PN33-EC Series Inkjet Printer

Installation Manual

Statement of Information

Note:
The information provided here is very useful for efficient operation and installation of the machine.

Cross-reference:
Indicating a further reference for information or procedures.

Important Reminder:
Indicating that the information provided is important and should be carefully noted.

Warning:
Indicating the only safe method of installation or operation that must be followed.

Caution:
Indicating the only safe method of installation or operation that must be strictly followed.

PN33-EC Series Inkjet Printer Installation Manual
First Edition, November 30, 2024
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Revision History

Version	Prepared by	Date	Remarks
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EC Declaration of Conformity

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Note:
The installation consists of 14 major steps. The installation work should be carried out sequentially, starting from pre-site inspection and ending with operator training. It is summarized below:

List of Installation Steps

Step	Process description	Page
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Safety

General safety instructions

This chapter details the risks and hazards that can be encountered when operating the PN Series Inkjet Printer. Please read and comprehend carefully before operating the inkjet printer.

Cross-reference:
For complete safety information on inkjet printer operation, please refer to this Installation Manual.

Caution: Purpose
The inkjet printer can only be used for its specific purpose as designed, and any use other than that intended by the manufacturer may result in serious injury.

Caution: Protection
The inkjet printer is designed to include specific protective measures that may pose a hazard if they are not in place. Do not operate the inkjet printer if the protective device is missing or damaged.

Caution: Moving Parts
Pay attention to moving parts.

Caution: Entanglement Hazard
Due to the entanglement hazards associated with the inkjet printer, please do not dress loosely, and long hair should be tied up.

Caution: Modification
Do not make any modifications to the inkjet printer. Any modifications may have safety implications for operators.

Caution: Control System
Do not modify the control system. If the control system is damaged or inoperative, stop using the inkjet printer immediately. Do not operate the inkjet printer until the control system has been repaired by a qualified engineer.

Caution: Training
The inkjet printer can only be installed by professionally trained technicians.

Caution: High Voltage
Since the inkjet printer is fitted with a power supply that operates at high voltage, special care must be taken when operating in these areas or when installing it.

Caution: Restricted

Since electrical cabinets are installed with equipment that operates at hazardous voltages,
the area should only be maintained or installed by authorized personnel. Operators are prohibited from entering such cabinets.

Caution: Installation Hazard

When installing the inkjet printer, be sure to wear appropriate personal protective equipment, including protective gloves, safety shoes, and safety glasses.

Caution: Manual Handling

During installation, the inkjet printer is subject to manual handling hazards that may not arise in the process of normal operation, including lifting and moving parts and moving the printer. Always evaluate the lifting or operation beforehand and use appropriate lifting aids whenever possible. If lifting aids are not feasible, use appropriate manual handling techniques. Seek assistance for any lift or operation where possible.

Safety of inks and cleaning fluids

Eco-solvent inks and associated cleaning fluids are mainly used in PN series inkjet printers. Information on safety issues related to the handling, storage, and use of inks and associated cleaning fluids is detailed in their respective documents. Please read these documents before handling inks and associated cleaning fluids.
All inks and associated cleaning fluids are available from local LIYU distributors.

Personal safety

Operators must wear nitrile gloves, protective clothing (e.g., lab coat, coveralls, or protective apron), and safety glasses with side shields when handling ink or maintaining print heads. Safety information for handling inks and cleaning fluids is detailed in the Guide.

Warning:
Given that eco-solvent inks and cleaning fluids begin to penetrate disposable nitrile gloves in less than 10 minutes, gloves should be changed frequently, especially if they are contaminated. If heavy contamination is expected, heavy duty nitrile gloves should be used. Do not reuse disposable gloves. In the unlikely event that gloves are contaminated, they should be handled appropriately.

Due to the colorless nature of the chemicals in the gloves that eco-solvent ink penetrates, the ink is not easily visible. However, this does not mean that exposure does not occur even if there is no visible contamination on the skin.

Latex gloves provide little or no protection, which only temporarily prevent the penetration of certain components of eco-solvent ink, while allowing invisible harmful chemicals to penetrate freely, contaminating the skin with these chemicals and thus increasing the risk of exposure.

Important Information:
Always wear nitrile gloves when using eco-solvent inks.

Considering that eco-solvent inks contain irritating and sensitive ingredients, cumulative exposure may cause allergic reactions. Avoid contact of the ink with skin.

If ink sticks to your skin, wash it off immediately with soap and water. Do not use alcohol to remove the ink as this will transport the chemicals from the ink further into the skin, increasing irritation.
Check your hands regularly for any signs of irritation or inflammation.

If skin irritation or inflammation is caused by contact with eco-solvent inks, consult a physician.

Important Information:
Always wear protective clothing when handling eco-solvent inks.
If clothing is contaminated with ink, remove the clothing as soon as possible and rinse off any ink that comes in contact with your skin with soap and water.

Contaminated clothes can be washed with standard detergents. Avoid washing contaminated clothes at home as this may contaminate other items being washed. A professional laundry service is recommended.

Disposal of ink and waste ink

- All waste contaminated with solidified or partially solidified eco-solvent ink is hazardous and must be disposed of separately. Do not mix contaminated waste with non-hazardous waste (domestic waste, office waste, etc.). Ink waste includes gloves, cleaning cloths, filters, empty containers and any other material containing solidified or partially solidified ink. Waste eco-solvent inks and cleaning fluids are prohibited from being fed into the sewage system or water supply system. All waste must be disposed of in accordance with local regulations and advice on local waste disposal regulations should be sought from local authority.
- Designated individual containers should be provided to dispose of contaminated waste.

Routine use

- Eco-solvent inks shall be only dried under infrared heating, otherwise they will remain liquid. Ink can easily be accidentally spilled, which increases the risk of skin contact.
- Good cleaning is necessary to avoid accidental contact with eco-solvent inks. Always make sure that any leaks, no matter how a small amount of, can be cleaned up as quickly as possible. Make sure the lids of any containers storing inks and cleaning fluids are tightly closed and that the containers are properly placed to prevent them from being easily knocked over.
- Any spilled ink or contaminated material should be disposed of as special waste in accordance with local regulations.

Plane views of the inkjet printer

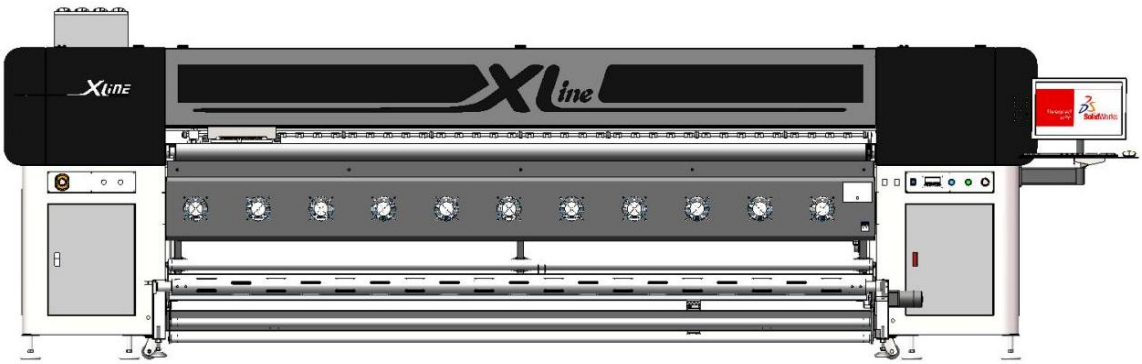


Fig. 1: Front view

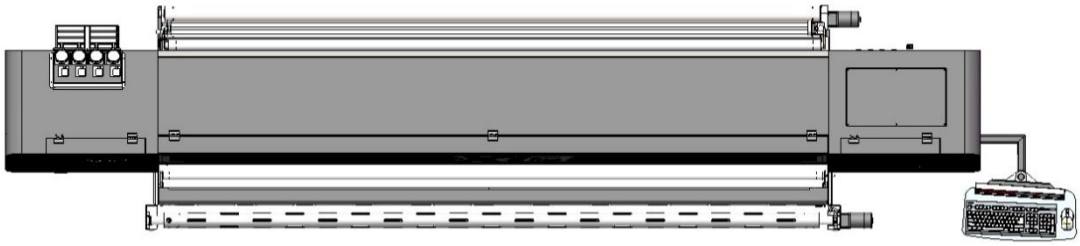


Fig. 2: Top view

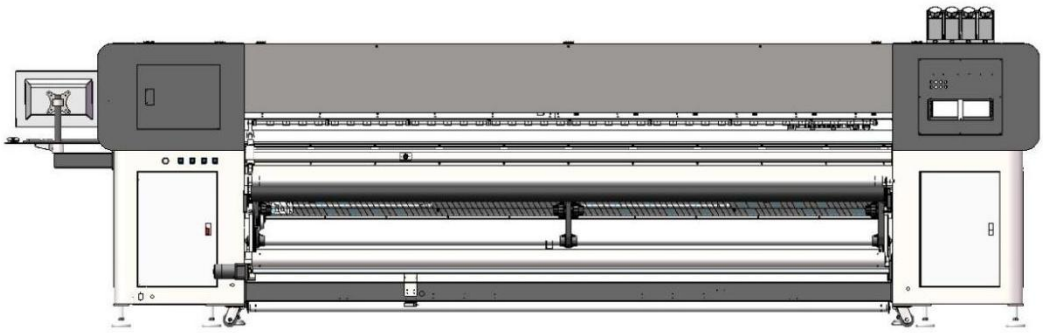


Fig. 3: Rear view

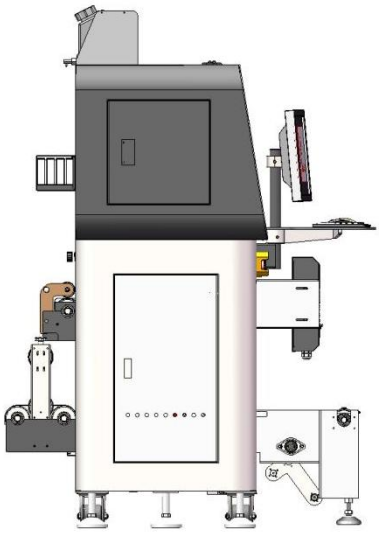


Fig. 4: Left view

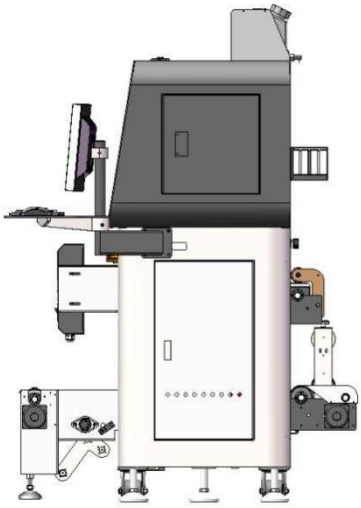


Fig. 5: Right view

Tools required

Note:
The list of tools below specifies the minimum requirements for installing PN series inkjet printers.

Unpacking and installing		
Qty.	Tool	Remarks
1	Cross screwdriver	6*300
1	Straight screwdriver	3*200
1	Internal hexagonal wrench	2/3/4/5/6/8
1	Open end wrench	6-7; 8-10; 14-17
1	Adjustable wrench	375mm
1	Multimeter	Standard type
1	Tape	
1	Dial indicator	Magnetic base
1	Level meter	

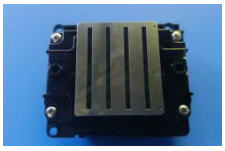
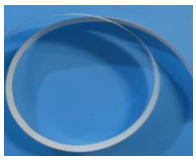
Installation consumables

Note:
The list of consumables below specifies the minimum requirements for installing PN series inkjet printers. End users should use the items highlighted in red in the daily operation of the inkjet printer.

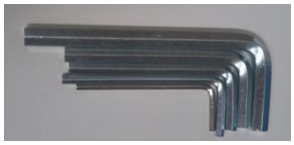
List of consumables		
Description	Purpose	Minimum quantity used
Carriage sticker (1.2 m)	Printing test	1 roll

Non-woven fabrics	Manual wiping of print heads	1 pack
Full set of ink	Ink injecting and debugging	1 set
Cleaning fluid	Rinsing the print head	1 bottle
Nitrile gloves	Protection	1 box
Filter	Attached with the printer	1 of each color
Lithium base grease	For lubricating guide sliders and bearings, to be maintained by the customer at a later stage	1 tube

Packing List

Diagram	Description	Qty.
	PN33 inkjet printer	1
	Print head (I3200-E1)	As per the order
	Print head FFC	As per the order
	Screw of print head M3*10	32
	Press sheet	4
	Four-row tube (white) ₵2.7*5	1m

	Ink tube clip	8
	Butterfly filter	4
	Ink damper	As per the order
	Components of main ink tank	1
	Secondary floating ball ink box	4
	PP software	1
	Power cord (16A)	1

	Air tube (₵4*6)	3m
	Y-type three-way valve	8
	Syringe	1
	Air tube adapter ₵6 to ₵8	1
	Cross screwdriver 6*300	1
	Straight screwdriver 3*200	1
	Internal hexagonal wrench S=2,3,4,5,6	1 set
	Solid wrench 6-7; 8-10; 14-17	1 set
	Attached USB flash disk	1

Note:

The above list is a generalized list, and the actual materials in the accessory case are subject to the order.

Factory requirements

Important Reminder:
Please note the tonnage of the forklift prior to installation as a forklift with the appropriate tonnage and fork arm size may be required on site, especially when unloading.

Important Reminder:
Give that the gross weight of the machine in the transport container is about 1240 kg, a forklift with a tonnage of at least 2 t, a fork length of at least 1200 mm (with the fork protruding from the edge of the packaging case by at least 100 mm), and a spacing between the fork arms of more than 850 mm is required.
The Manual is not applicable for unloading the parked inkjet printer from the original shipping container.

On-site requirements

Note:
The following on-site services are critical to the smooth and timely installation of the machine and the subsequent safe and efficient operation of the inkjet printer.

AC power supply	Voltage	Frequency	Wiring	Current
	200~240 V AC	50 / 60 Hz	Single phase	15 A

Compressed air	Pressure (min.)
Clean, dry and oil-free Filter before the machine	90 psi
	0.6 MPa

Ventilation
It is recommended that the inkjet printer be placed in a clean, dust-free, and well-ventilated area. If in an enclosed location, a ventilation system is required with a recommended ventilation rate of 50 m^3/min.

PN33-EC Series Inkjet Printer

Pre-installation Preparations

Space requirements

Note:
The area shown below is the minimum area (recommended) for safe and efficient operation of the injekt printer. More space should be left, if allowed.

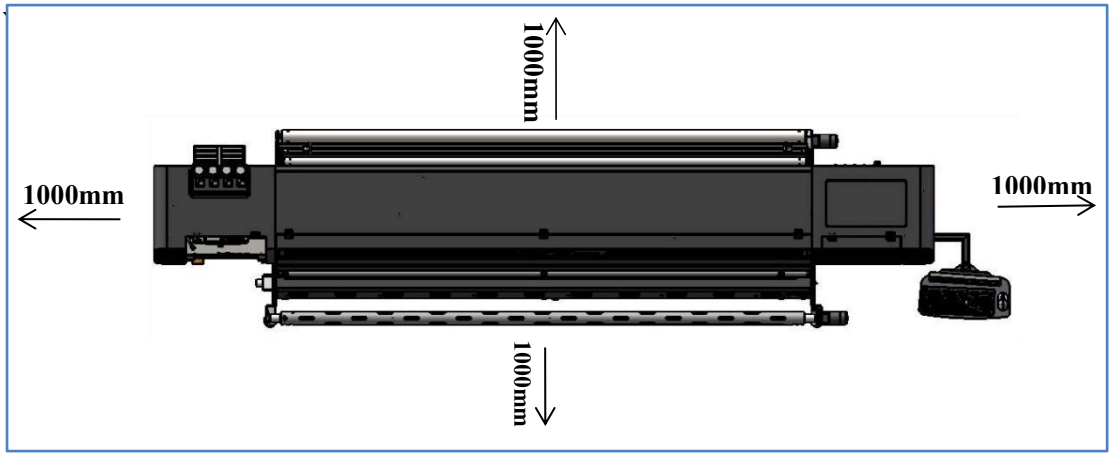


Fig. 6: Space requirements for the inkjet printer

The inkekt printer covers an area of 5.4 m x 1.2 m with a minimum requirement of 1 m clearance all around. To ensure safe operation, a safety space of 7.4 m x 3.2 m is required.

Restricted area

Caution:
It is recommended that the minimum operating area be marked on the floor around the printer.
Only trained operators are allowed access to the minimum operating area.

Moving the inkjet printer

Important Reminder:
Once the inkjet printer has been taken out of the transport case, it is recommended that the packing and filling materials not be removed while moving it to its final position.
Ideally, the route to the final position should be as smooth as possible to avoid stressing the inkjet printer as it moves.
The inkjet printer can be moved using a forklift or manually pushed into position using the casters. If manually positioned, it requires 4 people distributed at each corner of the machine to push and guide it into position.

Ground requirement

The inkjet printer must be placed on a level, stable ground capable of supporting the weight of itself and all nearby materials and equipment during normal operation.
Do not place the inkjet printer on carpet or any surface that may twist over time, as its levelness may change, resulting in reduced print quality.

Note:
If the preferred area for positioning the inkjet printer is uneven or has a soft ground surface, a metal substrate can be used to hold the inkjet printer.
Do not place the inkjet printer on any surface that cannot support its weight, as this may be dangerous and it may twist or move over time!

Environmental requirements

Parameter	Specification
Operating temperature (℃)	15 - 28
Operating humidity (RH %)	30 - 70
Storage temperature (℃)	20 - 60
Storage humidity (RH %)	5 - 85 (non-condensing)

Caution:
Do not store or install the printer in the following locations:
near any local heat source;
places exposed to direct sunlight;
places subject to vibration;
places where there is excessive dust;
places where there are extreme changes in temperature or humidity;
places where the inkjet printer might get wet;
places where there is poor ventilation/air circulation;
places where the floor is unstable or unable to support the load of the printer and other equipment and materials; and
places near a diazo copier that may produce ammonia.

Ventilation

Parameter	Specification
Air quality	Well-ventilated area where ink fumes can be kept to a minimum
Ventilation requirement	≥ 50 m^3/min

Power requirements

AC power supply	Voltage	Frequency	Wiring	Current
	200 - 240 V AC	50 / 60 Hz	Single phase	15 A

Air supply requirements

Compressed air	Pressure (min.)
Clean, dry and oil-free Filter before the machine	90 psi
	0.6 MPa

Note:
The printer is not supplied with operating computers, users must purchase their own (unnecessary if optional).

For optimal performance, we recommend that the computer should meet the recommended requirements below. As with all computer software, systems with faster processors, more memory, and more storage space allow for larger files to be processed, and processing time can be reduced.

Computer configuration requirements

Note:
The computer shall be configured to meet the following requirements. The specifications of the printer's computer are shown below. Deviations from the minimum specifications listed below may cause the printer's computer and the services it runs to operate slowly and unreliably.

Parameter	Specification
Operating system	Windows 10, 64-bit
CPU	Intel (R) Core™ i7 11700 @3.30GHz 3.29 GHz
RAM	≥ 16 GB
Internal HDD	≥ 500G
USB port	USB 3.0 (2 required)
Input voltage	220V
Mainboard	Brand mainboard of high quality
Monitor	Recommended brands, ≥ 27 inches

It is highly recommended to purchase a branded desktop computer instead of a cheap assembled one.

Note:
The computer must meet the minimum requirements listed above.

PN33-EC Series Inkjet Printer

Unloading and placement of the machine

Unloading of the machine

Machine size

See the table below for the actual size of the inkjet printer and the size of the packaging case.

Parameter	Inkjet printer	Packaging case
Length	4910mm	5060mm
Width	1130mm*	950mm
Height	1480mm	1670mm
Weight	1000 kg	1240 kg

*The size is smaller than that given on the drawing

Arrival of machine

The machine will be packed in a standard container and transported to the port where the machine will be removed and then transported to the customer's site or local warehouse. Please keep in contact with your local service team to confirm how the inkjet printer will be delivered.

Unloading method

Caution:
Unloading of transport vehicles should be carried out by experienced personnel with correct devices.

Note:
The weight of the inkjet printer in the container is around 1240 kg. To unload the inkjet printer from the transport vehicle, a forklift with a rated capacity of not less than 2 t and a fork length of not less than 1200 mm (with the fork protruding at least 100 mm from the edge of the packaging case) is required.

Unloading space

Note:
The information provided here is very useful for efficient operation or installation of the machine.

For the purpose of convenience, it is recommended that the area for unpacking should be 3-4 times of the packaging case. In this particular case, an area of 8 m x 4 m is shown.

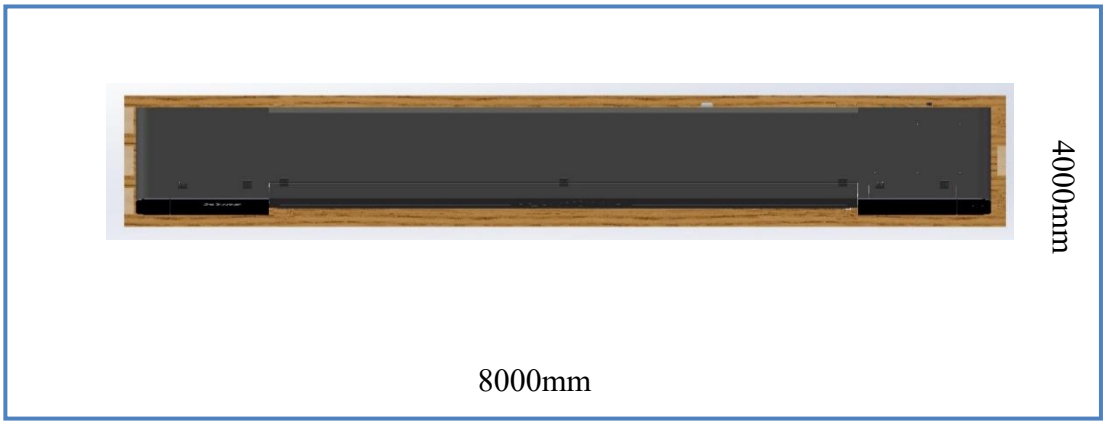


Fig. 7: Recommended unloading area around the packaging case

This provides a sufficient space for the entry of the forklift in front of the packaging case.

The center of gravity of the machine

Caution:
The inkjet printer is in the center of the packaging case, therefore, the center of gravity of the case is at the center point of the long side of the case.

Note:
In order to help remove the inkjet printer out of the packaging case, the hoisting point of the fork of the forklift is marked in yellow on the lower edge of the front panel.

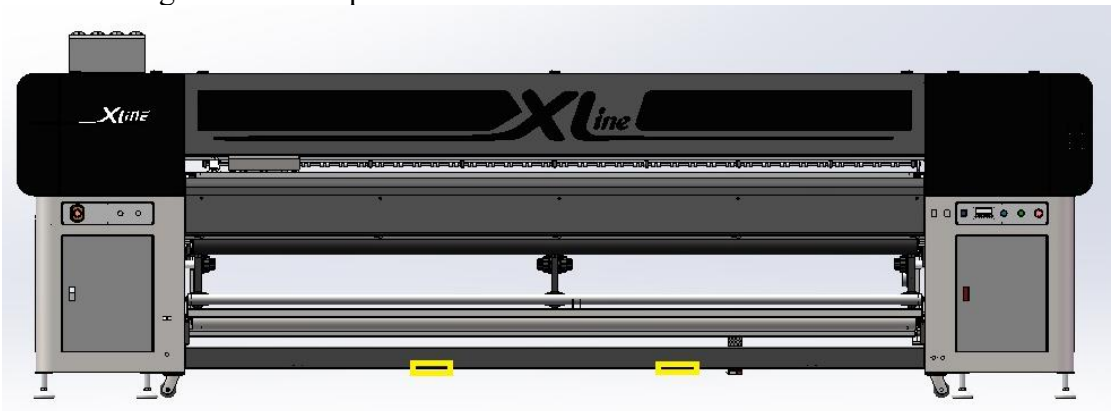


Fig. 8: Hoisting point of the fork

Unpacking of the inkjet printer

Unpacking

The packaging case is assembled using bolts. Disassemble the panels in this order: (1) top panel, (2) front panel, (3) rear panel, (4) left panel, and (5) right panel. Remove the bolts located around each panel.

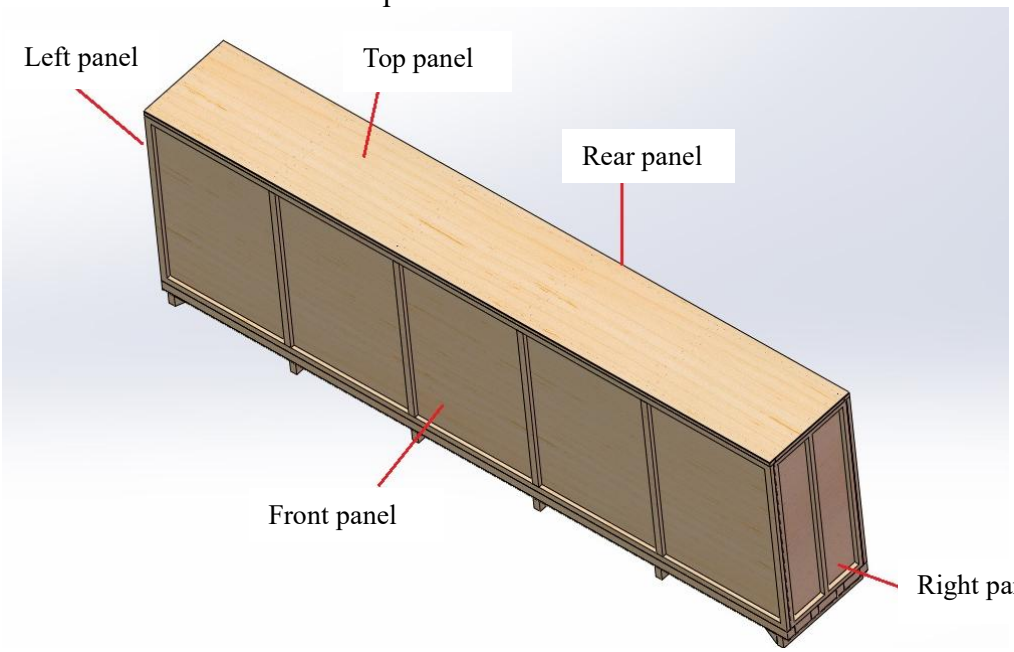


Fig. 9: Packaging case

Note:
The following figure shows the location of the bolts and their sizes to facilitate efficient disassembly of the packaging case.

Fig. 10: Positions of bolts on the packaging case

The green marked ones in the figure are M10x140 hexagonal bolts; the other yellow marked ones are M10x120 hexagonal bolts;

Disassembly of packaging fixing frames

The inkjet printer is packed in a wood case with a base. The inkjet printer frame is fixed onto the base with screws by means of four brackets, two at the front and two at the back.

Fig. 11: Positions of packing fasteners

A total of 4 packing fasteners are fixed at the front and rear of the red markings, each with four M8x50 hexagonal head screws.

Lifting of the machine from the packaging base

Important Reminder:

Be sure to remove all fixed supports fixed that secure the inkjet printer to the base before lifting it from the packaging base. Failure to do so may cause damage to the inkjet printer.

Fig. 13 shows the inkjet printer in inner package. It is suggested that the packing bag is not removed, until the machine arrives at the final location. The lifting points of the inkjet printer are circled in red.

Fig. 12: Removing the top and surrounding panels of the packaging case

Proper placement of inkjet printer

Important Reminder:
Once the inkjet printer is removed from the transport case, it is recommended that its packing and filling materials not be removed while moving it to its final position.

Once the inkjet printer is removed from the transport case, it is recommended that its packing and filling materials not be removed while moving it to its final position.
Ideally, the route to the final position should be as flat and smooth as possible.
The inkjet printer can be placed on a forklift to move to an appropriate position or manually pushed into an appropriate position using the casters. Manual positioning requires four people to move the machine safely, each standing at each corner of the machine.

Removal of packaging limit block

Caution:
Before performing any other work on the inkjet printer, make sure that the transport bracket has been removed, which should be done after the inkjet printer has been positioned into its intended position.
To prevent the carriage from moving in the X direction, transport bracket must be removed before the machine is energized.
The following shows the position of the transport bracket (in red) that holds the carriage in place when the front door of the upper right box is opened.

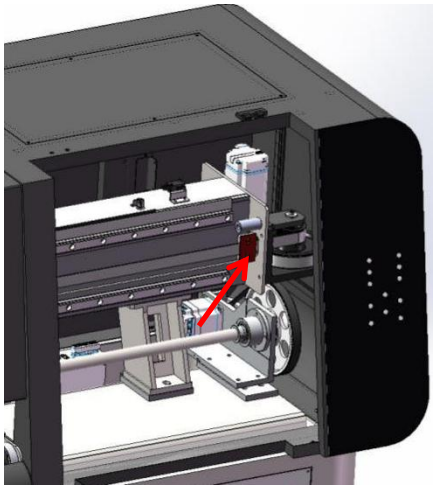


Fig. 13: Position of the transport bracket from the right front of the machine with the upper right box door open

PN33-EC Series Inkjet Printer

Assembly of external components

Assembly of external components

Several sub-components/parts of the inkjet printer need to be recovered according to the configuration. These components are shipped separate from the main unit for convenient loading and transportation, and they are packaged to be placed inside the machine. The installation position is as shown in Fig. 15.

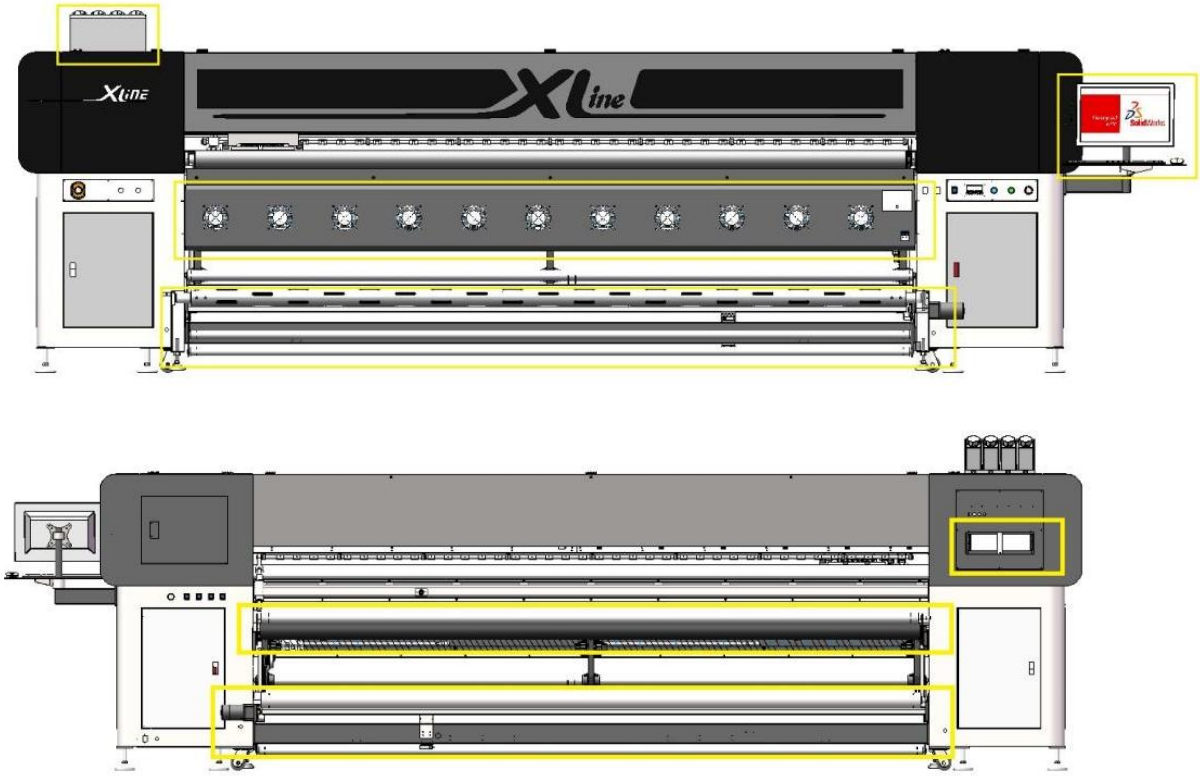
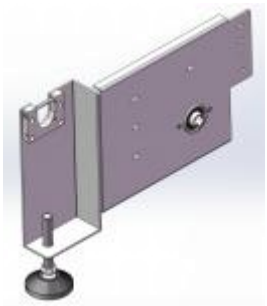
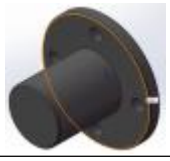


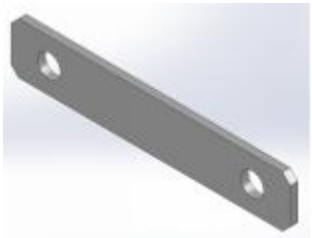
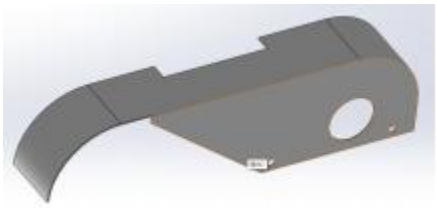
Fig. 14: Assembly position of external components

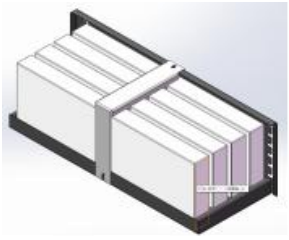
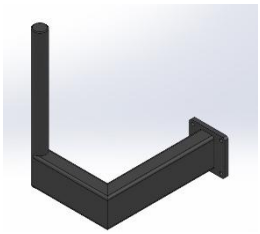
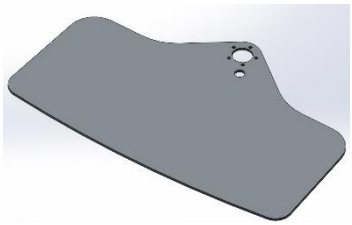
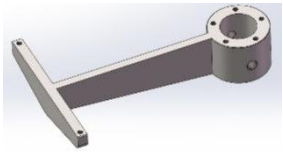
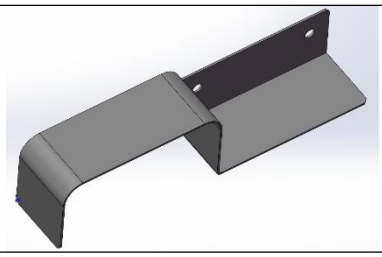
S/N	Description	Diagram	Qty.
1	Media take-up left support component		1

2	Media take-up right support component		1
3	PZ32-11.13 Double-roll paper feeding shaft		2
4	PN33-12.19 Media take-up bracket beam		1
5	Media take-up air shaft component		1
6	PN33-12.13 Brace		4
7	Intermediate cartridge		1
8	AC dual power chuck		1

9	PN33-12.20 Media take-up center support		1
10	PN33-11.21 Media take-up gear guard		1
11	Media take-up tension rod component		1
12	PF18-11.34 Paper feeding tension rotating shaft		2
13	Right support assembly of media winding shaft		1
14	Left support assembly of media winding shaft		1
15	PN33-11.35 01 holder base plate		2

16	Rubber rough roll component		1
17	Pressure bar component		1
18	Media feeding retaining disk component		2
19	PN33-11.41 Guide rail beam of paper retaining disk		1
20	PN33-11.40 Support of paper retaining disk		1
21	FS33-20.23 Support of retaining disk beam		1
22	Right support component of media feeding shaft		1

23	PN33-11.14 Left support of media feeding shaft		1
24	Feeding roll component		2
25	PN33-11.13 01 Media feeding holder base plate		4
26	PN33-11.23 02 Media feeding gear cover		1
27	PN33-12.17 IR drying left mounting plate		1
28	PN33-12.18 IR drying right mounting plate		1
29	Components of main ink tank		1

30	Secondary ink box component		1
31	FH32-21.11 Console mounting base		1
32	FH32-21.12 Keyboard pallet		1
33	FH32-21.14 Keyboard stand		1
34	FH32-21.15 Display stand		1
35	PN33-11.36 Media take-up gear cover		1
36	Fastener kit		1

Installation of display stand and keyboard stand

- Step1:

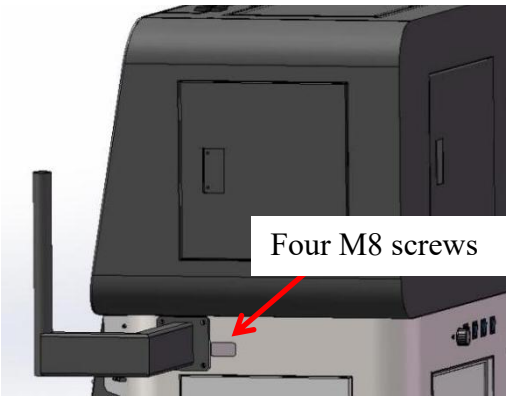


Fig. 15: Installation of console mounting base

- Step2:

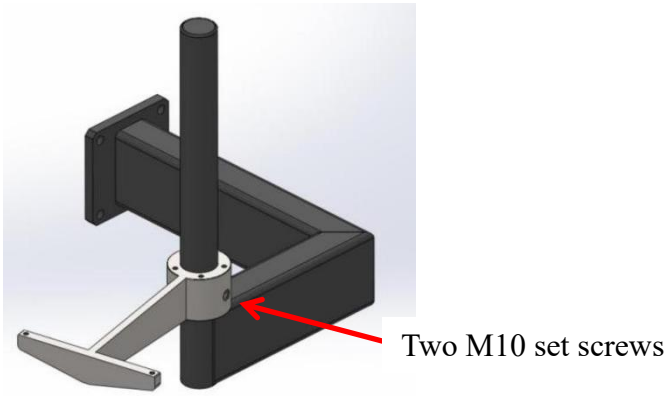


Fig. 16: Installation of keyboard stand

- Step 3:

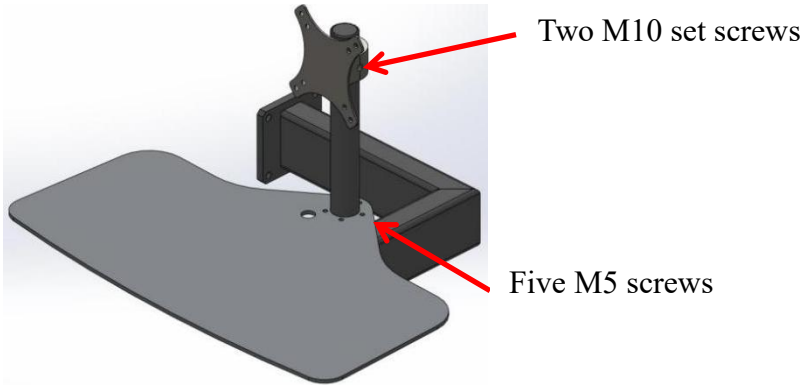


Fig. 17: Installation of keyboard holder and display stand

Installation of IR drying components

- Step 1: In order to meet the space requirements for container transportation, the IR drying components should first be removed and then installed inside the machine. Open the left and right lower box doors and you will note two M6 screws on each side.

