

# DTE E-MATE PRO

## DTE E-MATE PRO – Operation Manual



This Manual is including introduction, operating, maintenance and information about electrical parts and pressure of the printer

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## 1. Instructions for Use

### 1.1 Safety Warnings

#### **Safety Warnings**

The precautions listed here are designed to ensure the safe and proper use of this product and to prevent harm or damage to you and others in advance. These precautions are categorized into three levels—"Caution," "Warning," and "Danger"—based on the degree and urgency of potential harm or damage. Each level addresses essential safety-related information.



Caution:

Improper operation may result in a risk of personal injury or damage to property.



Warning:

Improper operation may result in severe injury or even death.



Danger:

In an imminent hazardous situation, failure to avoid it may result in severe injury or death.



## Caution

### 1. Suitability of this Product

The suitability of this product should be determined by the system designer or specification creator. Due to the diversity of usage conditions, the system designer or specification creator must evaluate the product's suitability. If necessary, this determination should be made through analysis and testing. The assurance of this system's intended performance and safety is the responsibility of those who evaluate its suitability. Please refer to the latest product catalogs and materials, verify all specifications, and construct the system while considering potential failures.

### 2. Qualified Personnel Only

This product must be operated by individuals with sufficient knowledge and experience. Improper operation of this product may compromise its safety. The assembly, operation, and maintenance of machinery or equipment should only be conducted by qualified and experienced personnel.

### 3. Ensure Safety Before Use or Disassembly

- Confirm that measures to prevent falling objects and uncontrolled movements have been implemented before using or maintaining the machinery/equipment.
- Ensure that all safety measures are in place and that power sources and energy supplies are disconnected to guarantee system safety. Understand and adhere to the product-specific precautions before disassembly.
- When restarting the machinery or equipment, implement precautions to prevent accidental actions or misuse.

### 4. Consult the Manufacturer for Special Conditions

Consult with the manufacturer and take appropriate safety measures when using the product under the following conditions or environments:

- 4-1. Situations or environments not specified in the product's documented specifications, or when used outdoors or in direct sunlight.
- 4-2. Applications involving nuclear energy, railways, aviation, space equipment, ships, vehicles, military use, medical equipment, food and beverage processing equipment, combustion systems, entertainment devices, emergency shutdown circuits, press machine clutches/brake circuits, safety devices, or any usage outside the standard specifications outlined in the manual.
- 4-3. Scenarios that could significantly impact human life and property, particularly in high-safety requirements.

4-4. When used in interlock circuits, mechanical protection features (e.g., dual interlocks) must be implemented to address potential failures. Perform regular inspections to ensure proper functioning.



#### Caution

Our products are designed for use in the manufacturing industry. The products described here are primarily intended for manufacturing applications and for use in peaceful settings.

If the product is to be used outside the scope of manufacturing, please contact our company. Specification revisions and contractual agreements may be required as necessary.

For any inquiries, please consult your nearest sales office.

## Warranty and Disclaimer/Conditions of SuitabLe Use

This product is subject to the foLLowing "Warranty and DiscLaimer" and "Conditions of SuitabLe Use."

PLease ensure that you understand and agree to the foLLowing conditions before using our products.

### 『Warranties and Disclaimers』

1. The warranty period for this product is one year from the start of use. (\*1)
2. During the warranty period, if cLear defects or damage are caused by our company' s responsibiLity, we wiLL provide a repLacement or perform necessary part repLacements.
  - This warranty appLies specificaLLy to our products. Damages caused by non-company products are not covered under this warranty.
3. PLease refer to the individual warranty and discLaimer provisions of other products and use this product onLy after understanding these terms.

*Note: The printheads are not covered under the one-year warranty period.*

### 『Conditions for suitability of use』

When exporting overseas, please be sure to comply with the regulations set by the Ministry of Economy, Trade and Industry (METI), including the Foreign Exchange and Foreign Trade Act, and the necessary procedures.

### ■ Explanation of icons

| Icon                                                                                | Meaning of the icon                                                                                              |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
|  | Prohibited (Absolutely not allowed):                                                                             |
|  | Mandatory actions (Must do). The specific mandatory content is indicated with icons or nearby graphics and text. |

■ Regarding the operator:

1. This manual is intended for individuals who have sufficient knowledge and experience in assembling, operating, and maintaining devices or equipment related to printing. Assembly, operation, maintenance, and repair should be carried out only by such individuals.
2. Please perform assembly, operation, maintenance, and repair after thoroughly reading and understanding the contents of this manual.

■ Please use the product after confirming its specifications.

■ Do not use in an environment with flammable or explosive gases.

This may lead to fire or explosion.

This pressure switch does not have an explosion-proof structure.

■ Do not use in areas with static electricity.

It may cause system malfunctions and failures.

■ When used in an interlock circuit:

- Set up multiple interlock circuits made from other systems (such as mechanical protection features).
  - Check if the equipment operates correctly; malfunction could lead to accidents.
  - ■ When performing maintenance:
  - Disconnect the power supply.
  - Confirm that the gas supply is cut off, and release the compressed air from the piping before performing maintenance.
- Failure to do so could result in injury.

■ Safety Precautions

|  Caution |                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | Do not disassemble, modify (including reassembly of the circuit board and nozzles), or repair by yourself. This could cause injury or malfunction.                                                                                                                                               |
|          | Do not use the product outside of its specified range.<br>Do not use flammable or harmful gases/fluids.<br>Using the product outside its specifications may result in fire, malfunction, or damage to the pressure switch.<br><b>Please use the product after confirming its specifications.</b> |

|                                                                                   |                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Do not use in an environment with flammable or explosive gases. This may lead to fire or explosion.</p> <p>This pressure switch does not have an explosion-proof structure.</p>                                                                                                                      |
|  | <p>Do not use in areas with static electricity.</p> <p>It may cause system malfunctions and failures.</p>                                                                                                                                                                                               |
|  | <p>When used in an interLock circuit: Set up muLtipLe interLock circuits made from other systems (such as mechanicaL protection features). Check if the equipment operates correctLy; maLfunction couLd Lead to accidents</p>                                                                           |
|  | <ul style="list-style-type: none"> <li>•When performing maintenance:</li> <li>•Disconnect the power suppLy.</li> <li>• Confirm that the gas suppLy is cut off, and reLease the compressed air from the piping before performing maintenance.</li> </ul> <p>FaiLure to do so couLd resuLt in injury.</p> |

|  Notice |                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>■ Do not touch terminals or connectors while the power is on. Touching terminals or connectors while the power is on may result in electric shock, equipment malfunction, or damage to the switch.</p>                                                                                                                                                |
|         | <p>■ After maintenance or servicing, perform appropriate functional and leak checks.</p> <p>Stop operation if the equipment fails to function correctly or if abnormalities such as leaks occur.</p> <p>If a leak occurs in a component other than the piping, or if a pressure sensor is damaged, cut off the power supply and stop the fluid flow.</p> |

|  |                                                                                                                                  |
|--|----------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Supply.</p> <p>Do not supply fluid if a leak occurs.</p> <p>Inadvertent operation may make it difficult to ensure safety.</p> |
|--|----------------------------------------------------------------------------------------------------------------------------------|

## 1.2 Usage Instructions

### 1.3

#### ● About Use

- Installation
  - Please follow the specified torque for tightening.  
Exceeding the torque range while tightening may damage the mounting screws, tools, etc. Insufficient torque may cause misalignment of components or loosening of connection screws.
  - When installing the nozzle, be careful not to touch the nozzle surface. Damage to the nozzle surface may reduce print quality.
  - Please install the device horizontally.  
Installing the device without adhering to the horizontal standard may result in poor print quality and nozzle damage.
  - Do not drop, strike, or apply impact.  
This could damage the assembly accuracy of the equipment, resulting in malfunction.
  - When installing or routing pipes, ensure the pipes are securely connected to the fittings.  
Failure to securely connect will cause air pressure loss and ink leakage.
  - Use an air gun to remove any dust or debris from the piping before connecting the pressure switch.  
Otherwise, it may cause malfunctions or misoperation.
- Operating Environment
  - Do not use the device in environments where it is frequently exposed to water.  
This could lead to malfunctions or misoperation, so take protective measures such as installing a protective cover.
  - Do not use in environments with corrosive gases or liquids.  
This may cause damage to the device, nozzle damage, or malfunctions.
  - Do not use in areas with surge sources.  
Devices near equipment that causes electrical surges (e.g., electromagnetic lifts, high-frequency induction furnaces, motors) may cause deterioration or damage to internal components of the device. Ensure appropriate surge protection measures are in place and avoid wire cross-contact.
  - Do not use with loads that cause electrical surges.
  - As the product does not include lightning resistance in its CE certification, take measures on the device side to prevent lightning damage. This product is CE certified, but excessive interference signals may cause changes in settings.

