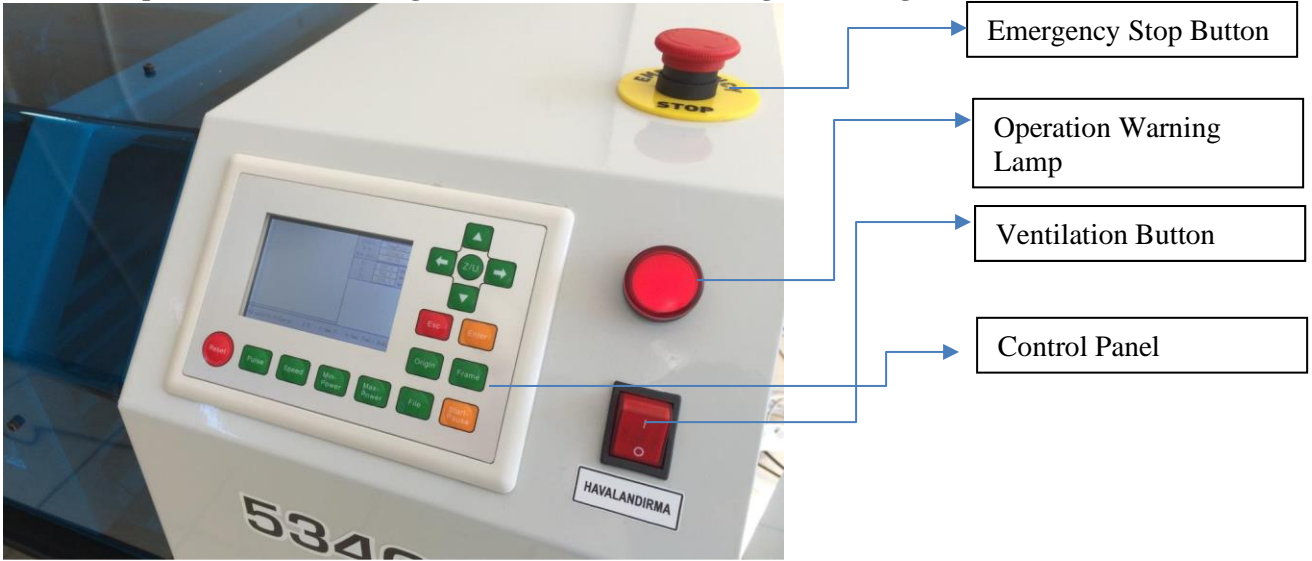


Lab4Schools
Lab Activity “Laser Cutting”



The control panel of the laser cutting machine that we use to cut digital drawings



- Z/U : The part that provides the movement of the cutter head in the X and Y axes.
- ESC : Exit
- ENTER : Call/Enter
- ORIGIN : Specifying the origin point for the relevant cutting file
- FRAME : To control the environment of the cutting area
- PULSE : To see the point on the piece with a single shot to the position of the head.
- SPEED : Speed adjustment
- MIN/MAX POWER : Changing power settings
- FILE : Selecting the cut file and transferring it to the device RAM
- START/PAUSE : Starting and holding the cutting process

Laser Engraving Cutting Software RDWork8.0

Chapter 1 Overview

1.1 Laser engraving cutting system introduction

Laser engraving cutting system through a computer numerical control machine tools to achieve effective control, according to the user's different requirements of the completion of processing tasks.

The system includes a control board and control panel and supporting software. This manual describes how to use the software to complete the task of laser processing. (Motherboard wiring and control panel operations, see the accompanying manual and control panel wiring board operating instructions)

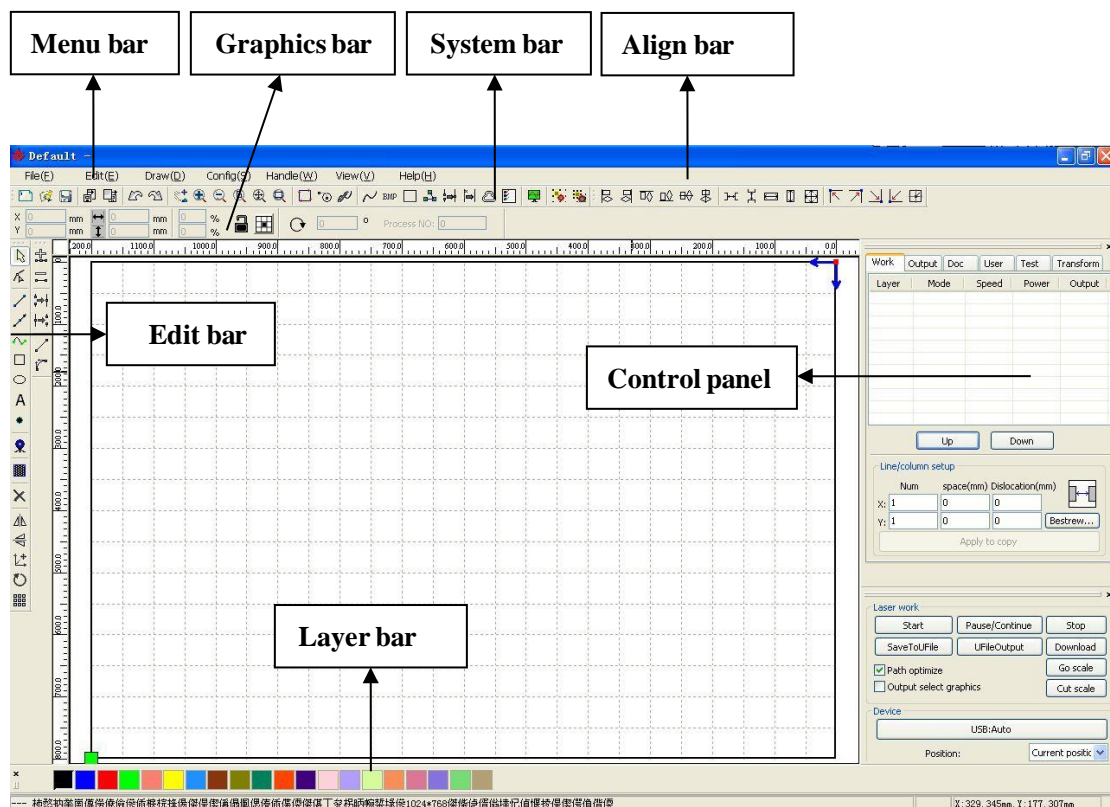
1.2 Software-supported file formats

Vector format: dxf, ai, plt, dst, dsb...etc。 Bitmap format: bmp, jpg, gif, png, mng,...etc。

Chapter 2 Software Basic Operation

2.1 The main interface operation

After starting the software, you can see the interface shown in the following figure.



Menu Bar: The main function of this software is available through the implementation of the Menu Bar. Executing the menu command is the most basic mode of operation. Menu Bar includes: Document, Edit, Draw, Setting, Processing, View and Help.

System Bar: On the System Bar, placed some most common command buttons which are chosen from the menu.

Graphics Bar: Graphics property bar is the basic attributes of graphics operations, including graphic location, size, scale, and number processing.

Edit Bar: The Edit Bar default is on the left of the work area. In the Edit Bar placed frequently used tools to make the operation more flexible and convenient.

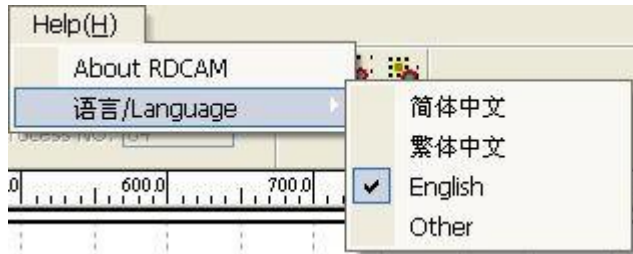
Align Bar: Alignment of the selected objects.

Layer Bar: Change the layer of the selected objects.

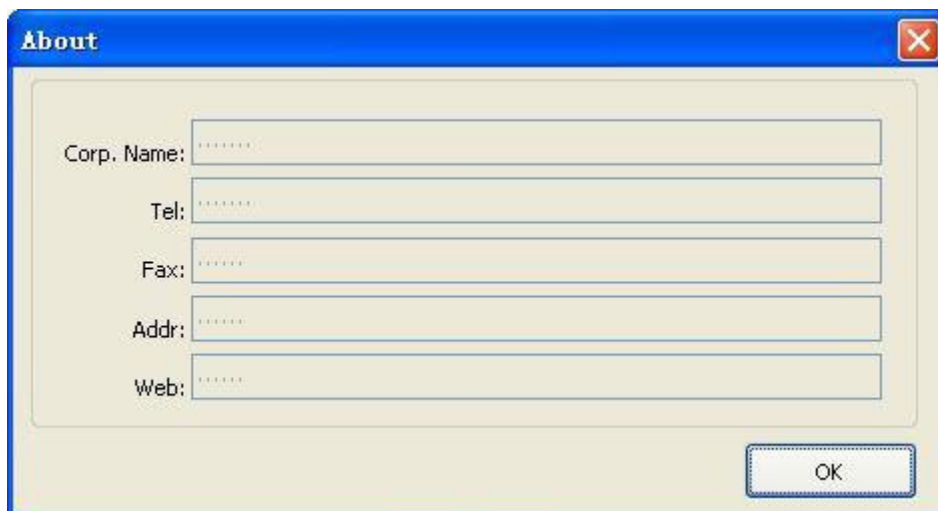
Control Panel: Using the Control Panel to complete laser processing of multiple tasks, Layer parameter settings, axis control, processing ...etc.

2.2 Language settings and manufactures information

In addition to installation process can set the software language type, you can easily switch in different language. Click Menu Bar **【Help】** -> **【语言/Language】** expand menu, select the required language types.



To obtain manufacturers information, so that we can provide you with better service. Click Menu Bar **【Help】** -> **【About RDCAM】**

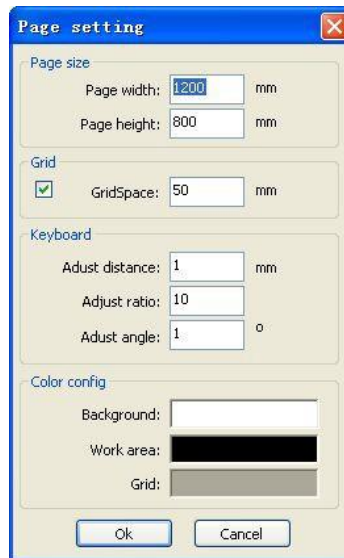


How to set manufacturers, refer to 《RDCAM software installation instructions》

The bottom of the dialogue box shows the current software version number. As different software versions may have some differences in the functions and interfaces, you can easily contact and communicate with manufacturers through software version numbers.

