KC Series
UV Flatbed Printer
Installation Manual

Note:
Indicating that it is useful for the efficient operation or 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 a warning of a hazard.

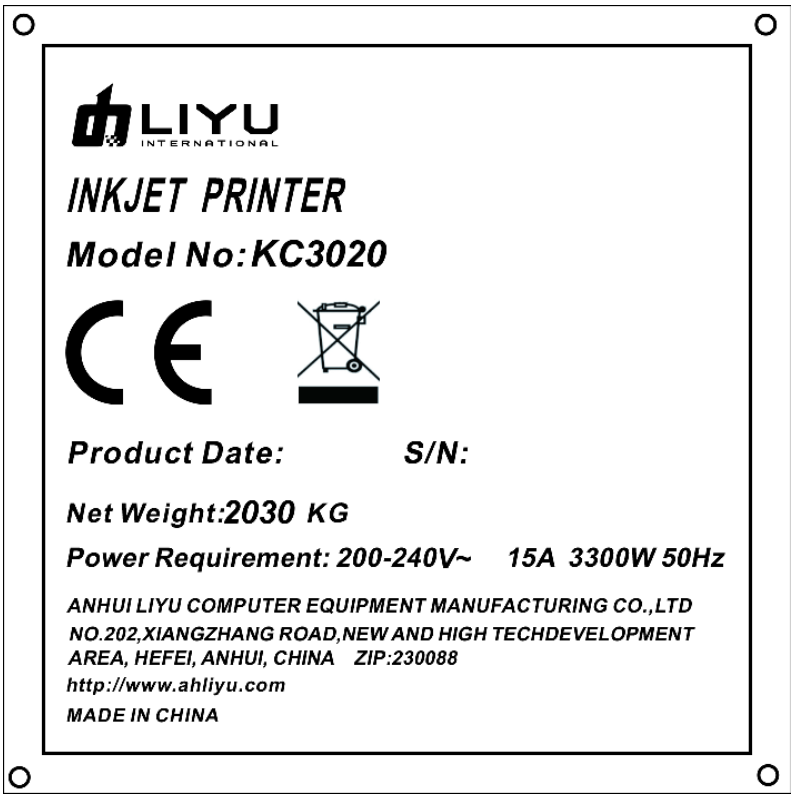
Caution:
Indicating the only safe method of installation or operation that must be followed.

KC UV Flatbed inkjet printer Installation Manual
First Edition, September 30, 2024

Revision History

Version	Prepared by	Date	Remarks
1.00	LiYu	09 / 30 / 2024	Release version

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-installation preparation and ending with operator training. It is summarized as below.

Installation Steps

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Engineer's notes or any data and helpful information.		

Safety

This chapter details the risks and hazards that can be encountered when operating the KC Series UV Flatbed Printer. Please read and comprehend carefully before operating the flatbed printer.

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

General safety instructions

Caution: Purpose
The flatbed printer can only be used for its specific purpose as designed, Any use not intended by the manufacturer may result in serious injury.

Caution: Protection
The flatbed printer is designed with special protective measures that may pose a hazard if they are not in place. Do not operate the flatbed printer if such protective measures are missing or damaged.

Caution: Moving Parts
Be careful when moving parts.

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

Caution: Modification
Do not make any modifications to the flatbed 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 flatbed printer immediately. Do not operate the flatbed printer unless the control system is fixed by LIYU's qualified engineers.

Caution: Training
The flatbed printer can only be installed by personnel trained by LIYU.

Caution: High Voltage

Since the flatbed printer is fitted with power supply that operates at high voltage, special care must be taken when operating in these areas during installing it.

Caution: Unauthorized Access Is Prohibited.

The power distribution box contains electrical equipment with hazardous voltages.

Access to this area is restricted to authorized personnel for maintenance or installation purposes only. Operators are not permitted to get inside such power distribution boxes.

Note: UV lamp

Since the flatbed printer contains an LED ultraviolet (UV) light source, immediate or prolonged exposure to it may cause eye pain or skin burns. Please wear appropriate personal protective equipment when operating. Do not stare directly at the light source.

Caution: Installation Hazard

When installing the flatbed printer, be sure to wear appropriate personal protective equipment, including protective gloves, safety shoes, and safety glasses. If the complete machine is unloaded in a high-traffic area and moved using a forklift, high-visibility clothing should be worn. If a crane is used to lift it, high-visibility clothing and a safety helmet should be worn.

Caution: Manual Handling

During installation, the KC Series UV Flatbed 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.

Before lifting or operating, it is compulsory to make an evaluation in advance and use appropriate auxiliary lifting tools as much as possible. If auxiliary lifting tools cannot be used, please always use appropriate manual operation techniques. Whenever possible, seek lifting or operation help.

Safety of UV inks and print head cleaning fluids

The KC Series UV Flatbed Printer uses UV ink and associated print head cleaning fluids. Safety issues related to the handling, storage and use of UV ink and print head cleaning fluids are detailed in their respective documents. Please check these documents before handling UV inks or print head cleaning fluids.

All UV inks and print head 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 print head cleaning fluids. Safety information for handling inks and print head cleaning fluids is detailed in the Guide.

Warning:
Given that chemical substances of UV inks and print head cleaning fluids begin to penetrate disposable nitrile gloves in less than 10 minutes, gloves should be changed frequently, especially if they are contaminated. If gloves are expected to be severely contaminated, durable latex gloves should be used. Do not reuse disposable gloves. Contaminated gloves should be disposed of properly.
The chemicals in UV ink can penetrate the gloves but are colorless and therefore not easily detectable. Even if there are no visible contaminants on the skin, it does not mean that the skin is not exposed to chemicals.
Latex gloves provide little or no protection, which only temporarily prevent the penetration of certain components of UV ink, while allowing invisible harmful chemicals to penetrate freely, remaining near the skin and thus increasing the risk of exposure.

Important reminder:
Please always wear latex gloves when handling UV inks.
Considering that UV inks contain irritating and sensitive ingredients, cumulative exposure may cause allergic reactions. Avoid contact of the ink with skin.
If you get ink on your skin, wash it off immediately with soap and water. Do not use alcohol to remove the ink, as this may bring chemicals from the ink into your skin to increase irritation.
Check your hands regularly for any signs of irritation or inflammation.
If skin irritation or inflammation is caused by contact with UV inks, consult a physician.

Important reminder:
Please wear protective clothing when handling UV inks.
If your clothes are contaminated with ink, please take off your clothes as soon as possible.
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 UV ink and waste ink

All waste ink in contact with solidified or partially solidified UV ink is hazardous and must be disposed of separately.

Do not mix contaminated waste ink with non-hazardous waste ink (domestic waste, office waste, etc.). Ink waste includes gloves, cleaning cloths, filters, empty containers and other material containing solidified or partially solidified ink.

Waste UV curable ink, print head cleaning fluid and cleaning solvents are not discharged to the sewer or water supply system.

All waste ink must be disposed of in accordance with local laws and regulations. Please consult your local municipal authorities about regulations on disposal of waste ink.

Designated individual containers should be provided to dispose of contaminated waste ink.

Routine use

UV ink only dries when exposed to UV lamp and will remain liquid unless exposed to UV lamp. Wet ink tends to be spread accidentally, increasing the risk of skin contact.

Good daily maintenance is important to avoid accidental contact with the ink. Any spillage (large or small) should be cleaned up as soon as possible. Keep the covers of the ink and print head cleaning fluid containers closed securely. Please store ink and print head cleaning fluid containers in such a way in order for them not to be easily knocked down.

Any spilled ink and contaminated rags should be disposed of as special waste ink in accordance with local regulations.

UV solidification system

The KC Series UV Flatbed Printer has two LED UV solidification arrays to solidify the ink. The UV energy produced by these arrays may be harmful to your eyes.

Note: UV lamp
This machine has LED UV solidification arrays. Immediate or prolonged exposure to ultraviolet light may result in harmful effects to your eyes. Do not stare directly or indirectly at the light source.

Plane views of the flatbed printer

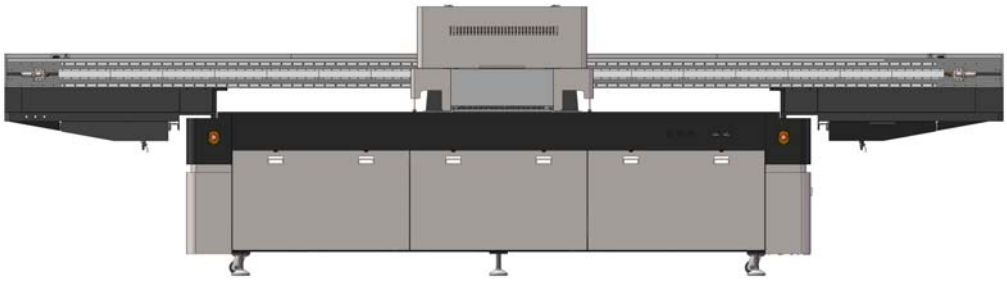


Fig. 1: Front view

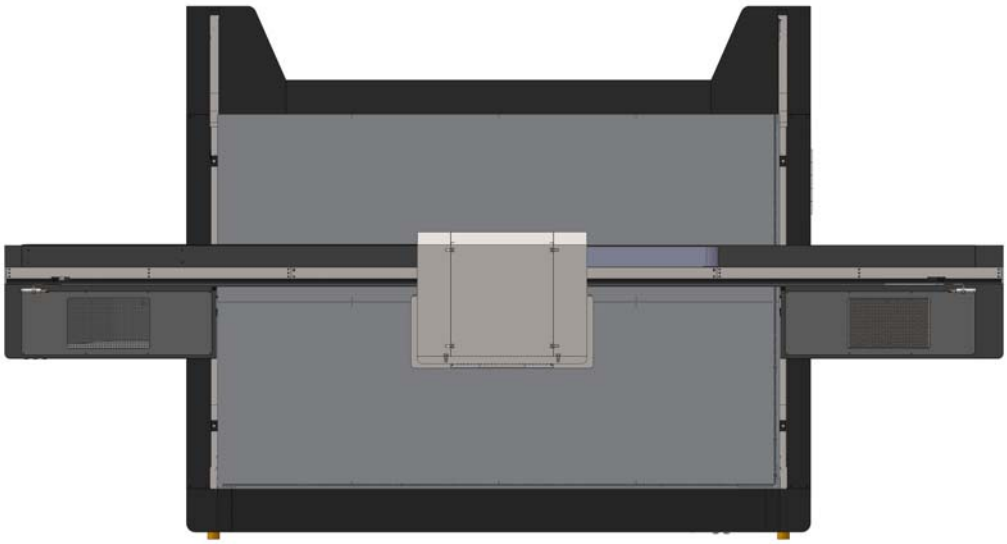


Fig. 2: Top view

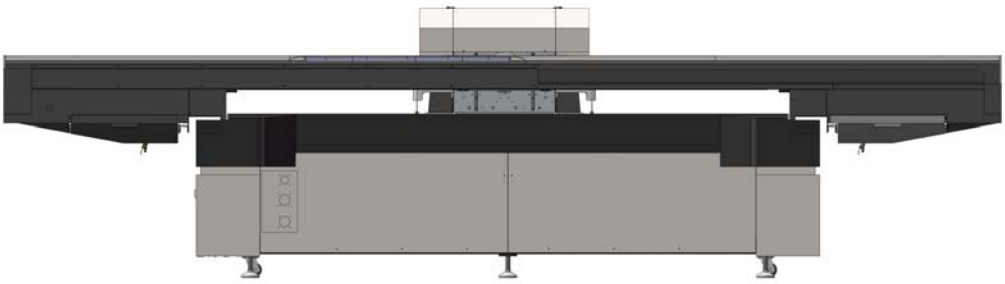


Fig. 3: Rear view

Fig. 4: Left view

Fig. 5: Right view

Tools required

Note:
The list of tools below specifies the minimum requirements for installing the KC Series UV Flatbed Printer.

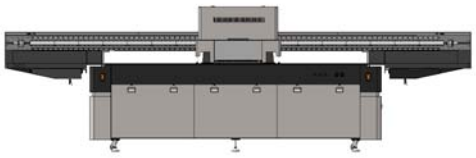
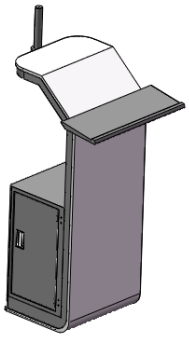
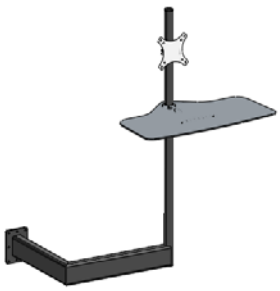
Unpacking and Installation		
Tool	Remarks	Quantity
Hand electric drill (18 v)	Sleeve (8 mm, 16 mm)	1
Cross screwdriver	6*300	1
Straight screwdriver	3*200	1
Internal hexagonal wrench	2/2.5/3/4/5/6/8	1
Internal hexagonal wrench	6*300, lengthened T type	1
Paper cutter		1
Open end wrench	14	1
Adjustable wrench	375MM	1
Hemostatic forceps	Standard locking type with soft cover at the tip	1
Multimeter	Standard type	1
Tape		1
Level ruler		1
Dial indicator	Magnetic base	1
Laser level meter		1

Installation consumables

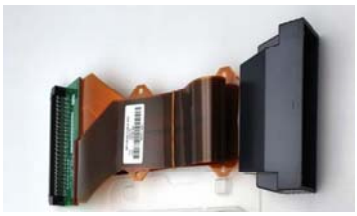
Note:
The list of consumables below specifies the minimum requirements for installing the KC Series UV Flatbed Printer. The red highlighted items are consumables that are required by the end user to operate the flatbed printer on a daily basis.

List of Consumables		
Name	Purpose	Minimum quantity
Carriage sticker (1.2 m)	Printing test	1 roll
PVC, KT sheets, etc.	Printing test	10 sheets
Filter	Attached	1 of each color
Cable ties		
Non-woven fabrics	Manual wiping of print heads	1 pack
Full set of ink	Ink injecting and debugging	2 sets
Cleaning fluid		2 bottles
Nitrile gloves		1 box
Cleaning rag/general rag		
Lithium base grease	Suitable for lubrication of rails, lead screws and bearing blocks, to be maintained by the customer at a later stage	1 tube

Packing List

Diagram	Name	Quantity
	Flatbed inkjet printer	1
	Power box of LED water-cooled lamp	1
	Water tank of LED water-cooled lamp	1
	Computer cabinet	As per the order/ set(s)
	Rotary table components	As per the order/ set(s)

	Attached USB flash disk	1
	RIP software	As per order/1 set
	Cross screwdriver	1
	Straight screwdriver	1
	Internal hexagonal wrench set	1 sets
	Open end wrench	1
	Hand lift wrench	1
	Exhaust valve screwdriver	1

	Moisturizing tray	As per the order/1
	Capping plate forcing screw	As per the order/2 pcs
	Ink scraping blade	1
	Wiping paper	1 pack
	Print head	As per the order/pc
	Print head FFC	As per the order/pc
	Print head cover	2 pieces

	UV ink	As per the order/liter
	UV cleaning fluid	As per the order/liter
	Ink pump	1 pieces
	Ink tube	5 m
	Flexible ink tube	3 m
	Polyurethane tube	3 m

	Joint	4
	Filter	2
	Plastic hose clamp	4
	Air duct	As per order/1 pc
	Hose clamp	As per the order/ 1 pc
	3*2.5*8 m power line	1 pc

	3*4*8m power line	1 pc
	3*6*8m power line	1 pc
	USB extension cable	As per order/2 pc
	Grating feeler gauge	1
	1.2mm manual positioning screw (red)	As per the order/32 pcs
	3mm manual positioning screw (red)	As per the order/32 pcs

Note:
The above list is a generalized list, and the actual materials in the accessory case are mainly based on orders.

Factory requirements

Important reminder:
Please note forklift capacity before installation, and forklifts with the appropriate capacity and fork arm size may need to be specialized for unloading.

Important reminder:
The 2512 Flatbed Printer weighs approximately 1,930 kg in the container and requires a forklift with a capacity of at least 2.5 tons for unloading; the 3020 Flatbed Printer weighs approximately 2,580 kg in the container and requires a forklift with a capacity of at least 3.0 tons for unloading; the 3020 Three Linear Flatbed Printer weighs approximately 2,980 kg in a container and requires a forklift with a capacity of at least 3.5 tons for unloading. The length of the fork arm should be at least 2,460 mm (extending 160 mm beyond the edge of the packaging box) in order to remove the packaged flatbed printer from the transport vehicle. The fork arms must be opened at least 850 mm apart.
This Manual does not apply to unload the packaged flatbed printer from the original shipping container.

On-site requirements

Note:
The following field services under the specified specifications are essential for the smooth and timely installation of the machine and its subsequent safe and efficient operation.

AC power supply	Voltage	Frequency	Wiring	Current
	220 240 VAC	50/60 HZ	Single phase	15A

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

Exhaust and ventilation

It is recommended that the KC Series UV Flatbed Printer be placed in a clean, dust-free, well-ventilated area. There is a need to discharge air from a more enclosed location in order to promote air exchange, and the minimum exhaust rate is recommended to be 50 m^3/min in the room.

Pre-installation Preparations

Space requirements

Note:
The area shown below is the minimum area (recommended) for safe and efficient operation of the KC Series UV Flatbed Printer. More space should be left, if allowed.

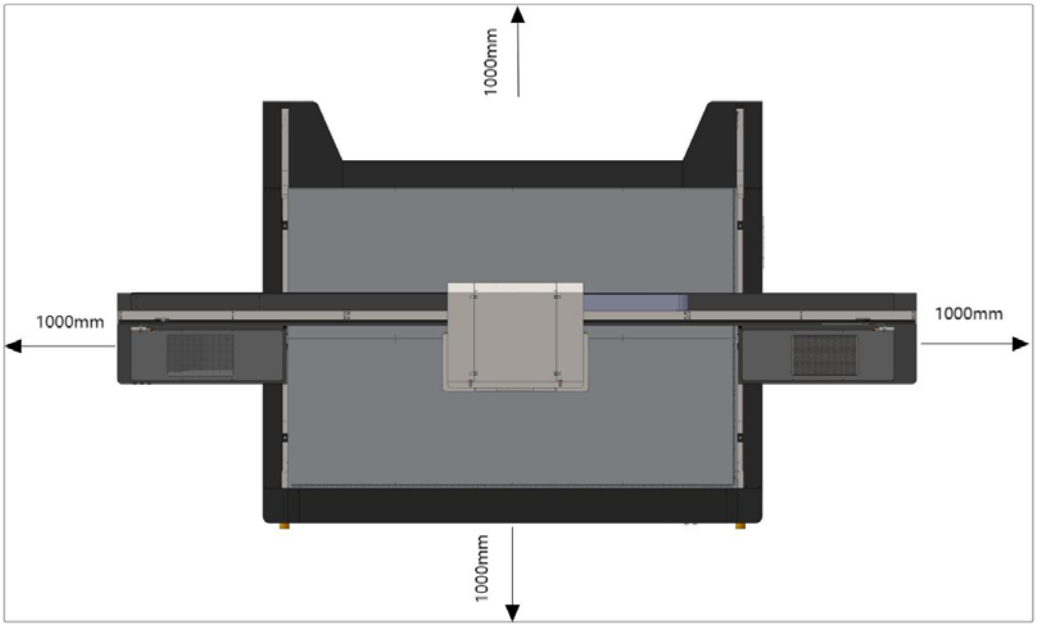


Fig. 6: Space requirements for the flatbed printer

The 2512 Flatbed Printer has the physical dimensions of 5.0m x 2.2 m, and should have a minimum clearance of 1m around its perimeter. This allows a minimum space of 7.0 m x 4.2 m for safe operation.

The 3020 Flatbed Printer has the physical dimensions of 5.6m x 3.0 m, and should have a minimum clearance of 1m around its perimeter. This allows a minimum space of 7.6m x 5.0m for safe operation.

The 3020 Three Linear Flatbed Printer has the physical dimensions of 6.0 m x 3.1 m, and should have a minimum clearance of 1 m around its perimeter. This allows a minimum space of 8.0m x 5.1m for safe operation.

Restricted area

Warning:
It is recommended to mark the above minimum operating area on the ground. Only trained operators are allowed access to the minimum operating area.

Moving the flatbed printer

Important reminder:
Once the flatbed 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 location.
The route to move the flatbed printer to this position should be as flat and smooth as possible to avoid causing stress to the flatbed printer's frame and beam during movement.

The flatbed printer can be placed on a forklift to move into place or on the floor to be manually pushed into the final position using its wheels. Manual positioning requires four people to move the machine safely, each standing at each corner of the machine to push and guide it into place.

Do not use a small cart to push the flatbed printer and avoid using soft panels, which may cause damage to the machine.

Obviously, there are minimum requirements for the location of the flatbed printer, in addition to the size and movement pattern of the flatbed printer that need to be considered.

Ground requirement

The KC Series UV Flatbed Printer should be placed on a horizontal and stable surface that can withstand the weight of itself and all materials and equipment in its vicinity during normal operation.

Do not place the flatbed printer on carpet or any surface that may deform over time, as its accuracy may change, resulting in reduced print quality or damage.

Note:
If the ideal area to place the flatbed printer is not flat or has a soft carpeted surface, a metal substrate can be used to hold the flatbed printer.

Do not place the flatbed printer on any surface that cannot withstand its weight, as this can be dangerous and it may deform 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:
Never store or install an flatbed printer in the following places:
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 flatbed printer may be wet;
places with poor ventilation/no exhaust equipment;
places where the floor is unstable or unable to support the load of the flatbed printer, attached device and additional materials;
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
	220-240 VAC	50/60 HZ	Single phase	15A

Air supply requirements

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

Computer configuration requirements

Note:
The internal computer for the flatbed printer is not provided and must be purchased separately.

For optimal performance, we recommend that the system must meet the recommended system requirements listed below. As with all computer software, a system with faster processors, more memory and more storage space can handle larger files and minimize processing time.

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

Parameter	Specification
Operating system	Windows 10 (64-bit)
CPU	Intel(R)/Core™ i7 11700 @3.30GHz3.29 GHz
Mainboard	Brand mainboard of high quality, with PCIE slot
RAM	≥ 16 GB
Internal HDD	≥ 500G
USB port	USB 3.0 x2
Input voltage	220V
Display	27-inch

Note:
The computer must meet the minimum PC specifications listed above. This is the specification used in the production and commissioning of the machine.

Unloading and Placement of the Printer

Unloading of the printer

Printer size - packing size and net size

Please refer to the table below for the actual dimensions of the flatbed printer and the corresponding dimensions of the case used for transport.

Scope		Net Size	Packing Size
Model 2512	Length	4970mm	5448mm
	Width	2180mm	2300mm
	Height	1450mm	1820mm
	Weight	1240kg	1930kg
Model 3020	Length	5520mm	5750mm
	Width	2954mm	2300mm
	Height	1450mm	1890mm
	Weight	1690kg	2580kg
3020 Three Linear Model	Length	5962mm	5750mm
	Width	3140mm	2300mm
	Height	1530mm	1890mm
	Weight	2030kg	2980kg

Arrival of the printer

The machine will be loaded into a standard shipping container and transported to the port, then removed from the container and delivered to the customer's site or local warehouse. Please keep contact with your local team to determine the delivery method of your flatbed printer.

Unloading method

Notes:
Unloading should be carried out by trained and experienced personnel using appropriate equipment.

Note:
The 2512 Flatbed Printer weighs approximately 1,930 kg in the shipping container and requires a forklift with a capacity of at least 2.5 tons for unloading; the 3020 Flatbed Printer weighs approximately 2,580 kg and requires a forklift with a capacity of at least 3.0 tons for unloading; the 3020 Flatbed Printer weighs approximately 2,980 kg and requires a forklift with a capacity of at least 3.5 tons for unloading; The length of the fork arm should be at least 2,460 mm (extending 160 mm beyond the edge of the packaging box) in order to remove the packaged flatbed printer from the transport vehicle.

The Manual is not applicable for removing the parked flatbed printer from the original shipping container.

Unloading space

Note:
This information is useful for the efficient operation or installation of the machine.

For ease of handling, we recommend you provide an area approximately 3-4 times the floor space of the wooden case for unpacking. In this particular case, an area of 8 m x 5 m is shown.

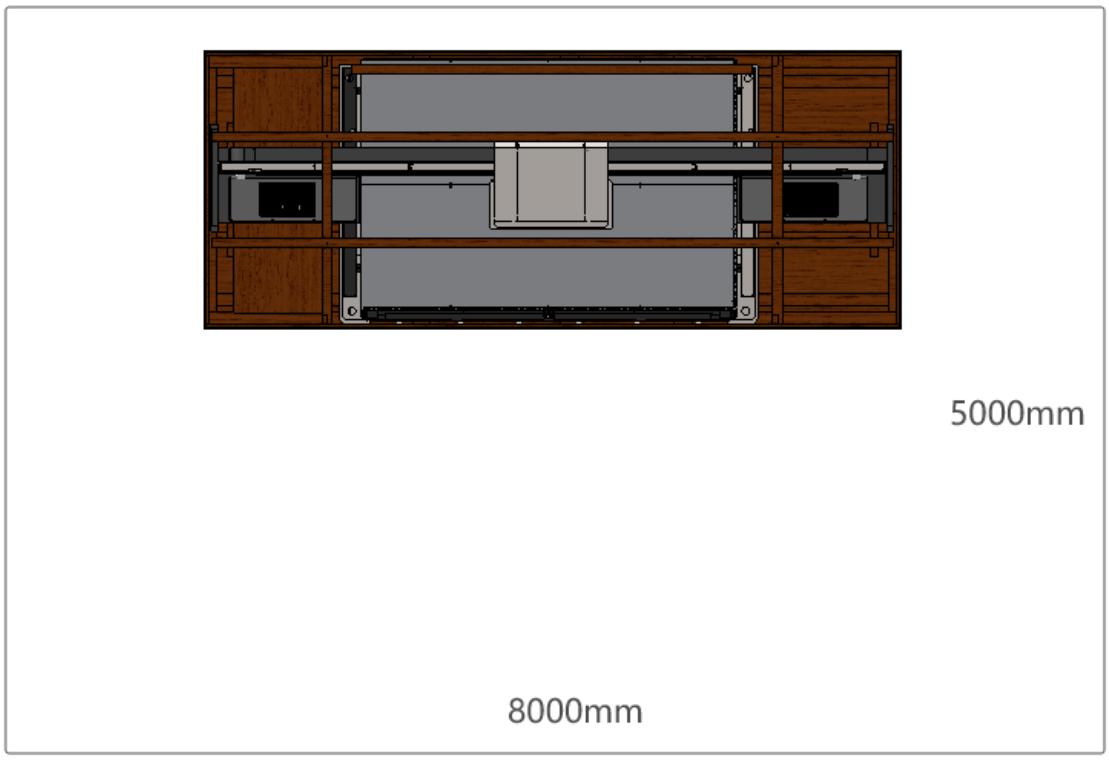


Fig. 7: Recommended unloading area around the packaging box

This can provide enough space for the forklift to operate at the front of the case.

The center of gravity of the printer

Caution:
The flatbed printer is placed in the center of the packaging box and the carriage is locked in a transition position in the center of the beam. Therefore, the center of gravity of the case is at the center point of the long side of the case.

Note:
To help you take the flatbed printer out of the packaging box, the fork lift point of the forklift is marked in orange on the lower edge of the front panel.

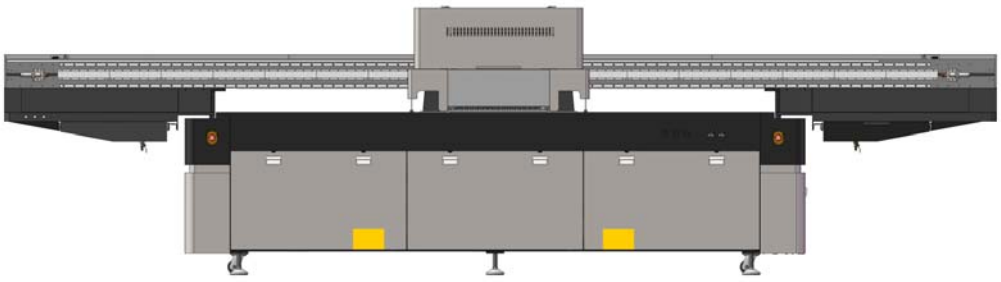


Fig. 8: Fork position of the forklift

Unpacking of the flatbed printer

The flatbed printer is packed in a packaging box with a base for transportation. The flatbed printer frame is fixed onto the base by means of four brackets, two at the front and two at the back. There are also two sets of support bars to provide sturdy support for the packaging box panels.

Unpacking

The packaging box is assembled using screws or bolts. Please remove the plates in this order: (1) top plate, (2) front plate, (3) back plate, (4) left plate and (5) right plate. Remove screws or bolts from the edges of each panel.

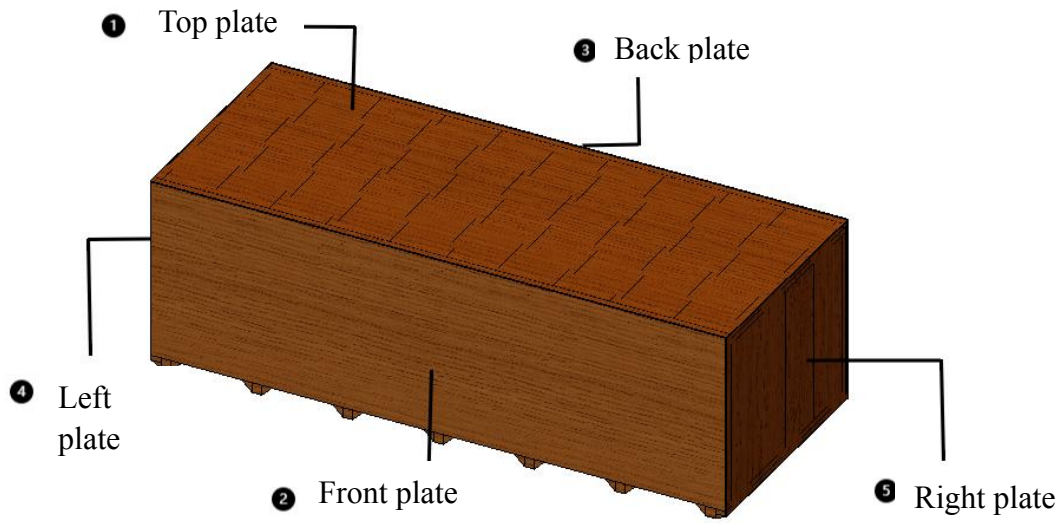
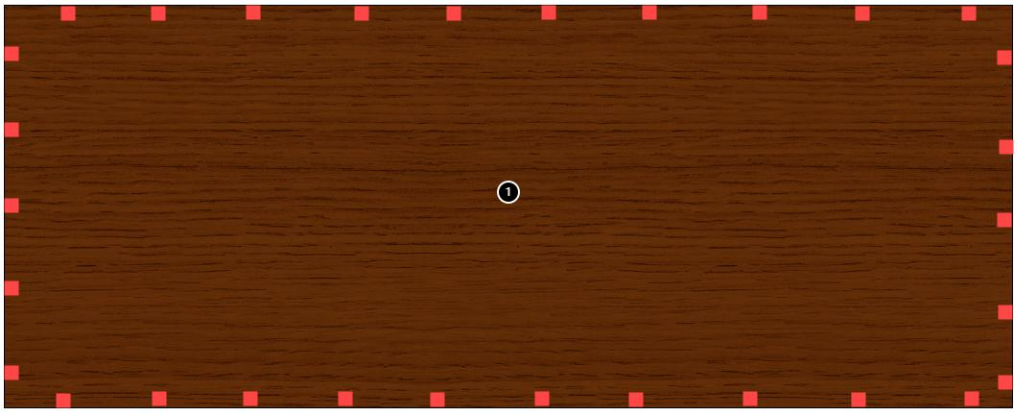


Fig. 9: Packaging box

Note:
The following diagram shows the location of the various screws and bolts and their sizes to facilitate efficient disassembly of the packaging box.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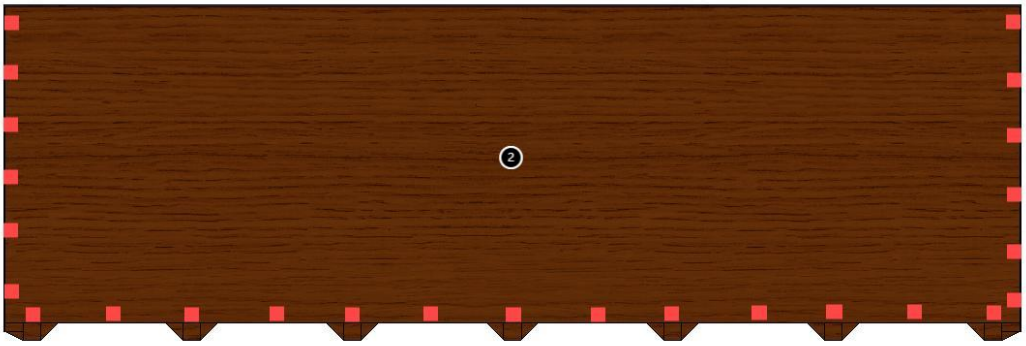
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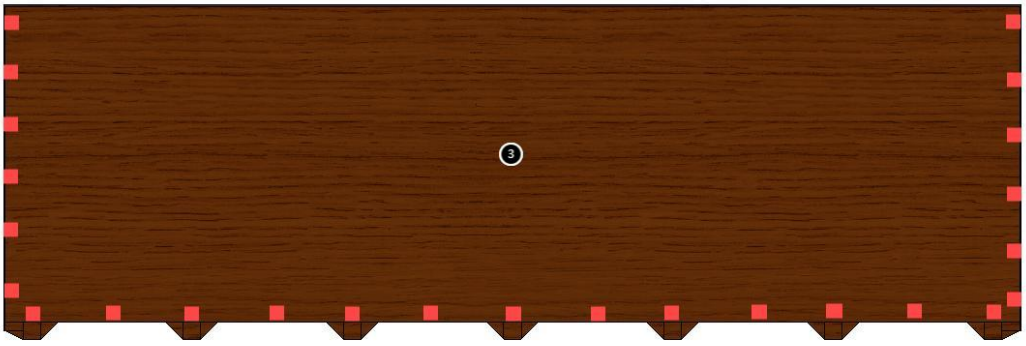
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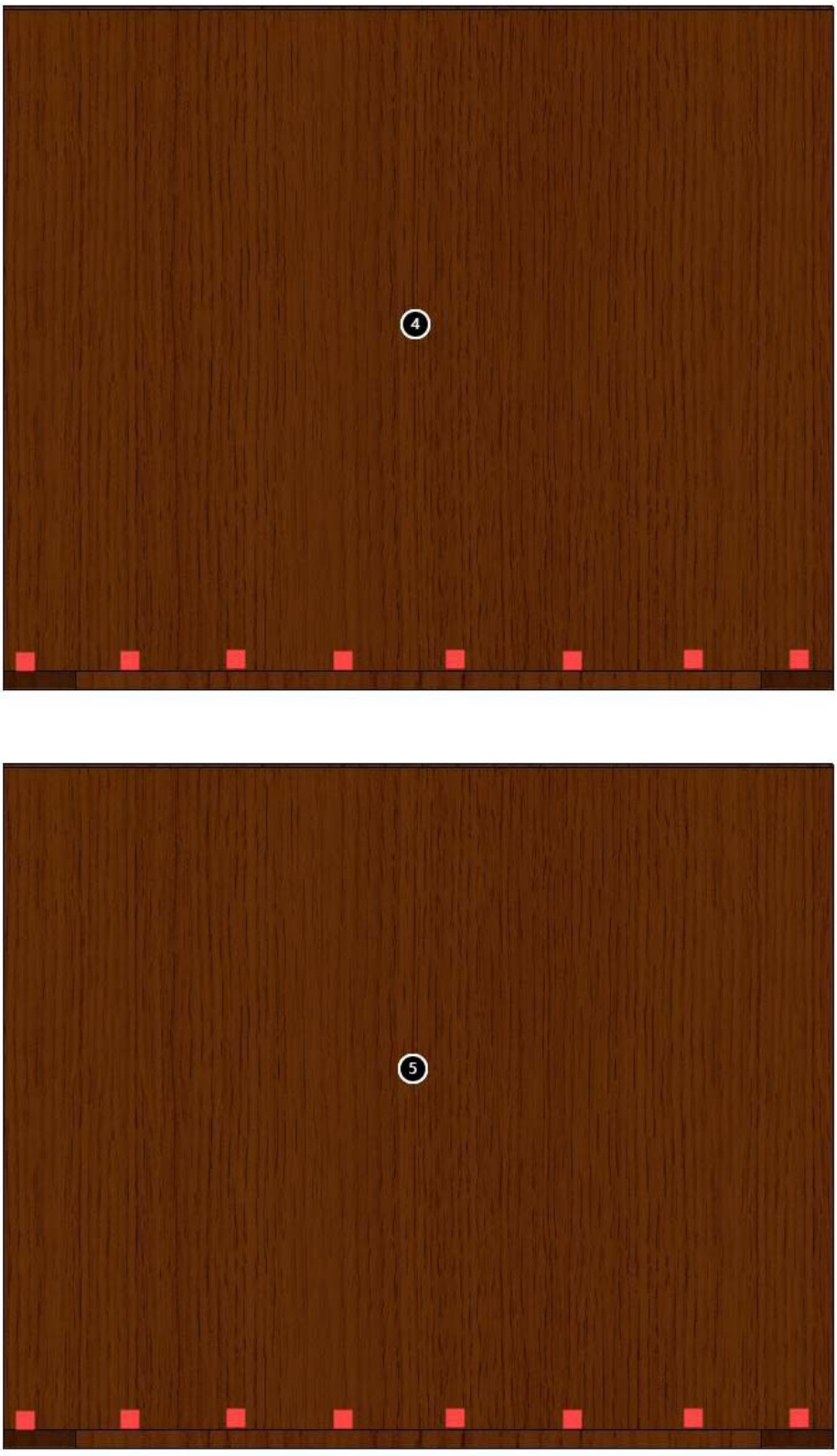


Fig. 10: The order for disassembling packaging plates

Disassembly of packaging fixing frames

To get closer to the flatbed printer, two sets of support frames must be removed from the base. Remove the M10 bolts that secure the support frame to the base. These support frames are located above the flatbed printer, providing protection for the printer during transportation and when removing the top plate during unpacking.

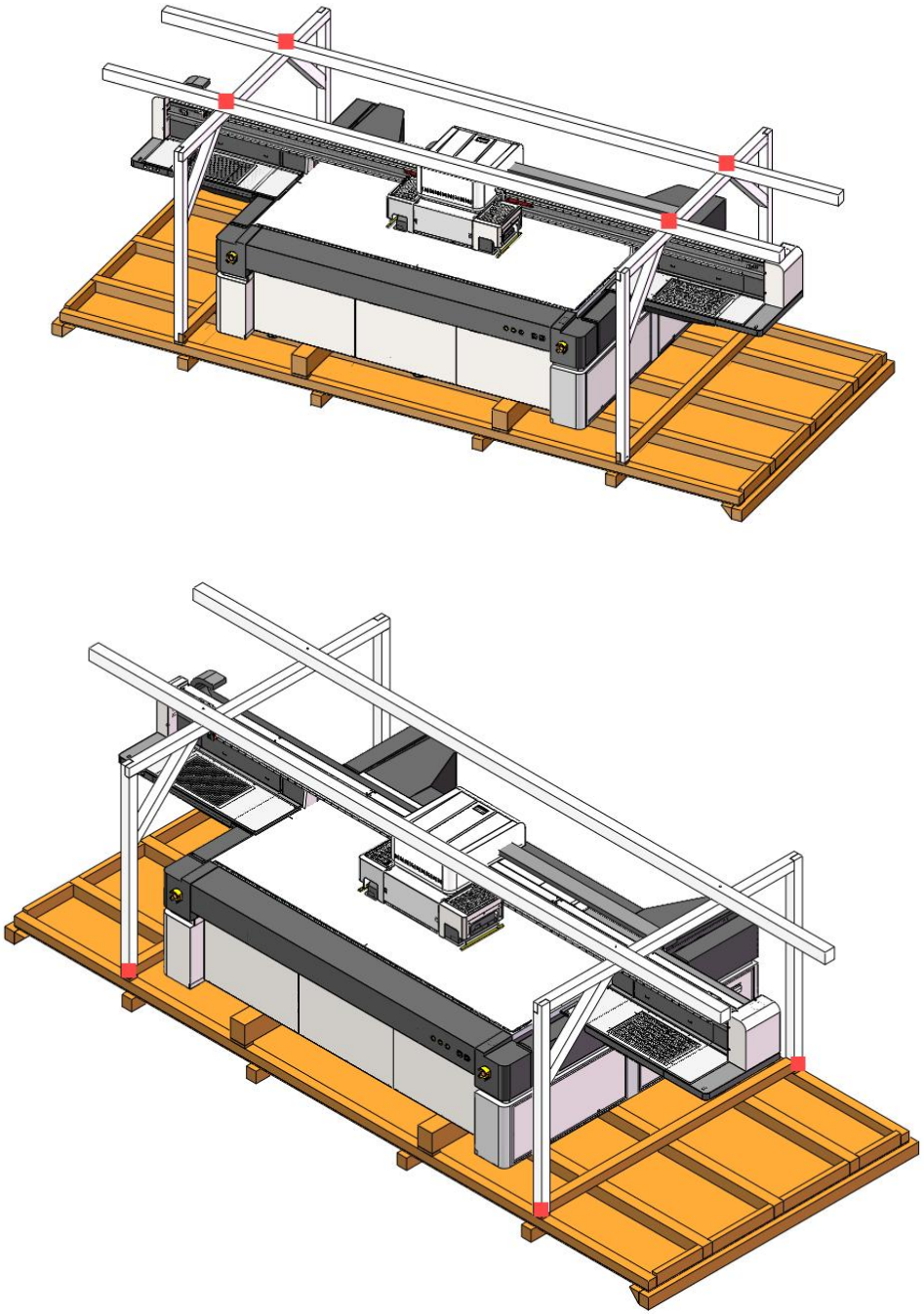


Fig. 11: Disassembly sequence the of support frame

These support frames are used to secure the flatbed printer in place and provide stability during transportation.

Important reminder:
Before lifting the flatbed printer from the base, make sure that all frames and brackets securing the printer to the packaging box have been removed. Failure to do so may cause damage to the flatbed printer.
The location of packaging fixing frames is as shown in the following figure.

These frames must be removed before lifting the flatbed printer from the base of the packaging box. Remove the screws using an appropriately sized spanner. The location of these frames is shown in the figures below.

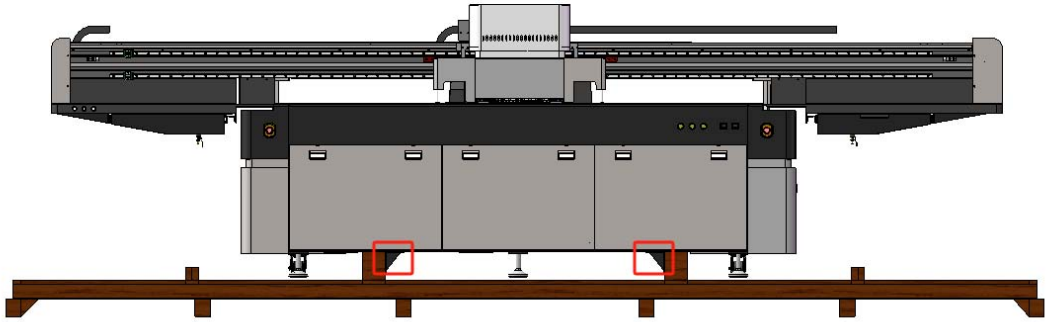


Fig. 12: Packaging fixing frame (front)

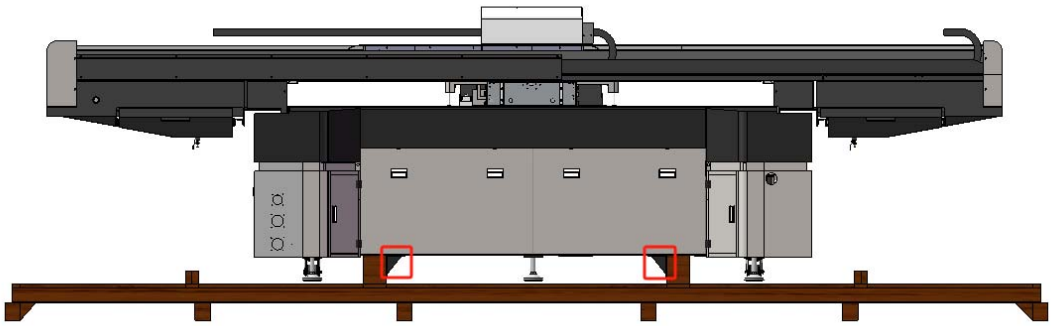


Fig. 13: Packaging fixing frame (rear)

Lifting of the machine from the packaging base

Important reminder:
Before lifting the flatbed printer from the base, make sure that all frames and brackets securing the printer to the packaging box have been removed. Failure to do so may cause damage to the flatbed printer.
The location of such frames is as shown in Figures 12 - 13.

Like the packaging box, the flatbed printer is also lifted by a forklift. Please be extremely cautious when placing the fork arm under the flatbed printer to avoid damage.

The flatbed printer is packed in a vacuum aluminum foil bag and wrapped with a variety of packaging materials. This bag and some packaging materials must be removed in order to display the location of the machine body and fork points. For this flatbed printer, the fork points on the packaging box are directly aligned with the fork points on the machine.

Fig. 14 shows that the flatbed printer wrapped with the remaining packaging material after the vacuum aluminum foil bag has been removed. We recommend you leave the remaining packaging material on the flatbed printer until it reaches the area where it will be placed. The fork points on the flatbed printer are marked with orange stickers.

Fig. 14: Flatbed printer in inner package

Note:

The mounting brackets for the lower panels/baffles should be removed when moving the machine, especially when the machine needs to be moved to a ramp or any type of slope to avoid damage.

Proper placement of flatbed printer

Important reminder:
Once the flatbed printer has been taken out of the packaging box, it is recommended that the packing and filling materials not be removed while moving it to its final position.

Once the flatbed printer has been taken out of the packaging box, it is recommended that the packing and filling materials not be removed while moving it to its final position.

The route to move the flatbed printer to this position should be as flat and smooth as possible to avoid causing stress to the flatbed printer frame and slide rail during movement.

The flatbed printer can be placed on a forklift to move to an appropriate position or on wheels to be manually pushed into an appropriate position. Manual positioning requires four people to move the machine safely, each standing at each corner of the machine to push and guide it into place.

Do not use a small cart to push the flatbed printer and avoid using flexible panels, which may cause damage to the machine.

