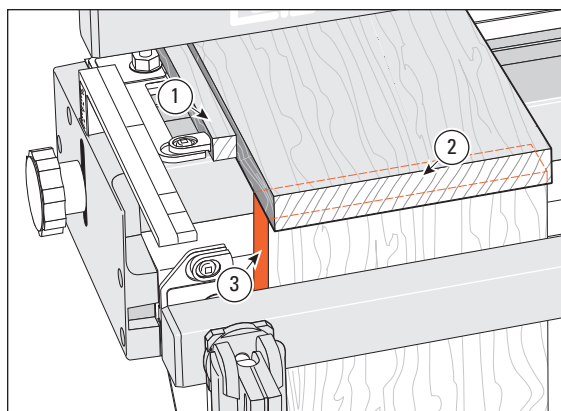
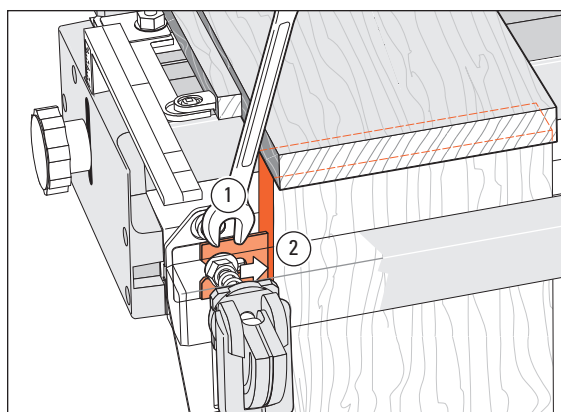


Operations Procedures For Tenons

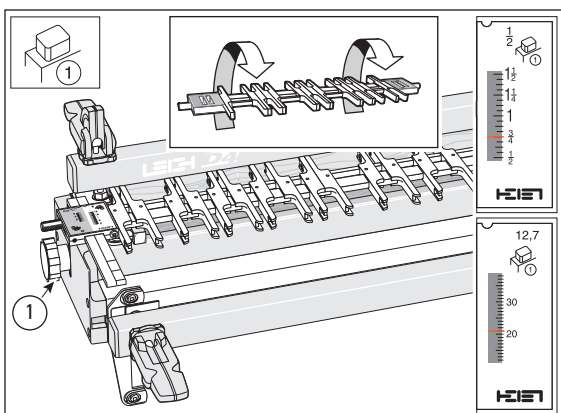
**9-1**


Remove the mortise fence and the finger assembly. Clamp a straight sided board in the rear clamp, touching against the mortise block/side stop ①, and the front edge overhanging the jig front ②.

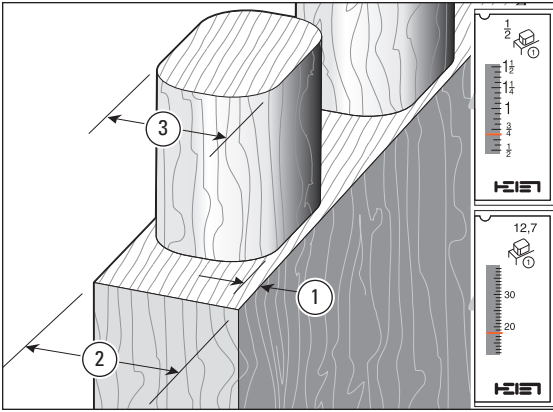
Place another straight sided board in the front clamp and position it so that the top left corner is perfectly flush with the side edge of the horizontal board ③ and clamp it in place. Double check that the side edges are flush at ③ and leave both boards in place.

**9-2**

Slightly loosen the left hand clamp bolt nut ① (this will not loosen the board) and slide the side stop extension to touch flush and square to the edge of the vertical board ②. Hold it in position and tighten the nut. Remove both boards.

**9-3**

Rotate the finger assembly toward you 180° and replace it on the support brackets in the 1/2" [12,7mm]  tenon mode. The scale setting is not important for now. Fit the jig spacer board in the rear clamp, under the finger assembly. Lower the fingers flush onto the board and tighten the support bracket knobs ①.

