



Pad Printer

Four-colour open-inktray pad printer with shuttle

SP4-410C

SP4-412C

OPERATION INSTRUCTION



SP4-410C
SP4-412C

LC Industrial company Limited

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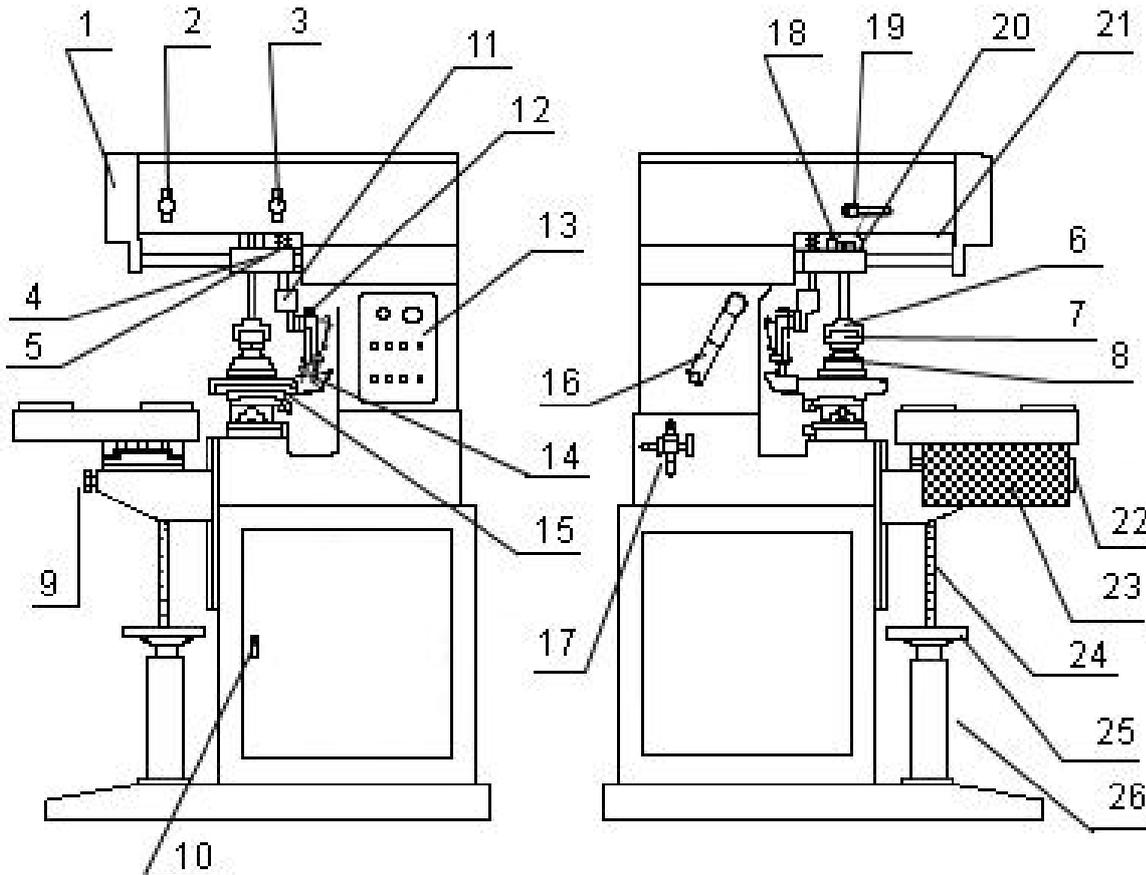
Online contact Skype: yingsuhaukelven QQ: 726986799

Email: sales@lcpadprinter.cn



Preface

LC Printing Machine published a series of new type pad printing machines, which adopt the full automation control system, and has more stable and reliable operation. The automation program is much more flexible, which simplifies the operation procedure components of the machine are made of coin alloy, which is light and sturdy, and is in compatible



with the Europe and Japan made pneumatic organs , also with the famous brand hardened shaft and bushing, to extend the service life of mechanical parts, also, with our exclusive---the super long slide stroke and machine-turning design, you can print large size substrate easily and adjust the machine conveniently.

In order to protect the rights and interests of our customers, every printer has been checked and tested strictly before being dispatched from the factory, and we try our best to provide our customers with the perfect after sales service

Our goal is to provide our customers with first class products and services, which are of the first class technology and quality!

1. Name of parts:

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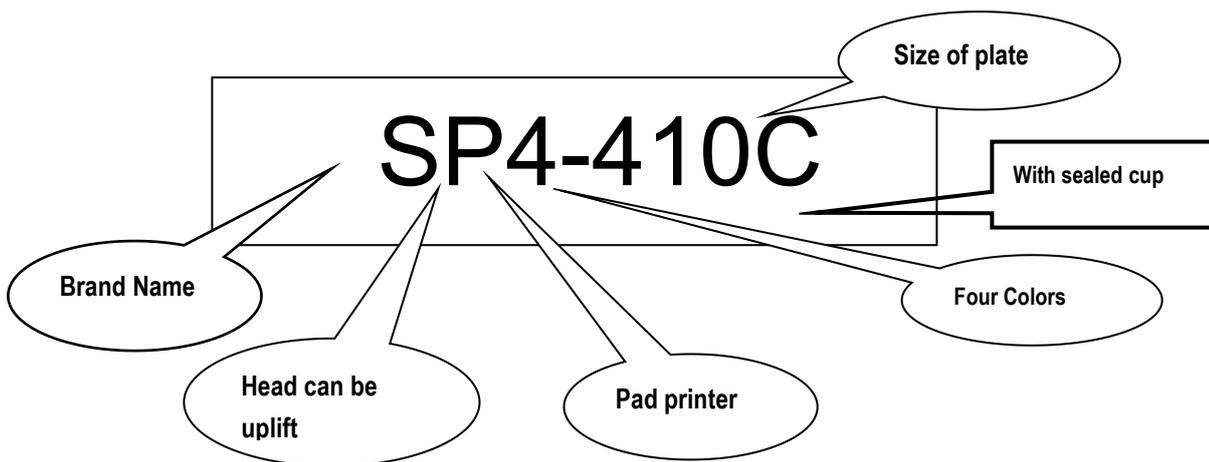
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1. IC panel- Controlling panel of pad printer
- 2...printing pressure adjusting knob. 3. ink dipping pressure adjusting knob.
4. lube nipple port 5. ink scraper resilience spring 6. interval board 7. transverse slide
8. pad fixture 9. worktable front-back direction adjusting knob 10. door to interior structure
11. ink scraper frame 12. ink scraper pressure adjusting knob 13. operation panel 14. ink roller
15. ink cup 16. machine-turning handle 17. moisture filter 18. switch for lifting the scraper
19. ink scraping stroke adjusting knob 20. touch part 21. switch for lowering the scraper
- 22 hot-blast temperature adjustment 23 hot-blast apparatus 24 lifting screw 25 lifting hand wheel
- 26 supporting bushing

2. Models and plate size of pad printers



Model	Description	Plate size	Cup diameter
SP4-410C	Pneumatic 4-colour pad printer with shuttle	100*250 mm	90
SP4-412C	Pneumatic 4-colour pad printer with shuttle	100*300 mm	90

3. Installation, adjusting and usage

This printing machine is appropriate to be installed in a clean, slow airflow. Ash-free workshop, where the temperature should be kept at about 25°C (the printing ink is easy to volatile if the temperature is too high) to ensure the accuracy, the

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printer should not be rammed fiercely in the course of transport.

1) Leveling the machine.

There are level adjusting screws distributed over the four foot-pads of machine, when adjusting, put the provided foot-pads on the ground first, which should be aimed at the screws. Turn the screw nut and then revolve the screws one by one in order to level the machine, finally, tighten the screw nut to prevent the screw from coming loose.



2) Power supply.

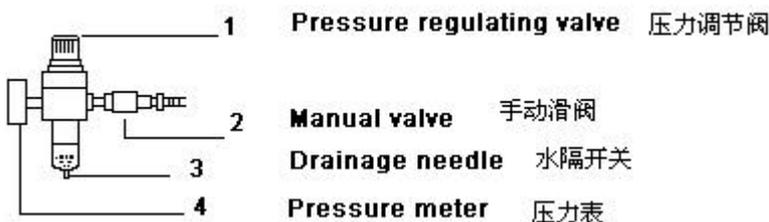
The machine applies both 220v and 240v electrical source, the consumption of compressed air is 0.43/CYCLE.



3) Adjusting the pressure meter.

When the machine is working, the pressure of compressed air in-breathed usually should be adjusted to 5 BAR. of

You find the index is on the high side, push the pressure regulating valve upwards, and then revolve it anticlockwise to the standard pressure, while on the contrary, revolve it reversely, after adjusting press the valve downwards is order to fix it within the confines of standard pressure.



4) Testing each mechanical part:

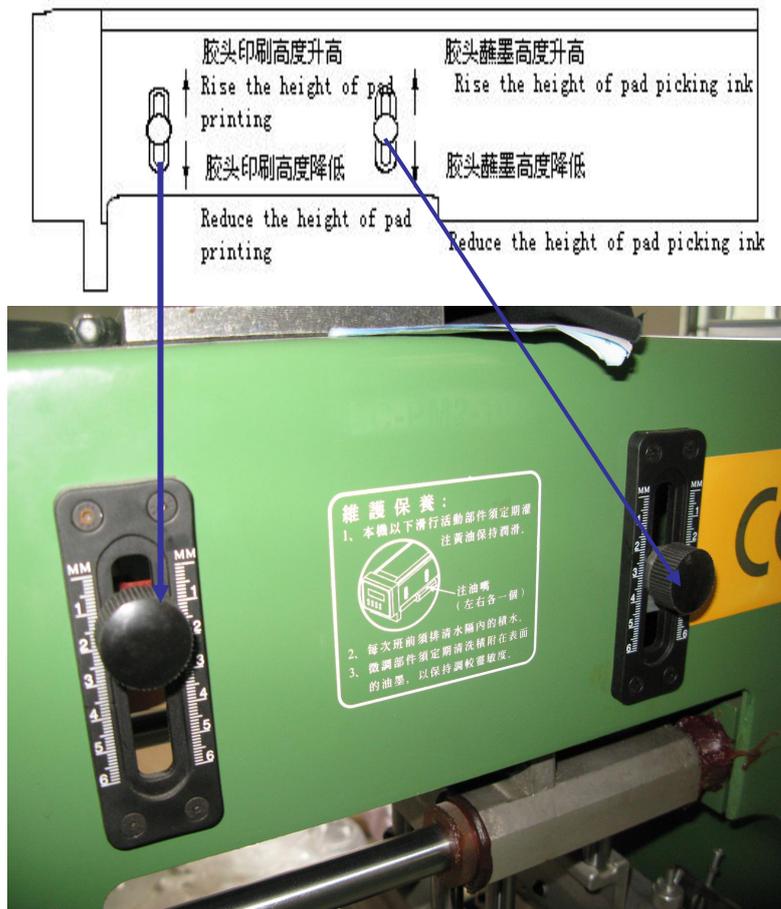
Whether each mechanical part is operating normally is important to the print quality and service life of the



machine, so checking and testing all the components of the printer before printing is a matter of importance.

