

Manufacturing “Bullets” for the cryo-coring unit.

There are two pieces to the “Bullet”, the inner sleeve (on top) and the outer sleeve (bottom).



You will need:

- 1) Copper tubing, 3/8” and 1/4”.
- 2) 30 Caliber bullets – full metal jacket (Optional)
- 3) 1/4” NPT compression fitting
- 4) Pipe cutter tool
- 5) Tubing Flare kit

Outer Sleeve:

- 1) 3/8” OD, 1/4” ID copper tubing. This is standard copper tubing which you can purchase at Home Depot or Lowes.
- 2) Cut bullet to the appropriate length. A good length is about 15-18” but you can make them any length.
- 3) Flare one end of the outer sleeve with the flaring tool.
- 4) The bullet goes in the other end of the sleeve. You need to slightly flare this end in order to get the bullet into the copper tube. I have found the best way to do this is to tap the pointed end of the bullet into the copper tube with a hammer. Don’t tap too hard, just enough to open the tube a bit. The bullet may not come easily out. You may need a pair of pliers to get it out.
- 5) Remove the bullet. Turn it around and it should now go into the copper tube.
- 6) Use the flare kit to compress the copper tube around the bullet.
- 7) Solder the bullet into the sleeve.
- 8) You are done!

NOTE: You can get away with not using a bullet for the tip of the outer sleeve. You can just flatten the tip of the sleeve with a vise and solder the opening shut.

Inner Sleeve:

- 1) 1/4” OD, 1/8” ID copper tubing. This is standard copper tubing which you can purchase at Home Depot or Lowes.
- 2) Cut to the appropriate length. The inner sleeve should be about 2” longer than the outer sleeve.

- 3) One end of the inner sleeve attaches to the NPT compression fitting and the flexible hose. Flare this end with the flare tool
- 4) The other end needs to have some holes drilled in the end to help the flow of liquid nitrogen. Use a very small drill bit to do this. It would be best to use a drill press.
- 5) Smooth any burrs with sandpaper or a grinder



Tip of Bullet (outer sleeve) on left. Tip of inner sleeve on right.

Questions? Contact...

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