User manual of laser engraving

MEGA PRO

Dear customer,

Thank you for choosing ANYCUBIC products.

Maybe you are familiar with laser engraving technology or have purchased ANYCUBIC printers before, we still highly recommend that you read this manual carefully. The installation techniques and precautions in this manual can help you avoid any unnecessary damage or frustration.

Please visit https://www.anycubic.com/pages/contact-us to contact us if you have any question. You can also gain more information such as software, videos, models from the website.

ANYCUBIC Support Center

Team ANYCUBIC

Safety Instructions

The safety instructions as shown below must be read first before you use the machine. The company is not responsible for the individual injury caused by improper operations.

Before Using

- **Please wear laser protection glasses when the machine is in the laser engraving mode. Make sure your protection glasses are certified for use with class 4 Lasers.**
  ATTENTION: The glasses are not made to look into the laser for a long time, but just to protect you from an accidental radiation.
- Keep children under the supervision of adults.
- Do not use the machine under the influence of alcohol or drugs.
- Laser engraving must comply with law and regulations, especially when the machine works at educational institution or workplace. Ensure you obey every applicable regulation.
- Do not put your hands or other parts of body into the laser engraving route when the machine works. If you do it by accident, turn off the machine immediately and seek medical help.

Electrical Safety

To avoid electric shock and fire:

- Do not repair or modify the machine without professional assistance.
- Do not modify the connection of the machine without professional assistance.
- Do not open power supply or other sealing parts.
- If the machine is damaged, please turn it off and pull the plug. Then visit support.anycubic.com/en and apply for after-sale service.
- When it occurs an emergency or malfunction, please turn off the machine and pull the plug.
- Make sure the wall power socket is well grounded.

Fire Safety

The laser head which features high-intensity blue light can heat the surface of engraved material to an extremely high temperature. In some cases, the material may be ignited and the flame may spread beyond the engraving areas. The fire may destroy the machine or cause more damages.

Fire Risk

- Do not use the laser engraving with any material it doesn't allow.
- Do not stack up material, such as engraving two or more pieces of paper at the same time. Multiple materials are easier to be burned.
- Do not put irrelevant materials on the machine.
- Do not place the machine with flammable sources together, such as paint, acetone, gasoline or alcohol.

Safety Equipment

- Place a properly maintained and inspected fire extinguisher, that is certified for the use on electrical devices, near the machine and know how to use it.
  INDICATION: Not all fire extinguishers can be used on electrical devices. Only use extinguishers with following infills: “Dry Powder”with a blue label, or “CO2 Carbon Dioxide” with a black label.
- Ensure that smoke alarms are installed and tested in accordance with local regulations and manufacturer's recommendations.
- Don't leave the machine unattended when it works - always keep it in sight and keep it under observation.

- It is normal that a small flame appears when a laser beam irradiates the material. The flame should follow the laser and disappear while the laser travel forward.
  If a flame keeps burning on material:
  ① Turn off the machine and pull the plug.
  ② Put out the fire with a wet towel or a fire extinguisher when it is nessessary.
  ③ If the fire cannot be extinguished or spreads out of the machine, please call local emergency number (e.g. 998) and evacuate from the buildings.
  ④ Do not continue operating the machine until you contact us.

Smoke Safety

- When you use the machine, laser will produce visible and invisible aerosol, gas, vapor and particles (they all called "smoke" here). Due to the material radiated by laser, the smoke which may include carbon monoxide and other chemicals that harmful to health.
- Do not forget the local air-quality regulations and comply with the local regulations.

Material Safety

- Please use following material for laser engraving:
  wood, leather and cardboard.
- Do not use following material for laser engraving:
  metal, transparent material, reflective material, etc.
- The size of the material must be less than 220×140mm.

Laser Safety

- The laser can damage your eyes and skin, we provide a pair of protection glasses to protect your eyes. Please wear protection glasses when the machine is in the laser engraving mode.
- Keep safe distance of at least 1 meter from the machine when it works.

