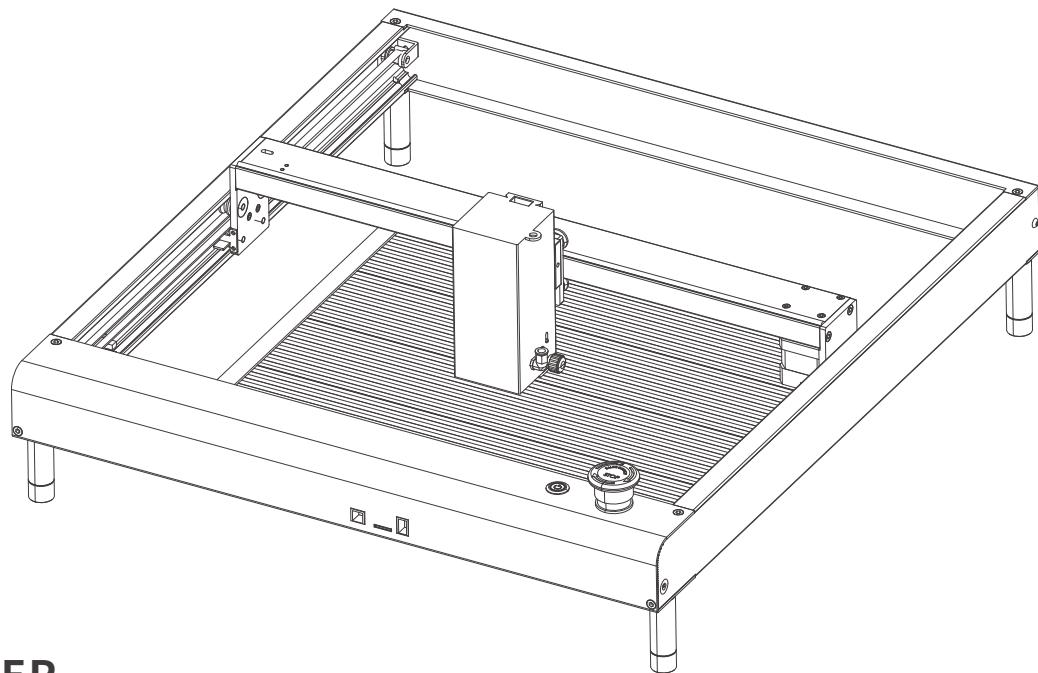




U20 LASER ENGRAVING

Installation Manual

安装使用说明书



When unpacking, please check the packing list to ensure that no parts are lost or damaged. If any, please contact our after-sales personnel immediately and we will reissue them for you in the shortest time.

开箱时, 请对照装箱清单, 确保无零件的丢失及损坏, 如有发生, 请立即联系我们的售后人员, 我们会在最短时间内为您补发。



Please use the machine in a ventilated, dry, clean and flat environment.

请在通风、干燥、清洁、平坦的环境中使用机器。



It is not recommended to use this machine when it is unattended.

不建议在无人看管的情况下使用这台机器。



The machine contains high-speed moving parts and high-temperature parts. Children are not allowed to use the printer alone.

该机器包含高速运动部件和高温部件, 儿童不得单独使用打印机。



Part of the accessories are consumable, the warranty time is different.

部分配件为易耗品, 保修时间不同。



In an emergency, you can turn off the power directly.

在紧急情况下, 可直接关闭电源。



If the user's unauthorized modification or disassembly causes damage to the core components of the machine, the situation is not covered by the warranty.

如果用户擅自改装或者拆卸导致机器的核心部件损坏, 则该情况不在保修范围内。

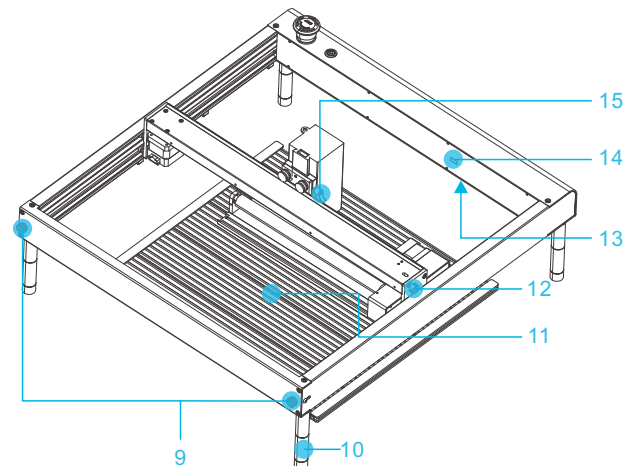
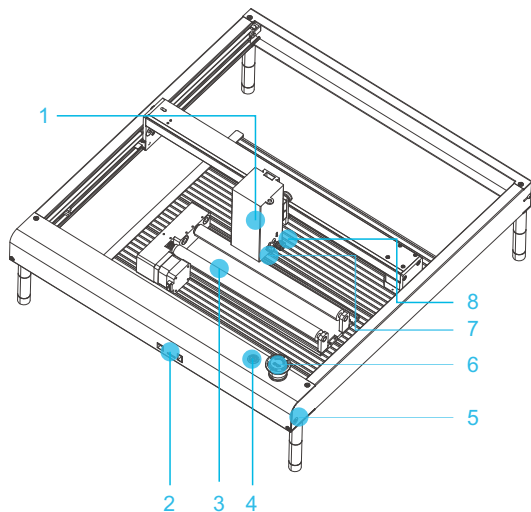


Video, software and other related information are stored in the TF card, please check.

