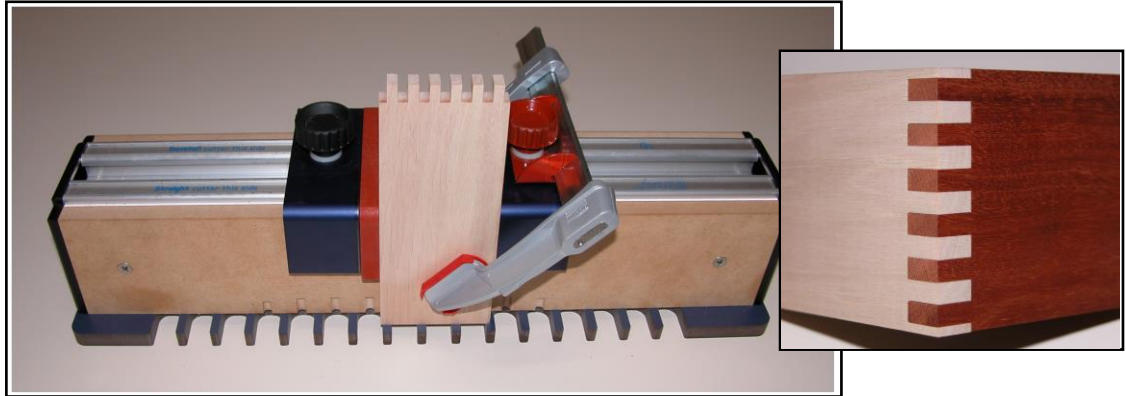


Finger joints



COL HOSIE WOODTURNER PTY LTD

**GIFKINS
DOVETAIL**



Cutting finger joints

Introduction

The F5 template is best suited to timber from 5.0mm to 13mm thick, and the F15 is designed for timber from 13mm up to 22mm.

The fingers on the templates are offset from one side to the other to give edge alignment of the joint. For this to work the two halves of each joint are cut on opposite sides of the jig.

Cutting joints with the F15 template is much the same as with any of the dovetail templates. However, the F5 template is different: it is not possible to cut all the slots in one go as the $\frac{1}{2}$ " bearing on the shank of the cutter is larger than the 5.0mm distance between the slots. In this case the timber is moved sideways and the slots are cut in two positions.

The cutters come with a set of five colour coded sleeves (one on the cutter and four in a plastic bag), which allow the fit of the joint to be adjusted. The sleeves, which are fitted to the bearing on the cutter, can be changed to adjust the finger width in increments of 0.1mm. The shims used to adjust the fit of the joint when using a dovetail template do not influence the fit of the finger joint, so these can be left in place when using the finger joint template.

Timber widths

In these instructions only symmetrical layouts are considered. A symmetrical layout is where the outside fingers of the joint are equal in size. A symmetrical joint can be cut in any width of timber, but if the outside fingers are too narrow there is a danger they will be damaged during assembly. The table below provides a summary of recommendations for various board widths. If a project requires a non-symmetrical layout, any width of timber can be used. Experiment with the layout to get the desired result.

Widths for the F5 template		
Best	Good	Avoid
23 – 24	20 – 24	25 – 29
33 – 34	30 – 34	35 – 39
43 – 44	40 – 44	45 – 49
53 – 54	50 – 54	55 – 59
etc		

Widths for the F15 template		
Best	Good	Avoid
60 – 74	55 – 74	75 – 84
90 – 104	85 – 104	105 – 114
120 – 134	115 – 134	135 – 144
150 – 164	145 – 164	165 – 174
180 – 194	175 – 194	195 – 204
210 – 224	205 – 224	225 – 234
240 – 254	235 – 254	255 – 264
270 – 284	265 – 284	285 – 294
300 – 314	295 – 314	



Photo: 55mm board with 5.0mm fingers top and bottom cut on the F15 template

With any width board there will be two positions that give a symmetrical layout and it doesn't matter which one you start with, as they both give exactly the same results. However it is easier to judge a symmetrical layout when the edges of the board sit over the fingers rather than over the gaps.



Board symmetrical across four fingers



Same board symmetrical across three fingers

Setting the cutter height

With the cutter in the router, set the height of the cutter to the thickness of the template plus the thickness of the work piece. It doesn't hurt if it's a little higher than this, so the joint sits a little proud. Once set, keep this height until both halves of your joint are finished.



Cutting a trial F5 joint

Each half of the F5 joint is cut in two positions. The first position cuts every second slot across the board, with a second position required to cut the in-between slots. For the second position a spacer is used to move the work piece 10mm sideways. The two position process is repeated for each end of each work piece. To ensure consistently accurate results, the work piece and the spacer are held securely between two stops on the jig.

Mark the outside face and the bottom edge of each work piece to avoid confusion later.

