FLYING BEAR

LaserMan

USER'S MANUAL

Thank you very much for purchasing our products, we will continue to work hard to provide you with better service.

After receiving the goods, we hope that you will read the instructions patiently. The precautions and usage skills in the instructions are very important, so that you can avoid incorrect installation and use.

Laser focusing can cause heat and glare damage to people, animals and objects. Please follow the instructions. Misuse is at your own risk.


Avoid direct eye contact, may lead to blindness


Avoid exposure to body surface,it burns


Put base plate under the workpiece


Avoid combustible object or gas


Keep it away from incompetent people, such as children or pregnant women


Do not take apart the laser without instructions


Do not use it on material, that reflects the light

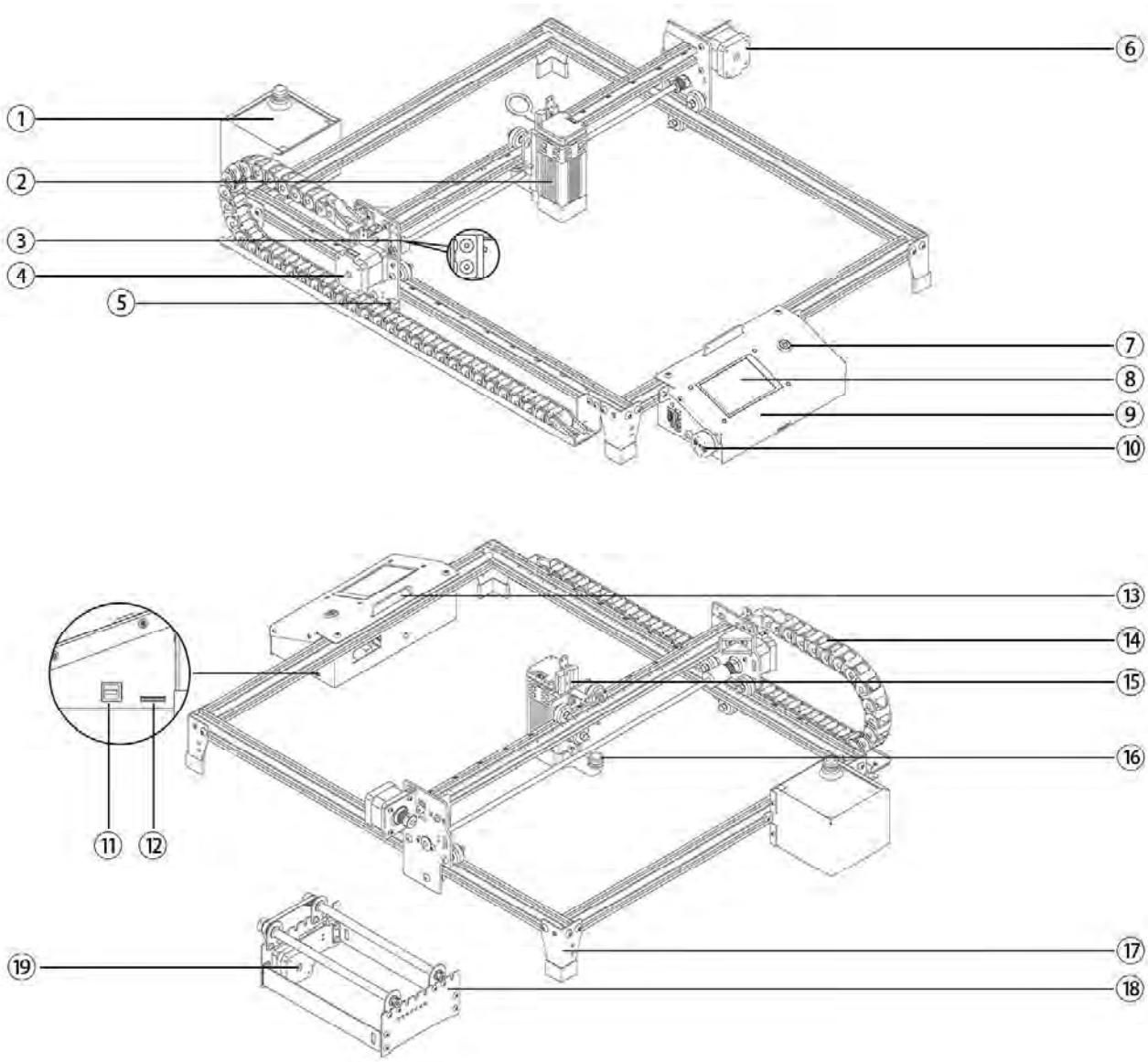

Wear protective glasses

Warning: The laser engraving machine cannot directly act on any specularly reflective object.This can cause injury to the operator or burn the laser.

- The product has a high engraving speed and is not recommended for industrialcutting. And the laser head is a consumable.

Contents

1.Overview of Machines



① Air purification fan	② Laser head	③ X axis limit switch	④ Y axis motor
⑤ Y axis limit switch	⑥ X axis motor	⑦ Power switch	⑧ Touch screen
⑨ Control box	⑩ Buzzer	⑪ Slot USB interface	⑫ TF card
⑬ Fixed-focus plate	⑭ Plastic drag chain	⑮ Z-axis adjustment	⑯ Exhaust outlet
⑰ Standing leg	⑱ Roller components	⑲ Roller motor	

2. Main Parameters

Product Model: FLYINGBEAR LaserMan	**Luminous Power:** 5000~5500mW
Maximum Engraving Speed: ≤10000mm/min	**Machine Power :** 40W
Net Weight: ≈6kg (≈13 pounds)	**Focal Spot Diameter:** 0.08*0.1mm
Connection Method: WiFi,TF card,USB prot	**Control Motherboard:** 32bit

Laser wavelength:

445±5nm

Engraving Material:

Wood, Plastic, Paper, Bamboo, Leather Sponge Paper,
Stainless Steel, Anodized Aluminum, Etc.

Support software:

LaserGRBL(free,windows system)
LightBurn(no free,window,mac)

Engraving Area:

400mm*450mm (15.7*17.7inches)

Engraving file format:

NC, BMP, JPG,PNG, DXF, ETC.

Machine Size:

780*610*157mm (30.7*24*6.2inches)

3.Parts List

1

X-Y axis module

2

Y frame left (598mm)

3

Y frame right (598mm)

4

X frame (448mm) QYT:2

5

Control box

6

Laser head assembly

7

Fixed-focus plate

8

Air purification fan

9

Exhaust outlet

10

Plastic drag chain

11

Standing leg QYT:4

12

Laser cable support

13

Drag chain bottom bracket

14

Bellows

15

Open bellows

16

Y axis limit baffle

17

Drag chain guide

18

Filter element

19

Roller bracket 3

20

Roller bracket 1

21

Roller motor

22

Roller components
QYT:2

23

Roller side panel
QYT:2

24

USB

25

Power adapter

26

Air filter fan
connecting line

Roller motor
connecting line

27

Tool kit

28

Open loop synchronous belt

29

Closed loop
synchronous belt

30

Hairbrush + marking pen

31

Basswood 100*100*2mm

32

Eye shield

33

①

M3*6 QYT:7

34

②

M4*8 QYT:3

35

③

M5*25 QYT:5

36

④

M5*10*2 QYT:5

37

⑤

20-M4 QYT:9

38

⑥

20-M5 QYT:9

39

⑦

M4*6 QYT:32

40

⑧

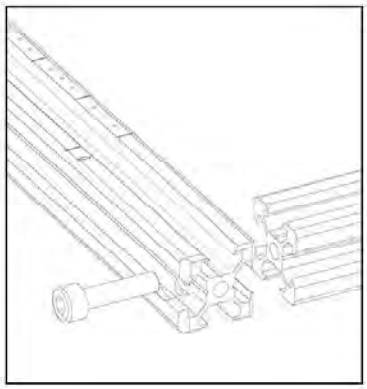
M5*6 QYT:18

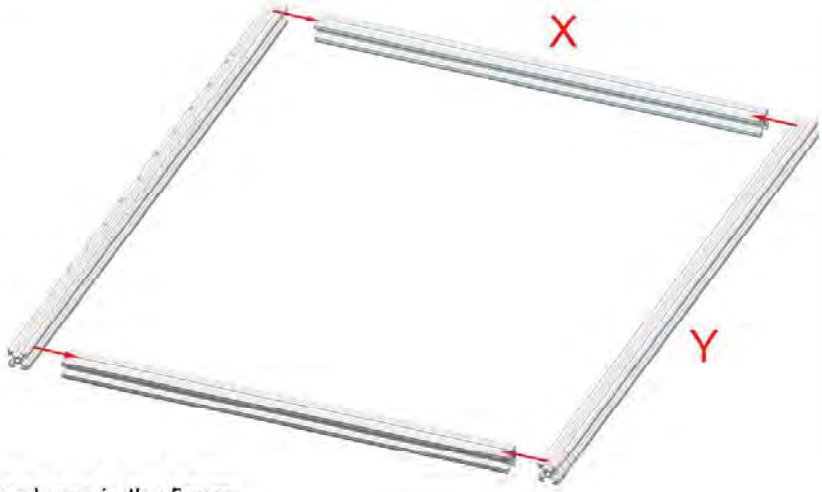
4.Machine installation introduction

The following is the detailed installation steps of the engraving machine, and we also provide detailed installation videos. You can search"FLYINGBEAR LaserMan Laser Engraver installation video" in YouTube.You can also scan the QR code to get the video.

