Before starting, watch the Instructional Video

Scan the QR Code to stream to your tablet or smart phone, or view it in the support section at Leightools.com

Scan QR Code

Workpiece and Joint Options

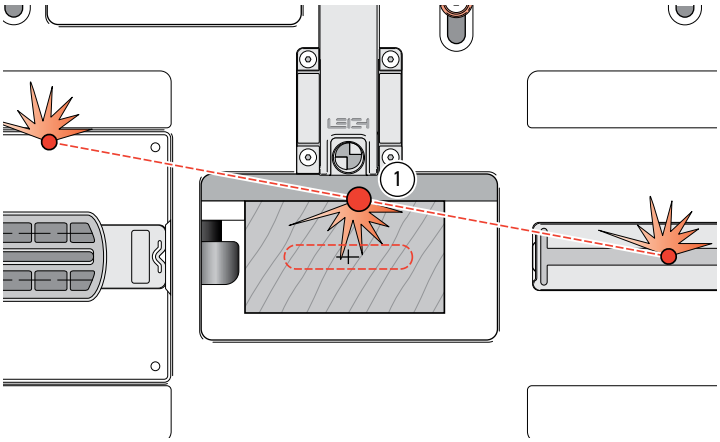
Different Workpiece Thicknesses
Longer and Shorter Joints
Thicker and Wider Boards

Before using your Leigh FMT Pro you must have completed all of the preparatory steps including reading the router safety recommendations on the previous pages. If you haven't done so, it is essential that you do it now.

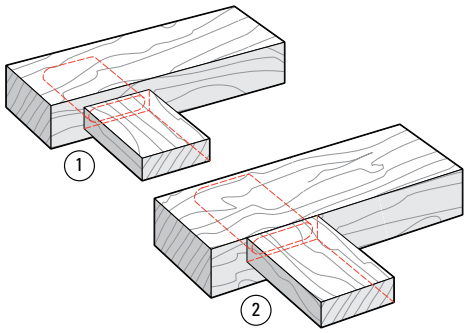
⚠ IMPORTANT SAFETY NOTE

Take great care to not "trap" the bit against the side of tenon rails ①. **Do not attempt to rout center tenons in rails thicker than 1 5/16"[34mm] before referring to 5-39 through 5-44.**

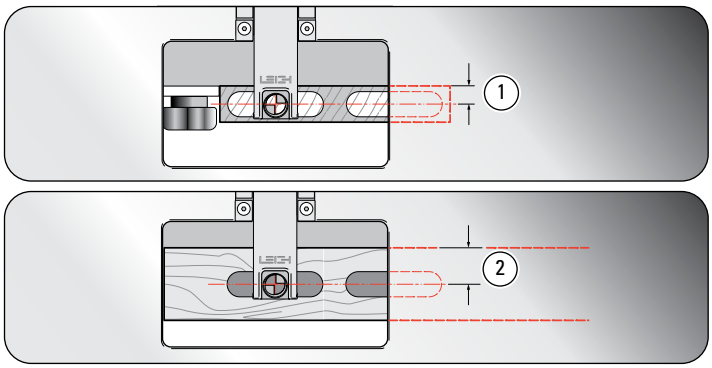
Without using the table movement as prescribed, the bit would have to be plunged into the side of the tenon rail causing the bit to powerfully "drive" the router across the jig. **This could be dangerous and can damage the jig.**



