

4th Axis Rotary Kit

Setup & iCNC Configuration Guide



Support: jeremy@simplytechnologies.xyz | www.simplytechnologies.xyz/support

Table of Contents

1. Safety and Setup Notes
2. Included Parts
3. Headstock Assembly
4. Tailstock Assembly
5. Mounting the Rotary Kit to the CNC Machine
6. Loading Stock Material
7. Final Setup Checklist
8. Enabling the 4th Axis on an iCNC Controller
9. Support Information

1. Safety and Setup Notes

READ BEFORE STARTING

This guide covers the physical installation of the 4th Axis Rotary Kit and the basic iCNC controller configuration required to enable the A-axis. Software setup, post-processor selection, and rotary toolpath creation may require separate instructions depending on the machine model and software package.

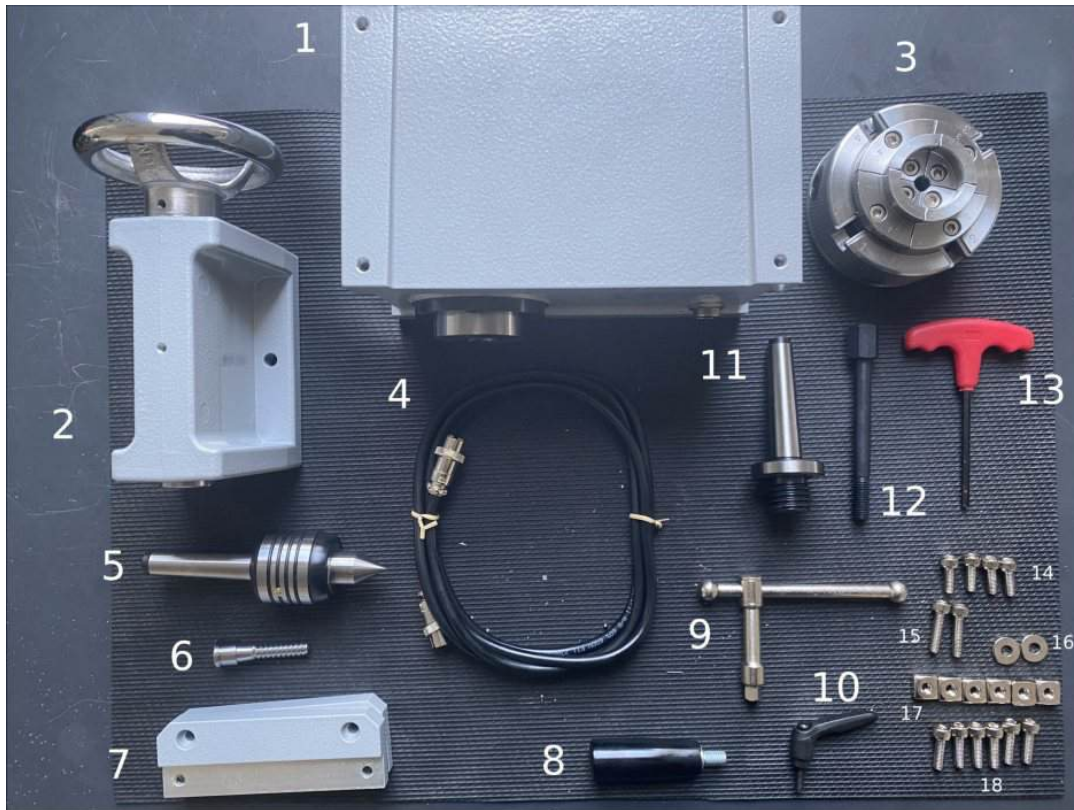
- Power off and unplug the CNC machine before connecting or disconnecting the rotary cable.
- Confirm that all hardware is tightened before machining. The headstock, tailstock, chuck, and stock material must not move during operation.
- Keep hands, clothing, tools, and loose material away from the rotary, spindle, and moving axes.
- Only trained operators should use the 4th axis rotary system.
- After installation, verify alignment before running a file. Do not assume the rotary is centered until it has been checked against the spindle/tool position.

Recommended Tools

- 5 mm Allen key
- T-handle hex key supplied with the rotary kit
- Appropriate wrenches for securing T-slot hardware
- Square or straightedge for checking alignment

2. Included Parts

Verify all parts are present before beginning assembly. Do not discard packaging until setup is complete.



Included rotary kit components.

#	Part	#	Part
1	Headstock	2	Tailstock
3	4-Jaw Chuck	4	8-Pin Phoenix Contact Cable
5	Morse Taper Live Center	6	Safe Lock Woodworm Screw
7	Base Plate	8	Handwheel Tailstock Handle
9	T-Handle Hex Key	10	Handle Adjustable Clamping Lever
11	Self-Centering Chuck Arbor	12	Mounting Arbor Bolt
13	T-Handle Hex Key Allen Wrench	14	4 x M6 x 16 Screws
15	2 x M6 x 25 Screws	16	2 x M6 Washers
17	6 x M6 Nuts	18	6 x M6 x 20 Screws

3. Headstock Assembly

This section covers installing the base plates, self-centering chuck arbor, 4-jaw chuck, and T-slot mounting hardware on the rotary headstock.

Required Components

- Headstock
- 4-Jaw Chuck
- Base Plates
- T-Handle Hex Key
- Self-Centering Chuck Arbor
- Mounting Arbor Bolt
- 4 x M6 x 16 Screws
- 4 x M6 Nuts
- 4 x M6 x 20 Screws



Headstock assembly components.

