ACMER



ASCARVA 4 S

Manual V1.3

Shenzhen Titan International Development Technology Co., Ltd.

Thank you for choosing our product and placing your trust in our brand. We are committed to offering top-tier quality products and unparalleled customer service. Your support is invaluable to us.

To ensure you get the most out of your product, we offer a range of support solutions:

Your ACMER machine arrives with an in-depth manual, but we also understand the value of visual learning. Scan the QR code below to access video and document tutorials tailored to your specific machine model. Stay connected with ACMER for expert guidance:

For ongoing updates and insights, don't hesitate to engage with us directly or follow our social media channels. Stay informed about the latest news, expert advice, and engaging events.

For personalized assistance, our after-sales service team is just an email away. Reach out to us at support@acmerlaser.com for any queries or concerns you may have.

We're here to help you make the most of your ACMER experience. Thank you again for your trust and support.

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1. Safety Guidelines

Handle your CNC machine with caution. This equipment contains moving parts and hazardous areas.

1.Indoor Use Only – This CNC machine is designed for indoor operation only.

2.Age Requirement – Operators must be 18 years or older unless supervised by an adult familiar with the machine.

3.PPE Requirement – Always wear appropriate personal protec tive equipment (e.g., safety goggles).

4.Stable Surface – Place the CNC machine on a solid, level surface at all times.

5.Power Supply – The machine requires either 230VAC or 115VAC input. Using incompatible power sources may cause malfunctions or damage.

6.Direct Power Connection – The ASCARVA 4 S uses a high-power supply. Avoid connecting it to extension cords or power strips to prevent damage.

7.Emergency Stop – Ensure the emergency stop button is always accessible during operation.

8.No Tampering – Do not disassemble power or electrical components. Doing so voids the warranty.

9.Moving Parts Hazard – Never touch the spindle or place body parts near the work area while the machine is running. Severe injury may occur.

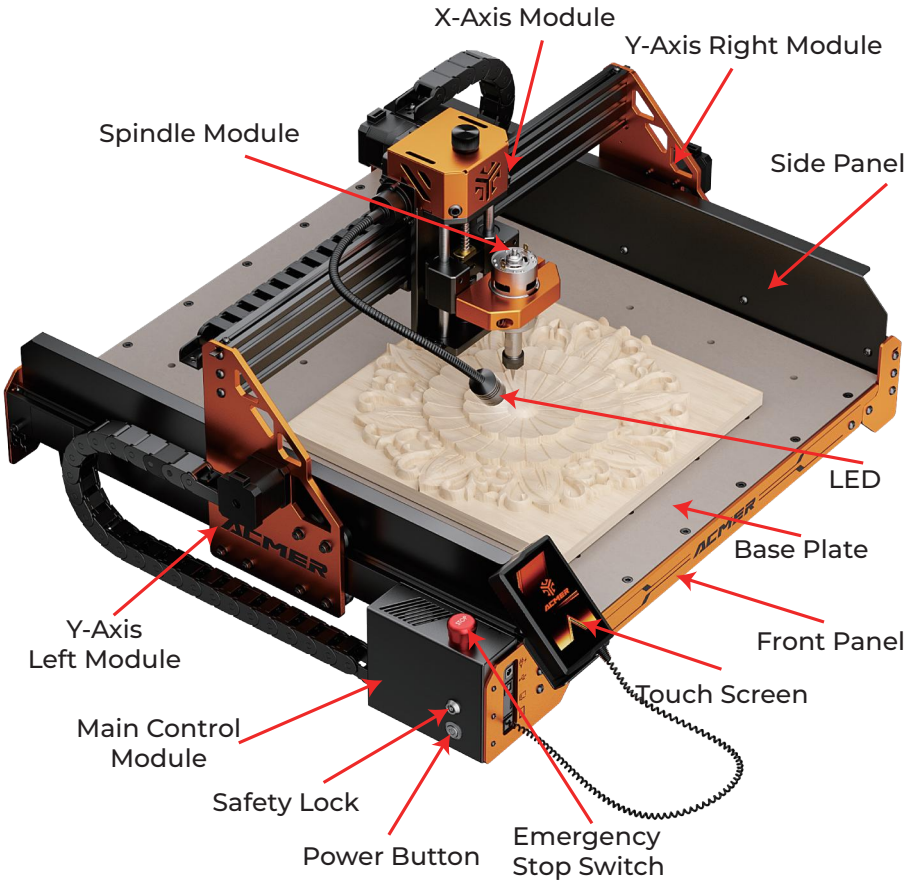
10.Child Safety – Children must not operate or approach the CNC machine unsupervised—even when powered off.

11.Operator Presence – Never leave the machine unattended during operation.

12.Ventilation - Operate the CNC in a well-ventilated area. Some materials may generate dust during processing.

13.Spindle Check – Verify that the spindle is correctly and securely installed before starting work.

