Mid-Size Moxon Vise Hardware Kit Plans

These Mid-Size Moxon twin screw Vises are compact, portable, and budget-friendly versions of the very popular full-size twin-screw work-holding fixture. They're a versatile and efficient alternative for those who don't need—or don't want to store—full-size Moxon vises. These vises can be built in just a few hours using minimal wood, basic tools, and our hardware kit. Despite their smaller size, they deliver impressive workholding for joinery, shaping, and carving tasks. They raise the workpiece 3" for more comfortable, ergonomic work positioning and can be easily mounted to almost any surface. When not in use, they store easily on a shelf or hang neatly on a wall.

Most modern Moxon vises have threaded rods attached to the rear jaw, secured in place with four nuts—two of which are mortised into the rear jaw and sit flush with its front surface. This design leaves both rods protruding from the front jaw, often interfering with the user.

Our improved Mid-Size Moxon Vise Hardware Kit solves this problem by embedding threads in the rear jaw using an innovative nut bracket. This allows both rods to pass through the back jaw and spin freely to open and close the front jaw—leaving the area in front of the vise completely unobstructed. Additionally, the threaded rods rotate in steel bushings embedded in the rear jaw, reducing friction for smoother operation.

You can build two versions of a Mid-Size Moxon Vise using this kit: a Traditional 2-Piece Version with a solid rear jaw or an alternate version with an L-Shaped rear jaw.

This kit contains the following components:

- 2 × 3" cast wing nuts with 1/2"-13 threads
- 2 × 1/2"-13 threaded rods (choose 8" or 10" length)
- 2 × 1/2" washers
- 2 × 1/2"-13 square nuts
- 2 × 1/2" ID × 3/4" OD × 1" long steel bushings
- 2 × nut brackets
- 4 × #8 × 1-1/4" pan head sheet metal screws

Specifications of finished vises:

- Overall length; 23”
- Jaw length: 18”
- Jaw height: 3”
- Distance between rods: 11-1/2”
- Maximum opening: 8” rods-4” opening; 10” rods-6” opening

Building your vise

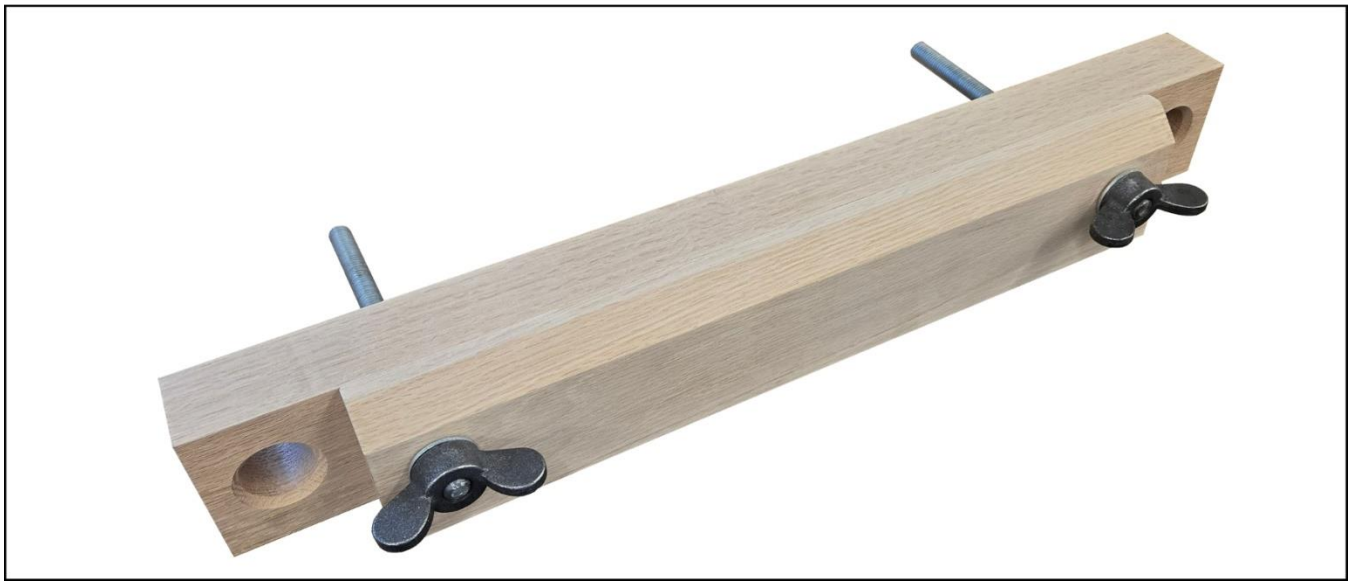
Start by removing all metal hardware from the packaging and clean off the machining oil using Simple Green or denatured alcohol. This grease is a byproduct of the machining process and is intentionally left in place to prevent rust during storage and transit.

