

User Manual



Model: RJMTC

Website: www.ruk-tech.com

Flatbed CNC Cutting Machine --RJMTC Series

Preface

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

Manual include installations, operations, safety precautions, simple troubleshooting. In order to make you acquainted with this machine, better and safely 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 carton sample cutting machine ,RUK reserves the final interpretation.
4. This manual applies for modal of RJMTC1310, RJMTC1815, RJMTC2516, in case of discrepancies with the machine after reading, the machine shall prevail.
- 5 If you have any questions when using RUK flatbed CNC cutting machine, please contact with Ellen, e-mail :ellen.yuan@rjuk.com.

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1st Part Cutting Machine Installation

1、 Transporting precautions

1-1 We unified use the international standard wooden crates for packaging

1-2 This equipment is precision machinery, should prevent from a strong vibration and colliding during transporting

1-3 Loading and unloading is required by forklift, it is prohibited if not as required

1-4 It is a precision machinery, must be handled with care and placed in accordance with instructions showed on outsider packaging

1-5 The device can not be placed in water or wet place to avoid electricity leakage when power is connecting

1-6 The operator should wear protective gloves to avoid scratching when dismantling packaging

2. Environmental requirement for placement

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

2-1 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.

2-2 Temperature of location should be in the range of 5 °C -40 °C.

2-3 Humidity of location should be in the range of 1% -75%.

2-4 Location placement should be no heat source, electrostatic, strong magnetic, so as not to interfere with data transmission and reception.

2-5 It should not be placed in the exposure environment, no strong direct sunlight.

3. Inspection items when out of box

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

A: Accessories Box

B: Cutting table

C: Cutter head

Shown in figure 1-1

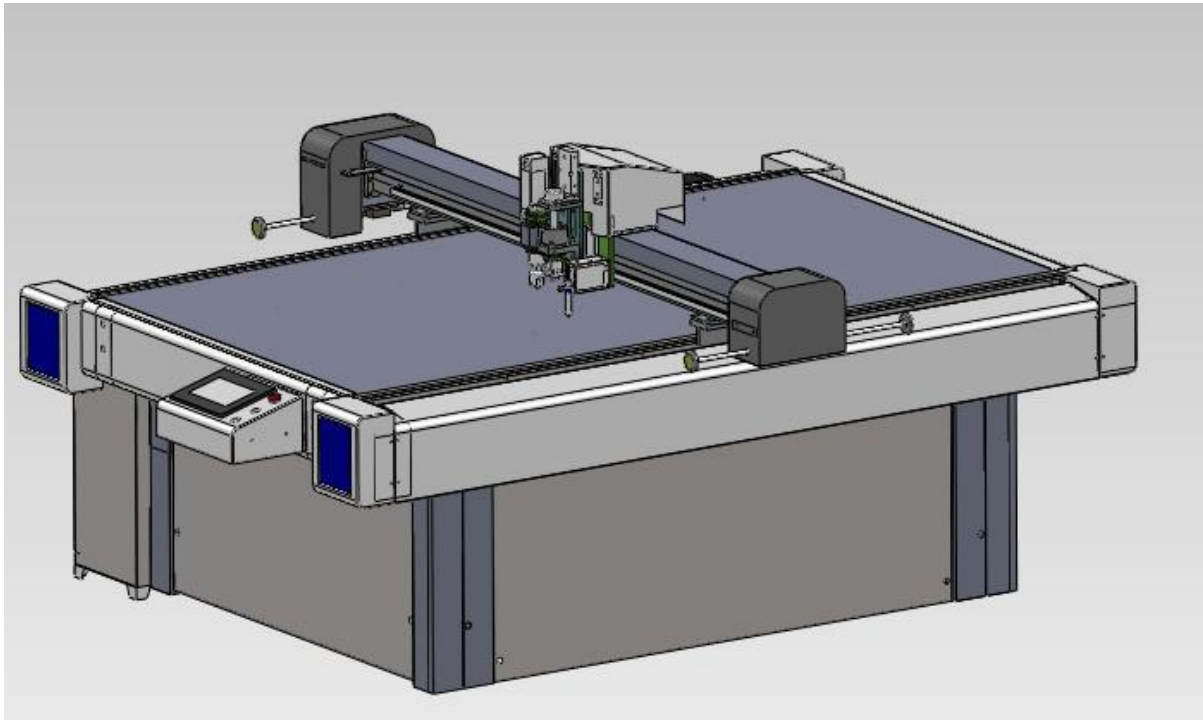


Figure 1-1

2) Accessories in accessories box: 3 sets of creasing wheel. one vibration cutting tool, a tool set of ball-point pen, gel pen sets, cable, hex wrench set, one-word screwdriver ,one + cross screwdriver, a user manual, a warranty card, the cutting blades, the installation CD-ROM.

