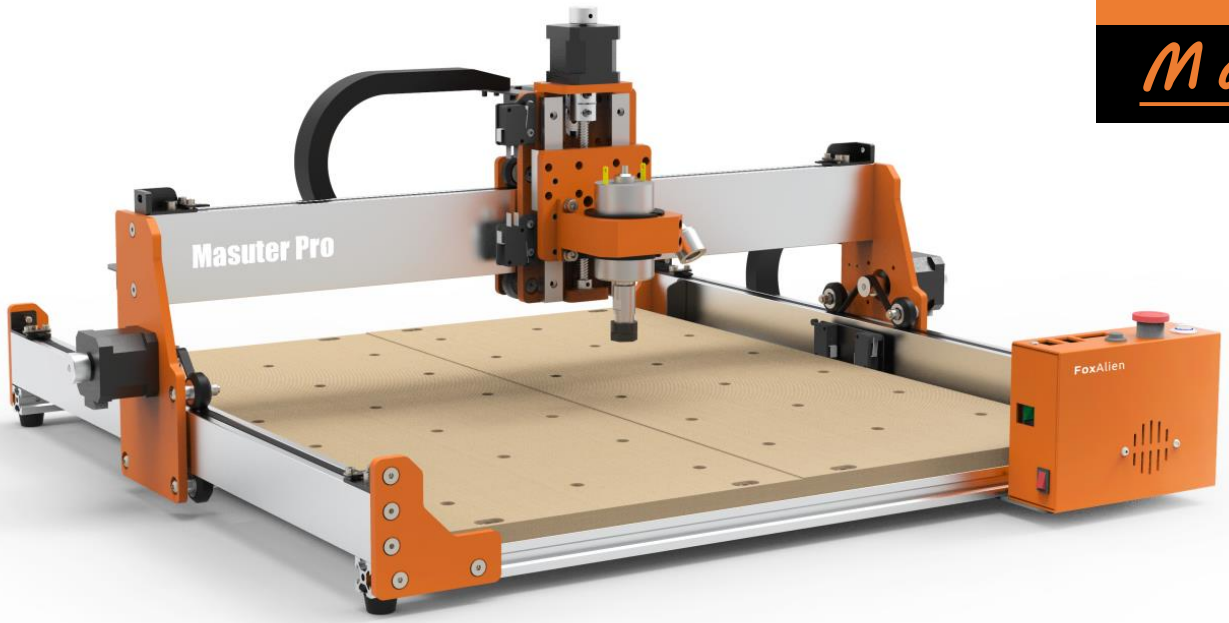
FoxAlien

Desktop CNC Router

Masuter Pro



USER MANUAL

Please read this manual carefully before using.

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Warranty & Disclaimer

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

- This CNC Machine is for Indoor Use Only.
- Wear the proper protection equipment while operating.
- Always place the CNC Machine on a stable surface.
- Never disassemble the Power Supply or Electrical Components. This may cause damage and will VOID the warranty.
- DO NOT TOUCH the machine spindle, or place any part near the working area when the machine is operating. DO NOT leave children unsupervised with the CNC Machine even when it’s not operating. Injury may occur.
- DO NOT leave the machine unattended while it's operating.

One Year Warranty

- This product is warranted against any defective material or workmanship for a period of twelve months from date of delivery.
- Any parts determined by the manufacturer to be defective will be replaced in whole or part as determined by the manufacturer, but no labor costs or other claims for damages will be allowed.

Product Specifications

Model	Masuter Pro
Working Area	400 x 400 x 60mm (15.75” x 15.75” x 2.36”)
Input Voltage	12V
Input Current	5A
Spindle Power	60W
Spindle Speed	10000 r/min
Motor	NEMA17
Firmware Version	1.1H
Limit Switch	X, Y, Z
Emergency Stop Button	Yes
Support OS	Windows XP, Windows 7, Windows 8, Windows 10, Windows 11, Linux, Mac OS
Software	Grblcontrol(Candle), other GRBL compatible software
Offline Working	Supports offline working, offline control sold separately
Support Add-ons	Laser, Offline controller, 300W Spindle& Trimmer (NOT included)

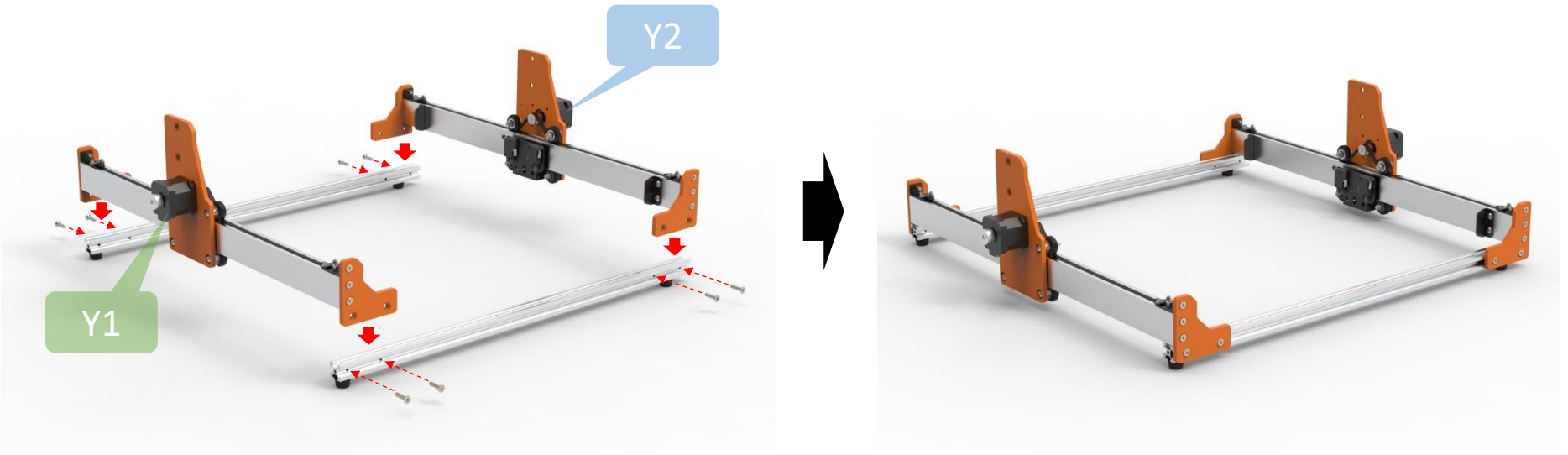
How to Assemble the Machine

1

2x

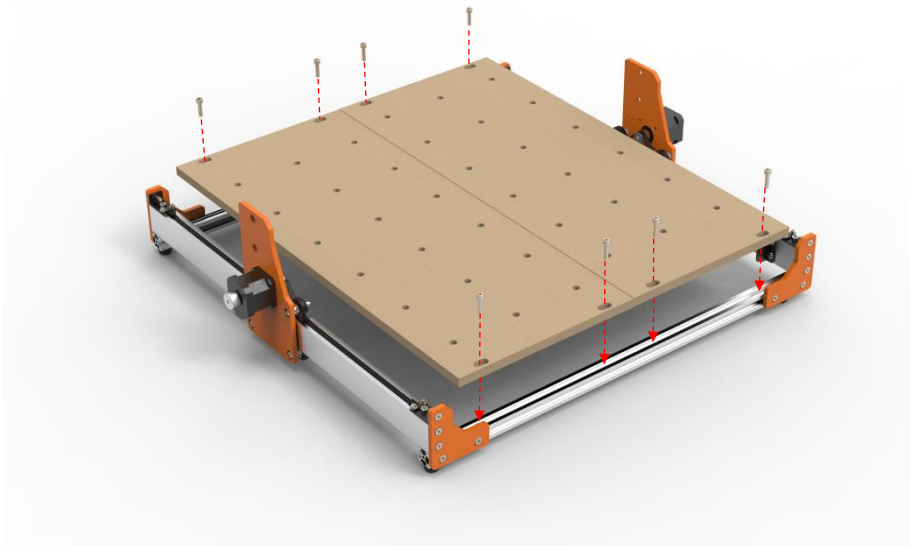
8x

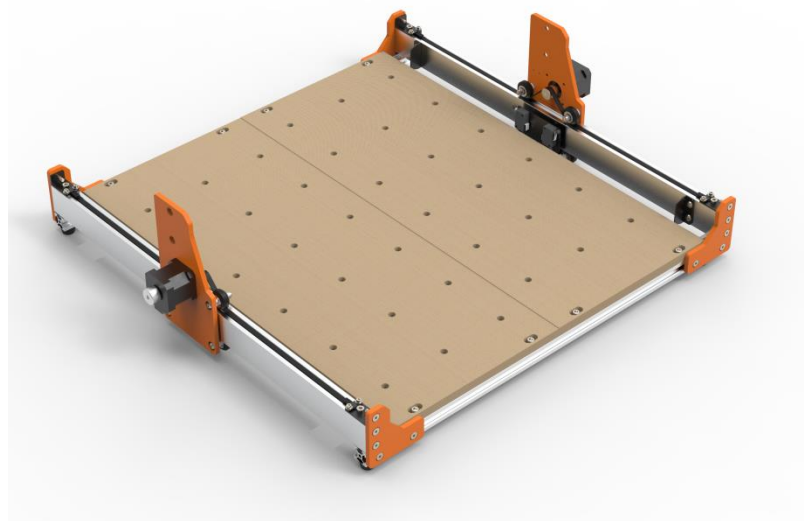
❶ Y-axis Aluminum Profile (L) ❷ Y-axis Aluminum Profile (R) ❹ X-axis Aluminum Profile ⓴ M5*20 Flat Cap Bolt