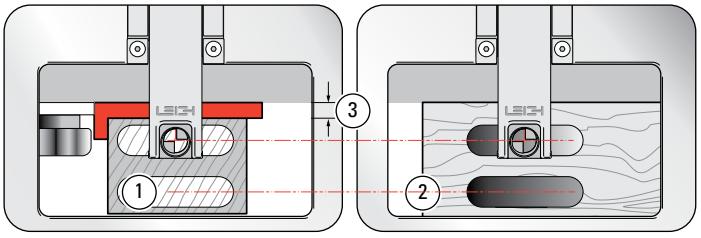
Different Workpiece Thicknesses



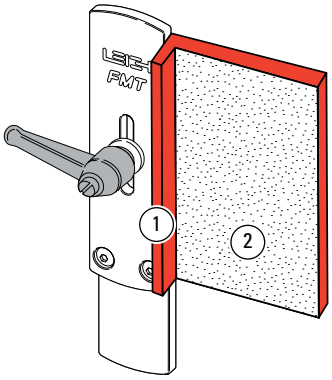
6-1 So far we have only illustrated joints where the mortise and tenon workpieces are the same thickness. There will be numerous times when this is not the case, as in where the tenon piece is thinner and centered on the mortise board ①, and where the tenon piece is deliberately off-center on the mortise piece ②.



6-2 Single or double (in-line) mortise and tenons are straight forward. Simply mount and sight and rout all the tenons as shown before ①, then mount and re-sight the mortises at the desired front-back position before routing ②.

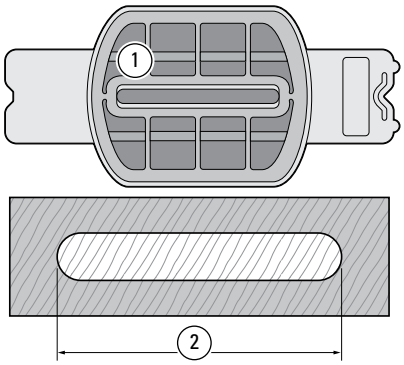


6-3 Side-by-side double and quadruple joints of different stock thicknesses require a packing piece (see 6-4) between the clamp plate and tenon piece, the thickness equal to the offset of the two pieces. For example, a 2"[50mm] tenon piece ① centered on a 3"[75mm] mortise piece ② will require a ½"[12,5mm] packing piece ③. ⚠ **Never attempt to achieve this alignment by re-sighting the joint and resetting the FB limit stops. That would make it impossible to guarantee twin-tenon to mortise alignment.**

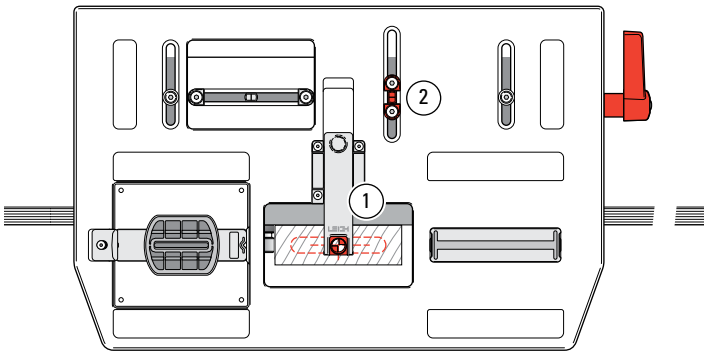


6-4 This packing piece should include its own side-stop fence ① and if required frequently, should have sandpaper glued onto its outer surface for secure workpiece clamping ②.
Sight and rout the tenons in the usual way with the packing piece in place. Then, remove the packing piece before sighting and routing the mortises. ■