Fig. 18: IR drying components in unpacked position

- Step 2: Install the IR drying left and right supports using three M6 screws on each side.

Fig. 19: Installation of IF drying left and right rear supports

- Step 3: Install the IR drying components using two M6 screws on each side.

Fig. 20: Installation of IR drying components

Installation of media feeding system

- Step 1: Install the left and right supports with 2 base plates on each of the left and right sides against the box.

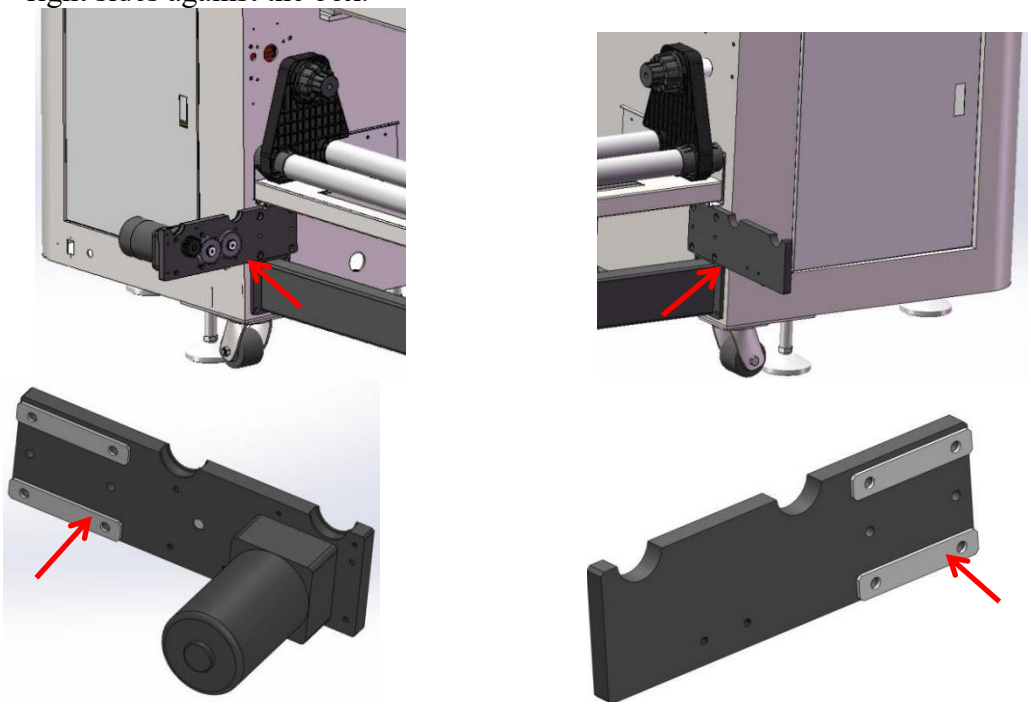


Fig. 21: Installation of double-roll media feeding support

- Step 2: Install retaining disk components

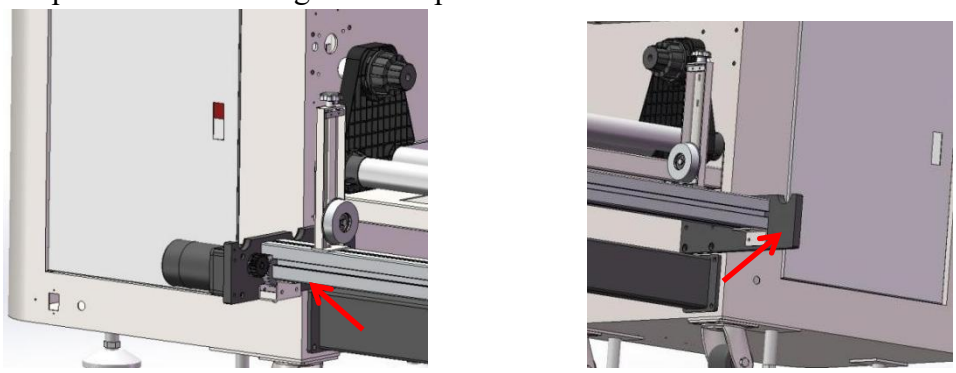


Fig. 22: Installation of retaining disk components

- Step 3: Install feeding roll and gear cover

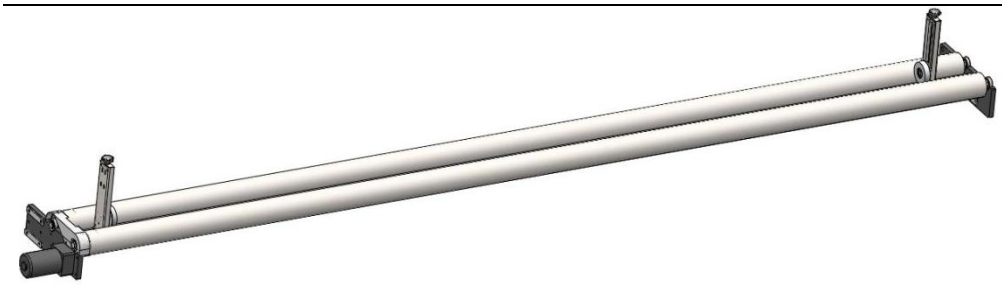


Fig. 23: Installation of feeding roll

➢ Step 4: Install winding roll components

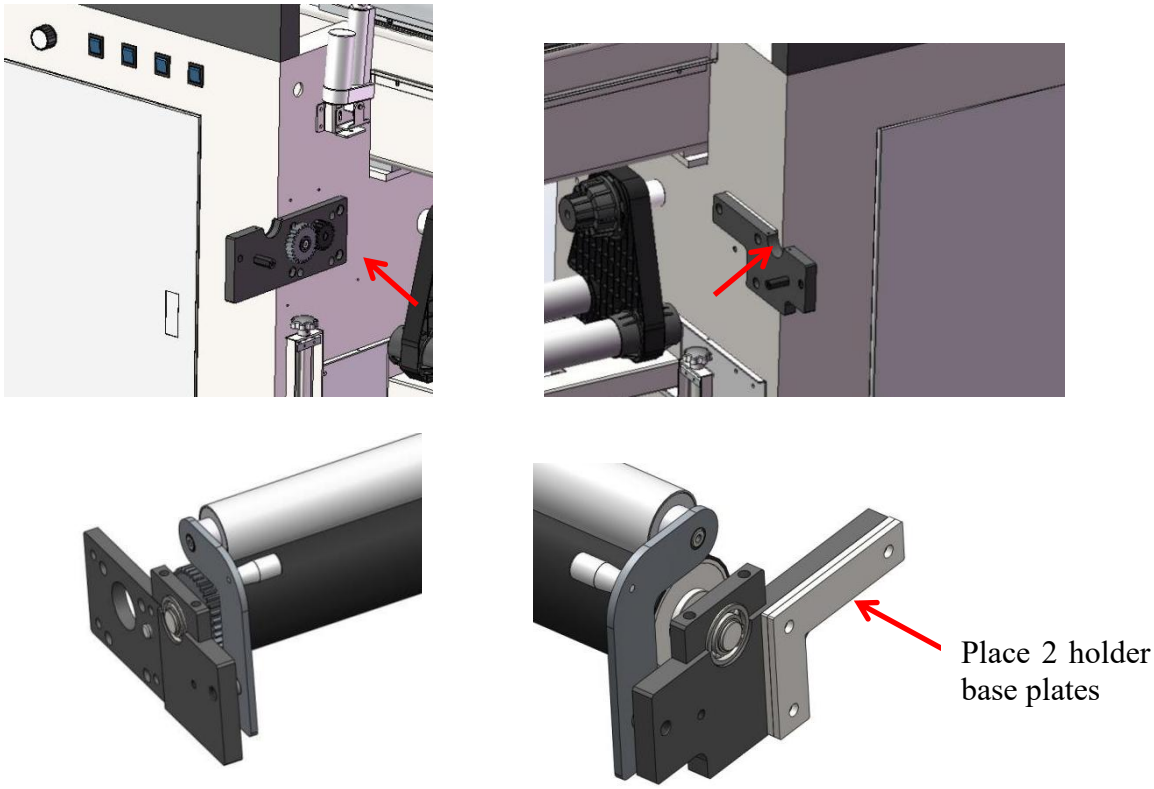


Fig. 24: Installation of winding roll components

Installation of media take-up system

➢ Step 1: Install the left and right supports of the media take-up system and adjust the supporting legs.

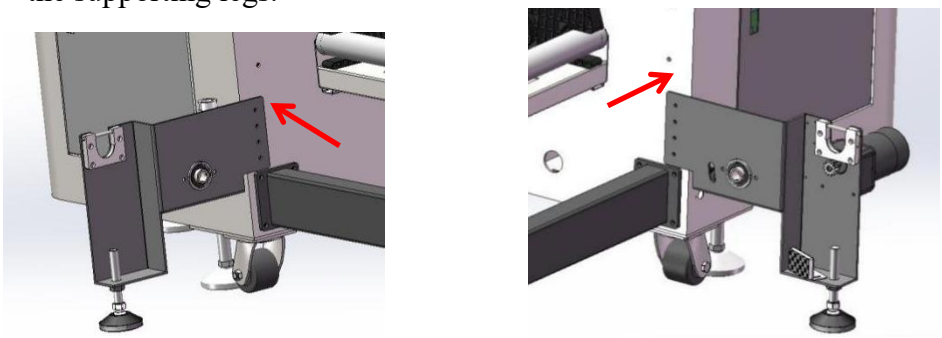


Fig. 25: Installation of left and right supports of the media take-up system

- Step 2: Install media take-up tension rod components and air shaft components.

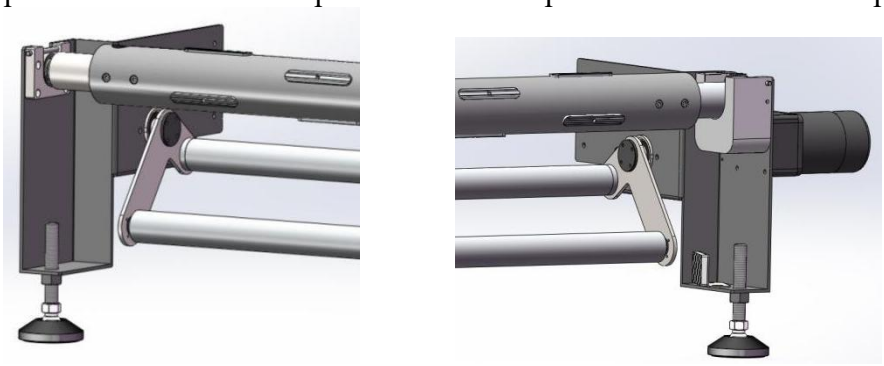


Fig. 26: Installation of air shaft components and tension components

Installation of main ink tank and secondary ink box

- The 4-color main ink box shall be placed according to the KCMY logo, and the secondary ink box shall be also installed according to the KCMY color sequence and fixed on the chassis.

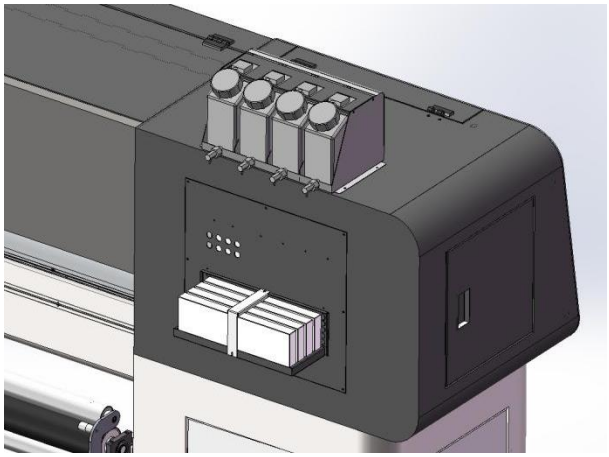


Fig. 27: Installation of main ink tank and secondary ink box

PN33-EC Series Inkjet Printer

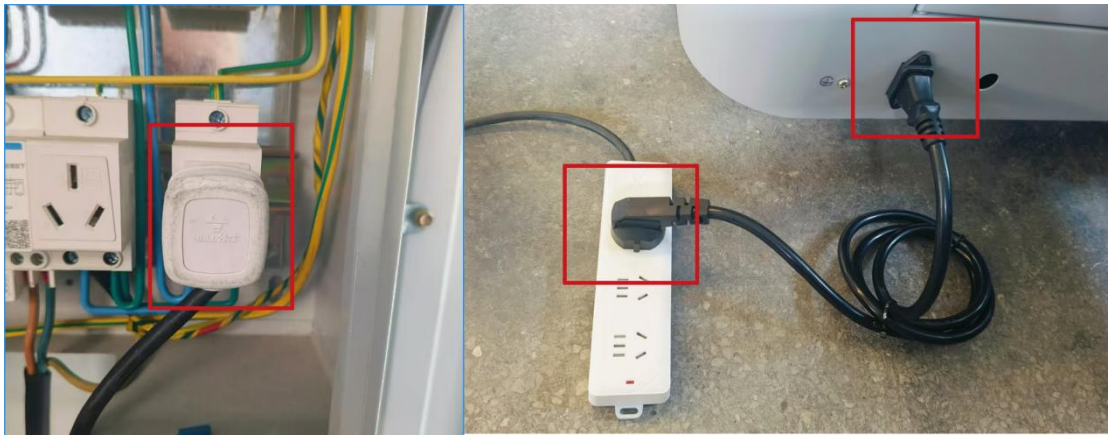
Connection Services

Power supply connection of inkjet printer

Caution:
NOTE!! Any work involving wiring or connection to the main power must be performed by qualified electrical technicians.

AC power supply	Voltage	Frequency	Wiring	Current
	200~240 V	50/60Hz	Single phase	15A

External power supply connection of mainframe of the inkjet printer:



External power supply connection of IR drying components:

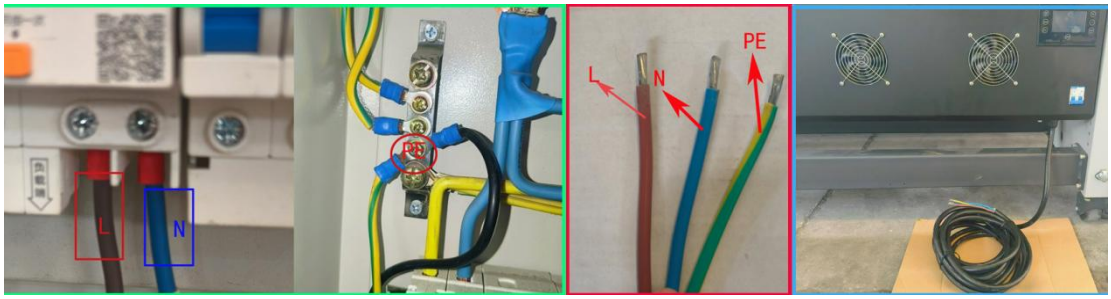


Fig. 28: Power supply connection of inkjet printer

Grounding

Caution:
All the grounding connection points are on the back of the inkjet printer.

Fig. 29: Grounding connection of inkjet printer

Connection between inkjet printer and computer

Important Information:
The inkjet printer and computer are connected via NET port connector and marked with the following symbol:

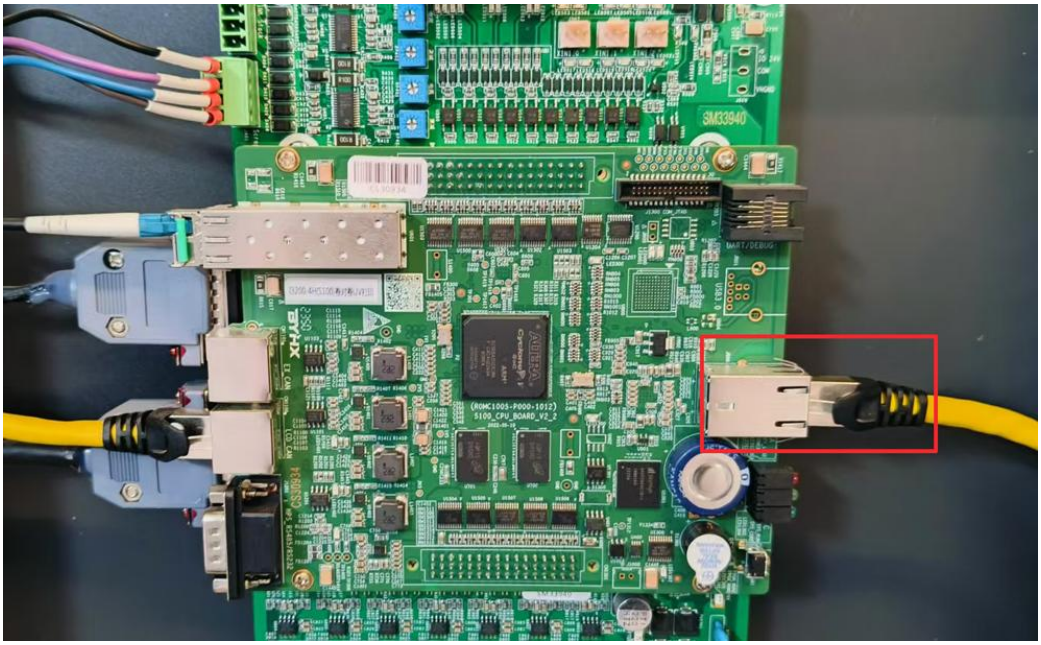


Fig. 30: Connection between inkjet printer and computer

Connecting the compressed air supply system

Note:
Compressed air conforms to the following requirements

Compressed air	Pressure (min.)
Clean, dry and oil-free. It should be filtered before connecting to the machine.	90 psi
	0.6MPa

Powering-on

Important Information:
Before powering-on of the machine, please check whether the packaging fixing frames that fix the carriages onto the crossbeam have been removed. In addition, it should be ensured that the computer, electrical devices and compressed air facilities are correctly installed and connected to the inkjet printer.
Release all the Emergency Stop buttons at each corner of the inkjet printer. Turn the button switches counterclockwise to remove them. The location of 2 emergency stop buttons is as shown in the following figure.

Fig. 31: Location of Emergency Stop buttons

PN33-EC Series Inkjet Printer

Introduction to Functions of Machine

Front Components and Buttons of the Machine

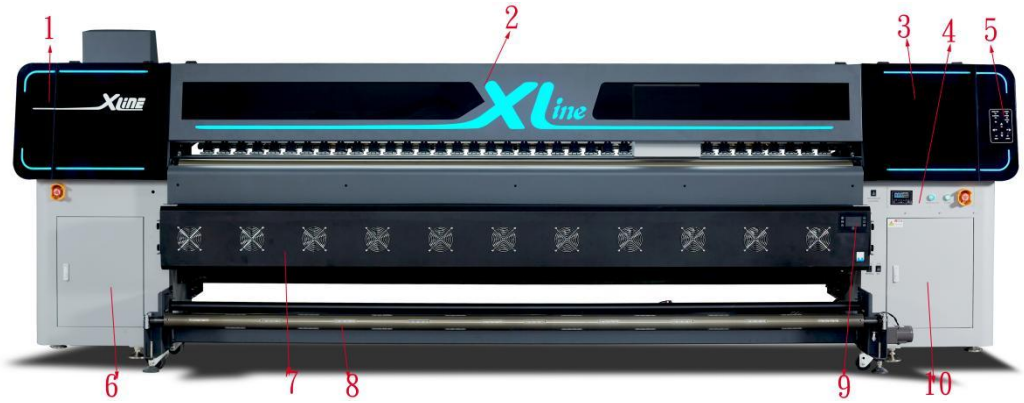


Fig. 32: Front components and buttons of the machine

Rear components and buttons of the machine

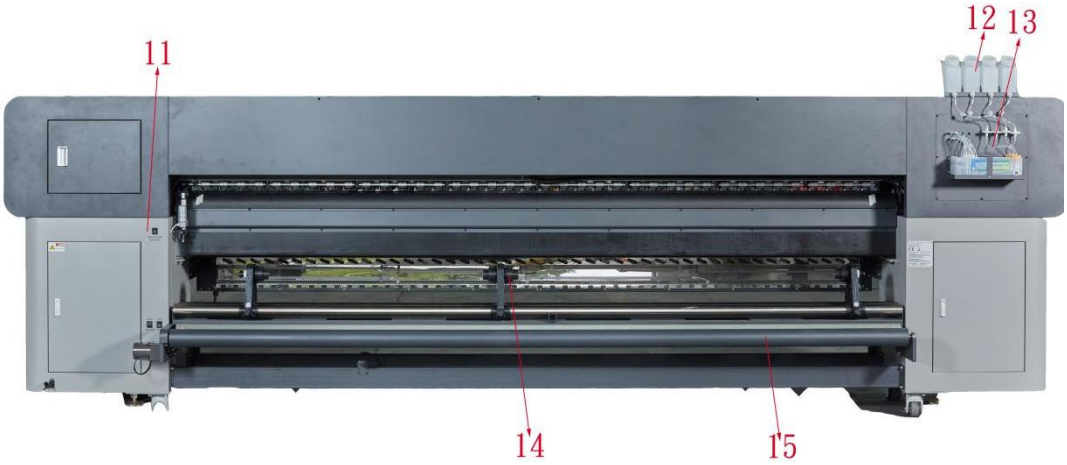
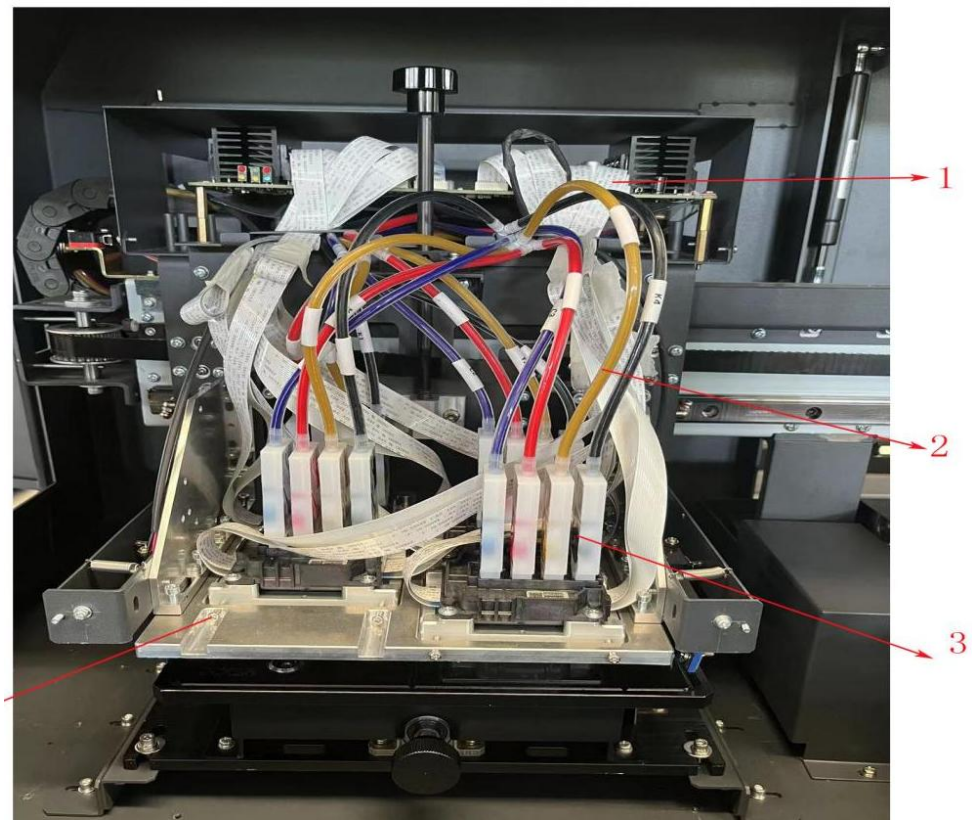


Fig. 33: Rear components and buttons of the machine

1: Upper Left Box	Generally speaking, the carriage stops inside the upper left box when it is idle
2: Guide Cover	Dust proof, provide protection for carriage parts
3: Upper Right Box	Main ink tank can be placed
4: Right-front Control Panel	The buttons on this panel from left to right are: electric wheel lifting button, front, middle, and rear

	heating control button, LED lighting button, adsorption control integrated control panel, front transition roller switch button, start button, and emergency stop button
5: Button Panel	Connect the control board allows for several quick operations, such as printing operation
6: Lower Left Box	In the lower left box, there are mainly ink stack ink pump and waste liquid box
7: Front Infra-Red Heating	Infra-red heating unit contains infrared heating tube and fan, mainly used for further drying of images printed, ensuring that the ink is dry
8: Single-roll Media Take-up Shaft	Finish the take-up operation
9: Front IR Heating Control Panel	Control the temperature of front IR heating control panel, the fan, and heating area and other functions
10: Lower Right Box	It is the main electrical area of the machine, where strong electrical components such as control boards and cards are installed
11: Right-back Panel	The buttons on this panel from left to right are: electric wheel lifting button, manual and automatic switching of fabric placement button, and forward and reverse switching of fabric placement motor button and so on
12: Main Ink Box Assembly	The installation location of the machine's main ink box
13. Secondary Ink Box	The installation location of the machine's secondary ink box
14: Paper Feeder of Photo Machine	The feeding structure of paper feeder of photo machine
15: Feeding Shaft	Double-roll feeding structure

Parts of carriage assembly



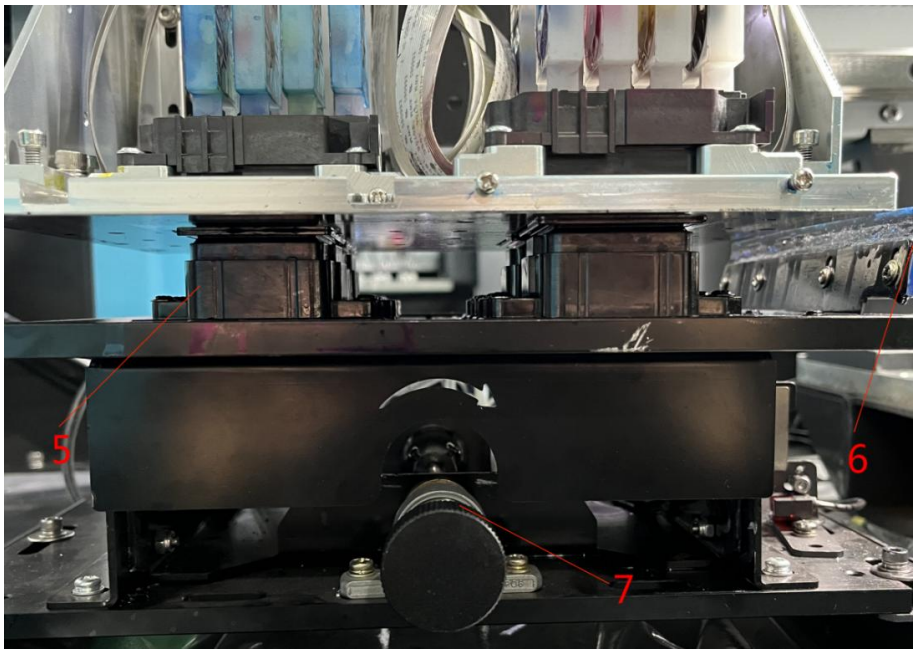


Fig. 34: Parts of carriage assembly

1: Print Head FFC	For print head power supply and signal

	transmission
2: Ink Tube	Tube for delivering ink to the print head
3: Ink Damper	Store the ink, conduct secondary filtration, and supply the ink to the print head to realize the function of ink delivery.
4: Adjusting Screw for Print Head	To adjust the inclined as well as forward and backward physical positions of the print head
5: Ink Stack	For sucking and cleaning the print head on the ink carriage and moisturizing
6: Wiper	Scrape off the residual ink on the surface of the print head after cleaning the print head
7. Manual Lifting of Ink Stack	Manually control the lifting of the ink stack

Button panel

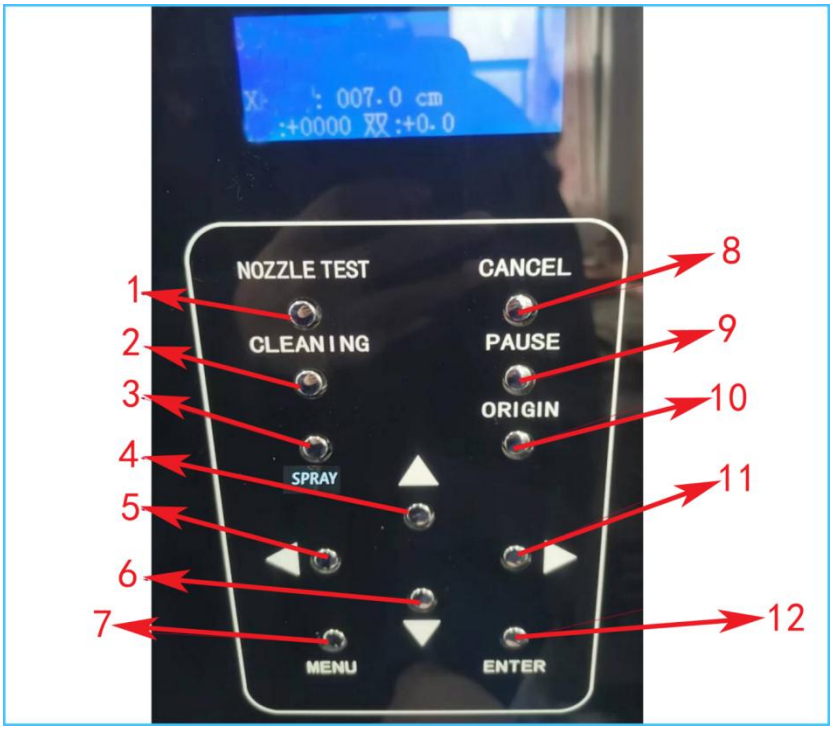


Fig. 35: Button panel

S/N	Description	Function

1	Nozzle Test button	Check the nozzles
2	Cleaning button	Conduct cleaning operation
3	Flash Spraying button	It can allow the nozzle to flash spay
4	Up button	Move the Y-axis backward
5	Left button	Move the carriage to the left
6	Down button	Move the Y-axis forward
7	Menu button	Execute other operations, such as cleaning and printing the nozzles
8	Cancel button	Cancel the printing task
9	Pause/Continue button	Pause/Continue the printing process
10	Origin button	The print origin of the carriage can be set

Control panel of print platform

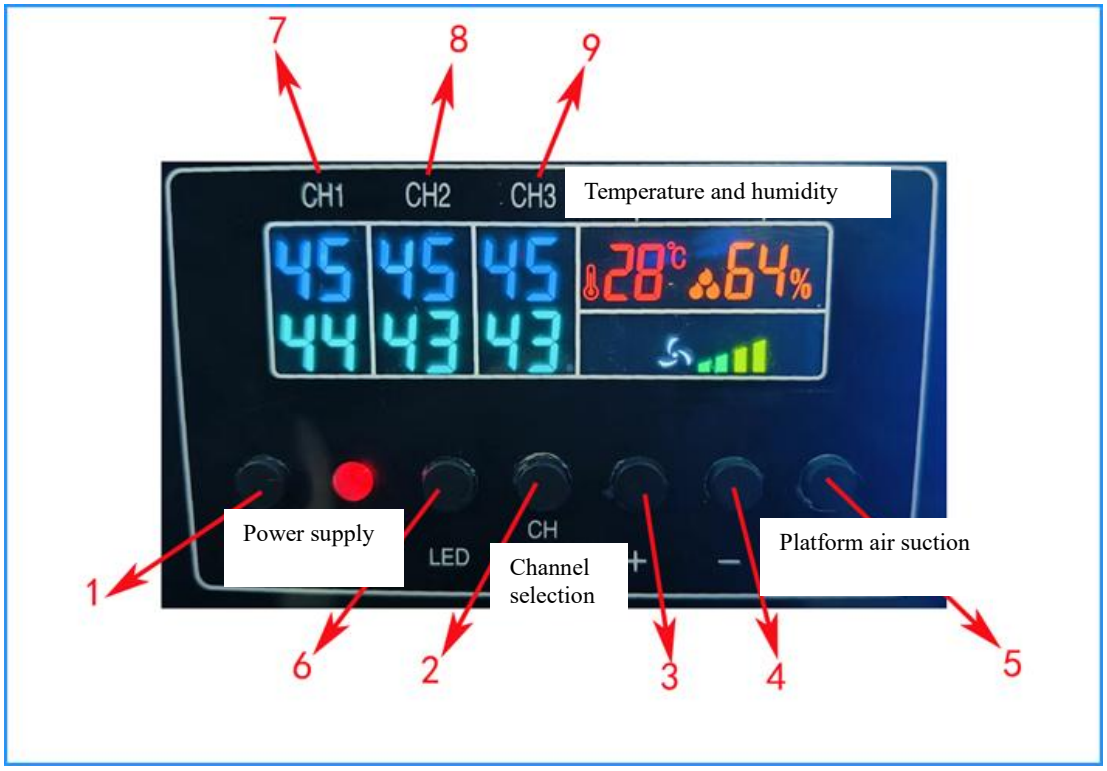


Fig. 36: Platform control panel

S/N	Description
1	Power on
2	Channel selection
3	Increase
4	Decrease
5	Platform air suction switch
6	Lighting
7	Temperature setting and actual display of the front arc panel

8	Temperature setting and actual display of the printing platform
9	Temperature setting and actual display of the rear arc panel

Drying control panel

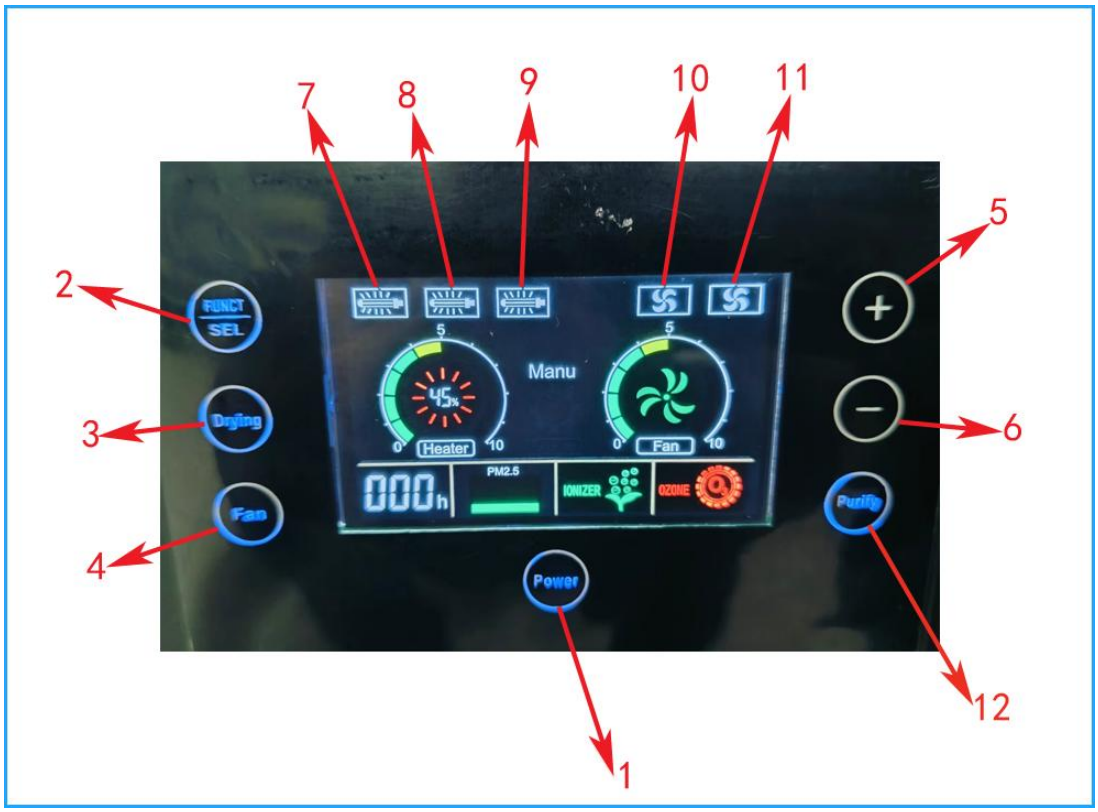


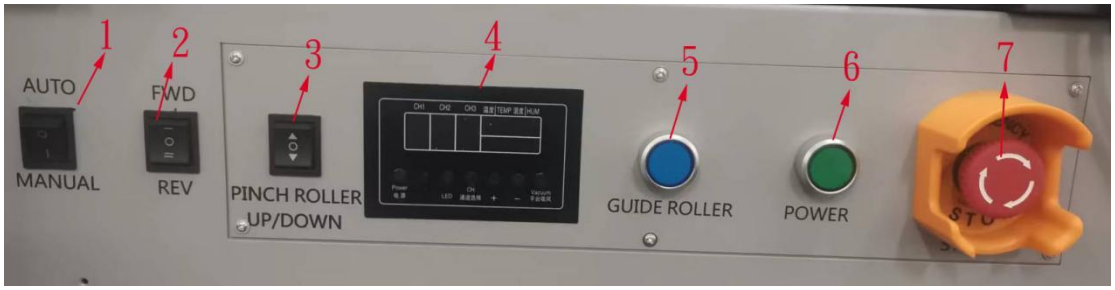
Fig. 37: Drying control panel

S/N	Description
1	Power on
2	Setting button
3	Heating button
4	Fan button
5	Increase
6	Decrease
7	Left heating area
8	Middle heating area
9	Right heating area
10	Left fan area (5 groups)
11	Right fan area (5 groups)
12	Purification button

Left button panel

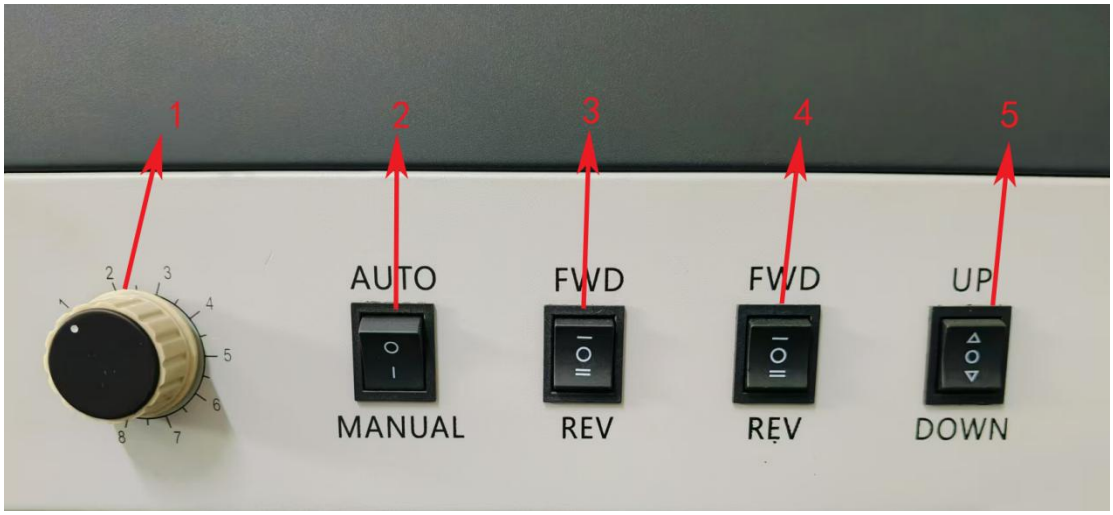
S/N	Description
1	Emergency Stop button: In case of an emergency, press the button, and the inkjet printer will stop running.

