RodinCAD

Quick Start Guide 1.0

Read this manual before use.
Keep this manual in a safe place for future reference

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TABLE OF CONTENTS

1. Right & Introduction

1.1 Privacy Statement
1.2 Personal and Non-Commercial Use Limitation
1.3 Limitation of Liability
1.4 Copy Right
1.5 Main Features
1.6 Overview RodinCAD
1.7 Main Configurations
1.8 Relevant Manuals

2. Installation & Update

2.1 Where do I get RodinCAD software?
2.2 How do I install update of RodinCAD software?
2.3 When do I need to update my RodinCAD software?
2.4 Where do I get update of my RodinCAD software?
2.5 How do I install update of RodinCAD software?

3. Parameter Introduction

3.1 Which parameters affect the marking effect?
3.2 Parameters (F3)

4. Basic Operation

4.1 How do I mark text?
4.2 How do I mark QR code?
4.3 How do I mark a vector drawing?
4.4 How do I mark an auto serial number?
4.4A Advanced application – serial number encryption
4.5 How do I mark vortically by rotary fixture?
4.6 How do I mark a ring text?
4.7 How to adjust the position of red light pointer?
4.8 How to make a black marking on aluminum with a fiber laser?

5. Optional Operation

5.1 How do I get a longer term after the probation period?
5.2 How do I change the language of the software?
5.3 How do I change the setting of marking area?
5.4 How do I adjust the marking size?
5.5 How do create my account & set the password

1. Right & Introduction

Thank you for purchasing a Laser Marking from Mrodin Laser Machinery SL.

1.1 Privacy Statement

Your privacy is important to us and we stand up for your rights. This privacy statement explains the personal data RodinCAD processes, how RodinCAD processes it, and for what purposes. Mrodin Laser Machinery SL do not collect data from you, through our interactions with you and through our products, Mrodin stands up for your right, you control your information and we give you the ability to control your data. We always fights for stronger privacy laws and protections, we keep on grounding our privacy commitments in strong data governance practices, so you can trust that that we'll protect the privacy and confidentiality of your data and will only use it in a way that's consistent with the reasons you provided it.

1.2 Personal and Non-Commercial Use Limitation

Unless otherwise specified, the Services are for your personal and non-commercial use. You may not modify copy, distribute, transmit, display, perform, reproduce, publish, license, create derivative works from, transfer, or sell any information, software, products, or services obtained from the Services.

1.3 Limitation of Liability

In no event shall RodinCAD and/or its respective suppliers be liable for any special, indirect or consequential damages, or any damages whatsoever resulting from loss of use, data, or profits, whether in an action of contract, negligence or other tortuous action, arising out of or in connection with the use or performance of software, documents, provision of or failure to provide services, or information available from the services.

1.4 Copy Right

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1.5 Main Features

- Users can design their graphics freely.
- Various types of fonts are supported. Such as TrueType, SHX, JSF(Single line font defined by EzCad2), DMF(Dot Matrix Font), One-Dimensional bar code, Two-Dimensional bar code , and so on)
- Flexible variable text: changes the text real time while in laser processing. Excel datasheet is supported.
- Can through the serial port direct read text data
- Can through the network direct read text data
- Strong node editing function make the curve modification more easier
- The software can support 265 "pencils", which used to draw graphic and can be set different processing parameters.
- Common types of images are supported. (bmp, jpg, gif, tag, png, tif…)
- Common vector images are supported. (ai, dxf, dst, plt…)
- Image processing (Grayscale, White / Black Transformations)
- Powerful hatching functions, such as support round hatch.
- More convenient IO operations and more easier to harmonize the auxiliary equipment.
- Supports the dynamic focus (3 axis processing system)
- Supports directly the SPI G3 fiber laser and the newest IPG_YLP and IPG_YLPM fiber laser
- An opening language supporting system makes it easy to run the software in various languages platform.

1.6 Overview RodinCAD

RodinCAD runs on an PC with 900 MHz CPU and 256 MB RAM at least. In general, we recommend the fastest PC available.
RodinCAD was developed in Microsoft Windows XP and will run in Windows XP ,WIN7,WIN8 and VISTA.
RodinCAD requires a software security device sometimes known as a 'dongle'. This device plugs into the USB port on the PC. If there is no dongle or the dongle do not install correctly, a caution will appears and the software will work at demo state. In demo state, we can evaluate the software but we cannot save files and cannot control laser device.

1.7 Main Configurations

Software Kernel	64 Bits
Lasers	1.0 digital communication protocol. The laser status can be displayed in real time.
Red Light Pointer	Red light works as an indicator.
Password	Deliberate modification of parameters.
IO Control	Automation possible.
Galva meter Calibration	3D calibration, traditional trapezoid calibration, barrel (pillow) calibration, and parallelogram calibration. Special calibration software for extremely accurate calibration results.
Hatch	Background hatch， ring-like hatch, angle hatch, cross hatch. Distance and contour adjustable. Support of hatch of 8 layers.
Processing Functions	Large-format dynamic focus, projector positioning function, multiple extension axes, estimated processing time, speedy spot-marking of 2D bar code, average distribution of line, power and velocity linear change, helix and sine curve wobble, and material parameter assistant multi-layer, 3D curve marking, slicing function, dynamic hatch, 3D curve projection, curved surface wrapping, bitmap file
Edit Functions	True Type & SHX
Text Functions	Support of TrueType fonts, single line fonts (JSF), dot matrix fonts (DMF), SHX, and user-set fonts
Support of Max 256 Layers Processing	Customizable to set different processing parameters
Bar Code and 2D Bar Code	Code39, EAN, PDF417, DATAMATRIX, QR, etc.
3D Model File	STL, DXF
Vector File	PLT, DXF, AI, DST, SVG, GBR, NC, JPC, BOT
Bitmap File	BMP, JPG, JPEG, GIF, TGA, PNG, TIF, TIFF
Language Package	11 languages available, such as Spanish, English, German etc.
Optional Functions	Dual-axis marking, fly marking, Software Development Kit
Calibration	Support of loading and switching of max 4 calibration files online
Multi XY layer calibration	Significant increase of XY layer precision
Offline Layer	Support of switching and processing of 16 offline layers
Online Arc Interpolation Command	Suitable for the processing of high precision small circle

1.8 Relevant Manuals

Manuals of all laser machine produced by Mrodin laser machinery S.L

Manuals of relevant to Industrial Computer

2. Installation & Update

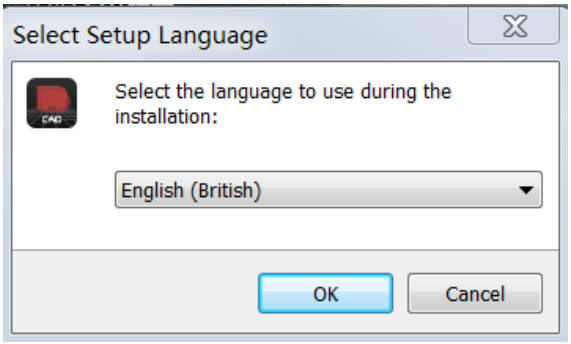
2.1 Where do I get RodinCAD software?

* It has been installed in the computer which you got from MRodin.
* It is in in a USB flash disk as accessory with machine purchased.
* It can be download from [www.mrodin.es.](http://www.mrodin.es)

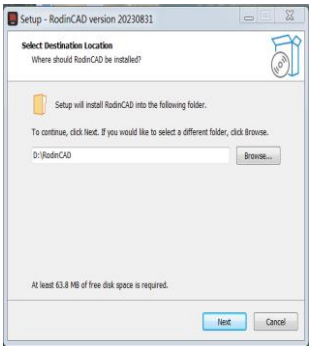
2.2 How do I install RodinCAD software?

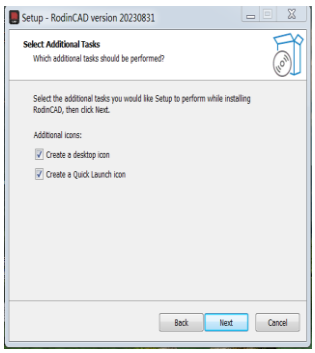
2.2.1 Move the RodinCAD from USB or download to your computer or laptop desktop.

2.2.2 Double click the **RodinCAD icon** to select setup language, then click **OK**.

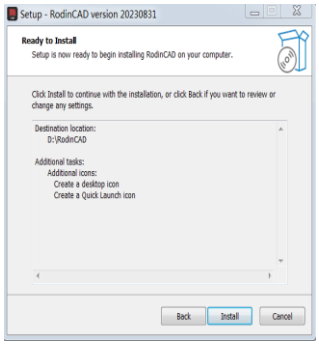


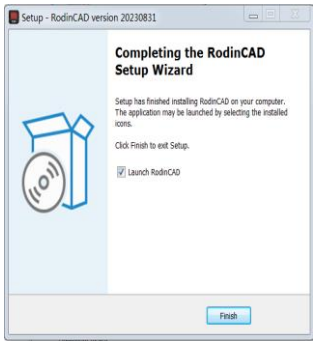
2.2.3 Select destination Location as you need, then click Next to select additional tasks to Create a desktop icon and Create a Quick Launch icon as you want, then click Next .





