

TOOL TEST

Compact Routers

These tools are more powerful, flexible, and convenient than traditional laminate trimmers



Tim Uhler

by Bruce Greenlaw

If I could have only one router, it would be a 3¼-horsepower plunge router. Over the years, I've used my versatile 13-pounder for everything from shiplapping custom cedar siding to building commercial exterior doors. Nevertheless, when I bought a Makita model 3700B laminate trimmer in 1985, I started using the 3.7-pounder all the time for mortising

door hardware, milling small roundovers and chamfers, and inlaying finish work. I've even routed overhead with it while standing on ladders. But the tool delivers only around ½ horsepower, so those undemanding applications are pretty much the limit.

Recognizing the untapped potential of one-handed routing, Bosch introduced the

one-horsepower Colt palm router in 2005 to bridge the gap between traditional laminate trimmers and more powerful two-handed routers. Several manufacturers have followed suit. For this article, I evaluated seven compacts that are rated by their manufacturers at 1 or 1¼ horsepower: the Bosch PR10E, the Bosch PR20EVS, the Craftsman 28212, the DeWalt DWP611,

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the Makita RT0700C, the Porter-Cable 450, and the Ridgid R2401. Some of these tools come in multiple kits including various bases and other attachments, so I also gave those attachments a quick workout to see if they're convenient.

After running a battery of tests using different router bits and materials, I have some strong opinions about each tool. Overall, I'm impressed. This is a useful and rapidly evolving category for the building trades.

Key Specs

Each soft-start router motor has electronic speed control that's supposed to maintain constant speed under load, and a flat top so you can set the tool upside-down to adjust the cutting depth. But as the spec chart below points out, there are some important distinctions.

Weight and power. I weighed each tool, including the cord and the fixed base, on a postal scale. Without exception, the higher the amperage rating of the tool,

the more it weighed and the more powerful it proved to be in my routing trials. The lightest model, the Ridgid, weighs 3.5 pounds and draws 5.5 amps, which is .2 pound less and 2.2 amps more than my old Makita laminate trimmer. Cord length has no influence on the weight rankings; the 10-footers weigh only about .1 pound more than the 8-footers.

Rpm. Like traditional laminate trimmers, the Bosch PR10E and Porter-Cable 450 are single-speed models. The other

Router Specs	Bosch PR10E 877/267-2499 boschtools.com	Bosch PR20EVS 877/267-2499 boschtools.com	Craftsman 28212 800/469-4663 craftsman.com	
				
Horsepower/amps	1.0/5.6	1.0/5.6	1.25/6.5	
Rpm	35,000	16,000–35,000	15,000–28,000	
Weight with fixed base and cord (in pounds)	3.9	3.9	4.3	
Cord length (in feet)	10.4	10.4	10	
Collet capacity	1/4"	1/4"	1/4"	
Accepts template guides?	Yes, w/optional attachments	Yes, w/optional attachments	No	
Web price	PR10E (fixed-base kit)/\$95	PR20EVSK (fixed-base kit)/\$100; PR20EVSNK (laminate-trimming kit)/\$185; PR20EVSPK (fixed- and plunge-base kit)/\$200 (available 10/1)	28212 (fixed-base kit)/\$90	
Warranty	1 year; 30-day satisfaction guarantee	1 year; 30-day satisfaction guarantee	1 year	

five models are variable-speed. I've read that variable speed is mostly marketing hype, but it isn't. In general, the larger the router bit, the slower the optimal rpm. Spin a router bit too fast, and the router can become difficult to control and can cause scorching, especially in tough materials like hard or figured woods. Also, I'm told that excessively high speeds can melt PVC trim. Some of the Freud router bits I used for my testing list the maximum rpm on the package. For instance,



All of the routers use 1/4-inch-shank bits (left), but the Makita also accepts much stronger 3/8-inch-shank bits (right).

