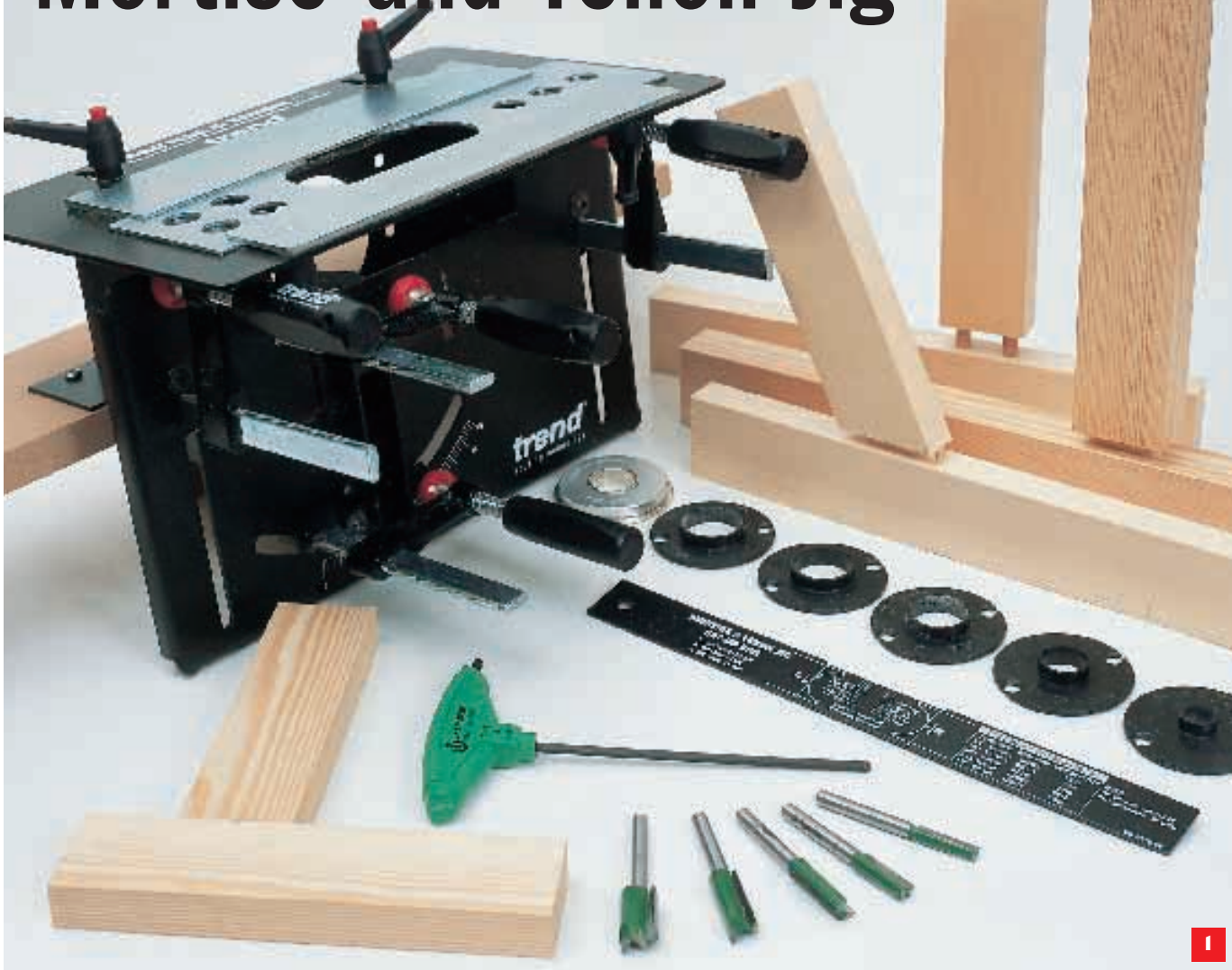


On Test

# Trend

## Mortise and Tenon Jig



**Ron Fox is one of the first to try out Trend's latest new product designed to simplify mortise and tenon joint cutting with the router**

**T**he mortise and tenon joint is one of the oldest and undoubtedly the most frequently used joint in woodworking. There are many versions of the joint and equally many different ways of cutting it. Router users tend to make jigs; one for the mortise and one for the tenon. Trend

have now introduced a jig that cuts both mortise and tenon. Moreover, it cuts both halves of the joint from a single setting of the jig. By setting up to cut the tenon, the jig is automatically set to cut the mortise. This means that the orthodox method of cutting the mortise first and then making the tenon to fit it no longer

applies; it is convenient to cut tenons first.

