

**NC-CylinderElf-IV-A**

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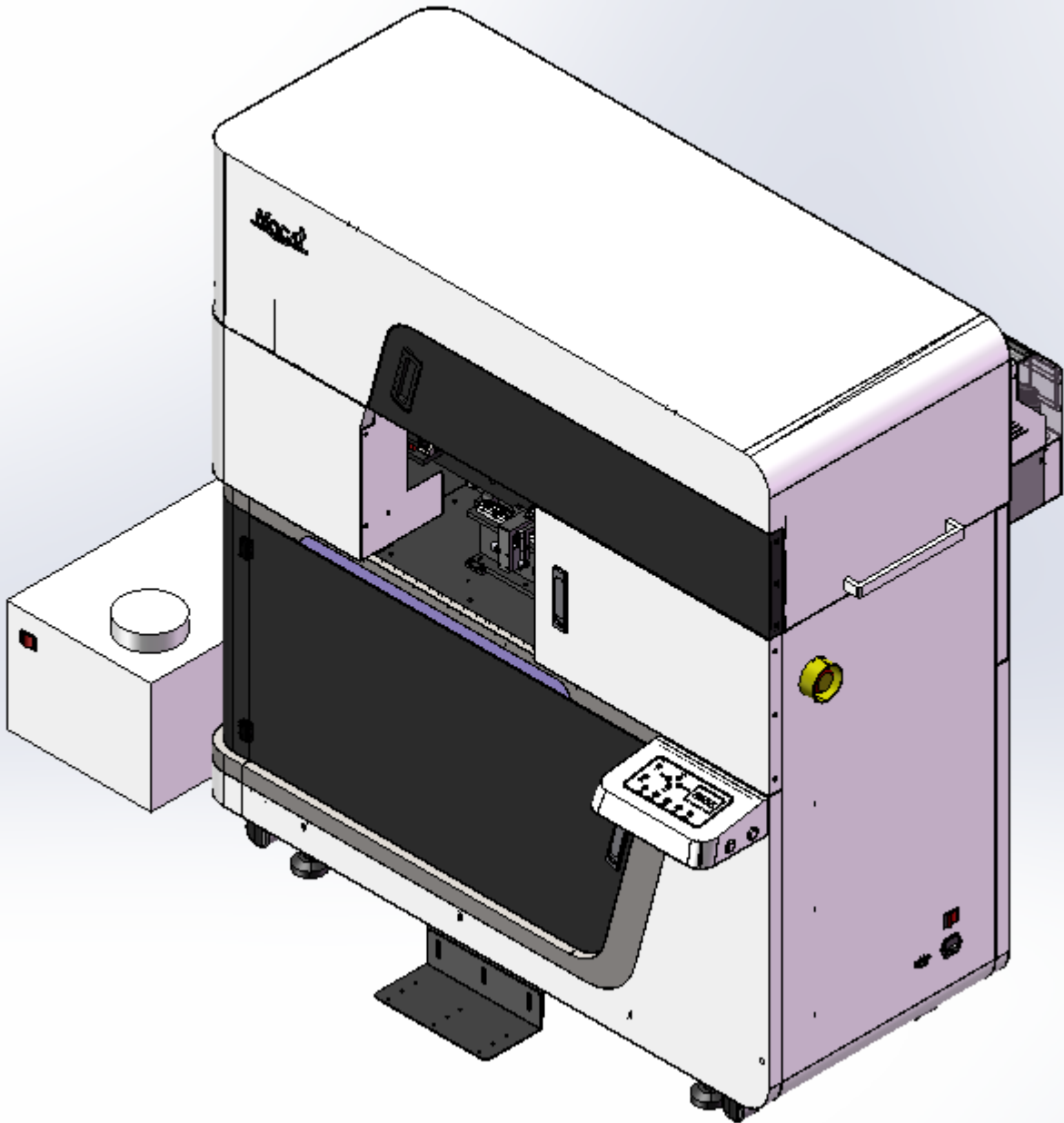
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## Notice

Please read these instructions before using the machine

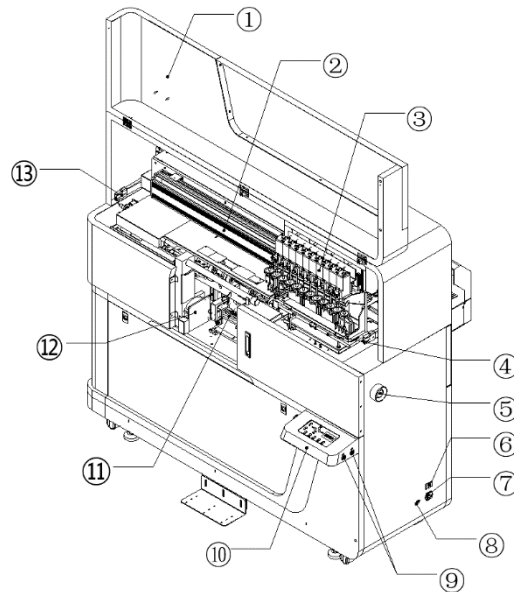
1. Machine should not be used by children or the disabled.If needed,please under the supervision;
2. Please use original supplier's spare parts and ink under instruction;
3. Make sure the power voltage is same as power cable and machine which shown on the Nameplate;
4. Only suitable to be used indoors and better suggest to have air conditioning inside the room to keep stable working temperature and humidity;
5. Dismantle the wooden case and the foot cup fixed frame and put it on a stable table before using;
6. Do not use the machine in a environment which has fire,dust and wetness;
7. Do not use the machine in a humid house;
8. Do not put sundries on the machine itself,machine printing table and surroundings;
9. Please keep a stable temperature in the working room,not suggest to use machine where environment over 30 degrees or below 15 degrees;
10. Do not use any broken cable to provide electricity;
11. If power supply is broken,please stop to using the machine;
12. Power off machine when u clean or fix machine;
13. Please use the machine according to local legal policy;
14. Make sure the head not touch anything before sending picture printing.Height sensor do not work when meets transparent materials;
15. When machine is working,eyes will feel sick if staring at the UV lamp for a long time,better suggest to wear ultraviolet-proof glasses;
16. When needed to move the machine,at least require 2 people to lift.Do not move the machine together with other machine parts.And remember to take take off the power charger when move the machine;
17. When add ink,may touch ink tube,ink bottle and ink cap and some parts,please protect in advance;
18. The table which used to put the machine should be make sure it's stability to place the machine and protect machine from shaking during working;
19. Not recommended to use UV LED lamp high load printing for a long working time;
20. Make sure machine is normally grounded;
21. Do not use the machine in thunderstorm day,avoid lightning strikes;
22. If your ink is not come from Nocai,after sale service will not be provide.

## 2. Machine introduction and graphics analysis



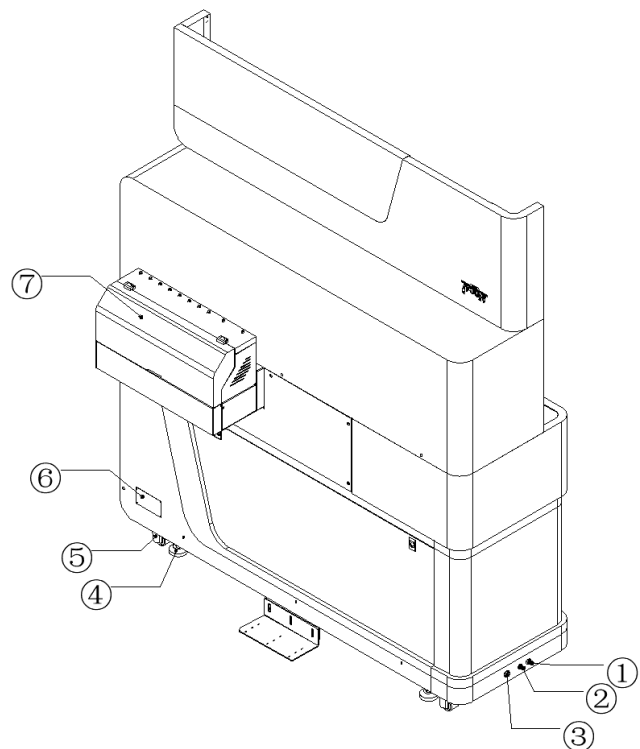
## 1. Graphic analysis of the front of the machine

- ① Machine cover
- ② Beam
- ③ Printing cart
- ④ Ink station
- ⑤ Abrupt stop/Startup&Shutdown button
- ⑥ Optical fiber connector
- ⑦ Plug to power supply
- ⑧ Switch of machine power supply
- ⑨ Debug center button
- ⑩ Keyboard panel
- ⑪ Printing jig module
- ⑫ Blotting fans



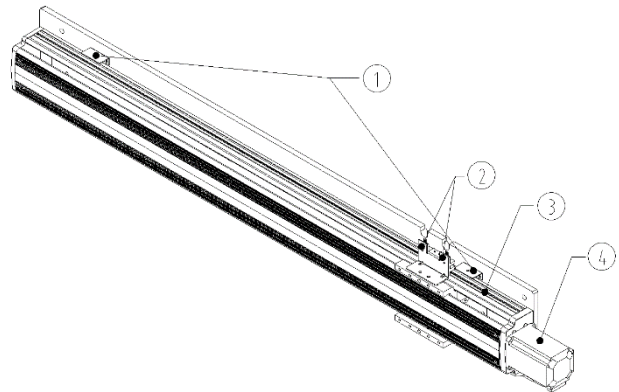
## 2. Graphic analysis of the back of the machine

- ① Plug to UV lamp
- ② Plug to UV lamp line
- ③ Plug to water pipe
- ④ Plug to water pipe
- ⑤ Footed glass
- ⑥ Footed wheel
- ⑦ Machine nameplate
- ⑧ Cartridge



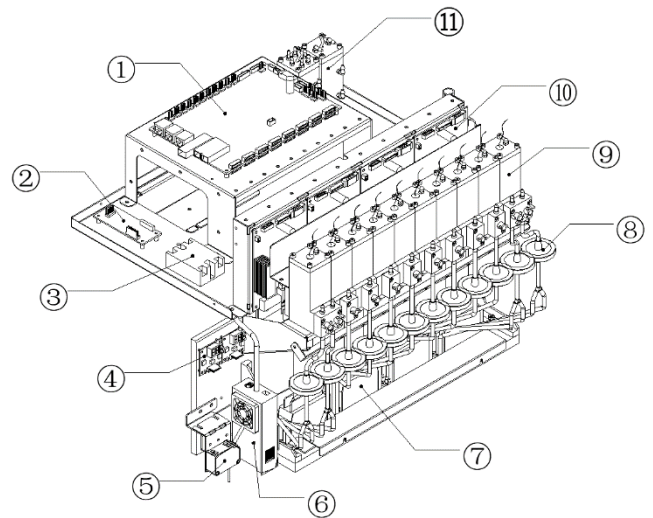
### 3. Analysis of beam

- ① Left and right limit separation blade
- ② Left and right limit sensor
- ③ Rail module
- ④ X-axis servo motor



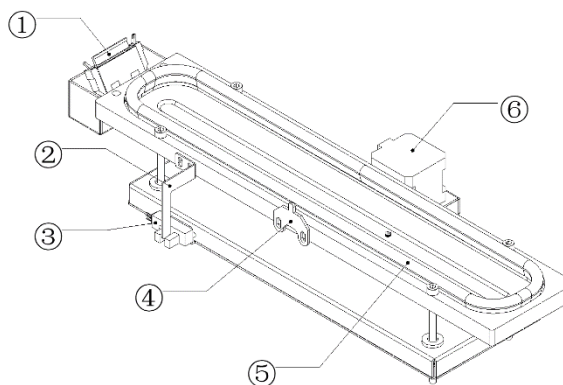
### 4. Analysis of cart of the machine

- ① Mainboard of cart
- ② Connector of differential signal
- ③ Solid state relay
- ④ Temperature control small board
- ⑤ Measure shape by laser
- ⑥ Small UV lamp air cooling
- ⑦ Printhead
- ⑧ Filter in butterfly shape
- ⑨ Secondary cartridge
- ⑩ Connector of printhead
- ⑪ Safety bottle



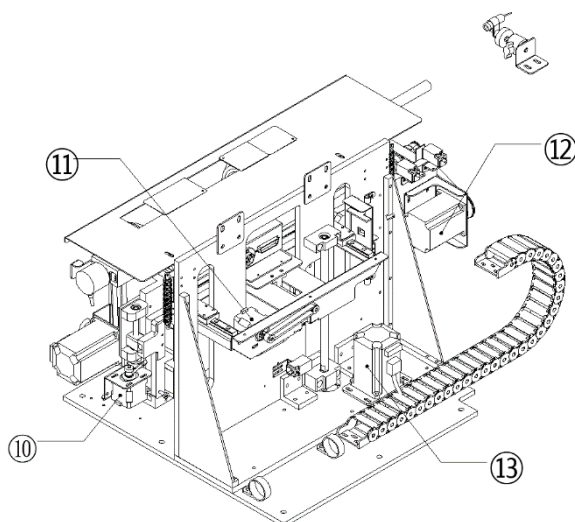
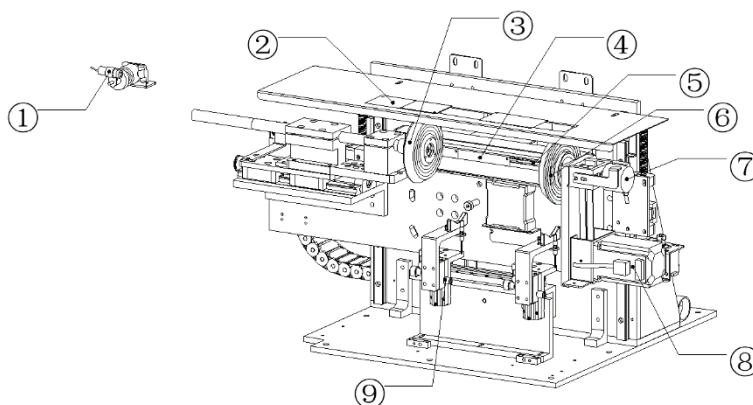
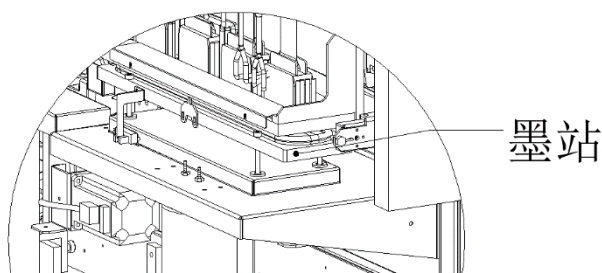
### 5. Ink station and optical amplifier

- ① Wiper
- ② Ink Station Stroke Adjustment Sheet Metal
- ③ Ink station lower limitsensor
- ④ Locking cart sheet metal
- ⑤ ⑤ Cap top
- ⑥ ⑥ Ink station motor
- ⑦ ⑦ Optical amplifier
- ⑧ ⑧ Wate bottle



## 6. Load nad upload print module

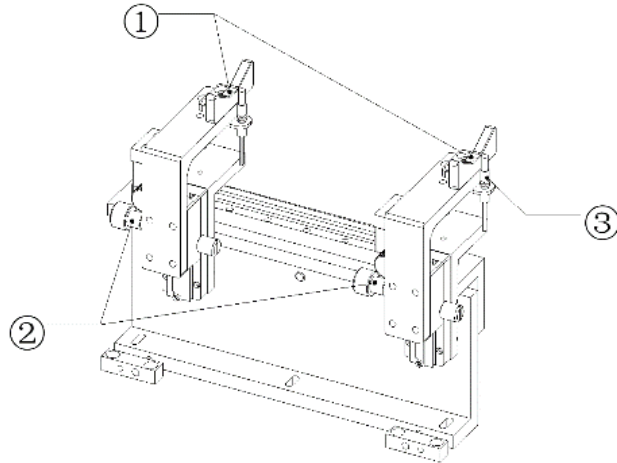
- ① Infrared-assisted positioning components
- ② UV lamp baffle 2
- ③ Cylindrical left locating collet
- ④ UV lamp baffle 1
- ⑤ Cylindrical right locating collet
- ⑥ Encoder
- ⑦ Workstation rotary motors
- ⑧ Workstation positioning datum
- ⑨ UV lamp Front and rear moving motors
- ⑩ Manual tilt adjustment handle for station modules
- ⑪ Workstation module lifting motor
- ⑫ Cylindrical left positioning collet motion motor
- ⑬ Lifting and lowering motor





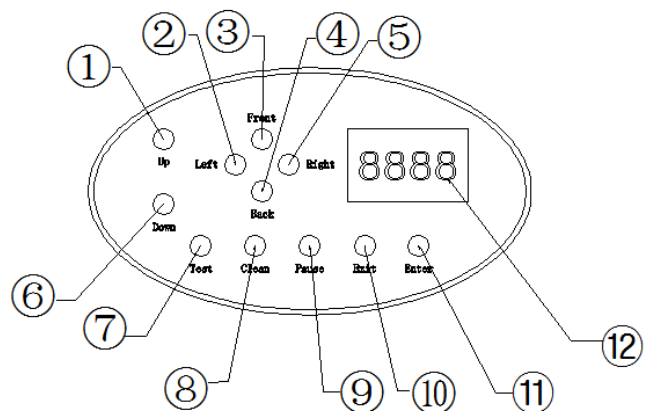
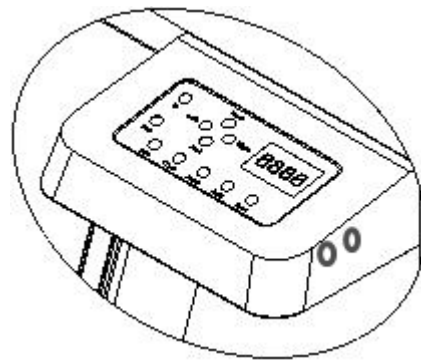
## 7. Printing station module

- ① Cylinder pallets
- ② Cylinder pallet trim module
- ③ Optical sensor



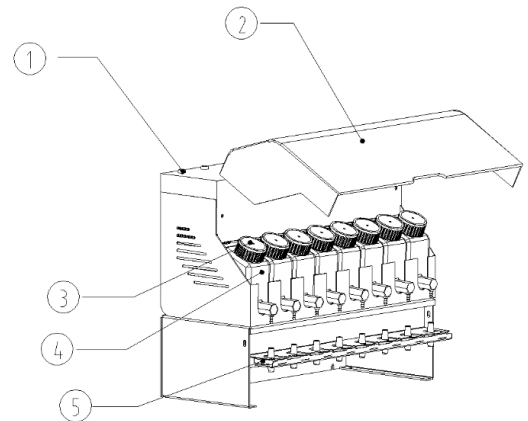
## 8. Graphic analysis of keyboard plate of the machine

- ① UP: Undefined, does not work
- ② Cart left shift key
- ③ Front: Undefined, does not work
- ④ Back: Undefined, does not work
- ⑤ Cart right shift key
- ⑥ Down: Undefined, does not work
- ⑦ Repeat Print Confirmation Shortcut
- ⑧ Cleaning Shortcuts
- ⑨ Printing Pause Key
- ⑩ Setting the exit key
- ⑪ Setting the Confirmation Key
- ⑫ Machine panel



