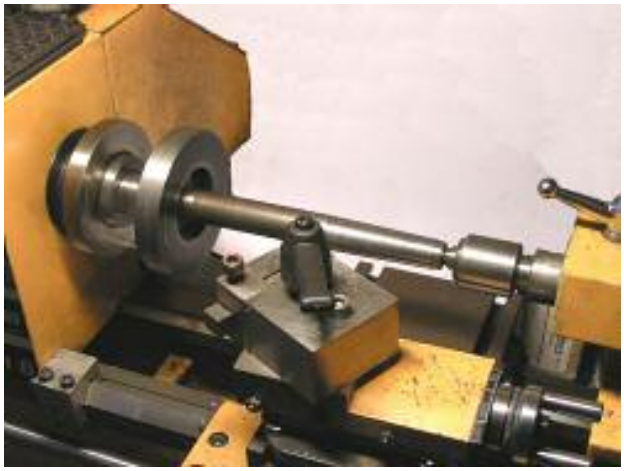
Die holder and Tap Guide

A tailstock die holder will ensure that the threads you cut will line up with the rod. Chris Heapy (easyweb.easynet.co.uk/~chrish/) has plans for a nice die holder and tap guide. I have based my die holder on his drawings, except I didn't use a bolt-on key to prevent the body rotating on the shaft. I also decided to make a ring that will press the die against the back face of its seating to ensure that the die is truly square with the guide (I got the idea from an article in an old Model Engineer magazine). Chris' tap guide involves machining a sort of radial universal joint, and I don't have the necessary cutters so I decided to make a simpler tap guide. At the website of Little Machine Shop (www.littlemachineshop.com) I found a picture of a tap guide that was simpler to make.

Die holder

I started with the MT 2 shank. I used a piece of cold rolled steel 18 mm in diameter and faced centre drilled both ends so I could mount the shank between centres. First I mounted a MT 2 centre and used a dial indicator to adjust the compound slide to the correct angle.



The picture shows the final turning of the MT 2 taper on the shank. After finishing the MT 2 part, the rod was turned around and the parallell part was turned to a diameter of 17.0 mm. The rear part of the MT 2 shank was drilled 8.5 mm and tapped M10.

The die holder body was made from a piece from my scrap box, a little over 36 mm in diameter. I turned the outside to a little over 36 mm and then chucked it in the 4-jaw and used a dial indicator to centre it.
First a small 5 mm pilot hole was drilled followed by 16 mm drill. Then I used a carbide tipped boring bar to open the hole to just over 17 mm to give a sliding fit on the shank. Then the 25 mm in diameter recess for the die was bored. I finished with a very light cut to make the bottom square with the sides. This depth of this recess is about 0.2 mm shorter than the thickness of my dies.

The other end was given a small 60º chamfer so it would fit my new rotating spindle. The recessed end of the rod could then be mounted in the 4-jaw and the other end supported by the tailstock spindle. The middle part was then turned down to 25 mm. I haven't milled the upper part to make room for the bolt-on key that Chris used, instead I drilled a 6.9 mm hole and tapped it M8. This hole will receive a handle to prevent the holder from rotating when cutting threads. This requires less machining and works well in my experience.

In the front end of the holder I drilled three 2.5 mm holes (spaced 120º apart) and tapped them M3 for a ring or washer that push the die against the back face of the seating. The ring was heated and treated with oil to give it a black finish.

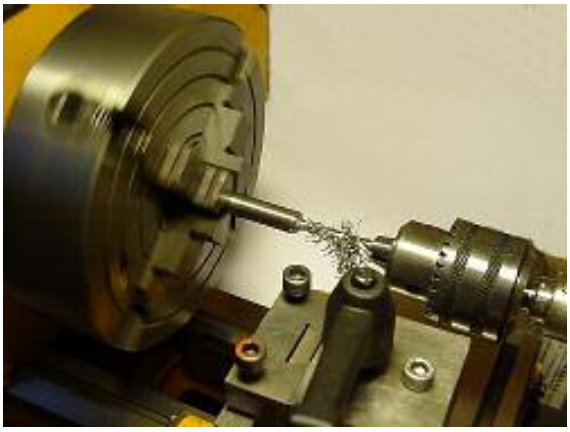
On the outside I drilled a 4.2 mm hole and tapped it M5 for the hex screw that hold the die. I made a small M5 nut that was round on the outside and used it to mount the screw in the chuck so I could turn the 60º point.

