⚠ *For better safety, this bit should be used only in a router table equipped with a fence and* ***not free hand****.*

The V-joint tongue and groove bit can be used to make both halves of a tongue and groove joint. The bit can be used to cut six different styles of joints, as shown in **Figure 1**. Each style is a result of varying the height of the bit and its projection from the face of the router table fence.

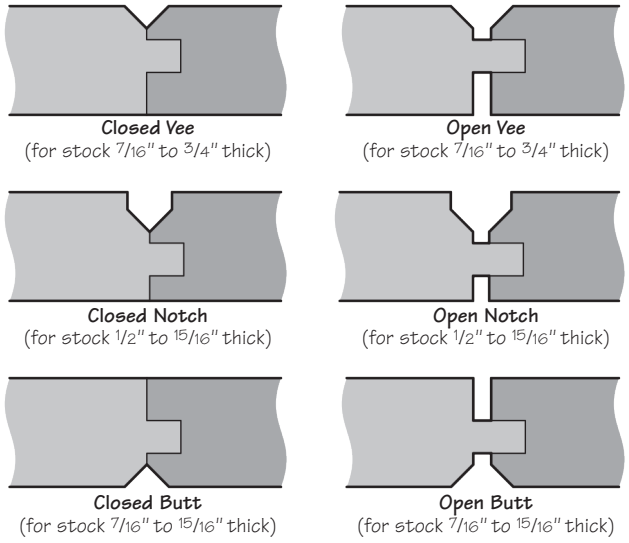

Figure 1: Styles of tongue and groove joints.

In order for the joint to fit properly, all workpieces must be flat and of consistent thickness. The lengths and widths of the workpieces will be based upon the requirements of the project and the capacity of your router table. Some scraps are also required for testing the fit. The test pieces must be flat, but can be of any thickness.

This bit cuts a groove 3/16″ wide by 3/16″ deep, or a tongue 3/16″ thick and up to 5/16″ long. (See **Figure 2**.) The length of the tongue can be changed by adjusting the router table fence or it can be trimmed on the table saw after the routing operation. As the tongue must be adjusted to fit the groove, the groove is cut first.

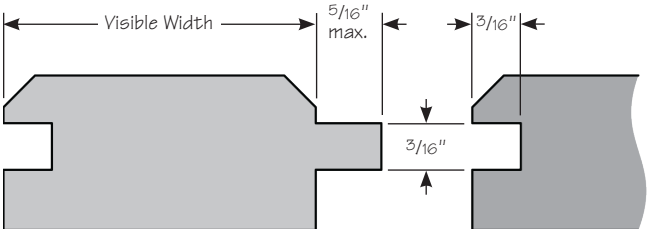

Figure 2: Default tongue and groove sizes.

Cutting Grooves

Assemble the bit for grooving as shown in **Figure 3**. Use 5/8″ and 3/4″ wrenches to tighten the arbor and nut. Install the bit in a table-mounted router and set the height according to the selected joint style shown in **Figure 1**. Set the router table fence flush with the relief cutter.

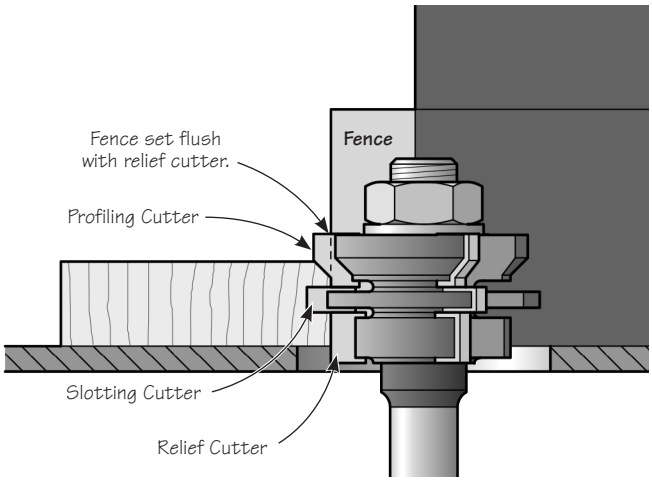

Figure 3: Set-up for grooving.

Note: *Although the relief cutter is not used for grooving, it must fully span the bottom of the workpiece to ensure that the mating tongue profile is cut correctly.* ***Figure 4*** *illustrates what will happen if the bit is set too high.*

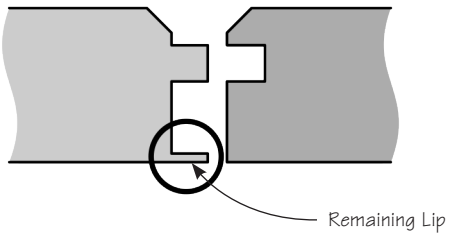

Figure 4: Bit set too high.

Run a scrap workpiece into the bit a few inches to verify that the relief cutter is not removing material, as shown in **Figure 5**. Adjust the fence as necessary to correct any error.

