MR.CARVE

S4 Operations Manual

Please carefully read this Operations Manual before use and keep it properly.

Model: S4

Contents

This Operations Manual is subject to change without prior notice if the machine is improved.
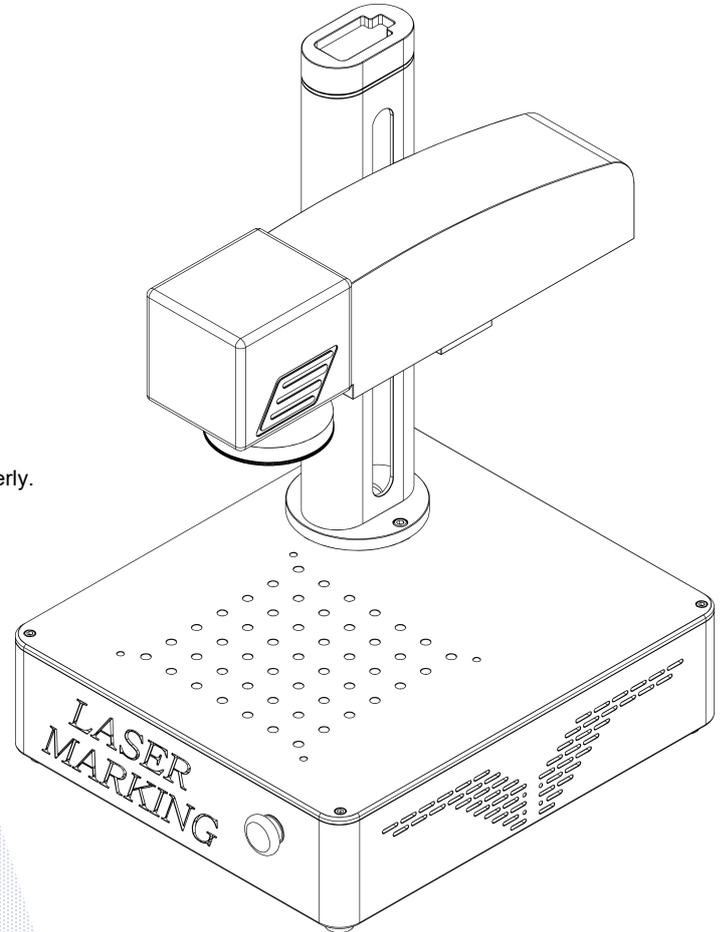
Download Address of Software Manual

Visit the following website to obtain the Detailed Software Manual:

http://www.mr-carve.com/download/

Watch the Online Video for Installation and Use

Visit the following website to view the Detailed Online Video for Installation and Use:

http://www.mr-carve.com/video

Safety Precautions

To prevent damage to your personal and property safety and ensure safe and correct use of the product, please read the Operations Manual carefully and follow the steps in the Operations Manual.

Safety Precautions

★Before operating the machine, users must read the Operations Manual carefully and strictly follow the operating instructions.

★ Laser machining may be risky, and users should carefully consider whether the object to be machined is suitable for laser operation.

★ The objects to be machined and emissions shall comply with local laws and regulations.

* Four types of lasers are used by the machine (intense laser radiation), which may cause the following consequences:

① Setting fire to combustible materials around it;

② The different objects to be machined may generate other radiating and toxic and hazardous gases during laser machining;

③ Direct laser radiation may cause personal injury. Firefighting equipment must be equipped at the site. Do not pile inflammable and explosive objects around the workbench and equipment, and ensure good ventilation.

* The equipment should be placed in an environment which is dry and free from pollution, vibration, strong electricity and strong magnetism. Working environment temperature: 10-40℃; working environment humidity: 5-95% (no condensate).

★ Working voltage of equipment: AC100-240V.

The engraving machine and other related equipment must be safely grounded before the start of operation

★ When the equipment is on, it should be attended at all times. All the power must be cut off before personnel leave to prevent unusual conditions. If any, please cut off the power immediately.

Do not place any irrelevant total reflection or diffuse reflection object on the equipment to prevent the laser from reflecting onto human body or flammable objects.

* The equipment should be kept away from electrical equipment sensitive to electromagnetic interference, in case of possible electromagnetic interference.

* Non-specialized personnel are prohibited from disassembling the laser equipment for high voltage hazard or other potential hazards.

Product Structure Accessories

Hand crank focus lever

Galvanometer

Field Lens

Emergency brake switch
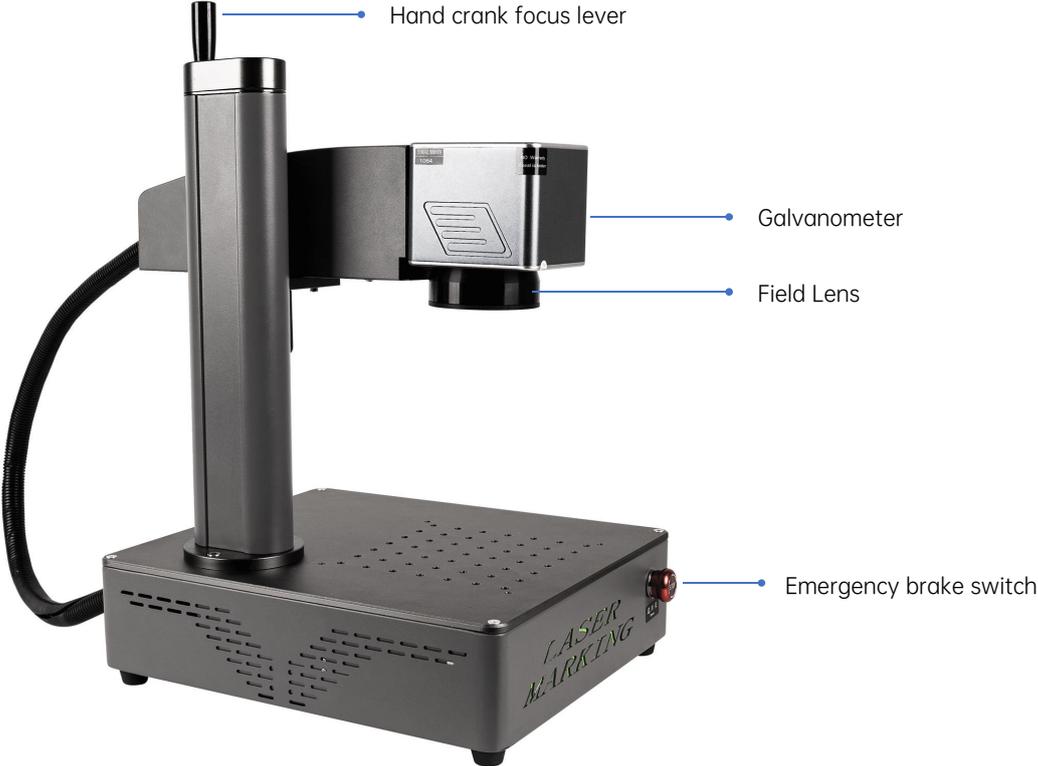
List of Accessories

