

# *Cindy Drozda*

"The Fine Art of Woodturning"

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## **Safety (and other) metal working tips:**

Always wear eye protection! This is serious! You only have one pair of eyes and they do a lot for you. Keep them working!

Protect your hands! Clamp the workpiece to the table or in a vise when using the drill press. Remember that sharp metal edges make a very good cutter of human flesh, bone, and tendon.

Always keep your hands out of the line of cut when using the bandsaw. This goes for cutting wood, too, of course. Cutting metal requires more pushing force in the cut, so it's even more serious when/if you slip. Don't risk it. Keep your hands off to the side, or use a push block.

Don't use your dust collector when cutting/grinding/sawing metal! You can start a fire, or an explosion!

Be aware of hot metal chips and piles of sawdust that might catch fire. Sweep up the wood dust before working metal. A clean shop is a safe shop.

Always use coolant and sharp tools. Using coolant will keep your tools sharp! Any heat conducting fluid works as coolant. Using any kind of coolant is better than none. WD40, motor oil, salad oil, coconut oil, toilet wax gasket, chapstick, even water works! An inexpensive solution is a beeswax toilet gasket. A non-toxic solution is coconut oil. It is not a good idea to use volatile liquids such as acetone, lacquer thinner, gasoline, etc. The heat generated by cutting metal could start a fire.

Aluminum cuts and machines well at the same speeds and with the same tools as wood.

Steel does not cut like wood! Use slower cutting speeds, finer teeth, harder steel tools to machine steel. If your bandsaw won't go slow enough, use a hacksaw or angle grinder.

Your woodworking bandsaw will cut non-ferrous metal with a fine tooth blade (6 or more teeth per inch).

Do not try to cut steel with the woodworking bandsaw! It requires significantly lower speed and finer tooth blades.

Plan to feed slower than you do with wood, when cutting and drilling metal.

When drilling, back the drill out of the hole every few seconds to clear the chips, and re-lube.

To drill thin sheet metal, use a backing plate, a pilot drill, hole saw, or grind a negative rake on the cutting edge. Always clamp sheet metal. Those edges are sharp!

Don't use the stone grinding wheel, or CBN wheel, for aluminum and other non-ferrous metals. Use a belt or disk sander to grind aluminum and non-ferrous metals. Or use a file. Or an angle grinder.

If you are planning to anodize your aluminum parts, don't use steel on the same de-burring wheel as the aluminum.

With metal working tools, low quality is even more of a problem than it is with woodworking! If you want good results, buy good tools.

Hand and small shop machining is being replaced by CNC everywhere. There are great deals to be had on older metalworking tools on ebay, Craigslist, or at auctions.