

# nova™

Smart Tools, Powerful Solutions

## NEBULA 18" DVR LATHE™



OPERATION MANUAL

USA & Canada SKU: 55600

New Zealand & Australia SKU: 55601

UK SKU: 55602

Europe SKU: 55603



## WELCOME:

Thank you for choosing the NOVA NEBULA 18" DVR Lathe and welcome to the NOVA product family. Your choice shows that you want the best for your woodturning and you recognize the superb DVR drive technology powered by STRIATECH and the host of other unique features the NOVA NEBULA Lathe has to offer.

We strive to achieve the best value for your money – providing quality, innovative features, a wide range of accessories – plus comprehensive, ongoing support (latest manuals downloadable from our website, newsletters, projects, etc.). We are only a phone call or email away with technical advice or assistance on the operation of your lathe or your woodturning queries.

Please feel free to contact us about any aspect of our products or service – we regard our customers as our best development and improvement team – we would love to hear from you!

Once again, welcome to the “NOVA Family.” We trust that you enjoy our products and hope they enhance the pleasure you experience from the wonderful craft of woodturning!

Best Regards,

*Brian Latimer*

Marketing Director Teknatool International Ltd

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### Customer Solutions

For all worldwide Inquiries, Repairs or Services (issues must be in writing)

Contact us at: <https://www.teknatool.com/support/>

Or you can contact the retailer where you purchased your NOVA Nebula 18" DVR Lathe, for contact details please see our website [www.teknatool.com](http://www.teknatool.com)



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# 1. General Safety Rules



**Failure to follow these rules may result in serious personal injury or death.**

❖ **IMPORTANT:** Before switching the lathe on, ALWAYS check the machine for the correct setting and speed

- 1. BEFORE OPERATING THE TOOL READ THE MANUAL!** Learn the machine's application and limitations, plus the specific hazards particular to it.
- 2. ALWAYS USE SAFETY GLASSES** (must be ANSI approved) Everyday eyeglasses usually are only impact resistant and safety glasses only protect eyes. A full-face shield will protect the eyes and face. Also use face or dust mask if sanding operation is dusty.
- 3. WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts. Nonslip 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 hour).
- 5. DO NOT USE IN DANGEROUS ENVIRONMENT.** Do not use power tools in damp or wet locations or expose them to rain. Keep work area well lighted. The NOVA NEBULA is intended for indoor use only. Failure to do so may void the warranty.
- 6. KEEP WORK AREA CLEAN.** Cluttered areas/benches invite accidents. Build-up of sawdust is a fire hazard.
- 7. KEEP CHILDREN AND VISITORS AWAY.** The NOVA NEBULA is **not recommended** for children and ailing persons. Such personnel and onlookers should be kept a safe distance from work area.
- 8. MAKE WORKSHOP CHILDPROOF** with locks, master switches, or by removing starter keys.
- 9. GROUND ALL TOOLS.** If the 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 plug must be attached to a known ground. Never remove the third prong and add surge protection.
- 10. MAKE SURE TOOL IS DISCONNECTED FROM POWER SOURCE** whilst in service/maintenance mode.
- 11. DISCONNECT TOOLS FROM WALL SOCKET** before servicing and when changing accessories such as bits, cutters, fuses, etc.
- 12. AVOID ACCIDENTAL STARTING.** Make sure switch is in the "Off" position before plugging in power cord.
- 13. NEVER LEAVE MACHINE RUNNING UNATTENDED.** Do not leave machine unless it is turned off and has come to a complete stop.
- 14. KEEP GUARDS IN PLACE** and in working order.
- 15. USE CORRECT TOOLS.** Do not use a tool or attachment to do a job for which it was not designed.
- 16. USE RECOMMENDED NOVA ACCESSORIES.** The use of improper accessories may cause hazards.
- 17. DO NOT FORCE THE TOOL.** It will do the job better and be safer at the rate for which it was designed.
- 18. MAINTAIN TOOLS IN TOP CONDITION.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 19. NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
- 20. 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.
- 21. DO NOT OVERREACH.** Keep proper footing and balance at all times.
- 22. DIRECTION OF FEED.** Mind the direction of spindle/chuck/work to ensure a safe environment.
- 23. PAY ATTENTION TO WORK.** Concentrate on your work. If you become tired or frustrated, leave it for a while and rest.
- 24. SECURE WORK.** Use clamps or a vice to hold work when practical. Severe injury or death can occur if an object comes free as it can become a dangerous projectile.
- 25. 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.
- 26. DRUGS, ALCOHOL, MEDICATION.** Do not operate machine while under the influence of drugs, alcohol, or any medication.
- 27. 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 means for proper dust removal. Use wood dust collection systems whenever possible.
- 28. DO NOT MODIFY OR USE THE LATHE FOR USES OTHER THAN FOR WHICH IT WAS DESIGNED.**
- 29. CALIFORNIA PROPOSITION 65 – SEE PAGE 53.**

## 2.NOVA Nebula 18" DVR Lathe Features & Specification

Feature Name	Description
<b>DIGITAL VARIABLE RELUCTANCE (DVR) ELECTRONIC DRIVE</b>	The DVR motor uses smart motor technology to provide an incredibly smooth and powerful drive. The controller constantly monitors the spindle position and maintains optimal spindle speed. Additional power is added as it senses extra load from the tool.
<b>POWER TO TURN AND BURN</b>	220~240V / 10A 1.8KW (2.5HP) 110-120V / 15A 1.5KW (2.0HP) * *For 110V / 15A, the motor power is derated to 2.0 HP by current limit in software. To get 2.5HP, the input power is required change to 220V/10A or using dual 110V input.
<b>Slidable 360° SWIVEL HEADSTOCK</b>	Slidable headstock Lock at any position, plus detent locating positions at 0°, 22.5°, 45° and 90°. High accuracy and easy swivel
<b>SOLID BED STRUCTURE</b>	CAD designed webbing to absorb vibration throughout the bed length. Exceptional structural strength.
<b>8 FAVOURITE SPEED FUNCTION</b>	Program your favourite speeds for faster and more efficient project set ups
<b>FLEXIBLE CAPACITY TO MATCH YOUR PROJECT</b>	- 18" / 457mm Capacity Over Bed - 35" / 889mm Capacity Outboard (with optional outrigger accessory) - 25" / 640 mm Between Centres
<b>SAFETY SENSING FEATURE</b>	It senses faults in the setup and advises of safety issues - such as chisel dig in and spindle lock. It then instantly shuts down power to the spindle.
<b>ENERGY EFFICIENT</b>	Intelligent (computer controlled) motor only draws as much power as it needs for the application.
<b>INCREDIBLE VARIABLE SPEED RANGE</b>	50 RPM - 4,000 RPM
<b>WARRANTY</b>	* 5 Year Warranty on Parts and Components * 2 Year Warranty on Motor and Electronics * <i>Restrictions apply</i>

## Lathe Specifications

	Metric	Imperial
Swing Over Bed	457.2mm	18"
Distance Between Centres	640 mm	25"
Overall Size	1200mm (L) x 600mm (w) x 1250mm(H)	47.2" (L) x 23.6" (w) x 49.2" (H)
Package Size	1280mm (L) x 550mm (w) x 735mm (H)	50.4" (L) x 21.7" (w) x 28.9" (H)
Net Weight	213 Kg ± 2 Kg	469.6 lb ± 4.4 lb
Gross Weight	249 Kg ± 2 Kg	549lb ± 4.4 lb
<b>Headstock</b>		
Spindle Thread	M33 x 3.5 RH*	1.25" x 8TPI
Headstock Spindle Taper	Morse Taper #2 (MT2)	
Headstock Swivel	360° With detent positions at: -45°, 0°, 22.5°, 45°, 90°, 180°	
Headstock Slidable	Sliding Headstock	
Spindle Index	24 divisions (15 degrees apart)	
<b>Tailstock</b>		
Quill Taper	Morse Taper #2 (MT2)	
Quill Travel	120mm	4.7"
Hole Through Tailstock	12.5mm	0.48"
<b>Tool Rest</b>		
Length	300mm	12"
Shaft Diameter	25.4mm	1"
<b>Motor Specifications</b>		
Motor Type	DVR Direct Drive Smart Motor	
Motor Speed Range	50 RPM ~ 4000 RPM	
Input Frequency	50Hz	60 Hz
Motor Power Output	1.8KW (2.5HP)	1.5KW (2.0HP) *
Input Voltage	220~240V	110~120V
Input Current	10A (max)	15A (max)

\* M33 x 3.5 RH thread spindle only available in European models. All other market models will have the 1.25inch x 8 TPI spindle.

\* For 110V / 15A, the motor power is derated to 2.0 HP by current limit in software. To get 2.5HP at 110V, the input power is required change to 220-240V /10A or using dual 110V input.

## Colour Specifications

**Jet Black**

RAL 9005

R:14 G:14 B:16



**Dark Grey**

RAL 7021

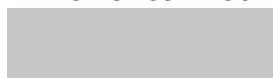
R:47 G:50 B:52



**Light Grey**

RAL 7035

R:197 G:199 B:196



**White**

**NOVA Red**

R:237 G:28 B:36



For Europe, Australasia, UK and South Africa



Directives this equipment complies with:

Low voltage directive (LVD) 73/23/EEC + 93/68/EEC+2006/95/EC

Machinery directive (MD) 89/392/EEC + 91/368 EEC + 93/68/EEC+2006/42/EC

Electromagnetic compatibility directive (EMCD) 89/336/EEC + 92/31/EEC + 93/68/EEC+2004/108/EC

Harmonized Standards applied in order to verify compliance with Directives: EN 61029-1:2009

Low Voltage Directive and Machinery Directive

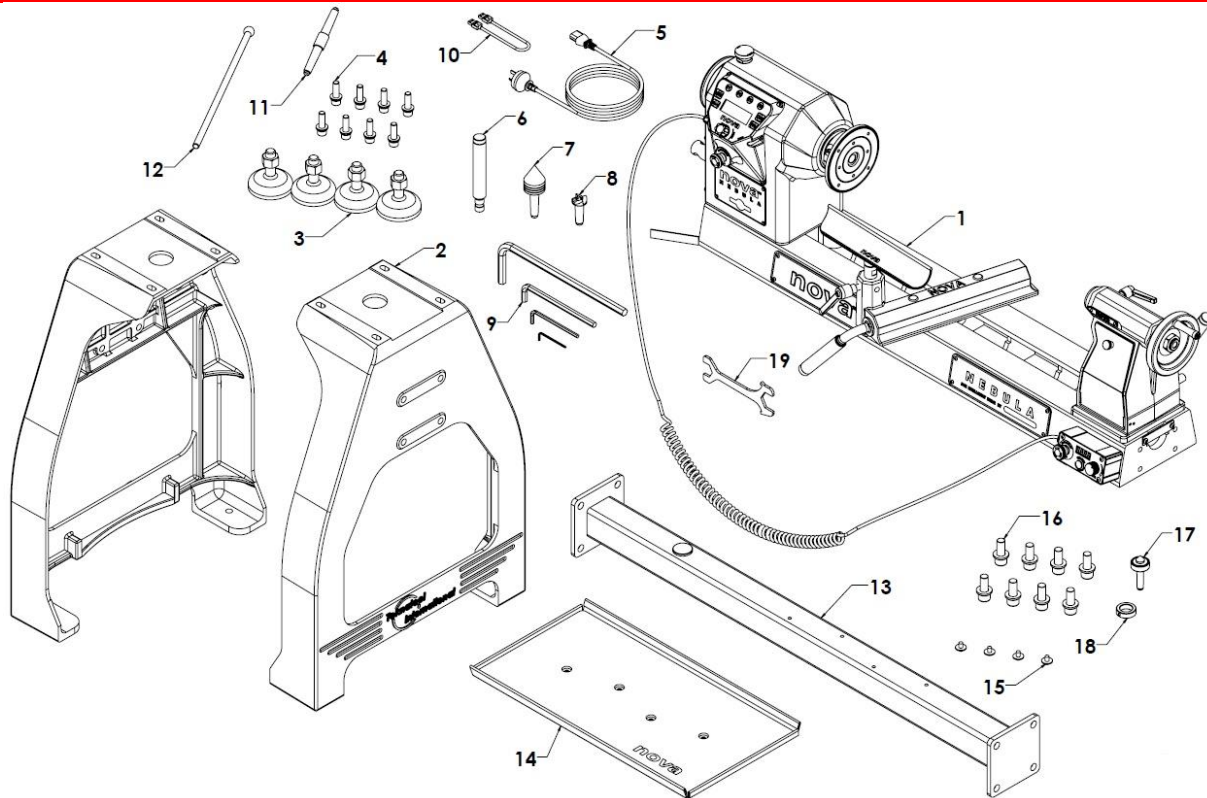
EN 55014-1:2007

EN 55014-2:2009

EN 61000-3-2:Ed3 2006

EN 61000-3-3:1995 A1 + A2

## 3.Shipping Contents



ITEM NUMBERS	DESCRIPTION	SKU	
1	Headstock Assembly (+HMI)	5569002 + 5569008+5699005	
	Tool slide Assembly	5569004	
	Tailstock Assembly	5569003	
	Main Bed	5569013	
	ASR Eurolock Ring*	5569039	
	1 ¼ Model	6" (150mm) Faceplate	FP150L
	M33 Model	6" (150mm) ASR Eurolock Faceplate	5569033
	Remote controller	5569006	
2	Lathe stand	5699018	
3	Feet	5569061	
4	Stand Mounting Bolts and washer sets	C1240/SW12/FW12	
5	Power Lead	55106/55090/55063/55112	
6	Headstock Camshaft Handle assembly	5569067	
7	Heavy Duty 2MT Live Centre	4718069	
8	2MT Spur Centre	2MTSPUR	
9	3mm /6mm/10mm/14mm Allen Key	AK3/AK6/AK10/AK14	
10	USB A-A Cable	8379059	
11	AcruLine 2MT Centre	2MTNA	
12	Operating Bar	5699033	
13	Beam member and Beam cap	5569084/5569090	
14	Tray set	5569085/5569086	
15	Tray Mounting Bolts and Washer sets	SBHCS0814/5569089/FW08	
16	Beam Mounting Bolts and Washer sets	C1640/SW16/FW16	
17	2MT Live Centre	2MTLC	
18	Toolrest Collar	27007	
19	Headstock Locking Spanner	5568099	

**Note:** Only EU model includes the ASR Eurolock Ring.

## 4. Setup and Assembling the Lathe

### Workshop Environment

Your workshop should set up appropriately for you to effectively use the lathe. The workshop should be setup with the following factors taken into consideration:



#### 1. Lathe location

Locate the NOVA Nebula lathe close to a power source in an area with good amount of lighting. Leave enough clearance when the lathe headstock is swiveled around. Other machines in the workshop should not interfere with the movement/operation of the lathe.



#### 2. Lighting

The workshop should have adequate lighting. There should be enough lighting around the lathe not to cast shadows upon the workpiece. A portable spotlight might be helpful.



#### 3. Electrical

The NOVA Nebula lathe requires an appropriate power outlet nearby to power the motor. The outlet wiring must meet the local electrical safety standards. If in any doubt, seek advice from an electrician. The length of an extension cable should be reduced as much as possible.



#### 4. Ventilation

Workshop must have an adequate level of ventilation. The level of required ventilation depends on the size of the workshop and the amount of work that is done within the workshop. The use of dust collectors and filters will minimize your health risk.



## 4.1 Unpacking and Preparing the Lathe

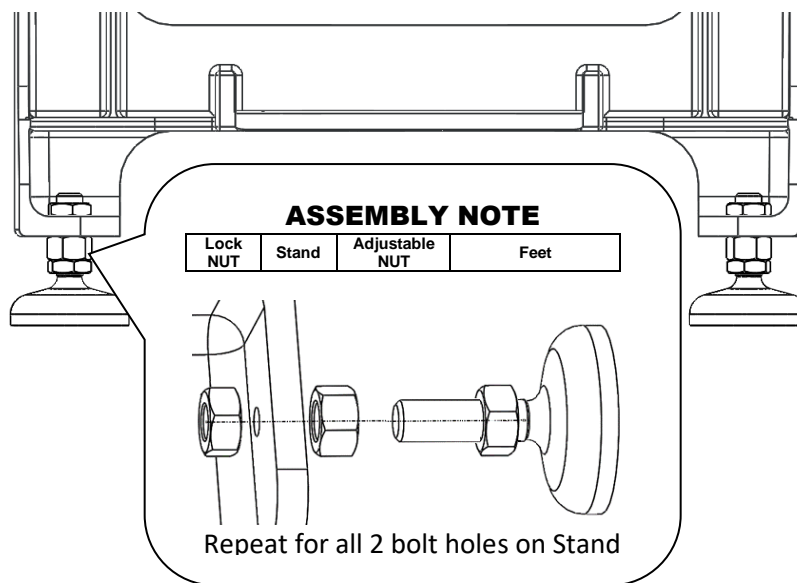
1. Remove all smaller items from main carton. Do not discard carton or packing material until the lathe is assembled and running satisfactorily.
2. Inspect contents for shipping damage; if any is found, report it to your distributor.
3. Compare contents of shipping carton with the contents list in this manual. Report shortages, if any, to your distributor. Note: Check lathe first – some parts may have been pre-installed.
4. Exposed metal areas of the Lathe, such as bed ways and spindles, have been factory coated with a protectant. This should be removed with a soft cloth and a cleaner degreaser. Clean the bed areas under headstock, tailstock and tool support base. Do not use an abrasive pad, and do not allow solvents to contact painted or plastic areas.



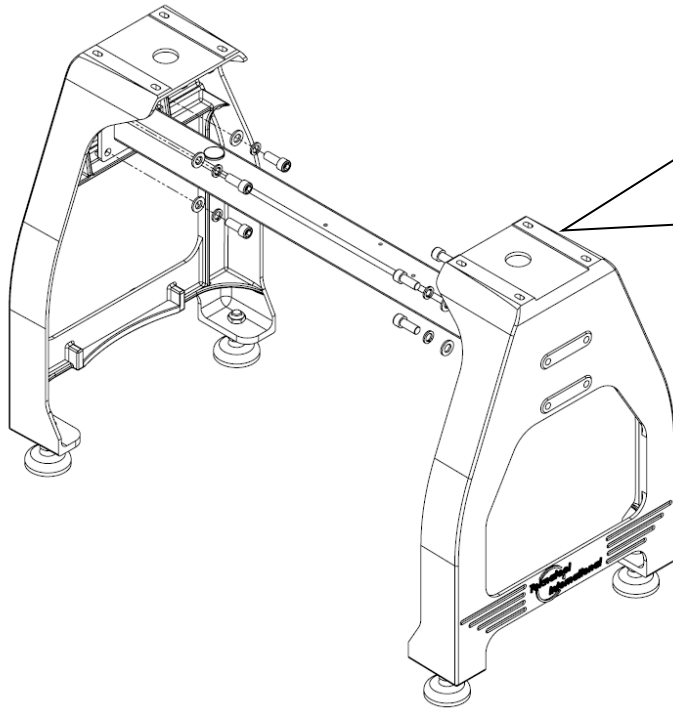
**WARNING!** Seek help when moving the NOVA NEBULA DVR 1825 lathe and its heavier components to help avoid risk of injury. Use straps in good condition. Straps/lifting mechanisms must be properly rated for lathe weight. Read and understand the contents of this manual and recommended procedures before attempting to assemble or operate the Lathe or its parts.

**DO NOT CONNECT POWER ON LATHE UNTIL FULLY ASSEMBLED.**




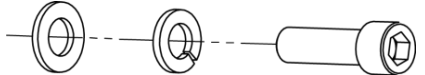
## 4.2 Installing Stand and Beam Set



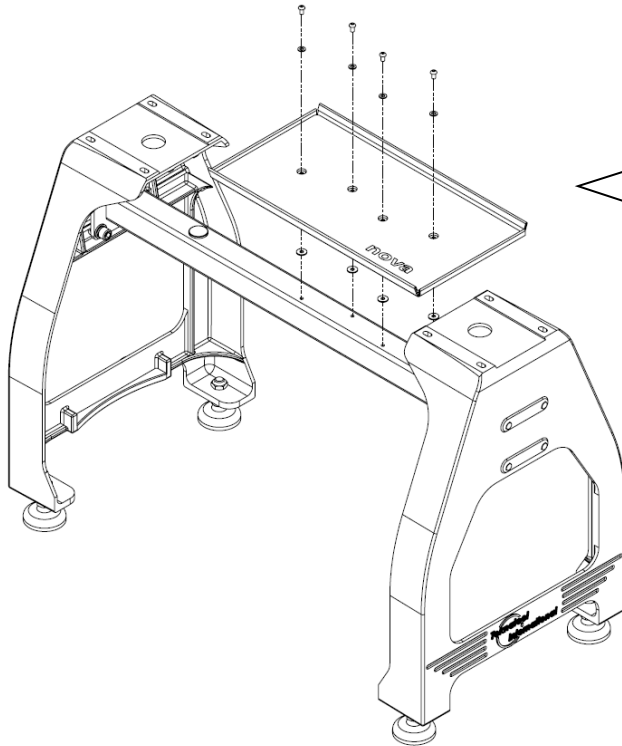
1. Install adjustable feet into the bottom of legs (Figure above) and tighten the hex nut against leg casting. The feet can be adjusted later.