- 1> Connect the machine to the electrical source, and turn on the power switch, see if the counter on the IC panel displays "000000", if it displays other numbers, then the machine can not be started, you should check the electric circuit.
- 2> Press the key "Table" (refer to drawing 5) to see whether the pad moves smoothly in front-back direction, and if there are some odd sounds.
- 3> Press the key "Table" (refer to drawing 5) to see if the pad moves normally in vertical direction, and if the height of pad needs to be adjusted.
- 4> Press the "setting" (refer to drawing 5) to see if the shuttle or conveyor moves normally, and then enter the automatic printing mode. To see if the slide speed of shuttle or conveyor is consistent with the lifting seed of pad, and if there are any odd sounds.

5) Adjusting the vertical stroke length of pad



- Making rubber pad to contact with plate:**
1. Adjust the pad seat;
 2. Adjust the Knob B.
- Making rubber pad to contact with table:**
1. adjust the pad seat;
 2. adjust the Knob A;
 3. Adjust the height of working table

4. IC Panel

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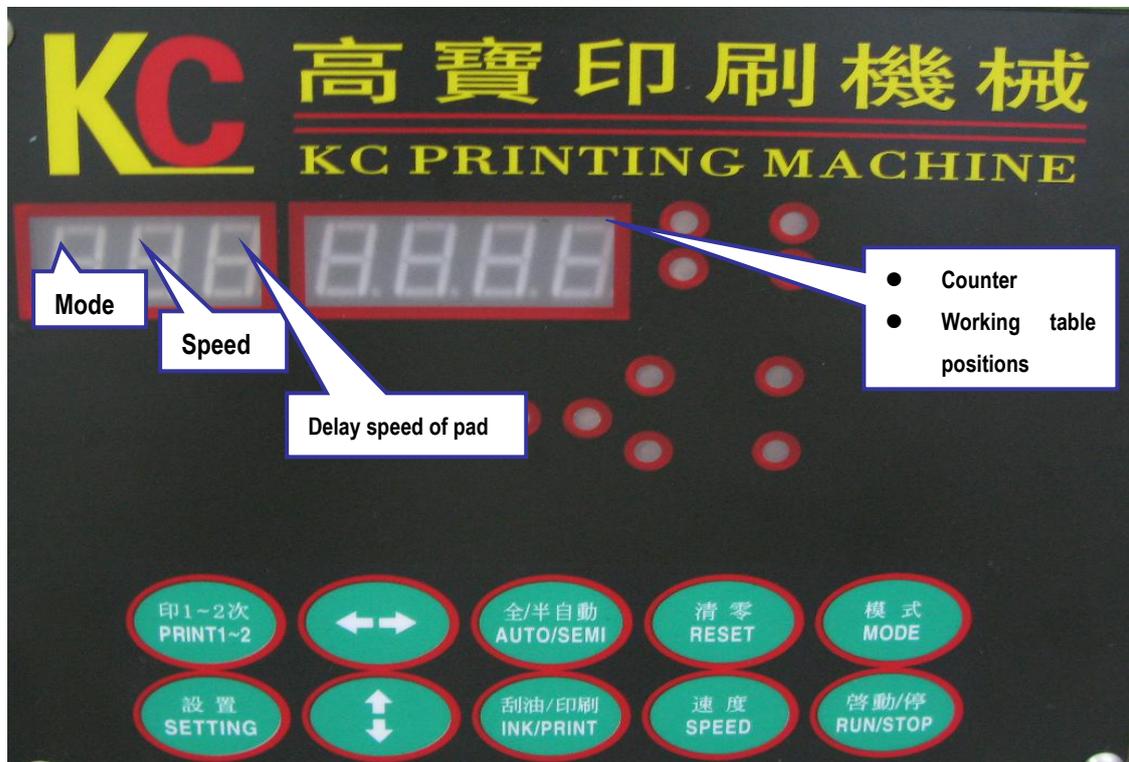
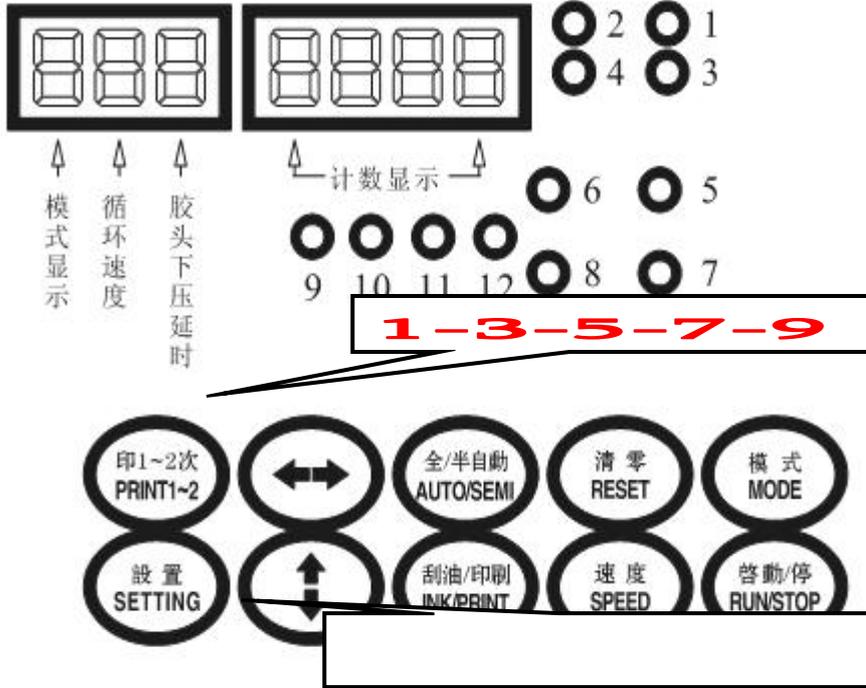
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● Drawings and instructions of each key part

Functions of the keys:

- a) **PRINT1~2**: when the machine is running, press this key, the machine will enter the mode of "Dipping ink twice and printing once"; if press it again, the machine will enter the mode of "Dipping ink once and printing once".
- b) **← →**: this key is also called "Table", when the machine stops running, press this key once, the sliding carriage of pad will slide forwards or backwards once.
- c) **AUTO/SEMI**: press this key, the indication light(11)<See Drawing5> will light up, which indicates that the machine has entered the "Semi-automatic running mode" you can operate this machine with foot-switch ; when the indication light(11) quenches, which indicates that the machine has entered the "Fully automatic running mode".
- d) **RESET**: press this key to reset the counter.
- e) **MODE**: press this key to switch from mode "1" to mode "4";press this key each time, the indication digit will add one. All the indication digits are as following:
- 1>--Dipping ink once or twice, printing once, and the conveyor will not revolve.
 - 2>--Dipping ink once or twice, printing once, and the conveyor will move ahead one work-piece.
 - 3>--Dipping ink once or twice, printing twice, and the conveyor will move ahead one work-piece.
 - 4>--Dipping ink once or twice, printing three times, and the conveyor will move ahead one work-piece.
- f) **SETTING**: when the machine stops, press this key every time, the shuttle will move to the next printing position, and the indication light(12)lights up, which indicates that the machine has entered the "Setting mode"; Then you can manipulate other keys to adjust all the 2 or 4 or 6 printing positions until the print quality is satisfactory.
- g) **↑↓**: this key is also called "Test", when the machine stops running, press this key once, the pad run one stroke in vertical direction. This key also has an intellectual function that when the machine stops running, if press this key for 20 seconds and then stop pressing, the pad will begin running downwards and upwards nonstop. You can press the key "RUN/STOP" to quit this mode.
- h) **INK/PRINT**: press this key to switch between the "fully automatic printing mode" and "automatic scraping ink mode"; if the indication light(10) lights up, which indicates the "automatic scraping ink mode", and if the indication light(10) quenches, which indicates the "fully automatic printing mode".
- i) **SPEED**: press this key to adjust the printing speed of the machine form level "0" to level "9", which is from slow to fast. (If press this key for more than 3 seconds, the indication digit of the "Delay before the down-stroke of pad"<See drawing 5> will begin twinkling, then you can press this key to adjust the delay before the down-stroke of pad, and the indication digit will display form level "0" to level "9", which is from slow to fast.
- j) **RUN/STOP**: press this key at any time to start or stop the ongoing operation of the machine.

So we suggest you operate this machine under these mode.:

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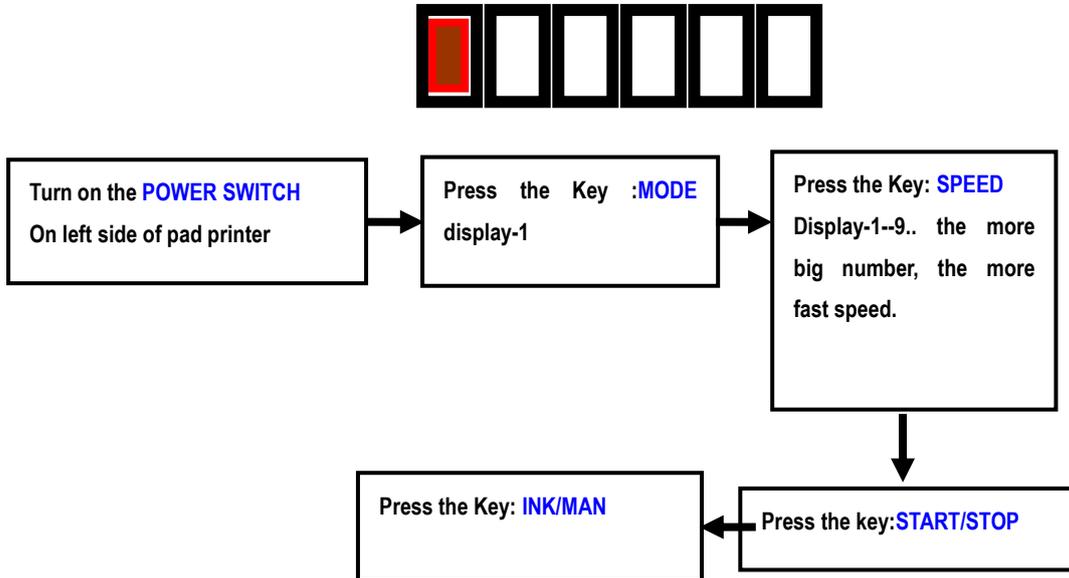
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Email: sales@lcpadprinter.cn



