WARRANTY TERMS

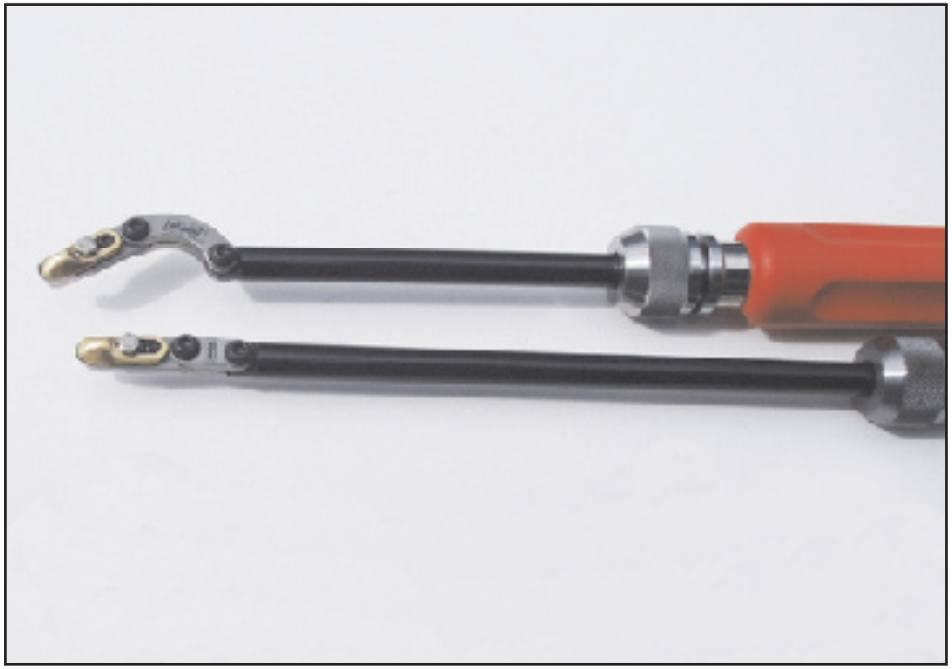
We are committed to our products and customers and guarantee our tools against faulty workmanship and faulty materials for twelve months. Fair wear and tear excluded. We will replace or repair any tool returned to the supplier or factory free of charge. Freight to and from the factory will be at the expense of the purchaser

WOODCUT TOOLS LIMITED
Haumoana, Hawkes Bay, New Zealand
Phone: + 64 6 875 1066, Email: sales@woodcut-tools.com

www.woodcut-tools.com

PRO-FORME FLEXI HOLLOWER

ASSEMBLY INSTRUCTIONS & USE



WOODCUT TOOLS LIMITED
Haumoana, Hawkes Bay, New Zealand
Phone: + 64 6 875 1066, Email: sales@woodcut-tools.com

www.woodcut-tools.com

Hollowing

Although Proforme tools are capable of cutting both internally & externally, it has been specifically designed as a hollowing tool, It is capable Of cutting in cross grain situations where deep hollowing is required & where bowl gauges etc will not make acceptable progress.

Mounting work

Fix your work piece securely to a face plate using self tapping screws oruse a well designed chuck to do the same. The work piece must be secure, as it will not be supported by a tail stock during hollowing. Next shape the exterior of the work piece. Leave plenty of bulk around the anticipated opening point to give strength during hollowing. Leave room at the foot of the work piece for a) screws, b) parting off, c) material in the foot of the finished work, Next true the entry point on the face of hollow form.

Drill a Pilot hole of a least 100mm deep & 12mm in diameter, drill in increments to ensure the hole stays true to axis. Lift the tool rest to 10mm below the axis of the work piece. When first using the Proforme set cutter gap at 0.,5mm maximum or use at the factory setting. Hold the tool in a horizontal attitude plane (the tip, tool rest and handle at the same level), (see diagram) with the depth gauge uppermost.

Before beginning a hollow form it is worth working out the tools ability to cut the shoulder angle relative to the work pieces entry aperture. The Proforme slight bent and bent heads may be employed once the initial opening has been established.