A piece of 8 mm diameter rod was used to make a handle for the die holder.

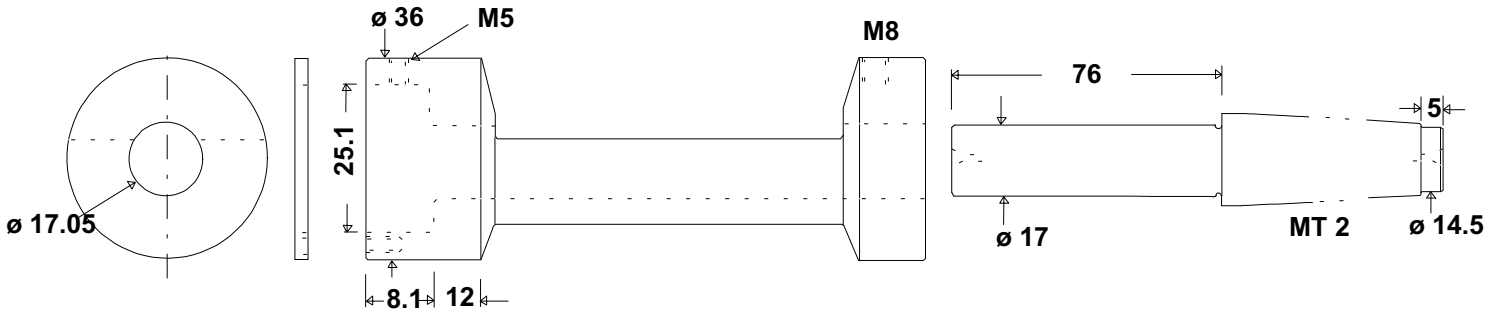
The picture shows the finished die holder.

Tap guide

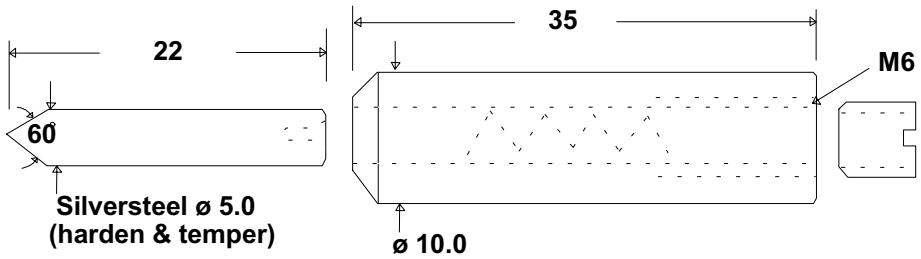
The tap guide from LMS has an outer diameter of ½ in., I had a piece of 10mm cold rolled steel rod and decided to use that. I also found that the spring from an old ball pen was just under 5mm in diameter, so I could use a piece of 5mm silver steel (drill rod) for the spindle.
The steel rod was faced and centre drilled, mounted between the centres and a tiny cut made. Then I could mount it in the 4-jaw and centre it and drill through with a 4.9 mm drill (see picture to the right) and ream it to 5.0 mm.
In the upper part I tapped M6 to a depth of around 8 mm.
The spindle was made from a short piece of 5mm silver steel. One end was centre drilled with a small centre drill, the other was given a 60º point. The silver steel was then hardened and tempered to a yellow brownish colour. The pointed end is used to guide taps with a centre hole, the other end is used to guide taps with pointed ends.



The picture to the right shows the parts.



Dieholder



Tapguide

Dato:	Tegner	Materiale:	
2004	T.H.		

Dieholder and Tapguide
(after C. Heapy & LMS)