- Install the device in areas free from vibration or impact.  
Otherwise, malfunctions may occur.
- Avoid allowing foreign objects, such as wire shavings, to enter the product.  
This can cause malfunctions, so ensure foreign materials do not enter the device.
- Do not use in environments with temperature cycling fluctuations.  
In environments with temperature cycles beyond normal variations, the device and ink may be adversely affected.
- Do not use in places with direct sunlight.  
If using in direct sunlight, shield the device from sunlight.  
Otherwise, it may cause malfunctions or misoperation.
- Ensure the fluid temperature, environmental temperature, and humidity are within the specified range when using.  
Fluid temperature and environmental temperature should be within 25 – 30°C, with humidity between 60 – 70% RH. Using in very low or high-temperature environments may alter ink characteristics, leading to nozzle malfunction or damage. Low humidity can cause ink to dry and solidify on the nozzle surface, while high humidity can damage the circuit board.
- Do not use in areas with heat sources or heat radiation.  
Otherwise, it may cause malfunction.

## 2. Product Introduction

### 2.1 Product Overview

The E-Mate & E-Mate Pro are independently developed, manufactured, and sold by Guangdong ACES Machinery Co.,Ltd. Achieve the combination of camera positioning and digital printing. The carriage's Z-axis automatically rises and falls with a maximum travel distance of 3cm, providing flexibility to switch printing materials. It supports Liquid + color printing without requiring external spray treatment for liquids, allowing for a one-step printing process, making it ideal for small batch, fast delivery markets.

### 2.2 Equipment Specifications

- Model: E-Mate
- Rated Voltage: AC220V 50/60Hz
- Rated Current: 110A
- Equipment Weight: 150kg
- Equipment Dimensions: 1100 (Length) x 11800 (Width) x 650 (Height) (mm)
- Table Dimensions: 400 x 500 mm

### 2.3 Machine Structure

A. Description of the overall machine structure.

< front view of the machine >



## Component Names

1. CCD Mount
2. CCD
3. TabLetop
4. Emergency Stop Switch
5. Three-CoLor Warning Light

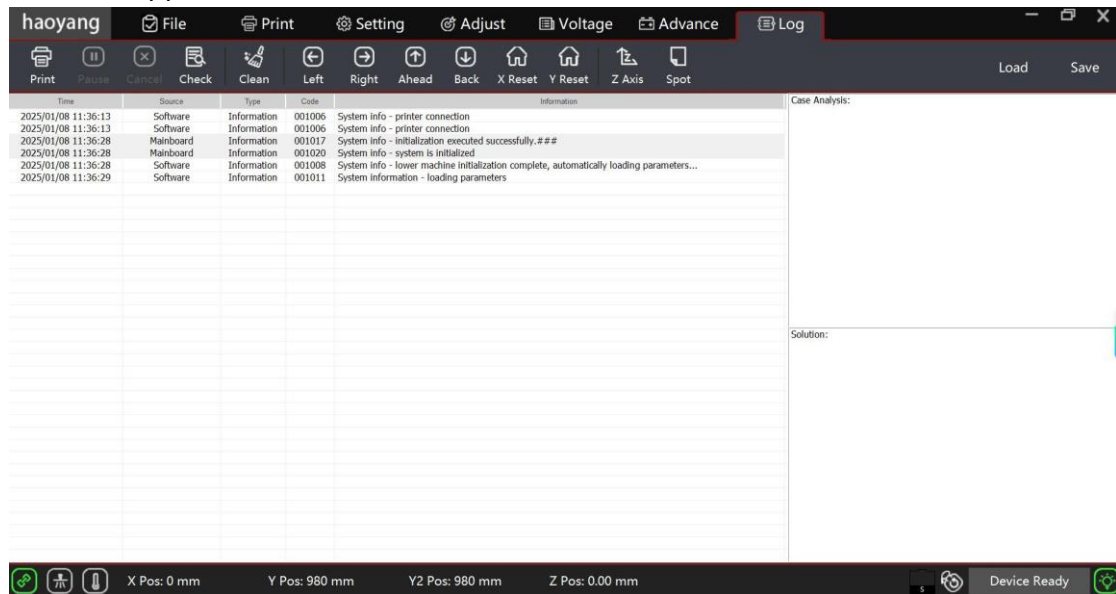
## 3. Control Software Introduction3.

### 3.1 Software Operation

1. Turn on the machine' s main power switch, start the computer, and rotate the emergency stop power button to activate it. Then, run the DTG200 software on the computer.

|                                                                                                                     |                  |
|---------------------------------------------------------------------------------------------------------------------|------------------|
|  ktmchtp.id                      | 2023/5/22 9:37   |
|  KUserPrintJob.dll               | 2024/10/24 11:59 |
|  LogMgr.dll                      | 2024/10/24 12:00 |
|  NozzleClose.dll                 | 2024/10/24 12:00 |
|  PassDataProc.dll                | 2024/9/18 15:00  |
|  PrintExp                        | 2024/11/8 18:53  |
|  PrintExp.exe.20241106140808.dmp | 2024/11/6 14:08  |
|  PrintExp.exe.20241106211630.dmp | 2024/11/6 21:16  |
|  PrintExp.exe.20250702165353.dmp | 2025/7/2 16:53   |

1. When running the software for the first time, please be patient and wait until the system initializes successfully. (If an error occurs, please go back and check). The following screen will appear:



### 3.2 Machine Startup Sequence

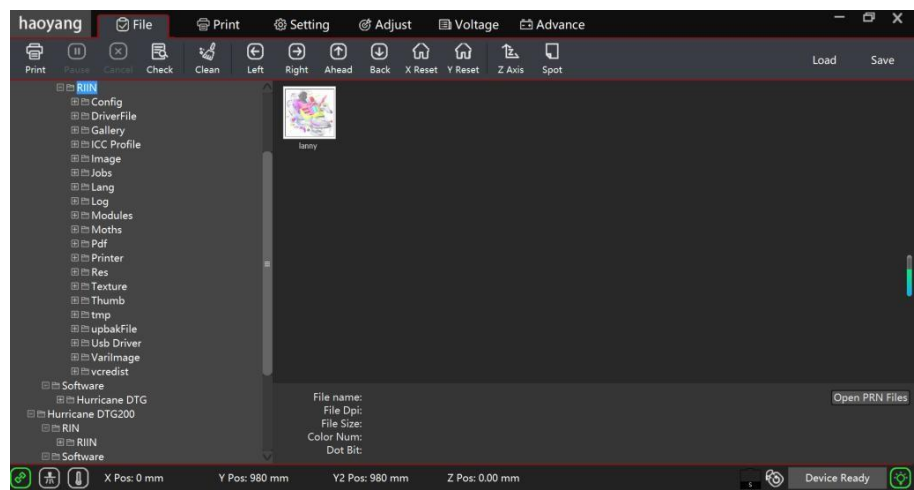
The normal startup sequence is as follows:

1. Enable the S-axis.
2. The ink station descends to the sensing switch.
3. The carriage's Z-axis rises a small distance.
4. The X-carriage moves Left for a short distance and then returns to the sensing switch origin.
5. The Y-table moves back to the platform origin.
6. The X-carriage bounces back to the X-set origin.
7. The carriage's Z-axis descends to the origin position.
8. The humidification disk rises to the humidification position.
9. The Y-table returns to the front starting position.

### 3.3 Print Software Introduction

The PrintExp dedicated direct spray treatment liquid software is a control software designed to work with the printer. It has a user-friendly interface and simple operation, meeting the diverse needs of end users and manufacturers. It is mainly used for printer control, calibration, program upgrades and updates, firmware configuration, and importing/exporting parameters.

File: View RIP files loaded on the computer.



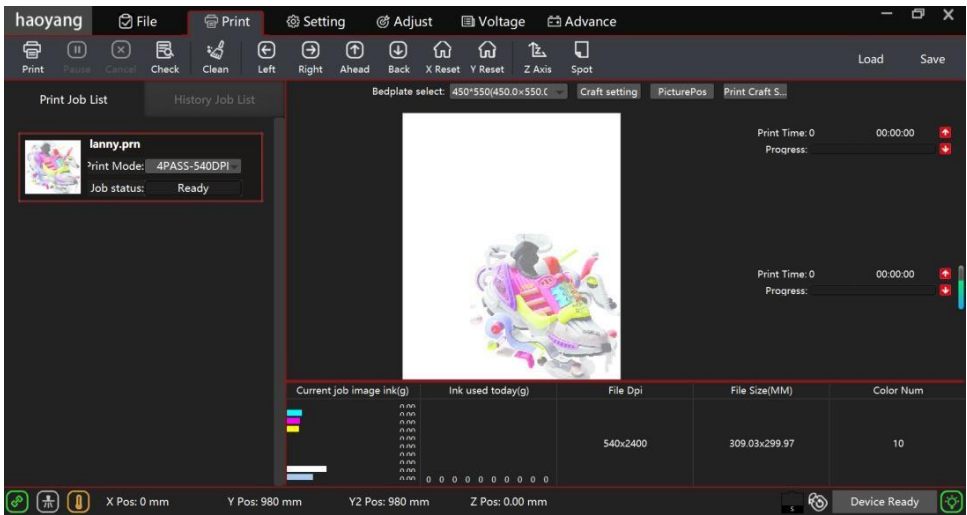
**Printing:**

Control the machine's movement forward, backward, left, right, and reset; select the print file; choose the appropriate tabletop and set the image position.

Print process settings (including color print cycles, channel control, ink consumption, and ink cutoff settings).



By right-clicking the print file, you can also set the print quantity and position information of the image.



