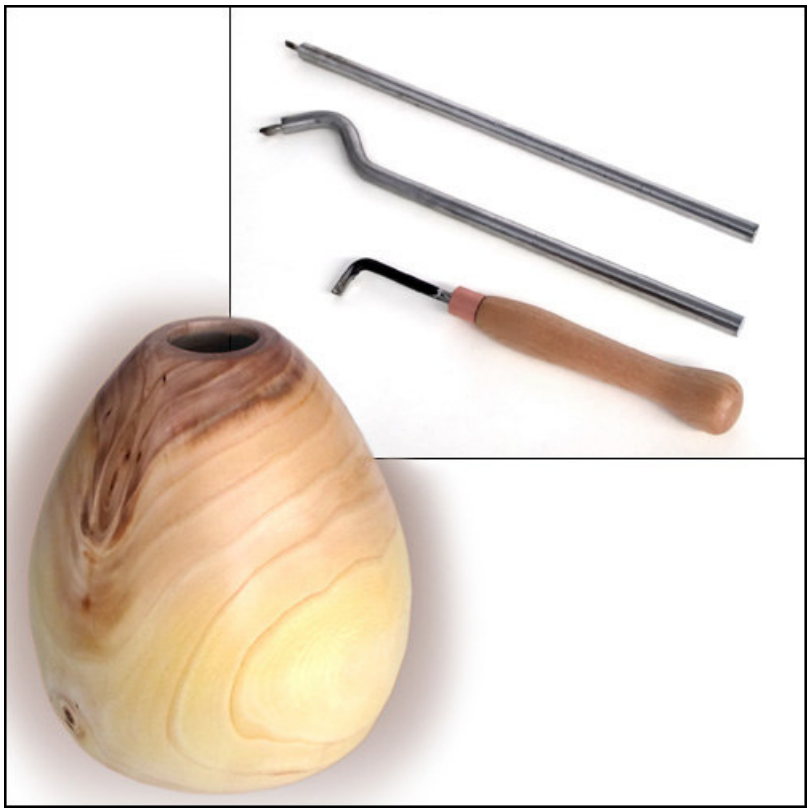
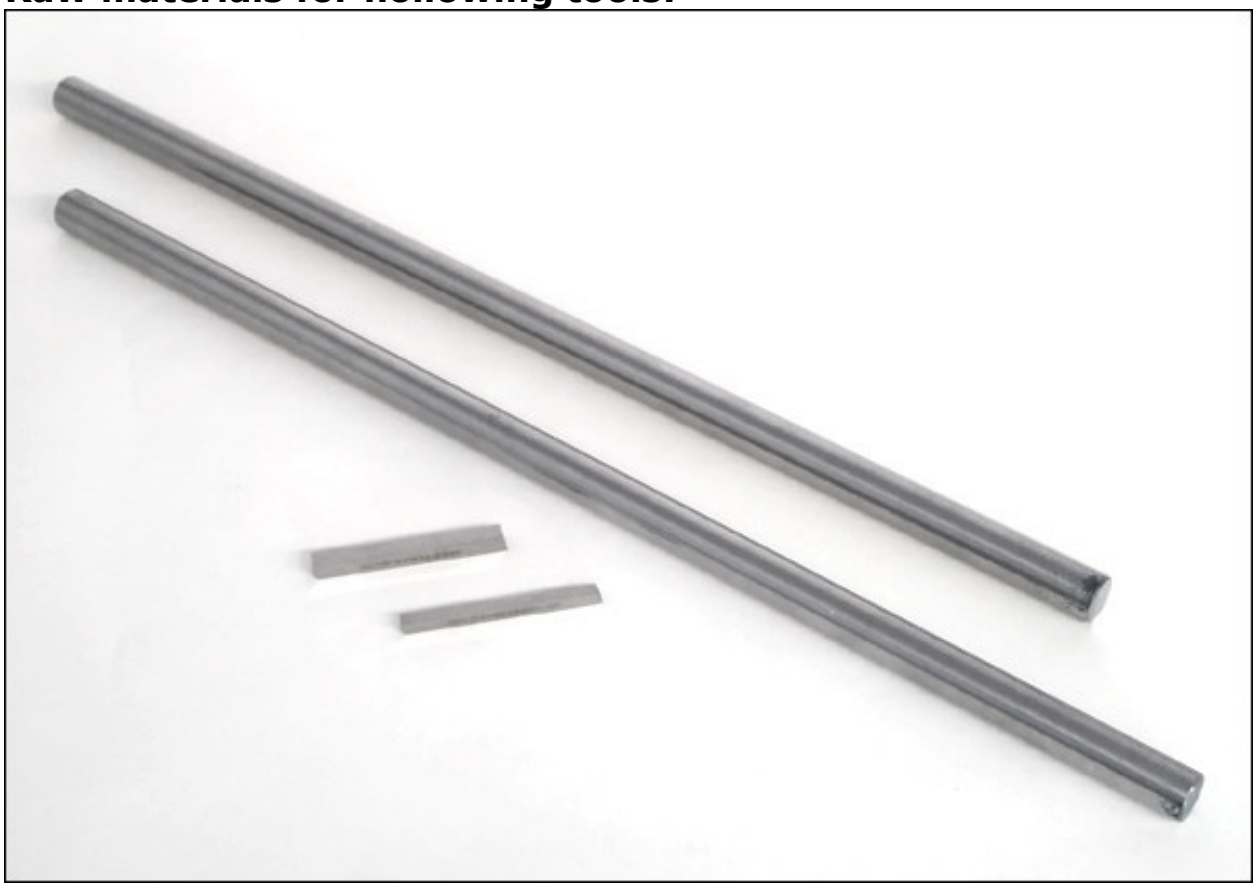
Make Your Own Hollow Form Tools



