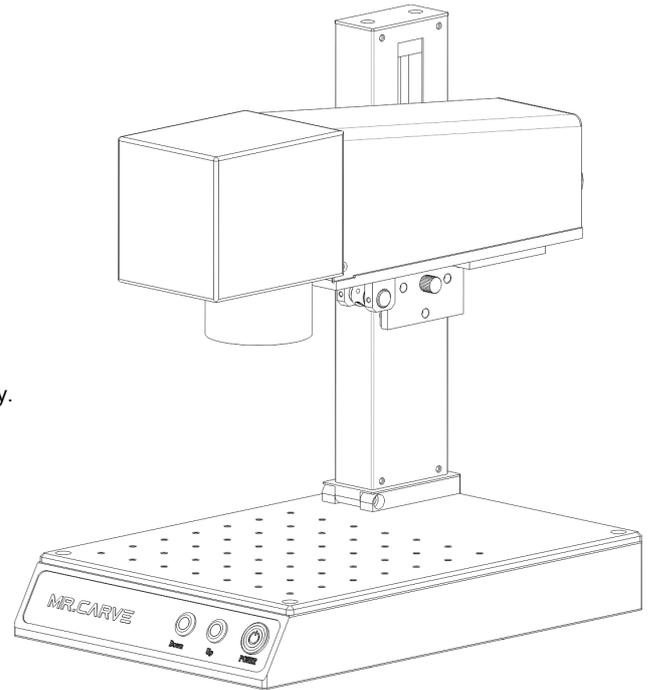


M1 Operations Manual

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



Contents

Download Address of Software Manual	02
Watch the Installation and Use Video Online	02
Safety Precautions	03
Product Structure Accessories	04
Product Parameters	06
Assembly Steps	07
How to Use 180-degree Rotation	08
Focusing	09
Software Acquisition and Installation	10
Description of Functions of the Software	11
Description of Common Functions	13
• Shape Drawing	13
• Text Drawing	14
• Text Filling	15
• Picture Import	16
• Picture Processing	17
• Vector File Import	19
• Mark Control	20
References of Carving Parameters for Different Materials	21
FAQ	23

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>



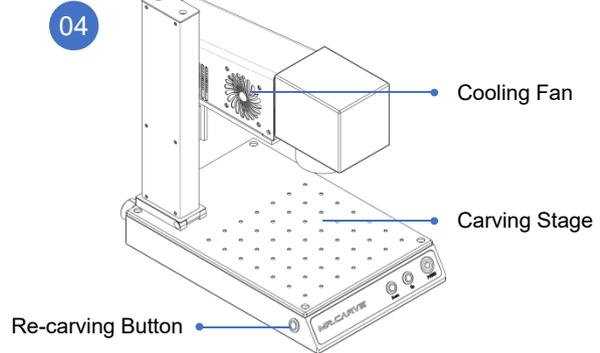
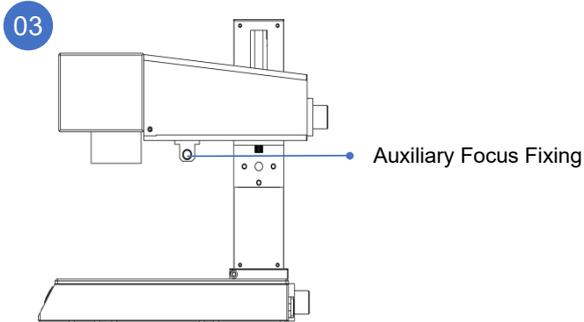
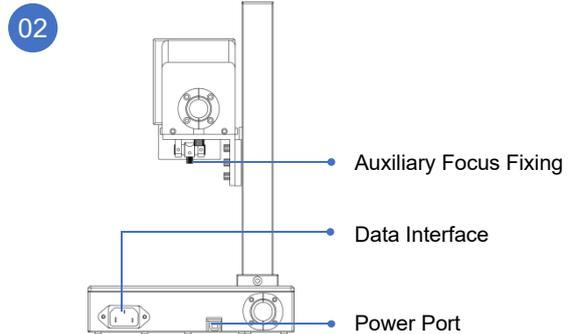
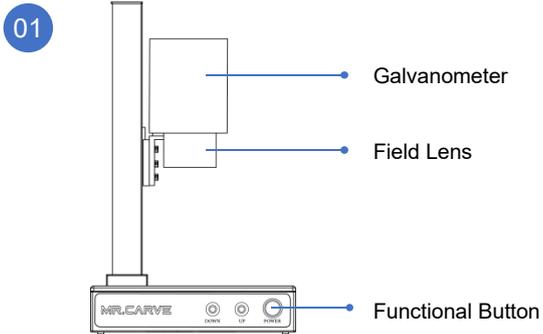
Safety Precautions