Note:

1 Before installation, please first check above components.

2 The above components prevail what exactly it is , are subject to change without notice

4. Exterior structure

Machine consists of below 7 parts:

Feet Frame + Cutting Table + Controller Board + Chassis + Driving + Tool Head(creasing wheel, blade , pen) + Air Pump + Air compressor

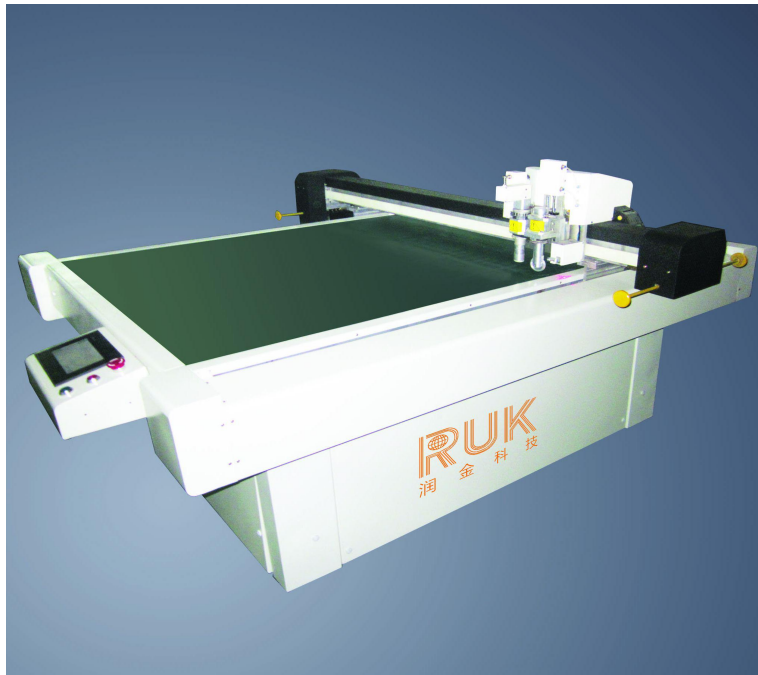


Figure 1-2

- ◆ Feet Frame : Responsible for fixing the whole table, otherwise affect the stability of running machine ,so must place in a flat ground.
- ◆ Cutting table: The platform is placed face of the cutting material, its level is crucial, and must not have the up and down uneven phenomenon. The machine adopts 5mm thick aluminum polished super standard; cutting machine with partition suction function, according to the customer's paper size setting the suction range more powerful adsorption cutting material.
- ◆ Controller board: it is the heart of the entire computerized cutting machine, its performance is the decisive factor to measure the pros and cons of cutting machine, the standard software of the controller plays the role of the soul. This machine adopts imported controller and self-developed CNC software combination, to more advanced features than the imported machines.
- ◆ Driving: Operative part of the cutting machine, searching for stability , wear-resisting, reliability. This machine adopts the most popular international timing belt material, which consists of the belt + glass steel wire and the teeth will not slip.
- ◆ The cutter head have knife, pen and creasing wheel, its design structure directly affects the cutting quality, the design should have a soft and light feeling. The machine adopts the standard structure, working of pen, knife and creasing wheel at one go, the removable structure of the machine in the head part use the most advanced technology, easy to install, add new features and ongoing maintenance.

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- ◆ pump, the machine uses high-power pump, let the cutting material firmly adsorb on the platform to ensure the efficiency and precision of the cutting.
- ◆ air compressor offer the pressure to achieve platforms partition function. this machine adopts the mute air compressor, low noise, high stability.