NozzLe SeLection: DefauLt is 1W1C (4C)

GeneraL Settings:

1. Print Speed (High, Medium, Low)
2. Print Direction (Bidirectional, Unidirectional Left, Unidirectional Right)
3. Pre-Print Flash Spray (On or Off)
4. Automatic Cleaning

Standby Timed Cleaning: Set the waiting time in the background and choose to enable or disable. This function helps maintain the nozzle in good working condition even if left idle for a while.

White Edge Settings:

X White Edge: xx mm, Y White Edge: xx mm (including calibration consistency check)

Device:

Nozzle Selection: Single head or all heads.

Manual Ink Loading: Allow the ink pump to extract ink; this function is not time-limited, but be mindful of the duration. Typically, extract ink for 15-20 seconds.

Auto Skip White:

Skip white method → Continuous skip white / Step skip white, generally select continuous skip white.

Auto Reset: Yes/No, generally select No.

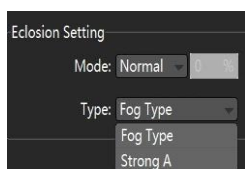
Standby Timed Flash Spray: Enable/Disable and set the time. After being idle for a set period, the carriage will automatically enter the flash spray function. Set the parameters according to the actual situation.

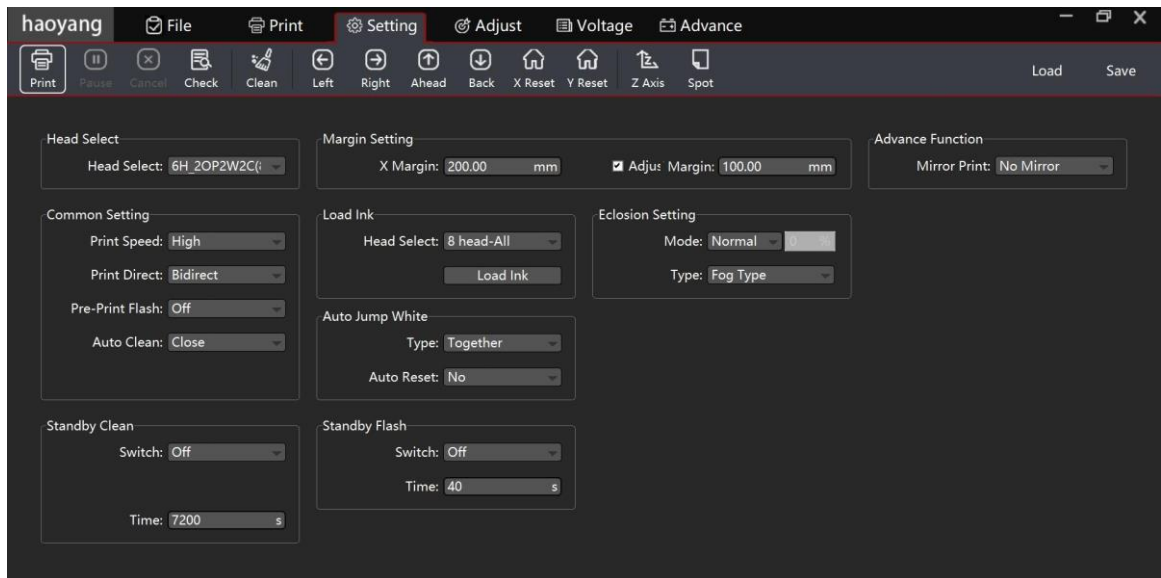
Feathering Settings:

Feathering Mode: No Feathering → Light Feathering → Normal Feathering → Advanced Feathering → Custom. Generally, choose No Feathering or Light Feathering.

Feathering Type: Mist Spray, Mist Spray Enhanced A, Custom. Typically, select Mist Spray; if the nozzle state is poor, choose Mist Spray Enhanced A.

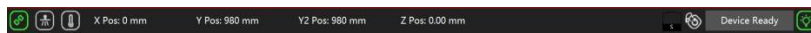
4o mini



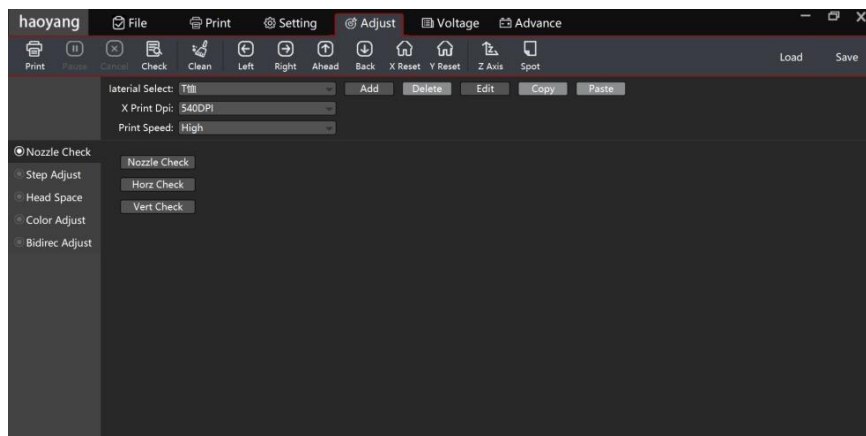


Information Bar:

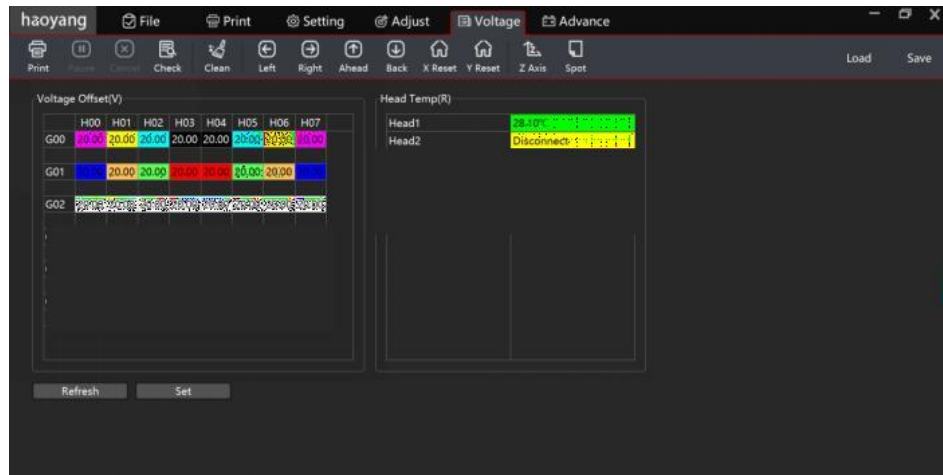
- Displays whether the connection is successful
- Displays whether the nozzle can be read
- Current X position, Y position, Z position
- Background system information and error messages



**Calibration:** Detailed information is provided below.

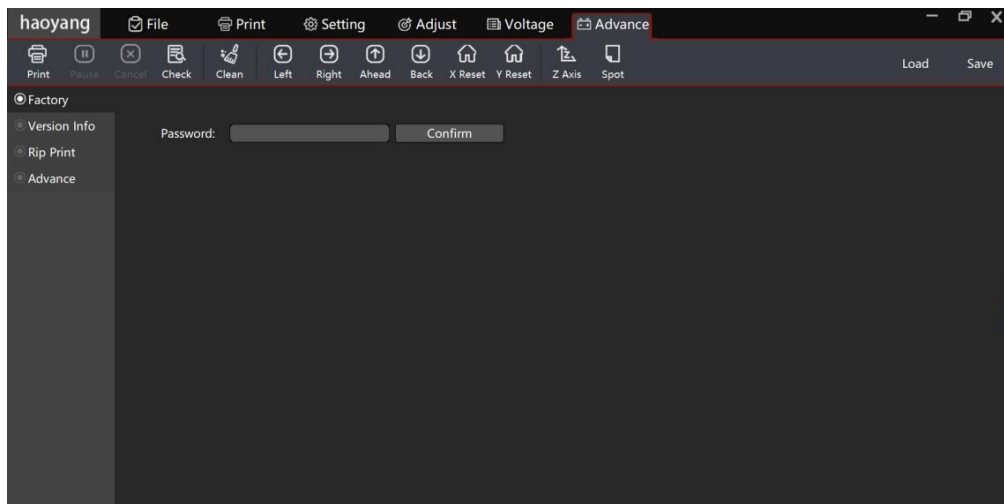


Set the machine's voltage and read the nozzle temperature. These settings generally do not need to be changed.