Obviously, as far as the accessibility of the location of the flatbed printer is concerned, the minimum requirements for its size and movement pattern should be taken into account.

Removal of packaging limit block

Caution:
Before performing any other work on the flatbed printer, make sure that the frames and transport bracket have been removed, which should be done after the printer has been positioned into its intended position.

The Y-direction packing limit blocks (two on each side of the machine) are located above the linear guideway and are used to secure the beam to the flatbed printer frame.

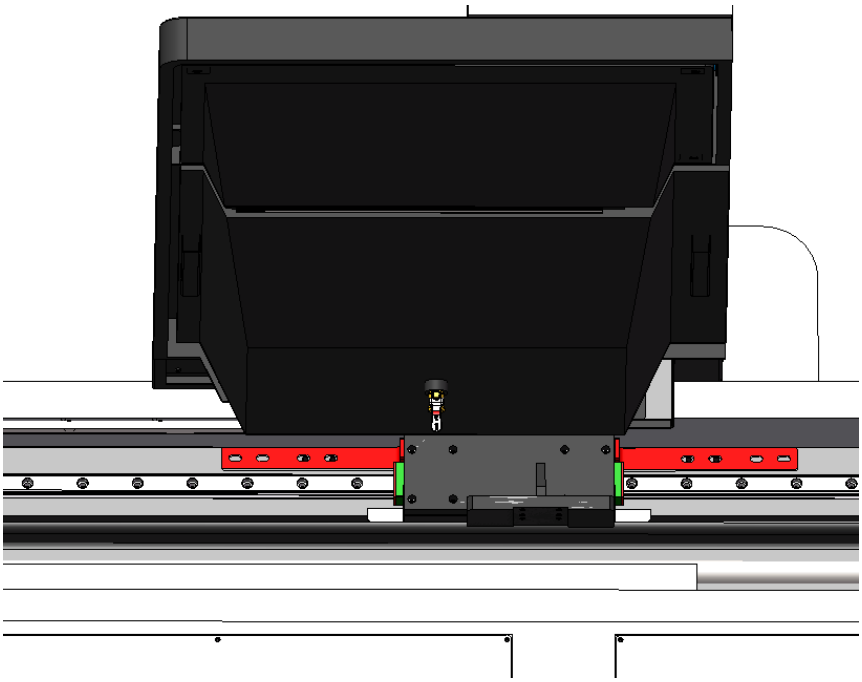


Fig. 15: Y-direction packaging limit block position

Caution:

There are four packaging limit blocks on the beam frame, two on each side of the flatbed printer For ease of removal, the left and right side covers should be disassembled prior to removal. The packaging limit blocks must be removed before switching on the flatbed printer to avoid damage.

The X-direction packaging limit block can prevent the carriage from moving in the X-direction during transport, and must be removed before starting the machine. The timing belt configuration is arranged directly in front of the beam,while the linear motor configuration is arranged directly below the beam.

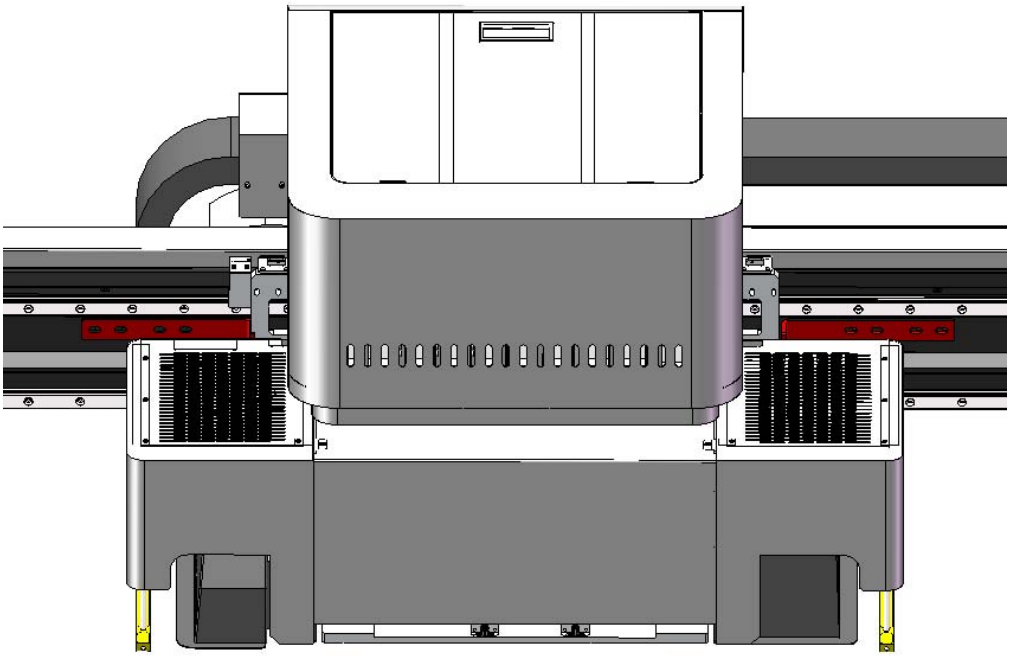


Fig. 16: X-direction packaging limit block position (timing belt configuration)

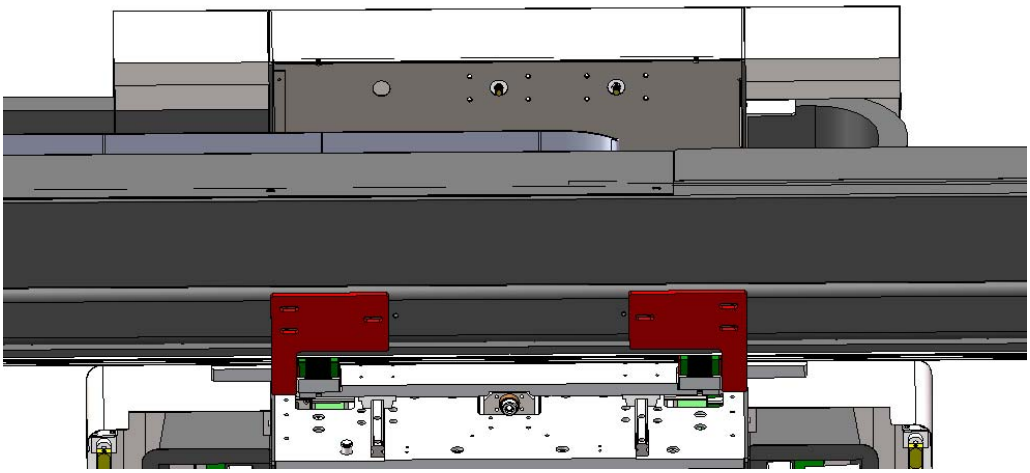


Fig. 17: X-direction packaging limit block position (linear motor configuration)

Assembly of External Components

Assembly of external components

The flatbed printer is installed with several sub-elements/-components that should be secured before use. These sub-elements/-components have been removed from the flatbed printer at the time of transportation and are packed in the packaging box.

Installation of rotary table components

Note:
The flatbed printer can be fitted with console mounting base, keyboard stand, keyboard holder and monitor stand as required by the customer's order.
Parts should be installed well in order for the operator to prepare the monitor, keyboard, and mouse.

Step 1: Remove the right front door from the flatbed printer.

Step 2: Secure the console mounting base to the flatbed printer frame

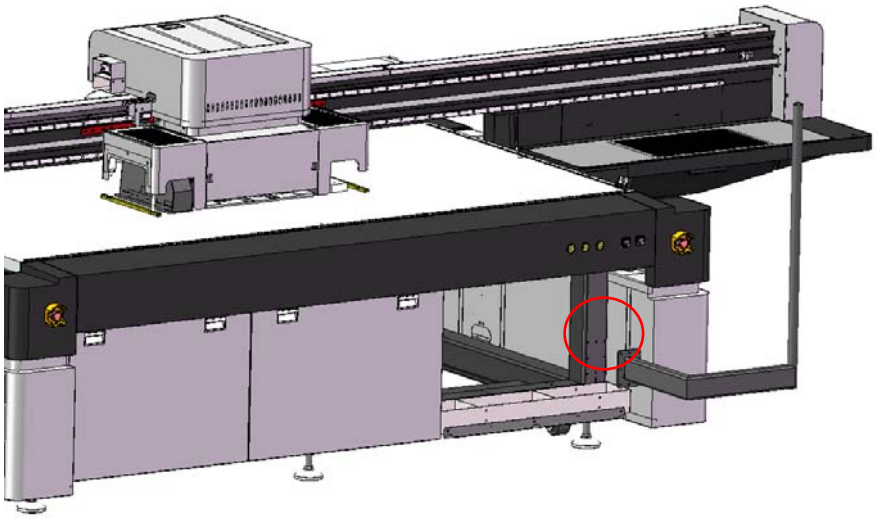


Fig. 18: Installation of console mounting base

Step 3: Thread the keyboard stand through the console mounting base and secure it to the mounting base.

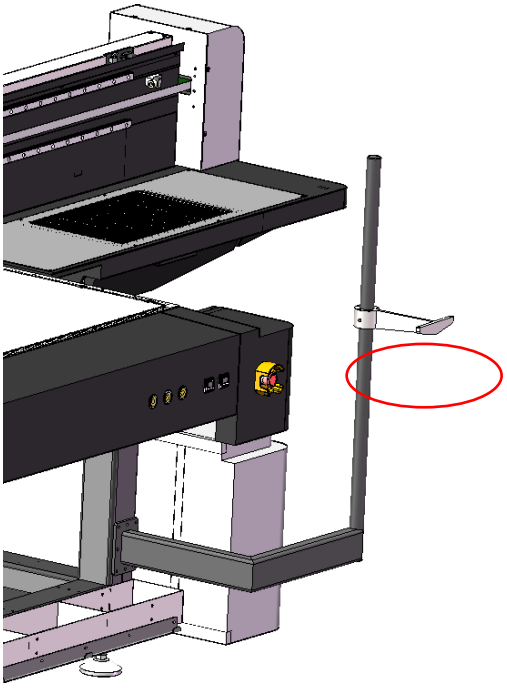


Fig. 19: Installation of keyboard stand

Step 4: Thread the keyboard holder through the console mounting base and secure it to the mounting base.

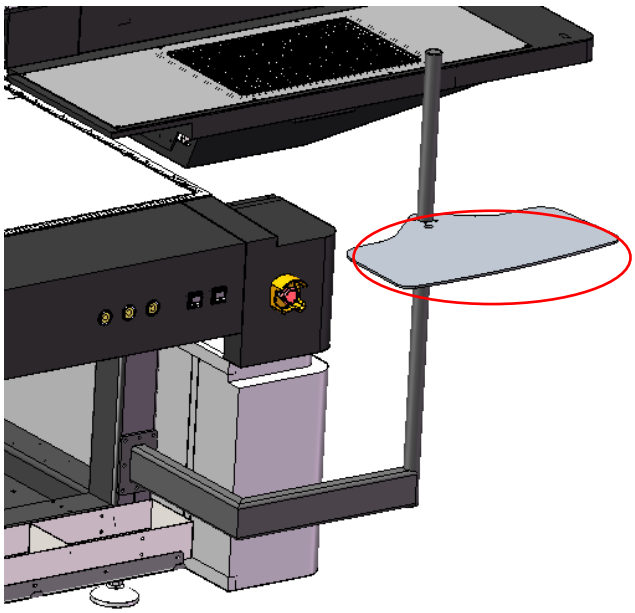


Fig. 20: Installation of keyboard holder

Step 5: Thread the monitor stand through the console mounting base and secure it in place. After that, place the monitor, keyboard, and mouse.

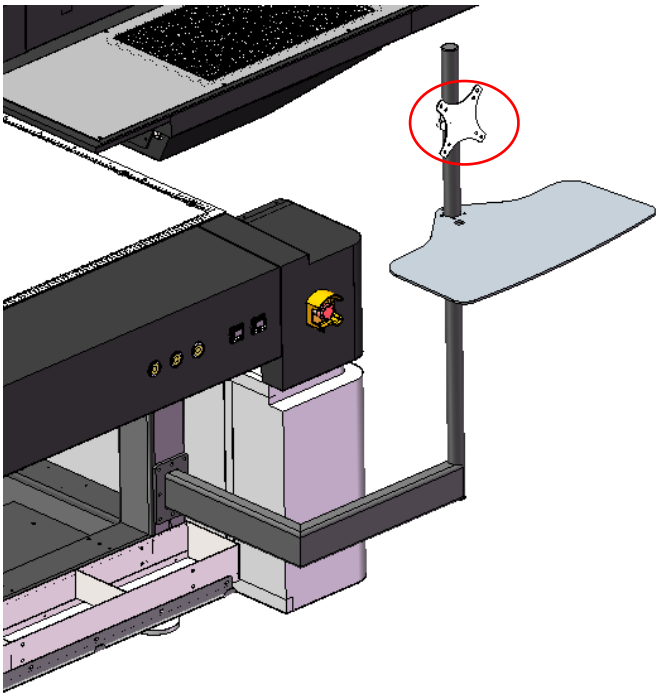


Fig. 21: Installation of monitor stand

Step 6: Finally, install the right front door again.

Installation of 3020 split assembly

Note:
The KC 3020 model has to be partially disassembled in order to achieve successful container shipping. Upon receipt of the machine, it should be assembled according to the following steps.

Step 1: Use 8X30 cylindrical pin with internal thread and M12 hexagon socket head cap screws to fix the left rear bracket and right rear bracket onto the frame respectively.

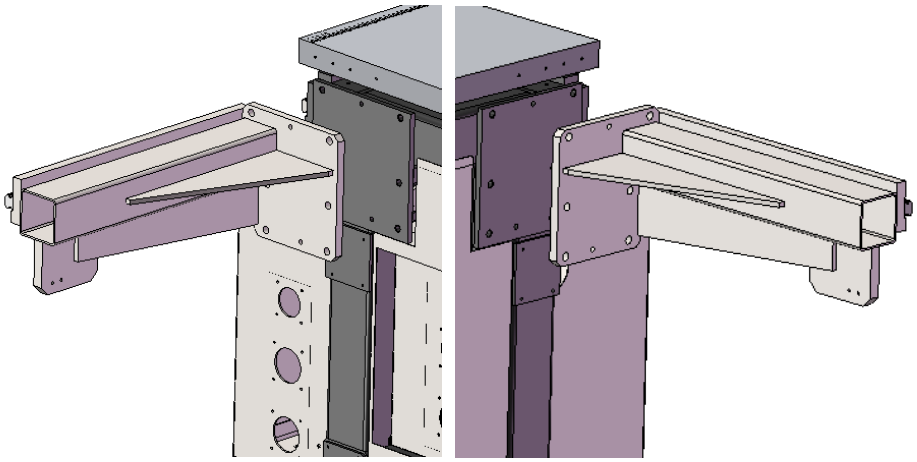


Fig. 22: Installation of left and right rear brackets

Step 2: Use M6 hexagon socket head cap combination screws to secure the screw rod assembly to the frame

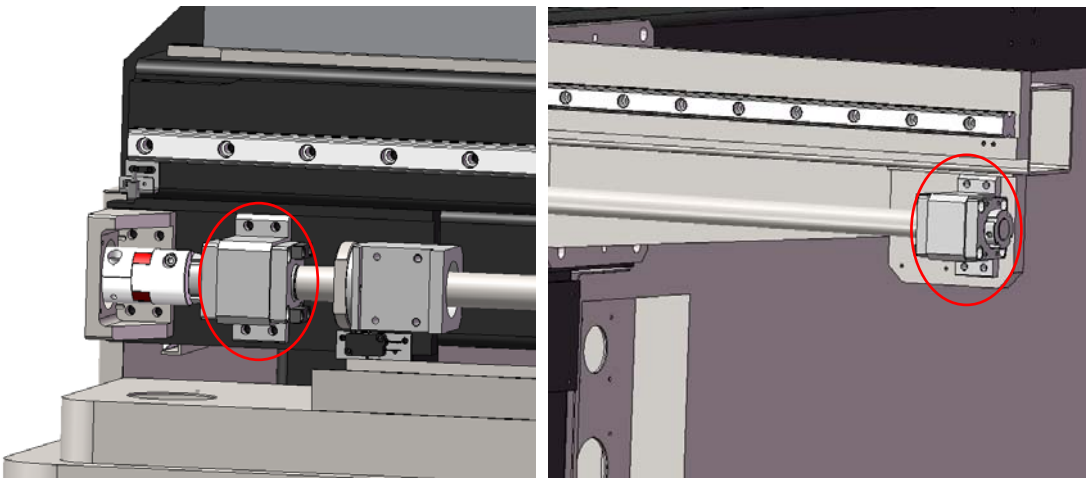


Fig. 23: Installation of screw rod assembly

Step 3: Remove Y-direction packaging limit block

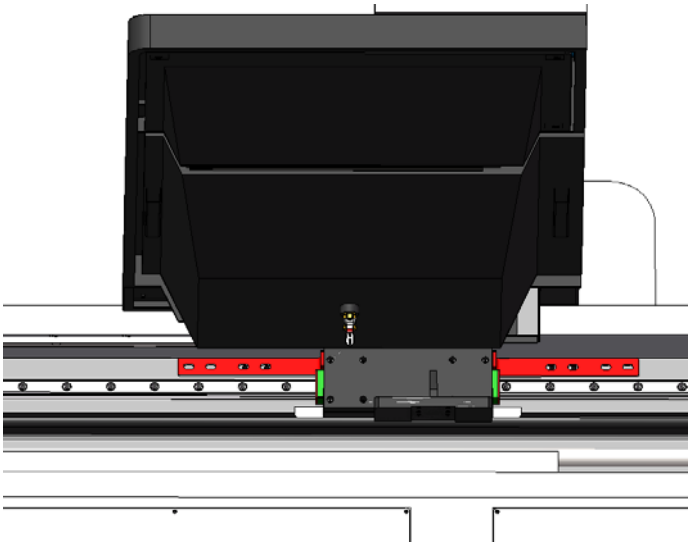


Fig. 24: Y-direction packaging limit block position

Note:
The Y-direction packaging limit block is used to fix the beam during packing and transporting, and must be removed before powering on, otherwise the Y-direction will not work properly.

Step 4: Use M6 hexagon socket head cap combination screws to fix the column connecting plate on the screw rod assembly to the beam column.

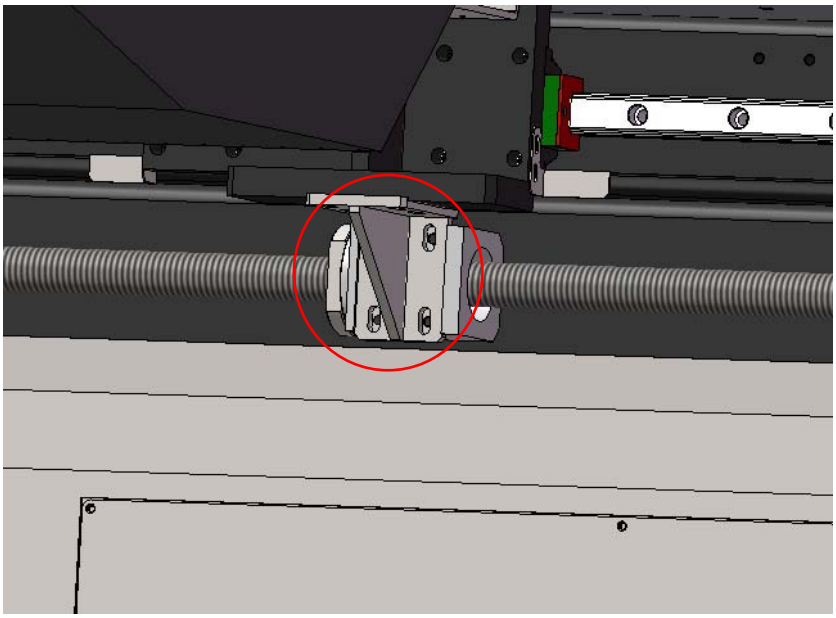


Fig. 25: Installation of column connecting plate

Step 5: Use M4 hexagon socket head cap combination screws to fix the servo motor onto the motor cabinet.

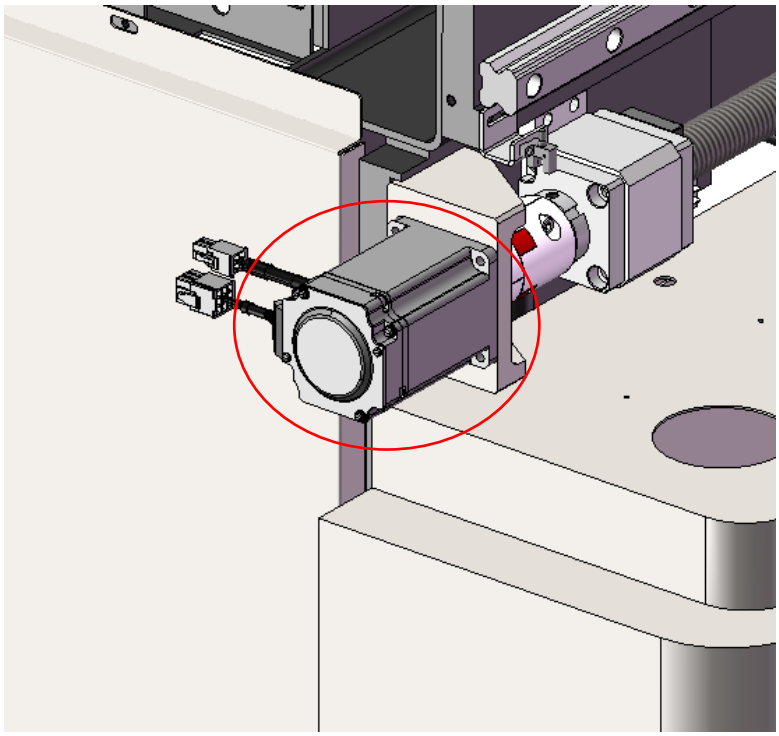
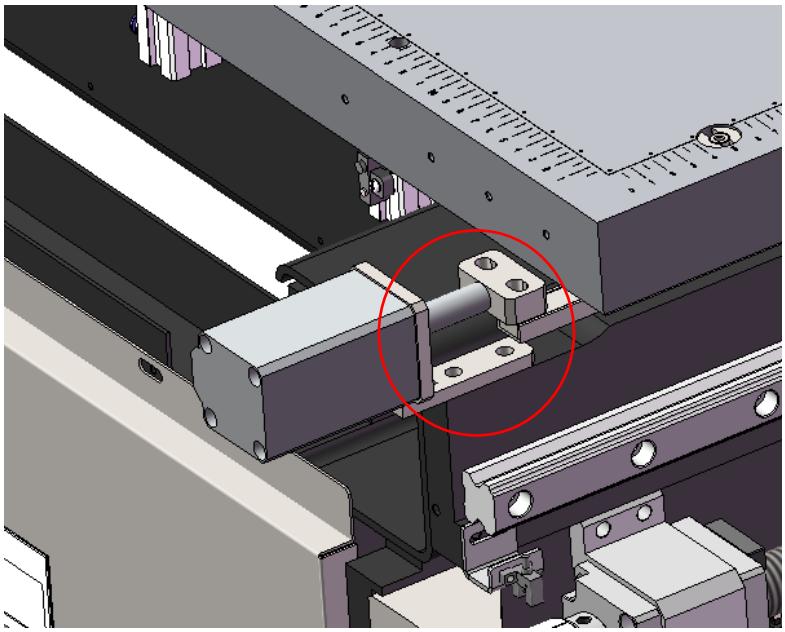


Fig. 26: Installation of servo motor

Step 6: Use M6 hexagon socket head cap combination screws to fix the locating pin cylinder onto the top surface of the frame, and then use M6 hexagon socket head cap screws to connect it to the Y-direction pull rod.



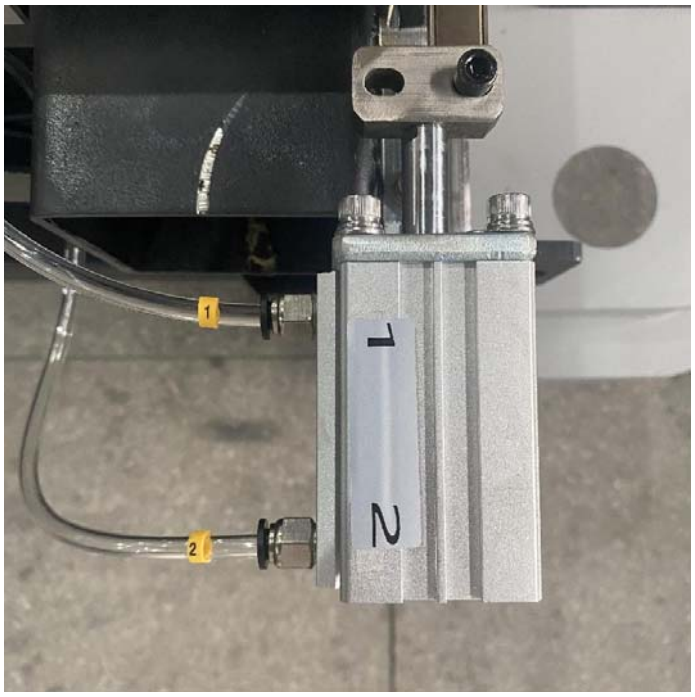


Fig. 27: Installation of cylinder

Note:
Mount the cylinder joint to the inside of the machine platform for the convenience of connecting the intake tube, and then fix the cylinders only after manually adjusting to ensure there is no jamming while stretching. Connect the intake tube (counterpart connection according to the numbers posted on the cylinder and the numbers marked on the intake tube) to avoid wrong connection.

Step 7: Use M5 hexagon socket head cap combination screws to fix the left rear cabinet and right rear cabinet to the frame respectively.

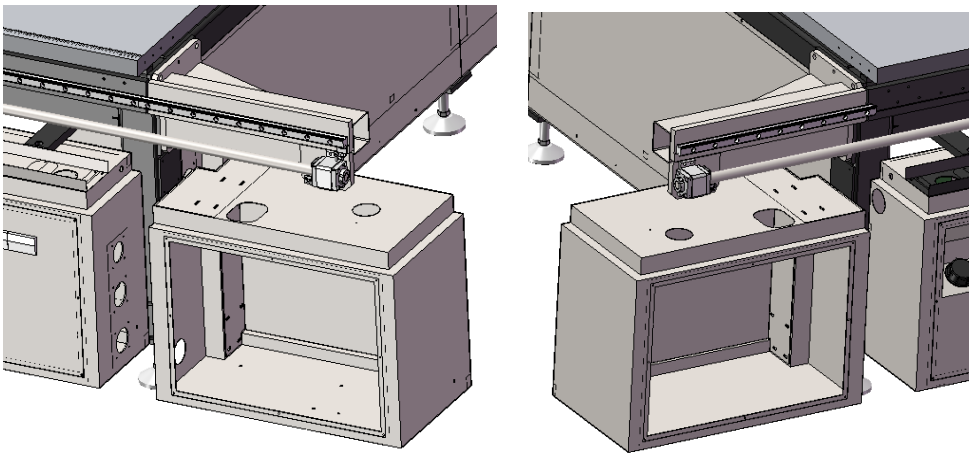


Fig. 28: Installation of left and right rear cabinets

Step 8: Use M4 cross recessed pan head screws to fix the photoelectric sensor and limit switch onto the frame respectively.

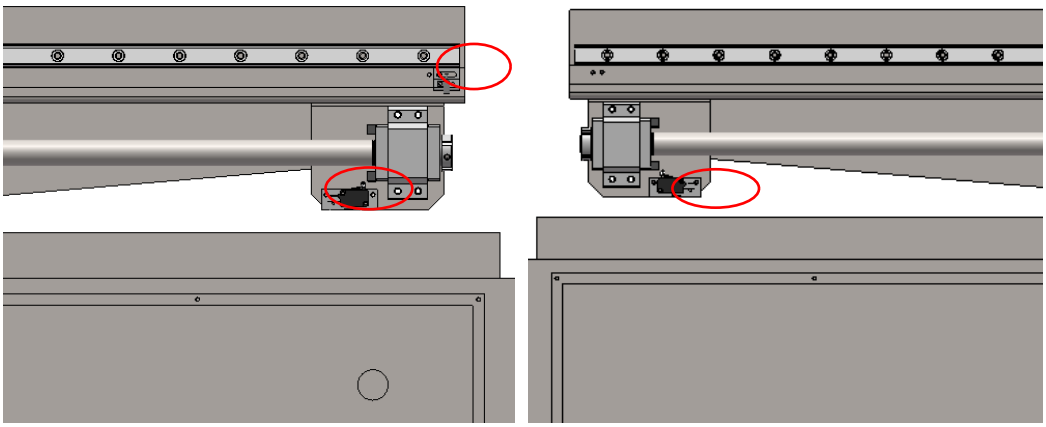


Fig. 29: Installation of photoelectric sensor and limit switch

Note:
There's one limit switch on the Y-direction left back (YLB), and one photoelectric switch and one limit switch on the Y-direction right back (YRB). After installation, manually move backward to check and adjust the trigger gap between the stopper and the photoelectric sensor for four sides (front, back, left, and right). Otherwise, the sensor will be knocked out when energized.

Step 9: Use M4 cross recessed pan head combination screws to fix the side cover support frame onto the left rear cabinet and right rear cabinet respectively.

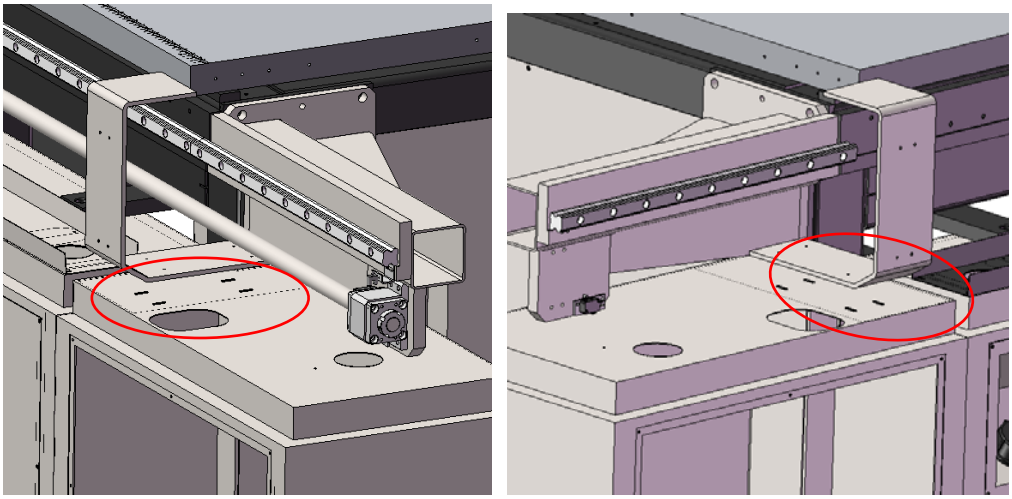


Fig. 30: Installation of side cover support frame

Step 10: Use M5 hexagon socket head cap combination screws and M4 cross recessed pan head screws with washers to fix the front cover bracket onto the front eaves of the frame.

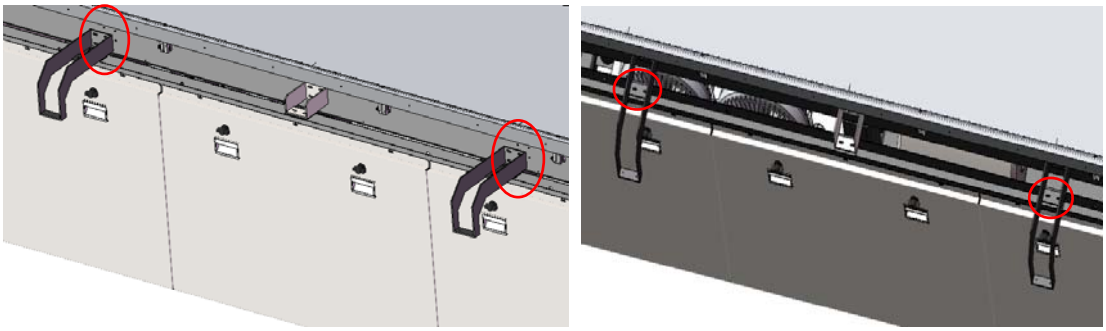


Fig. 31: Installation of front cover bracket

Step 11: Use M5 hexagon socket head cap combination screws to fix the rear cover bracket onto the rear eaves of the frame.

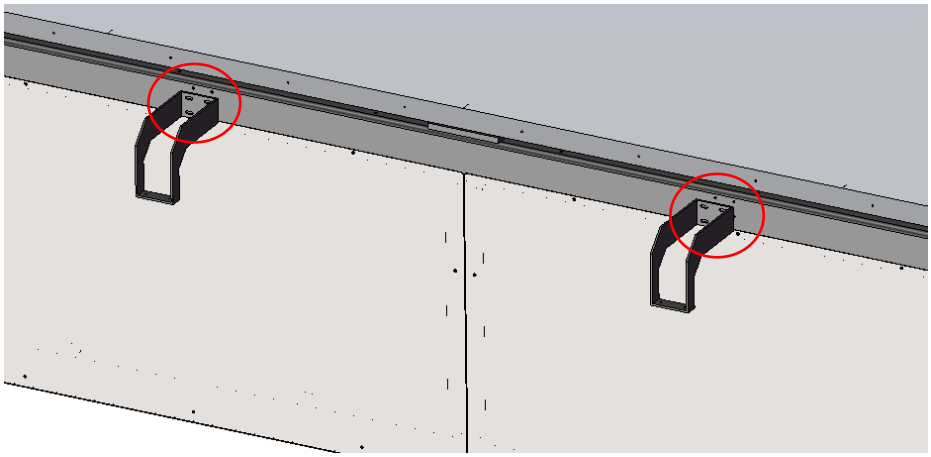


Fig. 32: Installation of rear cover bracket

Step 12: Use M4 hexagon socket head cap combination screws to fix the left rear side cover bracket and the right rear side cover bracket onto the rear face of the air suction platform.

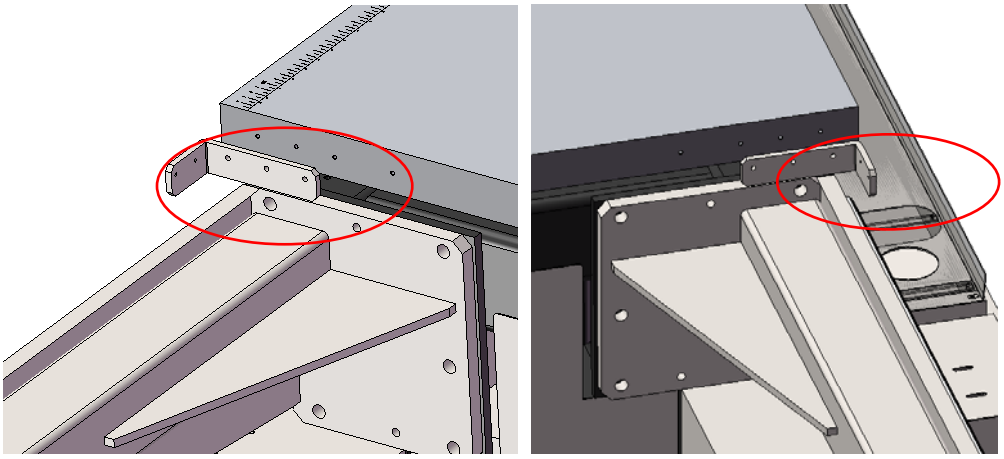


Fig. 33: Installation of left and right rear side cover brackets

Step 13: Use M4 hexagon socket head cap combination screws to fix the front cover assembly onto the air suction platform and front cover bracket respectively.

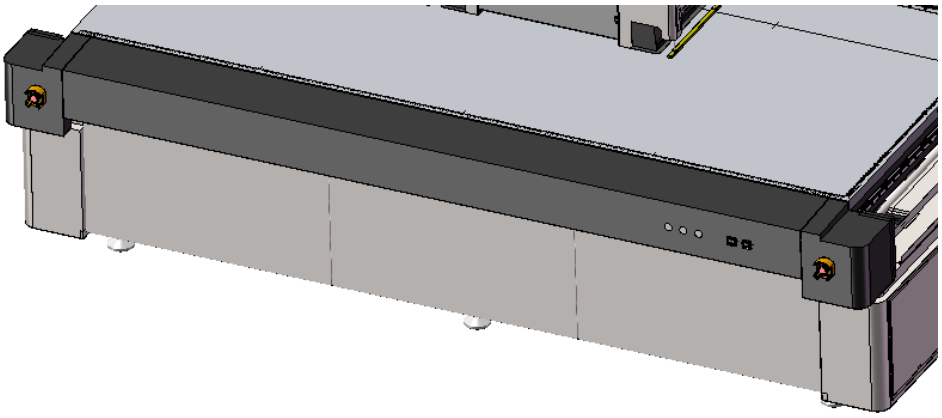


Fig. 34: Installation of front cover assembly

Step 14: Use M4 hexagon socket head cap combination screws to fix the rear cover onto the air suction platform and rear cover bracket respectively.

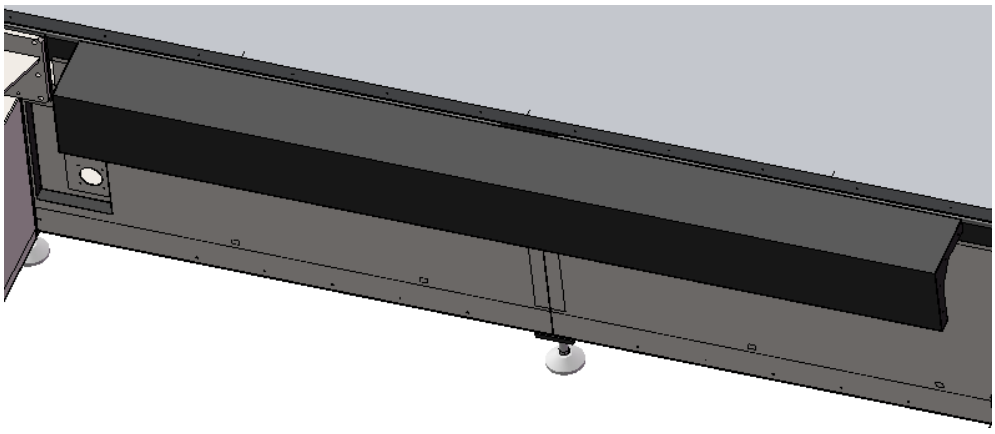


Fig. 35: Installation of rear cover

Step 15: Use M4 hexagon socket head cap combination screws and M4 cross shaped large flat head screws to fix the left rear cover and right rear cover onto the rear cover bracket, left rear side cover bracket and right rear side cover bracket respectively.

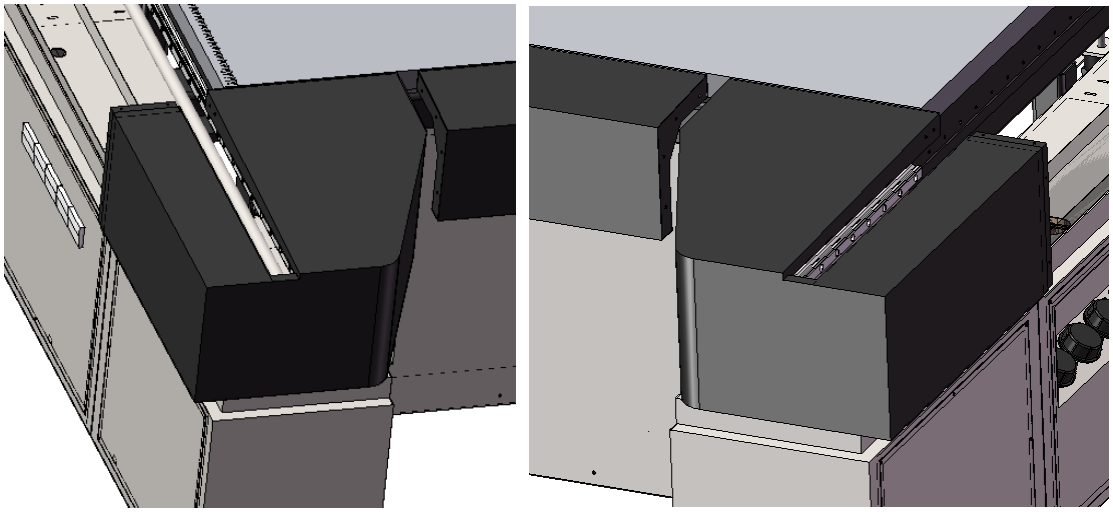


Fig. 36: Installation of left and right rear covers

Step 16: Use M4 cross shaped large flat head screws to fix the side cover to the left front cover, left rear cover, right front cover and right rear cover respectively.

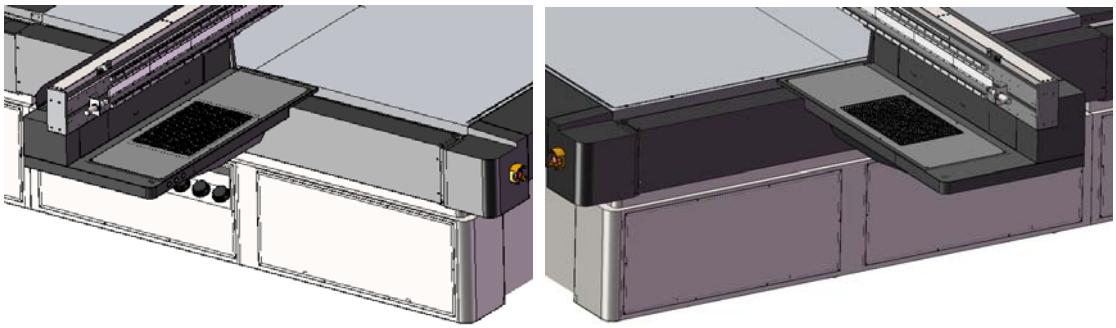


Fig. 37: Installation of side covers

Step 17: Connect wiring for the emergency stop button, switch button, and negative pressure gauge button of the front cover.

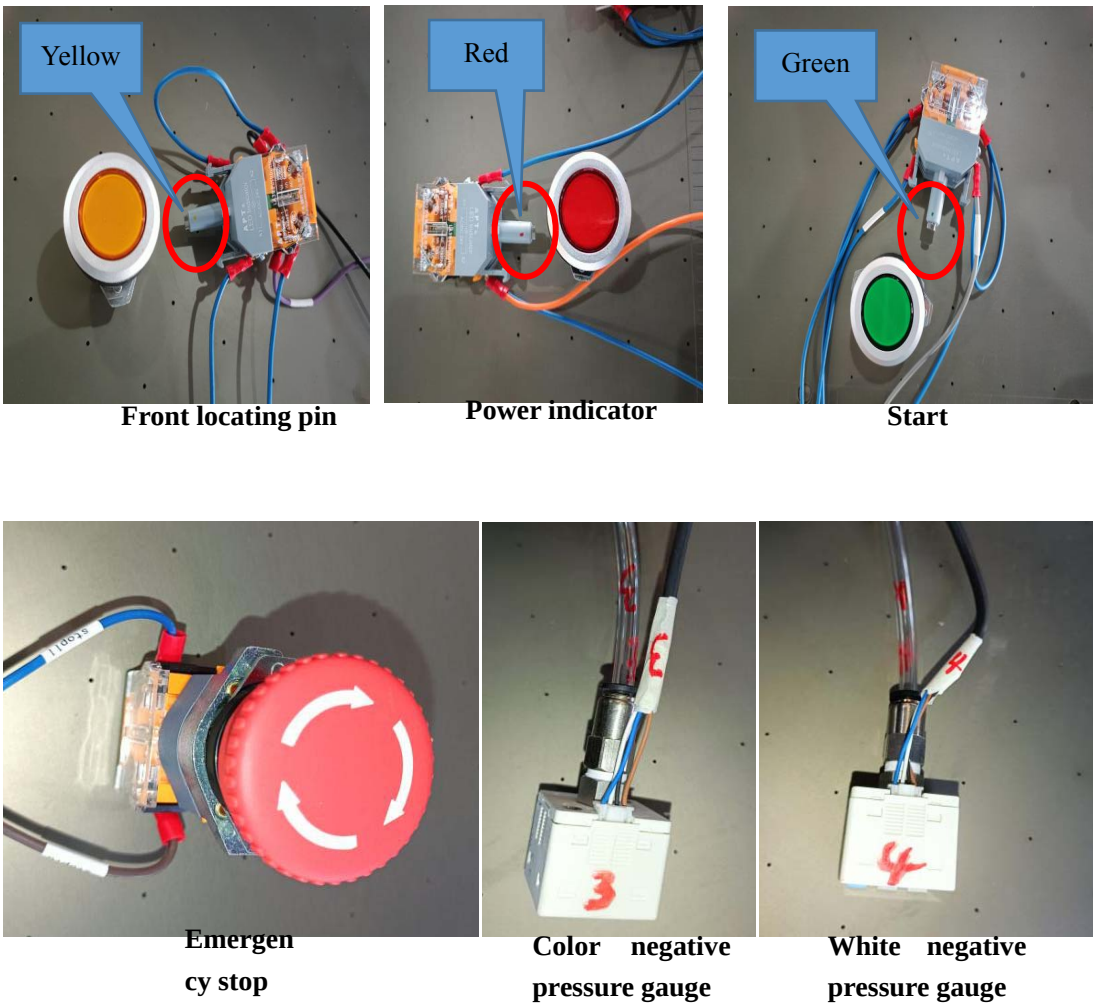


Fig. 38: Connection of wiring of buttons

Installation of 3020 three linear split assembly

Note:
The KC 3020 Three Linear Flatbed Printer has to be partially disassembled in order to achieve successful container shipping. Upon receipt of the machine, it should be assembled according to the following steps.

Step 1: Use 8X30 cylindrical pin with internal thread and M12 hexagon socket head cap screws to fix the left rear bracket and right rear bracket onto the frame respectively.