2.2.4 Click Install and in few seconds RodinCAD is installed in your computer or laptop.

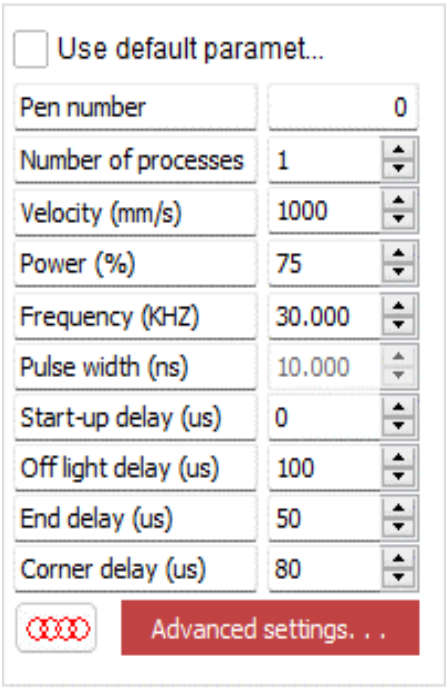




2.3	**When do I need to update my RodinCAD software?**
2.3.1	Mrodin believe that do anything well if stick to doing one thing again and again- one thing is solve customer's trouble!
2.3.2	According to self-test and user feedback, RodinCAD regularly updates the software function to solve the bugs existing in the operation.
2.4	**Where do I get update of my RodinCAD software?**
2.4.1	RodinCAD will be updated and maintained persistently, you can get it from:
2.4.2	* An update notification by E-mail from Mrodin or its distributor or agent.
2.4.3	* Visiting *www.mrodin.es* to get the newest version.
2.4.4	* Contact your supplier to get the newest version.
2.4.5	* MRodin will post updates on all major social media regularly as well.
2.5	**How do I install update of RodinCAD software?**

To avoid file management clutter and save the storage space, RodinCAD updates software by directly overwriting existing installation packages, which means just taking few minutes to re-install it in your computer or laptop.

3.1 Which parameters affect the marking effect?



3.1.1 Velocity (mm/s)

Velocity describes the movement of the laser head, fast speeds lead to short exposure times, while slow speeds lead to long exposure times.

Power (%)

Power laser parameter describes the output power of the laser. 100% is the maximum power. A higher power is needed for dark or stamp markings, while lower values are used for materials such as paper.

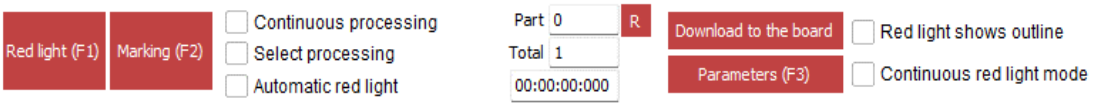
Frequency (KHZ)

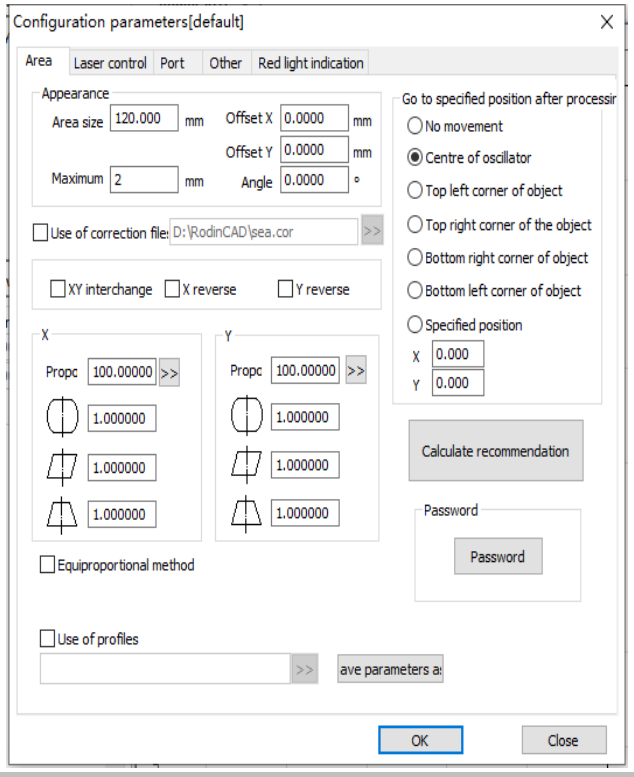
Frequency describes the Q-Switch frequency of the laser pulses during marking. Altering this frequency creates different marking effects. This parameter is used to adjust the laser output frequency by directly operating the Q-switch.

3.1.2 The main factors affecting the quality of laser marking machine

- √ The focal position of the laser marking machine
- √ The performance of laser beam focusing
- √ The movement speed of the laser beam
- √ Laser marking machine cooling method
- √ Materials of laser marking

3.2 Parameters (F3)

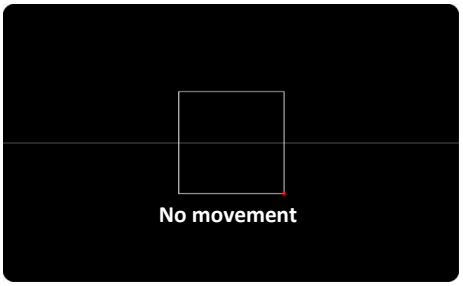


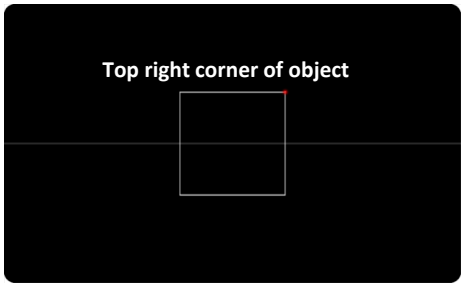


3.2.1 Area

3.2.1.1	Area size	The galvanometer's maximum marking range.
3.2.1.2	Maximum	The maximum length of the segmented line for graphic splitting is used to pre-split the lines before data transmission in order to improve the accuracy of labeling.
3.2.1.3	Offset X/Offer set Y	The offset distance on X/Y direction of scan head.
3.2.1.4	Angle	Adjust the angle of the galvanometer
3.2.1.5	Use of correction files	Use the correction file generated.
3.2.1.6	XY Interchange	Swap the coordinate axes corresponding to the original galvanometer signals 1 and 2.
3.2.1.7	X reverse/Y reverse	The opposite direction of the current galvo on X/Y direction
3.2.1.8	X/Y Proportion	Scaling ratio, with a default value of 100%. This parameter needs to be adjusted when the actual size of the markings differs from the software's graphical representation. If the actual size is smaller than the design size, increase this parameter; if it is larger, decrease it.
		This item refers to the distortional correction coefficient, and the default value is 1.0 (range from 0.875 – 1.125).
		This item indicates the parallelogram correction coefficient, and the default is 1.0 (range from 0.875 – 1.125).
		The trapezoidal correction coefficient is used to adjust the image distortion, with a default value of 1.0 (parameter range: 0.875-1.125).

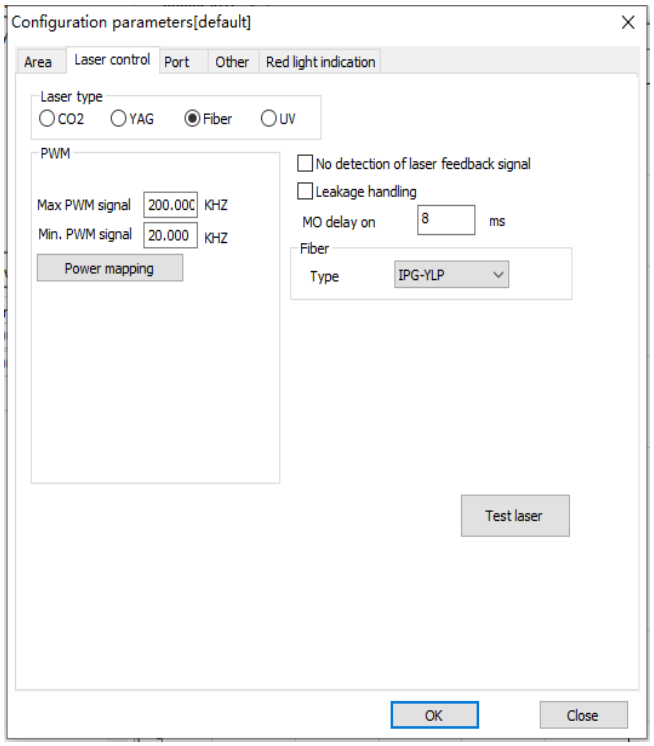
3.2.1	**Area**	
3.2.1.9	Equiproportional method	When calibrating, use equidistant lines to calculate the scaling ratio
3.2.1.10	Use of profiles	Configuration file generated by an external program
3.2.1.11	Save parameters as	Save the parameters as a file
3.2.1.12	Go to specified position after processing	The galvo jump to the appointed position when finishing marking





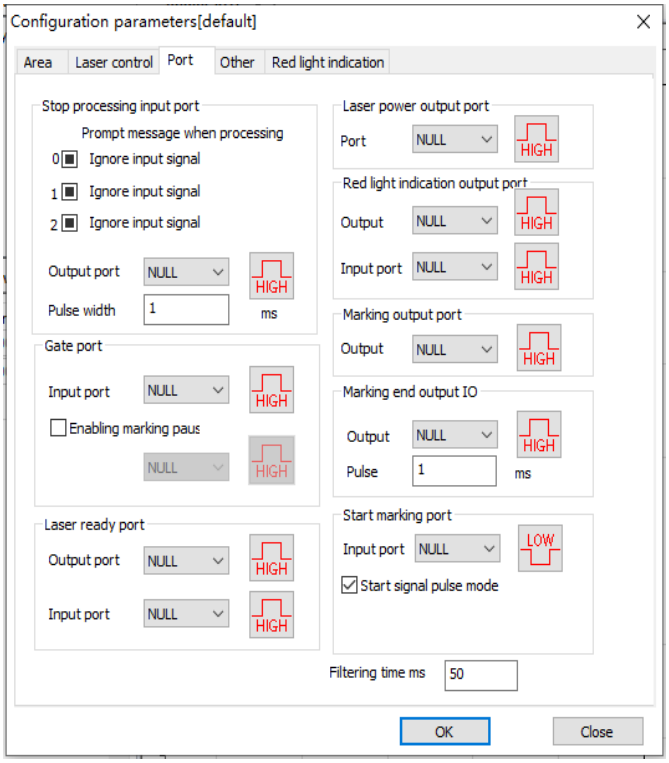
3.2.1.13	Calculate recommendation	The value recommended by the system.
3.2.1.14	Password	Change the current parameters by entering the password

