



**ACMER**

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# ACMER P1 S PRO LaserGRBL User Manual



# Disclaimer

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Please read the following carefully before using LaserGRBL on the ACMER P1 S PRO

- ACMER P1 S PRO Laser Engraver supports the most popular engraving software LaserGRBL.
- LaserGRBL is an open source, easy to use and powerful software, but LaserGRBL only supports Windows (Win XP/Win 7/ Win 8/XP/ Win 10/Win11).

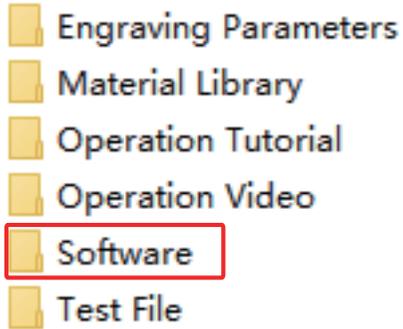
## **Obtain and install LaserGRBL**

- The ACMER P1 S PRO Laser Engraver receives mobile commands from the computer in real time, and the engraver needs to stay connected to the computer and cannot close the engraving software (LaserGRBL or LightBurn) during the engraving process. In addition, the configuration of the computer can affect the speed and even the quality of the engraving. The following will focus on the installation and use of LaserGRBL software.
- **Note:** It is recommended that you adjust your computer's power settings to "Never Sleep" mode.

# 1

## Install LaserGRBL

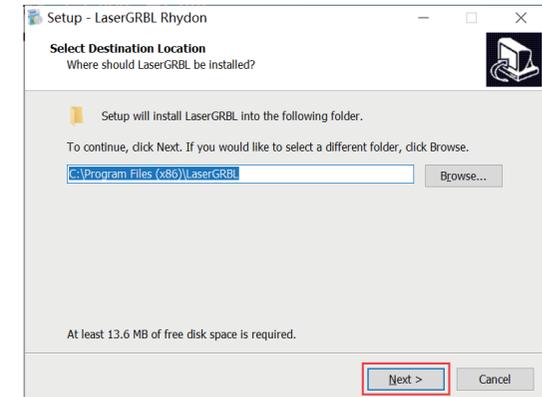
Section 1. Download LaserGRBL software (Only apply to Windows system)



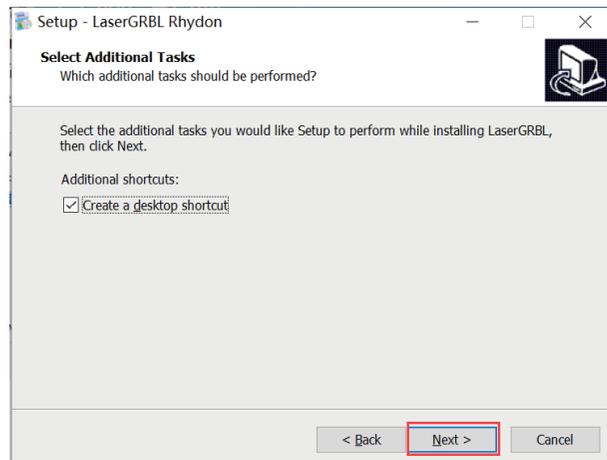
1. Open the file with the machine or from the LaserGRBL website (LaserGRBL website: <http://lasergrbl.com/download/>) to download software installation packages.



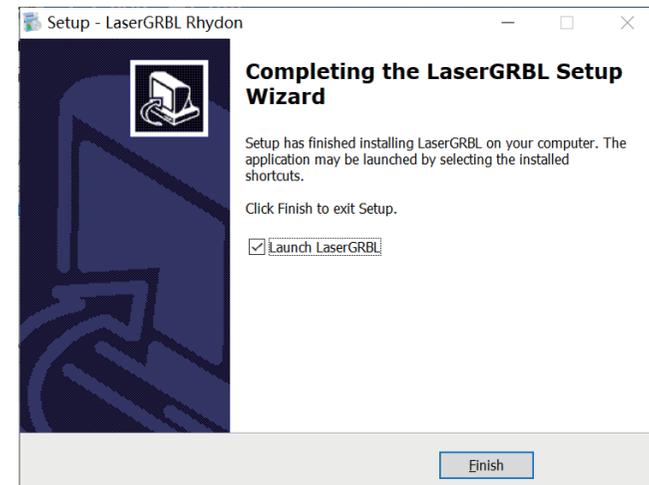
2. Double click to install the software.



