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Ron Fox gives us another masterclass with the router

Using your router table for edge jointing

1 A selection of cutters available for the router for edge jointing

One of the most common cabinet and furniture making operations is the joining of a number of boards to make up panels, tabletops, carcass members, etc. These days, it is a job usually done with a biscuit jointer, but it can be done very efficiently with a table-mounted router and one of a number of different cutters. The easiest way, especially if you do not already possess a biscuit jointer, is to install a 4mm slotting cutter and biscuit-joint the boards with the router, but a number of additional cutters are available for edge jointing (see **photo 1**). The main feature of these additional cutters is that they provide a tremendously strong joint by virtue of their long glue line, but some are quite expensive and most require a bit more care in setting up and using. A fine adjuster on the router or table insert plate is a virtual necessity.



2 Selection of slotting cutters suitable for biscuiting

BISCUIT JOINTS

Simple edge-to-edge biscuit joints can be made quickly, easily and accurately on the router table. This is not just a cheap, inferior substitute for a dedicated biscuit jointer – slotting the boards on the table reduces the possibility of misalignment of the slots. With a biscuit jointer and its small fence there is always the possibility of tilting the jointer and slanting the slots. With a 4mm slotting cutter in the table, the boards can be pressed firmly to the tabletop and unless they are cupped or twisted, the slots will be horizontal. Moreover, there is no need for a large table and a heavy-duty router since the biscuit cut is a light one and the cutters are available on 1/4in and 8mm shanks as well as 1/2in (see **photo 2**).

Biscuits do have other advantages for edge jointing, the chief among them being:

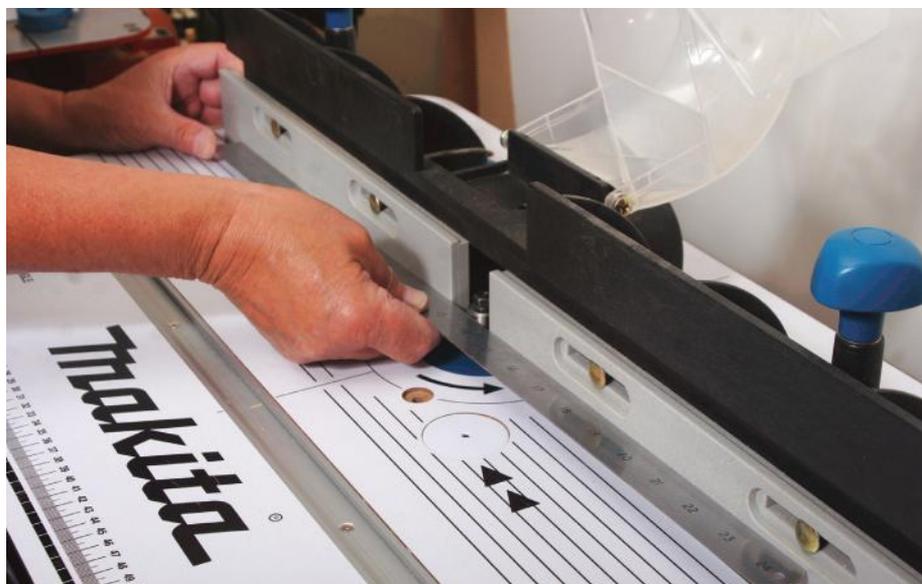
- Set-up is easy and not critical. The aim is to centre the biscuit slot in the thickness of the board, but it does not have to be in the exact centre because you will be working from the face edge of each board and the slots will therefore line up.

- The joint is a strong one since the biscuits, which are made of compressed beech or plywood, swell by up to 20% as they absorb the moisture in PVA glue and expand to give a mechanical, as well as an adhesive, grip.

- The full width of the boards is preserved. This is not always the case with the specialised jointing cutters, some of which take off a little of the edge of each board.



3 Boards being marked for biscuiting



4 A bearing on the Trend biscuit cutter being lined up with the table fence

- If the panel edges are subsequently moulded, the biscuit – with its plain butt joint – gives a cleaner moulding. Some of the fancy edge-jointing cutters have a zigzag glue line that, with some timbers, can look intrusive on a moulded edge.

Making the joint

Mark the boards in pairs for the positions of the biscuits, allowing about 200mm (8in) between centres. Since the slotting cutter will be of smaller diameter than the length of the biscuit, an actual biscuit is used for marking out with an extra 2 or 3mm (5/16+1/8in) allowed at each end (see **photo 3**).

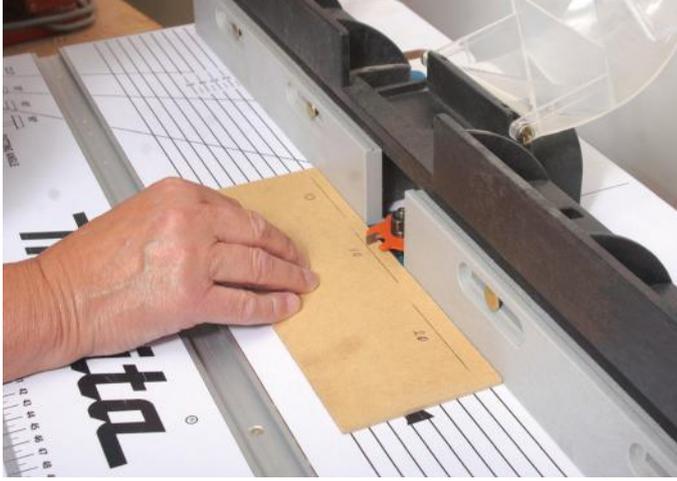
With short boards, at least two biscuits should be used. Remember that if the panel is to be trimmed and/or

moulded, the end biscuits should be set far enough in so as not to be revealed in subsequent machining operations.

