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User Manual RUK Cutting Plotter

Model: RJKH Series





Flatbed Digital Cutting Machine --RJKH Series

Preface:

Thanks for using our products RJKH series, and it's our glory to be your supplier. What you purchased is flatbed digital cutting machine which is independently R&D by RUK technology, the equipment is mainly used in the field of apparel, shoes, luggage, bags, advertising, packaging etc.

Manual include installations, operations, safety precautions, simple troubleshooting. In order to make you acquainted with this machine, better and safely to use it, please read this manual carefully before you use this machine at the first time. Please also do keep this manual well in order to find solutions of some troubleshooting you meet later.

Warm Reminder:

1. This manual is edited by Ningbo RUK Technology Co., Ltd., hereinafter referred to RUK Technology.
2. This manual only for customers to understand the operation of the equipment and answers to your questions.
3. If manual content is different from the purchased RUK Flatbed digital cutting machine, RUK reserves the final interpretation.
4. This manual applies for modal of RJKH-1512, RJKH-1509, RJKH-1209, RJKH-0906, in case of discrepancies with the machine after reading, the machine shall prevail.
5. If you have any questions when using RUK flatbed digital cutting machine, please contact with our service team: Email: service@rjuk.com, Skype: [ruk.cutter](https://www.skype.com/people/ruk.cutter).



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Part One: Cutting Machine Installation

1-1 Transporting precautions

- We unified use the international standard wooden crates for packaging
- This equipment is precision machinery, should prevent from a strong vibration and colliding during transporting
- Loading and unloading is required by forklift, it is prohibited if not as required
- It is a precision machinery, must be handled with care and placed in accordance with instructions showed on outsider packaging
- The device can not be placed in water or wet place to avoid electricity leakage when power is connecting
- The operator should wear protective gloves to avoid scratching when dismantling packaging

1-2 Environmental requirement for placement

We should choose a right place which meet below conditions before installation.

- This device should be placed on a flat, dry ground, avoid to put somewhere surrounding corrosive gases, liquids, water droplets, vapor, oily dust, flammable, explosive gas, floating dust and metal mote.
- Temperature of location should be in the range of 5 °C -40 °C.
- Humidity of location should be in the range of 1% -75%.
- Location placement should be no heat source, electrostatic, strong magnetic, so as not to interfere with data transmission and reception.
- It should not be placed in the exposure environment, no strong direct sunlight.

1-3 Inspection items when out of box

Please first check if components are complete according to the list after taking apart the exterior packaging.

A: cutting table

B: feet frame

C: operation platform

(Shown in figure 1-1)



1-4 Exterior structure

Machine consists of below 5 parts: Feet Frame + Cutting Table + Chassis + Driving + Tools Head

