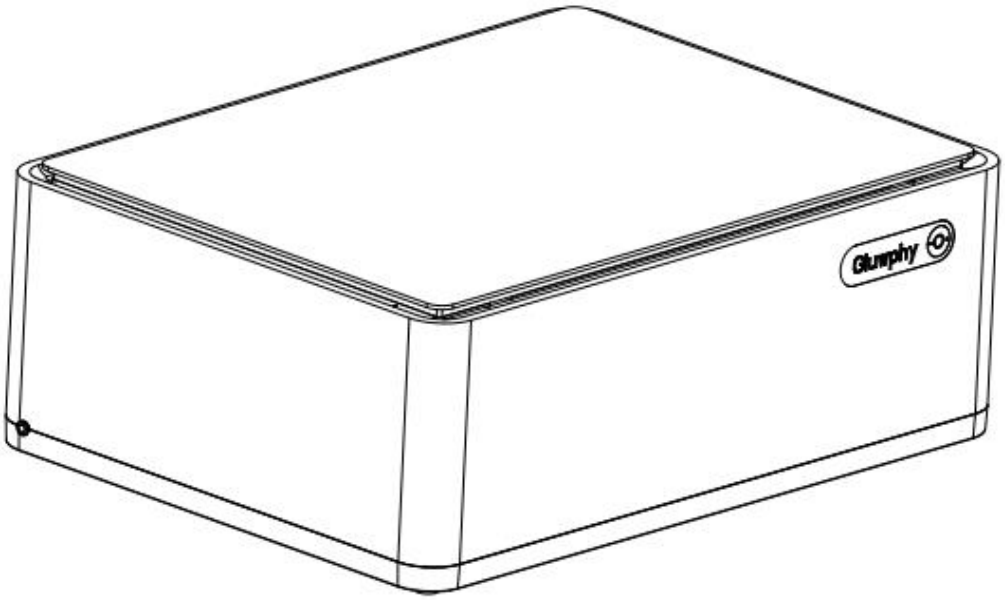
How to use and self-check GM1 AIM

GM105/GM110/GM120



Any problems please contact us with support@gluwphy.com

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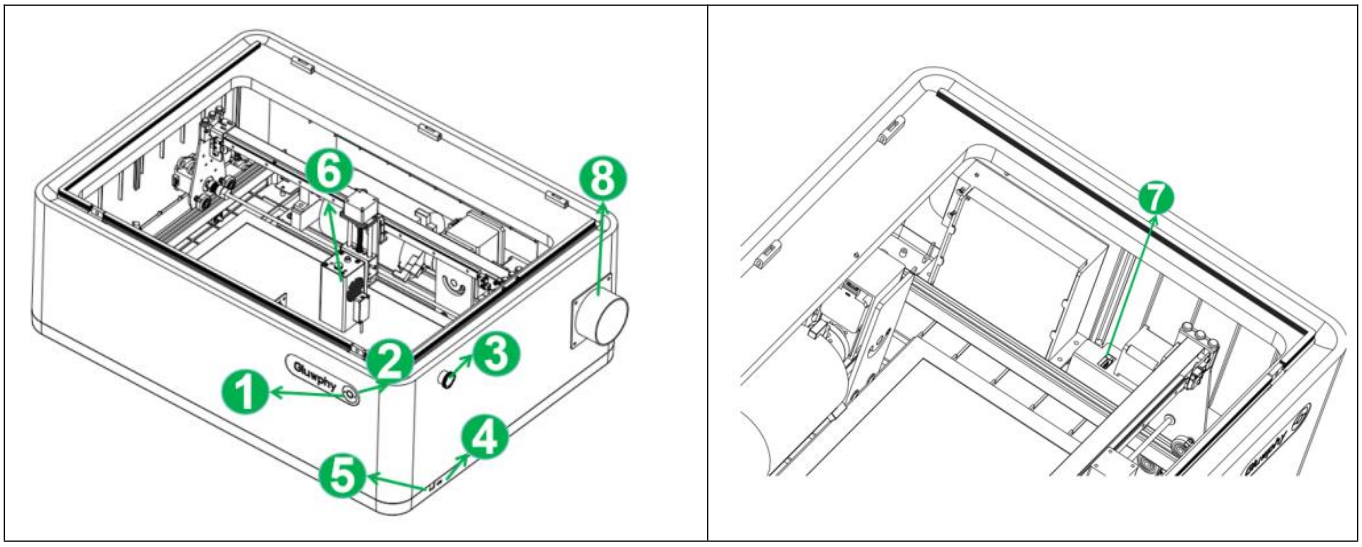
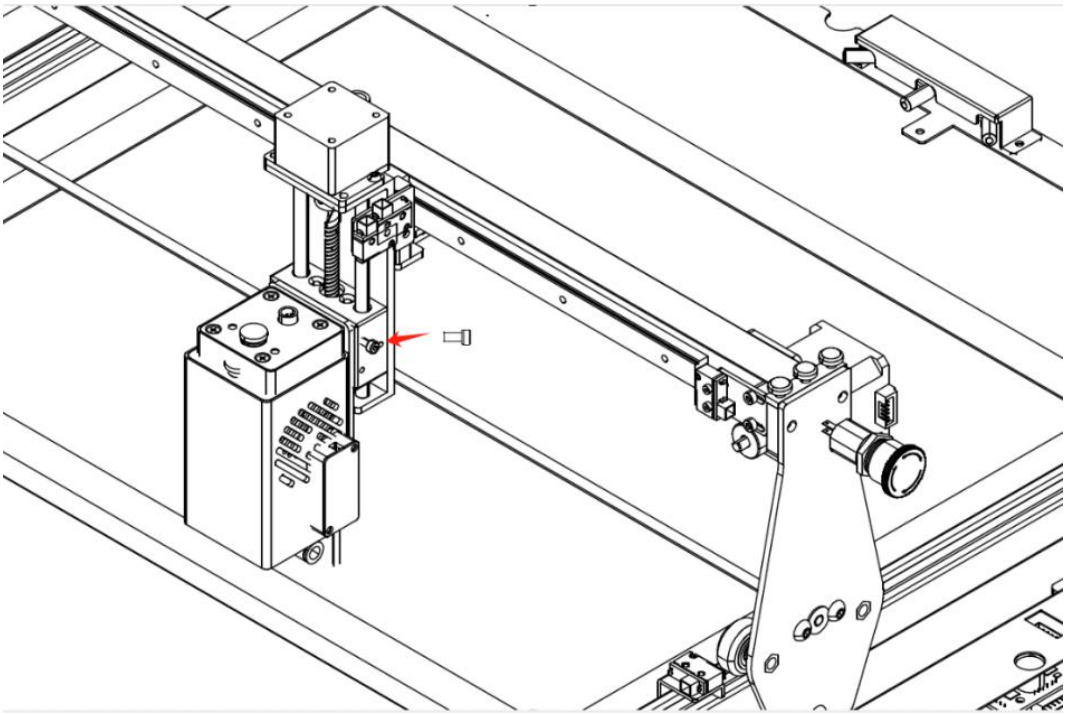
1. Description of each function module



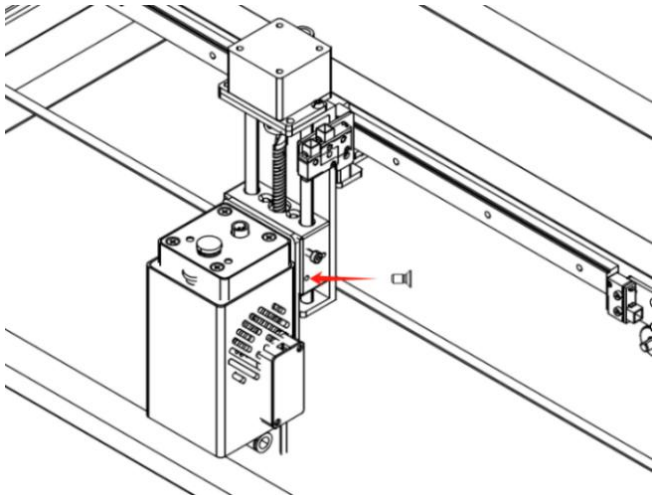
1, Button
2, Ring indicator light
3, Emergency Stop Switch
4, USB port
5, Power interface
6, Laser modules
7, Rotating claw plate interface
8, Smoke exhaust vent

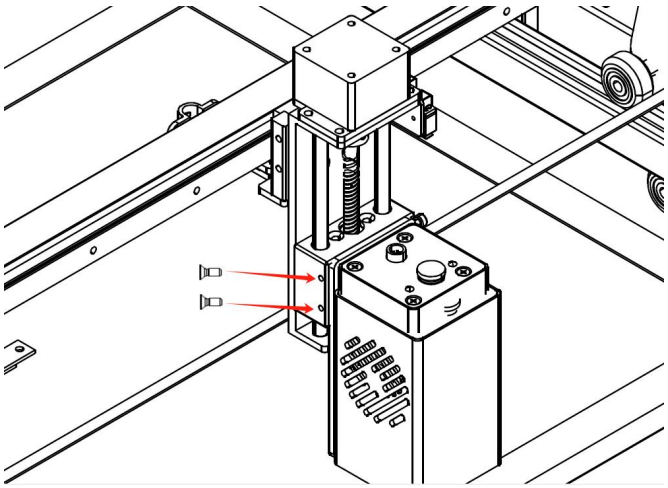
2. How to set up the device after unpacking

1, Open the package and take out GM1 and other components.
2, Place the laser module on the lift table and tighten the hand screws to the position shown below.

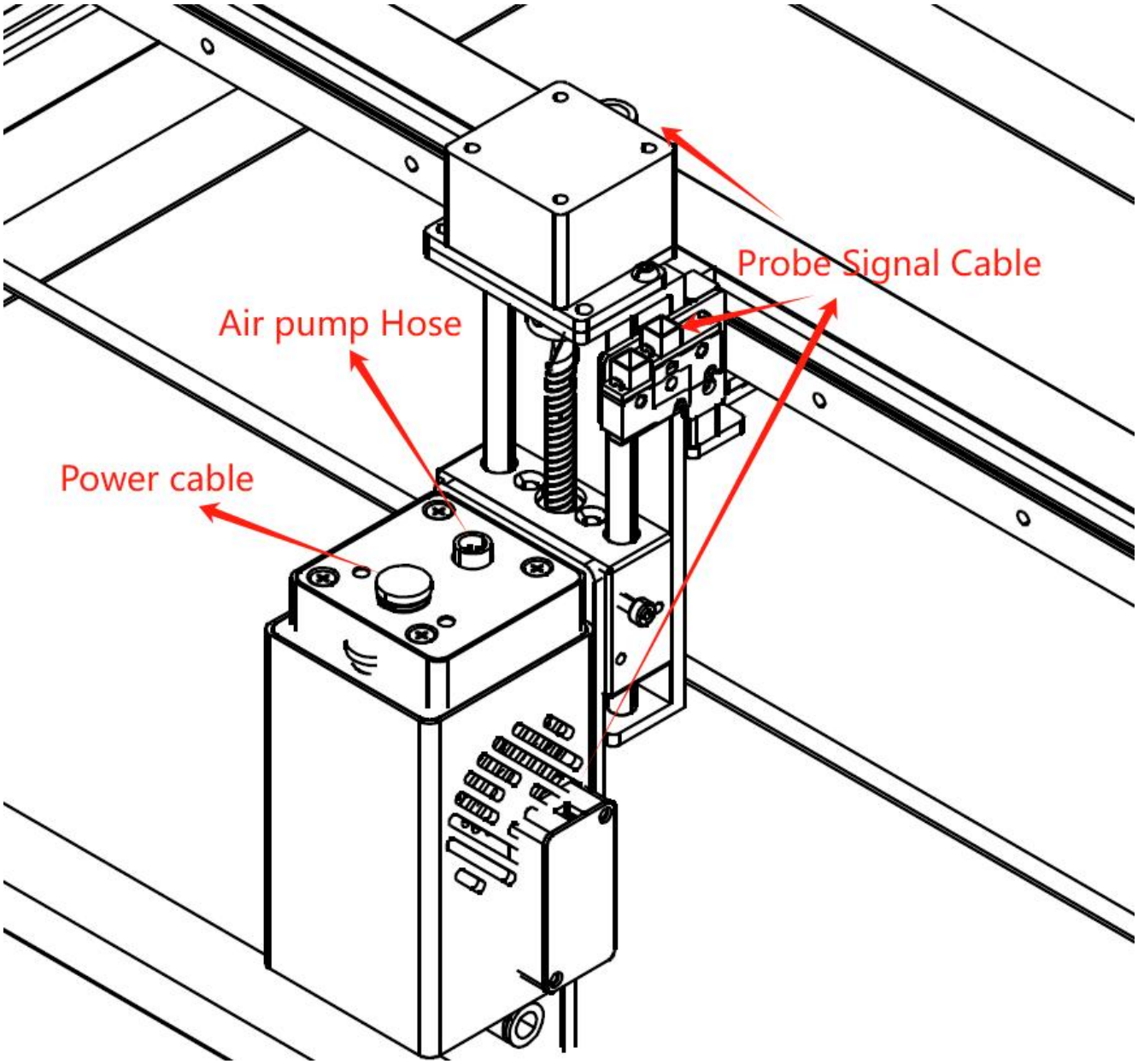


3, Use a screwdriver to secure each of the remaining three screws to the positions shown below.



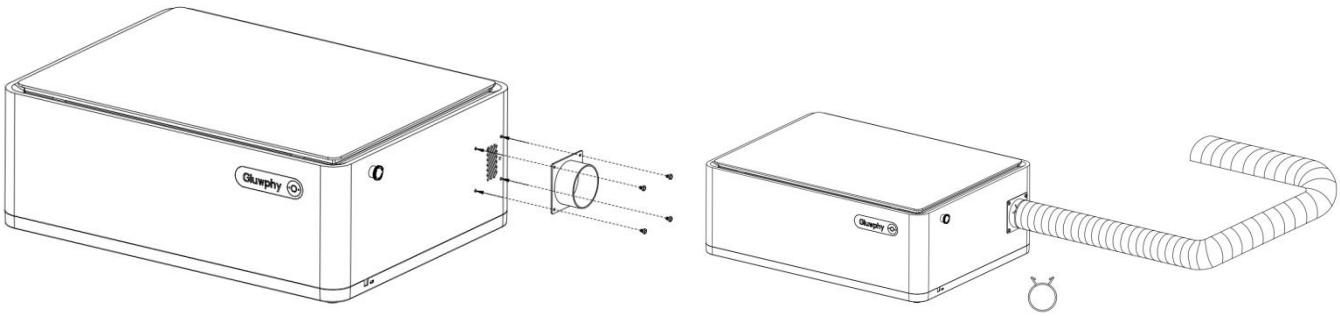


4, Connect the module power cable, the air pump tube and the two probe signal cables according to the diagram below.



5, Installation flange.

6, Use the pipe clamp to hold the exhaust pipe.



3. How to install and use the software

- The laser engraver supports the most popular program LaserGRBL and LightBurn. LaserGRBL is an open-source, easy- to use program, but LaserGRBL only supports Windows System (Win XP / Win 7 / Win 8 /Win 10 / Win 11).
- MacOS users can choose LightBurn, a professional laser program for windows and macOS. LightBurn has a one-month trial period, after which you need to pay to use it.
- The laser engraver receives commands from the computer. It needs to stay connected to the computer, and do not shut the engraving program down (LaserGRBL or LightBurn),during the engraving process. Since the calculations are done on the computer, the performance of the computer will affect the speed and even the quality of the engraving.
- The following section will focus on the installation and use of LaserGRBL. For LightBurn, installation and configuration process will be briefly explained. Their official websites have program operation tutorials, which are very helpful for beginners.

Lightburn official website: https://lightburnsoftware.com

Lightburn software Forum: https://forum.lightburnsoftware.com

3.1.Instructions of LaserGRBL

3.1.1 Download

- LaserGRBL is one of the most popular DIY laser engraving software in the world , the download website of http://LaserGRBL.com/download/

3.1.2 Installation

- Double-click the exe format file you downloaded to start the software installation, and keep clicking < Next> until the installation is complete.

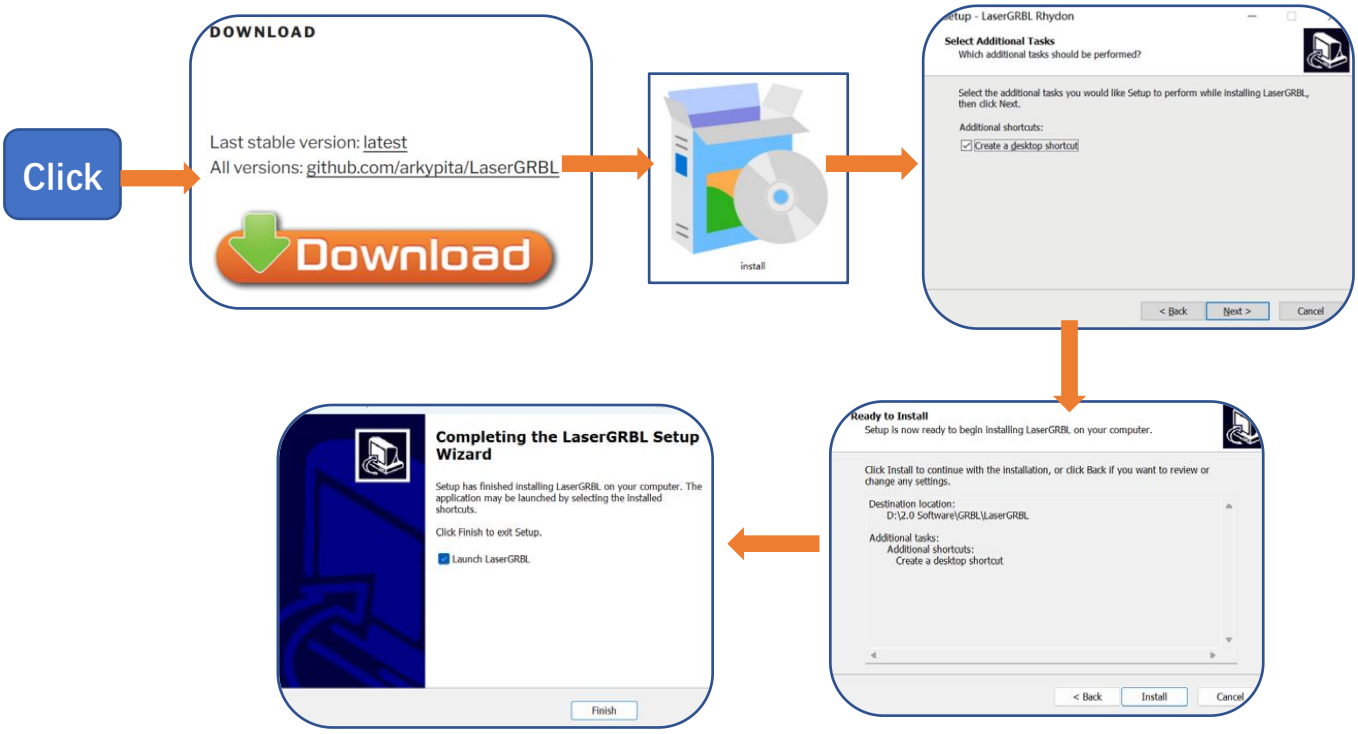


Figure 1 LaserGRBL Installation

- The installed software is shown as the figure 2.

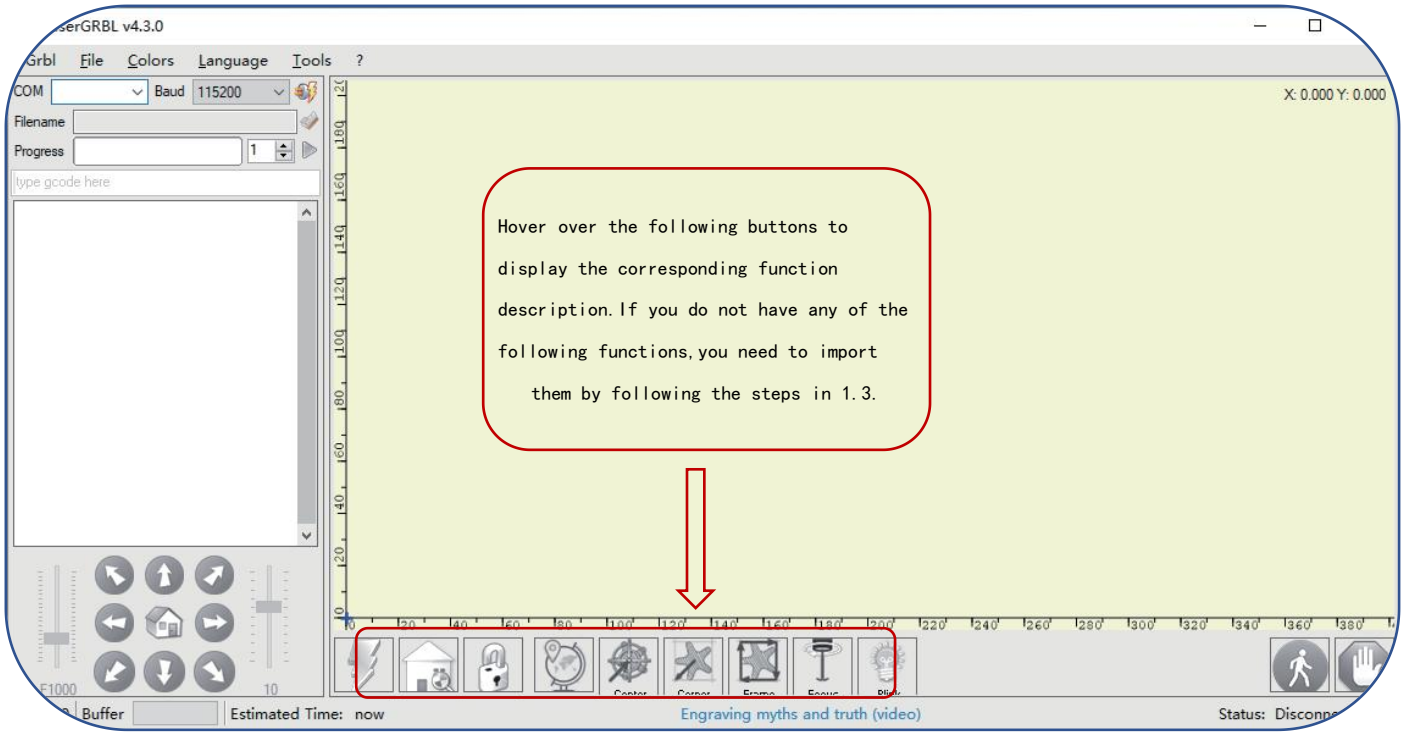


Figure 2 Interface of LaserGRBL

3.1.3 Custom buttons

- The software supports users to import custom buttons, you can import custom buttons in the software according to your usage. We recommend the official custom buttons from LaserGRBL. The download url for the custom button is https://lasergrbl.com/usage/custom.buttons/
(The downloaded file of custom Buttons is shown as below)

Figure 3 Custom Buttons

- Next, we will import the custom buttons into LaserGRBL. Open the LaserGRBL program, right-click in the blank area next to the button at the bottom (as shown in Figure 4), then choose <Import custom button>, and select the custom button zip file downloaded before to import, keep clicking Yes (Y) until there is no popup.