Right button panel



S/N	Description
1	Media take-up: Manual/Auto
2	Media take-up motor: Forward/Reverse
3	Pinch roller up and down: Up/Down
4	Intelligent control panel: To control and set the front, middle, and rear heating, adsorption adjustment, switch, and LED light switch of the printer platform area
5	Front guide roller button: On/Off
6	Power button: Start the machine
7	Emergency Stop button: Once the power is turned off, the inkjet printer will stop running.

Rear right button panel



S/N	Description
1	Media feeding bottom double-roll motor: Speed regulation
2	Media feeding motor: Manual/Auto
3	Media feeding up roll: Forward/Reverse
4	Media feeding bottom double-roll: Forward/Reverse
5	Pinch roller up and down: Up/Down

Introduction to functions of board card

- Mainboard

S/N	Item
1	X direction motor driver
2	Y direction motor driver
3	Button panel socket
4	Single optical fiber socket
5	Ink stack motor socket
6	X direction left sensor signal
7	X direction right sensor signal
8	Ink stack lifting sensor signal
9	Carriage anti-collision signal
10	Port that connects to the computer host
11	MainBoard power supply socket
12	Ink supply pump socket
13	Y direction drying On/Off

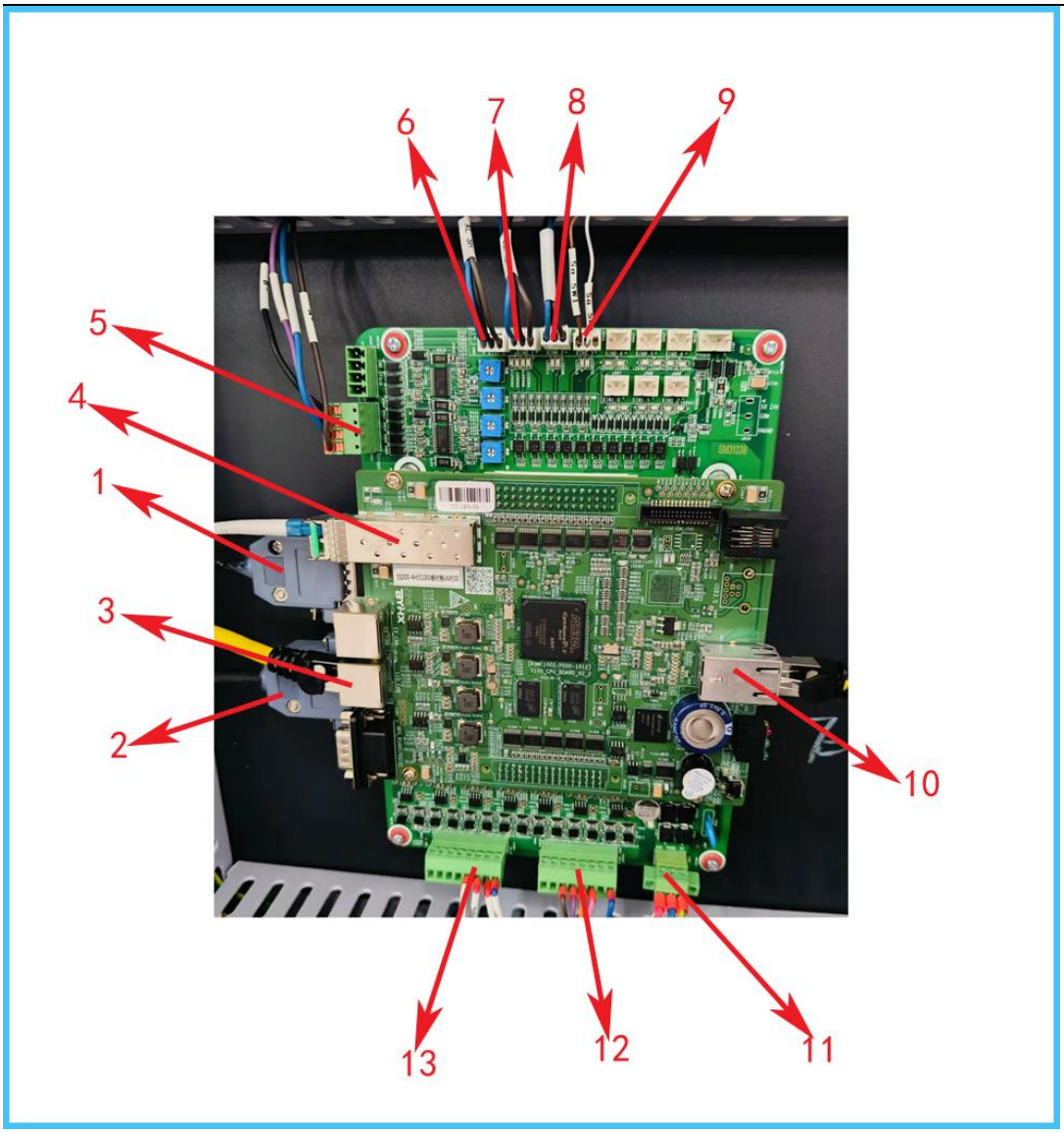


Fig. 38: Wiring diagram of mainboard

➢ Print head board

S/N	Description
1	Single optical fiber socket, connected with the MainBoard
2	Optical grating decoder socket
3	Power supply socket (42V) of carriage board
4	Channel 1
5	Channel 2
6	Channel 3
7	Channel 4

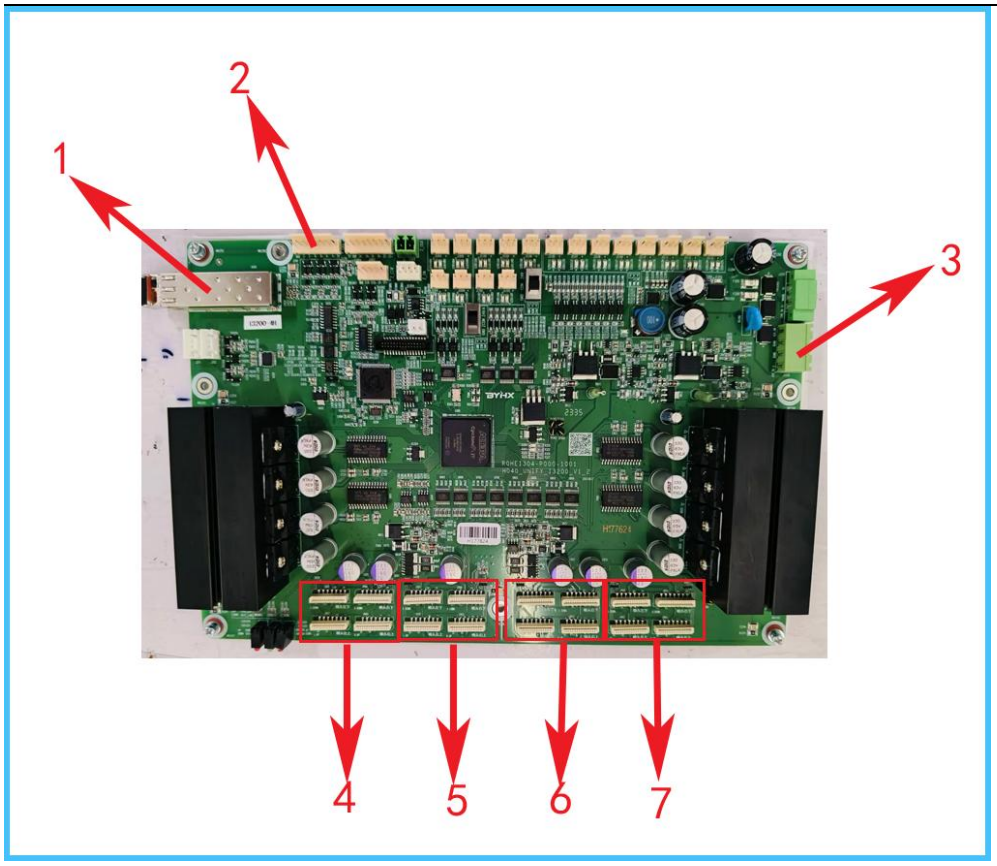
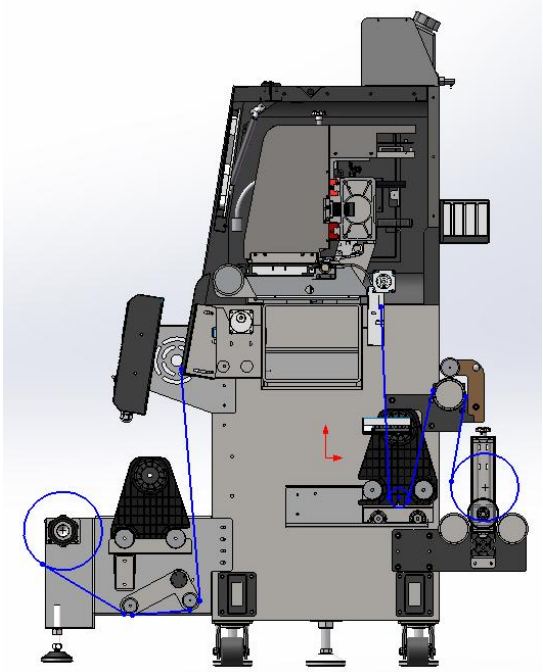


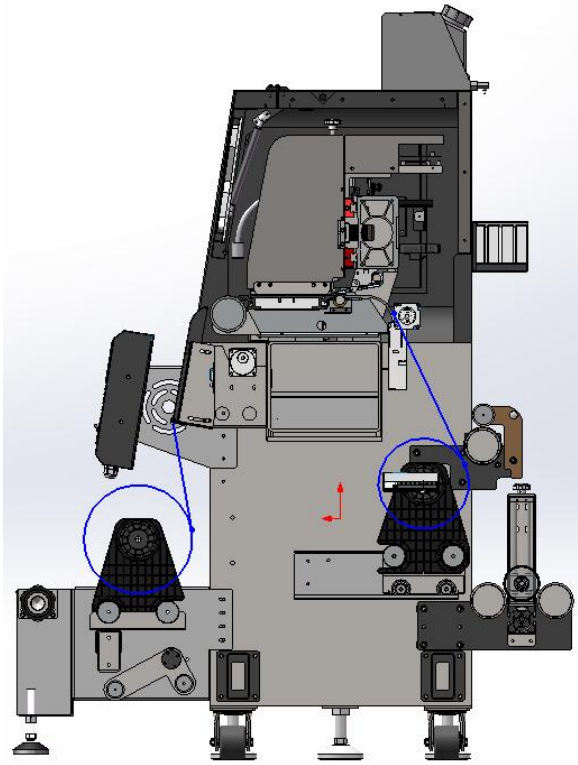
Fig. 39: Wiring diagram of print head board

Feeding method for material take-up and feeding

- For wide materials, such as lamp-box fabric, black and white cloth, and coated banner, the method of double-roll media feeding plus media take-up with an air shaft is applied, as shown below:



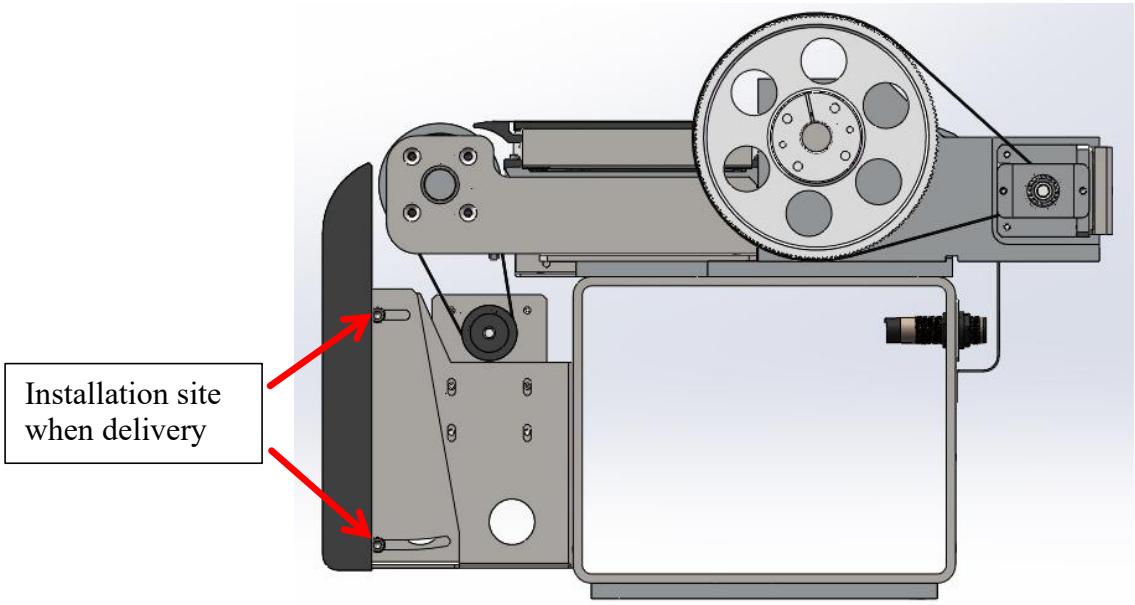
- For narrow materials such as carriage stickers and PP backing, the paper feeder of photo machine is applied, with the torque adjusted as needed, as shown below:



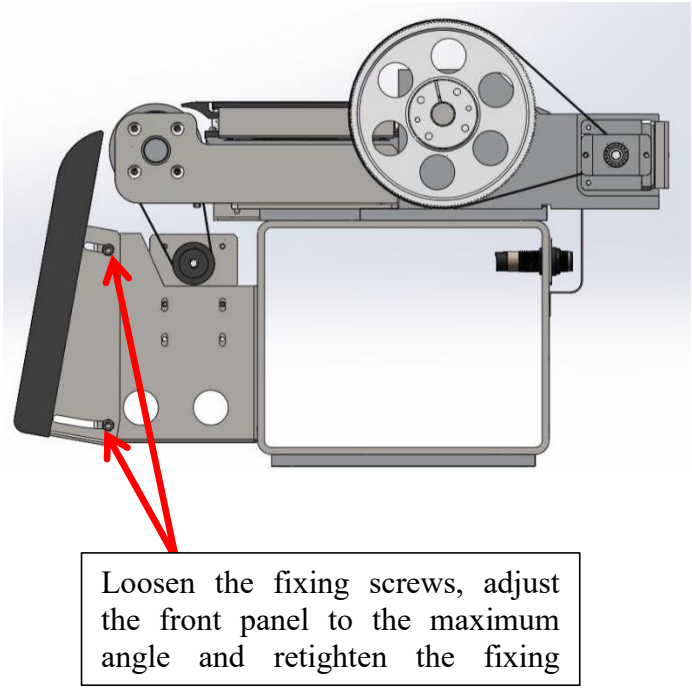
Method to adjust the angle of the front panel

- Due to the space requirement of container transportation, the front panel of the

machine is assembled as shown in the figure below, which can satisfy the requirement of most printing materials without adjustment.



- For harder materials, in order to increase the transition radius, the angle of the front panel should be adjusted, as shown below. The method of driving is preferred.



PN33-EC Series Inkjet Printer

Software Installation

Software Installation

This chapter will show how to install software of the Printer Manager. It will be used as the graphical user interface (GUI) of the printer. It also includes Microsoft components and Windows driver that need to run the Printer Manager.

PC setting

PrinterManager software operates under the Windows operating system. It conforms to specifications to achieve the best computing performance.

Cross reference: See Pre-installation Preparation - Computer Configuration Requirements for detailed configuration.

*You may encounter some communication problems in the use of USB 3.2 port.

Please check whether the Windows language is set as English.

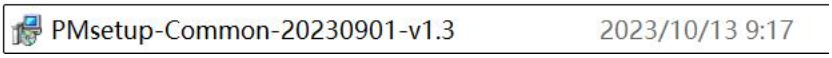
To make the software work normally, Windows language must be set as English (American or British) as the default system language.

Therefore, please access Setting > Time and Language > Language.

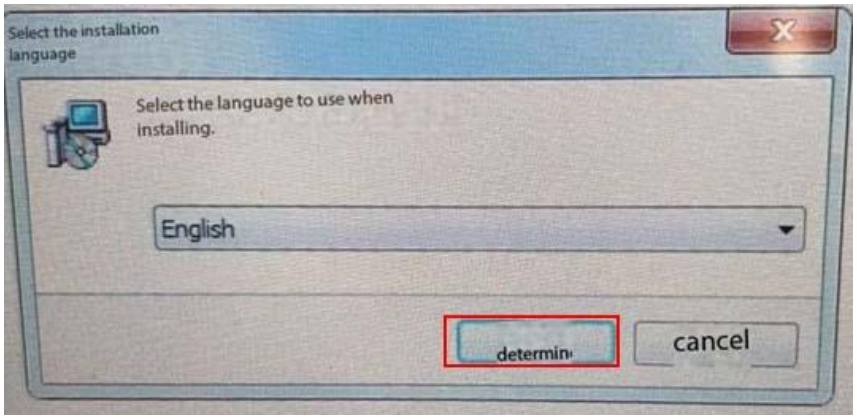
Please be sure to set the window display language and preferred language as English.

Install the installation package (close the antivirus software during the installation process to prevent accidental virus killing; the system must be a 64-bit system):

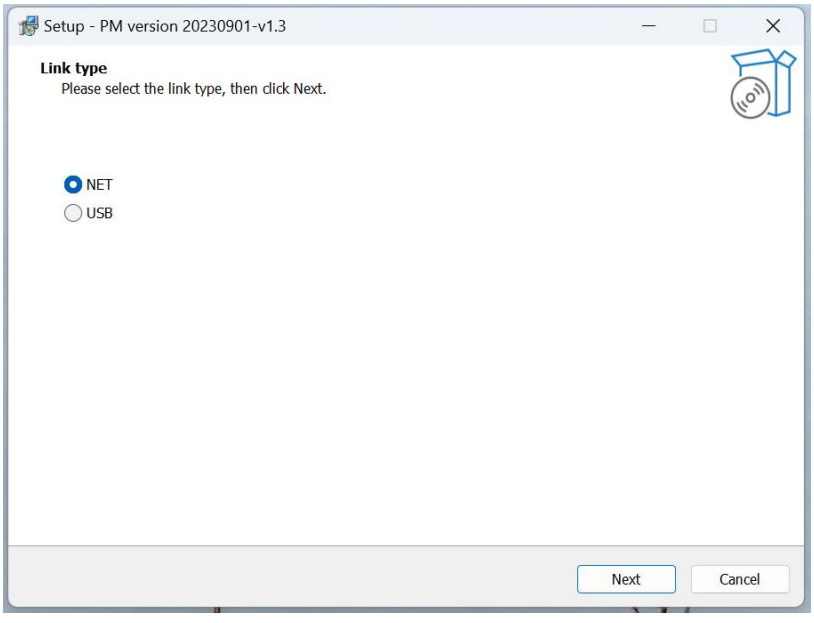
Locate the software installation package and click it



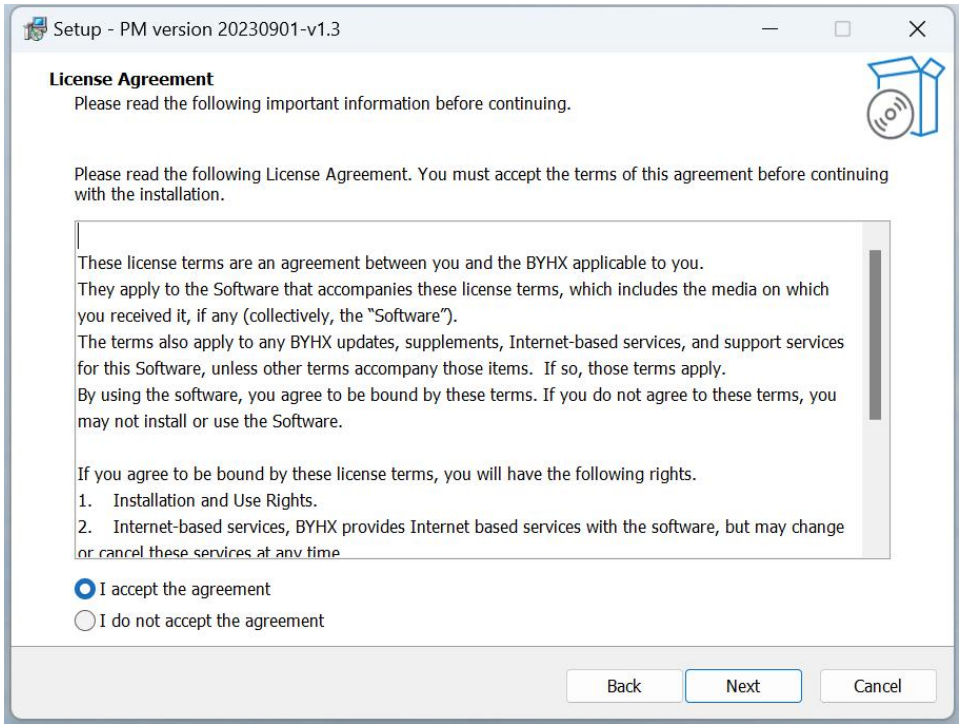
Select the installation language



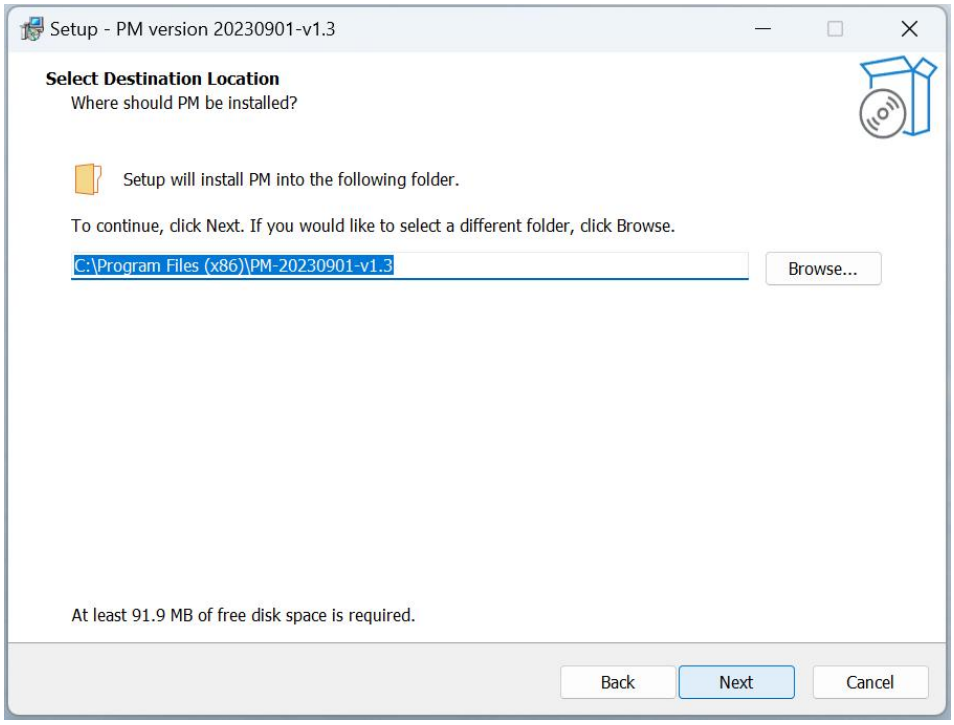
Select the connection method “NET” as the “USB” is not available



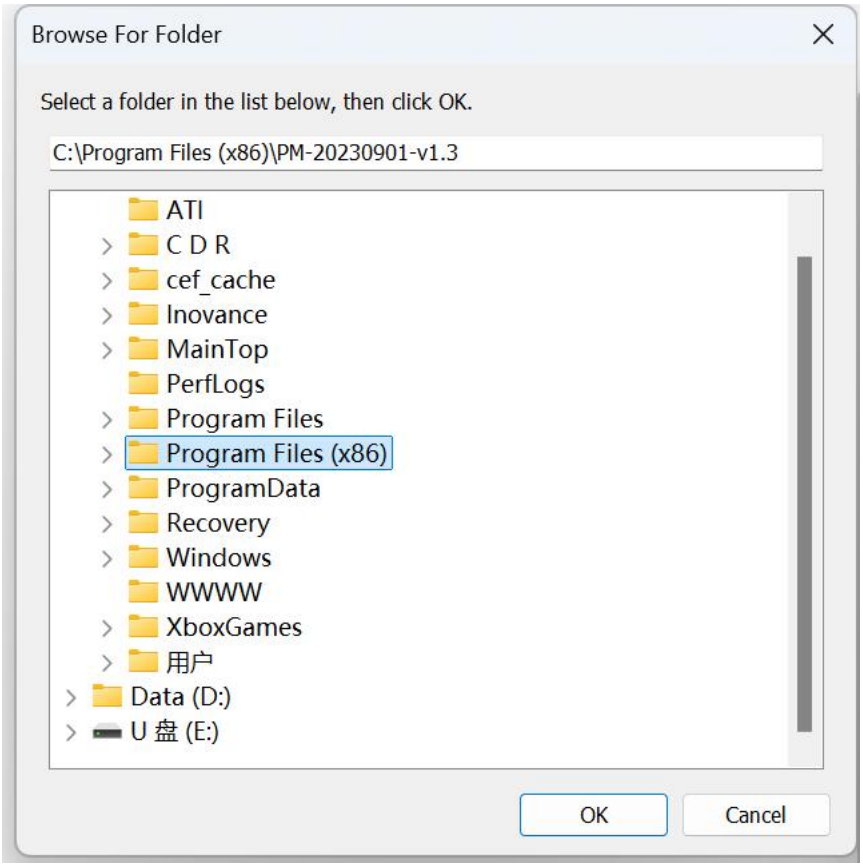
click “Next” and select “Agree”



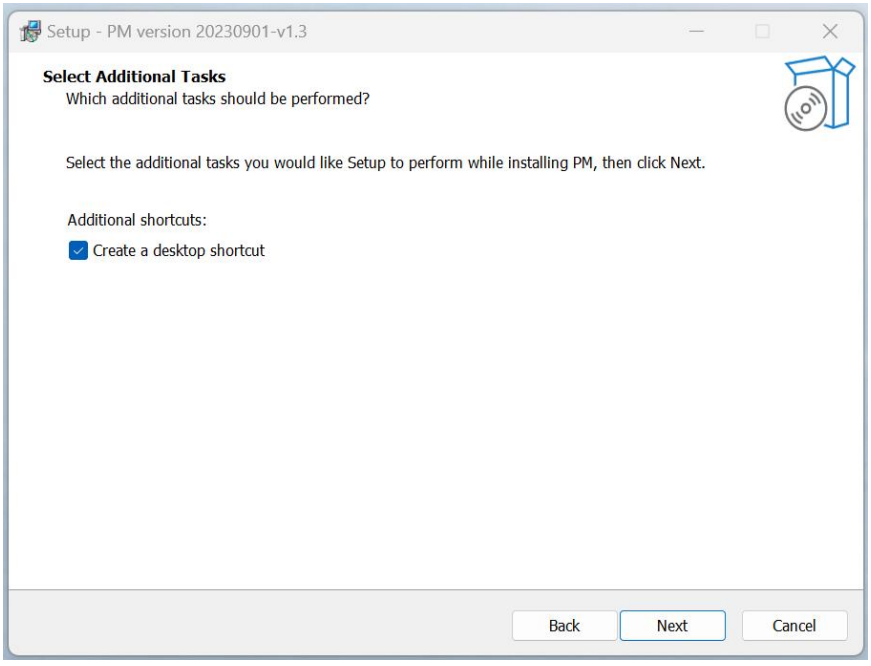
Select the software installation directory and click “Next”



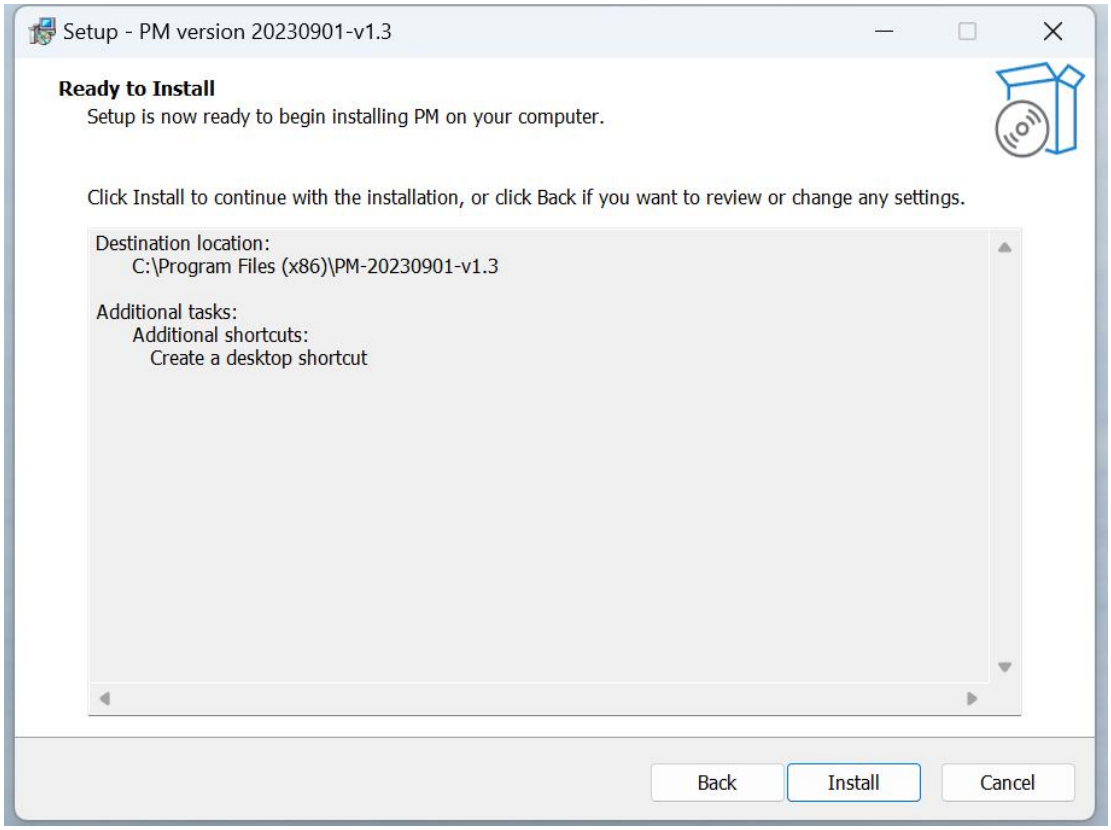
Select “Next” to select the folder for installation:

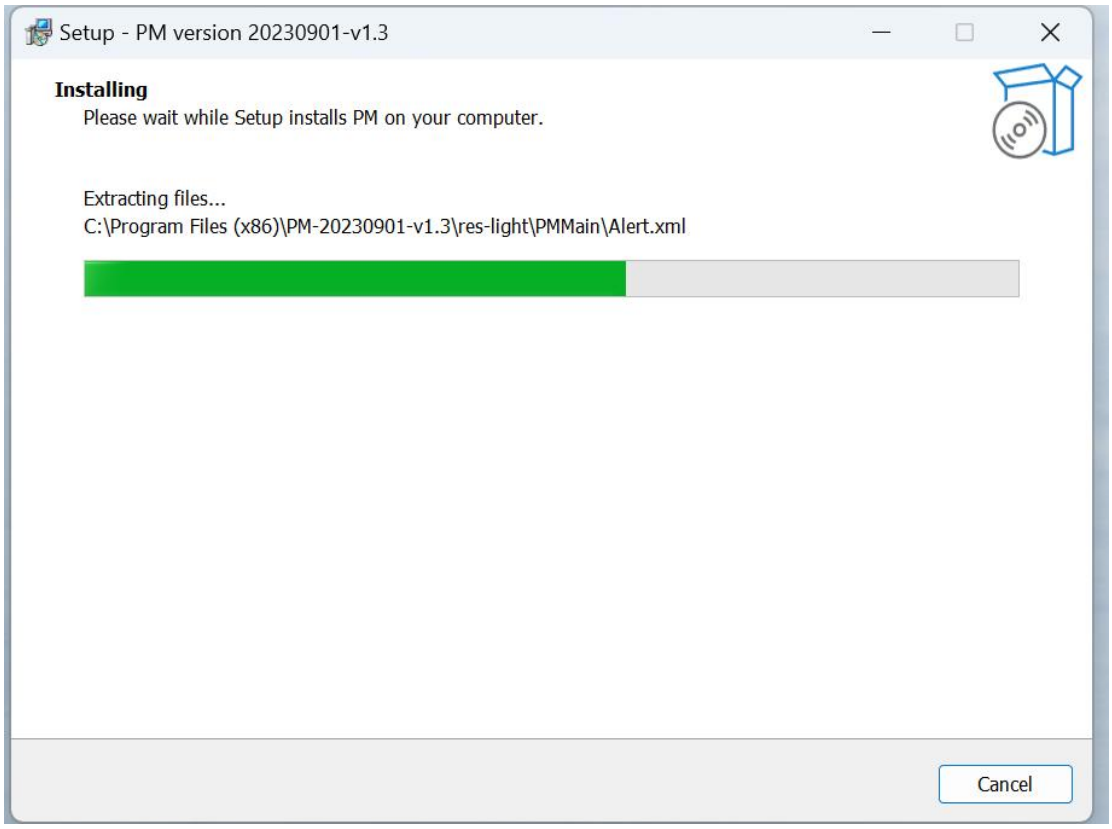


Check “Create a desktop shortcut” and click “Next”

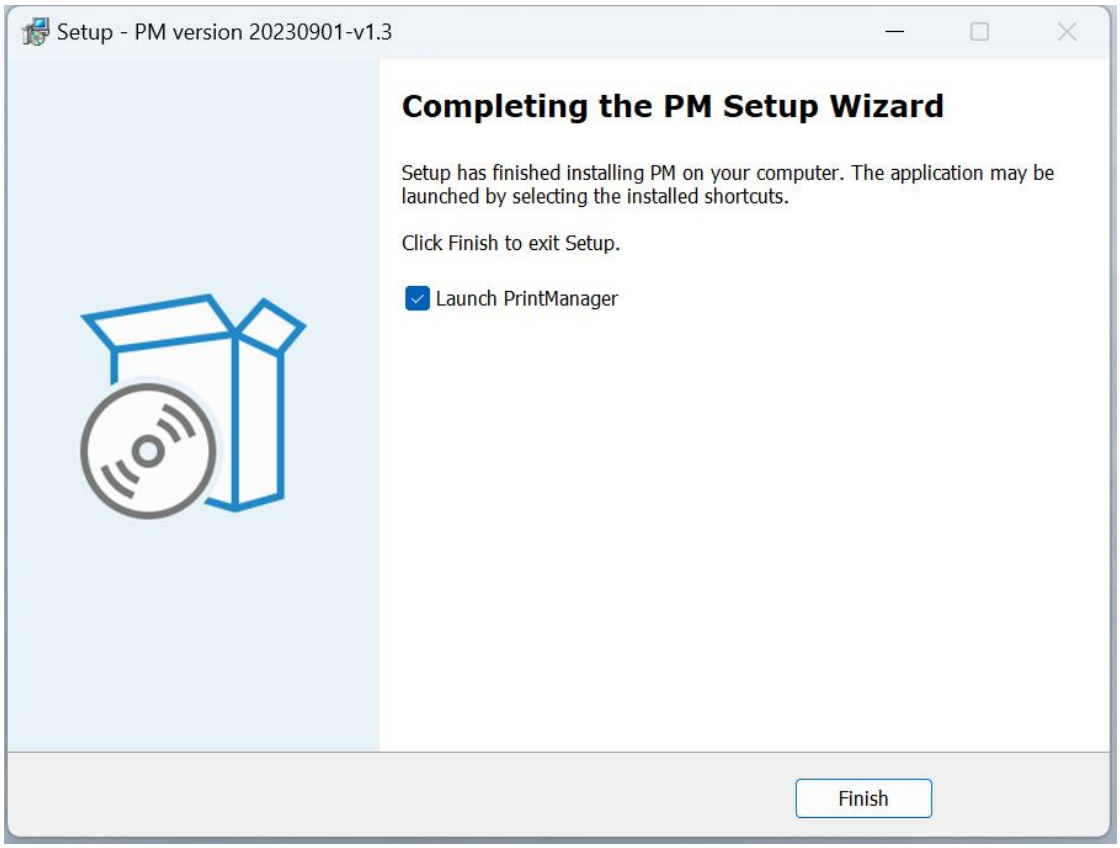


Click “Install”

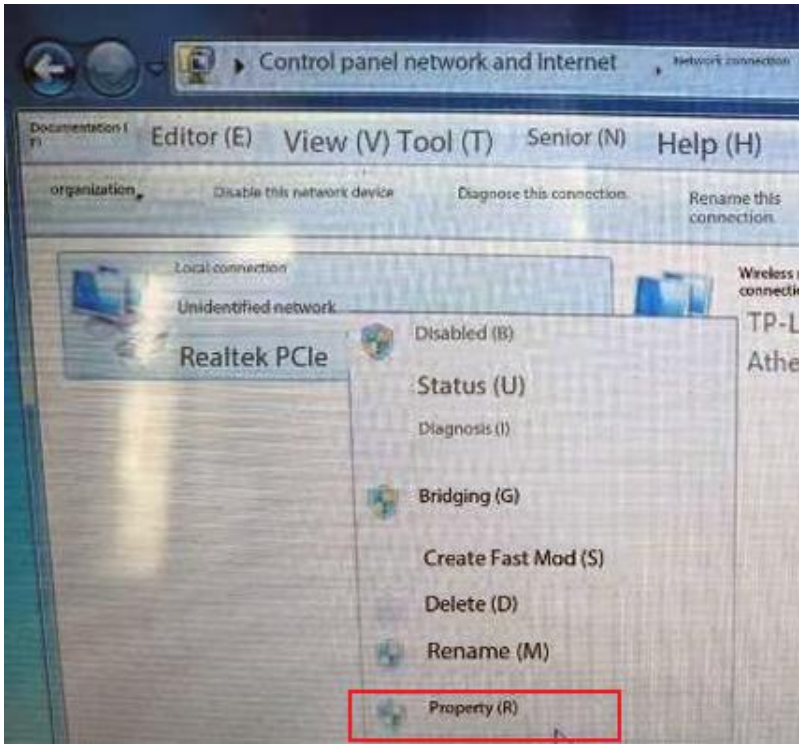


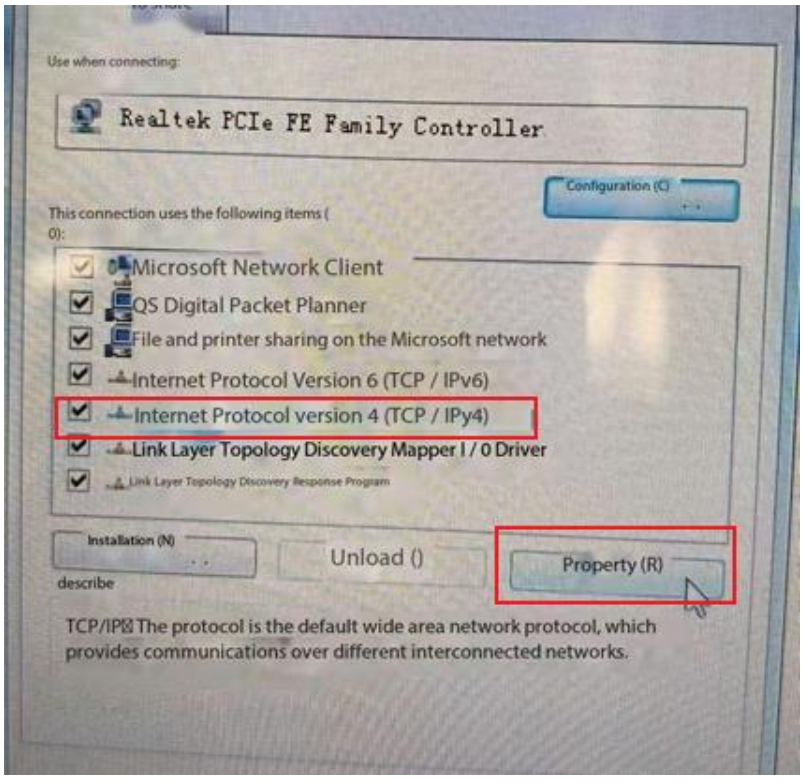


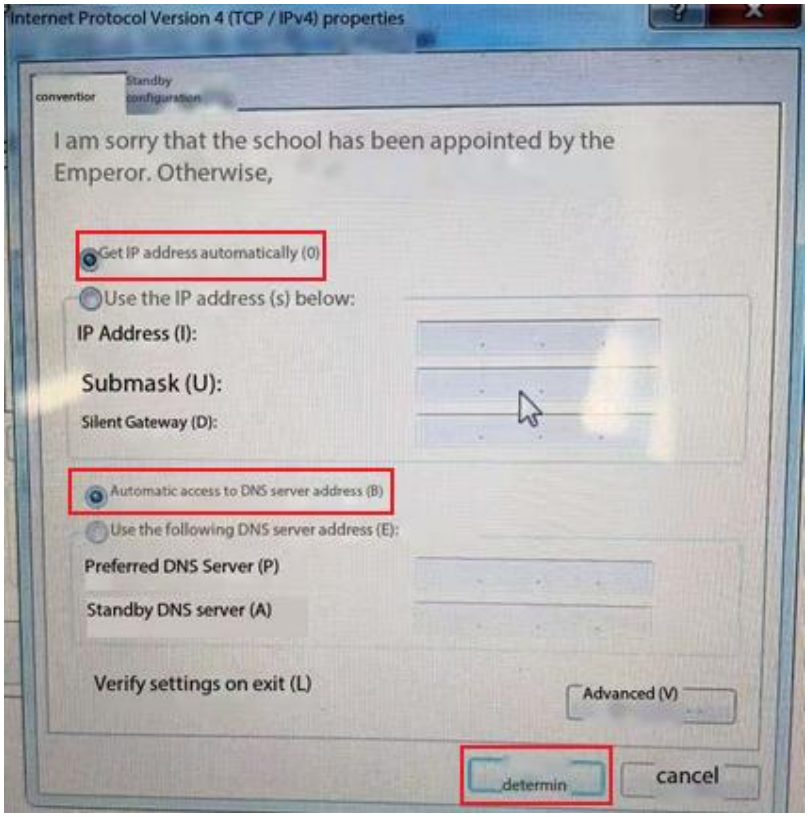
Click “Finish” to complete the software installation


Setup - PM version 20230901-v1.3
Completing the PM Setup Wizard
Setup has finished installing PM on your computer. The application may be launched by selecting the installed shortcuts.
Click Finish to exit Setup.
Launch PrintManager
Finish

Driver installation

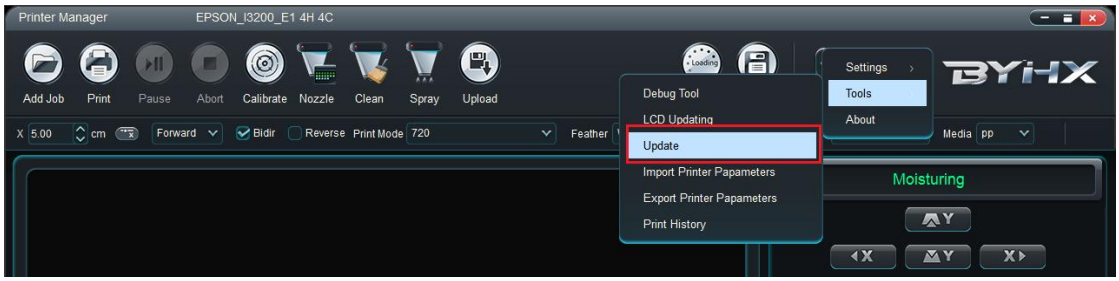






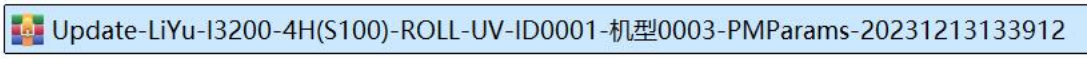
Upgrade package

Click on the “Main Menu”, open “Tools” and select “Upgrade”.

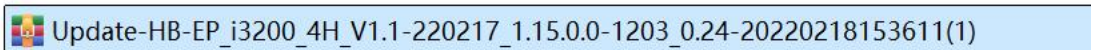


Find the upgrade package to be upgraded, click on it and select Open”, wait for a prompt indicating successful upgrade and restart the machine. Upgrade the zip file directly without unzipping. The board card has been upgraded when the machine leaves the factory, if not necessary, customers do not need to upgrade it.

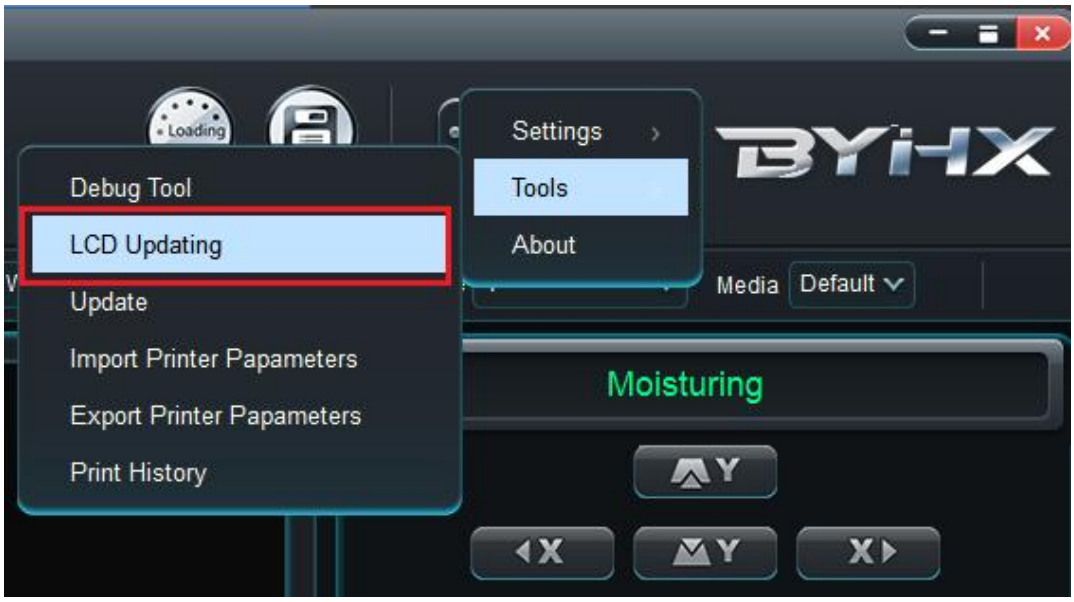
MainBoard upgrade package:



Print head board upgrade package:



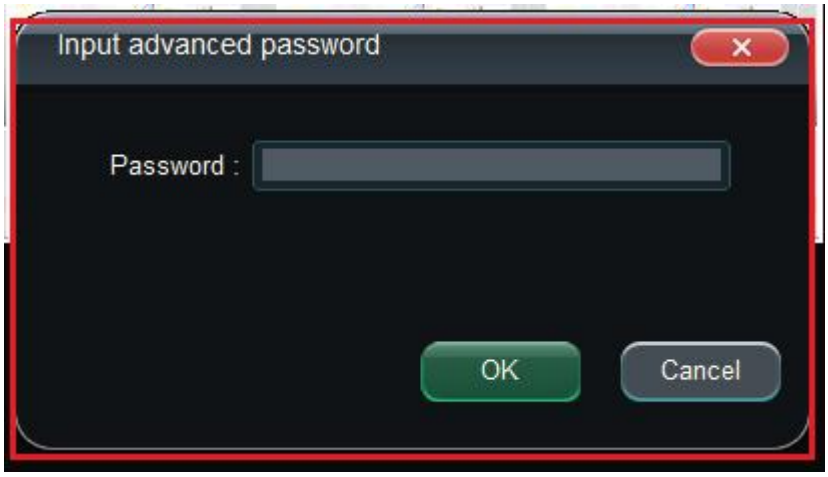
Button panel upgrade:



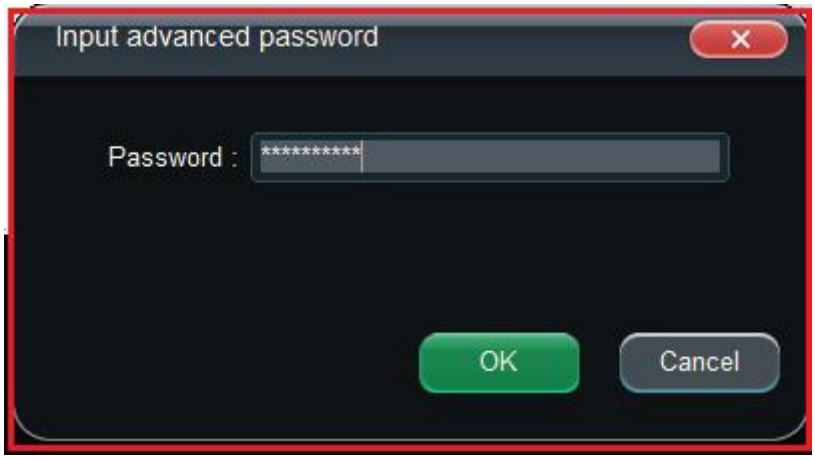
After successful completion of the upgrade, there is no need to restart the machine.

Printer settings

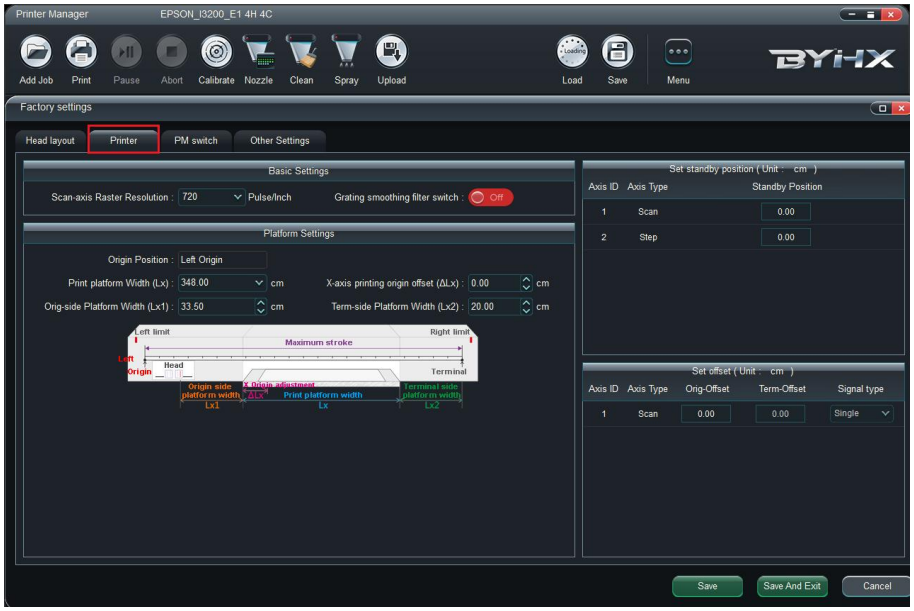
Press and hold “Ctrl + Shift + G” keys simultaneously to enter the Advanced Mode panel.



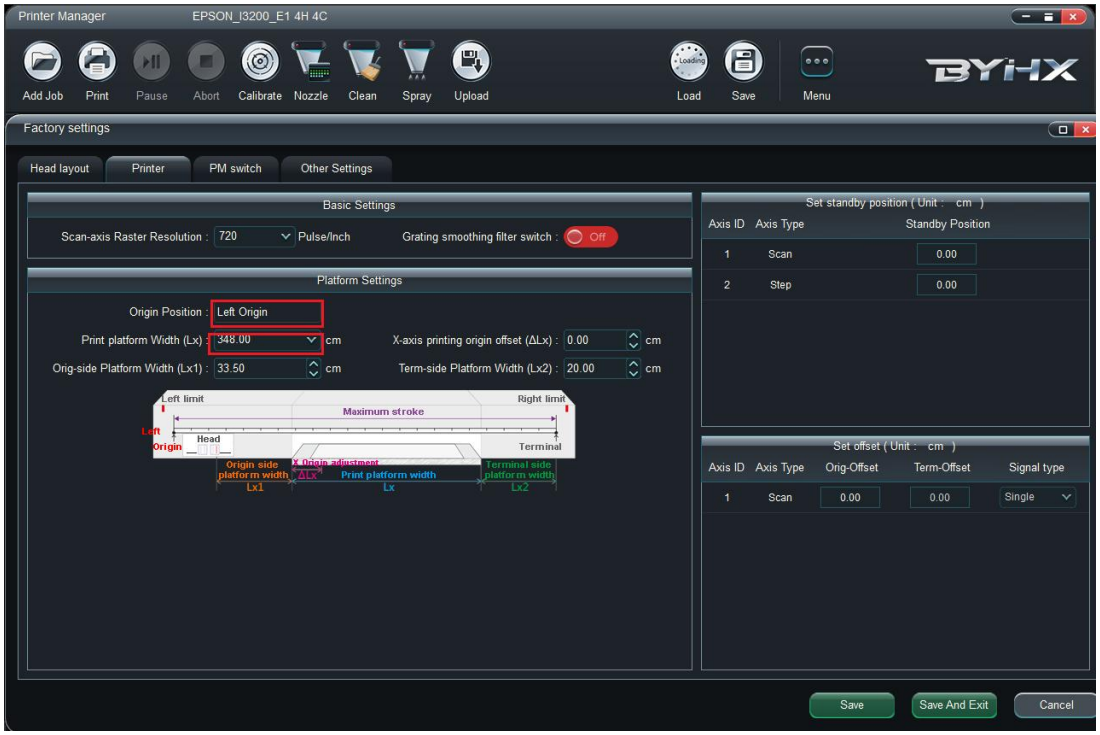
Enter byhx123456 correctly and click “OK”.



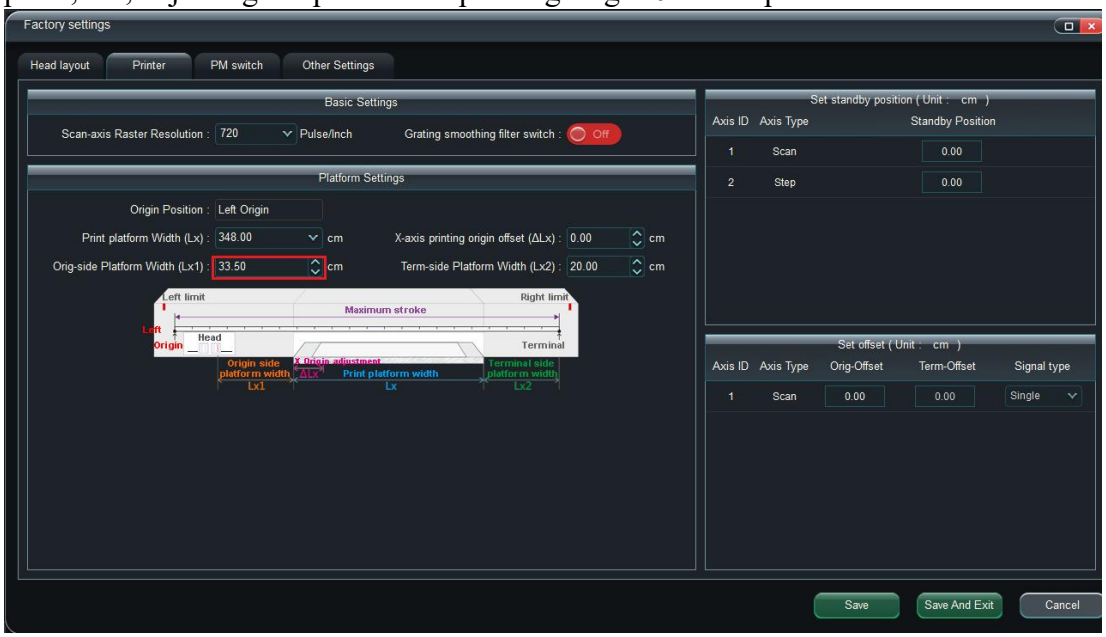
The printer's “Settings” option aims to set the physical parameters of the machine.



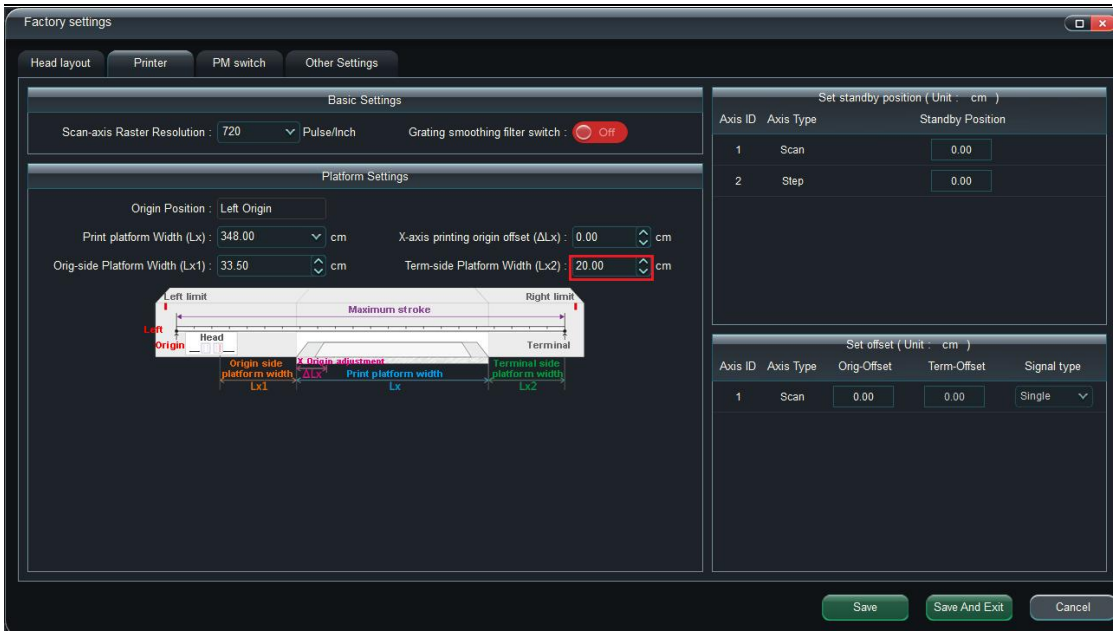
“Left Origin”, “Printer Platform Width”. Setting the printing platform size means setting the paper size.



“Origin Platform Distance”: To set the distance from nozzle 1 to the printing starting point, i.e., adjusting the position of printing origin 0 on the platform.



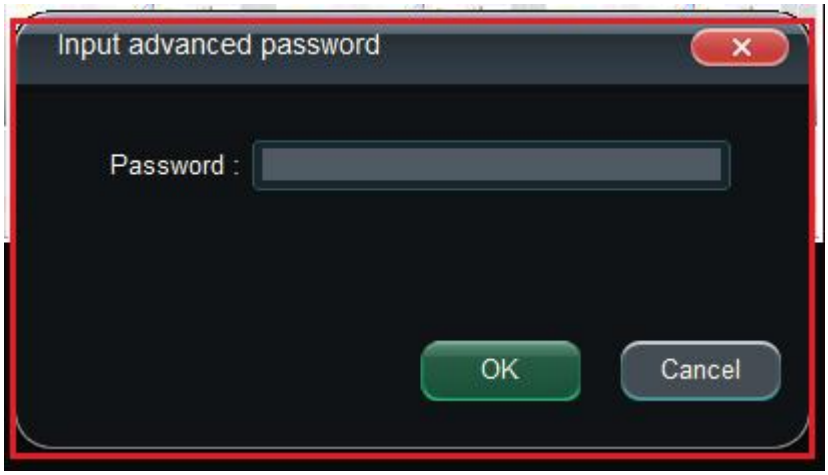
“Term-side Platform Distance”: To set the distance from the end point to the far left of the platform.



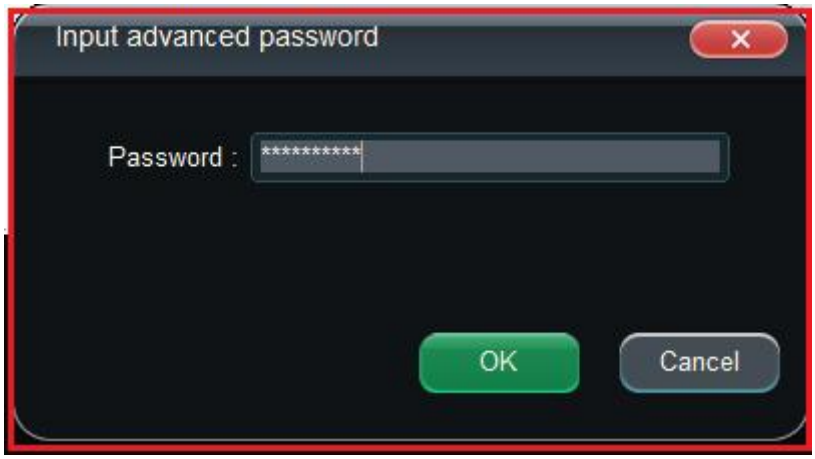
Factory setting: After all parameter settings are saved, the machine needs to be restarted for the parameters to take effect.

Layout settings of print head

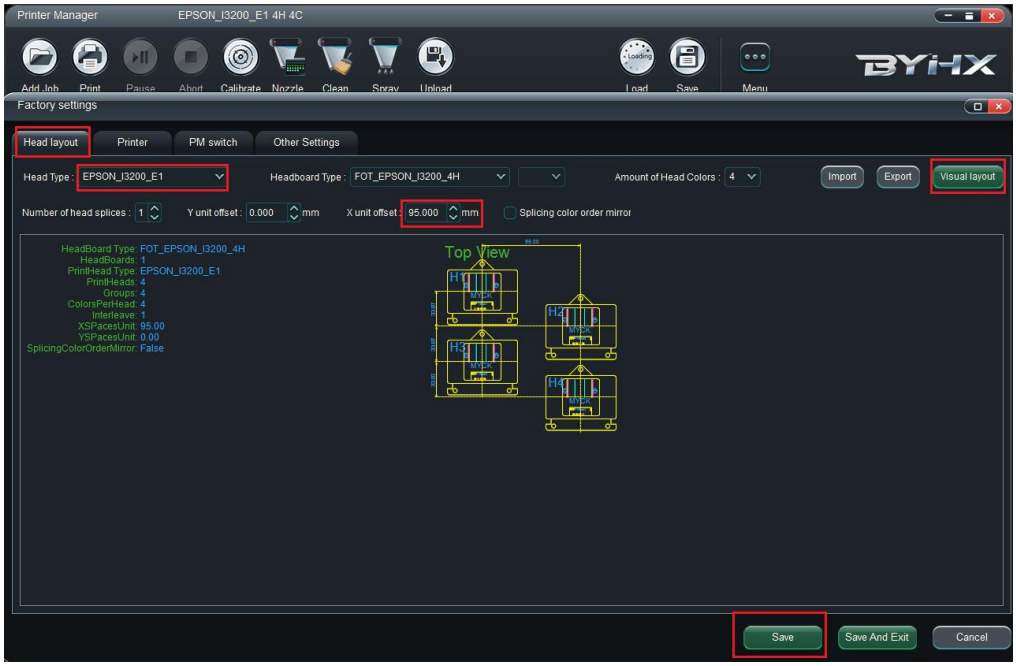
- Press and hold “Ctrl + Shift + G” keys to enter the Advanced Mode panel.

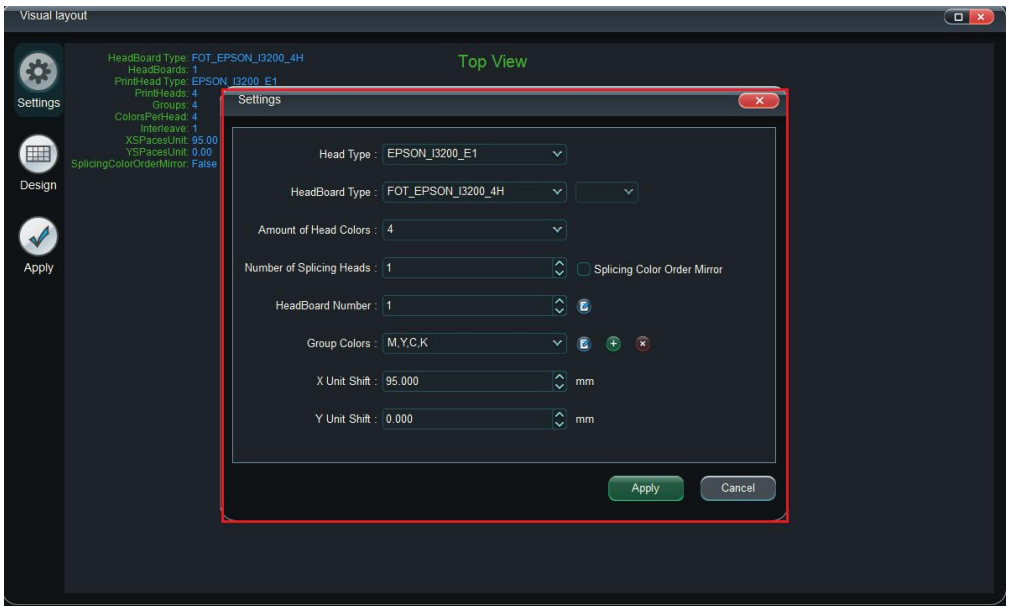


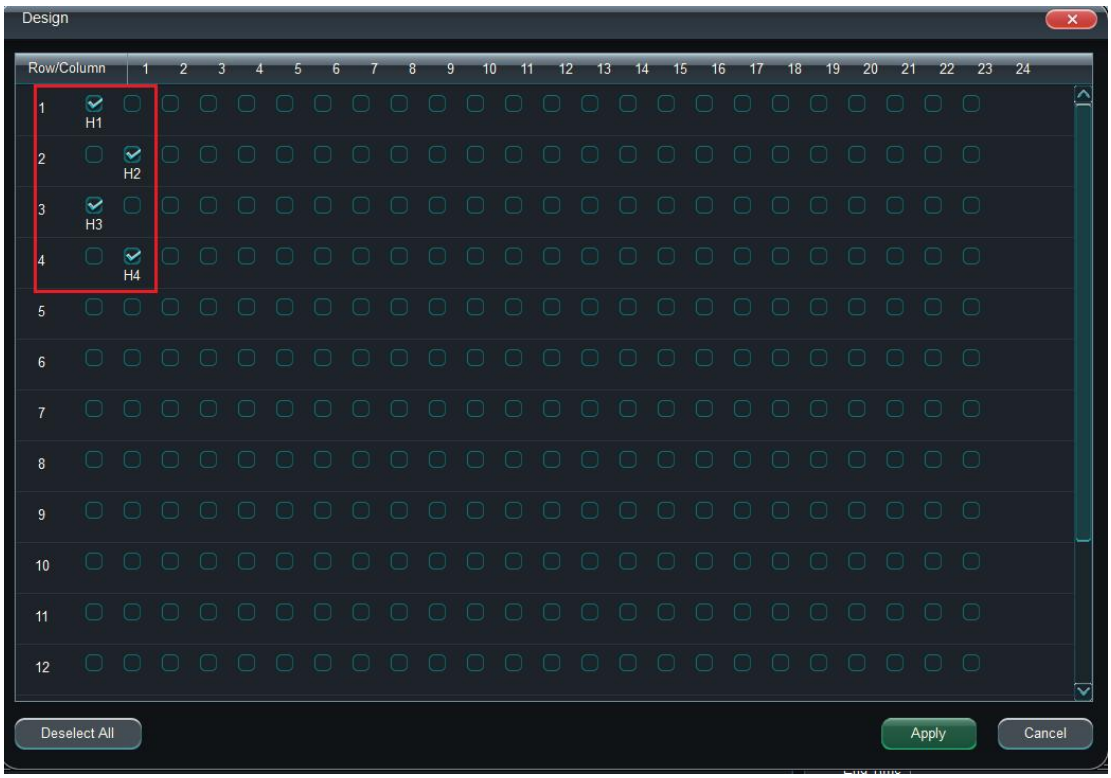
- Enter byhx123456 correctly and click “OK”.