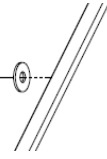


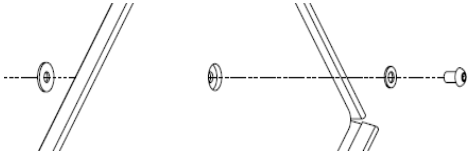
**ASSEMBLY NOTE**

Washer	Spring Washer	Bolt
		
		
Repeat for all 8 bolt holes on Stand		

2. Install Beam member between Stands (Figure above) and tighten the Bolts against beam mounting surface.

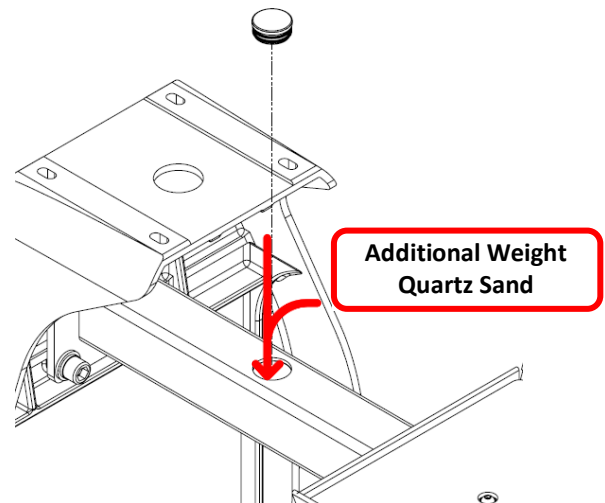


**ASSEMBLY NOTE**

Washer	Tray	Spring Washer	Bolt
			
			
Repeat for all 4 bolt holes on Beam			

3. Position Tray onto Beam and secure with screws and washers (Figure above) using 6mm Allen key.

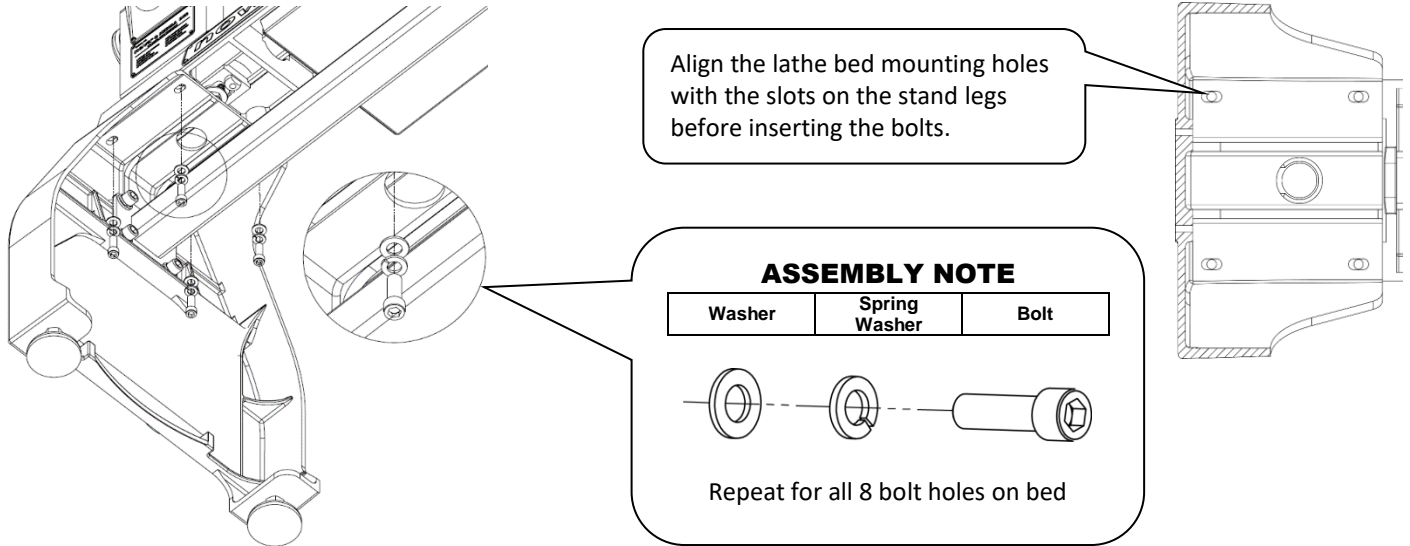
4. \* Optional additional weight (Quartz sand) in the stabilizing beam, not included. (Figure right)



## 4.2.1 Lifting Mechanisms Method

1. Position straps around lathe bed.

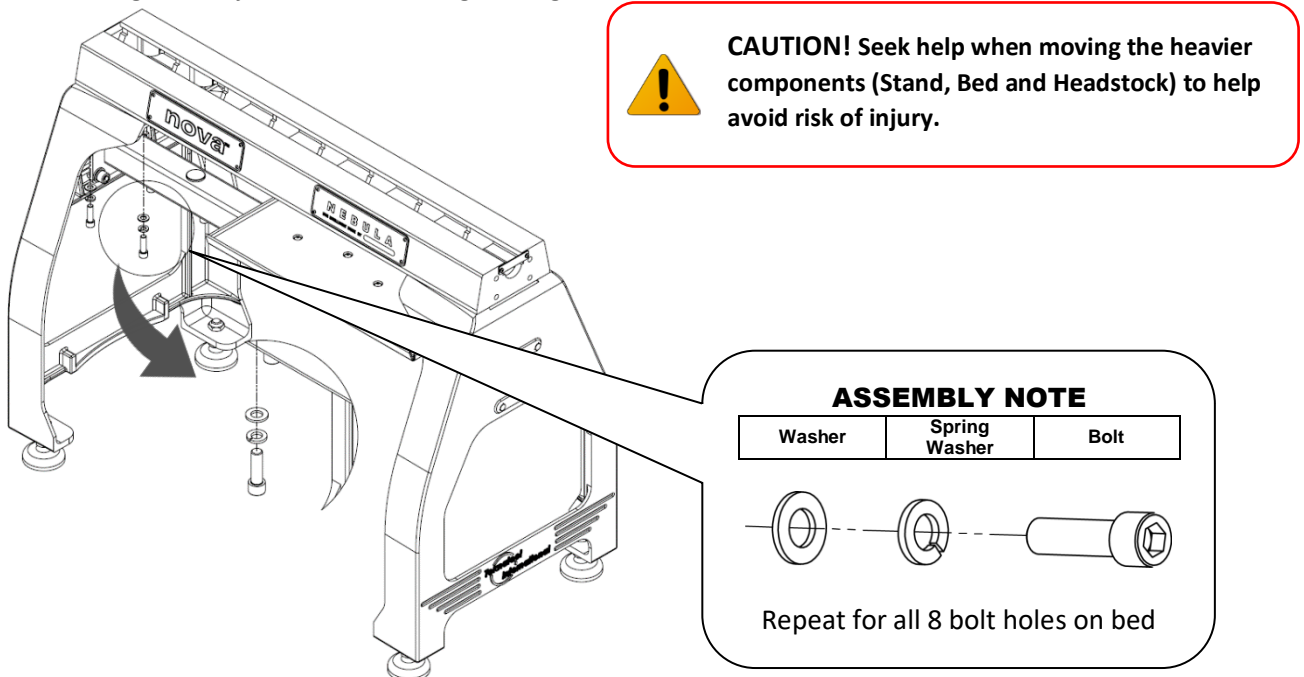
**IMPORTANT:** Do not place straps around spindle, near levers, knobs or other parts that can be damaged when lifting.



2. Position lathe onto stand and secure with screws and washers (Figure above) using 10mm Allan key.
3. Tighten screws firmly. Rotate adjustable nut on feet as needed to establish level for the lathe. Tighten locking nuts on each foot against adjustable nut and leg casting.

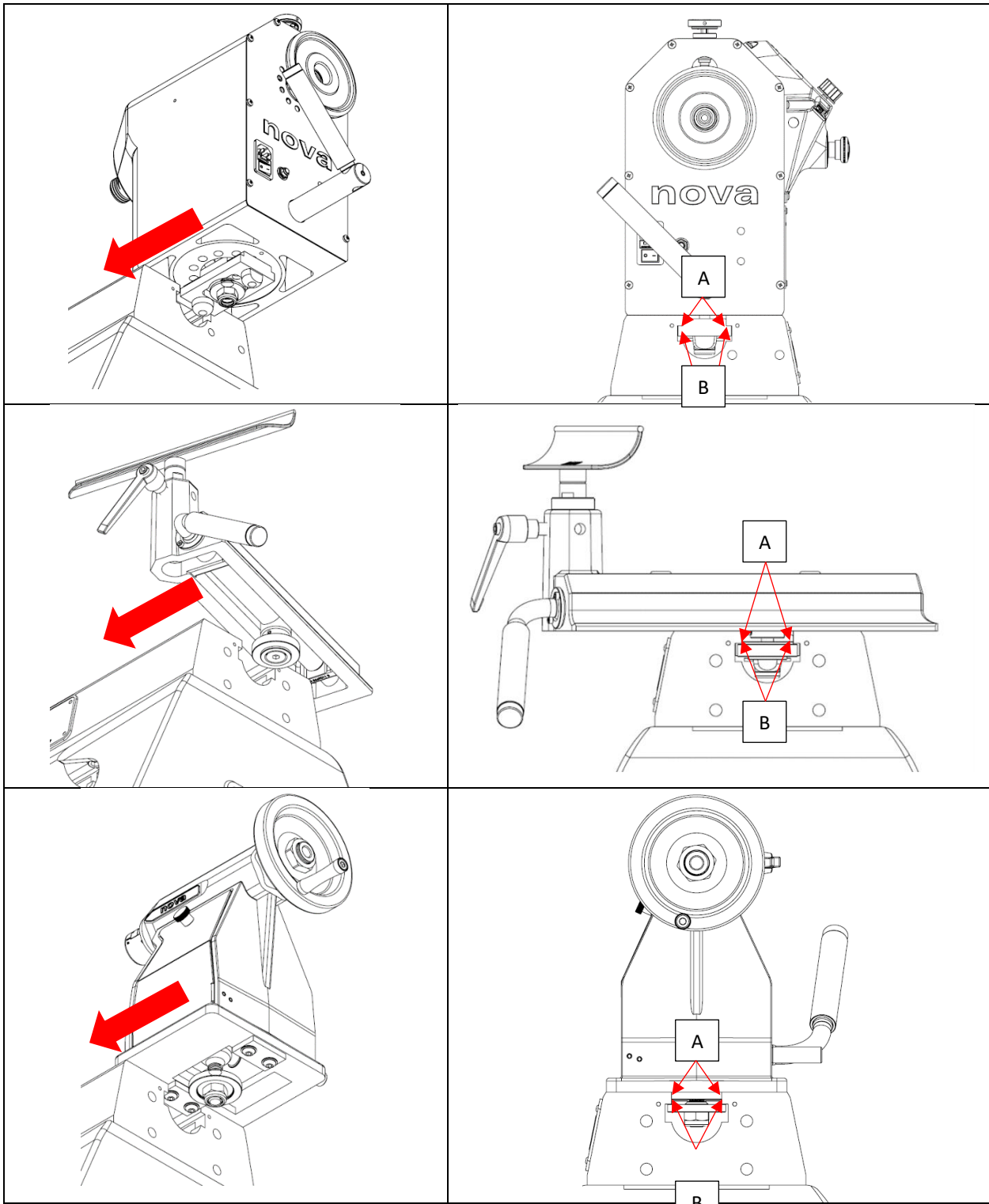
## 4.2.2 Manual Lifting Method

1. For easier lifting of heavy components, take apart walls of shipping container, remove Phillips head screws and stop plates at ends of bed, and slide headstock, tool rest, and tailstock off bed before lifting bed from container.
2. Attach bed to Stand set and secure with screws and washers using 10mm Allan key.
3. Tighten screws firmly. Rotate adjustable nut on feet as needed to establish level for the lathe. Tighten locking nuts on each foot against adjustable nut and leg casting.



## Mounting the Headstock, Toolrest and Tailstock onto the Bed

1. Slide headstock, toolrest, and tailstock onto bed, ensuring lock plate (A) is correctly lined up with bed way (B), as shown below:



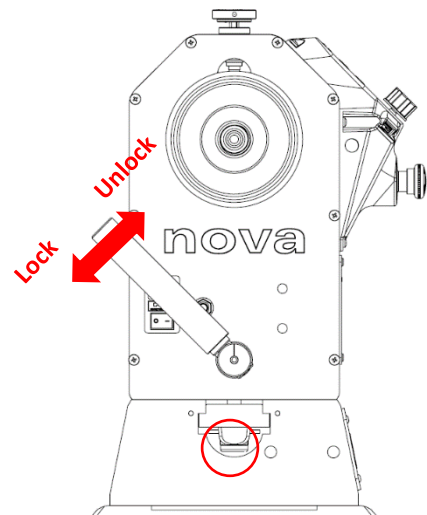
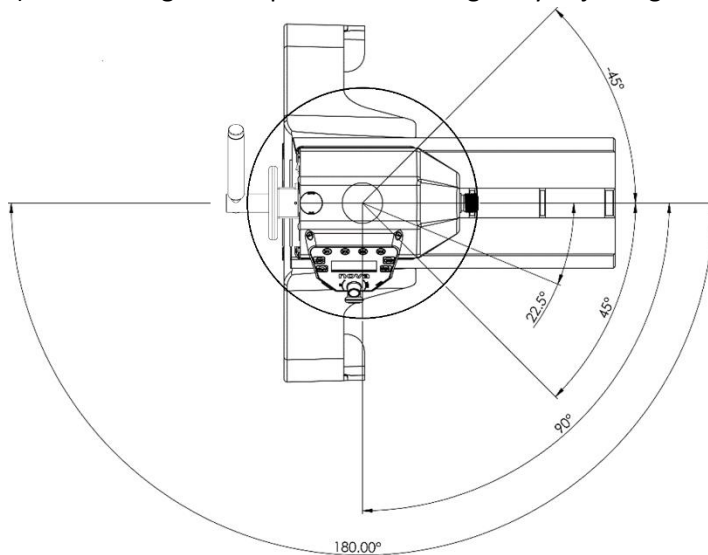
**Note:** Turn the lock handle to adjust the position of the lock plate if they cannot slide onto the lathe bed section.

2. Replace stop plates on both ends of bed.

### 4.3 Positioning the Headstock on the Bed

The headstock on the NOVA Nebula DVR 1825 Lathe uses a cam lock assembly for securing in place along the bed. To move the headstock:

1. Insert the lock handle or knockout bar into the through hole in the locking shaft and loosen the shaft (shaft can be tightened by rotating either direction, so rotate the opposite direction it was tightened).
2. Move the headstock along the bed and swivel the headstock to the desired position ( $-45^\circ$ ,  $0^\circ$ ,  $22.5^\circ$ ,  $45^\circ$ ,  $90^\circ$ ,  $180^\circ$ ). The locking handle position be changed by adjusting the nut at bottom of the lock plate.



3. Re-tighten the locking shaft.
4. Ensure the headstock is secured before running the lathe.

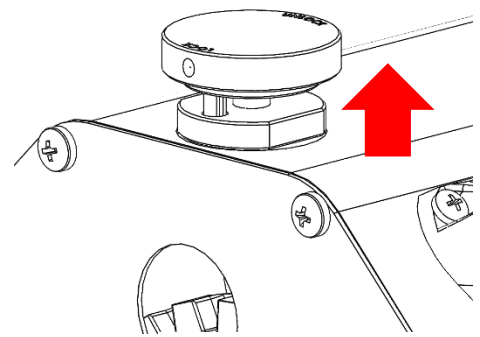


**WARNING! PINCH HAZARD** – Remove hand from locking shaft when swivelling the headstock.

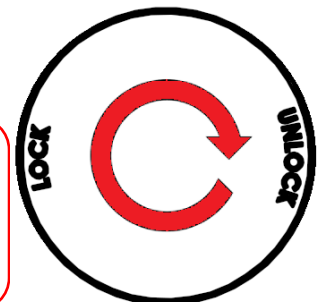
#### 4.3.1 Spindle Index/Lock

The spindle index pin locks the headstock spindle. It is selectable in 15-degree increments (24 divisions). There is a window to read index numbers (0 through 23).

1. Stop the lathe.
2. Pull the Spindle Index Locking Knob and turn it until the pin drops into the hole. To lock the spindle, it must engage into a slot in the spindle index plate.



**WARNING!** Make sure the index pin is disengaged before operating the lathe. The locking knob must be secured in the "Unlock" position to prevent it from engaging while the spindle is turning.



## 4.4 Toolrest

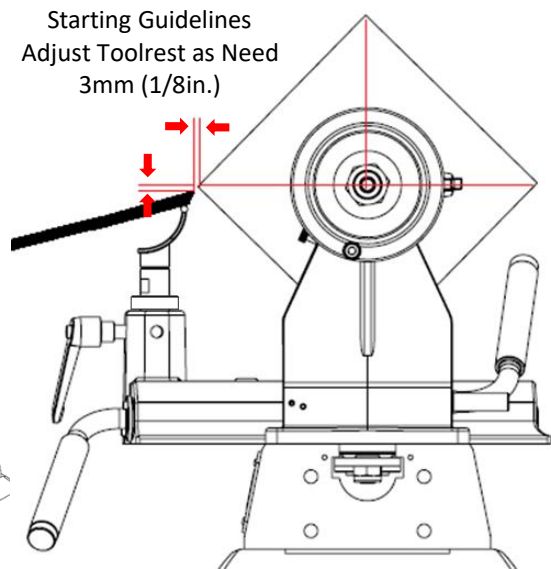
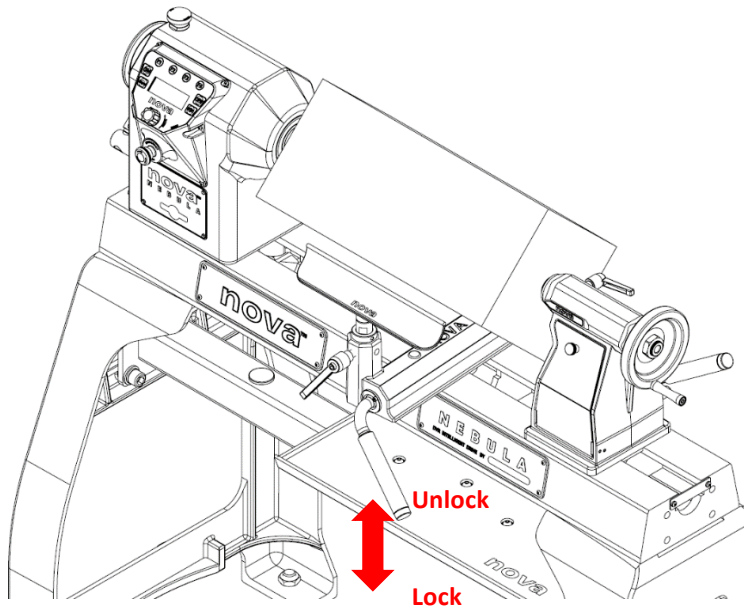
To move the Toolslide along the bed, loosen the Toolslide Clamp Handle, move the slide to the desired position, and tighten the clamp handle.

Adjust the Toolrest close to the work piece. Exact positioning may be varied to suit the turner. Revolve the stock by hand to make sure it clears the rest before starting the lathe.

At intervals, stop the lathe and readjust the Toolrest.



**WARNING!** Lathe tools and chisels should remain on the Toolrest whenever the tool is in contact with the work piece. Remove the Toolrest when sanding or polishing so fingers do not get pinched.