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°C; 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



List of Accessories



Ruler



Positioning Plate



Goggles



Focus Fixing Test Pieces



USB Drive



Hexagon Wrench



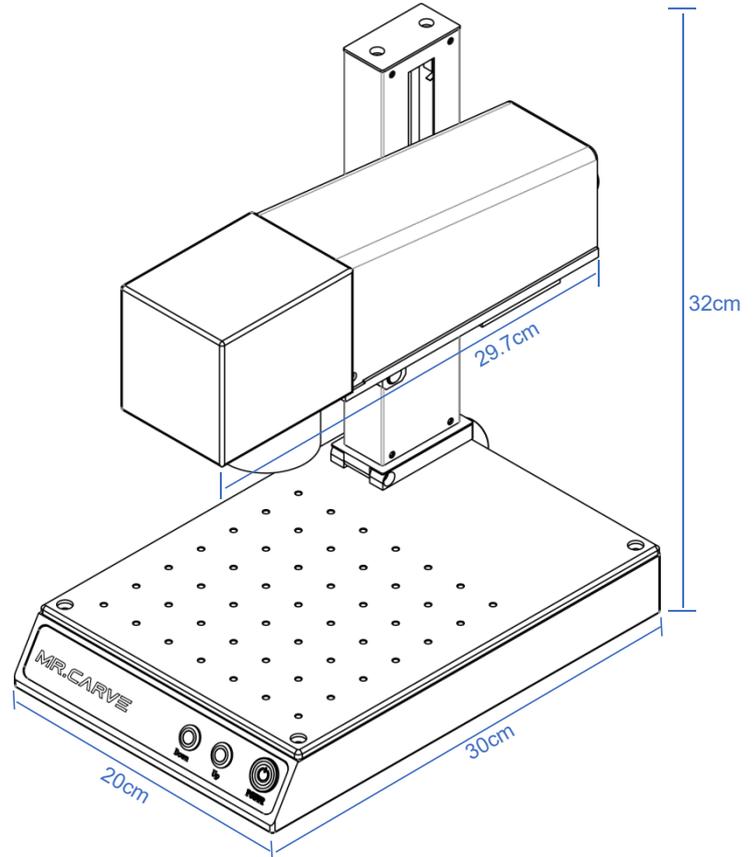
Focusing Pieces



USB Cable



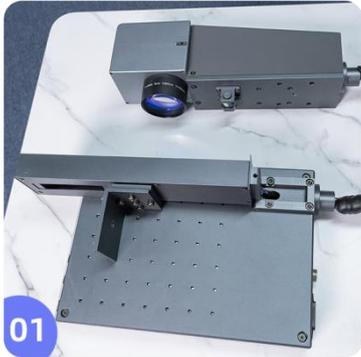
Power Cord



Product Parameters

Detailed Parameters of Machine M1	
Laser power	2W
Ambient temperature	-10°C~65°C
Repetition accuracy	≤0.0001mm
Carving depth	0.015-0.2mm
Carving accuracy	≤0.001mm
Carving speed	≤10000mm/s
Cooling method	Build-in fan
Wave length	1.06μm
Carving range	70*70mm
Carving width	0.001-0.05mm
Product weight	6.26kg
Product dimensions	300mm* 200mm* 320mm (L*W*H)

Assembly Steps



1. Place the machine on a flat surface



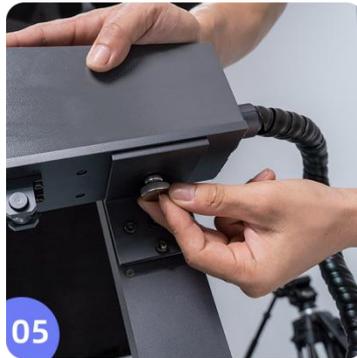
2. Move the Y-axis upward and snap it into the base



