Thank you for purchasing your Nova G3 Chuck - the latest addition to our Woodturning Chuck range. We are confident that it will be a great aid towards fast workholding and enhance your woodturning capability. The Nova G3 is designed for a range of workholding modes while being quick and easy to use.

FOR YOUR SAFETY
PLEASE READ & UNDERSTAND THIS INFORMATION BEFORE USING YOUR NOVA G3 CHUCK

DANGER: THIS CHUCK IS CAPABLE OF CONTRIBUTING TO SERIOUS INJURY AS WITH ANY OTHER POWERTOOL ACCESSORY. IF USED IMPROPERLY ON THE LATHE.

Before using the Nova G3, read and understand this instruction manual and the lathe owner's manual. If you do not have a manual, contact the supplier of your lathe to obtain one before using the lathe and Chuck.

User must be professionally trained to use this chuck. Vocational school courses recommended. As with other chucking methods, an extremely cautious and sensible approach is necessary. With the Nova G3 Chuck it is not possible to give exact directions as to the amount of tightening pressure required for workholding. Follow closely strict guidelines in this manual for different jaw types on wood blank diameters and length, plus turning speed.

BEFORE USING THE NOVA G3 CHUCK MAKE SURE THAT:

• EYE PROTECTION WHICH COMPLIES WITH CURRENT ANSI STANDARD Z87.1 (USA) IS WORN. WE RECOMMEND THAT A FULL FACE SHIELD BE USED AT ALL TIMES.
• Chuck is properly secured on lathe spindle. Follow mounting instructions for your lathe for faceplates and other spindle fixtures.
• For safety, DO NOT ROTATE CHUCK UNDER POWER WITHOUT WOOD BEING GRIPPED.
• WARNING: EXCESSIVE SPEED IS A SERIOUS LETHAL HAZARD. ALWAYS TURN THE SLOWEST SPEED POSSIBLE.
• Speed will vary with wood blank size. The larger the blank the slower the speed. Consult your lathe manual or lathe information plate for speed guidelines.
• DO NOT ATTEMPT TO USE THE CHUCK UNLESS THE SPEED LIMITS ARE KNOWN. YOU MUST STRICTLY FOLLOW THE MAXIMUM SPEED LIMITS SET OUT IN THE OPERATING SECTION OF THIS MANUAL.
• DO NOT EXCEED THEM UNDER ANY CIRCUMSTANCES.
• EXAMINE WOOD CAREFULLY. ONLY MOUNT WOOD THAT IS SOUND. If any cracks, splits, or weakness is found in wood - DO NOT MOUNT ON CHUCK. DO NOT MOUNT WOOD THAT IS LIKELY TO BREAK UP DURING TURNING (E. ROTTEN OR SPONGY WOOD). DO NOT USE POORLY JOINTED OR LAMINATED WOOD.
• Make sure wood is clamped firmly. Follow mounting instructions for different gripping modes and jaw types. In the expansion mode do not undue force or jaws may split the wood.
• Do not exceed maximum guidelines in this manual for wood blank diameters or lengths set out in this manual for different modes and jaw types.

DO NOT USE WITH ANY COPYTURNER OPERATIONS.
• Check wood is securely held in chuck, before operation. Check grip by vigorously wrenching wood blank back and forth. If any loosening occurs, re-examine holding area for adequate grip (Following mounting guidelines) and any damage to holding area. Rotate manually to make sure of clearance before switching power on.

WARNING: FOR SAFE OPERATION

IT IS IMPORTANT TO KNOW THAT TURNING CAN BE CARRIED OUT WITH JAW SLIDES NOT EXTENDING BEYOND THE CHUCK BODY. HOWEVER, THE JAW SLIDES CAN EXTEND UP TO 6.35MM (1/4") BEYOND THE BODY OF THE CHUCK TO GIVE A WIDER RANGE OF EXPANSION, IF REQUIRED. EXTRA CAUTION MUST BE EXERCISED WHEN TURNING WITH JAW SLIDES EXTENDING BEHIND THE BODY OF THE CHUCK.

• Irregular shape of balanced stock to be turned at the slowest possible speed until it is in balance. For use on outboard/left-hand rotation - MAKE SURE INSERT IS SECURELY LOCKED WITH GRUB/SCREW BEFORE USE. Use only hand held woodturning chisels to shape wood or to remove wood from woodworm screw. It is not recommended that watercooled chisels be used. Always follow the instructions for the tool manufacturer.
• USE THE RIGHT CHISEL FOR THE JOB AND DO NOT FORCE TOOLS. Use safe and correctly approved chisel techniques. Never pressure the chisel to the wood. Always stop the lathe and remove the woodworm screw before removing the wood blank.
• WEAR PROPER CLOTHING. Do not wear any loose clothing, neck ties, gloves, bracelets, rings or otherellery that could get caught in moving parts. Wear protective hair covering in long hair.
• Do not operate chuck or lathe while under the influence of DRUGS, ALCOHOL or any MEDICATION.
• KEEP CHILDREN AND VISITORS AWAY. All children and visitors should be kept safe distance from the work area.

