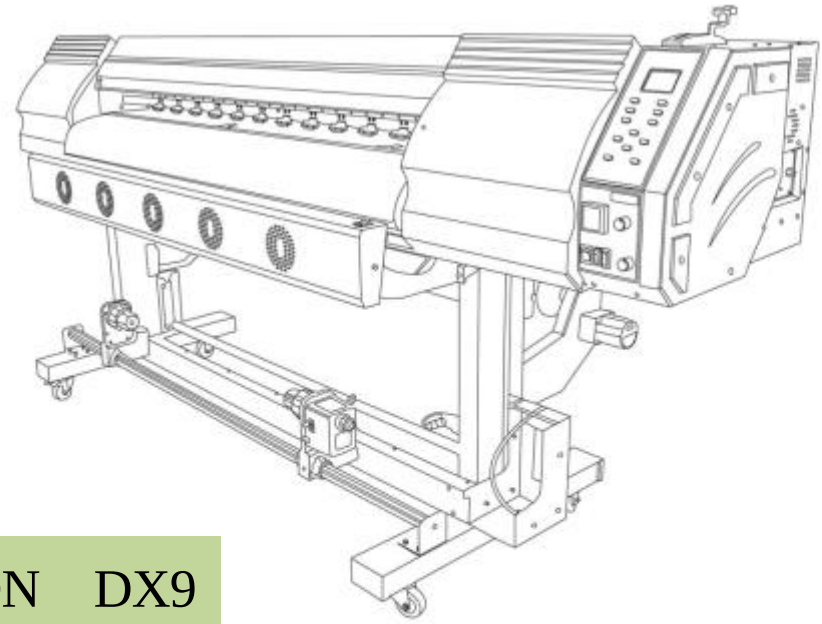
New version

WIT-COLOR Digital

High definition printer

ULTRA 9600

User Manual



EPSON DX9

Wit-Color Digital Science & Technology Co.,Ltd
URL:www.wit-color.cn

We'd like to express our sincere congratulations on your having a high capability eco-solvent printer——Ultra 9600 1602S, and also appreciation for your support to WIT-COLOR products. Please read this manual carefully,which can help you to solve the problems encountered in the course. The table of contents can help you find the relevant section needed.

Attention

WIT-COLOR is the trademark of Shanghai Wit-Color Digital Science & Technology Co., Ltd. Wit-Color has the copyright of Ultra 1000,Ultra 2000, Ultra 3000, Ultra 4000, Ultra 9000, Ultra 9100 ,Ultra 9200 solvent printer and eco-solvent printer, including every spare parts, boards and software. Any copy by company or individual is not allowed. Without authorization, this manual shall not be reprinted or propagated.

Ultra 9600 series printer has passed 3Q Conformity of Quality Management System Certification and ISO9001 Quality Certification. Ultra 9600 series printer is up to the standard of printing equipment. Please pay attention to the following working environment when you use the printer.

1. Please keep the printer away from electromagnetism environment: television, high speed electric machine, high voltage cable, mobile phone, radio etc. These equipments will produce magnetic interference.
2. Please keep the room temperature between 10 and 40 Celsius degree while printer is working. Too high or too low temperature will reduce the printer's using life and affect the quality of the image.
3. The room should be in smooth ground with ground wire connection.
4. Please avoid direct sunlight and keep printer in ventilation and favorable humidity.
5. Please keep the room clean, and avoid operating the machine under dust.

Displacement is inevitable during transportation. In this case, the engineer will adjust it. You can not return or ask for compensation according to this issue.

Within the warranty time, WIT-COLOR provides maintenance and technical support except the damage caused by human, bilging and thunderstrike. Please read the manual carefully. Any question, please contact WIT-COLOR after-sales service department for support.

Please don't dismantle the printer privately. When the printer is in high-speed operation, please pay attention to the safety symbols to avoid unnecessary injury. Out of

WIT-COLOR also provide out-of-warranty printer maintenance according to the agreement.

Specification is subject to change without prior notice.

The involved description, color and model of printer only takes the reference. The exact configurations of equipment are subject to the real product.

Caution: Please obey the above description to avoid unnecessary issue.

Technical Features:

Epson generation 9th print head----DX9 print head

Ultra 9600 series printer adopts Epson DX9 print head which is newest four-in-one EPSON PIEZO print head with 6 lines nozzles. Each line contains 180 nozzles with total 1080 nozzles. Upgraded on the basis of DX7 print head, DX9 print head possesses a higher fire frequency and a more secure circuit design.

Gray Scale Variable Ink Drop Technology.

Ultra 9600 printers adopt Gray Scale controlling system which can generate 3 kinds of drop volume with the minimum drop volume of 3.5pl. Thus the printing effect could be more precise and vivid.

Fault-Tolerant Feather Technology

The most advanced fault-tolerate feather technology, developed by WIT-COLOR team, realizes the gradient printing instead of linear printing. Due to the constitution of gradient ink dot, fault-tolerant feather technology can effectively remove the stripe, thus perfecting the picture.

LCD Control Panel

With LCD control panel, the printer could be operated to fulfill a series of convenient maintenance like head-cleaning, ink-sucking, flashing media-feeding, media-retreating and resetting.

USB Control Board

Equipped with USB control board and USB2.0, the printer is connected to the computer via USB data cable. Meanwhile, the built-in memory chips of USB control board improve the printing speed.

High-speed Motion System

The AC servo motor of the printer has a feature of high speed and high stability. In mechanical part, the printer adopts imported linear rail, timing belt with steel wire and copper gear. In the positioning system, the printer can achieve multiple 720 resolution with180 DPI encoder stripe.

Rapid Heating and Drying System

The printer has two sets of heating system and one set of drying system. Pre-heating contributes to absorption of ink by opening the coating of material. Post-heating contributes to rapid coagulation of ink. In the collaboration of heating system and drying

system, each picture could be dried before collected.

Automatic media feeding and collecting system

The automatic media feeding system is designed with photoelectric control. The system could bear large media like fabric and keep media moving in parallel. With passive media collecting system, the printer achieves low energy consumption when bearing the light media.

Symbols:

Please pay attention to the following symbols in the course of reading

Incorrect operation, which will result in serious problems. Please read carefully to avoid incorrect operation.

Warning operation, which will damage printer. Please follow the instructions carefully.

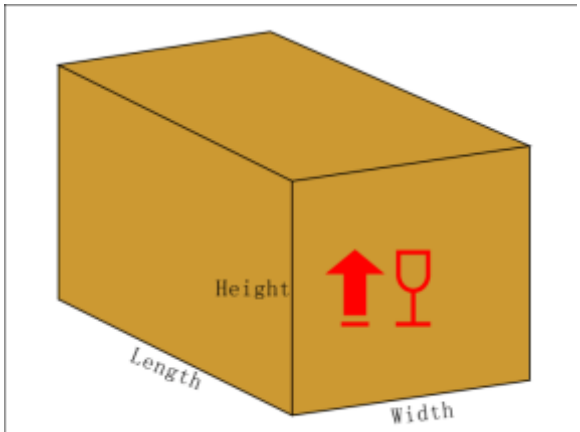
Hinting operation, which points out some details.

Chapter One

Instructions before Installation

Wooden Package Dimension:
Length*Width*Height: 2.82*0.82*0.80m
Printer Dimension:
Length*Width*Height: 2.70*0.72*1.30m

There must be enough space around the printer, at least 1.2meters for before and back, at least 50 centimeter for left and right .



The machine Box

Power Supply:
1, Connect ground wire correctly. Use independent power supply and avoid sharing the same ground wire or socket with other equipment
2, Power supply: AC supply 220V AC 50Hz （±10%）
3, Maximum power supply is 1200W; UPS power supply is more than 2000W.
4, Don't use damaged wire line. The service power of wire line shall be above 3000W.
5, Don't use extensive USB cable and the USB cable shall be screened.
6, Turn off all switches, and then connect the power supply cables or unplug the power .

Environment:
1, Please keep away from magnetic equipments and leave enough space around the printer.
2, Please keep the room dust-free and suitable temperature.
3, The printer should be on the smooth ground. Do not tilt the printer, which will result in deviation of media feeding.
4, Please avoid floors prone to vibration like aisle. Keep air in circulation.

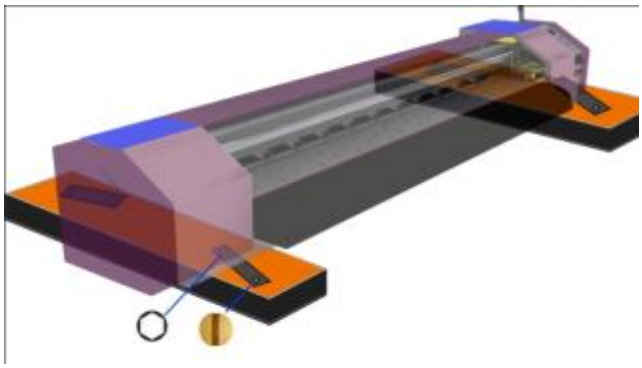
5, Please keep away from direct sunlight or heat source. Stable temperature guarantee stable chip operation.
6, Required temperature: 10-35℃; Required humidity: 30%-80%. Improper temperature will reduce the printing effect.
7, Keep away from all the corrosive liquid and gas.

Please follow the correct operation.

Notice of Devanning

The equipment is packed in a wooden case. Qualified operator and Screwdriver are required.
1, The gross weight of equipment is 300kg. Please remove with forklift.
2, Wear gloves when operating to avoid unnecessary injury.
3, Remove all the screws from up to down.
4, Do not discard screws.

Open the wooden package, and then unscrew the printer body to move the machine.



Cautions in moving printer
1, At least 6 people required.
2, Carry the body of the machine instead of bilateral chassis.
3, Do not left anything in the printer. Lock the side cover after checking.
4, Lift lightly with no collision.

Lift lightly to avoid printer deformation.

Notice of Ink:

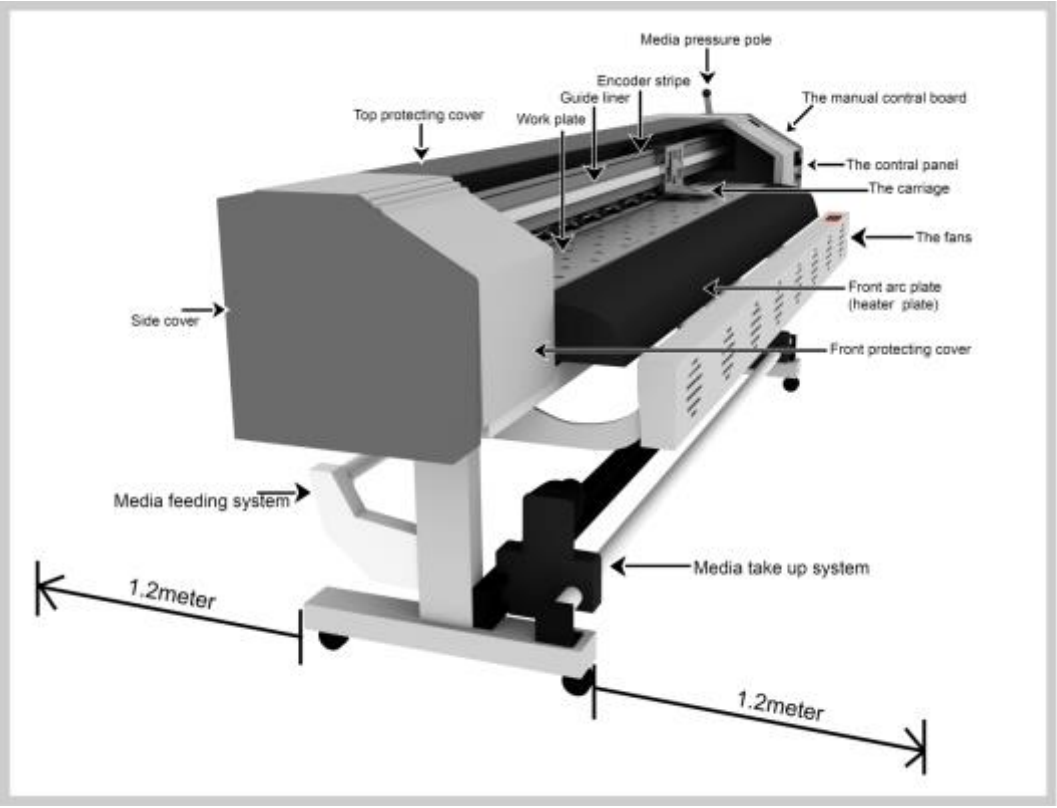
1, Please keep the ink bottle away from the children, the pregnant and the elders.
2, If ink drops on the skin, wash with soap and water. If ink is splashed into eyes, rinse immediately. Seek medical advice in time if feeling not good.
3, Store in a cool and dark environment.
4, Use ink in two month if the bottle is opened to achieve better printing effect.
5, Do not completely open the ink bottle. A small cut on the sealed bellows is enough.
6, Do not shake the ink bottle, or the ink will leak out.
7, Do not litter wastes.
8, Keep ink dust-free.

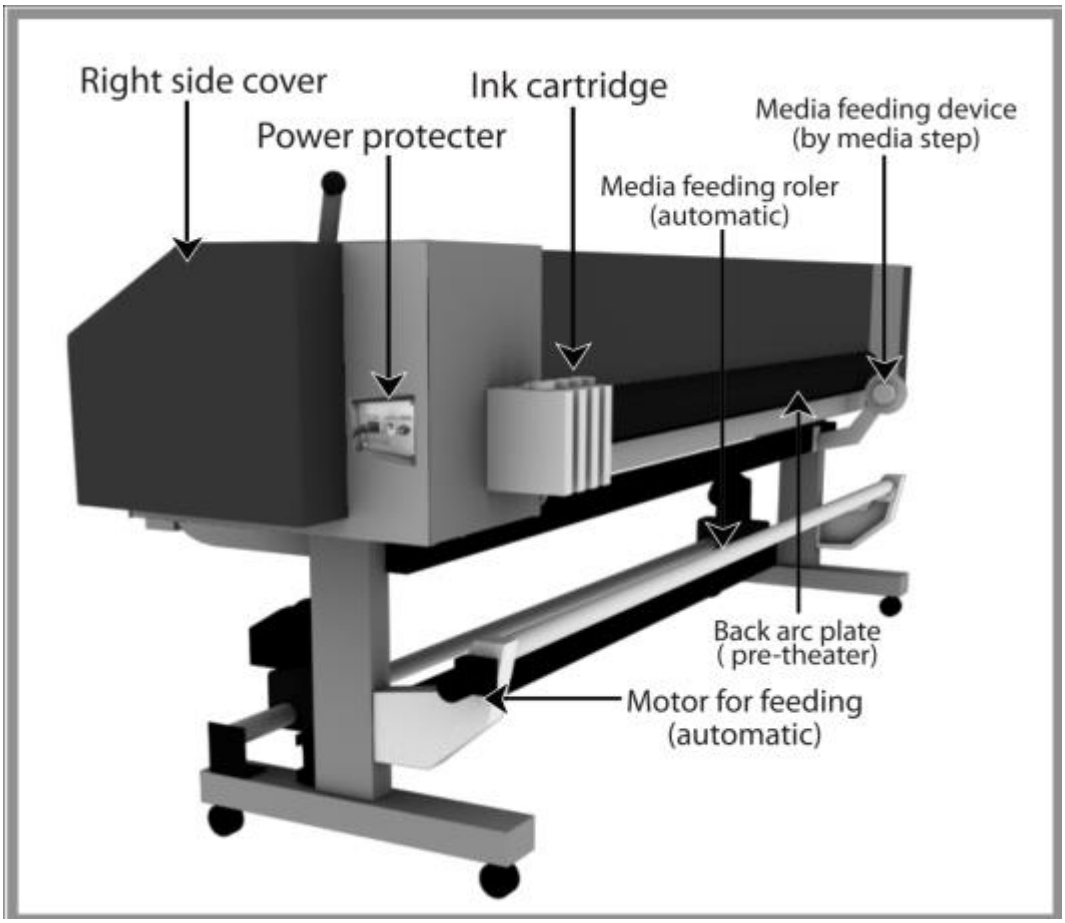
Do not litter ink wastes for the sake of others and environment.
Keep ink dust-free to avoid print head blocking.

