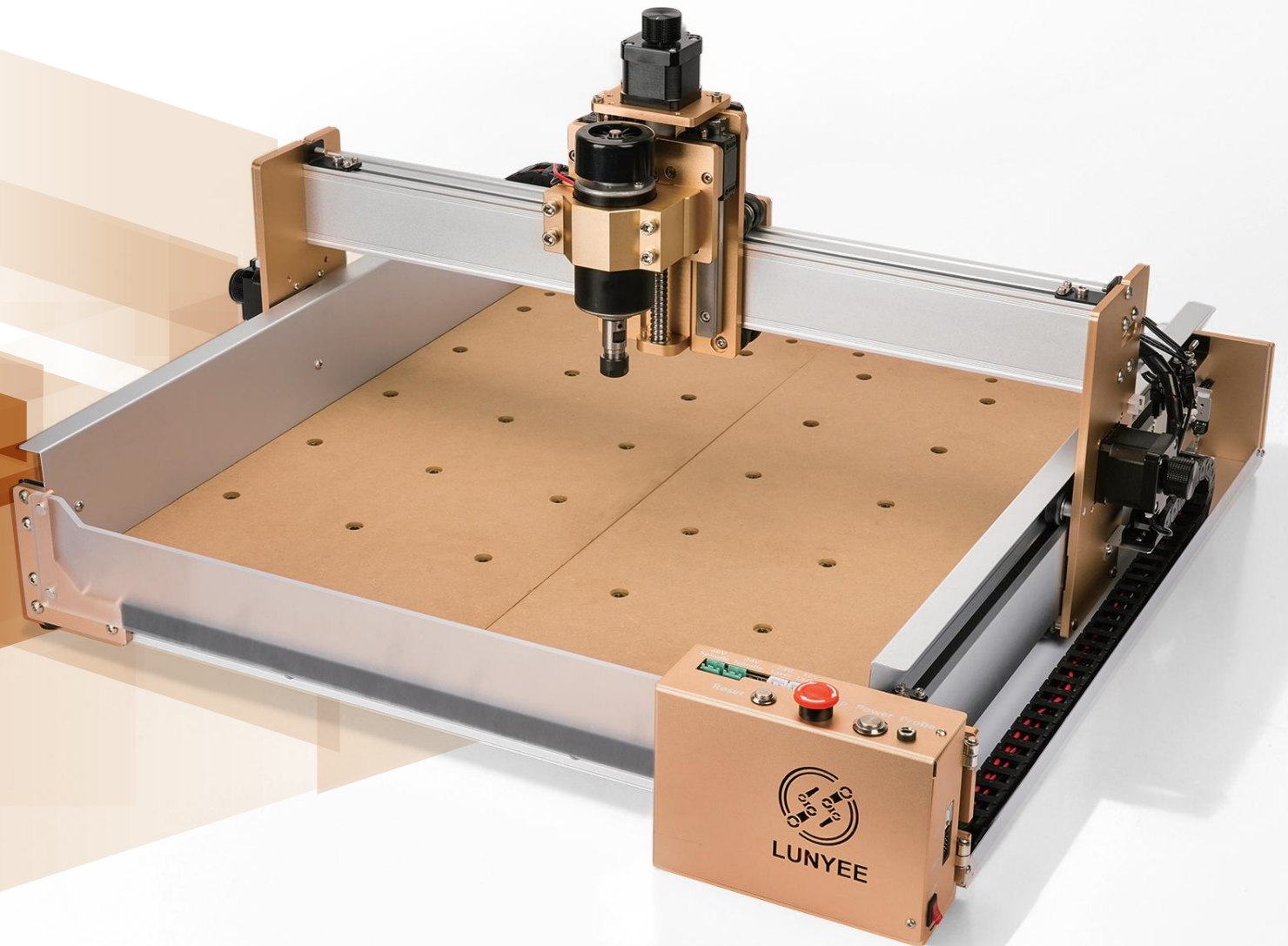


# USER MANUAL

## 4040 PRO CNC Router





# Catalog

<b>Warranty &amp; Disclaimer</b>	2
<b>Specifications</b>	3
<b>Pack List</b>	4
<b>Assembly Instructions</b>	5
1.Install the Bottom Fixing Frame	5
2.Install the Y-axis Module	6
3.Install MDF Worktops	7
4.Install the X-axis Module	8
5.Install the X-axis Drag Chain Module	9
6.Install the Front and Rear Acrylic Magnetic Baffles	10
7.Install Spindle and Chuck	11
<b>Wiring Diagrams</b>	12
1.X, Y & Z Stepper Motors Wiring Diagrams	12
2.X, Y & Z Limit Switches Wiring Diagrams	13
3.Spindle & Light Wiring Diagrams	17
4.Controller Instructions	18
<b>Driver Installation</b>	16
1.Install the Machine's Driver (CH340SER)	16
2.Determine Your Machine's COM Port(Windows Computers)	17
<b>How to Use Grblcontrol (Candle)</b>	18
1.Candle Interface Introduction	18
2.Make Your First Cut	19
3.Z-Probe Operating	23
4.How to Unlock Limit Switch	25
5.How to Use E-stop	26
<b>After-sales Service</b>	27





# Warranty & Disclaimer



**Please be careful when using your CNC machine. This machine is an electrical device with moving parts and dangerous areas.**

1. The CNC Machine are for Indoor Use Only.
2. You must be 18 years or older to operate this machine, unless supervised by a knowledgeable adult familiar with the machine.
3. Wear gloves to install the machine, Wear the proper Personal Protection Equipment when using machines (Safety Glasses etc.).
4. Always place the CNC Machine on a stable surface.
5. The CNC Machine is supplied with Switchable Power Supply 220VAC or 110VAC. Never use a different power supply; it may cause malfunctions or damage to the machine.
6. The 4040 CNC utilizes a high amp power supply. It is recommended that you do not plug the CNC Router into an extension cord, or power strip as it may damage the machine. (Need final confirmation)
7. Ensure the Emergency stop button is easily accessible at all times.
8. Never disassemble the Power Supply or Electrical Components. This will VOID the warranty.
9. DO NOT TOUCH the machine spindle, or place any body part near the working area when the machine is operating. Serious injury may occur.
10. DO NOT leave children unsupervised with the CNC Machine even when it's not operating. Injury may occur.
11. DO NOT leave the machine unattended while it's operating.
12. Ensure your CNC Machine is in a well-ventilated area. Some Materials may discharge smoke or fumes during operation.

# Specifications





Work Area	400x400x90mm(15.74x15.74x3.54 inch)
Drive Type	Synchronous Belt Drive & Ball Screw
Control Board	4Axis 5.0 GRBL 1.1f
Stepper Motor	Nema17 42x38mm
Stepper Motor Drive	A4988
Spindle	φ52mm 100W 9000RPM/φ52mm 500W 12000RPM
Power	24V 100W/48V 500W
Max Motion Speed	2000mm/min
Max Process Speed	2000mm/min
Max Accelerated Speed	300mm/s <sup>2</sup>
Accuracy	±0.1mm
Limit Switch	Yes(X1,X2,Y1,Y2,Z1,Z2)
E-Stop	Yes
Z-Probe	Yes
Software	Candle
Laser	Support Laser Module With 40mm width 12/24V
Operating System	Windows XP/7/8/10,Linux
Overall Machine Size	725×675×375mm(28.54x26.57x14.76 inch)
Machine Weight	15kg

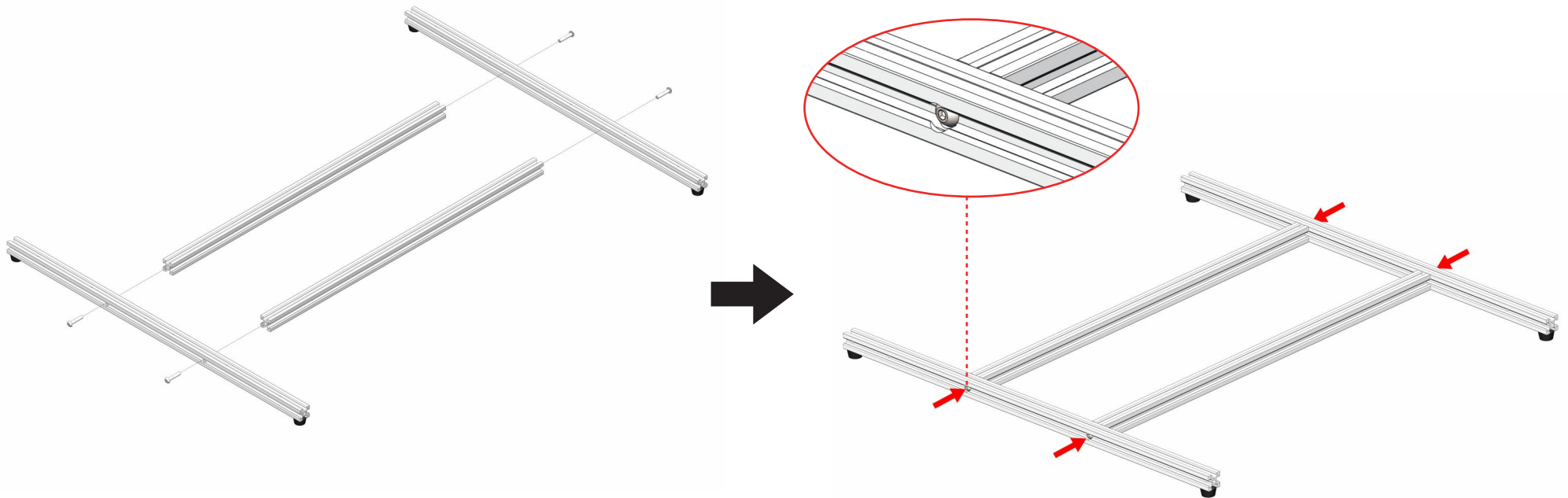
# Package List

1. X-Axis Module 1pc 	2. Y1-Axis Module 1pc 	3. Y2-Axis Module 1pc 	4. Base frame 2pcs 	5. Base frame 2pcs 	6. Spindle Motor 1pc 
7. Pressure plate 4pcs 	8. Acrylic baffle 2pcs 	9. MDF Worktops 2pcs 	10. Spindle Holder 2pcs φ52mm φ65mm 	11. M6×60 4pcs M6×70 4pcs 	12. Spiral tube 1pc 
13. M3×6 2pcs 	14. M4×6 2pcs 	15. M5×16 8pcs 	16. M5×25 24pcs 	17. Wrench 5pcs 	18. CNC Bits 1pc 
19. Brush 1pc & Rule 1pc 	20. USB & Line 2pcs 	21. Collet 1pc 	22. Open-end wrench 10&14&17 3pcs 	23. Z-probe 1pc 	24. Power Supply 