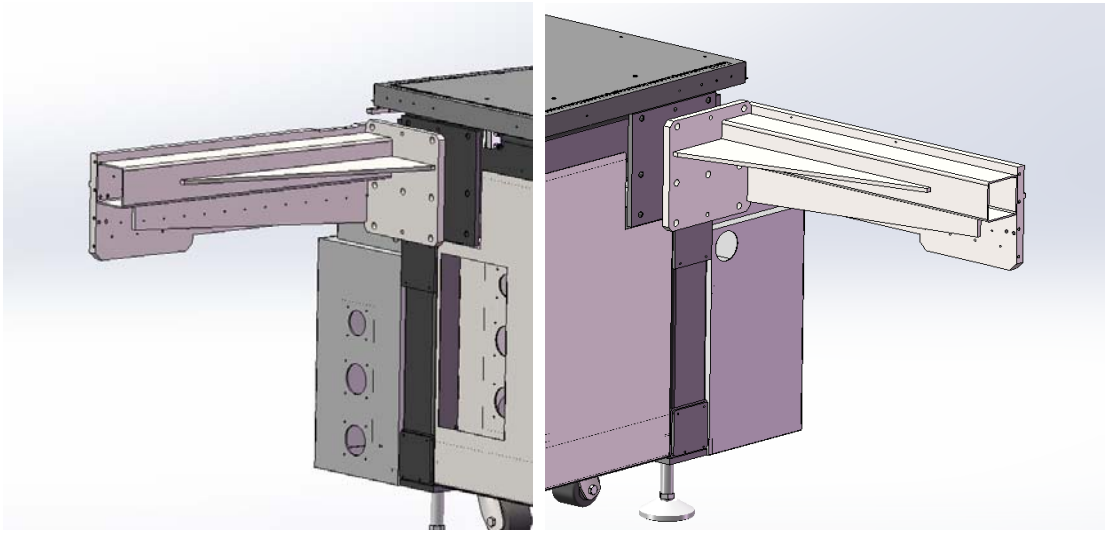
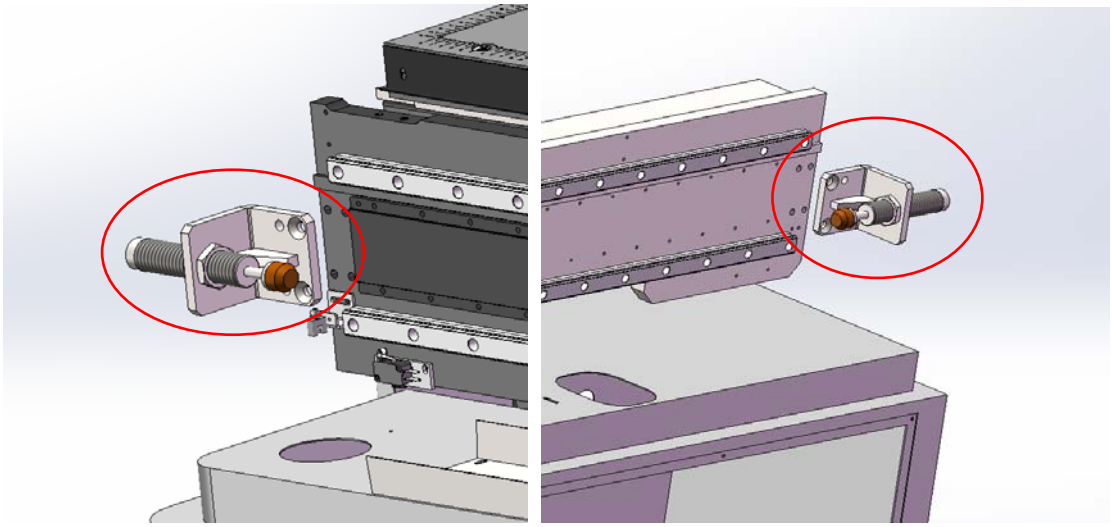


Fig. 39: Installation of left and right rear supports

Step 2: Use M8 hexagon socket head cap combination screws and M8 hexagon socket countersunk head screws to fix the Y-direction buffer components onto the side of the frame. One for front and rear, one for left and right.



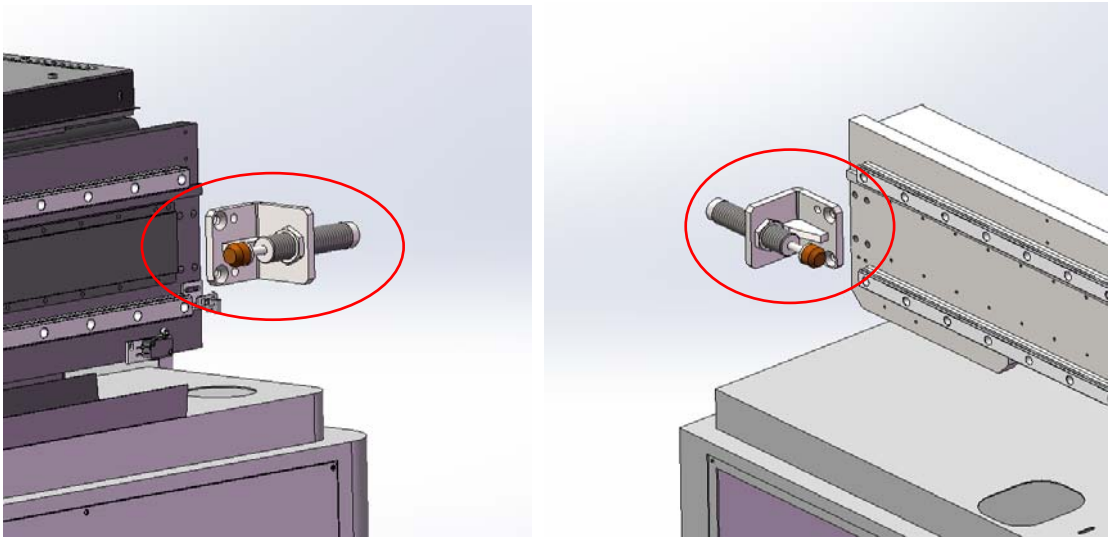


Fig. 40: Installation of Y-direction buffer components

Step 3: Use M6 hexagon socket head cap combination screws to fix the front jockey wheel fixation kit onto the left front end and right front end of the frame respectively.

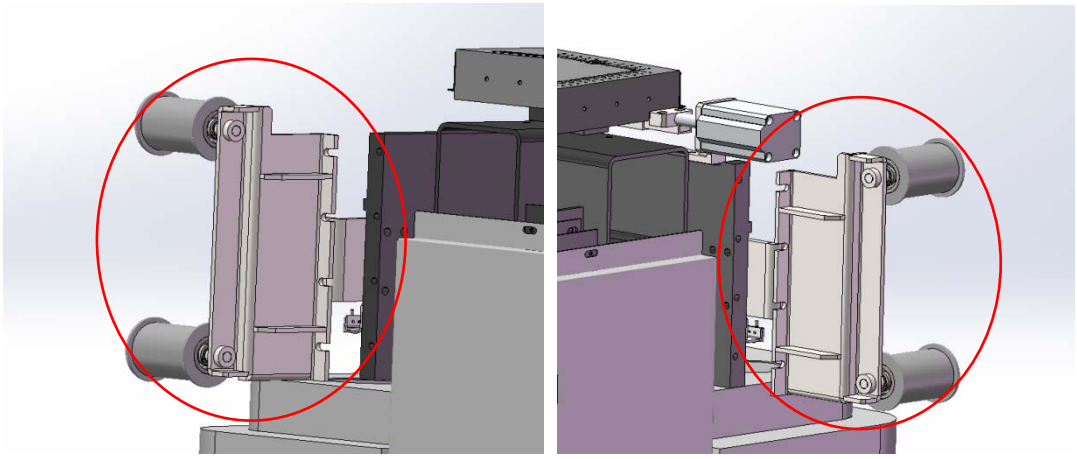


Fig. 41: Installation of front jockey wheel fixation kit

Step 4: Use M6 hexagon socket head cap combination screws to fix the rear jockey wheel fixation kit onto the left rear end and right rear end of the frame respectively.

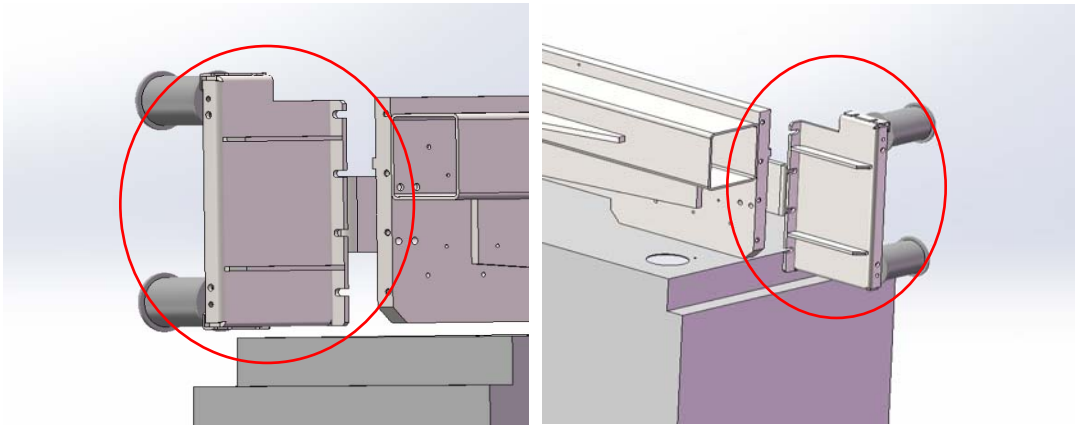


Fig. 42: Installation of rear jockey wheel fixation kit

Step 5: Use M5 hexagon socket head cap combination screws to fix the left rear cabinet and right rear cabinet to the frame respectively.

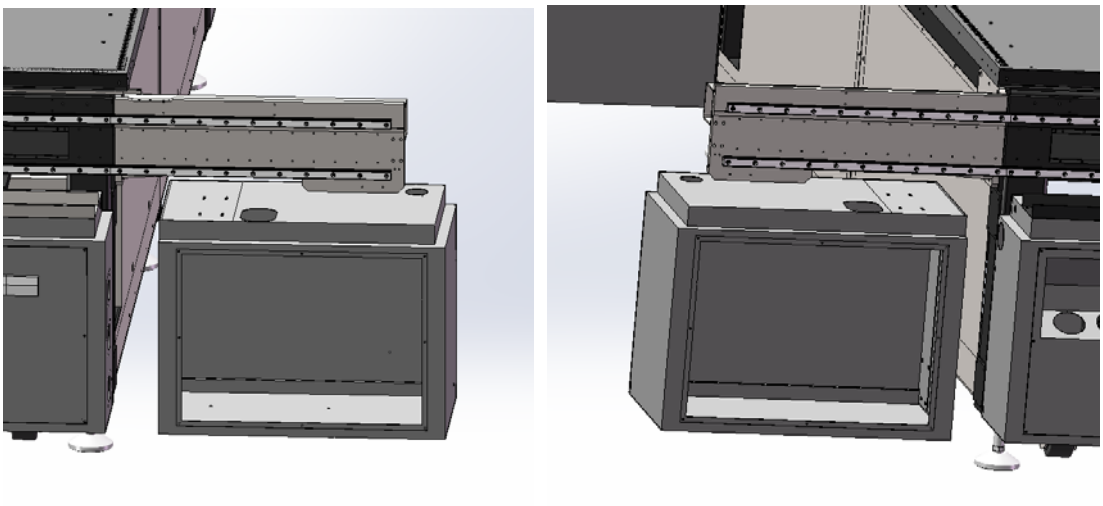


Fig. 43: Installation of left and right rear cabinets

Step 6: Use M4 hexagon socket button head screws to fix the linear motor magnetic plate onto the corresponding hole position between two guide rails.

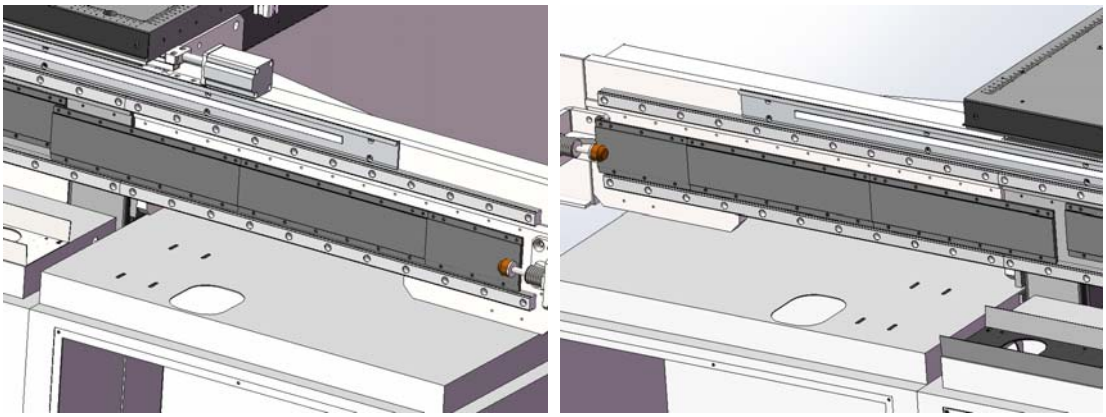


Fig. 44: Installation of magnetic plate

Warning:

The linear motor magnetic plate has strong magnetism, so keep away for safety during installation, otherwise you would be caught due to the attraction of two magnetic plates.

Step 7: Use M4 cross recessed pan head screws to fix the photoelectric sensor and limit switch onto the frame respectively.

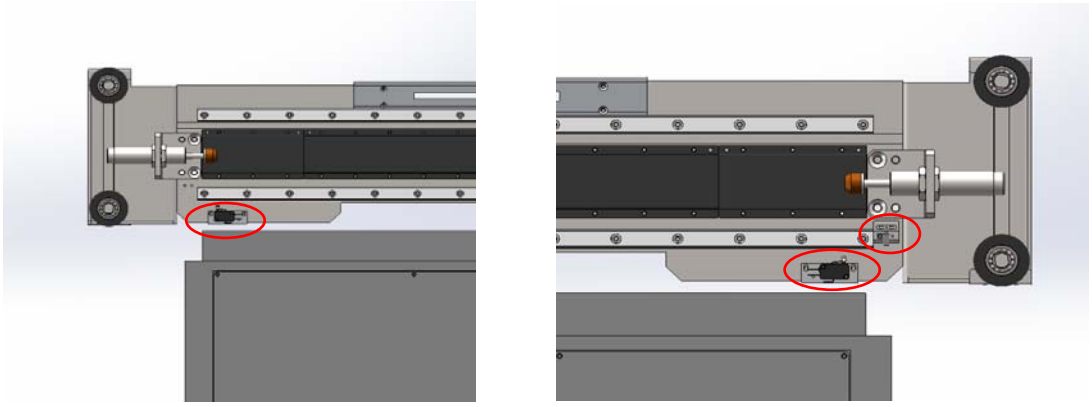


Fig. 45: Installation of photoelectric sensor and limit switch

Note:

There's one limit switch on the Y-direction left back (YLB), and one photoelectric switch and one limit switch on the Y-direction right back (YRB). After installation, manually move backward to check and adjust the trigger gap between the stopper and the photoelectric sensor for four sides (front, back, left, and right). Otherwise, the sensor will be knocked out when energized.

Step 8: Removal of Y-direction fixing screws (Red part)

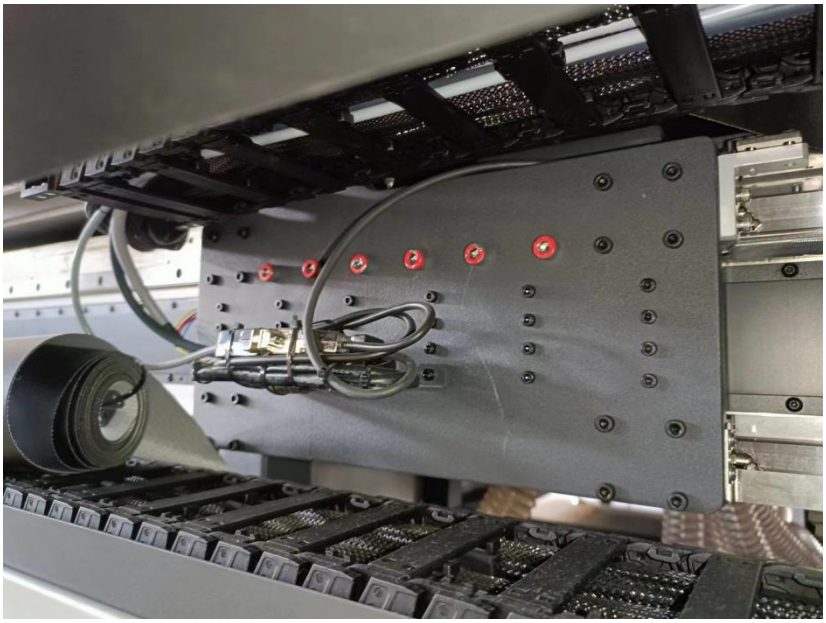


Fig. 46: Removal of Y-direction fixing screws

Note:
The Y-direction fixing screws are used to fix the beam during packing and transporting, and must be removed before powering on, otherwise the Y-direction will not work properly.

Step 9: Place the magnetic grid mounting board assembly against the upper guide surface and use M4 hexagon socket countersunk head screws to secure it to the frame. Use the tooling to adjust the gap between the reading head and the magnetic grid to 0.3mm, with the height of the grating reading head and the grating strip in a centered position.

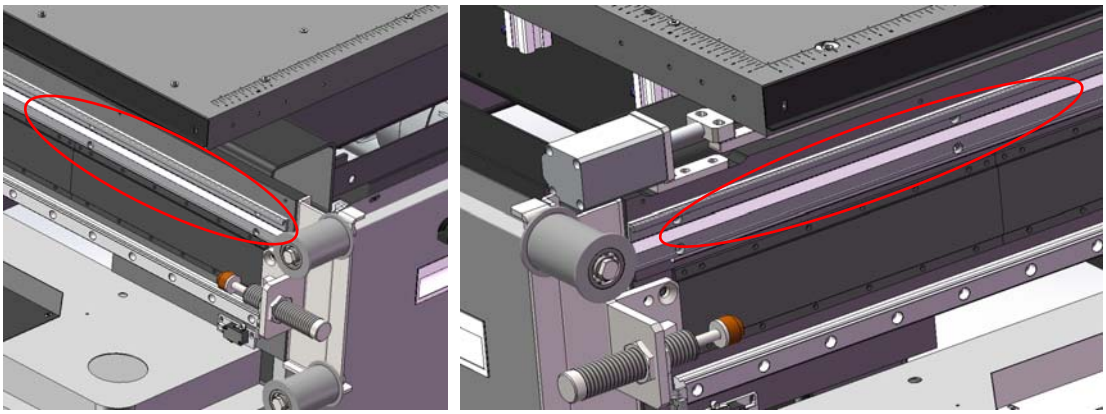


Fig. 47: Installation of magnetic grid mounting board

Step 10: Use M6 hexagon socket head cap combination screws to fix the locating pin cylinder onto the top surface of the frame, and then use M6 hexagon socket head cap screws to connect it to the Y-direction pull rod.

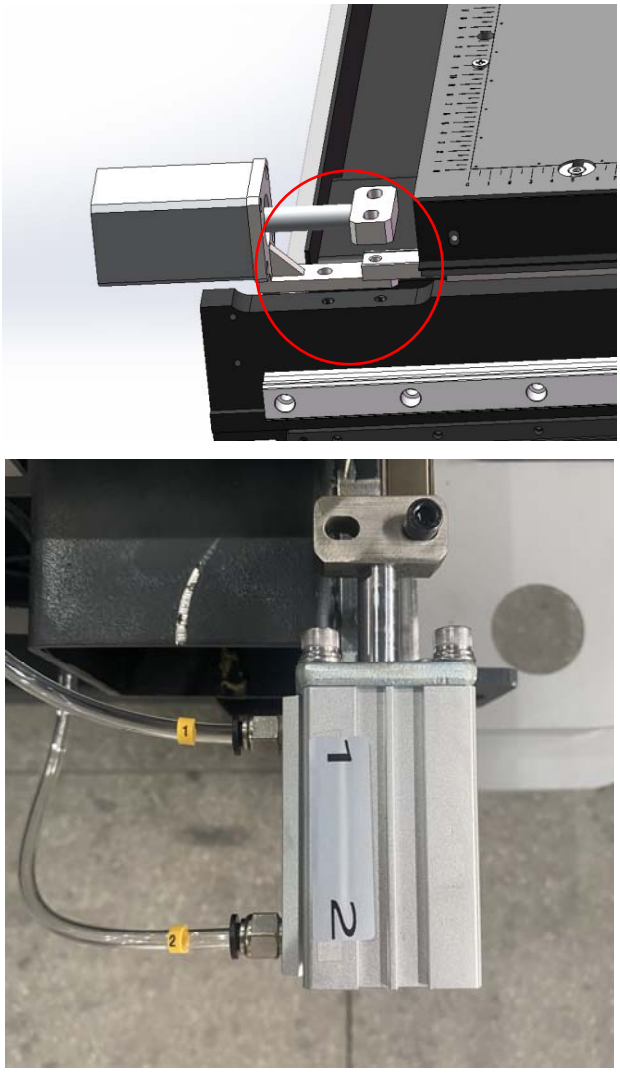


Fig. 48: Installation of cylinder

Note:

Mount the cylinder joint to the inside of the machine platform for the convenience of connecting the intake tube, and then fix the cylinders only after manually adjusting to ensure there is no jamming while stretching. Connect the intake tube (counterpart connection according to the numbers posted on the cylinder and the numbers marked on the intake tube) to avoid wrong connection.

Step 11: Use M4 pan head combination screws to fix the side cover support frame onto the left rear cabinet and right rear cabinet respectively

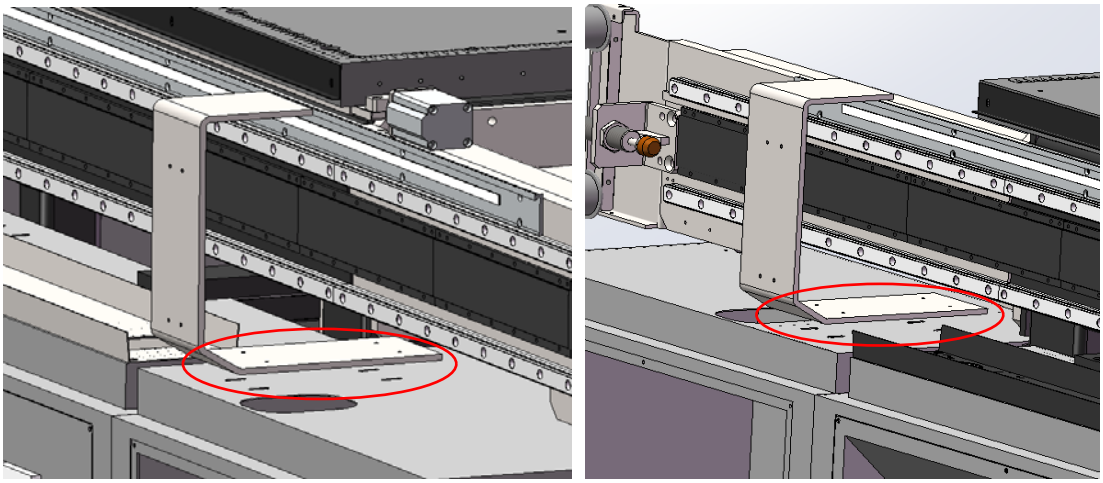


Fig. 49: Installation of side cover support frame

Step 12: Use M4 hexagon socket head cap combination screws to wrap the protective belt around the front and rear jockey wheels and fix it onto the column trunking. Adjust the rear jockey wheel fixation kit tension screws to enable the protective belt to have a moderate tightness.

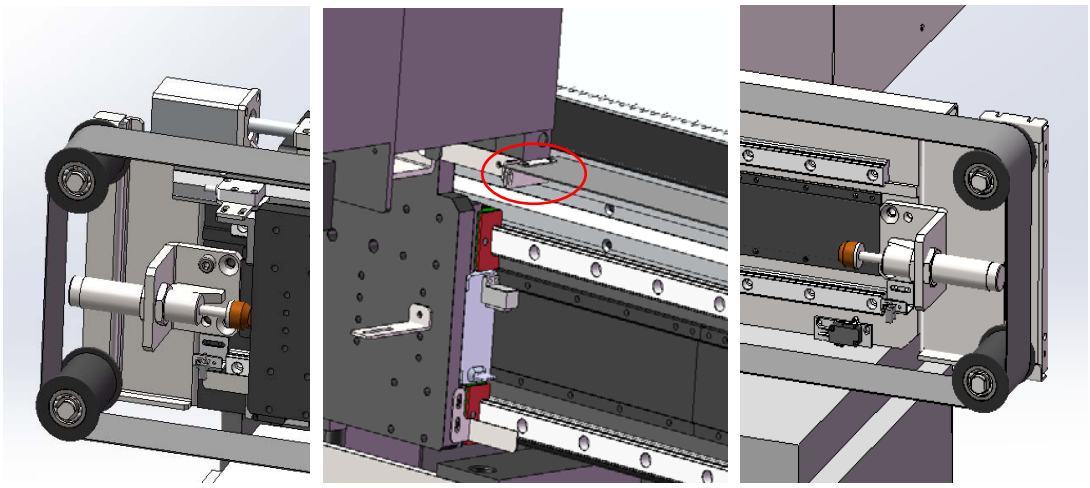


Fig. 50: Installation of protective belt

Step 13: Use M5 hexagon socket head cap combination screws and M4 pan head screw assembly to fix the front cover bracket onto the front eaves of the frame.

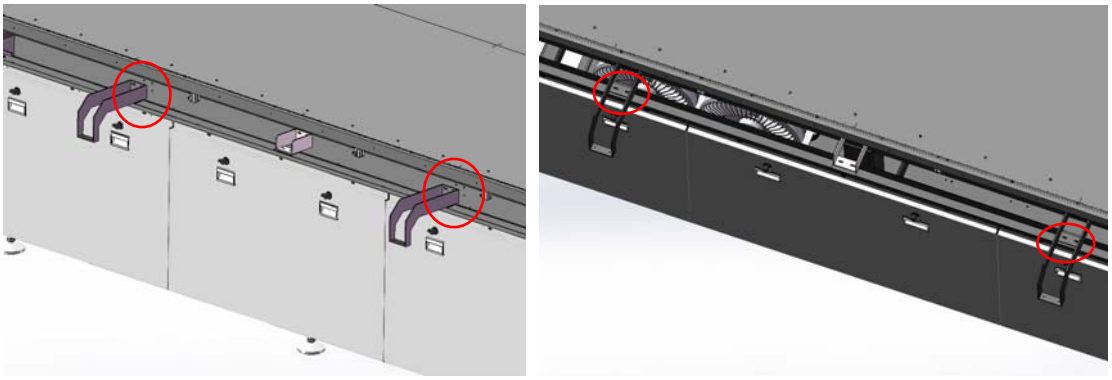


Fig. 51: Installation of front cover bracket

Step 14: Use M5 hexagon socket head cap combination screws to fix the rear cover bracket onto the rear eaves of the frame.

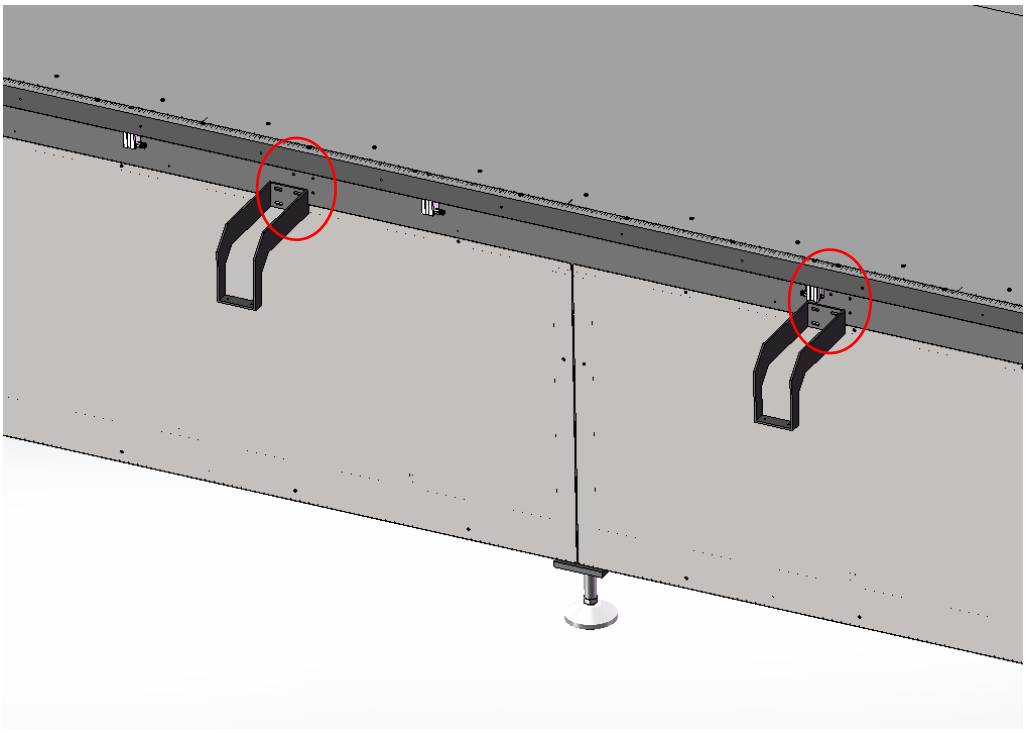


Fig. 52: Installation of rear cover bracket

Step 15: Use M4 hexagon socket head cap combination screws to fix the left rear side cover bracket and the right rear side cover bracket onto the aft end face of the air suction platform.

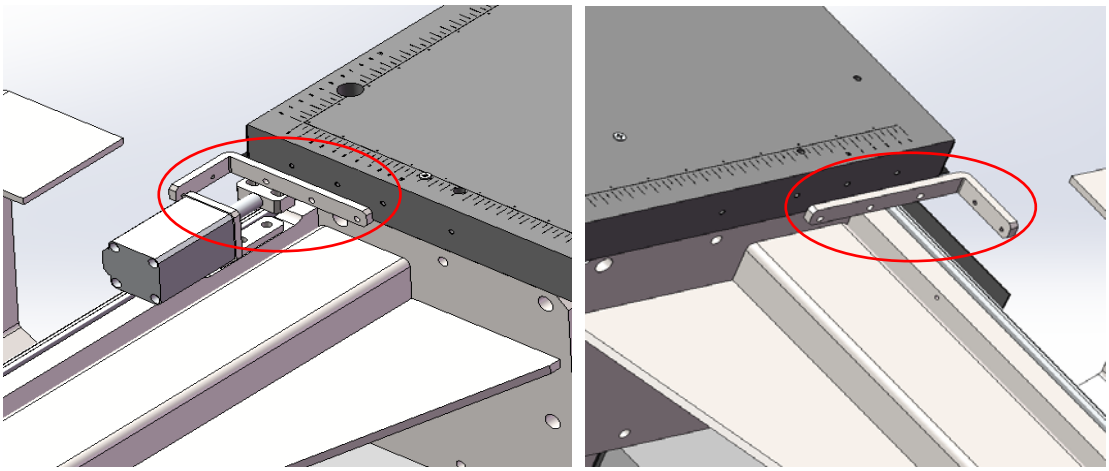


Fig. 53: Installation of left rear side cover bracket and right rear side cover bracket

Step 16: Use M4 hexagon socket head cap combination screws to fix the front cover assembly onto the air suction platform and front cover bracket respectively.

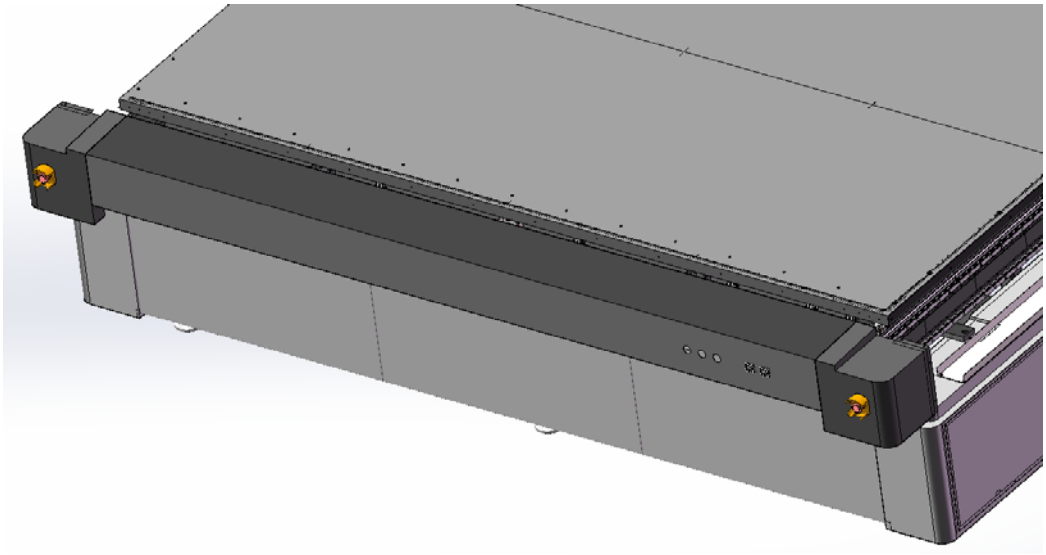


Fig. 54: Installation of front cover assembly

Step 17: Use M4 hexagon socket head cap combination screws to fix the rear cover onto the air suction platform and rear cover bracket respectively.

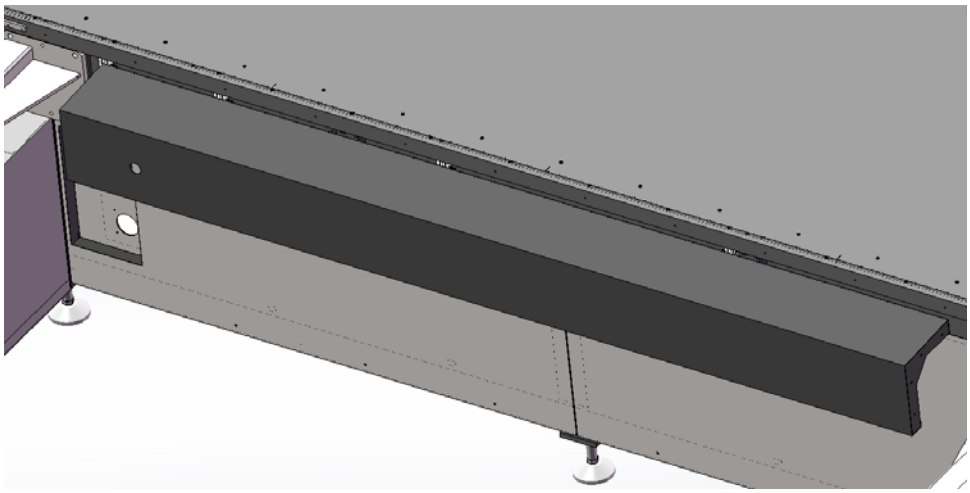


Fig. 55: Installation of rear cover

Step 18: Use M4 hexagon socket head cap combination screws and M4 cross shaped large flat head screws to fix the left rear cover and right rear cover onto the rear cover bracket, left rear side cover bracket and right rear side cover bracket respectively.

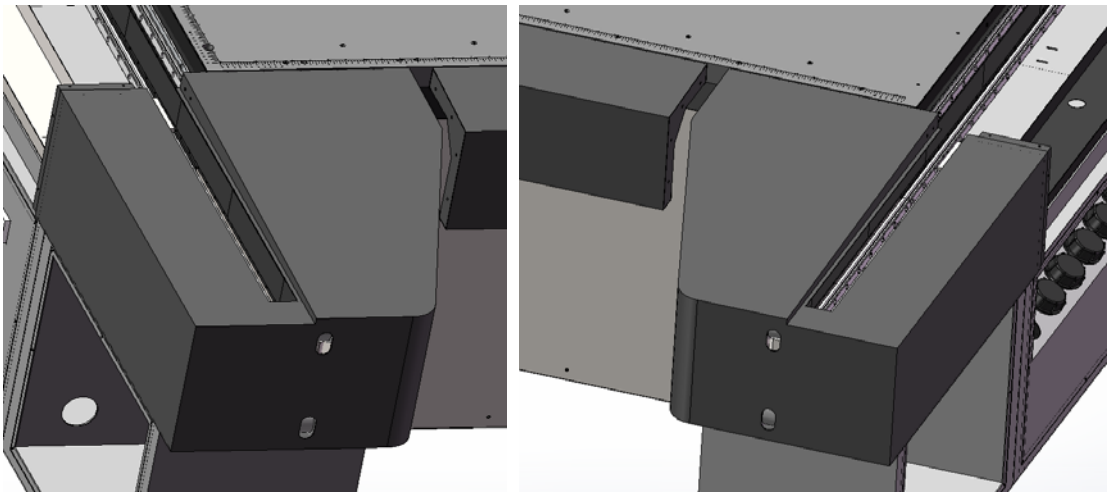


Fig. 56: Installation of left and right rear covers

Step 19: Use M4 cross shaped large flat head screws to fix the side cover to the left front cover, left rear cover, right front cover and right rear cover respectively.

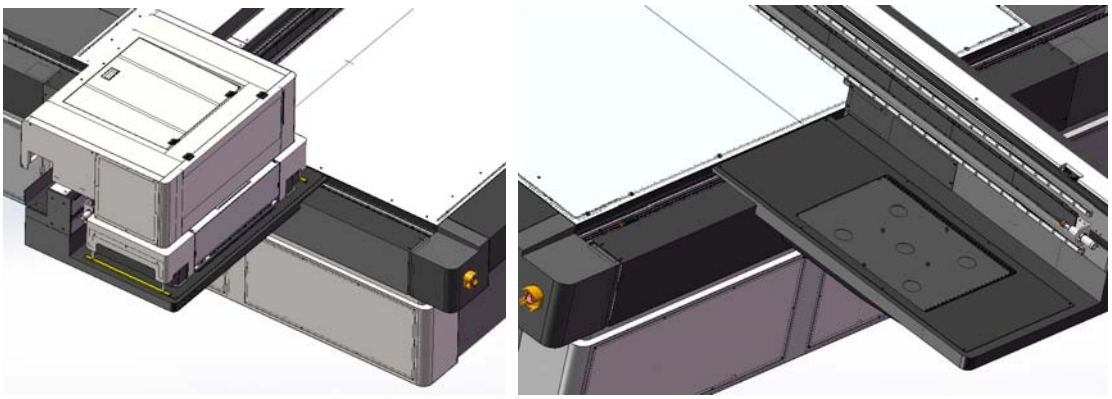
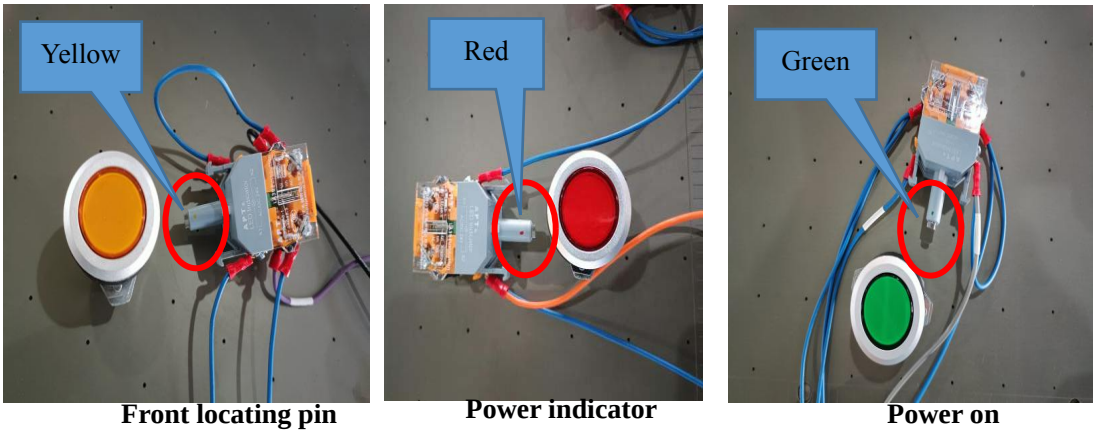
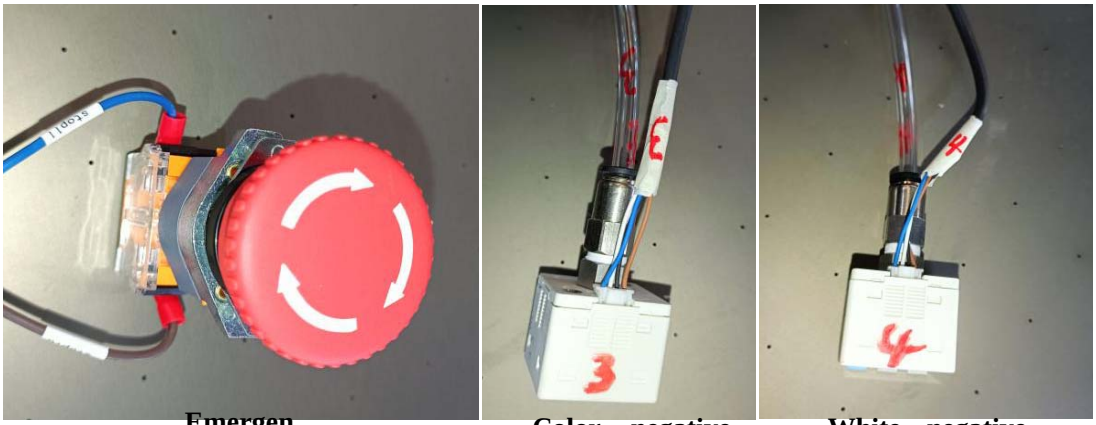


Fig. 57: Installation of side covers

Step 20: Connect the front cover emergency stop button, switch button, locating pin button and negative pressure gauge button through wiring.



Front locating pin **Power indicator** **Power on**



Emergency stop **Color negative pressure gauge** **White negative pressure gauge**

Fig. 58: Connection of wiring of buttons

Step 21: Connect the rear cover locating pin button and control handle through wiring.

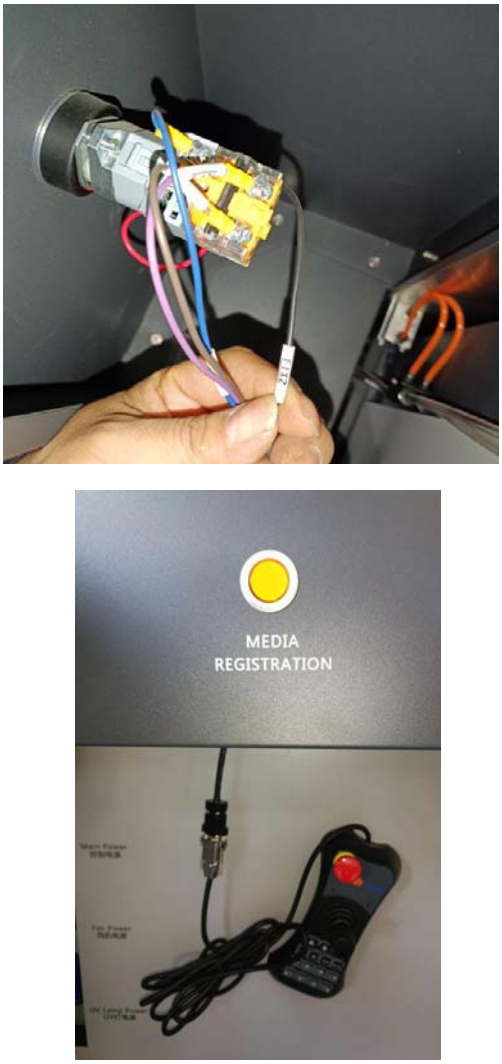


Fig. 59: Connection of the control handle through wiring

Step 22: Remove the baffles underneath the left and right light-blocking boxes.

Fig. 60: Removal of baffles underneath the left and right light-blocking boxes.

Step 23: Use M4 hexagon socket head cap combination screws to fix the safety light curtain onto both ends of the beam.

Fig. 61: Installation of the safety light curtain assembly:

Step 24: Connect the safety light curtain signal cable according to the corresponding marking on the connector.

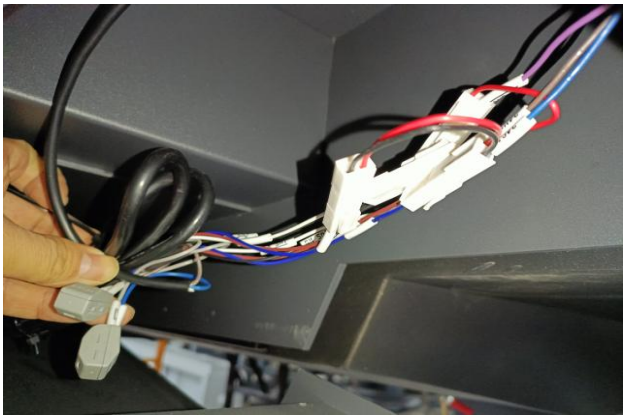


Fig. 62: Connection of the safety light curtain signal cable

Step 25: Secure the baffles underneath the left and right light-blocking boxes.

Connection Services

Connection services

Power supply connection of flatbed printer

Caution:
It is important to note that the work of connecting the power supply to the flatbed printer should be carried out by a qualified electrical contractor or technician.

AC power supply	Voltage	Frequency	Wiring	Current
	220-240 VAC	50/60 HZ	Single phase	15A

The flatbed printer can be connected to the power supply in two ways, either by connecting the power cord directly to the electrical box on the wall or by connecting it to a wall socket via an IP44 32A 200-250VAC plug. Since most print environments are semi-industrial in nature, it is recommended to use armored cables to avoid accidental damage.
Please see the figure below.

