HP Latex 3000 Printer Series

User Guide

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Edition 5

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1 Introduction

How to use this manual

This document is a user guide for the following printers:

- HP Latex 3000
- HP Latex 3100
- HP Latex 3200
- HP Latex 3500
- HP Latex 3600

NOTE: The information contained in this document may be printer-specific, and may not always apply to all models.

NOTE: This document refers to different printer models. The images shown may differ slightly from your model.

Welcome to your printer

Your printer is a high-productivity industrial printer for producing signs and graphics on a wide range of flexible materials up to 3.20 m (126 in) wide. The printer uses water-based HP Latex Inks to provide high-quality, durable output. Some of the key features of the printer are as follows.

All printers

- High quality output, with rich colors, 1200 dpi resolution, and 12 picoliter drop size
- Print on a wide range of substrates—including PVC banners, self-adhesive vinyls, papers, wall coverings, PET films, and textiles
- Durable prints with outdoor display permanence of up to three years unlaminated, and up to five years laminated
- Accurate and consistent color reproduction with automatic color calibration (built-in spectrophotometer)
- Indoor-quality prints up to 77 m²/h (830 ft²/h)
- HP Latex 3100/3200/3500/3600 only: An energy efficient LED light set, for on-the-fly visual inspection & proofing of the printed image
- HP Latex 3100/3200/3500/3600 only: Printer Status Beacon, an intuitive light signaling system to quickly identify the status of your printer from a distance
- A new package of productivity software designed to improve business and printer efficiency

- A mobile application for aiding production managers for remote monitoring, and operators for multi-printer attendance. For latest information on mobile applications visit: http://www8.hp.com/us/en/commercial-printers/latex-printers/workflow-solutions.html
- Hot swappable ink cartridge: For latex 3000/3100/3200 5 liter, for latex 3500/3600 5 / 10 liter
- HP Print Care maintenance scheduler and proactive maintenance alerts
- Environmental differentiation with water-based HP Latex Inks

HP Latex 3500/3600 only

- (Also optional for HP Latex 3100/3200) In-line slitters for enhancing productivity & alleviating bottle necks in finishing
- Larger roll handling capability to extend the uptime for long print runs, and overnight printing
- Dual-roll split spindles, for managing larger rolls of substrate quicker and safer by one operator on and around the printer

HP Latex 3200/3600 only

- Print-zone lights
- Substrate saver

Documentation

The following documents can be downloaded from http://www.hp.com/go/latex3000/manuals/:

- Site preparation guide
- Site preparation checklist
- Installation guide
- Introductory information
- User's guide
- Legal information
- Limited warranty

See the Solutions Web site for information about new substrates, at http://www.hp.com/go/latex3000/solutions/. A new Web-based Media Solutions Locator (http://www.hp.com/go/mediasolutionslocator) has been developed to collect available substrate configurations for latex printers.

The Quick Response (QR) code images found in some parts of this guide provide links to additional video explanations of particular topics. For an example of such an image, see The ink collector kit on page 48.

Safety precautions

Before using your printer, read the following safety precautions and operating instructions to make sure you use the equipment safely.

You are expected to have the appropriate technical training and experience necessary to be aware of hazards to which you may be exposed in performing a task, and to take appropriate measures to minimize the risks to yourself and to others.

Operations must be supervised at all times.

General safety guidelines

⚠ **WARNING!** If your printer includes a printer status beacon, the information provided is for functional information purposes only, and is not related to any safety provision, or safety states. Warning labels on the printer must be always considered when operating the printer, and they prevail over any status indicated by the printer status beacon.

Turn off the printer, using the Branch Circuit Breakers located in the building's Power Distribution Unit (PDU), and call your service representative (see HP Customer Care Centers on page 409) in any of the following cases:

- The power cord is damaged.
- The drying or curing enclosures are damaged.
- The printer has been damaged by an impact.
- Liquid has entered the printer.
- There is smoke or an unusual smell coming from the printer.
- The printer's built-in Residual Current Circuit Breaker (Ground Fault Circuit Interrupter) has been repeatedly tripped.
- Fuses have blown.
- The printer is not operating normally.
- There is any mechanical or enclosure damage.

Turn off the printer using the Branch Circuit Breakers in either of the following cases:

- During a thunderstorm
- During a power failure

Take special care with zones marked with warning labels.

Electrical shock hazard

⚠ **WARNING!** The internal circuits, drying and curing modules, and vapor removal thermal blankets operate at hazardous voltages capable of causing death or serious personal injury.

Turn off the printer using the Branch Circuit Breakers located in the building's Power Distribution Unit (PDU) before servicing the printer. The printer must be connected to earth at mains outlets only.

To avoid the risk of electric shock:

- Do not attempt to dismantle the drying and curing modules, vapor removal thermal blankets, or the e-cabinet except during hardware maintenance tasks. In that case, follow the instructions strictly.
- Do not remove or open any other closed system covers or plugs.
- Do not insert objects through slots in the printer.
- Test the functionality of the Residual Circuit Breaker (RCCB) every year (refer to the procedure below).

NOTE: A blown fuse may indicate malfunctioning electrical circuits within the system. Call your service representative (see HP Customer Care Centers on page 409), and do not attempt to replace the fuse yourself.

Checking the functionality of the Residual Circuit Breakers (RCCBs)

Following standard Residual Current Circuit Breaker (RCCB) recommendations, it is recommended that the RCCBs are tested on a yearly basis. The procedure is as follows:

1. Turn off the built-in computer using the Internal Print Server's **Shutdown** button (or, in Print Care, select **Printer tools** > **Power options** > **Shutdown**). Do not turn off the printer from the mains switch or the circuit breakers.

