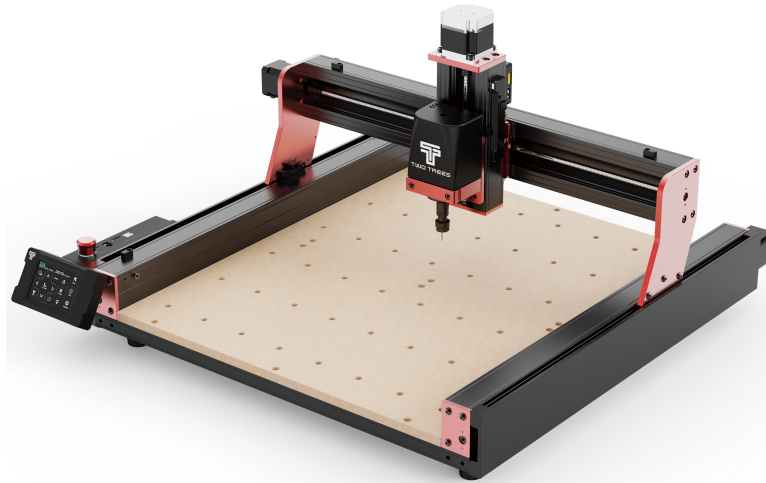


Product Manual

TTC450 Pro



Note: The picture is for reference only, subject to the actual product

To our customers

Dear Customer:

To ensure a smooth assembly and usage experience, we have prepared this assembly and user guide manual. Please read the following content carefully and follow the instructions to ensure safety and convenience when using the product. If you encounter any issues during use, you can scan the QR code, access our company's website, and read USB drive information to access relevant instructional videos. In case of machine malfunction, please refer to the names of the corresponding parts inside the machine and inform us of the issue and the machine's condition via the after-sales email provided on this page.

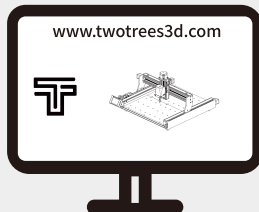
After-sales Email: service@twotrees3d.com

Wiki: wiki.twotrees3d.com

InquiryEmail: info@twotrees3d.com

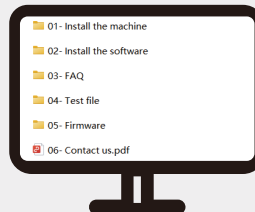


Official website information



Visit www.twotrees3d.com
to find the specific model information
and device usage tutorials.

Memory card information



Find the USB drive in the tool kit



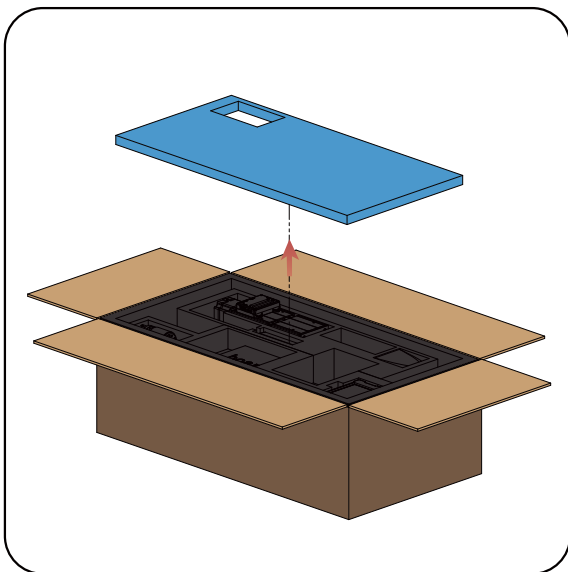
CONTENTS

1. Unboxing operation	01
2. Part list	03
3. Machine assembly	07
4. Component and Interface Overview	15
5. Screen Interface Operation Manual	17
6. Calibration and Testing Procedures	18
7.Operation Guide	20
8.FAQ	24
9.Safety Warning	29
10.Machine parameters	30

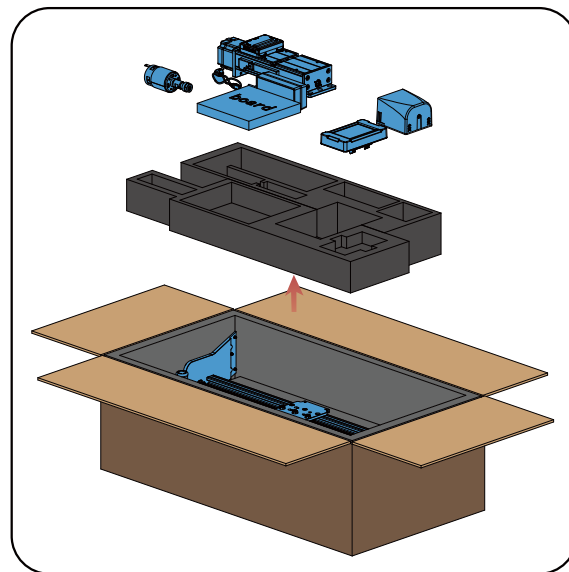
1.Unboxing operation

EN

Unpack the cardboard box and remove the protective padding.

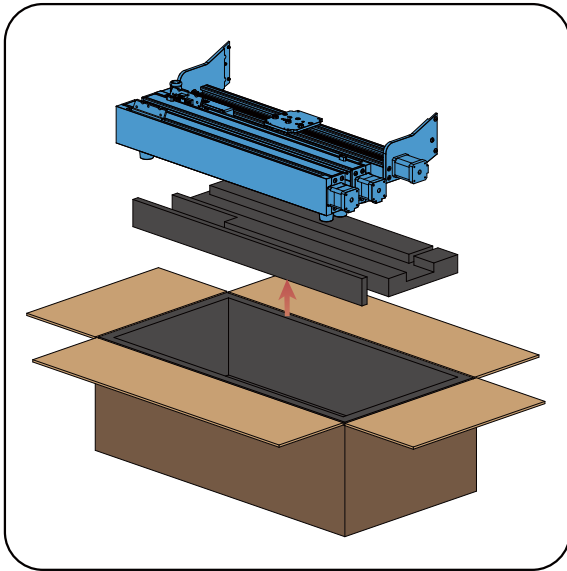


After opening the cardboard box, first remove the topmost components, accessories, and protective padding.

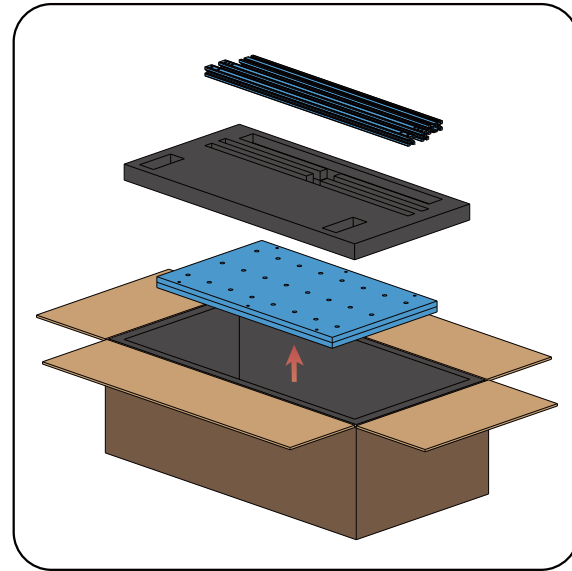


Environmental protection tips: cardboard material can be recycled.

Next, remove the X-axis components, Y-axis components, and protective padding located in the middle of the box.



