ricoma®
THINK BEYOND

Operation Manual

DTG-2512D

Ver. Vision2 DTG-2512D_1.0

Thank you very much for purchasing our DTG printer series products.

• To ensure correct and safe use of this product based on a full understanding of its performance, please read this manual thoroughly and keep it for future reference.

• Unauthorized reproduction, either in whole or in part, of this manual is strictly prohibited. The company will pursue legal action against any such infringement.

• The contents of this manual and the specifications of this product are subject to change without prior notice.

• We have made every effort to ensure the accuracy of this operation manual and to test the product. If you find any printing errors or mistakes, please inform us. Your feedback would be greatly appreciated.

2025.10.27

Version Vision2 DTG-2512D_1.0

Contents

Chapter 1 Printer Safety Instructions

Please read the following instructions before using your DTG printer series product, and observe all warnings and instructions marked on the printer.

1.1 Important Safety Instructions

• Do not block any openings on the printer's enclosure.

• Do not insert any objects into the slots of the printer; take care to avoid spilling liquids into the printer.

• Only use the power type specified on the printer's label. Depending on the country or region, either 110V or 220V AC power may be required.

• Connect all equipment to a properly grounded outlet. Avoid using outlets on the same circuit as devices that regularly switch on and off, such as copiers or air conditioning systems.

• Avoid using outlets controlled by wall switches or automatic timers.

• Keep your computer system away from potential sources of electromagnetic interference, such as speakers or cordless telephone bases.

• Do not use damaged or worn power cords.

• If using an additional power cord, ensure the total amperage of all devices connected to it does not exceed the cord's rated amperage. Also, ensure the total amperage of all devices plugged into the wall outlet does not exceed the outlet's rated amperage.

• Do not attempt to repair the printer yourself.

• Disconnect the power and contact qualified service personnel if any of the following occur:

a. If the power cord or plug is damaged;

b.If liquid is spilled into the printer;

c.If the printer is dropped or the enclosure is damaged;

d.If the printer does not operate normally or shows a significant change in performance.

1.2 Precautions When Using the Printer

• Do not move the printhead by hand, as this may damage the printer.

• Always use the power switch to turn off the printer. When the switch is pressed, the power will be cut off. Do not unplug the printer's power cord or data cable until the power has been fully disconnected.

• Before moving the printer, ensure the printhead is in its home position and secure it.

1.3 Precautions for Ink Cartridge Usage

• Keep ink cartridges out of the reach of children. Prevent children from drinking or coming into contact with the ink.

• If ink contacts the skin, wash thoroughly with soap and water. If ink gets into the eyes, rinse immediately with clean water.

• Do not shake the ink cartridge, as this may cause ink leakage.

• After a period of use (generally three months), remove the ink cartridge immediately for thorough cleaning and drying. When replacing with a new cartridge, ensure cleanliness to maintain print quality.

1.4 Printer Installation Requirements

- Site preparation

  The customer is responsible for complying with all installation requirements and maintaining them during the machine's operation. Failure to do so may result in improper machine function.

- Work Area

  The work area refers to the space immediately adjacent to the DTG machine (hereinafter referred to as "the equipment"), as illustrated. It must be emphasized that the user must ensure the safety of personnel operating within this area. Dimensions: Length × Width × Height = 970mm × 1330mm × 575mm.

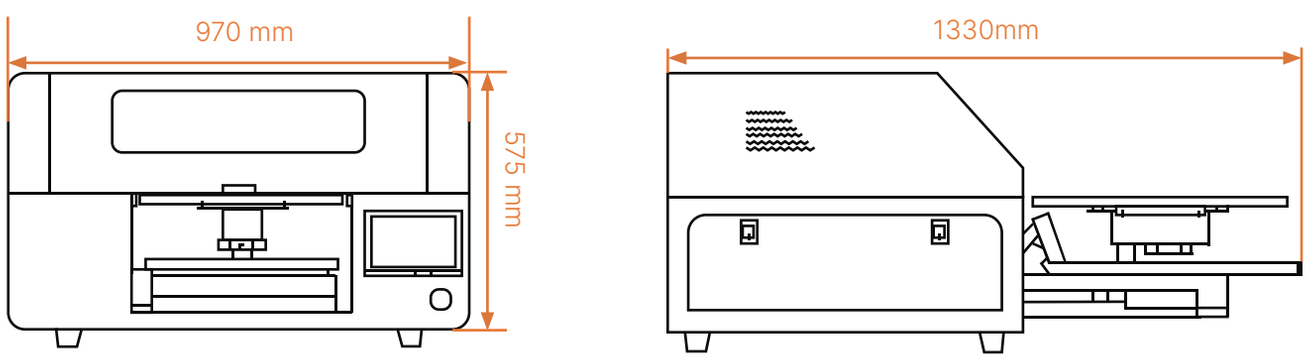


Figure 1: Schematic diagram of the workspace surrounding the DTG machine (units: mm)

- Environmental Requirements

  The equipment should be kept away from seaming machines (fabric splicing machines) or other radio frequency sources. The floor should be easy to clean and should not generate dust or static electricity. To assist operators and customers in accurately judging color, neutral gray finishes and pure white light (fluorescent lighting) are recommended for illumination. The equipment should be installed in a clean, dust-free environment with temperature and relative humidity controlled within the following ranges:

  1. Altitude: Below 1000 meters 2. Operating Temperature: 15–30°C 3.Relative Humidity: 35%–70%

- Space Clearance Requirements

  The equipment requires 2.0 meters of clearance in front, 1.0 meter at the back, and 1.0 meter on each side. Additionally, the clearance area includes a height of 3 meters above the floor. Furthermore, space should be left in front of and behind the machine to allow for loading and unloading consumables and finished prints.

- Safety Requirements

  1. Fire Prevention

Inks and solvents must be stored in dedicated flammable-liquid storage cabinets or in separate storage rooms, clearly labeled to comply with professional safety regulations.

Ink storage must strictly adhere to local fire codes governing the use and storage of flammable materials. Carbon dioxide (CO_2) and dry chemical fire extinguishers must be placed in clearly visible and easily accessible locations along all access routes. They should be positioned near the equipment and flammable-liquid storage cabinets (or rooms), or as otherwise required by local fire regulations.

2. Ventilation

Adequate ventilation is essential to prevent hazardous accumulation of volatile vapors. The air in the work area must be replaced approximately 6 to 8 times per hour. Ventilation inlets should be positioned low enough to prevent vapors from accumulating near the floor.

An exhaust system is required to remove solvent vapors released during fabric drying, as solvents in the ink evaporate when passing through the dryer.

Note: Solvent vapors are heavier than air and tend to accumulate near the floor.

Electrical equipment installed near the work area must comply with GB/T standards and relevant national electrical codes for Class I, Division 2 hazardous locations, and must be installed by a qualified, licensed electrical contractor.

Disposal of hazardous waste generated during printer operation must conform to specific storage and handling requirements mandated by relevant authorities.

3. Electrical Requirements (It is strongly recommended to equip the system with a UPS and a voltage stabilizer.)

The DTG printer uses single-phase power and must be properly grounded.(Voltage between ground wire and neutral wire must not exceed 0.3 V. Grounding resistance must be less than 3 Ω.)

Power supply specifications: Voltage: 220 V AC (±10%)

Frequency: 50 Hz or 60 Hz

Users must have a qualified electrician or licensed contractor install the power outlet. Circuit breaker ratings are as follows:

Power Supply / Voltage	220 V AC	110 V AC
Single-phase	10 A / phase	20 A / phase

Maximum power consumption: less than 2 kW;

Average power consumption: approximately 1 kW

Recommended UPS capacity: 2 kVA (used for all components except heaters)

The main power outlet must be located no more than 2 meters from the equipment’s power input terminal.

DTG Printer Power Rating: Approximately 450 W.

It is recommended to use a voltage stabilizer.

Ground Wire Installation:Connect the ground wire to the common grounding metal plate inside the equipment. Then, set a multimeter to the 200 V AC range, place one probe on the ground wire and the other on the neutral line of the AC input. A reading below 1 V is acceptable.

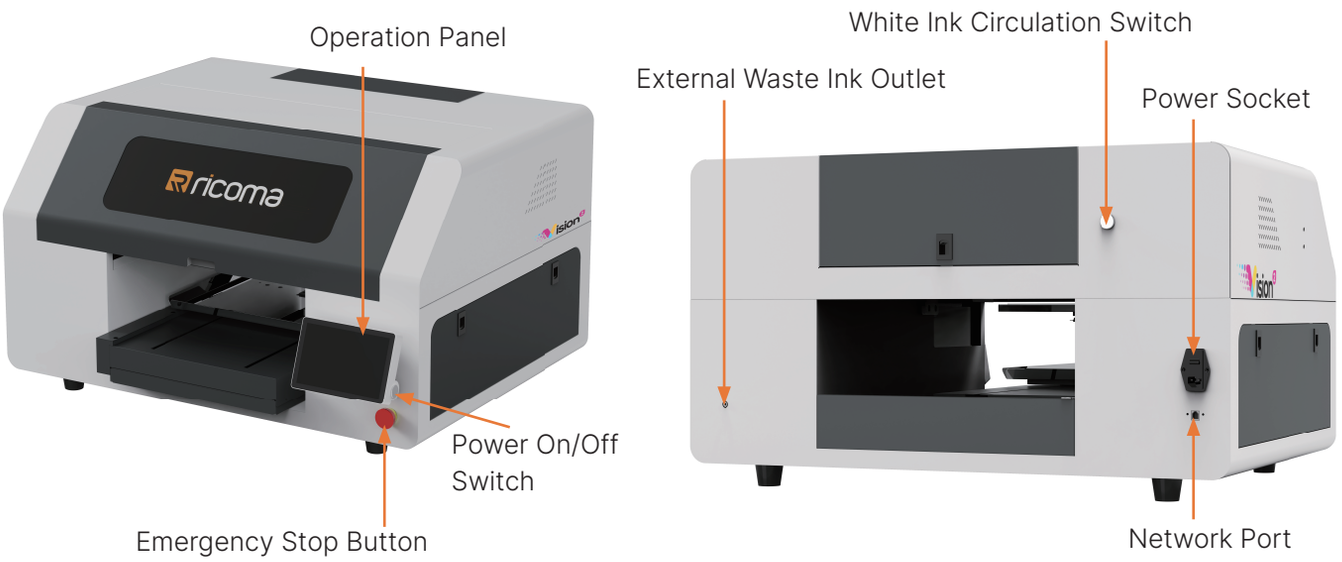
1.5 Warnings, Cautions, and Notes

- Warning: Must be followed to prevent personal injury.
- Caution: Must be observed to avoid equipment damage.
- Note: Contains important operational information and helpful tips for using the printer.

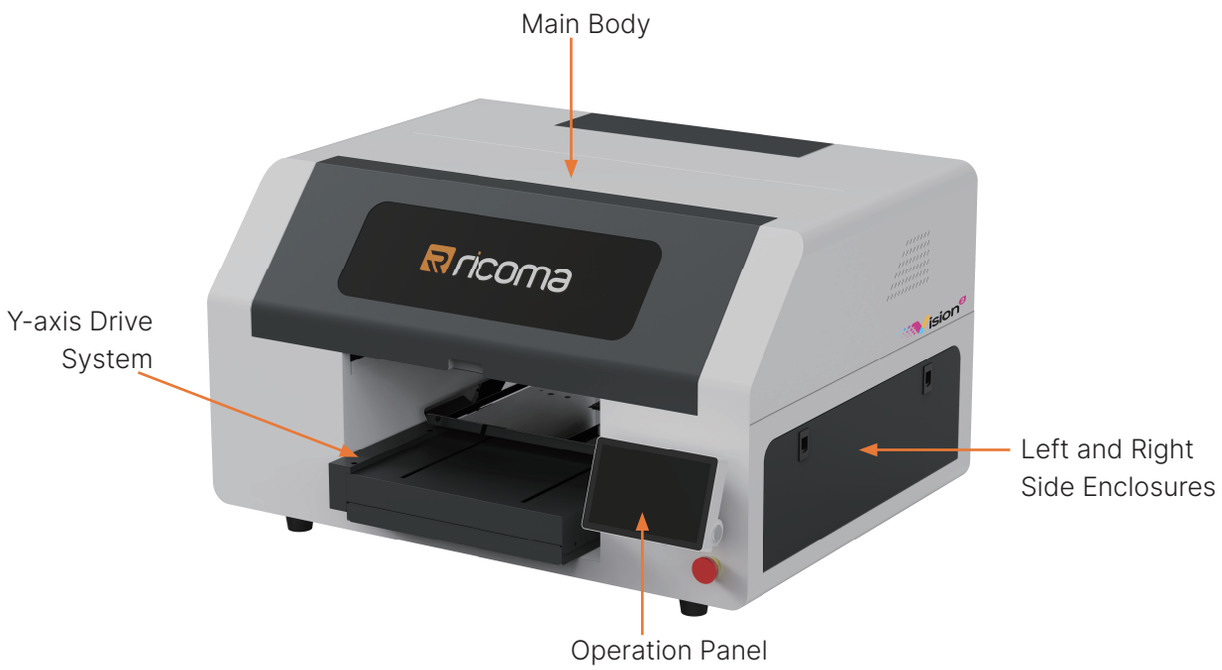
Chapter 2 Structural Diagrams

2.1 Function Introduction

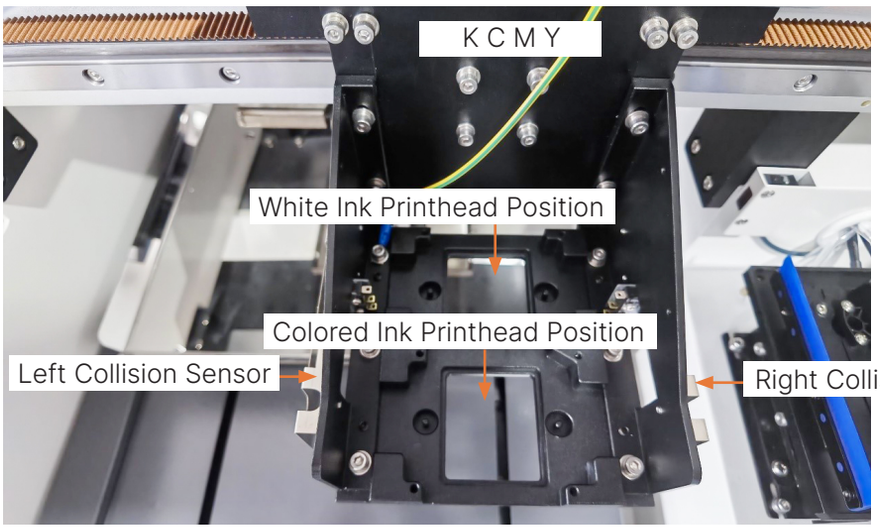
- The figure below illustrates the function.