How to Assemble the Machine

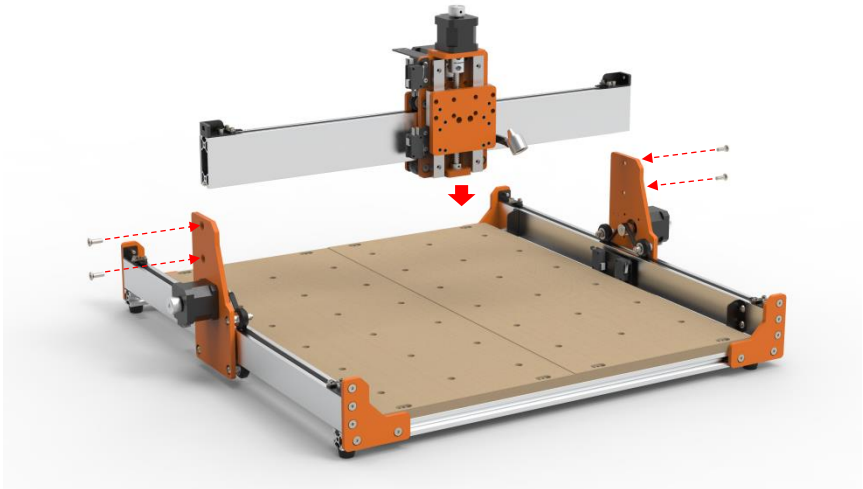
2		
		8x
	5 MDF Spoil Board	17 M5*20 Bolt

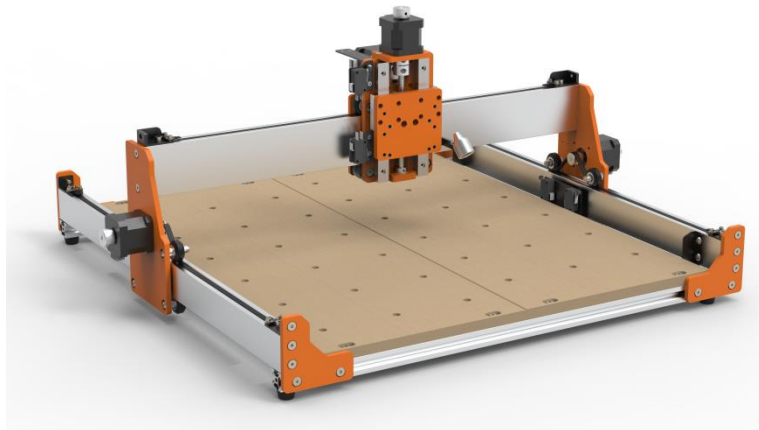




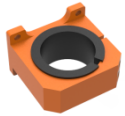
How to Assemble the Machine

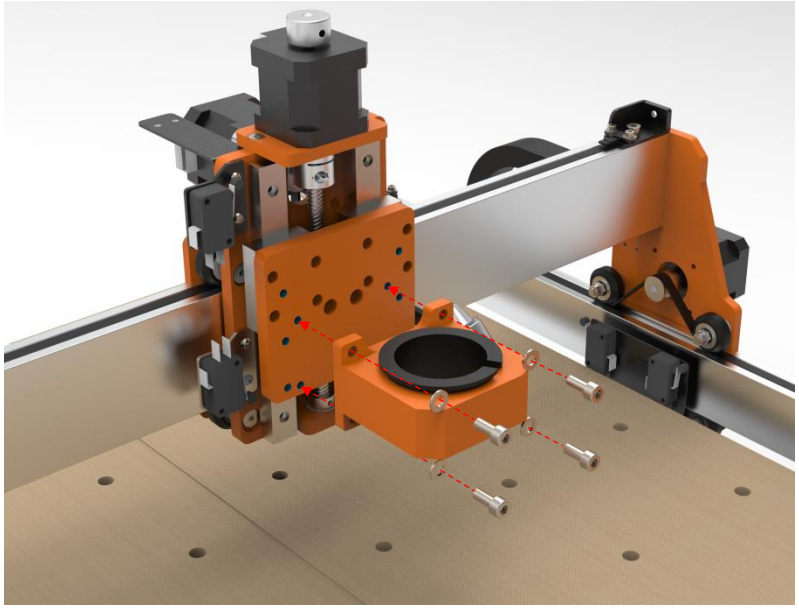
3		
		4x
	3 X-axis Gantry	19 M5*16 Flat Cap Bolt