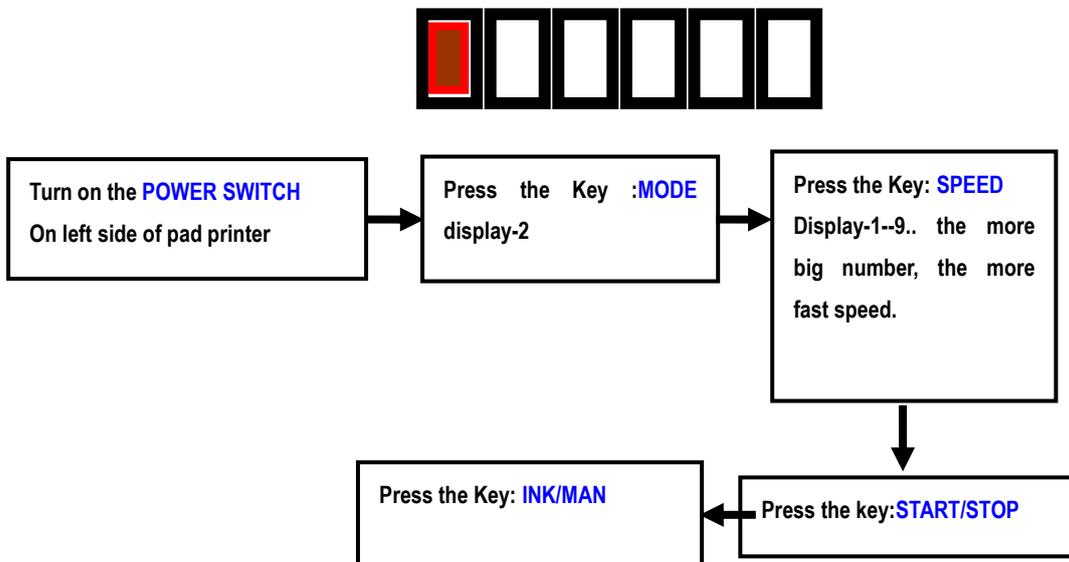
- 1- Print one color with four colors pad printer with shuttle.

Press the "MODE" key. The indicator 1 display: **1**". Then press **start/stop** key, Press **MAN/INK** key, the machine will print one color and working table keep stillness.



- 2-Print two colors one time with four colors pad printer with shuttle.

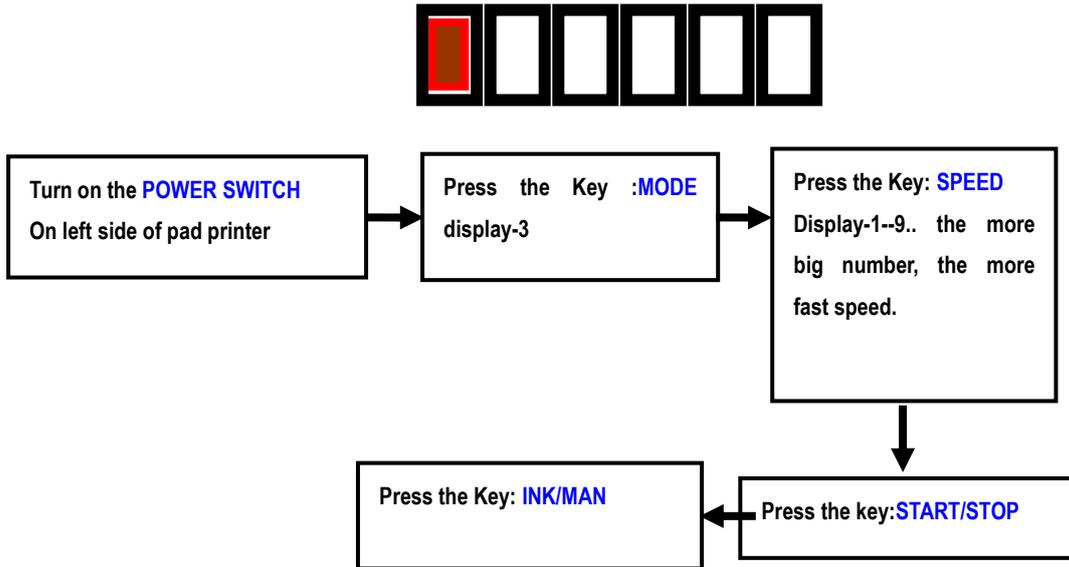
Press the "MODE" key. The indicator 1 display: **2**". Then press **start/stop** key, Press **MAN/INK** key, the machine will print two colors and working table keep movement for one station to the second station.





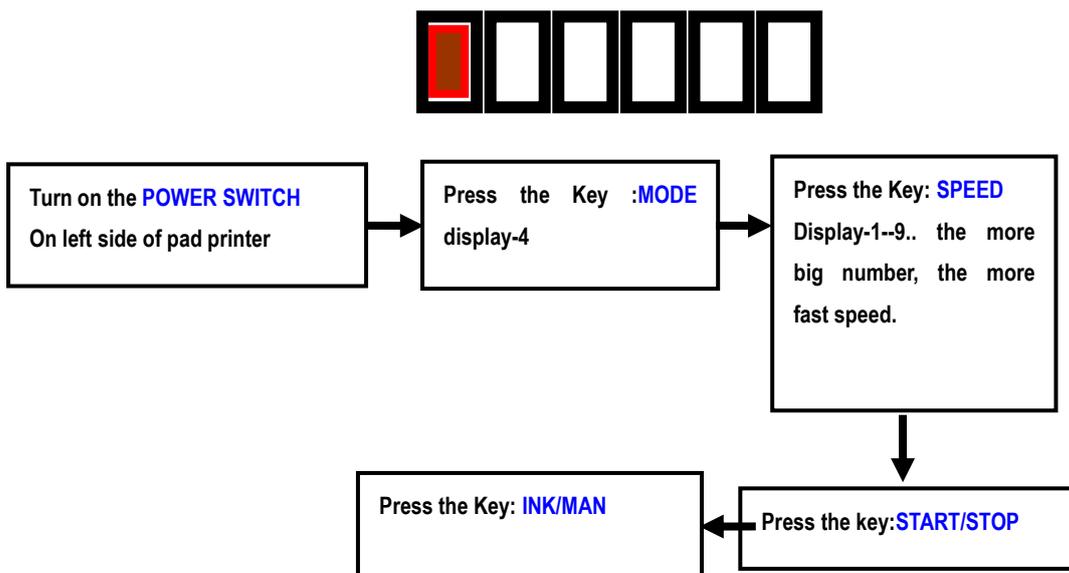
- 3- Print three colors with four colors pad printer with shuttle.

Press the “**MODE**” key. The indicator 1 display: **3**”. Then press **start/stop** key, Press **MAN/INK** key, the machine will pick up ink one time and print three times and working table keep movement for one station to second, third station.



- 4- Print four colors with four colors pad printer with shuttle .

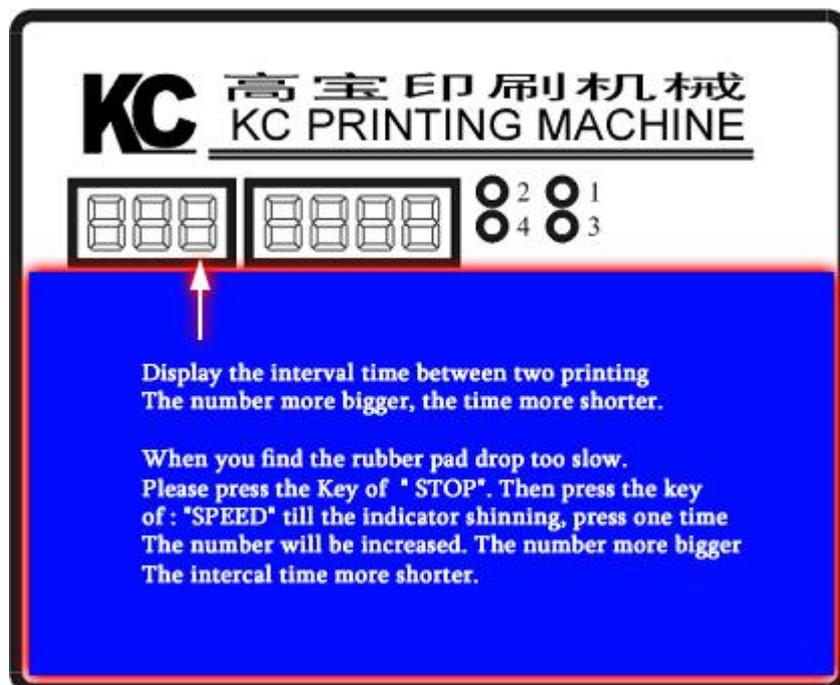
Press the “**MODE**” key. The indicator 1 display: **4**”. Then press **start/stop** key, Press **MAN/INK** key, the machine will pick up ink one time and print three times , working table keep movement for one station.





- When you want to change another mode, please first press the key of : **RUN/STOP**.
- When you want to operate this machine with foot switch, please press the key of **RUN/STOP**. Then press the key of **SEMI/AUTO**. There is one foot-switch inside of tool box, Please install it onto the pad printer.
- When you find the speed of pad dropping is too slow, Please Press the key of **RUN/STOP** , Then press the **SPEED** Till the third LED digital shining , Please press this key till the number become bigger.
- When you want to get more thicker ink film, Please Press the key of **RUN/STOP**, Then Press the key of **PRINT1-2**.
- If you left in seconds, please do not stop the machine, Please press the key of **INK/AUTO**, make the machine enter Ink Mode. This method will avoid ink drying.

Importance Prompt



If you want to print one color with this machine and make the shuttle stay at different position.