Hollowing sequence

Using a combination of radius and plunge cuts hollowing the work in increments, continue to go deeper with a firm forward pressure onto the wood. Where walls are going to be less than 10mm thick it is worth leaving ridge or rim of some bulk around the entry aperture to retain strength. This will reduce chatter and minimize stress cracking in the work piece. Develop and thin the areas nearest the tool rest first and continue that development on down to the base. Remove or refine bulky 'reinforcement after hollowing. The tailstock may be used to aid this process.

A small rotation of the tool body left or right may be needed to achieve the best cutting angle, rub the bevel and brass gauge on the bore travelling forward. Again rotation of the tool body left or right will find the cutting angle, continue the hollowing sequence as in diagram F1.

Clogging of cutter and gauge. 1. Check cutter for sharpness, 2. Some woods have fibres which tend to hang on the cutter edge, particularly when wet. When producing hollow forms with a small entry aperture shavings are produced quickly but have no where to go. The higher the rotation speed of the lathe the greater the centrifugal force exerted on the shavings collecting inside the work piece. Try slowing the lathe down, try letting the wood dry more as the fibres are less flexible and tend not to clog the cutter.
Clear shavings by blowing out with compressed air or reversed vacuum cleaner or by inserting a smooth round edged straight grained 25mm x 8mm stick a little above horizontal while the work piece rotates.
Cutting on one side Remedy check the gauge position, Check cutter for sharpness.
Cutting at tip only. Remedy 1. Check gauge position 2. Remove a little material from the left & right Gauge sides. **Cuts on sides of cutter only.** Remedy 1) Check for sharpness of cutter.1) Check gauge shape. If the tip of the cutter is not being exposed while its sides are, remove a little gauge material at tip, using the diamond hone with the cutter withdrawn. **Cuts too heavily or digs in.** Remedy I) Close or reduce cutter exposure. 2) **Not cutting.** Remedy1) Check for sharpness.2) Increase cutter exposure. 3) Check for clogging between gauge and cutter. 4) Check tool angle.

Woodcut have designed the **Irons tool gate** pictured here to not only keep the tool at the correct height but to also support the tool shaft while cutting and leave your hands free to control the handle. I suggest you consider adding this valuable accessory to your tool collection.

Choose the **correct size tool post** to suit your lathe when ordering

PROFESSIONAL HELP:

NZ Shane Hewitt
Ph: 09 436 1976

*** UK** *Phill Irons*
Warickshire
Ph 1789 490 477

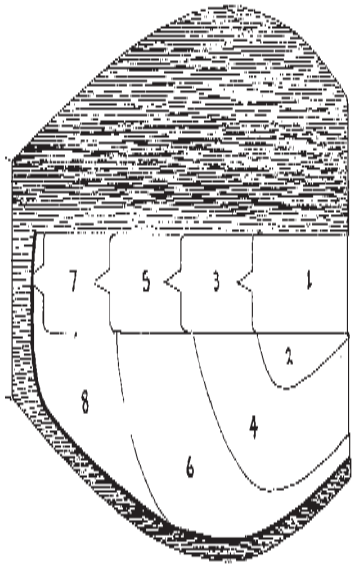
*** GER** *Martin Weinbrecht*
Ph 06229 2047

I suggest that you start by hollowing open neck vessels until you get used to the different feel of these tools. An open vessel will allow you to see what the tool is doing and learn how to hold the tool to get the best results. If you are attempting a deeper vessel then drill a 12mm or 1/2" hole down through the centre first to the depth you wish to go. A good idea may be to drill down 60mm 2.5" at a time to stop the drill going off center. You can make a drilling tool out of a chisel handle with a long series drill bit in the end where the tool would be or order our deep boring bit to fit your sponge grip handle from your set. Simply hold the tool in your hands level and push it into the end grain. Now you can cut to the center without that troublesome lump at the bottom of your hollow form. One technique I use once inside the vessel is to roll the tool anti-clockwise until the gauge is rubbing on the wood and then with the Gauge firmly against the vessel wall roll the tool back until the required cut is achieved. You will see the different thickness of shavings appear as you experiment.
Do not use the tool tentatively rather keep a firm cut going at all times, it will help smooth out the bumps and give you confidence to tackle bigger projects.

