

## Myford Die Holders



Myford Tailstock Die Holders, intended for thread forming from the tailstock, are available in six sizes. The individual sizes may be purchased separately in order to match the dies used by the customer, and an arbor is available which fits each of the holders and fits the 2 Morse Taper socket of the tailstock.

The parts available are as follows :-

|             |  |
|-------------|--|
| Part 33/045 | Tailstock Arbor Assembly               |
| Part 33/046 | Die Holder for $1\frac{3}{16}$ " Dies. |
| Part 33/047 | Die Holder for 1" Dies.                |
| Part 33/073 | Die Holder for $1\frac{5}{16}$ " Dies. |
| Part 33/074 | Die Holder for $1\frac{1}{2}$ " Dies.  |
| Part 33/048 | Die Holder for 20mm Dies.              |
| Part 33/074 | Die Holder for 25mm Dies.              |

Myford Tailstock Die Holders fit onto an arbor which fits into the tailstock of Myford lathes. The arbor is 2MT and is fitted with a locating stud which locates into a slot in the die holder. By means of the locating stud, the torque of cutting the thread is taken by the tailstock, thus freeing the operators hands from stopping the die from turning. It is possible to remove the locating stud if the operator wishes the die holder to freely rotate for any reason. Each die holder is equipped with two die locating screws and one adjustment screw for adjusting the depth of thread when using split die holders.

The arbor is bored out to a depth of 32mm as illustrated in *Fig. 2* in order to allow threads of around 42mm length to be cut before the thread being created will begin to extract the die holder from the locating stud.

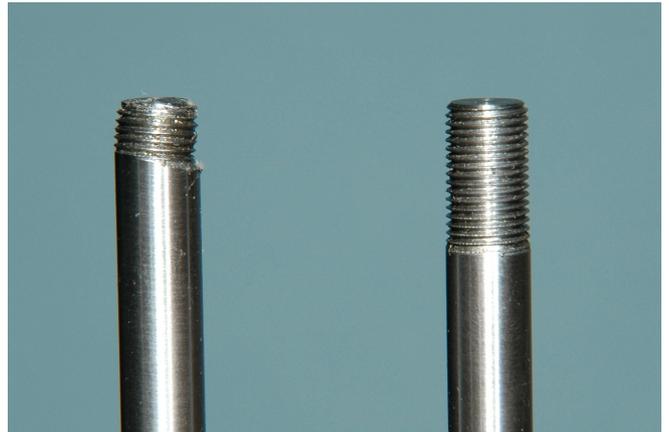
### Creating Threads on the Myford Lathe

Most engineers will at some time have created threads using a normal hand die holder and in carrying out this operation it is necessary to keep the die absolutely at right angles to the bar being threaded, otherwise a crooked, "drunken" thread will be formed. If the operation is not carried out very carefully, the thread can be

ruined and in severe cases the die may be damaged. By using a tailstock die holder, the operation is always carried out with the certainty that the thread is straight and concentric. The thread on the left of *Fig 3* illustrates a drunken thread created by hand and the thread on the right was created using a die holder held in the tailstock.



**Fig.2 The Arbor is Bored Out For 32 mm. to Clear Long Threads**



**Fig.3 A Drunken Thread Compared to a Correct Thread.**

### **Choice of Thread Creation Method**

The choice of how to create a thread may depend upon many factors. If the stud is a fixed part of a large machine, then there is no alternative but to create the thread freehand using a die and hand die holder. In this case, care starting the thread, perhaps using an engineers square on the die to ensure reasonable alignment, will pay off with interest. However, if the alignment is possible by more positive ways, then it is always advisable to use these. Whichever way a thread is created, it is always necessary to use a good quality CUTTING oil or paste rather than using general purpose lubricating oil as is often seen in use.

If the thread is to go into a long threaded hole, or is to be used as a calibrated leadscrew, then the first choice should be to screw cut this on the lathe by using the lathe leadscrew so that the final result has a guaranteed pitch or number of turns per inch depending upon whether one is using the metric or imperial system. However when screw cutting with a single point tool, although the pitch is as accurate as the accuracy of your leadscrew, it is difficult to achieve a good outer profile to the thread and it is often advantageous to cut the thread slightly oversize and to follow this up with a die if one is available. Thus the pitch is controlled by screw cutting in the lathe and the profile of the thread is finalised by the die, which will faithfully follow the screw cutting already undertaken. The tailstock die holder ensures that the die continues to follow a controlled, concentric path.

*Fig.4* illustrates the die holder fitted to the tailstock of a Myford Super 7 B, complete with a  $\frac{5}{16}$ " BSF die, and *Fig 5* shows a thread being made on to the end of a  $\frac{5}{16}$ " bar . The results of this are shown on the right in *Fig.3*.



**Fig.4 The Arbor and Die Holder Fitted to the Tailstock.**



**Fig.5 Screw Cutting a Thread in the Tailstock**

Some lathe operators use a die in the lathe by using a hand die holder, resting on a drill pad held in the tailstock. The problem with this is that you need to be a three handed operator and such people are pretty rare!! One hand is necessary to push the tailstock forward, the second hand is needed to control the die holder, and your “third hand” is needed to operate the lathe controls – or the mandrel handle. The Myford die holders eliminate this problem as the holder is captive in a rotational sense, with the tailstock taking the torque reaction.

Many lathe operators tend to cut the thread under power and trust that the die will break up the chips and miraculously clear itself during the cutting process. Whilst this will often work, good practice dictates that in order to achieve the best thread, a die should be rotated no more than two revolutions before being reversed for half a turn in order to break the chips, and the die should be withdrawn from time to time in order to clear all swarf. This is particularly true when cutting with the work in a horizontal plane. If the lathe is equipped with an easy reversing system with an inch button, then this can be achieved under power in back gear, but for most lathe operators, the best way to proceed is by using a lathe mandrel handle to operate the lathe by hand.

For small diameter work, this is best carried out in direct drive, but when screw cutting larger diameters, engaging back gear will enable the operation to be carried out both more smoothly and with less fatigue on the part of the operator. *Fig.6* shows the set-up for carrying out this work using a home made mandrel handle. The left hand turns the mandrel handle, the right hand applies light forward pressure to the tailstock feed, and because a Myford tailstock holder is being used to control the torque reaction, there is no need to find a three handed person !!

It should be noted that the top slide has been removed from the lathe in order to aid clarity in the photographs, but this is not necessary in practice as the tailstock die holders can be used with both the rear and front tool posts in situ. Something that is not so convenient with other methods.

The Myford Tailstock Die Holders may be obtained from our sales department.



**Fig.6 The Set-Up for Screw Cutting From The Tailstock.**