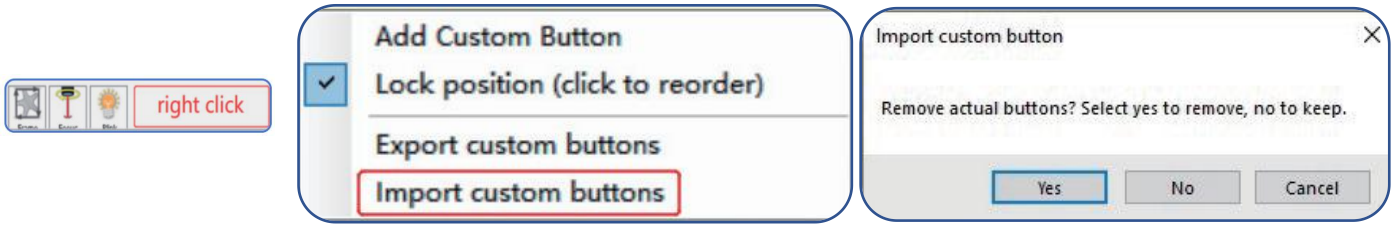


Figure 4 Import custom buttons

3.1.4 Operating instructions

- Connect the laser engraver to a computer with USB cable.
- Plug in the power adapter of the laser engraving machine.
- Open LaserGRBL.
- Install CH340 Driver. In LaserGRBL , click < Tools > < install CH340 Driver > to install the driver, and restart the computer after installation.

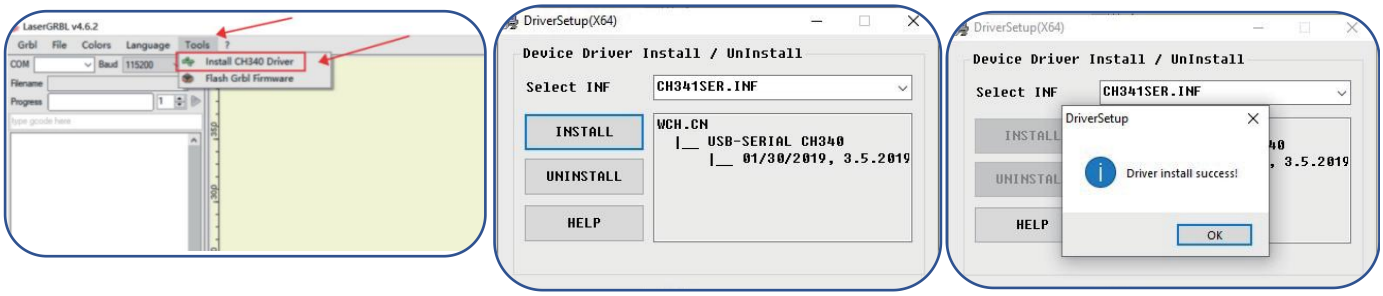


Figure 5 Driver installation

- COM ports can be viewed in your computer's Device Manager

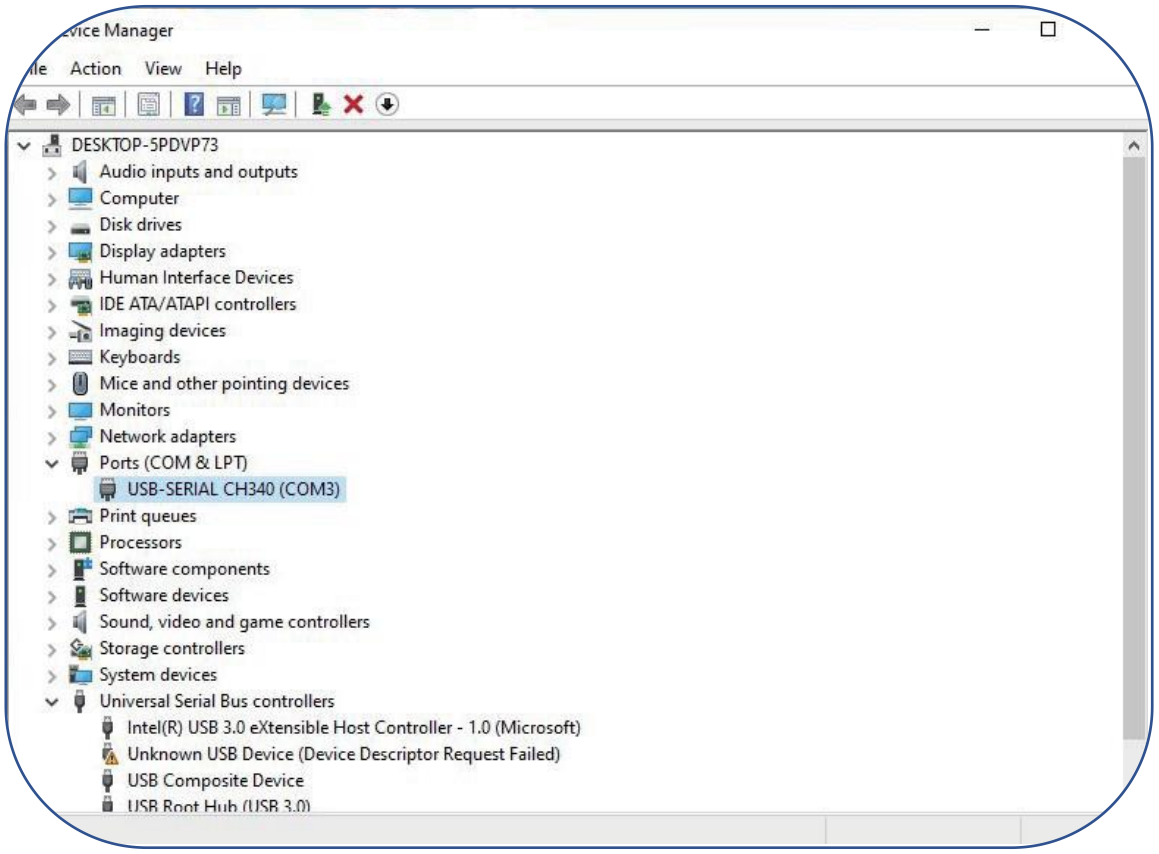


Figure 6 Check of COM ports

- Select the correct port number and baud in the software - 115200 (In general, COM ports do not need to be selected manually, but if you have more than one serial device connected to the computer, it needs to do so, you can find the port of the laser engraving machine in the device manager of the windows system, or you can simply try the port numbers displayed one by one).

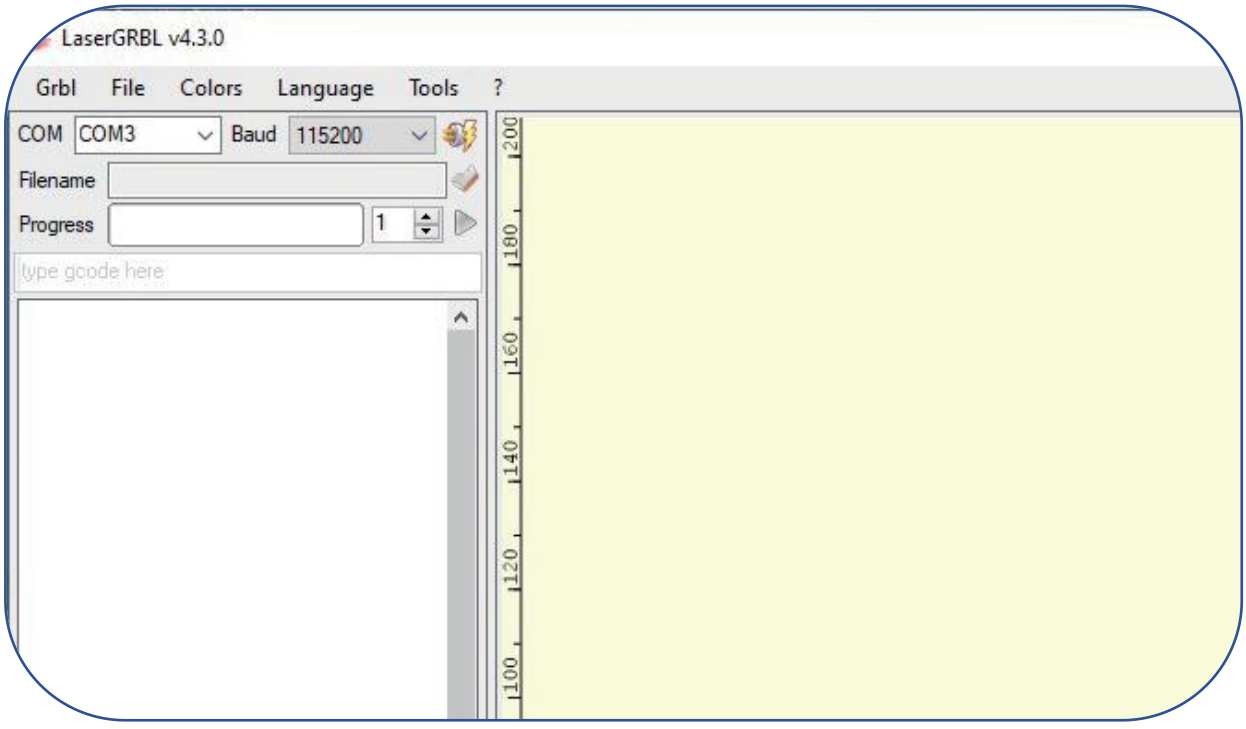


Figure 7 COM Ports after connection

- Click on the lightning connection button in the software. When the lightning button turns red, the connection is success. On the bottom-right of the LaserGRBL interface you should read "status: Idle".

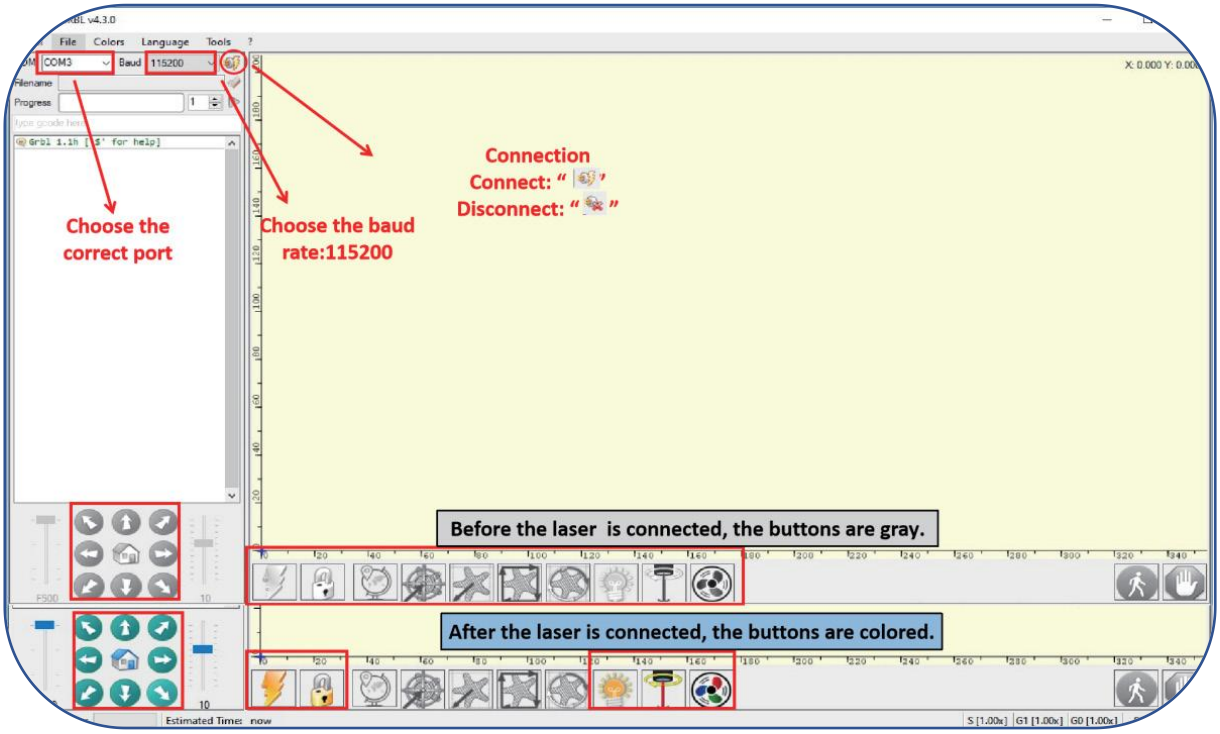


Figure 8 Connection of laser engraving machine

- If you see “ Disconnected” or “Connecting” but no message come from the engraver, you should change COM port.
- If you see “Status: Alarm" it means that your board is in an alarm state. The machine is connected.

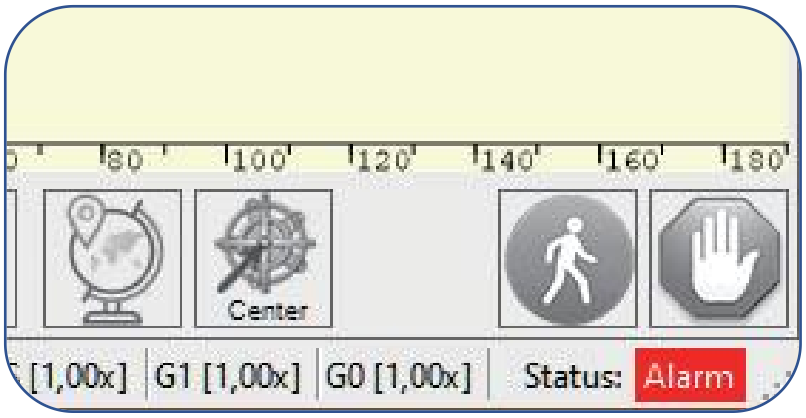


Figure 9 status: Alarm

- Usually when the machine is in Alarm status it is necessary to execute the homing procedure (Click the HOME button) or simply press the Unlock button to acknowledge the alarm (or enter “ $X" in the command box).

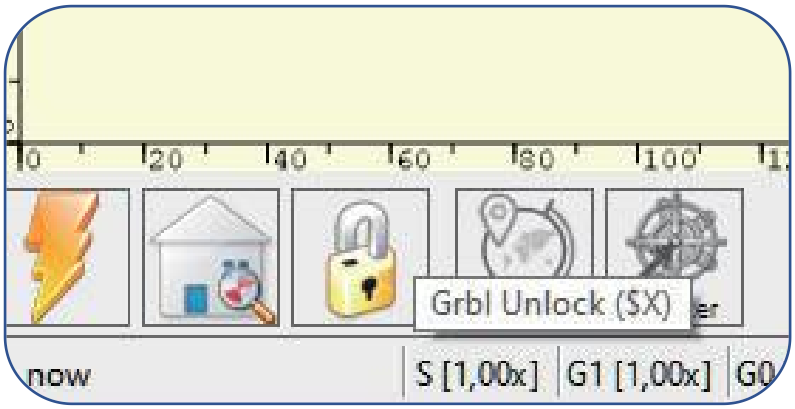


Figure 10 Unlock button

➢ Instructions of buttons

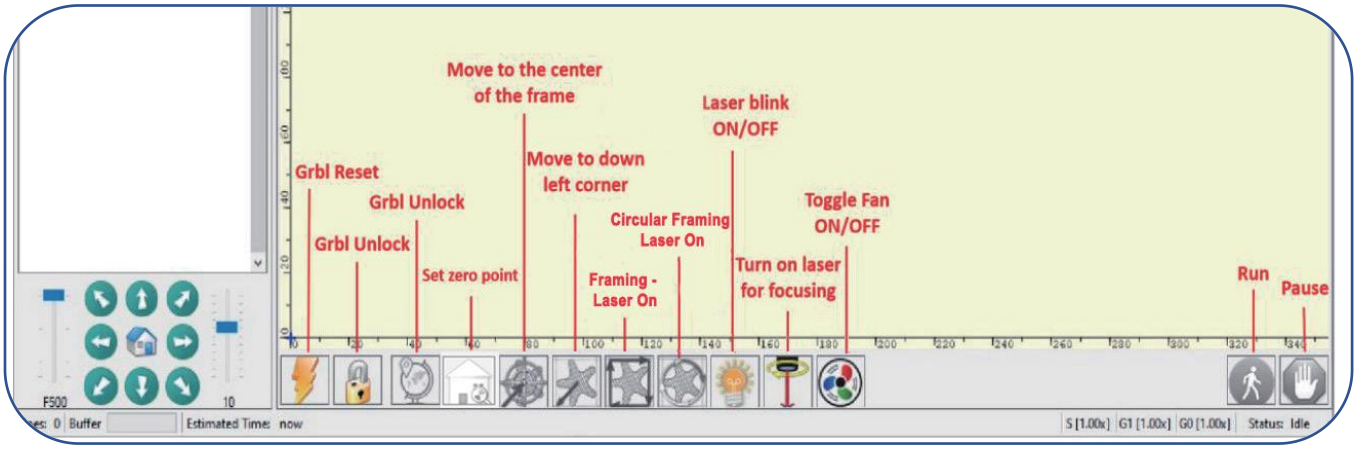


Figure 11 Instructions of buttons in LaserGRBL

3.1.5 Parameter settings

➢ Selecting the engraving file. Open LaserGRBL, click <File> <Open File>, then select the images or file. LaserGRBL supports NC, BMP, JPG, PNG, DXF and other formats.

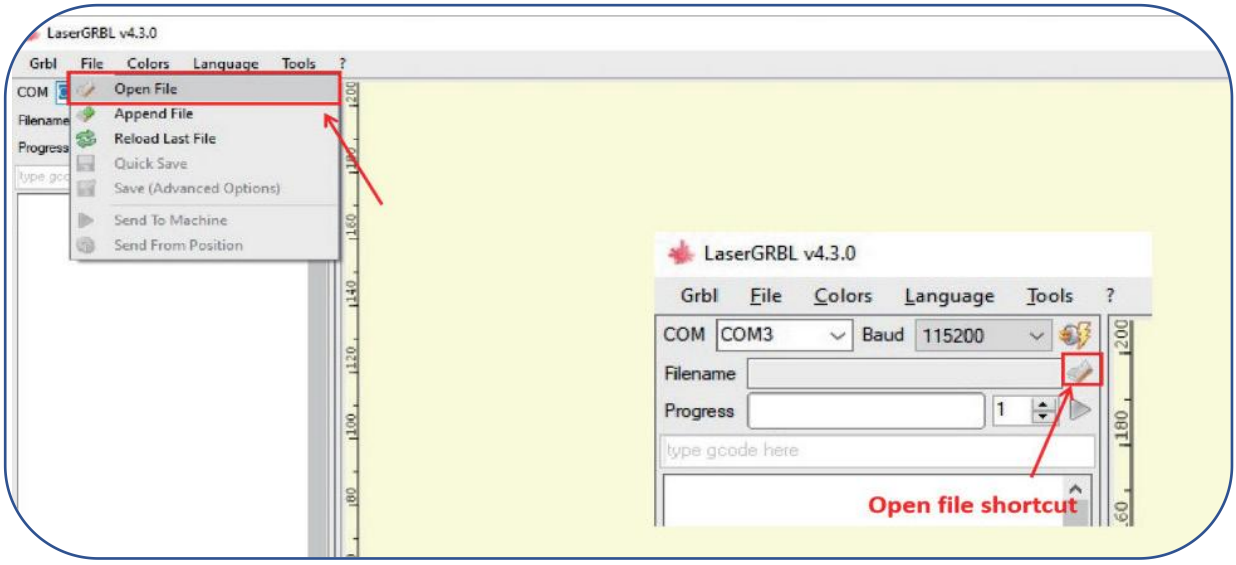


Figure12 Open file

➢ Engraving parameter settings

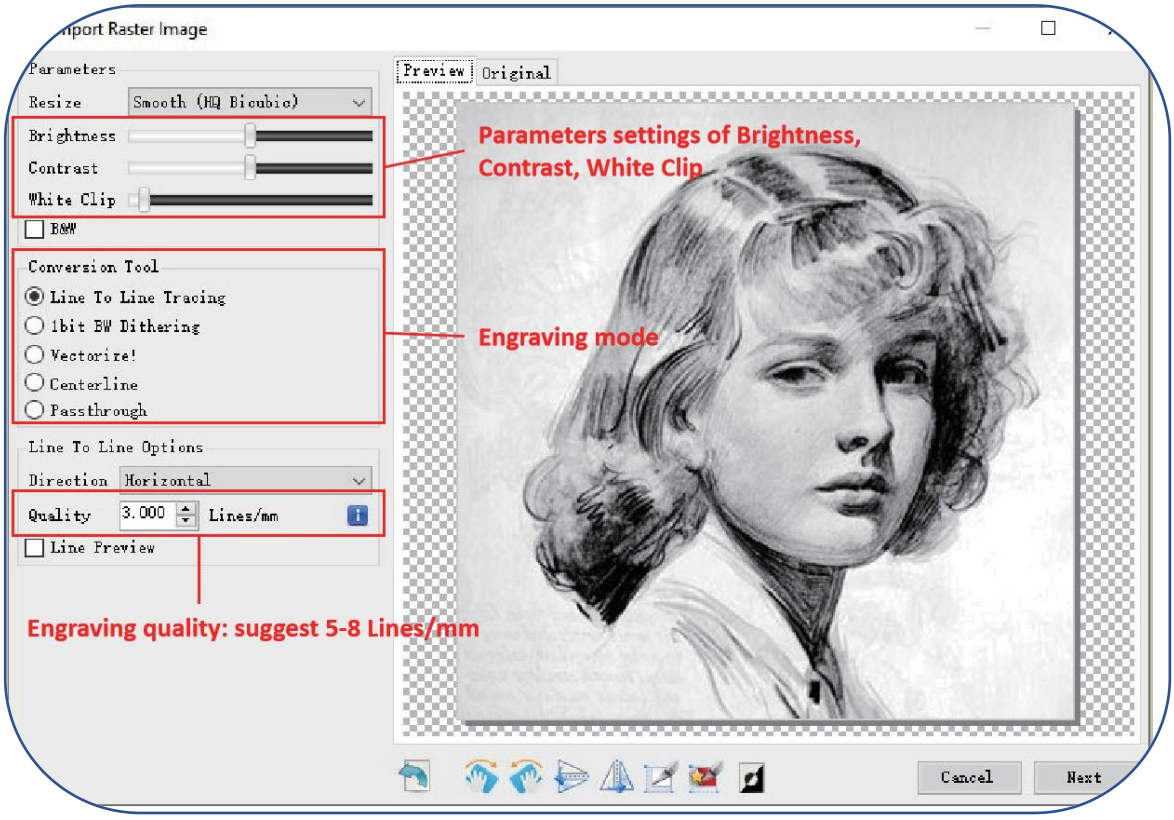


Figure13 Introduction of parameter settings

a) LaserGRBL can adjust the brightness, contrast, white clip and other attributes of the target image. When adjusting the parameters of the image, the factual effect will be shown in the right preview window, and adjust it to your satisfaction.

b) It usually chooses "Line To Line Tracking" and "1bit BW Dithering" as engraving mode. "1bit BW Dithering" is more suitable for engraving grayscale images; If you are going to cut, please select the "Vectorize" or "Centerline" mode so it will cut along thin line.