3. Tighten the screws to fix the Y-axis



4. Place the lens on the right angle plate of the Y-axis and aim it at the four screw holes in the rear

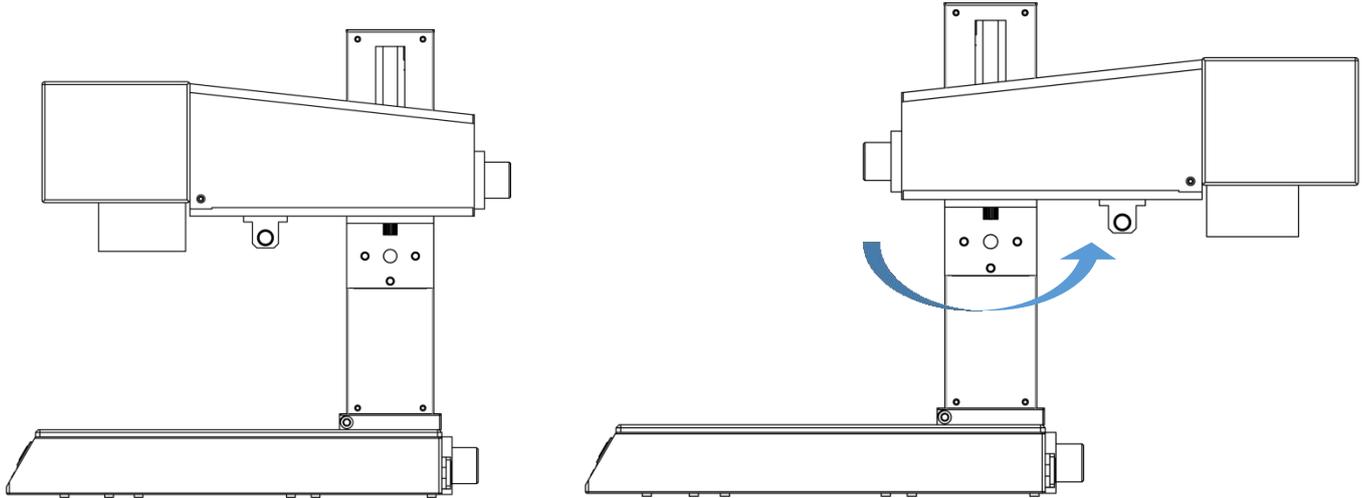


5. Tighten the screws to fix the X-axis



6. Installation completed

How to Use 180-degree Rotation



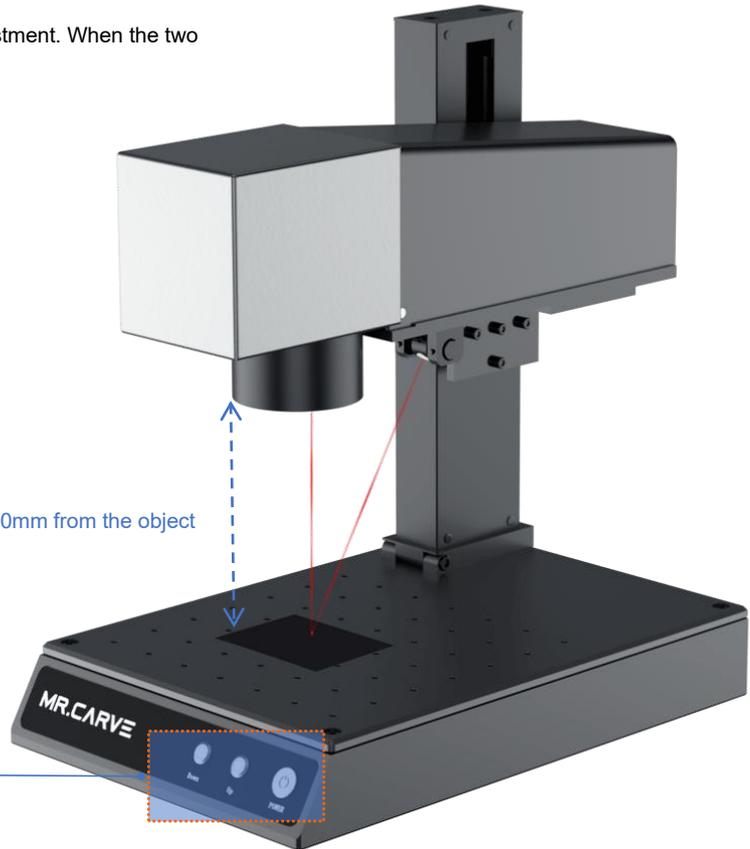
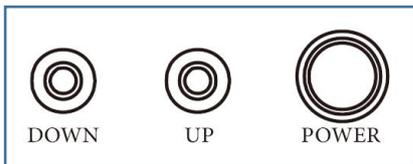
Loosen the fastening screws and tighten the screws after rotating the X axis of the engraving machine by 180 degrees.

Notes: After rotating by 180 degrees, the laser head must keep an effective distance of 120mm from the engraving surface when carving the table top or other high objects, otherwise it cannot be focused.

Focusing

1. Put in the test card, press the Down and Up buttons for adjustment. When the two red lights converge into a red dot, focusing is completed.
2. Standard distance between laser head and carving object:
120mm, subject to actual measurement.

