Mortisers for All Budgets

If you can cut mortises quickly, furniture making is faster and more fun

BY TIM ALBERS

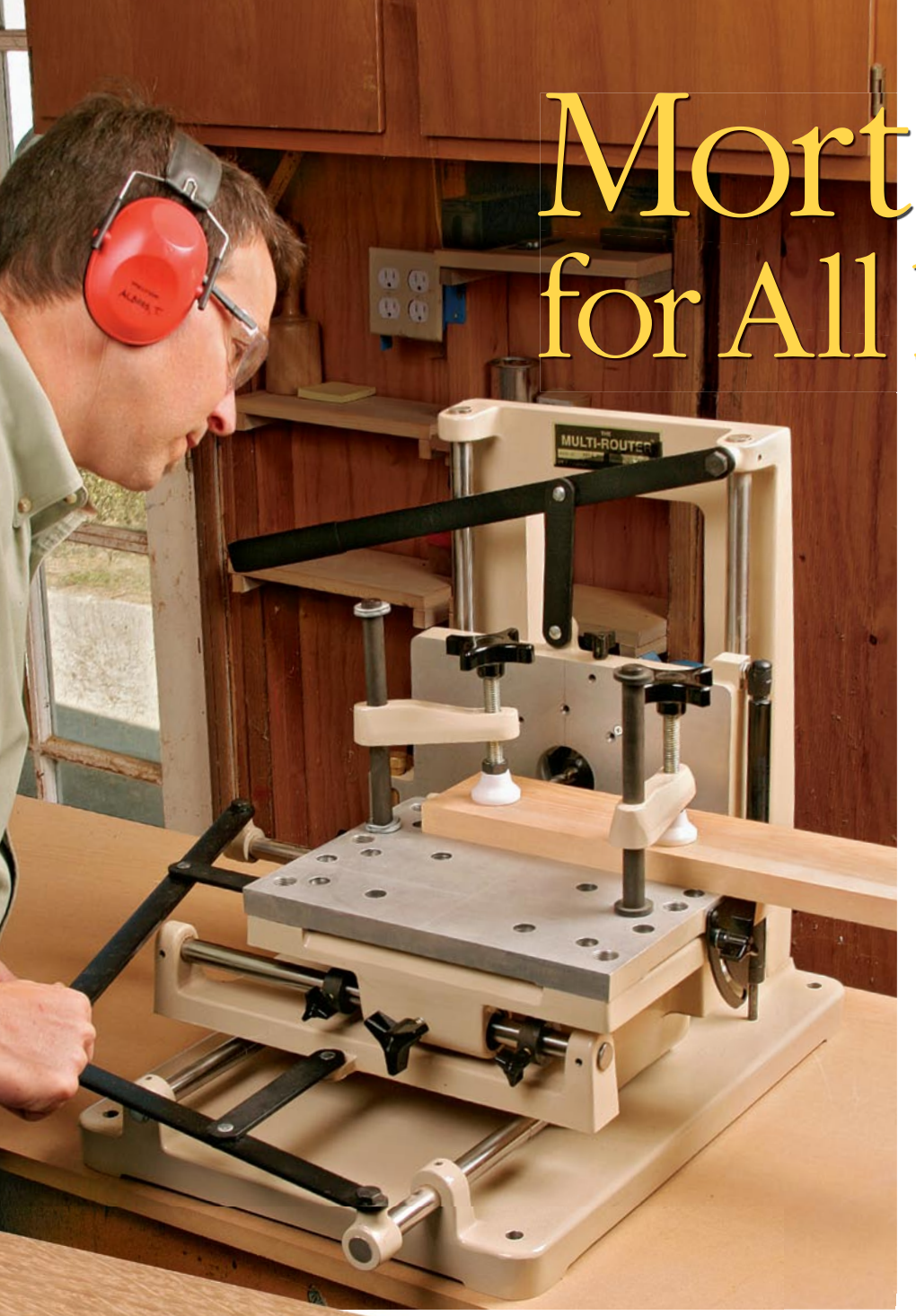
In almost every professional woodworking shop, even the one-man operations, you'll find some kind of mortising machine. Making tight mortise-and-tenon joints is one of the most tedious parts of woodworking, and in the pro environment, time is money.