Advanced:

- Includes manufacturer settings, version information, sharp-edge printing, and advanced settings
- Manufacturer Settings Password: 222222. Settings in this area require assistance from after-sales support; incorrect parameters may cause the machine to become unusable. To avoid unnecessary issues, please contact after-sales technicians for assistance.
- Version Information: Reads the current version information

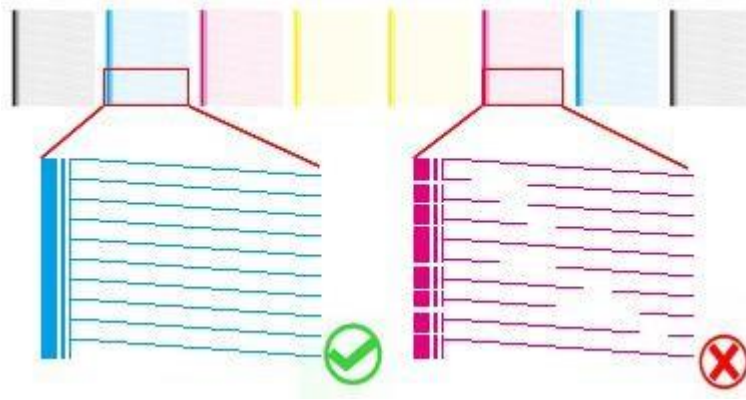


## 4. Calibration Instructions

### 4.1 4.1 Nozzle Inspection

By printing a test chart, you can observe the nozzle status.

For example, the nozzle state of one nozzle is shown



#### 4. 1

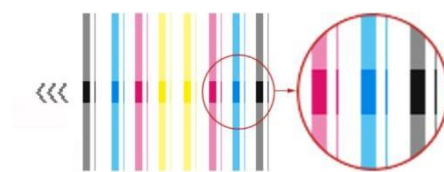
If the nozzle status chart shows the condition on the right side, commonly referred to as "line break," "needle break," "hole break," "clogged hole," etc., it means the nozzle is in poor condition and needs to be cleaned again until the nozzle status prints like the left-side condition.

#### 4. 2 Vertical Detection

By printing the test chart, you can confirm the nozzle's vertical status, observe the nozzle condition, and then adjust the nozzle position.

Below is an example of one nozzle's status:

The calibration chart consists of two parts. The basic elements of both parts are the same, but they are printed in different directions during the actual printing process.



#### 4. 2

4. 1 The image above represents the vertical detection chart for printing leftward.

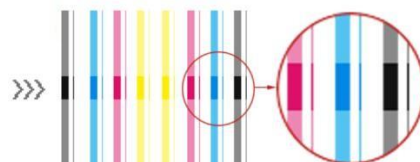
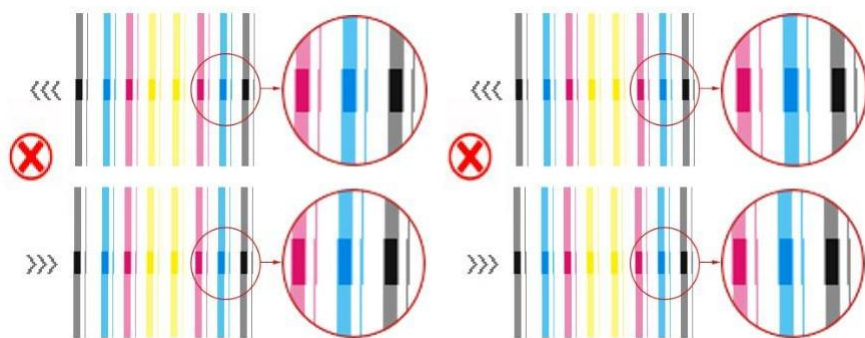


图 4. 3

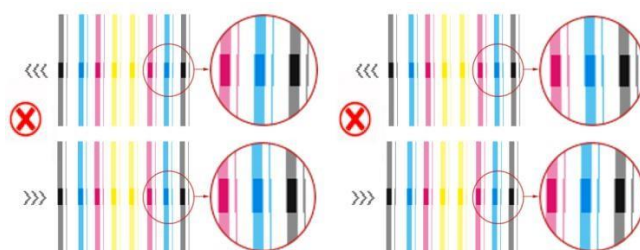
4. 2 The image above represents the vertical detection chart for printing rightward.

Under normal conditions, the vertical detection chart for leftward and rightward printing should be the same, as shown in the two images below.



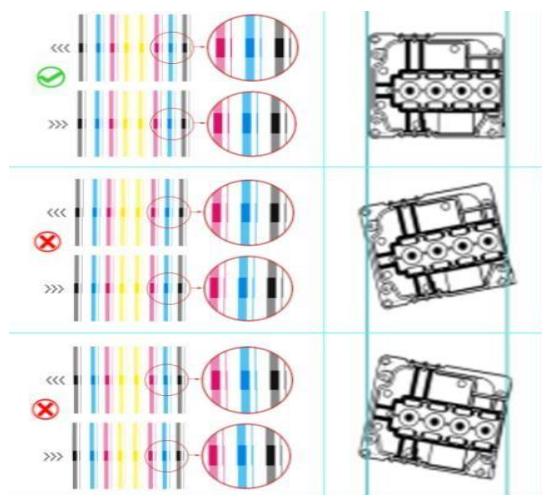
4. 4

If they are different, as shown in the two situations below, you need to first check the front-back tilt of the nozzle. To check the front-back tilt, you need to print a tilt detection chart; as shown in the image below:



4. 5

as shown in the image below: Different detection chart patterns represent different nozzle conditions:

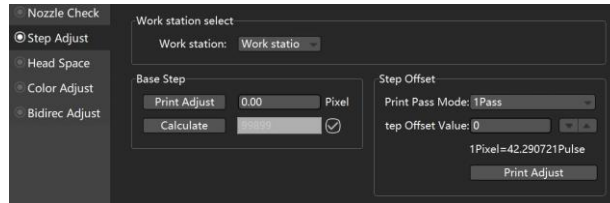


4. 6

## 4.3 Step Calibration

Brief explanation:

The step calibration interface is shown in the image below.



4.7

Click the [Print] button to print the calibration chart. The printed calibration chart is shown in the image below:

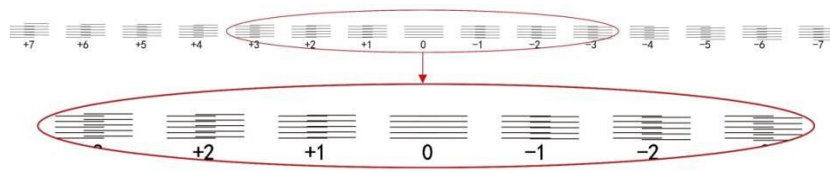


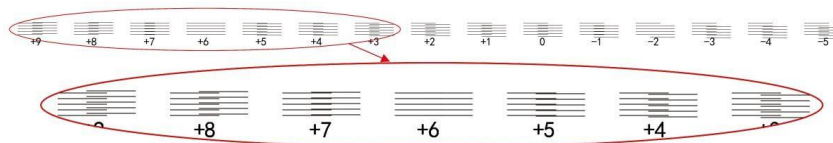
图 4.8

### Calibration Requirements

- 1、the calibration chart's calibration parameter is at position 0, the 5 horizontal lines should not have any vertical misalignment, which is considered normal.
- 2、The calibration parameters from multiple prints should all be at position 0.

### Calibration Steps

If the printed status chart shows misalignment of the lines at position 0, we need to calibrate the stepping. The printed calibration chart is shown below:



4.9

We need to input the calibration parameters to align all 5 horizontal lines in the chart as shown below:

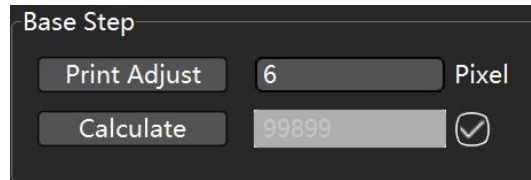


图 4. 10

Input the calibration value '6' into the input box to the right of the [Print] button, then click [Calculate], and the software will automatically update the stepping calibration value.

The input value will be automatically cleared, and the stepping data to the right of [Calculate] will also be updated, as shown in the image below:

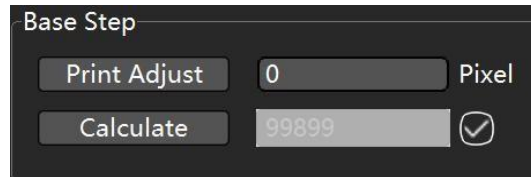


图 4. 11

Then, we click [Print] to check if the stepping calibration chart is normal. If it is not normal, use the calibration value on the chart to [Calculate] and print again, until the calibration chart is normal, as shown in figure 4.7.

Calibration Confirmation:

The stepping calibration chart will be printed multiple times, and we need to ensure that each printed calibration chart aligns at position 0, as shown in the image below.