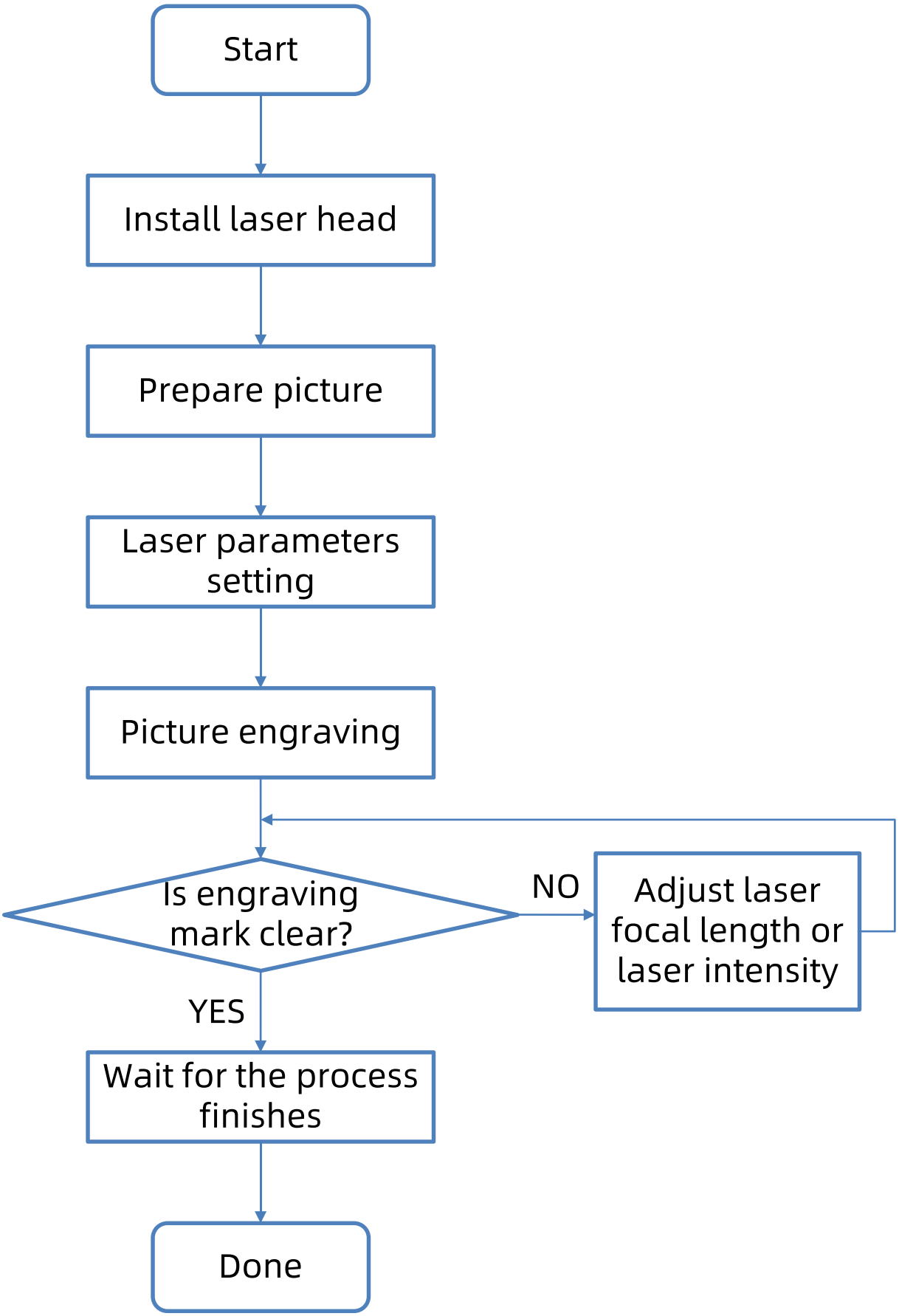
Warning

- Do not look at the laser directly with naked eyes.
- The modification or repair of the machine without permission may cause laser radiation.
- Do not run the machine unattended.

