

## TURNING AND LATHE TIPS

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- Having trouble with chatter when turning or parting on a lathe? Turn the cutting tool upside down and reverse the machine's spindle rotation. This creates a pulling force against the machine's dovetail instead of a pushing one.

- To cut a radius on the end of a part on a lathe, I often use a 4-flute corner-rounding end mill held in a



Photo courtesy of DMG

boring-bar holder. I have also incorporated this idea with ball end mills when a 0.250-in. round shape was needed.

- To cut disks out of aluminum using a lathe, I chuck the aluminum blank in a 4-jaw chuck or faceplate, mount a die grinder with a small end mill to the machine's toolpost, and with the lathe running at its slowest speed, I feed the die grinder into the aluminum piece. It's like using the lathe chuck as a rotary table.

- To mark 0, 90, 180, and 270 increments on round stock in a lathe for indexing. I stopped the lathe and opened

its drive cover. In AutoCad I drew a circle with 1-degree increments, printed it out, and attached it to the main drive hub using double-sided tape. I made a pointer that points to the label, and now when I'm finish turning, I can use the cutting tool to scribe a line in the part at any angle.

- When turning brass or bronze, I keep the small chips from flying back at me using a piece of thin shim stock as a shield. I cut the shim stock to the appropriate size, put it behind the insert and bolt it to the toolholder.

- For old lathes without trav-a-dials or digital readout, I make dial rings that go over saddle cranks. If one revolution of the saddle crank moves the saddle one inch, I divide the ring into an inch by marking it at every 0.01 in. or 0.005 in. so I can set my compound for fine adjustments. I rig up a pointer and mount it anywhere convenient. Make sure you fashion the ring so that it rotates and can be locked at any setting.

- I center a lathe tailstock by installing dead centers in the machine's headstock and tailstock, then bring the tailstock up to where the centers almost touch (tailstock retracted most of the way). Be careful not to bang the centers together. Clamp down the tailstock and hold a single-edge razor blade vertically between centers, spinning the tailstock out until the razor blade is caught gently between centers.

If the centers are off, the razor blade will be at an angle, and it is easy to see which way to adjust. If they are centered, the razor blade will be oriented square between the centers (square meaning 90 degrees to the ways both vertically and transversely).

- Aluminum beer or soft drink cans make excellent protective shims for chucking up aluminum or steel parts without damaging their surfaces. Rinse and dry the cans and cut them into small pieces that will fit between the chuck jaws and workpiece. I've found that I can clamp down fairly hard on these shims and still not damage workpiece surface finishes.

- Follow these steps to make your own lathe collet for holding special-sized disk workpieces:

Step one, chuck up a scrap piece of aluminum cylinder stock in the lathe and bore out a shallow recess on the end sticking out to accommodate the intended disk size.

Step two, remove the aluminum cylinder and make three bandsaw cuts about an inch or so deep (depending on the disk thickness and bore depth) in the end that was just bored.

For each of these cuts, rotate the cylinder 120 degrees so that the cut pattern looks like six pie slices when the cylinder is viewed from the end. Lastly, re-chuck the cylinder as before and mount a hose clamp over the saw cuts to secure the disk workpiece in place. ●



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