3. Choose the installation path, Default path ( C:\Program Files\LaserGRBL) .  
Choose "Next" to continue



4. Create a desktop icon.  
Choose "Next" to continue.



5. Complete setup.

# 2

## Connect ACMER P1 S PRO Laser Engraver

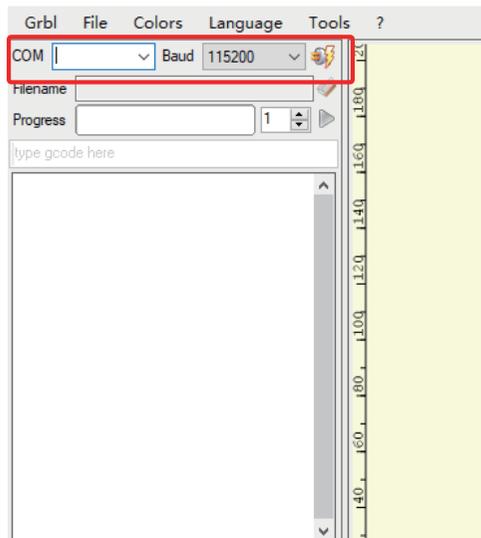


**Tip:** One computer can open several LaserGRBL software to connect several engraving machines. When you operate several engraving machines, please make sure the COM port you select corresponds to the device you are using.

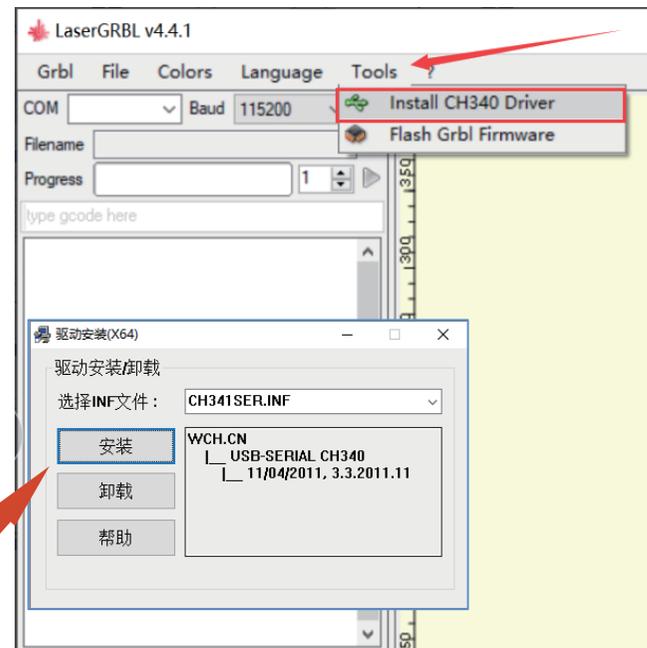
1. Connect the ACMER P1 S PRO laser engraver to a computer with LaserGRBL software and plug in the power supply.



2. Open LaserGRBL software and select the correct port number and baud rate: software-115200



a. Generally, COM port doesn't need to be selected manually. But if you have more than one serial devices connected to the computer, you need to select it manually. You can find the port of the laser engraver in the Device Manager of Windows system.