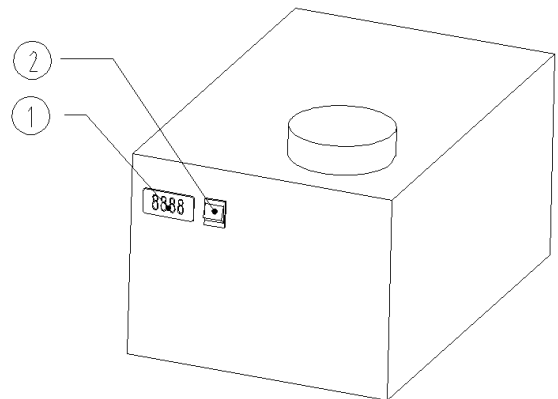
## 9 .Analysis of ink cartridge of the machine

- ① Ink Alarm Indicator
- ② Cartridge cover
- ③ Cover of cartridge storage
- ④ Cartridge storage
- ⑤ Ink filter

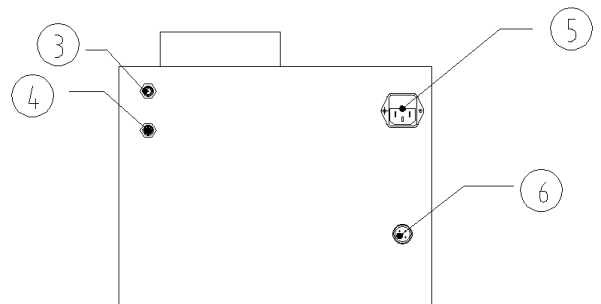


## 10.UV lamp cooler

- ① Display panel for water temperature
- ② POWER button
- ③ Power Adjustment Knob

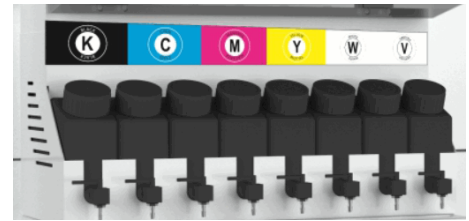


- ④ UV lamp control line
- ⑤ Plug to power supply line
- ⑥ UV lamp line

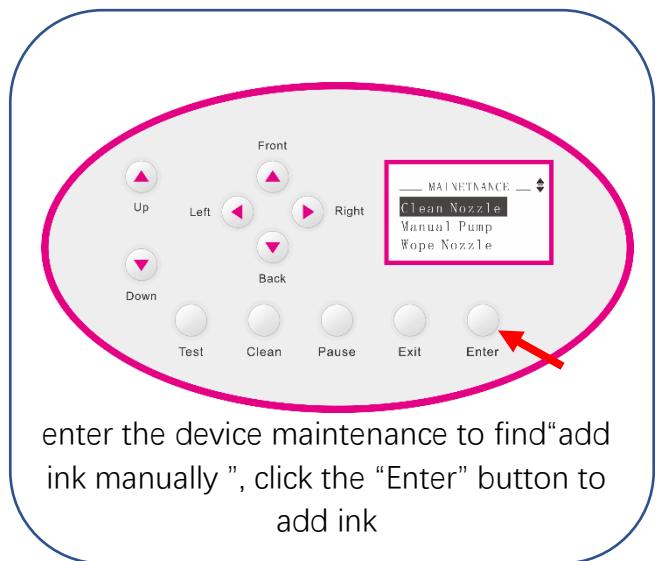
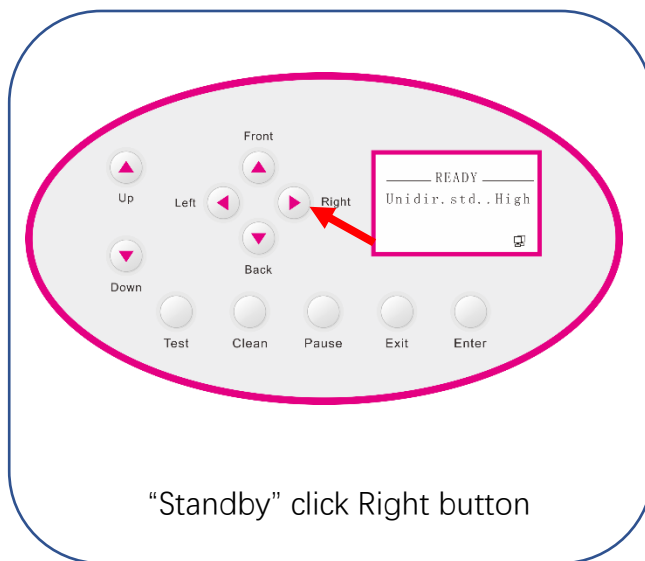


### 3.How to add ink

Follow the color tips to add the corresponding ink as following. In order to prevent the ink from leaking out and contaminating the shell metal when adding the ink, protective measures need to be taken. The bottle mouth can be wrapped with paper.



Then add ink manually, as is shown in the picture:

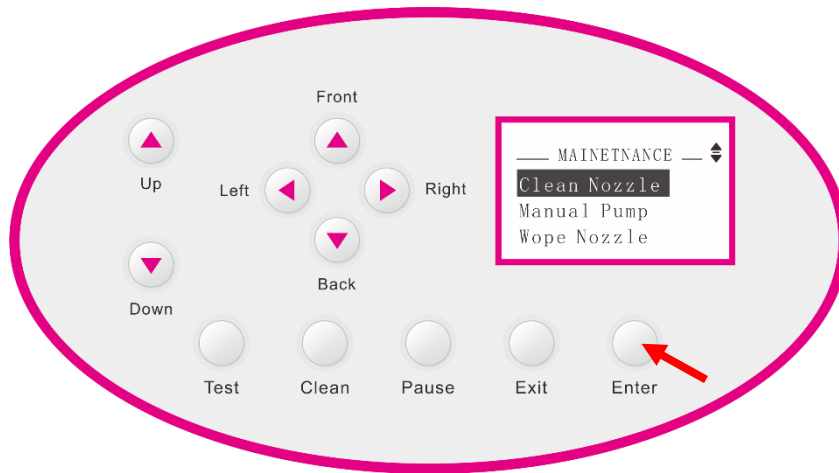


Press the confirm button and the machine will start to pump ink. Observe the waste ink bottle until the ink is pumped out to confirm that the ink path is clear, the ink storage is completed, as is shown in the picture:



Pay attention that the ink from waste ink bottle flow out of the ink tube smoothly, lastly click the “Exit” button and ink-pumping will stop.

Then select “Automatic cleaning”, click on the “Enter” button, select the corresponding printhead, the machine will clean the printhead automatically.



Refer to the following sampling operation as the following, place a transparent plastic sheet (or other suitable material for observation, such as glass) on the platform and click on the “Nozzle test” to print the test strip, if there is a lack of color or ink-suspension phenomenon, please continue to clean the printhead until test strip out completely, ink installation completed.



Test strip breaks, need to clean automa

Test strip normal



The machine goes into standby and waits for the software to be installed.

## 4. Install and setup driver

### 1. Install the drive

#### 1.1 Computer requirements

①System version: must be Win7, Win8, or Win10 on a 64-bit system.

Display language: Chinese or English

CPU: Recommended to choose i5 or above or equivalent;


Memory: 8GB or more recommended;

Hard disk: 250GB or more recommended.


②Computer must be equipped with Gigabit network card and gigabit network cable, only in this way software can be normal online.

③IPv4 address of the computer is set to be obtained automatically.

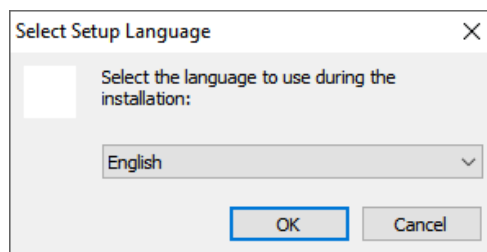
Not choose IPv6.

Find the two icons , click right button, choose【Open network and Internet setting】-click Change adaptor choice, double-click local connection (or Ethernet)-click attribute-cancel tick Inter protocol version 6 (TCP/IP6) tick Inter protocol version4 (TCP/IPv4) double-click and open it, -choose and obtain IP address automatically(O) Click OK to finish.

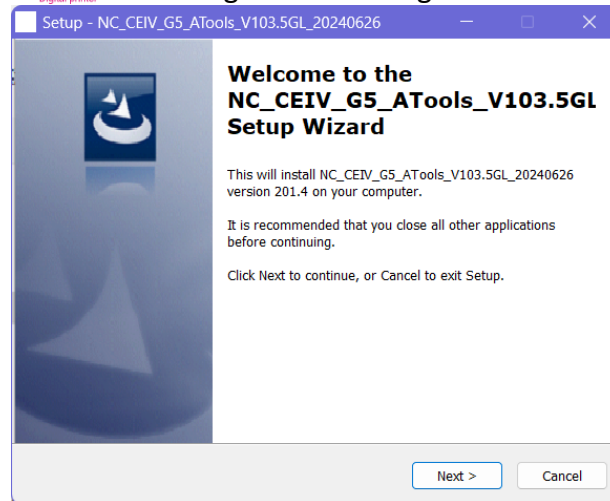
#### 1.2 Install the driver

Open the name of Cylinder Elf II, get it or download it from official website: [www.happycolor.com.cn](http://www.happycolor.com.cn).Find the procedure and open Install NoCaiXaarTool.exe. 

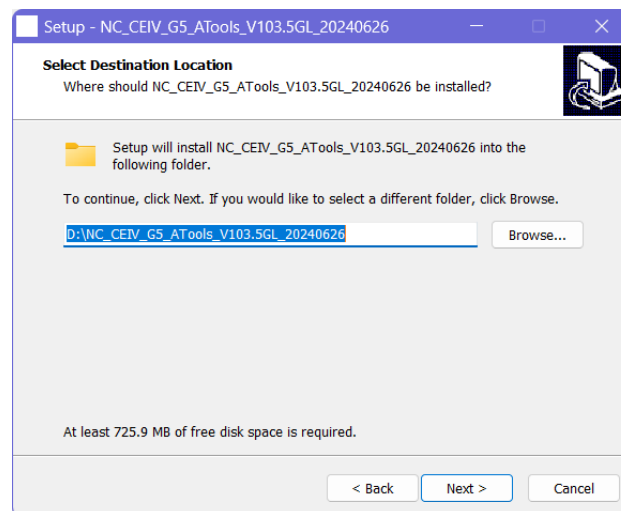
As an administrator to operate with right-click, choose “agree” and click on the installation in turn, just as the following:



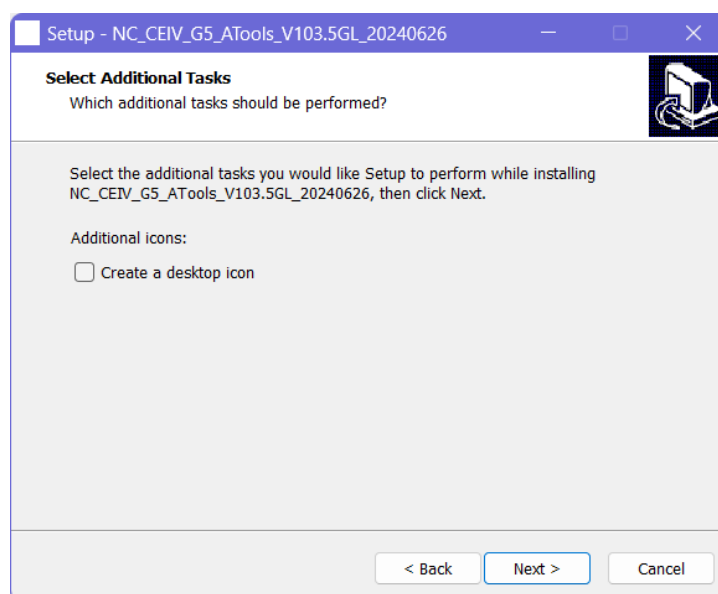
You can choose Chinese or English, click“OK”, it will appear such a pop-up window:



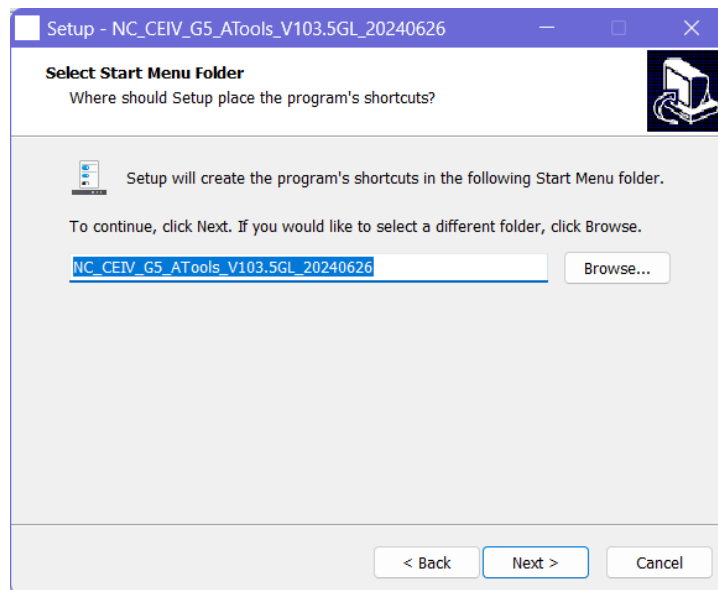
Click Next, the pop-up window is as follows:



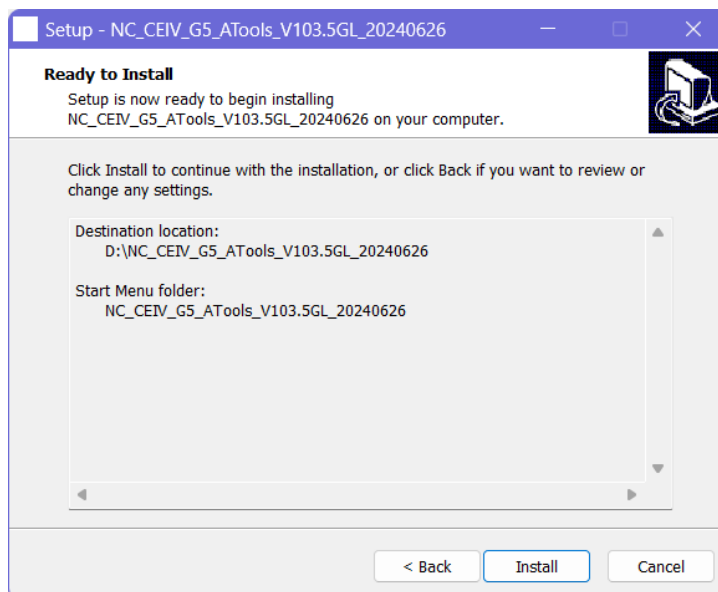
Click Next, the pop-up window is as follows:



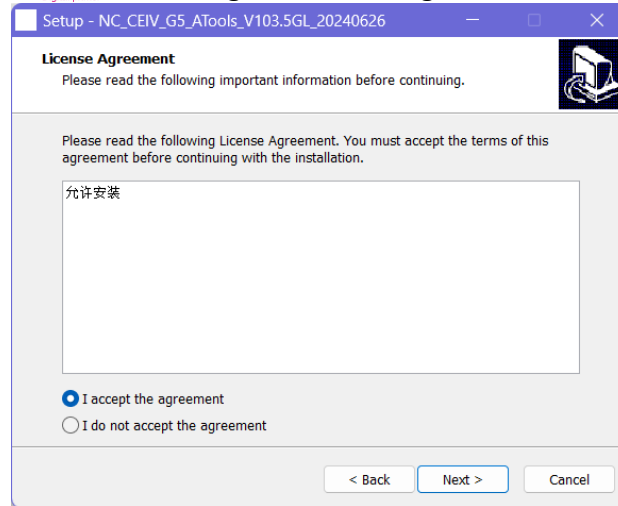
Click Next, the pop-up window is as follows:



Click Next, the pop-up window is as follows:

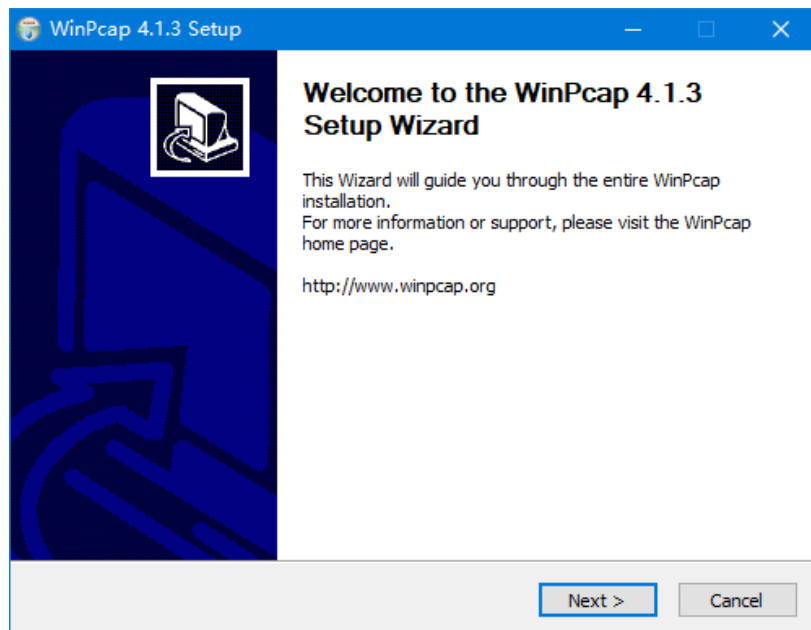


Click Next, the pop-up window is as follows:



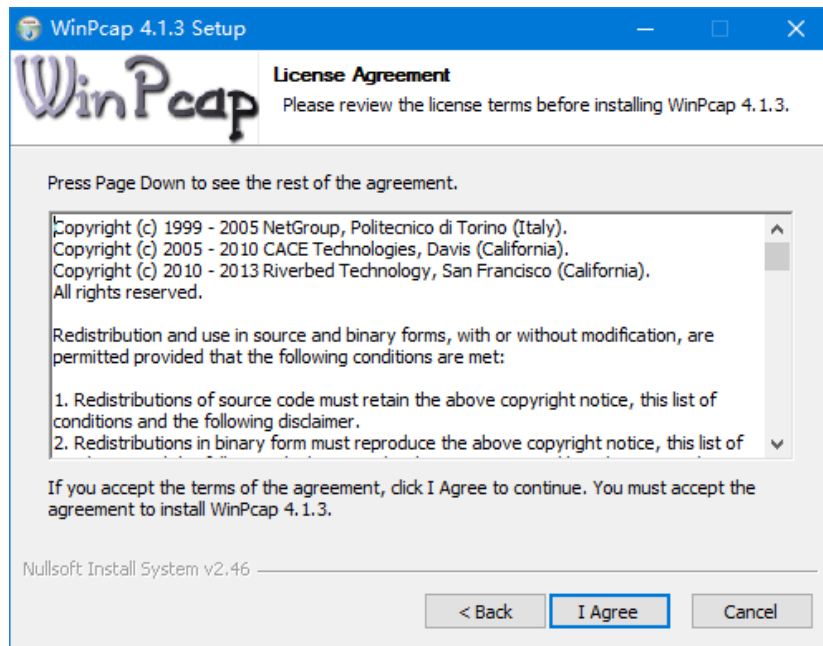
Choose the “I agree with permissive conditions”, click on the installation

