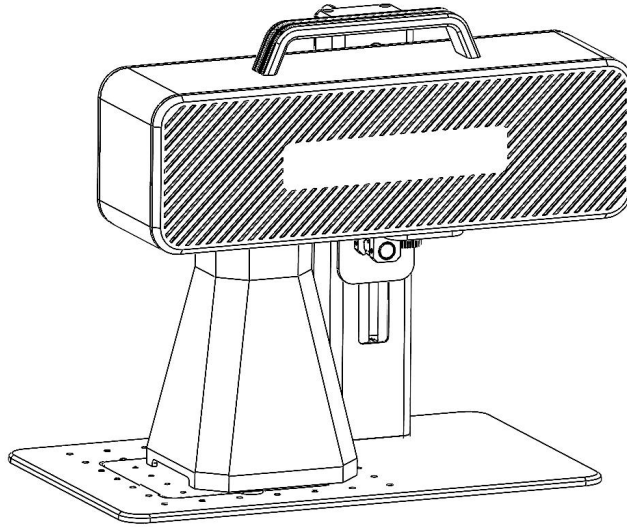


ATOMSTACK M4 Laser Marking Machine



English

Note: The picture is for reference only, the actual product shall prevail.

Part 1: Security Statement Before Installation

Before using the laser marking 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.** The product belongs to Class 4 laser products, the laser system itself must meet the requirements of IEC 60825-1 latest version, otherwise the product is prohibited to be used.
- 2.** When handling the product, you must wear appropriate goggles (OD5+) to protect eyes from laser light including reflected and stray light.
- 3.** Because cutting burns off the substrate, a high-intensity laser beam generates extremely high temperatures and a lot of heat. Certain materials can catch fire during cutting, creating gases and fumes inside the equipment. A small flame usually appears here when a laser beam hits the material. It will move with the laser and will not stay lit when the laser passes by. Do not leave the machine unattended during the marking process. After use, be sure to clean up the debris, debris and flammable materials in the marking machine. Always keep an available fire extinguisher nearby to ensure safety. When laser marking machines are used, smoke, vapour, particles, and potentially highly toxic materials (plastics and other combustible materials) are produced from the material. These fumes or air pollutants can be hazardous to health.
- 4.** To prevent accidental disasters such as fire and electric shock, the marking machine provides a power adapter with a ground wire. When using the marking machine, insert the power plug into a power socket with a ground wire with a ground wire.
- 5.** When the marking machine is working, please make sure that the workplace must be cleaned up, and there should be no flammable and explosive materials around the equipment.

Part 2: Disclaimer and warning

This product is not a toy and is not suitable for people under 15.

This product is a laser device. Please scan the QR code on the cover to get the complete "User Manual" and the latest instructions and warnings. All information in this material has been carefully reviewed, if there are any typographical errors or misunderstandings in the content, please contact us. 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.

Please be sure to read this document carefully before using the product to understand your legal rights, responsibilities and safety instructions; Otherwise, it may bring property loss, safety accident and hidden danger of personal safety. Once you use this product, you shall be deemed to have understood, and accepted all terms and contents of this document. User undertakes to be responsible for his or her actions and all consequences arising therefrom. User agrees to use the Product only for legitimate purposes and agrees to the entire terms and contents of this document and any relevant policies or guidelines that AtomStack may establish.

You understand and agree that Atomstack may not be able to provide you with damage or accident damage unless you provide the original marking files, configuration parameters of the marking software used, operating system information, videos of the marking process, and operating steps prior to the occurrence of the problem or failure. reasons and to provide you with Atomstack's after sales service.

Atomstack is not liable for any and all losses arising from the user's failure to use the product in accordance with this manual, Without the guidance of the company's technical personnel, users are prohibited from disassembling the machine by themselves. If this behavior occurs, the loss caused by the user shall be borne by the user.

Atomstack has the ultimate right to interpret the document, subject to legal compliance. Atomstack reserves the right to update, modify, or terminate the Terms without prior notice.