1. Machine Overview Key Components



2. Parts List

1 Extrusion Profile 1 570mm 1 PCS



2 Extrusion Profile 2 1 PCS



3 Extrusion Profile 3 560mm 1 PCS



4 Extrusion Profile 4 560mm 2 PCS



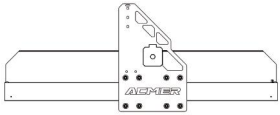
5 Base Plate 2 PCS



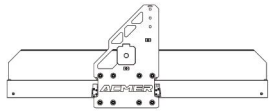
6 Baffle Plate 1 PCS



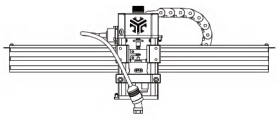
7 Y-Axis Module (Left) 1 PCS



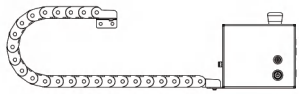
8 Y-Axis Module (Right) 1 PCS



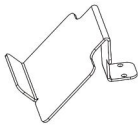
9 X-Axis Module 1 PCS



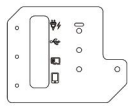
10 Control Box Module 1 PCS



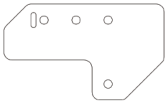
11 Display Mounting Bracket 1 PCS



12 Control Box Mounting Plate 1 PCS



13 Control Box Connection Plate 3 PCS



14 Screw Kit 1 PCS



15 Tool Kit 1 PCS



16 Tool Setting Probe 1 PCS



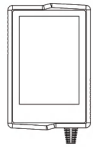
17 Tool Holder Kit 1 PCS



18 Consumables 2 PCS



19 Touchscreen Display 1 PCS



20 Power Adapter 1 PCS



21 Power Cable 1 PCS



22 Steel Ruler 1 PCS



23 Cleaning Brush 1 PCS



24 Data cable 1 PCS



25 User Manual 1 PCS



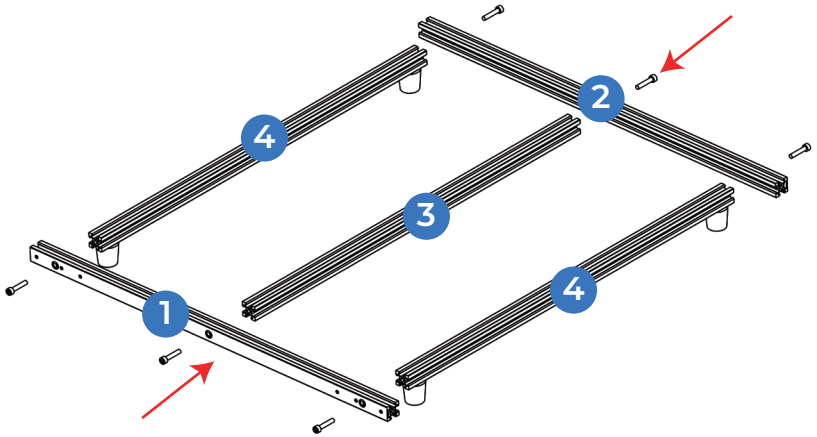
3. Machine Specifications

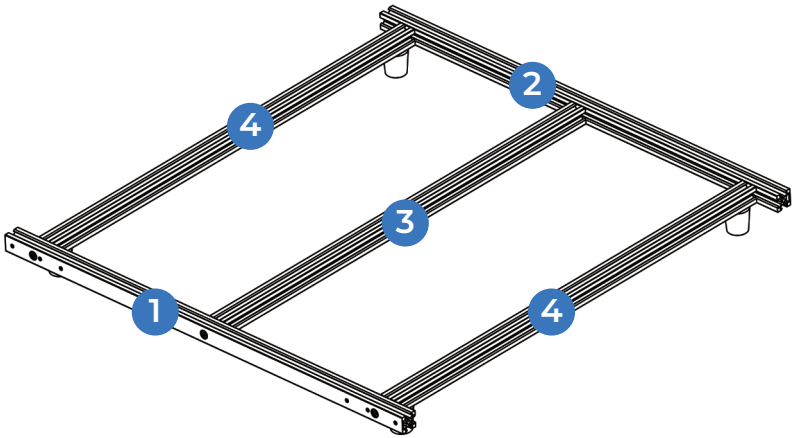
Parameter	Specification
Working Area	400×400×80mm (15.7×15.7×3.15 inches)
Tool Diameter Support	0.5mm to 7mm (ER11 Collet)
Compatible Materials	Plywood/MDF/Solid Wood/Acrylic/Carbon Fiber/Copper
Net Weight	14.75 kg
Shipping Weight	17.7 kg
Package Dimensions	680×470×340mm
Positioning Accuracy	±0.1mm
Spindle Motor	24V DC, 8,000 RPM
Max Travel Speed	5,000 mm/min
Touchscreen	3.5-inch touch screen
Tool Setting Probe	Supported
File Formats	.nc, .Gcode
CAM Software	ArtCAM, Fusion 360, EASEL, Carveco Maker
Control Software	UGS, Candle
OS Compatibility	Windows/macOS/Linux
Software Languages	EN/CN/ES/DE/FR/RU/PT/IT/JP/KO/TR
Firmware	GRBL open-source (CNC & Laser modes)
Power Supply	24V 4A 96W
Operating Environment	Temperature: 0-40°C, Humidity: 20-60% RH
Connection	USB Cable
Emergency Stop	Included

4. Installation Steps

1. Base Frame Assembly

(1) Take out Profile 1, Profile 2, and Profile 3. Profile 4.
(2) As shown in the diagram, connect the profiles using M5-25 screws (note that the profiles with foot pads should be on both sides).





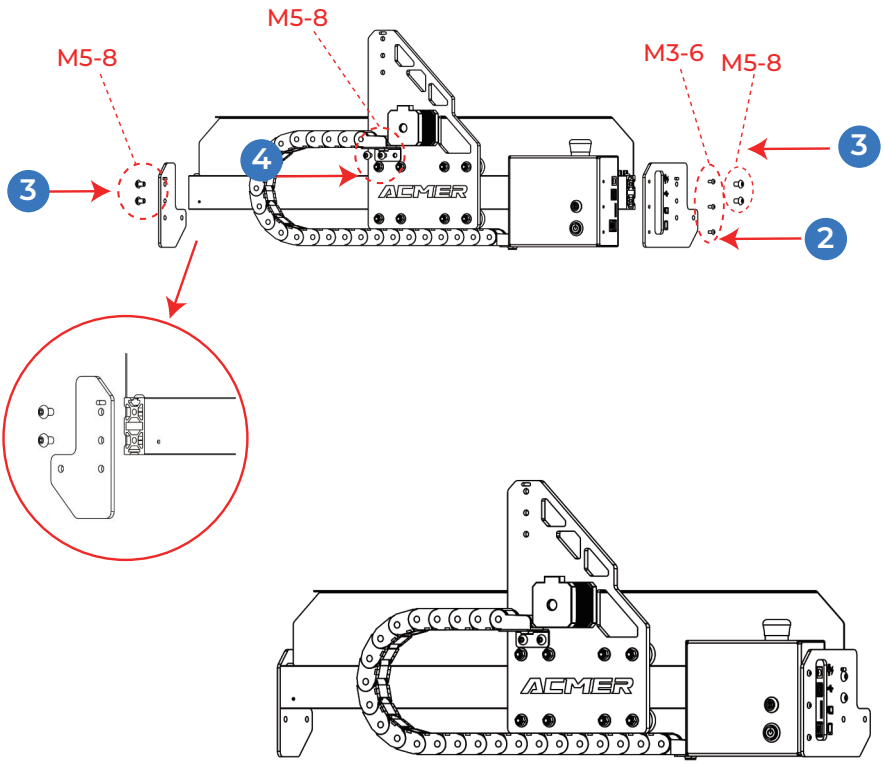
2. Left Y-Axis Module Installation

(1) Take out the Left Y-Axis Module, Main Control Module, one Control Box Mounting Plate, and one Profile Connection Plate.

(2) As shown in the diagram, connect the Main Control Module and the Control Box Mounting Plate using M3-6 screws (ensure the holes are aligned).

(3) As shown in the diagram, connect the Left Y-Axis Module and the Control Box Mounting Plate using M5-8 screws (ensure the holes are aligned).