Focus Fixing Test Pieces	USB Drive	Hexagon Wrench
Focusing Pieces	USB Cable	Power Cord

Product Parameters

Detailed Parameters of Machine S4	
Laser power	20W
Ambient temperature	-10℃~65℃
Repetition accuracy	≤0.001mm
Carving depth	0.015-0.2mm
Carving accuracy	≤0.001mm
Carving speed	≤10000mm/s
Cooling method	Build-in fan
Wave length	1064nm
Carving range	110cm²、150cm²、200cm²
Carving width	0.001-0.05mm
Product weight	17.7kg
Product dimensions	280*330*420mm（L*W*H）

Assembly Steps
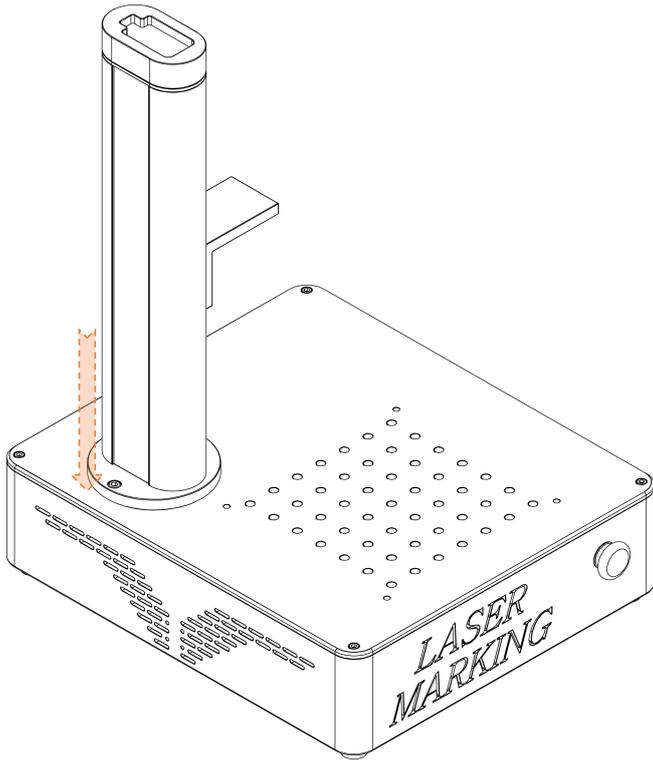
1.Install the lifting shaft to the working platform
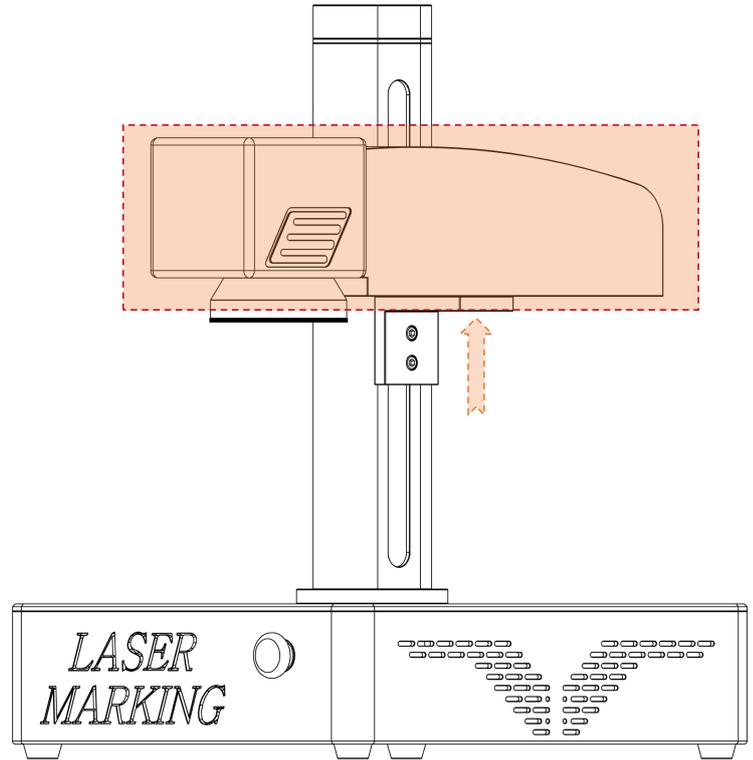
2. Fix the light path device to the right angle card plate on the lift shaft

