



### What's in the kit

The Trend BeadLOCK jig kit consists of a drill block and an alignment plate, a set of shims, a quantity of pre-moulded birch dowel and a set of instructions.

It's available with a 9.5mm block and matching dowel for [redacted] or with an extra 12.7mm block and both sizes of dowel for [redacted]. Drill bits cost [redacted] for either size. A pack of 3 x 300mm lengths of dowel costs [redacted] and the router cutters for producing your own dowel cost [redacted] for either size.

# 2: Trend's BeadLOCK system



BY RALPH LAUGHTON

**If cutting every joint by hand is your passion, then read no further. This series is about function, not form. For me, cutting joints is the heart of woodworking, and there's nothing I like more than to spend my time hand-cutting a series of good-looking joints. That said, if there is one thing that will send me running for the door, it is the thought of cutting dozens of mortise and tenon joints that aren't going to be seen**

**T**rend's BeadLOCK system is the perfect antidote for the woodworker struck with a bout of mortise-fever. This simple system requires no more than the use of a power drill. It's good for repetitive small to medium joints in relatively small section stock, which makes it ideal for furniture construction and the like. It can also save a lot of time.

## How the system works

You start by marking a single centre line across the face of the joint to indicate the centre of the tenon. Then you clamp the jig to one component of the joint and use the guides to drill three holes into the timber to the required depth.

Next, you reposition the guide block and drill the two intersecting holes to complete the scalloped mortise. Then you repeat the same procedure for the other component of the joint.

To assemble the components you glue in loose tenons, which are pre-shaped to fit the mortises produced by the overlapped holes. Their shaped profile gives the maximum side-grain gluing surface, guaranteeing a very strong joint.

You can buy the tenon material in pre-moulded strips for cutting to length (see What's in the kit, right). Alternatively, you can produce your own using special cutters, which are also available from Trend.

## Tricks of the trade

From my experience of using this system, there are a couple of points that are worth highlighting. BeadLOCK's guide blocks are





**1** Add washers to the knurled knobs to make them easier to tighten



**2** The higher the drill speed, the cleaner the hole; use a sharp drill



**3** Mark the centre of the joint with a sharp pencil and a small square



**4** Align the mark on one piece with the D-shaped cut-out in the jig



**5** Stick fine abrasive paper to the jig to give it a non-slip surface



**6** Clamp the jig in place and drill the first set of holes



**7** Reposition the jig and drill the intersecting holes



**8** Insert the glued tenon, then assemble and cramp the joint

### High-speed drilling

If you're intending to do a lot of this kind of work, it's worth considering investing in a small high-speed drill. These drills usually have a single speed of around 4500rpm - that's about four times the speed of a cordless drill and twice the speed of a conventional corded model.

They have another big advantage over their slower cousins; they're quite a bit smaller. This is a big advantage, as the BeadLOCK guide block is fairly lightweight and can easily be dislodged by the much greater mass of a heavyweight drill, without the operator being aware of it.

held in place on the alignment plate with a pair of knurled knobs. These aren't very large, making it awkward to get a good purchase. The addition of a washer under each knob is a great improvement, **photo 1**.

Another consideration is the drill speed. If you take a look at the rating plate on the side of a typical cordless drill and compare it with the one on a corded drill, you'll see that a cordless drill has a much lower maximum speed.

The faster the drill, the cleaner the cut is going to be, **photo 2**. For this reason, it's always better to use a corded drill set on its highest speed when using any drill-based guide, whether it is the BeadLOCK, a dowel jig or a pocket-hole jig. See the panel for more advice on choosing the best drill for the job.

### Marking out

The two pieces to be joined are brought together and the centre position of the tenon is marked across them both, in much the same way as marking up material for biscuit jointing.

Use a small engineer's square and a finely sharpened hard pencil to make the marks, **photo 3**. Mark the end grain piece first and then, using the marked piece as a guide, mark the position of the second mortise on the edge of the piece. Extend the line using a square.