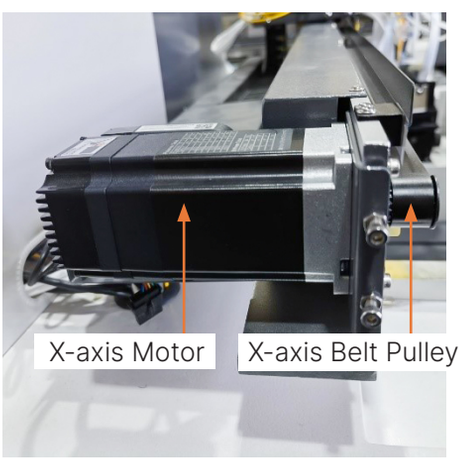
2.2 Overall Appearance Structure Diagram

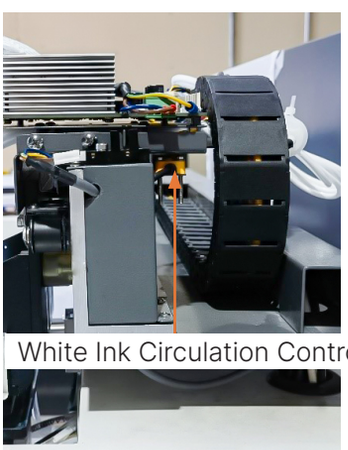


2.3 Carriage Structure Diagram

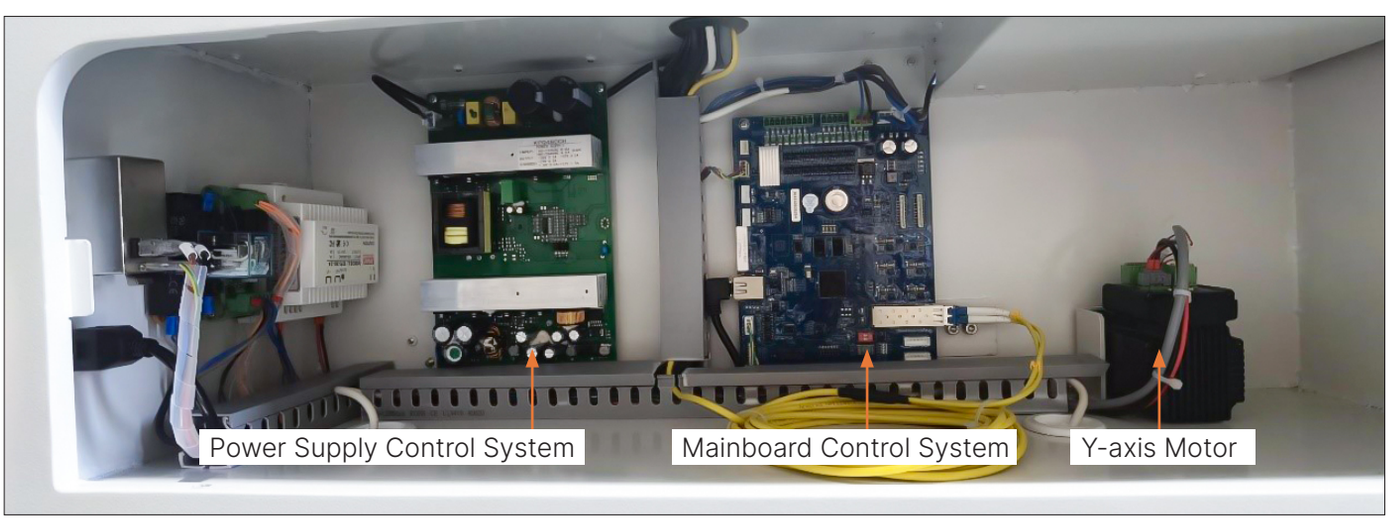


2.4 X-axis Drive Structure View

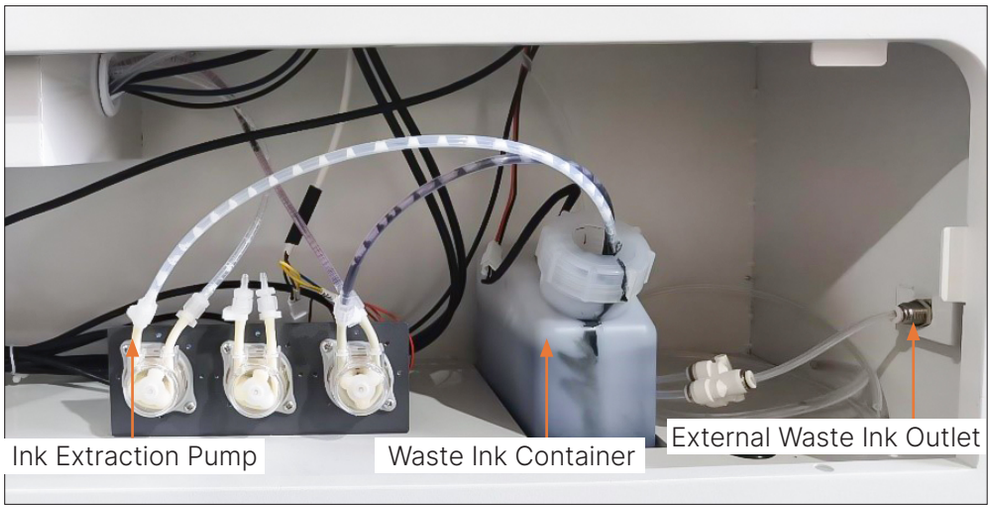




2.5 Left-side Enclosure View



2.6 Right-side Enclosure View



Chapter 3 Printer Basic Parameters

3.1 Basic Parameters

Model	DTG-2512D
Printhead Type	I3200
Number of Printheads	2
Printable Area	400 X 500 mm(15.8 × 19.7 in)
Printing Configuration	Color + White (KCMY + WWWW)
Compatible Media	Cotton, linen, canvas, denim, sweatshirt fabric, and other textiles with ≥ 60% cotton content
Print Resolution	• 4 Pass: 720 × 1200 DPI • 6 Pass: 720 × 1800 DPI • 8 Pass: 720 × 2400 DPI
Ink Type	Aqueous (Water-based) Ink
RIP Software	RIIN
Color Management	ICC profiles or Density Curves
Operating System	Windows 7 / 10 / 11

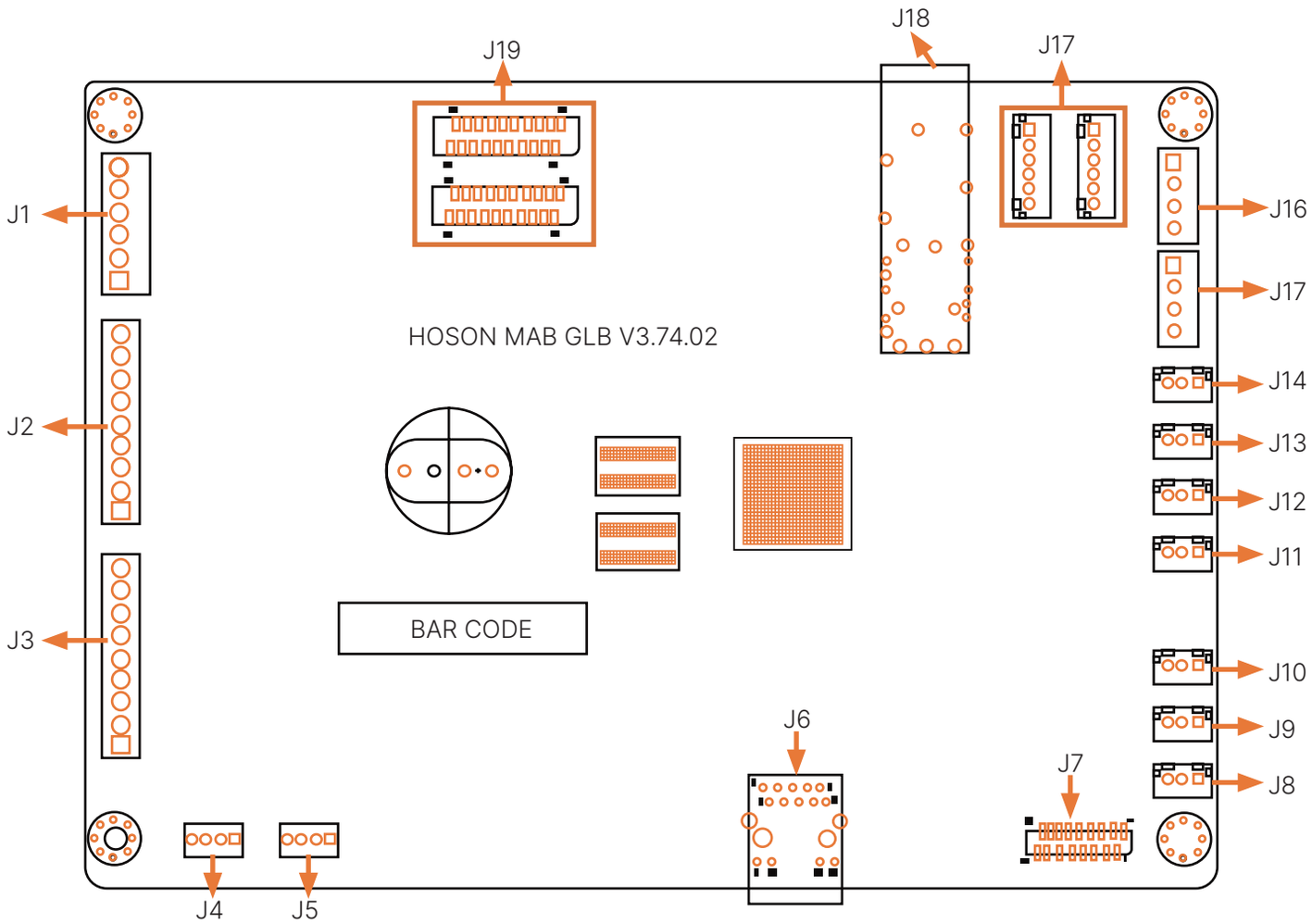
Carriage Collision Protection	Emergency stop sensors with collision detection installed at both ends of the carriage
Waste Ink Alarm	Automatic alert when waste ink bottle is full
Ink Circulation & Agitation	White ink system has independent power supply; supports timed circulation even when the printer is powered off
Low Ink Alarm	Automatic alert when ink level in bottle is low
Print Bed Lighting	LED illumination on print platform
Print Bed Height Adjustment	Adjustable for media thickness up to 30 mm
Interface	Gigabit Ethernet
Operating Temperature	15 – 30°C
Operating Humidity	35% – 70% RH
Rated Power Consumption	450 W
Power Input	220 V / 50 Hz, 15 A
Net Weight	115 kg (253.53 lbs)
Gross Weight	165 kg (363.76 lbs) (including wooden crate)
Machine Dimensions	825 mm (L) × 970 mm (W) × 565 mm (H) 32.5 in (L) × 38.1 in (W) × 22.2 in (H)
Packaging Dimensions	1100 mm (L) × 1050 mm (W) × 720 mm (H) 43.3 in (L) × 41.3 in (W) × 28.3 in (H)

Chapter 4 Hardware Installation

4.1 Introduction to the Printing System

The DTG printing control system consists of three components: the main board, the printhead board, and the control software. It connects to a PC via an Ethernet port.

4.2 Motherboard Connectors



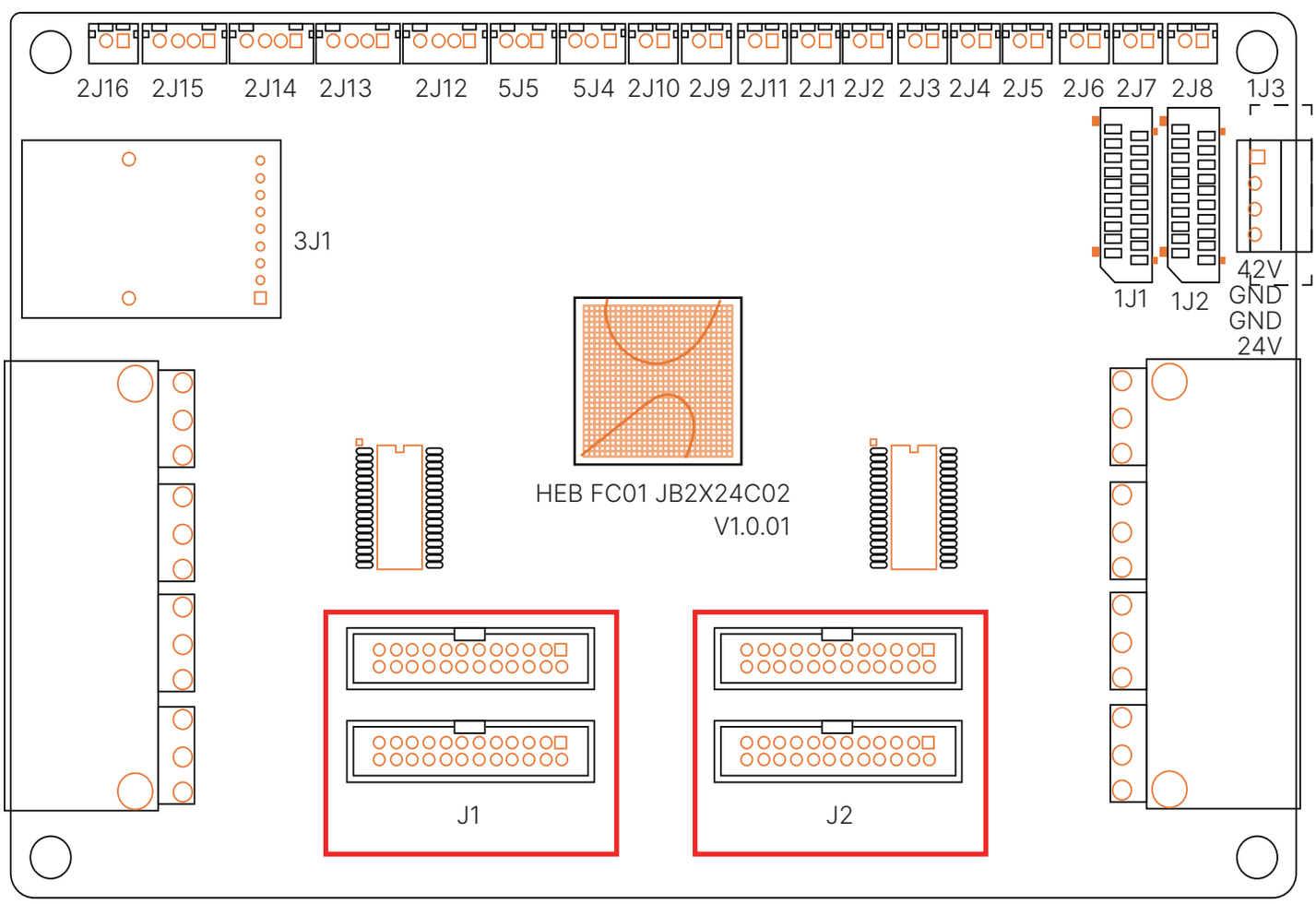
4.3 Motherboard Connections and Definitions

Note: The motherboard design requires dual 24V power supplies to ensure stable operation. Additionally, it must be secured to the machine housing with mounting screws.

