

## PVC VISE ADAPTER -- for holding pipe

by [Thinkenstein](#) on August 19, 2009

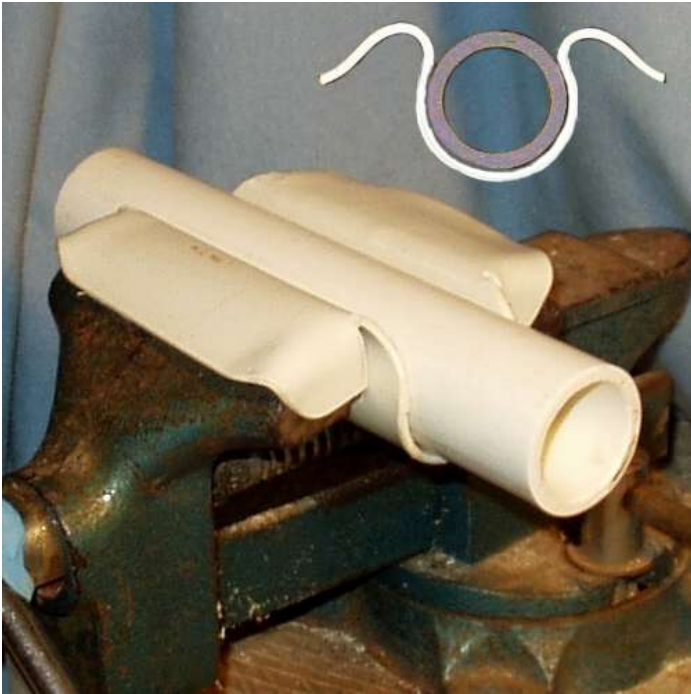
### Table of Contents

|  |   |
|--|---|
| intro: PVC VISE ADAPTER -- for holding pipe  | 2 |
| step 1: Safety while heating PVC             | 2 |
| step 2: Planning and Layout                  | 3 |
| step 3: Preparing the Vise                   | 4 |
| step 4: Cutting and Opening Up the PVC       | 4 |
| step 5: First Heat Forming                   | 5 |
| step 6: Fold Down the Tabs                   | 6 |
| step 7: Drill a Hole for Hangin              | 7 |
| step 8: Adapters for Different Sizes of Pipe | 8 |
| Related Instructables                        | 8 |
| Advertisements                               | 9 |
| Comments                                     | 9 |

## intro: PVC VISE ADAPTER -- for holding pipe

My vise has jaws that were designed for holding flat material, not round pipe. The adapters I made hold the pipe more securely and without damaging the pipe. I made adapters for different sizes of pipe.

The adapters are easy to put on the vise and to take off. They just slide over the jaws.



## step 1: Safety while heating PVC

We love plastics for what they do for us, but plastic manufacture and decay tend to pollute the environment and negatively affect our health.

Vinyl Chloride, one of the components of PVC, is carcinogenic. When it is locked up in the polymer, however, it is much safer to be around. In my years of experience working with PVC, I have not noticed any adverse effects on my health from being around it.

Always work in areas with good ventilation. If you do get caught in a cloud of smoke, hold your breath and move to clean air.

When heating PVC with a gas stove or propane torch, try not to let it burn. Smoke from burning PVC is bad. With experience one burns it less and less. Don't panic the first time you do burn some. It scorches, but doesn't immediately burst into flame. Move the material away from the flame and try again. Don't breathe the smoke. Smoke avoidance comes naturally for most people.

While heating PVC over a gas flame, keep the plastic an appropriate distance from the flame to avoid scorching the surface before the inside can warm up. It takes time for heat to travel to the center of the material being heated.

Keep the plastic moving, and keep an eye on the state of the plastic. When heated, the PVC material is flexible, like leather. Beyond this stage, you risk scorching it.

A word from James, the plastic engineer -- "Just a word of warning, PVC can handle some high heats but if it catches fire, you wont be able to put it out, it does not need oxygen to burn so don't do this inside".

I do work inside, but my house is made of cement and has good ventilation. MAKE SURE THAT YOU HAVE GOOD VENTILATION. PLAY WITH FIRE -- CAREFULLY.



