



Lake Erie Toolworks

Leg Vise Screw Installation Instructions

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Very Important – Please Read!

Read all instructions prior to vise screw kit installation to ensure full knowledge of the installation process. Also, please follow all proper safety rules and guidelines as appropriate when using woodworking tools to install the vise screw kits in order to prevent bodily injury.

| Vise Kit Contents: | |
|---------------------------|--|
| Quantity | Description |
| 1 | Vise Screw or 2X Vise Screw |
| 1 | Vise Nut or 2X Vise Nut |
| 1 | Vise Handle with End Caps & O-Rings (optional based on kit) |
| 1 | Brass Garter Kit w/Screws or 2X Brass Garter Kit (optional based on kit) |
| 1 | Hard Maple Internal Garter (optional) |

| Recommended Installation Tools: | |
|--|---|
| Quantity | Description |
| Leg Vise with Brass External Garter | |
| 1 | 2-9/16" to 2-5/8" dia. drill bit (Hole saw, Self-feeding, Forstner bit) |
| 1 | 3-1/8" dia. drill bit (Hole saw, Self-feeding, Forstner bit) for 2X Vise only |
| 1 | Pilot drill bit for #14 screw |
| Leg Vise with Internal Garter | |
| 1 | 2-1/2" dia. drill bit (Hole saw, Self-feeding, Forstner bit) or 3" dia. for 2X |
| 1 | 2-9/16" to 2-5/8" dia. drill bit (Hole saw, Self-feeding, Forstner bit) |
| 1 | 3-1/8" dia. drill bit (Hole saw, Self-feeding, Forstner bit) for 2X Vise only |
| 1 | 3/8" dia. drill bit or router bit (upcut spirals work well for mortising) or Mortising chisel if you prefer for side mortise in vise chop |
| Additional Installation Tools | |
| 1 | Drill / Router (optional), Combination Square, Measuring Tape |
| Optional | 2" diameter drill bit if you plan to make your own garter, 2-1/2" dia. for 2X |
| Optional | Compass & spindle sander, spokeshave or rasp to layout and finish garter by eye |

Disclaimer: Woodworking is inherently dangerous and Lake Erie Toolworks cannot be held responsible for any injury to person or property arising from installation, use or misuse of our products.

If you haven't started building your bench yet, there are several great books out there that can give you good guiding principles about what type of bench and vises will suit you best. If you already have a bench, chances are strong that you can retrofit and accommodate a vise of your choice.

We recommend reading the following books:

- Christopher Schwarz's The Workbench Design Book, The Art & Philosophy of Building Better Benches or Workbenches from Design & Theory to Construction & Use - He offers a great overview of different types of vises and their usefulness as well as a couple of great plans based on historical designs, all of which can use our vise screws.
- Scott Landis's The Workbench Book is another very good workbench resource.
- Lon Schleining's The Workbench, a Complete Guide to Creating Your Perfect Bench can also provide you with some good information to help guide your overall bench building efforts.

The books mentioned above will get you thinking about the type of work that you do or plan to do and what type of bench and vise combinations will work best for you.

Instruction Steps

- Read all instructions first and carefully layout and check your work before actually cutting. It's easy to back yourself into a corner with clearance issues if you're not careful. It's also pretty tough to un-drill a big hole in your bench leg.
- A leg vise needs a flat plane between the front edge of the bench top and the leg. If your leg is not in the same plane with the front edge of your top, you'll need to block it out flush and square with the top. It is easiest to install a vise if you can incorporate it into the workbench building process. Cutting the parallel guide slot and drilling the holes are easier when the leg isn't attached to the top or a knockdown assembly. That being said, it's totally possible to install a vise after the bench has been built, it might require some creativity though.
- First, determine where you want the leg vise screw to go, typically on the left leg if you are right handed and on the right leg if you are left handed. (See Figure 1)



