

INSTRUCTION MANUAL

GENUINE BRAND \ HIGH QUALITY \ MADE IN CHINA

TO BE THE **BEST**

LASER MACHINE
MANUFACTURER



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Safety

Laser Safety



The output of the CO2 engraving laser is fully contained in a Class 1 enclosure during normal operation. However, the output beam of the Alignment Laser (visible red diode laser) is accessible to the operator during normal operation. While this device employs the same technology as a held laser pointer, it is potentially hazardous if its beam is directed into the eye.

GENERAL OPERATION PRECAUTIONS

The laser operator should observe the following:

- **NEVER** operate the machine with any of the panels removed. Be aware that removal of any portion of the cabinet will greatly increase the risk of injury and/or fire. **Remember that the CO2 laser beam is invisible!**
- **NEVER** operate your machine unattended. There is a significant risk of fire if the machine is set improperly.
- **ALWAYS** use the air assist, especially while vector cutting. Vector cutting movements are relatively slow and apply an extremely large amount of heat to the work piece. This buildup of heat can cause a significant fire risk.
- **DO NOT** disassemble the machine or remove any of its protective covers while the unit is plugged in.
- **DO NOT** look into the beam of the Alignment Laser (visible red diode laser)
- **NEVER** operate the machine without a properly operating ventilation system. Most materials produce an irritating smoke when engraved.

Electrical Safety



The power supply is capable of outputting more than DC 20,000V. Always make sure to give the supply capacitors adequate time to discharge before accessing the electronics area. Your laser shipped with silicone terminal covers that prevent access to bare wiring

- **DO NOT** open any of the machine's access panels while the unit is plugged in. Opening a panel may expose
- **DO NOT** make or break any electrical connections to the system while the unit is turned on
- **DO NOT** access the electronics area with hands or tools unless the unit is **disconnected from power.**

Fire Safety



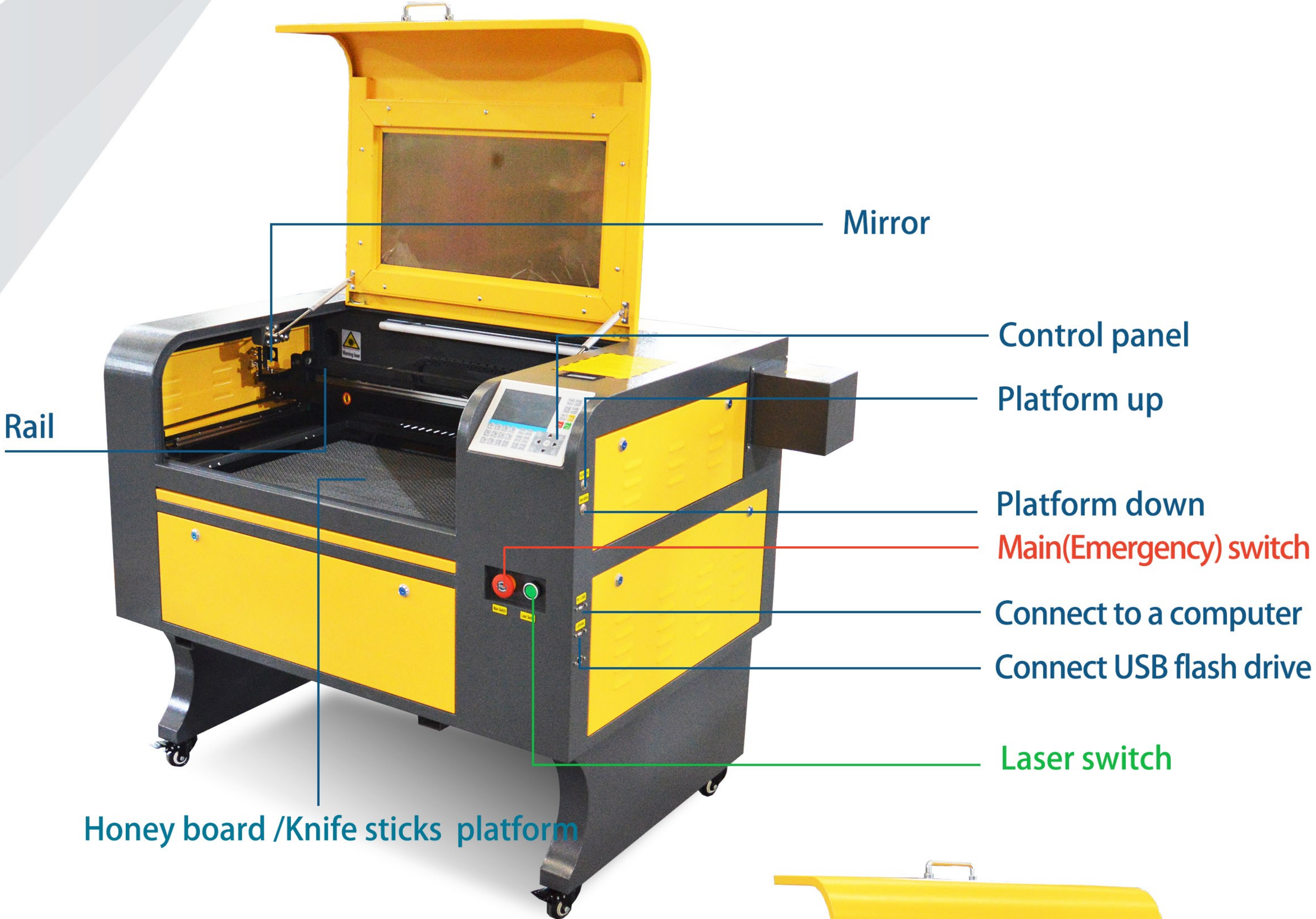
Laser cutting and engraving systems represent a significant fire hazard due to the extremely high temperatures generated by the laser beam. Materials most materials capable of being cut or engraved are inherently combustible. Usually, the flame in the cut area will go out on its own. However, it is possible for the flame to propagate and set fire to the machine and threaten its surroundings.

Experience has shown that Acrylic in all its different forms has been shown to be especially flammable when vector cutting with the laser. Please also be aware that stacking materials (especially organic materials such as paper) can lead to increased risk of flame propagation or work piece ignition.

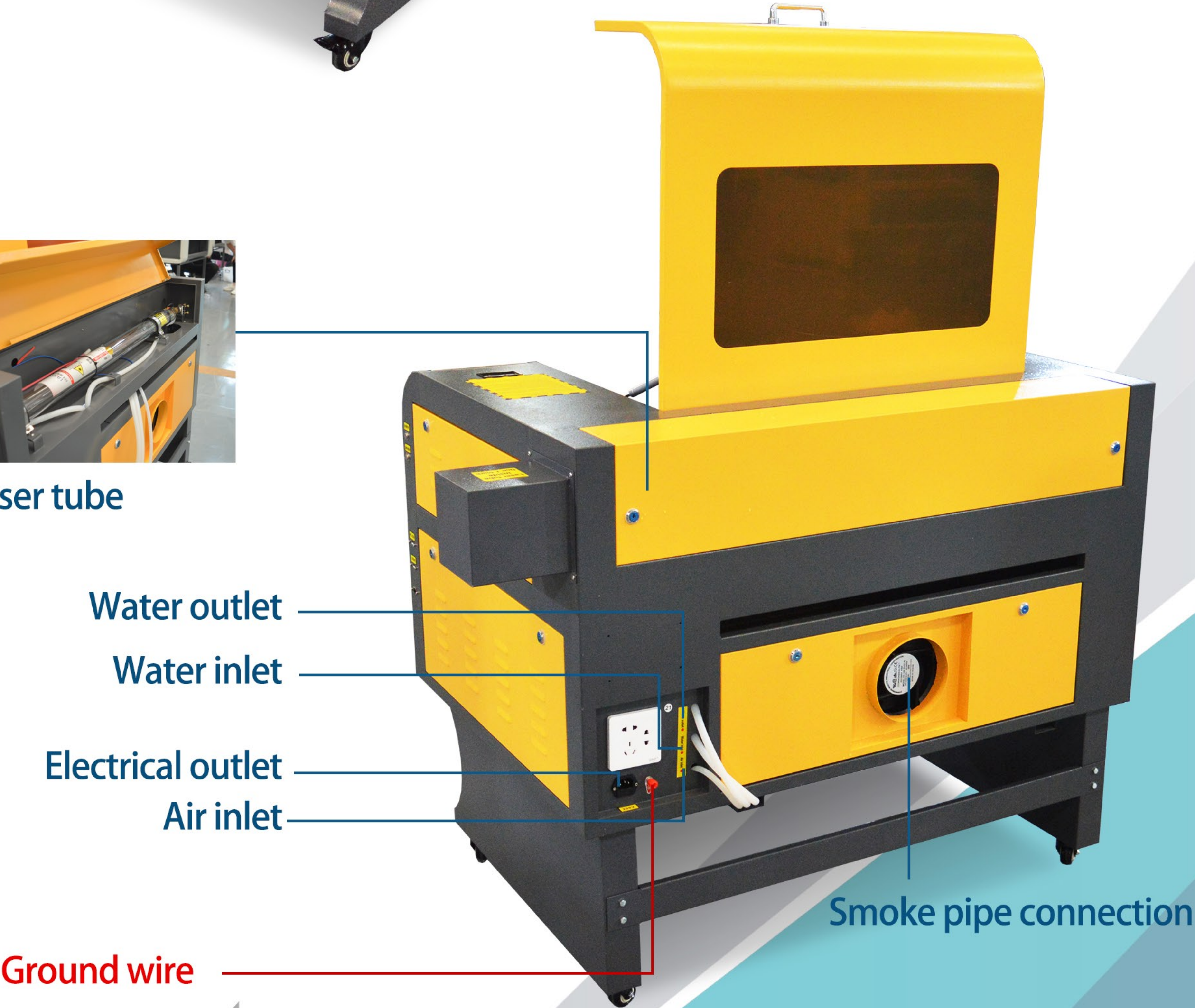
Please read the following warnings and recommendations and follow them closely at all times!

- **NEVER** leave the laser system unattended during operation.
- **KEEP** the area around the machine clean and free of clutter, combustible materials, explosives, or volatile solvents such as acetone, alcohol, or gasoline.
- **ALWAYS** keep a properly maintained and inspected 5lb or larger fire extinguisher on hand. We recommend a Halogen fire extinguisher or a multi-purpose dry chemical fire extinguisher. The Halogen extinguisher discharges a clean, easily removable substance that is not harmful to the mechanics or wiring of the laser system. The dry chemical extinguisher discharges a sticky, corrosive powder that is very difficult to
- **ALWAYS** use air assist when vector cutting.
- **BE CAREFUL** when vector cutting. Many materials have the potential to burst suddenly into flames – even materials that may be very familiar to the user. Always monitor the machine when it is operating.
- **KEEP YOUR LASER SYSTEM CLEAN** – A build up of cutting and engraving residue and debris is dangerous and can create a fire hazard. Keep your laser system clean and free of debris. Regularly remove the cutting grid to clean any small pieces that have gotten stuck or fallen through.