2.3 Page Setting

Click Menu Bar **【Config】** -> **【Page setting】** the following dialog box appears:



【Page width】: Software page width, usually associated with machine X breadth。

【Page height】: Software page height, usually associated with machine Y breadth。

Under normal circumstances, if you have connected to the motherboard, the software will automatically format for the current work of the machine, as a page size.

If the board is not connected, or need their own custom page size (such as to set the page size by material), you can use the page setting to reconfigure the page size.

【Grid】

Setting grid space and whether enable grid.

【Keyboard】

User can use arrow key to moving or rotating the selected graphics.


【Color config】

Setting the color of the work area.

2.4 File Open and Save

The software uses rld file format to save graphic information layer parameters of various layers and processing sequence of the graphic elements.

2.4.1 Open File

Click menu **【File】** -> **【Open】** , or click the icon , and the following dialogue box appears:



2.4.2 Save File

(1) Click menu **【File】** -> **【Save】** ,or click icon ,the following dialog box appears:

(2) Enter the file name in the edit box, then click **【Save】**。



2.5

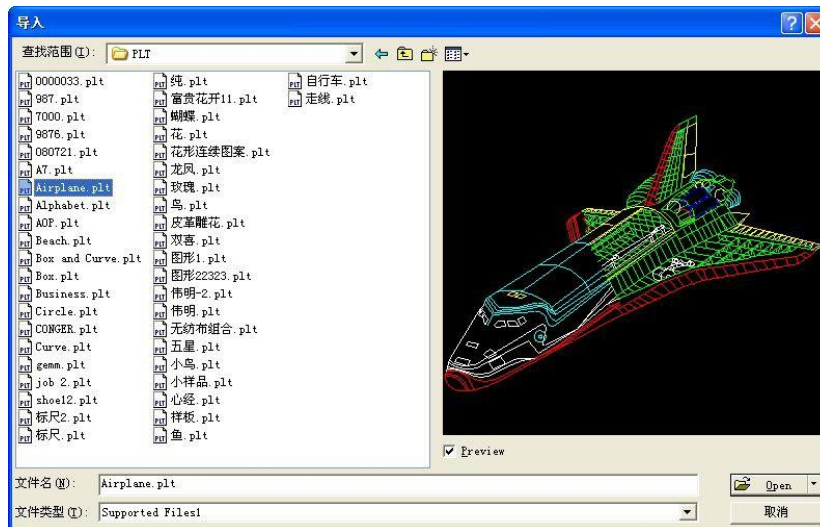
2.6 File Import and Export

Because this software is rld format, so to make or edit the use of other materials will be done by importing. After using the Export to graphic files for other software.

Supported file format for import : dxf, ai, plt, dst, dsb...etc Supported file format for export: plt

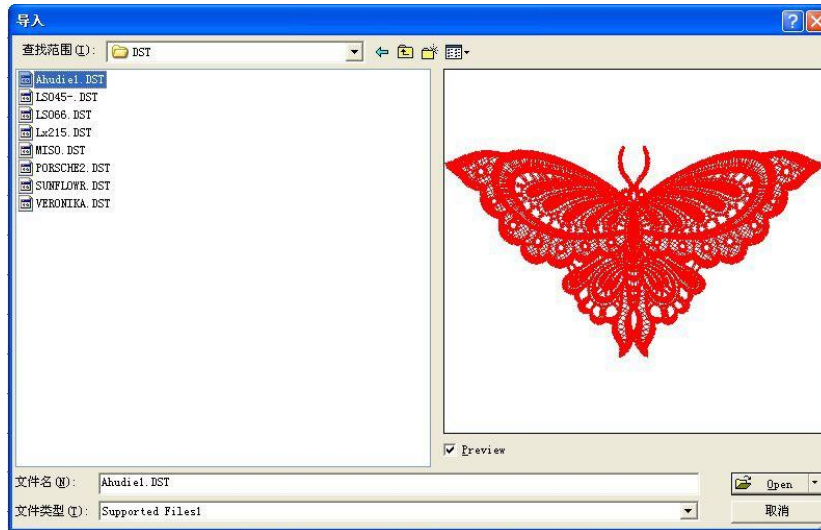
2.6.1 File Import

Click menu **【File】** -> **【Import】**, or click icon 。 The following dialog box appears. Select file,and click **【Open】**。



◆ Select **【Preview】**, the selected file can be shown.


For most vector files, data is automatically imported into the corresponding layer of RDCAM software according to the layer description. Data will be imported into the current layer for special documents such as DST/DSBlayer.



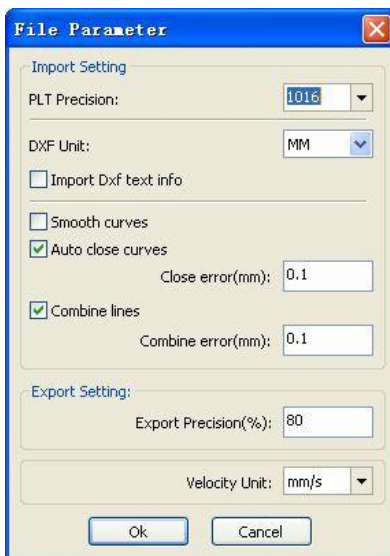
Current layer



2.6.2 File export

Click menu **【File】** -> **【Export】** or click icon . The Export dialog box appears. Input the file name and click the button **【Save】**.

2.6.3 File parameters setting



PLT Precision: According to the accuracy of the original plt file to select the appropriate import unit.

Smooth curves: When importing vector files, automatically smoothing the original curves. For the original graphic is smooth or need to repeatedly adjust the beset smoothing effect, you can uncheck this button. Do not do smoothing curves may reduce the time of import processing.

Auto close curves : According to close tolerance automatic check and closed curve

Combine lines : According to merger tolerance, auto-connecting curves.

Color map automatically switch to gray scale: Graphics are based on gray scale under normal circumstances. If the imported bitmap is a color image can be converted to grayscale.

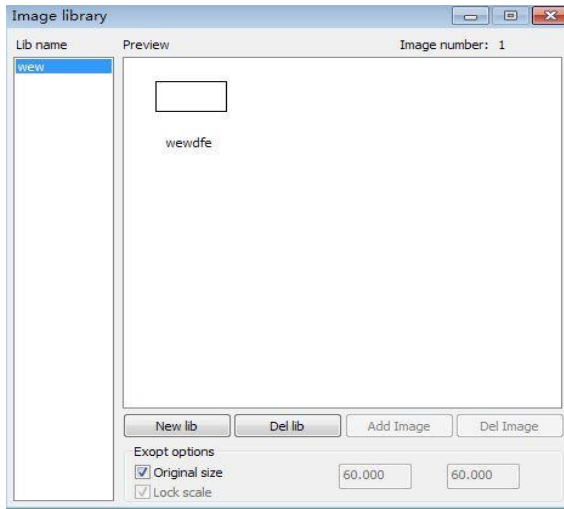
Import Dxf text message: When the user need only Dxf the graphic information, not need the text information within the file, do not check this.

Export precision: The precision of export plt file or output file.

Velocity unit: Software supported two types of speed unit: mm/s、 m/min. Selected according to usage. After it was selected, the speed of parameters on the interface unit will change with it.

2.6.4 Image Library

For some frequently used graphics to be stored in the gallery is commonly used in the ease of use



2.7 Object Color

The colour of the object is the colour of the object's contour. You can click the colour button on the Layer Bar to change the colour of the object that has been selected. The colour of the pressed button is the colour of the current layer.



2.8 Object Transformation

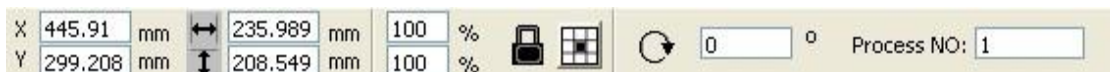
Transformation of an object mainly includes object location, orientation and size. But it does not change the basic shape of the object and its characteristics.

Transformation of the object for users, provides a convenient user interface. Users can mirror and rotate through

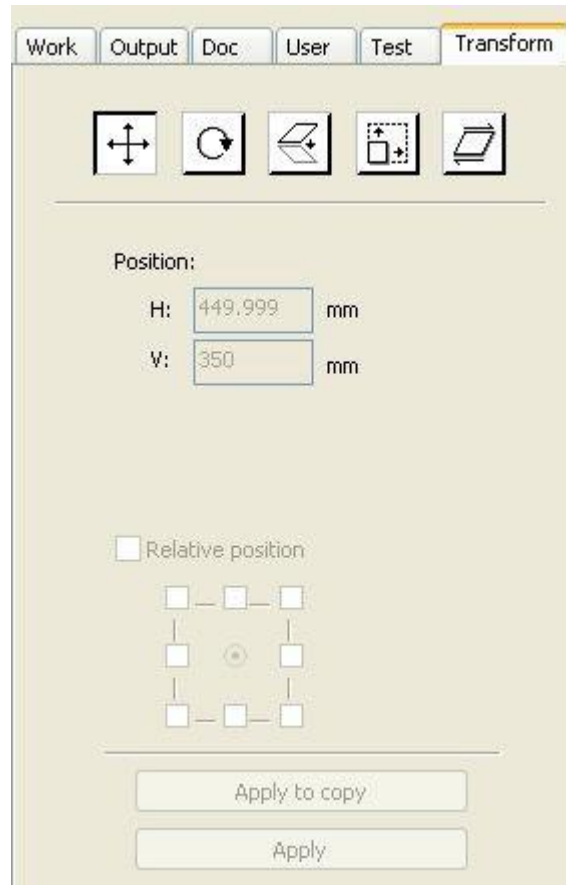


the draw toolbar.