视频, 软件等相关信息存储在TF卡中, 请查看。

Directory 目录

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1 Laser head
激光头

2 USB, TF card, and JR11 connector
USB、TF卡和JR11插口

3 Y-axis device
Y轴装置

4 Power switch
电源开关

5 DC socket
DC插口

6 Emergency stop switch
急停开关

7 Endotracheal cannula
气管插口

8 Focus adjustment knob
焦距调节旋钮

9 Y-axis belt adjustment knob
Y轴皮带调节旋钮

10 Footpost
增高脚柱

11 Bulkhead
隔板

12 X-axis belt adjustment knob
X轴皮带调节旋钮

13 Y1Y2 shift gear switch
Y1Y2切换档位开关

14 Y2 motor line socket
Y2电机线插口

15 Laser fixing knob
激光器固定旋钮

Parameter 设备参数

Engraving parameters 雕刻参数	
Engraving dimensions 雕刻尺寸	420*400*60/160mm (Elevated column 增高柱)
Engraving accuracy 雕刻精度	0.15mm
Output optical power 输出光功率	20W
Laser wavelength 激光波长	445±5mm
Focus Mode 调焦方式	Fixed focus laser, focus free 定焦激光器, 免调焦
Laser protective cover 激光器保护罩	The laser is equipped with a protective cover to protect the user's eyes without the need to wear additional protective glasses. 激光器上有保护罩, 保护使用者眼睛, 无需额外佩戴护眼镜。
Engraving material 雕刻材质	Wood, bamboo, cardboard, plastic, leather, PCB board, non reflective plating layer and paint layer metal. 木材, 竹子, 纸板, 塑料, 皮革, PCB版, 非反射的电镀层和漆面层金属。
Cutting material 切割材质	Cardboard, non-woven fabric, wood, acrylic. 纸板、无纺布、木板、亚克力。 Note: Transparent acrylic will affect the efficiency of laser cutting. Before cutting, please stick an opaque film on it. 注意: 透明亚克力会影响激光切割的效率, 所以在切割透明亚克力之前, 请上面贴一层不透明的薄膜。

Software parameters 软件参数	
Operating software 操作软件	LaserGRBL
operating system 操作系统	Windows
Input Format 输入格式	BMP,JPG,PNG,DXF
Output Format 输出格式	NC, Gcode
Connection method 连接方式	TF card, USB cable TF卡、USB数据线

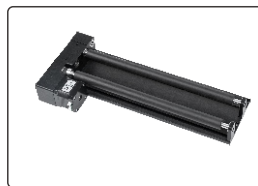
Power supply parameters 电源参数	
Power input 电源输入	AC 110/220V 50/60Hz
Power output 电源输出	24V 4A

Machine parameters 机身参数	
Machine size 机器尺寸	570*625*120mm
Package size 包装尺寸	685*640*155mm
Machine weight 机器净重	6kg
Package weight 包装重量	≈ 13 kg

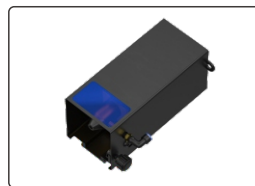
Packing list 包装清单



Laser engraving fuselage
激光雕刻机身



Y-axis device
Y轴装置



Laser head assembly
激光头组件



Air pump
气泵



Bottom partition
底部隔板



Air tube
气管



Card reader (with TF card)
读卡器(含SD卡)



Foot post 8pcs
脚柱 8pcs



Adapter 24V4A
适配器 24V4A



Power cord
电源线



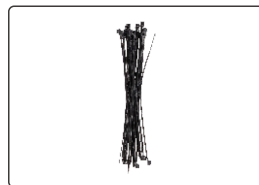
Y2 motor line
Y2电机线



USB line
USB数据线



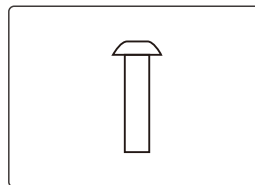
Wrench
扳手



Tie
扎带



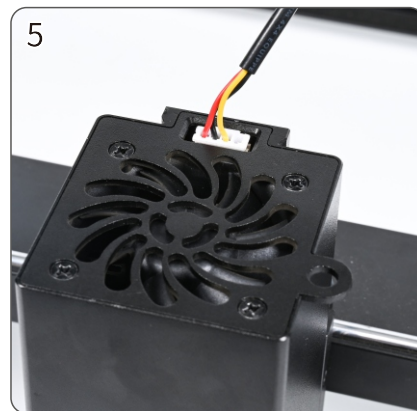
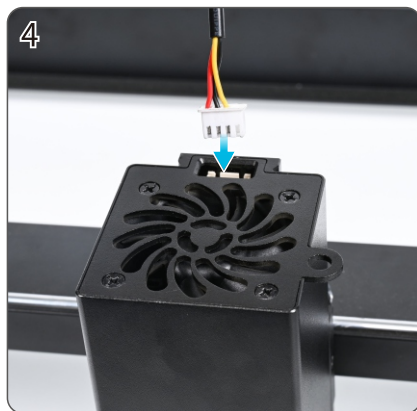
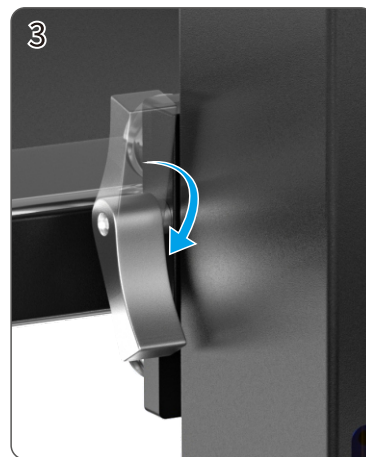
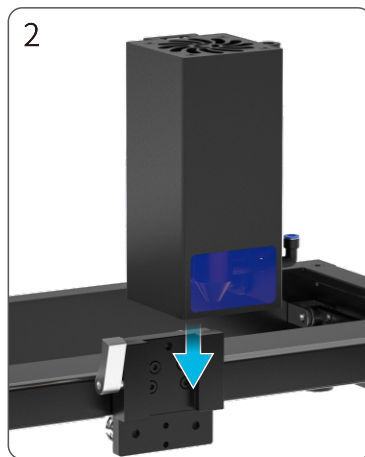
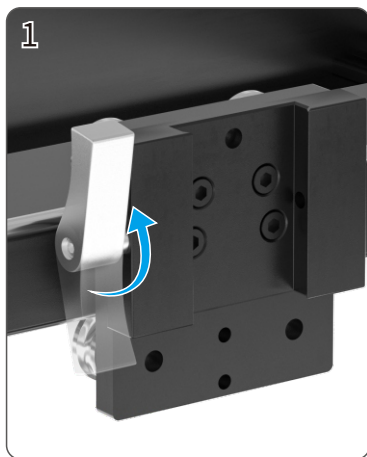
Wood board 2pcs
木板 2pcs



