

NOVA INFINITY™  
QUICK CHANGE  
Smooth Column  
Jaws

INSTRUCTION MANUAL



CAREFULLY AND BE THOROUGHLY FAMILIAR WITH  
CHUCK OPERATIONS BEFORE USE

**nova**™

*Smart Tools, Powerful Solutions*

Updated 22 January 2014

# WELCOME

Thank you for purchasing our NOVA Infinity Quick Change Accessory Jaw. We are confident it will help to both enhance and advance your woodturning. The NOVA Infinity Quick Change Jaws deliver a very versatile unit, with a wide range of work holding modes. It has a powerful grip while being very fast to change accessories – enabling you to select just the right accessory jaw for your project. The new Quick change profile means you now have access to some unique and exciting accessories, while still keeping your old NOVA chuck technology and preserving the investment you have made in NOVA chuck accessories. .

The Infinity Quick Change Accessory Jaws combines the best features of our original NOVA Chuck Accessories (wide jaw movement, quick two way grip) with the advantages of the latest technology and innovation from NOVA.

## BENEFITS OF THE INFINITY QUICK CHANGE ACCESSORY JAWS

- Fast, easy to change out Accessory Jaws (around 25 seconds for a whole set, compared with 5-6mins or longer that it used to be with the old technology!)
- Strong powerful grip
- A seamless series of jaws which allows the selection of the correct jaw for the size and diameter of wood.

# Contact Teknatool

## New Zealand

**Teknatool International Ltd**  
Phone: (+64) 9 477 5600  
Fax: (+64) 9 477 5601  
Email: [service@teknatool.com](mailto:service@teknatool.com)  
Website: [www.teknatool.com](http://www.teknatool.com)

## United States

**Teknatool Service Center**  
Phone: 727-954-3433  
Free Phone: 1-866-748-3025  
Free Fax: 1-866-748-4193  
Email: [service@teknatool.com](mailto:service@teknatool.com)  
Website: [www.teknatool.com](http://www.teknatool.com)

For your local Distributor or Reseller, see our website [www.teknatool.com](http://www.teknatool.com)

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**Warning!** ONLY use the NOVA Chuck handle supplied to tighten the jaws. DO NOT use longer arm hex wrenches, ratchets, or other devices which may over tighten and cause excessive and unnecessary torque. It can be dangerous to over tighten, causing excessive stress on product and on the project itself. The NOVA chuck handle supplied is sufficient to tighten the Infinity Chuck Jaws for normal turning operations.

## General Safety Rules



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

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

**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.

1. **ALWAYS USE A FULL FACE SHIELD-Strongly recommended** (must comply with ANSI STANDARD Z87.1 -USA) Everyday eye-glasses usually are only impact resistant and safety glasses only protect eyes. A full face shield fill protect the eyes and face. Also use face or dust mask if cutting operation is dusty
2. **WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts. Non slip footwear is recommended. Wear protective hair covering to contain long hair.
3. **USE EAR PROTECTORS.** Use ear muffs for extended period of operation. Use muffs rated to 103 DBA LEQ (8 hour).
4. **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.
5. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents. Build up of sawdust is a fire hazard.
6. **KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.
7. **MAKE WORKSHOP CHILDPROOF** with locks, master switches, or by removing starter keys.
8. **GROUND ALL TOOLS.** This tool is equipped with a three prong plug, it should be plugged into a three hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter lug must be attached to a known ground. Never remove the third prong.
9. **MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY** while the motor is being mounted, connected, or reconnected.
10. **DISCONNECT TOOLS** before servicing and when changing accessories such as blades, bits cutters, etc.
11. **AVOID ACCIDENTAL STARTING.** Make sure switch is in the Off position before plugging in power cord.
12. **NEVER LEAVE MACHINE RUNNING UNATTENDED.** Do not leave tool unless it is turned off and has come to a complete stop.
13. **KEEP GUARDS IN PLACE** and in working order.
14. **USE RIGHT TOOL.** Do not use a tool or attachment to do a job for which it was not designed. **Wherever possible stand to one side of the revolving wood**
15. **USE RECOMMENDED ACCESSORIES.** The use of improper accessories may cause hazards.
16. **DON'T FORCE TOOL.** It will do the job better and be safer at the rate for which it was designed.
17. **MAINTAIN TOOLS IN TOP CONDITION.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
18. **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
19. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form a habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
20. **DON'T OVERREACH.** Keep proper footing and balance at all times.
21. **DIRECTION OF FEED.** Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
22. **ATTENTION TO WORK.** Concentrate on your work. If you become tired or frustrated, leave it for awhile and rest.
23. **SECURE WORK.** Use clamps or a vice to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
24. **CHECK DAMAGED PARTS.** Before further use of the tool, any part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, mounting, and any other conditions that may affect its operation. Any damaged part should be properly repaired or replaced.
25. **DRUGS, ALCOHOL, MEDICATION.** Do not operate tool while under the influence of drugs, alcohol, or any medication.
26. **DUST WARNING.** The dust generated by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