Chapter Two

Details of Printer

Framework of printer




Right side cover
Ink cartridge
Power protecter
Media feeding device
(by media step)
Media feeding roler
(automatic)
Back arc plate
(pre-theater)
Motor for feeding
(automatic)

Specification

	Model	Ultra 9600 1602S
Print head	Technology	EPSON PIEZO print head- DX9
	Quantity	2Heads
	Color	6 Colors: Cyan, Magenta, Yellow, Black, LM ,LC
	Resolution	1440dpi\2160dpi\2880dpi
	Injection Distance	3~6 MM
Ink	Ink Type	WIT-COLOR ink: Black, Cyan, Magenta, Yellow
	Ink Supply	Continuously automatic ink supply
Heating & Drying	Heating System	Panel Heating: Temperature controller 30C°adjustable Output Drying: 10~60C°adjustable
	Drying System	External Drying Fan Internal Radiating Fan
Media	Media Width	1520mm
	Media Type	Photo paper, PP, Fabric, Adhesive vinyl etc.
	Maximum load	100KG
	Transmission	USB2.0
	RIP Software	Maintop
	Computer System	WindowsXP\VISTA\7
	Operation Environment	Temperature:10℃ ～ 35℃ Humidity:30 ～ 80%

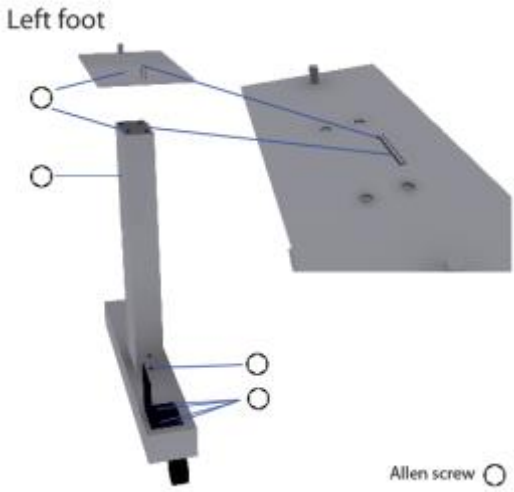
	Power Supply	Rated Frequency: 50Hz Rated Voltage: 220 AC（±10%）
	Power	Max 1200W; Operating Power: 500W
	Dimension	Length*Width*Height : 2.90*0.78*1.20m
	Weight	220kg
Output	Mode	m^2/h（2 heads）
	4PASS	18
	6PASS	12

Installation Cautions

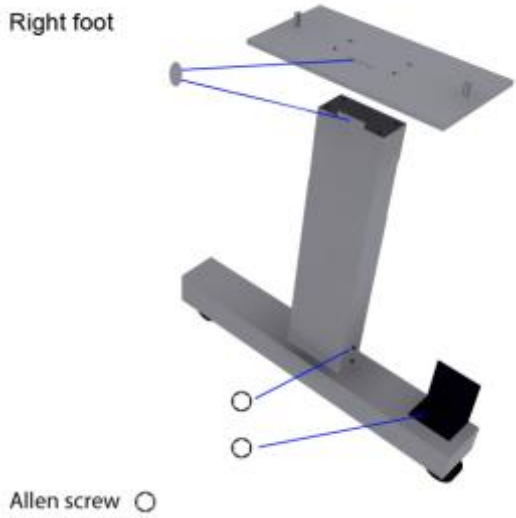
Mechanical and Electronic Assembly

Assembly printer from foot to body. Shrapnel and gasket must be attached to all the allen screw.

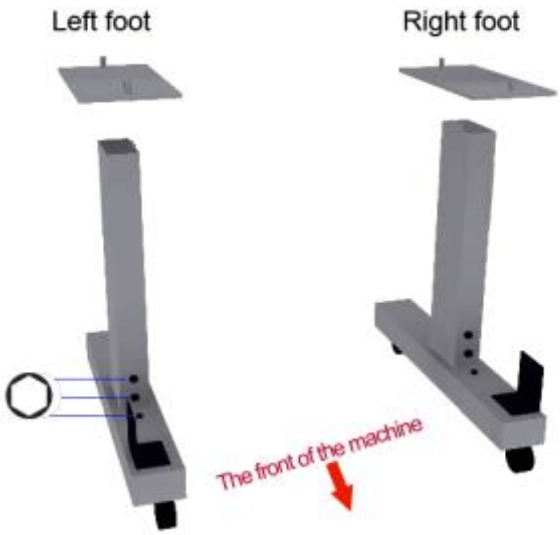
1, Frame Installation: Left foot



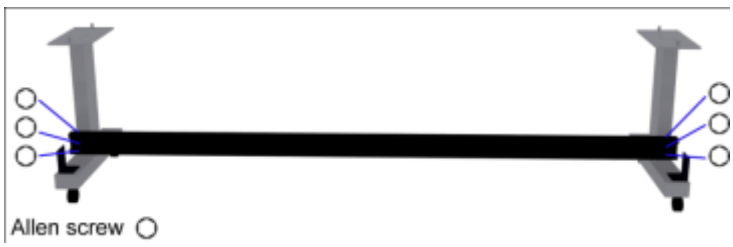
Recognize components position through screw hole.



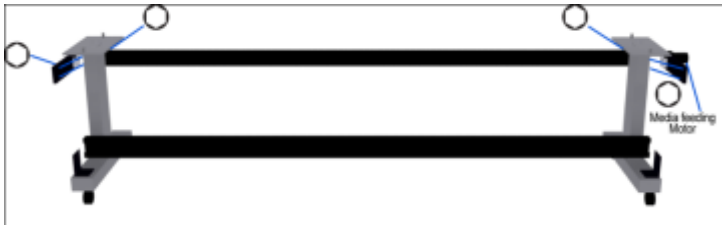
Distinguish the front of the machine through screw hole.



2, Confirm the foot position, and then install the first crossbeam.



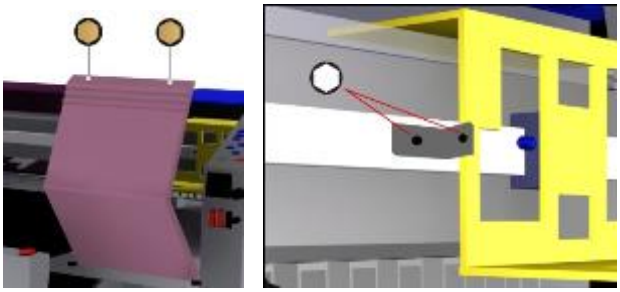
3, Install the second crossbeam and media collect motor.



4, Install media collect system.

5, Connect printer body and frame. The screw hole must correspond.

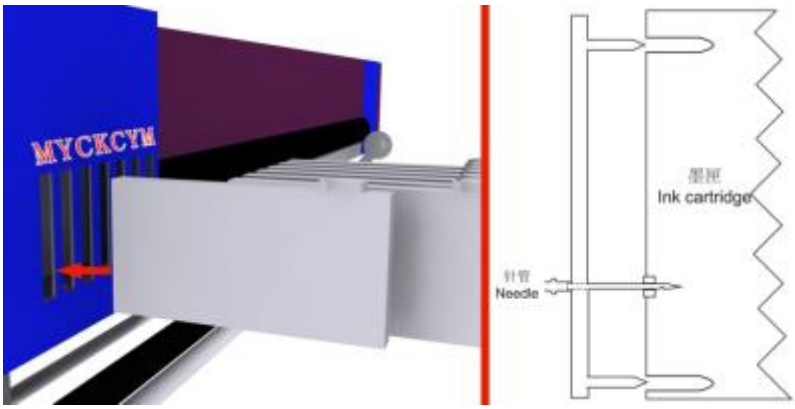
6, Open the right side cover and release the carriage.



7, Printer's front view.

8, Install the tray to hold wasted ink box.

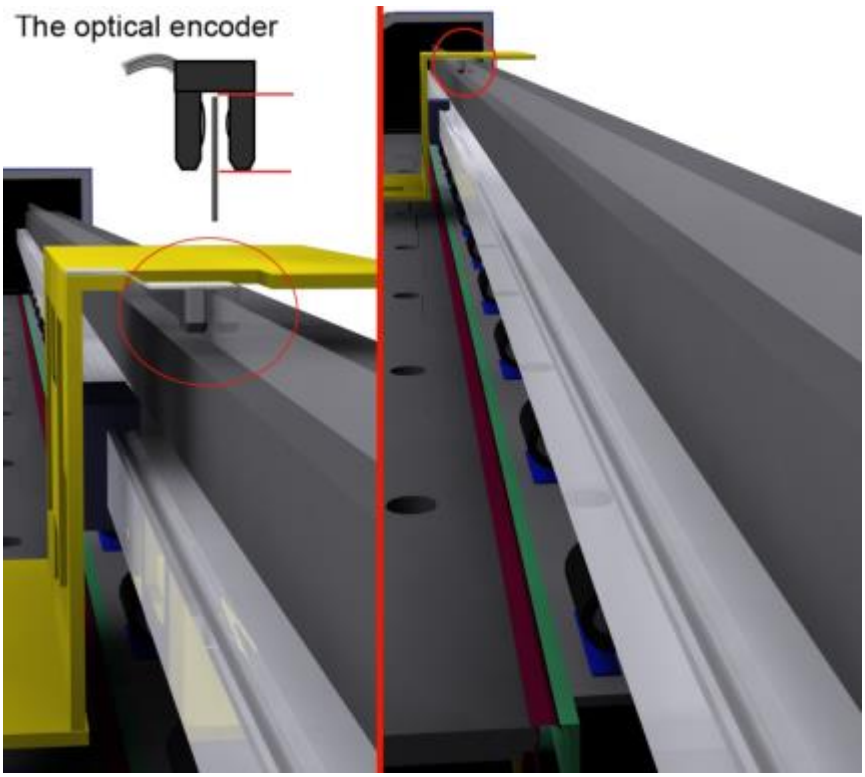
9, Insert ink cartridge: notice the position of needle and ink cartridge



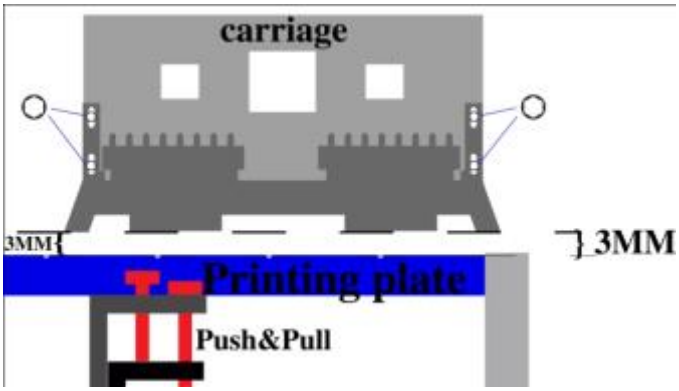
Do not tighten the screw until all the screws are ready. If the screw is sidetracked, please remove and screw again instead of pushing by force.

Inspection

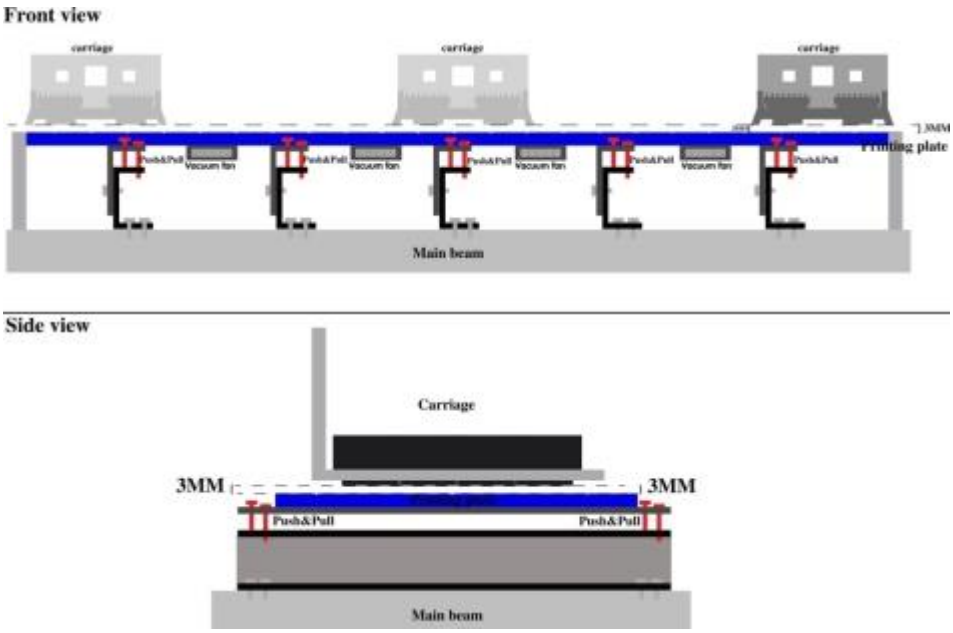
1, The connection of encoder sensor and encoder stripe shall be accurate as shown in the picture.



2, The distance between carriage and printing panel is about 3 mm. The height of carriage can be adjusted by screws.



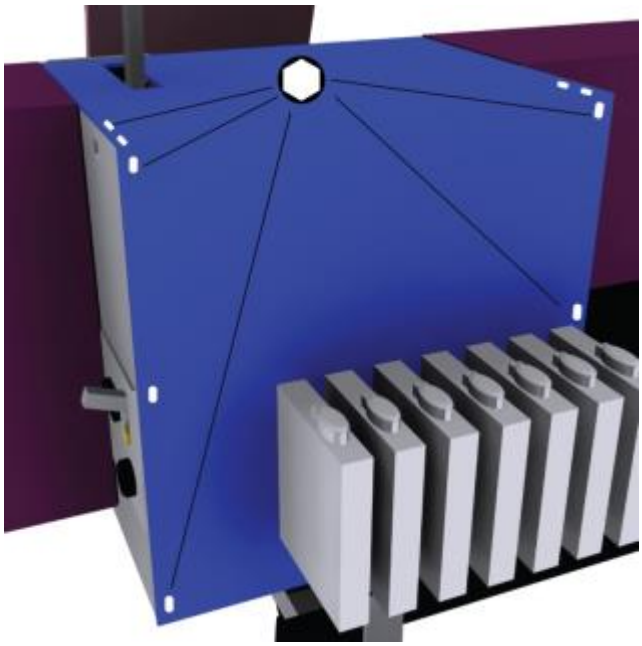
3, Move carriage and calibrate printing panel. The distance from the carriage bottom to printing panel should be even from left to right. Adjustment can be made by propping up and pulling down the screws(marked with red in picture).



4, Make sure the ground wire is connected.

5, Check all cables' connections in PCBs and drivers.