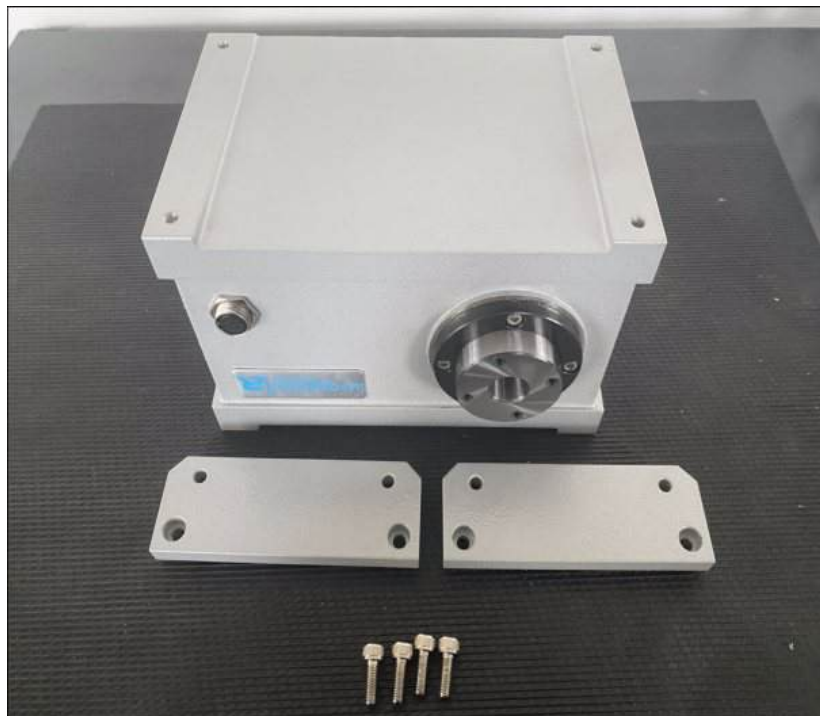
Step 1: Install the base plates

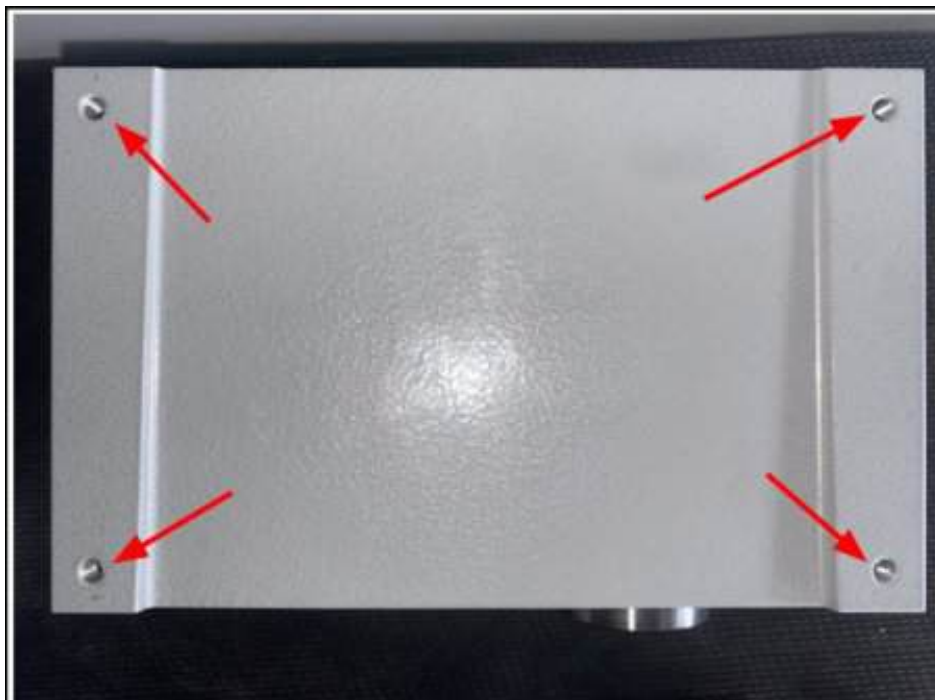
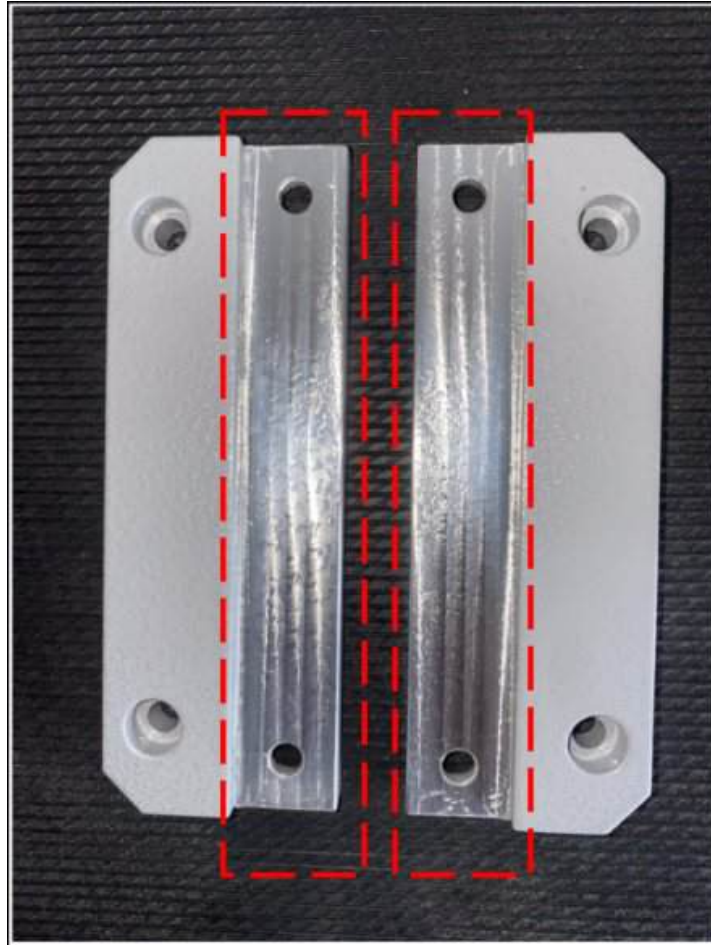
Flip the headstock upside down so the bottom of the unit is accessible.

Position the two base plates on the underside of the headstock. The silver side of each base plate should face down when installed.

Align the holes in the base plates with the mounting holes in the headstock.

Install four M6 x 16 screws - two on the left base plate and two on the right base plate. Tighten with a 5 mm Allen key until secure.

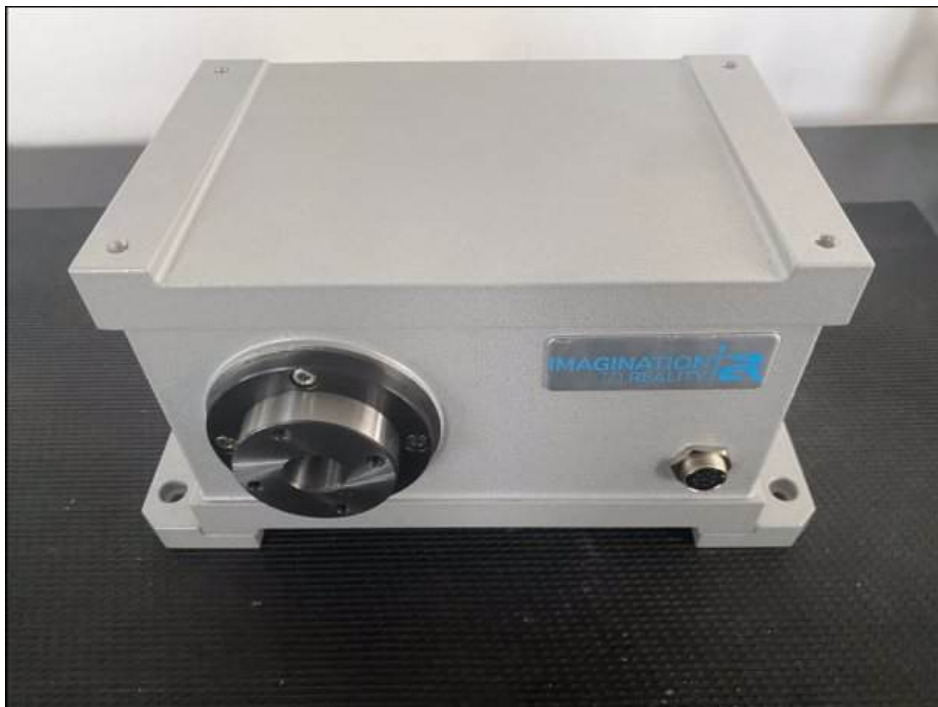
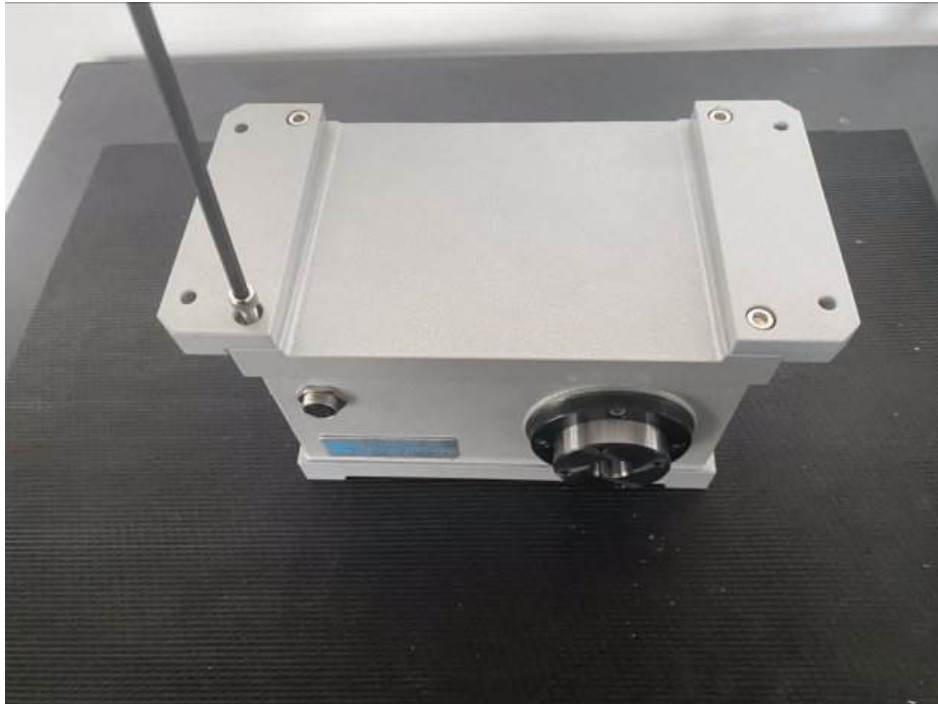