## 4.5 Tailstock

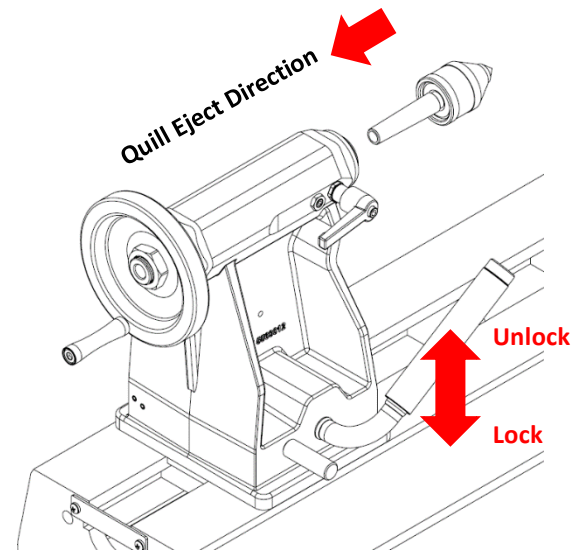
To move the Tailstock along the bed, release the Cam Lock Lever, slide the Tailstock to the desired position and tighten the Lever to lock into place.

To move the Tailstock quill in or out, loosen the Quill Lock and turn the Handwheel. Lock the quill in place with the Quill Lock.

The Tailstock Quill accepts centers and accessories with no. 2 Morse taper (#2 MT). To install a taper, insert the accessory firmly by hand. Do not pound the taper into the hole.

To remove a taper, either wind the quill into the tailstock until the taper is ejected or insert the operating bar through the Tailstock Quill hole. While holding the taper so it does not fall, and then tap it out.

The Tailstock Quill is hollow, allowing you to bore holes through turnings if a hollow center is used.



**WARNING!** Never loosen the Tailstock Quill or Tailstock while the work piece is turning.

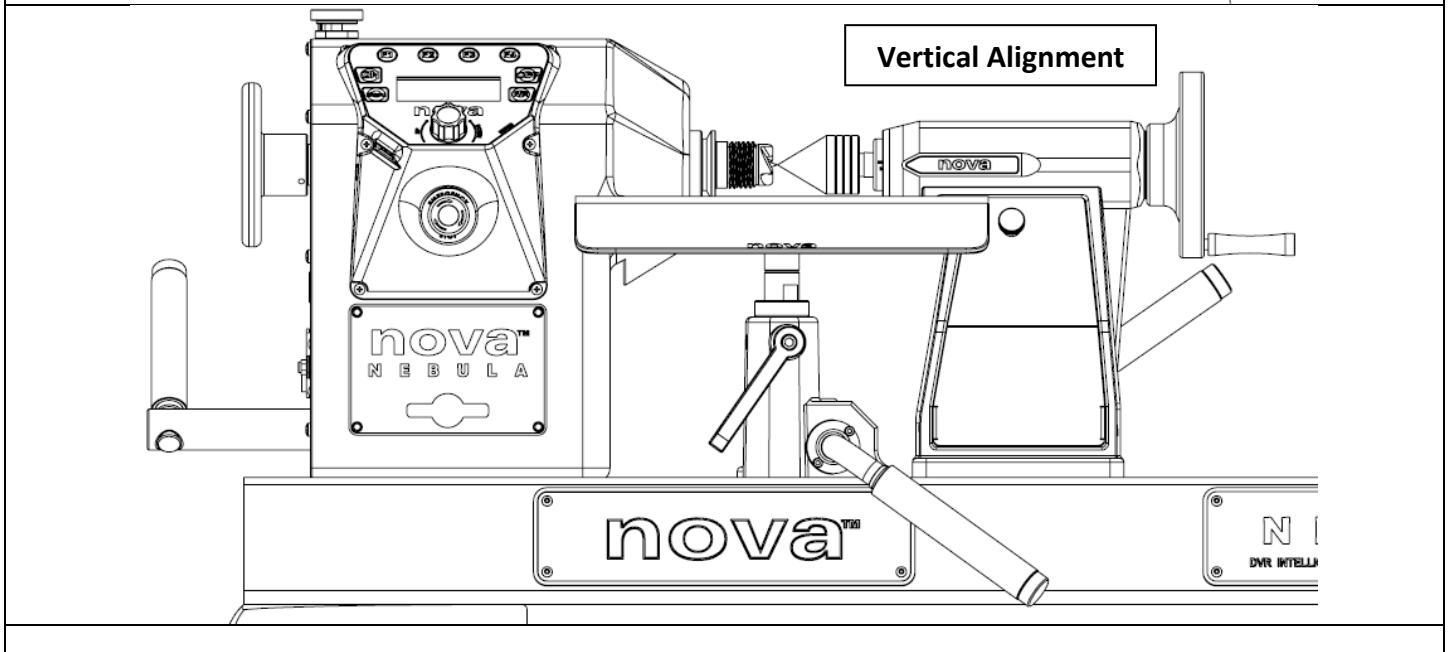
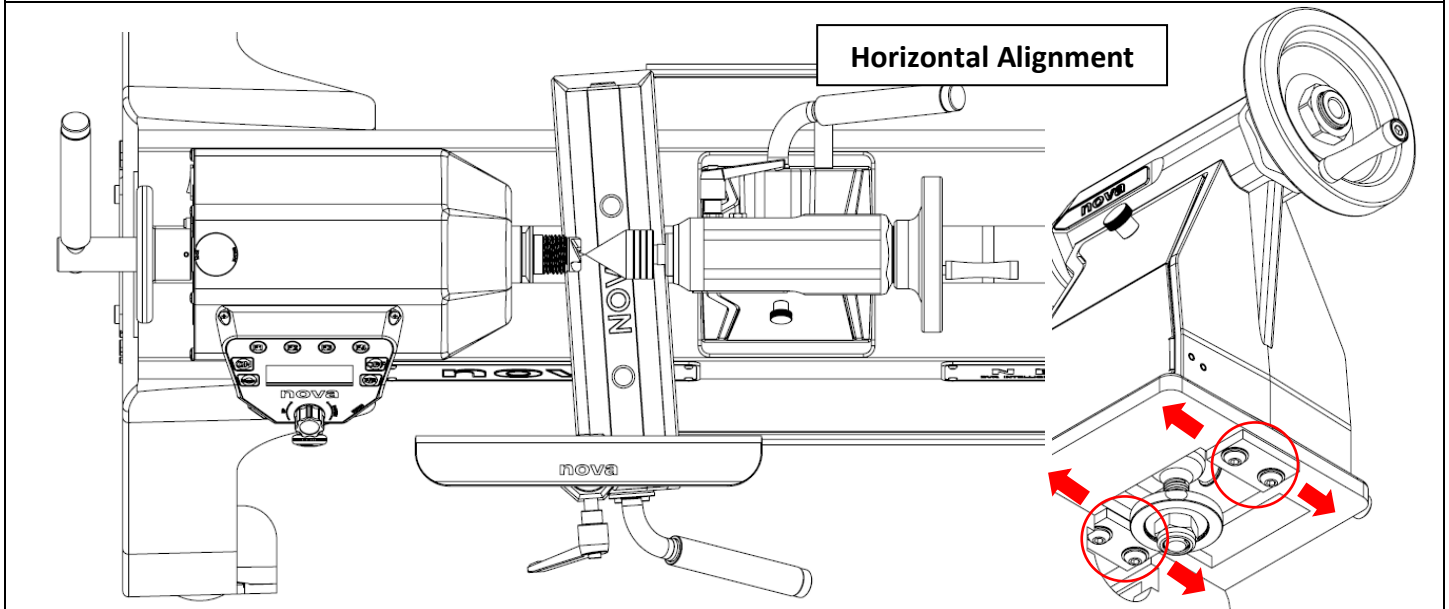
## 4.6 Lathe Alignment

Generally, new lathes are strictly inspected in factory and does not need to be aligned again. Over time, as the lathe wears out, you may need to re-align your lathe. The following are two common alignment methods.

1. **Sharp pointed method:** Attach any known straight, sharp pointed tool (E.g., Spur and live centres) on the headstock spindle and tailstock quill to check for axial alignment between headstock and tailstock.
2. **Double ended 2 Morse Taper method** (NOVA 2MTNA AcruLine 2MT Alignment SKU 2MTNA).

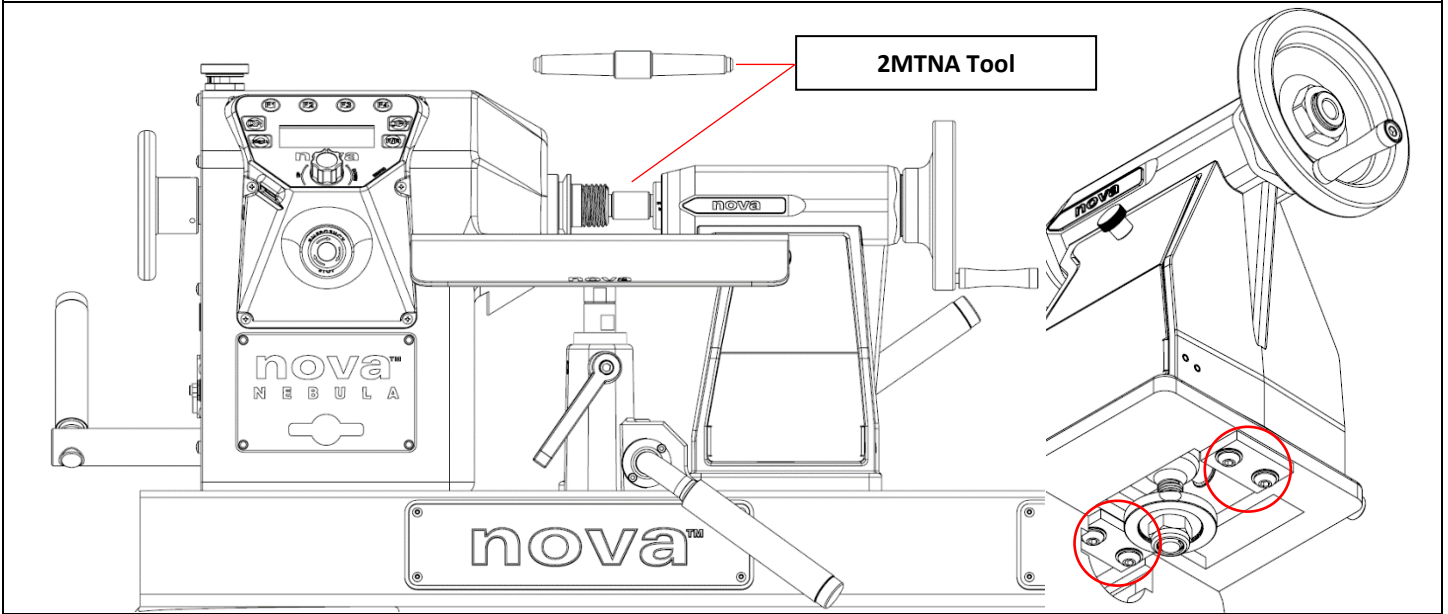
### 1. Sharp pointed method:

- a. Lock the Headstock at 0° by using the locking handle on the bed.
- b. Firmly install a Spur center on headstock and live center on the Tailstock.
- c. Slide the tailstock towards the headstock to close the two sharp points.
- d. Adjust tailstock Alignment Plate to make sure both points are touching each other in both directions



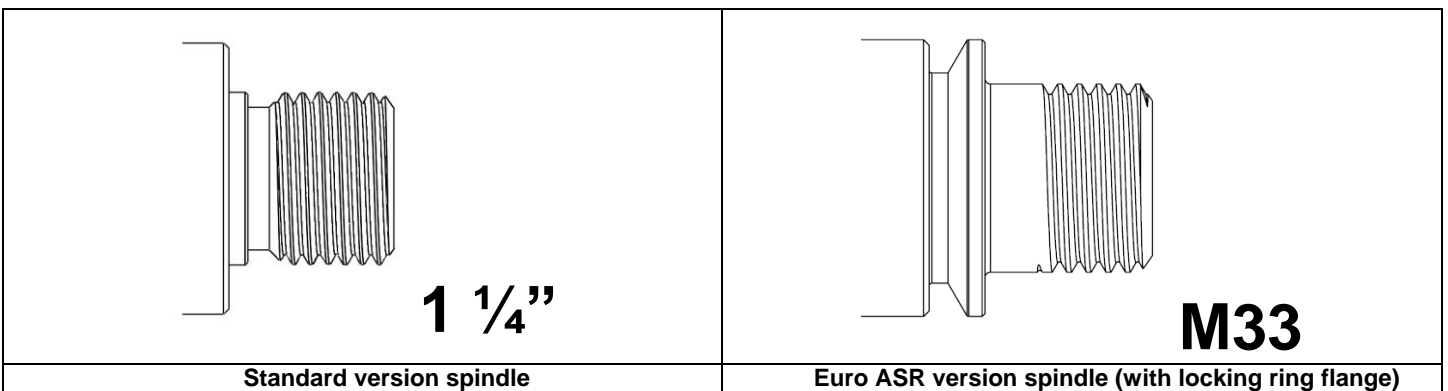
**2. Double ended 2 Morse Taper method:**

- a. Lock the Headstock at 0° by using the locking handle on the bed.
- b. Firmly install a double ended 2MT alignment tool on headstock.
- c. Release the tailstock Alignment Plates by loosening the bolts underneath the tailstock.
- d. Slide the tailstock firmly into the other end of the alignment tool as shown in the image below.
- e. Tighten tailstock Alignment Plate screws against the tailstock.



**4.7 Mounting a Faceplate or a Chuck**

The thread size of headstock Spindle is 1.25" RH (Standard version), or M33 ASR RH (Euro ASR version), depending on your model.





### 4.7.1 Mounting on the Standard Version Spindle

Use the Spindle Index Pin to lock the headstock spindle before commencing.

**Step 1:**

Use the Allen key to remove the safety screw from the faceplate or chuck before installation.

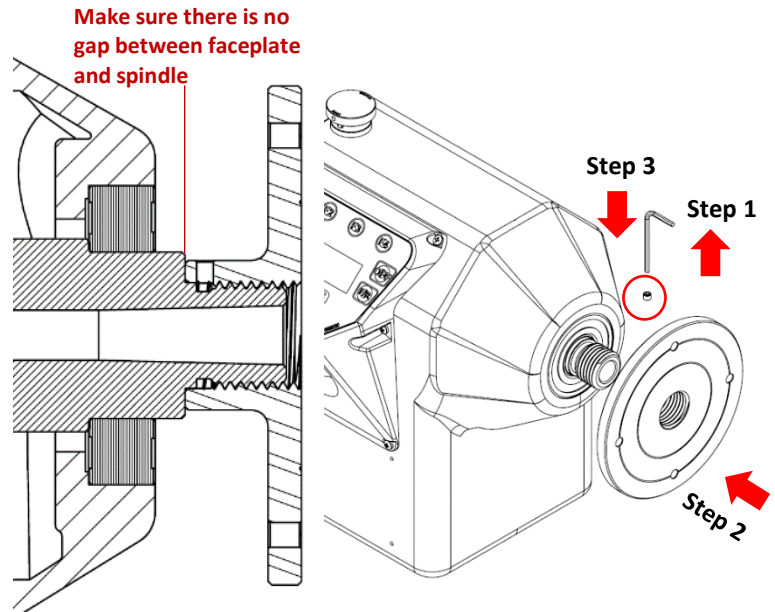
**Step 2:**


Thread the faceplate or chuck onto the spindle thread all the way. Ensure the surface of the faceplate is sitting flat against the spindle surface.

**Step 3:**

Tighten the safety screw on the faceplate or chuck to lock the faceplate in place.

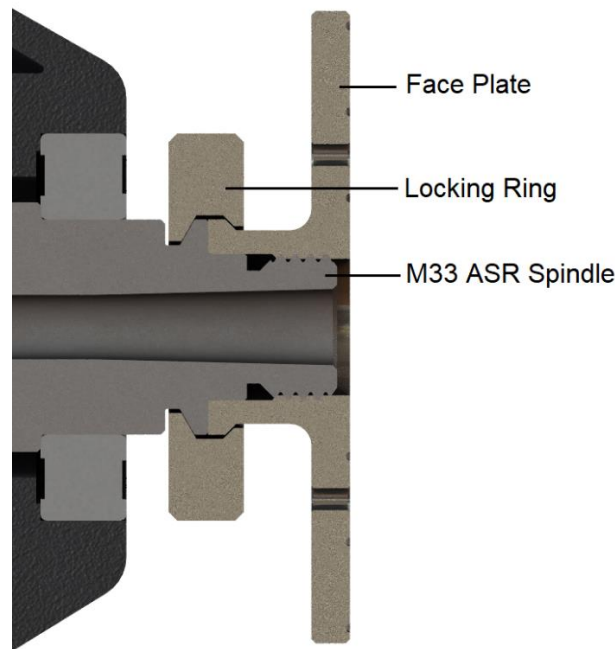
Unlock the spindle before turning the machine on.



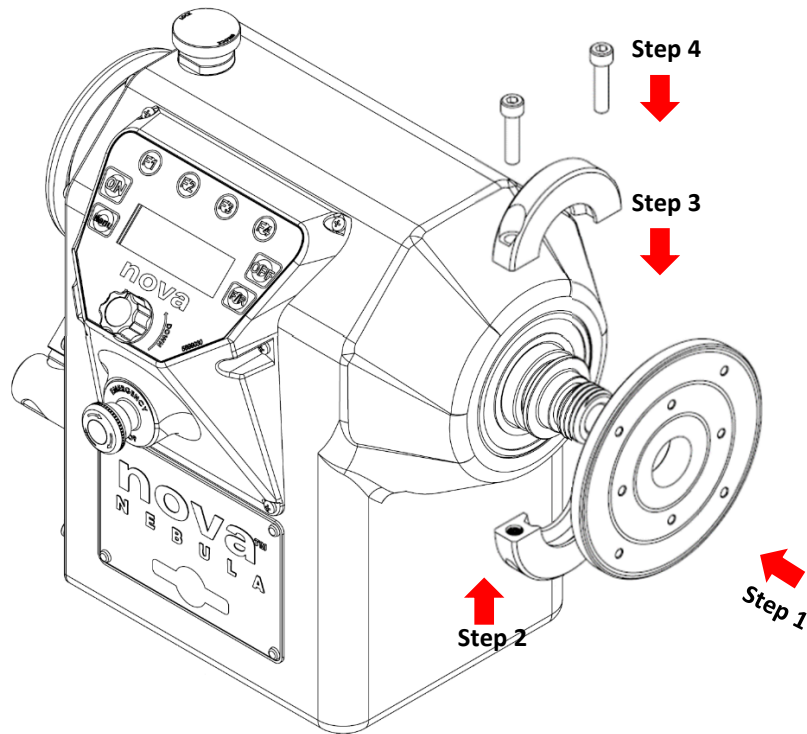
 **WARNING!** The faceplate or chuck body must contact the shoulder on the spindle bearing. When installing or removing the Faceplate or Chuck from the spindle, the side-locking grub screws **MUST** be completely removed. This avoids any potential damage to the spindle that the safety screws may cause if it were not completely removed, when winding the Faceplate or Chuck on or off the spindle.

### 4.7.2 Mounting on the Euro ASR version spindle

The diagram below illustrates a cross sectional view of an M33 ASR Eurolock version spindle with an M33 ASR Eurolock chuck mounted.



## Locking Ring Installation Procedure



Use the Spindle Index Pin to lock the headstock spindle before commencing.

### Step 1:

Thread the M33 ASR faceplate or chuck onto the spindle thread all the way in. Check that the spindle and the faceplate/chuck are touching at the clamping ridge.

### Step 2:

Put the lower part of the locking ring under the clamped rings.

### Step 3:

Put the upper part of the locking ring above the clamped rings.