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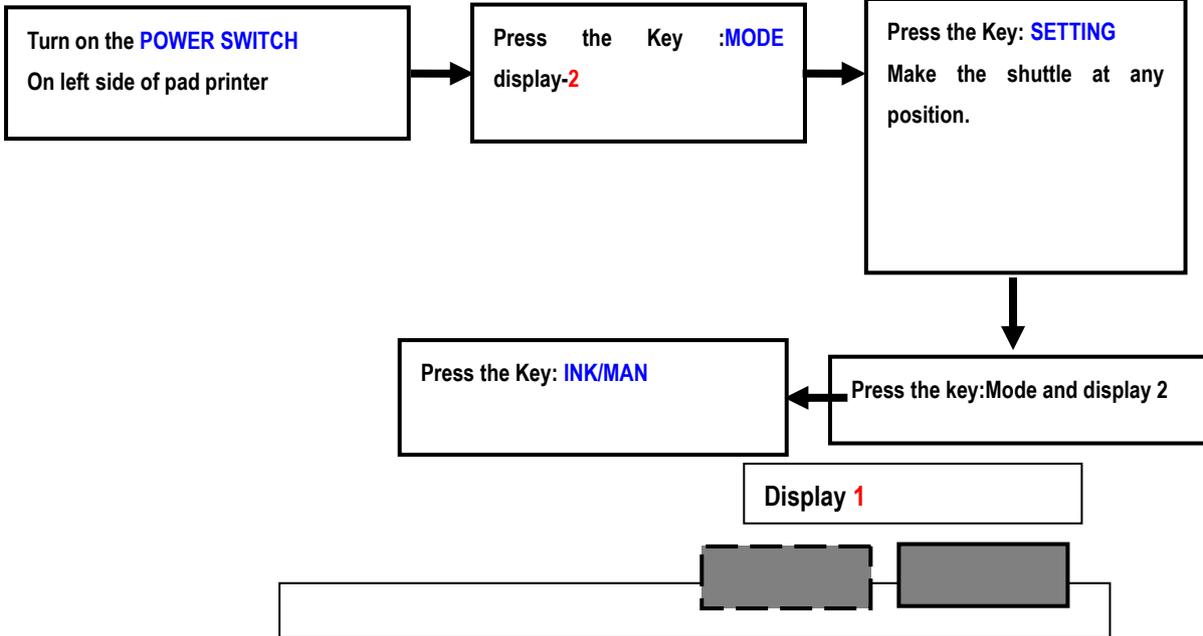
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Online contact Skype: yingsuhaukelven

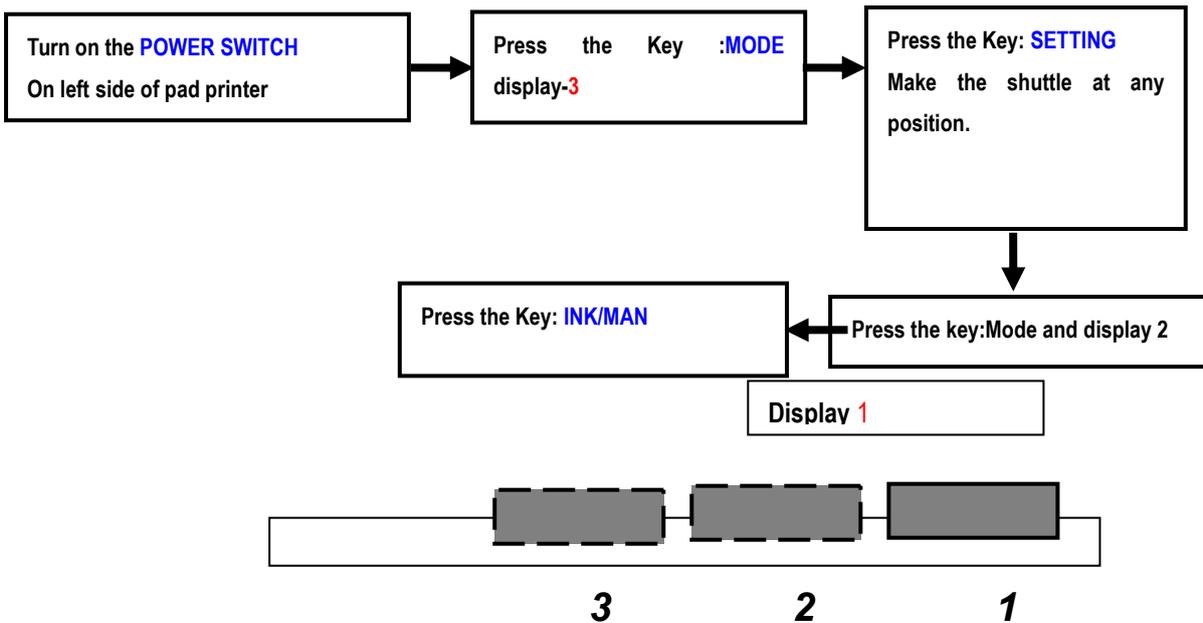
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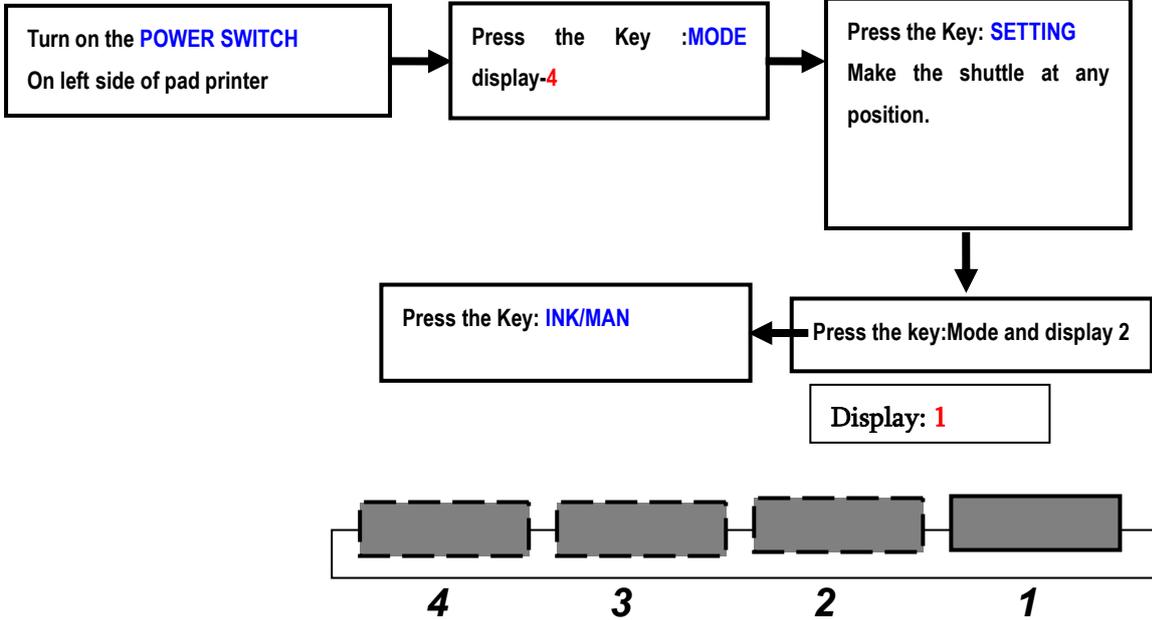
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After setting, the machine will print one color and shuttle stay at the Position 1 or 1

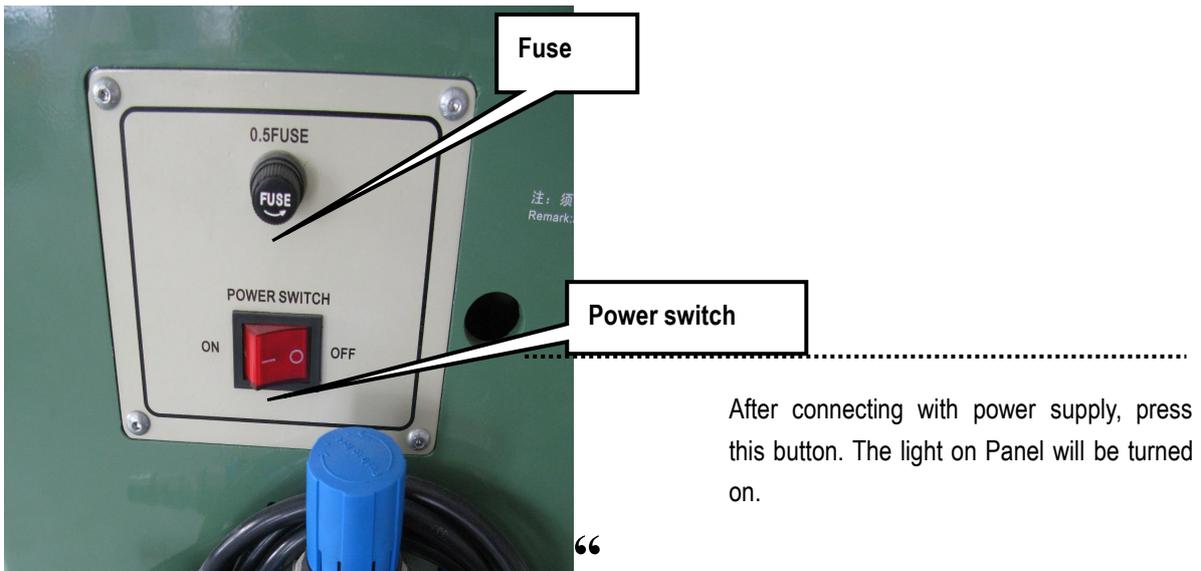


After setting, the machine will print one color and shuttle stay at the Position 1 or 2 or 3.



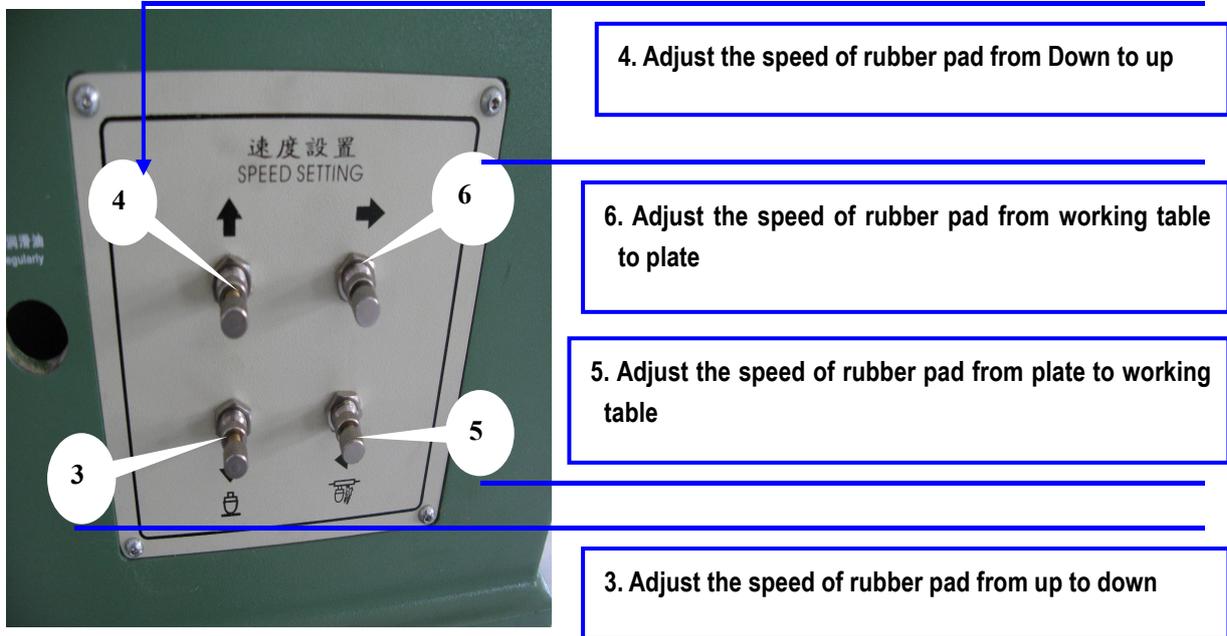
After setting, the machine will print one color and shuttle stay at the Position 1 or 2 or 3 or 4.