Once the grease is removed, dry all parts thoroughly. Attach the threaded rods to the wing nuts using 2 drops of red thread locker and allow them to dry for 2 hours.

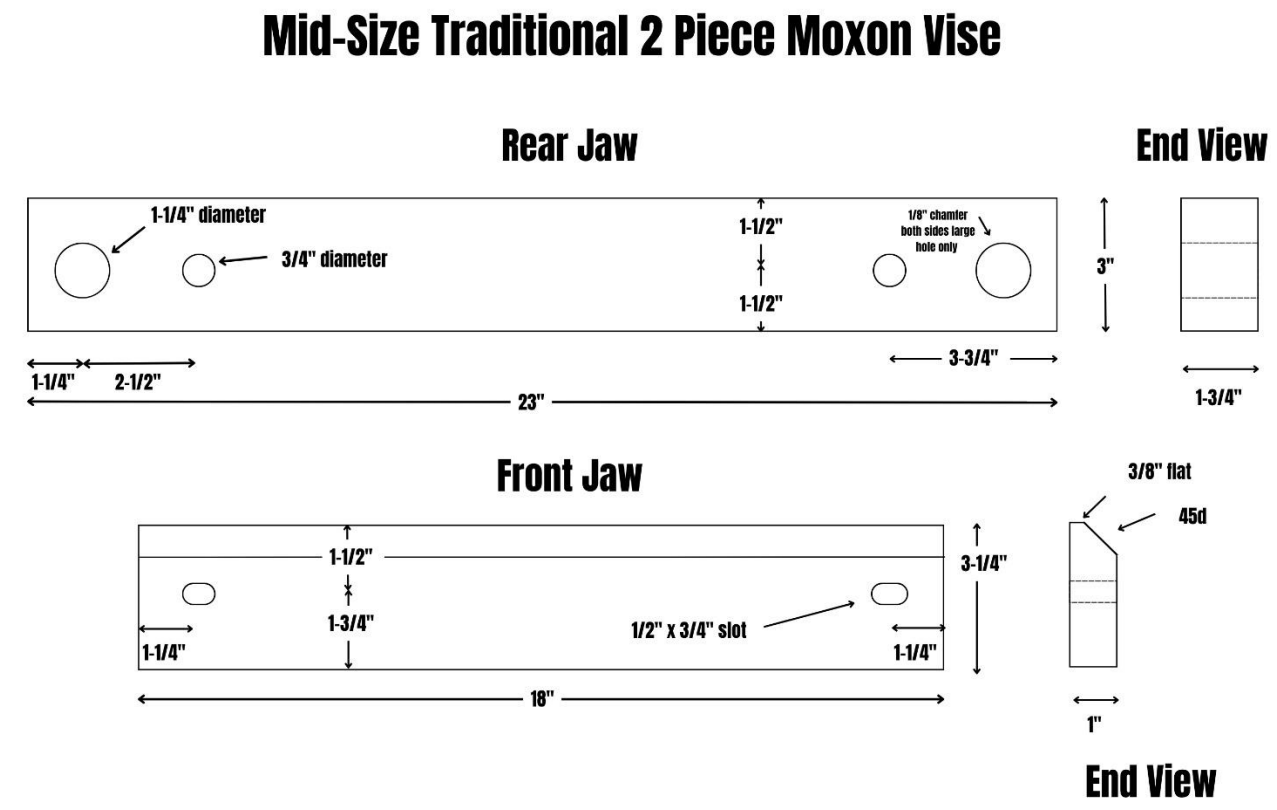
Glue wing nuts to rods with red thread locker

