

BRACELET FORMING, USING RESTRAINING RINGS

The kit consists of two steel restraining rings and one urethane insert as shown in *Figure 1*.

To use the tooling, we have to make a sleeve of 18 gauge metal to contain the urethane. Cut a strip of metal 1-7/16" tall x 9" long (this is for the 2.5" insert).

Form the metal into a tube with 1/8" overlap for soldering. The tube should fit snugly around the insert, with very little clearance. The press can be used to urge the insert into the tube after soldering if necessary. **BE SURE TO REMOVE THE INSERT BEFORE SOLDERING!!!!**

ASSEMBLE THE TOOLING

Slide the tube over the insert until it is centered. Position the restraining rings on the tube at the top and the bottom as shown in *Figure 2*. When this is placed in the press and pressure is applied, the urethane is forced down into the tube, filling all of the space, and starts to bulge outward. It sees the middle portion as a weaker area than the top and bottom, and creates a domed curvature around the circumference of the bracelet.

This forms a very simple shape and enables you to begin to explore this really exciting new method of shaping and forming metal.

What we have been doing so far is to make a simple raised dome contour on the bracelet. Now lets move on to more adventuresome areas.

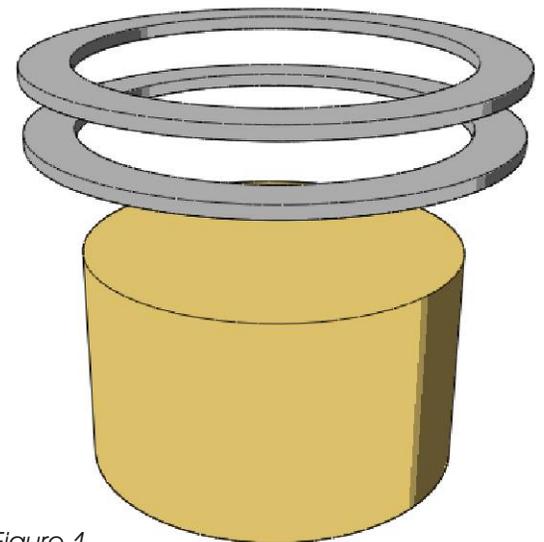


Figure 1

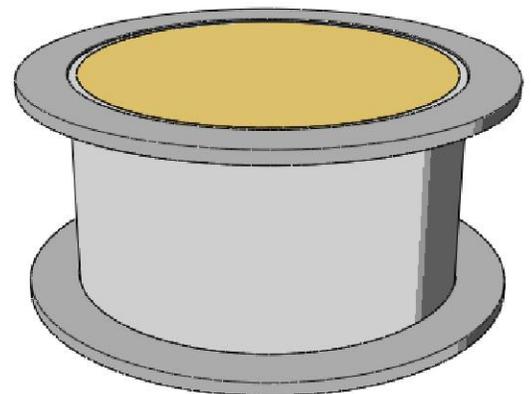


Figure 2

To make a cuff bracelet, you still have to make a complete tube to surround the insert. If you are working with precious metal, make the length of the metal blank the same as you would ordinarily use for a cuff, and add 1/4" (6.5mm) to the length. Form the blank so that it fits snugly around the insert, and bridge the gap with copper. This needs to be a slightly heavier gauge than the precious metal, as it is softer and we don't want it's softness to affect the form. See sketch #3.

Again place this assembly over the insert, place the restraining rings top and bottom and press slowly.

When this has formed, saw away the mixed metal bridge. When you remove the restraining rings and the insert from the form, there will be a ledge left by the rings. These can either be sawn away, or overlaid by using half round wire. If using wire, form a small loop in one end of the wire and stretch it around the curve and bend it over to retain it in place at the other end. See *Figure 4*.

The fastest method to solder is to use wire solder and feed in from the side. While it takes some skill and practice, this is much quicker than using solder pallions.

Finish the form on a bracelet mandrel. Even though the bracelet is a circle when formed, it is readily modified into the more comfortable oval shape, using Delrin or Rawhide mallets. Sizing can also be done at this point.

So far, we have been working with only a simple raised dome contour on the bracelet form. This has been caused by having the tube slightly shorter than the urethane, giving the insert total control over the metal. Now, let's make a tube taller than the insert. Let's make a cuff bracelet 2" (51mm) tall, using 18 gauge metal, and assemble just as before, with the restraining rings at the top and bottom, and the insert centered in the middle of the tube. As pressure is applied, the tube starts to collapse, creating wrinkles or corrugations in the vertical wall. These ridges will be totally random, with very little control over their placement or frequency. Remember that the metal is work hardening as the ridges develop, stop and anneal after reducing the height by about one third.

Having seen how the metal flows under the above uncontrolled conditions, let's now set up some constraints so that the form will develop along more controlled lines.

After soldering the bridge to the cuff, and forming the tube into a round shape to fit the insert, draw a couple of lines about 3/4" (19mm) apart, all of the way around the tube. The lines do not have to be straight. They can be sinuous. Then place the tube on a stake and planish along these lines to establish a work hardened ridge of metal that will resist movement for just long enough to force the softer metal in between the work hardened areas to start to bulge slightly. Once the softer metal starts to move outward, the work hardened areas will hold back and become the "valleys" of the form. Now, it starts to become more interesting. Once again, stop part way down and anneal. Once the ripples are established, the form will continue to develop along the lines already established.

The bracelets formed with this method will all be the same height. To vary the height in one area, it is a simple matter of using a bracelet mandrel and forging some of the raised areas back out. This gives a level of visual tension to the piece.

VARIATIONS ON THE THEME: OVERLAY METALS

Use two pieces of metal, totaling 18 gauge in thickness. Use contrasting colors if desired. The inner piece of metal should be thicker than the outer. Pierce the outer piece with any design desired. Sweat solder the two pieces together. Form into the tube shape and form as above. Hint: Your soldering skills will be sorely taxed in this maneuver!

VESSELS

Simply by stacking inserts on top of one another, and using the same pair of restraining rings on the top and bottom, it is possible to create vessels, using the same technique.

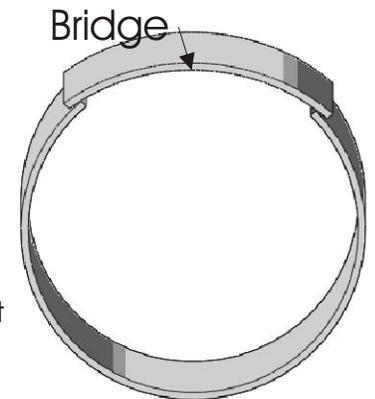


Figure 3

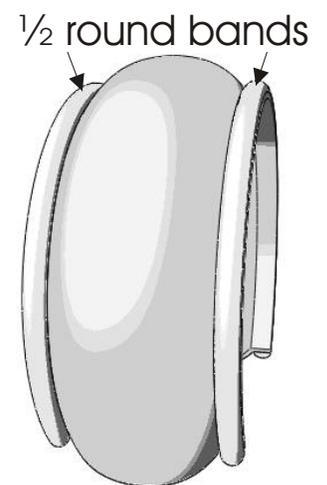


Figure 4