Hi, my name is Pat and I have had my own shop making plastic injection molds for quite some time. I have always wanted a large vise to help with my welding projects. I wanted to address this in a way that you can present cost information to your employer and get him to allow you time and money to build a vise. A Wilton 6” x 10” opening vise costs $2370 from MSC. This provides my with a start to compare my Yankee Vise with the Wilton vise for costing purposes. Jason at Fireball Tool has some really nice videos on his vise. Thanks to Jason, for making some great videos. His vise was not being quite like I wanted; it is a little bigger and has a swivel base, and a few other things I wanted to change to my own requirement. My Yankee vise is a little smaller at 5 ½ inch jaw width and a little over a 12” opening.

I wanted to improve my inventor skills, so I sketched it up in Autodesk Inventor, and intend to have the information including a purchased parts list available on my website, yankeemold.com Please consider subscribing to my channel as it really helps new youtubers out, and visiting my website.

I got quotes on all the stuff I would be using in my vise, as I wanted to investigate the economics of the build. It’s not cheap. The steel cost was $150 and the purchased parts from McMaster were about $200. So I have invested $350 without labor in this vise. If I am comparing to the Wilton vise price, that leaves me just a hair over $2000 to spend on labor. That is really not a lot of man hours, if I am billing at shop rate. Since I plan to use this in house, and am not making it to sell for a profit, I really only need to cover wages. I recommend you watch our videos, and decide if making a welding vise is feasible for you. Then talk to your boss with costs in hand to get management to “buy in” to this project. Please consider liking and subscribing to this video to insure you can catch the rest of this series easily.

I don’t really feel that anybody wants to see me run equipment for hours, so instead I will show you my parts before welding and some sketches I used to manufacture them.

(Show stuff)

I purchased my tubing and flat plate from my local Metal Supermarket in Loves Park Illinois. A call out to Nick for running a business that is willing to deal with the “little guy” as well as bulk buyers.

They helped me find tubing that was going to telescope nicely for this project and gave me a decent price on it too. I purchased 3 x 4 x ¼ wall tube and 3 ½ x 2 ½ x ¼ wall tube. These 2 tubes cost $49.00

Unless you have to pay for shipping, and need to get all the materials in advance, I would recommend getting just the 2 rectangular tubes and fitting them up before investing more cash or labor in the project. The tubes will need to have the weld removed from the inside of the larger tube so that they telescope nicely before any other components are addressed. If you can’t get this to work right, there is no reason to proceed.

To remove the weld, I already had a block with a cutter in it around the shop from some old project years ago. I pulled it thru the tube with a 5/8 threaded rod. (show) Jason at Fireball has a nice video on how he did this, so I am not going to do one. Just realize that this is important. They can’t be too sloppy, but must slide nicely so your vise will function. Mark the corners to keep your orientation. They probably jam when put together in some rotational configurations due to the warpage of the tubes. Tubing isn’t perfect. So find your orientation and mark it prior to proceeding. You can still warp it into an unusable mess with welding, but why not start out with something that works.

After you get this bit done, move on to the nut retaining center tube. The 1 ¾ OD x 18” long tube cost $18. It needs to be machined in the lathe on both ends to fit the 1 1/8 x 5 TPI modified acme nut on one end and for the rear cover on the other end.

I used 3 Acme nuts from McMaster in this project, and one of them is modified to fit in the tube for welding. The Lead Screw is 1 1/8 x 5 TPI Alloy Steel. I tapped one end of it 5/16-18 and am using it to fixture the ends on the nut retaining center tube. Fixturing this sub-assembly square before welding is very important. If it isn’t relatively square your vise may bind and be an unusable piece of junk.

So I am ready for my first weld on this project.

For flat plate, Metal Supermarket found some 1 x 6 in stock for $62. Since I needed to do some other work around the shop I loaded the plate and DXF files into my wire EDM and set it to cutting while I did some other work. When done with the wire cut, I tapped my holes to use to fixture these for welding, and did the remainder of the machining in a mill. The radii are mainly decorative, and I have an aversion to cutting my hands on sharp stuff. You could do the whole think with sawing and milling, but my wire EDM was available and doesn’t require me to stand there the whole time.

I also wire cut the wrench handle out of a piece ¾ x 3 x 12” that I got for $12

I machined the other parts in a mill and a lathe. I got the steel out of my left over stock pile, but got prices for each piece for reference. I used A-2 for the removable jaw inserts and hardened them, and will straight knurl them later. They could be soft jaws made out of aluminum or cold rolled, or whatever your project requires.

Purchased parts came from McMaster Carr except for a few items we had in our supply bins. You might be able to obtain the parts at another vendor less expensive, but McMaster has a super website with plenty of information and prints for many of the purchased parts. Some of the stuff had to be purchased in quantity, so I have plenty for another vise.

Next to fixture the big tube for welding. See you soon in another video. Please consider subscribing and liking my videos. By for now from Pat at Yankee Mold.