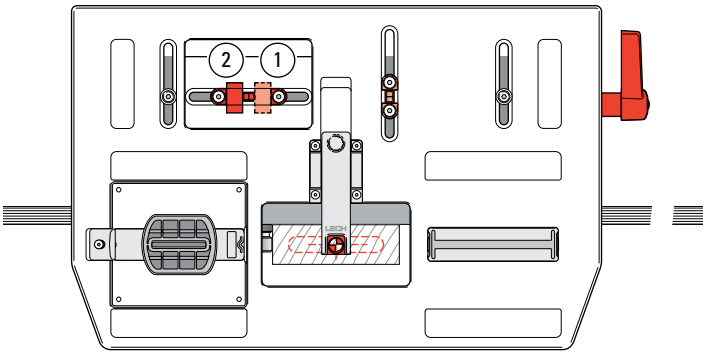
Longer and Shorter Joints



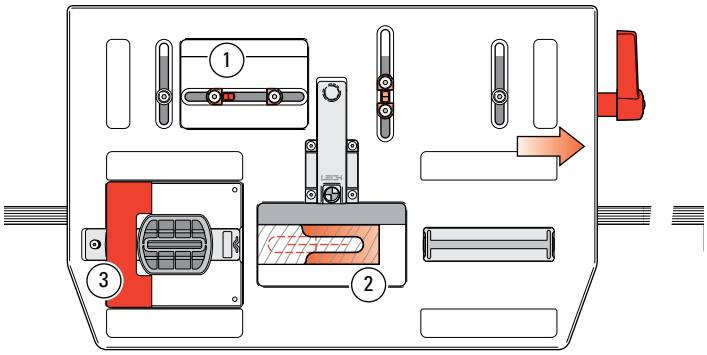
6-5 The FMT Pro table movement allows for easy routing of odd-sized joints. For example, you may want to rout a 3"[75mm] joint ② and you only have a 2"[50mm] guide ①. Use this simple formula: **Joint, minus Guide, divided by 2.**
Example: 3" - 2" ÷ 2 = ½"[75 - 50 ÷ 2 = 12,5mm]
Cut a small block equal to the result; in this example, ½"[12,5mm].



6-6 Tenons Mark the center as before.
Position and sight the tenon ①, and lock the table.
Set the FB stops against the post ②.

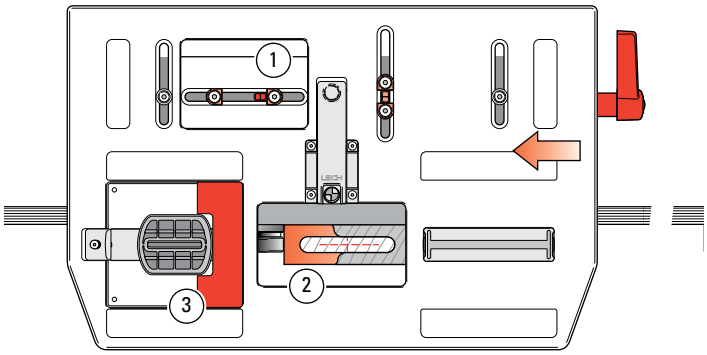


6-7 Set the LR stops one at a time with the small block between the stops and post ①②. This ensures that the table movement is centered about the joint center-mark on the stock. Remove the block, **but save it**.

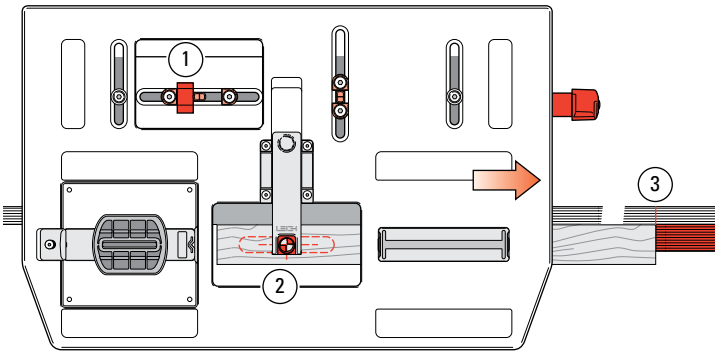


6-8 To rout the wider tenon:
- Move the table **right**, to the stop ①.
- Rout the **right-hand** end of the tenon ②.

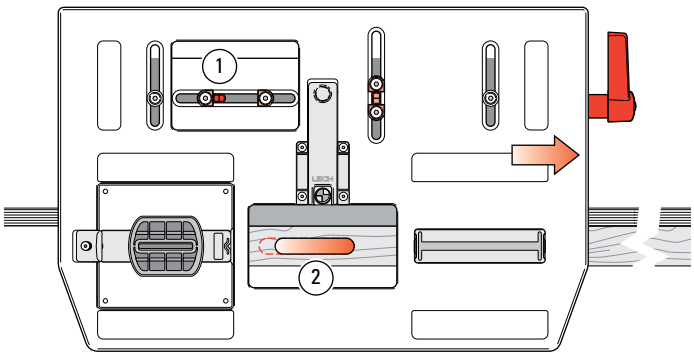
Use a guard in the left end of the guide recess if necessary ③.



