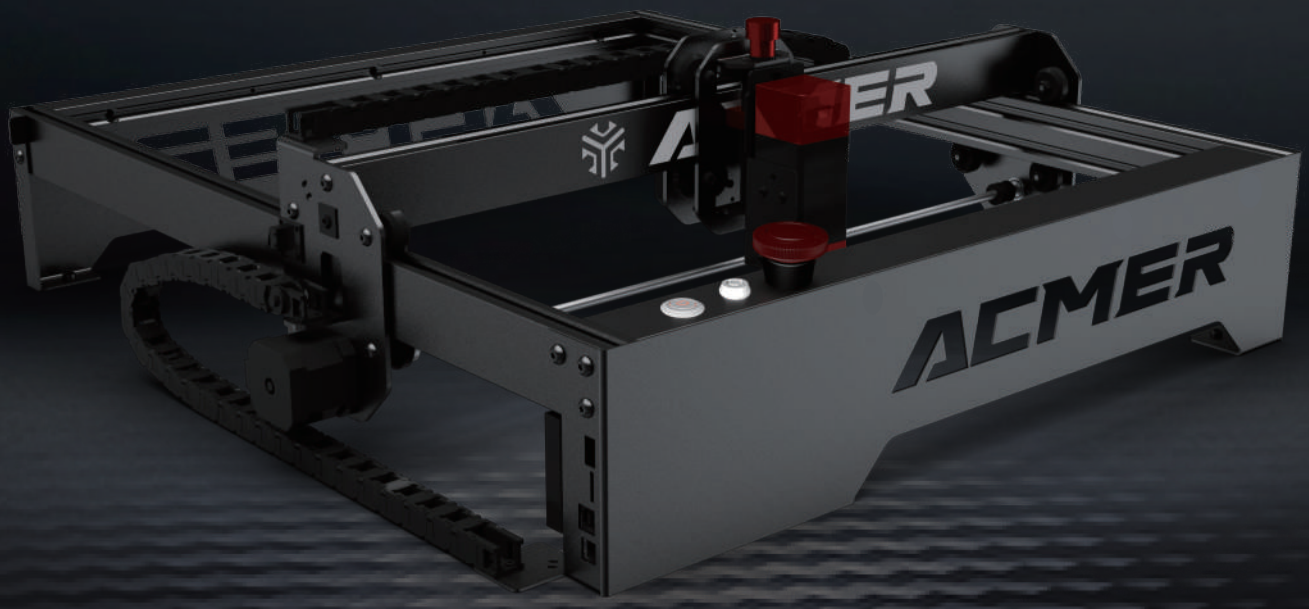
ACMER

ACMER P1

LASER ENGRAVER



ASSEMBLY MANUAL

Shenzhen Titan International development technology Co., LTD

CONTENTS | 目录

WARING | 警告

- Warning: Avoid direct eye contact with the laser, and there is a risk of blindness due to excessive stimulation
  避免直接目光接触激光，过度刺激有失明风险

- Warning: Avoid body contact with laser, which may cause burns
  避免肢体与激光接触，有灼伤风险

- Warning: Please place a metal base plate under the machine before use to prevent the laser from directly burning the desktop
  使用前请在机器下方放置底板，防止激光直接灼烧桌面

- Warning: Please keep the machine away from combustible chemical s
  请将机器远离可燃化学物质

- Warning: Please keep the machine away from children or pregnant women
  请将机器远离儿童或者孕妇

- Warning: Do not disassemble the laser without instructions
  请勿擅自拆解激光器

- Warning: The laser engraving machine cannot directly act on any specularly reflec - tive objects, and the laser reflection may cause injury to the operator or burn the laser
  激光雕刻机不能直接作用于镜面物体，激光反射可能会对操作员造成伤害或激光灼伤

- Warning: It is not recommended to directly look at the laser head when the machine is working. Do not operate the laser head directly by hand. Please wear glasses to ensure personal safety
  机器上工作时，不建议直接看激光头。请勿直接用手操作激光头。请戴上眼镜，以确保人身安全

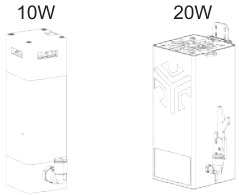
- Warning: Please turn off the power when the laser engraving machine is not work -
  激光雕刻机不工作时请关闭电源

- Warning: Laser diode is a sensitive component, please pay attention to avoid elec - trostatic damage (This product includes an electrostatic protection design, but there is a possibility of damage)
  请注意避免静电损坏 （该产品包括静电保护概念，但有损坏的可能）

MAIN PARAMETERS / 机器参数

Type	型　　号	P1/P1 Pro
Machine size	机身尺寸	610*590*200mm
Machine weight	机身重量	6.2KG
Engraving range	雕刻范围	400*410mm/400*385mm
Engraving accuracy	雕刻精度	0.01mm
Engraving speed	雕刻速度	10000mm/min
Engraving method	雕刻方式	USB connection
Supporting systems	系统支持	MAC, Windows
Laser power	激光功率	10W/20W
Laser wavelength	激光波长	450±5nm
Laser focal length	激光焦距	10W (31mm)/20W（5mm）
Output power	输出功率	72W/96W
Power supply	电源输入	24V3A DC / 24V4A DC
Engraving material	雕刻材料	wood, bamboo, paper, plastic, leather, PCB board, aluminium oxide, non-reflective coating and lacquered metal, ceramic
Engraving file format	雕刻文件格式	NC、DXF、BMP、JPG、PNG、etc
Engraving mode	雕刻模式	Graphic engraving，document engraving，scanning engraving, outline engraving, Pixel carving 图形雕刻，文件雕刻，扫描雕刻，轮廓雕刻
Support software	雕刻软件	LightBurn，LaserGRBL（Windows system only）
Languages	语　　言	Chinese，English

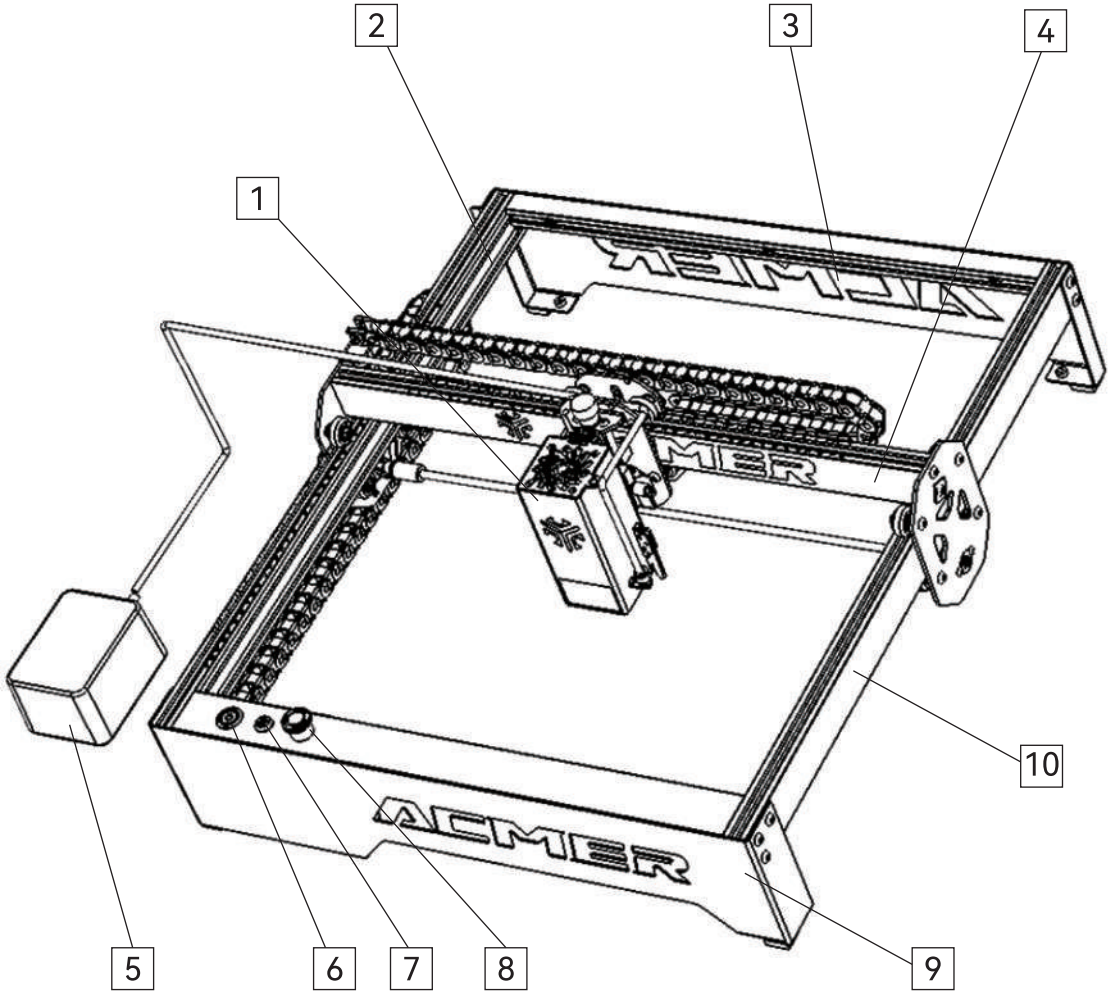
PARTS LIST/ 配件清单

 Front Assembly 前组件 x1	 Rear Assembly 后组件 x1	 X-axis Assembly X轴组件 x1
Left Profile 左型材 x1	Right Profile 右型材 x1	 Laser Module 激光模组 x1
 Wrench 扳手 x1	 Goggles 护目镜 x1	 TF card 内存卡 x1
 USB cable USB线 x1	 Adapter 电源适配器 x1	 Card reader 读卡器 x1
 Screw bag 螺丝包 x5	 Keys 钥匙 x1	 Test board 测试木板 x3

20W附加包 / 20W add-on package

 Air pump 气泵 x1	 Adapter wire 转接线 x1	 Pneumatic Joint 气动接头 x1	 Air Pipe 气管 x1

Machine description | 机器说明



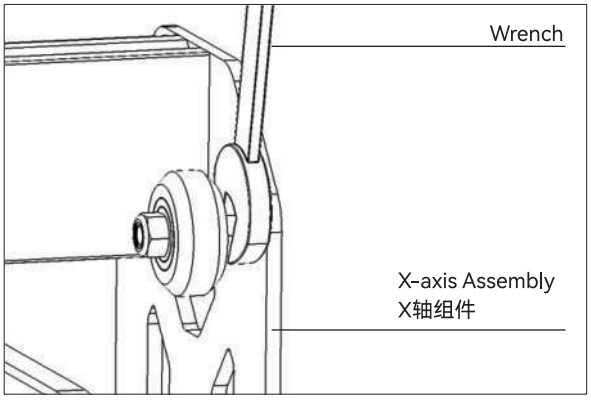
1. 10W/20W Laser Module
   激光模组
2. Left Profile
   左型材
3. Rear Assembly
   后组件
4. X-axis Assembly
   X轴组件
5. Air Pump（20W）
   气泵
6. Power Switch
   电源开关
7. Security Lock
   安全锁
8. Emergency Stop Switch
   急停开关
9. Front Assembly
   前组件
10. Right Profile
    左型材