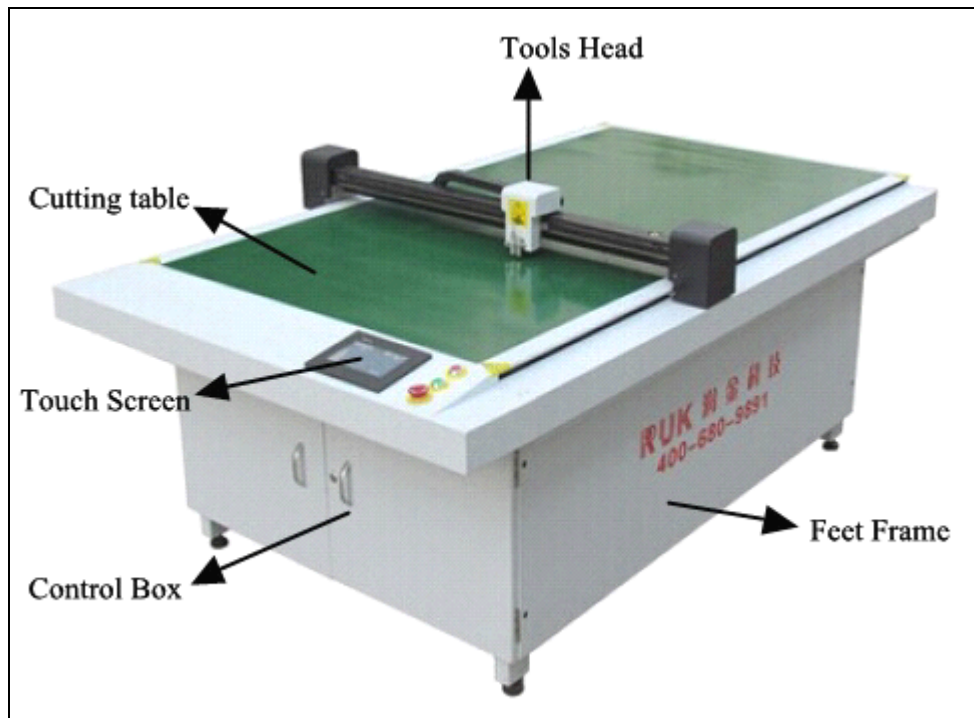


Figure 1-2

- Feet Frame: Responsible for fixing the whole table, otherwise affect the stability of running machine ,so must place in a flat ground.
- Cutting table: It is platform to put and cut material, so it is essential to keep in horizontal level. If it is not flat placed, cutting sample will come out uneven (some part is cut too deep, while some part is not cut through), therefore will shorten the working-life of the fibrous board. We uses multiple-level adjusting system here, and can adjust the cutting plane at any time as required.
- Chassis: A core part of the whole cutting machine, we independently R&D the embedded numerical control system. Separated electric control box is more stable, higher accuracy than the traditional model which is combined together.
- Driving: Operative part of the cutting machine, searching for stability , wear-resisting, reliability. We used imported linear guide and synchronous belt, which ensure high precision and stability in fast cutting.
- Tool head: Standard dual-tool head , it is very simple to put/take of the pen and knife .

1-5 Assembly process instruction

1-5-1 Feet frame installation

Place below-figured various components on flat ground, use the special screws (for feet frame fixing) from the accessory box to fix as below shown

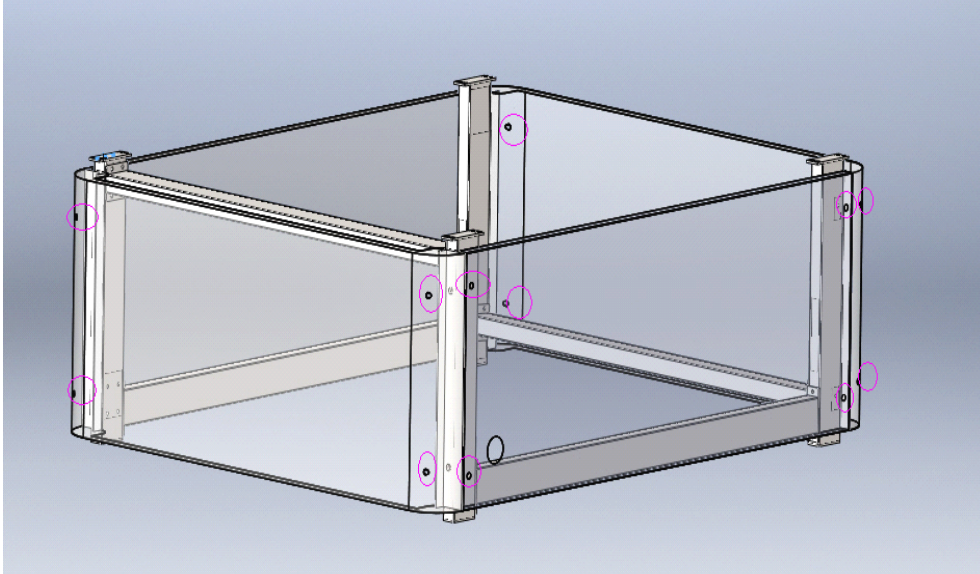


Figure 1-3 feet frame installation

1-5-2 Cutting table installation

Put the cutting table on the fixed feet frame, then use the special screws (for table fixing) to fix tightly as below black circle shown in figure 1-4

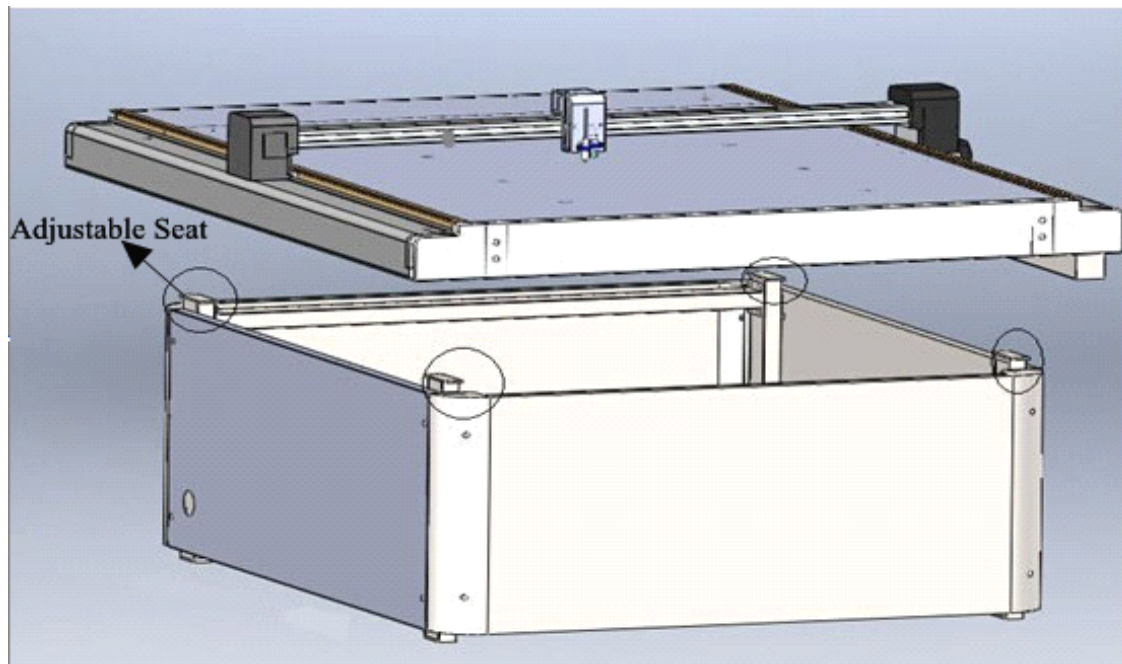


Figure 1-4 cutting table installation

Notice: After finishing installation of cutting table , please adjust the adjustable seat shown in figure 1-4 to keep same level with ground.