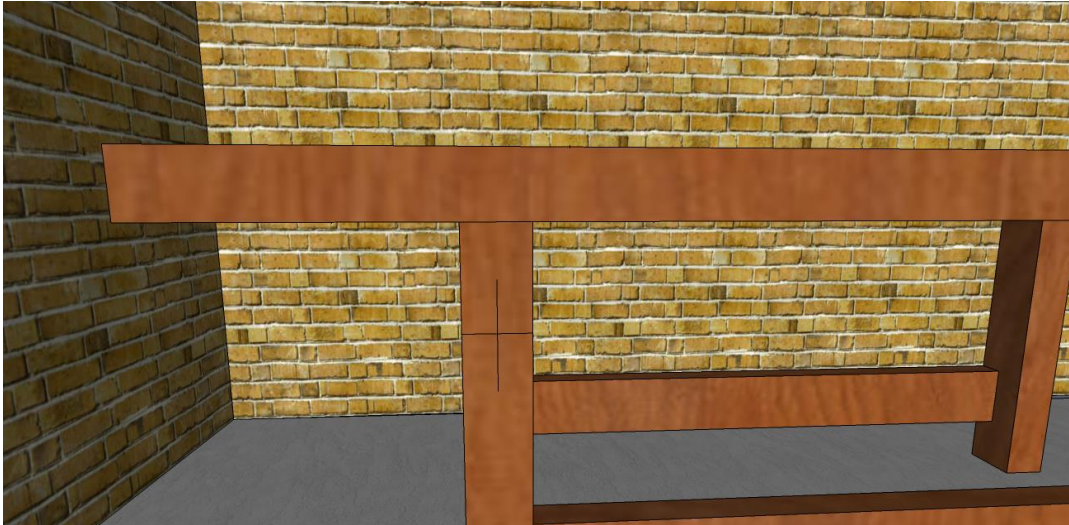
(Figure 1)

- Choosing the height of the screw is the next part. Ensure that there will be least $\frac{3}{4}$ " of space between the top of the screw and the bottom of the benchtop or any other surface such as on a knockdown bench's base horizontal member below the top. Cutting the vise nut within $\frac{3}{4}$ " of the threads risks weakening it. Another way of looking at it is to make sure the centerline of the screws is at least 2" away from any surfaces under the benchtop. (See Figure 2)



(Figure 2)

- When you determine the location of the screw, mark it on the leg and extend the line across the leg w/ a square and onto its sides. This will be a clearance hole, so use a drill bit, hole saw, etc. sized at 2-9/16" to 2-5/8" diameter for a standard vise screw or 3-1/8" diameter for a 2X vise screw. (Figure 3)



(Figure 3)

- Drill the appropriate size clearance hole in the center of the leg for a standard vise or for a 2X vise as discussed. (See Figure 4)

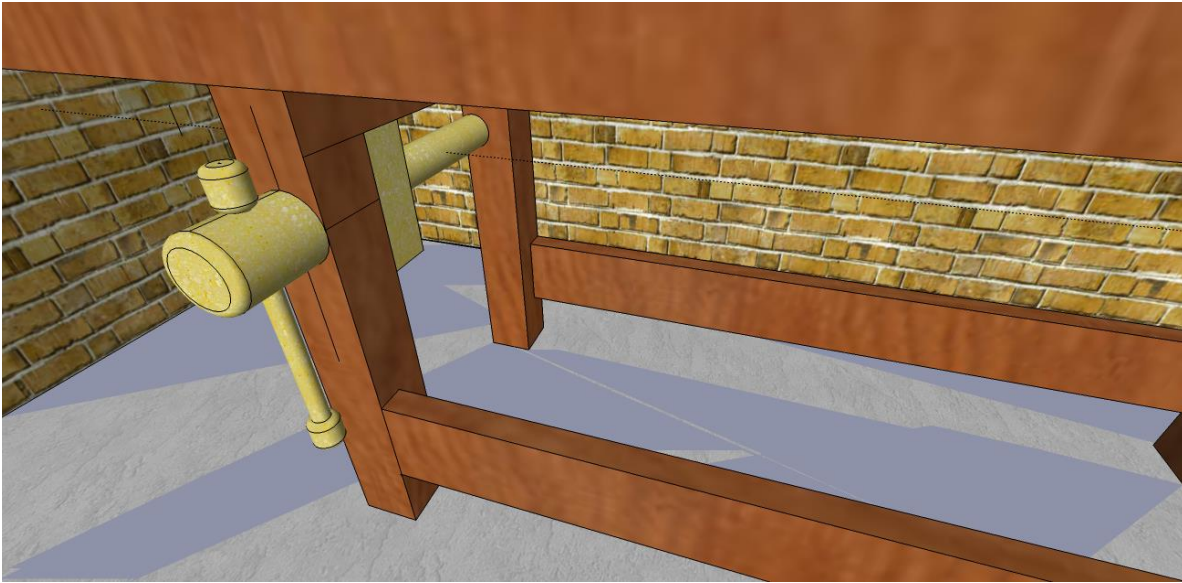


(Figure 4)

- Place the nut behind the leg and if it needs to be trimmed to fit, do so (making sure you don't cut to within 3/4" of the threads). Thread the screw through the hole in the leg and into the nut and either center it by eye in the clearance hole or use non-marking masking tape (it's best to apply finish / wax to the screw before this) to wrap around the screw until it just fits into the hole. If the nut is to be screwed to the back of the leg, then pre-drill the holes in the nut and then once the location is found, clamp it in place and

transfer the marks to the leg with transfer punches or a drill bit (brad points work well). (See Figure 5)

(Note: Optional Nut Install Method - Some people prefer to cut a slot or mortise in the leg for the nut to sit in sideways, if this is the method that you choose, you should mark this location now and mortise your slot across the back of the workbench leg accordingly. You can view Popular Woodworking Magazine – August 2010 issue for a great example of this alternative nut installation method.)