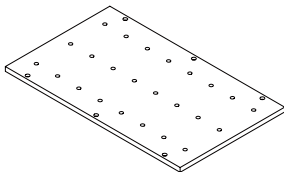
Finally, remove the profiles, density boards, and protective padding at the bottom of the box.



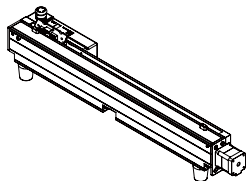
Environmental protection tips: pearl cotton material can be recycled.

2.Part list

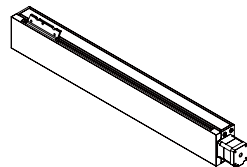
EN



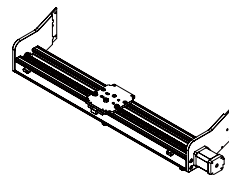
MDF Spoilboard x2



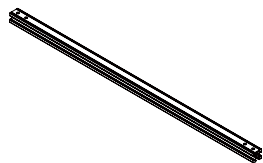
Y-axis Left Module x1



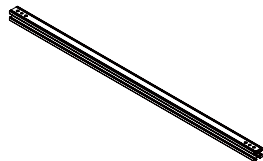
Y-axis Right Module x1



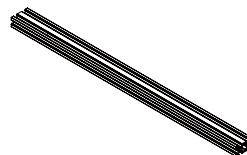
X-axis Module x1



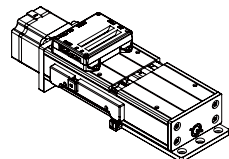
Front Profile x1



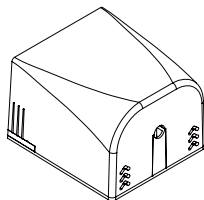
Rear Profile x1



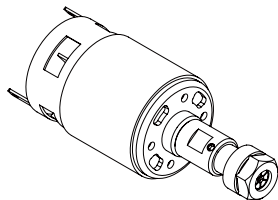
2040 Profile x1



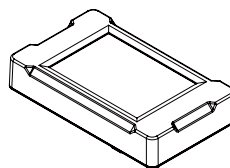
Z-axis Module x1



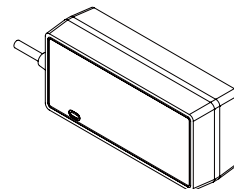
Motor Cover x1



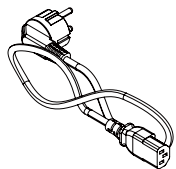
775 Spindle Motor x1



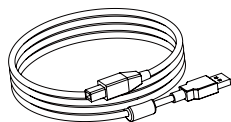
TouchScreen x1



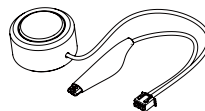
Adapter x1



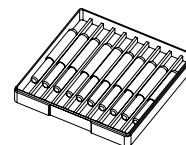
Power Cable x1



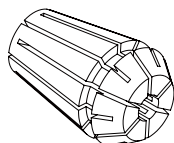
USB Data Cable x1



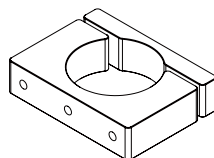
Z-Probe x1



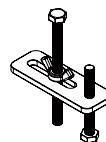
Cutter Box x1



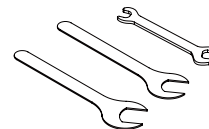
ER11 Simple Collet
6.35mm x1



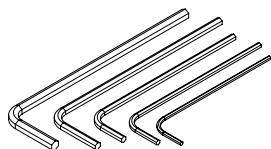
775 Motor Chuck*1



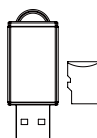
Fixture x6



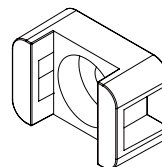
Open-end Wrench x3



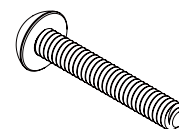
Hexagonal Wrench x5



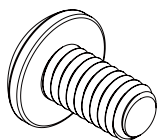
Memory Card x1



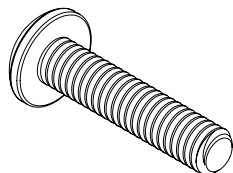
Cable Tie Holder x2



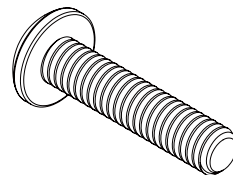
Screw M3*16 x2



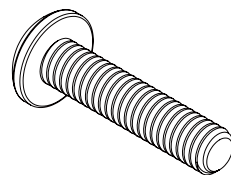
Screw M5*8 x10



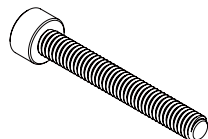
Screw M5*12 x2



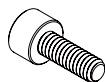
Screw M5*20 x14



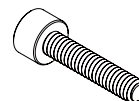
Screw M5*30 x8



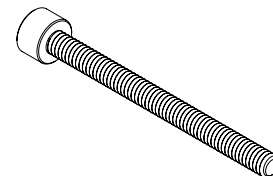
Cup head screw
M4*30 x4



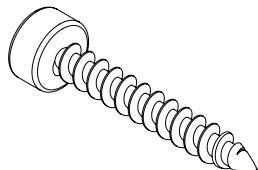
Cup head screw
M5*12 x2



Cup head screw
M5*20 x4



Cup head screw
M5*50 x2



Cup Head Self-tapping
Screws M5*50mm x8

Optional Accessories



500W Motor Adapter Cable x1



500W Motor Signal Cable x1



Round Laser Head Adapter Cable x1

The three cables included in the packaging are used to connect the optional 500W spindle kit. Please keep them safe!

For detailed assembly and operation procedures, please scan the WIKI QR code provided on the front to access the relevant instructional tutorials or videos.

500W Spindle Kit (Not Standard, Optional Extension Kit)



3. Machine assembly

EN

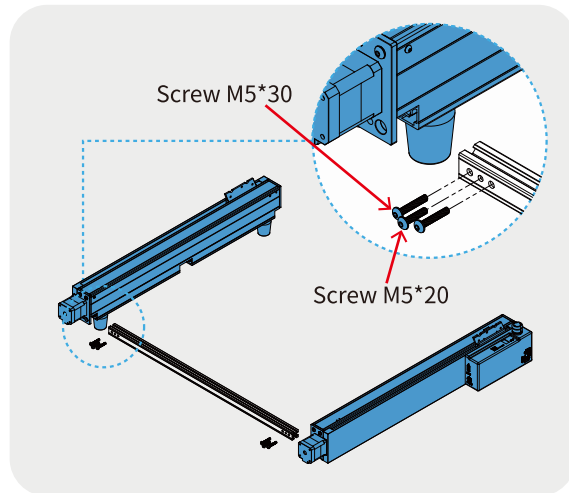
3.1 Rear Profile Assembly

Required Materials:

Y-axis Left Module x1 Y-axis Right Module x1 Rear Profile x1
Screw M5*20 x2 Screw M5*30 x4

Insert the rear profile into the grooves of the Y-axis left and right modules, then secure it with an M5*20 screw in the middle hole and M5*30 screws on both sides

Note: Do not fully tighten the screws!