Machine introduction



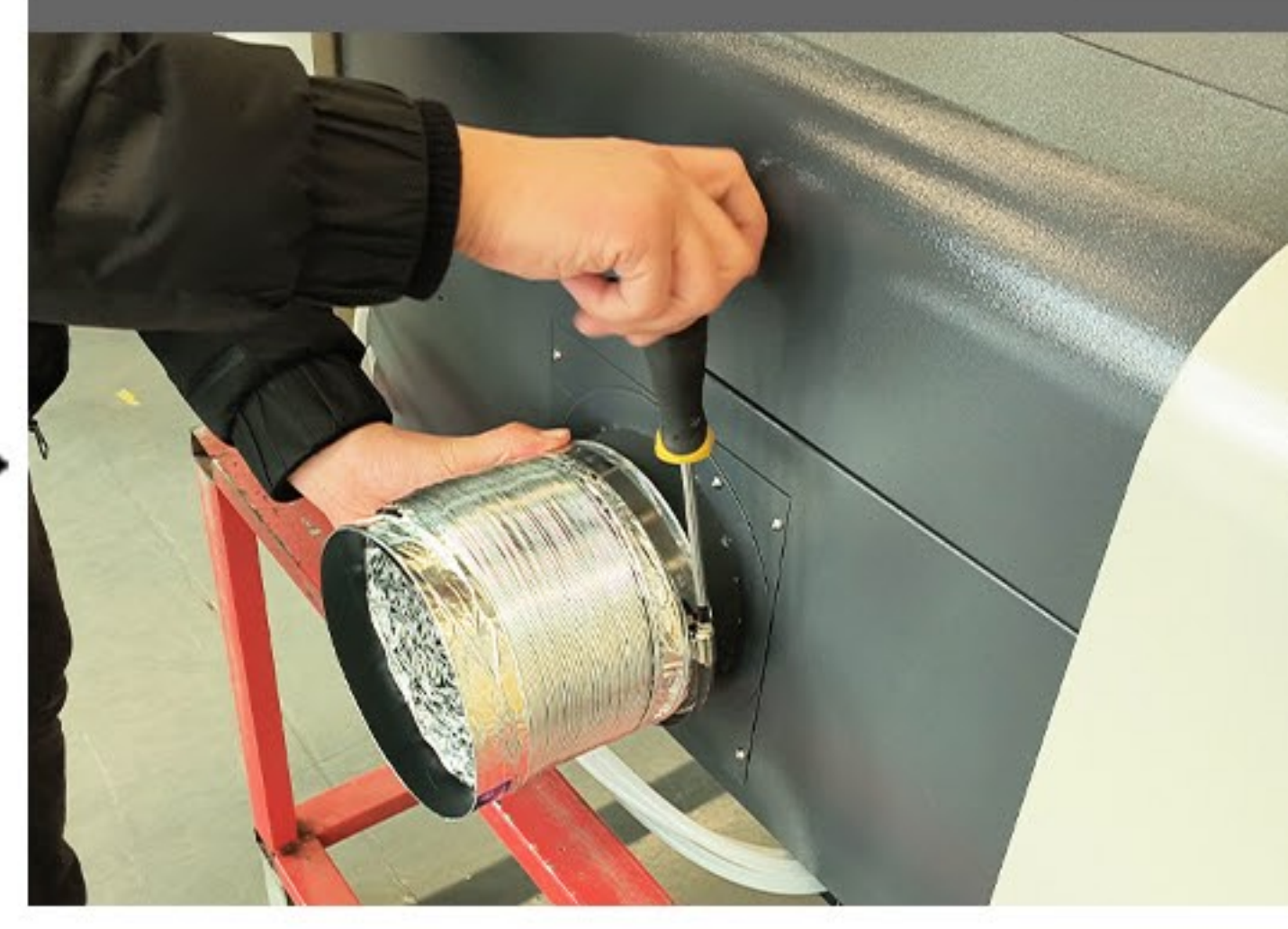
Laser tube



Instruction manual

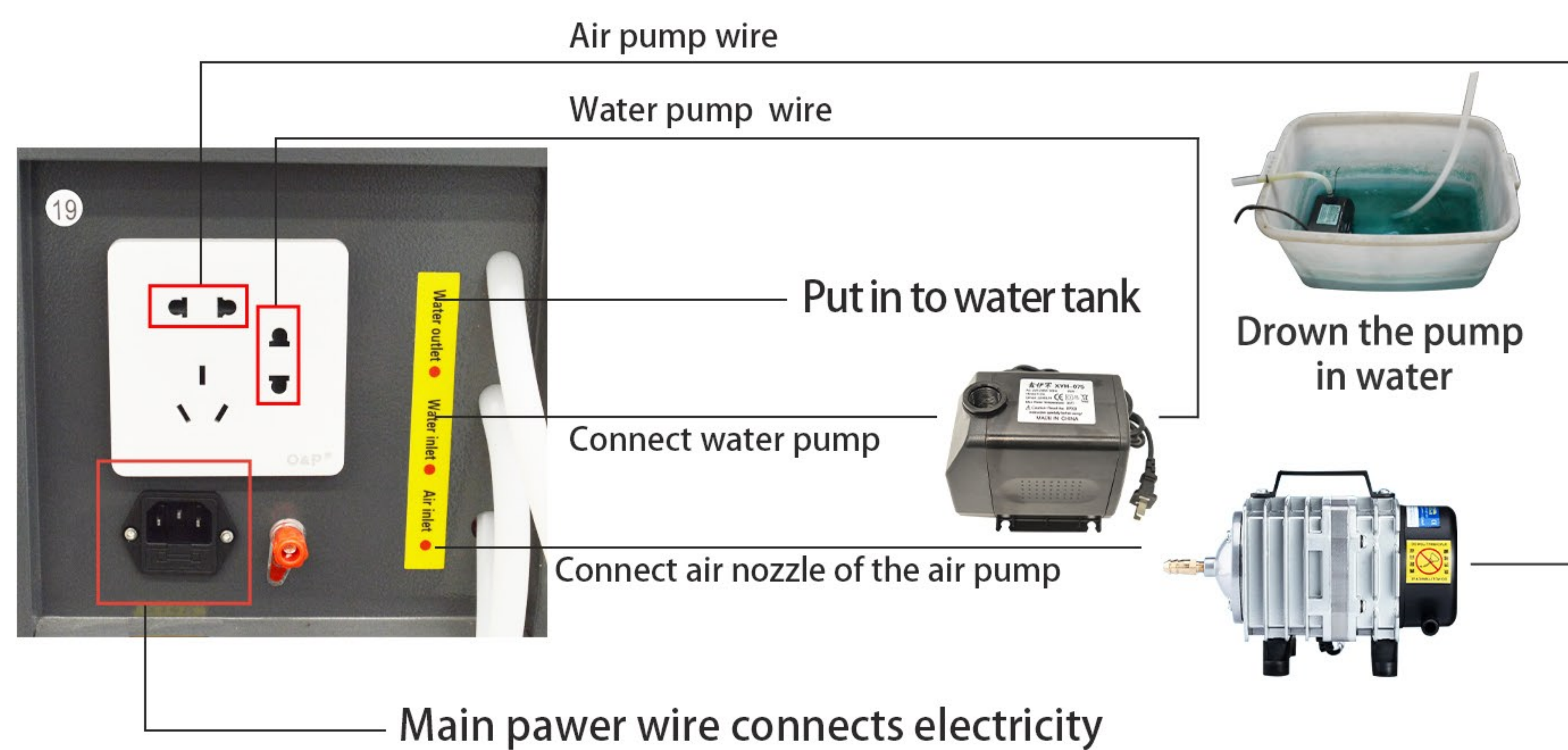
Product installation

Install the universal wheel, tighten the screws → Install the bottom of the device → Install all the support beam → Install the chimney pipe.

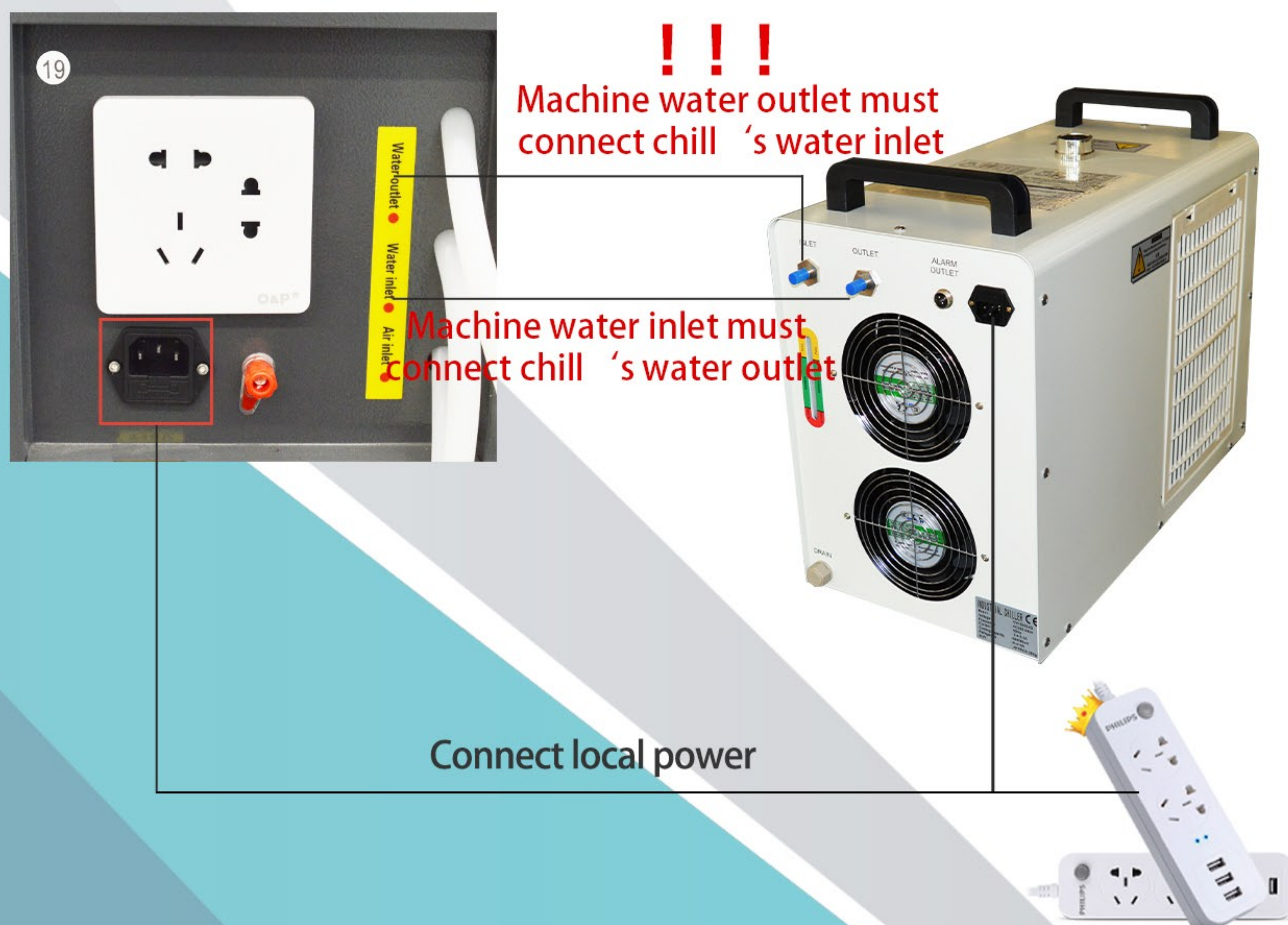


Connect the air pump and water pump

!!! All operations should be performed in the case of power failure.



