

Biscuit Joiners, Head to Head

We tested eight machines to see which are best for furniture makers

BY TONY O'MALLEY

The biscuit joiner was a relative newcomer in the first cabinet shop where I worked about 30 years ago. Now it's almost as common as the portable drill in professional and hobbyist woodshops alike, and with good reason. I've been using a biscuit joiner daily in my work for years now. It's a versatile and easy-to-use tool for numerous applications, from assembling and attaching face frames to reinforcing miters, and it's also great for building cabinet and drawer boxes.



A biscuit joiner is a pretty simple machine. It has a motor and blade, a spring-loaded plunge mechanism that guides the blade, and a baseplate and fence that locate biscuit slots in the work. Using the tool is a two-handed operation: One hand pushes at the back of the machine to plunge it into the workpiece while the other holds it down at the front end.

I worked with eight machines over several weeks to find out which models performed best. I evaluated all the key components to gauge their accuracy, and

I used all of the machines to cut slots for face frames, miters (standing and flat), and cases. The most important test was to check the accuracy of the slot-cutting.

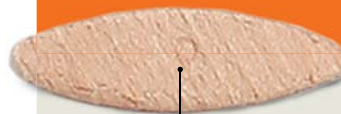
Vertical slot alignment is most important

For a biscuit joiner to perform well, it has to cut slots without excessive slop, so the store-bought biscuits fit snugly for a good glue joint. One of the keys to getting an accurate slot and good fit from joint to joint is a precise plunge mechanism that slides without play or wobble. You also have to hook up the machine to a vacuum because any debris can interfere with the tool's alignment and give you sloppy results. Finally, you need a high-quality fence that holds its settings

while you cut slots. Problems with any of these can cause serious alignment issues.

Although the slots and biscuits are designed with sideways play built in—it doesn't affect strength and actually comes in handy when assembling parts—slots that are out of parallel will give you headaches.

I tested all the machines using a shop-made hardwood "biscuit" that wouldn't be as affected as normal biscuits are by moisture changes. I cut slots both with the fence and with the base as the reference surface. Then I inserted the test piece into each slot and measured from end to end with a dial indicator to be sure each slot was



#0



#10



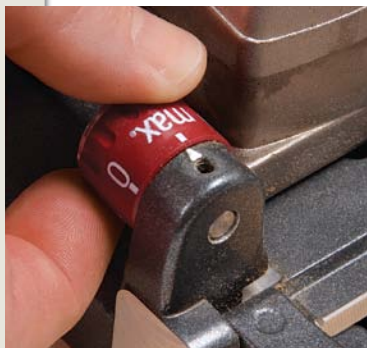
#20



#FF



#S6



How big a biscuit?

In all of my years of building with biscuit joiners, I've used only the standard-size biscuits (#0, #10, and #20). But Lamello and Porter-Cable offer different sizes that could come in handy. All of the machines have turret-like adjusters that change the slot size for these different biscuits. In general, you should use the largest biscuit the workpiece can accommodate. By the way, there are also a number of specialty joints and options for biscuit joiners, such as duplex hinges (the D setting) and simplex connectors (S setting), as well as options for making knockdown furniture, such as Lamello's Clamex S system.

—T.O.



"FF" MEANS FACE FRAME

The Porter-Cable 557 has a special FF setting for small biscuits. You need to buy a smaller, 2-in. blade, though, to get the job done (\$50; amazon.com).



LAMELLO GOES BIG—AND SMALL

Both Lamello machines can cut slots for extralarge biscuits (the S6) using the standard blade at the Max setting. They also can cut smaller slots for face-frame biscuits, but you'll need a smaller blade (\$99; csaw.com).

Two types of fences

One type can be adjusted for angles and height. The other can be angled but the height is fixed to center slots in 3/4-in. stock, so height adjustments require an auxiliary fence.

ALL IN ONE

A single fence that adjusts for both angles and height is convenient. It can handle stock of any thickness and be used for miters, too.



Dial in the height. The DeWalt fence is easy to adjust with a thumbscrew (left), with scales that are easy to read.



Online Extra

To get more from your biscuit joiner, check out the free video at FineWoodworking.com/extras.