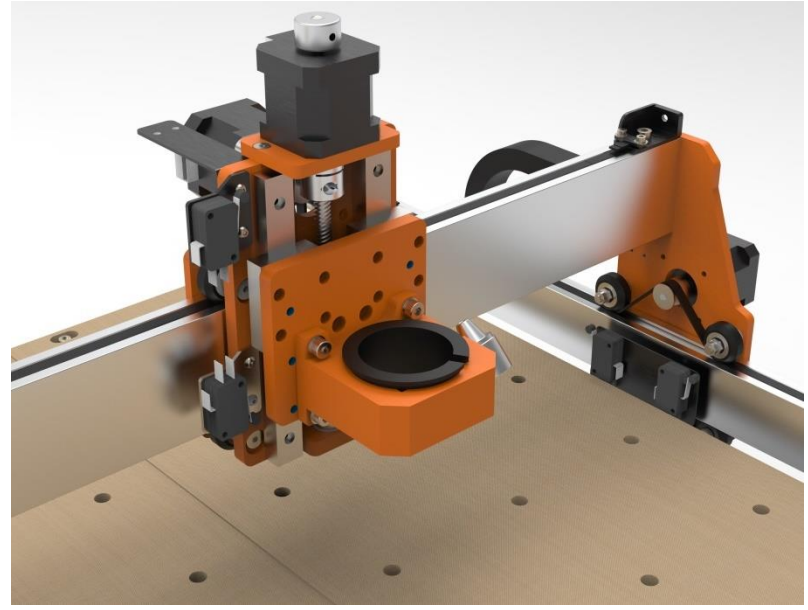




How to Assemble the Machine

4			
		4x	4x
	6 Spindle Holder	16 M5*12 Bolt	23 Washer

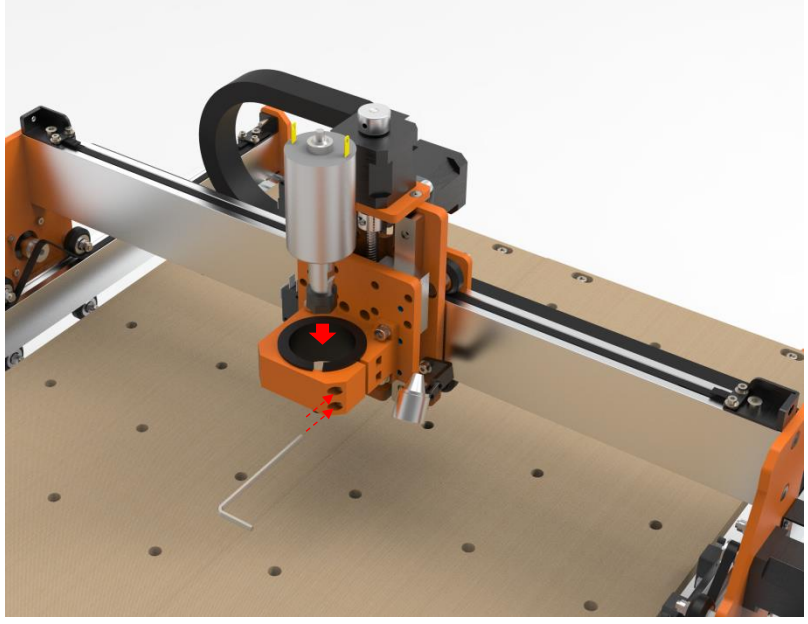


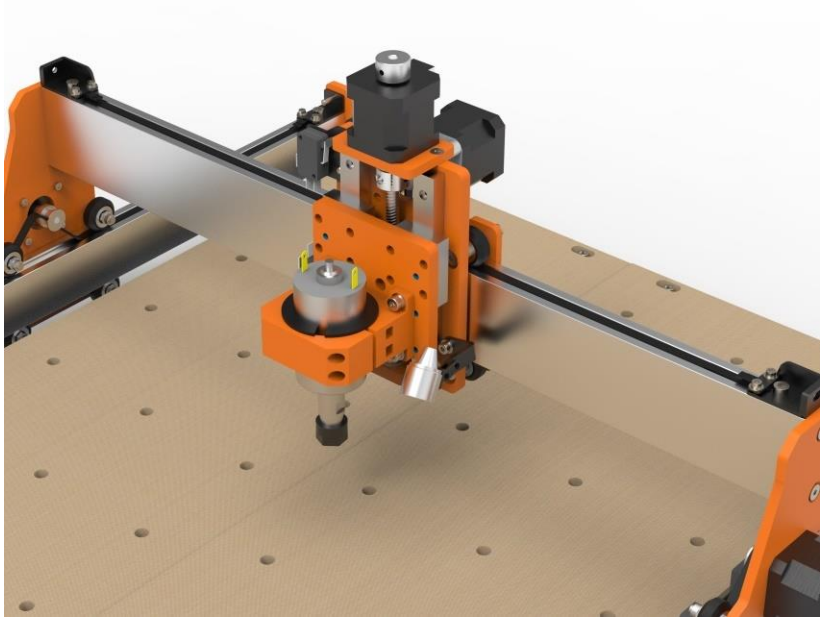


How to Assemble the Machine

5

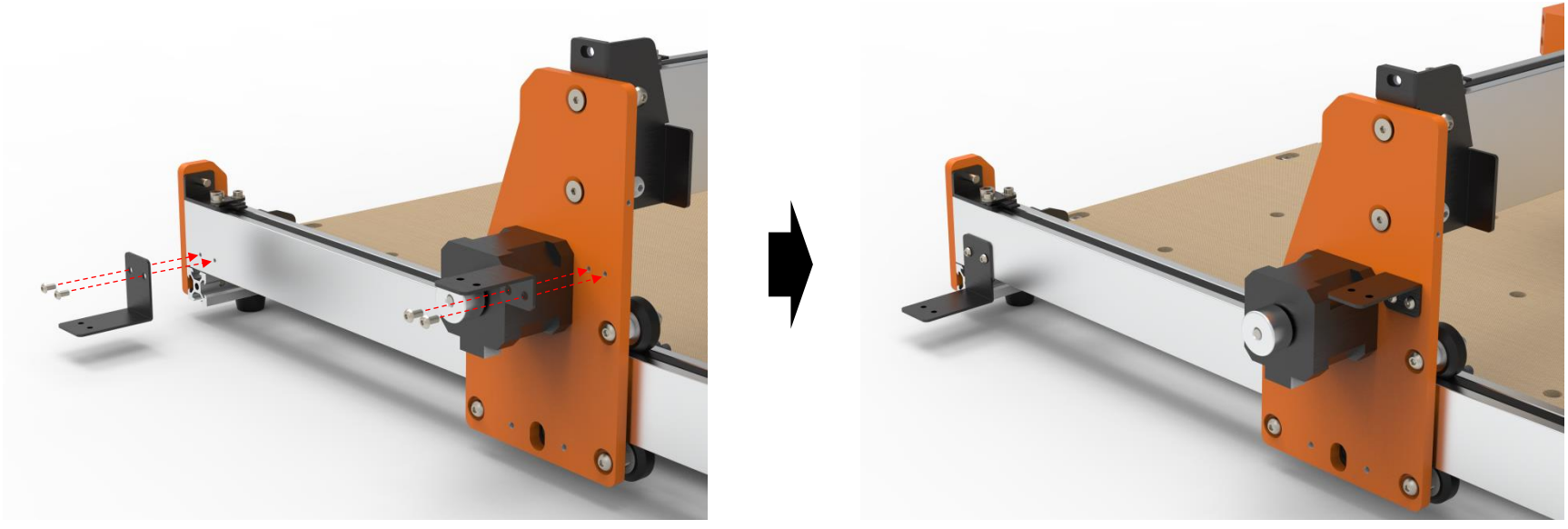
7 Spindle





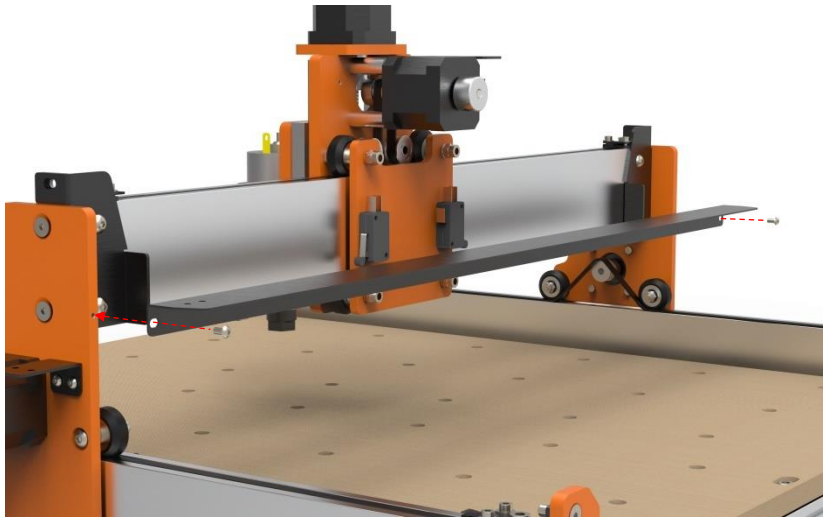
How to Assemble the Machine

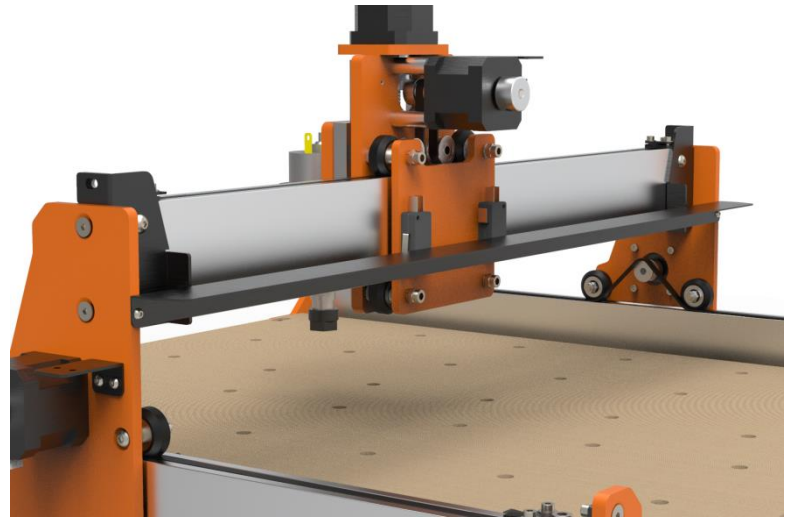
6			
			4x
	12 Y-axis Drag Chain Bracket	13 Y-axis Drag Chain Bracket	21 M3*6 Button Cap Bolt



How to Assemble the Machine

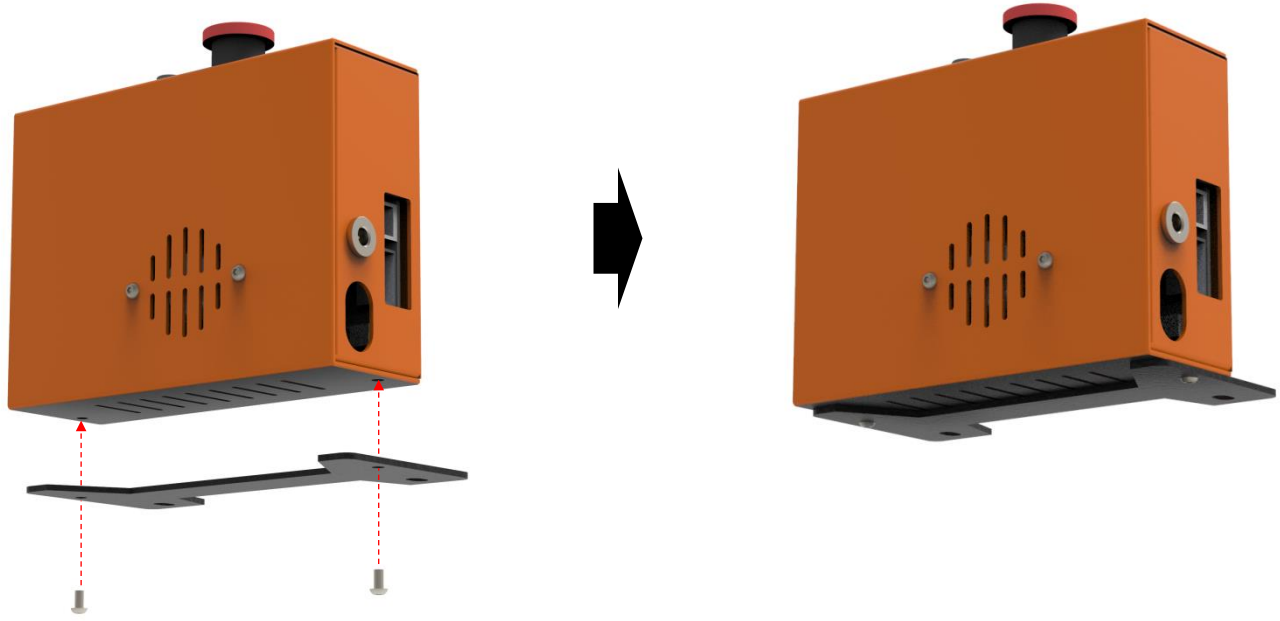
7		
		2x
	14 X-axis Drag Chain Bracket	21 M3*6 Button Cap Bolt





