

## Carbide Insert End-Mill holder

A carbide insert end-mill holder will cut hard tool steels that will dull HSS cutters rapidly. At Metal Web News ( [www.metalwebnews.com](http://www.metalwebnews.com) ) I found an article about building a simple dovetail cutter with one insert. I have based my end-mill holder on this article. In my mini-mill I can only use small diameter cutters, so I decided to make the cutter 16 mm in diameter (5/8 in.) with a MT2 shaft. With only one triangular insert (with positive rake) and a M3 lock screw it is simple to make.

### The shank

I had a piece of 18 mm silver steel (drill rod) and used that. I mounted a MT 2 centre in the lathe and used it as a guide to adjust the compound slide to the correct angle (using a dial indicator mounted in the tool post). After turning the shaft to MT 2, the rear end was drilled and tapped to accept a M10 drawbar.

Then I mounted the shaft in the lathe headstock using a MT3/MT2 reducing sleeve, and turned the protruding end to 16 mm diameter (see picture).



### Milling the recess

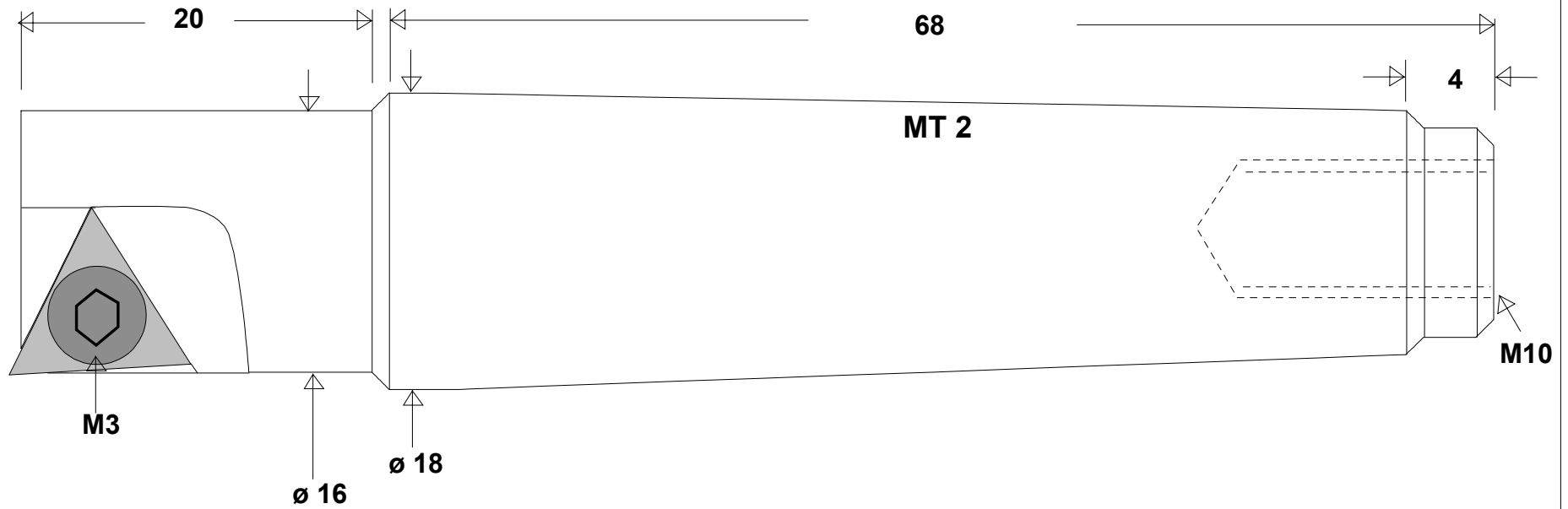
I mounted the shaft in my old dividing head and milled a flat halfway into the 16 mm part down to the centre line. Then put the insert on and scribed the outline of it (see picture).

Then I used a small 4 mm end-mill to mill the actual recess for the insert. The depth of this recess is equal to the thickness of the insert. This brings the cutting edge of the insert at the axis of the cutter shaft.

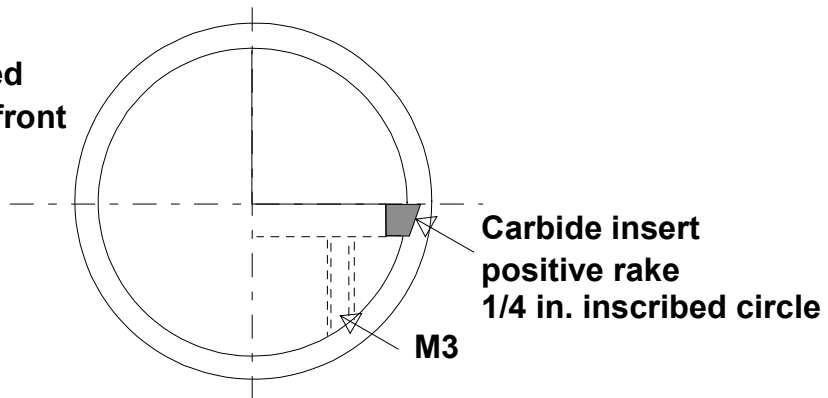
The cutting edge of the insert is placed a little outside the diameter of the shaft to give the shaft a little clearance. There is the same clearance axially. A hole was drilled and tapped M3 for the lock screw.

The bottom two pictures show the finished cutter.





Viewed  
from front



Dato: 2004	Tegner T.H.	Materiale:	
Carbide Insert End-mill holder			
All dimensions in mm			