# Assembly Instructions

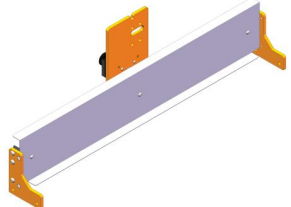
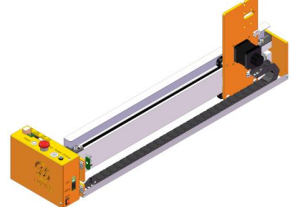


## 1 Install the Bottom Fixing Frame

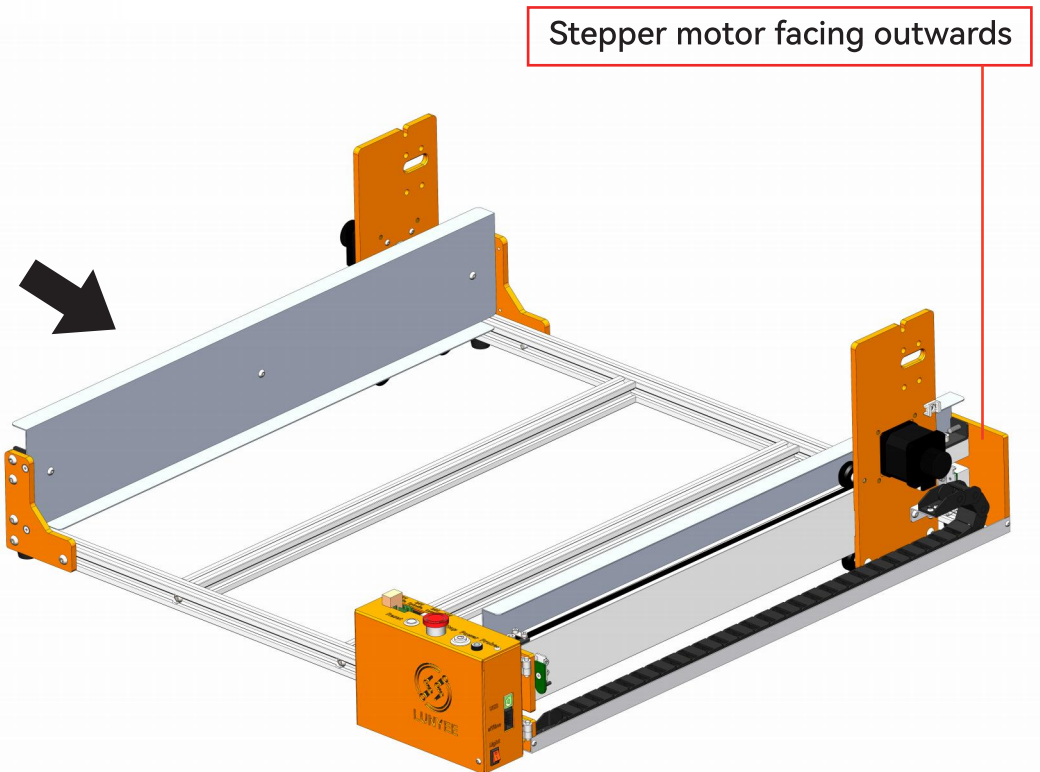
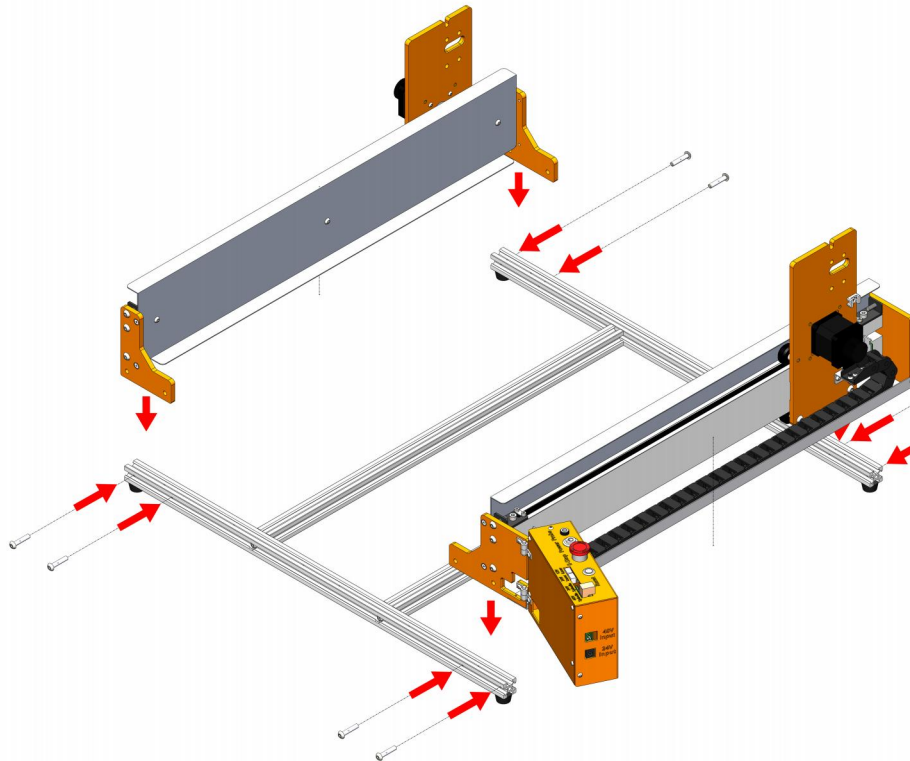
Parts to be used				
	4.Base frame 2pcs	5.Base frame 2pcs	16. M5×25 4pcs	17.Wrench



Tip:When installing, please make sure that the profile with the screw countersunk hole faces outward.




## 2 Install the Y-axis Module

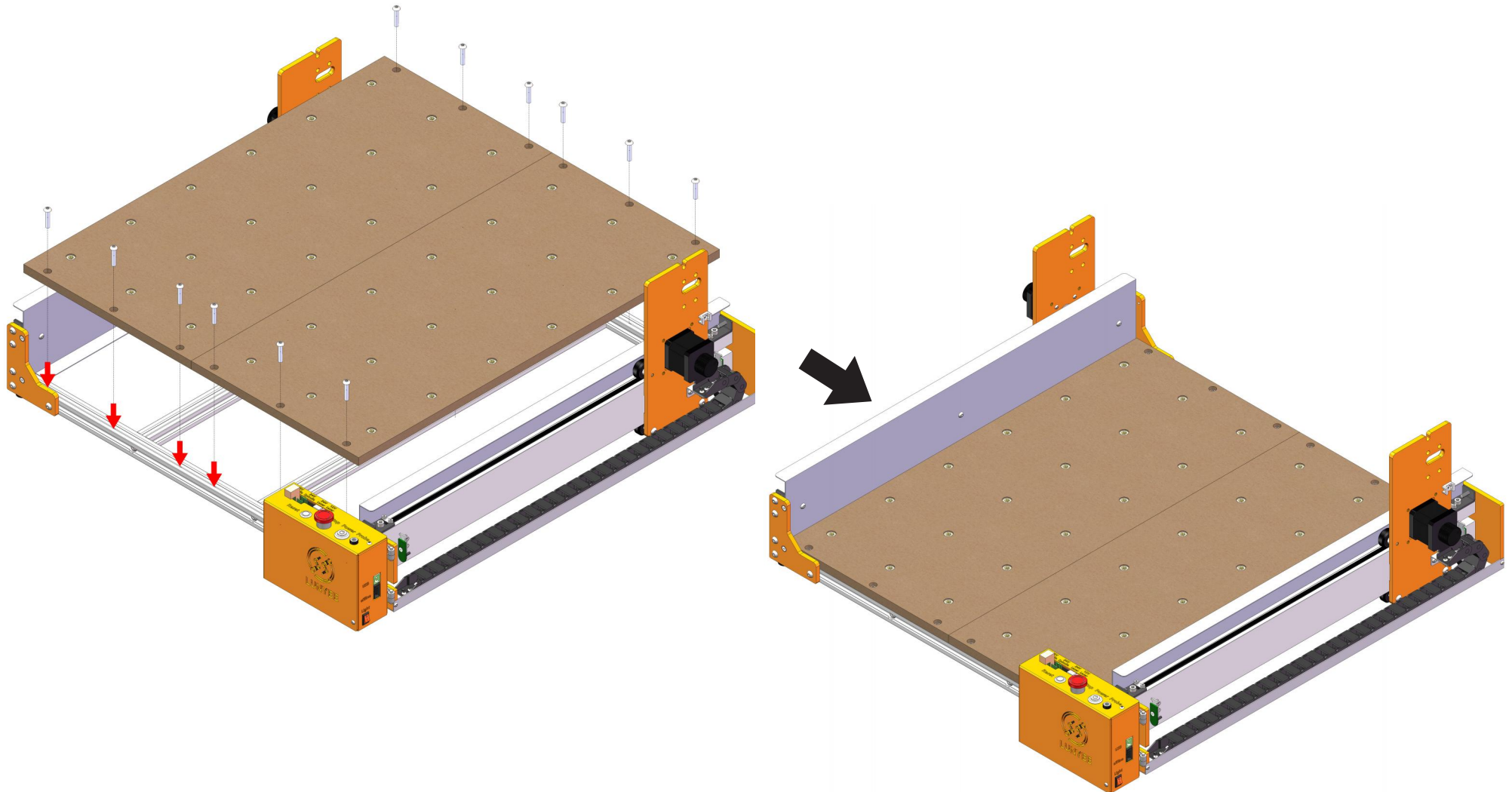
Parts to be used				
	2. Y1-Axis Module 1pc	3. Y2-Axis Module 1pc	16.M5x25 8pcs	17.Wrench