Spare screw
备用螺丝

Product installation 产品安装

1. Installing the laser head 安装激光头

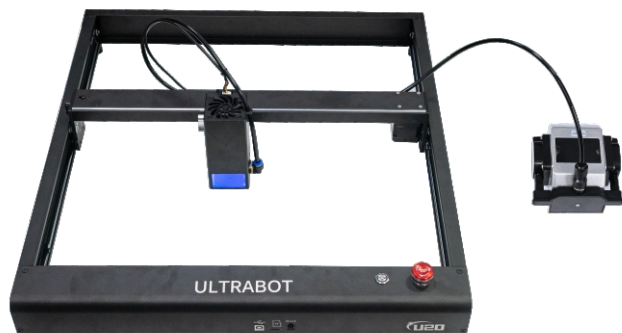
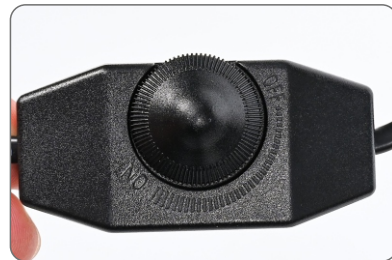


Product installation 产品安装

2. Install the air pump 安装气泵



Air pump regulating switch
气泵调节开关





As shown in the figure, use a tie to secure the conduit

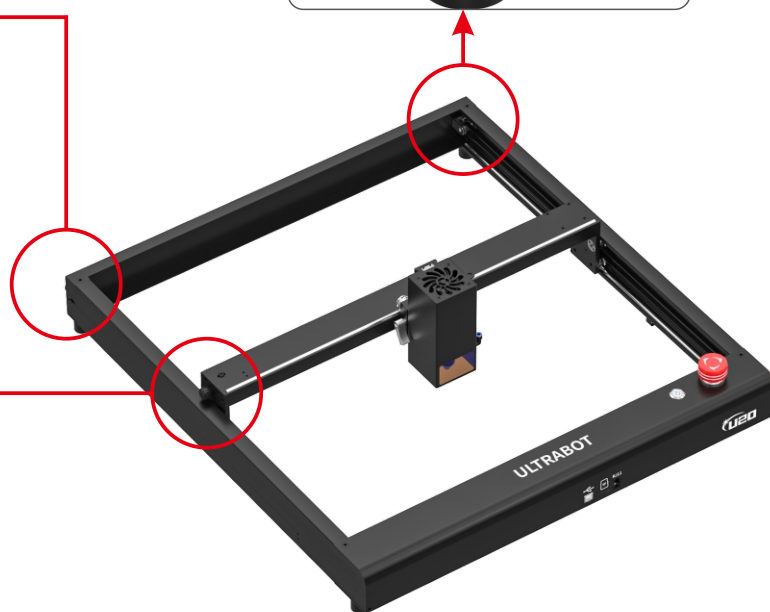
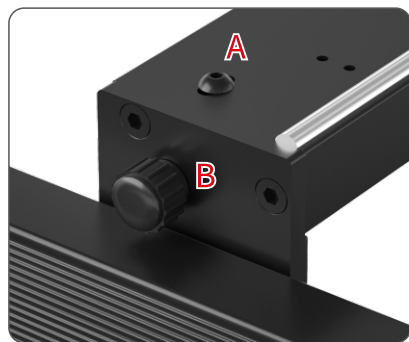
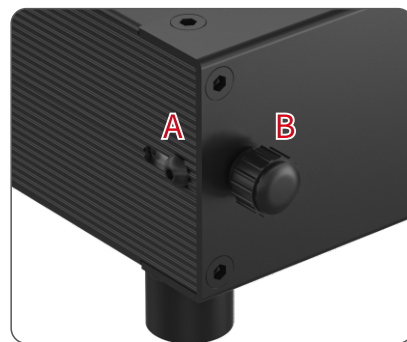
如图所示,使用扎带固定线管