You can also use the Object Properties toolbar




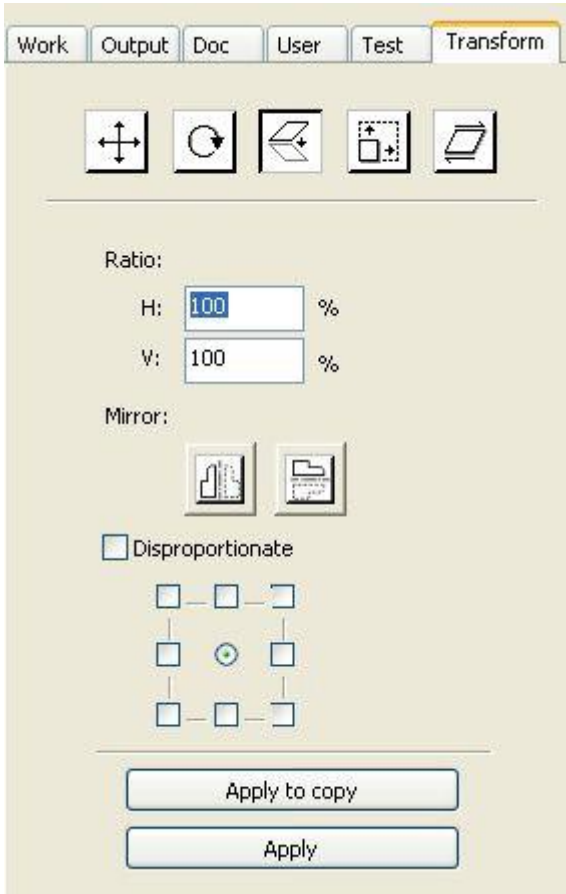
You can also use the right transformation tools to transform and copy the graphics.



2.8.1 Object Image

The object image is flip the selected object in the horizontal or vertical direction. Click Edit Bar  , flip the selected object horizontal.

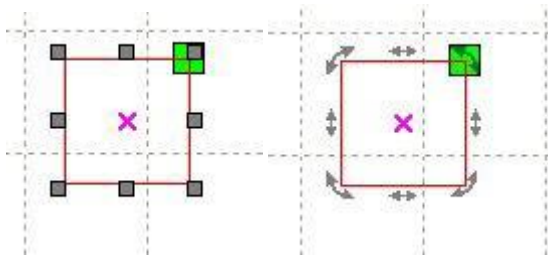
Click Edit Bar  , flip the selected object vertical.



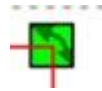
Or through the mirror to the transformation tools, horizontal and vertical mirror, and copy.

2.8.2 Object Rotate

The selected object ,next,double-left click on

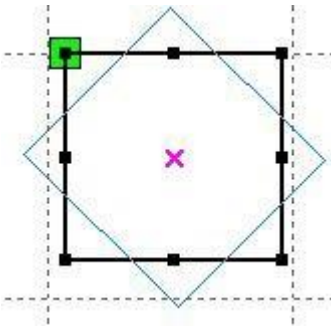


If you want to drag rotation, can move the mouse to



then press the left key

Dragging the mouse to adjust the rotate angle, in the dragging process, there will be followed by rotating wire-frame outline.



X	445.91	mm	↔	235.989	mm	100	%	🔒	📏	🔄	0	°	Process NO:	1
Y	299.208	mm	↕	208.549	mm	100	%							

Or directly enter the rotation angle in the Object Properties toolbar.

Work Output Doc User Test **Transform**

🔄 🌀 📐 📏 📏

Rotate:
H: 0 °

Center:
H: 445.91 mm
V: 500.791 mm

Lock rotate center
 Relative center

📏 📏 📏
📏 🌀 📏
📏 📏 📏

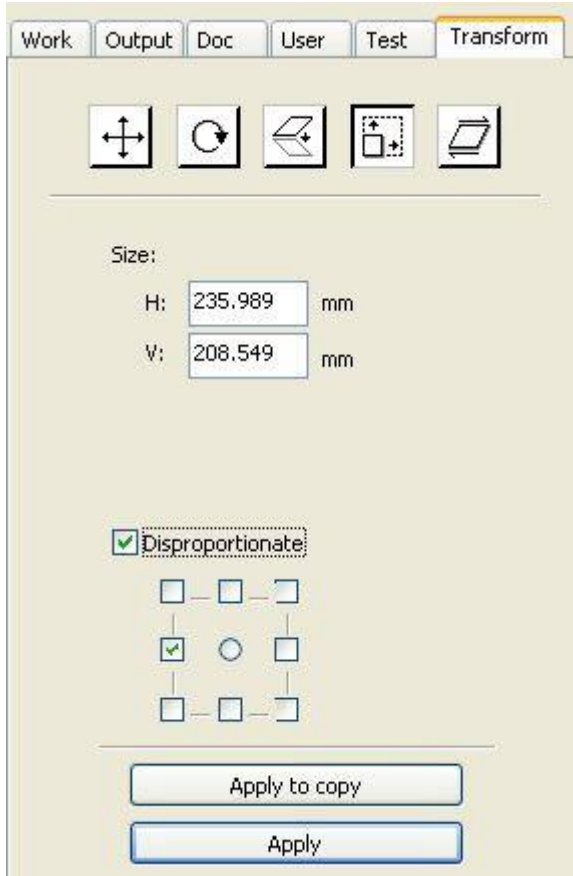
Apply to copy
Apply

Or use the spin rotation transformation tools to transform. In the rotations transformation tool can be set to the center of rotation and locking center of rotation.

2.8.3 Object Size

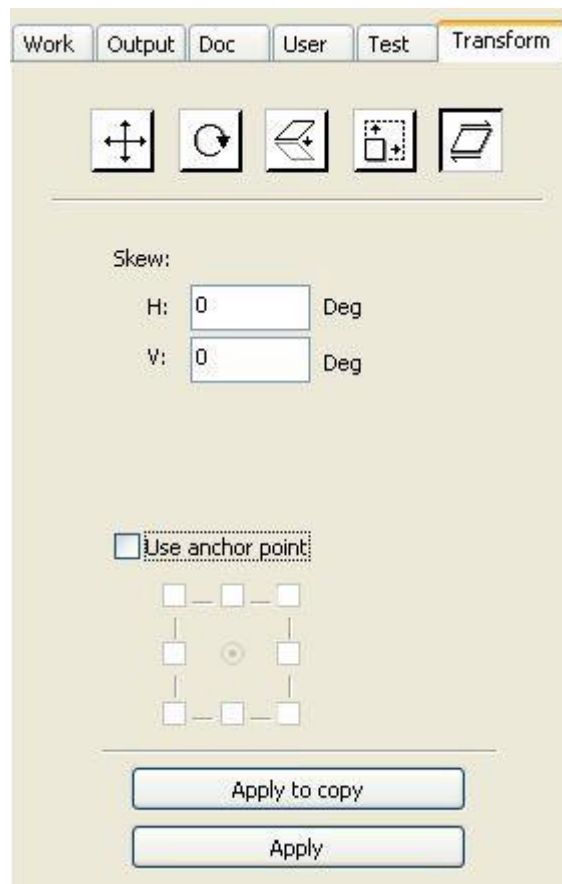
X	445.91	mm	↔	235.989	mm	100	%	🔒	📏	🔄	0	°	Process NO:	1
Y	299.208	mm	↕	208.549	mm	100	%							

You can set size and center position of the selected object.



Or use the size transformation toolbar to change the size of object. Can modify the size, choose whether to lock the aspect ratio, and set the position relative to the object to transform.

2.8.4 Tilt

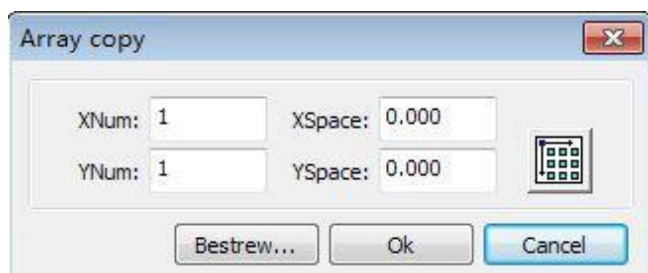


Object can be tilted by the tilting transformation tools. It can be set the tilt anchor and the tilt angle.


The tilt will cause distortion of the bitmap and the practical application of small, currently only supports the tilt vector graphics.

2.8.5 Object Array Replication

Click Edit Bar , select object wants to copy. Then click , the following dialog box appears:



 Width of a single graphic(mm)

 Height of a single graphic(mm)

You can array replication object along different directions. The direction of copy is based on the original graphics. Such as choose the array direction lower right, then the original graphic will

appear on the upper left corner. whereas if it is to the upper left array, then the original graph appears in the lower right.

After setting the array number and array spacing, click button **【Apply】**, you can see the actual graphics array.

There are two forms of array spacing: center spacing and edge spacing.

Choose center spacing, then **【X Distance(mm)】**、**【Y Distance(mm)】** representing the distance of the two graphic center.

If not choose center spacing, then **【X Distance(mm)】**、**【Y Distance(mm)】** representing the distance of the graphic edge.

Center distance X = Edge distance X + width of object
Center distance Y = Edge distance Y + height of object

Switch between the two kinds of calculate method, **【X Distance(mm)】**、**【Y Distance(mm)】** will be calculated automatically.

Click **【Bestrewing breadth】**, The software will automatically calculate the array number according to the workpiece size、width、height、X distance and Y distance。

Adjust spacing can be directly input values, and click **【Apply】**

Can also press the direction keys to adjust objects spacing。

Check **【Center】**, then after object array replication, graphics will be centered on the work area. Scroll the mouse wheel to zoom view of the graphics.

Drag the mouse to pan view of the graphics。

2.8.6 Place Object To The Origin

Place the object is to facilitate the view or orientation. The following tools are provided by software:



, selected object will be placed in the center of the page, that is the object center coincides with the center of the page.



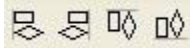
, Selected object will be placed on the page left, upper right, lower right, lower left, upper left corner of the object, upper right, lower right, lower left and upper left corner, top right, bottom right, bottom left corner of coincidence.