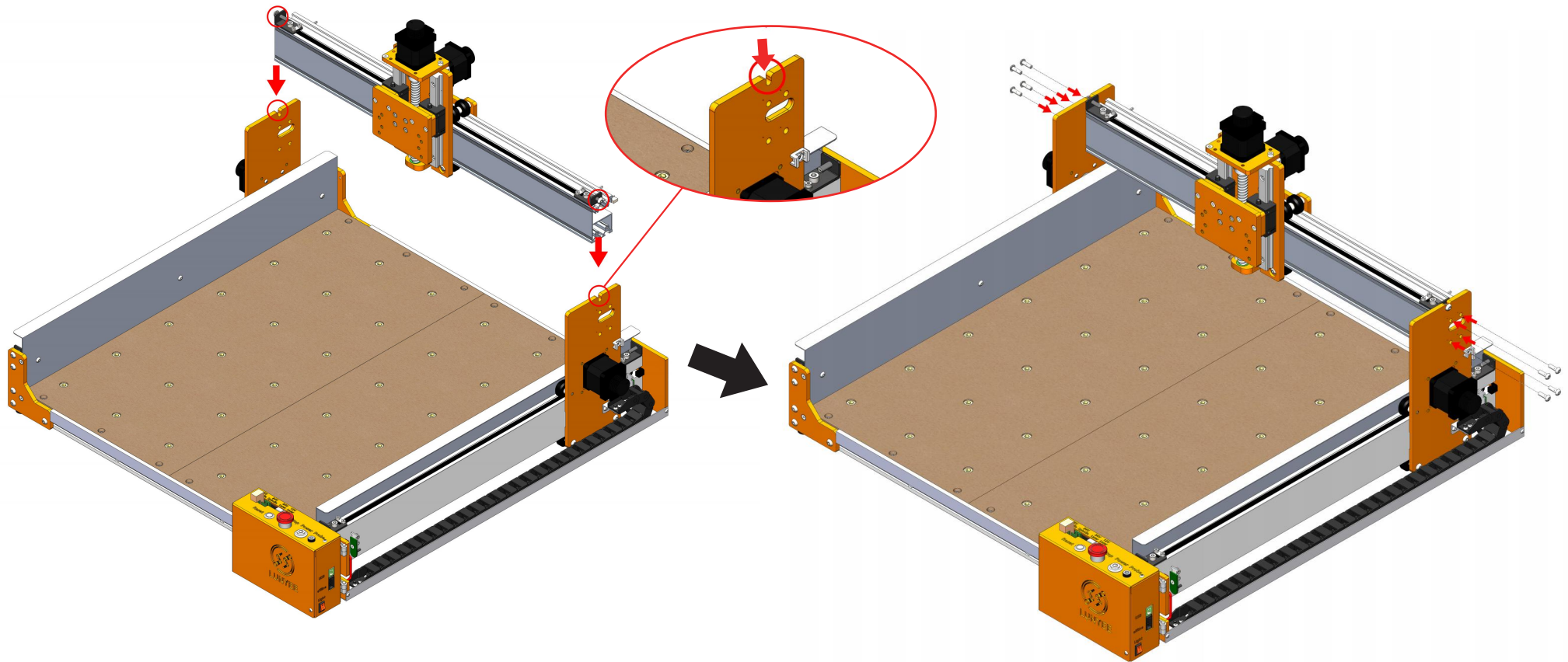
### 3 Install MDF Worktops

Parts to be used			
	9. MDF Worktops 2pcs	16 M5×25 12pcs	17.Wrench






## 4 Install the X-axis Module

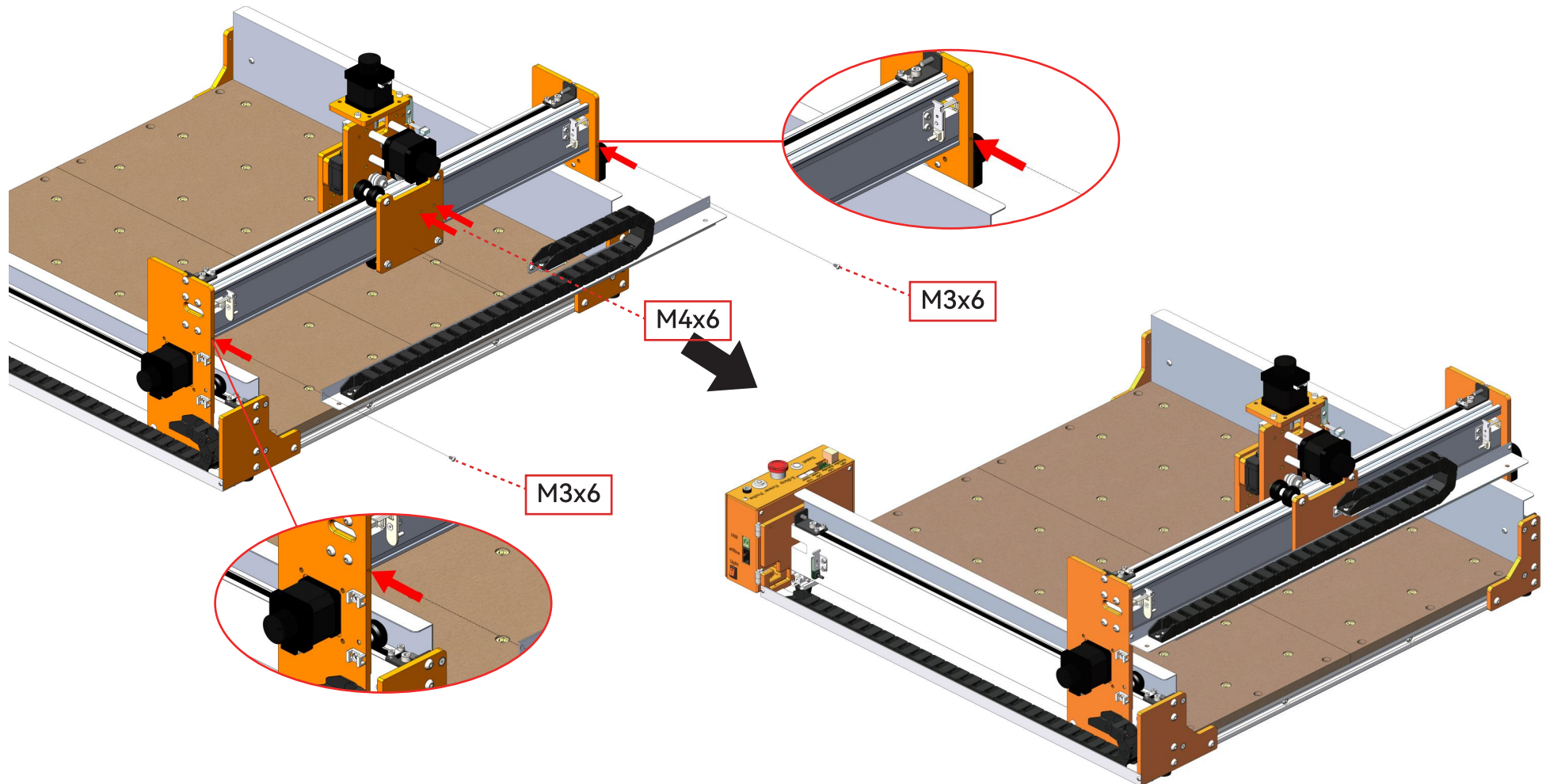
Parts to be used			
	1. X-Axis Module 1pc	15.M5×16 8pcs	17.Wrench



Tip: When installing the X module, first insert the screws at both ends into the grooves of the marked part, and then use the screws to tighten the module.

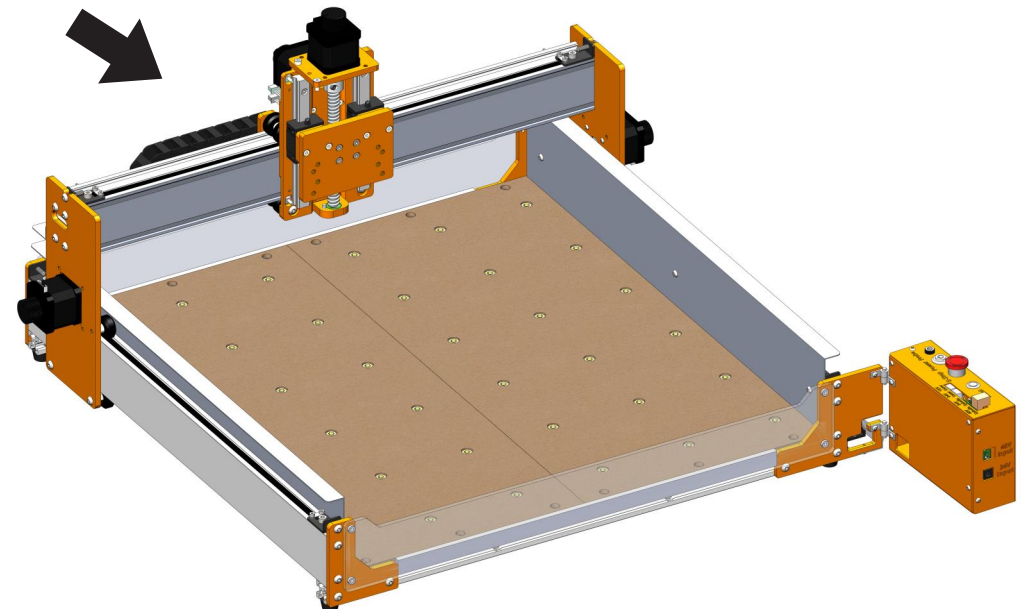
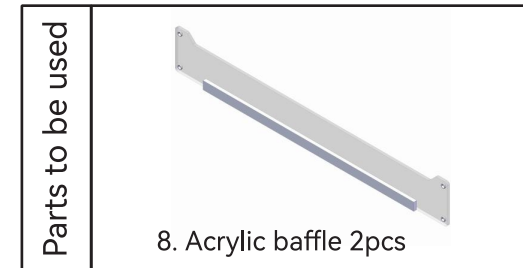
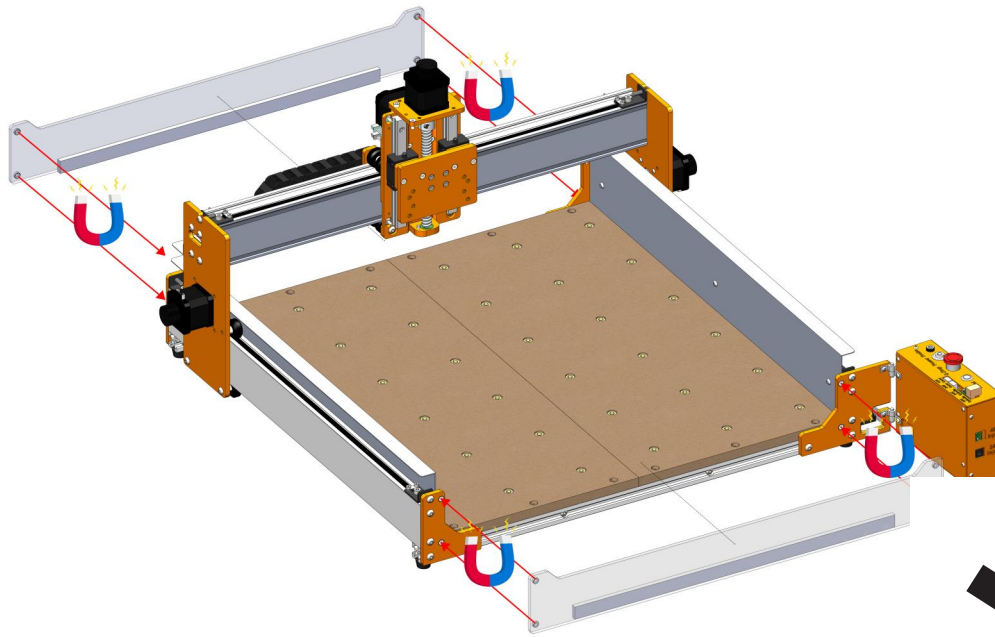
## 5 Install the X-axis Drag Chain Module