The 4mm slotter is assembled on the arbor. Make sure that you have it the right way up, otherwise the blades will be back to front and you'll wonder why it won't cut properly.

If your table fence has adjustable cheeks, close them down to within 1-2mm of the cutter blades.

The depth of the slot now needs to be set. With a router table there is no need to buy a bearing-guided biscuit set, since the table fence is used to set depth of cut, but if you have such a set then use the bearings. Install the appropriate bearing and align its front edge with the table fence, using a straight edge (see **photo 4**).



5 A homemade gauge being used to set the table fence on a non-bearing slotter



6 The cutter being set to the middle of the board



If your router table has a small cutter aperture, or you want to use a small reducing ring to give maximum support to the workpiece, you can install the arbor in the collet and then assemble the cutter, plus bearing if using one, from above the surface of the table.

A non-bearing 4mm slotter is equally easy to use; set the depth of cut for the given biscuit size, with the aid of a simple homemade gauge, consisting of a piece of 4mm ($\frac{5}{32}$ in) MDF with three lines drawn on it, one for each biscuit size (see **photo 5**). The position of these lines can be quickly found by trial and error. The height of the cut is set using a fine height adjuster if you have one, aiming to centre the slot (see **photo 6**).

The table fence is then marked to set the limits of the cut. The right-hand end of the workpiece – the downside of the cut – is then braced against the fence and the workpiece pivoted into the cutter until it is tight against the fence (see **photo 7**). It is then moved to the left i.e. *against* the rotation of the cutter, using the pencil mark as a guide to the limit of the cut.

Keep tight hold of the board, and *do not* cut with the rotation of the cutter i.e. from left to right. If the slot is too short, reposition it on the right-hand mark and try again.

If you are making a largish panel involving a number of boards, and working alone, join them initially in twos or threes, and join the sub panels when the initial joints are dry. If you have an assistant you can glue and butt all the boards in one go.



7 Pivoting the board into the cutter. Note pencil marks on fence. The guard is raised here for photographic clarity

TONGUE AND GROOVE JOINTS

Tongue and groove joints are well known as a method for laying floorboards and making up long panels such as wainscoting. They can also be used in making the frames for panels. Their particular value for flooring and large panels is that they can be clamped tightly together without using glue, allowing a degree of shrinking across the width of the boards without creating gaps. Smaller panels are usually glued together.

The cutters are sold in sets, or as two cutters on an arbor, with both used to cut the tongue and one (reconfigured on the arbor) to cut the groove. Most sets come on $\frac{1}{2}$ in shanks, requiring a $\frac{1}{2}$ in router with variable speed, but a few are available on 8mm shanks. Sets are made for specific groove thicknesses, e.g. 6mm.

Depth of cut for both tongue and groove is controlled by a bearing on the shank. With this joint, the groove is cut first and must be dead centre to avoid steps between mating boards.

The tongue cut is then set by aligning the two cutters with a grooved board (see **photo 8**). Note – you can get away with the groove being off-centre providing you set the tongue cut to exactly match the groove.

The fit of the joint can be adjusted by varying the distance between the two tongue cutters by means of shim washers.



8 Cutting the groove with the cut centred in the board thickness



9 Cutting a reverse glue joint. A completed joint can be seen in the foreground

REVERSE GLUE

Reverse glue joint cutters enable very strong joints to be made. The strength of the joint comes from the long glue line. This cutter is often included in kitchen sets for making up panels for frame/panelled cabinet doors.

The cutter is installed and the fence set so that the smallest diameter of the cutter is exactly in line with the fence face. The cutter is then centred in the thickness of the board and the cuts made with one piece of stock face down and the other piece face up, hence 'reverse' glue joint. The fiddly bits are setting the cutter in relation to the fence and setting it in the exact centre of the board (see **photo 9**).

Note that when setting these cutters according to the instructions, a tiny amount is often shaved off the face of the board. If your table fence has separate infeed and outfeed fences, set the outfeed fence forward by the amount that is shaved off the face of the board. In practice this means setting the outfeed fence forward by a millimetre or so and lining up the smallest diameter of the cutter with the outfeed fence. This will avoid a kick and a blip in the workpiece as it comes off the infeed fence.

Further information:

Trend

Tel: 0800 487363 www.trend-uk.com

Wealden

Tel: 0800 328 4183 www.wealdentool.com



10 The Wealden finger joint cutter, assembled to edge-joint 20mm thick boards

FINGER JOINT

Finger joint usually describes box comb joints, but here, it is used to describe a type of cutter consisting of an arbor, a bearing, and a set of two-wing cutters, plus a broader cutter to allow accurate setting without any risk of feathered edges on the the joint.

The example shown is from Wealden and a maximum of five fingers can be mounted to cut timber or manmade boards between 11 and 36mm thick. The cutter is assembled with the appropriate number of fingers and the broad cutter. The blades of the cutters are staggered on the arbor to spread the cutting load, and the height is set so that the outer cuts are equal. The bearing of the cutter is aligned with the table fence

(see **photo 10**).

This is a versatile jointing cutter, suitable not only for edge joints, but also for corner and end-to-end joints. It is one, however, where the fingers are cut 7mm deep into the edge of the board resulting in a loss of board width as the panel is assembled. You would not be the first to find that your glued-up panel was narrower than intended.

To sum up

The three special sets make tremendously strong joints, but require a bit more application in using (see **photo 11**). For most of my edge jointing, however, e.g. frame/panel doors, I stick to the simplest method – biscuiting with a 4mm slotter in the router. ■



11 Three special joint cutters and joints made with them



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