Step 2: Return the headstock to the upright position

Turn the headstock back to its normal orientation so the newly installed base plates face downward.

Confirm that the base plates sit flat and that all four fasteners are seated properly.



Step 3: Install the self-centering chuck arbor

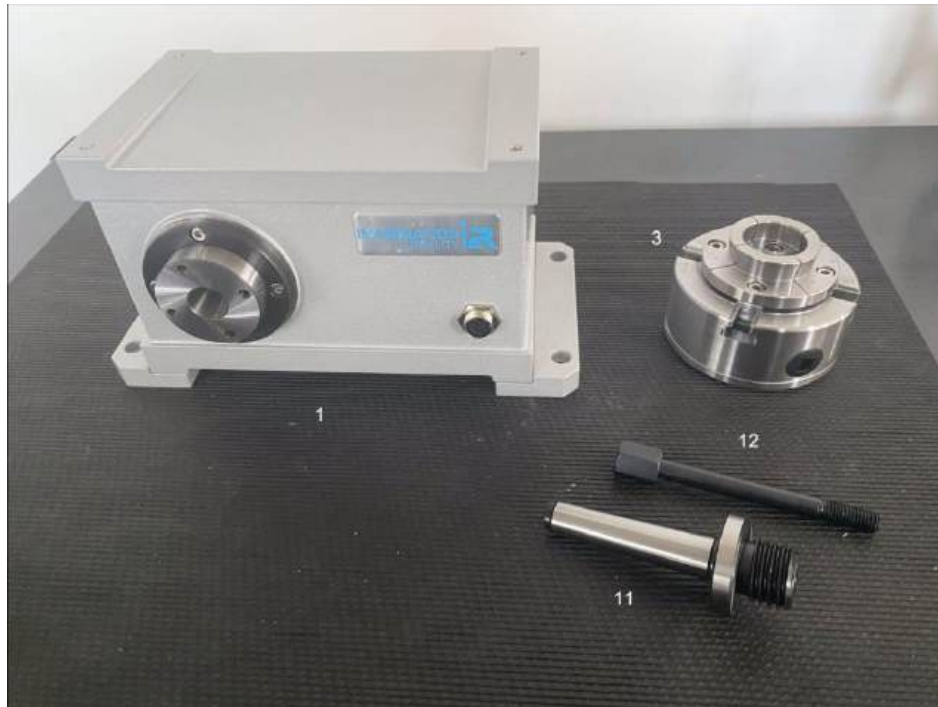
Insert the self-centering chuck arbor into the front slot of the rotary headstock.

Push the arbor fully into place and hand-tighten until it is seated securely.

From the rear of the headstock, insert the mounting arbor bolt into the back side of the arbor. Confirm the threaded end engages properly.

IMPORTANT

Do not cross-thread the arbor bolt. Start threads by hand and only tighten once alignment is confirmed.



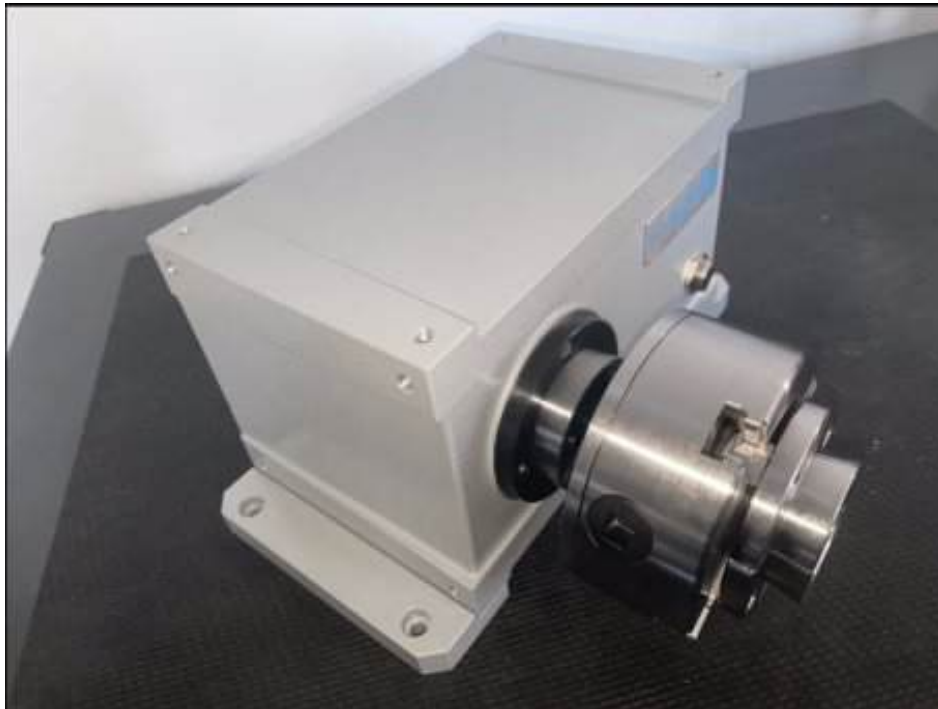


Step 4: Attach the 4-jaw chuck

Position the headstock so the front of the arbor faces you.

Align the threaded side of the 4-jaw chuck with the self-centering chuck arbor.

Thread the 4-jaw chuck onto the arbor by hand. Tighten until it is seated firmly against the arbor mount.

