

Reciprocating Saws

Look for speed, power, and quick-change blade clamps

I've been a remodeling carpenter for more than 25 years, and there haven't been many weeks during that time when I didn't pull out my recip saw. Recently, I had the opportunity to try out 13 pro-grade models. Some of them have been around for years, but others were so new I had to test prototypes. Some recip saw manufacturers make three, four, or five different models.

Testing

As a remodeling carpenter, I mostly cut wood. During demo, I might cut studs, beams, drywall, sheathing, and the occasional pipe. During framing, I'll do the kind of light cutting and notching that plumbers, electricians, and hvac guys have to do.

I had four months to test the tools, so every few weeks I put different saws in the back of my van. I used them myself and loaned them to other tradespeople to see what they thought. A friend of mine ran the saws through a timed cutting test. He put a new blade in each saw and timed how long it took to make three cuts through a 2x12. He avoided large knots and applied even cutting pressure by hanging a 15-pound weight from the nose of the saw. I wouldn't judge a saw by the specs alone, but the fact is the test results were in line with the way I thought the saws would perform.

The Mechanics of Fast Cutting

You want clean, accurate cuts from a miter saw, but with a recip saw it's all about speed. Actual cutting speed is determined by the number of strokes per minute (spm), length of cutting stroke, power of the motor, and whether the tool has orbital cutting action.

Strokes per minute is a measure of how quickly the blade goes back and forth. Two-thirds of the saws top out between 2,600 and 2,800 spm. At 3,200 spm, Milwaukee's Super Sawzall was the fastest. DeWalt's 2,400-spm DW303MK was the slowest. You might not notice if one saw is 100 or 200 spm faster than another, but you can definitely feel a difference of 300 or 400 spm.

A man wearing a blue hoodie, light blue jeans, and a black baseball cap is kneeling on a dark, textured surface, likely a roof. He is using a red and black reciprocating saw to cut through a piece of material. The saw is positioned horizontally, and the man is looking down at his work. The background is a plain, light-colored wall.

by Don Pascucci

Stroke

The stroke length — how far the blade goes into the work — is just as important as spm. At any given speed, the longer the stroke, the faster the saw will cut. A slightly longer stroke can make a big difference. For example, cutting with a 1¹/₈-inch stroke saw at 2,600 spm for one minute would be the equivalent of pulling a 244-foot blade through the material. If you increase the stroke by 1/8 inch, you get an extra 27 feet, or 11% more cutting.

Every saw except one has a stroke between 1¹/₈ inches and 1¹/₄ inches in length. Milwaukee's 6509-22 has a 3/4-inch stroke, which explains why it cut slower than any other saw I tested.

Orbital Action

Six or seven years ago, orbital cutting action was the hot new feature on recip saws. Considering how popular it was

back then, I'm surprised that more saws don't have it now — only four of those tested do. Saws cut more aggressively in orbital mode because the blade swings up and down at the same time it's moving back and forth.

While cutting in orbital mode is definitely faster than cutting in straight mode, if you look at the speed test results (page 5), you'll see that it's not necessarily faster by much.

The feel of the orbital action is not the same on every saw.

The orbits are very pronounced on Hitachi's CR13VA and Porter-Cable's 9747, while the action is much more subtle on Milwaukee's 6521-21.



The orbital control switch on the Super Sawzall is recessed into the top of the saw, where it's both out of the way and easy to get at.

REVIEWER'S COMMENTS

Bosch 1634VSK ●

The 1634VSK is a powerful, orbital cutting machine that cuts as quickly as any saw I tested. It does the job, but it's longer and heavier than other saws in its class.



DeWalt DW303MK ●

The DW303K is very light and has a comfortable grip. The lever-action clamp makes it easy to change blades. The price is right, but the saw is very slow and hasn't got the power to do heavy cutting.



DeWalt DW307MK ●

The DW307K is a light saw but with good speed and power. The grip is comfortable, and the lever-action blade clamp is easier to use than the clamps you find on other brands.



