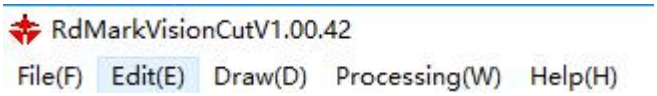
Ruida RDEMarkVision Engraving Machine Software

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

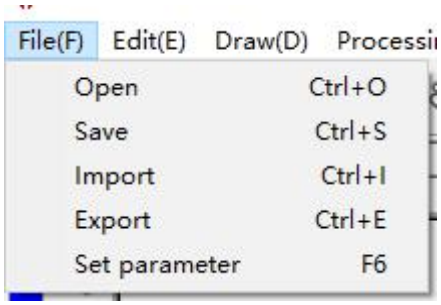
1. Parameter setting of relevant machine manufacturer and camera installation. Reference 6442 visual cutting instructions. (the software is 6442 visual cutting assistant software). After debugging the equipment, if you want to use it quickly, you can jump directly to "three. Main stream of software operation".

2. Detailed description of software function

2.1 menu bar



2.1.1 file suboptions Introduction to



- Open the project: open the template saved before, the format can only be.Rvm
- Save engineering: save template file, format can only be.Rvm
- Import vector diagram: import graphic format can be.Ai.Dxf.Pltt three formats. Choose the right format, click

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
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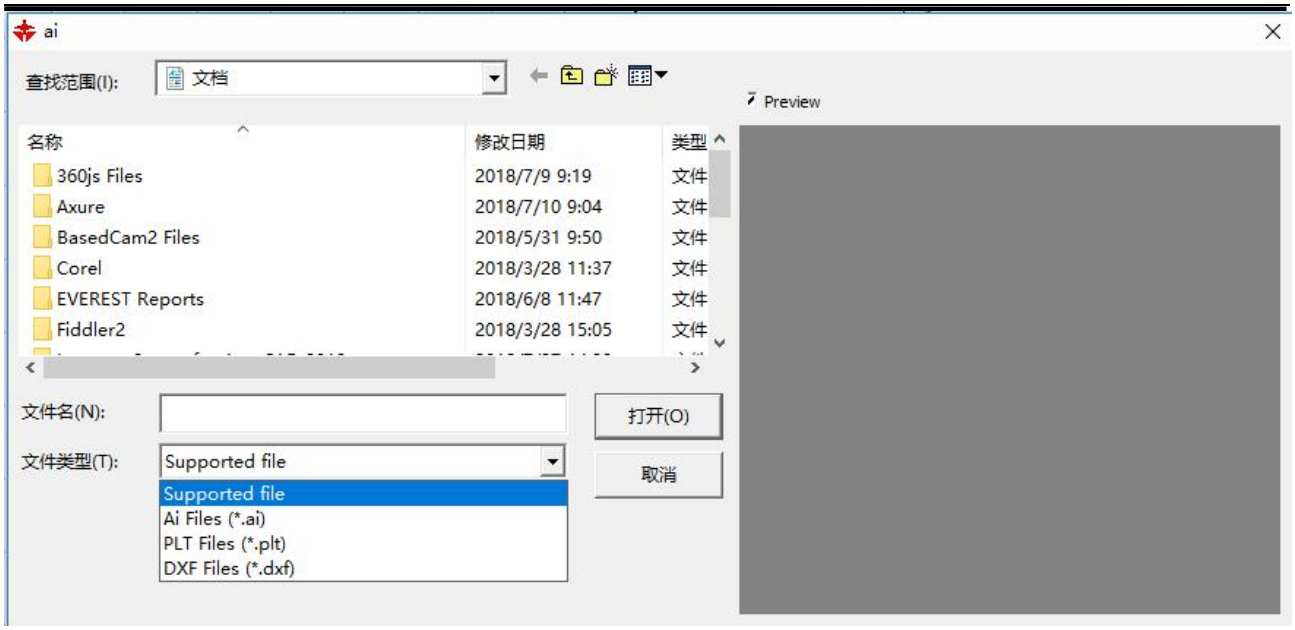
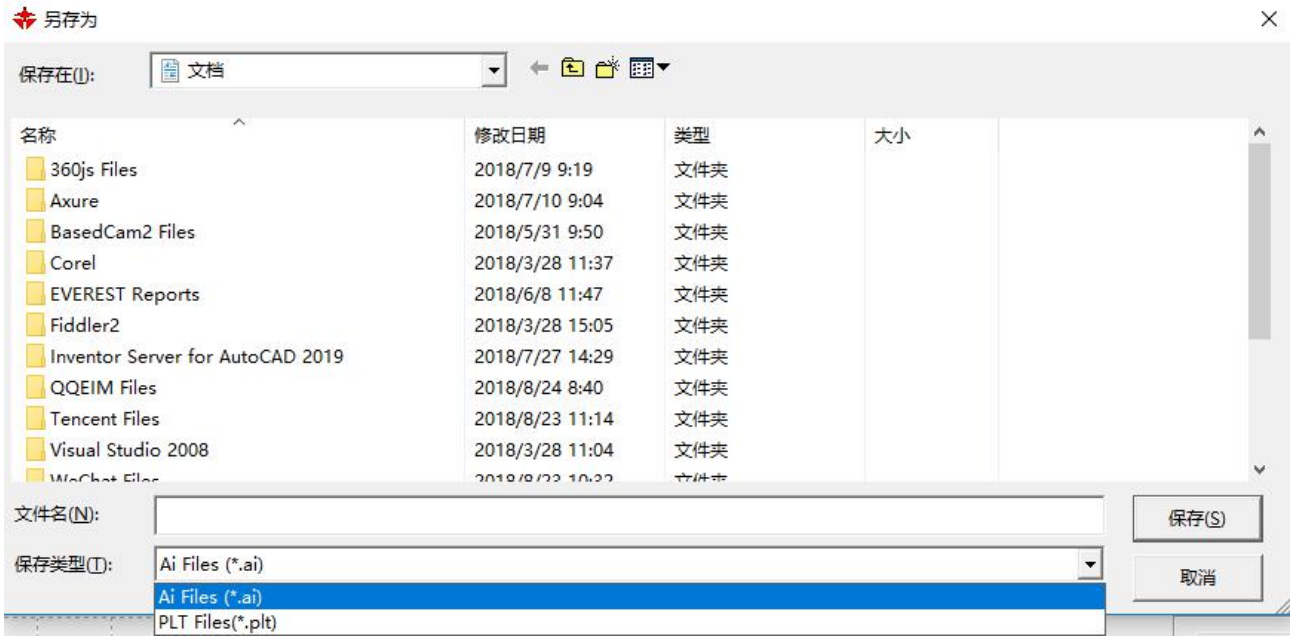
Web: www.rd-acs.com
FAX: 0755-2698287



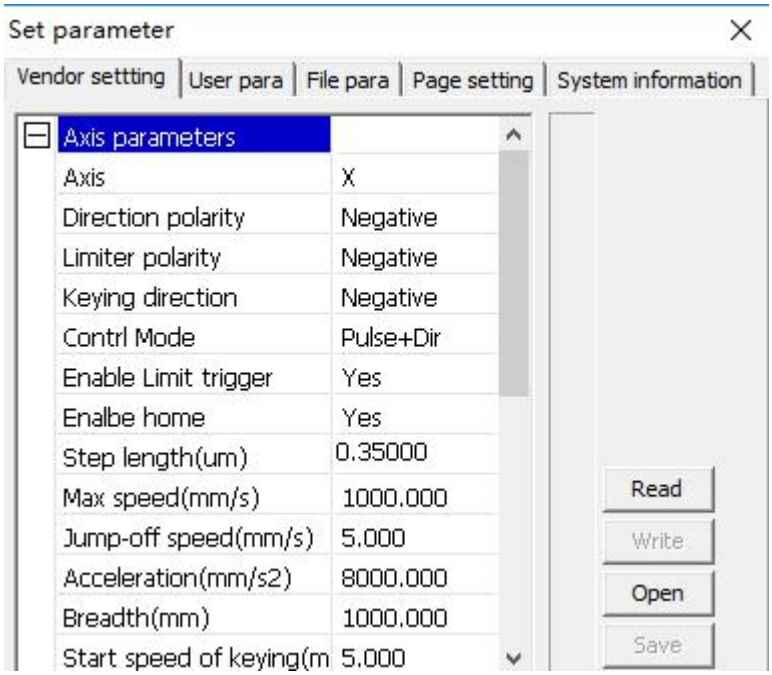
- **Export vector diagram: import graphics format can be.Ai.Plt two formats. The dialog box is as follows:**



2.1.2 user parameters

Click on the file and click the parameter settings as follows:

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287



Before the operation of user parameters, the motherboard parameters must be read.

Null speed: the highest speed of all non sculpted straight lines during the movement of a machine. If the user sets the parameter illegally, the controller will automatically put it in the above range; if the airway speed is set larger, the working time of the whole graph can be shortened, but the settings are too large, which may cause the trajectory to shake. Move.

Airway acceleration: corresponds to the speed of acceleration when walking, airway acceleration and airway speed to match, if set too slowly the actual airway speed may not reach the set value, if set too fast, the mechanical structure may not be able to bear, resulting in jitter. The general acceleration is slightly higher than the acceleration.

Turning speed: Corresponding to the lowest speed in the process of carving when turning down, when there are a lot of sawtooth, the turning speed can be reduced appropriately.

Turning acceleration: it should match the turning speed.

Cutting acceleration: corresponds to the speed of cutting (cutting speed is the layer speed in the layer parameters).

Idle time delay: when a machine is not sculpted, it needs waiting time before movement.

Acceleration ratio: the coefficient corresponding to the cutting speed, the greater the rate, the greater the cutting speed.

Null acceleration ratio: the coefficient of velocity corresponding to the empty travel time, the greater the rate, the greater the speed of the empty path.

Turning coefficient: the greater the turning speed, the greater the turning factor.

Delay before feeding: Delay before a single feeding when using a feeding device, the user can arrange such processes as picking at this time.