How to Use 180-degree Rotation
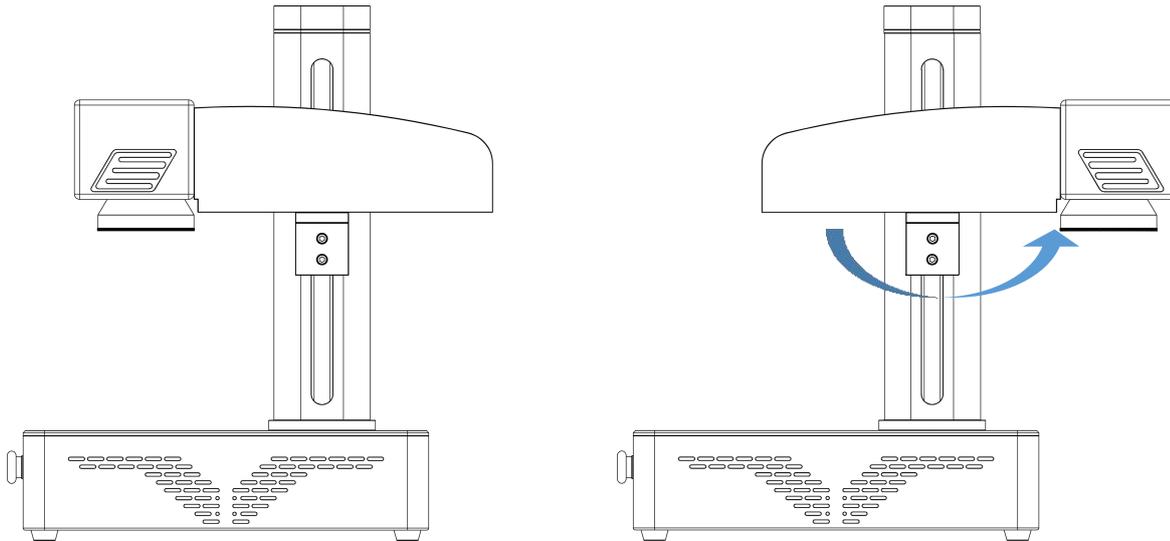
Loosen the fixing screw, rotate the X-axis of the engraving machine 180° and then tighten the screw to fix it.
If you use the auxiliary engraving tool, you need to rotate 180° to reach the working focal length.

Focus

1. Put in the test card, rotate the focus lever left and right to complete focusing.
(Each machine with the same lens will have deviations, subject to the actual (parameter paper with markings))
110mm working surface engraving maximum height 15.4cm,focal length 25.6cm

2. Observation of three light together to focus on the way:
three red light convergence point, that is, to complete the focus.

Hand crank focus lever

Three lights converge
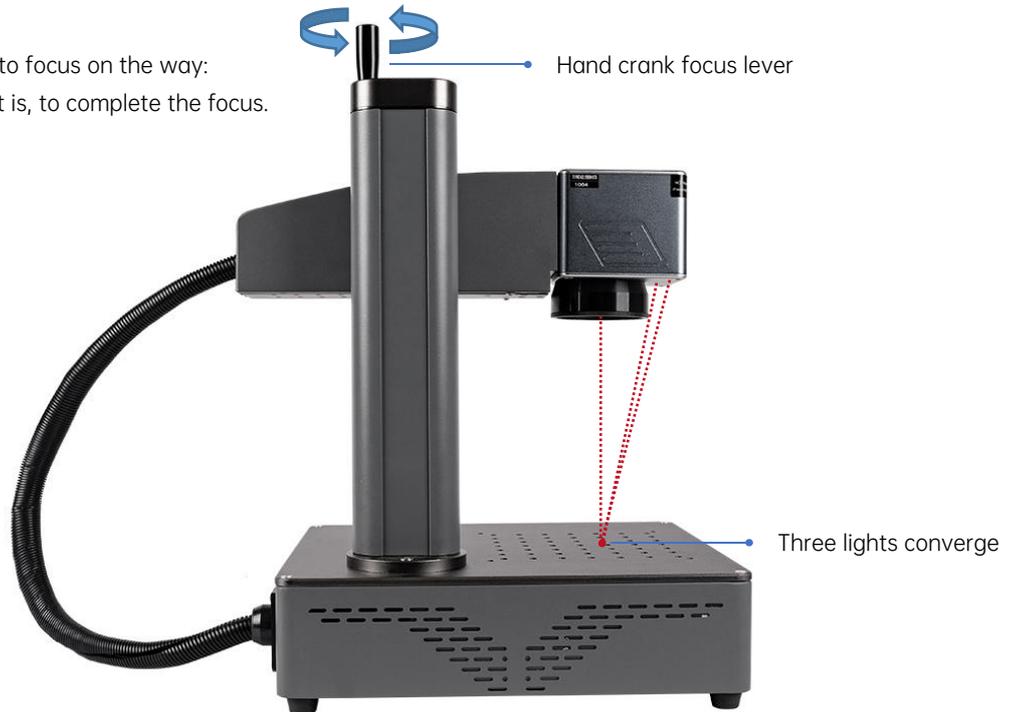
Software Acquisition and Installation

Method I:

1.Installing the driver files on the USB stick"Drive\CypressDriverInstaller.exe"

2.Copy the folder "*Software BslAppSimple* " from the USB stick to the desktop of your computer,
open the folder and double click on "*BslAppSimple.exe* " to start the software;

Method II:

If the supplied USB stick is inadvertently lost, or the software is deleted by mistake.
It can be obtained by visiting the official website "*http://www.mr-carve.com/download/* " and the installation procedure is the same as method 1.