Part 3:Product Parameters

Detailed Parameters of Machine M4

Laser power	4W
Ambient temperature	0°C~35°C
Repetition accuracy	< 0.001 mm
Marking depth	0.015-0.2mm
Marking accuracy	< 0.001mm
Marking speed	<12m/s
Cooling method	Build-in fan
Wave length	1064nm
Marking range	70*70mm
Marking width	0.001-0.05mm
Product weight	6.77kg
Product dimensions	315mm* 200mm* 273mm (L*W*H)

Part 4: Configuration list



USB Cable



USB Drive



Power Cord



Power Adapter



Ruler



Positioning Plate



Goggles



Manual



Hexagon Wrench



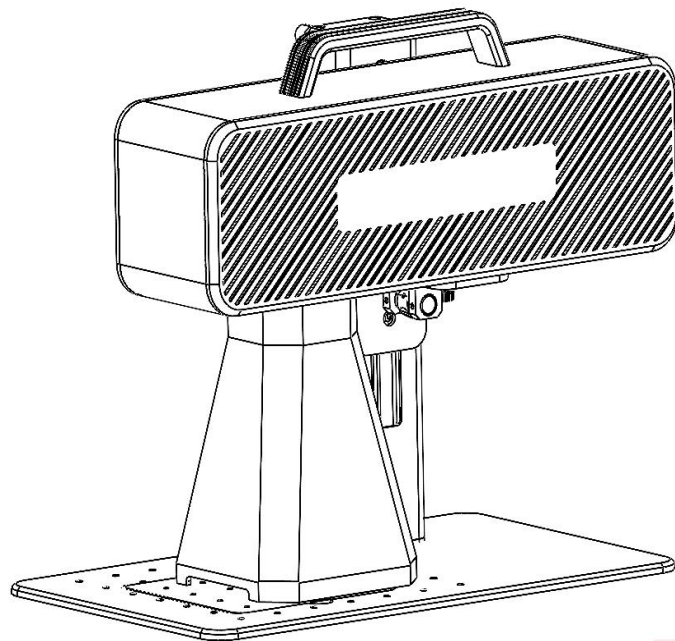
Calibration paper



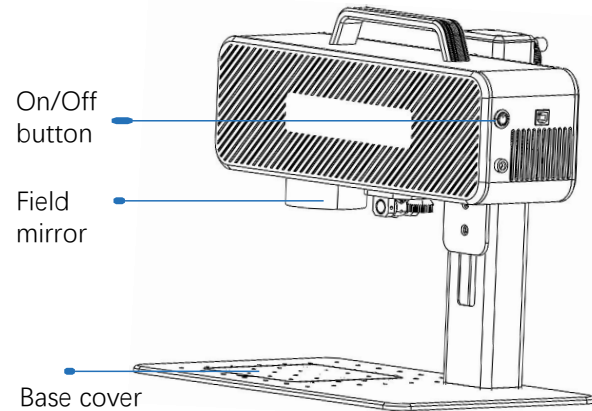
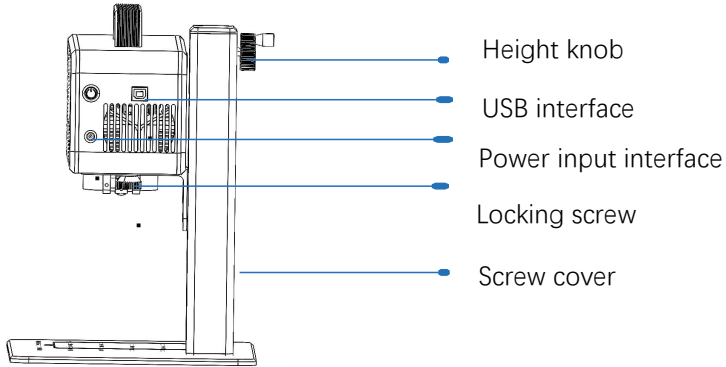
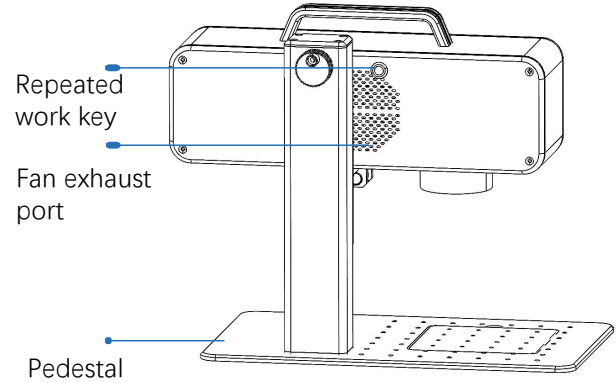
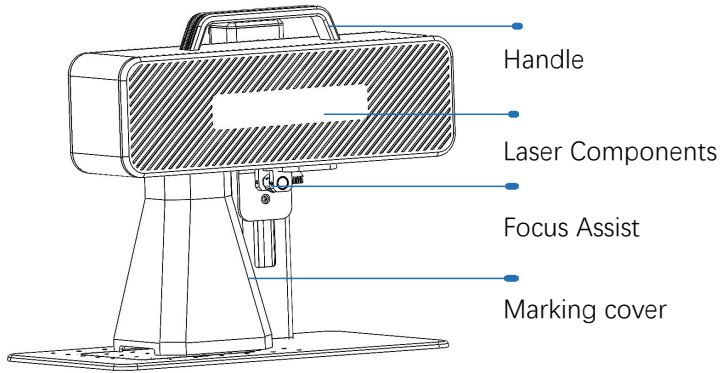
Focus film