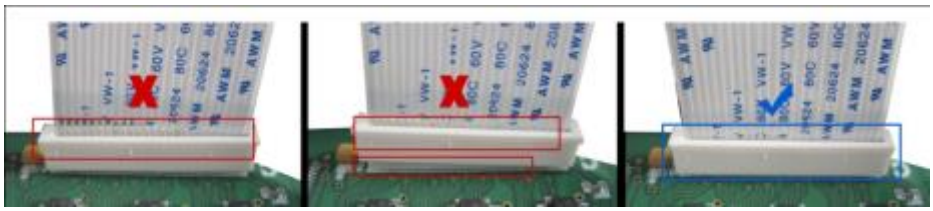
①Open the front protecting cover

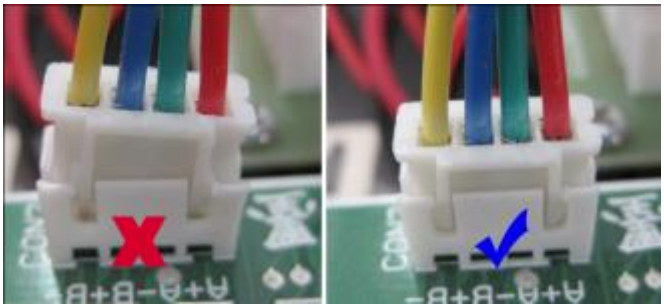


②Check PCBs

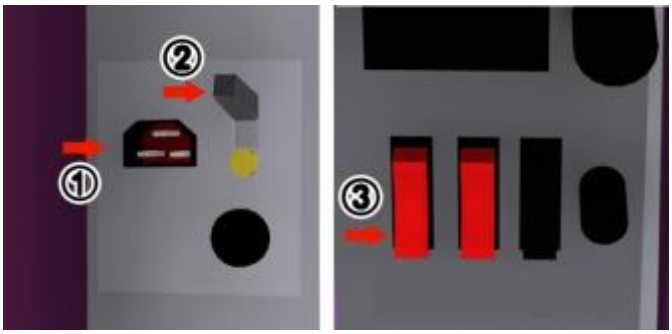
Check slot and interface. (Examples for your reference)

If the slot or interface got loose, please tighten it and then close the cover.





6, Turn off all switches, and then connect the power supply cables. After turning on the Circuit Leakage Protector's Swith, then turn on the Main Power Supply.

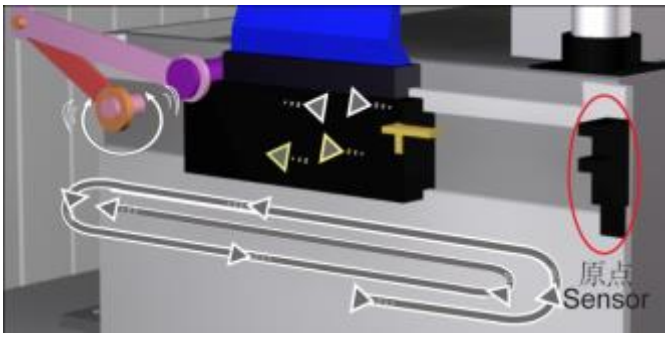


Self Inspection

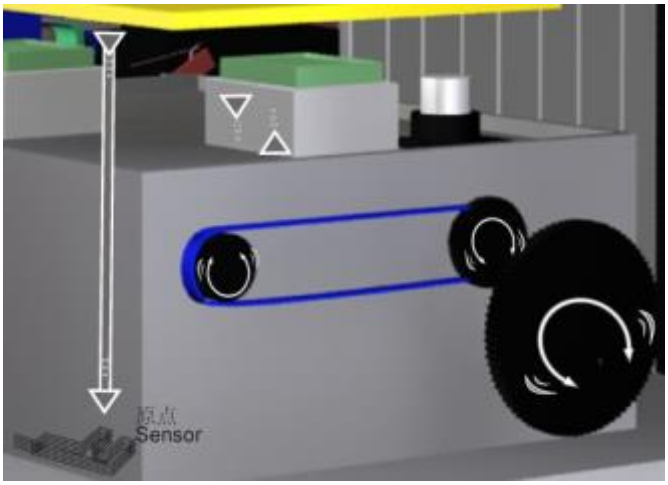
Printer's auto self inspection will be performed when restarted. The process is below:

Capping nozzles moving down→Carriage moving right→Carriage replacement→Capping nozzles moving up

First, the print heads' scraper moves until reaching the Optical Couple Switch. (If the scraper is in the position of Optical Couple Switch, and the scraper does not move with the motor running, then it means the Couple Switch does not work well.)



Second, the capping nozzle moves down till reaching the Optical Couple Switch. (If the motor runs in wrong direction or with noise, please check the motor cable's connections.)

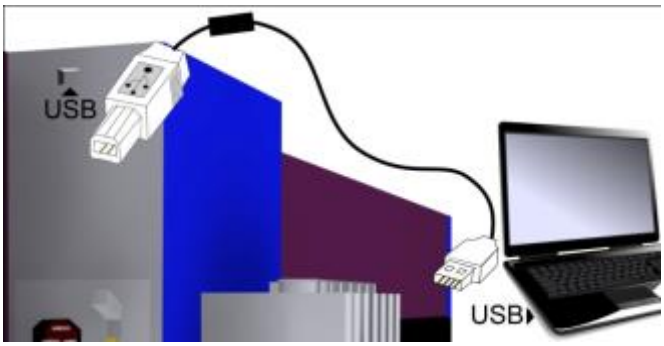


Third, the carriage moves to right till reaching the Optical Couple Switch. And then the carriage moves back to the left.

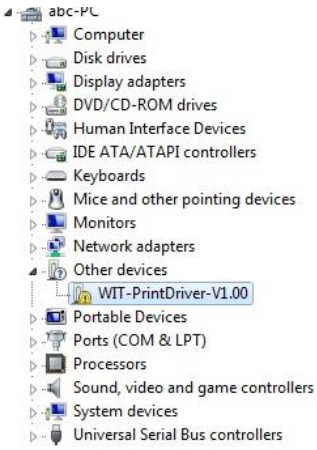
Fouth, capping nozzle moves up and self inspection is completed.

Installation of Printing Software and USB Drive

Step 1: Connect USB data cable to printer and computer.



The computer device manager will detect USB equipment.

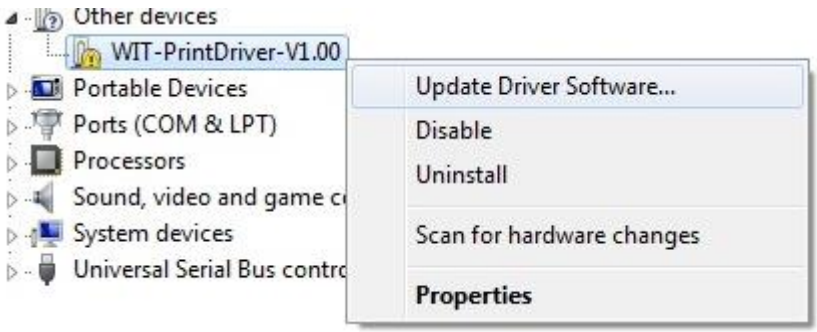


Step 2: Install software and printer driver

Install printer driver, as you can't operate the software without USB cable driver.

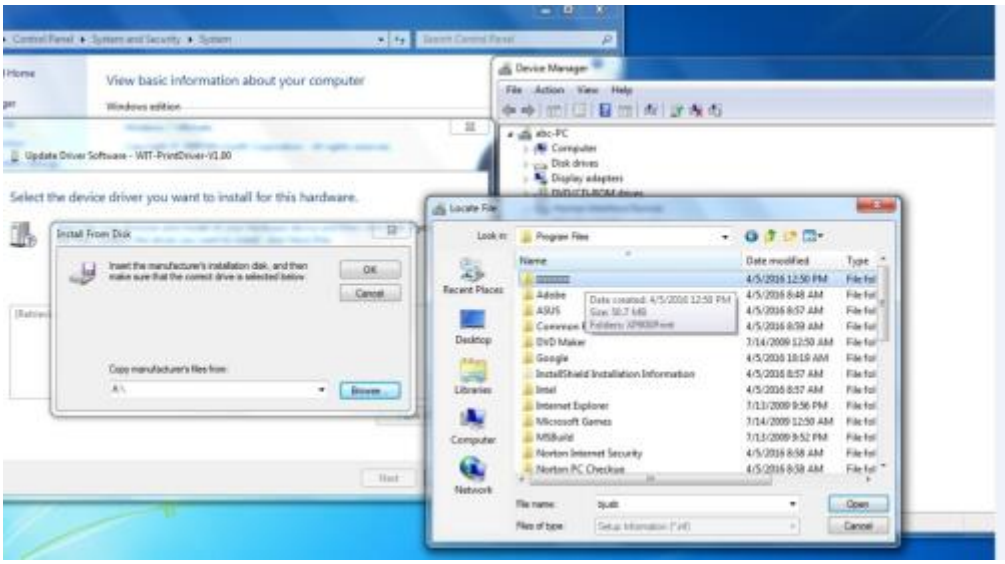
Device manager interface

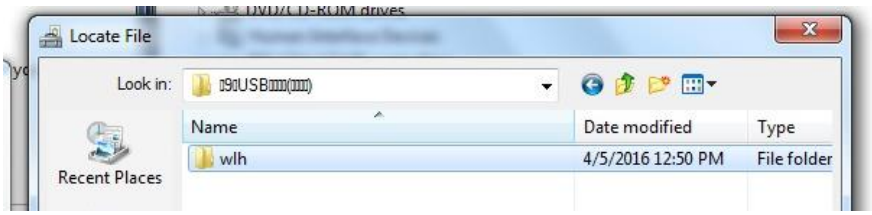
USB cabke driver installation

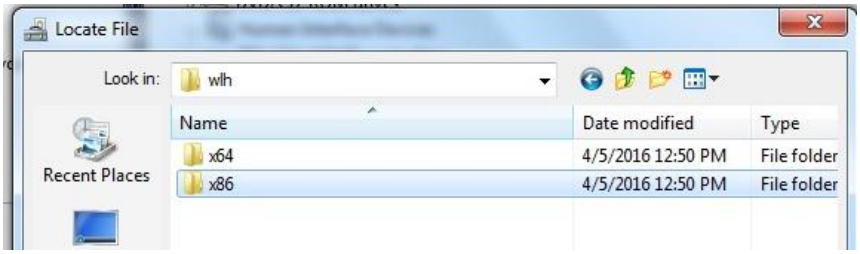


Choose driver from the program file

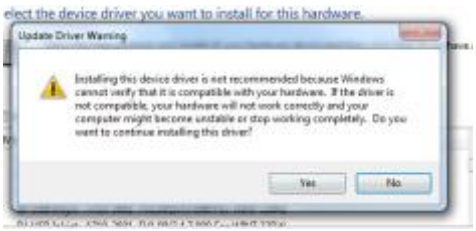
C:/program file/XP900printer/driver

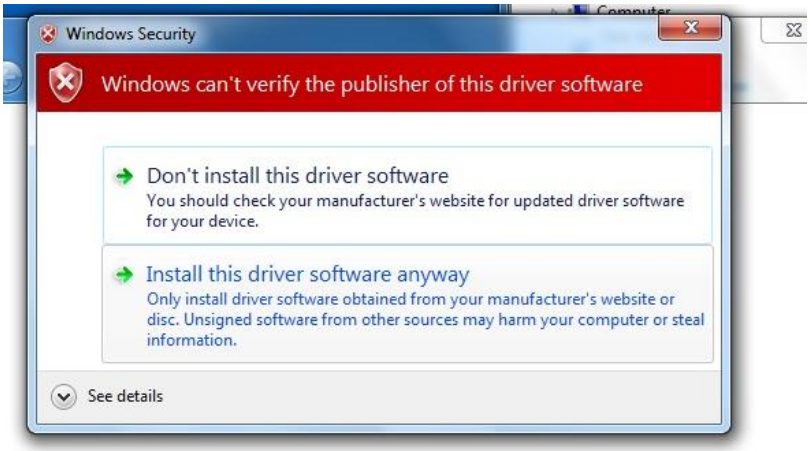






If a dialogue window prop up as following picture, Please choose to yes.





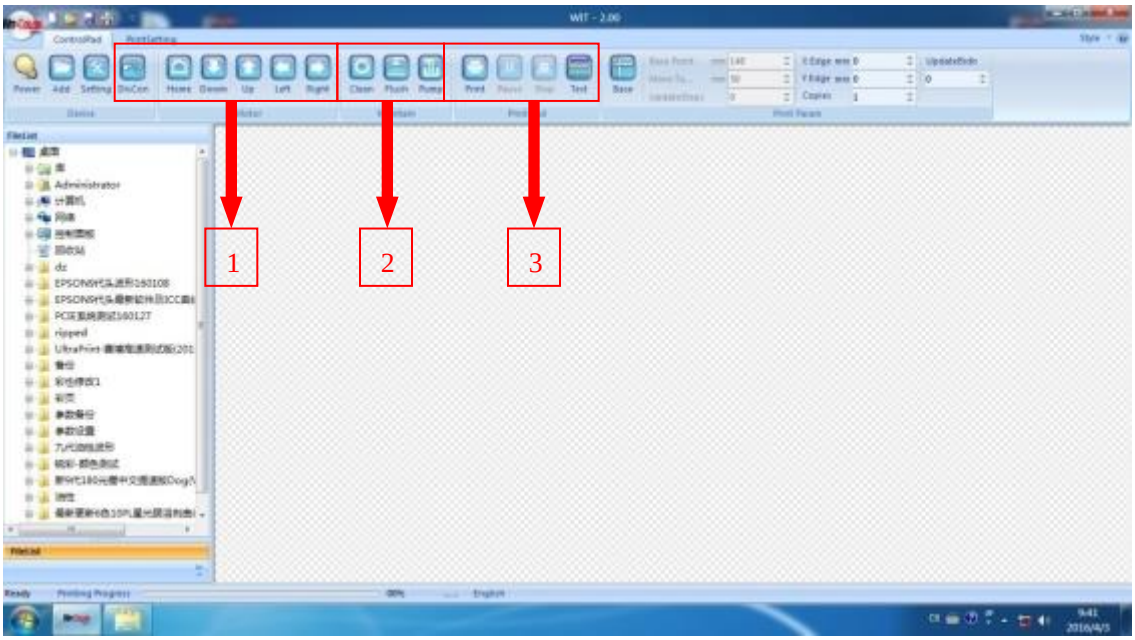
Driver installation is completed.

Step 3: Start the software and do the setting of the software

Know well of software function and operate printer through software.

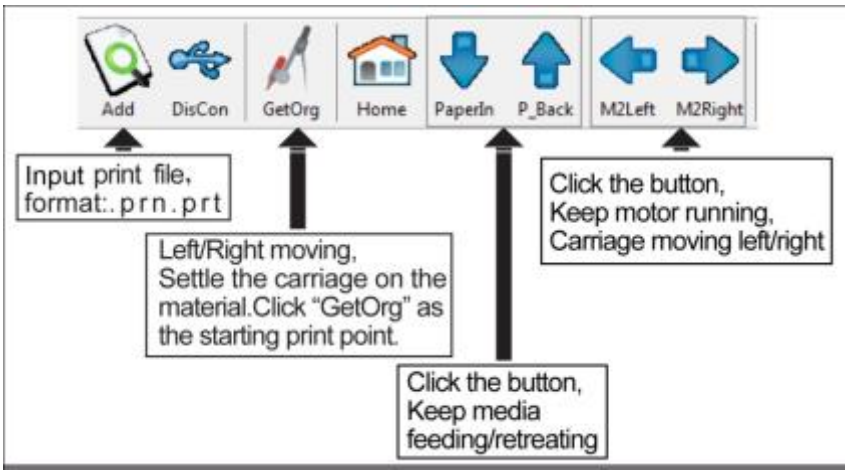
Function of Printing Software

Firstly, only after self inspection, USB connection, printer driver installation are completed, then you may operate in the software interface.

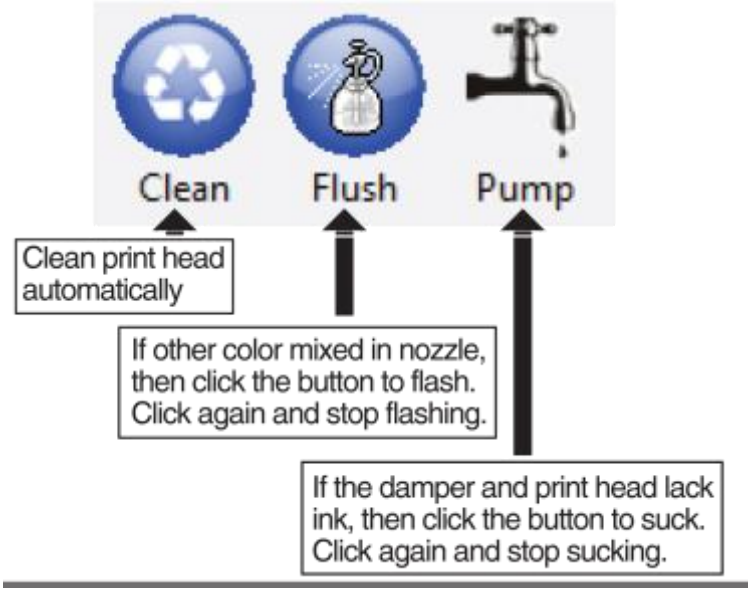


Secondly , all the software function will come into effect after connection. You may perform simple operations.