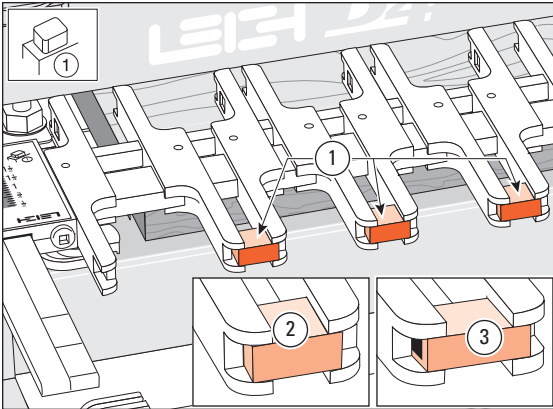
**9-4**

For a crisp appearance, shoulder the tenons slightly ①. For corrected scale reading, use this formula:

$$\text{Tenon Board Thickness } \textcircled{2} \\ + \text{Mortise Height } \textcircled{3} \\ \div 2 = \text{Tenon Scale Setting}$$

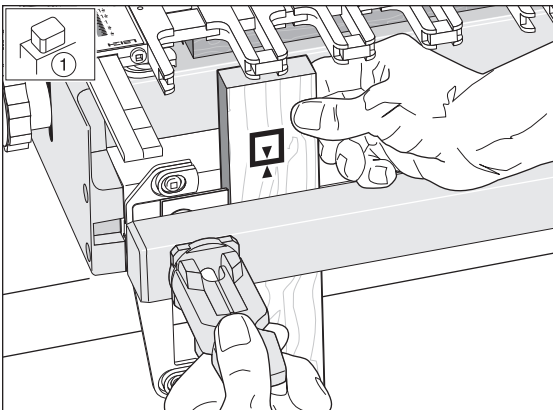
Example: $(\frac{3}{4}"[20\text{mm}] + \frac{5}{8}"[16\text{mm}]) \div 2 = \frac{11}{16}"[18\text{mm}]$

Set $\frac{1}{2}"[12,7\text{mm}]$ ① tenon scale on $\frac{11}{16}"[18\text{mm}]$ or on your actual calculated setting.

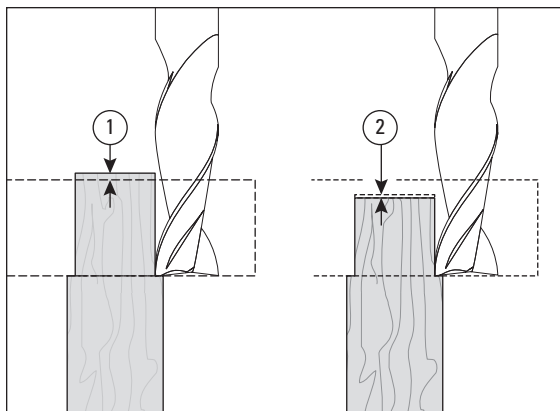
**9-5**

Fit tenon bridge pieces ① where there are gaps between the tenon guides (just like half-blind dovetail tails). To make bridge pieces, use a strip of $\frac{1}{4}"[6,35\text{mm}]$ by $\frac{1}{2}"[12,7\text{mm}]$ hardwood such as maple. Fit short pieces in the slots on the inside finger faces ②. Ensure a tight sliding fit on the $\frac{1}{4}"[6,35\text{mm}]$ dimension only.

D4R and D4R Pro owners may use the plastic bridge material ③ supplied with that jig.