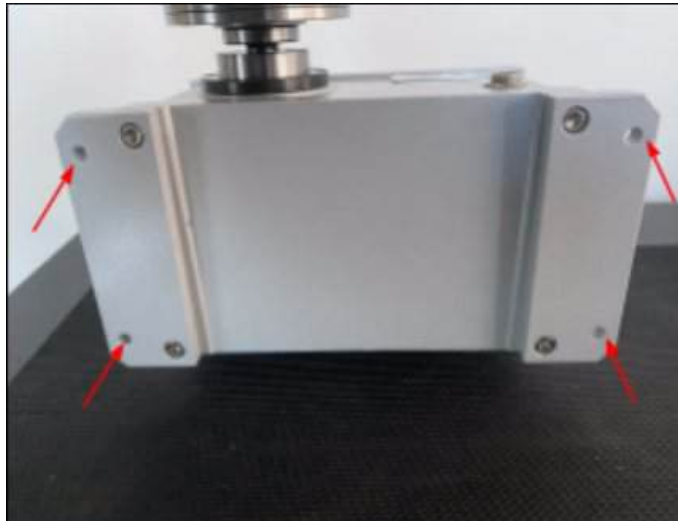


Step 5: Install the headstock T-slot mounting hardware

Insert four M6 x 20 screws into the base plate mounting holes on the headstock.

Install the M6 nuts onto the underside of the screws, but do not fully tighten them yet.

Leave enough clearance between the nuts and base plate so the assembly can slide into the T-slots on the CNC machine table.

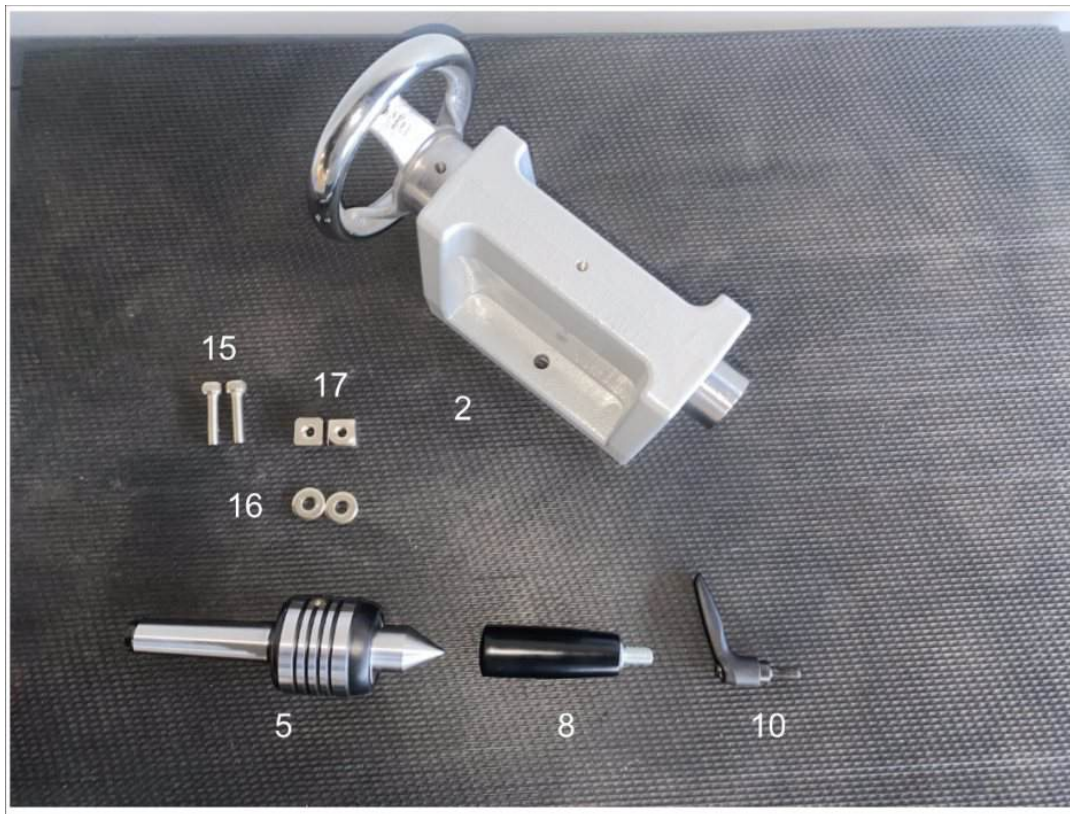


4. Tailstock Assembly

This section covers installing the live center, tailstock handle, clamping lever, and T-slot mounting hardware.

Required Components

- Tailstock
- Morse Taper Live Center
- Handwheel Tailstock Handle
- Handle Adjustable Clamping Lever
- 2 x M6 x 25 Screws
- 2 x M6 Washers
- 2 x M6 Nuts



Tailstock assembly components.

Step 6: Install the Morse taper live center

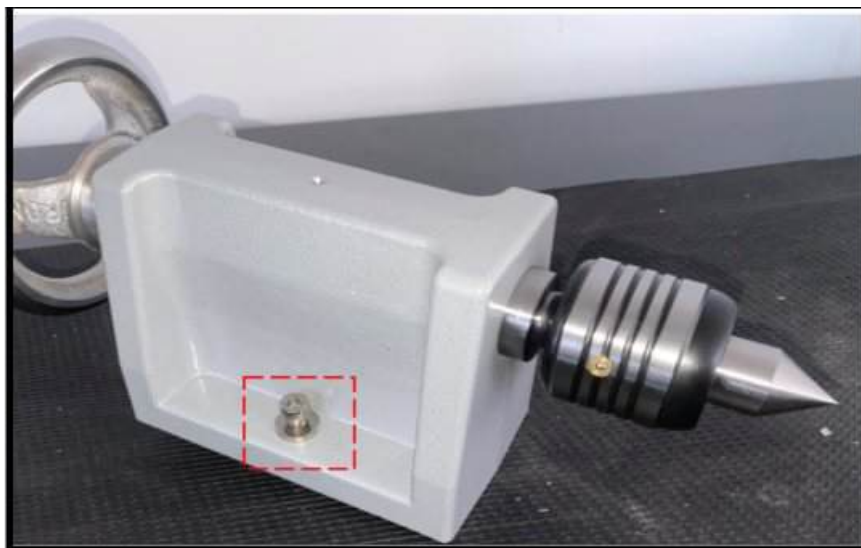
Align the Morse taper live center with the front opening of the tailstock.

Insert the live center into the tailstock and seat it firmly.

Install the two M6 x 25 screws through the tailstock base with one M6 washer on each screw.

Thread the M6 nuts onto the screws from below, but leave enough clearance so the nuts can slide into the machine table T-slots.





Step 7: Install the clamping lever

Insert the adjustable clamping lever into the top hole of the tailstock.

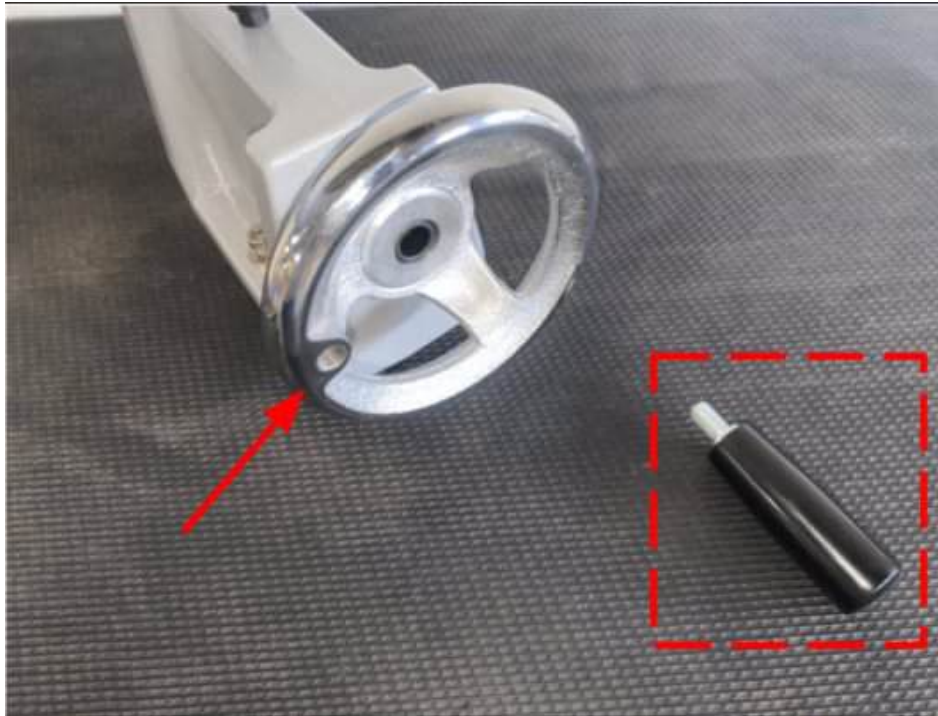
Thread the lever into place by hand until it is seated. Do not overtighten.