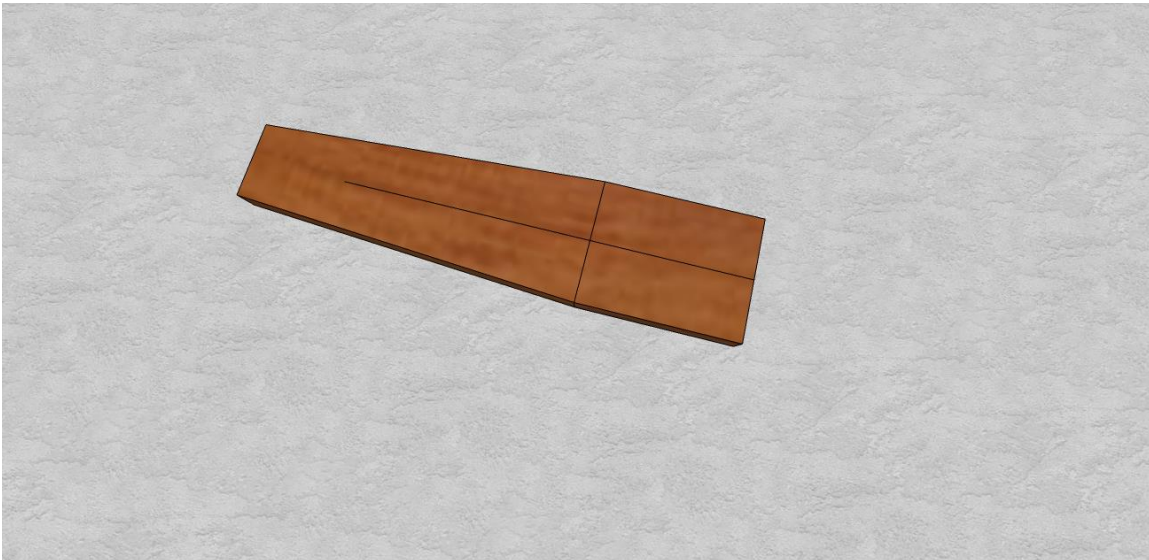
(Figure 5)

- Install the nut as you see fit (glue, screws, bolts, mortise/ slot) (See Figure 5)
- Remove the screw and nut and determine where the parallel guide mortise or slot will go. (There is a lot of info on this in the Christopher Schwarz book listed above as well as the Popular Woodworking – August 2010 Issue) Either cut the slot on the bottom of the leg or cut the mortise further up the leg, either is an acceptable method to pursue.
- Now get your vise jaw/chop and lay it on the leg where it is intended to go. Clamp it in place. Transfer the marks from the side of the leg (the center of the leg's hole) onto the vise jaw. We suggest you leave 1/8" of the vise jaw above the top of the bench, as the clearance in the screw will cause it to drop slightly (you can always plane it flush after final assembly). We also suggest that you leave at least 1/2" of clearance between the bottom of the vise and the floor, because as the vise extends, it starts to angle towards the floor and can bump into it. (Figure 6)



(Figure 6)