3. Belt debugging

皮带调试

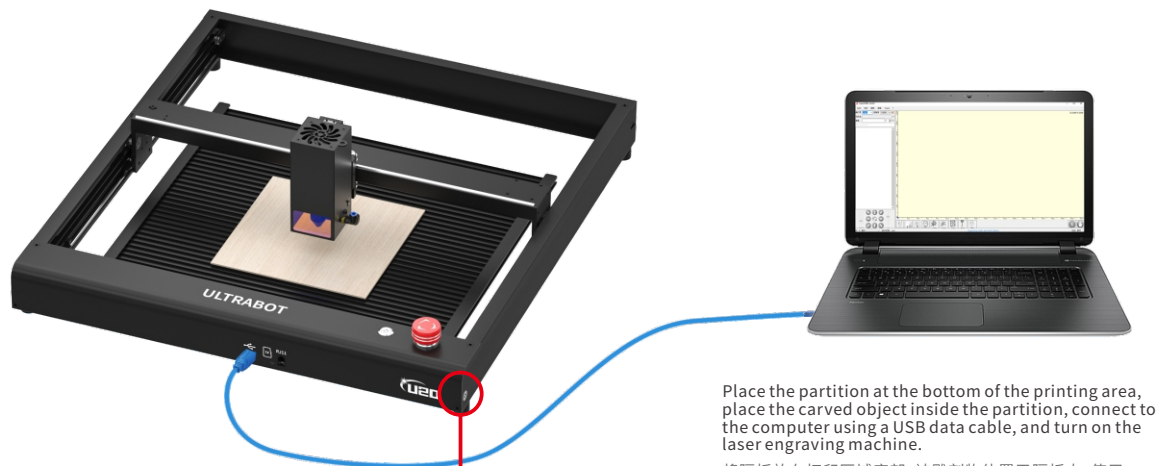
Firstly, slide the laser and check whether the tension of the XY axis belt is appropriate. If adjustment is needed, please loosen the screw "A" first, then turn the knob "B" to adjust the tension of the belt. After adjusting it properly, tighten the screw "A" again.

先滑动激光器，检查XY轴皮带松紧度是否合适，如需调整，请先拧松螺丝“A”，再转动旋钮“B”来调整皮带的松紧度，调整合适后再次拧紧螺丝“A”。



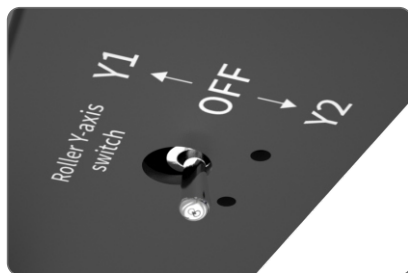
Product installation 产品安装

4. Focal length positioning 焦距定位



Place the partition at the bottom of the printing area, place the carved object inside the partition, connect to the computer using a USB data cable, and turn on the laser engraving machine.

将隔板放在打印区域底部, 被雕刻物体置于隔板内, 使用USB数据线连接电脑, 并打开激光雕刻机。



Before use, check that the Y-axis switch is in the Y2 position to avoid turning the switch to the Y1 position during packaging, which may cause the machine's Y-axis to not rotate.

在使用前, 检查Y轴拨位开关在Y2位置, 避免包装时将开关拨到Y1位置导致机器Y轴不转

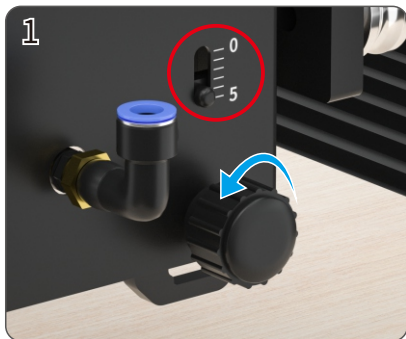


Insert power supply
插入电源



Press the switch button
按下开关按钮

Product installation 产品安装



Turn the focus knob counterclockwise to locate the lowest position "5"

逆时针转动定焦旋钮，定位点在最低处“5”的位置



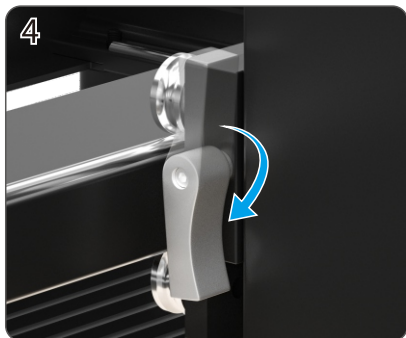
Rotate the laser fixing knob counterclockwise

逆时针转动激光器固定旋钮



Lower the laser so that the focusing plate just touches the surface of the carved object

降下激光器，使定焦片刚好触碰雕刻物体表面



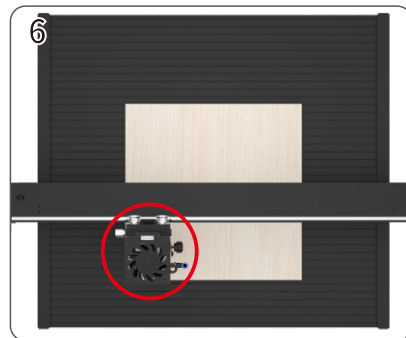
Tighten the knob clockwise to secure the laser

顺时针拧紧旋钮，固定激光器



Tighten the knob clockwise to raise the focusing plate to the "0" position

顺时针拧紧旋钮，使定焦片升至“0”位



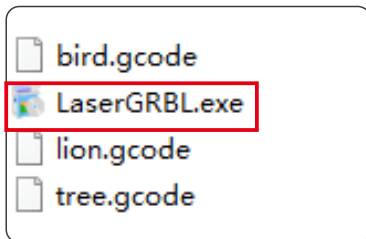
Move the laser to the bottom left corner (0.0) of the engraved object