Parts to be used			
	13.M3x6 2pcs	14.M4x6 2pcs	17.Wrench

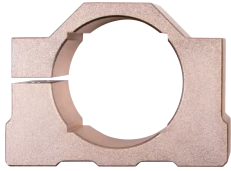





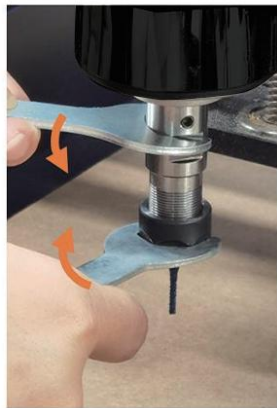
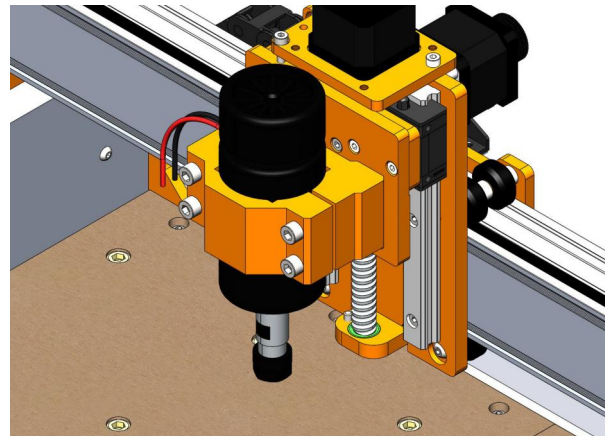
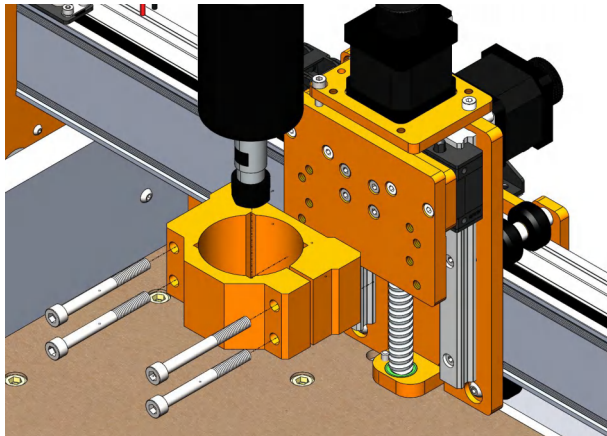


## 6 Install the Front and Rear Acrylic Magnetic Baffles

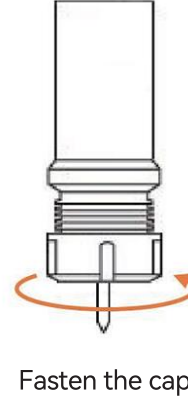
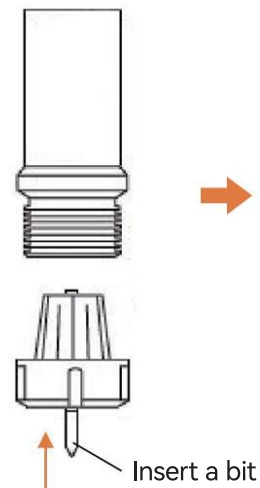
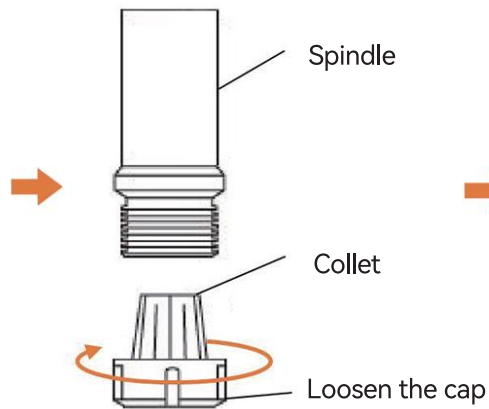


## 7 Install Spindle and Chuck

Parts to be used	 10. Spindle Holder $\phi 52\text{mm}$	 11. M6x60 4pcs	 17. Wrench	 22. Open-end Wrench
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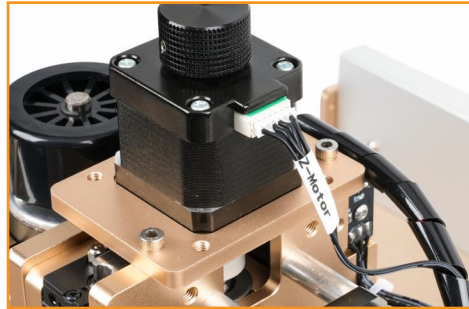
Unlock the cap



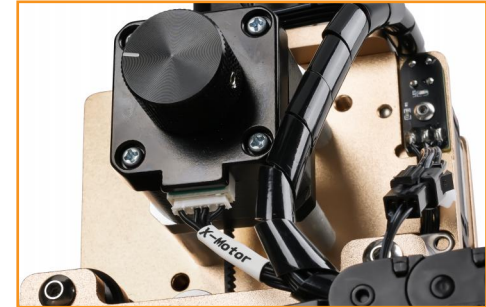
Tighten

# Wiring Diagrams

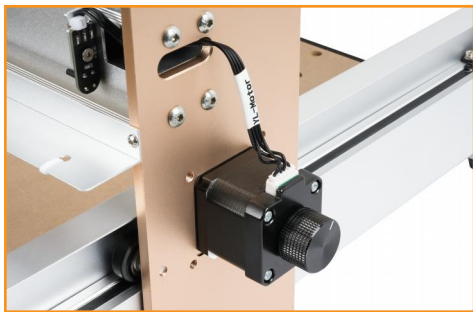
## ① X, Y & Z Stepper Motors Wiring Diagrams