A focusing distance of 120mm from the object



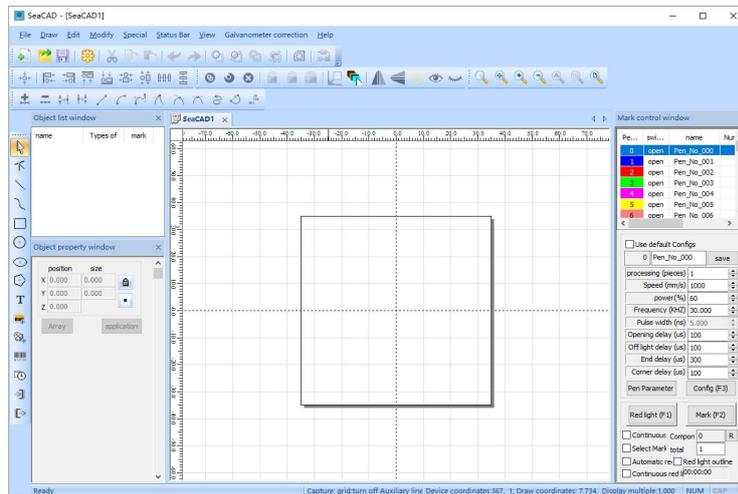
Software Acquisition and Installation

Method I:

1. Open the attached USB drive, decompress the file “BSL Carving Software” to the computer desktop, open the decompressed folder, and send “MR. CARVE” to the desktop shortcut;
2. Install the drive file “Drive\win7\win8\win10-x64.exe” in the USB drive. After the installation is successful, double-click the shortcut “MR. CARVE” on the desktop to start the carving software.

Method II:

In case of loss of the attached USB drive or deletion of the software by mistake, users may visit the official website <http://www.mr-carve.com/contact/#feedback> to acquire the software. The installation steps are the same as Method 1.