# Additional Safety Rules



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

## **DO NOT MODIFY OR USE LATHE FOR USES OTHER THAN FOR WHICH IT WAS DESIGNED.**

1. **SEEK INSTRUCTION.** If you are not thoroughly familiar with the operation of wood lathes, obtain advice from your supervisor, instructor, or other qualified person. Instruction from a qualified person is strongly recommended.
2. **MAKE SURE WOOD** is securely clamped in the chuck before turning it on
3. **EXAMINE WORK PIECE** and glue joints before turning to make sure it has no defects that would cause it to break when turning.
4. **CHECK SET-UP** with power Off. Examine the set-up carefully and rotate the work piece by hand to check clearance before turning on power.
5. **ADJUST TOOLREST** close to the work piece. Before turning, revolve the stock by hand to make sure it clears the rest. At intervals, stop the lathe and readjust the toolrest.
6. **DO NOT MAKE ADJUSTMENTS** when the lathe or work piece is turning. Make all adjustments with power Off.
7. **TIGHTEN ALL CLAMP HANDLES** on the headstock, tailstock, and toolrest before operating lathe.
8. **USE LOWEST SPEED** when turning a new or unbalanced work piece.
9. **USE CORRECT SPEED** for turning the wood blank as wood speed will vary depending on diameter.
10. **KEEP TOOL ON TOOLREST.** Tools should remain on the toolrest whenever the tool is engaged in contact with the work piece.
11. **DO NOT ROTATE CHUCK** under power without wood being gripped and securely tightened in the chuck.
12. **USE CORRECT LATHE TOOLS.** Do not use spindle turning chisels for faceplate mounted work, and vice versa. Spindle turning tools used for faceplate turning may grab the work piece and pull the chisel from your control.
13. **DO NOT POUND WORK PIECE** into headstock drive (spur) center while attached to the lathe when turning between centers. Pound the drive center into the work piece with a soft mallet before installing it between centers in the lathe.
14. **DO NOT USE TAILSTOCK** to drive work piece into the drive (spur) center when turning between centers. Secure work between centers with light pressure from the tailstock quill action.
15. **FASTEN STOCK SECURELY BETWEEN CENTERS.** Make sure the tailstock is locked before turning on the power.
16. **NEVER LOOSEN TAILSTOCK** spindle or tailstock while work piece is turning.

## **ALWAYS WEAR EYE PROTECTION WHICH COMPLIES WITH CURRENT ANSI STANDARD Z87.1 (USA). WE RECOMMEND THAT A FULL FACE SHIELD BE USED AT ALL TIMES.**