2.9 Object Align

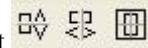
Select objects, click tools on the Align Bar



Which include:



Left alignment、Right alignment、Top alignment、Bottom alignment



Vertical center alignment、Horizontal center alignment、center alignment

Horizontal equidistance、Vertical equidistance

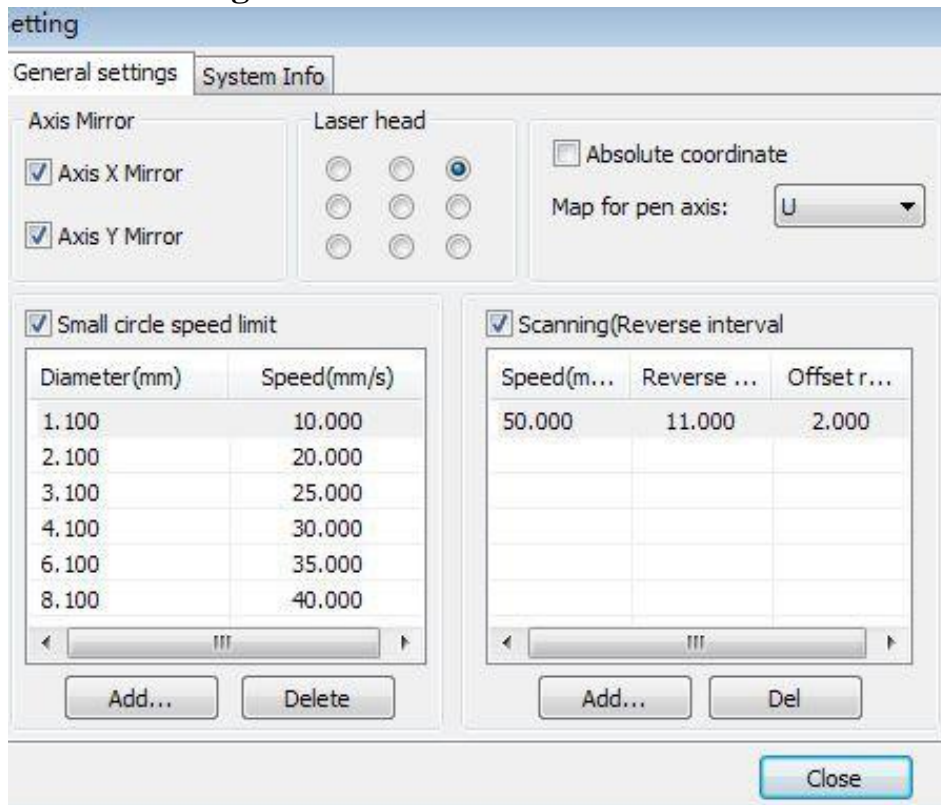


Same width、Same height、Same size. Benchmark object:

If you press “Shift”key and select object one by one, then the benchmark object is the last object.

If you select object by select box, then the benchmark object is the object which curve number in the final.

3.1 General settings



Axis Mirror

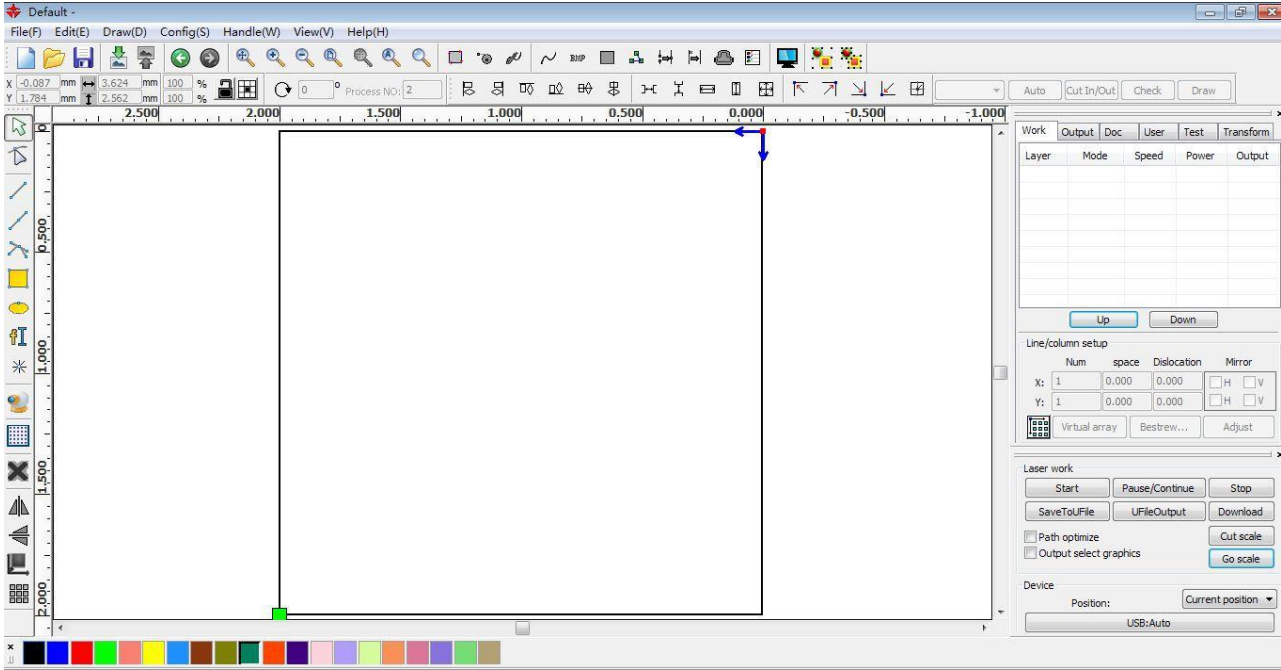
Generally, Axis direction of mirror is based on the actual location of the limit or home of machine.

The default coordinate system is Descartes coordinate system, and zero is in the bottom left.

If the zero point of the machine is top left, then X-Axis do not need to mirror, but Y-Axis need to mirror.

If the zero point of the machine is top right, then both X-Axis and Y-Axis are all need to mirror.

In addition, this function can also be used for other applications for mirror.



Laser head

Position of Laser head means the location laser head relative to the graphic.



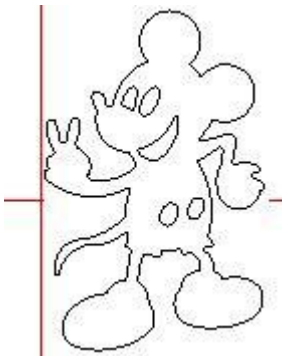
Top Left



Top Middle



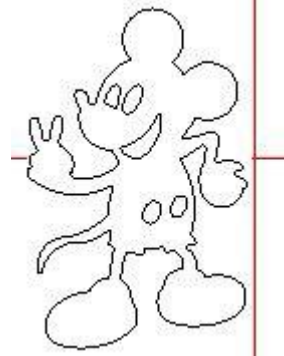
Top Right



Middle Left



Center



Middle Right



Bottom Left

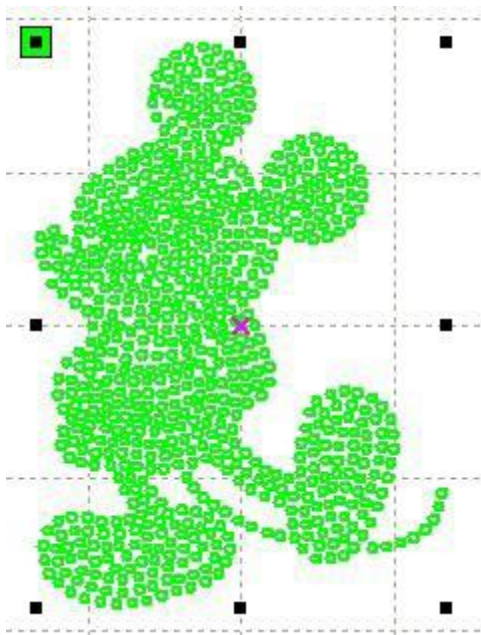


Bottom Middle



Bottom Right

when you intuitive view, just look at the zone where the green point appears.



Absolute Coordinate

You can directly check this option when you want the graphics location in the graphics display area correspond to the actual work location of processing. Then the graph position will no longer relate with the actual output position of the laser head and orientation point, but always regard mechanical origin as the anchor point.

Put pen to paper axis mappings

If machines have been installed the life platform, and need for processing on different platform height

Small Circle Speed Limit

On processing work, the software automatically determine whether the current round need to limit speed, then according to the diameter size of the circle to determine the speed. If parameter configuration appropriate, will greatly enhance the quality of small round. Click button **【Add】**,

【Delete】, **【Modify】** to configuration.

Small circle is less than speed of the rules limiting the list of small round circle of minimum

radius, minimum radius circle at the speed of the output of the corresponding.

If the speed greater than maximum speed limit list the speed round, the speed only associated with the speed of the layer.

If the speed is in the list, set the output speed by list.

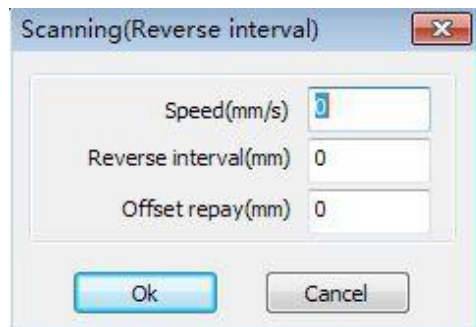
If the request received by limiting layer parameters faster than the speed set in the layer, press the speed of the output layer.

Scan backlash

Laser scanning graphic way, because the relationship between the machine belt tension may cause the edge of the scanned graphics uneven. Therefore, increasing backlash to fix. It has the specific backlash for the certain speed. General, the greater the speed, the greater the backlash.

① Add backlash

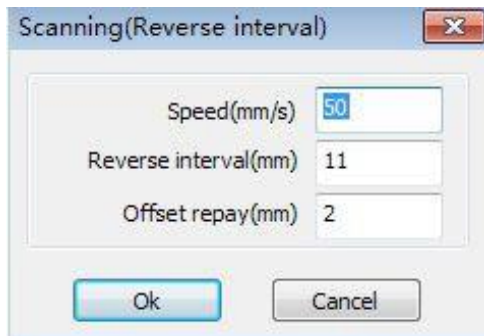
Click the Add button, the screen will pop up as shown in Figure



Set speed and backlash, click OK, the value to be inserted into the list of backlash.

② Modify backlash

Double-click the left mouse button scanning (reverse gap) need to modify the reverse block entry clearance, then the pop-up screen shown in Figure.