Step 8: Install the handwheel handle

Insert the handwheel handle into the threaded hole on the handwheel.

Rotate the handle until the threaded portion is fully engaged and the handle is secure.



5. Mounting the Rotary Kit to the CNC Machine

POWER OFF FIRST

Before connecting the rotary cable to the machine or control box, power off and unplug the CNC machine.

Step 9: Prepare the machine table

Remove the MDF strips on the left side of the machine table so the rotary can fit into the open T-slot area.

Clear chips, dust, and debris from the T-slots before sliding the rotary hardware into place.

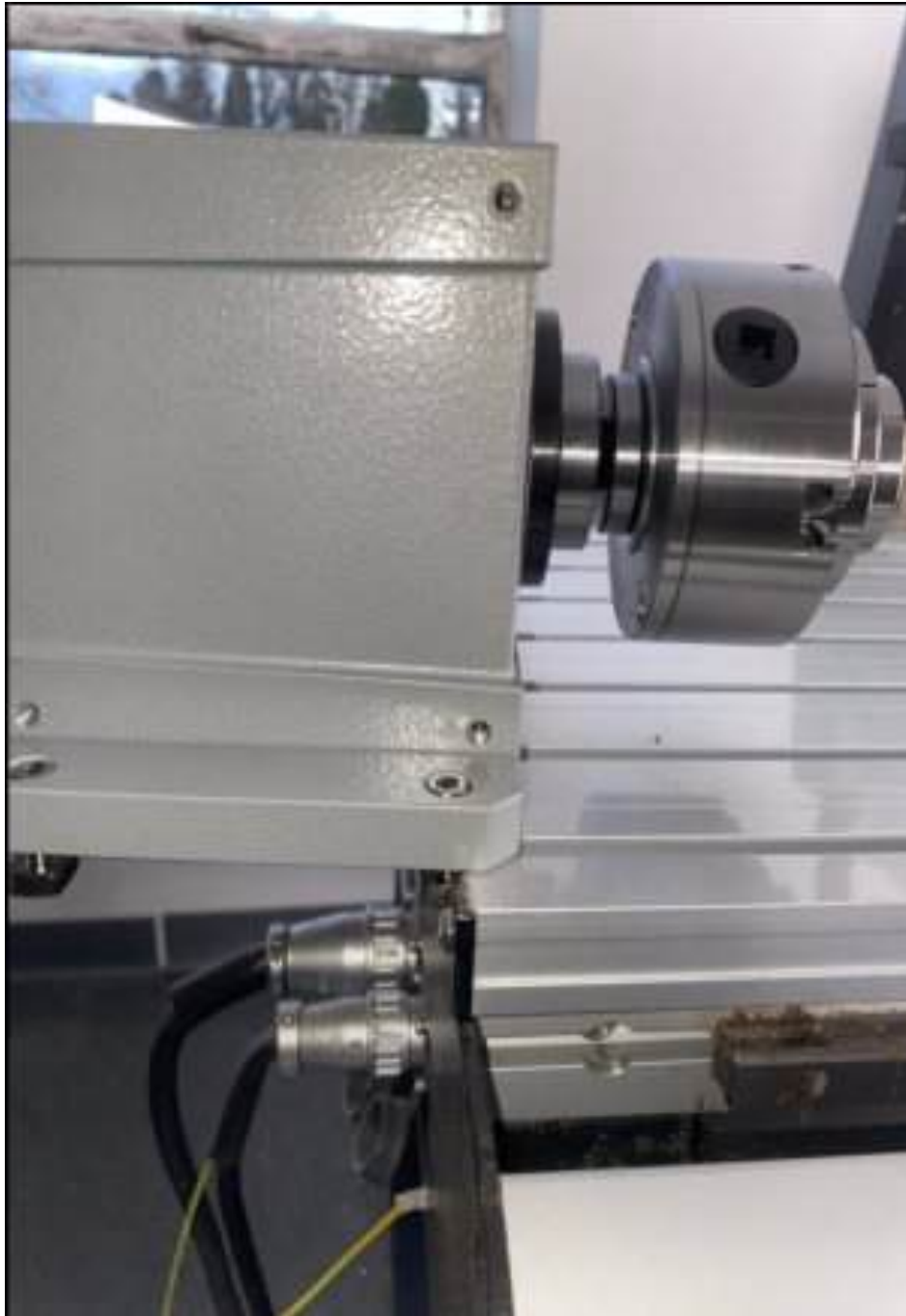


Step 10: Slide the headstock into the T-slots

Confirm the mounting nuts under the headstock have enough clearance to slide into the T-slots.

Slide the rotary headstock along the machine rails until it reaches the desired position for the job size.

To check alignment, slowly jog the spindle along the Y-axis beside the rotary kit and compare the spindle/tool position to the rotary centerline.





Step 11: Secure the headstock and connect the cable

Once the headstock is positioned and aligned, tighten the mounting screws using a 5 mm Allen key.

The headstock must be fully secured to the machine table and should not shift or move.

Insert the 8-pin Phoenix contact cable into the connector on the front of the rotary headstock.

Connect the other end of the cable to the matching 8-pin connection on the control box.

IMPORTANT

Never connect or disconnect the rotary cable while the machine is powered on.





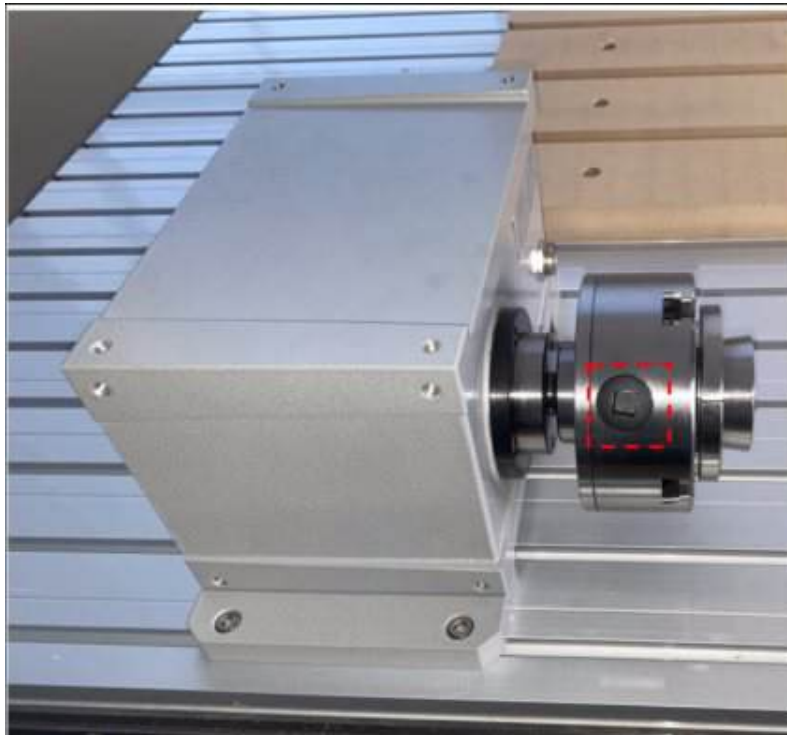
6. Loading Stock Material

Step 12: Open the 4-jaw chuck

Use the supplied T-handle hex key to open and close the chuck.