The following are pictures and instructions for making your own hollow form tools. I made them in my shop with simple tools and procedures. There is also a picture of a vase made using these tools.

The cost will be under $40.

Raw materials for hollowing tools:

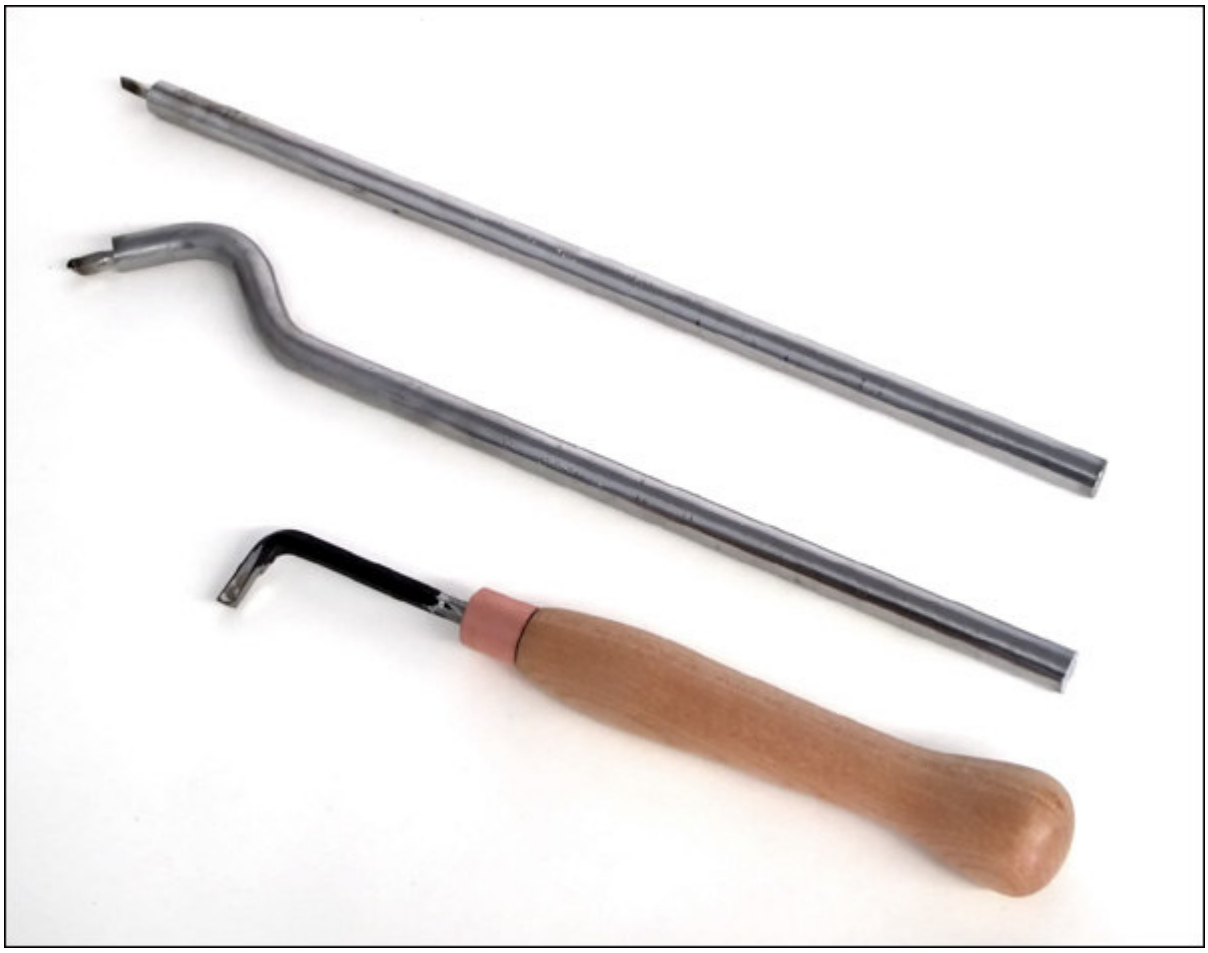


The long rods are 5/8” diameter drill rod three feet long. I cut it in half to get two 18” long shafts.

The shorter pieces are the raw cutting tips. There are 10% cobalt tool steel. They are ¼” x ¼” x 2” and 3/16” x 3/16” x 2”. I cut them in half to get two cutting tips per piece. Cobalt steel will stay sharp quite a while.

They were purchased from ENCO. Web links are included at the end of this memo. The cost for the two tools will be under $40.

Finished Tools:



The top tool is used to rough out the core of the hollow form. I simply drilled a ¼” diameter hole about ⅜” deep into the end of one drill rod and CA glued the cutting tip into the hole. To make the end (glued into rod) of the cutting tip round I put it into my hand drill and held it against a grinding wheel with both the tool and wheel spinning.

Note: The drill rod was cut in half with a regular hacksaw. The Tool Steel must be cut in half using a grinder.

The middle tool is the workhorse to shape the inside of the vessel.

MAP gas and a propane torch were used to heat up the second drill rod to the shape you can see in the picture. MAP gas has acetylene and will burn hotter than propane so heating the rod will be much faster. When the section to be bent is red hot, simply slip a hollow pipe over the end and bend the rod to the desired shape. The first bend is about 2” from the end and the second another two inches beyond. Drill a 3/16” diameter hole in the business end of the rod to accept the 3/16” cutter rounded as for the straight tool.