Number	Interface Definition Specification	Number	Interface Definition Specification
J1	Power Supply (24V/42V) Input Interface	J11	Collision-proof Interface
J2	24V Control Interface	J12	X-End Limit Switch Interface
J3	24V Control Interface	J13	Low Paper Signal Detection Interface
J4	Scraper Motor Signal Output Interface	J14	X-origin Limit Switch Input Interface

J5	Lifting Motor Signal Output Interface	J15	X Motor Signal Output Interface
J6	Gigabit Ethernet Interface	J16	Y Motor Signal Output Interface
J7	Control Panel Interface	J17	Motherboard Optical Grid Signal Input Interface
J8	Scraper Stop Interface	J18	Fiber Optic Interface
J9	Ink Supply Reset Interface	J19	Flat Ribbon Cable Power Supply Connector for Spray Booth Panel
J10	Lift Limit Interface		

4.4 Nozzle Control Board and Nozzle Arrangement

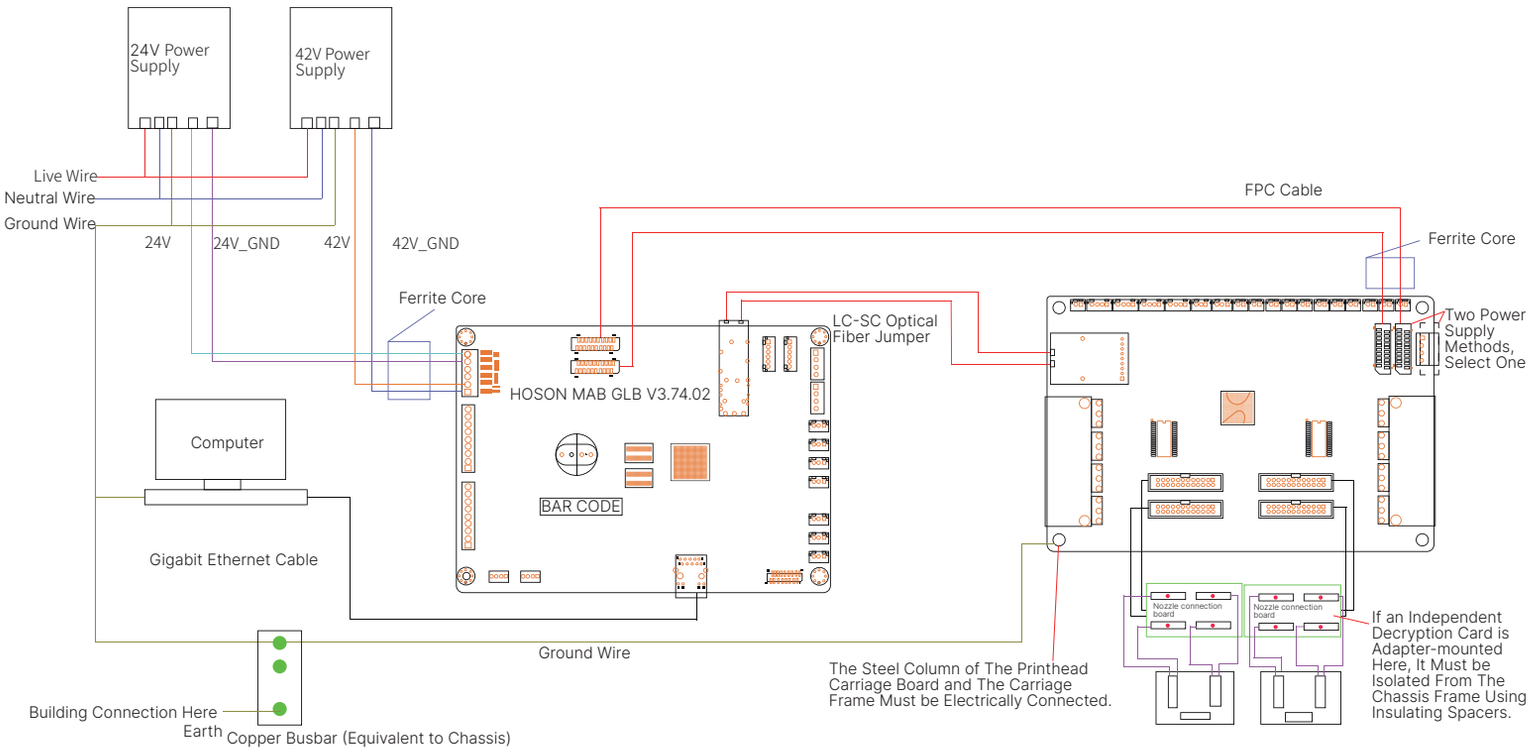


4.5 Nozzle Control Board Wiring and Definitions

Number	Interface Definition Specification	Number	Interface Definition Specification
3J1	Fiber Optic Interface	2J7	LM Ink Level Detection Signal Input Interface
J1	H0 Nozzle Adapter Board Interface	J18	LY Ink Level Detection Signal Input Interface
J2	H1 Nozzle Adapter Board Interface	2J11	External Speaker Drive Interface
1J3	Spray Gun Board 42V Power Input Connector	2J9	Safety Bottle Inlet
1J1	42V Flat Ribbon Cable Power Supply Connector for Spray Gun Board	2J10	Collision Warning Signal Output Interface
1J2	42V Flat Ribbon Cable Power Supply Connector for Spray Gun Board	5J4	Circuit Injection Mode Control Interface
2J1	K Ink Level Detection Signal Input Interface	5J5	Circuit Injection Mode Control Interface
2J2	C Ink Level Detection Signal Input Interface	2J12	Test Paper Signal Input Interface
2J3	M Ink Level Detection Signal Input Interface	2J13	Right Limit Signal Input Interface
2J4	Y Ink Level Detection Signal Input Interface	2J14	Left Limit Signal Input Interface
2J5	LK Ink Level Detection Signal Input Interface	2J15	Grating Signal Input Interface
2J6	LC Ink Level Detection Signal Input Interface	2J16	Ambient Temperature Detection Input Interface

4.6 Printer Board Installation and Wiring Diagram

The printer control system consists of three components: the main board, the printhead board, and the control software. It connects to the computer via an Ethernet port.



Chapter 5 Software

Print Exp_X64 software is a kind of printer management software, which is mainly used to set various printerparameters, calibrate and adjust printer nozzles, maintenance, nozzle cleaning and printing operation, etc.All operation are performed using Print Exp _ X64.

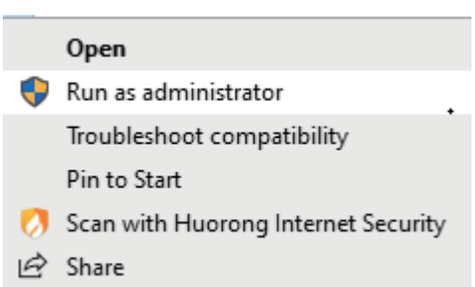
5.1 Software Installation

The printing management software shall be installed according to the following steps:

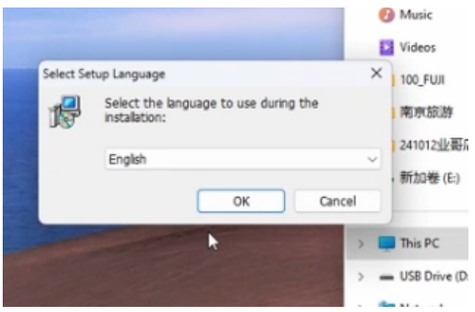
As the existing computer systems include Win7, Win10, Win11 etc., the installation steps are as follows:

1.Elect the Print Exp_X64 software icon: 

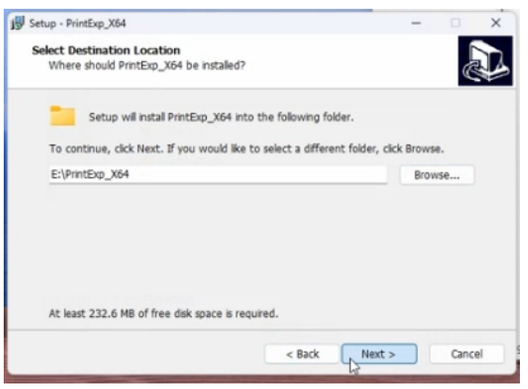
, right-click and select "Run as administrator".

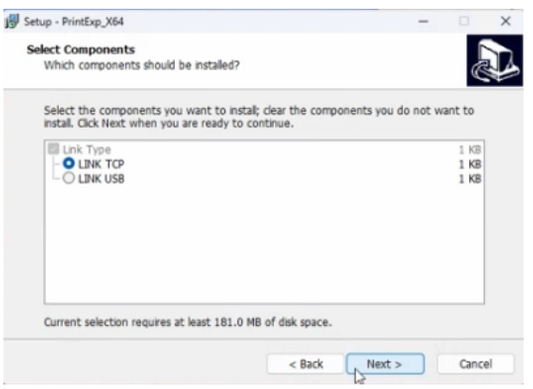


2.Select the desired language version (Chinese or English), and click OK.

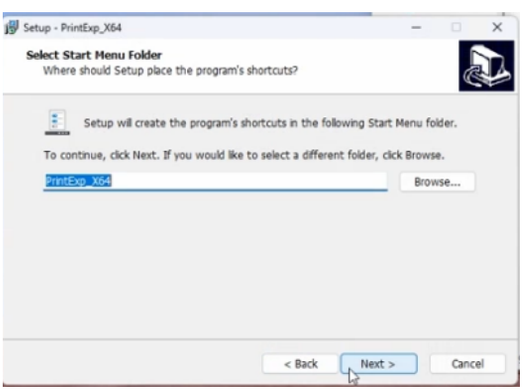


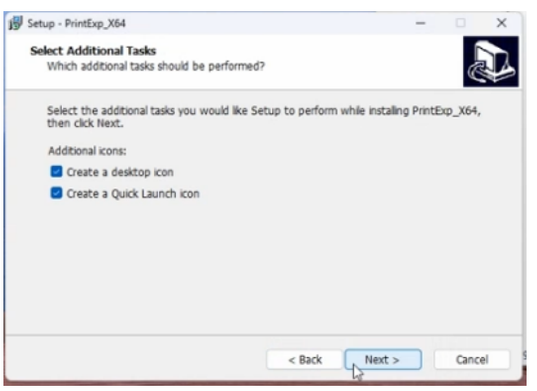
3.Select the installation disk location: Install components; LINK TCP is selected by default.



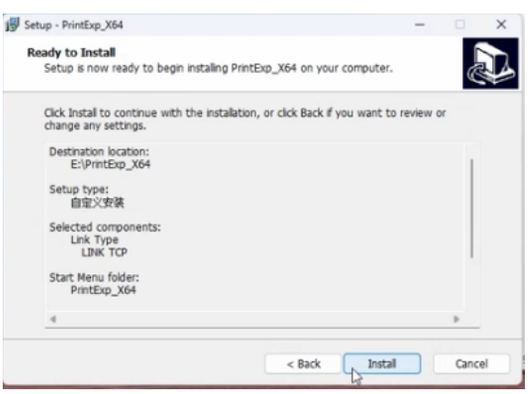


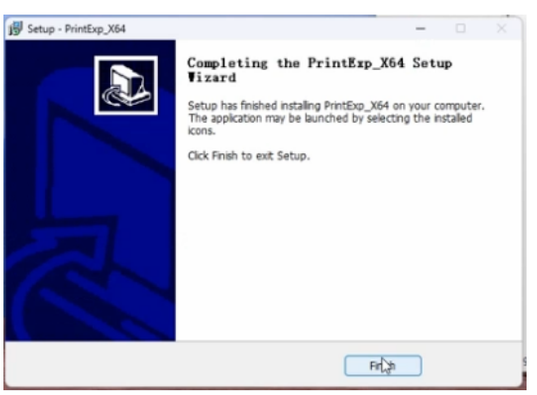
4.Select the shortcut location in Start Menu Folder and choose to create a desktop icon.



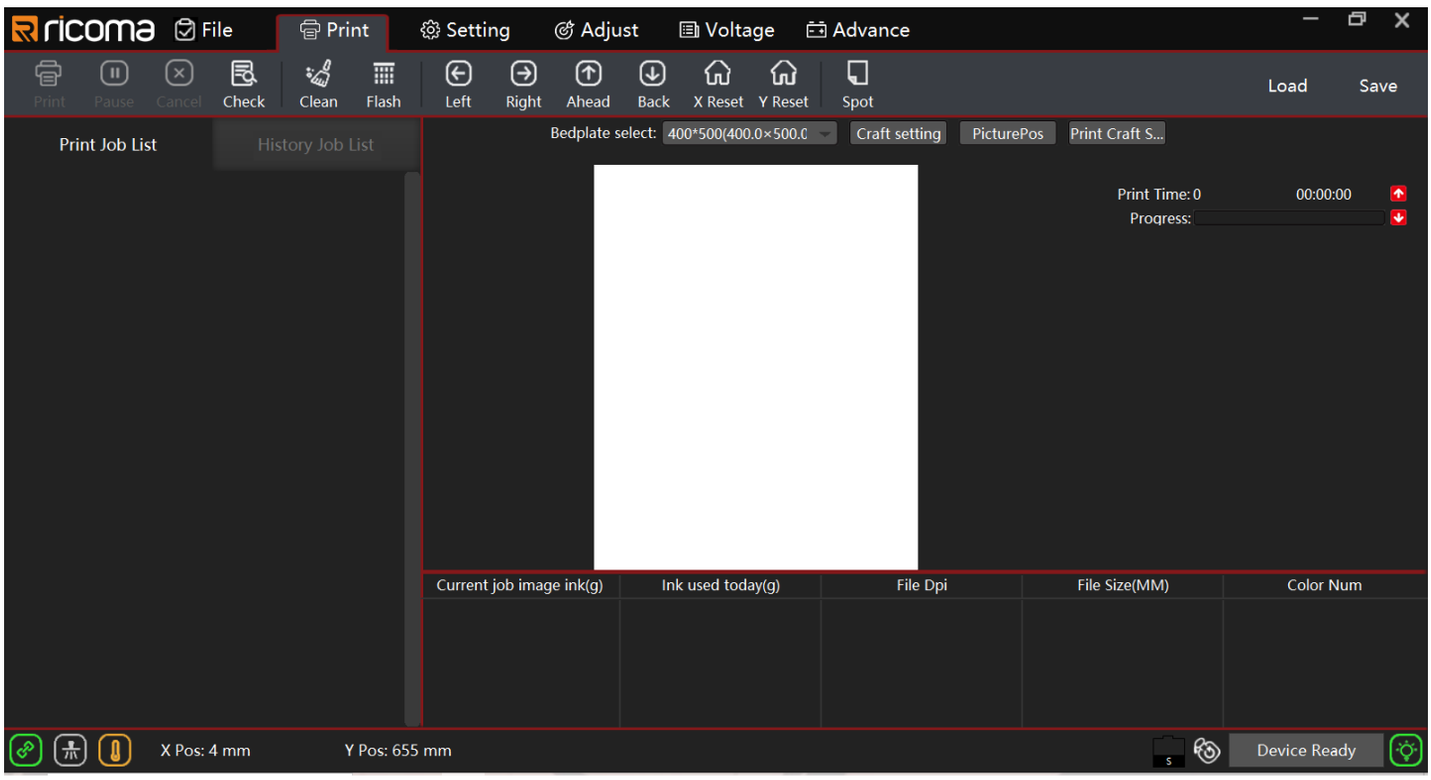


5.Install the Print Exp_X64 software, clicking "Next" in pop-up windows until completion.