● Power panel





- **Speed Panel**



5 . Operation Process of machine

1) Power connect。

First connect power with machine. Please confirm locating Voltage ;

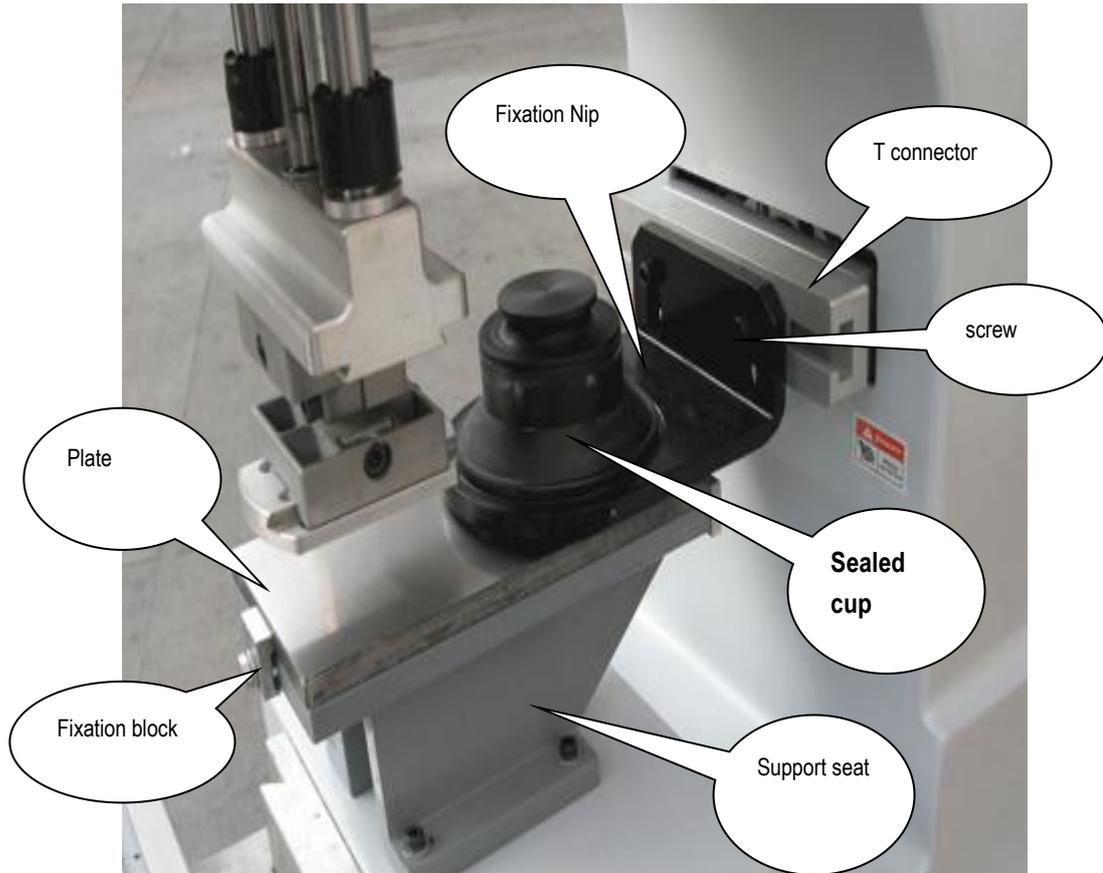
2) Air connecting:

Most of LC brand pad printer need compressor to provide air source, Please order one set compress air in your plant. Please keep your and anything from pad combine parts because it maybe move after connecting with compress air.

3) Installed plate and sealed cup:

Standard steel plate must be used with sealed cup pad printer. Steel plate and sealed cup is alone package to avoid hitting in the transport and put into tool box. After you receiving the machine, Please install steel plate and sealed cup onto pad print.

Some customer ask LC company to take a printing test. Sealed cup with ink maybe installed on the machine, Please adding thinner for 10 minutes then start the machine.



There is magnetic axis inside sealed cup, so it will be absorbed on the steel plate when they contact each other. Please be careful that make sealed cup to close steel plate. LC brand sealed cup pad printer install steel ring, some customers like using ceramic ring. Please make a demand to our sale representative, we will change it for you. Please notice thick steel plate can use both ceramic ring and steel ring, but resin Polymer plate must use ceramic ring. According to our experience, The ink rest remains keep more little on steel plate than thin steel plate.

Please install sealed cup and steel plate according to the below step:

- First take out steel plate by left hand, take the sealed cup by right hand, slowly move sealed cup to close the side of steel plate, then push the sealed cup to the center of one end;
- Loose the fixation screw, and take off cup fixing nip;
- Put steel plate with sealed cup onto plate support seat and fix the setscrew on the front end;
- Cover the cup nip onto sealed cup and move sealed cup with nip lightly to cup driving axis, fix the setscrew;
- Steel plate used by sealed cup and open ink-tray pad printer, but size is more length, The plate-making process is same.

Some sealed cup pad printer maybe have a different structure.

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4) Adding ink and thinner

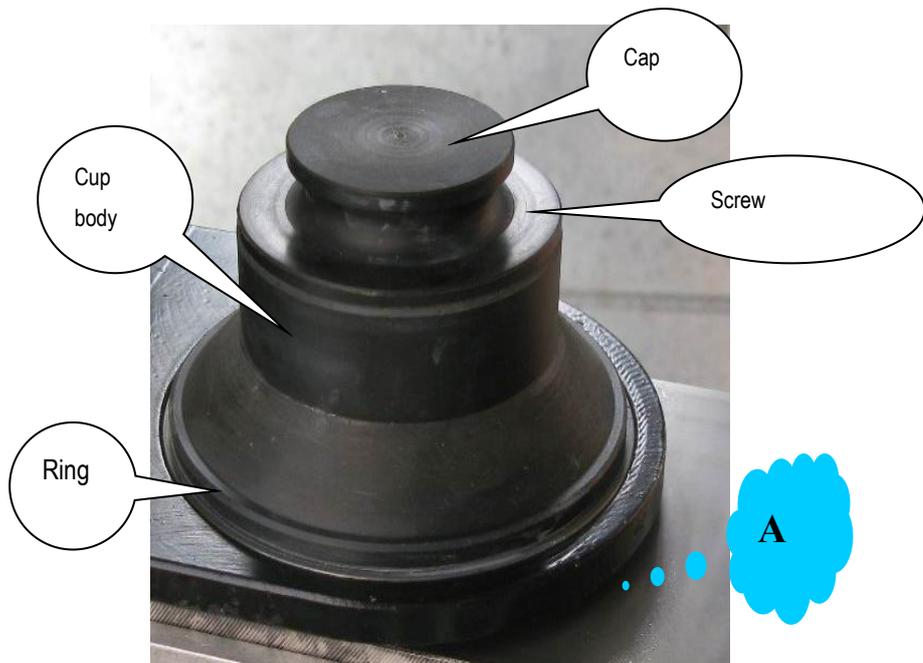
Different base need different type ink and thinner, Please take a test before printing, Our sales Representative will give you some advice when you make a inquire. Marabu ink is very famous brand in the world, Please order from your locating market. the price is more expensive, In china, KC printing machine will provide ALPHA, LOGO ink made in china to you. the price is more cheaper.

After you choose one type ink and thinner, Please mixing ink and thinner according to a percent:5:1 and adding into sealed cup(first open the cover of sealed cup) with ink adjustment blade .

Please see the photo of sealed cup ,the cap can be open to add ink and thinner. When printing, ink and thinner move onto the surface of steel plate with sealed cup together. The solvent closed inside and do not volatilize to the air and avoid breath by operator. It will not

hurt their health. The Viscosity of ink will not change to ensure printing quality stabilization.

After installing sealed cup and steel plate, first move sealed cup , the commonly state is you can move freely

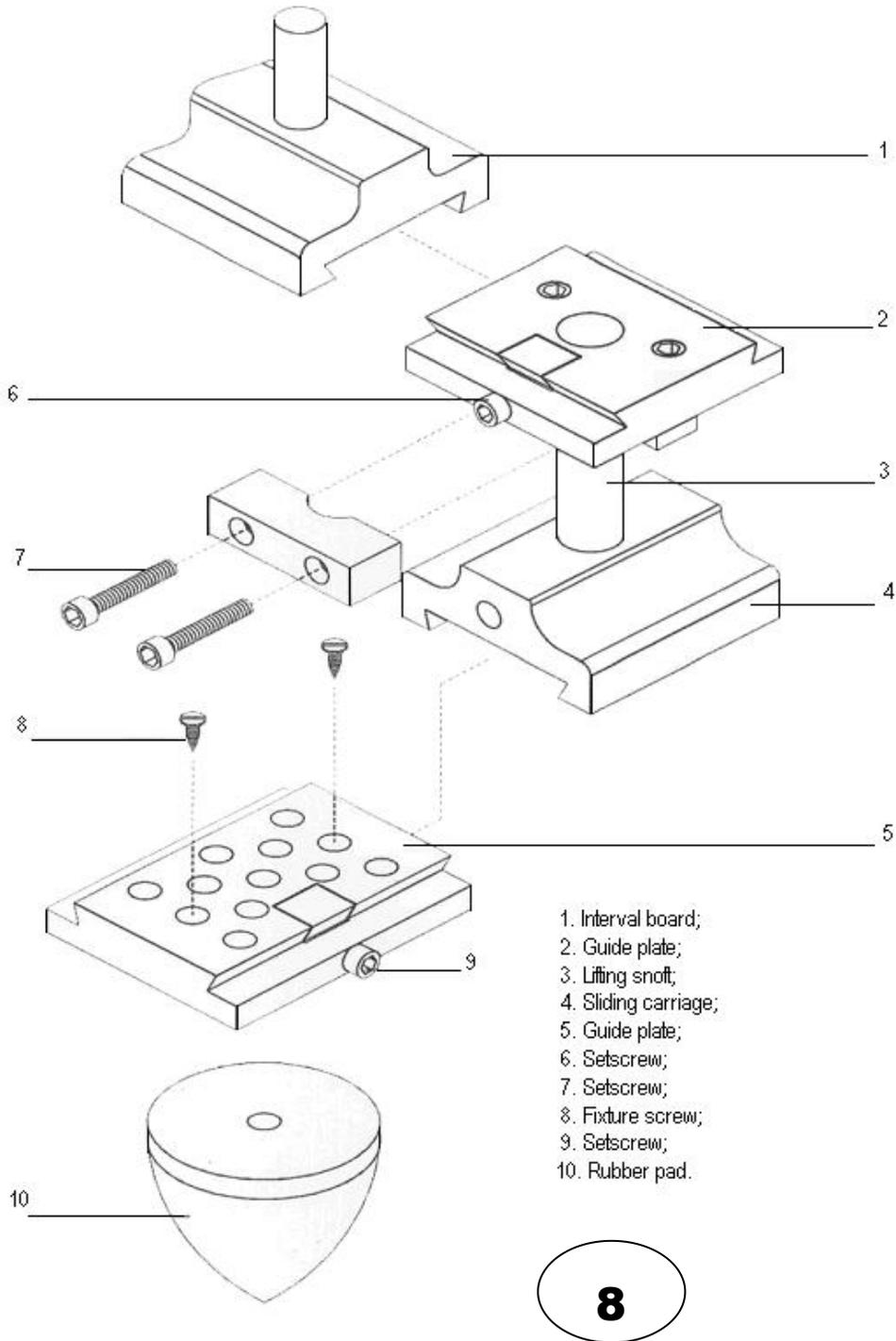


5) Installing rubber pad

It is important to choose one suitable rubber pad. The rough principle the outline of printing design is similar with the cross section of rubber pad. The size of cross section can cover total design. First taking out the guide plate from pad seat, fix the screw through the hole with screwdriver , then installing it back to the pad seat. The guide plate can be adjusted along the front-back and left-right direction so that the rubber pad can cover all design.