   ⚠ CAUTION: The shutdown process takes some time to complete. Wait until the green Power Enabled light is off before proceeding.

2. Once the computer is off, test that the RCCB works correctly by pressing the test button.

   - If the RCCB does not trip when the test button is pressed, this indicates that it has failed. The RCCB must be replaced for safety reasons; call your service representative to remove and replace the RCCB.
   - If the RCCB trips, this indicates it is working correctly; reset the RCCB to its normal on state.

Heat hazard

The drying and curing subsystems of the printer operate at high temperatures and can cause burns if touched. LED array supports, and beam and enclosures can reach high temperatures. To avoid the risk of burns, take the following precautions:

- Do not touch the internal enclosures of the printer's drying and curing modules or vapor removal thermal blankets.
- Take special care when accessing the substrate path.
- Take special care with zones marked with warning labels.
- Do not place objects covering LED arrays supports, beam and enclosures.
- Do not attempt to modify LED array supports, beam and enclosures.
- Remember to let the printer cool down before performing some maintenance operations.

Fire hazard

The drying and curing subsystems and vapor removal thermal blanket of the printer operate at high temperatures. Call your service representative if the printer's built-in Residual Current Circuit Breaker (Ground Fault Circuit Interrupter) is repeatedly tripped.

To avoid the risk of fire, take the following precautions:

- Use the power supply voltage specified on the nameplate.
- Connect the power cords to dedicated lines, each protected by a branch circuit breaker according to the information detailed in the site preparation guide.
- Do not insert objects through slots in the printer.
- Take care not to spill liquid on the printer. After cleaning, make sure all components are dry before using the printer again.
- Do not use aerosol products that contain flammable gases inside or around the printer. Do not operate the printer in an explosive atmosphere.
- Do not block or cover the openings of the printer.
- Do not attempt to modify the drying or curing module, e-cabinet, or the vapor removal thermal blankets.

- Ensure that the operating temperature of the substrate recommended by the manufacturer is not exceeded. If this information is not available, ask the manufacturer. Do not load substrates that cannot be used at an operating temperature above 125°C (257°F).
- Do not load substrates with auto-ignition temperatures below 250°C (482°F). See note below. No ignition sources are close to the substrate.

NOTE: Test method based on EN ISO 6942:2002, *Evaluation of materials and material assemblies when exposed to a source of radiant heat, method B*. The test conditions, to determine the temperature when the substrate starts ignition (either flame or glow) were: Heat flux density: 30 kW/m², Copper calorimeter, K type thermocouple.

- Proper maintenance and genuine HP consumables are required to ensure that the printer operates safely as designed. The use of non-HP consumables (foams, filters, printhead cleaner roll, and inks) may present a risk of fire.

LED array supports, beam and enclosures can reach high temperatures. To avoid the risk of fire, take the following precautions:

- Take special care with zones marked with warning labels.
- Do not place objects covering the LED arrays supports, beam and enclosures.
- Take care not to spill liquid on the accessory. After cleaning, make sure all components are dry before using the printer.
- Do not attempt to modify LED array supports, beam and enclosures.

Mechanical hazard

The printer has moving parts that could cause injury. To avoid personal injury, take the following precautions when working close to the printer and (optional) in-line slitters:

- Keep your clothing and all parts of your body away from the printer's moving parts.
- Avoid wearing necklaces, bracelets and other hanging objects.
- If your hair is long, try to secure it so that it will not fall into the printer.
- Take care that sleeves or gloves do not get caught in the printer's moving parts.
- Avoid standing close to the fans, which could cause injury and could also affect print quality (by obstructing the air flow).
- Do not touch gears or moving rolls during printing.
- Do not operate the printer with covers bypassed.
- Do not touch the in-line slitters during printing.
- Handle the in-line slitters with care, and store them safely in their box when not used with the printer.
- Risk of cutting your fingers! Uninstall the in-line slitters when manipulating the curing module or accessing the substrate path.
- Take care when using the air gun. When used for cleaning purposes, make sure to use it according to the local regulations since additional safety provisions may apply.

Light radiation hazard

Infrared (IR) radiation is emitted from the dryer module. The dryer enclosure limits radiation in compliance with the requirements of the exempt group of IEC 62471:2006, *Photobiological safety of lamps and lamp systems*.

However, you are recommended not to look directly at the lamps while they are on. Do not modify the dryer enclosure.

UV radiation can be emitted from the LED array in compliance with the requirements of the exempt group of IEC 62471:2006, *Photobiological safety of lamps and lamp systems*. However, you are recommended not to look directly for a long time at the output LED lights while they are on.

Alignment tool for Dual roll center support uses a Laser class > I in compliance with limits according to CE and FDA requirements, and has its laser warning label accordingly. You are recommended not to look directly at the laser beam.

Chemical hazard

See the safety data sheets available at http://www.hp.com/go/msds/ to identify the chemical ingredients of your consumables. Sufficient ventilation should be provided to ensure that potential airborne exposure to these substances is adequately controlled. Consult your usual air-conditioning or EHS specialist for advice on the appropriate measures for your location. For more detailed information, see the "Ventilation" and "Air conditioning" sections of the site preparation guide, available from http://www.hp.com/go/latex3000/manuals/.