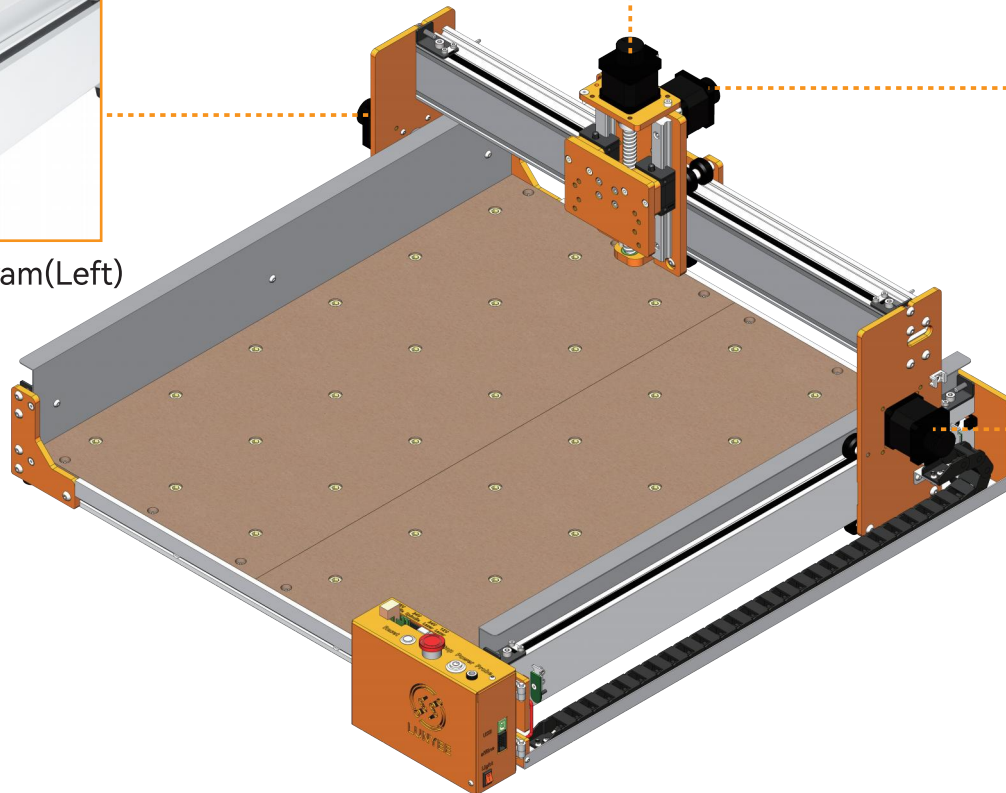
Z Axis Motor Wiring Diagram



X Axis Motor Wiring Diagram



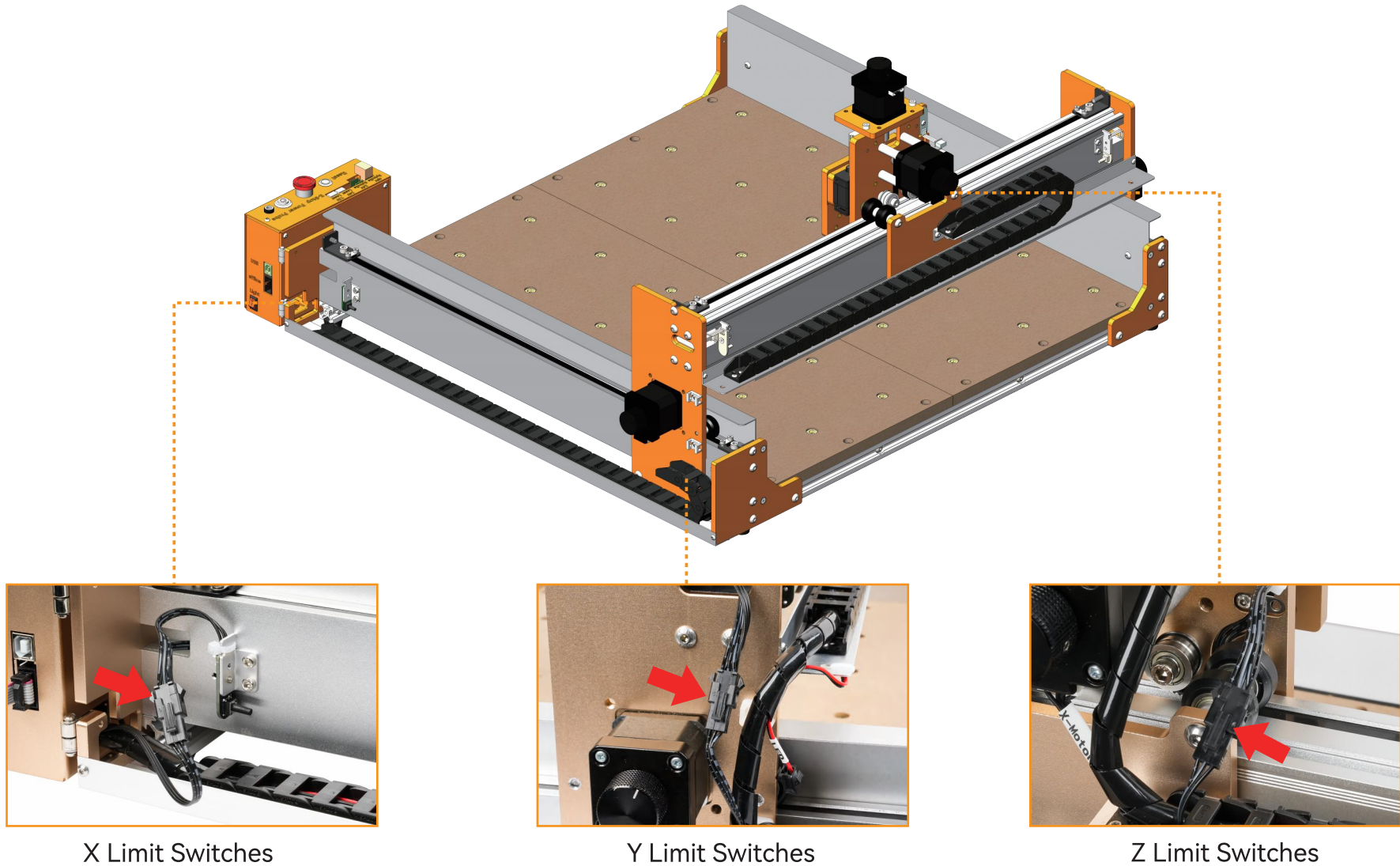
Y Axis Motor Wiring Diagram(Left)



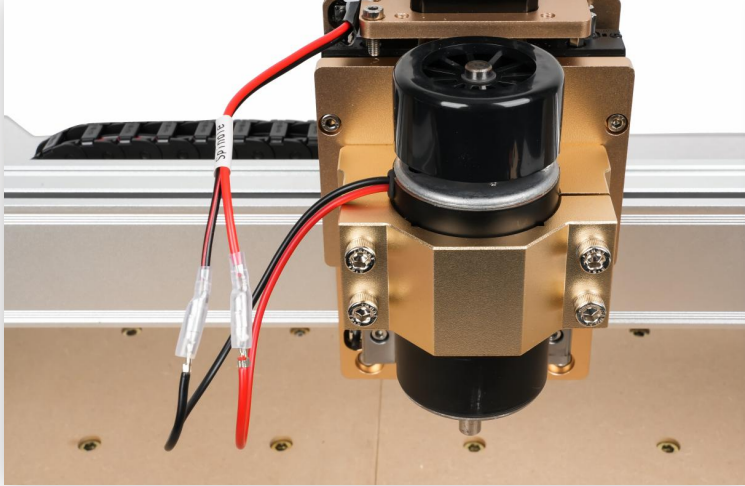
Y Axis Motor Wiring Diagram(Right)



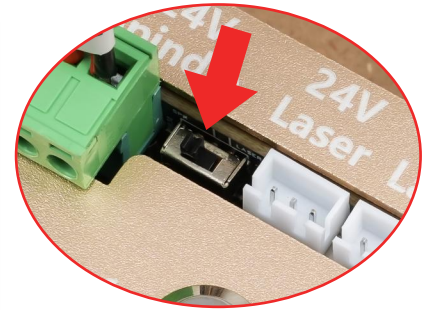
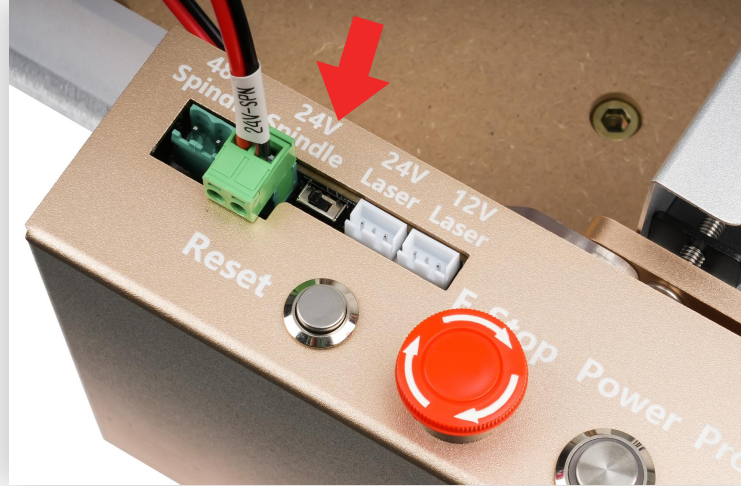
## ② X, Y & Z Limit Switches Wiring Diagrams



### ③ Spindle & Light Wiring Diagrams



▲ Spindle Wiring Diagram



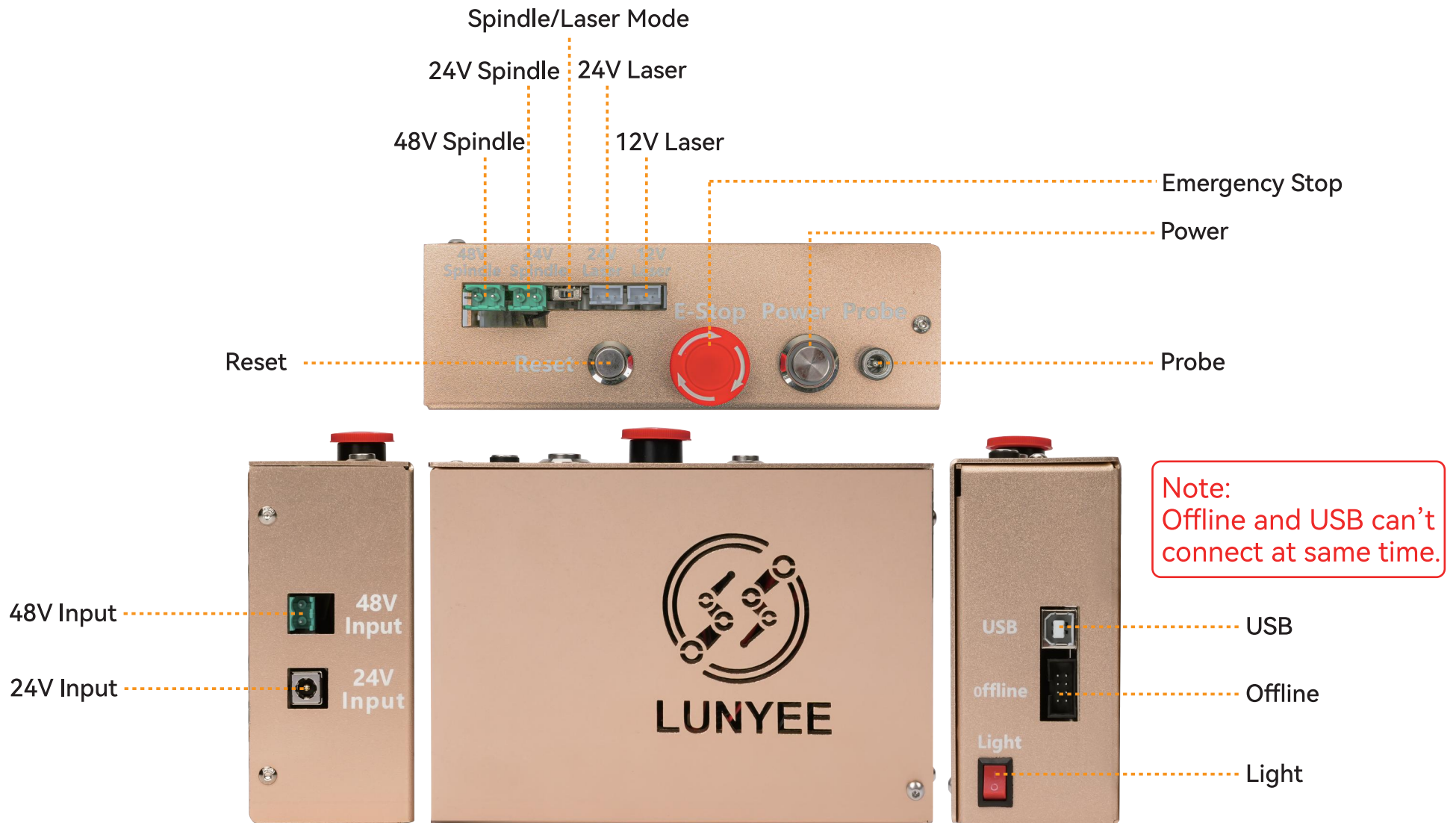
Tips:  
When using the spindle, you  
need to move the paddle to  
the left spindle position.