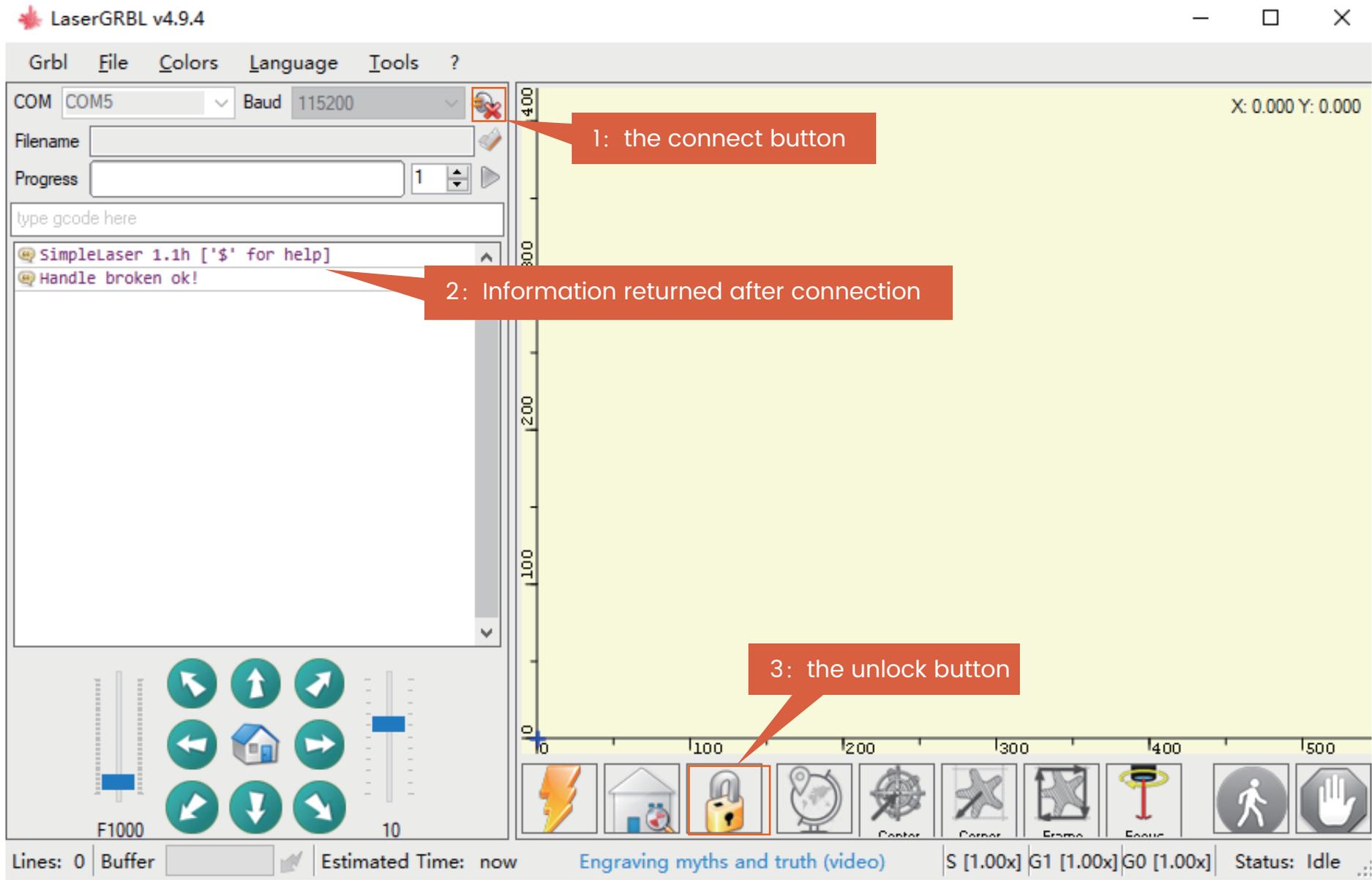


b. If the COM port doesn't show on the interface, please check whether the driver is installed. If not, please install the CH340 driver.

# 3

## Unlock

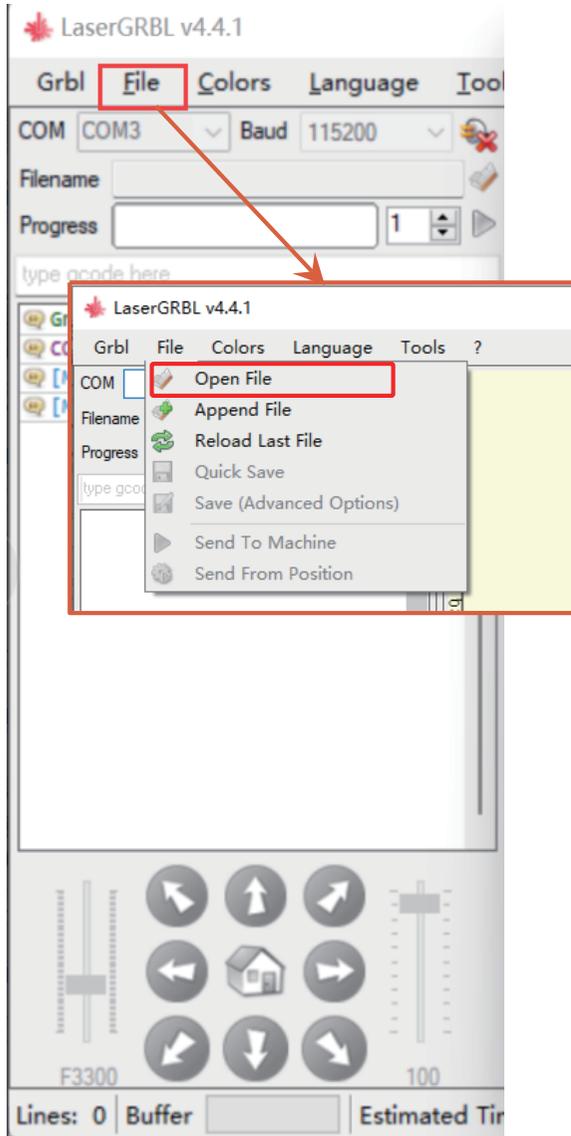
Tip: You have to unlock the machine before you use it.