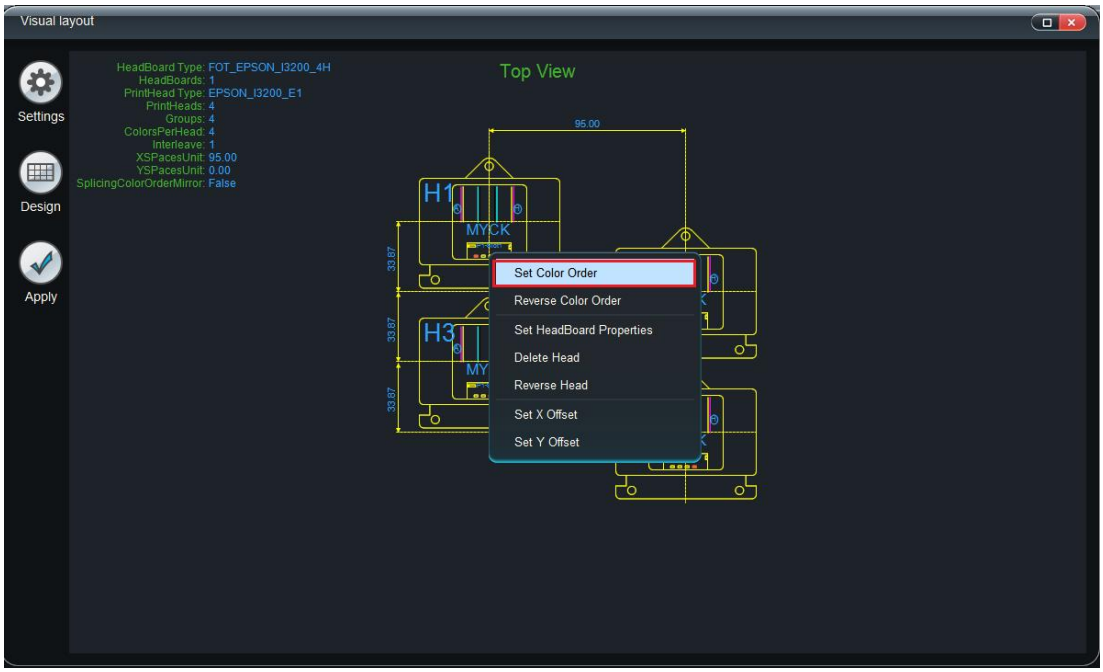
➢ Select “Print Head Layout” option and click “Visual Layout”.



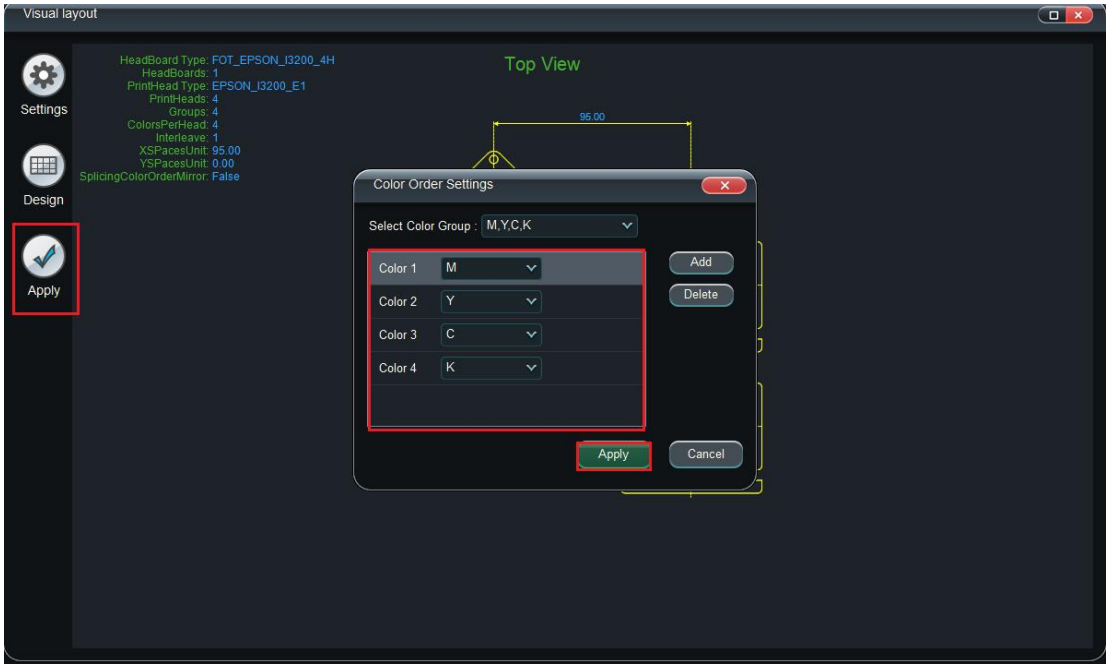




➢ Select the print head to modify the color order, and click and select “Set Color Order”.

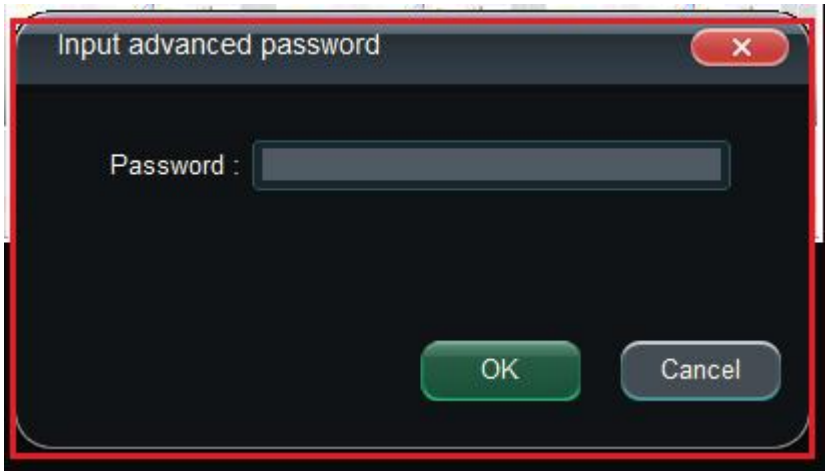


➢ Select the color to be modified and click “Apply”.

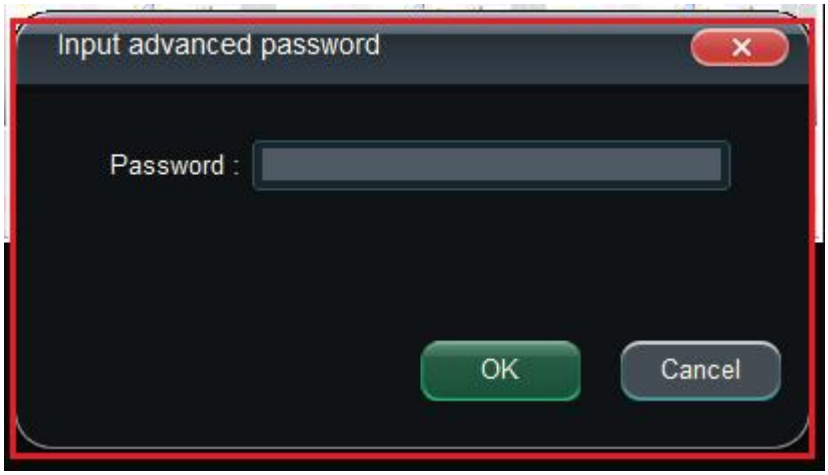


Upgrade waveform

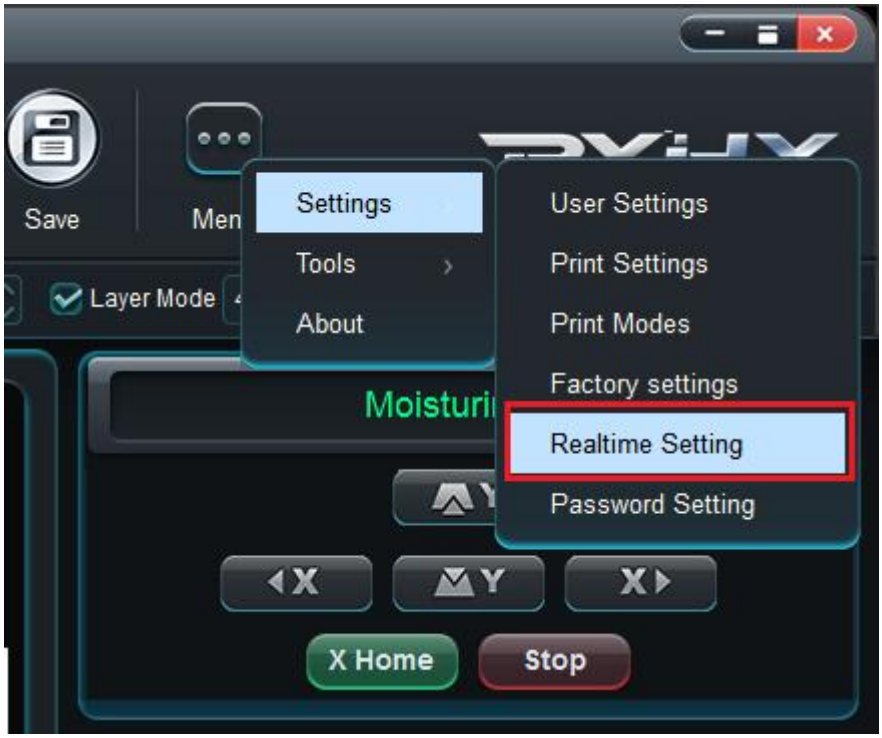
- Press and hold “Ctrl + Shift + G” keys simultaneously to enter the Advanced Mode panel.



- Enter byhx123456 correctly and click “OK”.

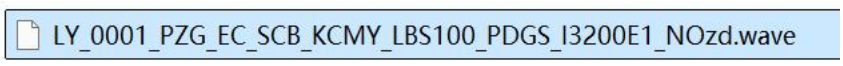


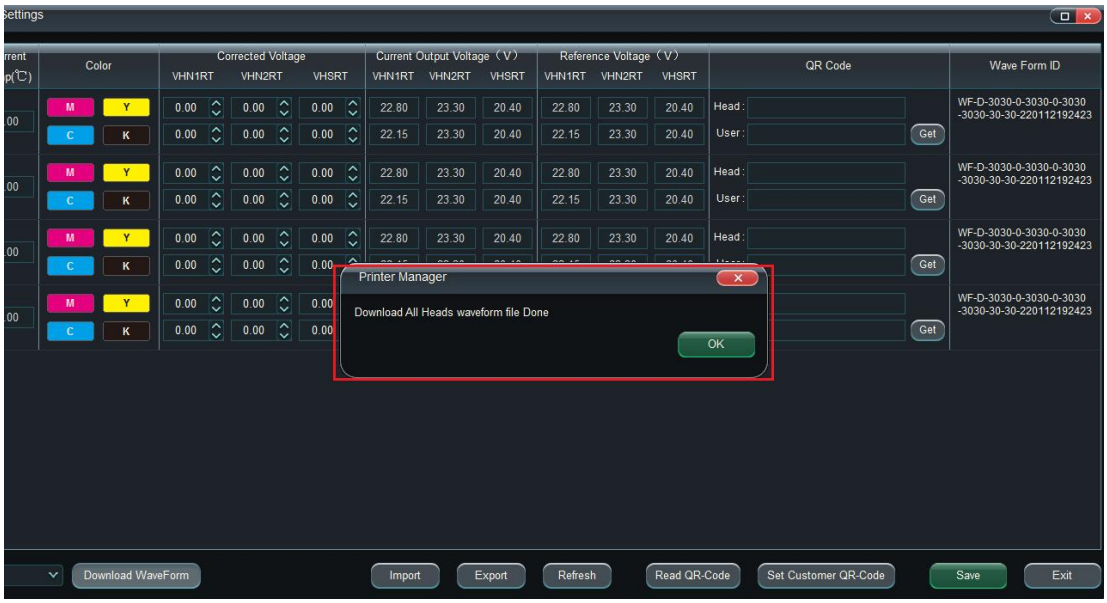
➢ Click on the “Main Menu”, open “Settings” and select “Real-time Settings”.



➢ Click on “Download Waveform Files” in the lower left corner.

➢ Find the folder where the waveform is located, click and save.





PN33-EC Series Inkjet Printer

Mechanical Leveling and Calibration

Machine Leveling

- Inkjet printer leveling is the first and one of the most important procedures of machine setup. There are 6 universal adjustable feet to support the inkjet printer. Use a spirit level to adjust each supporting foot base to the optimal level. The figure below shows the adjustable supporting foot used in the inkjet printer.

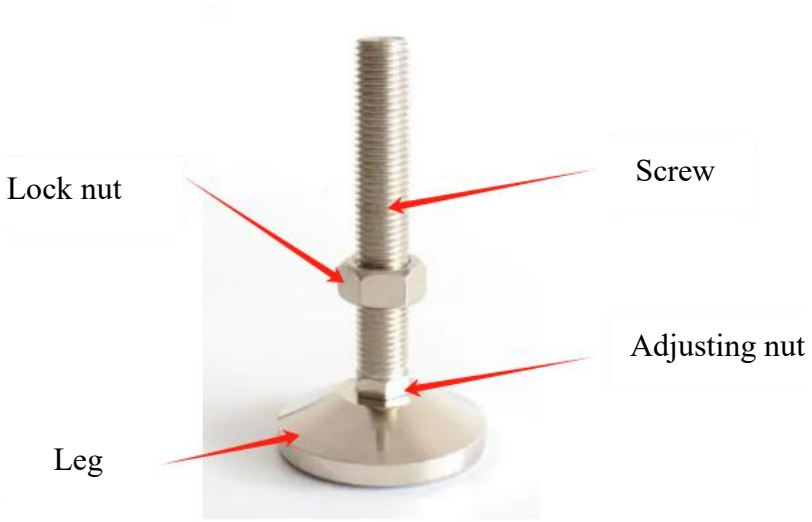


Fig. 40: Universal adjustable supporting foot

- Once the machine is leveled, the foot should be locked onto the base of the inkjet printer by using the lock nut. Use an adjustable wrench or open wrench to rotate the lock nut clockwise to unlock the foot and rotate the lock nut counterclockwise to lock the foot.
- The feet at the four corners of the inkjet printer (circled in red) are called the

main supporting feet, and machine leveling begins with adjusting these feet. The foot cups at the center of the left and right edges (circled in green) are called secondary supporting feet, which can be adjusted as auxiliary supports at both ends of the machine after it is leveled.

Fig. 41: Supporting foot position

- Place a spirit level on the left and right ends of the printing platform, as shown in yellow in the figure below. Adjust the supporting feet until the spirit level indicates that the printer is level front to rear.

Fig. 42: Position of the spirit level (front and rear leveling)

- Place a spirit level on the printing platform, as shown in yellow in the figure below. Adjust the supporting feet until the spirit level indicates that the printer is level left to right.

Fig. 43: Position of the spirit level (left and right leveling)

- Adjust the left and right auxiliary foot cups to make them just in contact with the ground.

Finally, rotate the corresponding lock nuts counter-clockwise to lock the 6 foot cups in place.

Printing platform adjustment

- Distribution of adjustment points: There are 22 adjustment points marked on the platform in green.

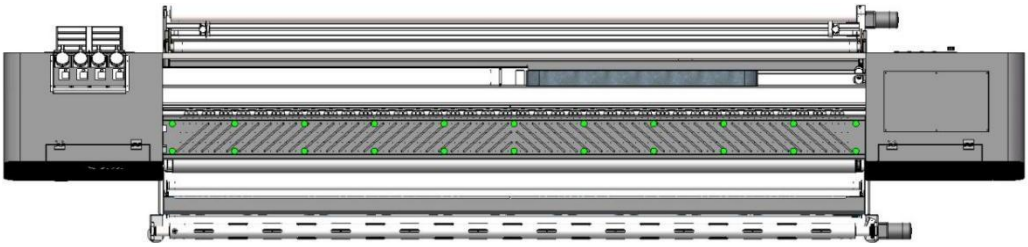


Fig. 44: Positions of adjustment points

- Adjusting way of adjustment points: Each adjustment point is provided with one fastening screw and one adjusting screw.
- If the platform needs to be raised, loosen the fastening screw counterclockwise first and rotate the adjusting screw counterclockwise to reach the desired height before tightening the fastening screw clockwise.
- If the platform needs to be lowered, rotate the adjusting screw clockwise first and tighten the fastening screw clockwise until it is adjusted to the desired height.

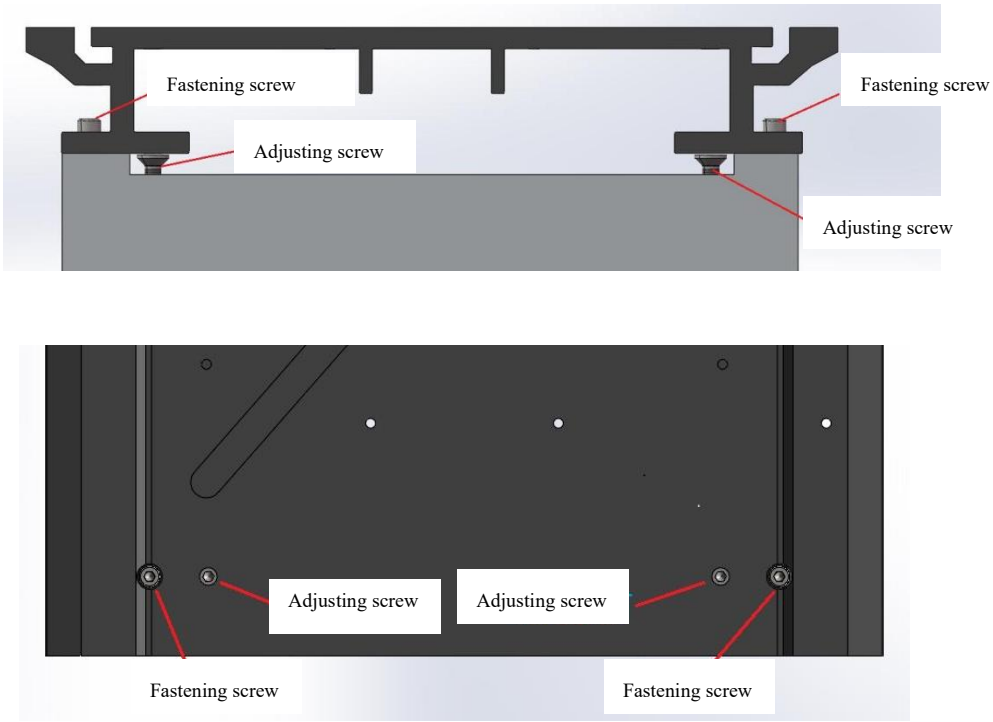


Fig. 45: Screws at adjustment points

- In the case where the pinch roller is pressed down, first adjust the baseboard of print head to make it level with the platform front to rear.

- Move the carriage, and measure and record the relative height of all the adjustment points with the dial indicator or feeler gauge.
- Analyze the deviation of each adjustment point, adjust the adjustment point that deviates from the accuracy requirement according to the above platform adjustment method, and measure with the dial indicator or feeler gauge, so that the height error of each adjustment point is within 0.1 mm.

Feeler gauge measurement

Dial indicator measurement

Fig. 46: Schematic diagram of platform adjustment points

Caution:

The printing platform is already adjusted when delivery and does not need to be adjusted under normal circumstances. If so, fine adjustments within 0.3 mm may be made.

Adjustment of the baseboard of print head

- Secure the baseboard of print head to the mounting brackets on the left and right sides.

The green box in the figure below indicates the adjusting screw, while the red circle the fastening screw.

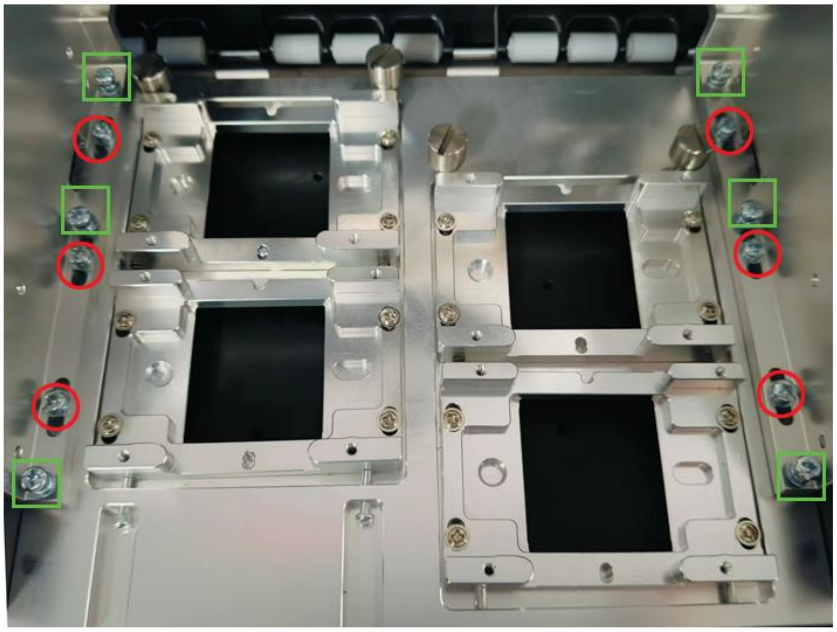


Fig. 47: Adjustment of the baseboard of print head

- Move the carriage to the printing platform and rotate the lift handle to lower the baseboard of print head to a position where it fits perfectly on the platform.

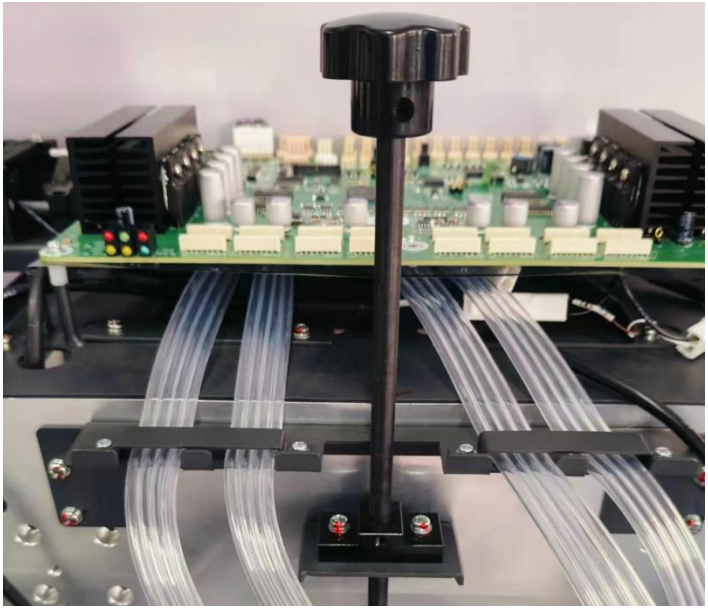


Fig. 48: Carriage lifting

- The printing media should be placed flat on the platform, and then move the carriage onto it; the lowest part of the printer bottom is 2mm from the platform, and then fasten the lock screws (marked in red).

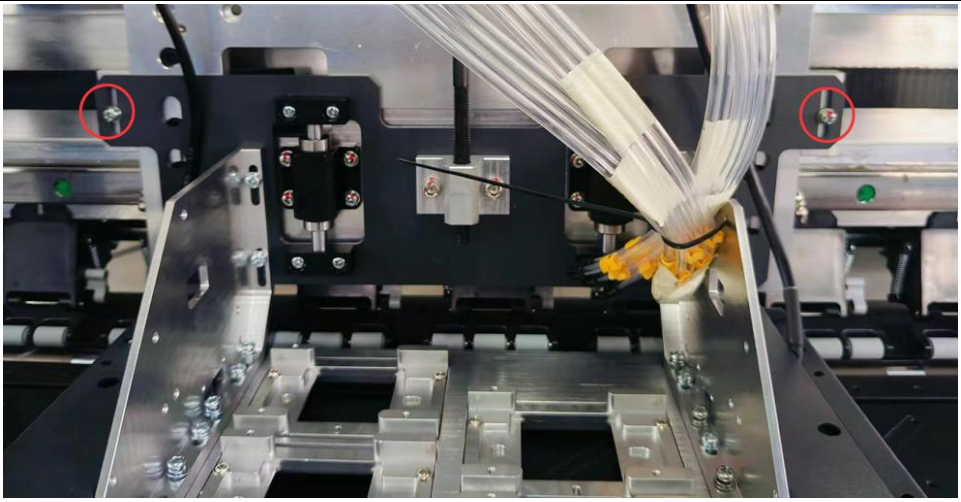


Fig. 49: Position of lock screws after carriage adjustment

Caution:
The height and leveling of the baseboard of print head is adjusted when delivery. After the machine has been leveled on the floor and the platform has been leveled, it is necessary to check the consistency of the height of the baseboard of print head and the platform.

Anti-collision adjustment

Anti-collision height:

- The height of the anti-collision should be the same as that of the baseboard of print head. If the edge of the material is warped during the left and right movement of the carriage, the anti-collision system will be triggered first and the left and right movement will be stopped to effectively protect the print head.

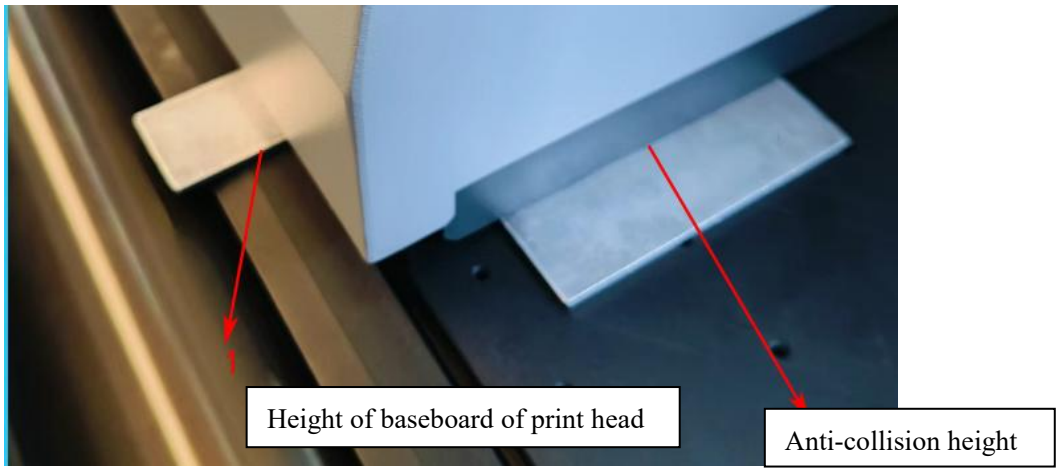


Fig. 50: Adjustment of anti-collision height

PN33-EC Series Inkjet Printer

Installation of Print Heads and Connection of Ink Paths

Unpack the print head

Print head description

The inkjet printer adopts i3200-E1 print head. Please check whether the print head type on the package is identical with that of the machine.

The identification and description on the print head packing are as follows:

S/N	Description	Function
1	Outer packing of print	Description of print heads
2	Protective shell of print	To safely place print heads
3	Print head	Appearance and size

Installation of the print head

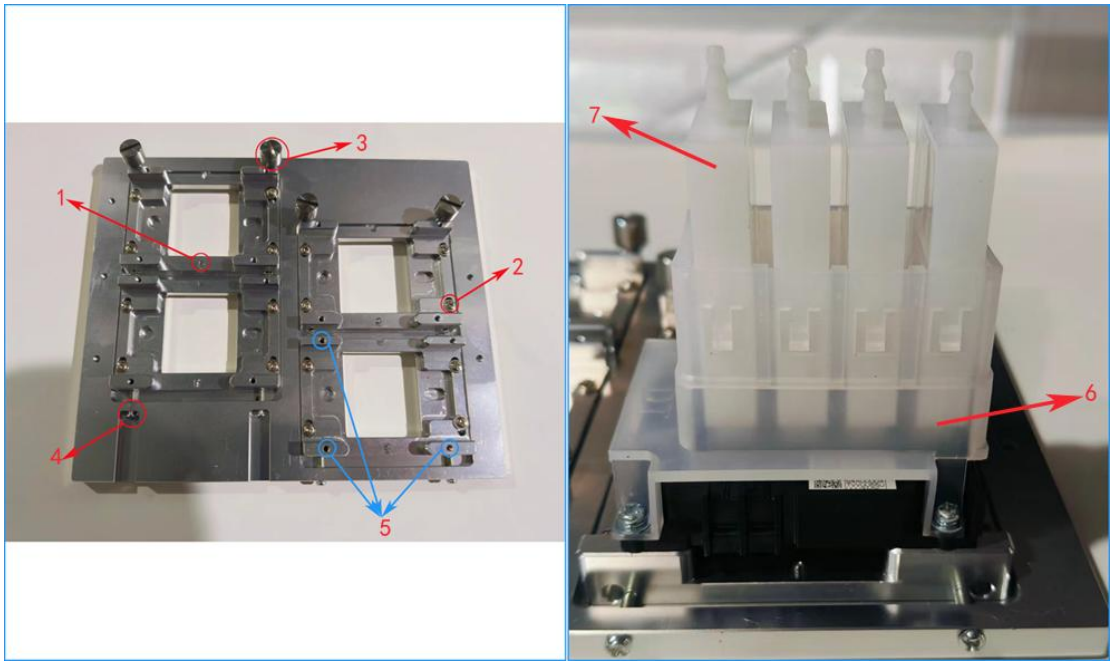


Fig. 51: Installation of the print head

S/N	Description	Function
1	Locating pin	Fixed reference position for the first print head
2	Print head base and fixing hole	Installation position of print heads; fixing holes
3	Adjusting screw	Adjust the verticality and inclination of print heads
4	Adjusting screw	Adjust the verticality and inclination of print heads
5	Print head fixing hole	Secure the print head to the holes in the bottom of the inkjet printer
6	Ink damper holder	To make the ink damper and print head tight and not shifted
7	Ink damper	To filter ink and produce negative pressure effect

FFC connection

Four sets of channels are arranged on the print head board that connect to the print head in the following locations:

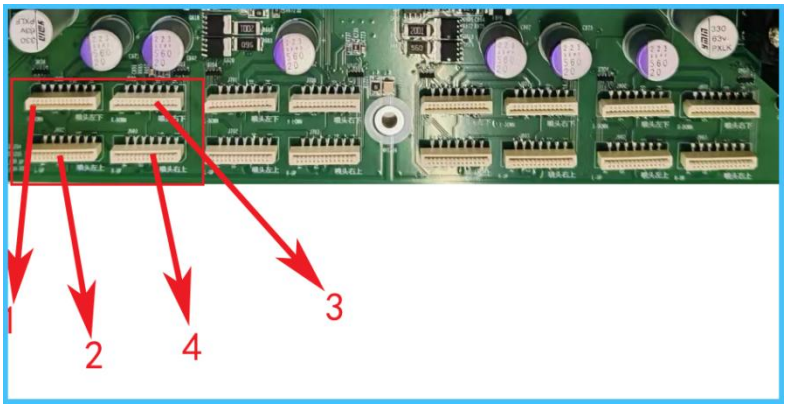
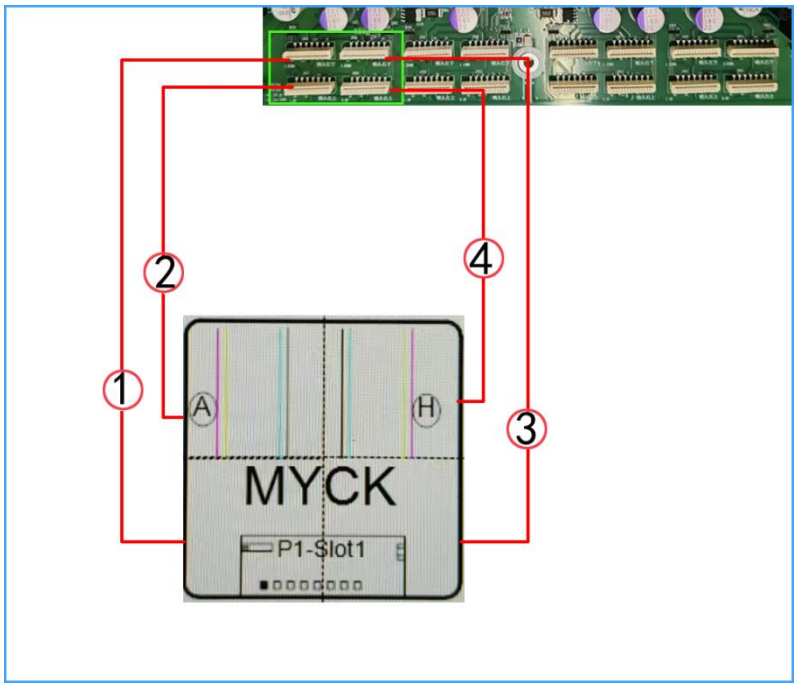


Fig. 52: FFC connection

S/N	Description
1	Lower left print head
2	Upper left print head
3	Lower right print head
4	Upper right print head



S/N	Description
1	FFC connecting the lower left print head of the print head board to the lower left print head

2	FFC connecting the upper left print head of the print head board to the upper left print head
3	FFC connecting the lower right print head of the print head board to the lower right print head
4	FFC connecting the upper right print head of the print head board to the upper right print head

Connection between filter and ink tube

Fig. 53: Ink tube connection and level adjustment

PN33-EC Series Inkjet Printer

Ink Path Injection

Ink refilling of the main ink tank

- Refill ink according to the K,C,M,Y markings of the main ink tank, and tighten the seal of the main ink tank; the ink flows into the secondary ink box through the filter to complete the ink refilling.

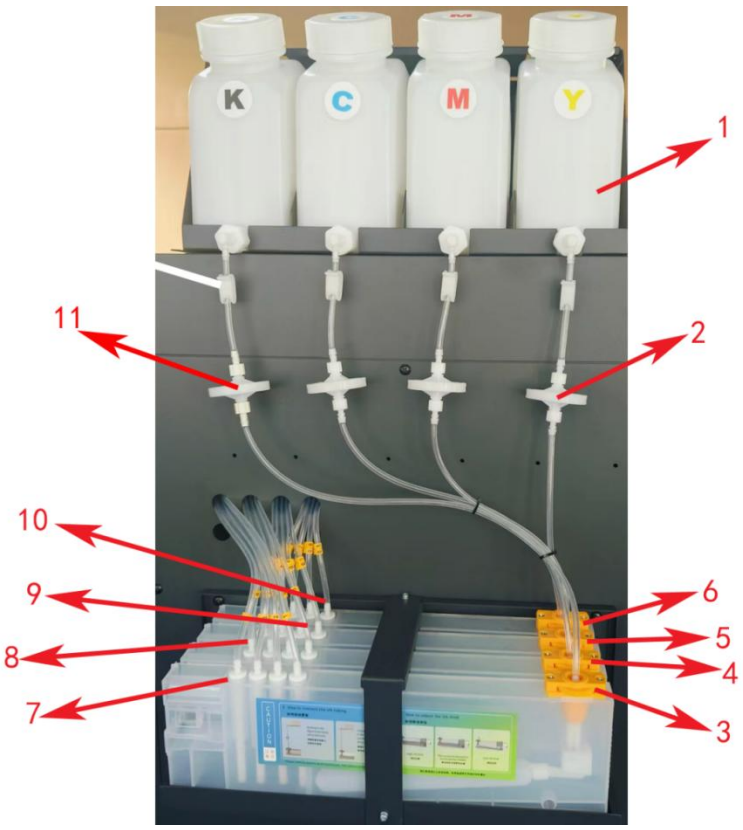
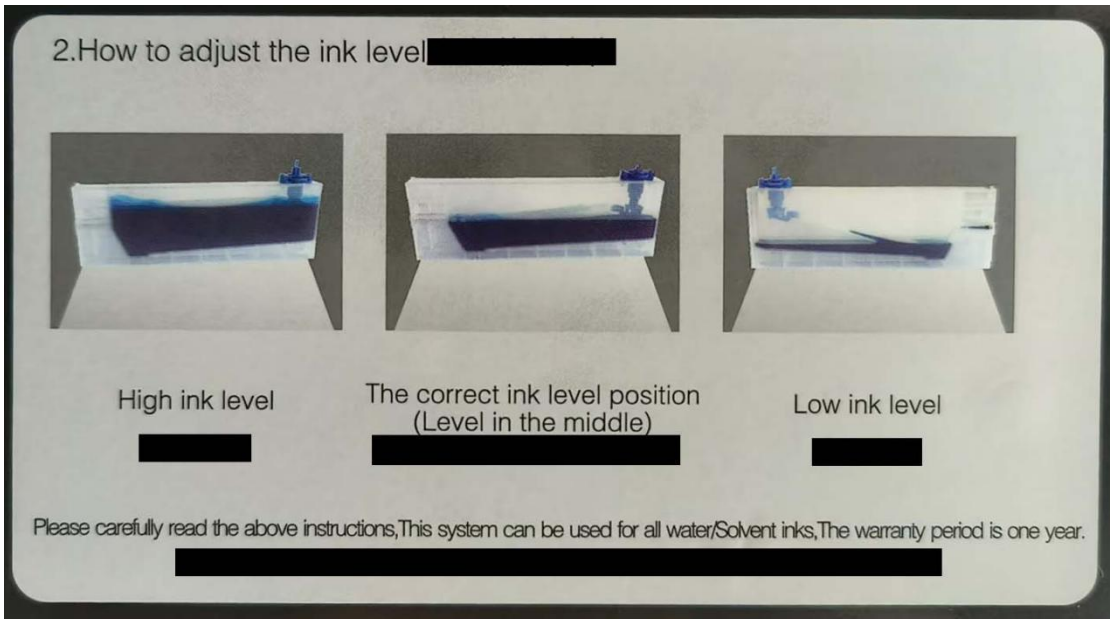


Fig. 54: Ink refilling diagram

S/N	Description
1.	Main ink tank
2.	Filter
3.	K level adjusting knob
4.	C level adjusting knob
5.	M level adjusting knob
6.	Y level adjusting knob
7.	K ink outlet
8.	C ink outlet
9.	M ink outlet
10.	Y ink outlet
11	Tank clip

Level adjustment

Adjust the level knob according to the marking instructions on the secondary ink box so that the level of each color is in the middle position



PN33-EC Series Inkjet Printer

Calibration of Print Heads

Automatic cleaning calibration

Adjustment of ink suction and moisturizing position

- After the inkjet printer is powered on, the carriage head will be on the left side of the inkjet printer, and the position of the ink stack can be adjusted by the position (front, rear, left, right) of the ink stack cap and the print head base. There are adjusting screws on both sides of the bottom of the ink stack, which can be adjusted according to the actual situation (this step has been done before delivery).
- After the print head is mounted to the baseboard of print head, check the alignment position of the print head and the ink stack cap, and adjust and tighten the fastening screws.

