

Domino Changes the

Because of its strength, the mortise-and-tenon is one of the most important joints used in furniture making. It's perfect for connecting table aprons to legs, the rails and stiles of a door frame, and chair stretchers to legs. Through the years, I've learned to cut the joint with a variety of techniques and tools, from backsaws and mortising chisels to bandsaws, tablesaws, routers, hollow-chisel mortisers, and manufactured joinery jigs. These tools and methods can work well, but I always thought they involved either too much finicky setup or a lot of test cuts (both in some cases) to produce a snug-fitting tenon with tight shoulders and flush faces.

That's why I was excited when Festool introduced the Domino, a revolutionary handheld

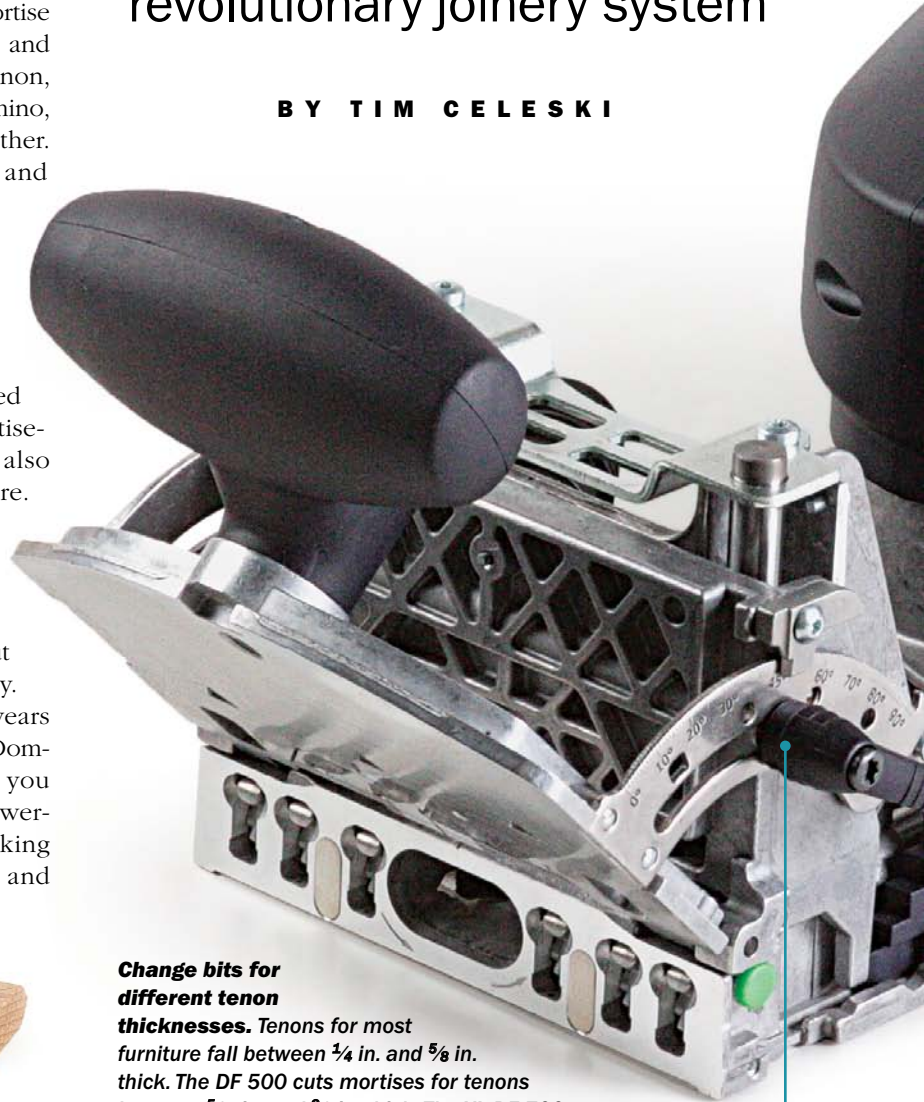
mortising machine, in 2007. The tool has a spiral bit that plunges into the wood to create a perfect mortise with round ends. You cut a mortise on both parts of the joint, and use a ready-made slip tenon, which Festool calls a Domino, to tie the two parts together. It's a very strong joint, and best of all, the Domino is much faster than any other mortising technique I've used, requiring very little setup to get perfect joints.

The Domino has changed not only how I cut mortise-and-tenon joinery, but also the way I design furniture. Because I know that any two parts that touch can be joined with a Domino, I let my creativity run free without worrying about the joinery.