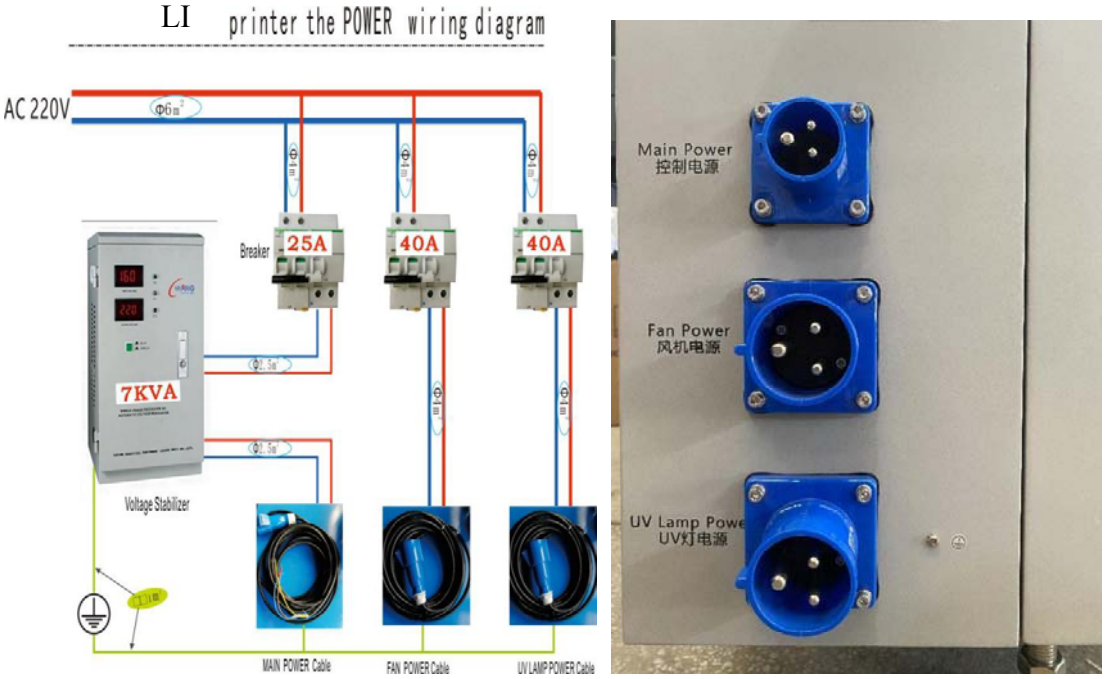


Fig. 63: AC power connection of flatbed printer

Grounding

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

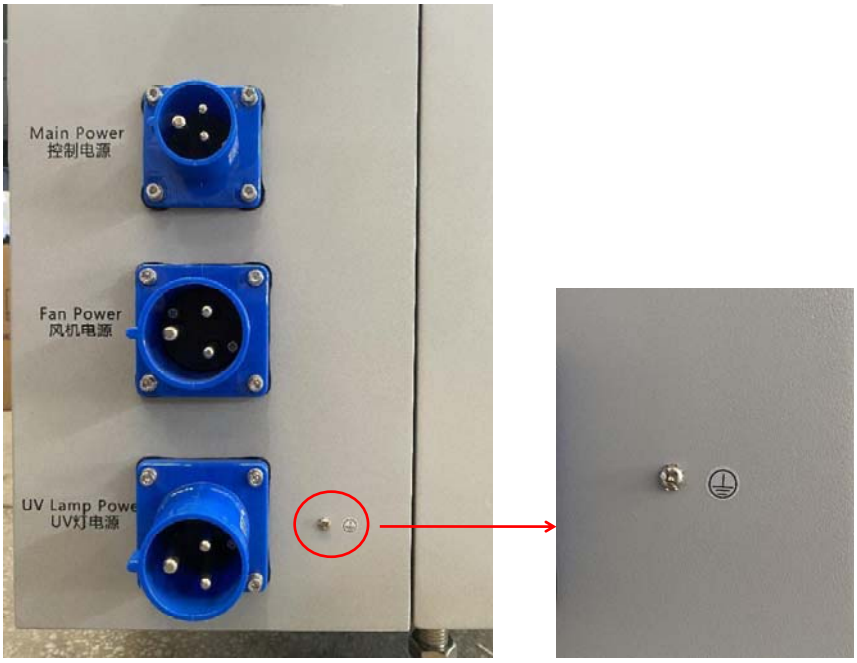


Fig. 64: Grounding connection of flatbed printer

Connection between flatbed printer and computer

Important reminder:
The flatbed printer and computer are connected via USB 3.0 coupler.
USB 3.0 shall be coded in blue and labeled with the following symbols.

Please see the figure below.

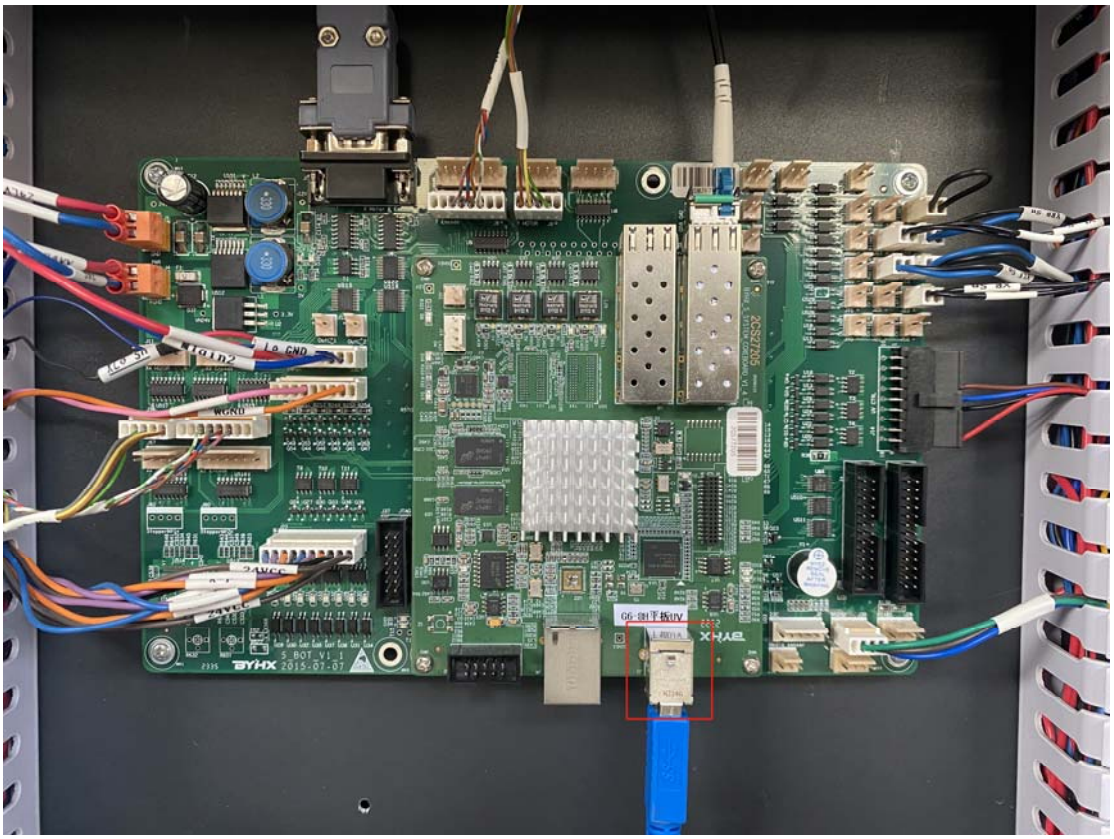


Fig. 65: Connection between flatbed printer and computer

Connecting the compressed air supply system

Note:
The machine can only function properly if using the compressed air that meets the following specifications.

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

Powering-on

Important reminder:
Before powering on, please check whether the packaging limit blocks on the beam and carriage have been removed from the frame and beam.

In addition, make sure that public utilities such as computers, electrical appliances and compressed air are properly installed and connected to the flatbed printer.

Step 1: Push up all five circuit breakers on the right end of the flatbed printer.

Fig. 66: Location of circuit breaker

Step 2: Release both Emergency Stop buttons at the front of the flatbed printer, left

and right, as well as the emergency notice button on the control handle.
Turn the button heads counterclockwise to release them. Location of Emergency Stop buttons is as follows.

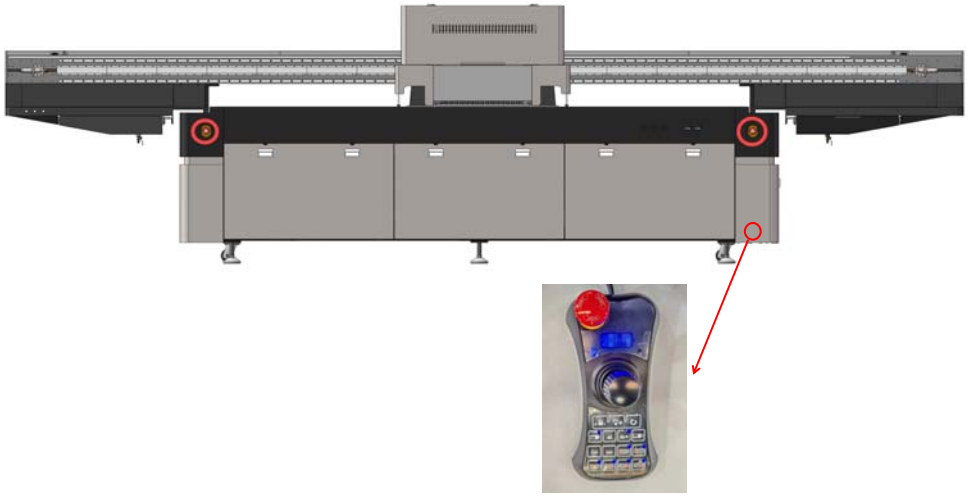


Fig. 67: Location of Emergency Stop Buttons

Step 3: Press the Power On/Off button to power the flatbed printer.

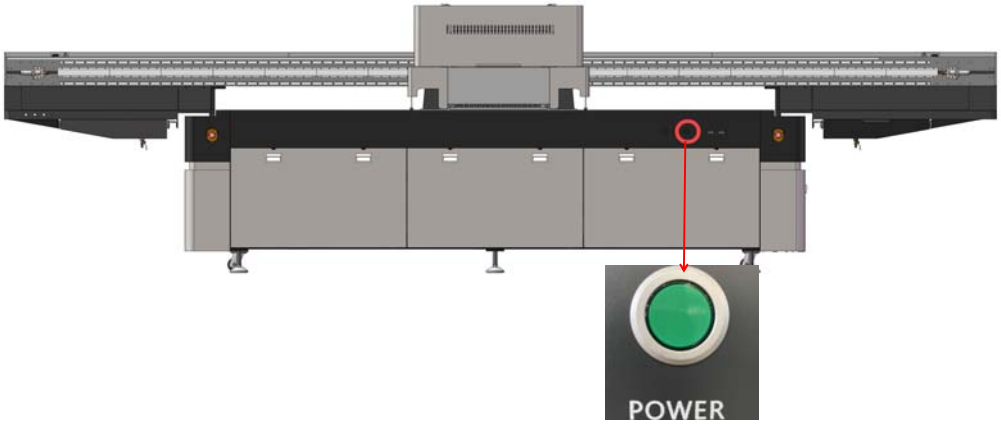


Fig. 68: Location of Power On/Off button

Step 4: Turn on the computer and wait for it to boot up.

Introduction to Functions of the Printer

Code of Practice

Thank you for purchasing our flatbed inkjet printers. After our machine is installed on your site, please inform the operator to learn the basics carefully to understand the core of the machine and some basic operations.

Equipment model	KC series
Print technology	PresionCore
Type of print head	RICOH G5/G6
Print head control	Use software loading driver waveform to adjust the temperature and voltage of the print head.
Print head configuration	4 colors, 6 colors, spot colors (white, varnish)
Maximum printing size	3.05m*2.02m
Maximum printing resolution	635x1200dpi
Fastest production mode and efficiency	317*600 high speed, one KT board per 37 s
Ink type	Ink models with the LIYU logo
Color profile	K C M Y LC LM W V
Ink supply system	Automatic continuous ink supply with vacuum negative pressure
Scraping device	Manual ink scraping with an ink scraping tool
Media absorption	Table vacuum absorption
Drying device	UV lamp solidification
Package size	KC2512 5448*2300*1820 KC3020 5750*2300*1890
Equipment dimension	KC2512 4970*2180*1500 KC3020 5962*3140*1530
Equipment weight	1930KG/2580KG/2980KG
Printing interface	USB3.0
Power interface	Mainframe + fan adsorption system + UV lamp, with a main power of 10KW
Environmental requirements	Independent, clean, low-dust, with minimal light and well-ventilated workspace Temperature: 18 ℃–26 ℃ Relative humidity: 30%–70%
RIP Software	Photoprint
Equipment features	Duplex system, automatic height measurement, printing planar materials.

These are some basic parameters of the machine.

Introduction to the function of buttons

Circuit breaker

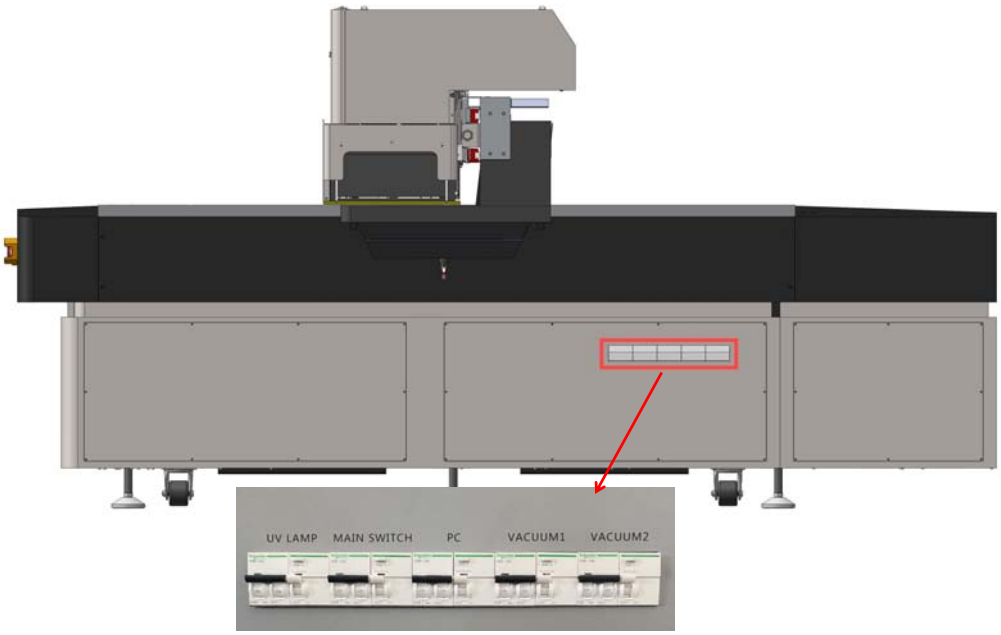


Fig. 69: Circuit breaker switches

English	Description
UV LAMP	Power switch of the UV lamp for the flatbed rinter
MAIN SWITCH	Main switch of the flatbed printer
PC	Switch of the computer power supply
VACUUM1	Platform fan 1 switch
VACUUM2	Platform fan 2 switch

Start-stop description

Fig. 70: Start-stop switches

English	Description
EMERGENCY STOP	Emergency stop button
MEDIA REGISTRATION	Material pneumatic positioning button
JET VOLTAGE	
POWRE	Power ON Button
COLOUR	To control color negative pressure gauge
WHITE	To control white negative pressure gauge

Maintenance instructions

Fig. 71: Maintenance buttons

English	Description
PUR/COLOR	Color print head ink pressing button
PUR/WHITE	White print head ink pressing button
CLEANING	Print head cleaning button
MAINTAIN	Quick maintenance button

Description of control handle

Fig. 72: Control handle

Code	English	Description
1	Emergency stop	Stop working in an emergency
2	Rotation handle	For controlling forward, backward movement of the beam, and leftward, rightward, upward and downward movement of the carriage.
3	Function button	X/Y axis unlock, Z axis unlock, repetitive printing
4	Function button	Platform locating pin, height measurement, adsorption, air blowing
5	Platform adsorption button	Adsorption zones 8, 7, 6, 5

6	Platform adsorption button	Adsorption zones 4, 3, 2, 1

Introduction to the function of the valve body

Three-way valve description

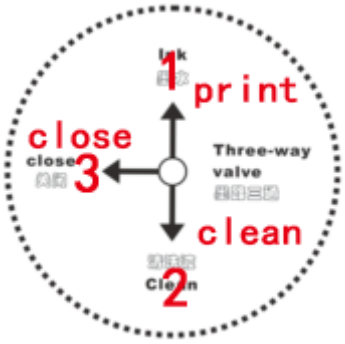


Fig. 73: Three-way valve

Code	State	Description
1	Working status	When the machine is working normally, please put the valve in the upward direction.
2	Cleaning state	When it's time to clean the print head with cleaning fluid, please place the valve downward.
3	Off state	When the equipment is shut down, place the valve in closed direction.

Two-way valve description

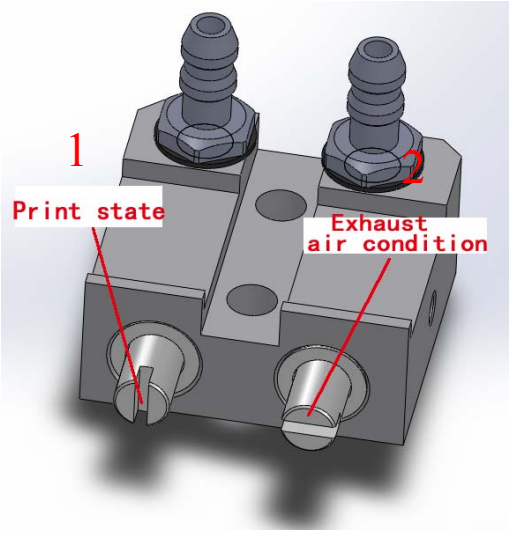


Fig. 74: Two-way valve

Code	State	Description
1	Printing state	Upon printing for daily work, the valve core is vertical and valve body is closed;
2	Exhaust air condition	When it is required to extract the air out from print heads, making the valve core rotate 90°, pressing ink at the same time and reinstate the valve core in print status after the air is fully discharged.

Introduction to the function of ambient light

Description of ambient light status

Fig. 75: Ambient light

Code	Atmosphere light color	Description
1	Blue	Ready status
2	Green	Print state
3	Yellow	Pause printing state
4	Red	Triggering anti-collision or light curtain, machine error reporting status

Software Installation

Software installation

This chapter will show how to install software of the Printer Manager, the graphical user interface (GUI) of the flatbed printer.

It includes Microsoft components and Windows driver that need to run the Printer Manager.

Computer requirements

The PM software runs under the Windows operating system. To achieve optimal computing performance, computer specifications must be met.

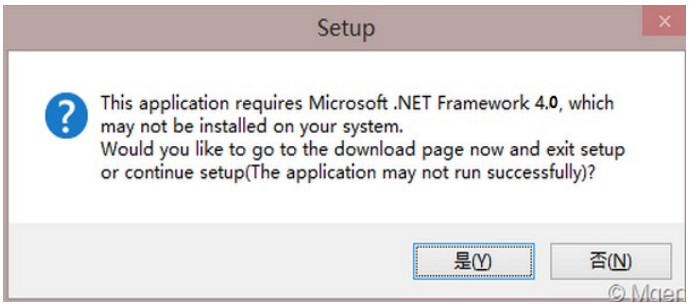
Cross application:
See Pre-installation Preparation - Computer Configuration Requirements for detailed configuration.

PrinterManager installation

Step1： Find out the USB flash drive in the machine accessory package and insert it into the USB 3.0 port of the computer. First, copy the software, curves, waveforms, upgrade packages and other important files from the USB flash drive to a disk on the computer, and then install the machine control software.

In order for the software to run properly, please install the runtime environment first. This file is also included in the USB flash drive. First find out a folder named "vcredist" and the Microsoft .NET Framework V4.5.

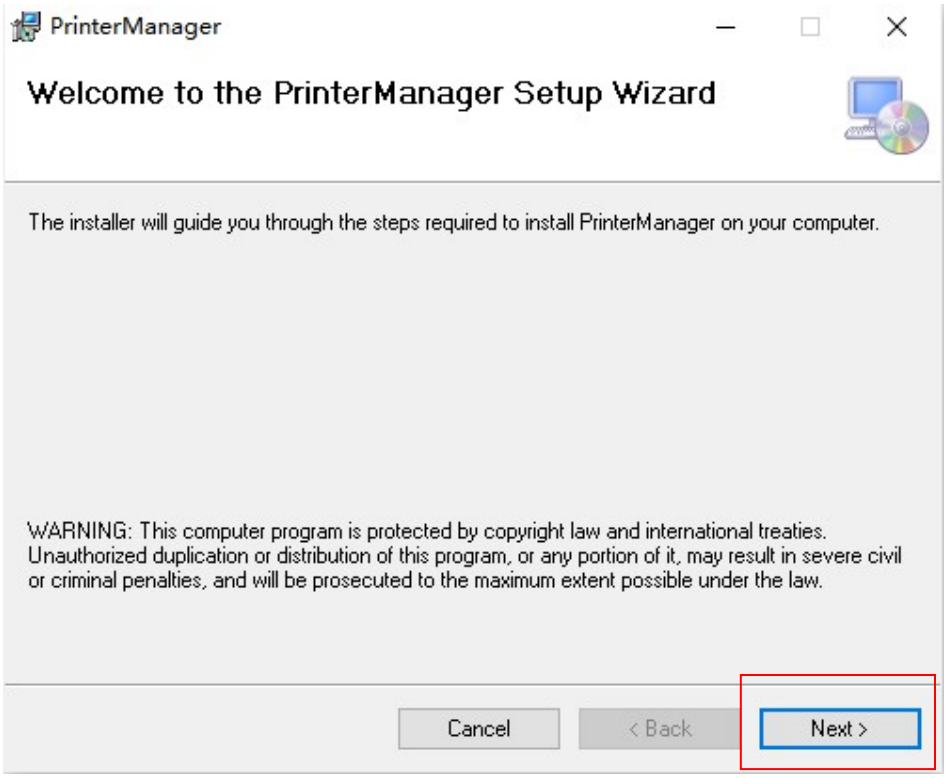
Click to open the folder and then double-click Microsoft Common Runtime Library Collection 2015.01 to start the installation.



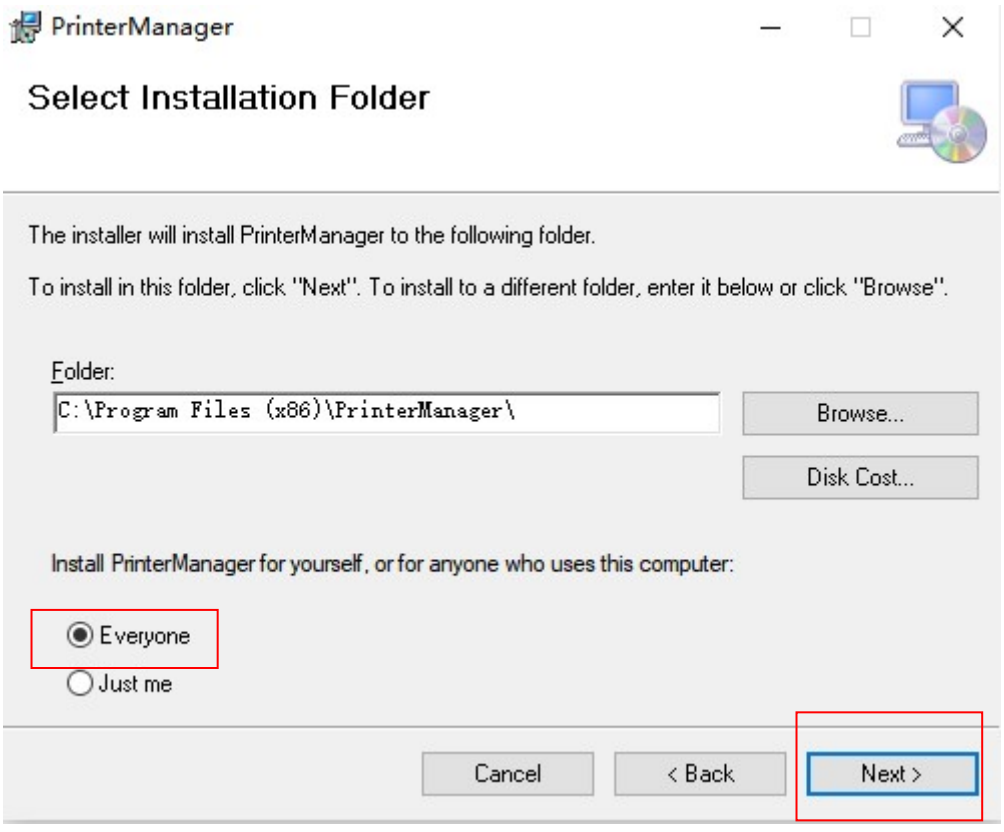
During the installation process,You just need to click next and finally click END

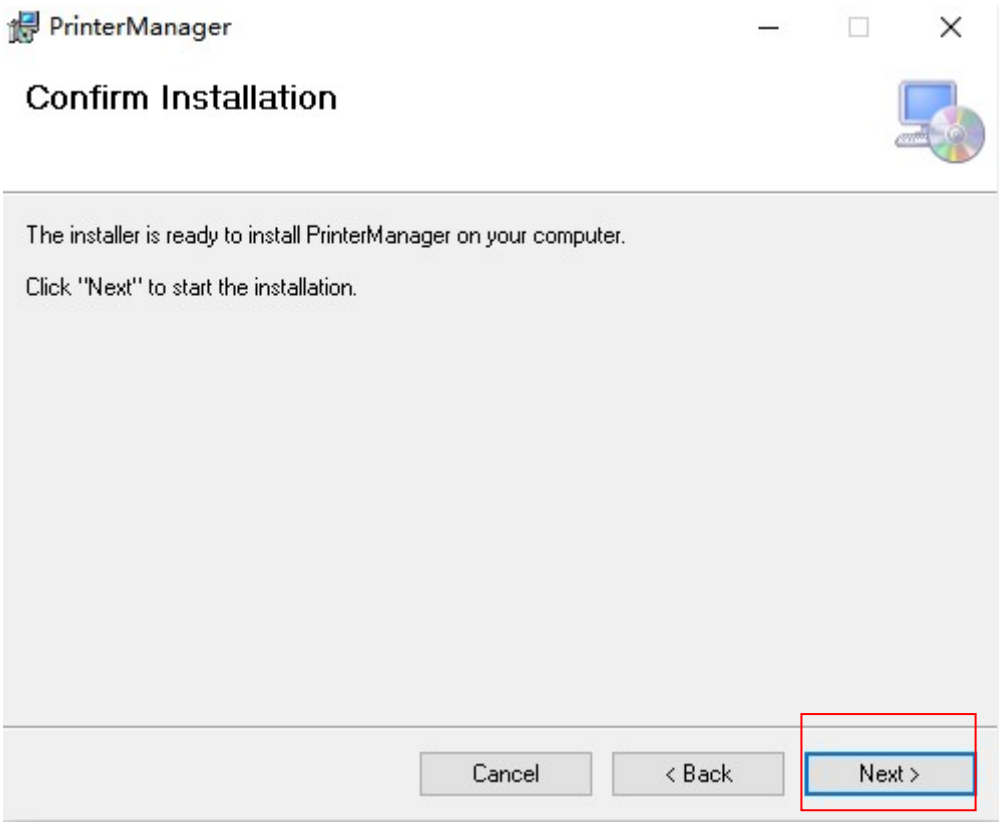
Upon completion of the runtime environment installation, install the PM control software.

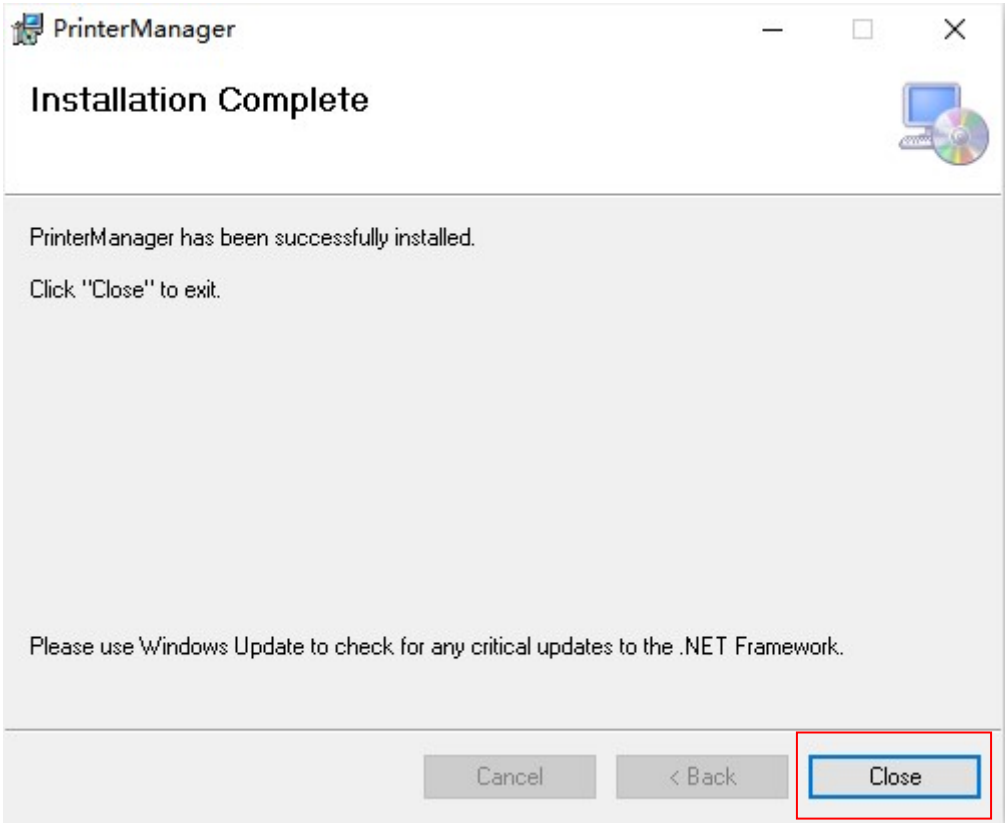
Double-click the setup application to start the installation. The following interface pops up.


PrinterManager
Welcome to the PrinterManager Setup Wizard
The installer will guide you through the steps required to install PrinterManager on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

Click “Next”.


PrinterManager
Select Installation Folder
The installer will install PrinterManager to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files (x86)\PrinterManager\
Browse...
Disk Cost...
Install PrinterManager for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >





Click “Close” to finish the installation. The software will automatically generate the LIYU logo icon on your computer desktop.

After installation is complete, plug the 3.0 USB cable into the computer, and open the computer device manager to find out the universal serial controller, and if it contains BYHX Wide Format Printer 3.0, it means that the software installation has been completed, and it's time to go live.

Follow each step above to make the software installation successful.

Mechanical Leveling and Positioning

Mechanical leveling and positioning

flatbed printer leveling

Flatbed printer leveling is the first and one of the most important procedures of machine setup. There are 9 adjustable feet to support the flatbed printer. Use a spirit level to adjust each supporting foot to the optimal level. The figure below shows a supporting foot used in the flatbed printer.

Fig. 76: Supporting foot

Once the machine is leveled, the foot should be locked onto the base of the flatbed 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.

Use the adjustable nut to raise or lower the foot. Use an adjustable or open wrench to rotate the nut clockwise to lower the foot and then raise the flatbed printer. When rotating this nut counterclockwise, the foot will be raised and then the flatbed printer is lowered.

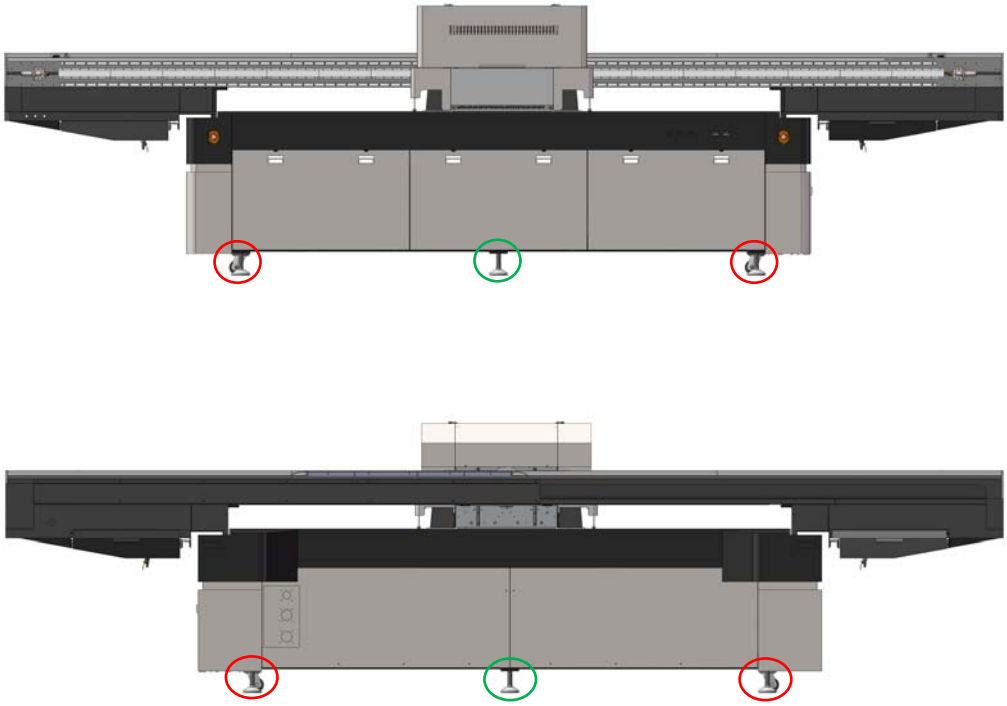


Fig. 77: Flatbed printer supporting foot position

The footed glass at each corner of the flatbed printer (circled in red) is referred to as a main supporting foot. You should adjust each main supporting foot in the first step.

The footed glass at the center of the front and back edges (circled in green) is referred to as a secondary supporting foot. After each main supporting foot has been set, it's time to set each secondary supporting foot.

Note:
Each secondary supporting foot serves as a support leg and should be adjusted to make contact with the ground, but the load cannot be removed from each main supporting foot.

Step 1: Rotate the 24mm open-end spanner clockwise to lock the nut, and then unlock each supporting foot from the bottom of the flatbed printer. Tighten the nut further until it reaches half the length of the bolt.

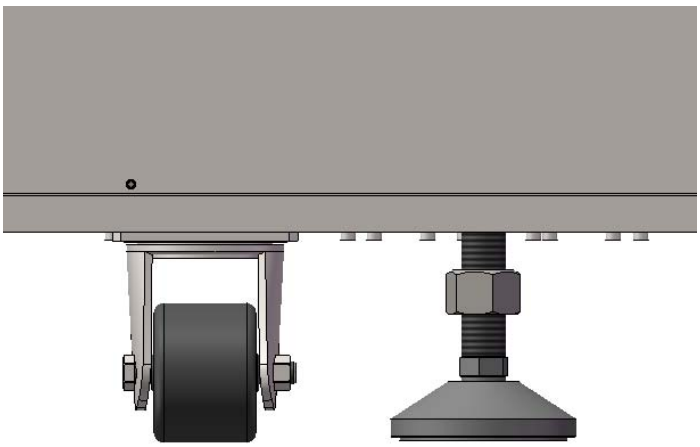


Fig. 78: Adjusting the supporting foot nut

Step 2: Rotate the adjusting nut counter-clockwise to raise each supporting foot above the ground. Leave a clearance of at least 40 mm.

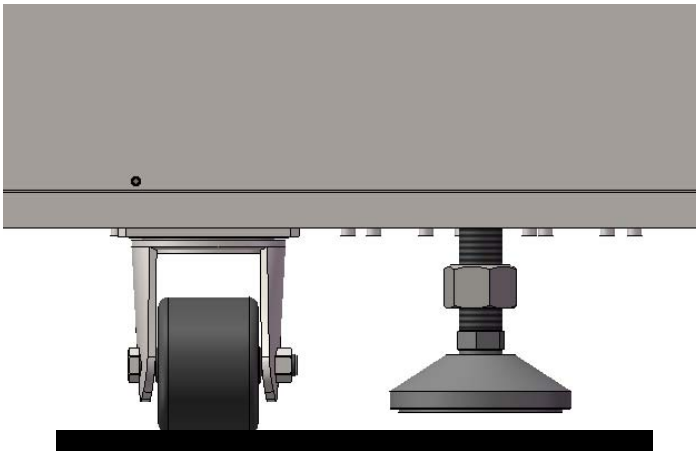


Fig. 79: Raise the supporting foot

Step 3: Adjust the main supporting foot at each corner of the flatbed printer one by one (4 in total), then rotate the adjusting nut clockwise until its base just touches the ground.

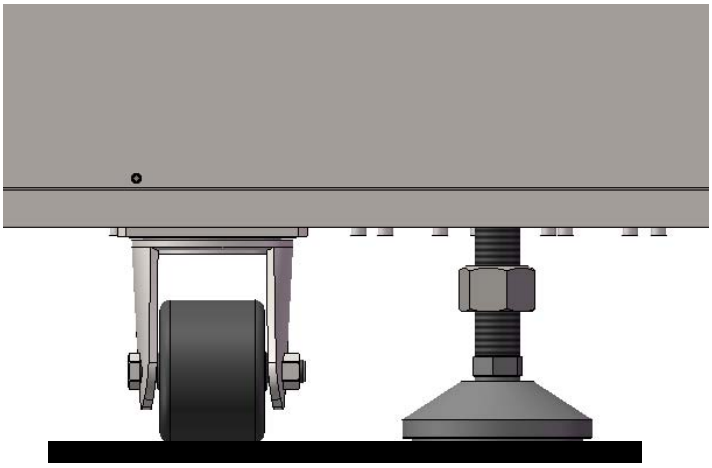


Fig. 80: Lower the supporting foot

Step 4: Adjust each main supporting foot one by one in order for the nearby universal wheel to hang in the air, then rotate the adjusting nut clockwise. After that, rotate each main supporting foot half a turn clockwise to raise the flatbed printer. This action could provide enough space for future clockwise and counter-clockwise adjustments.

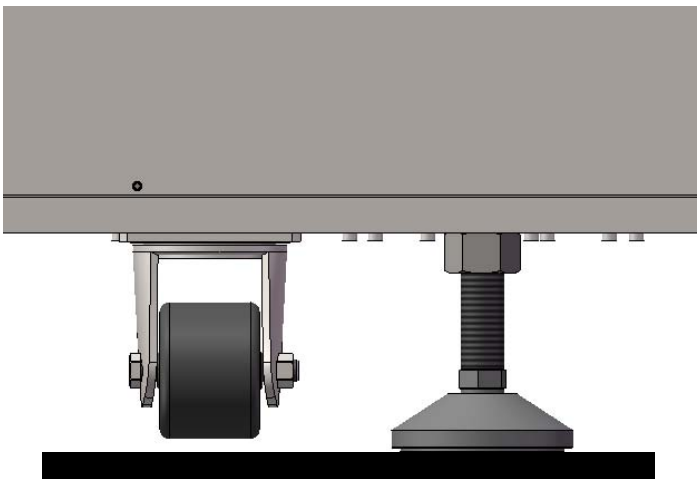


Fig. 81: Lower the supporting foot

Step 5: Place the precision spirit level on the mid-leading edge of the printing platform according to the yellow part shown in the figure below. Make sure that the printing platform and the bottom surface of the spirit level are flat and clean. Please note that the longer the spirit level, the more accurate the adjustment will be.

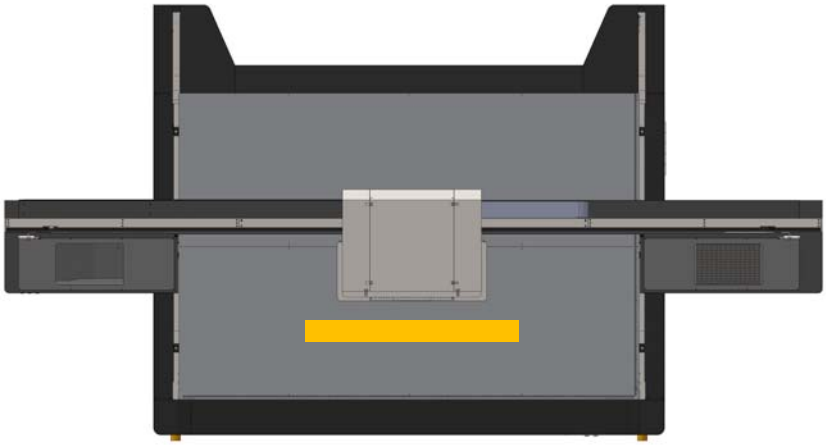
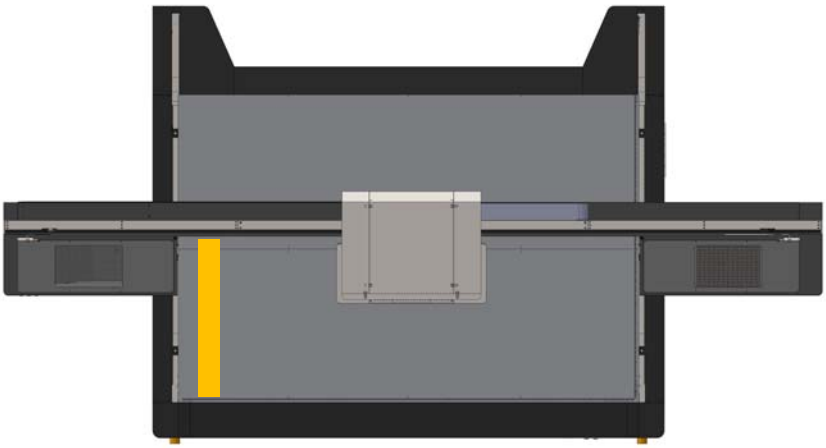


Fig. 82: Spirit level position (left to right)

Step 6: Adjust the supporting feet until the spirit level shows that the flatbed printer remains level on both left and rights sides. After that, place the spirit level in the position shown in the figure below and adjust the support feet until the flatbed printer remains level on both front and rear sides.



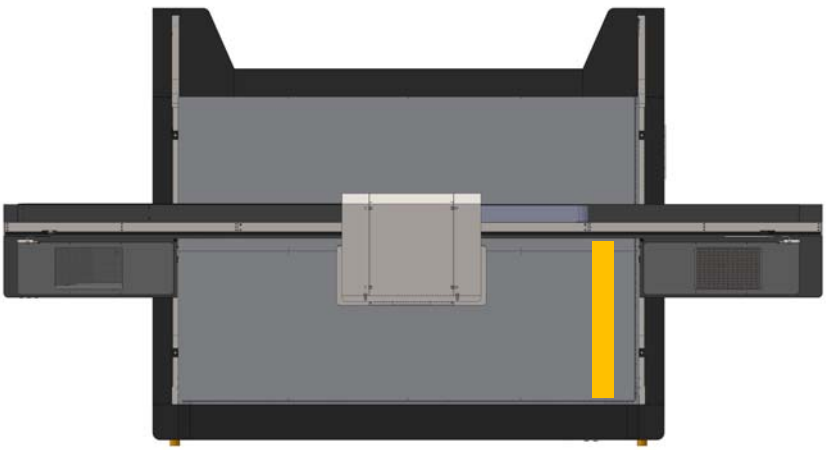


Fig. 83: Spirit level position (front to back)

Step 7: Re-check the four sides of the printing platform and finely adjust the overall levelness of the flatbed printer.

Step 8: Lower the secondary supporting feet until they touch the ground. Do not lower them too much or they may become the main support for the flatbed printer. Remember, each secondary supporting foot is just an additional support.

Step 9: Finally, rotate the corresponding lock nuts counter-clockwise to lock all the supporting feet in place.

Adjustment of air suction platform

Important reminder:

Please carefully read the following method for adjusting the flatness of the platform. It needs to be adjusted by professional after-sales personnel. Improper adjustment method will lead to permanent damage to the platform. The platform can bear 25Kg per square meter. Please do not stand on it.

The flatness error of the platform is no greater than 0.25mm (factory acceptance standard). It needs to be adjusted only when the platform flatness error is substandard and affects the print precision.

The air suction platform is fixed with a single adjusting (supporting) point.

The single adjusting point of the air suction platform consists of the air suction platform, machine rack, jacking screw (platform adjusting screw), tensioning screw (hexagon socket head cap screw), flat washer and spring washer, as shown below.

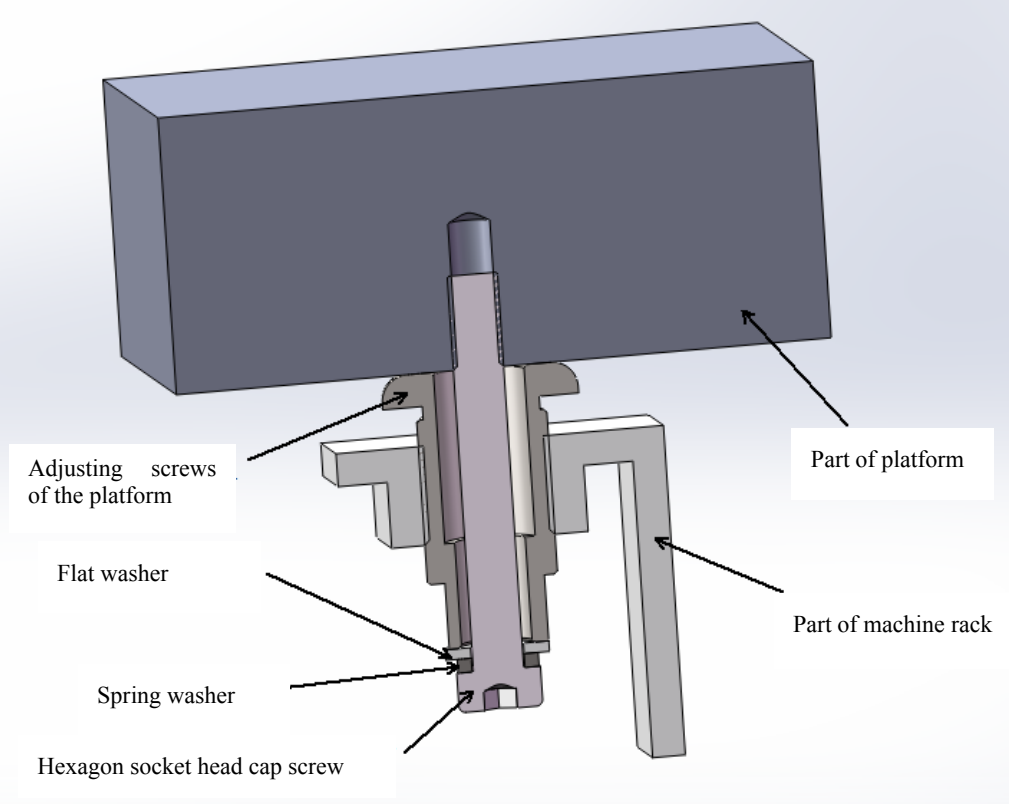


Fig. 84: Air suction platform adjusting point position diagram

Methods of adjusting the platform: Select the adjustment point as the zero point according to the initial inspection error value, first adjust a row of adjustment points

close to the beam, and then adjust the outer row of adjustment points; Requirements for flatness error of the platform: the adjustment point of the printing area shall be less than 0.10mm, and the non printing area shall be less than 0.25mm.

During adjustment, it shall be noted that there shall be no gap between the adjusting bolt and the platform; Remove all tooling parts after adjustment.