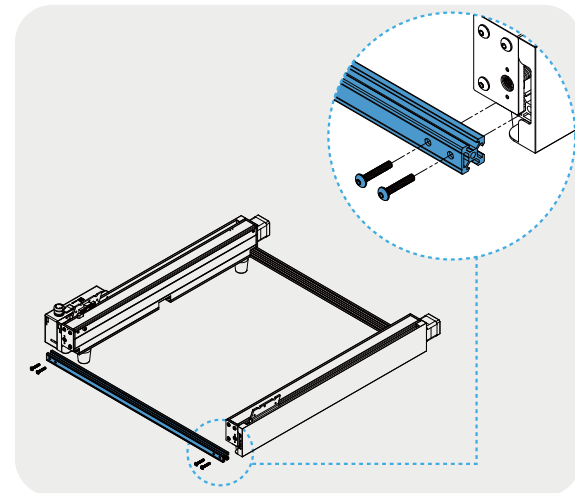
3.2 Front Profile Assembly

Required Materials:

Front Profile x1 Screw M5*30 x4

Insert the front profile into the grooves of the Y-axis left and right module, and secure it with M5*30 screws

Note: Do not fully tighten the screws!



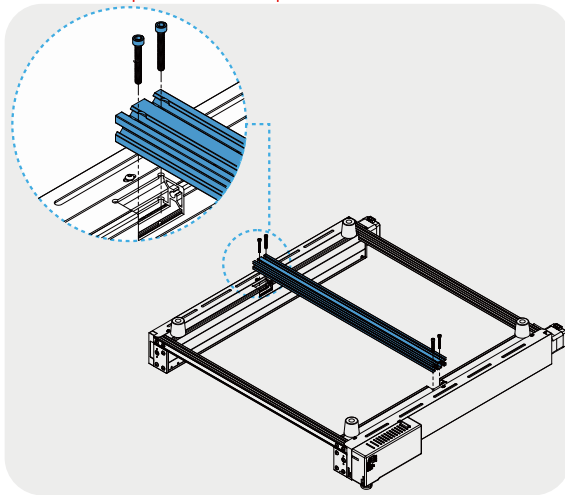
3.3 2040 Profile Assembly

Required Materials:

2040 Profile x1 Cup head screw M4*30 x4

Insert the 2040 Profile into the groove between the Y-axis left and right module, and secure it with M4*30 screws.

Note:1. The countersunk holes of the 2040 profile should face upwards.
2. At this point, you may fully tighten the screws from the previous two steps.



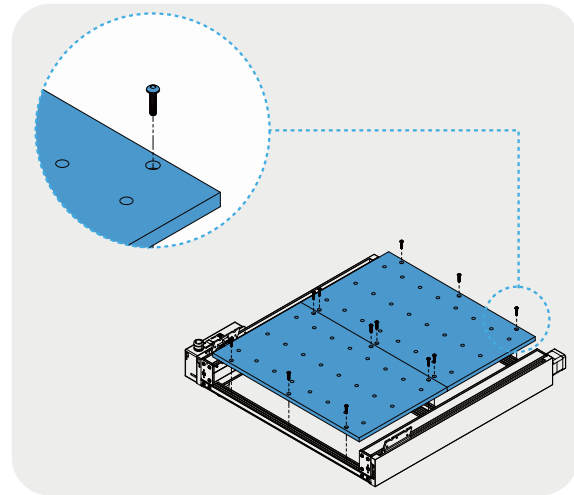
3.4 Density Plate Assembly

Required Materials:

Density Plate x2 Screw M5*20 x12

Place the density plate onto the frame and fasten it with M5*20 screws.

Note: The countersunk holes of the density plate should face upwards!

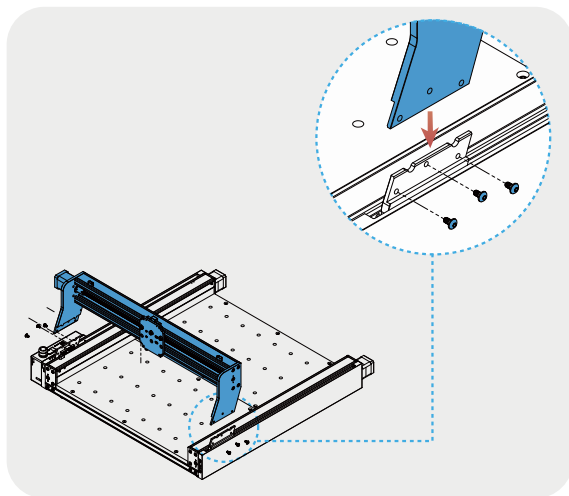


3.5 X-axis Module Assembly

Required Materials:

X-axis Module x1 Screw M5*8 x6

Insert the X-axis module into the base and secure it with M5*8 screws.

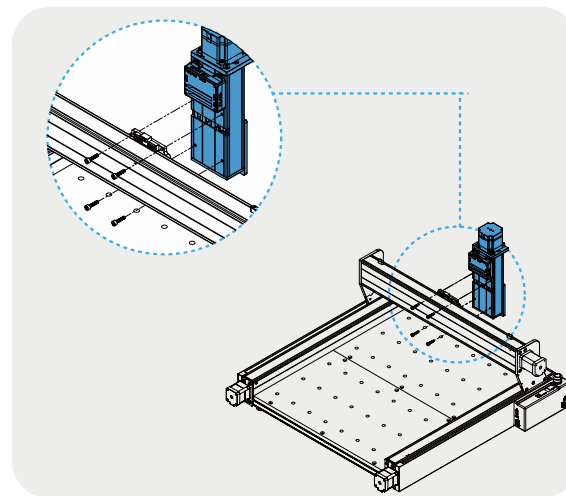


3.6 Z-axis Module Assembly

Required Materials:

Z-axis Module x1 Cup head screw M5*20 x4

Use cup head M5*20 screws through the back holes of the X-axis module to fasten the Z-axis module.

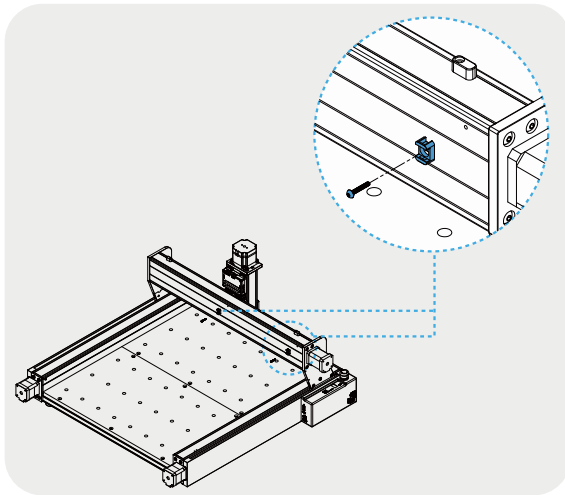


3.7 Cable Tie Holder Assembly

Required Materials:

Cable Tie Holder x2 Screw M3*16 x2

Use M3*16 screws to pass through the cable tie holder and fasten them to the X-axis profile.

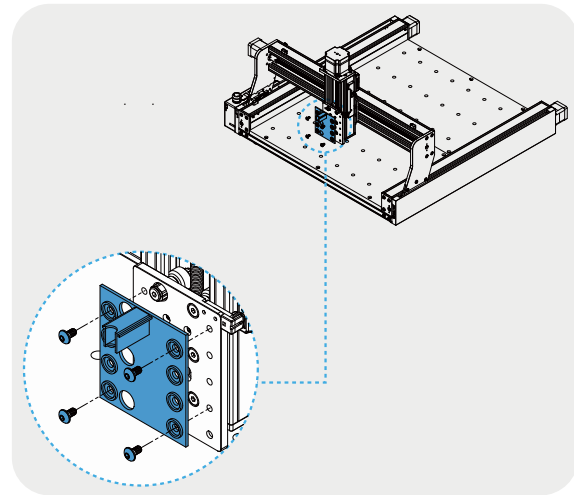


3.8 Motor Cover Base Assembly

Required Materials:

Motor Cover Base x1 Screw M5*8 x4

Use M5*8 screws through the base and secure them to the Z-axis module.



