

In order to set the cutter length the following simple formula can be used:
cutter length = $(x - 25\text{mm})/2$ where x = the size of hole needed.

So if you want to cut a 42mm hole the cutter should be set at 8.5mm
i.e. $42\text{mm} - 25\text{mm} = 17\text{mm}$ $17/2 = 8.5\text{mm}$

Using the Woodcut MillDrill to hold Forstner bits

The Woodcut MillDrill has the added feature of being able to act as a chuck for drill bits with a 10mm shank. Many forstner bits, for example have reduced shanks that measure 10mm and these can be inserted into the front of the Woodcut MillDrill. Before doing so the front cutter needs to be removed and then, with the drill bit inserted in the front hole, the two grub screws can be tightened.

The Woodcut MillDrill is now ready to be inserted in the tailstock and drilling can take place on the lathe negating the need for a Jacobs chuck.

GENERAL SAFETY RULES

Warning! Failure to follow these rules may result in serious personal injury.

1. FOR YOUR OWN SAFETY, READ THE MANUAL BEFORE OPERATING THE TOOL. Learn the machine's application and limitations plus the specific hazards peculiar to it.
2. ALWAYS USE SAFETY GLASSES – FULL FACEMASK strongly recommended. Safety glasses (must comply with ANSI STANDARD Z87.1 USA) Everyday eye glasses usually are only impact resistant; they are not safety glasses. Also use face or dust mask if cutting operation is dusty.
3. WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewellery, which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
4. USE EAR PROTECTORS. Use earmuffs for extended period of operation. Use muffs rated to 103 DBA LEQ (8 hr).
5. DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
6. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents. Build up of sawdust is a fire hazard.
7. KEEP CHILDREN AND VISITORS AWAY. All children, infirm and visitors should be kept a safe distance from work area.
8. AVOID ACCIDENTAL STARTING. Make sure switch is in the Off position before plugging in power cord.
9. NEVER LEAVE MACHINE RUNNING UNATTENDED. Do not leave tool unless it is turned off and has come to a complete stop.
10. KEEP GUARDS IN PLACE and in working order.
11. USE RIGHT TOOL. Do not use a tool or attachment to do a job for which it was not designed.
12. DON'T FORCE TOOL. It will do the job better and be safer at the rate for which it was designed.
13. MAINTAIN TOOLS IN TOP CONDITION. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
14. DRUGS, ALCOHOL, MEDICATION. Do not operate tool while under the influence of drugs, alcohol or any medication.
15. DUST WARNING. The dust generated by certain woods and wood products can be harmful to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.
16. ENSURE THAT YOUR WORK IS SECURELY HELD IN THE LATHE before switching the lathe on.