	DeWalt DWP611 800/433-9258 dewalt.com	Makita RT0700C 800/462-5482 makita.com	Porter-Cable 450 888/848-5175 portercable.com	Ridgid R2401 800/474-3443 ridgid.com
				
	1.25/7.0	1.25/6.5	1.25/7.0	1.0/5.5
	16,000-27,000	10,000-30,000	27,000	20,000-30,000
	4.7	4.4	4.6	3.5
	8.1	8.4	8.1	8.3
	1/4"	1/4" or 3/8"	1/4"	1/4"
	Yes, w/optional sub-base required for fixed base	Yes	Yes	No
	DWP611 (fixed-base kit)/\$110; DWP611PK (fixed- and plunge-base kit)/\$175	RT0700C (fixed-base kit)/\$120; RT0700CX3 (fixed-base, plunge-base, and laminate-trimming kit)/\$230	450 (fixed-base kit)/\$110; 450PK (fixed-and plunge-base kit)/\$150	R2401 (fixed-base kit)/\$100
	3 years; 1 year free service; 90-day satisfaction guarantee	1 year; 30-day satisfaction guarantee	3 years; 1 year free service; 90-day satisfaction guarantee	3 years; 90-day satisfaction guarantee; register for free Lifetime Service Agreement

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the maximum speeds for the $\frac{3}{4}$ -inch and $1\frac{1}{4}$ -inch mortising bits I used are 24,000 and 18,000 rpm, respectively. Both single-speed routers exceed those speed limits.

Collet capacity. Each router comes with a $\frac{1}{4}$ -inch collet that accepts router bits with $\frac{1}{4}$ -inch-diameter shanks. But Makita also includes a $\frac{3}{8}$ -inch collet so you can use beefier bits for the most demanding applications. With more than double the mass of a $\frac{1}{4}$ -inch shank, a $\frac{3}{8}$ -inch shank is less likely to break when pushed hard and typically requires less tightening torque to prevent slippage.

Available kits. All seven routers are sold in a basic kit with a fixed base and one or two collet wrenches. Some include a case and other amenities, others don't. The variable-speed Bosch PR20EVS and the routers from DeWalt, Makita, and Porter-Cable are also sold in expanded kits geared for various applications (and those four manufacturers also sell attachments that aren't included in any kit).

Warranty. Besides standard warranties, every manufacturer except Craftsman offers a satisfaction guarantee that

typically refunds your money if you don't like the tool (Makita might replace the tool instead).

Testing the Limits

Before I powered up, I subjected the routers to a dry run by working the switches and dials, installing and removing router bits, setting cutting depths, swapping bases on the routers that have optional ones, and mounting all other attachments included in the kits.

I used new Freud bits for all of my routing trials, keeping them clean with Blade & Bit pitch remover. First, I used each router with its fixed base to mortise pine jambs for hinges, ease the ends of composite decking, round over pine and red oak with the largest bit that would fit through the base, and mill a Roman-ogee profile on red oak. Ramping up while respecting Freud's recommended top speeds, I used each variable-speed router to cut a bunch of $\frac{3}{4}$ -inch-wide by $\frac{1}{4}$ -inch-deep by 2-foot-long dadoes in one pass in MDF and hardwood plywood, guiding the tools with a straightedge. I then plowed $1\frac{1}{4}$ -inch by

$\frac{1}{4}$ -inch dadoes in the same materials with each variable-speed router except for the Ridgid, which is a little too fast and has only a $1\frac{3}{16}$ -inch-diameter center hole.

Finally, some carpenters use a router to cut rough window and door openings in sheathed walls before raising the walls. To mimic that, I used each router with a $\frac{1}{4}$ -inch-diameter, 1-flute panel pilot bit and a $\frac{3}{8}$ -inch-diameter, 2-flute panel pilot bit to cut a series of 4-foot-long strips off a panel of $\frac{7}{16}$ -inch OSB sheathing, guiding the bits along a 2x4 attached underneath. Then I installed the $\frac{3}{8}$ -inch collet in the Makita and repeated the test with a $\frac{3}{8}$ -inch-shank, $\frac{3}{8}$ -inch-diameter, 1-flute panel pilot bit.

All of these tools completed each exercise I tried with them. But even though each model has constant response circuitry to help keep the rpm steady, I was able to slow down the one-horse Bosch and Ridgid fairly easily in the most demanding tests by pushing them fast. The $1\frac{1}{4}$ -horse models were clearly more powerful.