1-5-3 Operation platform

Connection plate interface on the side of chassis and operation platform figure 1-5:

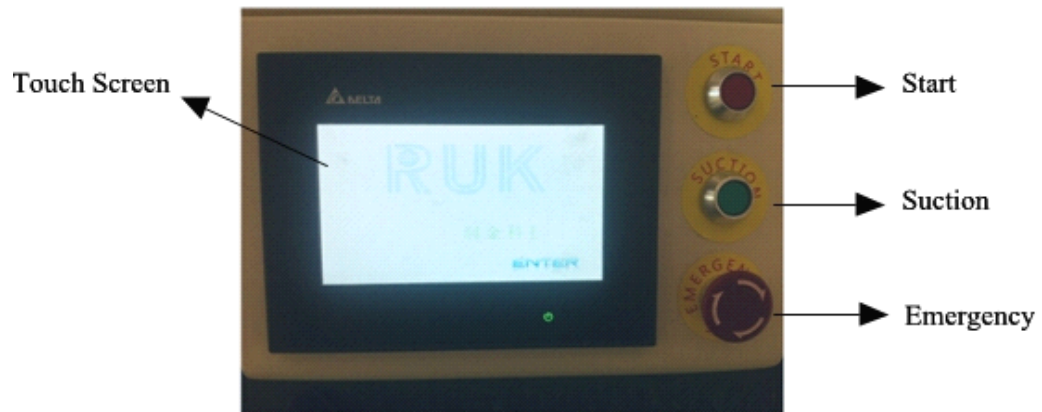


Figure 1—5 wire connection interface and buttons

- Start button: Power on/off the machine
- Suction button: Manual controlling button for pump , press once to start pump, 2nd press to close pump, 3rd press to be automatic pump
- Emergency button: safety protection button in emergency situation, Clockwise to open the button
- LCD touch screen: human-machine interface , and let you operate at your pleasure

1-6 Basic wire connection and precautions

Option A internet port: get network cable from the accessories box, connect one into interface of chassis another end to the computer or to router.

Warning: (220V/50HZ is standard in China, and we can adjust to meet local requirements)

- Connecting the power wire, the machine's power rotary switch must be in power-off position
- Need to shut down cutting machine and computer power when connecting cable.
- Power Specifications: 220V +10% ,50HZ, require to install ground wire to avoid electric shock, leakage and signal interference.

- Be sure that the power voltage is 220V +10%, if greater volatility in the supply voltage, it is recommended to install the regulator device.
- It should be avoided to use the same power supply circuit with other high-power machine to promise stability.

1-7 Pen & knife installation

After finishing the installation of the machine, please set and debug the equipment step by step as below

1-7-1 Knife installation

Get the knife sheath from the accessories box, unscrew the knife cover, then put the blade into the knife sheath as shown figure 1-6, **make blade exposed around 2mm, and be sure it is free to rotate in knife sheath.**

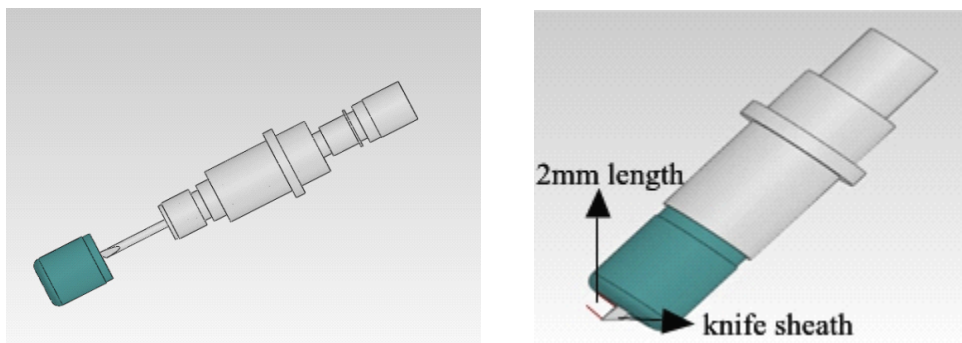


Figure 1-6

1-7-2 Pen installation

The pen holder is located on the other side of the knife holder, can move be up and down. Put the pen into the pen sheath and tighten the cover, then put the pen sheath into the pen holder as shown in Figure 1-7