3.2.2 Parameters (F3)



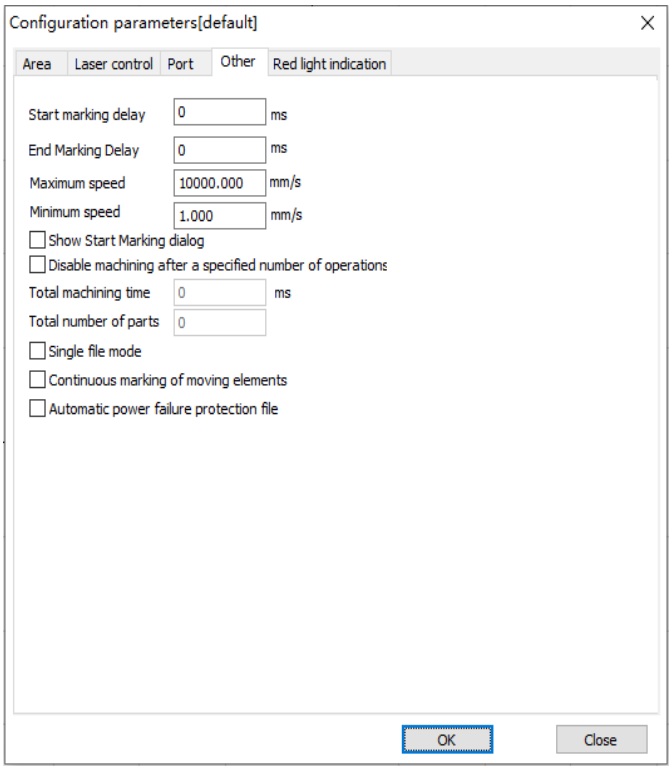
3.2.2.1	Laser type	The type of laser source, which is set by the factory, it shouldn't be changed by user.
3.2.2.2	PWM	Pulse-Width Modulation which is set by the factory, it shouldn't be changed by user
3.2.2.3	Power Mapping	To check real power and setting power, it is set by the factory.
3.2.2.4	No detection of laser feedback signal	This function must be used in conjunction with a laser sensor installed.
3.2.2.5	Leakage handing	This function must be used in conjunction with a laser sensor installed.
3.2.2.6	Fiber Type	The type of fiber from different brand and manufacturer

3.2.3 Port



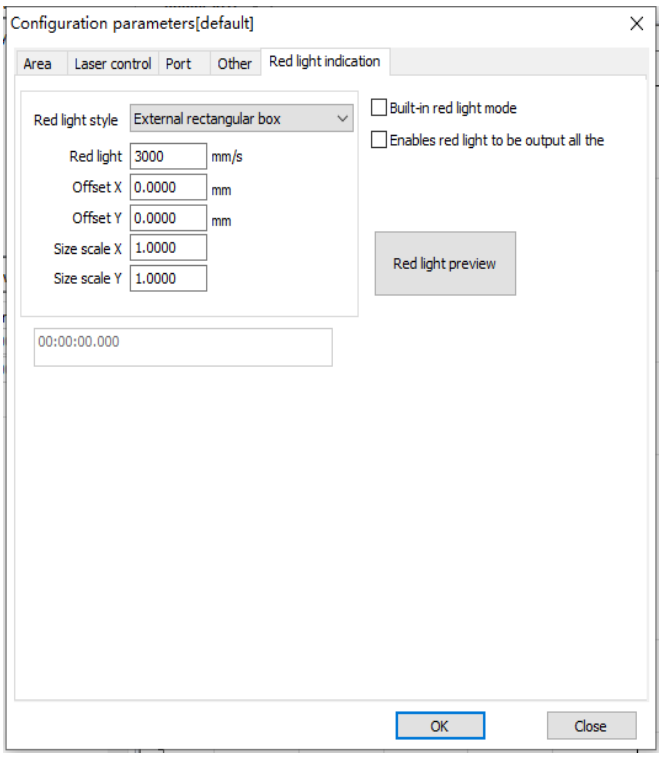
3.2.3.1	Stop processing input port	When in marking process, if the system detects there is a corresponding input signal, the current marking operation will be ended, and prompt the users with error information.
3.2.3.2	Gate port	This port signal is for opening and closing of the safety door. The machining process automatically stops when the user opens the safety door, and machining can only proceed when the safety door is closed, in order to protect operators from laser burns. A red light indicator can continue to operate when the door is open
3.2.3.3	Laser ready port	This port signal is for ready of laser source
3.2.3.4	Laser power output port	This port can be used to control the laser power supply. If you set this port, there is a ‘Power off’ button displayed on the marking bar, see the figure
3.2.3.5	Red light indication output port	This port will output a high level signal to the designated output port when the system indicates a red light.
3.2.3.6	Marking output port	The appointed port will output high level voltage (TTL Compatible) while in marking
3.2.3.7	Marking end output IO	This port will output a high level signal to the designated output port when the marking finished.
3.2.3.8	Start marking port	In idle state, the software will start mark if detect the high level voltage from the appointed port.
3.2.3.9	Start signal pulse mode	Checking this option means the soft receive the start signal as pulse mode, otherwise it is as level mode

3.2.4 Other

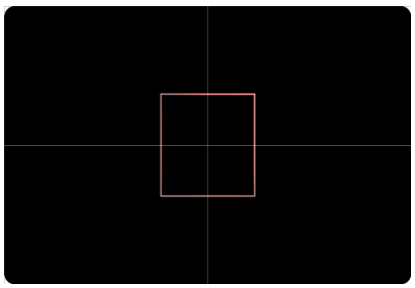


3.2.4.1	Start marking delay	The delay time before marking
3.2.4.2	End marking delay	The delay time after marking
3.2.4.3	Maximum speed	Based on the speed of the galvanometer, a maximum speed limit has been set.
3.2.4.4	Minimum speed	Based on the speed of the galvanometer, a minimum speed limit has been set.
3.2.4.5	Show start machine dialog	Every time inquired whether mark it before the marking
3.2.4.6	Disable machining after a specified number of operations	set the total count, when the amount reached, the software will not continue mark.
3.2.4.7	Total machining time	Total duration of parameter marking processing
3.2.4.8	Total number of parts	Total duration of quantity of working pieces.
3.2.4.9	Single file mode	
3.2.4.10	Continuous marking of moving elements	
3.2.4.11	Automatic power failure protection file	Usually, it is already set by factory before delivery.

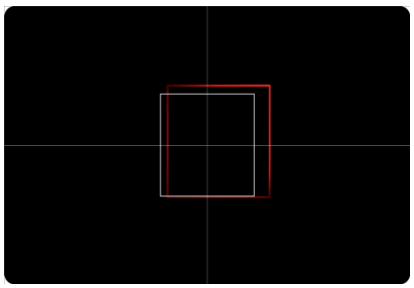
3.2.5 Red light indication



3.2.5.1	Red light style	To select the outline of displaying red light, it is a rectangle or a shape.
3.2.5.2	Red light speed	The movement speed of red light
3.2.5.3	Offset X/Y	To indicates the offset position of the movement on the X-axis/Y axis during red light, which is used to compensate for the positional error between the red light and actual laser light



Right alignment of red light and laser light



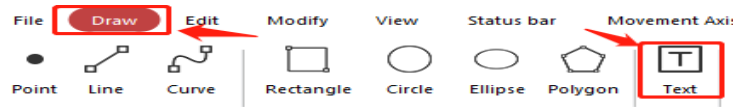
Position offset of red light and laser light

3.2.5.4	Size scale X/Y	To represent the size deviation on the X-axis/Y-axis between red light and laser light. Adjusting it can make the laser light completely overlap with the red light
3.2.5.5	Built-in red light mode	The factory settings must not be altered
3.2.5.6	Enables red light to be output all the time	The factory settings must not be altered
3.2.5.7	Red light preview	To preview the current setting of the red light effect

4.1 How do I mark text?

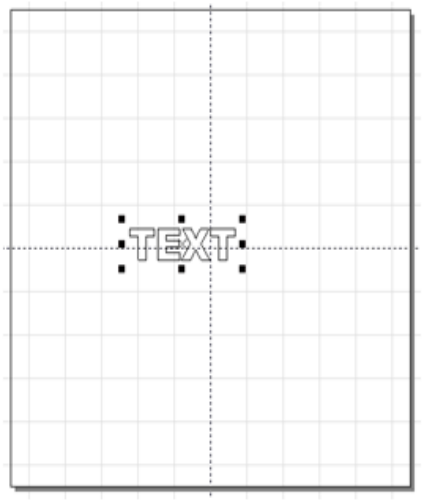
4.1.1 Open your laser marking machine first and then click RodinCAD icon running software

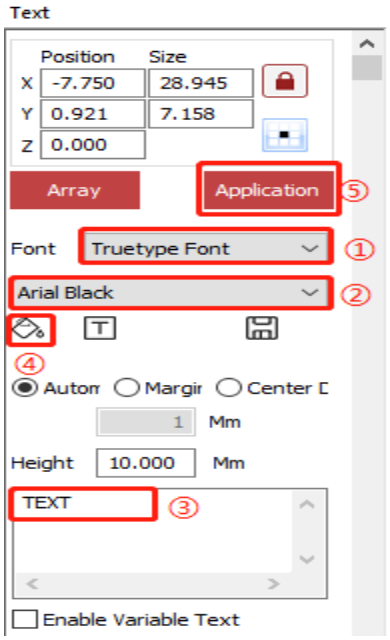
4.1.2 Click **Draw**＞**Text**, then release on the board



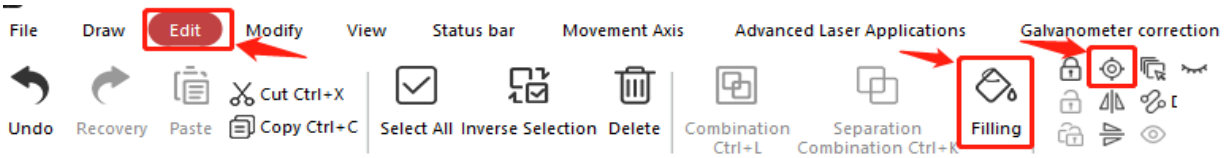
4.1.3 Type marking words in the left side panel, click **Application** to confirm.