But time is just as precious for me, a hobbyist woodworker with an expanding day job and shrinking leisure time. Like many pros, I've struggled with the usual mortising methods. Drilling and chopping is OK for a mortise or two, but it is tedious and easy to foul up. For multiple workpieces, I turn to router jigs, but simple ones work for only one size of mortise, and more versatile jigs are complicated to build.

The answer is a dedicated mortising machine, and there is a host of them—from hollow-chisel to horizontal to super-jigs—all promising an accurate mortise in a minute or two. And some can do a lot more than mortise. I've always wanted to try them, seeing which ones deliver on their promises, so I was excited when *FWW* gave me the green light. This is not a brand-vs.-brand, apples-to-apples test. With a wide variety of equipment to test, I chose representative products in each category and price level, looking for typical features and specs. I focused on machines and jigs that can make a range of mortise sizes that a woodworker needs, and I left out jigs and tools, such as Festool's Domino, that make only small mortises.

In the end I found that every machine can crank out a perfect mortise, but some are much faster and easier to use than others.

Tim Albers is a frequent contributor on power tools and machinery.



SQUARE VS. ROUND

Only hollow-chisel mortisers can cut square holes (top). But most of the other machines are horizontal mortisers, which can cut into the ends of workpieces, making slip-tenon joinery possible (center and bottom).

Photos: Asa Christiana

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HOLLOW-CHISEL MORTISERS ARE AN AFFORDABLE SOLUTION

These machines are the most straightforward. Pull down the handle, and you get a square hole. An auger bit leads the way, clearing out most of the material, followed closely by a square chisel that removes the corners. Make a row of these square holes, and you have a mortise. The category breaks down into three basic levels.

JET JBM-5

www.jettools.com
Street price: $350

ENTRY-LEVEL BENCHTOP MODELS OFFER THE BEST VALUE

At under 50 lb., the Jet JBM-5 and its close relatives are truly portable. Most come with a set of bits and chisels up to ½ in. However, the ½-hp motors work best with ⅜-in. sizes or smaller, and chisels have to be kept sharp to work well. My main complaint with these entry-level benchtop units is that the fence and hold-down are fussy to set up accurately. If you don't mind some fine-tuning for each new job, then one of these machines is for you. By the way, shopmade stop blocks can be used to line up the fence accurately in various positions, and additional clamps will help with tall workpieces.

POWERMATIC PM 701

www.powermatic.com
Street price: $480

MIDRANGE MODEL IS A BIG UPGRADE

We chose the relatively new Powermatic 701 to represent the heavier category of benchtop units. It is roughly $100 more than the Jet, and bits and chisels are sold separately. But you get a lot for the extra cash, starting with a ¾-hp motor that will power a ½-in. chisel. The fence and table are larger, and there is more capacity (5 in. vs. 4 in.) under the nicely machined hold-down. And wider mortises can be made by moving the fence, which stays parallel to the chisel. A toolless clamp makes chisel changes faster, and they are easy to keep sharp, thanks to the diamond honing cone that is built into the tool caddy.

GENERAL INTL 75-075

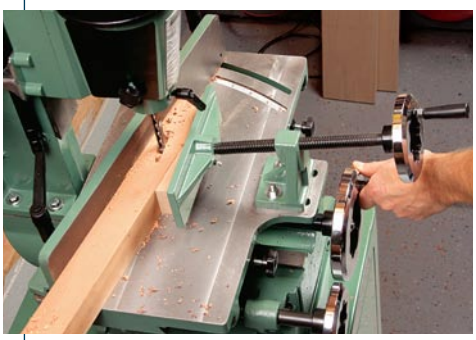
www.general.ca
Street price: $1,150

FLOOR-STANDING MACHINE IS FASTER AND MORE VERSATILE

Industrial machines like the General 75-075 are a considerable step up in price, but you get a rock-solid machine, featuring a 1-hp motor that can handle the largest chisels and, best of all, a sliding X-Y table (moves forward, back, and side to side). Clamp the workpiece in place, then just crank the table to reposition it to cut mortises of any width and thickness, with stops for repetitive jobs. The fence pivots for angled work, and a tilting head is common.