将激光器移至雕刻物体左下角(0.0)位置

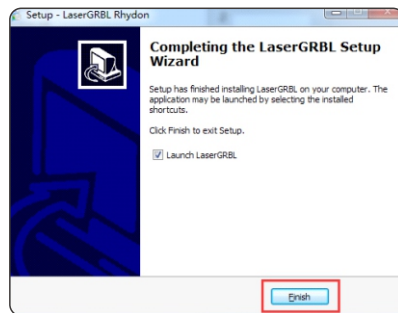
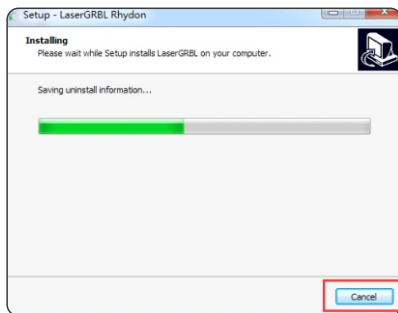
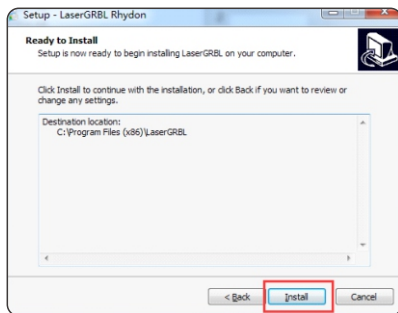
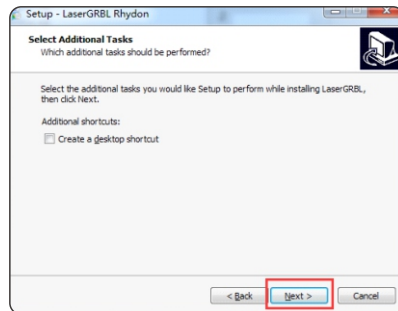
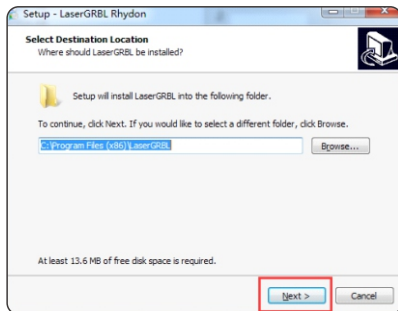
Software installation and use 软件安装与使用

1. Install "LaserGRBL" software on the computer and complete the installation steps according to the prompts; (the installer is in the TF Card)

在电脑上安装“LaserGRBL”软件，按照提示完成安装步骤；(安装程序在TF卡中)



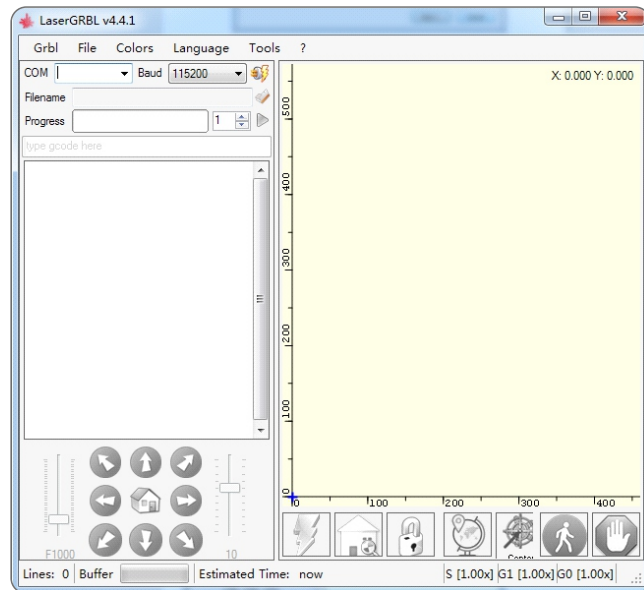
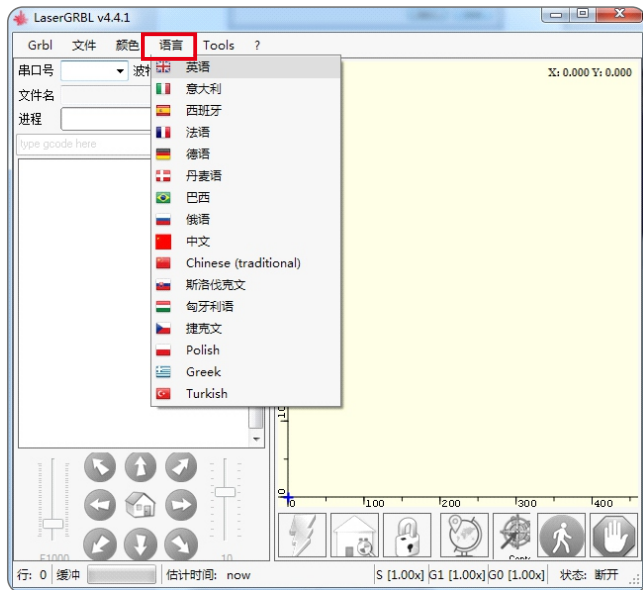
Run the "LaserGRBL.exe" program
运行“LaserGRBL.exe”程序