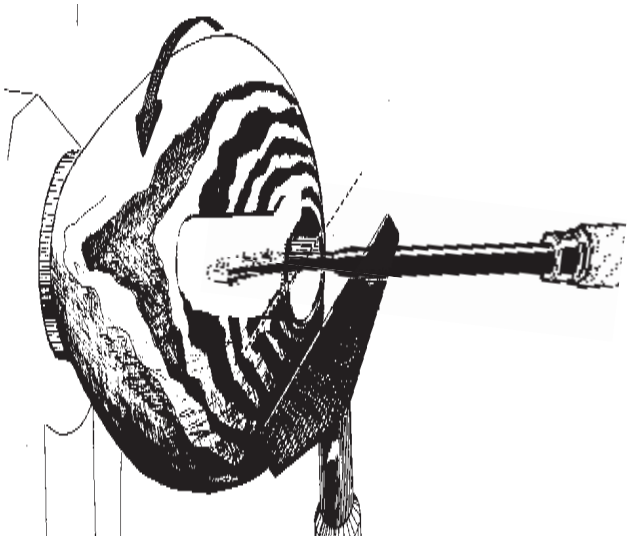
It is very important to adjust the gauge to allow the correct amount of cutter to show, this will vary from a soft wood to a hard wood i.e.: Soft or green woods will have more cutter exposed (say up to a 1mm or 3/64") as opposed to hard dry woods (say 0.5mm 1/32"). Of course wood will vary in so many ways that there is no substitute for experience. The drawings below will give you some idea of what to look for. The stainless steel set screw has a 7mm A/F head and will accept a socket or ring spanner of that size. To adjust simply loosen the set screw, then hold the tool over a white piece of paper, look down directly from above and move the gauge back or forwards until the required cut is achieved. Retighten firmly.

I suggest that to gain confidence with the tools practice using green branch wood. Many famous woodturners turn all their award winning hollow forms from green wood, then season it carefully then return when dry and finish. Providing it is evenly turned you will be surprised how it will dry crack free, and some interesting affects will occur when drying.

This new range of tools will also tackle face grain timber extremely well and many times you will make use of them for difficult bowls.
The rule is if its unsafe to reach with a conventional gouge then the Woodcut hollowing tools will most always do the job.



Series of cuts in sequence
Note: Drill down in stages when hollowing deeper vessels



It is important to make sure
the tool cutter is on the centre line.

STARTER PROJECT "Turned Goblet"

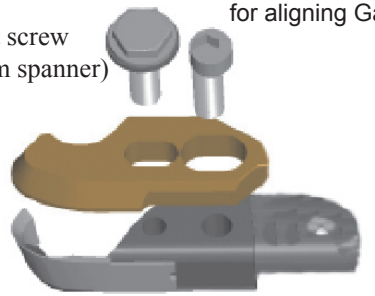
Suggested Materials: Use a clean cutting medium density wood between 75mm(3") to 100mm (4") square approximately 160mm (6.5") long.
Stage (1) Put wood between centres and face off tail stock end, slightly undercut. This is so the faceplate will sit
flat and square to the end grain. Fit faceplate in centre of undercut end and screw down tight with 4 pozi-drive screws approx 15mm into the wood. (see diagram)
If using a chuck make sure that the face of the jaws sit square or flat against the end of the block. This is an important part of the setting up, to get the best and safest use from the tool.

Stage (2) Tool rest height and position (refer to drawing). Take particular note as this is an important part of the setting up, to get the best and safest use from the tool.
Stage (3) Inside hollowing. Set the lathe at a mid-range speed (depending on type of lathe, pulleys etc.)
Present cutter to end grain of timber apply forward pressure to the left of centre, and with sweeping motions from left to right ease forward to remove the bulk of the interior material. After removing 75% of material from the inside, check the depth, then starting from the top lip of the Goblet cut forward and down in a sweeping motion around to the centre, (this is called plunge cutting.) As you are cutting down the side a twisting motion of the wrists will gain you
a better control in relation to the amount of timber removed.
When you have shaped the inside, proceed to shape the outside to suit with your normal gouges.

Trouble Shooting.
Cuts too heavily or digs in: Reduce amount of cutter showing.
Rubbing or not cutting: Not enough cutter showing or tool below centre.
Cuts heavily on one side: Twist tool anti clockwise onto gauge and back again until desired cut is obtained.
Do not use the tool tentatively. Rather, keep a firm cut going at all times, it will help smooth out the bumps.