软件打开状态页面
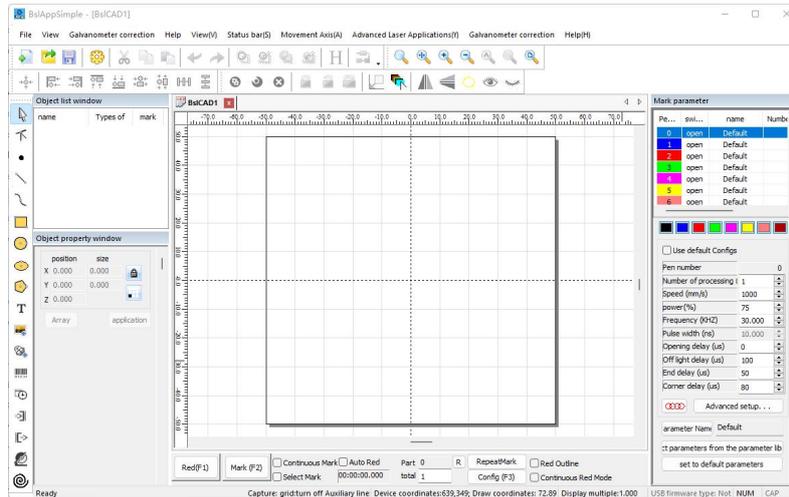
Introduction to the various functions of the software

Hovering over a function icon will display the corresponding usage instructions for that icon
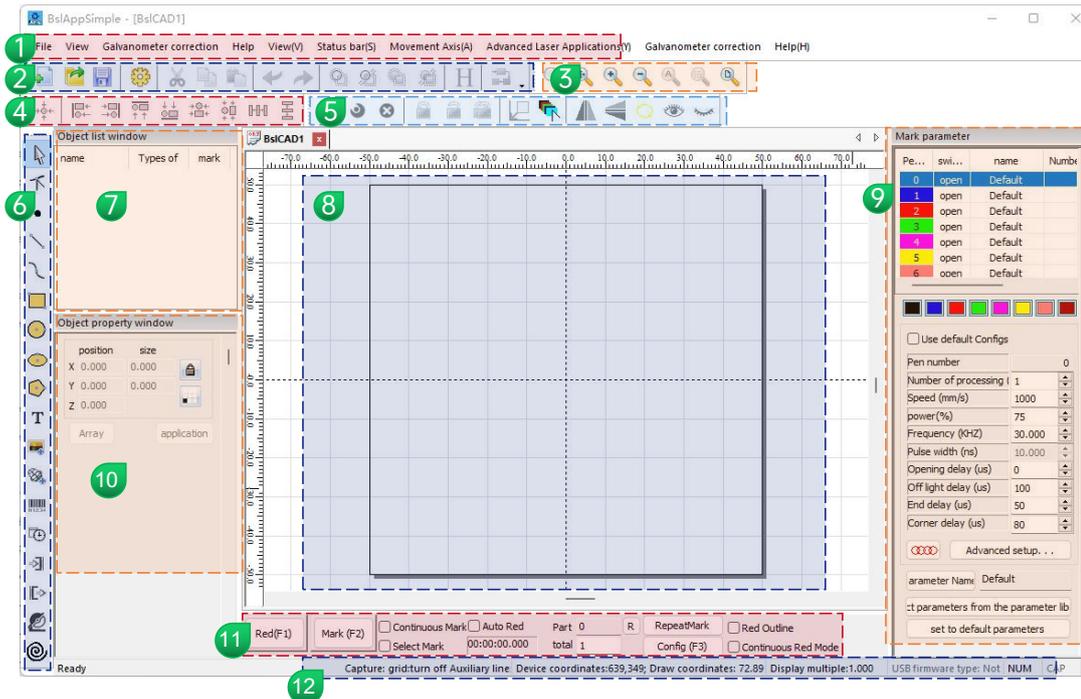
1. Menu bar
2. System Toolbar
3. Zoom Toolbar
4. Align Toolbar
5. Auxiliary toolbar
6. Draw Toolbar
7. Object List Window
8. Content display box
9. Mark parameter
10. Object Property Bar
11. Marking control bar
12. Status Bar

Shape Drawing

1. Drawing bar: draw line, curve, rectangle, circle, polygon
2. Content display box
3. Node editing bar: node editing for the drawn figure

Text Drawing
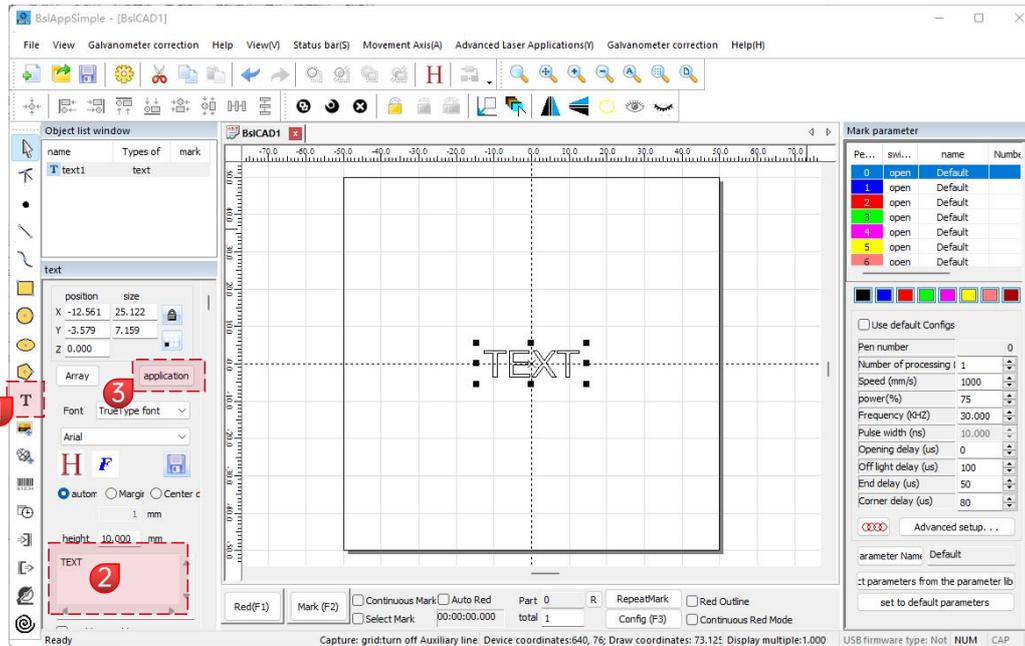
1. Click ![T] and the "TEXT" appears by default. Enter the words in the text field and click ![application] to complete text entry.

![H] Text filling must be filled to work on the object to be carved.

![F] A text tool to set alignment, character spacing, arc text, angle and other parameters.