17. **MAKE SURE CHUCK IS SECURED** properly on lathe spindle. Follow mounting instructions for your lathe for faceplates and other spindle fixtures.
18. **MAKE SURE CHUCK JAWS ARE SECURELY ATTACHED** to the chuck by vigorously wrenching each of the four jaws to check they are firmly in place.
19. **DO NOT ROTATE CHUCK UNDER POWER WITHOUT WOOD BEING GRIPPED.**
20. **EXCESSIVE SPEED IS A SERIOUS LATHE HAZARD. ALWAYS TURN AT 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.
21. **DO NOT ATTEMPT TO USE THE CHUCK UNLESS THE LATHE SPEEDS 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.**
22. **DO NOT TURN IN REVERSE.** Do not use this chuck for reverse turning operations. Light reverse operations i.e. sanding, polishing are allowed, do not exceed 2000rpm in reverse.
23. **EXAMINE WOOD CAREFULLY.** ONLY MOUNT WOOD THAT IS SOUND, if any cracks, splits, or weakness is found in wood - DO NOT MOUNT ON CHUCK.
24. **DO NOT MOUNT ANY WOOD THAT IS LIKELY TO BREAK UP DURING TURNING (E.G. ROTTEN OR SPONGY WOOD). DO NOT USE POORLY JOINTED/LAMINATED WOOD.**
25. **IRREGULAR OR OUT OF BALANCE STOCK** needs to be turned at the slowest possible speed until it is in balance.
26. **MAKE SURE WOOD** is clamped firmly. Follow mounting instructions for different gripping modes and jaw types. In the expansion mode do not use undue force or jaws may split the wood.
27. **DO NOT EXCEED MAXIMUM** guidelines in this manual for wood blank diameters/length set out in this manual for different modes and jaw types.
28. **DO NOT USE WITH ANY COPYTURNER OPERATIONS**
29. **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.
30. **WARNING FOR SAFE OPERATION. DO NOT EXTEND JAW SLIDES BEYOND CHUCK BODY UNDER ANY CIRCUMSTANCES**

# INFINITY Quick Change Accessories

Note that inserts, accessory jaws etc are interchangeable between the NOVA Infinity, Nova, SuperNova, Titan and SuperNova2 Chucks. However, additional accessories or Retro Fit Kits may need to be purchased. All NOVA Chucks fitted with PM jaw slides can be upgraded to Infinity Jaw Slide technology (chucks purchased from 2004)

## UPGRADE KIT

SKU 8100

Kit containing 4 Infinity Jaw Slides, enabling you to replace your old existing NOVA chuck jaw slides (G3, SuperNOVA2 and Precision Midi models) with the Infinity quick change technology.

## UPGRADE KIT TITAN

SKU 8120

Kit containing 4 Infinity Jaw Slides, enabling you to replace your old existing NOVA Titan II chuck jaw slides with the Infinity quick change technology.

## RETRO FIT KIT

SKU 8200

Kit containing 4 jaw insert pieces, fitted to your Infinity Jaw slides. It enables you to fit your existing older NOVA chuck accessory jaws to the Infinity jaw slides.

# Infinity Accessory Jaw Range

NOVA Infinity is a new system which offers some innovative breakthroughs for chuck holding.

A quick change jaw key system fits to the Infinity Slides (patent app.) to form a powerful and secure 'taper lock' much stronger than the original jaw screw fastening system. So much more powerful holding with the big advantage that jaws that can be changed out in less than 30 seconds.

The Infinity system also allows complete freedom in jaw design with no screw fastenings to limit jaw function.

The NOVA Innovation team were able to take a fresh look at jaw holding to help the woodturner to select the appropriate jaw to enable the just the right shape and design for their work, no matter the size. A 'freedom to design' was not possible with the original jaw series.

The Infinity jaw series approach is based around workholding solutions such as bowl turning, spigot/tenon turning, hollow forms.

The Infinity Bowl Jaw series of jaws, seamlessly provides a workholding range from small 6" bowls right up to deep bowls and 30" platters.

The Infinity Saw Tooth Series of jaws provides seamless and secure workholding range for long hollow form work.

# Explanation of common chucking techniques

## EXPANDING 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. Specific sizes for each jaw type is stated in that area. Please refer to your NOVA Chuck manual for information on how to form a recess.

When making a recess it is important to calculate the depth. The recess depth is an important consideration for maximising the holding power of the jaws, guidelines under each jaw should be followed closely. The depth of a recess can be varied according to the size and mass of the workpiece. Larger bowls and softer woods require a deeper recess. Smaller lids and thin platters generally require a shallower recess. Always use a recess depth in excess of what is required. **IF THERE IS ANY DOUBT INCREASE RECESS DEPTH.**

## SPIGOT (Tenon) OPERATION

Contraction of the jaws around a wooden spigot for grip. Mainly used for box, goblet and vase turning, that is, endgrain items with a fair degree of overhang. Generally tailstock support is minimal or cannot be used because of the need to hollow out the inside. This method seems to be preferred by many bowl turners over the internal dovetail recess as the foot can later be re-shaped or removed, if desired, to make a smooth outside bottom of the bowl.