Pop-up Windows hint that the setting is successful, click “Close”, then it is completed.  
the pop-up window is as follows:

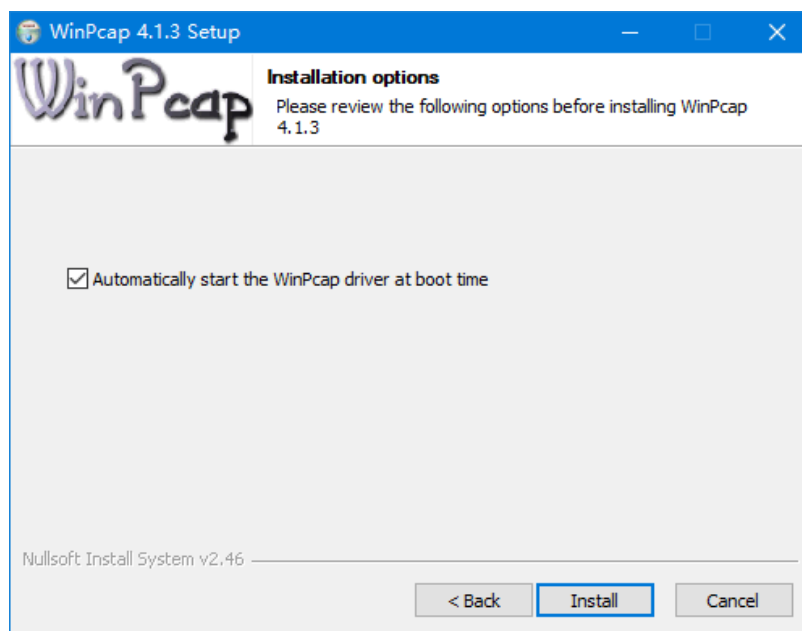


Click Next, the pop-up window is as follows:

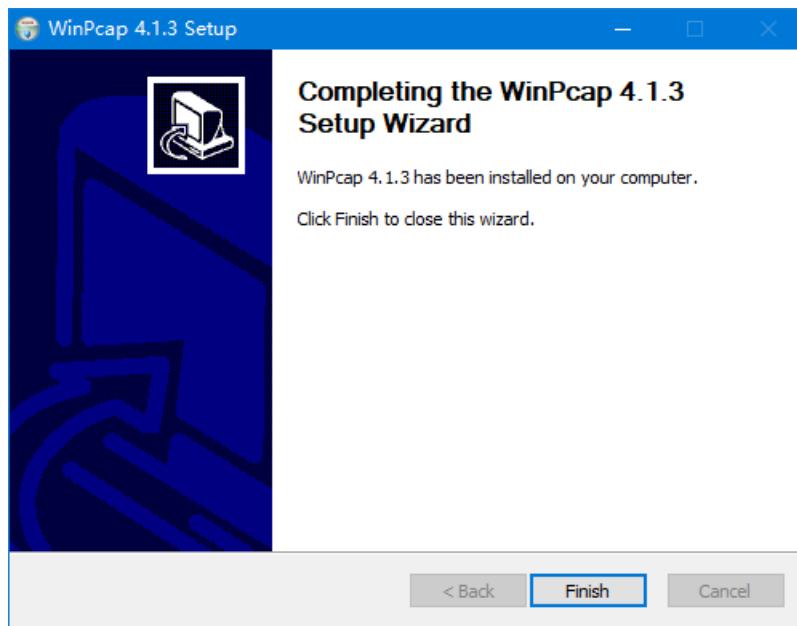




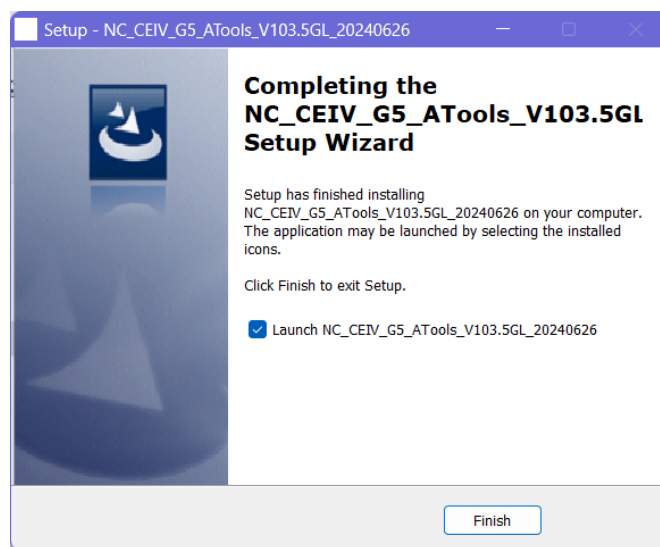
Click I Agree, the pop-up window is as follows:



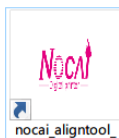
Click Install, the pop-up window is as follows:



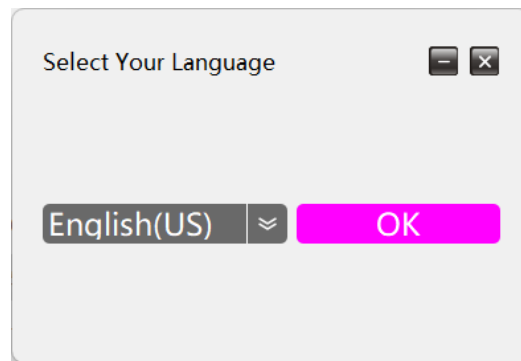
Click Finish, the pop-up window is as follows:



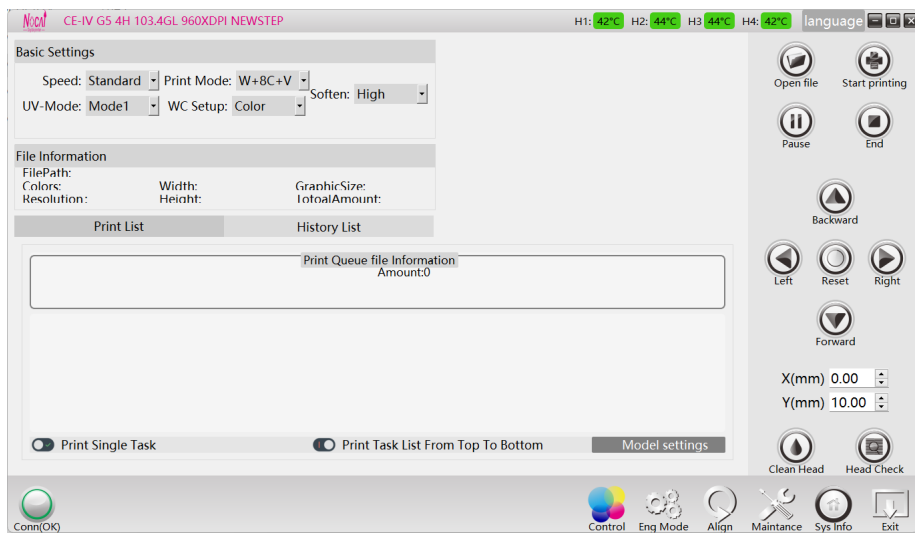
Click OK, the software is finished. There will be a start-up icon on the surface of



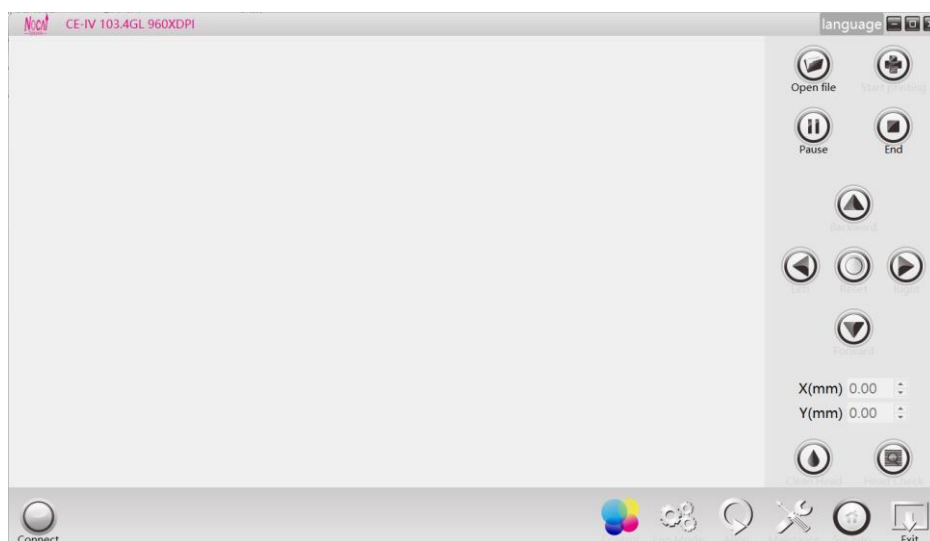
computer The software startup automatically, the pop-up window is as follows:



Choose language, click OK, then startup the software, the pop-up window is as follows:



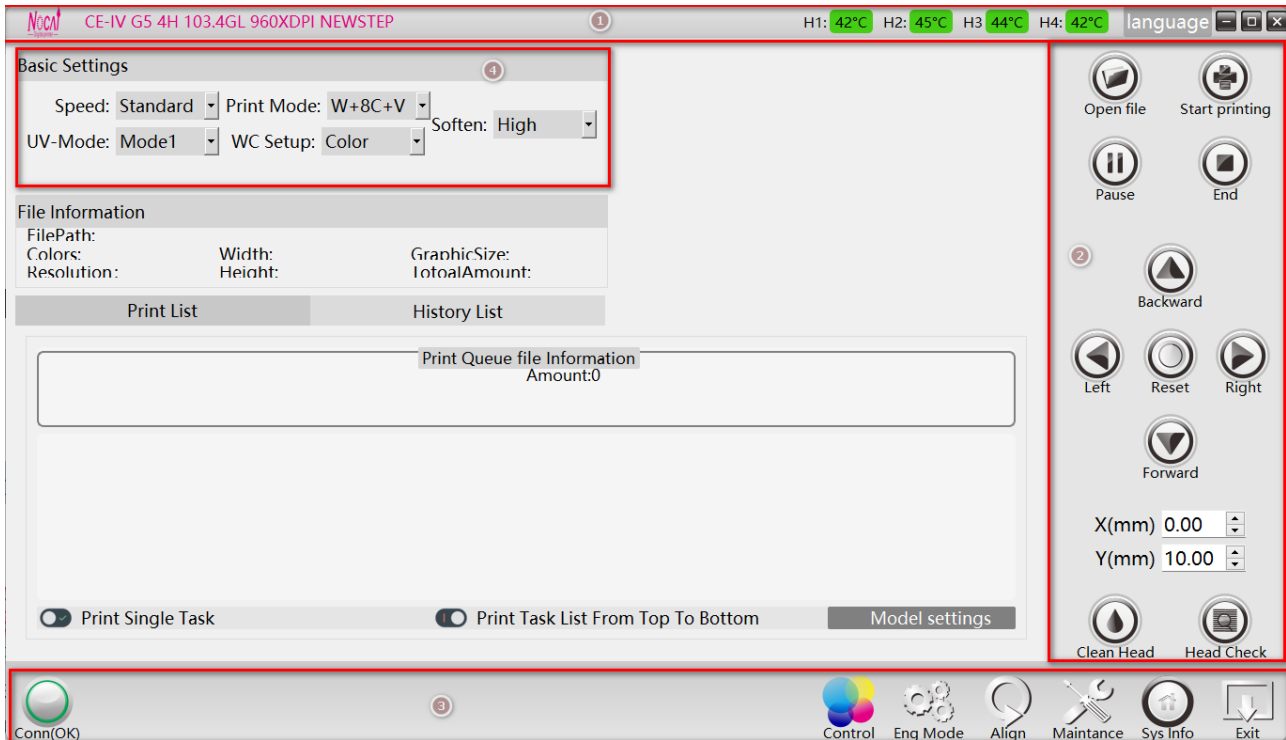
Click Online button. Online (success), it means the driver is online, just as the following:



## 2 .The setup and introduction of driver function

There are some details,the picture is as follows

The interface of the software is divided into four parts①Title column、②Function Shortcut key 、③Menu column、④Menu display area



### 2.1 Title column and Function shortcut key

①**Title column:** Display content from left to right: the Nocai Logo, driver name、【Language】 Display language switching buttons、 reduce or enlarge, close shortcut key, 960 precision 与 720 switch press on Ctrl+E, temperature display of printhead: H1 varnish,H2 color 1,H3color 2,H4 white

②**Function shortcut key:**

Open the file: Add PRN\PRT file

Start to print: Choose PRN\PRT file, and print it.

**Pause** :Click Pause during printing

**Over** : Click Over

**Left** : The cart move to the left

**Right** : The cart move to the right

**Up** : Undefined, does not work

**Down** : Undefined, does not work

**Head to the origin** : reset the cart

**X(mm)** :Set the print image, offset white edge in the X-axis direction relative to the print origin. The value cannot be greater than the perimeter of the round bottle (i.e., large diameter of material \* 3.14). (driver engineering mode→material parameter→large diameter of material)

**Y(mm)**:Set the print image, offset white edge in the Y-axis direction relative to the print origin.This parameter and the height of the material cannot be greater than the height of the material (river engineering mode→material parameter→material height) , or it will be wrong

**Cleaning** : Select specific printheads for cleaning and maintenance

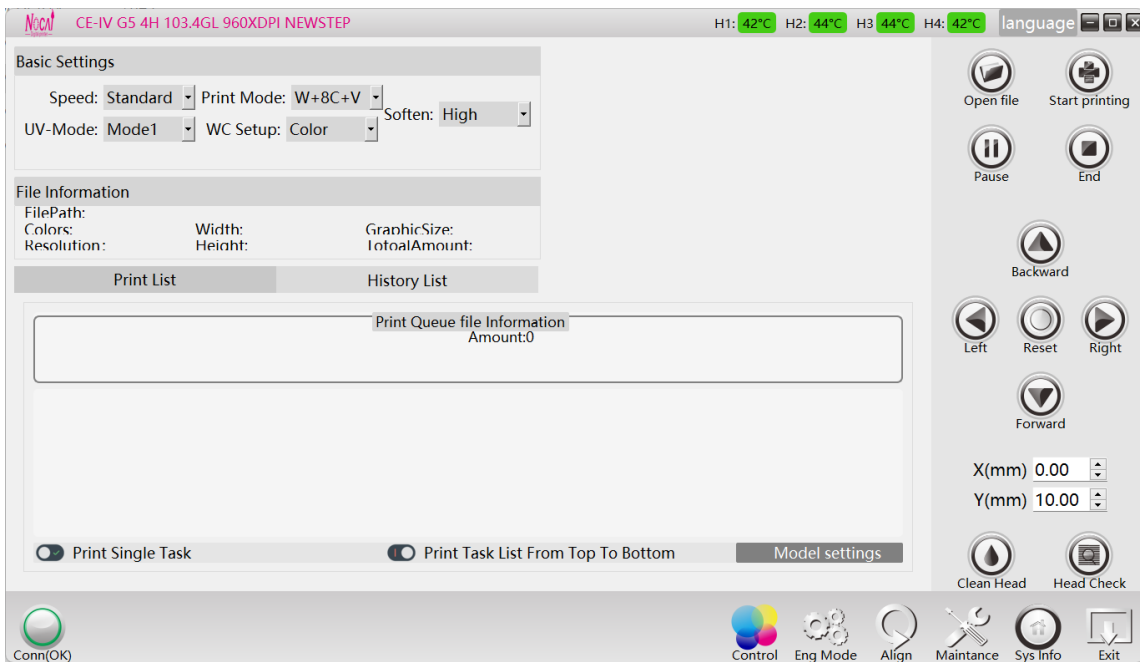
**Check nozzle:** Print test strips to check printhead status.

**Menu column:** concludes these functional icons, such as printing control、engineering mode、calibration and guidance、system maintenance、version information and Exit.The details is as follows:

## 2.2. Printing control

The default print settings are shown in the picture:

Print settings as shown above:



### Basic setting

**Printing speed:** You can choose *low-speed*、*standardization*、*high-speed*、*high-precision*，choose *standardization* generally;

**White-color setting:** you can choose: *white*、*color*、*white color*、*white color varnish*、*varnish*、*color varnish*. For example, if you select White, prints only white ink; if you select Color, prints only color ink; and if you select White Color, prints white color ink.

**Feather** : you can choose *close*、*low*、*middle*、*high*; The higher the feathering, the better the quality of the printout accuracy, but the slower the printout speed will be.

**Bright light mode:** Mode 1 and Mode 2 can be selected, the difference is that the light curing method is different when printing varnish. Mode 1 is the default printing mode, when printing varnish only light up the bright lamp, with the bright lamp curing varnish; Mode 2 printing varnish, with a small lamp curing varnish;

Print control display the upper right part of the area (blue area in the figure): preview image for adding a Prn\Prt file

**Combination of nozzles:** optional white eight-color varnish and white four-color varnish

**For example :**1.Select white eight-color varnish printing ink for K,C,M,Y,LC,LM,LK,LLK,W,V (for eight-color ink mode)

**For example :**2. Select white four-color varnish ink for K,C,M,Y,W,V (for four-color inking mode)

**File information:** Displays information of the added PRN file such as file path, number of colors, resolution, width, height, graphic size, total number of copies, etc.

**Printing list:** the list diaplays all the Prn\Prt file and other informationsuch as *file name*、*submission time*、*total number* (*The number of print repetitions can be set randomly*)、*number of copies remaining*、*printing progress*, etc.

As shown in the figure, right-click the blank area, you can add files, delete files, start printing, pause, continue printing, stop printing and other quick operations on pop-up window.

**Historical record:** Display a record of job files that have been printed and completed.

**Single printing task:** Choose and print a single task.

**Print in top-to-bottom order:** Check this box, and when you click Start Printing, the print list is printed in top-to-bottom order.

## 2.3.Engineering mode



### Advanced Settings

**Empty-distance printing of white-color:** the ink is not dry when printing white-color, you can increase in the value of the light can extend the time appropriately, the white color ink can be shone dry.

**Empty-printing distance of varnish :** the ink is not dry when printing varnish, you can increase in the value of the light can extend the time appropriately, the varnish ink can be shone dry.

**Voltage type:** Optional 0\_0-3mm、1\_5mm、2\_10mm、3\_13mm, different types correspond to different printing heights, such as 0 waveform printing range of 0-3mm. The higher the height, the larger the ink spot, and the printing accuracy get worse. According to the situation when you choose to use. For example: when the print material from the bottom of the printhead vertical distance of 3mm, you can choose 0.

**Varnish ratio:** Optional 10%、20%、30%、40%、50%、60%、70%、80%、90%、100% When the actual amount of printed varnish ink is too large and there is overflow, you can reduce the amount of varnish out according to the percentage ink setting.