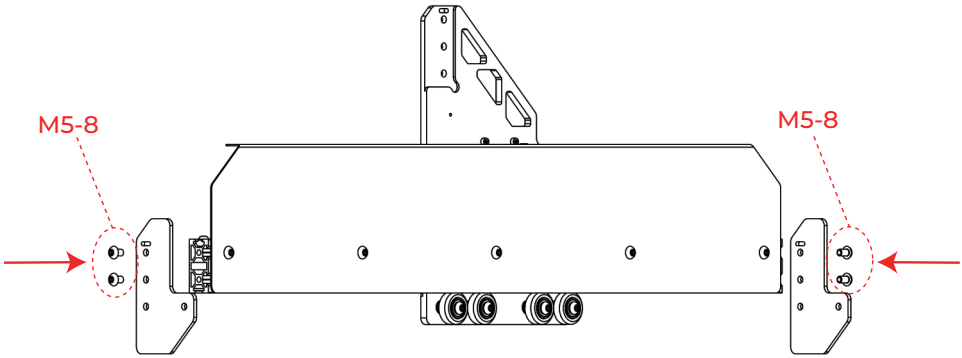
(4) As shown in the diagram, connect the Left Y-Axis Module and the Drag Chain Plate using M5-8 screws (ensure the holes are aligned).

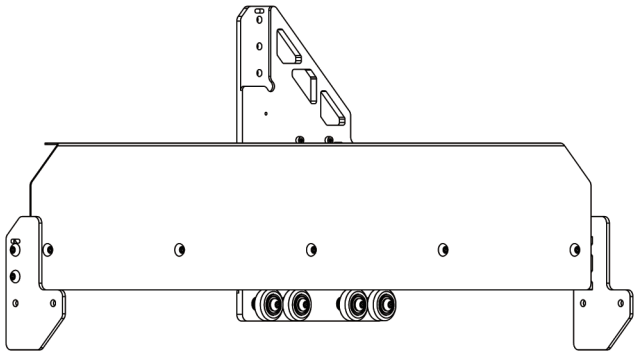


3. Installation of the Y-axis right module connecting plate

(1) Take out the Y-axis right module and the profile connecting plate 2PCS

(2) As shown in the figure, use M5-8 screws to connect the Y-axis right module and the profile connecting plate (pay attention to align the holes)

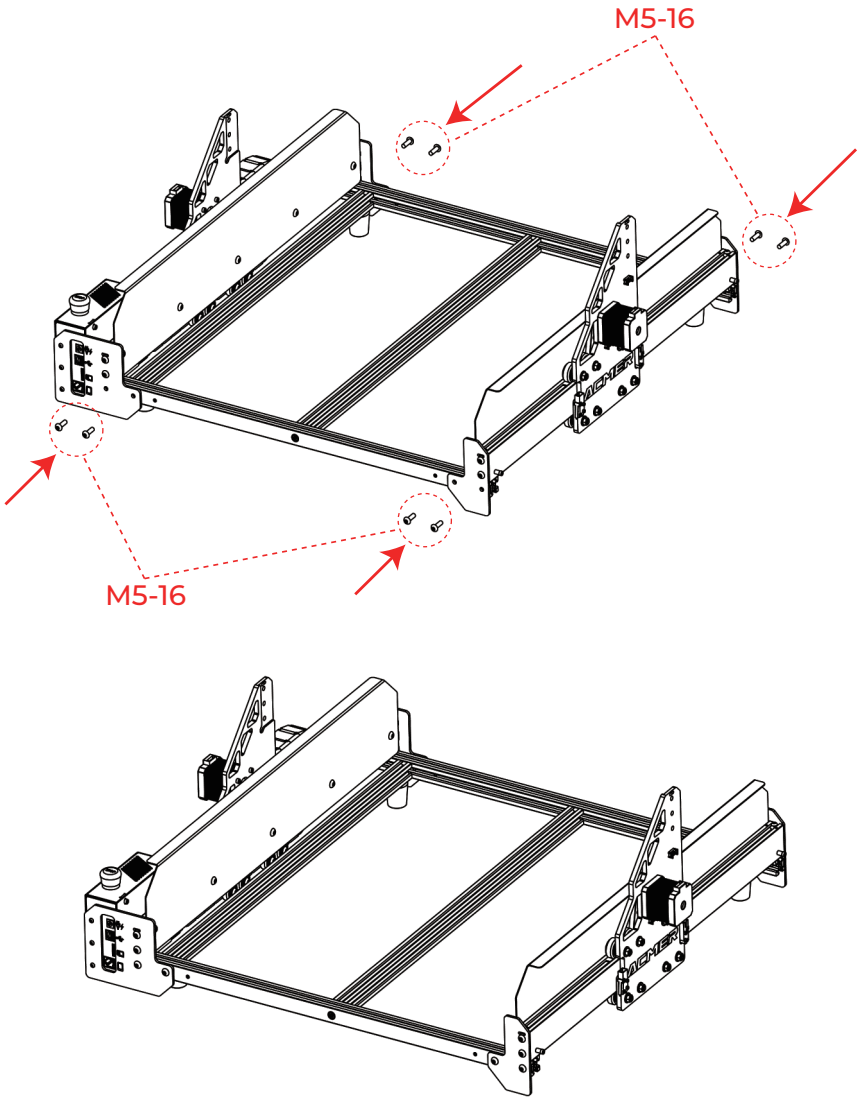




4. Y-axis and frame installation

(1) Take out the left and right Y-axis modules

(2) Connect the Y-axis module and the profile frame with M5-16 screws as shown in the figure (note to align the holes)



5.X-axis installation

(1) Install the isolation column to the profile with M3-12 screws

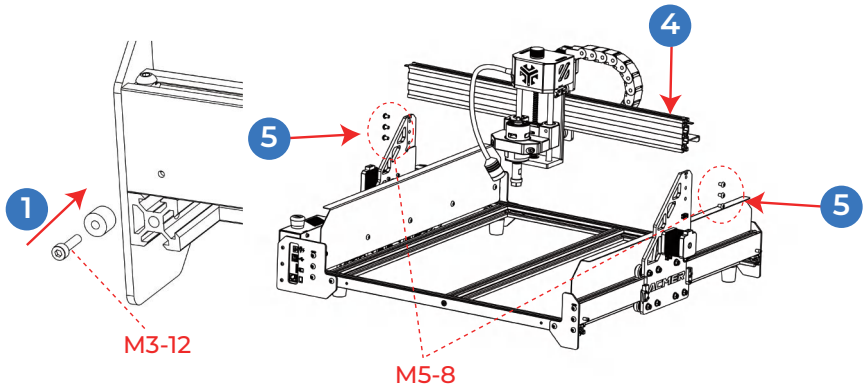
(2) take out the X-axis module

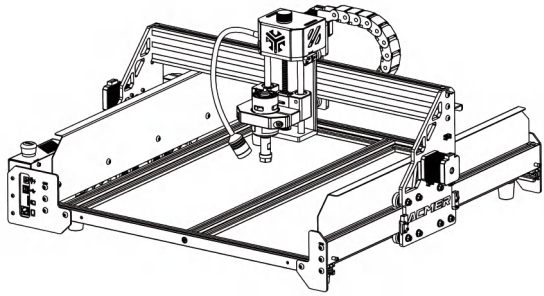
(3) Move the left and right Y-axis baffles to the rear end of the frame