Installation Video

1 Install the frame



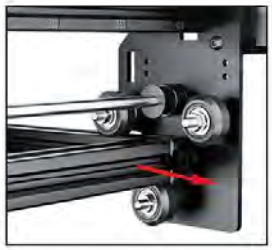


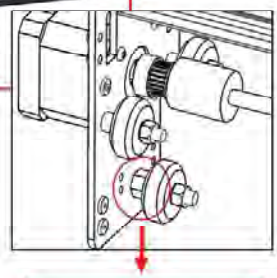
1. Place the four aluminum profiles as shown in the figure.
   The digital scale is facing up and the graduated aluminium profile is on the left.

2. Pass the inner hexagon cylindrical head screw M5×25 through the side countersunk hole of the long profile and connect it with the short profile.

Screw: M5*25 ×4

2 Install the X-axis components

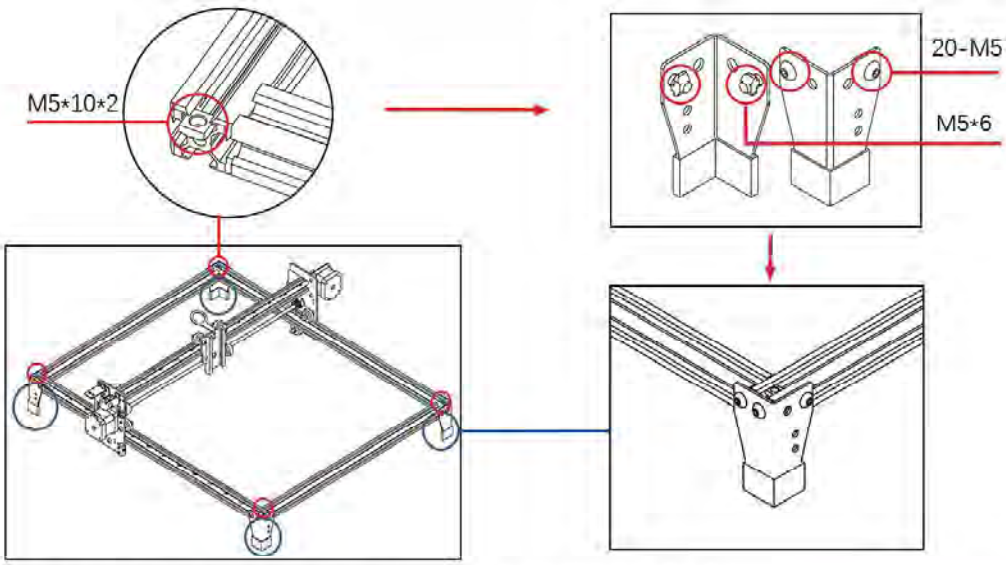




Eccentric shaft

1. Insert the aluminum profile frame into the bottom roller of the X-axis components.
2. If the profile cannot be inserted or the roller does not roll smoothly, the eccentric nut can be adjusted clockwise from the bottom with a wrench.
3. Note the X-axis component orientation, with the scale facing forward. The frame scale is on the left.

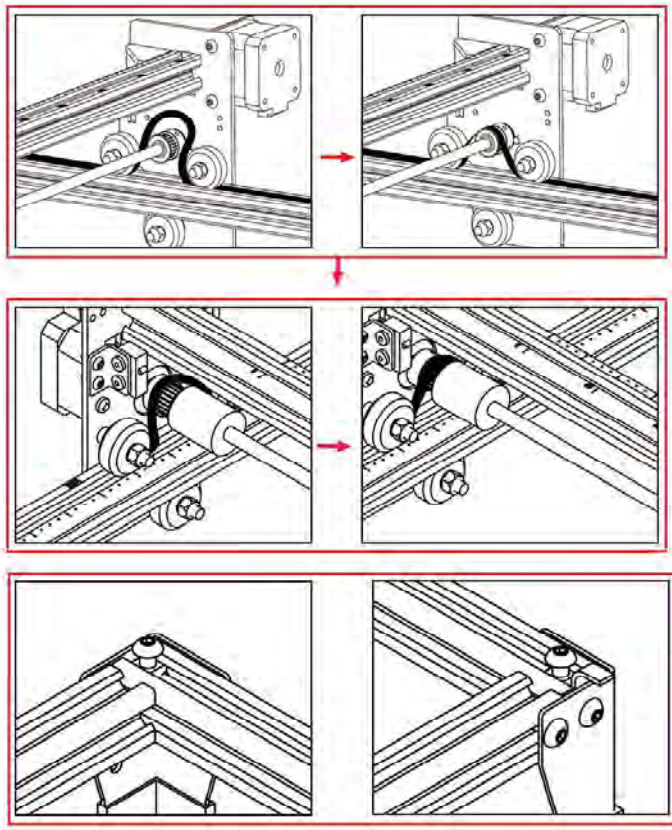
3 Install the standing leg



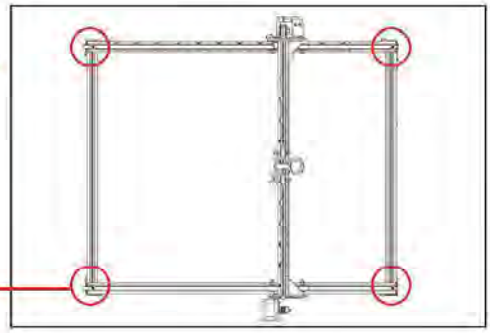
1. Insert square nut M5×10×2 into both ends of the profile, as shown in the figure.
2. Pre-install the M5 T nut and hex socket half-round head screw M5×6 into the holes on both sides of the support foot, as shown in the figure.
3. The standing leg is installed at the four corners of the frame and fixed with the profile screw hole.

Screw: M5*6 ×12
T nut: 20-M5 ×8
Square nut: M5*10*2 ×4

4 Install the sync belt



1. Thread the belt through the profile slot and over the belt wheel, as shown.
2. Pull the belt to both ends of the profile, through the profile square nut, tighten the synchronous belt,fixed with inner hexagon semi-round head screw M5×6.
3. After fixing one end of the synchronous belt, tighten the other end to prevent the belt from slipping too loose.



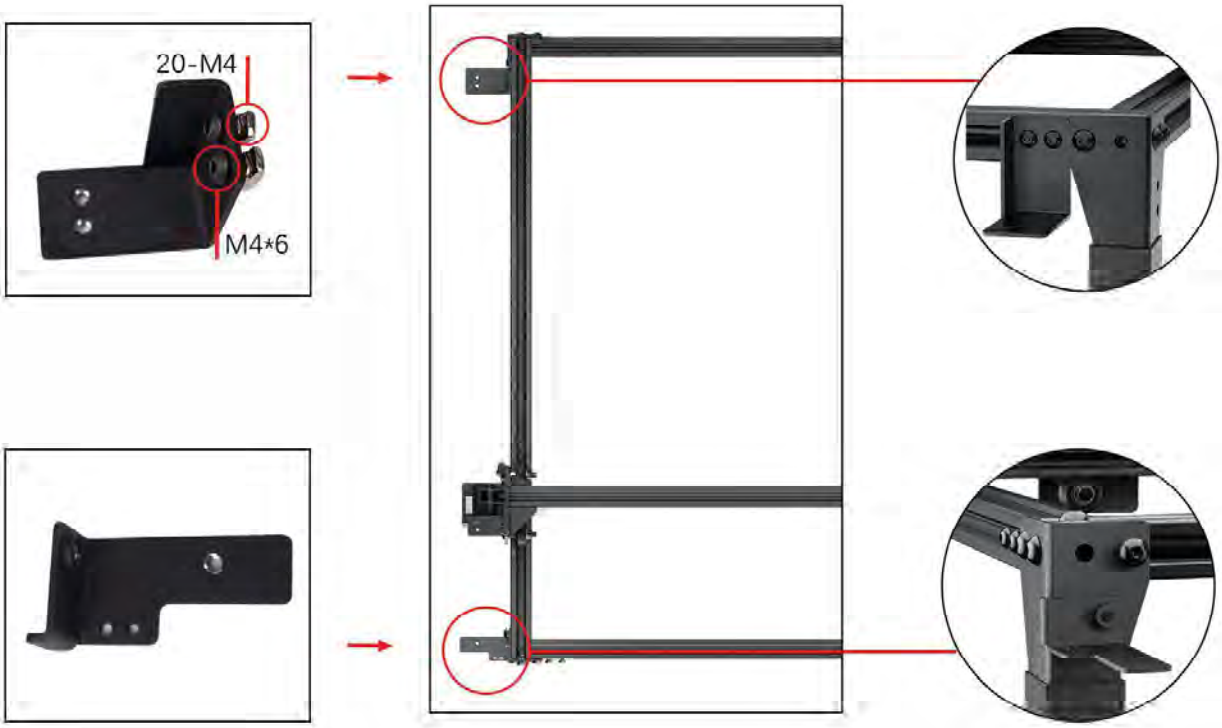
Screw: M5*6 ×4

5 Installing laser head

1. Loosen the hand screw on the right side of the X-axis moving assembly.
2. Insert the rear slider of the laser head assembly into the X-axis moving assembly chute, as shown in the figure.
3. Tighten the screw to fix the laser head.
4. Install the laser head cable support on the slide block of the laser head with inner hexagon semi-round head screw M3x6.