**White ink ratio:** Optional 10%、20%、30%、40%、50%、60%、70%、80%、90%、100% When the actual amount of white ink for printing is too large, you can set a different amount of white

ink by percentage. There are four ink-out channels of printhead.

**Order of white ink:** Default WWWW.

**Order of color ink:** Default KCMY.

**Order of color 2:** Default CMY.

**Order of varnish:** Default VVVV.

**Setting function of closing channel:** There are four ink-out channels of printhead. Change the letter of the ink sequence to N→Turn off the corresponding channel output. This function is used under the guidance of after-sales.

**Material parameter**→All functions are used during the debugging of the bottle change printing station and cannot be modified in the normal state. This function is used under the guidance of after-sales. Please refer to the specific method when using. **【Cylinder 、 cone opposite shape instructions of station debugging】**

**Parallel calibration:** Default 3599. Unchangeable.

**Printing height:** unit: 0.1mm. Adjust the relative height of the print surface and printhead.

**Positioning height:** unit: 0.1mm. The positioning clamping height of the lifting mechanism when the bottle is clamped.

**UV lamp position:** unit: 0.1mm.

**White-color UV lamp power :** According to the actual printing effect to determine a different percentage of brightness, the factory default parameters are 87%

**Varnish UV lamp power:** According to the actual printing effect to determine a different percentage of brightness, the factory default parameters are 7%

**UV lamp test:** Separately control to light the UV lamp (can be easy to check if the bottle shading is done properly);

**Material diameter:** Maximum diameter of the material (the maximum diameter needs to be measured each time when a different material is changed)

**Printing height of the bottle:** Unused temporarily



**Test Shape Compensation Parameters of Cylinder**→The function is used for automatic modeling, and does not need to be modified in the normal state. This function is used under the guidance of after-sales. Please refer to the specific method when using. **【Cylinder 、 cone opposite shape instructions of station debugging】**

**Spacing between adjoin points:** The distance every step under the state of measurement, the unit is 0.1mm, the default value is 0.3mm (Pay attention that the current machine can not be more than 1000 points of the largest measurement point)

**Starting diameter:** Measure the starting diameter of material.

**Starting point digital height:** The value displayed at the starting position of the measuring tool.

**Terminal diameter :** Measure the terminal diameter of material.

**Height of number of endpoints:** The value displayed at the terminal position of the measuring tool.

**Profiling qutomatically:** Click to start automatic profiling

**Read:** Read the current parameter.

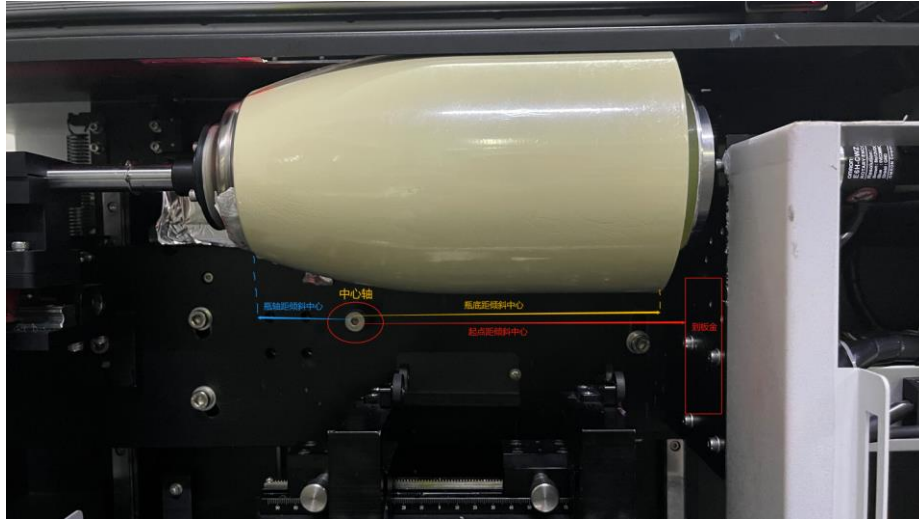
**Tilt angle of cylinder axis :** The oblique angle from cylinder to the center axis.

(Cylindrical and shaped are 0 degree generally, according to the actual calculation value to print cone, when you need to calculate the angle of the table you can consult the after-sales service staff)

**Bottom of cylinder from tilt center:** The distance from the bottom of the cylinder to the center axis, this value can be measured with a ruler.

**Axis of cylinder from tilt center:** The distance from the mouth of the cylinder to the center axis, which is fixed.

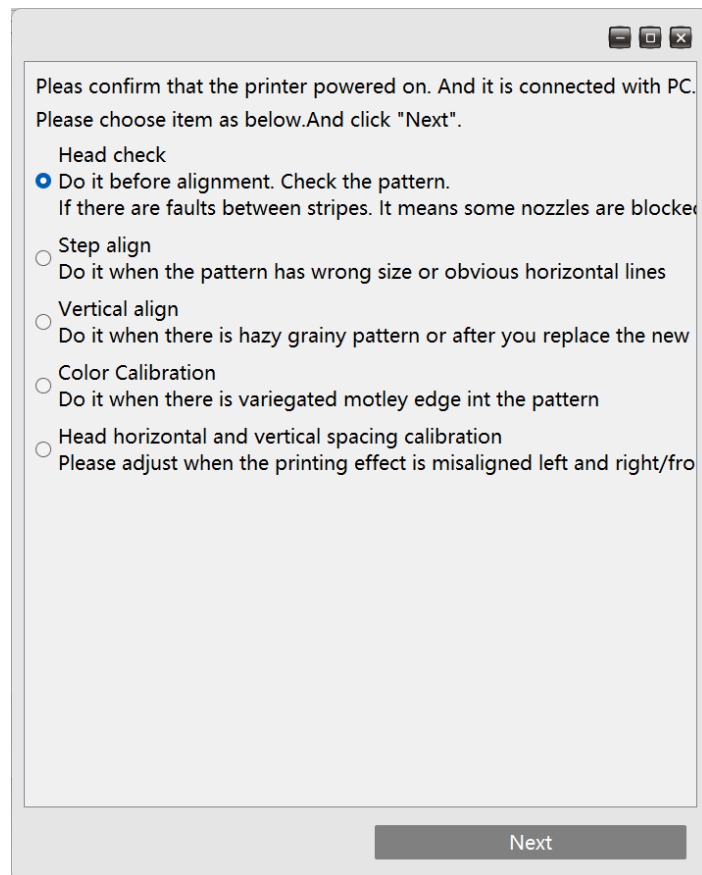
**Starting position from tilt center:** The distance from the print starting point to the center axis, do not change the print start point of the machine do not need to change the value generally. ( Do not change the print start point of the machine)



## 2.4 Calibration and Guidance

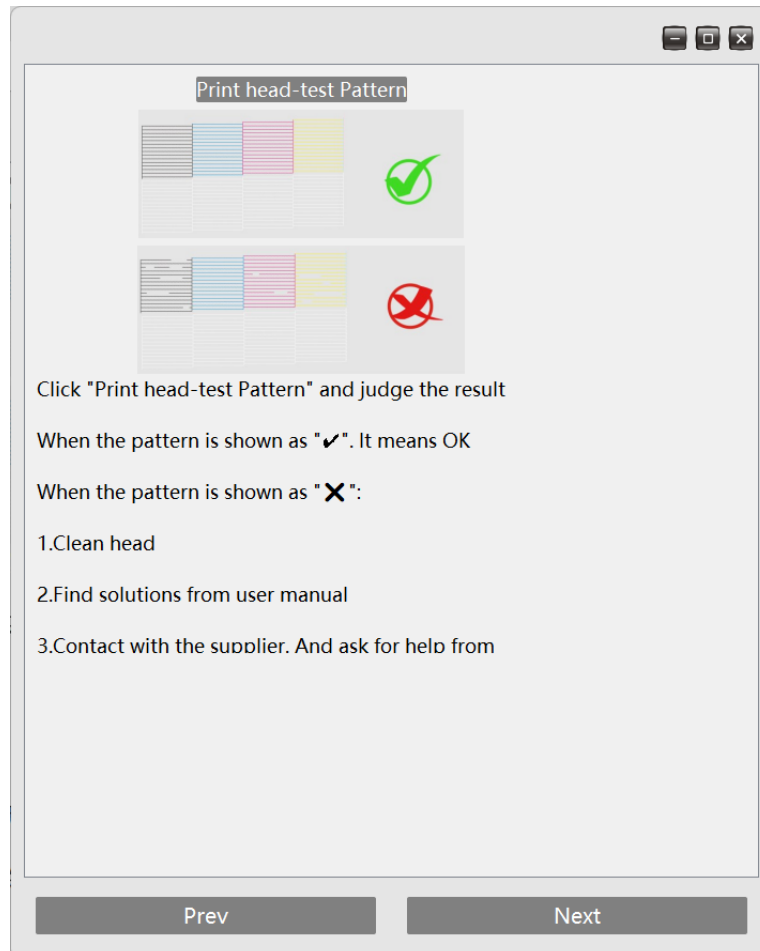
Click **calibration and guidance**, the software pops up the following calibration process screen.

When installing a new machine, replacing or bumping a printhead, calibrate it sequentially from top to bottom to complete the calibration process



### ①Check nozzles

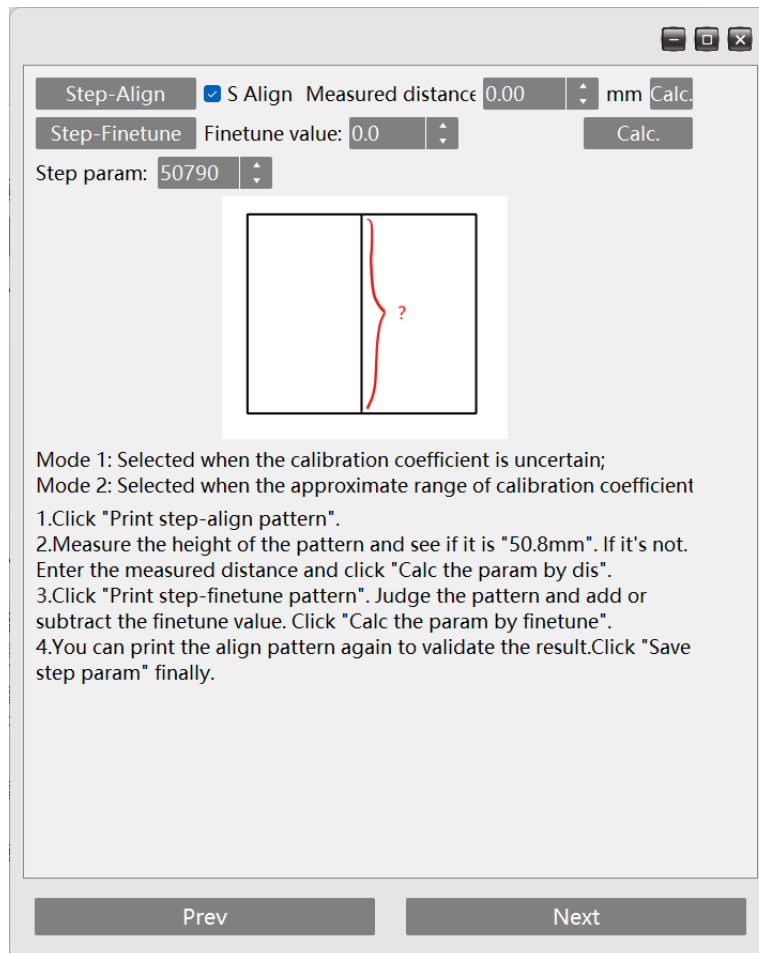
Click **Next**, go to the nozzle inspection details interface and follow the prompts.



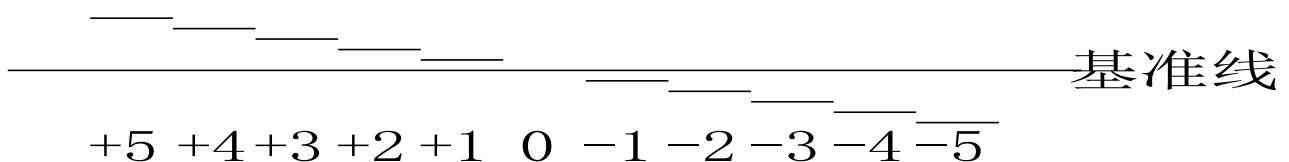
After confirming that the nozzle status is OK, click **Next**. The software enters the main calibration interface and selects **step calibration** automatically.

## ②Step calibration

The machine has been proceeded stepper coarse calibrated, so just click on Print Stepper Fine Adjustment Pattern to tune it slimly .



The step fine tuning pattern is as follows:

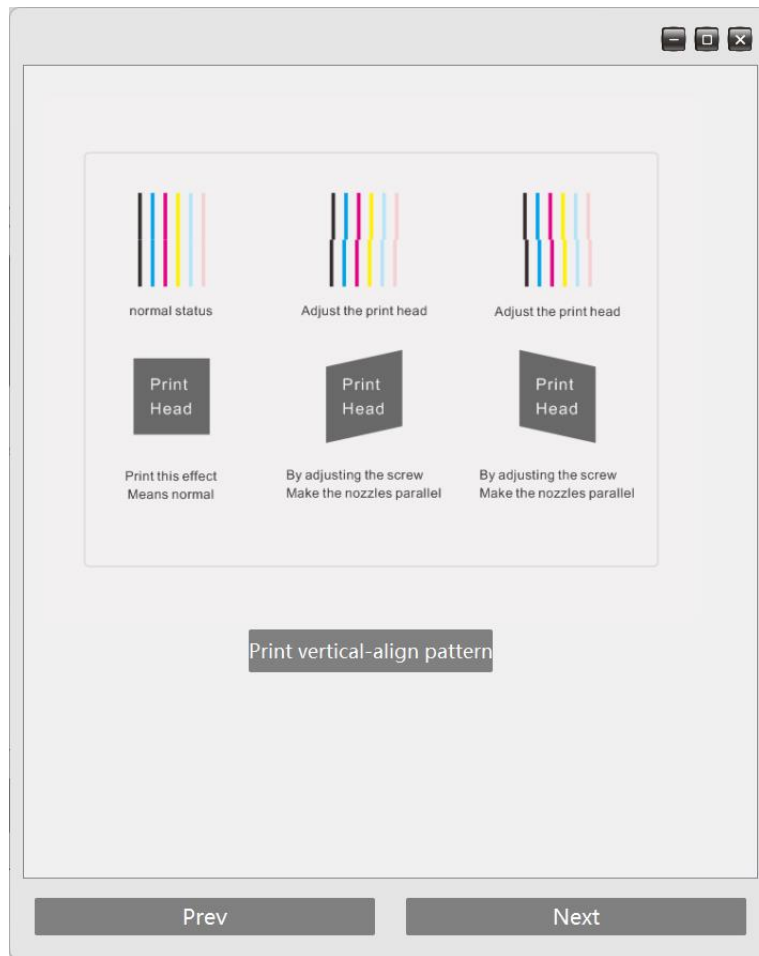


Final goal: It is best to make the line corresponding to 0 coincide with the datum line.

After calibration, click **Next**, the software enters the main calibration screen, **Vertical calibration** is automatically selected.

### ③Vertical calibration

Click **Next**, the software enters the Vertical Calibration Details screen.



Click on "Print Vertical Calibration Pattern", in accordance with the method shown in the figure above, the three printheads (white, color, varnish) are adjusted OK, click on **Next**, the software enters the main interface of the calibration, and it will select the **horizontal spacing calibration** automatically.

#### ④Head horizontal and vertical spacing calibration

Click **Next**, the software goes to the **Head Horizontal and Vertical Spacing Calibration Details** screen.

**X Align**

	White	Color(KCMY)	Color2(cmlklk)	Varnish
CH0(base)	0	0	0	0
CH1	55	-55	-5	0
CH2	30	-5	15	0
CH3	50	-55	10	0

**Y Align**

	White	Color(KCMY)	Color2(cmlklk)	Varnish
CH0(base)	0	0	0	0
CH1	0	-5	-1	0
CH2	5	0	10	5
CH3	5	0	10	10

**Print Channel Align**

Please observe which box completely overlaps according to the prior And fill in the corresponding values in the horizontal spacing and v

Tips: (For the first calibration, please set all parameters to 0 and then print the calibration chart!!!)

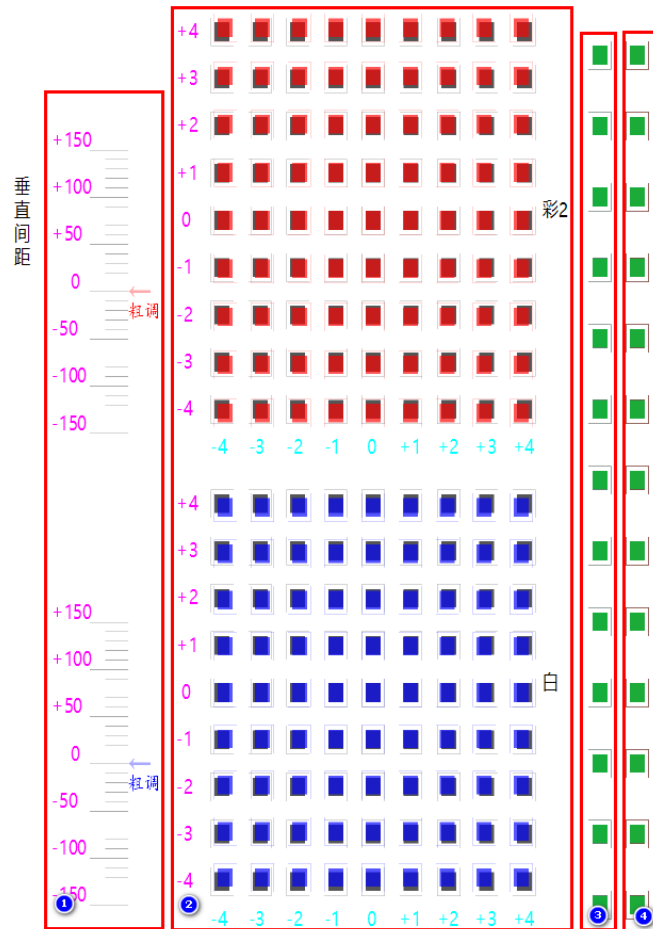
1. X color registration: decrease and move to the right (rotation direction), increase and move to the left;
2. Y color registration: increase and move downward (towards the bottom of the bottle), decrease and move upward.

**Prev** **Next**

①**Horizontal Spacing Calibration:** This parameter can be adjusted when color leakage occurs left and right between different printheads;

②**Vertical Spacing Calibration:** This parameter can be adjusted when color leakage occurs up and down between different printheads;

③**Calibration image:** Click the Change button and the system will print the corresponding color calibration pattern, the calibration schematic is as follows:



The spacing calibration chart is divided into three areas generally: ① Rough adjustment of vertical spacing; ② Calibration of vertical spacing and horizontal spacing; ③ Confirmation of all nozzles spacing single channel sets together; ④ Confirmation of all nozzles spacing four channel sets together.

Click **Next**, the software enters the main calibration interface and selects **the color sregister calibration** automatically.

## ⑥Color set calibration

Click **Next**, the software enters **the color register calibration** details screen.