▲ Led Wiring Diagram



## 4 Controller Instructions





# Driver Installation

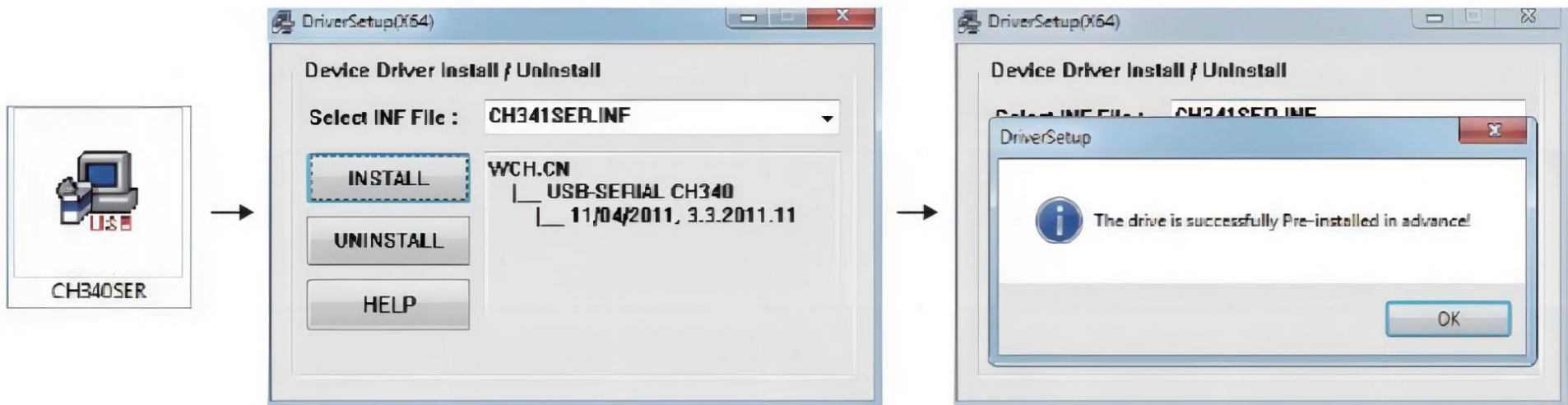
## ① Install the Machine's Driver (CH340SER)

If not available on the USB drive, you may download it here: <https://bit.ly/3gFOhVG>

NOTE FOR MAC USERS: If your Mac is running Mojave OS or higher, Don't install the driver, as the OS has native support for the CH340. If you are running Sierra or High Sierra, please contact LUNYEE Technical Support for additional guidance.

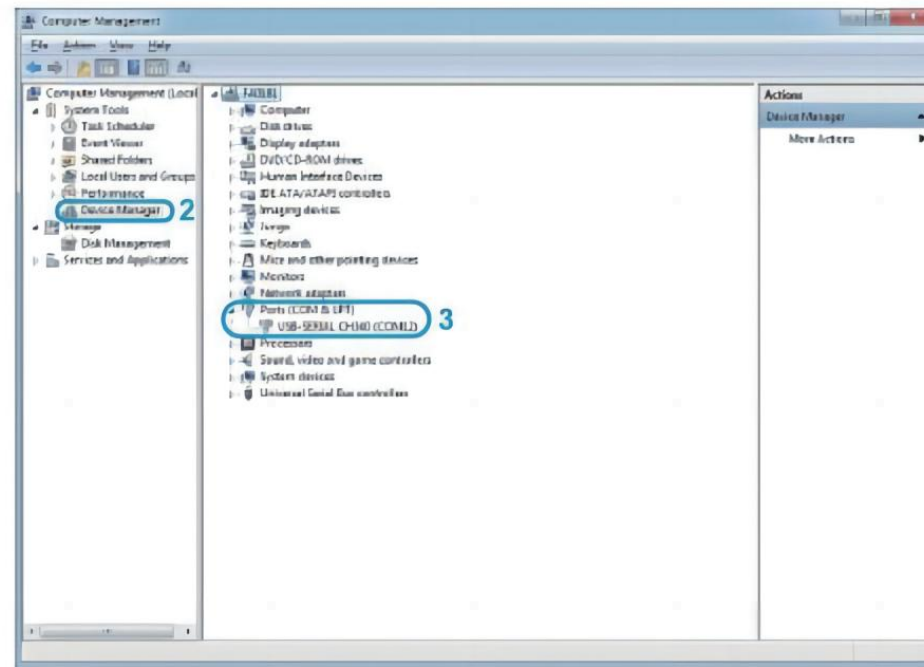
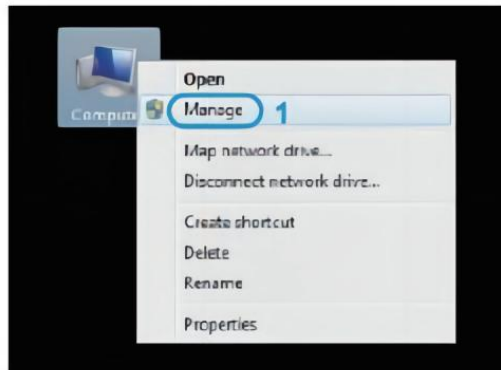
If the driver installation fails, please click Uninstall and then select Install again.

The CH340 driver is installed to ensure that the CNC engraving machine or controller can communicate stably and reliably with the computer through the USB interface.



## ② Determine Your Machine's COM Port(Windows Computers)

- WindowsXP : Right click on My Computer,select Manage,then Device Manager.
- Windows7 : Click on Start on the task bar,right click on Computer,select Manage,then Device Manager
- Windows10 : in the search box on the task bar,type Device Manager,then select it from the menu.



**Note:**  
Machine must be connected to your computer in order for a COM port to be assigned.

In the tree, expand Ports (COM & LPT) Your machine will be identified by the USB Serial Port (COMX), where the "X" represents the COM number, for example COM3.  
If there are multiple USB serial ports right click on each one and check the manufacturer,the machine's should be "CH340".



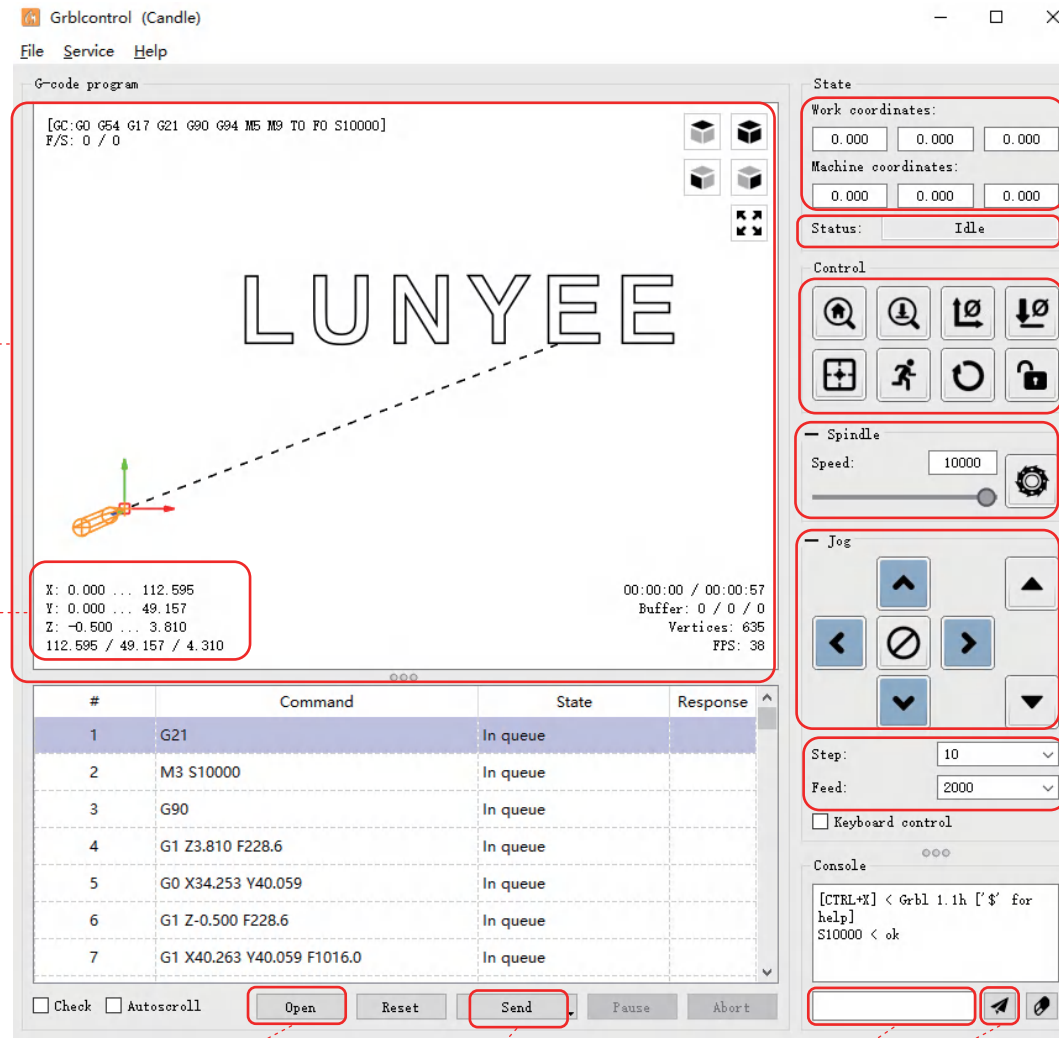
# How to Use Grblcontrol (Candle)

## 1 Candle Interface Introduction

3D preview interface, hold the left mouse button, can rotate Angle, scroll the mouse wheel, can be enlarged, or reduced.

If you cannot see anything, you need to change to a computer with support for OpenGL2.0 graphics cards.

Pattern size



Coordinate display

Status display

Common operation button, the mouse icon on the above shows the specific function

Spindle ON/OFF. Because it is manual speed control, the software can only control the spindle on/off, and cannot perform software speed control, so the progress bar does not work

Manual operation  
Direction buttons

Step and Feed value E.g.:  
Step value=10 means moving distance is 10mm.  
Feed value=2000 means 2000mm/min