5 Assembly process instruction

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

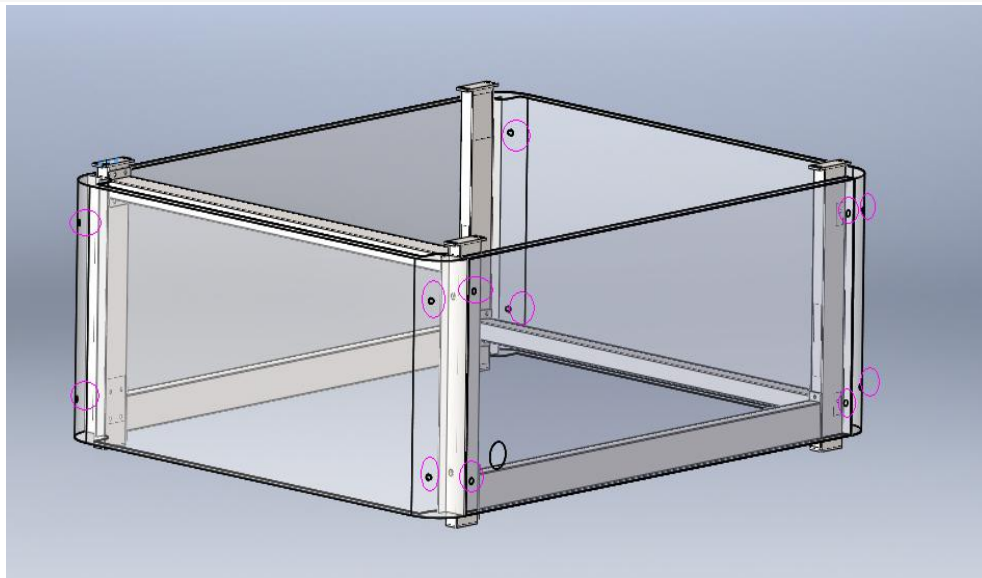


Figure 1-3 feet frame installation

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

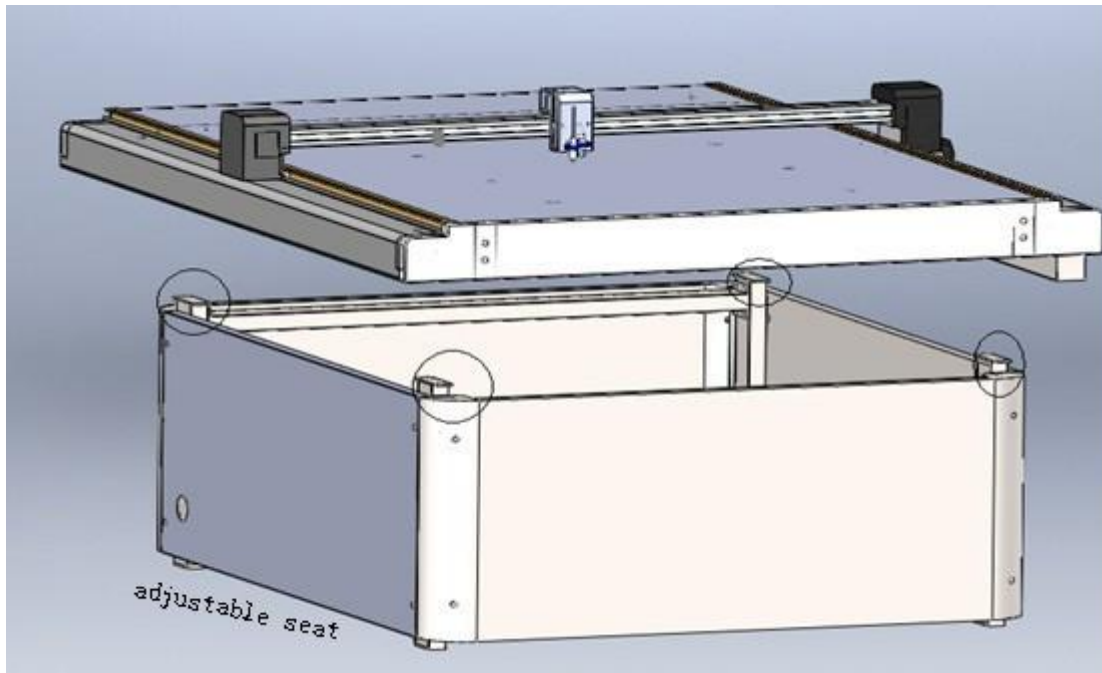


Figure 1-4 cutting table installation

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

6. pen & knife & creasing wheel installation

After finishing the installation of the whole machine structure, please follow below steps to set and debug the equipment.

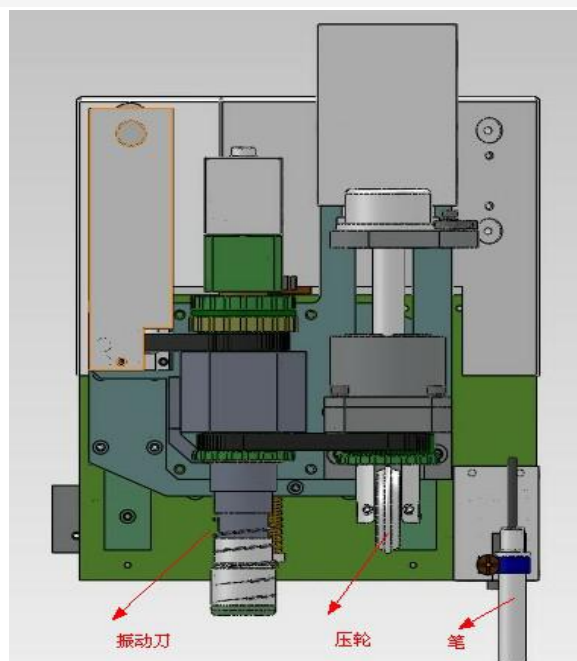


Figure 1-8 (left to right : cutter , creasing wheel and pen)

7. Line connections

Connect the power cord: this machine adopt national standard circuit, use three-phase five-wire system, particularly pay attention L1, L2, L3 which are FireWire (connect to 380V) . N is zero line (connected 220V to N), GND is the ground wire, Do not pick the wrong lines.

Transport connection: This cutting machine can use both Ethernet port and serial transmission mode. Get the network line or serial cable from the accessory box, cable or serial cable into the bottom of the countertop cable connector and the other end into the back of the computer host the corresponding interface can be.

Note:

1. When connecting the power line, the machine power switch must be in the [OFF] position. Please carefully check and make sure the power wiring is connected on boot,
2. Connecting to the network port, connect the LAN cable port inserted in the transfer of modem or router's LAN port.
3. Power Specifications: 380V ± 10% / 50HZ.
4. Make sure the power voltage is 380V, recommend to install a regulator.
5. Avoid to use with other high-power or electrical interference in the same power in order to maintain the stability of power supply.

2nd Cutting Machine Operation and Settings

2-1 turn on/off operation instructions

◆ turn on

Hit the red rotary power switch to the **ON** position → press "em stop" button → Screen show" countdown 10 number..."10 seconds later, screen read"



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finish the cutting machine initialization, cutter head will come to initial origin position to be still, that means cutting machine initialization completes, you can carry out other operations.