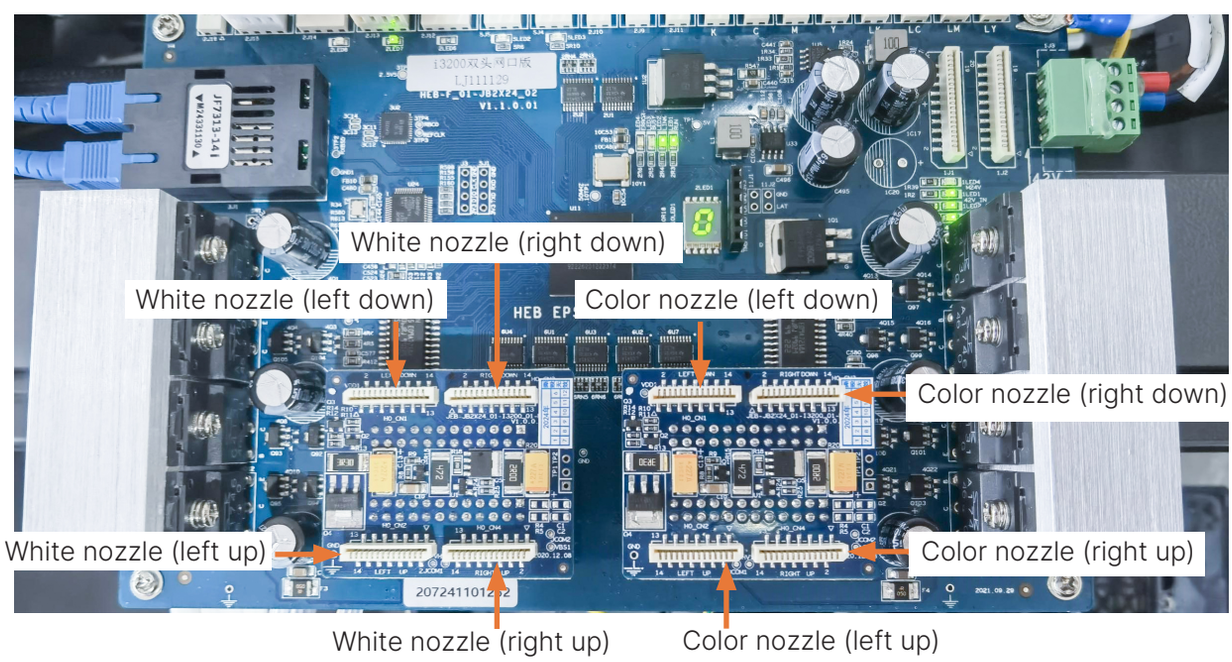


6.Open the unpacked folder, double click Print Exp_X64.e x e to enter the main interface of the software,as shown in below figure:



Chapter 6 Printhead Installation

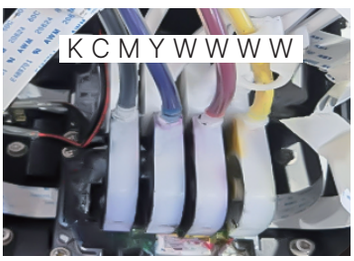
6.1 Carriage Board Printhead Arrangement



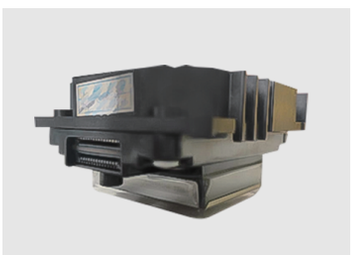
6.2 Printhead Data Cable Connection Methods

Note: Regardless of how the printhead board is installed, this connection is unique. Reversing it may burn out the printhead or the board.

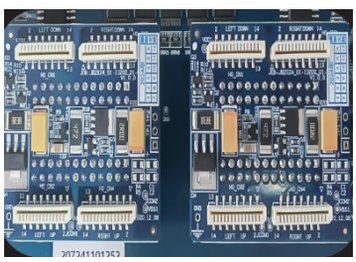
EPSON i3200 Printhead



Arrangement of nozzles in the ink supply tube



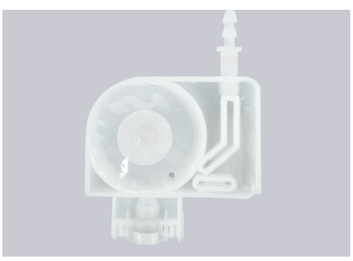
Nozzle Data Cable Connector



Spray Gun Panel Data Cable Connector

Gigabit Ethernet Cable

Ink Cartridge Arrangement



Ink Sac (4 required per printhead)

Data Cable: 14-core flat cable connecting the printhead and headboard; each printhead requires 4 cables

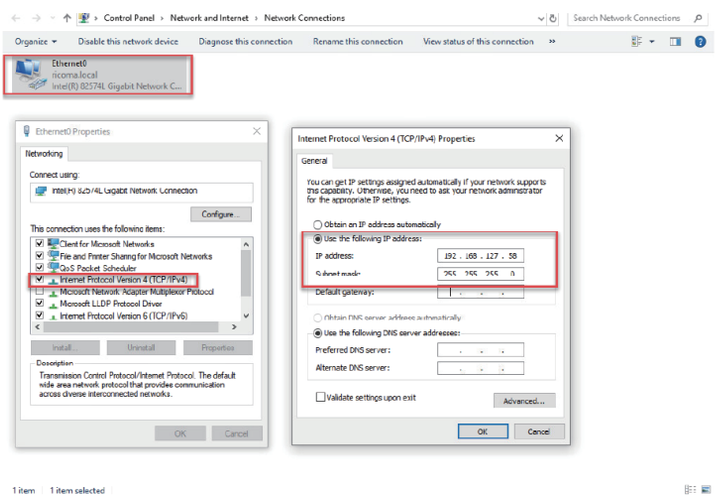
Chapter 7 Computer Connection Settings For Printing Software

7.1 Set Computer IP Network

Right-click the "Ethernet" icon and select "Ethernet Properties".

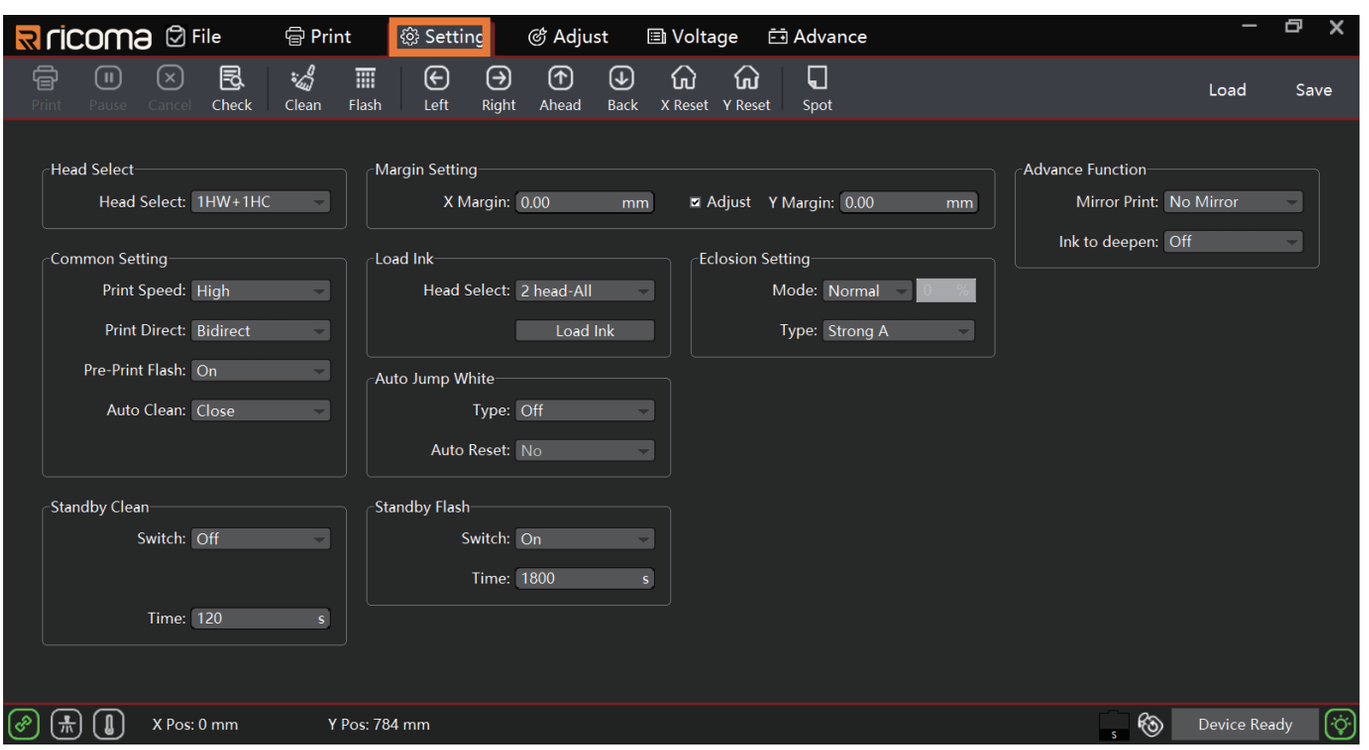
Select "Internet Protocol Version (TCP/IPv4)" for your local connection and double-click to access the right interface.

Set your computer to connect to the network using a custom IP address: 192.168.127.58, and a subnet mask (default): 255.255.255.0.



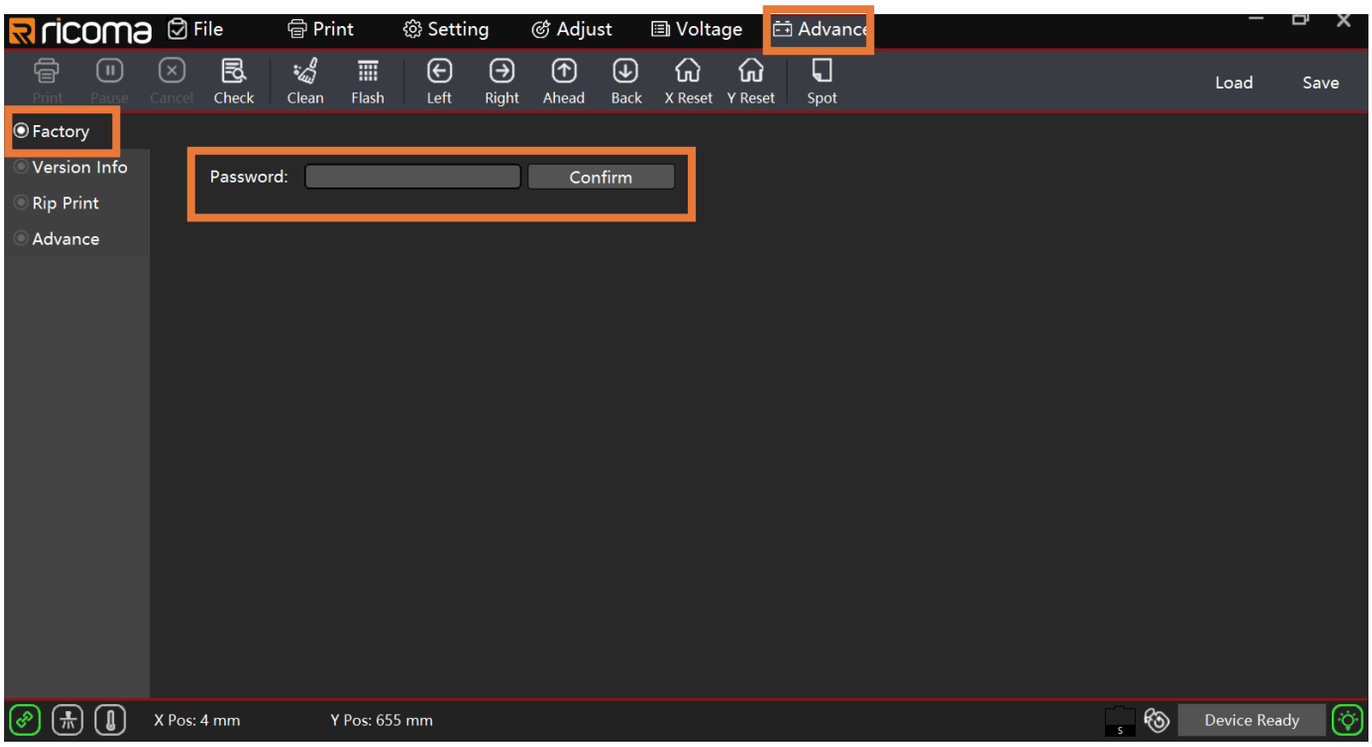
7.2 General Software Settings

Click “settings" to access general printing settings.