1. Whatever width board you are using, start by positioning it symmetrically across the fingers on the template, with the outside face of the finished joint facing away from the jig. It doesn't matter which side of the jig you start on.
2. Position a stop against one side of the work piece and lock it in place.
3. Now place the red 10mm spacer against the other side of the work piece and position the second stop tight up against this red spacer and lock it in place.
4. Clamp the work piece securely to the jig, using two clamps if the work piece is wider than about 120mm.
5. With the F5 spiral cutter in the router, set the height of the cutter to the thickness of the template plus the thickness of the work piece.
6. Turn the router on and run in and out of each finger, making sure you run in one side and out the other to cut away as much wood as possible. It is worth taking these cuts very slowly to get a clean cut without any tear-out. Run over each cut a second time to make sure it is cleaned up properly.
7. Unclamp and move the red spacer over to the other side of the work piece. In effect what we are doing here is moving the work piece accurately 10mm sideways.
8. As before, run in and out to cut slots midway between the first set of slots you have cut. This half of the joint is now finished.
9. To cut the matching half for this joint, change over to the other side of the jig and repeat the steps above. Cut this second piece in two positions as before by swapping the red spacer from side to side. It doesn't matter which position the red spacer is in to start with. This completes the trial joint.

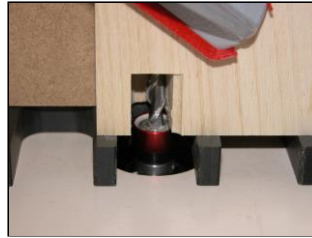
Cutting a trial F15 joint

Each half of the F15 joint is cut in one position, much like the dovetail joints. Mark the outside face and the bottom edge of each work piece.

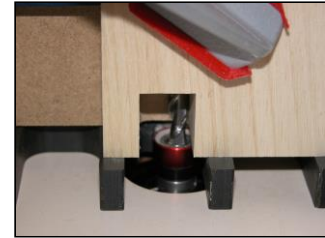
1. With the F15 spiral cutter in the router, set the height of the cutter to the thickness of the template plus the thickness of the work piece.
2. Position the board symmetrically across the fingers on the template, with the outside face of the finished joint facing away from the jig. It doesn't matter which side of the jig you start on.
3. Position the two stops up against either side of the work piece and lock them in place.
4. Clamp the work piece securely to the jig using two clamps if the work piece is wider than about 120mm.
5. Turn the router on and run in and out of each finger. As the cutter diameter is 6.35mm, at least three passes are required to remove the 15mm of material for each slot. To get the cleanest cut, use the following order:
 - Start with a very light cut across the face of the board, from right to left (when looking over the top of the jig), only cutting about 1mm depth. This gives a very clean top to the cut.
 - Make the second cut by running the bearing of the cutter against the right hand finger of the template (right hand when looking over the top of the jig).
 - Make a third cut removing the center section of the slot.
 - Make the final cut to remove the remaining material on the left.



Second cut



Third cut



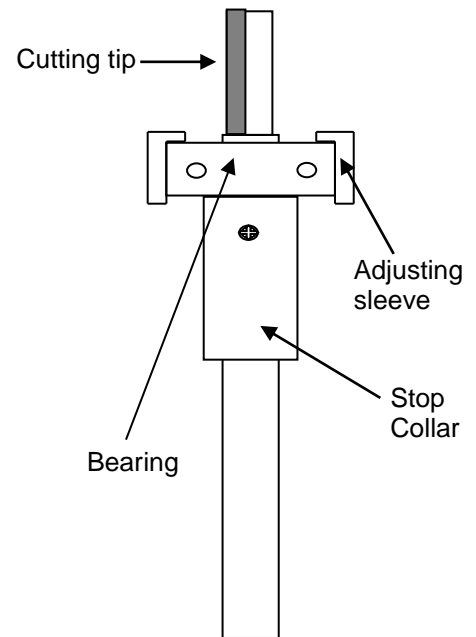
Final cut

6. Repeat these cuts for each finger slot across the board.
7. To cut the matching half for this joint, change over to the other side of the jig and repeat the steps above. This completes the trial joint.

Adjusting the cutter

The first time either template is used it is necessary to cut a trial joint to adjust the fit. Follow the steps under “Cutting a trial joint” above. If the trial joint is too tight, change to a smaller diameter adjusting sleeve. If it is too loose use a larger sleeve. The cutter comes fitted with the middle sized sleeve (red), which should go close to a good fit. The sleeve sizes are:

Colour	Diameter
Blue	14.60mm
Green	14.55mm
Red	14.50mm
Magenta	14.45mm
Gold	14.40mm



Changing sleeves

To change sleeves with the cutter in the router, rest both hands on the table and use a finger from both sides to push the sleeve up. Don't pull the sleeve from above the cutter or you might cut your fingers as they go past the cutter. The sleeves have a very slight lip below the bearing to hold them in place.

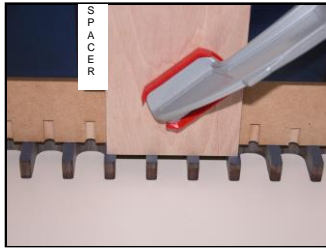
Once you have adjusted the cutter to get a good fit, you should get the same fit every time, no matter what thickness timber you are using.