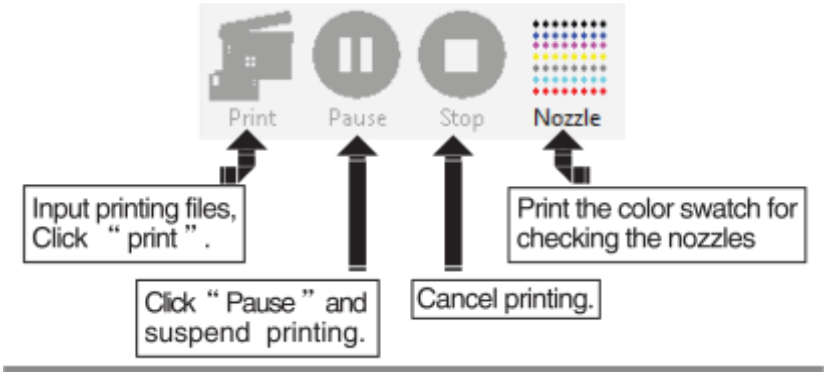
1, Media feeding and retreating, Print heads moving, Starting points settings

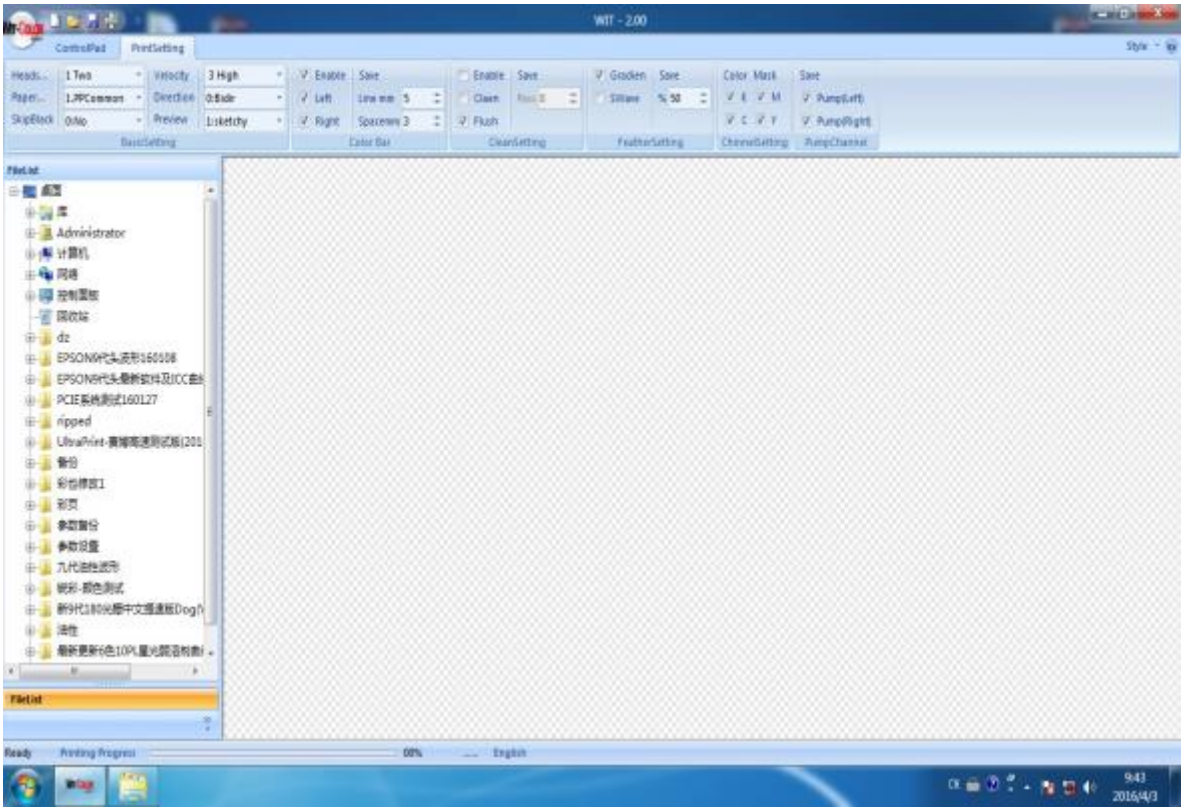


2, Cleaning function

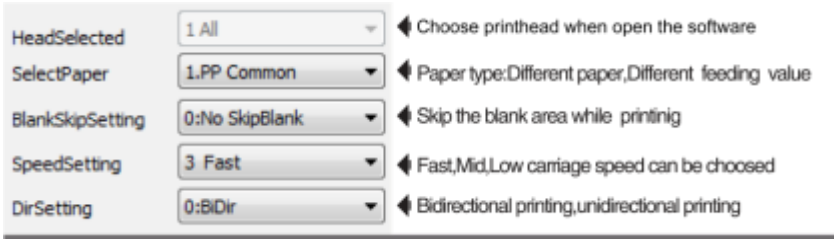


3, Printing function



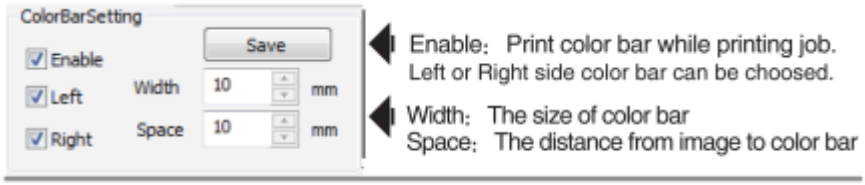


4, Selection of media type and speed



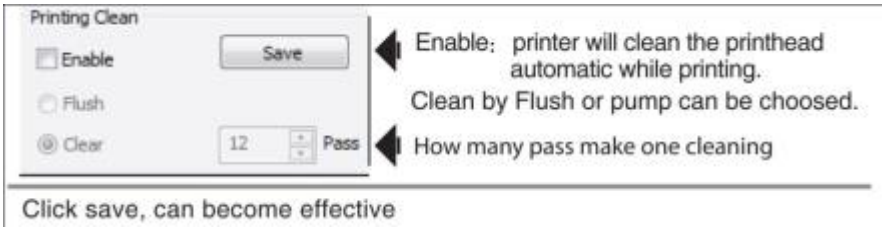
5, Setting 1 for improving printing effect

Color bar to prevent nozzles from drying



Click save, can become effective

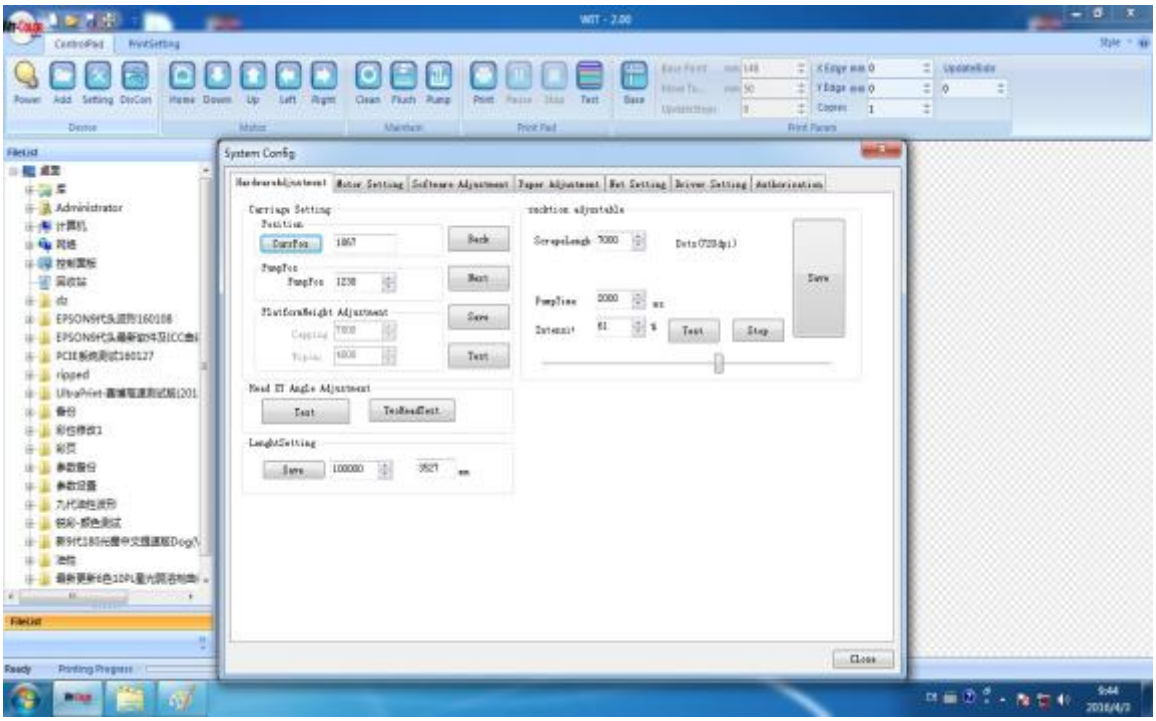
Automatic Printing clean

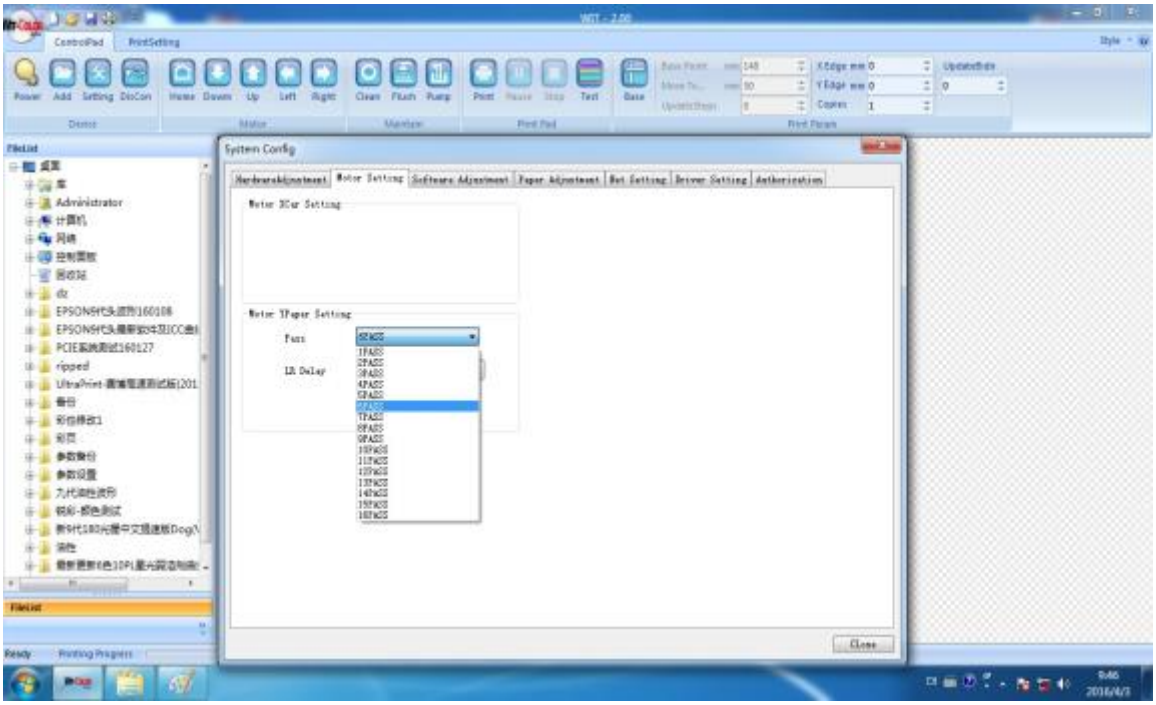


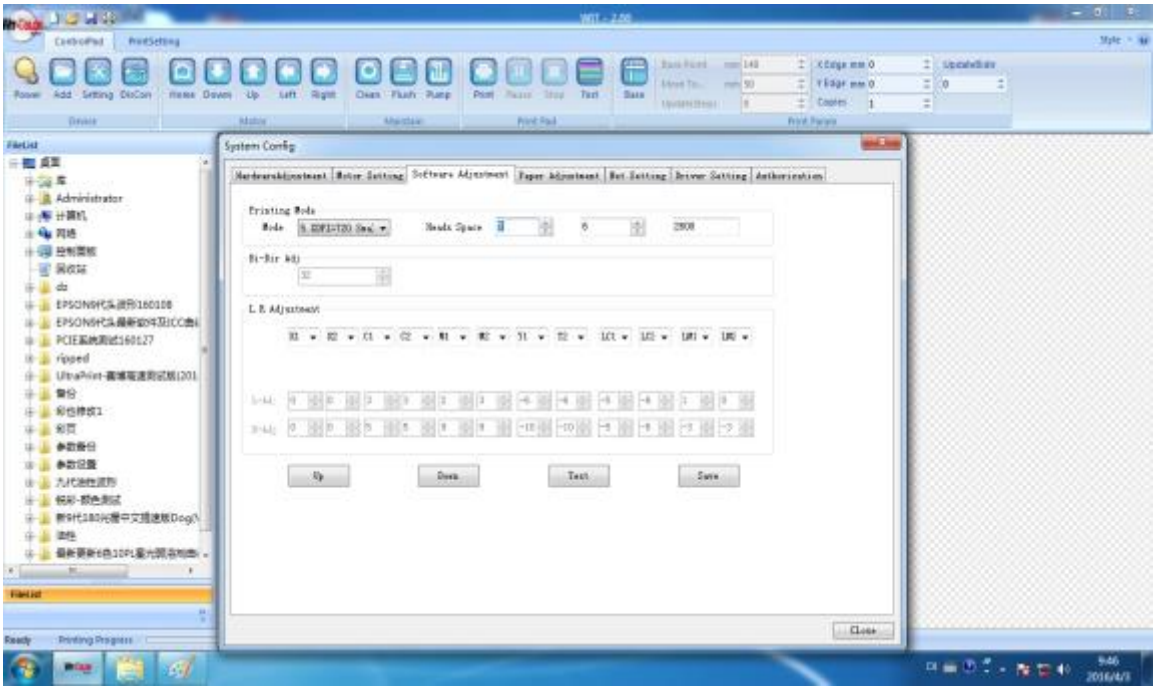
6, Setting 2 for improving printing effect: Pass Optimization

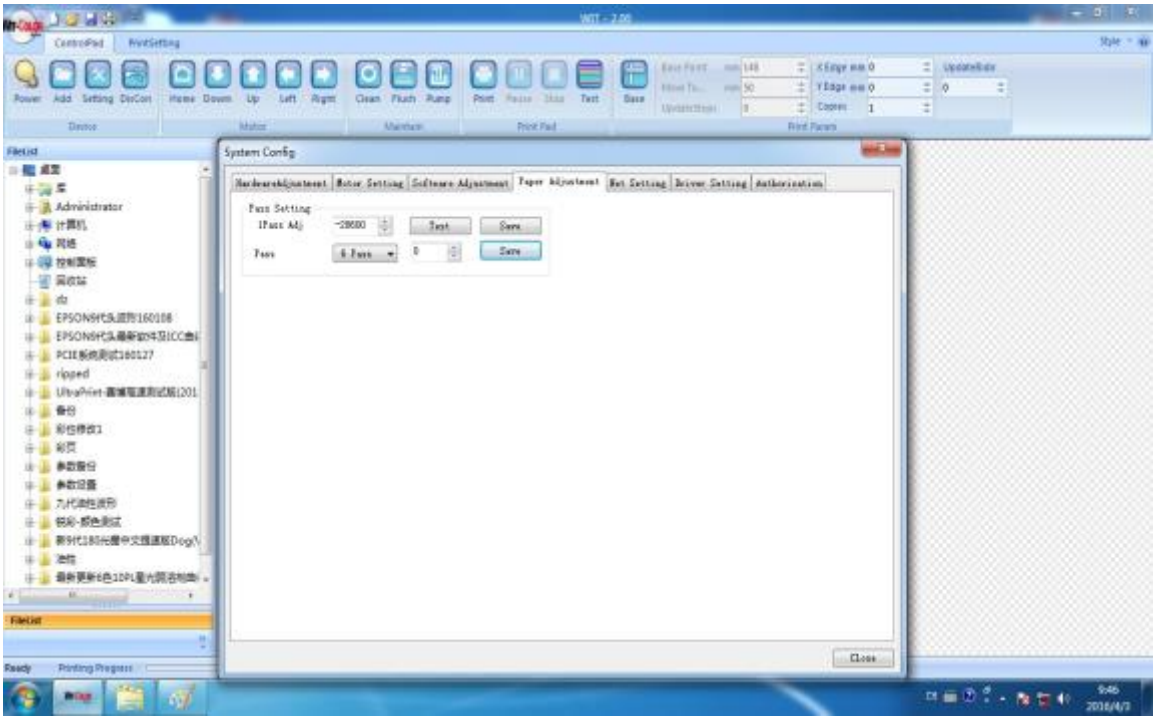
Feather Technology----to prevent overlapping or overstepping.