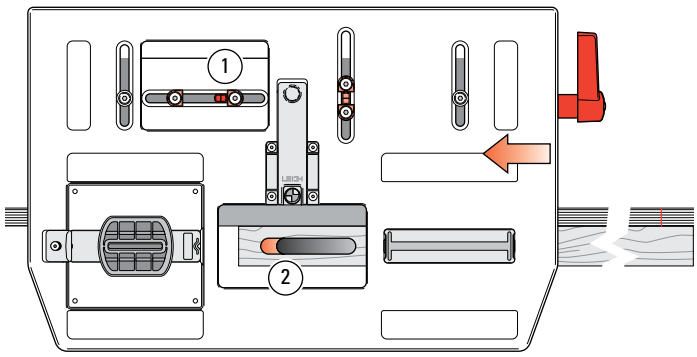
6-9 - Move the table **left** to the stop ①.
- Rout the **left-hand** end of the tenon ②.
If you're using a "guard", flip it to the right end of the recess ③.
- Repeat for all required tenons.



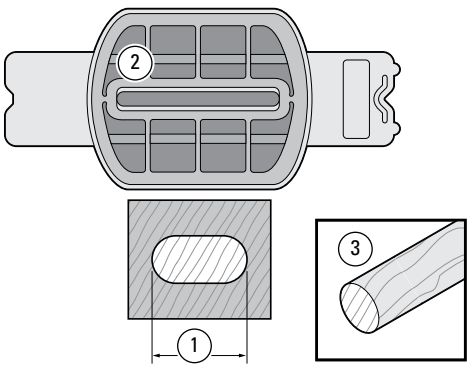
6-10 Mortises Release the table clamp. Use the small block between one stop and the stop post ① and lock the table clamp. Center a mortise piece under the sight and clamp ②. Set side-stop blocks or marks on the outriggers ③.



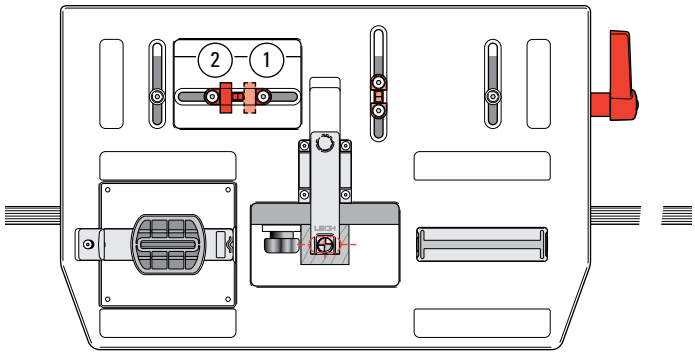
6-11 Move the table **right** to the stop ①. Rout the **right-hand** end of the mortise ②, using the full length of the mortise guide.



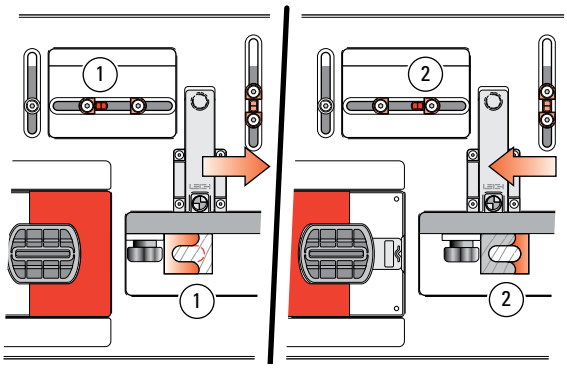
6-12 Move the table **left** to its stop ①. Rout the **left-hand** end of the mortise ②. Repeat for all required mortises.
So to recap; for joints **longer** than the guides:
-move the table right and rout right,
-move the table left and rout left.