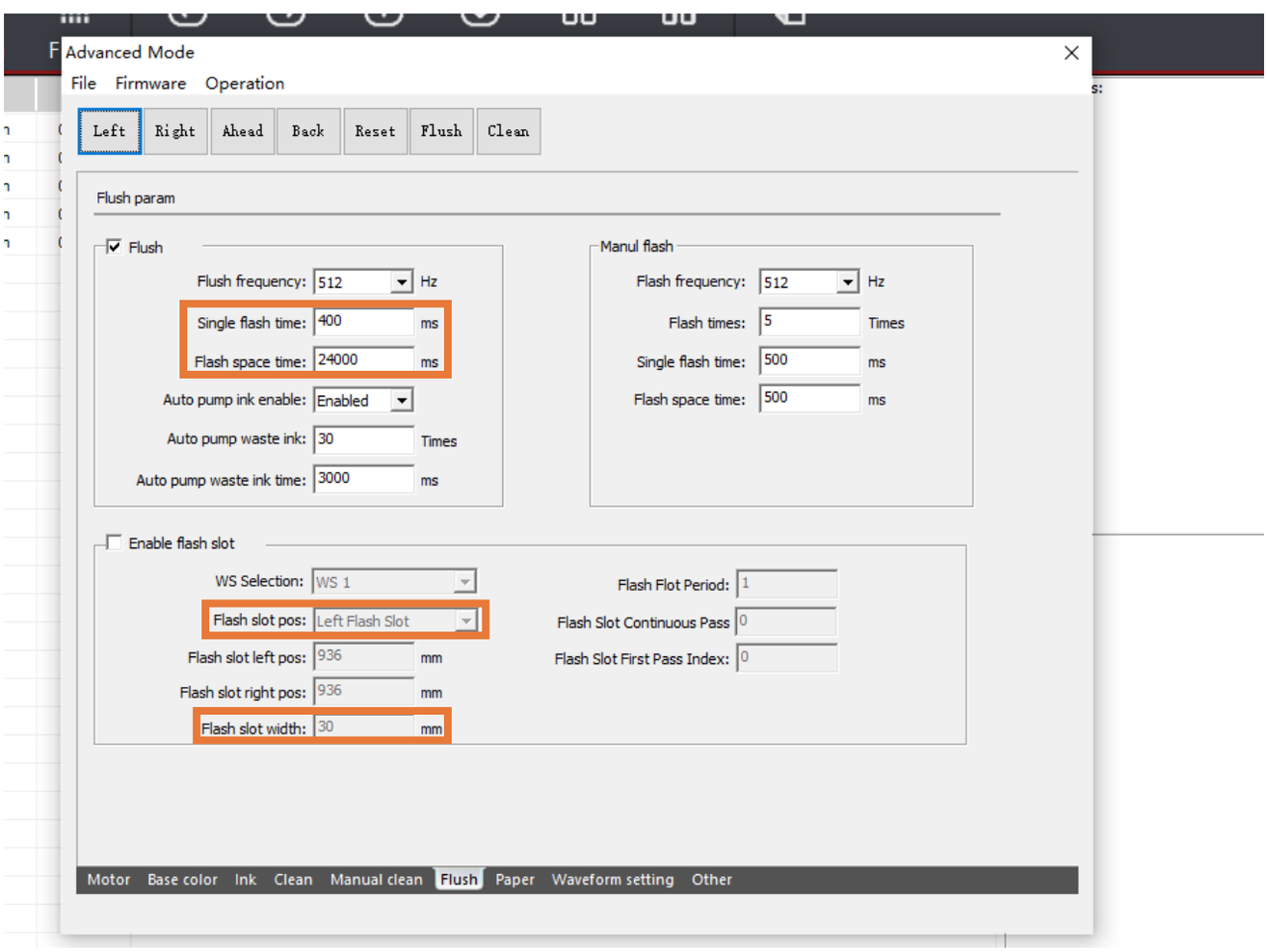


No	Name		Function explanation
1	Nozzle selection		The nozzle selection setting is only available under specific model conditions
2	White border setting	White border on X	Set the starting position for printing
		White border on Y	Set the starting position for printing
3	General setting	Printing speed	Set the print speed to low speed, medium speed and high speed
		Printing direction	Set the print direction to print to the left, print to the right, and print in both directions
		Pre-printing flash spray	Set whether to flash before printing
		Self-cleaning	Set it to be on or off before printing
4	Feathering setting	Feathering mode	Feathering mode selection
		Feathering type	Selection of feathering type
5	Advanced function	Channel control	Control the nozzle data
		Mirror print	Control whether the picture is printed horizontally flipped
6	Standby for timed cleaning	Time	When checked, after the car returns to the origin, it will be cleaned in a regular cycle at the set interval time, usually set for 5 minutes.
7	Automatic white jump	Jumping white method	Select the whitespace mode, including off whitespace, step whitespace, and continuous whitespace
		Automatic reset	Choose whether to reset automatically

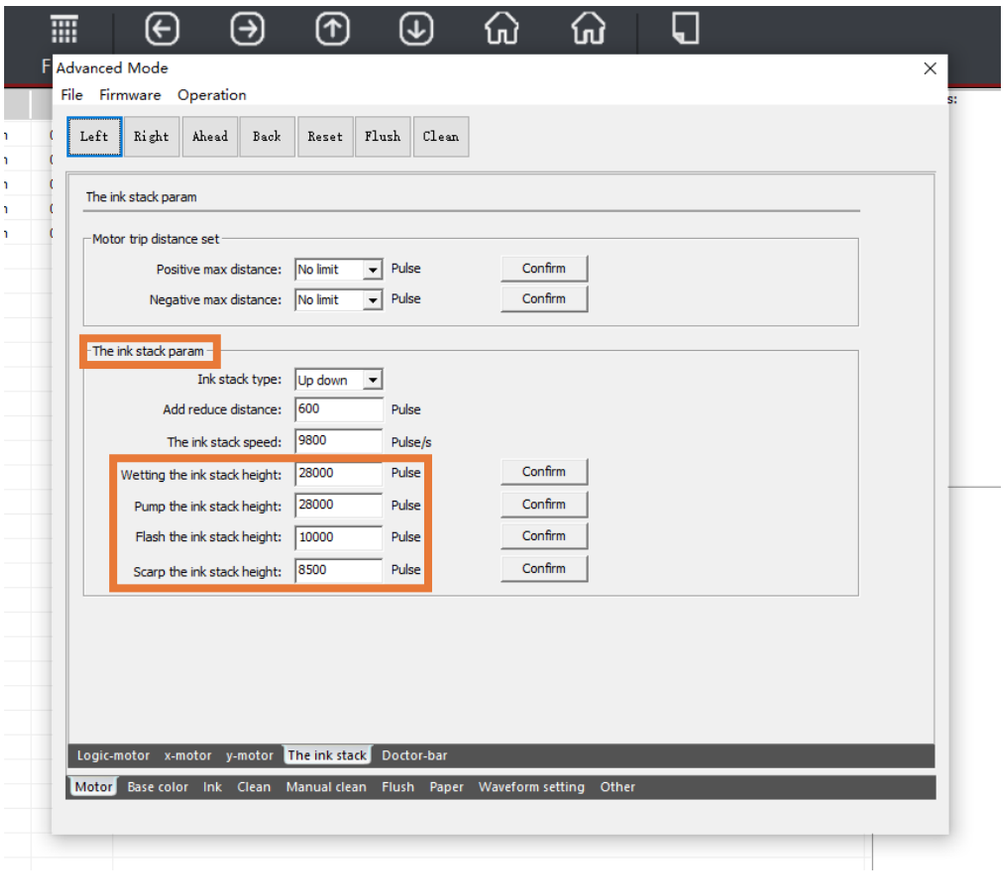
In the “advanced” interface, select "Factory", enter the password 111111, and then click “Confirm” to enter the internal function settings.



Click "Flush" to mainly set the single flash time, flash space time, flash slot position and flash slot width, etc. Manual flash spray is also available.

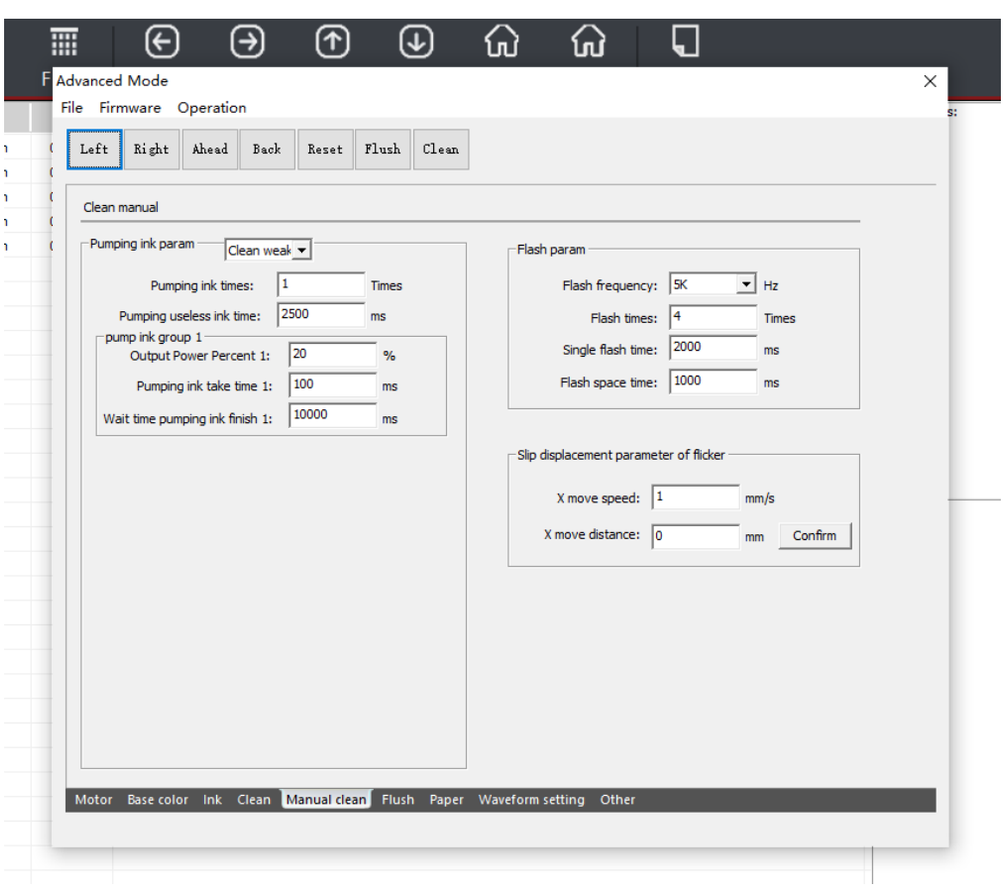


Click“the ink stack” to set the ink stack parameters, such as the head height, cleaning height, and ink scraping height, etc.



Click "Manual Cleaning" to set and adjust the cleaning parameters.

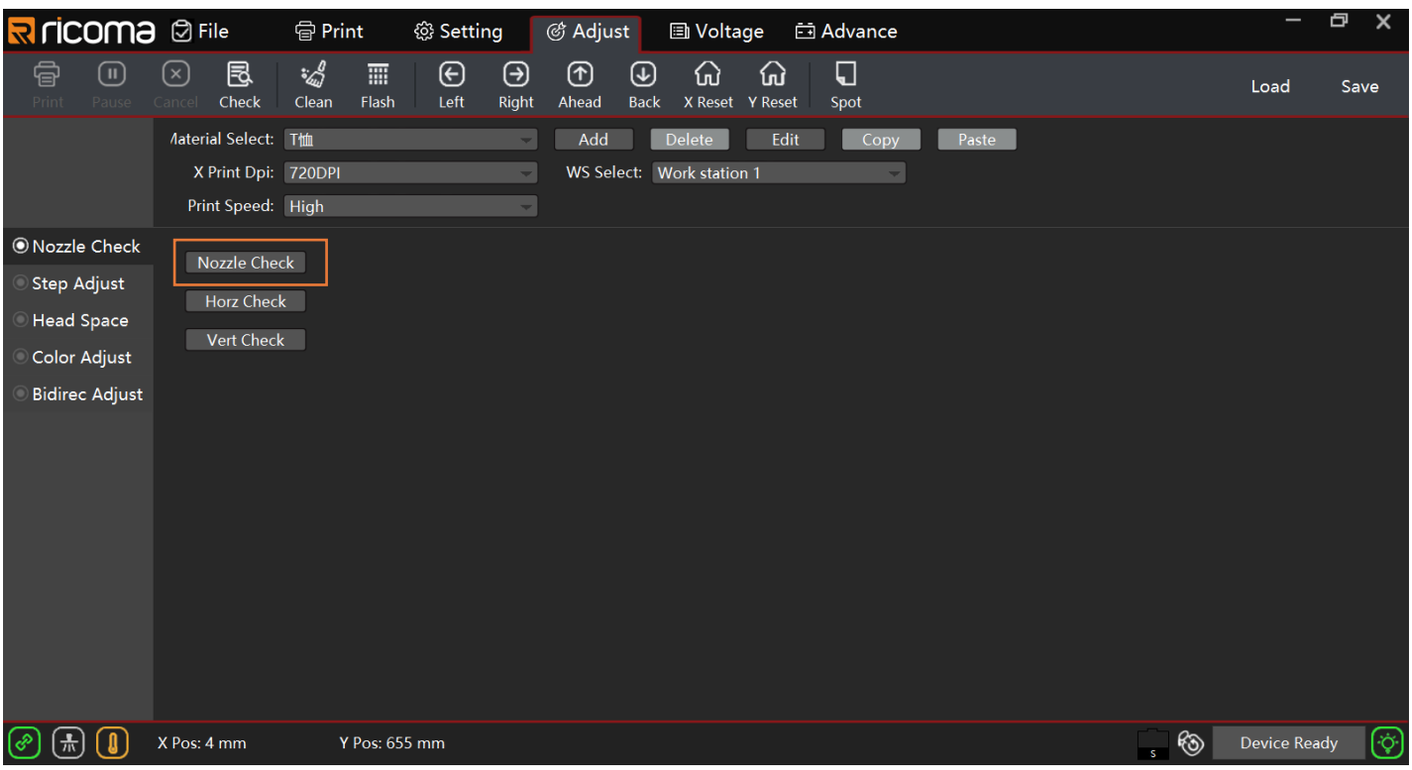
Other function settings can be set by default.



Chapter 8: Procedures for Printing Calibration Adjustment

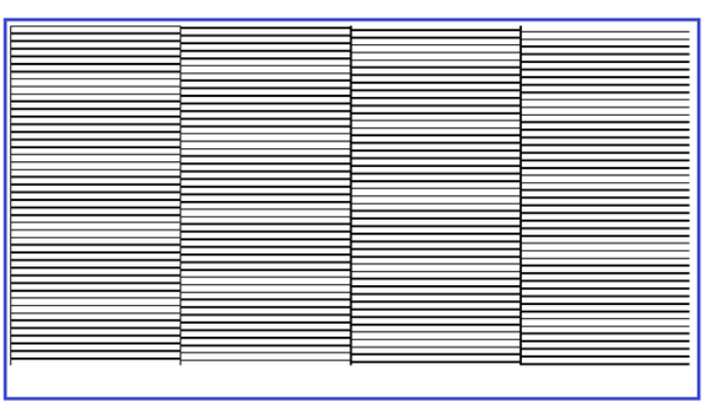
8.1 Introduction for Nozzle Detection Function

Click “Nozzle Check” to print and check the nozzle test strip.