Screw: M3*6 ×1
Cable bracket: ×1

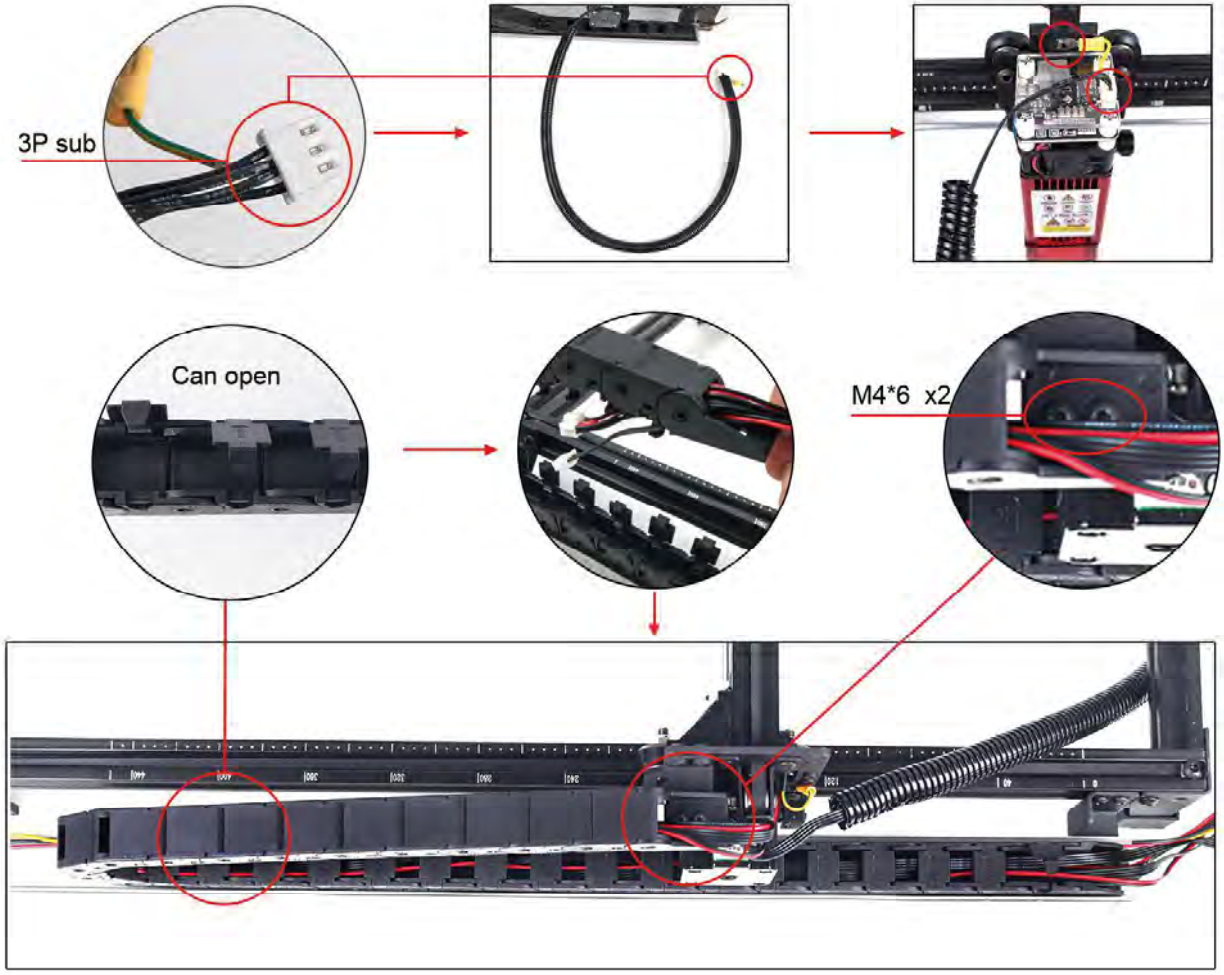
6 Install plastic drag chain



1. Pre-install M4 T-nut and hexagon socket half-round head screw M4x6 into the Y-axis limit baffle hole, as shown in the figure .
2. Install the Y-axis limit baffle on the outside of the graduated profile, close to the support foot, as shown in the figure, and tighten the screw.
3. The bottom bracket of the drag chain is installed on the other end of the graduated profile support foot, and the screw is fixed from the inside.

Screw: M4*6 ×3
T nut: 20-M4 ×2

7 Install the wiring harness



1. Locate the 3P connector in the harness on the X-axis assembly as shown.
2. Thread the 3P joint into the open bellows.
3. Insert the 3P connector into the laser head interface.
4. Secure the yellow fork terminal to the screw on the cable support.
5. Use a small tool to open the top of the chain.
6. Thread the remaining 2 wire harnesses into the plastic drag chain, as shown in the figure.
7. Attach the plastic drag chain to the X-axis assembly.
8. Press the wire harness into the plastic drag chain. Then put on the top cover of the plastic drag chain.

Screw: M4*6 ×2

8 Install control box

1.Install M4 T-nut and M4×6 hexagon hex head screw into the holes on both sides of the control box, as shown in the figure.

2.Insert the control box into the frame.

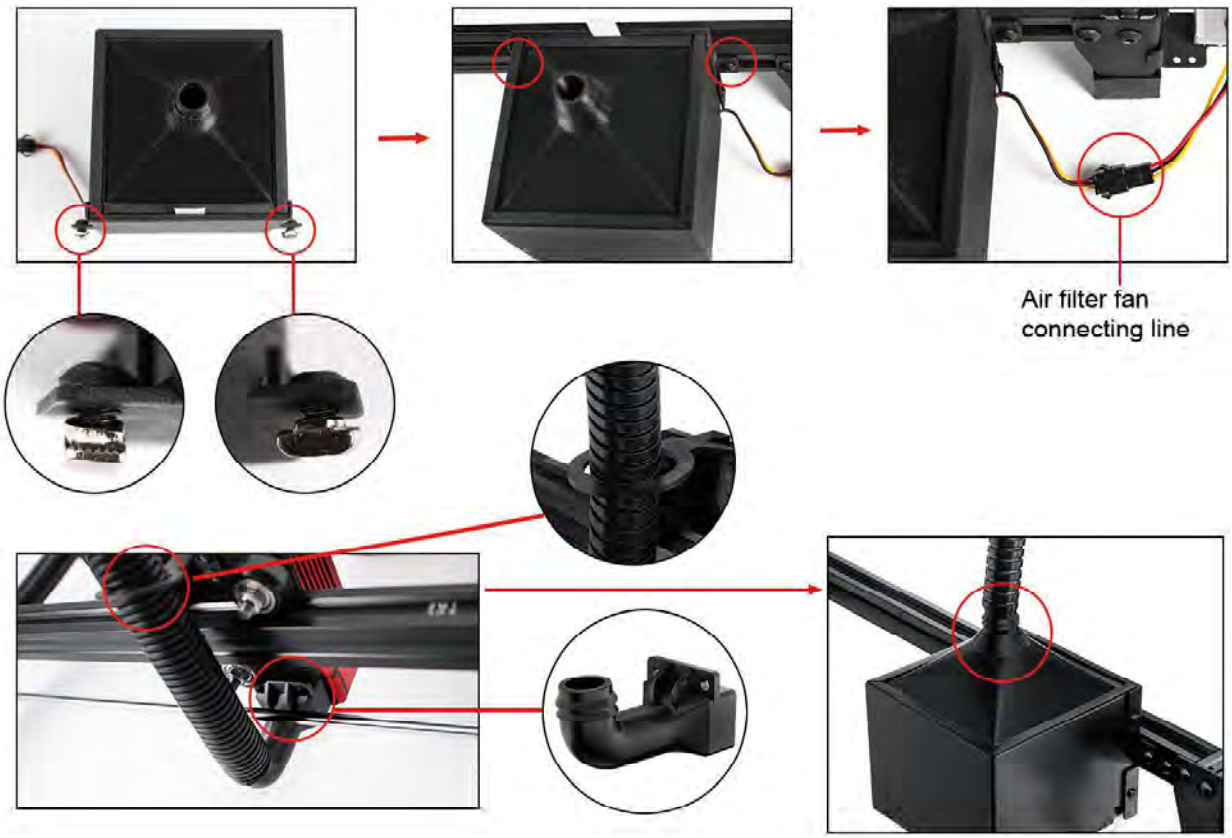
3.Lock and fix control box screws.