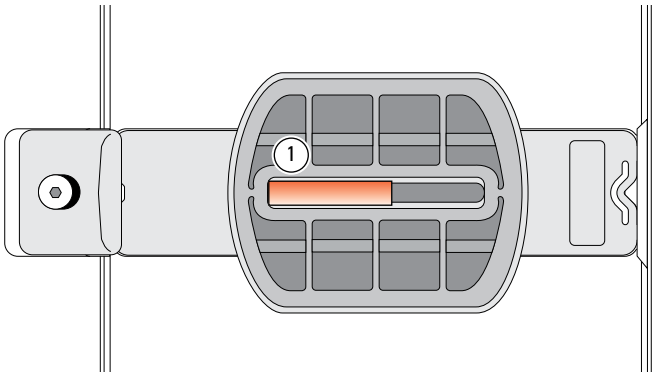
6-13 For mortises and tenons shorter than the guide, reverse the calculation: **Guide, minus Joint, divided by 2.**
Example: you may want a 1"[25mm] joint ① using 2"[50mm] guide ②.
So, 2" - 1" ÷ 2 = ½ [50mm - 25mm ÷ 2 = 12,5mm].
Make a block ½"[12,5mm]. **You will also need a short length of 3⁄16"[5mm] dowel** ③ to act as a guard when routing the mortises.



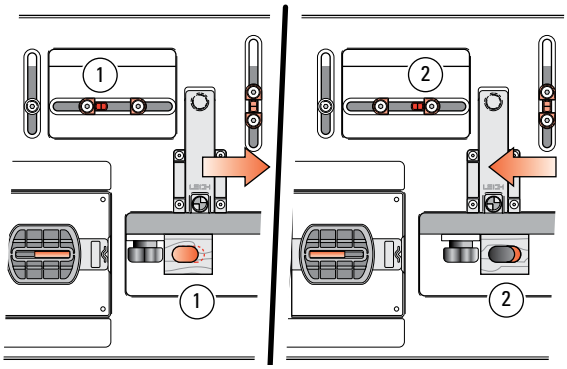
6-14 Tenons Setting the block and limit stops for the shorter tenons procedure ①② is exactly the same as for longer tenons setup, **except when you come to rout**.



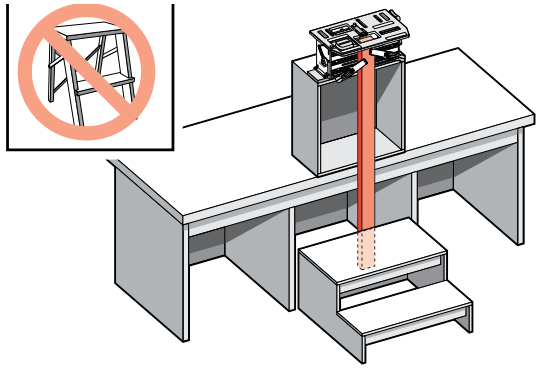
6-15 Then it is:
-Move table **right**; rout to the **left** ①.
-Move table **left**; rout to the **right** ②.
Again, use a guard in the guide recess if necessary.



6-16 Mortises The rule is the same for mortises except you will need to use a small piece of that 3⁄16"[5mm] dowel as a guard in the guide's mortise slot ①. The dowel should be slightly longer than the difference between the guide length and joint length; in this example, slightly longer than 1"[25mm]. In this example, the joint is only 1" long and the guide mortise slot is 2". So you need a guard dowel to prevent cutting a mortise longer than required.

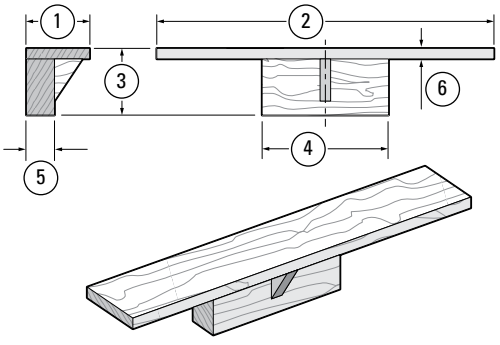


6-17 So, for the shorter mortises:
Table **right**; dowel **right**; rout **left** side ①.
Table **left**; dowel **left**; rout **right** side ②.
The length of the dowel guard allows you to rout a mortise slightly shorter than required in the first cut and to clean out in the second cut.