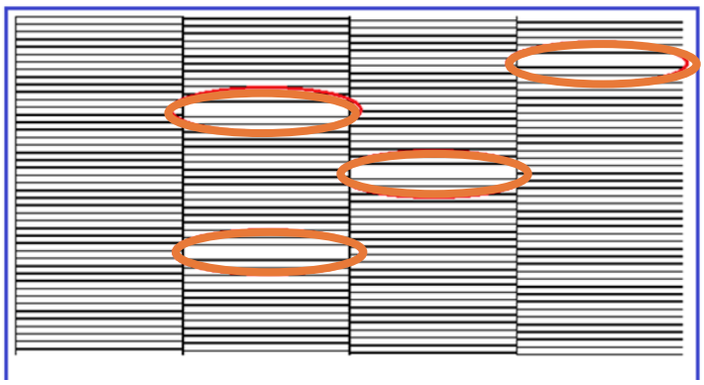
Nozzle calibration figure

Magnify the normal and abnormal conditions of the black state diagram as shown in the following figure:



Normal nozzle status figure

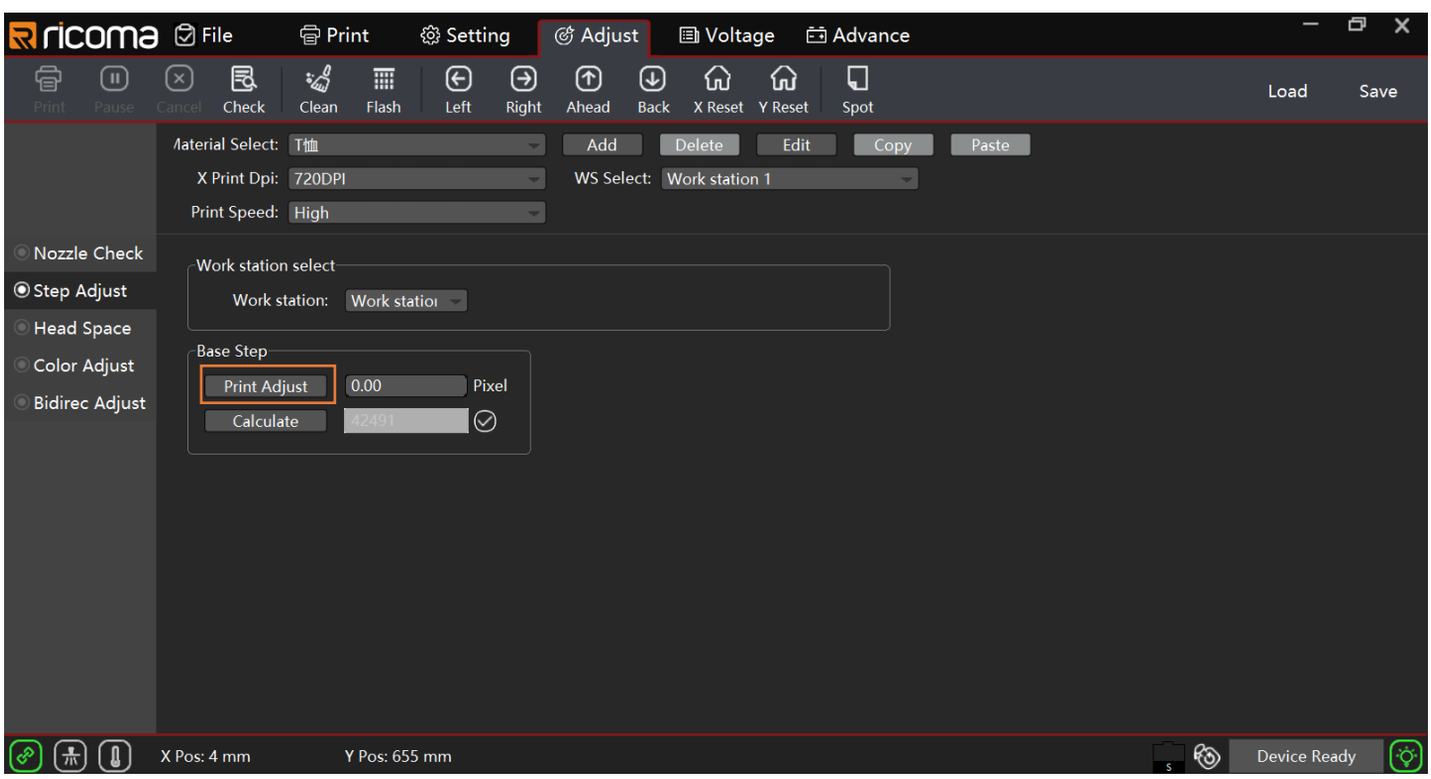
The state diagram in the following situation may be clogged and needs to be cleaned until the inkjet from the spray holes reaches the best state



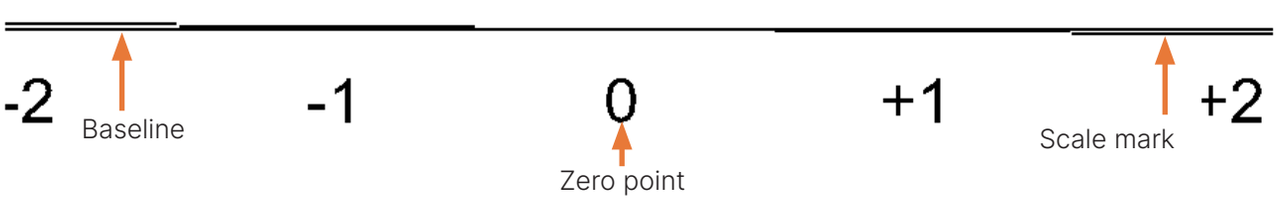
Abnormal nozzle status figure

8.2 Stepping Calibration Function

Enter “Step Adjust” interface and click “Print Adjust” in the “Base Step” to print the calibration chart and observe if there is any deviation.



If the step adjustment is normal, the baseline and the scale mark will completely overlap at zero. As shown in the step adjustment status Figure 1.



Step adjustment status figure 1

If the step adjustment is abnormal, the baseline and the scale marks will not overlap. As shown in the step adjustment status Figure 2

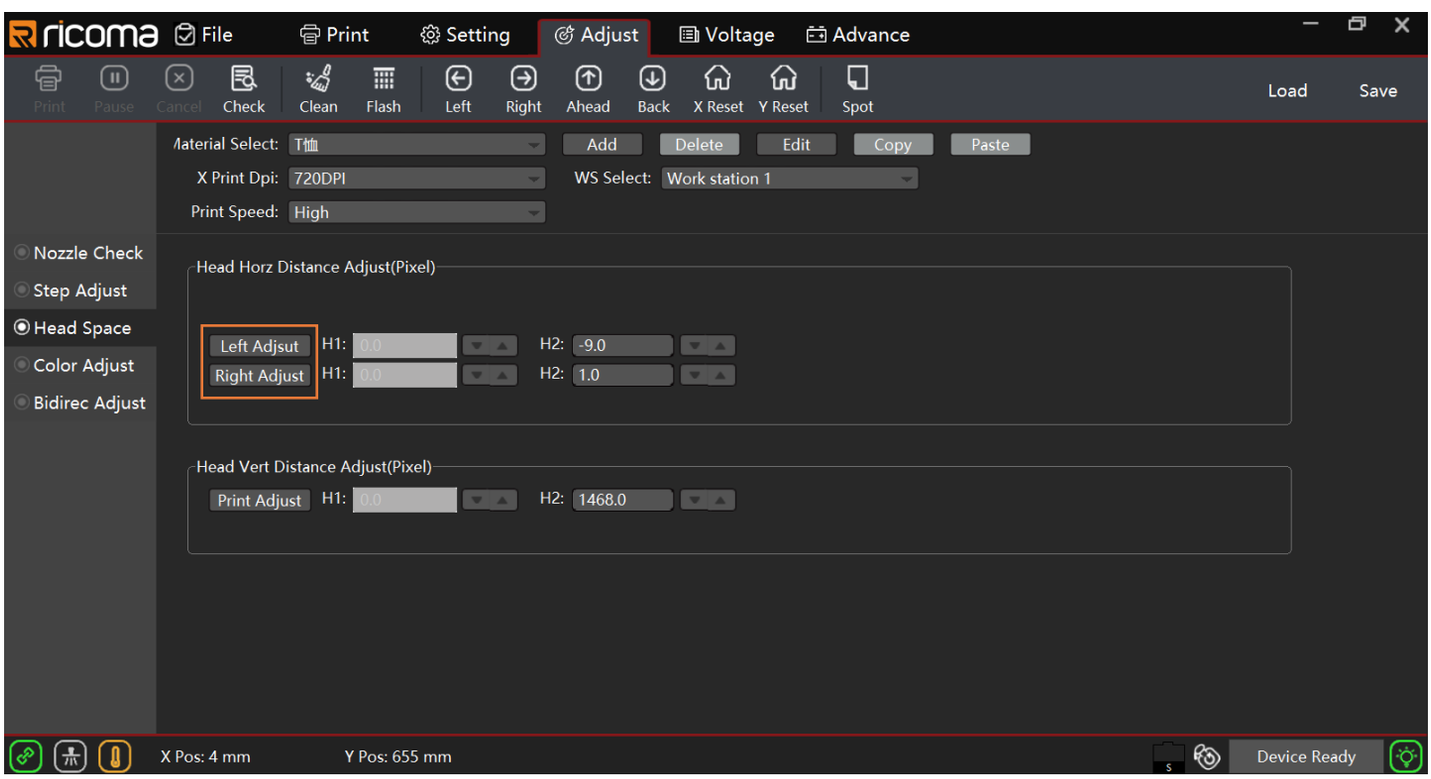
baseline and scale mark are not overlapped

Step adjustment status figure 2

In this case, adjustments are needed. First, enter the adjustment value, click to calculate and reprint the print pattern until the baseline and the scale mark completely overlap at zero.

8.3 Calibration of the Horizontal Spacing of Nozzles

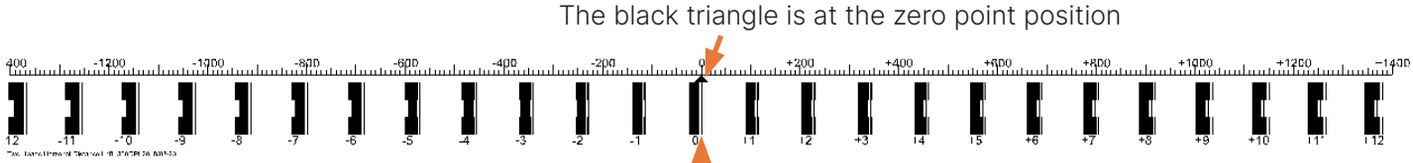
Enter "Head Space" interface and click “Left/Right Adjust” in Head Horz Distance Adjust (Pixel) to print the calibration chart and observe the horizontal distance of the two nozzles.



If the print head spacing is properly aligned, the printed pattern will be as follows.

Figure 1 shows the alignment state of the horizontal spacing of the nozzles

The black triangle is at the zero point position



The line pointed by the zero point arrow is overlapped

Nozzle horizontal spacing alignment state figure 1

If the print head spacing is abnormally aligned, the print pattern will be as follows.

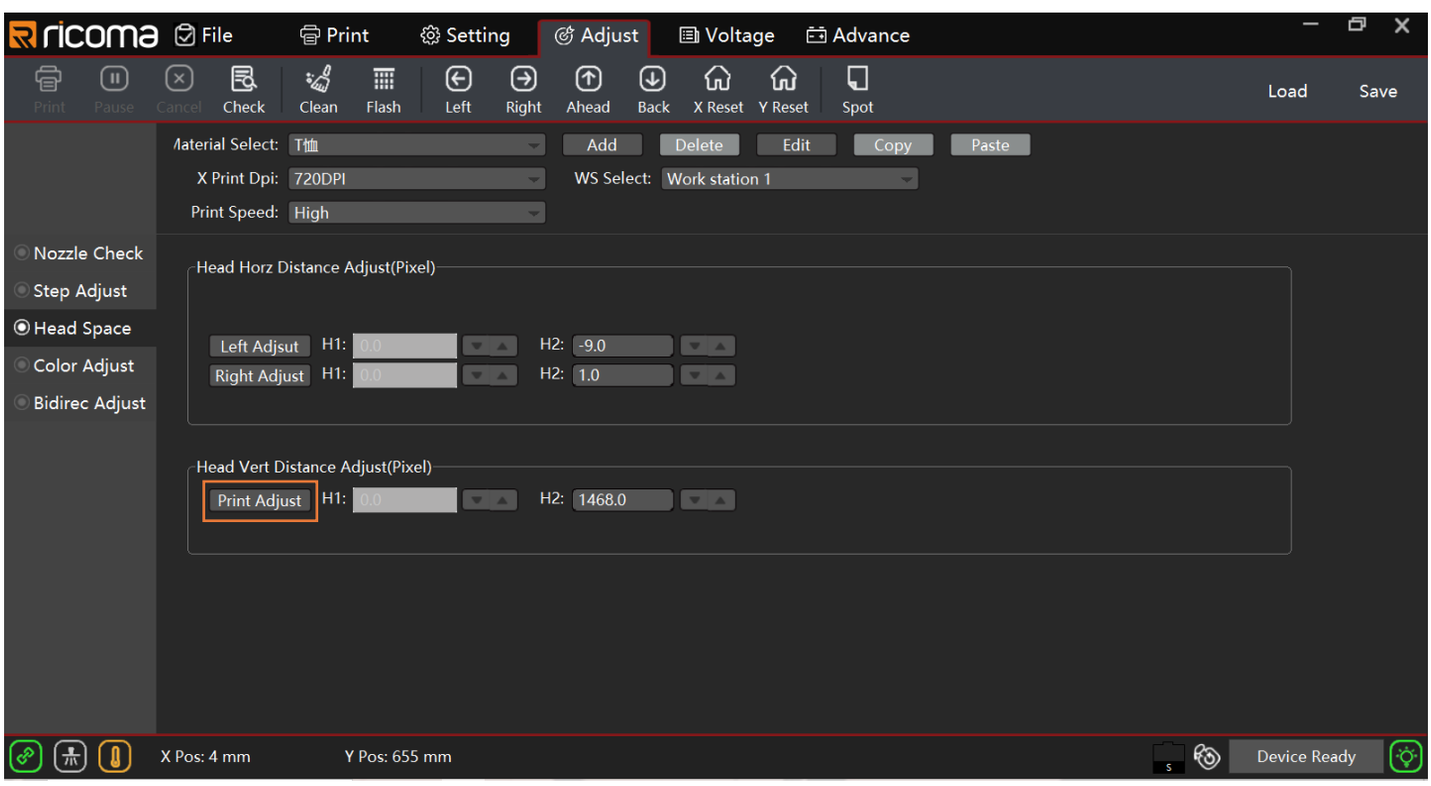
Figure 2 shows the alignment state of the horizontal spacing of the nozzles

Nozzle horizontal spacing alignment state figure 2

In this case, it needs to be aligned. First, enter the adjustment value at position H2, click to calculate and reprint the print pattern until the zero point in the scale line is zero to zero.

8.4 Calibration of Longitudinal Spacing of Nozzles

Enter “Head Space” interface and click “Print Adjust” in Head Vert Distance Adjust (Pixel) to print the calibration chart and observe the longitudinal distance of the two nozzles.



If the longitudinal spacing alignment of the nozzles is normal, all the lines in the zero point scale frame are parallel, and the left arrow points to the zero position. Figure 1 shows the alignment status of the print head longitudinal spacing.