(4) Place the X-axis module in the middle of the Y-axis module

(5) Connect the X-axis module and the Y-axis module with M5-8 screws as shown in the figure (note to align the holes)

(6) Remove the isolation column



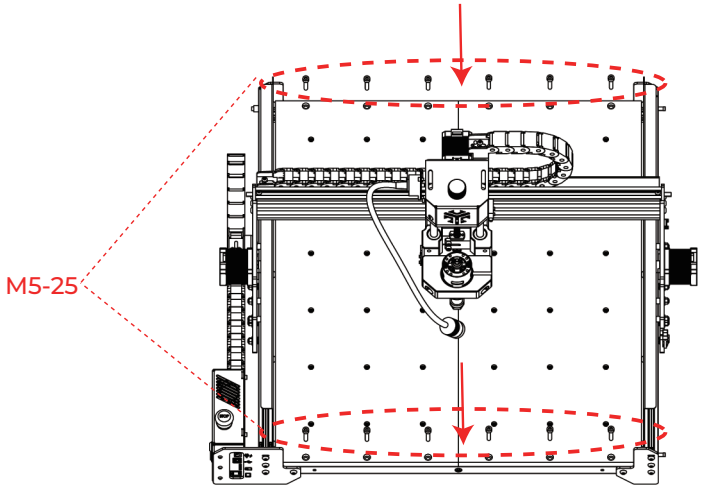


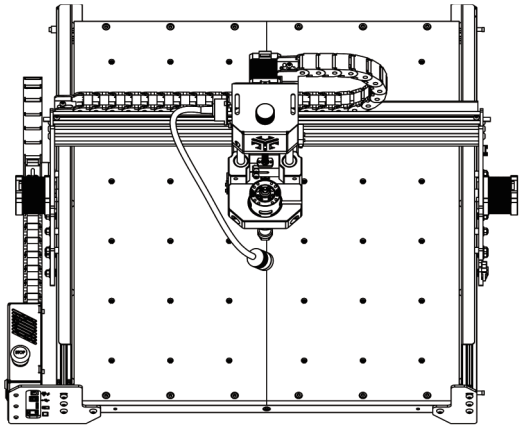
6. Installation of the base plate

(1) Take out 2 base plates

(2) Align the base plates on the frame

(3) Connect the base plate and the bottom frame with M5-25 screws as shown in the figure (note the alignment of the holes)



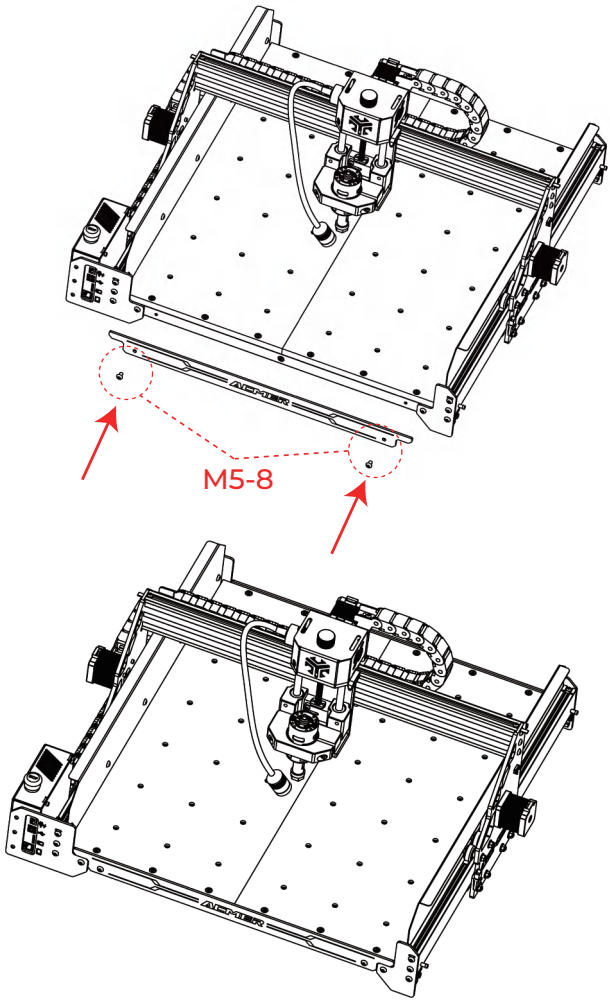


7. Install the baffle.

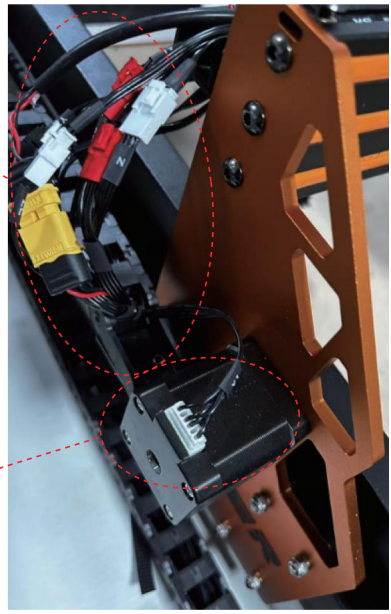
(1) Take out the baffle.

(2) Place the baffle in front of the frame.

(3) Use M5-8 screws to install the baffle in front of the frame (with the side that has the logo facing outward).



1. Main axis docking terminal
2. LED line docking terminal
3. Y2 motor line docking terminal
4. Y limit switch line docking terminal
5. X motor line docking terminal
6. X limit switch line docking terminal
7. Z motor line docking terminal
8. Z limit switch line docking terminal