- ◆ turn off


Press "em stop" to close machine → turn off power

2-2 Platform Operation(Initial interface)




- ◆  : 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).

- ◆  :Reset function, cutting machine act resetting via software, let the cutter head back to

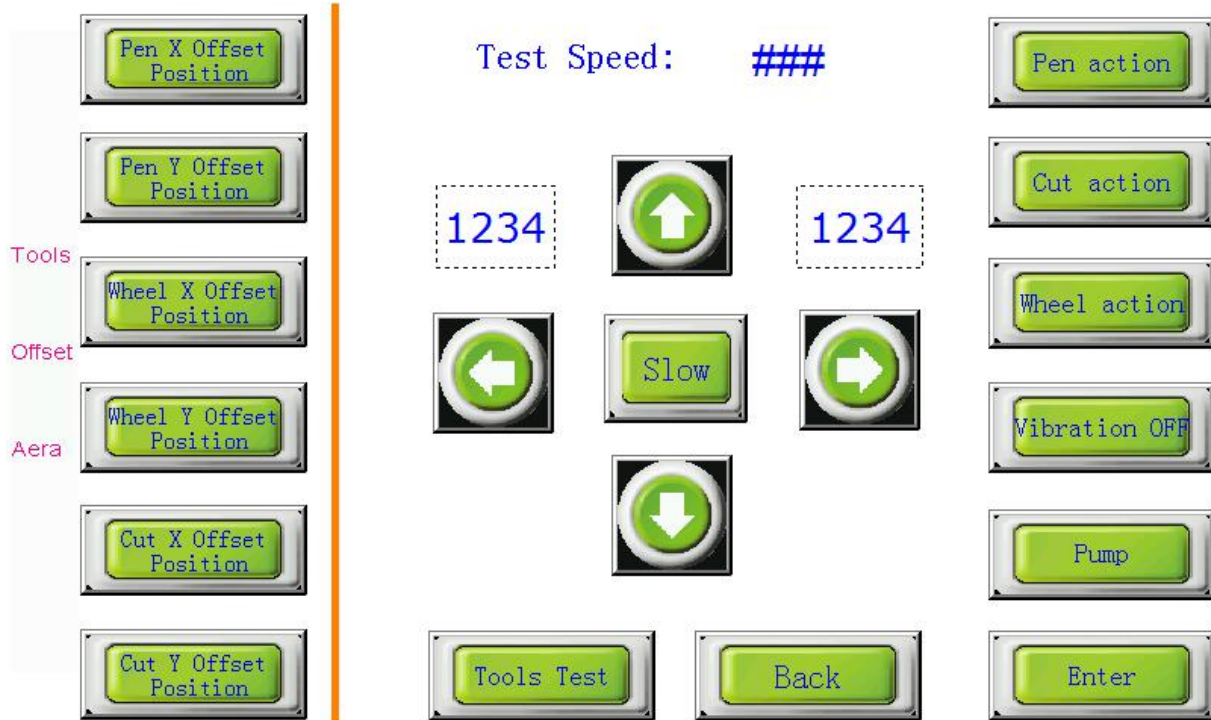
the initial origin position.

- ◆  : Press the button, machine will act repeated cutting of a previous full-page file under

standby interface.

- ◆  Press this button to open below interface

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- (1) : keep pressing to move X “+” direction
- (2) : keep pressing to move X “-” direction
- (3) : keep pressing to move Y “+” direction
- (4) : keep pressing to move Y “-” direction

(5) pen action/ cut action/ wheel action: press once to make them move down , press 2nd to get back to its placement.




(6) Origin (0,0) is defined on the table anywhere



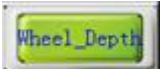
(7) Test head vibration function is correct or not

(8) (slight moving): In the movement of X, Y and K, K1 in the next page , moving speed was adjusted to 1/10 of the original.

9) Press this button to open below interface


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◆  : For example ,if the current tool is knife, press the button to adjust the knife depth, when reach the suitable height, press  to save the current height as full knife depth.

◆  : For example ,if the current tool is wheel, press the button to adjust the wheel depth, when reach the suitable height, press  to save the current height as wheel depth (Note: The correct depth is the current depth subtract the value set in the " material depth")

◆ **Material Type:** Select the corresponding type of material.

◆ **Material Depth:** Set the thickness of material

◆  Use this tool together with half knife

◆ Press  to enter below interface

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Tools Type		Tools Speed	
SP1: <input type="button" value="None"/>	SP2: <input type="button" value="None"/>	Cut Down Speed: <input type="text" value="###.#"/>	
SP3: <input type="button" value="None"/>	SP4: <input type="button" value="None"/>	Wheel Down Speed: <input type="text" value="###.#"/>	
SP5: <input type="button" value="None"/>	SP6: <input type="button" value="None"/>	Cut Down Accel: <input type="text" value="###.#"/>	
SP7: <input type="button" value="None"/>	SP8: <input type="button" value="None"/>	Wheel Down Accel: <input type="text" value="###.#"/>	<input type="button" value="Back"/>

--Tools type: Pen & knife setting, options: move, pen, cut, wheel, half cut (subject CAD software settings)

--Cut down speed: setting for speed when blade runs down

--Wheel down speed: setting for speed when wheel runs down

--Cut down accel: Adjust the time which the cut's speed from zero to cut speed

--Wheel down accel: Adjust the time which the wheel's speed from zero to cut speed