### Step 4:

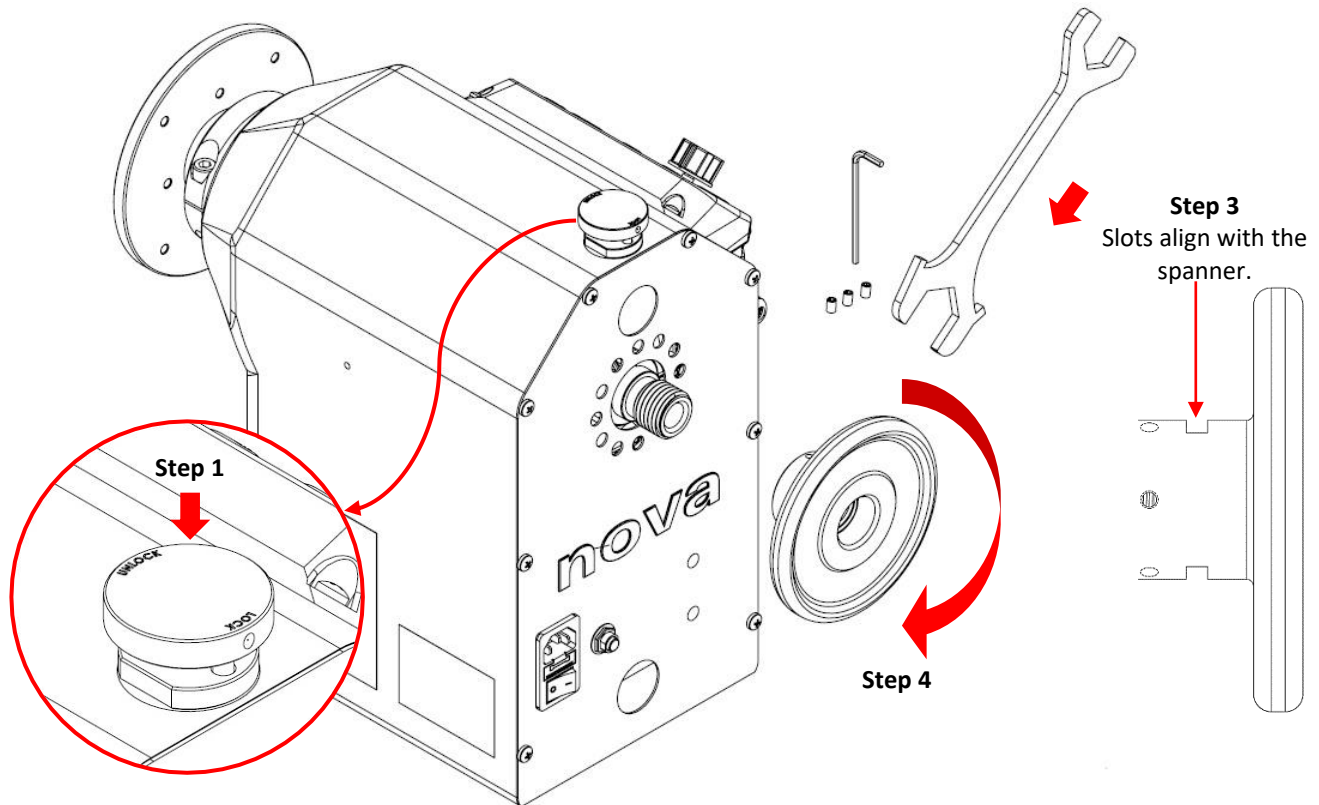
Use an Allen key to tighten up two bolts on the locking ring.

Unlock the spindle Index Pin before turning the machine on.



**IMPORTANT NOTE:** The Index Pin is designed for indexing purposes only, not for leveraging against when removing faceplates, inserts and chucks. For this we recommend holding the spindle using a spanner to clamp the lathe hand brake mounting surface.

## 4.8 Removal of the Handwheel



### Step 1:

Use the Spindle Index Pin to lock the headstock spindle before commencing

### Step 2:

Use the Allen key to remove the safety screws (x3) from the handwheel before removal.

### Step 3:

Align headstock locking spanner with slots on the handwheel.

### Step 4:

Rotate spanner clockwise to remove handwheel.

## 5. Connecting to Power



**Warning!**

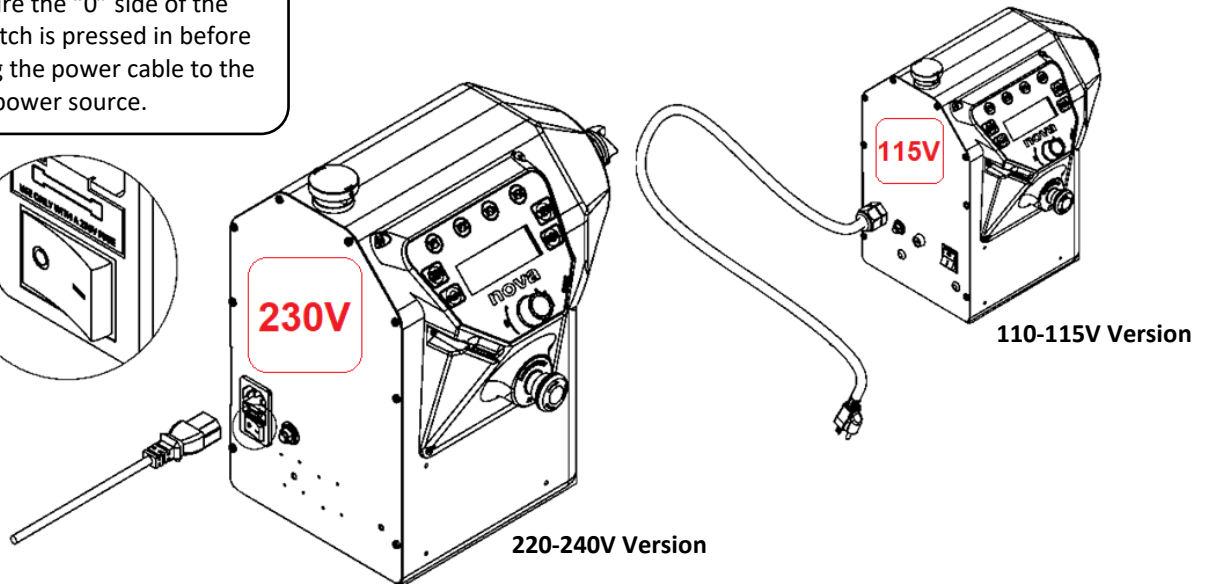
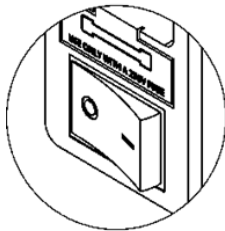


**Improper power connection may result in a risk of electrical hazard.**

Before plugging the NOVA Nebula lathe into the power source, check that the:

1. The main power switch is turned off.
2. Power source is switched off.

Make sure the “0” side of the rocker switch is pressed in before connecting the power cable to the power source.



**Note:** This image on the left-hand side is the European version of the NOVA Nebula wood lathe. Other versions will have a hard-wired power cable (shown on the image on the right-hand side).

The power cord that is installed on the NOVA Nebula lathe will have a three-prong plug which includes a ground prong. The plug must be connected to a matching outlet that is properly installed and grounded in accordance with local electrical codes.

### **For 110V Outlet Only:**

A temporary adapter can be used to plug into a two-pole outlet if a three-prong outlet is unavailable in your environment. The ground tab on the adapter must be connected to the screw on the outlet for proper grounding. This adapter should only be used until a qualified electrician can install a properly grounded outlet.

- **Note:** *If an extension cable is required, make sure to check the following:*
1. Extension cable gauge is appropriate for the length and voltage.
  2. Is the cable properly insulated?

If in any doubt, please contact your local electrician to inspect the cord according to the local electrical standards before use.

### **IMPORTANT:**



- A surge protection device is recommended when using the lathe.
- A surge protection device must be rated to at least 15A should be used in countries where 110V are used as a standard. In countries where 240V is used, a surge protector must be rated to 10A.

## 5.1 Ground Fault Interrupters (GFI)

For a GFI to be compatible with the DVR motor, it is recommended have a **leak current threshold rating of 30mA (0.03A)**









**Note:** Normal household GFI will typically be rated at 5mA (0.005A) which may trigger during the operation of the DVR motor. However, frequent tripping of the GFI will not cause any harm to the DVR motor or its control electronics as it has a built-in protective circuit to prevent damage from frequent switching.

## 5.2 Input Voltage Selection

The NOVA Nebula lathe is capable of handling both 110V and 220V without any changes to its internal circuits.

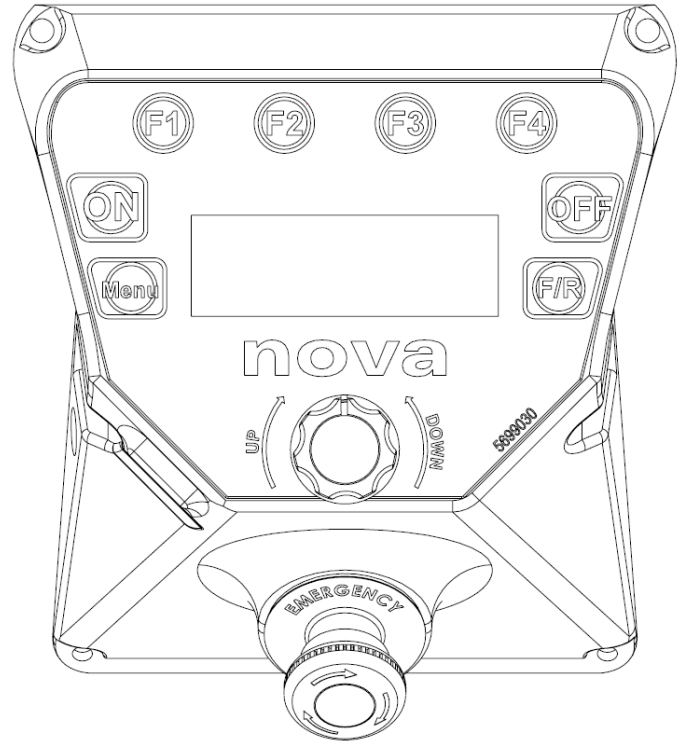
The lathe will automatically recognize the input voltage to the lathe and adjust the output power. Simply change the input power plug to a suitable plug for the desired input voltage to change the lathe's input voltage.

Electrical outlet plugs Country Standard	
<p><b>USA, Canada &amp; Japan 110V 15A</b></p> 	<p><b>USA 220V (NEMA 6-15P)</b></p> 
<p><b>Australia/New Zealand &amp; China 220V 10A</b></p> 	<p><b>Europe except UK and Ireland 220V 10A</b></p> 
<p><b>South Africa 220V 10A</b></p> 	<p><b>UK and Ireland 220V 10A</b></p> 

# 6. Lathe Operation on HMI Panel - Human Machine Interface Panel

## 6.1 Keypad Definition on HMI Panel

There are eight keys, one speed knob and EMS on the HMI panel for the lathe operation. The 2004 LCD can show the status of the lathe in real time. The key functions are defined as:

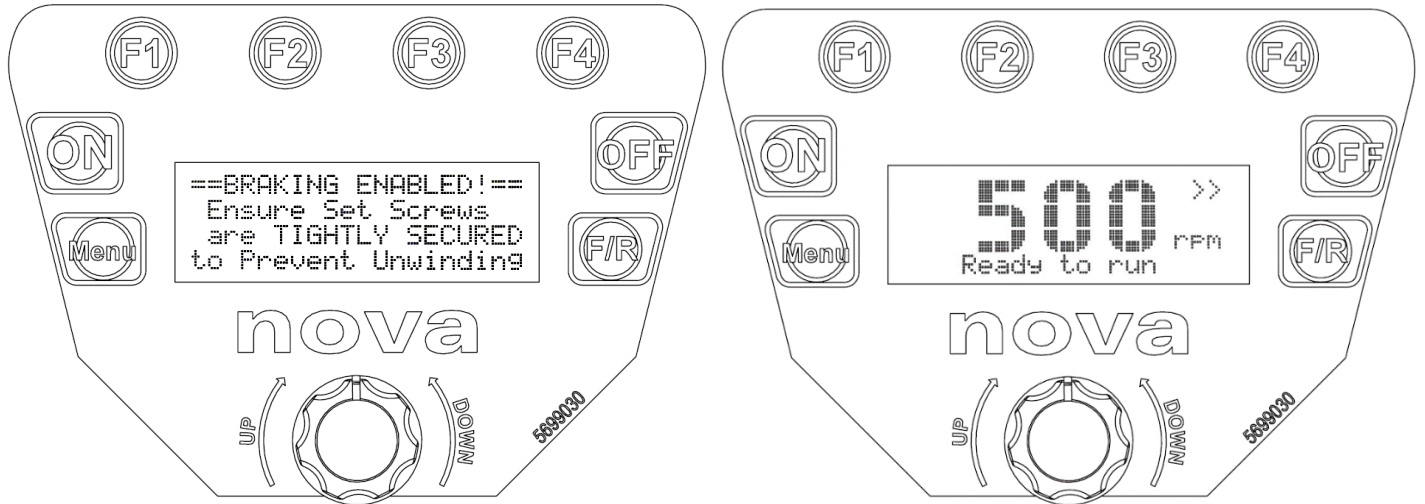


Icon	Description
	<b>F1-F4:</b> Programmable <b>Favourite</b> speed, up to 8 speeds.
	<b>ON:</b> <b>Start</b> the lathe.
	<b>OFF:</b> <b>Stop</b> the lathe, programmable with/without braking function.
	<b>Menu:</b> Access to menu and advanced features or <b>Cancel/Back</b> for page operation.
	<b>F/R:</b> Toggle Motor <b>Forward /Reverse</b> direction or <b>Confirm</b> for page operation.
	<b>Speed Knob:</b> Turn clockwise or anti-clockwise to speed Up/Down respectively. In Advanced features, this operation is also used for page scrolling and selection. You may <b>PRESS DOWN</b> on the Speed Knob, which acts as a <Confirm> operation.
	<b>EMS:</b> Emergency Stop Switch - Programmable with or without a braking function.


## 6.2 Start-up

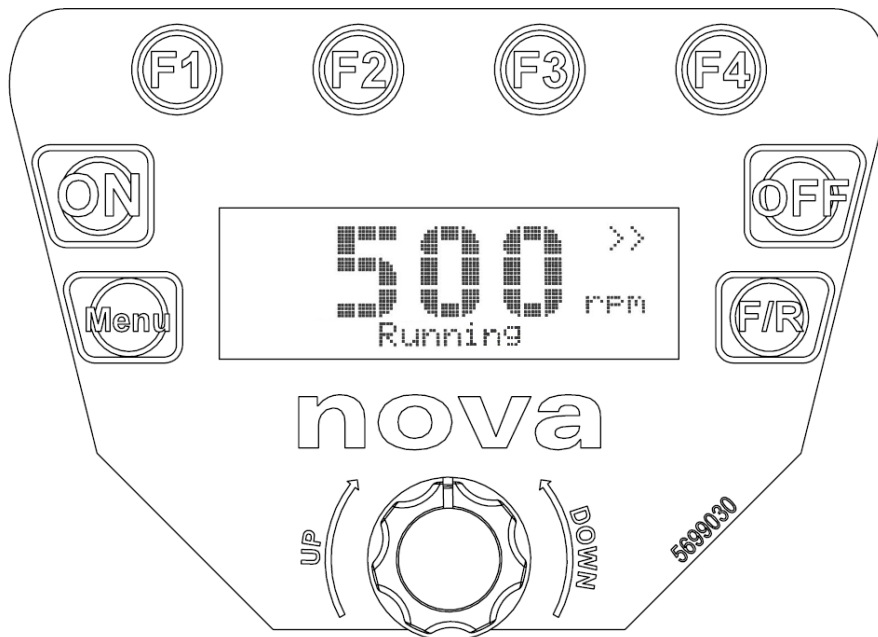
After turning on the main switch, the lathe will perform a self-check for 15 seconds. The self-checking operation will play a short piece of music, and a warning message will show up on the screen. The self-check is successful when the LCD displays the "Ready to run" home menu.

**Press ANY KEYS on the HMI panel, The LCD will display the Home page, the lathe is ready to Run Now.**



## 6.3 To Run the Lathe



Press the  key once while the LCD is on the Home page, the motor will accelerate to reach the set speed, which will be displayed on the LCD.

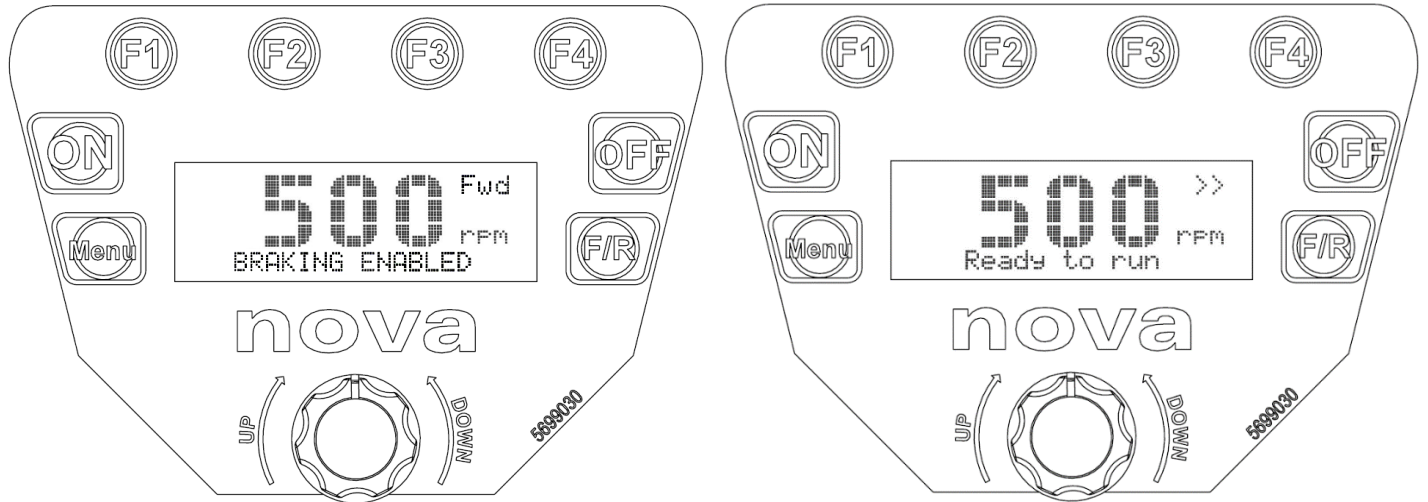


## 6.4 To Stop the Lathe

There are two options to stop the lathe:

### 6.4.1 Normal Stop.

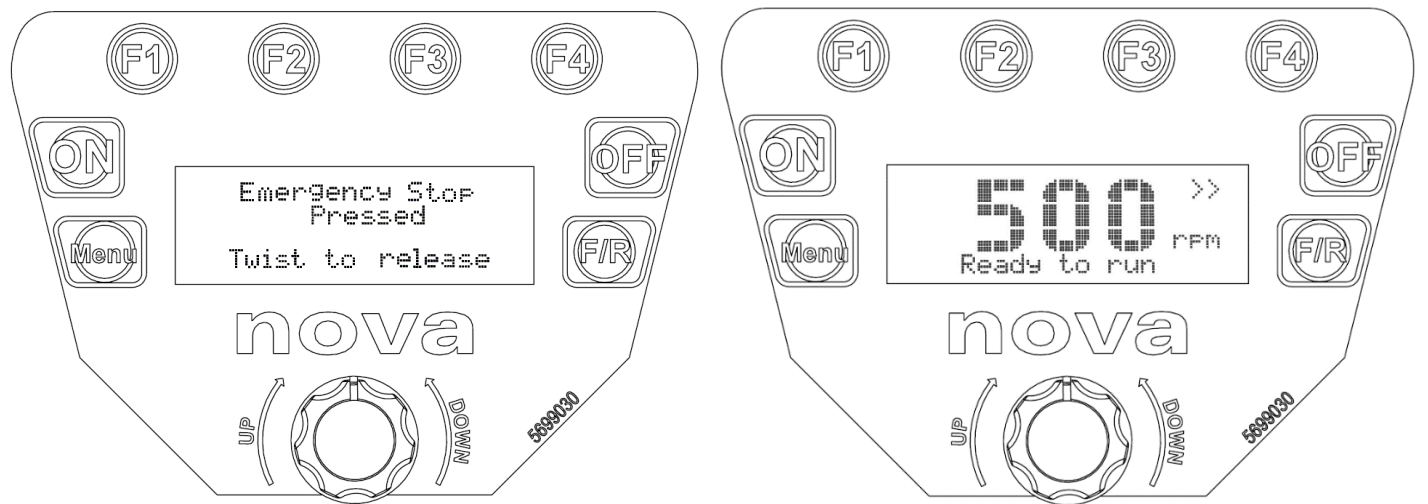
Press the  key once while the lathe is running, the motor will be stopped with/without brake. The LCD will display the Home page after  pressed.