Laser engraving

Technology:	Laser engrave
File Format:	bmp
Engraving Size:	220×140 (mm²)
Picture Type:	bitmap
Pixel Size:	0.05-0.1 mm（suggested 0.1）
Laser Intensity:	1-100%
Laser Height:	1-100mm
Picture Mirror:	Suggest to keep default value
Rated power:	1500mW
Supported Materials:	Wood, leather, paper, etc.

Laser engraving diagram



Laser engraving

Attention:

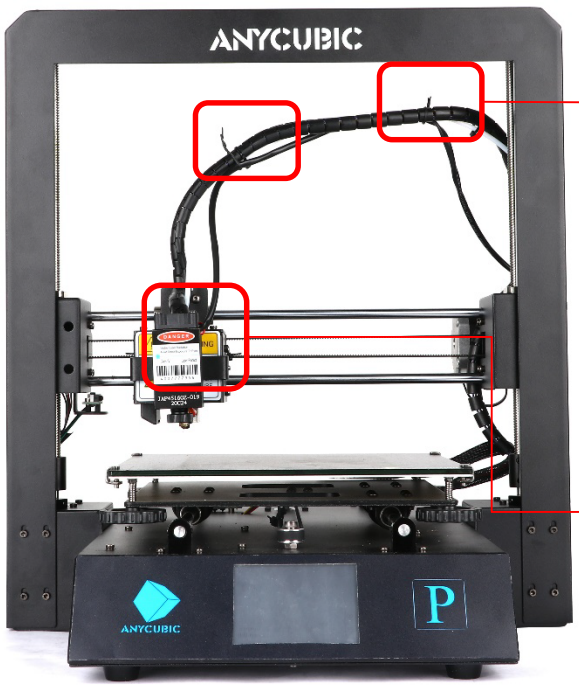
① It is recommended to set laser intensity to 15% and laser height to 50mm for engraving kraft paper we provided; set to 25% and 52mm for engraving wooden board we provided.

② Laser engraving is designed to be used within ambient temperature ranging 15℃-50℃. Working outside this limit may result in low quality engraving.

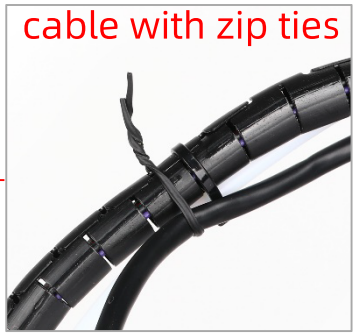
③ When switching working modes (3D printing mode and laser engraving mode), you must first power off the machine, then swap the corresponding cables on the green port.

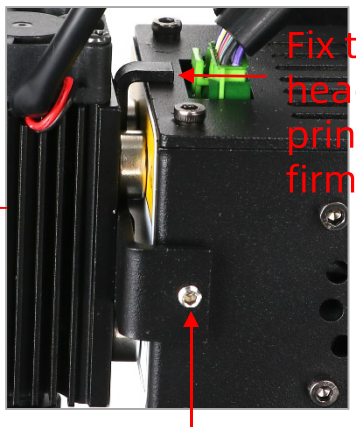
1. Install laser head

(1) The machine must be turned off first. Fix the laser head on the print head. And then tighten the set screw on one side of the laser head.