Finally, apply a thin coat of paste wax to all metal parts. This will help inhibit rust and allow the rods to spin more freely in the bushings and nuts.

Mid-Size Traditional 2 Piece Moxon Vise



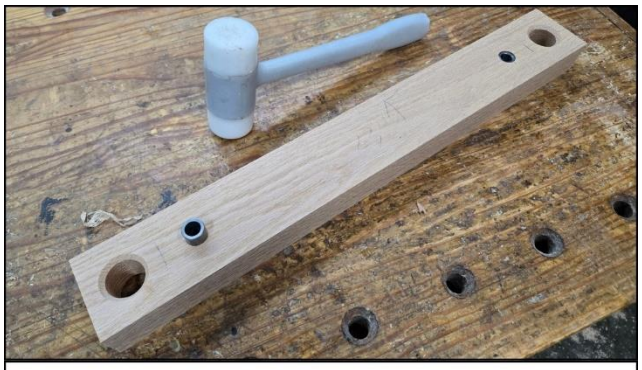
Cut a piece of 8/4 wood to 23" × 3". Drill two 1-1/4" and two 3/4" holes as per the drawing below. To achieve a perfect friction fit for the 3/4" OD bushings, we recommend using a 3/4" WoodOwl OverDrive bit. These bits drill a slightly undersized hole, a perfect friction fit for the bushings. Route an 1/8" chamfer on both sides of the 1-1/4" holes. Ease all sharp corners with 220-grit sandpaper.



Front & back jaw cut to size

Parts drilled, slotted & chamfered

Pound the bushings into place so they sit just below the surface of the wood

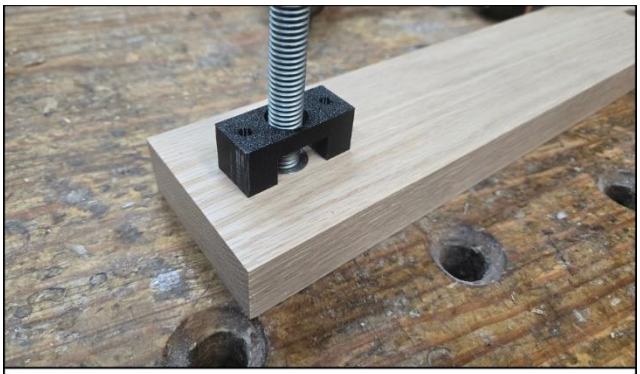


Insert & pound bushings into 3/4" holes in back jaw

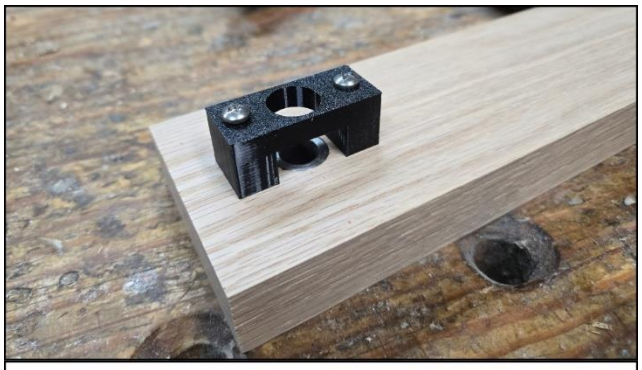
Insure bushings are flush or slightly below surface

Install the nut bracket on the back side of the jaw—the side where the bushing is not flush. Drop a threaded rod through the bushing to help align the bracket, centering it over the rod.