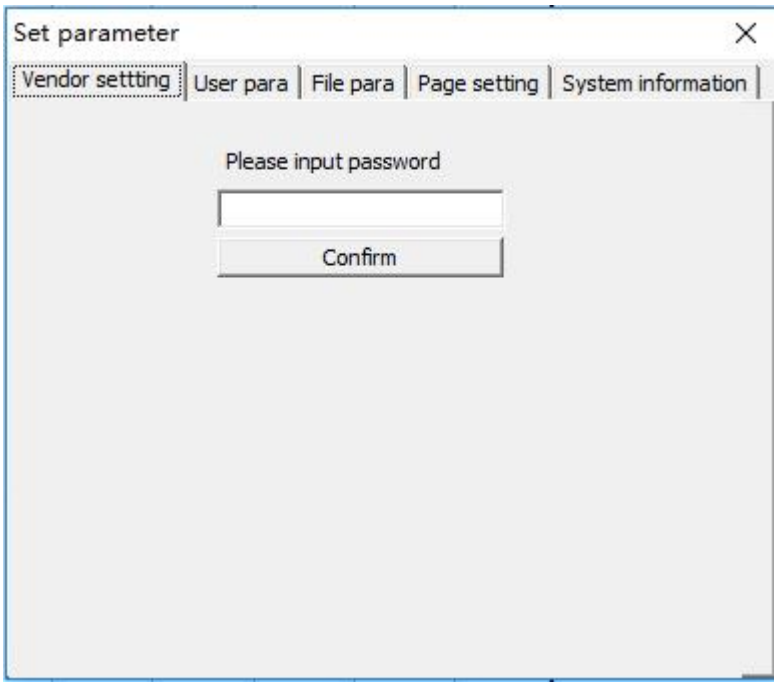
Delayed feeding: refers to the feeding device will be delivered to the material in place after a stable period of time before processing.

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

Line by line feeding: the feeding device sends materials one by one to the place in a way of feeding.
Progressive feed compensation: there may be some errors in the use of feeding devices for progressive feed.
Reset speed: When the machine starts, return to the original speed, if the machine is larger, can be set reset speed on the high side, but not too large.
X, Y, Z, U boot reset: you can set up whether each single shaft is reset during boot.
Array processing mode: two way array and one way array can be selected. Bidirectional walk array: that is, cutting the array back and forth in sequence; one-way walk array: cutting the array from one direction to another all the time. When the one-way walking array is selected, the action mode of each array unit is exactly the same, and the action fluency is completely consistent, but it takes a little time than the two-way walking array. The default choice is bidirectional array.
Location of return: mechanical origin, location and non return position. This parameter determines the position where the carving head stops after each work.
Focal length: corresponding panel auto focus operation.
Reverse gap X, Y: used to compensate for the reverse gap caused by machine transmission.
Knife lifting position: the position of the cutter head when the machine starts carving.
Location of the cutter: the position of the cutter head when the machine is finished.
Docking position: the position of the carving head after machine carving.
Cutting speed: the speed of the cutting head of the carving head when the machine is engraving.
Pre processing delay: waiting time before machining.

2.1.3 information

Click on the file, click the parameter settings, click the system information as shown below:

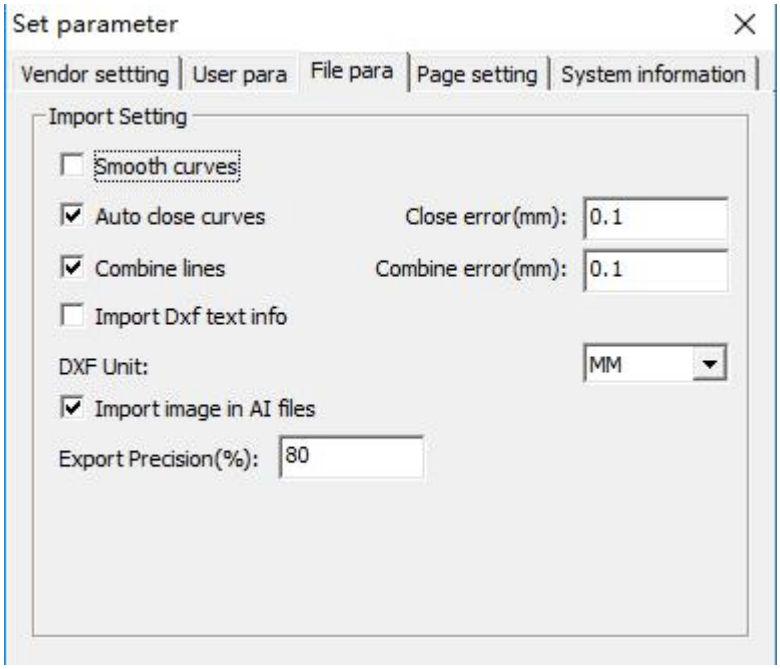


View motherboard version number and upgrade motherboard

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

2.1.4 parameter settings

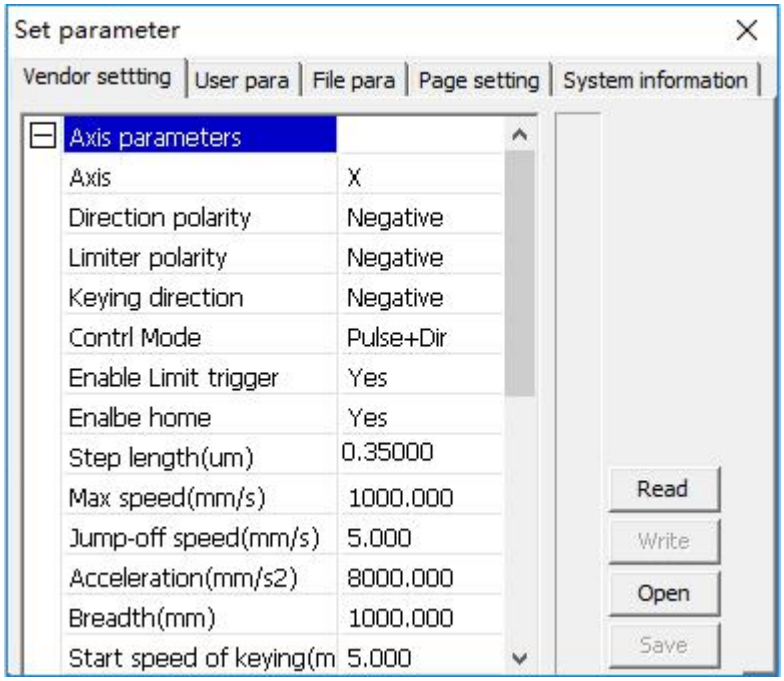
Click on the file, click the parameter settings, click the file parameters as shown below:



Parameter settings for importing files: set the imported graphics.

2.1.5 manufacturer's parameters

Click on the file, click parameters and click the manufacturer's parameters.



The parameter significance is consistent with the ordinary motion control card.

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TIANAN INDUSTRIAL ZONE,SHENZHEN
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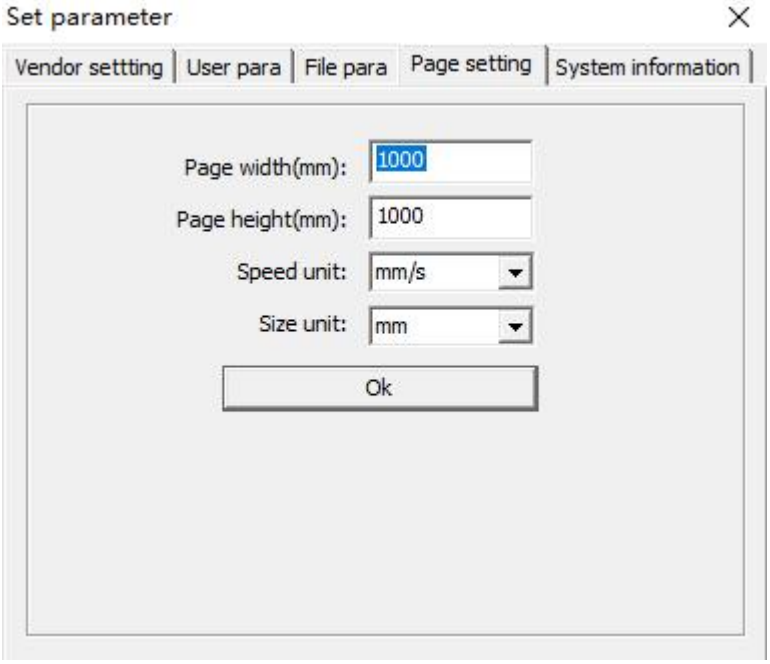
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

2.1.6 2.1.6 page setup

Click on the file, click parameter settings, and click the page settings page.



Set page width, interface speed and interface size.

2.2 toolbar

2.2.1 commonly used toolbars

The icons are newly built, opened, saved, imported, exported, revoked, and restored. The first 4 have been introduced above. The last two are revocation and recovery.

Cancellation: cancel the previous step. If the graph is deleted, it can be revoked. (up to 10 steps can be cancelled).

Resume: repeat the previous operation.

2.2.1 Drawing toolbar

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

Select mobile: used to select graphics, line segments, etc. Generally, graphics must be selected before graphics related operations can be performed.

Polygon: used to draw polygons. Click to draw the line segment and double-click to form a closed area.

Rectangle: used to draw rectangles.

Ellipse: used to draw ellipses. Press the Ctrl key to draw circles.

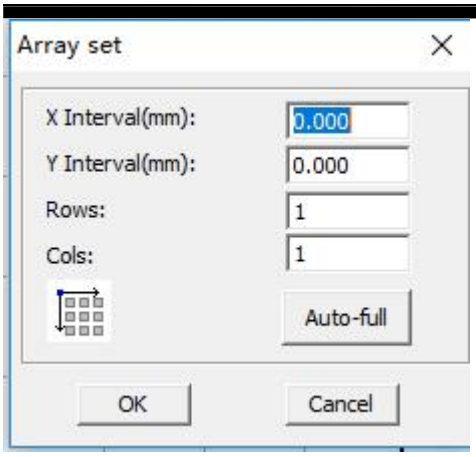
Horizontal mirror: mirror the original image along the Y axis.

Vertical mirror: mirror the original image along the X axis.

Rotation: for graphics rotation. After clicking, you can set the rotation angle in the dialog box.