Text Filling

填充前   未填充状态，放大显示

填充后   填充状态，放大显示
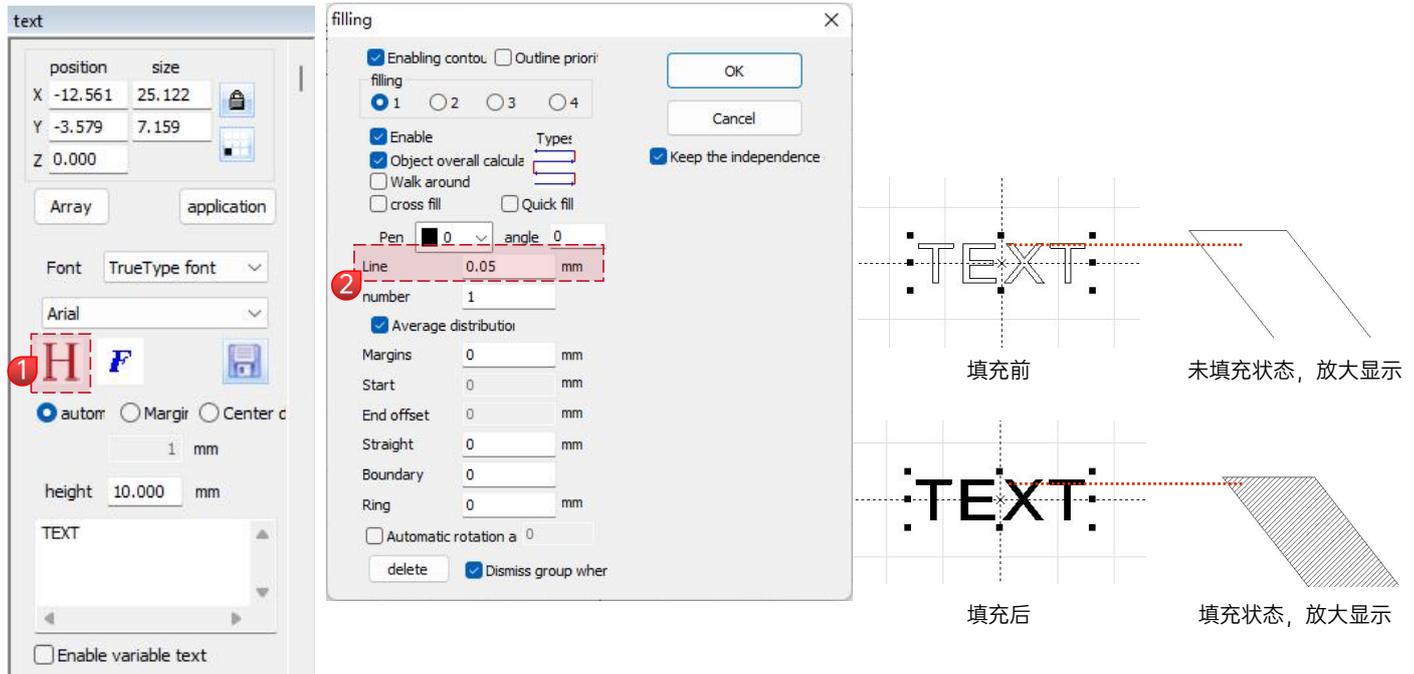
1.Click **H** to open the Filling Settings window.

2.There is no need to set other parameters for text carving. Only "*line*" needs to be changed. The default value is *0.05* .

Notes: "Line" is the text filling density. The greater the value, the higher the carving speed, the lighter the carving color;
 the smaller the value, the lower the carving speed, the deeper the carving color;
Carving on primary color metal, paint and baking paint, oxidized paint surface,
electroplating metal, plastic, leather and other paint materials provide the best effects.

Picture Import
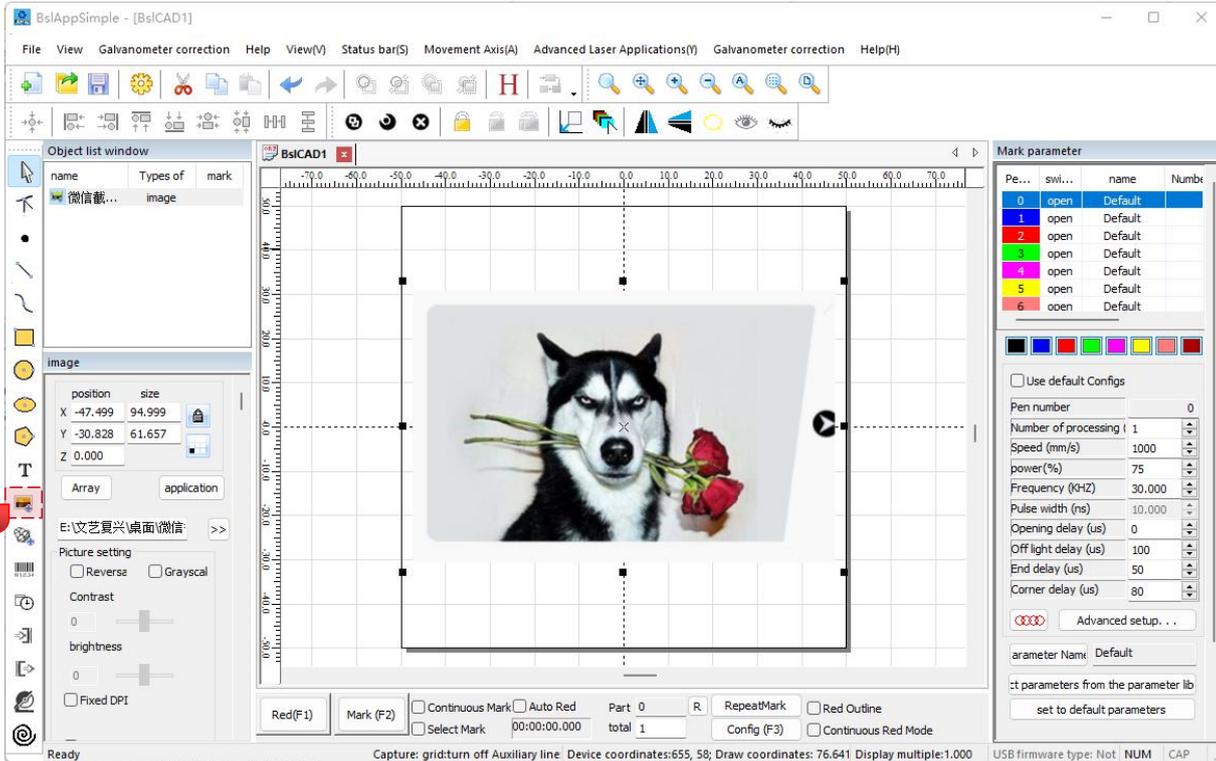
1. Click to bring up the "Image Properties" Window, select the image you need, and click application to import the image.