Make sure the bracket is square to the edge of the jaw, then drill 1/8" pilot holes and drive the screws to secure it in place.



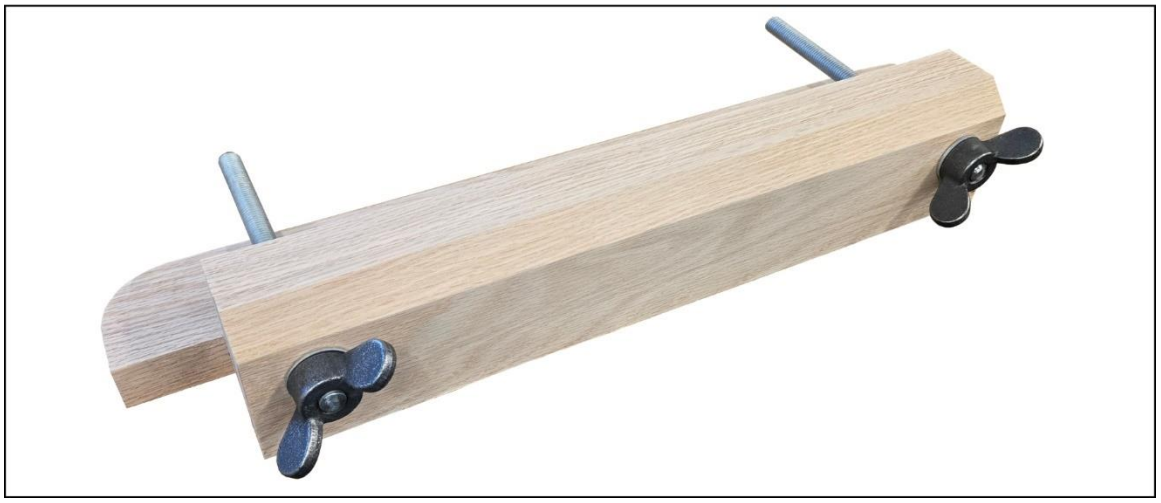
Insert rod in bushing & center nut bracket over rod



Square brackets, drill & drive screws

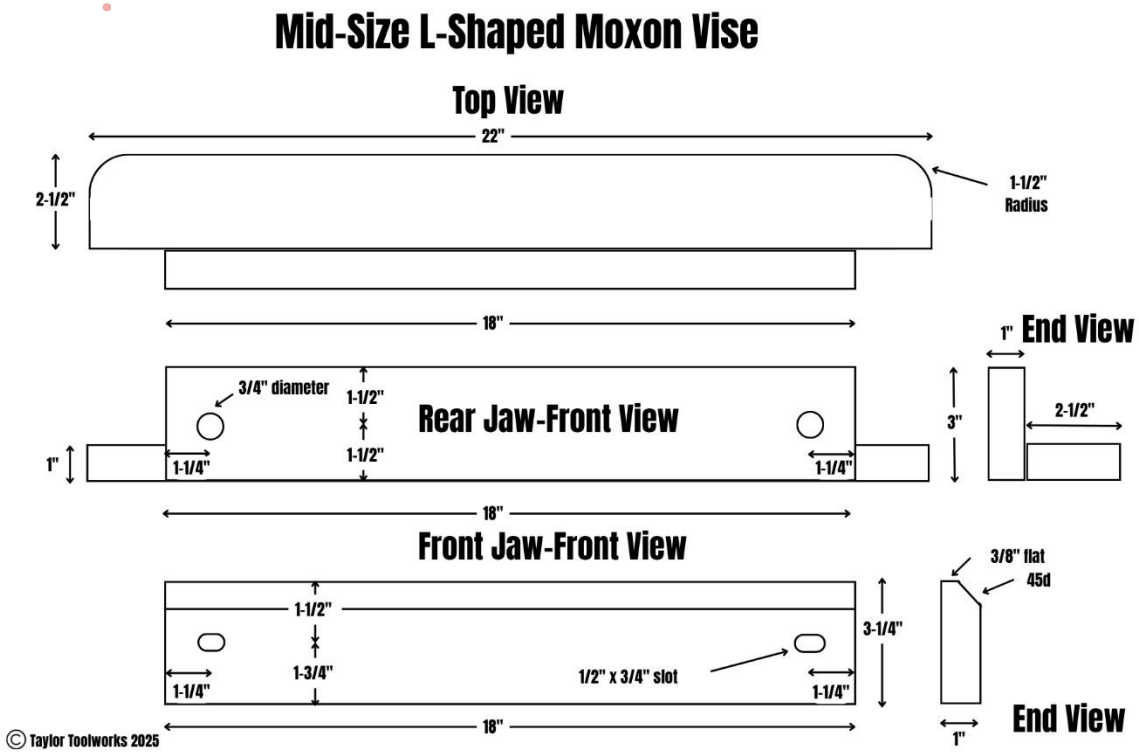
The back jaw is now complete.