Ventilation

Fresh air ventilation is needed to maintain comfort levels. For a more prescriptive approach to adequate ventilation, see the latest edition of the ANSI/ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) document *Ventilation for Acceptable Indoor Air Quality*.

Air conditioning and ventilation should meet local Environmental Health and Safety (EHS) guidelines and regulations.

Follow the ventilation recommendations in the site preparation guide.

Air conditioning

In addition to fresh air ventilation, to avoid health hazards, you should maintain the operating conditions specified in the Environmental specifications on page 414, to avoid operator discomfort and equipment malfunction. Air conditioning in the work area should take into account that the equipment produces heat. Typically, the printer's power dissipation is: 9–11 kW (31–38 kBTU/h).

Sound pressure level

The sound pressure level could exceed 70 dBA in some print modes. Hearing protection may be required.

Heavy substrate hazard

Special care must be taken to avoid personal injury when handling heavy substrates.

- Handling heavy substrate rolls always requires two people. Care must be taken to avoid back strain and/or injury.
- Always use a forklift, pallet truck, or other handling equipment to lift substrates. The printer has been designed to be compatible with many of these devices.
- Always wear personal protective equipment including boots and gloves.

Ink and condensation handling

HP recommends that you wear gloves when handling ink and condensation system components.

Use of tools and keys

- **Users:** Daily operations including printer settings, printing, substrate loading, replacement of ink reservoirs, and daily checks. No tool or maintenance key is required.
- **Maintenance personnel:** Hardware maintenance tasks and replacement of printheads, filters, ink waste bottles, foams, and printhead cleaning roll. The maintenance key and a flat screwdriver are required.
- **Service personnel:** Any repair or maintenance operation, running diagnostics, and troubleshooting. Required:

Maintenance key	e-cabinet key	Mains switch key
Internal Print Server key.	Torx screwdriver set	

NOTE: During the installation of the printer, the designated personnel receive training for the safe operation and maintenance of the printer. It is not allowed to use the printer without this training.

NOTE: After using the maintenance key to open a door, remember to lock it afterwards, and return the key to safe and secure storage.

Warnings and cautions

The following symbols are used in this manual to ensure the proper use of the printer and to prevent the printer from being damaged. Follow the instructions marked with these symbols.

WARNING! Failure to follow the guidelines marked with this symbol could result in serious personal injury or death.

CAUTION: Failure to follow the guidelines marked with this symbol could result in minor personal injury or damage to the product.

Warning labels

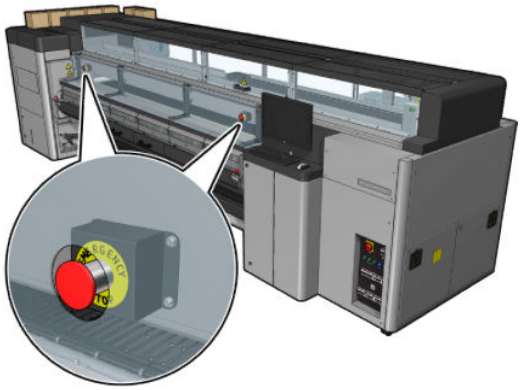
Label	Explanation
 Located on the e-cabinet; for service personnel only	**Electric shock hazard** Heating modules operate at hazardous voltage. Disconnect power source before servicing. Caution! Double pole. Neutral fusing. Refer servicing to qualified service personnel. In case of operation of the fuse, parts of the printer that remain energized may represent a hazard during servicing. Before servicing, turn off the printer using the Branch Circuit Breakers located in the building's Power Distribution Unit (PDU). **Warning** High leakage current. Current leakage may exceed 3.5 mA. Earth connection essential before connecting supply. Equipment to be connected to earthed mains only. See installation instructions before connecting to the supply. Ensure that the input voltage is within the printer's rated voltage range. The printer requires up to two dedicated lines, each protected by a branch circuit breaker according to site preparation requirements. **Before starting** Read and follow the operating and safety instructions before starting the printer.
 Located on the curing and drying modules and universal support beam.	Risk of burns. Do not touch the internal enclosures of the printer's drying and curing modules, vapor removal thermal blankets, universal support beam, and LED array and enclosures.
 Located on each side of the substrate path, close to the PPS gear	Crush hazard. Do not touch PPS while moving. When the substrate has been loaded, the carriage descends into its printing position, and could crush your hand or anything else left underneath it.
 Located on each side of the substrate path, close to the PPS gear, and on the dual roll center support	Risk of trapped fingers. Do not touch gears while moving. Danger that your hands may become trapped between gearwheels.