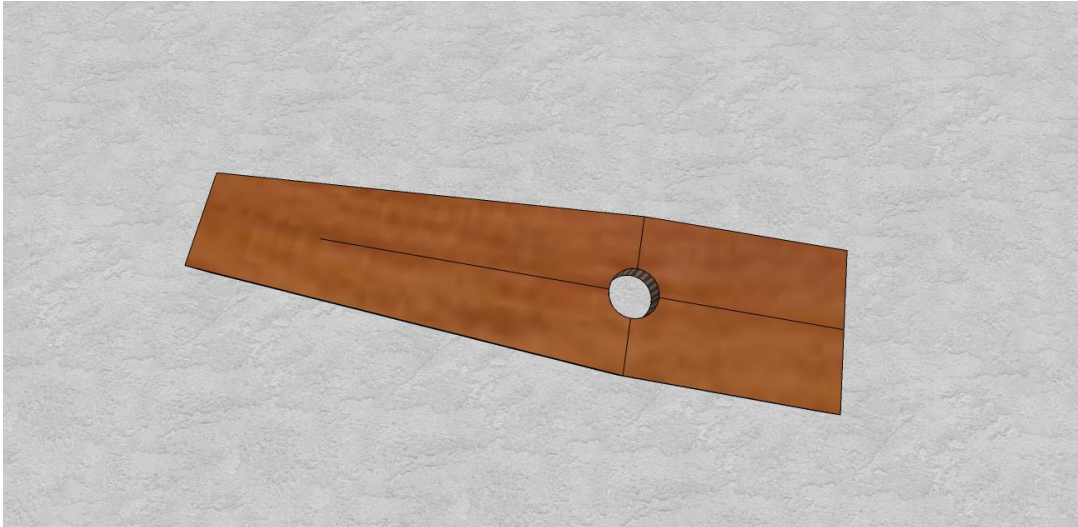
- If you are installing an external brass garter you will be using a 2-9/16" to 2-5/8" bit as a clearance hole for a standard vise screw, or a 3-1/8" bit as a clearance hole for a 2X vise screw. Mark the center of the hole by making a horizontal mark across the face of the vise jaw as well as a vertical mark both about 8" long or so (this will come into play next). (See Figure 7)
- If you are installing an internal maple garter, you will be drilling a 2 1/2" hole for a standard vise screw, or a 3" hole for a 2X vise screw. Make sure you have the center of the hole marked horizontally across your vise jaw and onto the side where you will mortise for the internal garter. (See Figure 7)



(Figure 7)

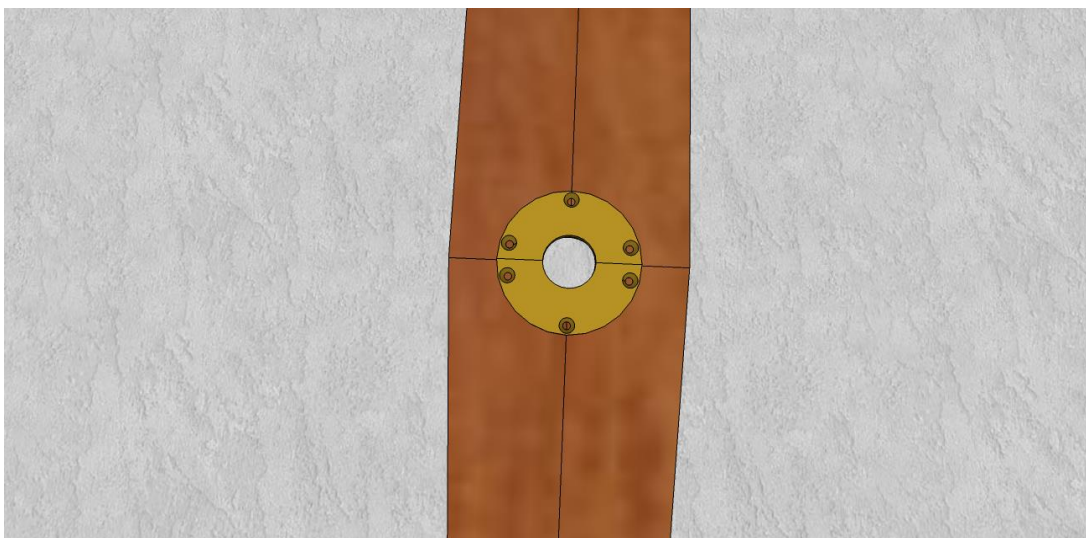
External Garter instructions (Internal Maple Garter instructions are below)

- Drill the proper sized clearance hole in vise jaw as discussed – 2-9/16” to 2-5/8” for a standard vise screw or 3-1/8” for a 2X vise screw. (See Figure 8)



(Figure 8)

- Now that you have the hole in the vise jaw, you should insert the screw through the jaw, through the leg and into the installed nut. Before you tighten down on it, align the garters into the garter groove. Then center the “seam” between the two garters on one of the lines and the middle hole of the garters on the other line. If you drilled your clearance hole at the center mark that you made then your garters are properly aligned. Tighten the vise screw to hold the garters in place and then transfer the middle hole of each garter piece onto the vise jaw with transfer punches, drill bits, or carefully tracing the hole w/ a mechanical pencil. (See Figure 9)