40 mini

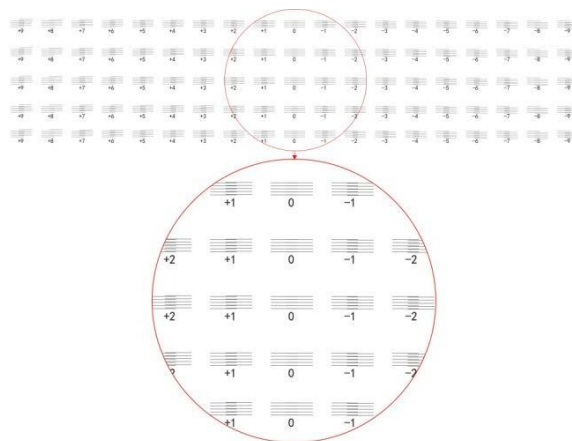


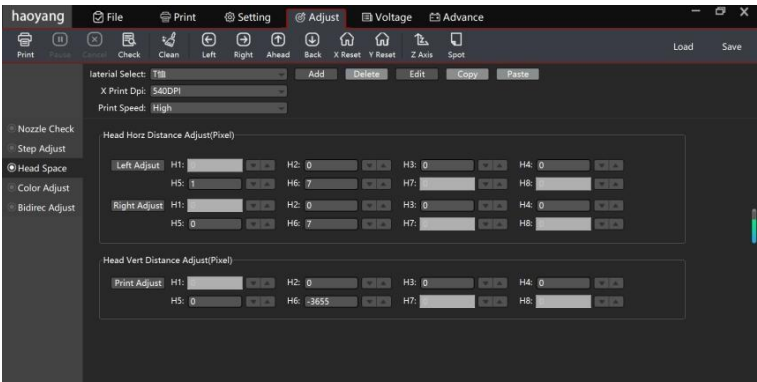
图 4. 12

The error of multiple calibration charts should be within 1 pixel. If the error is too large, the printed image will appear rough.

## 4. 4 Nozzle Lateral Spacing

Brief Explanation:

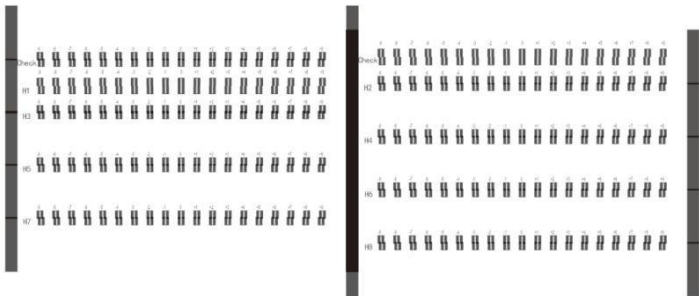
The nozzle lateral spacing calibration interface is shown below:



4. 13

Calibrate the nozzle spacing values for the left and right sides respectively. The calibration chart and operation for left and right printing are the same.

Click the [Print] button to print the calibration chart. The printed calibration chart is shown below:



4. 14

Calibration Requirements:

1、 When the calibration parameter of the calibration chart is at position 0, all small elements should be aligned, which is considered normal, as shown in the image below:

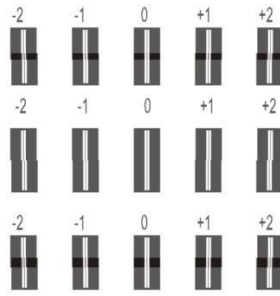
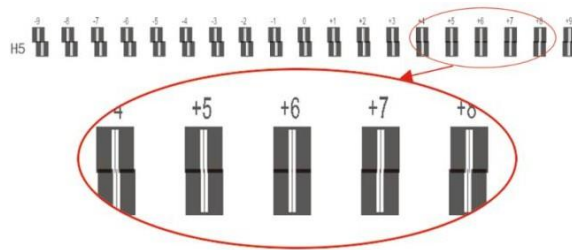


图 4.15

2、The calibration parameters with a Check mark should also be at position 0.

#### Calibration Steps:

If the printed status chart shows misalignment of the lines at position 0, we need to calibrate the lateral spacing. Taking H5 as an example, the printed calibration chart is shown below:



4.16

: We need to input the calibration parameter for the aligned position in the software, as shown below. Originally, H5 was 0, then add 6 and input it:

Head Horz Distance Adjust(Pixel)

|              | H1: | H2: | H3: | H4: |
|--------------|-----|-----|-----|-----|
| Left Adjust  | 0   | 0   | 0   | 0   |
| H5:          | 1   | 7   | 0   | 0   |
| Right Adjust | 0   | 0   | 0   | 0   |
| H5:          | 0   | 7   | 0   | 0   |

4.17

Then, we click [Print] to check if the lateral spacing calibration chart is normal. If it is not normal, modify the software parameters according to the calibration values on the chart until the calibration chart is normal, as shown in figure 5.30:

## 4. 5 Head Vertical Spacing

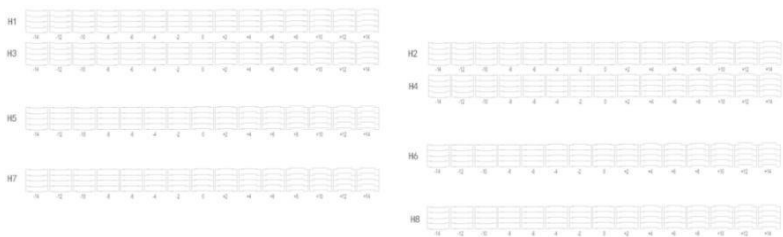
Brief Description:

The head vertical spacing calibration interface is shown below:



4. 18

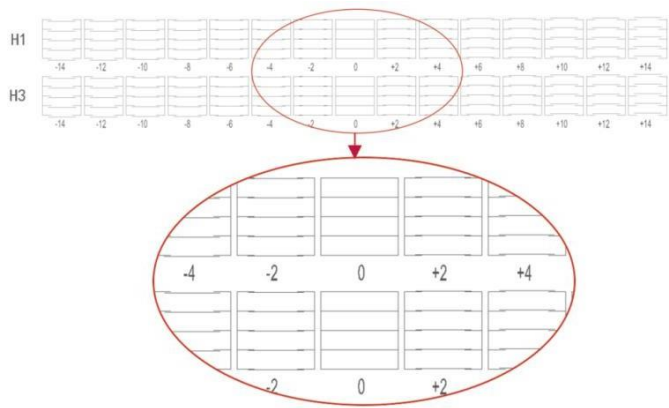
Click the [Print] button to print the calibration chart, as shown below:



4. 19

Calibration Requirements:

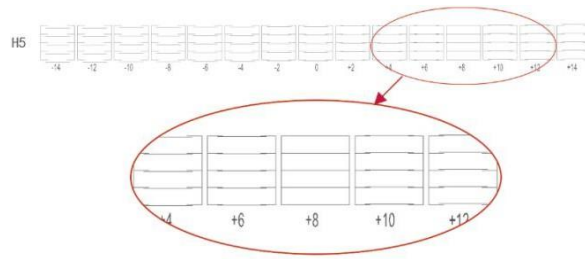
- 1、 When the calibration parameters of the calibration chart are set to 0, all small elements should be aligned, as shown in the image below:



4. 20

Calibration Steps:

If the printed status chart shows misalignment of the lines at position 0, we need to calibrate the vertical spacing. Taking H5 as an example, the printed calibration chart is shown below:



4. 21

We need to input the calibration parameter for the aligned position in the software, as shown in the image below:

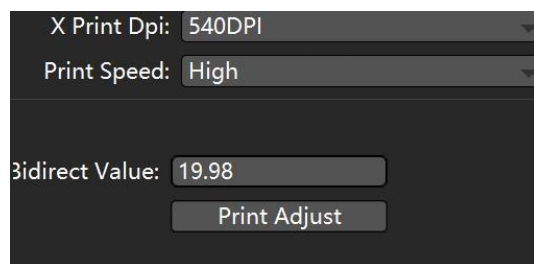


Then, click [Print] to check if the vertical spacing calibration chart is normal. If it is not normal, modify the software parameters based on the calibration values from the chart until the calibration chart is normal, as shown in figure 4.19:

#### 4. 6 Bidirectional Calibration

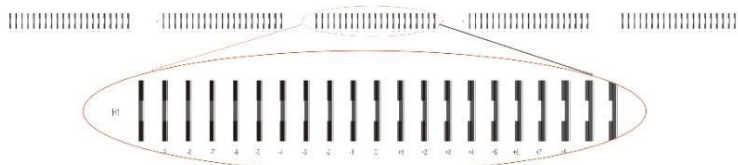
##### Bidirectional Calibration

The bidirectional calibration interface is shown below:



4. 23

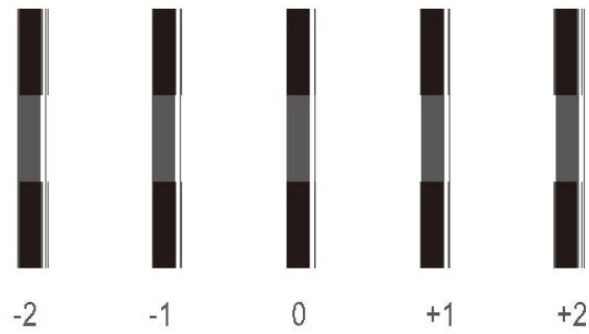
Click the [Print] button to print the calibration chart, as shown below:



4. 24

##### Calibration Requirements

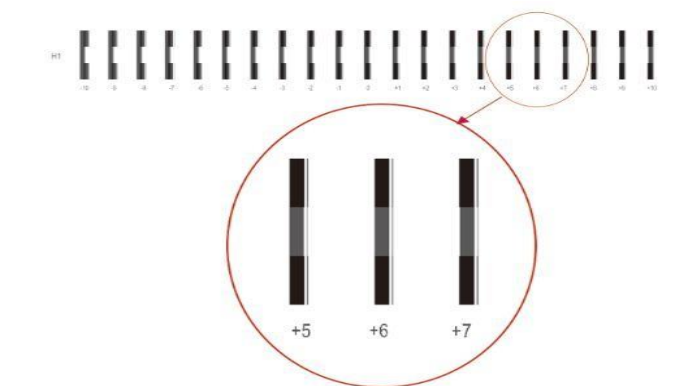
1、 When the calibration parameters of the calibration chart are set to 0, all small elements should be aligned, as shown in the image below.



