

ELLSWORTH TOOLS for HOLLOW TURNING

I have designed these tools to cut the interior of hollow vessel forms up to 10-inches deep and 12-inches in diameter. These measurements will depend on the shape you're making, the density of the wood, and your experience. It's best to start with smaller forms and relatively large openings to get used to the tools, and then work up to larger forms.

Sharpening - To help extend tip life, lightly 'dress' or 'touch-up' the edges instead of 'grinding' them. In fact, you hardly have to touch the wheel to sharpen them. To sharpen the left side of the tip, glide it over the right corner of the wheel. To sharpen the right side, glide it off the left corner. (I dress these corners to a slight radius with the wheel dresser). Avoid sharpening on the face of the wheel, as this will produce a flat spot on the tips. Tip shape should be a round, fingernail shape with edges sharpened about 1/8" to 1/4" up both sides from the end. Use 100-grit or finer aluminum oxide (white, pink or gray) wheels, if possible. Angle of the bevel at the tip (end) should be 15-20%, 5-10% on the sides. Steeper angles produce a sharper edge, but are much more difficult to control, wear down faster, and will chatter on denser woods.

Replacing Tips - Simply heat end of bar with a propane (shop) torch until the tip loosens. Then clean excess glue from hole, cool, and glue new tip in place with medium density "Hot Stuff - Super T" (super glue) along with "Hot Shot" Hardener. Be sure new tip is positioned horizontally in the shaft. Caution: DO NOT breath the smoke from the heat of the torch!

Handles - For best leverage and control, I make my handles from small, fresh-cut trees of ash, maple, oak, birch, etc.; 28" long and 1 1/2" to 2" diameter. Dry timbers can also be used. In both cases, it's best to leave a rough-turned, un-sanded surface for better traction to prevent over-gripping - a possible cause of carpal tunnel syndrome. Drill hole for shaft 9/16" diameter and 2 1/4" deep. A metal ferrule can be added, or simply make a ferrule by wrapping the end of the handle with nylon cord. Then smear Super-Glue over the cord to keep it from slipping.

For extra hand comfort and control, you may wish to turn an oval shape on the back end of the handle about 6" up from the end, as described in the "T" video. This area also acts as a reference to the palm of the hand so you'll always know when the cutting tip is horizontal when you can't see it inside the form. Just be sure to grip this area on the handle when gluing the shaft to handle:

Turn the handle to a 2" diameter cylinder, then off-set the center point at the back end of the handle by 1/4". Turn off excess until the oval shape fits your hand. Return to original center for drilling hole for the shaft. A black line (magic marker) can then be drawn on top surface of handle to give you a reference for when the cutting tip is horizontal.

Straight Tool: Used for removing interior mass of hollow forms, cutting the 'nubbin' in center of work piece, and for finish-cuts on bottom of interior. Always use with tip in horizontal position.

Bent Tool: For removing interior mass, thinning the wall and finish cuts on interior walls of hollow forms. Cuts can be made by advancing the tip forward (away from tool rest), or by drawing the tip toward the tool rest. To begin the cut, rotate the tip slightly downward before it enters the wood, then raise to horizontal position to make the cut. NEVER, NEVER begin cutting with the tip rotated above the horizontal or upward position: it will jam in the wood and cause a dig.

Chatter: If chatter occurs using either tool: a) Sharpen the tip; b) remove shavings from interior of work piece; c) be sure tool rest is at a height so that tool tip is in the CENTER of the work piece when tool is horizontal. Most of all, try to *cut tangent to the fibers* rather than into the end grain and lighten the pressure of the cut against the wood.

CAUTION...CAUTION...CAUTION...CAUTION...CAUTION

Do NOT use bent tool in bottom-center of a bowl for removing the 'nubbin': Tip will slip off to the right of center and engage the upward-rotating surface, flip to the left and lift the shaft off the tool rest. When it comes down...BANG! Instead, use the straight tool.

Do NOT use the straight tool for finishing cuts on interior SIDE walls of thin vessels, only in the bottom-center of the form: The energy of the cut is so well supported by the straight shaft, the tip may tear the thin wall of the form. Instead, use the bent tool.

ALWAYS keep heel of hand in contact with tool rest (fingers over the shaft) to give maximum control and prevent tool from wandering during the cut!!!

ALWAYS try to keep back end of handle in contact with your hip or side. This helps provide extra support and control to the cut. 28" handles may seem excessive, but they are designed for good control in deep forms. Clear out the shavings frequently from interior of work piece: A build-up of shavings on the tool tip can cause it to jam.

TAKE YOUR TIME...!!! ENJOY...!!! These are not gouges. A slow, well-supported, controlled cut is far more successful than any aggressive cut.

Sincerely,

David Ellsworth