ComMarker

Laser Marking Machine

B4

Manual

Security Statement ⚠️

Before using the laser engraving machine, please read this safety guide carefully.

It mentions situations that require special attention and includes warnings of unsafe practices that can cause damage to your property or even endanger your personal safety.

1 Laser Safety

• The machines use Class Ⅳ lasers. The lasers are very powerful and can cause eye injuries and burn the skin. It is recommended to wear laser goggles when using the laser engraver.

• Avoid exposing your skin to Class Ⅳ laser beams, especially at close range

• Teens must be supervised by parents while using the machine.

• Do not touch the laser engraving beam while it is switched on.

2 Material Safety

• Do not engrave materials with unknown properties.

• Materials recommended:

Metal, including stainless steel, aluminum, bronze, brass, alloy, etc,

Plastics, including PP, PE, ABS, etc.

3 Use Safety

• It is forbidden to point the laser to people, animals or any combustible object, whether it is in working condition or not.

• Use this laser engraving device only in accordance with all applicable local and national laws and regulations.

• Use this device only in accordance with this instruction manual and engraving software manual.

• DO NOT leave this device unattended during operation. Cut off all power to the machine and contact either our customer service or repair service if anything seems to be working abnormally.

• Any untrained personnel who might be near the device must be informed the danger of the machine before operation
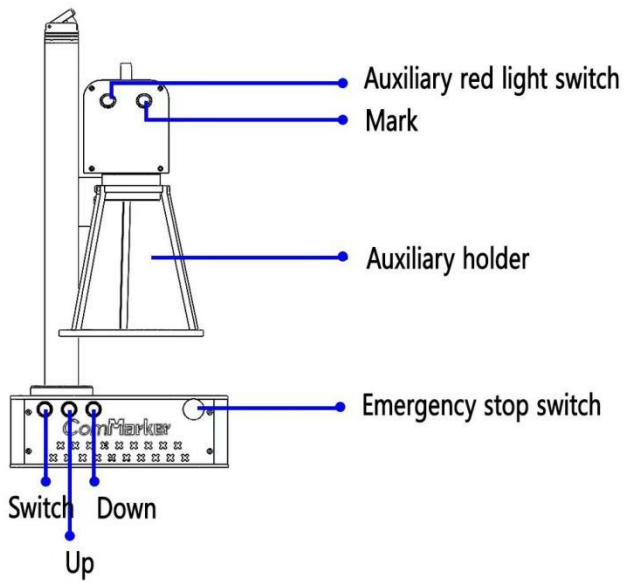
4 Electric Safety

• Only use this device with a compatible and stable power supply with less than 5% fluctuation in its voltage.

• Turn on the power to this device when it is well grounded.

• ONLY use this device with one hand at a time. The laser is powered by an extremely high voltage connection and placing two hands on the machine at one time during operation has the potential to create a closed circuit with the human body, resulting in electrical shock.

• The area around this laser engraver device should be kept dry, well ventilated, and environmentally controlled to keep the ambient temperature between 40–95°F (5–35°C). The ambient humidity should not exceed 70%.
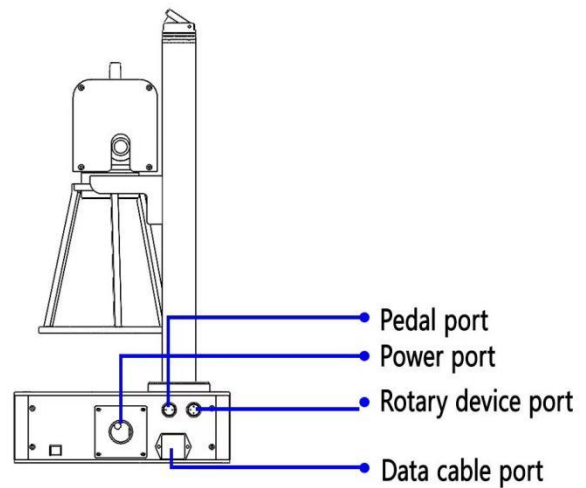
Note:

1) Adjusting the focus is a necessary prerequisite for laser engraving, please refer to step 4 of the manual before engraving.

2) Make sure to remove the plastic protective cover of the field lens before engraving to avoid damage to the field lens caused by laser burning.
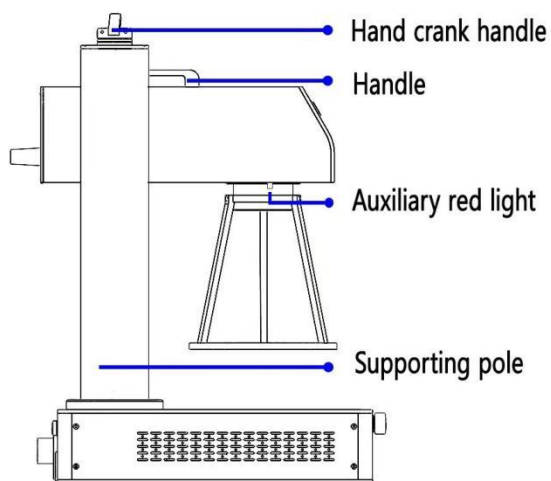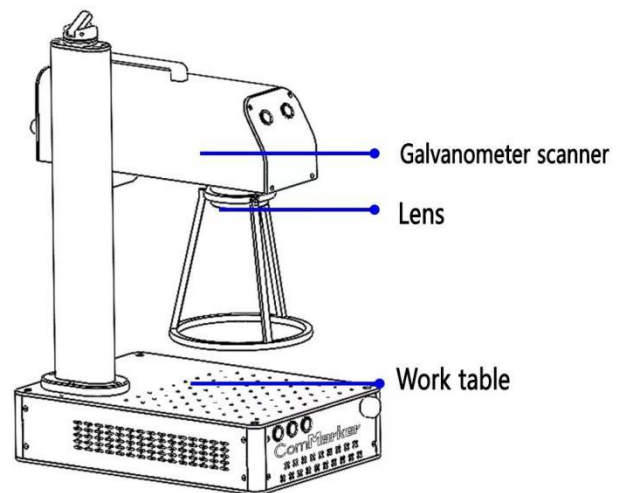
Product Structure

01

- Auxiliary red light switch
- Mark
- Auxiliary holder
- Emergency stop switch

Switch   Down

Up

02

- Pedal port
- Power port
- Rotary device port
- Data cable port

03

- Hand crank handle
- Handle
- Auxiliary red light
- Supporting pole

04

- Galvanometer scanner
- Lens
- Work table

Assembly of Machine

1. Place the parts on the table

2. Place the coupling on the right place of the shaft

3. Fasten the coupling with the inlaid screws
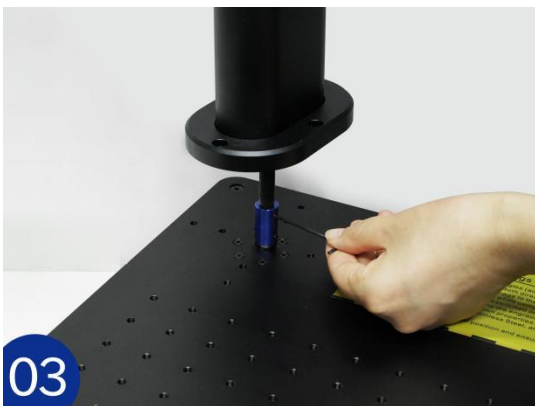
4. Fasten the supporting pole with the screws

5. Put the laser head on the supporting shelf and fasten the screws to fix the laser head

6. Put the gasket on the top of the pole, circling the lead screw

7. Fix the hand crank handle with a screw and a gasket

8. Connect the laser machine with the computer, and switch on the machine

Assembly of Auxiliary Holder

1. Place the parts on the table

2. Connect the metal bar and the big ring with the screws
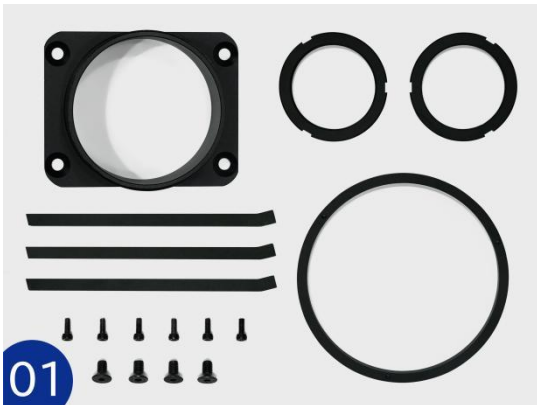
2. Fix the metal bar and the small ring with screws

4. Fasten the fixing collar onto the laser head with the screws

5. Screw the other small ring on the fixing collar

6. Screw the assembled part on as below

7. Adjust the height of the auxiliary holder according to the focus length

8. Fasten the small ring to fix the auxiliary holder with right focus point

Operation Instructions

1. Install the driver
Note: please conduct the following operation before installing the driver
1) The machine is on; 2) Keep the emergency button not pressed; 3) Data cable connected
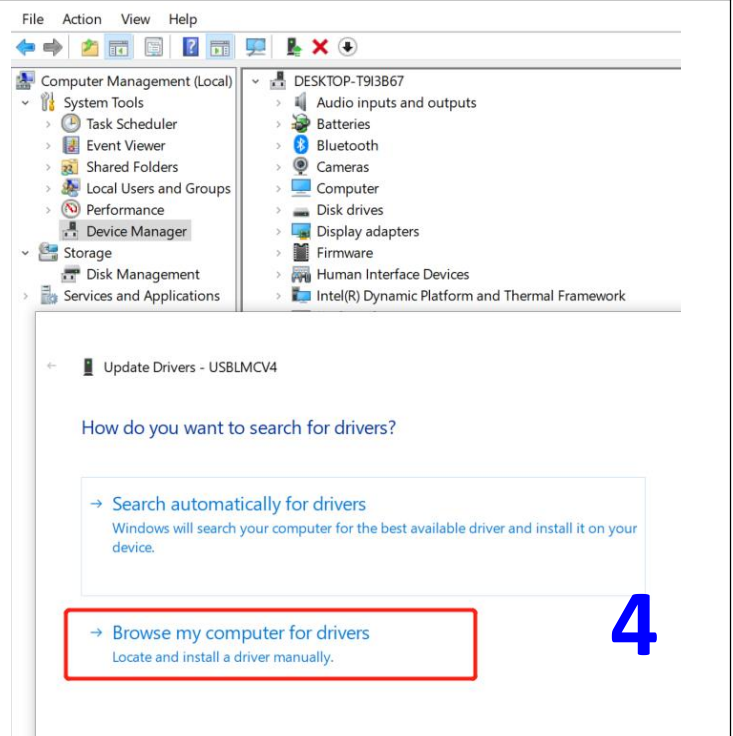
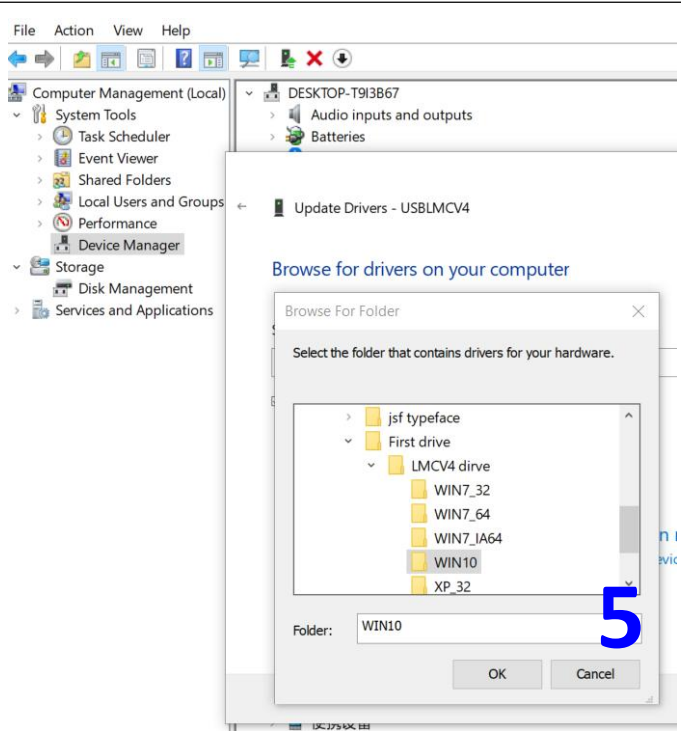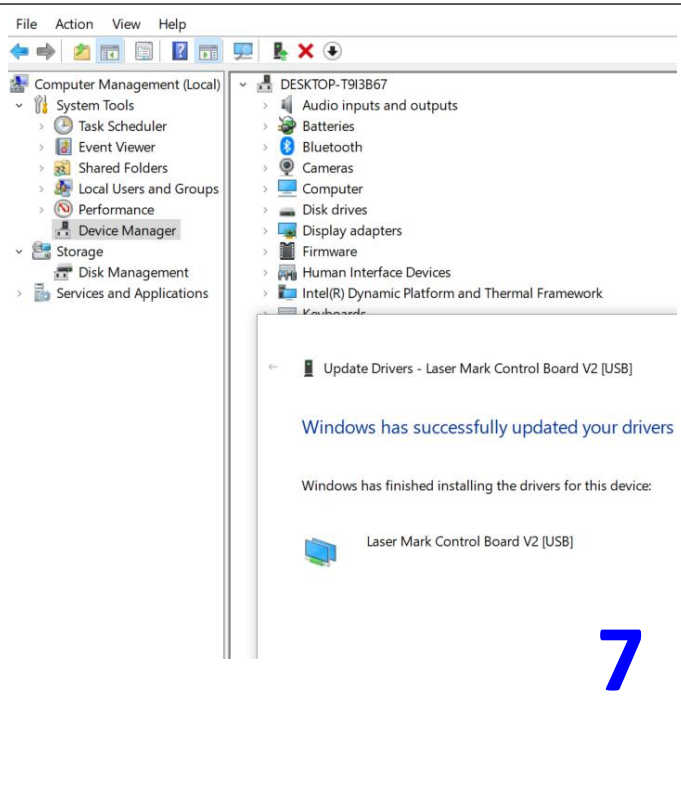|	
1.Right-click "this PC", click "Manage"	2.Click "Device Manager", find **"USBLMCV2"**or **"Unknown Device"** in**"Other devices"**or **"Universal Serial Bus devices"**
3.Right-click **"Unknown device"** or **"USBLMCV2"**and "Update driver"	4.Select "Browse My Computer for Drivers"
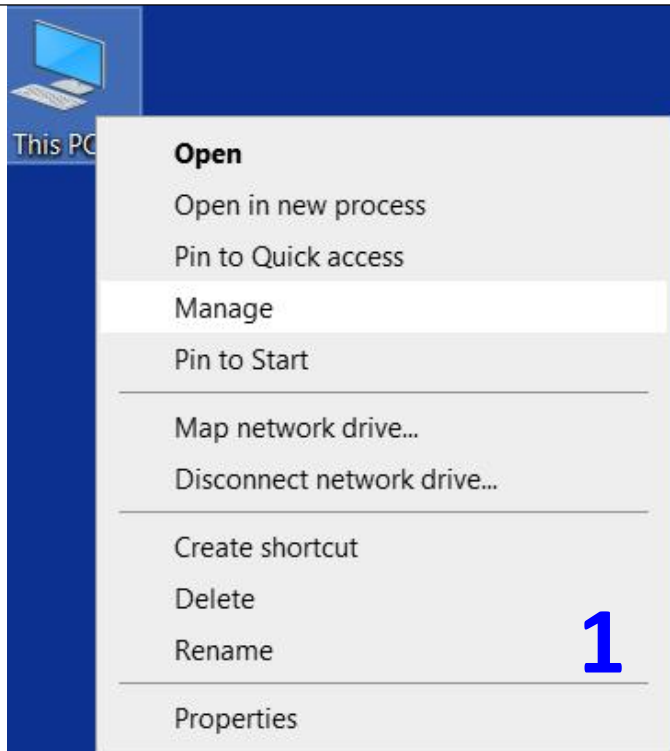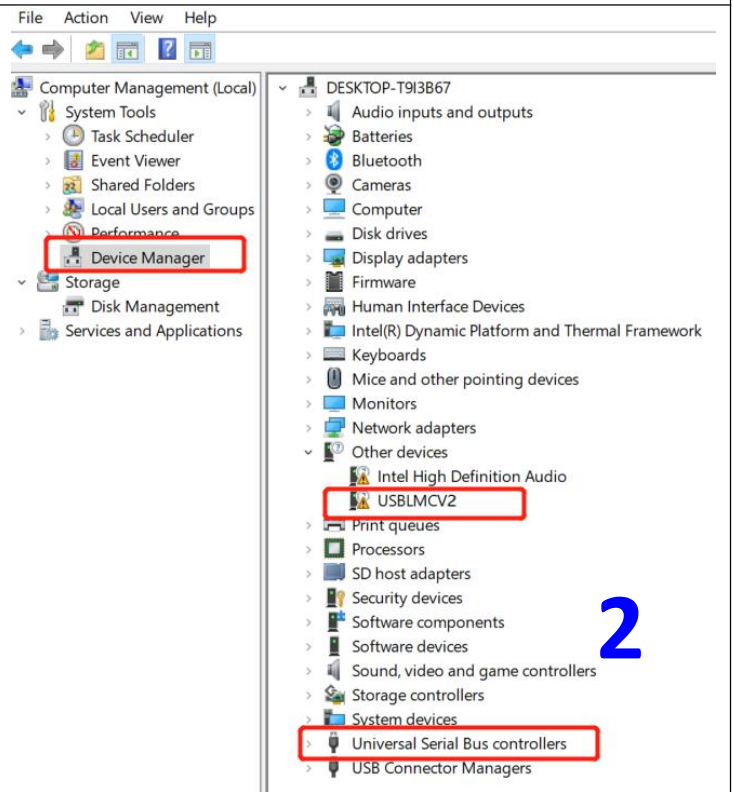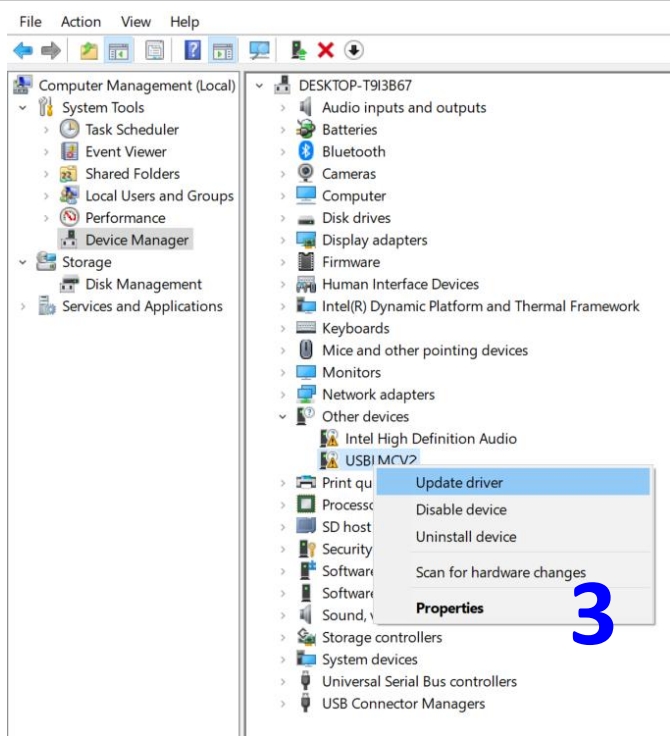
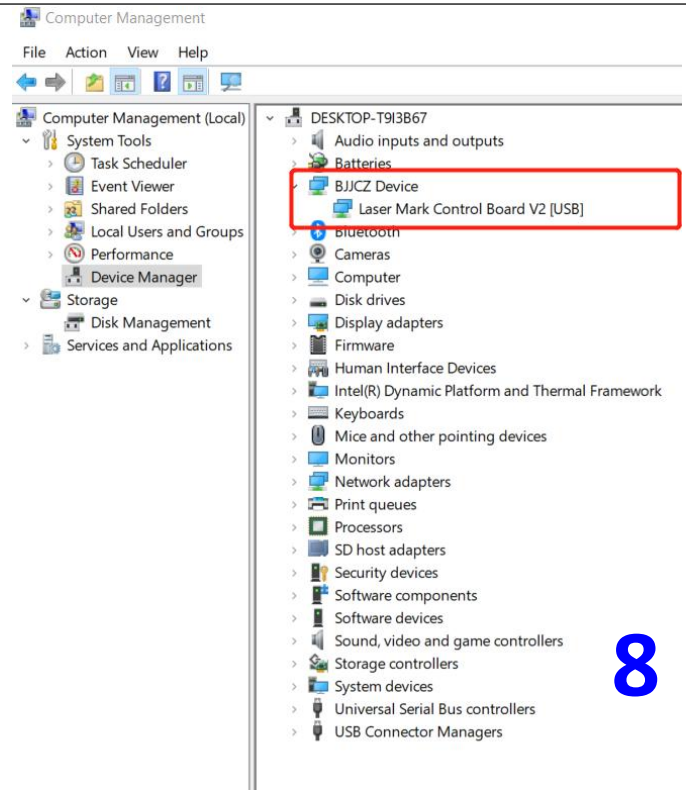| 5.Find the corresponding file with window system in the USB drive, click OK	6.Click "Install"
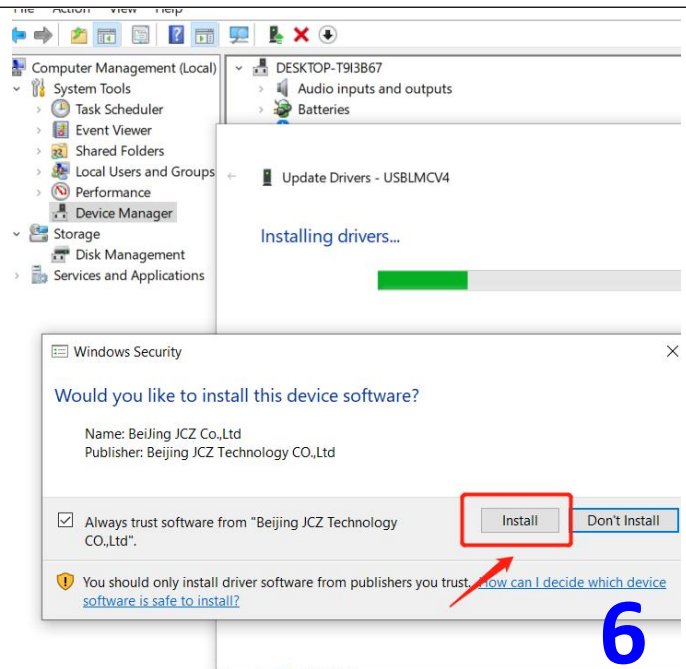
| 7.Click "finish" if it is successful	8.It will display "BJJCZ Device" in Device Manager