Make workshop proof with paddocks, master switches, or by removing starter keys.

FITTING CHUCK TO LATHE
Check that the chuck thread specification matches the lathe spindle thread you have. This is important for accuracy. The chuck body must contact an accurate register on lathe, either a shoulder on spindle or bearing face etc to ensure chuck will run true. Further modifications are needed (e.g. spacer) these are the responsibility of the user. A good check is to see whether it screws home the same as a faceplate or similar spindle fitting.

DO NOT USE UNLESS CHUCK IS PROPERLY FITTED TO SPINDLE. NB: SOME FORM OF LOOKING MUST BE USED IF THE LATHE IS CAPABLE OF REVERSE MODE.

CHUCK OPERATION

Adjustment: The Nova G3 chuck features a chuck key, which locates easily and quickly into the gearing mechanism. The high powered gearing delivers outstanding grip at little effort. Moving in a clockwise direction will expand the jaws outwards (expansion), and moving the key in an anti-clockwise direction will contract the jaws (contraction). For example, move the handle in an anti-clockwise direction to remove the jaw from the lathe, or clamp a work piece inside the jaws, and then move the handle in a clockwise direction to release the work.

AUTO STOP FEATURE
The Nova G3 has an in-built safety feature which prevents the jaws slides from becoming dislodged from the chuck. The auto stop feature is first in the industry doing away with shearing screws.

MOUNTING & DISMOUNTING OF JAWS

The Nova G3 chuck comes with no jaws attached. With the many jaws available it is very easy to use your single chuck for a very wide range of applications. All jaws in the Teknatool range for the Nova G3 are secured and attached the same way.

Attaching Jaws - To mount the jaws to the Nova G3 chuck is another easy process. Firstly wipe clean all jaw slides, especially the contact surfaces. Rotate the first few times, you may need to GENTLY tap the jaws into the locater slot with a block of wood or plastic material. Make sure jaws are clamped firmly. Follow mounting instructions for different gripping modes and jaw types. In the expansion mode do not undue force or jaws may split the wood.

To Remove Jaws - Simply using the 4mm Allen key supplied, unscrew all 6 counter sunk screws (there are eight of them). The jaws will come away once their screws are released. Sometimes due to dust particle build up (after heavy turning) the jaws may need a very light tap with a plastic hammer to dislodge them. It is important to keep them in their set so not to mix them up with other jaws of the same type.

IMPORTANT NOTE: Although the Nova G3 is compatible with all the Teknatool Accessory Jaws, it is not recommended that the larger accessory jaws be used. As with any other accessory jaws, the maximum size of wood blank that can be turned in one operation with a Nova G3 chuck is 100mm (4 inches). Moreover, it is not recommended that work exceed a diameter of 14" and a depth of 5" with this chuck.

DOVETAIL OPERATION

Expansion of the jaws into a recess - This function is for bowl and platter turning where the projection (depth) of the wood blank is not too great i.e. up to 100mm (4 inches). Characteristically these items have a parallel wood grain. It MUST NOT BE USED FOR ANY LONG WORK (OVER 100mm or 4 inches) AS THERE WOULD BE GREAT DANGER OF WOOD TEARING OUT AND DISLODGING FROM CHUCK.

Instructions below apply to the standard 50mm (2 inches) jaws but the general technique is the same with other accessory jaws. However, the maximum size of wood blank that can be safely turned with the Nova G3 chuck is 100mm (4 inches). A maximum turning speed and recess size varies with the different accessory jaws. Consult specific instructions included for each jaw set.

This strong holding method, using the standard 50mm (2 inches) jaws can turn bowls up to 350mm (14 inches) in diameter. DO NOT EXCEED 600 RPM WITH THIS OPERATION. OUT OF BALANCE STOCK MUST BE TURNED AT THE SLOWEST SPEED POSSIBLE.

50mm jaws - Any recess can be turned between 50mm (2 inches) and 70mm (2 3/4") in diameter. For smaller lids and thin platters (not exceeding 150mm or 6 inches diameter) only a shallow recess of around 3mm (1/8") is necessary. It will be matter of gaining experience as to what combinations and sizes will best suit.

USING THE WOODWORM SCREW

The woodworm screw supplied with the Nova G3 chuck is purpose designed for screw chucking. It is a cylindrical screw which maintains its full holding power along the whole length, unlike normal tapered screws. The thin thread form is specially designed to cause minimum damage to wood fibers. They grip better than screws because there is a larger volume of undamaged wood retained within the screw.

The woodworm screw is made complete with the boss section in one piece. The woodworm screw is to be used with the jaws remaining on the chuck. This facility is very important for retaining work directly onto the jaws after the screw is removed. (See more, page over)

PARTS LIST & EXPLODED DRAWING

NB: Direct threaded chucks #9 & #10 not used (with the exception of the 4-threaded direct chuck)
USING THE WOODWORK SCREW (contd.)