Eccentric adjuster
for aligning Gauge

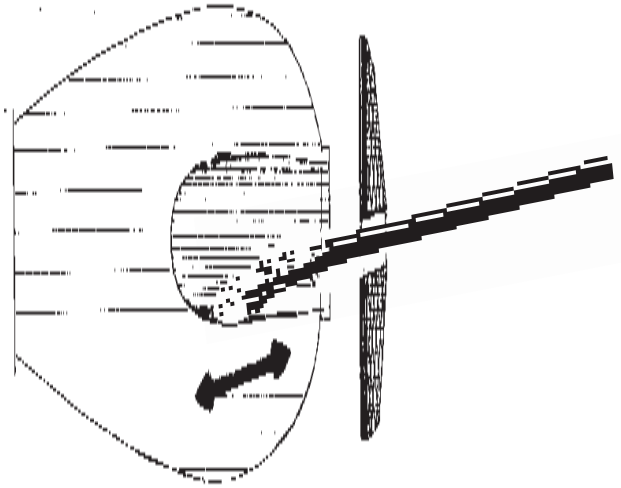
4mm Set screw
(use 7mm spanner)



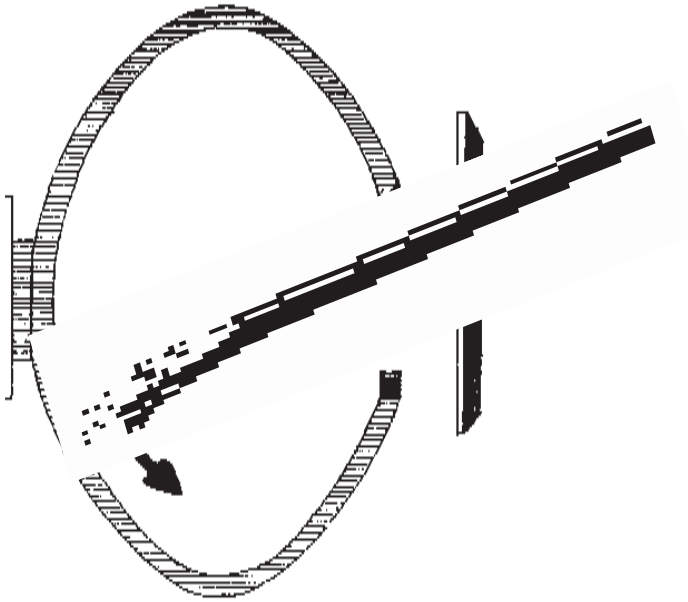
Brass gauge to
adjust depth of cut

Triple tempered M2 HSS blade

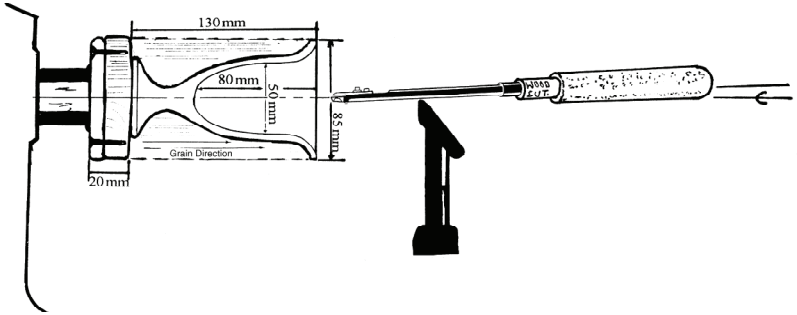
Assembled Woodcut
Flexi Power Head



Hollowing is made up of two basic cuts, the plunge cut as above and the arcing cut as illustrated below.



STARTER PROJECT



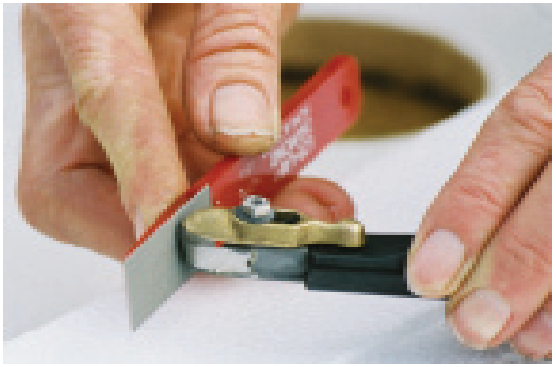
Tool care

a) Using the spanner provided, slacken the setscrew holding the depth gauge so that it will slide on the cutter mounting. Tighten the screws when the gauge is between 0.5min - 1.0 mm behind the cutter edge.

b) As seen in Diagram, the depth gauge can be positioned centrally or on either the left or right hand side of the cutter. To allow cutting on the entire blade, position the depth gauge centrally: the edge should be visible along the entire gauge edge.