4.1.4 If needed edit in the left side panel for **Filling**, then click **Application** to confirm.





4.1.5 Click **Edit** at **Toolbar** to get marking design required such as **Filling** or put in the center.

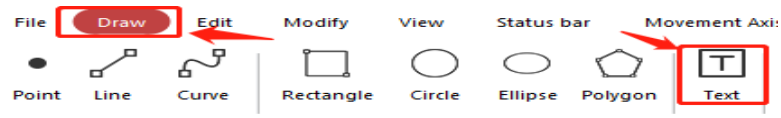


4.1.6 Click **RedF1** or **F1 key** to check the marking position by red light, adjusting to suitable position, then click **ESC** quit and click **Mark(F2)** or **F2 key** to start marking.

4.2 How do I mark QR code?

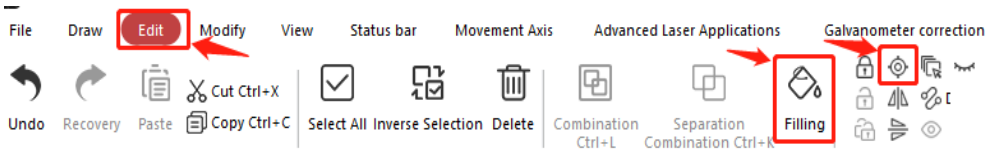
4.2.1 Open your laser marking machine first and then click RodinCAD icon running software

4.2.2 Click **Draw**＞**Text**, then release on the board



4.2.3 In the left side panel choose **Barcode Font** ＞ **QR-Code**, then type marking contents text field, click **Application** to confirm

4.2.4 Click **Edit** at **Toolbar** to get marking design required such as **Filling** or put in the center.



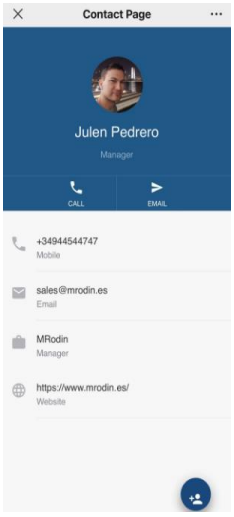
4.2.5 Click **RedF1** or **F1 key** to check the marking position by red light, adjusting to suitable position, then click **ESC** quit and click **Mark(F2)** or **F2 key** to start marking.

When you want to make and mark QR code of your website, you should-

To input complete website with **https://www.**, *otherwise it is only words instead of website link when customer scans the QR code.*

What information can be seen after scanning the QR code?

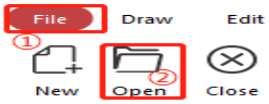
It can be your website link, business information, series number or any words and information.

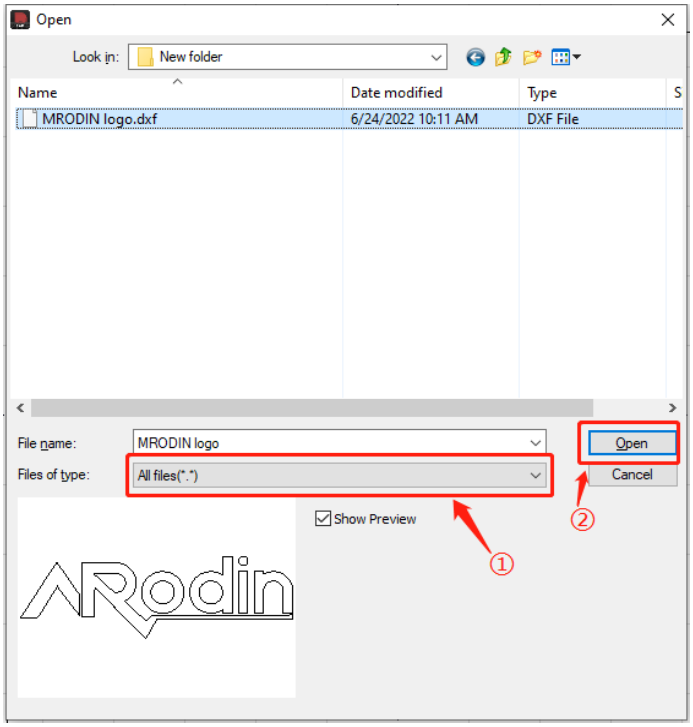


4.3 How do I mark a vector drawing?

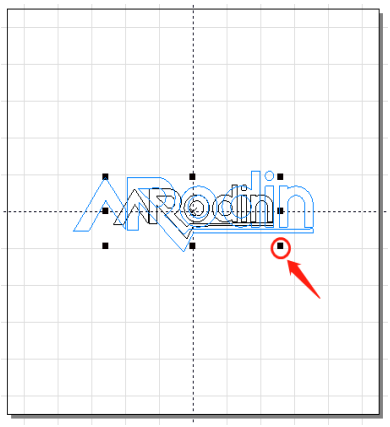
4.3.1 Open your laser marking machine first and then click RodinCAD icon running software

4.3.2 In Toolbar click **File**＞**Open**, select **All files(*.*)** and edited your dxf（DXF）,click **Open**

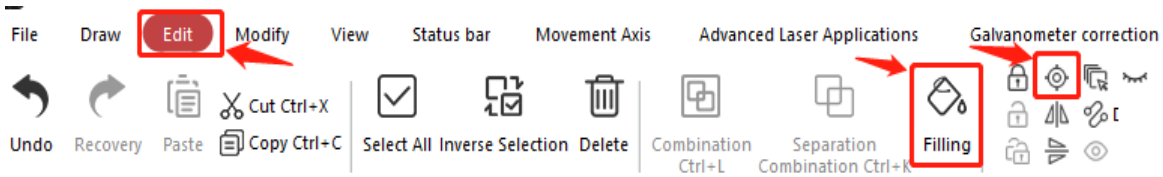




4.3.3 Click the DXF drawing, drag to the suitable size



4.3.4 Click **Edit** at **Toolbar** to get marking design required such as **Filling** or put in the center.

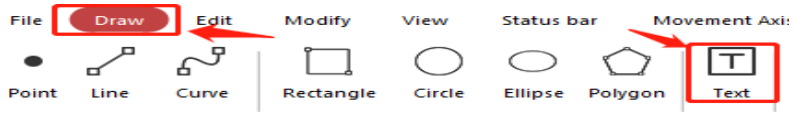


4.3.5 Click **RedF1** or **F1 key** to check the marking position by red light, adjusting to suitable position, then click **ESC** quit and click **Mark(F2)** or **F2 key** to start marking.

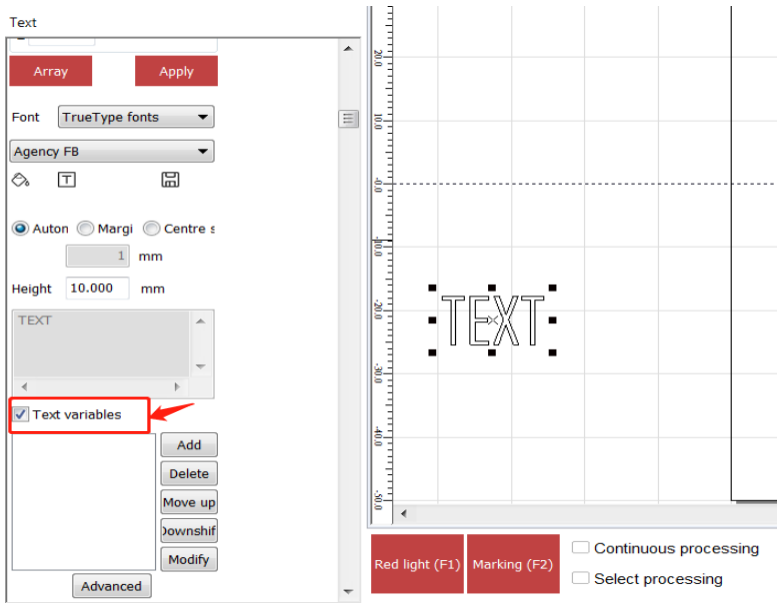
4.4 How do I mark an auto serial number?