Picture Processing（People Photos / Color Photos）

1.Adjust the picture to a proper size;

2.Check "*Reversal* ", "*Grayscale* " and "*Fixed DPI* " (enter parameter *500* for X and Y) and "*Outlets* " in the Picture Settings window;

3.Check "*Two-way scanning* " in the "*Mark Configs* " window and enter 0.4 in "*Dotting time* ";Click application enter parameters

4.Carving parameter setting. Set "*speed(mm/s) *" as *500* and "*power(%) *" as *100* .

*Notes: Carving of portrait/colored photo on paint and baking paint metal/oxidized paint electroplating metal can produce the best effects.

The higher the DPI value, the clearer the engraving effect; the larger the dotting time, the deeper the engraving effect.

Image processing (general bitmap)

Adjust the picture to a proper size;

Check "*Grayscale*" and "*Fixed DPI*" (enter parameter *300* for X and Y) and "*Outlets*" in the Picture Settings window;

Check "*Two-way scanning*" in the "*Mark Configs*" window and enter *0.4* in "*Dotting time*";Click application to enter parameters

Carving parameter setting. Set "*speed(mm/s)*" as *500* and "*power(%)*" as *100*.

*Notes: Carving on primary color metal, paint and baking paint, oxidized paint surface, electroplating metal, plastic, leather and other paint materials provide the best effects.

Mark Control
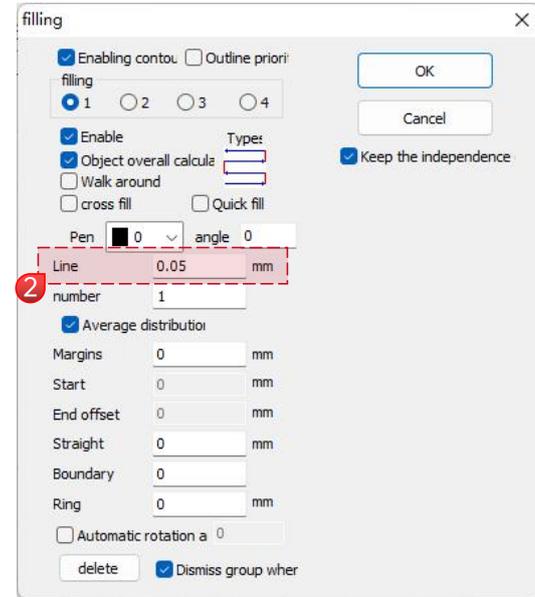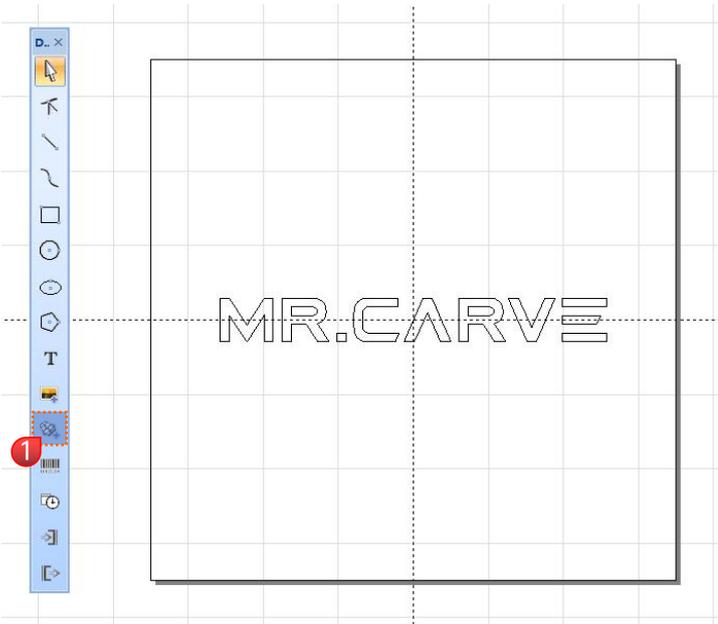
1.Click ![icon] to import vector files in the formats of PLT, DWG and AI;

2. The vector files imported must be filled before carving.

There is no need to set other parameters for filling of vector files. Only "*line*" needs to be changed. The default value is *0.05*.

*Notes: "Line" is the text filling density. The greater the value, the higher the carving speed, the lighter the carving color;

the smaller the value, the lower the carving speed, the deeper the carving color;

Carving on primary color metal, paint and baking paint, oxidized paint surface,

electroplated metal, plastic, leather and other paint materials provide the best effects.