◆parameter setting

Pen Speed: <input type="text" value="#####"/>	Pen Down Delay: <input type="text" value="###"/>	Cut X Offset: <input type="text" value="###.#"/>
Pen Accel: <input type="text" value="#####"/>	Pen Up Delay: <input type="text" value="###"/>	Cut Y Offset: <input type="text" value="###.#"/>
Cut Speed: <input type="text" value="#####"/>	Cut Down Delay: <input type="text" value="###"/>	Wheel X Offset: <input type="text" value="###.#"/>
Cut Accel: <input type="text" value="#####"/>	Cut Up Delay: <input type="text" value="###"/>	Wheel Y Offset: <input type="text" value="###.#"/>
Wheel Speed: <input type="text" value="#####"/>	Pen X Offset: <input type="text" value="###.#"/>	Tang Angle Compesation: <input type="text" value="##.#"/>
Wheel Accel: <input type="text" value="#####"/>	Pen Y Offset: <input type="text" value="###.#"/>	Cut FWD Compesation: <input type="text" value="##.#"/>
Move Speed: <input type="text" value="#####"/>	Calibration X: <input type="text" value="###"/>	<input type="button" value="Back"/>
Move Accel: <input type="text" value="#####"/>	Calibration Y: <input type="text" value="###"/>	

--Pen speed: control the pen speed during the drawing

--Pen accel: Adjust the time which the pen's speed from zero to pen speed

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- Cut speed: control the cut speed during the cutting
- Cut accel: Adjust the time which the cut's speed from zero to cut speed
- Move speed: control the speed during moving(no draw or cut)
- Move accel: Adjust the time which the move's speed from zero to move speed
- Pen down delay: the delay time when pen down(N milliseconds)
- Pen up delay: the delay time when pen up(N milliseconds)
- cut down delay: the delay time when cut down(N milliseconds)
- cut up delay: the delay time when cut up(N milliseconds)
- pen X offset: adjust the offset value of pen and the cursor position in X-direction
- pen Y offset: adjust the offset value of pen and the cursor position in Y-direction
- Cut X offset: adjust the offset value of cut and wheel in X-direction
- Cut Y offset: adjust the offset value of pen and wheel in Y-direction
- Wheel X offset: adjust the offset value of pen and wheel in X-direction
- Wheel Y offset: adjust the offset value of pen and wheel in Y-direction
- Calibration X: Adjust if size is consistent with the actual in X direction
- Calibration Y: Adjust if size is consistent with the actual in Y direction
- Tang angle compensation: Adjust the position offset value of pen and wheel in X-direction
- Cut FWD compensation: Adjust the position offset value of pen and wheel in Y-direction

7) System setting

Machine Type:



PDA:	<input type="text" value="##.#"/>	PSA:	<input type="text" value="##.#"/>	JK Offset:
CDA:	<input type="text" value="##.#"/>	CSA:	<input type="text" value="##.#"/>	<input type="button" value="OFF"/>
Optimize Angle:	<input type="text" value="###.#"/>	Optimize length:	<input type="text" value="####"/>	
Turn Angle:	<input type="text" value="##.#"/>	Gradient:	<input type="text" value="##.#"/>	



(1) Machine Type: size of cutting table ,such as 1300x1000,1800x1600....