This situation is one of the most difficult to provide secure holding no matter what fixing method is used. **EXTREME CAUTION WITH THIS OPERATION MUST BE EXERCISED.** If used properly however, Teknatool Chucks provide a very secure grip in this mode. Check for adequate contact and grip of all four jaws into the wood when using this operation. **MAKE SURE YOU HAVE AN ADEQUATE GRIP BEFORE OPERATION** by vigorously wrenching the work piece mounted in the chuck. If any loosening occurs **DO NOT PROCEED** with operation. Repeat tightening procedure and retest grip. Refer to your NOVA chuck manual for information on forming a spigot.

## FREE END TURNING

Turning where the work is not supported by the tailstock. Commonly used for all hollow form work such as bowls, long hollow vases or boxes.

# Mounting the INFINITY Quick Change Jaws on the Chuck.

IT IS IMPORTANT TO LOCATE JAWS PROPERLY IN THE JAW SLIDES FOR THE CHUCK TO FUNCTION SAFELY AND ACCURATELY.

## Mounting Add-On Jaws

1. Using the supplied Chuck Key, turn the chuck pinion gear clockwise to open the jaws to their outer most position (as in Figure 1).

**IMPORTANT: Never leave the Chuck key in the chuck when not in use!**

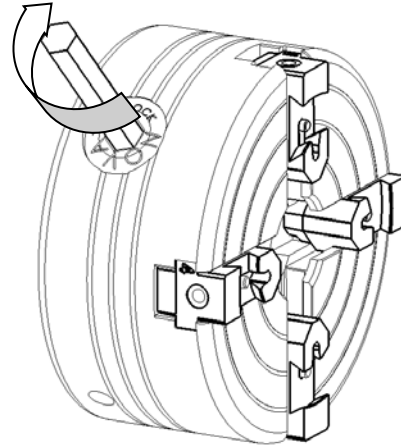


Figure 1

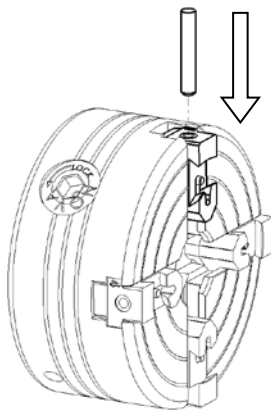


Figure 2

2. Push in the Lock Push Pin on the back of the Jaw Side Using the pin in the end of the Chuck Key Handle to release the locking mechanism (Figure 2).

3. With the Lock Push Pin fully depressed in, position a desired jaw on the left side of a free Jaw Slide and slide the Jaw clockwise in a circular motion into place in the Jaw Slide. Remove the Pin holding the lock push pin in and ensure the jaw is securely locked in place. (Figure 3).

Repeat for all remaining free Jaws.

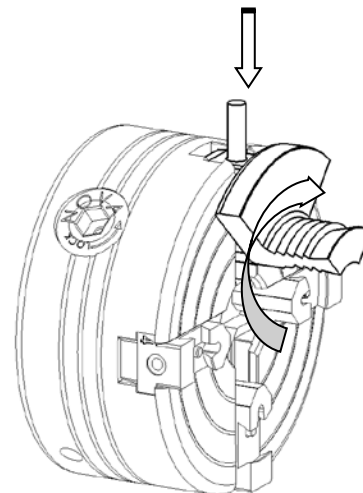


Figure 3



## Un-mounting Add-on Jaws

4. With the jaws opened to their outermost position, push in the Lock Push Pin on the back of the Jaw Side using the pin in the end of the Chuck Key Handle to release the locking mechanism (Figure 4).