Rotating text Mark
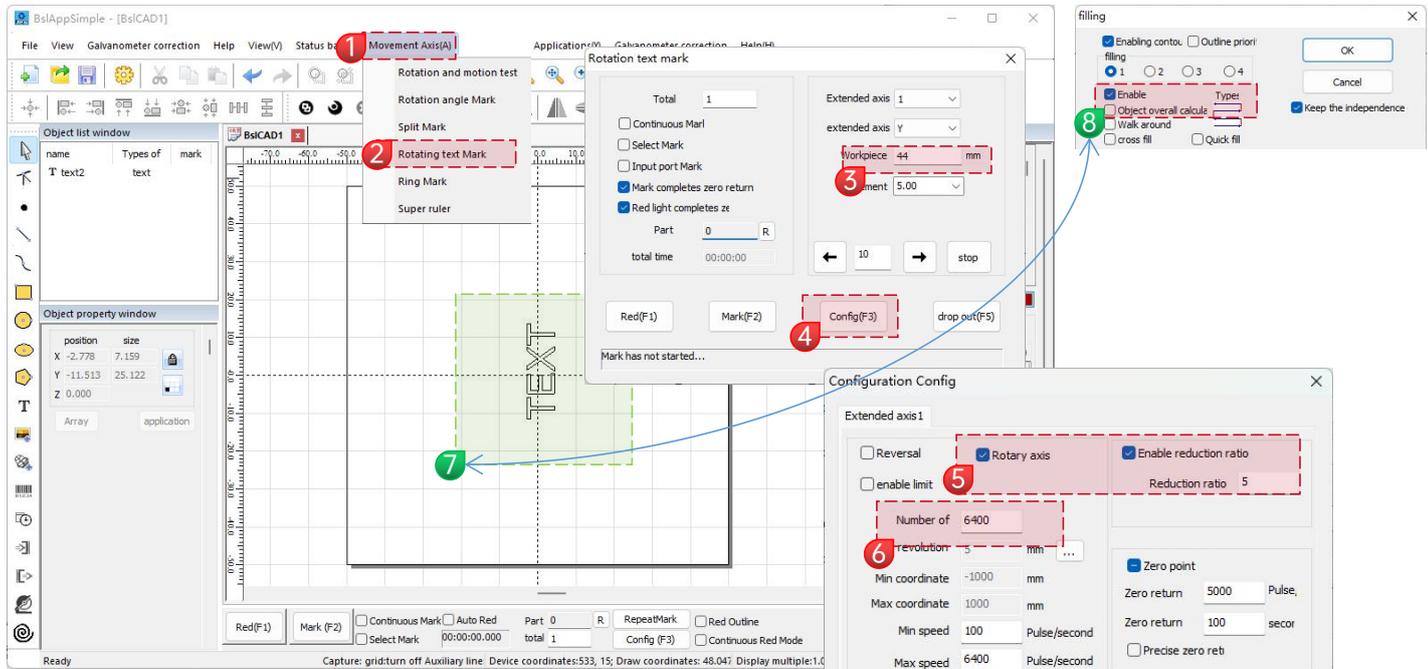
Rotation axis supports text engraving only

1.Operate in the numbered order as shown above；

2. **3** Step 3 Enter the diameter of the workpiece to be marked；

3. **5** Check； **6** Input Parameters "*6400*"

4. **7** Text content needs to be rotated by 90°, Shortcut Keys"*ctrl*" + Arrow keys "*←*"

5. **8** Text fill needs to be unchecked" *Object overall calculation* "

Ring Mark
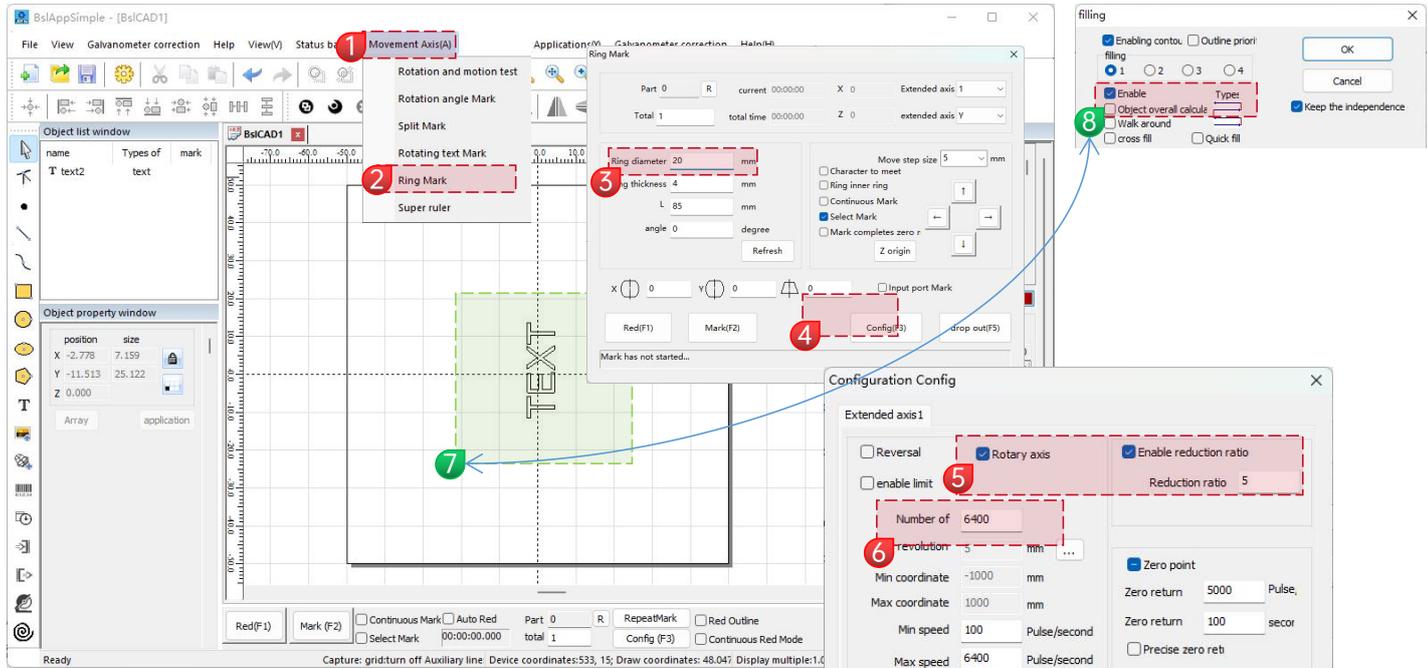
Rotation axis supports text engraving only