Mid-Size L-Shaped Moxon Vise



Cut one piece of 1" thick wood to 23" × 2-1/4" for the base. Bandsaw and sand or rasp a 1-1/2" radius on two adjacent corners.

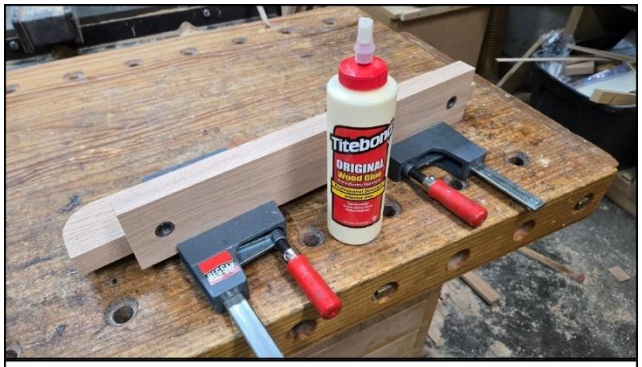
Next, cut another piece of 1" thick wood to 18" × 3" for the rear jaw. Drill two 3/4" holes as shown in the drawing below. To achieve a perfect friction fit for the 3/4" OD bushings, we recommend using a 3/4" WoodOwl OverDrive bit, which drills a slightly undersized hole ideal for this purpose.



Base, back jaw & front jaw cut to size

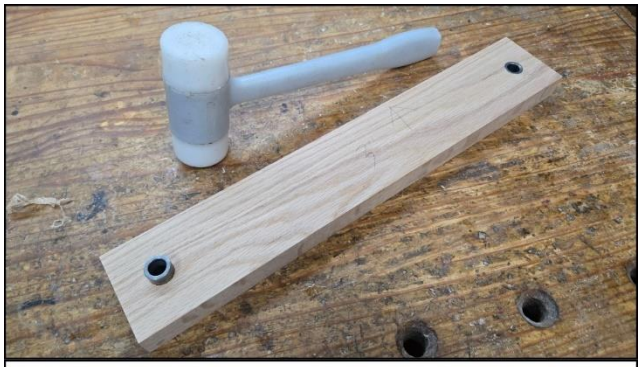
Parts shaped, drilled, slotted & chamfered

Glue and screw the base to the rear jaw at a 90-degree angle. You can also glue using biscuits, dowels, or dominos.



Glue & screw base to back jaw.

Ease all sharp corners with 220-grit sandpaper. Pound the bushings into place so they sit flush with one surface of the wood.