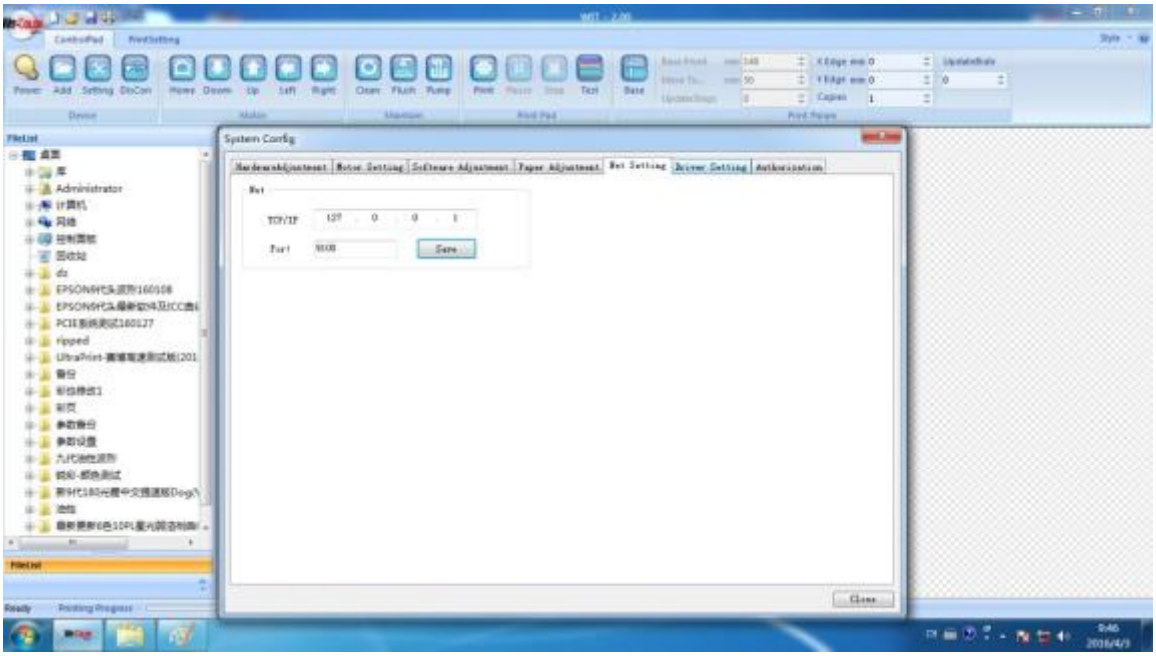
7, Software parameters setting as below photos




System Config
Hardware Adjustment
Motor Setting
Software Adjustment
Paper Adjustment
Set Setting
Driver Setting
Authorization
Motor 3Car Setting
Motor 1Paper Setting
Close


System Config
Hardware Adjustment
Motor Setting
Software Adjustment
Paper Adjustment
Set Setting
Driver Setting
Authorization
Printing Mode
Bi-Dir Adj
L.R Adjustment
Up
Down
Test
Save
Close

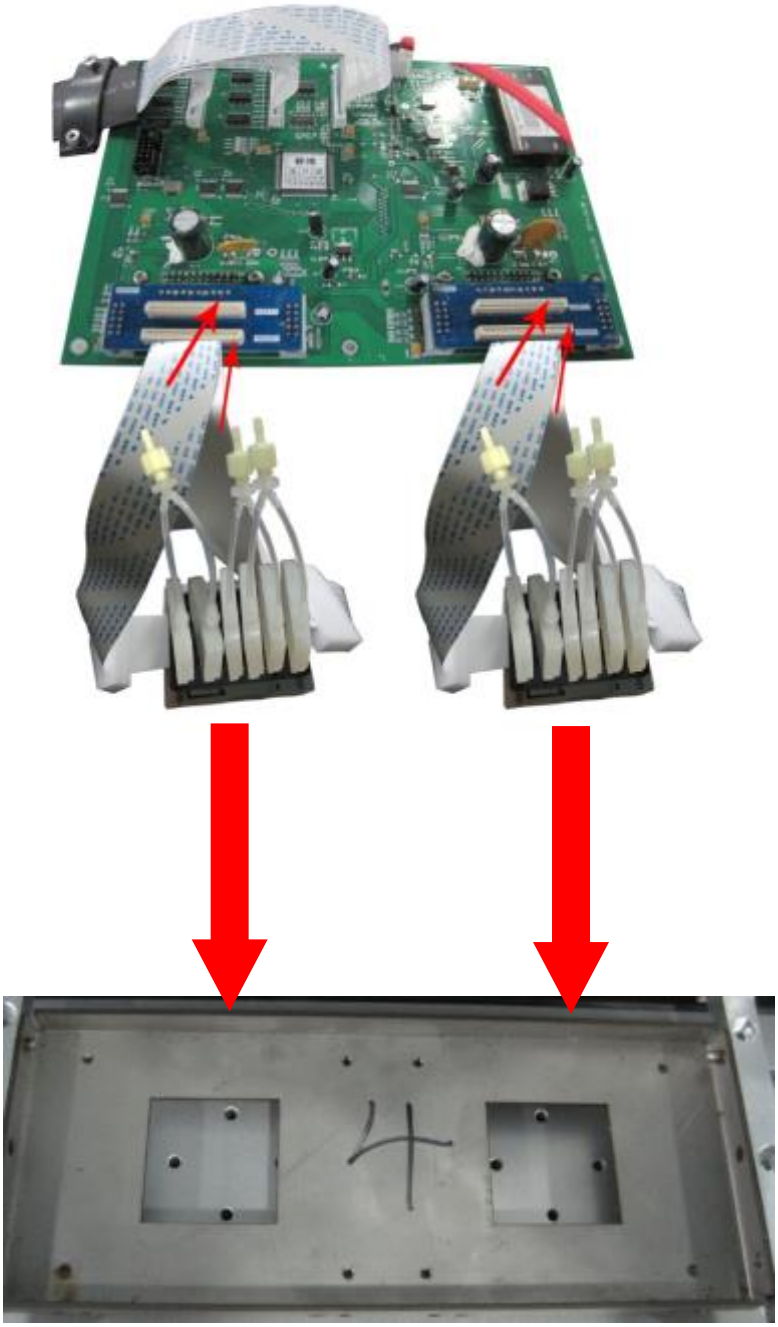

System Config
Hardwareadjustment
Motor Setting
Software Adjustment
Paper Adjustment
Net Setting
Driver Setting
Authorization
Pass Setting
Pass Adj
Test
Save
Pass
4 Pass
Save
Close

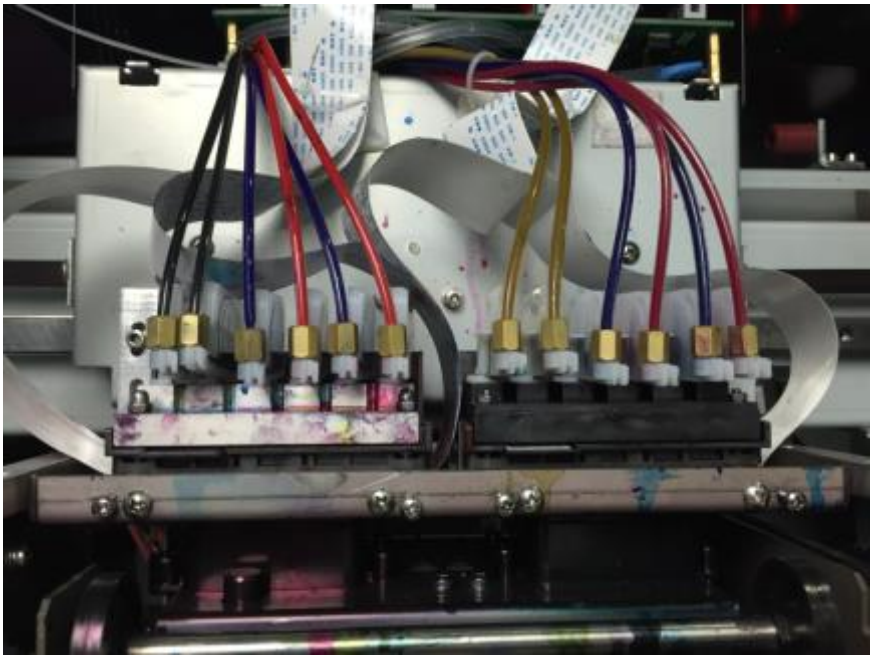

System Config
Hardwareadjustment
Motor Setting
Software Adjustment
Paper Adjustment
Net Setting
Driver Setting
Authorization
Net
TCP/IP
127 . 0 . 0 . 1
Port
9100
Save
Close

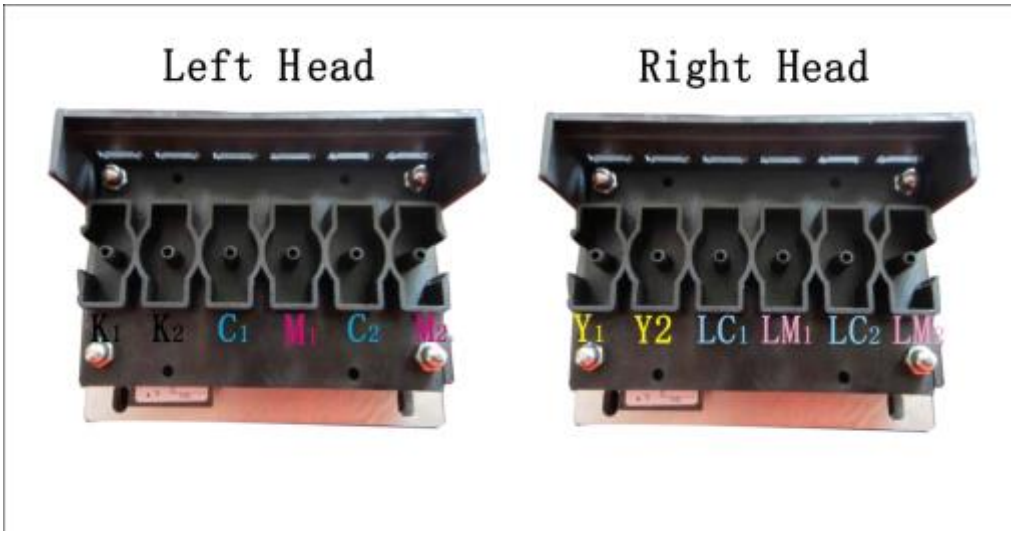
Assembly of damper and print head

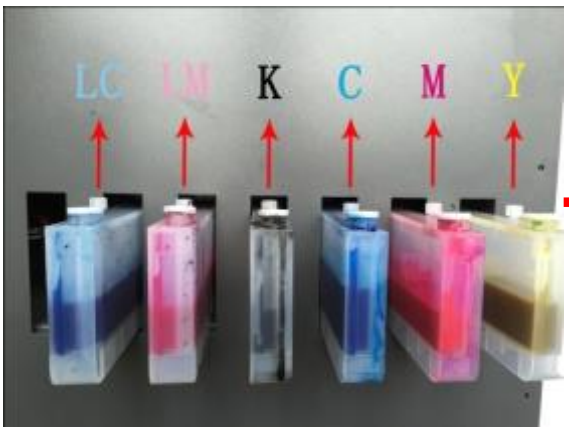
Firstly, install damper.

Secondly, install print head to the head plate









Ink Cartridge Order on the printer

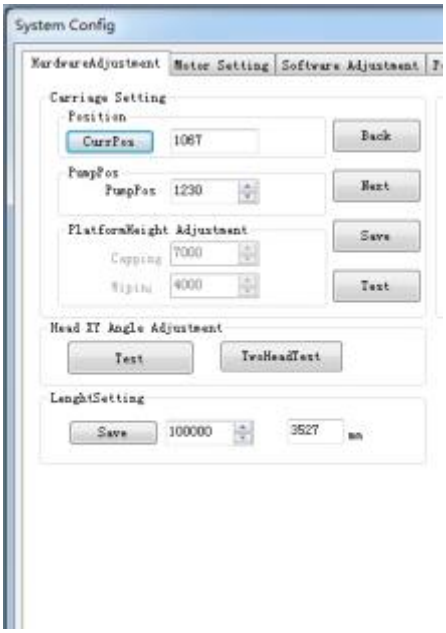
Chapter Three

Calibration of printer

Adjustment of printer

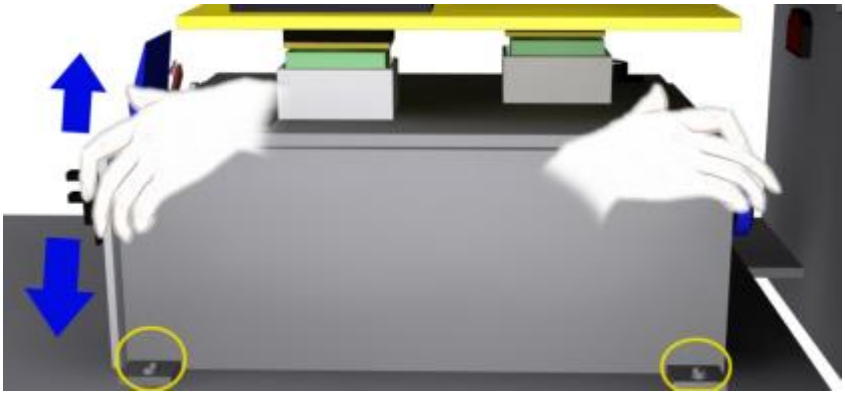
Menu-setting

Physical Adjustment: the position of Capping Nozzle, Scraper and Print Head should be calibrated to make ink sucking and cleaning smoothly.

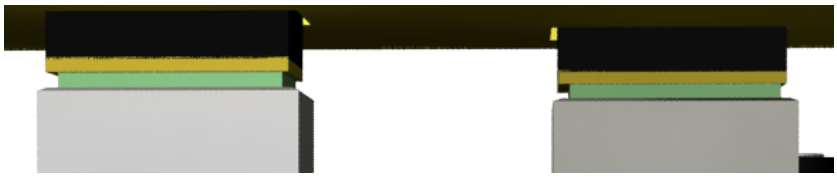


Manual adjustment

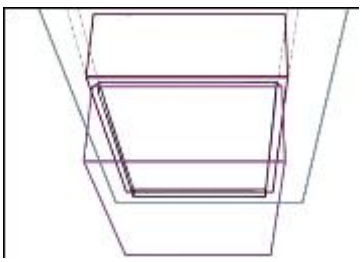
If the capping nozzles don't align with print head's nozzles, manual adjustment of capping unit could be made to keep them in a line.