Insert the T-handle hex key into the slot on the 4-jaw chuck.

Rotate counterclockwise to open the jaws until there is enough space to insert the project material.





Step 13: Secure the stock in the chuck

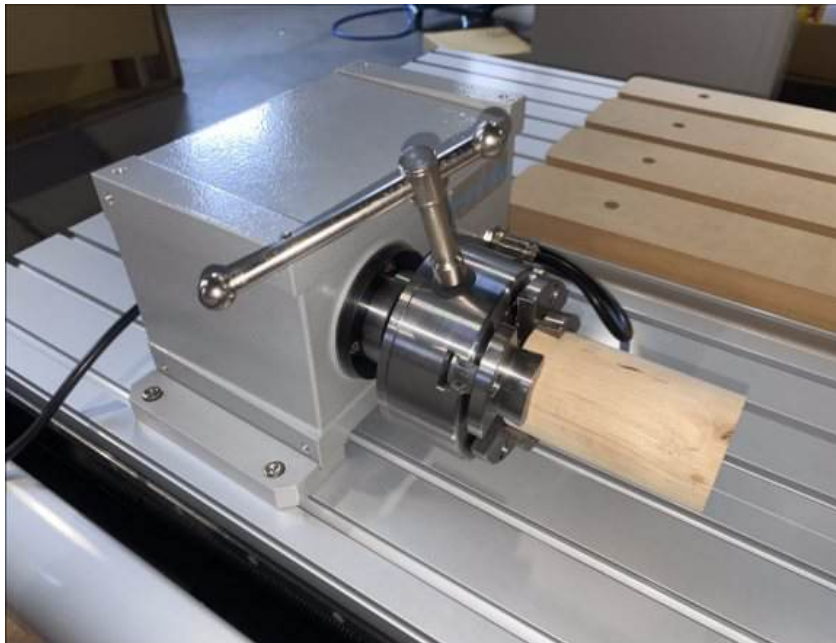
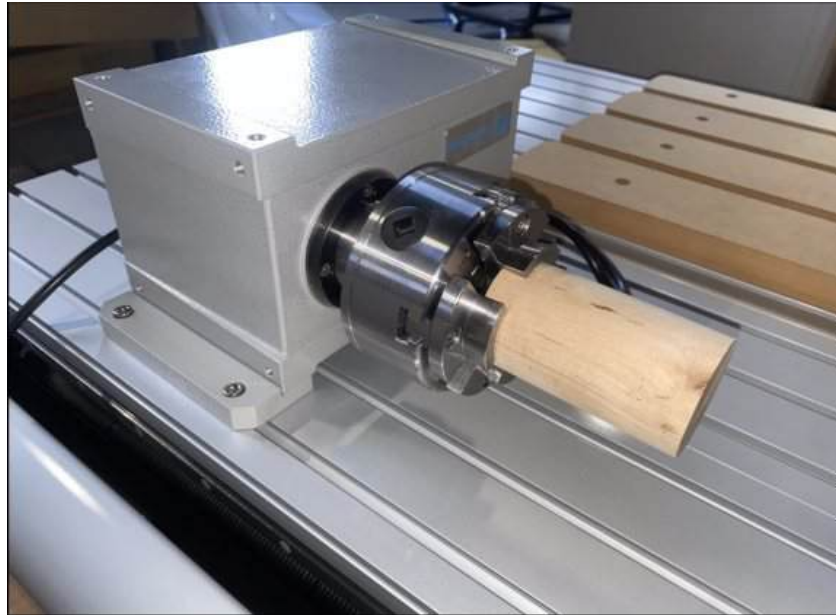
Set all jaws to an equal distance from the outer edge before inserting the stock material.

Insert the stock into the chuck.

Use the T-handle hex key to tighten the jaws until the stock is securely held.

IMPORTANT

The material must be centered and held securely. If the stock can move by hand, it is not safe to machine.



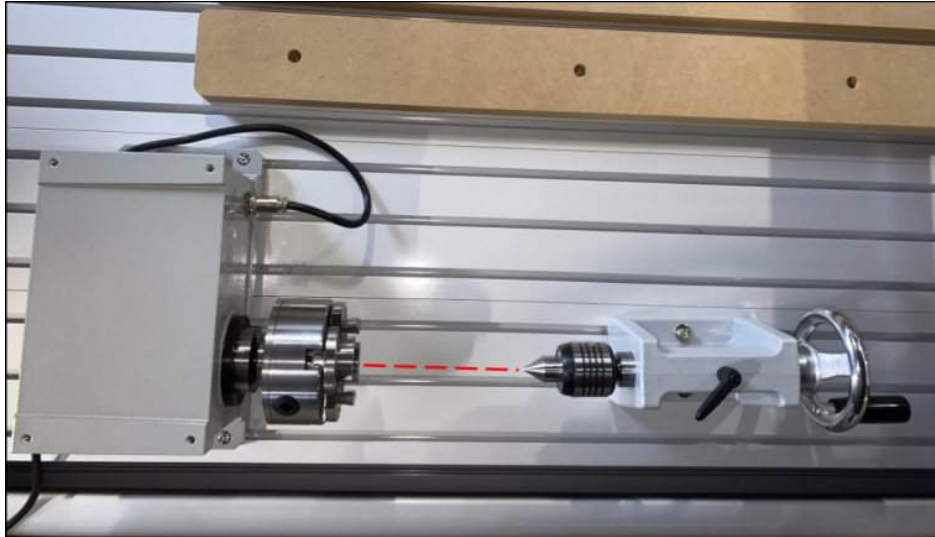
Step 14: Install and align the tailstock

Place the tailstock into the same T-slot used by the headstock.

Align the Morse taper live center with the center of the 4-jaw chuck.

Slide the tailstock into position for the length of your stock material.

Tighten the tailstock mounting screws once alignment is confirmed.



Step 15: Support the stock with the live center

Find and mark the center point on the end of the stock material.

Move the tailstock until the live center is pressing against the marked center point.

Rotate the tailstock handwheel until the live center pierces and supports the stock material.

Confirm that the stock is secure and properly aligned before beginning machining.



7. Final Assembly Setup Checklist

- ☐ Machine is powered off before cable connections are made.
- ☐ Headstock base plates are secured.
- ☐ 4-jaw chuck is fully seated on the arbor.
- ☐ Headstock is tightened to the machine T-slot table.
- ☐ Tailstock is aligned to the rotary centerline.
- ☐ Stock material is centered and securely clamped.
- ☐ Live center is supporting the stock without excessive pressure.
- ☐ Rotary cable is connected securely at both ends.
- ☐ No tools or loose items are left on the machine bed.
- ☐ Operator has confirmed controller/software settings before machining.

