

Installing 70 30 copper-nickel pipe



**ASSIGN
BUSTER**

Installing 70/30 copper nickel (cuni) pipe sometimes can be a test of human patients, mechanical knowledge, and dexterity. It is, however, well worth the effort, because once you complete the job whether you're a novice or connoisseur of the art you gain a sense of pride for a job well done. Additionally, you will have confidence in knowing that your pipe will stand the test of time and vigorous challenges they're used for. The only problem that comes with working with 70/30 cuni pipe is, having a concrete way to approach even the minutest step(s) when installing, cleaning, and inspecting your pipe.

Initially, you should have gathered your tools that will you need for this job. Assuming that you have the proper tools for the job we will begin by taking the copper nickel pipe a prepping it for installation. To prep copper-nickel pipe you want to start by gathering your pipe and you're fittings, so you can obtain the measurements for the length off your pipe, square it off, and then touch it up. By doing this it eliminates dirt and debris, and allows for cohesiveness between the mechanical joints when you're mating them together.

Too do this you're going to measure out the proper length of your pipe by taking your ruler (which should be measured in inches) and mark on your pipe how much you're going to need. Once you have done that you're going to cut the pipe at its designated mark. At the same time, be careful not to cut too much off, because if you do then you will have to either buy more pipe or go through another process of adding the pipe back. You can cut copper pipe with a regular hacksaw or a copper tube cutter.

Although both will make a satisfactory cut, the tube cutter ensures a square cut every time. Use a jig or miter box when you're cutting copper pipe with a hacksaw. This helps to ensure a square cut in the pipe. After making the cut, remove the burrs inside the pipe with a half-round file. A pipe cutter usually leaves more burrs in the pipe than a hacksaw. When cutting pipe for a specific run, be sure to make allowances for the distance of pipe that fits into the fittings. Also, remember to add the extra length the fittings will give the entire run of pipe.

Figure about 1/2" for each fitting. In addition to doing this your also simultaneously doing something else called chamfering (chamfering is the process of filing the tip of the inside of the pipe so that the flux and stick to the pipe). Now that your pipe is squared off your going to take a strip of emery cloth and clean the outside of the pipe a half-inch away from the tip of your pipe (doing this allows for proper flow of the soldering ring between the fitting and pipe) until you have a bright gold shade of pipe, which is the natural color of copper-nickel pipe.

Now that your pipe is ready for mating, you know have to prep your fitting for mating as well. To do this you're going to take another piece of emery cloth a clean the inside of your fitting up to a half-inch in diameter on both sides of the fittings. Once you're done with that procedure use a different strip of emery cloth to clean your brazing rings, and then place them in the slots inside your fittings. Once you have prepped your pipe and fittings you're ready to mate the pipe and fitting together. Apply a light coat of soldering paste or flux to the cleaned end of the copper pipe.

Use a flux brush, an old toothbrush or a wooden paddle for spreading the flux. Flux or soldering paste ensures a firm bond between the copper and the solder. Also apply flux to the inside of the cleaned fittings. The flux or soldering paste will keep the copper from oxidizing when heated. Place the copper fitting on the pipe only after it is thoroughly cleaned and coated with soldering paste). When the fitting is firmly in place, rotate both the pipe and the fitting several times to spread the flux evenly. A propane torch is an ideal tool for mating copper pipe.

If you look at the flame of a propane torch you will notice there is a lighter blue, well-defined flame in the middle of a darker blue flame. The tip of this light blue flame is the hottest part of the flame. Play (move) the flame along the fittings and the pipe to bring them up to soldering heat. Then concentrate the heat in the middle of the fitting. The light blue flame should be just touching the fitting. You can do both ends of the fitting at the same time by heating in the middle like this. Do not apply the heat directly to the solder or the area that has been fluxed.

Do not overheat the copper pipe. If you look at the flame on the side of the pipe away from the torch, you may notice a green flame develop. This means the fitting is ready to solder. Another way to tell is to touch the solder to the hot pipe. If the solder melts and begins to run, the pipe is at soldering temperature. Remove the flame from the pipe and apply the solder to the pipe where it joins the fitting. The solder will flow into the fit. Keep melting the solder until it appears completely around the fitting.

The old saying, " If a little is good, then a lot is better," does not apply here. Excess solder can run down inside the pipe, causing a restriction or even a

blockage. You can experiment with different tips on your propane torch until you find the one that spreads the heat evenly along the pipe you are using. After you have successfully measured, square-off, and used a propane torch to mate your pipe and fittings you're ready to clean your pipe. Cleaning your pipe throughout this procedure is a nonstop evolution.

After mating your pipe together cleaning it is extremely important, it's the first step in recognizing any malfunctions. You should be able to notice the thin black film that's coated around the pipe and the fitting. This black coat of film comes from the rise in temperature of the pipe after you have heated it properly. To clean your pipe now you are going to have to have a bucket of water and a wire brush. Take your wire brush and dip it in the water and start cleaning the pipe and fitting(s) where you brazed at. You should continue to do this until both the pipe and fitting(s) becomes bright gold.

In the meantime, while you're cleaning your pipe you should have adequate lighting available, so you're able to spot check for insufficient mating around the radius of your pipe and fittings. If you have thoroughly cleaned your pipe and notice small holes around your pipe then you need to go back a re-heat your pipe and apply more solder using a soldering stick. Once you have reached the point where you have no pen holes between your pipe and fittings, then you have completed the installation and cleaning of your 70/30 cuni pipe job.

You are now ready to perform a system and inspection check of your project. Now that you have successfully installed and cleaned your pipe it's now time to inspect your pipe for mechanically cohesiveness and system performance. This process is very important, because your craft is successful only if it can

pass inspection. It requires a great deal of attention to detail when inspecting the pipe and fittings, so that you're careful to not miss any pen holes. To this inspection, you have to do is submerge the part of the pipe that you brazed in clean and clear water.

After doing this, if you notice water pockets form in the water remove the pipe and clean it with a rag and try it again. When you have tried it again and you notice water pocket again then that means you have tiny pen hole between your fittings and pipe. To fix this problem you will have to locate where the water pockets are forming at and solder that part. Once you have done that submerge your pipe and check for water pockets. After you have successfully corrected the pen holes you can now begin to clean up your job and apply the finishing touches to your pipe.

In conclusion, installing pipe can be difficult if you don't have a proper foundation of rules to follow. Having an easy to understand guide line for performing such a job can be cost effective, uncomplicated, and less time consuming. Learning how to install, clean, and inspect 70/30 copper-nickel pipe can prepare you for the rigorous challenges that comes with working with pipes and fittings of different sizes and materials. Whether you're an apprentice or authority of the art of pipe fitting, this guide line for installation, cleaning, and inspect 70/30 cuni will be of great assistance to you.