RUK DIGITAL CUTTING SYSTEM

Operation Manual

RJMTC06/09

Prologue

Thanks to your patronage, it is a great honour for us that you purchase the RUK cutting machine. RUK cutting machine is a CNC cutting machine designed by Ningbo RUK Technology Co., Ltd. for the carton, printing, packaging and advertising enterprises. It not only has advanced computer-aided design functions and a complete set of superior CNC programs, but also has many advantages such as fast, accurate, low noise, simple process and easy to learn. The smooth cutting line, perfect crease, and the products are guaranteed. Excellent quality.

In order to help you make better use of this equipment, we strive to make it simple and easy to be understood when writing this manual. It is suitable for self-study in all walks of life, so that you and your staff can master all aspects of knowledge such as installation steps, basic operations, safety precautions and simple troubleshooting. Please read this user manual carefully before using the device for the first time, so that it can be used correctly, and keep this manual in a safe place. If you have any problems or problems with the system, please refer to this manual to help you.

Statement

● The contents of this manual are subject to change without prior notice;

● The copyright of this manual belongs to Ningbo RUKING Electrical Technology Co., Ltd. (hereinafter referred to as RUK ;

● RUK does not make any guarantees for this manual, and is not responsible for any misunderstandings that may be caused by this manual;

● The contents of this manual are subject to any discrepancies with the purchased CNC cutting system.RUK reserves the right of final interpretation;

● If you have problems in the process of using RUK cutting system, please call the service hotline of RUK Customer Service Center: 400-680-9891

Contents

I. Installation of RJMTC series

1-1 Selection of equipment placement environment

Before unpacking the equipment, first choose a suitable environment to place the equipment, this environment should meet the following requirements:

● Place the ground should be flat and the ground should be dry; avoid placing

  it in a place containing corrosive gas or liquid, avoiding water droplets, steam, oily dust, flammable, explosive gas, floating dust and metal particles. .

● The power supply is 220v/380V±10%/50HZ, avoiding the same power

   supply as other high-power or interference-related appliances to keep the power supply stable.

● Avoid proximity to heat sources, static electricity, and strong magnetism to

   avoid interference with equipment transmission.

● The ambient temperature should be in the range of 5 °C - 40 °C.

● The ambient humidity should be in the range of 1%-75%.

● It should not be placed in a place with strong light, avoid direct sunlight and affect the service life.

1-2 Handling instructions

● The outer packaging should be packed in wood with international standards.

● This equipment is a precision instrument and should prevent strong vibration and collision during

   transportation.

● The forklift is used for loading and unloading during transportation. It is strictly forbidden to load and

   unload.

● Handle with care and handle it according to the instructions on the outer packaging.

● Do not place the equipment after unloading in a water reactor or in a damp place to avoid leakage of

   equipment.

● When disassembling the outer packaging, the operator should wear gloves to avoid scratching.

1-3 Unpacking inspection of equipment

● Open the outer packaging and check whether the components in the box are complete according to

   the equipment component diagram:

A. platform B. machine head C. feeder D. display holder
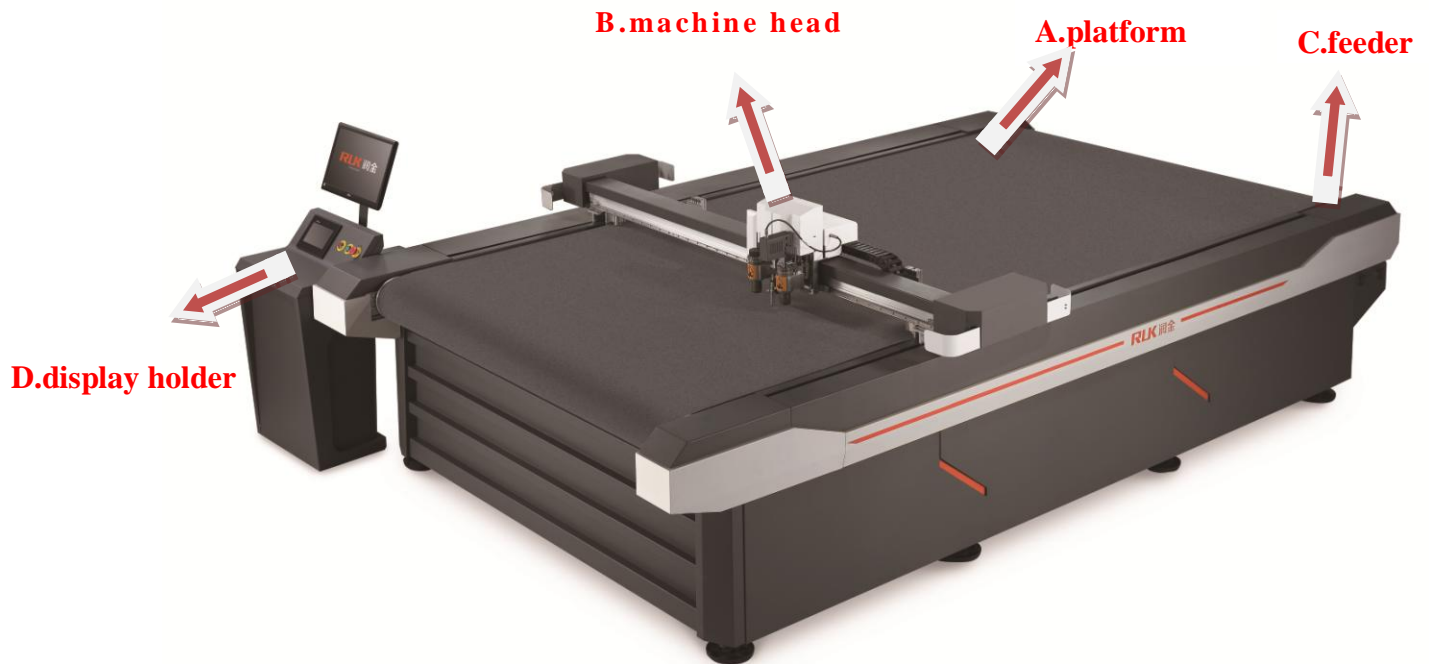
- Accessories in the accessory box: including blades, machine tools, electronic accessories, some wires, assembly tools and screws, related documents, and optional tools etc., please check according to the attached list.

1-4 Equipment exterior structure

RUK cutting machine consists of the following six parts (Figure 1-2):

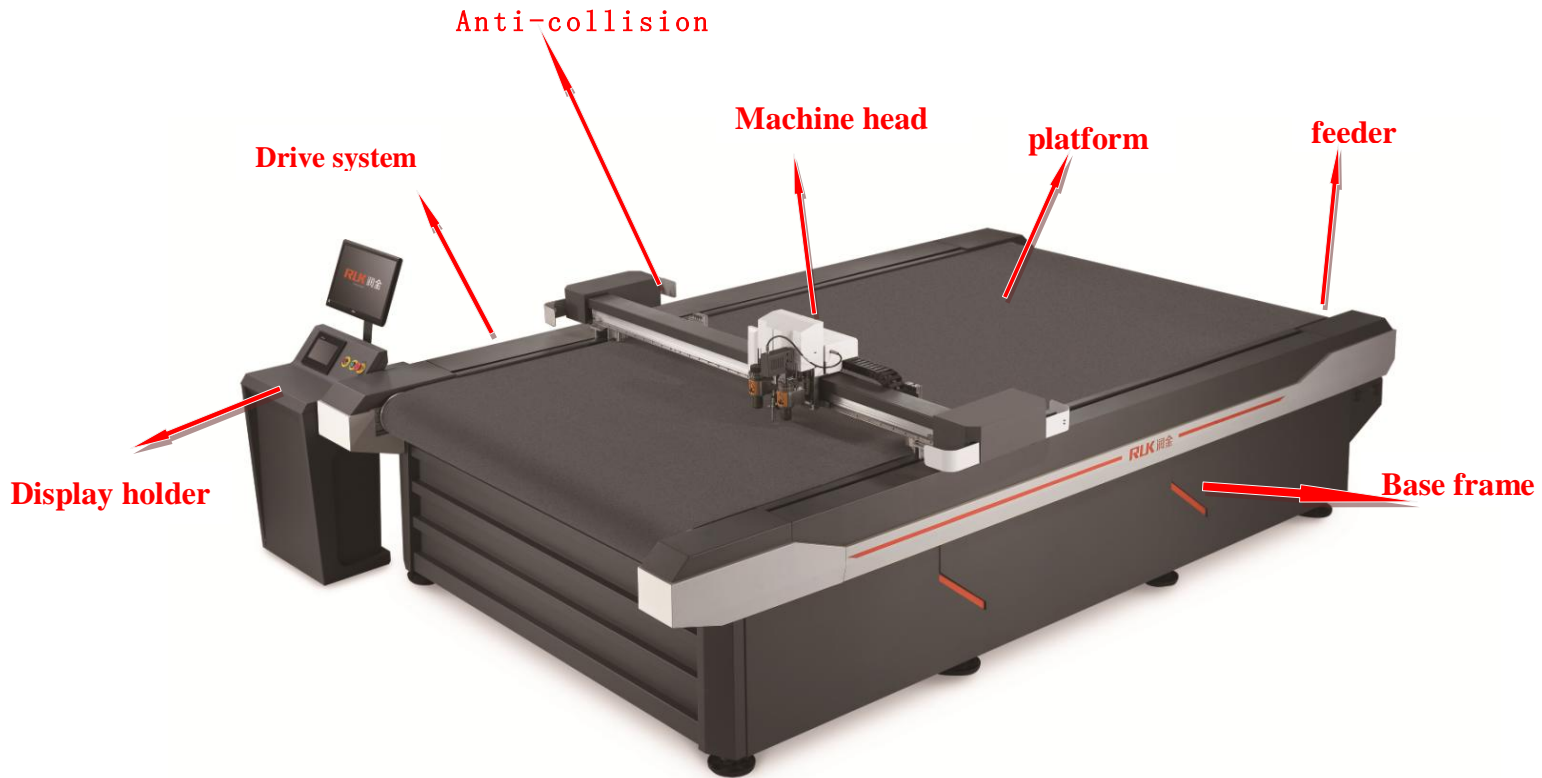Base frame + platform + controller + drive system + head (wheel, knife, pen) + air pump

Anti-collision

Machine head

platform

feeder

Drive system

Display holder

Base frame

Figure1-2

(1) The rack is responsible for supporting the entire machine and providing the cutting material;

(2) The platform is the working surface on which the cutting material is placed. Its level is crucial, and there must be no ups and downs. This machine is made of 5mm thick aluminum plate after being leveled by super standard;

(3) The controller is the heart of the whole CNC cutting system. Its performance is the decisive factor to measure the pros and cons of the equipment. The software level of the controller is the soul. This machine combines the imported controller with the self-developed CNC software to achieve more advanced functions than the imported machine;

(4) The transmission part is the actuator of the computer numerical control cutting system action, which adopts the combination of imported conveyor belt + imported linear guide rail to make the cutting system stable and long life;

(5) The machine head divides the knife, the pen and the pressure wheel. The design structure of the cutter head directly affects the quality of the cut sample. The design of the tip should have a soft and light feeling. This machine adopts the standard structure to make the pen wheel wheel work in one go. The machine is designed with the most advanced technology detachable structure in the head part, which is convenient for installation, technical update and subsequent maintenance.