**9-6**

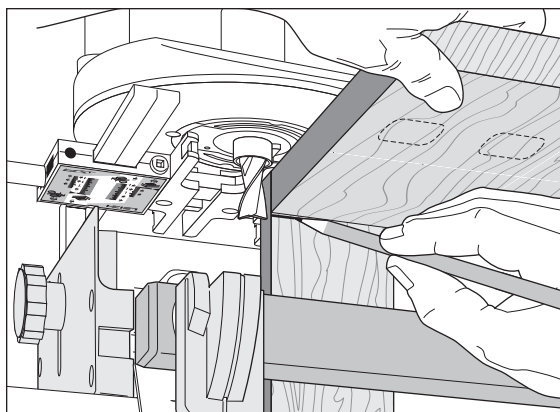
Fit a narrow test piece, **exactly the same thickness as the workpiece**, vertically in the front clamp under a pair of tenon guides. It does not have to be touching the side stop extension for this “fit test”.

**9-7**

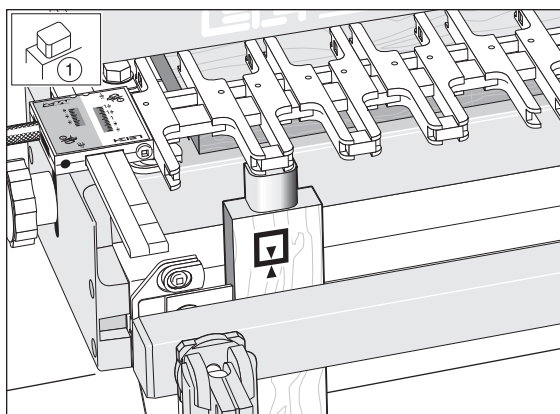
Always adjust and check for correct depth of cut.

Through tenons should be cut to project slightly through the mortises to allow for cleanup ①.

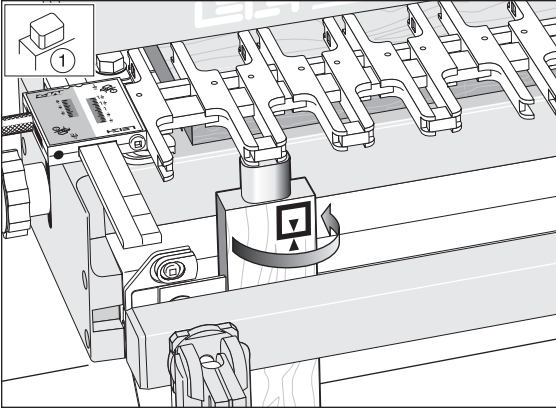
Tenon depth for blind mortises should be cut slightly less than than the mortises to ensure clearance during assembly ②.

**9-8**

For through tenons, use the mortise board to mark its thickness onto the test board. Lower the cutter depth to suit.

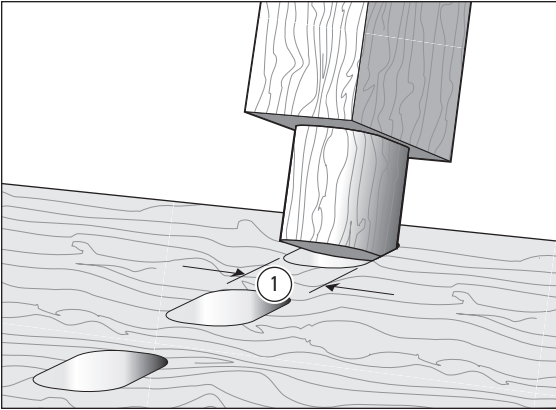
**9-9**


Rout around the tenon guides and bridge piece to cut the first part of the tenon.

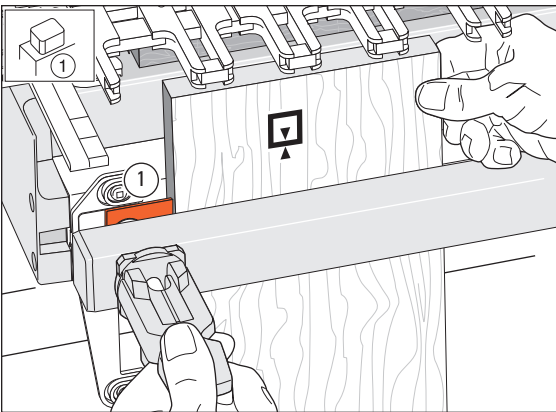
**9-10**


Remove the test piece and turn it 180° under the same tenon guide and re-clip. **Side to side alignment is not critical, you are only testing tenon height.**