8. Enabling the 4th Axis on an iCNC Controller

This section explains how to enable the 4th axis (A-axis) configuration on an iCNC machine controller. Follow each step carefully so the controller parameters are saved and applied properly.

CONTROLLER PARAMETER CHANGE

This procedure changes controller settings. Complete the physical rotary installation before enabling the A-axis, and confirm the machine is clear of tools, material, and obstructions before testing movement. Before changing controller parameters, take a clear photo of the existing parameter screen or write down the original value. Incorrect parameter changes can affect machine operation.

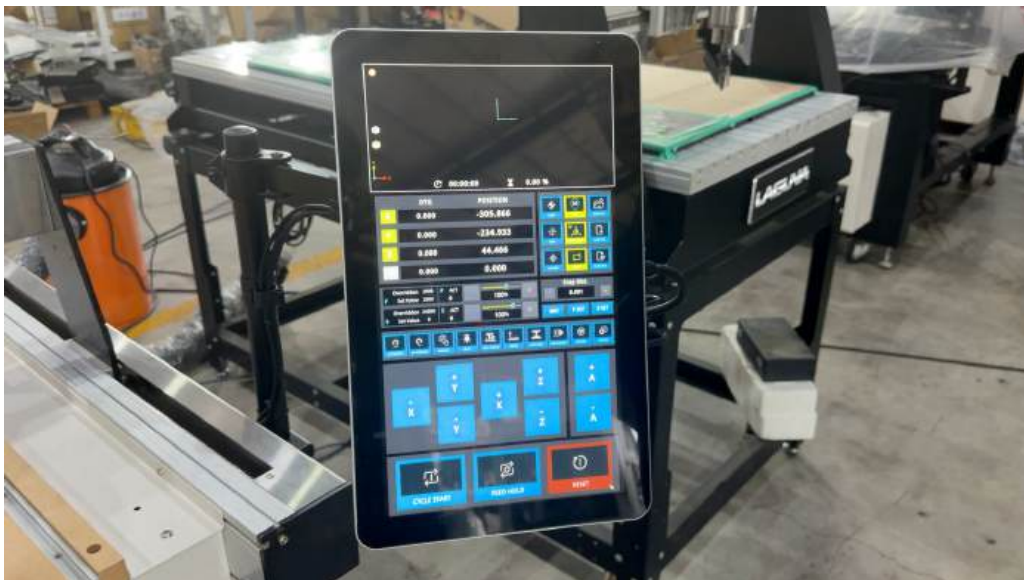
Before You Begin

- The rotary kit should be physically installed and secured on the machine table.
- The 8-pin rotary cable should be connected only when the machine is powered off.
- The CNC machine should be powered on and fully booted before starting the controller steps.
- You will need access to the Account and Advanced settings screens.
- The controller must be rebooted after the parameter change is saved.

Step-by-Step Instructions

Step 1: Power on the CNC machine

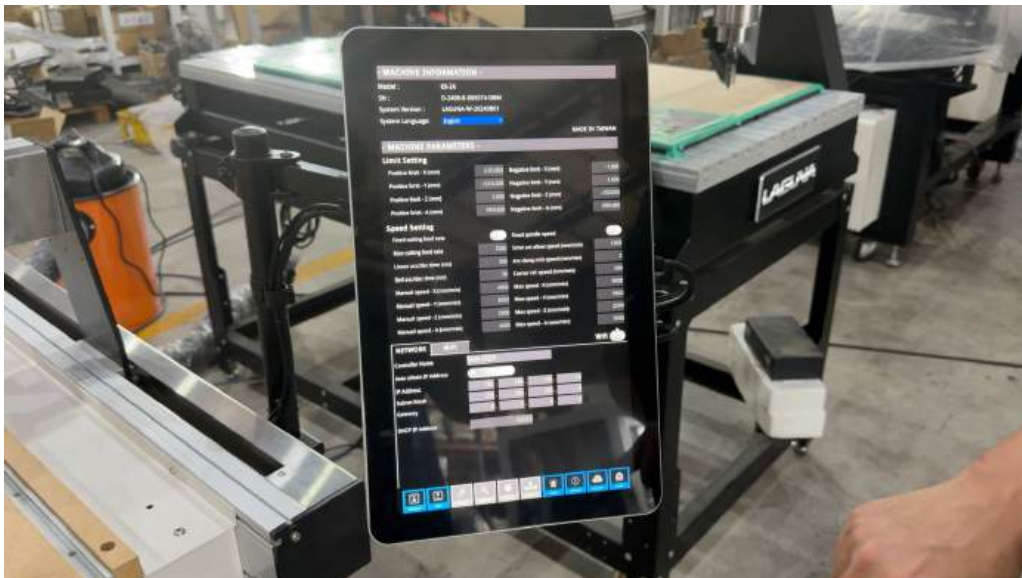
Turn on the CNC machine and wait for the iCNC controller interface to fully load.



Allow the main iCNC screen to finish loading before changing settings.

Step 2: Open the Settings menu

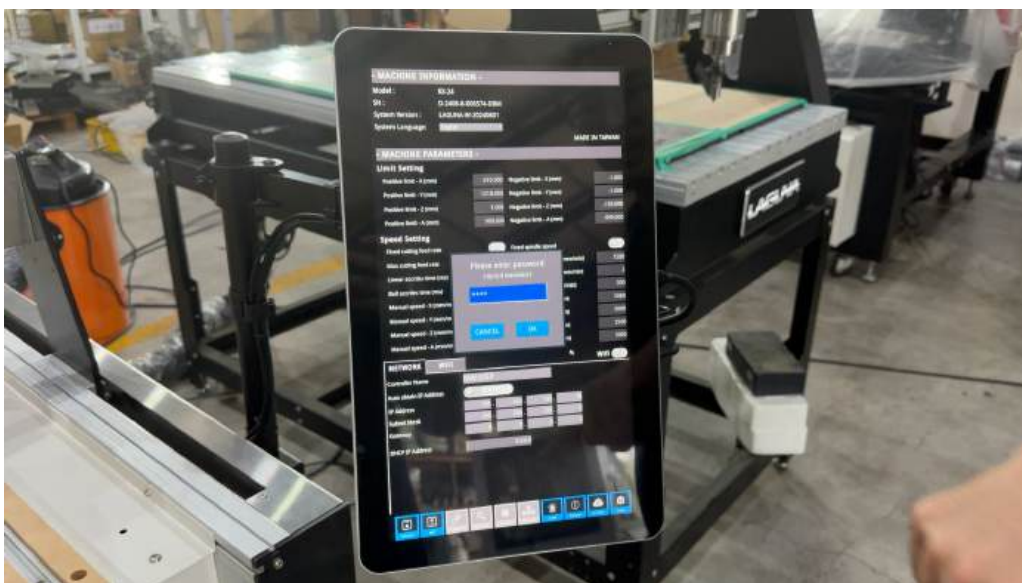
From the main screen, select the Settings menu.



Open the Settings menu from the main controller screen.

Step 3: Access Account Settings

Select the Account button on the bottom row of the screen. When prompted, enter password 2222 to gain access.



Enter the Account settings password when prompted.

Step 4: Enter Advanced Settings

Select the Advanced button. When prompted for the advanced password, enter 168888.



Open Advanced settings using the advanced password.

Step 5: Return to Axis Parameters

Press the Previous Page button three (3) times. The controller should return to the system screen where the axis parameters are displayed.



Return to the screen displaying the axis parameter list.