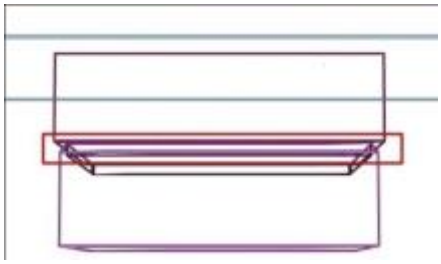


Correct position of capping nozzles and print head's nozzles

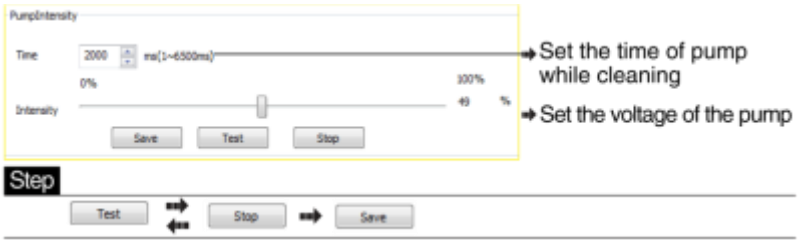


Tips: When adjusting manually, please settle down the left capping nozzles, and then it's easy to fix the right capping nozzles.





Pump Intensity(Ink Sucking Power):



How to improve printing effect

Print Head Parallelism Calibration

Click test and print one set of color swatch shown as picture,

How to calibrate

1)The left two screws are for left head calibration,you need to adjust the Push or Pull screws to make M with K lines two in one as in above photo.

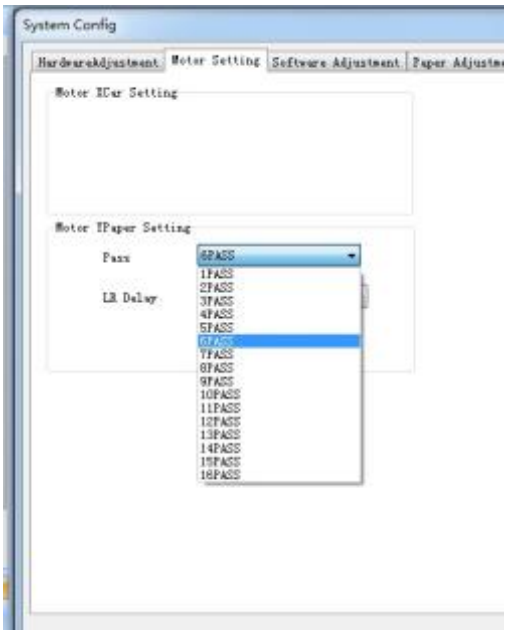
2)The right two screws are for right head calibration,you need to adjust the Push or Pull

screws to make Y with LC and Y with LM lines two in one as in above photo.

3)The LM+K and LC+K lines are for checking whether the calibration of the two heads are good or not.

Speed Setting(Carriage Delay Setting):

Delay settings are made to avoid media feeding before carriage starts to move.

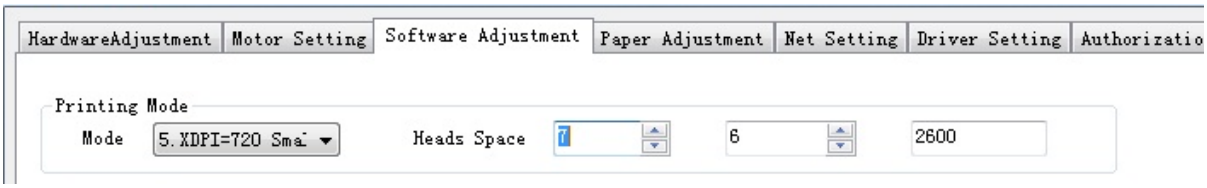


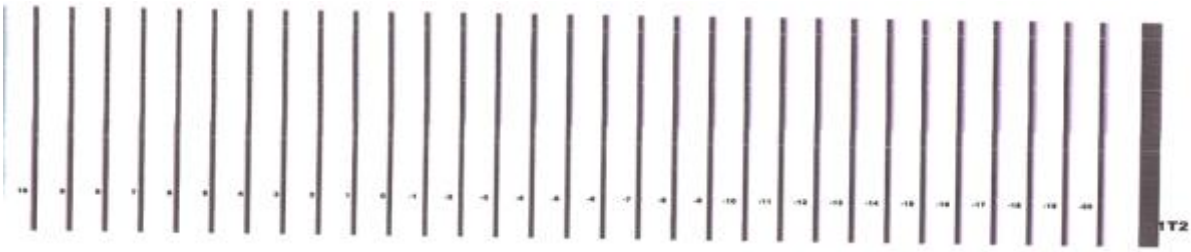
The main parameter settings are shown as following form.

	3PASS	4pass	6PASS	8pass
720 Low Speed	200 ms	100 ms	100 ms	100 ms
720 High Speed	200 ms	100 ms	100 ms	100 ms
720 High Speed	200 ms	100 ms	100 ms	100 ms

Print Heads'head space and Bidirectional Calibration

Print Heads' head space Calibration: adjust the interval distance between two print heads.





Find the M and K most mixed together lines and caculate the value above

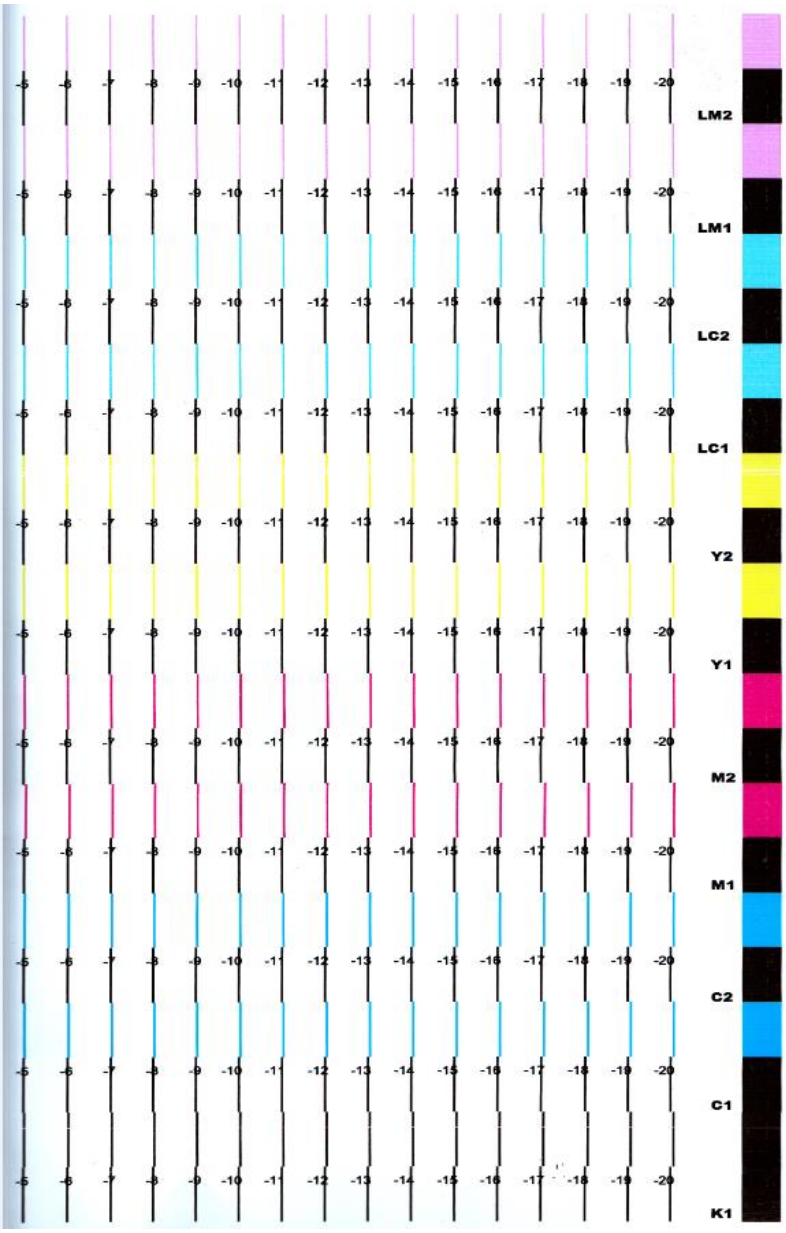
Example, the Line is -4 and 3 for down and up calibration.

The original value is 7 and 6. so you need to input 26 (7-4=3)、(6+3=9)and then click save.

Go to Bi-Dir Adjustment and Click test

Find the most straight line and input the valve as above methord.

Go to Left to Right and Right to Left option and click test



Find the most straight line and input the valve as above methord.

Media Feeding Calibration

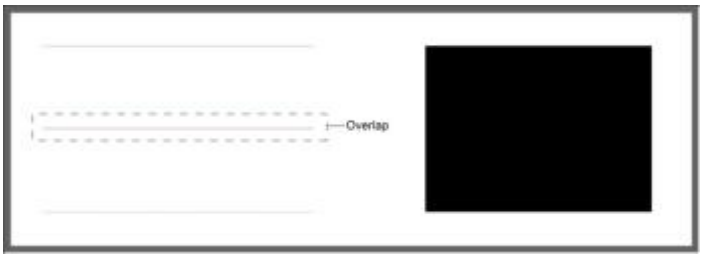
Calibration

① Decide the quantity of print heads when starting the software.

② Select feather option

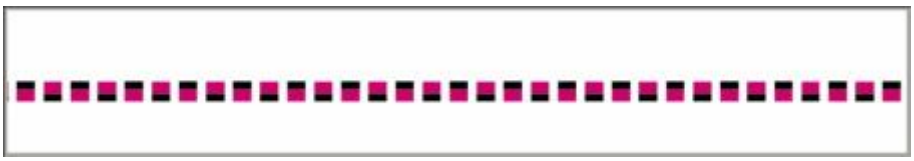
③ Choose the media type and set a standard value for certain media.

④ 1 pass calibration, 1 pass motoring calibration. Click to test.



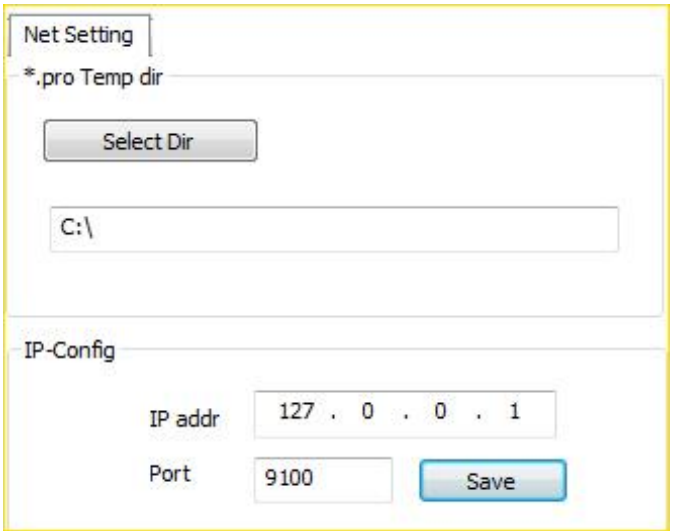
The middle red line and black line should overlap.

Increasing the value makes two lines separate, and vice verse.



Network Settings

By setting the IP and port, connect the RIP software to the printing software to realize a simple printing.



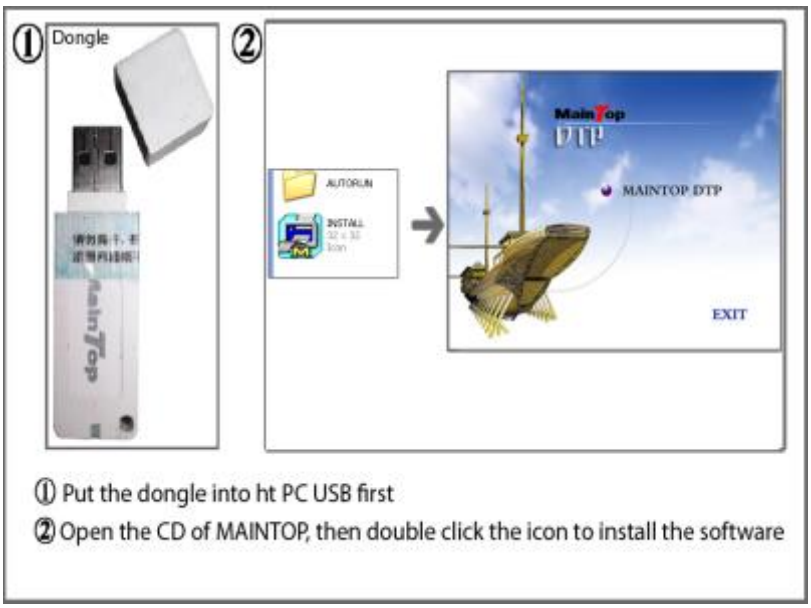
The Third Party Software

How to install Maintop software

1, Insert Maintop software dongle into the computer via USB port.

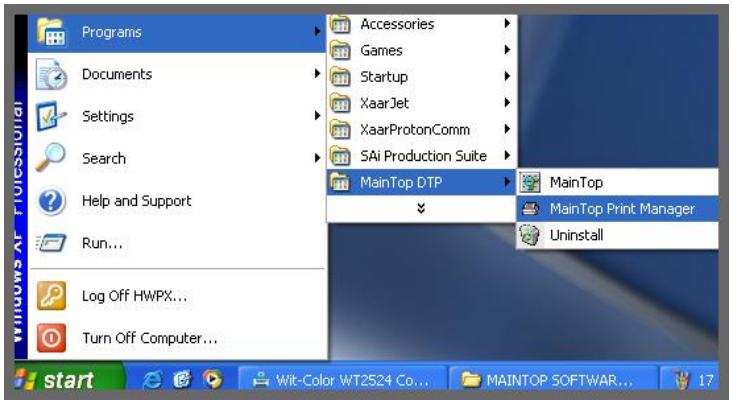
2, Put Maintop software CD into the computer CD-ROM. Automatically pop up setup window.(If your computer was installed with antivirus software to shield automatic pop-up function, please close it.)