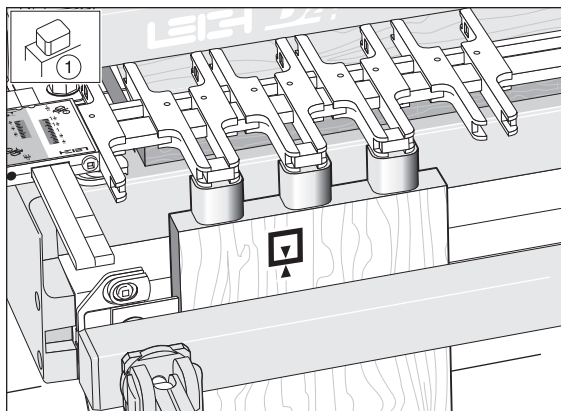
Rout the other half of the test tenon.

**9-11**

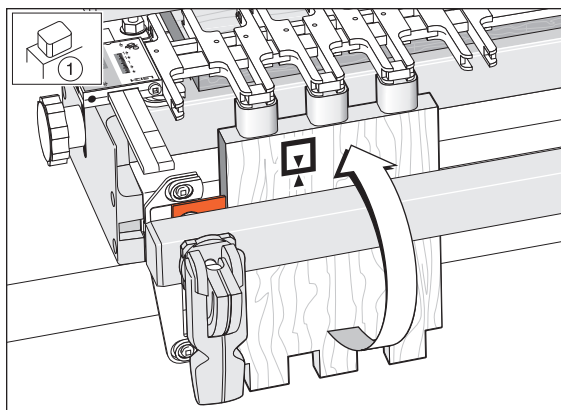
Try the test tenon in a mortise to test tenon height ①. If tenon height is *loose*, move the finger assembly out (towards the operator) by half the difference, e.g., if the tenon height is $\frac{1}{32}$ " [1mm] loose, move the finger assembly out by $\frac{1}{64}$ " [0,5mm]. If *too tight*, move the finger assembly in (away from operator) by half the difference. Cut other test tenons as required to achieve the desired fit. Record the $\frac{1}{2}$ " [12,7mm]  tenon scale setting and leave it in position.

**9-12**

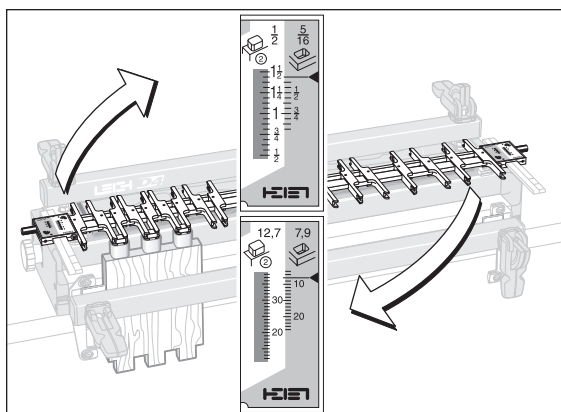
Fit the tenon workpiece in the front clamp at the left hand end, it can be either face in or out . It should lightly touch the underside of the guide fingers and the left hand side stop extension ①.



**9-13**

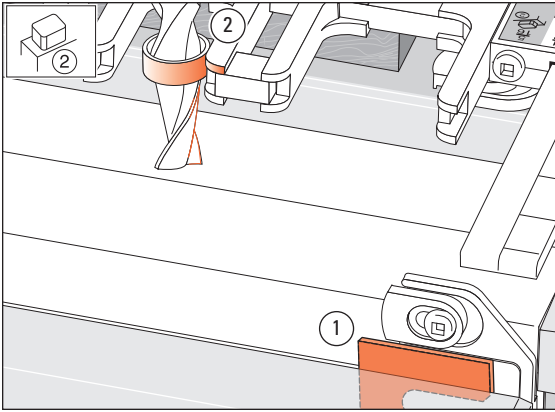
Rout the first half of the tenons.