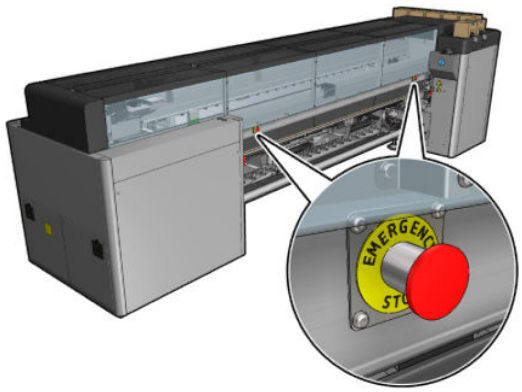
Label	Explanation
 Located internally on the substrate path and internally on the right cover; for maintenance/service personnel only	Hazardous moving part. Keep away from moving printhead carriage. When printing, the printhead carriage travels back and forth across the substrate.
 Located on the dryer module; for maintenance/service personnel only	Light radiation hazard. Infrared (IR) radiation is emitted from this printer. Do not modify the dryer enclosure. You are recommended not to look directly at the lamps when they are on. The dryer enclosure limits radiation in compliance with the requirements of the exempt group of IEC 62471:2006, *Photobiological safety of lamps and lamp systems*.
 Located on the condensation collector bottle and the printhead cleaning roll carriage	You are recommended to wear gloves when handling the maintenance cartridge, the platen, the ink collector, condensation on the printer, and the condensation system components.
 Located at the rear, on the left cover	Sound level could exceed 70 dBA in some print modes. Hearing protection may be required.
 Located internally on heating modules and electrical cabinets; for maintenance/service personnel only	Electric shock hazard. Disconnect power before servicing. Heating modules and electrical cabinets operate at hazardous voltage.
 Located on each side of the in-line slitters	Risk of cutting your fingers. Do not touch in-line slitters during printing. Handle in-line slitters with care and store them safely in their box when not used with the printer.

Label	Explanation
 Located internally, close to vacuum fan blades; for maintenance/ service personnel only	Hazardous moving parts. Keep away from moving fan blades.
	Identifies the Protective Earth (PE) terminal for qualified electricians, and bonding terminals for maintenance/service personnel only. Earth connection essential before connecting supply.

Emergency stop buttons

There are four emergency stop buttons distributed around the printer. If an emergency occurs, simply push one of the emergency stop buttons to stop all printing processes. A system error message is displayed, and the fans turn at maximum speed. Ensure that all emergency stop buttons are released before restarting the printer.



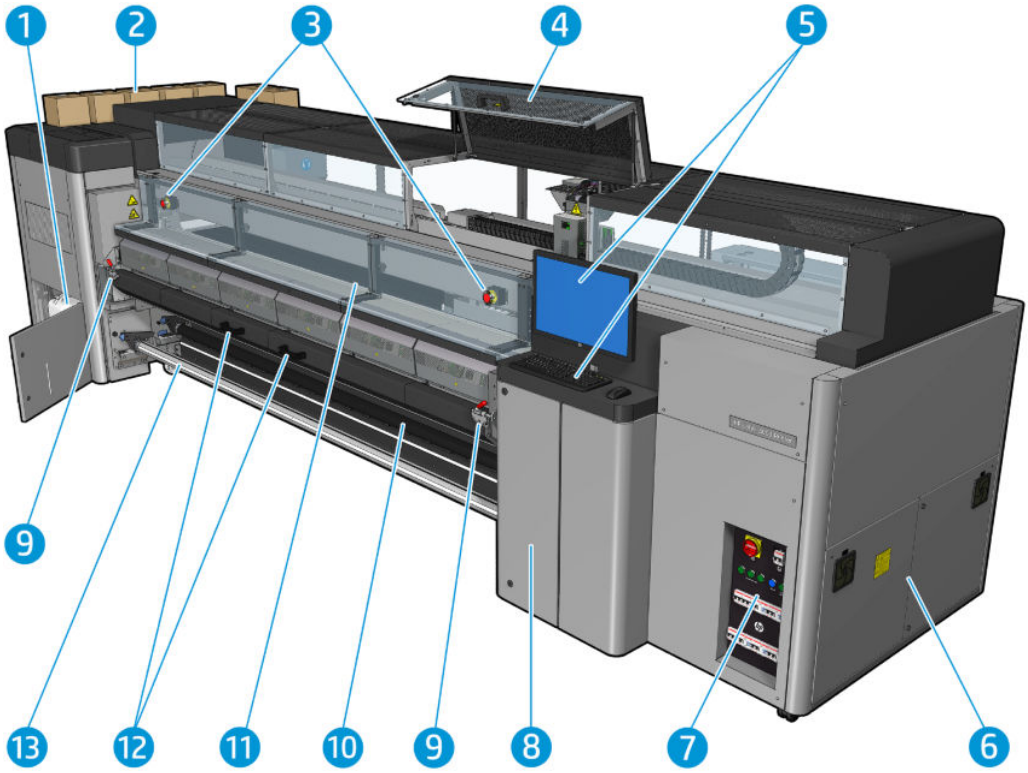


For safety reasons, access to the print zone is not permitted while printing is in progress. Therefore, if the front door or the loading table is opened, power to the carriage and to the drying and curing module is disconnected. The print is cancelled and a system error may be displayed.