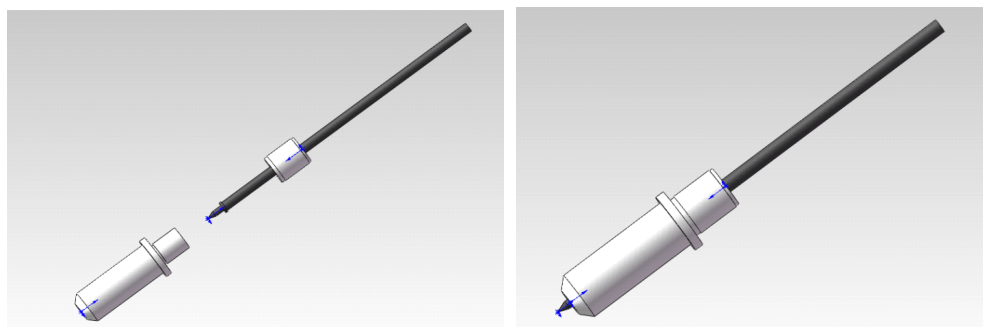


Figure 1-7

Put the pen sheath into the pen holder, and make the pen tip 3mm from paper, then tighter with the screw;
 put knife sheath into the knife holder at right side show in figure 1-8

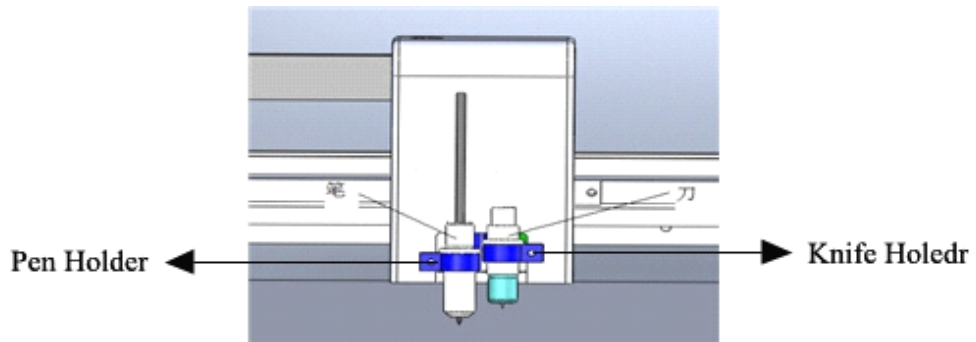


Figure 1-8

Part Two: Cutting Machine Operation and Settings

2-1 Power on/off operation instructions

- Power on
 - ① Hit the red rotary power switch to the "ON" position
 - ② Clockwise rotate "Emergency" button
 - ③ Press "Start" button
 - ④ 10 seconds later, screen show "RUK" as below



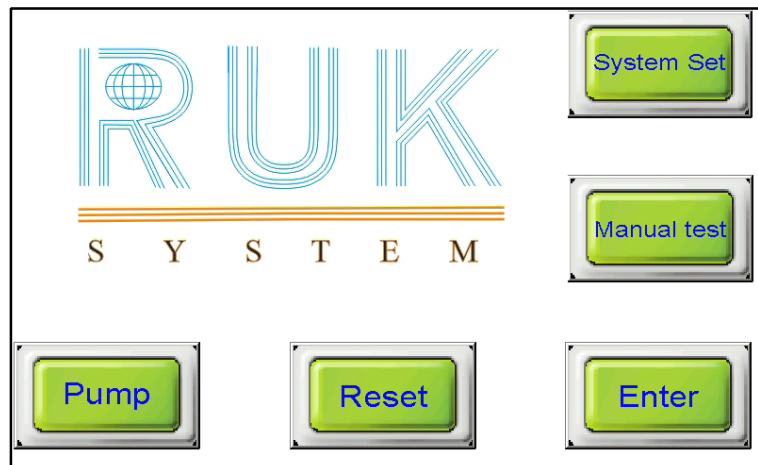
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ENTER

- ⑤ then press "enter" to finish the cutting machine initialization, cutter head will come to initial origin position to be still, that means cutting machine initialization is complete, you can carry out other operations.

- Power off
 - ① Press "Start" button
 - ② Press the red "Emergency" button
 - ③ Hit the red rotary power switch to the "OFF" position