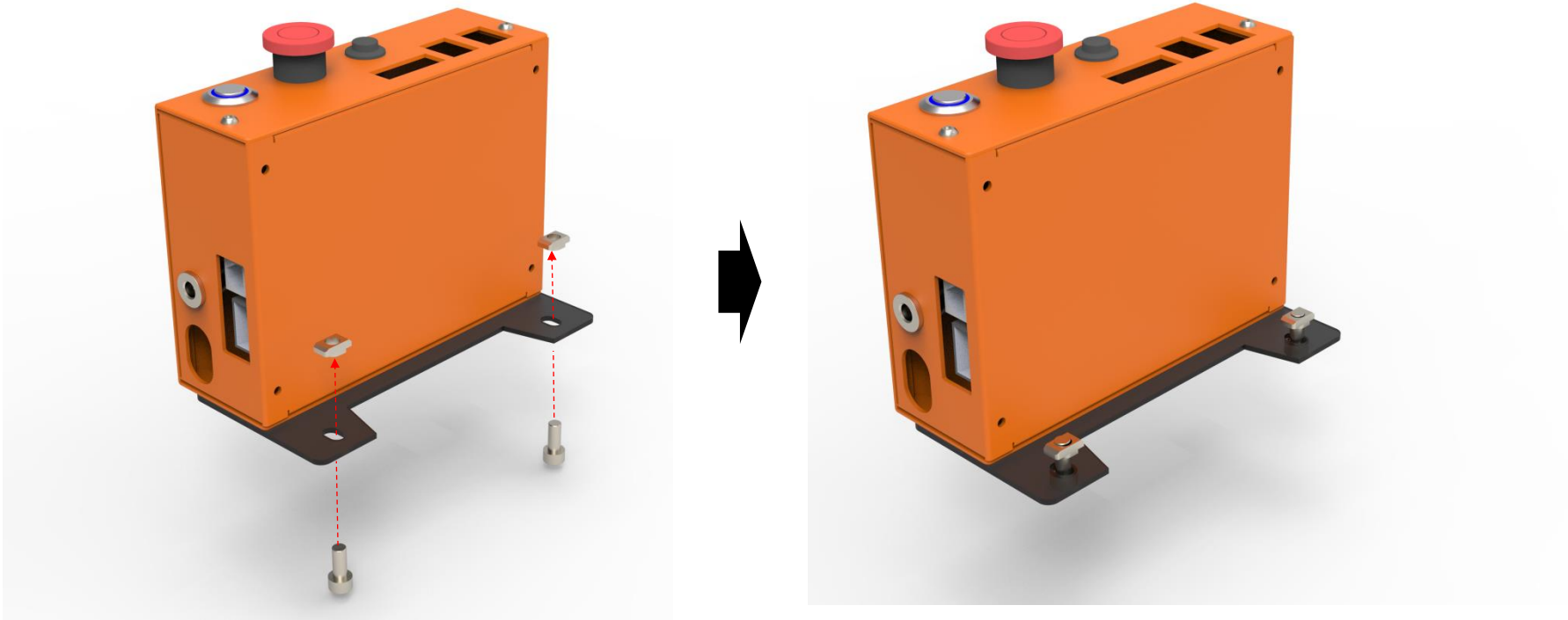
How to Assemble the Machine

8			
			2x
	8 Controller Support Plate	9 Controller	22 M3*8 Button Cap Bolt



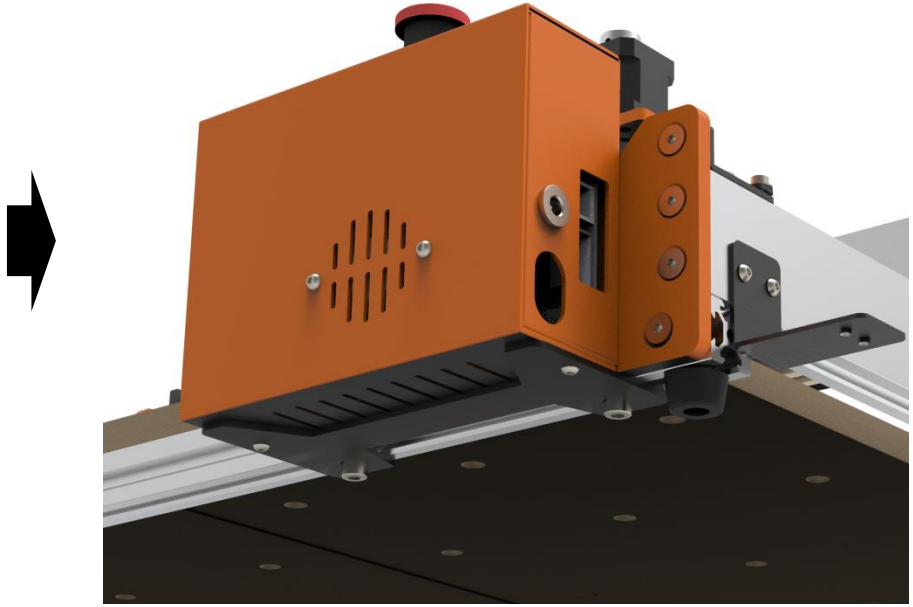
How to Assemble the Machine

9		
	2x	2x
	15 M5*8 Bolt	24 M5 T-nut



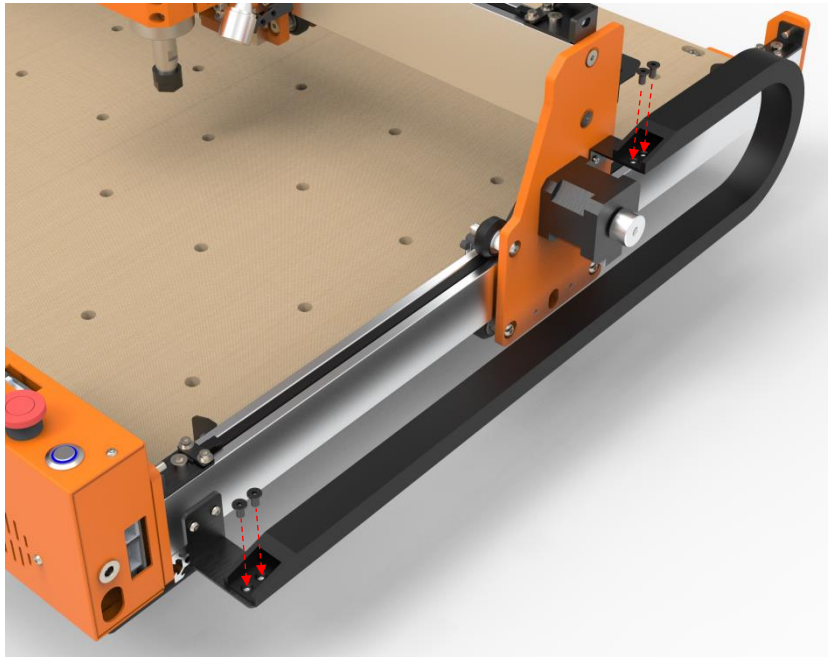
How to Assemble the Machine

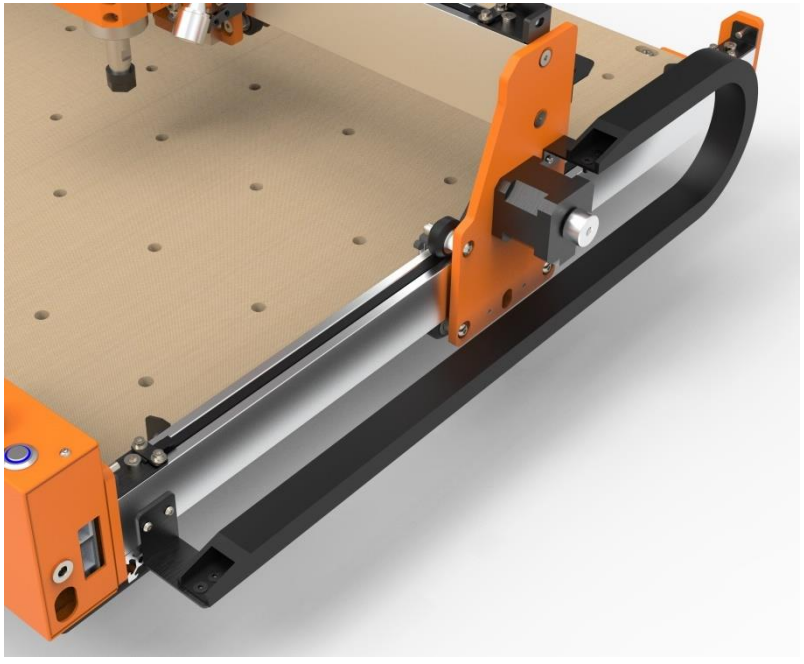
10	
	25 Hex Wrench



How to Assemble the Machine

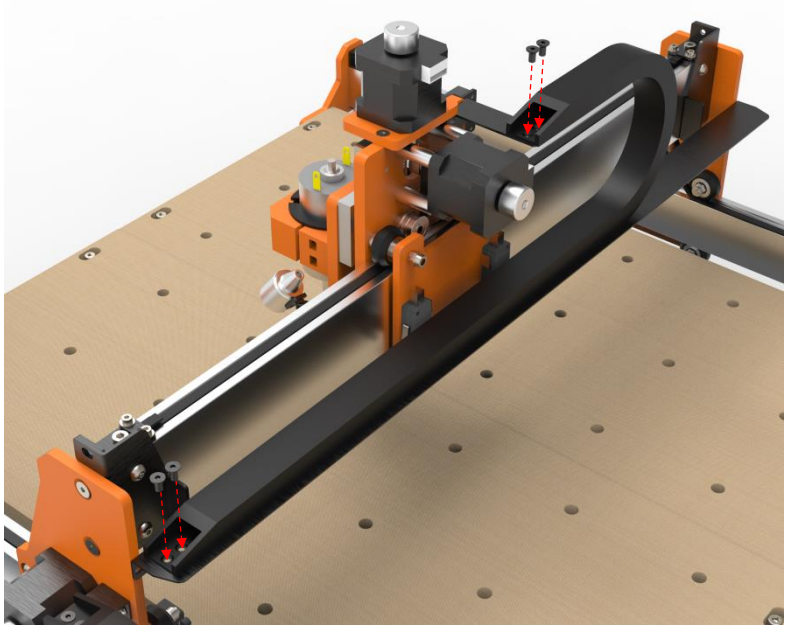
11		
		4x
	⓫ Y Axis Drag Chain	⓲ M4*6 Flat Cap Bolt

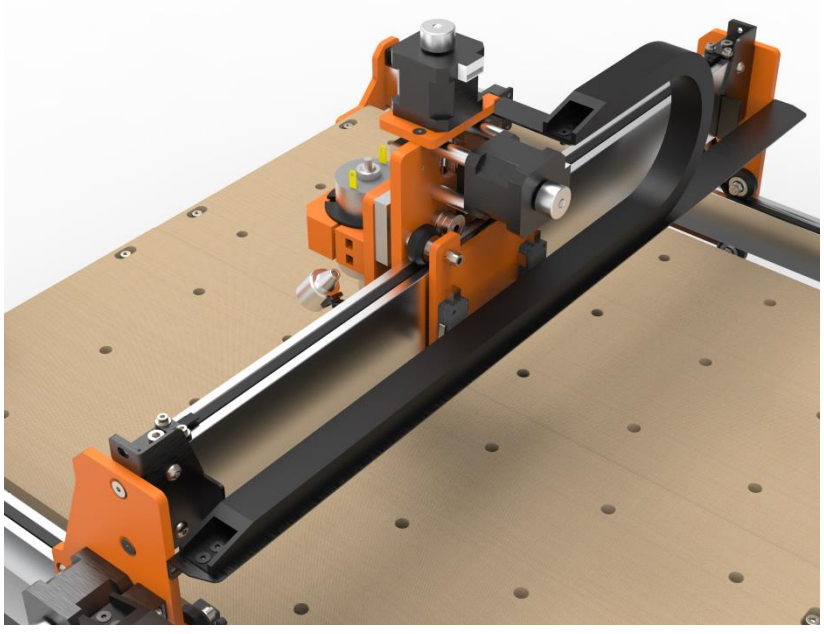




How to Assemble the Machine

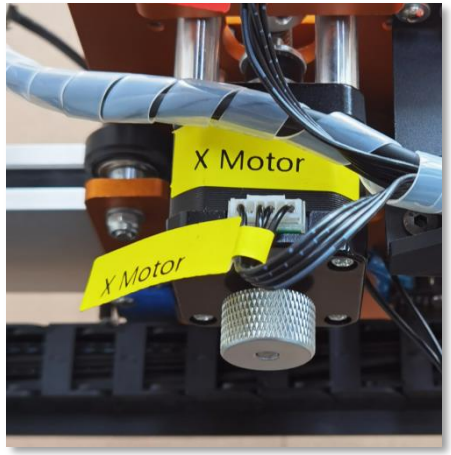
12		
	4x	
	11 Y Axis Drag Chain	18 M4*6 Flat Cap Bolt