**1 X Align**

	White	Color(KCMY)	Color2(cmlkllk)	Varnish
CH0(base)	0	0	0	0
CH1	55	-55	-5	0
CH2	30	-5	15	0
CH3	50	-55	10	0

**2 Y Align**

	White	Color(KCMY)	Color2(cmlkllk)	Varnish
CH0(base)	0	0	0	0
CH1	0	-5	-1	0
CH2	5	0	10	5
CH3	5	0	10	10

**3 Print Channel Align**

Please observe which box completely overlaps according to the prior And fill in the corresponding values in the horizontal spacing and v

Tips: (For the first calibration, please set all parameters to 0 and then print the calibration chart!!!)

1. X color registration: decrease and move to the right (rotation direction), increase and move to the left;
2. Y color registration: increase and move downward (towards the bottom of the bottle), decrease and move upward.

Prev Next

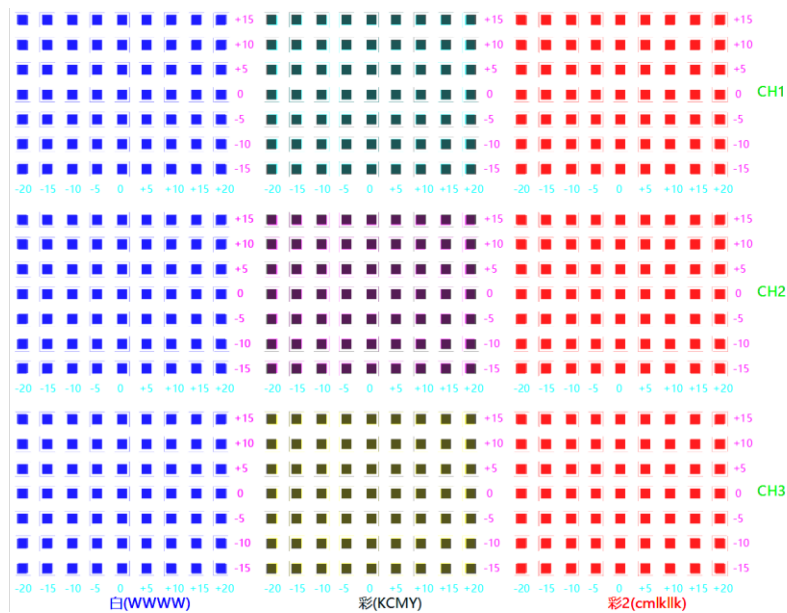
The calibration chart is shown below:

①**X-direction color registration:** When printing images between **the same printhead channel left and right color leakage**, you can adjust it through this parameter;

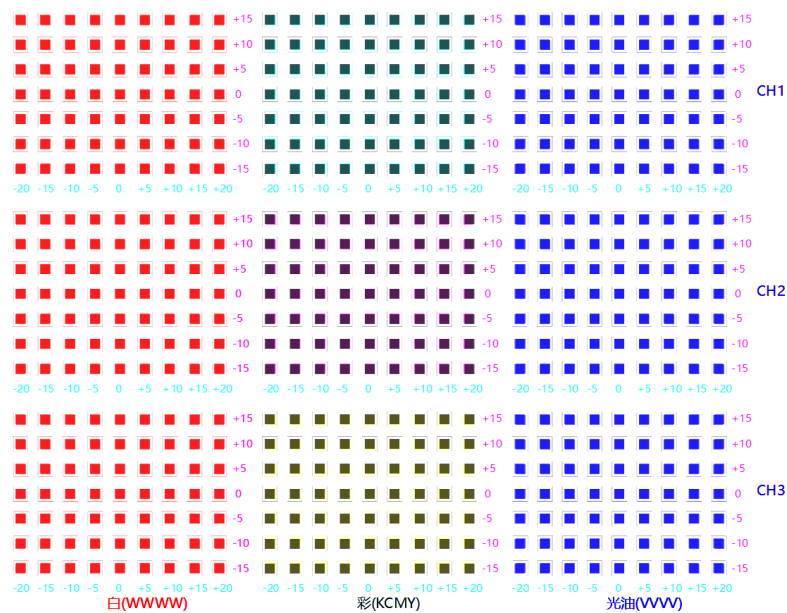
②**X-direction color registration:** When printing images between **the same printhead channel up and down color leakage**, you can adjust it through this parameter;

③**Printing the color register calibration graphic:** Click the Change button and the system will print the corresponding color calibration pattern, the calibration schematic is as follows:





Calibration chart of white eight-color varnish

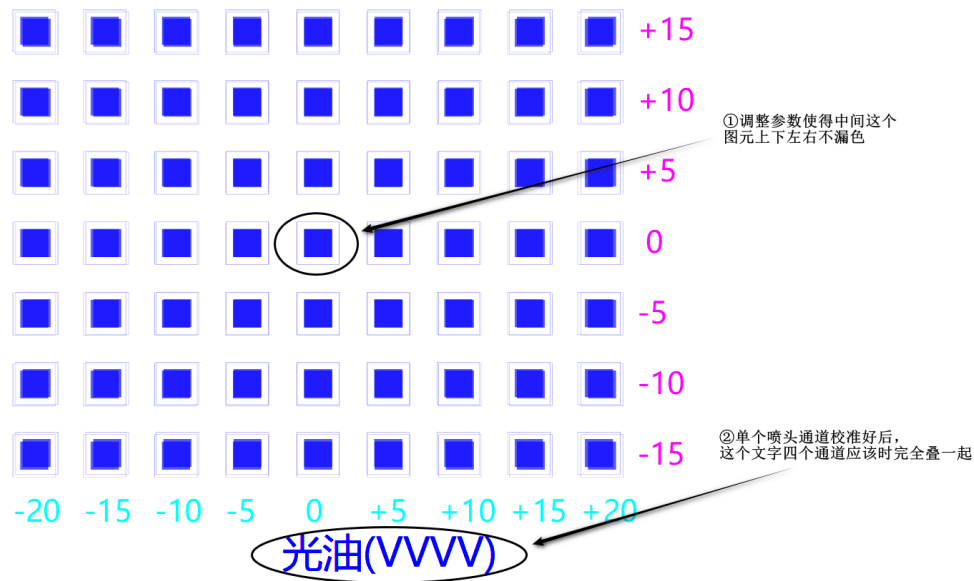


Calibration chart of white four-color varnish

## Debugging Tips

- The system defaults to printhead channel 0 as the reference (the farthest channel from the beam);
- Increasing the calibration value and moves the color of corresponding channel to the direction of cylinder rotation (i.e. close to the beam);
- The numerical unit is 0.01mm, e.g., assuming the ink sequence of color head is KCMY, when setting color CH1=5, cyan will move 0.05mm closer to the beam;
- To calibrate the overlay colors in the head of the varnish, switch the punch method to

white four-color varnish, and then click the Print Calibration Chart button.

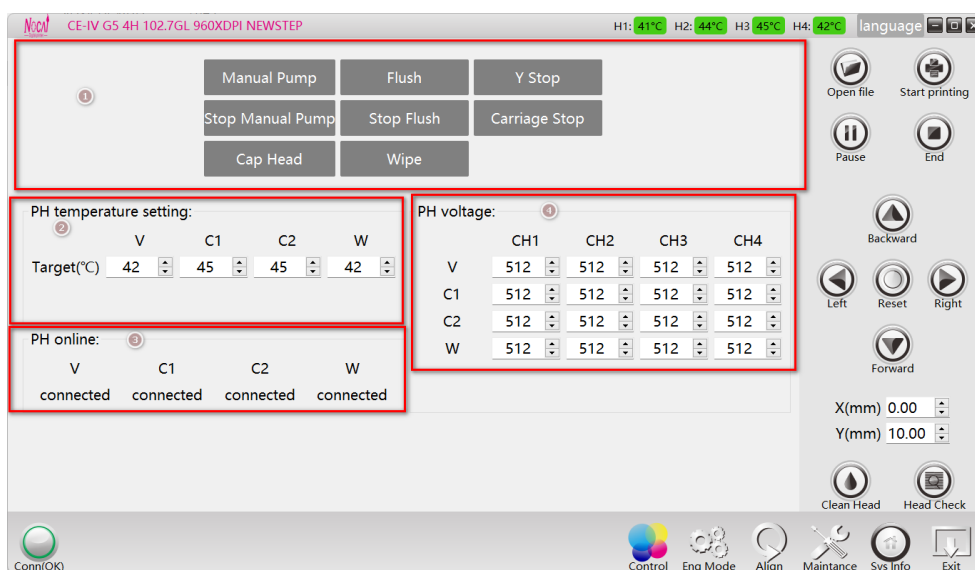


The calibration process is completed, just close the calibration window.

## 2.5 System maintenance

Click **System Maintenance** in the menu bar of the home page and the software enters the **System Maintenance** details page.

This page is for common functions of system maintenance.



1: Manual inking, flashing, stop paper walking, stop manual inking, stop flashing, stop cart, head, scraper

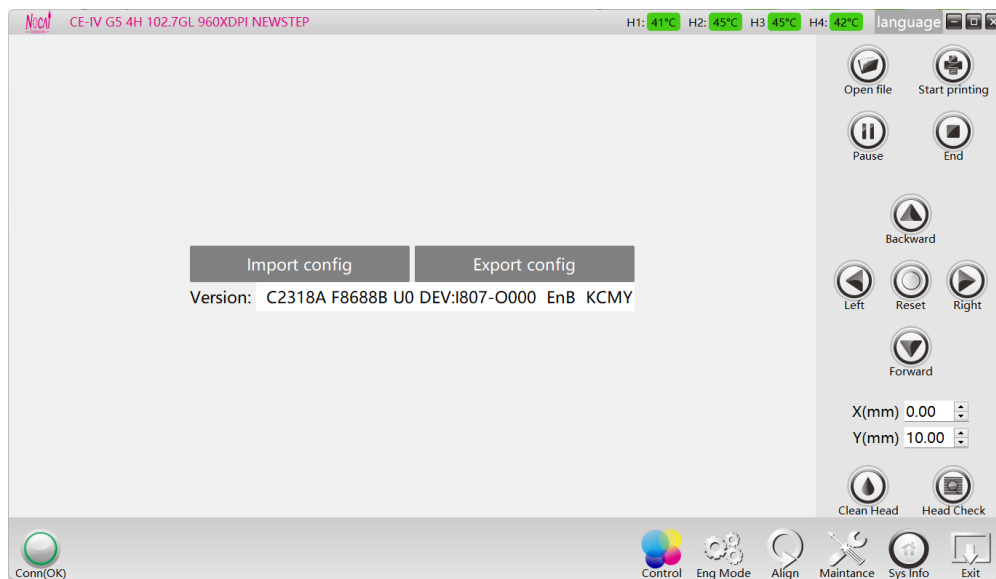
2: Setting the nozzle heating temperature function

3: Connection status of nozzle line

4: Voltage adjustment function of printhead

## 2.6 Version information

Click **Version information** in the menu bar of the home page and the software enters the **Version information** details page.



**Export configuration file:** Export the parameter settings in the on-line software to a file with a pfg suffix format for backup.

**Import configuration file:** Import the parameter file from the previous export backup to enable parameter recovery.

**Version information:** Specific information of system version.

## 2.7 Exit

Click **Exit** in the homepage and the software will close automatically.

## 5. Install RIIN

### 1. RIIN hardware introduction

The front, back, and inside are shown below:

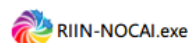


The blue one in the box is a USB with a specific ID; the silver one is a software installation USB.

### 2 .RIIN install procedures

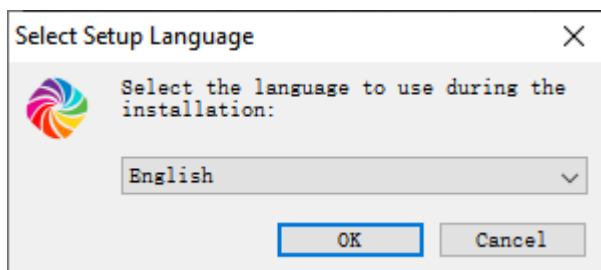
Open the software box and take out the software installation USB and plug it into the USB port of your computer.

Open The computer, find out USB file RIIN-NOCAL.exe,

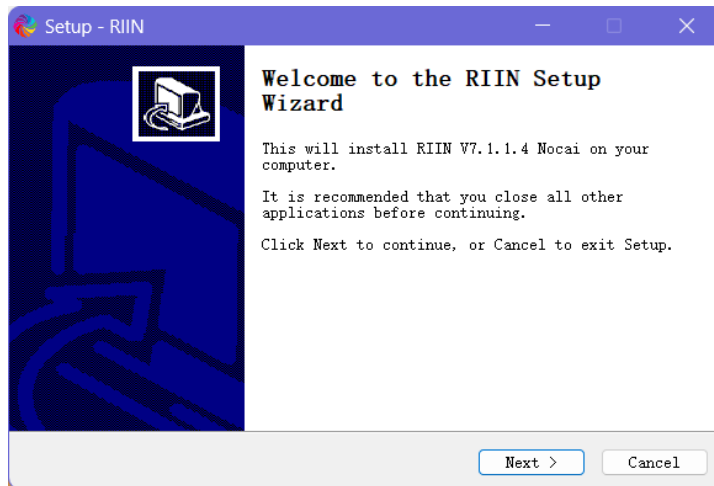


(You can get the latest version from the after-sales service or download it from our website. [www.happycolor.com.cn](http://www.happycolor.com.cn)) , As shown in the figure below:

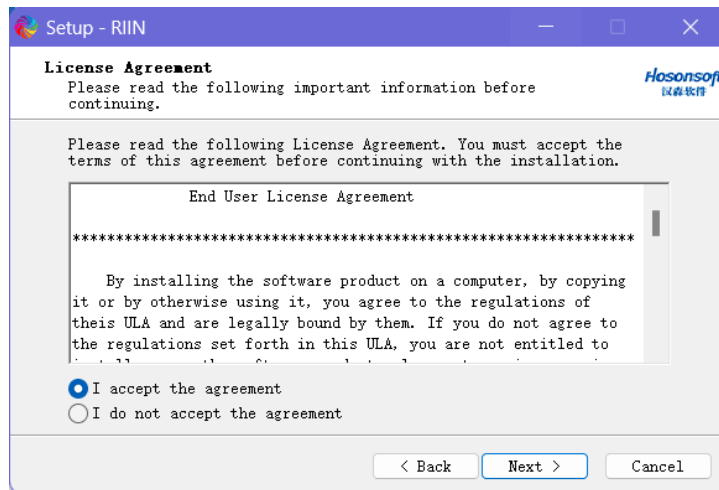
Check, as an administrator to operate with right-click, just as the following:



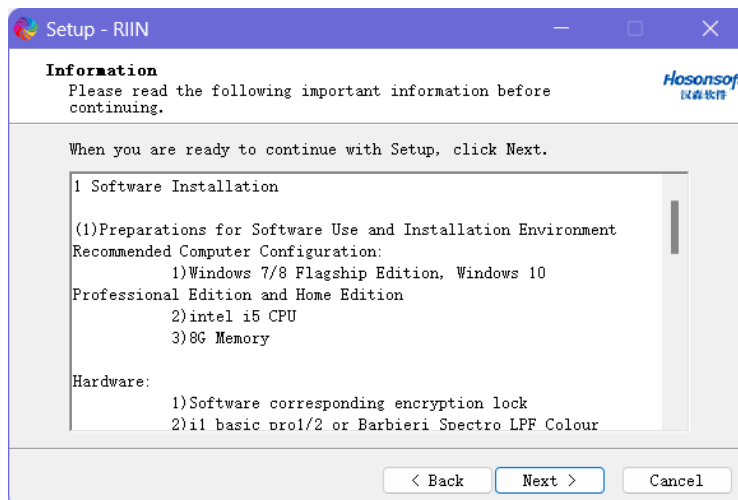
Choose language (English or Chinese), click OK, then the pop-up window is as follows: :



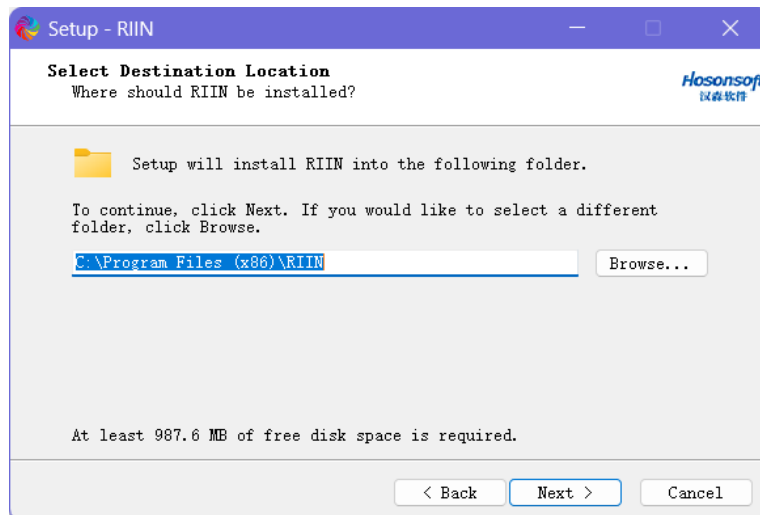
Click **Next**, the pop-up window is as follows:



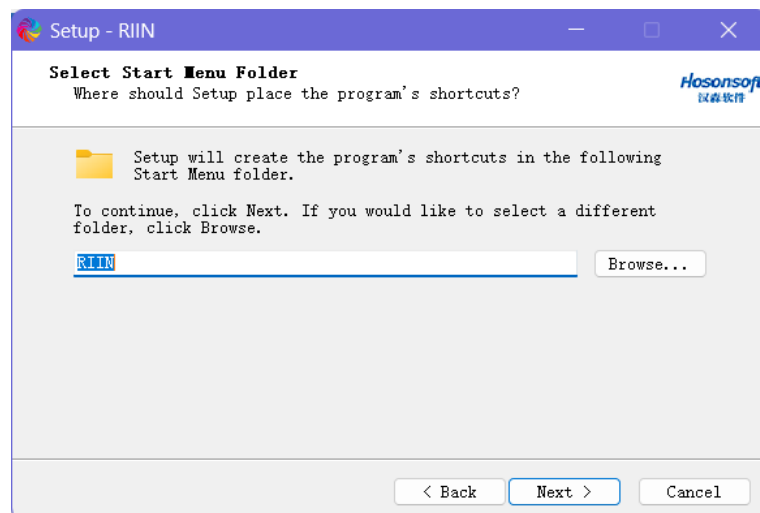
Check **Agree**, Click **Next**, the pop-up window is as follows:



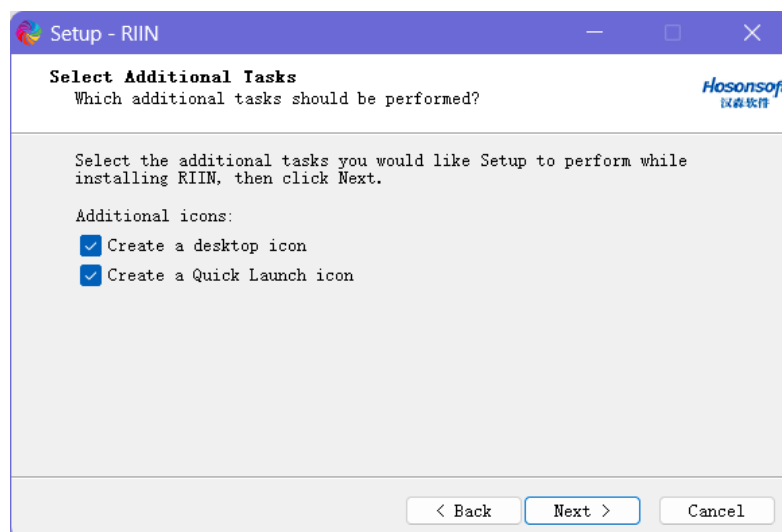
Click **Next**, the pop-up window is as follows:



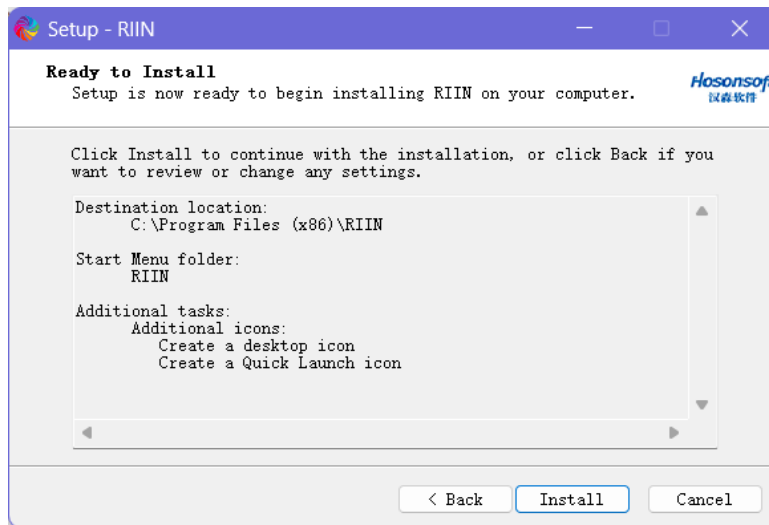
Click **Next**, the pop-up window is as follows:



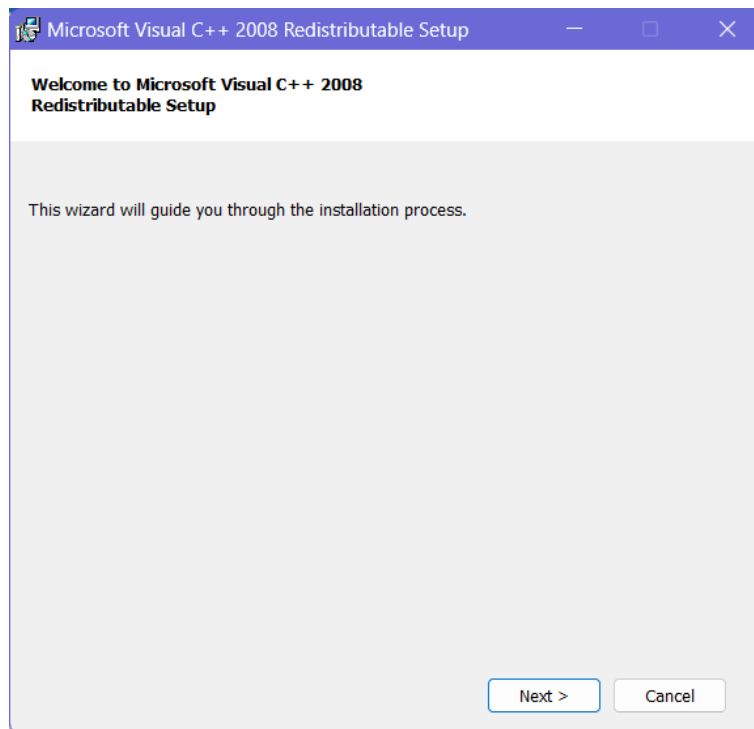
Click **Next**, the pop-up window is as follows:



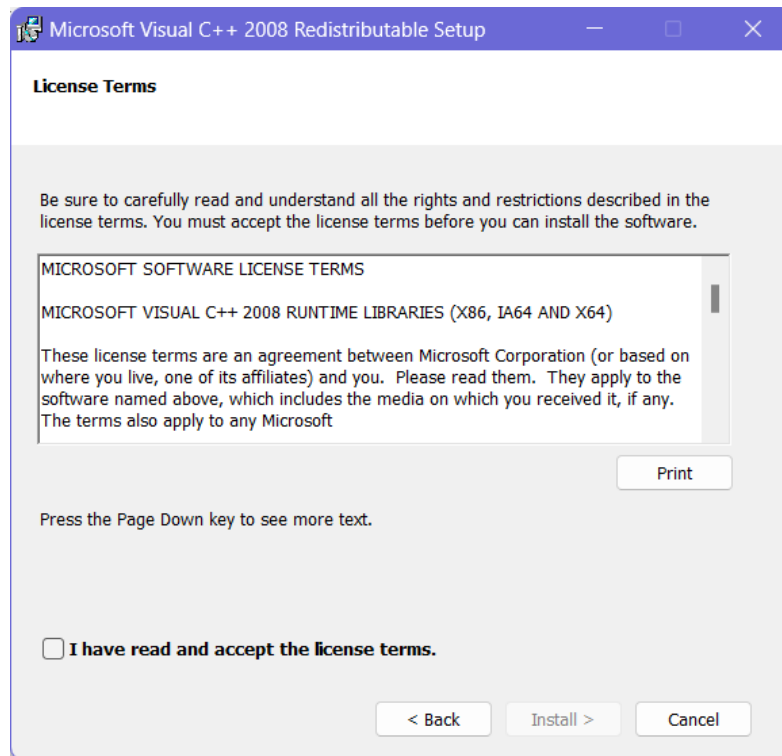
Click **Next**, the pop-up window is as follows:



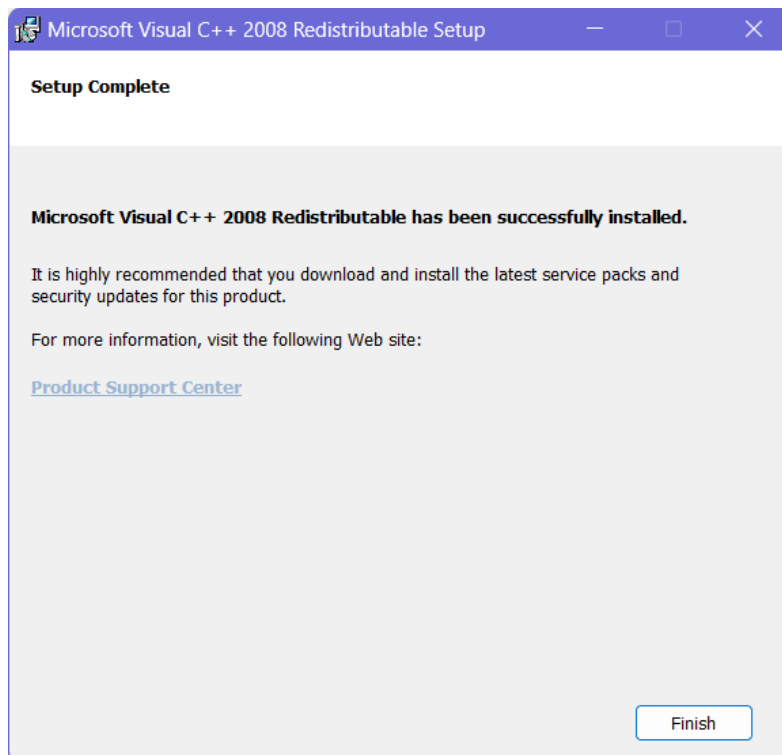
Click **Install**, the pop-up window is as follows:



Click **Next**, the pop-up window is as follows:

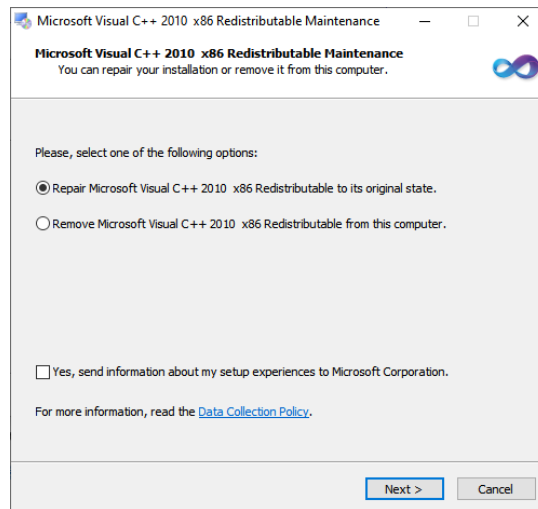


Check **Agree and Accept**, Click **Install**, the pop-up window is as follows:

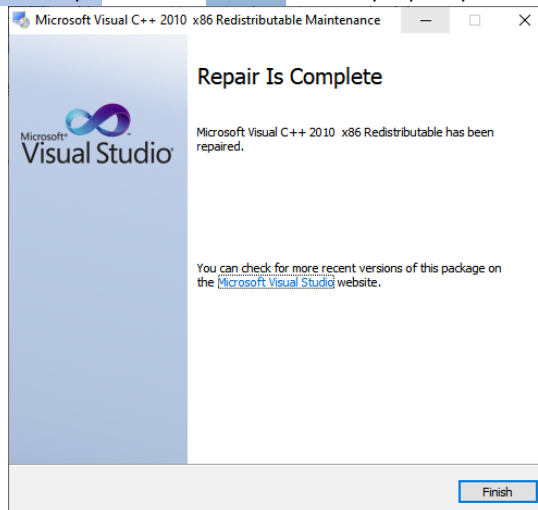




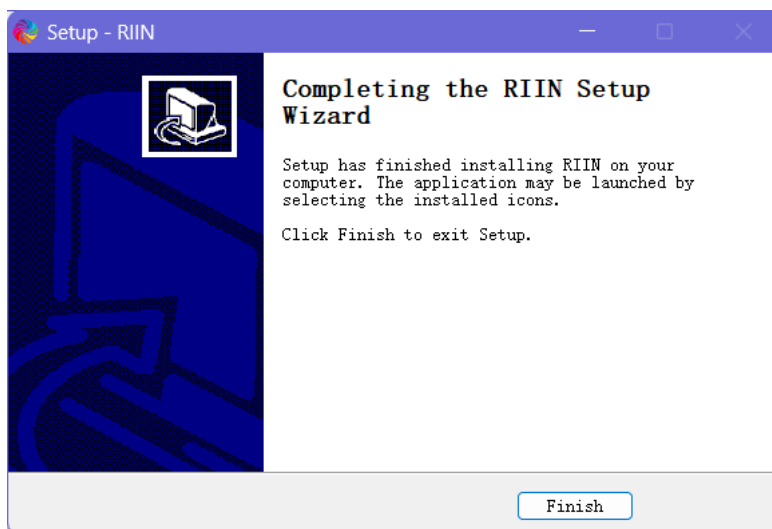
Click **Ok**, the pop-up window is as follows:



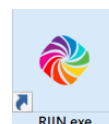
Check **Agree and Accept**, Click **Install**, the pop-up window is as follows:



Click **Ok**, the pop-up window is as follows:



Click **Ok** to complete the installation of the RIIN

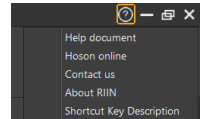


software. This is the

## 6、RIIN Content of software

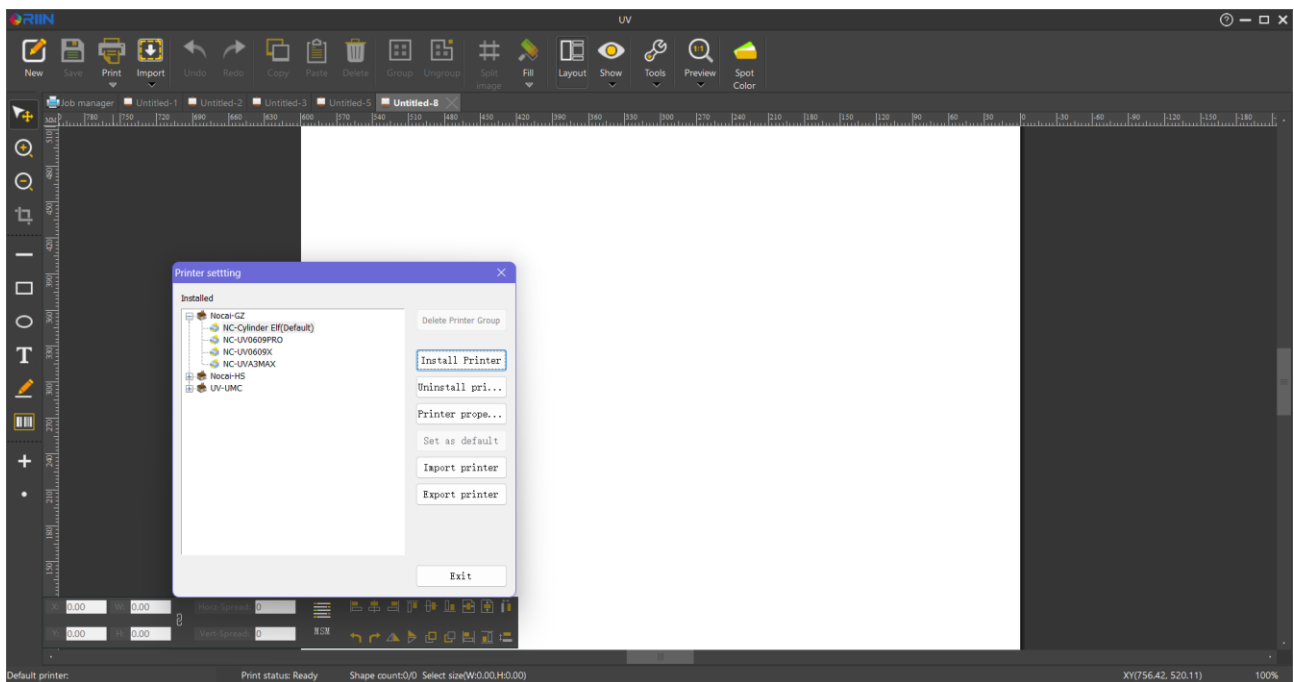
Open the software, then pop-up the main page of the software, click **【F1】**, when the computer install PDF reader, the case will pop up the software manual. Chinese interface pop-up Chinese version, English interface pop-up English version. Inside the detailed explanation of each function.

Shortcut key of maunal: **F1**. (Or click on the top right corner of the software- **【 ? 】**(about)→**【help file F1】**) The following is just a brief introduction to the use of printing process settings.



### 1 .Setup of printer

Tick RIIN.exe icon, right click, Operate as administrator.The software startup screen is as follows:



①Pop-up window at the left corner: Printer set option card,default NC-Cylinder Elf, not midified, tick **【no more tips】**, click **Exit**.

②When the default printer is not NC-Cylinder Elf, the printer can be set up as follows:  
click left corner of the software **【RIIN】** icon→tick **【printer management】**→tick **【Nocai-GZ】**  
→click **【NC-Cylinder Elf】** →click **【Set as default】** →→click **【Exit】** 。



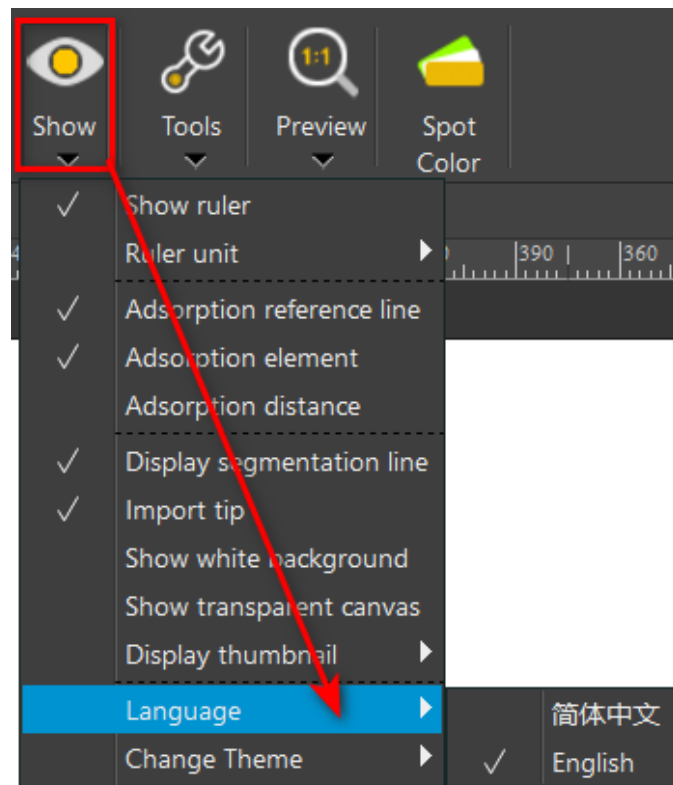
## 2. RIIN Recognition of USB

①The USB is plugged into the computer, as shown in the figure at the right, and the lights go on and off at intervals, indicating the operation is normal.

②Observe the top center part of the software, the display of **UV version** means that the USB is recognized normally, the display of **UV version (demo version)** means that the computer is not plugged into the USB or the USB is not recognized normally.

## 3. RIIN Chinese and English modifications of interface

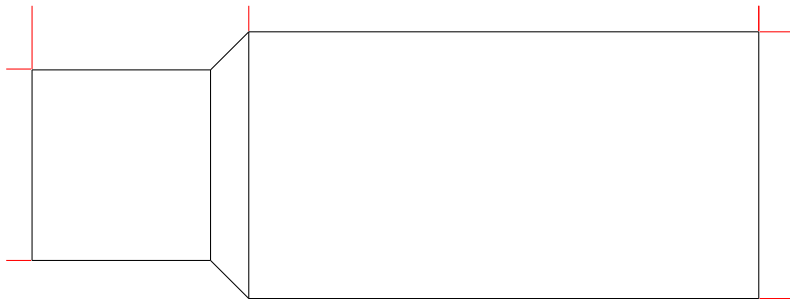
The software display switches between English and Chinese:



#### 4.RIIN Introduction of operation procedures

The following describes the printing process such as software canvas and coordinate origin settings, adding pictures, editing settings, white ink and varnish spot color settings, and output printing options.

As an example, the round bottle that comes with the machine is shown below:



Relative parameter of round bottle	
Total length:	182mm
Actual maximum length:	120mm
Partial diameter:	63.10mm
Partial circumference:	198.13mm
Diameter drop of printing surface:	$\leq 0.2\text{mm}$

## 4.1 Software canvas and coordinate origin settings

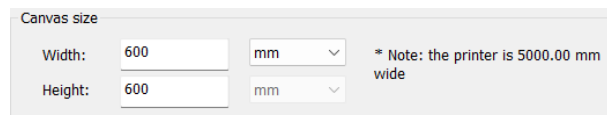
① Confirm the **canvas size** for printing this sample based on **the relevant parameters of the round bottle**:

**Canvas width** > Actual printing circumference of bottle = 198.13mm; 200.00mm is set here depending on the situation.

**Canvas height** = Actual maximum printing length = 120.00mm.

Setting the canvas this way can help to preview where and how the image will print out. Of course you can also set the canvas larger, just be careful when printing.