Array: click on the interface graph to click on the array to appear the following dialog boxes

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287



Input the corresponding parameters, you can copy "row number, column number" of the same graphics on the screen. The distance between each figure is determined by spacing.

2.2.2 operation toolbar

Mobile: movement of the whole workspace.

Frame selection view: box to select a region to enlarge view.

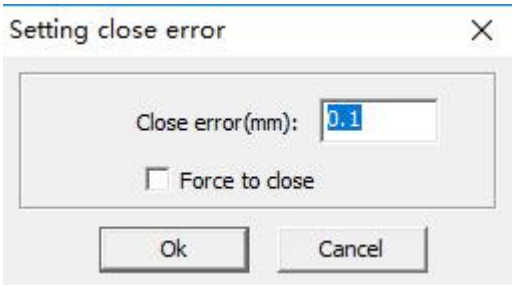
Page scope: click the page scope, and the interface is back to the set range.

Data range: select graphics, click output range, maximize graphics rendering.

Path display: shows the processing sequence of graphics.

Display node: node displaying graphics

Curve closure: select the unclosed graph click icon to appear in the following dialog box:



RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
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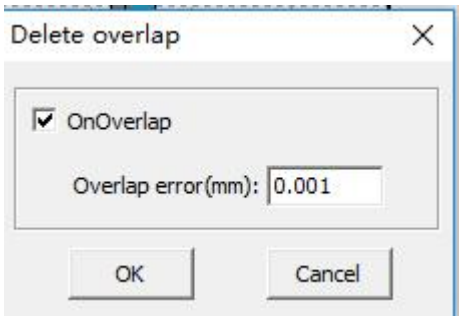
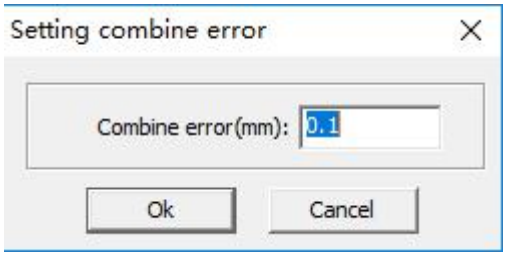
Can close closed graphics.

Delete the overlap line: click the icon to display the following dialog boxes:



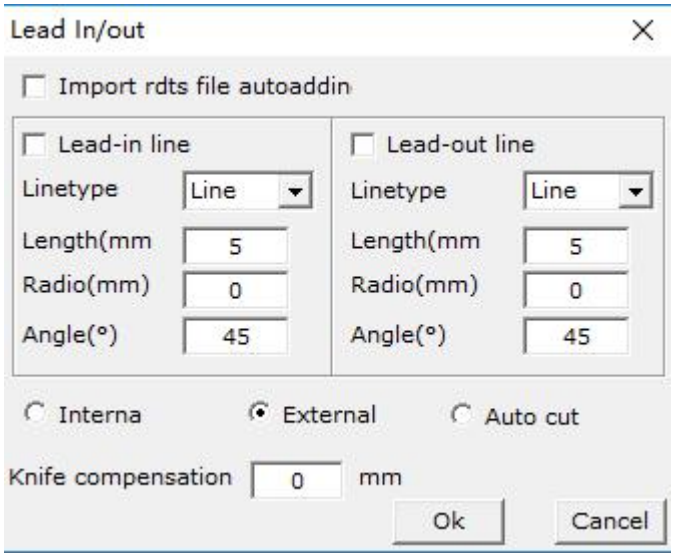
Delete overlap line settings

Merge linked lines: click the icon to display the following dialog boxes:



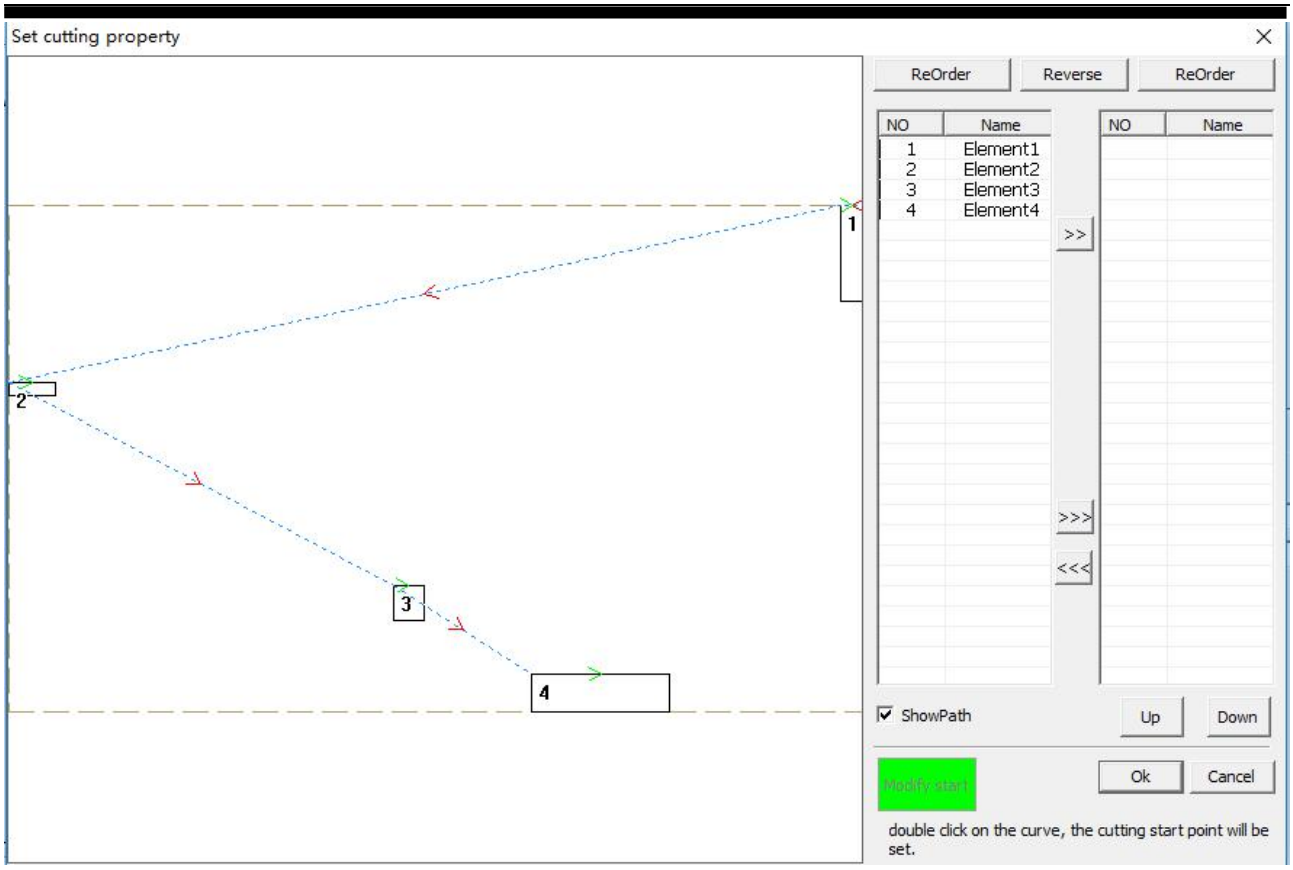
Set the value and merge the two lines into one.

Lead settings: click the icon to display the following dialog boxes and set the lead.



Manual sorting: click the icon to display the following dialog boxes:

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287



Edit the cutting path.

Curve fitting: the following dialog boxes are selected in the click Icon:

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
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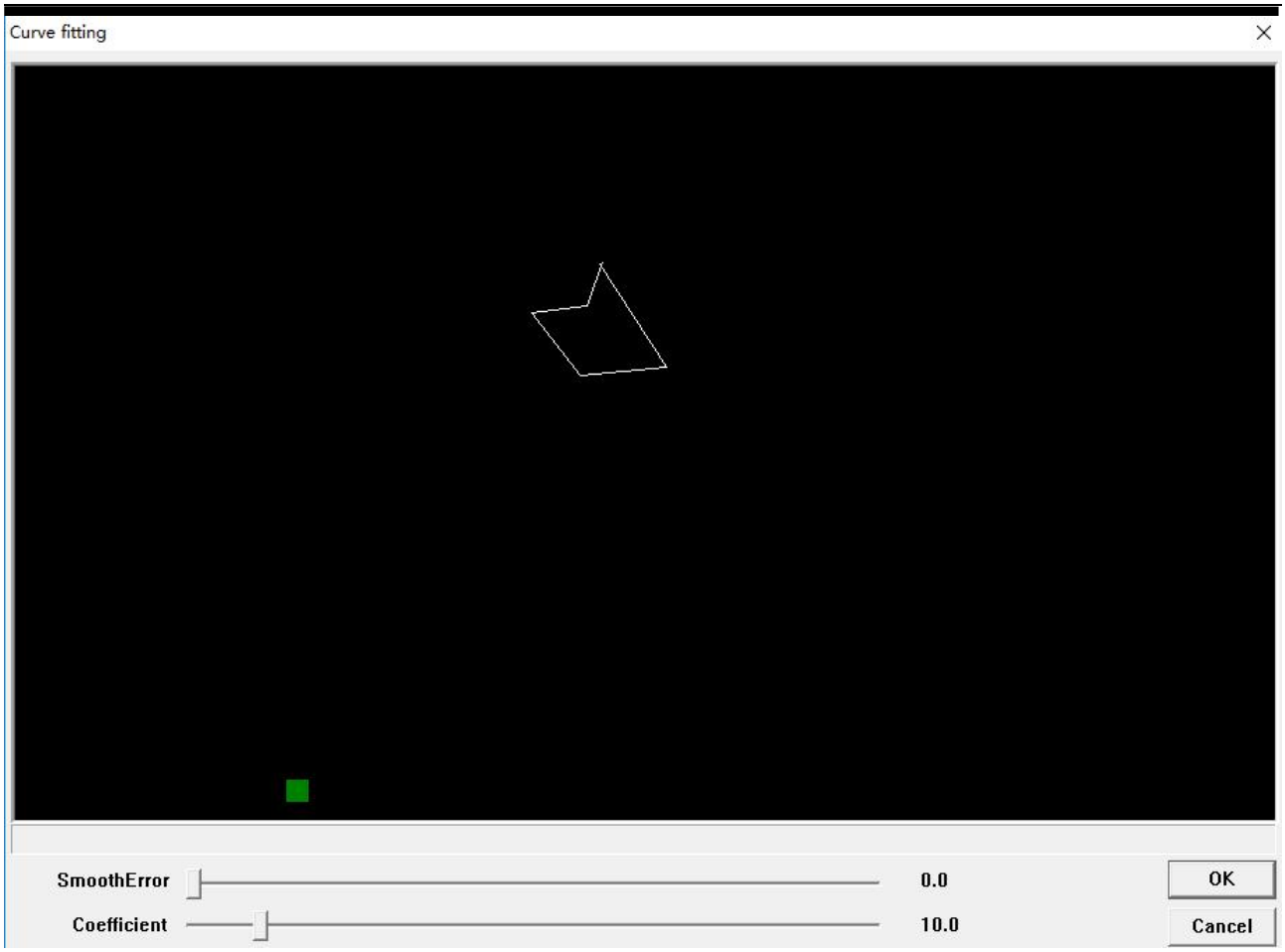

Smooth smoothness of image is processed.