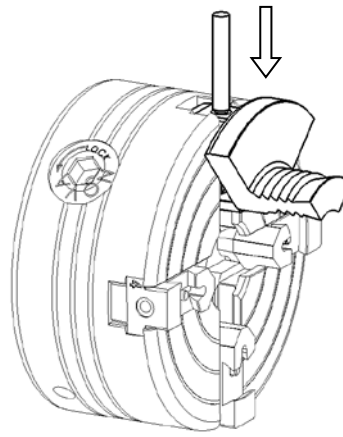


Figure 4

1. With the Lock Push Pin fully depressed in, slide the Jaw anti-clockwise in a circular motion Out of the Jaw Slide. Remove the Pin holding the lock push pin. (Figure 3).

Repeat for all remaining Jaws.

**NOTE: if the collet is not coming out of the Chuck, check the Lock pin is fully depressed. If it is and the jaw still can't be removed, lightly tap the jaw anti-clockwise out of the Chuck.**

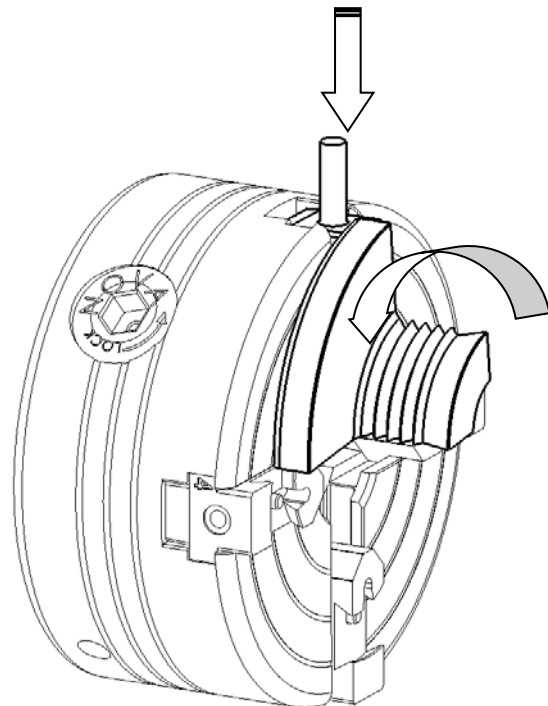


Figure 5

# NOVA Infinity Smooth Column Jaws

## Jaw travel Table

| Jaw                         | Jaw Spigot length | Chuck          | Contracting                    | Expanding                       |
|-----------------------------|-------------------|----------------|--------------------------------|---------------------------------|
| Smooth Column Jaw Series #1 |                   | Precision Midi |                                | 34mm / 1.339 "- 41mm / 1.614 "  |
|                             |                   | Nova G3        | 16mm / 0.63 "- 33mm / 1.229 "  | 34mm / 1.339 "- 51mm / 2.008 "  |
|                             |                   | Infinity/SN2   | 28.6mm / - 48.5mm              | 34mm / 1.339 "- 51mm / 2.008 "  |
|                             |                   | Nova Titan     | 16mm / 0.63 "- 50mm / 1.969 "  | 34mm / 1.339 "- 68mm / 2.667 "  |
| Smooth Column Jaw Series #2 |                   | Precision Midi | 31mm / 1.22 "- 38mm / 1.496 "  | 51mm / 2.008 "- 58mm / 2.283 "  |
|                             |                   | Nova G3        | 31mm / 1.22 "- 48mm / 1.89 "   | 51mm / 2.008 "- 68mm / 2.677 "  |
|                             |                   | Infinity/SN2   | 31mm / 1.22 "- 48mm / 1.89 "   | 51mm / 2.008 "- 68mm / 2.677 "  |
|                             |                   | Nova Titan     | 31mm / 1.22 "- 65mm / 2.559 "  | 51mm / 2.008 "- 85mm / 3.346 "  |
| Smooth Column Jaw Series #3 |                   | Precision Midi | 46mm / 1.811 "- 53mm / 2.087 " | 68mm / 2.677 "- 75mm / 2.953 "  |
|                             |                   | Nova G3        | 46mm / 1.811 "- 63mm / 2.48 "  | 68mm / 2.677 "- 85mm / 3.346 "  |
|                             |                   | Infinity/SN2   | 46mm / 1.811 "- 63mm / 2.48 "  | 68mm / 2.677 "- 85mm / 3.346 "  |
|                             |                   | Nova Titan     | 46mm / 1.811 "- 80mm / 3.15 "  | 68mm / 2.677 "- 102mm / 4.016 " |

## OPERATIONAL MODES

Please note sizes are a guide only, actual sizes may vary.