2-2 Platform Operation



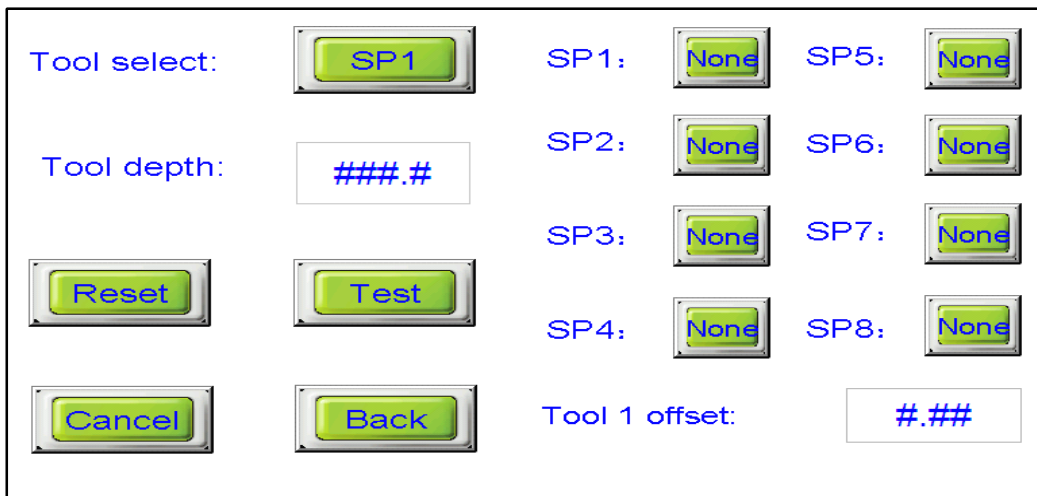
- **System set:** Setting function button , please see 2-4-5 for detailed description
- **Test:** It is a function to set and adjust the moving test, pen test, knife test
- **Enter:** Press the button, machine will act repeated cutting of a previous full-page file under standby interface.
- **Reset:** Reset function, cutting machine act resetting via software, let the cutter head back to the initial origin position.
- **Pump:** The button to control pump, press once to start pump, 2nd press to close pump. Default automatic suction state if you do not press the button (suction starts automatically after finishing paper transmission).

2-3 Basic operation

The machine is started, you only need a simple adjustment then can do cutting sample: take pen for SP1, knife for SP2 as example.

- Tool set instructions



In normal standby interface, press  →  to enter following interface.




In above figure, SP1-SP8 stand for 8 kinds of lines output by software.

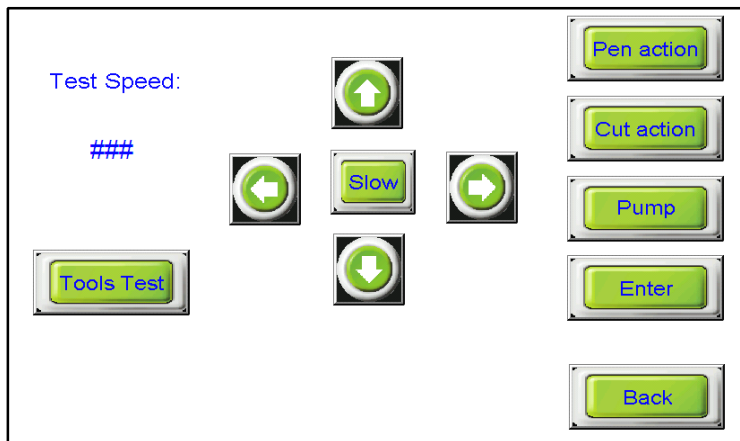
➤ Tool attributes list :

Attributes	Function
knife	Selected SP is a knife to cut
Pen	Selected SP is a pen to draw
Move	Neither drawing nor cutting, but head continue to move along the sampling lines .

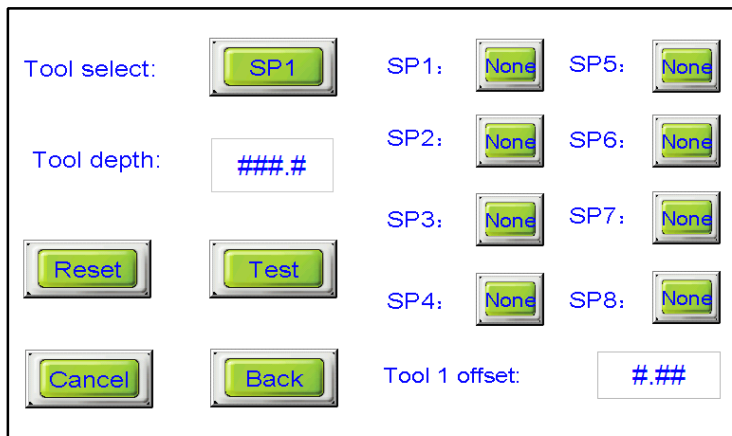
If SP1 did not show "pen" or SP2 did not show "cut", please touch  to set SP1 as "pen", and SP1 as "cut", then touch  to record settings and return to standby interface.

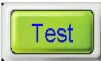
➤ Pen / knife test :