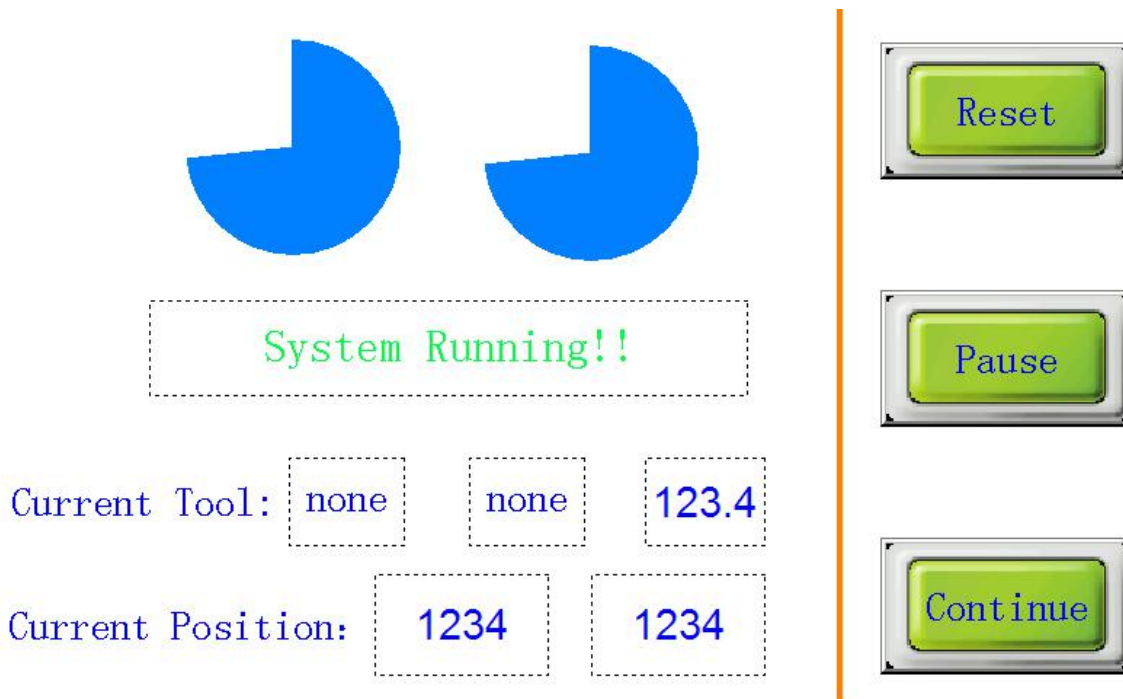
Manual

- (2) PDA/PSA: Adjust the speed when pen is drawing curve
- (3) CDA/CSA: Adjust the speed when blade is cutting curve
- (4) Optimize angle: no use for this function now
- (5) Optimize length: adjust the speed when cutting in curve
- (6) Gradient: Beams torque correction, in case of rough handling in transportation
- (7) Turn Angle: no use for this function now



- (8) : In the initial page, press this button can do repeated cutting

When machine is in running, display board will appear below interface

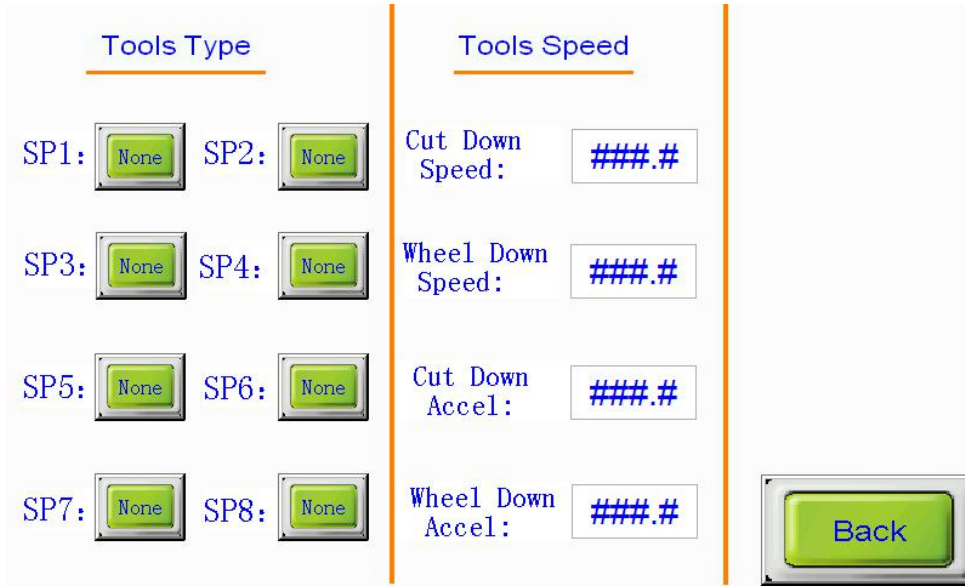




- (1) Current Tool: Show tool no and tool for current running
- (2) current position: show the placement where cutter head is
- (3) current depth: show the depth of current tool
- (4) Pause: when machine is running, press once to pause, and press 2nd to cancel current working
- (5) Continue: when under pause state, press this button to continue working.
- (6) Reset: restore the machine to the power-on state

2-4 Examples of operation

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1)pen and cut setting (take example as : SP1 as pen.SP2 as cut、 SP3 as wheel)