As for cutting window openings, you're probably better off using larger routers for this purpose if you do it regularly. The DeWalt and Makita demonstrated that they can at least handle the job in a pinch, cutting at the rate of about 4 to 5 seconds per foot with the 1-flute bits. Strictly in terms of raw power, I'd rate the DeWalt and Porter-Cable at the top, followed by the Makita, the Craftsman, the Bosch, and the Ridgid.

Bosch PR10E

The no-frills single-speed, one-horse PR10E ships in a small carton with a fixed base, two wrenches, and no case. Bosch makes plenty of attachments for it, though, including edge guides, laminate-trimming bases, a sub-base with a built-in vacuum port for edge forming, and sub-bases that accept various template guides.

This is one of the four models I tested that allow you to use two opposing wrenches, or a spindle lock and one



Among other tests, the author used each router to plow a series of $\frac{1}{4}$ -inch-deep dadoes in a single pass in MDF and hardwood plywood. The $1\frac{1}{4}$ -horse models were clearly more powerful than the one-horse ones.

wrench, to install or remove bits. To adjust the cutting depth, you flip open the clamping lever, rotate the motor about $\frac{1}{4}$ inch counterclockwise so the single triangle on the base points to the “unlocked” symbol on the motor, lower the motor to the desired position, and then rotate it back so the triangle points to the “locked” symbol on the motor. In this position, you can use a wheel in the back to fine-tune the cutting depth before closing the clamping lever.

Removing the base requires an extra pull and twist, and you have to align two double triangles to install it. It’s not rocket science, but it’s not exactly intuitive, either. Also, closing the clamping lever often changes the cutting depth slightly (a problem Bosch acknowledges in the owner’s manual), which can add some trial and error when routing to a critical depth.

On the plus side, the router is one of the lightest models I tested and fits beautifully in my hand. It has a square sub-base for following a straightedge, a 10-foot cord, and a seven-year track record. However, if I wanted to buy a Bosch Colt, I’d pick the more versatile variable-speed version.

Bosch PR20EVS

This router is almost identical to the PR10E, but adds variable speed and an overmold grip. It comes three ways: in a fixed-base kit with a straight guide, two wrenches, and a plastic case; in a kit that adds Bosch’s new plunge base (available October 1); and in a laminate-trimming kit. When I first inspected this tool, the clamp on the fixed base was too loose to prevent the motor from rotating to the unlocked position. But after a quick adjustment with an 8-millimeter wrench, it was ready for action.

I swapped all of the available bases on the PR20EVS with mixed results. The tilt base works well; it installs and adjusts just like the fixed one, tilts the motor from 45 degrees forward to 30 degrees backward, and has detents for key angles.

A Closer Look



Variable speed. Five models, including the Ridgid, offer variable speeds for added versatility and control. The variable-speed dials are located up top at the front of the tools.



Bump switch. The Ridgid is the only model with a convenient bump switch. You pull the switch to turn it on and tap it with your free hand to turn it off.



Warning light. The Craftsman has the only live-tool indicator light, which might prevent you from accidentally changing bits while the tool is plugged in.



Motor pulling. Some bases are easier to install and remove than others, which is helpful for swapping bits and bases. Makita’s are the easiest; just flip open the clamp and slide the motor in or out.



Bit swapping. All seven routers have a spindle lock that allows you to install and remove bits with one wrench. But Bosch, Makita, and Ridgid also let you use two opposing wrenches; you can simply squeeze the wrenches together to tighten or loosen the collet nut without the risk of banging your knuckles.



Template guide bushings. Five of the routers either accept template guides for use with hinge jigs and other templates, or offer optional sub-bases that do. Although the Craftsman and Ridgid don't, that's not necessarily a deal breaker. Templaco, for instance, sells a 1/4-inch-shank universal mortising bit for its hinge jigs that eliminates the need for a template guide.



Fine-tuning. All of the fixed bases have a micro depth-adjustment device, but the adjustment rings on the Porter-Cable and DeWalt are the easiest to use and include a precise zero-reference depth scale.