Adjusting screws are placed below the adjustment points marked on the platform. Under the platform at the corresponding position of the adjustment points, the tightened screws should be adjusted with an internal hexagonal wrench(6); while the upward bolt should be adjusted with an open end wrench; the platform is adjusted with the adjusting (supporting) point position of the machine. As shown below:

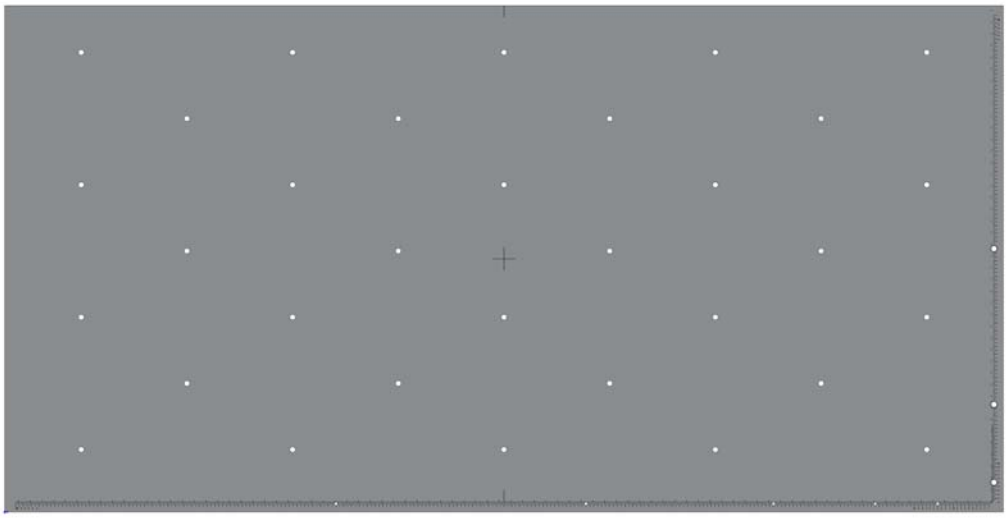


Fig. 85: Model 2512 platform adjusting points

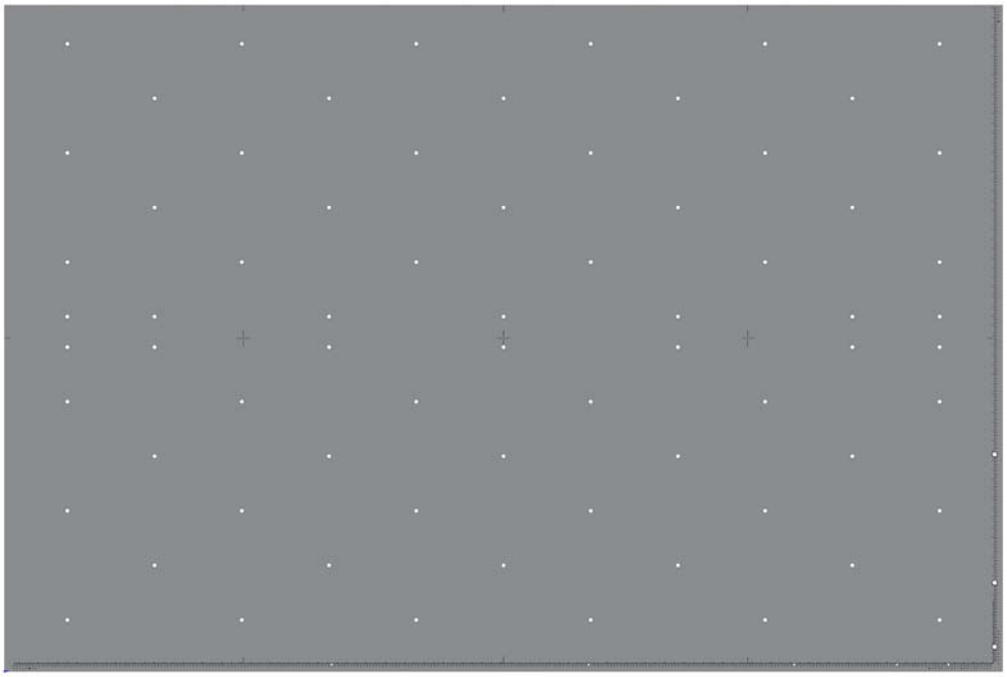


Fig. 86: Model 3020 platform adjusting points

Adjustment steps of the air suction platform of machine:

Step 1: There are marked points corresponding to the adjusting points on the platform, and such points can be circled with a marker pen to facilitate identification.

Step 2: Fix the dial indicator onto the carriage head by using the magnetic meter base; move the carriage and the beam to ensure all the adjusting points are measured.

Step 3: Move the carriage and the beam, and measure all the adjusting points with the dial indicator and record the results.

Step 4: Take the mean value of the measured values or the more concentrated height value as the reference value, and adjust the height of each adjusting point to the reference value.

Step 5: Move the carriage and the beam to measure the overall flatness of the platform and check the platform flatness error after adjustment; if it cannot meet the acceptance standard, the position where the flatness is substandard should be recorded; properly adjust the height of the nearby adjusting points, until the platform flatness error meets the requirement of the acceptance standard.

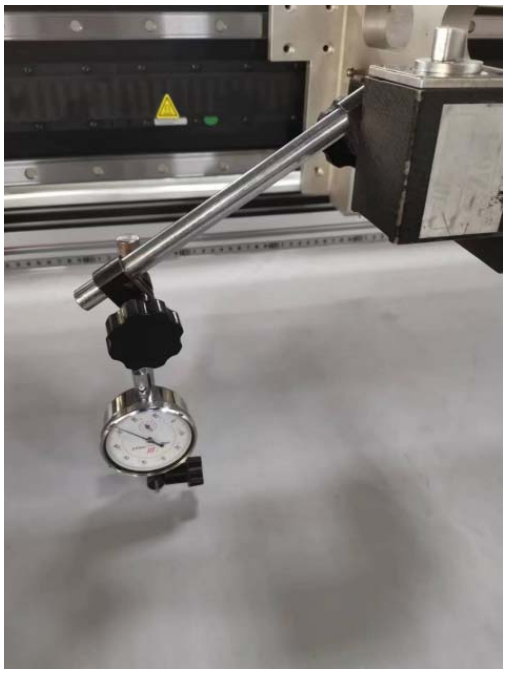


Fig. 87: Dial indicator

Note:

This work will be completed by 2 persons, one underneath the machine making adjustments to the screws and one above reading the values. The second person who reads the numerical value can be one worker of the client.

Caution:

In this process, the machine has been powered on. Since the platform is adjusted under the platform, work needs to be performed nearby the electrical system. The machine must be powered off in adjustment. Please note all the electric shock warning signs.

Caution:

The flatness adjustment process of the platform is completed and the machine is prohibited from working. If you operate the flatbed printer, the machine may be damaged.

Tools required

S/N	Tool specification	Quantity
1	Allen wrench 6mm	1
2	Open-end wrench 14mm	1

Leveling of print head base plate

Adjust the parallelism between the print head base plate and the print platform and measure it with a feeler gauge or dial indicator; Drag the carriage and the beam to measure the spacing between the print head base plate and the platform (overall length). If there is an error, the print head base plate can be adjusted to ensure the error for the entire baseboard of the print head is less than 0.1mm.

When encountering situations where adjustments cannot be made or faults cannot be eliminated during the debugging process, the debugging personnel should provide timely feedback, solve the problem in time, and classify and summarize the problems that arise during debugging.

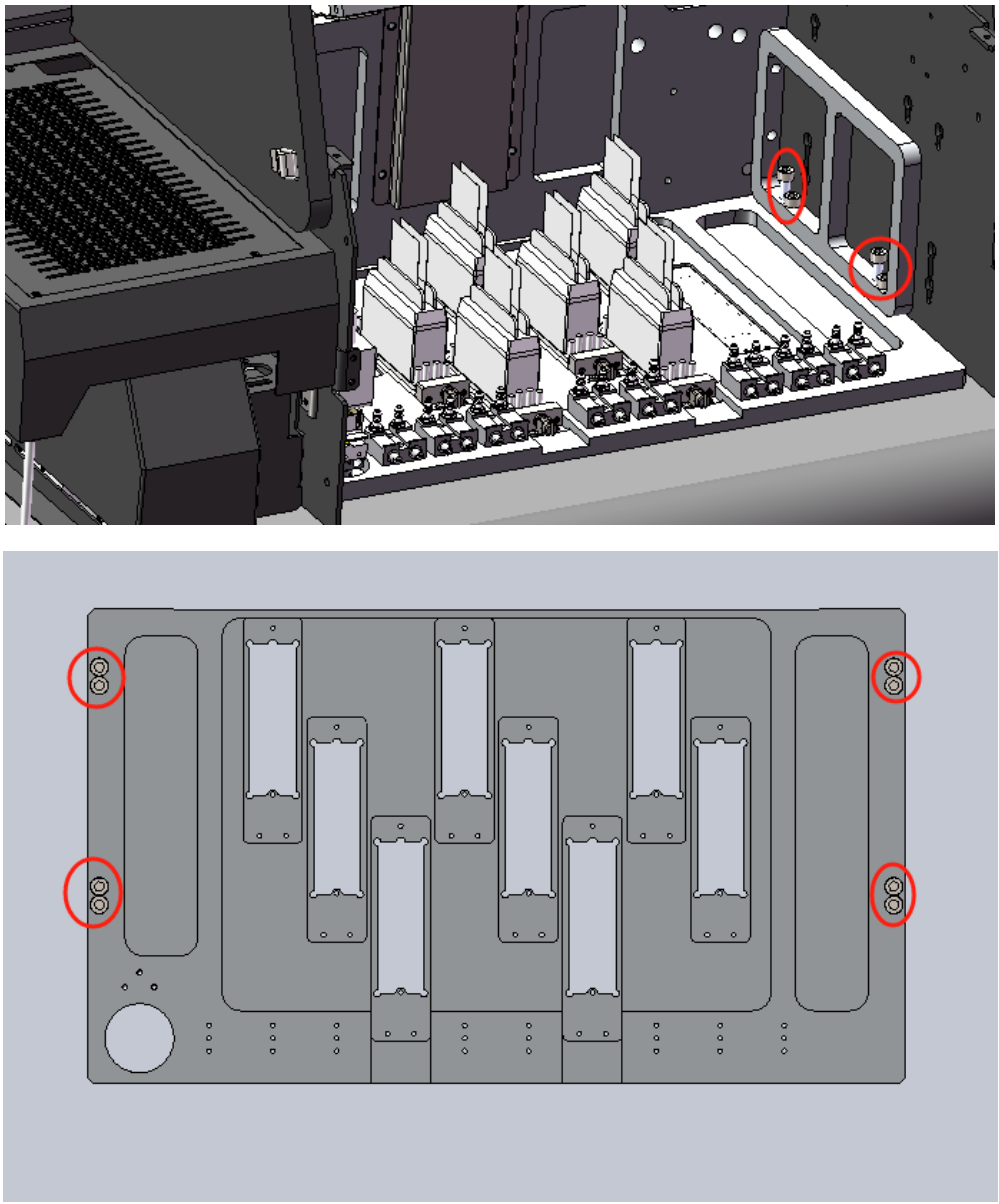


Fig. 88: Position of adjusting screws of print head base plate

Note:

shows the position of adjusting screws on the print head base plate. By fastening the locking screw, the base plate can be pushed downward to the platform. By fastening the fixing screw, the base plate can be pulled upward and get further from the platform.

Notes:

To adjust screws more conveniently and make preparation for future calibration, any other parts should not be installed onto the print head base plate at first.

Print head base plate adjustment steps:

Step 1: Push the carriage to the middle of the platform manually.

Step 2: Lower the carriage to make it about 2 mm from the print head base plate to the surface of the printing platform, and use the manual lift wrench in the accessory box to rotate the hand wheel seat at the tail of the motor in the Z direction.

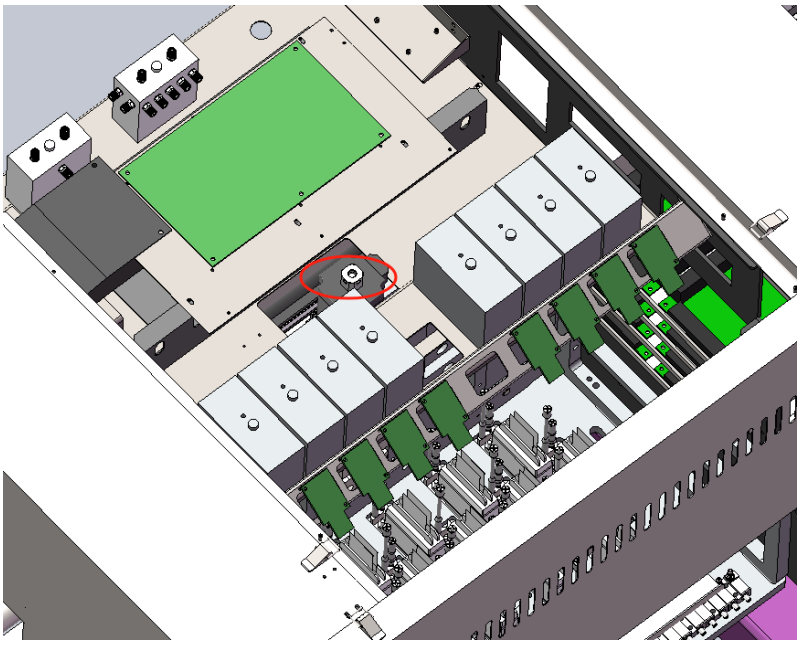


Fig. 89: Z-direction lifting hand wheel base

Step 3: Measure the height of four corners of the print head base plate with a feeler gauge and calculate the error value.

Step 4: Take the mean value of the measured values or the more concentrated height value as the reference value, and adjust the height of each adjusting point to the reference value.

Step 5: Place four identical coins at four corners of the print head base plate after making the print head base plate level through adjustment (as shown in the figure) and check the gap at four corners; if the error is greater than 0.5mm, perform fine adjustment to make the level error meet the requirement.

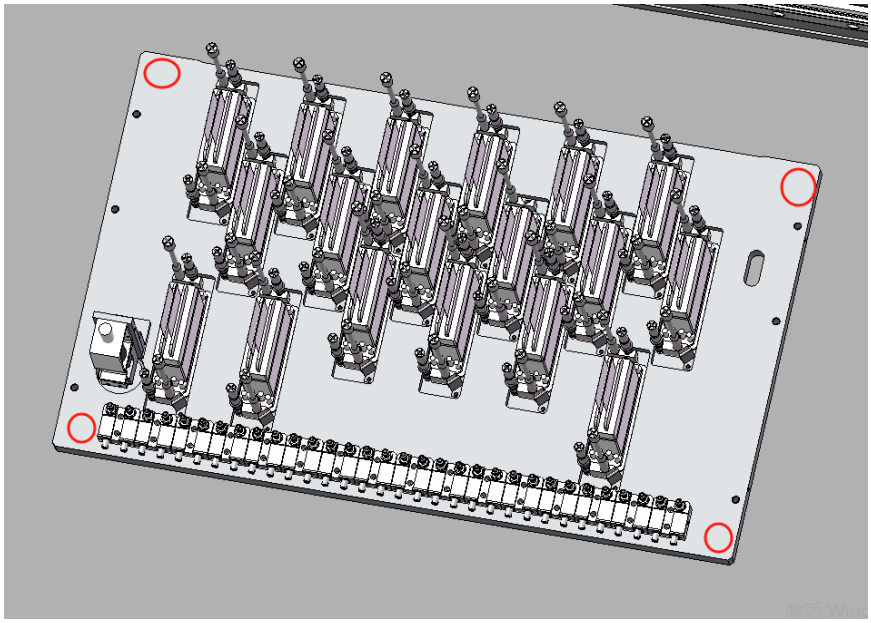


Fig. 90: Position for placing the retest coins on the print base plate

Adjustment of anti-collision assembly

2 anti-collision sensors are installed on both sides of the carriage. If there are abnormal protruding matters higher than the normal height of printed materials on the X motion path, the anti-collision sensor will be triggered, and the sensor will control the flatbed printer to make an emergency stop, and the carriage stops moving.

If any anti-collision sensor is triggered, the flatbed printer needs to be restarted.

Caution:

Anti-collision sensor is a key part for protecting the print head. Please be sure to make it safe and effective in work. If the height of the anti-collision assembly is not set correctly, the print head may be damaged.

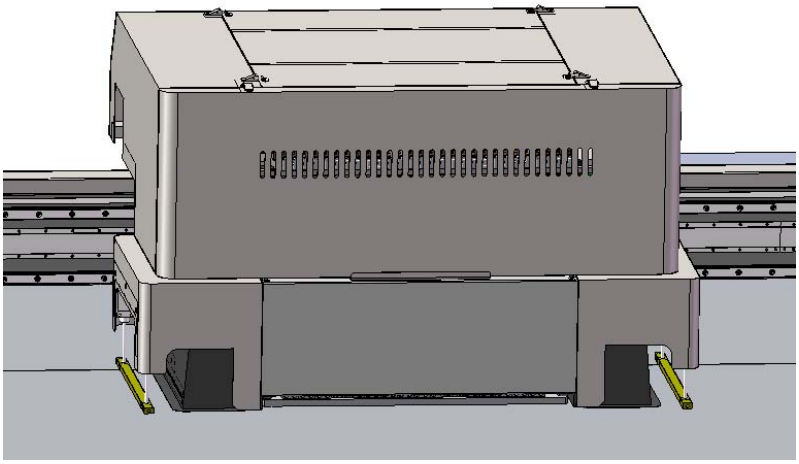


Fig. 91: Anti-collision assembly

Anti-collision assembly adjustment steps:

Step 1: Push the carriage to the middle of the platform manually.

Step 2: Lower the carriage to ensure that the print head base plate is just in contact with the printing platform. Use the manual lift wrench in the accessory box to rotate the hand wheel seat at the tail of the motor in the Z direction.

Step 3: Adjust the fixing screws of the anti-collision assembly on both sides of the carriage to ensure that the front and back of the anti-collision strip just contacts the printing platform.

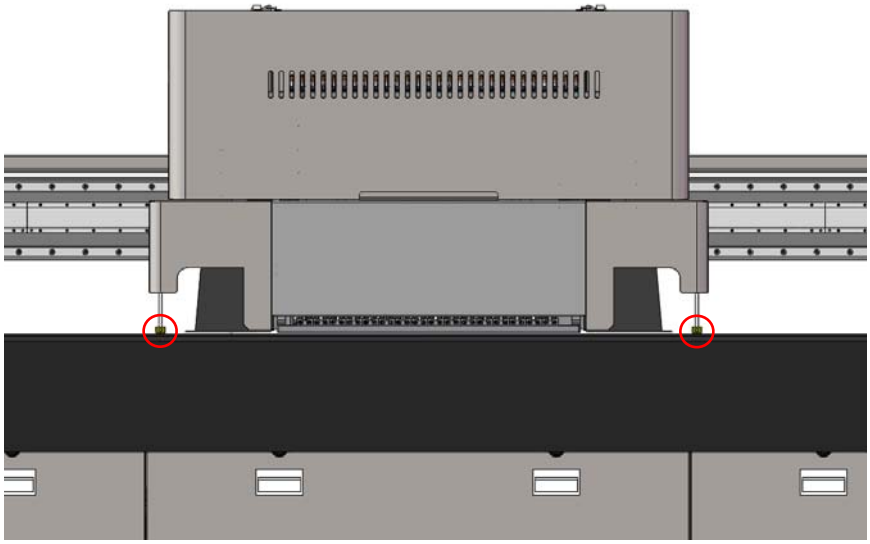


Fig. 92: Adjusting the distance between the bumper strip of the anti-collision assembly and the printing platform

Step 4: Raise the carriage for about 2mm after adjusting the position of the anti-collision assembly, and push the carriage left and right to check the distance between the anti-collision assembly and the printing platform.

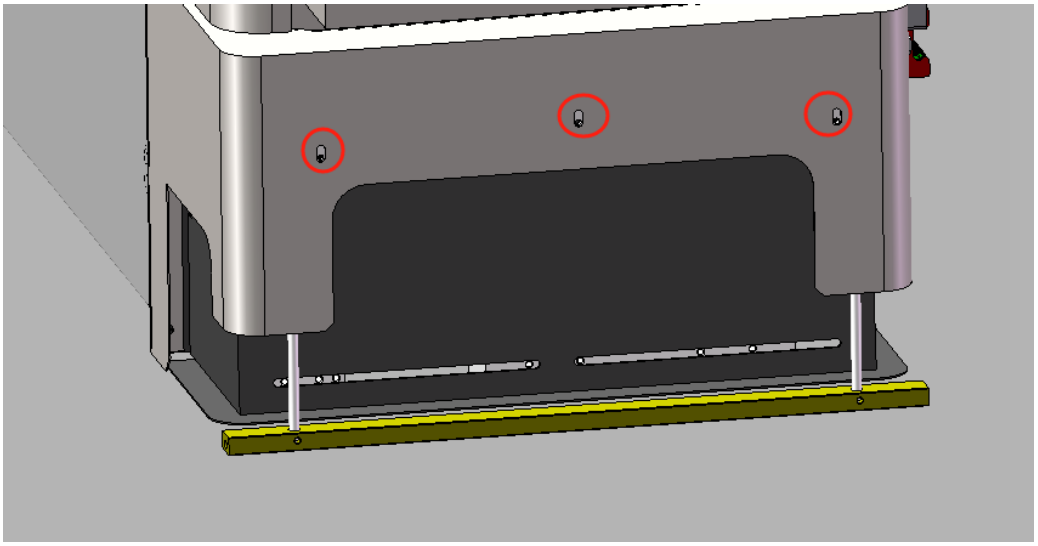


Fig. 93: Fixing screws of anti-collision assembly

Installation of Print Heads and Ink Routes

Installation of the print head

Print head (Ricoh Gen5 MH5420 or Gen6 MH5320)

1,280 nozzles are configured in 4 x 150dpi rows, and this head can achieve a high resolution of 300dpi for each channel. In addition, ink paths are isolated, enabling that one print head jets as many as two colors of ink. This is the configuration method of print heads in the KC UV Flatbed Printer.

The print head of Ricoh flatbed printer is made of stainless steel. These print heads are highly robust and offer excellent corrosion protection for a wide range of inks, resulting in superior durability and extended service life.

With a built-in heater, such heads are capable of jetting high-viscosity printing ink. In addition, the ink route and actuator (piezoelectric element) are separated, preventing ink contact.

Multi-droplet function allows setting of a series of droplet sizes to realize grayscale printing.

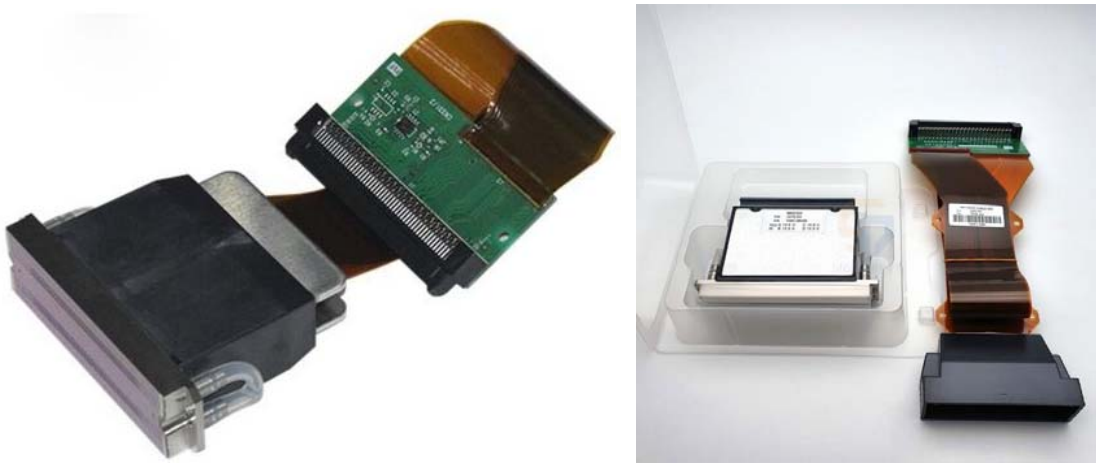


Fig. 94: Print head

Open up the print head

Open the outer packing box

Open the Inner Packaging Box

Remove the plug tube of the ink inlet and remove the protective cover for the nozzle surface.

Fig. 95: Print head unpacking

Note:

Please unpack the print head as careful as possible to avoid damaging it.

Print head installation (method 1)

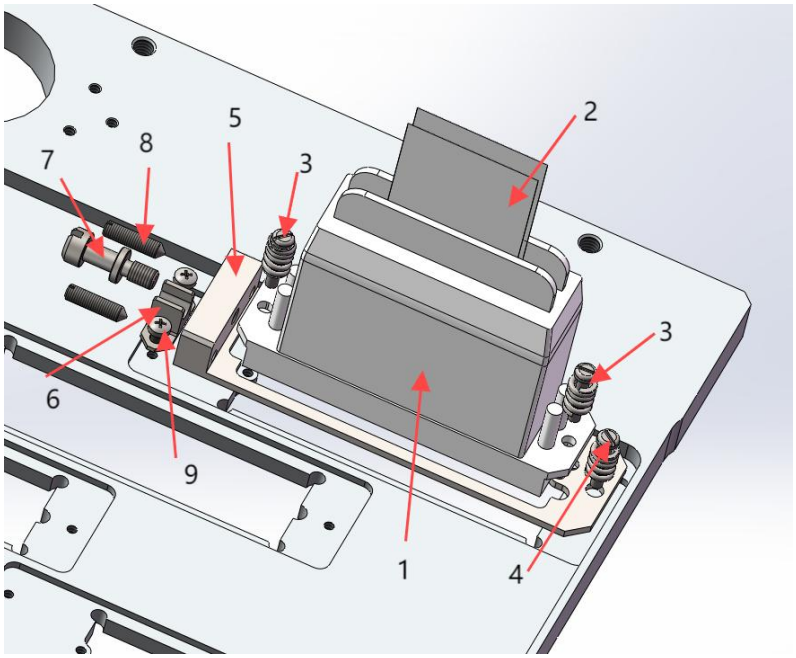
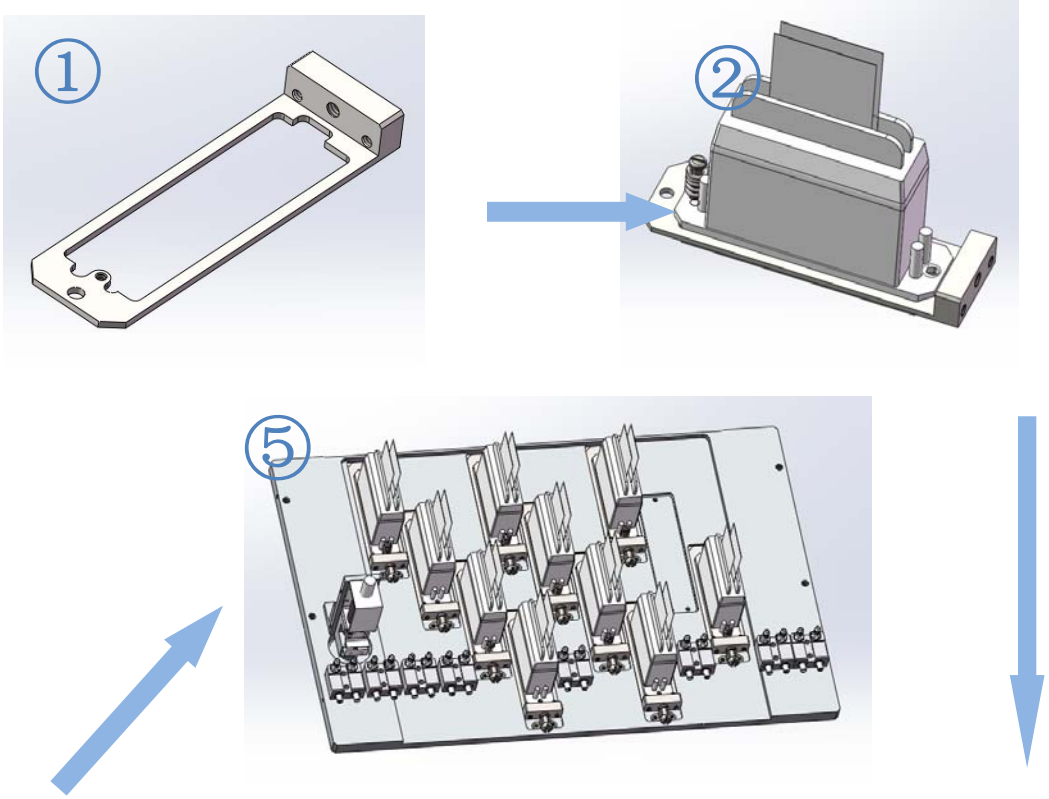


Fig. 96: Schematic diagram of print head installation (method 1)

Code	Name of parts	Quantity	Specification	Description
1	Print head	Order quantity	Ricoh G6	
2	Print head cable	Order quantity	45 cm	
3	Fastening screw of print head	2		Fix the print head onto the print head supporting seat
4	Fastening screw of print head seat	1	M3X6	Holder for fixing the print head
5	Holder of print head	1		Main component of print head adjusting mechanism
6	Vertical calibration base	1		Fix vertically calibrated screws
7	Vertical calibration screw	1		Adjust the front/back position of the print head
8	Slotted set screws	2	M4X16	Adjust the inclination of the print head
9	Calibration stand fixing screw	2	M3X6	Fix the vertical calibration base

Breakdown of steps for installing print heads (method 1)



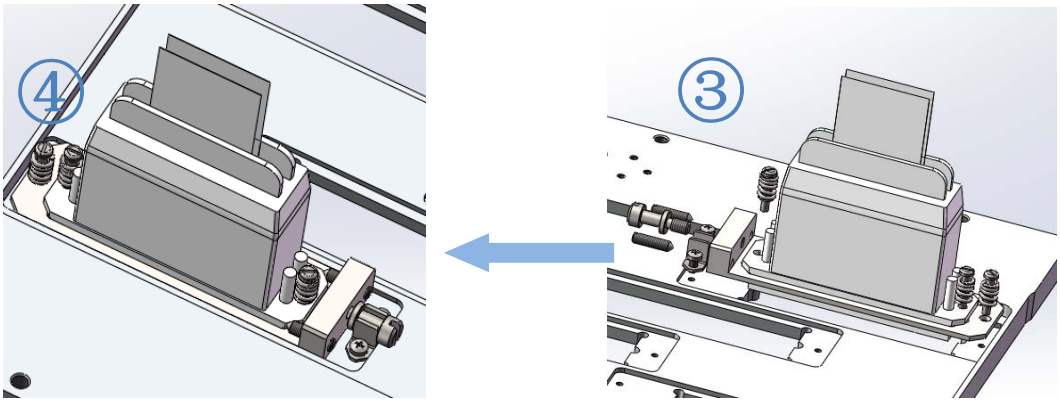


Fig. 97: Steps for installing print heads (method 1)

Print head installation (method 2)

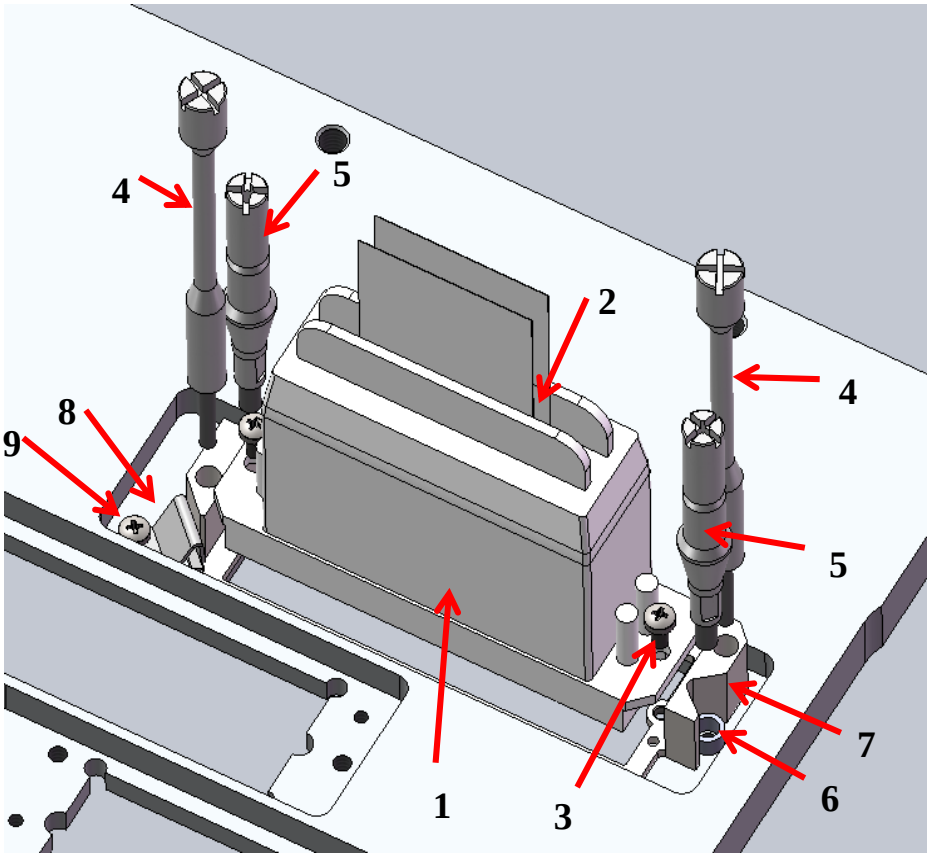


Fig. 98: Schematic diagram of print head installation (method 2)

Code	Name of parts	Quantity	Specification	Description
1	Print head	Order quantity	Ricoh G6	
2	Print head cable	Order quantity	45 cm	
3	Fastening screw of print head	2	M3X6	Fix the print head onto the print head supporting seat
4	Fastening screw of print head seat	2	M4	Fix the print head supporting seat (extension screw)
5	Adjusting Screw for Print Head	2	M4	Adjust the inclination and front/back position of the print head
6	Nylon hollow isolating column	2		Fix print head adjusting screws
7	Holder of print head	1		Main component of print head adjusting mechanism

8	Leaf spring	1		Adjust the print head
9	Spring leaf fixing screw	1	M3X6	Fix leaf spring

Breakdown of steps for installing print heads (method 2)

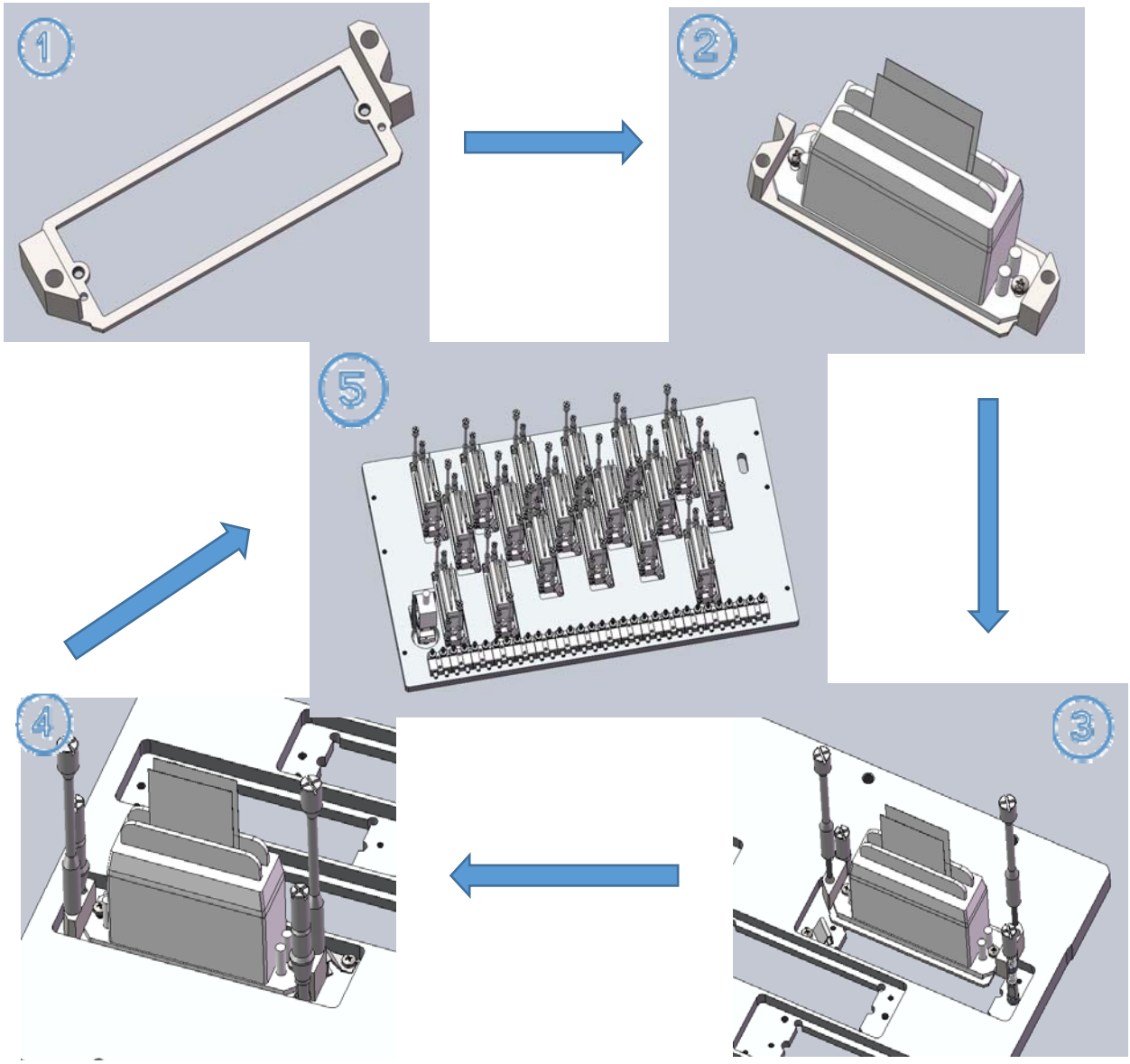


Fig. 99: Steps of print head installation method 2

Explosive Drawing of Adjusting Screws of Print Head

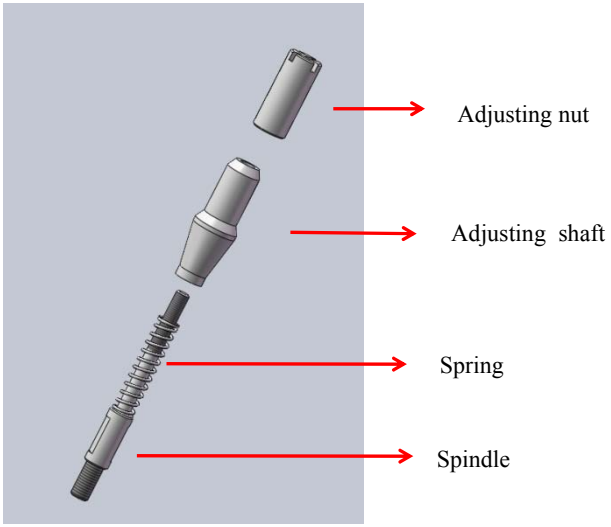


Fig. 100: Adjusting screw for print head

Note:
The print head is provided with a locating pin. The position of the locating pin and the locating hole of the print head supporting seat are determined.
All the print head fixing screws must be tightened and should not be loose.

After the print head is adjusted, all the screws should be checked to ensure that they are tightened.

Connection of the ink tube of print head

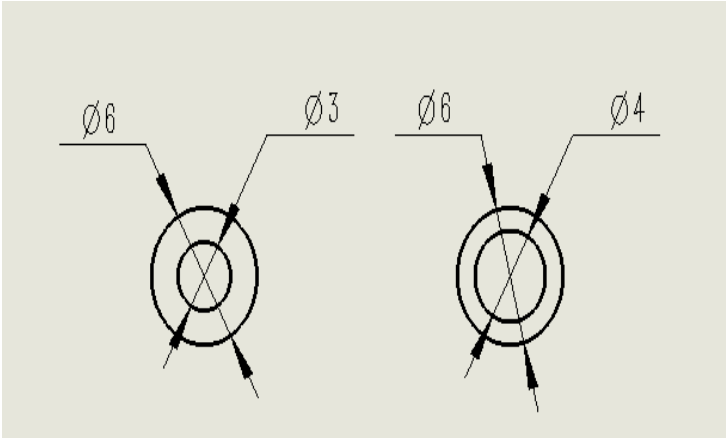


Fig. 101: Ink tube

Note:
There are two types of ink tubes. 3X6 ink tube mainly connects to the nozzle interface;
The other is 4X6 ink tube, mainly connected to the three-way valve body and two-way valve body.

Connection of filter

15UM filter are between the secondary ink cartridge and the print head. This will prevent solid contaminants from entering and clogging the print head. Filter should be checked to ensure the correctness. It should follow the printing ink flow arrow direction or fit the ports.

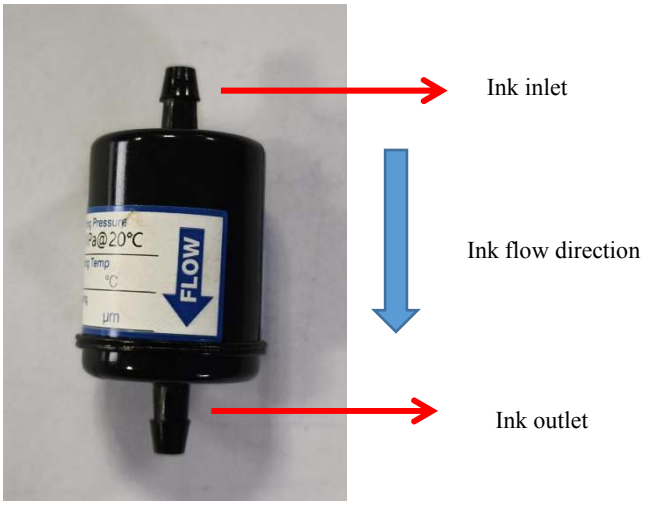


Fig. 102: Filter

Caution:
Check whether the twist and clamp on the filter are sufficiently tightened to ensure that they do not accidentally come loose, and the ink will not leak onto the harness or print head inside the compartment.