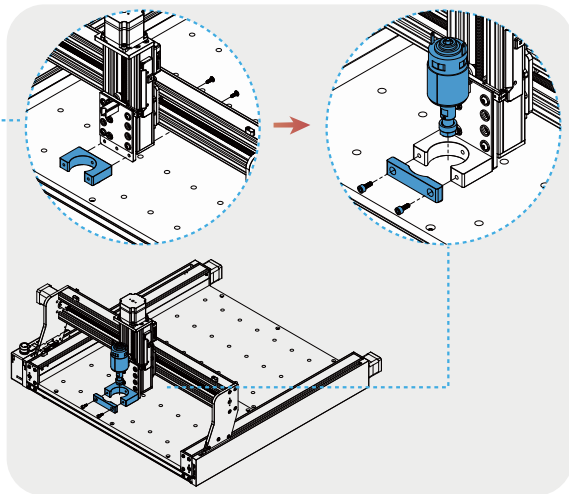
3.9 775 Spindle Motor Assembly

Required Materials:

775 Motor Chuck x1 Screw M5*12 x2

Cup head screw M5*12 x2 775 Spindle Motor x1

Use M5*12 screws to pass through the back of the Z-axis module and fasten the 775 motor chuck base. Insert the 775 motor from the top and secure it with cup head M5*12 screws, passing through the 775 motor chuck plate to hold the motor firmly.



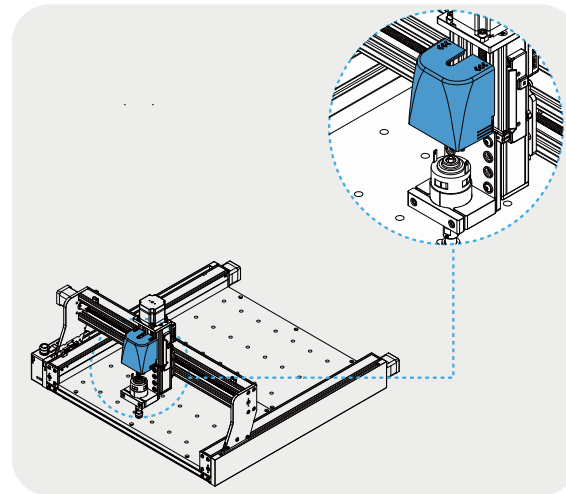
3.10 Motor Cover Assembly

Required Materials:

Motor Cover x1

Snap the motor housing onto the motor housing base from the top.

Note: The 775 motor wires need to be routed through the round hole in the housing.

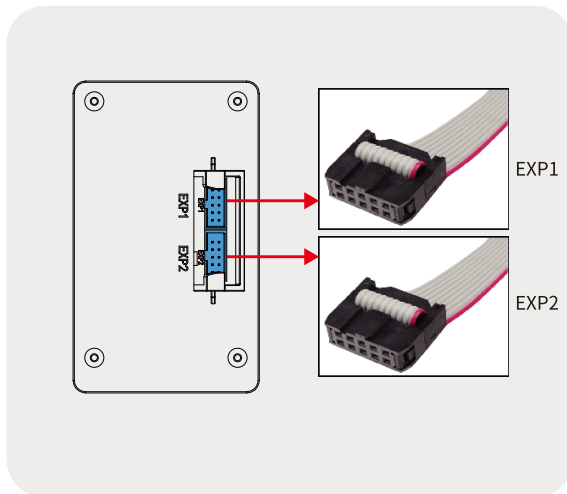


3.11 Touch screen Wiring

Required Materials:
TouchScreen x1

Connect the ribbon cable from the mainboard box to the back of the touchscreen.

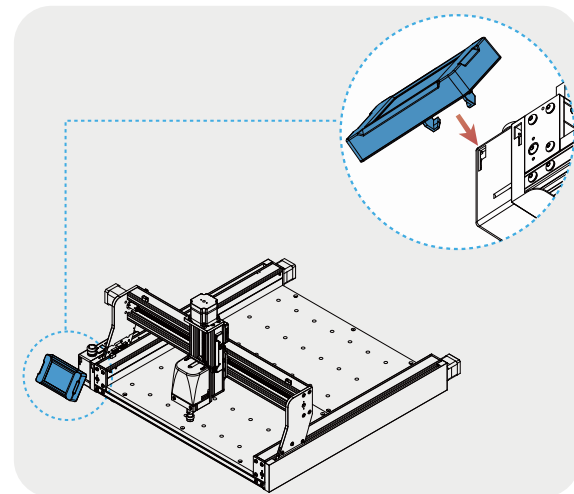
Note: The EXP1 on the ribbon cable corresponds to the EXP1 on the touchscreen.



3.12 Touchscreen Assembly

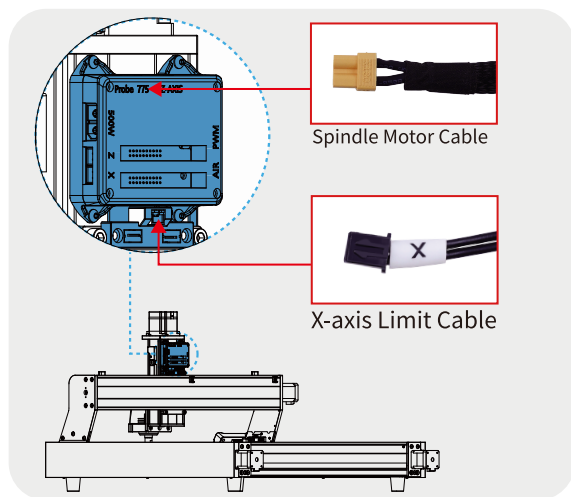
Required Materials:
TouchScreen x1

Insert the touchscreen into the Y-axis left module as shown in the figure, and then snap it into place by pressing downward.



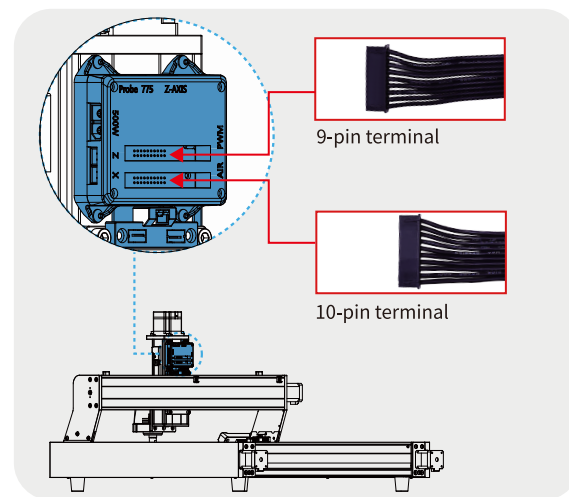
3.13 Spindle Motor and X-axis Limit Wiring

Insert the spindle motor cable and X-axis limit cable into the corresponding ports on the adapter plate on the back of the Z-axis module.



