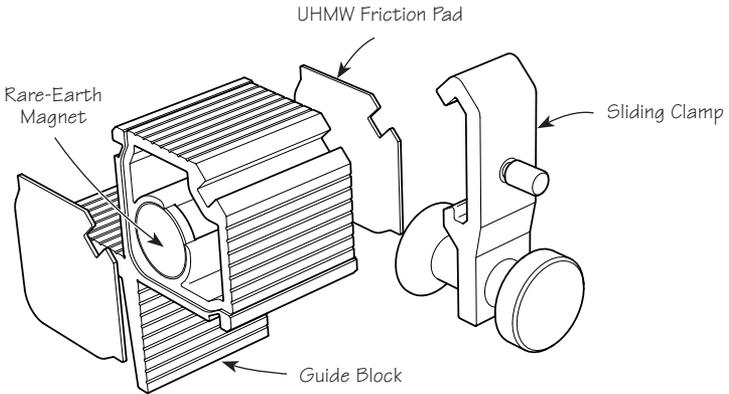


The Veritas® Right-Angle Saw Guide was developed for making finger joints, or on-the-spot trimming of small items. It is also ideal for beginners or children learning to make perfectly square perpendicular cuts on board ends.

The guide comes with a sliding clamp that can be repositioned as required so that it is out of the way as you cut with the saw. It can accommodate material from 1/4" to 1" thick. Each reference surface is embedded with a 3/4" diameter rare-earth magnet and covered with a low-friction UHMW pad. The magnets keep the saw aligned as you cut; the pads allow the saw to slide easily against the reference surface.



**Figure 1: Right-angle saw guide.**

### Some Important Points about Saws

1. Because of the need for a large reference face to accurately guide the saw, it is important to use a saw that does not have a back (see below for information on our dovetail saw). Any back on the blade will interfere with the guide. Unfortunately, this precludes traditional dovetail cutting saws.
2. The teeth on the saw should be set no more than 0.005". The UHMW pads are 0.005" proud of the guide face, and this offset is necessary to create accurate cuts.
3. A fine-toothed saw will create a smooth cut and a high-quality joint.
4. While the guide is equipped with powerful magnets that will help hold a saw in line, ensure that your saw tracks straight without the guide. Tooth set should be equal on both sides of the saw.

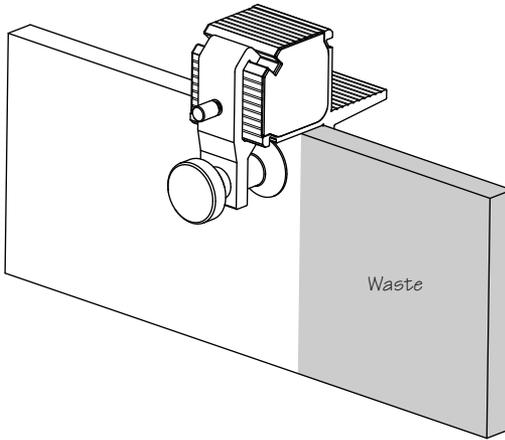
The Veritas Dovetail Saw (05T02.03) is a suitable companion for use with the right-angle saw guide. The 8 1/2" blade length and 2" height offer good cutting action and complete registration against the guide. With 22 teeth per inch and 0.005" set on each side, it produces a fine cut on the pull stroke. The dozuki tooth form is effective in both crosscuts and rip cuts, leaving a smooth cut surface.

## Basic Right-Angle Cutting

When correctly positioned, the right-angle saw guide ensures straight, accurate 90° cuts by holding the saw at the correct location and orientation at the beginning of the cut – great for helping beginners establish good technique.

1. Mark the location of your cut on your board.
2. Place the guide on the end of the board such that the **waste area** is exposed (see **Figure 2**). Leave the clamp loose for the moment.

**Tip:** Position the saw guide such that the sliding clamp faces you. This will make it easier to move the saw guide across the board as you complete each cut. You can adjust the position of the sliding clamp left or right on the guide block as needed, so that it is out of the way as you cut with the saw.



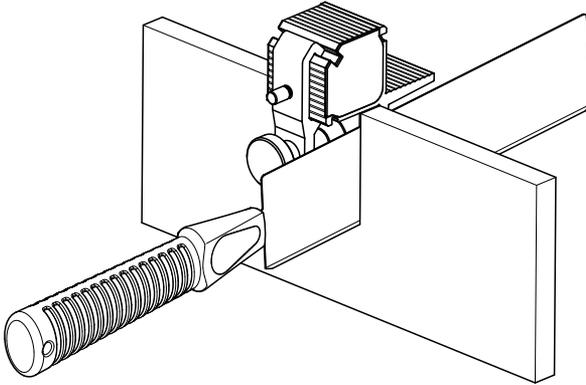
**Figure 2: Right-angle saw guide in place and ready for cutting.**

3. Place the saw against the guide (the magnet will pull the blade into full contact) and adjust the position of the guide so the cut will be on the **waste side** of the line. Tighten the clamp to hold the position.
4. With the saw fully registered against the guide (the magnet should take care of this), begin your cut. Start with a few light strokes in order to start the cut. Once the blade has established a kerf, take long strokes that use the entire length of the blade.