Two ways to slot a miter. The DeWalt fence doesn't adjust past 90°, so to biscuit a standing miter, you angle the fence to 45° and cut the slot with the workpiece clamped flat (left). But workpieces can shift, so O'Malley prefers to slot these parts while they're clamped in a vise (right). The material won't move, and there are no clamps to get in the way, but you need a fence that adjusts to 135°, like that on the Porter-Cable (shown at right).

parallel with the faces of the board. Except for the Craftsman, all of the machines did well here.

Fence should keep settings locked in

To locate slots vertically in a workpiece, you can use the base or the fence. But because the base is always solid, and guaranteed to center a slot in 3/4-in. material, I find it's more accurate to use it as the reference surface whenever possible. When you need to offset a slot or to cut slots in stock thicker than 3/4 in., you can use a shim to raise the machine (to see this and other tips on using a biscuit joiner, see my article "Biscuit Basics" in *FWW* #165 and Asa Christiana's free video at FineWoodworking.com/extras).

But some people prefer to use the fence, and there are times when it's more practical. I'll use the fence on large cabinet parts, where it's just easier to move the biscuiter around the parts than it is to move the parts. I also use the fence on stock that's thinner than 3/4 in., and it's a must for cutting slots in beveled edges for a standing miter joint.

To be reliable and accurate, the fence must be easy to adjust and remain parallel to the base. And it must hold its settings (you can read about each fence in the individual writeups on pp. 52-53).

Some models have a single fence (see photos, left) that adjusts for both angles and height (DeWalt, Porter-Cable, Craftsman, and Ryobi). The Lamello and Makita machines feature a fixed-height fence that uses an auxiliary fence for height adjustments (facing page).

The winners

After putting the machines through a few weeks of work in my shop, it was pretty clear that the Lamello biscuit machines were the winners. They are extremely well made—and priced accordingly. As a professional woodworker, I don't mind spending top dollar for certain tools that I use routinely. So I would readily consider buying the Top 21 when it comes time to replace my current

DIVIDE AND CONQUER

Fixed-height fences take the guesswork out of setting the fence to center slots in $\frac{3}{4}$ -in. material. For height adjustments, they have an auxiliary fence. It's less convenient, but it works very well.

Fence finds center.

The Makita and Lamello machines feature fixed-height fences that center slots automatically in $\frac{3}{4}$ -in. stock, at any angle. The Lamello Classic X is shown.



Auxiliary help. These machines use an auxiliary fence for height adjustments. It mounts to the fixed fence in front (left), so you can center slots in thick stock (right) or offset workpieces. O'Malley preferred the Lamello system, which attaches via dovetailed ways and has no play.

Distinct advantage. The auxiliary fence for the Lamello machines can be mounted to the base, which makes it easier to hold the tool vertically.

model. The Lamello Classic X is half the cost with most of the same features, so that would be a more sensible purchase for the serious hobbyist looking for the best machine he or she could afford.

Picking the Best Value was more difficult, as three closely priced tools performed similarly (DeWalt, Makita PJ7000, and Porter-Cable). In the end I picked the DeWalt, because it has a great fence that adjusts easily and holds its adjustments in any position, it's light and comfortable to use, and it's less expensive than the other two. If you don't use a biscuit joiner every day, any of the three would be an excellent choice.

Tony O'Malley, a professional furniture maker in Emmaus, Pa., has cut thousands of biscuit joints over the years.

CUTTING-EDGE ADJUSTER

Adjust the blade height. With the Lamello Top 21, you can move the blade up or down by turning a wheel on the top of the machine (top). The blade moves in 0.1mm steps, allowing you to dial in a desired offset. This feature comes in handy when you are attaching solid-wood edging to plywood and want the edging to sit just proud for flush trimming later (bottom).



Head to head



Lamello

Classic X

\$600

csaw.com

Fence-angle detents:
22.5, 45, 67.5, 90

Cutting-depth indexes:
0, 10, 20, S, D, Max

Weight: 6.2 lb.

This machine is top-notch, made to high tolerances with a plunge mechanism that slides without play. The fixed-height main fence, which centers slots in $\frac{3}{4}$ in. material, locks solidly at 90° and other angles. To handle other stock thicknesses, the Classic X uses an auxiliary fence that attaches to the main fence via well-machined dovetailed ways. The auxiliary fence also attaches to the base of the machine, making it easier to use the machine vertically. The Classic X is versatile and can use a number of Lamello joinery options, such as the knockdown Clamex S system (requires a special blade). The depth stop is clearly visible on the front of the machine, and adjustments are easy to make. The tool is well-balanced and a joy to use.



