

Making Removable Tool Handles

In its simplest form, a tool handle's purpose is just twofold. First, it makes holding the tool more comfortable. Second, it can provide mechanical leverage to improve the efficiency of the tool being used.

Tool handles used by woodturners can take many forms. For example, a bowl gouge glued into the end of a tree branch will work just fine; perhaps not pretty, but nevertheless functional. For comfort, many turners prefer a certain shape to a handle. Some turners prefer handles made of metal rather than wood and vice versa. Some folks like heavy handles for certain tasks while other like lighter handles because they can feel the tool better. The list of handle preferences could go on and on.

What are some of the advantages of removable tool handles?

- You can buy tools without handles which are generally a few dollars cheaper.
- If you are traveling, especially by airplane, your baggage can be more compact.
- You can use different tools of the same diameter in the same handle. With inserts, you can use different diameter tools in the same handle.
- Some people just prefer these type handles—no other reason needed!

There are many types of removable handles on the market. There are the Hosaluk, Thompson, Oneway, Kelton, Bosch, Munro, etc. They range in price from about \$40 for the smaller, shorter handles to about \$120 for bigger, longer and fancier ones.

If you are a person who likes the feel, utility, or convenience of removable tool handles, then consider making your own. If you are interested, here is the step-by-step process I use along, with a source of needed materials.

The Step-By-Step Procedure

1. Start by either buying or making a handle insert. This is where a machinist friend would come in handy. I generally buy Hosulak inserts from Packard Woodworks or Crafts Supplies. They come in 3/8", 1/2" and 5/8" sizes and are normally about \$20 each. This is by far the most expensive component. If you were making handles in quantity, one could probably reduce this cost considerably by sourcing them locally. Figure 1 on the next page shows the Hosulak inserts.



Figure 1 – Hosaluk Inserts

- Next, buy Aluminum tubing so that the inside diameter will closely match the Hosaluk insert diameter. The 5/8" insert requires a 7/8" hole, the 1/2" insert requires a 3/4" hole, and the 3/8" insert requires a 5/8" hole. For both the 5/8" and 1/2" inserts, purchase tubing with an outside diameter (OD) of 1". For the 5/8" insert, get tubing with a wall thickness of 0.065". For the 1/2" insert, get tubing with a 1/8" wall thickness. For the 3/8" insert, use 3/4" tubing with a 0.065" wall thickness. Tubing in various sizes and wall thicknesses are available from many internet sources. A 4 foot section of tubing is about \$7-8. A picture of the Aluminum tubing is shown below in Figure 2.



Figure 2 – Aluminum Tubing for Handles, Cut to Size

- The inserts will generally be slightly oversized for the tubing and some trimming is required. In the absence of a metal lathe, use your wood lathe and a metal file. Make a conical shaped piece of wood to fit in the four-jaw chuck and another cone shaped piece to fit over the live center. As an alternative, use the large cone on your live center. Jam the insert between the two cones and, with the lathe turning at a slow speed, file away sufficient metal so the insert will fit smoothly into the tubing. This setup is shown below in Figure 3.



Figure 3 – Filing the Insert to Fit the Tubing

4. The next step is to apply some type of gripping surface over the Aluminum tubing. Clear braided vinyl hose is a good choice, readily available in most sizes and reasonably cheap. Your local hardware or home improvement will normally have a good selection. The cost is about \$1.00-2.00/ft. depending on the size. If you followed the Aluminum tube guidelines in step #2, you will either use 1" or 3/4" ID hose, depending on the insert size. Figure 4 below is an example of the hoses used.



Figure 4 – Clear, Braided Vinyl Hose for Handle Grips

5. Now it's time to put the vinyl hose on the Aluminum tube. The following procedure generally works well.
 - a. Cut the Aluminum tube to the desired length. For a 3/8" gouge, use about a 10" handle, for a 1/2" gouge a 12"-13" handle and for a 5/8" gouge used a 16"-17" handle. These lengths can be varied to suit your personal taste. Square and de-burr the tube ends and clean the outside wall with 0000 steel wool.
 - b. Cut the vinyl braided hose about 3/8" longer than the Aluminum tube.
 - c. Coat the outside of the Aluminum tube and the inside of the vinyl hose with a lubricating material. Mineral oil works well.
 - d. Heat the vinyl hose in a microwave oven using 20 second cycles on high. Repeat until the hose is very warm, but still can be held without burning your hands.
 - e. Stand the tube handle on end, start the hose over the end and slide it all the way to the bottom of the handle in one continuous motion.
 - f. After the hose is in place, trim both ends with a sharp utility knife.
6. With the vinyl grip in place, it is now time to glue the insert into the end of the handle. Either thick CA glue or 5 minute epoxy can be used with equal success. First, clean any oil from inside the handle. Put a small amount of thick CA glue or epoxy on the inside of the tube opening. Start the insert into the handle opening and twist as you slide it into place. Set the handle aside and let the glue dry.
7. If you are making a handle for a 5/8" bowl gouge, you may want to add weight to the handle. If so, here is one technique. Insert the tool into the handle until the back of the flute is even with the front of the handle insert. Tighten the insert set screws to lock in the gouge. Get a piece of 1/2" rigid copper tubing and two end-caps. Cut the copper tubing so that the total

length, including end-caps is $\frac{1}{4}$ " less than the total open space inside the handle. Leave enough space to insert a tool handle end-cap. Fill the copper tube with lead shot and glue the end-caps in place. Old shotgun shells are a good source for lead. See Figure 5 below.



Figure 5 – Lead Shot Filled Copper Tube for Additional Weight

After the end-caps are glued on, place a $\frac{7}{8}$ "x $\frac{5}{8}$ "x $\frac{1}{8}$ " "O" ring over each end of the copper tube. Slide the copper tube and "O" inside the tube handle. The "O" rings will prevent the copper tube from moving and rattling around inside the tool handle.

8. You are almost through except for the finishing touches. To give the back end of the handle a finished look, install a metal tube end-cap into the back end of the handle to cover the open hole. Tube end-caps can be bought at the local hardware or home improvement store for about 50 cents each. The picture in Figure 6 below shows the various types available.



Figure 6 – Metal Tube End-Caps

9. If all has gone as planned, you should now have a tool handle that looks like the one in Figure 7 on the next page.



Figure 7 – Finished Removable Tool Handle

So what is the final cost of this do-it-yourself tool handle project?

Handle Insert	\$20.00
Aluminum tubing	2.00
Vinyl hose	2.00
End-Cap	<u>1.00</u>
Total	25.00

A similar commercially available, 18" removable tool handle for a 5/8" bowl gouge will cost about \$55-\$65 plus shipping. Similar handles can be made for about \$25. Additionally, there is the satisfaction of making your own handle.

Material Sources

Hosaluk Handle Inserts

Craft Supplies USA
Packard Woodworks Inc.

Aluminum Tubing

Speedy Metals
2505 S. 162nd St.
New Berlin, WI 53151
866-938-6061
www.speedymetals.com

Braided Vinyl Hose – Local Hardware Store
Tubing End-Caps – Local Hardware Store
Copper Tube, End-Caps & “O” Rings – Local Hardware Store
Lead Shot – Local Sporting Goods Store