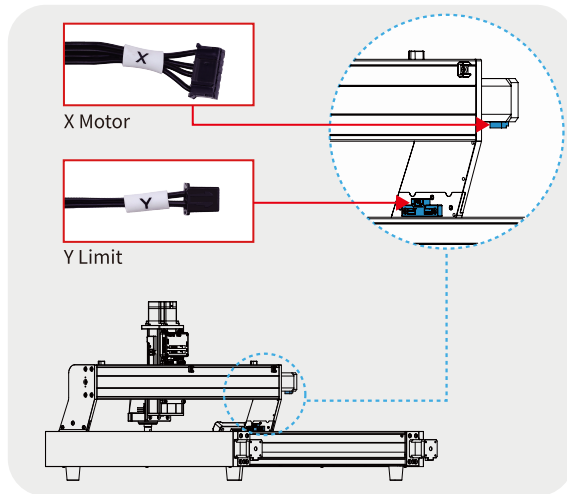
3.14 Mainboard Harness Wiring

At the end of the motherboard harness, the 9-pin terminal goes to the top hole, and the 10-pin terminal goes to the bottom hole.



3.15 X Motor and Y Limit Wiring

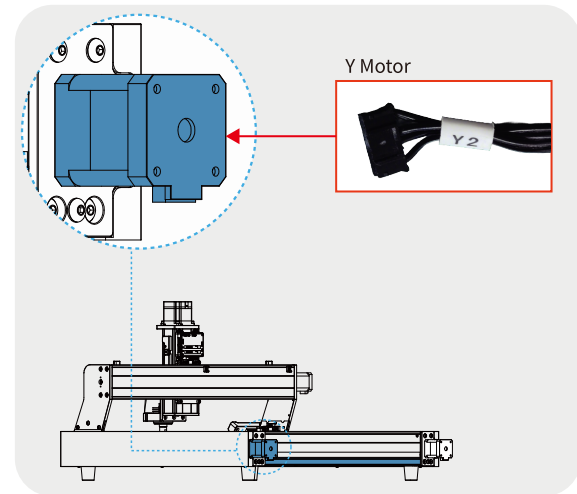
In the center of the main board harness, there are two exposed wires that connect to the X motor, Y limit



3.16 Y Motor Wiring

At the rear end of the Y-axis left component, connect the Y2 motor wire to the Y2 motor on the opposite side.

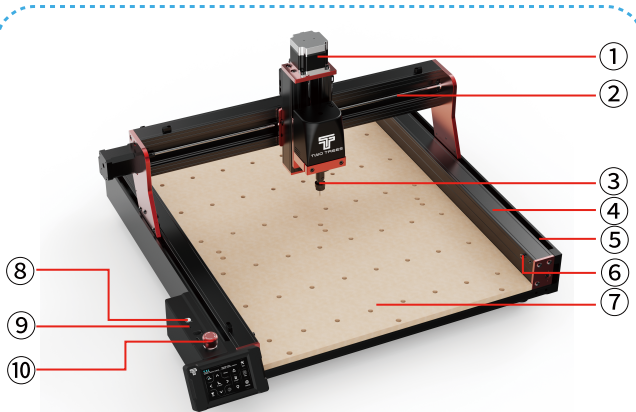
Note: The motor wires can be neatly pressed into the rear crossbeam profile using cable ties for a tidier appearance.



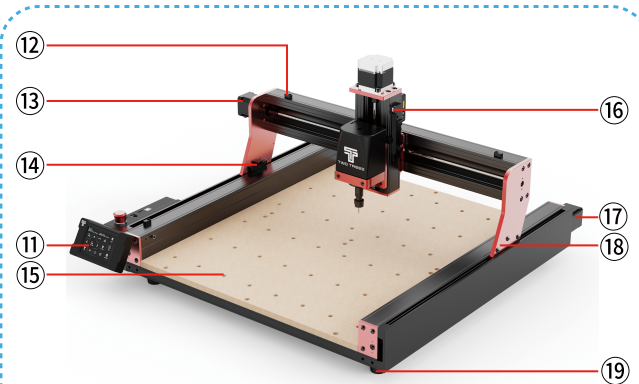
4.Component and Interface Overview

EN

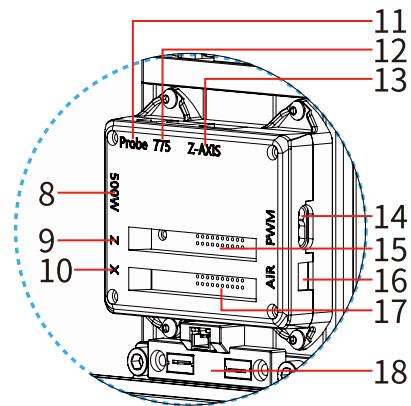
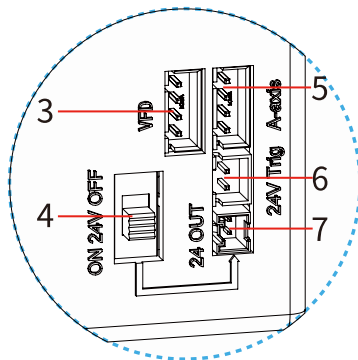
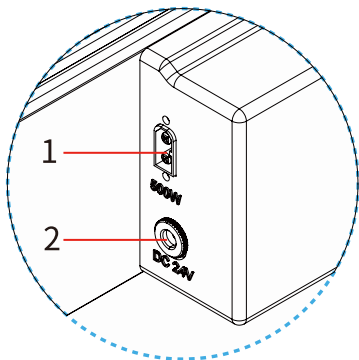
460x460x80mm working space, creating more possibilities to meet most daily needs



- 1.Z-axis motor
- 2.T8-4 Screw
- 3.775 spindle motor
- 4.4080U side profile
- 5.Sheet metal side panel
- 6.Calibration screw
- 7.Engraving platform
- 8.USB interface
- 9.TF card slot
- 10.Emergency stop switch



- 11.touchscreen
- 12.X-axis Limit switch trigger
- 13.X-axis Motor
- 14.Y-axis Limit switch
- 15.M6 fixed hole
- 16.Z-axis Limit switch
- 17.Y-axis motor
- 18.X-axis support plate
- 19.Rubber feet



- 1.500W spindle input
- 2.DC power interface
- 3.Frequency Converter Spindle Interface
- 4.24V Switch
- 5.A-axis motor output
- 6.24V Triggering signal

- 7.24V Output
- 8.500W spindle output
- 9.Z-axis Limit signal input
- 10.X-axis Limit signal input
- 11.Probe signal input
- 12.775 Spindle motor output

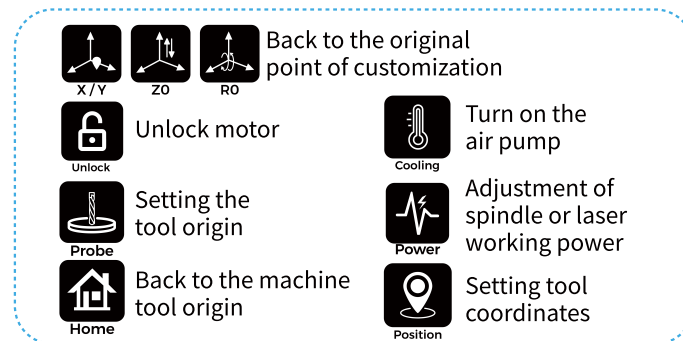
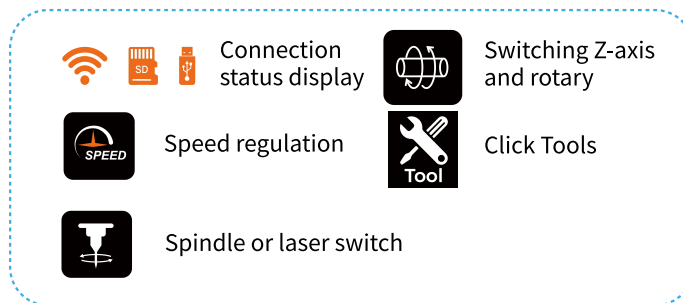
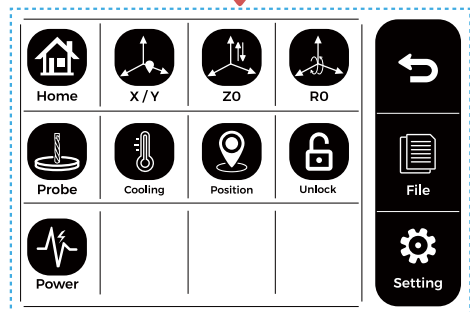
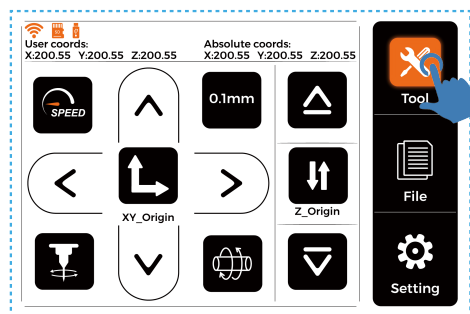
- 13.Z-axis motor output
- 14.Laser output(PWM)
- 15.Power input port (M)
- 16.Air pump output
- 17.Signal output port (S)
- 18.X-axis Limit switch