① Pen test: In normal standby interface, press  to enter below interface,

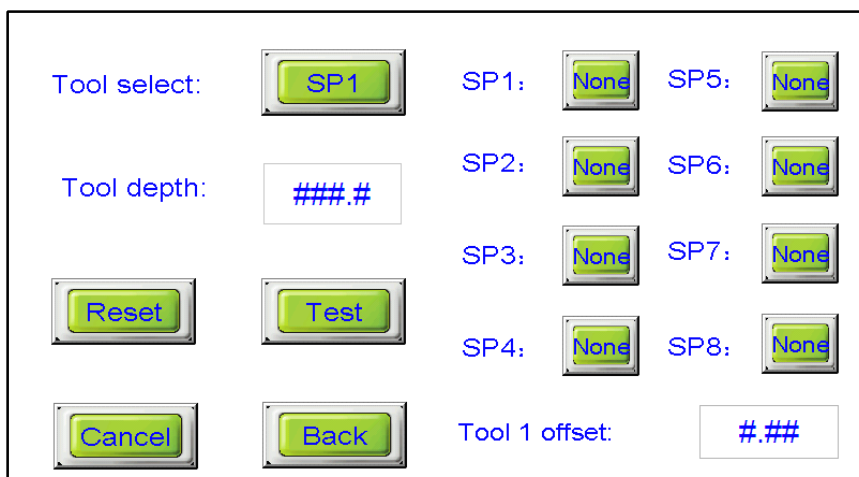


Press  to enter following interface



Press the pane behind "tool depth", and set it as 3.0, then press , cutting head will cut a 25mm * 25mm square at the lower right corner of cutting table.

② cut test: In normal standby interface, press  → select  to enter following interface

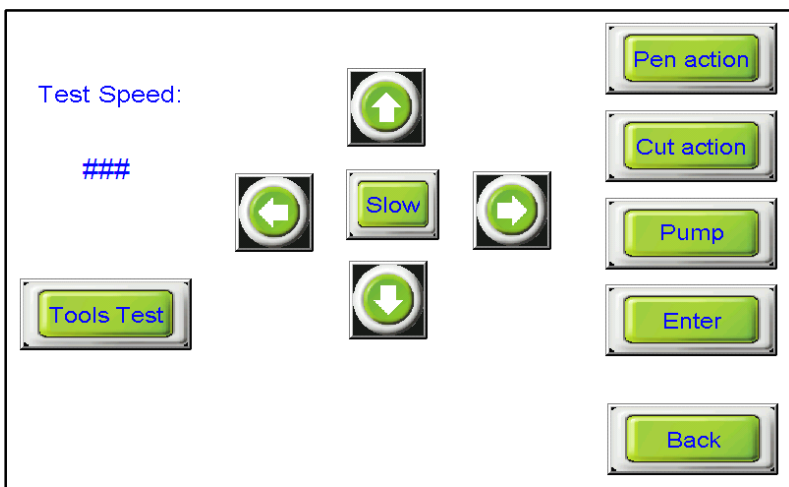


If the figure behind "tool depth" did not display SP2, please press to replace it.

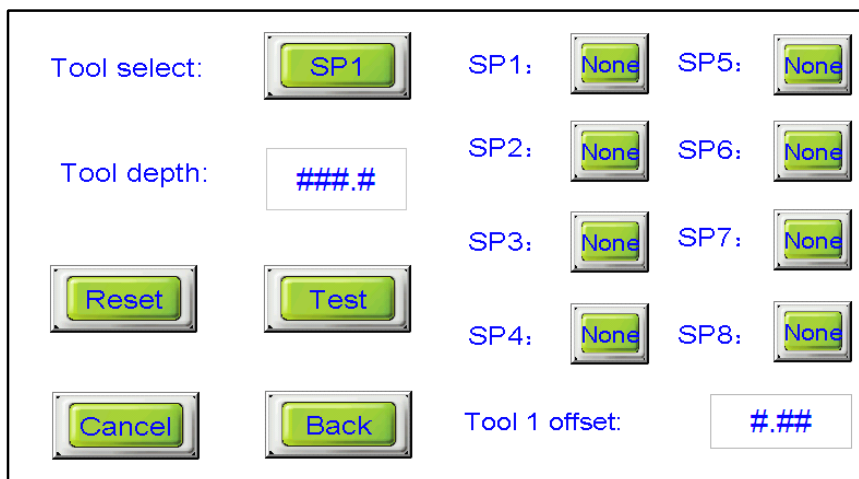
press the pane behind "tool depth", and set it as 3.0, then press , cutting head will cut a 25mm * 25mm square at the lower right corner of cutting table.

2-4 Operation platform instructions

2-4-1 : A tool to test and debug pen and knife, press this button to enter the following interface,












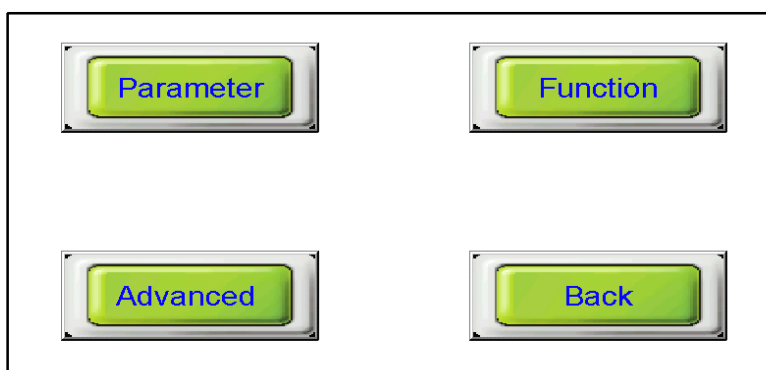
2-4-2 : press this button to enter following interface




Description of some buttons

- : press this button to draw/cut a 25cm x 25 cm square after finishing correlative setting