4. 25

#### Calibration Steps:

If the printed status chart shows misalignment of the lines at position 0, we need to calibrate the horizontal spacing. The printed calibration chart is shown below:



4. 26

We need to input the calibration parameter for the aligned position in the software, as shown in the image below:



4. 27

Then, click [Print] to check if the bidirectional calibration chart is normal. If it is not normal, modify the software parameters based on the calibration values from the chart until the calibration chart is normal, as shown in figure 4.24.

Finally, after completing the bidirectional calibration, check if there are color blocks between the heads. If there are differences in color depth, adjust the voltage value of the corresponding head.

40 mini

## 5. RIP Software Image Processing Process

### 5.1 Install Software

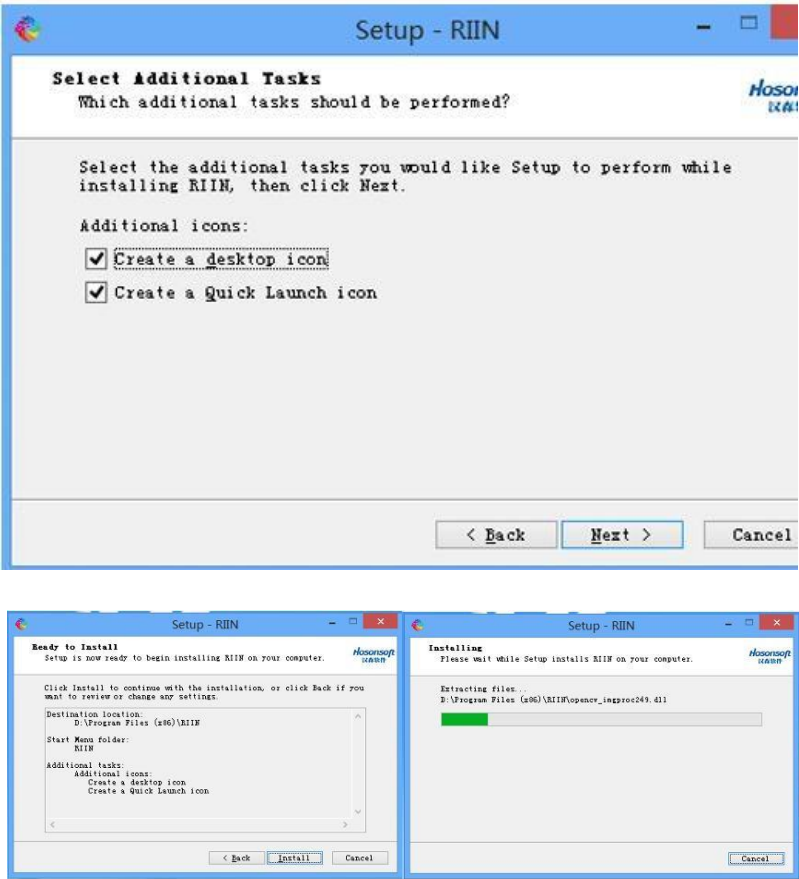
Unzip the software package and run the .exe file. After selecting the language (Chinese or English), click "OK" to enter the installation wizard and click "Next."



Select the license agreement and click "Next." Then choose the desired installation location and click "Next." Note: It is recommended not to install on the C drive to avoid potential file permission conflicts.

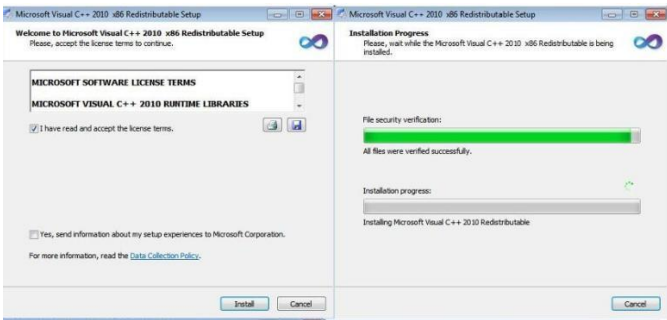


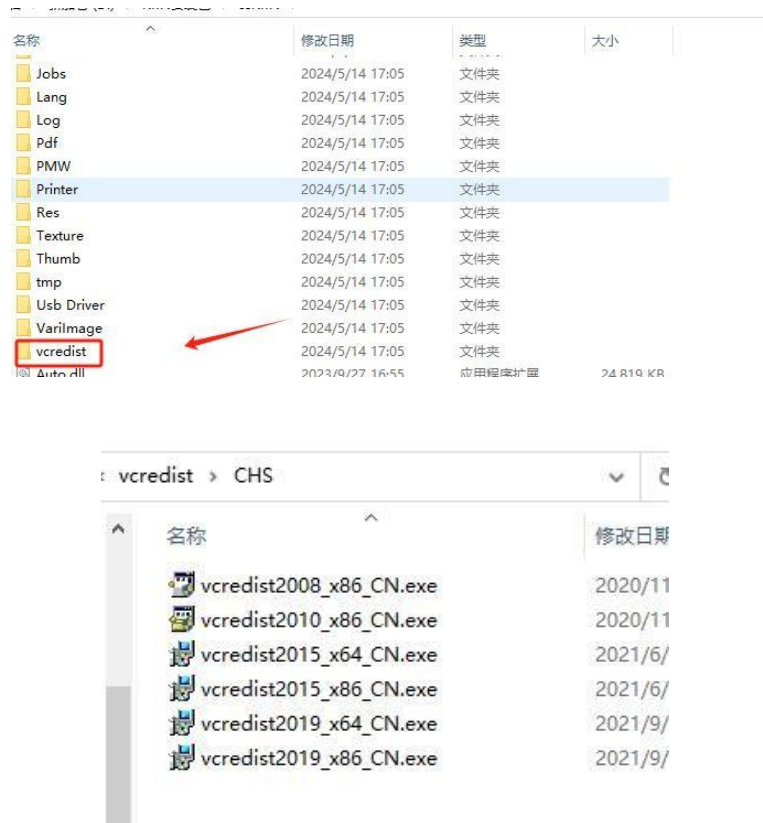
Choose whether to add a desktop shortcut or other additional tasks. After selecting, click "Next" to proceed with the software installation.



After the software installation is completed, the Microsoft runtime environment will be installed. If the environment is already installed, click "Repair" to proceed.

Note: If installation fails, you can also manually install the environment. The runtime environment is located in the credits folder within the RIP directory. Double-click the installer to install it.





Once the environment installation is completed, the "RIIN Installation Complete" message will appear.



## 5. 2 Open RIN Software and Import Print Images

Menu:

|   |                        |                              |                                 |
|---|------------------------|------------------------------|---------------------------------|
| 1 | Create New Workstation | Create a new RIP workstation | Based on actual usage settings  |
| 2 | Save                   | Save workstation parameters  | based on actual usage settings. |
| 3 | Print                  | Cannot be selected.          | —                               |

|    |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                      |
|----|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 4  | Import  | Import image.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Only TIFF for spot color creation is supported.                                      |
| 5  | Undo    | Undo the previous step.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                      |
| 6  | Redo    | Redo the next step.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                      |
| 7  | Copy    | Copy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                      |
| 8  | Paste   | Paste                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |
| 9  | Cancel  | Cancel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                      |
| 10 | Layout  | Show and close layout.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |
| 11 | Display | Display software settings parameters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |
| 12 | Tool    | <p>Clear Cache: Clear cache to free up machine's running memory</p> <p>Error Compensation: Not commonly used.</p> <p>Border Settings: Set the border, generally not used.</p> <p>Color Matching Feature: Achieve single-point color matching by inputting target color block values, selecting the corresponding step range, and finding the closest ideal value through print samples. After adding the corresponding CMYK values, the purpose of color matching for a single color is achieved.</p> <p>Vector Settings: Generally not used.</p> <p>Hot Folder: No need to import RIP; simply place the image in the folder for simple layout processing. It will automatically RIP the file into a designated folder, reducing repeated RIP operations and improving work efficiency.</p> |  |

RIIN:

Create New Canvas: Create New Canvas:

Open Canvas: Open an image from the computer.

Save: Save the current canvas parameters

Save as: Save the canvas parameters to another location.

Canvas Settings: Set the canvas size.

Element Management: View the number of RIP images.

Color Management: Create ICC profiles, which requires professional personnel to operate.

Printer Management: Set up and manage the printer, usually requires setup the first time.



Toolbar: Move to file, zoom in, zoom out functions

Layout Bar: Control the size, position, and direction of the image.