Main components

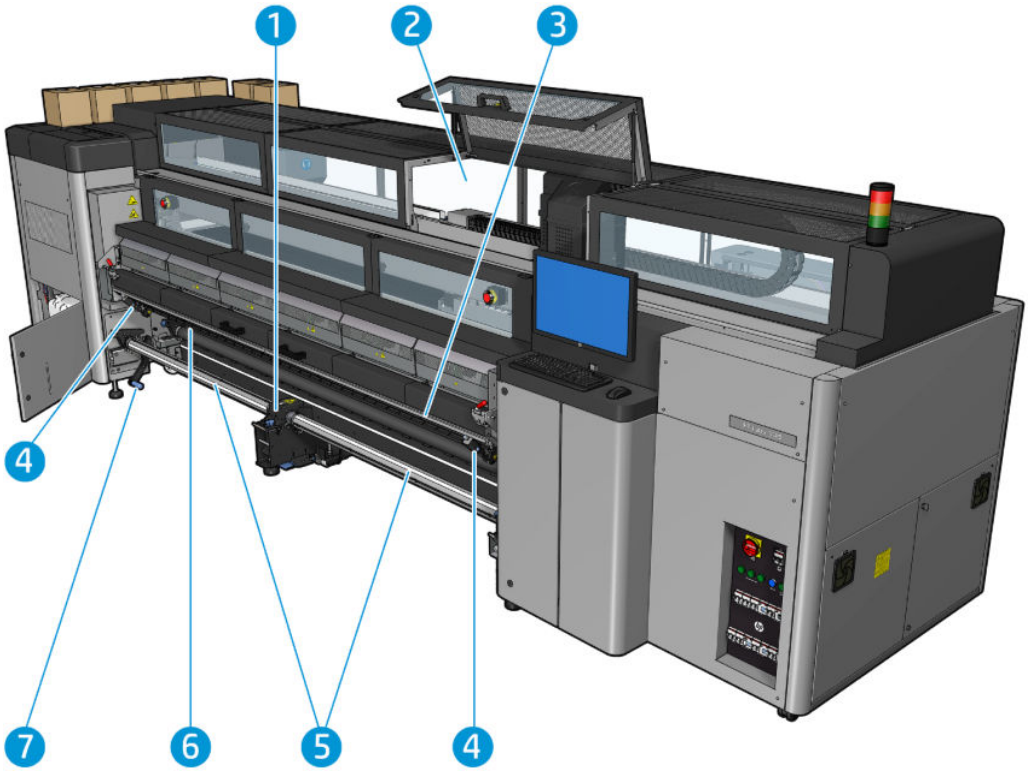
The following views of the printer illustrate the main components.

Front view HP Latex 3000 Printer



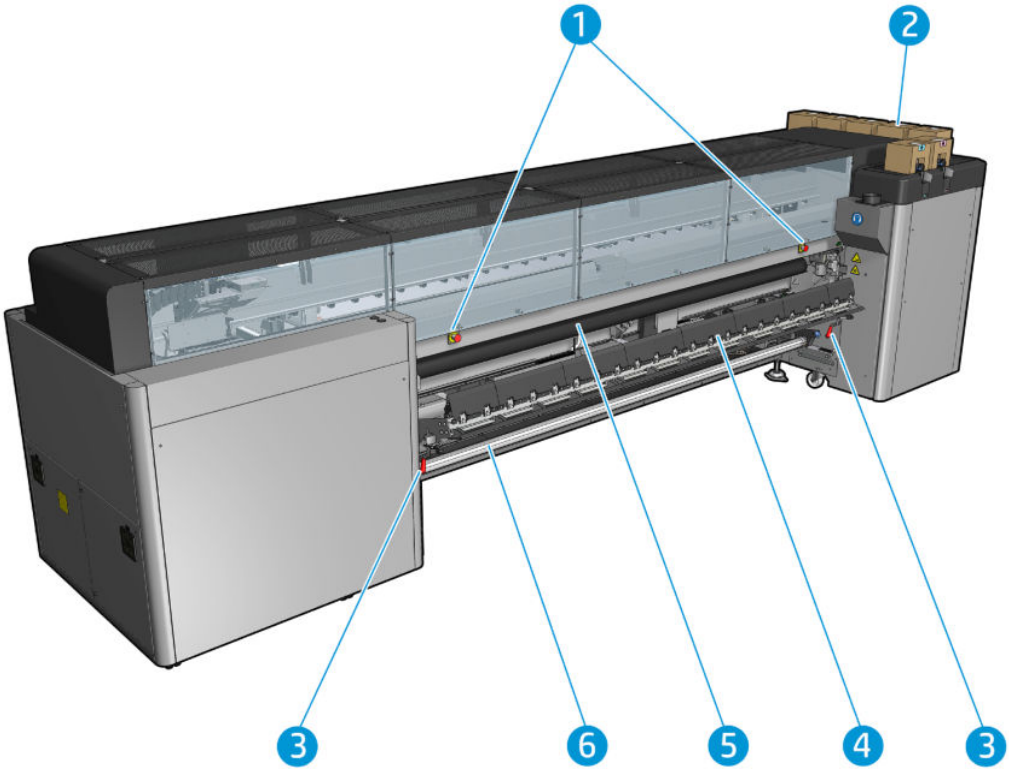
1. Condensation collector bottle
2. Ink cartridges
3. Emergency stop buttons
4. Service position window
5. Built-in computer
6. E-cabinet
7. Power switches, lights, and circuit breakers
8. Printhead cleaner roll door
9. Curing module latches, one on each side
10. Tension roller (for roll-to-free-fall configuration)
11. Front door
12. Curing module handles
13. Substrate output spindle