WOODCUT TOOLS LIMITED

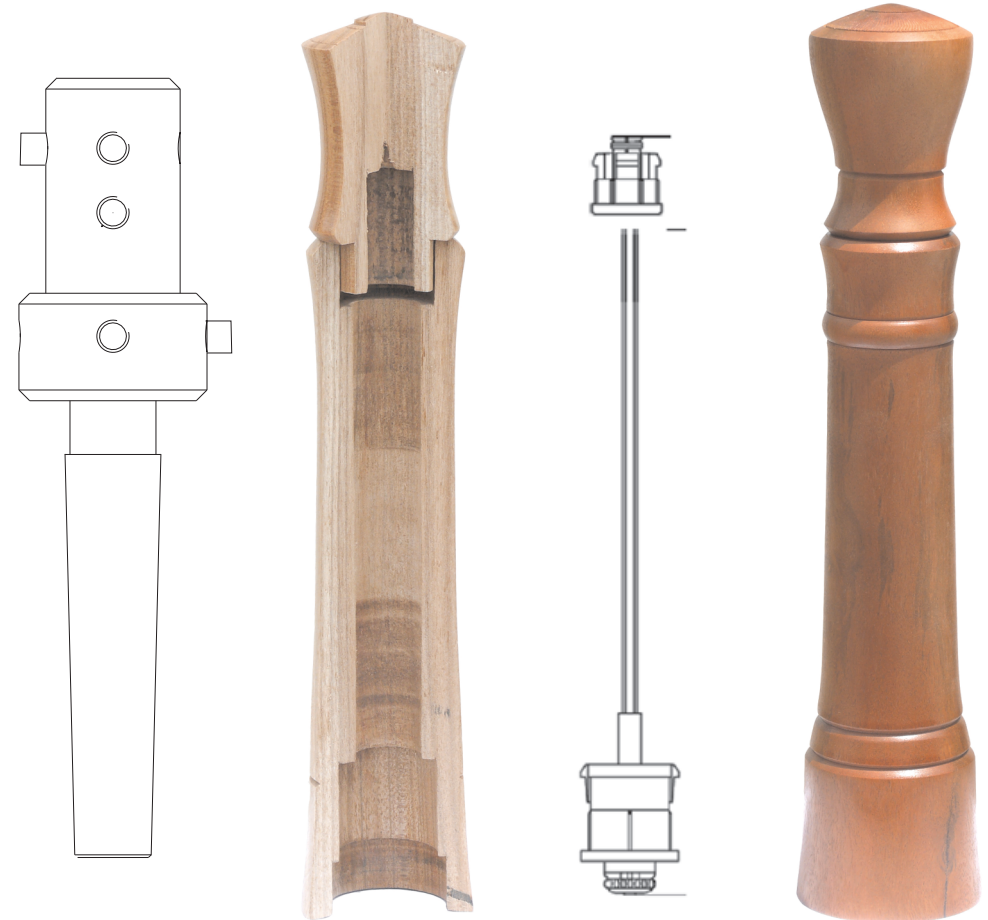
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MILLDRILL™

For easy installation of CrushGrind® mechanisms



MILLDRILL + WOOD + CRUSHGRIND® = GRINDER

Developed in association with top Australian woodturner Brendon Stemp.

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The Woodcut MillDrill was designed to make the production of pepper grinders that utilise the CrushGrind® mechanism, easier and quicker. However, it is versatile tool and with some adjustments to the cutters it can be used to cut a wide range of hole sizes making it unnecessary to buy a number of drill bits.

The Woodcut MillDrill incorporates a No2 morse taper so it will fit into the tail stock of most lathes which means the drilling process can be done on a lathe.

The Woodcut MillDrill has been pre-sharpened ready for immediate use but will need to be sharpened again when the cutters become dull or blunt. How regularly you sharpen the cutters will depend on the timbers being used.

Woodcut's Scraper Tool Holder (SCTH) will aid you to hold the small cutters for sharpening on a bench grinder, however regular touch-ups can be done with a diamond lap stone.

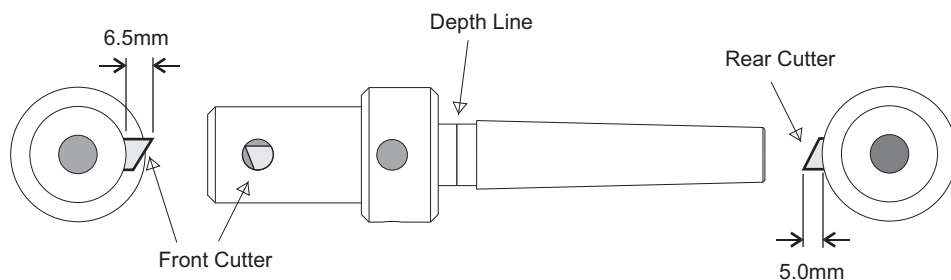
Setting the Cutters for making CrushGrind® pepper mills

The Woodcut MillDrill will accurately cut the first two holes (45mm and 38mm) at the correct depths for the fitting up of a CrushGrind® mechanism after the cutters have been set.