- : press this button to be back to standby interface, and will not record the setting
- : press this button to be back to standby interface, and will record the setting
- : When machine is under normal standby interface, press this button to let the cutter head back to the initial origin position. When machine is running, press this button to pause and cancel the current job, cutter head will return to the initial origin position;
- : test for pen, press once to be pen down, and 2nd press to be pen up
- : test for knife, press once to be knife down , and 2nd press to be knife up
- : it is switch of suction power, press once is to open suction, press again to close suction.
- : Press this button to make current placement as initial origin position
- : Press this button to repeat cutting a previous full-page file under normal standby interface.
- : Cutting machine function settings button, through a variety of settings, you can adjust the speed of the cutting machine, offset, tools, etc.. press this button to enter following interface.



- : setting parameters for the effect of cutting sample lines generated by software, press this button to enter following interface.

Pen speed:	####	Pen down delay:	###	X Offset:	##.#
Pen Accel:	#####	Pen up delay:	###	Y Offset:	##.#
Cut speed:	####	Cut down delay:	###		
Cut accel:	#####	Cut up delay:	###		
Move speed:	####	Calibration x:	###		
Move Accel:	#####	Calibration y:	###		

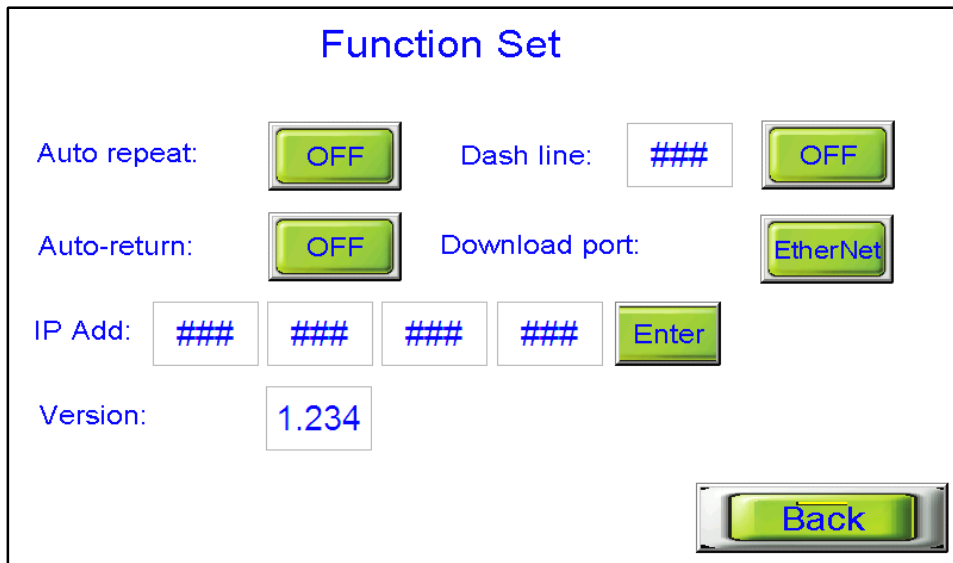
- ❖ Pen speed: control the pen speed during the drawing
- ❖ Cut speed: control the knife speed during the cutting
- ❖ Move speed: control the speed of non cutting or drawing from one point to another
- ❖ Press "back" to record the setting and return to previous interface
- ❖ Pen accel: adjust the time which the pen's speed from zero to draw speed
- ❖ Cut accel: adjust the time which the cut's speed from zero to draw speed
- ❖ Move accel: adjust the time which the speed from zero to move speed
- ❖ Pen up delay: time spending for pen up at working
- ❖ Pen down delay: time spending for pen down at working
- ❖ Cut up delay: time spending for knife up at working
- ❖ Cut down delay: time spending for knife down at working


Notice: Please don't adjust the acceleration (abbreviated to accel) too large, too large may damage the mechanical structure of the cutting machine; Adjust "pen up delay" "pen down delay" to improve or avoid the problem of not coinciding the drawing line from the starting point to the finishing point, or not write clearly.

- ❖ Calibration X: calibration for X direction
- ❖ Calibration Y: calibration for Y direction
- ❖ X offset (mm)::adjustment of pen offset in X direction
- ❖ Y offset (mm): adjustment of pen offset in Y direction
- ❖ Press "back" to record the setting and return to previous interface



➤: setting interface for advanced functions, after press it will show following interface



- ❖ Auto repeat: open this function if need more than 1set of cutting sample, it will automatically start repeat cutting until stopping by manual
- ❖ Dash line: Can solve the dotted line can not be performed need to set the length of the dashed
- ❖ Auto-return: Automatically back to the original: automatic homing function cutting machine will return to the mechanical origin position after finishing a version cutting sample
- ❖ Download Port: It is port to receive data, slightly touch the button behind to change the current port
- ❖ IP Add: if using the Ethernet to receive data, the IP add of the cutting machine and the working computer must be in same network segment (the anterior 3 digits of IP must be same), otherwise computer can not connect with cutting machine
- ❖ Version: internal software version No. of cutting machine
- ❖ Press  to record the setting and return to previous interface



