

Installing a Cast-Iron Vise

It's hard to imagine working in a shop that lacks a good bench-mounted vise. After all, woodworkers come from the factory with just two hands, and we need both of them to use most tools. So it usually takes some help to keep a workpiece fixed firmly in place.

The cast-iron style of vise has long been a staple in woodworkers' shops, and for good reason. A cast-iron vise that's well maintained can last several generations, and a workpiece locked in its grip won't easily budge.

A cast-iron vise has another plus: It generally installs without much fuss. But

that doesn't mean the procedure is fool-proof. To minimize the fussiness factor, there are a few worthwhile points to keep in mind—including a little preinstallation planning.

Where to put it

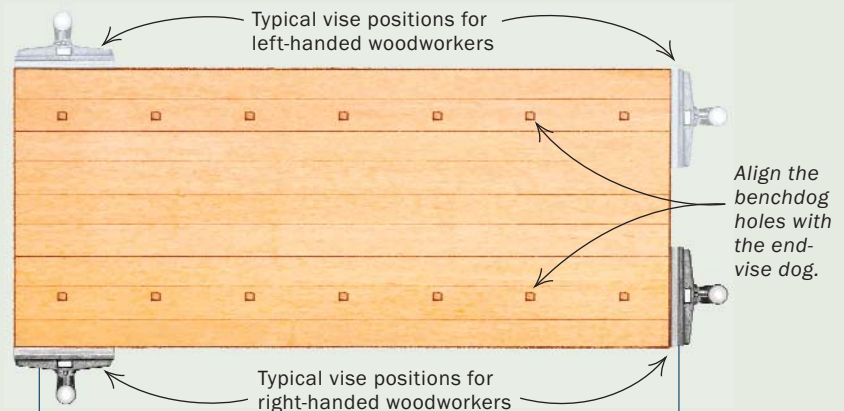
At first glance, a workbench seems to offer a number of places to locate a vise. But a few spots can be eliminated quickly. Any vise centered on the front, back or end of a bench is sure to be in your way, so the vise almost always ends up installed near a corner to make it as unobtrusive as possible. Your options narrow even further when

you consider the bench location, its design and you—or more specifically, your handedness.

Bench location and design—When a bench is positioned well away from the walls, allowing all-around access, the vise can be installed adjacent to any of the corners. But if the bench butts against a wall, both corners of that side of the bench are eliminated as options. If the bench has to go in a corner, the options become fewer. So it's best not to finalize the vise location until you've considered where the bench is going to go.

Determine the best location

Before installing a vise, consider where on the benchtop it's going to work best for you. Right-handers generally prefer the front vise on the left end of the benchtop, with the end vise on the right, near the front corner. Reverse the locations if you're a southpaw.



FRONT VISE

If you're going to mount only one vise, a front vise offers the most useful clamping options. A board clamped horizontally in a front vise is perfectly positioned for edge-planing. Clamp it vertically, and the end of the board can be planed or sawed easily.

END VISE

Used with a benchdog, an end vise allows a longer board to be clamped quickly face-down on the bench for planing, scraping or sanding.



There's more to it than sinking a few lag screws

BY TOM BEGNAL

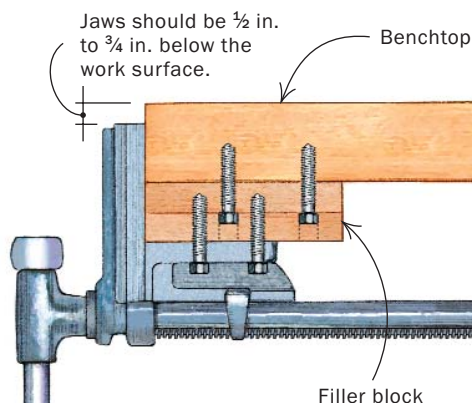
Most cast-iron vises have a metal dog built into the front jaw. When the vise dog is used with a benchdog, the vise offers additional clamping advantages. Keep in mind, though, that the holes for the benchdog must be in line with the vise dog. So before you settle on a vise location, make sure the benchdog you use can be placed into all of the holes without interfering with the vise, the bench legs or anything else under the top.

Front or end vise?—A vise can be mounted to the front or end of a bench. Because each location has its advantages, many

MOUNTING THE VISE



Figure out the filler-block thickness. With both the vise and benchtop upside down to make the job easier, measure the distance from the benchtop to the top edge of the vise jaws and then add $\frac{1}{2}$ in. to $\frac{3}{4}$ in.



Attach the filler block, then the vise, using lag screws. You might think that about does it, but to get the most out of the vise, you should cover the metal jaws and edge of the table next.



A long face. A mortise in the back face accepts the back jaw. The face extends the full length of the benchtop, which will make it easier to clamp long boards.

benches include both front and end vises. If a bench is limited to having just one vise, it's best to install it as a front vise, because most of us naturally gravitate toward the front of the bench.