The red trace in the preview box represents the laser engraving path.

c) Engraving quality essentially refers to the line width of laser scanning, this parameter mainly depends on the size of the laser spot of the laser engraving machine. our laser engraving machine uses rectangular compressed spot of 0.08 * 0.08mm, so it is recommended to use the engraving quality range of 8-10 lines/mm. Different materials respond differently to the laser, so the exact value depends on the specific engraving material.

The core spot of the laser is a rectangular spot of 0.08 x 0.08mm with a width of 0.08mm in the horizontal direction and a length of 0.08mm in the vertical direction, it is recommended to use the vertical orientation for delicately engraved models.

d) At the bottom of the preview window, the image can also be rotated, mirrored, cut, etc.

e) After completing the above settings, click <next> button to the settings of engraving speed, laser power and engraving size.

➢ Engraving speed, power and size setting

a) Choose different speeds and engraving power according to the hardness of different materials. We have attached engraving and cutting parameters of common materials in the manual for your reference.

b) There are two laser modes in the laser options, M3 and M4. M3-Constant power mode simply keeps the laser power as programmed, regardless if the machine is moving, accelerating, or stopped. This can lead to more consistent cuts in more difficult materials. M4-Dynamic power mode will automatically adjust laser power based on the current speed relative to the programmed rate. It essentially ensures the amount of laser energy along a cut is consistent even though the machine may be stopped or

actively accelerating.

Note: If your M4 laser mode is not available, please check your GRBL configuration to make $32=1.

c) Set a suitable size according to the size of your engraving material.

d) Finally, click on the <create> button to complete the setting of all engraving parameters.

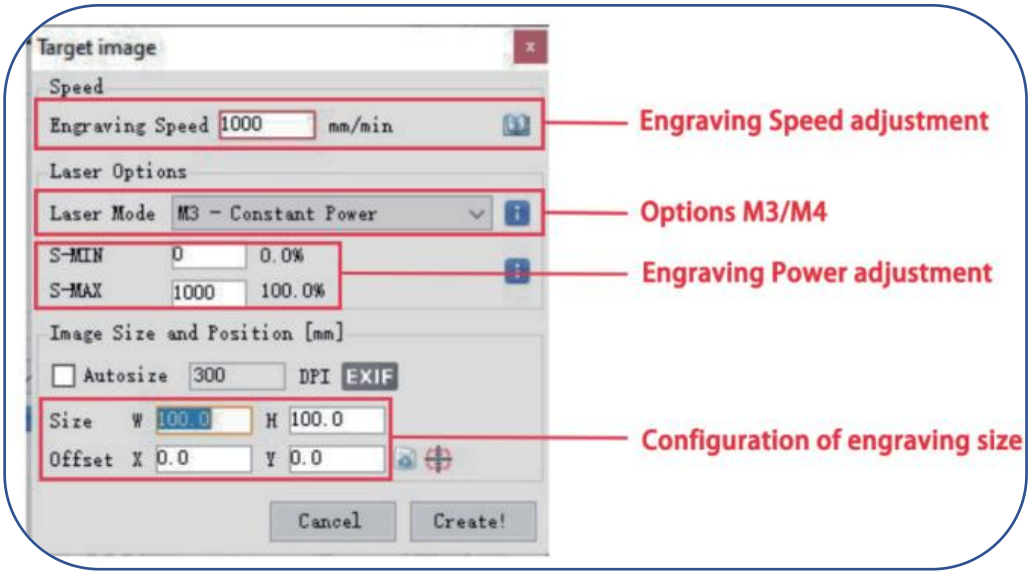


Figure 14 Setting of engraving speed, power and engraving size

3.1.6 Positioning

- Home laser. Click the HOME button, the laser will move forward to the front left. After homing, the default engraving origin is from the front left, and the engraving object needs to be placed along the origin.
- Note: If the laser is not homed, it may cause the laser to exceed the working area.

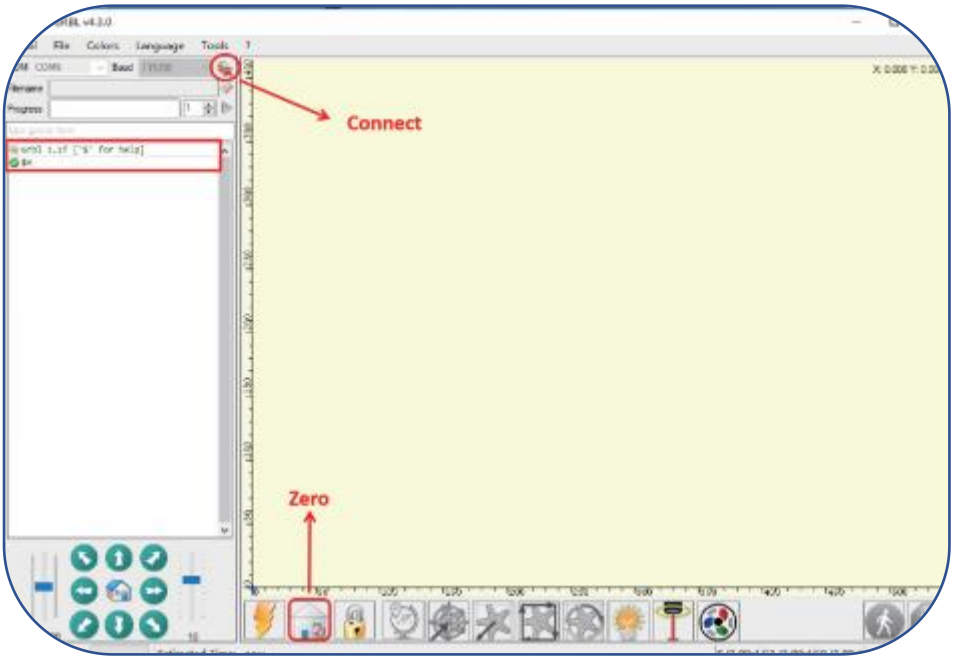


Figure 15 Home the laser

- Click the <Frame> button, the laser will start to scan the outer frame of the image. You can adjust the position of the engraving object according to the scanned frame area.

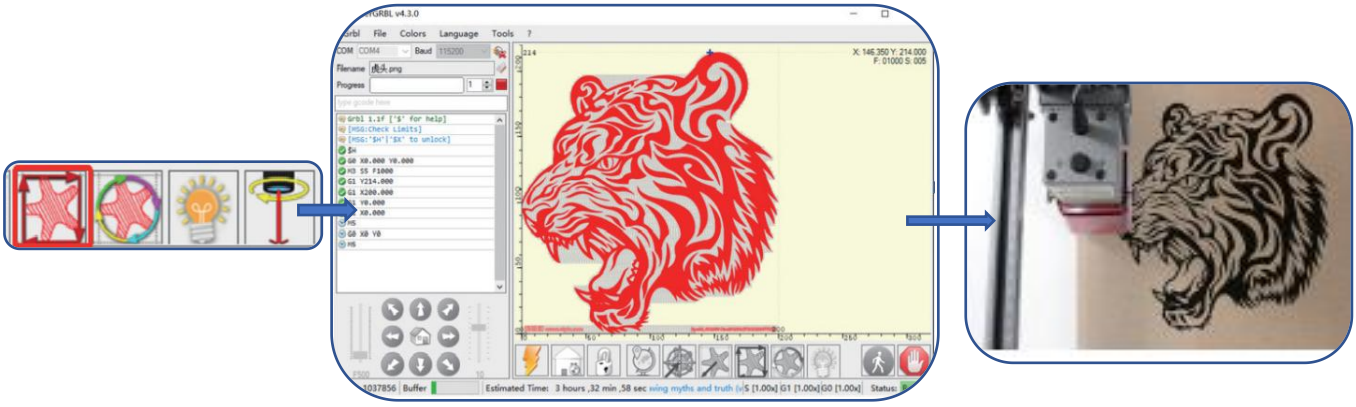


Figure 16 Preview of laser engraving area

➢ Tips for accurately positioning images and engraving objects

a) Move the laser to the let front of the frame.

b) Use a ruler and pencil to draw a center point on the engraved object.

c) Click on the following two buttons one after the other to move the laser so that the laser point moves to the center of the engraving, which will makes a more accurate positioning.

Figure 17 Centering

3.1.7 Start and stop engraving/cutting

➢ Start engraving/cutting

➢ After completing all the above settings, click the green button as shown in the Figure 18 to start

➢ engraving/cutting. There is an editable number next to the start button, and this number is the

➢ times of engraving /cutting. LaserGRBL allows multiple consecutive operations on the same image. This function is especially useful for cutting

➢ Stop engraving/cutting

➢ If you want to stop engraving/cutting while the machine is running, you can click the stop button as shown in the Figure 19 to stop engraving/cutting.

➢ Feed hold and resume

➢ If you just want to pause while the laser is running and will resume unfinished work, you can click the feed hold and resume button as shown in Figure 20

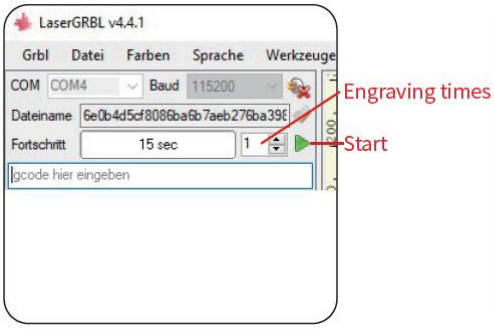


Figure 18 Start engraving/cutting

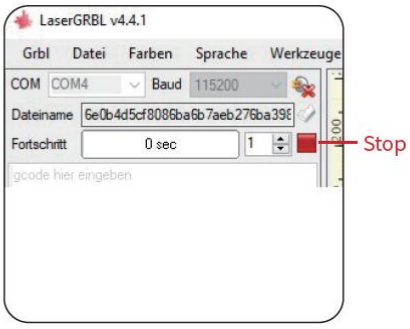


Figure 19 Stop engraving/cutting

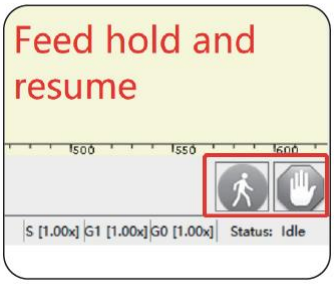


Figure 20 Feed hold and resume

3.2. Instructions of LightBurn

➢ User can download the software from the LightBurn official website: https://lightburnsoftware.com/pages/download-trial

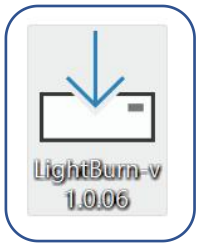


Figure 21 LightBurn installation file

➢ Double-click the program installation file to install, and click <Next> in the pop-up window. (Note: LightBurn is a paid software. For a better experience, we recommend that you buy the original version. We will demonstrate the installation of the trial version here)

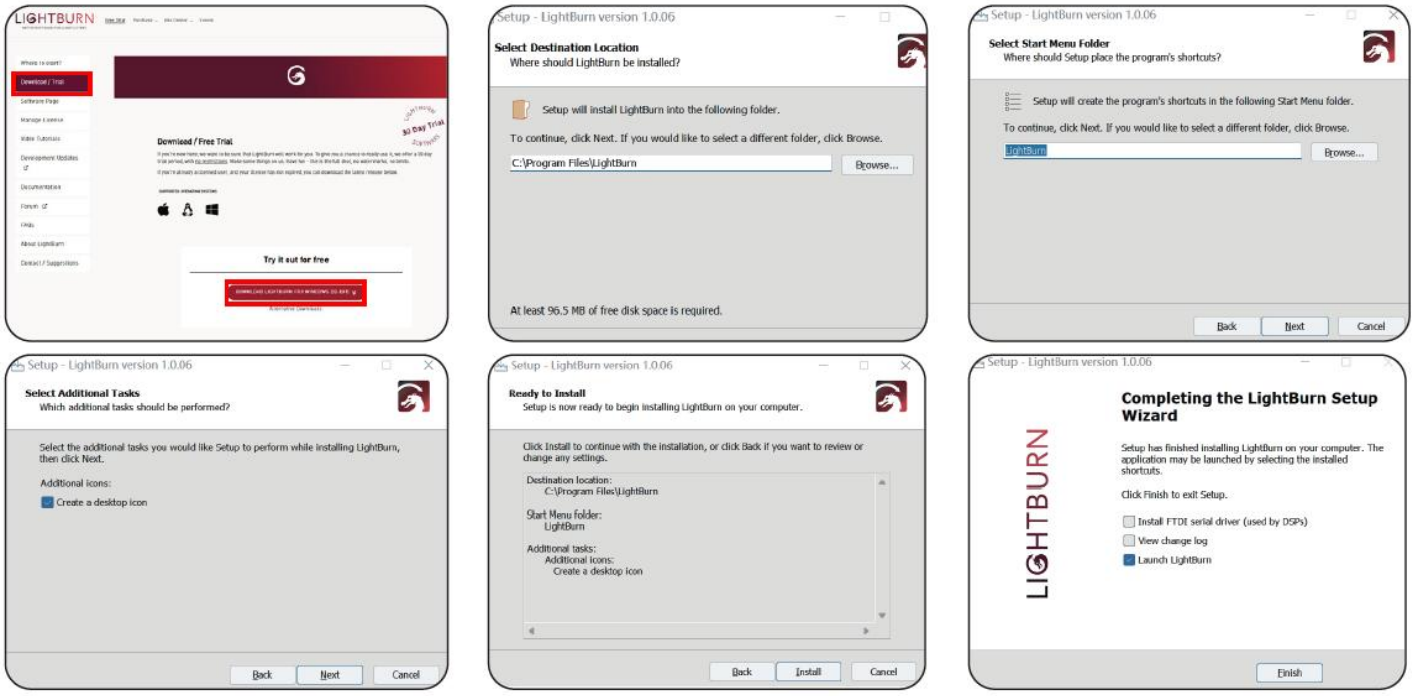


Figure 22 Installation of LightBurn

➢ Click <Start Your Free Trial>. Then click <Devices> at the bottom right of the software, <Find My Laser>.

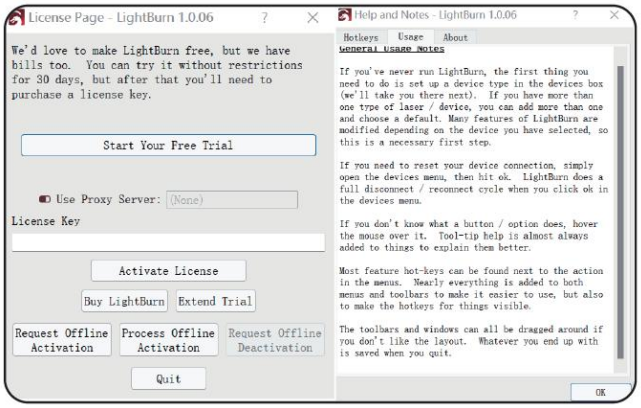


Figure 23 start a free trial

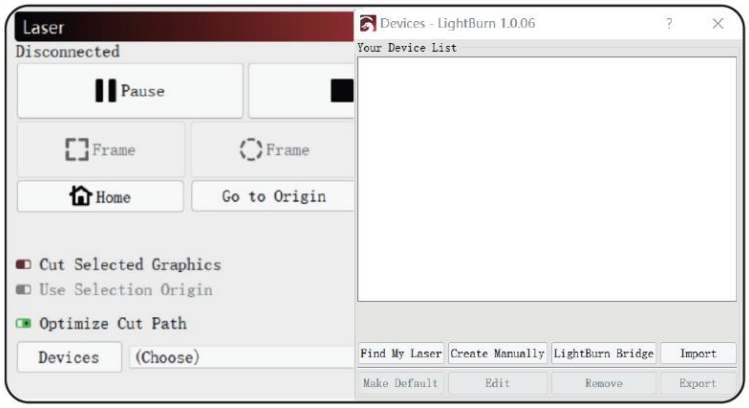


Figure 24 Find my laser

➢ Click <Add Device>. If there are two types of DSP and GCode, please choose the GCode type.

Figure 25 Add device

➢ Usually set the origin at the front let, then the installation is complete

Figure 26 Installation of LightBurn

➢ Click <GRBL>. When the window appears "GRBL-Serial/USB...", click <OK>.

➢ If the software does not automatically connect to the laser engraver, you need to choose the port of the laser engraving machine as shown in the figure 28.

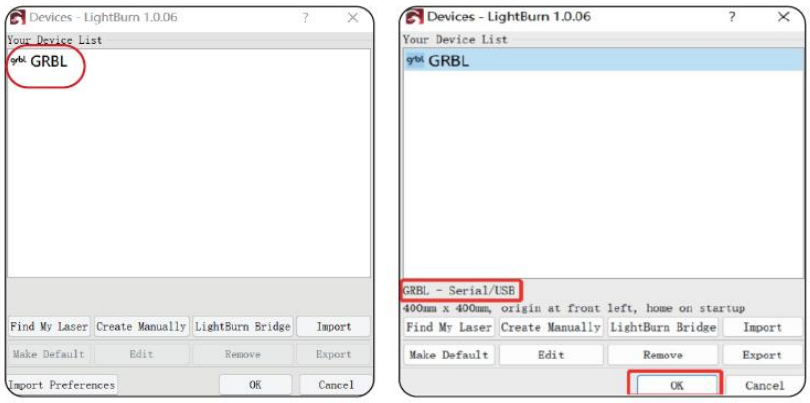


Figure 27 Choose GRBL

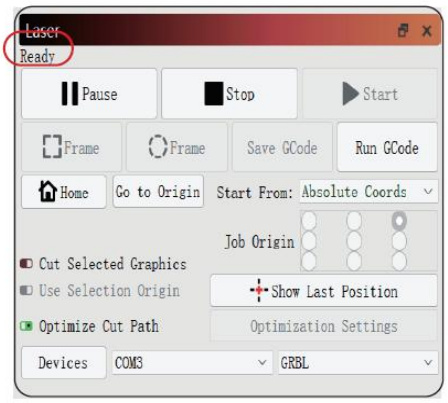


Figure 28 Select port

➢ If you did not find the laser, please add the laser manually.

a) Click <Create Manually>. Choose one of the <GRBL>.

b) Choose <Serial/USB>. Name your laser, and set the X 400mm and Y axis to 300mm.

c) Set the laser to the Front let and finish.

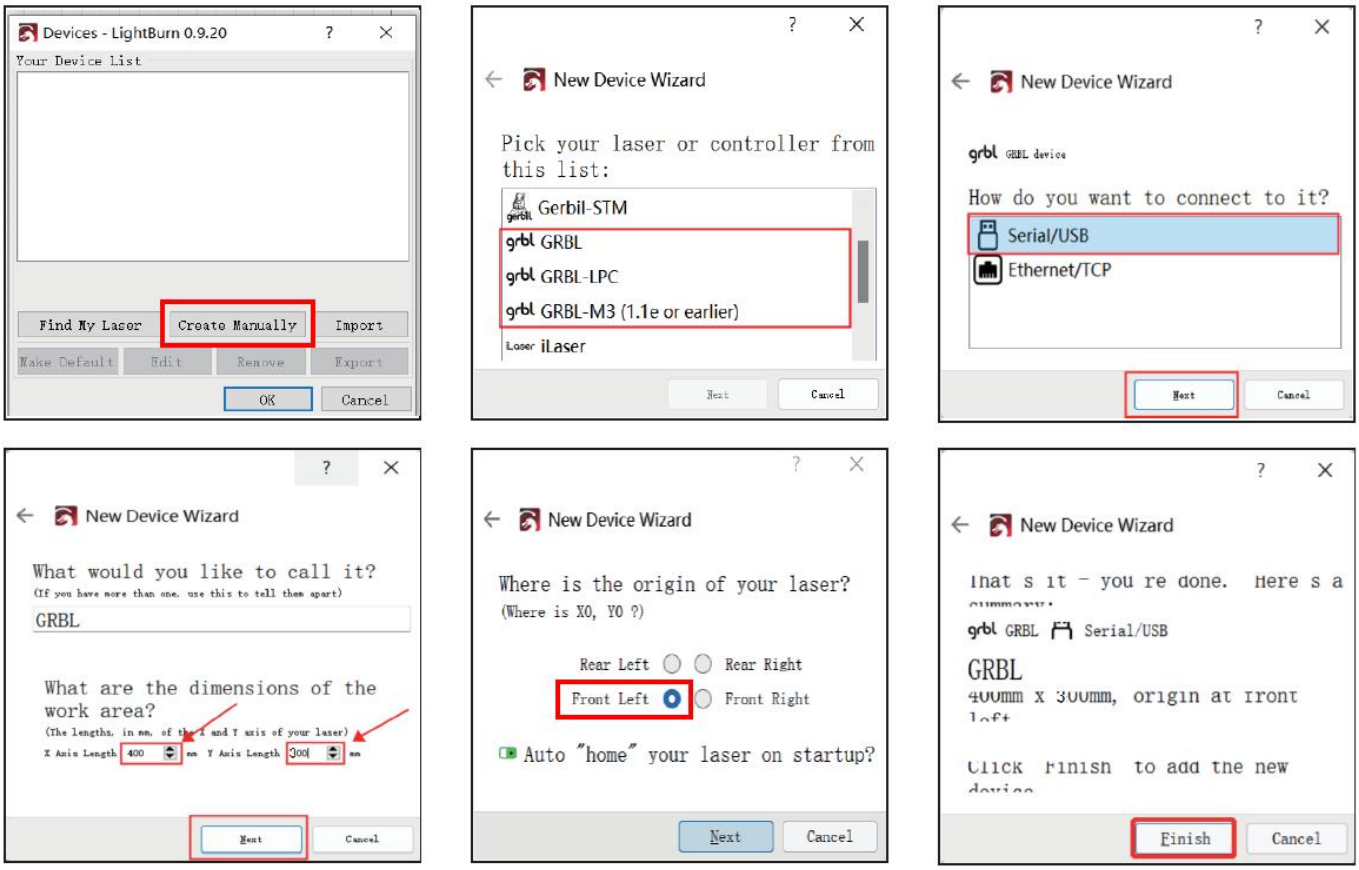


Figure 29 Create laser manually

3.3 Lightburn interface Introduction

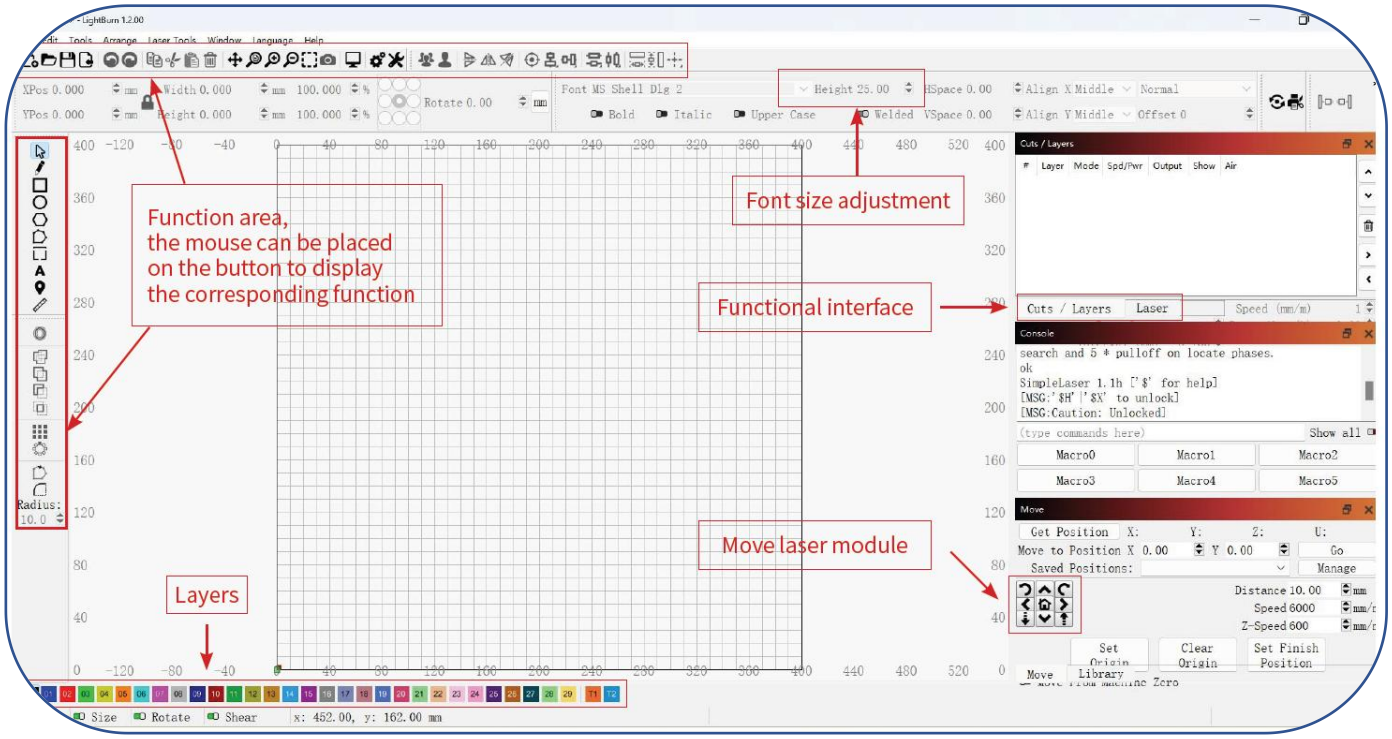


Figure 30 Lightburn Interface

3.3.1 Instructions for engraving/cutting operation

➢ Import Image: Click the Open button, select supported format, select and import an image