Front view HP Latex 3100/3200/3500/3600 Printer



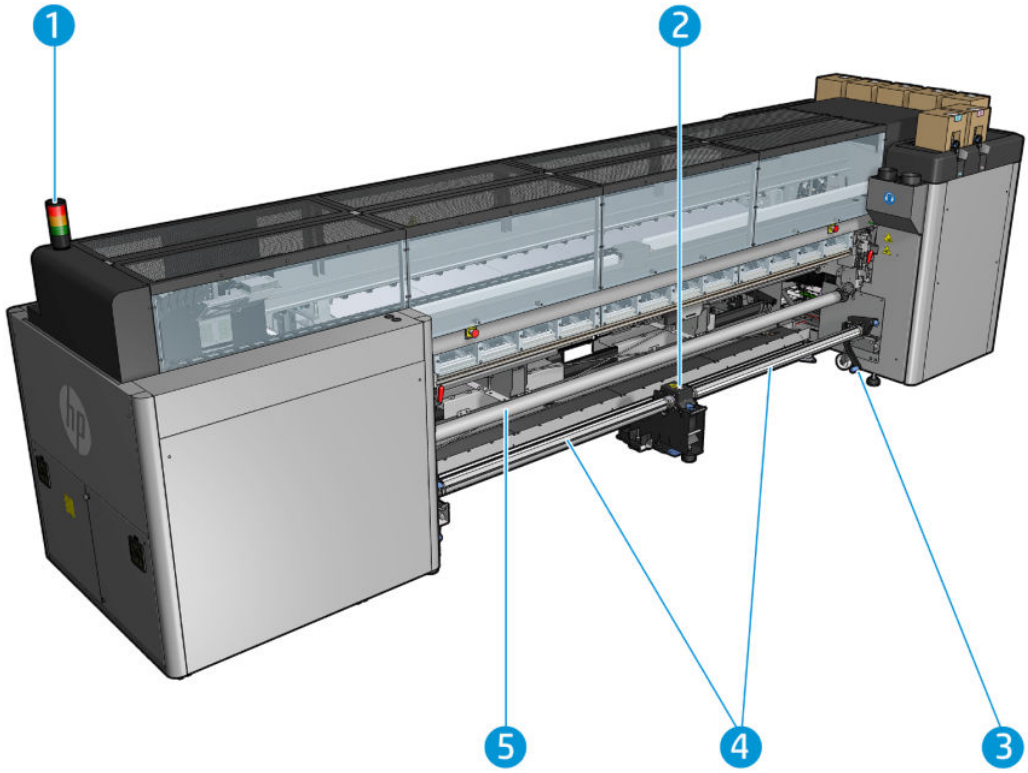
1. **HP Latex 3500/3600 only:** Dual roll split spindle center support
2. **HP Latex 3200/3600 only:** Printzone lights
3. Universal Mounting Beam
4. (Also optional for 3100/3200) Slitters
5. **HP Latex 3500/3600 only:** Split spindles
6. LED proofing lights
7. **HP Latex 3500/3600 only:** Roll ejector lever

Rear view HP Latex 3000 Printer



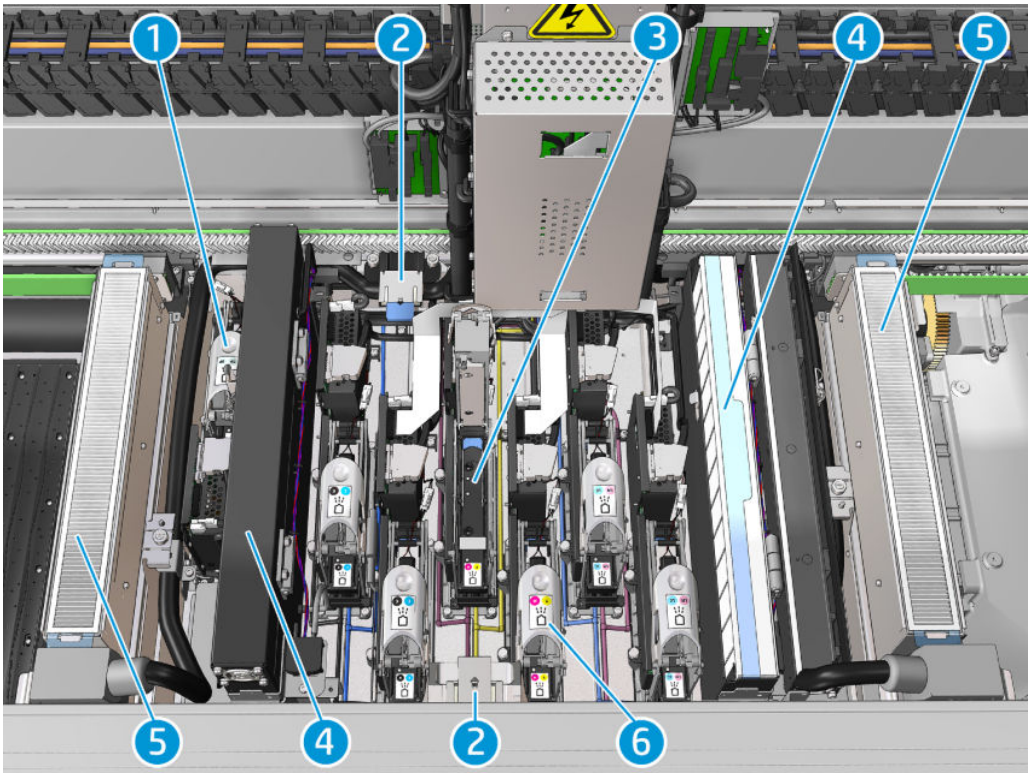
1. Emergency stop buttons
2. Ink cartridges
3. Loading table latches, one on each side
4. Loading table
5. Drive roller
6. Substrate input spindle

Rear view HP Latex 3100/3200/3500/3600 Printer



1. Printer status Beacon
2. **HP Latex 3500/3600 only:** Dual roll split spindle center support
3. **HP Latex 3500/3600 only:** Roll ejector lever
4. **HP Latex 3500/3600 only:** Split spindles
5. **HP Latex 3500/3600 only:** Diverter