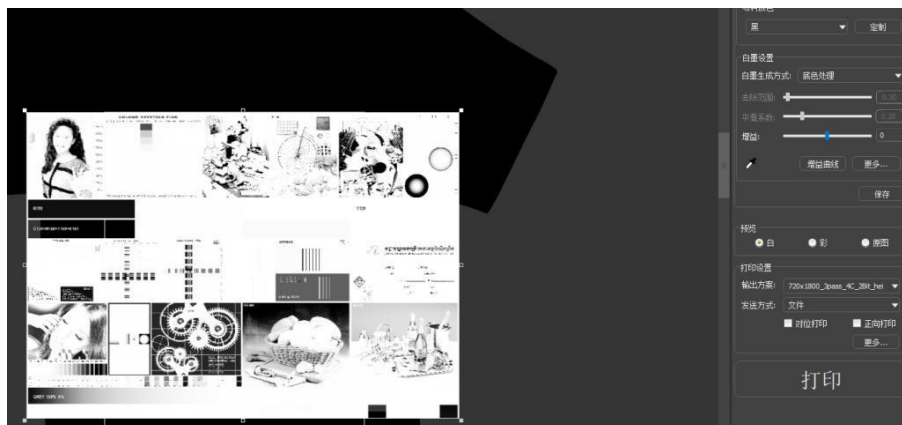
Information Bar: Displays the default print status, total number of images, XY current position, etc.

Canva: The current position of the image after import.

Version Differences: The factory usually ships with a unified version.

Parameter Settings Bar:

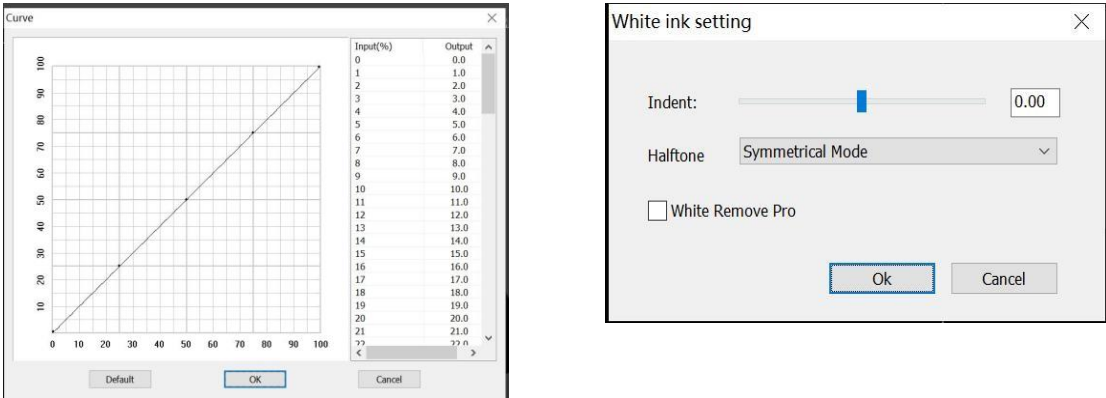
Background color processing: Perform white ink treatment based on different fabric colors to achieve better white ink control, saving ink while improving the detail of white ink processing for better color effects. The eyedropper tool can also be used to process other colors simultaneously by setting the selection range for background color treatment.



Fabric Customization: Fabric base color can be freely set using RGB values, binding the corresponding curves. This allows for faster and more accurate printing of the desired effect when selecting background color processing.



Gain Curve: The gain curve can be adjusted to control the white ink output effect. It also allows for dot selection and indentation options for white ink, enabling free control to achieve the desired gradient effect.



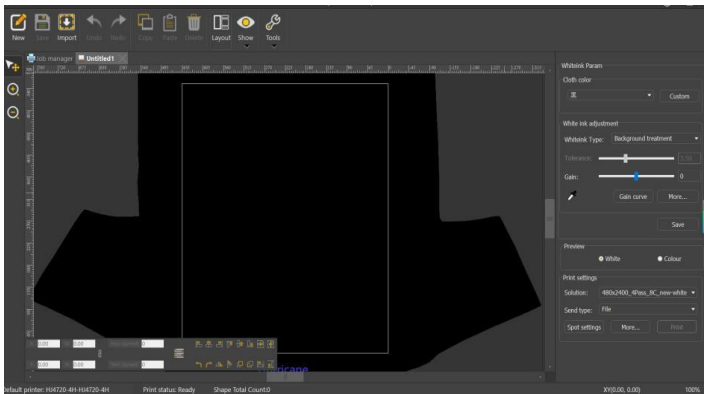
## 6. Printing Process and Daily Maintenance

### 6. 1 Fabric Pre-treatment:

Pre-treat the fabric according to its characteristics. The treatment process can be consulted with the salesperson.

### 6. 2 Print Preparation:

Once the RIIN parameters are set, import the image and export the corresponding PRN file.



Set the corresponding driver parameters based on the printing requirements, such as print speed, resolution, single-color/white-color. Locate the file to be printed, double-click to select print.

---

### 6. 3 Printing Materials:

Place the printing material at the position on the workstation, import the image, and click the print button to enter the printing status.

Proceed to the next step after printing is completed.

### 6. 4 Standby Moisturizing and Printhead Cleaning Settings.

**Ink loading:** Based on the printhead condition, the cleaning process usually involves clicking the device interface, which will trigger the ink suction pump. The ink will be drawn into the waste ink bottle. (Typically lasts around 12 seconds in manual operation)

**Cleaning:** Clicking clean will execute the cleaning action.

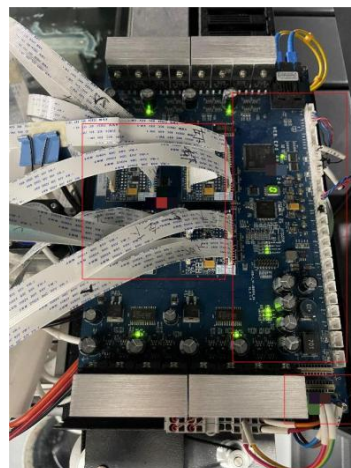
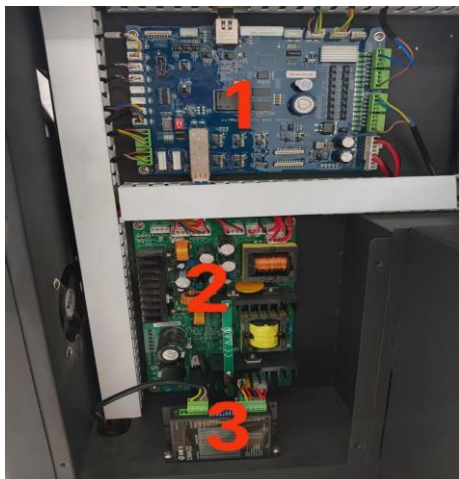
**Standby Timed Cleaning :** Standby timed cleaning: Turn on/off to set automatic maintenance during standby. This should be configured based on actual usage.

**Standby Timed Flash Spray**

**Standby timed flash spraying:** Turn on/off to set automatic flash spraying after a certain wait time.

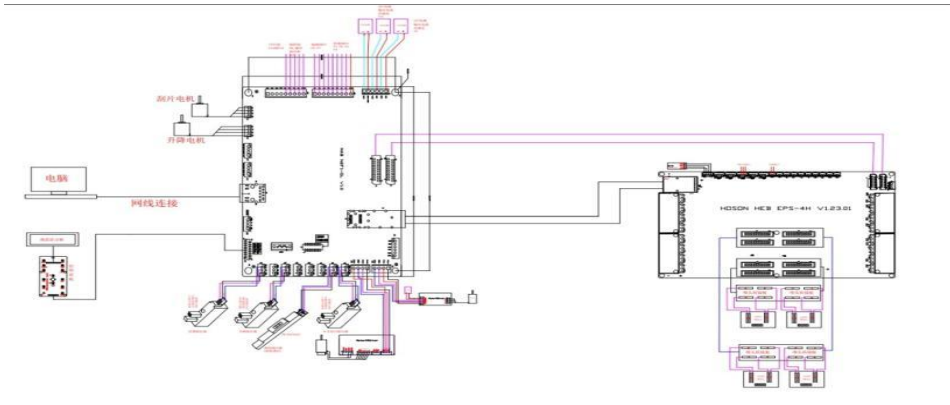
## 7 Electrical, Air, and Ink Systems

### 7. 1 Distribution Panel



- ① Mainboard: Core control, function coordination, status monitoring, safety assurance, and communication interface.
- ② Board power supply: 24V/36V/42V DC
- ③ Z-axis servo

Board Port Definitions



## 7. 2 Ink Supply System

The ink system consists of K, C, M, Y, OP2, totaling 4 colors plus 1 treatment liquids, supplying ink to printheads H1 and H2.