The capacity of the jig, for orthodox mortise and tenon joints, is timber of  $\frac{1}{2}$ in to 2in thickness and mortise widths of  $\frac{3}{8}$ in to  $\frac{5}{8}$ in. These dimensions are given with approximate metric equivalents on the packaging and give an indication that the jig is of

North American origin. Other unmistakable signs are that all the cutters and guide bushes are in imperial measure and there is an optional set of the American 'Porter Cable' pattern brass guide bushes with screw rings to fasten them.

Photo 1 above shows the components of the jig and its accessories. The instructions



The jig being set up for a tenon

tell you to screw it to the bench, but I mounted the test model on a length of MDF and clamped this to the bench top. Whichever way you do it, the essential thing is that the jig is mounted on a firm, stable surface.

### Tenons

The jig is based on sliding plates with which are used with guide bushes and cutters of different diameters according to the size of the joint. Photo 2 shows it being set up for cutting the tenon. The marked-up workpiece is clamped vertically in the jig, and the two

plates of the template are being set with the special setting bar that comes with the jig. Timber should be marked on its face and clamped in the jig with the face side inwards i.e. against the vertical plate. It is also important that the top plate should be parallel to the sides of the timber when centring. If it is not, mortises and tenons will be cut skew.

All tenons are cut with a  $\frac{5}{16}$ in diameter straight cutter; the various widths of tenon are controlled by the choice of guide bush. The template, with its rounded inner ends, gives a rounded tenon which will fit into the rounded mortise without further handwork. However, the plates of the template can be reversed to give square-ended tenons if desired.

With the jig set up, a guide bush is selected to give a tenon with its width as near as possible equal to one-third the thickness of the workpiece. A chart on the setting-up bar gives the relationship between tenon width and guide-bush diameter. The tenon widths



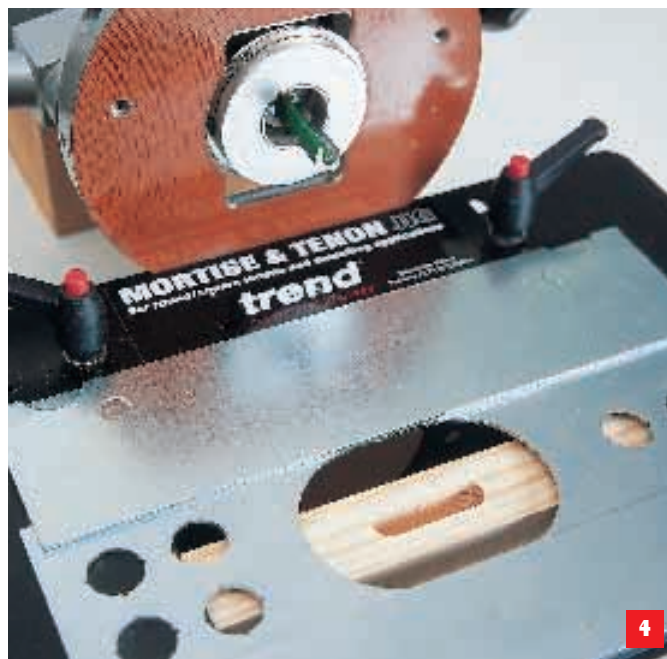
The resulting tenon. Note rounded ends

possible equate to the different diameter mortise cutters.

Five plastic guide bushes and one steel one are supplied as standard with the jig, plus a guide bush collar for cutting the tenons. These are standard Trend-fitting bushes and will attach directly to a wide range of routers, but for non Trend-compatible models the Trend

Unibase or the circular sub-base can be used to adapt the bushes.

With the appropriate guide bush and the  $\frac{5}{16}$ in cutter in the router the tenon is cut in a series of light passes proceeding in a clockwise direction around the template. On the face of it, this breaks the rule of 'anti-clockwise



Mortise being cut

## Further information

Trend 0800 487363  
www.trendmachinery.co.uk

### Prices

MT/JIG £176.19  
Set/MT1 Cutters £46.94  
MT/DUSTKIT £11.69

These are list prices and include VAT.



## On Test



The two halves of the joint, showing the rounded ends of both mortise and tenon

around the outside of the figure' but if you try a test cut in an anti-clockwise direction you are likely to get bad break-out around the edges of the workpiece. It is essential that you keep the guide bush firmly against the edge of the template. If you wander away from the edge you will remove some of the tenon. Photo 3

shows the completed tenon in the jig. Note the rounded ends, ready for the rounded mortise.