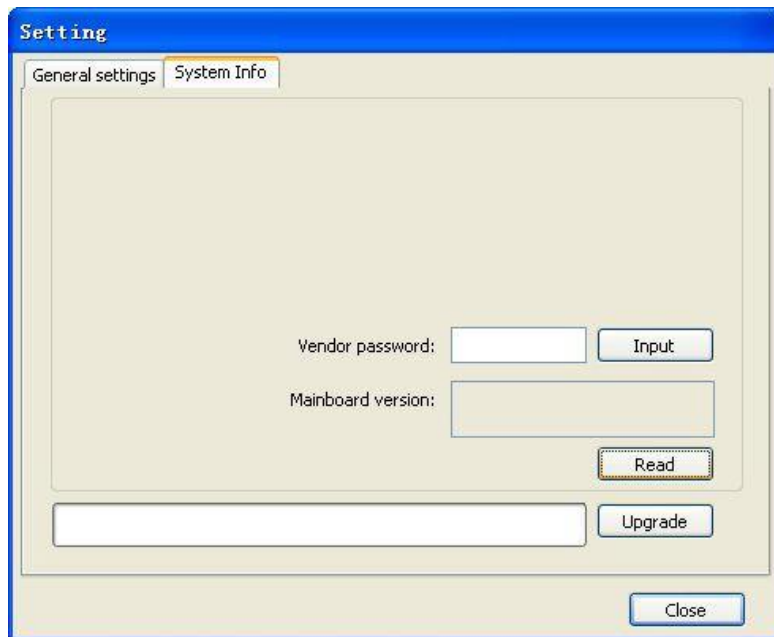


In the interface can modify the current speed of the corresponding backlash.

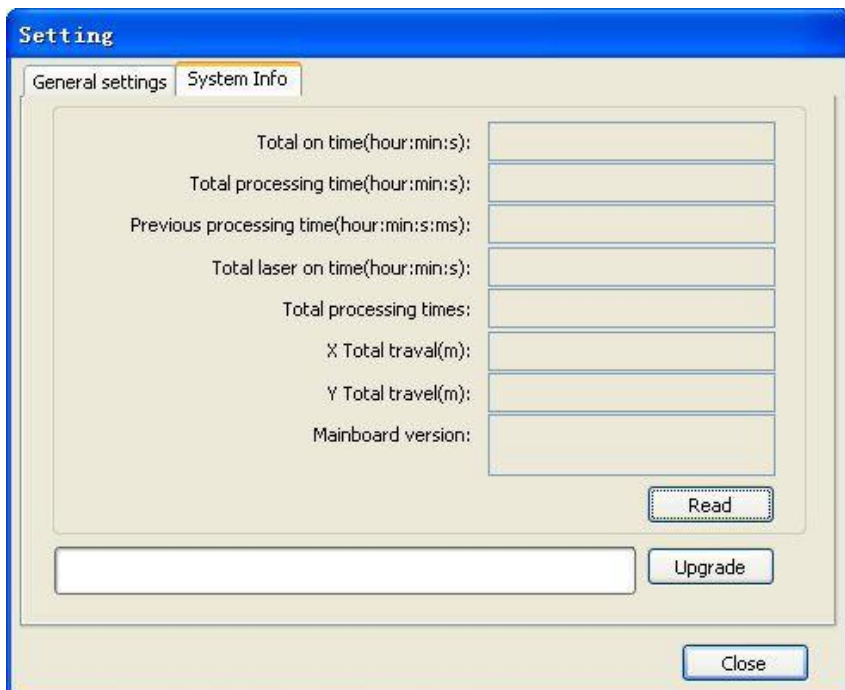
③ Remove backlash

Right-click scanning (reverse gap) block in the backlash to delete the item, then click the **【Delete】** button.

3.2 System info



Information on the operation of the motherboard manufacturers need to enter password to view parameters.



Total on time: The total time of motherboard working

Total processing time: The total time of processing ,including the time of jump moving. Previous processing time: The time of the last processing

Total laser on time: The time of the laser processing

Total processing times: The number of completed processing, not include the processing forcing to end.

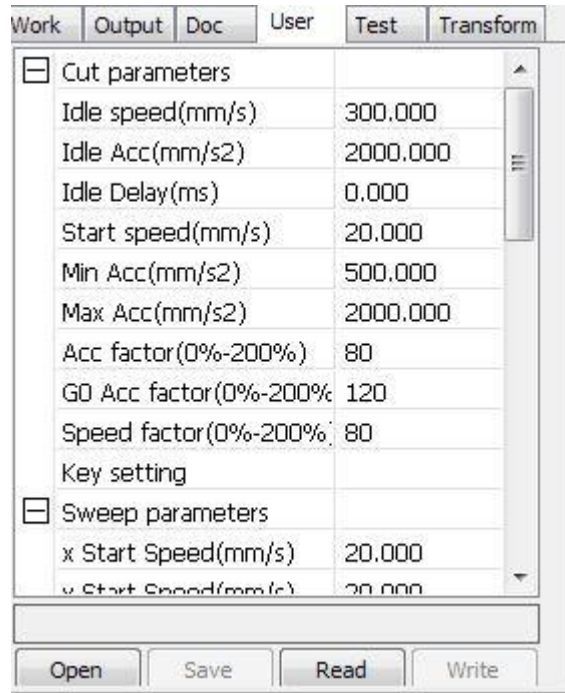
X total travel: The total travel of motor X. Y total travel: The total travel of motor Y.

Motherboard version: The version of the current controller.

The function of upgrades:

If the board has additional features, the manufacturers will provide the update file (*.bin format), the user can load the upgrade file to upgrade the motherboard. After the upgrade, you need to click on the control panel "Reset" button reset the motherboard before normal use.

3.3 User parameters



Reading the board parameters must before operating the user parameters.

3.3.1 Cut parameters



Idle speed: this parameter decides the max. speed of all lines not emitting beams during the operation of the machine. This parameter should not be lower than the lower of the jump-off speed of the X-axis and that of the Y-axis and not exceed the higher of the max. speed of the X-axis and that of the Y-axis, if the setting is illegal, the controller will automatically set this parameter within the range above; a comparatively high idling speed can shorten the operation time of the entire figure while excessively high idling speed may cause dithering of the tracks, therefore, you should take all relevant factors into consideration when setting.

Idle Acc: Corresponds to the acceleration of the speed of air travel time, air and air-way-way speed of acceleration to match, if you set too slow the actual speed may not reach the air-way set value, if set too fast, they may not withstand the mechanical structure, resulting jitter. Slightly higher than the general acceleration of air-way cut acceleration.

Cutting Acc: Corresponding to the acceleration of the speed of cutting (cutting speed is the speed of the layer parameters of the layers).

Acc factor:the corresponding coefficient of empty walking speed,the greater the ratio,the greater the idle speed.

Go Acc factor:Corresponding coefficient of cutting speed,the bigger the ratio the greater the cutting speed speed faction: Rount the corner turning speed,the greater the coefficient is larger.

Turning speed: Turning the corresponding deceleration in the cutting process, the minimum speed of the drop, when processing a lot of teeth when the graphics may be appropriate to reduce the turning speed.

Turning Acc: Should match with the turning velocity.

Cutting mode: Split precision cutting, fast cutting, ultra-fast cutting, the user can choose according to the actual applications. Such as the emphasis on accuracy, select the precision cutting, such as emphasizing speed, select the fast cutting.

Acc. mode: this parameter decides the acceleration and deceleration mode (S mode or T mode) of the motor during operation, the motor accelerates and decelerates slowly and smoothly in the S mode and fast and relatively unsmooth in the T mode; the default mode is the S mode.

3.3.2 Sweep parameters

☐ Sweep parameters	
x Start Speed(mm/s)	20.000
y Start Speed(mm/s)	20.000
x Acc(mm/s ²)	3000.000
y Acc(mm/s ²)	2000.000
Line Shift Speed (mm/s)	150.000
Scan Mode	Common Mode
Facula Size(50~99%)	98.000

x Start Speed, y Start Speed: Off scanning speed in the use of stepper motor drag, do not began to accelerate from 0, but can start work directly from a speed to shorten the overall processing time, but the speed is not too high, and because the X, Y axial load is different from the rate, general the initial speed of X-axis slightly higher than the initial speed of Y-axis

x Acc, y Acc: With the scanning speed (the speed of layers in the layer parameters) to match, if set too small, the scan speed to a longer distance, the scanning efficiency. The machine can be set according to the actual structure, load conditions vary. Since X, Y axis load, generally much higher than the X-axis Y-axis accelerometer.

Line shift speed of scanning: this parameter is specially used to control the max. speed of the scanning to shift vertically from one line to the next line below it. If during the scanning, the line space is too large or the block space is too large when scanning block figures while precise positioning for each line or block is required, you can set the line shirt speed of scanning to a comparatively low value. This parameter cannot be less than the jump-off speed of the corresponding axis during the line shift and cannot be higher than the max. speed of the corresponding axis during the line shift, if the setting is illegal, the controller will automatically set this parameter within the range above.

Scan mode: There are two modes for your selection: the general mode and the special mode, in the general mode, there's no any treatment during the scan, in the special mode, light spots will be treated. If the special mode is activated, the power of the laser should be increased and correspondingly, the light spot percentage will be lower and the laser power attenuation will be higher, to achieve the same depth of scanning, the laser power should be higher. The purpose to select the special mode is to make the laser to emit beams at high power and in short period, during deep scanning, the effect of flat bottom can be achieved, however, if the light spots are improperly adjusted, this effect may not be achieved and the working mode of high power and short period may influence the service life of the laser. The default mode is the general mode.

Facula Size: When scanning the general pattern of selection, the argument is invalid, when you select a special mode, the onset of the parameters. Control the parameters of control in 50% to 99%, respectively.

3.3.3 Home parameters

☰ Home para	
Home speed(mm/s)	150.000
Auto home X	No
Auto home Y	No
Auto home z	No
Auto home U	No

Home speed: This parameter determines the machine is turned back to the origin when the speed of a larger format if the machine can be set to reset the speed is too large, but not too much.

X, Y, Z, U Auto home: The axis can be set whether should reset at boot time.

3.3.4 Feeding parameters

☰ Feeding para	
Delay before feed(s)	0.000
Dealy after feed(mns)	0
Progressive feeding	No
Progressive feeding repa	0.000

Delay before feed:when using the feeding device,a single delay before feeding,the user can arrange such as sorting material at this time.

Delay after feed:refers to material feeding device to reach the designated position,need stability for a period of time before processing.

Progressive feed: feed uni will material sent to in place of one line is a way of feeding. Progressive feed repay:in the use of feeding device there may be some error on line by line feed

3.3.5 Go Scale parameters

☰ Go Scale para	
Go scale mode	Close laser
Go scale blank(mmm)	0.000

Go scale mode: Points of light to go off the border, the opening cut borders, corners three modes.