Carriage view



1. Optimizer printhead latch
2. Oiler foams
3. Printhead
4. Aerosol filters
5. Drying filters
6. Printhead latch

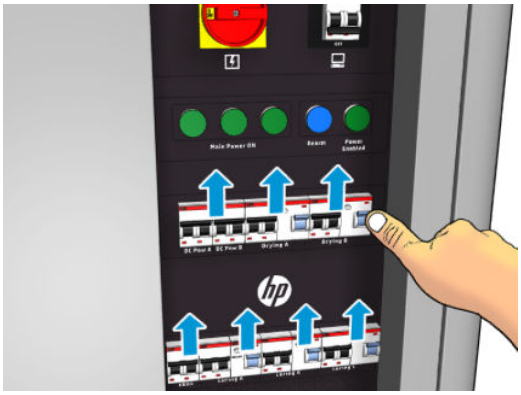
Printer software

Your printer requires the following software:

- The HP Internal Print Server is provided with your printer and is already installed in the printer's built-in computer. It displays printer alerts and a summary of printer status, manages print jobs, and must be used to interact with the printer in various ways. See HP Internal Print Server on page 20.
- The HP Print Care program is provided with your printer and is already installed in the printer's built-in computer. It displays printer status and history in detail, and helps you to maintain the printer and solve any problems that may arise. See HP Print Care on page 185.
- A Raster Image Processor (RIP) should be run on a separate computer; it cannot be installed on the printer's built-in computer. It is not provided with the printer and should be obtained separately. The printer is JDF-enabled. If your RIP supports this interface, it can retrieve and display printer and job status.

Turn on the printer for the first time

1. Make sure that the two bottom rows of circuit breakers at the front right of the printer are all in the up position.



2. Turn the main switch to the on position, and also turn on the PC switch beside it.

3. Check that all three green lights are on. In normal operation these lights should always be on. If any of them are off, check the Internal Print Server in case there is a system error, and see Printer messages on page 415 or check with your electrician.
4. Wait for the Internal Print Server to tell you that the printer is waiting for rearm.
5. Perform a visual check of the printer.
6. Press the blue rearm button at the front right of the printer. This enables all of the printer's high-power subsystems.
7. Check that the printer-enabled green light turns on. In normal operation this light should always be on. If at any time you notice that this light is off, check the Internal Print Server in case there is a system error, and see Printer messages on page 415.
8. Wait for the Internal Print Server to indicate that the printer is ready. This can take several minutes. When initialization is complete, the Internal Print Server displays a Ready message. If a system error message is displayed, see Printer messages on page 415.

Turn the printer on and off

The printer has three power-off levels. Each of them goes deeper, until you reach complete shutdown at level 3.

Level	Turn off	Turn on
1: Major power electronics and engine off.	Wait for the Internal Print Server to indicate that the printer is ready, then turn off the high-power subsystems by pressing the shutdown icon near the top left corner of the screen. Wait until the Internal Print Server reports that it has lost its connection to the printer. NOTE: After the printer electronics have been turned off at the Internal Print Server, the fans turn at maximum speed for safety reasons. This is normal behavior and not a cause for concern.	Click the **Wake Up** button up in the top left corner of the Internal Print Server window, and wait for the printer to turn on the high-power systems. When prompted, press the blue rearm button at the front right of the printer.
2: All printer systems off (recommended).	After completing level 1, turn off the main switch. The fans should stop.	After completing level 1, turn on the main switch, and ensure that the circuit breaker beside it is on. When prompted, press the blue rearm button and wait for the Internal Print Server to announce that the printer is Ready.
3: All printer systems and Internal Print Server off.	After completing level 2, shut down the Internal Print Server from the Windows Start button, and wait until you see a black screen with the message **No input signal**. CAUTION: The computer may be damaged if it is turned off incorrectly. Once the Internal Print Server is completely off and you see **No input signal** on the screen, turn off the computer power switch.	After completing level 2, see Turn on the printer for the first time on page 16.
4: Reboot.	—	—
5: Reboot and print.	—	—

IMPORTANT: The printer incorporates a counter that indicates the printer usage time that remains.

Move the printer

If you wish to move the printer a short distance on the same site, across a horizontal floor with no steps and no slopes of more than 5% inclination, see the following instructions. For more difficult movement operations, call your service representative (see HP Customer Care Centers on page 409).

CAUTION: Slopes steeper than 5% may cause serious damage to the printer.

1. Turn off the printer.
2. Disconnect all power and network cables from the printer.
3. Disconnect all ink cartridges and remove them from the printer. Hold the cartridge connectors in position with adhesive tape.
4. If your printer is an HP Latex 3500/3600, raise the secondary feet before moving the printer.
5. Is your printer is an HP Latex 3500/3600, unload the split spindles and remove both center support split spindles from their base (see HP Latex 3500/3600 dual-roll split spindles center support on page 63).
6. Raise the feet so that the wheels (A) touch the ground. To raise a foot:

a. Use a 30 mm (1.18 in) wrench to unlock the nut at the top of the foot.

b. Rotate the nut manually down the bolt. Leave about 2 cm (0.8 in) clearance at the bottom between nut and foot.

c. Use a 15 mm (0.59 in) wrench to rotate the foot upwards. Use the flat faces at the bottom of the bolt to fit the wrench.

d. Raise the foot as far as the bolt allows.

e. Use the 30 mm (1.18 in) wrench to relock the nut.

⚠ CAUTION: Take care to raise the feet as high as you can. They may break if they touch the ground while the printer is in motion.

7. HP Latex 3500/3600 only: If the printer is anchored to the floor, unanchor it; remove the 2 M20 bolts from each anchor support, then, once the printer has been moved away, there will be access to remove the anchor supports from the floor.