I've learned over the years that if you combine the Domino with a simple jig, you end up with a very powerful tool, capable of making accurate joints quickly and

Tips and techniques for a revolutionary joinery system

BY TIM CELESKI



Change bits for different tenon thicknesses. Tenons for most furniture fall between $\frac{1}{4}$ in. and $\frac{5}{8}$ in. thick. The DF 500 cuts mortises for tenons between $\frac{5}{32}$ in. and $\frac{3}{8}$ in. thick. The XL DF 700 (above) ranges from $\frac{5}{16}$ in. to $\frac{9}{16}$ in. thick. Bits aren't interchangeable between machines.



Game



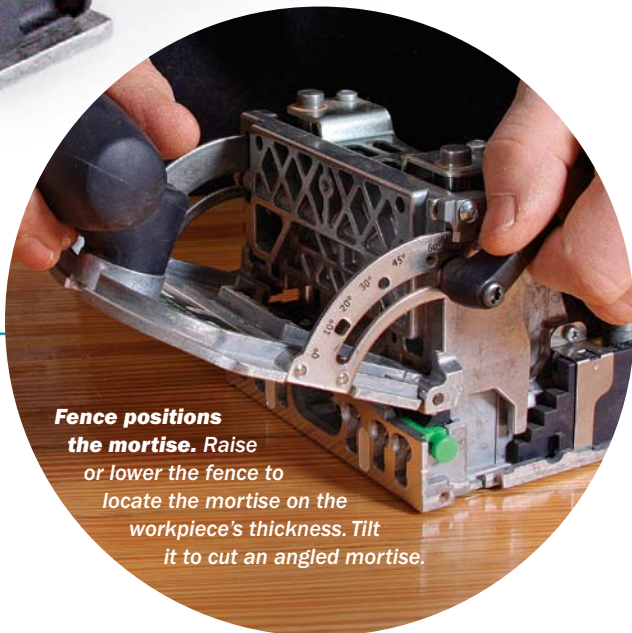
Flip a lever to change the width. You can size a mortise for a tight fit with the slip tenon, or one that includes play, allowing you to adjust the joint after assembly.

Perfect mortise with one plunge

Each Domino model, the DF 500 and the larger XL DF 700, makes it easy to position the mortise on the workpiece. Then it cuts the mortise to precise depth, width, and length in one stroke.



Adjust depth with a slide. Both Domino models set the mortise depth with a sliding button on the side. The XL DF 700 can cut mortises between 15mm and 70mm deep ($\frac{9}{16}$ in. to $2\frac{3}{4}$ in., respectively), in 5mm increments.



Fence positions the mortise. Raise or lower the fence to locate the mortise on the workpiece's thickness. Tilt it to cut an angled mortise.

Tips for better accuracy

For parts to align correctly after assembly, you need a precise layout. For a clean mortise, plunge slowly and use dust collection to clear chips.

Mark both parts at once. Use a sharp pencil (above) for a thin, crisp line to get a more accurate alignment with the sight gauge on the joiner's fence.

Plunge slowly. Push from the back of the machine, not from the handle, and press firmly down on the fence to prevent the machine from dipping.



repetitively without error. Here I'll share the jig and my techniques for using it, along with some basic tips.

For furniture making, get the Domino XL

There are two different Domino models: the DF 500 (\$765) and the larger XL DF 700 (\$1,250). Each one has a spiral bit that plunges into a part to cut the mortise to depth. At the same time, the bit moves from side to side. The result looks very much like a mortise made with a router. But with a router, you must move the tool to create the mortise width and take multiple passes to reach the final depth. The Domino does both at once.

The two models have a similar fence that can be adjusted to change the slot's location on the part's thickness, and tilted to adjust the angle of cut. This allows you to cut a mortise square to a beveled edge or mitered end, for example.

The major distinction between the joiners is the sizes of mortise that they cut. The Domino DF 500 can cut mortises that are 4, 5, 6, 8, and 10mm wide, and 12, 15, 20, 25, and 28mm deep. The larger



Fix for misaligned joints. If the halves of a joint aren't aligned horizontally, adjust the sight gauge right or left, and check with a test joint.

Two tweaks that improve the fit



Cure for tight tenons. Just sand the small lip on the tenon's edge. Don't adjust the tenon's thickness.

More Dominos make stronger joints

There are two ways to handle a big joint: Use more than one slip tenon, or cut a wider mortise for a bigger tenon.