DeWalt DW309K ●

The DW309K is powerful and smooth-running. It's equipped with an auxiliary speed-control dial and an internal counterbalance to dampen vibration. The lever-action blade clamp is exceptionally easy to use, and the rear grip is comfortable. The only thing I don't like about this saw is that it's kind of bulky in the middle.



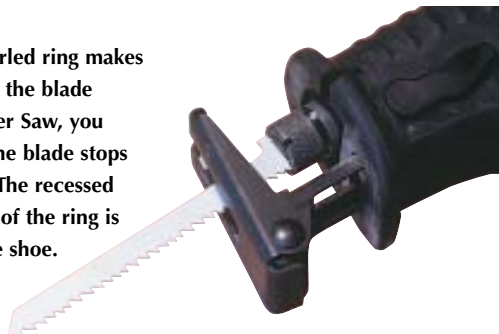
Hitachi CR13VA ●

The CR13VA is an orbital cutting saw with the power to do any cutting job. It has a comfortable grip but is bulky in the middle. I didn't like the spring-loaded shoe because it feels like it pushes back on light cuts and gets in the way when you're changing blades. The CR13VA also vibrates more and is louder than any other saw I tested.



Power. A long stroke and a high spm rating aren't much good if the saw bogs down while you're using it. There's no industry standard for rating horsepower, so most tradespeople look at amp ratings instead. However, an amp rating is just a measure of how much juice you can put into a tool without melting the motor. All things being equal, more

Although the knurled ring makes it easy to operate the blade clamp on this Tiger Saw, you can't get at it if the blade stops on the in-stroke. The recessed lever to the right of the ring is used to adjust the shoe.



amps should yield greater power, but in reality you won't notice a 1-amp difference when you're using a saw.

Ergonomics

There's no point carrying more weight than you have to, because many cuts don't require the kind of power you get from heavier tools. Bosch's 1634VSK is very powerful, but at 10.9 pounds it's a pound heavier than the next heaviest saw. I don't mind using it for heavy demolition, but there's no way I want to carry that much weight if all I'm doing is cutting holes through sheathing.

We all have our own ideas about feel and balance, so the only way to judge is to try different saws and see what you think. I've got average-size hands, but the grips on some of the saws feel like they're designed for guys with larger hands. I prefer the grips on the Milwaukee and DeWalt saws. Porter-Cable's grips feel big to me.

REVIEWER'S COMMENTS



● Makita JR3020

The JR3020 is a recently modified version of an existing Makita saw. The new version has a different blade clamp. This is a narrow, compact saw, but it's slower than average and has a bulky shoe-adjusting mechanism that gets in the way when you grasp the front of the machine.

● Milwaukee 6509-22 Sawzall

The 6509-22 is a no-frills saw. It's light and well balanced but lacks an adjustable shoe, quick-change cord, and gear-protecting clutch. The price might be right, but with a 3/4-inch stroke, it cuts slower than any other saw I tested. If you want a Milwaukee, it's worth spending extra for a Sawzall Plus or Super Sawzall.



● Milwaukee 6519-22 Sawzall Plus

The 6519-22 is a light, well-balanced tool with comfortable grips. It cuts with average speed and is equipped with a quick-change cord, a tool-less shoe, and a clutch that protects the gears if the blade gets stuck.



● Milwaukee 6521-21 Super Sawzall

The 6521-21 is slim, powerful, and fast. It's rated at 3,200 spm, which is 300 spm faster than the closest competitor. It has an orbital cutting mode that is activated by an easy-to-reach switch that's recessed into the top of the housing. At 8.5 pounds, the Super Sawzall is very light for a tool with so much power and speed.



Recip saws used to be long and thin, but in recent years some models have gotten thicker around the middle. I prefer the thinner models because they feel better balanced and seem to have more grip room up front. The Bosch, Makita, and Milwaukee saws are all slender.