5.Screen Interface Operation Manual

EN

5.1 Get familiar with the operation interface

Operate the machine via the screen



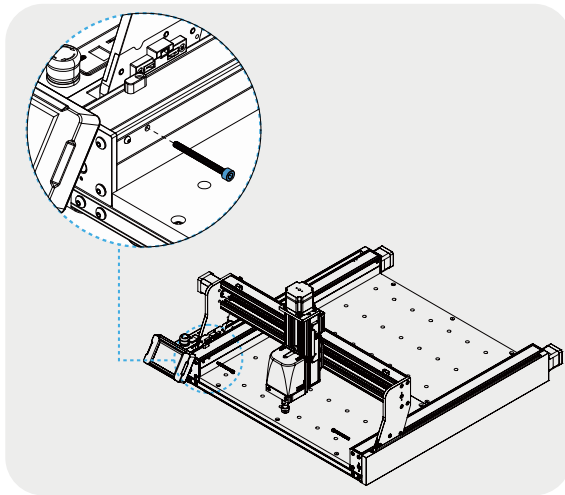
6. Calibration and Testing Procedures

6.1 Calibration screw Assembly

Required Materials:

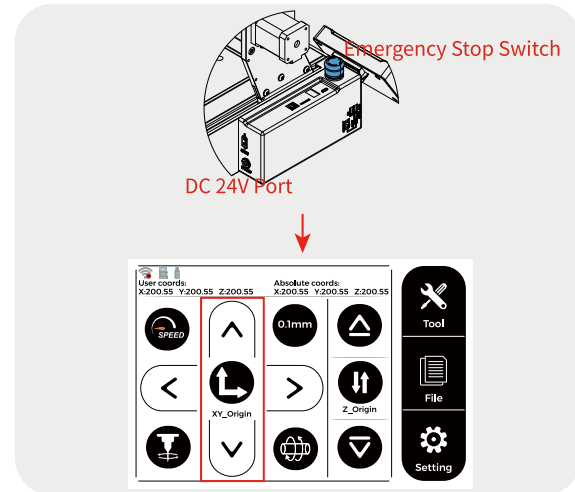
Cup head screw M5*50 x2

Use the cup head M5*50 screw through the 4080 profile and tighten it against the side sheet metal.



6.2 Calibration

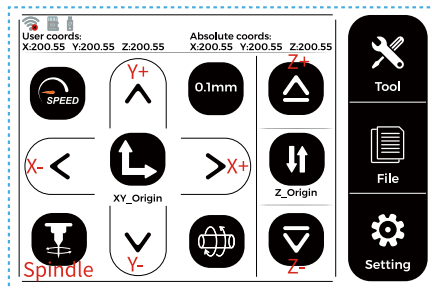
1. Plug the power supply into the DC 24V port.
2. Release the emergency stop switch to start the machine.
3. Use the touchscreen to control the Y-axis motor to move until it collides with the calibration screw. This ensures that the Y-axis components on both sides are parallel
4. Use the touchscreen to move the Y-axis back by 10 mm, and then remove the calibration screw.



6.3 Basic Testing

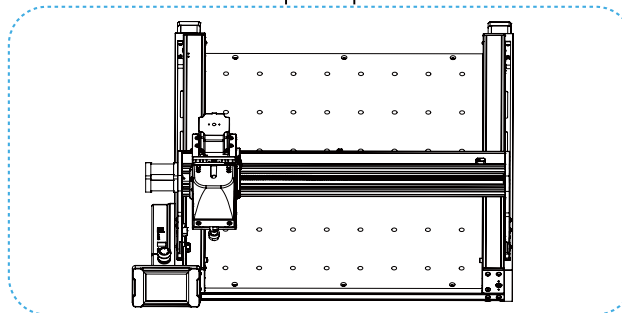
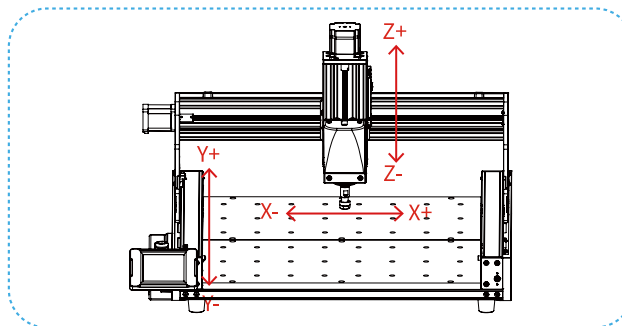
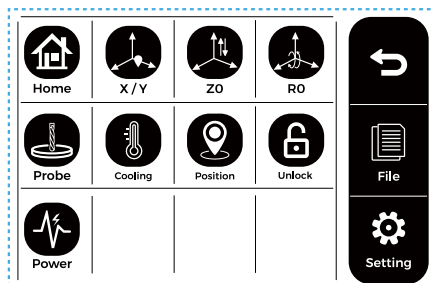
Press the direction keys on the touchscreen to check the machine's movement direction.

Click the "Spindle" button to start the spindle, and click it again to stop the spindle.



Click "Tools" to enter the following interface.

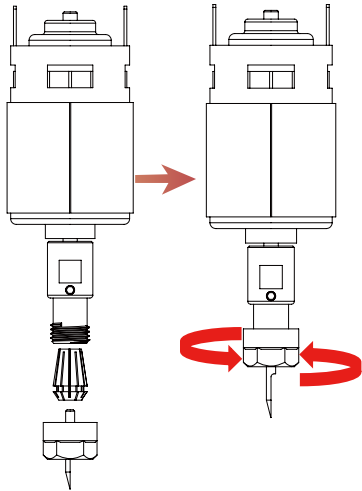
Click "Home" to move the X and Y axes to the lower-left corner and the Z-axis to the topmost position.



7.Operation Guide

7.1 Installation of milling cutter

Note: The clamping length of the cutter is approximately 1/2 or 1/3 of the total length of the cutter.