**9-14**

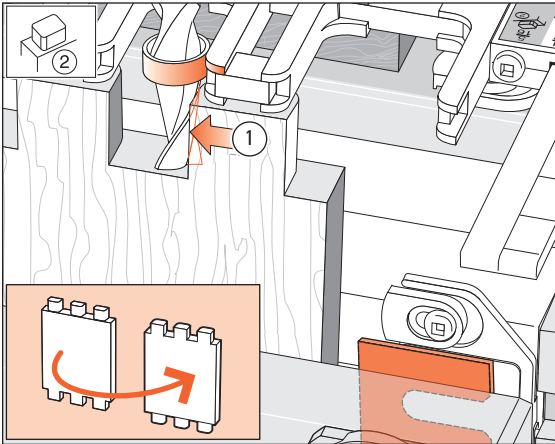
Flip the board end for end, keeping the same board edge to the side stop extension. Rout the first half of tenons at the opposite end of the board under the same guide fingers. Repeat with all similar tenon boards. **IMPORTANT:** Rout an extra scrap tenon board of the same thickness but not necessarily the same length or width.

**9-15**

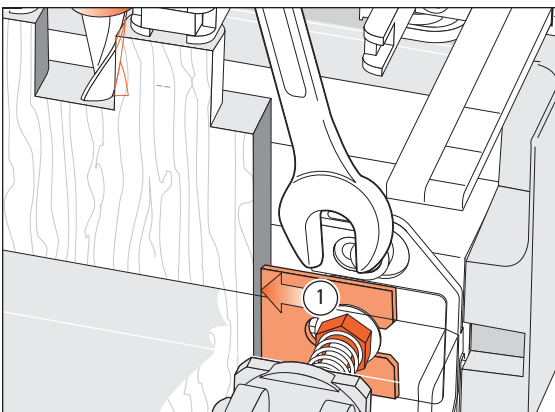
Make sure you noted the scale setting. Remove the finger assembly and flip it end for end to the $\frac{1}{2}$ " [12,7mm]  tenon mode. Set it on exactly the same recorded position as for the $\frac{1}{2}$ " [12,7mm]  tenon mode.

**9-16**

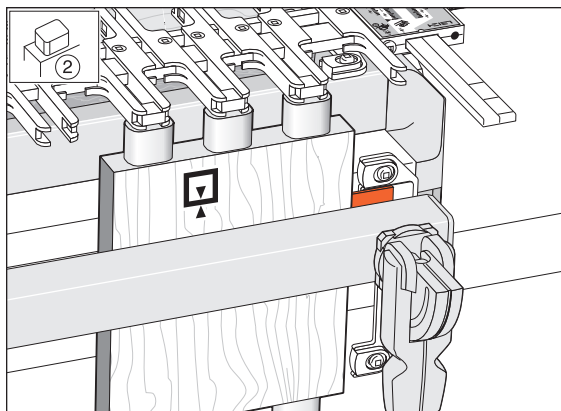
You now need to set the right hand side stop extension-①. First, place the router (unplugged) onto the finger assembly, with the cutter plunged and the guidebush contacting the side of a guidefinger-②.

**9-17**

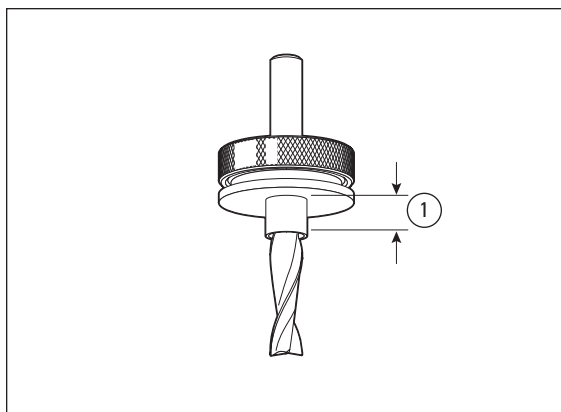
Remove the scrap tenon board. Turn it to the right hand end of the jig, like turning the page of a book, and position it under the guides with a tenon lightly touching the cutter-①. Making sure that the guidebush maintains contact with the finger and the tenon with the cutter; clamp the workpiece.