Noted: *It is recommended to copy and paste the files of the USB disk to the computer desktop or other computer disks.

***If the driver installation is unsuccessful, please refer to FAQ 1**

2. Open the software

Open the USB folder, open the "EZCAD for ComMarker" folder, and select the 110mm folder if the lens is 110mm. Open the software "EZCAD2". You can enter "text", import "picture" or "vector file" as shown in the figure below. It is recommended to select the text to test first.
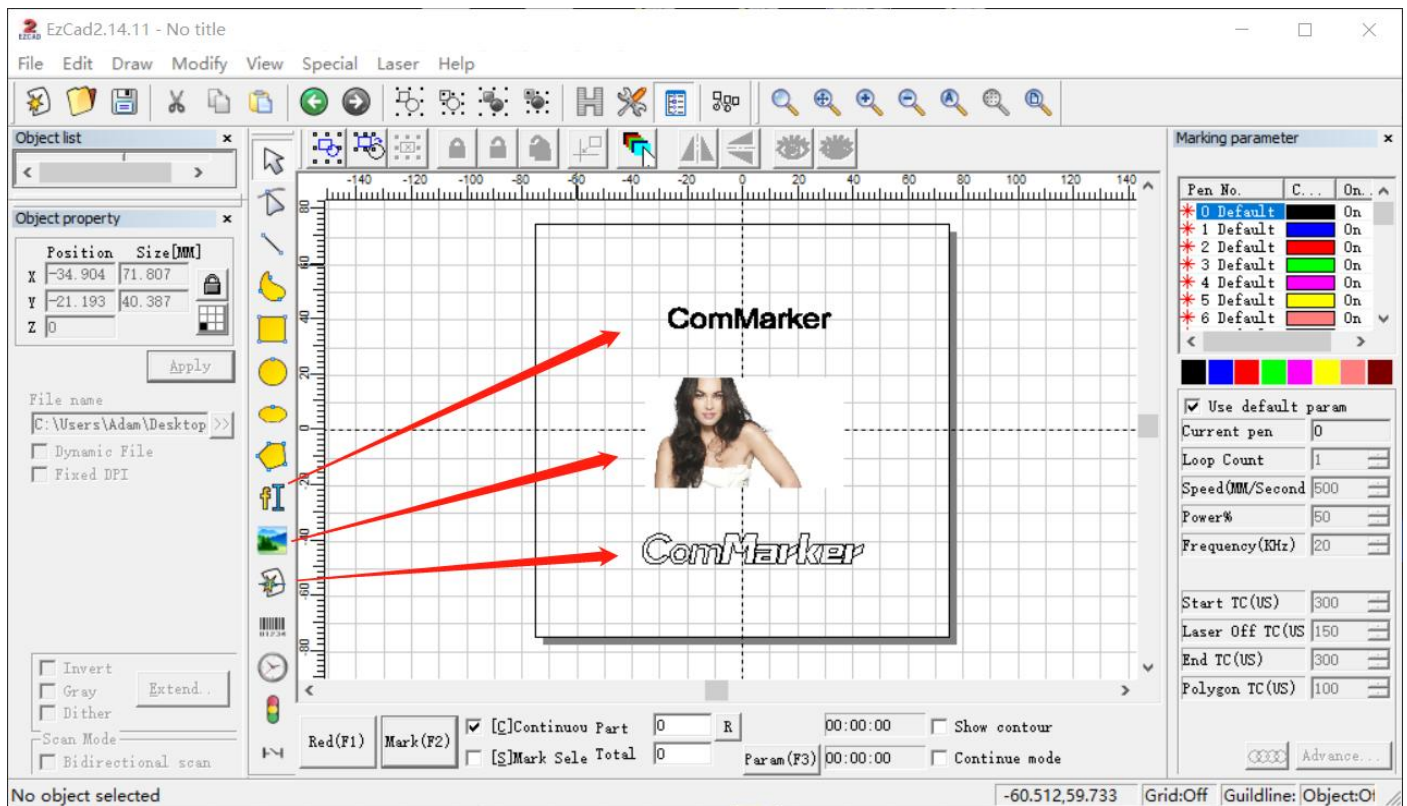
3. Import the correction file

Select "Parameter (F3)", tick "Use Correct File", select the file ending in .cor in the USB flash drive (or have been copied to the computer disk), and click "OK (确认)".
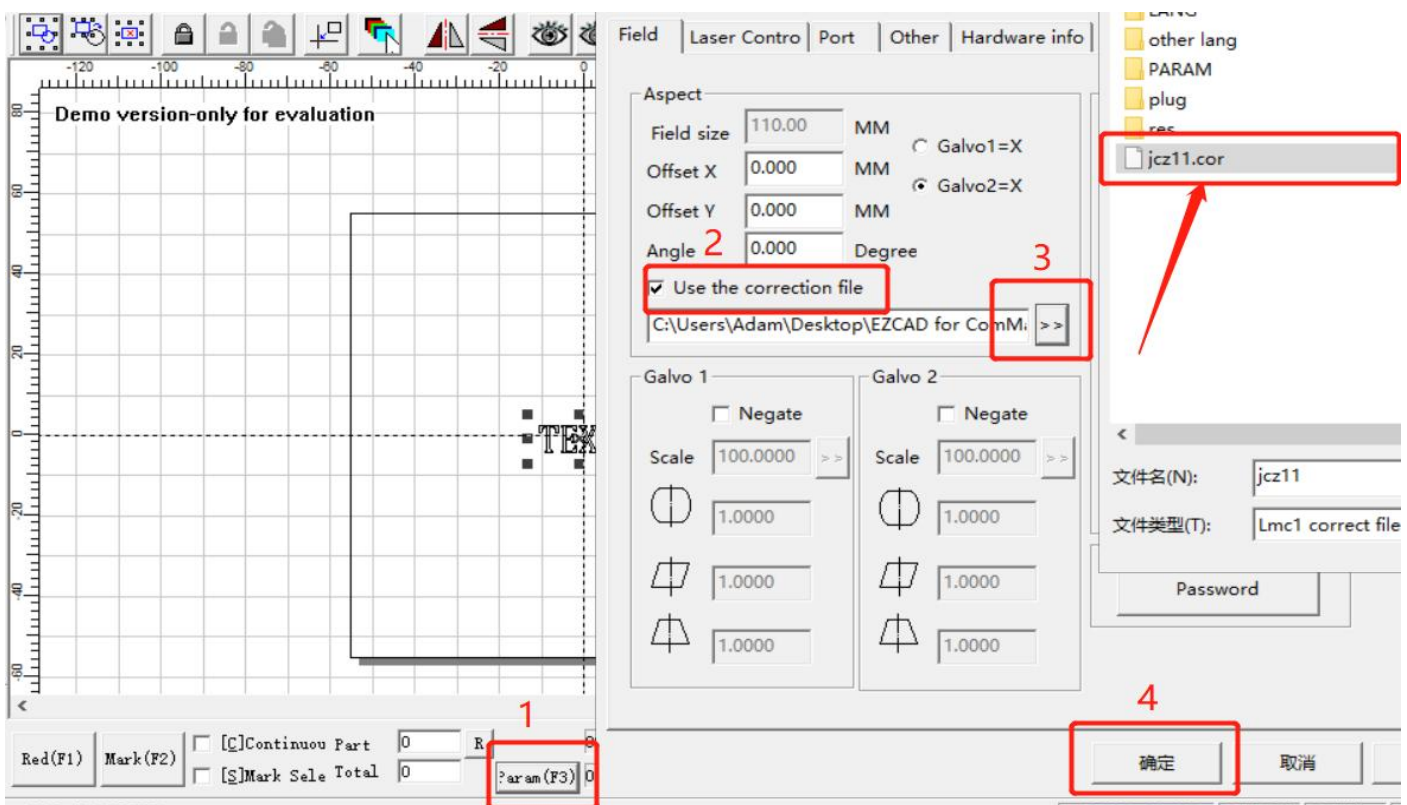
4. Adjust the focus

Press up or down button to lift or lower the laser head until the three red light point overlap, which is the best focal point. The measuring focal length of this machine is _____ mm (110x110) and _____(200x200) , and the measuring distance is the length from the bottom line of the laser head to the surface of the engraving material. This parameter is measured manually, and each device has different focal lengths due to changes in laser sources and field lenses.

Note: Before the machine is out of the factory, we have done red light correction *(for 110mm lens)*. **At the position where the three red light spots overlap, the laser emits the strongest light. However, due to transportation reasons, the focus point of the red lights you received may shift, and the focus point would not be the best focal length.**
Please operate as the following steps:
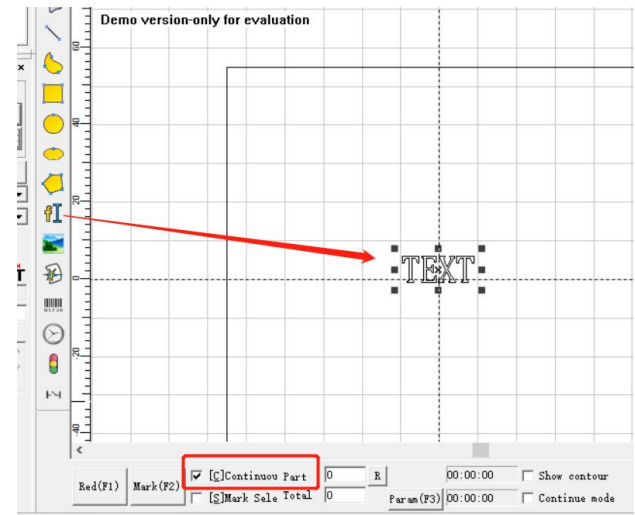
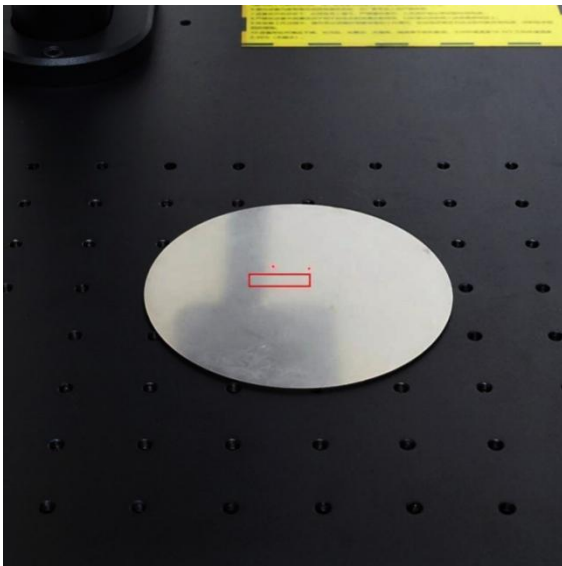| 1.Place the stainless steel test plate on the machine table	2.lift up or down the laser head to the best focus point according to the number in handwriting above
	From the edge to marking surface

3.Turn on the machine, connect the computer with the machine	4. Import the "TEXT" for testing, select the default parameters, and tick the "continuous part" button.
5. Press "red (F1)" to ensure it'll mark on the test material. Click "mark", and the laser would be continuously marking	6. Meanwhile, lift or lower the laser head and observe the obvious change of intensity of the laser beam. Stop when the it works with the strongest laser
7.At this time, loosen the screws for the two beams of the auxiliary red light	8. Manually adjust the relative position of the red light dots to make them overlap. And tighten the screws