Secure the laser head cable with zip ties

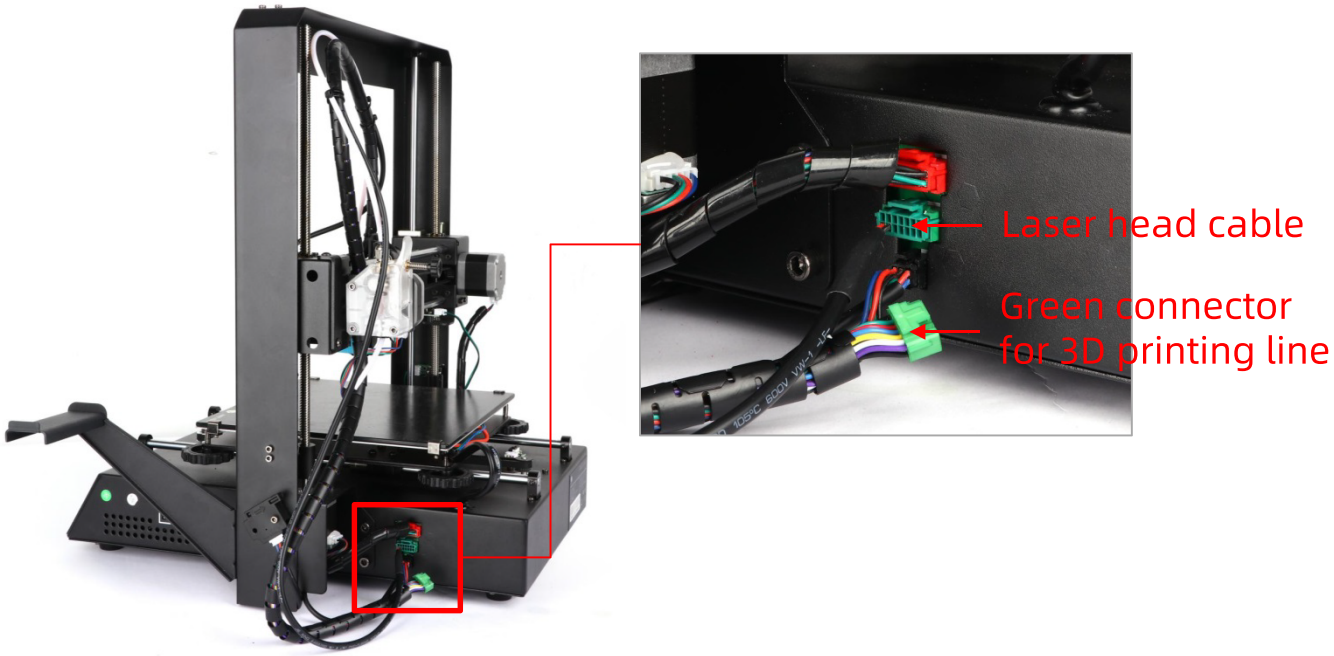




Fix the laser head to the print head firmly

Tighten the set screw.

(2) **Remove the green connector at the base.** After that, connect the laser head's cable to this green port.