Sharpening

Sharpen using a fine Eze lap diamond hone in a circular motion, hone the outer face of the cutter, ensuring that both the face of the cutter and the face of the diamond hone remain flat against each other. Honing the heel of the cutter will not sharpen it and honing just the edge will change the bevel and cause the cutter to rub rather than slice the fibres cleanly.
Note: Use the diamond hone wet.



Important: Secure the tool while not in use, protecting the cutter from impact and abrasive material.
Clean the cutter and gauge with warm soapy water and remove any wet timber and apply a light oil to the cutter area, gauge and tool body. Wipe off excess.On the tool body's underside apply a little candle wax. This will help the tool sliding over the tool rest in use.

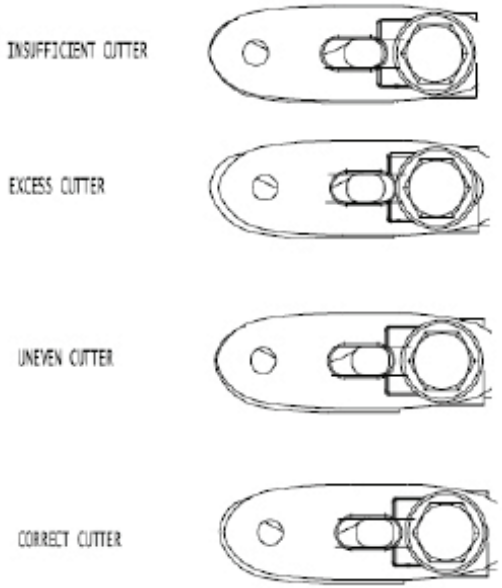
When the cutter is worn out, remove the cutter holder from the tool body. Replacement cutters & gauge are available.Periodically remove cutter holder, clean and grease and replace. Proforme is a precision tool and should be treated accordingly.

Identify all the parts and check two allen keys plus the small spanner. The cutter depth has been set ex-factory to approximately 0.5mm of cutter showing beyond the safety gauge.

Familiarize yourself with this measurement before starting your first cut.
When using the tool it is important to raise the tool rest up until the top of the cutter is at center height, when the tool is level (or horizontal) this will allow the cutter to cut right to the center without bevel bounce.

Gauge Adjustment

If the tool is cutting too heavily, reduce the cutter gap.
If the tool is cutting too slowly, increase the cutter gap by
small increments until the cut speed is satisfactory.
The cutter is a trunsicated triangular shape giving three main cutting areas. The left, and right-hand sides are segments of a larger radius than the tip and are suitable for cutting across lateral grain, The tip with its, small radius is designed to load the tool less while cutting through end grain. The open side of the hook is to vent shavings, The plunge cut is used in long narrow bores and. walls parallel to the works axis. Using the tip end and one side of the cutter push a shoulder of material ahead the tool. Cutting may continue with the retrieval movement as well. The radius cut uses mainly the tip radius and is used while forming the internal base surface of the work. The tool pivots on the rest with little forward or reverse movement while the tip is moved from centre to periphery and back again. Although the plunge cut and the radius cut are distinct movements, generally the tool operator will find if he or she uses them in combination, the edge will wear more evenly.



Method of adjustment by the addition of a eccentric screw adjuster located at the rear of the brass gauge cut limiter. To adjust the gauge to the centre of the cutter simply turn the screw one way or the other until the desired result is achieved. Use the smaller allen key provided.
Also we now supply a small adjusting spanner to undo the hex set screw, if you find it a little short simply fit a file handle to it. (They can be purchased cheaply from your local hardware store) As explained beforehand it is very important to adjust the gauge to allow the correct amount of cutter to show, this will vary from a soft wood to a hard wood i.e.: Soft or green woods will have more cutter exposed (say up to a 1mm or 3/64") as opposed to hard dry woods (say 0.5mm 1/32"). Of course wood will vary in so many ways that there is no substitute for experience.