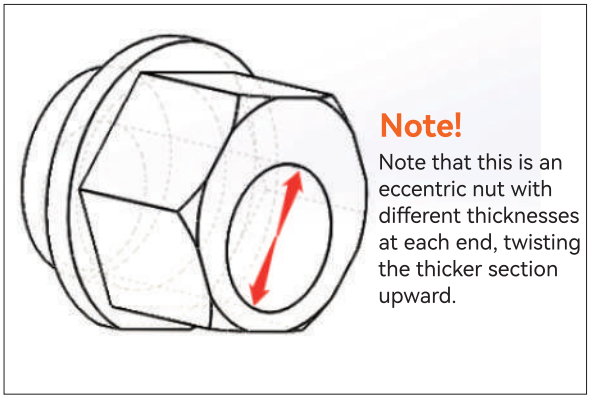
Assembly Process | 装配过程

1. Assemble X-axis assembly
组装X轴组件

Required materials: X-axis assembly, Left Profile，Right Profile , open-end wrench
材料：X轴组件，左型材，右型材，开口扳手

1.1 Adjust pulley spacing
调整滑轮间距

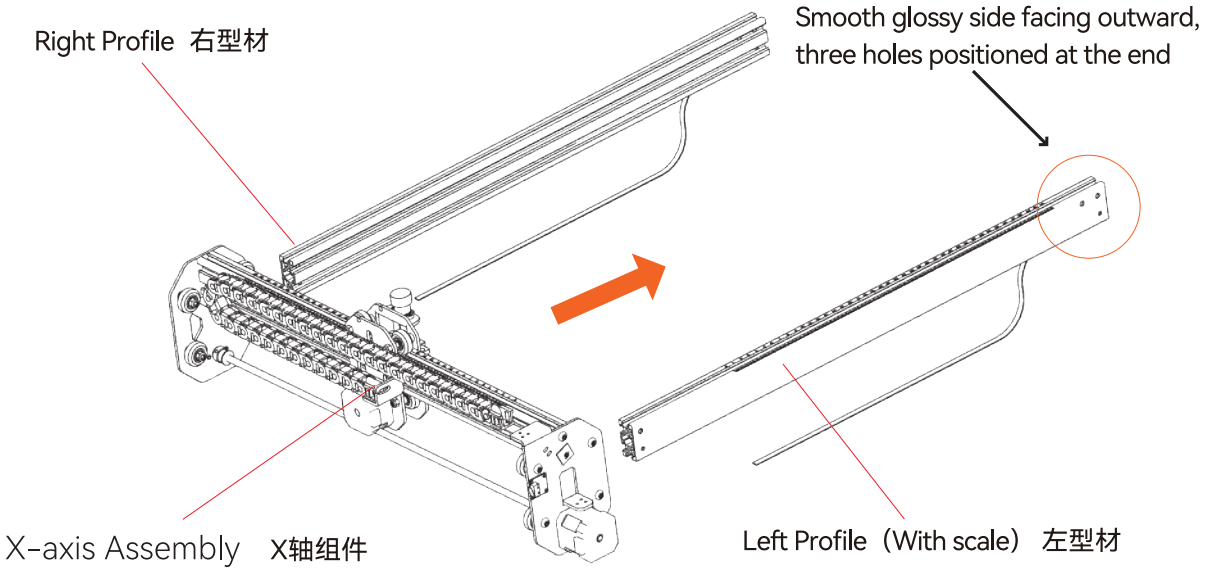




Note：Before pushing the X-axis assembly into the Y-axis section bar, it is necessary to adjust the eccentric wheel to increase the spacing between the pulleys on both sides, to avoid damaging the pulley due to the too close spacing between the pulleys during installation

Note：将X轴组件推进Y轴型材之前，需要调节偏心轮将两侧滑轮间距调大，以免安装时因滑轮间距太近，损坏滑轮。

1.2 Draw the X-axis assembly into the Y-axis section bar as a whole
将X轴组件整体划入Y轴型材



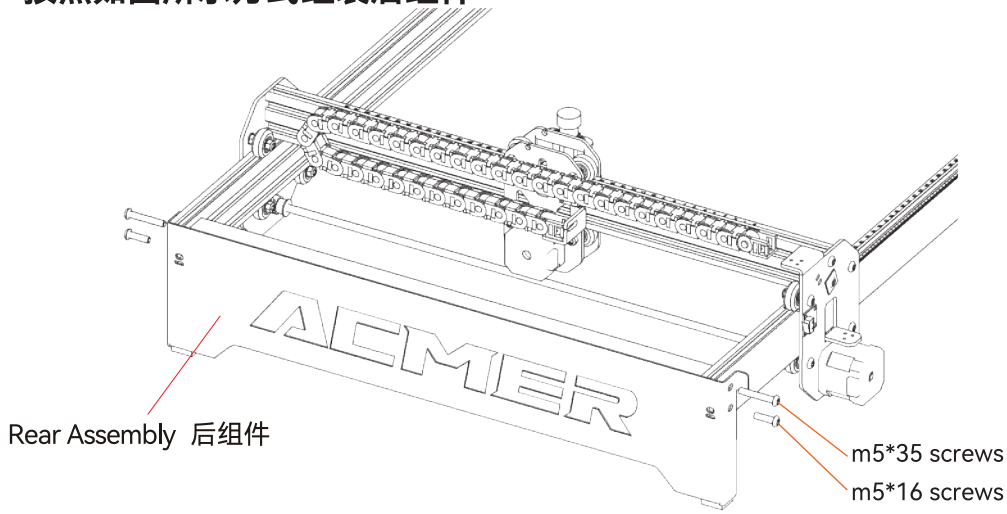
Note that the belts of the left profile and the right profile are oriented downwards!
注意左型材、右型材的皮带方向朝下！

2. Assemble the rear assembly
组装后组件

Required materials: Step 1 assembly，Rear assembly, m5*35 screws 2pcs, m5*16 screws 2pcs

材料：步骤1组件、后组件、 M5*35螺丝 2PCS 、 M5*16螺丝 2PCS。

2.1 Assemble the rear assembly as shown in the figure
按照如图所示方式组装后组件

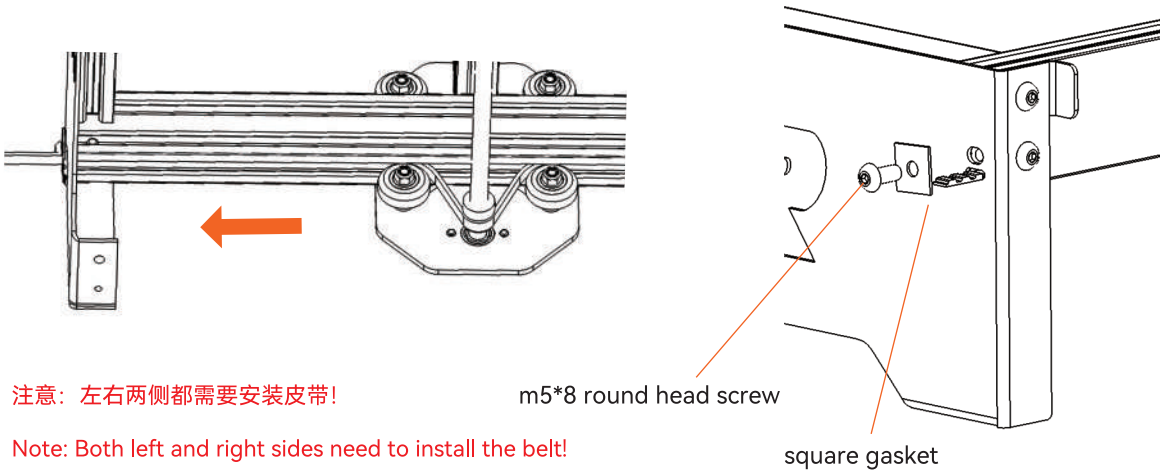


3. Assemble the Y-axis belt
安装Y轴皮带

Required materials: Synchronous belt 2 PCS, square gasket 2PCS, m5*8 round head screw 2PCS

材料：同步带 2PCS、方形垫片2PCS、M5*8半圆头螺丝 2PCS

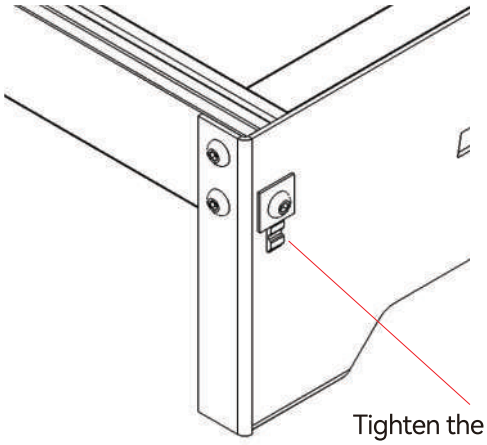
3.1 Pass one end of the timing belt through the pulley and the timing wheel and out of the tailboard hole
将同步带一端穿过滑轮和同步轮，从尾板孔位穿出



注意：左右两侧都需要安装皮带!

Note: Both left and right sides need to install the belt!

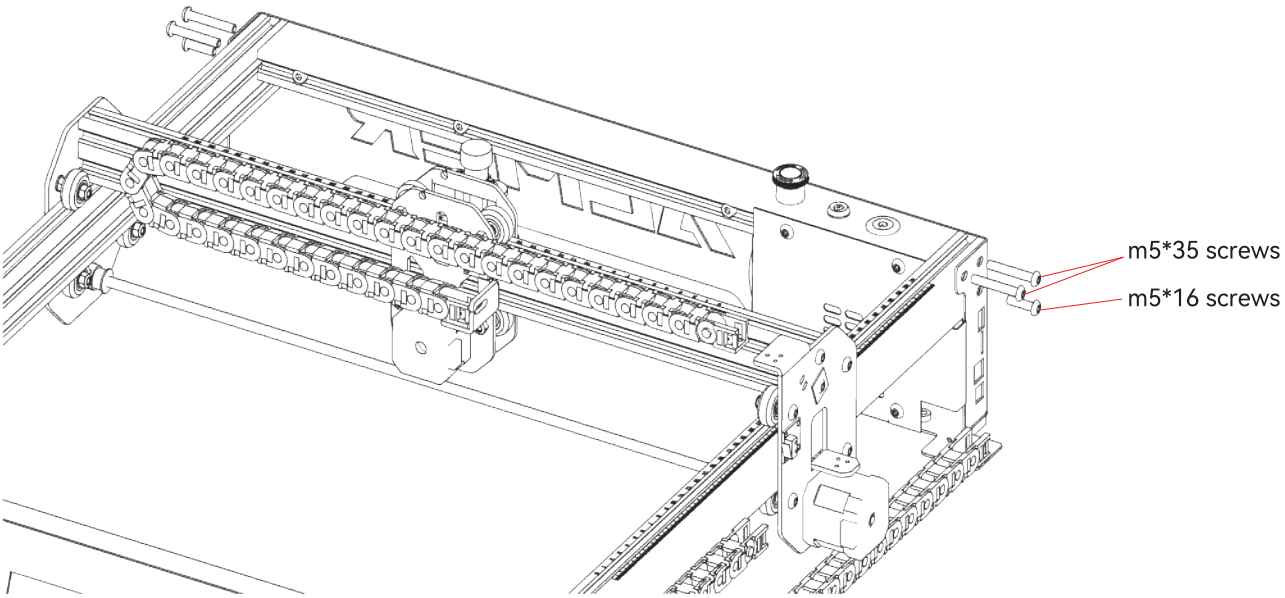
3.2 Pull the timing belt out of the waist hole of the back plate and compress it with gaskets and screws
将同步带从背板腰型孔拉出，并用垫片和螺丝压紧