Fussy fence. *With a single clamping point, the fence on this entry-level mortiser goes out of parallel each time you move it, meaning you'll have to square the chisel to it again. Also, the fence is a bit short.*

Better system. *The fence on the Powermatic runs in two tracks, keeping it parallel to the chisel. A clever roller system keeps the stock in position yet allows it to be slid sideways.*



Full-featured machine. *On an industrial machine like the General, you crank the table to reposition the stock in any direction. Also, the fence pivots (as shown) for angled mortises.*

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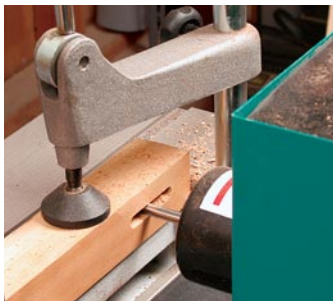
SLOT MORTISERS ARE PRICEY BUT EFFECTIVE

Horizontal ("slot") mortisers are available in two price categories, both expensive. All use a single joystick to control the X and Y movement, with a handwheel for vertical adjustments. And all are designed for specialized mortising bits, though Albers had equal success with router bits and machinist's end-mills.

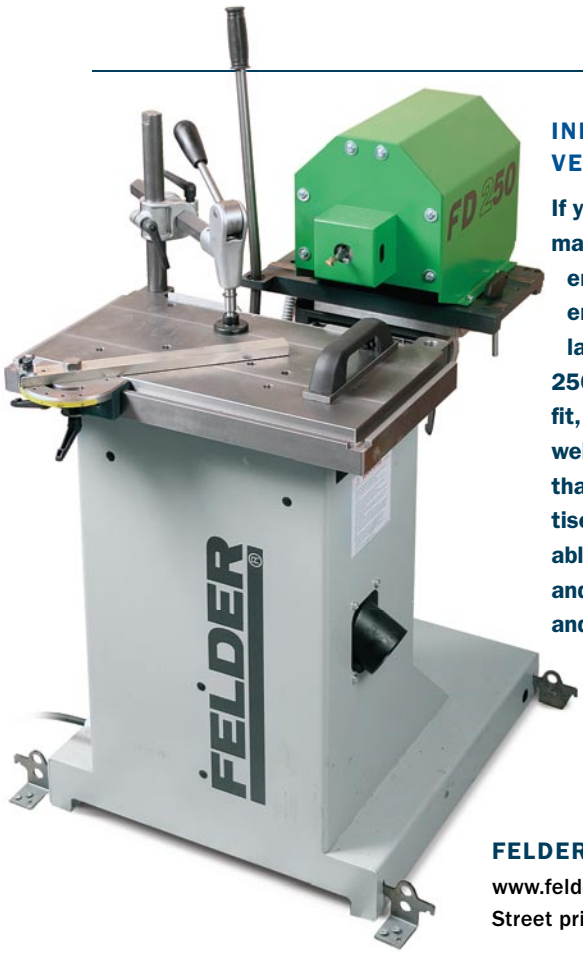
ROJEK IS A GOOD MORTISER FOR SMALL SHOPS

The Rojek VDA 316 falls into the lower-priced tier of these machines. But you get a solid base, a large cast-iron table, a strong cam-action clamp, and a heavy-duty mortising chuck with a ⅝-in. bit capacity. Built-in adjustable stops make it easy to dial in the depth and length of a mortise. The table travel was not perfectly smooth in all directions, but that didn't seem to affect the results.