Software Opened Page

Description of Functions of the Software



System toolbar



Align toolbar



Accessibility toolbar



Node edit toolbar



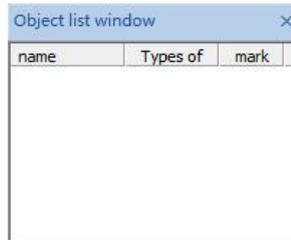
Zoom toolbar



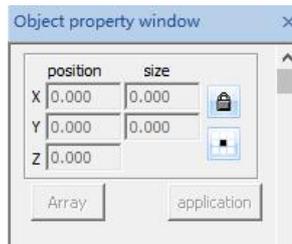
Status Bar



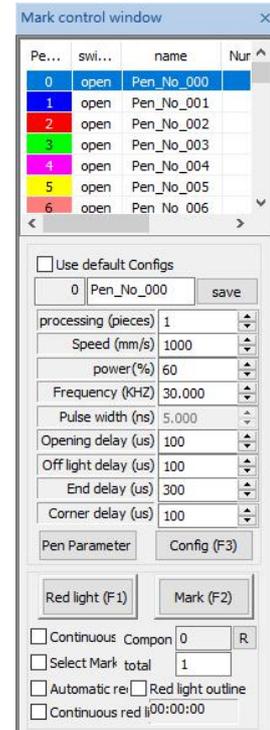
Draw toolbar



Object list window



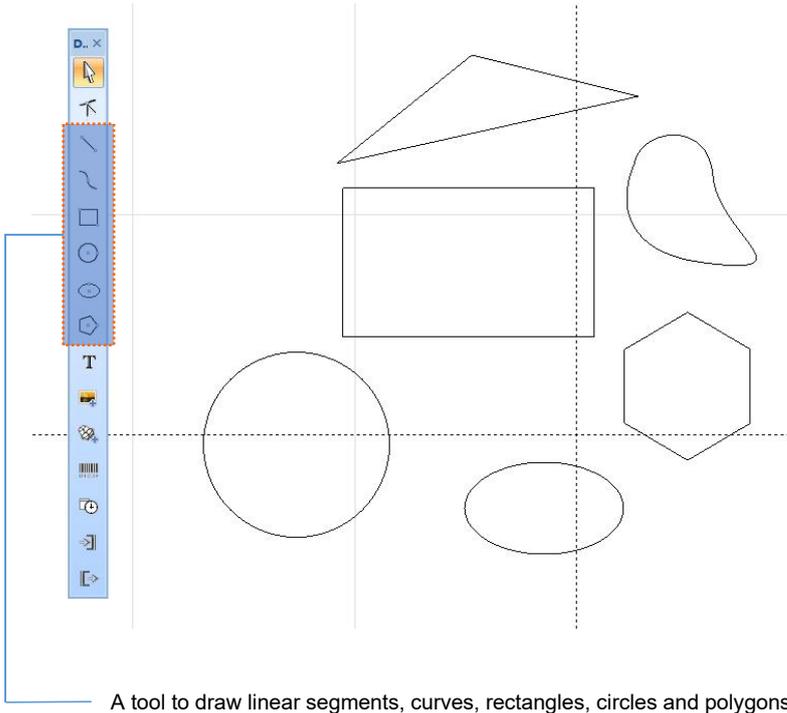
Object property window



Mark control window

Description of Common Functions

Shape Drawing

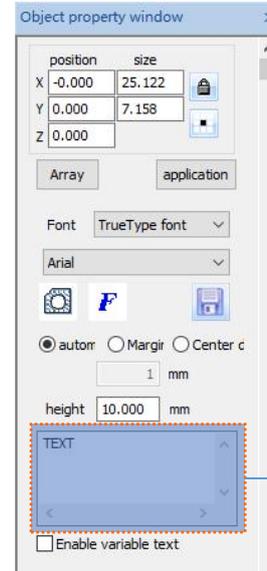
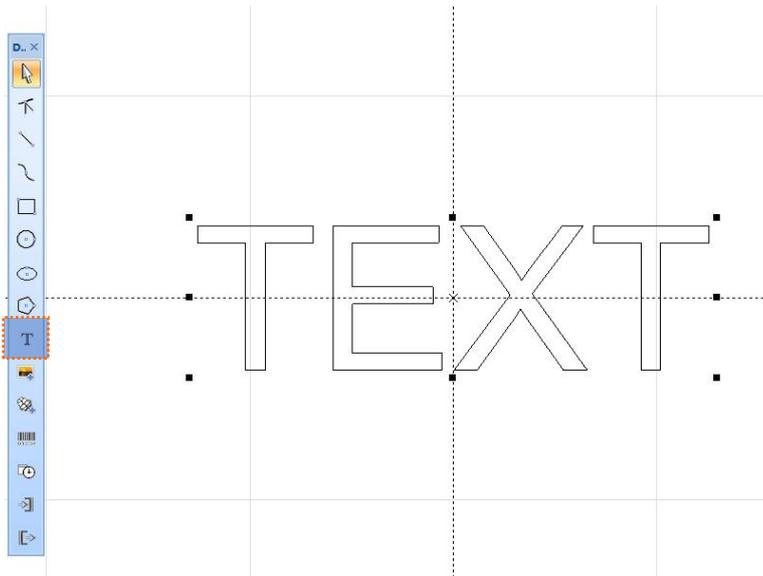


Selection Tool



Round Tool

Text Drawing



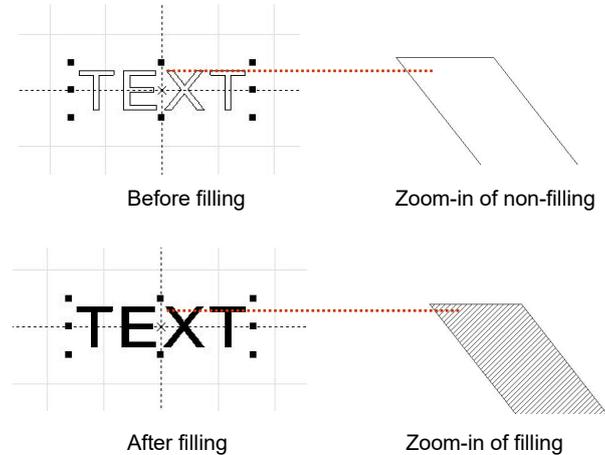
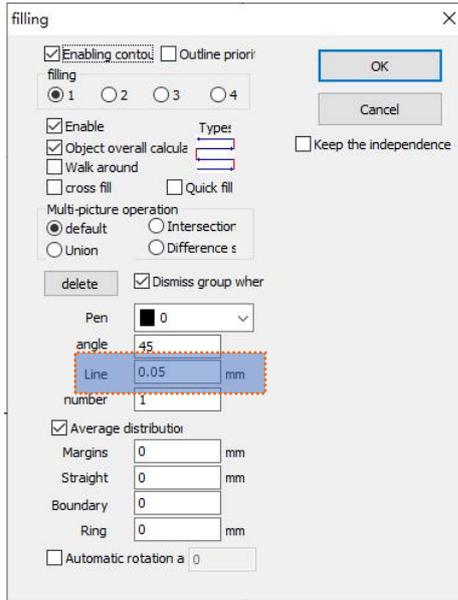
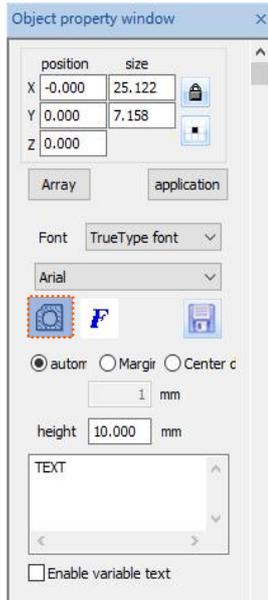
Text field

1. Click  and the "TEXT" appears by default. Enter the words in the text field and click  complete text entry.

 Text filling must be filled to work on the object to be carved.