If a chiller/fan is purchased, the operation is as shown below



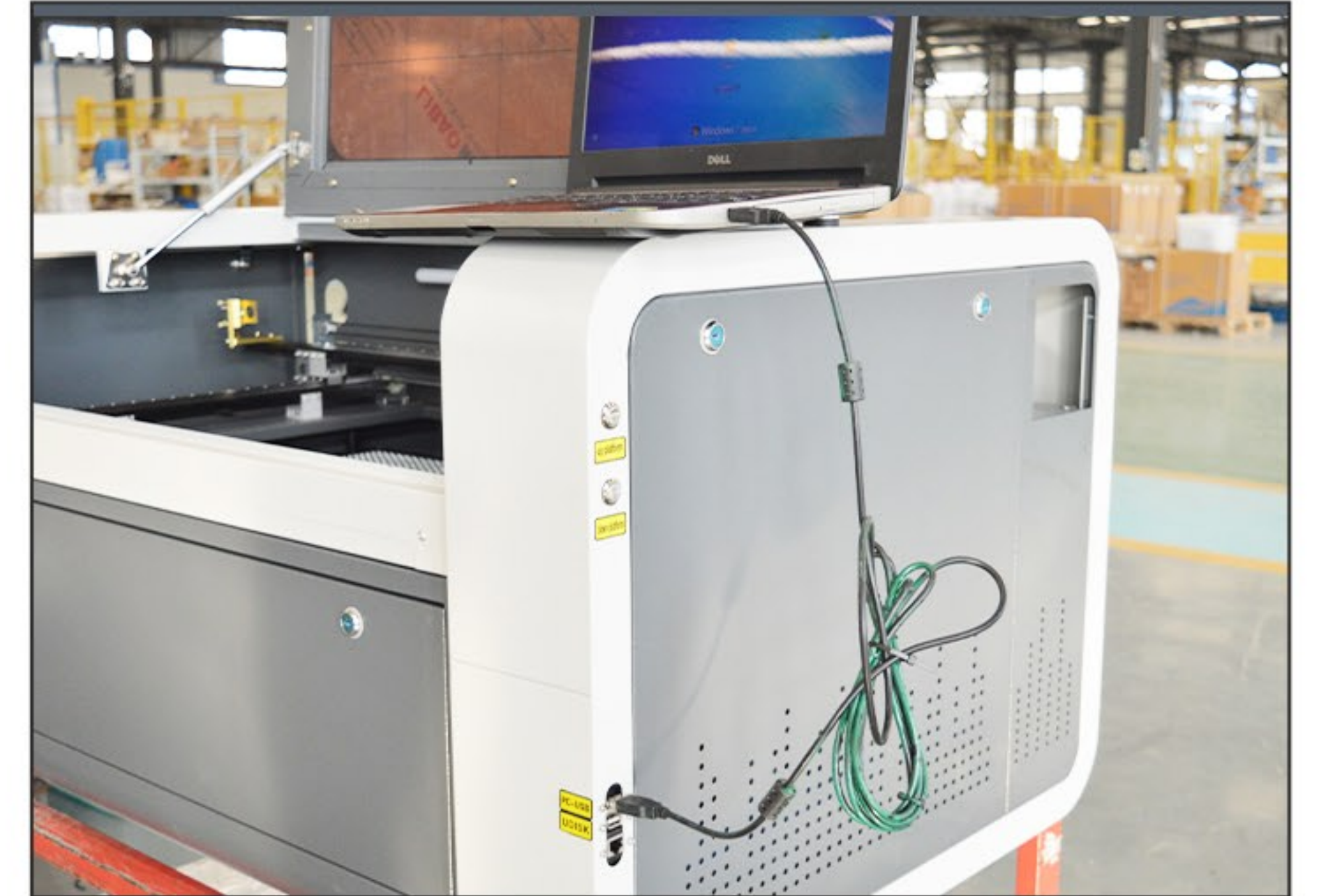
Connect to a computer



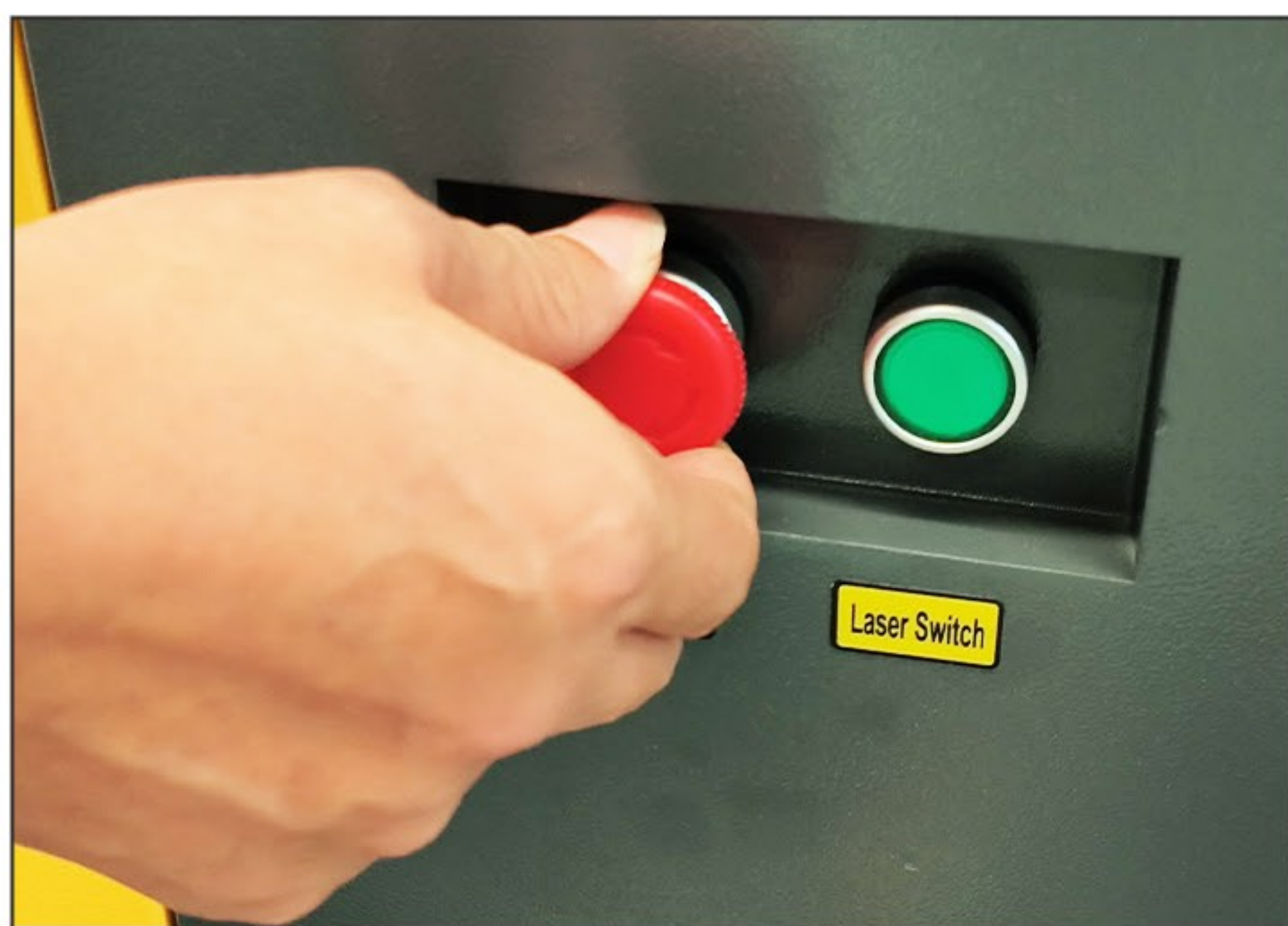
1. Take out the prepared data cable



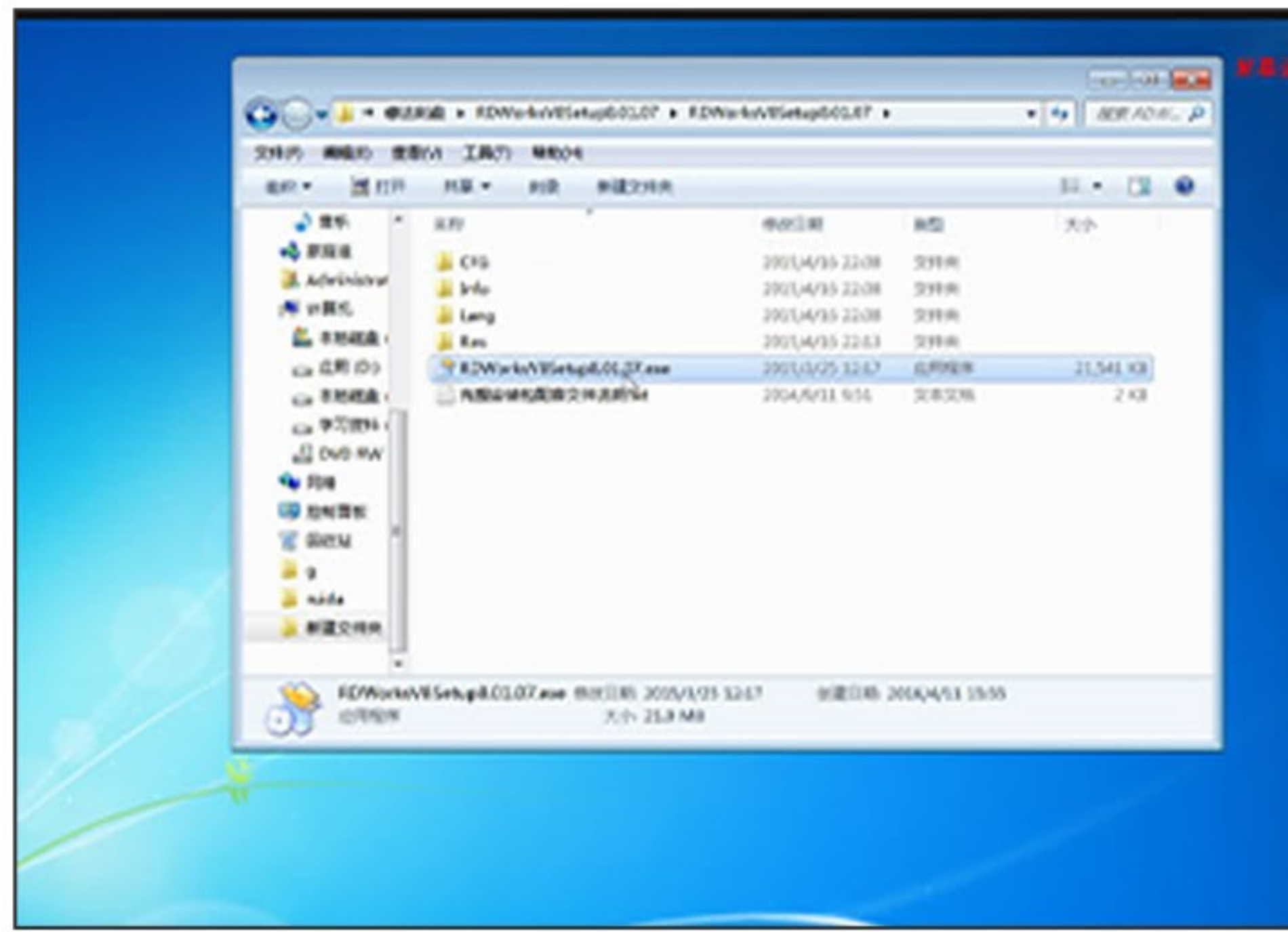
2. Connect the PC-USB port to the device



3. Connect the computer data interface



4. Turn on the main switch

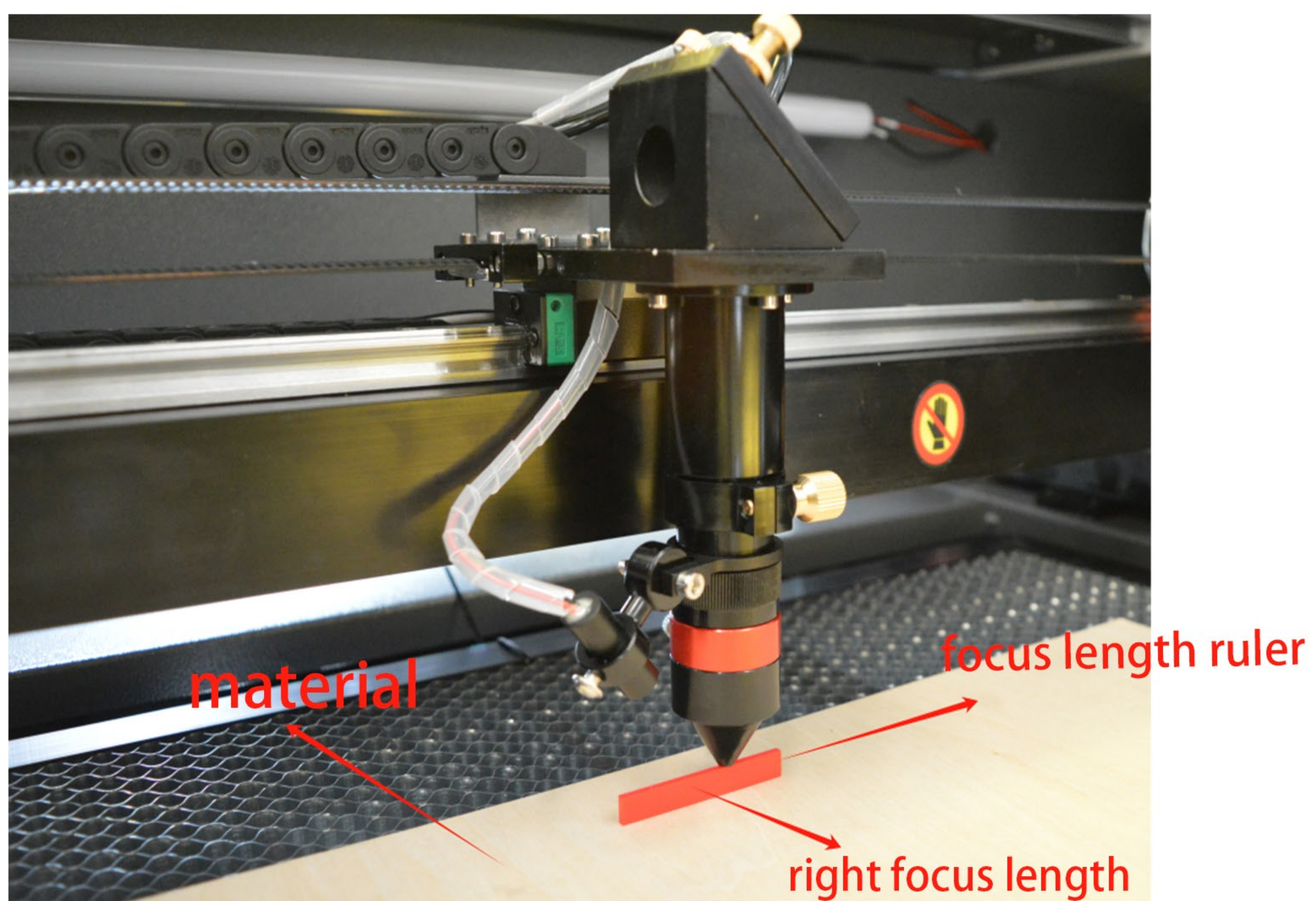


5. Install the driver



6. Turn on the laser switch

Focus adjustment

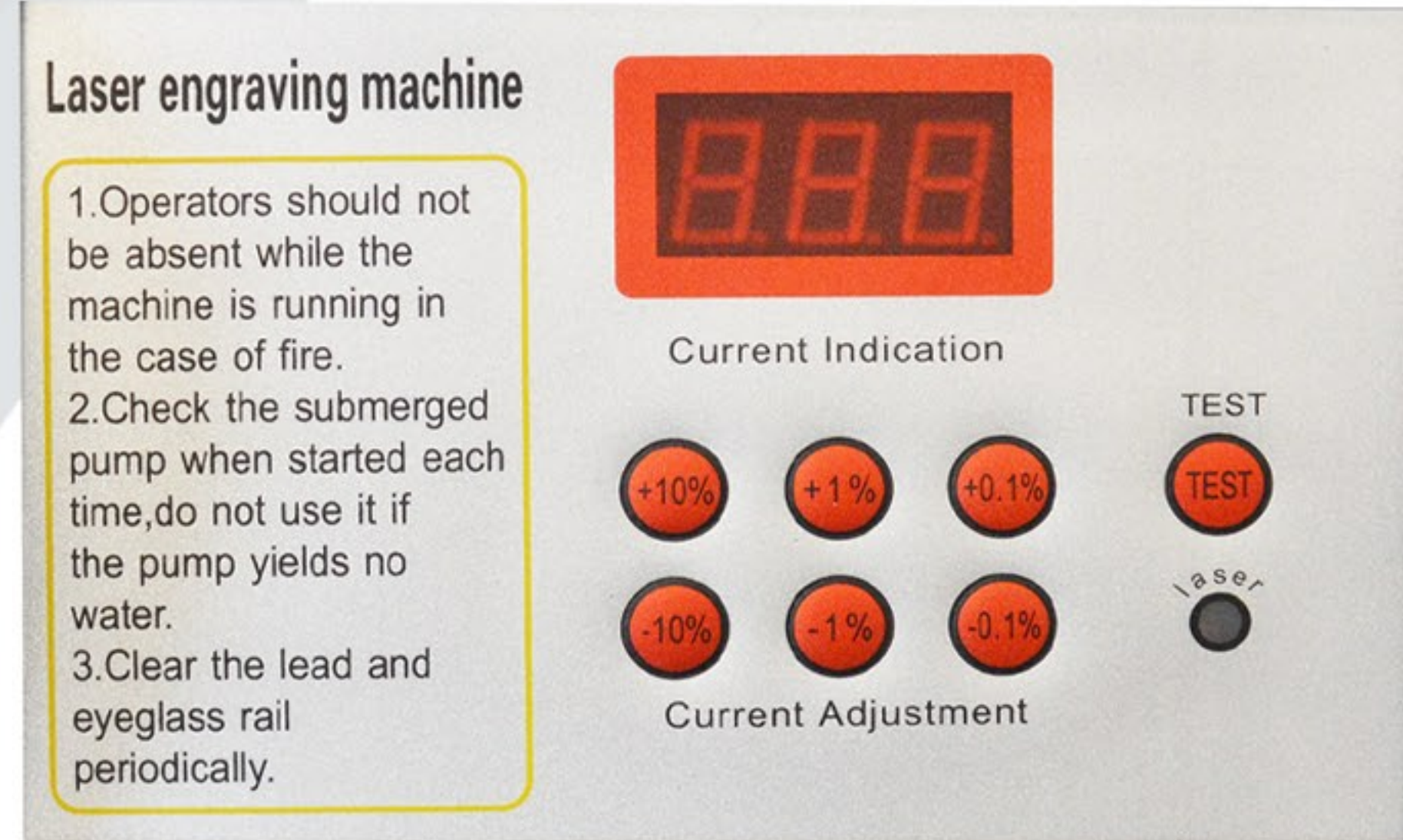


The distance between the laser head and the object surface is the correct focus length.
(Take the focus length ruler as standard)

Panel operation

If you are purchasing an M2/M3 machine, do the following

The buttons on the 6C6879-LEDPAD-A panel are marked with function names, such as the +1% button, which means that the laser energy is increased by 1%, and so on. TEST button, used to test the laser.



The following are some double bond combination operations, do some instructions:

Press the +10% button and the 10% button at the same time to quickly set the laser energy to the maximum of 99.9%.

Press the +1% button and the -1% button simultaneously to quickly set the laser energy to 50.0%.

Press the +10% button and the +1% button at the same time to quickly turn off the laser, that is, set the laser energy to 0.

Press the +10% button and the +0.1% button at the same time to quickly set the laser energy to 75.0%.