### 6.4.2 EMS Stop

Push the Emergency Stop (EMS) button while the lathe is running, the motor will be stopped with/without brake. The LCD display will stay on Emergency Stop Page as long as the EMS is triggered. Twist the EMS button to release it, and the LCD display will go back to the Home Page.

\*Brake ON/OFF is programmable in Advanced features - Described in the MENU Section.

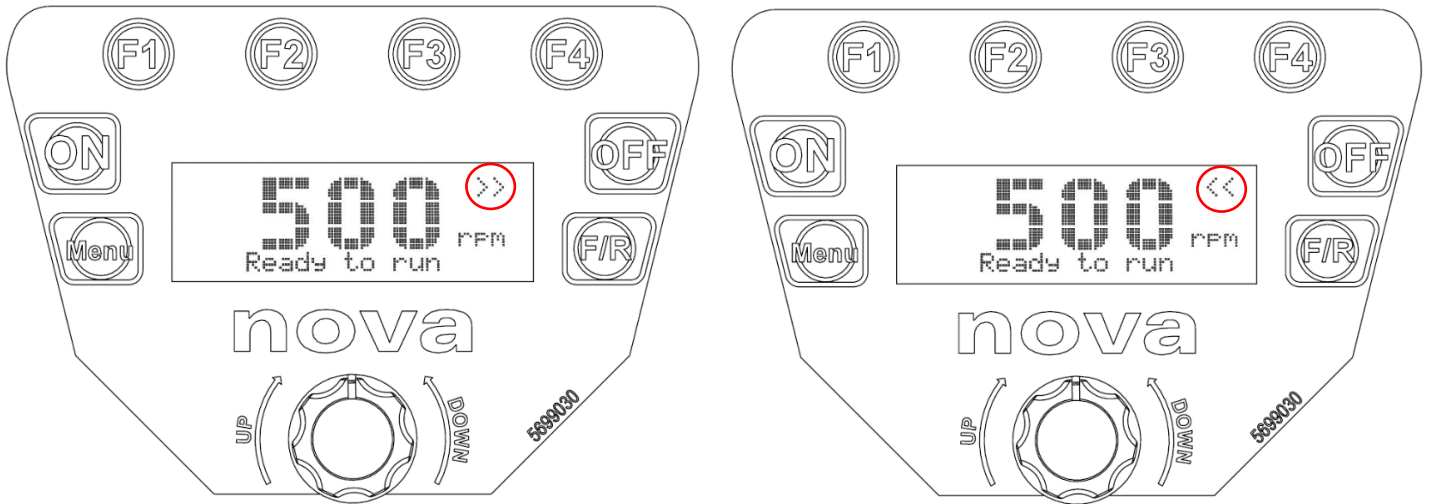




## 6.5 Forward/Reverse selection

Press the  key while the LCD is on the Home page - the direction indicator will be toggled between forward and reverse.

**\*For your safety, the direction cannot be changed while running.**





## 6.6 Speed Control

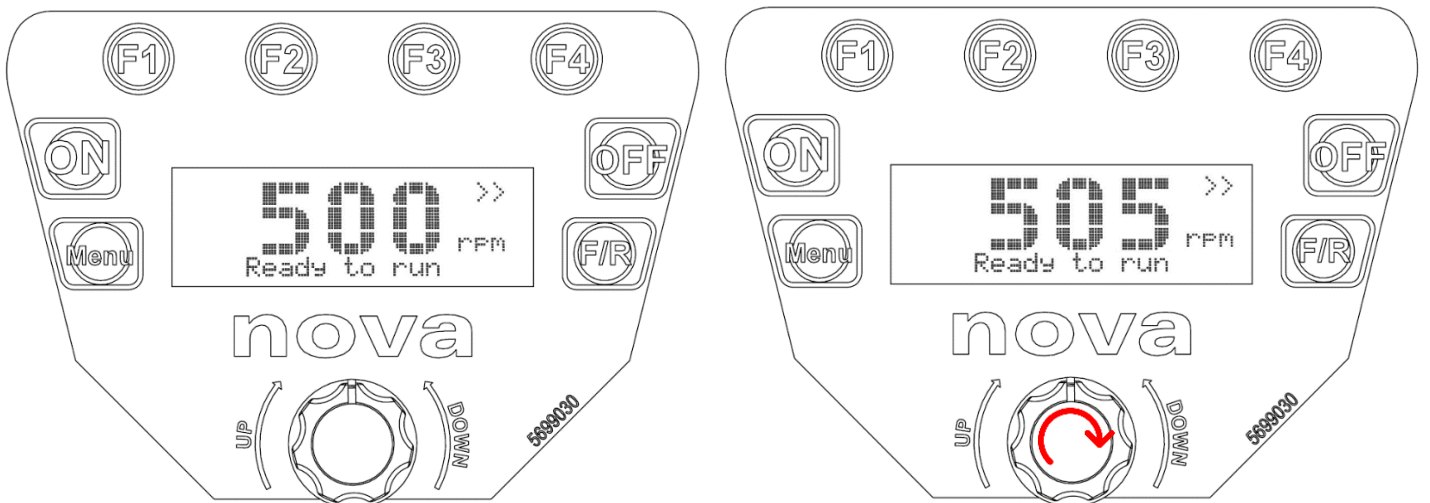
Nebula HMI provides multiple methods of speed control.

### 6.6.1 Fine/Coarse Speed adjustment by Speed Knob





While the LCD is on the Home Page or the Motor Running page;

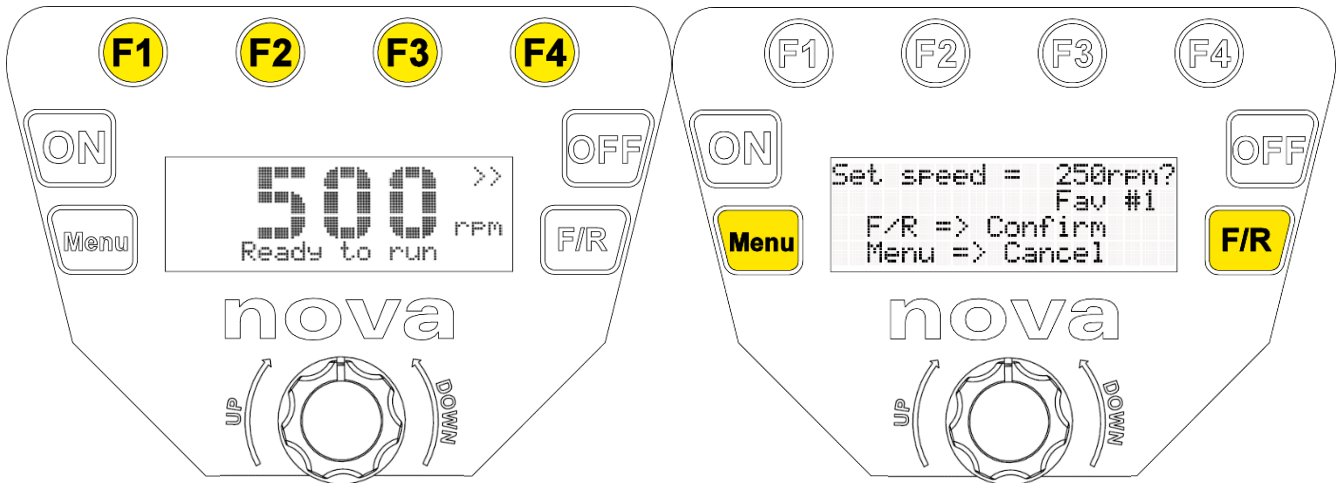
**Fine Speed control** – Turn  clockwise or anti-clockwise to increase or decrease the speed in fine increments.

**Coarse speed control** – **HOLD DOWN**  and turn the speed knob to increase or decrease in larger increments.




## 6.6.2 Pre-set Programmable Favourite Speed Function





While the LCD is on the Home Page or the Motor Running page, press any function keys    , and the LCD will display the Favourite Speed Page as below.



Press  to Confirm the speed and then the Favourite speed selected on the Home Page.

Press  to Cancel the selection and go back to the Home Page.

A total 8 pre-set favourite speeds are provided for turning, the function keys are set to:

Allocated Keys	Operation	Favourite speed Number	Default Allocated Speed RPM
	Single Press	#1	250
	Press twice	#5	1250
	Single Press	#2 (Default)	500
	Press twice	#6	1500
	Single Press	#3	750
	Press twice	#7	1750
	Single Press	#4	1020
	Press twice	#8	2000

\*Refer to Advanced features – in the Menu Section on how to edit favourite speeds.

## 6.6.3 Speed adjustment by Speed Chart

According to the size of the material, types of turning, the HMI will automatically suggest the recommended speed. For more details, refer to Advanced features in the Menu section.

## 6.6.4 Pre-set Speed by Input Set Speed

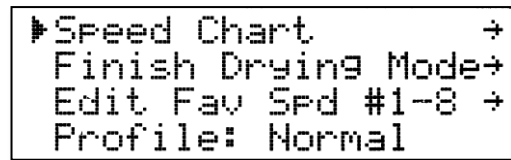
This function allows user to set a desired speed in a one-off operation. For more details, refer to Advanced features in the Menu section.

## 6.7 Advanced Functions in <Menu>

❖ You can find the following Advanced functions

in the <Menu>:

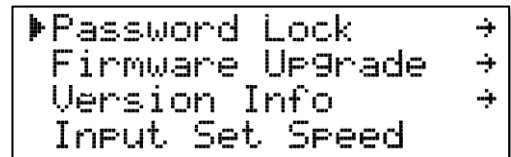
1. Speed Chart
2. Finish Drying Mode
3. Edit Fav Spd #1-8
4. Profile




5. Customize F Keys
6. Lathe Settings
7. Wireless Remote
8. Motor Parameters

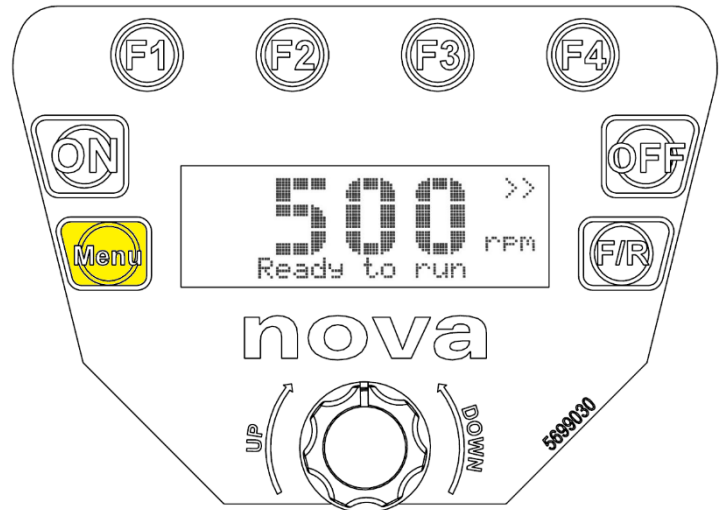


9. Password Lock
10. Firmware Upgrade
11. Version Info
12. Input Set Speed





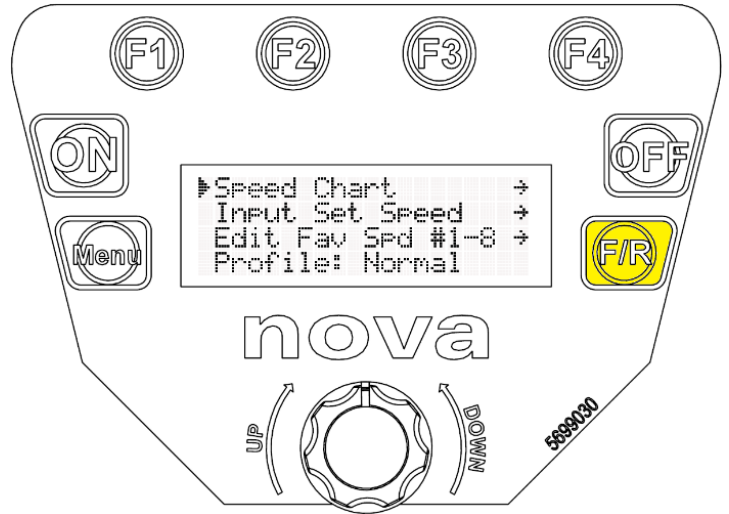
### While the LCD is on the Home Page or Motor Running Page

Press  once to access into Advanced function Page or press once again back to Home page or Motor Running page.











❖ **While the LCD is on Advanced Function Page**

Turn the speed knob clockwise or anti-clockwise to select the desired function and then use  or press the speed knob  to confirm.



## 6.7.1 Speed Chart

Use  to select cut type  
Press  or  to confirm selection  
Or press  to go back

Use  to select work size  
Press  or  to confirm selection  
Or press  to go back

Press  to confirm  
Press  to cancel

```
▶Speed Chart      →  
Input Set Speed  →  
Edit Fav Spd #1-8 →  
Profile: Normal
```

```
- Select Cut Type -  
▶Finish/Shape Cut →  
Rough Cut        →
```


```
- Select Work Size -  
▶ Dia: 2" / 5cm  ↑↓  
Speed : 3000rpm
```

## 6.7.2 Finish Drying Mode

Press  to cycle between the timer options.

The current timer options are:


- ½ hour (30 minutes)
- 1 hour
- 2 hours
- 4 hours (Default)
- 8 hours
- 12 hours
- No limit

To start the drying mode, press  to run the lathe

The lathe will run for the set time at the minimum speed to allow any finish to dry evenly. The lathe will stop when the timer countdown is complete.

```
▶Timer : 4 hrs  
Speed : 50 rpm  
  
Press ON to RUN
```

### 6.7.3 Edit Favourite Speed

Turn  to select Fav #.


Press  or  to continue

Press  to cancel

Use  or     to set desired speed

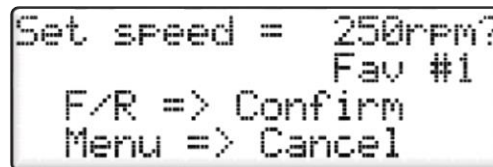
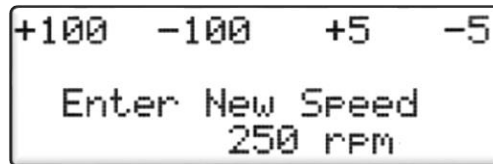
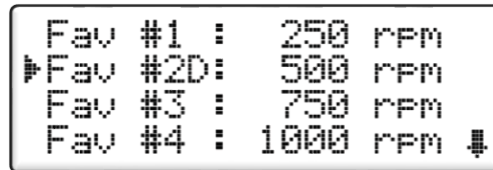
Press  or  to continue

Press  to cancel

Push  to confirm new setting saved in memory



After confirming, press  to go back to the Home Page

**Note:** The speed shown on the lathe is only a guideline.

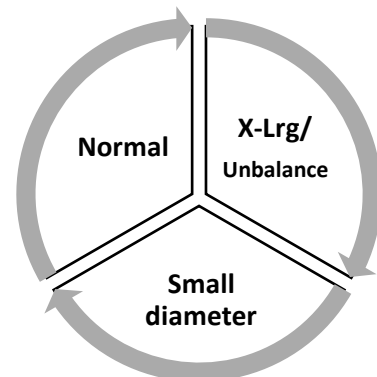
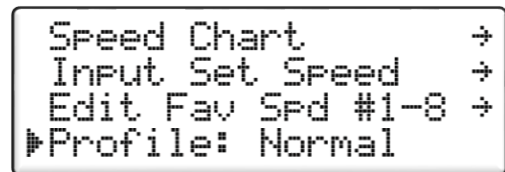


### 6.7.4 Profile

To deliver the best performance for cutting, the software includes three non-customizable cutting settings.

Navigate to the profile option in the menu and press  or  to toggle the profiles between:

- **Normal** – General profile which can be used for most woodturning
- **X-Lrg/Unbalance** – Speed profile made for larger or unbalanced workpieces. This profile includes a soft start up and a soft speed rebound parameters to reduce sudden increases in speed after a chisel dig-in.
- **Small Diameter** – Better speed tracking for smaller work pieces.



## 6.7.5 Customize F Keys

Turn  and select Customize F keys

Press  or  to continue

Press  to cancel

```


▶Customize F keys  →
  Lathe Settings   →
  Wireless Remote  →
  Motor Parameters  →
    
```

### 6.7.5.1 F1-F4 Functions

Press  or  to toggle between:

- Favourite Speed (Displayed as: Fav Speed)
- Speed Up/ Down
- User Custom


\*Favourite speed is default.

Press  key to return to the home screen.

```

▶F1-4 Function:
      Fav Speed
  Edit User Custom
      F Key Settings
    
```

### 6.7.5.2 Edit User Custom


Turn  to select Edit User Custom

Press  or  to continue

Press  to cancel

Screen will display the current function assigned to F keys.

\***Note:** Functions can be setup on individual F key.

Use  to select F key

Press  or  to continue

Press  to cancel

```

  F1-4 Function:
      User Custom
▶Edit User Custom
  F1: Fav Speed #1
  F2: Fav Speed #2
  F3: Set Speed +20
  F4: Set Speed -20
    
```

Use  to edit the function, press  or  to confirm, press  to quit.


```

- F1 Key Function -
▶Do Not Use
  Fav Speeds      →
  Speed UP/Down  →↓
    
```

The following table shows the functions that can be assigned to the F keys:



FUNCTION NAME	DESCRIPTION
Do Not Use	This will disable the selected <F> key.
Favourite speed	Any Favourite speed can be set on any of the F keys. E.g., Favourite Speed #8 can be assigned to <F1> key.
Speed Up/Down	When this function is assigned to the <F> key, the selected <F> key can be used to either increase or decrease the speed in the following increments: •5rpm •20rpm •100rpm •250rpm •500rpm
Speed Profile	The speed control profile can be selected from the following: • Low • Medium • High Speed profile will determine the acceleration of the motor. E.g., Higher acceleration with the High-speed profile.
Brakes On/ Off	Switching between ON state and OFF state of the electronic brakes.
Menu Shortcuts	This will assign a shortcut to the selected <F> key.

## 6.7.6 Lathe Settings





Use  key to enter “Lathe Settings”.

```
Customize F keys →
▶ Lathe Settings →
Wireless Remote →
Motor Parameters
```

### 6.7.6.1 Display Size: Change the font size on the display.





Use  or press  to toggle the setting between Normal and Large.

### 6.7.6.2 Assisted Brake: Turn on or off the Brake when <OFF> bottom is pressed.





Use  or press  to toggle the settings between ON and OFF.  
Press  to confirm ON operation, press  to cancel the change.

```
▶ Display Size: Large
Assisted Brake: OFF
E-Stop Brake: OFF
Brake Pwr: 8% ↓
```

### 6.7.6.3 E-Stop Brake: Turn on or off the Brake When EMS button is pressed.





Use  or press  to toggle the settings between ON and OFF.  
Press  to confirm ON operation, press  to cancel the change.

### 6.7.6.4 Brake Power: Set the power level when the braking is applied.

Use  to adjust the braking power parameter  
Use the  to adjust the power level.  
Press  to confirm the new parameter, press  to cancel the change.



### 6.7.6.5 Idle=Auto Stop: Turn on or off the Idle detection.



When it sets to ON, the lathe will monitor the spindle spinning and will automatically stop the lathe if the spindle is in idle for 5mins.

Use  or press  to change the settings between ON and OFF.  
Press  to confirm ON operation, press  to cancel the change.

### 6.7.6.6 Vibr. Sensor: Provides extra safety protection for woodworking jobs.

Turn ON/OFF, adjust the sensitivity of the vibration sensor.

Use  or press  to cycle the settings between OFF, Low, Med and High.

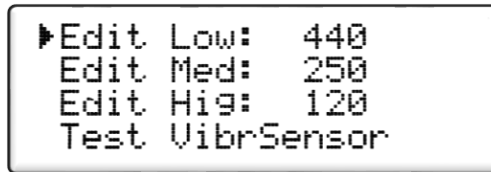
Push  to confirm ON operation, press  to cancel the change.



```
▶ Idle=AutoStop: OFF
Vibr. Sensor: OFF
Vibr.Threshold →
Language: English ↓
```



### 6.7.6.7 Vibration Sensor Threshold: Adjust the threshold parameters for Low/Med/High.

The parameters for Low / Med / High can be adjusted through the menu.





Turn the  dial to select the parameter to adjust. Press  to enter the menu to adjust each parameter.