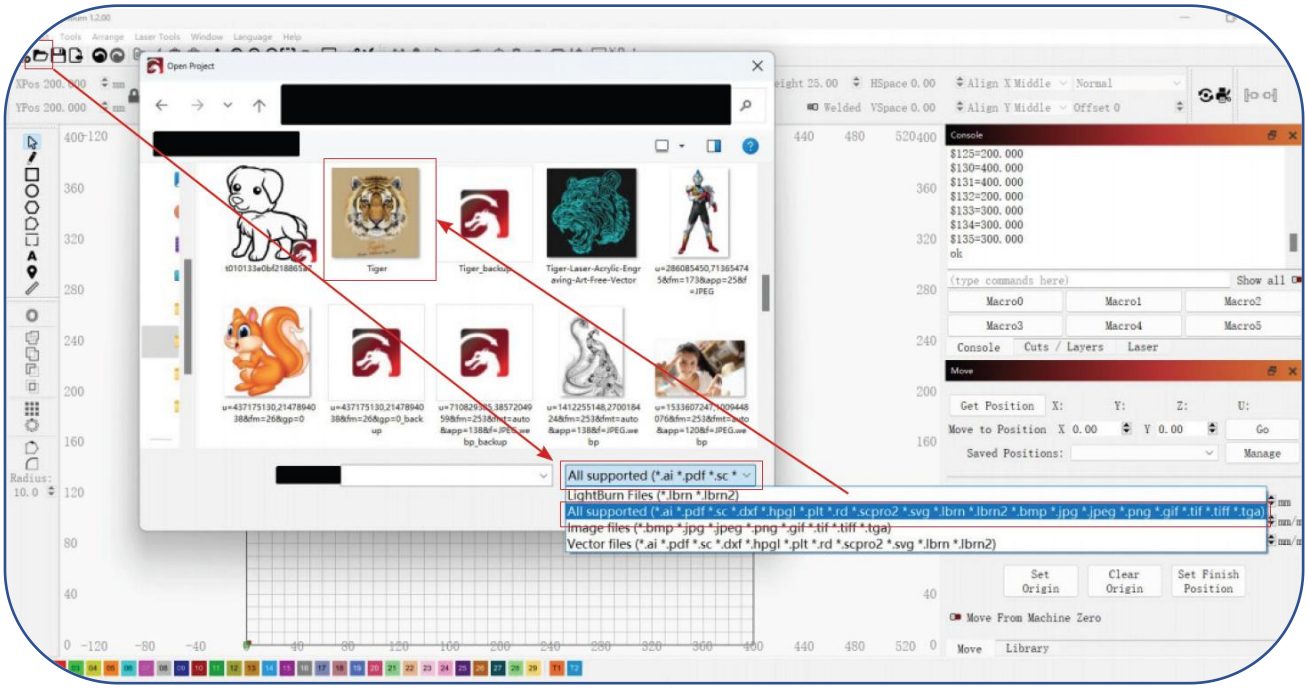


Figure 31 Import Image

- Size adjustment: Adjust the image size in ① . When in the locked state, adjust either the Width or Height number, and the other number will change synchronously compared to the same column.
- Drawing:Use the square drawing tool in ② to draw a square, adjust the size of the drawing in ① .
- Create layer: In ③ , select the drawn square, click on the blue bottom left corner to create layer C01.
- Layer parameter setting: Click on layer C00 to enter the parameter setting interface, and refer to the attached parameter table to set .

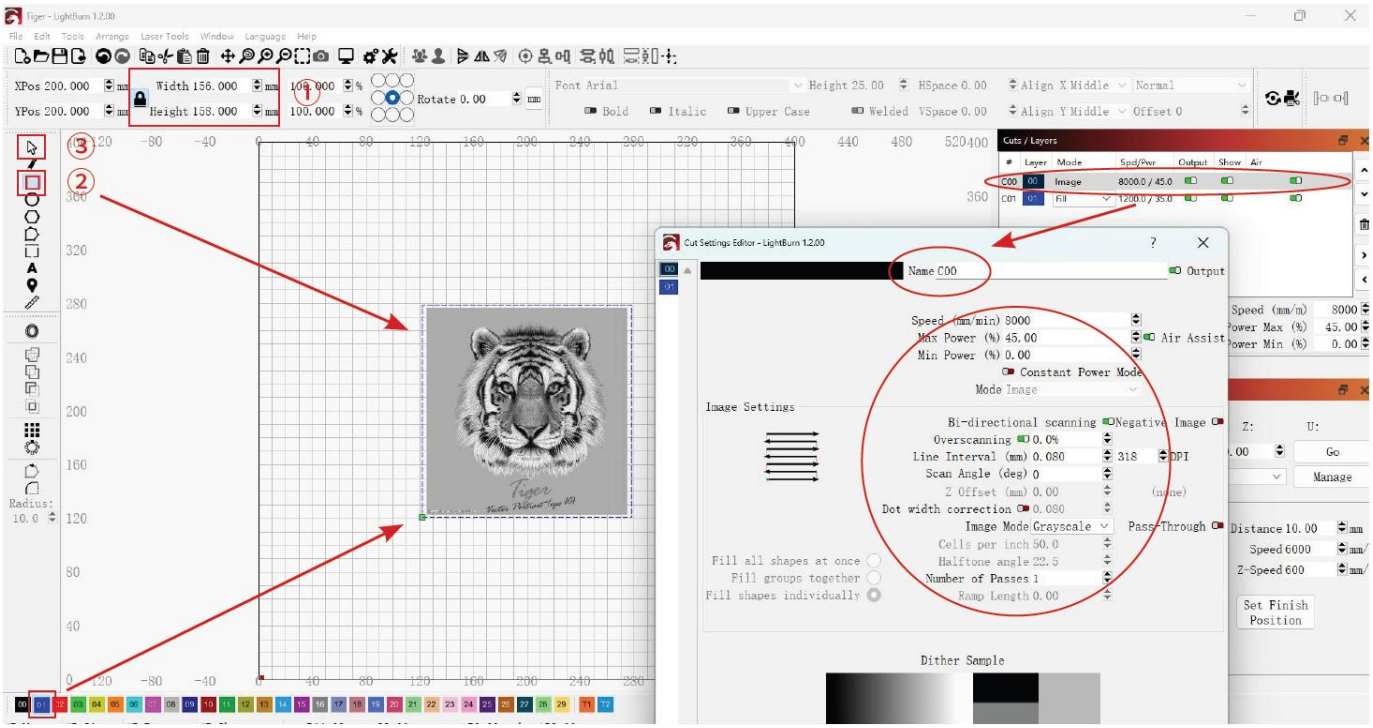
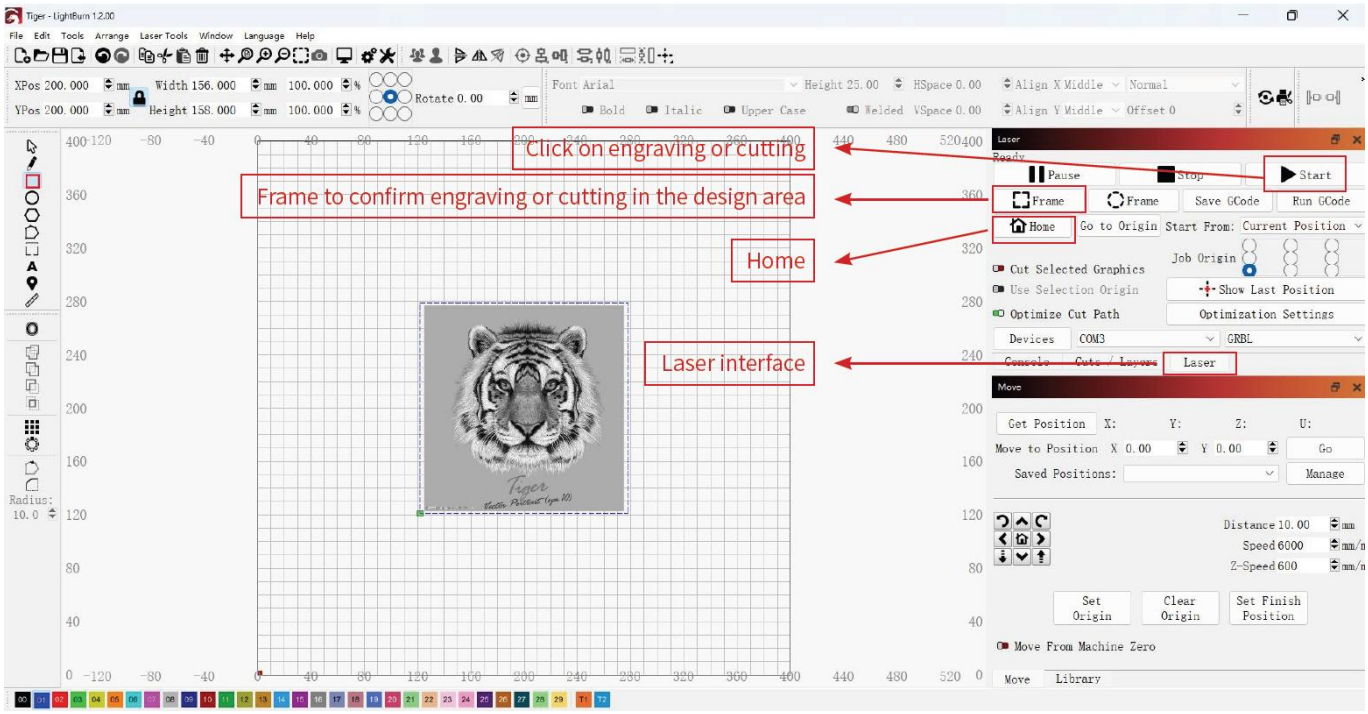


Figure 32 Layer Parameter Setting

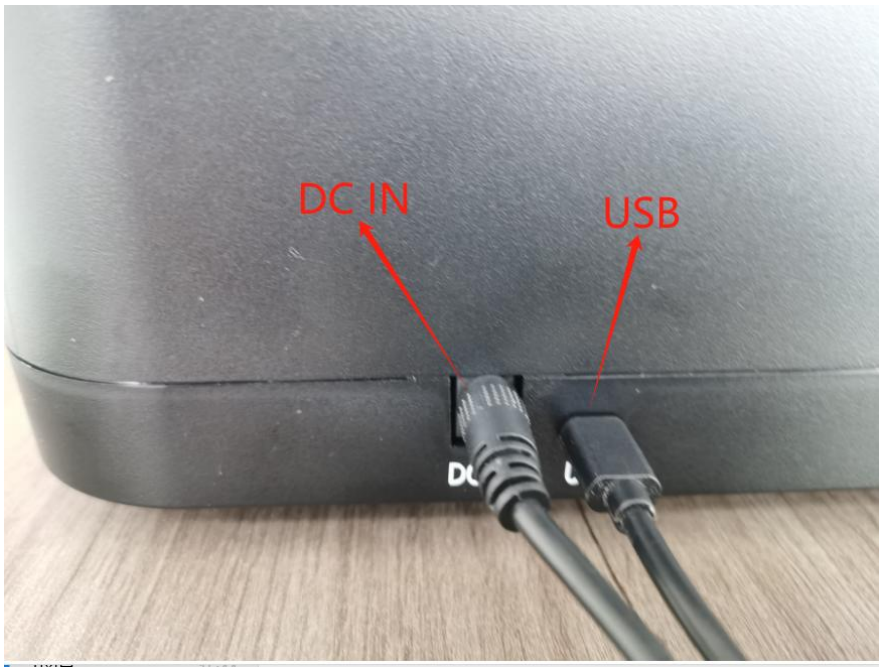


Enter the Laser interface, Home engraver, Frame to make sure that engraver are working in the design area, Start to Engraving or Cutting

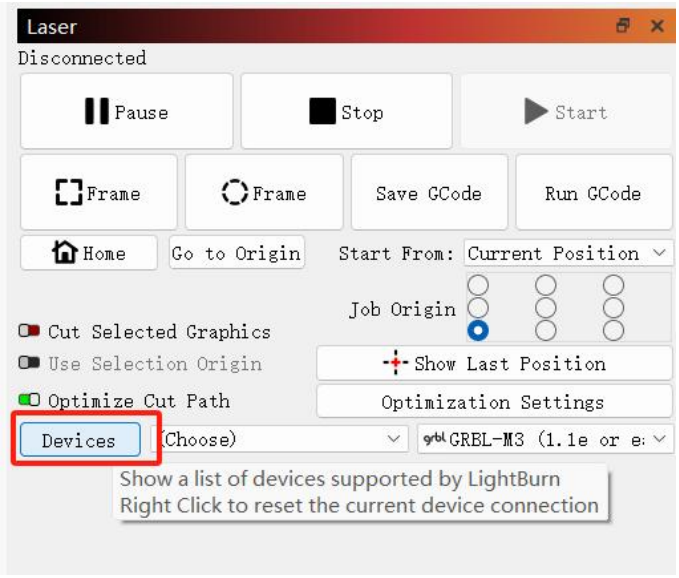
Figure 33 Engraving or Cutting

4. How to connect your computer to start your first project

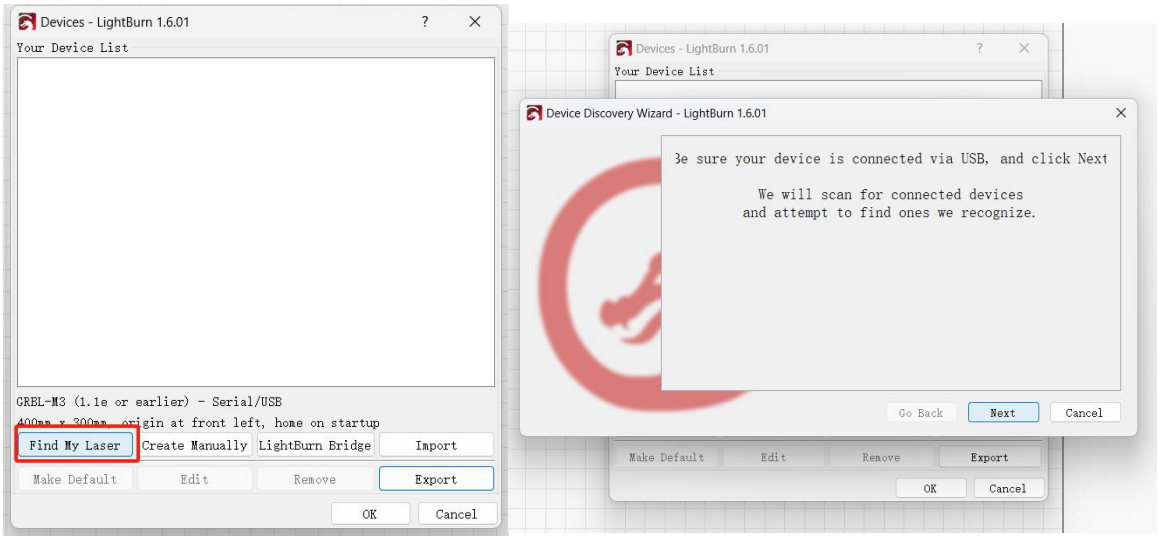
1, Connecting the power supply
2, Check the emergency stop switch is closed
3, Connecting the usb cable to the computer and device



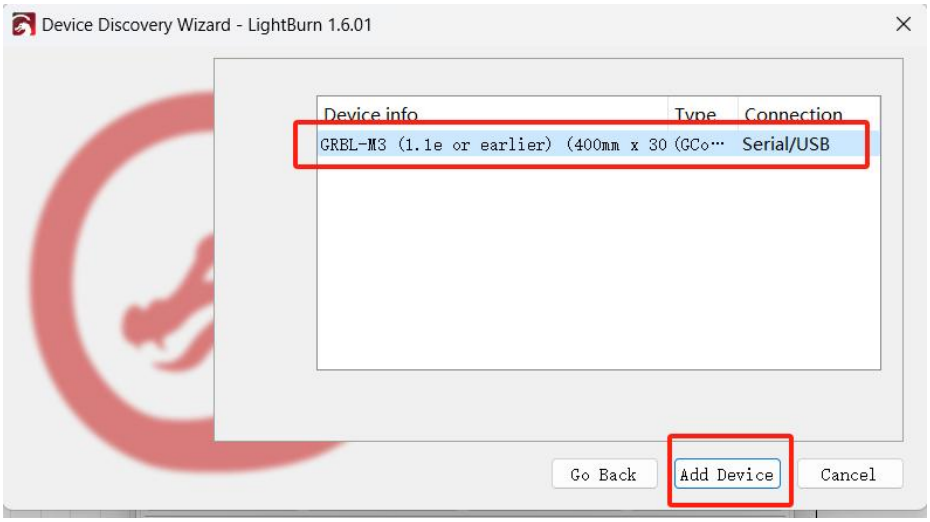
4, Single click the button to turn on the machine
5, Open the software on your computer such as LightBurn or LaserGRBL(refer to No.3)
6, Take LightBurn for example, click Devices



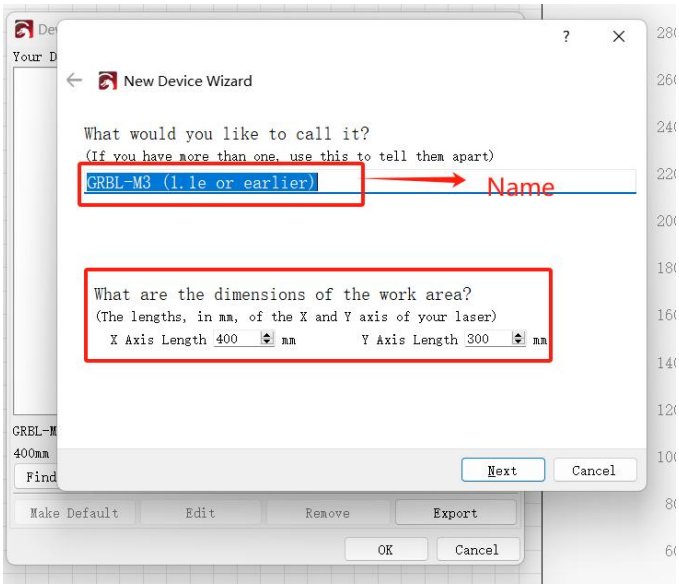
7, Click Find My Laser, and click next



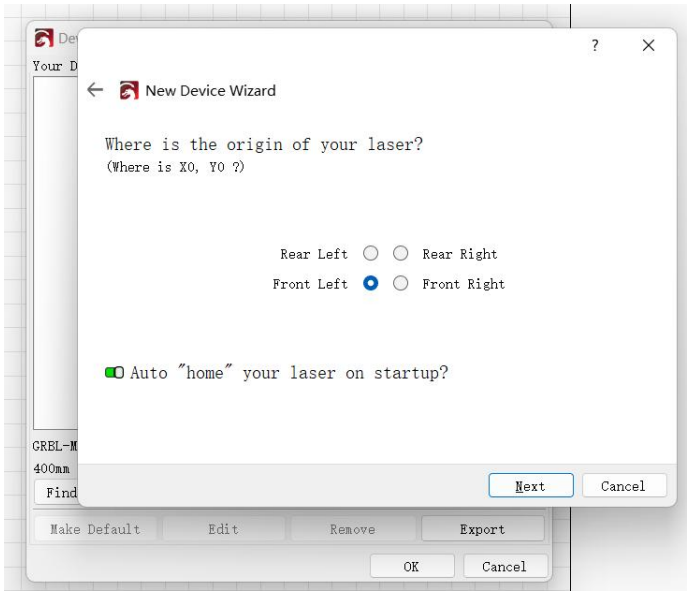
8, Click GRBL-M3 and click Add Device



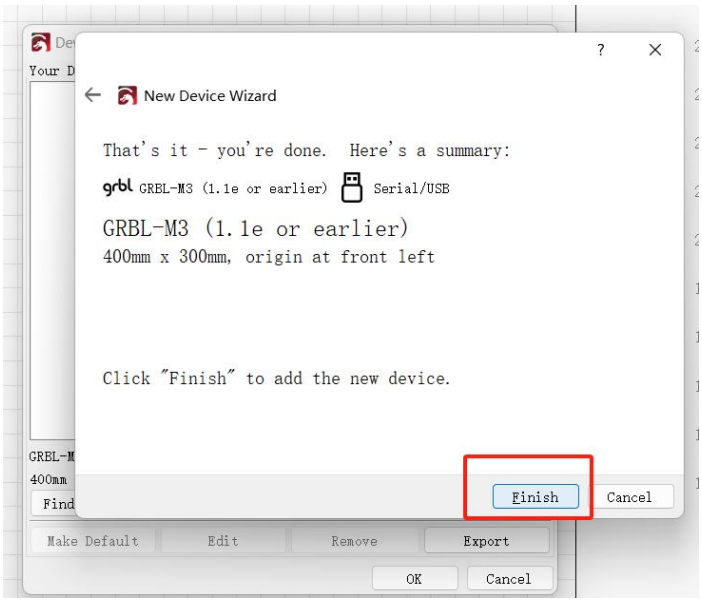
9, You can change your name to whatever you like. The dimensions is automatically read data, x is 400, y is 300. You don't need to change it (if it's not this value, you need to change it to x-400, y-300) **(Note:If you are using a 20W laser, then this value is x-400, y-295)**



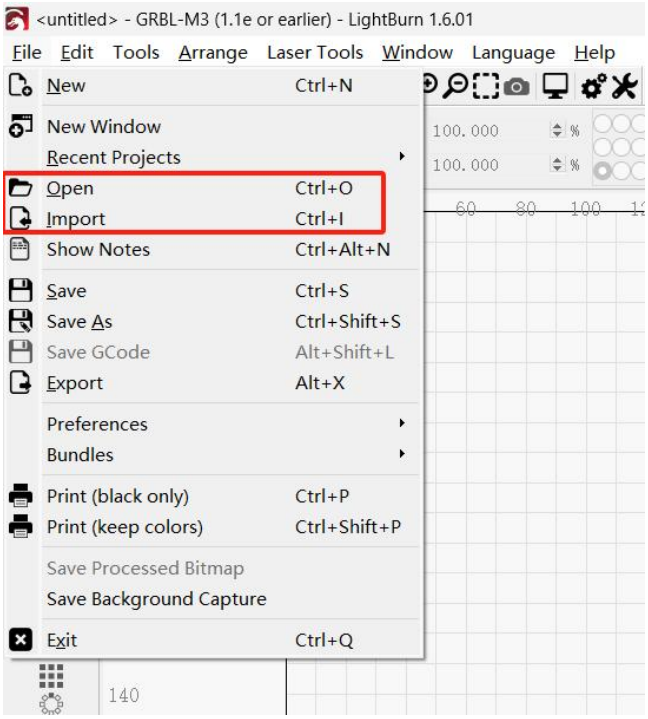
10, The origin position defaults to the lower left corner, which you can change at any time.