(6) Air pump: The large suction pump is used to make the cutting material firmly adhere to the platform, so that the material cutting effect is guaranteed.

1-5 Equipment assembly points.

Note:

After the table top is installed, the table top is leveled and the feet under the foot frame are adjusted so that the cutting platform is at the same level as the ground.

1-6 Installation tool

After the equipment is installed and all accessories are confirmed, install and debug the machine according to the following steps:

Milling tool / Driving rotary tool / Kiss cut / Universal cutting tool /Oscillating tool / foam cut   /   V cut   /   Creasing wheel
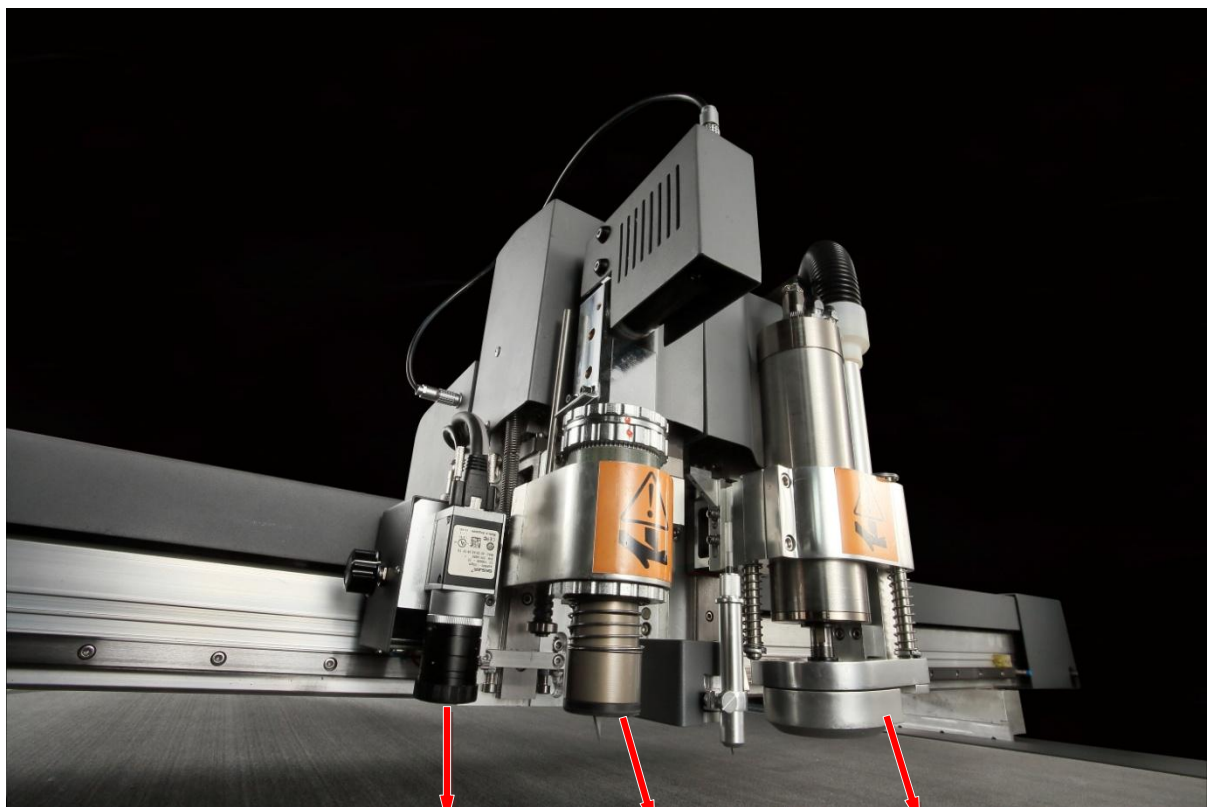
1.CCD camera   2.oscillating tool   3.milling tool

Figure1-3

1-7 line connection

Power cable connection method: As shown in Figure 1-4 below, the equipment meets the requirements of international electrical design, and has passed CE certification. According to the national power supply standard, the chassis uses 220V±10% standard single-phase power supply, and the air pump uses three. Phase 380V±10% standard power supply; Note: L1(U), L2(V), L3(W) are hot wires (connected to 380V~), N is zero line, and GND is ground.
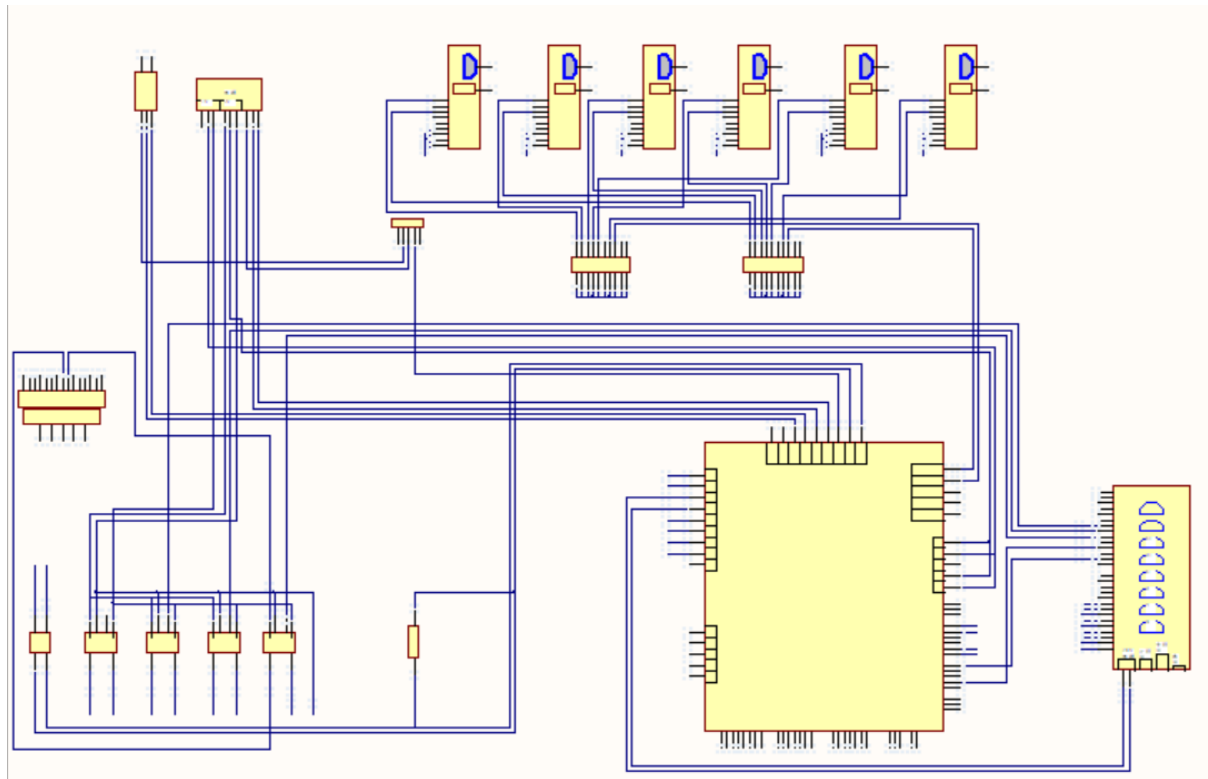
图 示 1-4

Note:

1. When connecting the power line, the total power switch of the machine must be in the [OFF] position. Please check the power supply wiring correctly before starting the power.

2. When connecting to the network port output, if the LAN is connected, plug the network cable port into the LAN port of the switch or router.

3. The power supply specification is: 220v/380V±10%/50HZ.

4. Ensure that the power supply is stable; if the power supply is unstable, the single-phase voltage fluctuation range exceeds the power supply requirements. It is recommended to install a voltage regulator.

5. Avoid using the same power source as other high-power or disturbing appliances to keep the power supply stable.

II.RJMTC series operation and touch screen interface settings

2-1   Machine on and off

1. Boot:

(1) Connect the power cord and turn on the power switch and emergency stop button.

(2) After pressing the red button, the LCD screen will display the initial screen. Wait for about 5 seconds to complete the system start up. The LCD screen displays the main interface of the system. Click ENTER to reset the machine and start up.
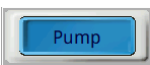
2. Shutdown:

Press the red button and press the emergency stop power switch, the cutting system is turned off, and finally turn the rotary power switch to the OFF position.
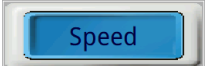
2-2   HMI process and function description
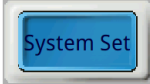
Figure2-1

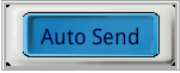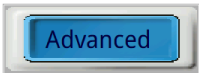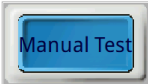The following information is the screen parameters process description

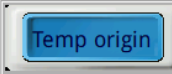| Displays operate instructions				
Displays	**First layer**	**Second layer**	**Third layer**	**Explain**
Air pump	Explain：Press the buttons to start the air pump, when button up-spring, the air pump turn off. If there is no operation during the machine start up, the suction air will be automatically opened when cutting, and it will be automatically closed after cutting.			

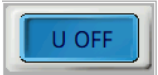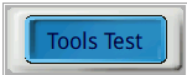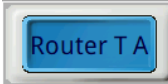|			
Reset Reset	Explain: Reset the machine to the origin point.		

Repeat
 	
REPEAT
	Explain: Repeat cut the previous version figure.		