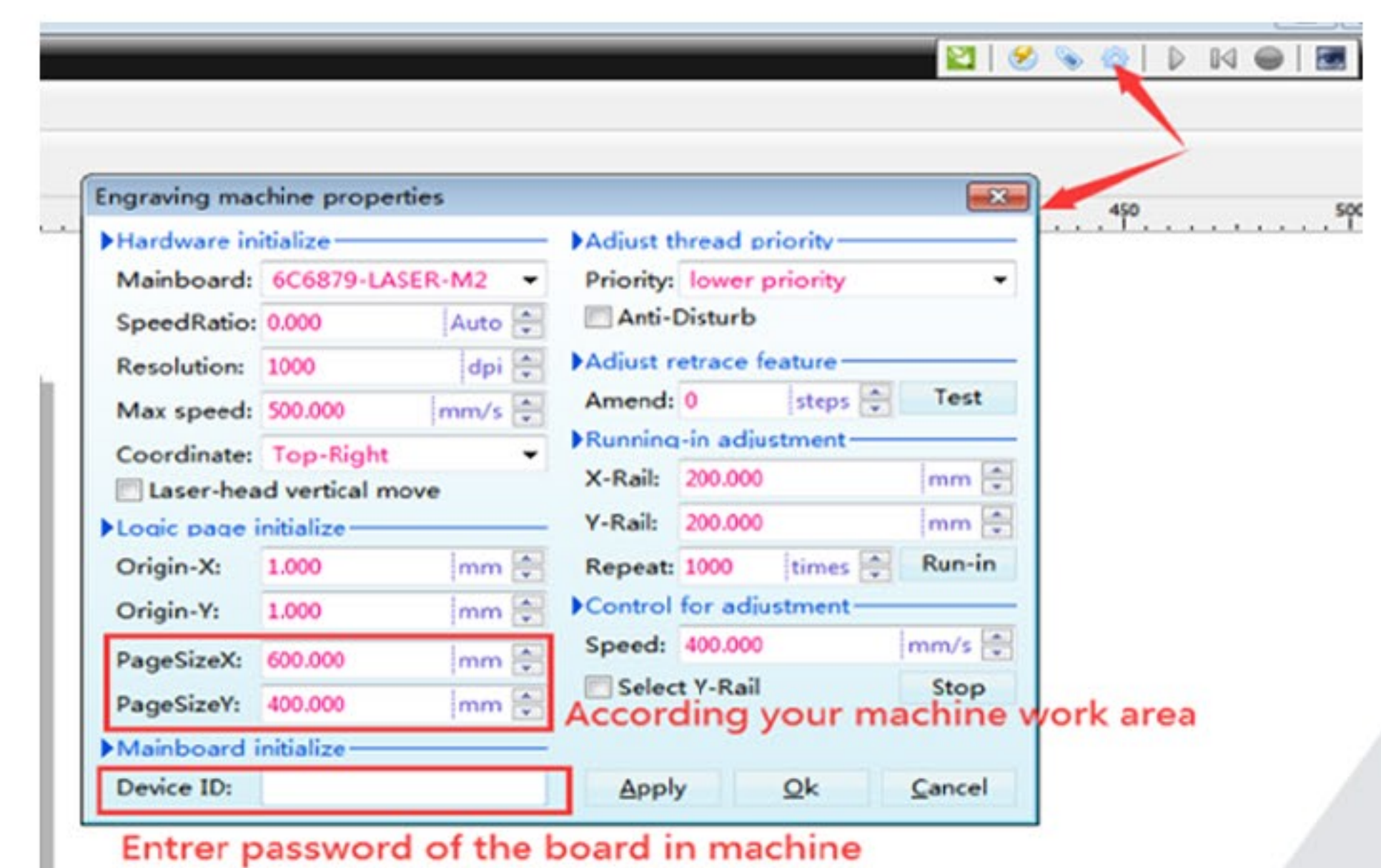
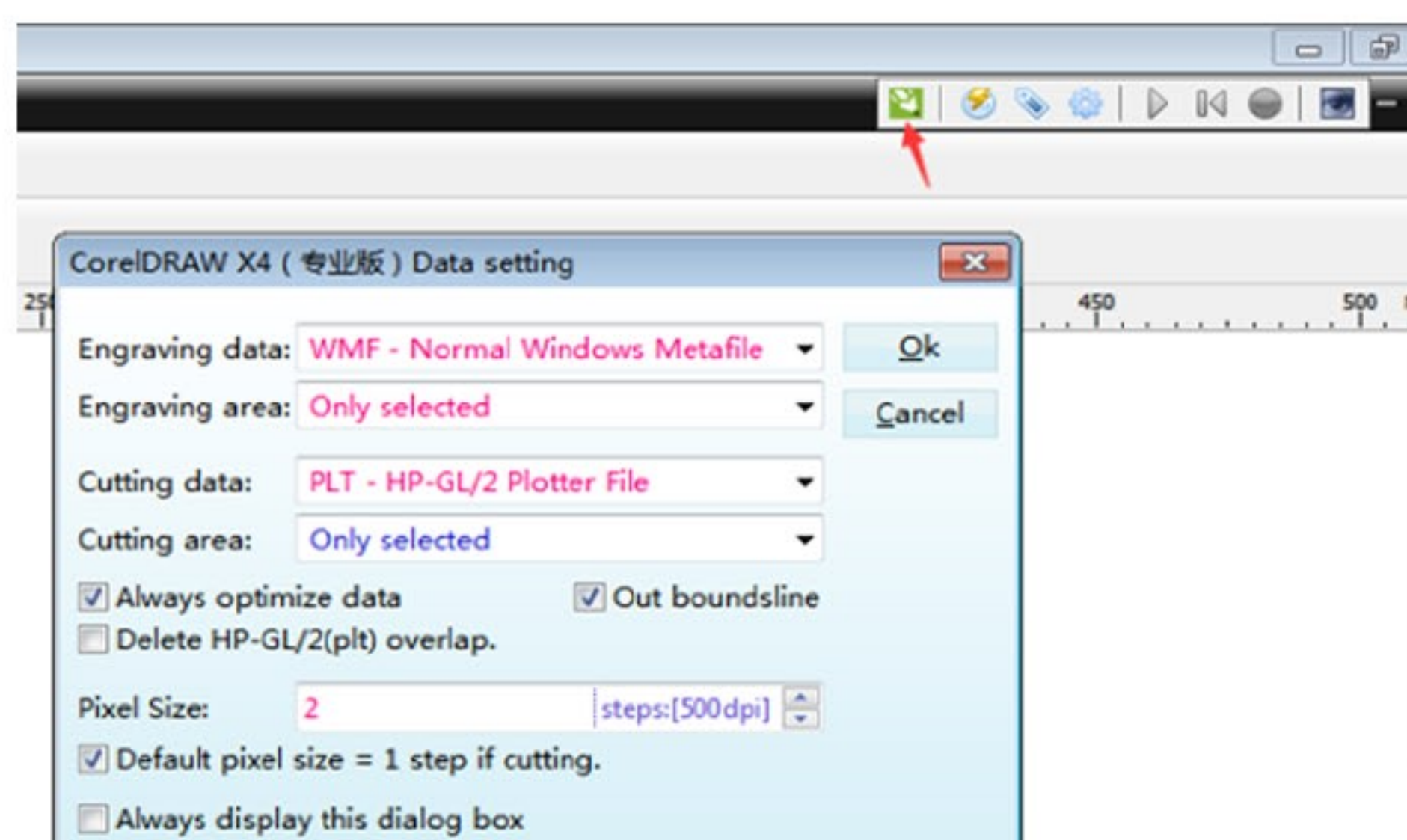
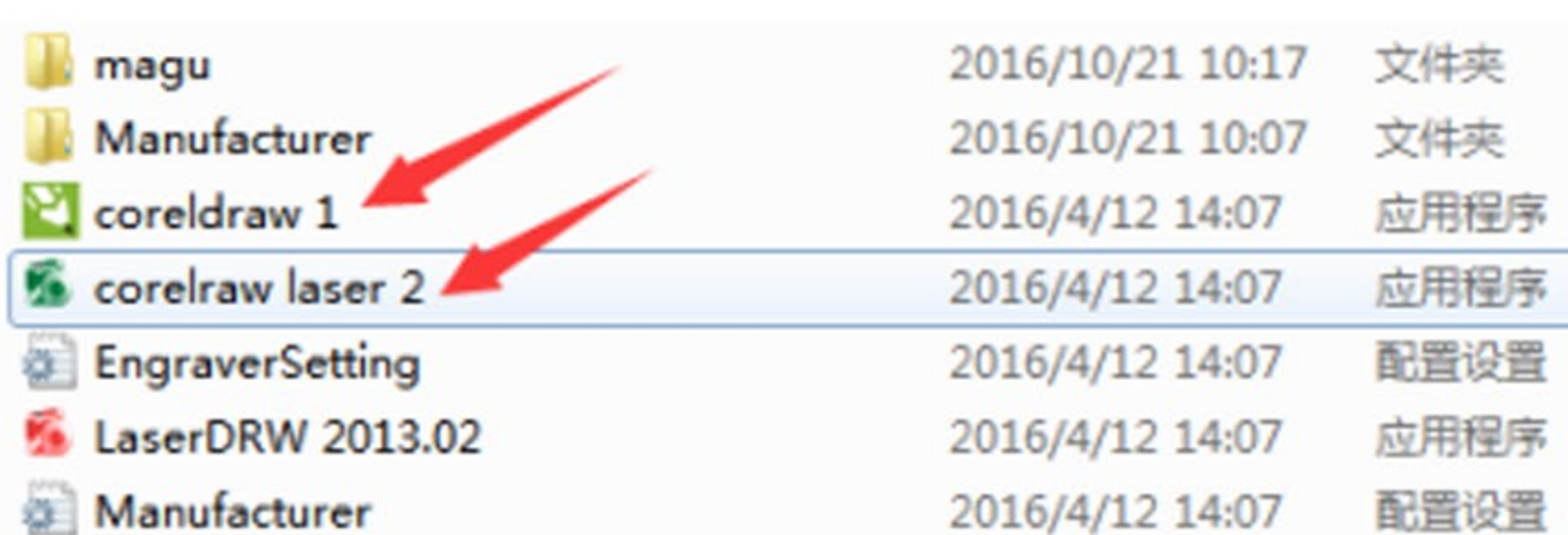
Press the +1% button and the +0.1% button at the same time to quickly set the laser energy to 25.0%

Amperemeter	Displays the actual current at work
TEST	Press this button in the standby state to make the laser tube light out for light path adjustment
Current regulation	Press +10%, +1%, +0.1% button to increase the current, press -10%-1%, -0.1% to reduce the current

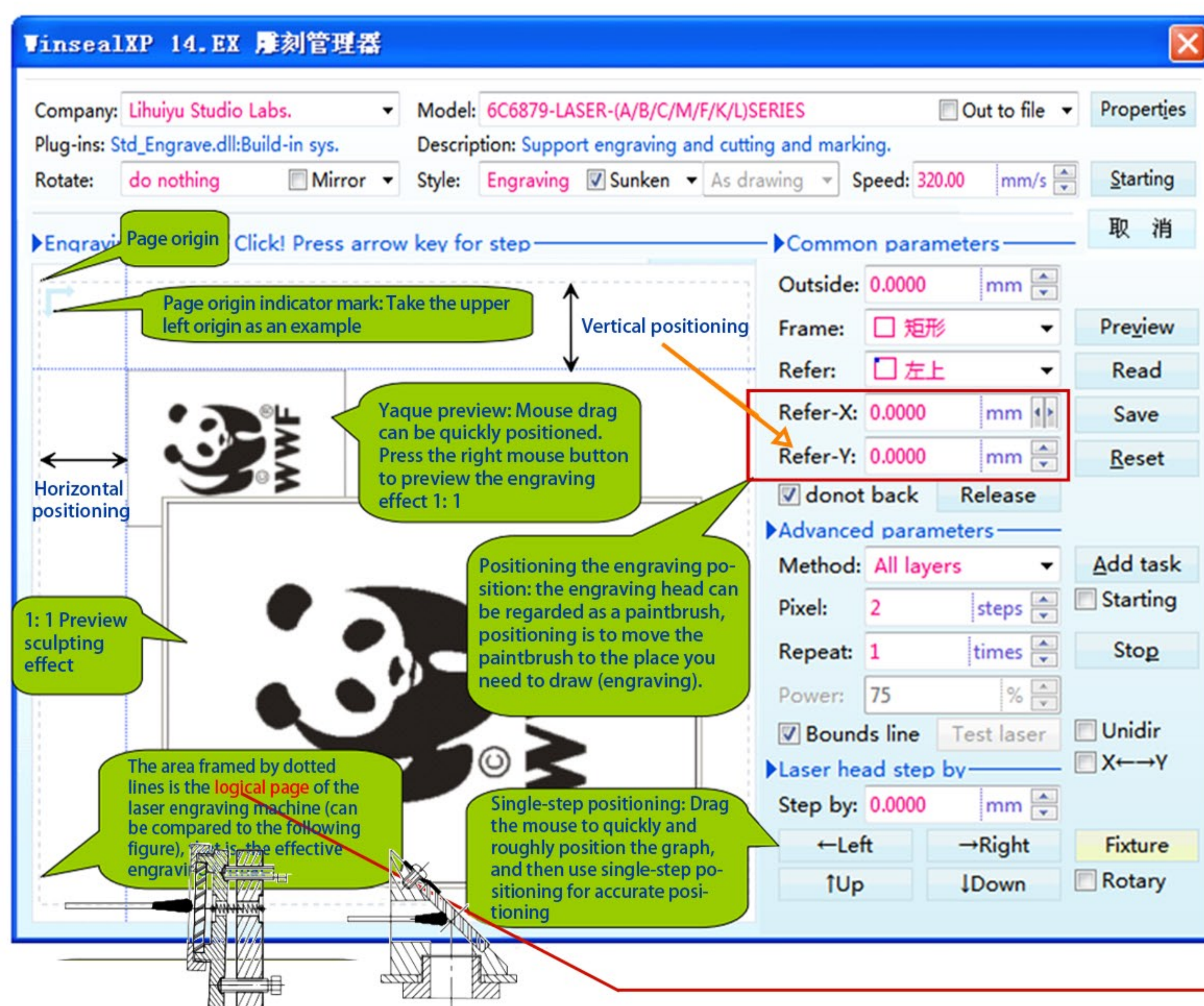
Software operation

M2/M3 control system machine software installation

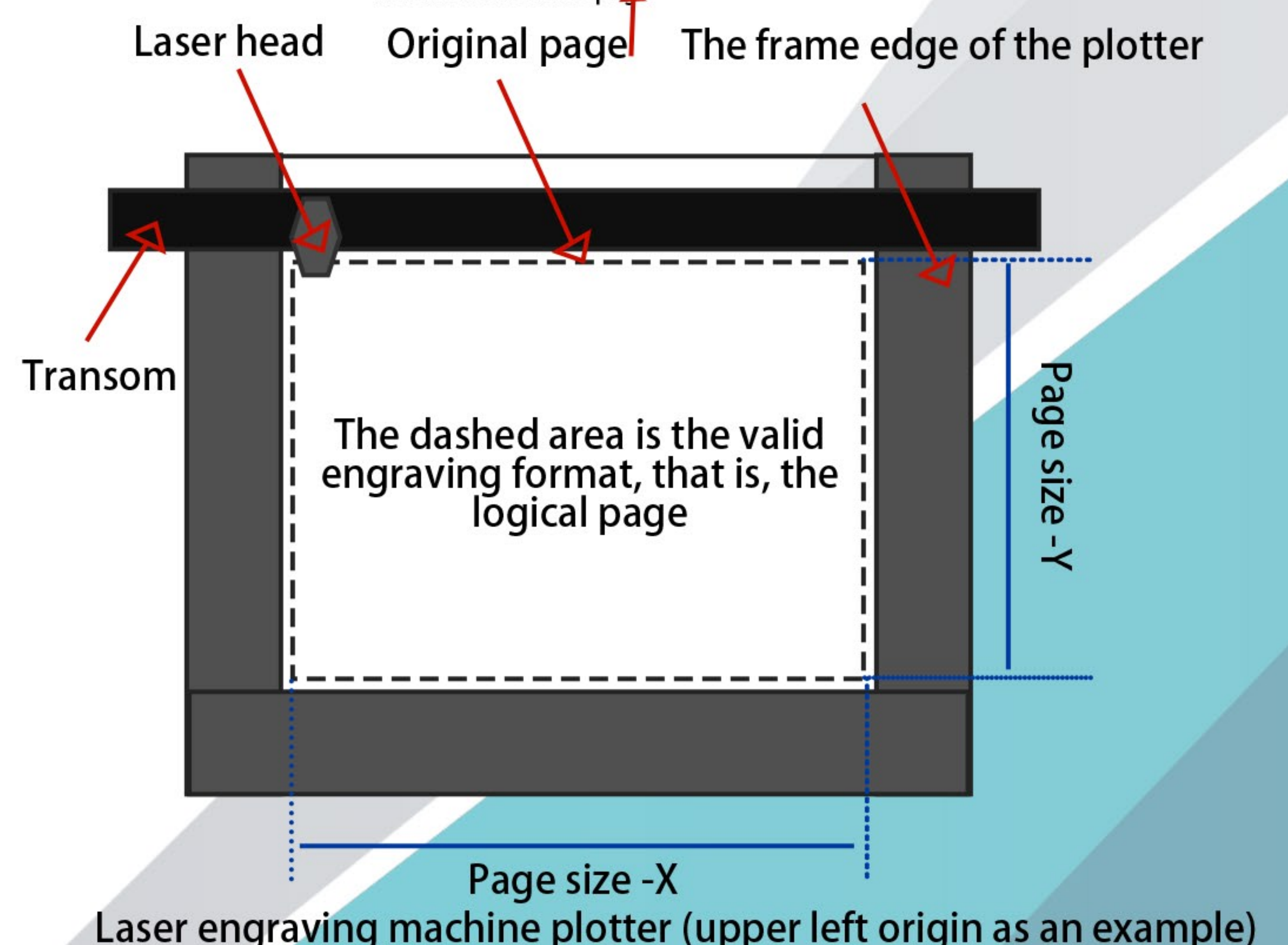
First set the software parameters according to coreldraw1 in Installation 2 according to the following interface