5. Marking test

Place the test engraving material on the machine. Click "Red (F1)", the area shown by the red light is the marking area. Tick "Default Parameters". Click "Mark (F2)" to start marking.
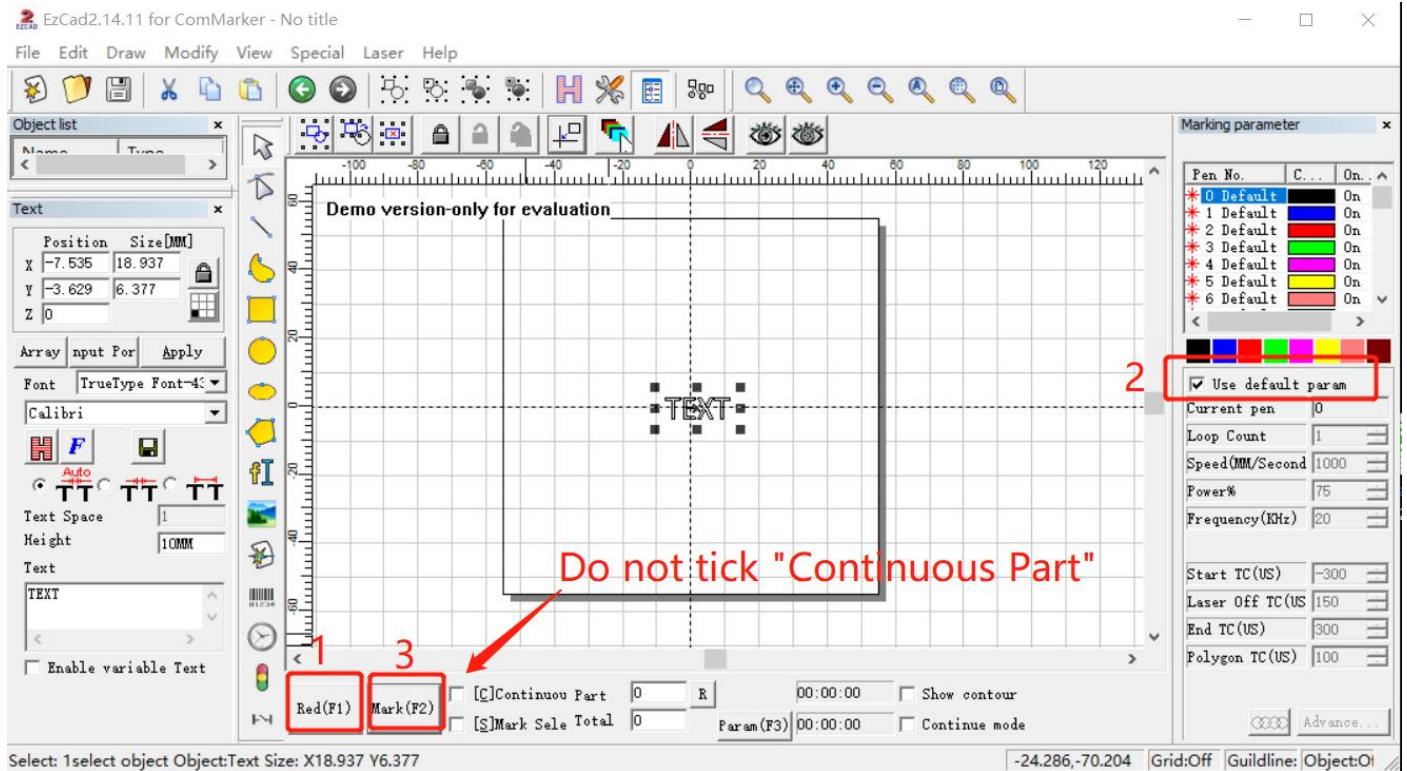
Parameters

Output Power:	20W	30W	50W	60W	100W
Laser Type:	Fiber				
Working Area:	11cm x 11cm/20cm x 20cm（Optional：15x 15cm/30x 30cm/40x40cm）				
Wavelength:	1064nm				
Marking Speed:	0- 15000mm/min				
Accuracy:	0.01mm				
Graphic Format Supported:	AI/PLT/JPG/DXF.etc				
System Supported:	Window7/8/10/11				
Cooling Type:	Air Cooling				
Voltage:	110-240V				
Dimension(L*W*H):	56x38x27cm	72*55.5*33.5cm	72*55.5*33.5cm	72*55.5*33.5cm	72*55.5*33.5cm
Weight (KG):	11kg	18.8kg	21kg	21kg	21kg

Accessories

1. Adaptor

2. Foot switch

3. Ground wire

4. Data Cable

5. Allen Wrench

6. Ruler

7. Goggles

8. U Drive

9. Apple OTG adapter

10. Placing Helper

11. Paperboard
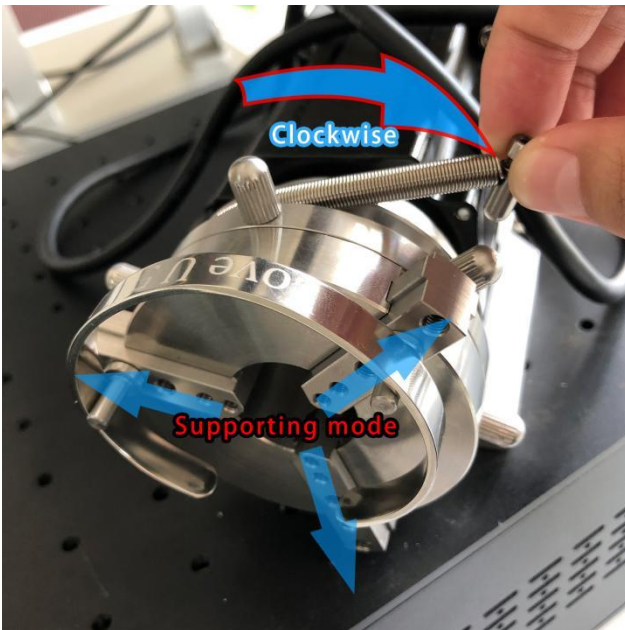
12. Steel for Testing

13. Auxiliary Holder Parts

Instruction for Rotary Device

Physical Operation (Rotary A)

1. Connect the machine with the rotary chuck A as follow, and place the rotary on the work table

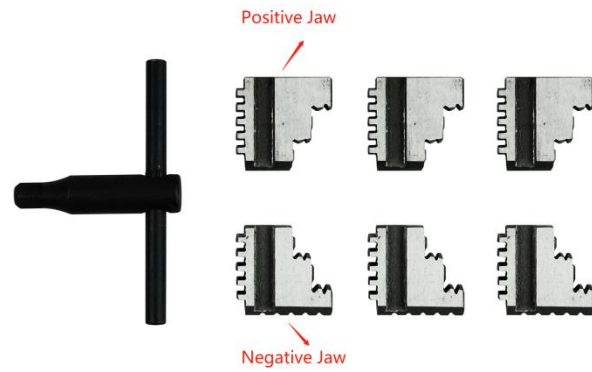2. Clamp the cylinder object by using the anticlockwise mode, or support a ring by using clockwise mode.
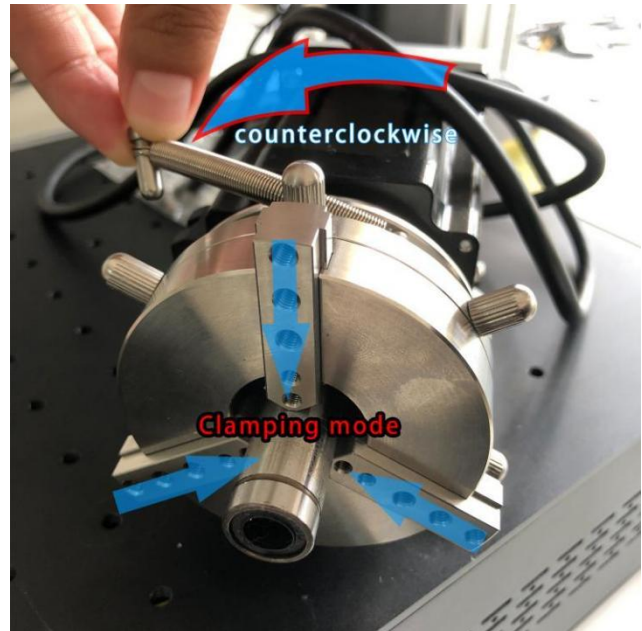
3. Lift up or down to change the angle of the rotary chuck if necessary

Physical Operation (Rotary B)

1. Connect the machine with the rotary chuck B , and place the rotary with right angle as follow

2. Clamp the cylinder object by using the positive mode or negative mode as it shows
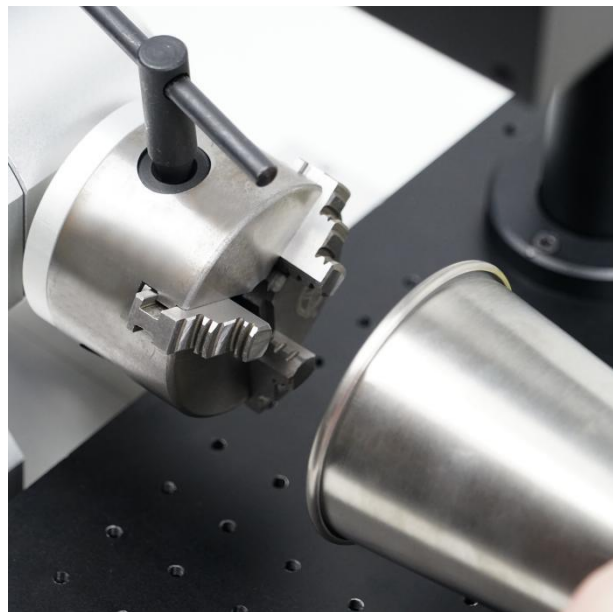
3. Place the rotary chuck, elevating it with a support if necessary for the machine to mark at the right focus point

Physical Operation (Rotary C)

1. Connect the machine with the rotary chuck C
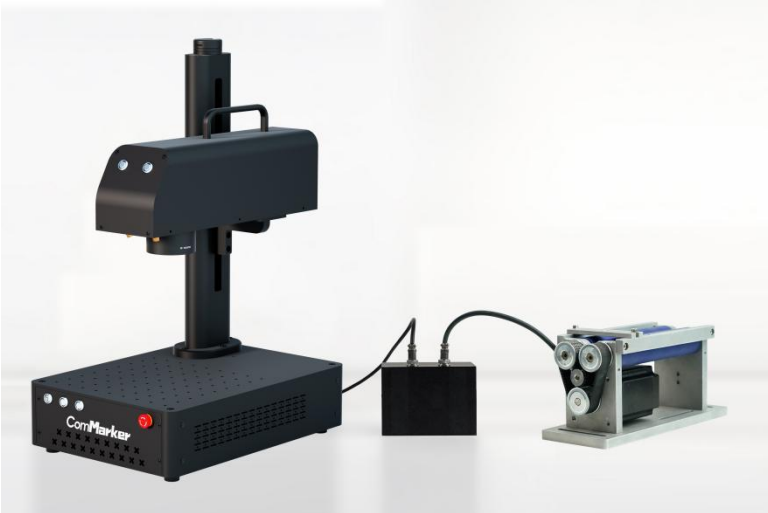
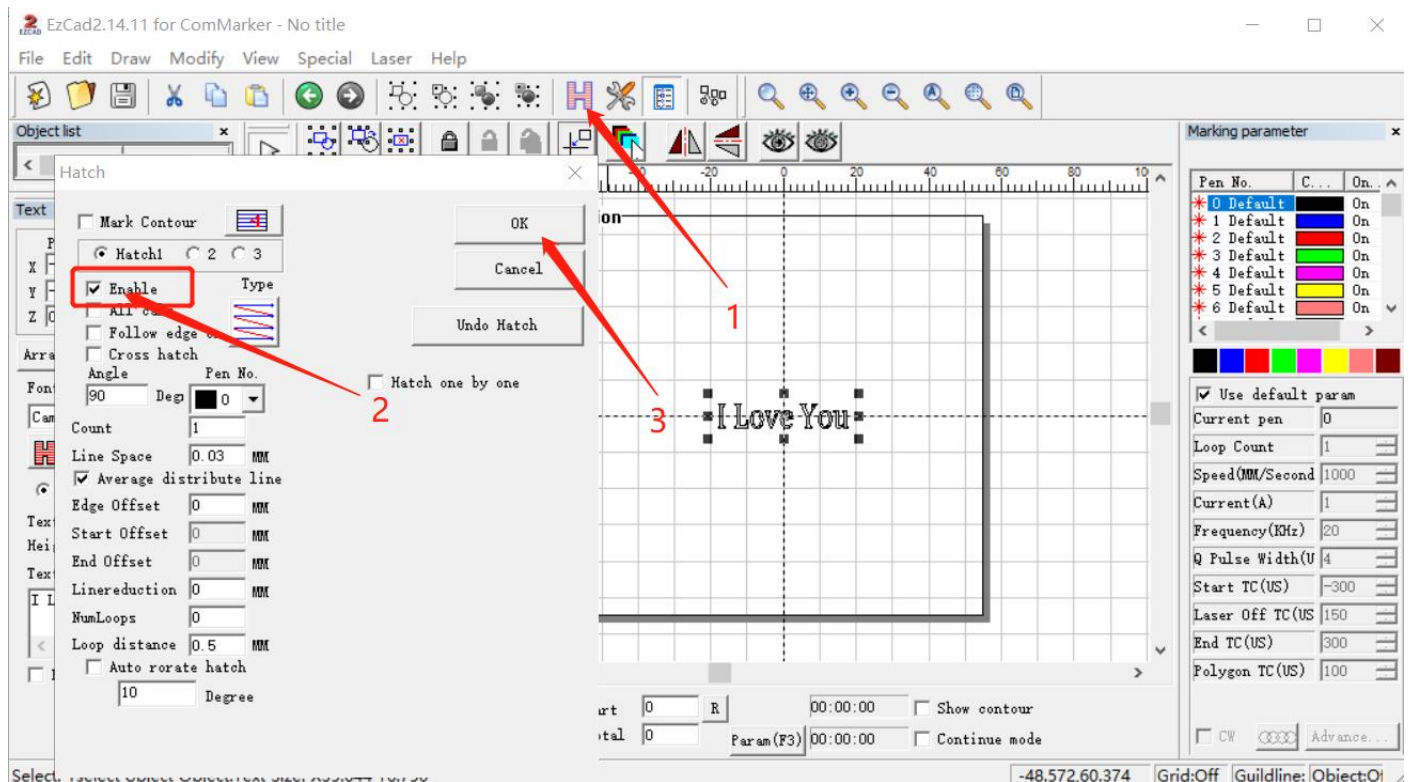

2. Place the cylinder object on the roller

Software operation

Text Marking

1. Input text, click "Apply", and then click "center" button.
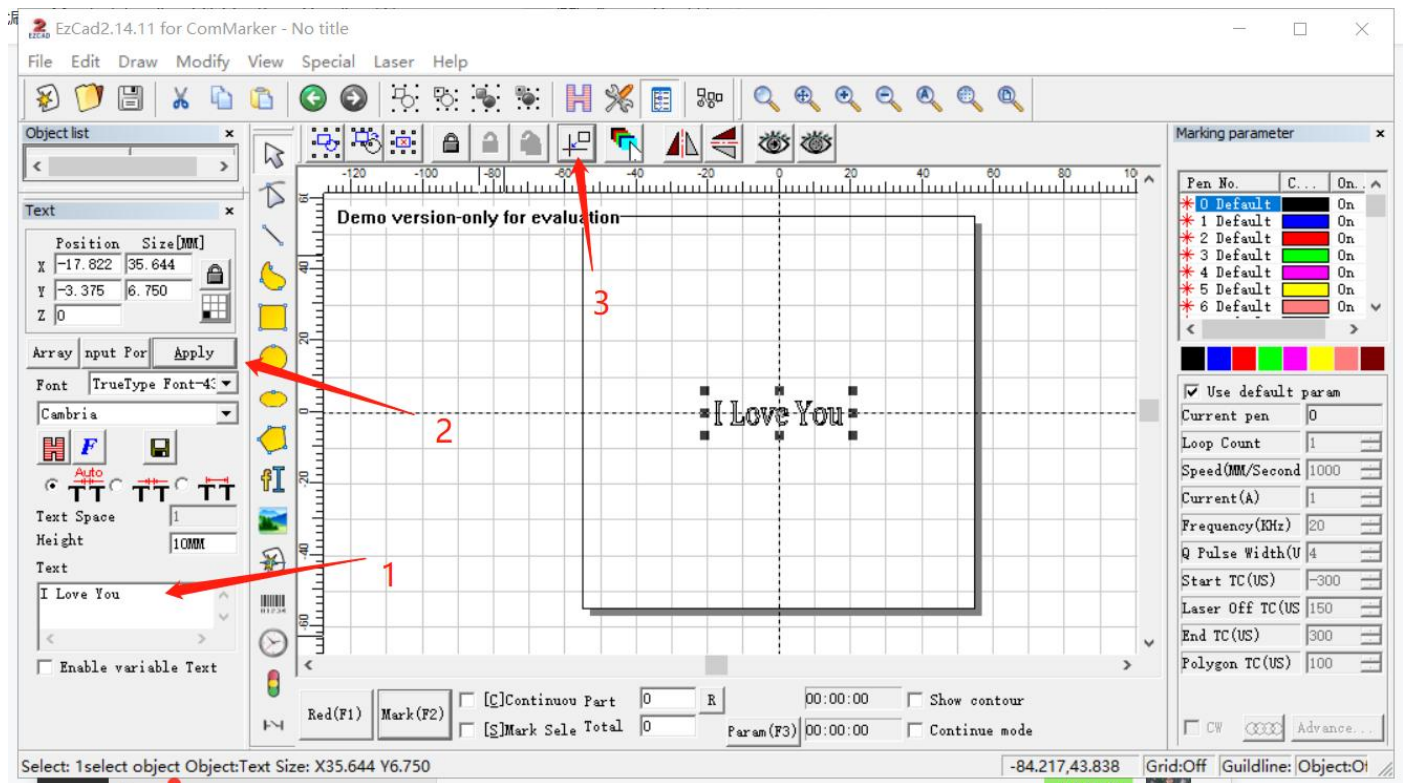
2. Click on the "H" Button and tick "Enable", and then click OK.