Blade Clamps

The keyless blade clamp is the best thing that ever happened to recip saws; these days, every pro-grade saw has one. Most clamps are operated by twisting a ring or flipping a mechanism on the end of the drive shaft. They all work, but I prefer the ones that are the easiest to get at. For example, the knurled rings on the Porter-Cable clamps are easy to grasp but aren't accessible if the blade stops on the in-stroke. The same is true of Hitachi's clamp. I prefer the clamps on the Milwaukee saws, because they're accessible for most of the stroke. I like DeWalt's clamps even more, because they're activated by flipping a lever on the side of the forward housing. The lever is easy to get at, and the



DeWalt uses a lever-activated clamp to fasten blades. It's so easy to use that you can change blades without taking off your gloves.



It's easy to adjust the shoes on Milwaukee's Sawzall Plus and Super Sawzall because they're lever activated. The lever is shown in the disengaged position; it folds into the grip when you lock it.

REVIEWER'S COMMENTS



Porter-Cable 9741 Tiger Saw

The 9741 is a brand-new model. I tested a prototype, which is why the saw in the picture has no label or logo. Speed is controlled by trigger, and there is no speed-control dial or orbital mode. This is a basic no-frills saw with average cutting speed.

Porter-Cable 9746 Tiger Saw

The 9746 is a powerful no-frills saw. Speed is trigger controlled, and the saw does not have orbital action or a speed-control dial. The 9746 is a good saw, but I don't understand why it costs the same as the more powerful and better-equipped model 9747.



Porter-Cable 9747 Tiger Saw

The 9747 is another new model from Porter-Cable. In the orbital cutting mode, it's as quick as any saw I tested. The most unusual thing about this tool is the handle, which can be rotated in relation to the blade. I really like this feature because it allows you to cut up, down, or sideways without changing the way you grip the tool.



Porter-Cable 9750 Tiger Claw

The 9750 is a powerful machine with a unique adjustable gear housing that allows you to contort the tool to cut from any and all angles, making it the king of tight spots. The adjustable mechanism seems well made and is very easy to use. On the downside, this saw is slightly heavier than average, and the gear train makes it vibrate noticeably more than other saws.



The Hitachi CR13VA is one of a few saws with an auxiliary speed dial that allows you to set an upper limit on the speed of the blade. It comes in handy for long low-speed cuts.



The Tiger Claw has a unique adjustable gear mechanism that lets you reorient the front of the saw. This allows you to access cuts that might be impossible with other saws.

clamp stays open till you flip the lever back down. This is the only clamp that's easy to operate with gloves on. All the saws I tested accept the thicker demo-style blades, and in every case blades can be installed with the teeth facing up or down.

Saw Foot

Most saws have an adjustable foot. Extending and retracting the foot allows you to use more of the teeth and to partially limit the depth of penetration. To be honest, I almost never adjust the foot.

If you regularly adjust the foot, be sure to get one that can be adjusted without tools. Milwaukee's Super Sawzall and Sawzall Plus use a contoured lever. The lever is easy to get at and blends into the front grip of the machine. Porter-Cable uses a similar mechanism on its 9746, 9747, and 9750 models. You need a hex key to adjust the foot on the 9741. Makita uses a lever, but it's big, clunky, and in the way. Most of the other saws use push-button mechanisms built into the bottom of the nose.

Speed Control

All of the saws have variable speed. On some, the trigger alone controls the speed; on other models, the variable-speed trigger is coupled to a speed-control dial that limits the maximum speed of the saw. I like having a dial. I normally cut at top speed, but if I want to make a long, slow cut, it's easier to dial in a lower setting and then squeeze the trigger all the way.

Tool Case

A case is a very important accessory, mainly because it allows you to keep a good supply of spare blades with the machine. I judge a case on how sturdy it is and whether the tool and cord fit easily inside. I don't mind a case made of plastic as long as the clasps that hold it shut are metal. With some cases, stowing the cord can be a problem: You have to coil it just so, or the top won't close.