# 4

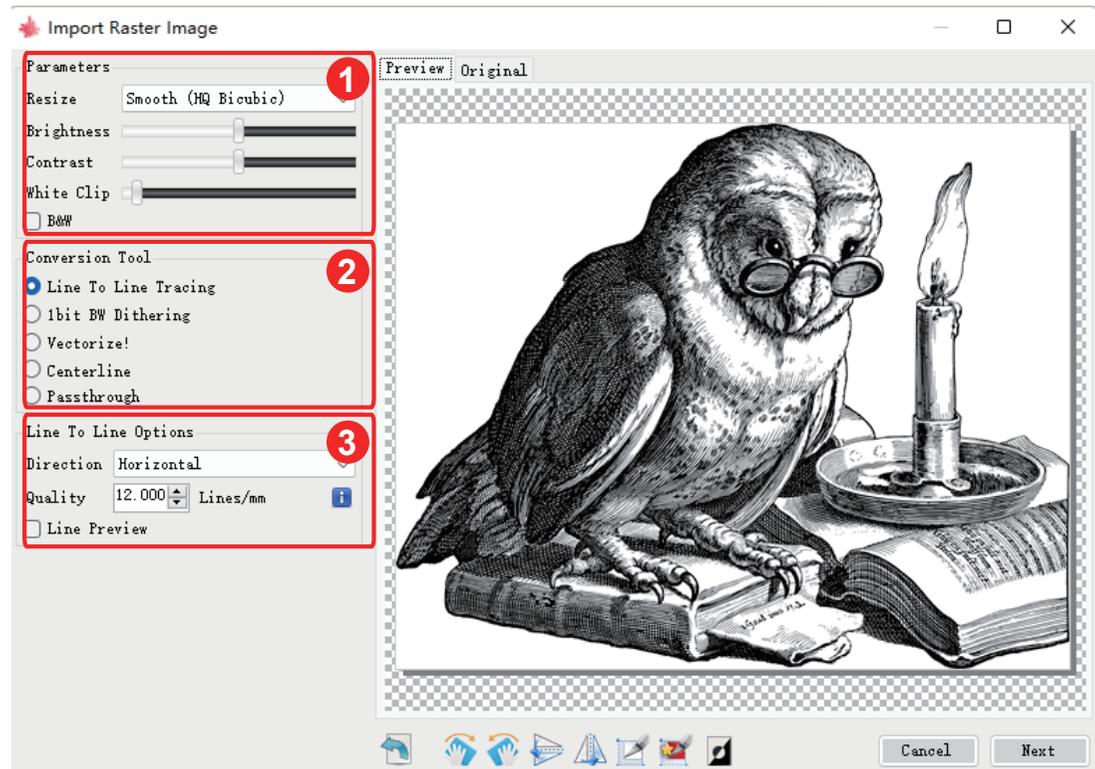
## Import images

1. Open File and add the image to be engraved



2. Set engraving parameters (please see the next page for details)

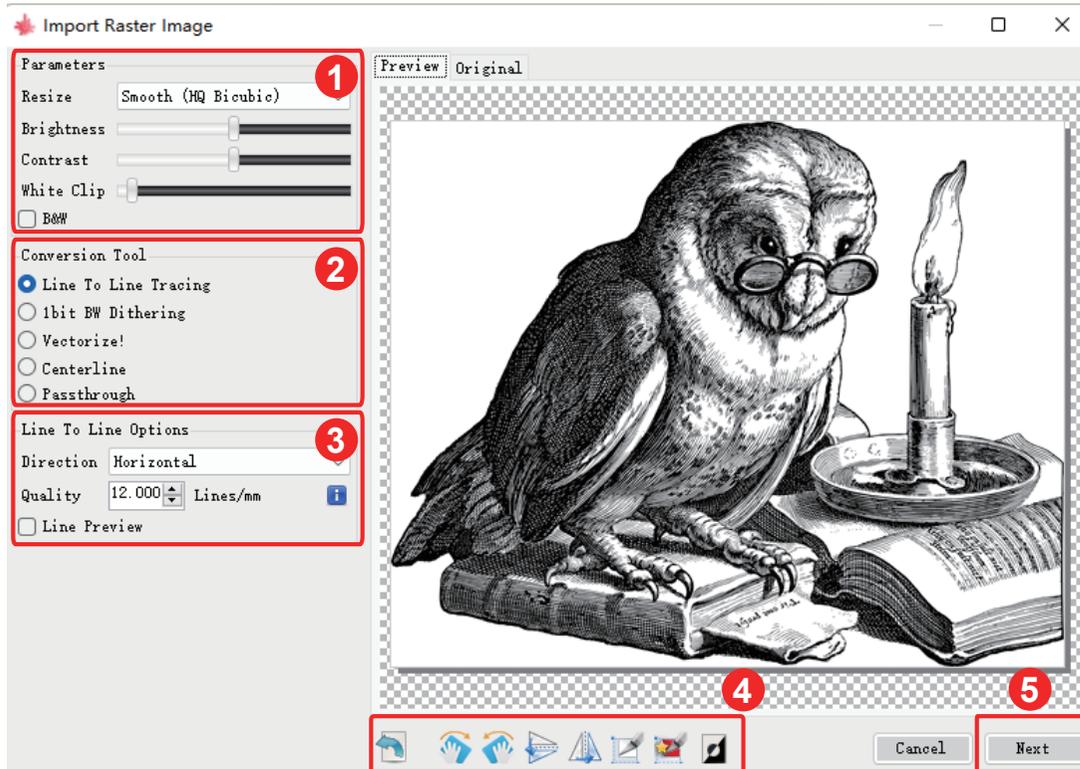
- 1 Adjust the brightness and contrast of the picture according to the set mode; (if you wanna use the cut mode, please select vector image and no fill)
- 2 Set up conversion tools (e.g. grayscale mode, dot matrix mode, vector graphics, etc.)
- 3 The higher the quality of the picture, the better the engraving effect will be;



# 5

## Setting parameters 1

### 1. Please carefully set the engraving parameters



1 LaserGRBL can adjust the brightness, contrast, and other attributes of the target image. When the parameters are adjusted, you can see the actual effect in the preview window on the right and can try to adjust it to what you think is satisfactory.

2 The engraving mode is usually selected as "Line to Line Tracing" and "1bit BW Dithering". 1bit BW Dithering is more suitable for engraving grayscale images. If you want to cut, please select vectorize or centerline engraving mode and choose no fill.

3 Engraving quality essentially refers to the line width of the laser scan. This parameter depends primarily on the size of the laser spot of the engraver. The ACMER P1 S PRO engraver applies a square spot of .08mm. Therefore, the recommended engraving quality range is 8-20 (commonly 12).