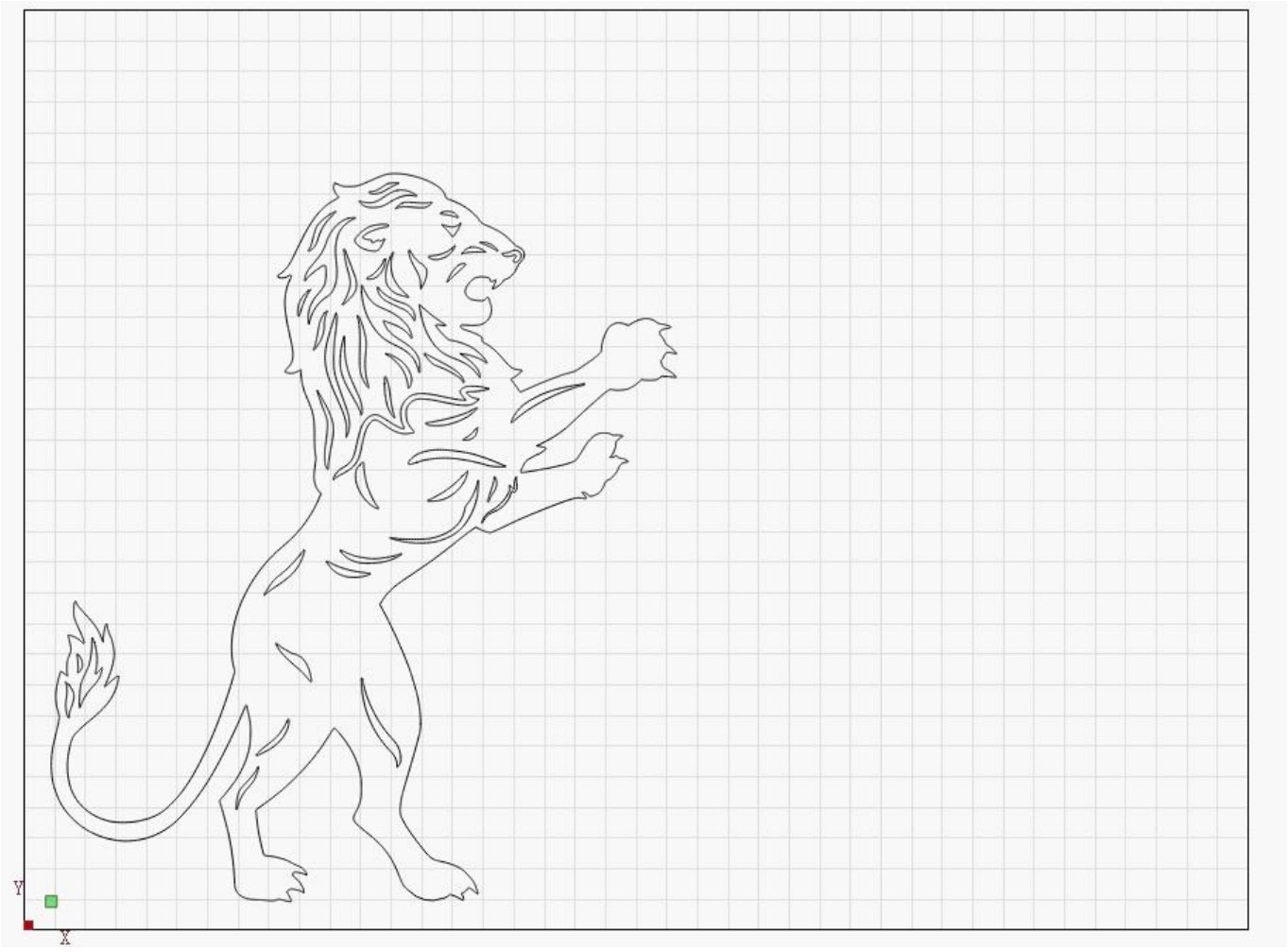
11, Click finish to complete device addition



12, File- open, to open the LightBurn file you've built; File-Import to import the Other formats files such as .jpg .bmp .dxf(Here we import a vector image in dxf format)



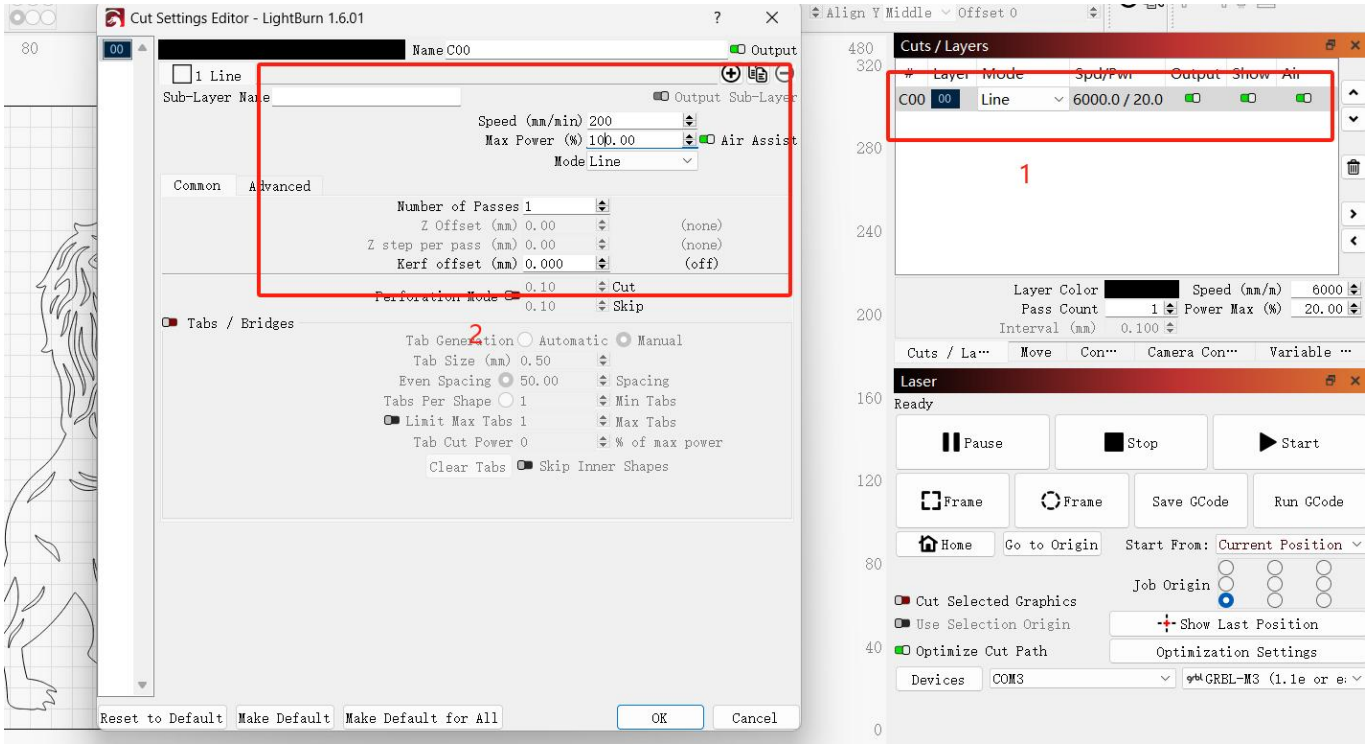
13, You must ensure that the image does not exceed the grid area, otherwise the limit will be triggered and processing will stop



14, Referring to No.7, we use the current position

15, Double-click the layer in 1, and then in the dialog box on the left 2, set the engraving/cutting parameters, here we take the 10W laser as an example, set the cutting

parameters (cutting is only suitable for vectorial drawings), the speed of 200mm/min, the power of 100%, pass for 1 time



16, Refer to No.6 to set the Red Cross Offset.

17, Place a board of 3mm basswood, double-click the device button to reset the laser to its home position, and then place the board so that it does not exceed the position of the laser's light output. (Refer to No.6 to place the wood aided by the Red Crosst, and due to the different positions of the Red Cross and the laser light output there will be an offset, So the Red Cross cannot be used as a starting point in the home position of the laser reset)

18, Refer to No.5 to set the Autofocus, then click the Autofocus to complete autofocus.

19, Click the Start to start processing.

5. How to Set "Autofocus", "Z-axis reset", "Z Down 2mm"

Autofocus: Our machines are equipped with an autofocus function, which helps you to focus more accurately and easily during use.

Z-axis reset: When the object you are working on is higher than the lowest point of the laser head, in order to place the object directly under the laser, you need to raise the laser head, at which point you can raise the laser head to its highest point by resetting it.

Z Down 2mm: In order to achieve the best engraving results, the blue laser will usually set the focal length by default to the current focal length of the smallest spot on the surface of the object to be engraved. And at this time if you need to cut a very thick object, due to the limited length of the light waist, you need to sink the laser a certain distance to get a better cut, this command is to sink the laser 2mm. Generally speaking, ONE PASS CUT, 5W laser can cut 4mm basswood boards, 10W laser can cut 8mm basswood boards, 20W laser can cut 10mm basswood boards, and in the sinking is required when cutting near the corresponding thickest object size.

5.1.1 For Lightburn:

1, How to use "Autofocus" function :

01. Turn on the "Autofocus" function.

02. Select the engraving file, the machine will automatically start focusing after clicking Start, and start engraving after the focus is completed.

03. Find "Window" in the top navigation bar, and enable "Console" function in the drop-down menu.

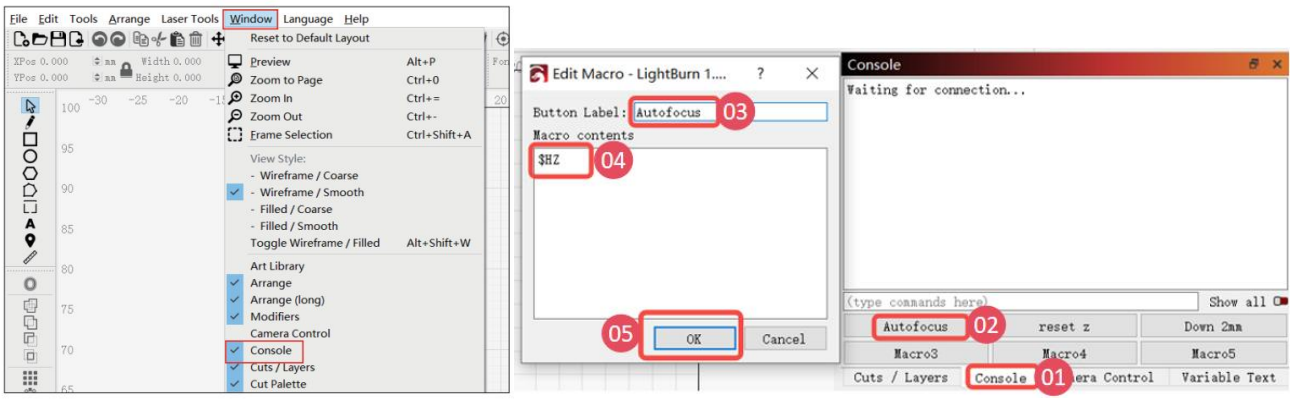


Figure 34 Set up Autofocus in Lightburn

04. Select any custom button, right click mouse to pop up the button setting page, enter the name of the button in "Button Label", enter [$HZ] under "Macro contents"

05. After clicking OK, a button with the corresponding function will be generated

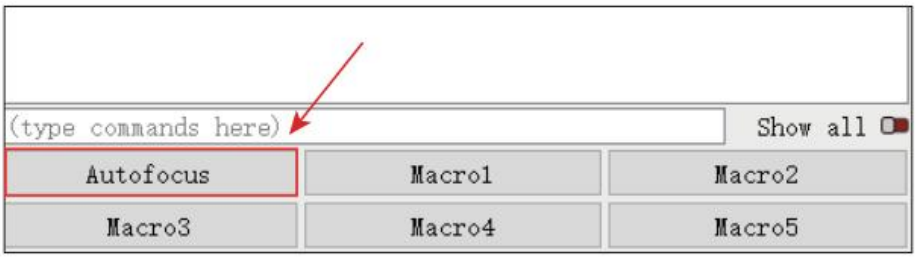


Figure 35 Set up Autofocus success

2, How to raise the Z-axis to the highest - Z-axis reset

01. When you need to engrave or cut a thicker object, you need to raise the z-axis to put the object in, and then you can reset the z-axis.

02. Find "Window" in the top navigation bar, and enable "Console" function in the drop-down menu, Just like the steps for autofocus.

03. Select any custom button, right click mouse to pop up the button setting page, enter the name of the button in "Button Label", enter [$J=G91 Z100 F200] under "Macro contents"

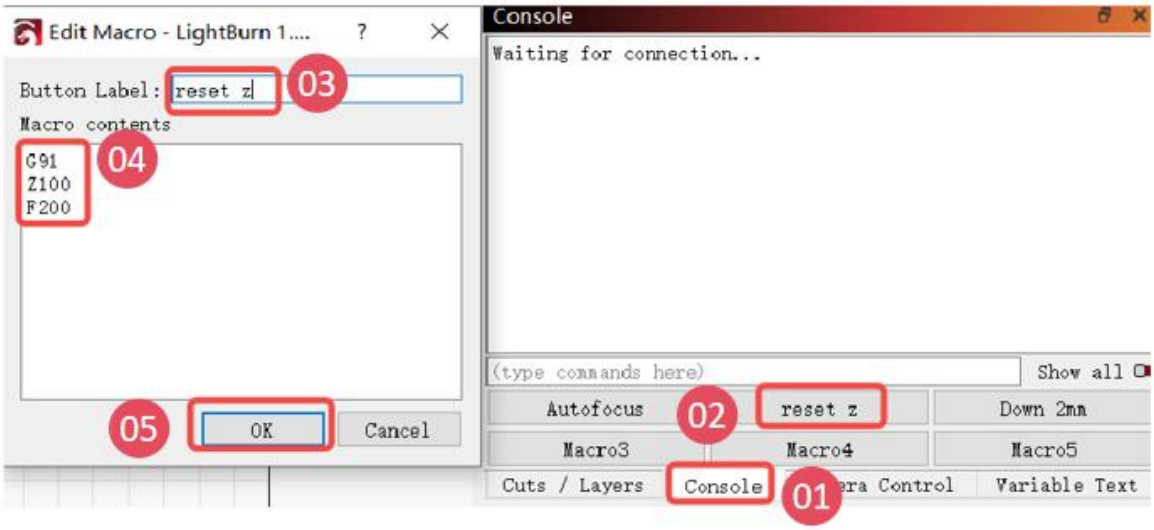


Figure 36 Set Reset Z in Lightburn

04. After clicking OK, a button with the corresponding function will be generated.

3, How to drop the laser head 2mm

01. When you cut thick objects, you can drop the laser head by 2mm, making the focal length drop by 2mm for a perfect cut!

02. The steps are the same as before.

03. Select any custom button, right click mouse to pop up the button setting page, enter the name of the button in "Button Label", enter [$J=G91 Z-2 F200] under "Macro contents" .

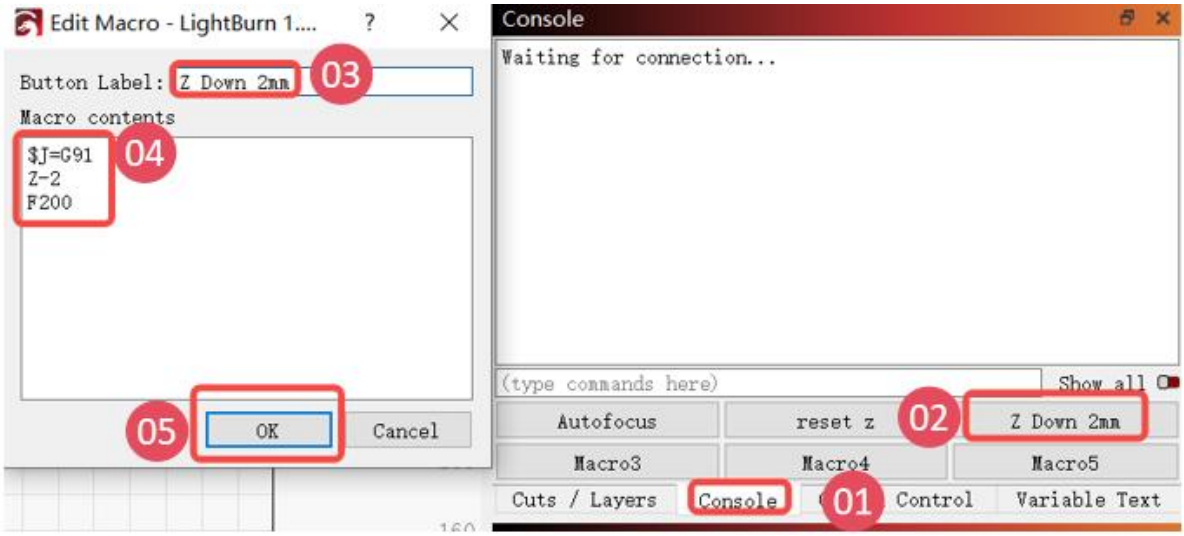


Figure 37 Set Z drop 2mm in Lightburn

5.1.2 For LaserGRBL:

1, How to set "Autofocus", "Z-axis reset", "Z Down 2mm"functions in LaserGRBL:

01. We have packaged LaserGRBL's function buttons so that you can import the buttons at once.

02. You need to go to support.gluwphy.com to download the button file "Gluwphy_GM_GRBL_Button.zbn" first.

03. At the bottom of the laserGRBL interface, click the right button of your mouse and choose" Impot custom buttons", as follows:

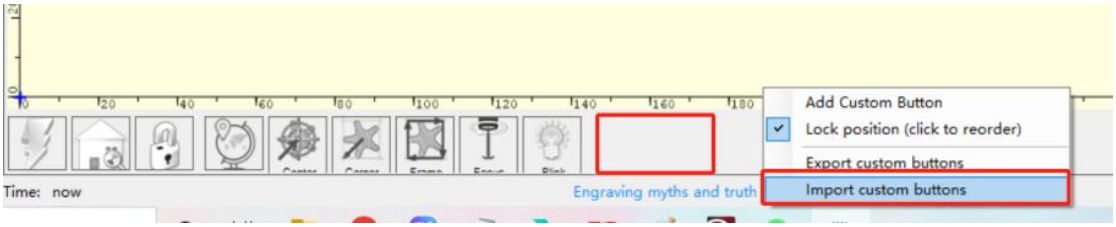


Figure 38 Set buttons in LaserGRBL

04. Select the "Gluwphy_GM_GRBL_Button.zbn" you have download.

Figure 39 Buttons for LaserGRBL

05. Follow the prompts and select Yes for all.

06. As shown below, the newly added button, 01 is the "Autofocus", 02 is the "Z-axis reset", 03 is the "Z Down 2mm"

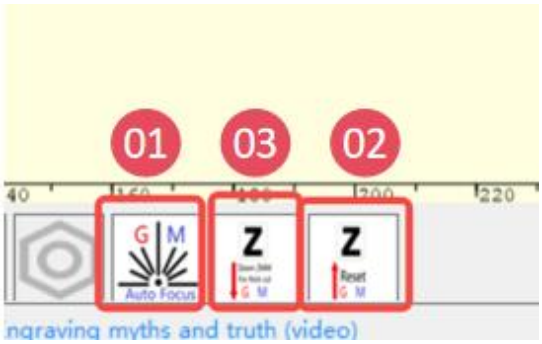


Figure 39 Buttons for LaserGRBL success

6. How to set Red Cross Offset to Laser

6.1.1 How to set Red Cross Offset to Laser in Lightburn

1, Launch Lightburn and Connect to the device.

2, Go to edit-> Device Settings -> Laser Offset -> Enable Pointer Offset.

3, For GM105 and GM120, fill in **-12mm at X and -12mm at Y**;For GM110, fill **in -12mm at X and -10.6mm at Y**

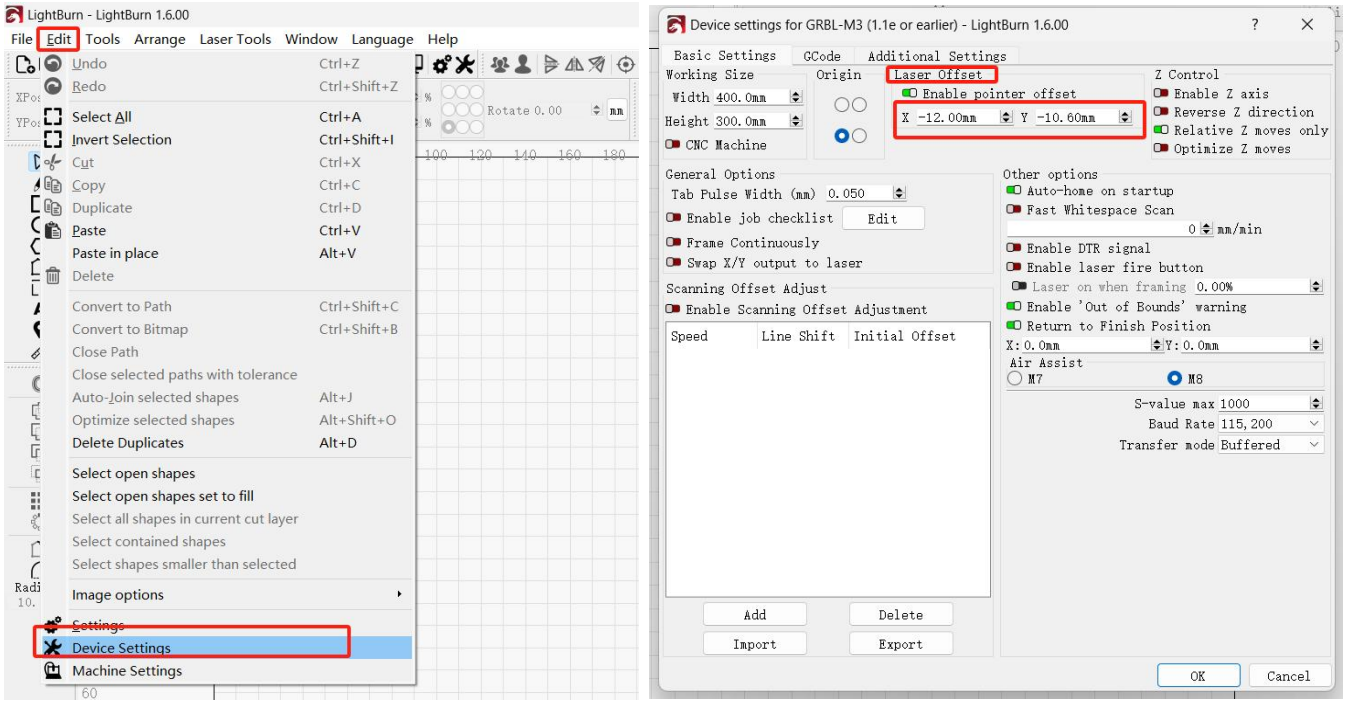


Figure 40 Set Red Cross Offset to Laser in Lightburn

6.1.2 How to set Red Cross Offset to Laser in LaserGRBL

1, Launch LaserGRBL and Connect to the device.