1.Y2 motor line
2.Y limit switch line

8. Terminal Connections

(1) Dock the limit switch wire terminals of XYZ respectively

(2) Dock the motor wire terminals of XYZ respectively

(3) Dock the LED wire terminals

(4) Dock the spindle axis terminals

(5) Connect the Y1 motor wire terminal to the left Y motor

(6) Connect the Y2 motor wire terminal to the right Y motor

(7) Connect the Y limit switch wire terminal to the Y limit switch



1 X limit switch wire



2 X motor wire



1 Y limit switch wire



2 Y2 motor wire



1 Z limit switch wire



2 Z motor wire



3 LED wire



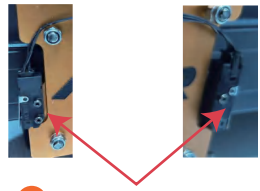
4 Spindle axis



5 Y1 motor wire



6 Y2 motor wire

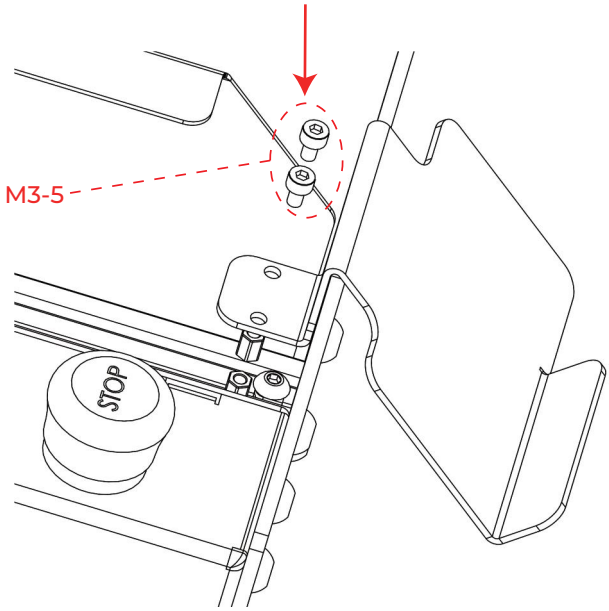


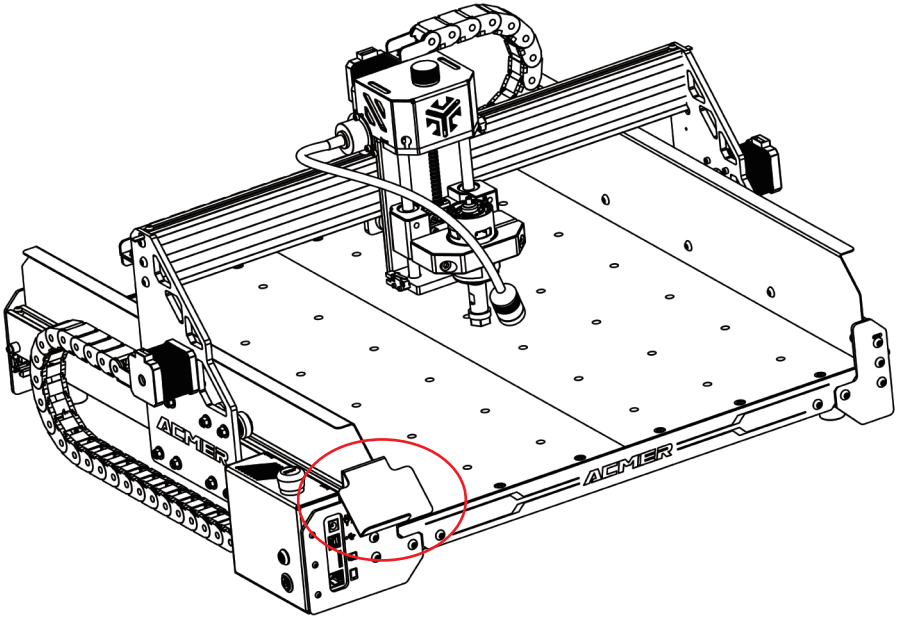
7 Y limit switch wire

9. Install the screen bracket

(1) Take out the screen bracket

(2) Connect the screen bracket and the Y-axis profile with M3-5 screws as shown in the figure (pay attention to align the holes)