4.Place M4 T-nuts on both sides of the control box and secure the control box with screws.

5.Insert the wire harness connector into the side interface of the control box.

Screw: M4*6 ×4
T nut: 20-M4 ×4

9 Install the air filter fan



1.Install M4 T-nut and M4×6 hexagon hex head screw into the holes on both sides of the control box, as shown in the figure.

2.Install the air purification fan on the rear frame of the plastic drag chain, as shown, and secure the air purification fan screw.

3.Insert the fan power connector into the port.

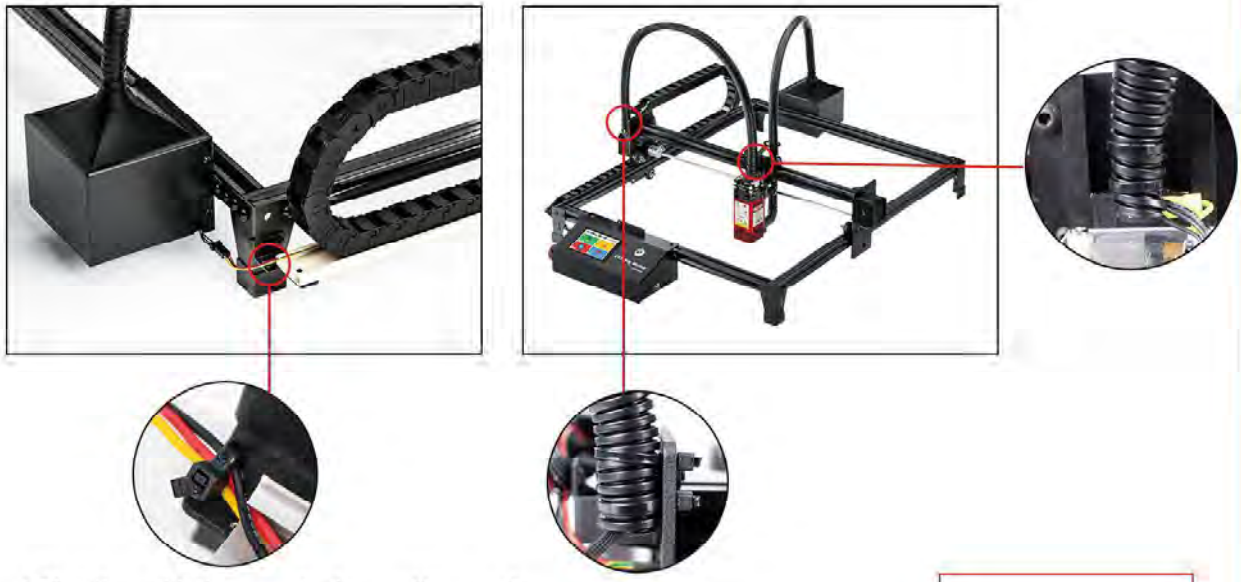
4.Install the exhaust outlet under the laser head slider.

5.Put the closed bellows (thick) through the round hole of the bracket above the laser head and connect with the exhaust outlet.

6.Connect the other end of the bellows to the port on the air purification fan.

Screw:	M3*6 ×2
Screw:	M4*6 ×2
T nut:	20-M4 ×2

10 Fixed cable tie

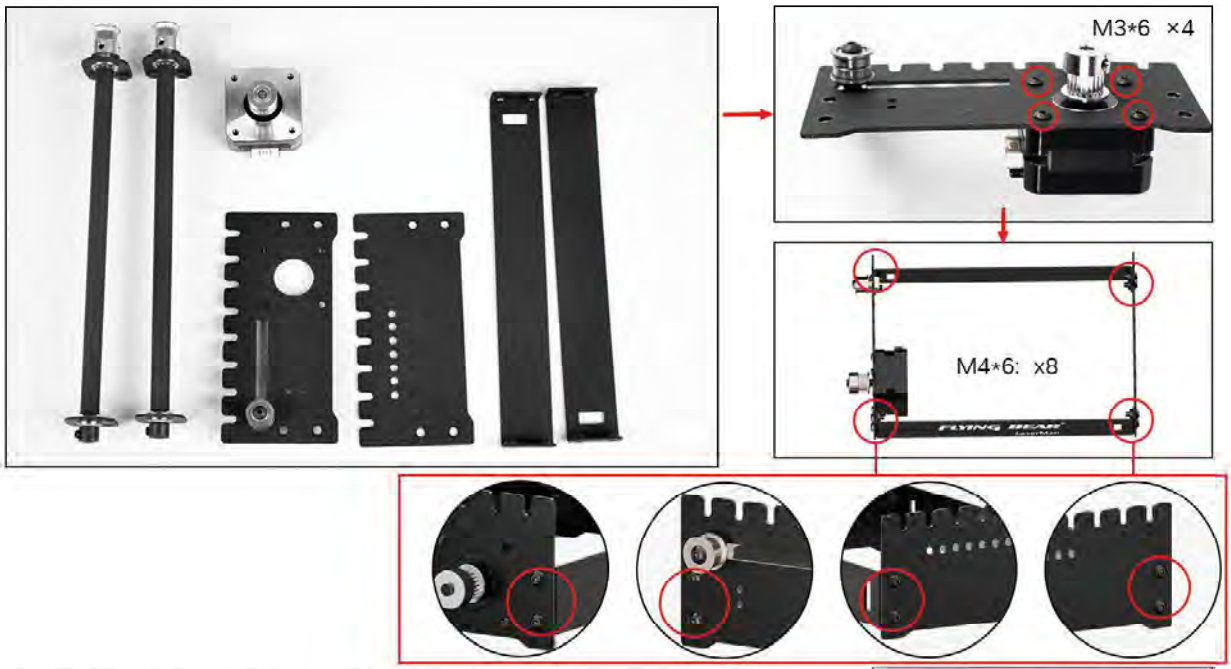


1.Bind the cable harness in the position as shown.

2.Cut off excess exposed ties.

Cable tie ×5

11 Install roller components



1.Install the roller motor on the drum bracket 3 and fix it with inner hexagon semi-round head screw M4*6, as shown in the figure.

2.Connect roller bracket 1 and roller bracket 3 with roller side plate and fix them with inner hexagon semi-round head screw M4*6, as shown in the figure.

Screw: M3*6 ×4

Screw: M4*6 ×8

11 Install roller components

3.Install M4*6 inner hexagon semi-round head screw to the roller assembly without tightening.

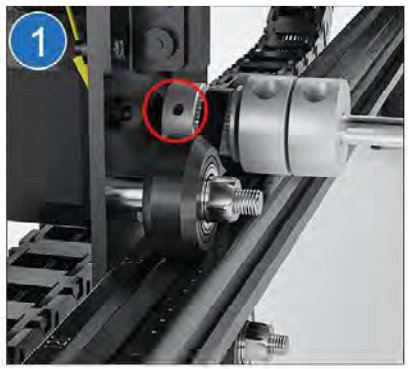
4.Insert the roller assembly screws into the u-shaped grooves on both sides of the roller support, and fix the locking screws.

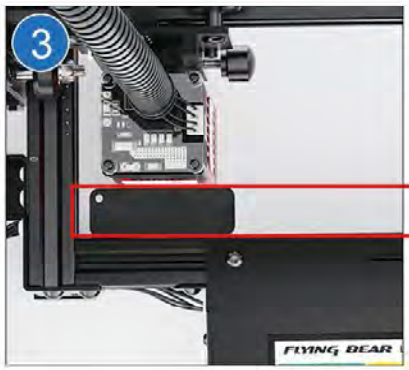
Screw: M4*6 ×8

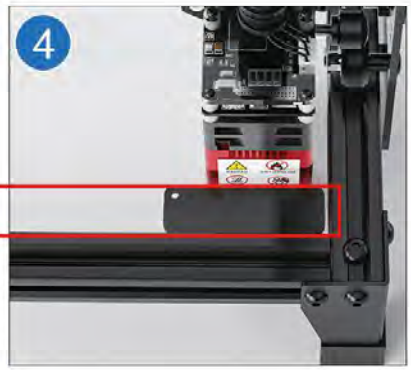
5.Loosen the idler screw on the roller bracket 3 and insert the closed-loop synchronous belt into the synchronous belt, as shown in the figure.