STACK THEM ON THICK WORKPIECES

Flip it. After cutting the first mortise, turn the workpiece over to cut the second. This method lets you cut both mortises without having to adjust the machine's fence.



Plunge again. This time the fence registers on the side opposite the one used to cut the first mortise.



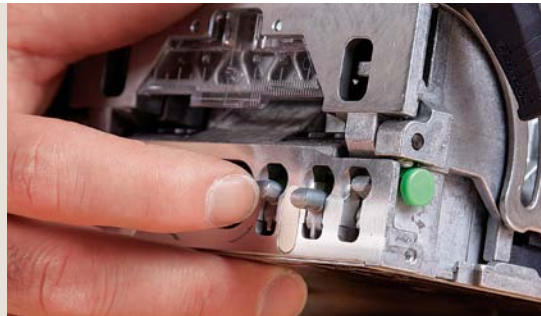
GO SIDE TO SIDE FOR WIDE JOINTS



Spacing is key. Aprons and frame rails wider than 4 in. call for multiple tenons in a row. The distance between them should be at least equal to the thickness of the Domino slip tenon used in the joint.

Make a wide tenon

For parts (like table aprons) that are too wide for one tenon but still under 4 in. wide, overlap two or more mortises and use shopmade slip tenons.



Use stop pins to expand the mortise. A series of retractable pins on both sides of the bit let you cut a wider mortise. After cutting the mortise in the first workpiece (below), cut one in the mating workpiece, but flip the stop-pin arrangement. Use the first pin on the right, and the second pin on the left.

STEP 1

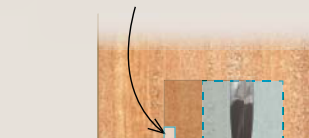
Cut a centered mortise in the workpiece.



STEP 2

Widen one side.

Use the first stop pin on the left side of the bit, registered against the left end of the mortise.



STEP 3

Widen the opposite side.

Use the second stop pin on the right, registered against the right end of the mortise.



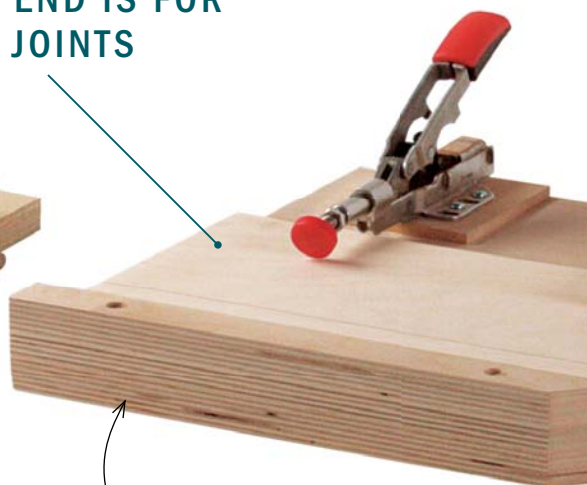
One jig handles any angle

End-grain mortises require that the workpiece and tool be held fast so that they don't shift and ruin the cut. This jig stabilizes both and makes it very easy to cut mortises in the same location in a series of parts.

ONE END IS FOR 90° JOINTS



Guide base attaches to left end of clamping base for 90° joints.