Connection method of one head two color ink tube

Print head ink inlet ink tube connection diagram:

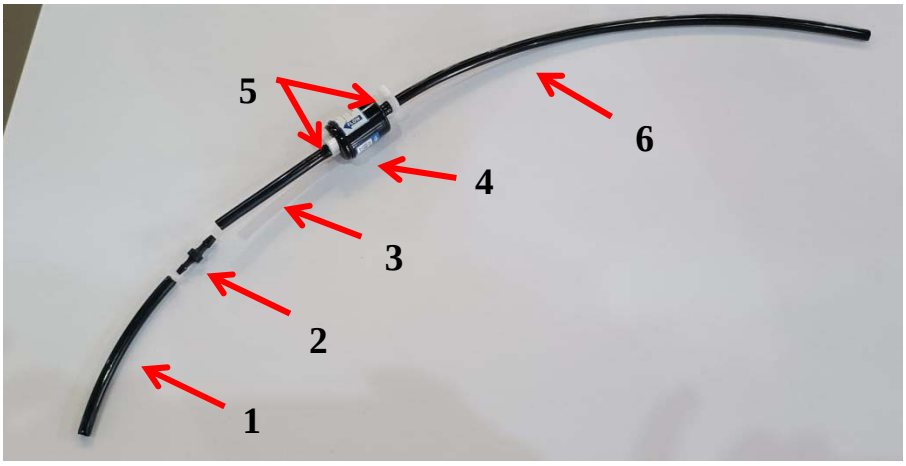


Fig. 103: Connection of one head two color ink tube (method 1)

Code	Name of parts	Length	Specification
1	Ink tube	10CM	3X6
2	Straight-through connector		3X4
3	Ink tube	10CM	4X6
4	Filter		15UM
5	Clamp		6-7
6	Ink tube	25-30CM	4X6

Print head ink outlet ink tube connection diagram:

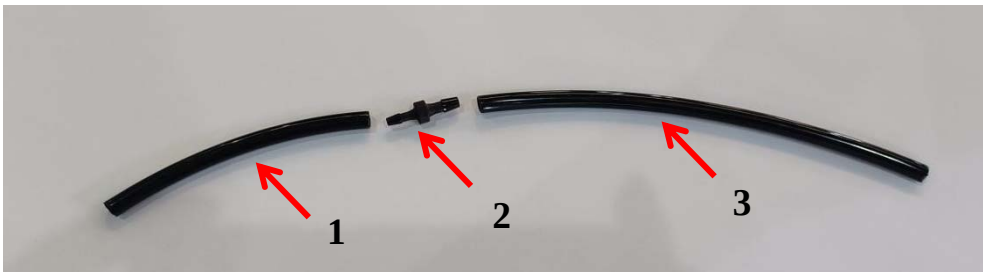


Fig. 104: Connection of one head two color ink tube (method 2)

Code	Name of parts	Length	Specification
1	Ink tube	10CM	3X6
2	Straight-through connector		3X4
3	Ink tube	20CM	4X6

Connection method of One Head One Color ink tube

Print head ink inlet ink tube connection diagram:

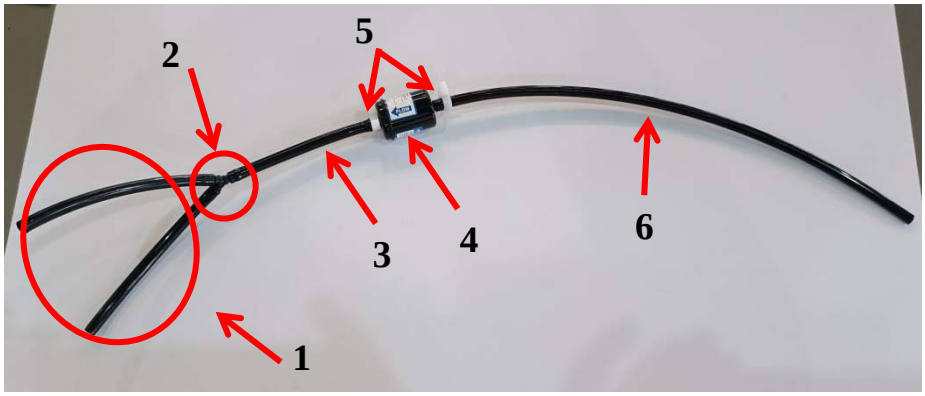


Fig. 105: connection method 1 of one head one color ink tube

Code	Name of parts	Length	Specification
1	Ink tube	10CM	3X6
2	Type-Y three-way valve		3X4
3	Ink tube	10CM	4X6
4	Filter		15UM
5	Clamp		6-7
6	Ink tube	25-30CM	4X6

Print head ink outlet ink tube connection diagram:

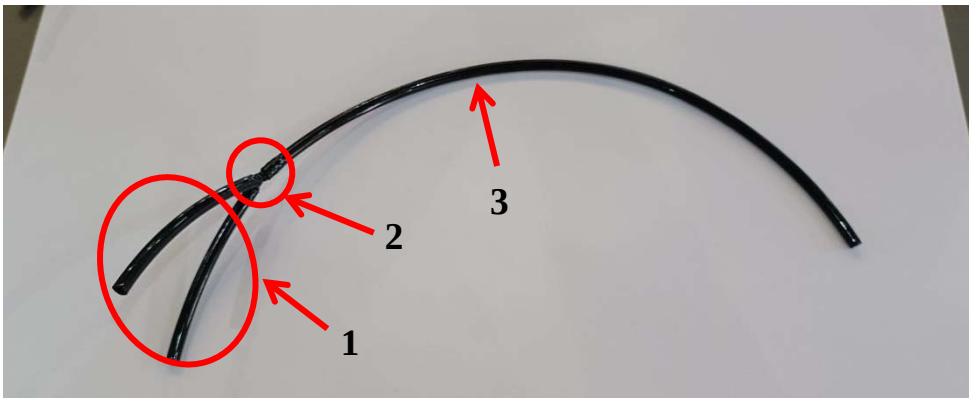


Fig. 106: Connection method 2 of one head one color ink tube

Code	Name of parts	Length	Specification
1	Ink tube	10CM	3X6
2	Type-Y three-way valve		3X4
3	Ink tube	20-25CM	4X6

Connection of ink tube to the entire print head:

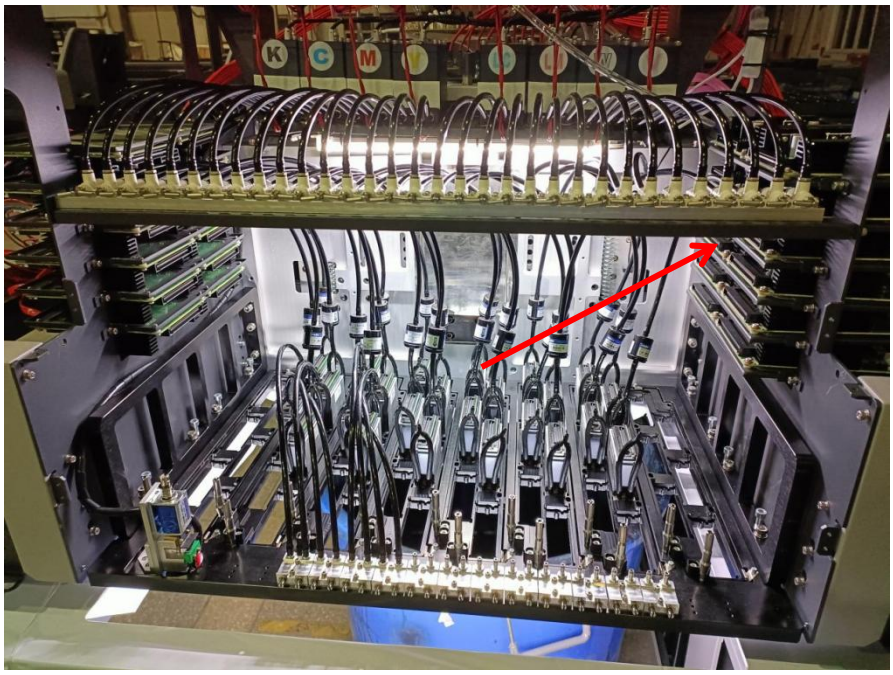


Fig. 107: Ink tube connected to print head

Connection of the secondary ink tank to three-way valve body:

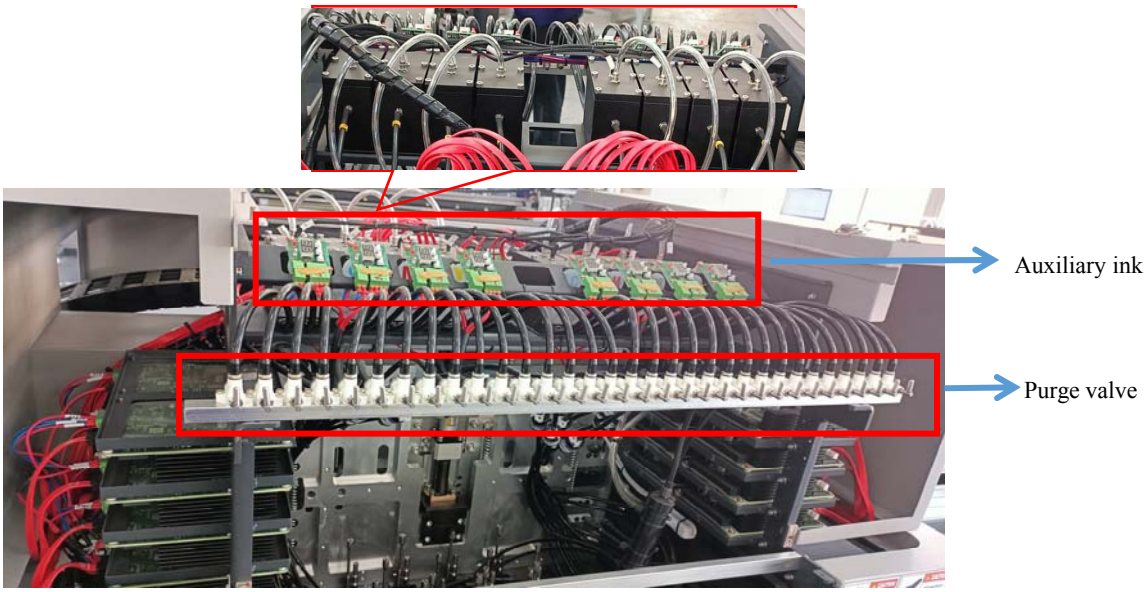


Fig. 108: Auxiliary ink tank connected to three-way valve body

Three-way valve body to print head and two-way valve:

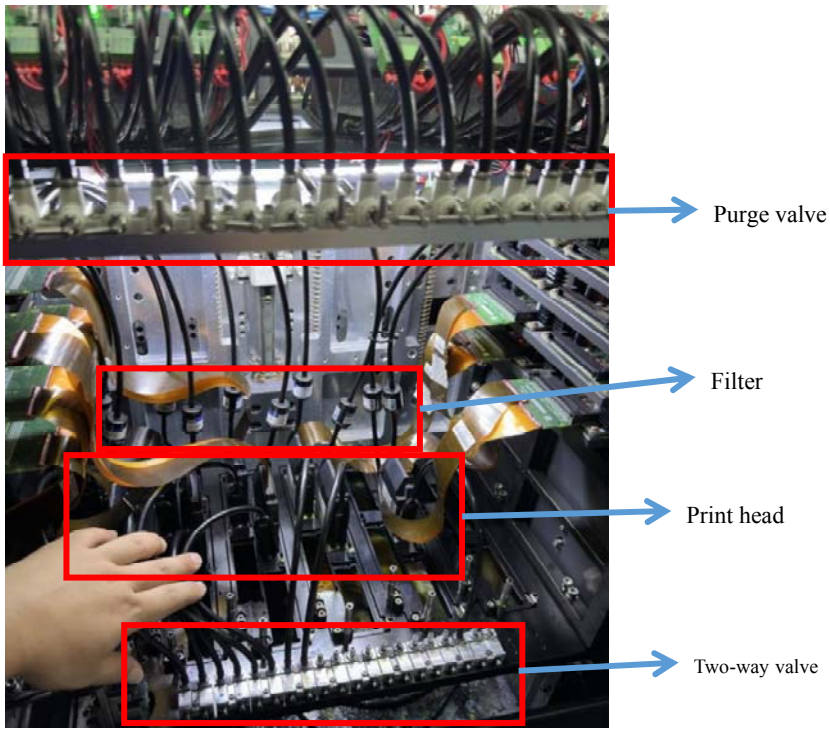


Fig. 109: Three-way valve body to print head and two-way valve body

Print head connection

Print head wiring configuration

Wiring method of single carriage board with no more than 16 heads:

Note:
Interfaces on the carriage board from the right to the left are port H1, H2, H3 . . . H16 respectively.

STAT wiring should be firm, and looseness is forbidden.

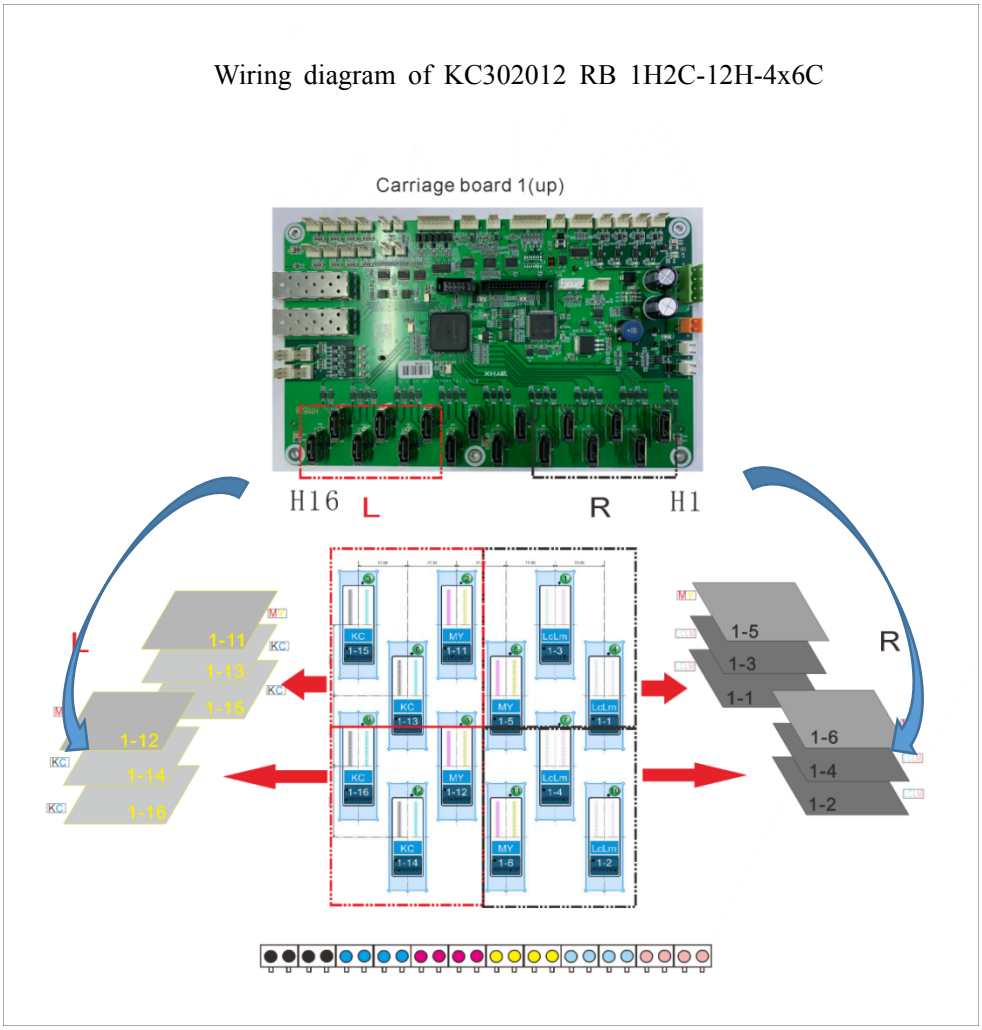


Fig. 110: Wiring method of single carriage board with no more than 16 print heads

Area	Code	Sequence
L	1-16, 1-15, 1-14, 1-13, 1-12, 1-11	From bottom to top
R	1-1, 1-2, 1-3, 1-4, 1-5, 1-6	From bottom to top

Flexible cable

SATA USB cable is used for data communication between print head driver board and carriage control board.

Fig. 111: SATA USB cable

This is an intermediate carriage. Due to limited space, the print head's driver board will be installed on both sides and in the middle of the carriage.

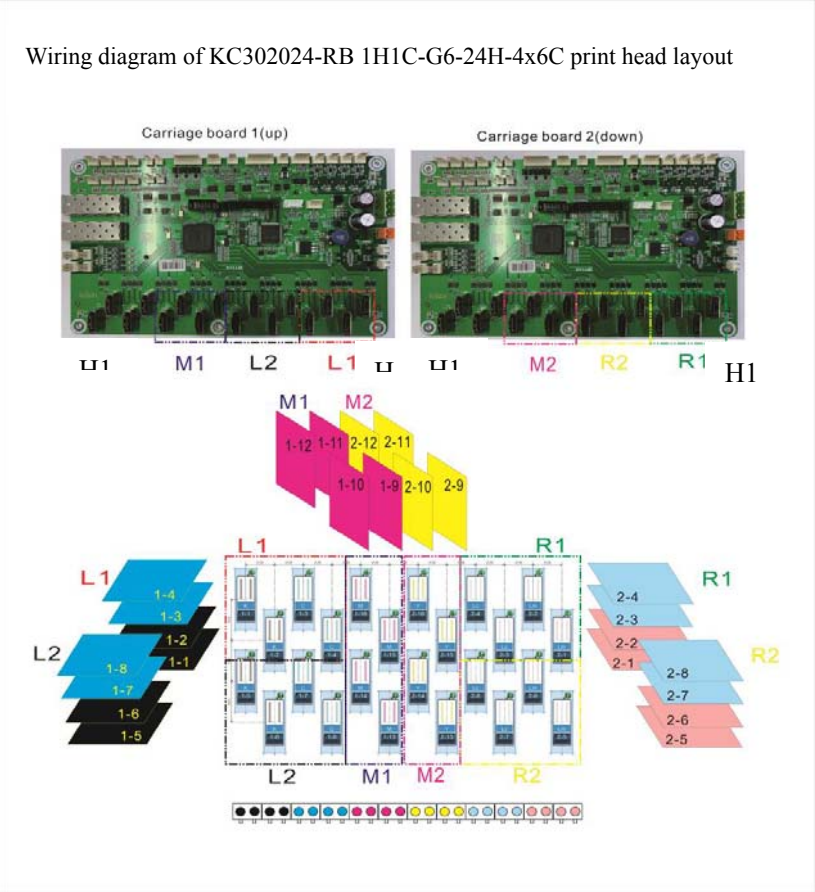


Fig. 112: Installation position for the print head's driver board

The above figure shows the medium carriage. 8 driver boards are installed in the middle position, and 8 on each side.

Area	Code	Sequence
L1	1-1, 1-2, 1-3, 1-4	From bottom to top
L2	1- 5, 1- 6, 1- 7, 1- 8	From bottom to top
M1	1- 9, 1- 10, 1- 11, 1- 12	From outside to inside
R1	2-1, 2-2, 2-3, 2-4	From bottom to top
R2	2- 5, 2- 6, 2- 7, 2- 8	From bottom to top
M2	2- 9, 2- 10, 2- 11, 2- 12	From outside to inside

Two carriage boards are installed in the upper and lower layers. The first carriage board (the upper main carriage board) controls the left print head driver board: left (L1 and L2) and middle left (M1); The second carriage board (the lower auxiliary carriage board) controls the right print head driver board: right (R1 and R2) and middle right (M2).

The first carriage board (upper layer) is the main carriage board, and the second carriage board (lower layer) is the auxiliary carriage board, only connected to the print head driver board. Channels are defined from right to left as 1-16. You can arrange them in reverse order, or define them separately from both sides according to the actual situation.

Connection of print head USB cable to print head driver board

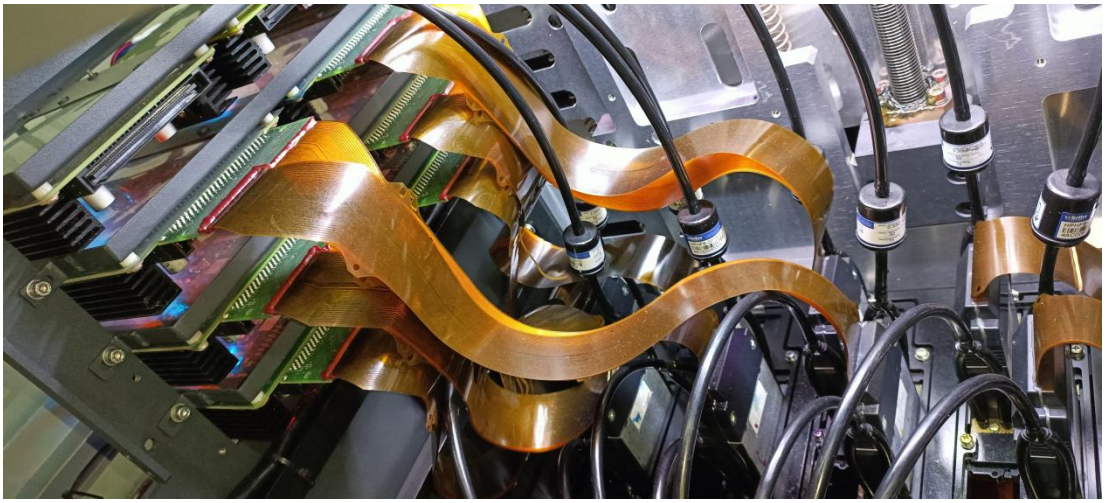


Fig. 113: Connection of Print head USB cable

Important reminder

To prevent the blockage of nozzle, a clean environment should be kept when the print head is installed.

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.

To prevent the nozzle from damaging and clogging, crashing or directly touching the nozzle with your hands is forbidden.

The cable of the print head should be protected from being squeezed by external forces, scratched or cut off.

To prevent the port of ink supply from damaging, the installation and removal of the ink tube by lateral force is forbidden.

The cable itself and the end should be carefully checked before connecting the cable of print head to make sure no squeezes or scratches.

Connecting or disconnecting the cable of the print head without cutting power is forbidden.

Ink and cleaning fluid should be kept away from the electrical interface, board card and wire of the print head.

Ink Injection

Ink injection

Filling ink tube

Before injecting ink into the flatbed printer, check that the machine is switched on and running normally without reporting errors. The air tube and ink tube are not damaged, and the negative pressure gauge display is normal, without obvious jumping!

Ink injection of the main ink tank

Fig. 114: Location plan of main ink tank

You can find the ink inlet of the main ink tank on the left side of machine. Please infuse ink in accordance with the colors marked on the main ink tanks. Before pouring the ink, please use the ink sent by our company, and each ink bottle is marked with our logo and ink color, just pour the corresponding ink into the primary ink tank one by one. Do not use inks from other brands, otherwise it will seriously affect the print quality.

Our bottled ink is shown in the figure below:

Fig. 115: Bottled ink

Each bottle cap is marked with the ink color, please observe carefully.

Note:
The main ink tank has no ink before the machine is shipped. The machine is fitted with an ink shortage alarm buzzer, which beeps before the ink is poured in after the machine is powered on but the buzzer beeping will stop after the ink is poured into the ink tank to go beyond the liquid limit level inside the tank.

Inject ink into the auxiliary ink tank

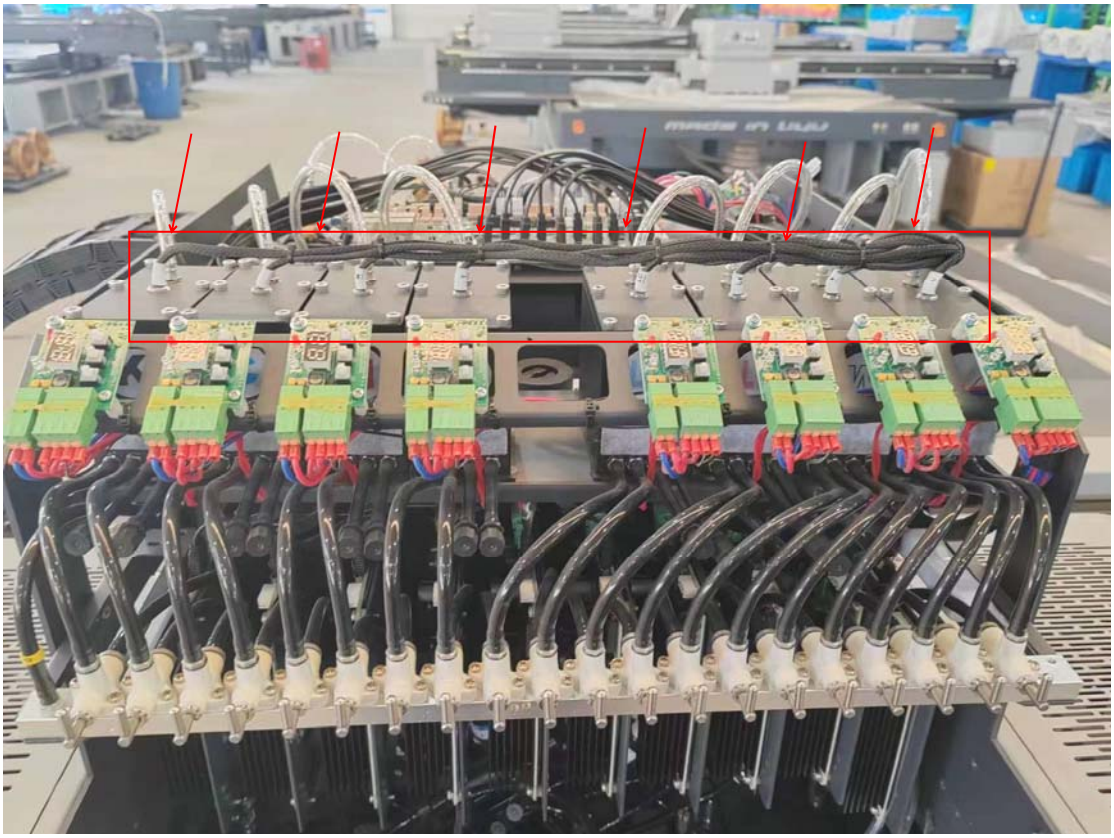
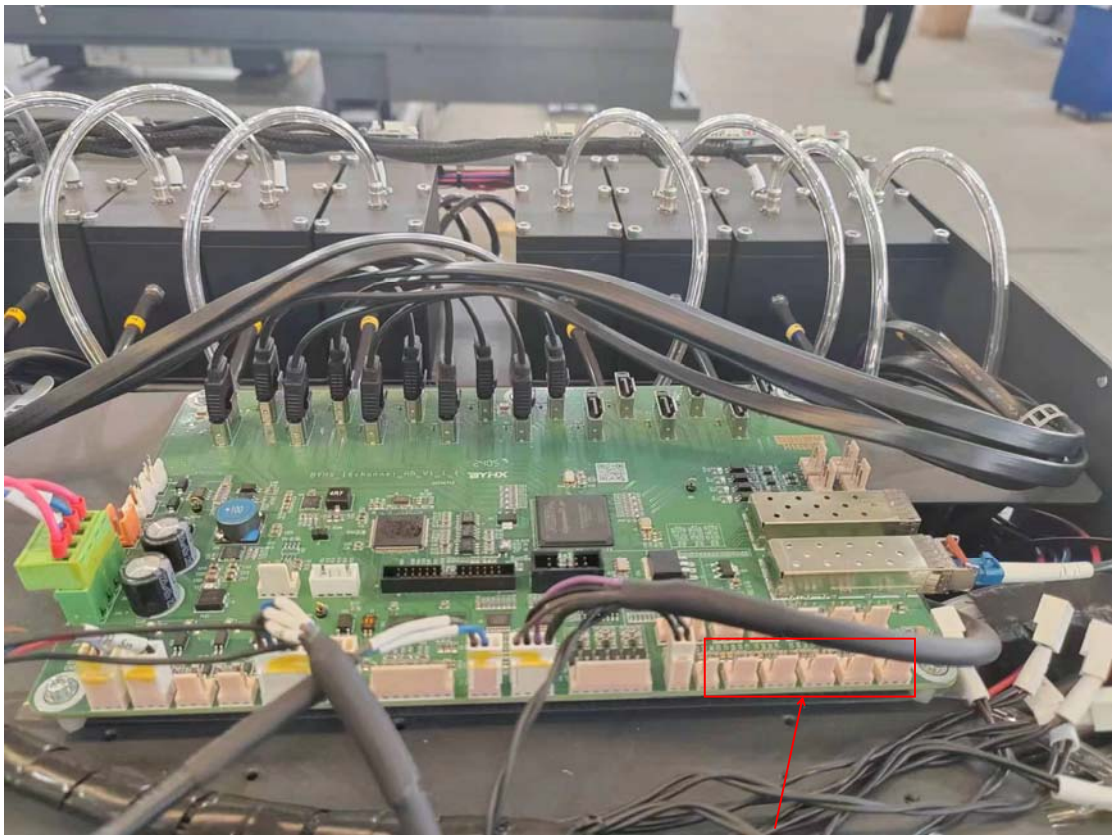


Fig. 116: Auxiliary ink tank

The machine is powered up, and the software starts running. Please make sure the software is ready to display.

Plug the ink supply signal cable of the auxiliary ink tank into the ink supply signal port of the flatbed printer carriage board. As shown in the following figure.



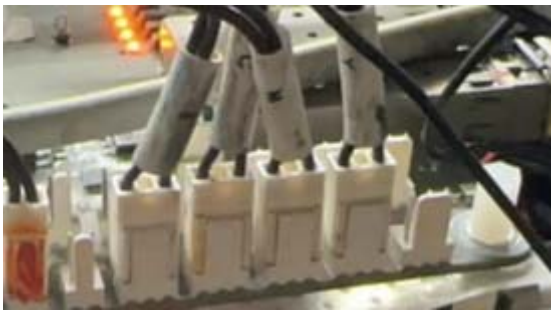


Fig. 117: Ink supply signal port pin

Connection of carriage board with liquid level signal cable of the auxiliary ink tank	
Definition of Carriage Board Interface	Affected Ink Channel
JF1	Black (K)
JF2	Blue (C))
JF3	Red (M)
JF4	Yellow (Y)
JF5	Royal blue (LC)

JF6	Magenta (LM)
JF7	White (W)
JF8	Transparent color (V)

Note:
After plugging the ink supply signal cable, the software will display a color to prompt for ink supply, and the board card will beep until the auxiliary ink tank is filled with ink.

Positive pressure

Positive pressure ink refers to impressing ink of the auxiliary ink tank into the print head by pressing positive pressure button, flush through the nozzle blocked not so seriously and eliminate the air in the print head as well as solve some common problems of printing disconnection. Positive pressure can be applied to either a single print head or several or all print heads.

The operations are as follows:

Step 1: After moving the machine to the waste ink docking position, click the "MAINTAIN" button. The Z-axis of the carriage will automatically rise to the highest point, then the carriage will move to the waste ink.

Step 2: Confirm the on/off direction of the three-way valve in order for the ink channel to be in connection with the ink tube.

Step 3: Press and hold the "Ink Pressing" button, and select the "PUR/COLOR" button or "PUR/WHITE" button. Observe the surface of the print head until ink drips smoothly from it. When finished, wipe the ink from the print head surface with a clean non-woven cloth.

Fig. 118: Buttons in maintenance area

Negative pressure

Since negative pressure is an important parameter for guarantying print quality, the operation of its adjustment is crucial. The target of adjustment is to make ink form meniscus in every nozzle printer. As long as sound meniscus is maintained, we can assure that ink droplets are ejected at a high speed with few flight drops. Vacuum negative pressure system is applied to KC Series UV Flatbed Printer to control the ink droplet.

Since UV color ink and white ink are different in viscosity, the machine is fitted with two negative pressure gauges, one for controlling the negative pressure in the color ink route and the other for controlling the negative pressure in the white ink route.

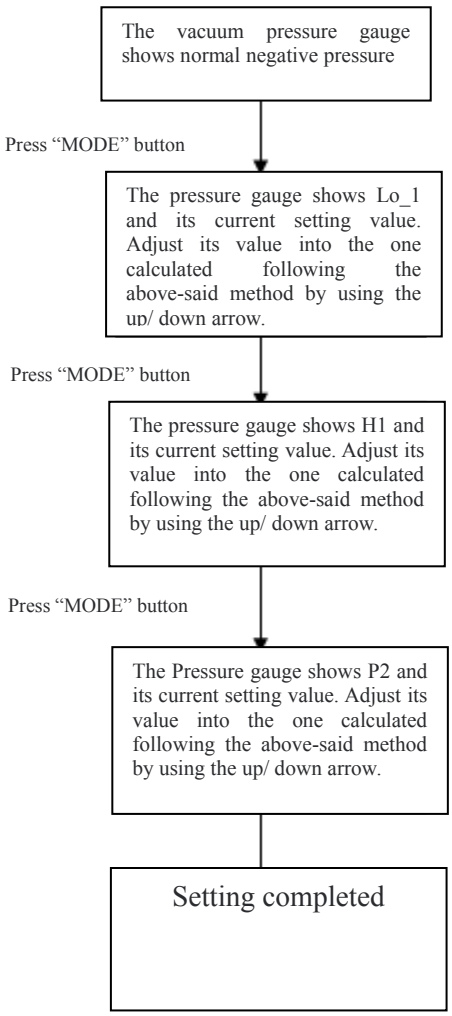
The negative pressure gauge is shown in below:

Fig. 119: Negative pressure gauge

Code	Indication	Description
1	Pressure display area	To display the current pressure of the vacuum tank
2	Setting pressure display area	To display the value of the set pressure range
3	Signal output prompt	P1 P2 Setting the output range interval value
4	Button adjustment	Mode setting, pressure value adjustment

Negative pressure adjustment

A pressure value will be set for the machine before delivery, but the field pressure value will be slightly different, depending on the altitude of the client site. So, sometimes it is necessary to make minor adjustments.



After pressing the blue button on the negative pressure gauge, the negative pressure gauge will display P1, after pressing the button again, it will display P2, then, enter an interval value between P1 and P2 to adjust the negative pressure value. The interval value between the two should ideally not exceed 0.5.

Fill the print head with ink

Initial ink refilling

Preparations for initial ink refilling

Important reminder:

All kinds of solutions, including ink, cleaning fluid, and humectant, should be matched with the print head.

Please check the filter of the ink route system. In the ink supply system of the flatbed printer, a filter of 10um or less is usually installed in the front of the print head.

The initial ink refilling can be started when the work environment of the print head reaches the desired temperature.

Steps for refilling inks

Note:

It is recommended that the ink can be refilled directly and the clean-out fluid is not recommended for cleaning the print head before refilling.

Refilling can be done in two steps. The pressure of ink refilling should usually be kept below 0.6Mpa, and the manual of the print head can be referred to in particular cases.

Step 1: The two-way valve should be opened first, and the ink is refilled to the ink tube, filter, print head by ink pressing with positive pressure; the impurities and bubbles of these parts are removed with the flowing ink.

Step 2: Shut down the two-way valve and keep ink pressing until the ink flows out of the print head.

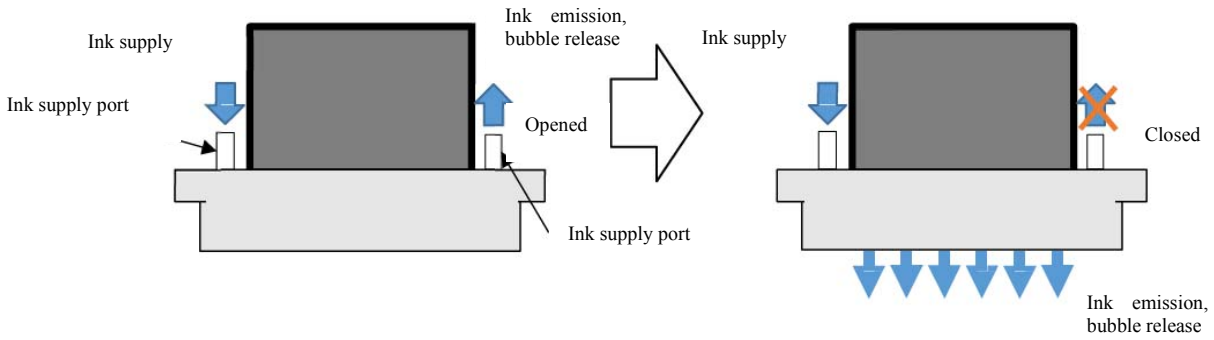


Fig. 120: Ink press diagram

During ink pressing, please pay attention to the change of the liquid level in the auxiliary ink tank or use the method of intermittent ink pressing to avoid the auxiliary ink tank being emptied and then pushing air into the ink route system and print head.

Step 1, the amount of ink discharged is different because of different print heads, but no less than 100ml ink is suggested to discharge to make the ink route system clean and the bubbles are completely discharged.

Step 2, the two-way valve should be shut down after the ink is discharged in a straight line.

Inspection of print heads

Upon completion of the ink injection, ink pressing and air exhaust, use software to print nozzle check patter to check the print head condition.

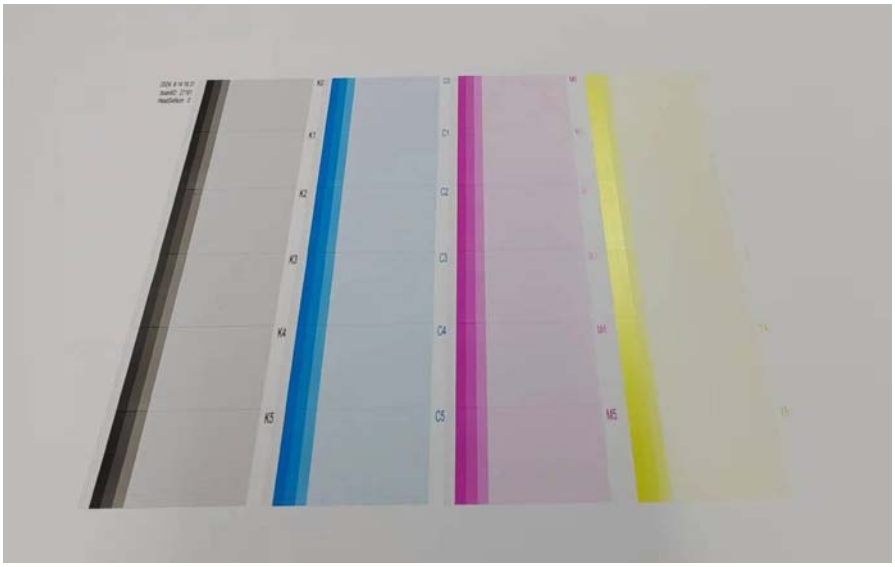
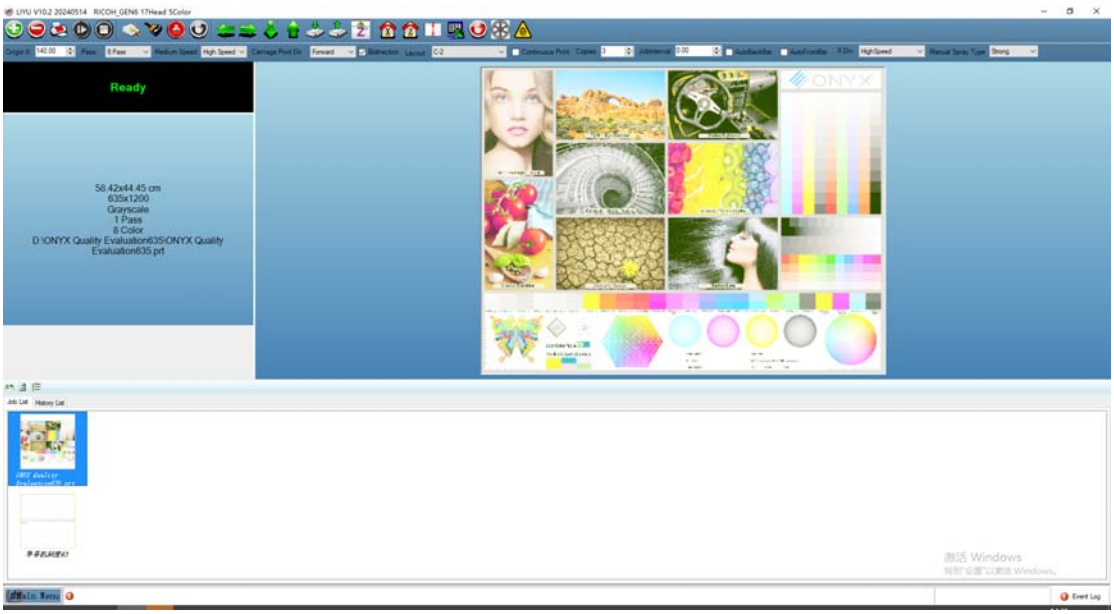


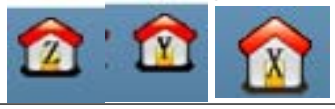
Fig. 121: Print head state test chart

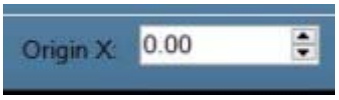
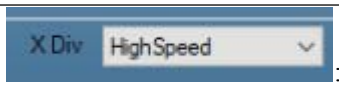
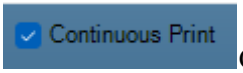
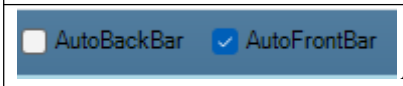
The print heads should be wiped and a nozzle test chart printed after finishing refilling. Normally, all print heads can discharge the ink. If several print heads fail to discharge the ink or discharge the skew ink, which may be caused by the small bubbles. In this circumstance, you can press the ink several times or continuously print for a period of time.

Calibration of Print Head

Introduction to software functions

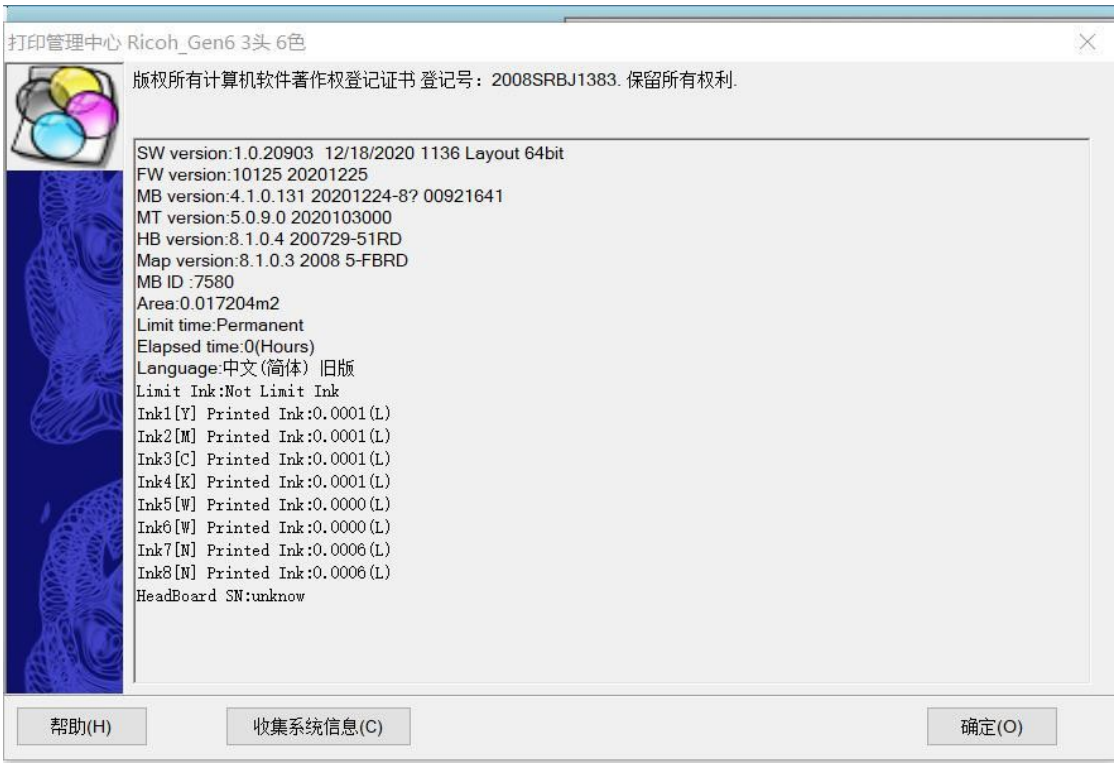


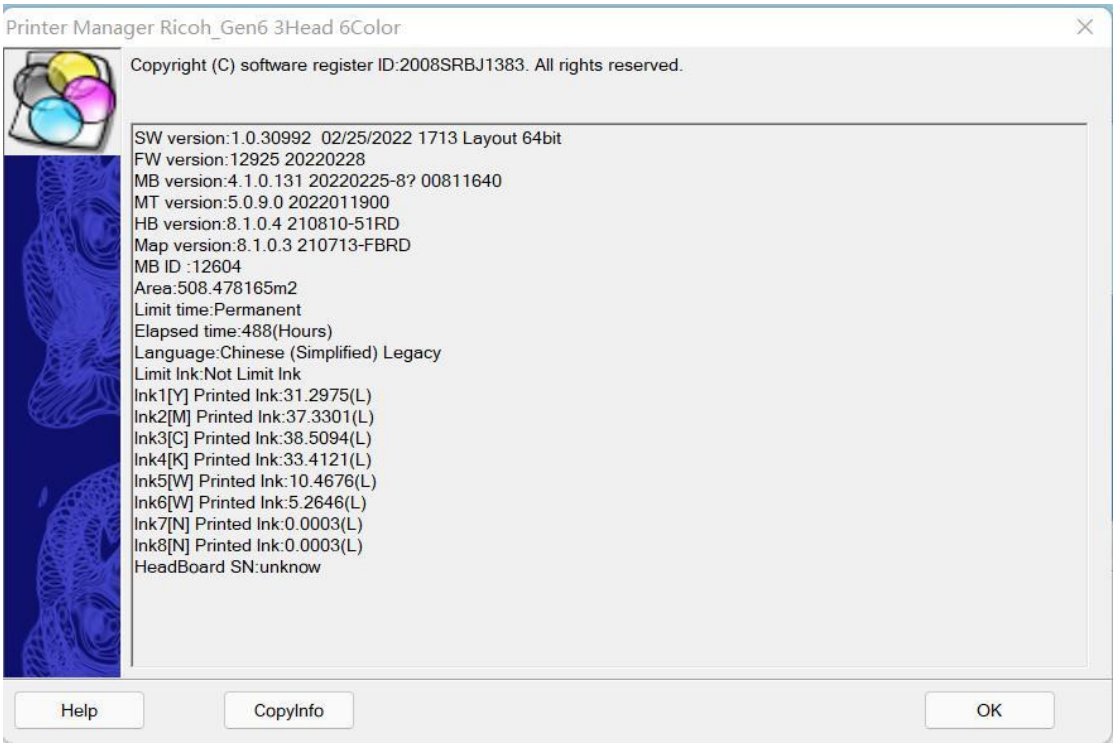
 : Add job	 : Cancel
 : Printing job	 : Pause or recover
 : Stop	 : Print nozzle check
 : Clean print head	 : Setting tab
 : Manual flash and cancel	 : Moving upwards and downwards
 : X-axis moving	 : Set current Z position as printing height
 : Y-axis moving	 : PM error message
: To origin 	 : Pinch roller control

	 UV lamp control
 : One-key moisturizing	 : Height measurement interface window
 : Set pass quantity	 : Bidirectional printing
 : Origin setting	 : High precision and high speed selection
 : Select the current layout;	
 : Step, which can be debugged in printing with real-time effect	
 : Carriage speed: VSD1 is high speed, VSD2 is medium speed, and VSD3 is low speed.	
 : PASS quantity of current printing.	
 Continuous printing option, when selecting the sheet type, it can automatically control the positioning rod to lift and fall.	
 The number of copies of the current job when printing continuously.	
 Set the gap for typesetting job copies.	
 Automatic control options for the front and back bars during the printing process.	

Software Setting

Click Main Menu-Help-About-Get Factory Settings Password





SW version: PM version information

MB version: Main Board version information

HB version: Driver Board version information

Map Board version: Head Board version information

ID: 40911 (Core Board ID)

Limit time: Permanent (unlimited time) (after using the time password, the restricted time is also displayed here) Permanent or Time Limit

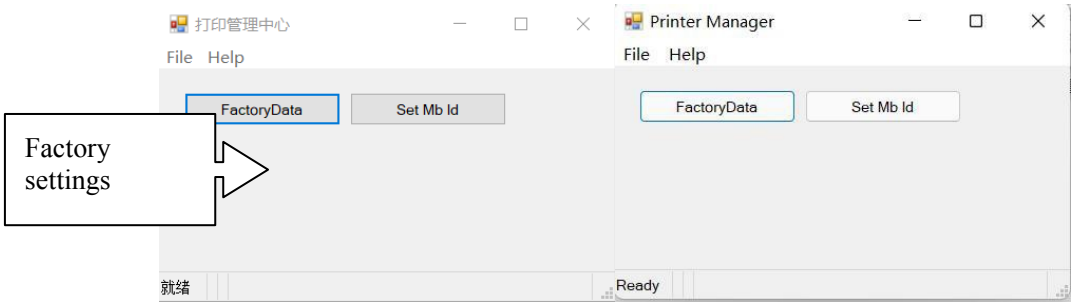
Elapsed time: 0 Hour (Running time: 0 hour)

Language: Chinese(Simplified)

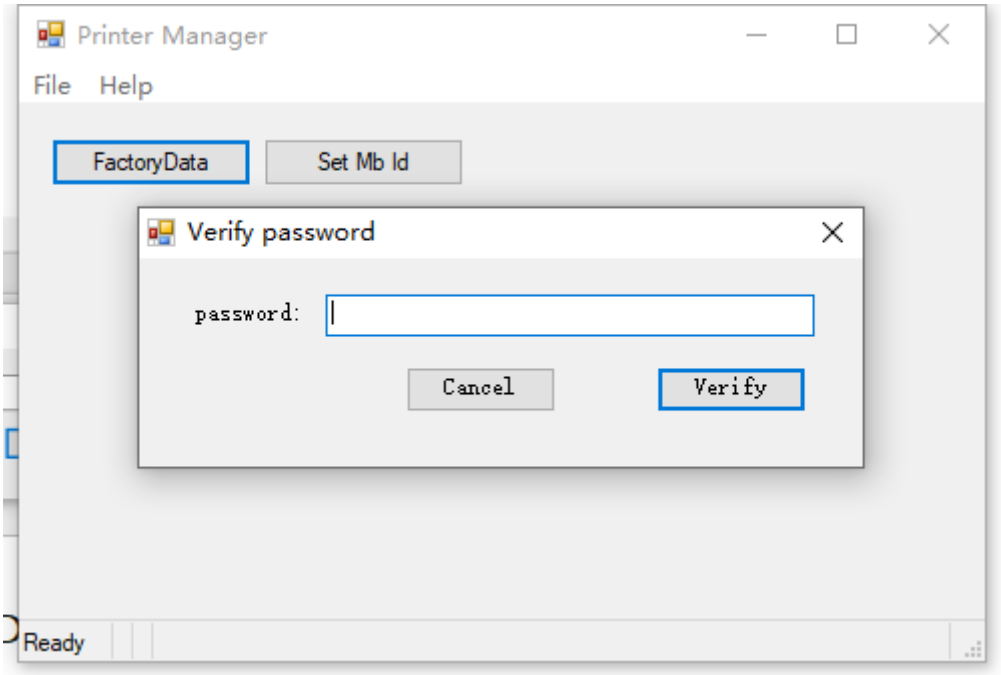
MT version: DSP version information

Factory settings

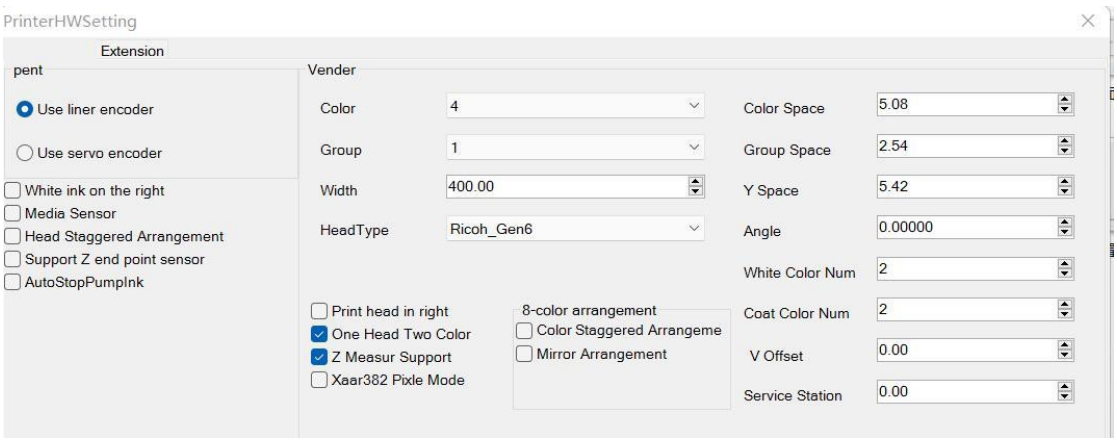
Close the control software, and open the software root directory to find out the file Factory write. exe.