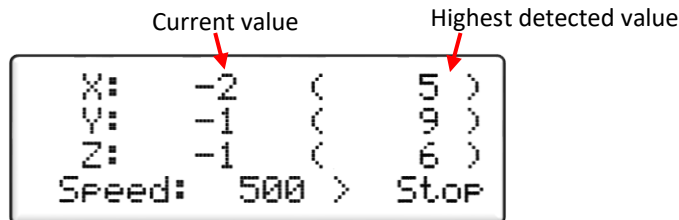
*NOTE: The threshold values are the digital readout values. The “Test VibrSensor” function can be used to show the readouts for each axis.*

### Test Vibration Sensor Function

The “test vibration sensor” function was created to measure the current vibration value of the machine. The function measures the values for the X, Y and Z axis.




The motor can be started if the  button is pressed to record the highest detected value, this value can then be used to set the threshold values for Low / Med / High.

The  key can be pressed to exit the function or to stop the motor.





The Image shows the screen when the function is enabled, the screen will display the *current value* readout and will change depending on the current vibration experienced by the headstock. The *highest detected value* is the peak value for each axis, this can be used to set the threshold value in the previous menu.

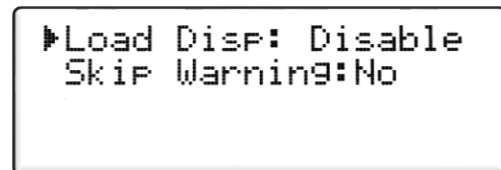
### 6.7.6.8 Language: Provides English, German, and French\* (market dependent) options for HMI display.

Use  or press  to change the settings among three languages. Press  to quit.




**Note:** The French language is only available in EU and Canada.

### 6.7.6.9 Load Display: Show the motor load when running.

Use  or press  to show or hide the load when the motor is running. The load will be displayed on the bottom right of the main screen.



**6.7.6.10 Skip Warning: Bypass the power up warning message/music when the machine is first powered up.**

Use  or press  to turn ON or OFF. Press  to quit.

## 6.7.7 Wireless Remote

The NOVA DVR Wireless Remote II (SKU 55522) can be used for wireless control of your NOVA Nebula lathe. (Refer to wireless remote manual for installation procedures).

Use  key to enter “**Wireless Remote**” function.



There will be three options available:

- Pair new remote
- Unpair remote
- Open channel

**Note:** The bottom line shows the ID of the current paired remote.

```
Customize F keys  →
Lathe Settings    →
▶Wireless Remote  →
Motor Paramters   →
```

### 6.7.7.1 Pair New Remote

Use  or press  to pair new remote  
Press the **OFF** key on the remote to pair.

Press  or  to confirm

Press  to exit

```
▶Pair new remote  →
Unpair remote    →
Open Channel: YES
Remote ID: 00005516
```

### 6.7.7.2 Unpairing Remote

Use  or  to Unpair Remote

Press  to confirm, press  to cancel the change.

```
-- Pairing Remote --
Please press OFF
key on the remote
```

### 6.7.7.3 Open Channel





Use  or  to enable/disable the open channel feature.

The open channel feature allows any compatible remote to control the lathe. The lathe will be able to accept signals from multiple remote units (included the wired remote control from the machine).

**NOTE:** It is recommended to disable the “open channel” feature when multiple Nova Lathes with wireless remotes will be used in close proximity.





```
-- Clear Remote ID -
Unpair this remote?
▶Menu:NO          F/R:YES
```

## 6.7.8 Motor Parameters

Use  to select Motor Parameter,  
 Press  or  to continue,  
 Or press  to go back.

```





Customize F Keys  →
Lathe Settings    →
Wireless Remote  →
▶Motor Parameters →
    
```

Use  to select objective parameter,  
 Use  to edit the parameter, press  to confirm or press  to go back.

The Content of Parameters			
Page 1 Speed Control	Page 2 Voltage Control	Page 3 Temperature	Page 4 Memory
Profile = Normal	V Kprop = 2000	T Heatsink = xx °c	Save to EEPROM
Kprop = 414%	V Kint = 9000	T Threshold = 60 °c	Factory Reset
Kint = 3125%	Vd DC Bus = 362v		








## 6.7.9 Password Lock

### 6.7.9.1 Set Password

Use  to select Set Password  
 Press  or  to continue  
 Or press  to quit

```





▶Set Password      →
Clear Password     →
Lock Lathe Now    →
Protect Menus: No
    
```

Use     to set New Password  
 Press  or  to confirm  
 Press  to exit

```








+1000 +100 +10 +1
      New Password
      "0000"
    
```

### 6.7.9.2 Clear Password

Use  to select Clear Password  
 Press  or  to continue  
 Or press  to quit

```

Set Password      →
▶Clear Password   →
Lock Lathe Now    →
Protect Menus: No
    
```

Use     to Enter Current Password  
 Press  or  to confirm  
 Press  to exit

```

+1000 +100 +10 +1
      Enter
      Current Password
      "0000"
    
```

This will clear the password stored in the system





### 6.7.9.3 Lock Lathe Now

The lathe can be locked once the Password has been set.

Use  to select Lock Lathe Now

Press  or  to confirm

Or Press  to exit



Use     to Enter Current Password

Press  or  to unlock lathe.

```
Set Password →
Clear Password →
▶ Lock Lathe Now →
Protect Menus: No
```

```
+1000 +100 +10 +1
Enter
Current Password
"0000"
```

### 6.7.9.4 Protect Menus

Use  or press  to toggle the settings between ON and OFF.

Press  to quit

```
Set Password →
Clear Password →
Lock Lathe Now →
▶ Protect Menus: No
```

### 6.7.10 Firmware Upgrade

The firmware version of the HMI can be upgraded via the included USB cable accessory and a PC with internet access. Be sure to check <https://www.teknatool.com/upgrade-your-firmware/> periodically for firmware upgrades for your machine, which may allow new features or software improvements that could enhance the performance of the lathe.

Use  to select Firmware Upgrade

Press  or  to entering USB mode

Press  to quit

```
Password Lock →
▶ Firmware Upgrade →
Version Info →
```

```
- Firmware Upgrade -
Enter USB Firmware
upgrade mode?
Menu:NO F/R:YES
```

### 6.7.11 Version Info

Use  to select Version Info

Press  or  to continue

Or press  to go back

```
Password Lock →
Firmware Upgrade →
▶ Version Info →
```

```
NOVA NEBULA DUR 1826

TEKNATool Int.
8.22c R2be1m 2020
```

## 6.7.12 Input Set Speed

Use  or     to set desired speed

Press  or  to confirm selection





Press  to cancel

Push  to confirm

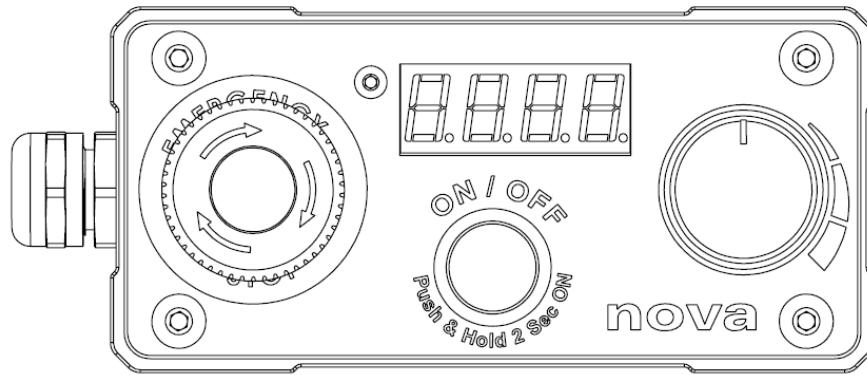
Push  cancel


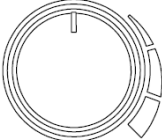

```
Speed Chart      →
▶Input Set Speed  →
Edit Fav Spd #1-8 →
Profile: Normal
```

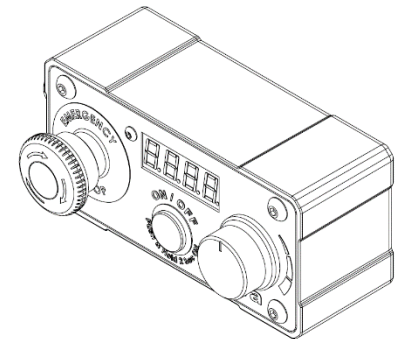
```
+100  -100  +5  -5
Enter New Speed
      250 rpm
```

Key	Effect
	+100rpm
	-100rpm
	+5rpm
	-5rpm


### 6.7.13 Wired remote



Icon	Description
	<p><b>ON:</b> Start the lathe.  <b>OFF:</b> Stop the lathe, programmable with/without braking function.</p>
	<p><b>Speed Knob:</b> Turn clockwise or anti-clockwise to speed Up/Down respectively.</p>
	<p><b>EMS:</b> Emergency Stop Switch - Programmable with or without a braking function.</p>



**Start the Lathe** – Push and Hold 2 Sec on  to start the lathe.

**Stop the Lathe** – Press the  key once while the lathe is running, the motor will be stopped with/without brake.

**Fine Speed control** – Turn  clockwise or anti-clockwise to increase or decrease the speed in fine increments.

## 7. Maintenance

### ● WARNING

**Improper power connection may result in a risk of electrical hazard**

**Regular maintenance is essential when considering the long-term use of the lathe.**

#### **Maintenance After Each Use**

1. Clean the work area and lathe.
2. Vacuum shavings and dust from the headstock, table and base.

#### **Monthly Maintenance**

1. Wax coat the exposed cast iron parts with a good quality paste wax. Buff off thoroughly.
2. Check tightness of nuts and bolts.
3. Clean all tapers to ensure a secure fit.

#### **6-months Maintenance**

1. Lubricate the tailstock quill and its inside threads with a light coat of light weight oil.
2. Check for any rust on the underneath the toolrest, tailstock and on the lathe bed. If there is rust on the surface, remove it by using a rust removal agent with an abrasive sponge.
  - **Note:** *Some rust removal agents may leave a stain on the metal surface. Please check on an area where stains are not easily visible before applying onto the actual metal surface.*

#### **Cleaning the Toolslide**

If the toolslide becomes hard to move and adjust, cleaning and lubrication are required.

1. To allow the toolslide move more freely along the bed, make sure the bed rails are clean. Apply some paste wax to the rails.
2. If the tool slide is difficult to adjust, remove the tool slide from the lathe bed. Clean the tool slide camshaft (round eccentric rod) with a petroleum-based solvent. Lubricate the rod with lightweight oil or a silicone spray.
3. Slide the base back onto the lathe bed.

#### **Cleaning the Tailstock**

If the tailstock quill becomes hard to adjust or the Handwheel is hard to turn, cleaning and lubrication are required.

1. Remove the 6mm set screw from the tailstock handwheel. If needed, turn the handwheel to expose the set screw.
2. Remove the quill by unscrewing the tailstock quill lock handle off from the tailstock body and extending the quill out all the way. Remove handwheel from the tailstock body.
3. Wipe clean all parts including the inside of the tailstock slot.
4. Lubricate the quill, quill lead screw and tailstock slot with lightweight oil, apply small amount of oil to the quill threads.
5. Reassemble the tailstock.



# 8. Troubleshooting

## 8.1 Mechanical Issues

SYMPTOM	PLACE TO CHECK	HOW TO RESOLVE
Excessive Vibration	<ul style="list-style-type: none"> <li>▪ Work attached to the lathe</li> <li>▪ Lathe Mounting</li> <li>▪ (Either on bench or stand)</li> </ul>	<ol style="list-style-type: none"> <li>1. Remove any work pieces/tools attached to the headstock, inspect if there is any foreign materials or damages to the threads.</li> <li>2. Attach the tools one at a time to check which part is causing the vibration.</li> <li>3. Extra weights can be added to reduce the amount of vibration that occurs from large, unbalanced work pieces.</li> </ol>
Faceplate or chuck running out of true	<ul style="list-style-type: none"> <li>▪ Back of face plate</li> <li>▪ Threads</li> <li>▪ Inner threads on faceplate</li> <li>▪ Spindle thread on headstock</li> </ul>	<ol style="list-style-type: none"> <li>1. Inspect if there is any damage on the threads.</li> <li>2. Mount the faceplate or chuck onto the machine and check if it is seating securely on the bearing.</li> </ol>
Turning tools not sliding smoothly across Tool rest	Tool rest surface	Lightly use sandpaper or a grinder to smooth out the top surface of the tool rest.
Spur drive centre/live centre not holding in spindle or quill taper when turning	Morse Taper surface	<ol style="list-style-type: none"> <li>1. Inspect both male and female Morse Taper surfaces to check for any foreign materials or defects on the surface.</li> <li>2. Clean the surface and remount the tools.</li> </ol>
Tailstock and Headstock centres not aligning	<ul style="list-style-type: none"> <li>▪ Lathe bed connection</li> <li>▪ Headstock detent position</li> <li>▪ Tailstock adjustment plate</li> </ul>	<ol style="list-style-type: none"> <li>1. Inspect all connections of the bed sections to make sure all the top surfaces are flush with one another.</li> <li>2. Check to ensure the headstock is properly locked in the zero-degree detent position.</li> <li>3. Loosen the tailstock adjustment plate located on the bottom of the tailstock and align the headstock and tailstock. Tighten the tailstock adjustment plate to finish.</li> </ol>
Tailstock Handwheel hard to turn or will not turn	<ul style="list-style-type: none"> <li>▪ Quill lock</li> <li>▪ Inside the tailstock quill housing</li> </ul>	<ol style="list-style-type: none"> <li>1. Check if quill lock on the tailstock is not engaged.</li> <li>2. Fully extend the tailstock quill out to extract the quill from its housing. Inspect both quill and housing surface and threads for any defects and foreign materials. Apply lubricant to quill surface and thread and reassemble.</li> </ol>
Tailstock binds while sliding along the bed	<ul style="list-style-type: none"> <li>▪ Lathe bed</li> <li>▪ Tailstock adjustment plate</li> </ul>	<ol style="list-style-type: none"> <li>1. Check for defects or foreign materials on the bed.</li> <li>2. Loosen the tailstock lock.</li> </ol>
Tailstock jumps at bed section joints.	<ul style="list-style-type: none"> <li>▪ Lathe bed</li> <li>▪ Tailstock bottom surface</li> </ul>	<ol style="list-style-type: none"> <li>1. Inspect uneven surfaces on the lathe bed and make sure the bed connection areas are flush.</li> <li>2. Check for any defects and foreign materials on the bottom of the tailstock casting.</li> <li>3. Use sandpaper to lightly sand down the defects on the lathe bed or the tailstock casting.</li> </ol>

## ⚡ WARNING ⚡

**Always isolate the lathe from its power source before carrying out the following checking procedures**

SYMPTOM	PLACE TO CHECK	HOW TO RESOLVE
<b>NO Display on screen when the main power is on</b>	10-pin ribbon cable	<ol style="list-style-type: none"> <li>1. Dismount the HMI from the headstock.</li> <li>2. Unplug and re-plug the grey ribbon cable firmly as it may have become loose during shipping.</li> </ol>
<b>Rotor Fault</b>	<ul style="list-style-type: none"> <li>▪ Spindle</li> <li>▪ Index Pin</li> </ul>	<ol style="list-style-type: none"> <li>1. Check if the spindle index is engaged. Disengage the spindle index if engaged.</li> <li>2. Check if there is anything preventing the spindle from turning.</li> <li>3. Remove the obstruction and try starting the motor again.</li> </ol>
<b>RP State Error (0 or 1)</b>	Motor optical sensor	<ol style="list-style-type: none"> <li>1. Turn the spindle by hand to see if this will cause a breakthrough in the material that has built up around the sensor.</li> <li>2. Blow air through the headstock blowing away the foreign material built up around the sensor.</li> </ol>
<b>PFC Corrector (Flashing)</b>	Headstock body	<ol style="list-style-type: none"> <li>1. CAREFULLY Touch the lower section of the headstock and see if it is hot to the touch.</li> <li>2. Turn off the headstock main power switch and leave it to cool down for a period of time. Restart the headstock after it has cooled down.</li> </ol>

Please contact our customer service team at <https://www.teknatool.com/support/> if the above procedures did not resolve your issue.

## 9. Teknatool Warranty



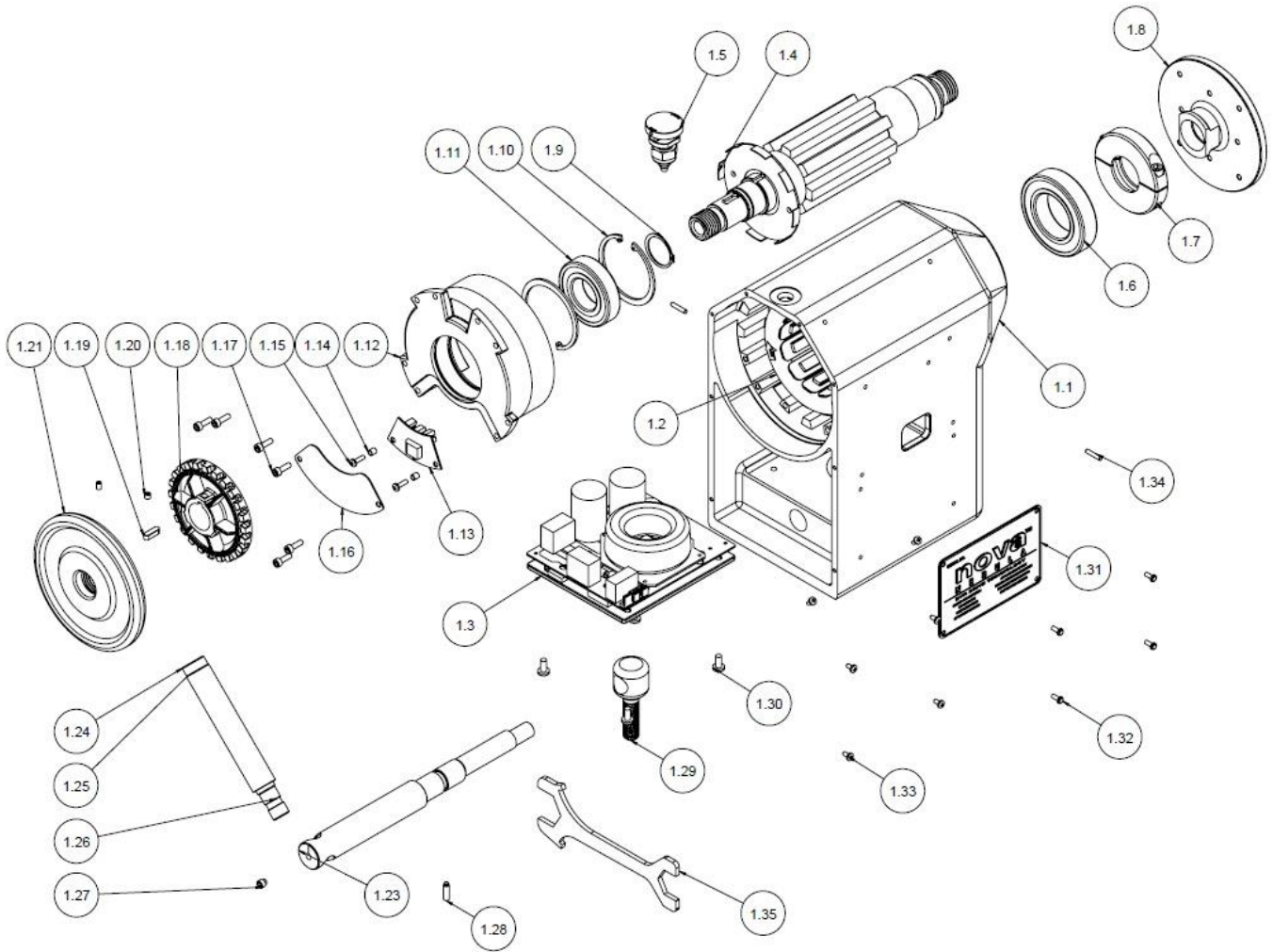
### **NOVA Limited Warranty**

4499 126<sup>th</sup> St North | Clearwater Florida 33762  
 teknatool.com | 727.954.3433