② Click on the top left corner of the software **【RIIN】** icon → tick **【canvas setting】**, the pop-up window is as follows:



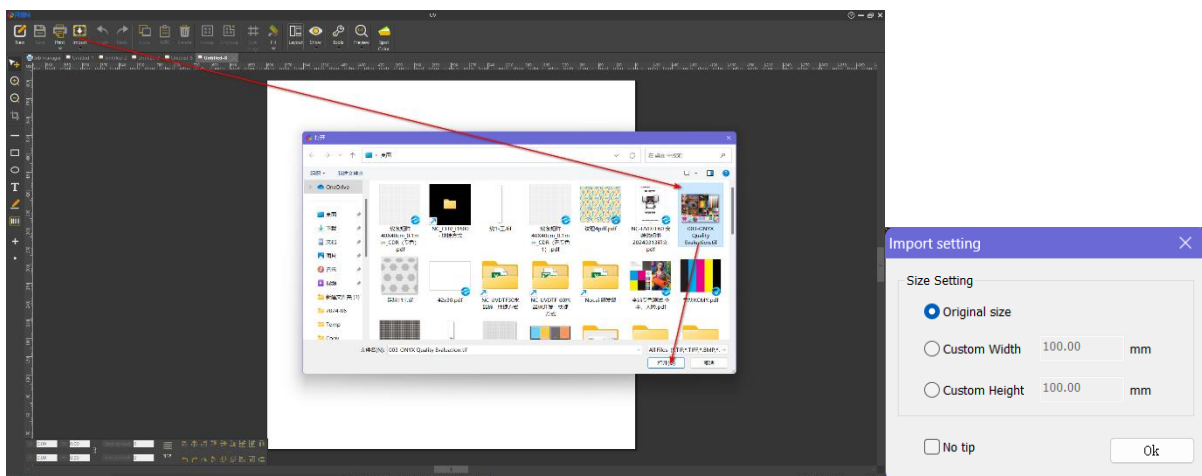
Canvas size

Width:	600	mm	* Note: the printer is 5000.00 mm wide
Height:	600	mm	

The unit: millimeters; the width: 200; the height he: 120; for the original coordinate selection: right at the bottom. Click to confirmation.

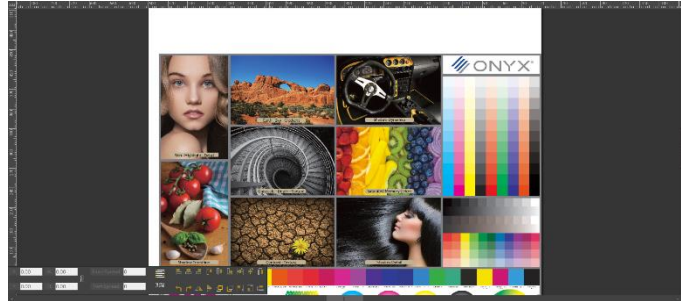
## 4.2 Add graphics

Click the **【Import】** button in the menu column of the software, find the path to the file you want to print, select the picture and click to open to import. Click to confirm.

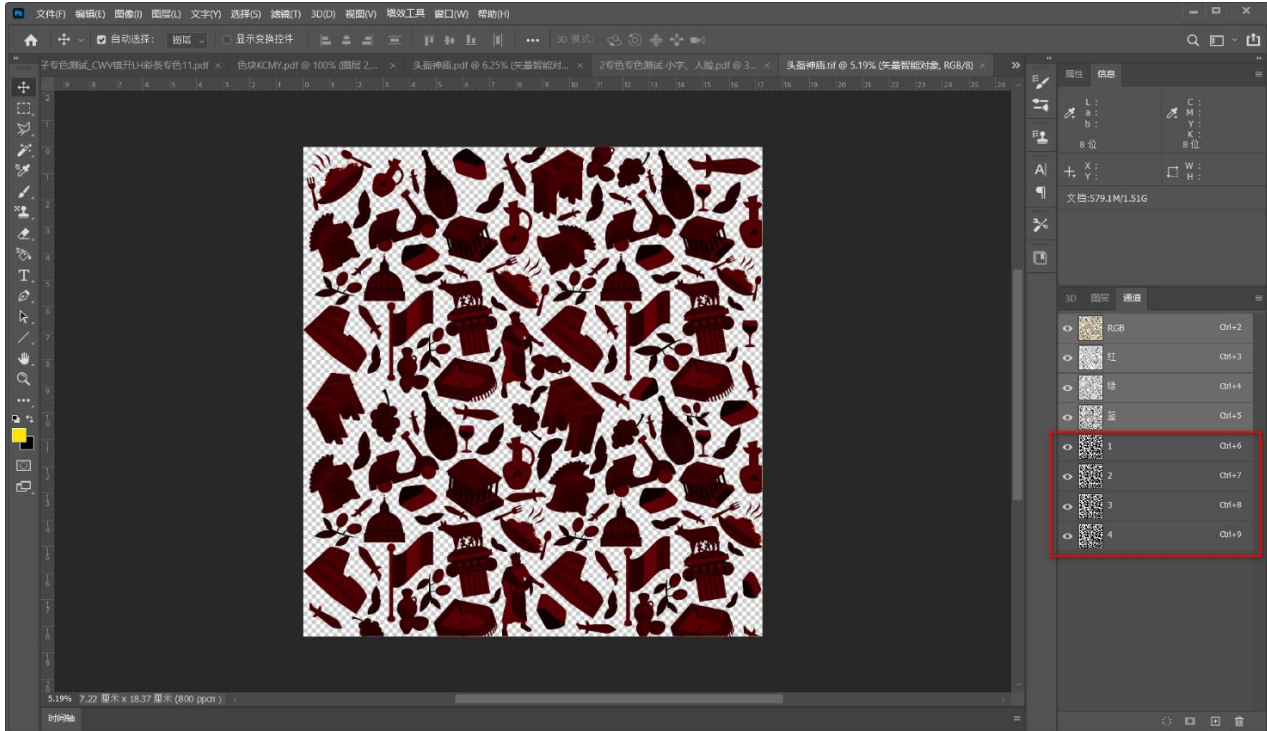


The image was imported successfully, but out of the canvas range, click to select the image,

and then set H:110.00 as shown in the following figure, you can proportionally scale the image to a height of 110.00mm.

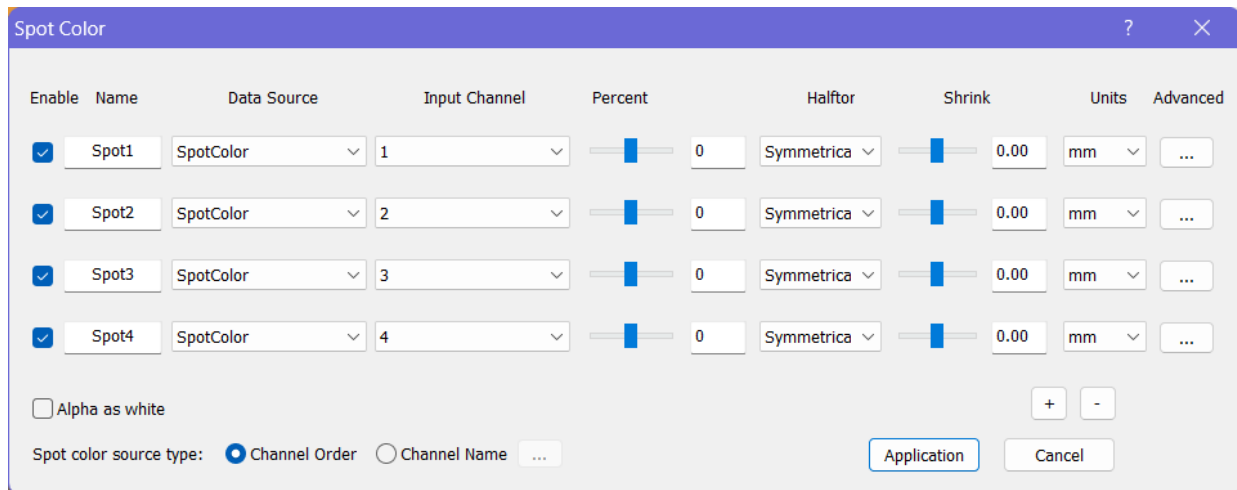


Note: The image named Test\_Fawn 2 Spot.tif here is a TIFF format image with 4 more spot colors created by PS. As shown below the first spot color named 1, the second spot color named 2, the third spot color named 3, the fourth spot color named 4



### 4.3 Special color setting

Click **【Spot Color Settings】** in the menu bar of the software, and set the detailed settings as shown below:



**Start:** Checking the box enables printing in the corresponding spot color, while leaving it unchecked does not enable spot color printing.

Spot1 check white ink to enable white ink spot color printing; spot2 check varnish to enable white ink spot color printing; spot3 check varnish spot color printing; spot4 check varnish spot color printing.

**Datasources:** Select the corresponding special spot3 and check the varnish spot color printing. Take white ink printing as an example (the same for varnish) to introduce the function:

Empty	No data, white ink printouts that don't come out.
Base color of image (same concentration)	The maximum concentration of image color as a reference, the same thickness of white ink is dispensed in the areas of the colorful image. Transparent and pure white areas are not printed.
Base color of image (image intensity)	Print white ink according to the color of the picture, the deeper the color, the thicker the white ink; the lighter the color, the thinner the white ink; transparent and pure white areas are not printed.
Base color of image (Inverse image concentration)	Print white ink according to the color of the picture, the deeper the color, the thicker the white ink; the lighter the color, the thinner the white ink; transparent and pure white areas are not printed.
Spot color	Print white ink with spot color data from image production; <b>Note: The current RIIP can print spot-color data, has now supported the export Tiff, PDF, AI and other mainstream formats of the image exported by PS;</b> spot-color production and application please view the spot-color video tutorials;
Total	Printing 100% concentration of special colors (white ink or varnish) on the entire image

**Import channel:** Optional *spot color 1*、*spot color 2*、*spot color 3*、*spot color 4*。

Spot color 1→The 1st spot color data of the spot color data contained in the image

Spot color 2→The 2nd spot color data of the spot color data contained in the image

Spot color 3→The 3rd spot color data of the spot color data contained in the image

Spot color 4→The 4th spot color data of the spot color data contained in the image

In general, spot color 1 is chosen for white ink and spot color 2 for varnish.

**Density:** Increase or decrease the density of the spot color data on the current basis, adjustment range: -100% -- +100%。

**Effect:** Uniform mode.

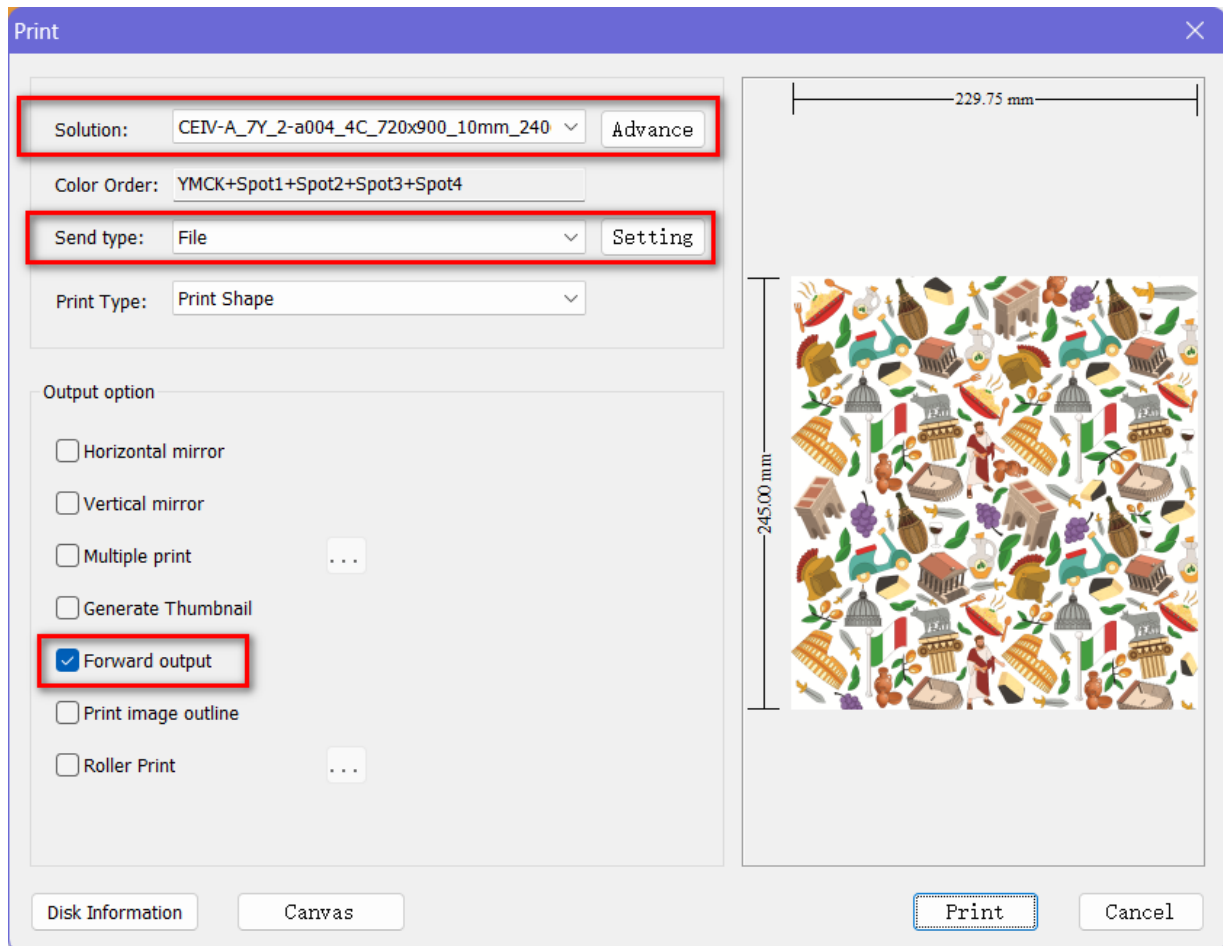
**Zoom in and out:** Spot color data prints shrink or enlarge. Adjustment range: -5 -- +5。



As shown in the figure above, the settings are completed, click **【Apply】**, and choose to print white ink or varnish spot color data.

#### 4.4 Option of output printing

Click the **【Print】** button in the menu column of the software, and the detailed settings are shown below:



Set up the software as shown above. If the machine and the online driver are linked normally, click the **Print** button and the machine will start to print.

Each function of this surface is explained in detail below:

**Printing method:** Tick ICC. There is 6Pass curve corresponding to 0、1、2、3 waveform. Use it as required.

**Delivery method:**

**File** → Select this mode and click Print. The software will generate a Prn file, which can be added to the online driver for printing.

**Network** → Select this mode and click Print. The software will read the print data directly to print automatically.

**Printing type:** Selects how the image is output. The default prints the image elements.

**Printing picture:** It's just print the image itself, independent of the position of the image in the canvas.

**Absolute coordinate (in coordinate geometry):** Print the portion of the image between the image and the canvas origin.

**Printing canvas:** Print out the entire canvas

**Export option:**

**Positive export:** Checked by default

## 7、 Practical operation and procedures of Cylinder sampling

Taking the white bottle that comes with the machine as an example, the sampling process is as follows.

### 1. Measuring size of bottle, ensure size of graphics

Measure the bottle size with vernier calipers as shown below:

Relative parameter	
Total length:	182mm
Actual maximum length:	120mm
Partial diameter:	63.10mm
Partial circumference:	198.13mm
Diameter drop of printing surface:	$\leq 0.2\text{mm}$

### 2. Modify parameters of driver

① Operate the panel and go into **【Feed settings】** :

Stand-by interface of panel, click **【Enter】** → tick **【secondary function】** , click **【Enter】** → tick **【Feed settings】** click **【Enter】** interface of feeding settings, *(Only in this mode can the **【 】** in the driver be modified)*

② After the driver online normal, click **【engineering mode】** - material parameters interface

Large diameter of material: 631.00

Click **Large diameter of material**, The machine feeding mechanism performs a reset action.

Always pay attention to the machine.

Material Parameters		
Parallel Calibration	3599	
Bottle height:	180	mm
WC lamp Power:	30	%
V lamp Power:	30	%
WC lamp offset:	2	cm
V lamp offset:	1	cm
UV-Lamp test:		
Panel entry [Auxiliary - Feeding - OK - Test]		
Print-Height Pos	-180	0.1mm
Panel entry [Auxiliary - Feeding]		
Positioning Height	-50	0.1mm
UV-Lamp Position:	190	0.1mm
Large-Diameter:	1000	0.1mm
Read		

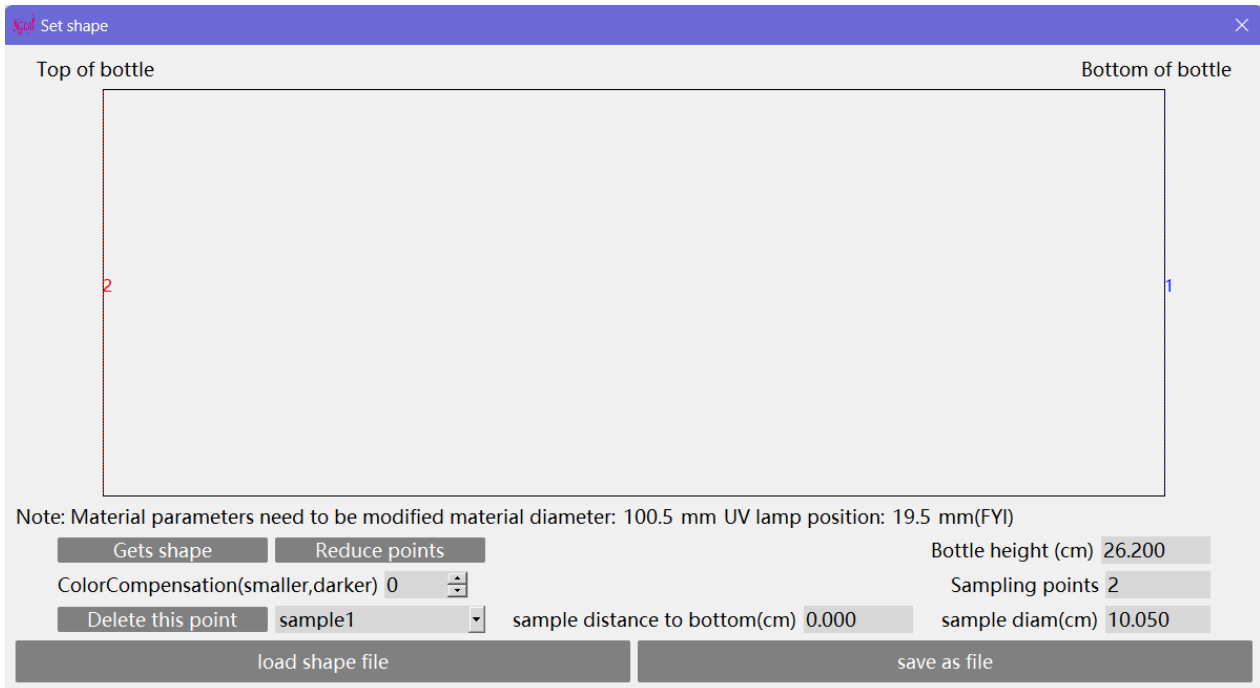
③ Modeling in the driver. (There are different modeling processes for different materials