4.4.1 Open your laser marking machine first and then click RodinCAD icon running software

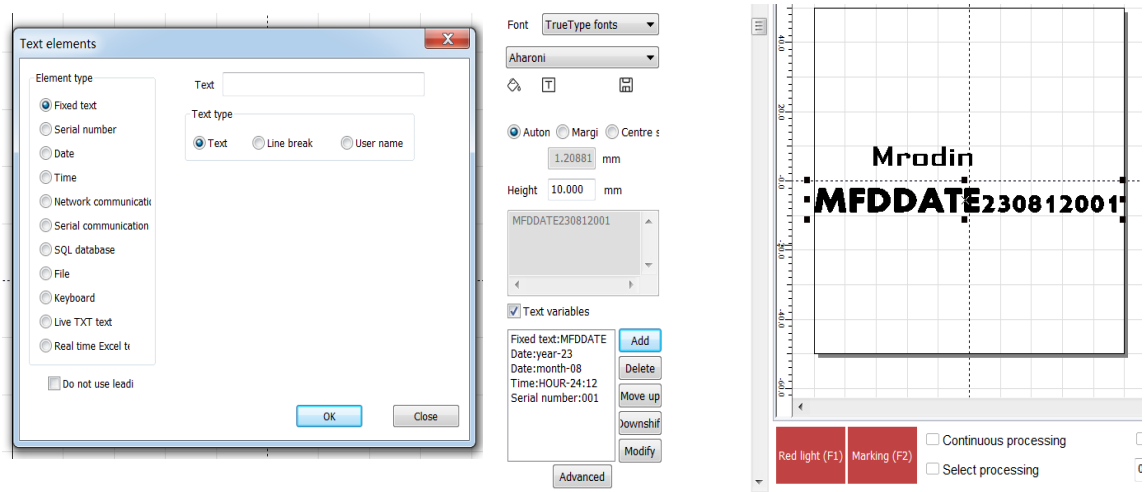
4.4.2 Click **Draw**＞**Text**, then release on the board



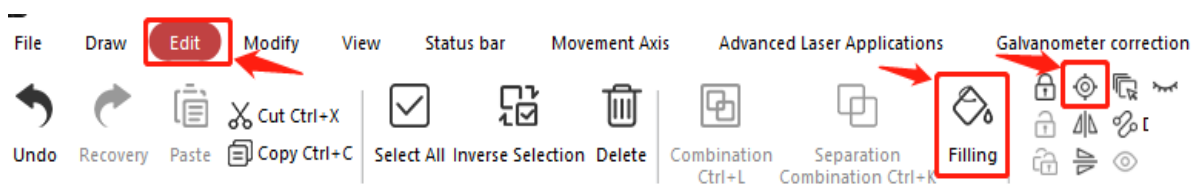
4.4.3 In the left side panel click **Test variable** to edit series number as you need.



4.4.4 In the left side panel click Add to edit fixed text, serial number, date and time etc. as you need.



4.4.5 Click **Edit** at **Toolbar** to get marking design required such as **Filling** or put in the center.

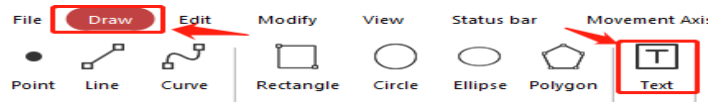


4.4.6 Click **RedF1** or **F1 key** to check the marking position by red light, adjusting to suitable position, then click **ESC** quit and click **Mark(F2)** or **F2 key** to start marking.

4.4A Advanced application – serial number encryption

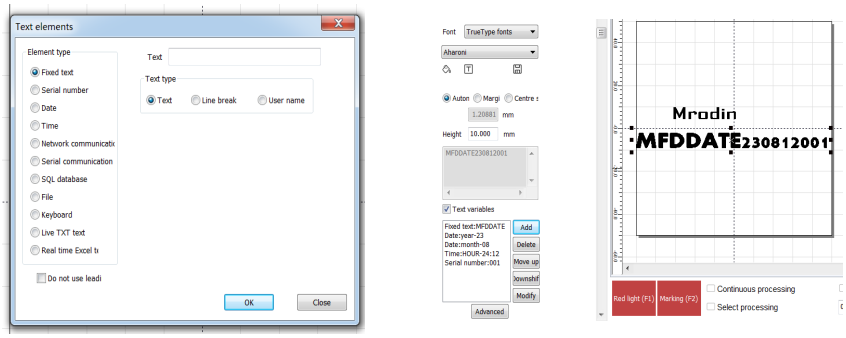
4.4A.1 Open your laser marking machine first and then click RodinCAD icon running software

4.4A.2 Click **Draw**＞**Text**, then release on the board

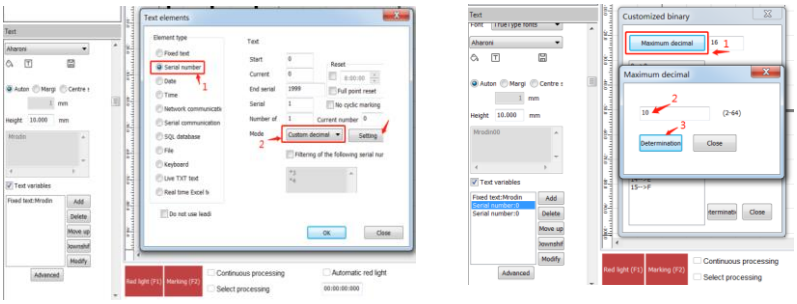


4.4A.3 In the left side panel click **Test variable** to edit series number as you need.

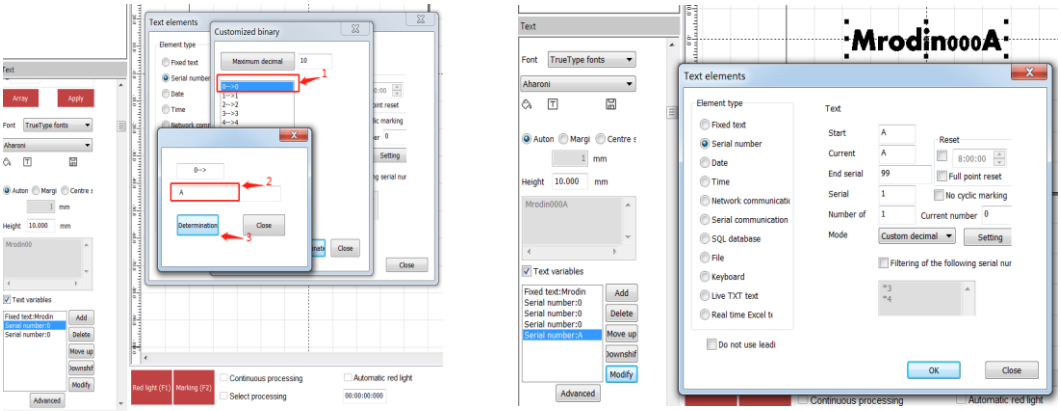
4.4A.4 In the left side panel click Add to edit fixed text, serial number, date and time etc. as you need.



4.4A.5 Click **Add**＞**Serial Number** ＞**Custom decimal** ＞ **Setting**, then click **Maximum decimal** to input 10 which means decimalize, click Determination to confirm the setting.



4.4A.6 Double click the number, input corresponding letter, click **Determination** one by one to set all numbers, also modify the number in T**ext** as your setting, click Determination to confirm the encryption.

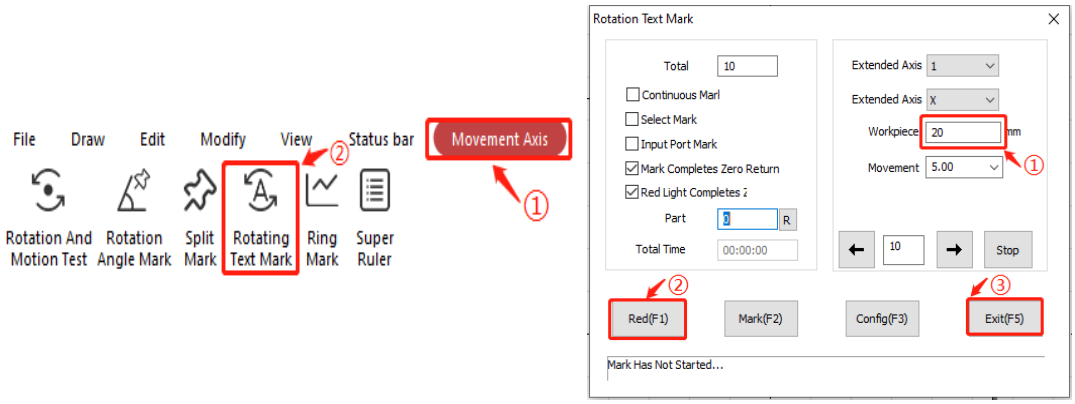


4.5 How do I mark vortically by rotary fixture?

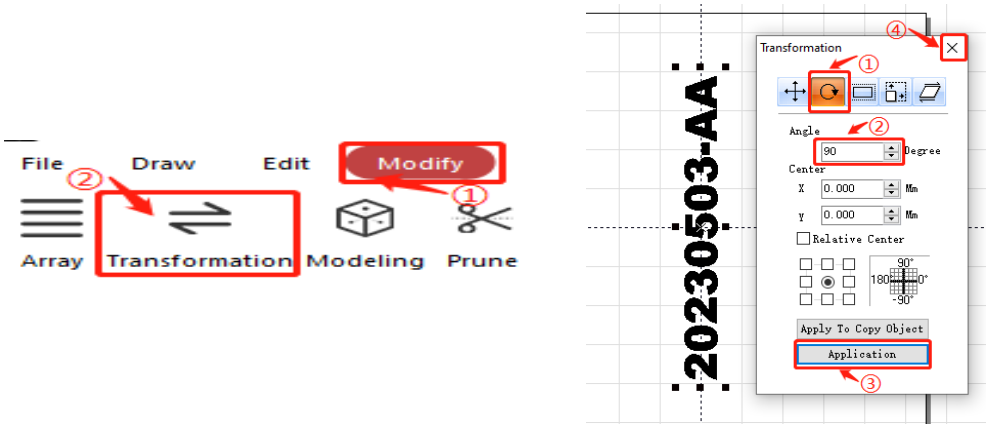
4.5.1 Connect the rotary with your first, then open the laser marking machine and click RodinCAD icon running software