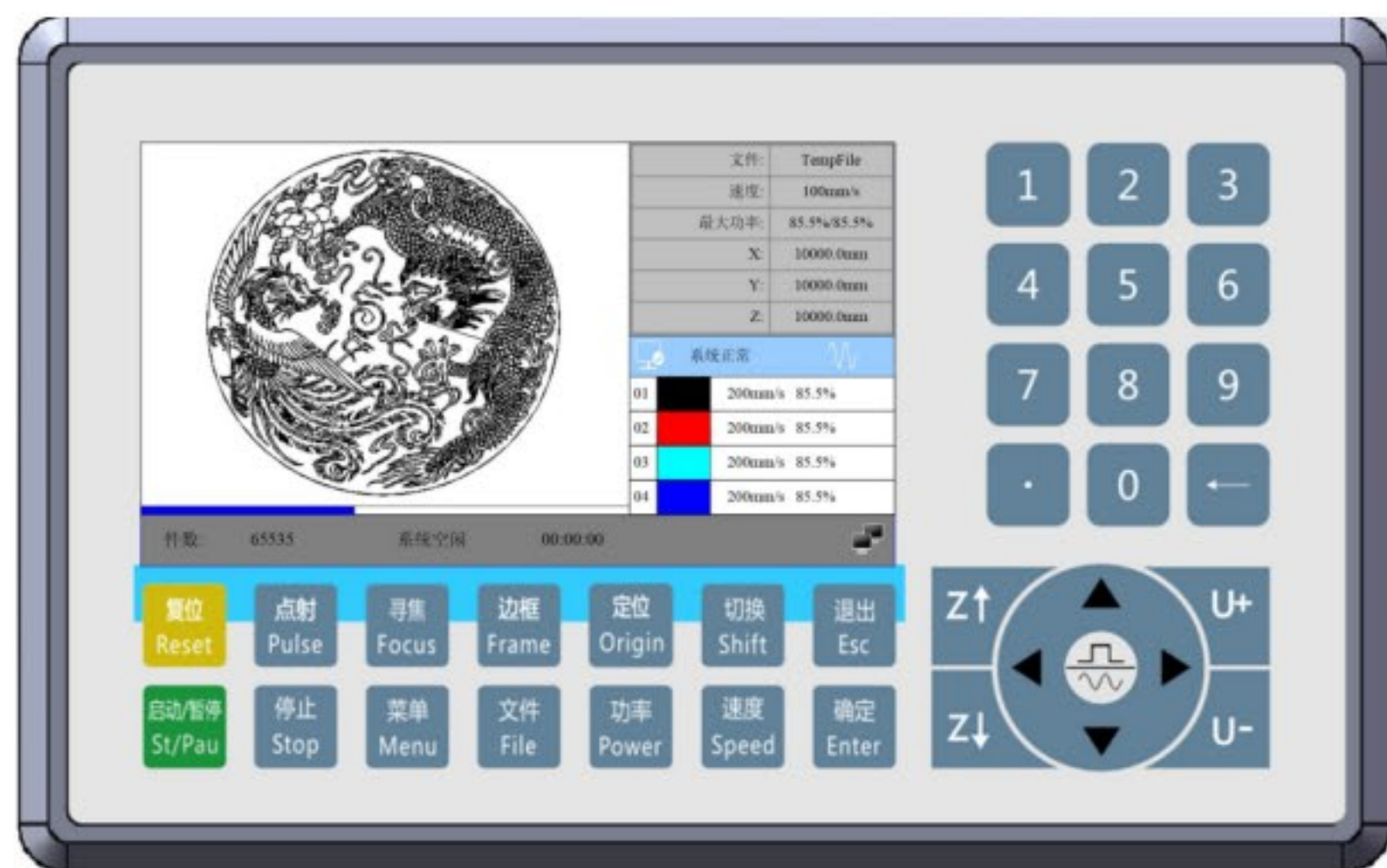
Below is the engraving manager of our engraving software:



When the horizontal positioning and vertical positioning in the engraving manager are 0, the engraving head is just positioned at the origin of the page: so that you do not have to consider how much the border of the plotter is: in the engraving manager, you can know where the laser head is on the page



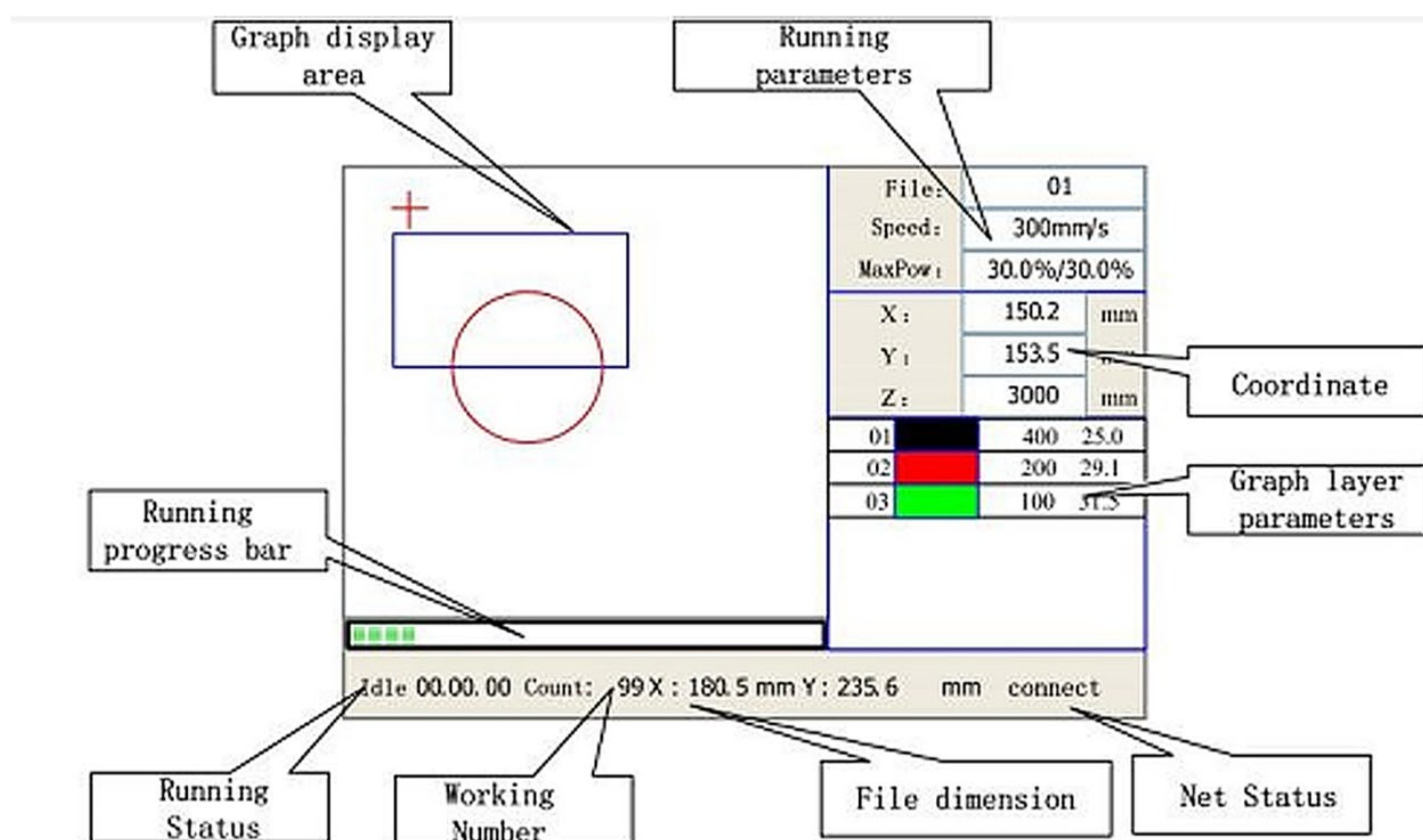
If you purchase a RD laser engraving machine, please do the following



- **确定 Enter** Validate the change
- **移动键** To move the X axes and Y axes or Up, down, left and right functions
- **Z↑ Z↓** Moving Z axis
- **U+ U-** Moving U axis
- **点动/连续** Point movement and continuous motion switching
- **小数点** Decimal point.
- **退格** Backspace.
- Digital key 0-9: Used to set parameters.

- **复位 Reset** Reset the whole system.
- **启动/暂停 St/Pau** To start or pause the work.
- **点射 Pulse** Let the Laser to splash.
- **停止 Stop** Stop working or motor axis motion.
- **寻焦 Focus** Automatic searching for focus.
- **菜单 Menu** User parameters, factory parameters, language settings , etc.
- **边框 Frame** To track by the current file's frame.
- **文件 File** The management of the memory and u disc files.
- **定位 Origin** Set the relative origin.
- **功率 Power** Set the laser power of the current running layer, or set the power of "Laser" Key.
- **切换 Shift** Special function switching.
- **速度 Speed** Set the speed of the current running layer, or set the direction keys' move speed.
- **退出 Esc** To stop work, or to exit to some menu

After the device is powered on, the following interface is displayed



- **Graph Display Area**: To display the whole file's track, and display the running track;
- **Running parameters display area**: To display the running file's file number, speed, max power etc.;
- **Coordinate display area**: To display the current coordinate of XY and Z axes;
- **Layer parameters display area**: To display the layers' information of the current file, such as max or min power, speed etc. When system is idle, double click the layer, then users can change the layer's parameters and the changing would be saved;
- **Running Status**: To display the current status of the machine, such as Idle, Run, Pause, Finish etc;
- **Running Progress Bar**. To display the progress bar of the current running file;
- **Working Number**: To accumulate the work number of the current file.
- **File Dimension**: To display the dimension of the current file;
- **Net status** To display the connecting status of the Ethernet.

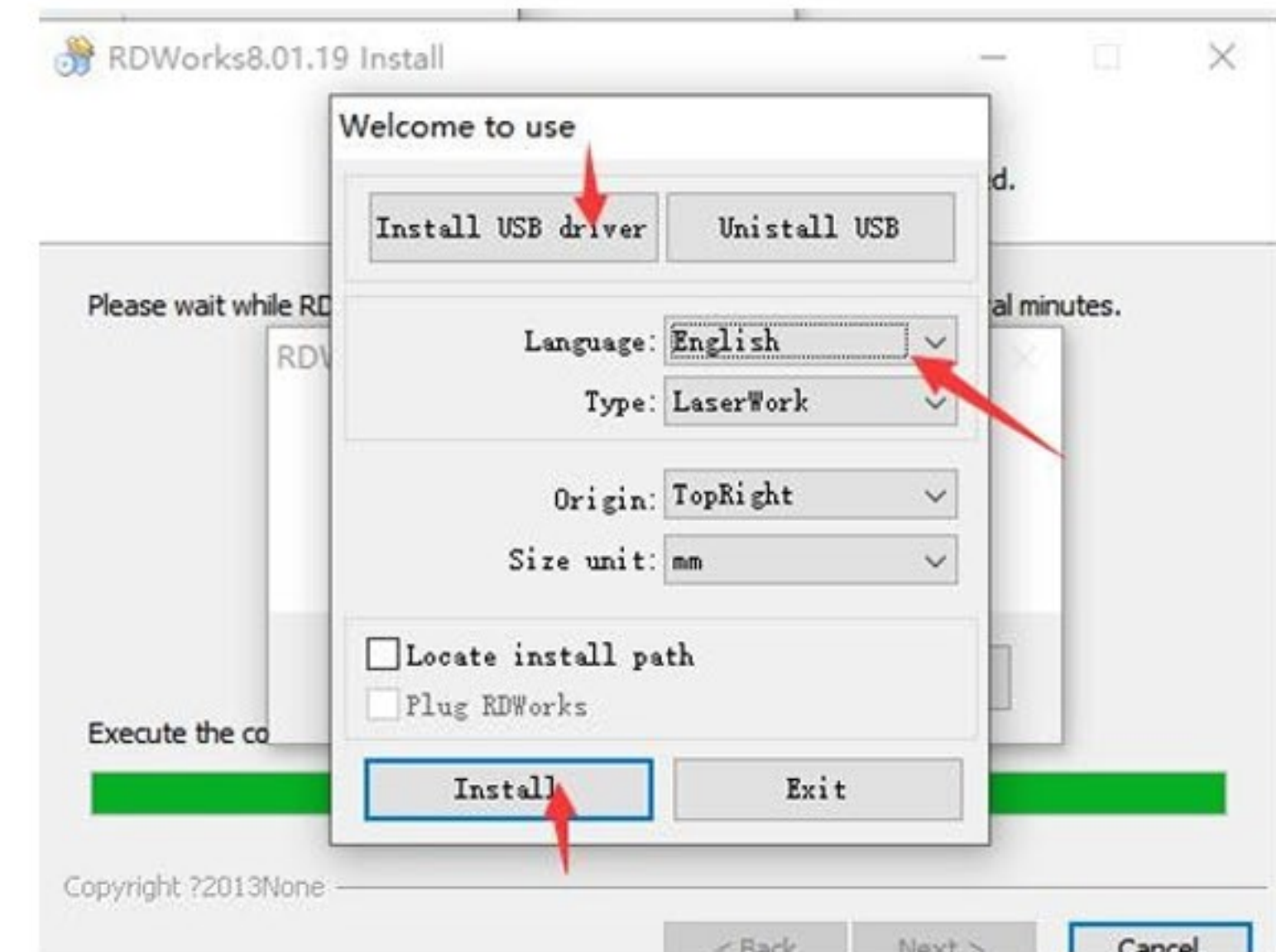
Software Installation

Install RDWORKSV8

1. Turn on your laser machine and make sure the computer and machine are linked; Find the location of the file (As shown in Figure 1)



(Figure 1)