**Note: Do not tick "Mark Contour" or " All Cala"**

3. Select "Laser" from the menu, Choose "Rotate TextMark", which is more suitable for marking simple text.
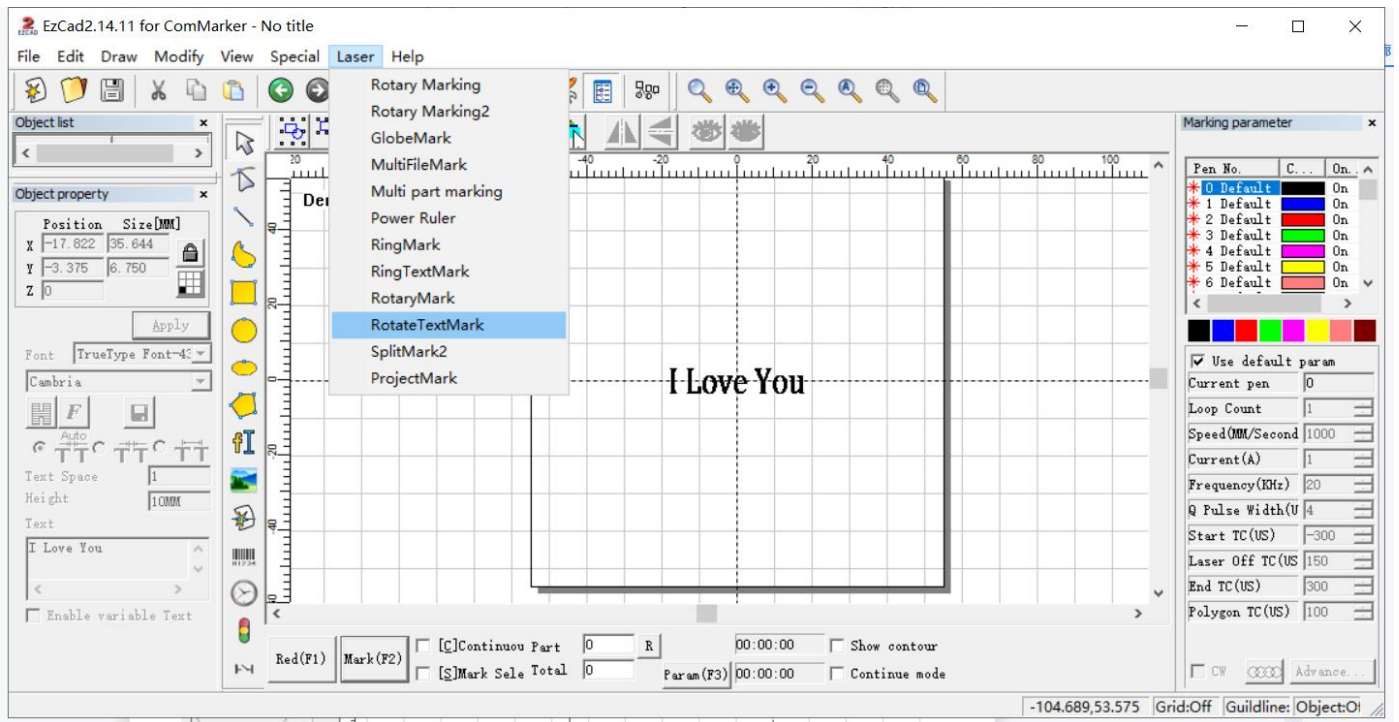
4. Click "Param (F3)", set the "configuration markcfg0"

(1) Tick "Enable"

(2) Input the pulses per round number "12800"

(3) Adjust the scale compensation if necessary, the number of this parameter will affect the spacing between the engraved texts

(4)Tick "reverse" if you want to change the marking orders of the words

(5) Select the appropriate axis X or Y according to the placement direction of the rotary

(6) Click "OK (确认)"
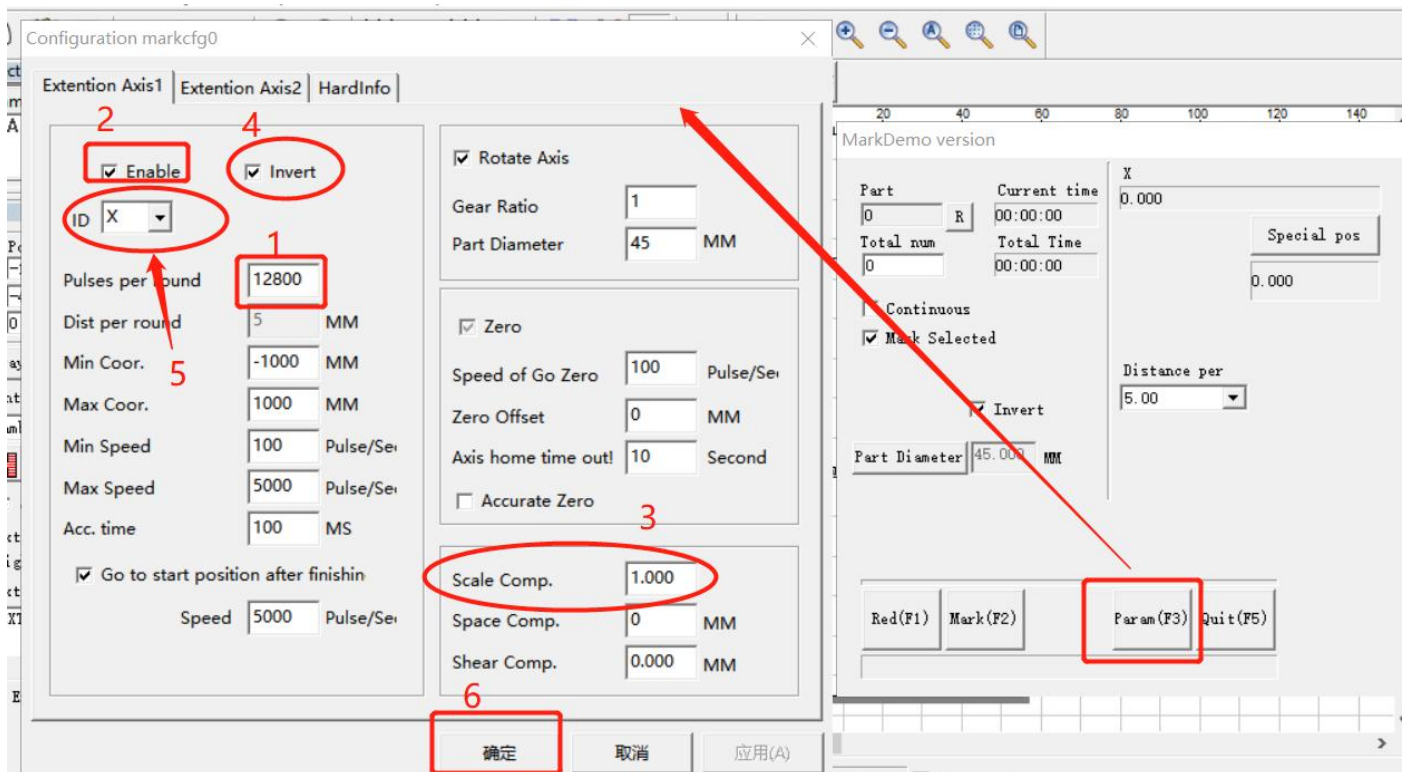
5. Click "Red (F1)" to preview, the red light area indicates the first letter of first line. Press "ESC" on key board to exit, change the location of the rotary chuck if necessary. Click "Mark"

**Note: make sure the preview red rectangle on the top of the cylinder and the machine will engrave on level surface.**
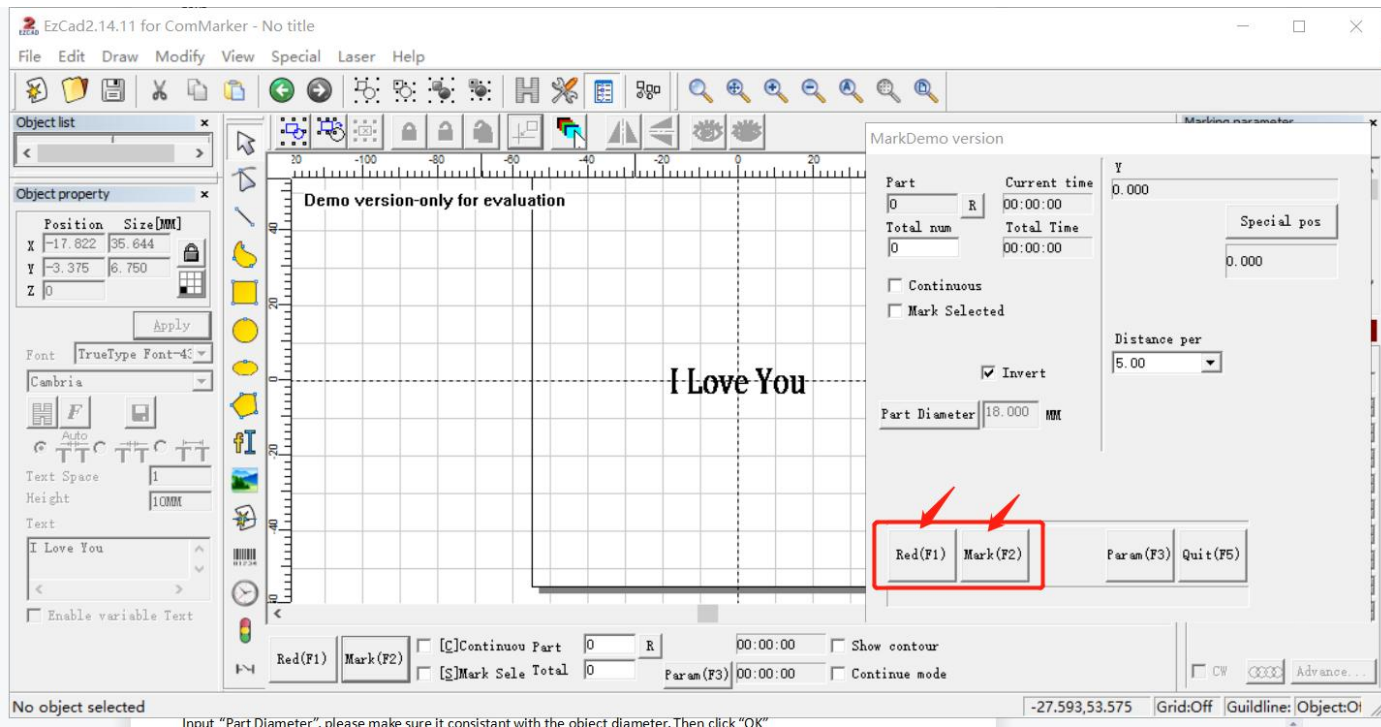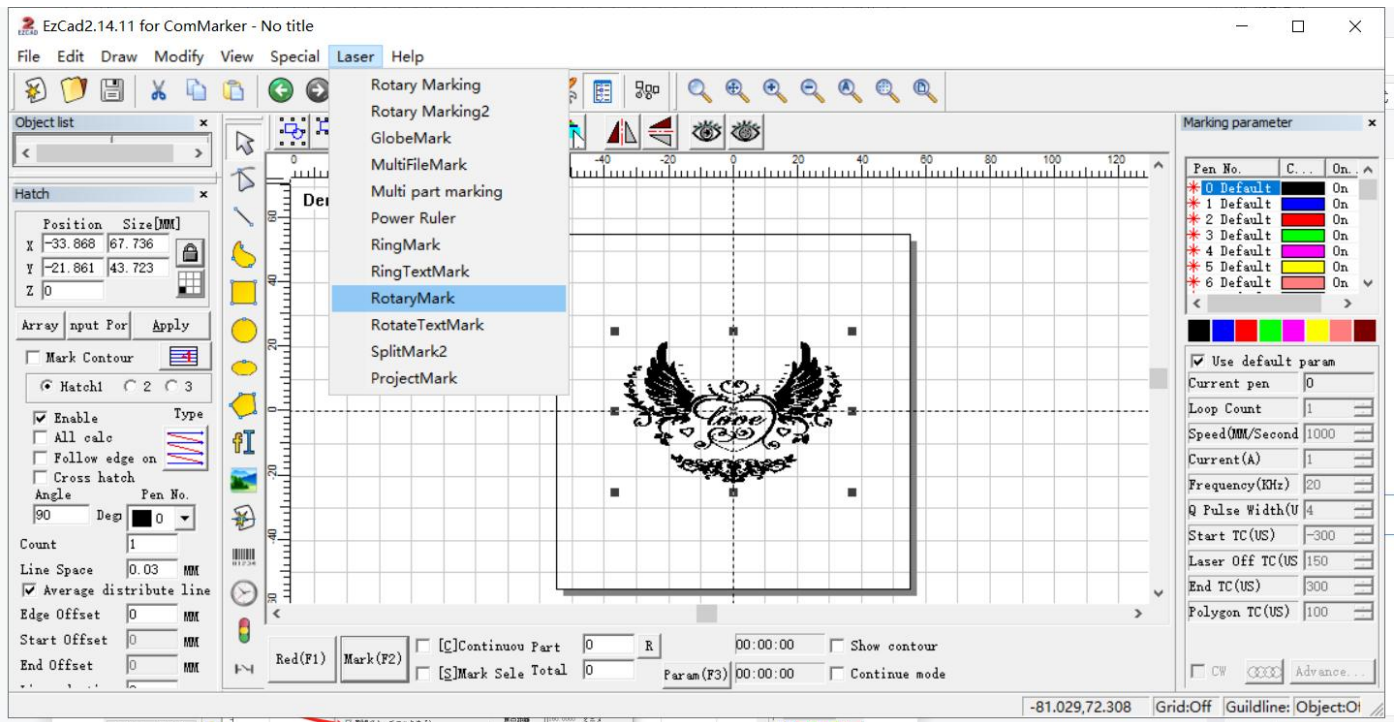

Graphics Marking

1. Import a vector file

(1) Click "Draw vector file" button.

(2) Click "put to origin" button,

(3) Click "H" button. Tick "Enable" and select "Z" hatch mode

Note: Do not tick "Mark Contour" or " All Cala"

**Note: it is not applicable to use a bitmap picture file to work with rotary check for cylinder marking**
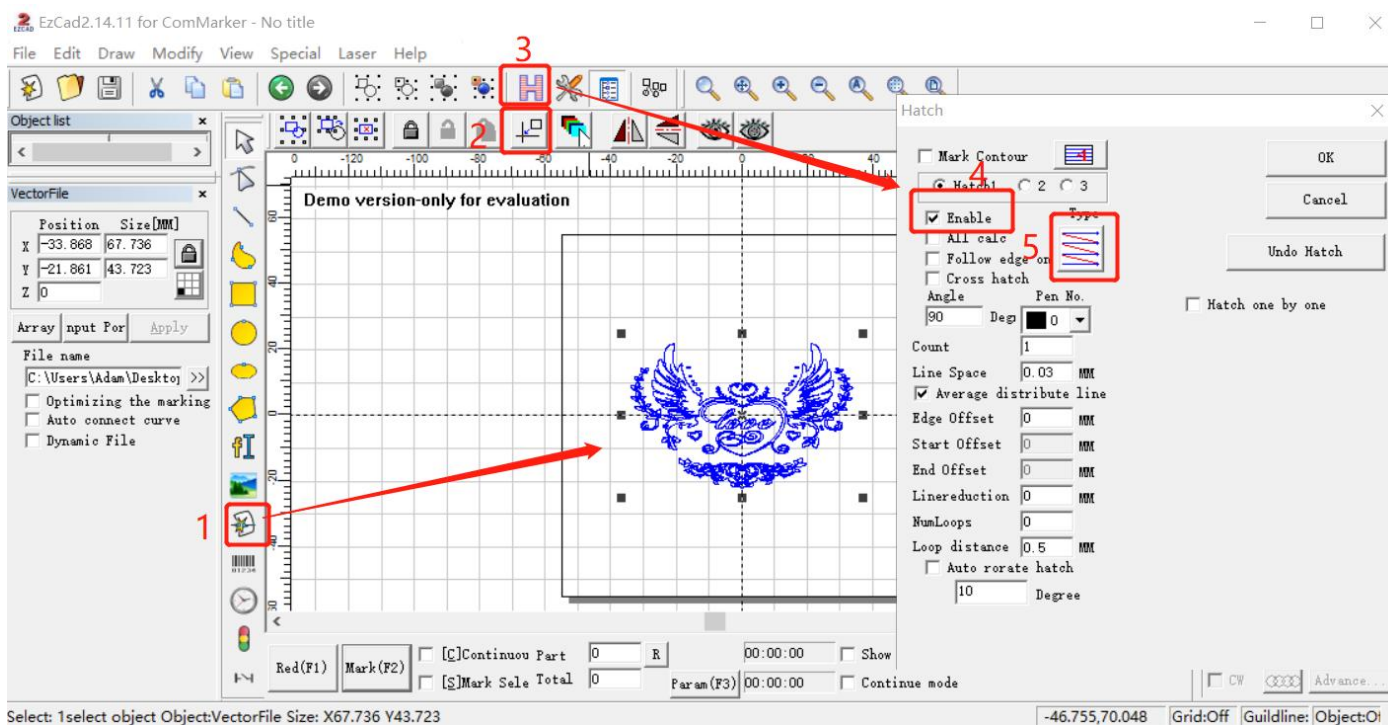
2. Select "Rotary Mark" in the menu