6.Use the idler wheel to tighten the rear setting screw of the synchronous belt, as shown in the figure.

12.Important X-axis parallel adjustment







1.Loosen the two set screws of the synchronous pulley on the right side of Y axis.

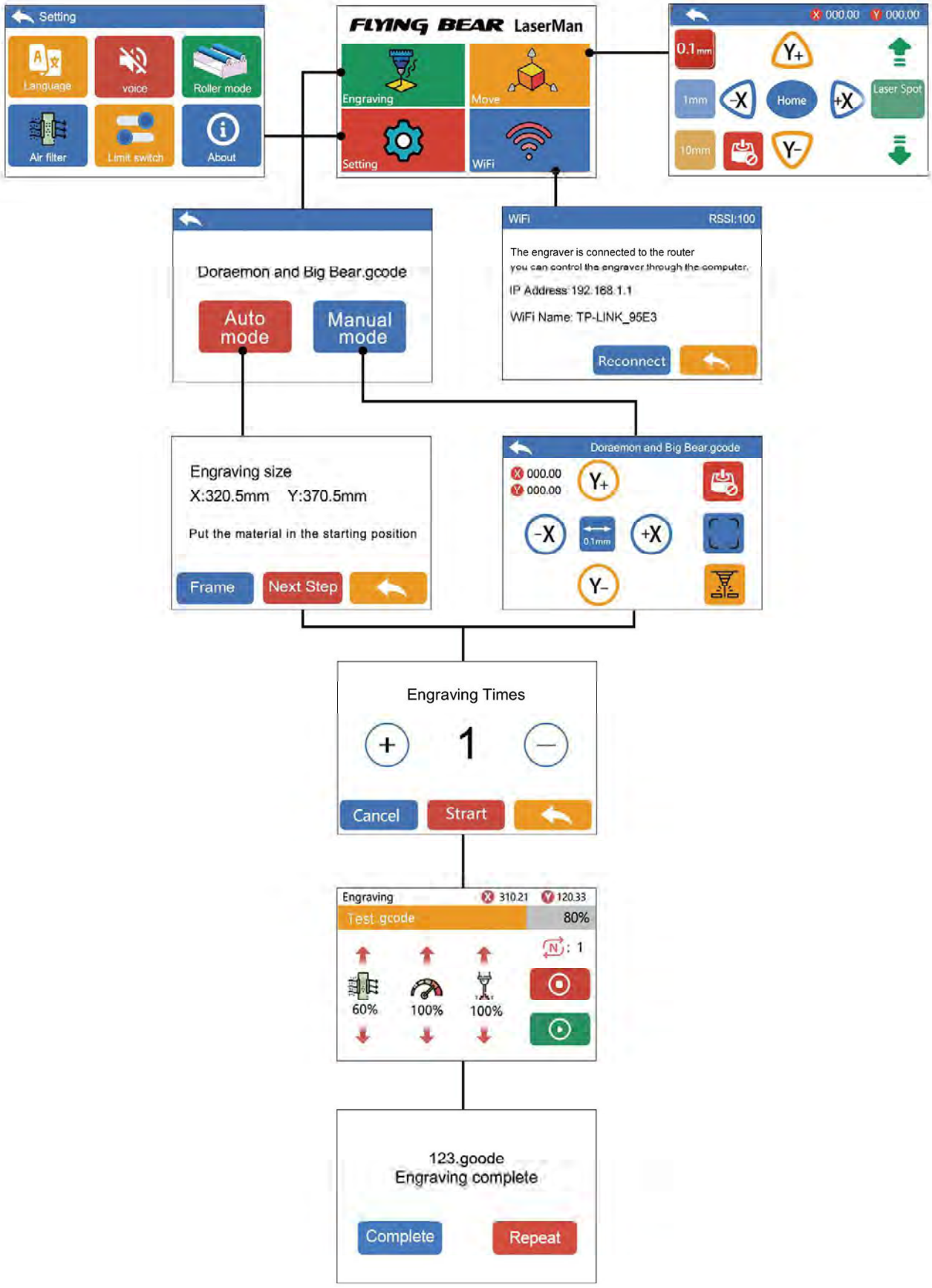
2.The engraving machine back to the origin, screen operation to move the laser head so that the laser head and the frame empty the focus plate can be put into the distance (Other parallel objects can also be used).

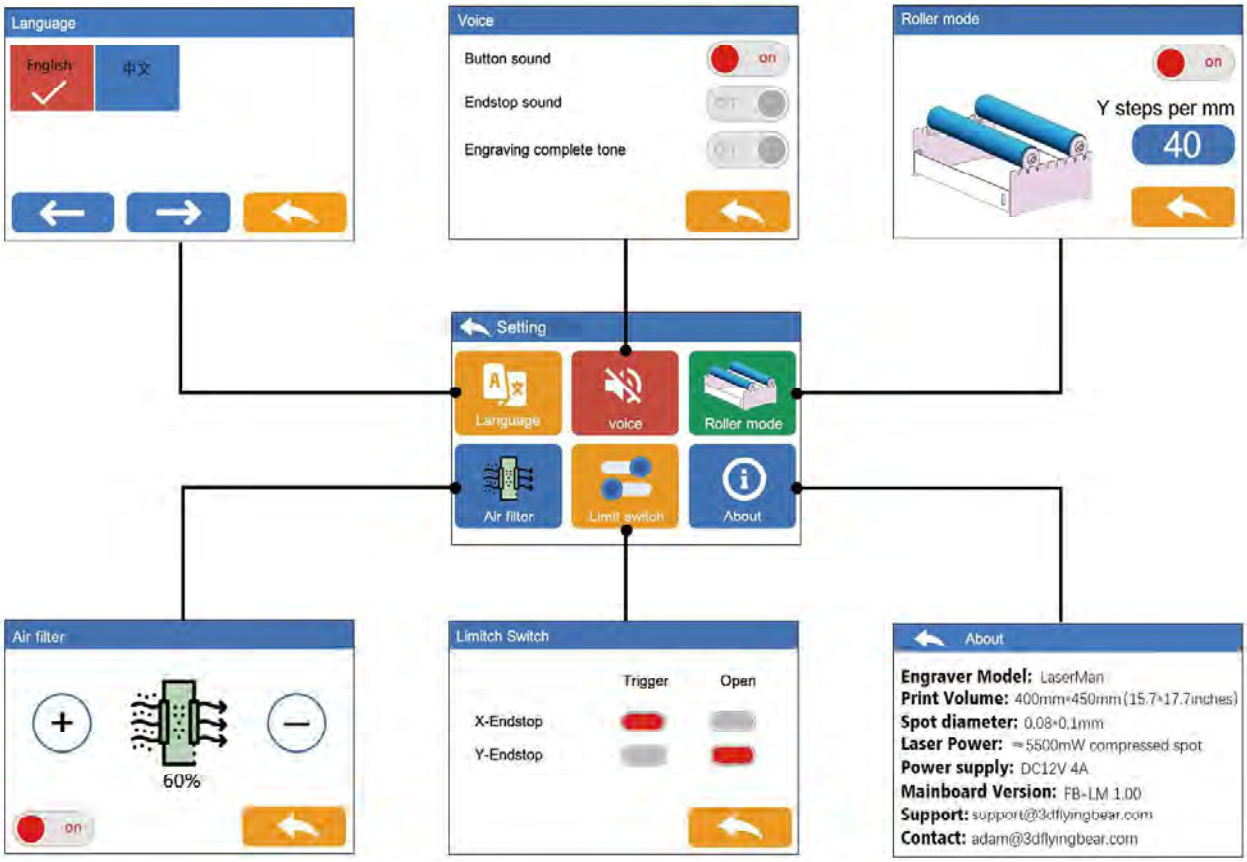
3.Put the focusing plate in and stick to the frame, fine-tune the position of the laser head, make the laser head contact with the focusing plate (pay attention to the laser head can not move too fast to avoid injury).

4.Take out the focusing plate, move the laser head on the screen to the right (Y: 390mm), put the focusing plate in and close to the right side of the frame, pull the roller mounting plate on the right side of the Y axis to clamp the focusing plate.

5.Lock the setting screw of the synchronous belt pulley from the rear (if the thread hole of the synchronous belt pulley is not located in this direction, try to locate it with the long edge of the focusing plate) .