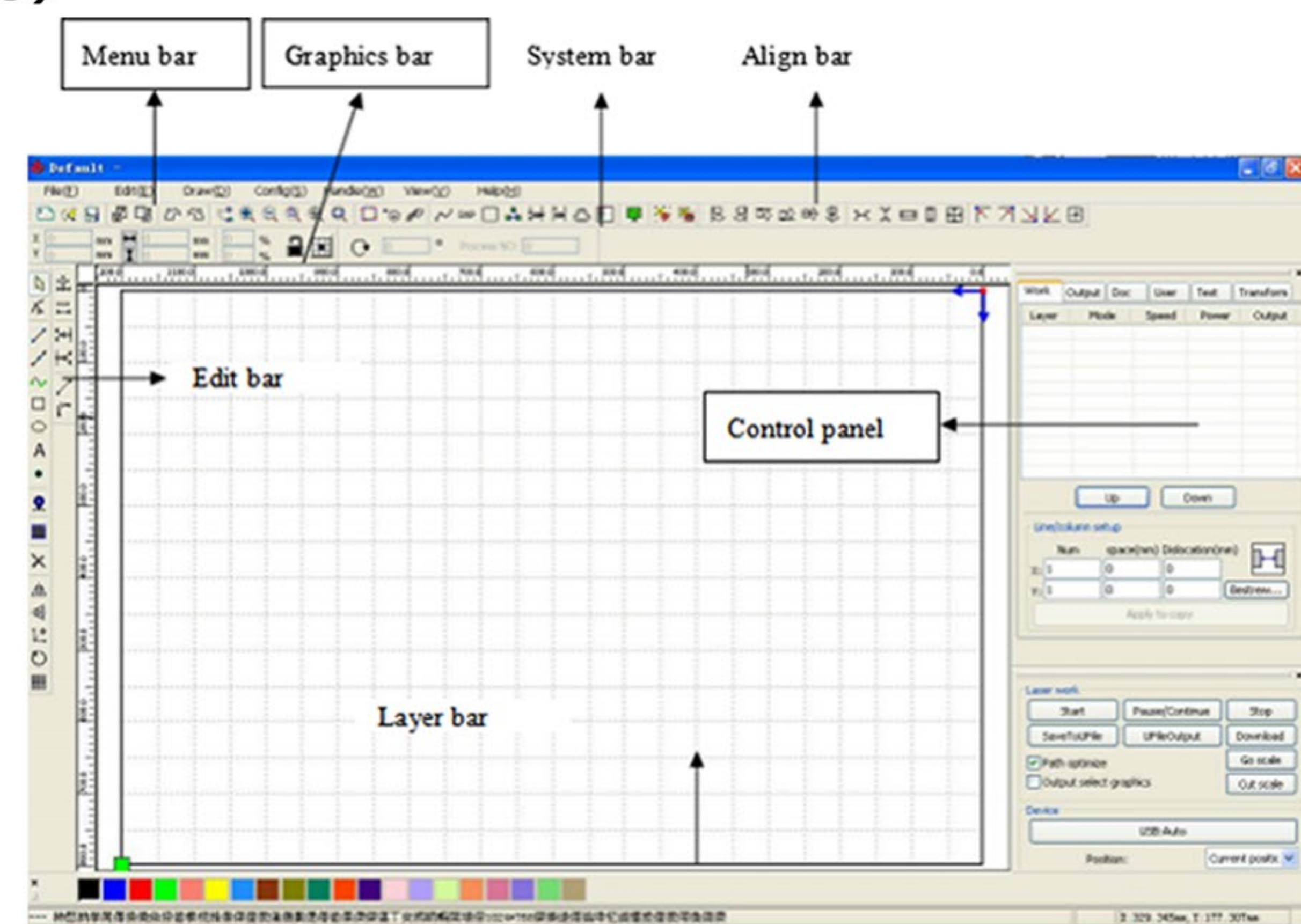
(Figure 2)

2. Install the USB driver, make sure the machine is turned on and ensure that the machine is connected to the computer (As shown in Figure 2)

3. After installation, the icon shows (As shown in Figure 3)



(Figure 3)



(Figure 4)

4. Open the software, enter the software operation interface. After start the software, you can see the interface shown in the following figure. (As shown in Figure 4)

Menu Bar : The main function of this software are available through the implementation of the Menu Bar. Execute the menu command is the most basic mode of operation. Menu Bar including: Document 、 Edit 、 Draw 、 Setting 、 Processing 、 View and Help.

System Bar: On the System Bar, placed some most commonly command buttons which is chosen from the menu.

Graphics Bar: Graphics property bar is the basic attributes of graphics operations, including graphic location, size, scale, number processing.

Edit Bar : The Edit Bar default on the left of the work area. In the Edit Bar placed frequently used tools to make the operation more flexible and convenient.

Align Bar: Alignment of the selected objects.

Layer Bar: Change the layer of the selected objects.

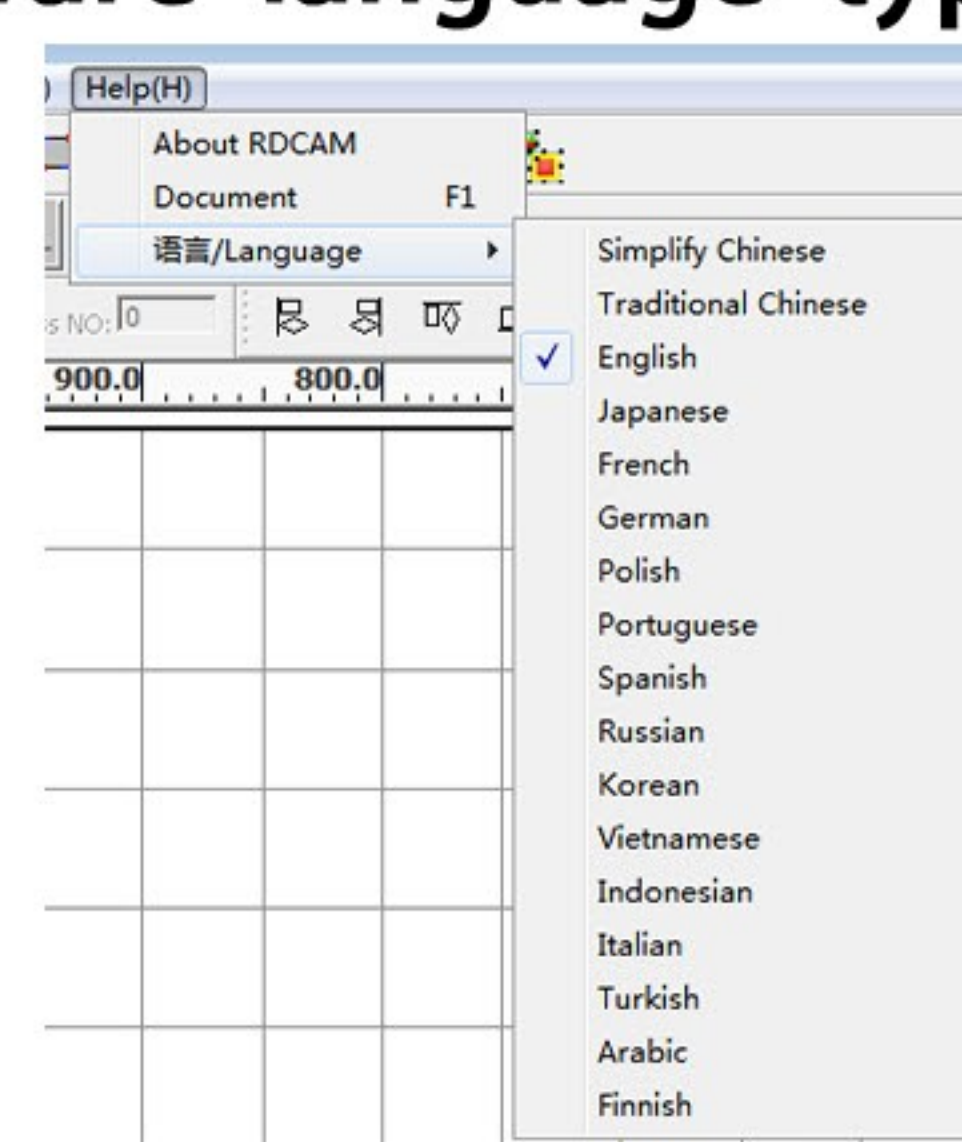
Control Panel : Using the Control Panel to complete laser processing of multiple tasks, Layer parameter settings, axis control, processing ...etc.

LANGUAGE SETTINGS AND MANUFACTURES INFORMATION

In addition to installation process can set the software language type, you can easily switch in different language.



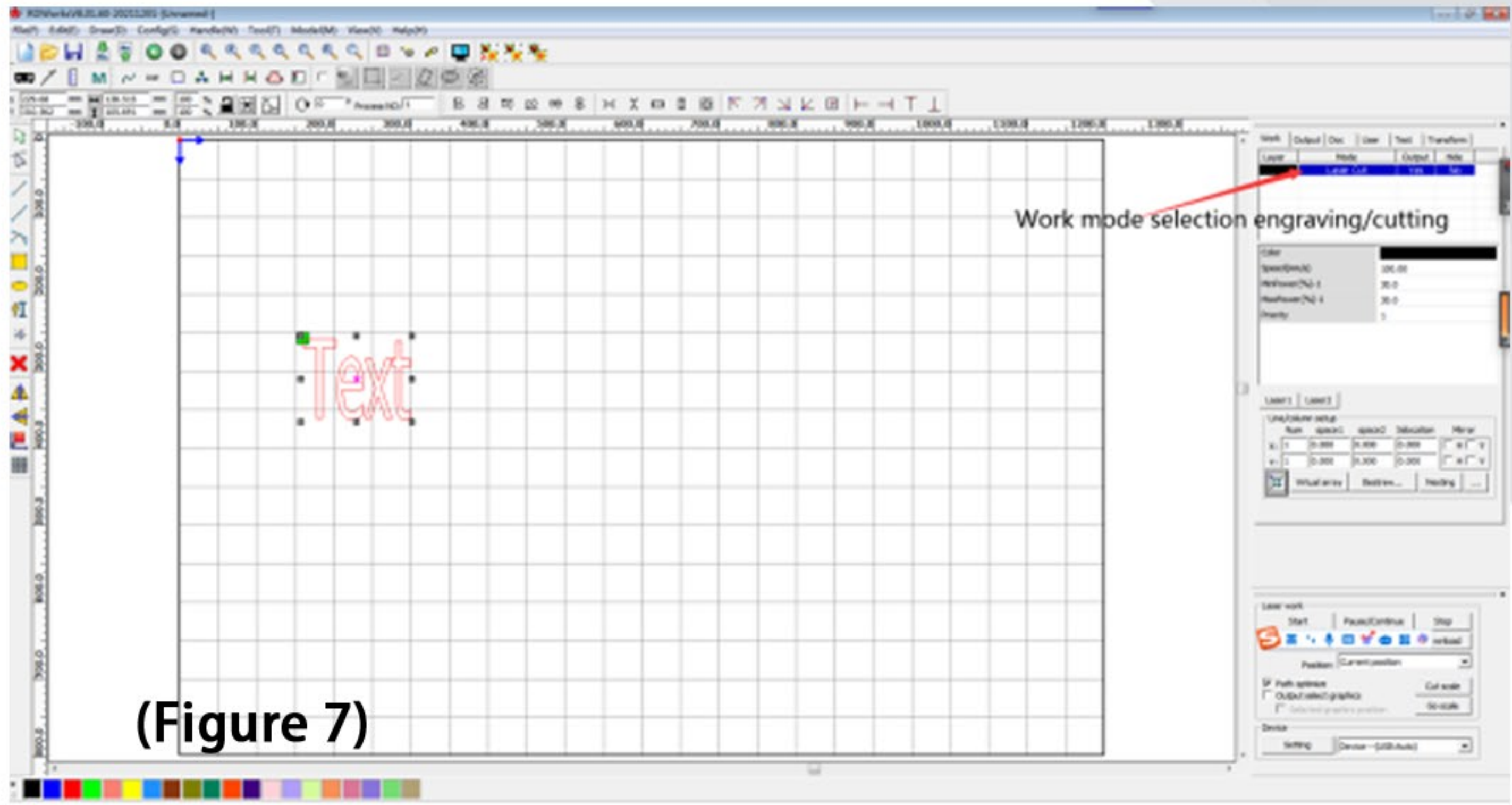
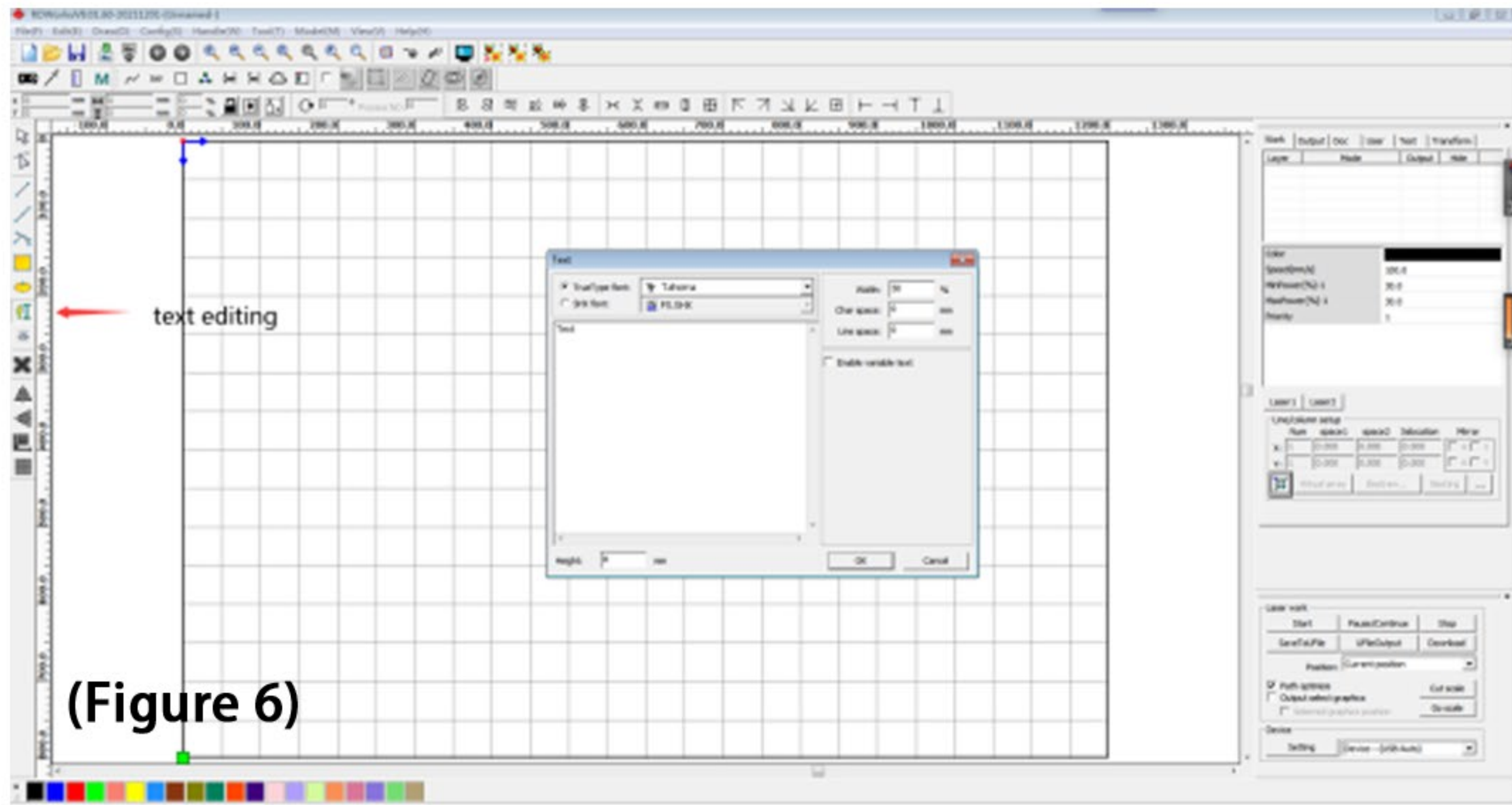
(Figure 5.1)



(Figure 5.2)