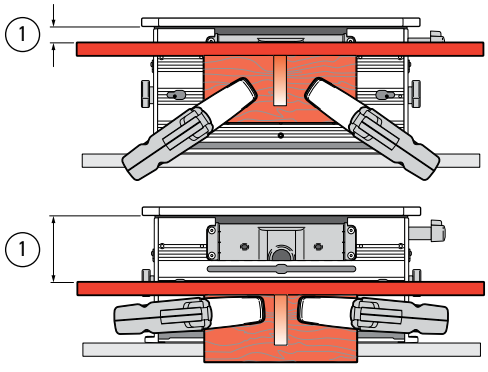
6-18 To rout long vertical boards you could build a jig stand to mount on your bench. Make the stand/bench combination high enough to accept the desired board length. *Bolt securely to the bench.* Make a stable platform as shown here to stand on. **Don't use a folding step, these are unstable.** Other novel solutions: holes in (suspended) floor; jig bolted to deck or mezzanine railing; wall brackets. ■

Thicker and Wider Boards

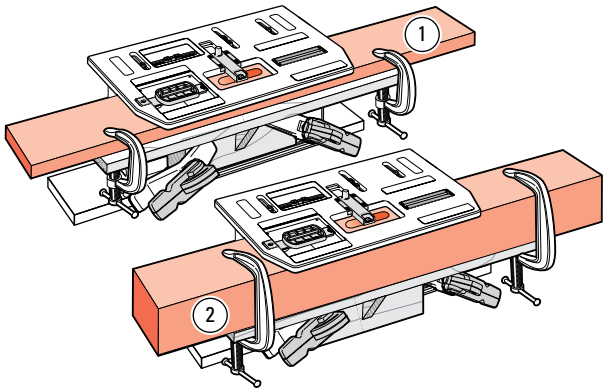


6-19 Make this bracket to mount and mortise a wide board face, clamp pieces greater than Leigh Clamp 3" capacity, and center mortises on boards up to 4⅝"[115mm] wide or even 6⅜"[162mm].

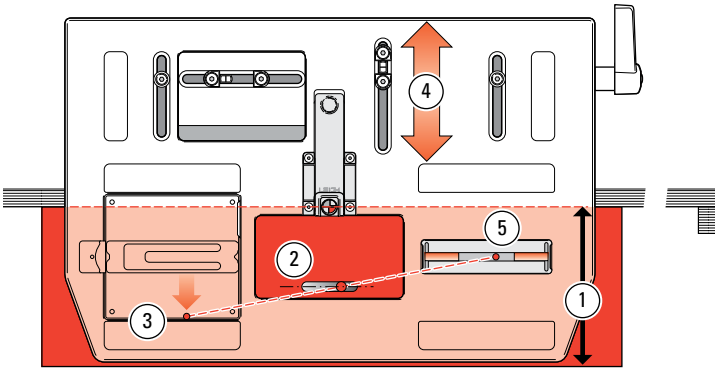
① 4½"[115mm] ③ 4¾"[120mm] ⑤ 2"[50mm]
② 24"[600mm] ④ 9"[230mm] ⑥ ¾"[20mm]



6-20 Use the Leigh clamps to secure the bracket to the FMT Pro clamp face and adjust the distance below the table to slightly greater than the mortise piece thickness ①.



6-21 Use C-clamps to hold the workpiece onto the bracket, with the workpiece rear edge touching the clamp plate. **Now raise the bracket so the workpiece touches the underside of the table.** Re-secure with the Leigh Clamps. The widest board in which a mortise may be centered is 4⅝"[115mm] ①.The thickest capacity is 4"[100mm] ②.



6-22 Mortises in center of boards 4⅝" to 6½"[115 to 165mm] ①: Mark mortise center on a test board ②. Using the guide recess front edge as mortise guide ③, adjust the table to center the mortise ④. Control mortise length with 3/16"[5mm] dowel pieces in the pin track ⑤ (see 6-16). *Note: This is not a standard Leigh solution, but we thought it would solve this rare challenge.* ■