Lamello

Top 21

\$1,195

csaw.com

Fence-angle detents:
22.5, 45, 67.5, 90

Cutting-depth indexes:
0, 10, 20, S, D, Max

Weight: 7.2 lb.

This machine is the cream of the crop in every aspect. The Top 21 has a one-of-a-kind blade-height adjustment feature that makes it easy to offset slots, with the fence or the base as a reference. The adjuster also allows you to cut the wider slots for the Clamex S knockdown system without the need for a specialty blade. The fence setup is the same as the Classic X. The machine is twice as expensive as the classic, and five to six times as much as the other machines. But if you use a biscuiter daily, or would benefit from all the various joinery attachments available, the tool is worth the investment.



DeWalt

DW682K

\$170

homedepot.com

Fence-angle detents:
90

Cutting-depth indexes:
0, 10, 20, Max

Weight: 6.2 lb.

I picked the DeWalt as Best Value. The fence is simple, reliable, and comfortable to use, even for long sessions. It features a rack-and-pinion height adjustment that keeps it parallel, and a height gauge that's easy to read. The fence has solid, accurate stops at 0° and 90°. But it's the only fence in the group that doesn't have angle detents beyond that, a minor inconvenience that's easy to overlook because the fence locks solidly at any angle. The barrel grip is very comfortable, with a conveniently positioned lock-on trigger switch on the bottom.



Craftsman

315.175390

\$90

sears.com

Fence-angle detents:
45, 90, 135

Cutting-depth indexes:
0, 10, 20

Weight: 7.8 lb.

The plunge mechanism in this machine has a lot of play, and the machine cut very loose slots that didn't allow me to get an accurate reading during the parallel test. It's heavy but well balanced, and features a comfortable pistol grip; however, the grip makes the tool harder to use in the vertical orientation. The fence is large and has an easy-to-grip handle in front that I like. But it was hard to keep the fence parallel when locking it after adjustments.



Makita

PJ7000

\$200

homedepot.com

Fence-angle detents:
45, 90

Cutting-depth indexes:
0, 10, 20, S, D, Max

Weight: 5.8 lb.

The Makita is the lightest of the machines reviewed. Its plunge mechanism is tight and smooth with zero play. Like the Lamellos and the other Makita, it uses a fixed-height main fence, with an auxiliary fence that adjusts in height. The 90° stop on the fixed fence is inexact, and it's easy to lock it a degree or two past 90°. When attached, the auxiliary fence had a bit of lateral play in it, so you have to be careful to check that the fence remains parallel to the base.



Makita

LXJP02

\$410

amazon.com

Fence-angle detents:
45, 90

Cutting-depth indexes:
0, 10, 20, S, D, Max

Weight: 6.8 lb.

This is the same machine as the Makita PJ7000, with the overall fit and finish about the same. It is powered by an 18-volt lithium-ion battery (two batteries are included, along with a charger) that can be shared with other 18-volt lithium-ion tools made by Makita, but the battery pack makes the machine a bit back-heavy. It has sufficient power, but it bogs down more easily if you plunge too quickly. This tool is quieter than any other machine tested.



Porter-Cable

557

\$225

woodcraft.com

Fence-angle detents:
90, 135

Cutting-depth indexes:
FF, 0, 10, 20, S, D, Max

Weight: 7.2 lb.

This machine has the largest fence of this group, which is an advantage for general use. But the large opening near the blade makes the tool unwieldy on small workpieces. Fence-height adjustments are slow, but the fence remains parallel and holds its settings. The plunge mechanism is smooth and solid. A unique feature is that the top handle is attached to the front of the machine—not to the moving barrel—which gives you better control as you plunge.



Ryobi

JM 82

\$100

homedepot.com

Fence-angle detents:
45, 90, 135

Cutting-depth indexes:
0, 10, 20

Weight: 7.6 lb.

The Ryobi is well balanced and features a comfortable pistol grip; however, the pistol grip makes the tool harder to use in the vertical orientation. The fence is large and easy to grasp. Its height adjusts on tongue-and-groove ways and is guided by a double rack-and-pinion, but the fence tended to shift up or down when it was locked. The plunge mechanism has too much play, which resulted in sloppy slots and loose biscuits.