To operate this tool, place the boss section into the centre of the chuck and close jaws into the slots. BEFORE FINAL TIGHTENING MAKE SURE THAT THE FRONT OF THE BOSS SECTION OF THE SCREW IS SEATED BEHIND AND AGAINST THE 50mm (2 INCHES) JAWS. This will prevent any tendency for the boss section to creep forward when the screw is being used. NB: The recommended pre-drill size is 9/32” (7mm) for soft woods and 5/16” (8mm) for hard woods.

The front face of the jaws have been machined to provide an accurate backing surface. This is quite an advantage, providing a much tighter fit and wider tolerance for irregularly faced stock. This feature is also quite an advantage when using the screw to mount a bowl for first stage bowl turning - forming the outside of the bowl to be put straight onto the jaws (the screw is first removed) after the recess has been formed.

The woodwork screw provides 15mm -12mm OR 39/64” (0.609) threads through the jaws. Irregular, rough tear gates (e.g. small sections of tree limbs) not exceeding the above sizes can be held quite firmly BUT caution must be exercised. Check for adequate support. DO NOT USE THE SCREW FOR VERY LARGE WOOD BLANKS. Its intended for small bowl and screw chucking work. The maximum capacity which should be mounted on the screw is 250mm (10 inches) diameter X100mm (4 inches). DO NOT EXCEED 600 RPM FOR THIS OPERATION, and use tailstock with a live centre for support.

FORMING RECESS

The jaw dovetail has been designed for use with a standard skew scraper. This chisel will make a recess at the angle required. FOR SAFETY REASONS WE STRONGLY ADVISE AGAINST USING ANY OTHER TOOL. A profile of this chisel is shown below. It is best to work with a tool, which is already ground, to the correct angle. All that is necessary then is to keep the leading edge of the chisel flat on the wood, moving forward and out to form the recess to the required diameter and depth. Mount bowl blank on screw as described in previous section. It may be convenient to first mark out with a pencil, a circle on the bowl blank. To mark out the recess diameter with pencil, hold pencil point to desired radius, supported on the top centre. Then rotate blank by hand thus creating a pencilled circle. However, as specified above, any recess diameter can be made between 50mm (2 inches) - 75mm (3 inches) so exact sizing of the recess is unnecessary.

Before scrapping out the recess, slightly hollow out the centre of the bowl blank with a bowl gouge or round nose scraper. The purpose is to relieve the centre so that when the recess is scrapped out only half the chisel edge needs to be used. We recommend this to reduce tearing of the wood by scraping action; and to make the recess a little more finished. A little more work should be given to the overall bow. Extra embellishments can also be made to the recess to enhance the bowl. After the recess is finished and the outside of the bowl shaped to shape, wind bowl back off screw. Bowl blank is now ready to be reversed into the jaws. Expand the jaws into the recess. When the jaws are expanded out into the recess, screw the wood blank gently back and forth to make sure it is seated properly on the bottom face of the jaws.

SPIGOT OPERATION

This is where the jaws contact around a wooden spigot for grip. This function is mainly for box, goblet and vase turning, that is, end grain items with a fair degree of overhang. This situation is one of the most difficult to provide secure holding no matter what forming method is used. EXTREME CAUTION WITH THIS OPERATION MUST BE EXERCISED. DO NOT EXCEED 850 RPM FOR THIS OPERATION. If used properly, the Nova G3 Chuck provides a very powerful and secure grip in this mode.

Instructions below apply to the standard 50mm (2 inches) jaws but the general spigot technique is the same for other jaw types. However, maximum turning speed and recess size varies with different jaw types. Consult accessory jaw manual or instruction sheets. With the standard set of 50mm (2 inches) jaws a maximum size wood blank of 100mm (4 inches) diameter (NOT spigot size) by 50mm (2 inches) length can be turned. Square timber of same length and between 40mm (1.5 inches) to 50mm (2 inches) and grip of all four jaws into wood. MAKE SURE YOU HAVE AN ADEQUATE GRIP BEFORE OPERATION by vigorously wrenching the limb mounted on chuck. If any loosening occurs DO NOT PROCEED with operation. Repeat tightening procedure and test grip.

FORMING SPIGOT:

When selecting wood make sure it is sound without splits or weakness - especially around the centres and turn the spigot area. Make the spigot as parallel as possible to maximise the efficiency of the clamping action. Only approximate sizing of the spigot is necessary, as the jaws will accommodate a wide range of spigot diameters within the spigot limits stated above. The 50mm (2 inches) standard jaw has a thin lip (or shoulder at the front face) which is designed to bite into the timber as the jaws are tightened. DO NOT CUT A RECESS FOR THE LIP TO FIT INTO, AS THIS WILL REDUCE GRIPPING POWER.