LEDs. The Craftsman, DeWalt, and Ryobi tools have LED work lights that can be especially helpful when routing hinge mortises freehand. DeWalt's dual LEDs and clear sub-bases make it exceptionally easy to see bits and layout lines.

The offset base also requires the twist-and-lock routine, but there's no fine adjustment required. The motor was a tight squeeze into this base, and the clamping lever was difficult to operate because it rubbed the top of the spindle-lock housing — but otherwise the base worked fine. It has a plastic jacket (also sold separately) that you can transfer to the fixed or tilt base; the jacket insulates your gripping hand from high heat created by continuous or heavy usage.

The new plunge base is a beauty: comfortable grips, a 2 1/8-inch-diameter center hole to accommodate big bits, a seven-step rotating turret, a secure depth rod with a zero-reference depth scale, and a nice plunge-locking lever that releases when you press down and self-locks when you let go. Optional attachments allow the base to connect to a vacuum and accept template guides. The base will also sell separately for about \$90 to \$100.

Craftsman 28212

This Craftsman Professional palm router has surprising power and features for \$90. Delivering 1 1/4 peak horsepower, the variable-speed tool comes in a kit that includes a fixed base, an edge guide, a wrench, a carry bag, and an oblong two-handle sub-base that screws to the fixed base. The unique sub-base adds stability and makes it easier to pivot the router on edge to plunge a bit. I also like the D-shaped fixed base, the soft dust cover over the rocker switch, the dual LED work lights, the extra-gentle soft start, the 10-foot cord, and the live-tool indicator light (though it's hard to see in bright light).

On the downside, the micro depth-adjustment wheel could be better, the rpm fluctuated a bit when I routed at reduced speeds, the tool doesn't hook to a vacuum or accept template guides, and there's no satisfaction guarantee. There's a spindle lock, but if you'd rather use two opposing wrenches, you can't.

DeWalt DWP611

The basic DWP611 kit includes a fixed base and a collet wrench. The DWP611PK kit adds a plunge base and a carry bag. But DeWalt offers lots of attachments a la carte, including an edge guide, a centering cone for the fixed base, a round sub-base that accepts template guides, a template-guide set, and dust-collection adapters for the fixed and plunge bases.

This variable-speed router was the strongest performer in my subjective trials and is exceptionally easy to set up and use. It has a spindle lock with 12 detents rather than the usual two so you can use the “manual ratchet” method with one wrench to install or remove bits. (You can’t use two wrenches instead, however.) To adjust the cutting depth precisely with the fixed base, you can set the router upright on the workpiece with the bit raised, open the clamping lever, and turn the depth-adjustment ring counterclockwise until the bit just touches down. Then you turn the yellow micro scale under the ring to align the “O” with the pointer on the ring, turn the ring until it points to the desired depth of cut on the scale, and relock the lever. It works great.

To remove the motor from the base, you just open the lever, press two tabs on the ring to separate it from the base, and slide the base off. Spin the ring off the motor, snap it back onto the fixed base so you don’t lose it, and you’re ready to clamp the motor into the plunge base.

That base is also impressive, with comfortable handles, smooth controls, an easy-to-read zero-reference depth scale, and the ability to accept template guides. The router also has a dual LED work light and clear sub-bases that give excellent visibility even in dim light, a D-shaped sub-base on the fixed base that makes it more stable for edge-forming, and a dust cover over the switch. For added convenience, you can orient the motor in the fixed base in two opposite directions and install the sub-base in four positions.



Extra bases. All of the routers except the Ridgid offer alternate bases to expand their capabilities. The Craftsman kit (above left) includes an oblong two-handle sub-base that screws to the fixed base for added stability. Bosch, DeWalt, Makita, and Porter-Cable (top) offer plunge bases — ideal for cutting openings and stopped dadoes or incrementally milling deep grooves and large edge profiles. Bosch and Makita (above right) offer tilt and offset bases for installing laminate countertops and other tasks.

One tiny nitpick: The DeWalt takes about two to three seconds longer than the other routers (except for the closely related Porter-Cable) to come to a complete stop after you turn it off.