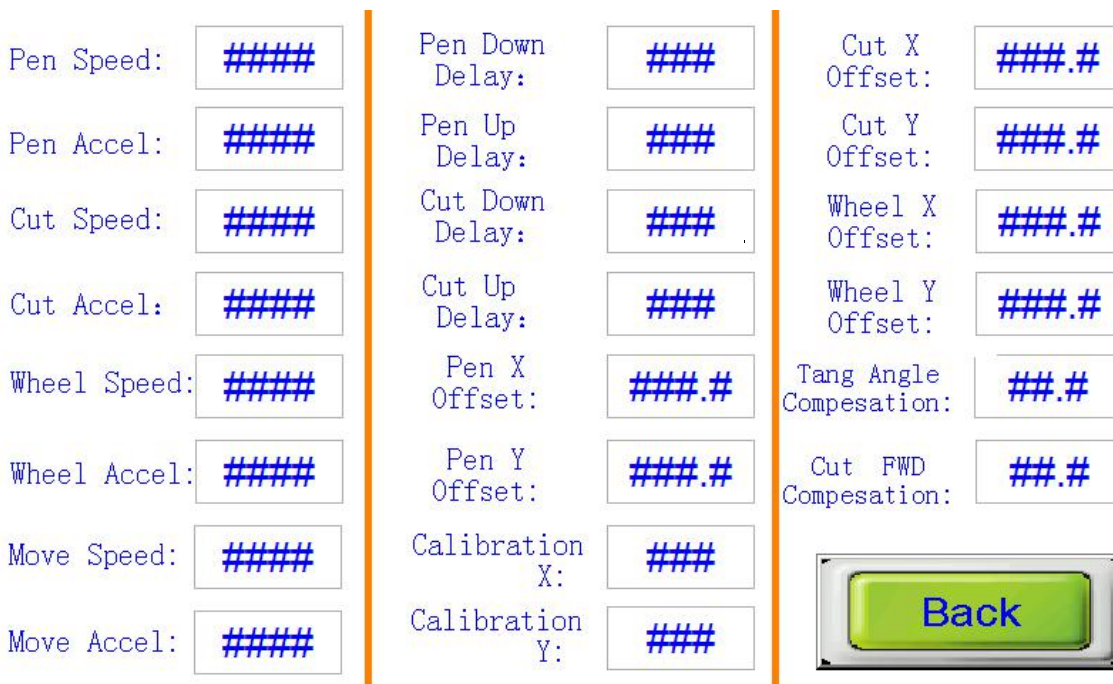



◆ Press  in initial interface, choose “ to come out interface of tool set, then press “tool parameter”

◆ set SP1 as pen , SP2 as cut , SP 3 as wheel

◆ complete setting.

2) Setting of speed accel (take pen speed accel as example)



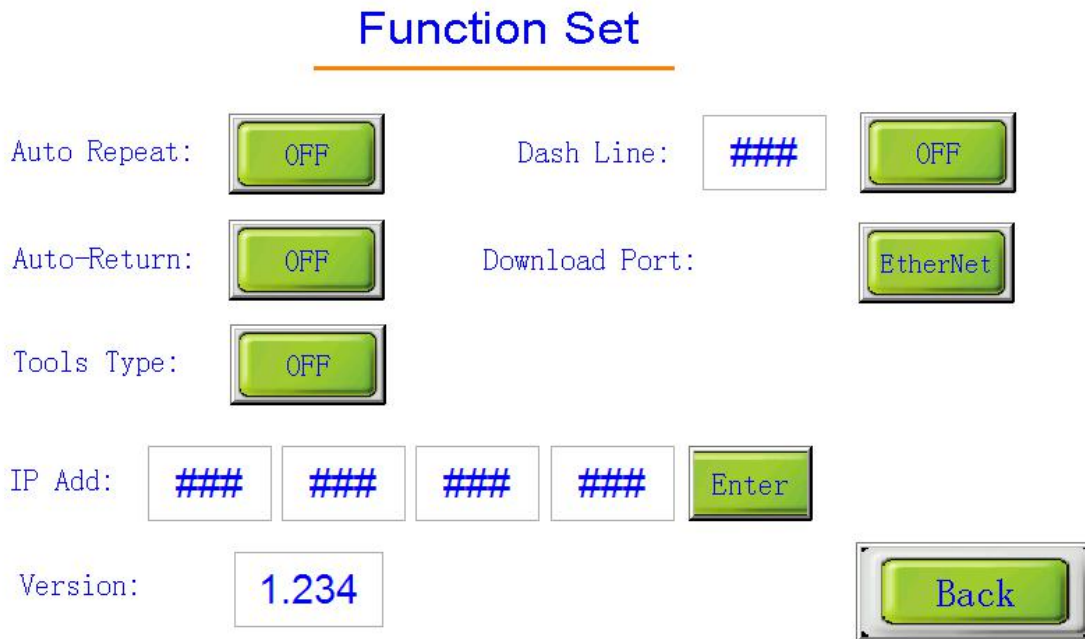
◆ press  in initial interface, then press “parameter set”to come out above interface

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- ◆ input “3000” on pen speed accel, then press enter
- ◆ press “back ”to return initial interface, setting of pen speed accel finished

3) Setting of Ethernet port

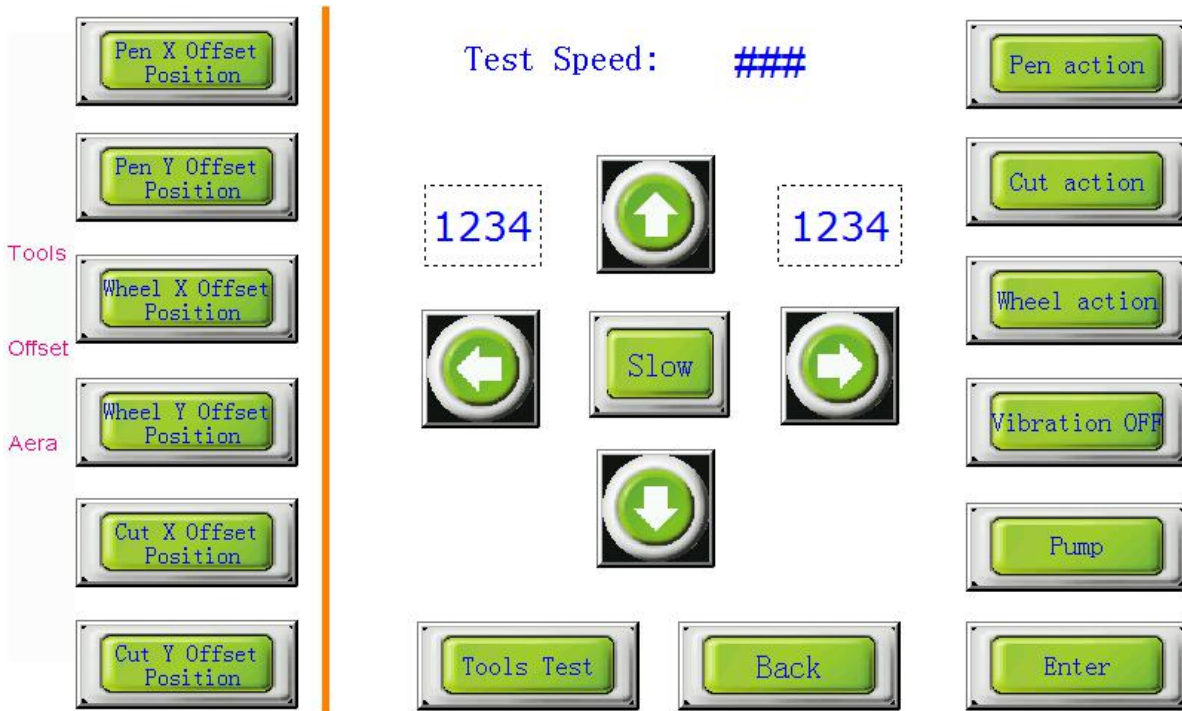
Ethernet setting (To connect to the local computer as an example.)