### Cutting technique

We found that the best way of cutting the tenon was in a series of light cuts, each cut being set to about 5mm with the stop bar. The cut was plunged into the work with the



A tenon piece being checked for square after 'shooting'

router moving forward - a technique sometimes called 'ramping' - and pushed down to the turret stop without locking the plunge. This gave an easier, cleaner cut than by locking and unlocking the plunge.

### Mortises

To cut the mortise, a cutter of the specified diameter is fitted to the router and the guide bush is changed for the 1in steel bush fitted with the 2½in collar. This collar fits snugly in the template and guides the cutter straight up and down the middle of the workpiece. The plates of the template control the length of mortise without any re-setting after cutting the tenon.

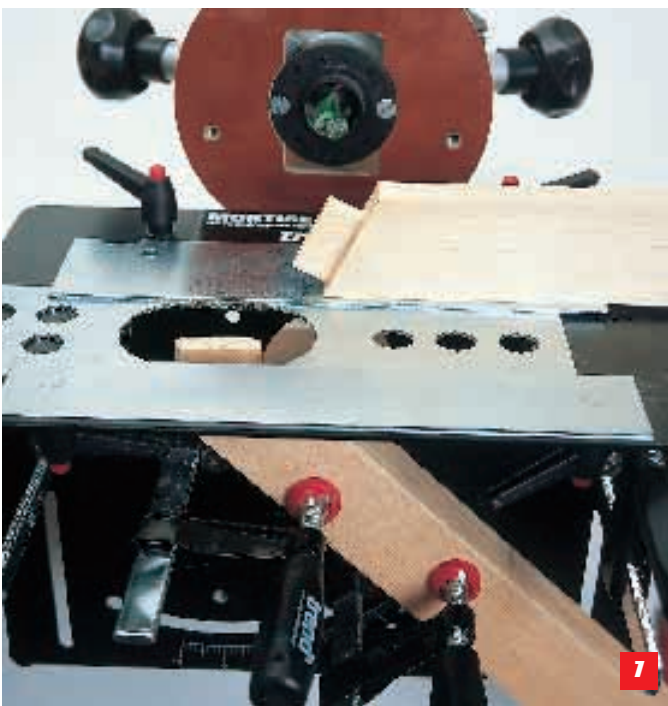
The marked-up workpiece is

clamped horizontally in the jig with the mortise being centred between the template plates. An extra clamping position caters for mortises cut in the end of the workpiece.

The depth of cut is set very slightly deeper than the tenon length and the mortise cut in a series of light passes. It helps if a spare piece of wood is clamped in the vertical clamp tight up under the mortise piece to support the workpiece when the router is plunged.

Photo 4 shows the cutting of the mortise matching the tenon shown in photo 3. The collar on the guide bush is clearly visible.

Photo 5 shows the two halves of the joint, illustrating clearly the rounded ends of both mortise and tenon.



Angled tenons cut in the jig

## Other options

A set of fourteen guides bushes in imperial measure, ranging from ⅜in to 1½in is available as are a number of steel guide bushes sold separately. There is also a set of 'Porter Cable' American-standard brass guide bushes.

Finally there is a dust extraction kit which attaches to the jig and connects to an extractor.

### More on tenons

One useful trick you can play with the jig is to use the router, set up in tenon mode, to 'shoot' the end of the workpiece square and to bring it to exact length. Depth of cut is set to just a millimetre or so and the cutter taken around and across the top of the workpiece, allowing the guide bush to come away from the template. This is a trick I use extensively with the WoodRat and it works nearly as well with the Trend jig.

Photo 6 shows a tenon piece being checked for square after shooting.

Different kinds of tenon can be cut with the jig. Angled tenons are cut by moving the vertical clamp against a printed scale to the required angle. Alternatively the main back plate of the jig can be tilted to give angled tenons in the other plane. A more sophisticated touch is that compound-angle tenons can be cut by setting both the vertical clamp and the tilting back plate. Photo 7 shows

two angled tenons cut with the jig.

The tenon normally produced by the jig is shouldered with rounded ends. Square tenons, both shouldered and plain, can also be produced by the simple expedient of reversing the plates of the template so that the straight ends are on the inside.

Photo 8 shows square tenons cut with the plates reversed. With these, the ends of the mortise are still, of course, rounded. You then have the choice of either squaring the ends of the mortise or rounding the tenon with a rasp or file. Neither of these appeals to me but alternative methods destroy the automatic setting-up for the two halves of the joint.