	Speed Speed	Pen speed	The maximum speed when system got drawing commands
		Pen acceleration	Add and subtract pen speed
		Oscillate cutting	The maximum speed of oscillate cutting tool
		Oscillate cutting acceleration	Oscillate cutting tool pen add and subtract speed speed
		Wheel speed	The maximum speed of wheel tool
		Wheel acceler ation	Wheel add and subtract speed speed
		Speed without any tool	Maximum moving speed
		Acceleration speed without any tool	System moving add and subtract speed
		Half cut speed	The maximum speed of half -cut tool
		Half cut acceleration	Half cut add and subtract speed
		Milling tool speed	Max. Speed of milling tool
		Milling tool	Moving add and subtract speed of milling
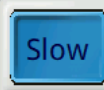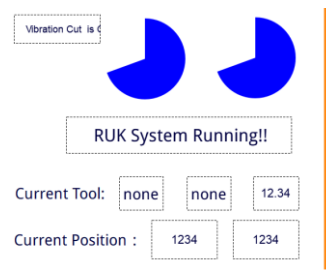
		acceleration	tool
System set		V_cut speed	Max. Speed of v_cut
		V_cut acceleration	Add and subtract speed of v_cut
		Round blade	The max. Speed of round blade
		Round blade acceleration	Add and subtract speed of round blade
		Rotary blade speed	The max. Speed of rotary blade speed
		Rotating blade	Add and subtract speed of rotating blade
	Offset	Pen offset value in x direction	Adjust the offset value of pen and cursor position in x direction
		Pen offset value in y direction	Adjust the offset value of pen and cursor position in x direction
		U offset value in x	Adjust the offset value of pen and u tool position in x direction
		U offset value in y	Adjust the offset value of pen and u tool position in y direction
		U1 offset value in x	Adjust the offset value of pen and u1 tool position in x direction
		U1 offset value in y	Adjust the offset value of pen and u1 tool position in y direction
		Pen down delay	The delay n milliseconds after the system receive the pen-down signal
		Pen up delay	The delay n milliseconds after the system

			receive the pen-up signal
		Blade down delay	The delay n milliseconds after the system receive the blade-down signal
		Blade up delay	The delay n milliseconds after the system receive the blade-up signal
		U rotation angle compensation	Adjust the rotation angle of u tool;
		U1 rotation angle compensation	Adjust the rotation angle of u1 tool;
		Rotating blade overshoot compensation forward	Adjust the amount of forward thrust when lifting the knife tool cutting(mm)
		Rotating blade overshoot compensation back	Adjust the blade back distance when blade cutting(mm)
		Half cutting tool compensation	The compensation value of the blade when the machine is performing half cutting.
		Correcting x	Adjust the allocation unit size is same as it in the machine in x direction
		Correcting y	Adjust the allocation unit size is same as it in the machine in y direction

		After this function is turned on, the system will perform the current version of file cutting repeatedly until it is canceled
	Automatic repetition	After this function is turned on, the system will perform the current version of file cutting repeatedly until it is canceled
	Automatic back to the original	Automatic back to the origin function, after cutting a version of the sample will return to the maximum point position of the machine
	Safety switch	If the safety switch is on, the machine will stop immediately and prompt when the switch detects the abnormality
	Download port	Download port selection, temporarily only support network port
Function Function	Pg on-off	Make the device enter a waiting state after completing a version of cutting until the "OK" Key is pressed to continue
	IP address	IP address setting
	U，u1 too setting	U，U1 tool selection settings
	Partition suction (customized model, non-standard)	Partition function · Position of suction area on the platform can be set

	Partition suction (customized model, non-standard)	Partition function	Position of suction area on the platform can be set
		Manual and auto function	Manual partitioning function is set by manual; suction position can follow the cutting head
		Partition area	Set the location of the partition area manually
	Auto send	Auto rolling	Automatic rolling function switch

		Rolling speed	He speed of rolling feed
	Auto Send	Fixed and rolling switch	CCD position rolling cutting
		Rolling accelerated speed	Rolling feeding accelerated speed
		Feeding offset value	Offset value when feeding
		Suction delay	Waiting time after suction closed before feeding
		Belt	Manual test of belt clamping action
		Press material	Manually test the press action
	Advanced Advanced		Set by supplier
Manual test Manual Test	**Tools type**	Tools Type SP1: None SP2: None SP3: None SP4: None SP5: None SP6: None SP7: None SP8: None	Tool selection: Pen, u, u1; u, u1 corresponding to set the corresponding tool type, corresponding to sp is to perform the corresponding tool cutting
	Temporary origin	Temp origin	Define the current position as the software origin and material cutting starts from the current position
	Speed testing		The speed of manual movement can be modified; ccd positioning and moving speed;

Manual moving		Vibration Cut is / Slow / 1234.5 / 1234.5	Press direction switch can move in the direction indicated. After slightly adjustment, the speed of movement is 1/10 of the original. The values show the head position in x and y	
Tool action		Oscillating tool U OFF	After clicking, press down the vibration knife to open, and the pop-up state is closed	
		U action	After clicking, the tool action where u is, click reset again	
		U1 action	Click, u1 tool action, click restore again	
Tool test Tools Test		Current position	U current position	U, u1 tool vertical up and down direction of the real position value at that time
			U1 current position	
		Middle depth	U middle depth	The depth value corresponding to the machine head when cutting
			U1 middle depth	
		Tool depth value	U depth	U, u1 tool cutting depth, be careful when adjust as it affect the cutting effect and work table
			U1 depth	
		Milling tool adjustment	Router T A	Milling tool depth automatic adjustment

		Tool up and down moving		Press direction switch can move in the direction indicated. After slightly adjustment, the speed of movement is 1/10 of the original
Operating situation		Current tool		Show the current running tool number and tool
		Current position		Show the machine head the current position
		Cut para		Press the button to go to the cutting parameters screen
		Pause		When the machine is running, press the button one time to pause, press the button twice times to cancel;
		Continue		In the pause state, press the "Continue" Button to continue the operation
		Reset		Restore the machine to the boot state

2-3 Operation sample

1）Set tool type, there pen refer to SP1, U refer to SP2,U1 refer to SP3

● Click the "manual adjustment" button on the main interface and select the "tool testing" button.

● Set pen refer to SP1, U refer to SP2,U1 refer to SP3

● Finished
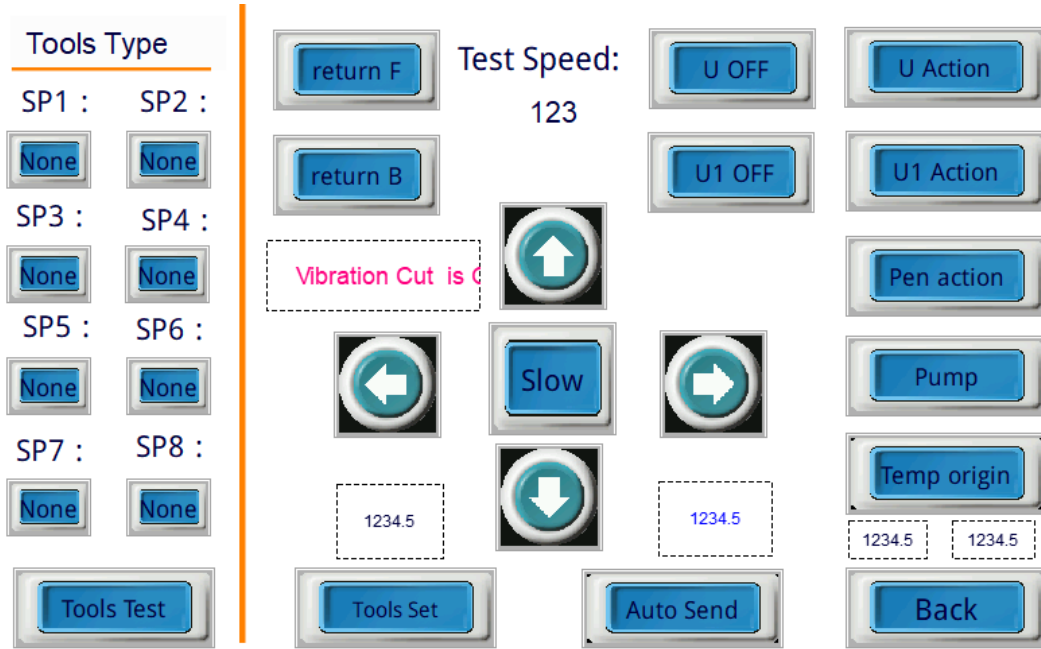
图 示 2-2

2）Acceleration setting (setting pen acceleration as an example)

● Click the "system setting" button on the main interface and click the "speed setting" button after the system setting interface appears

● In the speed setting interface, click the value on the right of "pen acceleration", and the system will pop up a number. After keyboard input "3000", press ENTER key;

● Click the "return" button to return to the main interface, and the pen acceleration setting is completed

图 示 2-3

3）Set Ethernet port Ethernet Settings (for example, connecting to a local computer)

● Click "system Settings" on the main interface, and then click "function Settings" to appear the

communication interface;