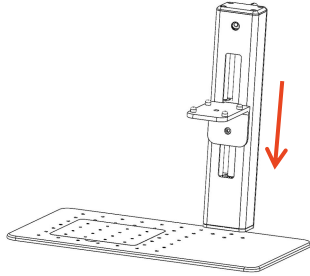
Plasticine



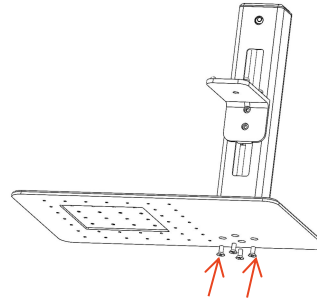
Part 5:Product structure introduction



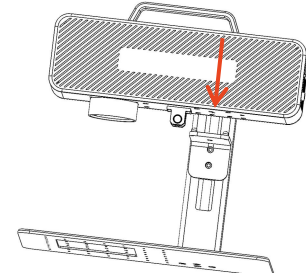
Part 6: Introduction to the assembly method of the desktop working mode



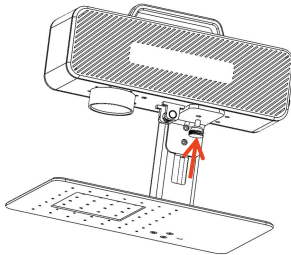
step 1: Prepare the support arm and align the mounting holes on the base