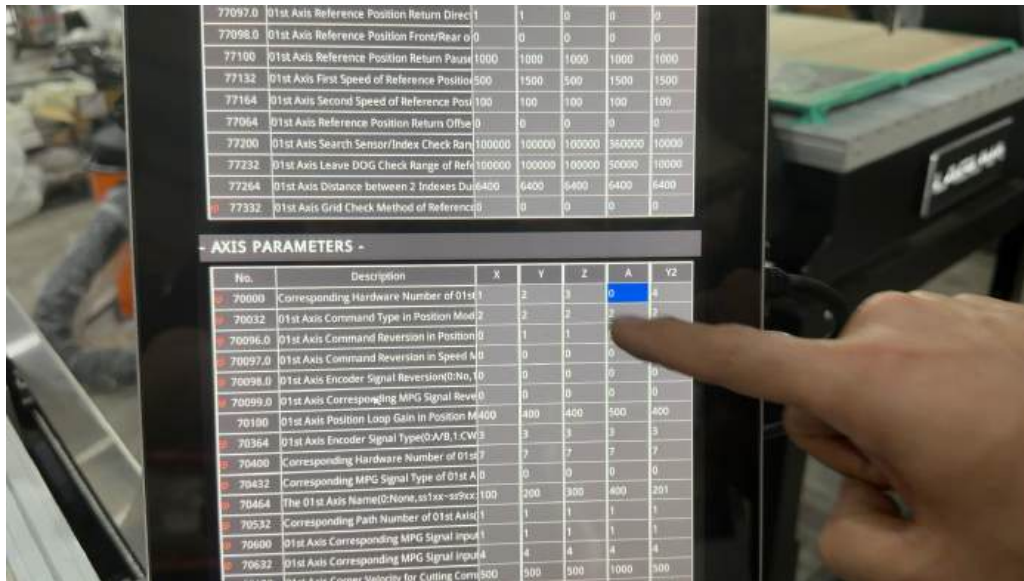
Step 6: Modify the A-axis parameter

Locate parameter row 70000 in the Axis Parameters list.

Find the field corresponding to the A-axis in that row and change the value to 5.

IMPORTANT

Confirm that you are editing row 70000 and the A-axis column before saving the value.



Set the A-axis value in row 70000 to 5.

Step 7: Reboot the controller

Navigate to Virtual OP and press Reset twice.

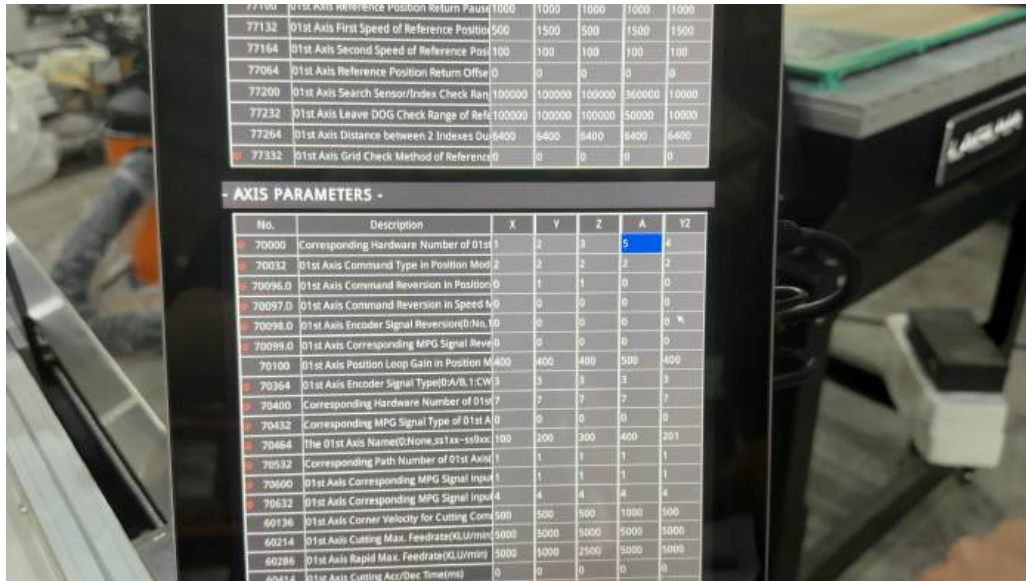
Power off the CNC machine completely.

Wait at least 10 seconds to allow the capacitors to discharge fully.

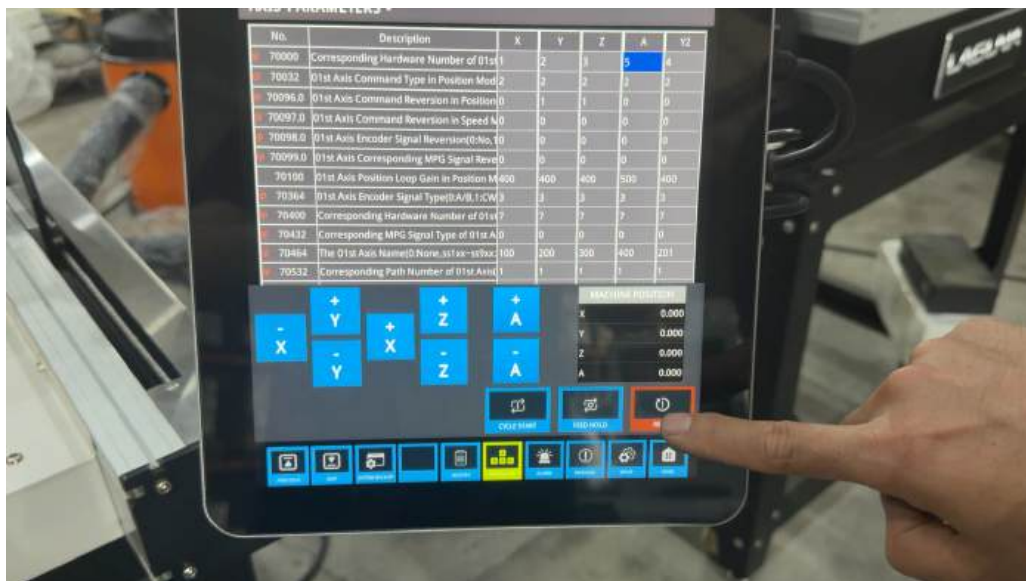
Turn the machine back on and allow the iCNC controller to reboot.

IMPORTANT

Do not skip the reboot. The A-axis configuration may not become active until the controller has fully restarted.



Confirm the parameter is changed before rebooting.



Use Virtual OP to reset, then power cycle the machine.

Step 8: Verify the 4th axis is active

After the controller restarts, confirm that the A-axis jog controls are visible and active on the main screen.

Test movement carefully before running a rotary toolpath.



Power the machine back on after waiting at least 10 seconds.



Confirm the A-axis controls are visible and ready for use.

Final iCNC Controller Verification Checklist

- ☐ A-axis value in row 70000 was changed to 5.
- ☐ The controller was reset through Virtual OP.
- ☐ The machine was powered off for at least 10 seconds and restarted.
- ☐ A-axis controls are visible on the iCNC screen.
- ☐ Rotary cable is fully seated at both ends.
- ☐ Rotary movement has been tested slowly before machining.

9. Support Information

For assistance with setup, controller configuration, software, tooling, or troubleshooting, contact Simply Technologies support.

Website: www.simplytechnologies.xyz/support

YouTube: www.youtube.com/@Simply.Technologies

Email: jeremy@simplytechnologies.xyz

Phone: 1-800-288-2961