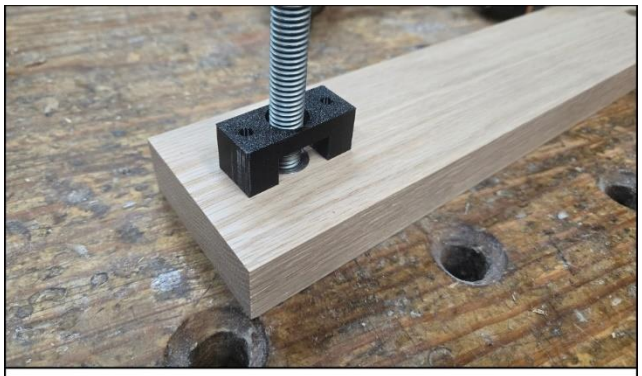


Insert & pound bushings into 3/4" holes in back jaw

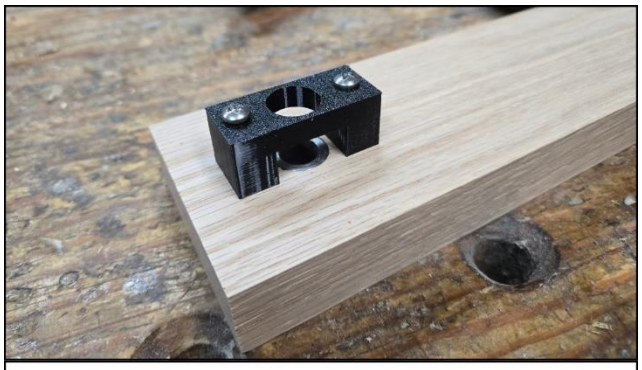
Ensure bushings are flush or slightly below surface

Install the nut bracket on the back side of the jaw. Drop a threaded rod through the bushing to help align the bracket, centering it over the rod.

Make sure the bracket is square to the edge of the jaw, then drill 1/8" pilot holes (be careful not to drill through from front face) and drive the screws to secure it in place.



Insert rod in bushing & center nut bracket over rod



Square brackets, drill & drive screws

Front Moveable Jaw (same for both versions)

Cut a piece of 1” thick wood 18” x 3”. Route two 1/2” wide x 3/4” long slots per the drawing below. This can be done at the router table or using a router with a fence. You could also drill two overlapping 1/2” holes and chisel or file away the “widows peak”.

Route slots in front jaw using router with fence

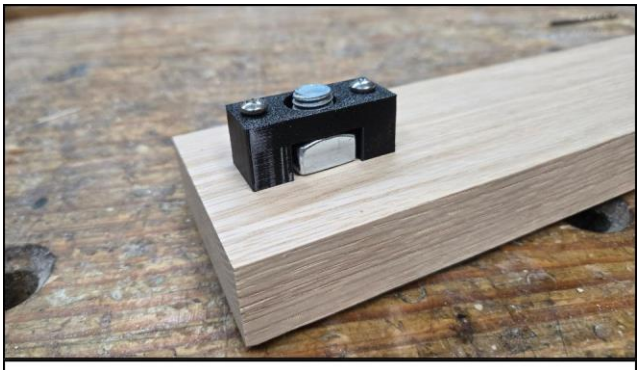
Route slots using router table & two stops. Route half the depth per pass

Cut a chamfer on the top of the face per the drawing. Ease all sharp corners with 220-grit sandpaper.

Finally, scuff sand the inside of both jaws with 80 grit sandpaper to increase grip.

All the pieces are now complete, and you can assemble your vise.

Start by placing washers over the threaded rods/wing nut assemblies. Insert the rods through the front jaw slots and through the rear jaw bushings. Slip a square nut into each nut bracket, and screw the rods in until the front jaw is snug against the rear jaw.



Back jaw with nut, bracket and threaded rod in place

Your vise is now ready for use.

You may choose to apply a finish, but even in its raw state, the wood will grip your work very well. If you do decide to finish it, avoid film finishes like shellac, lacquer, or polyurethane, as they can make the vise surfaces too slick. Instead, we recommend boiled linseed oil, tung oil, or Danish oil for a natural, functional finish that preserves grip.

For even better performance, consider adding cork rubber to the inside face of the front jaw. This will improve grip and help prevent marring of delicate workpieces.

Clamp your vise to your work surface with 2 F-Style clamps and you are ready to start working.