ROJEK VDA 316
www.tech-mark.com
Street price: $1,900



End grain or face grain. *Slot mortisers like the Rojek make precise mortises on the edges (left) or ends (below) of workpieces. A single joystick moves the table in, out, and side to side.*



INDUSTRIAL MACHINE IS VERY SMOOTH AND SOLID

If you enjoy working with top-end machinery, European manufacturers offer heavy-duty slot mortisers for $3,000 and up. With a larger machine like the Felder FD 250, you encounter a new world of fit, finish, smooth operation, and well-engineered stops and clamps that make the most complex mortises simple, accurate, and repeatable. The Felder's table is larger and heavier than that of the Rojek, and a model is available that tilts on cast-iron trunnions for regular and compound angles.

FELDER FD 250
www.felderusa.com
Street price: $3,600

A step up. *On industrial slot mortisers, the head moves, not the table, and the action is smoother. Also, there are better clamping options and stops. The Felder has a clever fence that locks onto the table at 45° (shown) and 90°.*

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JOINT-MAKING JIGS VARY WIDELY

Each of the machines in this category is a different animal, and all can do more than make a mortise. All are powered by portable routers (sold separately), which makes ear protection a must.

LEIGH FMT JIG
www.leighjigs.com
Street price: $880

LEIGH JIG MAKES MATCHING MORTISES AND TENONS

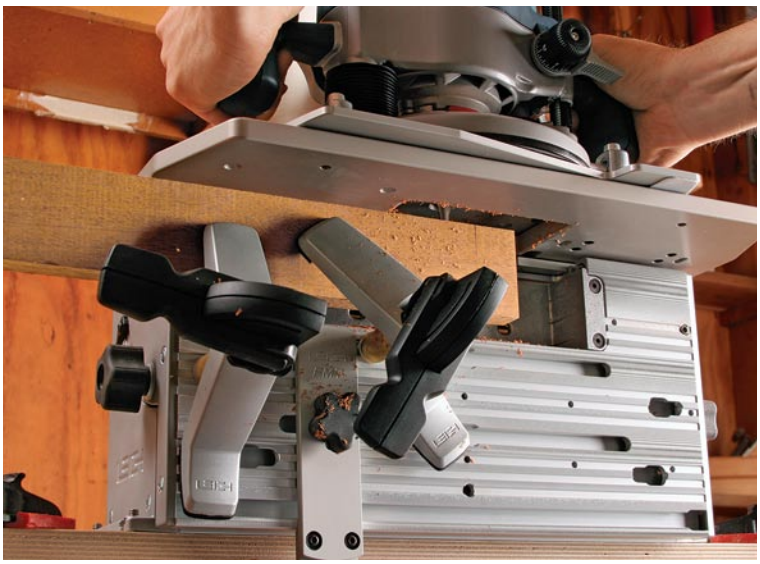
The Leigh FMT, which stands for Frame Mortise and Tenon, is a compact benchtop unit that is very portable and easy to store. This ingenious jig makes a perfectly matching mortise and tenon, in a wide range of sizes, in just a minute or two. The same template and setup work for both mortise and tenon. The top can be tilted up to 30° for angled mortises. After trying it out once or twice, I found it very quick to use.

One bonus is that you don't have to dedicate a router to this jig: Any plunge router will go on and off the jig quickly and accurately.

The only downside is the price tag for the basic package, which includes only templates for cutting 5/16-in.-thick mortises. Additional templates for different-size mortises cost extra.

Setup is simple. *A viewfinder (bottom of photo) makes it easy to center the table over the workpiece, and then you pop in a single template for the mortise and tenon you want.*

Mortise first. *A guide pin rides in the middle of the template to steer the plunge router as it forms the mortise. The plunge mechanism sets the depth.*



Same setup creates a tenon. *Once the mating piece is clamped in the vertical position, there's no need to change the template or table setting. With the guide pin riding the outside of the template, you can make a perfect, round-cornered tenon (inset) in under a minute.*

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JDS MULTI-ROUTER

www.jdstools.com
Street price: $2,750

MULTI-ROUTER IS A TRUE MILLING MACHINE

I've had the opportunity to work with some great mortising machines over the past couple of months, but the Multi-Router is my favorite. However, the nearly $3,000 price tag (router not included) is a substantial outlay. The Multi-Router is elegantly simple: A horizontal table holds the workpiece and moves in the X and Y directions, and a vertical table holds the router and moves in the Z (up and down) axis.