3, Maintop software installation interface



How to set up printer in maintop

Step 1, enter “Maintop printing management system”

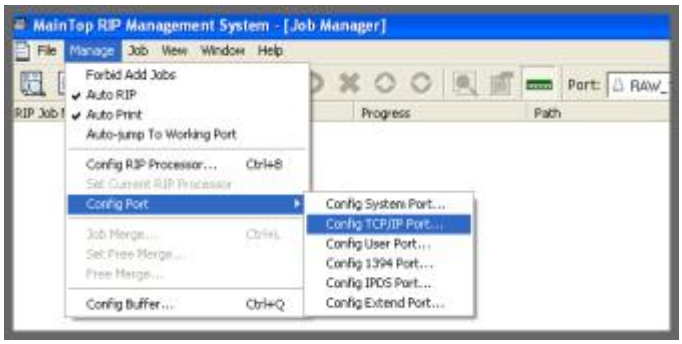


Step 2, TCP/IP Port settings

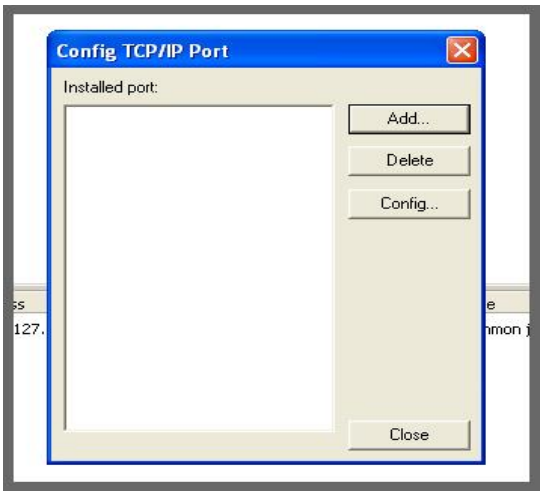
Select “Management” from “Menu”

1、Choose “Auto-RIP” “Auto-Print”

2、Config TCP/IP port

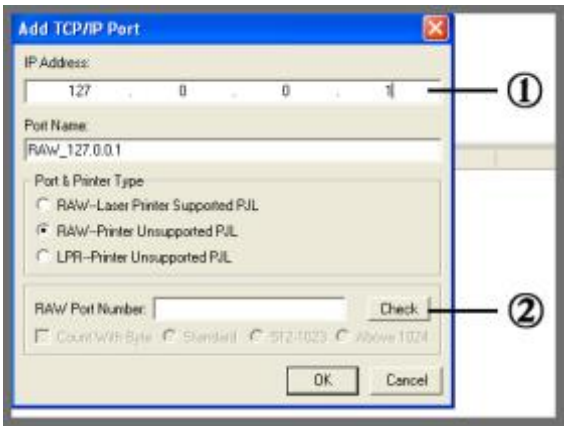


Step 3, add a port, then modify the port properties.



① Set IP address

② Set a RAW port

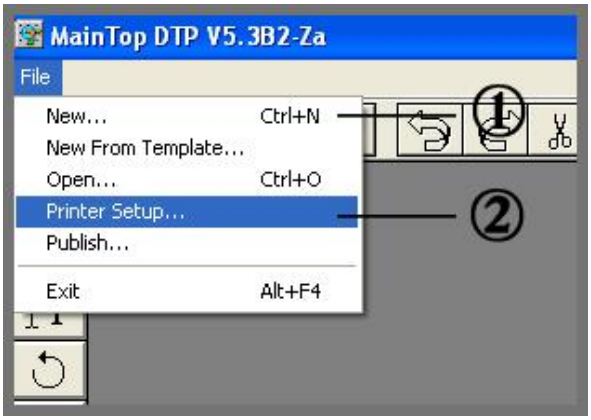


IP address and RAM port shall be same with network settings of printing software.

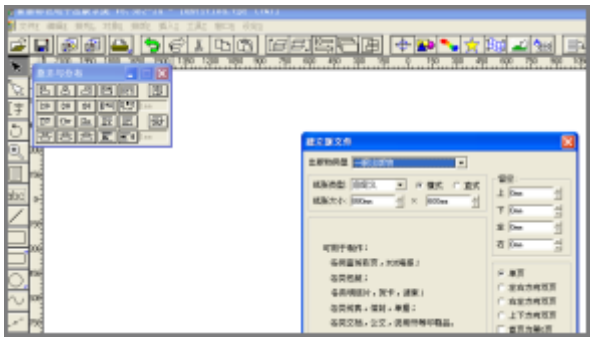
All the above completed, Maintop print management system will run in the background.

How to set up printer in Maintop software

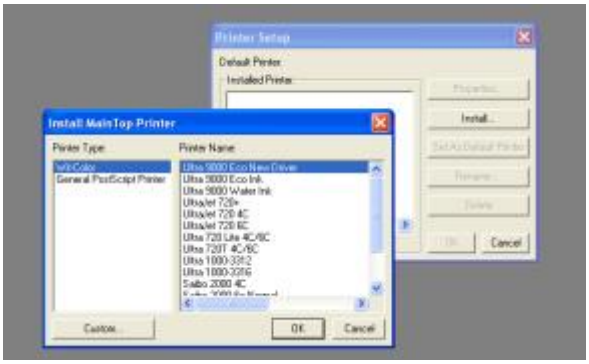
Open the Maintop software，Setup Printer in maintop



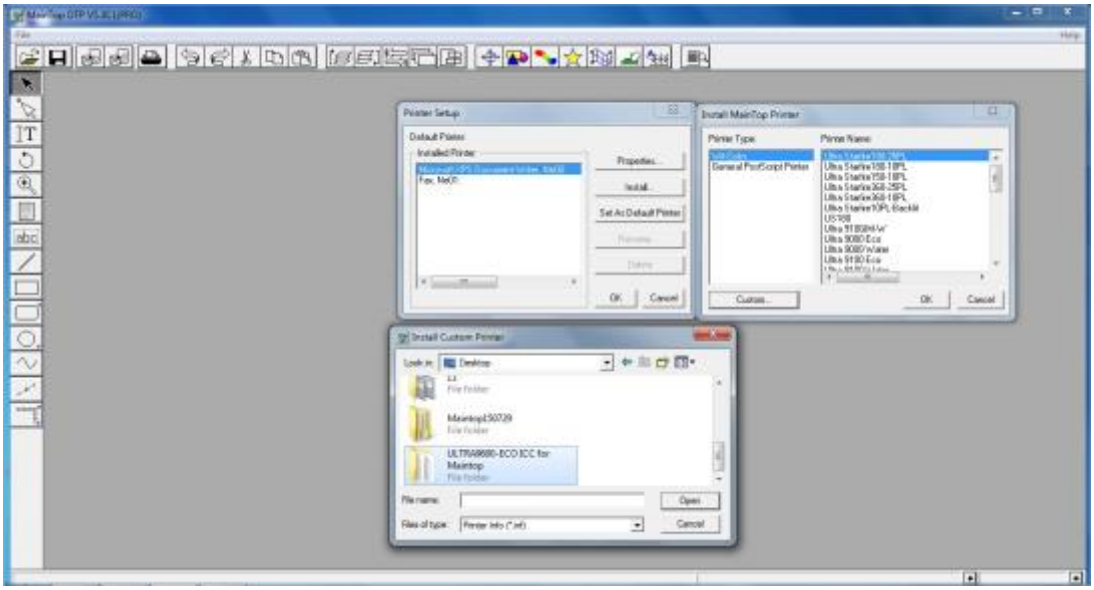
①Open a new document with “New Folder” button



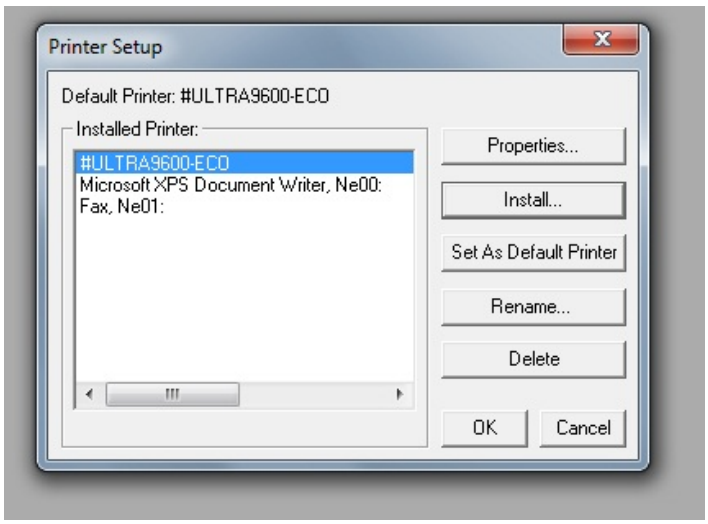
②Set up printer



Click Custom Install,Browse the ULTRA9600-ECO ICC for maintop folder



Click and set ULTRA 9600-ECO printer as default.



Completed.

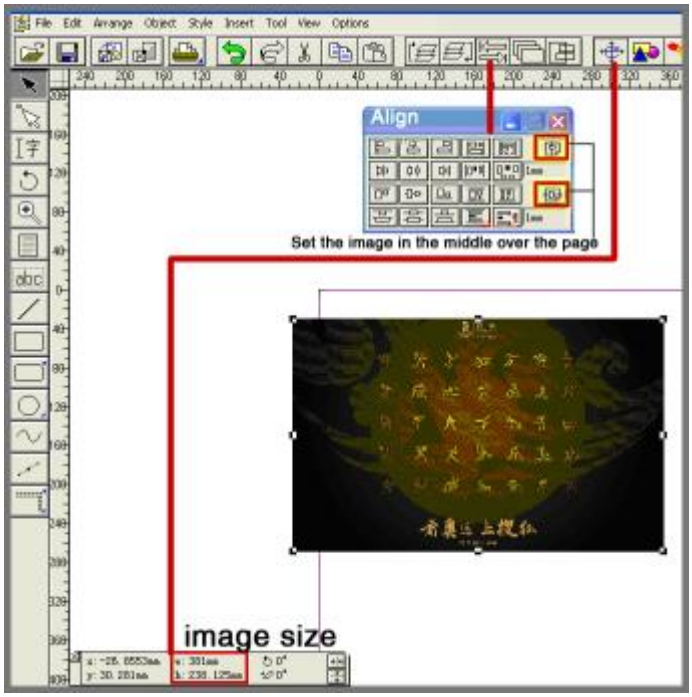
How to rip picture

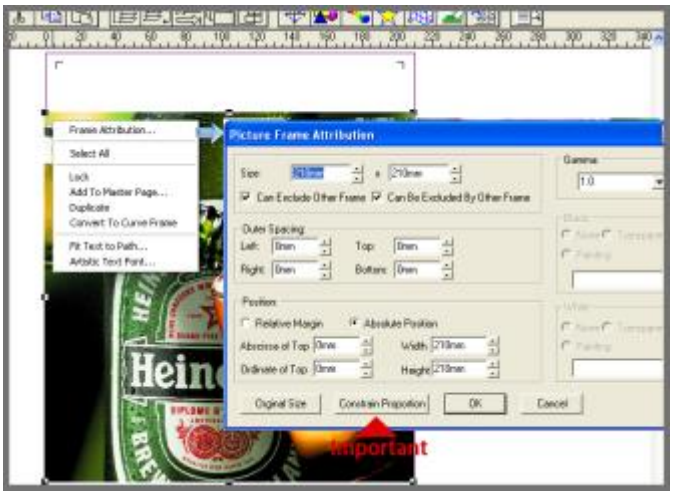
Lead in picture with shortcut key

Picture alignment and paper setting

Pictures alignment

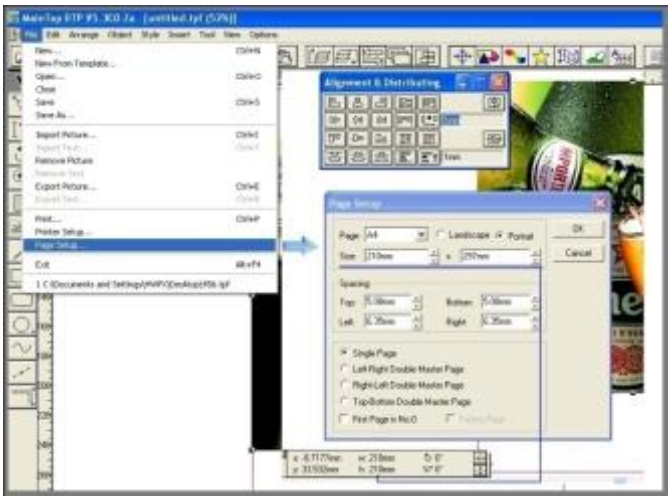
1, Open “Align and distribution ” and “Picture information window ”
Click the picture and then manifest the information.





2, The picture shall be fixed centered。

Decide the paper size on the basis of the picture size.

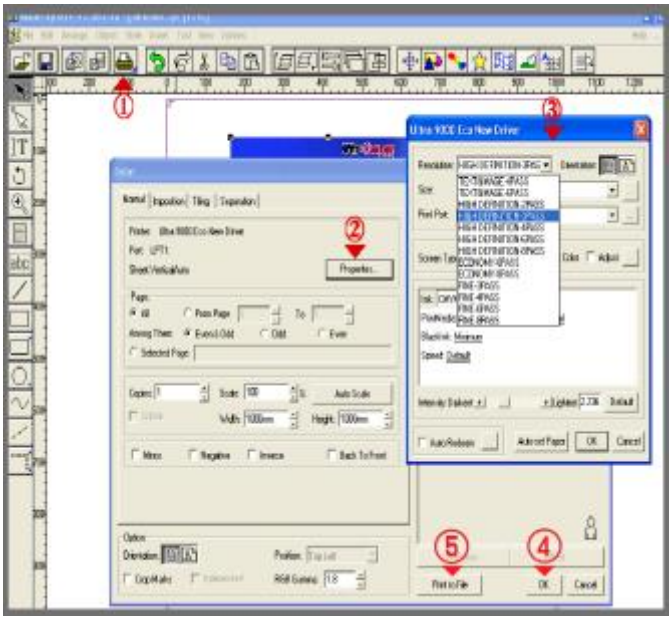


How to print

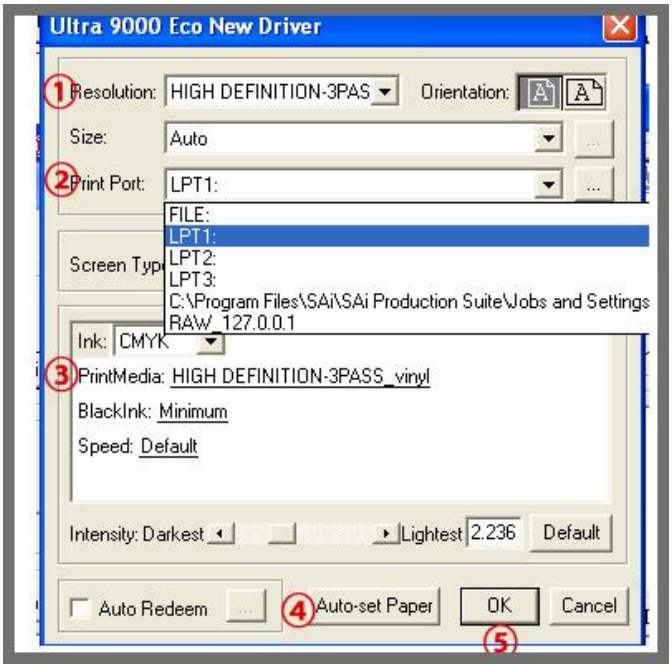
①Print

②Resolution, port and paper settings

③Choose resolution and paper type.



Resolution, port and paper settings



①"Printing resolution": the resolution of output picture

②"Printing port": RAW.127.0.0.1

③"Media type": banner, vinyl, PP etc.

④Click"Automatic media setting" to ensure the media size corresponding to the picture size.

All the above completed, you may print. Click "print to file" ,then input the file to ultra9200contral software,or click "ok" print it directly.

Manual control panel instructions

Function: In the absence of on-line computer, you may operate the panel to control carriage moving , media feeding, ink sucking, flashing and cleaning.

1. Connect: Connect the printer and computer.
2. Reset: Click and self inspect automatically.
3. Test: Test the nozzles' status. Print heads' working voltage should be triggered by printing software.
4. Stop: Stop ink sucking.
5. Clean: Clean print head automatically.
6. Pause/Start

7&10. Up and Down: Media feeding or retreating. (Long press the button.)

8&9. Left and Right: Carriage moving to the left or right. (Long press the button.)

11. Menu: Main functions of ink-sucking , flashing or blocking.

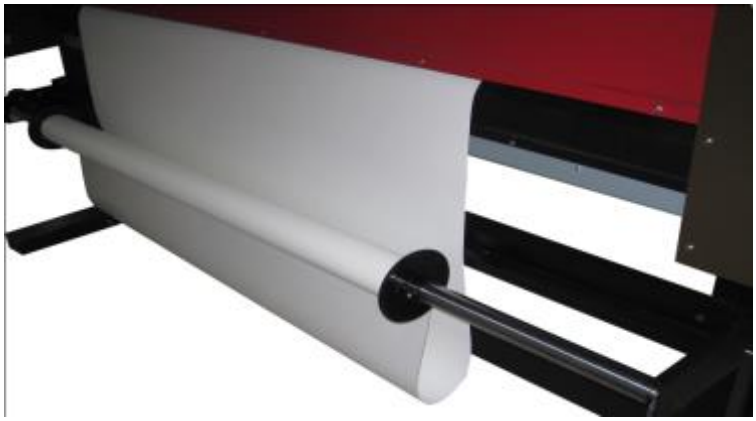
12. Enter/Base point: Confirm to ink suck or flash.