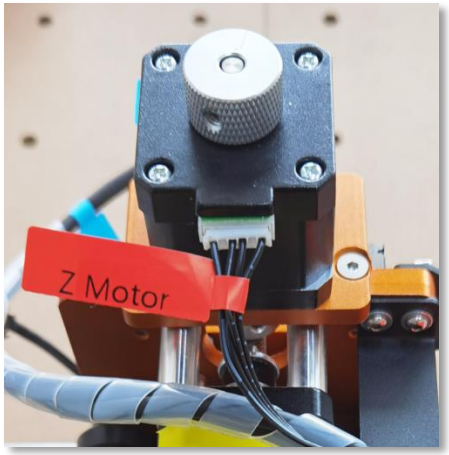


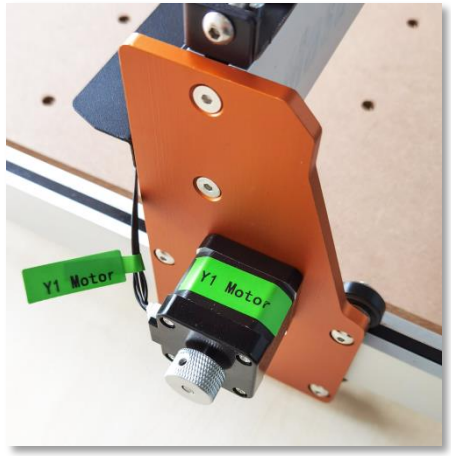


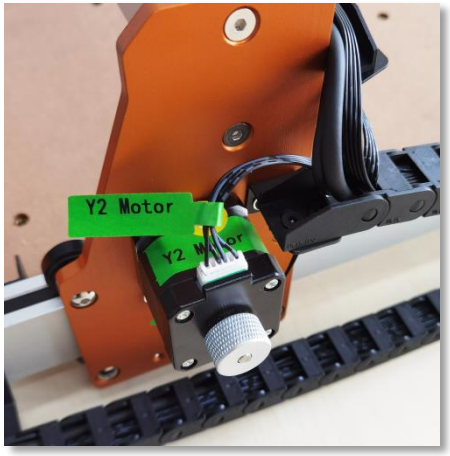
Wiring Diagrams

- X, Y & Z Stepper Motors Wiring Diagrams

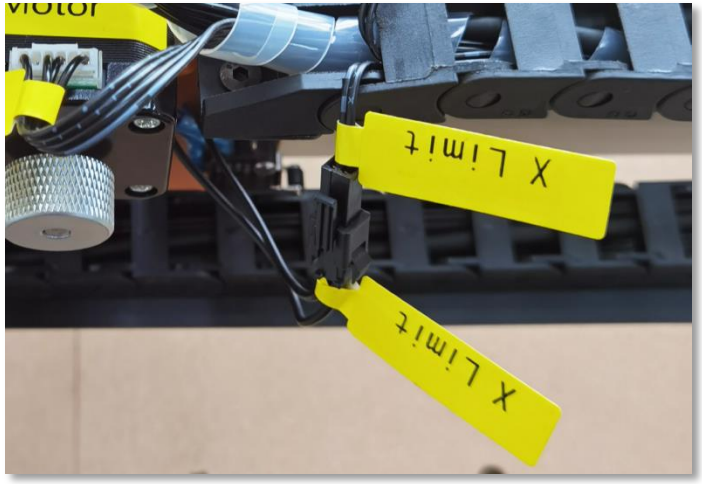


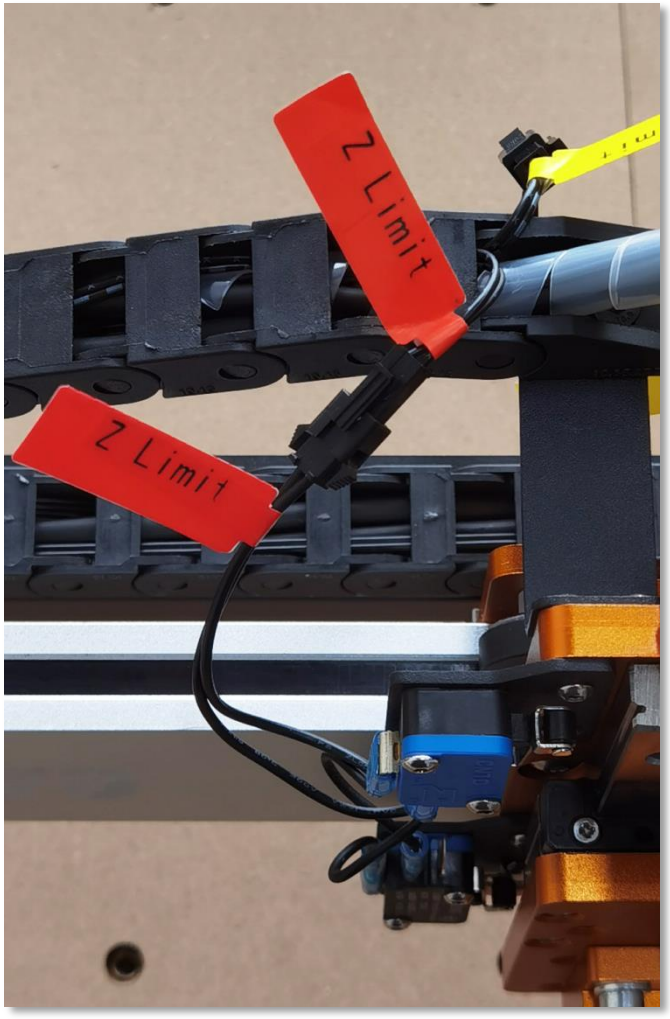




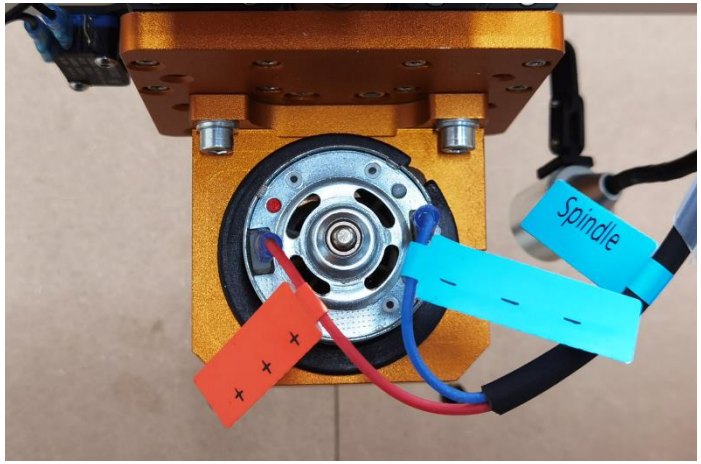


- X, Y & Z Limit Switches Wiring Diagrams

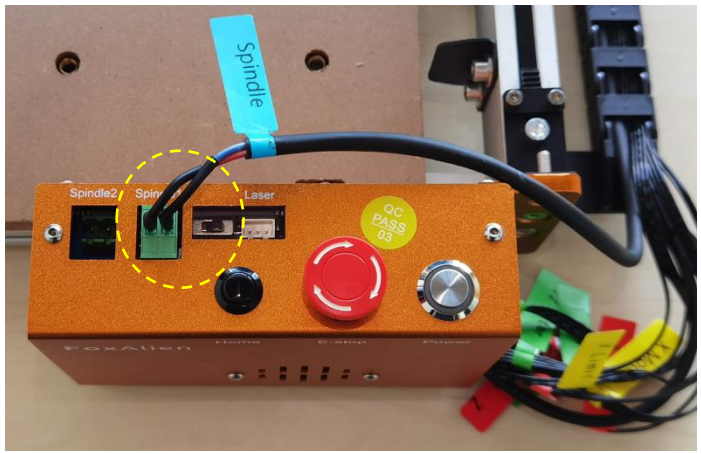




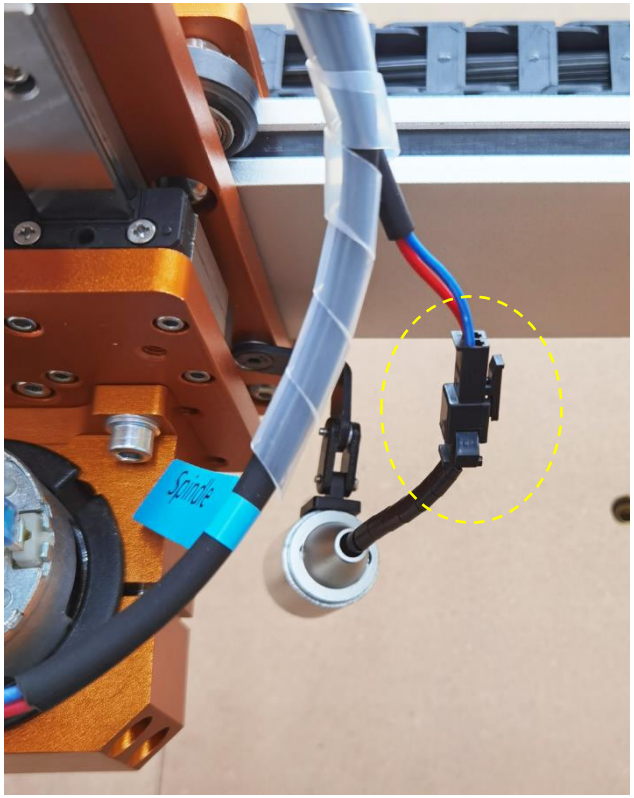
- Spindle & Light Wiring Diagrams



Positive wire (Red) connects to the port with red dot
Negative wire (Blue) connects to the other port