3. Tick "Mark by split line". Input diameter number according to the object diameter. And set the middle lines
1) Double click to create line
2) Right click to delete line
3) Drag with mouse to move the line
Note: make sure the diameter number consistent with the object diameter.
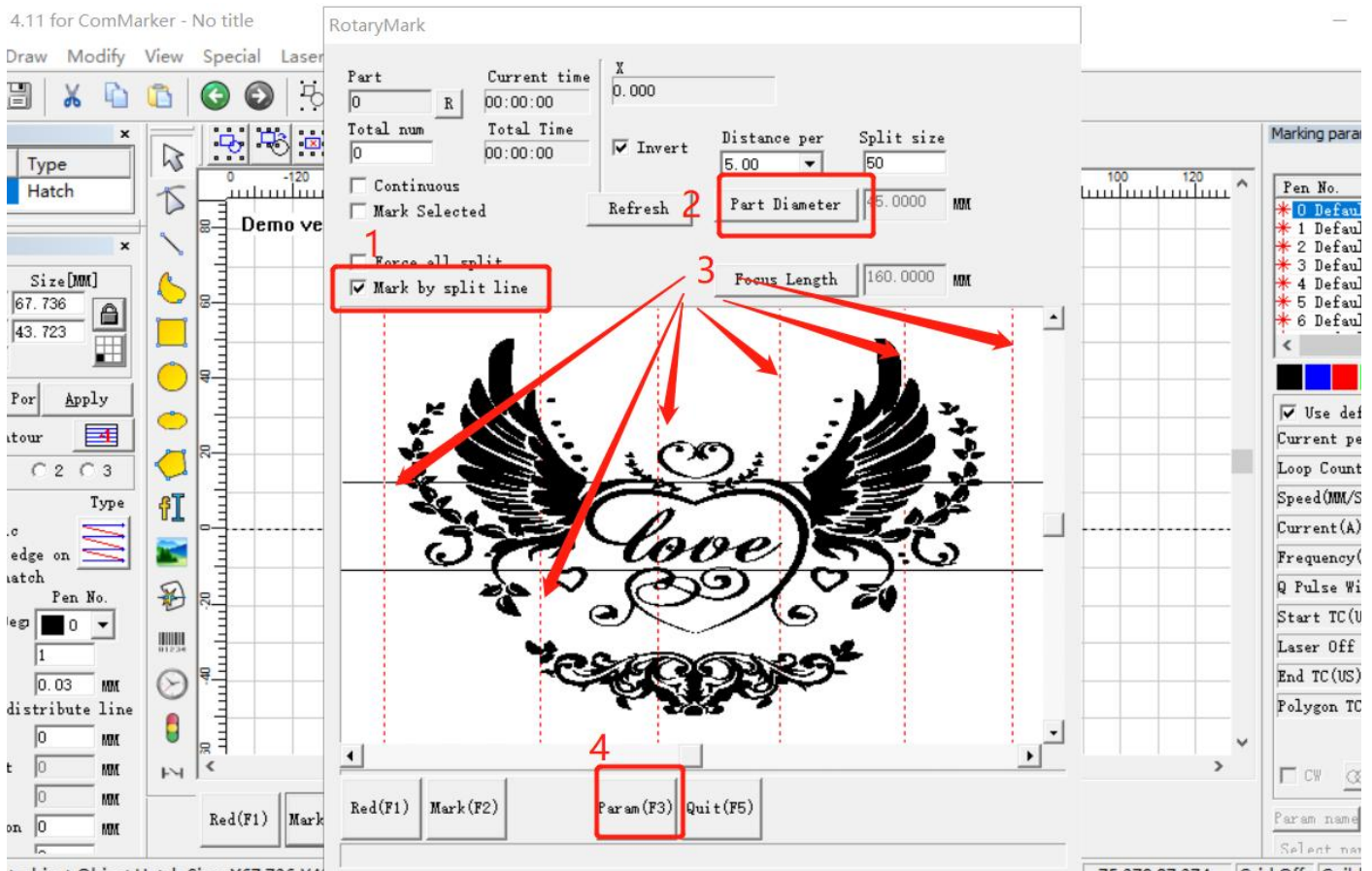
4. Or, instead of following step 4, simply tick "Force all split", Input diameter number and change the "Split Size"
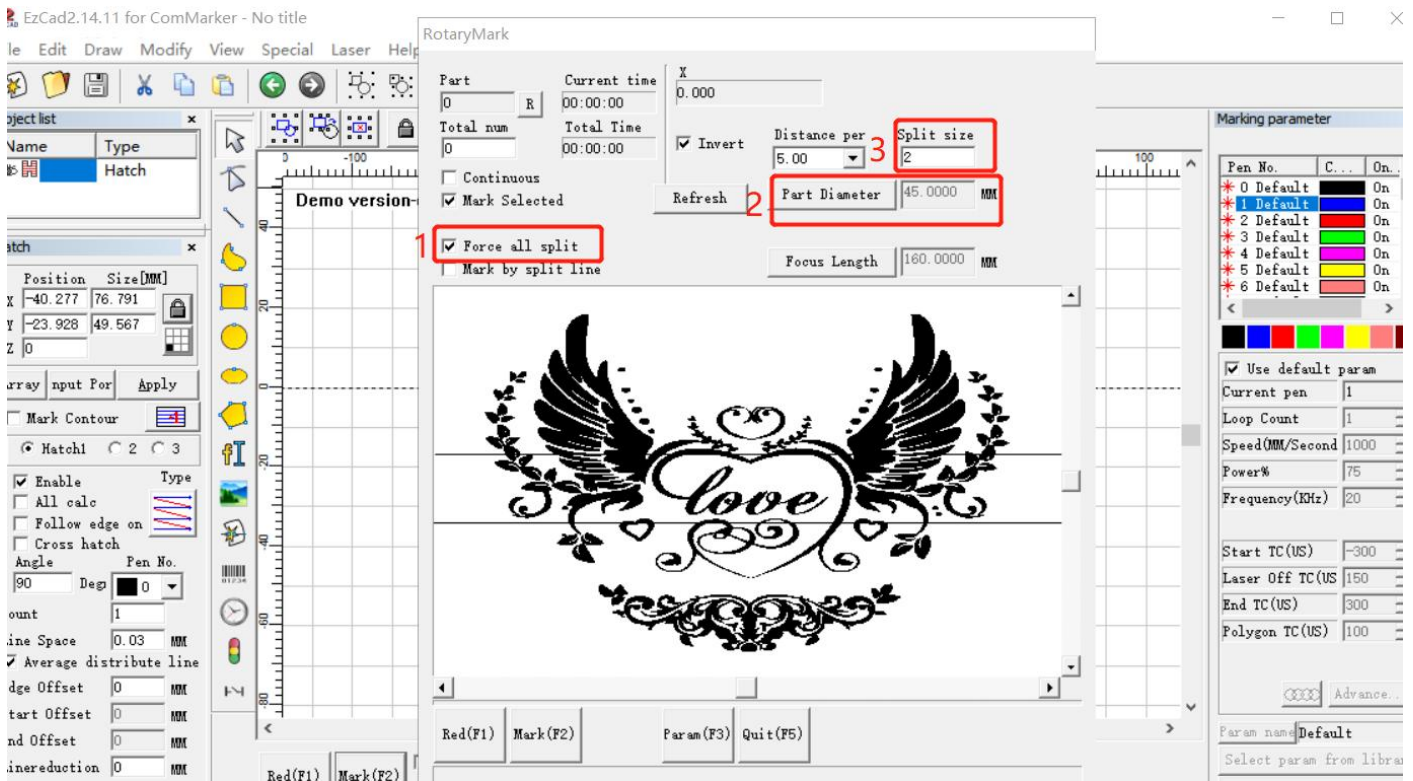
5. Click "Param (F3)" and set the parameters

(1) Tick "Enable"

(2) Input the pulses per round number "12800"

(3) Tick "reverse" if you want to change the marking orders of the words

(4) Select the appropriate axis X or Y according to the placement direction of the roller

(5) Click "Rotate Axis"

(6) Change the number of Gear Ratio. Input a bigger number if you find the marking graph overlaps, input a smaller number if there are gaps. This process may take many times to test with new numbers (with accuracy of 2 digits after the decimal point) before you get a satisfied result.

(7) Click "OK(确认)"
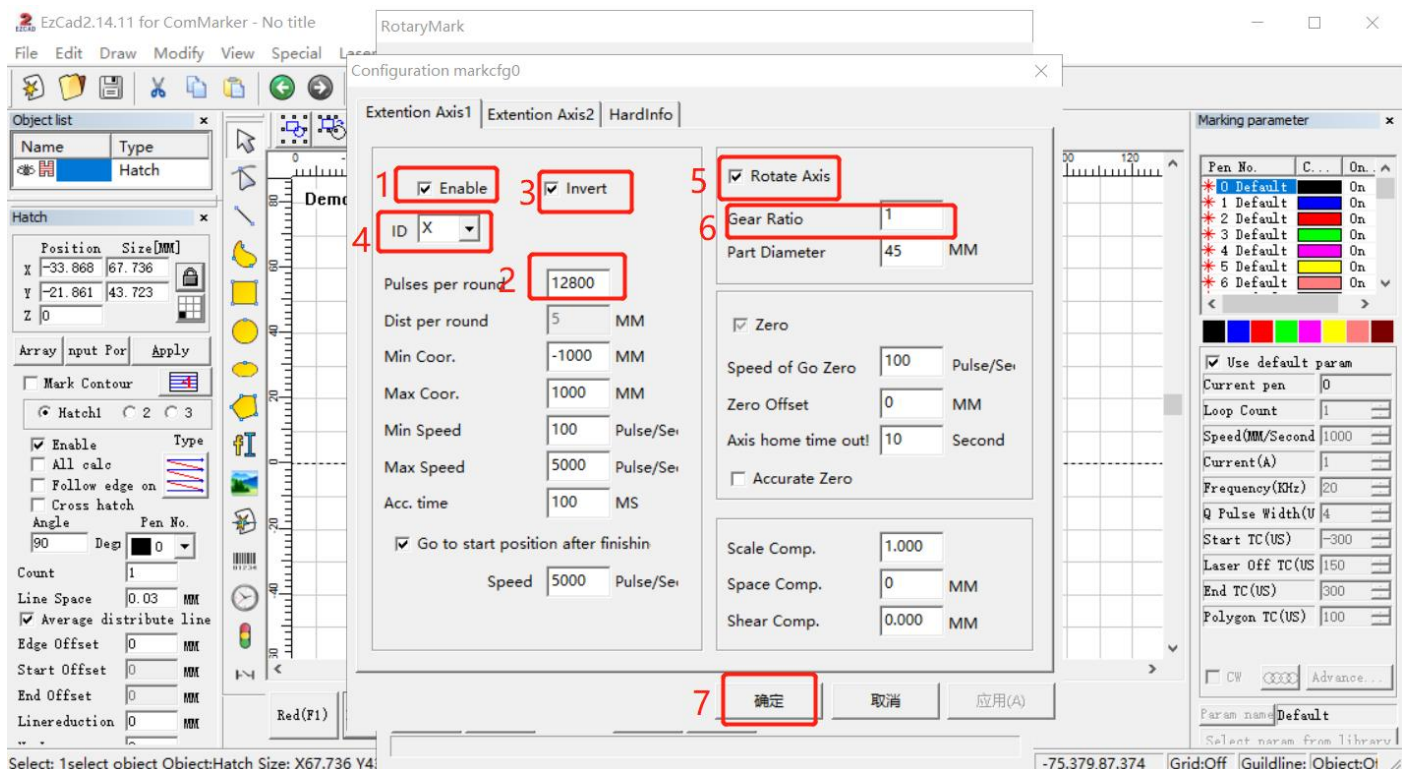
6. Click "Red (F1)" to preview, the red light area indicates the first part divided by split line. Press "ESC" on key board to exit, change the location of the rotary if necessary. Click "Mark"

Replace the 110mm field lens with 200mm field lens

1. Install the 200mm field lens after removing the 110mm lens by screwing by hand

2. Re-adjust the focus as focus length will change with the new lens. Please refer to this manual above **Operation instructions   --->Step 4 Adjust the focus**

3. Field lens 9 points calibration.

(1) Open the USB folder, open the "EZCAD for ComMarker" folder, and select the 200mm folder. Open the software "CorFile2" (the software EZCAD need to be closed first).
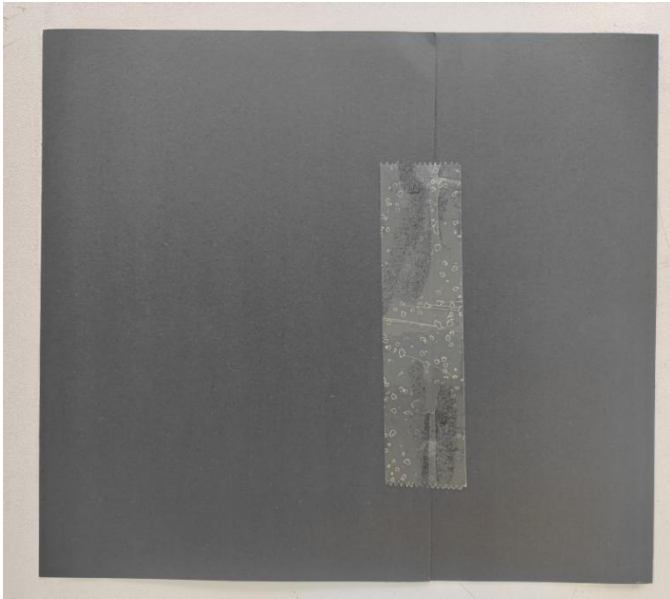

(2) Click "F1", set laser source parameters, select "IPG" and click "OK"

(3) Stick the 2 pieces of paperboard together on the back cover with tape and put it on the work table.
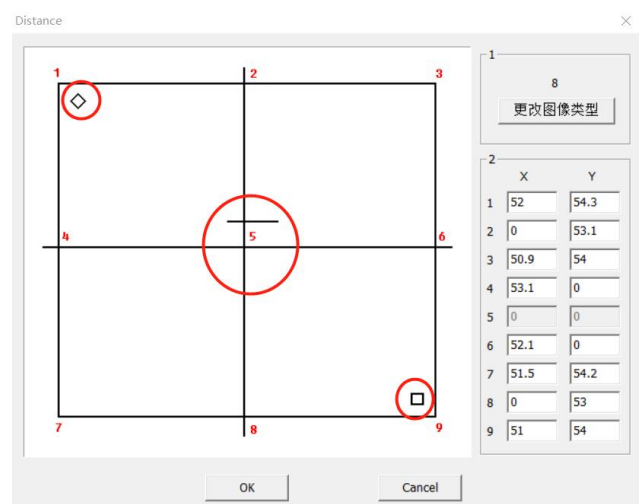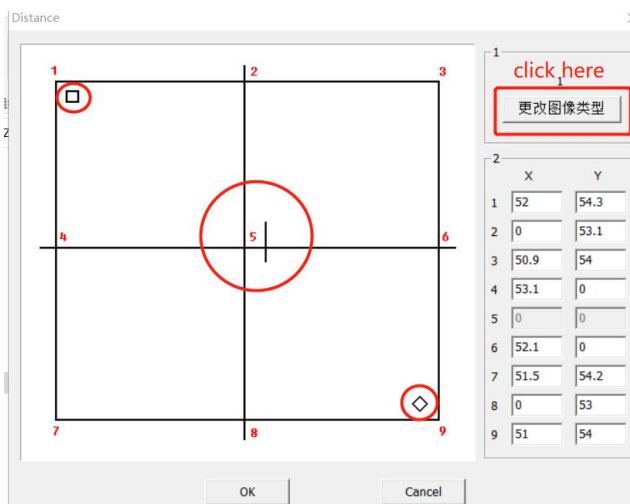**Note: 1) Please make sure the paperboard flat on the table**
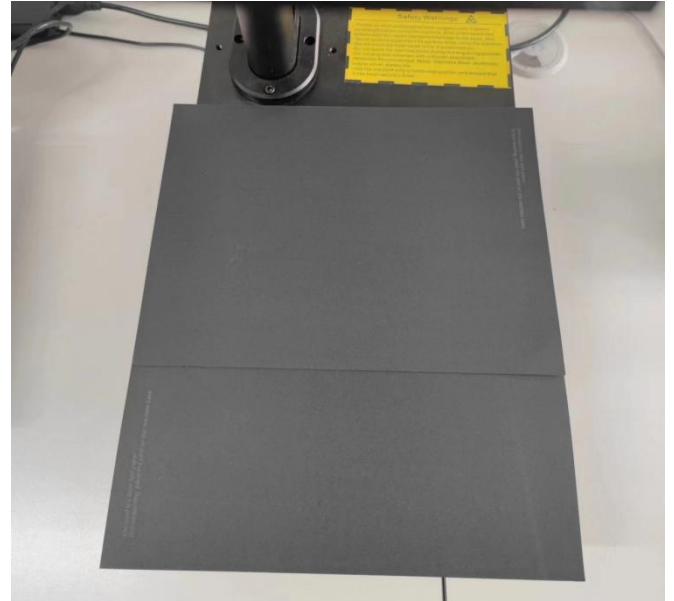
(4)   Click "F3" mark 9 points rectangle, and it will mark the following graph on the right.
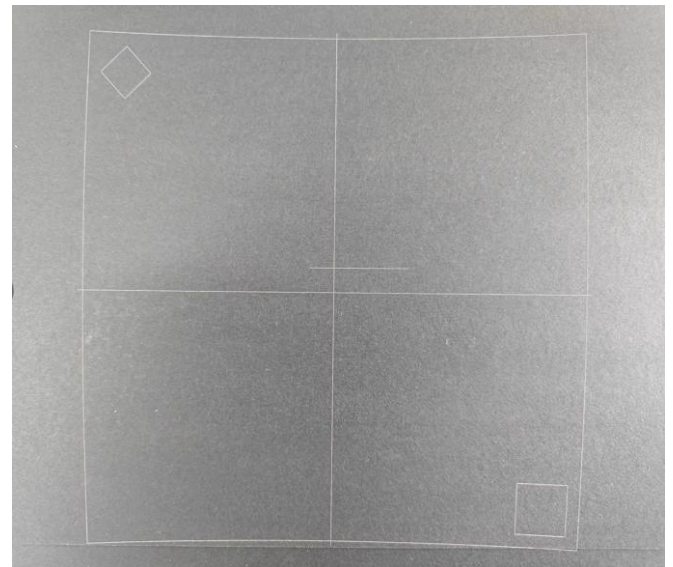

(5) Click the button on the top-right corner to change the pattern until it matches the marking result on the paperboard