Chapter Four

Simple Demonstration

Media installation

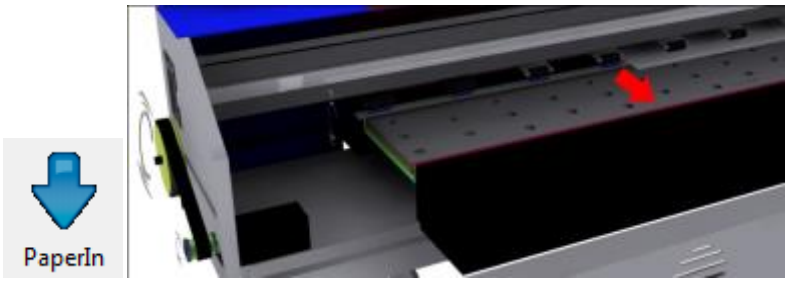
First, auto media feeding system.



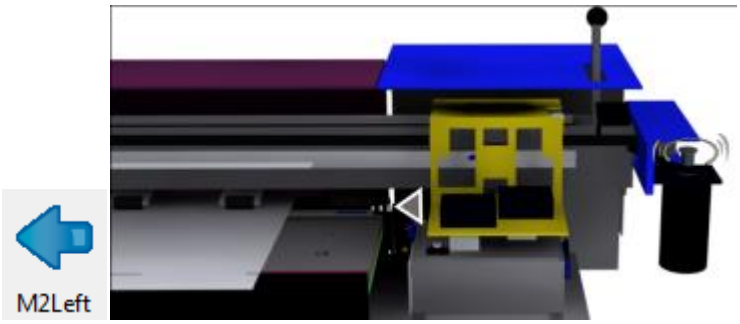
Second, simple media feeding system

Printing Operation

Media feeding and media retreating



Starting point settings



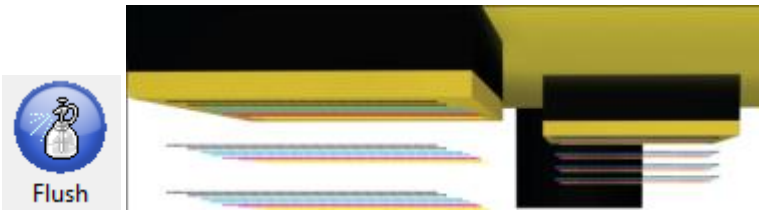
Nozzles testing

Nozzles cleaning

Flash when the colors are mixed as shown in the following testing lines.

Click and flash for seconds.

Then click again to stop.



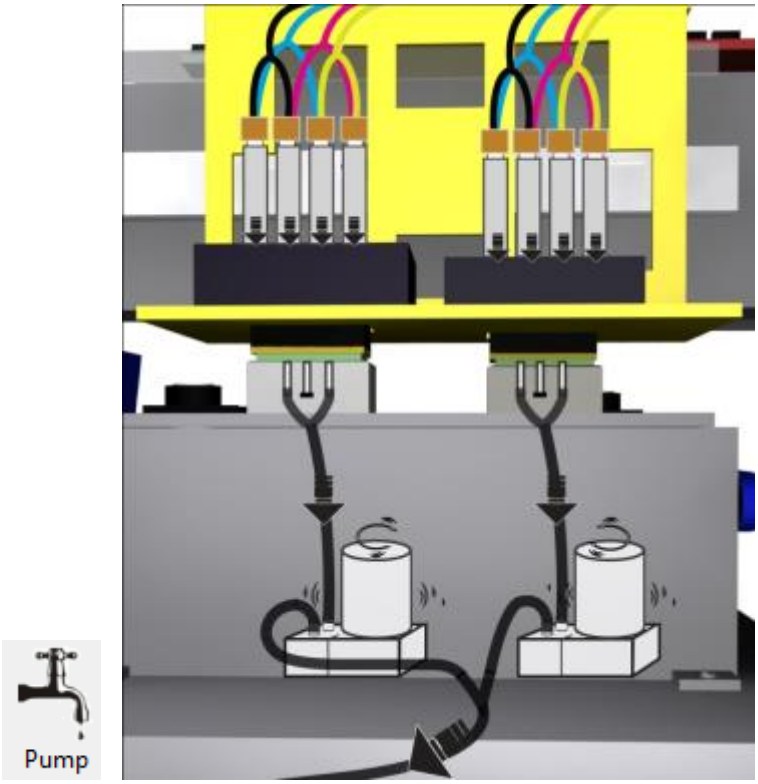
Normal nozzles testing is as following.

Ink sucking or cleaning

Ink suck when the damper has no stock of ink.

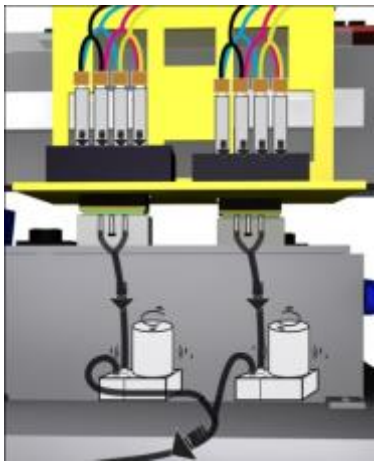
Clean when nozzles provide no ink.

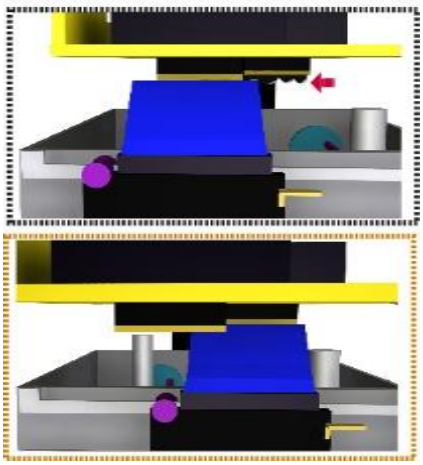
Single head or two heads are optional for ink sucking.



Auto cleaning

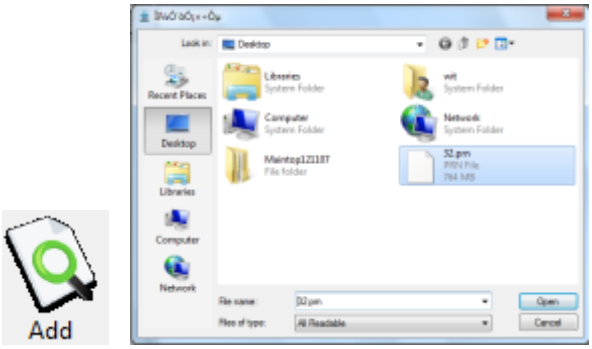
1.Ink pump for seconds. 2. Carriage moves around. 3. Scraper wipes off the ink.



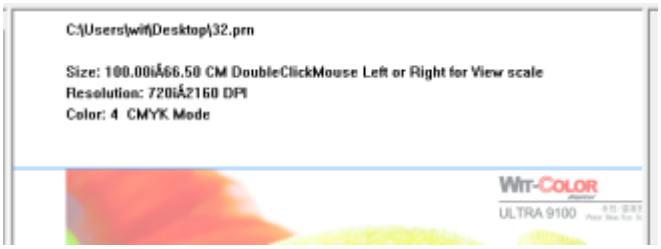


Printing

Lead in printing files in .PRN/PRT format.



Confirmation is necessary. If the picture size is larger than media size, please rip again.



Chapter Five

Problem Shooting

Self inspection when started up: Refer to the self-inspecting function.

The printing software can't connect printer until passing self-inspection.

Problem Shooting:

If the printer fails to self-inspect when electrified.

1,If no light of print head control board is lit, please check the 36V power supply on USB main board and the 24V power supply on cap-top driver board.

If the power supply is normal, please check all cables' connections in PCBs, and make sure all pins are connected well. (The cable connection of new board and old board is different, please contact Wit-Color after-sales service department for support.)

2.If the scraper fails to work due to the damaged motor, then you may need to change a new motor.

3.If the scraper does not move with the motor running, then it means the NC limit sensor is damaged.

4.If nozzles fail to self inspect, then same solution with scraper, please refer to Case 2.

5.If the carriage does not move after scraper and nozzles' self inspection, please check the driver's cable connection and indicators;

6.If the carriage moves to the opposite direction, then please check whether the X-axis and Y-axis driver's cable is connected in reverse.

7.If the media can only go forward and can't go backward, please check the driver's cable connection.

8.If there is no ink jetted after self-inspection completed, then please check the print head

indicators.

While printing

1, If sucking with no ink, please check the coincidence of capping nozzles and print heads'nozzles. Moreover, please check if air leak happens in the tube connected to ink pump and nozzles.

2, If the media feeding is off tracking, please reinstall the media.

Installation: The media shall be fixed on the media feeding bar by one person. Meanwhile, another person should stretch and align the media on the printing panel. If there still exists off-tracking problem, please contact Wit-Color after-sales service department.

3, If the size of actual printing and original picture is different, then you may adjustment of media feeding speed slightly.

4.If there is obvious overlapping and overstepping, please check the feather value. For high resolution requirement, feather value ranges in 5%-15% 。Smaller the feather value, more accurate the stepping requires. For common customer, we suggest the feather value is around 100%

5,Ink Supply Alert. If ink pump can not absorb the ink for a long time, you need to change ink. Open the cover and click the reset button.

Printer Maintenance

Pre-printing

1、Connect ground wire and make sure that static electricity between media and printing panel will be released immediately.

2、Keep printer stable. If the printer shakes terribly during printing, Please check if the printer foot stand and screws are fixed .

3、Keep printer dust-free. You need to clean the printing panel every day.

4、Use purified water to clean scraper, suction nozzles,and make sure no ink on scraper and

suction nozzle. Do not marinate the print head and suction nozzles in cleaning solution.

During Printing

1、Turn on the power and then print color swatch. No block, no cleaning.

2、Check the alignment of bidirectional printing.

3、Check if there is sufficient ink in the damper. Use syringe when the ink is less than a half.

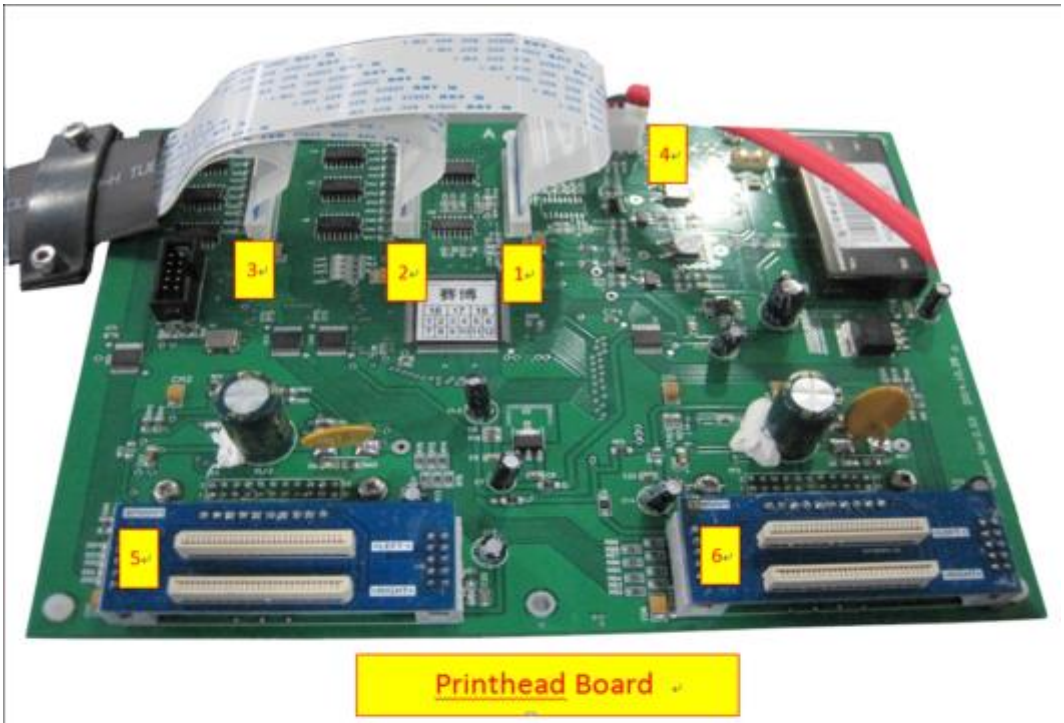
How to use:

Take off damper from print head, use syringe to fill damper of ink, and then install it on print head.

4、Check the status of linear rail every three month. If not smooth, add lubricant.

5、Keep the timing belt in fit elasticity.

PCB Introduction



① 22Pin cable

It transfers the power from USB main board to head board

② 24Pin cable

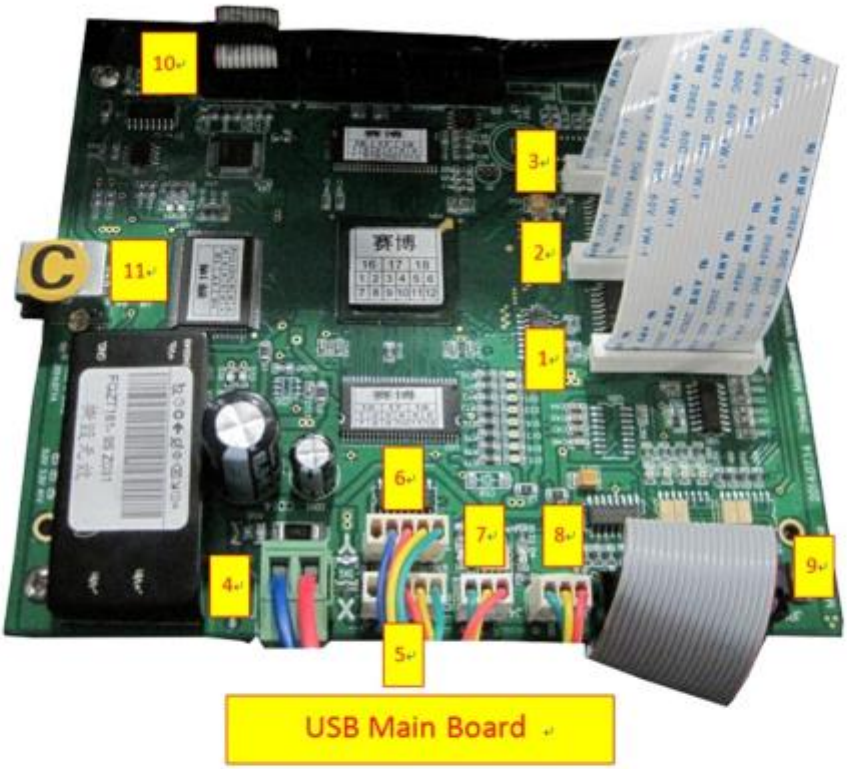
③ 24Pin cable

They transfer the printing data signal

④ Encoder sensor connector

⑤ Left head adapter

⑥ Right head adapter



① 22Pin cable

② and③24Pin cable

④ 36V DC Input for the USB main board

⑤ X-axis Moving signal

⑥ Y-axis Moving signal

⑦ Carriage limit switch signal

⑧ Capping station limit switch signal

⑨ Capping station signal cable

⑩ LCD control pannel signal cable

⑪ USB cable connector

Cap-Top Driver Board

① 24V DC Input

② Ink pump connector for pumping

③ capping motor connector

④ Capping station signal cable