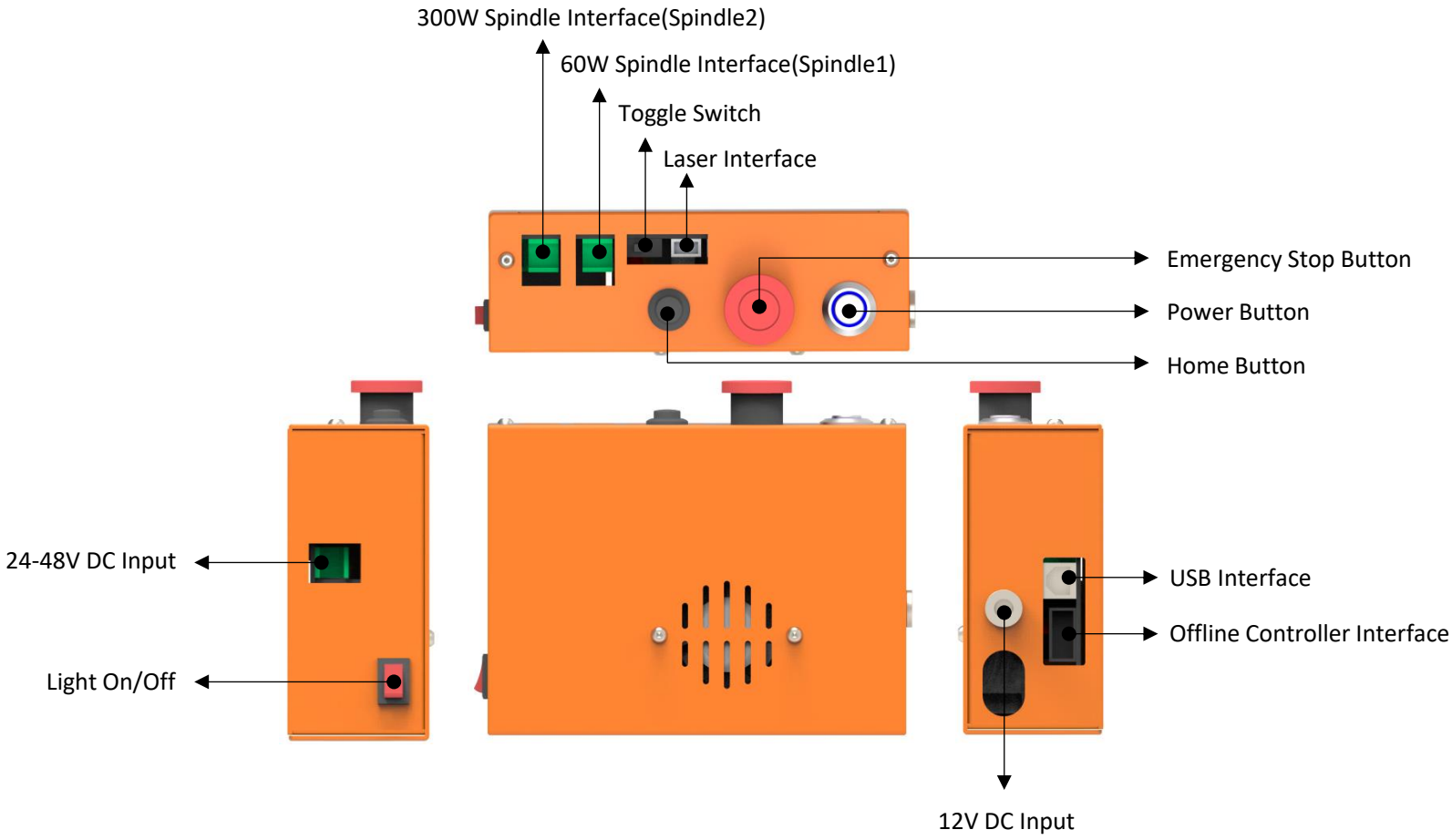
60W spindle plugged into Spindle 1 socket
Flip the toggle switch to the right side



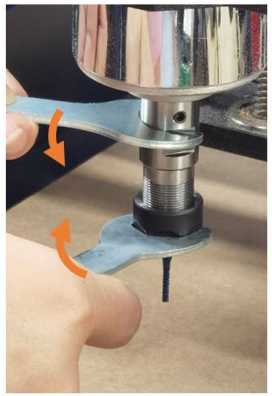
Light: Insert the plug to the socket

Controller Instructions

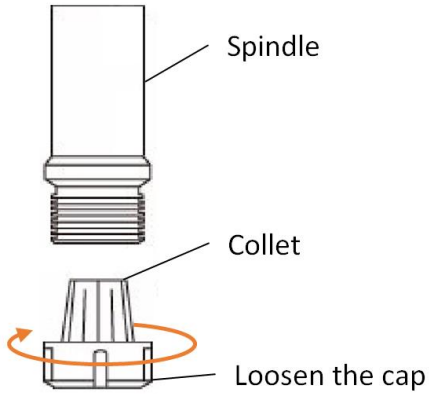
Toggle Switch: Flip to the left when using 300W Spindle
Flip to the right when using 60W Spindle or Laser

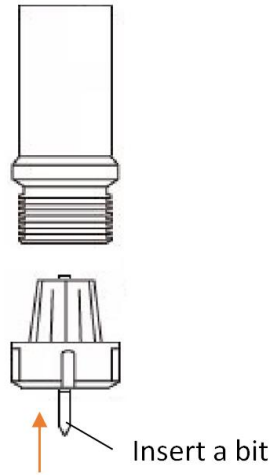


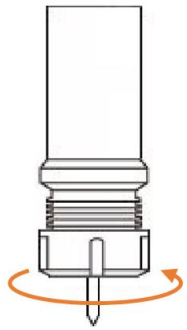
How to Install the Router Bit



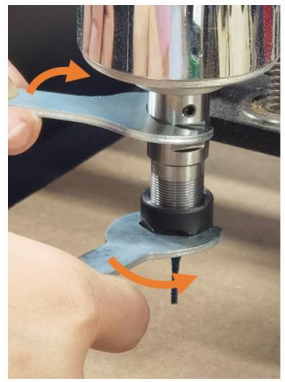
Unlock the cap







Fasten the cap

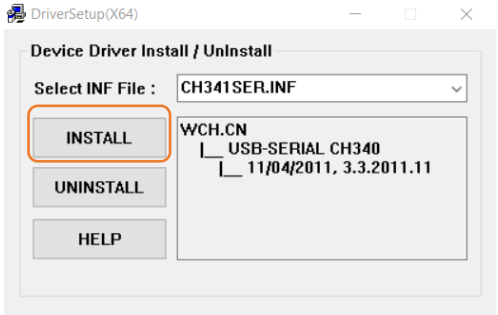


Tighten

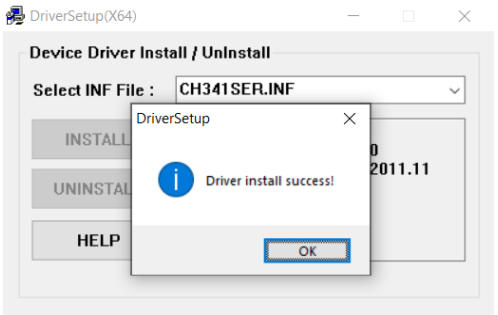
How to Use Grblcontrol (Candle)

-Driver Installation

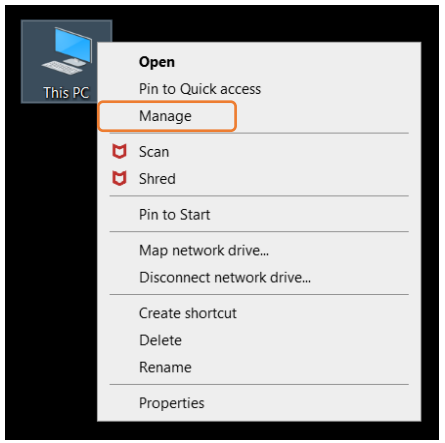
Download from U disk.
Double-click to start installation.



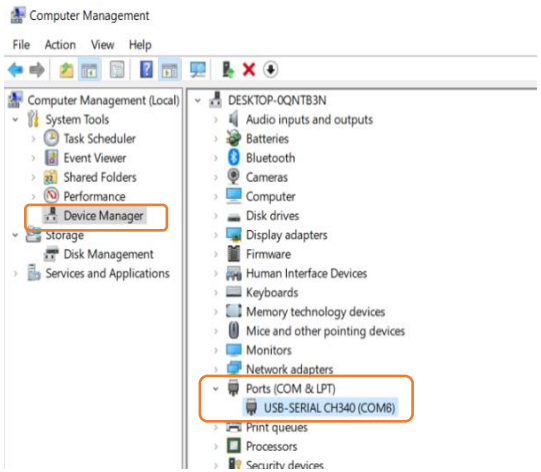
Click “INSTALL”



Wait until it shows “Driver install success”