Multi-color pad printer need more rubber pads. Please keep per rubber pad have a same shape, hardness.

- Please loose up the screw of 9 and remove the guide plate.
- Please take a screwdriver to install rubber pad to guide plate. There are some screws in the tool box
- Install guide plate with rubber pad onto the seat
- Adjust the position so that it can cover the design on plate
- Fix the screw of 9.
- Please see the drawing below



6) Adjustment of the working table.

- Working table can be adjusted as up-down direction. Then turn the handle wheel (6);
 - Working table can be adjusted as left-right direction. First loose the screw (4), then adjust the screw(1);
 - Working table can be adjusted as front-back direction, First loose the screw(8), Then adjust the screw(5);
- Working table can be adjusted as angle direction by turning the screw (3).

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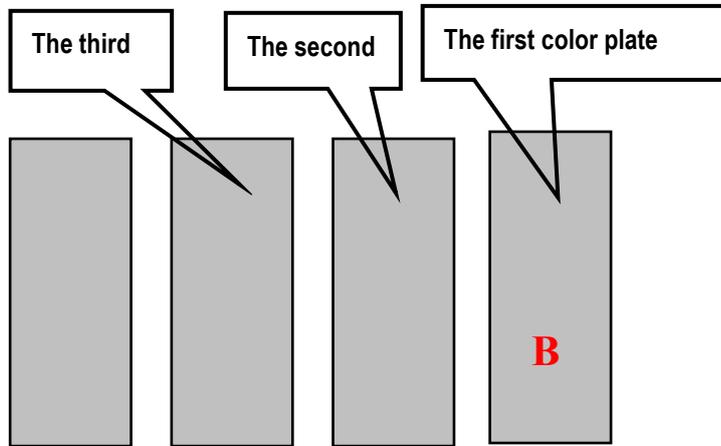
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11) Test printing.

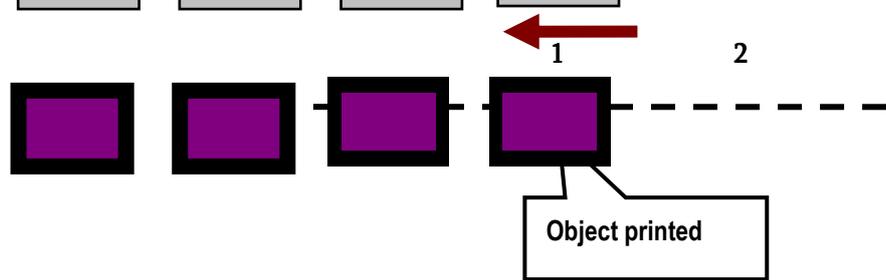
Some operator like cover PP plastics tape onto the products when testing printing because the printed drawing will be removed easily with Tina solvent or other solvent. After you adjust the position, printing quality , you begin to work.

How to adjust working table



12) Overprint adjustment

Four colors pad printer have One shuttle table, It can be move at the four position.You must adjust the position one by one.Please follow the below process.



First install steel plate and one fixture with product, adjust the plate direction so that the design on plate can print correct position. When the product move to four plate one by one you must guarantee overprint is ok. Then fix all plates.

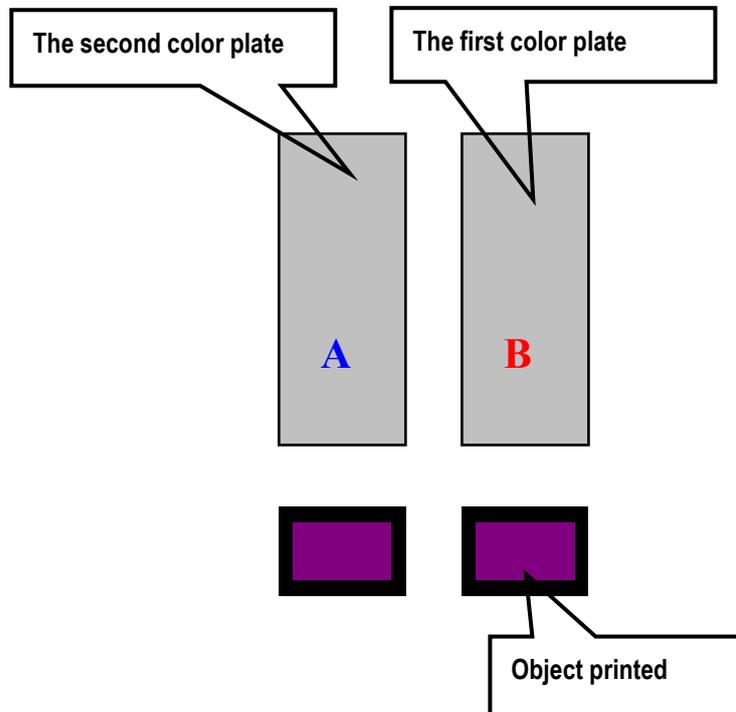
1# First adjust the first color:

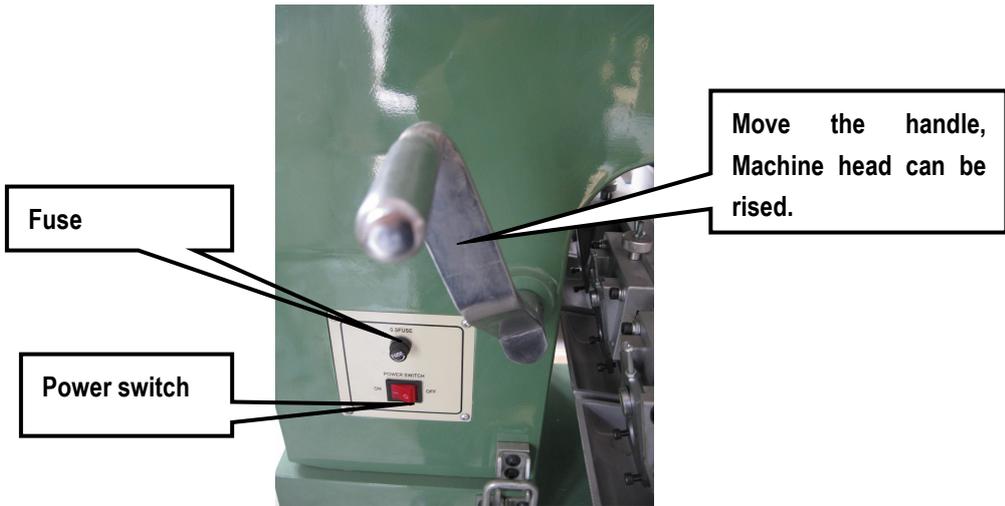
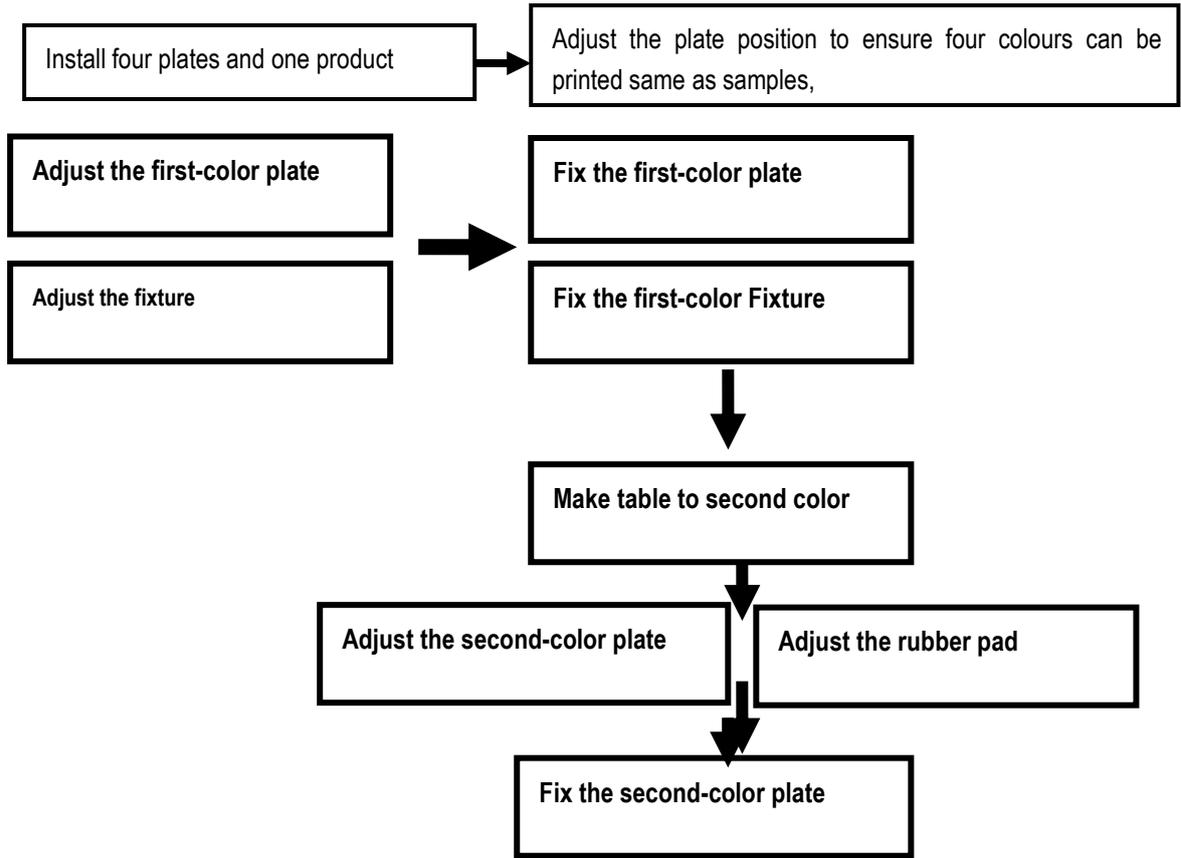
● Please arrange the printing Sequence.

● Please install the first plate ;
● Install fixture on working table and put product on the fixture.