4.5.2 Install the work piece on the rotary fixture properly , edit the marking content on the software.

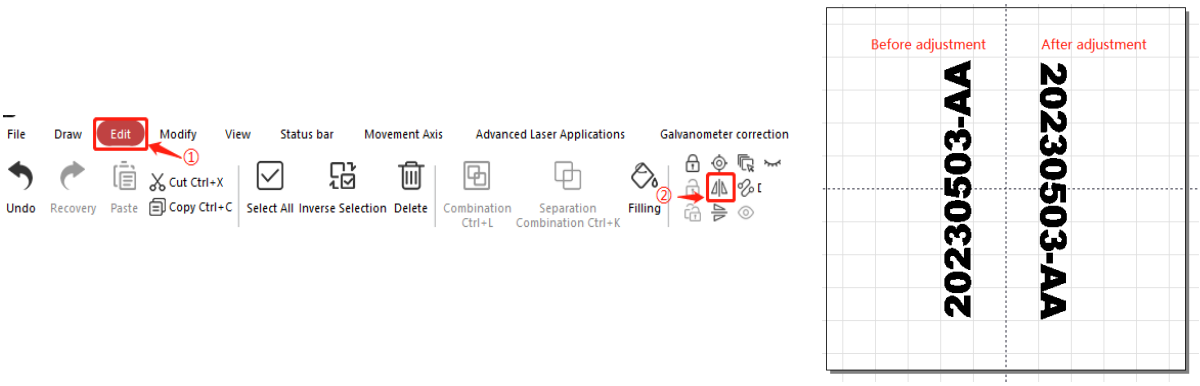
4.5.3 In the **Toolbar** click **Movement Axis** > **Rotating Text Mark** then input the diameter of the workpiece, click **Red(F1)** to check the position, if it is good, click **Mark(F2);** If the position is not good, click **Exit(F5)** to modify.



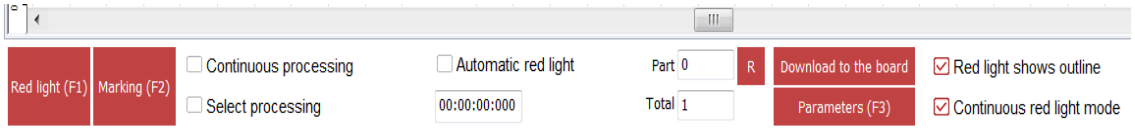
4.5.4 In the Toolbar, click **Modify**>**Tansformation**, input the angle 90°or 270°, click Application then close the window.



To change the direction of the object, click **Edit** > icon of mirror image to get the different orientation.



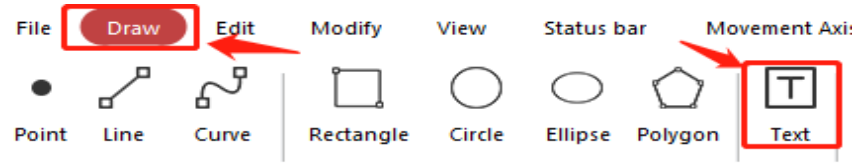
4.5.5 Choose **Red light shows outline** and **Continuous red light mode**, peat the step 8.3 to vortically mark.



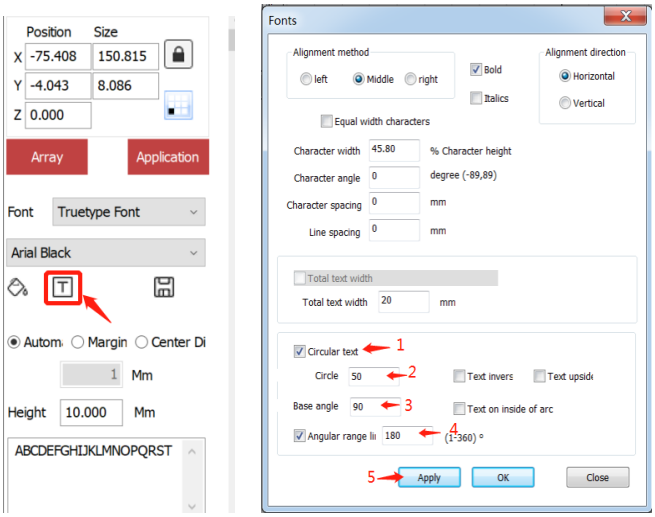
4.6 How do I mark a ring text?

4.6.1 Open your laser marking machine first and then click RodinCAD icon running software

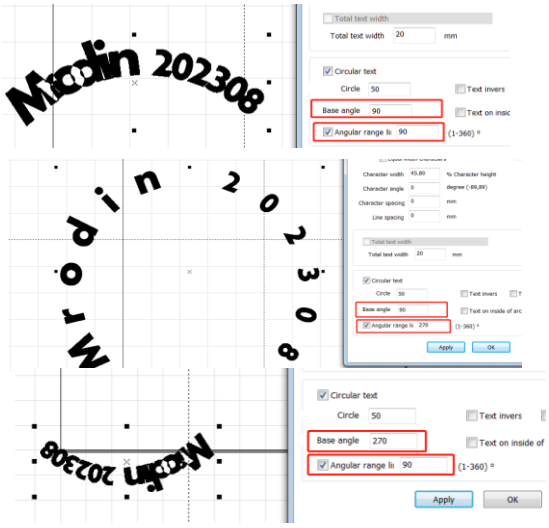
4.6.2 Click **Draw**＞**Text**, then release on the board



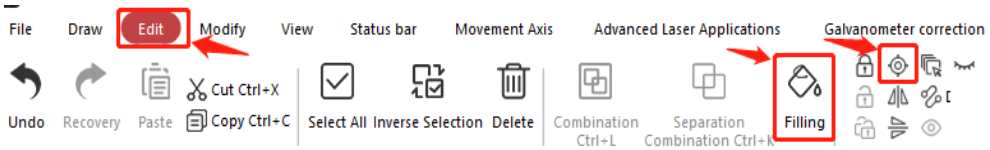
4.6.3 In the left side panel click T icon, tick **Circular Text**＞ input the diameter of ring into **Circle**＞ input parameter into Base angle to check the direction＞tick **Angle range limitation** to input , then check the effect.



4.6.4 Dereference drawing of Base angle and Angle range limitation setting.



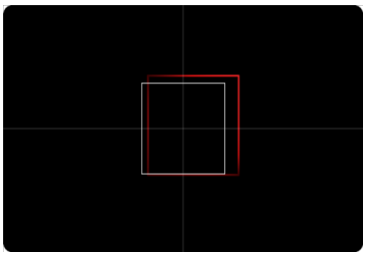
4.6.5 Click **Edit** at **Toolbar** to get marking design required such as **Filling** or put in the center.



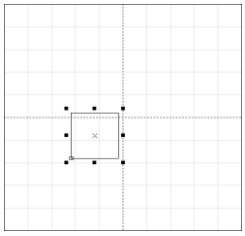
4.6.6 Click **Red light (F1)** or **F1 key** to check the marking position by red light, adjusting to suitable position, then click **ESC** quit and click **Mark(F2)** or **F2 key** to start marking.

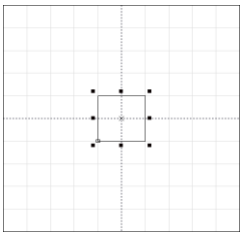
4.7 How to adjust the position of red light pointer?

4.7.1 Make sure the position of your red light pointer has shifted as below, it indicates that the position of the red light deviates from the laser position.

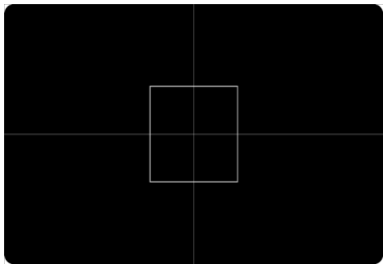


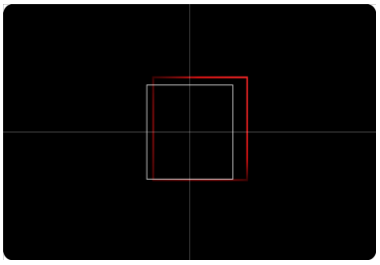
4.7.2 Draw a 20mm * 20mm square shape, put it in the center of the drawing board of the software.



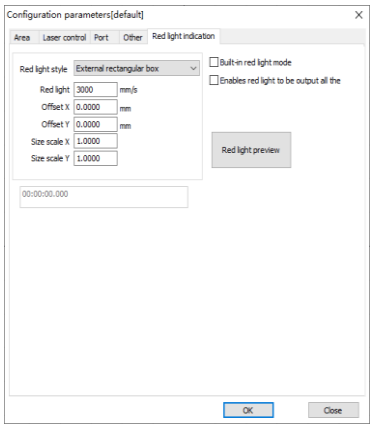


4.7.3 Press **F2** or click **Marking (F2)** to mark it out on the test board. Do not move the test card and press F1 or click Red light (F1) to observe the deviation between red light pointer and the real marking position.

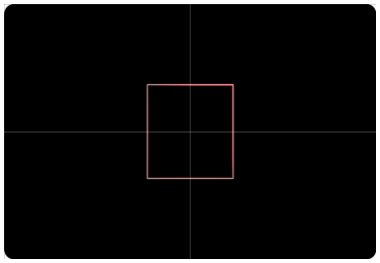




4.7.4 Press **F3** or click **Parameters (F3)** to open the configuration parameters window, then choose Red light indication.