- Set download port selection to Ethernet

- Set the IP address. The current IP address of the local computer is "192.168.0.26", and the IP address of the device can be set as "192.168.0.250".
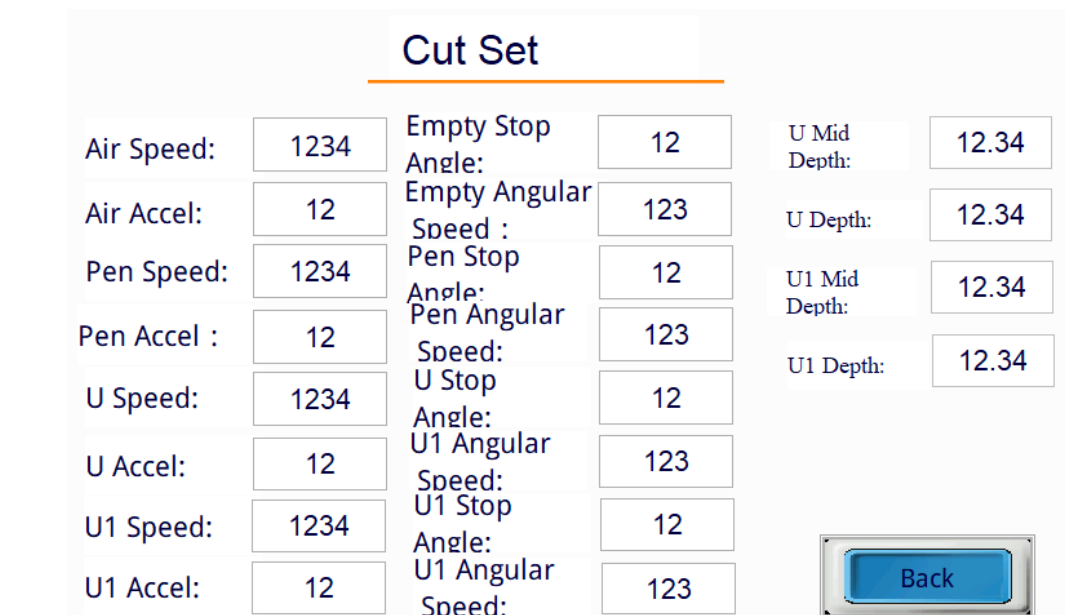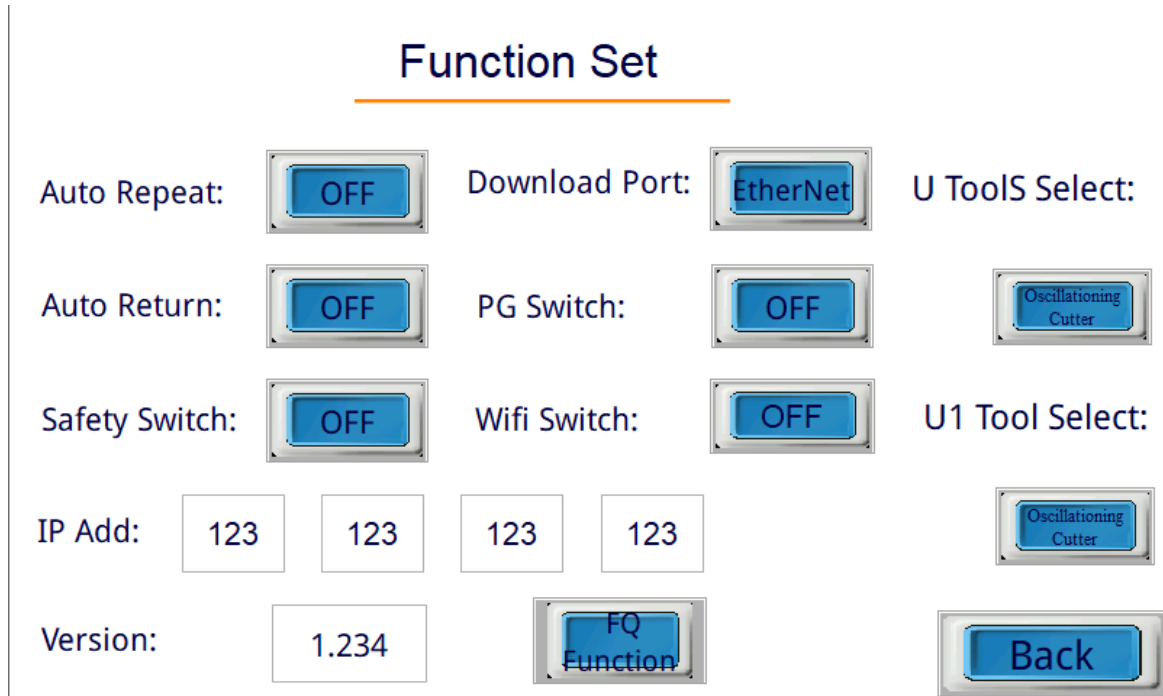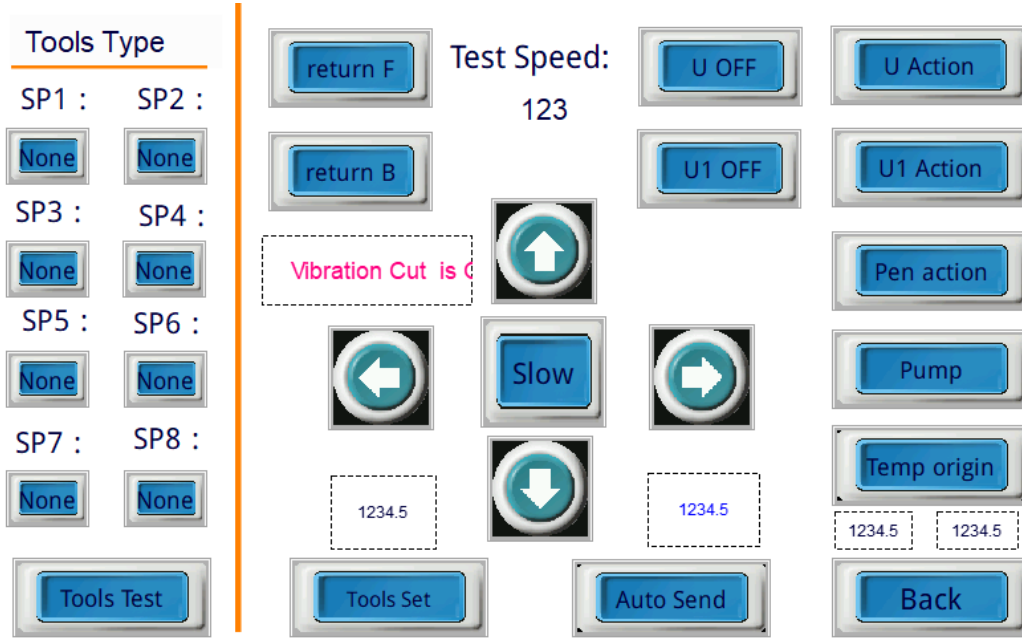
- Ethernet setting finished. (remark: no duplicate IP address)

- Restart after the setup is finished

Function Set

Auto Repeat: OFF	Download Port: EtherNet	U ToolS Select:
Auto Return: OFF	PG Switch: OFF	Oscillationing Cutter
Safety Switch: OFF	Wifi Switch: OFF	U1 Tool Select:
IP Add: 123 123 123 123		Oscillationing Cutter
Version: 1.234	FQ Function	Back

图示 2-4

4）Locating temporary origin

- Click the "test" button in the main interface to bring up the test interface

- In the "test" interface, press "X-axis -/+" or "Y-axis +/-" to locate the origin. Click the "temporary origin" button to return to the main interface and the origin positioning is completed. Each output is cut with the newly defined origin (the cursor position of the head cross

- Remark: cancel the positioning, click the "reset" button on the main interface to cancel the temporary origin

Tools Type			

Tools Type

SP1 : None SP2 : None
SP3 : None SP4 : None
SP5 : None SP6 : None
SP7 : None SP8 : None

Tools Test

return F return B

Test Speed: 123

Vibration Cut is C

Slow

1234.5 1234.5

Tools Set Auto Send

U OFF U1 OFF

U Action U1 Action Pen action Pump Temp origin

1234.5 1234.5

Back

2-4 Decode

● When the system shows the words "program expired, please contact the manufacturer", it means the machine has expired. Please contact us.

● Start up and restart the machine. When entering the "runjin technology" screen, press the upper left corner of the touch screen. The screen will go to the decremented screen, ENTER the corresponding password and return - click ENTER of the initial screen of RUK

Serial Number : 1234   CUT Select: Double

Date Left : 12345   Left Tool: Oscillationing Cutter

Please Input Password : 12   Right Tool: Oscillationing Cutter

1234   Safety Switch: OFF

                              BACK
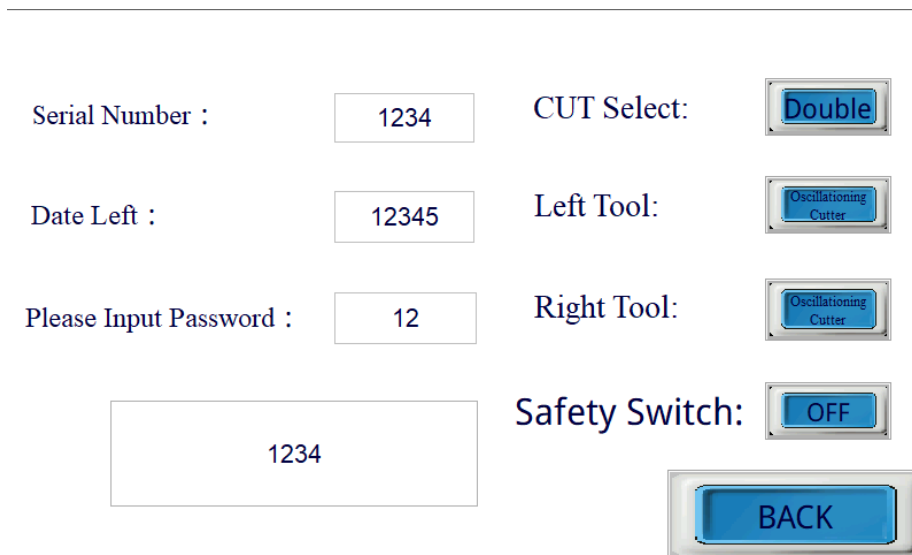
2.5 Software operation steps

2.5.1 open the software

To ensure that the cutting operation is completed, the need to open the following two software

1. Drawing software: rukdesign, function for the cutting of the surface processing, the use of the choice of the head, etc., the surface format must be required for the PLT, as shown below


2. Transfer software: RUK Cutting System, function for cutting mode conversion, positioning cutting mark (mark) point selection, the current use of the two models LO_LK (positioning cutting) & SP Hard Split (non-positioning cutting)

Note: Before the job, select "Cut Software" in "Transfer Software" and then proceed to "Drawing Software".
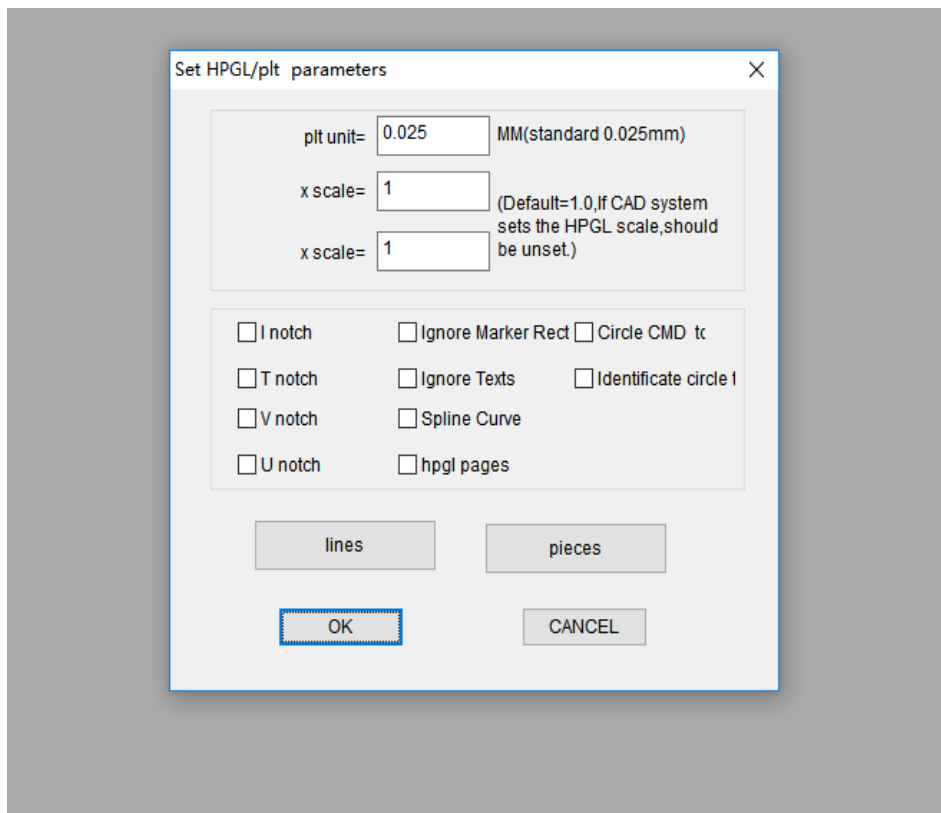