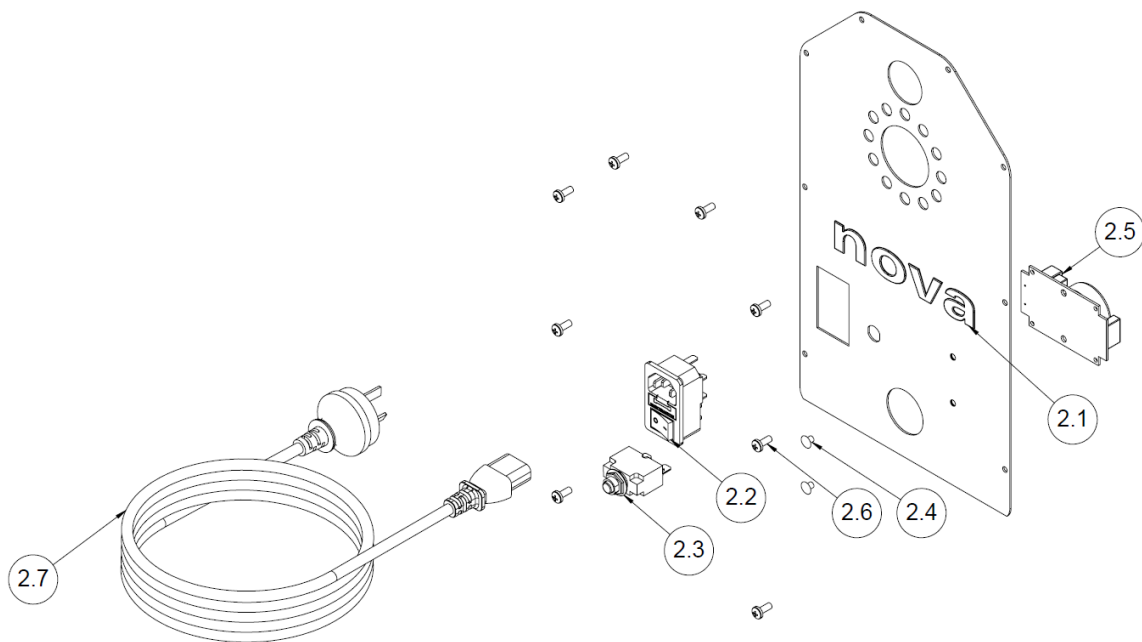
Our policy is one of continuous improvement. We therefore reserve the right to change specification/design without notice. This warranty is Teknatool International Ltd and Teknatool USA Inc. sole warranty whether written or verbal, whether expressed or implied by law, trade, custom, or otherwise, whether of merchantability, fitness for purpose, or otherwise, except for remedies available to customers under the Consumer Guarantees Act or other legislation. For full warranty details and instructions on how to file a claim, please go to teknatool.com

# 10. NOVA Nebula Lathe Breakdown

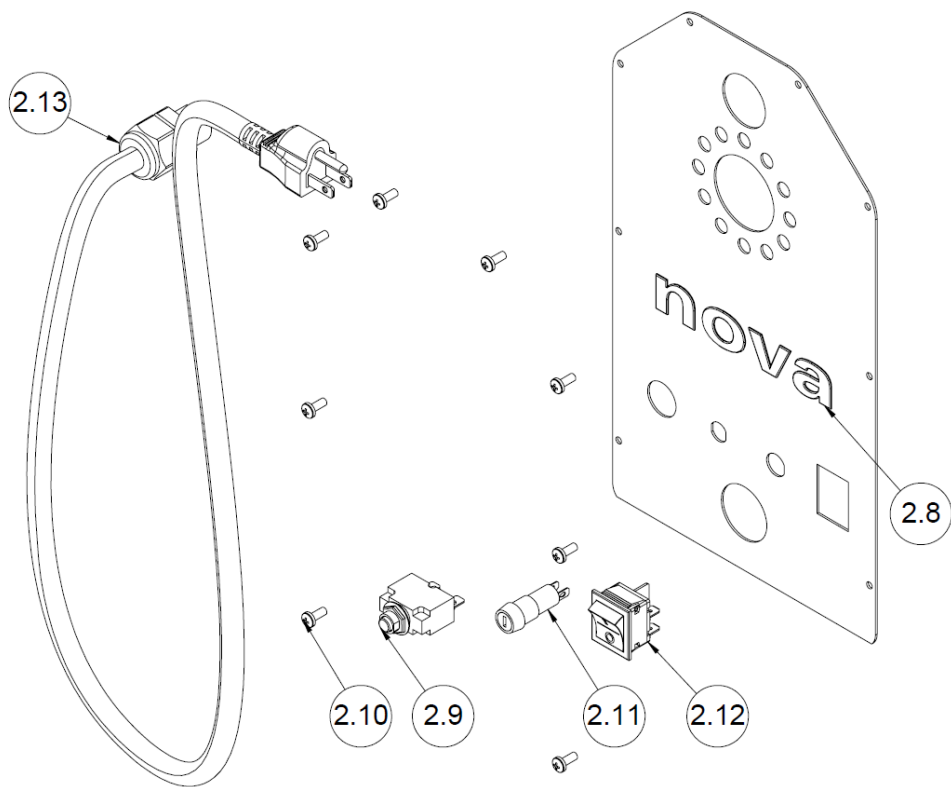
## NOVA Nebula Headstock Breakdown



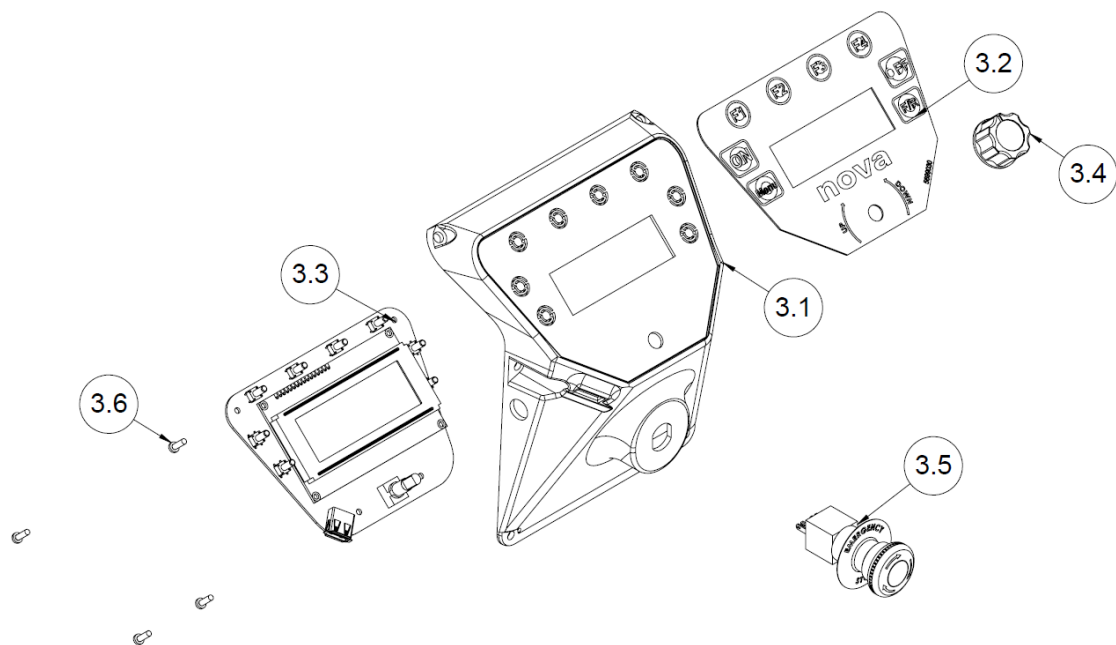
**NOVA Nebula Rear Cover Plate Assembly -A (220V Market) Breakdown**



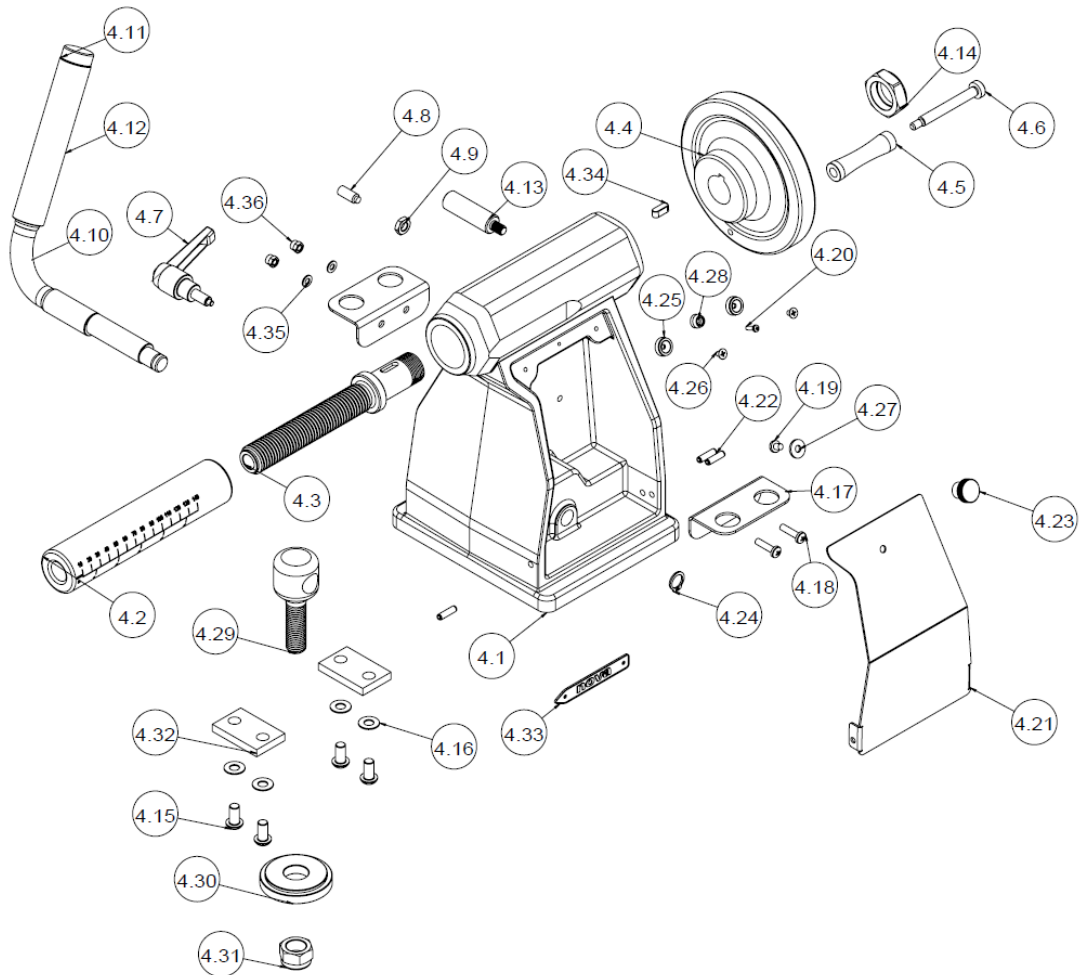
**NOVA Nebula Rear Cover Plate Assembly -B (110V Market) Breakdown**