### Expanding Dovetail Jaws

THIS METHOD MUST NOT BE USED FOR ANY WORK LONGER (BOWL DEPTH) THAN 150MM AS THERE WOULD BE GREAT DANGER OF WOOD TEARING OUT OF THE CHUCK. DO NOT EXCEED 700RPM IN THIS MODE. OUT OF BALANCE STOCK MUST BE TURNED AT THE SLOWEST SPEED POSSIBLE.

Any recess diameter can be turned between the max and min Expansion limits of the particular jaw as in the table above. The optimum turning recess diameter (on the outside) is as close to the minimum (detailed above) as possible. As the recess diameter is increased above the optimum, less jaw contact is made.

### Reverse Dovetail (Contracting Action)

This method is used to grip bowls with a foot mounting. The size of the foot being between the min and max contracting size of the jaw as in the table above. The optimum foot diameter is about the minimum contracting foot size of the jaw. Larger foot diameters can be used but above the minimum contracting foot size, the edges of the jaws can mark the wood. It is suggested that masking tape is used to protect the foot from jaw marks.

### Spigot (Tenon) Mounting (Contracting Action)

Wood should be pre-machined to a cylinder (to optimize balance) with a diameter no greater than max clamping diameter of the jaw. This method can be used to grip pre-machined/pre-turned spigots.

SPIGOT SIZE SHOULD BE WITHIN CONTRACTING LIMITS AND USE FULL SPIGOT LENGTH OF JAWS, AS DETAILED IN TABLE ABOVE.

## Maintenance

Before each use wipe clean the base of the jaws and dovetail key to make sure the jaw gets proper surface contact when mounting.

Clean jaws after use and spray with a light Corrosion protectant product like WD40 or CRC.

Additionally, for longer term storage, wrap in an oil soaked cloth.

# Troubleshooting Guide

| Problem  | Possible Cause and Solution  |
|--|--|
| 1. Add on jaws do not run true                     | Check jaws are mounted correctly on jaw slides. For method see Page 9. For accuracy parameters see Page 2. When the jaws are expanded beyond a 50mm circle they will appear to be running out but in fact are maintaining concentricity. Always evaluate runout from turned wood clamped in jaws |
| 2. Accessory Jaws when Wound to centre do not meet | Slides have not engaged sequentially in clockwise order with scroll - 1-2-3-4. Jaw Slides could have been inserted out of order.   |

Issue not found here? Visit [www.teknatool.com](http://www.teknatool.com) to check in with our Support team via Helpdesk.

## Teknatool Warranty

### ***Teknatool Two Year Limited Warranty***

This Teknatool product is backed by a TWO YEAR warranty from the date of purchase. Teknatool International Ltd will repair or replace, at its expense and option, this Teknatool product which in normal use has proven to be defective in workmanship or material, provided that the customer returns the product prepaid to an authorized Teknatool service center with proof of purchase of the product within TWO YEARS and provides Teknatool with reasonable opportunity to verify the alleged defect by inspection.

Teknatool will not be responsible for any asserted defect which has resulted from normal wear, misuse, abuse, or repair or alteration made by anyone other than an authorized service facility or representative. Under no circumstances will Teknatool International Ltd. be liable for incidental, special, indirect, and consequential damages or expenses, including loss of profits or loss of operations. This warranty is Teknatool International Ltd. sole warranty. There are no other warranties, whether written or verbal, whether expressed or implied by law, trade, custom, or otherwise, whether of merchantability, fitness for purpose, or otherwise, except for remedies available to customers under the Consumer Guarantees Act or other legislation.

OVERSEAS CUSTOMERS: Our Teknatool Distributors and agents will issue their own warranty to cover this product. Terms may vary from those stated above; please check with your dealer.

**Note:** Did you know you can register your warranty with Teknatool online? Visit our website on [www.teknatool.com](http://www.teknatool.com) to register your warranty faster today!

# **nova<sup>TM</sup>**

***Smart Tools, Powerful Solutions***

NOVA Infinity Quick Change Accessory Jaw Manual

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