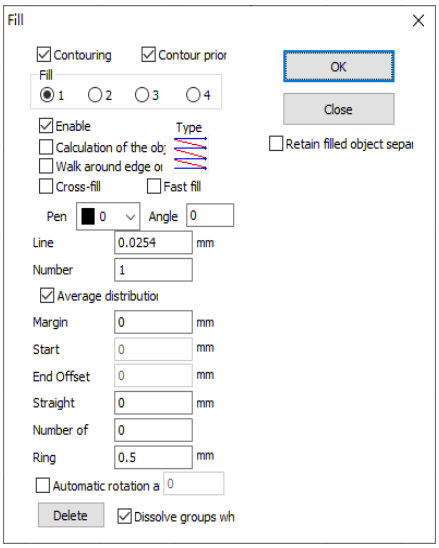


4.7.6 Adjust the data of Size scale X and Size scale Y until the rig light aligns with the marked laser square.

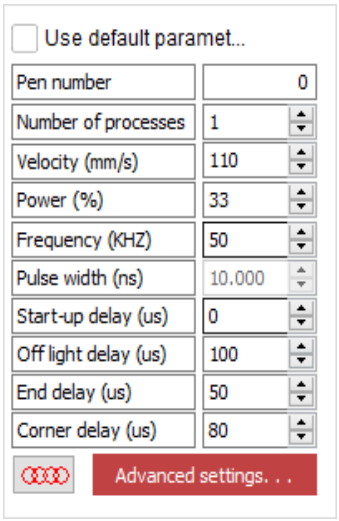


4.8 How to make a black marking on aluminum with a fiber laser?

4.8.1 Input your file and choose **Fill** to set the hatch as below:



4.8.2 In the right sidebar Marking parameter bar, to set the values of **Velocity, Power** and **Frequency** as below.



4.8.3 Click **Red light (F1)** or **F1 key** to check the marking position by red light, adjusting to suitable position, then click **ESC** quit and click **Mark(F2)** or **F2 key** to start marking.

4.8.4 If the black marking effect is not good enough, please try to change the values a little to test more.

The above method achieves black marking without depth on the surface of aluminum material by fine-tuning the focal length of the field lens. The marking machine does not possess depth and will not cause any damage to the workpiece surface.

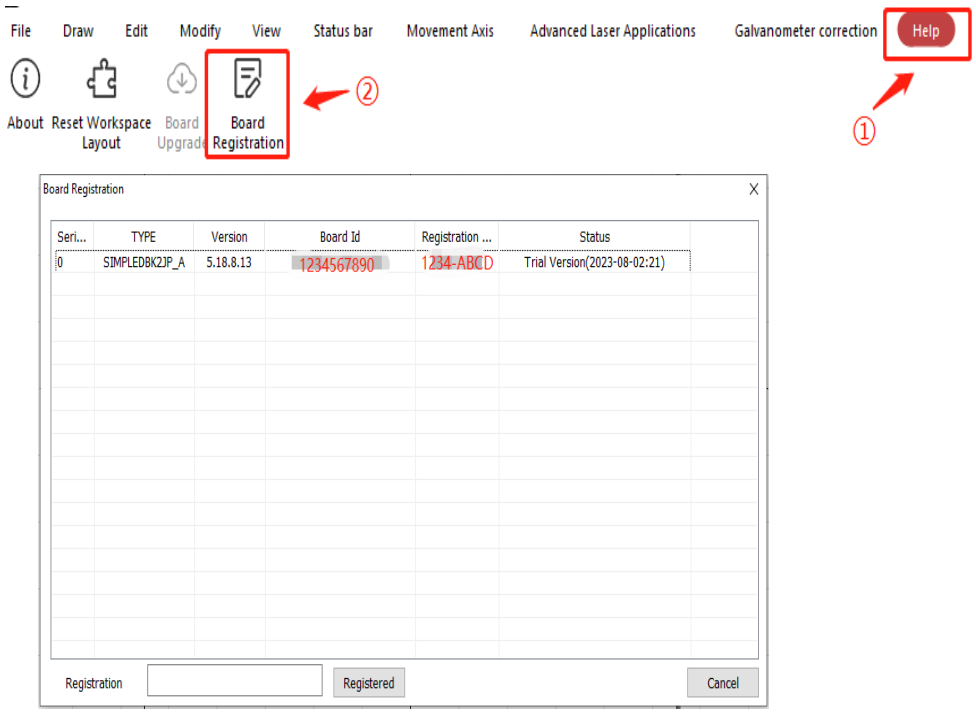
5. Optional Operation

5.1 How do I get a longer term after the probation period?

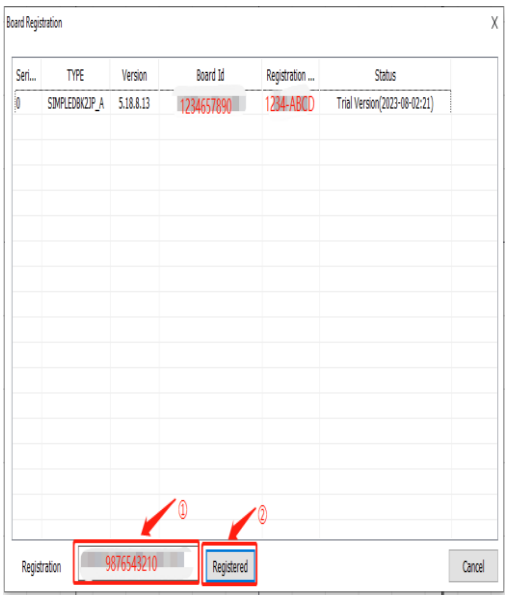
Mrodin, and its distributor or dealer, will offer free limited-use trial for customer. At expiration of trial use, kindly contact your supplier to unlock the machine or postpone trial time.

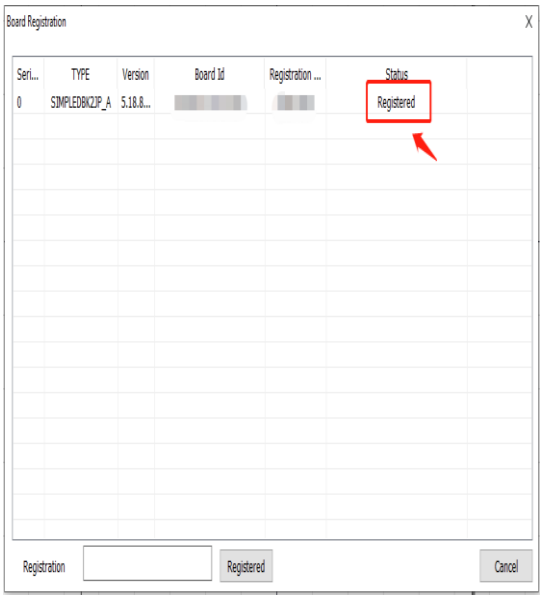
5.1.1 Open your laser marking machine first and then click RodinCAD icon running software.

5.1.2 Click **Help** ＞ **Board Registration** to get your **Record Registration code,** Send the registration code to your dealer.



5.1.3 Get the **Registration Key** from your dealer, input in Registration then click Registered as a long-lived user of RodinCAD.

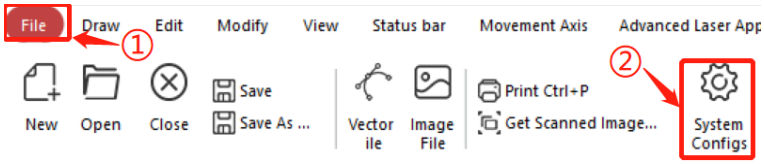




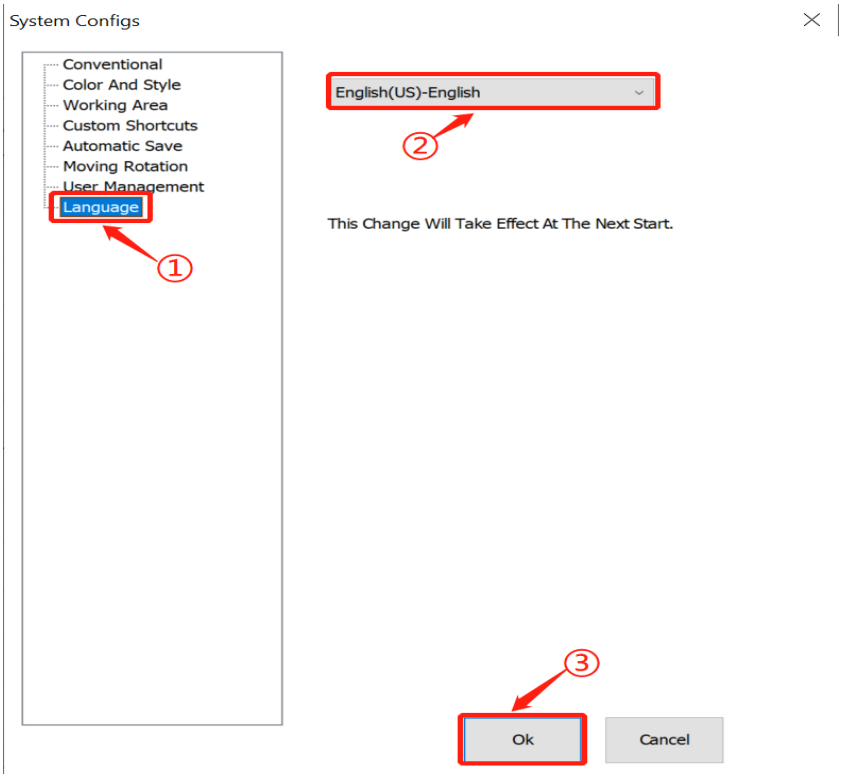
5.2 How do I change the language of the software?