Note: make sure the tip of the cutter lines up very close to the center line of the shaft. When using this tool be sure to have the straight part of the shaft on the tool rest. This design and procedure will help reduce the torque developed with the crooked shaft.

Grind the tool tips with a rounded tip and about a 30 degree under cut.

The bottom pictured tool is simply an allen wrench inserted in a home made handle. I used a ¾” copper pipe for the ferrule. I used this tool to get at the inside edge of the hollow form near the neck where the crooked necked tool wouldn’t reach. I ground a similar shaped edge to the end of this tool.

Note: Use the black allen wrenches, not the silver colored variety, as the steel is of better quality.

The Vase:

The Vase is made from a Swamp Elm I cut down because it’s roots were invading our raised vegetable garden. It’s a bit tricky to work with as it likes to form cracks. It does however turn very well. The vase measures about 9” tall and 6” in diameter.

Links to Purchasing the Drill Rod and 10% Cobalt Cutters:

¼" Cutter: Will make two cutting tips

http://www.use-enco.com/CGI/INSRIT?PARTPG=INSRAR2&PMAKA=383-5216&PMPXNO=940666

3/16" Cutter: Will make two cutting tips

http://www.use-enco.com/CGI/INSRIT?PARTPG=INSRAR2&PMAKA=383-5212&PMPXNO=940311

5/8" Drill Rod: Will make two shafts.

http://www.use-enco.com/CGI/INSRIT?PARTPG=INSRAR2&PMAKA=505-0249&PMPXNO=948420