Go scale blank: Walking frame can be based on the actual image size up and down again about the direction of some of the white left side of the border in order to ensure complete contains the actual graphics.

This setting is on the control panel to go with the border-related functions, while walking on the border with the independent software.

3.3.6 Other parameters

☰ Other	
Array processing	Bi-dir Array
Return position	Origin
Focus depth(mm)	0.000
Backlash X(mm)	0.000
Backlash Y(mm)	0.000

Array mode: you can choose the swing mode and the one-way mode. The Swing mode: cutting the array back and forth in order; the One-way mode: always cutting the array from one direction to another. If One-way mode is selected, all array units have the same movement modes and the same liquidity of movement, however, this mode will take more time than the swing mode. The default mode is the Swing mode.

Return position: You can select the locating point and the machine origin. This parameter decides the position, the locating point or the machine origin, where the laser head stops upon completion of each operation.

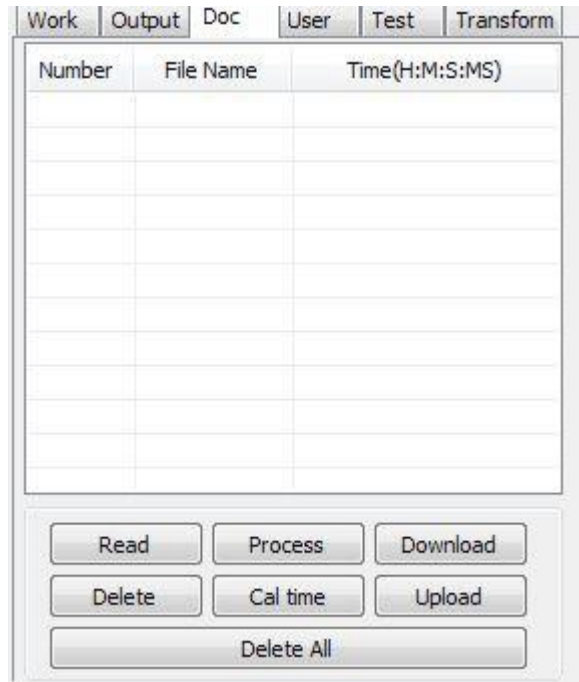
Delay before feed: Using the feeding device, the delay before a single feed, users can arrange the time and the like, such as picking process.

Delay after feed: Refers to the material sent to the feed device in place, the need for stability after a period of time for processing.

Focus depth: Auto focus operation to find the corresponding panel.

Backlash X, Y: Used to compensate the backlash caused by the machine drive problems.

3.4 Document Management



Read

Click button Read, the software will communications with the controller, read the list of files on the controller.

After read controller successful ,file information will be displayed in the document list.

Download

Click button Download, will pop up the file dialog , select *.rd downloaded file, then the file will be downloaded to the controller.

If the download is successful, the document list will update.

Process

Select the file to be processed from the document list ,and click button Process The controller will start the specified document.

Delete

Select the file you want to delete from the document list, and click button Delete The controller will delete the specified document.

If the deletion is successful ,the document list will be updated.

Delete All

Automatically remove all file in the controller, and update the document list.

Cal time

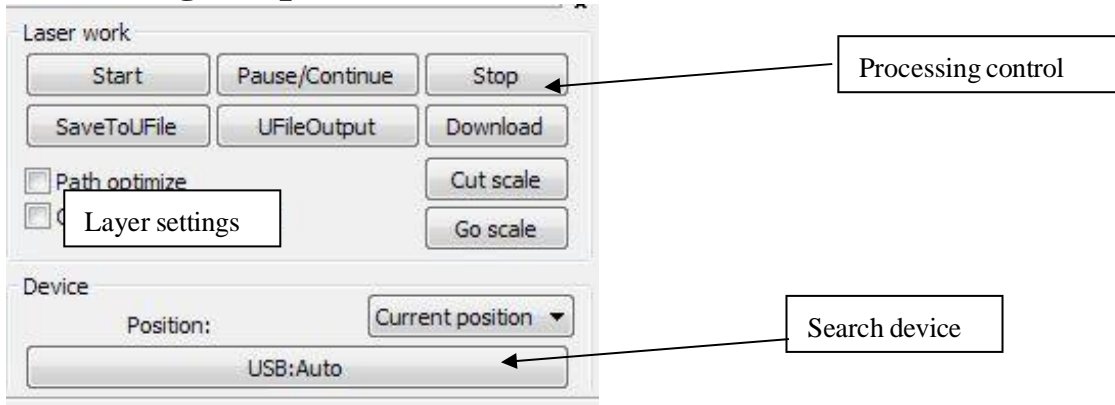
Motherboard supports processing files towards hours worked. Select the file to calculate the work hours worked and click the button. Calculation to be completed, the control panel will be prompted to complete the calculation. And then point to read button shown in the list, calculated from the working hours.

In addition, when the document processing operation performed, the hours information will also be covered by the actual processing work.

uploading

On the main board of the selected from read offline files, and saved to the computer.

**Chapter 4
Processing Output**

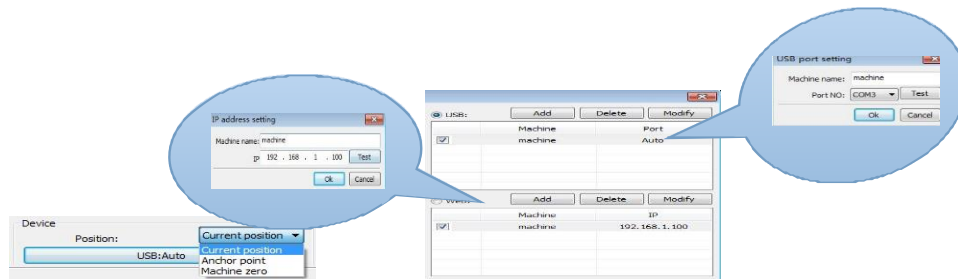


4.1 Search Device

Link device in two different ways: USB and network. But through USB port button on the popup dialog box, set connection mode and choose connection port.

Current Position : Laser head back to the position before processing.

Original anchor : Laser head back to the last anchor ,the anchor may set at panel. Machine zero : Laser head back to the zero of the machine.



If the computer connected to a laser device , option can be set to automatically,the software will automatically determine the determine the connection with the device interface

When computer connection has many sets of laser equipment,click add,new can,need to use which device ,click the check box

Click on **add** or **modify**,can him out of the dialog box as shown above to **add** or **modify**

can click on the **test** ,after testing whether the connection is successful with the device Network: If the computer is connected to laser device,click on the add ,enter to connect machine name and IP address of the equipment

When a computer is connected with many sets of laser equipment,click add,which can use new device,click the check box

Click on the **add** or **modify** will he a dialog box as shown above to **add** or **modify** after clickable **test** detect and equipment connection is successful

Search at present already connected device, and choose from the drop-down list corresponding IP address machine.

4.2 Layer processing

First, in the menu **【Handle】**>**【Path optimize】** check “according to layer order”, then click “OK” to exit.

Layer reorder: Click button Up, Down can change the order of layers, or direct the mouse to drag the layer to the specified location.

Here, you must check the “Path optimize” option.

4.3 Position

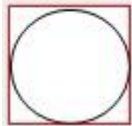
Setting the laser head back location after processing completed.(Current position 、 Original anchor、 Machine Zero.

Current Position : Laser head back to the position before processing.

Original anchor : Laser head back to the last anchor ,the anchor may set at panel. Machine zero : Laser head back to the zero of the machine.

4.4 Go Scale、 Cut Scale

For Example Go Scale, As the following figure shown, the actual graphic is round, and the red rectangle outside the circle is the smallest rectangle, click button Go Scale, laser head will run once along the rectangular path.



For Example Cut Scale, As the following figure shown, the actual graphic is round, and the red rectangle outside the circle is the smallest rectangle, click button Cut Scale, laser head will be cut along the rectangle.

4.5 Start、 Pause、 Stop、 Save To Un File、 Un File Output、 Download

Start: Output the current graphic to the machine for processing.

Pause\Continue: Click Pause, will stop the processing work , click the button again to Continue Stop: Stop the current processing work

Save To Un File:

Save current file as RD format, using for offline processing (Can be copied to other memory board for full offline operation

Un File Output:

Output the offline file (RD format)

Work Output Doc User Test Transform

Enable rotate engrave

Circle pulse: 1000 Help

Diameter(mm): 20

Speed(mm/s): 50 Test

Enable feeding

Feeding Count: 0

Distance(mm): 500

Backlash reapy optimize

Enable offset of Laser2

X: 0 Y: 0

After save offline file, click Un file Output to select rd file to processing. Download:

Download the file to the memory of the controller , then user can start the file through the machine panel.

4.6 Output select graphics

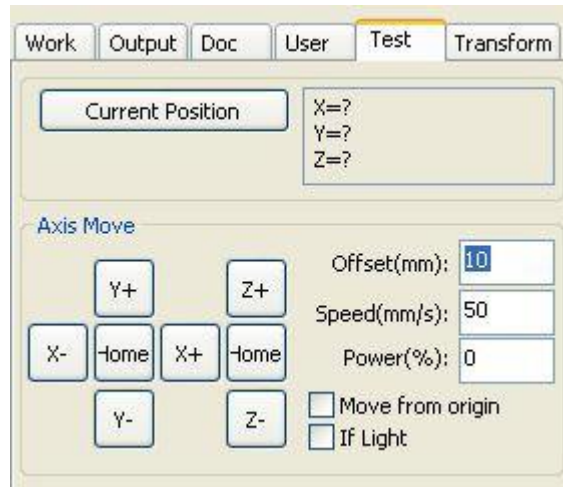
After check Output select graphics, then only output the selected part, rather than not output the part not selected.

4.7 Path optimize

After check Path Optimize, then automatically perform the path optimize before the output.

If has done the Path optimize or not need optimize, then not check Path Optimize can reduce waiting time.

4.8 Test



Axis control, can only control one axis each time. You can set the information for axis move, including move length、 speed、 laser on-off and laser power.

If you check “Move from origin”, then the offset you set means the offset to machine zero. If you not check move from origin, then the offset means the offset to the current position.

The X-axis, for example, assuming the current position is 100mm, such as the step distance is set to 10mm, then the exercise once, the new location will be 110mm, such as the check moves from the origin, movement time, the new location will be 10mm, and repeated Movement, location will no longer change.

Note: According to the provisions of the controller, the absolute position is no negative in the whole breadth. If you check the Move From Origin, and set the offset value negative, then the machine will hit limiter.