Software installation and use 软件安装与使用

2. Language switching

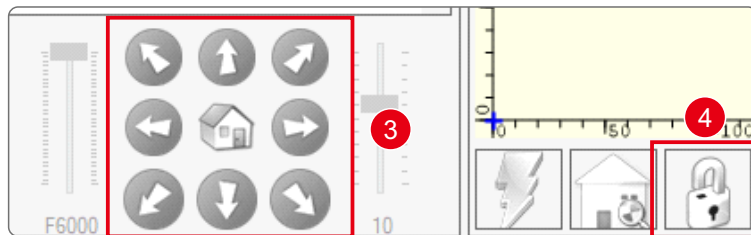
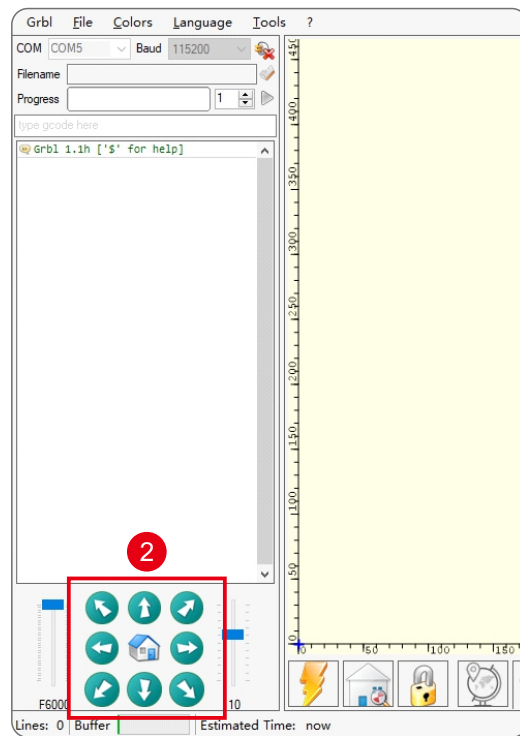
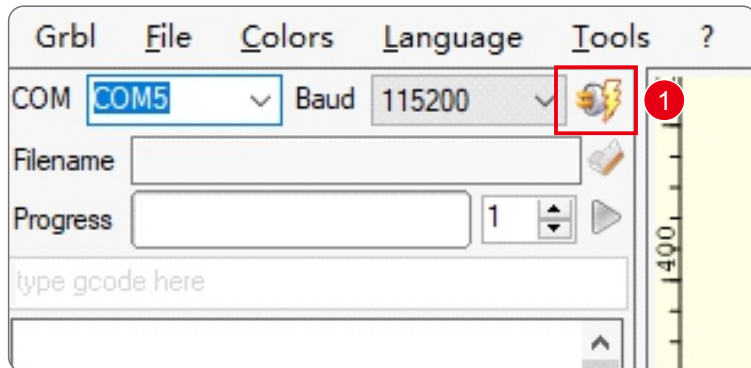
语言切换



Software installation and use 软件安装与使用

3. Connecting the engraving machine

连接雕刻机



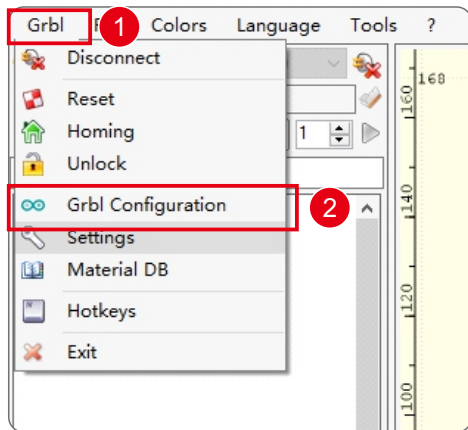
After clicking "①" to connect, the icon will turn green "②". If the icon displays gray "③", you need to click "④" to unlock it.

点击“①”连接后图标会变成绿色“②”，如图标显示灰色“③”，则需要点击“④”进行解锁。

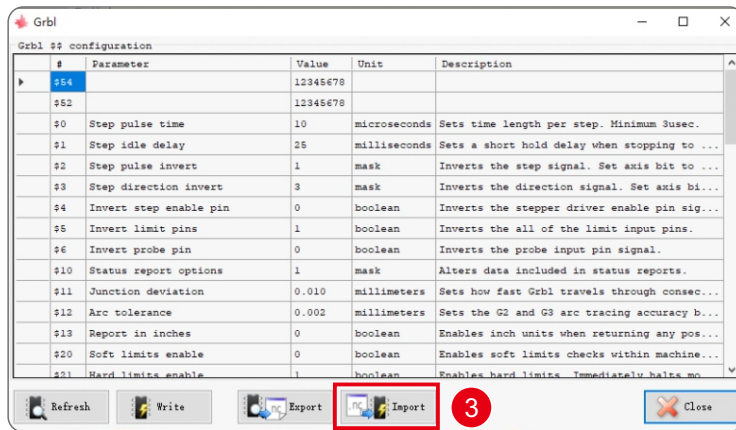
Software installation and use 软件安装与使用

4. Import configuration file

导入配置文件



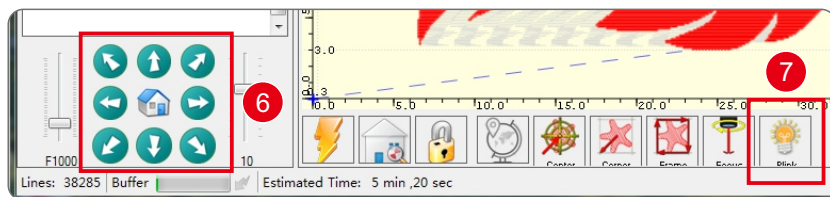
①GRBL → ②Grbl Configuration
Grbl 配置



③Import
导入



④ Select Configuration File → ⑤ Open
选择配置文件 打开



Verify the parameters, click "6" to move the XY axis, and observe whether the direction of movement is consistent with the arrow direction; Click on "7" to light up the laser and observe if it lights up normally.