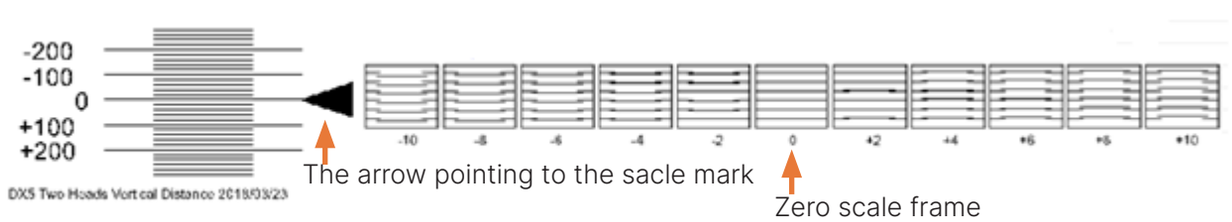


Figure 1 shows the alignment state of the longitudinal spacing of the nozzles

If the longitudinal spacing of the nozzles is adjusted abnormally, all lines in the zero point scale frame will be parallel to the -4 position. It is displayed as the longitudinal spacing alignment of the nozzles

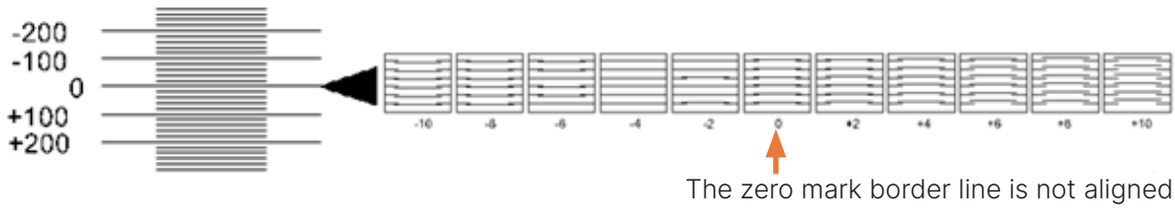
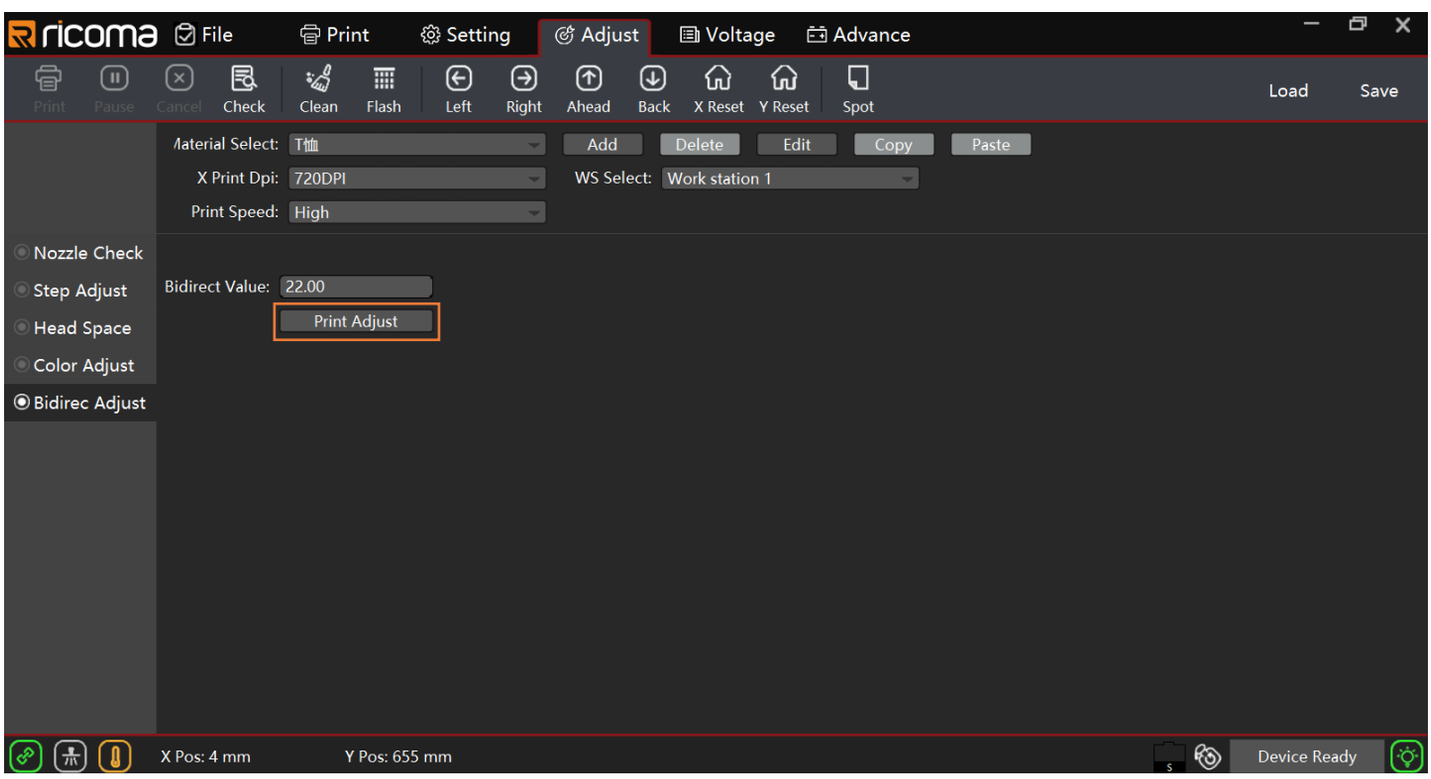


Figure 2 shows the alignment state of the longitudinal spacing of the nozzles

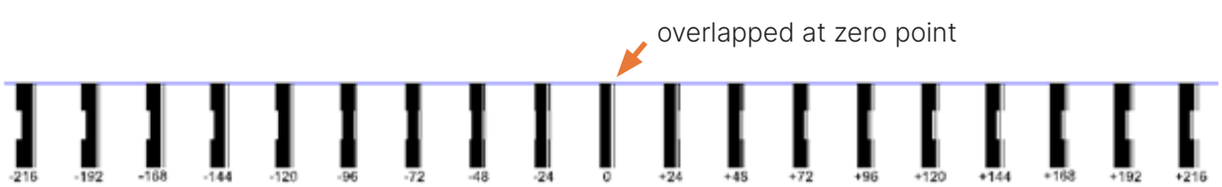
In this case, adjustments need to be made based on the original adjustment reference until all lines in the zero point scale frame are parallel at zero and the left arrow points to the zero position.

8.5 Bidirectional Calibration

Click “Print Adjust” in Bidirec Adjust interface to print the calibration chart.

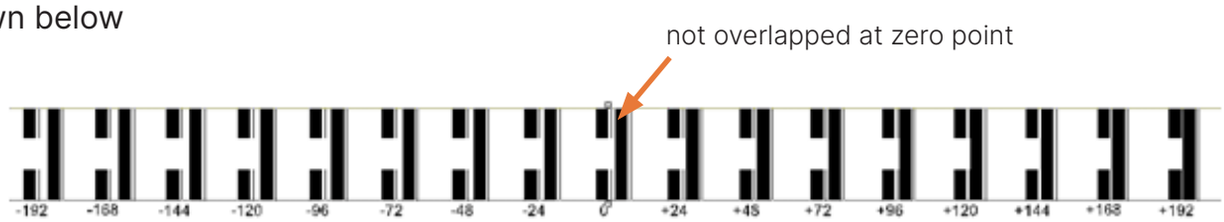


If the bidirectional calibration is normal, the lines will overlap at the zero position as shown below.



Bidirectional calibration status figure 1

If the bidirectional calibration is abnormal, the circuit will not overlap at the zero position, as shown below

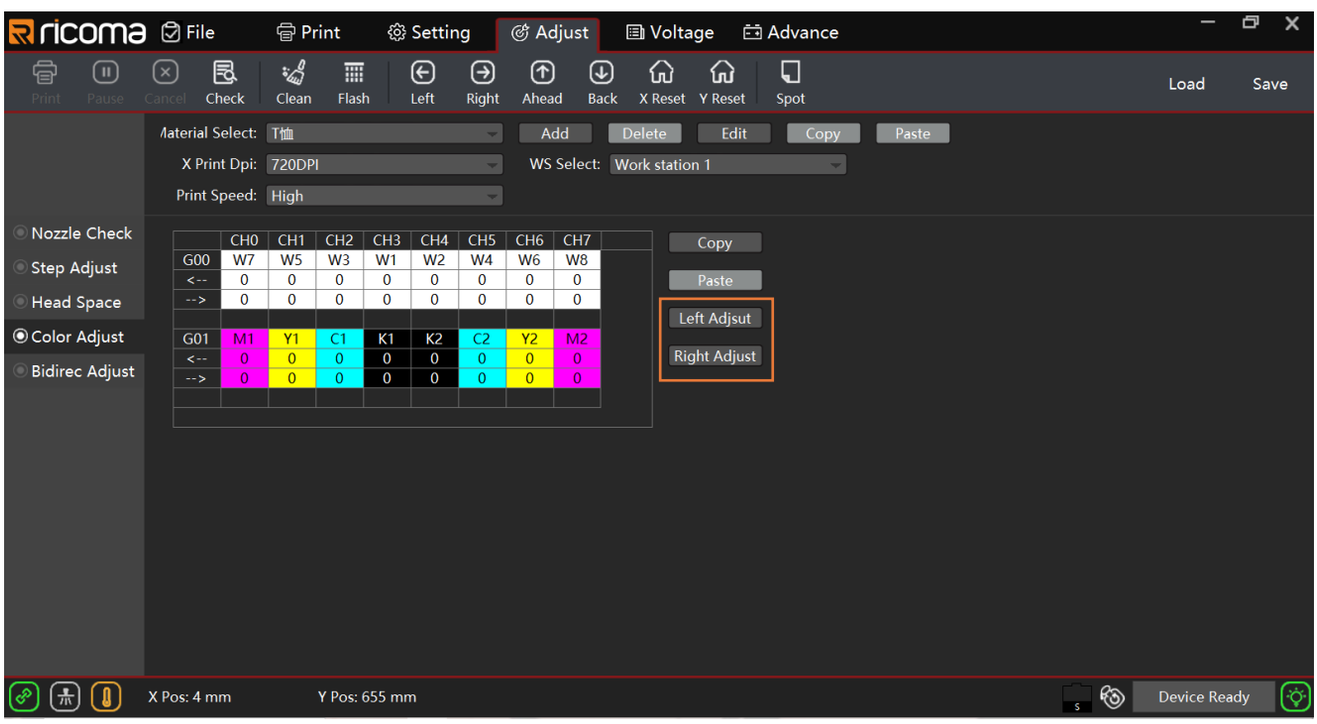


Bidirectional calibration status figure 2

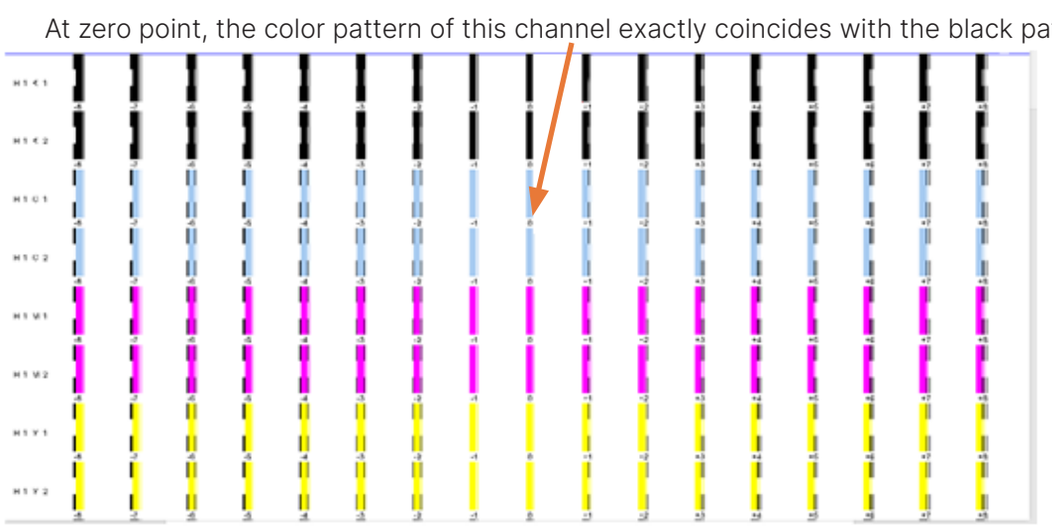
In this case, it is necessary to input bidirectional offset values for readjustment until they overlap at the zero position

8.6 Color Registration Calibration

Click “Left/Right Adjust” on the Color Registration Calibration interface to print the calibration chart and observe the color pattern.

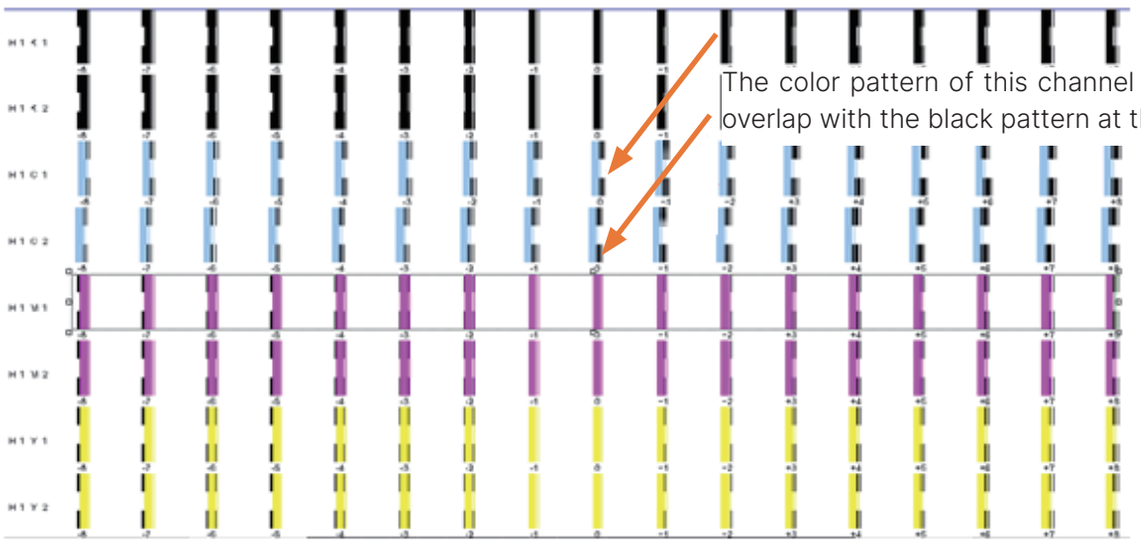


If the color adjustment is normal, the lines will overlap at this zero position, as shown below.