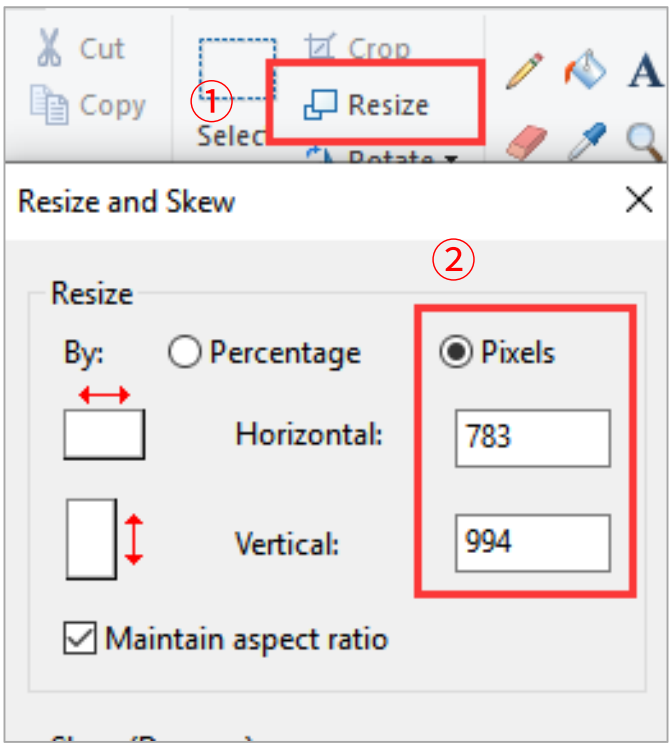


2. Prepare picture

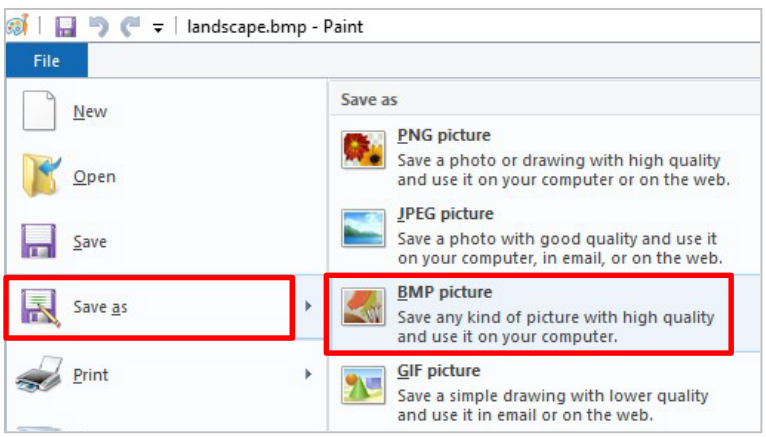
The test file "landscape.bmp" which can be engraved directly has been preloaded to the memory card.

(1) Open the picture by a Image processing software (such as Paint, Photoshop, etc.).

(2) Set the picture pixels. **(The picture pixel is ≤ 2200 × 1400)**

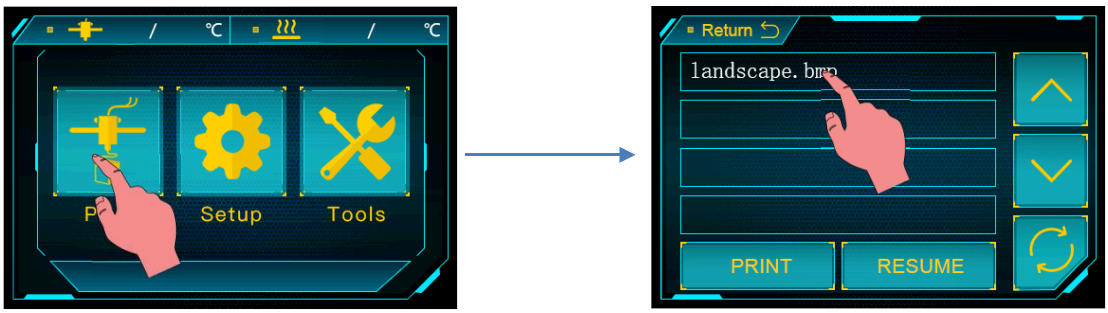


(3) Save the picture to memory card as “bmp” format.



3. Laser parameters setting

(1) Choose the bmp file.



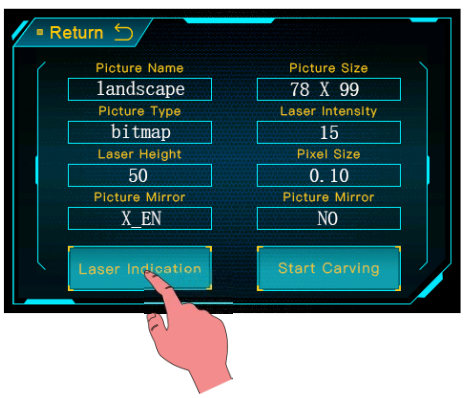
(2) Click the red box in the figure below to set the parameters.

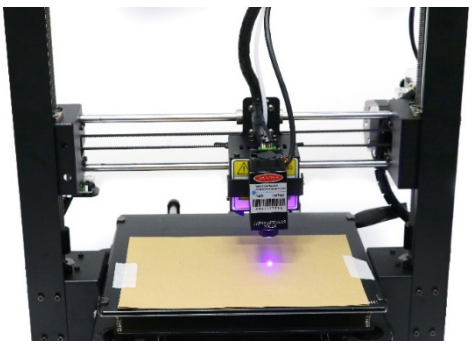
Laser Intensity:	The larger the laser intensity value, the darker the grayscale part of the picture. **It is recommended to set 15 for kraft paper and 25 for wooden board.**
Laser Height:	The distance between laser head and printing platform. **It is recommended to set 50 for kraft paper and 52 for wooden board.**
Pixel Size:	The size of each pixel of the picture. **The recommended setting is 0.1.**

Picture Mirror:	“NO” and “X_EN” “X_EN”: The picture will be mirrored in X direction.
Picture Mirror:	“NO” and “Y_EN” “Y_EN”: The picture will be mirrored in Y direction.