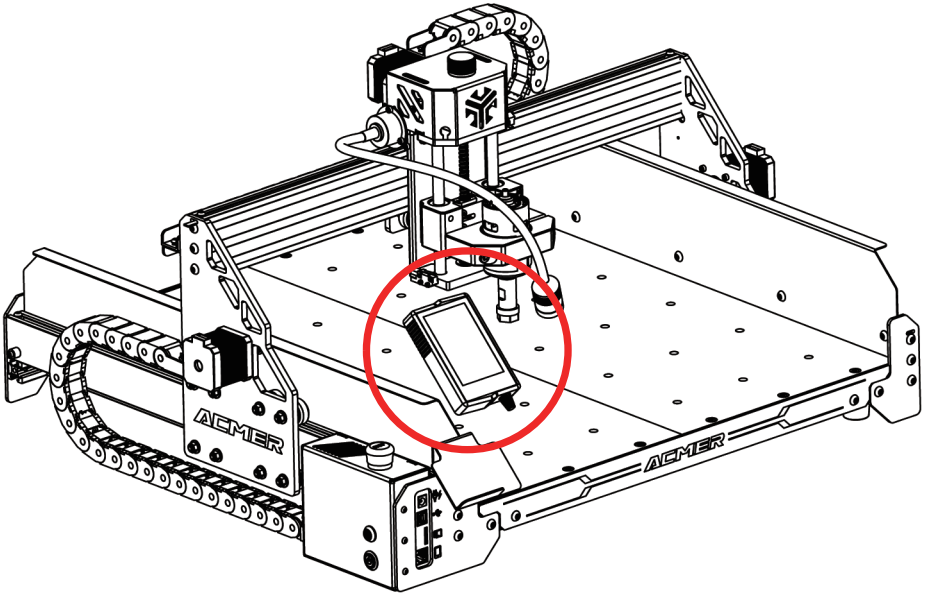


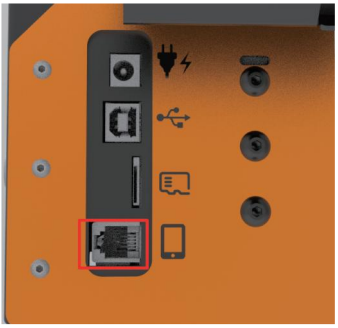
10. Install the screen

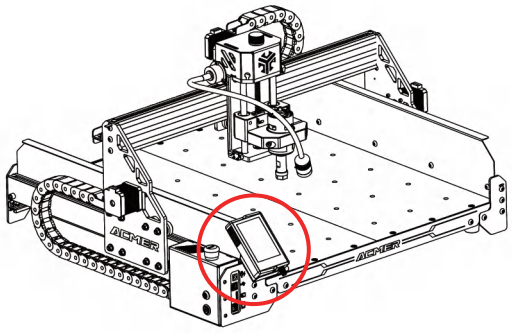
(1) Take out the screen

(2) Place the screen on the screen bracket

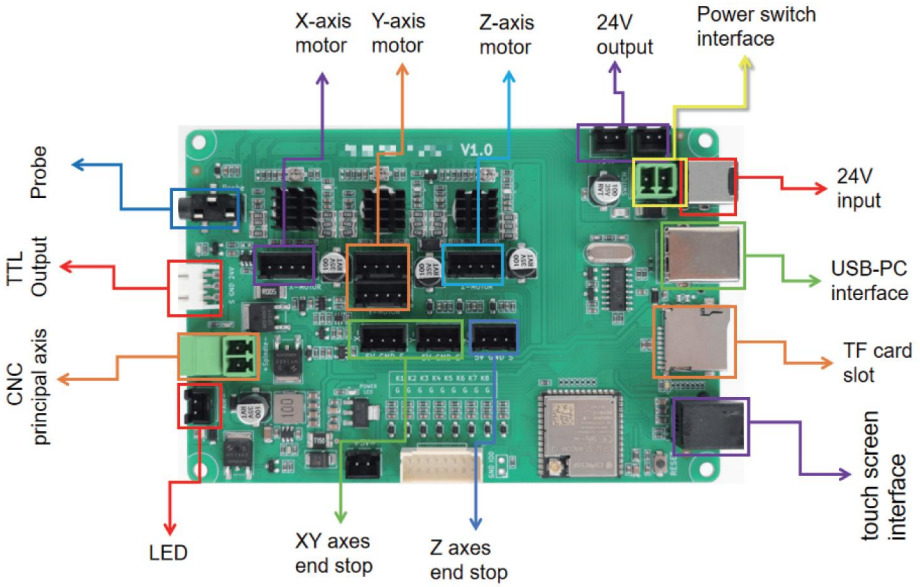
(3) Insert the screen cable terminal into the corresponding interface of the host box.





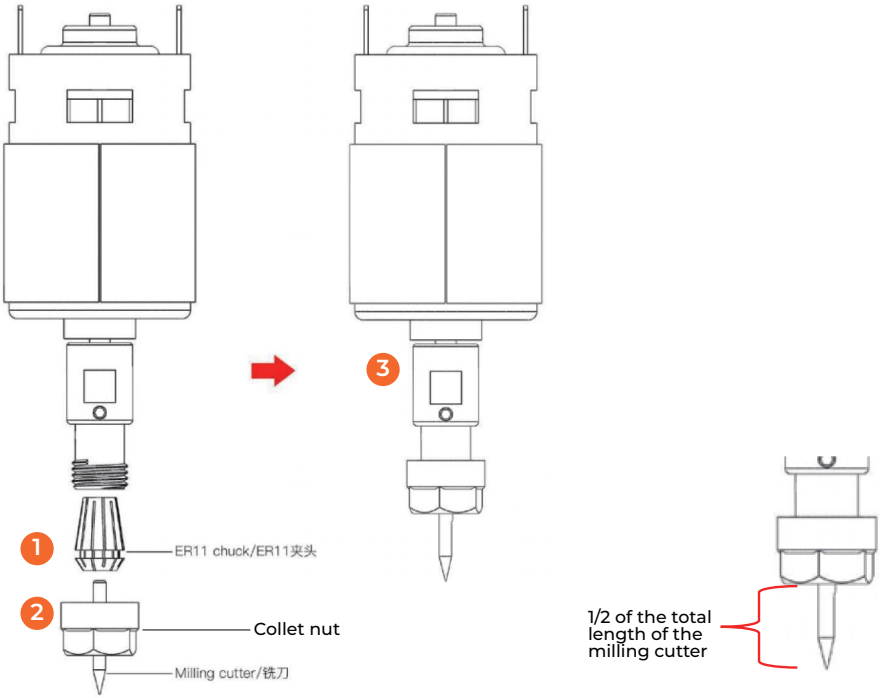


5.Motherboard Description



6. Installation of milling cutter

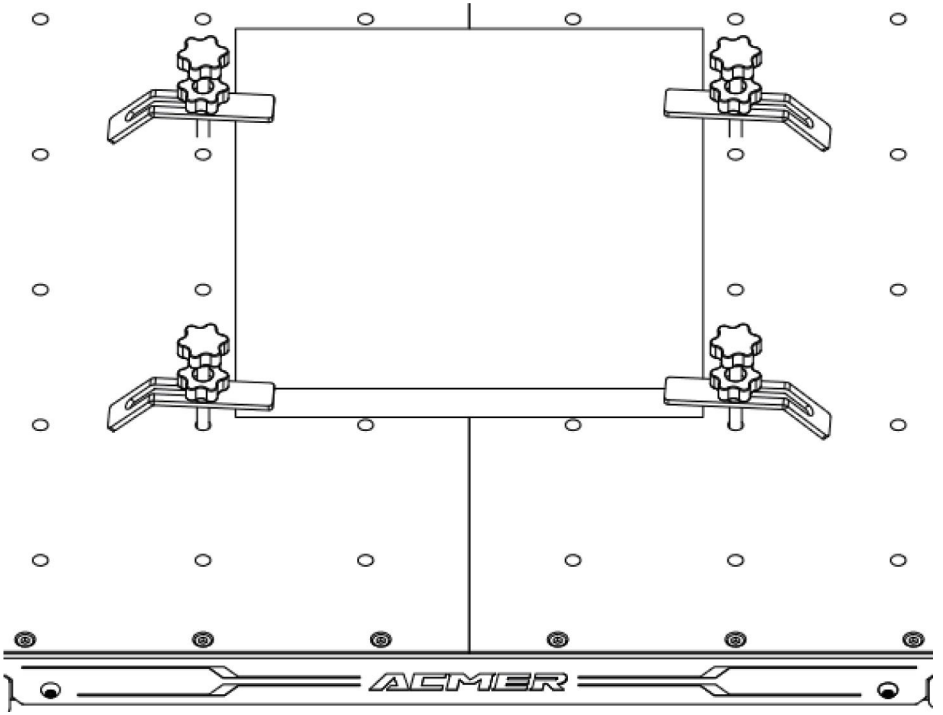
①Install the ER11 collet into the collet nut
②Insert the tool into the collet
③Use an open-end wrench to screw the collet nut onto the spindle shank



Note: The clamping length of the milling cutter is approximately 1/2 of the total length of the milling cutter.