## 8 Maintenance and Upkeep

### 8.1 Maintenance of the Printing Component System

- A. Printhead Maintenance: Select the "Clean Maintenance" button in the software to automatically clean and scrape the printhead.
- B. Wipe the Printhead with a Lint-Free Cloth: In the software, switch to the manual interface to raise and lower the wiping blade, then move the carriage to the frontmost position. Use a lint-free cloth dipped in cleaning solution to gently wipe the printhead.
- C. Printhead Replacement:

1. Turn off the machine's power supply.
2. Put on clean latex gloves.
3. Disconnect the printhead data cable and seal the data port with masking tape.
4. Loosen the printhead mounting screws and adjustment spring screws.
5. Connect the ink inlet to the printhead, and clean the surrounding area of the printhead and the base plate holes for residual ink or stains.
6. Secure the old printhead by covering the nozzle with a lint-free cloth dipped in cleaning solution, then wrap the printhead in plastic wrap.
7. Install the new printhead.
8. Replace the mounting screws of the printhead.
9. Connect the ink inlet to the printhead.
10. Connect the printhead data cable, ensuring the correct orientation of the connector.
11. When connecting the data cable, ensure the printhead corresponds to the correct headboard channel.
12. Clean the printhead to ensure every nozzle functions properly.
13. Turn on the machine's power supply.
14. Press the "Printhead Maintenance" button on the touchscreen to initiate the printhead cleaning process.
15. Check color alignment accuracy. If necessary, redo physical and software color alignment.

E. Maintenance of the Ink Supply System and Negative Pressure System:

1. Inspect the entire ink pipeline, especially the joints, to ensure there are no signs of aging or damage.
2. Check for signs of ink backflow in the main negative pressure pipe. If backflow occurs, disconnect the machine's main power supply and prepare a syringe and clean water.

## 8. 2 Maintenance of Machine Moving Components

### A. Guide Rails and Sliders Maintenance

**Recommended grease for maintenance: THK-AFC**

1. **Clean and lubricate the guide rail beam at least once every three months.**

Apply sufficient low-fat lubricant to the connection points of moving components.

Evenly apply a small amount of machine oil to the surface of the guide rails.



Apply a small amount of machine oil to the guide rail surface, ensuring it is spread evenly.

Evenly apply a small amount of machine oil to the surface of the guide rails

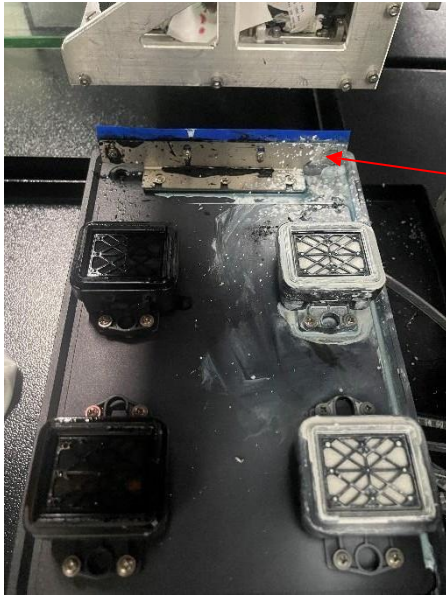


Use an oil gun to apply lubricant to these components.

2. Clean and lubricate the carriage sliders, bearings, and other transmission components at least once every three months.

#### B. Maintenance of Moisture Retention and Ink Scraping Components:

1. Keep the scraper blade clean. It is recommended to clean it daily after work using a lint-free cloth dipped in cleaning solution. The scraper blade is a consumable item and should be replaced every six months.

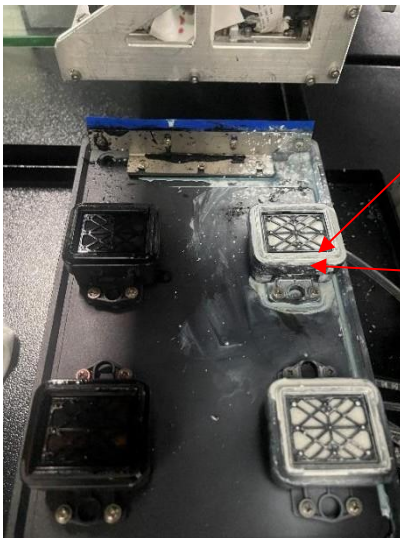


The upper part of the scraper, especially in the grooves, needs to be kept clean.

Keep the upper end of the blade, especially the grooves, clean.

- The printhead automatically seals in an off-state to prevent ink solidification on its surface due to drying. Regularly replace the ink absorption pad to maintain cleanliness.

The ink absorption pad typically needs to be replaced every 3 to 6 months.



Replace the ink absorption pad regularly, typically every 3 to 6 months.

**All cleaning, maintenance, and replacement of device parts must be carried out while the equipment is powered off.**

No electronic or electrical-related cleaning, maintenance, repairs, or component replacements should be performed when the machine is powered on. Only trained and certified personnel are allowed to carry out such tasks.

### **A. Cleaning of Device Housing:**

- **Frequency:** Clean the device housing, including the glass doors, daily before powering on the machine.
- **Method:** Use a soft cloth. Alcohol or foam cleaning agents can be used, if necessary, but avoid using corrosive substances like ink cleaning solutions.

### **B. Electrical Components:**

- **Frequency:** Clean all electrical components monthly using a lint-free cloth lightly dampened with alcohol.
- **Purpose:** Ensure there is no excessive dust or dirt on component surfaces.

### **C. Computer Maintenance:**

1. Perform a comprehensive antivirus scan weekly, ensuring the antivirus software is up-to-date.
2. Any files downloaded or transferred to the computer must be scanned for viruses beforehand.
3. Clean unnecessary software from the computer biweekly. Only essential software such as drivers, RIP software, and required printing files should remain installed. Avoid installing additional software.
4. Disconnect the computer from the internet unless necessary, and avoid using external tools like USB drives unnecessarily. Excess software or activities may interfere with driver and RIP software performance.
5. Do not run other software while operating the machine.

### **D. Ink Tank Cleaning:**

- **Frequency:** Fully clean the ink tanks every two months.
- **Procedure:**
  1. Turn off the equipment's power.
  2. Unscrew the ink tank lid and remove the ink tubing (secure the tubing with clamps first).
  3. Remove the tank and rinse it thoroughly with purified water until no ink residue remains.
  4. Perform a final rinse with cleaning solution.

## E. Printhead Moisturization and Maintenance:

- **For downtime of 4 days or less:**
  1. Clean the moisturizing tray thoroughly.
  2. Fill the tray with a 1:1 mixture of cleaning solution and purified water.
  3. Perform the moisturizing process to protect the printhead.
- **For downtime of 5 to 30 days:**
  1. Disconnect the quick connectors from the printhead's ink inlet and outlet.
  2. Clean and dry the moisturizing tray.
  3. Fill the tray with a 1:1 mixture of cleaning solution and purified water.
  4. Perform the moisturizing process.
- **For downtime exceeding 30 days:**
  1. Flush the printhead with cleaning solution.
  2. Remove and seal the printhead for storage.
  3. Fill the printhead with protection fluid.
  4. Seal the ink inlets tightly, cover the printhead surface with plastic wrap, and store it in an anti-static bag.

**Note:** During all moisturizing steps, ensure the capping station is dry and free from any moisture, including tap water, distilled water, or purified water, before adding cleaning solution.

## 9 Troubleshooting Common Issues

| No | Issue                                       | Analysis and Solutions                                                                                                                                                                                                                                                                                                                                                  |
|----|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Error: Printed image exceeds width limit    | Check if the image size, format, and print position are set correctly. Restart the machine if necessary.                                                                                                                                                                                                                                                                |
| 2  | Ink drips onto the platform during printing | <ol style="list-style-type: none"><li>1. Long-term humidification may leave residual ink on the printhead base or surface. Manually move the machine to a suitable position and clean the base with a lint-free cloth before resuming work.</li><li>2. If ink drips continuously, check for leaks in the ink system and contact after-sales service promptly.</li></ol> |
| 3  | Poor image edges after printing             | <ol style="list-style-type: none"><li>1. Check the printhead condition or try a different print mode.</li><li>2. Verify if excessive ink causes overflow or if the Z-axis of the carriage is too high.</li></ol>                                                                                                                                                        |
| 4  | Slow printing speed or no printing          | Ensure the USB cable is securely connected, remove unnecessary desktop files, and check the USB port or cable for issues.                                                                                                                                                                                                                                               |

|    |                                                          |                                                                                                                                                                                                                                                                                                    |
|----|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5  | Unclear bi-directional printing                          | Measure the distance between the carriage base and fabric surface to ensure it is 3.5mm. Adjust the bi-directional settings for the corresponding speed and resolution.                                                                                                                            |
| 6  | Machine cannot move                                      | Open the control box to check if the driver shows an alarm. Search online for alarm codes or contact after-sales personnel for assistance.                                                                                                                                                         |
| 7  | Jagged lines appear when printing straight-line patterns | For the X-direction, check if "Color Calibration" alignment is incorrect or if the image resolution is too low.                                                                                                                                                                                    |
| 8  | Ink supply interruptions after printing a few sheets     | Replace the filter and check the environmental temperature and humidity.                                                                                                                                                                                                                           |
| 9  | Printed position is inaccurate or off-center             | Check if the image has a transparent background and adjust the XY origin in the settings.                                                                                                                                                                                                          |
| 10 | Color ink smudges on white ink during printing           | <p>1 Verify if the white ink volume is too high and reduce it.</p> <p>2 Low ambient temperature or high humidity may slow the drying of white ink. Increase temperature and reduce humidity.</p> <p>3 Reduce printing speed, use low-speed, single-direction printing, or Increase feathering.</p> |
| 11 | Stringing occurs during printing                         | Poor printhead condition; increase the pass count or deepen feathering during printing.                                                                                                                                                                                                            |