4. Assemble the front assembly
组装前组件

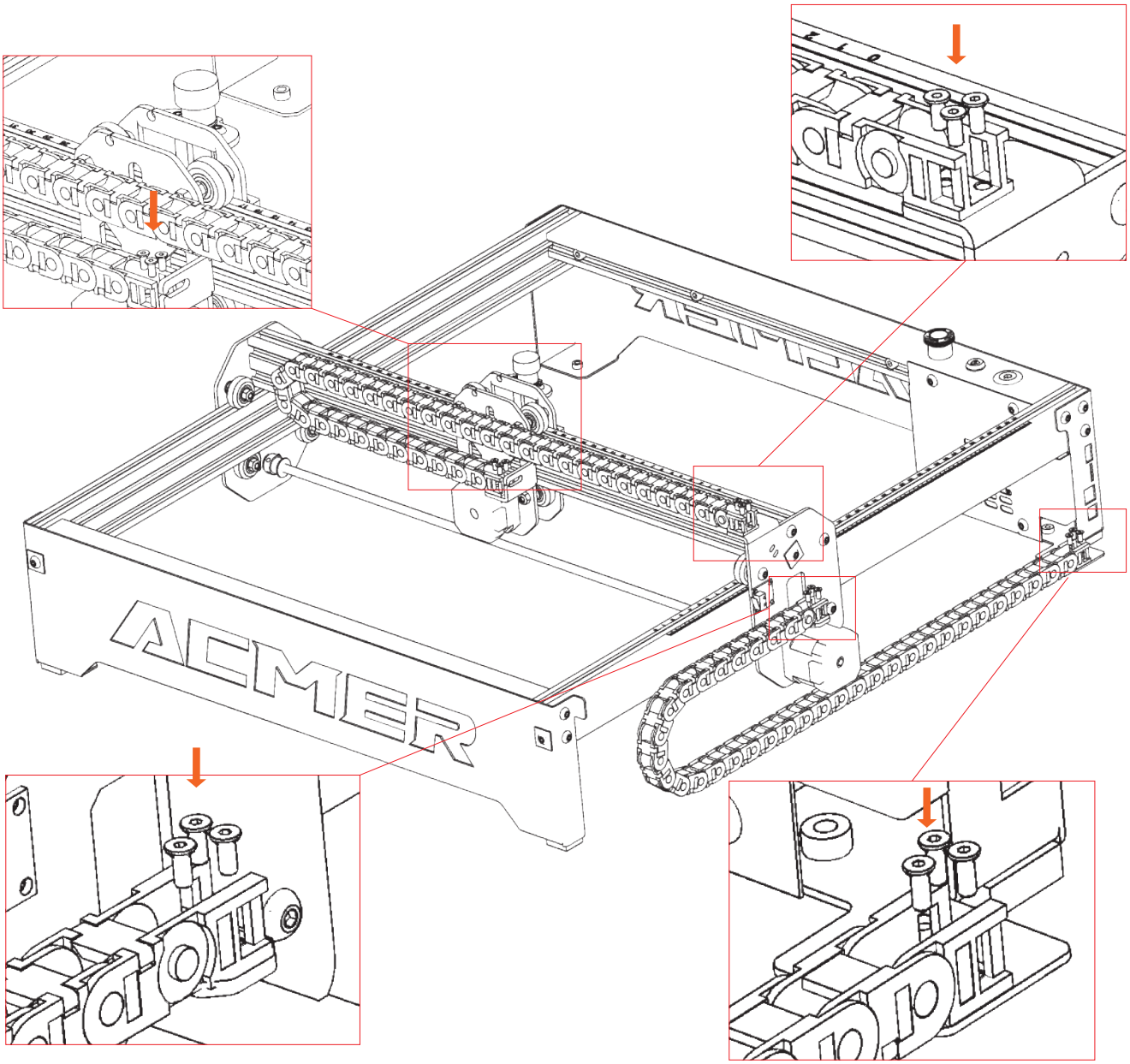
Required materials: M5*35 round head screws 4 PCS, m5*16 round head screws 2PCS
材料：M5*35半圆头螺丝 4PCS、M5*16半圆头螺丝 2PCS

Align the front assembly with the left and right profiles and then lock it with screws
将前组件与左、右型材对齐后，用螺丝锁紧



5. Assemble tank chain
组装X、Y拖链

Required materials: M3*6 countersunk head screw 12PCS
材料：M3*6沉头螺丝 12PCS

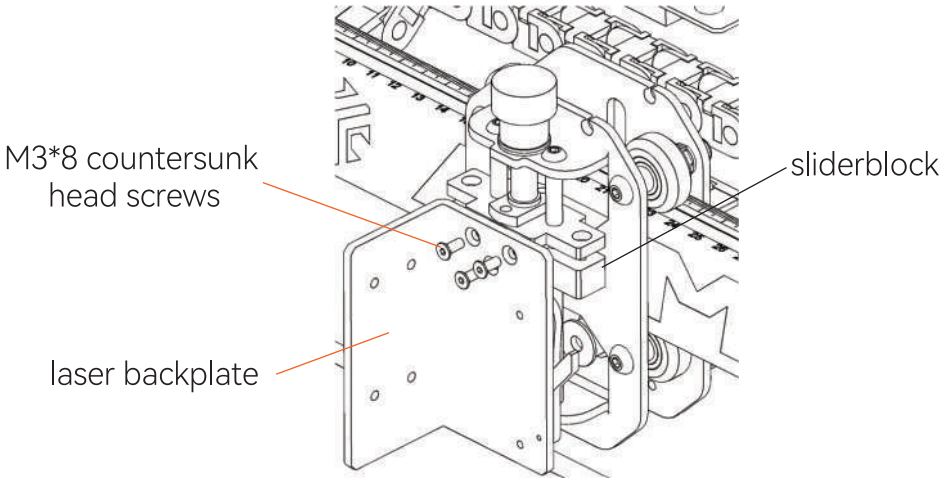


6. Laser head assembly
激光头组装

10W

Use 3 M3*8 countersunk head screws to lock the laser backplate on the sliderblock.

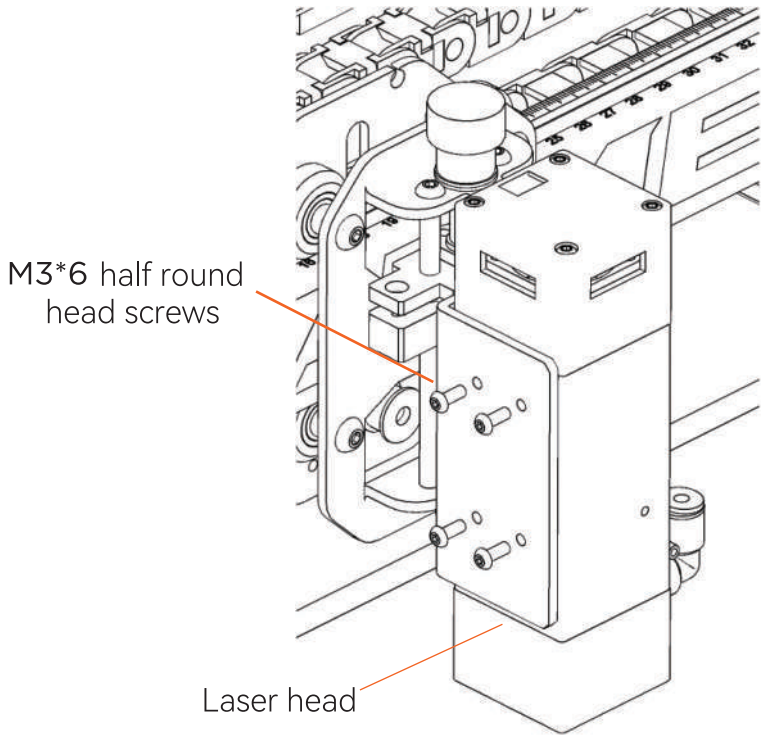
用3颗M3*8沉头螺丝将激光背板锁紧在滑块上



注：旧版本只需锁紧2颗螺丝即可!
Note: Older versions only need to lock 2 screws!

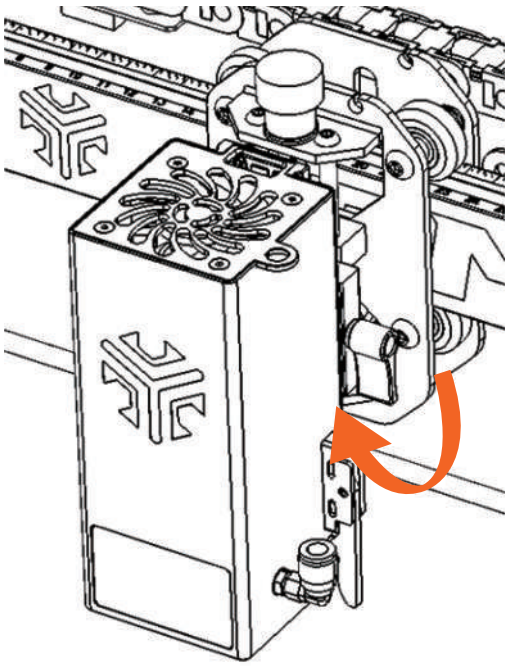
Lock the laser head from the side with four M3*6 half round hea d screws

用四颗M3*6半圆头螺丝从侧面锁紧激光头



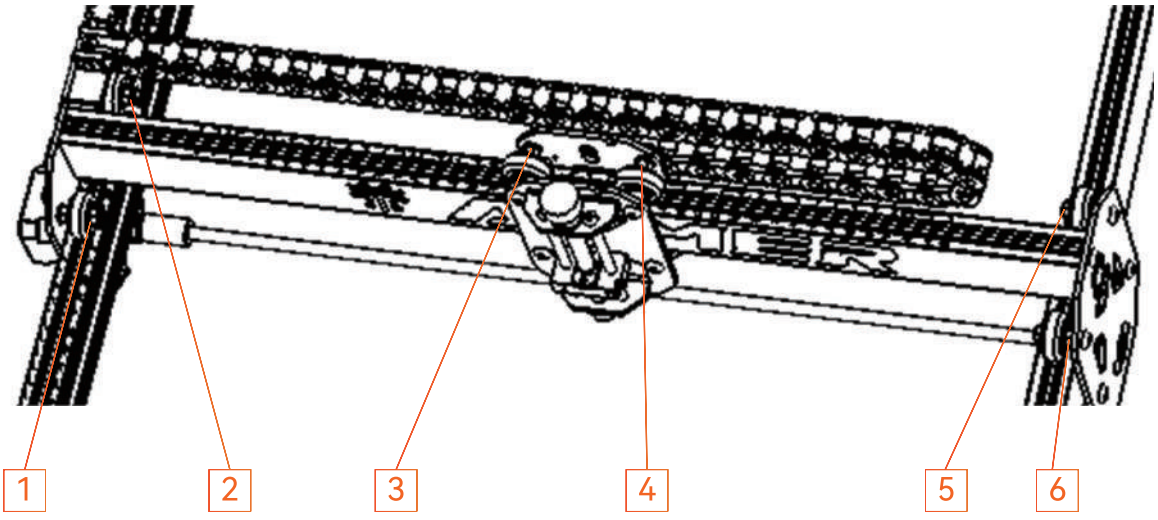
20W

Install the laser head into the back plate along the dovetail s lot and tighten the
将激光头沿着燕尾槽装入背板，并拧紧螺母