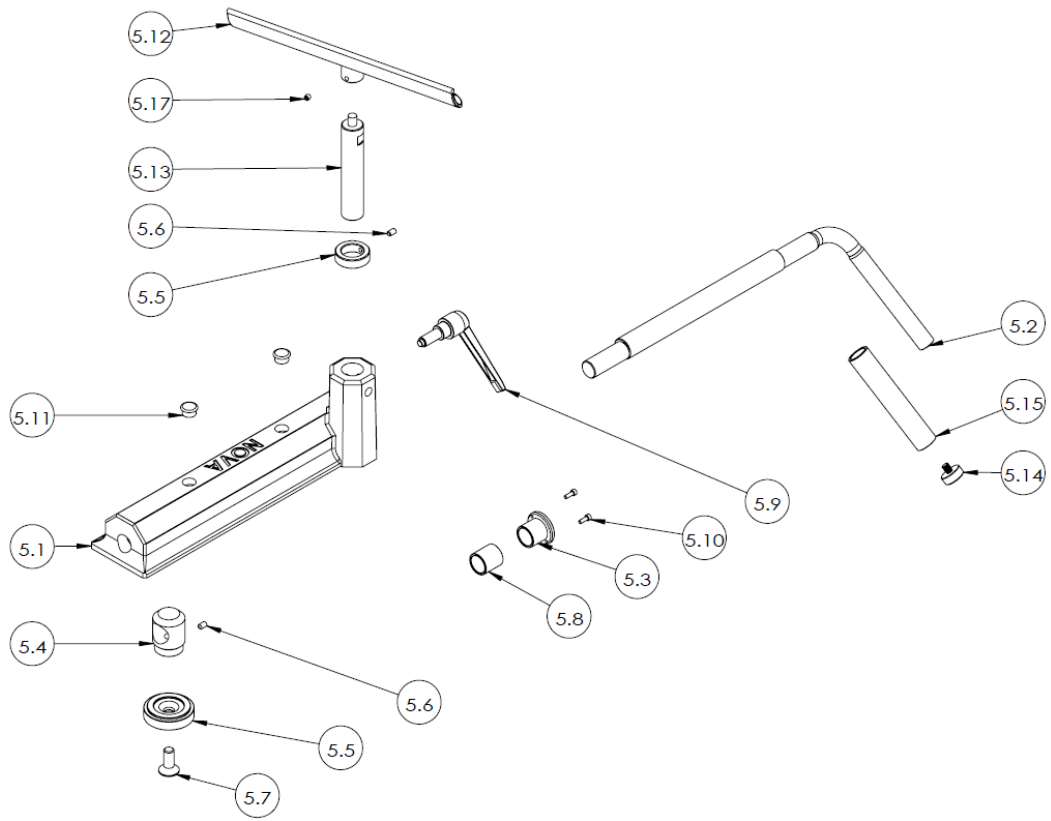
## NOVA Nebula HMI Breakdown



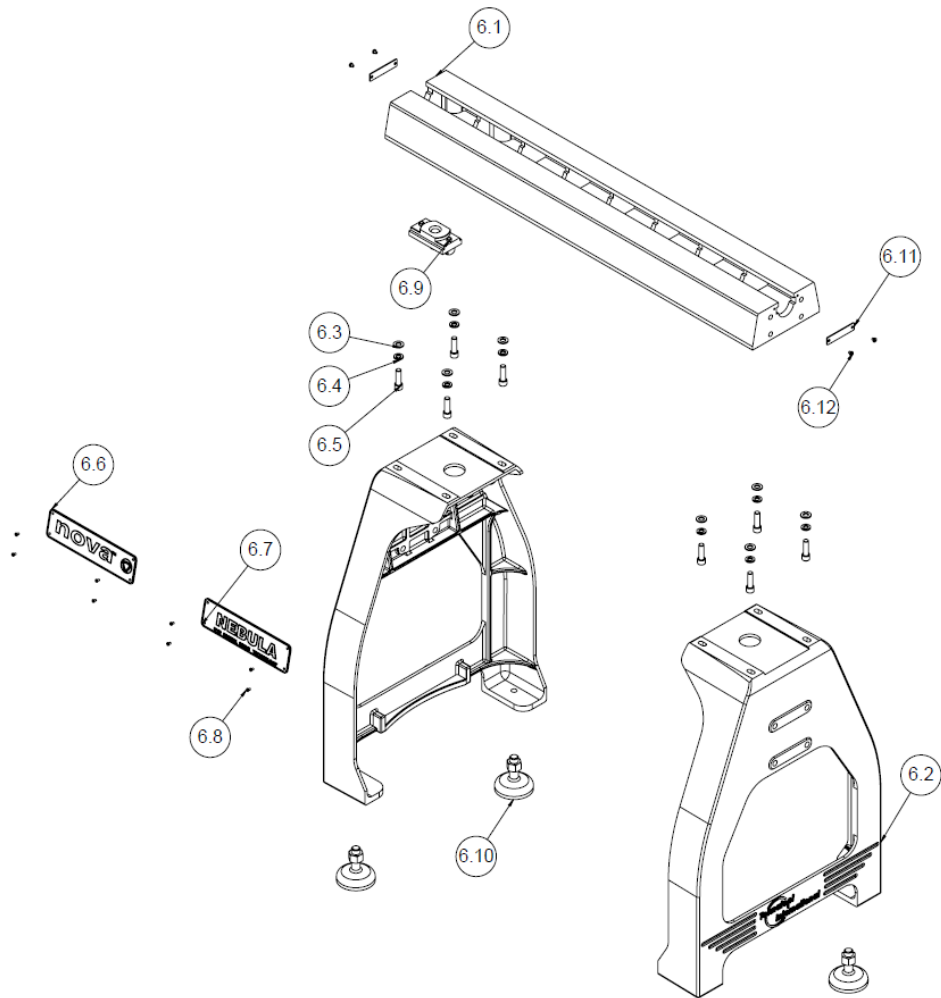
## NOVA Nebula Tailstock Breakdown



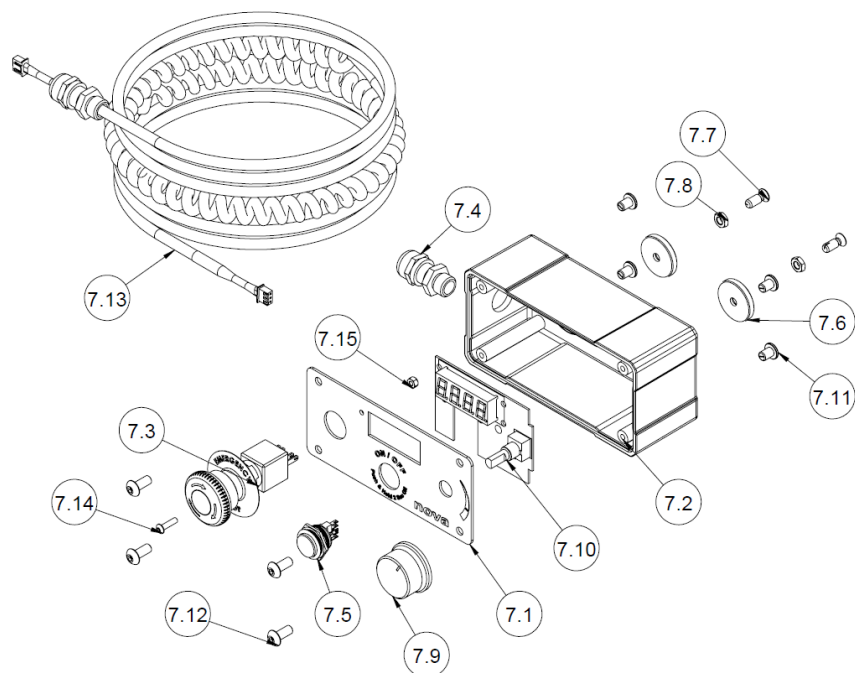
## NOVA Nebula Toolrest Breakdown



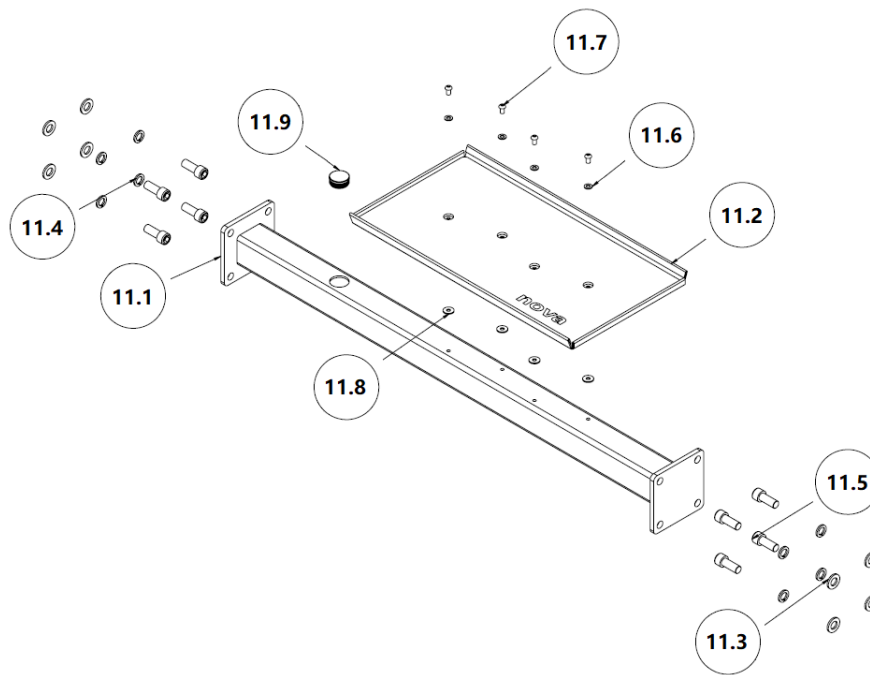
## NOVA Nebula Bed and Stand Breakdown



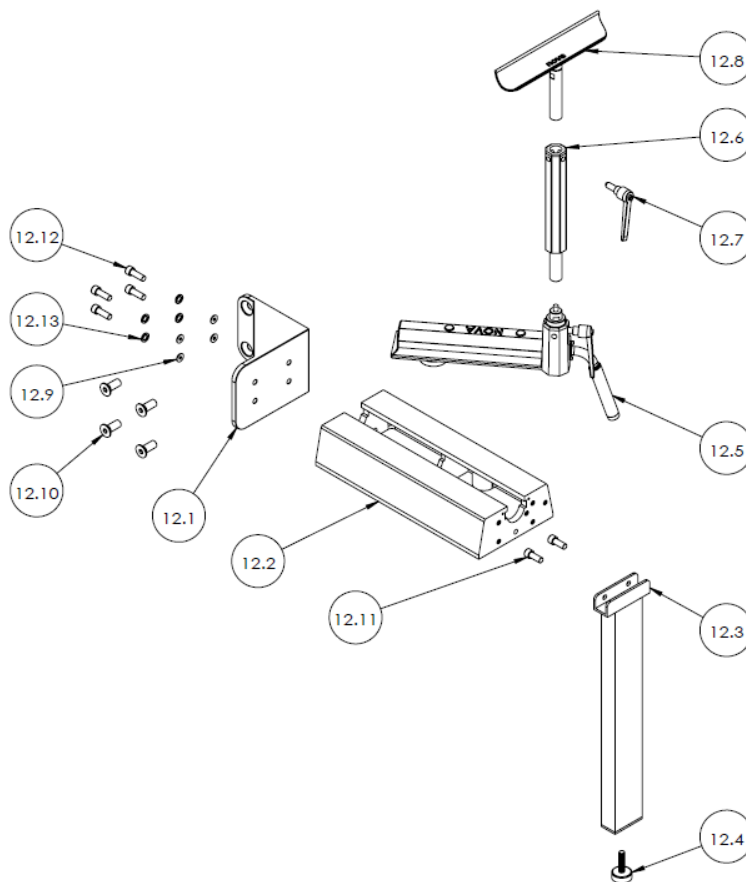
## NOVA Nebula Remote Breakdown



## NOVA Nebula Stand Beam Member Set Breakdown

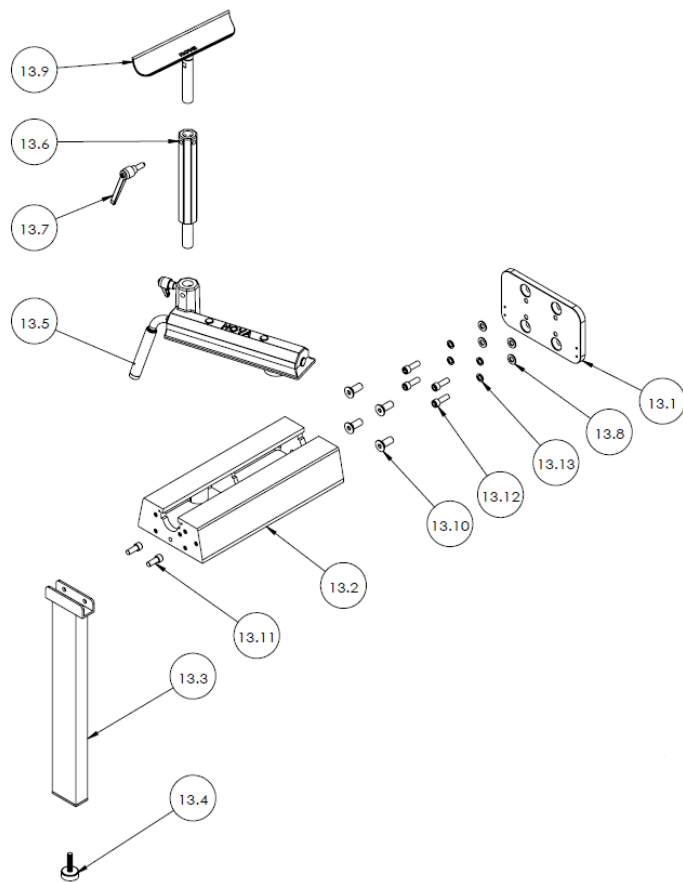


## NOVA Nebula Angled Outrigger Assembly Breakdown





# NOVA Nebula Standard Outrigger Assembly Breakdown



# 11. NOVA Nebula Lathe Parts List

ITEM NO.	DESCRIPTION	SKU	QTY.
<b>1</b>	<b>Headstock Assembly</b>	<b>5569002</b>	
1.1	Nebula Headstock casting	5569011	1
1.2	120mm Stator	5569038	1
1.3	Control Board Assembly	55530	1
1.4	Rotor Assembly	5569007	1
1.5	Index Pin Assembly	5569009	1
1.6	Front Bearing	6210 VV	1
1.7	ASR Eurolock Ring*	5569039	1
1.8	150mm faceplate ASR M33x 3.5	5569033	1
	150mm faceplate 1 1/4" 8tpi	FP150L	1
1.9	External Circlip 35mm	EC35	1
1.10	Internal Circlip 75mm	IC75	2
1.11	Rear Bearing	6207 VV	1
1.12	Casted Bearing Housing	55146	1
1.13	Optical Position Sensor	55020	1
1.14	6mm Dowel Pins	55055	2
1.15	Optical Sensor Mounting Screw	MPB0412	2
1.16	Metal Cover Plate	55174	1
1.17	Rotor Assembly Mounting Bolt	C06020	8
1.18	Indexed Fan	55011	1
1.19	Index Fan Key	55051	1
1.20	Index Wheel Set Screw M5x6	SZ0506	3
1.21	Headstock Handwheel	5569016	1
1.22	Handwheel Set Screw M5x8	SZ0508	1
1.23	Headstock Locking Shaft	5569018	1
1.24	Locking Handle End Cap	5569028	1
1.25	Handle Grip	5569029	1
1.26	Locking Handle	5569030	1
1.27	Locking Handle set screw M8x8	SZ0808	1
1.28	Locking Shaft Set screw M6x 20	SZ0620	1
1.29	Headstock Locking Boss	5569019	1
1.30	Main control Board mounting screw M6x13	MPB0613	4
1.31	Name Plate	5569037	1
1.32	Name Plate Rivet 4x10 or Screw M4x8	RV0410 or MPB0408	4
1.33	Panel mounting screw M6x6	MPB0606	6
1.34	Dowel Pin Ø4 x 20	23043	2
1.35	Headstock Locking Spanner	5568099	1
NP	Optical Sensor Cable	55411	1
<b>2A</b>	<b>Rear cover plate assembly 230V</b>	<b>5569008-A</b>	
2.1	Headstock Back Cover Plate	5569027-A	1
2.2	Main Power Module	5699044	1
2.3	Thermal Breaker	5668006	1
2.4	Plastic Rivets for EMI Filter [Only for 220-240V Markets]	RV0405	2
2.5	EMI filter [Only for 220-240V Markets]	55236	1
2.6	Cover Plate Mounting Screws	MPB0410	8
2.7	Cable with Gland (EU)	55106	1
	Cable with Gland (AU/NZ)	55090	
	Cable with Gland (UK)	55112	
<b>2B</b>	<b>Rear cover plate assembly 110V</b>	<b>5569008-B</b>	
2.8	Headstock Back Cover Plate	5569027-B	1
2.9	Thermal Breaker	5699045	1
2.10	Cover Plate Mounting Screws	MPB0410	8
2.11	Fuse holder / Fuse	55404/55229	1

ITEM NO.	DESCRIPTION	SKU	QTY.
2.12	Rocker Switch	5569071	1
2.13	Cable with Gland (USA)	55062	1
<b>3</b>	<b>HMI Assembly</b>	<b>5699005B</b>	
3.1	HMI Panel Body-Plastic	5698000B	1
3.2	HMI Keypad Layer	5699030	1
3.3	HMI Circuit Board	55446	1
3.4	Knob Cap	5699034	1
3.5	Emergency Stop Switch	5699016	1
3.6	HMI board screw M3x10	MPB0310	4
NP	HMI 10 Pin Cable	55139	1
<b>4</b>	<b>Tailstock Assembly</b>	<b>5569003</b>	
4.1	Tailstock Casting	5569012	1
4.2	Tailstock Quill	5569020	1
4.3	Tailstock Quill Lead Screw	5569021	1
4.4	Tailstock Handwheel	5569022	1
4.5	Tailstock Handwheel Handle	5699028	1
4.6	Tailstock Handwheel Handle Stud Bolt	5699046	1
4.7	Quill locking handle	5569040	1
4.8	Quill Alignment screw	SZ0820	1
4.9	Alignment screw sleeve	5569068	1
4.10	Tailstock lock Camshaft	5569023	1
4.11	Camshaft End Cap	5569028	1
4.12	Camshaft Grip	5569029	1
4.13	Handle stopper	5569024	1
4.14	Tailstock Handwheel Locking Nut	LN25	1
4.15	Tailstock Alignment Plate Screw	BHC0816	4
4.16	Tailstock Alignment Screw Washer	FW08	4
4.17	Tailstock tool Bracket	5569031	2
4.18	Bracket mounting screw M5x10	MPB0510	2
4.19	Door knob screw M5 x 6	MPB0506	1
4.20	Rubber Buffer screw M3 x 10	MPB0310	1
4.21	Tailstock Metal Plate	5569026	1
4.22	Tension Pin 5mm	TP0518	3
4.23	Tailstock Door Knob	5569042	1
4.24	External Circlip 12mm	EC12	1
4.25	Tailstock Door Magnet	5569045	2
4.26	Door Magnet screw M4 x 6	MPB0406	2
4.27	Door screw Washer 5mm	FW05	1
4.28	Tailstock Door Rubber Buffer	5569046	1
4.29	Tailstock Locking Boss	5569025	1
4.30	Tailstock lock Plate	5569043	1
4.31	Tailstock lock nut M16	LN16	1
4.32	Tailstock Alignment Plate	5569032	2
4.33	Tailstock Name Plate	5569044	1
4.34	Tailstock Handwheel 6mm key	5569069	1
4.35	Bracket Flat washer 5mm	FW05	2
4.36	Bracket lock nut M5	LN05	2

ITEM NO.	DESCRIPTION	SKU	QTY.
<b>5</b>	<b>Toolslide Assembly</b>	<b>5569004</b>	
5.1	Toolslide	5699022	1
5.2	Toolslide Lock Camshaft	5569036	1
5.3	Camshaft Ring	5699038	1
5.4	Toolslide Lock Boss	5699017	1
5.5	Tool slide Lock Plate	5699012	1
5.6	M6 X 10 Grub Screw	SZ0610	2
5.7	Toolslide Lock Plate Mounting Screw	CM1230	1
5.8	Camshaft Ring B	5699037	1
5.9	Toolrest Locking Handle	5699036	1
5.10	Cam Shaft Ring Mounting Screw	C04012	2
5.11	Mounting Screws	HP-16	2
5.12	Nova 12" Modular Tool Rest Bar	27012	1
5.13	Toolrest Post 1"X 5"	27014	1
5.14	Toolslide Camshaft End Cap	5569028	1
5.15	Toolslide Camshaft Grip	5569029	1
5.16	Collar Toolrest 1 Inch	27007	1
5.17	M6 X 6 Grub Screw	SZ0606	1
<b>6</b>	<b>Bed and Stand Assembly</b>	<b>5569005</b>	
6.1	Main Bed Casting	5569013	1
6.2	Casted Stand	5699018	2
6.3	Stand Flat washer 12mm	FW12	8
6.4	Stand Spring washer 12mm	SW12	8
6.5	Stand mounting Bolts M12 x 40	C1240	8
6.6	Bed Name plate	5569058	1
6.7	Bed name plate 2	5569060	1
6.8	Name plate mounting screws	RV0410/MPB0408	8
6.9	Headstock lock set	5569062	1
6.10	Feet Assembly	5569061	4
6.11	Bed end stopper plate	Stand Beam member	2
6.12	stopper plate screws M5 x 6	MPB0506	4
<b>7</b>	<b>Remote Assembly</b>	<b>5569006</b>	
7.1	Remote Front Panel	5569051	1
7.2	Remote Controller case	5569050	1
7.3	Emergency Stop	5699016	1
7.4	Cable Gland, M12, EMC	5569081	1
7.5	Power Switch	5569052	1
7.6	Magnets	5569055	2
7.7	Magnet mounting screw M5 x 10	CM05010	2
7.8	Magnet mounting Nut M5	NN05	2
7.9	Speed knob	5569053	1
7.10	Remote Circuit Board	5569070	1
7.11	Rubber Buffer	5569054	4
7.12	Panel screws M5 x10	C05010	4
7.13	Remote Cable	5569056	1
7.14	Panel screws M3 x12	C03012	1
7.15	PCB Nut M3	NN03	1

ITEM NO.	DESCRIPTION	SKU	QTY.
<b>11</b>	<b>Stand Beam Assembly</b>	<b>5569088</b>	
11.1	Stand Beam member	5569084	1
11.2	Stand tray set	5569085/ 5569096	1
11.3	Flat washer 16mm	FW16	8
11.4	Spring washer 16mm	SW16	8
11.5	Mounting Bolts M16 x 40	C1640	8
11.6	Flat washer 8mm	FW08	4
11.7	Mounting Button Bolts M8 x 14	BHC0814	4
11.8	Nylon buffer washer 8mm	5569089	4
11.9	Plastic Beam Cap	5569090	1
<b>12</b>	<b>Angled Outrigger Assembly</b>	<b>5569103</b>	
12.1	Outrigger Mounting Boss	5569091	1
12.2	Bed Extension (480mm)	5569101	1
12.3	Outrigger Support Bar	5569092	1
12.4	Outrigger Foot	5569106	1
12.5	Toolslide Assembly	5569004	1
12.6	Outrigger Toolrest Post	5569093	1
12.7	Toolrest Locking Handle	5699036	1
12.8	Nova 12" Modular Tool Rest Bar	27012	1
12.9	Flat Washer 12mm	FW12	4
12.10	Mounting Bolts M16 x 40 CSK	CM1640	4
12.11	Mounting Bolts M12 x 30	C1230	2
12.12	Mounting Bolts M12 x 35	55201	4
12.13	Spring Washer 12mm	SW12	4
<b>13</b>	<b>Standard Outrigger Assembly</b>	<b>5569104</b>	
13.1	Bed Extension Adapter	5569072	1
13.2	Bed Extension (480mm)	5569101	1
13.3	Outrigger Support Bar	5569092	1
13.4	Outrigger Foot	5569106	1
13.5	Toolslide Assembly	5569004	1
13.6	Outrigger Toolrest Post	5569093	1
13.7	Toolrest Locking Handle	5699036	1
13.8	Flat Washer 12mm	FW12	4
13.9	Nova 12" Modular Tool Rest Bar	27012	1
13.10	Mounting Bolts M16 x 40 CSK	CM1640	4
13.11	Mounting Bolts M12 x 30	C1230	2
13.12	Mounting Bolts M12 x 35	55201	4
13.13	Spring washer 12mm	SW12	4
<b>14</b>	<b>Accessory Pack</b>		
	Heavy Duty 2MT Live Centre	4718069	
	2MT Spur Centre	2MTSPUR	
	3mm/6mm/10mm/14mm Allen Key	AK3/AK6/ AK10/AK14	
	USB A-A Cable	8379059	
	AcruLine 2MT Centre	2MTNA	
	Operating Bar	5699033	
	2MT Live Centre	2MTLC	

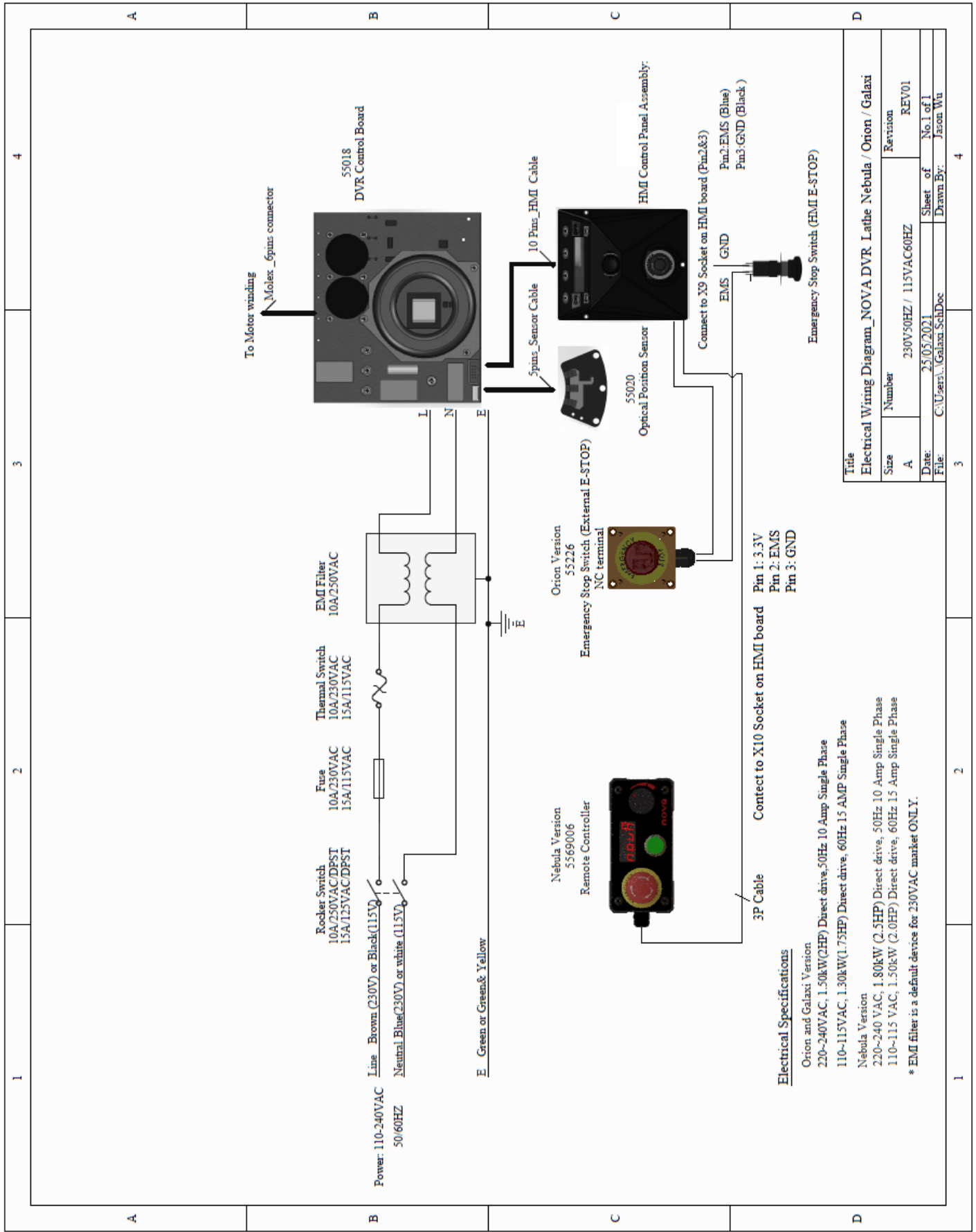
**\*Note:**

Item No 1.7 ASR Eurolock Ring is only included in the package for EU Market.

NP = Not Pictured

# 12. NOVA Nebula Wiring Diagram

128-01-2304



## CALIFORNIA RESIDENTS PROPOSITION 65

### Attention California Residents

California's Proposition 65 entitles California consumers to special warnings for products that contain chemicals known to the state of California to cause cancer and birth defects or other reproductive harm if those products expose consumers to such chemicals above certain threshold levels. We care about our customers' safety and hope that the information below helps with your buying decisions. The general Proposition 65 notice is as follows:

- **WARNING:** Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Your risk from exposure to these chemicals varies, depending on how often you do this type of work. To reduce your exposure, work in a well-ventilated area and with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.
- **WARNING:** This product can expose you to chemicals (Rust Prevention Oil) which are known to the State of California to cause cancer. Do not touch your eyes or face after unpacking until you have washed your hands. It is advised to wear disposable gloves while unpacking and while cleaning the product down for first use. Always unpack and clean in a well-ventilated area. Always wash your hands after unpacking the product for first use. Dispose of packaging bags thoughtfully. Read the Safety Data Sheet for this Rust Protectant Oil here: [MSDS for rust protection](#)

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



NOVA Nebula 18" DVR Lathe Manual

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