(6) According to the coordinate position of each point corresponding to the marking graph and the graph displayed by the software. Take point 5 as the center coordinate (0, 0). Use a ruler to measure the corresponding coordinates of each point on the black photo paper, take the absolute value (accurate to one decimal place) and fill in the corresponding coordinate column of the dialog box. Click "OK" to return to the upper interface after finishing

Note：Make sure the ruler is absolutely horizontal or vertical and measuring lines goes through the 9 points when measuring.
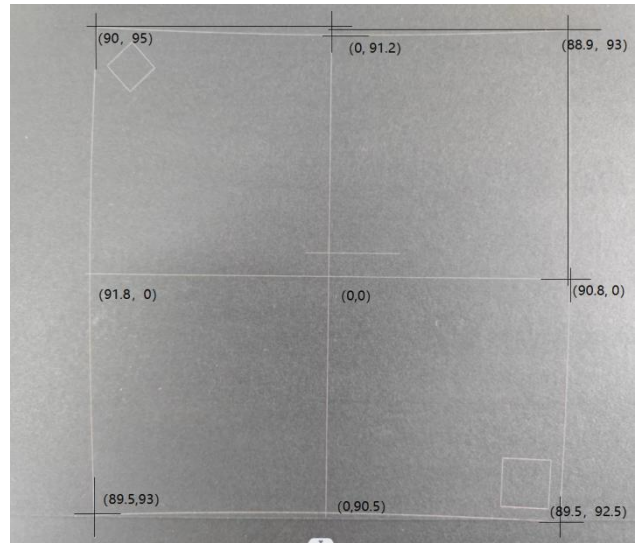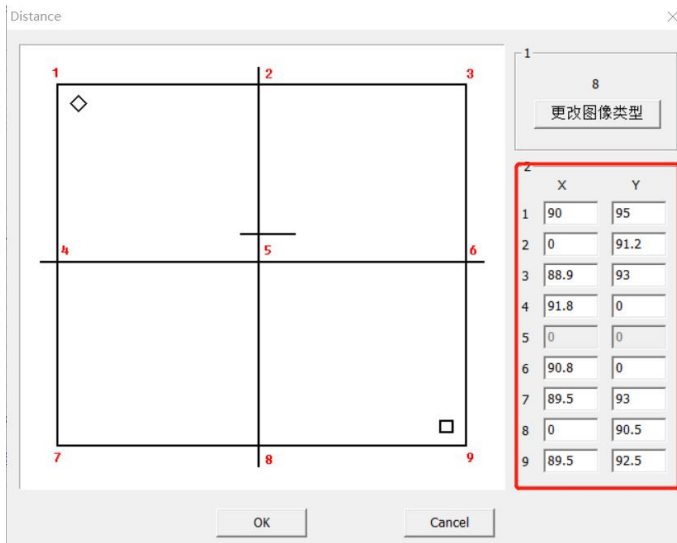
(7) Click "F6" to generate "calibration file". The following dialog box appears, please specify a file name for the file, otherwise it will fail to save, such as "200 B4 ComMarker". Be sure to remember the file directory location
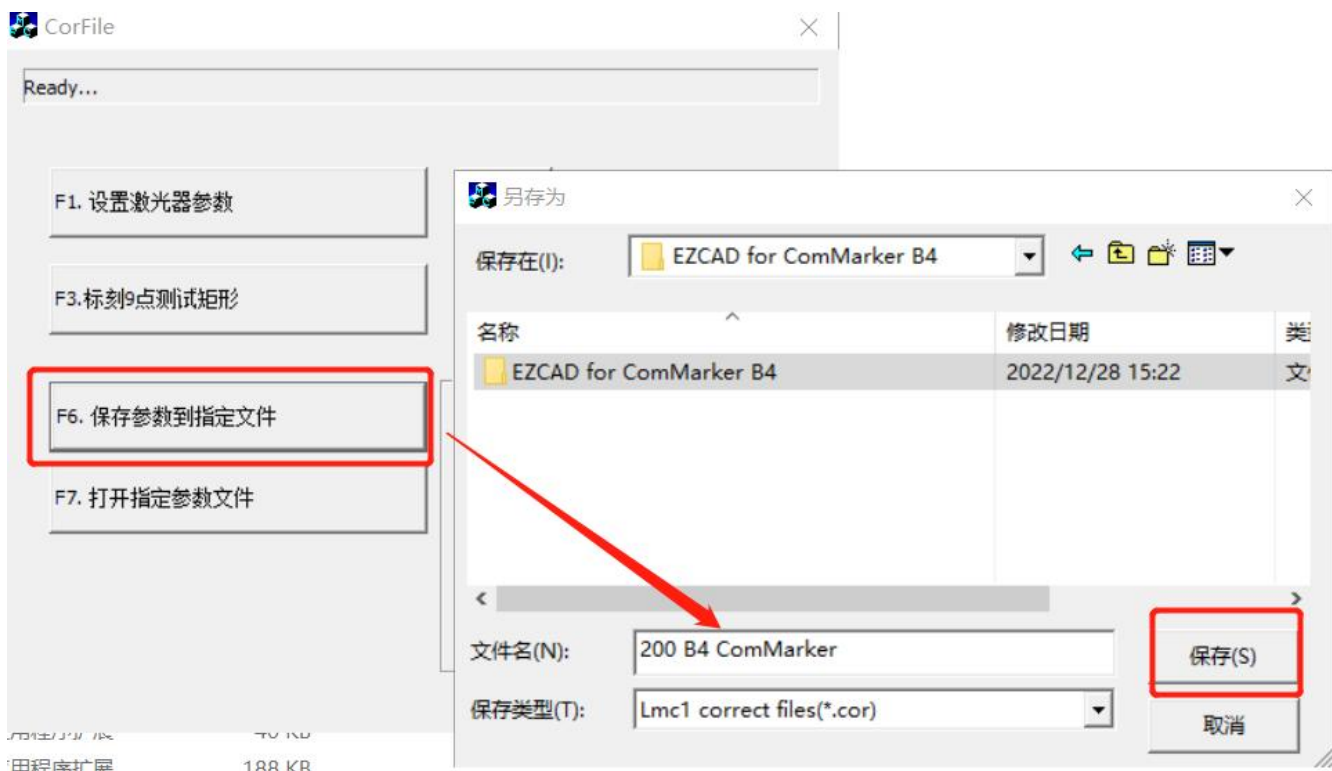
(8) Click "F7"to verify calibration, open the calibration file just saved. And click "F8" to mark the calibrated rectangle.

Note: If it is a regular rectangle like the picture on the left, it proves the success of the correction. If the shape of the picture on the right is seriously deformed, it needs to be recalibrated.
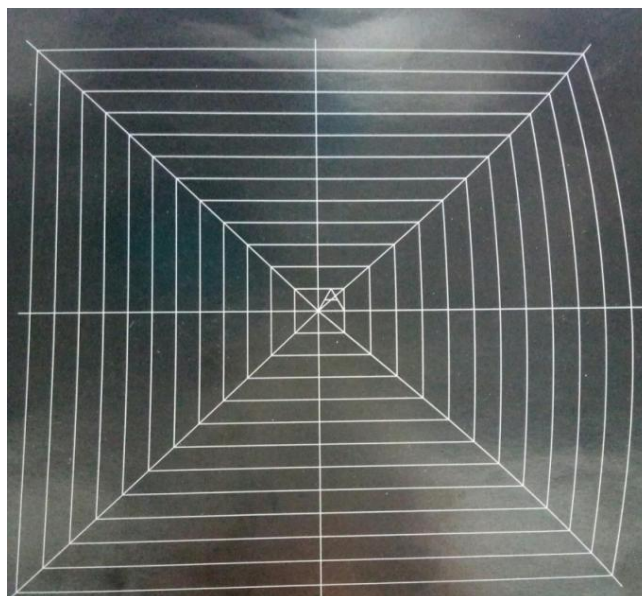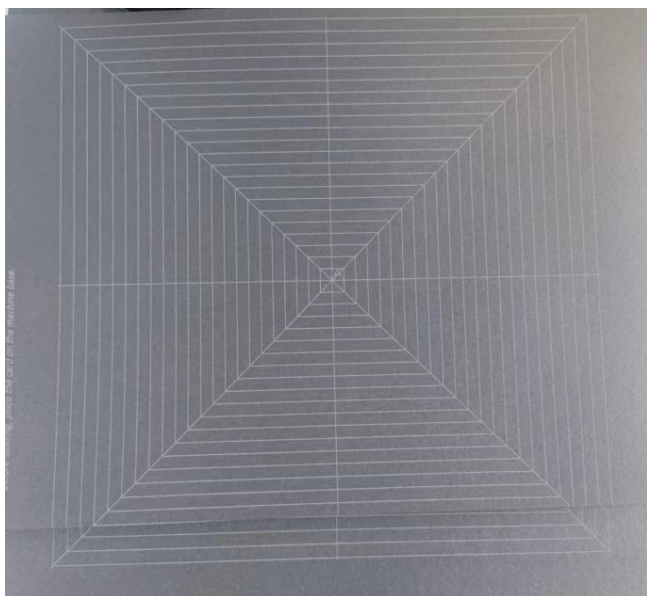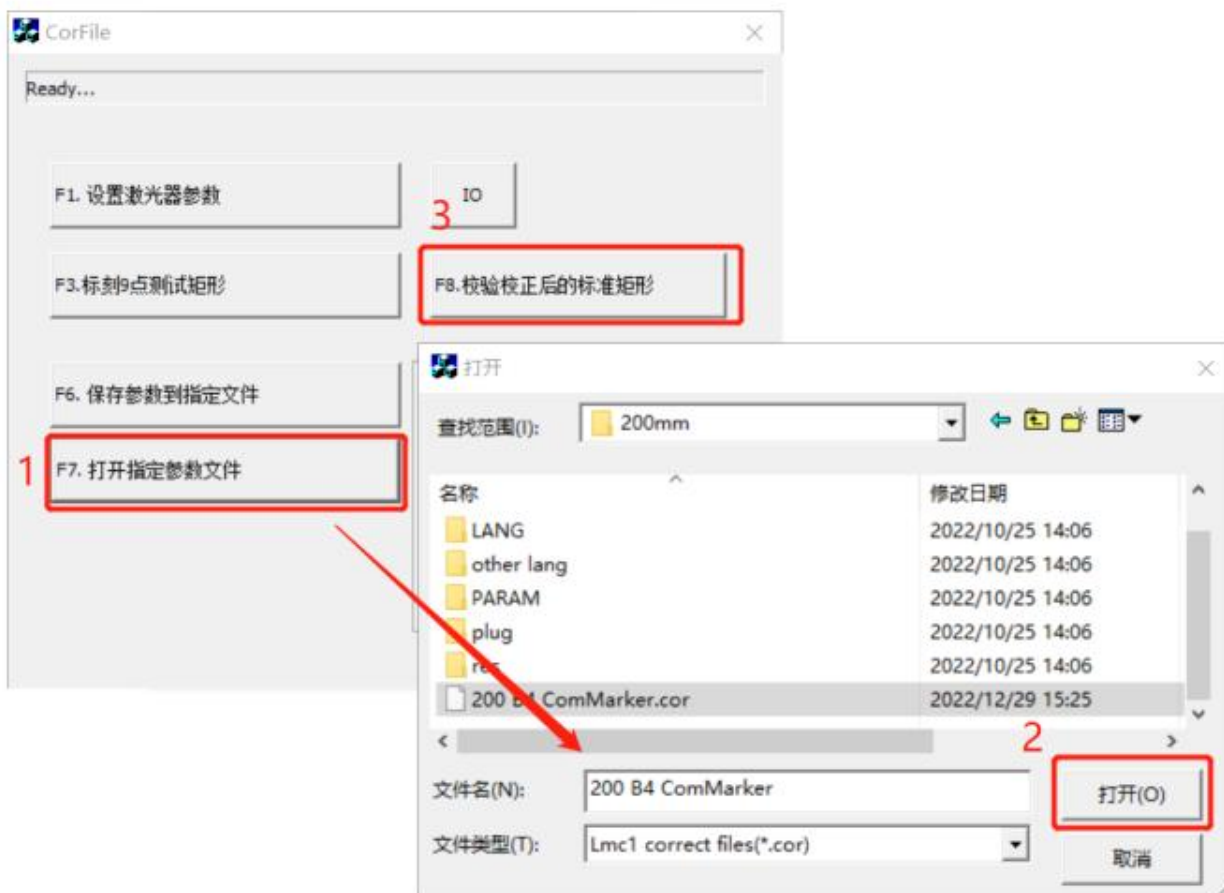
(9) Import the calibration file for 200mm lens in the software EZCAD2, please refer to **Operation Instructions ---> Step 3 Import the correction file**

Parameters for marking a photo

Note:

***The following parameters are just suggestions for 20w machine engraving stainless steel. The results may vary to the size of the file, materials, focal length etc.**

***The parameters may need to be changed for machine of different power or on other materials.**

***Please open the software in the file "Software for engraving photos" before everything.**

1. Input the parameters as below, which is forB4 20W with marking area 110x110mm on stainless steel.

Note: After importing the picture, you can fine-tune the contrast and brightness of the picture to make the picture clearer, these parameters will affect the engraving effect.

2. The parameters are forB4 20W with marking area 110x110mm on painted metal.
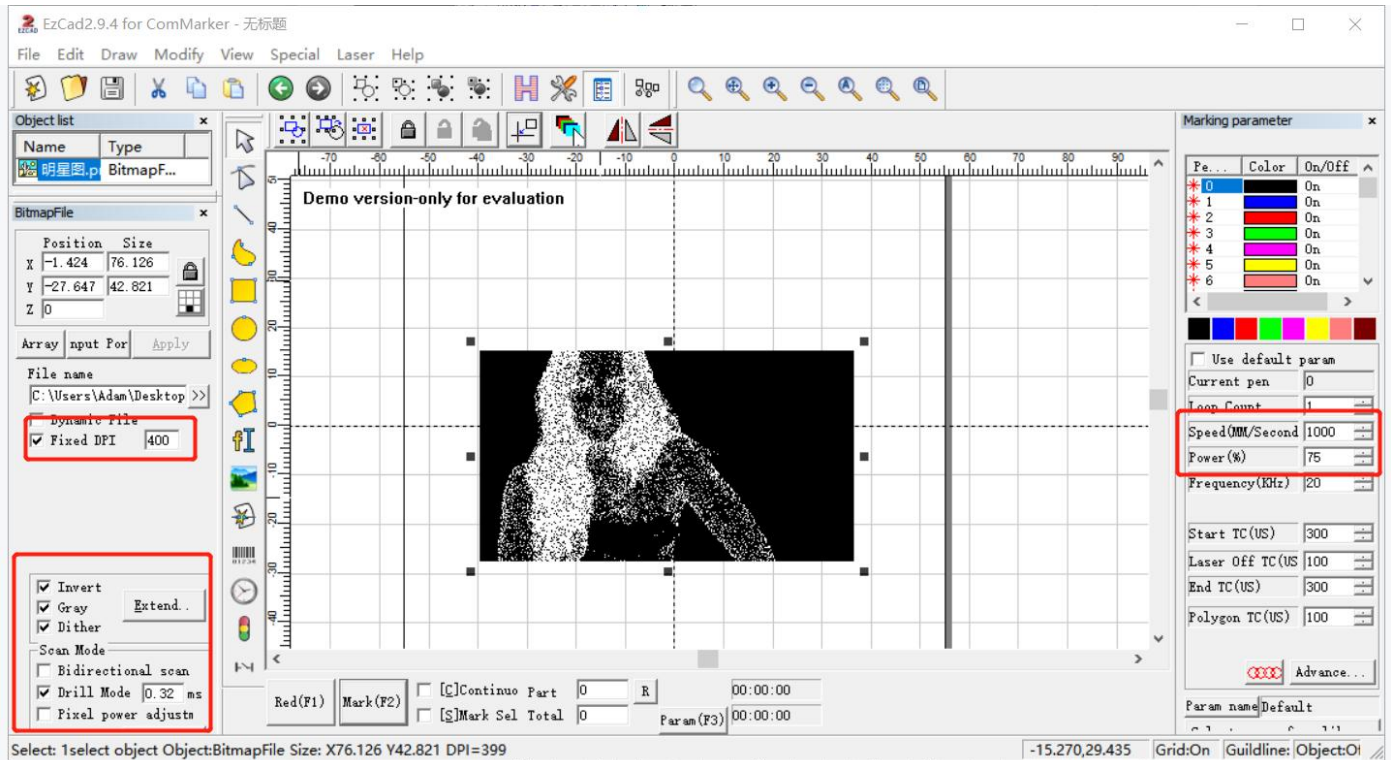
Parameters for marking different colors