1. The picture is opened in drawing software after processing is finished, as shown below
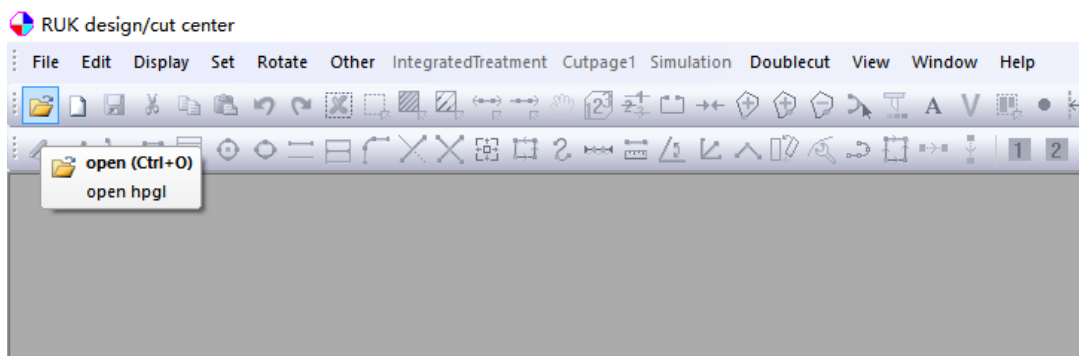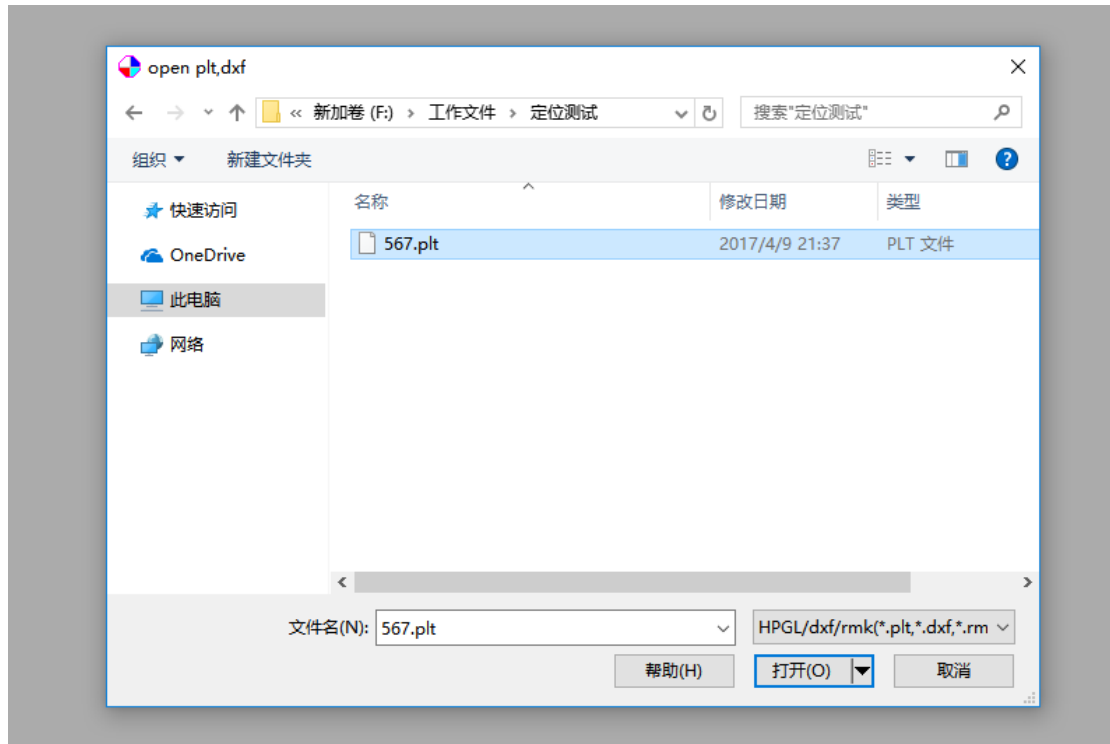
Find the file you want to cut and click "open", will pop up the following dialog box:

Click "OK" here, no need to make any changes.

2. Determine whether the orientation of the image on the table is the same as the direction of the image in the software

The direction of the machine table is "X", the left and right direction is "Y", the computer software landscape is "X", the vertical is "Y", the software as follows:
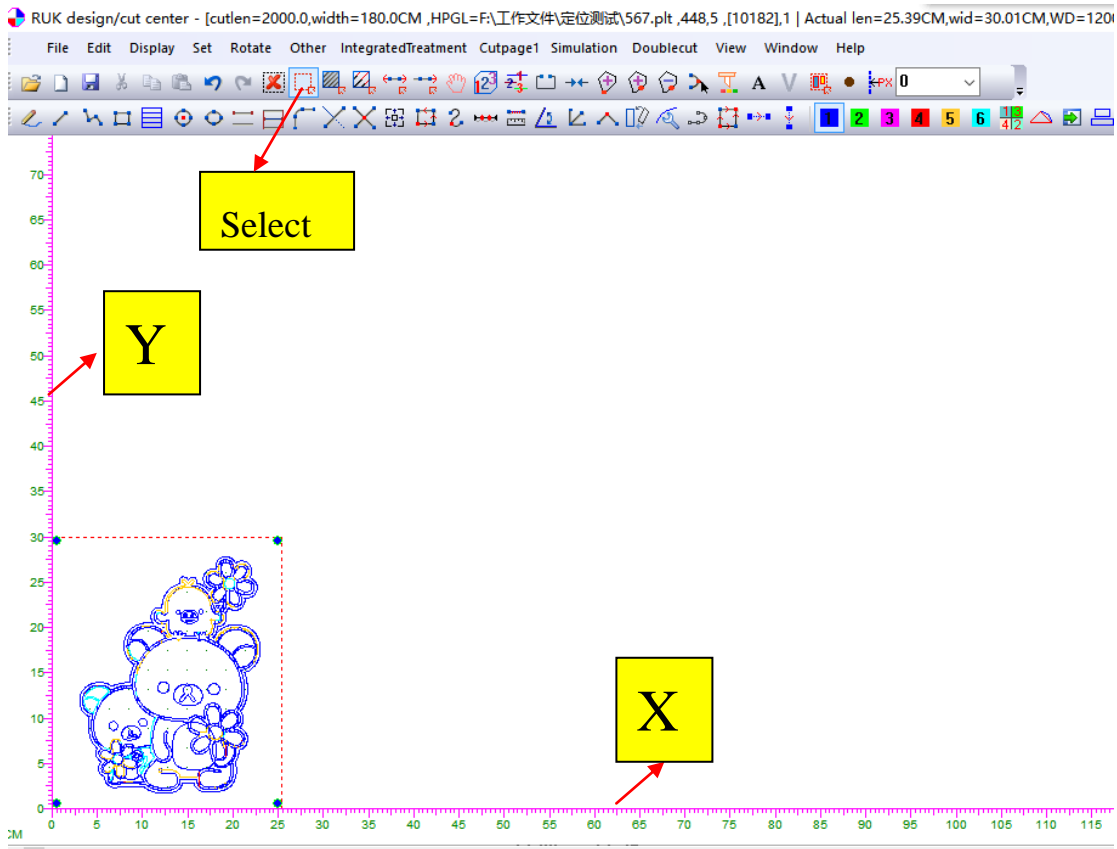
If the direction is inconsistent, click on the "box selection", select the graphics, and then right-click the mouse, as shown below
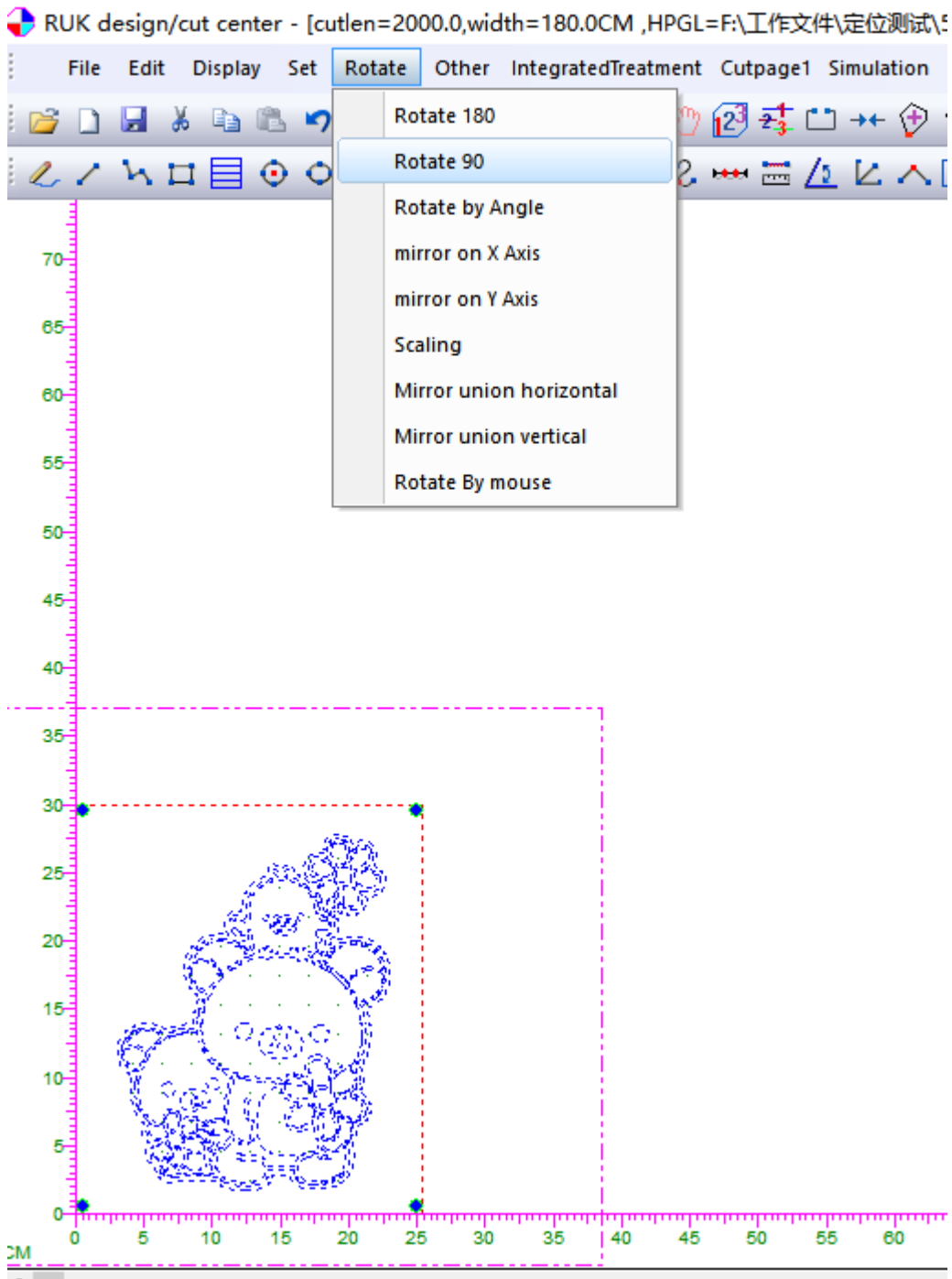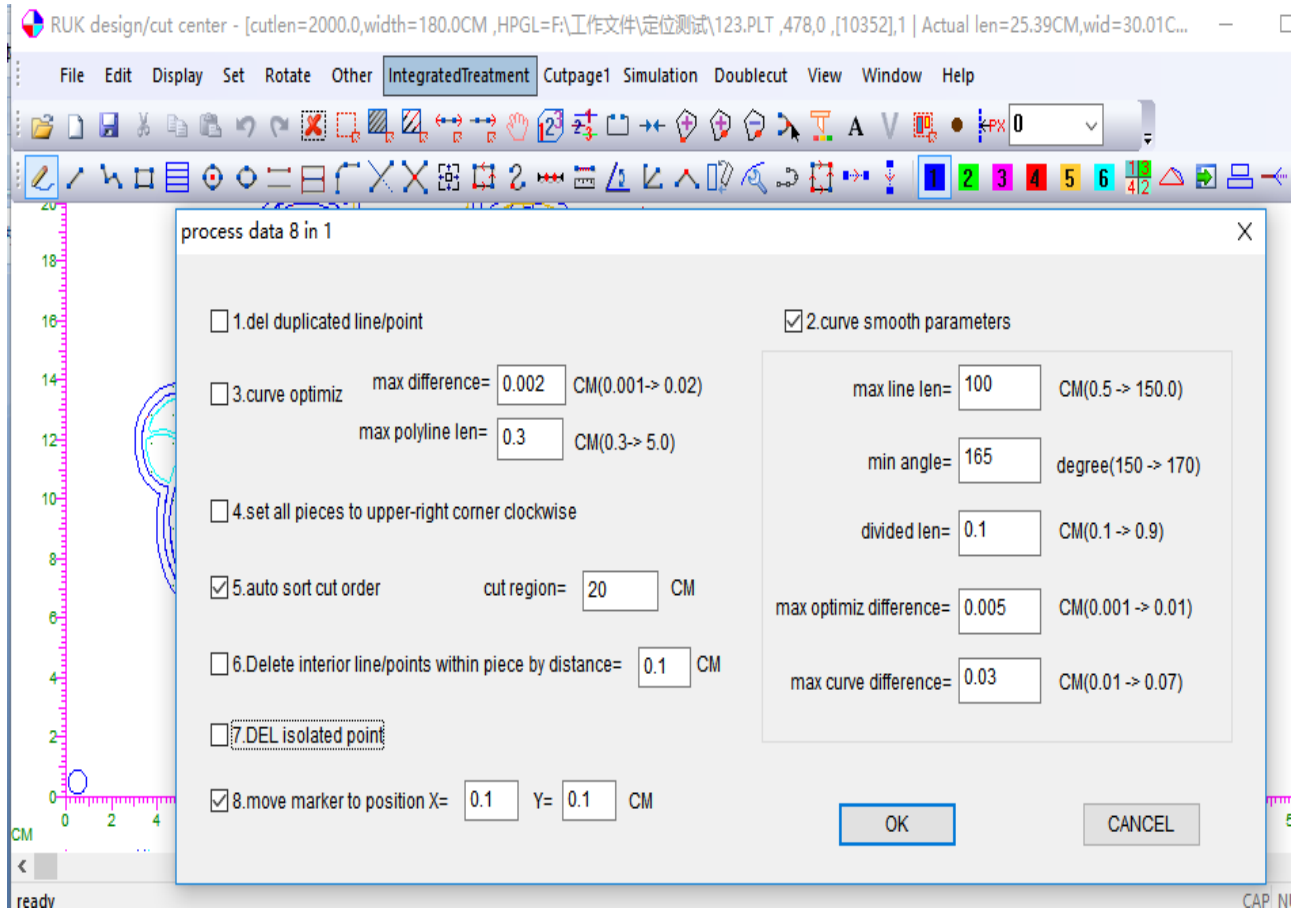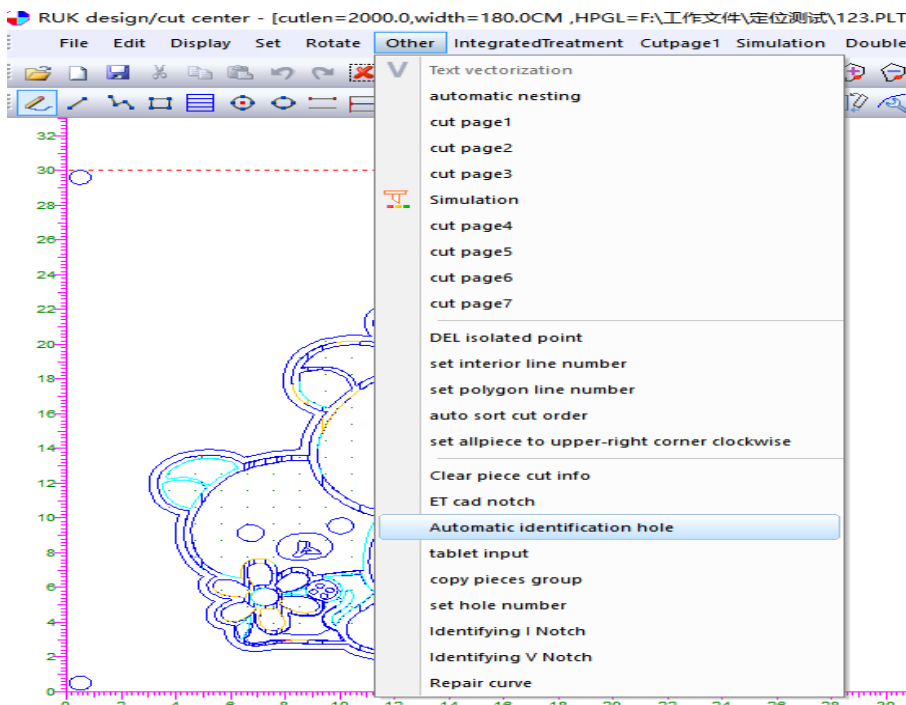
Figure can be rotated 180 degrees or 90 degrees, until the direction is consistent;