5.Touch screen function introduction

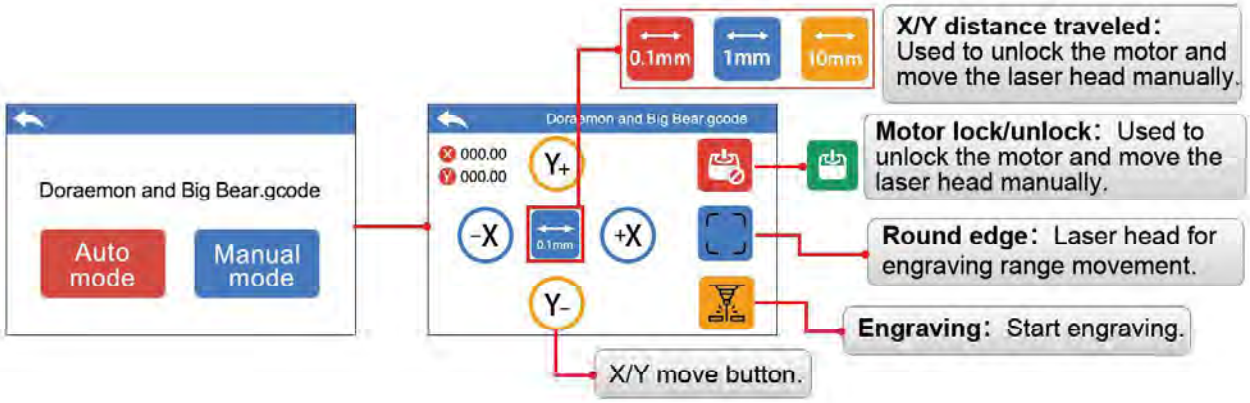




Engraving file selection

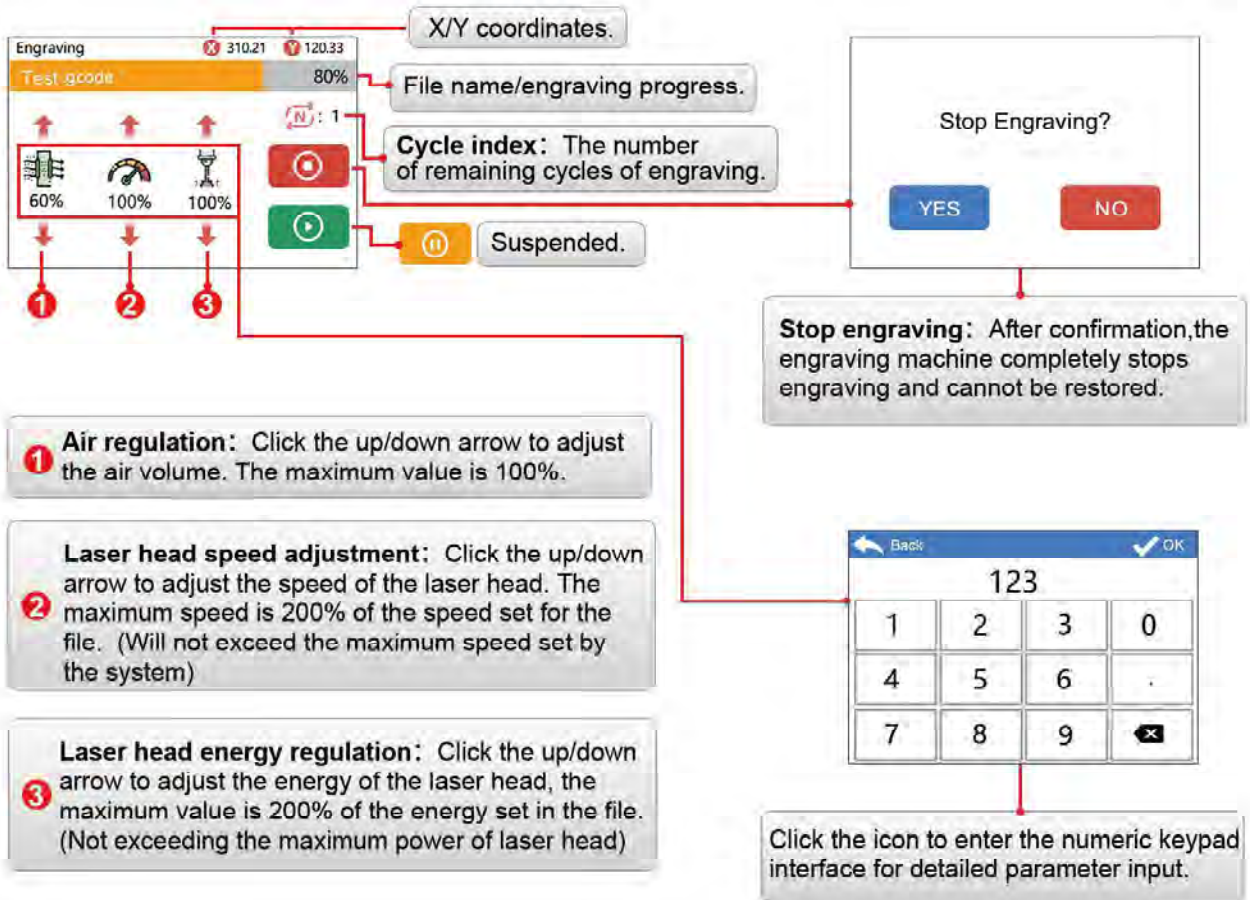
Automatic mode

Manual mode

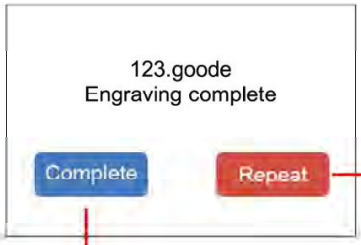


Tips1:After【Auto Mode】is selected, the laser head will return to the origin; Before edge patrol, the system will check whether your engraving file contains engraving scope information. If no engraving scope information exists, you need to wait for system calculation. (Please use [MKS_NCTOOL] software for file conversion)

Interface in engraving



Engraving finished interface



Repeat engraving: After the engraving is completed, under the premise of not moving the engraving object, if it is found that the engraving effect is not achieved, it can be directly carved again.

Finish engraving and return to home page.

Move

Displacement distance control: Select scale to set the distance of each displacement of laser head.

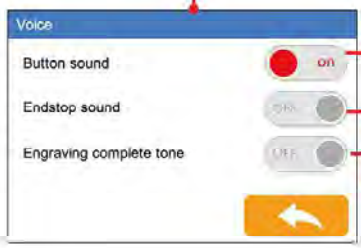
X/Y coordinates.

Laser power regulation: Click the up/down arrow to adjust the laser power; Click "Laser Spot" button to turn on/off the Laser.

The laser head returns to the origin of the device.

X/Y move button

Voice



Button prompt tone On/Off.

Limit switch prompt tone On/Off.

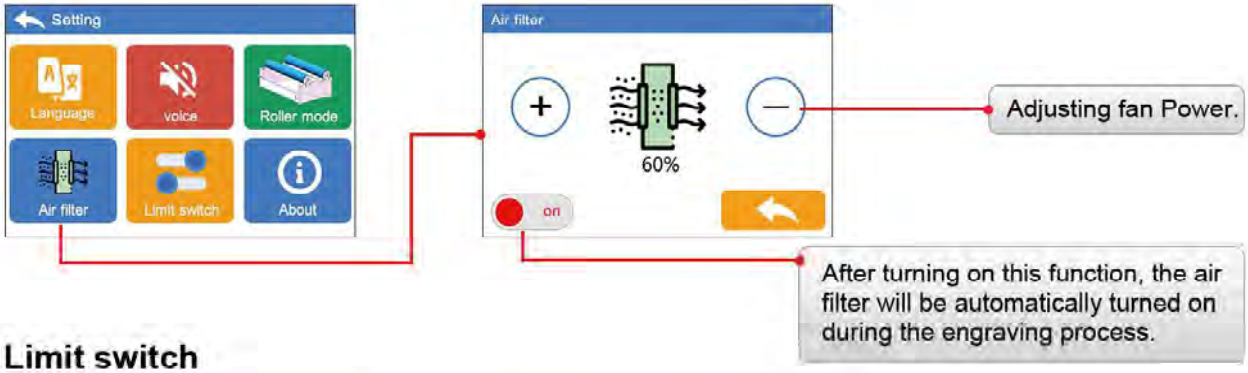
Engraving finished prompt tone On/Off.

