

Spider for Chuck

When you work on thin objects clamped in the 3-jaw a "spider" is useful. With the spider you can face thin round objects and get the front and rear parallel. Dave Hyland made one for his Sherline lathe, and I followed his instructions.

My 3-jaw chuck for the Emco Compact 8 is 100 mm in diameter and has jaws that are about 12.25 mm wide, so I decided to make the slots in the spider 12.5 mm wide.

Materials

I used a piece of 8 mm thick steel plate from my scrap-box for the spider.

Body

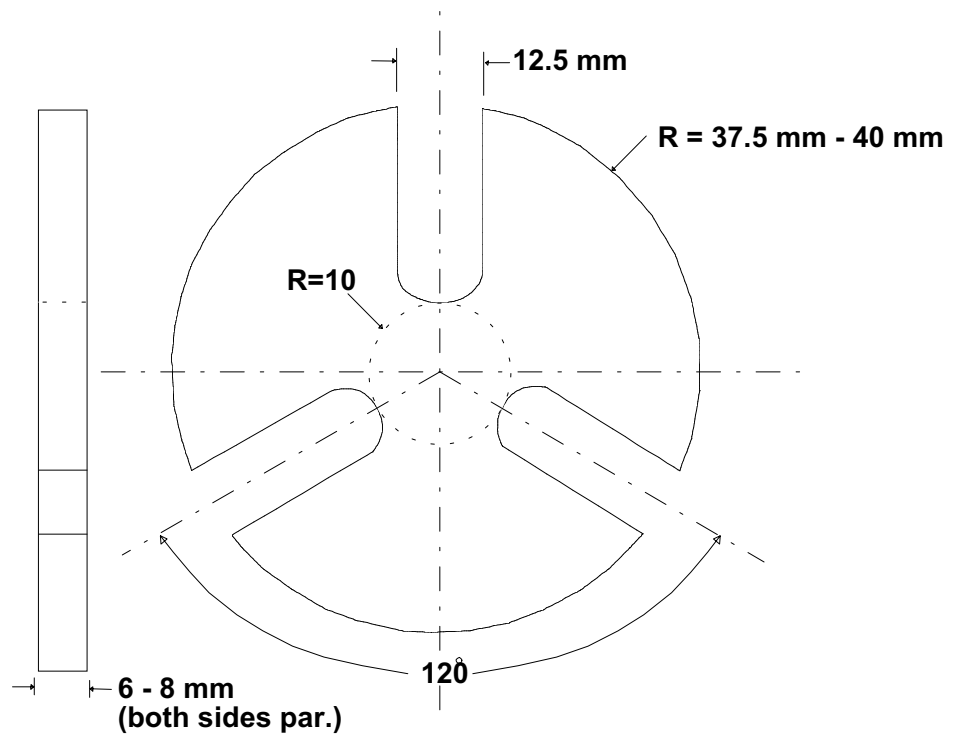
I made a small centre punch in the steel plate and used a divider to scribe the circumference (a little over 80-mm diameter). Then I used a hacksaw to saw the spider roughly to shape before clamping it to the 3-jaw. I made 3 T-nuts from a piece of aluminium to fit the slots for the jaws. The nuts were drilled 4.2 mm and threaded M5. In the steel plate I drilled three 5.5-mm holes 120° apart so I could use three M5 Allen screws to clamp the work piece to the chuck body. The holes will disappear when the slots for the chuck jaws are milled. I used several layers of packing between the steel plate and the chuck body (see picture to the right, the red arrow points to one of the T-nuts). This way I could turn the piece to a diameter of 80 mm without interfering with the chuck.

The next operation was to face both sides of the rusty steel plate. Since the spider has a smaller diameter than the chuck, I just had to mount the other set of jaws and clamp the work piece in the chuck. After facing one side the work piece was turned 180° so the other side could be faced. The steel plate was of unknown origin and didn't machine very well. The surface could have been smoother, but the thickness varied by just 0.03 mm.

The picture to the right shows the spider after facing.

With the work piece clamped in the chuck the position of the three jaws was marked. Then the work piece was clamped to the rotary table. To get the work piece centred on the rotary table I measured the distance from the edge of the rotary table to the work piece and adjusted until the distance was identical all around. Then the three slots were milled. I had to move one of the clamps to mill the last slot.





Dato: 2005	Tegner T.H.	Materiale: Steel	
Spider for 3-jaw chuck			