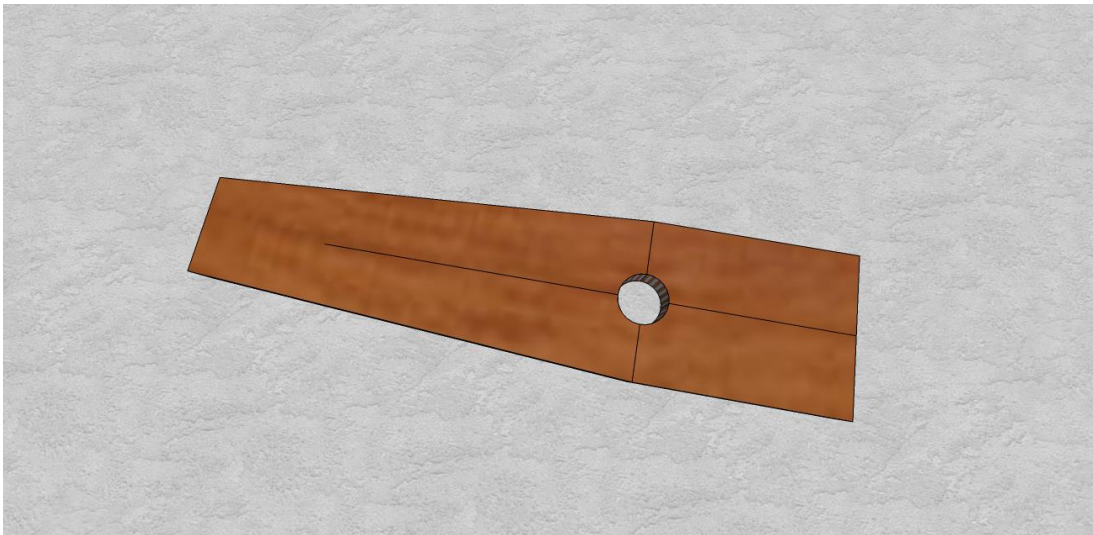


(Figure 9)

- Take the assembly apart (being careful not to damage the garters) and then drill the two pilot holes for a #14 wood screw into the vise jaw for the garters. Put the garters in place, put wax on your screws and drive the two screws all the way down. If there is too much resistance, back out the screws carefully and re-drill with a slightly larger drill bit and retry w/ plenty of wax. You do not want to break screws here, so don't use an impact driver. We recommend hand driving them or using a cordless drill w/ a lighter clutch setting.
- Check the fit of the garters and transfer the other holes. If they don't line up, then loosen the screws and put the garters in the proper position and mark accordingly. Disassemble again and drill the pilot holes for the remaining garter screws. Reassemble the garters and drive in the screws. With care, you should have a well fitting, properly centered garter. Take the garters off and reassemble with the vise screw.

Internal Garter instructions

- Drill the 2½" clearance hole through the vise jaw if using a standard vise screw or drill a 3" clearance hole through the vise jaw if using a 2X vise screw. (See Figure 10)



(Figure 10)

- Transfer the distance between the hub of the screw and start of the internal garter groove to the side of leg vise jaw. Cut a 3/8" mortise to match the width of your garter (drill press, router, etc.).
- Check the fit of the vise screw and make adjustments as necessary (such as enlarge vise screw clearance hole, or fine tune internal garter fit, etc.). You can aim for a "wedge" fit, or you can use a pin to hold your garter in place, but you shouldn't glue it. If you run into problems send us an email and we'll do our best to help you work things out.

Same for internal or external garter leg vises

- Put the vise jaw and screw assembly onto the leg and tighten it down. Ensure that the jaw is vertical and in position. Transfer the location of the parallel guide slot or mortise onto the vise jaw. Take the vise jaw / screw off of the leg.
- Cut the mortise for the parallel guide. Make a parallel guide that fits through the slot in the bench leg and with a tenon that fits into the vise jaw's mortise.
- Drill the holes in your parallel guide (3/8" holes with 1" spacing across top row and 1" spacing across bottom row – top and bottom rows are offset by 1/2") – (Note: Please see Popular Woodworking Magazine – August 2010 Issue for more details). Next glue the parallel guide into your vise jaw. Test the fit of your vise and wax your screw and nut, as well as any other bearing surfaces, garters, the hole that the vise screw sits in etc.
- Have fun with your new leg vise!



We truly hope that you enjoy your wood screw kit from Lake Erie Toolworks and if you have any questions or comments regarding the installation method detailed in this document, or other installation ideas to share, please feel free to contact us via the comment section of our website at www.LakeErieToolworks.com or via direct email at info@LakeErieToolworks.com.

We also wish you the absolute best in your woodworking projects and don't forget to drop us a line or send us some pictures on how your vise screw & work bench efforts turned out. We'd be happy to add them to our website in our "Workbench Ideas" section of our website for the benefit of other woodworkers who are building their workbenches.

Best regards and happy woodworking,
Nick Dombrowski
Lake Erie Toolworks