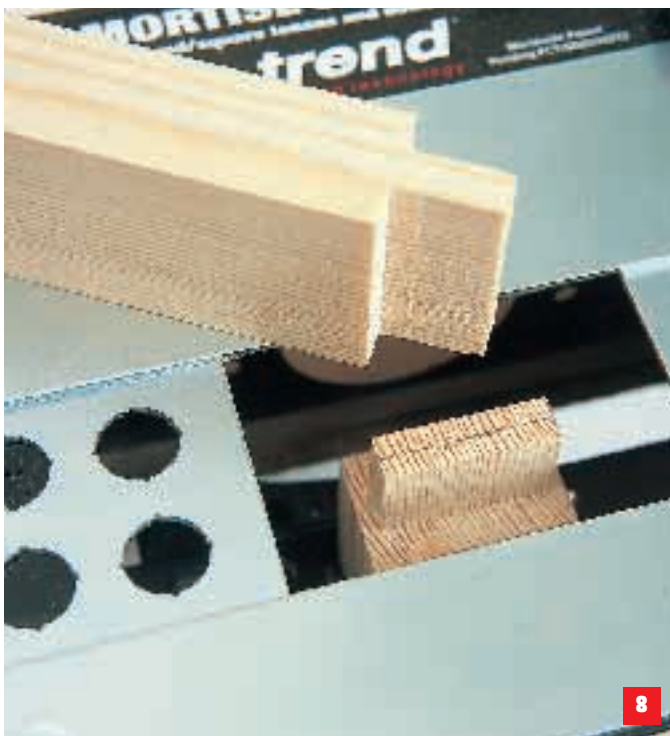
### Dowelling

The jig can make dowelled joints as well as mortises and tenons. Holes in the plates take the  $\frac{5}{16}$ in guide bush supplied. The cutter is chosen to match the diameter of the dowels being used. The workpiece is

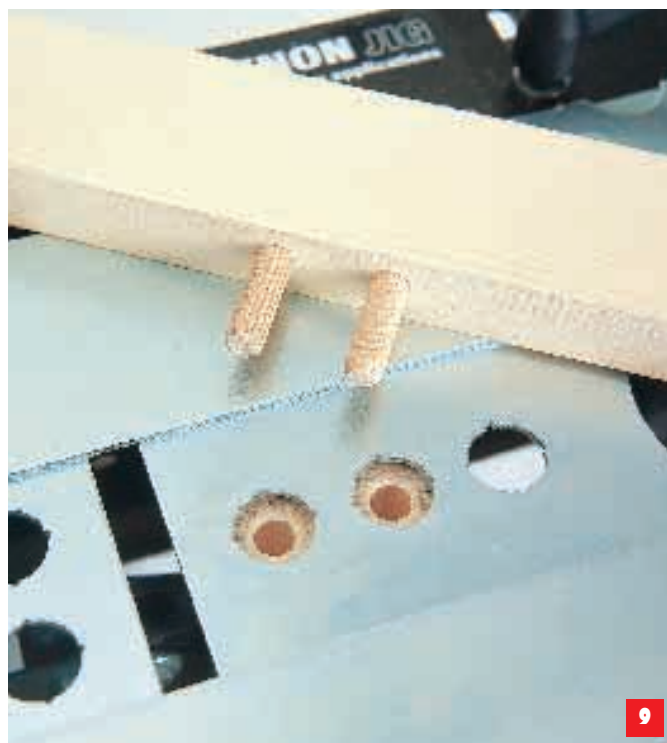
marked up and positioned by means of notches on the holes in the plates. The dowel holes are drilled in a series of plunge cuts with the work held in the same way as for mortises and tenons. Photo 9 shows the vertical component of a dowelled joint clamped in the jig, with the other half of the joint visible on the top plate.

### Cutters

A set of five long-reach straight cutters SET/MT1 is available for use with this jig. Diameters range from  $\frac{1}{4}$ in to  $\frac{5}{8}$ in and the cutters are available on  $\frac{1}{4}$ in or 8mm shanks. If you have suitable sized spiral cutters they would give even better cuts, particularly for mortises and dowels, but would be rather more expensive.



Square tenons cut with the plates reversed



A dowelled joint. The vertical component is clamped in the jig

## The verdict...

This is a jig that can cut a wide range of mortises and tenons with just one setting of the template. As such it will improve both the speed and accuracy of these joints. In particular it will encourage users to try various forms of angled joints e.g. for chairs.

If you have the luxury of two Trend-compatible routers, you can become even more productive by installing one cutter and guide bush in one router for the tenons and another guide bush and cutter in the other for the mortises.

I am not sure how long the plastic guide bushes will last against the sharp edges of the template. If I were going to use this jig a lot - and I would not spend over £200 on it if I were not - I would invest in the steel bushes offered as optional extras.

The ability to make accurate dowelled joints with ease will probably make users of the jig devote more attention to this somewhat neglected joint.