1.Operate in the numbered order as shown above；

2. **3** Step 3 Enter the diameter of the workpiece to be marked；

3. **5** Check,Input Parameters "*5*"；**6** Input Parameters "*6400*"

4. **7** Text content needs to be rotated by 90°，Shortcut Keys "*ctrl*" + Arrow keys "*←*"

5. **8** Text fill needs to be unchecked "*Object overall calculation*"

Mark Control
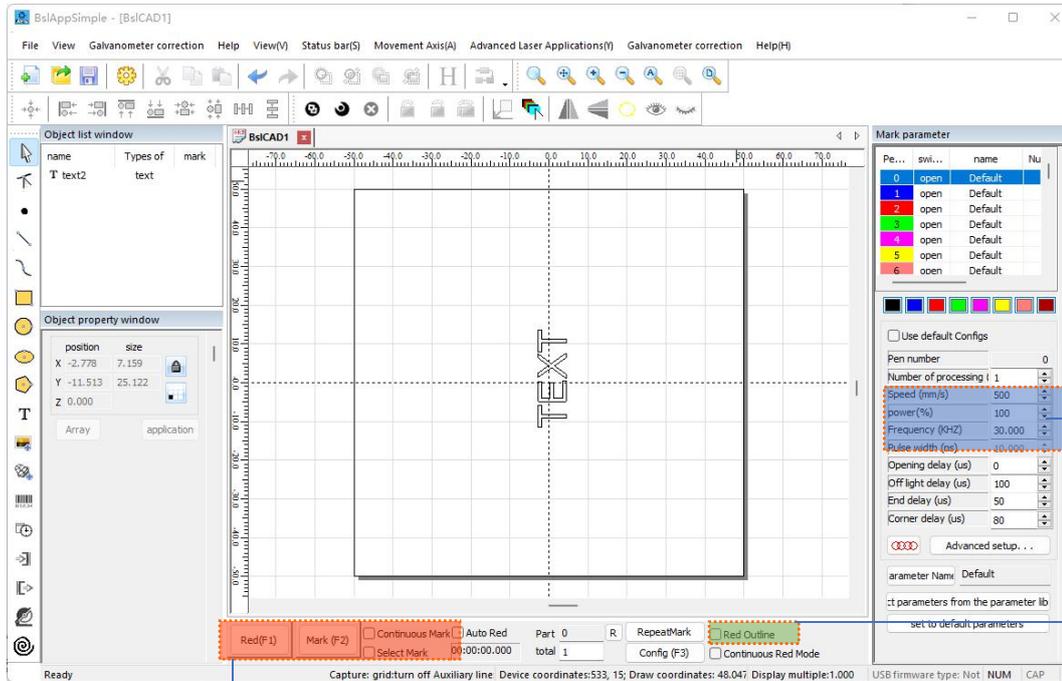
Recommended Parameter Adjustment
Speed(mm/s):500
power(%):100
Frequency(KHZ):30

When checked,
set to outline preview mode

Red light (F1): Preview the current carving position, red light rectangular preview mode

Mark(F2): Start carving

Continuous Mark: Repeat engraving

Select Mark: When there are multiple objects on the canvas, select one of them to engrave

References of Carving Parameters for Different Materials

Picture, Text and Vector File			
Material	Line Spacing	Power	Speed
Metal	0.01 or 0.005 or 0.001	100	300 or 500
Paint Surface Metal	0.005 or 0.001	100	500
Plastic	0.05	100	1000 or 1500
Leather	0.05 or 0.01	100	1000 or 1500
Stone	0.01	100	500
Paint Surface Glass	0.05	100	500
Paint Surface Material	0.05	100	1000 or 1500

Black and White Picture (Ordinary Bitmap)			
Material	Picture Settings	Power	Speed
Metal	Grayscale (Checked) Fixed DPI （x300 y300) Lattice point (Checked) Two-way scanning (Checked) Dotting time （0.4~0.5ms） Adjustment point power (Checked)	100	200
Paint Surface Metal		100	300
Plastic		100	500
Leather		100	500
Stone		100	200
Paint Surface Material		100	500

Colored Picture (Landscape and Portrait)			
Paint Surface Metal	Reversal (Checked) Grayscale (Checked) Fixed DPI （x500 y500) Lattice Point (Checked) Two-way scanning (Checked) Dotting time (0.4~0.5ms) Adjustment point power (Checked)	100	500
Electroplated Metal			
Oxidized Metal			
ABS			

FAQ

I. The machine does not respond when powered on.

1.Power connection failure: check the socket, switch and socket on the machine body to ensure that they have been properly plugged and connected to power; check the Power button on the panel to make sure it is pressed and the button light is on.

II. Unable to connect to the computer

1. Not connected to the USB cable: check the computer and machine interface of the USB cable to ensure that it is properly connected. The USB interface on the front panel of some desktop computers is invalid, so it needs to be connected to the socket at the rear of the host.

2. The driver is not installed properly: install the driver according to the instructions. If the computer identifies the device as a serial port after installation, the hardware connection is OK.

3. Other special cases: disconnect the USB cable and power supply. After the equipment is completely powered off for 5 seconds, connect it to the power again.

III. Light carving or no carving

1. Inaccurate focusing: read the focusing section of the Operations Manual for accurate focusing.

2. Carving speed: a result of too high speed or too short burning time. Read the carving parameters section of the Operations Manual to readjust the parameters.

3. Shallow picture: the imported picture needs to be clear. If the lines too fine and the color is too light, the carving effect will be affected directly.

4. Placement of object: as the laser focal distance is fixed, the object to be carved needs to be flat, parallel to the machine body. If the object to be carved is titled, the focal distance is inaccurate, resulting in abnormal carving effect.

MR.CARVE

All information in this material has been carefully reviewed, if there are any typographical errors or misunderstandings in the content, please contact us.

Notes: Technical improvements (if any) of the product will be added to the new Manual without further notice. The appearance and color of the product are subject to change.