4.9 Output Setting

4.9.1 Rotating sculpture

【Enable rotate engrave】: After enable engraving, the actual precision of Y-axis will be based on diameter and step per rotate to auto match the setting of pulse precision of Y-axis. In addition, the work area in the main interface will also change.

【Diameter】: The diameter size of the parts.

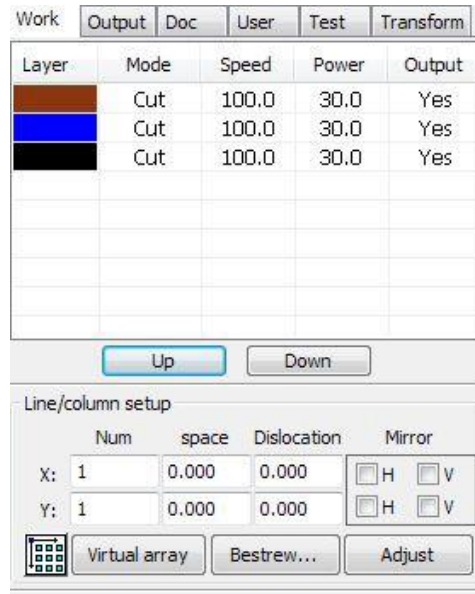
【Step per rotate】: The number of pulse corresponds to the workpiece rotate one week.

【Test】:The speed of testing work.

【 speed 】: test the speed of work.

The function is to facilitate the users to replace parts, and different size of the workpiece when the workpiece is not very different before use. When the relatively large difference in size of the workpiece, it is recommended to use directly modify the motor step approach to implementation.

Rotary engraving is only when using the rotation axis to replace the Y-axis use.



4.9.2 Feed Setting

To use the feed, must first enable the feed.

After set feeding parameters, the shaft will be feeding a feeding length, and repeat the process , until the times of processing reach to number of feeding.

If the machine is not equipped with feeding devices, in general, enable the feed ban.

4.9.3 Optimization of Backlash Compensation

When the machine there is space (such as dislocation of the seal cutting graphics), can be checked.

4.9.4 Optical 2 migration

In need laser collaborative work, complete the same graphics processing occasions, usually, to use the optical 1 to define the graphics location, then if the optical 2 can accurately with the optical 1, will need to specify the optical 2 relative to the optical 1 offset.

This generally used in two power different laser tubes of machine, because two of laser tube power different, cause different functions.

If some machines equipped with two different power of laser tube, a responsible for cutting, a responsible for sculpture.

4.10 Layer Settings

4.10.1 Ranks se

For convenient to set in machining graphics processing on the array.

X numbers and Y numbers, which was the array of columns and rows.

X intervals and Y interval, respectively is array of the column spacing and line spacing. Interval and the adjustment of the dislocation is the arrangement of array.

Adjust the X, Y interval between enable graphic layout more closely,,can be adjusted directly below the interval and dislocation ,make graphics in the selected state, and then through the keyboard of the up and down or so key to adjust, and rolling the mouse can be displayed scaling, make the spacing of the adjustment process more precise.

【 Bestrewing breadth 】 :According to the size of the wide and the current user Settings ranks spacing, to determine how much can output the most listed (i.e. X number) how many lines (i.e., Y number). Click on the button **【 Bestrewing breadth 】** , pop-up interface as shown in

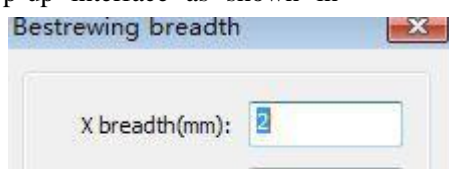
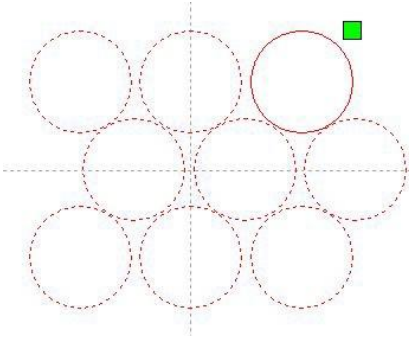


figure:

According to determine the button, the software can automatically calculate the entire width of the ranks of the arrangement number.

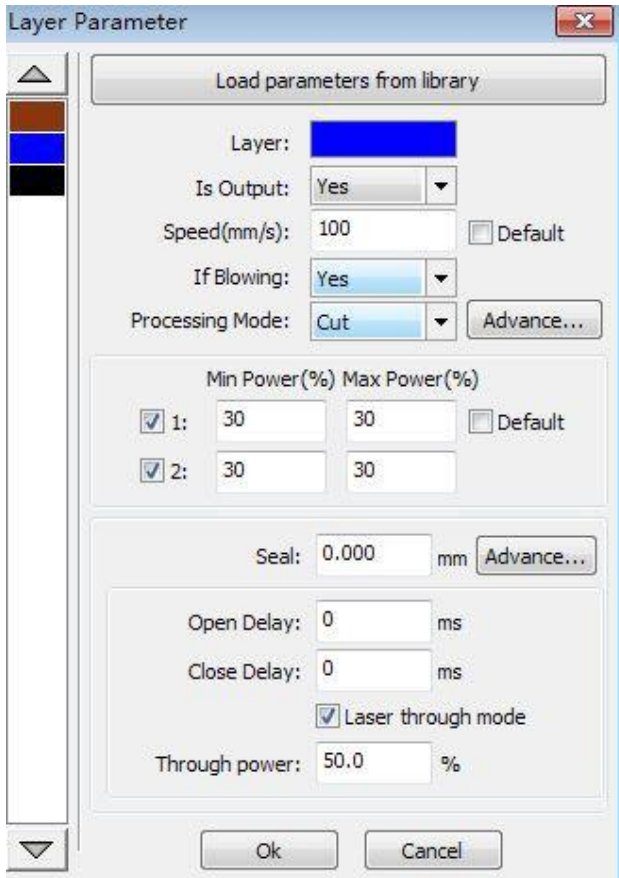


【 dislocation 】 : for some graphics, in arrangement, the dislocation arrangement, can make the arrangement more compact.

【 mirror 】 :objects in a horizontal or vertical direction to reverse it

【 adjust 】 :When arranged some of the smaller mobile can click on the adjustment to carry on the row spacing and dislocation distance

【 virtual array : After good array,selected to copy the graphics,point to copy,can copy the patten array



【The application to copy】 in good array, chosen to copy graphics, some application to copy, already can duplicate array graphics.

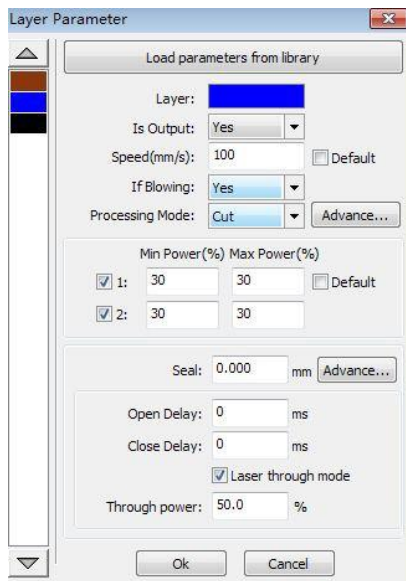
In the layer list to edit the double click inside layer, namely will pop up layer parameter dialog box.

The left article color, representatives of the current graphics layer, choose different color, can be in already switch between different layer, one-time modified multiple layers of parameters.

The layer parameters is divided into two parts: public layer parameters and turn a layer parameters. Public layer parameters is to point to no matter how the layer processing type, all effective layer parameters;

Proprietary layer parameters is to point to the layer of processing type change of the corresponding parameters will also be changing.

4.10.2 Laser Scan Parameters Setting



Laser: Software to distinguish between different layers of the graphics processing technology parameters. For scanning processing methods, more are in the same layer bitmaps, and whole as a picture output, if hope each bitmap single output, it can be a graph respectively placed in different layer can.

Is Output: Have two options: yes and no. Choice is, the corresponding layer will output processing; Choose no, won't output processing.

Speed: The corresponding processing method of processing speed.

For cutting processing is concerned, the slower, processing the better, the more smooth track; The faster the processing results, the worse the trajectory smooth;

To scan for processing, the slower, under the same energy scanning depth, deep and scanning trace the thick, scanning the resolution also reduced.

The faster the same energy the shallow depth of the scanning, details distortion increase. To fix for processing, the main change is empty the speed of the move.

If, check the "default", the actual speed by panel set up to speed.

If Blowing: If the machine external fan, and fan has enabled, then if choose "is", then this layer data processing, will open the fan, otherwise, will not open the fan. If you do not make can fan, no matter choose "yes" or "no", are meaningless.

Processing methods: says the method of processing corresponding layer;

If the currently selected is vector layer (i.e. color layer), it includes three choices: laser scanning, laser cutting, laser rbi;

If the currently selected is a tutu layer (namely BMP layer), the only include a choice: laser scanning.

Laser 1, laser 2: corresponding to the main board laser signals 1 and 2 of the way way laser output. If it is only head machine, the second road laser meaningless.

The minimum power, the maximum power: the power of the values of the range of 0 to 100, said that in the process of the strength of the laser processing; Big value, the laser is strong, is small, the laser weak. Minimum power loss to the most power is less than or equal to.

For different processing type has a different meaning.

For cutting processing, the actual power is cutting speed and phase follow, speed, low energy is also low, high speed is high also, so that we can guarantee the whole process of cutting energy evenly. So the minimum power the speed of the corresponding minimum energy, the minimum speed general is 0, but if set the speed is the minimum speed for takeoff take-off speed; The maximum power correspond to the layer speed.

Set minimum power, and the most high power flow:

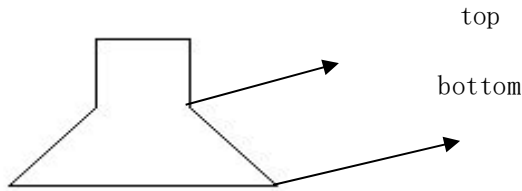
1> The minimum power and the maximum power set to the same value, synchronous adjustment. Until all the cutting curve are already appear.

2> The maximum power unchanged, and gradually reduce the minimum power until the energy of the heavy cutting curve at the lowest level, and all of the cohesion parts can be processed to come out.