### Using shims

When fitted to the alignment plate, the guide blocks are designed to centre the mortise on a 19.1mm (¾in) piece of material. Shims



are provided to centre the block on wider material. These shims can also be used to offset the mortise on one part in relation to the other, like the rail of a table being set back from the face of a leg. For use on slightly thinner material, a shim can be applied to the face of the alignment plate. For example, 0.5mm thick shim would centre the jig on 18mm thick material.

### Aligning the jig

The jig, with or without shims, is aligned with the pencil mark through a D-shaped opening in the alignment plate, **photo 4**. Now comes the tricky bit. It has to be clamped securely in place without the clamp pressure moving it out of position. Careful application of the clamp to ensure it is square will help.

The problem is that the jig is quite smooth on the inside, creating a tendency for it to slip – not only when it is being clamped into position, but also as the holes are being drilled. Applying more pressure from the clamp will, more often than not, just compound the problem or may even cause damage to the surface of the wood. A piece of fine grit abrasive paper stuck to the inside of the plate, below the guide block and cut clear of the alignment opening, **photo 5**, will improve the situation.

### Drilling the holes

You can now drill the holes to the required depth with the block set in the first position, **photo 6** – that is, with all the holes clear to drill. You then loosen the block (by undoing the black knobs), slide it across to the stop and retighten the knobs. Now only two holes in the block are accessible, and you can drill holes in these positions too, **photo 7**. The BeadLOCK is then repositioned on the other component of the joint and the process is repeated.

To complete the joint, cut a length of tenon material, just shorter in length than the sum of the two mortises, glue it into the mortises and assemble the joint, **photo 8**. Cramp the joint while the adhesive sets, and the job is done!

### Variations on a theme

For wider material, the tenon can be centred with the use of the shims supplied. Twin (or even triple) tenons can be used when you're joining wider boards. Double tenons are possible, but as the jig would have to be positioned on either side of the material, great care must be exercised to ensure that both pieces of material are exactly the same thickness. This is not best practice and should be avoided.

## Making your own dowel

Buying the tenons in profiled lengths is ideal if you're going to use only a small amount. However, if you get the bug and start using BeadLOCK on a regular basis it's well worth making your own. Trend supply two cutters designed for the purpose – one for the five-rib 9.5mm tenon and another for the heavier three-rib 12.7mm type. The cutters are best used with a powerful router, set up in a router table.

You can make the tenon material from any straight-grained hardwood (Trend use birch for theirs). For the 9.5mm size the stock needs to be cut to 34 x 11mm, and to 31 x 14mm for the 12.7mm size.

As the material is relatively small in cross section, make a push block to feed the strips safely past the cutter and use a featherboard to hold the material in contact with the table; any amount of lifting will ruin the profile.

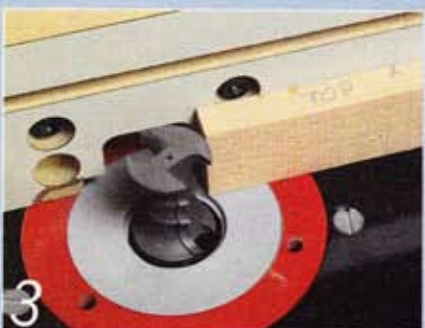
Mark one edge as the top so you can ensure that the strip is run with the same edge in contact with the table each time. Use an existing piece of tenon material from the kit for the initial setting-up. Careful adjustment of the cutter height and position of the fence will fine-tune the profile of the finished tenon material. The fit into the mortise should be firm but not too tight, otherwise the glue will be scraped off as the joint is assembled.



1 Set up the special cutter in a router table



2 Use a piece of kit tenon to set up the router



3 Mark the top of the blank to ensure alignment



4 Reverse the piece to complete the moulding



5 The finished bead, indistinguishable from the original