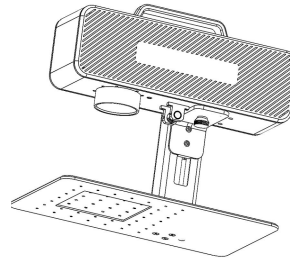
step 2: Install 4 screws



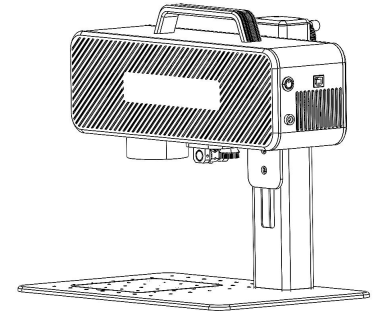
step 3: Install the Laser Assembly



step 4: Install the laser assembly locking screw

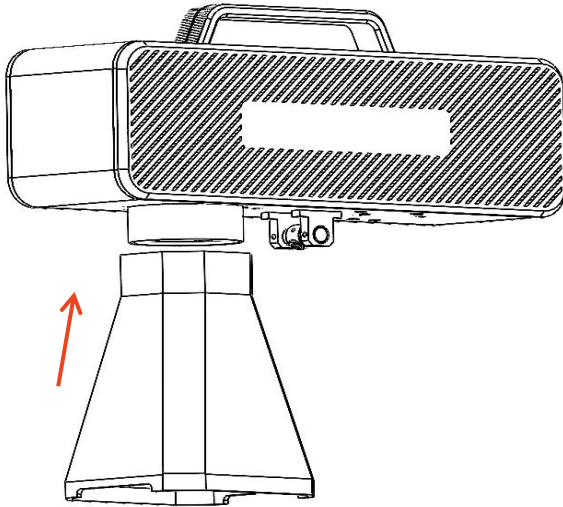


step 5: Tighten the screws of the laser assembly

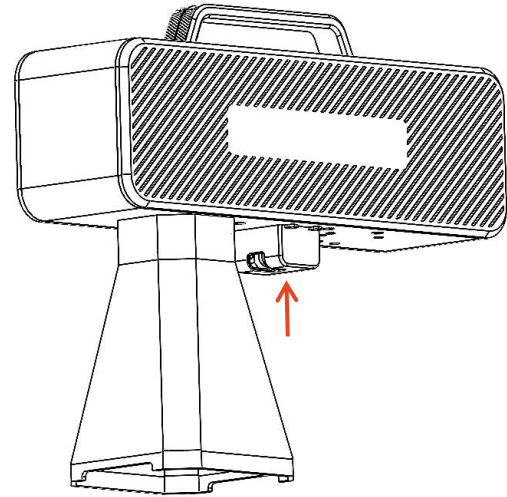


step 6: Assembly is complete

Part 7: Introduction to the assembly method of the hand-held working mode

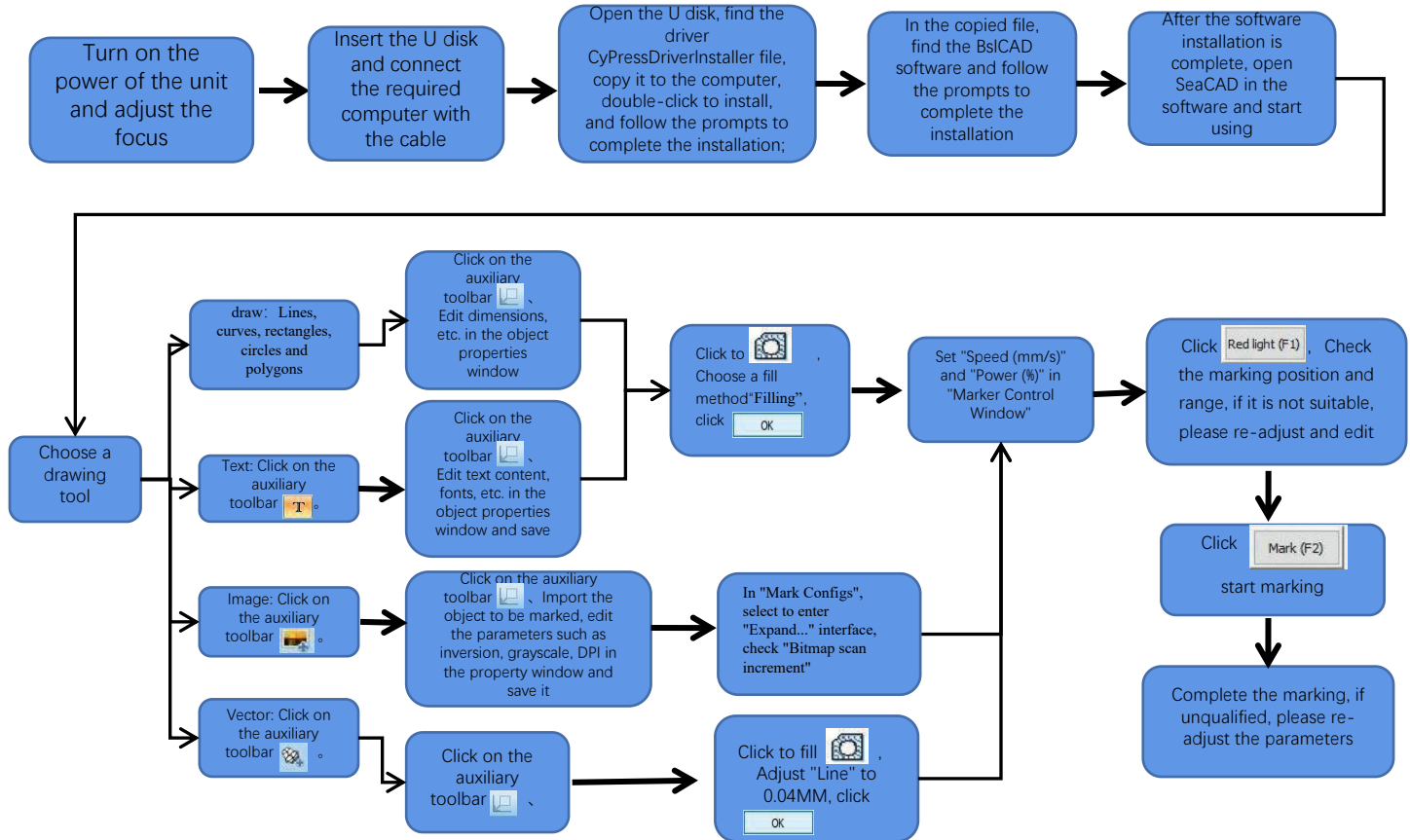


step 1: Install the marking cover



step 2: Installing the Focus Assist Protective Cover

Part 8: Common operating procedures of the software

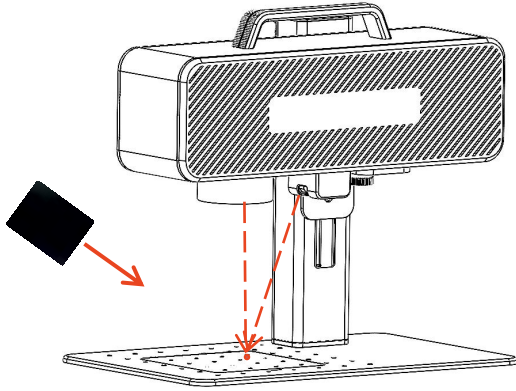


Part 9: Product focusing method introduction

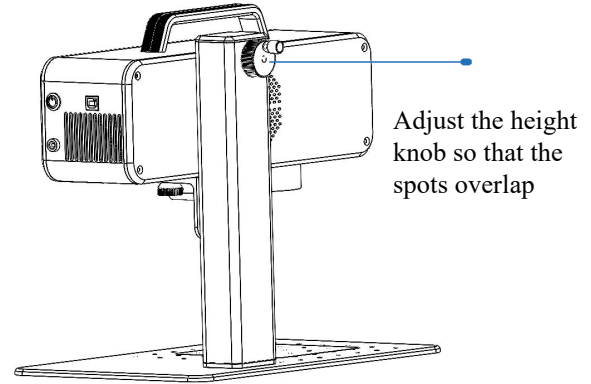
1. Put in the marking test paper, turn on the power switch of the machine, and adjust the height adjustment knob so that the two red light spots overlap into one light spot, that is, the focus debugging is completed. Otherwise continue to adjust.

Note: If the two light spots do not overlap, the marking effect will be affected when the deviation is small, and the marking machine cannot work when the deviation is large;