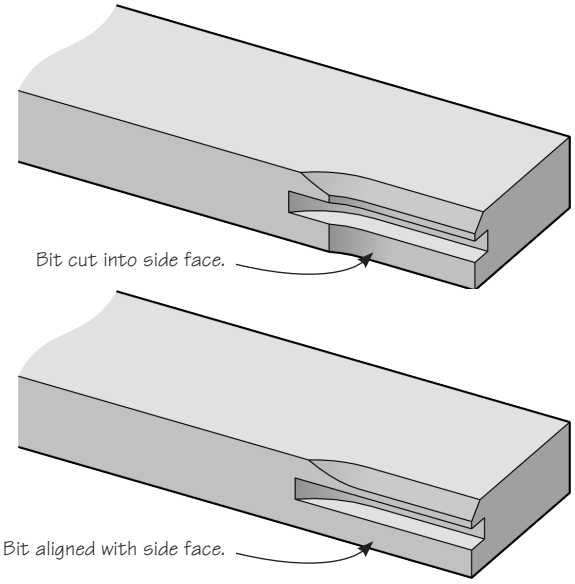

Figure 5: Result of an overexposed bit.

If the project requires tongue and groove joints on the ends of the workpieces, the grooves on the ends should be cut first. Any tear-out from the end cut will be removed by subsequent cuts. Use a right-angle fixture to guide the ends of the workpieces across the bit (see **Figure 6**).

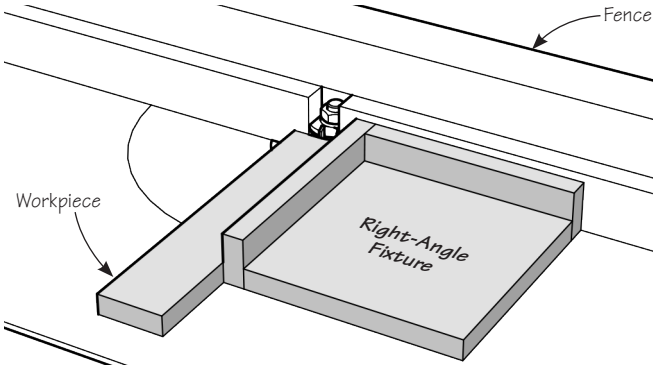

Figure 6: Using a right-angle fixture.

In the same set-up, cut the groove along one edge of all the workpieces. A work hold-down or featherboard should be used to ensure the workpiece remains in contact with the fence (see **Figure 7**). Run the workpieces through with the grooved end first to remove any tear-out.

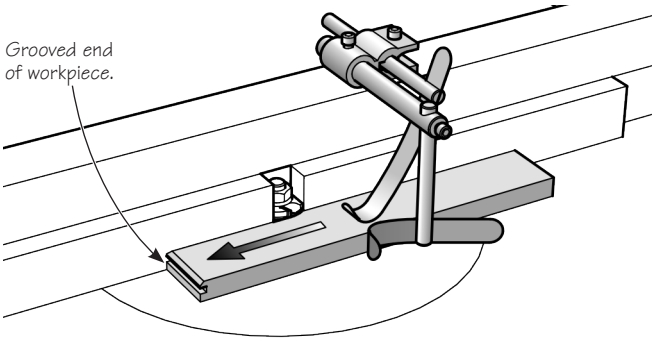

Figure 7: Using the Veritas® Work Hold-Down.

Cutting Tongues

Both portions of the tongue and groove joint are cut with the router at the same height. If possible, the bit should be reconfigured without removing the arbor from the router's collet or changing the height of the bit. Swap the slotting cutter with the spacer, as shown in **Figure 8**.

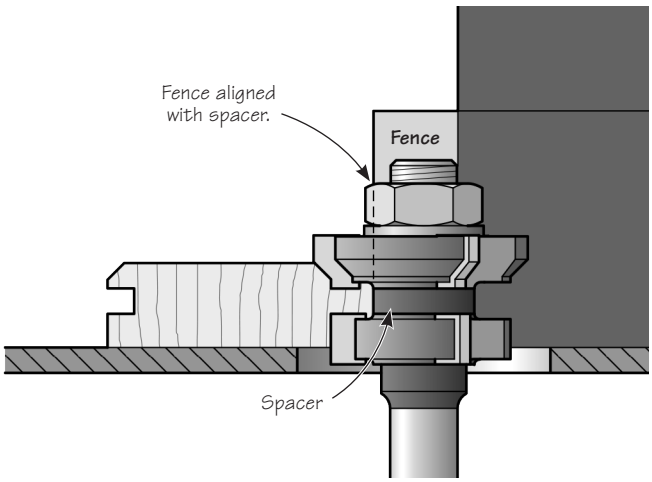

Figure 8: Set-up for cutting tongues.

Set the router table fence flush with the spacer as shown in **Figure 8**. Run a scrap workpiece through the router and adjust the fence forward as necessary to reduce the length of the tongue and/or increase the visible width of the finished part.

If the ends of the workpieces require tongues, they can be cut using the same right-angle fixture as used before (see **Figure 6**).

Using the set-up shown in **Figure 7**, cut the tongues along the opposite edge of each workpiece.

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