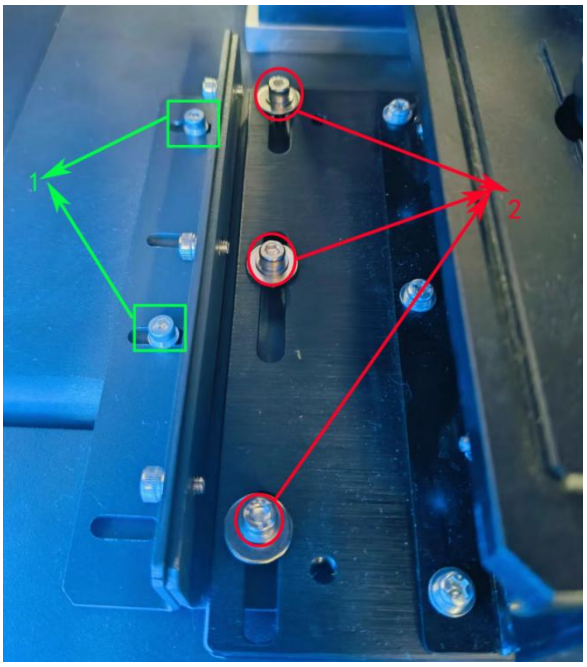


Fig. 55: Ink stack adjustment

S/N	Description
1.	To adjust the left and right positions of ink stack
2.	To adjust the front and back positions of ink stack

Adjustment of scraper position

After adjusting the front and rear positions of the ink stack, it is necessary to install the scraper and adjust its height:
In order to ensure the effect of scraping ink, attention should be paid to the direction of the incision surface of the scraper, as shown in the figure.
The scraper should be mounted at the same height from front to back, and no bending or unevenness should be allowed. Its height and flatness can be adjusted by five sets of fixing screws (this step has been done before delivery, keep a eye and make fine adjustment if necessary).

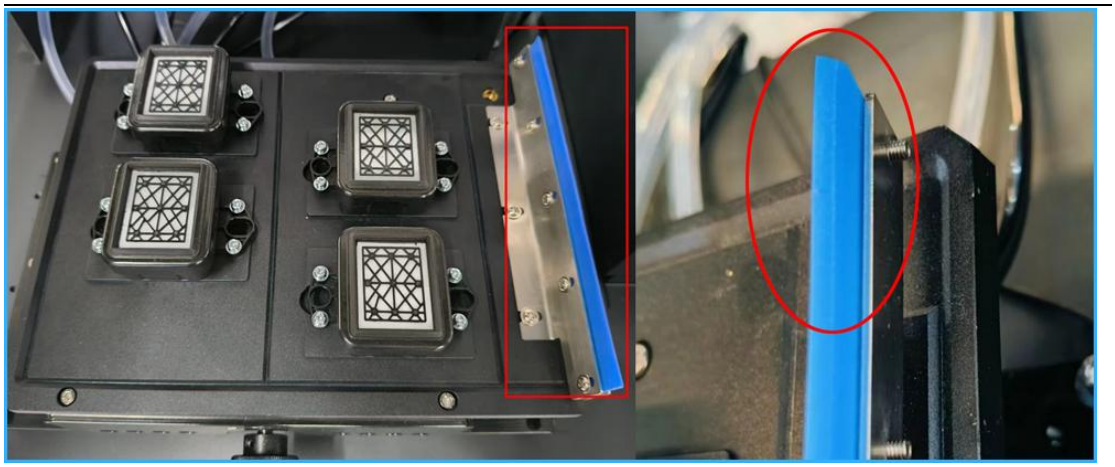
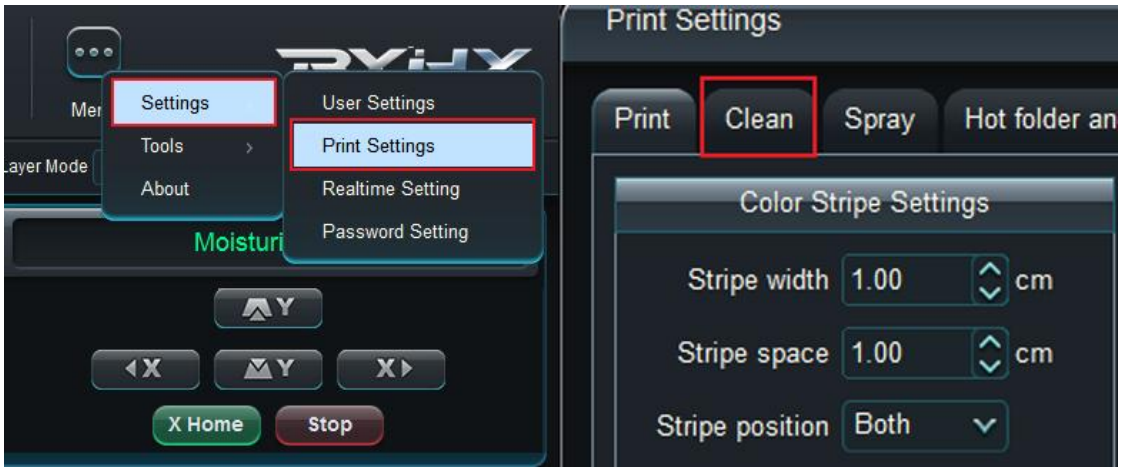
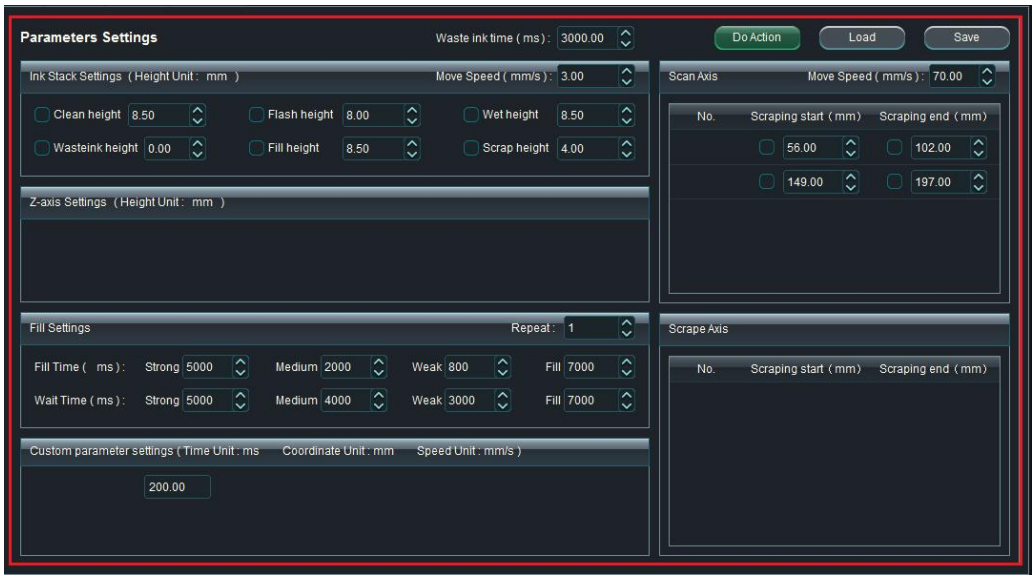


Fig. 56: Wiper adjustment

Check of ink suction function

- “Parameters Settings” option. Click on the "Main Menu", open "Settings", select "Print Settings", and then select "Clean", as shown in the right interface below.



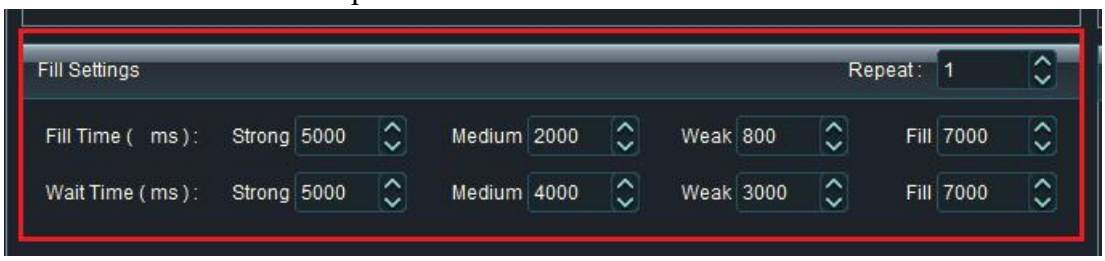


- "Ink Stack Axis Settings": To set the lifting height and speed of the ink stack at various stages during the cleaning process. Click "Save" to take effect after setting.

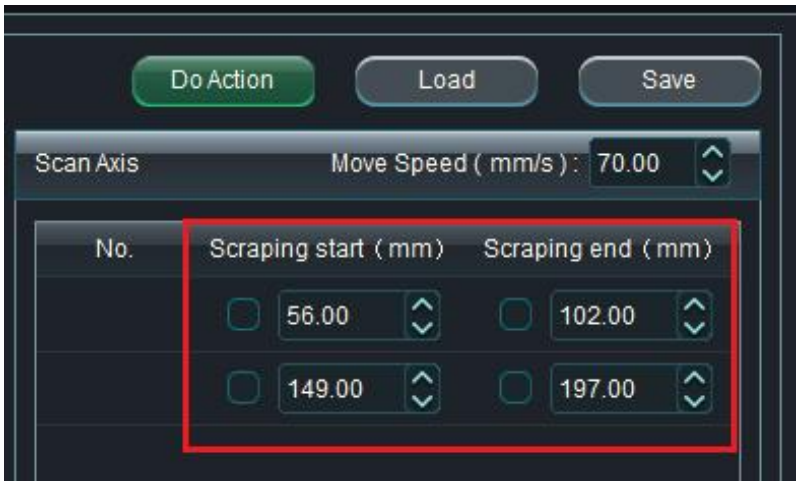
- Check the box in front of the option, and click "Do Action". At this point, the ink stack will move to the set height and then return to the moisturizing position, which can be used to confirm that the height setting is as expected.

- " Ink Suction Settings": To set the time and frequency of ink suction. Click "Save" to take effect after setting. "Repeat" indicates the frequency the ink is sucked.

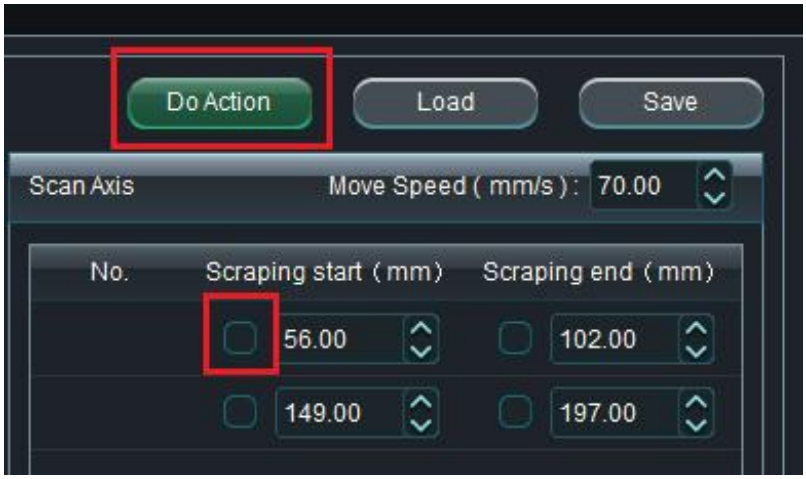
- “Fill Time” indicates the ink suction time. “Wait Time” indicates the time to wait for the ink damper to be fed with air.



- “Scan Axis Settings”: To set the moving distance of the carriage when scraping ink. The reference value is set as follows. “Scraping start”: the position where the carriage starts scraping; “ Scraping end”: the position where the carriage stops after scraping. Modifying the value of “Move Speed” can adjust the speed of carriage movement when scraping ink. Click “Save” to take effect after setting.

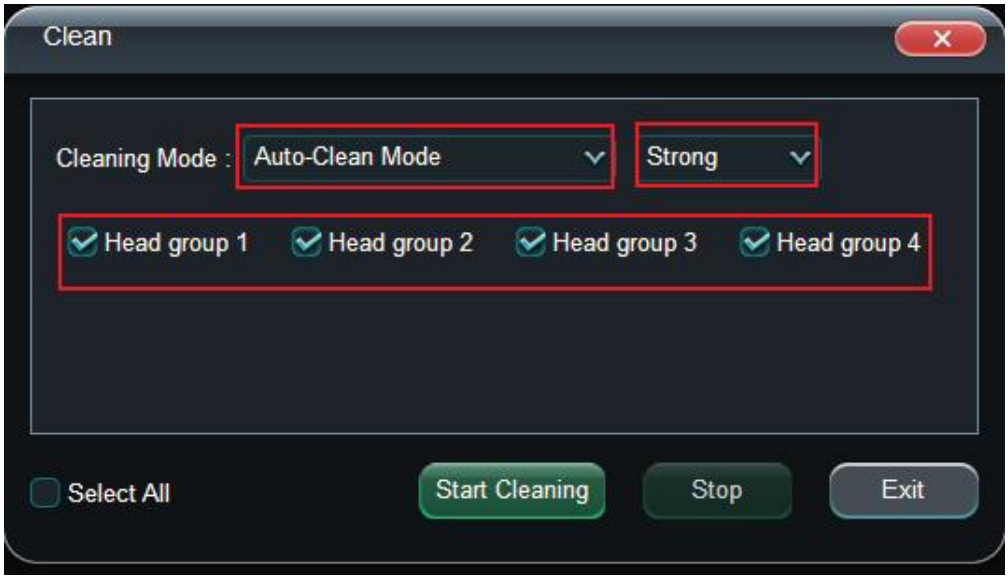


- Check the box in front of the option, and click “Do Action”. At this point, the ink stack will descend to the origin, and then the carriage will move to the set position, which can be used to confirm that the distance setting is as expected.

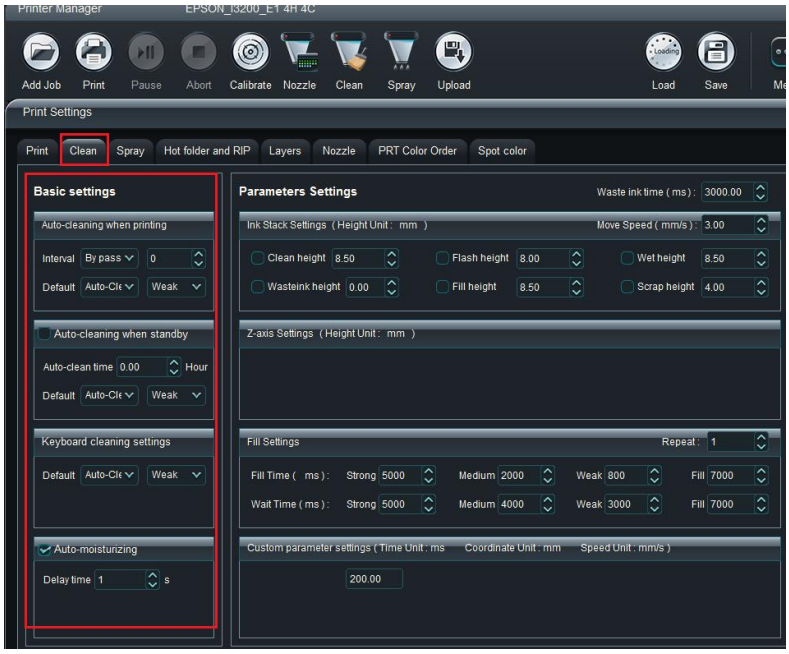


Automatic cleaning test

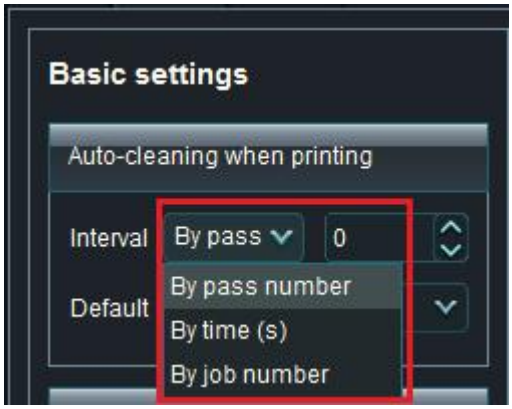
- After clicking "Clean" on the main interface, the following interface will appear, on which you can select the cleaning mode, cleaning intensity, and the number of cleaning print heads. Click “”Start Cleaning“” to start the cleaning function.



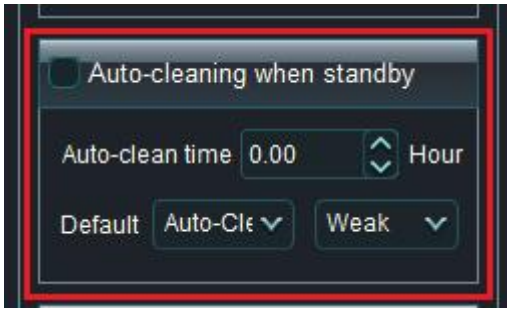
- “Basic Settings”: Click on the "Main Menu", open "Settings", select "Print Settings", and then select "Clean", as shown in the left interface below.



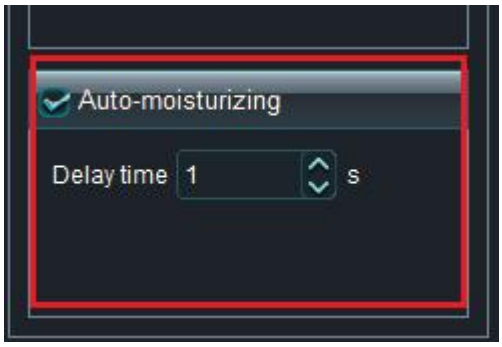
- “Auto-cleaning when printing”: First select which standard you want to interval by and then enter the specific value on the right; If set to 0, it will not take effect. Click “Save” to take effect after setting.



- “Auto-cleaning when standby”: Once checked, the machine will be cleaned automatically when the set time is reached. Click “Save” to take effect after setting.



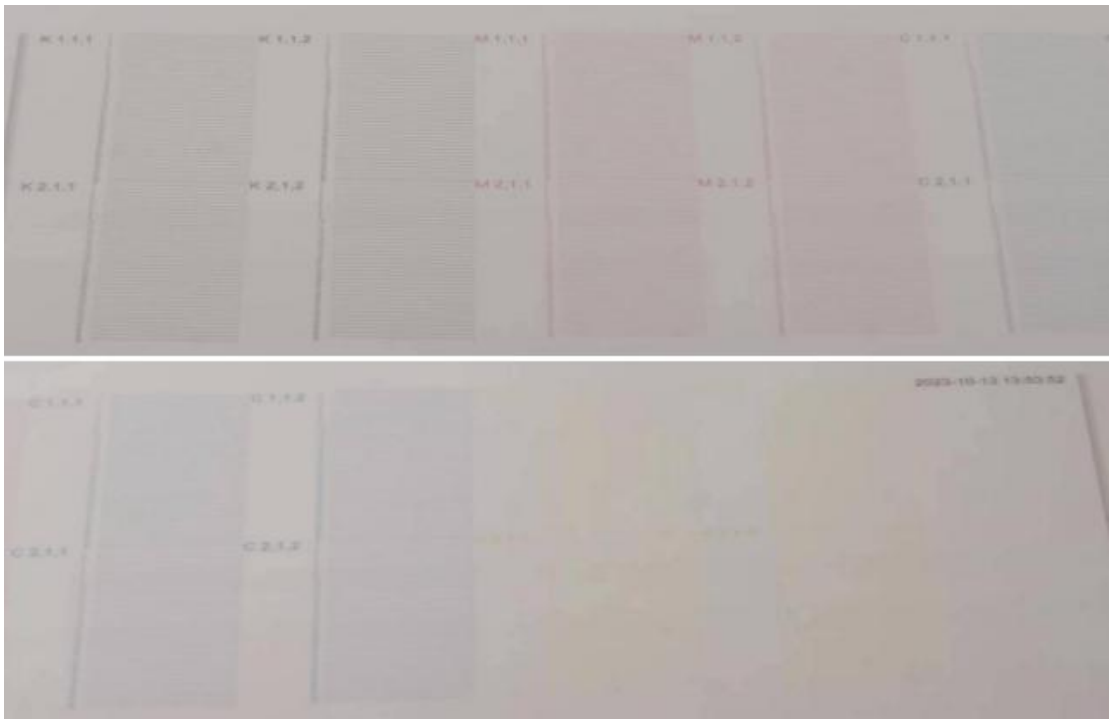
- “Auto-moisturizing”: This option is checked by default and set to 1 second without any modification.



Physical calibration

Step calibration:

- Print nozzle check and confirm the status of print nozzle check:

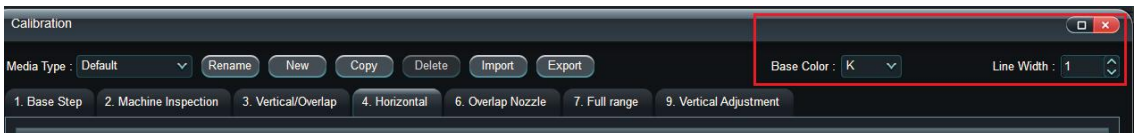


- Click "Calibrate" icon to enter the calibration interface:

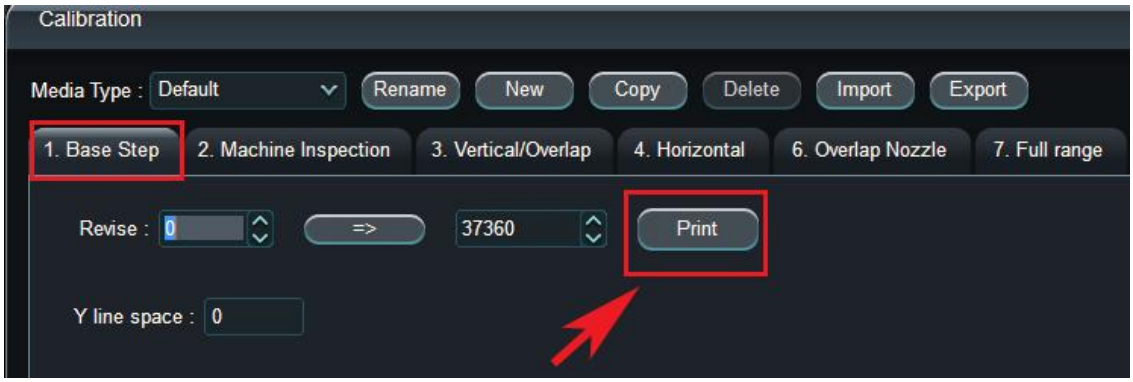
- First select the media type to be adjusted, either create a new media option or choose to rename an existing one; multiple media options can be generated and calibrated to cope with print differences on different materials.

- Click on “Horizontal” to select the precision mode to be printed, and select “360DPI, VSD, MODE”.

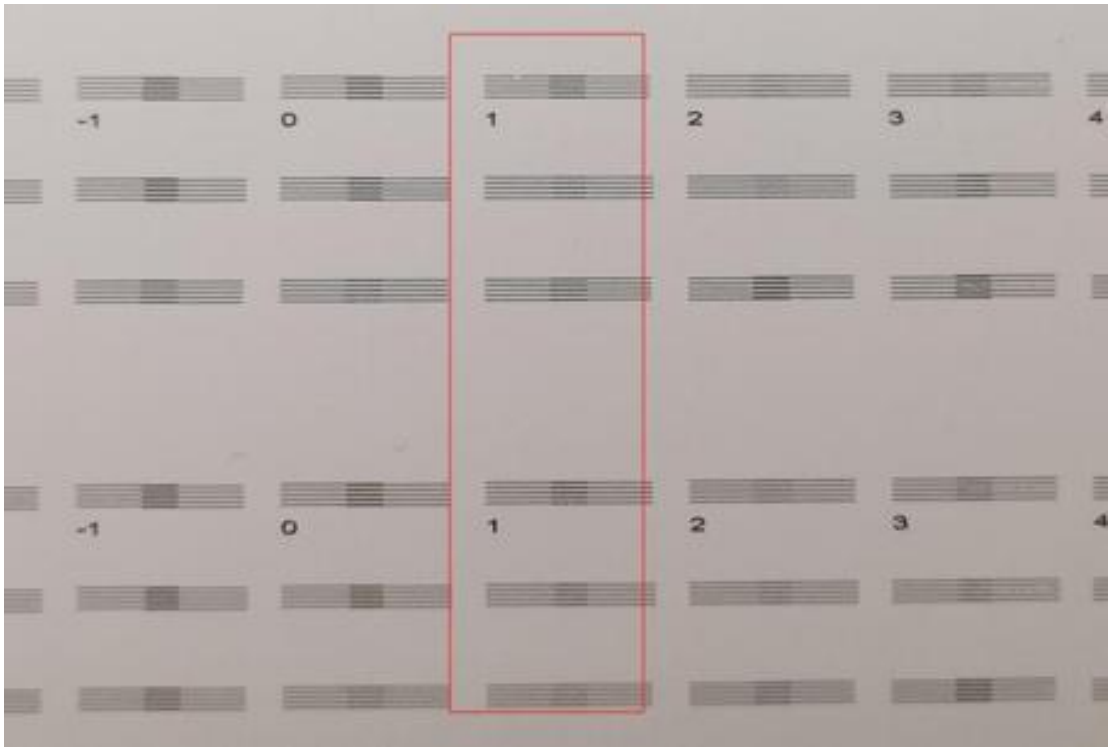
- Then select the base color for calibration, generally black:



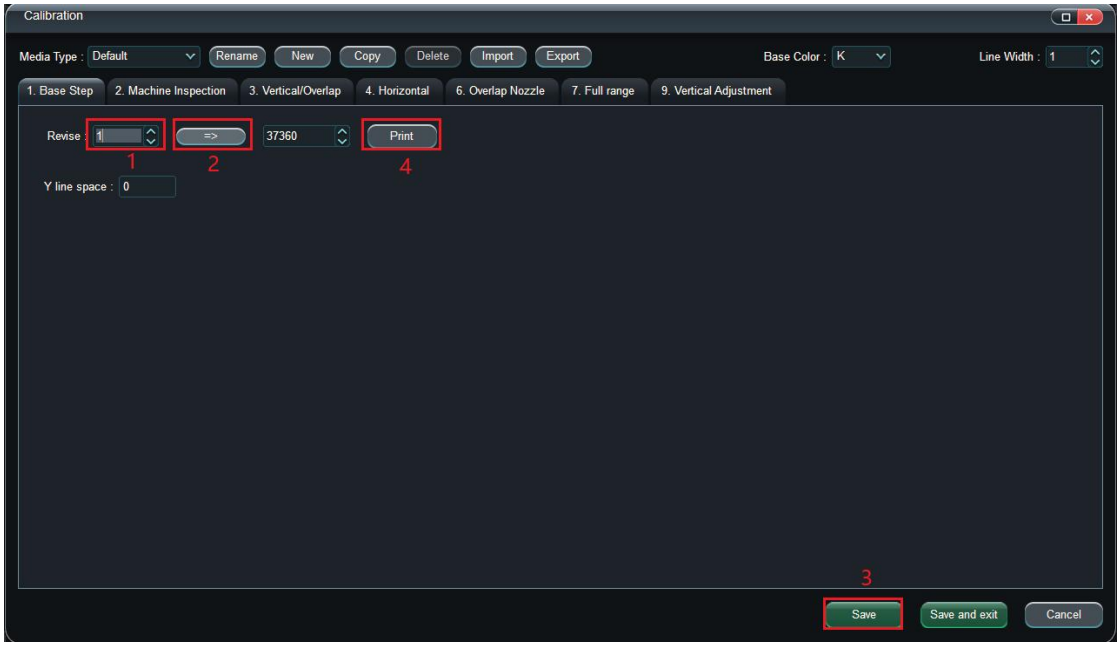
- To perform step calibration, click “Print”:



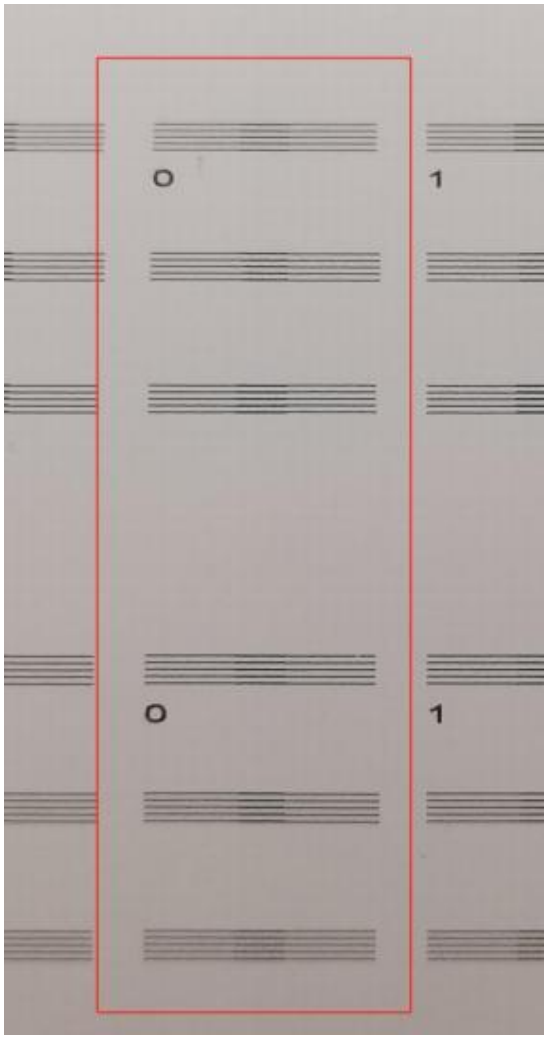
- Observe which numbers in the printed calibration patterns are stacked the smoothest, taking the following figure as an example, “1” is the best.



- Enter the corresponding number in the revise box and click on the arrow icon:

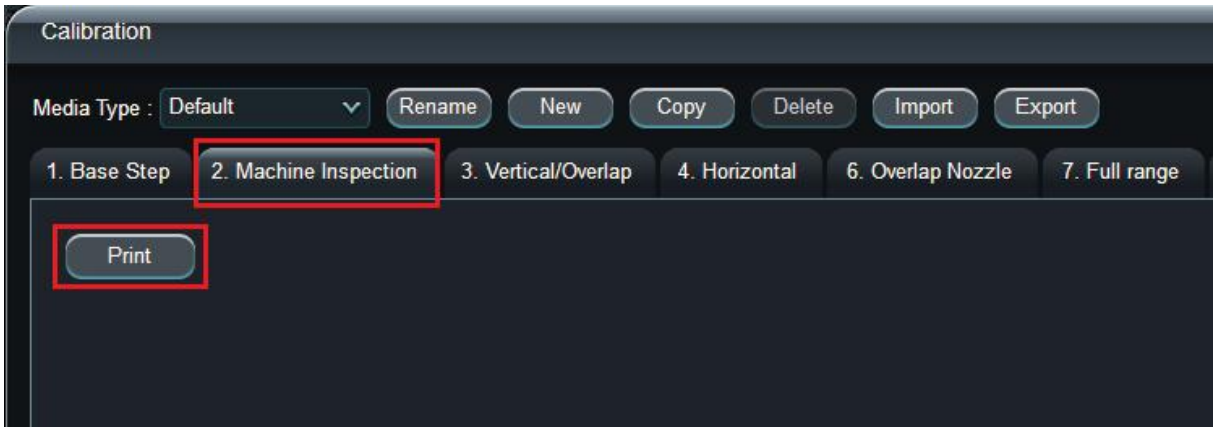


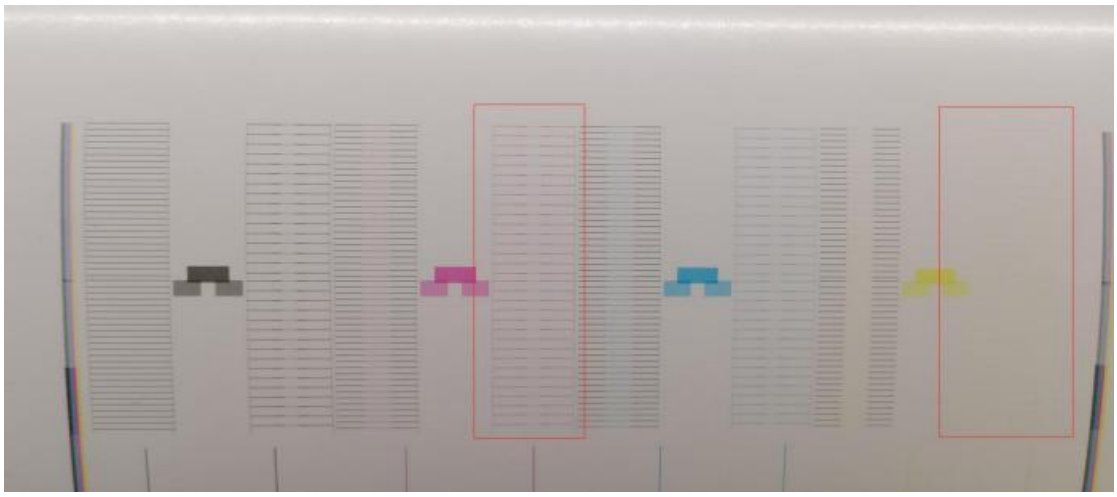
- When the lines of 0 are stacked the smoothest, step calibration is completed.



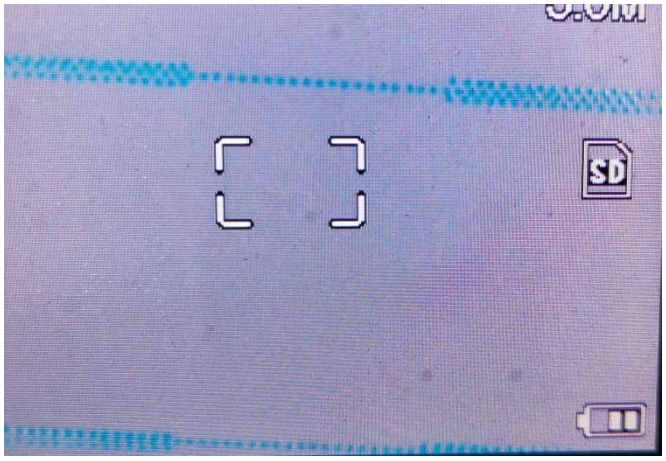
Machine tilt inspection and adjustment

- Select “Machine Inspection” and click “Print”.