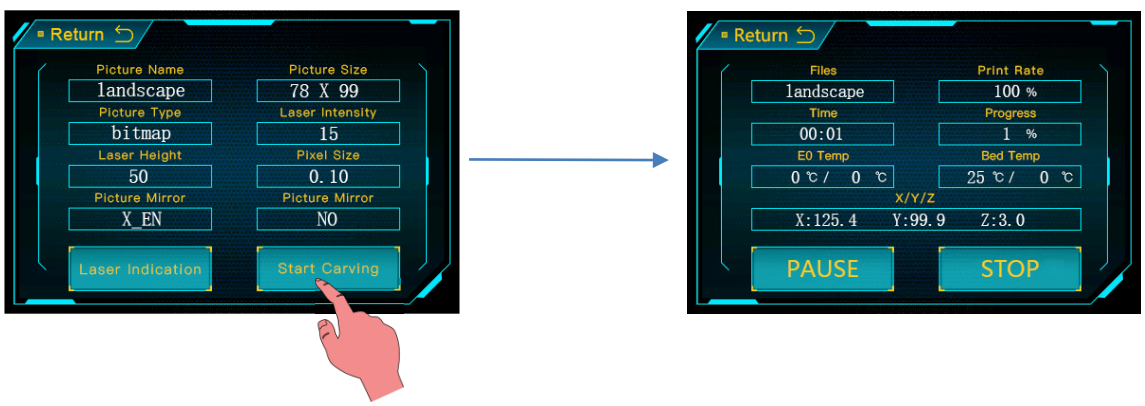
4. Picture engraving

(1) Wear protective glasses. Place a kraft paper on the platform, then click “Laser Indication”, the laser head would travel square to show the working area. You may need to adjust the position of the kraft paper to place it inside the working area. Then tape the kraft paper to the platform.





(2) Click “Start engraving”.



Q: Print head does not move after clicking “Laser Indication” or “Start engraving”.

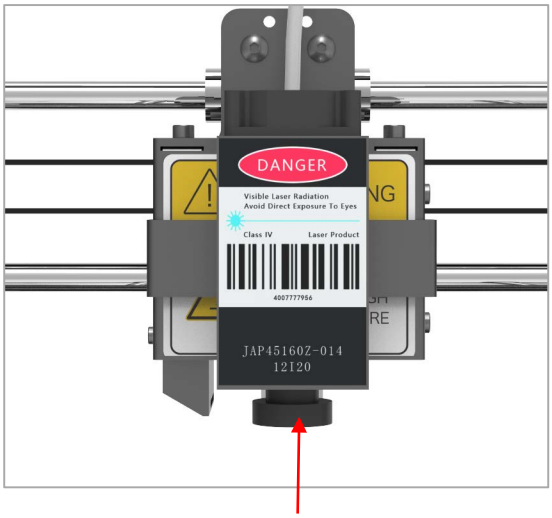
A: The machine needs time to process the picture. If there are blank area around the picture, the machine may spend more time to process the blank area before actually start from the first gray pixel. The blank space around the picture should be minimized to reduce the time it takes before start.