### 【round bottles, cones, shaped workstations】

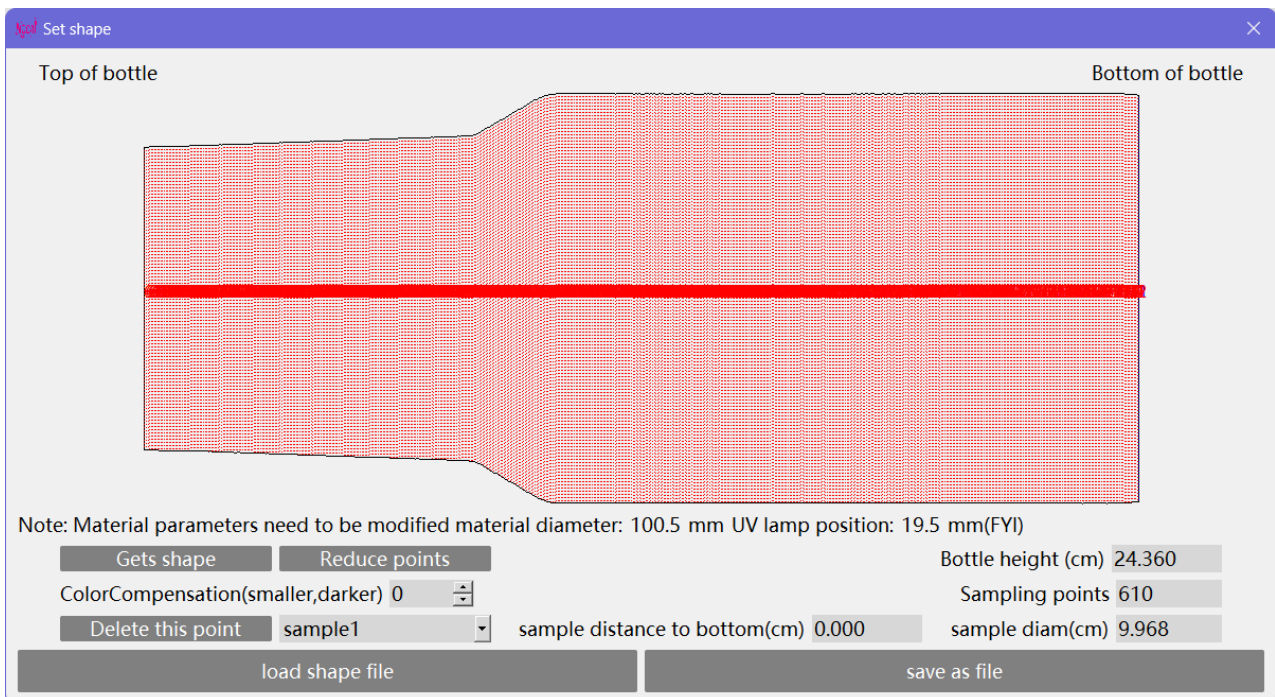
Control printing in the driver click 【Setting up the model】 →import 【Measured values of materials】 , click 【blank area】 →tick 【top right corner X】 The model has been built. (Refer to the modeling process for different materials, which can be made available for aftermarket training.)

CE-IV G5 4H 103.4GL 960XDPI NEWSTEP			H1: 42°C H2: 44°C H3: 44°C H4: 42°C				language	
<b>Basic Settings</b> Speed: Standard Print Mode: W+8C+V UV-Mode: Mode1 WC Setup: Color Soften: High								
<b>File Information</b> FilePath: Width: GraphicSize: Colors: Height: TotalAmount: Resolution:								
Print List				History List				
Print Queue file Information Amount:0								
<input checked="" type="checkbox"/> Print Single Task <input checked="" type="checkbox"/> Print Task List From Top To Bottom <span>Model settings</span>								
<div> <div>Conn(OK)</div> <div> <div>Control</div> <div>Eng Mode</div> <div>Align</div> <div>Maintenance</div> <div>Sys Info</div> <div>Exit</div> </div> </div>								

## Standard drawing for cone modeling



## Standard drawing for shaped modeling



### 3 .Adjust work location, ensure printing height, place the bottle

#### ① Adjust work location

Replacing different round bottle to adjust stations, please refer to the detailed procedure **【round bottles, cones, shaped workstationsdebugging instructions】** The machine has been tested in the factory and adjusted OK,you need to make sure that the bottle shaking is within a reasonable range.

Method: Putting the bottle into the work station, operate on the panel: standby mode , **【Enter】→【secondary function】→【feed setting】→【Enter】→【loading test】→【Enter】**, raise the bottle to printing height, click **【Enter】** the bottle moves gradually and you need to make sure that the bottle shaking is within a reasonable range. **【If shaking sharply, please adjust and confirm again】** 。

#### ②Confirm the printing height

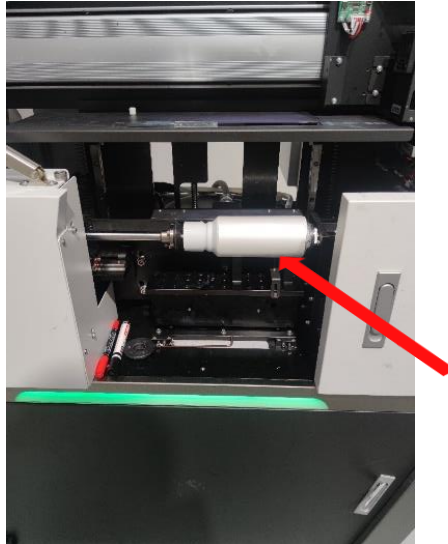
When the bottle is raised to print height, click **【Left】** ,the cart will move to the left. Change the driver's **location of printing height** (the picture above) values properly. Adjust the height of the bottle up to 2-3mm from the nozzle surface. ( *driver* **【engineering mode】** -parameter **of material-location of printing height** )

#### ③Adjust of UV lamp light barrier 1 and UV lamp light barrier 2

Move the light barrier on the UV surface appropriately to cover the part of the left side of the actual printed bottle that does not need to be illuminated (in order to prevent the UV light from hitting the printhead)

#### ④Place the bottle

Once the machine is tuned up, place the bottles as shown below:



**4 Turn on the lamp,RIIN setup the graphics,send printing**

**5.Confirm that the UV lamp water machine is normal.**

①Using UV light water machine, please connect the supporting control line with the machine normally, add the appropriate amount of pure water within the water machine test.

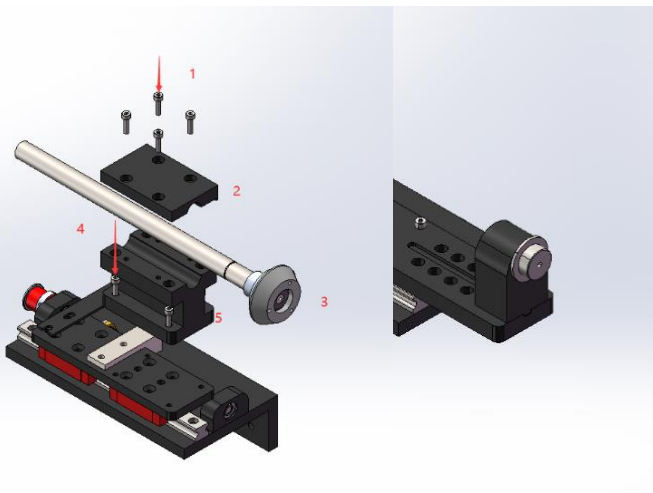
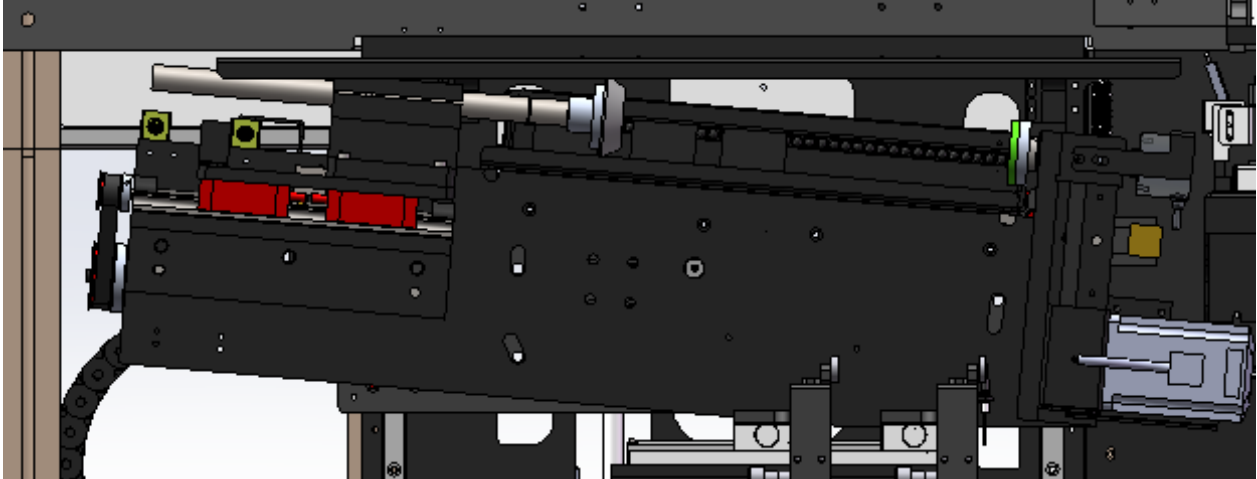
②Ensuring the power supply is normal, click Power button

**Please refer to 【introduction of 4 RIIN sampling operation procedures】 , setup is completed, then click Send, The machine starts printing. When printing is completed, the bottle resets automatically.**

The effect is shown below:



Pay attention that when the printing cone is too large, there will be a support shaft and fixed seat hit the UV lamp light-blocking sheet metal, if this situation appear, change the clamping fixture, as shown below.





## 8、Maintenance method and announcements of Cylinder sampling

### 1.Maintenance method of printhead

①There is a board chip inside the nozzle, which is directly inserted with the nozzle line.

You need to pay attention to the nozzle line and nozzle contact parts, be sure to prevent ink dripping. Once the nozzle line parts and the nozzle has a watery contact, turn off the machine immediately, and removed for blow-drying.Only in this way can you test whether the test is burned or not, and remember not to use with a water boot, otherwise it will burn the nozzle and the nozzle board.

②Due to the nozzle plug and the printhead line is tightly connected, not unplug. So after a long time there will be contact oxidation, damage, misalignment or contact another line, so when unplugging the nozzle line you need to pay attention to observe these problems carefully, and exclude or replace the nozzle line, otherwise it will result in the burnt out of the nozzle or nozzle board.

③When not using the machine you must do a good job of maintenance, adhere to the daily power-on once and test strip printing, test strip broken ink to be automatically cleaned to ensure that the test strip is normal. You can print a small picture, you have to use the cleaning fluid 3-5 drops of ink in the ink cap top when more than 3 days of vacation unattended. And then combine and seal the nozzle and the ink cap top,which will play a certain role in the protection of the ink cap top.

④When the ink is added to the cartridge, you'd better use the method of adding less diligently, the expiry of the ink is 3 months after opening.Otherwise it will produce deterioration, which will affect the printing effect and cause clogging of the printhead, it is recommended



that the customer regularly carry out the uniform mixing of the ink and open the cartridge at the white ink mixing switch when using the machine.

⑤The height of the printhead from the print material should be 2-3mm. Confirm the print height timely in order to avoid printhead is damaged.

⑥Nozzle sheet metal of cart must be cleaned regularly to avoid effects on the nozzle.

⑦Avoid printing transparent or semi-transparent or other materials that can cause printhead clogging.

## 2.Rain maintenance

Machine guide rail contains cart guide rail. There is a basis of lubricant between guide rail and slider, please add it into the guide rail in a certain period of time, in order to avoid corrosion and astringency of the guide rail for lacking of oil. If you find that there is black oil in the guide rail, you need to use alcohol to wipe firstly and then add lubricant.

## 3.Maintenance of shell sheet metal

Keep the shell clean, if there is any ink-dripping, please scrub it to avoid ink corrosion on the outer paint surface of the sheet metal.

## 4.Error code

Number	Note	
1	PCVERSION_ERROR	PC driver version-error
2	SURPLUS_SQUARE_LIMIT	Balance less than a certain amount
3	A_ZERO_BALANCE	Zero balance
4	ZERO_SENSOR_ERR	Error sensor-error
5	PARA_INIT_ERR	Parameter initialization error
6	CARRIER_STRIKE	Carrier strike
7	PARATABLE_ID_ERROR	Parameter ID mismatch register ID
8	CAR_FACTOR_MIN_LIMIT	Car factor minimum limit
9	CAR_FACTOR_MAX_LIMIT	Car factor maximum limit
10	UI_PARA_INIT_ERR	UI parameter initial error
11	WAVE_TABLE_EMPTY	Wave table empty
12	CARRIER_RE_ERR	Carrier reverse error
13	CARRIER_PRINT_STOP	Carrier print error

14	CARRIER_POS_ERR	Carrier position error; reverse motor,abnormal motor,encoder strip ABreverse,encoder strip abnormal
15	SF_MEASURE_DIST_LOW	Servo measure distance low
16	DRIVE_BOARD_OVER	Drive board over
17	UIPARAID_CARPARAID_ERR	UI parameter mismatch ID of carrier parameter
18	NETERR_REPEAT_IP	IP neterr repeat
19	INK_TANK_INIT_ERR	Ink tank initial error
20	INK_NUM_LIMIT	Ink number limit
21	INK_NUM_EMPTY	Ink number empty
22		UI parameter table test version
23	TIMES_LIMIT_NO_SUPPORT	Times limit no support
24	TIMES_LIMIT_READ_ERR	Times limit read error
25	TIMES_LIMIT_USER_END	Times limit user end
26	TIMES_ILLEGALLY_ALTERED	Times illegally altered
27	HEAD_TYPE_ERR	Parameter table printhead type error; read FPGA and compare it with the printhead of parameter
28	Printhead test automatic error	5113 and I3200 printhead test
29	UI reset abnormal error	Received ui reset data when printing
104	Carrier with great resistance	Encoder signal is abnormal, motor or motor signal is abnormal.
105	Carrier reverse	Encoder AB phase opposite, motor direction opposite
106	Width exceeded	Check the width of the picture at the starting point of printing.
107	Zero point of cart sensor error,	Abnormal origin cart sensor signal
108	Encoder detection error	Encoder signal abnormal
109	SDR detection error	Return to factory for maintenance
110	PC driver error	Usage of PC print tool error
111	Insufficient number of squares	Insufficient number of registered squares
112	Lifting and lowering ink station sensor error	Lifting ink station sensor abnormal
113	Carrier board of main board communication error	Fiber optic wiring or program problems
114	Printing square number is 0	Registered square number is used up
115	Fiber optic cannot communicate	Fiber optic wiring abnormal
116	Empty paper alarm	Material exhausted

117	Parameter table ID does not match with registry ID	Parameter abnormality error
118	Parameter table invalid	Parameter abnormality error
119	Cart board have no main program	Program abnormal
120	Nozzle lift motor error	Abnormal headstock elevator motor sensor
121	Paper-feeding limit	Abnormal table plate limit sensor
122	Paper-feeding initial error	Abnormal table plate limit sensor
123	Anti-collision	Anti-collision triggered or not connected
124	Anti-collision when initialization	Anti-collision triggered or not connected
125	Ink overflow	Inspection of safety bottles
126	Car factor minimum limit	Motor gear ratio too small
127	Car factor maximum limit	Motor gear ratio too large
128	Wrong type of cart plate nozzle	Mainboard(parameter table)dismatch cart board(FPGA); cancelable
129	Alignment sensor pauses printing	Foreign objects detected by infrared convection sensors; Fatal error, need to power down and reboot
130	External ram error	Board Error, Rework
131	Position overrun error when cart stops	Motor or grating abnormality, motor power supply abnormality
132	Wrong position when the cart is moving	Motor or grating abnormality, motor power supply abnormality
133	Multi-computer system startup exception error	Multi-computer system startup exception error,not detected
134	SDR power-on detection abnormality, not detected	SDR power-on detection abnormality,Reboot the machine, please repair it if it doesn't work many times.
135	Ink Station Expansion Board not connected	Check that if the ink station expansion board is connected properly
136	Temperature Alarm	
137	Humidity Alarm	
138	FPGA reset timeout	Reboot the machine, please repair it if it doesn't work many times.
139	Failed request for external SRAM for 485 initialization	
140	485 communication failure in multi-computer system	
141	Multi-computer system printing exception	Slave swath number is greater than master swath number
142	Main ink bottle empty	
143	Waste ink bottle full	

144	Unconnected unwind/rewind expansion board	
145	Unwind/rewind expansion board operation error	
146	Ink pump motor board not connected	
147	No network connection from slave	Check slave network cable connections
148	Master-slave 485 communication failure in multi-computer system	Check the master-slave mainboard connection cable
149	TIMES_LIMIT_NO_SUPPORT	
150	TIMES_LIMIT_READ_ERR	
151	TIMES_LIMIT_USER_END	
152	TIMES_ILLEGALLY_ALTERED	
153	Multi-computer system synchronization failure	
154	Printhead auto-detection error	The I3200 printhead holder is currently detected, but the FPGA doesn't support the I3200.
155	The spreading stick did not fall	
156	Slave self-test error	
157	Nozzle Alarm	High temperature inside the I3200 printhead
158	Nozzle Alarm2	High temperature inside the I3200 printhead
159	UV lamp sensor	Cylinder machine
160	Bottle Clamping Front Sensor	Cylinder printer
161	Bottle Clamping Rear Sensor	Cylinder printer
162	Bottle Lift and lower Sensor	Cylinder printer
163	White-edge space large	Cylinder printer
199	CPU Exception Error (Program Flying) Access to the address is prohibited.	Program abnormality, contact after-sales

## 5 RIIN Prompt software UV(demo version)

Check if the USB light is on, if not, please replace the computer USB transfer interface or replace the USB.

## 6 UVlamp is not light

1.Measure the UV lamp power line on or off:

2.Whether the power supply of UV lamp is energized, whether there is voltage output, replace the power supply of UV lamp.

3.Measure the corresponding terminal of the mainboard, whether there is 24V voltage output during printing, if there is no output, replace the mainboard.

4.Replace the UV lamp

## 7 Ink is not dry

All products are not dry:

1. Check whether the UV lamp is lighted during the printing process, if not, please solve (refer to the UV lamp is not lighted solution)

2.If the UV lamp light blocker 1 in the proper position.

The edges of the product are not dry:

1.If the UV lamp light blocker 1 in the proper position.

2.Online driver **【engineering mode】** - **【advanced setup】** -Increase the distance of white color empty printing distance, varnish empty printing distance .

3.Confirm the version number of the equipment information (pull down the machine setup menu to find the equipment information).

4.Manufacturer need to confirm the version number, upgrade the machine version.

## 8. Introduction of circuit of board

24.0328\_LH