7. Installation of clamping screws

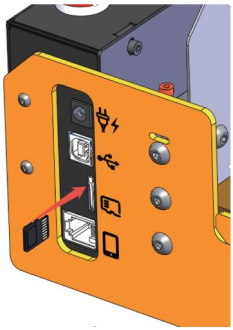
Clamping screw installation effect diagram



8. Operation Guide

Screen Operation

1. Save the NC file to the SD card and turn on the machine

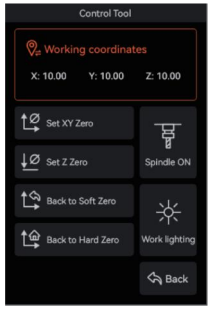


2. Click the engraving button to select the NC file

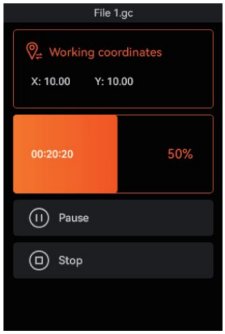


3. Move the XYZ axis to the engraving origin (lower left corner in the TF card test file, please adjust according to the actual situation for other files), click XYClear and ZClear





5. Choose to start or stop the program



4. Click the start button to start engraving

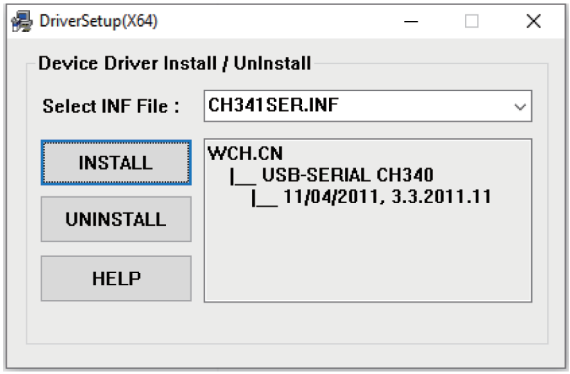


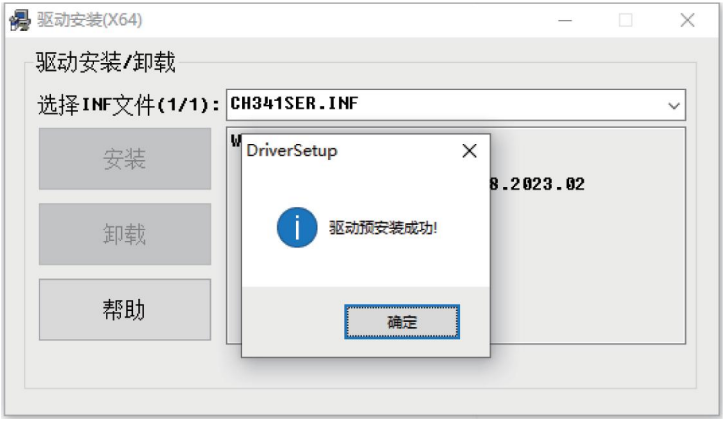
1. Debugging

1) Install CH341 driver program
a. Copy the driver program from the TF card random data
b. Double-click CH341SER-click Install-wait
c. The installation program ends
(This driver program supports XP32/64WIN732/64)



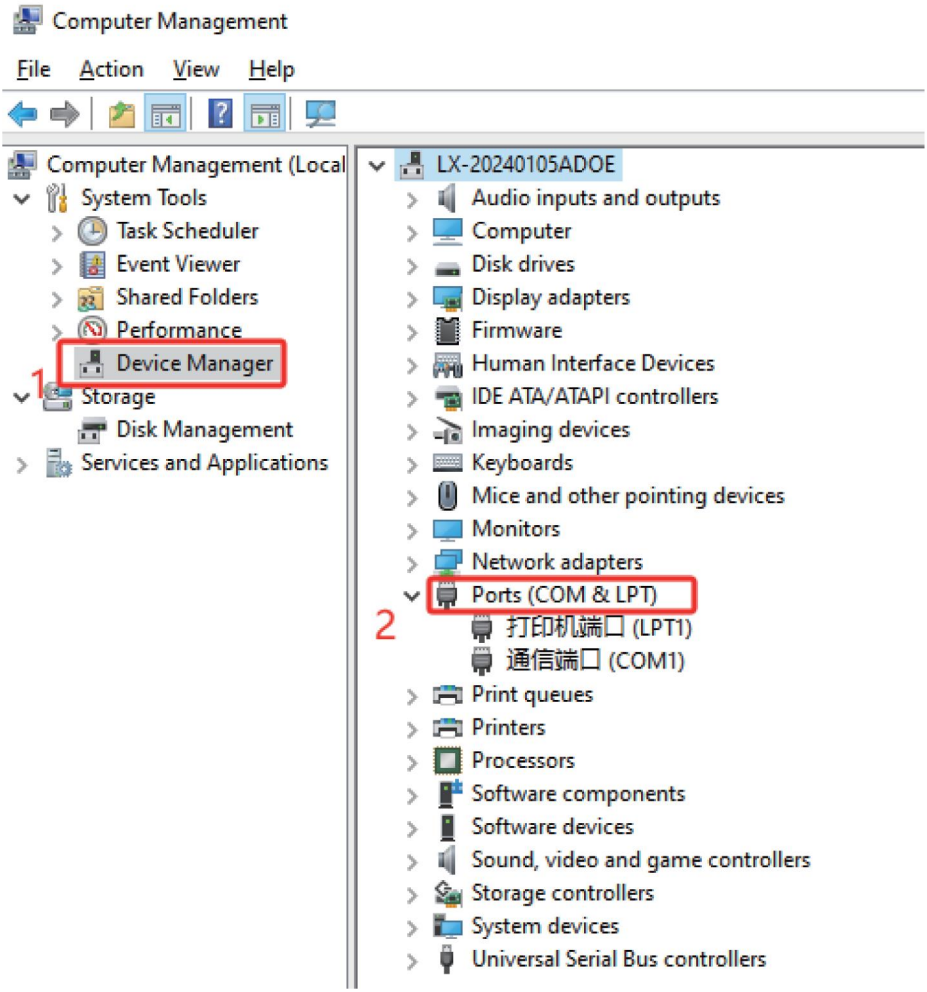
CH341SER





1. Debugging

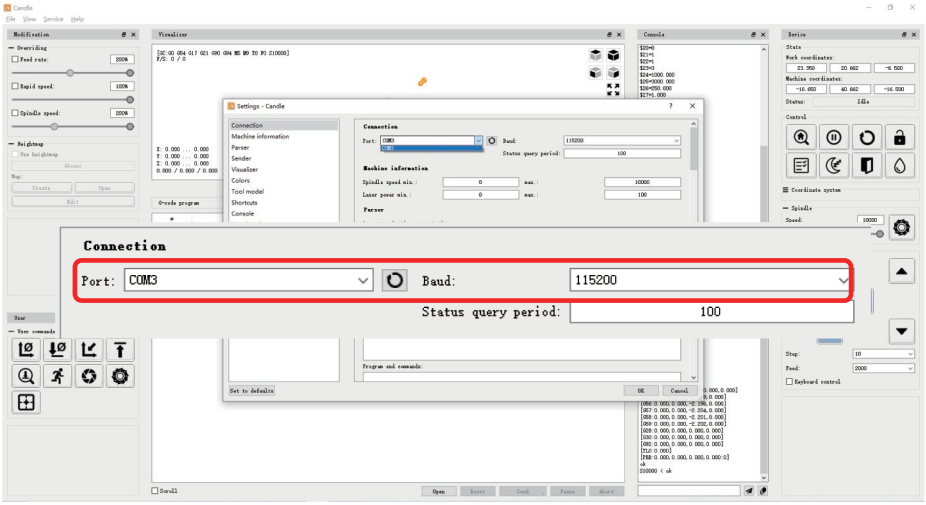
2) Right-click "My Computer" - "Device Manager" - "Ports" and check whether there is a "COMX" port number.



