

Centre-Height Gauge & Scriber

This device was made after the description in G. H. Thomas book: "The Model Engineers Workshop Manual". I modified my version somewhat and added a holder for a longer scriber made of 3mm diameter silver steel, and holder for a vise stop.

Materials

For the base I used a piece of 15mm thick steel plate, a little over 35 x 55 mm (from my scrap box). The post was made from two pieces of mild steel rod silver soldred together. The holders were made from 15mm mild steel rod. The other pieces came from my scrap box.

Base

First I squared the steel plate in the Mini-Mill. After milling the two long sides the work was clamped to the milling table with brass shims underneath and I used a dial test indicator to align the milled sides and used the cross feed to mill the shortest sides.



The work was then transferred to the 4-jaw in the lathe and centred so the hole for the post could be drilled and bored. The underside was faced first. Then the hole was bored 11.8mm through, and the recess for the head of the post turned to a depth of just over 7.5mm. The 11.8mm hole was reamed to 12mm. This way the underside and the post will be square.

The work was turned around in the 4-jaw and centred with a dial test indicator against the reamed hole. The work was turned down to 10mm leaving a 20mm diameter upper part to support the post.



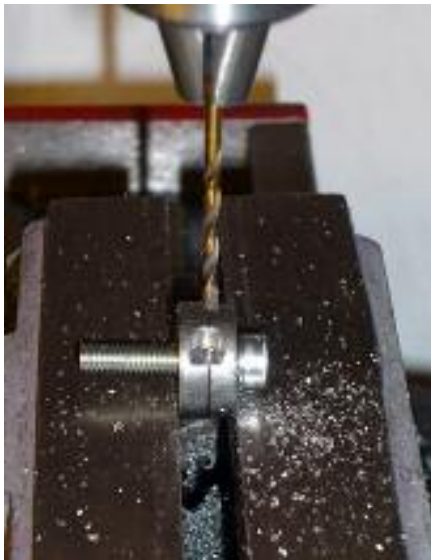
I also milled a 8mm wide slot in the base. The slot can be used to clamp the base to the milling table, and with a rod clamped to the post it could be used as stop for my milling vise.

To make sure that the top surface was parallel to the underside the work was clamped to the milling table and a very light cut taken (right picture).



Holder

The holders were made from a 15mm diameter mild steel rod. One end was rounded in the lathe. The position of the two holes was marked and the 8mm diameter hole drilled first. A piece of 8mm diameter rod was cut to length, drilled through with a 3.3mm drill. The hole was opened up to 4mm to a depth of 8mm, the rest tapped M4. Then the 8mm rod was put in the hole. The work was turned 90° and the other hole drilled through with a small drill. The pilot hole was opened up to 9.8mm and reamed with a 10mm reamer. The 8mm rod was removed and cut in two with a small saw to make a split cotter. Then back to the lathe for the final turning operations. On holder was slit with a slitting saw and the knife soft soldered in the slit.



The other holder was faced on one side and drilled 3.3mm and tapped M4. I used part of the rest of the rod to make two thin washers. First a 4mm diameter hole was drilled in the centre and then the washers parted off. The two washers were clamped in the vice and a starting flat for a 3mm drill was milled (left picture). A 3mm hole was drilled just outside the 4mm hole. This is used to clamp the long scriber.



Post

The post was made from 12mm diameter mild steel and a short piece of 16mm mild steel was used for the head. The two pieces were silver soldered together. Both ends were centre drilled and the post turned between centres.

The end closer to the head was threaded M12 x 1 since I already had a tap of that dimension (right picture).

A clamping nut was turned from 25mm diameter mild steel and knurled.

The rest of the post was turned to just over 10mm diameter. I then used a lap to lap the rest of the post to a close fit in the holders (right picture).



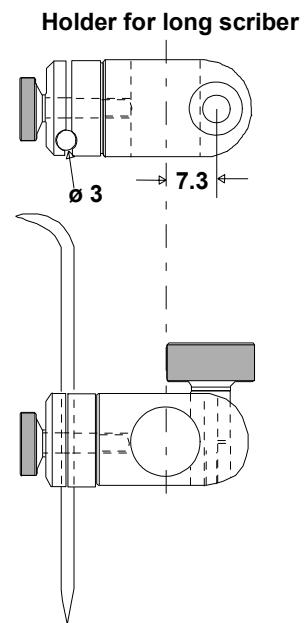
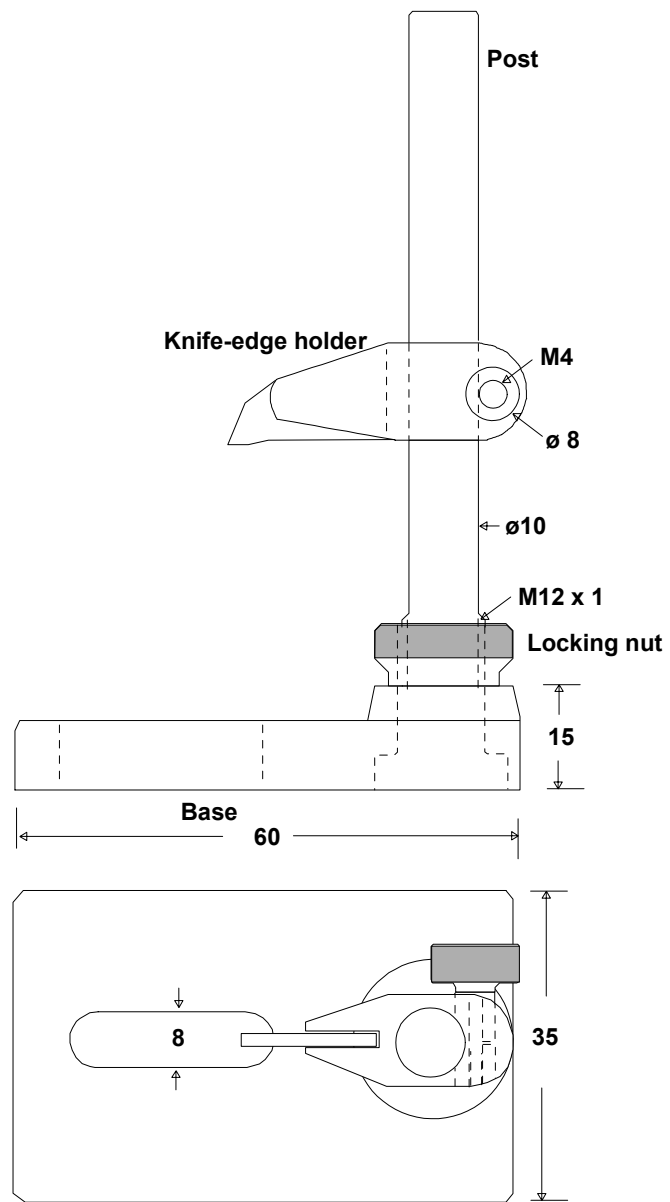
The long scriber was made from a piece of 3mm diameter silver steel. The work was mounted in the 3-jaw and the ends tapered. A file was used to get a sharp point (right picture).

The ends of the long scriber were hardened and tempered.



I blackened the holders by heating them with a butane torch and applying some vegetable oil, this will give some rust protection. Below you can see a picture of the finished centre height gauge and scriber. I removed one of the split cotters and placed it in front of the base together with one of the clamping screws I made.





Dato: 2009	Tegner T.H.	Materiale: Steel	
Centre-Height Gauge & Scriber			