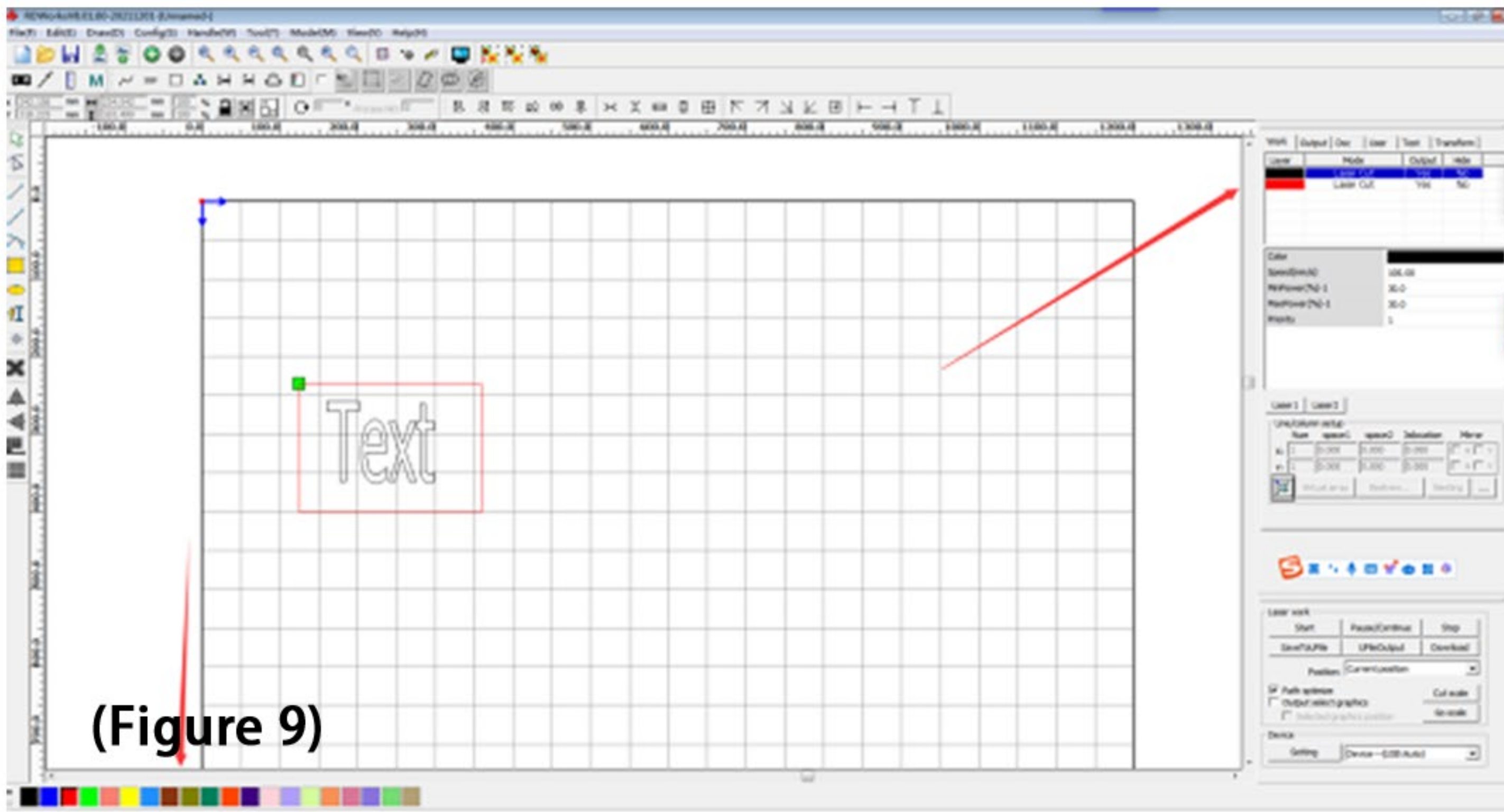
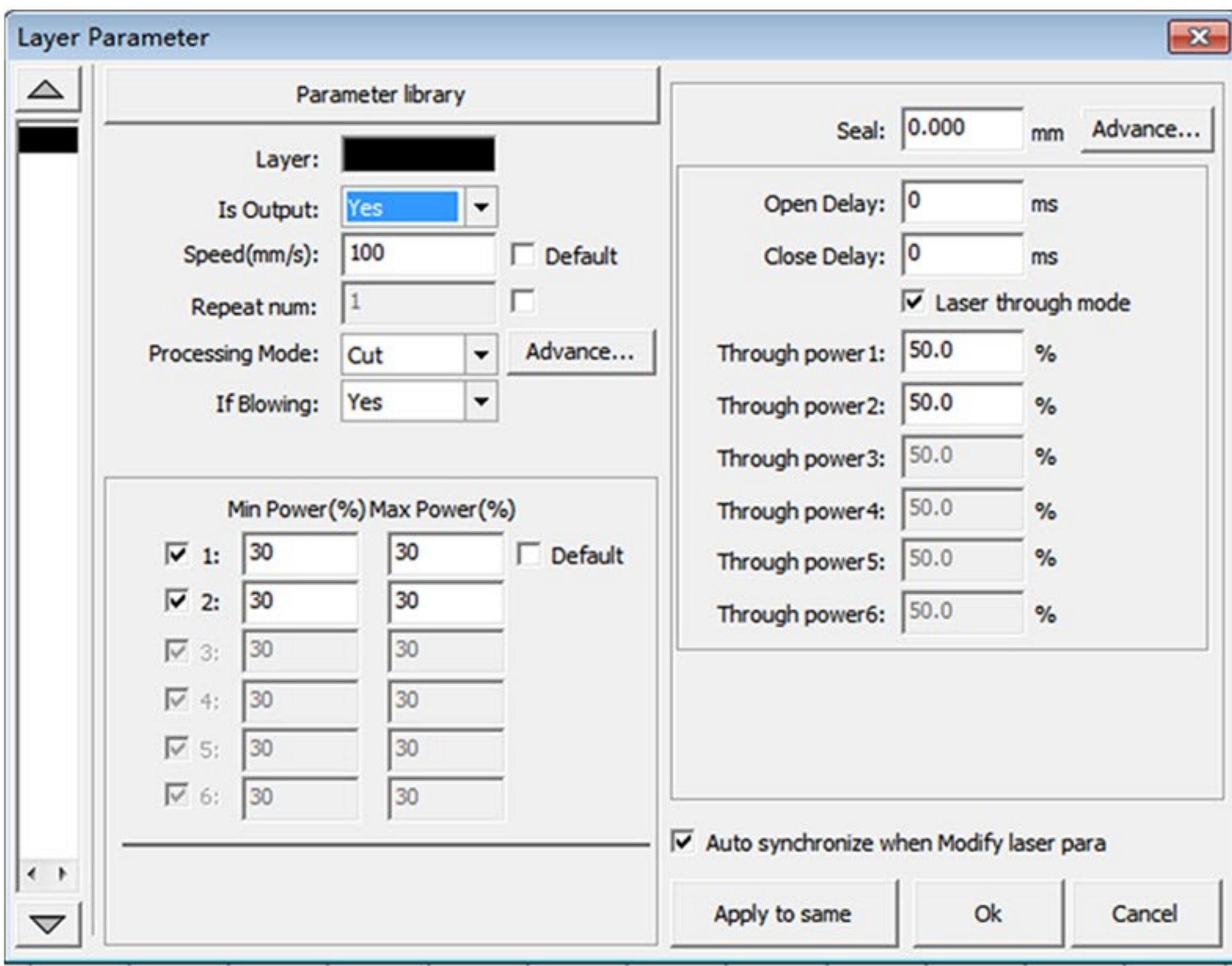
Click Menu Bar **【Help】** -> **【语言/Language】** expand menu , select the required language types. (As shown in Figure 5.1-5.2)

Text editing (As shown in Figure 6)

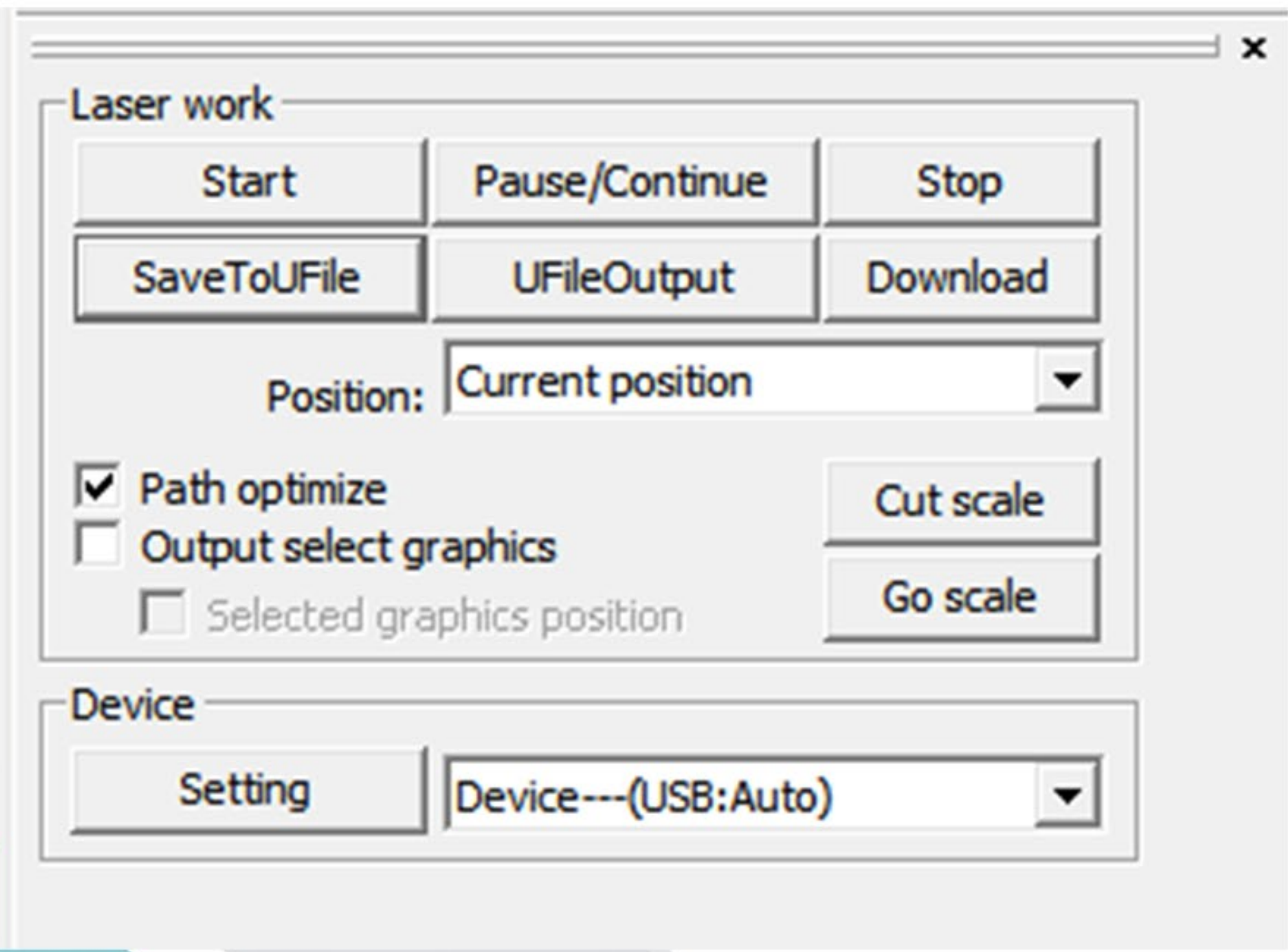


Work mode selection engraving/cutting (As shown in Figure 7)

On this page, you can adjust the carving and cutting speed and power. (As shown in Figure 8)



Set different layers for carving and cutting options (As shown in Figure 9)

