## **One Way to Make Hollow Stainless Steel Rings**

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The rings that I am making are made from 3/8" stainless steel tubing and have a diameter of 14 1/2". They begin as 4' lengths of straight tubing.

The first task was to roll the rings.

**Note:** The day I took these pictures it was raining. I like to work outside so everything around the ring rolling vise is covered with tarps to keep it dry. Just ignore the tarps.

This is the ring roller vise that I will be using. It has a handle for powering the rollers and the vise action can move the power roller in and out.



One length of the tubing at a time was run through the rollers.

The tubing was placed between the rollers and the vise tightened to secure the tubing and to start the bend.

The very end of each tubing length will remain straight and will later be trimmed off so that only curved tubing remains.









I used the center groove of the rollers to keep the tubing profile round as it was being rolled.

The tubing was positioned to just barely allow the required grip between the rollers.





The starting kink in the tubing can clearly be seen here.

It is important to know that the rings need to be rolled in stages.

The first step is shown below. It is a gentle curve.



Here is a ring after being run through the rollers.

For the next run through the rollers, they were tightened a bit more to allow a tighter curve.







The rolling continued until the desired ring size had been made.

Rings were sized so that the ends very slightly overlaped.

If you look carefully, you will notice that the overlapping ends are straight not curved.

These ends will be marked then trimmed.





This grinder/cut off tool was used to trim the straight ends.



The trimmed and squared off ends met nicely as shown here.









280 grit sanding cloth was used to clean up the burrs on the joined ends.



Here is a partially cleaned up joint.





To make a standard open "key ring", short lengths of brass were silver soldered into each end of the tubing.

Cleaned up, the tubing and open gap look like this.



Since I was making the rings being shown for myself, I decided to also make a "plug style key" ring.



The method chosen for making the solid rings utilized a brass slug tightly fit into the trimmed tubing ends. This was done to help strengthen and stabilize the joint.





Here is the brass stabilized joint ready for welding.

Since I have it, I chose to use my Orion 200i2 pulse arc welder to make the desired invisible welds.

With this micro welder all welding is done while observing through a microscope complete with electronic shutter for eye protection.





All of the required weld settings were done via the attached 10" touch screen.

The joint was tack welded, filled, and ground smooth.











The completed weld and single ring. This method does the job nicely.