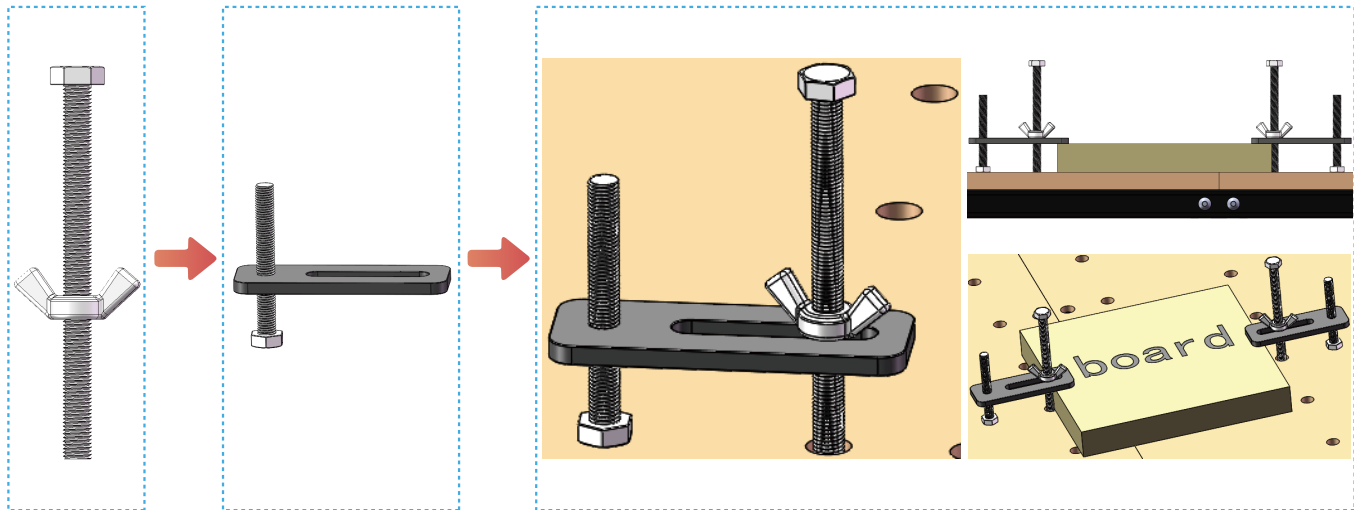


	Cutting length	Ovreal length	Flute count	Explanatory note
 V-Bit 0.393 Inch (10mm)90 degree	11mm	50mm	2	V-Bit tools are generally used for engraving V-style letters.They could also be used to remove the background and leave areas flat on the face of the material.
 Straight cut 0.125 Inch(3.175mm)	20mm	38mm	2	Straight cut can be used for roughing, area clearance, cutouts, inlays and profiling.
 Millcutter 0.125 Inch(3.175mm)	12mm	39mm	2	Designed for routing where upward chip removal, tool rigidity, long life and high quality finish is desired.
 30 degree carving cutter 0.125 Inch(3.175MM diameter, 0.1 end)	15mm	27mm	1	Use for fine detail engraving.

7.2 Fixture installation

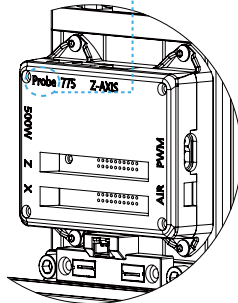
The workpiece is clamped by adjusting the butterfly nut.

Note: Ensure the tool path bypasses the fixture to avoid collisions

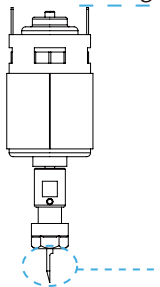


7.3 Probe Assembly

Plug the Probe into the Probe port on the Z-axis adapter board.

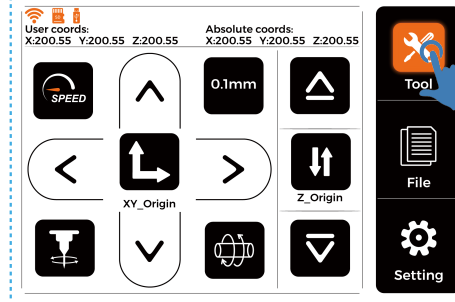


Attach the alligator clip at the other end of the tool setter to the tip of the cutting tool, and place the tool setter under the cutting tool.

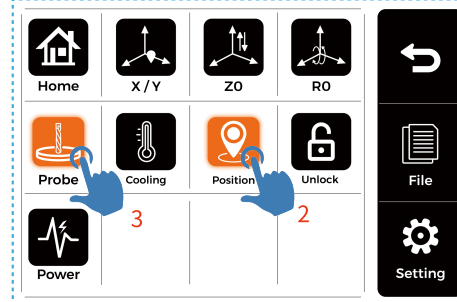


7.4 Setting the Coordinate Origin

Insert the TF card containing the NC file into the control box. Operate the machine via the screen to position the 775 spindle motor above the object to be engraved. Click "Tools," then click "Positioning," and finally click "Tool Setting."

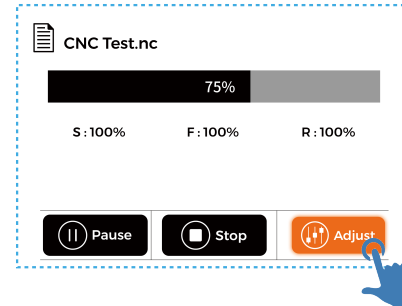
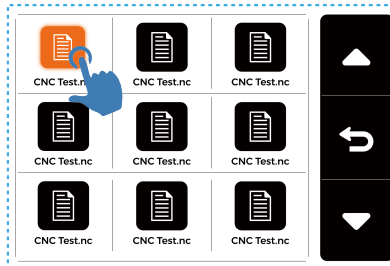
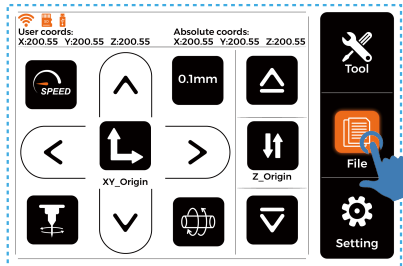


After successful tool alignment, it will display:
X:0 Y:0 Z:24.5

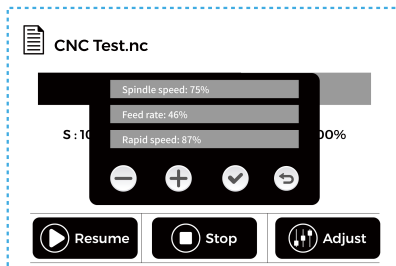


7.5 Select the engraving file

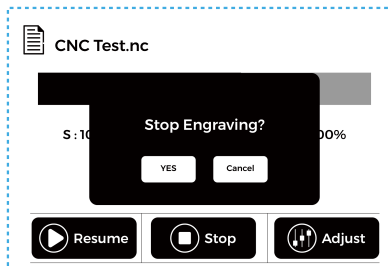
Select the file and proceed with engraving.



Note: Set the appropriate feed rate based on the hardness of the material and the tool.



Clicking the adjustment button allows you to change the rate and speed.



Options to start or stop the program.



Pause and Continue.



Stop Carving.

8.FAQ

8.1 Motherboard

Q1: Motor or limit switch does not operate.

A1: Please make sure that the wiring of the main board is correct, as shown in Figure 1, and make sure that the wiring is not loose in case of correct installation.

8.2 Power supply

Q1: No response after powering on the computer.

A1: Please check if the cables are loose and then reconnect them.

A2: Check if there is voltage at the power socket interface and if there is current at the power input. If there is voltage but no current, it indicates that there is a problem with the power source.

A3: Check if the power socket is loose and if the power indicator light is on. Please check if the power indicator light on the casing is lit. If the light is on but the machine does not work properly, check if the indicator light on the motherboard is lit. If the indicator light is not on, the output cable may be loose, or there may be an issue with the motherboard.