Image processing: click the icon to display the following dialog boxes:

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
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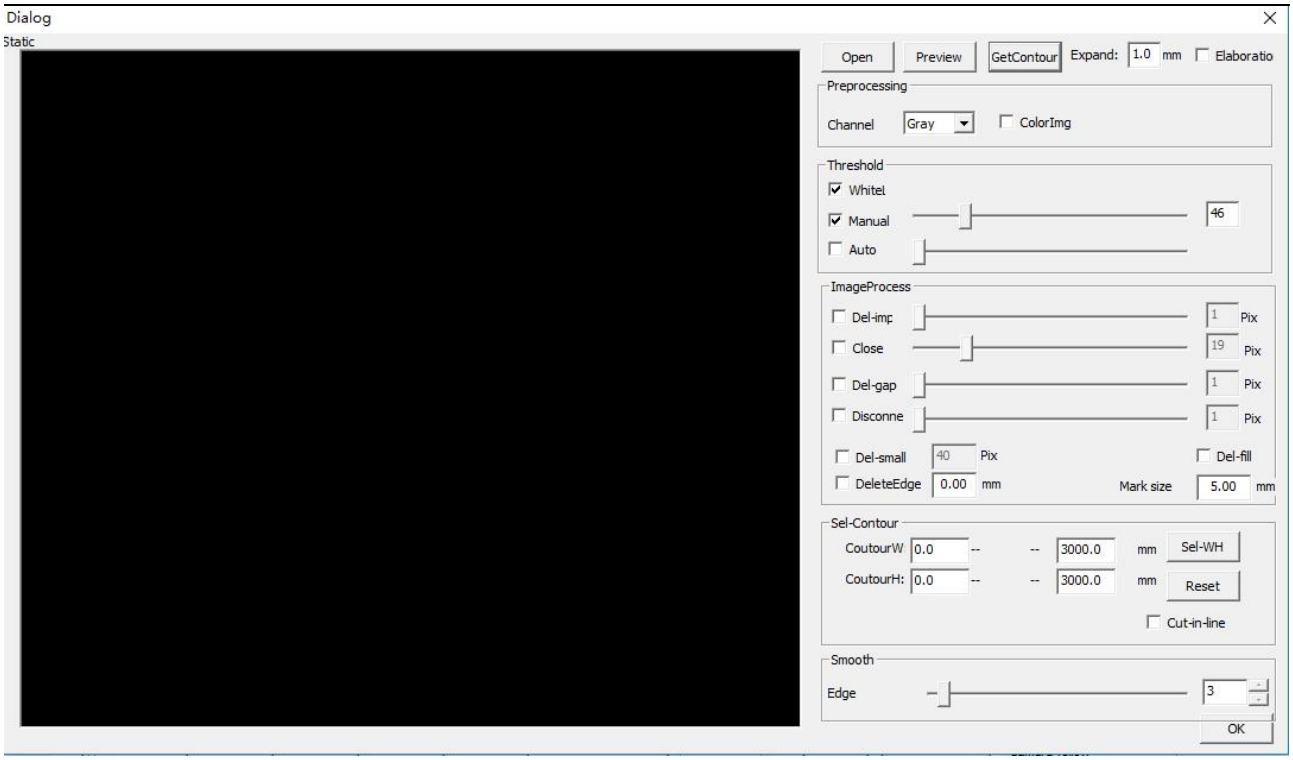
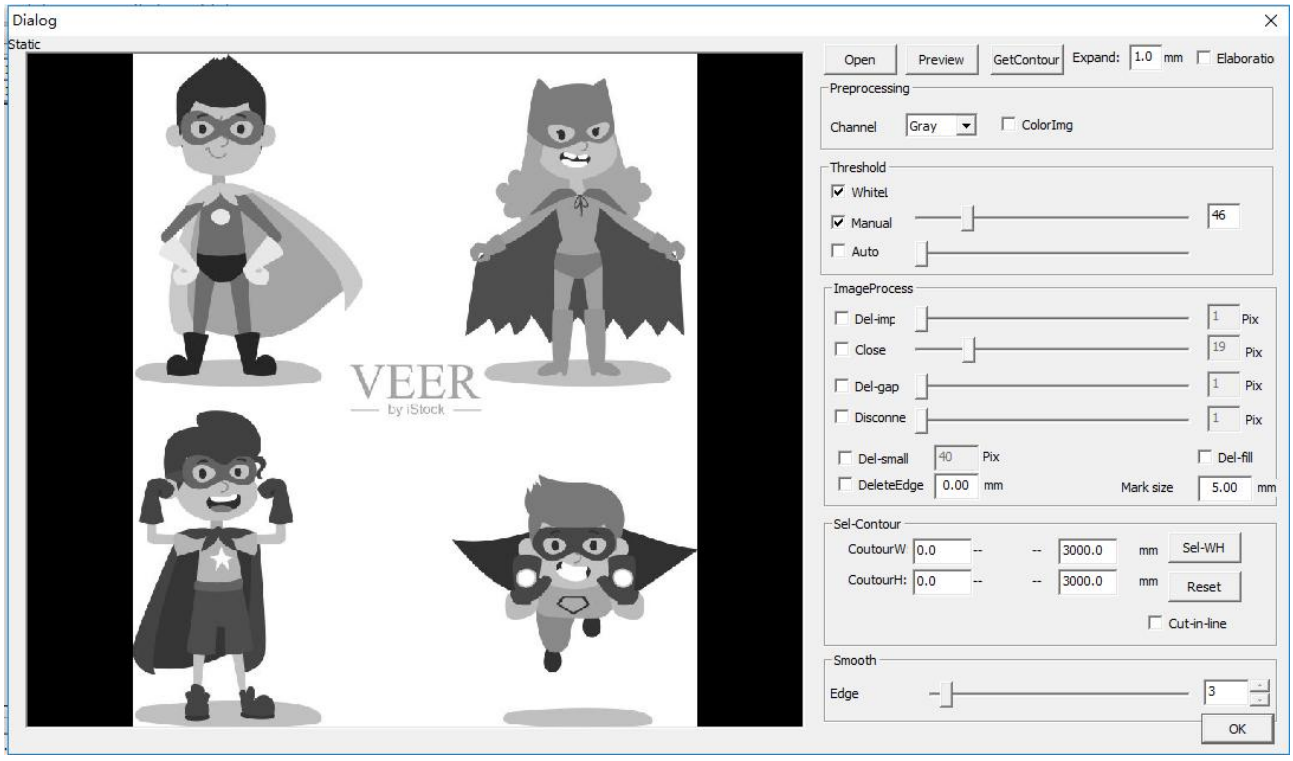
FAX: 0755-2698287



Import the picture, extract the outline of the picture, get the contour cutting line, and cut.

The specific procedures are as follows:

Click to open the picture and import the picture.



RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
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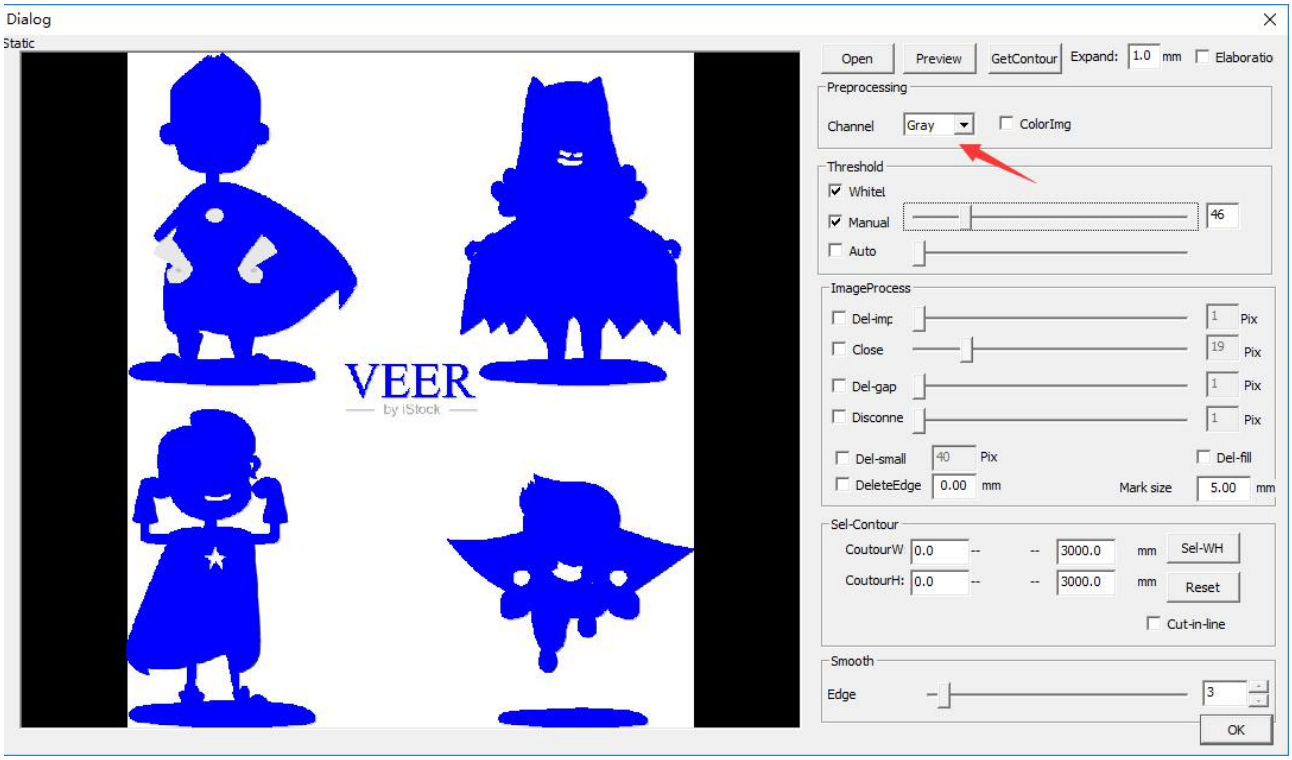
Channel setting

When the material is first lifted, the pretreatment channel is set up first, and different channels are selected first, and the effect is different. We try to choose a channel with the strongest contrast, as shown in the figure above.