Note:
*The following parameters are just suggestions for 20w machine engraving stainless steel. The results may vary to the size of the file, materials, focal length etc.
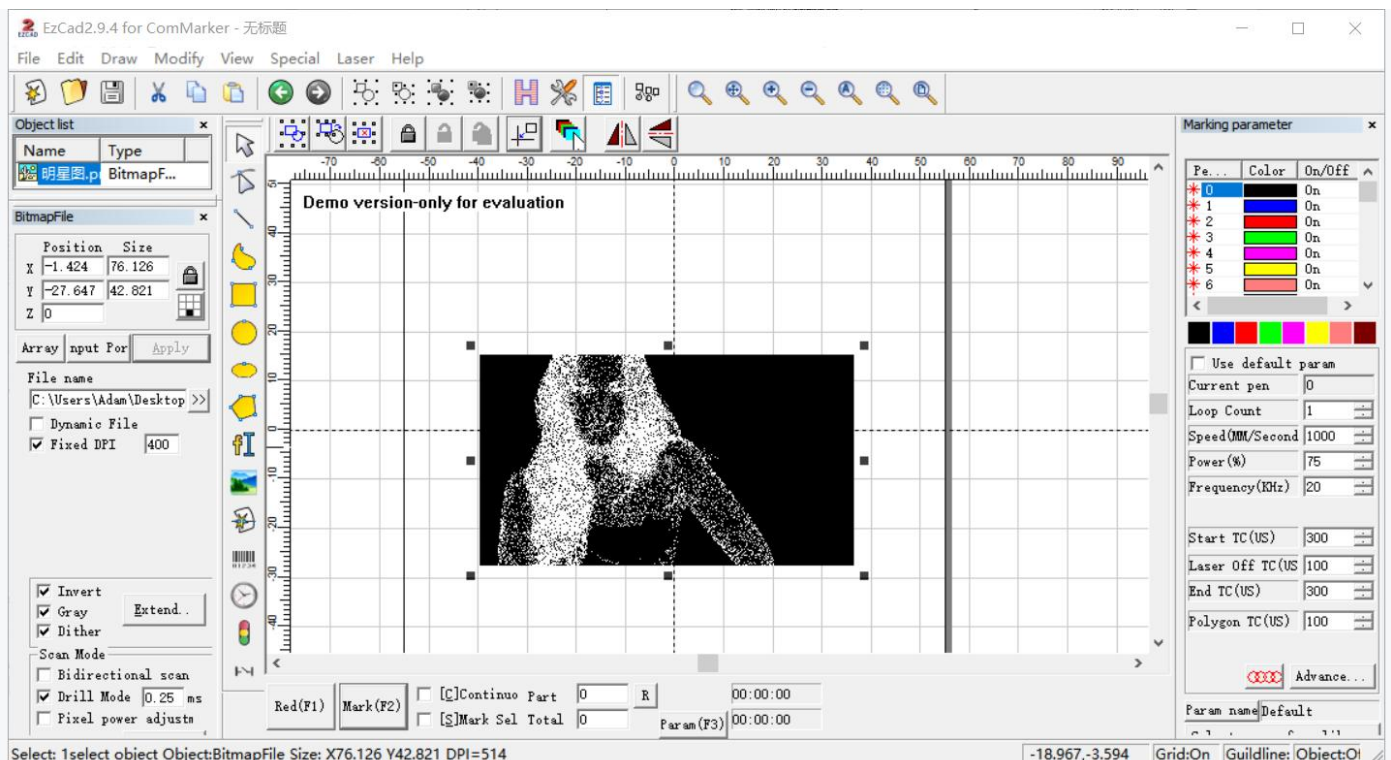***The parameters may need to be changed for machine of different power or on other materials.**

Color	Picture	Speed	Power	Frequency	Line Space
Light Grey		4000	10	200	0.05
White		1000	10	30	0.06
Grey		1000	40	30	0.06
Black		400	100	200	0.05
Dark Yellow		1000	100	20	0.05

Lightburn Operation Tutorial (For MacOS)

1. Download and install Lightburn software from the website

Note: It is not compatible with our machine if your Lightburn version is lower than V1.3.01, please download a new version and reinstall.

And Lightburn is a paid software with 1 month free trial, you need to buy the licence key for Galvo version.

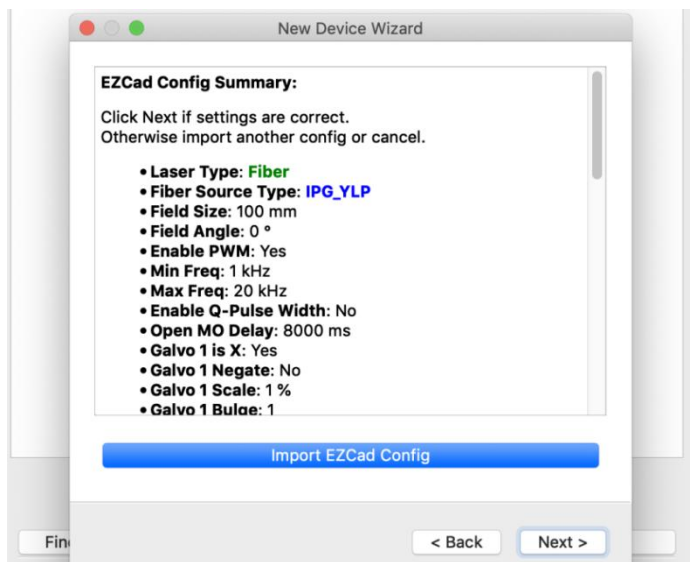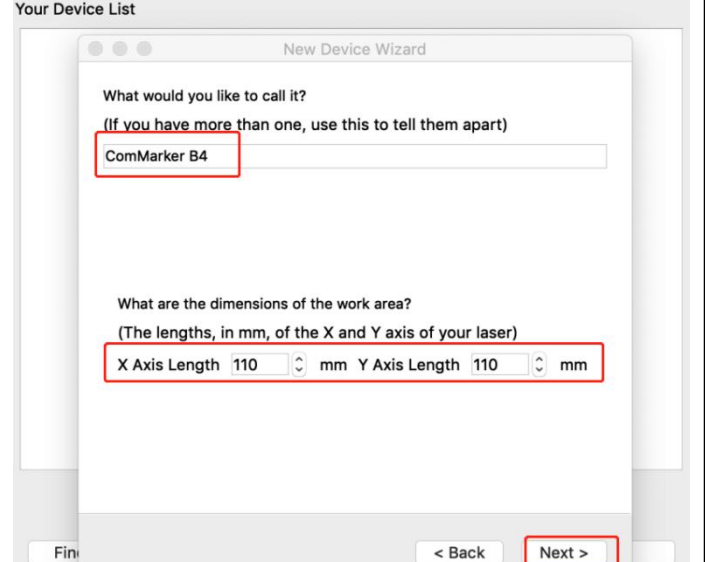|	
1. Down load the software from the website: https://lightburnsoftware.com/pages/trial-version-try-before-you-buy	2.Find downloaded file LightburnV1.3.01, and drag Lightburn icon to the Applications folder
2. Copy the folder "EZCAD for ComMarker B4" from the USB to the desktop	4. A device window will pop out if the software is open the first time, click "Create Manually", Select "JCZFiber" **Note: Make sure the machine is on and connected via USB**
4. Import EZCAD Config and select the folder	5. Select folder "110mm" (or 200mm according to your lens)---->" Plug", and choose "markcfg7" and click "next"
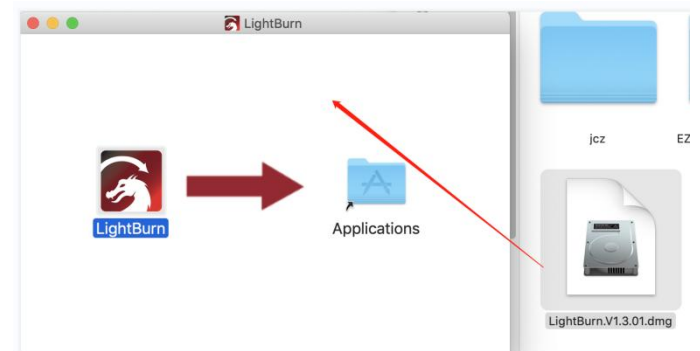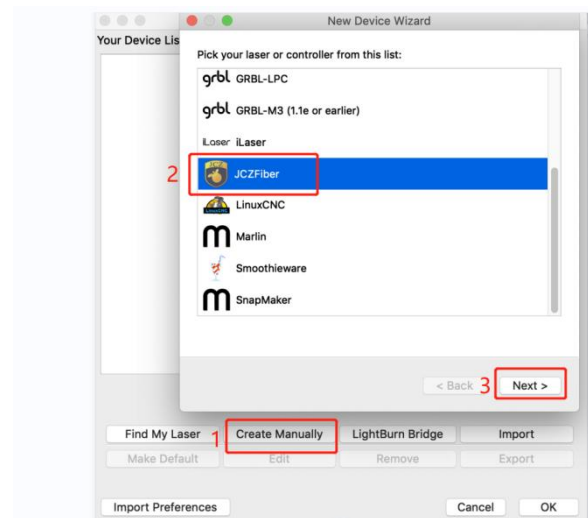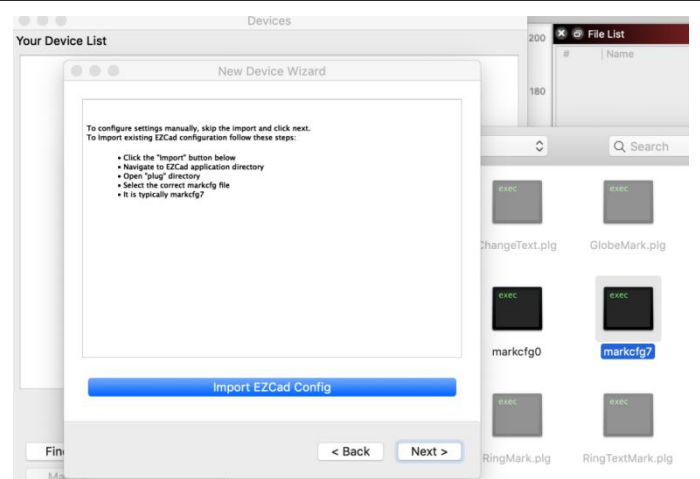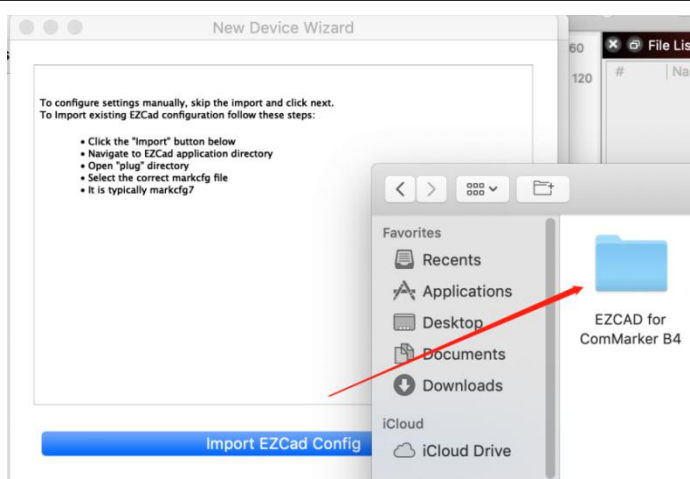
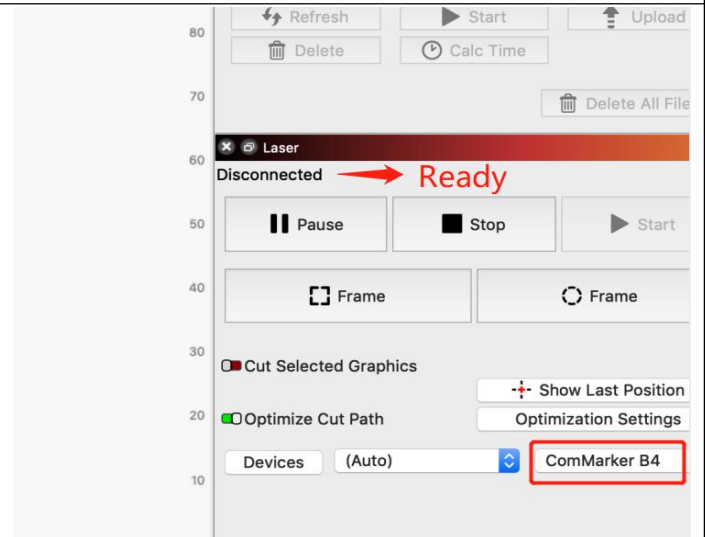|	
5.You can see the following window if everything goes right, and click "next" 	6. Change the name if necessary, and input the right X and Y Axis Length according to the lens. Click "next"
7.Click "finish" and it will in the device list 	8. The status will change into "Ready" when the machine is on and connected via USB
9. Go to "Basic Settings" from "Device setting" button, click "Load COR file", Select "EZCAD for ComMarker B4"--->"110mm", Choose file "JCZ11.cor", Click "OK" 	10. Change the setting of Freq "Min 20" and "Max 200". Switch on "Galvo 2". And it is ready to control the machine with Lightburn software.
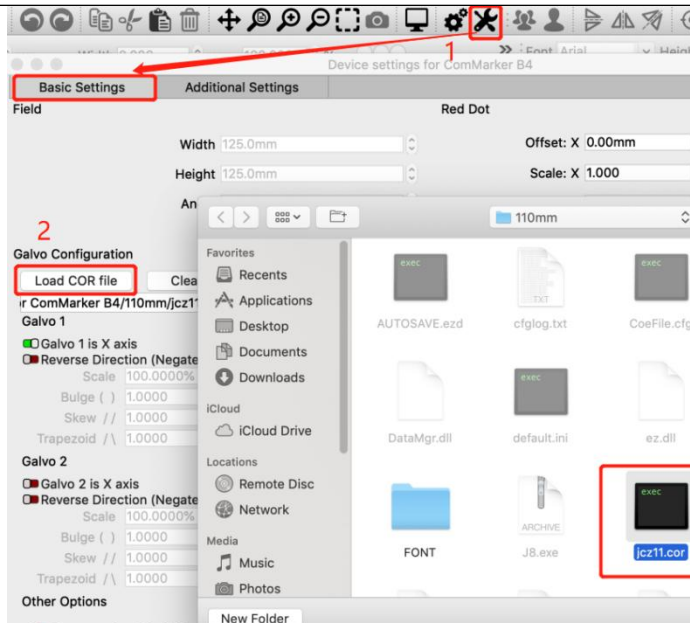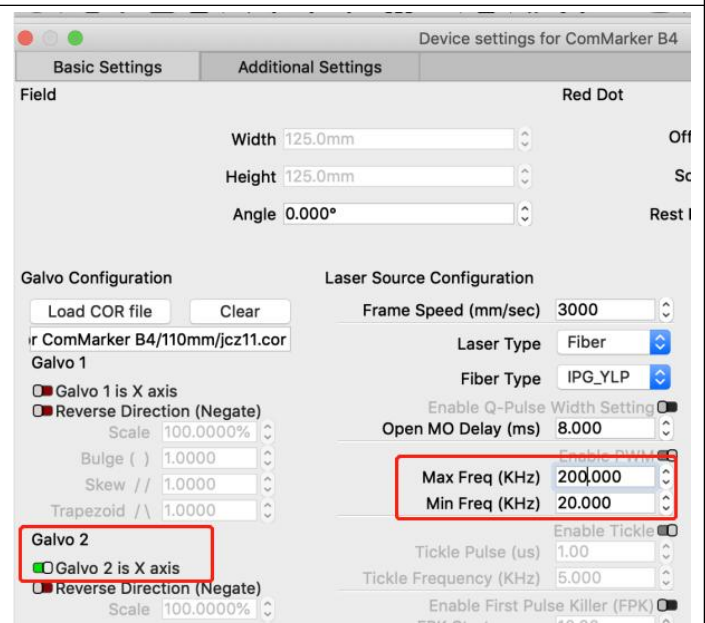
Lightburn Operation Tutorial (For Window system)

Refer to the operation on MacOS, please don't forget to install the driver when installing Lightburn software as the following picture shows:

FAQ

Q1: The driver installation was unsuccessful?

*Please make sure to use the copyrighted window system, if not, please replace it with another computer
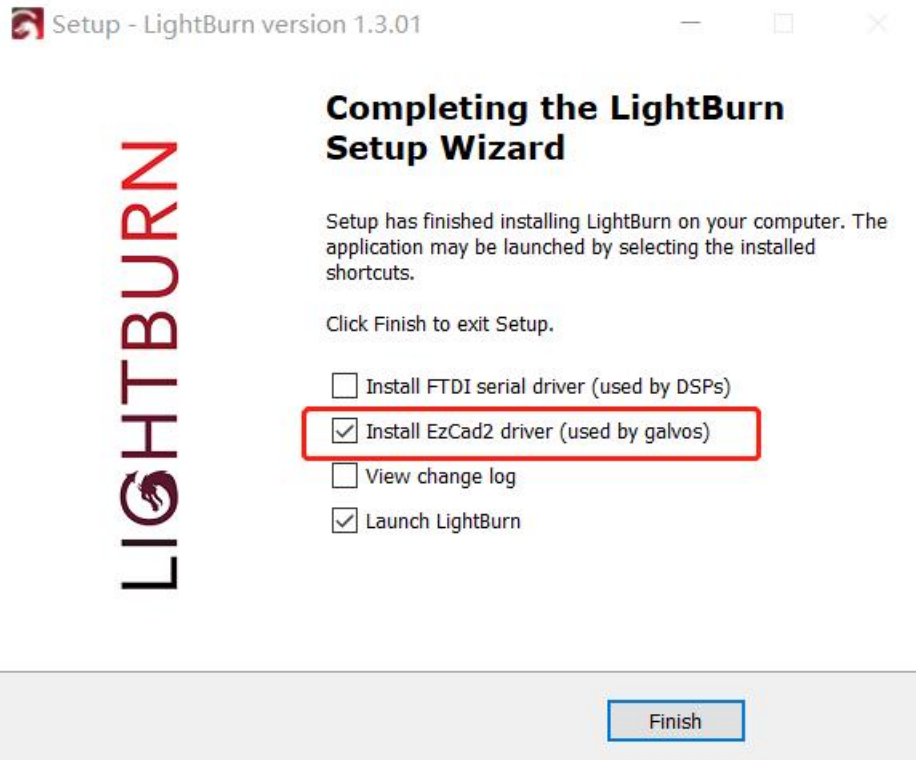
*Please try to replace a data cable, it is recommended to use a magnetic proof cable

*It may be a computer port problem or a computer board connection problem. The front USB ports of a desktop case are easily damaged. Please try with the port at the rear or try another computer

* Make sure the machine is on, keep the emergency button not pressed and data cable connected

*Please contact after-sales staff or email us

Q2: The driver in the device manager is different from the instruction in this manual.