Setting the cutters is a simple process. All that is needed is the Allan key provided and either a set of vernier callipers or an accurate ruler.

1. Set the front cutter first. This cutter is located on the shaft that has a diameter of 25mm. You want the cutter to cut a 38mm diameter hole so the tip of the cutter needs to protrude 6.5mm from the shaft (see diag. below). To set this cutter loosen the grub screw and slide the cutter out from the shaft. Use vernier callipers or a ruler to measure 6.5mm from the shaft to the tip of the cutter and then ensure the cutter is at the correct cutting angle (see diag. below) before tightening the grub screw.

2. Next set the back cutter. This cutter is located on the shaft that measures 35mm. You want the cutter to cut a 45mm diameter hole so the tip of the cutter needs to protrude 5mm from the shaft (see diag. below). Set this cutter using the same process used to set the front cutter.



NB Because the back cutter is on the opposite side of the Crush Cutter to the front cutter it is very important the rear cutter's cutting edge is set upside down in relation to the front cutter (see diag above).

Using the Woodcut MillDrill

1. Drill a 1" or 25mm hole down the middle of your pepper mill body to a depth of at least 70mm. This hole can be drilled the entire length of the body or half the length. It can be drilled either on a pedestal/bench drill or on the lathe using a forstner bit secured into the 10mm end hole of the Woodcut MillDrill.
2. Insert the Woodcut MillDrill in the tail stock of your lathe and give it a gentle tap with a hammer or mallet to seat it tightly in the morse taper.
3. Mount the timber securely on the lathe with the 1"/25mm hole facing the tail stock.
4. Ensure the nose of the MillDrill (the 25mm shaft) is in line with the 1"/25mm hole by sliding the tailstock and MillDrill up to the timber.
5. When the two are aligned lock your tail stock and wind the MillDrill into the 1"/25mm hole a short distance (5 –10mm) making sure the cutter is NOT in contact with the wood. By doing this the first 5 -10mm of the MillDrill's shaft will act a 'dead centre'.
6. Adjust your lathe to a slow speed (approx 500rpm) and turn it on.
7. Wind your tail stock in. The front cutter will start to cut while the nose of the shaft is acting as a guide.
8. Keep winding the shaft until the back cutter starts to cut and keep winding until you have drilled in the correct distance.

NB If you find the winding of your tailstock starts to get difficult it may be due to a build up of woodchips and dust (the swarf) in the holes you are drilling, that cannot escape. If this is the case, TURN OFF YOUR LATHE and wind the MillDrill out to clear the swarf. Before the lathe is turned back, on wind the MillDrill back in to where it was ensuring the front shaft of the MillDrill is in the 1"/25mm hole. You can now resume drilling. This procedure also needs to be followed if you find your quill has not got the travel needed to drill the entire length in one movement.

9. You need to drill the 45mm hole to a depth of 20mm. The Woodcut MillDrill has a line engraved on the shaft 20mm past the tip of the back cutter to indicate the depth you need to drill to. Drill to this line, STOP THE LATHE and retract the tail stock.

In drilling the 45mm hole to the correct depth the 38mm hole will also be at the correct depth. The Woodcut MillDrill has been designed in such a way to ensure the difference in the depths of the two holes is according to the dimensions of the CrushGrind® mechanism. Once the body of the mill has been finished, the 'fitting up' of these mechanisms is a simple process.

Using the Woodcut MillDrill to cut other hole sizes

Using the front cutter only the Woodcut MillDrill can be used to drill a variety of hole sizes from 26mm to approx 50mm. The depths that these holes can be drilled will vary according to the size of the hole but any size greater than 35mm can be drilled up to 70mm plus the length of your quill deep. Hole sizes less than 35mm can be drilled up to 30mm deep.

Setting the cutter

You will need to set the front cutter only using the same procedure described earlier on. (see 'Setting cutters for making CrushGrind® pepper mills')