Parameter adjustment

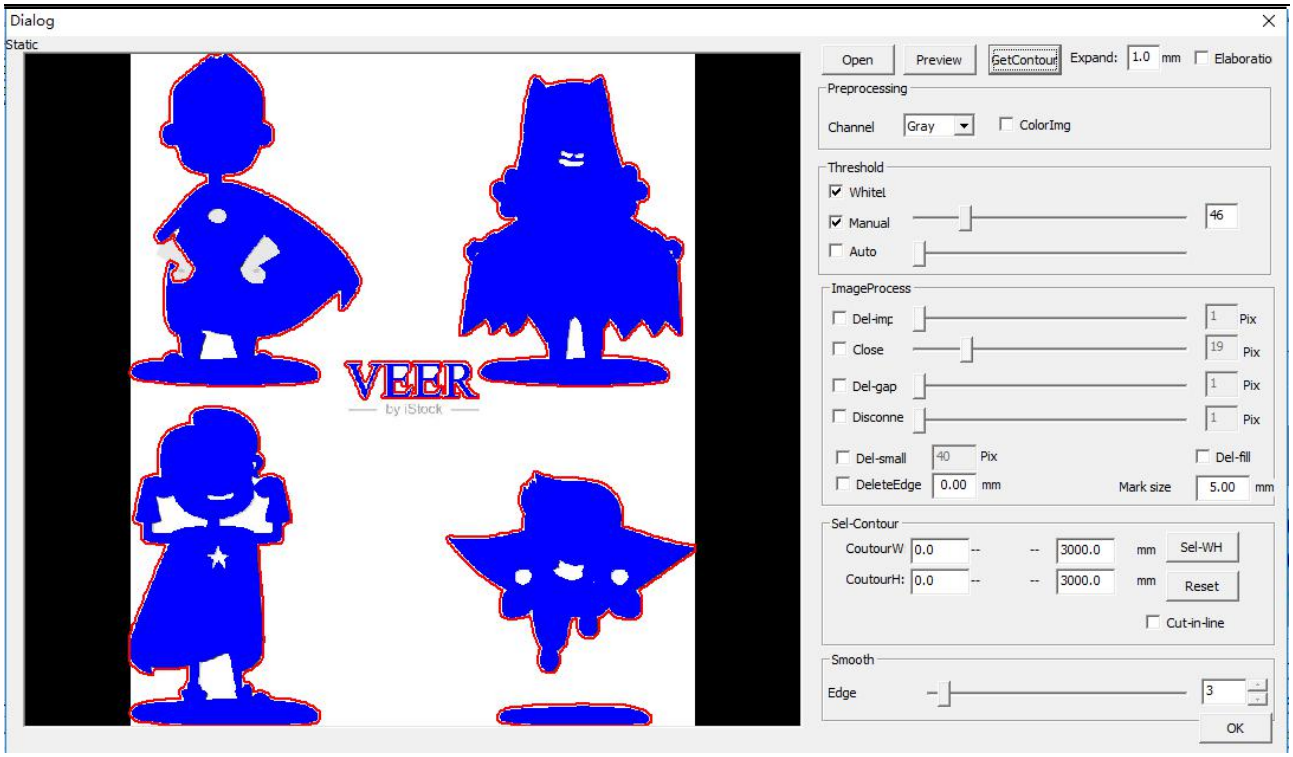
After setting up the passageway. There are some parameters that can be adjusted. It can display the effect of adjustment in real time. As shown in the following figure.



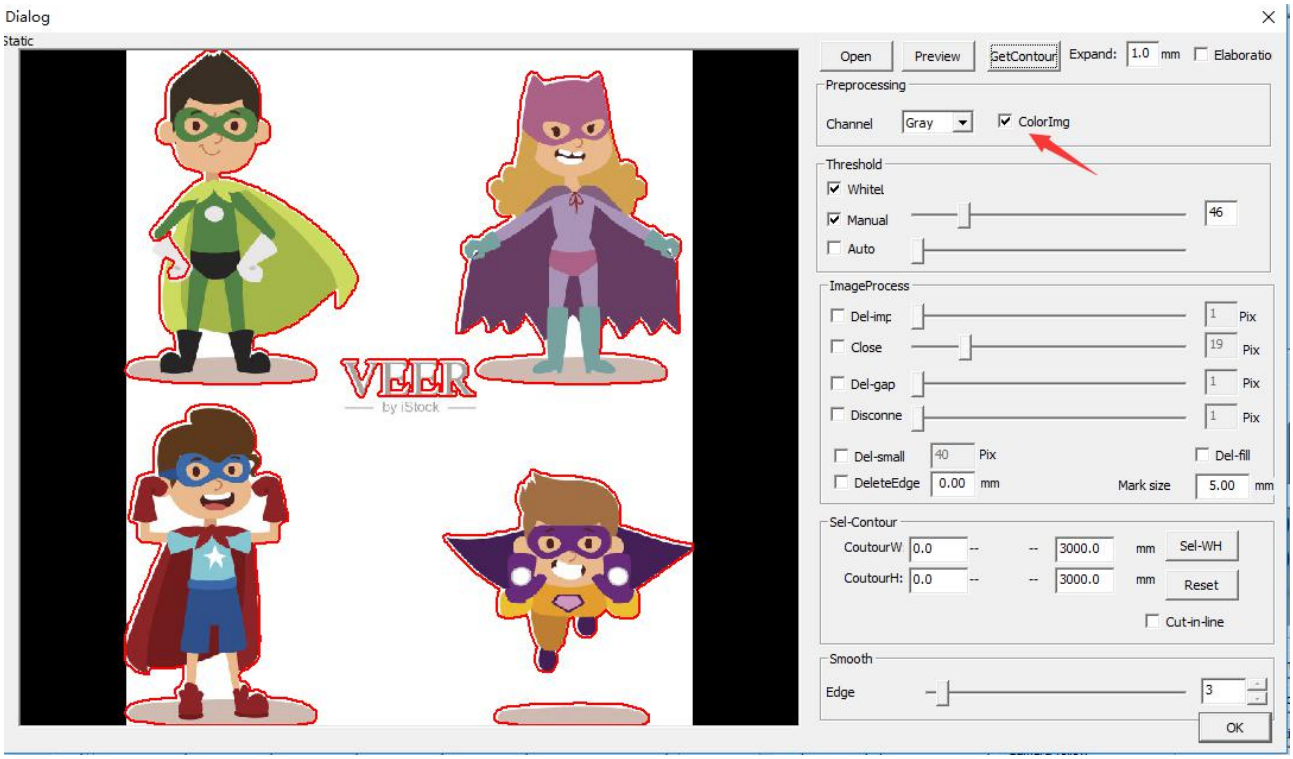
Contour extraction

After reaching the desired effect, point the edge, and the result is shown in the following figure.

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287



Then click the original drawing to check the details of the edge lifting. As shown in the following figure.



RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

Figure 3-3File processing parameter settings

3.2Model Parameter Settings

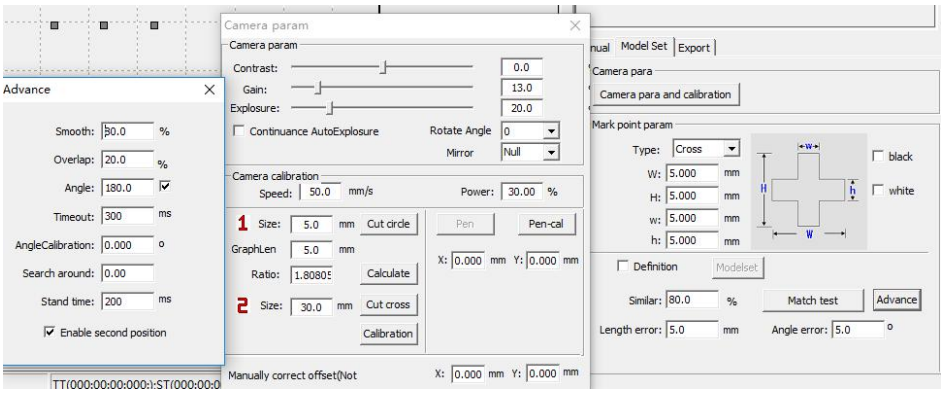


Figure 3-4 Model parameters

3.2.1 Mark point parameters

Choose the required Mark point types to make Model, respectively supporting circle, cross, rhombus, ellipse, circular ring, rectangle, square, triangle, and 8 kinds of Mark point style.

When making Model, please specifying different styles respectively according to the chart corresponding parameters (such as diameter, width).

3.2.2 Model matching parameters

Smoothing coefficient: the higher smoothing coefficient, the less extracting characteristics of scattered points.

Similarity: matching score between Model and the actual pattern, the higher the score, the more like of graphics. Similarity setting, will affect the match quality directly.

Overlapping: the overlapping percentage of two envelope rectangles of target graphics. This parameter controls the target graphics overlapping whether to identify or not.