2. There is a ruler equipped with this machine to measure the distance between the laser head and the engraved object to adjust the focus. The distance between the two is 130mm, because there may be errors in the assembly, please refer to the actual measurement for details.



Put the focusing film to the spot where the light spot is concentrated, and adjust the height knob to make the light spots overlap.

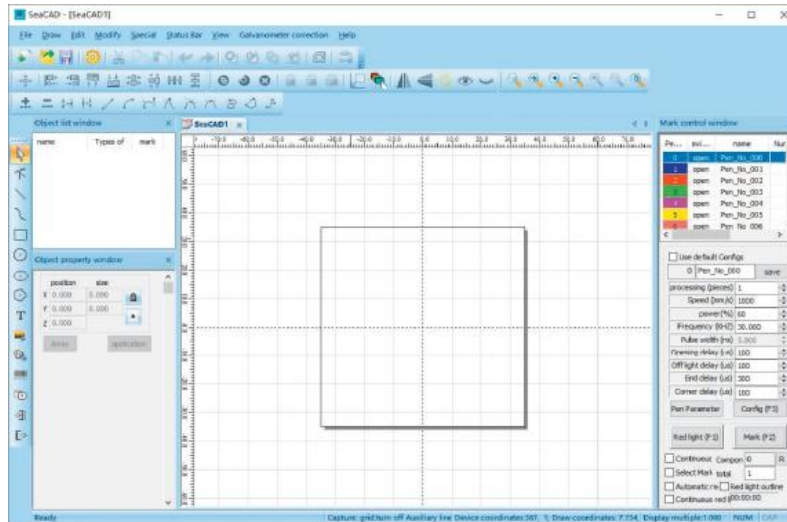


Part 10: Software Acquisition and Installation

Method 1:

1. Turn on the power of the marking machine and use the data cable to connect the computer where the marking software needs to be installed;
2. Open the attached U disk on the computer, extract the "BSL engraving software" file to the computer desktop, open the unzipped folder, and send "ATOMSTACK" to the desktop shortcut;
3. Install the driver file "Drive/win7/win8/win10-x64.exe" in the U disk. After successful installation, double-click the desktop shortcut "ATOMSTACK" to start the engraving software.