 A text tool to set alignment, character spacing, arc text, angle and other parameters.

Text Drawing



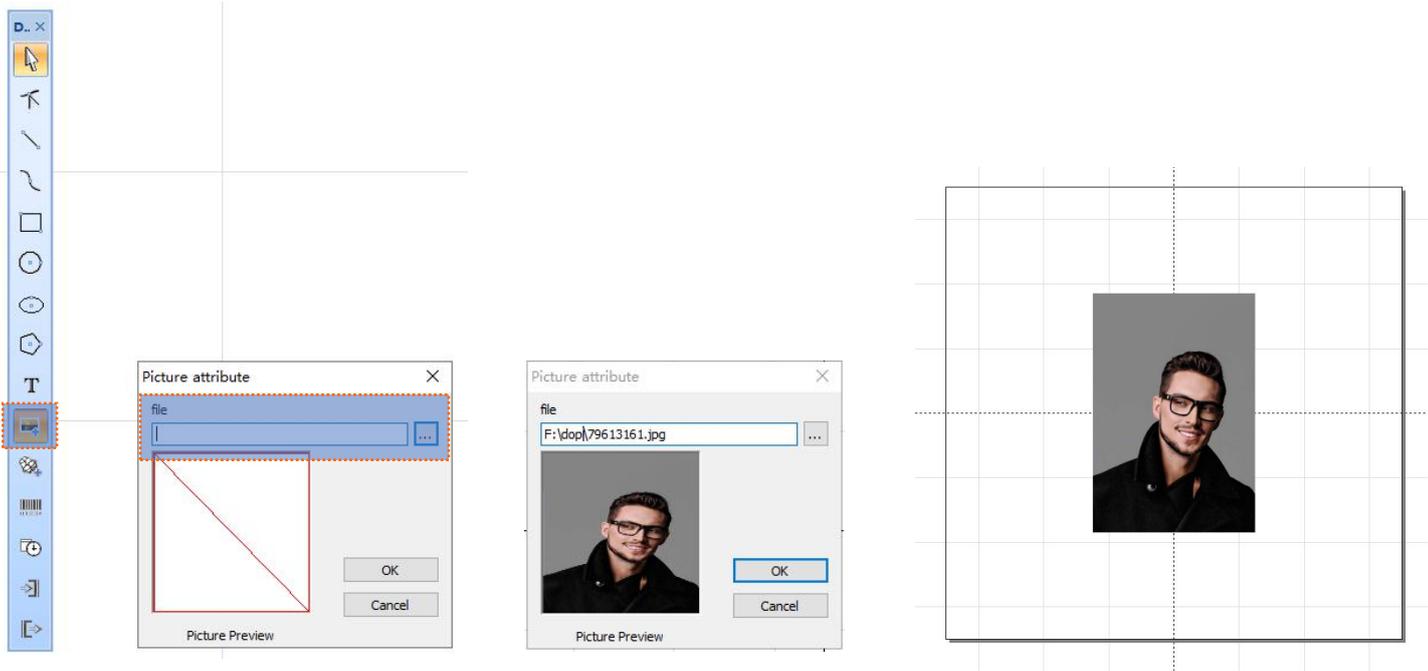
1. Click  to open the Filling Settings window;

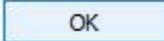
2. There is no need to set other parameters for text carving. Only "line" needs to be changed. The default value is 0.05.

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;