Matching angle: the allowing model revolving and searching angle range. Such as: its value is set to 180 degrees, in the process of model matching, the range of angle searching is: - 180 ~ 180 degrees. The match angle should be set up according to the actual requirements, the wider the angle, the more the match time required. If the user does not need to set this parameter, can remove the option directly

Match overtime: this parameter controls the match time. To adjust the parameters when the target graphics matching failed due to lacking of time or to avoid waiting too long time in search process. This parameter is mainly affected by the model characteristics of complexity.

Matching test: The current model matches with the current target graphics in camera view range, test results will

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

be back in results interface. You can know the mark point elated parameters from test results.

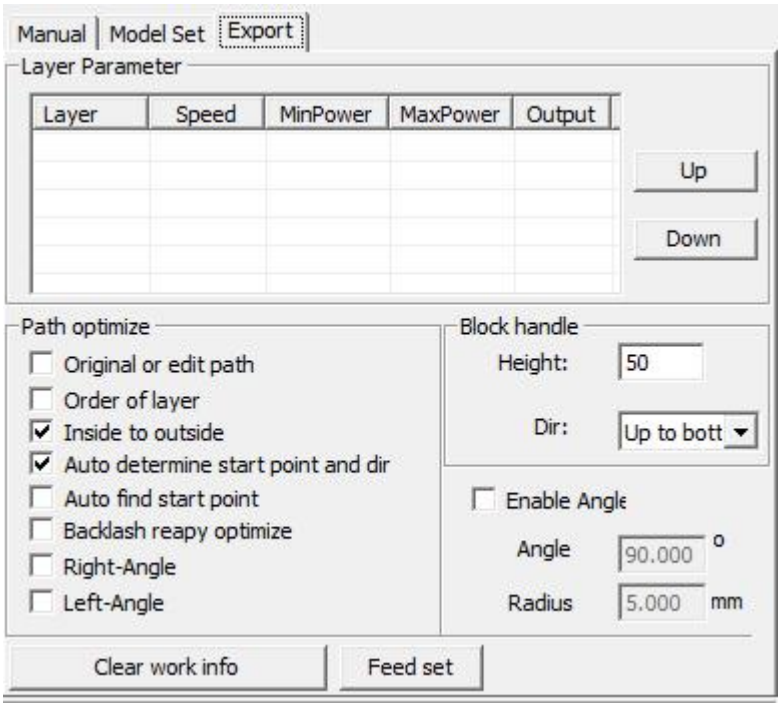
3.2.3 Enable Secondary Positioning

After searching the target, not set this location coordinates as criterion, but moved to the target automatically, take photos again, and repositioned target location coordinates.

Distance offset / Angle offset: When two-point positioning, such as you might find more features when searching feature 2, according to the distance between feature 1 to feature 2, if found multiple features in the circle arc of feature 1 as origin, then as angle to distinguish them.

Note: But when the offset is set too small, missing cut will be happened. Generally distance offset can be set within 2mm, angle offset within 5°, such as the workpiece requires more accurately, you can set smaller.

3.3 output setting



Layer parameters: set the layer cutting sequence, speed and power.

Optimization of road strength: setting the graphic output path.

Block processing: select the height of the graph and cut the partition area.

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
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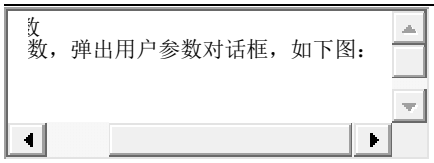
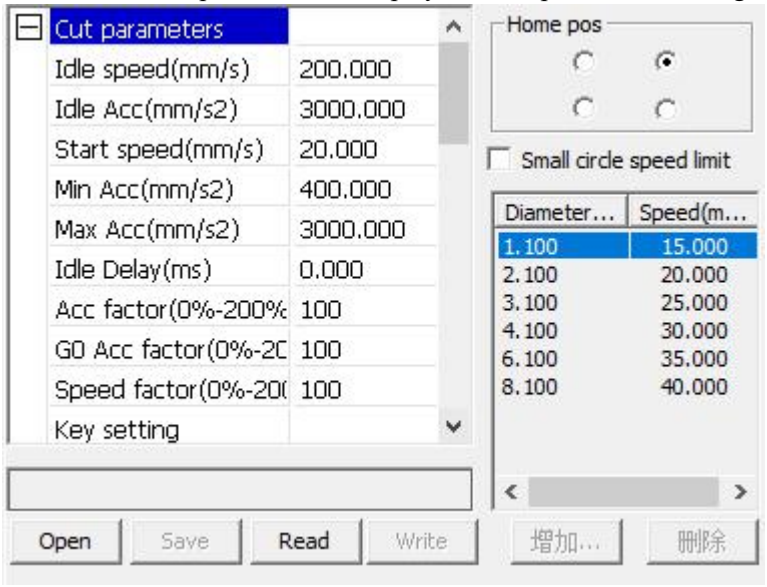
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287



3.4 user parameters

Click on the user parameters to display the user preferences dialog box.：



Origin location: this setting is mainly for single head machines. The setting of the origin must be consistent with the actual origin of the machine.

Small circle speed limit: when cutting small circle, it will be cut at the specified speed.

Feeding settings: after carving, feeding can be carried out to achieve continuous automatic processing.

Before the operation of user parameters, the motherboard parameters must be read.

Null speed: the highest speed of all non sculpted straight lines during the movement of a machine. The minimum can not be less than the X/Y shaft take-off speed of the small person, the maximum speed can not exceed the maximum speed of the two axes, if the user setting is illegal, the controller will automatically put this parameter in the above range; the space speed setting is larger, can shorten the working time of the whole figure, but the setting too large may cause the trajectory to shake. Move.

Air distance acceleration: the acceleration and slow speed corresponding to the air travel time, the air distance acceleration to match the air distance speed, if the set too slow actual space speed may not reach the set value, if set too fast, the mechanical structure may not bear, and cause jitter. The general air range acceleration is slightly higher than the carvings acceleration.

Turning speed: corresponding to the minimum speed of falling speed during the carving process, when the machining pattern has many sawtooth, the turning speed can be reduced properly.

Turning acceleration: it should match the turning speed.

Cutting acceleration: corresponds to the acceleration speed of cutting (cutting speed is layer speed in layer

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
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parameter).

Idle time delay: when a machine is not sculpted, it needs waiting time before movement.

Acceleration ratio: the coefficient corresponding to the cutting speed, the greater the rate, the greater the cutting speed.

Null acceleration ratio: the coefficient of velocity corresponding to the empty travel time, the greater the rate, the greater the speed of the empty path.

Turning coefficient: the greater the turning speed, the greater the turning factor.

Feed parameters -

The delay before feeding: when the feeding device is used, the time is delayed before the single feed. Users can arrange such processes as picking and picking up at this time.

Delay after feeding: it means that the feeding device will send the material to the place, and it needs to be stabilized for a period of time before processing.

Line by line feeding: the feeding device sends materials one by one to the place in a way of feeding.

Progressive feed compensation: there may be some errors in the use of feeding devices for progressive feed.

Reset parameters --

Reset speed: when the machine is turned on, it will return to the original point. If the machine is larger, the reset speed can be set, but not too large.

X, Y, Z, U boot reset: you can set up whether each single shaft is reset during boot. Other parameters -

Array processing mode: two way array and one way array can be selected. Two way array: cut the array in sequence; one way array: cut the array from one direction to another. When one way array is chosen, the operation mode of each array unit is exactly the same, and the action fluency is exactly the same, but it takes less time than the bidirectional array. A two-way walk array is selected by default.

Location of return: mechanical origin, location and non return position. This parameter determines the position where the carving head stops after each work.

Focal length: corresponding panel auto focus operation.

Reverse gap X, Y: used to compensate for the reverse gap caused by machine transmission.

Z axis parameter

Knife lifting position: the position of the cutter head when the machine starts carving.

Location of the cutter: the position of the cutter head when the machine is finished.

Docking position: the position of the carving head after machine carving.

Cutting speed: the speed of the cutting head of the carving head when the machine is engraving.

Pre processing delay: waiting time before machining.

3.5 information

Click the information and pop-up the information dialog box as follows:

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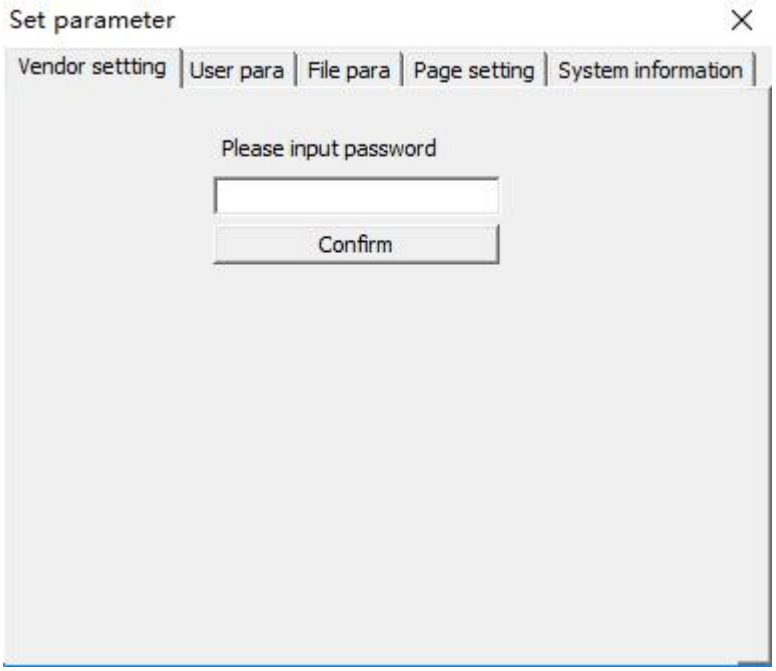
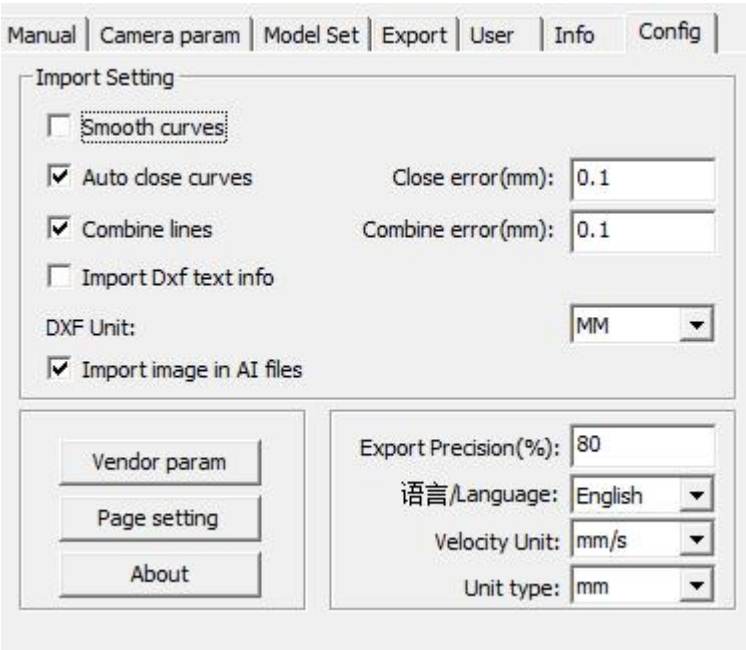
Web: www.rd-acs.com
FAX: 0755-2698287



Look at the motherboard version number and upgrade the motherboard

3.6 configuration



Parameter settings for importing files: set the imported graphics.