7. Pulley adjustment
滑轮调节

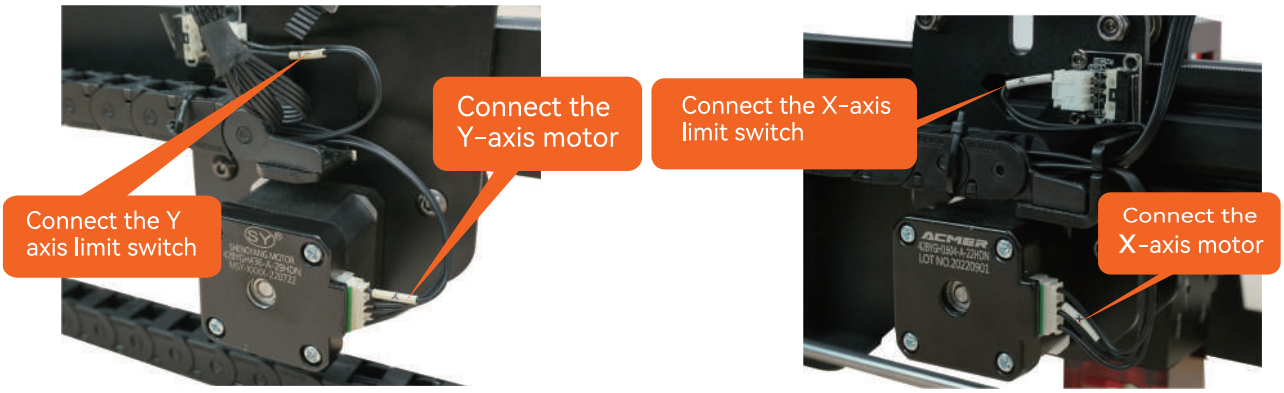
Use an open-ended wrench to rotate the eccentricity of six eccentric nuts of X and Y axes, and adjust the pulley to the state of just clamping
使用开口扳手旋转X、Y轴共六个偏心螺母的偏心距，调节滑轮至刚好卡紧的状态



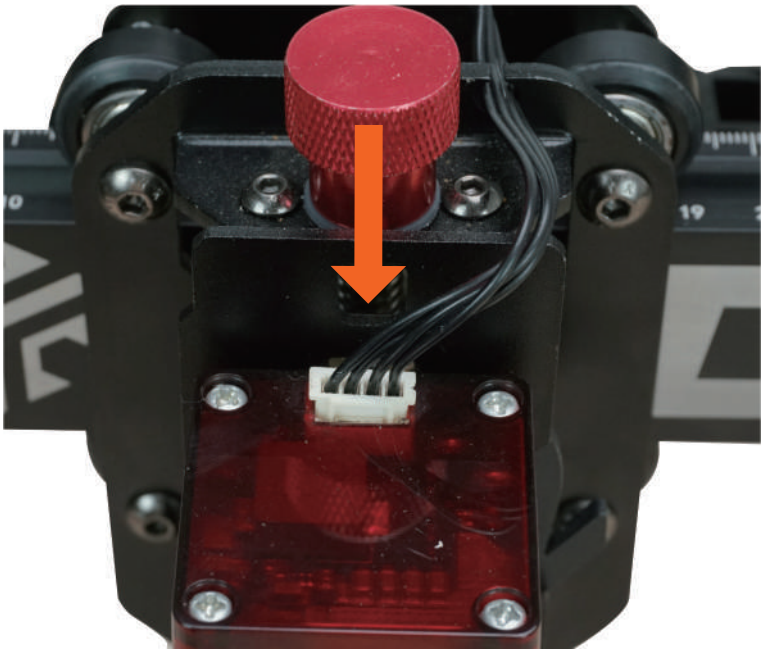
8. Connect the electronic harness
连接线束

8.1 Connect the Y-axis motor wire and the Y-axis limit switch harness
连接Y轴电机线、Y轴限位开关线束

8.2 Connect X-axis motor wire, X-axis limit switch harness and laser harness
连接X轴电机线、X轴限位开关线束、激光线束



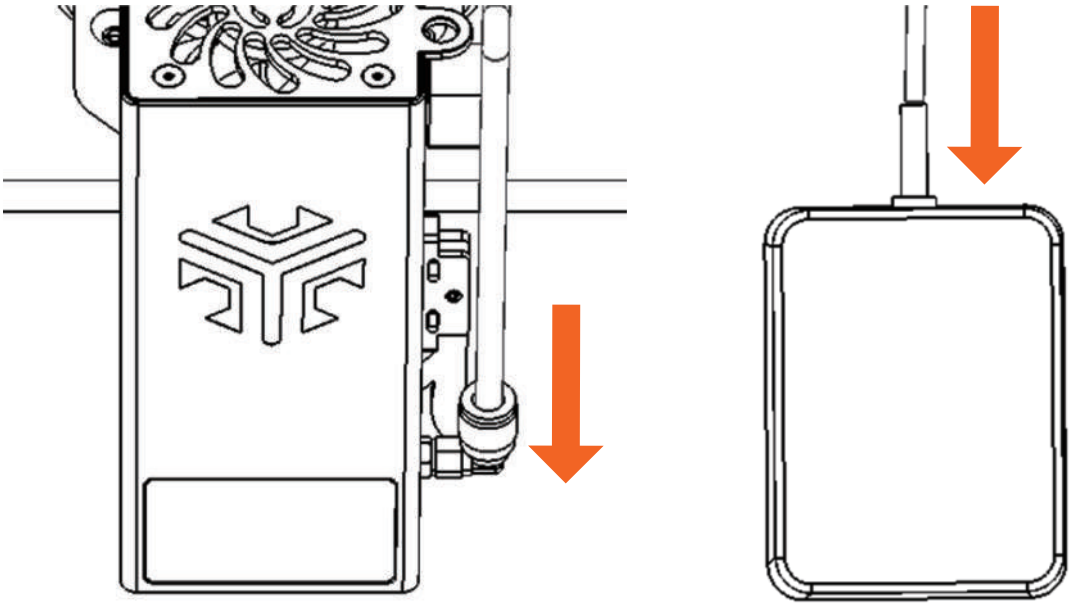
8.3 Connect the laser module harnesses
连接激光模组线束



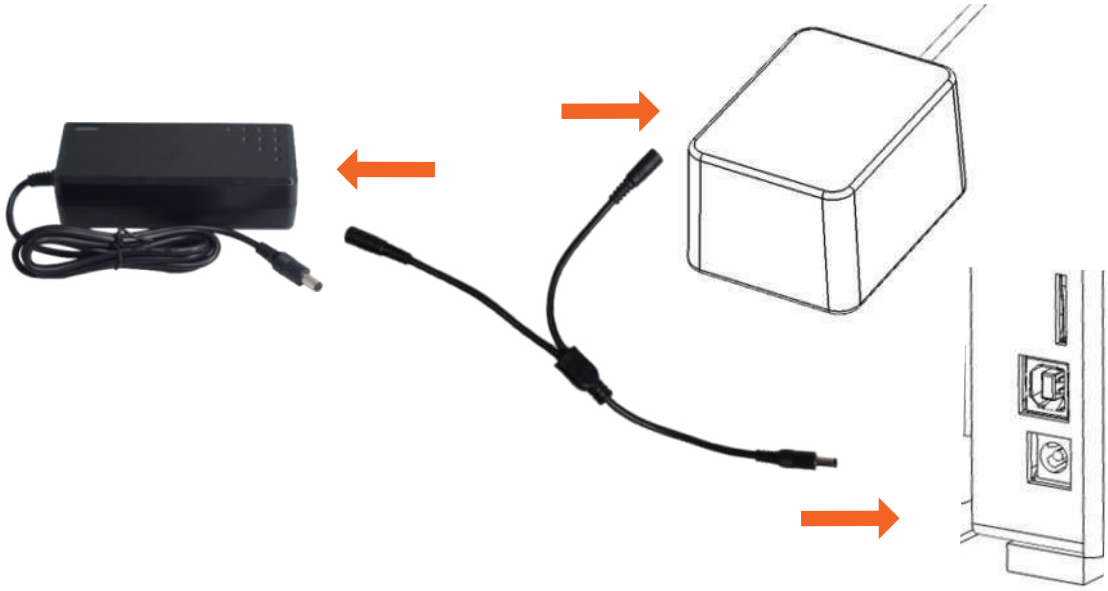
9. Installing air pump
安装气泵

注：10W的机器不包含气泵!
Note: The 10W machine does not include an air pump!

9.1 Insert both ends of the air pipe into the joints of the air pump and the laser head.
将气管两端分别插入气泵和激光头的接头处



9.2 Connect the adapter, engraving machine and air pump as shown in the figure by using two power cables.
使用一拖二电源线，按如图所示的方式连接适配器，雕刻机和气泵

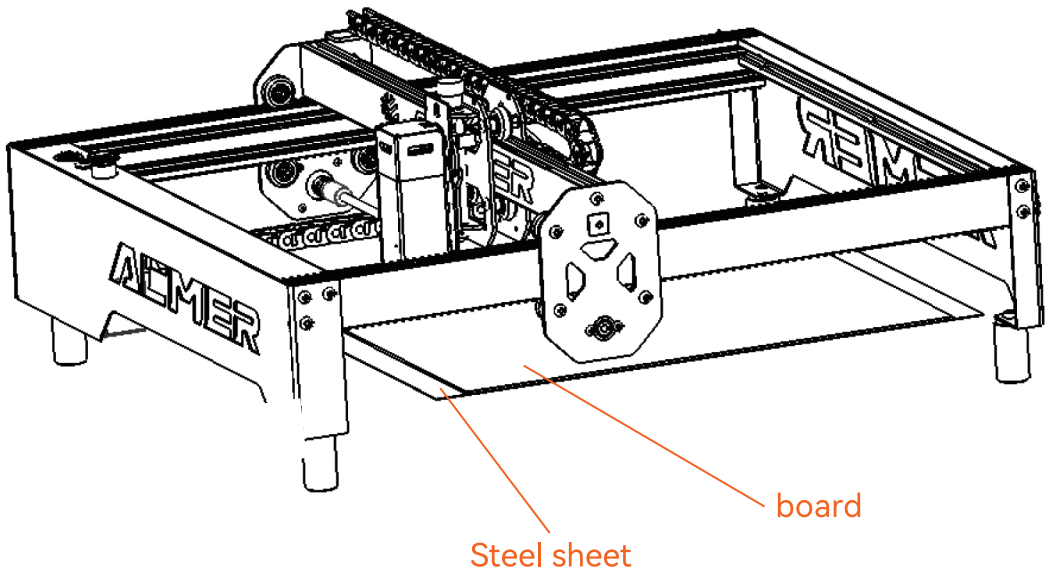


Focusing and Software setting| 对焦及软件设置

1. Focal length adjustment
调整焦距

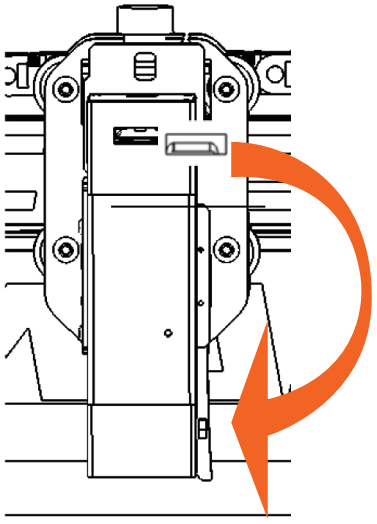
Place the board within the laser engraving range, and it is best to place a steel plate under the board

