a very heavy hand. I wasn't able to stall any of the motors, but I was able to make the belts slip on a few—the Rikon 30-236, the Porter-Cable, and the General International 75-700—even after pulling the belts extra tight. That meant I couldn't push this big bit quite as hard on these machines. However, that would only be a problem if you were drilling scores of big holes a day. All of the machines produced very clean holes, by the way.

To test runout and accuracy, I tightened 1/4-in.-dia. and 1/2-in.-dia. drill rod (precisely ground lengths of drill steel) in the chuck, placed a dial indicator against the rod, and turned the chuck slowly by hand, letting

Two stand-out machines



AUTHOR'S
BEST OVERALL
CHOICE

DELTA
18-900L

The Delta 18-900L was a no-brainer for the Best Overall award. It has the most quill travel, a big table that tilts in both directions, the fastest and easiest speed changes, a quick-adjust depth stop and quill lock, an effective head-mounted laser pointer, and plenty of power and accuracy.

A Delta bonus. *The Delta is the only machine with a usable table insert. It is leveled via set screws, and you can screw into it from below to hold it down.*



AUTHOR'S
BEST VALUE
CHOICE

PORTER-CABLE
PCB660DP

At one-third the price of the Delta, the Porter-Cable PCB660DP is the most affordable machine in the test and an easy pick for Best Value. It offers a quick-adjust depth stop and quill lock, a good laser pointer, and easy speed changes. The table is small, with a rim that is 1/4 in. below the center section (making it hard to clamp at the edges), so you will definitely want to add an auxiliary table. But at \$320, this machine is a steal.

Hard data

POWER

Timed test. Peck drilled through 2 in. of maple with a 2-in.-dia. Forstner bit. All the machines handled this tough test well, but elapsed time varied.



RUNOUT



Measured and real world. To test drilling accuracy, Peck used a drill rod and a dial indicator (above), turning the chuck by hand. Then he drilled a series of holes, and inserted the drill shank (right) to check for oversize ones.



go before taking each reading. In case the chuck's grip was inconsistent, I remounted the rods several times and repeated the test, averaging the results. Runout ranged between 0.001 in. and 0.005 in. We rated anything under 0.003 in. as "good" or better.

To see how this slow-moving test would be reflected in actual performance, I drilled 1/4-in.-dia. and 1/2-in.-dia. holes in soft pine, plunging the bits slowly to allow any runout to affect the hole diameter. I then removed the drill bit from the chuck and inserted the shank end into the hole, looking for looseness. All of the machines did much better on this real-world test. The 1/4-in. shank fit snugly in all of its holes, while the 1/2-in. holes had only minor looseness—around 0.001 in. for all machines except the Porter-Cable, where I found an extra 0.001 in. of wiggle, which is still very acceptable. And all produced clean results, even at the rim of the hole.

I combined the dial-indicator test and the drilling test into one runout rating, shown in the chart on pp. 52-53.

One table stood out

The variously sized cast-iron tables were not a concern, as most people will place some sort of plywood or MDF auxiliary table on top of theirs to prevent tearout on the bottom of holes. All of the tables have mounting slots for this purpose.

However, with its large overall size, flat edges for clamping, and unique table insert, the Delta's table works fine on its own. The replaceable insert sits on set

TABLE SQUARENESS



Front-to-back squareness. With a piece of flat MDF on the table to even out inconsistencies, Peck placed a square against the drill rod. A few tables had a bit of sag, but the one from Central Machinery (shown) had a lot.



TIP

Simple fix. On the tables with a tiny bit of sag, a few strips of paper under an auxiliary table was enough to correct the problem.

Friendly features

SPEED CHANGES



Variable is fastest, but ... On the two variable-speed machines, speed changes happen in seconds. But the General International 75-700 (shown) still requires a belt change between a high and low range, and the Rikon 30-236 doesn't go low enough for the biggest cutters.



Best of the belts. With a quick-release tension roller, the Delta's belts were the fastest to change by far.

DEPTH STOPS

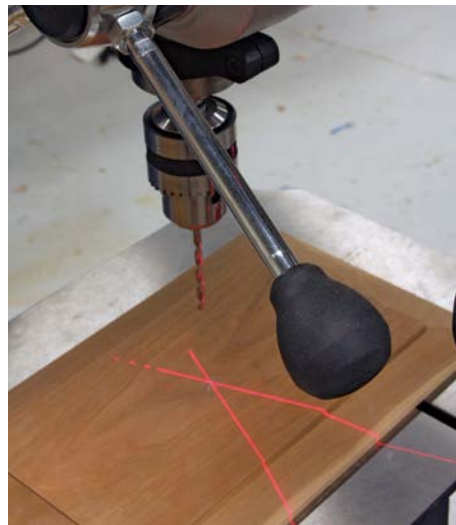
Quick-adjust. The Porter-Cable, Delta, and Rikon 30-240 machines have a quick-release button on their depth stops as shown here. Others make you spin a nut (or a dial) for big adjustments.



Spindle lock. Most machines have a way to lock the quill at various heights, which is a must when using a sanding drum. The Delta and Porter-Cable do it with another quick-release button, which is handy.