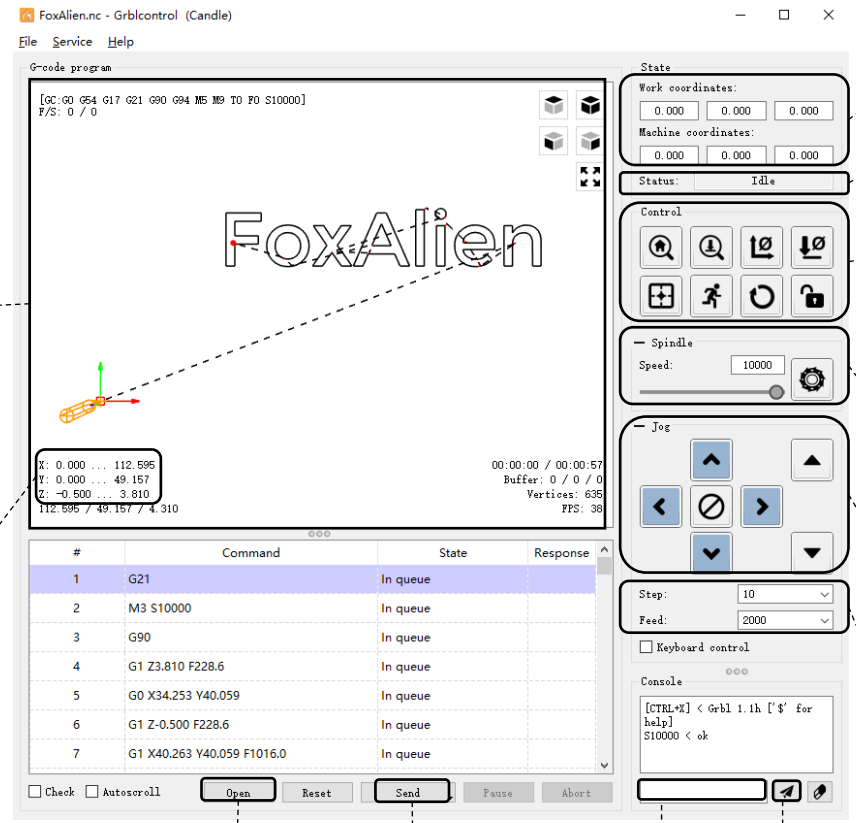
Connect the USB cable to the PC and the cotroller.



To Determine your Machine's COM port

- **For Windows XP**: Right click "My Computer"→ Select "Manage"→ Select "Device Manager".
- **For Windows 7**: Right click "Computer"→ Select "Manage" → Select "Device Manager" from left pane.
- **For Windows 10**: Right click “This PC"→ Select "Manage" → Select "Device Manager" from left pane.
- In the tree, expand "Ports (COM & LPT)“ , your machine will be the USB Serial Port (COMX), where the “X” represents the COM number, for example COM6.
- If there are multiple USB serial ports, right click each one and check the manufacturer, the machine will be “CH340”.

-Grblcontrol (Candle) Working 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 and control the spindle speed. You can manipulate the slider to reduce or increase the RPM. This is used only when manually switching on the spindle, not when running a G code program.

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

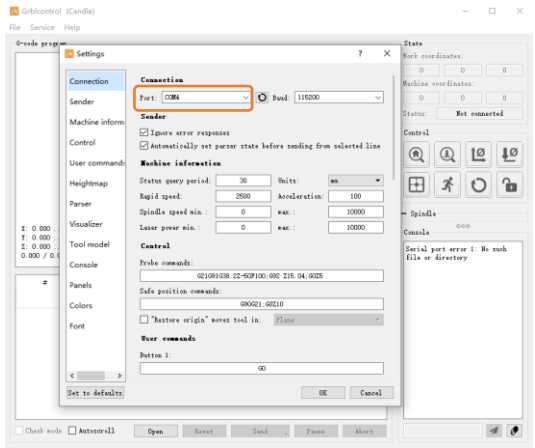
Send G-code file

Command input box

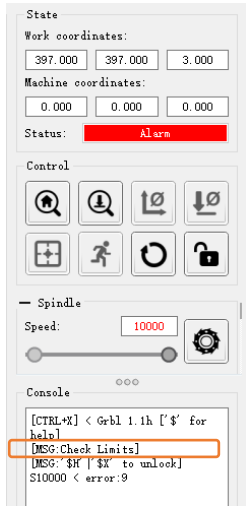
Send command

Make Your First Cut

Double click to start Grblcontrol (Candle)

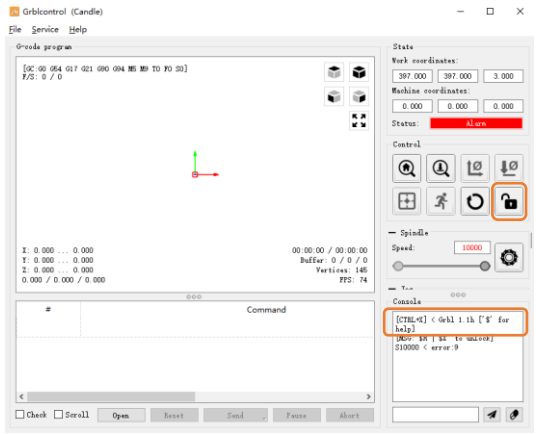


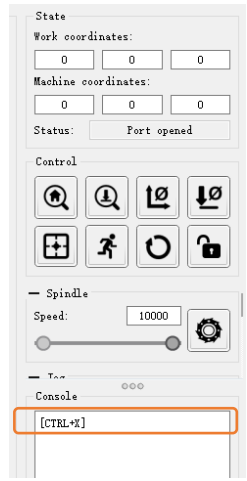
Connect USB cable to computer and machine, click Service->Port select COM port. Click “OK”



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 24 of the manual to release the limit via software.

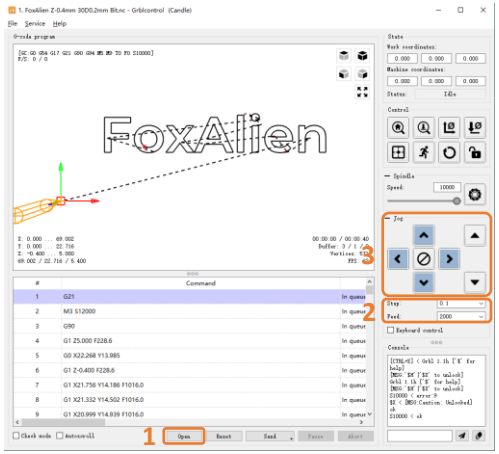
Console window prints “[CTRL+X] < Grbl 1.1f [‘$’ for help]” if the connection is successful. Click “Unlock”.





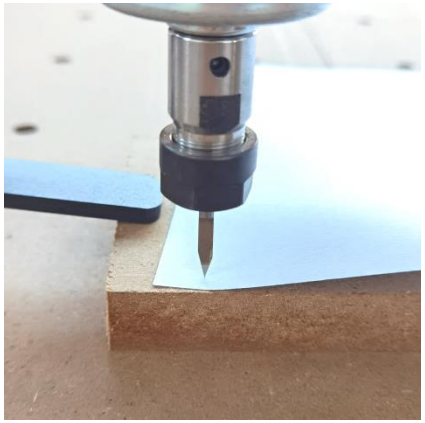
Console window prints “CTRL+X” indicates that the connection is failed. Need to check whether the E-stop is pressed down. If yes, turn the E-stop clockwise, and then click “Unlock”.

Fix the MDF with the clamps

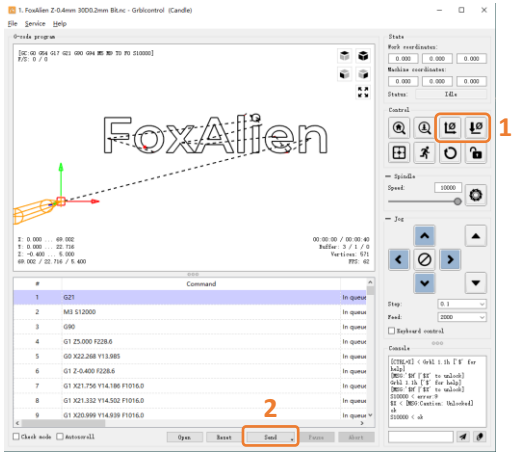


1. Open the file
2. Choose the Step and Feed (Unit: mm)
3. Click the direction button to move the bit to the surface of the object.

The best distance between the bit and the object is that the bit should feel the A4 paper, and the paper can pass through the bit.



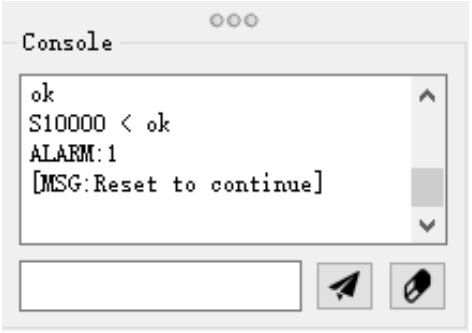
Engraving Finished.



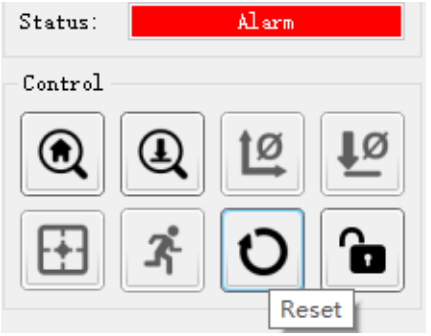
1. Set origin. Click “Zero XY” and “Zero Z”.
2. Click “Send” to start engraving

How to Unlock Limit Switch

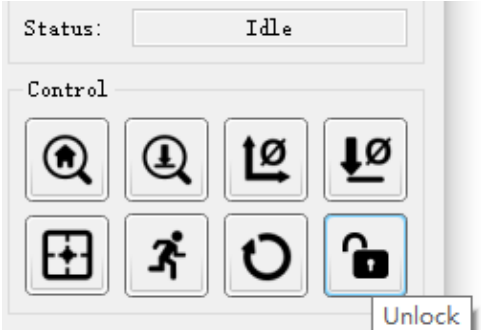
Limit switch will trigger when the machine runs out of active working area.