将木板放置在激光雕刻范围内，最好在木板下面放置一块钢板

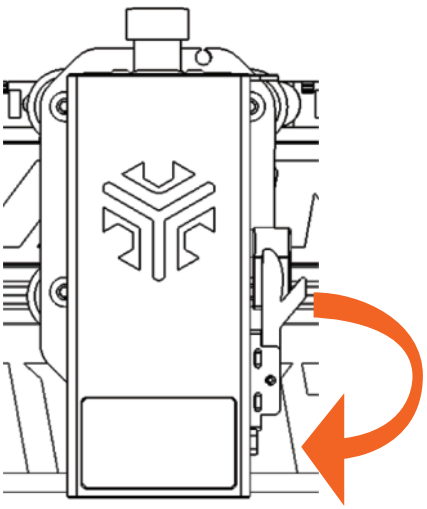


Rotate and put down the focusing column

将调焦柱旋转放下

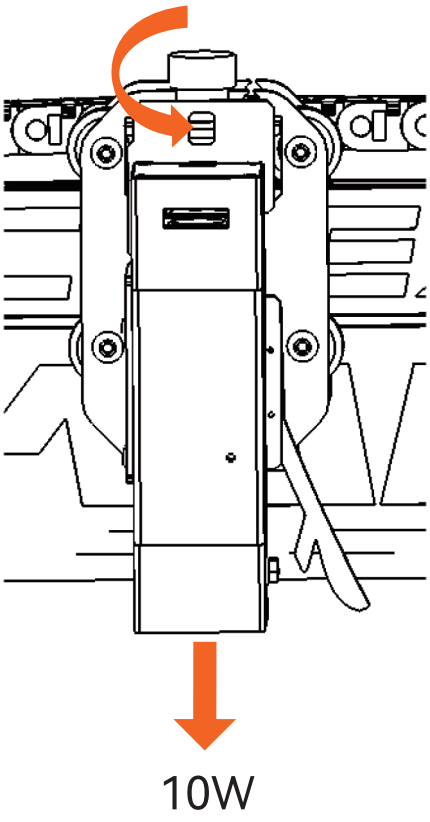


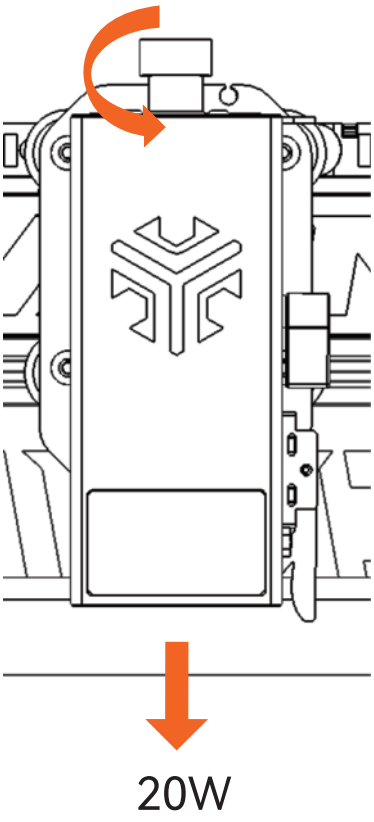
10W



20W

Rotate the nut by hand to make the focusing column contact with the board
旋转手拧螺母使调焦柱与木板接触





2. Drive installation
驱动安装

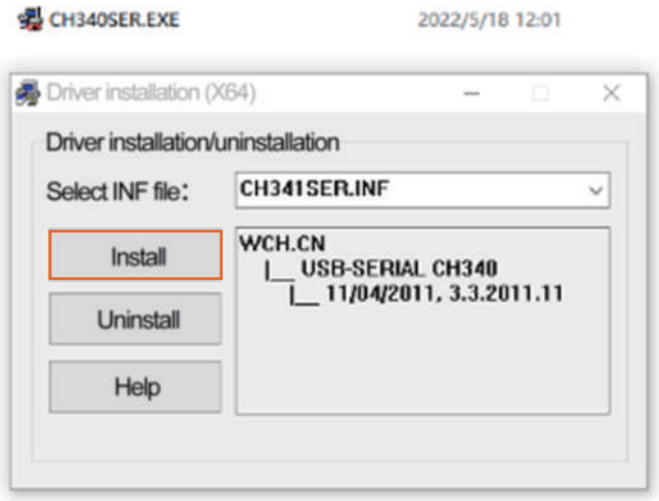
Before connecting the laser engraving machine with USB cable, you need to install ch340 driver for your computer, otherwise the computer cannot recognize the laser engraving machine

在使用USB线连接激光雕刻机之前，需要为您的电脑安装CH340驱动，否则电脑无法识别激光雕刻机。

2.1 Find the file package "software and driver files" in the memory card delivered with the machine, and select the software installation package corresponding to your computer system

在跟随机器配送的内存卡中找到“软件与驱动文件”文件包，选择您电脑系统对应的软件安

2.2 Double click to start the installation software, and then c lick Install
双击启动安装软件，点击安装即可



3. Software settings
软件设置

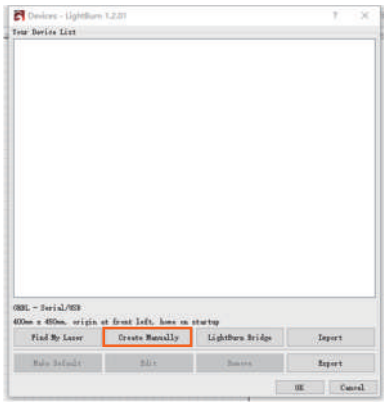
3.1Lightburn setting / Lightburn设置

You can import the lightburn software in the accessory USB flash drive into the computer or log in directly https://lightburnsoftware.com/ Download the soft - ware. The trial period of this software is 30 days. You need to pay for subsequent use，support Windows, Mac system

您可以将附件USB闪存驱动器中的lightburn软件导入计算机或直接登录https://lightburn - software.com/下载软件。该软件的试用期为30天。后续使用需要付费。支持Windows、Mac系统

① After opening the software, you will be prompted to add laser equipment and select manual addition
打开软件后，系统将提示您添加激光设备并选择手动添加

② Create manually, select GRBL and create a usable area for your equipment，Select USB connection for connection mode
手动创建，选择GRBL，并为设备创建可用区域，连接方式选择USB连接



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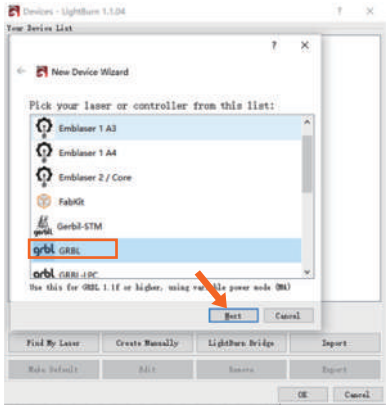

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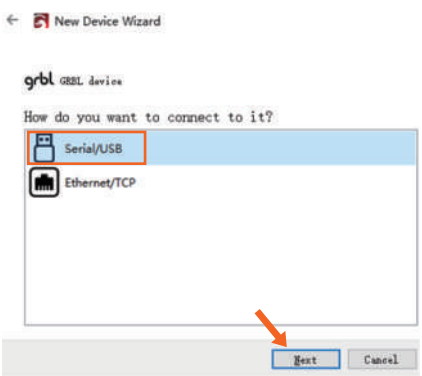
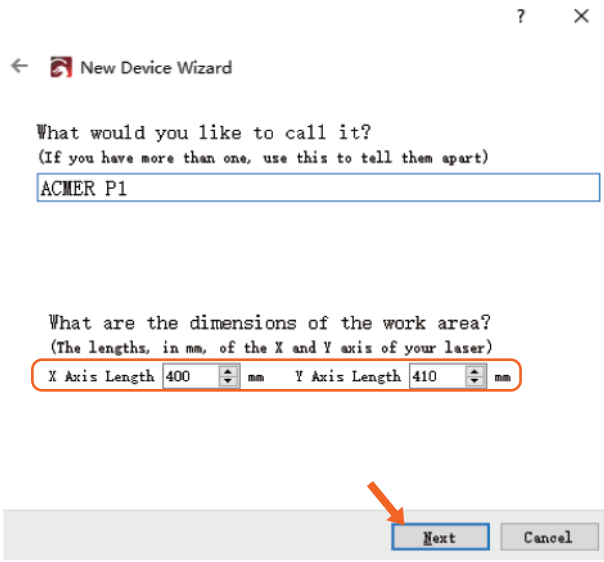
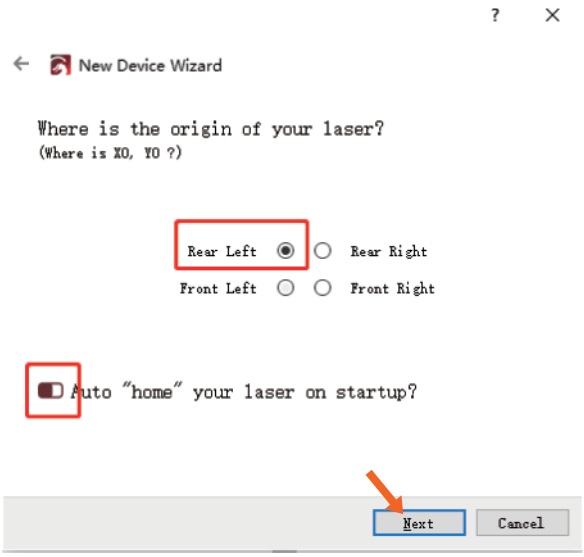


②

③ Name your machine and set the engraving area, Select the carving origin(The engraving area of ACMER P1 is X400 and Y410, and the engraving area of ACMER P1PRO is X400 and Y385)

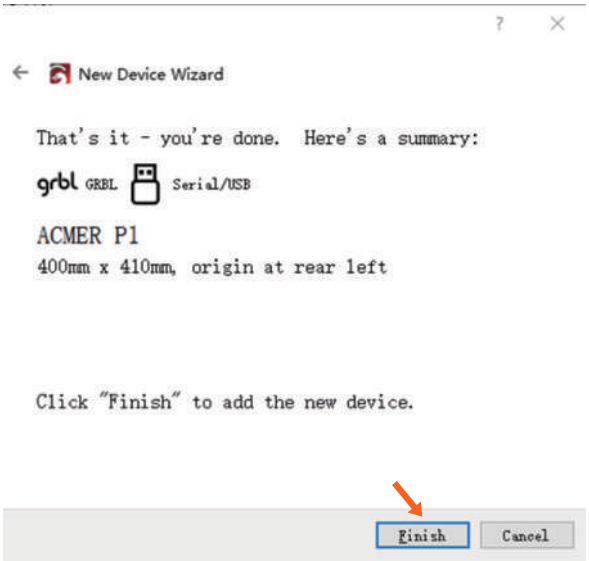
为您的机器命名并设置雕刻面积， 选择雕刻原点(ACMER P1的雕刻面积为X400、Y410，ACMER P1PRO的雕刻面积为X400、Y385)