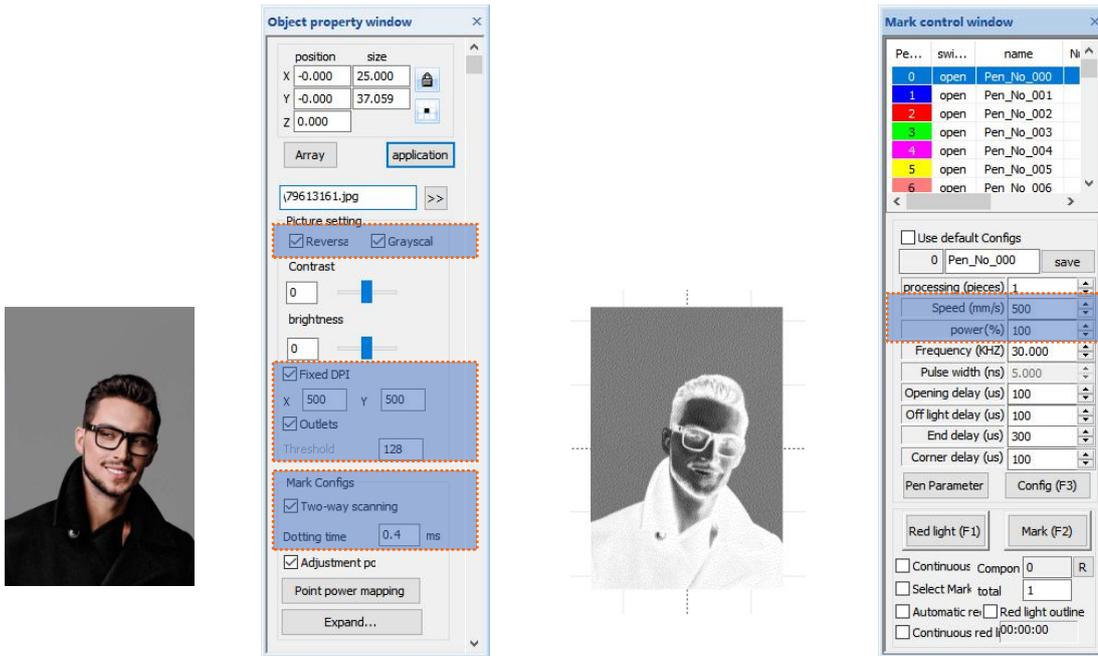
Carving on primary color metal, paint and baking paint, oxidized paint surface, electroplating metal, plastic, leather and other paint materials provide the best effects.

Picture Import



1. Click  to pop out the "Picture attribute" window. Click  to select a picture and then click  to confirm picture import.

Picture Processing (Portrait/Colored Photo)



The image displays two software windows used for picture processing. On the left is the 'Object property window' and on the right is the 'Mark control window'. A portrait of a man with glasses is shown in its original color on the left and as a grayscale image on the right.

Object property window

- position: X -0.000, Y -0.000, Z 0.000
- size: 25.000
- File: (79613161.jpg)
- Picture setting:
 - Reverse
 - Grayscale
- Contrast: 0
- brightness: 0
- Fixed DPI:
 - X: 500, Y: 500
- Outlets:
- Threshold: 128
- Mark Configs:
 - Two-way scanning
 - Dotting time: 0.4 ms
- Adjustment pc

Mark control window

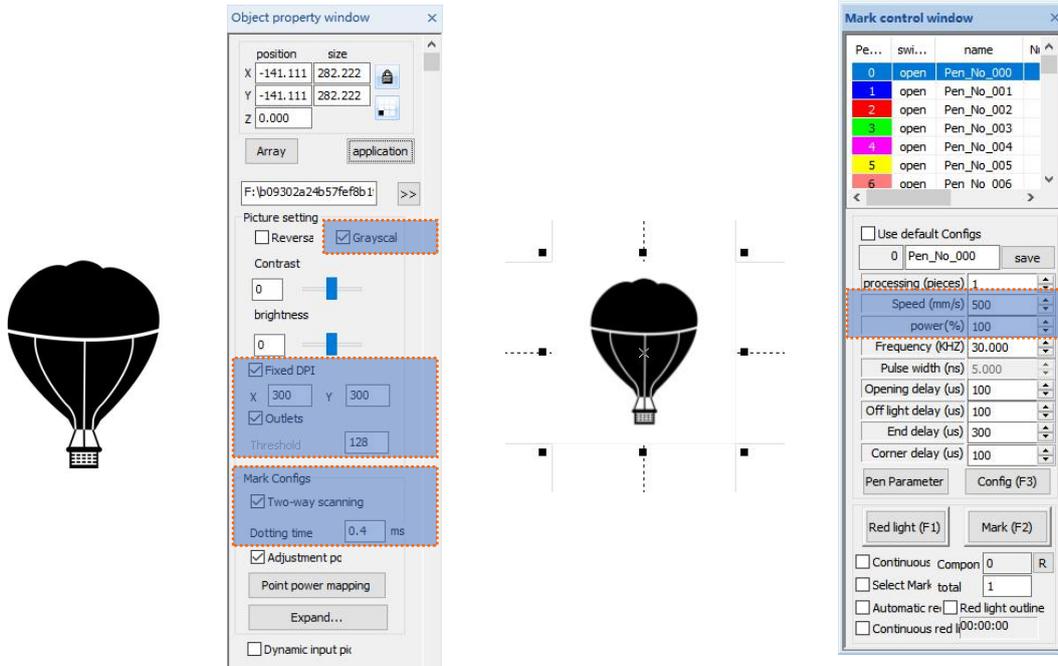
Pe...	swi...	name	Ni
0	open	Pen_No_000	
1	open	Pen_No_001	
2	open	Pen_No_002	
3	open	Pen_No_003	
4	open	Pen_No_004	
5	open	Pen_No_005	
6	open	Pen No 006	