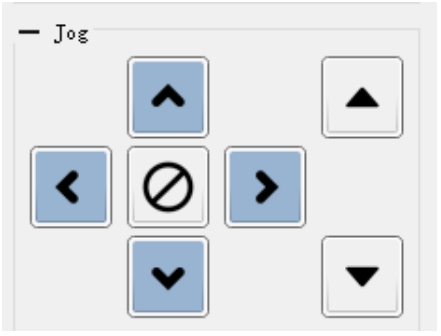
Command window will show: “ALARM:1 [MSG: Reset to continue]”



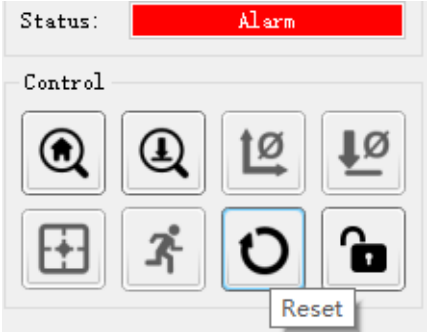
Click “Reset”



Click “Unlock”



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

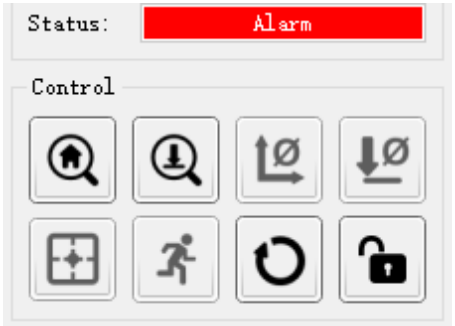


If status change to “Alarm” again, that means it does not entirely move away from the limit switch, just repeat the previous steps to unlock.

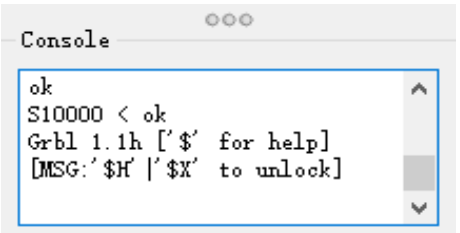
How to Use E-stop

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

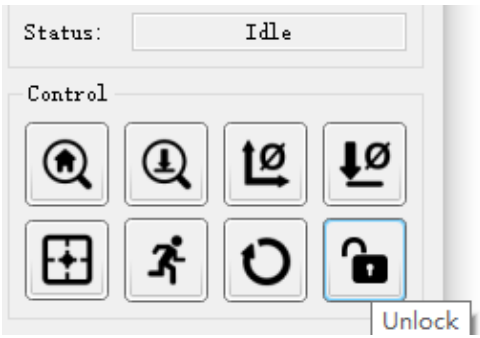
Rotate clockwise to release the E-stop.



Status in software will change to “Alarm”.

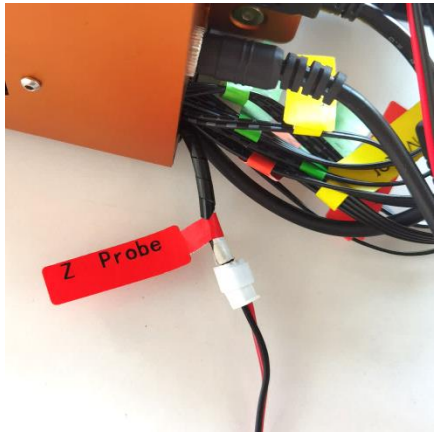


Print “[MSG:’$H’|’$X’ to unlock]”



Click “Unlock” to normal working status.

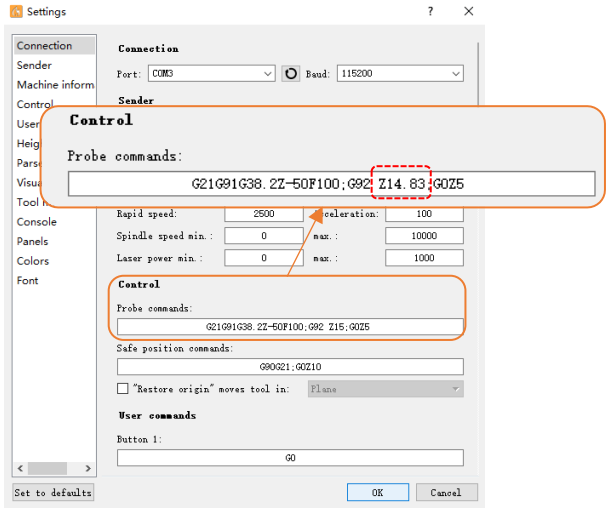
Z-Probe Operating

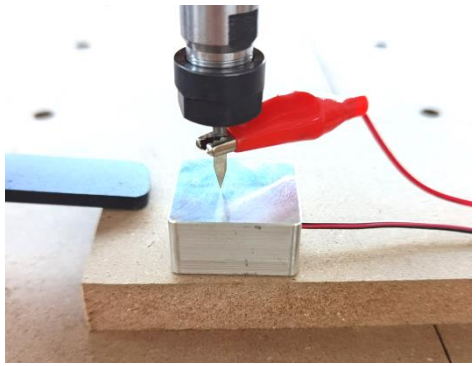


Connect the wire

Measure Z probe actual size
(Thickness: 14.83mm)

Modify Z-probe parameter. Default value is Z15, change it to Z14.83 base of the parameter measured.





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.

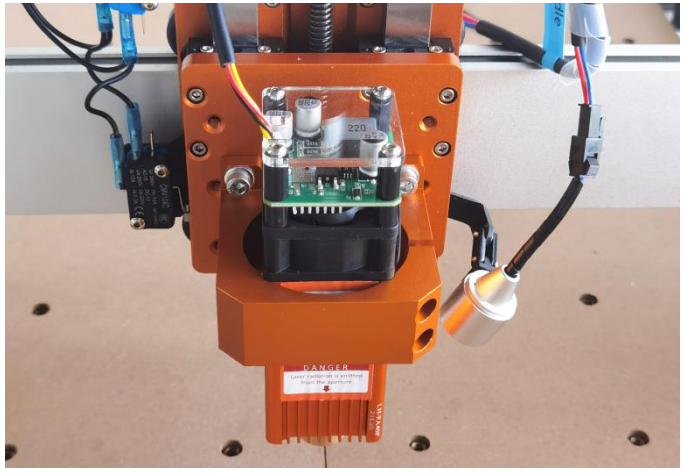
Extended Accessories (Available on foxalien.com)

- Offline Controller

Note: USB connection and offline controller can not be used at the same time.

Please unplug the USB cable when using the offline controller, otherwise it may cause errors, deviation or unusual stopping during engraving.

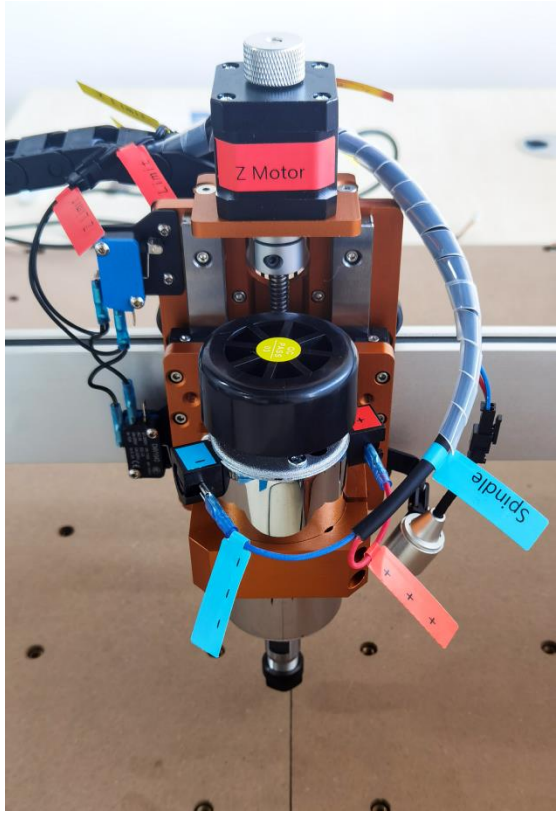
- Laser Module



Installation and Wiring Diagrams

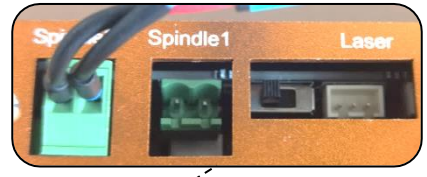
Extended Accessories (Available on foxalien.com)

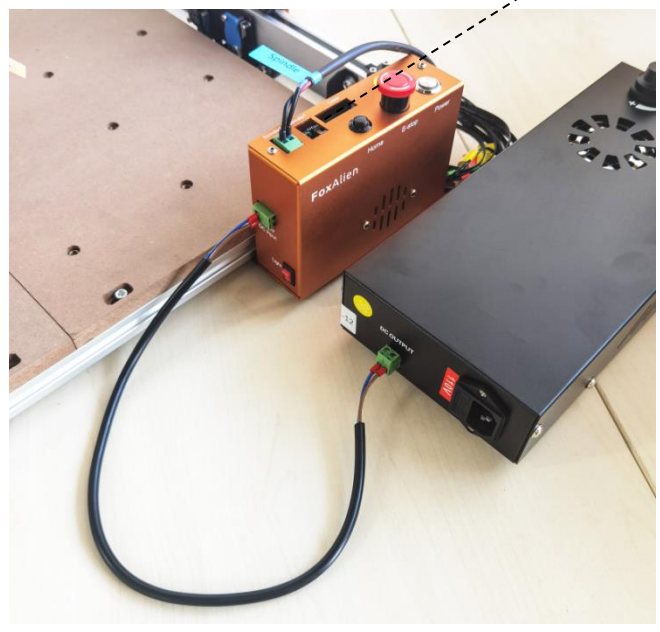
- 300W Spindle



Flip the toggle switch to the left

300W spindle plugged into Spindle 2 socket





300W Spindle Installation and Wiring Diagrams

Please download the driver and software from the thumb drive included in the package.
It includes:

- CH340 Driver
- GrblControl (Candle) software for Windows
- Sample files
- PDF user manual

Or download the above documents from google drive link: https://shor.at/yeSs87LA

Please visit www.foxalien.com for more CNC machine accessories products.

Feel free to contact us for technical support if you come across any difficulty during assembly and using. E-mail: *aftersale@foxalien.com*, *support@foxalien.com*
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