5. The laser engraving marks on engraving materials are not clear

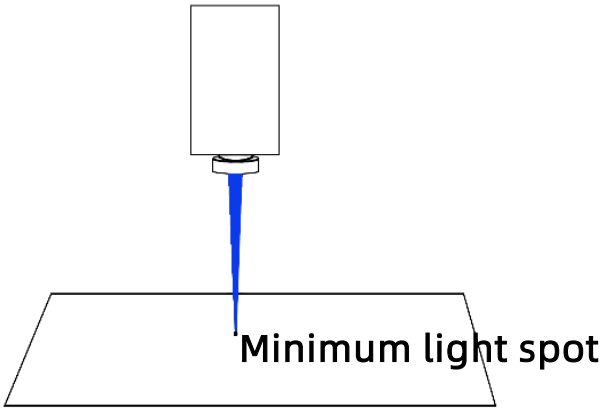
If the mark of laser engraving on the material is not clear, first adjust the laser focal length. If the engraving mark is still not clear, you need to adjust the laser intensity.

(1) Adjustment of the laser focal length

Adjust the laser focal length during the engraving process. Wear protective glasses, and carefully turn the laser head nut to visually find the minimum light spot.



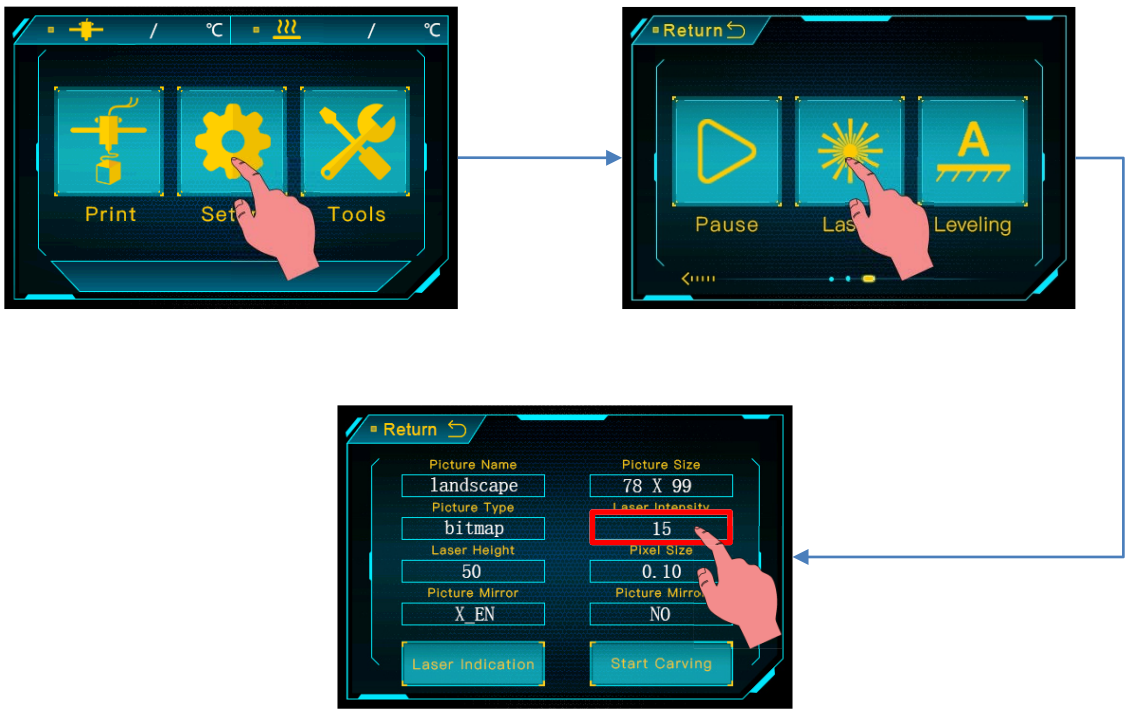
Laser head nut



(2) Adjustment of the laser intensity

Adjust the laser intensity during the engraving process.

Click the screen to return to the main menu, and then click “Setup” → ”Laser” → “Laser Intensity”. (Increase laser intensity with an interval of 2)



Thank you for purchasing ANYCUBIC products! Under normal usage and service, the products have a warranty period up to one year. Please visit https://support.anycubic.com/en to report issues with ANYCUBIC products. Our professional after-sale service team would response within 24 hours and solve the issue.