*It happens because another driver has been installed in the computer; it could be Lightburn driver or any other one which is for other laser machines. Please uninstalled the incorrect driver and **don't forget to delete the driver**.
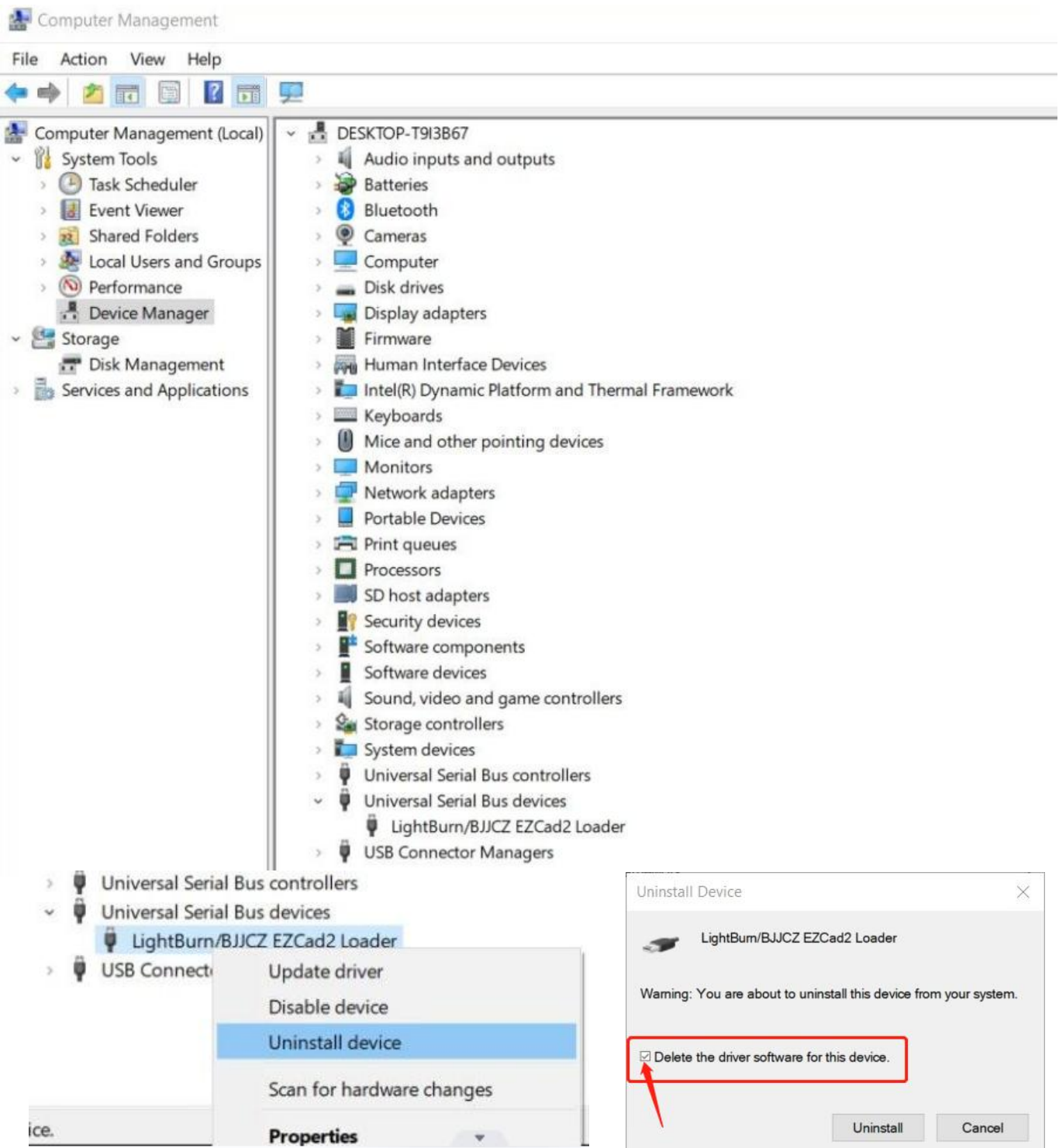
Q3: The USB flash drive is damaged and cannot be opened
*Please visit ComMarker's official website to download the B4 driver and software.
*Contact after-sales team by email.

Q4: The red light preview works with a rectangle, but there is no mark or the marks are very light
*Please adjust the focal length; please refer to operation instruction step 4 for debugging methods.
*Contact after-sales team by email.

Q5: Cannot find dongle, software will work at demo state, or Fail to open lmc driver
*The machine is not powered on, or the machine is not connected to the computer. Please turn it on and make sure the data cable is connected to the computer.

Q6: Up and down button does not work, the machine does not move by press the button
*Readjust the angle of the coupling and re-fix it with screws

Q7. The size of preview and the engraving area is inconsistent with the size in the software, the red light preview is inconsistent with the actual engraving position, or preview and the mark are not horizontal or vertical but with angles.
*Import the calibration file we include in the USB drive together with the machine, please refer to step 3 of the operating instructions. You can also ask for a new calibration file with the SN number with after-sales team by email.


*If the problem not solved, select "Parameter (F3)", select "Other "and "Red light pointer". Input numbers in "Offset X" and "Offset Y"according to the actual deviation number based on the measurement with a ruler. The number can be positive or negative. The red light will change in different directions at the positive and negative values.
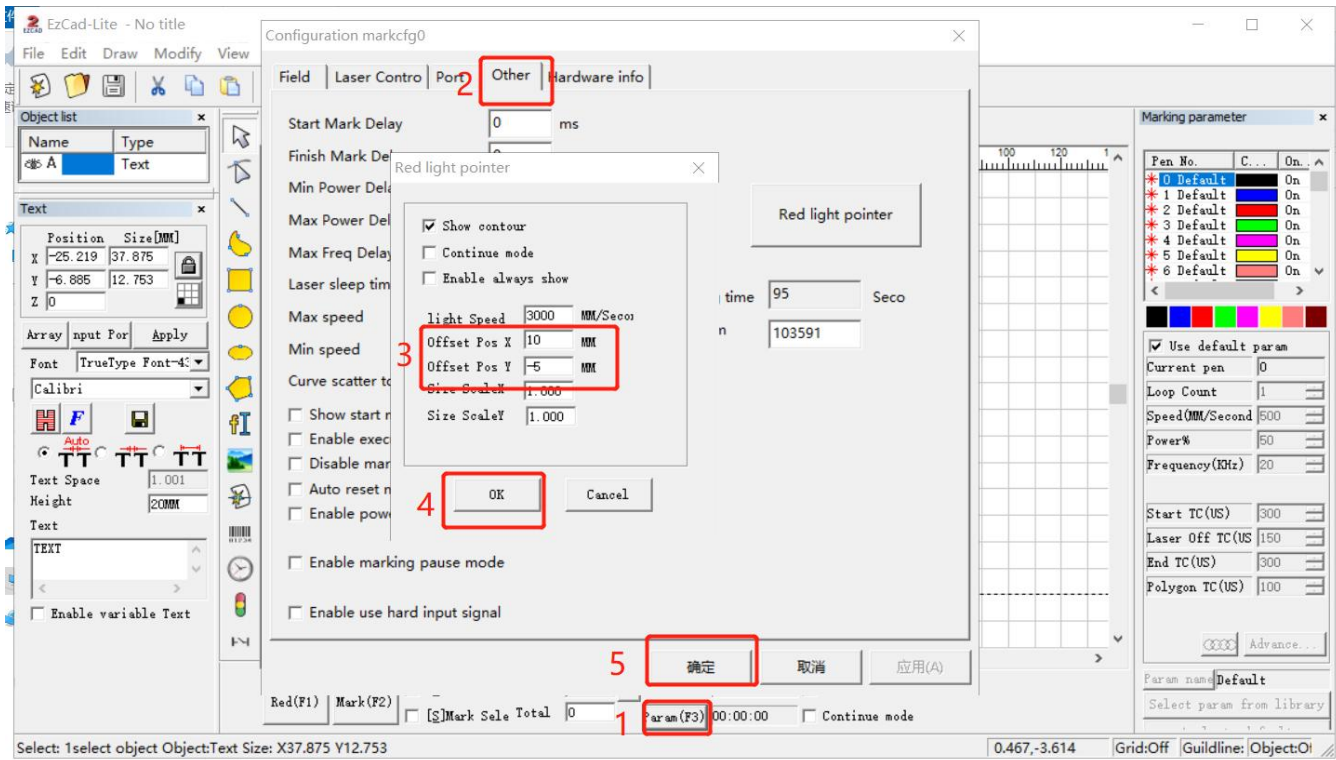
*If it still doesn't work, please contact after-sales team by email.

Q8: How to change the physical marking area in the software?

*Click "Parameter (F3)", select "Field". Input numbers in "Offset X", "Offset Y" or "Angle "according to the actual deviation number based on the measurement with a ruler. This function is important when you want to use a placing helper.
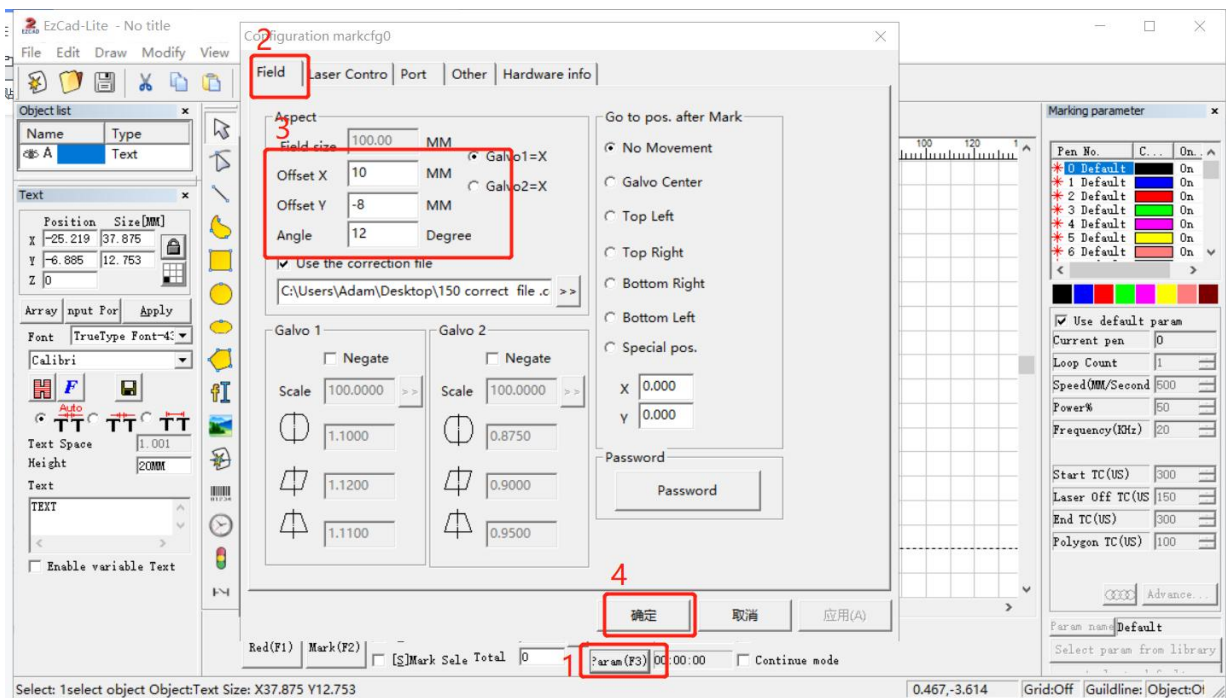
Q9: Some of the engraving areas are clear and other parts are light

*Please make sure that the field lens is clean, if the field lens is dirty, the laser light transmission is uneven. Please clean the field lens carefully.

*The front and rear of the optical path are not on horizontal level, because the 4 screws connecting the column with the optical path and the 4 screws connecting the machine table are not fixed properly, please loosen them again and fix again.

*Make sure the oval base of the pole is perpendicular to the pole.

*Re-tighten the screws of the metal parts supporting the optical path
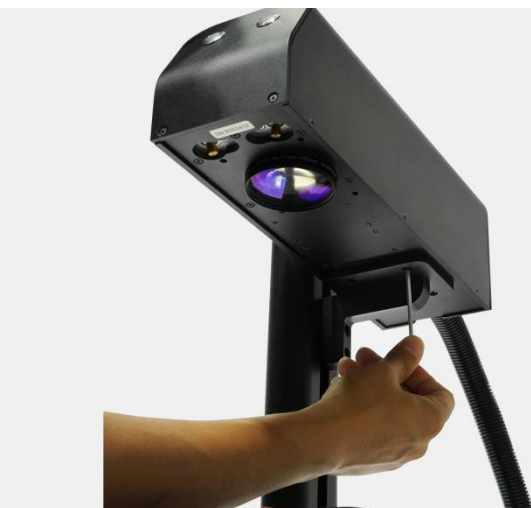
Q10: There is only one dot of preview and marking laser

*The galvanometer is not powered, remove the cover on the optical path, and check whether the DB15 cable or DB25 cable is disconnected. Please reconnect if it is disconnected.
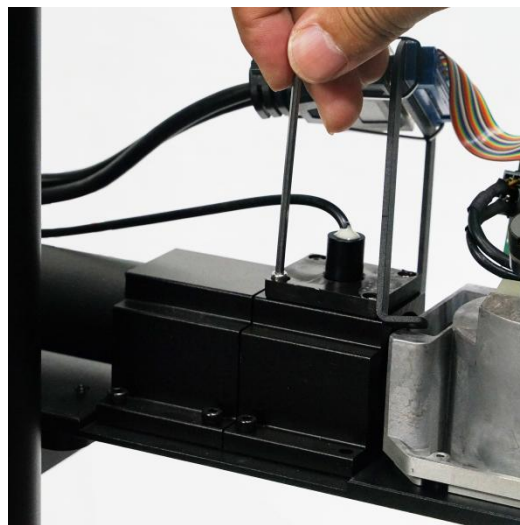
Q11: The preview red light is not clear, or there is even no preview red light emits
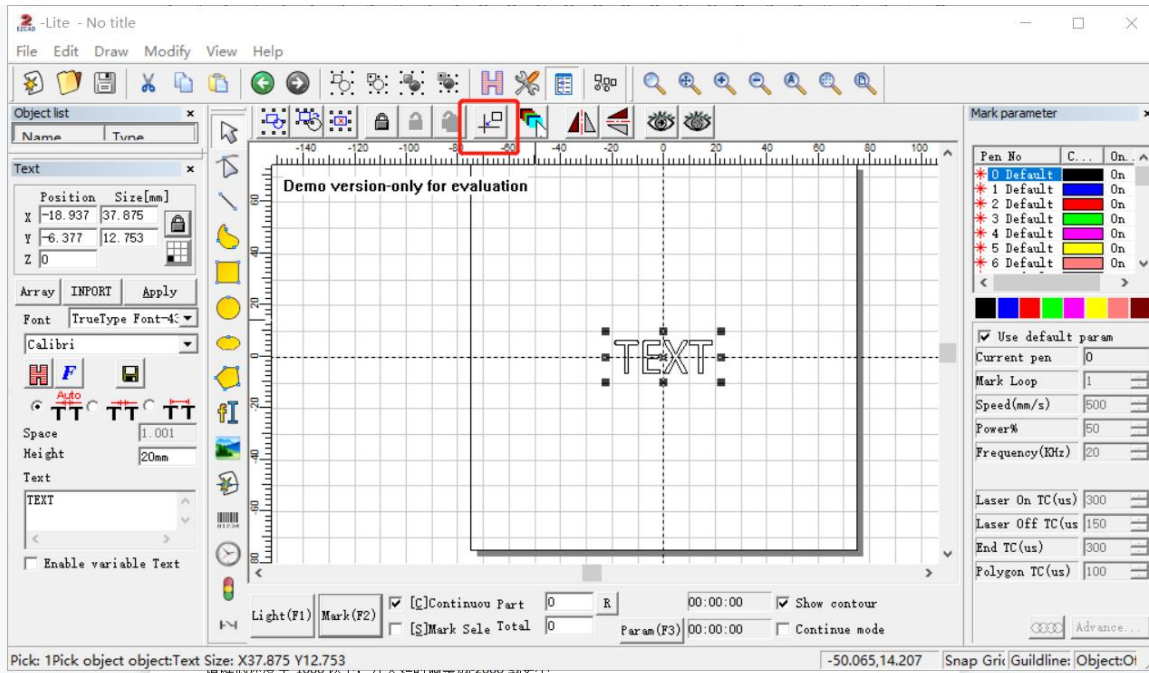
*Remove the laser head cover firstly.

Adjust the red light source manually, move and fix again, or disassemble and reinstall.

Q12: Nothing displays on canvas board when importing text or picture

*Please click the practical center button, the picture and text are in the center of the canvas.

Q13: It is found that the laser becomes weaker and the engraving effect becomes worse.

* Clean the field lens with a clean cloth. Sometimes the lens is dirty by hand. Or it will cause field lens pollution if the lens cover isn't taken off when marking, which will eventually result in weaker laser and worse marking result.

*If the field lens is polluted too seriously, a new replacement field lens might be needed.

Q14: Which version of Lightburn software is right for ComMarker B4?

*Please buy "**Add Galvo devices to existing license key**" if you bought the software for gantry type. Please choose the "**Lightburn- Galvo license key if you haven't bought any licence**".

Note: This manual will be continuously updated. Please download the latest e-version manual on our website.

ComMarker

Customer Service:

➢ For more video and supportive materials,please visit our official website at:
www.commarker.com
➢ For Laser Engraver technical support and service please email:
support@commarker.com

Manufacturer: Shanghai Diaotool Co., Ltd.