2, Import the image to be processed, and the Target image dialogue box appears, and click next.

3, Find offset in the target dialog box, For GM105 and GM120, fill in **-12mm at X and -12mm at Y**; For GM110, fill **in -12mm at X and -10.6mm at Y**

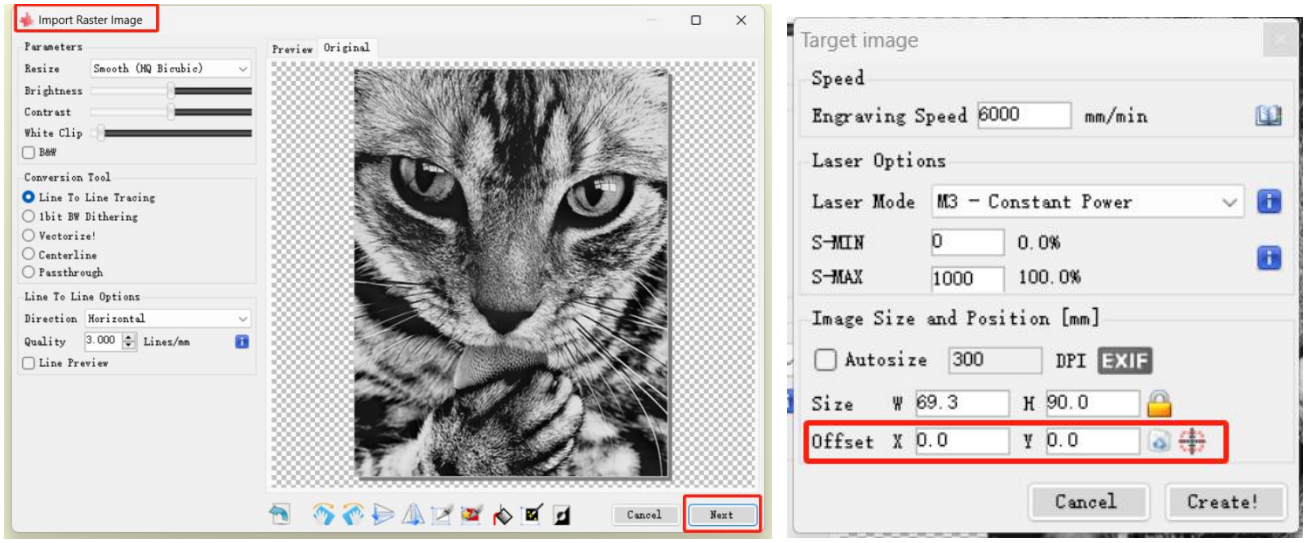


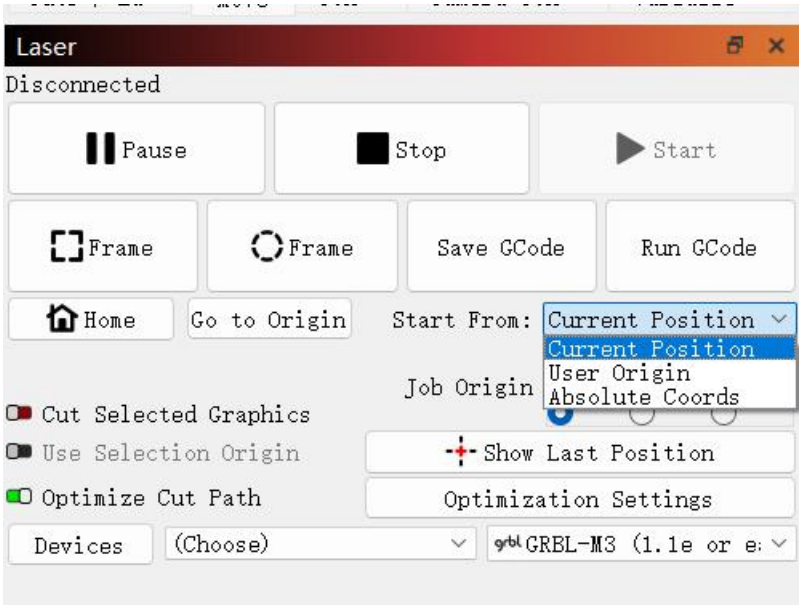
Figure 41 Set Red Cross Offset to Laser in LaserGRBL

7. Coordinates and Job Origin(For lightburn)

If you don't want to read the text below, you can watch the official Lightburn video explanation via this link:

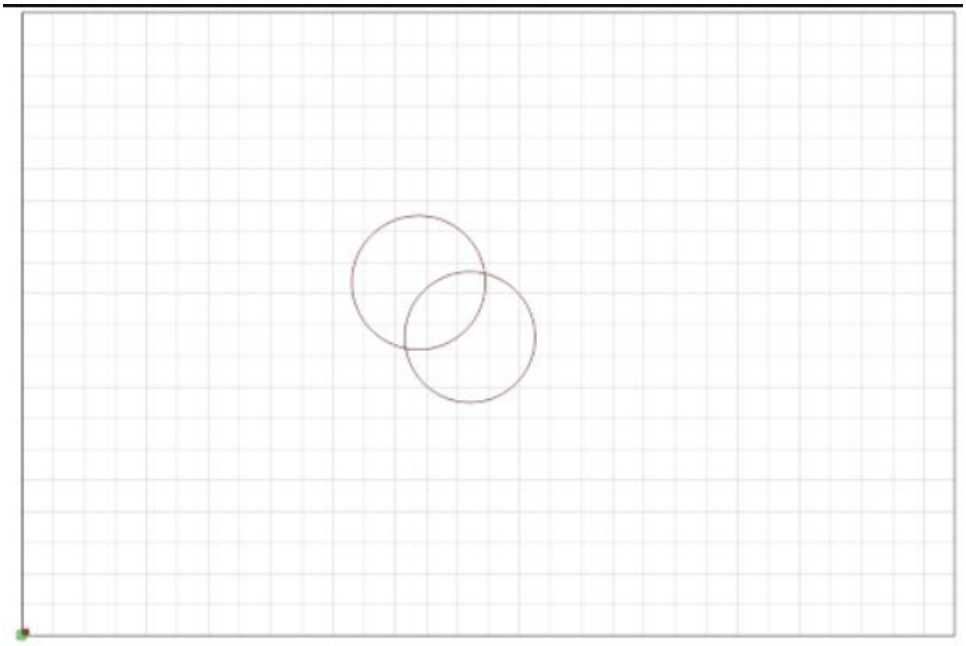
https://www.youtube.com/watch?v=aphiLTUWcjE

There are a few ways to tell LightBurn where to ouput your project within the work area of your machine, each available in the Start From menu in the Laser window



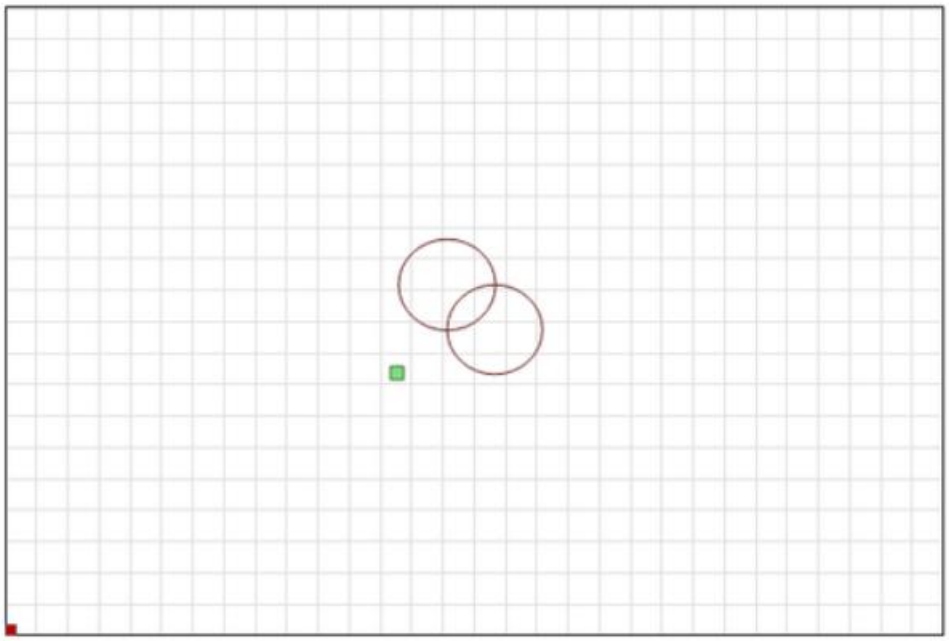
7.1 Absolute Coordinates

- **Absolute Coordinates** is the simplest option. The grid you see in the main editing window of LightBurn represents your machine's physical work area. Anything you place in the LightBurn grid will be output in the corresponding location in your machine's work area.
- In the image below, the two circles placed in the middle of the LightBurn grid will be cut in the middle of the machine work area. The green square in the lower left of the image represents the **Job Origin**, and the red square in the same place shows the **Machine Origin**. When using Absolute Coordinates these are always in the same place.

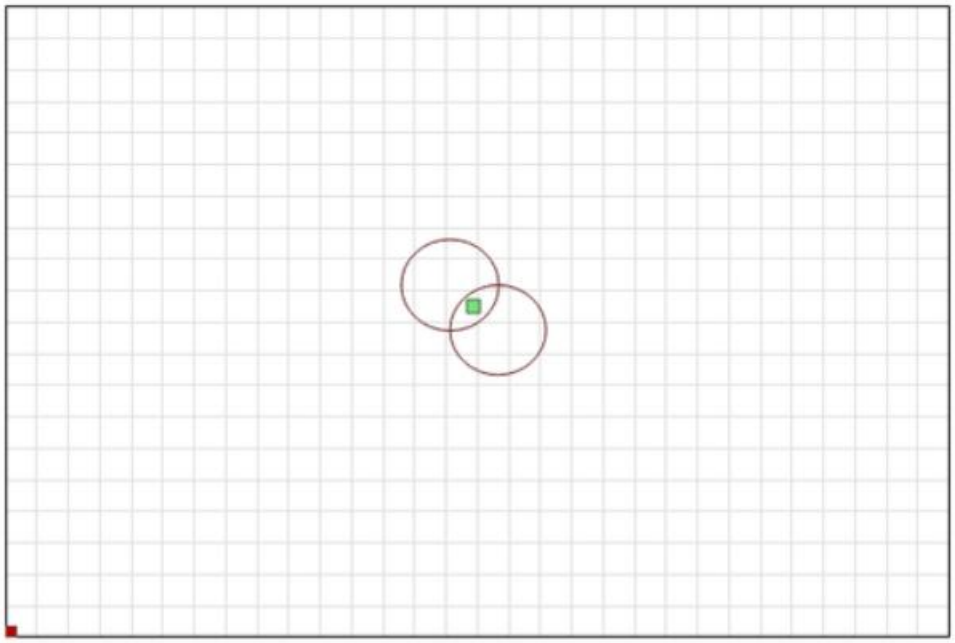


7.2 Current Position

- With Current Position selected, your job outputs relative to the current position of the laser head when you hit the Start button. The Job Origin control in the Laser window tells LightBurn how to orient output relative to the laser head.
- In this image, we're starting from the Current Position, with the Job Origin set to the lower left:



- Notice that the green Job Origin indicator has moved. This represents the position of the laser when you start the job, so the laser is going to move slightly up and to the right from wherever it is, cut the two circles, and go back to where it started.
- Now imagine that you want to etch this two-circle pattern onto a coaster or a phone case. Lining it up from the lower left is not easy. If you change the Job Origin setting to center, you get this instead:



- The job will be centered around the current position of the laser head. If you position the laser head directly over the center of the item you want to etch, the output will be centered on the item.

7.3 User Origin

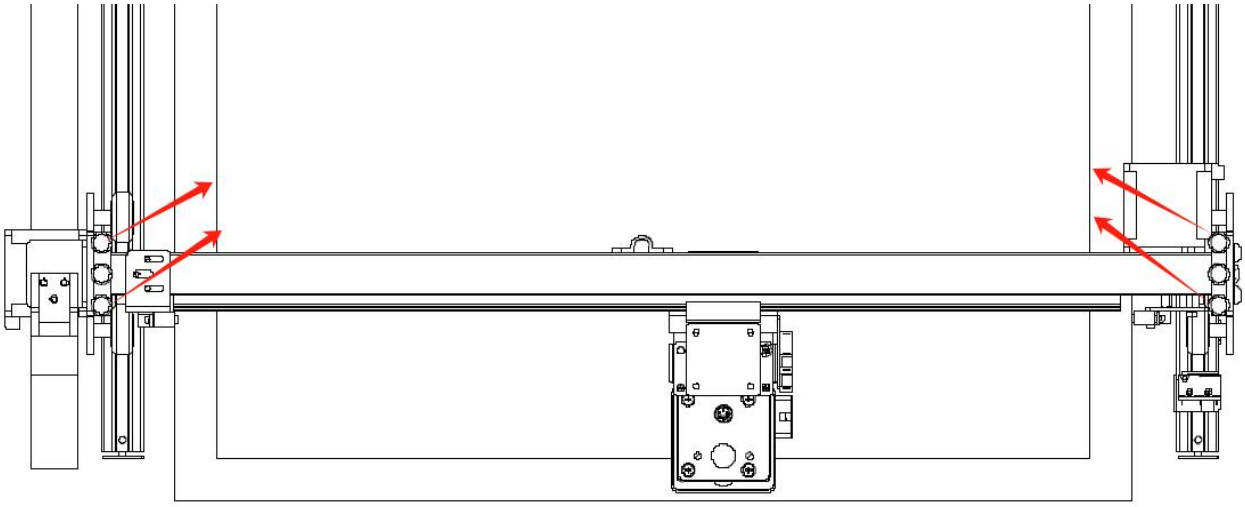
- User Origin works almost exactly the same as Current Position, except that the starting location is programmable. To set a User Origin, you must first jog your laser to the location you want your job to start from, then set the origin.
- After setting the origin, you are free to move your laser around the workspace. With User Origin selected as the Start From mode, the laser will move back to that programmed location and start the project from there.
- As with Current Position, the Job Origin setting determines how output will be oriented relative the user-defined origin.

8. What are some common engraving materials

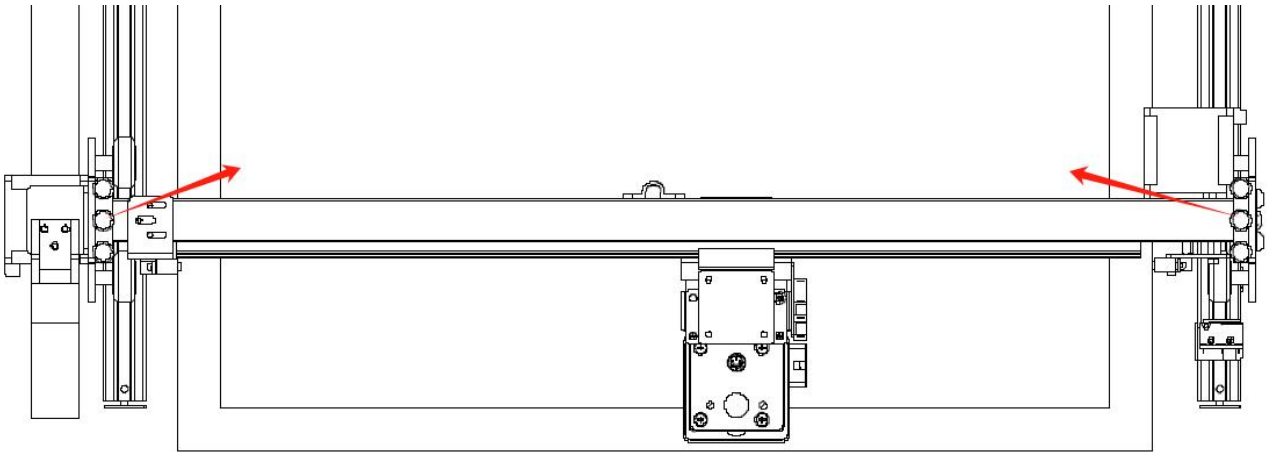
- Diode laser cuts: paper, wood, leather, MDF, felt and some dark opaque acrylics
- Diode laser engraving: paper, wood, leather, MDF, stainless steel, some dark opaque acrylics, bamboo, fabrics, dark glass, ceramics, jade, marble, shale, cement, bricks, plated metals, painted metals

9. How to Rotate the X-axis to use the Rotary Roller

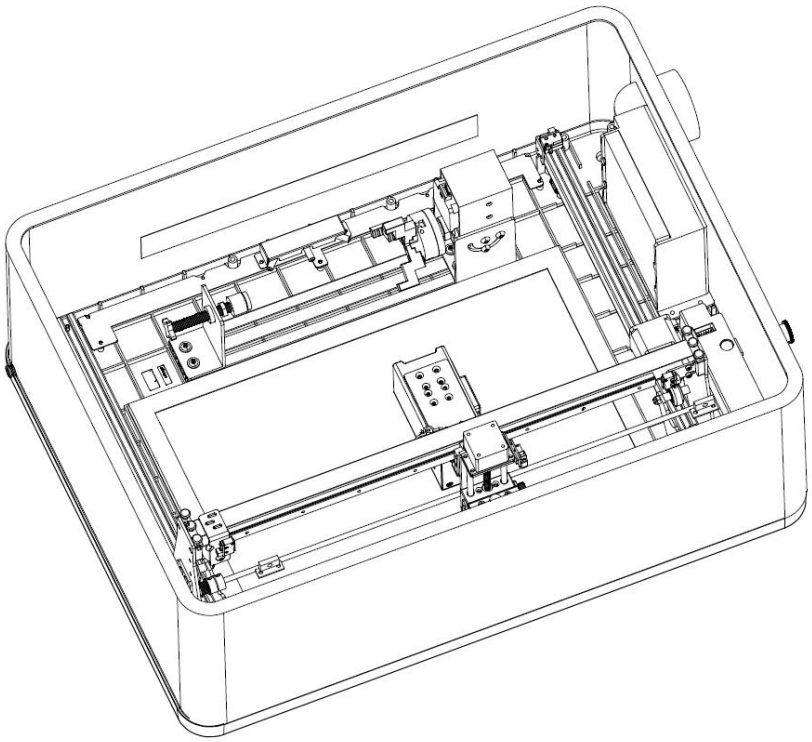
- Connect to your computer, turn on lightburn or LaserGRBL, and use the Z reset command to reset the z-axis.
- Power off the machine, use a screwdriver to remove the 4 screws in the picture below.



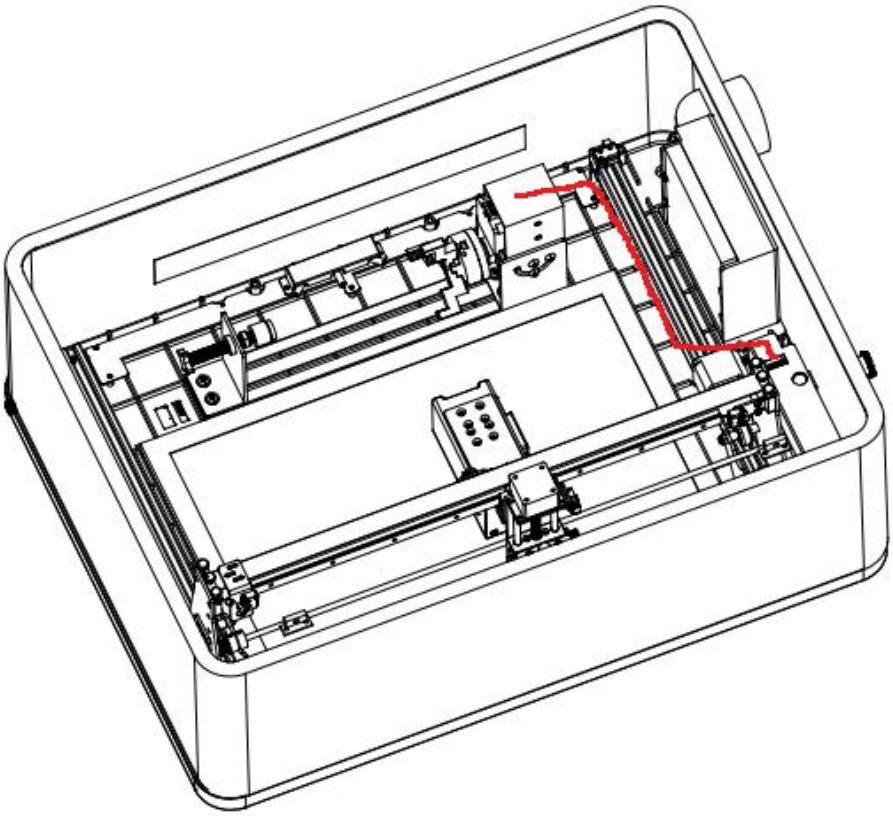
- Use a screwdriver to remove the middle 2 screws in the picture below



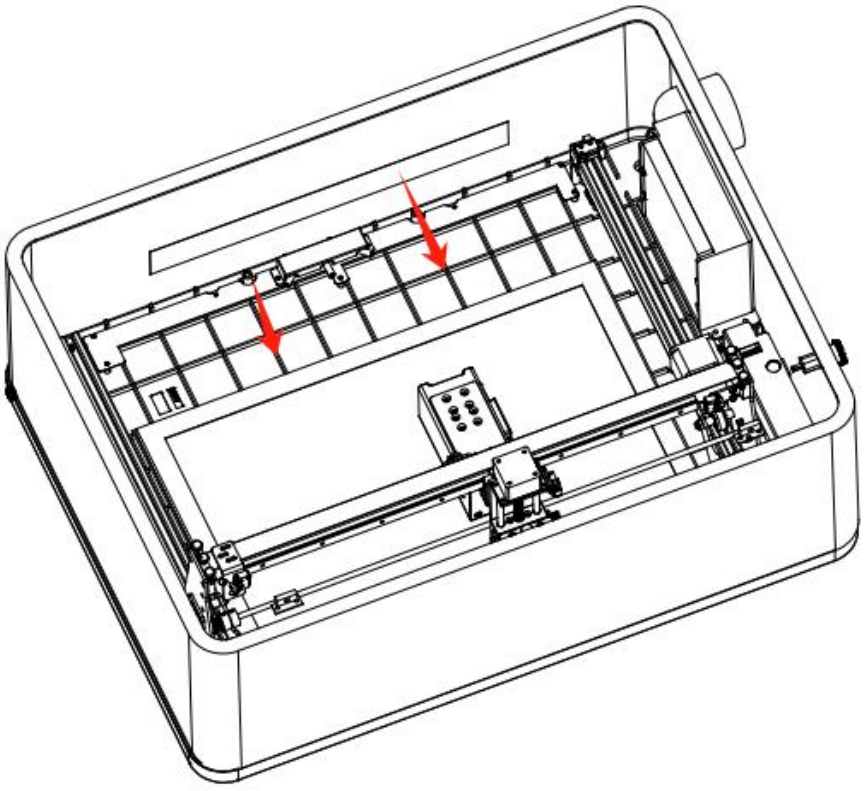
- Rotate the x-axis 90 degrees clockwise and install the 6 screws previously removed as follows.