Open G-code file

Send G-code file

Command input box

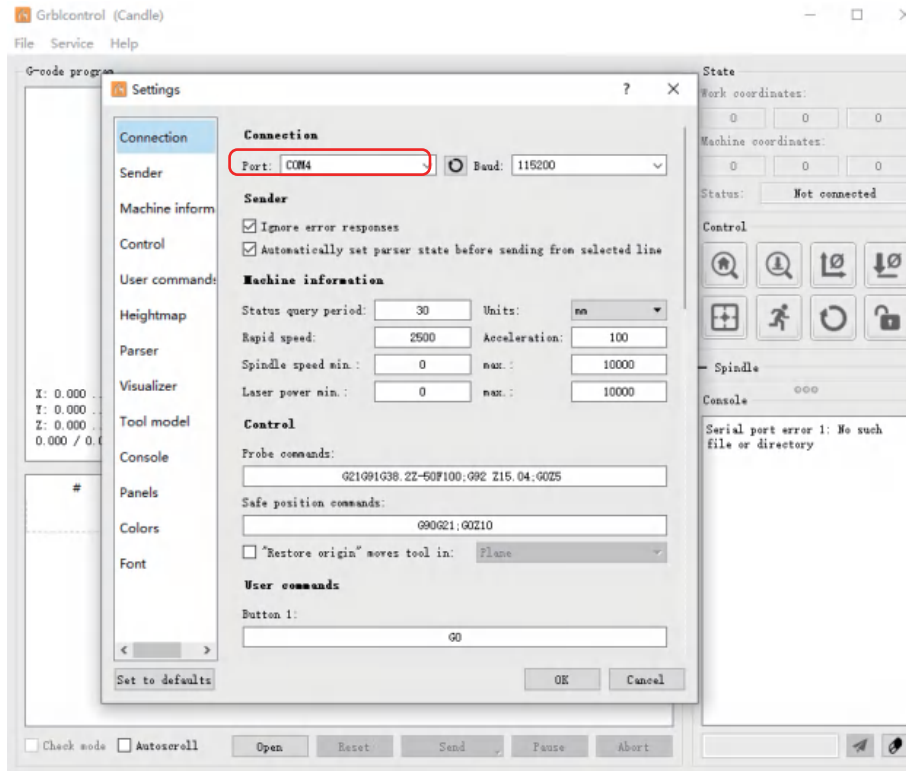
Send command

## ② Make Your First Cut

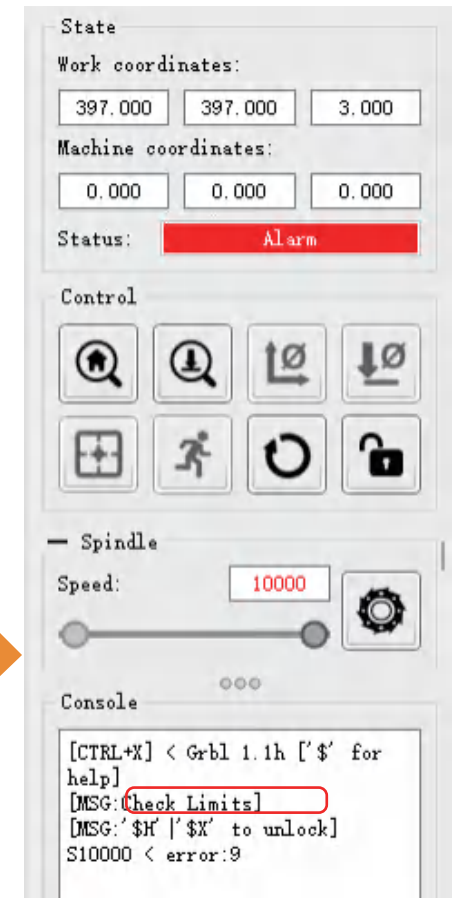


Grblcontrol  
(Candle)

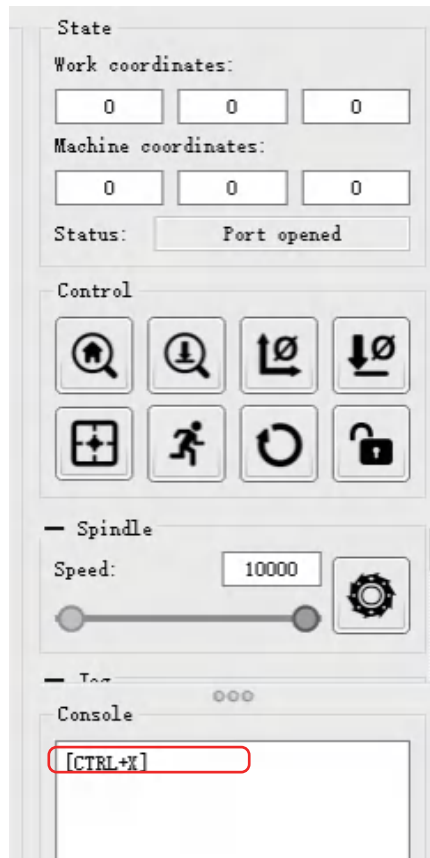
Double click to start  
Grblcontrol (Candle)



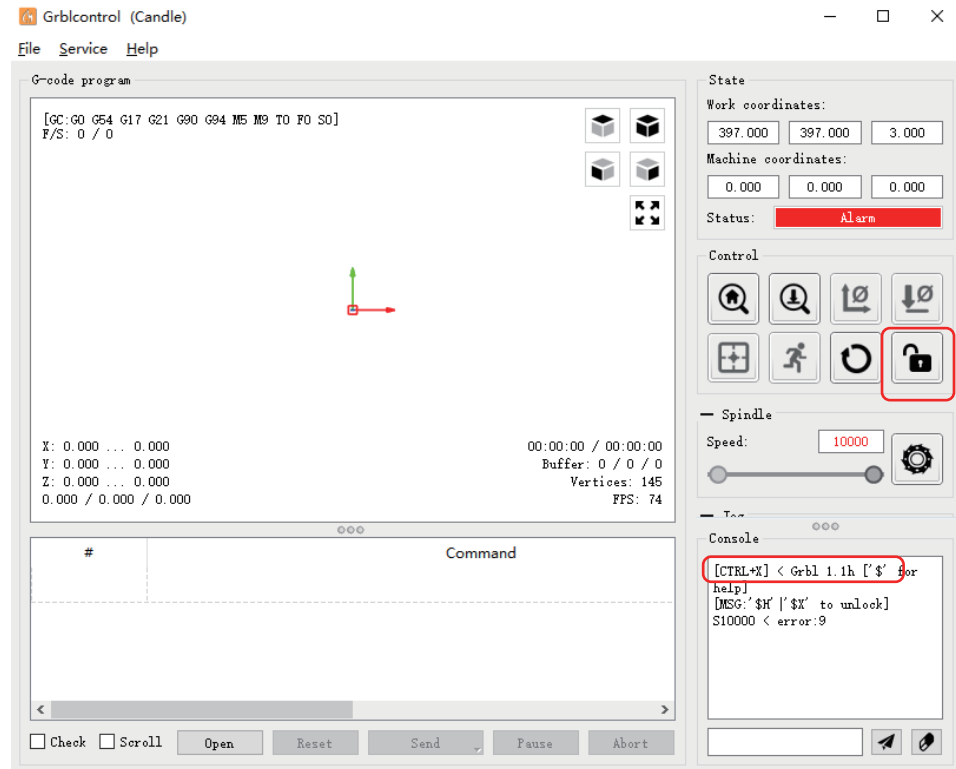
Connect USB cable to computer and machine,  
click Service->Port select COM port. Click "OK"



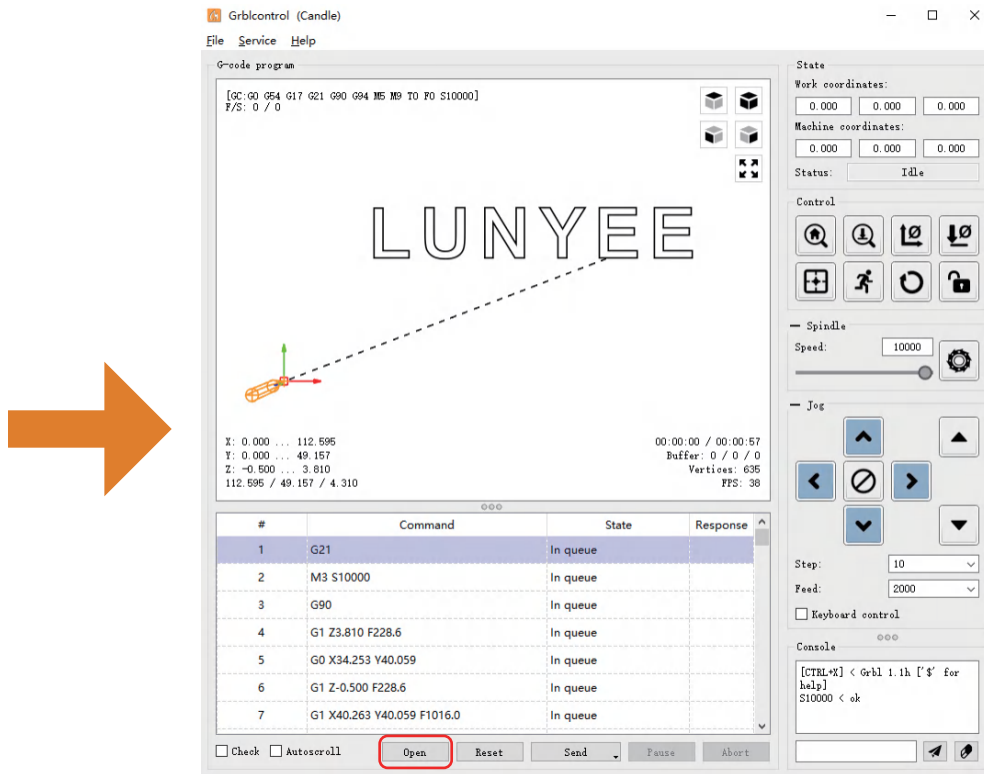
If Status becomes **Alarm** and [MSG: Check Limits] appears in the console at the same time, please check whether the limit switch is triggered. You can power off and release the limit switch manually or refer to page 21 of the manual to release the limit via software.



Console window prints "**CTRL+X**" indicates that the connection is failed. Need to check whether the E-stop is pressed down. If yes, turn the E stop clockwise, and then click "Unlock".



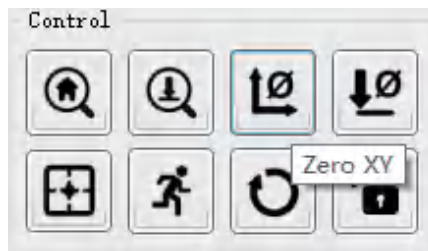
Console window prints "**[CTRL+X] < Grbl 1.1f ['\$' for help]**" if the connection is successful. Click "Unlock".



Open a G-code file, Preview G-Code



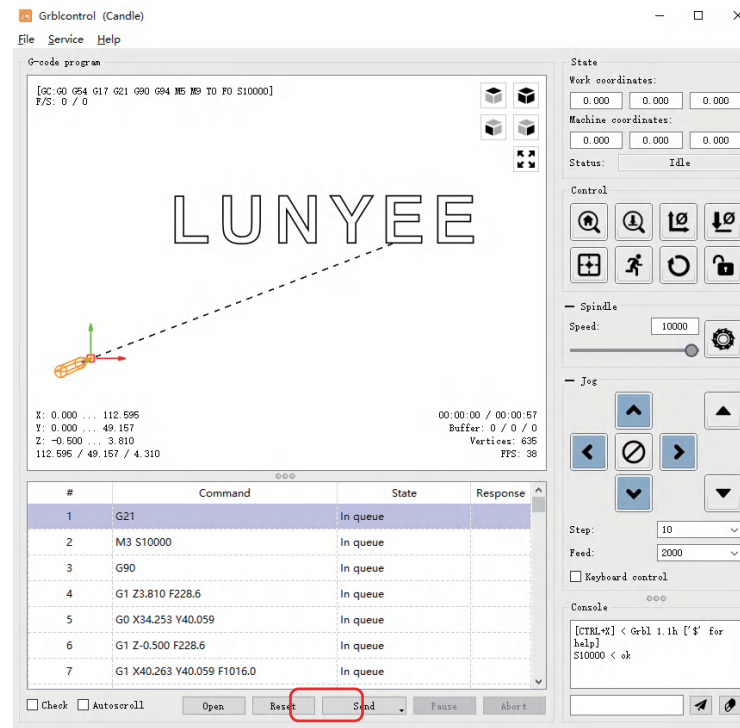
Click the direction button to move the bit to the surface of the object. The proper gap between the bit and object's surface is that only an A4 paper can move through tightly.