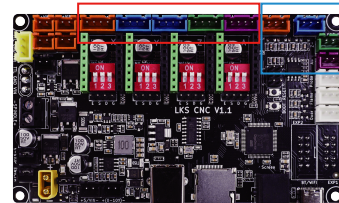


Figure 1

8.3 Screen

Q1: The screen is not turning on.

A1: As shown in Figure 1, please check if the screen cable is loose and retighten it, or change the order of the wires and restart.

A2: Loose Screen Cable: During transportation, the machine may experience vibrations, which can cause internal connectors to become loose, leading to poor contact or no contact at all. At this point, the machine's screen may turn white and fail to function properly. Please first check if there are any issues with the cables.

A3: Motherboard or Screen Issue: If the screen cable is functioning properly, then the issue may lie with the mother-board or the screen itself. If you have multiple machines, you can replace the "faulty" screen with one that displays normally. If the good screen works properly, then the original screen is at fault. If not, the issue is with the mother-board. If you encounter this problem, please contact after-sales customer service.

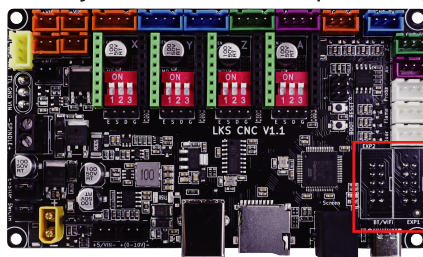


Figure 1

8.4 Motor

Q1: If the motor jerks, or does not respond when power is turned on

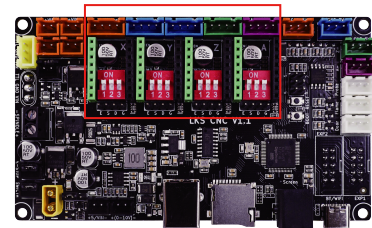
A1: First, check if the motor wires are securely connected to the motor terminals and the motherboard port. If there is any looseness or poor contact, reinsert the power supply and then test the power.

A2: Swap the position of the motor. If there is still no response after reinserting it, you can test by replacing the faulty motor with a working one at the motherboard port. After the test, determine the cause of the motor failure (A. Motor wiring issue B. Driver issue C. Motor issue).

A3: Motor Wire Issue: After confirming that the motor is not faulty, please swap the problematic motor wire on the motherboard with a working motor wire, and then perform the test. If it works without issues, then the problem is with the motor wire. If it still does not work, please check the driver.

A4: Adjust the motor wiring on the motherboard. As shown in Figure 1, if there is a Y-axis vibration, you can swap the faulty motor wire with the good motor wire (the Y/XZ/E-axis motor wires are good) at the port. At the same time, ensure that the motor wire matches the corresponding motor. After powering on, test by moving the axis to check its functionality.

A5: Driver Issue: After confirming that the motor and motor wires are not faulty, recheck the motor driver. The driver may be problematic and may need to be replaced with a new one.



8.5 TF card issue

Q1: Motherboard does not read the card

A1: TF card Issue: How to determine if there is a problem with the TF card? First, check if the card can be used normally on a computer. if the TF card works without malfunction on the computer, save the files to the computer and format the card. Place the card into the machine for testing. If it is not recognized after powering on, it indicates that there is a problem with the TF card and it needs to be replaced.

A2: Check if the card slot is loose. Long-term use of the card slot may cause the card holder to wobble, leading to poor card reading. To solve this issue, you may need to replace the card holder with a new one. Sometimes the card may be inserted into the slot briefly and then suddenly stop responding. You can quickly insert and remove the card several times, then try inserting it after turning off the power. After that, clean the card with some alcohol, insert it into the slot, and insert it several times to see if it can be used normally after cleaning.

A3: Oxidation of the TF card chip. You can try applying a small amount of alcohol to the SD card, then insert the card into the slot and insert it several times. After cleaning, check if it can be used normally.

8.6 Engraving Issues

Q1:Layering during Engraving

- A1:The driver cooler is not fixed — please adhere the cooler to the driver;
- A2:The motor driver is overheating — please ensure good cooling for the driver;
- A3:The motor driver current is too high — please readjust to an appropriate driver current;
- A4:The motor coupling is loose — please retighten the coupling;
- A5:The POM wheel is jammed with the lead screw — apply lubricating oil and manually adjust to a smooth position.

Q2:The XYZ axes cannot be reset to their original positions

- A1:Limit switch failure — please replace the limit switch;
- A2:Unable to return to zero after engraving — incorrect axis direction settings;
- A3:Homing and movement speed too slow — incorrect motor driver pulse settings or incorrect jumper connections.

Q3:Engraving File Not Recognized

- A1:The file is not recognized after inserting the TF card — the file format is incorrect; the file needs to be renamed;
- A2:The engraving stops midway — this may be due to a program error or poor contact with the TF card.

Q4:Abnormal noise during engraving

- A1:Fan failure — this may be caused by the fan blade coming into contact with the cable.
Please check and reposition the cable;
- A2:Structural issue — abnormal noise is caused by the lead screw and POM wheel operating improperly.
Please re-lubricate, realign the direction, and clean any debris from the 4080 profile groove;
- A3:Program issue — reduce the engraving speed, decrease the feed rate of the XYZ axes, and increase the spindle speed.

Q5:The computer cannot control the machine

- A1:The computer cannot recognize the port — a USB driver needs to be installed;
- A2:The computer cannot control the machine through the connected port — there is a conflict between screen control and computer control. Please restart the system.

9. Safety Warning

1. When using the machine for the first time, make sure it is securely installed.
2. In the event of an emergency, quickly press the emergency stop button.
3. Please wear safety glasses when operating the machine.
4. Please use a brush to remove debris and do not blow with your mouth.
5. Be careful of sharp parts when using milling tools or grinding workpieces.
6. When installing the milling tool, make sure it is securely fastened.
7. When loading, unloading, tool setting, measuring and cleaning, make sure that the machine must be stopped before operation.
8. Do not wear cotton gloves during operation.
9. Do not place gauges or other miscellaneous items within the confines of the workbench.
10. When clamping the workpiece, make sure it is secure and do not start engraving with it loose or unclamped.
11. This engraving machine needs to be used in indoor scenes.
12. In view of the size and weight of the machine, such as the need to carry more than one person is recommended, in order to protect the operator as well as the safety of the equipment.

10. Machine parameters

Model: TTC450 Pro	Laser/CNC function switching: Supported
Color: Red and black	Speed Control: Support
Body Material: Aluminum + stainless steel + injection-molded parts	Tool setting control: Support
Compatible Engraving Materials: Plywood / Density Board / Solid Wood Board / Acrylic / Carbon Brazing / Aluminum / Copper / Stainless Steel	Spindle motor: standard 755 spindle motor
Machine weight: 13.9KG	Supported Systems: MacOS\Windows\Linux
Working range: 460x460x80mm (18.1in*18.1in*3.14in)	Power consumption: 72W
Touch screen: 3.5-inch resistive touch screen (480 * 320 resolution)	Motion structure type: 3-axis linkage motion

6043001



TEL: +0086-0755-23987110

Http: www.twotrees3d.com

E-mail: service@twotrees3d.com

Facebook: <https://www.facebook.com/twotrees3d>

Address: 4th Floor, Building 11, No.9 Qilin Road, Nankeng Community,
Bantian Street, Longgang District, Shenzhen, Guangdong, China, 518000



WARNING INJURE HAND



NOTICE DUST PREVENTION



ARNING DANGER