I liked the Milwaukee and DeWalt cases the best. They have metal clasps and plenty of room for the tool. I was

SPEED TEST

(Time required to make three crosscuts through a 2x12)

Brand	Model	Cutting Mode	*Time (in seconds)
Bosch	1634VSK	orbit	29
Porter-Cable	9747 Tiger Saw	orbit	29
Milwaukee	6521-21 Super Sawzall	orbit	30
DeWalt	DW307MK	straight	35
Hitachi	CR13VA	orbit	37
Porter-Cable	9741 Tiger Saw	straight	37
DeWalt	DW309K	straight	38
Milwaukee	6519-22 Sawzall Plus	straight	38
Porter-Cable	9750 Tiger Claw	straight	39
Porter-Cable	9746 Tiger Saw	straight	42
Makita	JR3020	straight	46
DeWalt	DW303MK	straight	58
Milwaukee	6509-22 Sawzall	straight	101

*Each saw had a new 5-inch Milwaukee 6-tpi bimetal blade (model 1012-61). Cutting pressure was applied by hanging a 15-pound weight off the nose of each saw. Large knots were avoided.

disappointed in Porter-Cable's cases — the clasps are plastic, and you have to be careful about how you stow the cord. Bosch makes a roomy case, but it has plastic clasps.

Durability

The only way to find out if a particular saw is durable is to use it for a few years, something that's not possible for an article like this. The next best thing is to look at the overall quality of the tool: what it's made from, how it feels, and what it sounds like when it runs.

All of the saws I tested looked and felt well made, though there were some discernible differences. Two of the saws — Porter-Cable's Tiger Claw and the Hitachi — vibrated noticeably more than the others. I expected some extra vibration from the Tiger Claw, given that the nose of the tool is adjustable; there's no way you can add all those gears and not get some vibration. I'm less forgiving about the Hitachi saw, which vibrated a lot and sounded somewhat clacky when the orbital function was on. The smaller DeWalt saws, DW303MK and DW307MK, both emitted an annoying high-frequency

whine. Fortunately, that sound is drowned out by the noise of cutting; you can only hear it when the blade is out of the cut.

I was curious to see if my perception of how loud the tools were matched up with reality, so I borrowed a friend's decibel meter and tested all the saws. It wasn't a fancy lab test, but I tested each saw the same way and at the same time. The absolute numbers are less important than the relative ranking of the tools. I measured sound output with the saw going full tilt, the blade out of the work, and the meter 30 inches away. Orbital models were tested two ways, orbit on and orbit off. As it turned out, the saws that sounded the loudest actually were the loudest (see spec table below).

Special Features

Tool-less blade clamps and orbital action used to be special features but are now common. I don't know if it's a sign of things to come, but two of the Porter-Cable saws have innovative features.

Porter-Cable's 9747 looks like a regular recip saw but is designed so you can rotate the rear grip in relation to the

RECIP SAW SPECS

Brand	Model	Amps	Speed (spm)	Length of Stroke (in inches)	*Weight with Cord (in pounds)	Street Price	**Sound Output (straight/orbit, in decibels)	Orbital	Auxiliary Speed Dial
Bosch	1634VSK	10.5	0-2,700	1 ¹ / ₄	10.9	\$179	100/102	yes	yes
DeWalt	DW303MK	9	0-2,400	1 ¹ / ₈	7.4	\$99	98	no	no
DeWalt	DW307MK	10.5	0-2,800	1 ¹ / ₄	8.3	\$139	97	no	no
DeWalt	DW309K	11.8	0-2,900	1 ¹ / ₄	9.2	\$159	96	no	yes
Hitachi	CR13VA	11	0-2,800	1 ¹ / ₄	9.7	\$139	102/102	yes	yes
Makita	JR3020	9.3	0-2,500	1 ³ / ₁₆	8.3	\$169	95	no	no
Milwaukee	6509-22 Sawzall	10	0-2,800	³ / ₄	7.3	\$129	97	no	no
Milwaukee	6519-22 Sawzall Plus	10	0-2,800	1 ¹ / ₈	7.4	\$159	96	no	no
Milwaukee	6521-21 Super Sawzall	11	0-3,200	1 ¹ / ₄	8.5	\$189	98/99	yes	no
Porter-Cable	9741 Tiger Saw	9	0-2,600	1 ¹ / ₈	9.3	\$109	99	no	no
Porter-Cable	9746 Tiger Saw	10.5	0-2,600	1 ¹ / ₈	9.0	\$149	97	no	no
Porter-Cable	9747 Tiger Saw	11.5	0-2600	1 ¹ / ₈	9.3	\$149	99/100	yes	no
Porter-Cable	9750 Tiger Claw	11.5	0-2,600	1 ¹ / ₄	9.3	\$219	102	no	no

Brand-new saws from Hilti and Ridgid arrived too late to be tested by the author; see their specs below.