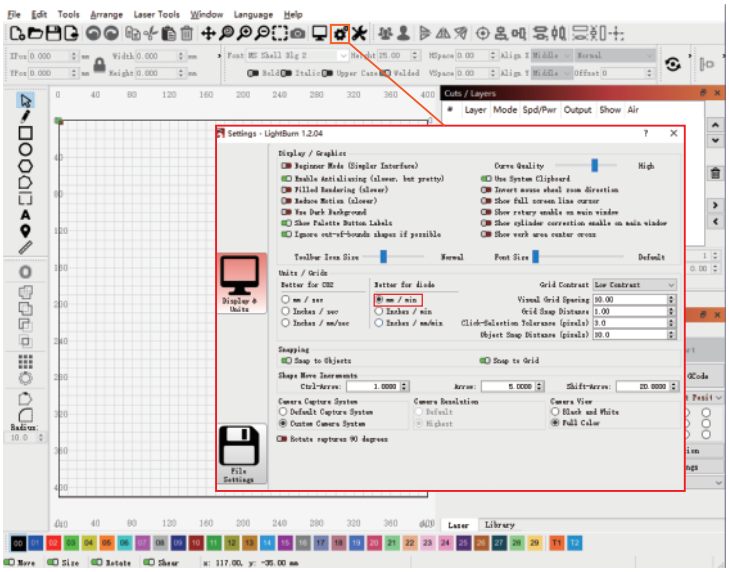




④ Select finish machine setup
选择完成机器设置

⑤ Set the speed unit to "mm/min"
将速度单位设置为“mm/min”

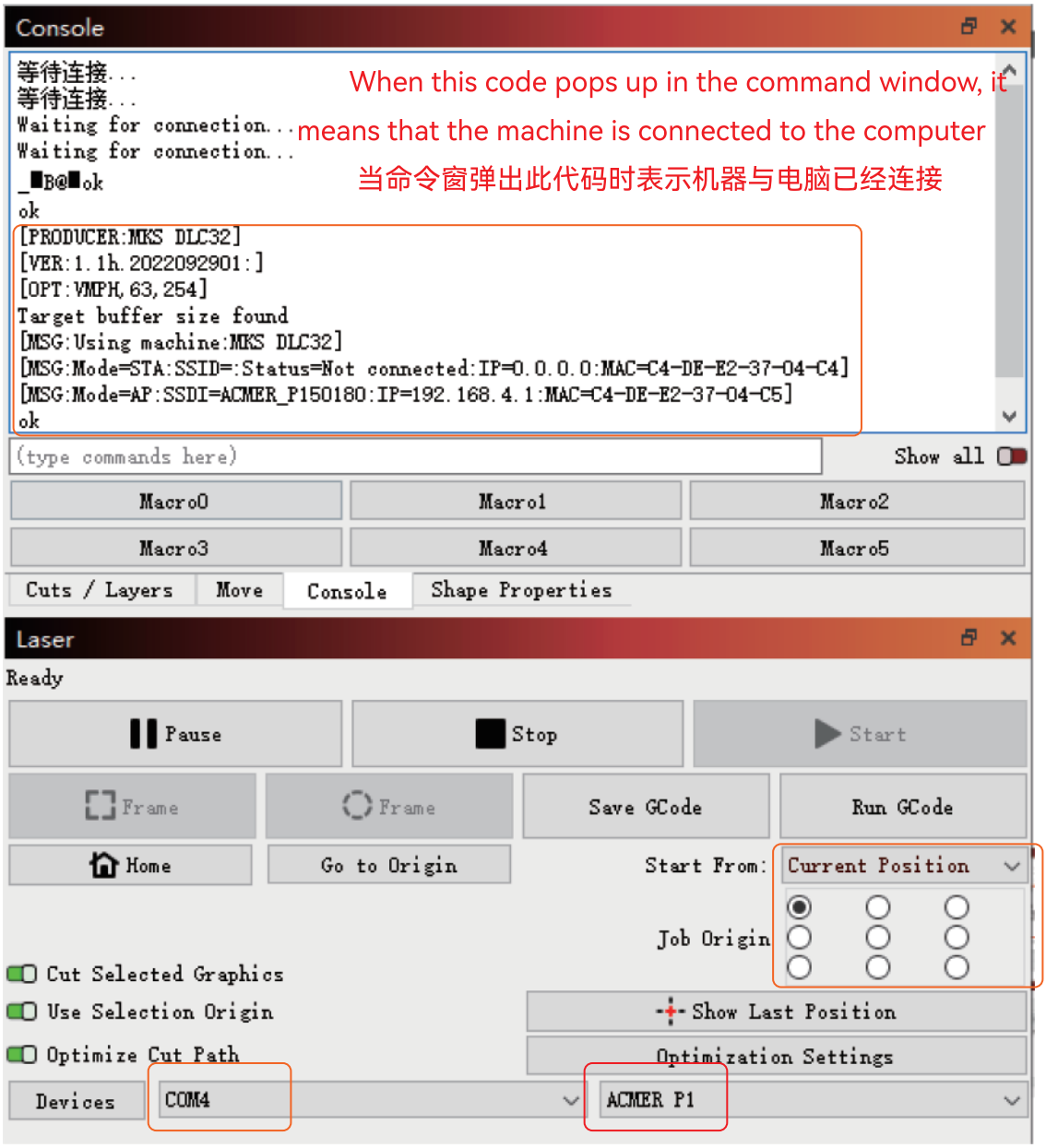




④ ⑤

⑥ Set "Job Origin" to "Top Left" and select the correct COM port and machine to complete the connection.

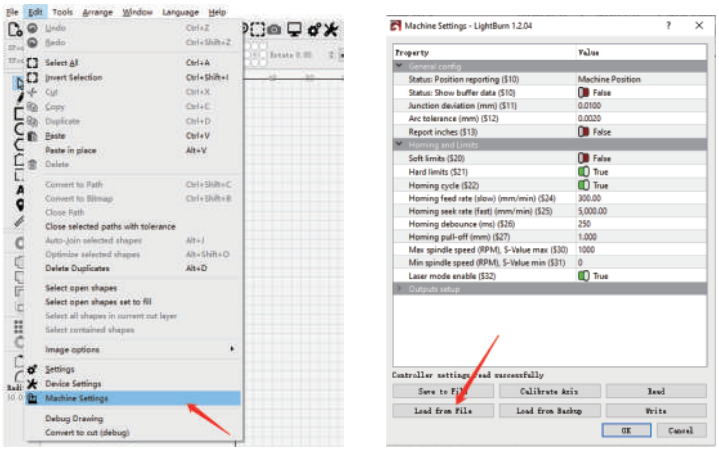
将“Job Origin”设置为“左上角”，选择正确的COM端口和机器即可完成连接



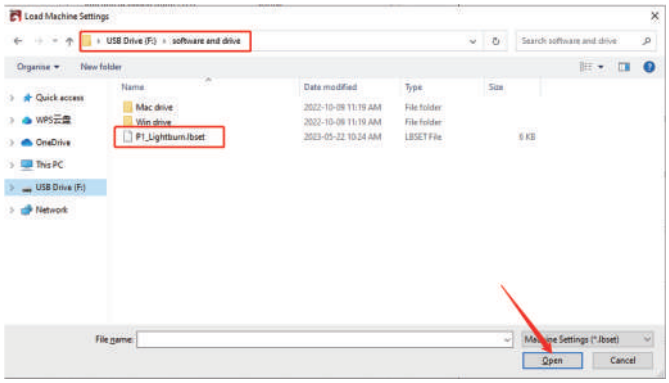
Importing Lightburn Parameters Configuration

导入Lightburn参数配置

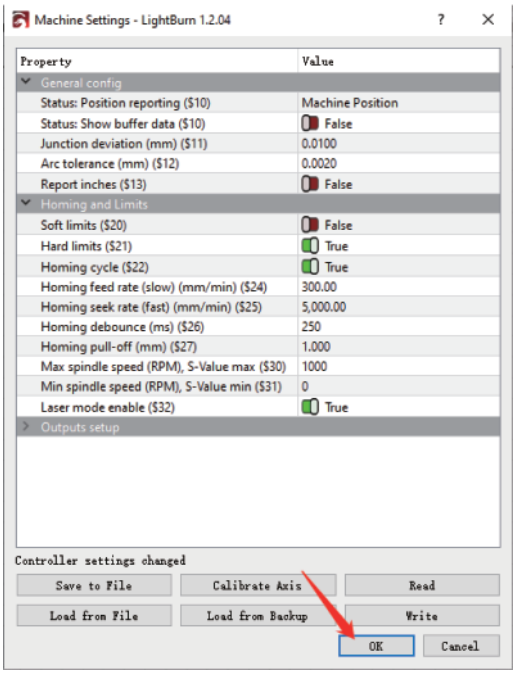
导入机器参数设置。
Import the machine parameter settings.



从TF卡中选择配置文件。
Select the profile from the TF card.



设置成功。
The setup was successful.



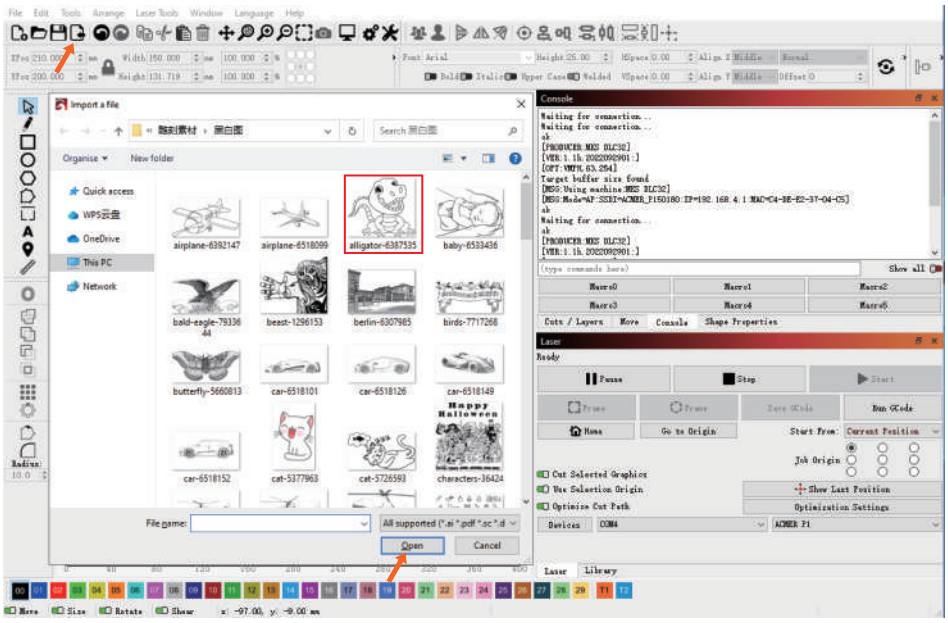
Note: If you want to use LaserGRBL for engraving, please enter "$RST=*" in the command bar to restore the initial configuration!