- ◆ press “parameter set” in initial interface to come out “function set”
- ◆ set “download port” as “Ethernet”,
- ◆ set IP Add, if IP of the local computer is “192.168.0.26”, then set “192.168.0.250” for cutting machine. (92.168.0 should be same)
- ◆ Ethernet setting finish. (Note: IP Add can not be repeated)
- ◆ restart machine after finishing setting.

4) Positioning a temporary origin

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- ◆ Press “manual test” in initial interface to come out “test” interface
- ◆ in “test” interface, press” X axis -/+ “or “Y axis +/-” to move cutter head to the point you would like to be. press “enter” to come back the initial interface, setting of temporary origin is finished. The temporary origin is the point where machine start to cut(red cross position)
(Note: press “reset” in initial interface if you would like to cancel the temporary origin)

2-5、Decryption

1) When the system displays “the program has expired, please contact the manufacturer ”, which means that the use of the machine has expired, please contact us



2) Start machine, reboot the machine. When enter “ENTER” interface, Press on the upper-left corner of the touch screen. The screen will jump to decrypt the screen, enter the corresponding password - Click “ENTER”on initial screen .

Serial Number:

Date Left:

Please Input Password:



3rd part 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:

- 1、 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.
- 2、 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.
- 3、 strictly prohibited to place heavy objects (5kg or more objects) on the cutting table , as well as human trample and sleep,
- 4、 Do not heavily press the track of both side of cutting table and moving track, otherwise you will hear card sound when running machine.
- 5、 The power connecting machine must be installed to the ground wire to prevent static interference, and may destroy machine and interface.
- 6、 Power specification: AC380V+10%, 50/60hz, must be installed to ground wire to prevent static interference.
- 7、 Get maintenance, optimization, antivirus to computer systems and software on a regular

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basis, computer system instability will also affect the operation.

- 8、 When machine is running, do not let head and hands close to cutting machine.
- 9、 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.
- 10、 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.
- 11、 The air compressor daily need to put water
- 12、 loud sound or movement blocked, be sure immediately cut off the power, do not re-use, and contact the supplier immediately.
- 13、 Any person who uses this cutting machine must meet the following conditions:
 - 18 years of age;
 - Trained by RUK company 's technical support
 - Have read and understand the contents of the manual;
 - Precautions notes well read
 - Internship operator must be accompanied by experienced personnel to operate the machine.

4th Frequently asked Questions and Solutions

No.	malfunction phenomenon	malfunction Cause	Solution
一	Machine can not start after pressing power switch/emergency stop switch /red button	Power socket no power	Change socket, be sure it is with power
		Machine 6A fuse broken	Change a new fuse
二	Screen show a connection error or alarm after turning on machine	Wire of screen not well connect	Connect again
		Wire of screen broken	Change a new wire
三	Pump can not work	Pump plug loose, relay wire controlling pump not well connect	Make pump plugs tightly to socket
		Pump is broken	Get pump to other power socket, please contact us if still can't work
四	knife holder hit the table and made big sound when resetting or cutting	knife holder is put too deep/ knife deep set too big	Adjust the head height, reduce knife depth
		Cutting table is not horizontal	Make sure cutting table is horizontal
五	Knife can not cut through the paper	exposed part of blade is too short	tip exposed need 0.2mm longer than paper thickness
		pen/knife no. is set wrongly	reset pen/knife no correctly reference to manual
		Knife holder not tighten or blade wear	change a new blade and tighten the holder
六	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
七	machine did not do any corresponding action when need to cut paper pattern	Signal line is poor connected	Check the signal wire
八	Edge of cutting modal is not smooth	check if blade can not rotate freely in the sheath	Change a new blade to be sure its rotation freely
		Cutting speed is too high	Reduce the cutting speed
九	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
十	knife will take away the cutting paper in cutting	size of cutting sample is too small	Cover balance holes with paper to strength the suction power
		connect of machine and pump is not well ,and cause leakage	Get good connection

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<p>十一</p>	<p>Flash on cutting Samples</p>	<p>Speed is too fast or vibration did not open or need to change new blade</p>	<p>Reduce the cutting speed ,open the vibration switch, change a new blade</p>
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