● According to the customer requirement or samples provided by customer, , print B to correct position on product. Fix the fixture after adjusting.

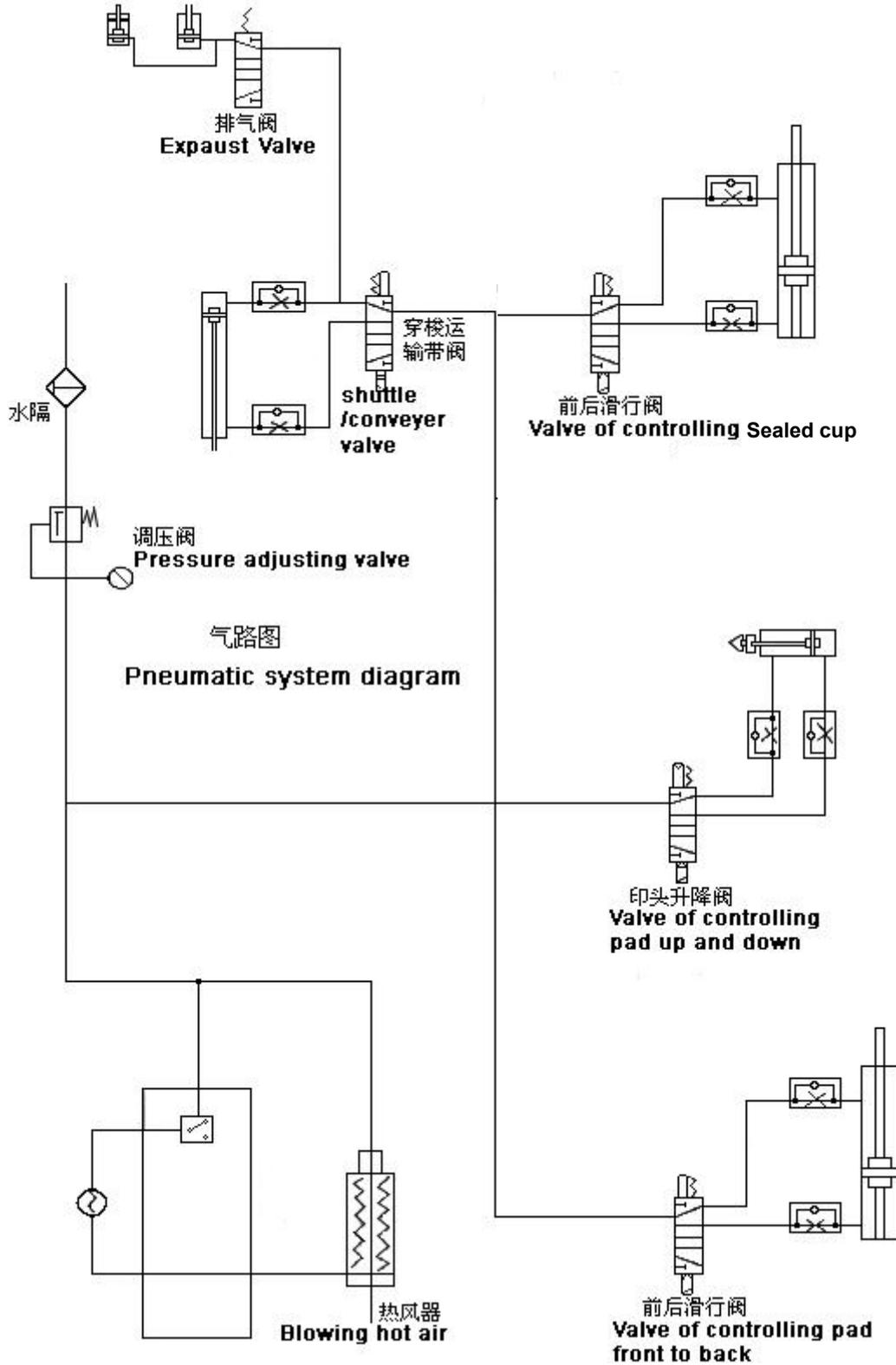
● Start the machine and make the station of working table move a step, adjust the second color plate to print correct position of product, fix the plate after adjusting. Till the four pcs plate can print correct position on products.





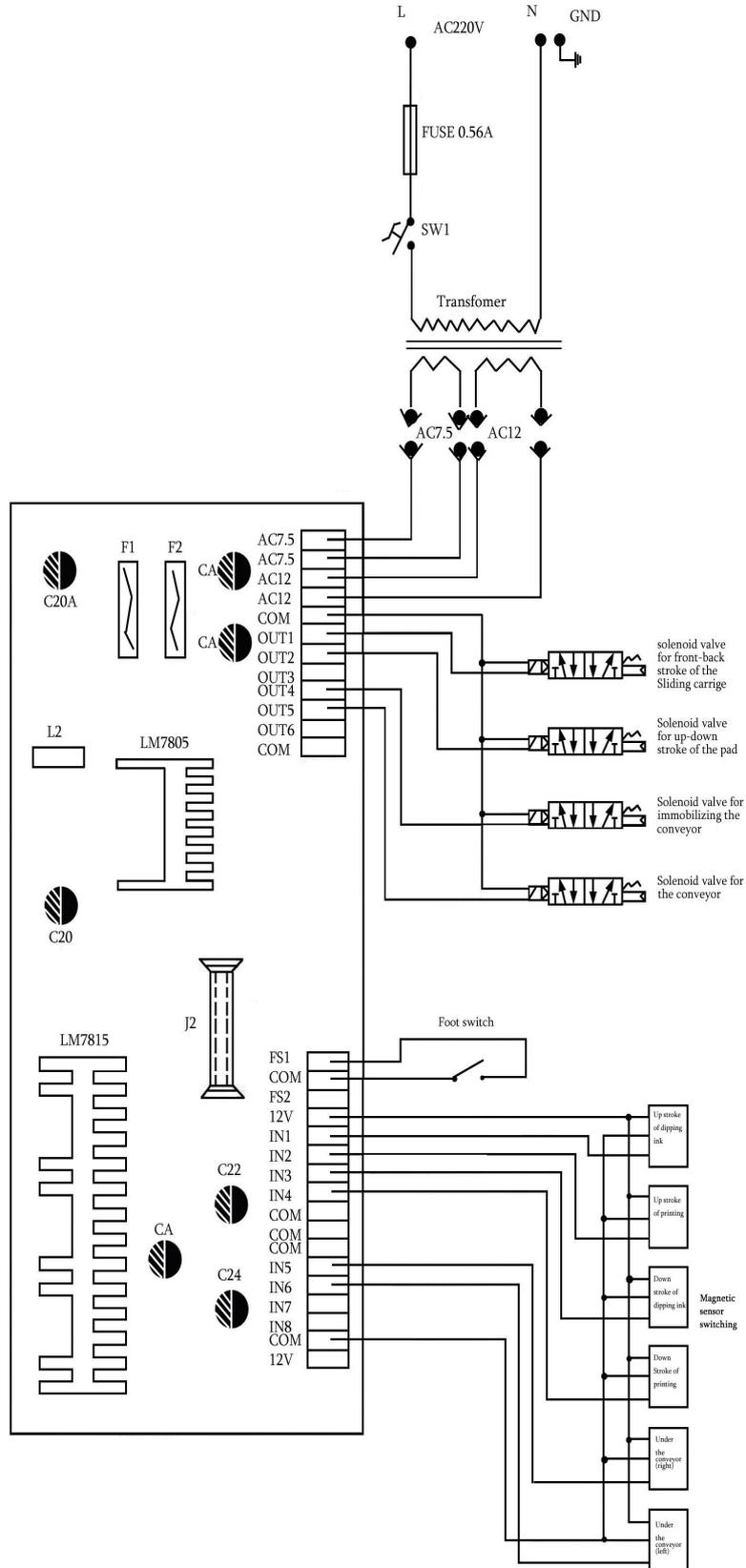


6. Pneumatic-controlling drawing





7. Circuit Drawing.



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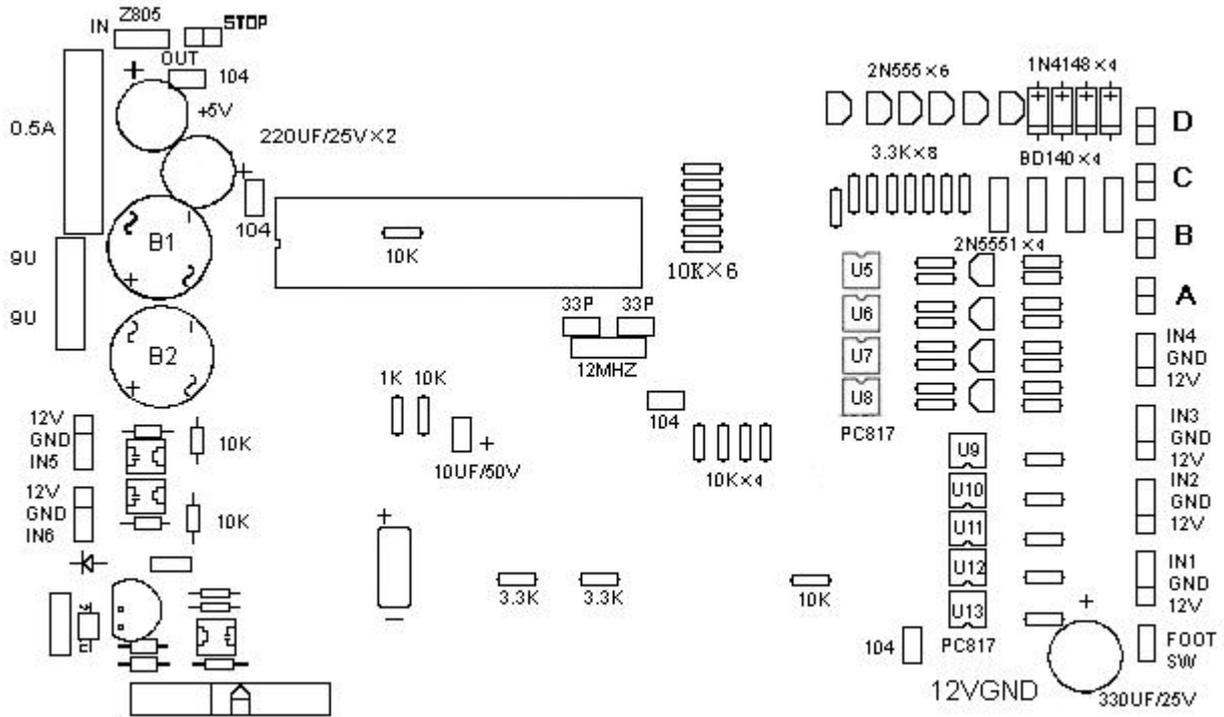
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Introductions



Instructions:

D----connects to solenoid valve of the last two cylinders for sliding the shuttle.(the4 colour pad printer with shuttle)

C----connects to solenoid valve for sliding the conveyor (pad printer with conveyor)/connects to solenoid valve of the first two cylinders for sliding the shuttle (the4-colour pad printer with shuttle)/connects to solenoid valve for sliding the shuttle (the 2-colour pad printer with shuttle)

B----connects to solenoid valve for lifting the pad

A----connects to solenoid valve sliding the sliding carriage.

