

The Downfeed Dial

By R. G. Sparber

09/23/2008

Copyright protects this article.



I'm not much for engraving but wanted a nice looking dial for the downfeed.

Note that I have not added a pointer yet. The set screw coming out the right side permits me to rotate the dial relative to the shank and then secure it so as to have a resettable zero.

The scale was generated with designCAD Express® and printed out on white paper. I then took the paper to Office Max

and had them print it mirror image on clear plastic using their laser printer. In this way the printed side was protected by the plastic as I flipped it over to read non-mirror. A paper cutter was used to precisely trim it to fit.



Nothing special about the lathe work. The top and bottom are CRS. The recesses are 0.05" deep and cut with a boring bar. The plastic is Delron®. The plastic scale is 0.005" thick so there

is a 0.006" difference in radius between the plastic puck and the ID of the recesses. The puck was turned to exactly 1.000" diameter to match the scale which is 3.146" long (circumference = $\pi \times$ diameter).





I don't want to leave you with the impression that all went smoothly here. It took a few false tries to get the final product. My first try was with a 0.1" thick washer that contained a 0.05" high boss. This was going to be my pointer support. Not very useful. I plan to go with a simple steel pointer.

I then tried turning the body from a single piece of aluminum. The space for the label was going to be caught in a channel with beveled edges. The bevel was cut using my parting tool set at 20 degrees. Not enough lip so the plastic would not stay in place. I also had a bit of trouble getting the puck the right diameter. This plastic is soft so the chuck jaws distorted it. In the end I put the second puck on a mandrel and brought it down to 1.000" with a file.

Rick Sparber
rgsparber@AOL.com