

The greatest advantage of boring over drilling is that the hole will always come out in perfect alignment with the spindle. The drill on the other hand may wander.

Many small milling machines will not accept a large drill because of the large taper and also will lack the horsepower necessary to drill large holes. Using a boring head, large diameter holes can be accurately bored on most machines.

Most common boring heads are made up of three components: the main body, the bar holder and the graduated micrometer screw also known as the dial screw.

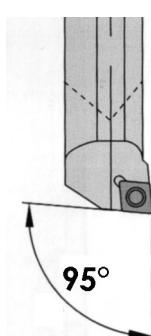
A boring head adapter attaches to the boring head with the other end having a taper that fits into the spindle of the machine.

### How To Use A Boring Head

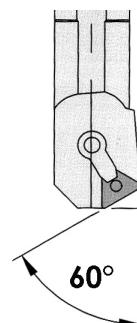
#### 1. Selecting The Cutting Tool

Always select the largest and shortest bar that will fit in the hole with clearance for the swarf. This will help to keep the tool rigid and eliminate some chatter (vibration) which sometimes occurs when cutting.

Select the tool with the approach angle that is best for your job.



Choose a tool with greater than 90° approach angle for a square shoulder



Choose a tool with less than 90° approach angle for a through hole. This will push the swarf out the bottom of the hole.

#### 2. Taking a Roughing Cut

Begin the cut and feed the tool into the part at a rate that keeps a continuous chip. Feeding too slow may cause chatter. Use some cutting oil or coolant to prolong tool life. The amount of cut will depend on the boring bar diameter. Take a light cut first and gradually increase the size of the cut.

Rough finish the hole leaving about 0.5mm on the diameter or 0.25mm per side for finishing

#### 3. Adjusting the Head

Adjust the head after each cut. Take a small cut into the hole and check to make sure that the hole is undersize.

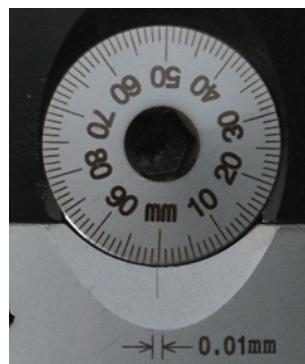
**Note!** Always make sure that the backlash in the head is removed when making adjustments. If you go past the point on the dial that you are adjusting the head to, then wind the dial back half a turn to remove the backlash. Then rotate the dial to the position required moving the head to the position you want it to be.

#### 4. Finishing Cut

Do not try to take the finish cut in one pass. Take half the cut required to get to the finish diameter.

It is better to approach the finish size slowly rather than make the hole oversize. Take light cuts and use continuous feed.

Take a small cut into the hole and check for size. If OK then proceed with the cut until the correct size is obtained.



Head adjustment for size is made using an allen key.