- Use default Configs
- 0 Pen_No_000 save
- processing (pieces): 1
- Speed (mm/s): 500
- power (%): 100
- Frequency (kHz): 30.000
- Pulse width (ns): 5.000
- Opening delay (us): 100
- Off light delay (us): 100
- End delay (us): 300
- Corner delay (us): 100
- Pen Parameter: Config (F3)
- Red light (F1) Mark (F2)
- Continuous Compon 0 R
- Select Mark total 1
- Automatic re Red light outline
- Continuous red 00:00:00

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";
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.

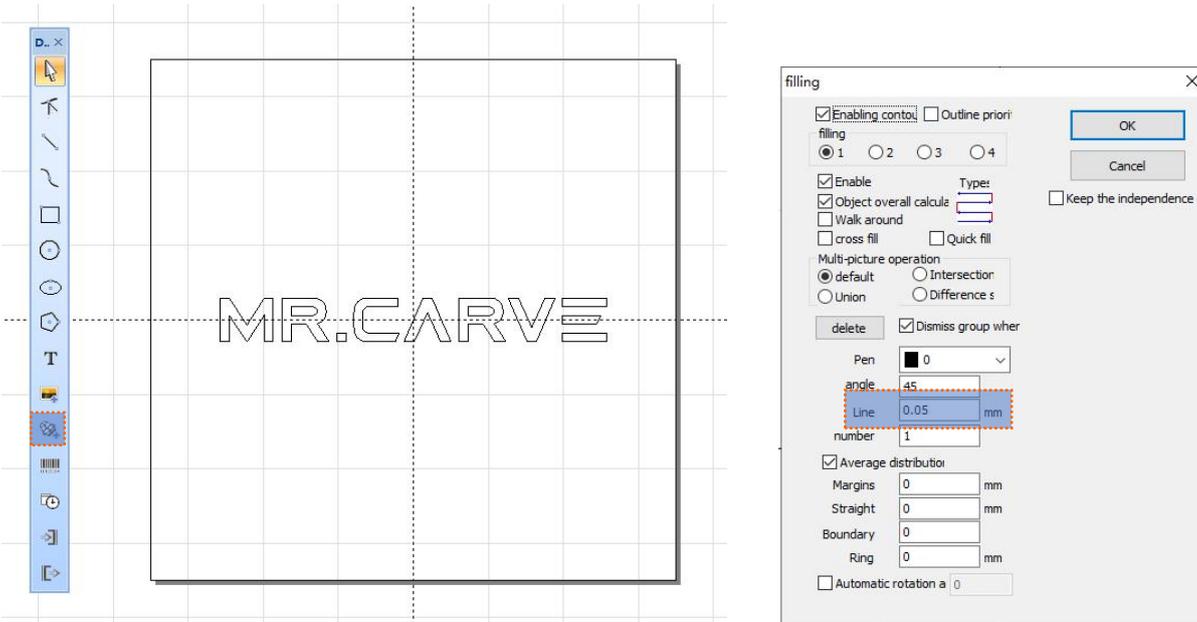
Picture Processing (Ordinary Bitmap)



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";
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



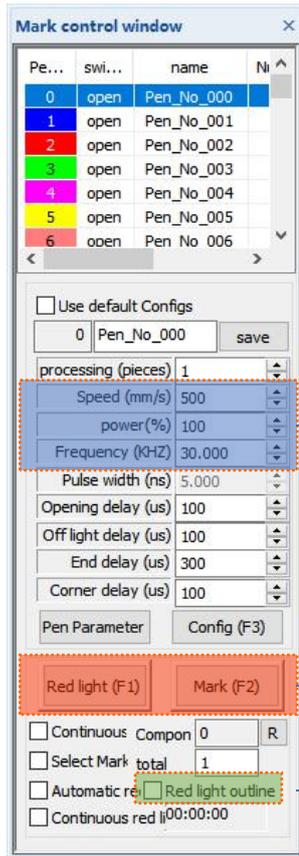
1. Click  to import vector files in the formats of PLT, DWG and AI;
2. The vector files imported must be filled before carving.

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.

Mark Control



Recommended Parameter Adjustment

Speed(mm/s):500

power(%):100

Frequency(KHZ):30

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

Mark(F2): Start carving

The option is checked to set as the contour preview mode.

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

FAQ of M1

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.



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.