Click FactoryDate.

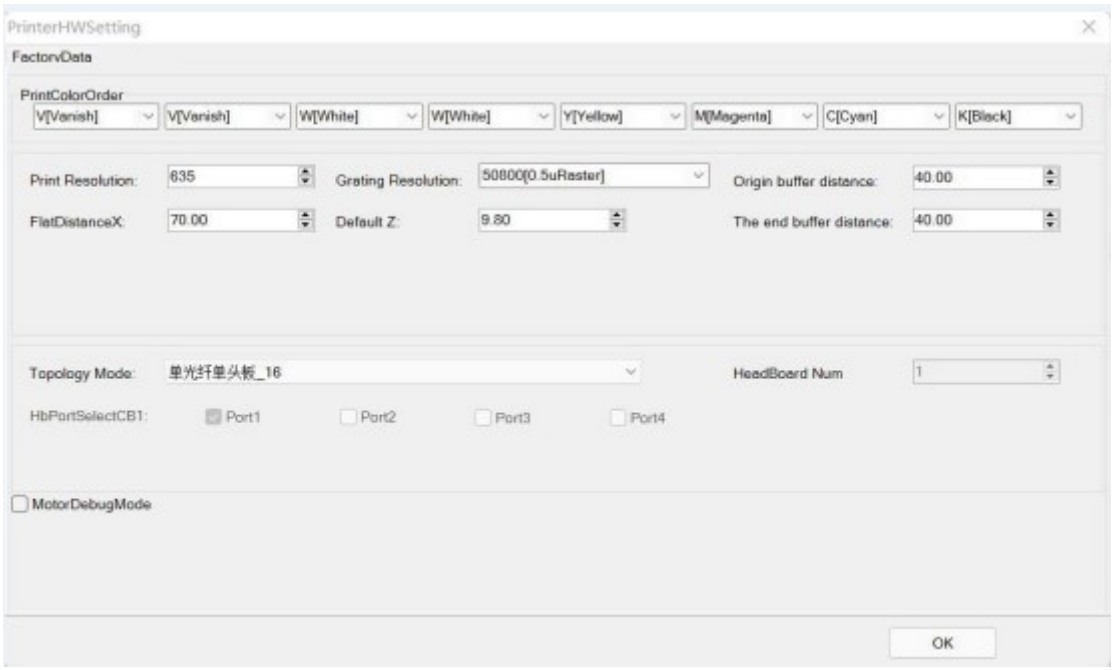


The Password is Manufacturer ID, then the enter the factory setting interface



- COLOR: Setting the number of colors, in the case of 6 colors, set to 6.
- GROUP (number of groups) Setting based on the actual number of groups.
- Width: Set according to the actual machine length;
- HEADTYPE: RICOH_G6.
- Print head in right: If selected, it is the right origin, if not, it is the left origin. Set according to whether the head is on the left or on the right.
- One Head Two Color: One print head is provided with two colors.
- Support Z-axis measurement: This function is targeted for machines with height measuring function, and check it in case of height measurement.
- Coding number: Set according to the actual conditions.
- White number: Set according to the actual conditions; After setting the white ink, the parameters of white ink mixing and white ink circulation will be showed on the software;

Extension Setting Interface



- X encoder resolution DPI: Related to the grating resolution, and, for a grating of 180, select 720DPI, for a grating of 150, select 600DPI, for a metallic grating of 1U, select 25400DPI, and for a metallic grating of 0.5U, select 54800DPI.

- Buffer distance between original point and end point. The distance to be set varies with the print ignition.

- Platform distance X: Possible to adjust the X print direction position

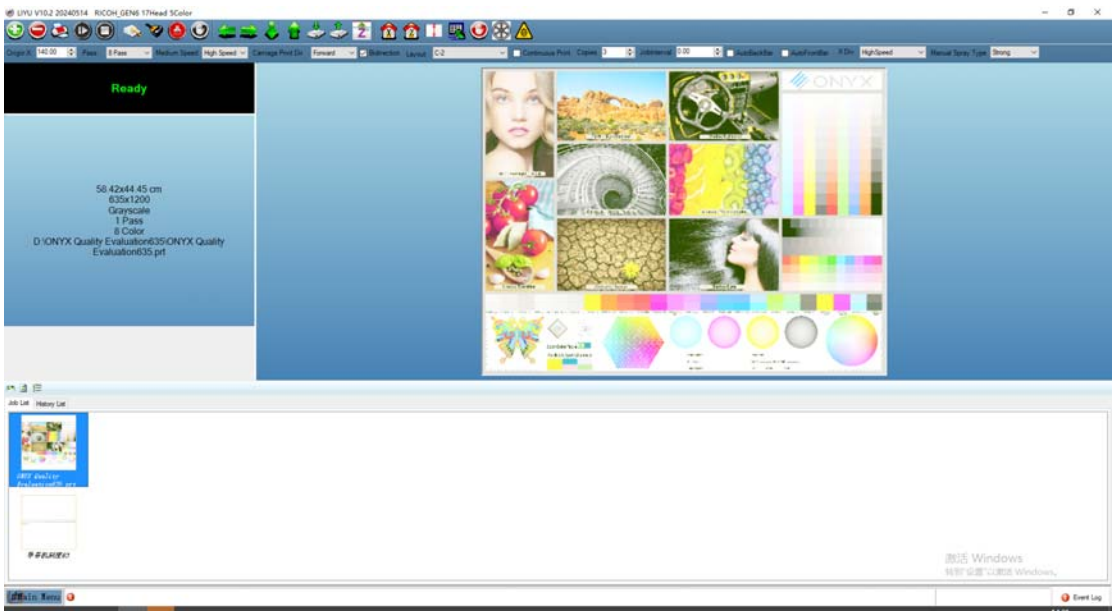
- Platform distance Y: Possible to adjust the Y print direction position

- Topological pattern, number of head boards: Make a selection based on the number of print head boards actually used. When the number of print heads used is less than 16, select single print head board with single fiber, and when the number of print heads is greater than 16, select double print head board with double optical fiber

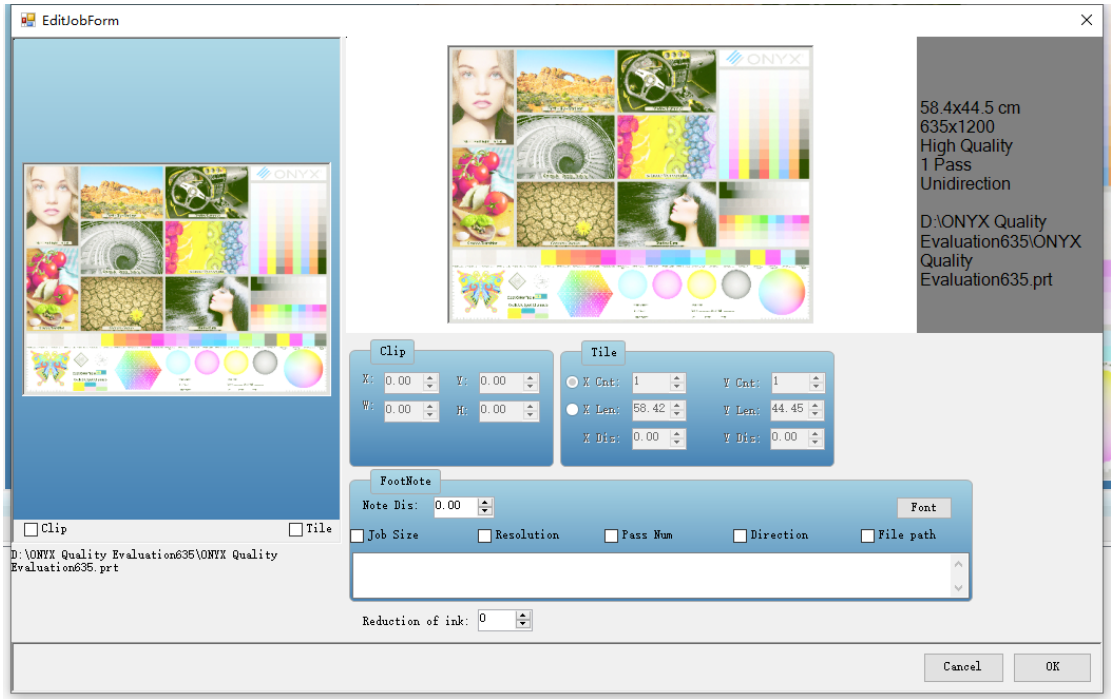
- 1 port selection of switchboard: Check according to the number of print head boards actually used, check No.1 port for one print head board, No. 1 and No.2 ports for two print head boards, which cannot be skipped to check them.

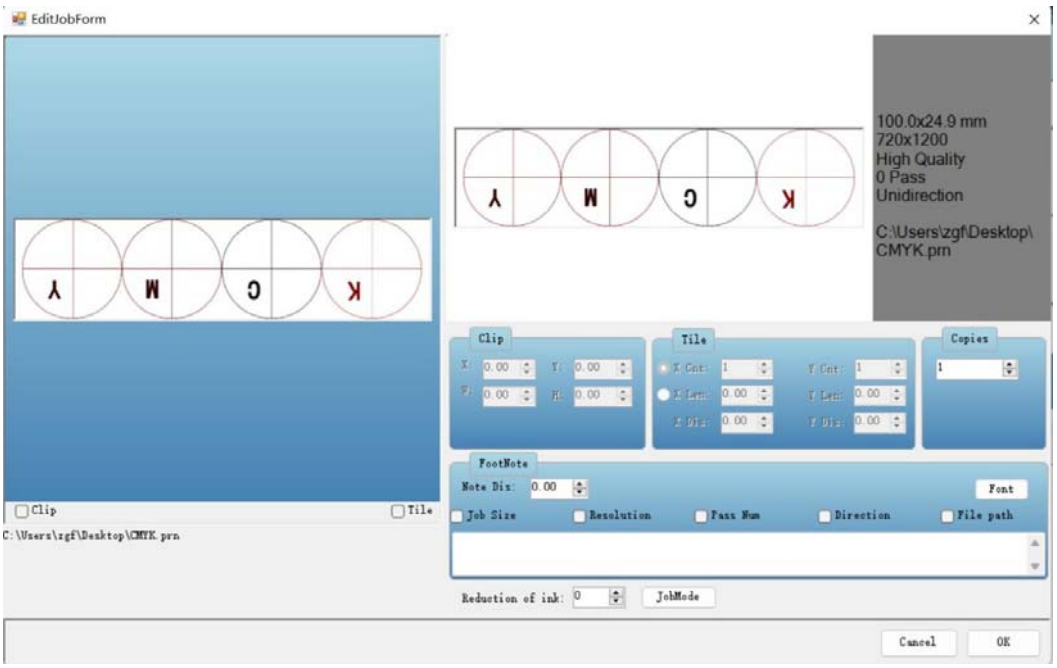
Job editing and printing

To add job.
Select the prt or prn to be printed



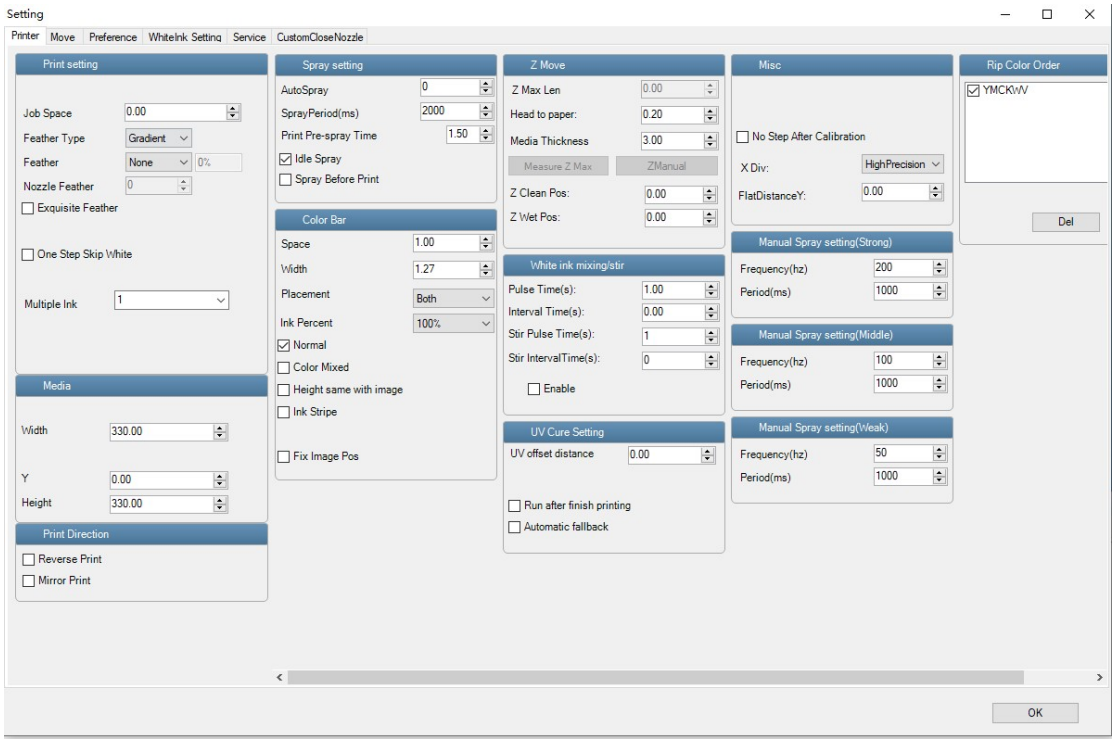
The left area displays the information of the job, including the size, resolution, gray level and file path of the job;

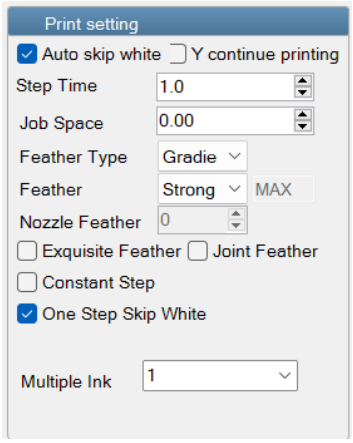




- Check the cut: Screenshot, to choose the area to print.
- Check the tile: To set the printing quantity for images.
- Print copy(ies): The number of consecutive prints

Setting options





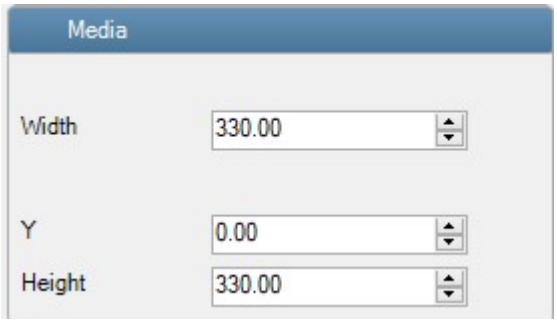
- Auto skip white: When there is no data in X and Y directions, it can be stepping and realize printing without scan;
- Y continuous printing: It is used on flatbed machine, and can print at the Y position without moving to Y origin;
- Job interval: The interval between two jobs.
- Feather type: Choosing the feather mode, with common using of gradient and UV;
- Feather intensity: It can be divided into strong and medium and weak.

- Fine feathering: Feathering between print heads, constant stepping, all are methods of print feathering

- One-step skip white: Used with auto skip white.

- Ink volume: To control the output ink volume of color ink; the higher the multiplier, the slower the printing, the higher the ink volume.

Medium setting

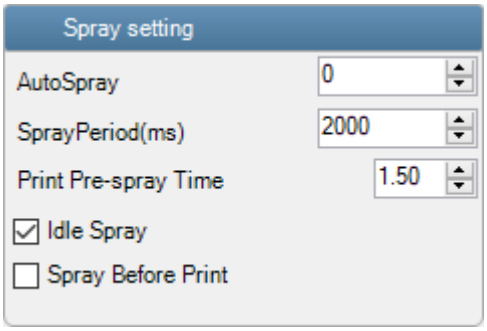


X; Original point Y; Original point

- Width: the maximum width in X direction that the flatbed printer can print.
- Paper length: The flatbed printer can print the maximum length in the Y direction.

Printing direction

Cleaning setting



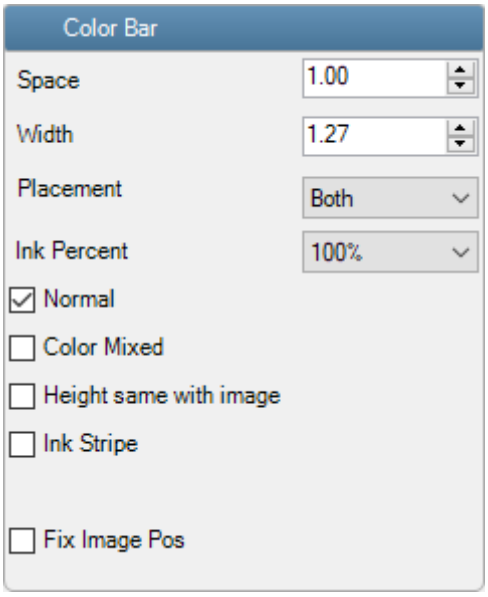
- Flash spray cycle: To control the cycle of idle flash spray when the carriage is at the X origin, unit: m/s.

- Auto flash spray: To set the unit as PASS, and return to origin for a flash spray after printing the set PASS value.

- Idle flash spray: idle flash spray switch of carriage at the origin.

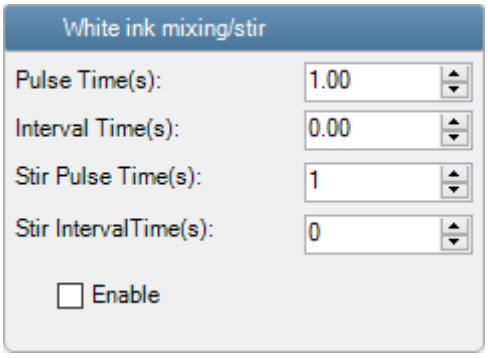
- Flash spray before printing: To perform the automatic flash spray function before printing to prevent nozzle blockage.

Color bar setting



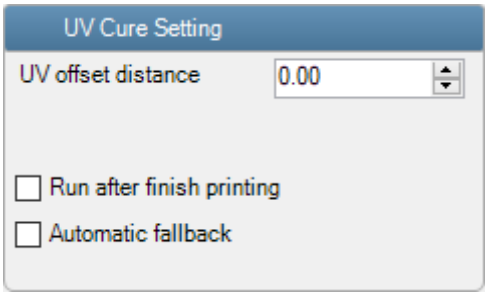
The color bars can be placed to the left, right or both sides of the image according to individual requirements.

Circulation mixing of white ink



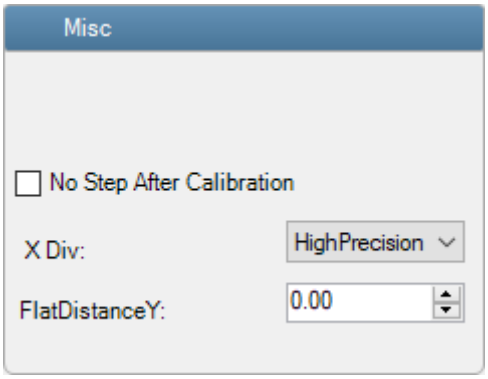
Setting the time of circulation and stir functions of white ink.

Setting of UV lamp solidification



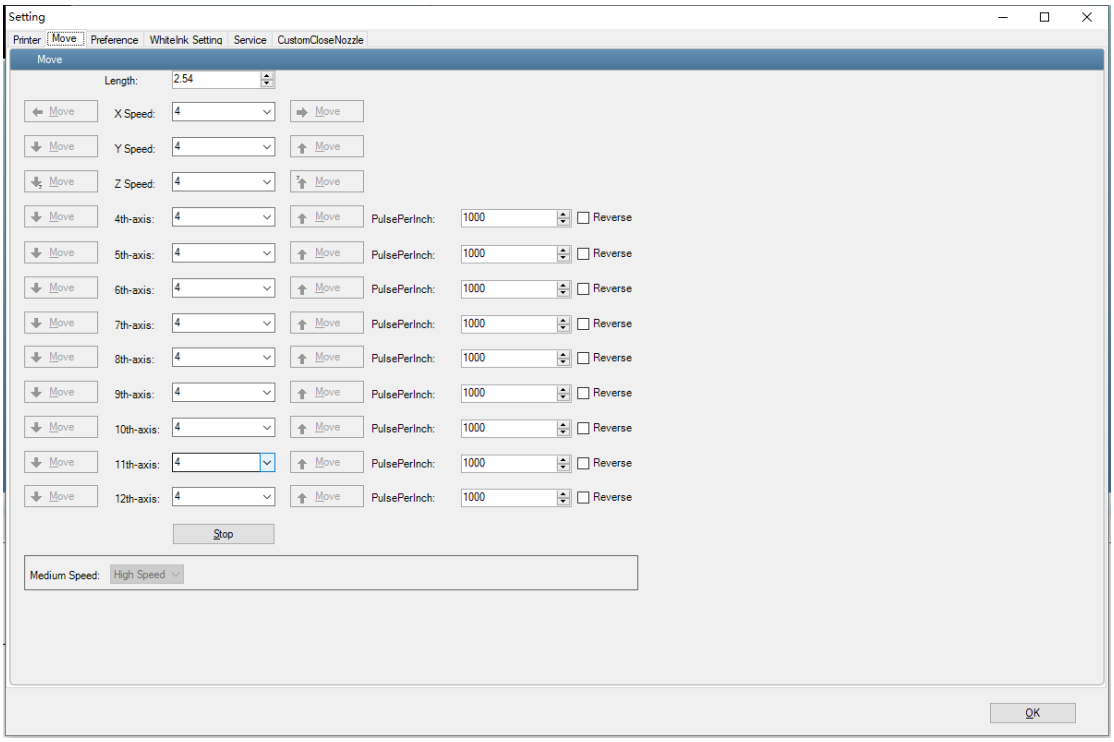
For delayed solidification of flatbed varnish.

X-printing speed



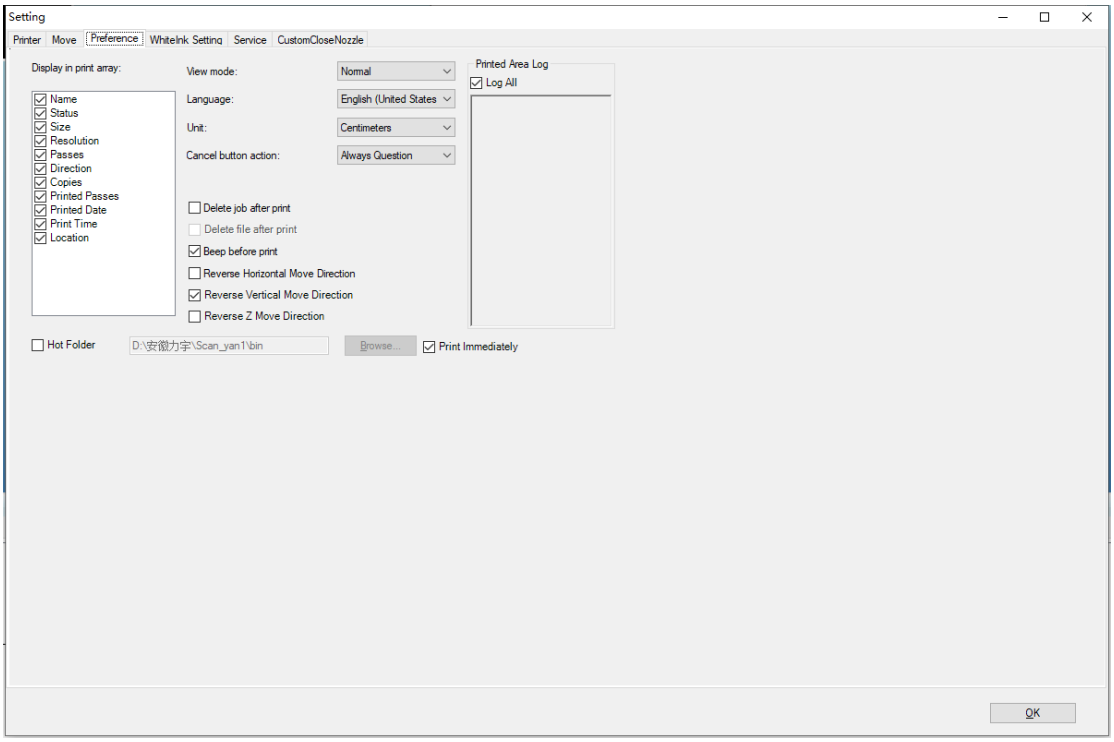
- X Div: To set high speed and high precision.
- Platform distance Y: To set the starting position of X-axis printing.

Movement



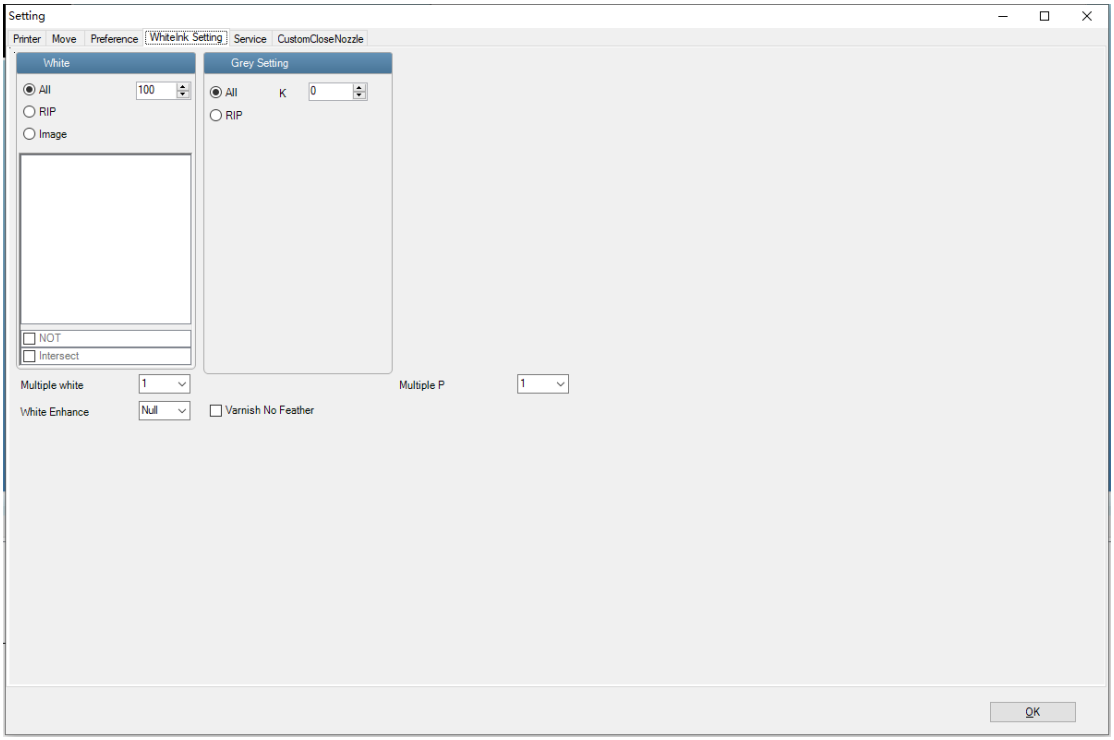
To control the speed of moving button on the main interface.

Personal setting



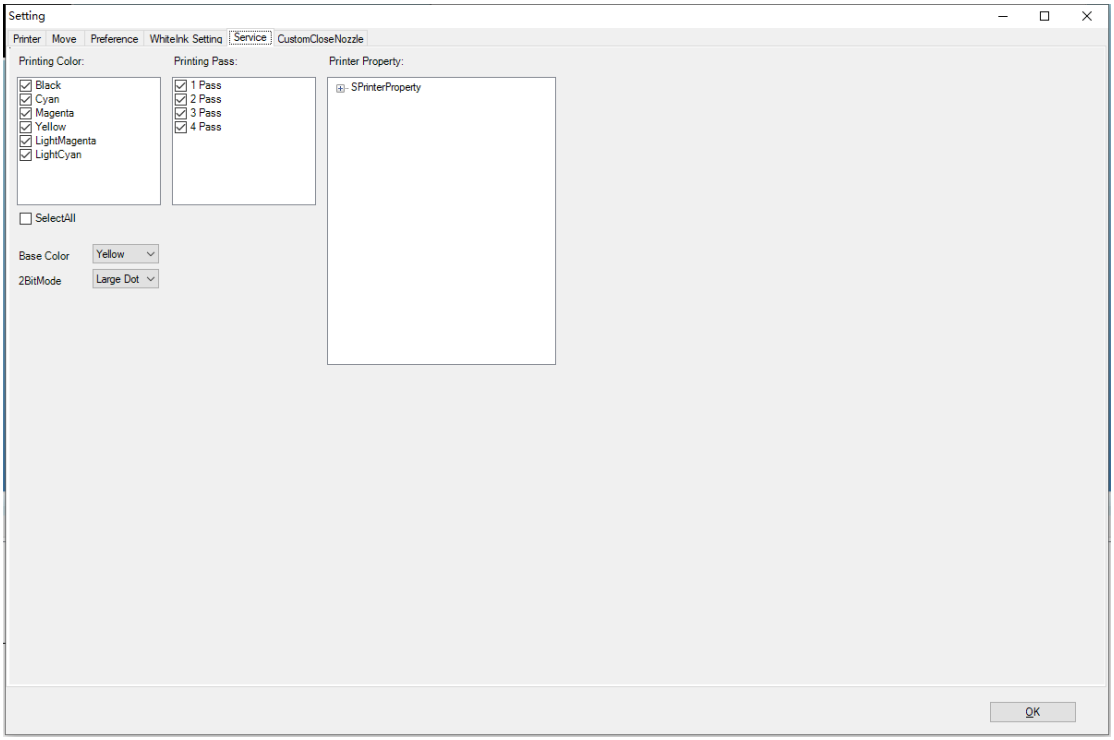
- Unit: To set the original point to millimeters, centimeters, inches, and other units of measurement.
- Language: To switch to English.
- Left and right movement in reverse: To change the direction of the left and right movement of the carriage.
- Forward and backward movement in reverse: To change the direction of the forward and backward movement of the carriage.

White ink setting



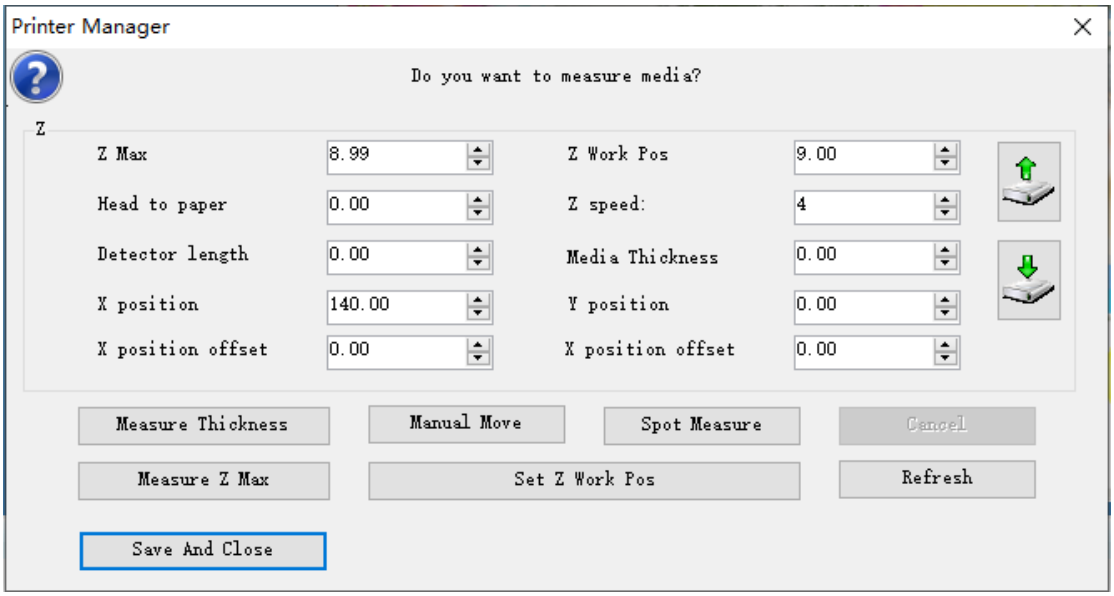
- Total image: To set the whole job with white background.
- RIP: To print white ink where there is data.
- Image: When this option is checked, the yellow, magenta, cyan and black below will light up for option, and then you can specify a color to lay white underneath, depending on the job.
- Ink volume: A multiple of the white ink output ink volume.

Service



- Base color: Set base colors for printing.
- Print color set: To determine whether the ink is output or not;

Height Measurement



- Maximum stroke: Press the button of automatical measurement to measure the max Z stroke, and the measured position is controlled by the following XY directions; The parameter can be manually modified. After the printer is installed, the max Z stroke needs to be measured in the first step.

- Height of print head from media: The print height of the print head from the base plate is recommended to be 2 mm.

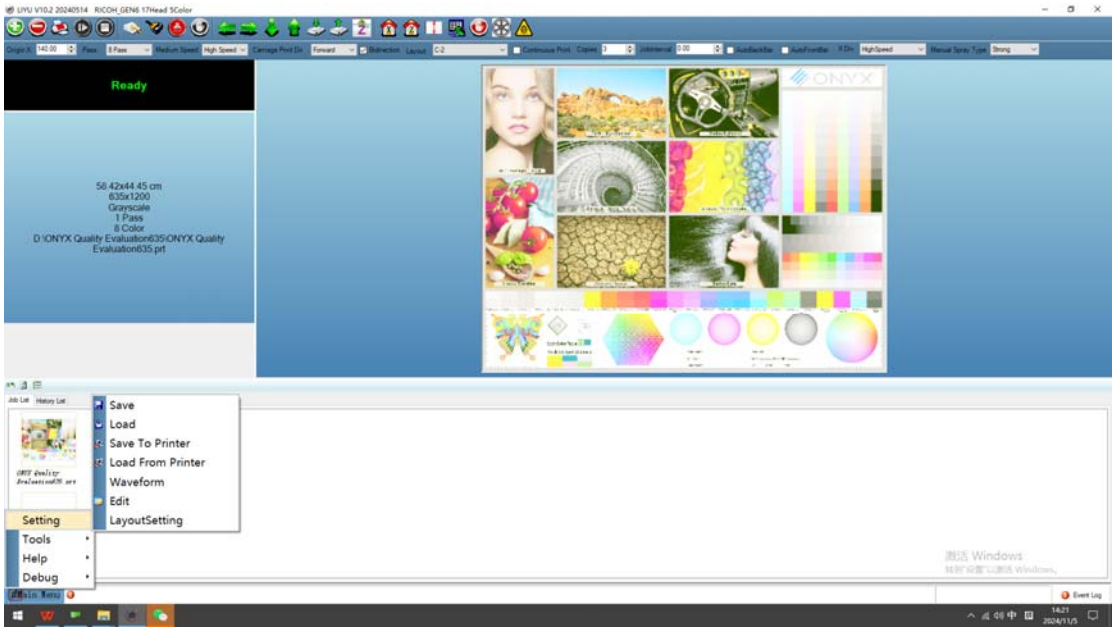
- Probe length: This value is recommended to be set to 0.

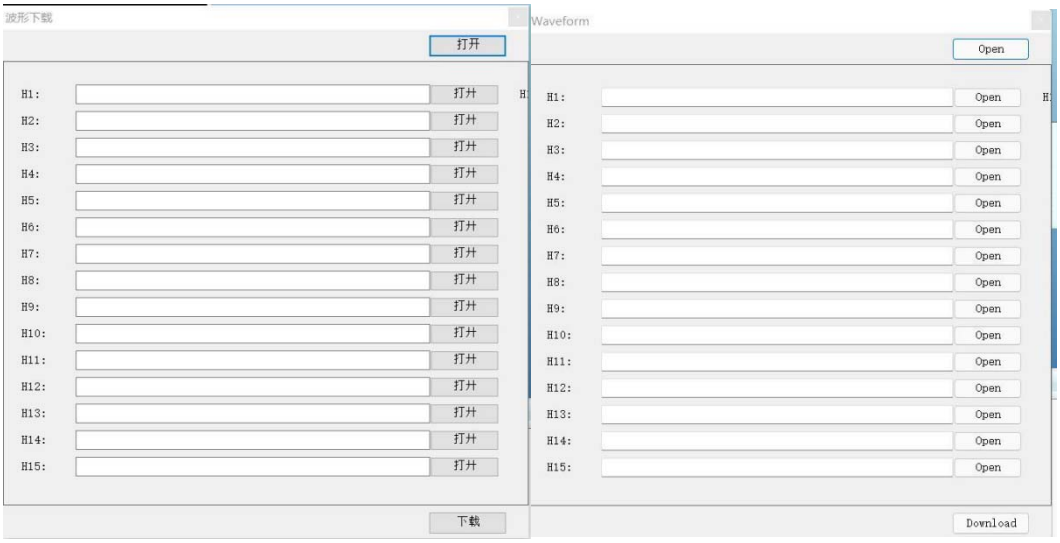
- Material thickness: A parameter that is updated automatically after automatic height measurement or can be entered manually.

- Measuring positions X and Y: Used with automatic positioning height measurement and max stroke measurement.

- Manual positioning and height measurement: After pressing this button, the carriage will make automatic measurements at the current position.

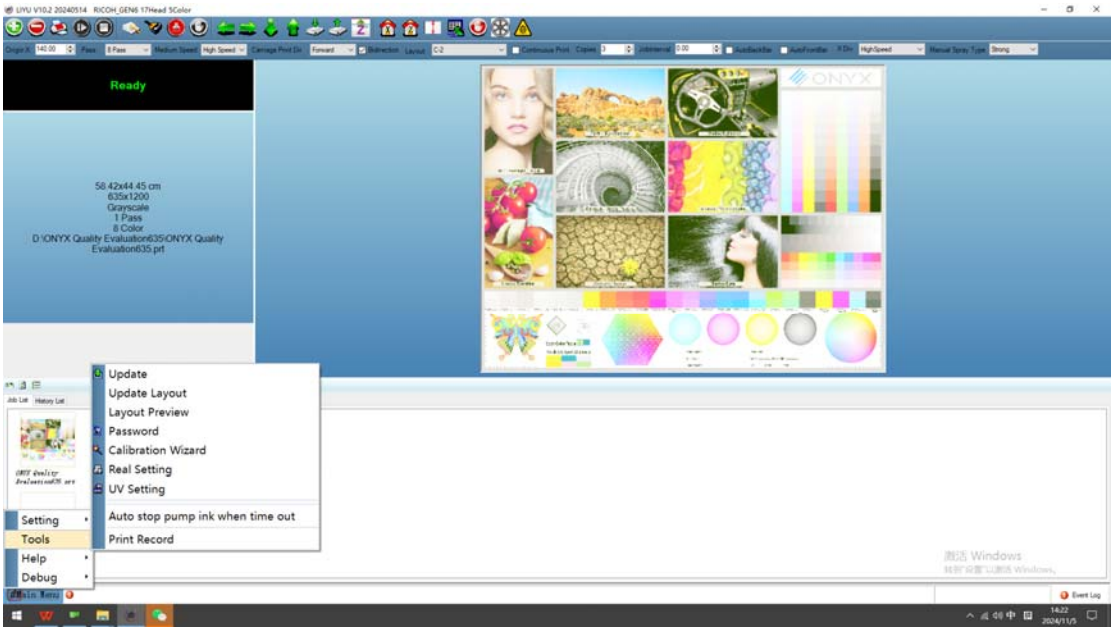
Waveform import





This function is aimed to load the waveform and import the file configured by the technician of the board card manufacturer according to the ink, which effectively improves the printing accuracy.

Tool Options



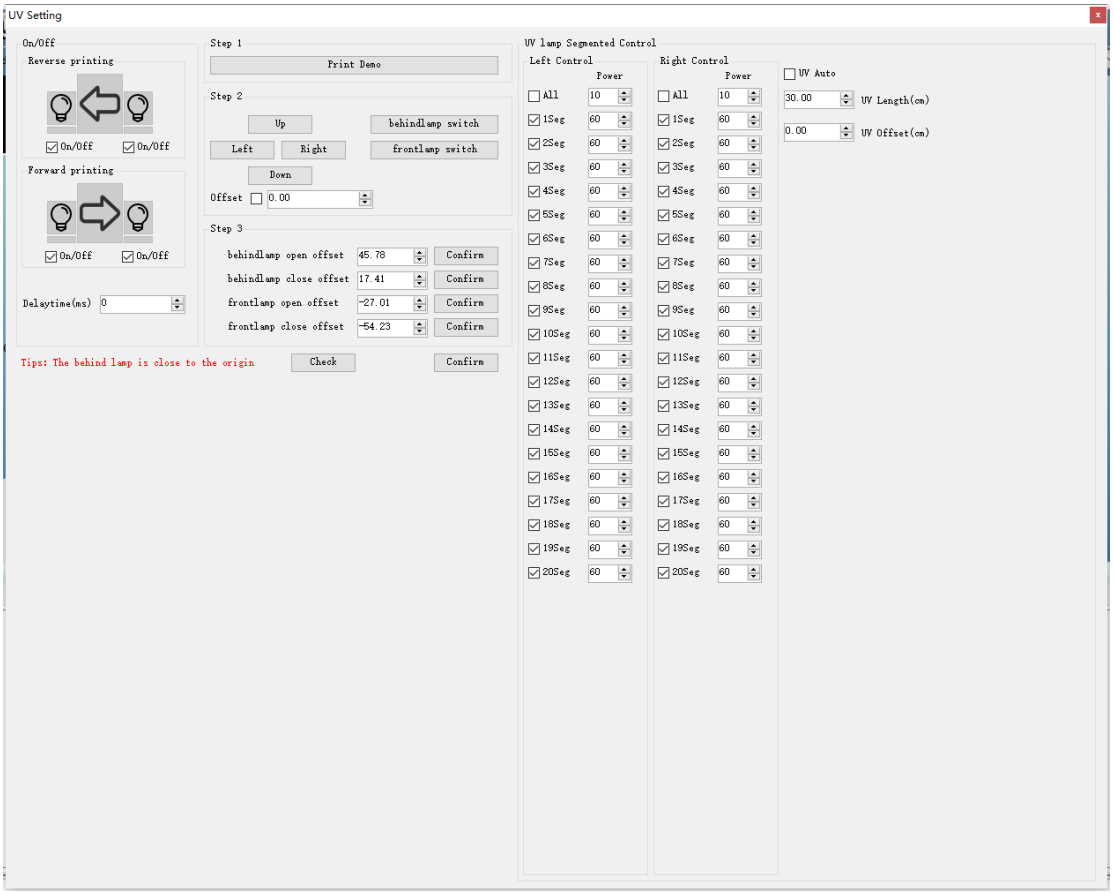
- Upgrade: To upgrade the mainboard, print head board, and driver board upgrade package.

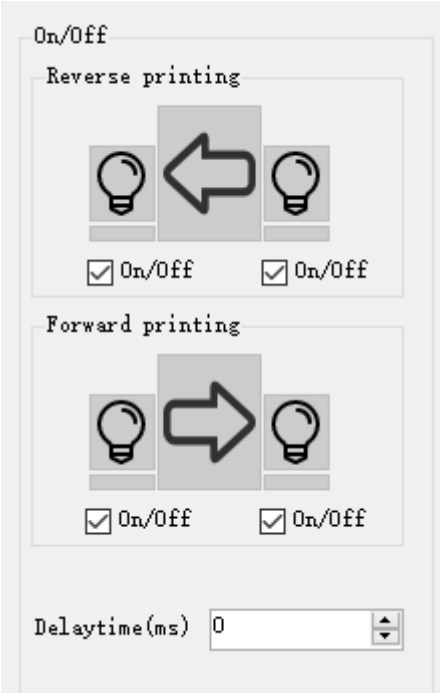
- Print head layout upgrade: To make a print head layout package arrangement according to the print configuration corresponding to customer demand.

- Password: To enter the language password and time password.

- Real-time settings: To set the temperature and voltage of print heads, and the print head temperature is usually set at 40-45.