Sequence of cutting four joints with the F5 template

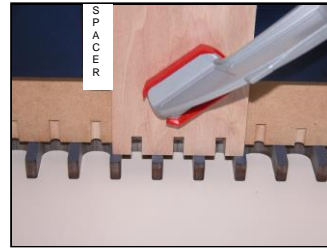
1. Position the timber evenly spaced across the fingers with the outside face away from the jig. Lock a stop against one side. Place the red spacer and then the other stop firmly up against the opposite side and lock the second stop in place.
2. With the height of the cutter set to the thickness of the timber plus the thickness of the template, cut slots between each finger on the template.
3. Move the timber 10mm sideways by swapping the red spacer from one side to the other.
4. Cut slots between each finger as before.
5. Follow steps 1 to 4 for the other end of this board, and exactly the same procedure for both ends of the opposite side of the box. We now have the first half of each of the four joints finished.
6. For the matching halves of these four joints, we work on the other side of the jig. Note that the timber does not sit symmetrically across the template fingers. It doesn't matter whether the red spacer is on the left hand or right hand side to begin with.

7. Using the same cutter at the same height setting as before, cut slots between each finger on the template.
8. Move the timber 10mm sideways by swapping the red spacer from one side to the other.
9. Cut slots between each finger as before. This completes the second half of one joint.
10. Follow steps 6 to 9 for the other end of this board, and exactly the same procedure for both ends of the opposite side of the box.

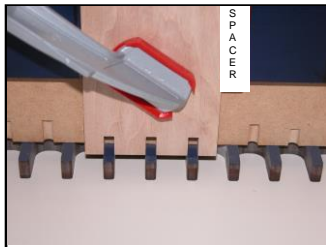
This completes the four joints for the box. Note the 10mm spacer moves from side to side in the photos below:



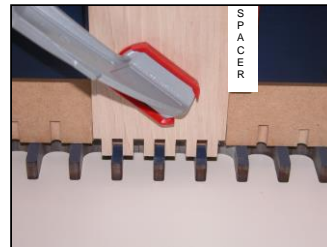
Step 1



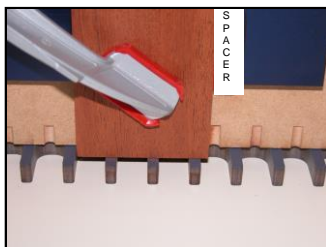
Step 2



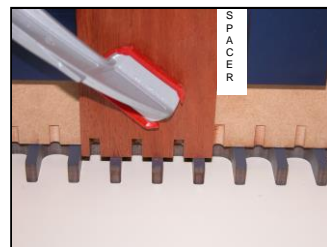
Step 3



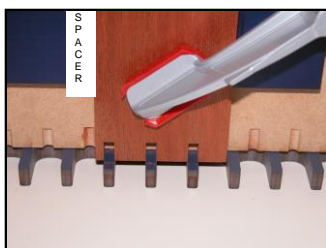
Step 4



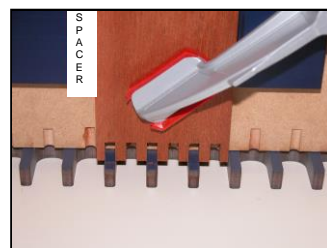
Step 6



Step 7



Step 8



Step 9

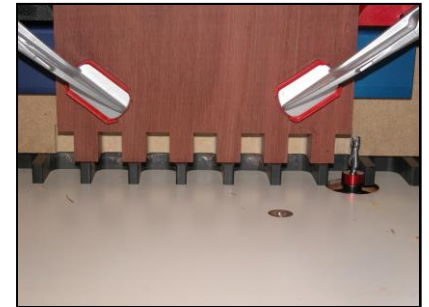
Sequence of cutting four joints with the F15 template

1. Position the timber evenly spaced across the fingers with the outside face away from the jig. Lock the two stops firmly up against either edge of the work piece.
2. With the height of the cutter set to the thickness of the timber plus the thickness of the template, cut slots between each finger on the template.
3. Follow steps 1 and 2 for the other end of this board, and exactly the same procedure for both ends of the opposite side of the box. We now have the first half of each of the four joints finished.
4. The matching halves of these four joints are cut on the other side of the jig. If the timber is well prepared it should not be necessary to move either stop.
5. With the cutter still set to the same height as before, cut slots between each finger on the template. This completes the second half of one joint.
6. Repeat step 5 with the other end of this board, and exactly the same procedure for both ends of the opposite side of the box.

This completes the four finger joints for the box.



Step 2



Step 5

Removing the waste on the F15 template

As noted above, the F15 slots are cut in three passes, and it is easy to miss a bit and leave a thin sliver of wood, especially towards the back of the cut. Before unclamping the work, check that you have cleaned up all the waste in the middle of each slot.



Waste not fully removed in right hand cut.

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