2. Use Candle (control software) to connect the machine

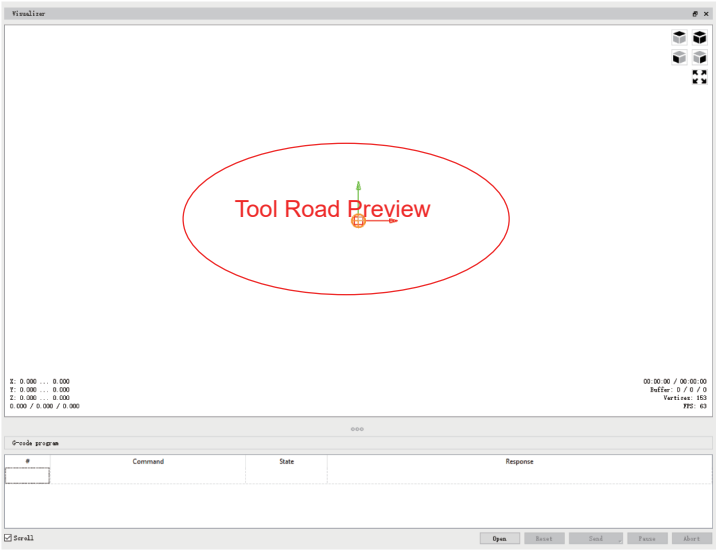
Open control software Candle, which is used to control CNC 3-axis engraving. First set the port number and baud rate and then Return to the main interface of the software, the software will automatically connect to the machine.

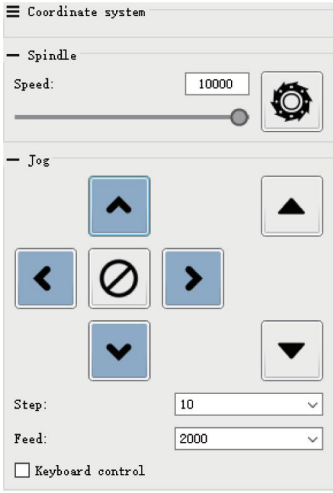




The port number must be the same as the previous step, otherwise the software will not be able to connect to the machine.

Introduction to the Candle main interface:

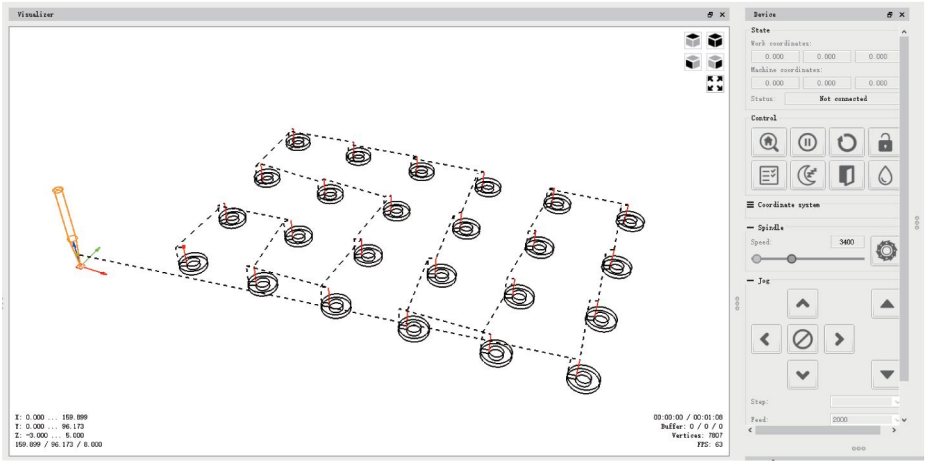




Direction check: Check whether the machine moves in the same direction when clicking the software.

3. After checking the direction, we can start working.

Cutter setting: Set the position where we start working. Move the tool to this position, click the xy and z axis coordinates to clear, and then start engraving here.
When you perform the last step, please keep the spindle running because the tool may hit the object you want to engrave.



4. After testing, you can try to make your own gcode for engraving:

Gcode is the command to make the machine run. It should be a .nc file. There are some .nc files in the random files. You can try.
The supporting software for making .nc files is a very common software: Artcam/Fusion360
Artcam is an old version in the link, if you want to get the latest version, you can search it on the Internet.

Artcam：https://www.youtube.com/user/delcamartcam/videos

Fusion360: https://www.autodesk.com.cn/products/fusion-360/trial-intake

Note: More detailed software tutorials and engraving materials can be obtained in the TF card random data.

9. Frequently Asked Questions (FAQ)

Q1: How to access installation video tutorials?

A:Check the included TF card for resources.
Visit ACMER official website and forums for additional guides.

Q2: CNC machine fails to connect to PC. What should I do?

A:Verify CH340 driver is installed correctly.
Ensure the correct COM port is selected in the control software.
Replug the USB data cable.
Try connecting to a different computer.

Q3: Spindle does not start. How to troubleshoot?

A:Check spindle wiring connections.
Confirm power supply is functioning (24V output).
Replace the spindle if faulty.

Q4: Y-axis moves unevenly or stalls. How to fix?

A:Inspect Y1/Y2 motor cables for secure connections.
Verify Y1 and Y2 motors move in the same direction (configure in software).
Test stepper drivers (swap X/Y drivers to isolate issues).

Q5: Machine stops mid-job. What's the solution?

A:Check USB cable for intermittent connection.
Ensure the PC is not in sleep mode or overloaded.
Confirm power supply is stable (no voltage drops).

Q6: Unusual noises during operation. Is this normal?

A:Normal operation may produce moderate mechanical noise.
Tighten all frame screws and spindle collet bolts (recommended torque: 2.5 N·m).

Q7: How to adjust POM wheel tension?

A:Use a #10 open-end wrench to rotate the eccentric nut on the POM wheel:
Clockwise: Tighten
Counterclockwise: Loosen
Adjust until wheels roll smoothly without wobbling.

10. After-Sales Service

To ensure high-quality after-sales support, we recommend visiting our official website (acmerlaser.com) for detailed information on after-sales and warranty.

Additionally, our Frequently Asked Questions (FAQs) page provides answers to common questions to help you better utilize the product.

If you have any questions or need further assistance, please feel free to contact us via email at support@acmerlaser.com. Our support team will provide you with prompt assistance to ensure timely resolution of your issues.

https://acmerlaser.com

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