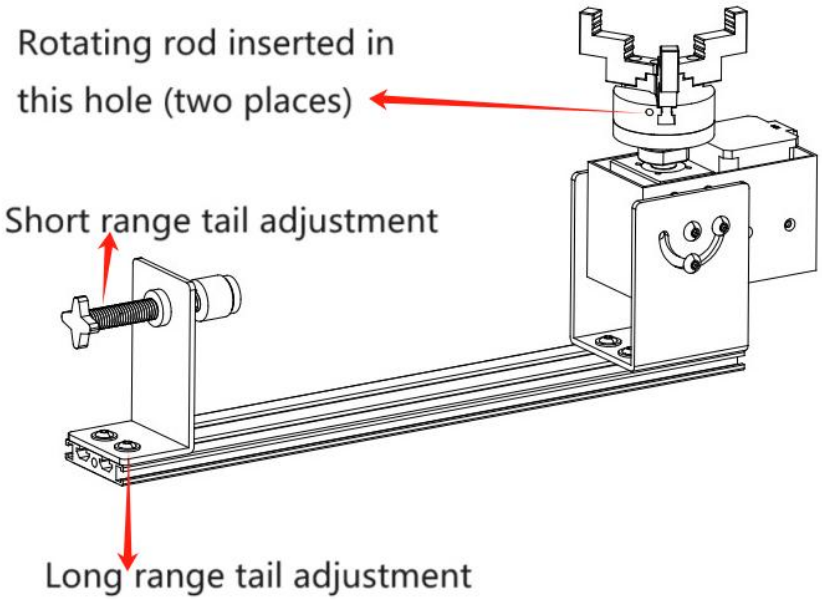
- Put the Rotary Roller into the machine and connect the wires.



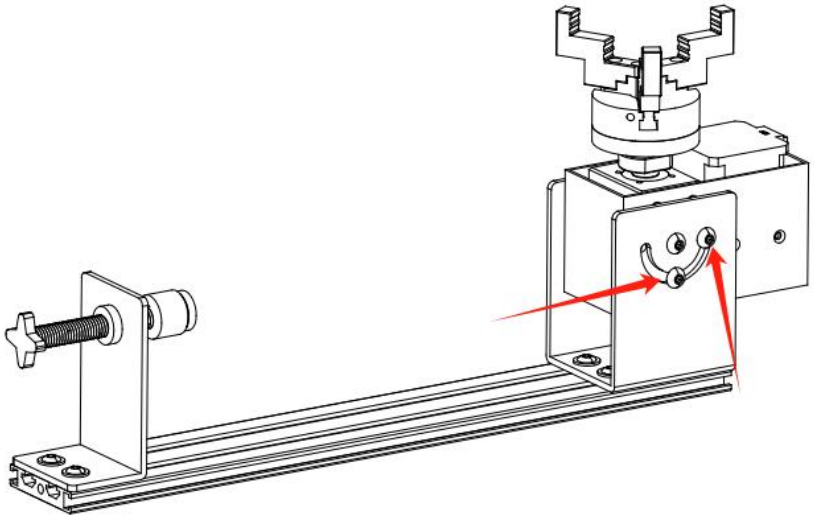
- If the laser module is 10W, you need to use two pieces of 10W spacer to put into the bottom case square first; If the laser module is 5W, two pieces of 5W shims need to be placed into the bottom case square first.



- Unscrew the claw disk with the claw disk turning lever, clamp the round carving object, and adjust the tail top to support the carving object



- If you need to engrave vertically, you need to adjust the rotary screw (or hand screw), rotate the motor and then tighten it to fix it.

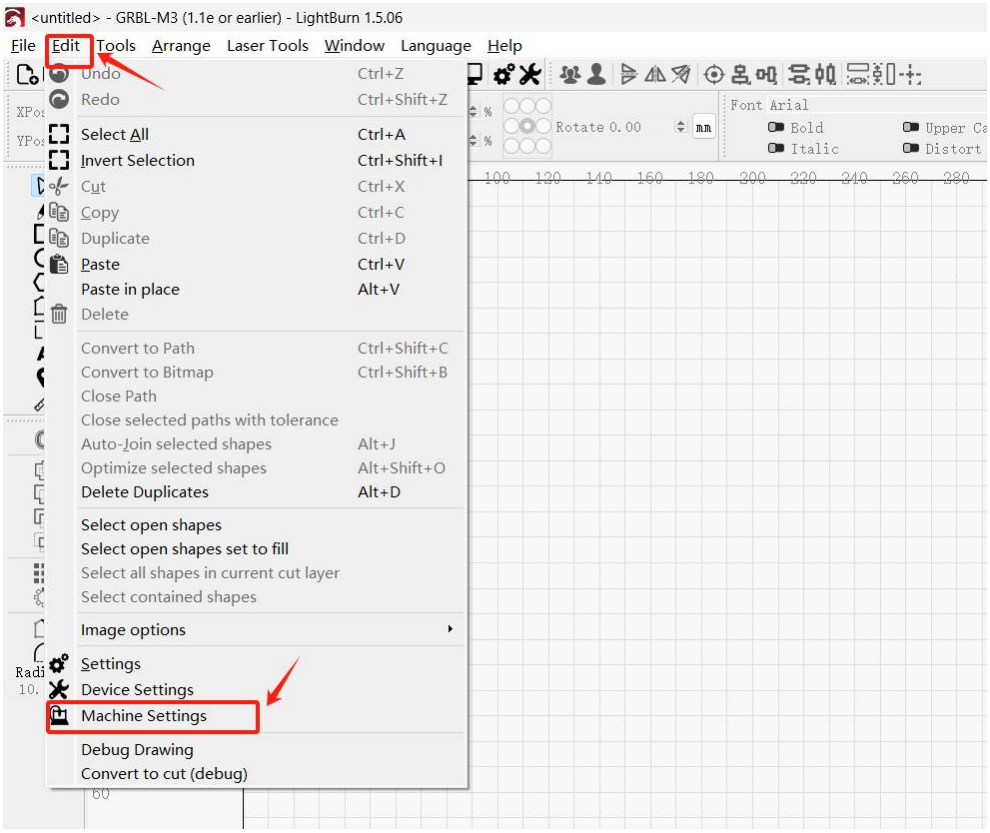


10. Rotary Roller Parameter settings

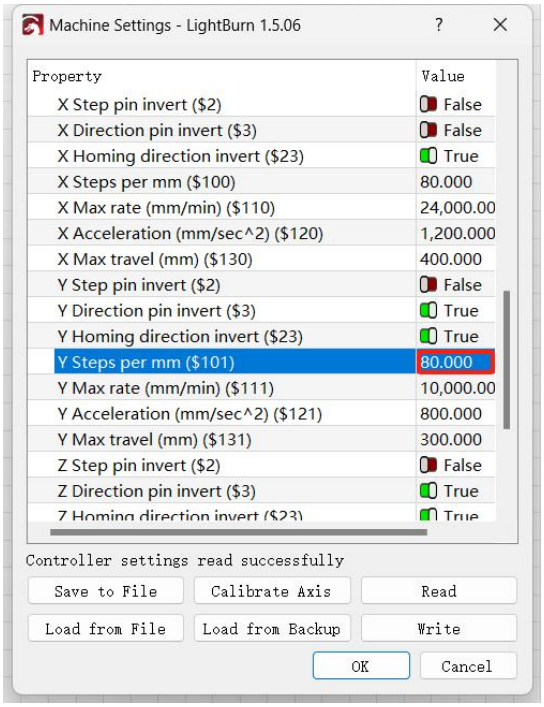
1, Firstly, you need to measure the diameter of the object to be machined in mm. Assuming a measurement of X mm.

2, Then you need to calculate the value of $101, Calculated by the following formula: $101=2548/Diameter of the object to be processed=2548/X=Y.

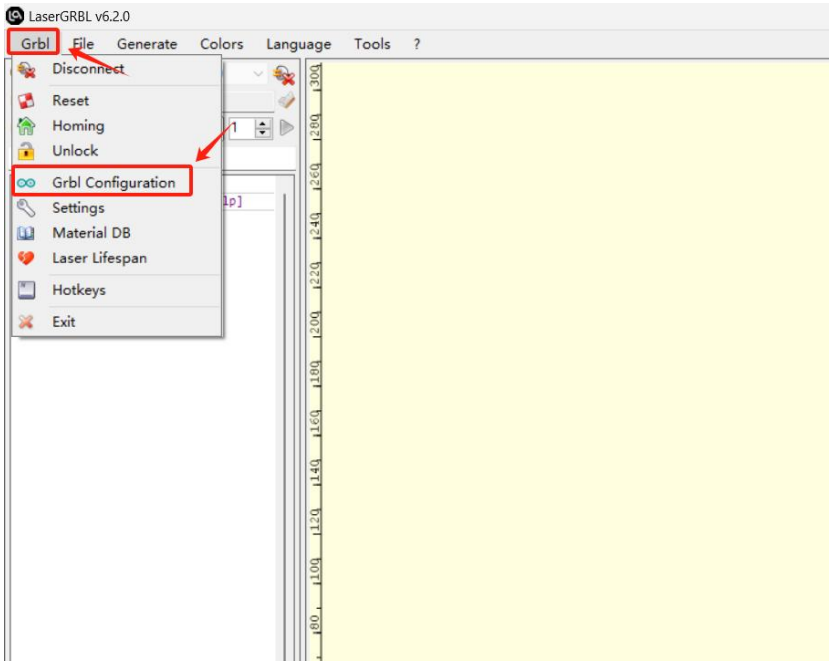
3, If you use lightburn to process, Turn on the machine and connect with you computer. Open edit in lightburn and find Machine Settings as follows:



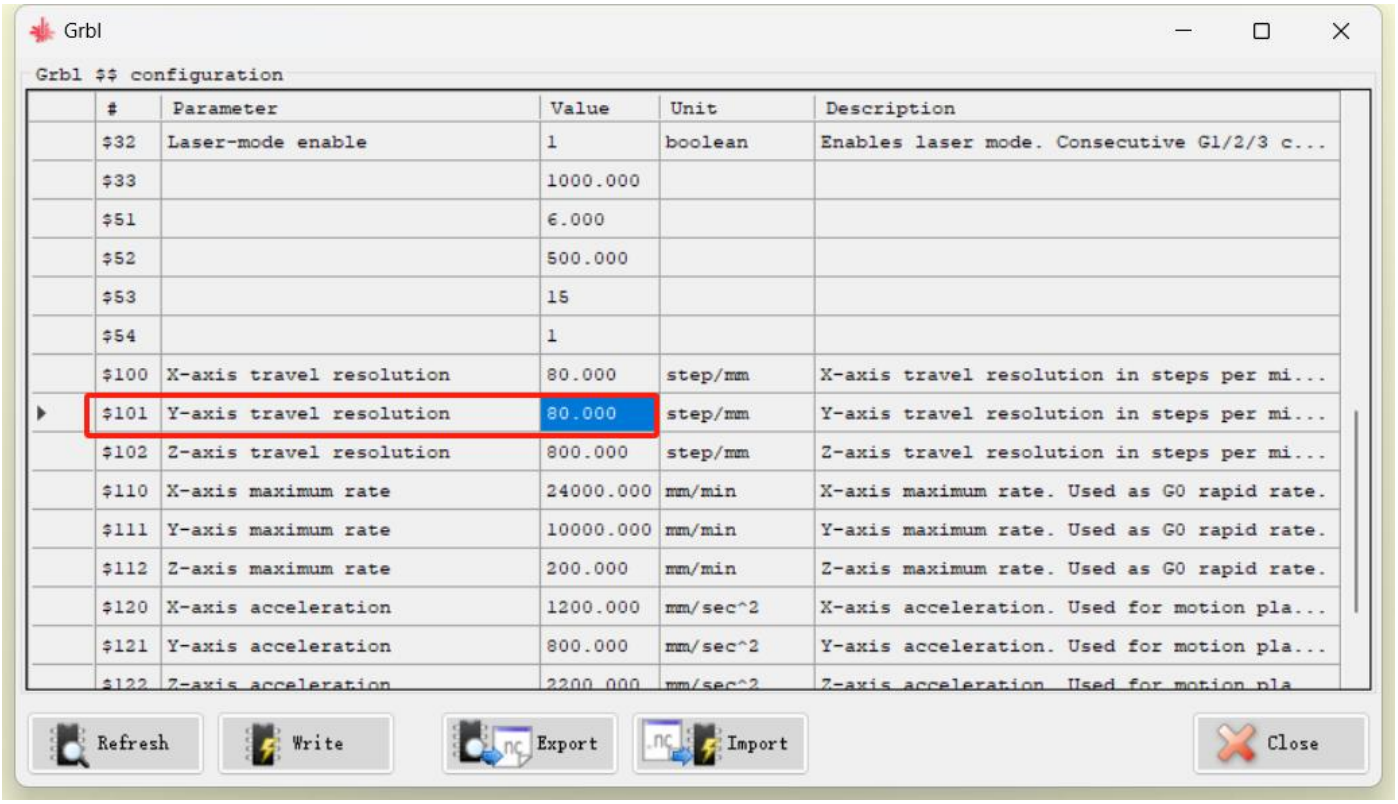
4, Find Y steps per mm($101) and change the last parameter from 80 to the previously calculated value of Y (Note that this parameter needs to be changed back to 80 when you want to use planar machining)



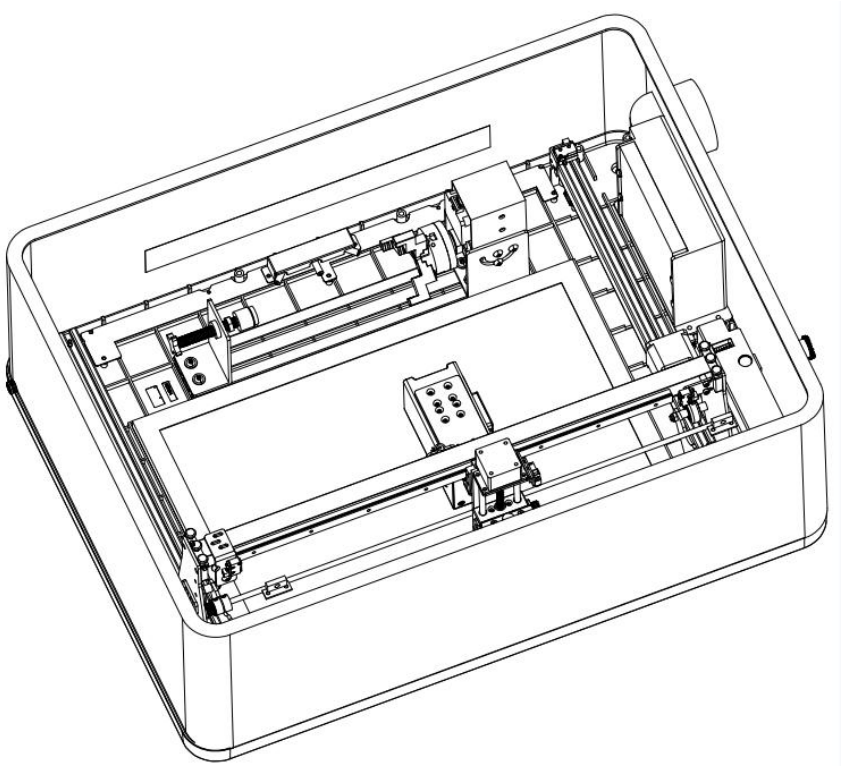
5, If you use LaserGRBL to process, Turn on the machine and connect with you computer. Open Grbl in LaserGRBL and find Grbl Configuration as follows:



6, Find $101 and change the parameter from 80 to the previously calculated value of Y (Note that this parameter needs to be changed back to 80 when you want to use planar machining)



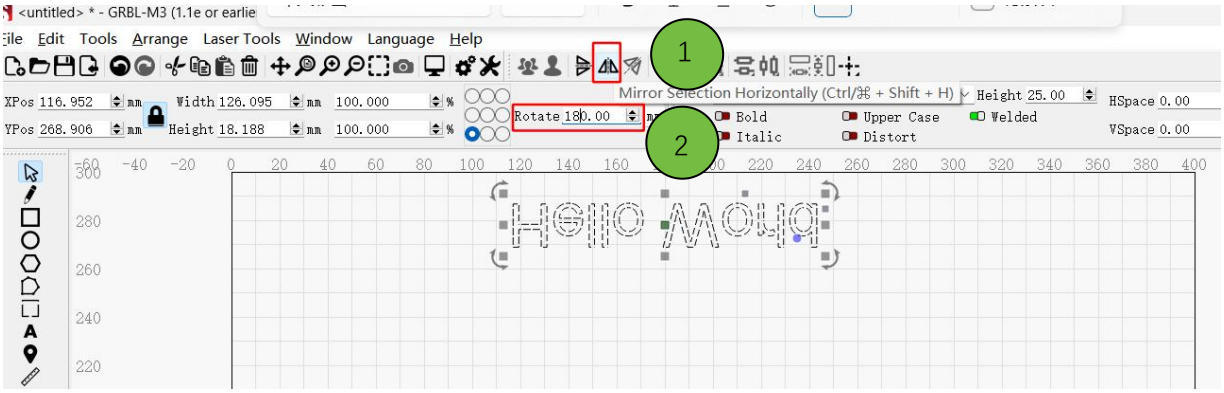
7, When working, the Rotary Roller is placed in the GM1 machine in the position shown below



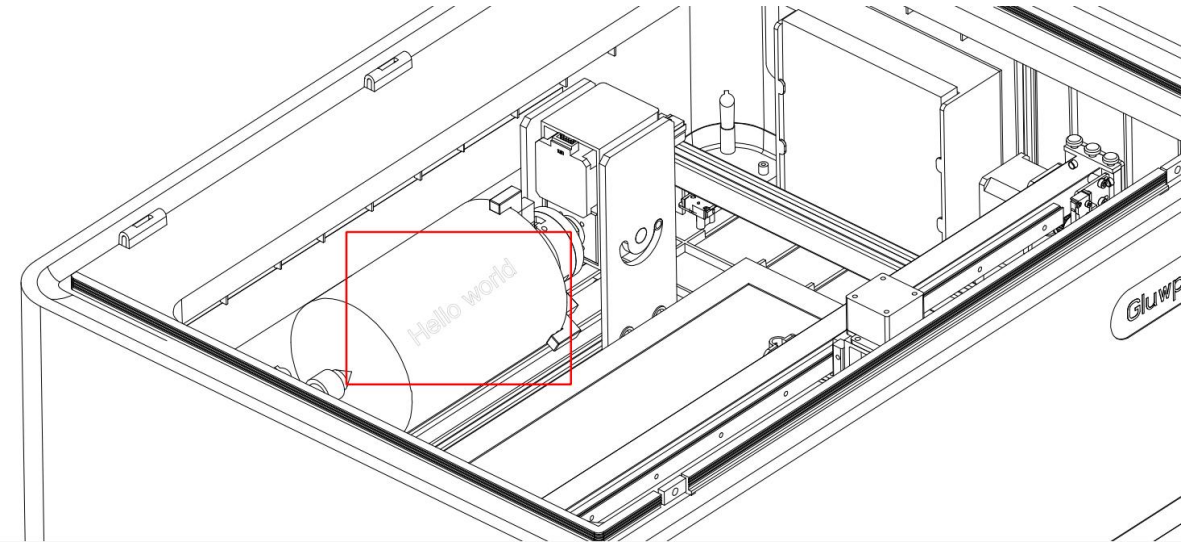
The file to be processed requires the following settings:

(1), File mirroring operation

(2), Rotate 180 degrees

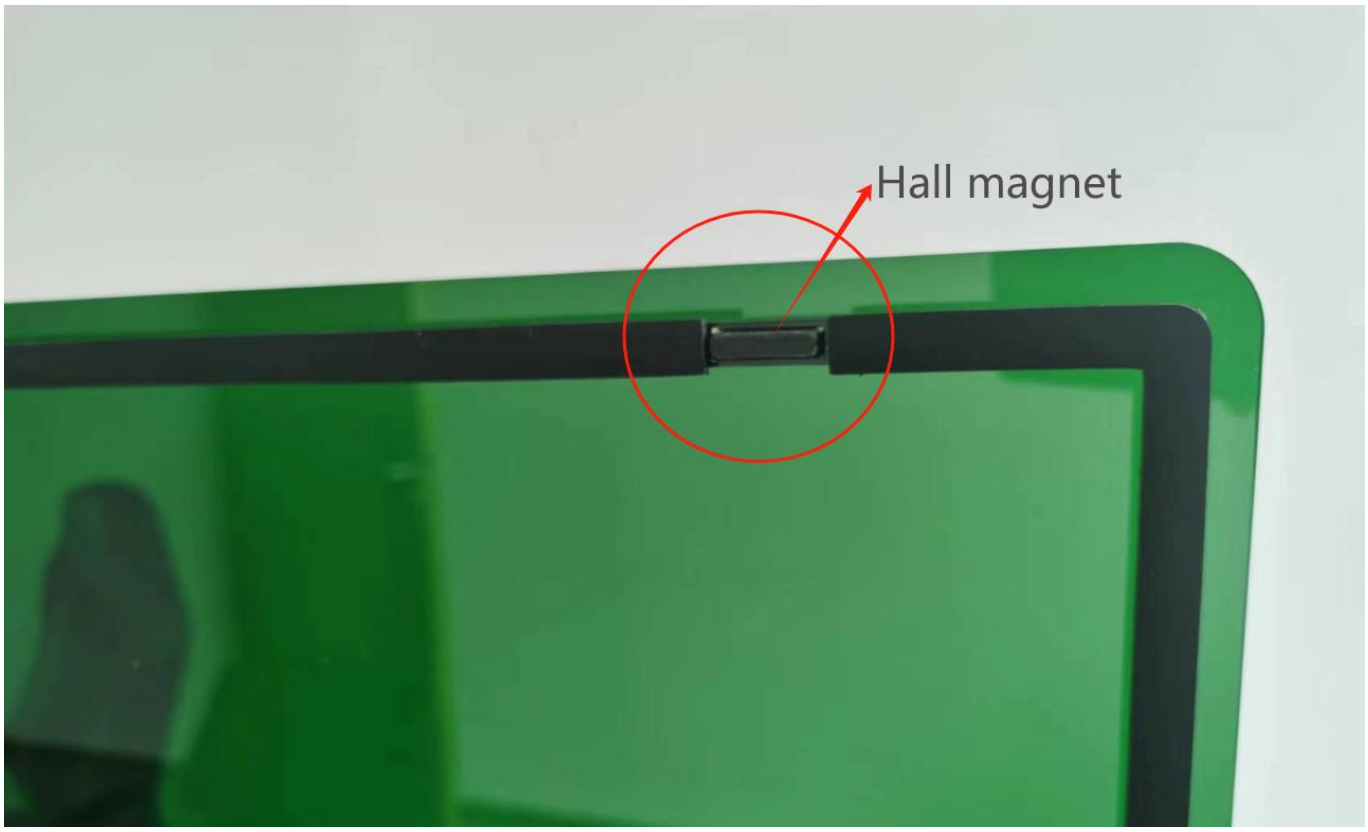


The final text effect is shown below

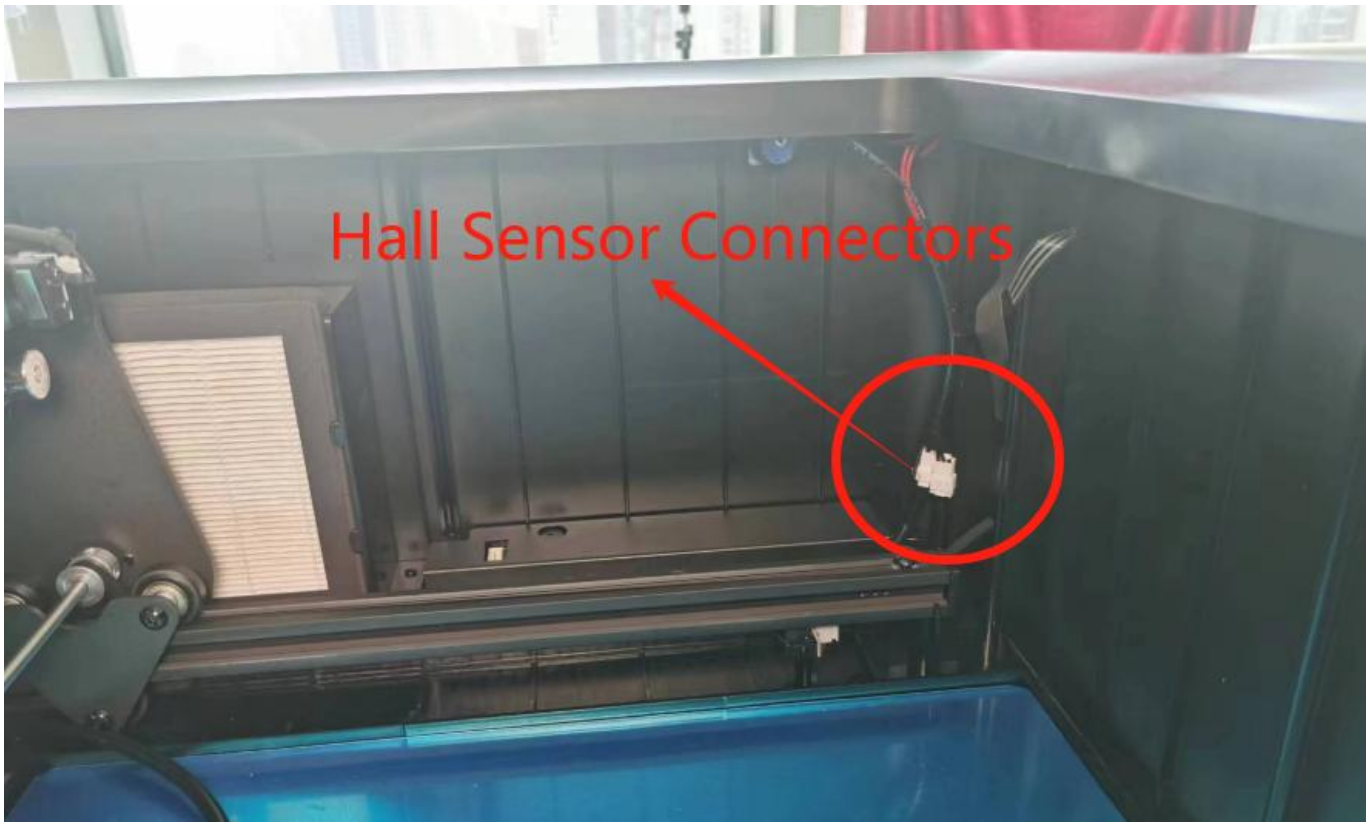


11. The laser moves but does not emit light

- Gluwphy GM1 is an FDA-approved Class I safety laser, which cannot emit light when the cover is open. To detect whether the cover is open, we use two Hall sensors on the cover. If the wires of the Hall sensors are loosened after transportation, it may result in the laser being able to move but not emit light.
- When the cover is opened, the laser is movable and can be used for alignment, reset, edge patrol, etc.; however, the laser cannot emit light, the cover must be closed to emit light.
- If the laser does not emit light when the lid is closed, please check whether the Hall magnet exists.(Hall magnets are on the lid, one on the left and one on the right, positioned as shown in the figure)



- If the Hall magnet exists, please check whether the connection cable of Hall sensor is loose, as the following position, re-plugging can be done.(The Hall sensor connector is located at the right front of the center frame of the machine next to the side wall, as shown in the illustration).



- Check the emergency stop switch is closed
- If you still can't solve it, please contact us through our after-sale e-mail, we will solve it for you as soon as possible!

12. Engraving start position not found

- Check whether the carving object is placed in accordance with the position of the Red Cross labeling
- Check whether the coordinate mode of the upper computer is the current coordinates(see No.7)
- Check whether the red cross offset has been set(See No.6)
- Check whether the position of the carving object is beyond the working area (the position to be carved exceeds the limit area).
- If still can not be solved, please contact us through our after-sales mailbox, we will solve the problem for you as soon as possible!

13. Equipment not working

- Please check whether the power supply is correctly connected
- Please check whether the USB cable between computer and laser is connected correctly.
- Please refer to No.11 if the laser does not emit light.
- If still can't be solved, please contact us through our after-sales e-mail, we will solve the problem for you as soon as possible!

14. The Rotary roller not working or incorrect work

If the Rotary roller does not work, please refer to the following aspects:

- The problem of the connection line, check the connection line
- The quality of the Rotary roller problem, replace the Rotary roller
- If the Rotary roller is not Gluwphy own in the sale of the Rotary roller, you need to confirm the order of the connection line is in line with the electrical requirements, please tell us your Rotary roller model and brand, we help you to identify

If work is not normal, please refer to the following aspects

- If the carving effect does not work, it is the upper computer software settings, please refer to the official website online manual within the setup mode,or refer to No.9 and No.10
- If still can not be solved, please contact us through our after-sales mailbox, we will solve the problem for you as soon as possible!

15. Can't cut through the wood

- Laser in use, the material to be processed will produce smoke, although the smoke will be discharged by the smoke exhaust fan, but the residual little soot will be adsorbed in the laser lens, dirty laser lens will allow the optical power through the lens to reduce, thereby reducing the ability to cut, we recommend that every few times after the use of the laser lens to clean up!
- If cutting thicker materials, please refer to No.5, Cutting with the laser lowered by 2mm.
- If the material to be cut is thin and cannot be cut through, refer to No.16 Cleaning laser lens
- If the laser lens is cleaned and still fails to cut through the material, the lens may have been damaged, refer to No.16 Replacing the laser lens

16. Clean and replace laser lens

5W module:

- How to clean up the laser lens:

1, Reference No.2 Removing the Laser module

2, Locate the screw hole in the air nozzle

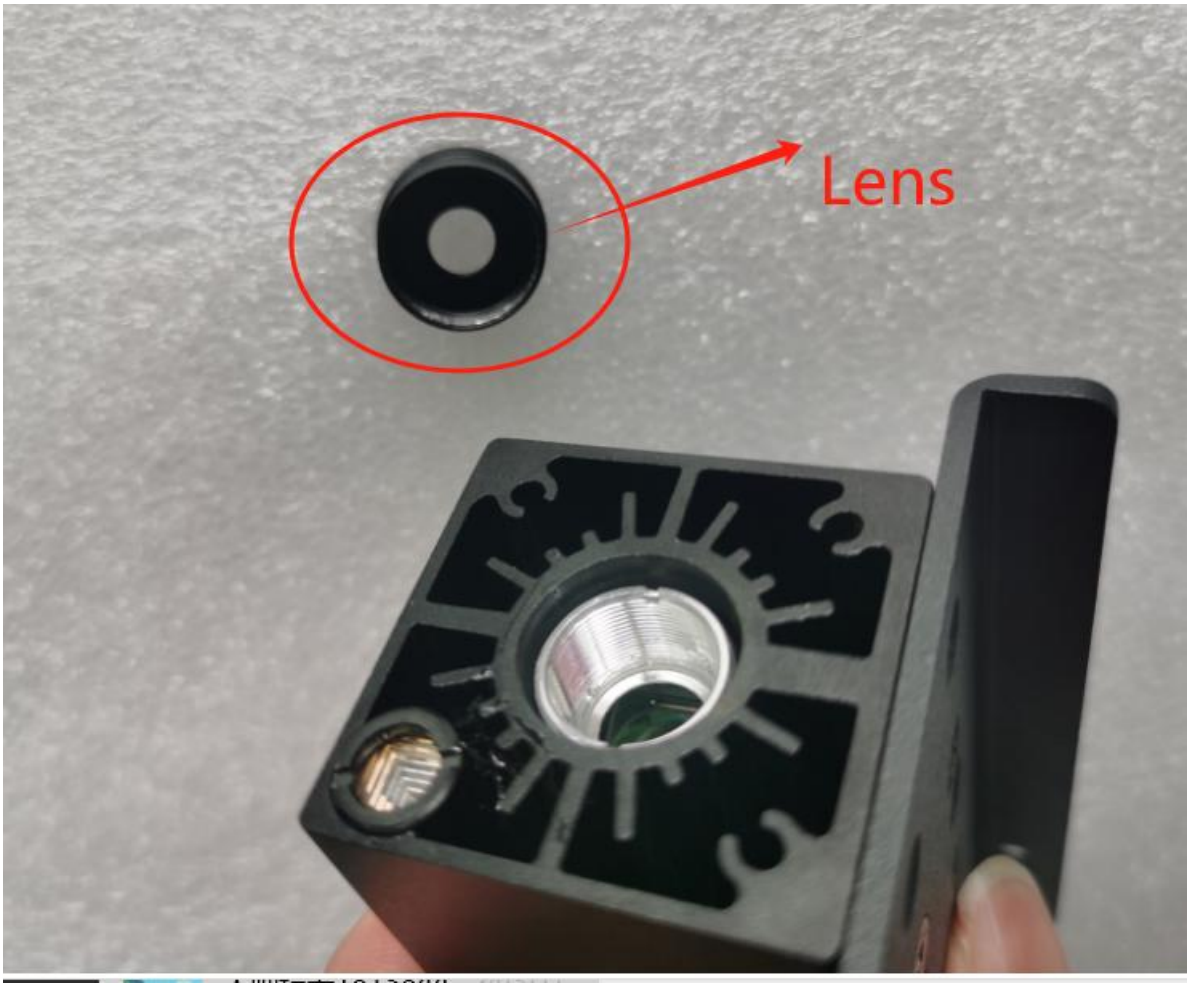
3, Using the matching screwdriver, insert it into the screw hole and turn counterclockwise to loosen the screw and remove the air nozzle.

4, As shown in the picture below, use a clean cotton swab to gently wipe the lens

➢ How to Replace laser lens

1, Remove the lens by rotating it counterclockwise with the tool

2, Replace the lens with a new one.

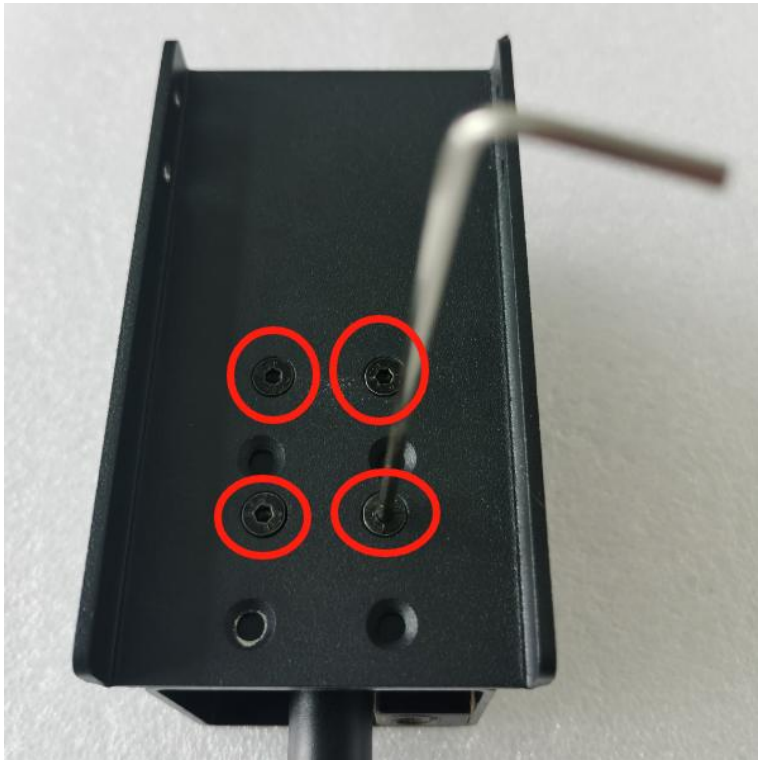


10W module:

➢ How to clean up the laser lens:

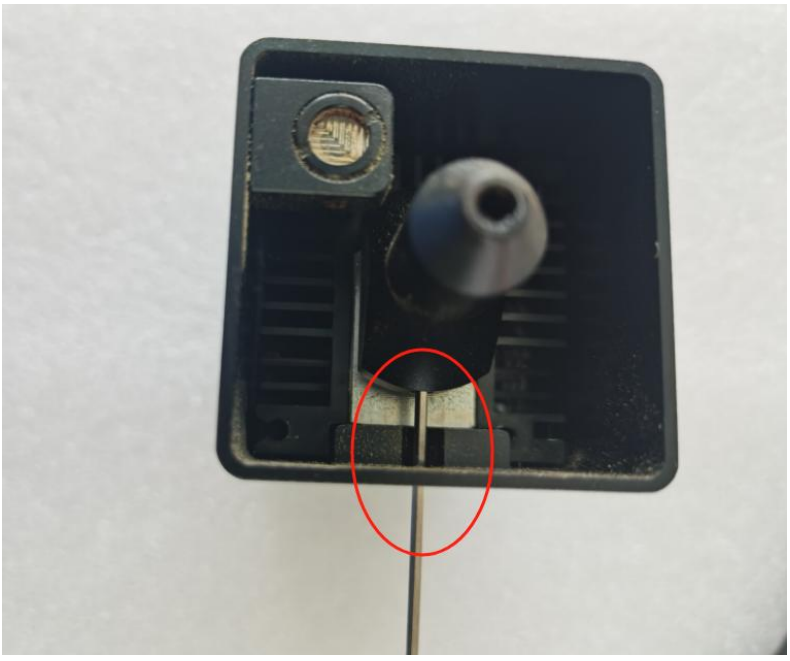
1, Reference No.2 Removing the Laser module

2, Locate the four screws on the back plate and remove the four screws using the matching tool



3, Locate the holes in the module

4, Use the matching tool to insert into the hole and turn counterclockwise to loosen the screw in the hole.

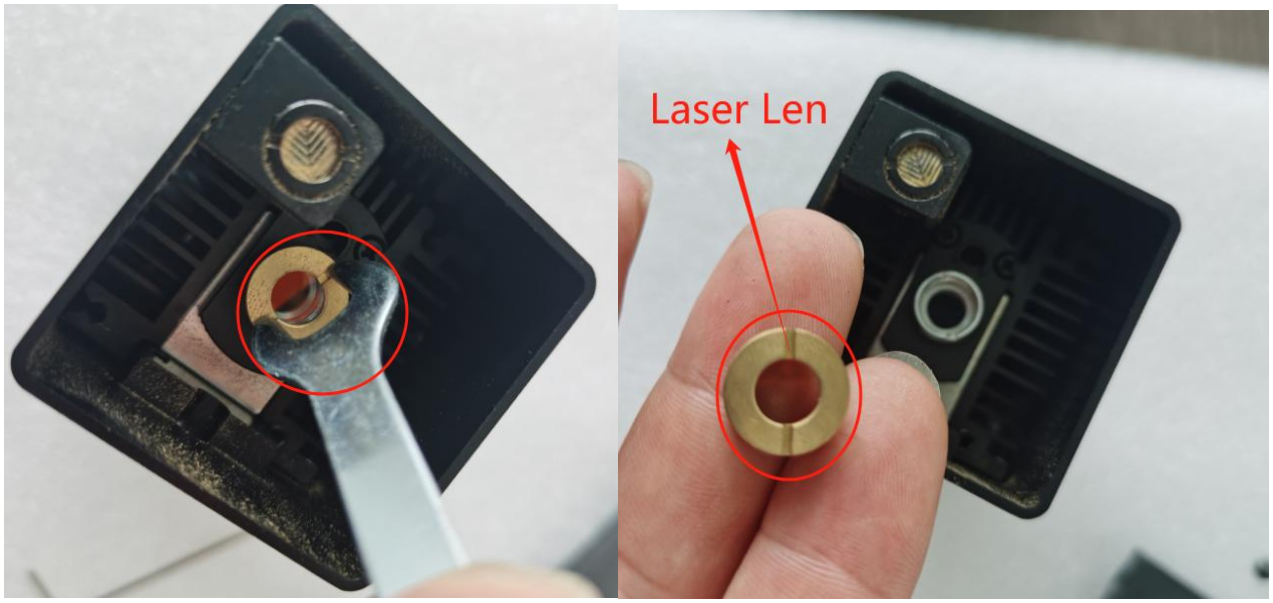


5, As shown in the picture below, use a clean cotton swab to gently wipe the lens

➢ How to Replace laser lens

1, You need to buy the corresponding lens in our mall

2, Use the tool to rotate the position marked in the picture below counterclockwise to remove the laser lens, and then replace the lens with a new one.



20W module:

➢ How to clean up the laser lens:

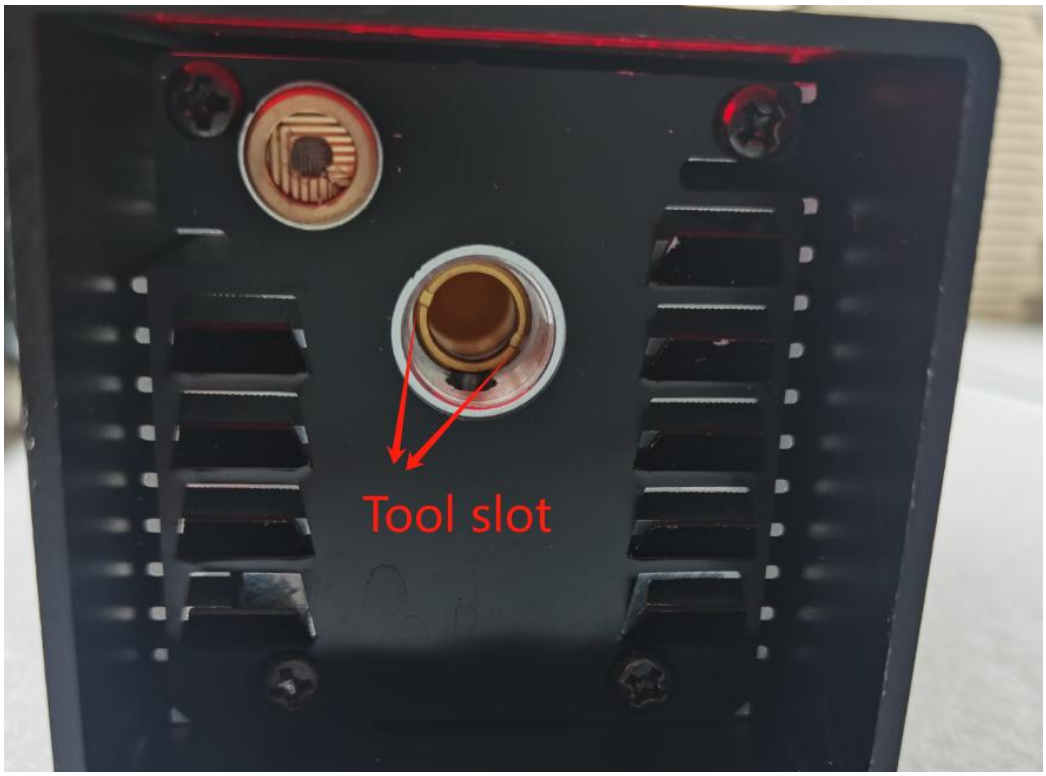
1, Twist the air nozzle counterclockwise by hand until the air nozzle is removed

2, As shown in the picture below, use a clean cotton swab to gently wipe the lens

➢ How to Replace laser lens

1, You need to buy the corresponding lens in our mall

2, Use the tool to rotate the position marked in the picture below counterclockwise to remove the laser lens, and then replace the lens with a new one.



17. Cartridge Replacement Instructions

- The Gluwphy GM1 has a built-in air cartridge to filter out fumes and dust generated during the process and to protect the smoke exhaust fan.
- After a certain period of time, the filter cartridge will be covered with dust particles, which will cause the cartridge to become clogged and the exhaust fan will not be able to extract the soot from the machine in time. The life of the cartridge is about 8-10 hours (maximum power to cut thick basswood boards), the specific life and processing materials related.
- When the fumes in the equipment cannot be discharged in time during the process and the white part of the cartridge becomes dirty, it is necessary to replace the cartridge.
- You can purchase cartridge replacements at our official store.
- Of course you can leave the cartridge in place and expel the fumes directly outside the unit, but this will affect the life of the fan and you will need to clean the fan on a regular basis

18. Other Frequently Asked Questions

Q	A
How large of an area is the actual engraving, cutting, etc. area?	5W/10W machine can process an area of 400*300mm; 20W machine can process an area of 400*295mm.
Can it cut or engrave on acylic?	Non-transparent acrylic can be processed; transparent acrylic need to increase the surface coating in order to process (for example, some people use children's painting tempera finger paint evenly sprayed on the surface of transparent acrylic and

	glass processing, processing after washing off the pigment)
Compatibility with Win11/Mac	Please refer to No.
What is the cutting capacity	5W one pass can cut 4mm Plywood; 10W one pass can cut 8mm Plywood; 20W one pass can cut 10mm Plywood; For specific settings, please refer to No.5