Roller mode

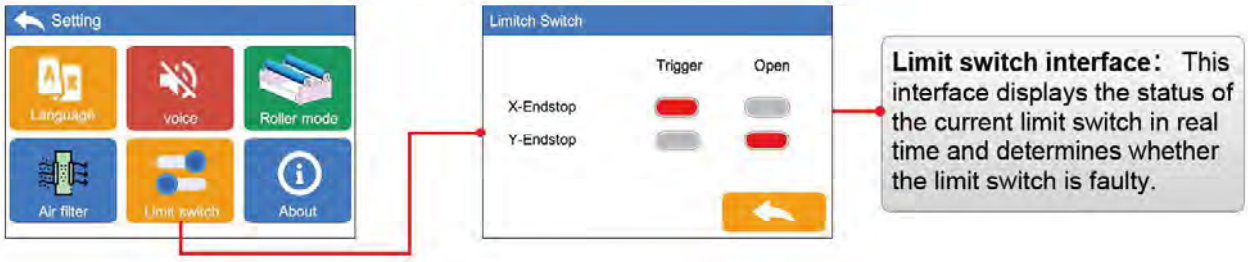
Roller mode switch On/Off.

Y-axis travel resolution.

Air filter



Limit switch

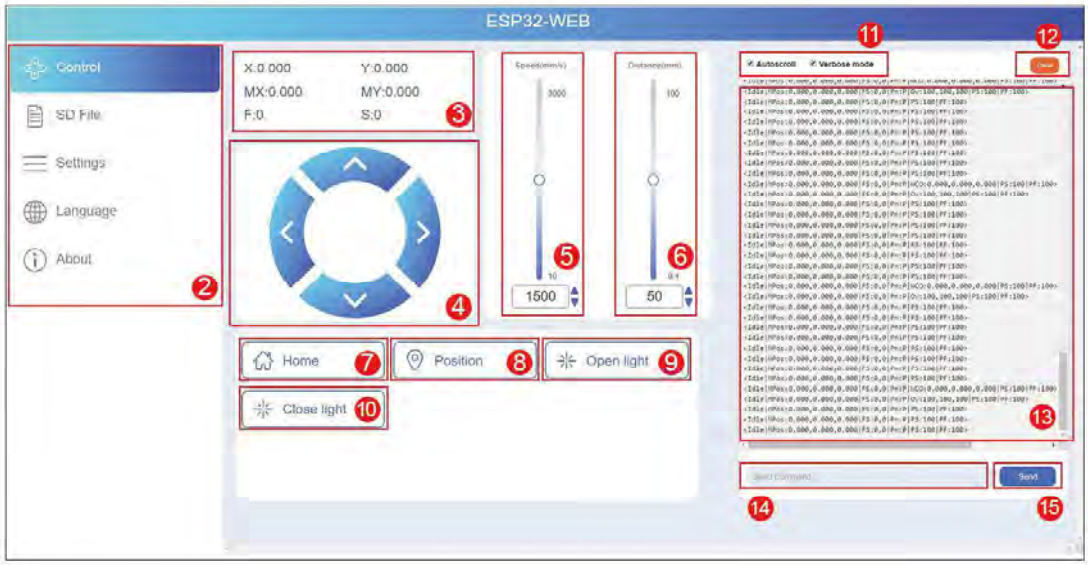


WiFi

6.WiFi page introduction

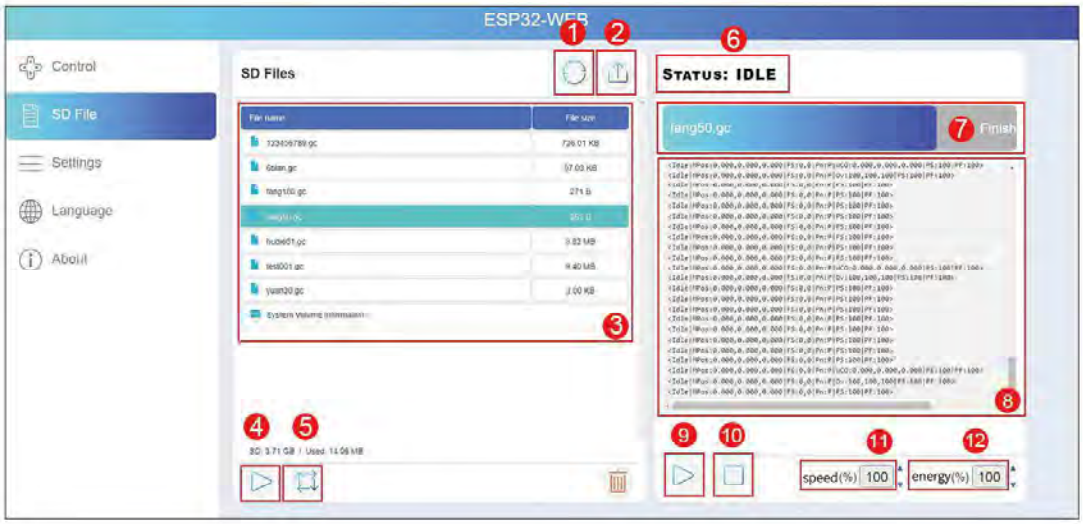
1:Enter the IP address

2:Control interface

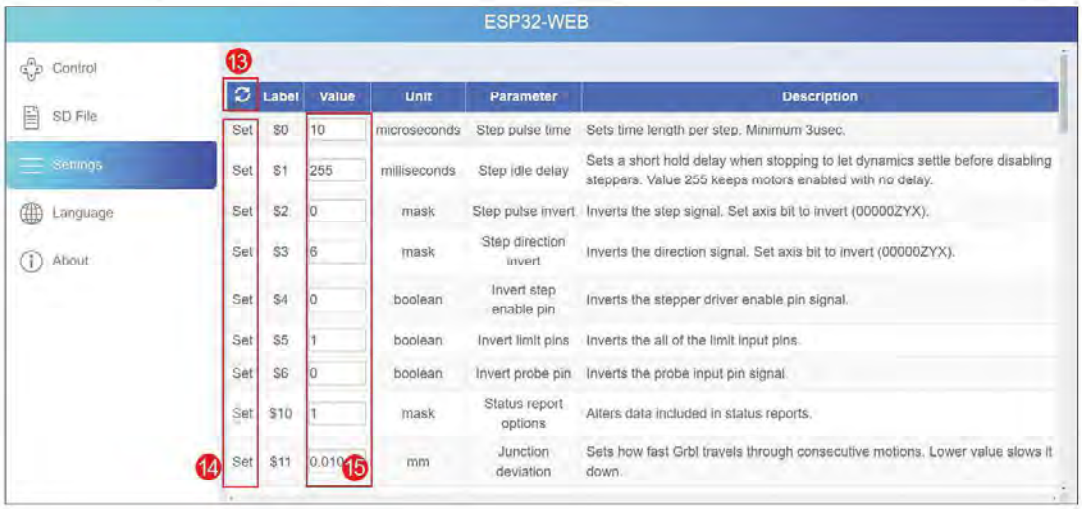


1. Enter the IP address to access ESP32-WEB
2. Menu bar, function selection
3. Display XY coordinates,F for moving speed,S for laser energy
4. Control the XY axis movement
5. Adjust the moving speed of XY axis
6. Adjust XY movement distance
7. Controls the return to zero of the XY axis
8. Position the current position as the origin
9. Turn on laser head 10 Turn off laser head
11. Adjust code display mode
12. Clear the status information 13 Status information display area
14. Enter code manually 15 Send code

3:Engraving interface



4:Parameter Settings



1. Refresh the file contents in the card
2. Upload the local file to the engraving machine TF card
3. Engraving machine TF card file
4. Select TF Card file to start engraving
5. Select TF card file to patrol the edge and determine the engraving scope. Note that data acquisition will be slow if the file is too large
6. Engraving machine status display
7. Engraving progress bar and engraving file name
8. Engraving information display area
9. Pause or resume engraving
10. Stop engraving
11. Adjust the speed in engraving
12. Adjust the output power of laser head in engraving
13. Refreshing mainboard Parameters
14. Write motherboard parameters
15. Set parameters that need to be changed on the mainboard

7.Engraving for the first time

The engraving machine can engrave files in three ways, and we provide detailed operation videos. You can search "FLYINGBEAR LaserMan laser engraver installation video" on Youtube. You can also scan the QR code to get the video.