**Tip:** The saw cuts on the pull stroke for smooth cuts and good control. You need not use force to make the cut. Let the saw do the work.

**Note:** The saw may scratch the sides of the guide legs; however, this will not affect the performance of the guide. If the saw begins to take a large gouge, it may indicate that your saw has unequal tooth set and needs to be properly tuned.

**Tip:** To establish good technique, we suggest cutting stock no wider than the height of the saw blade. This ensures that the guide fully supports the saw blade for the entire depth of the cut. As you become more proficient with the saw and establish a good cutting technique, longer depths of cut can be practiced where the saw moves off the guide as the depth of cut exceeds the height of the saw. The established saw kerf made using the guide at the top of the cut can be used to continue the cut beyond the support of the guide.



**Figure 3: Cutting beyond the guide, the saw kerf should maintain a straight cut.**

## Cutting Finger Joints

### Tools Required

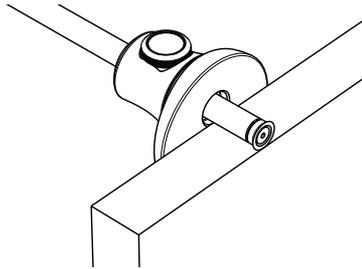
- Right-angle saw guide
- Backless saw
- Pencil
- Chisels (should have a range of sizes and be sharp. Bevel-edge chisels work best, particularly for waste removal.)
- Mallet (for striking chisels)
- Sharp knife (striking/marketing knife is best)
- Square
- Marking gauge
- Clamp/vise/bench hold-down
- Glue

## Layout

1. Dress your board to the desired thickness. Ensure that all sides are flat and consistent across the width. Also ensure that the ends are square.

*Note: It is assumed that all your boards are the same thickness.*

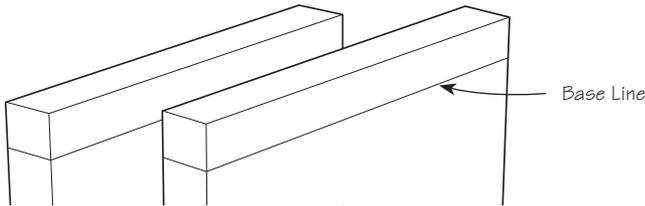
2. Pinch the width of one of the boards between the cutter and fence of a marking gauge to obtain the socket depth of the pins, as shown in **Figure 4**.



**Figure 4: Using a marking gauge to determine the socket depth.**

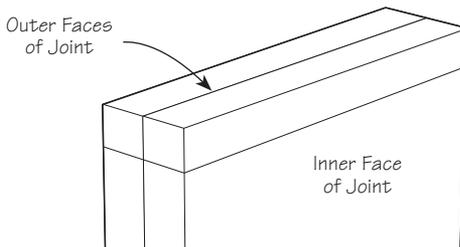
3. Use the marking gauge to strike a line on all four surfaces of each board (see **Figure 5**).

**Tip:** You can darken the lines with a pencil to make them more visible.



**Figure 5: Striking the base lines on the boards.**

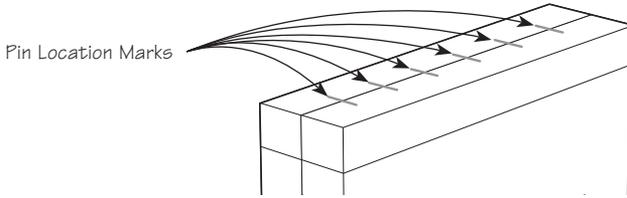
4. Place the two boards to be joined outer face to outer face, as shown in **Figure 6**. Mark each piece and identify the outer faces to ensure there is no confusion as you work.



**Figure 6: Placing the boards face to face, carefully aligned for layout.**

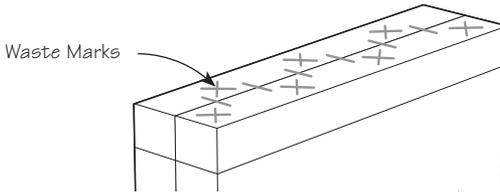
**Tip:** You might want to clamp the workpieces together to ensure they don't move.

5. Mark your pin spacing. Mark across both boards at once with a single mark at each location. The marks do not have to be perfectly square across the joint, since the significant point is where the mark crosses the outer edges of the board. The joints can be spaced evenly if necessary, or relatively randomly, whatever your final design calls for.



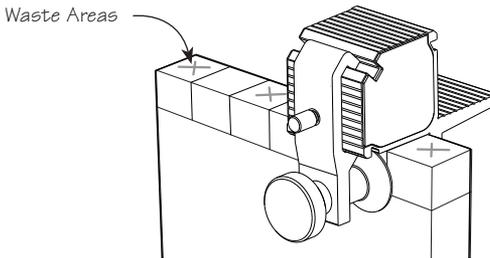
**Figure 7: Marking the locations of the pins.**

6. Mark the waste areas on each board (see **Figure 8**). These marks will provide helpful reminders for cutting in the waste areas and not in the save areas.