Hilti	WSR 900 PE	8.5	900-2,700	1 ¹ / ₄	8.7	\$239	not tested	yes	yes
Ridgid	R3000	9	0-2,800	1 ¹ / ₈	8.5	\$110	not tested	no	no

*Each saw (including cord) was weighed on a digital scale.

**Sound output was measured with a digital meter 30 inches from the saw with the blade out of the cut. The decibel scale is logarithmic, so increasing a noise by 3 dB doubles the intensity of sound.

blade. This is a great innovation because it allows you to cut up, down, or sideways while grasping the saw in the normal horizontal position.

The model 9750 Tiger Claw has an adjustable gear housing that lets you change the angle at which the blade comes out of the machine. The mechanism is well designed and allowed me to cut from any and all angles. I talked to some plumbers who were familiar with this saw; one thought it was pretty cool but wished it was lighter. The other one said there wasn't a pipe he couldn't cut with a regular saw, and he didn't see the point of all those fancy gizmos.

Favorites

My absolute favorite is Milwaukee's Super Sawzall (6521-21). I like everything about it: It's fast, powerful, light, and well balanced, and the controls are easy to use. I also like Porter-Cable's 9747 Tiger Saw: It's fast and powerful, and the adjustable rear grip is great to use. Another big saw that's

The 9747 Tiger Saw is equipped with a simple mechanism that allows you to rotate the rear grip in relation to the front end of the saw.



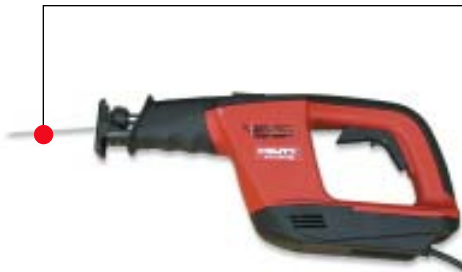
worth looking at is DeWalt's DW309K. It's smooth-running and powerful and comes with a nice case. I prefer the heavier, more powerful saws, but if I wanted a smaller, lighter model, I would choose the Milwaukee Sawzall Plus (6519-22). It weighs only 7.4 pounds but feels as fast and powerful as some of the bigger saws.



Don Pascucci is a carpenter and remodeling contractor in Billerica, Mass.

Late Arrivals

Two companies introduced new recip saws that showed up too late for the author to test. The specs for these tools are at the bottom of the spec table.



● Hilti WSR 900 PE

The WSR 900 PE is an 8.5-amp, 900-2,700 spm, orbital-action saw. The most unusual thing about this tool is the housing, which is short in length, tall in height, and has an exceptionally large open grip. The WSR 900 PE has a tool-less blade clamp and shoe, a speed dial, and a safety mechanism on the trigger.



● Ridgid R3000

The R3000 is manufactured by One World Technologies (which also makes Ryobi tools) and is sold exclusively by Home Depot. The most unusual feature is the lever-action blade clamp on the side of the gear housing. The R3000 is equipped with a variable-speed trigger and a key-operated foot and comes in a large plastic case with metal clasps.

Sources

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877/267-2499
www.boschtools.com

DeWalt Industrial Tool

800/433-9258
www.dewalt.com

Hilti Inc.

800/879-8000
www.us.hilti.com

Hitachi Power Tools

800/829-4752
www.hitachi.com/powertools

Makita USA

800/462-5482
www.makitatools.com

Milwaukee Electric Tool

877/729-3878
www.milwaukeekeetool.com

Porter-Cable

800/321-9443
www.portercable.com

Ridgid Emerson Tool

800/474-3443
www.ridgid.com