## step 2: Planning and Layout

I used a piece of paper to substitute for the PVC while I visualized how big a piece of plastic I needed. The height of a stack of four CD's was about how deep in the vise I wanted the pipe to rest. The plastic had to be long enough to allow that and wide enough to cover the vise jaws and leave some extra material for tabs to fold down later.





### step 3: Preparing the Vise

The plastic will be heat formed directly over the vise, with a piece of pipe in place to assure a pipe of that diameter will fit in it later. In order to work quickly when the time comes, making sure the pipe goes in only as deep as desired, a piece of wood is placed in the jaw area for the hot plastic to bottom out against.



### step 4: Cutting and Opening Up the PVC

If you ever need to cut a piece of pipe nice and square, wrap a piece of paper around the pipe and use the edge of the paper as a guide for marking the cut line. As you saw around the pipe, keep turning the pipe so you can make sure you stick to the line.

Cut the pipe section down one side. Hold the material with pliers, and soften it over a gas stove. When it is floppy, like a piece of leather, it is ready for heat forming.





### step 5: First Heat Forming

After getting the material soft and pliable, force it into position in the vise jaws. Fold over what protrudes from the top and hold it down until it cools.

The next step will be to fold down the tabs on the sides of the jaws. Pencil in where you need to cut and then make the saw cuts.







### step 6: Fold Down the Tabs

Heat the tabs with a propane torch and bend them over the jaws. I did them one at a time, heating them away from the vise and then putting the adapter in place on the jaws for bending the tabs down.

Round of sharp corners when the plastic cools. I used snips and a file to round the corners.



#### Image Notes

1. Sharp corners need to be rounded off.



### **step 7: Drill a Hole for Hangin**

I hang my adapters on nails near the vise for easy access when I need them. Hanging things is a good way to keep things organized and visible.



### step 8: Adapters for Different Sizes of Pipe

I have adapters for all the common pipe diameters I work with.



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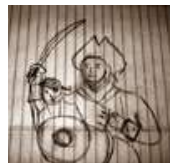
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## Comments

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**lemonie** says:

Neat. Have you got any devices for PVC pipe *bending*?

Aug 19, 2009. 12:26 PM [REPLY](#)

L



**Thinkenstein** says:

Not a device, but a technique. Fill the pipe with sand, ends capped with masking tape. Heat the pipe, bend it, let it cool, empty out the sand.

Aug 20, 2009. 11:06 AM [REPLY](#)



**lemonie** says:

That's a good one. Do you think it would work with copper?

Aug 20, 2009. 11:10 AM [REPLY](#)

L



**Thinkenstein** says:

I never tried it. It seems like the general idea would be the same. The sand keeps the pipe from pinching shut when bent. Bending it inside a channel, like a pulley wheel might help, too. Also, maybe heating one side more than the other, perhaps to favor stretching over compression.

Aug 20, 2009. 12:14 PM [REPLY](#)



**lemonie** says:

I might try it - no need for pipe-benders!

Aug 20, 2009. 2:36 PM [REPLY](#)

L



**Phil B** says:

My brothers gave me a gift certificate to a home improvement store on the occasion of my birthday. After a lot of thinking about a practical way to use it, I bought a heavy duty heat gun. I can already tell it will be very handy for any project in which I want to bend and form PVC.

Aug 19, 2009. 4:50 PM [REPLY](#)

This Instructable is a good idea. A person could make simple covers for vise jaws so soft materials can be held without marring them. I may make a set for myself tonight. Thanks.



**Thinkenstein** says:

You're welcome. Good luck with your soft jaw project.

Aug 20, 2009. 11:04 AM [REPLY](#)



**rimar2000** says:

Very well done. For that task I use some sheets of newspaper folded repeatedly.

Aug 19, 2009. 1:00 PM [REPLY](#)

But that is because I do not usually press delicate things in the vise.

I liked the step 7, it is a detail that often is overlooked (see <http://www.instructables.com/id/SJD909IFS8O1OPJ/> step 5)