3. Click the "Integrated Treatment " button, as shown in the following figure:
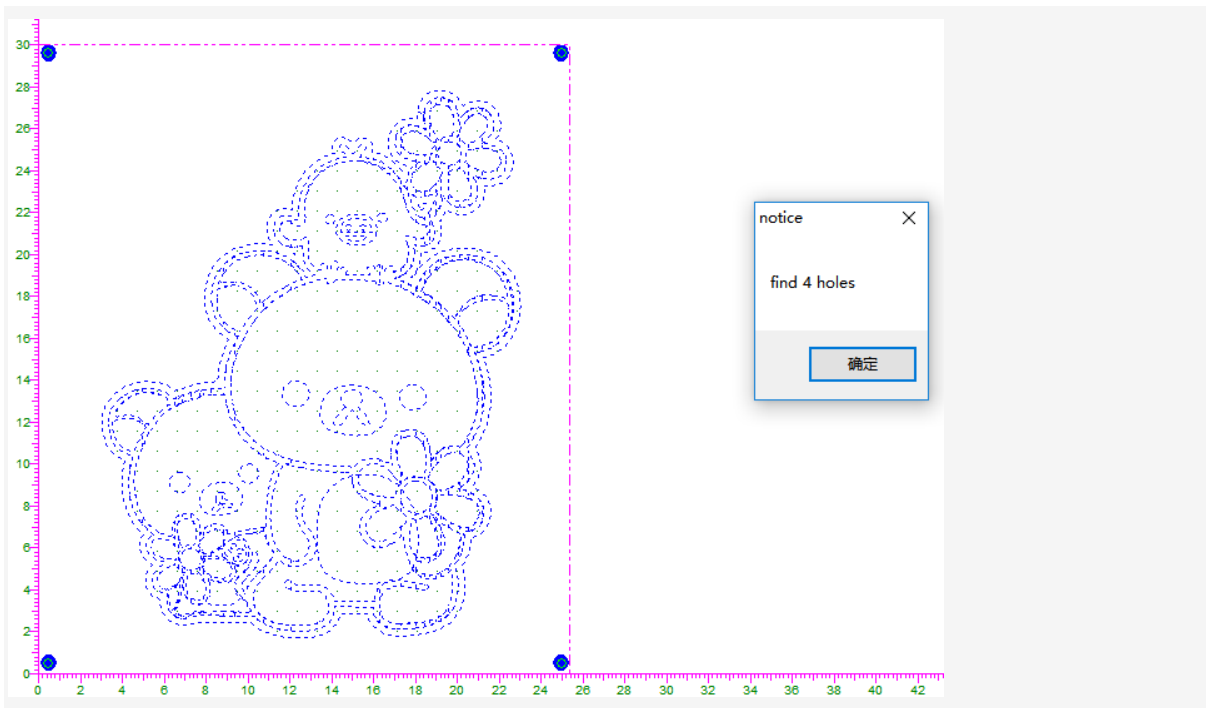

Tick the two options as shown in the picture, click OK

4. Click "Other", select "Auto Recognize Punch", as shown below

After punching recognition is completed, as shown below

5. Change the line number

Select the tool, click on the need to use the tool, such as the machine operation screen SP1: U, SP2: U1, if you need U1 tool cut, click on the software "2", and frame the need to process the surface, then the line will change For the green, that is, the software "2" and the screen SP2 tool number is the corresponding, as shown below
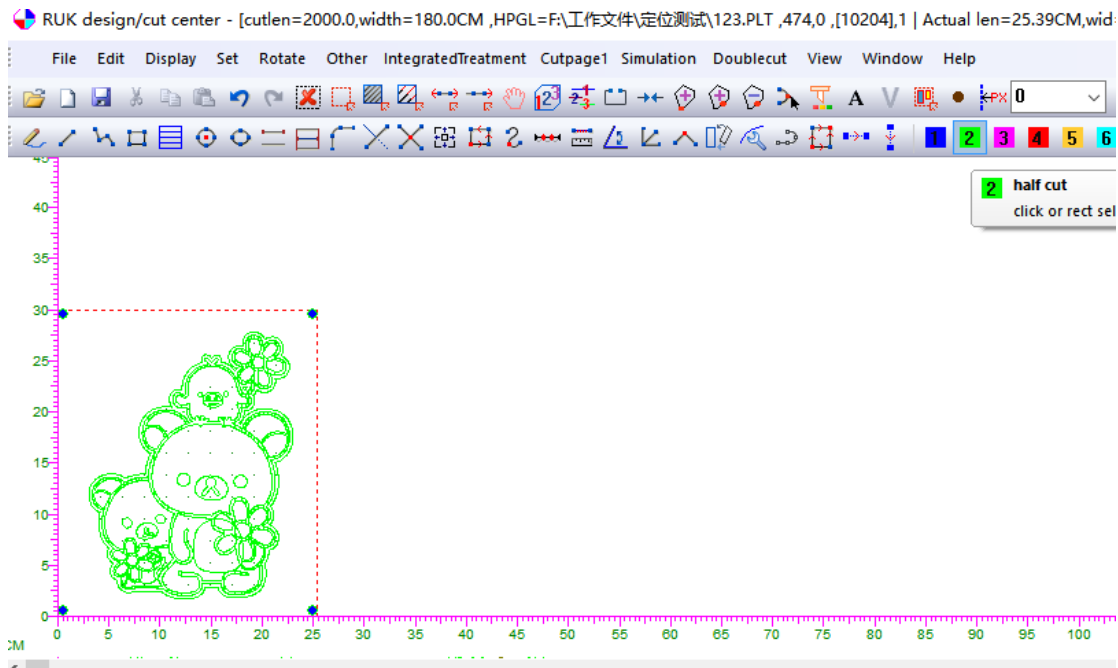
6. After confirming the above steps, click "Cut the first page" and click "OK" in the pop-up dialog box.
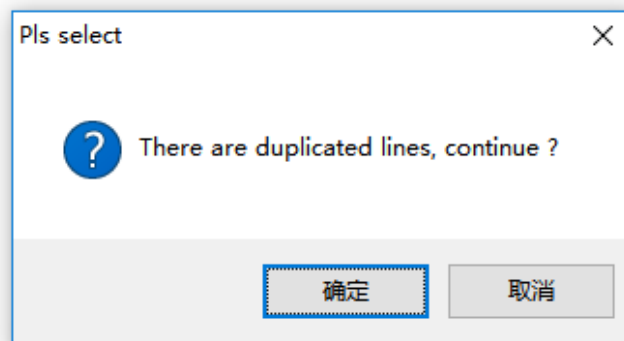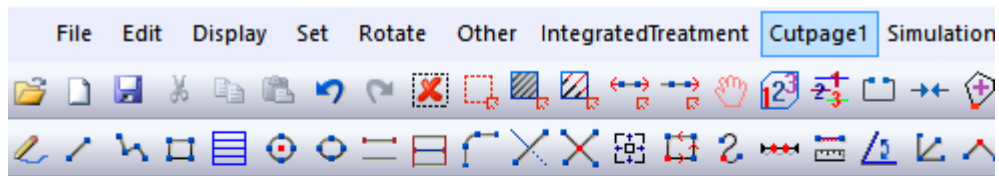
2.5.2 Transmission software