Factory parameters

Click on the manufacturer's parameters, pop up the manufacturer's toolbox dialog box, and select the factory parameter page.

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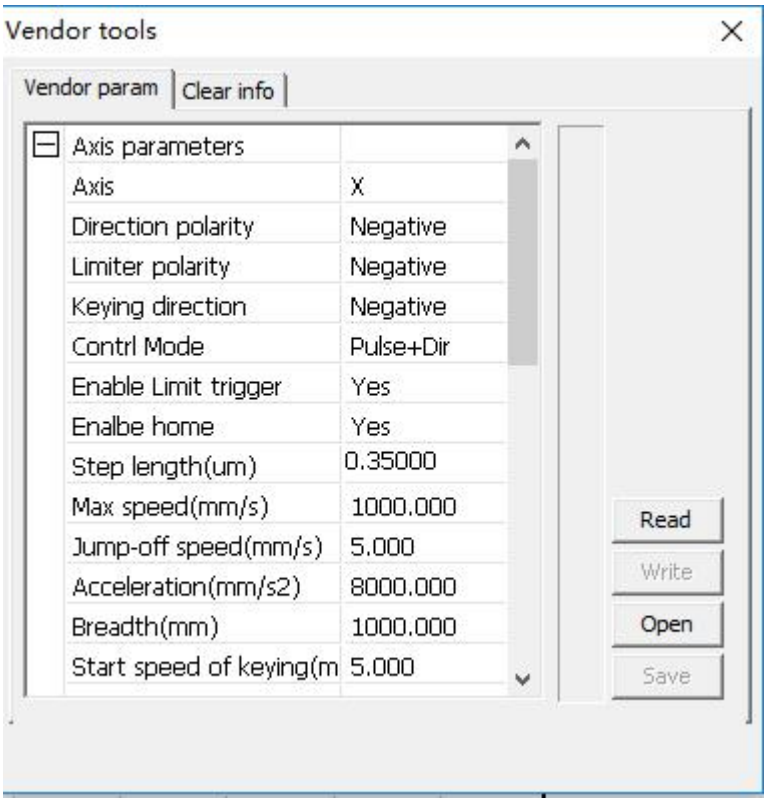
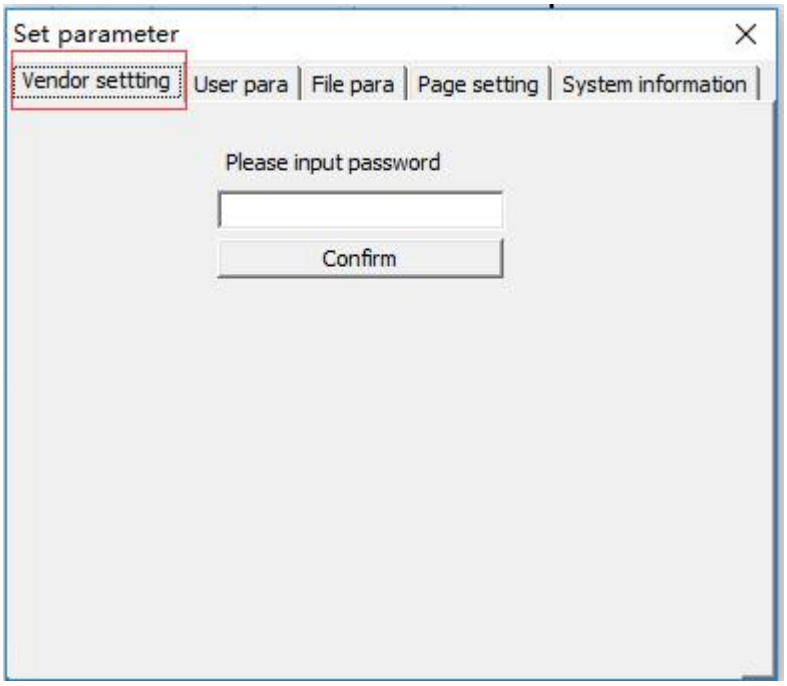
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287



3.7 main process of software operation

The first step is to connect the motherboard and click the configuration button to set up the reading parameters.



The second step: click the debug button to debug the parameters of the Z axis lifting tool and knife (or click the

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1TH FLOOR,5TH BUILDING,NANYOU
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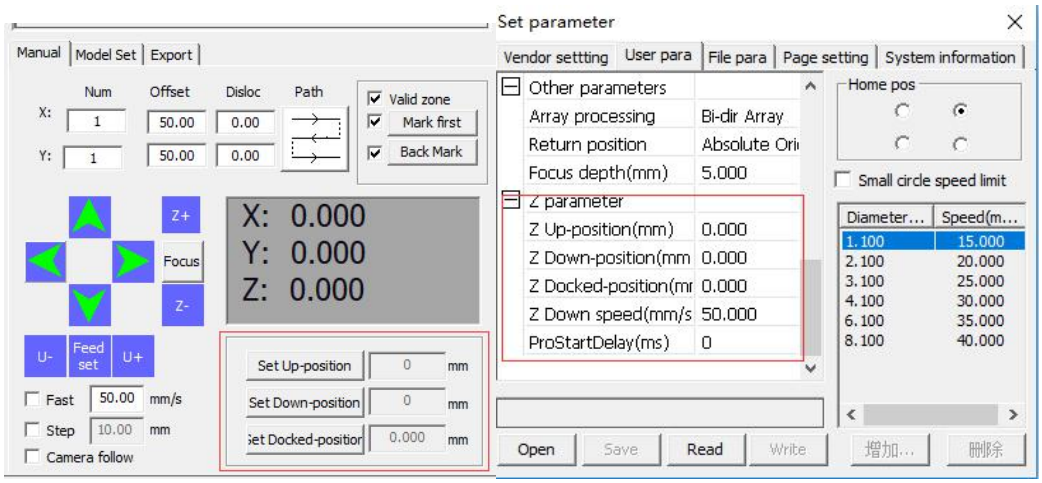
parameters of the user, Z axis, and adjust the specific parameters).



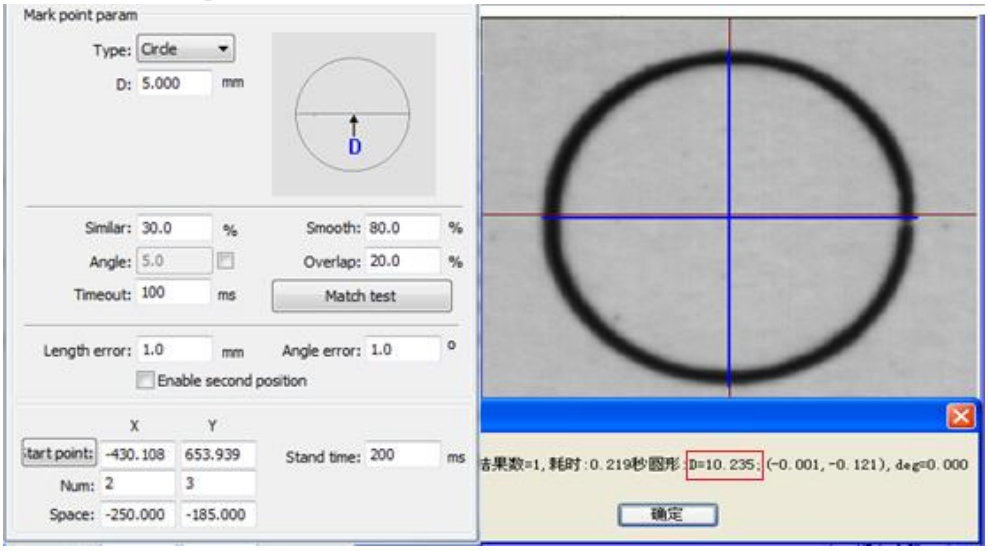
"Contrast", "gain" are both to deal with image data. So when image is in dim, firstly adjust the light source (lamp on the camera) and 【**Exposure**】, if still cannot get the desired effect, to adjust brightness, contrast, gain.

Camera Calibration:

【Speed 】: In the process of camera calibration, laser head moving speed or when cutting cross or dotting.

【Power 】: The processing power when camera calibration.

Cutting a circle as appointed, press "cut circle", the system will cut a circle on the platform and then matching test the circle size in the model parameters as below showed:



Picture 2-1 matching test to measure diameter

Click "<<<" to correct the pixel precision, fill the matching test result into Measuring Length Bar, then click "confirm", the system will confirm the proportionality coefficient automatically.