Click "Zero XY"



Click "Zero Z"



Click "Send" to start engraving

Engraving Finished.

### 3 Z-Probe Operating



Thickness: 19mm



Settings

Connection

Sender

Machine information

Control

User commands

Heightmap

Parser

Visualizer

Tool model

Console

Panels

Colors

Font

Set to defaults

OK

Cancel

**Connection**

Port: COM8 Baud: 115200

**Sender**

☒ Ignore error responses

☒ Automatically set parser state before sending from selected line

**Machine information**

Status query period: 30 Units: mm

Rapid speed: 2500 Acceleration: 100

Spindle speed min.: 0 max.: 10000

Laser power min.: 0 max.: 10000

**Control**

Probe commands:

G21G91G38.2Z-50F100;G92 Z19;G0Z5

Safe position commands:

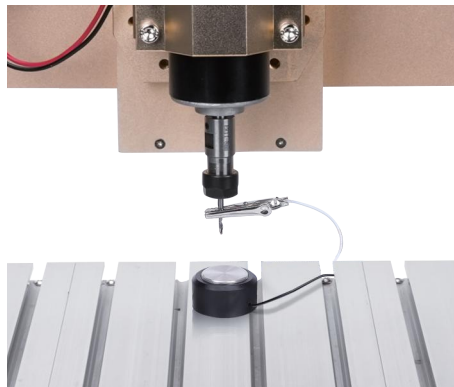
G90G21;G0Z10

☐ "Restore origin" moves tool in: Plane

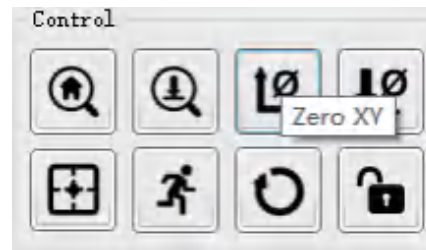
**User commands**

G21G91G38.2Z-50F100;G92 Z19;G0Z5

Edit Z-probe parameter. Default value is Z19



Place the probe as shown



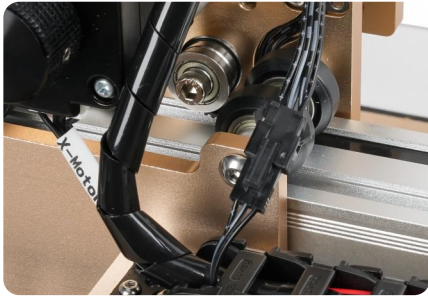
Click "Zero XY"



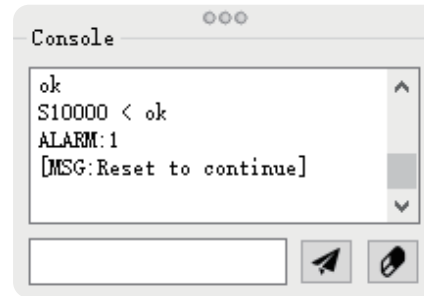
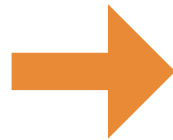
Click Z-probe button to start detecting. After Z-probe detection finished. Remove Z-probe, click "Send" to start engraving



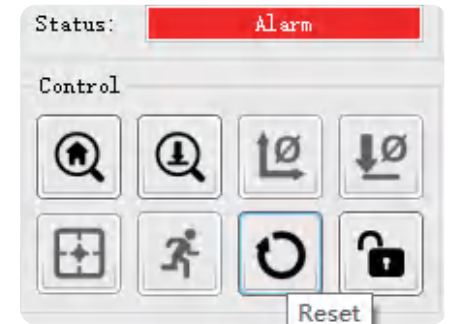
## ④ How to Unlock Limit Switch



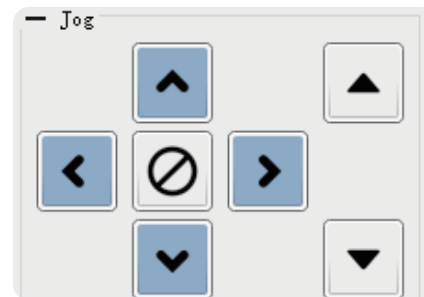
Limit switch will trigger when the machine runs out of active working area.



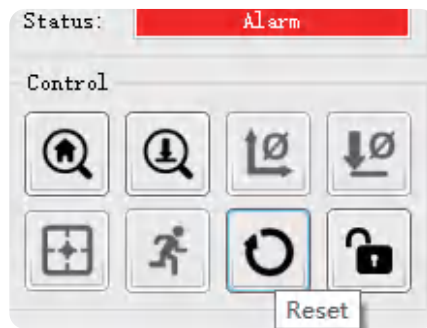
Command window will show: "ALARM:1[MSG:Reset to continue]"



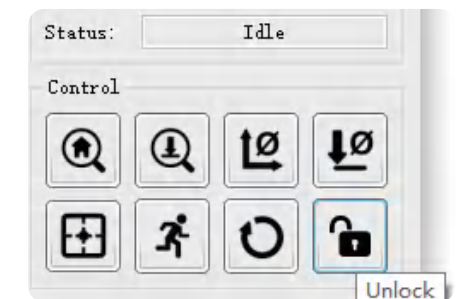
Click "Reset"



Click direction buttons to move the axis way from limit switch.



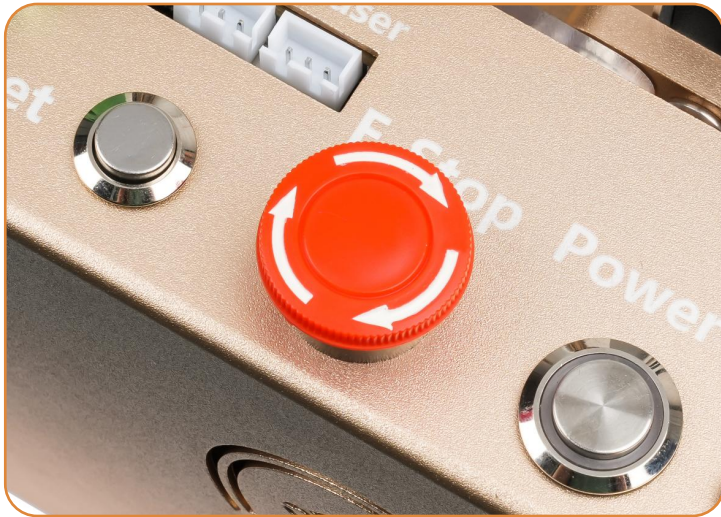
If status change to "Alarm" again, that means it does not entirely move away from the limit switch, just repeat the previous steps to unlock.



Click "Unlock"



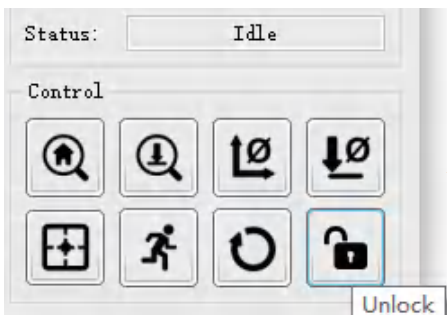
## 5 How to Use E-stop



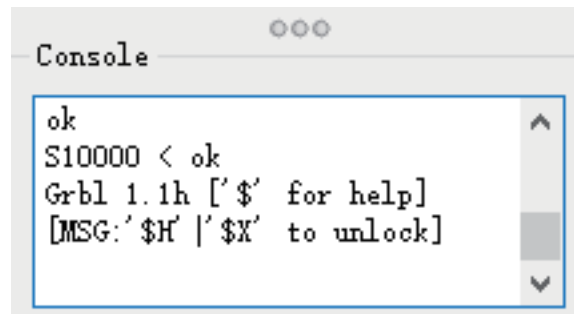
Press down E-stop when the machine mal-functions to avoid damage.



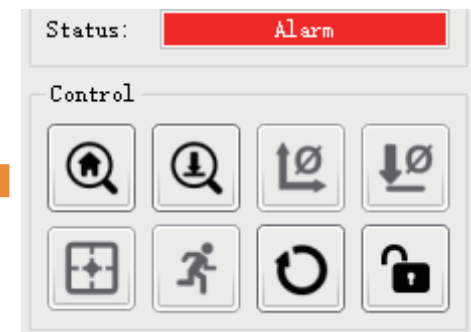
Rotate clockwise to release the E-stop.



Click "Unlock" to normal working status.



Print "[MSG: '\$H' | '\$X' to unlock]"



Status in software will change to "Alarm".

# After-sales Service

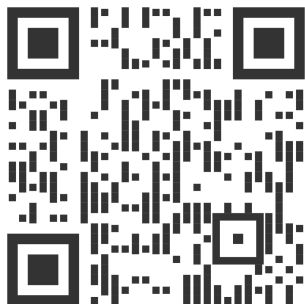
## ① Download the Driver and Software

Please download the driver and software from the thumb drive included in the package. It includes: CH340 driver GrblControl(Candle) software sample files for Windows GrblControl(Easel) software sample files PDF user manual.

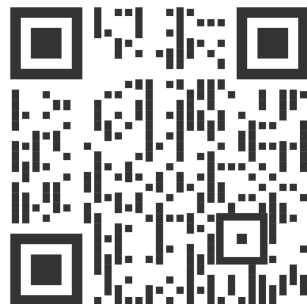
Download the above documents from Google Drive link, please scan the Google Drive QR code below to download.

## ② Technical Support

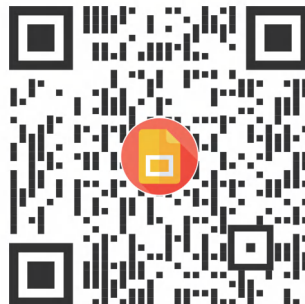
If you encounter any difficulties during assembly and use, please feel free to contact us for technical support. We will respond within 1 working day. Email: [support@lunyee.com](mailto:support@lunyee.com).



After-sales



WhatsApp



Driver Download



Installation Video