1. Mode selection, cutting mode has two items: positioning cutting & non-positioning cutting, select the mode and click Save, the following describes the mode selection:

a. Will "stop" in the figure, click to "continue", as shown below:
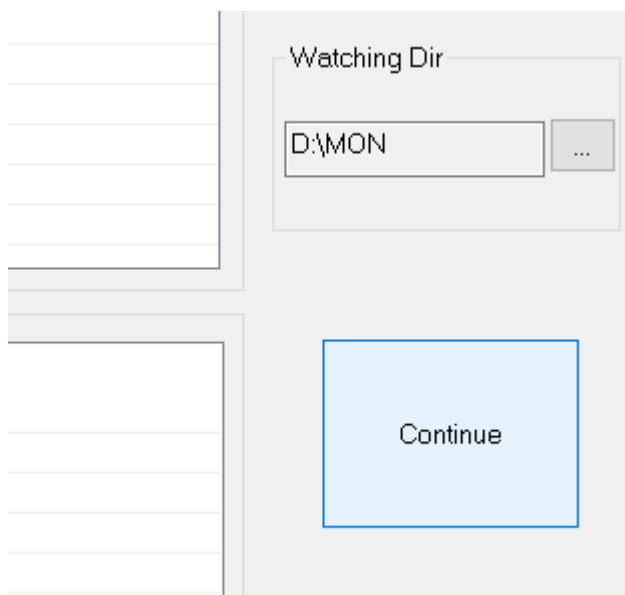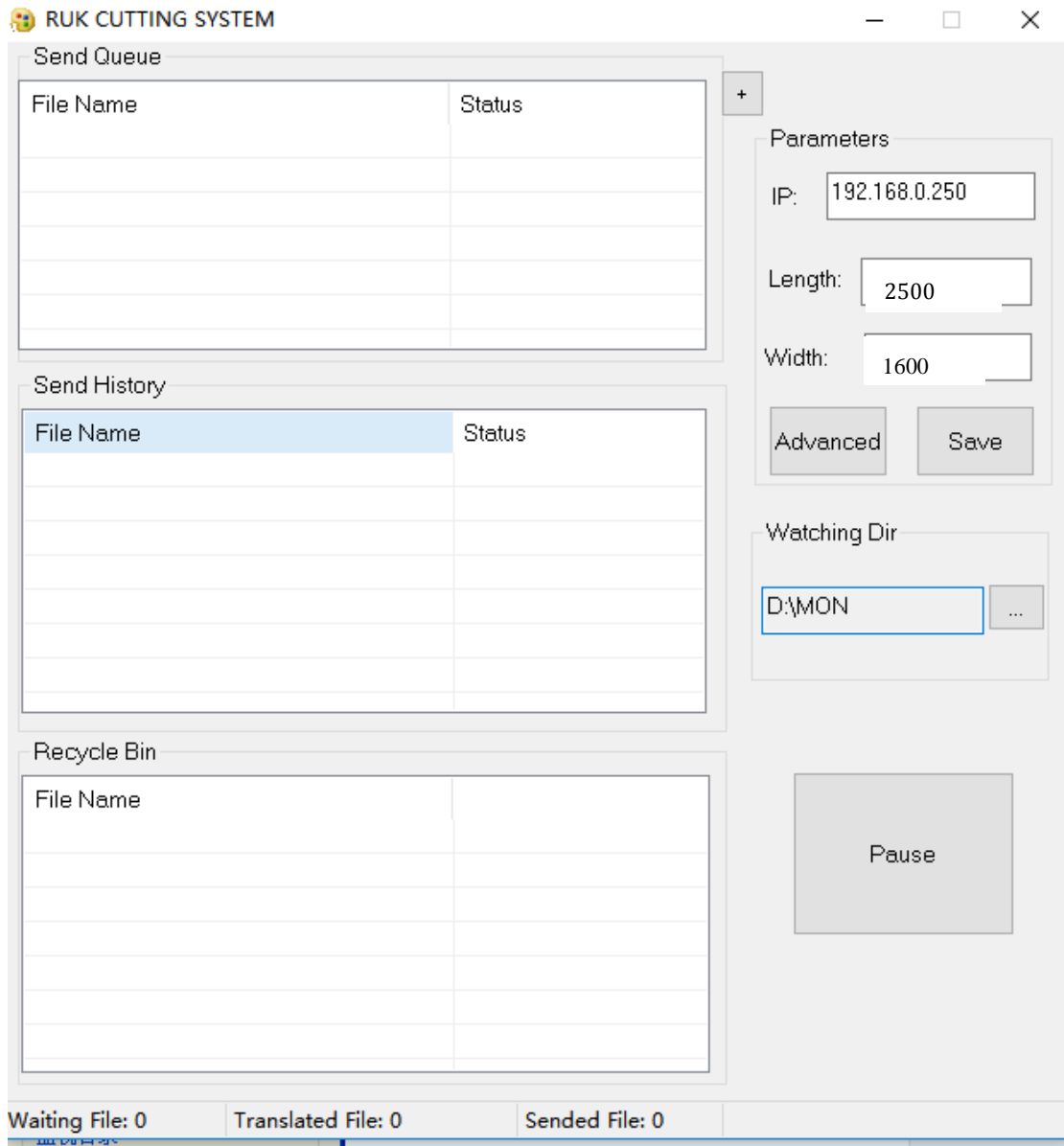
b. Click "Advanced Settings" to enter the following interface, you can select the mode, after selection,

click "Save", the mode is selected.
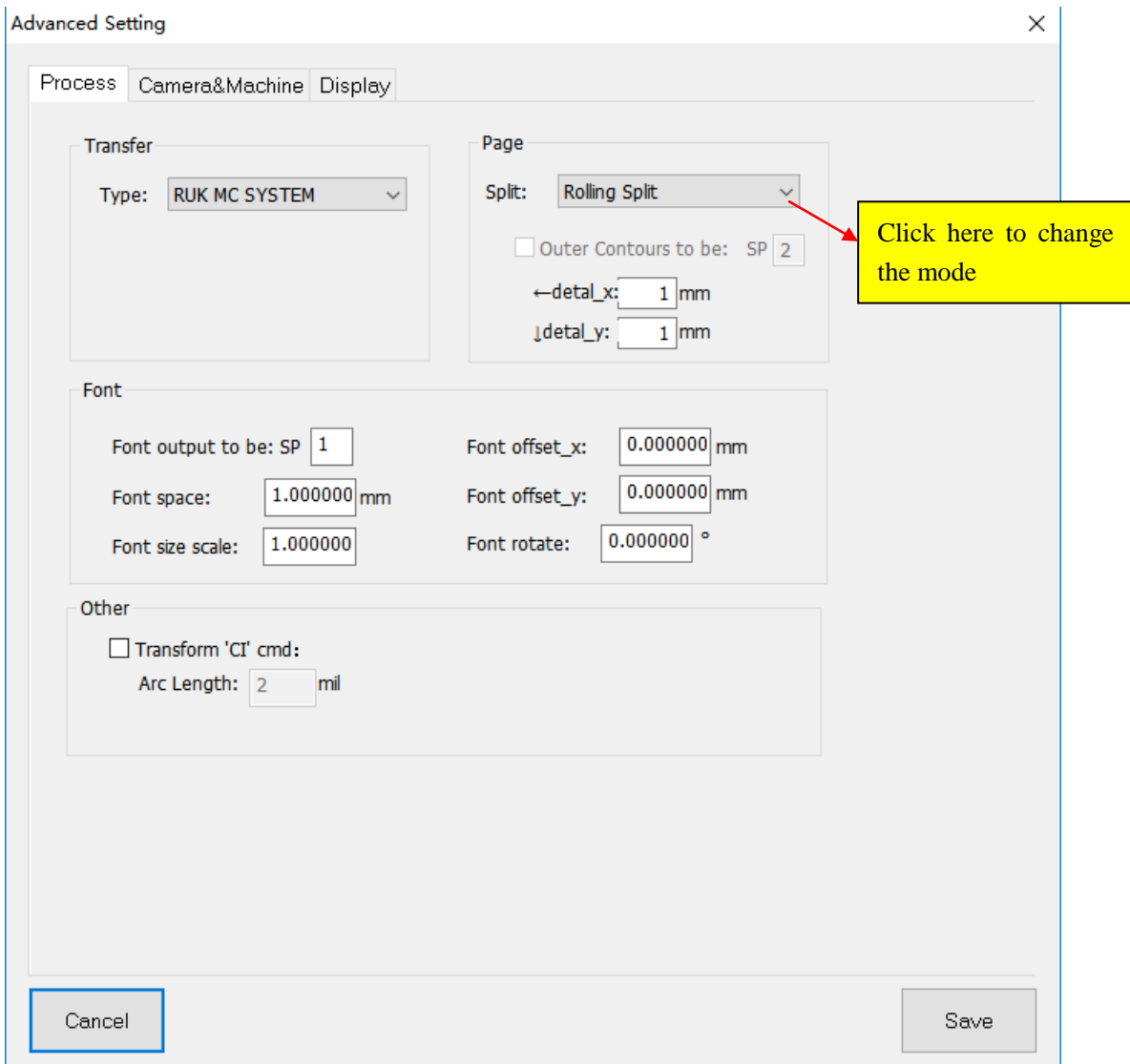
Here are two modes

1. Non-positioning cutting, belonging to the coordinate cutting, according to the drawing software coordinates of the corresponding table surface coordinate cutting operations; can be used for processing the monochrome material without drawing and cutting.