Method 2:



Software Opened Page

Part 11: Description of Functions of the software



System toolbar



Align toolbar



Status Bar



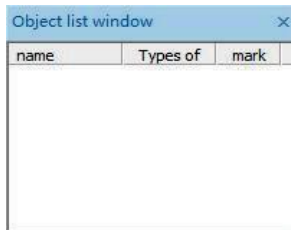
Accessibility toolbar



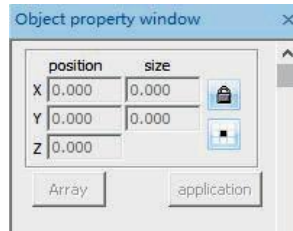
Node edit bar



Zoom toolbar



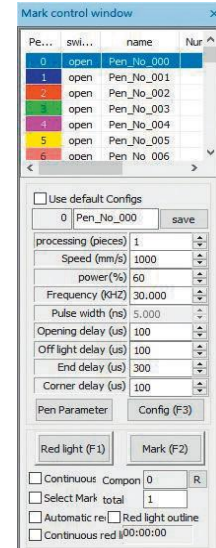
Object list window



Object property window

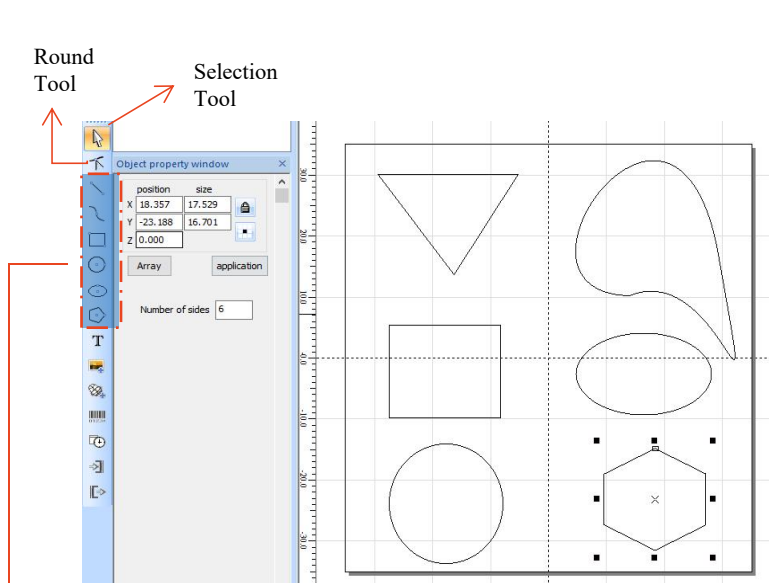


Draw toolbar

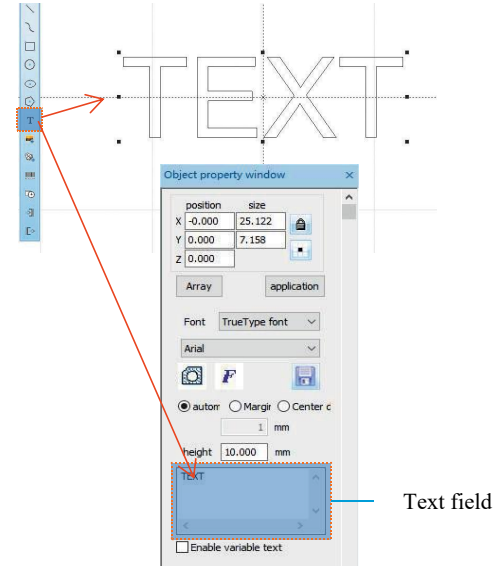



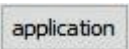
Mark control window


Part 12: Description of Common Functions Shape Drawing




From top to bottom, they are used to draw: Lines, curves, rectangles, circles and polygons

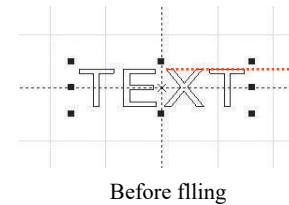
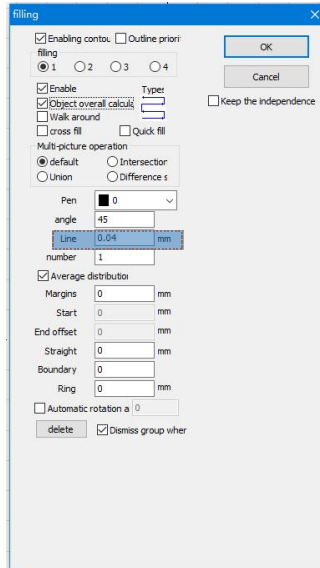
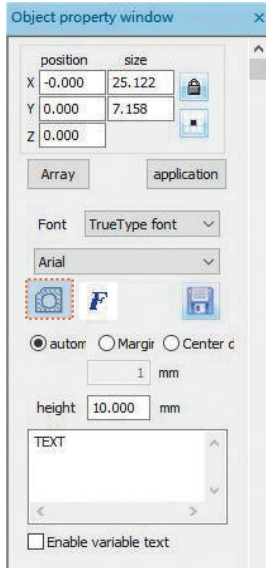


1. Click  and the "TEXT" appears by default. Enter the words in the text field and click  application complete text entry.