3> If not yet to best effect, can be the most appropriate fine-tuning high power, and repeat step 2.

If is cut through, the minimum power loss and the maximum power no significant difference, can be set to give the same.

To scan processing, ordinary scanning, the minimum power and the maximum power must be consistent. Slope sculpture, minimum power loss is the power of the corresponding factors, the most power is the power of the bottom of the corresponding.

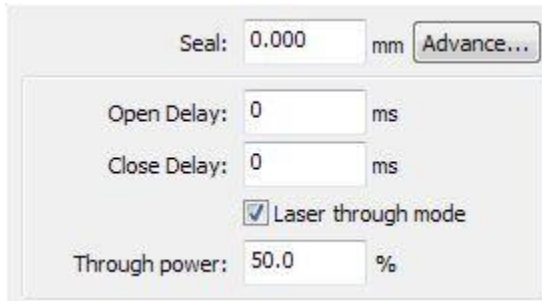


Minimum power loss is the top for the small slant wide, detail place distinguish clearly.

Minimum power loss is too large slope not obvious.

To fix processing, the minimum power and the maximum power can be set to agree.

If checked "default", the actual power panel set by the power to determine. Click the button "advanced", but also can be set to other layer parameters.

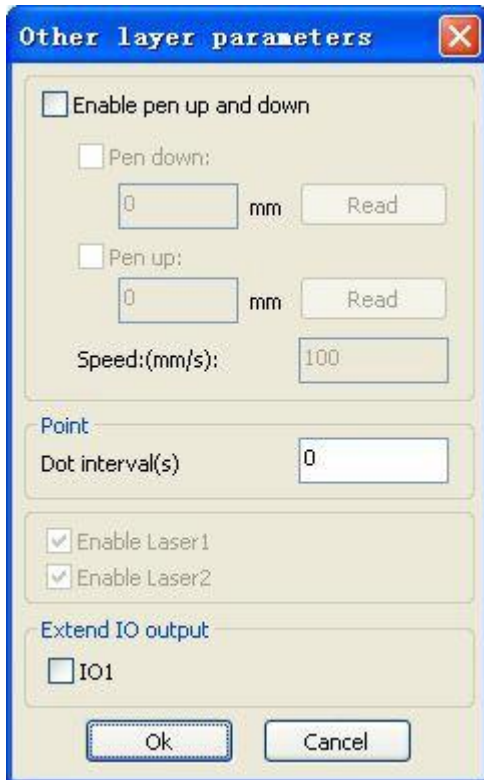


Seal: Closed cutting graphics seal is not closed condition ,can be closed with the sealing compensation, but if the sealing is misplaced, there is no compensation, clearance compensation optimization can be used to compensate, or use the backlash compensation in the user preferences Open Delay; Medallion for a time / medallion latency

Close Delay: light off through wear / light off delay time

Laser through mode: If checked, the light switch delay said is on time, otherwise, the time delay switch is light delay said laser movement

Through power: Refers to crush objects in unit time of the work done fast.



【Pen up and down】 If machines have installed the lift platform, and need to be in a different platform height on the processing, can make can write up function.

Here the corresponding is platform write position in which high on the processing, carried the corresponding is empty pen position before go, platform should be moved to which level in the optical translation will not again to interfere with the process workpiece. If confirmed the optical not and the translation of the process workpiece to interfere, don't need to set up the pen position.

Use way is:

1> Can write pen to carry.

2>Make can write position, manual control panel key mobile platform, to stay processing graphics graphics processing plane, adjust the focal length. Then click button "read", and then write all set up position.

3>That can carry a position, manual control panel key mobile platform, move to the optical will not interfere with the work of the height, and through the panel key move the optical, confirmed that won't interfere, some button "read", and then set up a position.

【point】

Here the rbi, and is suitable for drawing tool create some primitive, or from DXF file into the some primitive. And the current layer processing methods has nothing to do, namely whether the current layer is cutting or a scan, graphics in the some primitive has always been to the rbi way output.

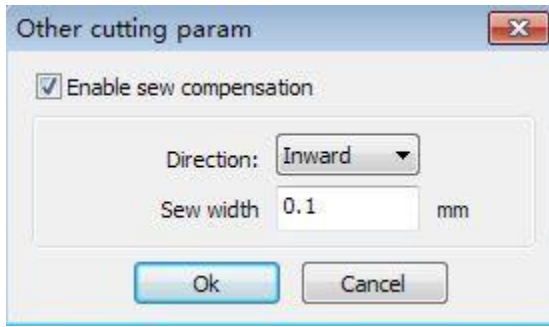
The rbi movement speed for layer speed, beating the energy for the maximum energy layer laser.

【The laser Enable】

When the machine is equipped with two road laser, usually, are two road and output. But the user may through the set that laser, that its not output all the way.

【The joint IO output】

All the way and the layer associated IO output, obligate function.

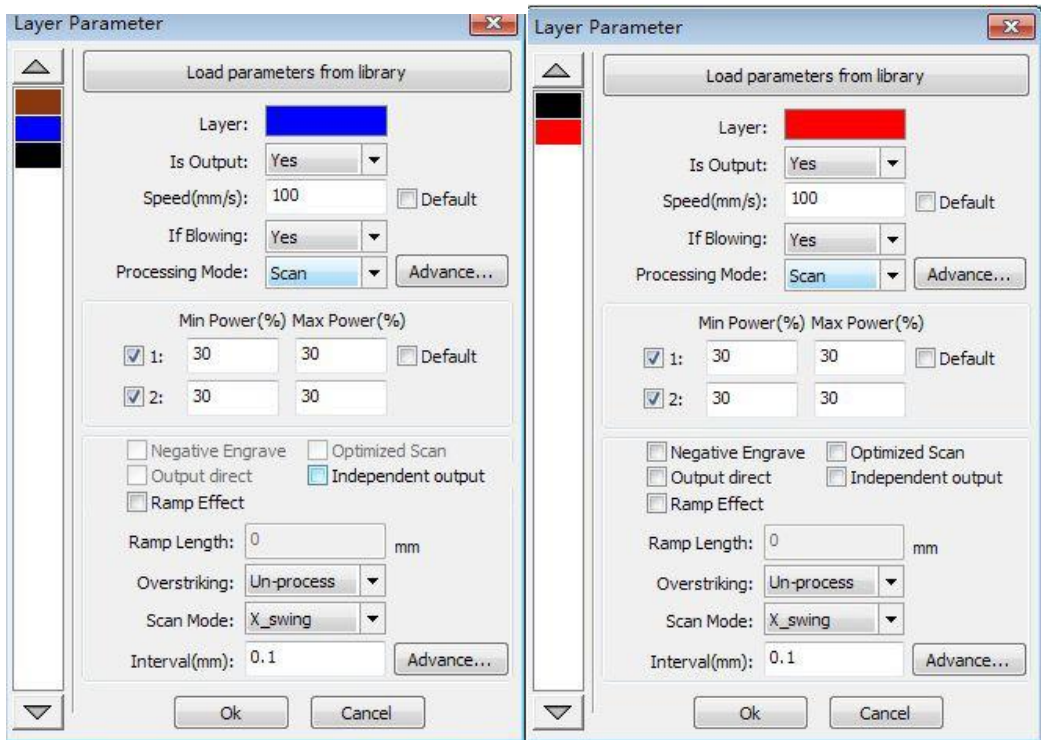


【Enable sew compensation】 :Use seam width compensation can compensation caused by laser cutting seam size of the graphics and graphic deviation of actual cutting out,Seam width compensation applies only to closed graph

【Sew Direction】 :According to the actual need to set up,such as cut a round,if you want to keep the circle is cut off,you should set the direction of compensation to outward,If want to keep the hole,should set the direction of compensation to inward.

【Sew width】 :Lase cutting seam width

4.10.3 Laser scanning parameters Settings



On the left of the dialog box for vector scanning parameters Settings, on the right side of the dialog box for bitmap scanning parameters Settings.

The vector data do not support the scanning the color carving, optimization scanning, direct output.

The color carving: normally scanning, bitmap in the black spots a laser, the laser in white. Choose the color carving, the bitmap in the white of the laser, black spots in a laser.

Optimal scanning: choose optimization will automatically adjust the users scan the scanning interval to set up the best value, the scan best effect.

Otherwise, according to user Settings of the scanning interval scan pattern. Generally choose "optimal scanning"

Direct output: gray scale bitmap, according to the actual graphics gray.in output, already color deep place laser energy big, color shallow place laser

Energy is small.

Figure yuan respectively output: for vector graphics for, figure yuan respectively according to vector diagram output is the position of the yuan relationship, which in turn will get together the vector map carving output of yuan respectively.

If not checked figure yuan respectively output, it will be the whole vector graphics as a whole to sculpture.

For a bitmap for, if not checked figure yuan respectively output, the system will automatically will work with a layer of the bitmap in as a whole output.

If checked the figure yuan respectively output, the system will be in a single output bitmap.

Slope effect: the scan the edges of the figure appear slope, submit stereo effect.

Be bold font: including don't handle, scanning the font, scanning the bottom. Generally choose not processing.

Scanning is part of the font scanning is the font, also is the Yin carving.

Note that the slope effect choice, please will be bold font choose not to deal with, or slope affected the effects.

Font Yin carved: not to add text outside the box, scanning are text itself, as below:



Font Yang carved: text and the outer frame, scanning is the bottom of the graphics, as below:



Scanning mode: including level one, level two-way, vertical one-way, vertical two-way.

Level one way: the optical scan pattern back and forth in a horizontal direction, but only to a direction when laser scanning comes out,Such as: when the optical scan from right to left a laser, and from left to right the laser scan.

Level two-way: the optical horizontal direction in the back and forth laser scanning graphics.

The vertical one way: the optical scan pattern in vertical direction back and forth, but only to a direction will be laser scanning,Such as: when the optical scan from up to down a laser, and from the bottom to scan a laser.

The vertical two-way: in vertical direction the optical back and forth laser scanning graphics. Note: general use level two-way scanning mode.

Scanning interval: namely the optical scan every much long distance under a line. The smaller the interval, scanning the deeper to graphics; Conversely, the more shallow.

Suggestions: (1) for vector layer (i.e. color layer), scanning interval in 0.1 mm general set below.

(2) for a tutu layer (namely BMP layer), scanning interval in 0.1 mm general set above,

Then through the change and the most high power to make the minimum power after scanning the graphics depth to achieve the ideal effect.

4.10.4 Laser Dot Parameters Setting