Clamping base



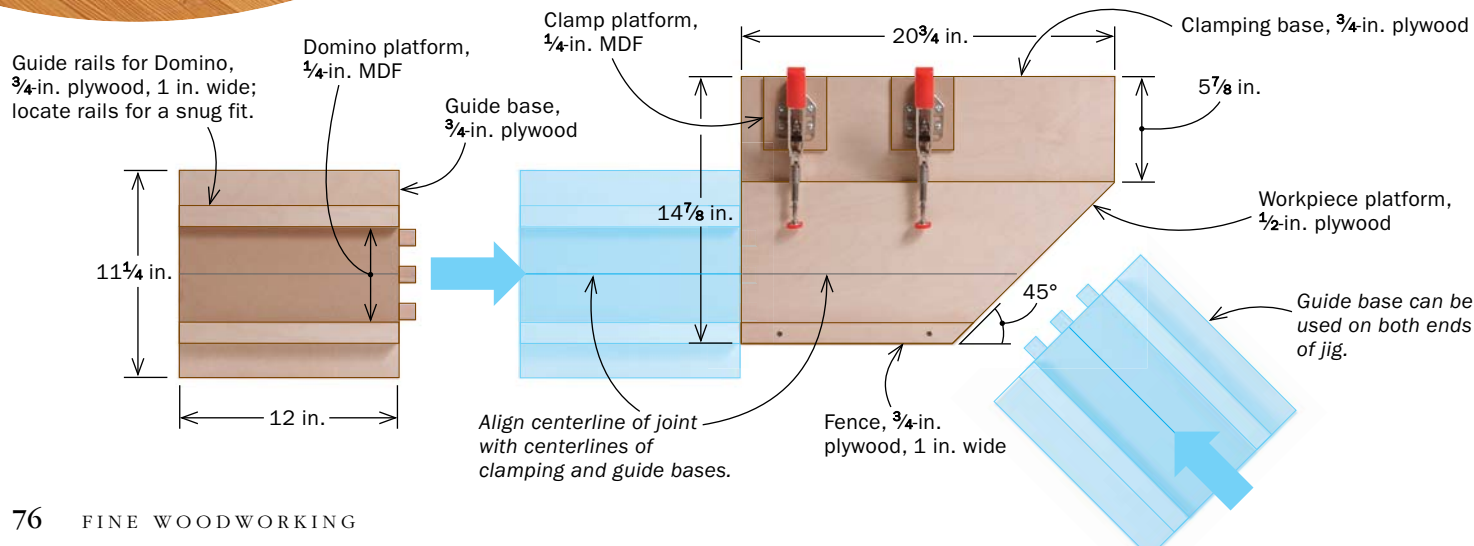
Easy on, easy off. The guide base connects to the clamping base with three dry-fitted Domino slip tenons.

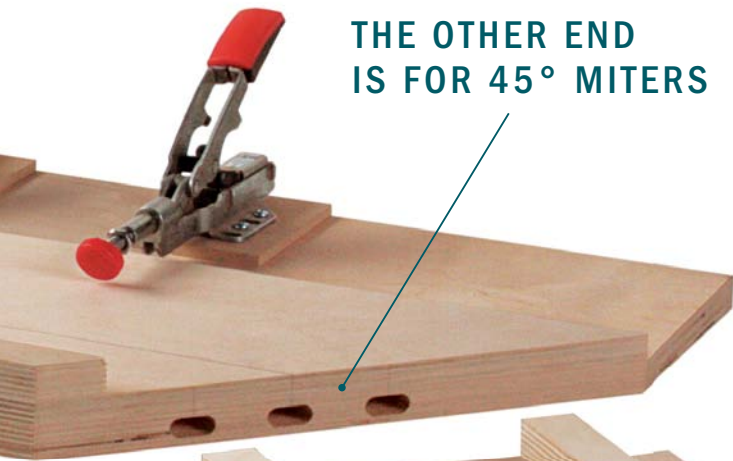


Clamp the workpiece. Add spacer blocks the same thickness as the workpiece, to align the joint's centerline with the jig's centerline.

DOMINO RESTS ON ITS FENCE

The clamping base raises workpieces high enough that the tool floats above the guide base—exactly what you want.





THE OTHER END IS FOR 45° MITERS

Guide base works on both ends. Moving the guide base to the angled end orients the machine correctly for 45° miters (right). From there, the jig works just like it does for workpieces with square ends (opposite page).



Guide base can also attach to right end of clamping base for 45° joints.

Online Extra

To learn how to use the Domino with Imperial measurements, go to FineWoodworking.com/extras.



Domino XL DF 700 cuts mortises that are 8, 10, 12, and 14mm wide, at any depth between 15 and 70mm (in 5mm increments). You can buy Domino slip tenons to fit all of these mortise sizes. And you have to change bits for tenons of different thicknesses.

The Domino DF 500 is great for smaller projects such as face frames, picture frames, and mirror frames. But its big brother, the Domino XL DF 700, is the right choice for most of the mortise-and-tenon joinery a furniture maker cuts on chairs, tables, doors, and cabinets (it can even be used on bigger projects, such as doors for your home). The one downside of the XL DF 700 is that it is not designed to work

with parts thinner than 7/8 in. To accommodate those thin parts, you need to attach a riser block to the fence to bring the bit to the correct location. Regardless of which model you're using, you need to hook it up to a shop vacuum or dust collector. Dominos create a lot of chips quickly. If they aren't pulled out of the mortise, the tool won't cut cleanly. □

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Separate platform for in-between angles

Wedge and go. For angles between 90° and 45°, make a wider guide base and add a floating platform for the Domino. Use wedges to lock the platform in at the correct angle, making sure the centerlines align at the front end.