Makita RT0700C

This new model is Makita’s first compact, drawing 2.1 amps more than the company’s most powerful laminate trimmer. The tool’s variable-speed motor is smooth and powerful, and looks and feels like it’s built for the long haul. You can use either two

opposing wrenches or a spindle lock and one wrench to install or remove bits.

The basic kit comes with a fixed base, a 1/4-inch and 3/8-inch collet, an edge guide, a template guide, a dust nozzle, and two wrenches. The complete kit comes in a huge soft but rigid case and includes fixed and plunge bases, a tilt base, and an offset base, as well as dust nozzles and template guides for the fixed and plunge bases and other odds and ends. The full kit allows you to mix and match. For instance, you can remove the large sub-base from the

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offset base, screw one of plunge-base handles to it, and put the whole thing on the fixed base to add stability on wide workpieces.

The tilt and offset bases do their jobs, but the plunge base could use some refinement. For starters, the threaded depth rod on the one I tried was a chore to adjust, and the plunge lock lever was hard to reach and tighten, springing open while I routed a dado. Swapping bases couldn't be easier, though; open their clamping levers and the motor simply slides in or out.

The freewheeling rack-and-pinion depth-adjustment wheel on the fixed and tilt bases isn't very helpful. Also, you can turn on the switch easily by just swiping your finger over it, which makes me nervous. And there's no LED work light. An intriguing optional accessory is the #194579-2 guide rail adapter, which lets you use the plunge base with Makita's guide rails.

Porter-Cable 450

Porter-Cable and DeWalt are both Stanley Black & Decker brands, which explains why their fixed and plunge bases are functionally identical and why they offer the same two kits and range of attachments. But unlike the DeWalt, the Porter-Cable is a single-speed model with no LED work lights. Also, the DeWalt fixed base has a D-shaped sub-base that doesn't accept template guides, while the Porter-Cable has a round sub-base that does (though both sub-bases are sold as accessories). Unless you always use small bits and never work in dim light, why buy the Porter-Cable?

Ridgid R2401

The lightweight variable-speed Ridgid is less powerful than the 1 $\frac{1}{4}$ -horse models, but it has a smooth motor with a gentle startup, one LED work light, and clear

sub-bases. It also has a unique bump switch up top that I really like; you pull it up to turn it on and just hit it with your free hand to turn it off, which is much faster and easier than fumbling with a rocker switch. The switch also lets you verify at a glance that the tool is turned off before you plug it in.

To adjust the cutting depth, you open the clamping lever, press and hold a second lever above it, and slide the motor where you want it. To fine-tune, you let go of the top lever and turn the micro depth-adjustment wheel before closing the clamping lever. You can swap bits with two wrenches or with the spindle lock and one wrench, but only the two-wrench method can be done easily without removing the base. Thanks to a motor retention spring, removing the base is a hassle.

The tool comes in a little kit that includes a round and square sub-base, an edge guide, two wrenches, a $\frac{1}{2}$ -inch straight bit, and an 8-inch-square by 4-inch-deep soft case. The R2401 doesn't accept template guides or hook to a vacuum, and no other attachments are available.

The Bottom Line

The one-horse and 1 $\frac{1}{4}$ -horse compacts seem like two separate categories, because the latter are noticeably more powerful. My overall favorite is the variable-speed 1 $\frac{1}{4}$ -horse DeWalt. It delivers strong, even power at various speeds; offers a fixed and a plunge base that are both first rate; has dual LED work lights and clear sub-bases for excellent visibility; and provides a full range of optional attachments.

I wouldn't buy either of the single-speed models I tested, because the variable-speed ones are more versatile and easier to control. The best choice for you, however, depends on the work you do.

Bruce Greenlaw is a JLC contributing editor.



Vacuum ports. Makita includes dust nozzles with its fixed and plunge bases so you can hook them to a vacuum. Bosch, DeWalt, and Porter-Cable sell optional vacuum attachments.



Cases. The most basic router kits don't include a case. At the other extreme, the soft but rigid case for Makita's extreme RT0700CX3 kit is as big as an ice chest and includes a removable pouch for router bits.