Box-Slotting Bits

1/8″, shallow slot	**16J83.02**
1/4″, shallow slot	**16J83.04**
1/8″, deep slot	**16J83.12**
1/4″, deep slot	**16J83.14**

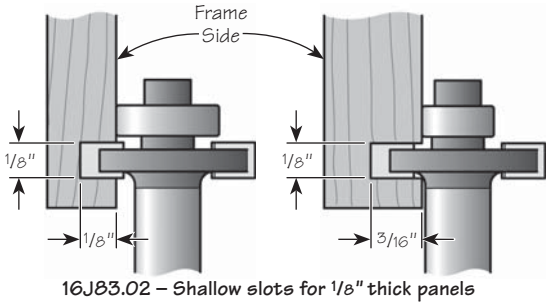
⚠ *For better safety, use these bits in a router table only — **not free hand**.*

Introduction

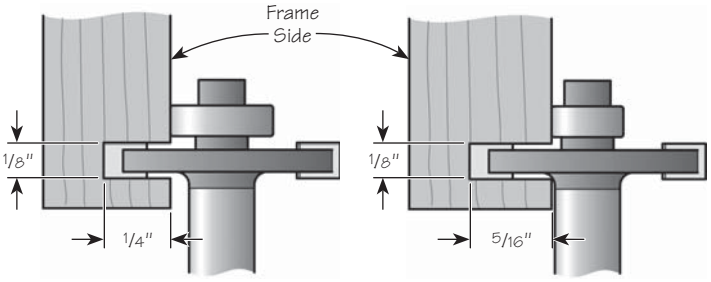
When building with solid wood it is hard to find any sensible alternative to frame and panel construction for cabinet doors, drawer bottoms or box lid and bottom panels. A key part of such construction is cutting the slot around the inside of the frame or carcass to accommodate the panel. You can use a table saw, but that will leave a gap to be filled at each corner when the box is assembled. With a router table, there is always the debate whether to invest time and effort in an elaborate set-up or try to get away with a few risky cuts judged by eye. With the box-slotting bit, you need only set the bit for groove inset, clamp the frame together and run the bit along the four inside faces. This ensures that all four slots are aligned and that there are no corner gaps to hide.

Options

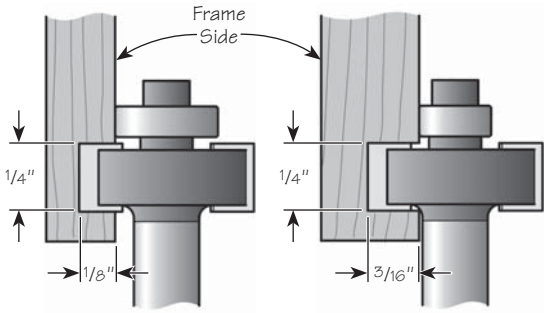
There are four bits available, two to accommodate 1/8″ thick panels and two for 1/4″ thick panels. Each bit comes with two bearings so that you can cut your slots to best suit the thickness of the frame sides. The shallow bits can cut slots 1/8″ or 3/16″ deep. The deep bits can cut slots 1/4″ or 5/16″ deep.



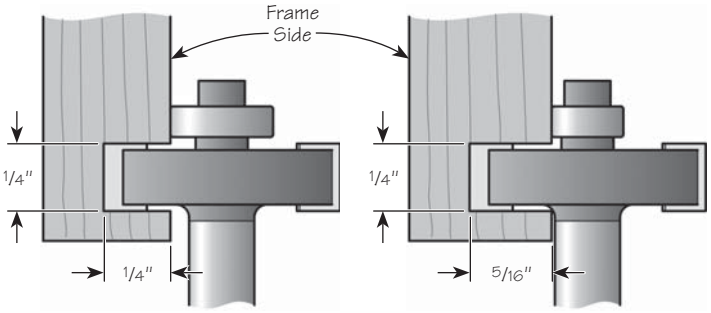
16J83.02 – Shallow slots for 1/8" thick panels



16J83.12 – Deep slots for 1/8" thick panels



16J83.04 – Shallow slots for 1/4" thick panels



16J83.14 – Deep slots for 1/4" thick panels

Figure 1: Slot options (slot depth and panet thickness).

Set-Up

To create the slot in a frame, set the bit height so that at least 1/8″ of material remains below the bit to support the panel. To create the slot for a raised panel, set the bit height so that the top of the cutter is flush with or proud of the panel thickness.

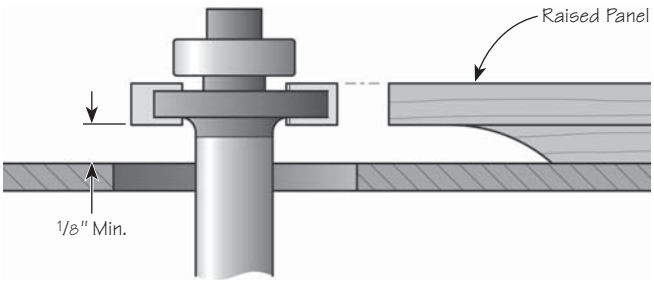


Figure 2: Setting the bit height.

Note: *Ensure that the bit is inserted into the collet as deep as possible.*

Prior to cutting the slot, the frame should be clamped together. This prevents the pieces from separating during the cut and provides a greater degree of safety. The clamps should be placed so that the clamping force runs through the frame. Clamps should not span the frame opening.