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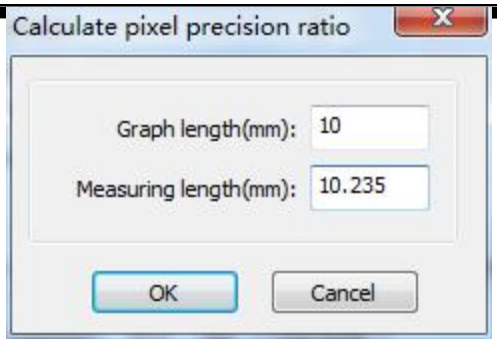
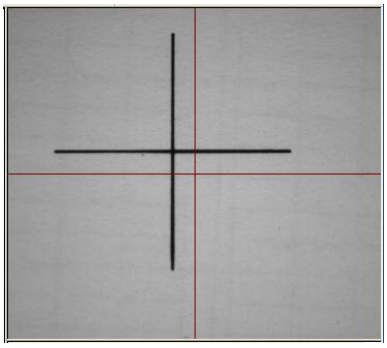
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287



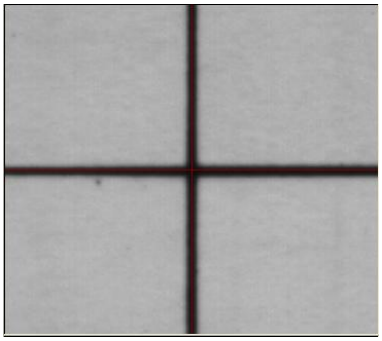
Picture 2-2 pixel precision ratio

【Cut Cross】: Click the "cross cutting", the laser will quickly cut a cross.



Picture 2-3 Cut Cross

【Camera Distance Calibration】: Cut a cross, then move the camera view cross center to coincide with the cross center, click "camera calibration". System will calculate the offset from camera view center to the center of the laser head.



Picture 2-4 Camera Distance Calibration

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TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

3 Import Graphics

3.1User clicks the imported icon, the following dialog will be appeared.

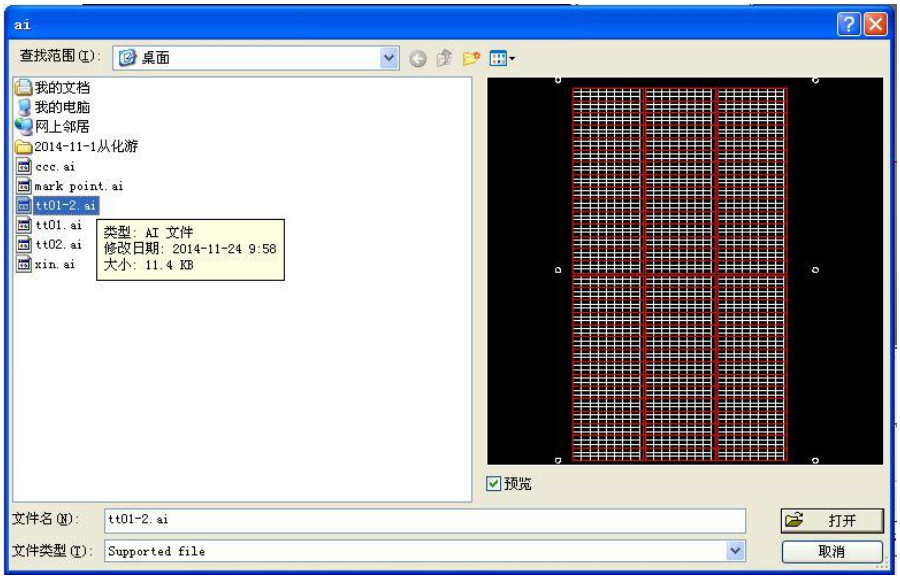

Figure 3-1 import processing file preview

Select the imported graphics, click "open". The waiting processing graphics will appear in the main view area.

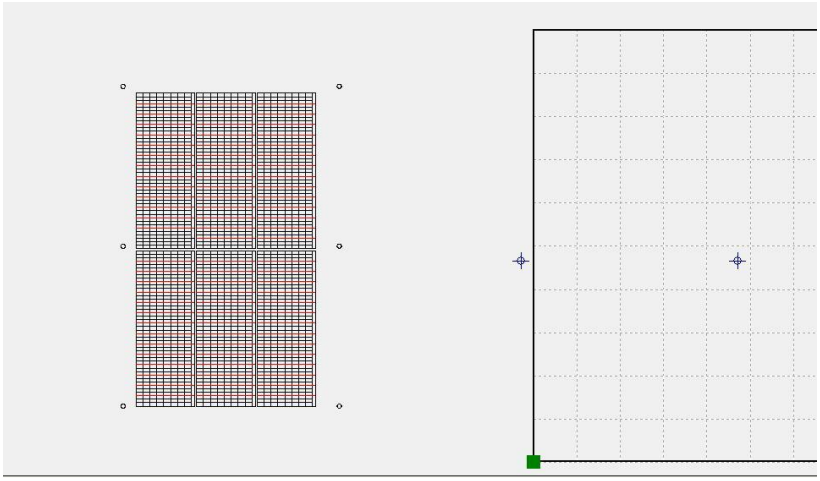

Figure3-2 import processing files

The imported graphics output as the already made layer color, you can define the output cutting contour.

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TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

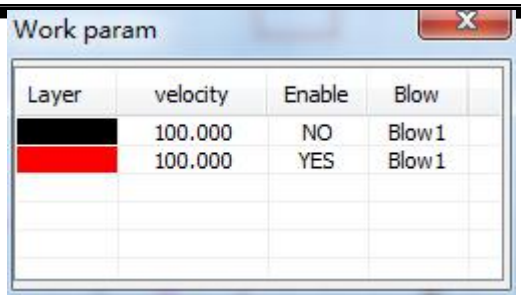

Figure 3-3File processing parameter settings

Fourth steps： Mark point identification settings

Figure 3-6 Mark point setting

3-8

As shown in Figure 3-6, select the Mark point in the view area and click the Icon to set the starting point.

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E-Mail: support@rd-acs.com
Web: www.rd-acs.com
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Select the other Mark points, and point to set. You can also point to automatically search all mark points.Click to delete the mark point . Click on the lead setting and set it like figure 3-8

3.8. Mark point searching path

Click the starting point to confirm the starting point coordinate, also can choose the mark point in the view area to click to se starting point.

The system will search the marking points starting from the closest other marking points.

3.9 Processing Settings

Move the axis, the camera will find the first Mark points, then match testing and check the matching result.

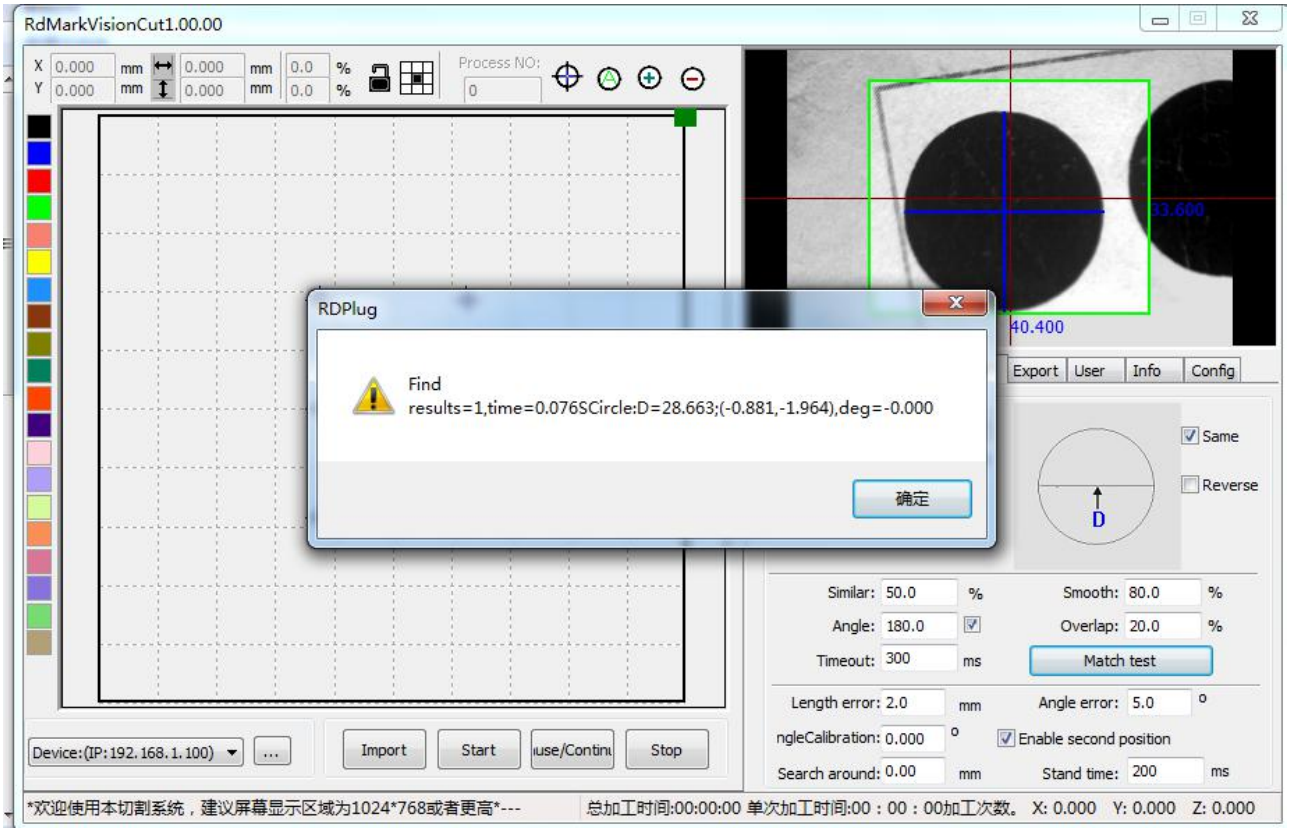

Figure 4-6 Mark point matching test

After the testing, click the "start" button on the control panel to proceed processing.

RuiDa Technology
1TH FLOOR,5TH BUILDING,NANYOU
TIANAN INDUSTRIAL ZONE,SHENZHEN
Phone: (086)0755-26066687
E-Mail: support@rd-acs.com
Web: www.rd-acs.com
FAX: 0755-2698287

RuiDa Technology Co., Ltd

Addr: 1TH FLOOR,5TH BUILDING,NANYOU TIANAN INDUSTRIAL ZONE,SHENZHEN

Tel: 0755--26066687

Fax: 0755--26982287

E-mail: sales@rd-acs.com

Web: www.rd-acs.com