This mode works when making sure that three points:

A. The transfer software displays the "Stop" interface

B. In the advanced settings, change the mode not to "CCD positioning cut".

C. The machine is in the main interface

2. Position the cutting mode operation

A. On the drawing software, click on the "cut the first page" to confirm the output, on the transfer software, click "Continue", as shown below, jump to the mark selection screen
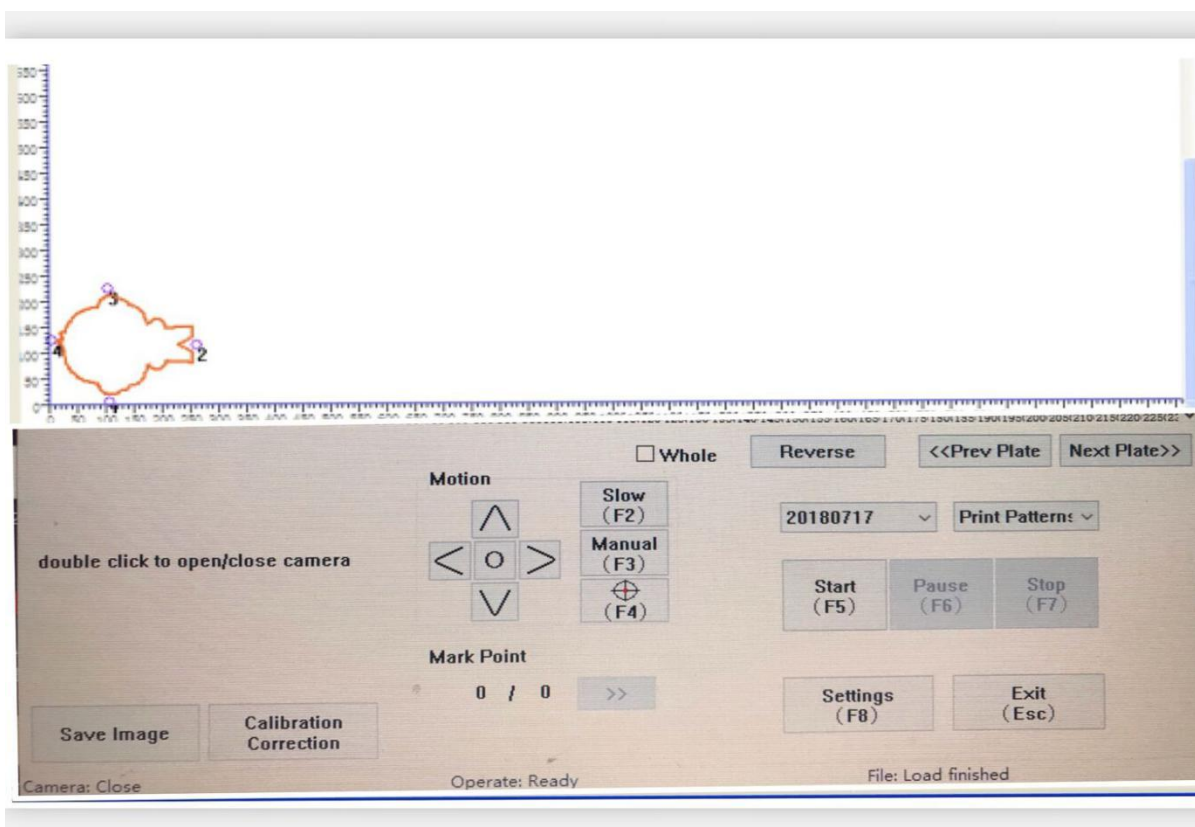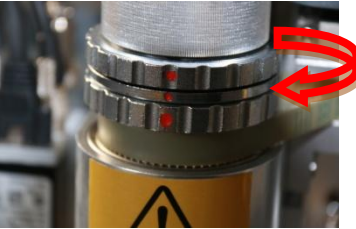
B.Double click on the camera to open the camera, move the camera so that the first mark point appears in the lens, click "Start" to automatically read mark point, after reading the machine will automatically cut;

III. Daily installation instructions for blade sleeve

Rjmtc daily use process specification		
Process project	Picture	Explain
1. Choose blade		The blades configured by our company are placed in the toolbox. Please select the appropriate blades according to your materials and technological requirements (please pay attention to safety when holding the blades).
2. Blade set		The knife cover provided by our company
3. Blade installation		First step Pay attention to your hand,hold the knife cover with your thumb and push out the front pressure foot of the vibrating knife
		Second After taking off the small presser foot, it can be seen as shown in the figure. Loosen the top wire with 2mm inner hexagon wrench

Third:

Select the required blade, pay attention to the knife gesture, the tip is in the center of the circle, the blade is outwards, the internal gap is aligned in a line, the knife into(install upside down, easy to appear disorderly cut phenomenon, cutting effect is bad)

Forth

Install the blade to the bottom, adjust the notched round head and chuck to the level, and finally tighten the hexagon socket. (the knife is not installed in the end, the depth of the knife changes greatly, and the cutting effect will be bad)

Install the foot, pay attention to the gesture as shown in the figure, take the foot, pin and the following slot alignment installation

Wrong

| 4. Blade
Sleeve installation | | First
Place the blade sleeve with the finished blade into the installation position of the machine head, align the three red dots, align the tip of the knife sleeve with the groove, and finally press the knife sleeve down |

		Three points in one line
		Second After the blade sleeve is plugged to the bottom, rotate the position of the red spot on the top layer to tighten it. After tightening the button to the fixing rod, the blade sleeve will be installed
		Third Connect the wire interface and then finished
5. Blade depth adjustment		First Lift the press foot by hand, you can see the blade (the blade is towards the other side of your hand, otherwise it's very dangerous)
		Second Press the button on the top of screen. At this time, the head of the screen is down and the depth of the knife is lowered. Please pay attention to the speed not too fast
		As shown in the figure, it is the best position of blade depth. Finally, the actual cutting to confirm whether the depth of the knife is appropriate, fine tuning can be carried out
6. Cutting reparation		First Put the material, pay attention to the material place, length and width

		Second After put the material, set origin point, and then send the file to cut

IV. User notice

- Power specification: 220v/380V±10%/50hz, ground wire must be installed to prevent static electricity

- The packaged CNC cutting system should avoid large vibration and collision during transportation.

- Keep the equipment table clean, clean machine table regularly;

- The air compressor needs to discharge water every day;

- Do not press the rails and beams on both sides of the equipment table to avoid damage to the rails;

- Do not place scissors on the cutting table to avoid touching the machine head when starting the machine;

- Plug and unplug plug, cable should unplug the plug body and unplug, do not plug and unplug when power is not off;

- In case of movement obstruction or other abnormal conditions, please cut off the power immediately and do not use it again. Please contact the supplier immediately.

- Any person using this cnc cutting system must meet the following conditions
  - Over 18 years old
  -Operator need be trained by RUK
  -Pls read this manual before you operate the machine

Safety precautions: the trainee operator must be accompanied by experienced personnel to operate the machine

V. Equipment questions and answers

Fault phenomenon	Reason	Method
When turn on the power switch, the lcd screen without any display	Check whether the power cord is in good contact or not, whether the switch is open	Rewire and turn on the switch
When turn on, the screen show com3	Machine 5v voltage is low or start up too frequently	Adjust the voltage or interval 5s and start up under the guidance of our engineer
The pattern was well cut in some places but others can't cut through	Blade depth not enough	Add the blade depth
The equipment does not move during	Signal line contact not well	Check the signal line contact well

sample cutting		or not
Rough edge when cutting sample	Speed too fast or vibrate not opening or blade be damaged	Reduce cutting speed, open the vibrate switch

VI. specifications

Model	RJMTC2516 RJMTC2513 RJMTC1310
Machine design	Flatbed cutting machine with servo motor system
Control panel	7 inch color touch screen
Speed	1600mm/s
Thickness	≤50mm
Cutting materials	Car sticker,KT board,PVC foam board, corrugated board,cardboard,PVC,PU,acrylic etc
Standard tools	Oscillating tool,kiss cut,universal cutting tool,camera,cursor position
Repeat	≤0.01mm
Command mode	PLT、DXF compatible file format
Interface	Ethernet port
Driving system	Imported servo motor and straight rail
Air pump	9KW/5.5KW/3KW
Voltage	220v/380V±10%/50HZ
Effective cutting area	2500*1600 mm 2500*1300mm 1300*1000 mm

NINGBO RUKING ELECTRICAL TECHNOLOGY CO.,LTD

Add：10F,Bridge Group, No.579 Rilizhong Rd,Ningbo city, China

Tel： 0574-28812915

Sales hotline： 18606877519

After sales： 400-680-9891

Technician： 18606877517

Fax： 86 0574 28812912

E-mail ： runking@rjruk.com

Web： www.ruk-tech.com

Attachment.

The following parameters are for reference only

Para record chart					
Model		Date		Modifier	
Para name	Actual record	Para name	Actual record	Para name	Actual record
Advanced					
Pda		Psa		U deep limit	
Cda		Csa		U1 deep limit	
Optimize angle		Optimize length		X reset offset	
Turn angle		Gradient		Y reset offset	
Tools					
U rotate speed		U rotate accel		Cut down speed	
U1 rotate speed		U1 rotate accel		Cut down accel	
Wheel down speed		Router down speed		Half cut down speed	
Wheel down accel		Router down accel		Hal cut down accel	
Cir down speed		Cir down accel		V-cut down speed	
V-cut down accel		V-cut offset 1(vertical direction)		V-cut offset 2(forward direction)	
V-cut rake					
0ffset					
Pen offset x		U offset x		U1 offset x	
Pen offset y		U offset y		U1 offset y	
Pen down delay		Cut down delay		Calibration x	
Pen up delay		Cut up delay		Calibration y	
U rotation angle compensation		U1 rotation angle compensation		Cut fwd compensation	
Cut rev		Half cut			

compensation		compensation			
Auto send					
Send speed		Send accel		Send offset	
Pump delay					
Transmit program parameters					
X-direction proportion		Minimum limit in x direction		Maximum limit in x direction	
Y-direction proportion		Minimum limit in y direction		Maximum limit in y direction	
Rotation		Relative blade position x		Relative blade position y	
Mirror image		Machine movement interval x		Machine movement interval y	
Speed		Whether to try to automatically find the first point		Finding times limited	
Target type		Mark radius of circle		Time	
Maintenance record					