5.2.1 Open your laser marking machine first and then click RodinCAD icon running software.

Click **File** > **System Configs** to open star setting.



5.2.2 Click **Language** to choose the language you need, then press OK to confirm language.



5.2.3 Log out and restart RodinCAD, the language has been changed as you need.

About the MAX marking area

The maximum marking area is based on specification of the field lens, which has been installed on the marking machine, normally it is standard specification where you can find on the field lens. Even the data in the software is bigger than the specification on the field lens, it can work, machine will just mark in the real working area and the marked figure will be distorted

User can choose different specification of field lens according to the work piece's marking size but limited by power of laser source.

User's Tips:

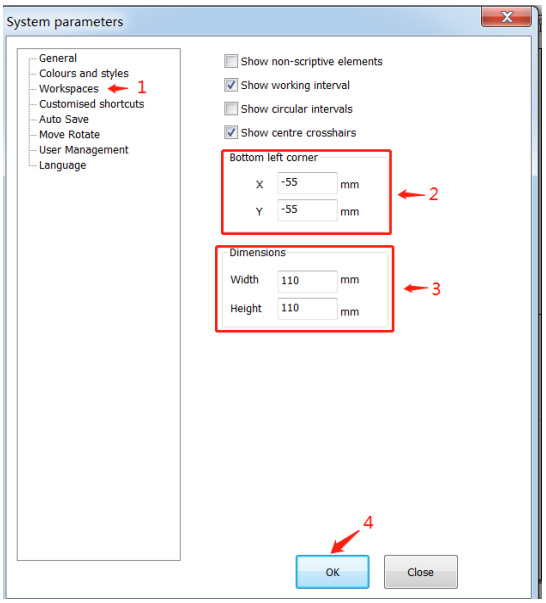
1）Under the same power of laser source, the bigger the area, the weaker the energy, the marking effect such as depth will be affected.

2） The best marking effect is determined by matching focal length, proportion and radian etc.

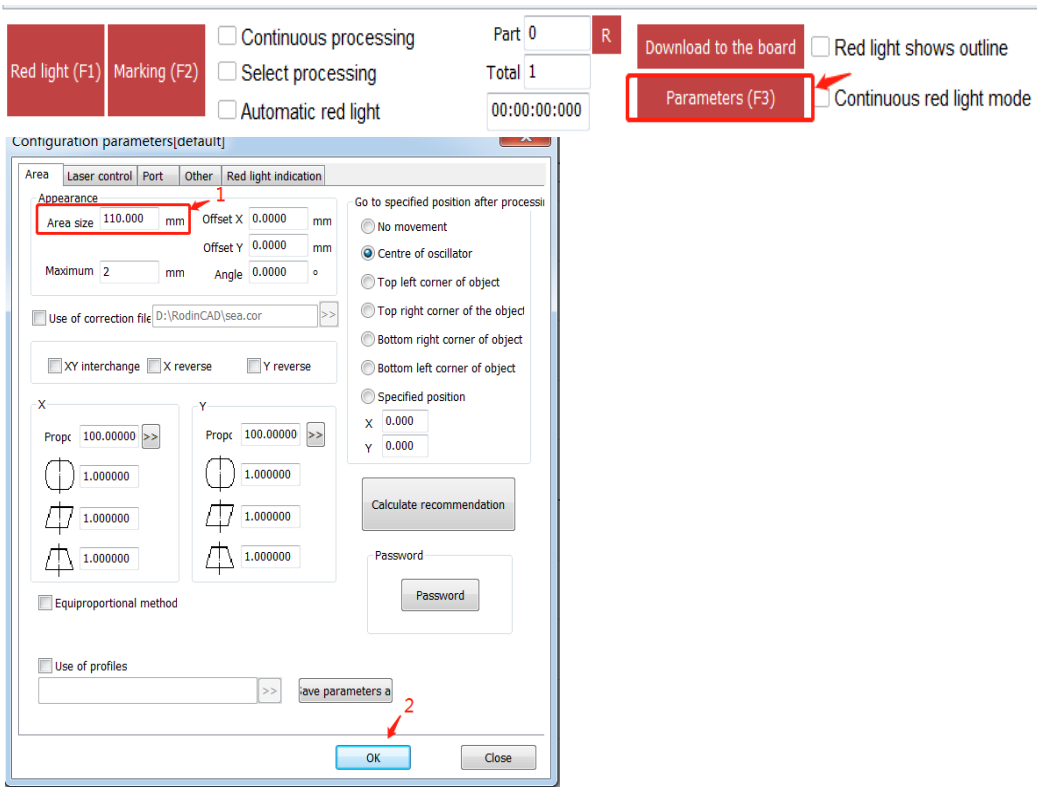
5.3 How do I change the setting of marking area?

5.3.1 Consult Mrodin or your dealer to be sure the new selected field lens are suitable for your marking machine, and install it on the machine with their instruction.

5.3.2 Click **File** ＞ **System Configs** ＞ **Workspaces**, input corresponding data of selected field Len at **Bottom left corner** and **Dimensions,** then click **OK** to confirm.



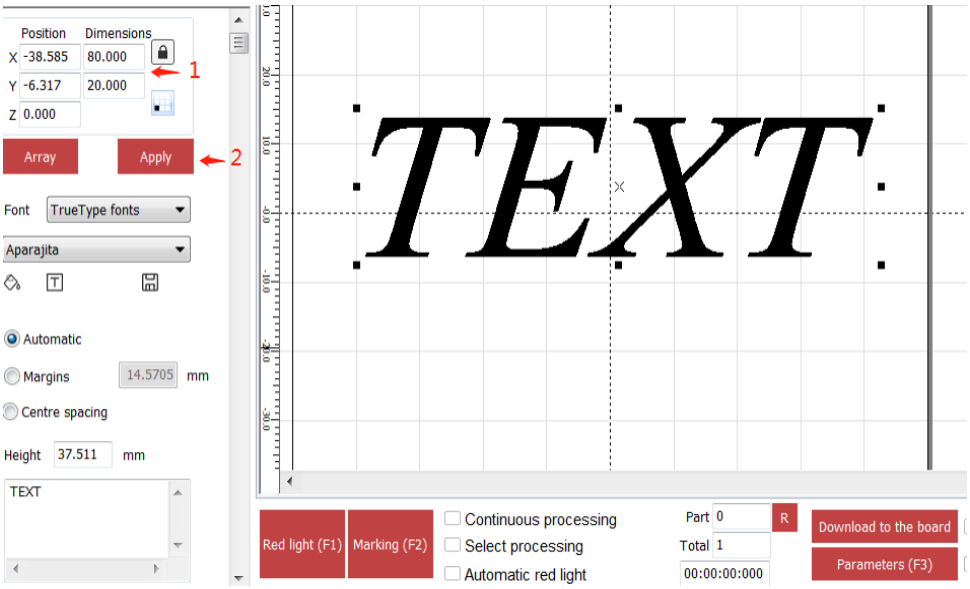
5.3.4 Click Parameters or F3 key to open the parameters window, input the corresponding data at Area size, then click OK to confirm.



5.4 How do I adjust the marking size?

5.4A A. Precise marking size: for example modify the size 80 mm X 20 mm

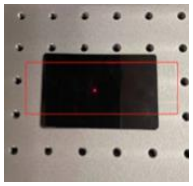
Choose the modify text, change dimensions of X and Y at the left side panel, then click **Apply** to confirm.

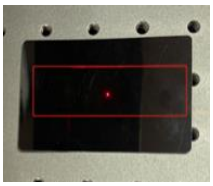


This icon here means to lock the aspect ratio, once it is locked in RED, when user change one of the X & Y dimensions, system will auto make a proportional change of the other.

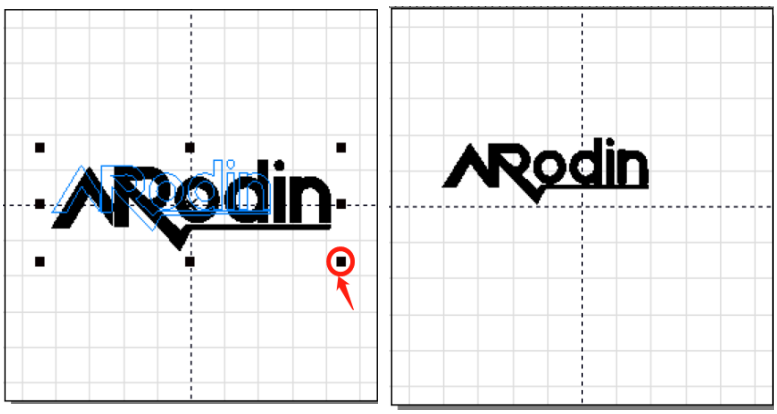
5.4B B. Appropriate size:

5.4B.1 Click Red light or F1 key to observe the red light preview on the work piece.





5.4B.2 If the size is inappropriate, press **ESC** on keyboard, then click the object and border appears, drag black dot on the border, modify the size of the object roughly.



5.4B.3 Click **Red light** or **F1 key** to observe the new size and position, if it is still inappropriate, repeat above steps until you are satisfied.

5.5 How do I create my account & set the password

5.5.1 Open your laser marking machine first and then click RodinCAD icon running software.

5.5.2 Click **File** > **System Configs** > **User Management**, tick **Password required to use software**, then click **Add** to create your name and password then click **OK** to confirm