

## Toolpost for cross-slide

The top-slide of my small lathe is not quite stiff enough for heavy cuts, so I decided to make a toolpost that is mounted directly on the cross-slide. Since there are two small T-slots along the cross-slide it is easy to screw the toolpost to the cross-slide. You can find several articles about this on the web, I ended up making the toolpost based on George Carlson's ideas (see <http://www.homemetalsclub.org/projects/toolpost/toolpost.html>). You don't need a milling machine to make his toolpost, a great solution for me since I didn't have a milling machine at that time. I assume he intended his toolpost to be mounted on the top-slide, so I made the column a bit thicker – 30 mm instead of 25 mm (or 1 in.). I also made the slot for the toolbit larger – 10 mm wide and 12 mm high – instead of 7 mm (or approximately ¼ in.).

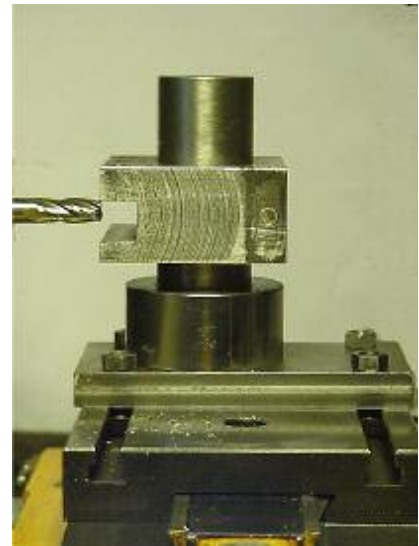
The toolpost column was turned from a piece of 50 mm round stock about 100 mm long. First I faced both ends, the bottom end with a small recess at the centre. The bottom part (23 mm) was left at 50 mm diameter, the rest was turned to 30.0 mm diameter. Have a look at the sketch at the end of this document.

A piece of 12 mm steelplate (100 x 65mm) was faced on both sides. I used a clamp to hold the column and plate together while drilling four 5 mm holes. The holes in the bottom plate was opened to 6 mm and countersunk, the ones in the column was threaded M6 so the two pieces can be bolted together. I also drilled four 6 mm holes in the corners of the bottom plate, to match the T-slots of the cross-slide.

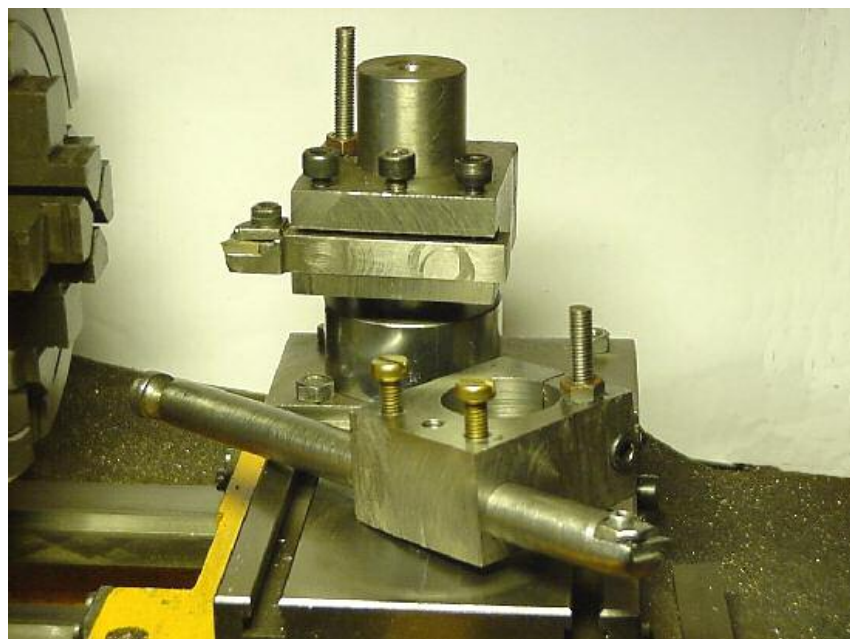
The tool holder was made from an old piece of 30 mm hot rolled steel plate, size 55 x 55 mm. The piece was mounted in the four-jaw, faced on all sides and a 30 mm hole was bored through. I tried to get a sliding fit on the column. A 5 mm hole was drilled at right angles to the side. The first part was opened up to 6 mm, the rest was tapped M6.

I used a hacksaw to make a narrow slot from the side and into the 30 mm hole. The position of this cut is where the M6 starts in the hole.

With the tool holder mounted on the toolpost the lathe can be used to mill the slot for the toolbits (see picture). Drill and tap three M6 holes for securing the toolbit. I also drilled and tapped a M6 hole parallel to the column. A piece of M6 allthread and a nut is used to set the height of the tool holder.



The picture underneath shows the toolpost and two tool holders.



## Update: Parting off toolholder

After I got a Mini-Mill I decided to make a third toolholder for holding a parting-off blade. I had a small 5/16 x 1/16 in. parting blade, so I decided to make a holder for it.

From the scrapbox I found a piece of steel about the right size.

The first job was to face all sides in the 4-jaw, see picture to the right.

Next I marked the centre of the 30 mm hole and drilled through with a 4 mm drill. The hole was opened up to 16 mm and bored to a sliding fit on the toolpost column. See picture. For the boring operation I used the toolpost and holder I made some time ago. I get some chatter with the cutting tool mounted on the compound slide. With the toolpost mounted directly on the cross-slide, I can take heavier cuts with less chatter.

After boring the hole I used a hacksaw to make a cut from the side to the hole.

I also drilled and tapped a hole to fasten the holder to the toolpost.



The holder was moved to the Mini-Mill and I used a 45° dovetail cutter to make a slot for the parting blade. See picture to the right.

The blade has a trapezoidal shape, so the lower side will fit well in the slot made by the dovetail cutter (right picture).



By tilting the vise I could use an end-mill to mill the one side of the slot left by the dovetail cutter a bit wider, to fit the wedge that press the parting blade towards the holder.



I drilled and tapped two holes to hold M4 screws, and made a wedge that will clamp the parting blade to the holder. There is a drawing of the blade and wedge to the right. Here the toolholder is ready for use.