4 At the bottom of the preview window, you can also rotate, mirror, and cut the image.

5 After completing the above settings, click next to enter the engraving speed, engraving energy, engraving size.

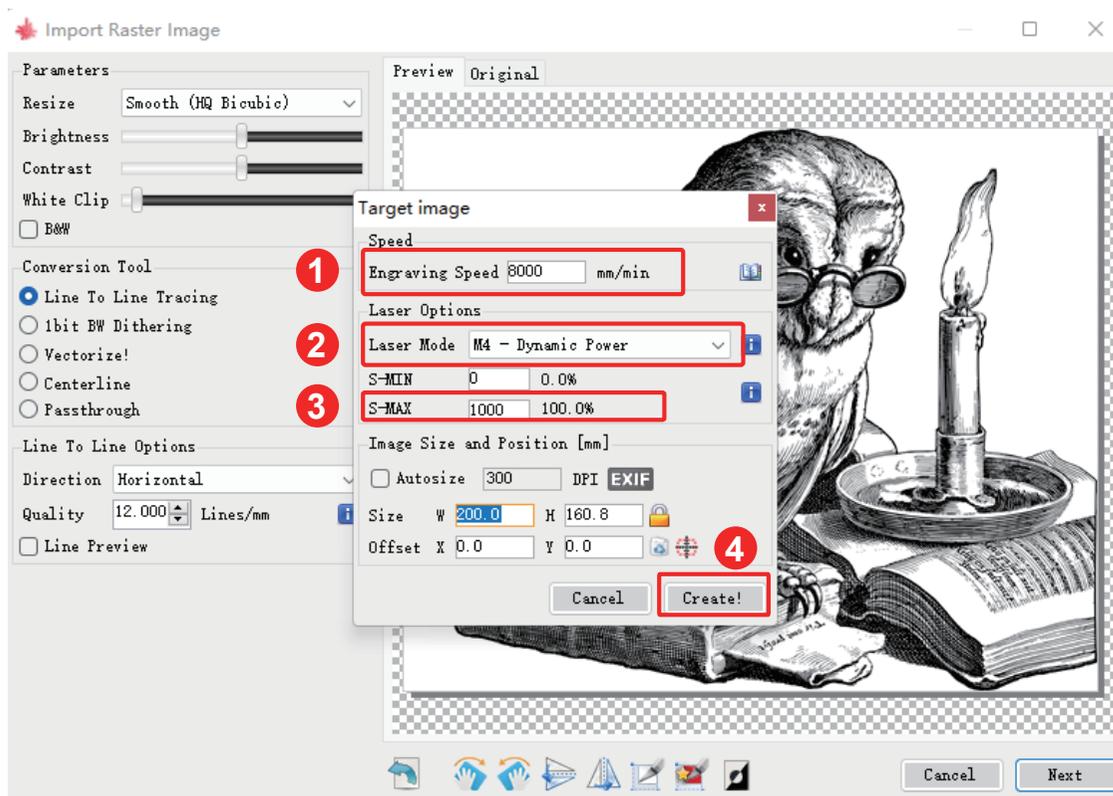
# 5

## Setting parameters 2

2. After completing the previous step of setting, then select the carving speed, carving power, and the carving size (The carving power can be set according to the recommended parameters)



Tip: Please ensure that the size you need to engrave does not exceed the engraving range!



1: Different materials correspond to different carving speed, we recommend that you refer to the carving parameters table; of course you can test different carving effects according to your carving materials.

2: In the laser mode selection, there are two commands M3 and M4 to turn on the laser. It is recommended to use the M4 command for engraving and M3 command for cutting. If your software only has the M3 command, please check if the laser mode configuration is on in GRBL. Please refer to the official description of "LaserGRBL" for the description of GRBL configuration.

3: The choice of engraving energy depends on different materials, we recommend you to refer to the engraving parameters table we provide, which has the recommended engraving parameters for common materials.

4: Finally set the size to be engraved, click the "Create" button to complete all the settings of the engraving parameters

# 6

## Start engraving

Manually move the laser head of the machine to the engraving position, click on the preview, and then click on the green button to start the engraving.

The screenshot shows the Grcab software interface. At the top, there is a menu bar with 'Grcab', 'File', 'Colors', 'Language', and 'Tools'. Below the menu bar, there are settings for 'COM3', 'Baud 115200', and 'Filename owl-4783407.png'. A 'Progress' bar is set to 1. The main workspace displays a red-toned engraving of an owl wearing glasses, sitting at a desk with a candle and books. A red callout box with the text '2. When the green button appears, click it to start engraving' points to a green button in the toolbar. Another red callout box with the text '1. Click to preview the engraving' points to a preview button in the toolbar. The status bar at the bottom shows 'Lines: 1472192 | Buffer: 5 | Estimated Time: 33 min ,46 sec' and 'Status: Idle'. There is also a link to 'Engraving myths and truth (video)'.

# 7

## Introduction of LaserGRBL



Reset button: You can click the reset button when you need to pause the engraving or when there is an abnormal situation.



Return button: Click the button, the X, Y-axis will run to the mechanical origin. It is recommended that you do this before you start large size engraving.



Unlock button: After resetting, you need to click the unlock button.



Origin button: When the button is clicked, the current position is taken as the origin.



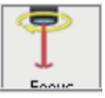
Center Button: Move to the center of the frame.



Corner Button: Move to down left corner.



Preview button: When the button is clicked, the X and Y axes will be moved to the maximum square size of the engraving pattern.



Open Light button: Click the button and the laser will be turn on. If there is no light, please select the light button, right-click the edit button and adjust the power F value.

Lines: 7559823 | Buffer  | Estimated Time: 3 hours ,15 min ,18 sec

Lines: The total number of lines of G code. The more lines, the longer the engraving time will be.