

## Making a Metal Tool Handle

This Aluminum tool handle can be used for any turning tool. Depending on the tool size and application, and your own preference, it can be whatever length you like. The tool can be reversed into the hollow handle for traveling to keep the edge protected, or the handle can be filled with steel shot for vibration dampening.

### 1 – Choose the Materials:

#### Aluminum:

To make this handle, choose a piece of aluminum tubing of the desired length, and a 2” – 3” (50 – 75mm) piece of solid round aluminum bar that will fit inside the tubing without a lot of slop. I like to use seamless aircraft tubing because it is easy to fit the round bar into it. This type of tubing is 6061-T6, an alloy that is easy to machine. It is specified by the outside diameter and wall thickness. I use 1” diameter tubing with a .058” wall. This gives .008” of clearance when a 7/8” piece of round bar is put into it - a good fit without being too sloppy. The bar sometimes comes oversize, so a bit of clearance is good. Look at the wall thickness of the tubing and choose a match of tubing and bar that gives a good fit. Cut pieces of tubing and/or bar can be bought from Speedy Metals, among others. Sometimes surplus yards have it, also.

#### Covering:

One reason to use 1” aluminum tubing is that you can get 1” ID braid reinforced vinyl hose in the plumbing department to fit over it. This makes a nice soft grip for the handle and increases its diameter to something more comfortable for most people. You will need a piece about 3” shorter than your aluminum tubing. There are other options, too, such as “vet wrap”, bicycle handlebar wrap, etc.

#### Hardware:

You will also need 2 set screws that you can tap holes for. Depending on the size of the tool, this could be from #10 to 5/16” or so. I recommend using 1/4 x 20 for a 3/8 diameter tool. If you need to buy a tap and matching drill bits, this is a good size to have around.

### 2 – Cut the metal parts to length:

Aluminum can be cut on the bandsaw just like wood. I sometimes use a mitre (chop) saw, if possible, for a cleaner end finish. Use an extra measure of caution anytime you are cutting tubing or round stock!

### 3 – Drill the bar to accept the tool:

I use my scroll chuck to grip the piece of round stock, using the tailstock to help center up the “free” end. If desired, the aluminum can be turned with a gouge to face off the end just like wood! Well, very hard wood. A center drill in the tailstock Jacobs chuck will locate center. Follow that with a drill of choice that is slightly larger than your gouge shank. For a tool with a rectangular tang, drill the size hole that will fit the tang. It’s ok if the hole is a bit large. If it is too tight of a fit, it will give you trouble getting the tool in and out. Spindle speed should be about 300 - 500 rpm depending on the size hole you are drilling. Use plenty of cutting oil!!

### 4 –Drill and tap for the set screws:

With the round bar inserted into the end of the tubing, make a couple of centerpunch marks on the outside of the tubing where you want the set screw holes to be. This doesn’t need to be perfectly accurate, since you are just using the set screws to hold the tool in the handle. Hold the assembly in a drill press vise or a hand screw (woodworking clamp, parallel clamp) on the drill press table and find the centerpunch marks with a 5/64”/2mm drill. Open that up to the tap drill of choice, and then start the tap in the same drill press setup. Finish tapping with a tap handle. Again – cutting oil is important! The set screws need to be long enough to engage the threads in the tubing in order to keep the insert in place.

### 5 – Cap the end:

If you want to put shot in the handle, make a plug out of the same bar that is holding the tool. Drill and tap a hole for a screw to hold it in place after you put the shot in. It might be a good idea not to drill the insert for the tool all the way through if you are planning to put in shot so the shot can’t leak out when the tool is taken out of the handle.

### 6 – Push on the covering:

To get the vinyl tubing to slide onto the handle, soak it in hot soapy water first. The heat will make the tubing soft, and the soap acts as a lubricant. After it dries and cools off, the tubing will be held on securely (and will not be easy to get off....). Pushing on

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the end of the tubing, as opposed to pulling it, is the secret to getting that tight fitting tubing to slide. A piece of wood with a 1" hole in it makes a good "aid" for this job.