**9-18**

Now loosen the right hand clamp bolt nut and slide the side stop extension out to touch flush and square to the edge of the tenon board-①. Hold it in position and tighten the nut.

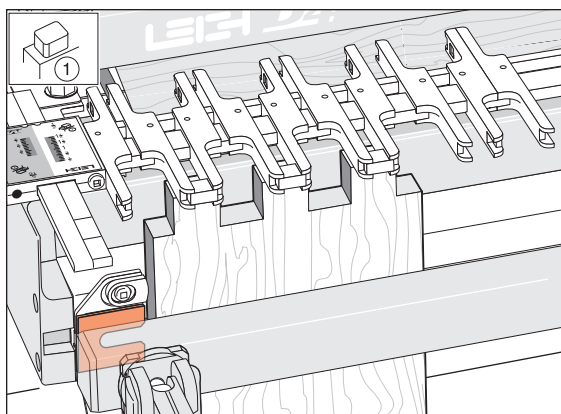
**9-19**

Route one end of the scrap tenon board and test for accuracy. Repeat the sidestop extension adjustment if necessary. Finish routing the scrap tenons and test for fit. If necessary, make final adjustments for tenon height before routing the second half of all tenons.



**9-20**

Procedures are identical for $\frac{5}{16}$ " [7,9mm] cutter and scales in the $\frac{5}{16}$ " [7,9mm] modes.

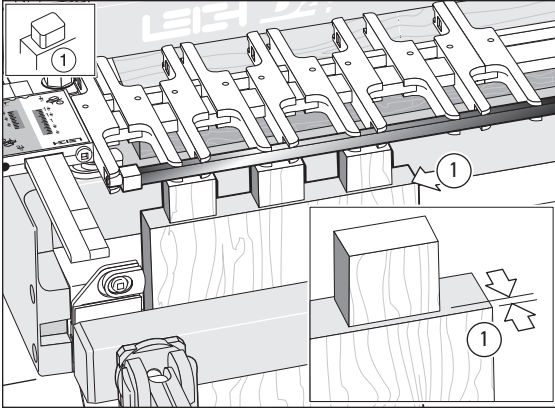
Make sure to check the length of the $\frac{7}{16}$ " OD guidebush-①. This should not exceed $\frac{1}{4}$ " [6,5mm].

**9-21 Square Cornered Tenons**

Note: Because square tenons are all routed at one end of the jig, sidestop extensions are not required.

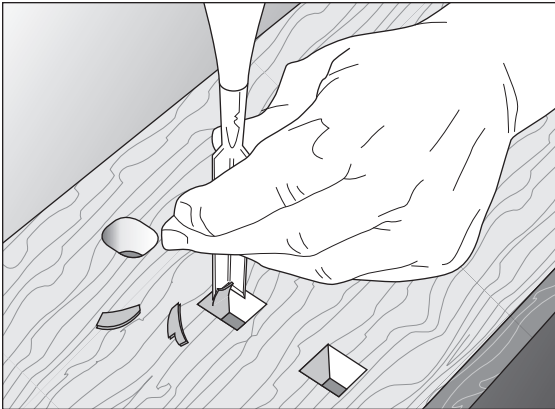
If square tenons are required, always use the $\frac{1}{2}$ " [12,7mm]  tenon mode. Simply move the finger assembly out to the highest  tenon setting to ensure straight-sided tenons. The mortise height will either have to be the same as the tenon board thickness, or...

Chapter 9 *M2 User Guide*



9-22

...remove the bridge pieces and use the dovetail jig cross cut bar to shoulder the square tenons-①.



9-23

Mortises for square tenons will have to be chopped square in the corners – a simple matter with a good corner chisel.