1.File download

2.Engraving via TF card

3.Engraving via WiFi

4.Engraving via USB

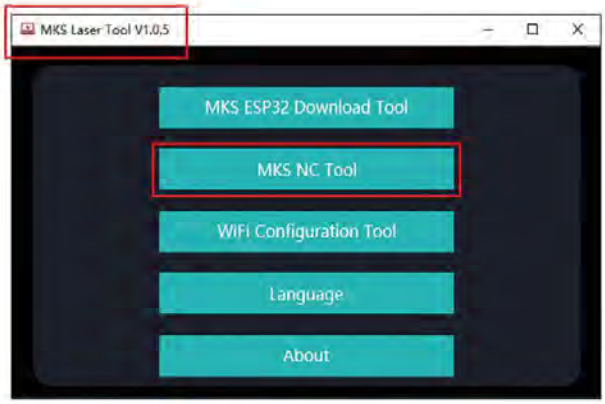
Laser head focusing

The distance is too far, thefocusis not right,and engraving cannot be made

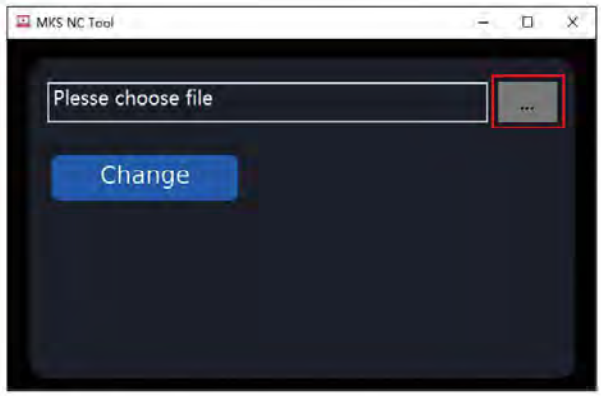
Correct focus and clear engraving

Engraving file conversion

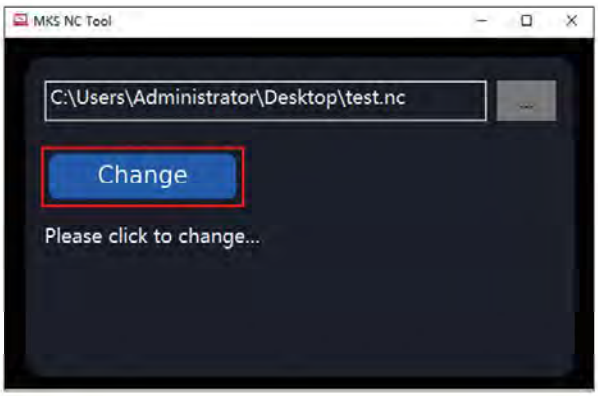
If the engraving file does not contain the engraving range information, the system reads data slowly. You can use [MKS_NCTOOL] to convert the file to reduce the waiting time.



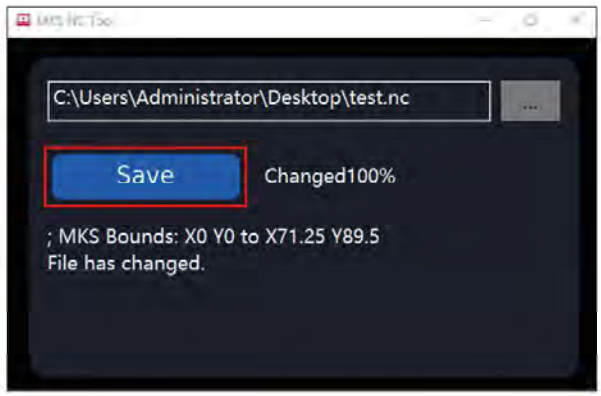
1.Open【MKSLaserTool】
Select【MKS NC Tool】



2.Select the engraving file to convert



3.Click the "Change" button to start converting engraving files



4.Click the [Save] button to save the engraving file

8.Troubleshooting

1 The computer cannot display the port COM of engraving machine normally, how to deal with it?

1 Restart the computer.

2 Scan the QR code to download and install "CH340 Driver".

2 What should I do if the LaserGRBL software cannot connect to the laser engraving machine?

1 Reselect the correct port. (tips: you can try all ports)

2 Baud rate selection: 115200.

3 Close other software that occupies the port or opens repeatedly.

4 Check whether the data cable connection is normal.

3 Q&A of Motor?

The motor is shaking. The direction is opposite to the actual direction and there is no response after power on.

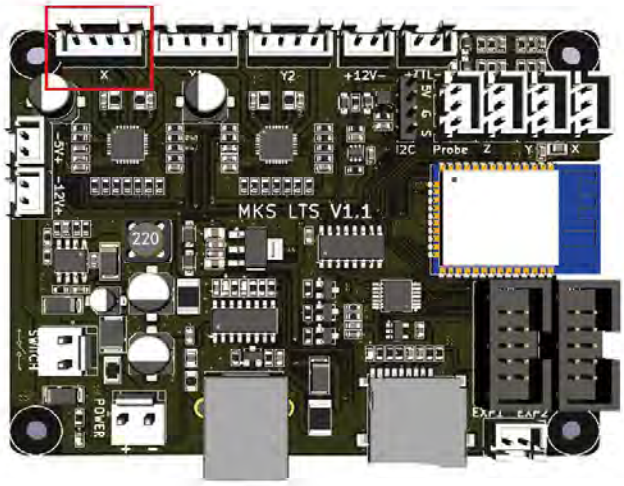
1 First of all, pls make sure that the wiring of the motor line or the motor terminal or the motherboard port is firm, whether there is lgose phenomenon or bad contact, which can be Re-power test.

2 Swap the motor, If there is still no response after replugging, test it after swapping the defective motor with the normal motor of the motherboard port . After the test, make the motor fault judgment. (A. Motor line problem B. Drive problem C. Motor problem)

A Motor cable issue: After confirming that the motor is ok, test it after swapping the defective motor cable with the normal motor cable of the motherboard port. If there is no issue, then it means the motor cable problem. If it still doesn't work, then check the driver.

B Drive problem: Under the premise of confirming that the motor and the motor line are no problem, check the motor drive again. There may be a problem with the drive and a new driveneeds to be replaced.

3. Swap the motor cable on the main board (as shown in the figure). If it is Y-axis jitter, you can swap it with the good end (X-axis motor socket). At the same time, the wiring on the motor also needs to be changed to the corresponding motor, and power on. Then move the motor to test.



4 Engraving issue?

Common problems and solutions for engraving machines: Engraving is misplaced, / Engraving patterns are reversed, / Engraving patterns are irregular.

1. The engraving misalignment is caused by the mismatch of software configuration parameters, which causes the engraving machine to run too fast.

2. The engraving pattern is reversed due to incorrect software configuration parameters. Method: Re-import LaserGRBL through the configuration file in TF card.

3. Lrregular engraving patterns are caused by machine assembly problems.

A. Please check whether the X axis of the engraving machine is parallel to the bottom frame and whether the bottom frame is parallel and the diagonal size.

B. Please check whether the X-axis laser head module shakes. If there is shaking, please adjust the eccentric nut of the POM wheel to ensure that the laser head module slides smoothly.

5 The engraving effect is not good, how to deal with it?

1. The focus position is wrong, adjust the focus according to the teaching video in the TF card, and then fne-tune the focus according to the actual situation.

2. The power value is set incorrectly, 1000 is the maximum power, reset the engraving power. You can manually input the command "M3 S1000" to test the laser intensity.

3. The engraving speed is incorrect, reset the speed.

6 Flame alarms often send false alarms?

1. Flame alarm is sensitive to flame and is also responsive to sunlight. By adjusting the potentiometer on the flame sensor in the control box, the intensity of the sensor sensing flame can be set. Can adjust potentiometer clockwise first after all (indicator light dark), potentiometer callback to the induction intensity that needs next (indicator light is on) after stop can. If you want to cancel the flame alarm, turn the potentiometer clockwise to the bottom.

2. The engraving will be terminated after the fire alarm is triggered, and the engraving operation can be resumed only after the machine is restarted.

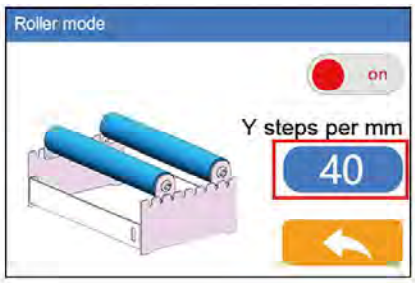
7 Roller mode engraving problem?

1.The engraving direction is opposite

The opposite engraving direction is due to the wrong rotation direction of the motor, please rotate the roller platform 180°.

2. Deformation of carving pattern size

The deformation of engraving pattern size is due to incorrect drum mode setting parameters, which leads to incorrect motor moving distance. Check whether the drum setting parameters are correct.



9.After-sales service

The warranty period is 12 months from the date of purchase

1. Missing/damaged/defective parts.

a. Within 15 days after the delivery date, we will replace any parts for free, including shipping costs.

b. 15 days after the delivery date, we will replace any parts for free. But customers need to pay the freight.

2. Customer damaged parts: The customer should pay for the parts cost and transportation costs.

3. If the component is an LCD panel, power supply or motherboard, the customer should ship the component back to us and we will send new part.

FCC Warning Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user’ s authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- - Reorient or relocate the receiving antenna.
- - Increase the separation between the equipment and receiver.
- - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- - Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co - located for operating in conjunction with any other antenna or transmitter.