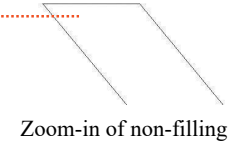
 Text illing must be filled to work on the object to be carved.

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

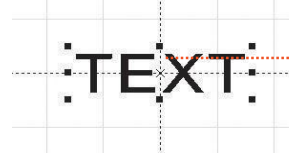
Part 13:Text Drawing



Before fling




Zoom-in of non-filling



After fling



Zoom-in of filling

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 0.04.

Notes: "Line" is the text fling 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.

Part 14: Picture Processing (Portrait/Colored Photo)

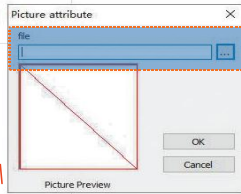
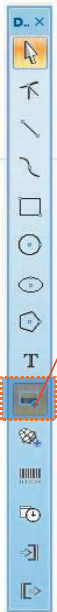


Figure 2

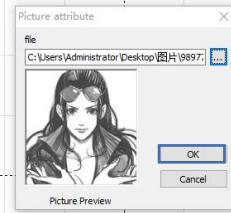


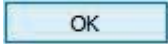


Image 3



Figure 4

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

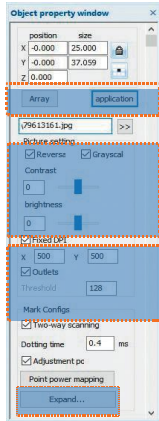


Figure 1

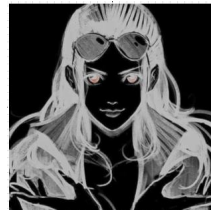


Image 6

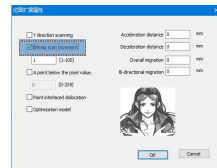


Figure 7

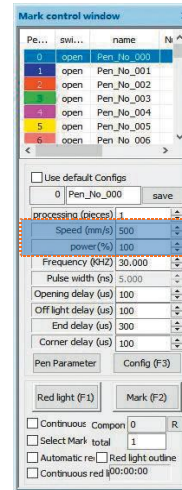
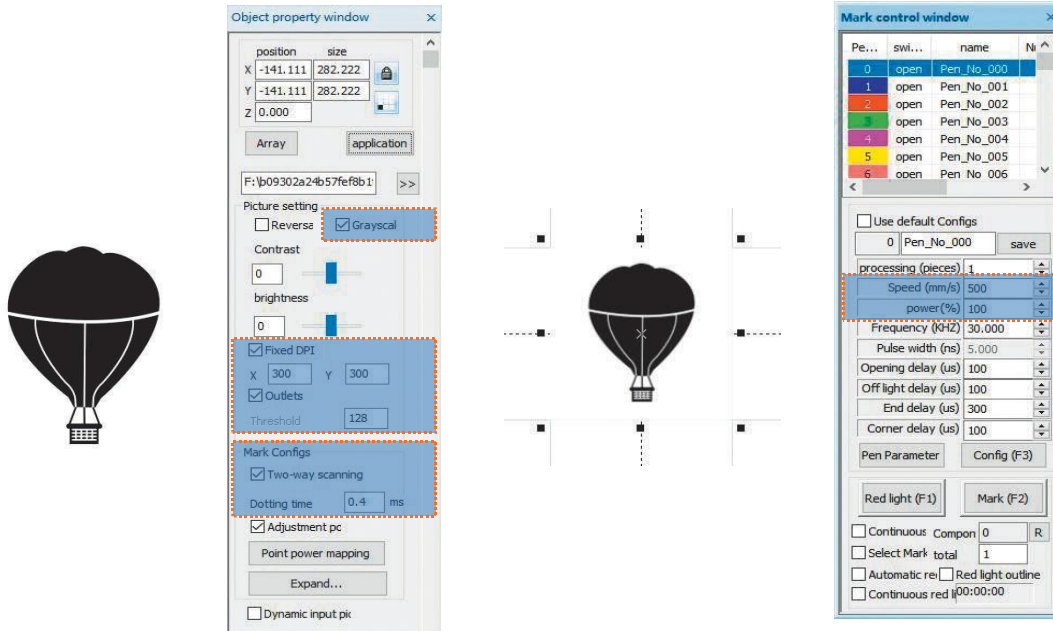