UV lamp setting

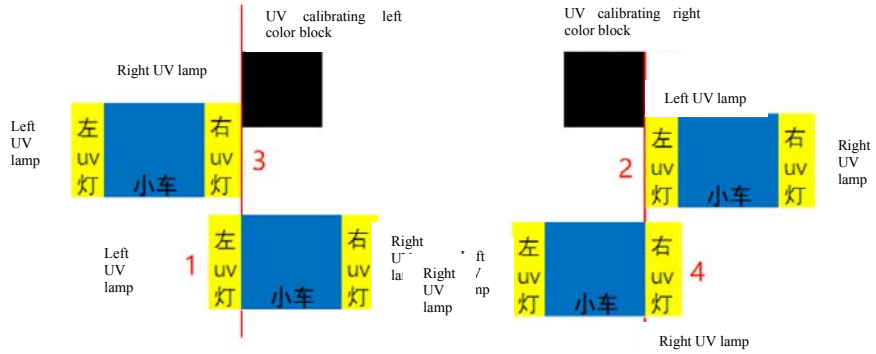




UV lamp setting procedure

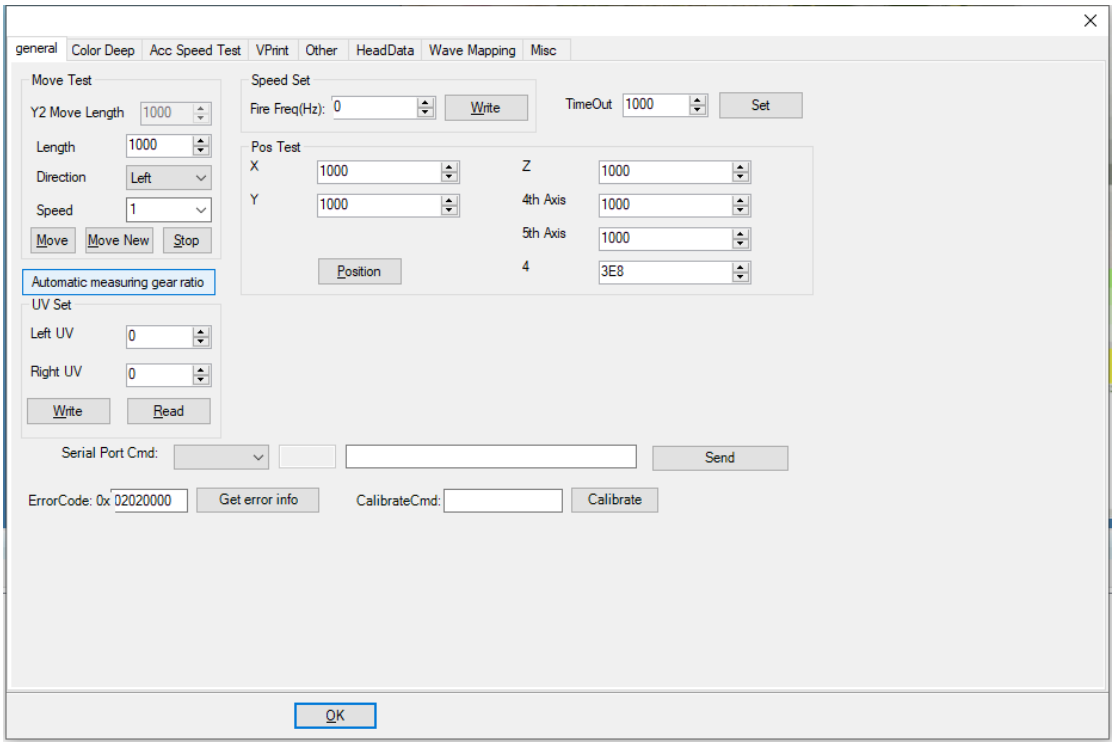
Step 1: Click to print test pattern

Step 2: Move the carriage as shown below.



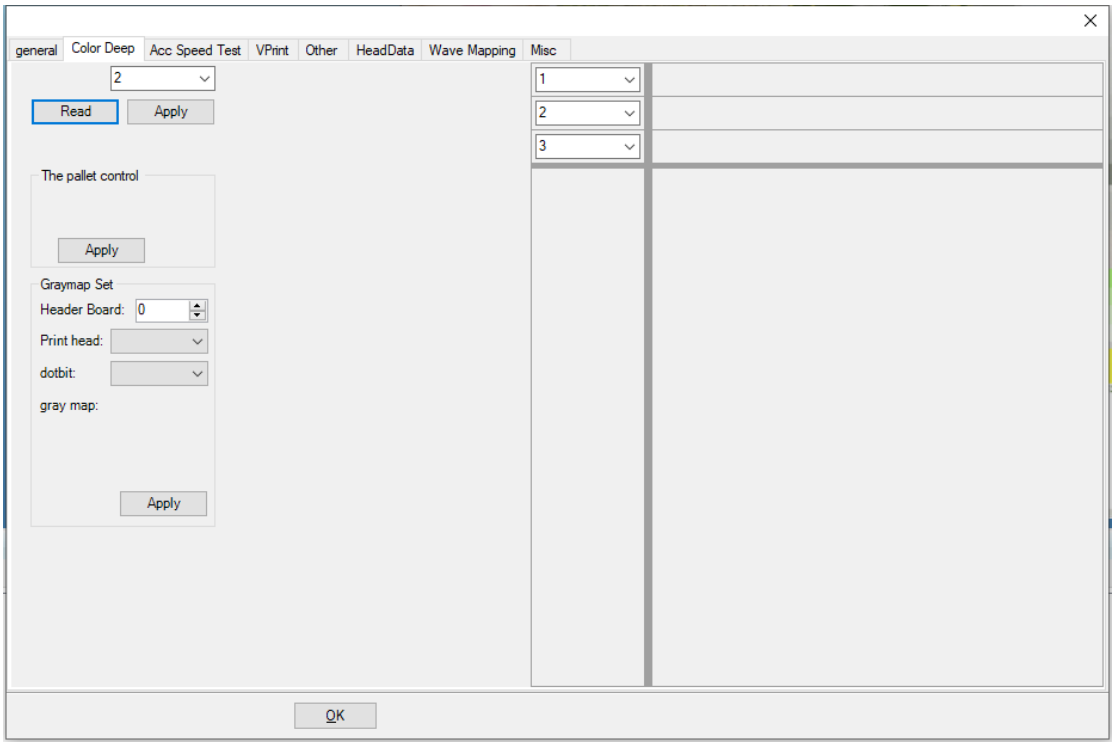
For example: when moving to position 1 in the above figu 1: the left lamp is just close to the outside of the left calibration chart), click on "Confirm Position" in the following figure to get the left off-set value of the left lamp. Move the carriage in turn to positions 2, 3 and 4 in the above figure to get other values in the figure below, respectively, and then click "Finish".

Factory Debugging



This interface is used for move test to measure gear ratios and to view feedback.

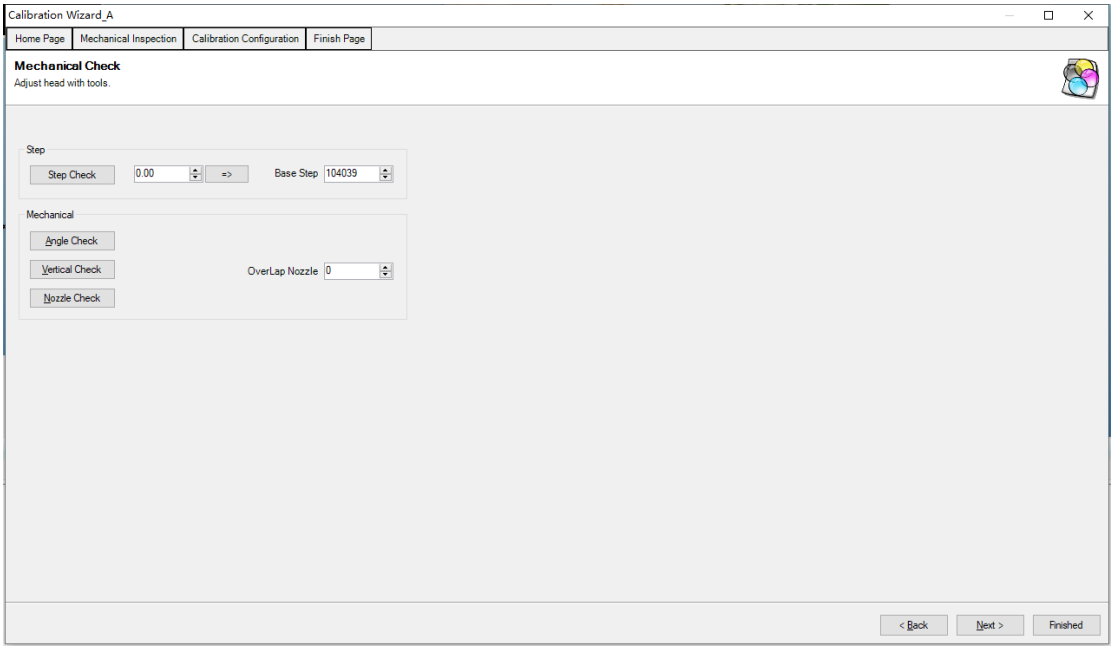
FIRE Freq: to set the temporary ignition frequency, and after entering the parameters, just click "Write" to enable it.



This interface is designed for greyscale setting, and in the case of Ricoh, it should be set to 2 followed by clicking "READ", if it shows 1, set it to 2, then click "Apply".

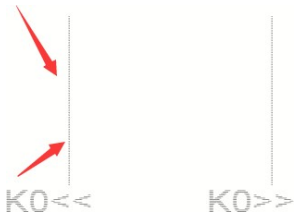
Calibration wizard

Main menu→Tool→Calibration wizard



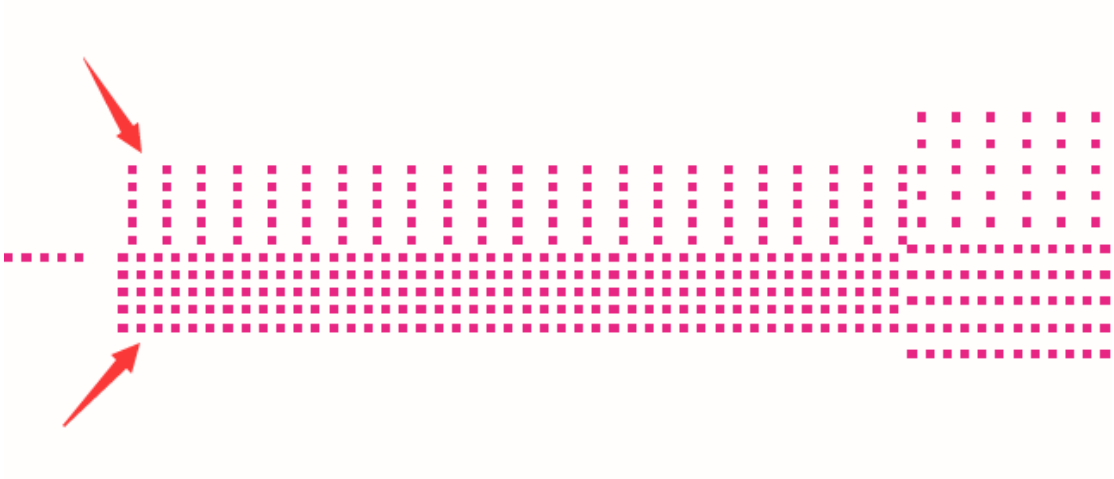
Angle check

Set the X, Y starting points and click Angle Checking as follows:



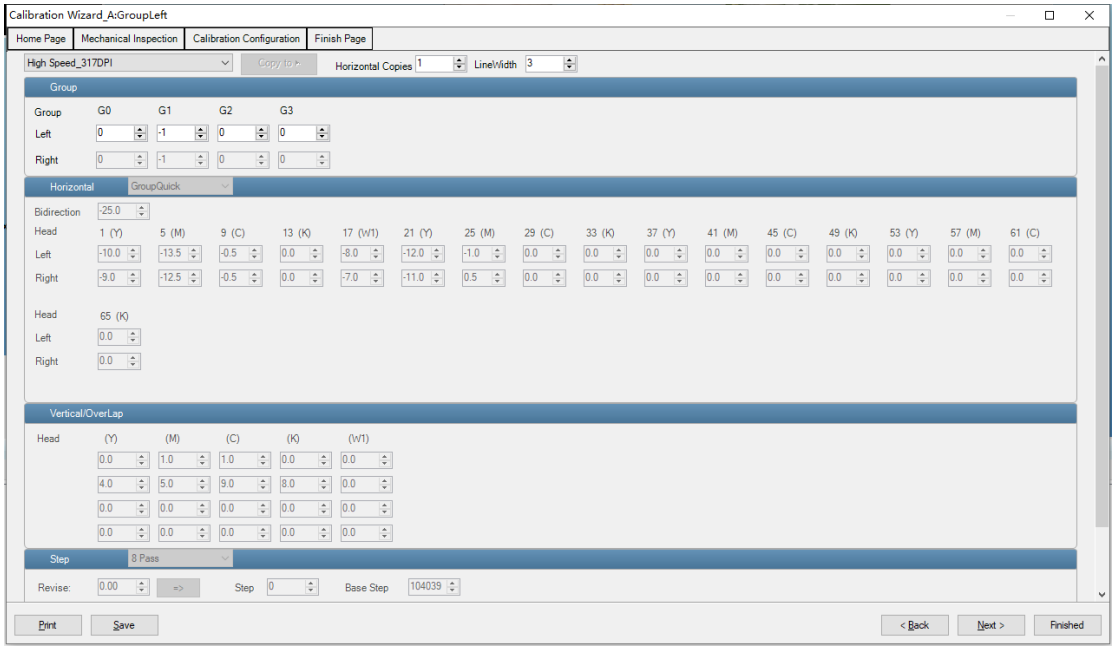
Check whether the top and bottom of the color label coincide on the same line, if yes, it means that the physical position of the installation is accurate; if not, it is necessary to adjust the base plate and print head's physical position to make a correction to ensure that the two lines both top and bottom coincide whereby the printing precision will be improved.

Vertical check



The top 5 rows of nozzles are punched by one print head (with an interval of one nozzle), and the lower nozzles are punched by another print head, with the ideal result as shown above.

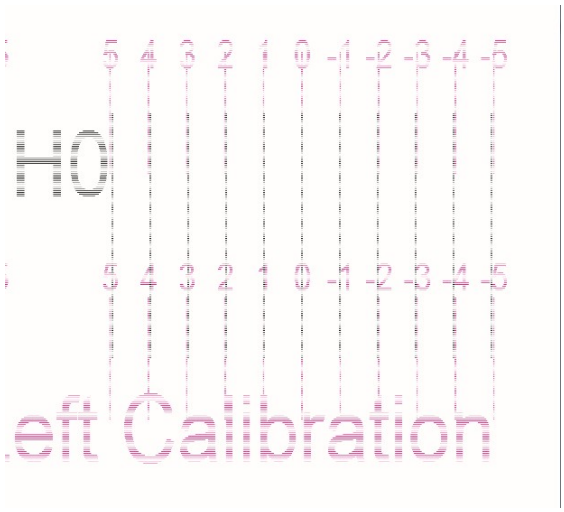
Color registration



Calibration using a comparison table can achieve high-precision and high-speed calibration as needed by customers.

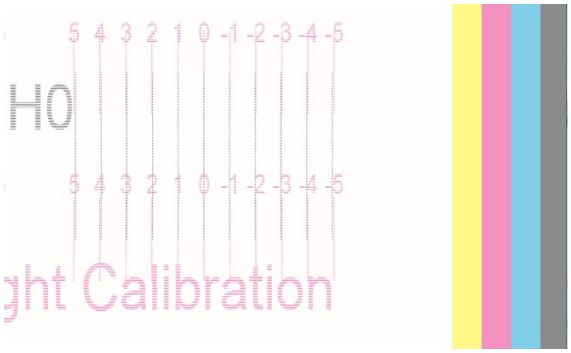
The group level is calibrated in both the left and right directions to find the lines that coincide best to fill in the corresponding values in the corresponding number boxes. (G0 represents the first group of color print heads, all other rows are aligned with the first row, and the calibration line is black)

Left calibration



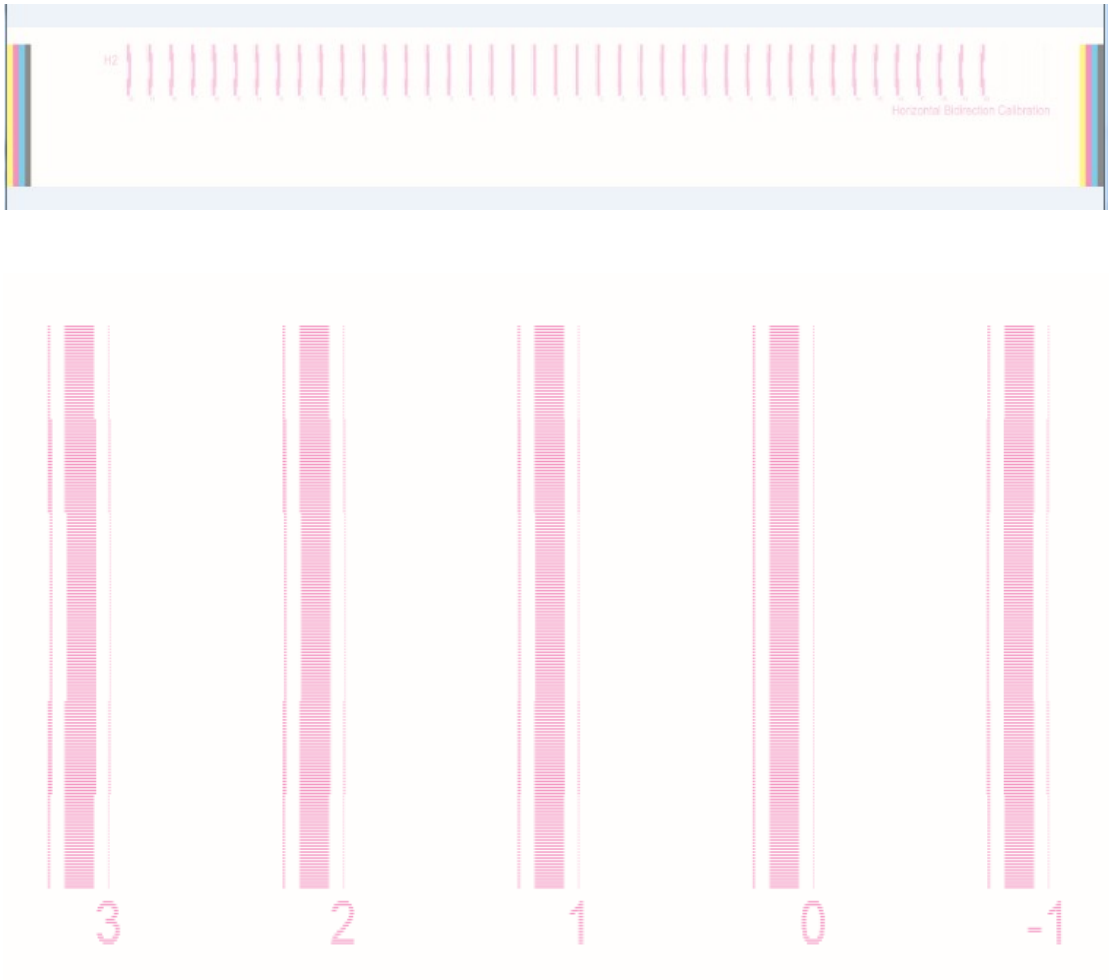
Left calibration means that the carriage prints and ejects to the left. The ideal result is that the upper line and the lower line are overlapped at the position of value 0. Otherwise, select the value on the same line and fill it in the corresponding position of the software.

Right calibration



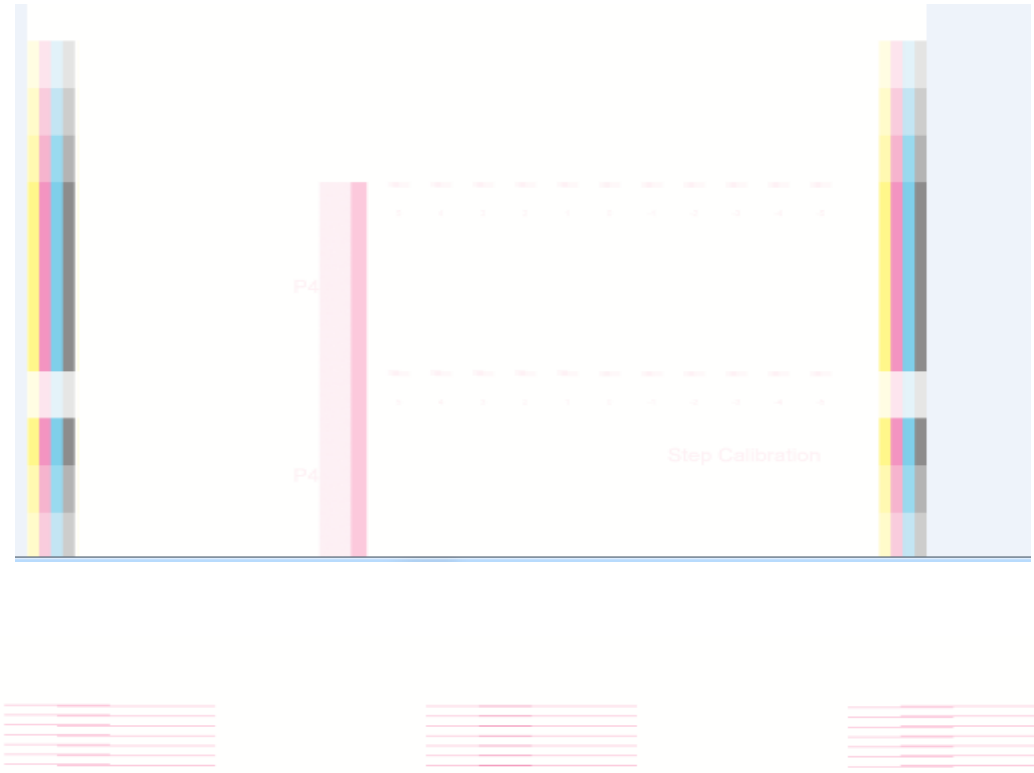
Right calibration means that the carriage prints and ejects to the right. The ideal result is that the upper line and the lower line are overlapped at the position of value 0. Otherwise, select the value on the same line and fill it in the corresponding position of the software.

Bidirectional calibration



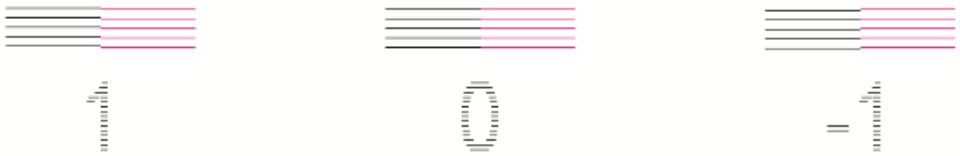
Bidirectional calibration means that the carriage prints and ejects bidirectionally. The ideal result is that the upper line and the lower line are overlapped at the position of value 0. Otherwise, select the value on the same line and fill it in the corresponding position of the software.

Step calibration



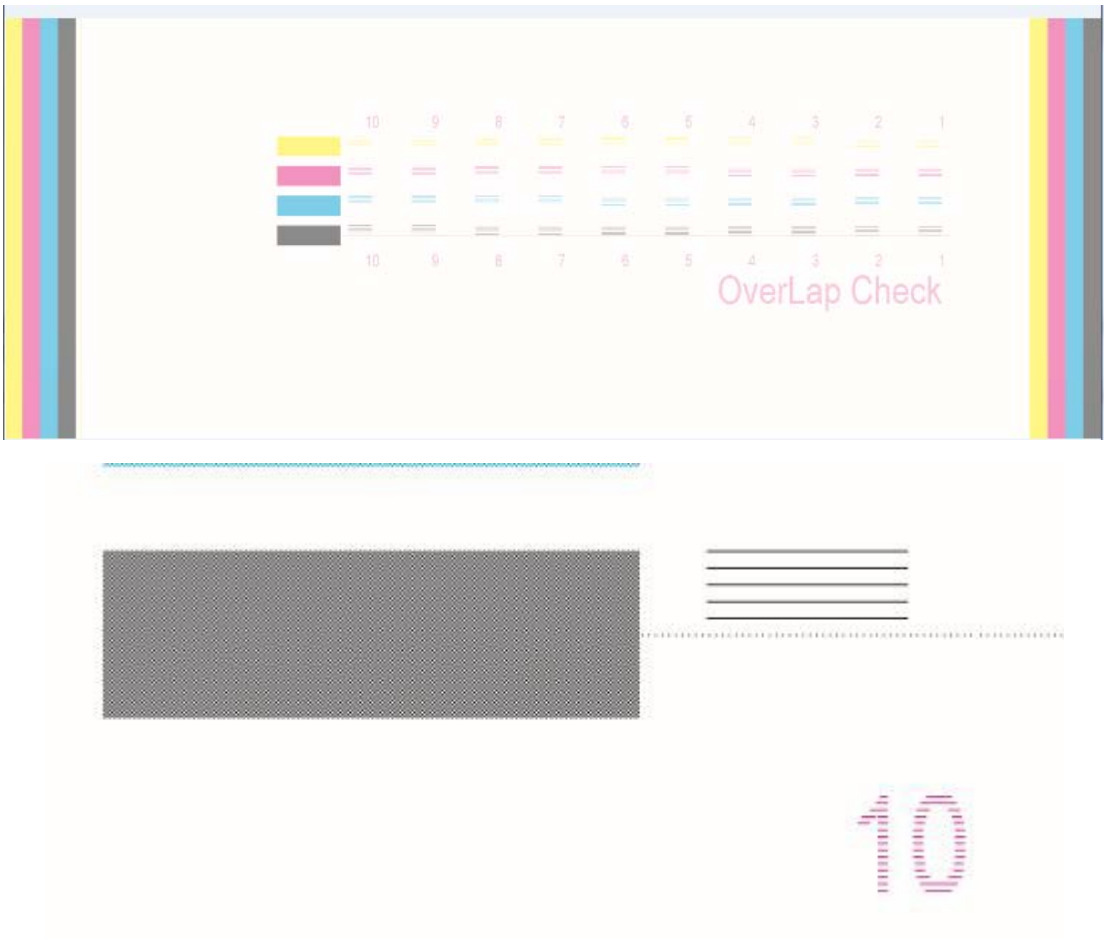
Stepping calibration means that the carriage prints and ejects in the Y direction. The ideal result is that the upper line and the lower line are overlapped at the position of value 0. Otherwise, select the value on the same line and fill it in the corresponding position of the software.

Vertical check



Vertical calibration means that the software calibration of print head and nozzle in the Y direction. The ideal result is that the upper line and the lower line are overlapped at the position of value 0. Otherwise, select the value on the same line and fill it in the corresponding position of the software.

Overlapping Check



Overlap calibration is to adjust whether there is nozzle overlap between the first and the second group of print heads with the same color. The ideal result is that the color blocks are evenly distributed without exposed white lines or overlap. If there is overlap, fill the figure corresponding to the overlap of dotted line and solid line (the value need not be superimposed) into the corresponding position of the software.

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.

Note:

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.

White ink and varnish solutions are provided. It is guaranteed that the white ink picture overlaps with the color one. There is no lack of color. White ink pixel can be shrunk properly with software.

Fig. 122: Test diagram of ONYX Quality Evaluation .prt

After completion of print head and a series of printing tests, the engineer needs to install all sheet metal parts, including the machine housing, and then perform another print test. After it is confirmed that there is no error, the engineer can guide the customer to start production tasks and train the customer's operators.

Basic Troubleshooting

Basic troubleshooting

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

Print head does not spray ink

Description - one or several print heads do not work.

Code	Phenomena	Solutions
1	Print head needle broke	Press the ink, until the print head drops ink smoothly
2	There is ink on the surface of print head	Regulate the numerical value of the negative pressure meter
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	Try to regulate the two-way valve to exhaust air in the print head
5	The ink pressing flow is insufficient	Replace the filter
6	Backflow brings ink into the air tube	Replace the air tube
7	Ink in the ink cartridge does not flow smoothly in winter	Adjust the cartridge heating
8	The print head surface is damaged	Replace the print head
9	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
10	One print head in multiple groups does not spray ink when printing the test strip	Check the temperature and voltage of the print head, power off the machine and unplug and plug the connecting line or red SATA line between the print head and the driver board.

Ink reflowing

Ink in the secondary ink cartridge flows into the air tube.

Code	Phenomena	Solutions
1	The negative pressure is too high	Regulate the negative pressure to the optimal value
2	Fill the secondary ink cartridge	Fill each secondary ink cartridge one by one
3	The liquid level sensor of the secondary ink cartridge encounters a fault/short circuit	Replace liquid level sensor
4	Ink pump encounters a fault/short circuit	Replace ink pump
5	The USB board breaks down, and the USB always sends the signal of starting ink pump	Replace USB board

BYHX software reporting errors

The software interface error reporting codes is shown in the table below:

Code	Error code	Error message	Reason for error	Solutions
1	40020052	PACKAGE running time exceeds the limit	The test package shows 2H of low permission limit and 48H of high permission limit	① Restart ② Replace the official package
2	40020018	Serious error: Exceeded the time limit, please enter a new password	Exceeded the time limit	① Reenter the password
3	4002000C	Step 1 of print head board	No print head board serial port information detected when powered on	① Check the connection status of the circuit in the print head board ② Check the power supply of the print head board
4	2002010E	Measurement failed	Height and width measurement failed	① Height measurement failed, check if the height measurement block pops up normally ② Height measurement failed, check if the feedback from the block is normal ③ Width measurement failed, check if the feedback from the width sensor is normal ④ Save the log and contact the R&D personnel
5	2002008B	The Mainboard does not have a valid waveform	Trigger emergency stop during printing process	① Check the emergency stop signal

6	0402004A	USB2.0 connection	S system does not use USB3.0 connection	① Check whether USB cable is 3.0 ② Check if the PC supports USB 3.0 connection, ports, and drivers
7	20020085	1band print data of S system is not reported completely	At the end of the current band, the data has not been sent out completely	① Check the gear ratio feedback signal ② Check if the motor is moving normally and if the driver is giving an alarm ③ Check if the grayscale settings are correct ④ Check if there is an emergency stop limit triggered ⑤ Check if the buffer distance and platform distance are 0 or if the value is too small ⑥ Check for high-resolution filtering phenomenon ⑦ Save the log for R&D personnel to analyze
8	04020020	Print data less than ignition frequency		① Check the grating ② Check the gear ratio ③ Check the waveform and ignition frequency ④ Reduce ignition frequency, increase acceleration and deceleration time, and confirm if LVDS data is overloaded ⑤ Save LOGO
9	20020003	Head board COM timeout	Communication timeout between print head board and Mainboard	① Troubleshooting: Check the running light of the print head board to confirm if it is crashing ② Replace the print head board card ③ Replace the upgrade package version of the print head board

10	2002008D	Ultra-wide image	The current image requires a width greater than the printer width	① Check image size ② If there is no initialization, check the factory settings and printer width settings to find the endpoint ③ If there is initialization, confirm if the endpoint stroke is sufficient to print the current image to find the endpoint
11	40020088	Motion initialization failed	New motion initialization failed	① Check if the sensor status is normal ② Check if the motion parameter is normal ③ Save the log and contact the R&D personnel
12	04020005	Black indicates that it is pumping ink	Detected ink shortage: black	① Check for ink shortage ② Short circuit/disconnect the ink detection sensor on the print head board ③ If there is no problem with the sensor, please try replacing the print head board
13	40080395	Link status error	Red SATA cable port loosening	① Unplug and plug the red port of the head board ② Unplug and plug the driver board port
14	40080192 40070195 40070D92 40070092 40090195	Head board driver element malfunctioning	Driver board damaged	① Check the software and print head temperature and voltage, unplug and plug the red SATA cable and power cable of the driver board. ② Replace the print head driver board
15	04070164 04070264	Inconsistent driver board version	Inconsistent old and new driver board versions	① Upgrade to the latest driver board upgrade package

Anti-collision system reports an error

The anti-collision system is triggered due to uneven materials that become warping in printing.

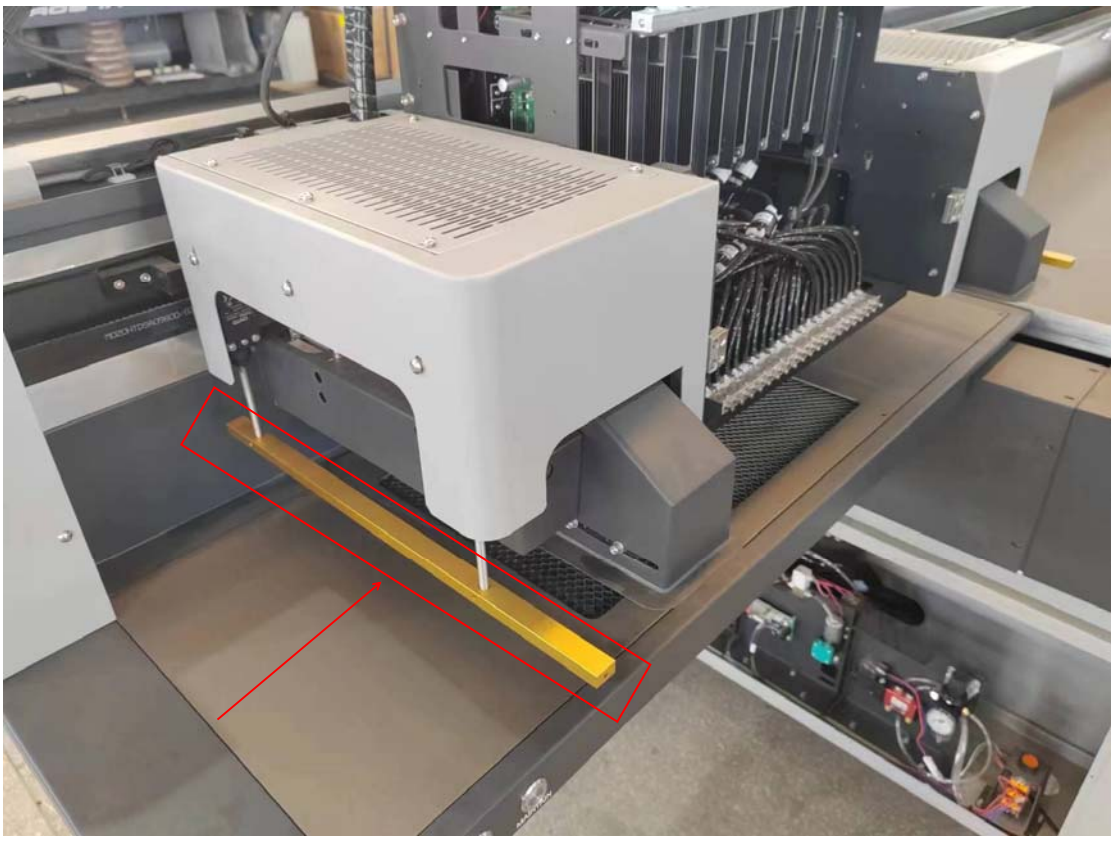


Fig. 123: Emergency stop anti-collision rod on both sides of carriage

Check whether the anti-collision rod is lower than the print head base plate plane. If yes, please adjust them to the same level.

If the anti-collision systems on both sides of carriage are triggered due to uneven materials, and the machine is shut down, the material levelness can be adjusted manually and the continuous print of the software can be clicked when the collision is minor and the printing pattern effect is not affected.

When collision is serious and the carriage sheet metal parts are deformed, please timely stop the printing task, raise the carriage to the highest point and move the carriage to the rest position on the side of waste ink. Observe whether the print head is damaged, and whether the metal surface is warping.

Maintenance for Print Heads and the Printer

Daily maintenance of print heads

Note:
Routine care and maintenance of the machine is crucial, not only to prolong the service life of the print heads, but also to minimize unnecessary damage (print heads are expensive), while improving the printing quality.

Every day before the startup and shutdown, it is recommended to print nozzle test chart to check whether the nozzle is in normal condition and to observe whether the ink droplet on the surface of print head smooth drips when ink is pressed.

Fig. 124: Ink pressing

If a great deal of bubbles appear on the surface of the print head when ink is pressed, the two-way valve can be turned on to exhaust air.

Fig. 125: Exhaust air

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 cable of the print head 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 cable itself and the end should be carefully checked before connecting the cable of print head to make sure no squeezes or scratches.
7. Connecting or disconnecting the cable of the print head 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 the filter of the ink route system. In the ink route system, a filter of 15um or less is usually installed in the front of the print head.
   (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.
   (3) Refilling can be done in two steps. The pressure of ink refilling should usually be kept below 30Kpa, and the manual of the print head can be referred to in particular cases.
      ① Step 1: The two-way valve should be opened first, and the ink is refilled to the ink tube, filter, print head by ink pressing with positive pressure; the impurities and bubbles of these parts are removed with the flowing

ink.

② Step 2: Shut down the two-way valve and keep ink pressing until the ink flows out of the print head. (Maintenance of Print Heads, V1.00)

③ The change of liquid level in ancillary ink tank during ink pressing should be noticed or ink pressing in an intermittent way (stop ink pressing about 3~5s or wait the indicator light of liquid level turning off after continuous ink pressing for 3~5s) can be adopted to avoid pressing the air into the ink route system and print head when the ancillary ink tank is empty.

④ In step 1, the amount of ink discharged is different because of different print heads, but no less than 100ml ink is suggested to discharge to make the ink system clean and the bubbles are completely discharged.

⑤ In step 1, the two-way valve should be shut down after the ink is discharged in a straight line.

3. Abnormal handling methods for ink refilling

The print heads should be wiped and a nozzle test chart printed after finishing refilling. Normally, all print heads can discharge the ink. If several print heads fail to discharge the ink or discharge the skew ink, which may be caused by the small bubbles. In this circumstance, you can press the ink several times or continuously print for a period of time.

Daily maintenance and wiping of print heads

1. Materials and methods for wiping print heads
   (1) The residual ink on the print head can be wiped with an absorbent lint-free cloth/non-woven cloth, or be scraped with a non-absorbent scraper. Materials with high friction coefficient or fuzz and scrapers with foreign matter are forbidden to wipe the print head. Dust-free cloth and scrapers made of EPDM rubber are recommended.
   (2) The residual ink on the nozzle 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 way and period for maintaining print heads in daily use.
   (2) Daily maintenance includes ink pressing and flash spray. The way and period of maintenance is different based on the different ink types. In normal circumstances, when the machine is idle, the solvent and water-based machine should always be kept in the flash spray state to prevent the print

head from blocking caused by drying ink; UV printer is recommended to keep in the flash spray state with low frequency.

(3) It is recommended that ink pressing should be stopped when the needles are seriously broken (more than 3 newly increased broken needles in a single print head). Maintenance of print head-V1.00

(4) There are two steps before the start and the end of each working periods: ink pressing and checking ink discharged from all nozzles. Besides, maintenance based on the instructions before shutdown is also a step before the end of each working periods. During working hours, it is recommended to press the ink every 4 hours and ensure that all nozzles can discharge the ink.

Short-term outage of nozzles for maintenance

1. The short-term outage is less than 7 days.
2. If the printer stops printing for several hours, the flash spray should be turned on standby to minimize the probability of the blockage of nozzles.
3. For short-term outage of more than 1 day, the print head require daily maintenance first to ensure that all nozzles discharge the ink, and then cover the bottom surface of the entire baseboard of the print head with a moisturizing tray to reduce the drying speed of the ink in the nozzles and to prevent dust from entering the nozzle.
4. Before covering, the moisturizing tray should be kept clean. The materials for wiping the print head are applied to the tray and moisturized by a little cleaning fluid and humectant.
5. During outage, the printer should be kept in an environment with required temperature and humidity of the manual. The materials for wiping the print head in the moisturizing tray should be checked everyday to make sure it keeps in a moist state.
6. If possible, nozzle can be checked everyday by printing test strips to troubleshoot any possible malfunctions in time.

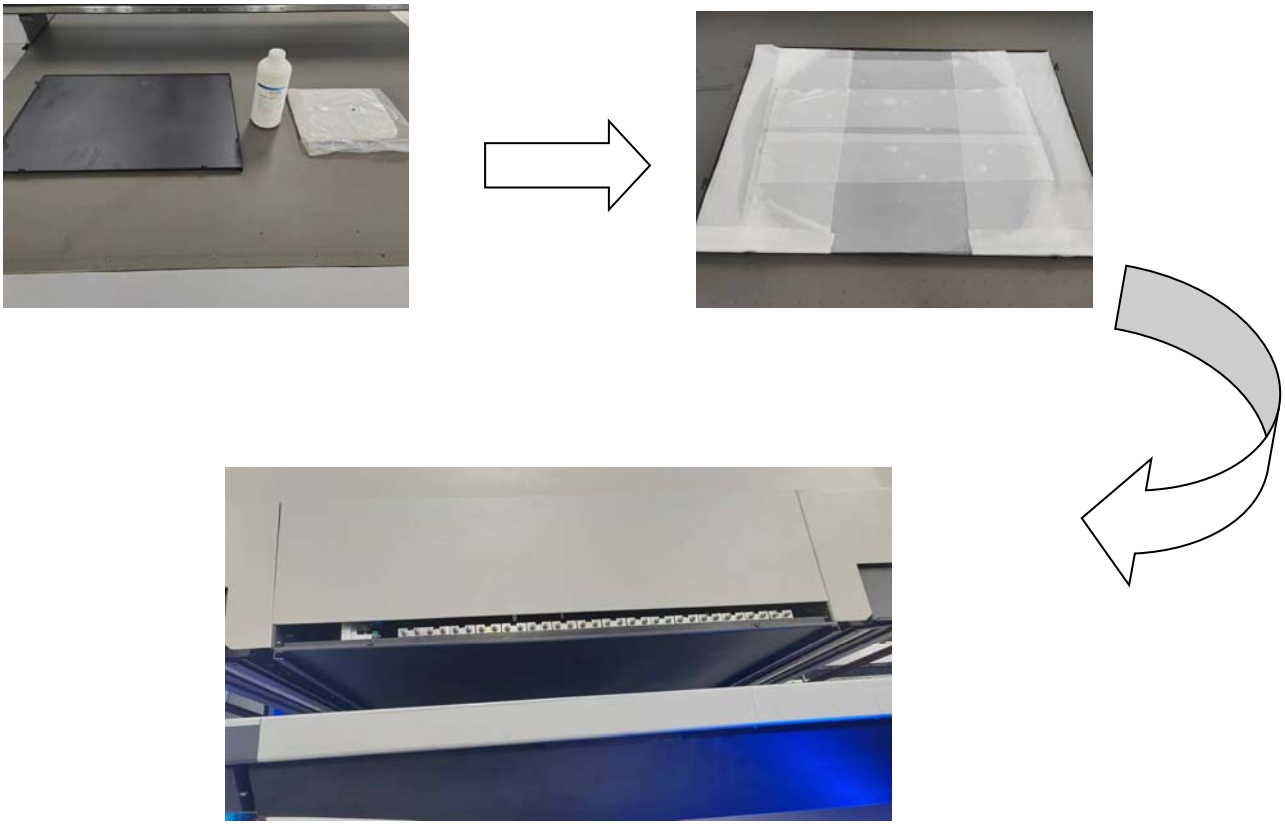


Fig. 126: Installation of moisturizing tray

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. What calls for special attention is that the liquid injected into the print head should be consistent with that used to moisturize the materials for wiping in the moisturizing tray.

Machine maintenance

Note:
Regular cleaning and check shall be made for mechanical operating parts, so that these parts can remain clean and keep working well.

1. Moderate lubricating grease is evenly applied to the guide rail, the lifting screw rod of the carriage and lead screw in Y direction, and sliding blocks are lubricated with lubricating oil from oil gun.

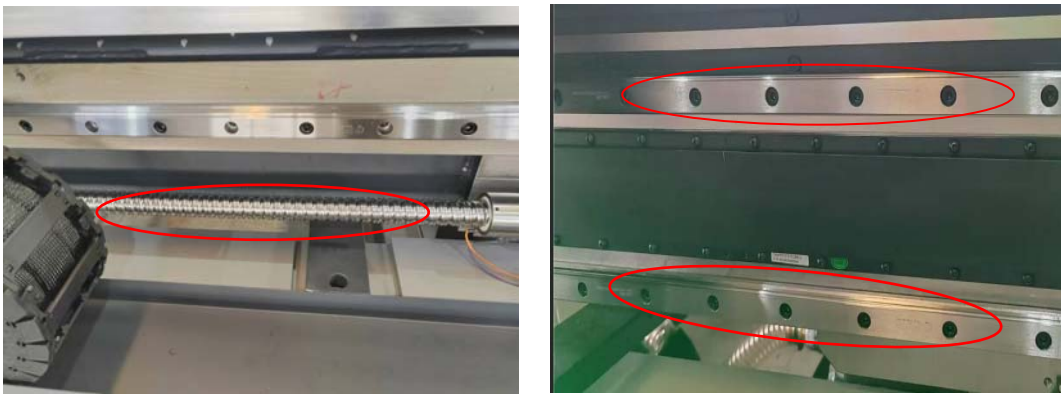


Fig. 127: Coating grease

2. Dust in the metal or magnetic gratings on the beam of the machine are wiped by clean cloth suitable for wiping the print head with small amount of alcohol every other week.

Fig. 128: Wiping grating

3. If the machine keeps power on for 24 hours, it is necessary to turn on the flash spray for idle time in the software to avoid the blockage of the nozzle caused by the machine that does not work in a certain period of time.
4. It is compulsory to clean the dirty mark on the surface of the printing platform as the ink on the platform surface will affect the suction capacity of the platform, in general. Regular clean-up is therefore quite necessary.
5. White ink is easily to deposit. Because of printing with color ink, it is recommended to add color bar when print pictures to make the white ink discharged.

Main ink-box with circulation \ mixing of white ink

6. Because of printing for a long time, the base plate generates static electricity with the materials and the edge of the baseboard stains the wool. The clean cloth suitable for wiping the print heads with alcohol can be used to wipe the base plate. Improve the print quality.

7. When the machine stops working in holiday or vacation, it is recommended to drain the ink of the print head, clean with clean-out fluid and moisturize by the moisturizing tray.

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 UV 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

Note:
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 of machine should be highlighted (electric appliance, ultraviolet light, collision, fragmentation)	
Electric safety	**Signature**
The risky key 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 UV ink and cleaning fluid	**Signature**
Personal protective equipment-the protective measures and processes about the treatment of UV ink and cleanout fluid should be discussed.	
The material safety data sheet of UV 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 UV ink and cleaning fluid	**Signature**
The conditions of the secure storage of UV ink and cleanout fluid should be discussed.	
The importance of the storage conditions for the shelf life of product should be emphasized.	
The risk of UV 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.	
The safety of LED solidification system	**Signature**
The location of LED ultraviolet ray should be highlighted and its operating time should be discussed-operating only for printing and power off when not printing	
The safety of the radiation of ultraviolet ray should be emphasized - no looking directly at the lamp source during printing.	
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	
Light curtain	
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 flatbed 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 flatbed 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 flatbed printer	
Description of any other functions of RIP that are useful or relevant to operators.	

Introduction of interface of control software of the flatbed 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 flatbed 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	
Measure the material thickness	
Printing job	
Turn off the absorption fan cabinet after printing and take away the materials.	
White and other special colors are used.	**Signature**
Explain the mode of white and special colors	
Demonstrate how to use special color such as white ink varnish to print on materials.	
Define white in the control software of the flatbed printer - different settings.	
Define white in the RIP software - different settings.	
Precautions for using white	
The effect of layered printing on output speed.	
White and varnish effect and the effect on the quality of printing performance.	
Maintenance	**Signature**
Personal protective equipment - many tasks require operators to touch the ink, cleanout 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
Every month - Check linear guide on the beam and slide and inject lubricating grease	
Monthly - Check and grease the linear guide and ball screw on the Y-axis	
Monthly - Check and grease the linear guide and screw on the Z-axis	
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 the flatbed printer.	

Engineer’s Notes

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