Color registration calibration figure 1

If the color adjustment is abnormal, the lines will not overlap at the zero position as shown below.



Color registration calibration figure 2

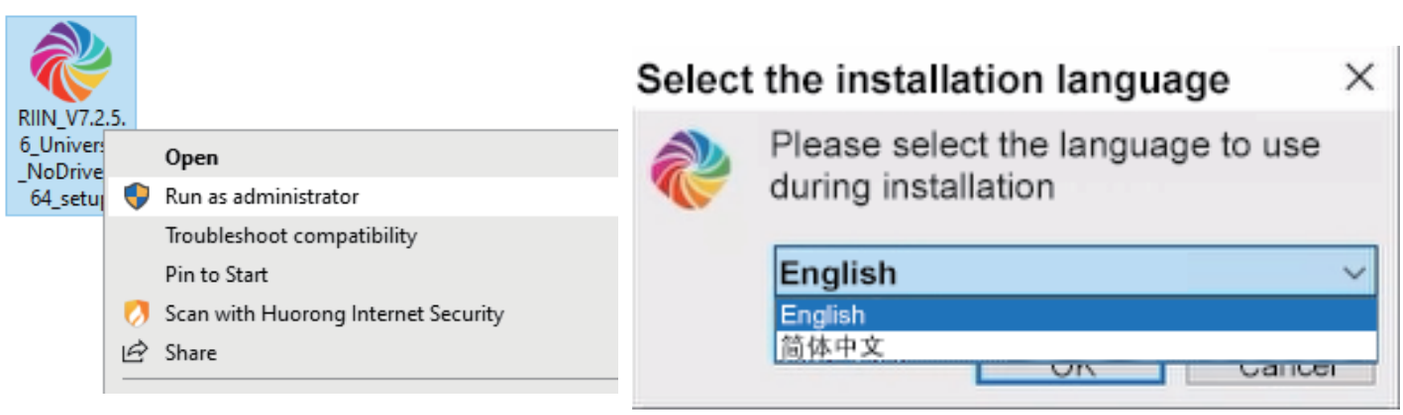
In this case, the adjustment value needs to be entered for readjustment until it overlaps at the zero position.

Chapter 9: Installation and Usage of RIIN Software

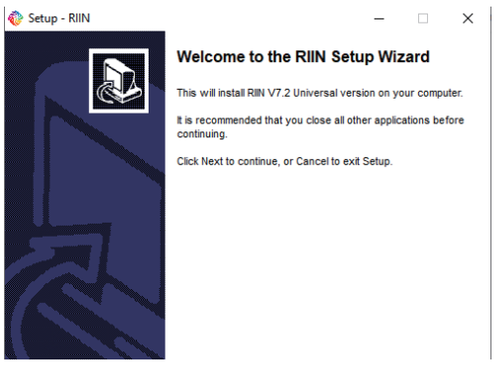
9.1 RIIN Installation

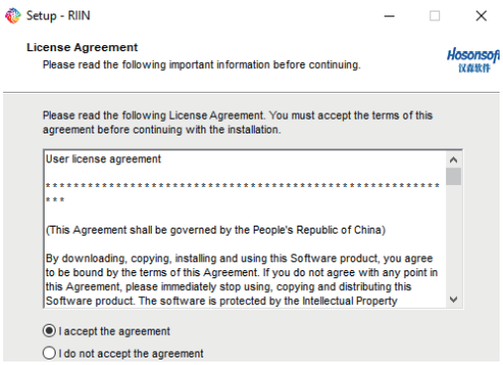
1. Take out the USB drive of the RIIN software and insert it into the computer to prepare for installing the software.

2. Right-click on the RIIN software installation package , select "Run as administrator", and choose the language you want to install (Chinese or English).

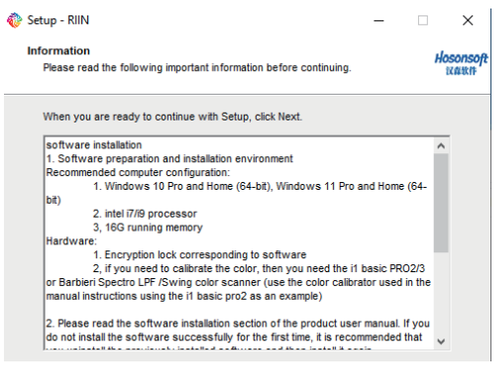


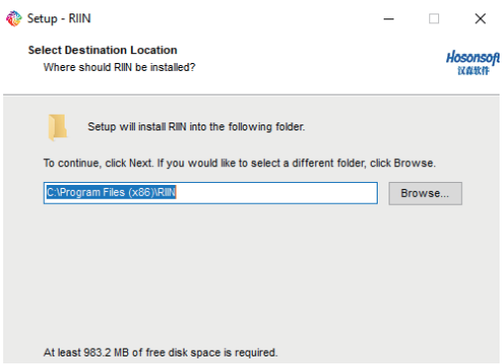
3. Use the RIIN installation wizard and accept the license agreement.



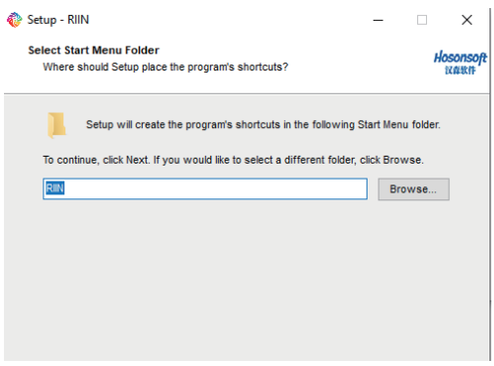


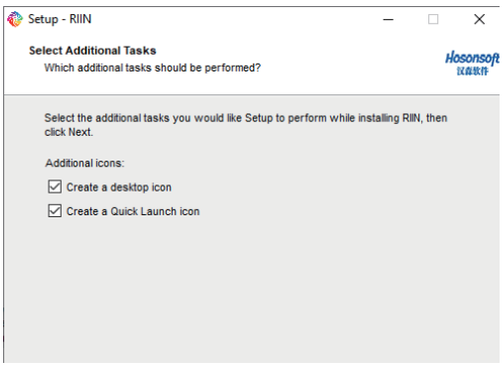
4. Read the software information and select the installation location of the software RIIN.



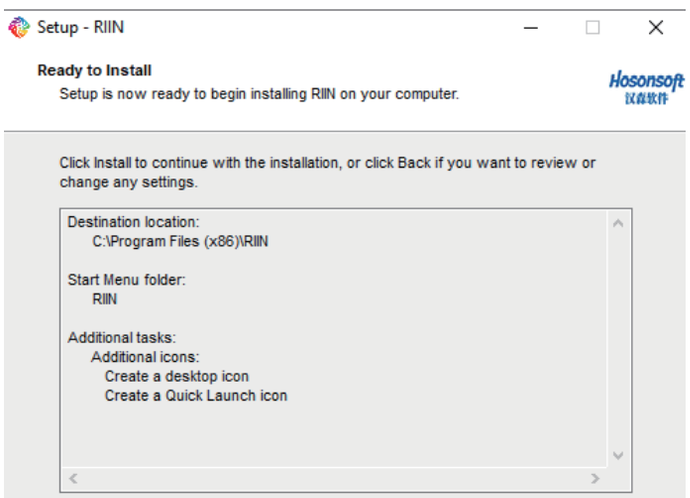


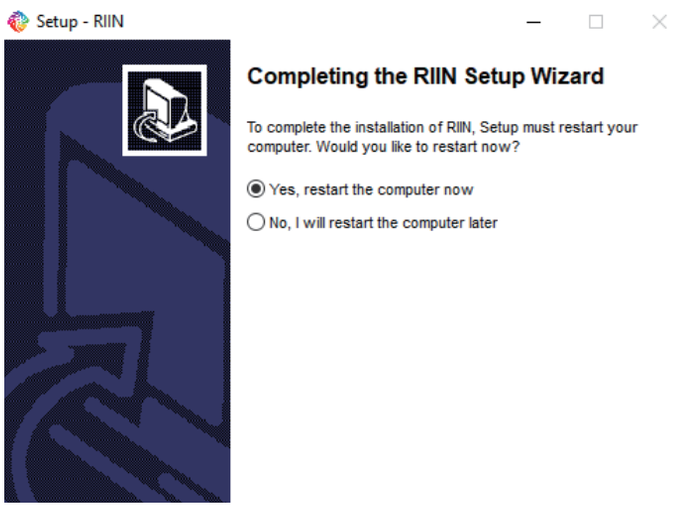
5. Select the shortcut location in Start Menu Folder and choose to create a desktop icon and a Quick Launch icon.



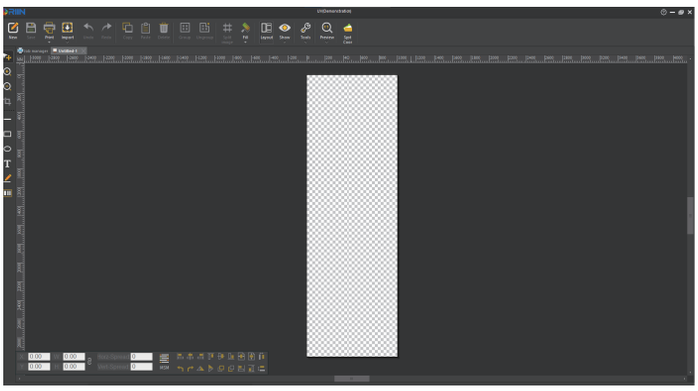


6. The software installation is complete

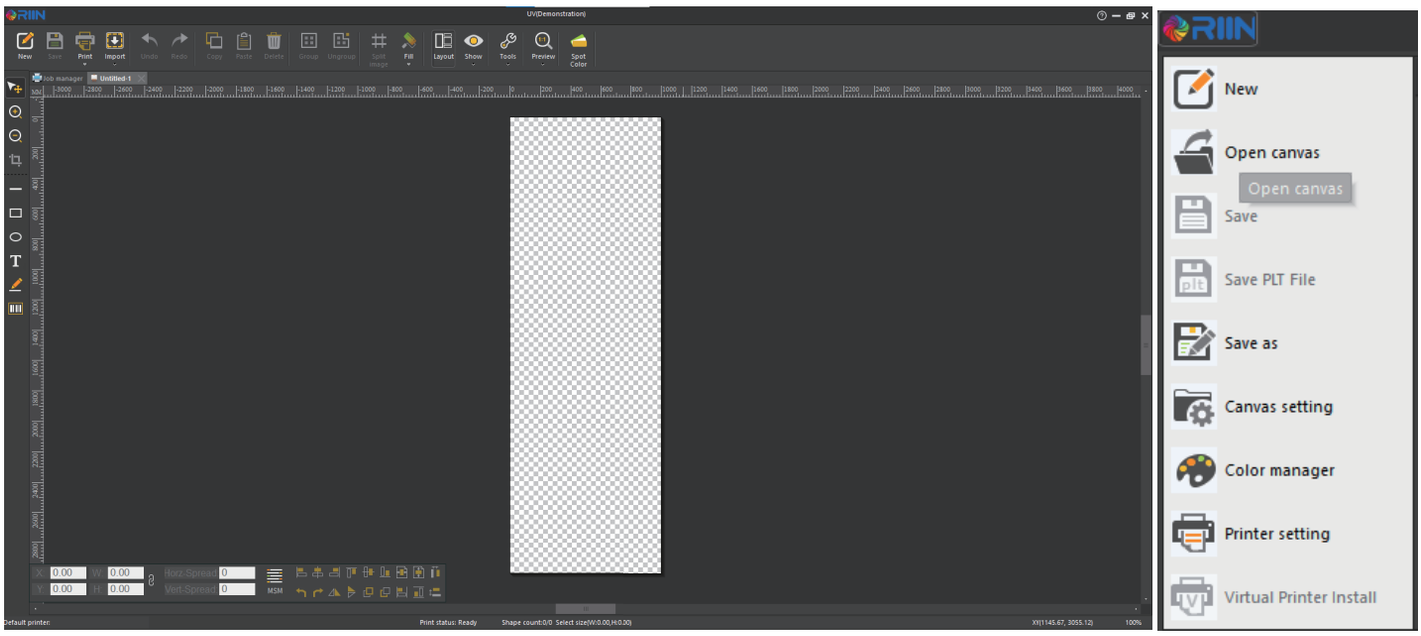




7. Insert the key, double-click/RIIN.exe on the computer desktop to enter the main interface, and the installation is complete



9.2 Introduction and Usage Instructions of RIIN Interface



1. Main Interface Command Instructions

New	Create a new canvas	Import	Import the picture to be printed
Group	Integrate multiple pictures into one	Ungroup	Separate the combined pictures again
Split image	Divide the picture into multiple pictures	Fill	Fill in colors for the drawn closed graphics
Layout	After clicking, convenient layout instructions and Settings for multiple images will appear in the lower right corner. Among them, the material-saving command can be used for automatic layout		
Show	You can select various displays on the interface	Tools	Assist with image configuration and processing
Preview	Window mode and size selection	Spot color	Setting the model of colors
Print	Print the processed pictures		

2.  Drop-down Command Usage Instructions

New	Create a new canvas	Open canvas	Open the previously saved canvas
Canvas setting	Set the canvas size, origin and edge white space	Color manager	Select curve
Printer setting	Click "Import Printer", which is to import the curve, and then select "Set as Default" for the curve file.		

Chapter 10 Maintenance Guidelines

1. Before starting printing each day, perform a nozzle check to verify whether the printhead is clogged. If the test pattern shows missing nozzles (skipped lines), clean the printhead immediately.

2. Operating environment:Temperature: 15°C – 30°C; Relative humidity: 35% – 70%

3. Before shutting down the printer each day, run a nozzle check. If any missing lines are detected, clean the printhead thoroughly before turning off the machine.

4. When powering off, ensure the printhead is properly aligned and fully seated onto the capping station (ink stack). There must be no gap between the printhead and the capping station.

5. During printing, enable spit/flush (flash jet) to prevent nozzle clogging caused by prolonged inactivity of a specific color channel.

6. During printing, ensure the print media does not rub against or contact the printhead to avoid damage or misalignment.

7. Keep the encoder strip clean—dust can interfere with print accuracy. Wipe it gently with a lint-free cloth every 1–2 weeks.

8. Lubricate the guide rails every 2–3 weeks using appropriate lubricating oil.

9. Clean the wiper blade regularly with a lint-free cloth to maintain optimal capping and wiping performance.

10. Periodically clean accumulated ink from the bottom of the carriage (carriage base plate).

11. Regularly clean ink buildup around the capping station (ink stack cap) to ensure the cap remains clean and seals properly.

12. Periodically clean the waste ink tray on the left side of the printer.

13. If the printer will remain unused for an extended period: Place distilled water or a dedicated printhead cleaning solution into the capping station to soak the printhead. Clamp or pinch off the ink tubes and pump lines to prevent evaporation or backflow.