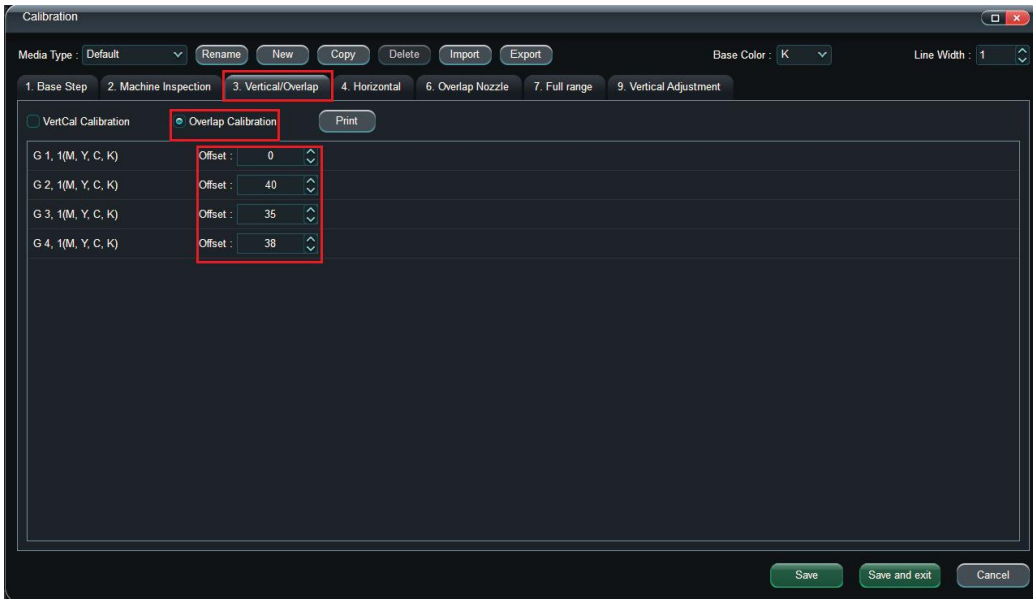


- The standard is to insert a thin line in the middle between the two lines, as shown below.

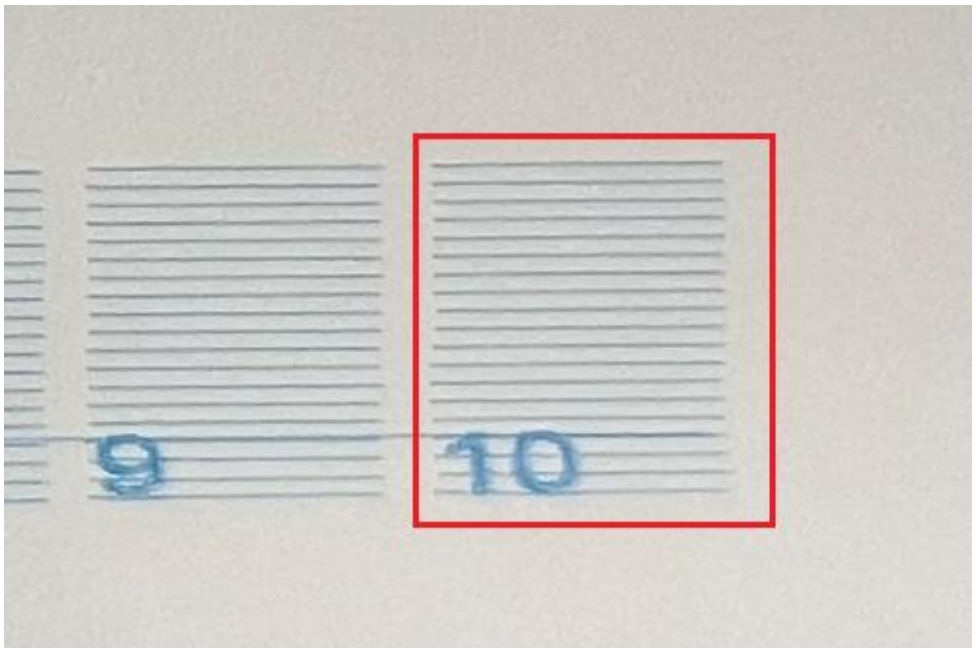


Structure adjustment:

- Overlapping machine inspection and adjustment



- Vertical/overlap calibration

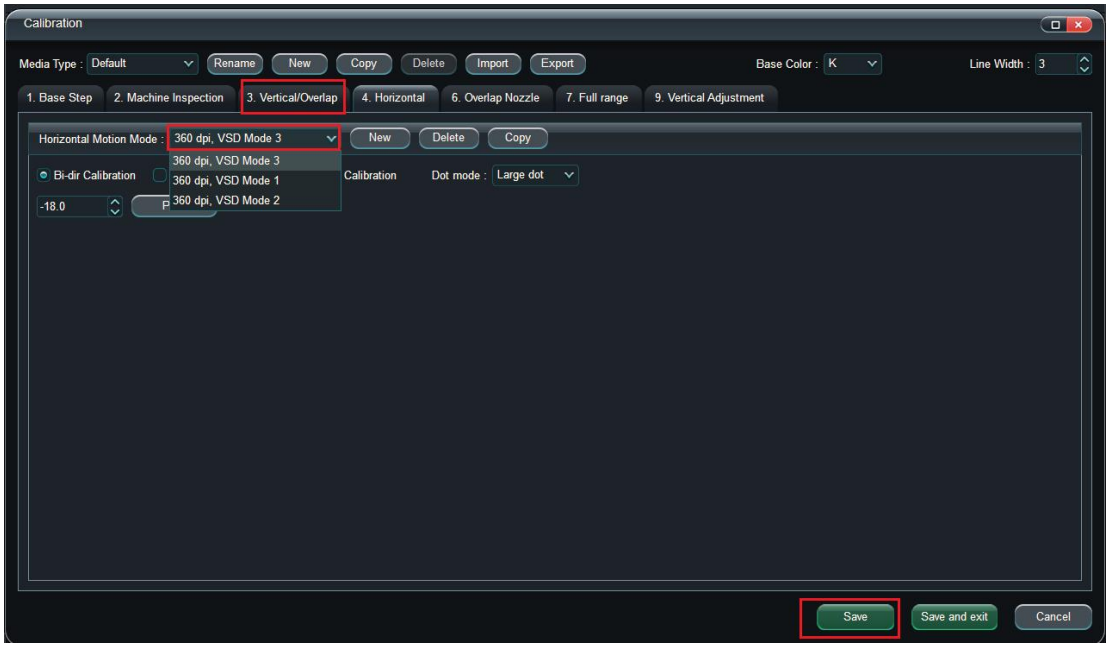


- When printing overlap calibration, this line is the solid line of the holes number overlapping the print heads. As can be seen in the following figure, the number is 10, and there are 4 grids from bottom to top, so the overlapping holes are 40 in total. In general, the overlap holes shall be 40±5.

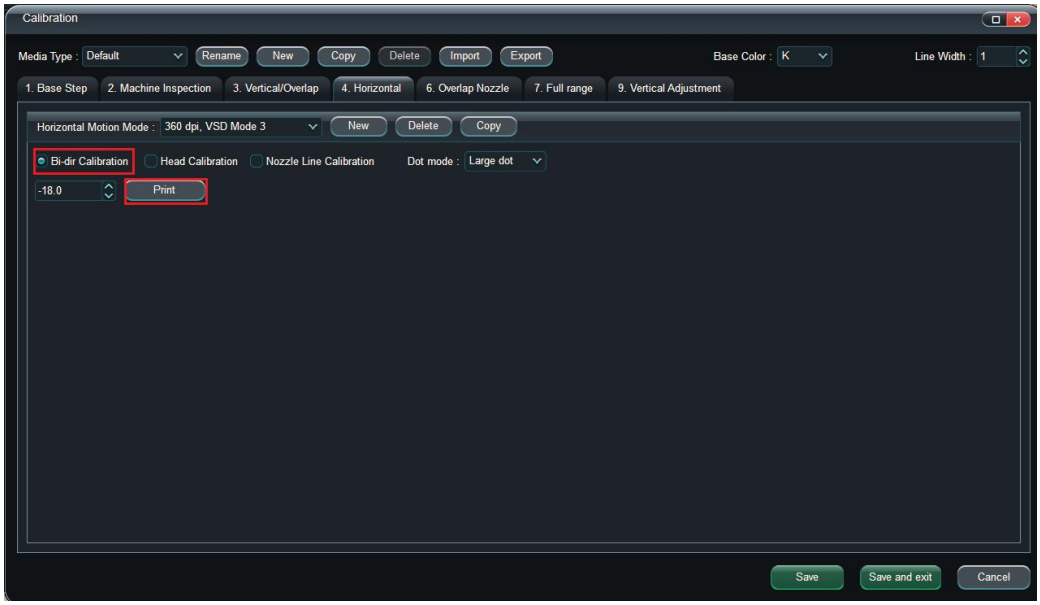
Software calibration

Horizontal calibration:

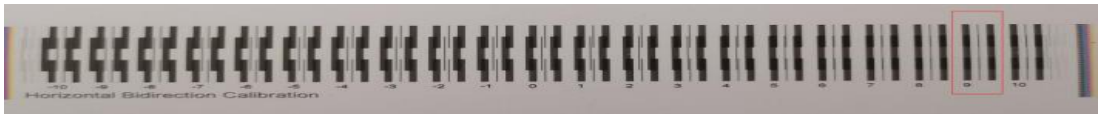
- Select VSD mode, and what to print the calibration pattern with:



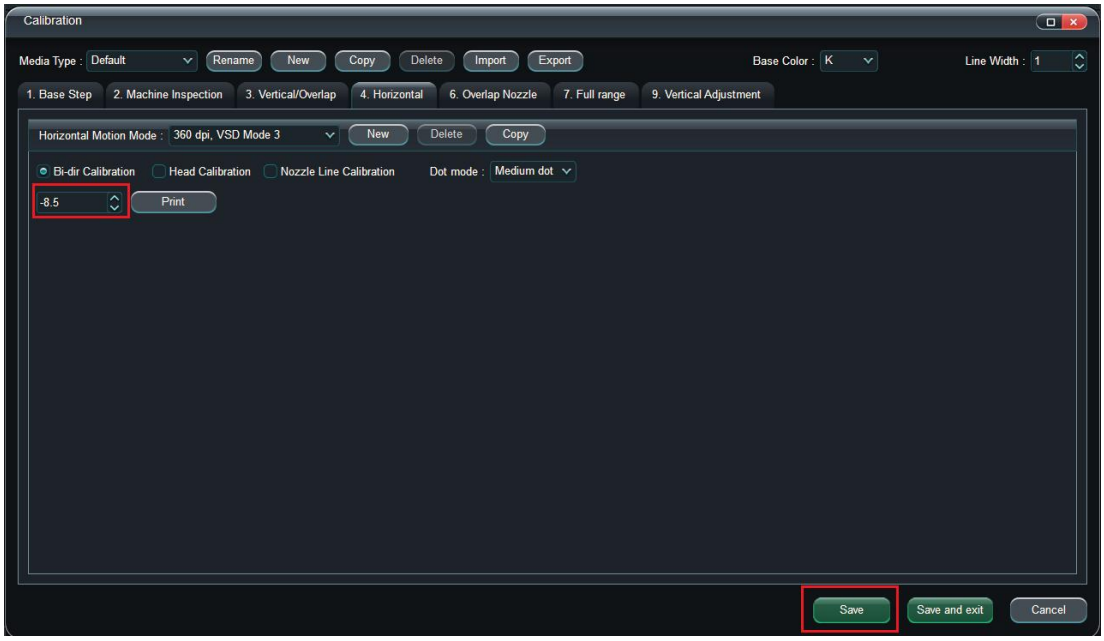
- Calibrate bi-directionally first, select “Bi-dir Calibration” and click “Print”.



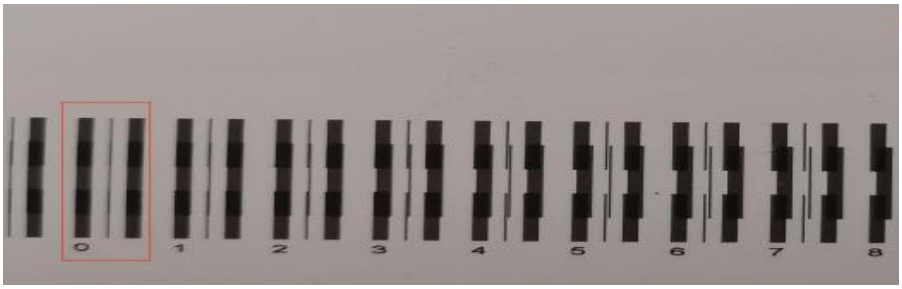
- Check which lines for numbers in the printed calibration charts are stacked flat, taking the following figure as an example, “9” is the best.



- Add 9.5 to the value. Then click "Save" and confirm by clicking “Print Calibration Chart”.

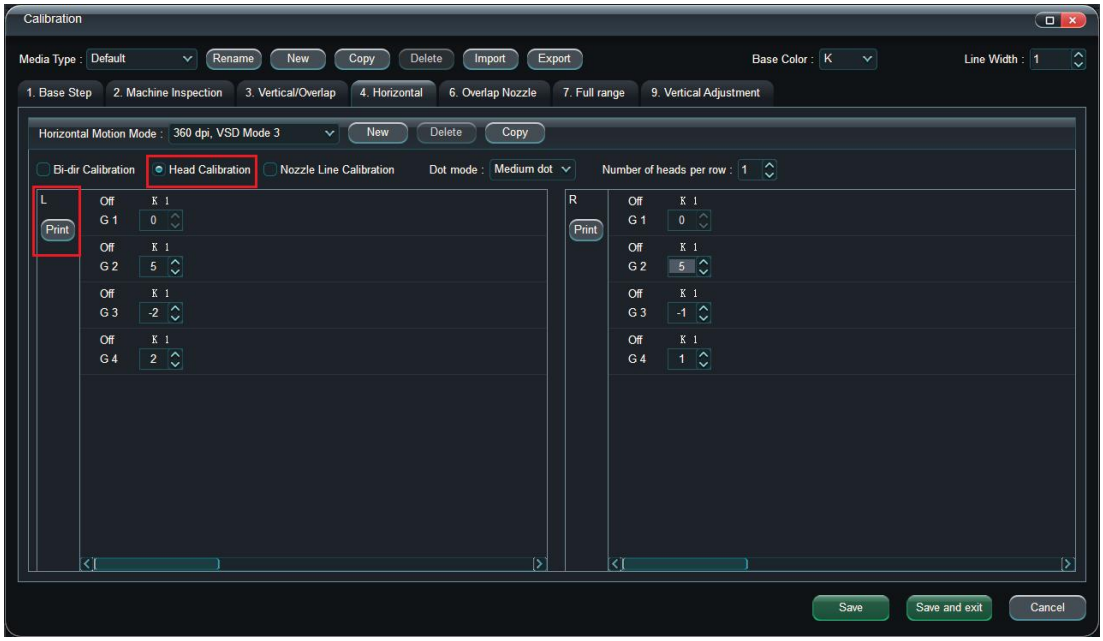


- After adjusting to "0” and flattening the line, check the fine lines on both sides of the calibration chart. If the fine lines on the left and right sides are rough, add or subtract values. The fine lines on both sides should be flat, as shown below.

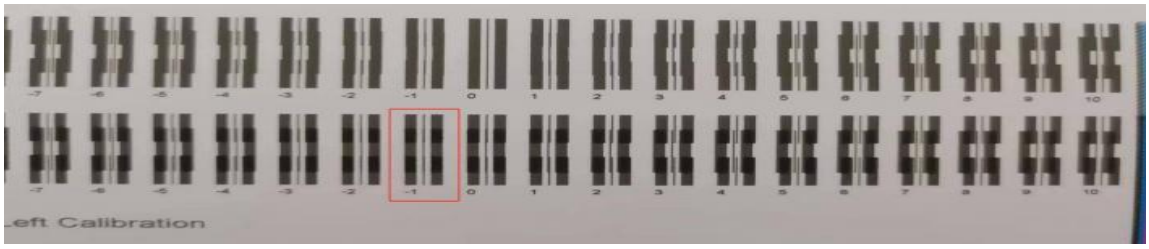


Calibration of Print Heads

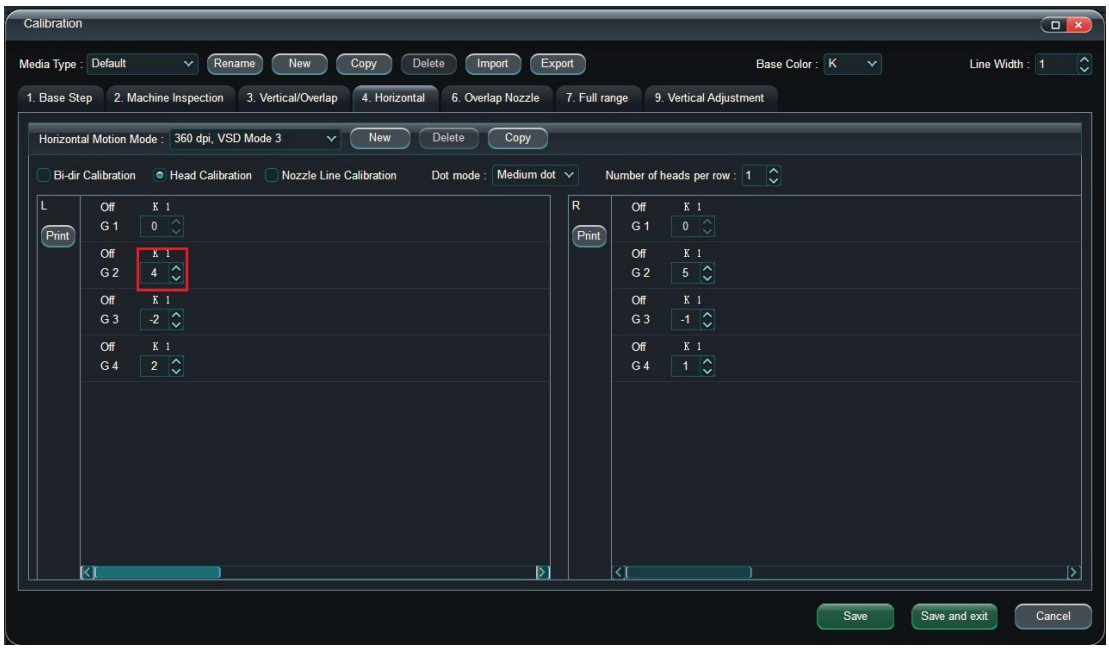
- Select “Head Calibration” and Click “Print” on the left.



- Because print head 1 is the reference, G1 should remain unchanged. Check G2 to see which number's line is flattened. The following figure is an example of "-1" being flattened.



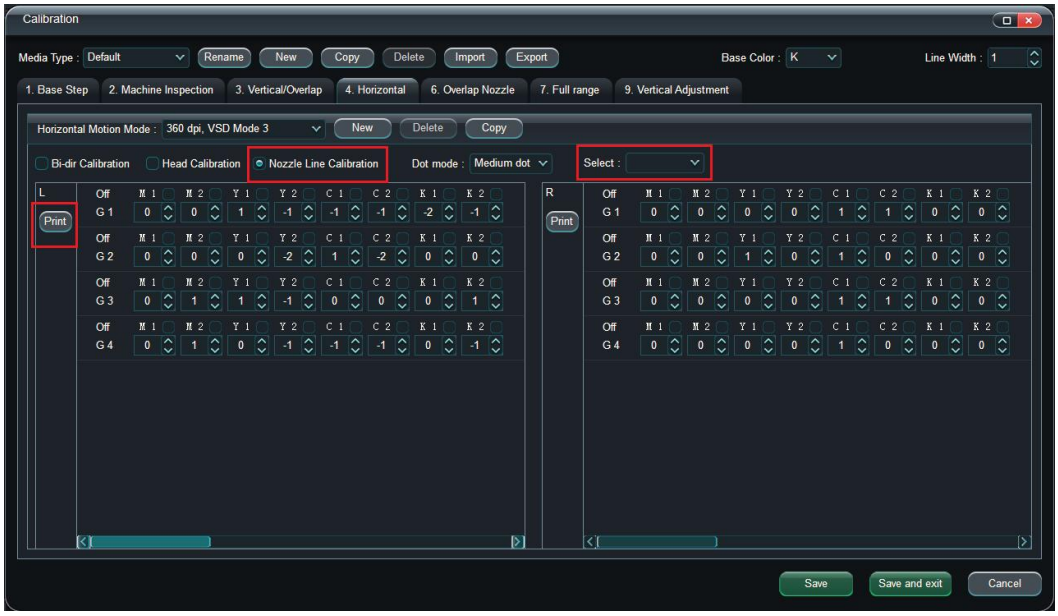
- Subtract 1 at G2, click "Save" and confirm by clicking “Print Calibration Chart”.



Calibrate the right side using the same method, subject to the leveling of the thin line adjusted to the number 0.

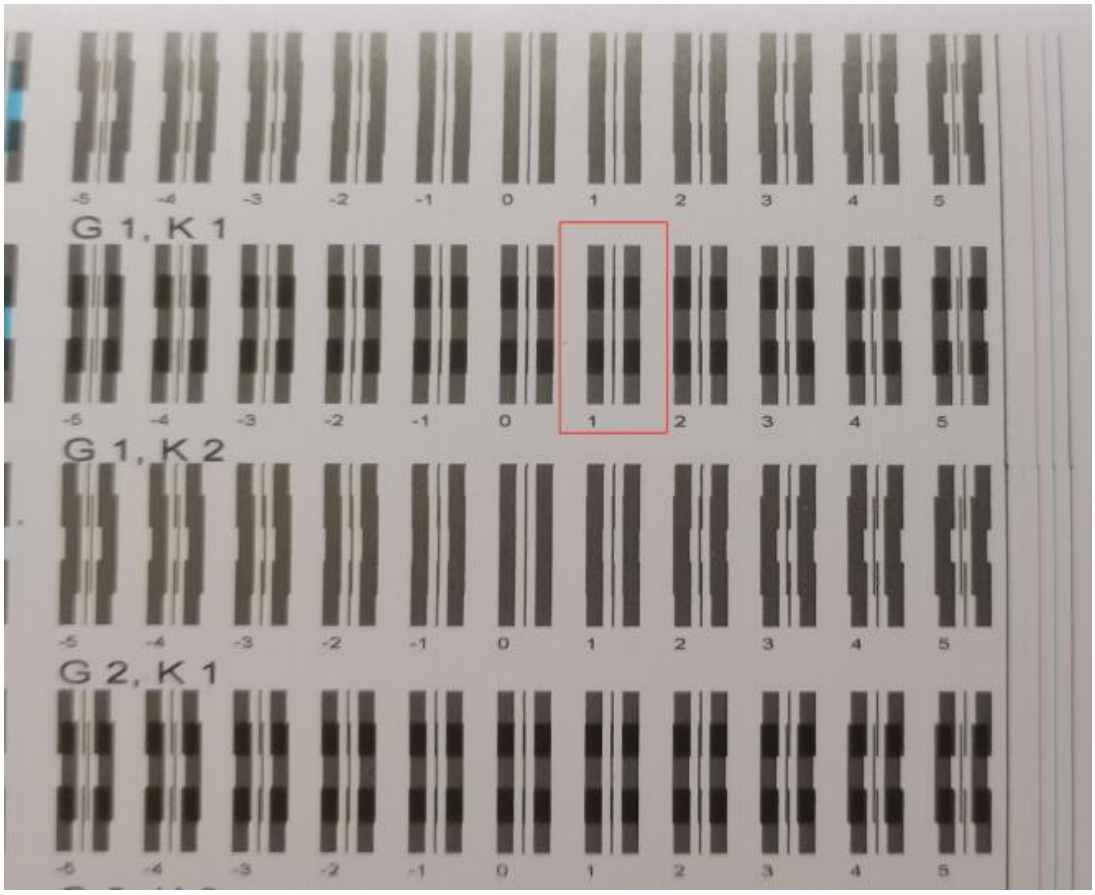
Calibration of nozzle line

- Select “Nozzle Line Calibration” and leave the "Select" option blank without modifying it.

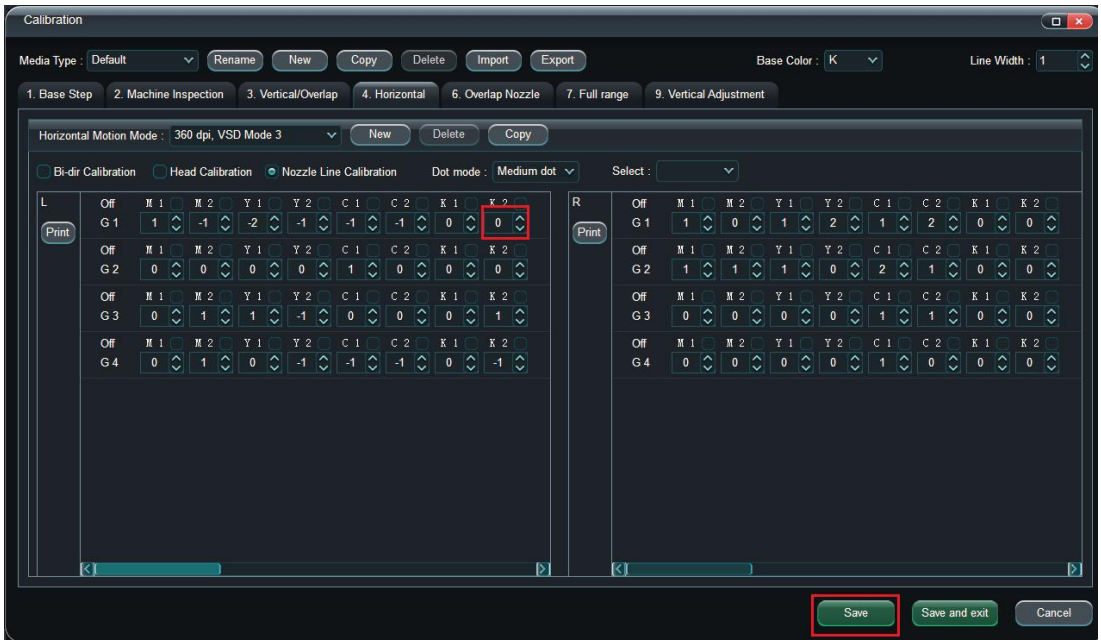


- Observe whether the 0 line on the printed calibration chart is flat. Taking the

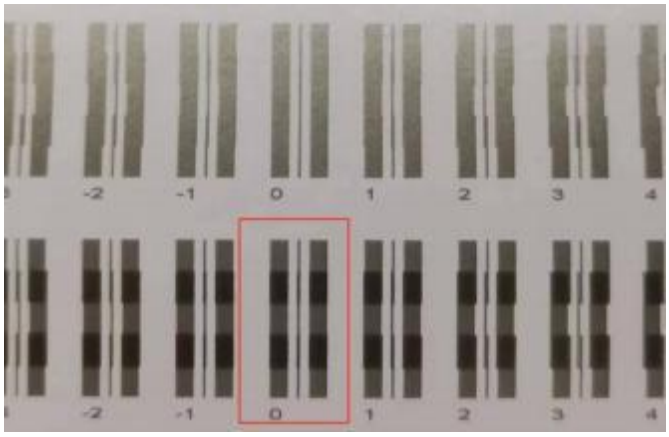
following figure as an example, G1 and K2 are flat at the number 1.



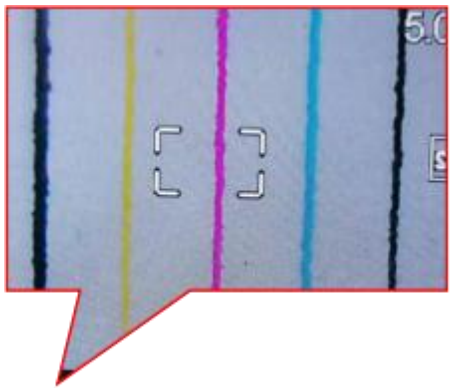
➢ Add 1 at the G1 K2 position where “Left Calibration” is required.



➢ Modify the values of other colors according to the reference, and click "Save".



- Print again to check if the “Nozzle Line Calibration” is properly calibrated. The reference for calibration is that the colored lines on both sides are on the same straight line, without double lines or excess colors exposed, as shown in the following figure:



PN33-EC Series Inkjet Printer

Print Software Interface and Functions

Introduction to functions of the main interface

Basic function keys

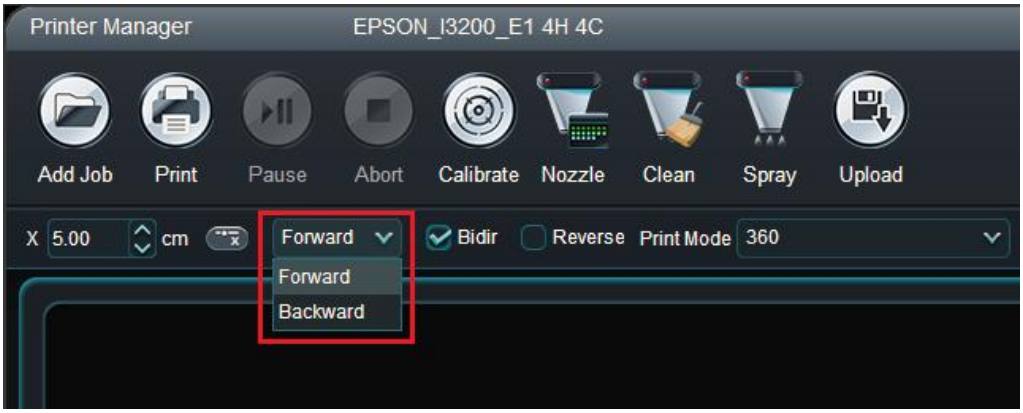
➢Basic function keys are located in the upper left corner, from which operations such as Add Job, Print, Pause/Continue, Abort, Calibrate, Nozzle, Clean, and Spray can be performed.

X origin

➢The starting point for printing, indicated by a ruler on the machine, which allows to select the print position based on the position of the media on the platform.

Forward/Backward option

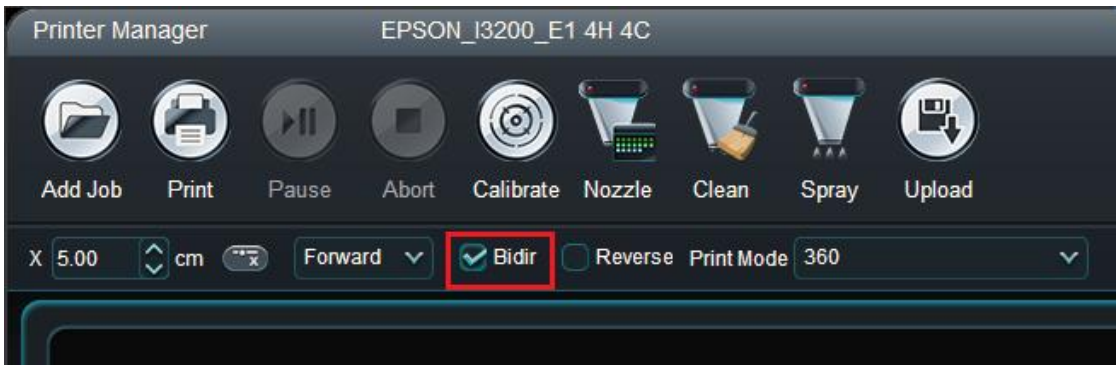
➢Forward: printing from left to right; Backward: printing from right to left.



Bidir option

➢It indicates that both the left and right movements of the carriage are in the printing

state.

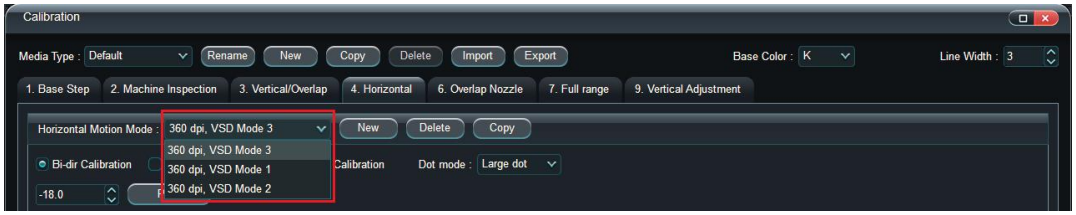


Reverse option

➢It indicates that the origin of the print settings remains unchanged and the image is printed from the right end.

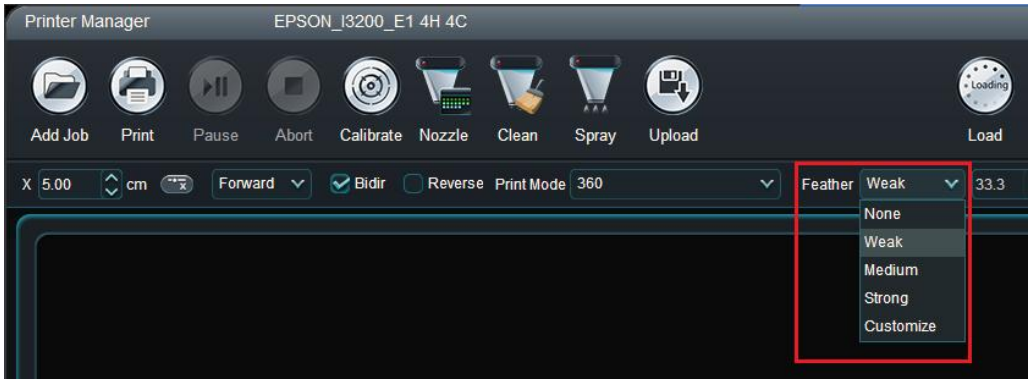
VSD option

➢Mode3 (high speed), Mode2 (medium speed), and Mode1 (low speed) are available for selection.



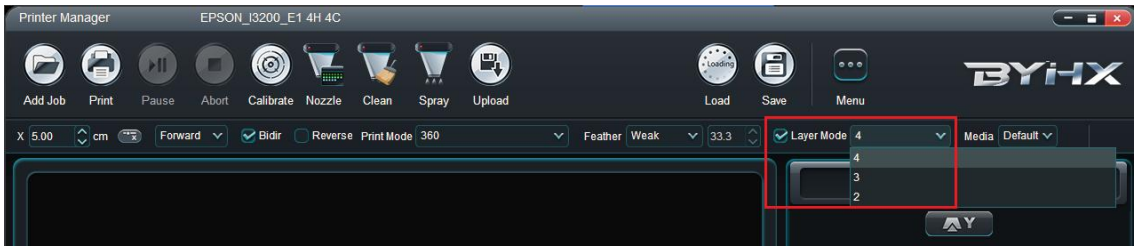
Feather strength option

➢ Different feather modes can be selected as required by the image. Printing efficiency will vary under different feather modes.



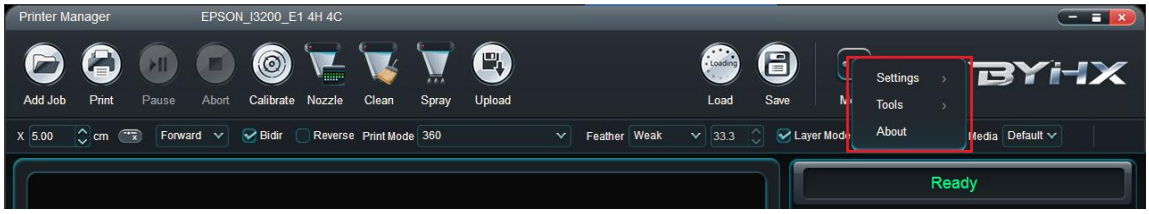
Option of number of print head groups

➢When printing, the number of print head groups can be selected (generally 4 groups) to reflect the printing efficiency.



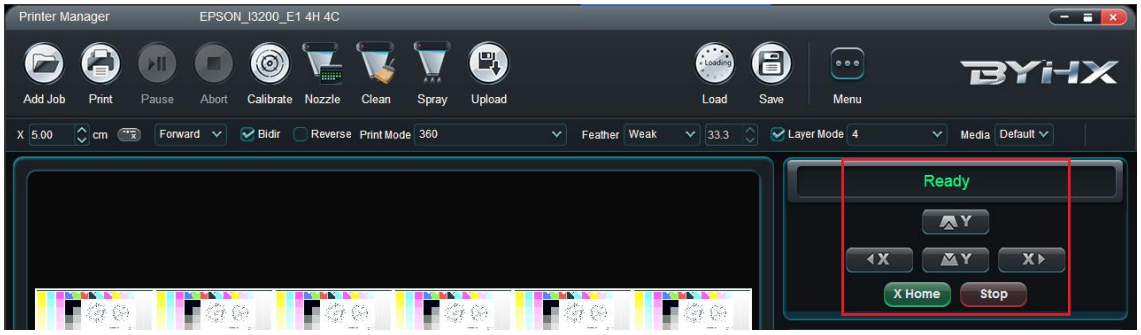
Main Menu key

➢To open the “Main Menu”.