As you would expect from a higher-priced machine, the construction, precision, and smoothness are exceptional. Even with a large workpiece and a heavy cut, it moves effortlessly. Hold-downs and workpiece stops are just as good. I especially liked the stops for table motion, which allow you to use calipers to set up precise cuts, and feeler gauges to fine-tune them.

There is a separate lever for X, Y, and Z travel, which means you can make tenons, for example, with a single setup. You might not bother, though, since loose-tenon joinery is also easy. The workpiece table tilts in two directions for compound mortises up to 45°.

This is a true X-Y-Z milling machine and thus can make all kinds of precise cuts on small and large parts; the only limit is your imagination.

X, Y, Z versatility. *With a tilting table and smooth cutting action in any direction, any mortise is a cinch. But the real fun begins as you explore the possibilities.*

Smart stops and hold-downs. *A long rod stops the end of a piece, and powerful hold-downs simply drop into holes in the table (above). The same holes accept buttons that align workpieces at various angles (right), and stops for table travel are great, too.*

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ROUTER BOSS 420
www.chipsfly.com
Street price: $800, plus
Mortise Table Kit: $200

ROUTER BOSS DOESN'T EXCEL AT MORTISES

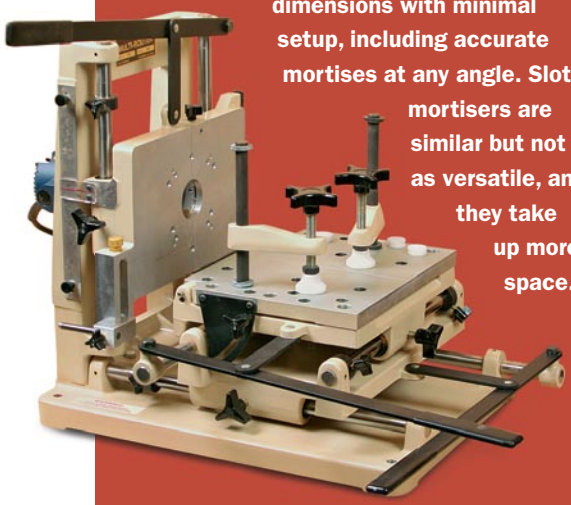
This elaborate jig, and the very similar WoodRat, allow you to move both the workpiece and the router independently for a wide variety of precise joinery and cutting operations, including dovetails. The router goes on a baseplate, where it can stay fixed or slide in various directions. An aluminum extrusion slides below, controlled by a hand crank, and holds various clamps and fixtures for supporting the stock. Versatility is the big selling point here, but there is a learning curve for each function and a lot of accessories. For mortising, you need an optional table attachment and special guide rails. It takes 20 minutes or so to attach the table and accessories each time, and the table needs to be raised or lowered for each new stock thickness, which is an awkward process.

Plunge, crank, repeat. *After plunging the router a small amount, you have to switch your hands to the crank to make a sideways pass. Also, an accessory table is required, which is time-consuming to attach and fussy to adjust for each new workpiece.*

So what do I buy?

If all you need are mortises, or if your **budget is tight**, you'll be happy with a benchtop hollow-chisel mortiser. If you can afford the extra $100 or so, go for a midrange machine like the Powermatic. You get more power and capacity, better clamping systems and adjustments, and improved accuracy.

If you want to make perfectly **matching mortises and tenons** with the least amount of fuss, and you can afford it, I highly recommend the Leigh FMT. This is a wonderfully compact, fast, accurate, and easy-to-use jig.



if you are ready to make **a serious investment** in your woodworking career, get a Multi-Router. It is in a category of its own. It will cut almost anything you can imagine in three dimensions with minimal setup, including accurate mortises at any angle. Slot mortisers are similar but not as versatile, and they take up more space.

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