Think right or left—More than anything else, your handedness determines the best vise location. Right-handers usually like a front vise on the left of the bench. That way, when crosscutting a board with a handsaw, the cutoff end can be held by the left hand.

When the front vise is installed on the left, you'll want the end vise added to the right, near the front corner. Reverse the locations if you're a lefty.

How to mount it

There are several ways to install a cast-iron vise; your best option depends on the



Measure, mark and cut out the mortise. On many vises, the face of the back jaw isn't square to the benchtop. To make sure the mortise ends up deep enough, measure the depth from the thickest part of the jaw. Use a drill bit to remove most of the waste stock before using a router to clean out the waste that remains.

benchtop's design. The procedure outlined here covers the most common installation, one where the back jaw of the vise simply butts against the edge of a top that's about 1½ in. thick.

Cast-iron vises, especially large ones, are heavy and awkward to hold. So try to work with the benchtop

turned upside down, as shown here. If flipping the top isn't an option, you can make the vise easier to handle by removing the front jaw along with the screw and guide bars.

Include a filler block—Ideally, when the vise is installed, the top edge of the jaws should be ½ in. to ¾ in. below the top of the bench. The extra space allows room for the wood face, added later, to cover the top of the jaw.

Also, on some vises, the dog extends almost ½ in. above the jaws, even when the dog is fully lowered. Unless the jaws are well below the benchtop, the dog will always stick above the work surface.

To get that extra space, you're likely to need a wood filler block between the underside of the benchtop and the mounting bracket portion of the vise. The block

should be wide and long enough to cover the bracket and thick enough to produce the intended spacing.

Install the filler block and vise—Before securing the block to the underside of the top, drill and counterbore it for four lag screws. Position the block on the benchtop and drill the pilot holes. Add glue, then slip the lag screws into the holes and thread them home.

Now position the vise on the block, with the back jaw firmly against the edge of the bench. Then drill the pilot holes and add the lag screws. If you've been working with the benchtop upside down, now's the time to flip it right-side up.

Make the faces—A workpiece secured in the vise is less likely to dent if the cast-iron jaws have wood faces. The faces can be installed several ways.

A quick method is simply to screw a rectangular piece of hardwood stock to the jaws of the vise. Most jaws have predrilled holes, making the job an easy one.

I prefer to mortise the back face to accept the back jaw. Also, I like to extend the back face the full length of the bench. Effectively then, the back face becomes part of the edge of the benchtop. So when a long board is clamped on edge in the vise, the



Attach the back face to the edge of the benchtop. To fill in the gap between the back face and the back jaw of the vise, add a couple of strips of epoxy putty to the mortise just before applying the face to the bench (left). After coating the jaw with paste wax, attach the face with a few wood screws driven into counterbored holes (right).



Plane the top edge of the face. A sharp handplane is all it takes to get the face flush with the top of the bench.

board remains in contact with the back face the full length of the bench. That makes it easier to clamp the end of the board to the benchtop.

To create the mortise, first mark its length, width and depth on the back of the back face. When measuring the depth, keep in mind that most jaws taper in thickness, meaning the back jaw usually isn't square to the benchtop. So to make sure the jaw can fit fully into the mortise, measure the depth dimension at the bottom of the jaw at its thickest point.

Once the mortise has been marked, use a drill press and a Forstner bit to remove most of the waste. Clean up the rest with a router.

Mount the faces—At this point, there's just one more detail to attend to before the back face can be attached. Because the back jaw is tapered, it doesn't fit fully against the mortise. As a result, there's a gap that widens as it nears the top of the jaw. Thus, the jaw loses some support provided by the back face.

To fill in the gap, use a bit of epoxy in putty form. You can find this stuff at most hardware or home-improvement stores. To prevent the epoxy from sticking to the jaw, add a heavy coat of paste wax to the area of the jaw that meets the epoxy.

Next, attach the back face, using the vise to clamp one end. The top edge of the face should stand proud of the benchtop by $\frac{1}{16}$ in. Now add a bar clamp to the other end of the face. Secure the face with screws driven into counterbored holes, and add wood plugs to the holes.

The front face is just rectangular stock that's attached by driving screws through holes in the front jaw. Because the front jaw has a taper, like the back jaw, the

front face cants toward the back face. That's actually a plus because it helps the vise grip more tightly along the full width of the jaws. But if there's too much cant, it can be reduced quickly by handplaning a bevel on the entire inside surface of the front face.

For the final step, add a finish to the two faces, preferably one that matches the finish on the original benchtop. □

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Add the front face. Like the back jaw of the vise, the front jaw is tapered. To minimize the effect of the taper, you can bevel the outside surface of the front face slightly. Then attach the face by driving two screws through predrilled holes in the jaw.