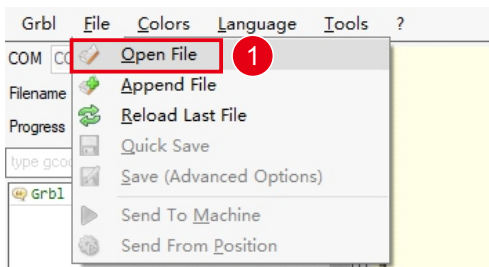
(If there are any abnormalities, restart the printer and try again)

验证参数, 点击“6”移动XY轴, 观察移动方向是否与箭头指向一致;
点击“7”点亮激光器, 观察激光器是否正常工作。

(如有异常可重启打印机后再试一次)

5. Import image printing

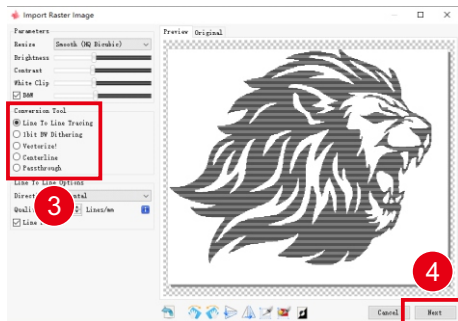
导入图片打印



①Open File
打开文件

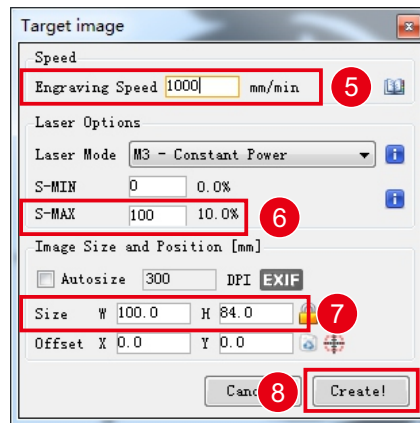


②Select a picture to open
选择一个图片打开



③Line trajectory mode, commonly used as
"Line To Line Tracking" and "Vectorize"
走线轨迹模式, 常用为“线到线的跟踪”和“矢量化”

④Next
下一步

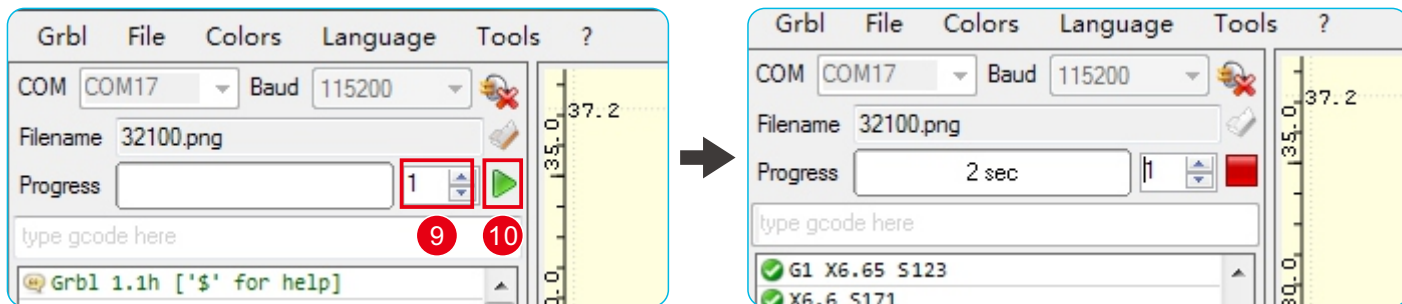


⑤Adjusting Printing Speed
调整打印速度

⑥Laser energy value,
modified based on material
激光能量值, 依据材质修改

⑦Image size
图片尺寸

⑧Create
创建



- ⑨ Can be executed multiple times during cutting
切割时可执行多次
- ⑩ Start printing
开始打印

Reference values of engraving parameters for various materials 各种材料的雕刻参数参考值				
Metal 金属	Speed 速度	500mm/min 500mm/分钟	S value S 数值	1000
Wood 木头	Speed 速度	1000mm/min 1000mm/分钟	S value S 数值	100
Leather 皮革	Speed 速度	1000mm/min 1000mm/分钟	S value S 数值	100
Plastic 塑料	Speed 速度	1000mm/min 1000mm/分钟	S value S 数值	100
Reference value of cutting parameters 切割参数参考值				
Wood (Thickness 3mm) 厚度3mm的木头	Speed 速度	1000mm/min 1000mm/分钟	S value S 数值	1000

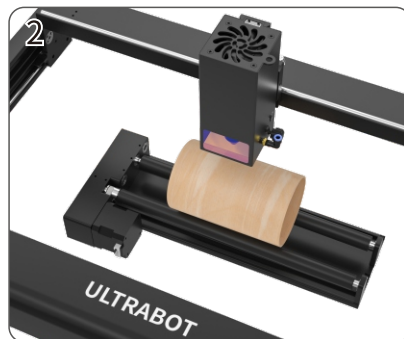
Steps for using the Y-axis device Y轴装置使用步骤

(Y-axis device is suitable for carving cylindrical objects on the surface, adjusting the air volume of the air pump or turning off the air pump)

(Y轴装置适用于圆柱形物体表面雕刻, 调低气泵风量或关闭气泵)



Install the foot pillar to raise the carving machine
安装脚柱升高雕刻机



Place the Y-axis device inside the machine frame and place the carved object on the device axis

将Y轴装置至于机器框架内, 并将被雕刻物体放在装置转轴上



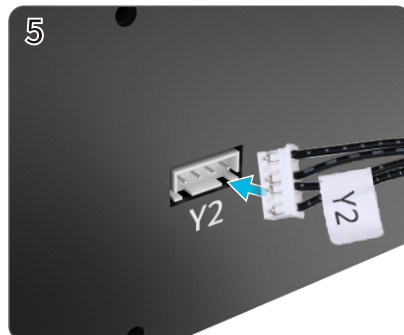
Refer to the "focal length positioning" step to adjust the laser height