**Figure 8: Marking the waste areas.**

7. Clamp one board (outer face towards you) in a bench vise.
8. Place the guide on the end of the board such that the **waste area** is exposed (see **Figure 9**). Leave the clamp loose for the moment.



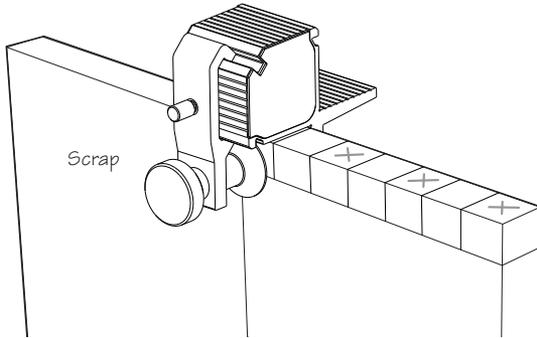
**Figure 9: Saw guide set for cutting pins.**

*Note: Diagram shows cut lines for clarity; they do not need to be marked.*

9. Place the saw against the guide (the magnet will pull the blade into full contact) and adjust the position of the guide so the cut will be on the **waste side** of the line. Tighten the clamp to hold the position.
10. With the saw fully registered against the guide (the magnet should take care of this), begin your cut. Start with a few light strokes in order to start the cut. Once the blade has established a kerf, take long strokes that use the entire length of the blade.
11. Cut to the socket depth line, ensuring that the saw remains level as the cut nears completion.

12. Move the guide so that the face opposite to that just used is on the next mark, ensuring that the **waste area is exposed**, and make the next cut. Repeat this procedure until all pins are cut.

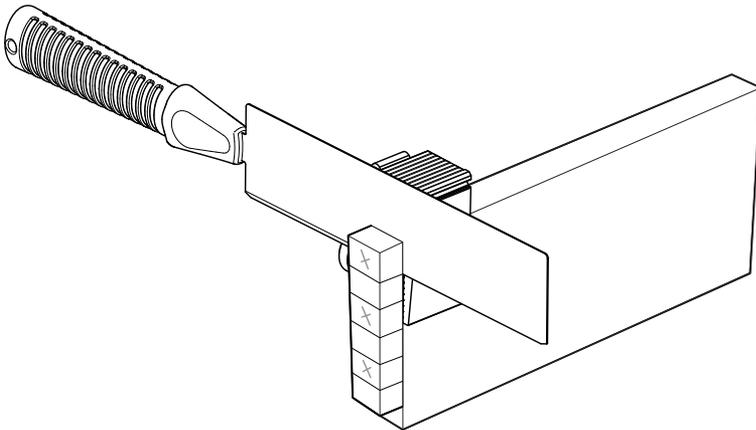
**Tip:** For the pins at the ends of the boards, clamp the guide to an adjacent piece of wood of the same thickness (**Figure 10**) in order to keep the guide secure while sawing.



**Figure 10:** Using a scrap piece of wood adjacent to the workpiece to secure the guide for the last cuts.

## Removing the Waste

1. Remove the board from the vise and reposition it horizontally. Clamp the right-angle saw guide on the end of the board and cut the **waste area**, being careful not to cut into the pins (see **Figure 11**). Repeat for the other side. Clean up the saw cuts with a sharp chisel if necessary.

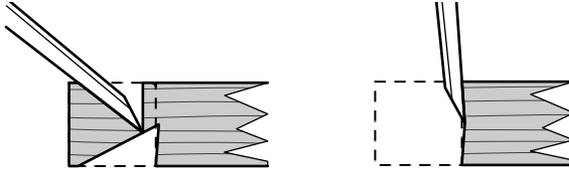


**Figure 11:** Removing waste material from ends of board.

2. Clamp the board flat on the workbench.
3. Keeping approximately  $\frac{1}{16}$ " ahead of the socket depth line, pare out the waste (in small increments) with a sharp chisel until you get to about half the thickness of the board.
4. Flip the board over and pare the remaining waste, as shown in **Figure 12**.

**Tip:** When removing the waste, never start at the socket depth line; otherwise, the chisel may dive and push past the socket depth, resulting in unsightly gaps.

**Tip:** Be careful that you don't nick the corner of the joints with the chisel, as this will leave marks on the finished work that cannot be removed.



**Figure 12: Chiselling out the waste.**

## Final Fitting and Gluing

1. Clean out the cuts completely so that the corners are as crisp as possible.
2. Ensure that the socket bases are clean and lightly undercut.
3. The joint should now fit together with very little effort. Notice that the pins extend slightly beyond the width of the boards; this is intentional.
4. Glue the joint using PVA glue. Apply the glue onto all the finger sockets, then slide the boards into place. You may require some gentle hammer taps to draw the pins together.

**Tip:** If you do use a hammer to draw the parts together, be sure to use a scrap piece of wood between the hammer blows and the work so as not to damage the wood or the joint.

5. Once the glue is dry, plane or sand the ends of the pins flush with the faces of the parts.

**Note:** Your first attempt will probably not yield perfect pins; it takes practice to create flawless finger joinery.