注：如您想使用LaserGRBL进行雕刻，请您在命令栏输入“$RST=*”恢复初始配置！

3.2 Lightburn Operation/Lightburn 操作

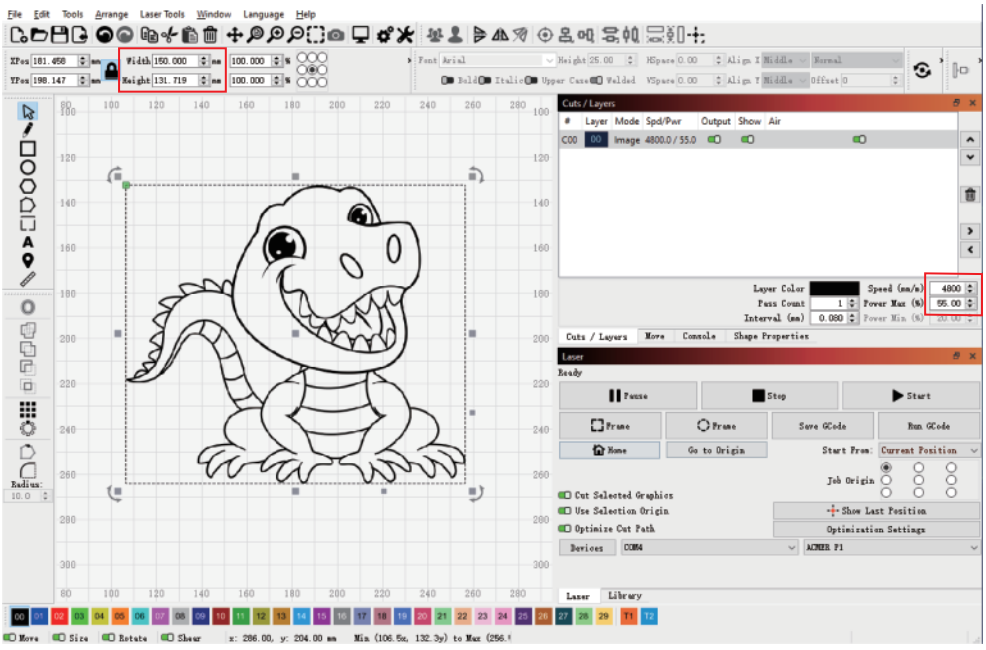
① Importing images

导入图片



② Resize images ansetengraving parameters

调整图片大小，设置雕刻参数

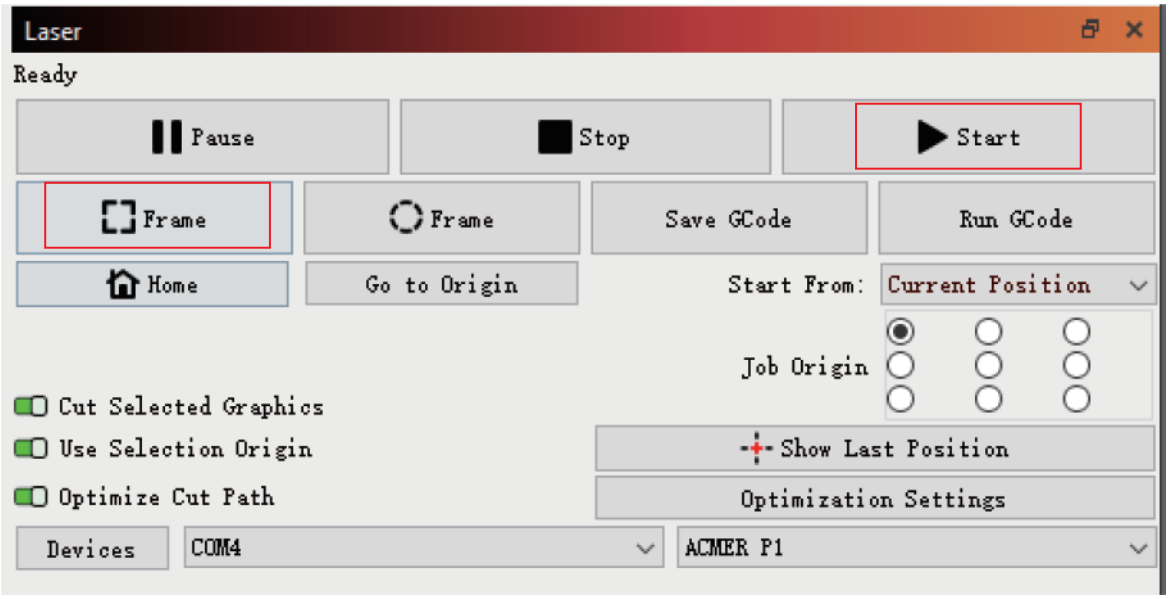


Note: The specific material corresponding to the engraving parameters can be obtained from the file in the TF card!

注：具体材料对应雕刻参数可从TF卡中文件获取！

③ Preview then start engraving

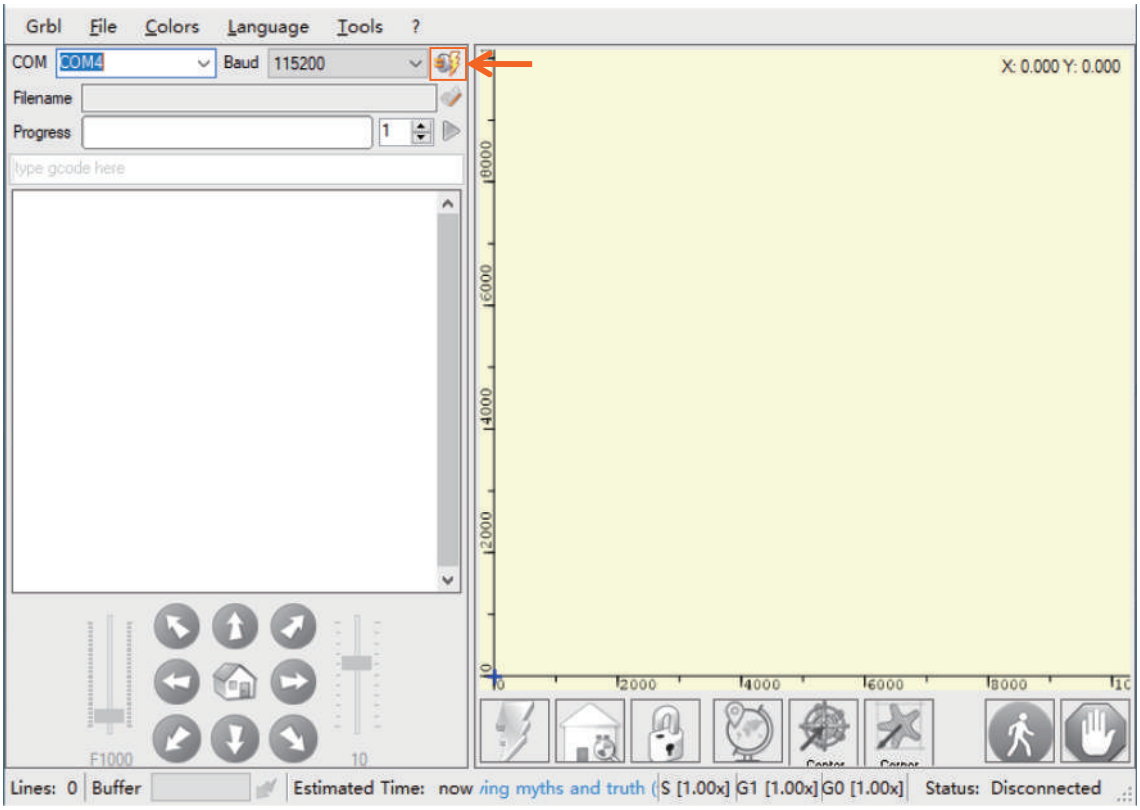
预览然后开始雕刻



3.3 LaserGRBL Basic Operation
LaserGRBL 基本操作

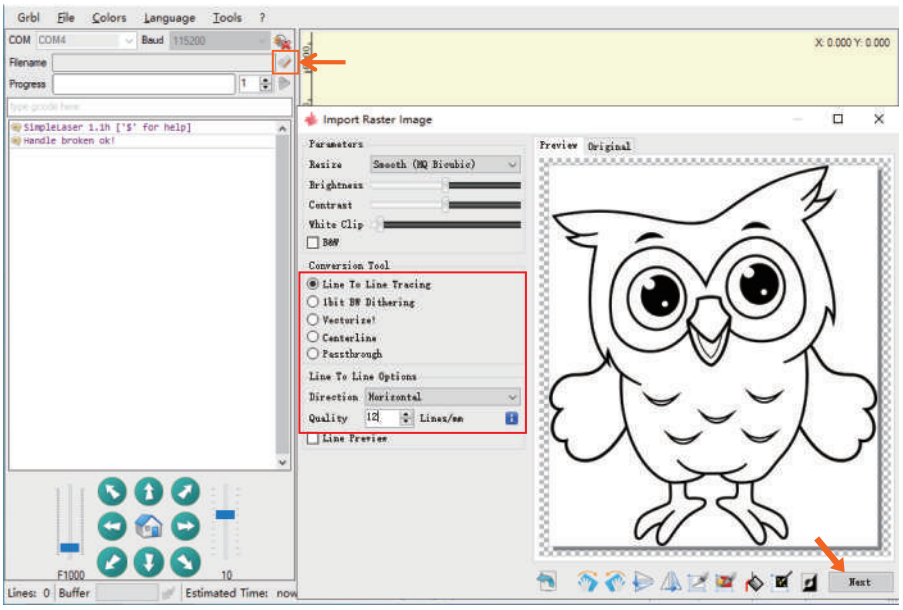
① Connect the machine

连接机器



② Import images and select mode

导入图片，选择雕刻模式

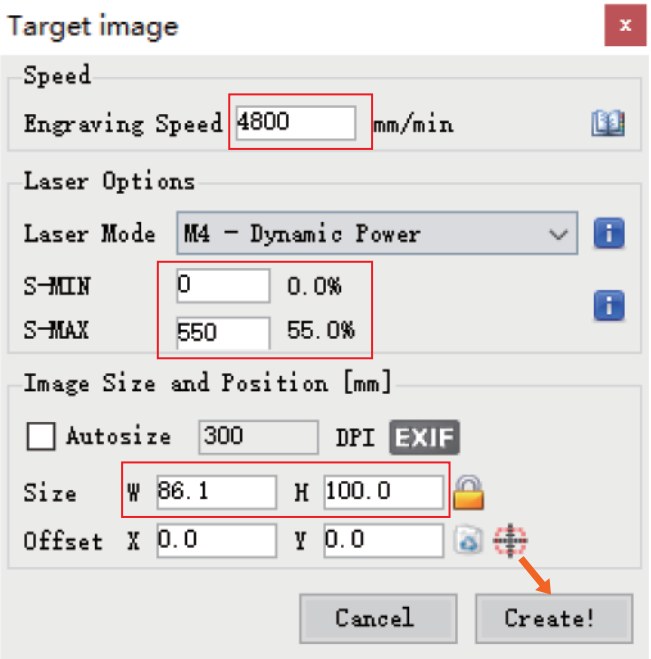


③ Set engraving parameters and adjust size

设置雕刻参数，调整尺寸

④ Preview then start engraving

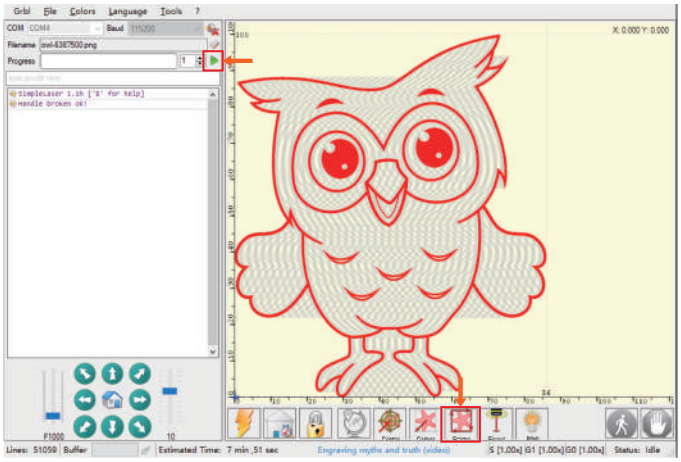
预览然后开始雕刻



Note: The specific material corresponding to the engraving parameters can be obtained from the file in the TF card!

