

Notes from the Shopsmith Woodworking Academy

Using the Shopsmith Mortising Attachment to drill square holes

As you probably know, a mortise is one-half of one of the most classic of all wood joints – The Mortise-And-Tenon. This is the joint where a square “peg” slips into a square hole, providing strength and beauty, resisting pressure from almost any direction, while giving your project that “classic” look of beauty that’s tough to beat.

Cabinetmakers most often use the mortise-and-tenon joint when they join wide crossmembers to uprights, such as table aprons-to-legs or wide spreaders to cabinet carcasses. Carpenters, too, make use of this very strong joint in post-and-beam construction. Classic American barns are an example of this construction technique.

The mortise-and-tenon joint gets its strength from opening up large gluing surfaces where the long grain of one piece of wood is joined to the long grain on a mating piece.

The Mortising Attachment used to cut the square holes is a two-piece accessory that holds the square Chisel in place while an Auger-Type bit spins inside, removing the wood as the Chisel is advanced into the workpiece. The Hold-Down that’s included in the Package attaches to your MARK V Rip Fence to hold your workpiece down against the Worktable surface when the Chisel is withdrawn from the stock.

Let’s take a look at the step-by-step procedures for using this handy Accessory.

Step 1: The Mortising Chisel **MUST BE SHARP** before attempting to use it. New Chisels come pre-sharpened and ready to go. If you have purchased a used Chisel set, be sure to use the appropriate cone-shaped Shopsmith Mortising Chisel Honing Stone to sharpen it prior to use. There are three different stones available:

- A 50-degree Stone that will sharpen all three of the Chisels in the current Mortising Package.
- A 41-degree Stone that will sharpen the 1/4" and 3/8" Chisels that were originally sold prior to 2000.
- A 46.5-degree Stone that will sharpen 1/2" Chisels originally sold prior to 2000.

Make a simple jig like the one shown here to support the Chisel during the sharpening process. The top of the Chisel can rest against the face of your Rip Fence for backup support during this sharpening operation.

Step 2: Place your Drill Chuck on the MARK V Quill and tighten into position. Slip the collar of the Mortising Attachment over the Quill above the Drill Chuck and secure into position by tightening the single setscrew. When clamped into position, the Attachment will hold the Chisel perpendicular to the Worktable surface.

Step 3: Rotate the Chisel in the Attachment until its face is square to the face of your Rip Fence, as shown. Be sure the chip ejection chute (the long opening in the side of the Chisel, itself) is facing forward, toward the operator.

Step 4: Insert the Mortising Drill Bit by pushing it completely into the Drill Chuck, then lowering it so the tip is exposed **no more than 1/16"**, (as shown). This provides a small amount of clearance between the Bit and the Chisel. Without this small amount of clearance, the Bit will dull quickly.

Step 5: Attach the Mortising Hold-Down Bar to the Rip Fence. If you have a Model 510 or 520 MARK V, the Bar attaches via a T-Nut that slides into the top of the Fence. If you have a Model 500 machine, the round Bar slides into a hole bored in the top of your Rip Fence. If you own a Model 500 machine and have purchased a new Mortising Attachment, simply remove the T-Nut from the Bar, turn it over, upside-down and drop the round Bar into the hole in the top of your Rip Fence. Be sure to lock the Bar into position with the appropriate Setscrew (older machines) or by twisting the Bar into the T-Nut.

Step 6: Insert a brace between the underside of the Worktable and the shop floor. If you have an older Model 500 machine, a piece of 2x4 cut to the appropriate length will work nicely. If you own an model 510 or 520 machine, use the Telescoping Legs that came with your Table System.

Step 7: Set your Quill Feed lock for the required depth-of-cut. Be sure to measure your stock very carefully for proper mortise placement. Set your MARK V Speed Dial between "G" and "H" and form the ends (or "corners") of your rectangular mortises first. Once thee are cut, move from one of your corner holes to the other, cutting no more than 3/4 of the Chisel width in a single pass, removing the stock in-between the "corners".

Step 8: Use your Table Saw with the TenonMaster Jig to create the mating tenons for your Mortise-and-Tenon joints.