Figure 8

2. Adjust the picture to a proper size;
3. Check "Reversal," "Grayscale" and "Fixed DPI" (enter parameter 500 for X and Y) and "Outlets" in the Picture Settings window,
4. Check "Two-way scanning" in the "Mark Configs" window and enter 0.4 in "Dotting time";
5. In "Mark Configs", select to enter "Expand..." interface, check "Bitmap scan increment"
6. 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.

Part 15: Picture Processing (Ordinary Bitmap)



The image displays two software windows side-by-side. The left window is titled "Object property window" and shows the "Picture setting" section with "Grayscale" checked. Below that, "Fixed DPI" is checked with X and Y values set to 300, and "Outlets" is checked with a threshold of 128. The "Mark Configs" section has "Two-way scanning" and "Adjustment pc" checked, with "Dotting time" set to 0.4 ms. The right window is titled "Mark control window" and shows a list of pen configurations. The "processing (pieces)" is set to 1, "Speed (mm/s)" is 500, and "power(%)" is 100. Other parameters like "Frequency (kHz)", "Pulse width (ns)", "Opening delay (us)", "Off light delay (us)", "End delay (us)", and "Corner delay (us)" are also visible.

Object property window

position size
X -141.111 282.222
Y -141.111 282.222
Z 0.000

Array application

F:\b09302a24b57fe8b1 >>

Picture setting

Reverse Grayscale

Contrast 0

brightness 0

Fixed DPI
X 300 Y 300
 Outlets
Threshold 128

Mark Configs

Two-way scanning
Dotting time 0.4 ms
 Adjustment pc

Point power mapping

Expand...

Dynamic input pik

Mark control window

Pe...	swi...	name	N
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

Adjust the picture to a proper size;

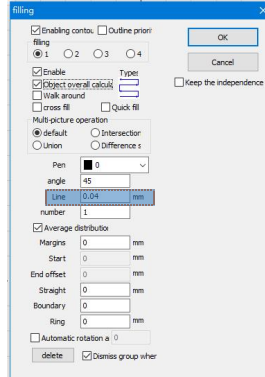
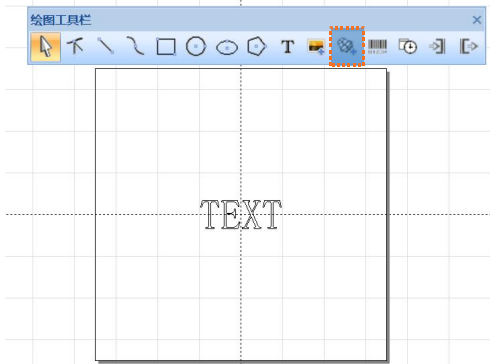
Check "Grayscale" and "Fixed DPI" (enter parameter 300 for X and Y) and "Outlets" in the Picture Settings window;


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.

Part 16: Mark Control

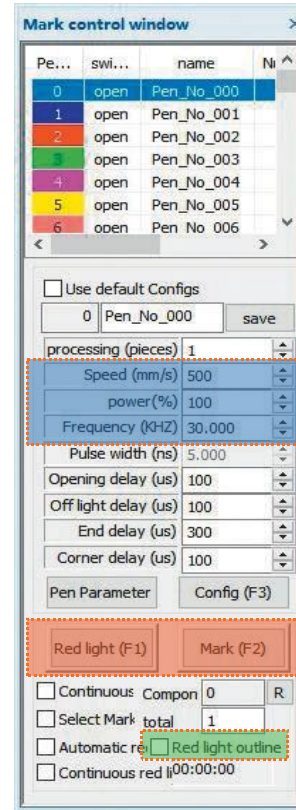


1. Click  to import vector files in the formats of PLT, DWG and AI;

2. The vector files imported must be filed 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 0.04



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.



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.

Part 17: 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	0.005 or 0.001	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 are 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 tilted, the focal distance is inaccurate, resulting in abnormal carving effect.