参考“焦距定位”步骤来调整激光器高度



Move the laser forward so that the laser outlet is on the highest surface of the carved object

向前移动激光器, 使激光出口在雕刻物体最高面上



Insert the Y2 motor cable into the Y2 port

将Y2电机线插在Y2端口



Plug the other end of the motor cable into the Y-axis device motor

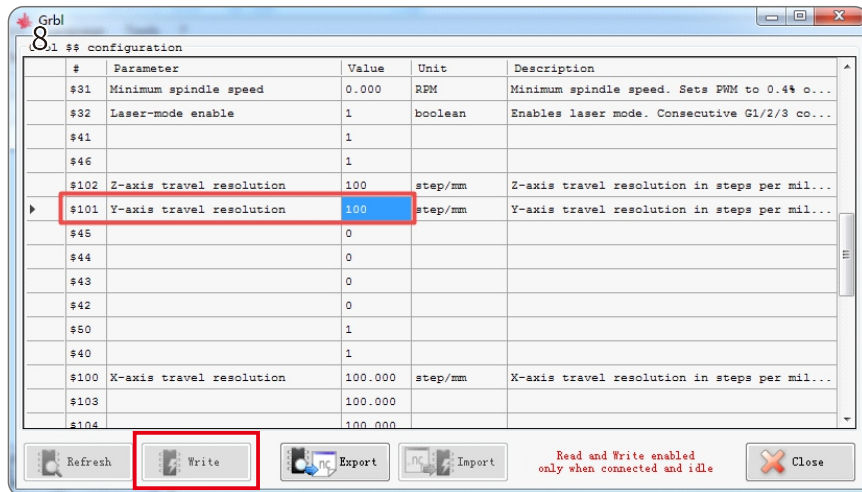
电机线另一端插在Y轴装置电机上

Steps for using the Y-axis device Y轴装置使用步骤



Turn the bottom switch of the front beam to the Y1 position

将前梁底部开关拨到Y1位置



To modify the Y-axis parameters, when using the Y-axis device, the Y-axis step amount should be changed from 100 to 80. Then write again (when the Y-axis is not used, change this parameter to 100 before writing again).

修改Y轴参数, 使用Y轴装置时要将Y轴步进量由原来的100改为80, 然后再写入 (当不使用Y轴时再将这个参数改为100后再写入)。



After completing the above steps, you can slice and carve the images in the normal way. Please refer to the previous printing steps.

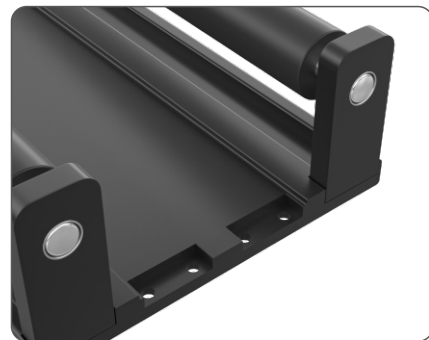
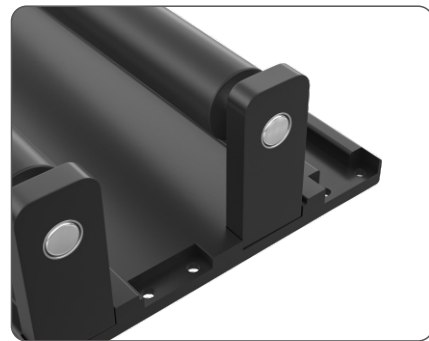
操作完以上步骤后即可按照正常方式切片雕刻图片了, 可参考前面打印步骤。

Steps for using the Y-axis device Y轴装置使用步骤



The diameter of the carved object varies, and the passive shaft can be adjusted to use it.

被雕刻物体直径大小不一时,可调整被动转轴来使用。



1. Unable to power on?

- 1) Check if the power cord or other wires are connected correctly or loose.
- 2) Check if the power supply voltage matches the local standards.
- 3) Check if the screen or power supply is damaged.
- 4) Check if the wires are damaged or broken.

2. Unable to read SD card content?

- 1) Check if the card reader is damaged.
- 2) If it does not display when plugged into the computer, please format the SD card and use it.
- 3) Check if the front and back of the SD card are inserted incorrectly.
- 4) The file name contains illegal characters. Please rename it.
- 5) SD card damaged, please replace with a new one and try again.

3. Motherboard related issues

- 1) There is no response when inserting the cable. Please check the installation of the cable
- 2) Automatic shutdown and restart, possibly due to abnormal firmware or damage to the power outage continuation module
- 3) No response, the reason is that the motherboard is damaged

1. 无法开机?

- 1) 检查电源线或其它线是否连接正确或者松动。
- 2) 检查电源电压是否与当地的标准相匹配。
- 3) 检查屏幕或电源是否破损。
- 4) 检查电线是否损坏或者折断。

2. 无法读取TF卡内容?

- 1) 检查读卡器是否损坏。
- 2) 如果插在电脑上不显示, 请格式化TF卡后使用。
- 3) 检查TF卡正反面是否插错。
- 4) 文件名存在非法字符请重新命名。
- 5) TF卡损坏请更换新的重新尝试。

3. 主板相关问题

- 1) 插线无反应, 请检查插线安装
- 2) 自动关机重启, 可能是固件异常或者是断电续打模块损坏
- 3) 无任何反应, 原因是主板损坏

Due to the differences between different machine models, the physical objects and the final images can differ.

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