IN4

GND ----Connects to the proximity sensor for controlling the down stroke length of the pad in its forwards stroke

12V

IN3

GND ----Connects to the proximity sensor for controlling the down stroke length of the pad in its forwards stroke.

12V

IN2

GND ----Connects to the proximity sensor for controlling the up stroke length of the pad in its forwards stroke.

12V

IN1

GND ----Connects to the proximity sensor for controlling the up stroke length of the pad in its forwards stroke

12V

FOOTSW-----connects to the foot switch.

12v

GND

IN5----Connects to the proximity sensor of the conveyor cylinder

12v

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GND

IN6

8. Maintenance

- 1> Keep the cleanness of the surface of machine. Please clean the machine with Alcohol or some solvent to clean the machine body. Installing pad printer in a dustless room will enlong the usage life
- 2> Wipe the slide parts and infuse lubricant to them weekly.
- 3> Drain the contaminant water accumulated in the filter frequently in order to prevent the water from flowing into the inner pneumatic system. Compressor air source will influence Pneumatic parts including solenoid valve, Cylinder Jar. It is very important to keep air clean and drying.
- 4>.After the printing work, remember to clean the pad, plate and ink roller.

9. Precautions

1. The size of the plate should be compatible with size ink scraper clamp and ink roller

2. Pay attention to the choice of pad:

The hardness of pad includes the "soft", "medium" and "hard", if prints precision design, you should choose the hard pad, while prints on accident surface, use the soft pad, furthermore, the volume and shape of pad should be similar with size of the design and surface shape of the work-piece. Please avoid the center of rubber pad to print the center of design.

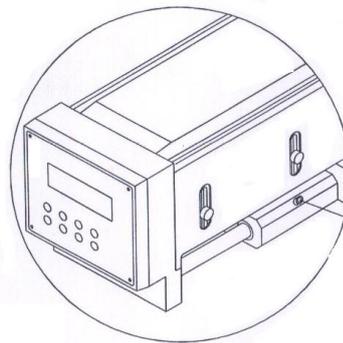
3. Usage of the ink:

According to different kinds of work-pieces, such as plastic, glass or metal, etc, you should choose different inks, and the ink should be stirred before pouring into the ink cup.

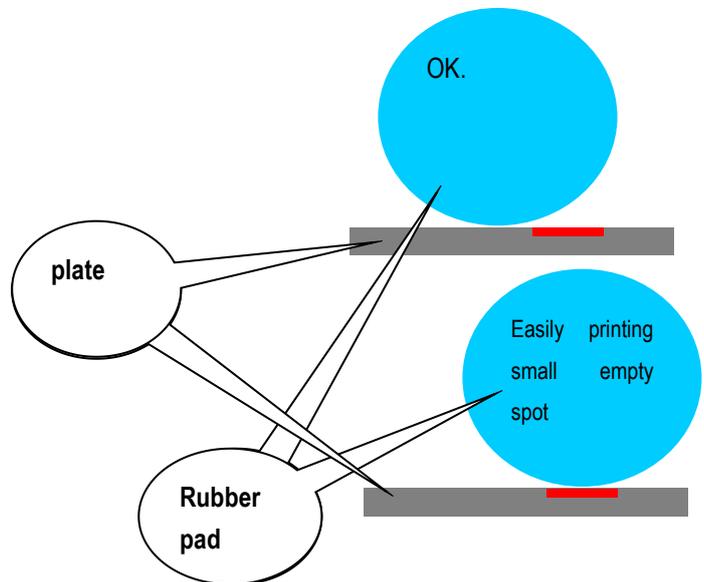
4. When operation of the machine is paused, you should let the ink, scraping system go on working in order to prevent the ink from air-drying.

5. During printing, you should infuse thinner into the ink cup according to different air-dry speed of the inks in order to keep the proper viscosity of the ink after infusing the thinner, stir the ink immediately. If the pad is stained, clean it with the cleanser.

6. Make the holding fixture for the work-piece in advance based on its shape.



Infuse lubricant once per week



10. Other Instructions

a) Speed Panel of pad printer

When you only adjust the speed of rubber pad combine parts, please adjust the screw of speed panel drawing

b) Power supply panel

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After you connect with power supply, you must open the switch of mainly power panel to start the machine. If you open the switch and find no display on IC panel, Please check the fuse.

1. You must push the slide valve of air combine part to connect air tube. Please remember open the air knob, or the compress air can not entering into pad printer. Please adjust the Knob till the pression meter display 5-7 bar. ■

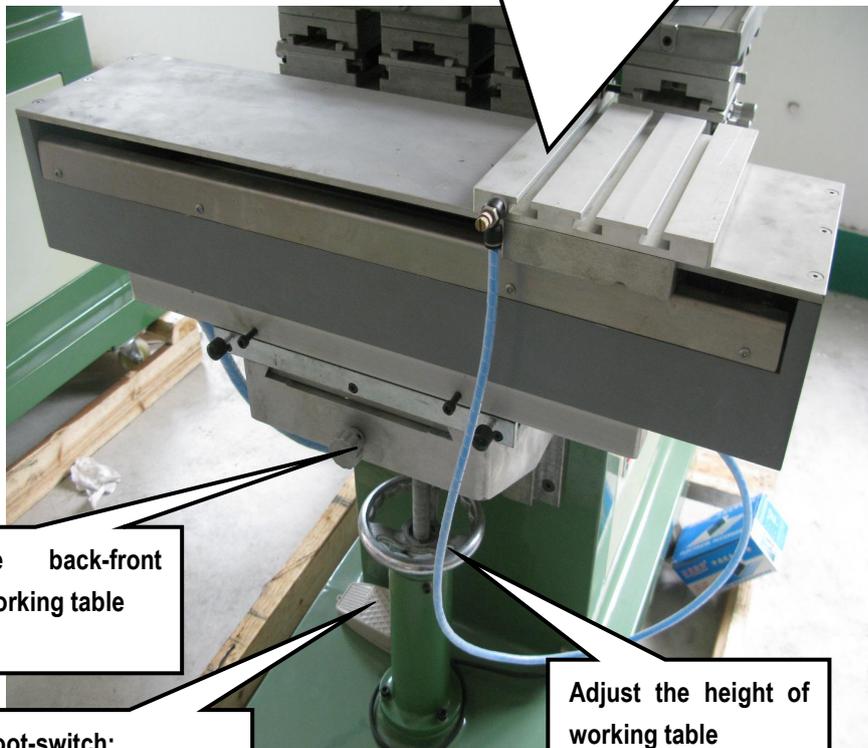
Shuttle table:

Install fixture and products, when print only one color, the shuttle table stay at one place stillness.

When printing multi colors, The shuttle table can be moved at different spot.

Please install Blowing tube on the table when you get the machine.

When you print muti colours, need the blowing tube to dry ink.



Adjust the back-front position of working table

Foot-switch:
Drive this machine by Semi-auto mode.

Adjust the height of working table

9.

Printing Factors

Pad plate- base on printing documents, you need make etched plate and onto pad printer, Please read<how to make pad plate > to know process of plate-making;

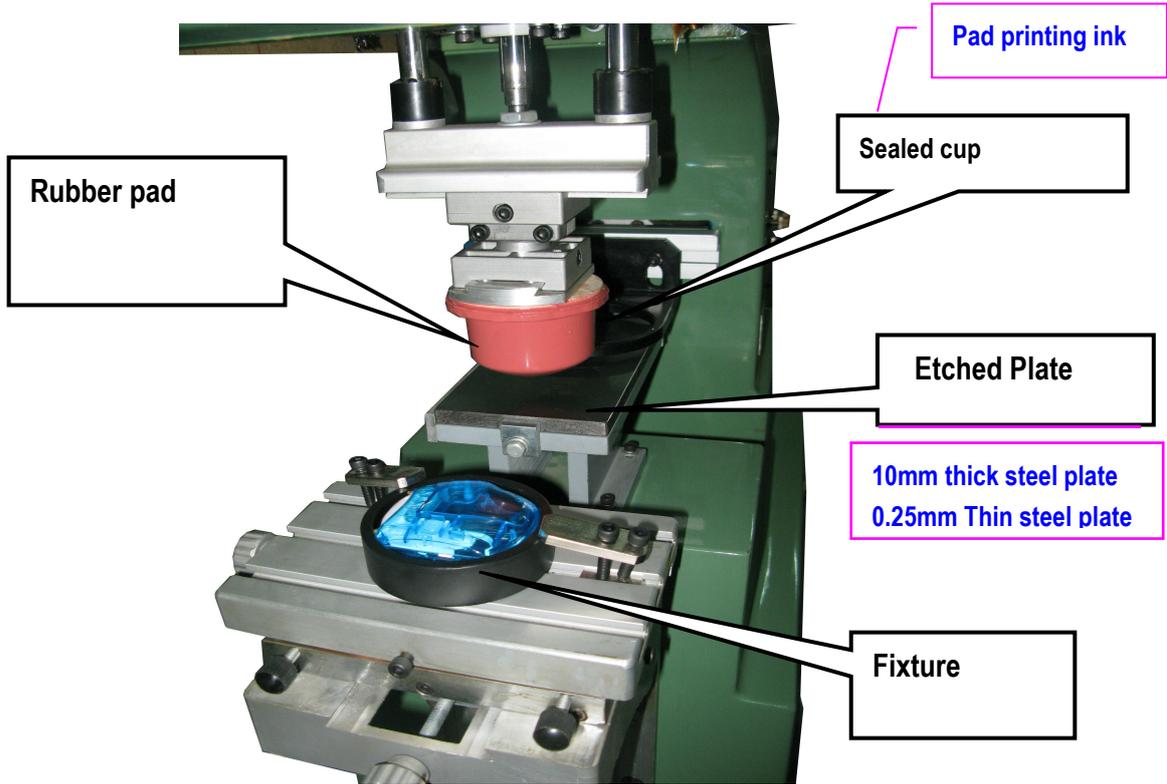
LC Industrial company Limited

Website: [Http://www.lc-pm.com](http://www.lc-pm.com)

Online contact Skype: yingsuhaukelven QQ: 726986799

Email: sales@lcpadprinter.cn

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One color sealed cup pad printer



Two colors sealed cup pad printer with conveyor

Printing ink- base on materials to be printed, different type ink to be choice. Pour some ink into sealed cup and have a test before printing;

Rubber pad- Rubber pad made by silicon rubber, commonly only 10-20 types rubber pad can print most of substrates; Fixture- If you want to get precision printing , Fixture made with lathe machine. Some fixture made by butty.

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QQ: 726986799