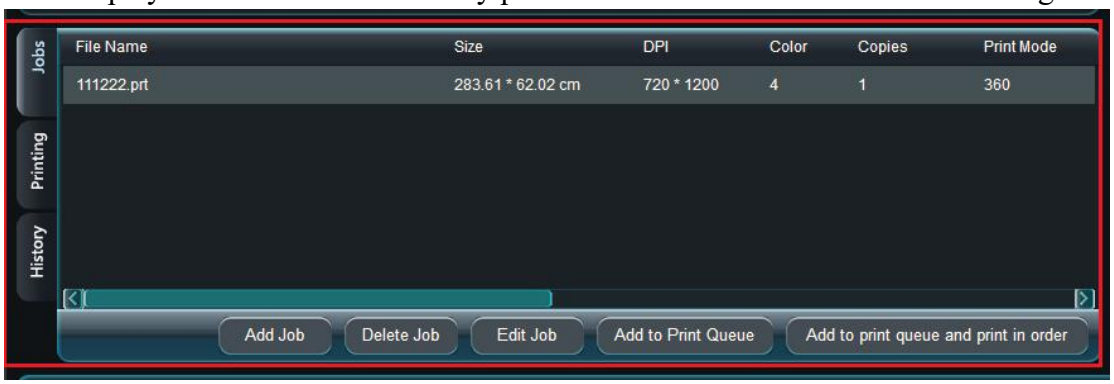
Control unit

➢To control the left and right movement of the carriage, the paper feeding/unwinding , the carriage return to the moisturizing position and stop the movement



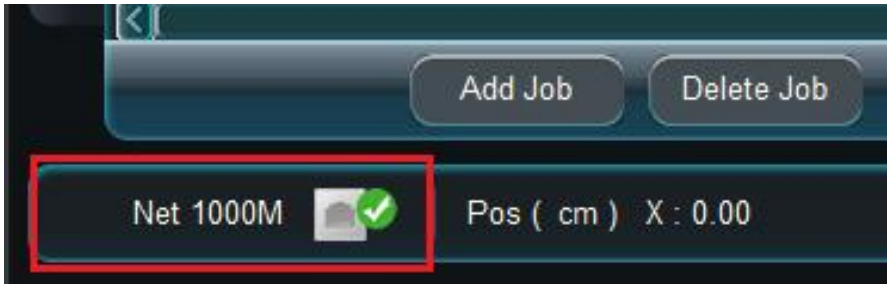
Job list interface

➢To display the name of the currently printed file and information about the image.



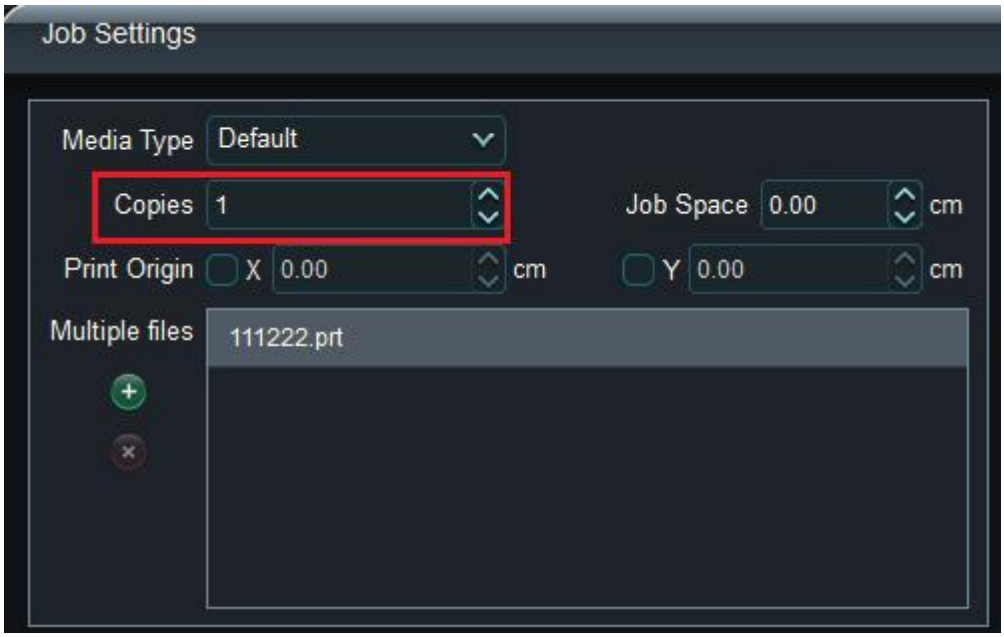
Network port connection status display

➢To display the current network speed.



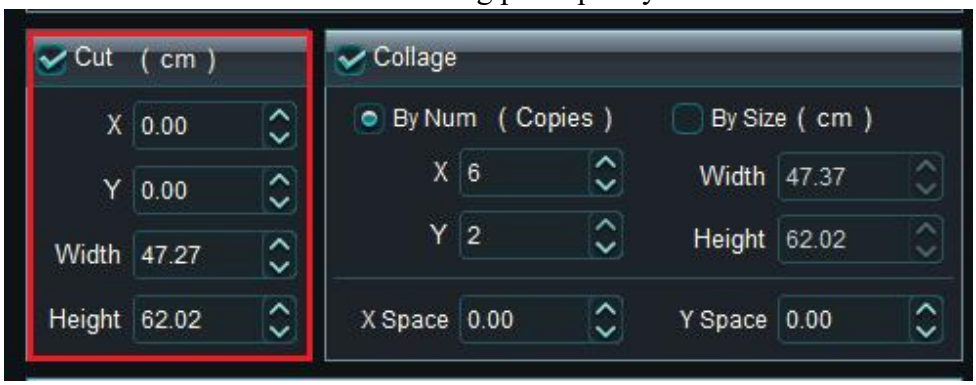
Print copy(ies) settings

➢Select the copies to be printed according to the printing requirements.



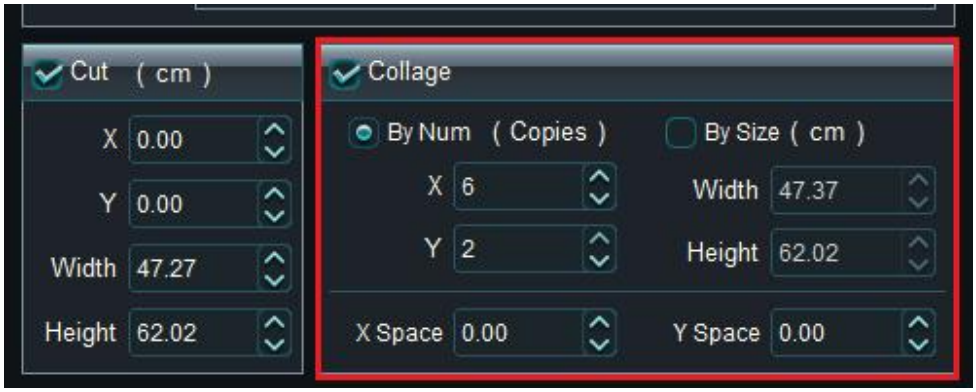
Cut job

➢Different sizes can be cut for testing print quality.



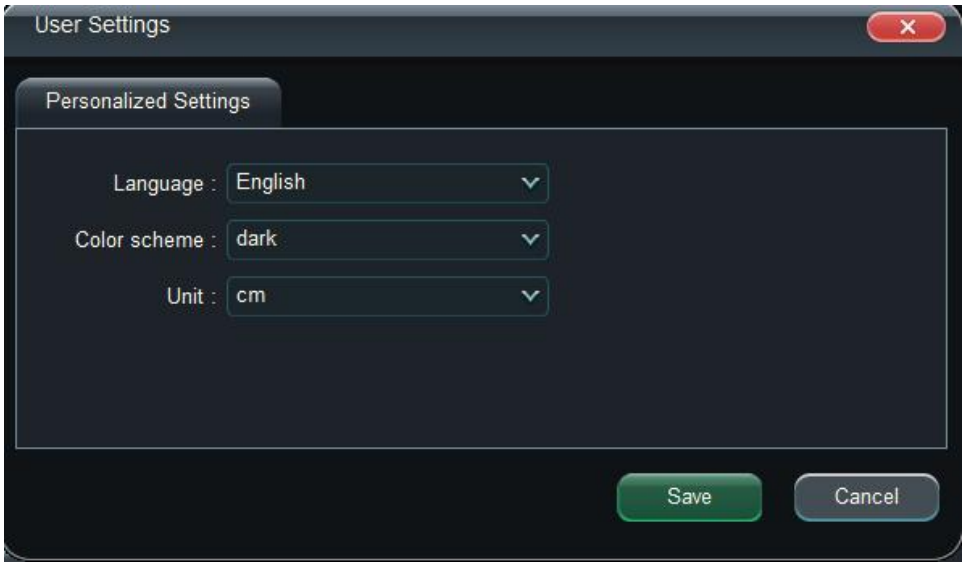
Collage (qty.)

➢ To set the copies of X- and Y-direction images, and to set the size of the gap between the X- and Y-direction images.



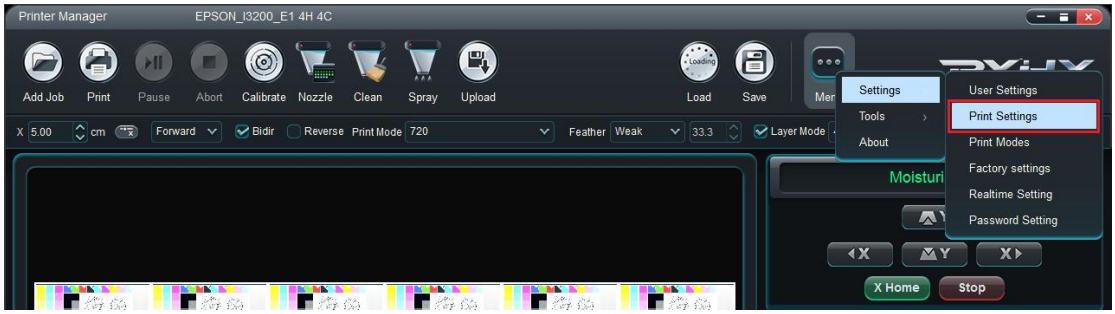
User settings

➢Click on the “Main Menu”, open “Settings” and select “User Settings”.

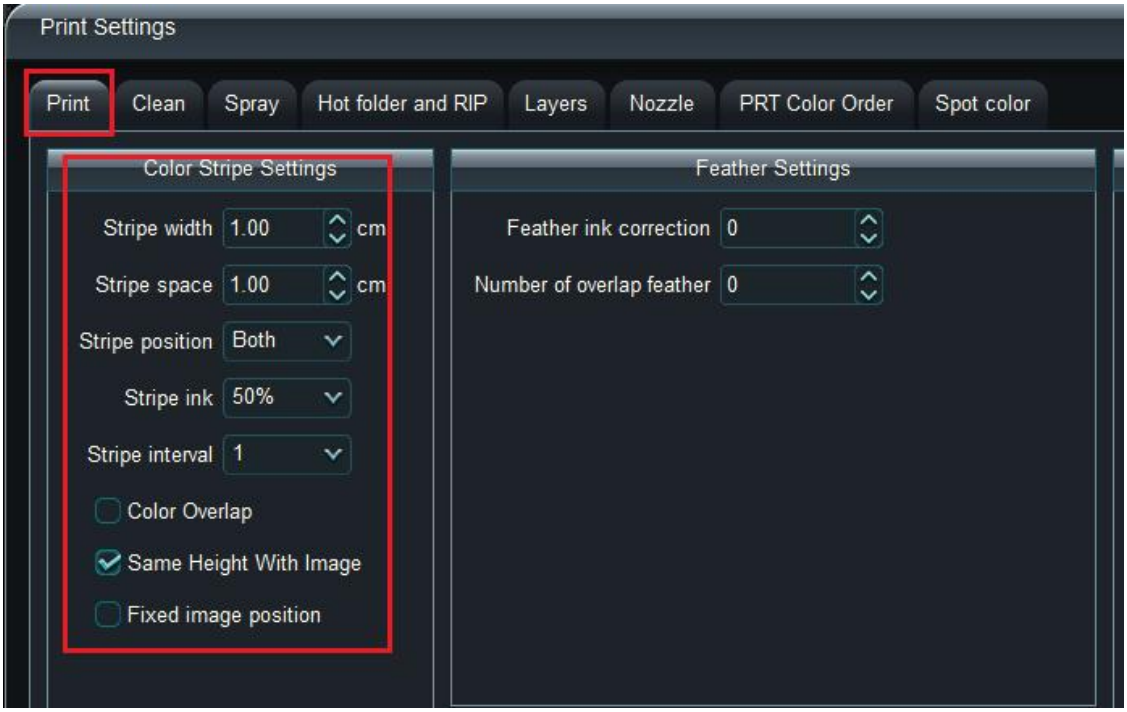


Printing settings

➢Click on the “Main Menu”, open “Settings” and select “Print Settings”.

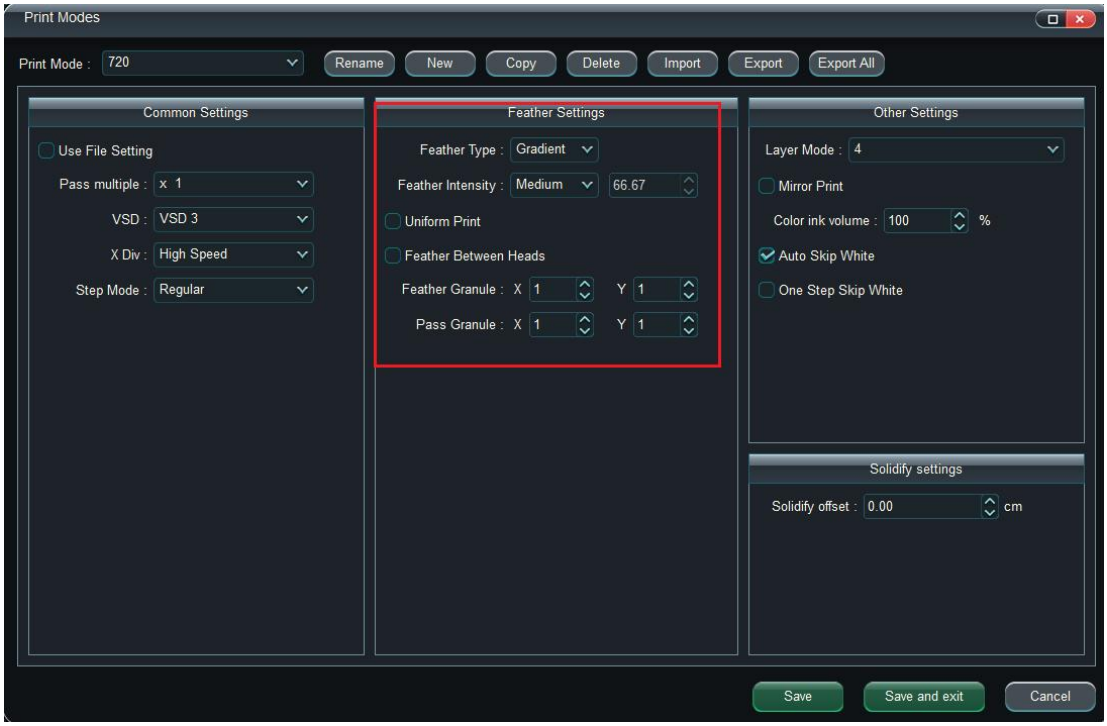


➢Then Select" Print".



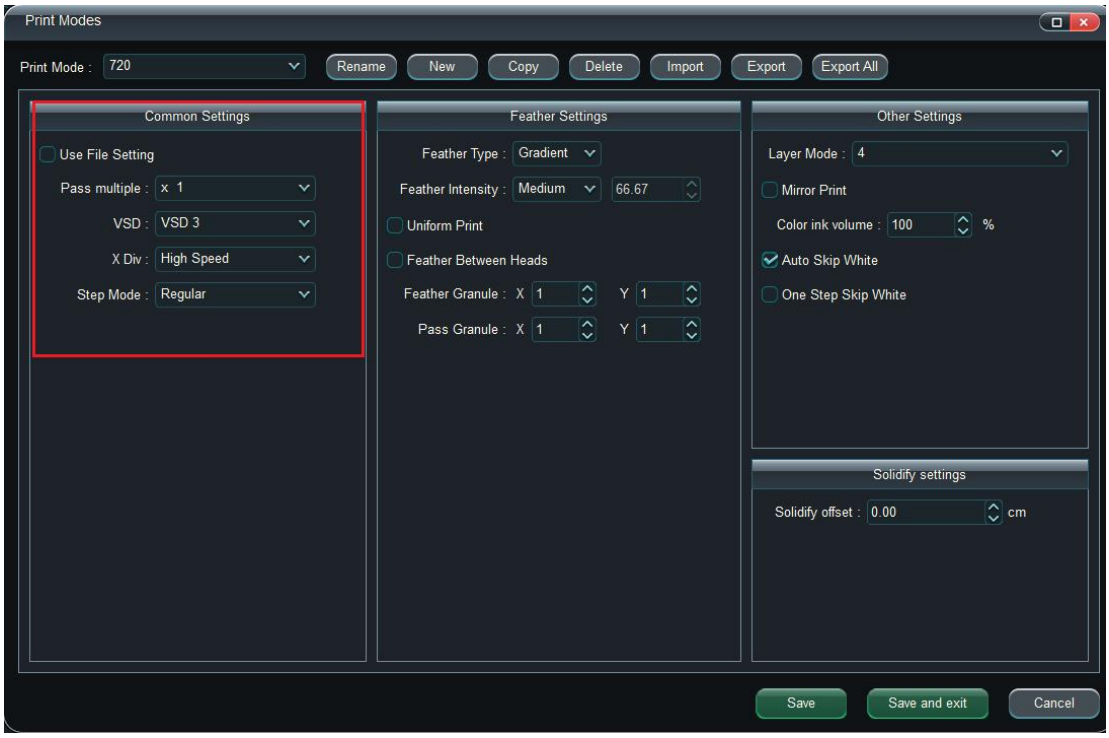
Feather settings

➢Set the feather method in the "Print" interface. The feather intensity setting in this interface is synchronized with the feather intensity setting on the page. Here you can set "Feather Type" and check "Feather Between Heads".



Common settings

➢"Pass multiple": To set the number of passes of the printout to be doubled by the set number, for example, if 3, the image of 4pass will be printed with 12pass. "VSD" settings are synchronized with those on the main interface. "Step Mode" can be selected as "Regular". Click "Save" to take effect after setting.

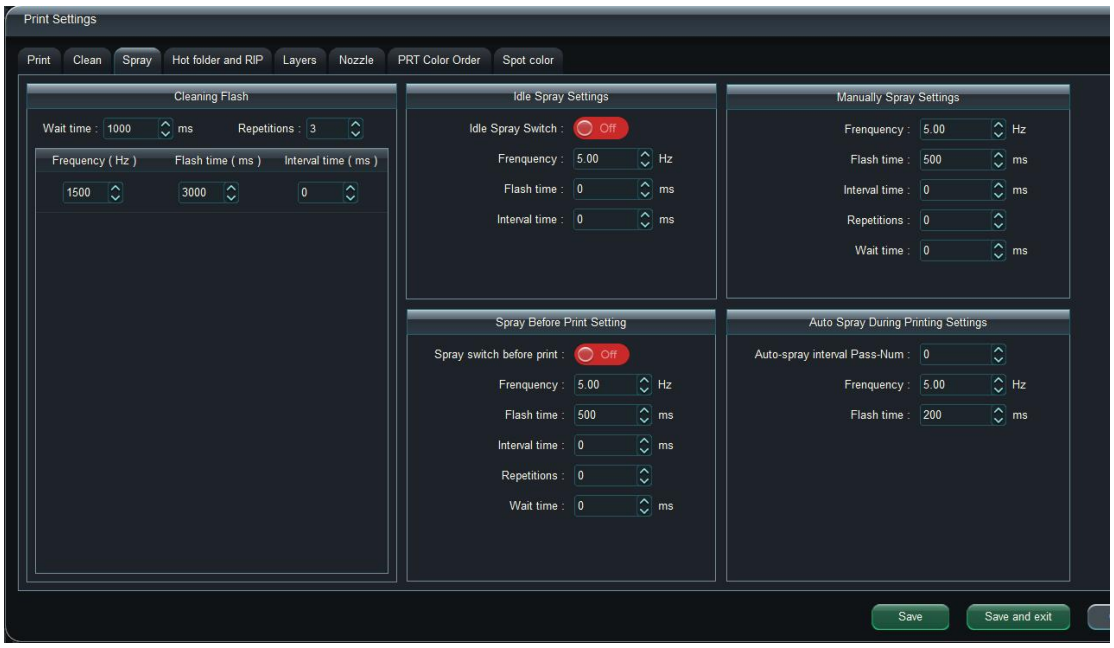


Auto-moisturizing

➢This option is checked by default and set to 1 second without any modification.

Spray option

➢Click on the “Main Menu”, open “Settings”, select “Print Settings”, and then select “Spray” (this option is generally not selected, and can be selected as needed).



PN33-EC Series Inkjet Printer

Quality Inspection and Receipt

Quality Inspection and Receipt

Once the machine is installed and commissioning is completed, we need to check the print quality of this machine.

Caution:

There is no abnormal sound or jitter when the machine is working.

All the functional buttons and indicating lights work normally.

The picture print quality is high, and there are not messy codes or floating ink on the printed pictures. Small characters can be seen clearly.

ICC can fully reflect the color saturation, and it is required that the transition, highlight, gradation and many other details should be presented perfectly.

No horizontal or vertical strips and a large area of line breakage of the print head are found when printing pure color blocks.

The machine can print the whole picture. The platform levelness is checked.

The print precision of each area of the platform is observed.

It is recommended to use ONYX Quality Evaluation.prt as the sample test picture.

PN33-EC Series Inkjet Printer

Common troubleshooting

Basic fault troubleshooting

This chapter overviews the basic troubleshooting tips and troubleshooting methods for some typical problems that may occur during installation of the inkjet printer. Please note that the information in this part will be updated as more inkjet printers are installed and the knowledge library expands.

Print head does not spray ink

Description - one or several print heads do not work.

No.	Phenomena	Solutions
1	Print head needle broke	Adjust ink stack position and cleaning parameters
2	There is ink on the surface of print head	Adjust the ink level
3	The hole at the print head fixing position is blocked	Try to flush the print head with cleaning solution
4	There are broken lines on the printed pattern	Check for air bubbles in the ink path and broken ink damper
5	Faulty print head	Check if the waveform is correct and if the indoor temperature is too low
6	The print head surface is damaged	Replace the print head
7	There are ink drops on the printed pattern	There is batting on the print head base plate. Wipe the dirty matter on the print head base plate with clean cloth dipped in alcohol
8	One print head in multiple groups does not spray ink when printing the test strip	Check the temperature, voltage and temperature feedback of print heads, and check the connection status of print head FFC.

PN33-EC Series Inkjet Printer

Maintenance of Print Heads and the Machine

Daily maintenance of print heads

1. Every day before the startup and shutdown, it is recommended to print nozzle test chart to check whether the nozzle is in normal condition. Observe the flow when sucking ink.

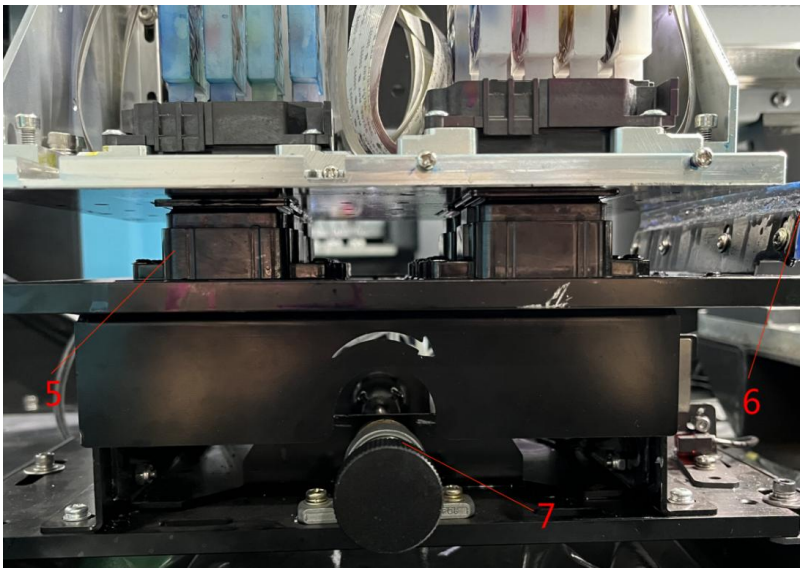


Fig. 1: Observe the ink droplet on the surface of the print head

Notices about installing print heads

1. To prevent the blockage of the nozzle, a clean environment should be kept when the print head is installed.
2. To prevent the chip of the print head from damaging caused by static electricity, please install the print head in an environment with ESD protection.
3. To prevent the nozzle from damaging and clogging, crashing or directly touching the nozzle with your hands is forbidden.
4. The print head FFC should be protected from being squeezed by external forces, scratched or cut off.
5. To prevent the port of ink supply from damaging, the installation and removal of the ink tube by lateral force is forbidden.
6. The FFC and the end should be carefully checked before connecting the print head FFC to make sure no squeezes or scratches.
7. Connecting or disconnecting the print head FFC without cutting power is forbidden.
8. Ink and cleaning fluid should be kept away from the electrical interface, board card and wire of the print head.

Initial ink refilling

1. Preparations for initial ink refilling
   (1) All kinds of solutions, including ink, cleaning fluid, and humectant, should be matched with the print head.
   (2) Please check that the color of the main ink tank corresponds correctly and that the lower filter is oriented correctly.
   (3) The initial ink refilling can be started when the work environment of the print head reaches the desired temperature.
2. Steps for refilling inks
   (1) This Manual only describes the work of ink refilling of non-cyclical print heads. For ink refilling of cyclical print heads, please read the relevant product manual as a reference.
   (2) It is recommended that the ink can be refilled directly, but the cleaning fluid is not recommended for cleaning the print head before refilling.
      ① Step 1: Add the correct ink to the main ink tank, open the ink tube clip to enable the ink flow into the secondary ink box through the filter, and adjust the height of the ink in the secondary ink box via the adjusting knob.
      ② Step 2: Insert the ink damper correctly into the ink inlet of the print head and secure it with the ink damper holder.
      ③ Step 3: Adjust the position of the ink stack, click "Clean", and complete ink suction. Observe the ink status inside the ink tube, ensure that there are no bubbles inside the ink tube. Cleaning requires multiple ink suction.
3. Abnormal handling methods for ink refilling

After refilling and cleaning, print the nozzle test chart. Generally, it should be able to ensure that all nozzles can spray. If some nozzles fails to spray, the reason may be that there is a deviation in the front, back, left, and right positions of the ink stack cap and the print head. In this case, make fine adjustment of the position and adjust the cleaning parameters to achieve the normal state of the spray test.

Daily maintenance and wiping of print heads

1. Materials and methods for wiping print heads
   (1) The nozzle surface can be wiped with an absorbent lint-free cloth/non-woven cloth. Materials with high friction coefficient or fuzz are forbidden.
   (2) The nozzle surface should be slightly wiped in the same direction (wiping from back to front is recommended) and hard wiping back and forth is forbidden. The residual ink on the gap of mounting hole and baseboard of the print head should also be wiped.
2. Daily maintenance of print heads
   (1) This section mainly describes the method and period for maintaining print heads in daily use.

(2) Daily maintenance includes cleaning and flash spray. The method and period of maintenance is different based on the different ink types. Typically, the ink stack should be set to the moisturized state when the machine is idle.
(3) There are two steps before the start and the end of each working periods: conducting ink suction and cleaning and checking the ink discharged from all nozzles. Besides, moisturizing maintenance based on the instructions before shutdown is also a step before the end of each working periods.

Short-term outage of nozzles for maintenance

1. The short-term outage is less than 7 days.
2. Turn on moisturizing if the printer stops printing for several hours.
3. If the short-term outage is more than 1 day, clean the bottom of the inkjet printer and turn on moisturizing.
4. During outage, the inkjet printer should be kept in an environment with required temperature and humidity of the Manual, and make sure it keeps in a moist state.
5. If possible, nozzle can be checked every day by printing test strips after ink suction and cleaning.

Long-term outage of nozzles for maintenance

1. The long-term outage is more than 7 days.
2. The ink in the print head should be completely cleaned when there is a long-term outage and the cleaning fluid should be drained. For humectant suitable for the print head, it should be injected into the print head for moisturizing according to the maintenance of short-term outage.

Machine maintenance

1. Regular cleaning and check shall be made for mechanical operating parts, so that these parts can remain clean and keep working well. Moderate lubricating grease is evenly applied to the guide rail and lead screw, and sliding blocks are lubricated with lubricating oil from oil gun.

Fig. 1: Lead screw and guide rail lubricated with the lubricating oil

2. Check the surface of the plastic grating for dust monthly by gently wiping the surface with a clean print head cloth moistened with a small amount of alcohol.

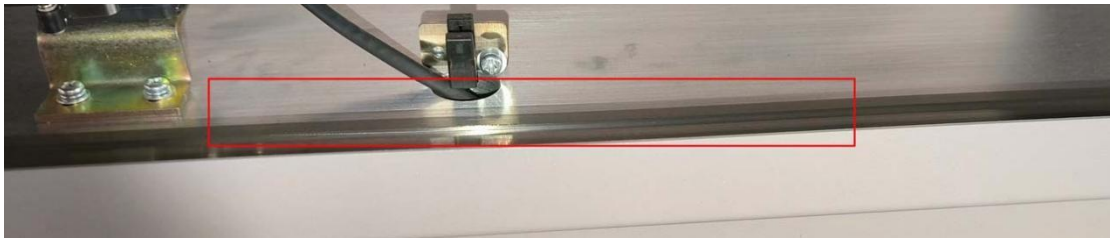
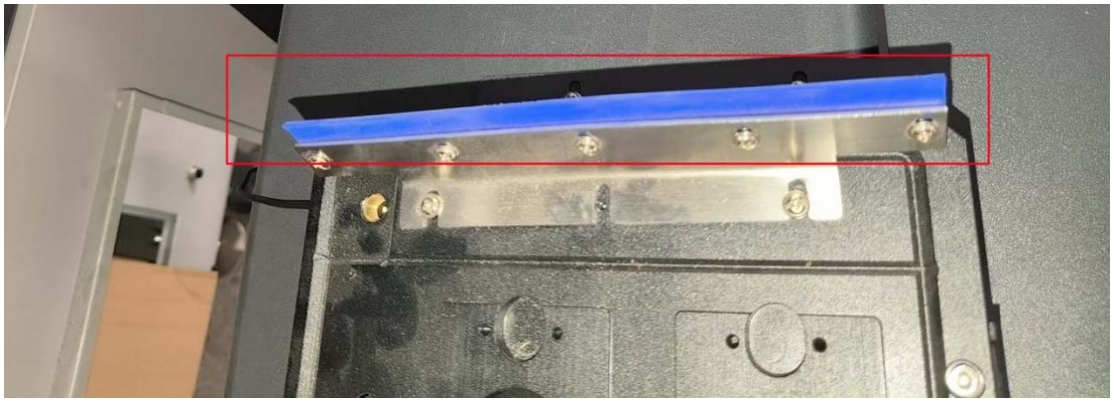


Fig. 2: Wiping plastic grating

3. Check the surface of the scraper for accumulated ink daily by gently wiping the surface with a clean print head cloth moistened with a small amount of alcohol.



PN33-EC Series Inkjet Printer

Operator Training

Operator Training

Operator training is executed by installation engineers. The specific training depends on the understanding and experience to this product of the customer operators.

A proposed training syllabus is listed below.

It is recommended to schedule 3 days for operator training. Based on the machine types and the experience of the operator, especially for ink and RIP, an extra day may be required.

If the RIP training is required, it should be considered separately and may be provided by the RIP suppliers or application experts.

It is recommended to train a maximum of 3 personnel at a time. More than three trainees are difficult to manage and present potential safety risks.

Because the correct operation will keep the machine working in a good condition, correct use of safe procedures and devices (such as personal safety equipment) should be emphasized all the time during the operator training.

The operator training is tried to satisfy the expectation of customers for the usage mode of the machine.

Besides, management personnel must keep the trainees from the external disturbance, as it is common for trainees to be asked to complete other tasks. If the training is uncompleted or unsatisfactory for the trainer, which means operators do not sign the permission of operating the printer properly and safely.

During training, operators will be encouraged to read the user's manual as a reference guide when operating the printer.

Proposed training syllabus

Caution:
The following list gives you a suggestion about what topics should be included during the operator training.

If you do not want to follow this list, the user's manual is a good template, because it includes required safe and efficient information for operating machine.

After trainees accept the training of specific topics and indicate they understand

the areas covered, please make sure they sign on the right side of the training form.

Machine safety	Signature
The key areas (electric appliance, ultraviolet light, collision, fragmentation) of machine should be highlighted	
Electric safety	**Signature**
The key risky areas should be highlighted.	
The importance of the insulation of power supply should be emphasized for the work with electricity.	
It should be emphasized that only trained electrical engineers can check the electrical system.	
The safety of ink and cleaning fluid	**Signature**
Personal protective equipment - the protective measures and processes about the treatment of ink and cleaning fluid should be discussed.	
The material safety data sheet of ink and cleaning fluid should be highlighted and discussed.	
Emphasize the importance of ink and cleaning fluid that should be put next to the machine in an emergency.	
Safe storage and disposal of ink and cleaning fluid	**Signature**
The conditions of the safe storage of ink and cleaning fluid should be discussed.	
The importance of the storage conditions for the shelf life of product should be emphasized.	
The risk of ink and cleaning fluid should be emphasized--cleaning up in time in the case of leakage.	
Keep the working area clean and tidy with no danger of tripping.	
Disposal of material	**Signature**
Safe disposal of heavy-duty material	
The marking and surface contamination of material should be avoided before printing.	
Static electricity caused by removing protective gasket should be prevented.	
Sharp corners and edges	
Safety system	**Signature**
Emergency stop button - location, operation and reset	
Anti-collision system	
Other safety precautions	**Signature**
Based on the customers situation, residual risks should be avoided.	

Machine inspection	Signature
Operators are guided to inspect machine	
The key areas of the machine should be emphasized (such as ink cartridge and electrical cabinet)	
The safety of the key areas should be emphasized (such as electrical cabinet)	
The areas accessible to operators and only recommended for engineers should be pointed out.	
Power on the machine - from power off to restart	Signature
Power on	
Restart after power off	
Demonstrate the isolation of the main power supply and air compression.	
Demonstrate the system of emergency stop and reset.	
Demonstrate the anti-collision and reset.	
Check inkjet printer before printing	Signature
Check and assess the nozzles after the outage for a period of time.	
Clean the nozzles if necessary.	
Demonstrate the cleaning of print heads Click the maintenance button to stop the carriage in the waste ink area. Press the button of ink pressing, observe the surface of the print head and the button is pressed until every color of ink can smooth drip. The ink on the surface of the print head can be wiped by the clean cloth suitable for wiping the print heads. Click the maintenance button again to stop the carriage at the origin.	
Retest the print nozzle to check it is ready for printing.	
Power off of the machine	Signature
Power off at night Turn off the three-way valve inside the head of the carriage. Turn off the control software Press “EMERGENCY STOP” button of the machine. Cover the baseboard of the print head with the moisturizing tray.	
Send images from RIP software to the inkjet printer.	Signature
Import files to RIP.	
Applied color management(including spot color of file), size and rotation.	
Define the use of white and special colors.	
Send files to the inkjet printer	
Description of any other functions of RIP that are useful or relevant to	

operators.	
Introduction of interface of control software of the inkjet printer.	Signature
Turn on and off the control software.	
Demonstrate the icon position and main functions of the home page.	
Explain the purpose of each function.	
Manage printing jobs and printing.	Signature
Description of printing process	
Explain the printing modes and the speed and quality of printing in these modes. Draft mode Production mode High accuracy mode	
File management - explain the location of printed files imported from RIP on the inkjet printer.	
Printing job loading Create a folder for files completed by RIP Click Add job to add PRT in the RIP folder by control software.	
Place printing materials into the printing platform.	
Turn on the absorption fan of the platform	
Printing job	
Maintenance	Signature
Personal protective equipment - many tasks require operators to touch the ink, cleaning fluid or lubricating grease. The importance of the need and the correct use of the personal protective equipment in operating should be emphasized.	
User' manual is used to describe the task of regular maintenance. Daily Monthly Semiannually On demand	
Daily - Clean the moisturizing area of the print head	
Daily - Clean the surface of machine workbench	
Daily - Clean the print head	
Daily - Test and check the print nozzle	
Continuous maintenance	Signature
Monthly - Check and grease the linear guide and slide on the beam	
Monthly - Check the lubrication of the Y-axis support bearing seat and apply lubricating oil	

Trouble removal	Signature
Guide operators to learn the relevant chapters of the operating manual.	
Raise technical questions and provide local service support	Signature
Make sure the operators know how to contact with the local service teams to solve the problems emerging from inkjet printer.	

Engineer’s notes