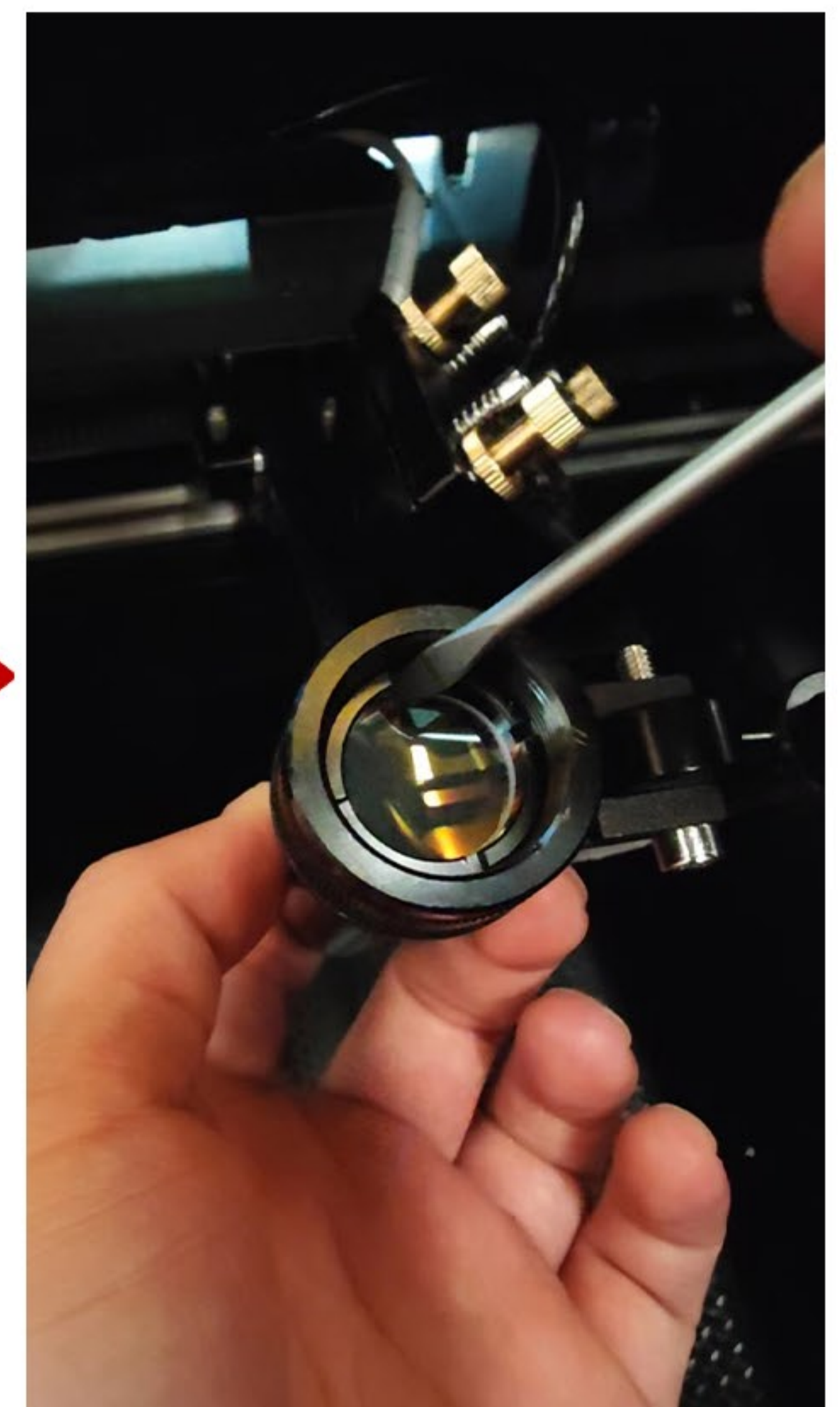
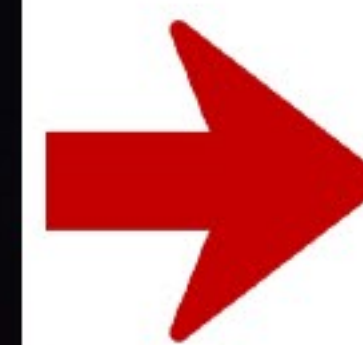
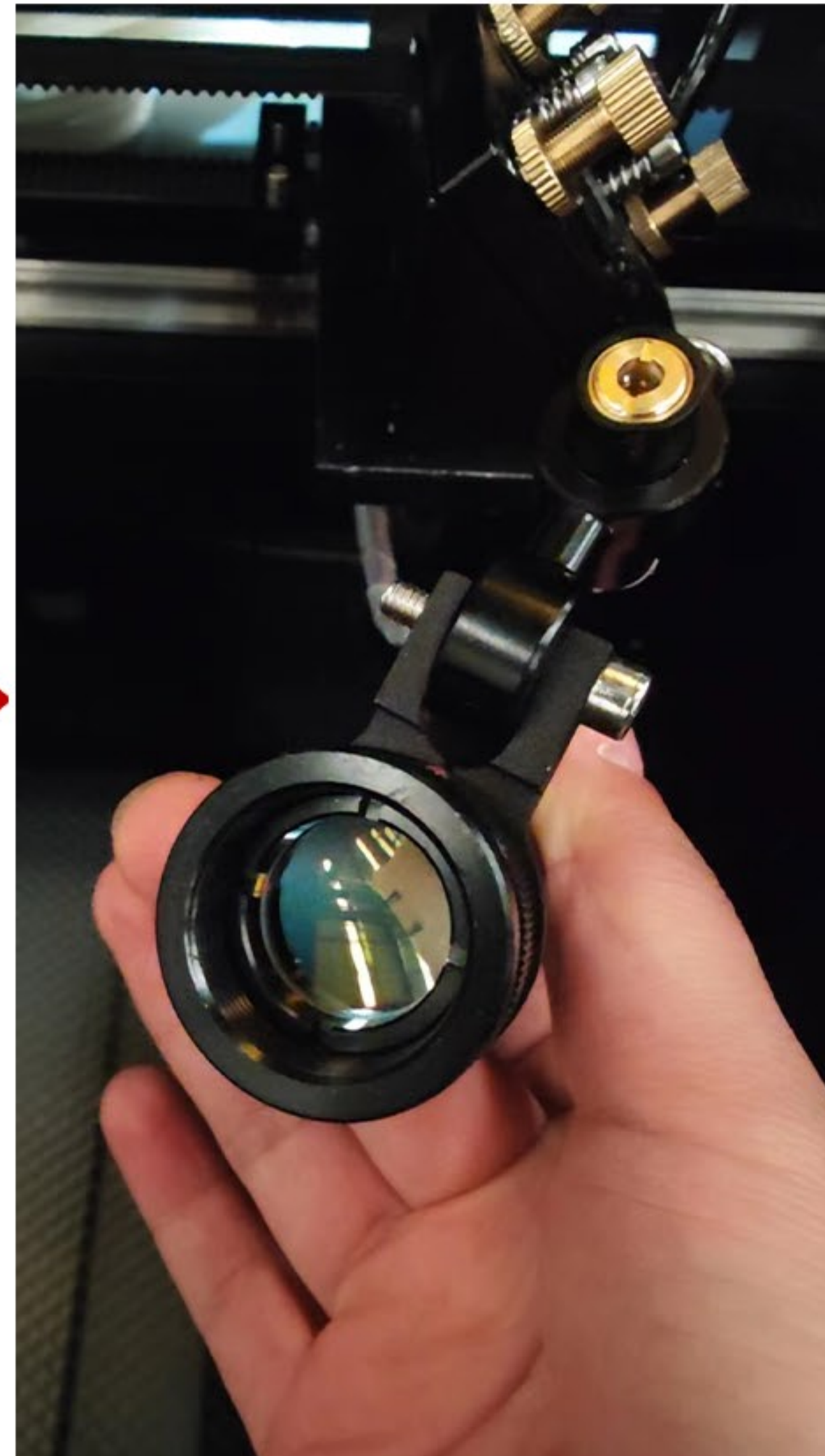
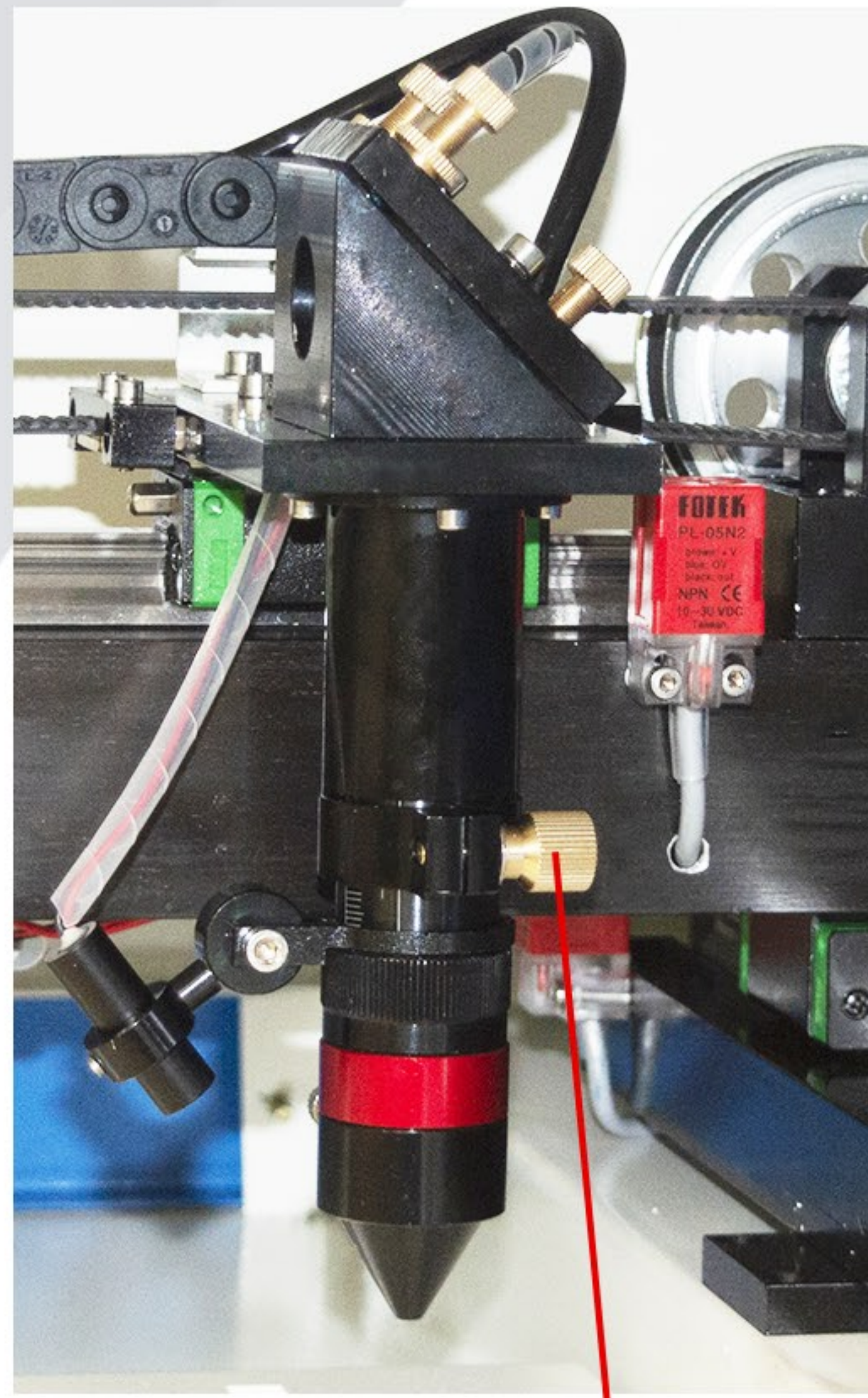


Start: Output the current graphic to the machine for processing.
Pause\Continue: Click Pause , will stop the processing work , click the button again to Continue
Stop: Stop the current processing work
Save To Un File: Save current file as RD format, using for offline processing (Can be copied to other memory board for full offline operation) .
Un File Output: Output the offline file (RD format)
After save offline file, click Un file Output to select rd file to processing.
Download: Download the file to the memory of the controller , then user can start the file through the machine panel.
Current Position : Laser head back to the position before processing.

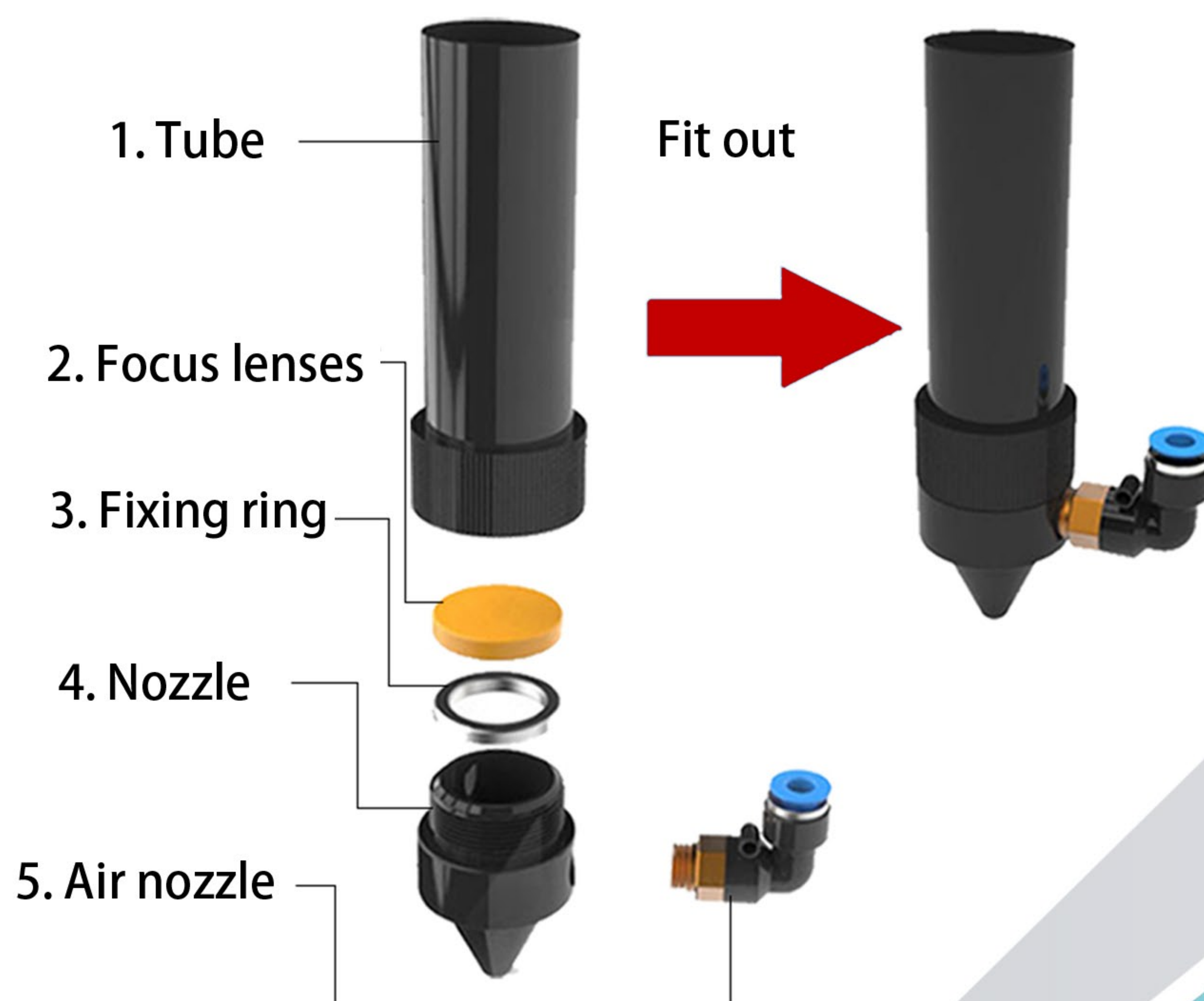
Note:
If you receive an error when clicking download:
Unable to create a DOM document, class not registered, Please check whether the machine and computer are connected;
Then you need toRecheck the data cable connecting the machine and the computer or replace the USB interface of the computer;

Problem checking and maintenance

How to wipe lenses



Unscrew and take off the laser head



Daily maintenance

Continuous Maintenance (Every job, done by all Laser Cutter Users)

- Use the soft brush to clean the laser bed
- Clean the laser lens and mirror by alcohol cotton ball after lost of work(better every week)
- Oil the guide every week
- Replace the water every week(better pure water for drinking).

In the subzero temperature environment, please add antifreeze water into water tank or chiller.

Common faults

Serial number	Fault phenomenon	Treatment method
1	Power-on no bit self - check is abnormal	Step by step check the motherboard, signal cable, plotter, light control board
2	Uneven depth of carving	Shut down, wait for 1 hour, restart the water circulation until there is water out of the pipe, and then turn on the dimming
3	There is no voltage at startup.	Replacement fuse
4	The depth of the carving is too shallow.	Adjust the light path and clean the lens
5	Blurry lettering	Straighten the lens and adjust it to the specified focal length
6	The machine discharges and ignites	Connect the wire, clean the dust, ventilate and dry
7	Displace or stop carving when carving	Install the ground cable and replace the data cable or computer
8	Engraving machine does not work after data output	Turn off the power and check whether the power cable and data cable are properly connected
9	There is no laser	1. Ensure that the high voltage switch is pressed down 2. Check whether the Current Adjustment button is in the zero position 3. Observe whether the cooling water works normally. If the cooling water does not circulate or the amount of circulation is too small, shut it down immediately and check the circulating system. ★ If the submersible pump stops working, check the power supply of the pump. If the power supply is normal, the pump is faulty and needs to be replaced. ★ Submersible pump is in good condition. It is necessary to check whether the outlet and inlet of the water pipe and laser are unobstructed. If blockage or leakage is found, it must be removed immediately. Special care should be taken when cleaning the laser inlet and outlet to prevent damage to the glass shell. Note: When the laser temperature drops to room temperature, the pump can be turned on again for circulating cooling. 4. If before this, the laser power has gradually attenuated, it may be the end of its life, should be replaced in time.
10	Redundant lines appear during processing	1. Check the data cable and replace it with a new cable if necessary 2. Check that the ground cable between the engraving machine chassis and the computer chassis is properly connected.
11	The lines are serrated when cut	The cutting speed should be reduced to improve the cutting quality when the cutting parameters are set.
12	The output graph is incomplete during processing	May be typesetting outside the typesetting interface, should be in the editing software to move the graphics into the typesetting interface.