注：具体材料对应雕刻参数可从TF卡中文件获取！

③



④

FAQ

1. Machine installation videos, software operation tutorials and access?
机器安装视频，软件操作教程及获取途径?

1.1 In the TF card or U disk included in the package.
包装附送的TF卡中

1.2 Or download it from our official website:
包装附送的TF卡中或者从我们的官网下载:
https://acmer3d.com/

2. What should I do if the LaserGRBL software cannot connect to the laser engraving machine? / LaserGRBL
软件无法连接激光雕刻机，怎么处理?

2.1 Reselect the correct port. (tips: you can try all ports)
重新选择正确端口（提示: 可以把所有端口都试一下）

2.2 Baud rate selection: 115200
波特率选择: 115200

2.3 Close other software that occupies the port or opens repeatedly.
关闭其他占用到端口或重复打开的软件

2.4 Check whether the data cable connection is normal.
检查数据线连接是否正常

3. Q&A of Motor
电机问题

The motor is shaking. The direction is opposite to the actual direction and there is no response after power on.
电机出现抖动方向与实际相反已经通电后没有反应

3.1 First of all, please make sure that the wiring of the motor line or the motor terminal or the motherboard port is firm, whether there is loose phenomenon or bad contact, which can be Re-power test.
首先确保电机线或电机揣子处或主板端口处的接线是否牢固，有无松动现象和接触不良，可重新通电测试

3.2 Swap the motor, If there is still no response after replugging, test it after swapping the defective motor with the normal motor of the motherboard port . After the test, make the motor fault judgment. (A. Motor line problem B. Drive problem C. Motor problem)
对调电机，如果重新插拔最后还没反应，可在主板端口处把有问题的电机和正常的电机对调测试，测试后做出电机故障判断，（A电机线问题 B驱动问题 C电机问题）

Motor cable issue: After confirming that the motor is ok, test it after swapping the defective motor cable with the normal motor cable of the motherboard port. If there is no issue, then it means the motor cable problem. If it still doesn't work, then check the driver.
电机线问题： 在确认好电机没问题后，在主板和电机上把有问题的线同没问题的电机线对调之后测试一下，如果没问题那么表示是电机线的问题，如果还是不能正常工作那请再检查一下驱动

Drive problem: Under the premise of confirming that the motor and the motor line are no problem, check the motor drive again. There may be a problem with the drive and a new drive needs to be replaced.
驱动问题：在确认好电机目电机线都没问题的情泪下，在检查一下电机驱动，有可能是驱动出现问题，需要更换新的驱动

Swap the motor cable on the main board. If it is Y-axis jitter, you can swap it with the good end (X-axis motor socket). At the same time, the wiring on the motor also needs to be changed to the corresponding motor, and power on, Then move the motor to test .
(对调主板上的电机口），如果是Y轴抖动则可以和好的一端进行对调（X轴电机插口），同时电机上的接线也需要换到相应的电机上，然后通电移动测试

4. Engraving issue
雕刻问题

Common problems and solutions for engraving machines: 1. Engraving is misplaced, 2. Engraving patterns are reversed, 3. Engraving patterns are irregular.
雕刻机常见的问题以及解决方法： 1. 雕刻错位，2. 雕刻图案颠倒，3. 雕刻图案不规则

The engraving misalignment is caused by the mismatch of software configuration parameters, which causes the engraving machine to run too fast .
雕刻错位是由于软件配置参数不匹配导致雕刻机运行速度过快

Solution: Reconfigure the software parameters and run the engraving machine to see if it can return to normal. If it does not recover, it may be that the motor drive voltage does not match. Check the drive voltage with a multimeter (the normal value of the X-axis drive voltage is 0.8V, Y The normal value of the shaft drive voltage is 1.4V.) The driving voltage adjustment method is as follows: Vref
2.1 measures the intermediate voltage between GND and the voltage meter. Rotate the potentiometer clockwise to decrease the current, and counterclockwise to increase the current.

解决方法：重新配置软件参数，运行雕刻机看是否能恢复正常，如果没有恢复，则有可能是电机驱动电压不匹配，通过万用表检查驱动电压的大小（ X轴驱动电压正常值是O.8V,Y轴驱动电压正常值是1.4V.

2.1.3. ACMER will work with the customer on replacing the parts in the claim.

4.2 The engraving pattern is reversed due to incorrect software configuration parameters.
雕刻图案颠倒由于软件配置参数错误导致的

Method: Re-import LaserGRBL through the configuration file in TF card.
方法：通过TF卡中配置文件重新导入 LaserGRBL

4.3 Irregular carving patterns are caused by machine assembly problems.
雕刻图案不规则是由于机器装配问题造成

1. Please check whether the X-axis of the engraving machine is parallel to the bottom frame and whether the bottom frame is parallel and the diagonal size.
请检查雕刻机X轴是否与底部框架平行以及底部框架是否平行以及对角尺寸

2. Please check whether the X-axis laser head module shakes. If there is shaking, please adjust the eccentric nut of the POM wheel to ensure that the laser head module slides smoothly.
请检查X轴激光头模组是否有晃动，如有晃动请调整POM轮的偏心螺母来保证激光头模组滑动是平稳的

5. The carving effect is not good, how to deal with it?
雕刻效果不好，怎么处理?

5.1 The focus position is wrong, adjust the focus according to the teaching video in the TF card, and then fine-tune the focus according to the actual situation.
焦点位置不对，参照TF卡中的教学视频调整焦点，再根据实际微调整焦点

5.2 The power value is set incorrectly, 1000 is the maximum power, reset the engraving power. You can manually input the command “M3 S1000” to test the laser intensity.
功率值设置不对，1000为最大功率，重新设置雕刻功率。可手动输入指令“M3 S1000 ”测试激光强度

5.3 The engraving speed is incorrect, reset the speed.
雕刻速度不正确，重新设置速度

After Sale | ACMER售后服务

Dear Customer,
亲爱的客户，

Thank you for purchasing ACMER Laser Engraving Cutting Machine. We are dedicated to producing low price, high quality Laser Engraving Cutting Machine and hope you have as much fun using it as we did creating it!
感谢您选购泰坦国际发展科技有限公司出品的激光雕刻机。我们致力为市场提供低价高质量的激光雕刻机，希望我们的机器能为您带来激光雕刻的乐趣。

If you have any issue/questions regarding the contents in the kit, please fill out a Service Ticket on our Support page.
如果在使用机器的时候遇到任何质量上的问题，请使用我们的售后支持页面提交售后申请。

https://acmer3d.com/

Creating a Service Ticket will serve as your official requests for ACMER support. Our Customer Support Team will contact you within 48 hours.
当申请提交完成后，将视作您向ACMER提出正式的售后支持要求，我们的售后支持团队将于48小时内（法定假日除外）与您取得联系。

The content of after-sales service is as follows:
售后服务内容如下：

1. REPLACEMENT PARTS

1.1 ACMER products are covered under a Replacement Part Program for a period of 12 months from the date of purchase.

1.2 Missing/Damaged/Defective Parts
1.2.1. Within 7 days of the delivery date, ACMER will replace any parts free of charge including shipping fees.
1.2.2. After 7 days of the delivery date, ACMER will replace any parts free of charge. BUT the customer will be responsible for shipping fees.

1.3 Customer Damaged Parts
1.3.1. The customer shall pay for the cost of the parts and the shipping fees.

2. CARRIER LOSS, MISSING, DAMAGED, AND DEFECTIVE PARTS

Claims for lost or damaged shipments must be reported to the carrier within the carrier's claim window, the customer needs to inform ACMER within 7 days of the delivery date. For any parts lost or damaged during shipping, the customer shall take photos or video and submit them when filling out a Service.

2.2.1. Ticket. If a claim number was issued by the carrier, please include the claim number when creating your Service Ticket (Report a Problem / Carrier Lost Parts.)

2.2.2. Once the Carrier disupute is resolved, please provide ACMER with all communications with the carrier. It is the customer's responsibility to keep ACMER up to date with ALL communication with the carrier.

2.2 For Missing Parts, refer to section 1.2, the customer shall fill out a Service Ticket (Report a Problem / Missing Parts.)

2.3 For Damaged Hardware Parts, refer to section 1.2, the customer shall take photos or video and submit them when filling out a Service Ticket (Report a Problem / Damaged Hardware Parts.)

2.4 For Defective Electronic Parts, refer to section 1.2, the customer shall take photos or video and submit them when filling out a Service Ticket (Report a Problem / Defective Electronic Parts.)

2.4.1 If the part is the LCD Panel, Power Supply or Mainboard, the customer shall ship the part back to ACMER and ACMER will send a new part.

3. GENERAL SUPPORT

For information and support on building and operating your ACMER Laser Engraving Cutting Machine, please visit the ACMER Owners Group.

https://acmer3d.com/

1. 替补零件

1.1 泰坦国际发展科技有限公司的激光雕刻机，均受到12个月零件替补政策所保障。

1.2 缺失/损坏/破损零件

1.2.1 自用户签收次日起七日内，发现零件缺失、非人为损坏性功能故障，ACMER 公司将包邮退换零件。

1.2.2 自用户签收次日起七日后，发现零件缺失、非人为损坏性功能故障，ACMER 公司将免费提供替换零件，客户需自行承担运费。

1.3 人为损坏

1.3.1 人为原因造成的损坏，有需要进行零件替换之情况，客户需自行承担零件费用及运费。

2. 零件丢失及运输期间造成的损毁

2.1 货运期间造成之零件丢失或损毁，客户需马上与运输（快递）公司取得联系，并在七天内与我们取得联系。

2.1.1 所有运输期间造成的损毁，客户需提供相关之照片或视频，并到售后支持页面提交售后申请。如有货运公司提供之跟踪号，请在提交申请时一并提交。
（Report a Problem / Carrier Lost Parts）

2.1.2 当与快递公司间之纠纷解决后，请尽快与我们取得联系，客户有责任提供最新的相关消息予 ACMER 公司。

2.1.3 ACMER 公司将会为您尽快解决问题及提供相关之替换零件。

2.2 零件丢失，请参阅1.2项，提交申请时请选择Report a Problem / Missing Parts

2.3 硬件损坏，请参阅1.2项，提交申请时请选择Report a Problem / Damaged Hardware Parts

2.4 电子零件损坏，请参阅1.2项，提交申请时请选择Report a Problem / Defective Electronic Parts，并同时提供相关照片。

2.4.1 如问题元件为 LCD、电源、或主板，客户需把问题元件寄回以作替换。

https://www.facebook.com/groups/1614455505653986