Part Three Basic Maintain Instructions

This equipment is a mechanical and electrical products in precision, need to be carefully maintained, to prevent unnecessary failure due to not well maintenance, correct operation. Correct maintenance can prolong the useful life. Detailed requirement as following:

- Give a good environment for the cutting machine ,do not be placed under strong light and should avoid direct sunlight, otherwise the surface of cutting table will crack or arch leading to the uneven table , which will impact the cutting performance and using life.
- wipe the cutting table with alcohol on a regular basis (do not pour the alcohol directly into the table) to prevent the clogging of suction holes , which will influence the effect of suction.
- strictly prohibited to place heavy objects (5kg or more objects) on the cutting table , as well as human trample and sleep,
- Do not heavily press the track of both side of cutting table and moving track, otherwise you will hear card sound when running machine.
- The power connecting machine must be installed to the ground wire to prevent static interference, and may destroy machine and interface.
- Power specification: AC220V+10%, 50/60hz, 2000w, must be installed to ground wire to prevent static interference.
- Cutting material is recommended kraft, white cardboard etc in high quality, weight between 100 grams to 400 grams to extend the cutting knife life
- Get maintenance, optimization, antivirus to computer systems and software on a regular basis, computer system instability will also affect the operation.
- When machine is running, do not let head and hands close to cutting machine.
- If cutting machine will not be used for a long time, please pull the power cord from power socket to avoid a fire caused by power wire insulation deterioration or electric shock incident.
- Recommended to inject lubricant into nozzle of slider every three months to reduce friction between the slider and the rail so that the slider is running smoothly.



Part Four: Technical Parameter

RJKH Series Technical Parameters	
Model	RJKH0906 RJKH1209 RJKH1509 RJKH1512
Effective Cutting Area	900mmX600mm 1200mmX900mm 1500mmX900mm 1500mmX1200mm
Operation Properties	Work with computer synchronously for quick data transmission, multi-page file in one time;
Max. Cutting Speed	1400mm/s
Cutting Thickness	≤2mm
Cutting Materials	Kraft cardboard, White cardboard, Red cardboard, PVC sheet, Fibrous cardboard, Rubber sheet etc...
Tools	Blade (Full cut and half cut), Pen (Gel-ink pen, oil pen, ball pen),
Fixing Method	Vacuum suction
Repeat Precision	≤0.01mm
Software Resolution	0.025 / 0.01 / 0.1 available
Interface	Ethernet port
Buffer Memory	1G, fast transmission for multi-page large file
Command Mode	HP-GL compatible format, work with any CAD software like Gerber, Lectra, etc...
Control Panel	7 inch Color Touch screen (English version)
Driving System	Servo motor, Straight rail
Voltage/Power	AC 220V±10%, 50HZ / 2.5KW
Fuse	6A / 30A
Overall Dimension(mm)	1620*1063*904 1920*1363*904 2220*1363*904 2220*1663*904

Part Five: Frequently asked Questions and Solutions

No.	Malfunction phenomenon	Malfunction Cause	Solution
1	Machine can not start after pressing power switch/ emergency stop switch /red button	1. Power socket no power 2. Machine 6A fuse broken	1. Change socket, be sure it is with power 2. Change a new fuse
2	Screen show a connection error or alarm after turning on machine	1. Wire of screen not well connect 2. Wire of screen broken	1. Connect again 2. Change a new wire
3	Pump can not work	1. Pump plug loose, relay wire controlling pump not well connect 2. Pump is broken	1. Make pump plugs tightly to socket 2. Get pump to other power socket, please contact us if still can't work
4	Knife holder hit the table and made big sound when resetting or cutting	1. Knife holder is put too deep/ knife deep set too big 2. Cutting table is not horizontal	1. Adjust the head height, reduce knife depth 2. Make sure cutting table is horizontal
5	Knife can not cut through the paper	1. Exposed part of blade is too short 2. Pen/knife no. is set wrongly 3. Knife holder not tighten or blade wear	1. Tip exposed need 0.2mm longer than paper thickness 2. Reset pen/knife no correctly reference to manual 3. Change a new blade and tighten the holder
6	Cutting paper pattern is through some part, while some part is not	Knife drop is not enough, cutting table is in not horizontal	Deepen knife pressure, generally 0.4, adjust the table level if some part still not cut through
7	Machine did not do any corresponding action when need to cut paper pattern	Signal line is poor connected	Check the signal wire
8	Edge of cutting modal is not smooth	1. Check if blade can not rotate freely in the sheath 2. Cutting speed is too high	1. Change a new blade to be sure its rotation freely 2. Reduce the cutting speed
9	Machine make a big noisy then Scarification doodles in cutting	Cutting speed is too high , and cause motor out of control	Reduce its cutting speed
10	Knife will take away the cutting paper in cutting	1 .Size of cutting sample is too small 2. Connect of machine and pump is not well, and cause leakage	1. Cover balance holes with paper to strength the suction power 2. Get good connection