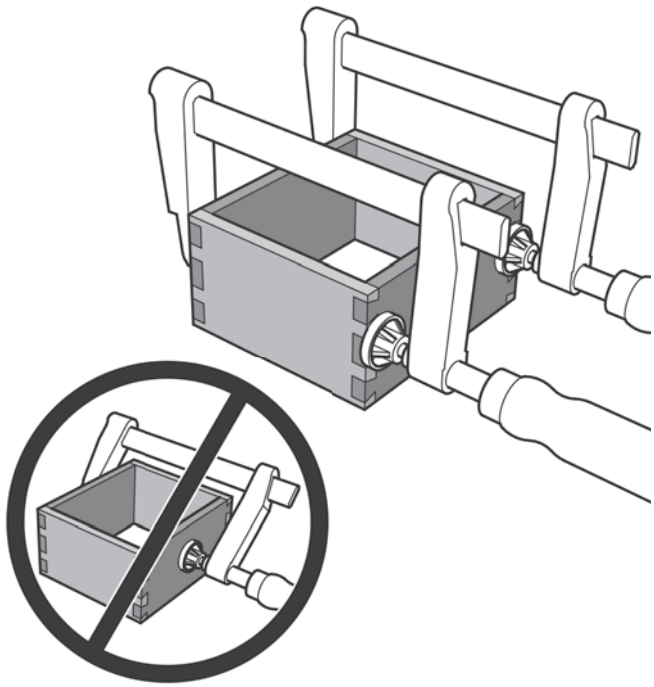


Figure 3: Clamped frame.

Making the Cut

When cutting with these bits, care should be taken to ensure slow and smooth control of the frame being cut. Begin by centering the frame over the bit and starting your router.

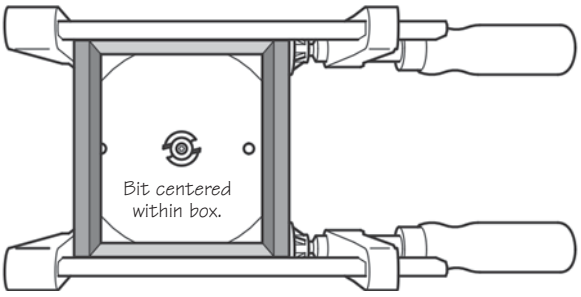


Figure 4: Centering the frame over the bit.

Slowly bring the frame toward you until the bit cuts into the far wall of the frame and the bearing makes contact with the frame. The bit will try to push the frame to the left and you should be ready for this (see **Figure 5**).

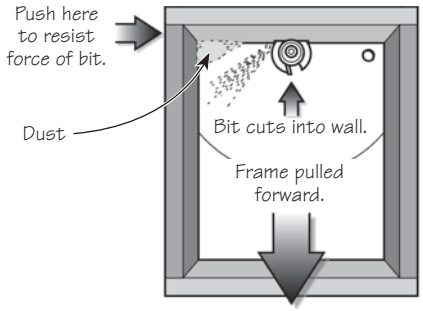


Figure 5: Bringing the workpiece to the bit. (Clamps removed for clarity.)

Slowly move the frame to the right. Ensure that the bearing remains in contact with the frame. When you get close to the corner, slow down to allow the bit to cut into the left wall (see **Figure 6**).

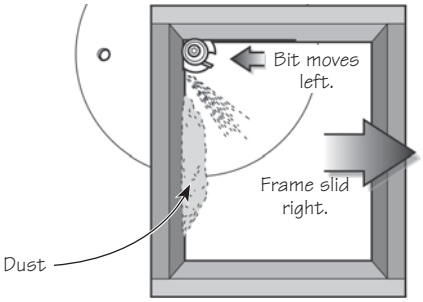


Figure 6: Cutting into the first corner. (Clamps removed for clarity.)

Once the cutter has completely entered the left wall and the bearing is in contact with the wall, push the frame away from you. As before, slow down as you approach the next corner (see **Figure 7**).

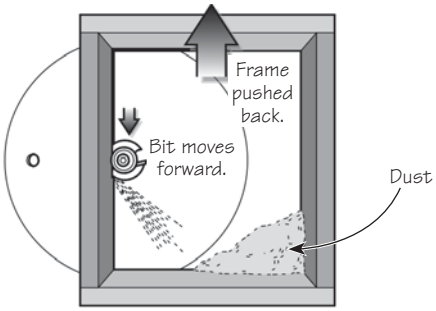


Figure 7: Running along the left wall. (Clamps removed for clarity.)

Continue cutting until a slot has been routed in all four walls. Because the frame is closed, there is no place for the chips to escape, so the chips and wood dust will accumulate. You will need to ensure that the bearing remains in contact with the frame. Once the slot is complete, slide the frame so the bit is roughly centered and turn off your router. Be sure to clear the chips and dust away before cutting another frame.

Fitting the Panel

Slots that are made using this bit and method will have round corners. In order for the panel to fit, its corners will need to be rounded off as well. The radius of the shallow and deep bits are 11/32″ and 15/32″, respectively. This should be applied to each corner of the panel. You can use a radius gauge, a circle template or the router bit itself to mark the radius, then round it over with a belt sander. The radius does not need to be perfect as the entire corner will be buried within the slot (but it cannot be smaller than the required size).

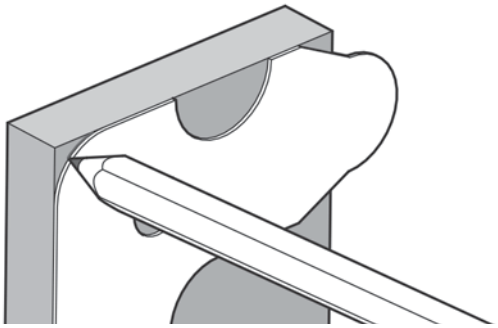


Figure 8: Using a radius gauge.

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