TABLE TILT

Delta is unique. It is the only machine that allows front-to-back adjustment as well as the usual side-to-side, making compound angles possible as well as correcting table squareness.



LASERS

Not always an asset. Peck preferred the head-mounted lasers that are hard-wired into the machines, like those on the Delta and Porter-Cable (shown). These are less likely to shift out of alignment than column-mounted models.



MODEL	PRICE/WARRANTY*	MOTOR	SPEEDS/RANGE	SWING	QUILL STROKE	TABLE SQUARENESS (FRONT TO REAR)
Central Machinery 39955	\$560/90 days	1½ hp	12/ 180–3,865 rpm	20 in.	4¾ in.	Fair
AUTHOR'S BEST OVERALL CHOICE Delta 18-900L	\$1,030/5 years	¾ hp	16/ 170–3,000 rpm	18 in.	6 in.	Adjustable
General International 75-260 M1	\$760/Lifetime	1 hp	12/ 255–2,750 rpm	17 in.	6 in.	Excellent
General International 75-500	\$1,200/Lifetime	1 hp	12/ 120–2,270 rpm	17 in.	4½ in.	Excellent
General International 75-700 M1 VS	\$2,100/Lifetime	1 hp	VS/280–1,140 and 800–3,200 rpm	22 in.	5⅞ in.	Excellent
Grizzly G7947	\$575/1 year	1 hp	12/ 210–3,300 rpm	17 in.	4¾ in.	Very good
Grizzly G7948	\$695/1 year	1½ hp	12/ 210–3,300 rpm	20 in.	4¾ in.	Excellent
AUTHOR'S BEST VALUE CHOICE Porter-Cable PCB660DP	\$320/3 years	¾ hp	12/ 300–3,100 rpm	15 in.	4 in.	Very good
Rikon 30-236 VS	\$750/5 years	1½ hp	VS/ 550–2,300 rpm	17 in.	6 in.	Excellent
Rikon 30-240	\$1,050/5 years	1 hp	12/ 180–3,865 rpm	20 in.	4¾ in.	Excellent

* Check with manufacturers for limitations.

screws, which not only keep it level but also allow dust to get onto the ledge below without lifting the insert.

Speed changes separate the pack

While smallish bits can all be run at a similar speed, anywhere between 1,000 and 2,000 rpm, bits bigger than ½ in. dia. should be run in the 500 to 1,000 rpm range, and some very large Forstner bits

and wing-cutters should be run even more slowly. So you will be changing speeds pretty often.

The time needed to make speed changes varied considerably among machines. In theory the two variable-speed units would shine here, but the General International 75-700 still requires a belt change to get from a lower speed range to an upper one, and that belt change is tedious, thanks to

set screws that require an Allen wrench, and a long motor-cover screw that must be completely unthreaded. And while the Rikon 30-236 has a single speed range, adjustable on the fly, it only goes down to 550 rpm. To see if this really was a problem, I used a circle-cutter to cut a 3-in.-dia. hole with the Rikon. I stopped when the cutter began to overheat and discolor. At 300 rpm, however, another



RUNOUT	AVERAGE SPEED CHANGE	POWER TEST**	QUILL LOCK	WORK LIGHT	COMMENTS
Good	1 min.	10 sec.	Yes	Poor	Weak work light, too much table sag front to back.
Excellent	30 sec.	11.5 sec.	Yes	Good	Best table, easiest belt changes, quick-release depth stop, only machine with front-to-back table adjustment.
Good	2 min., 50 sec.	11 sec.	No	None	Good accuracy but tedious process for changing speeds.
Good	2 min.	11 sec.	No	Very good	Good accuracy, very good work light, useful low-end speed, but difficult belt changes.
Good	Variable, 2 min. range change	12 sec.	No	None	Accurate, but two variable-speed ranges require troublesome belt change.
Fair	1 min., 5 sec.	8 sec.	No	Very good	Tied for most power, very good work light.
Very good	1 min., 10 sec.	8 sec.	No	Very good	Tied for most power, very good work light.
Good	53 sec.	19 sec.	Yes	Very good	Good accuracy, great conveniences, low price.
Excellent	Variable	19 sec.	Yes	Good	Most accurate drill press, and variable speed is easiest to change, but low-end speed is only 550 rpm.
Very good	1 min.	13 sec.	Yes	Very good	Very accurate, with quick-adjust depth stop and very good work light.

** Average time needed to drill 2-in.-dia. hole through 2 in. of hard maple.

machine had no problem with the same task.

The other eight machines require a belt change for each speed setting, but on most, this took only a minute or less.

Other points to consider

To drill to a specific depth, or just to avoid drilling into the cast-iron table, you'll need to set the depth stop. Eight of these units

use a rod with an adjustable stop to limit depth. The adjustable stop is a nut that you spin by hand, but on three models—the Delta, the Porter Cable, and the Rikon 30-240—the nut has a quick-release button that lets you make big adjustments rapidly.

The last two units—the Central Machinery and the Rikon 30-236—have the ring near the crank handle that adjusts depth. These also work well.

While laser pointers are not necessary, I preferred those on the Delta and Porter-Cable machines, which are wired to the machine and mounted on the head. The others are battery-operated and mounted on the post, so if the head of the machine shifts you'll have to re-align the lasers. □

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