8. Push the printer from the outside corners of the top covers. Remember to avoid slopes steeper than 5%.

9. if you have an HP Latex 3500/3600, it is possible that you have to adjust the center support split spindles after moving the printer (see HP Latex 3500/3600 dual-roll split spindles center support on page 63).

   If the printer needs to be reinstalled, see the installation guide for more details on anchoring the printer to the floor and dual roll center support installation.

After moving the printer, you may in some cases need an electrician to reconnect the power cables. You may also need to reconfigure the network, from the printer's built-in computer and from the RIP computer. See the *Installation Guide* for more details, including the minimum space required around the printer.

Printer Status Beacon

⚠ CAUTION: In the case that the printer includes a printer status beacon; the information provided is for functional information purposes only, and is not related to any safety provision, or safety states. Warning labels on the printer must be always considered when operating the printer, and they prevail over any status indicated by the printer status beacon.

If your printer is an HP Latex 3100/3200/3500/3600 your printer has a light signaling system to visually identify the status of your printer.

Printer status beacon messages mean:

Color	Description
Red	Unexpected printing interruption. A job that had started to print stopped unexpectedly and appears as **Failed**. Attention required. An UI user confirmation appears in the IPS window. When attended to, the red color in the beacon changes to reflect the state of the printer.
Orange	Alert present in the IPS (Warnings)
Green	Idle
	Printing

Output platen light (HP Latex 3200/3600 only)

The output platen light illuminates both the platen and the job that is being printed. It can be switched on and off manually

2 HP Internal Print Server

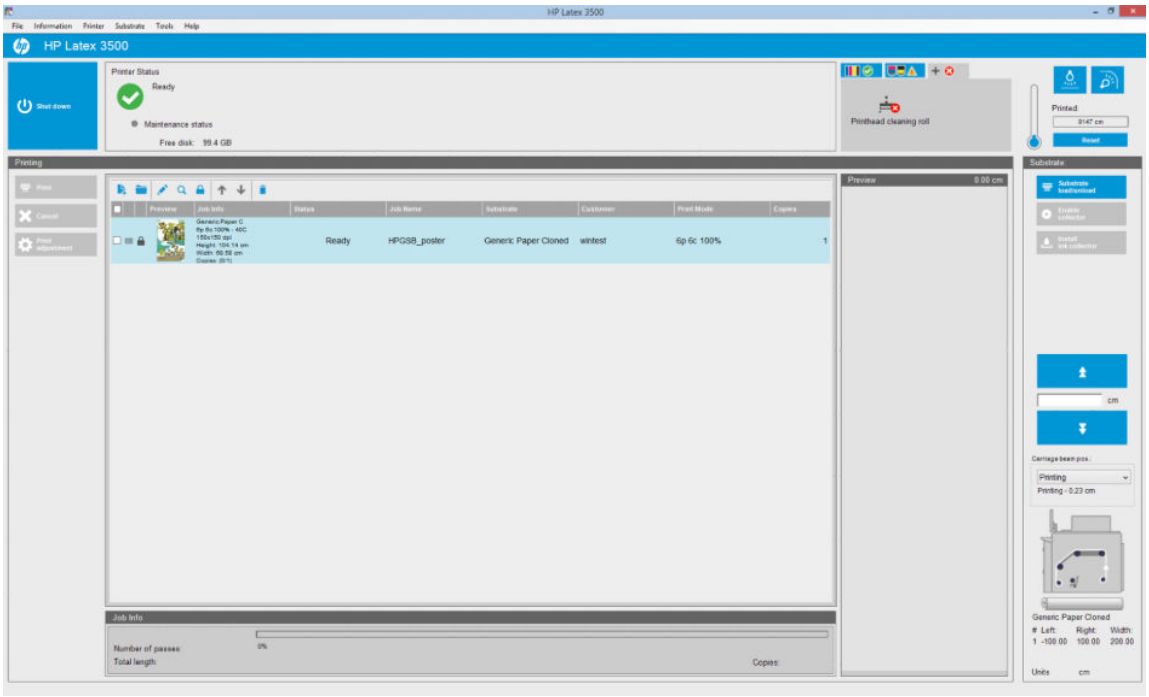
Start the Internal Print Server

The Internal Print Server starts automatically with Windows, and runs continually, in the background if not in the foreground.

If for some reason it has stopped running, or its window is not visible, you can start it from the Windows Start menu or by double-clicking its icon on the desktop.

When it starts, the main screen appears.

IMPORTANT: The screen captures shown below are for reference, be sure to have latest firmware version installed. See Update the firmware on page 26.



In the main screen:

- You can shut down the printer by pressing the **Shut down** button at the top left.
- The top central pane shows the printer status and maintenance status. See Printer status and alerts on page 25.
- The thermometer to the right of the status pane shows the curing temperature.

- To the right of the thermometer, you can see a summary of the status of the ink cartridges, the printheads, and the printhead cleaning roll.
- The Printing pane occupies most of the window, and includes:
  - The **Print**, **Cancel**, and **Print adjustment** buttons
  - The job queue
  - The print preview and job settings
- The Substrate pane includes the **Substrate load/unload**, **Enable collector**, and move carriage beam buttons; and information about how the current substrate is loaded.

Change the language of the Internal Print Server

When the Internal Print Server starts, it uses the language selected in the Windows Regional and Language Options. To change the selected language:

1. Open the Control Panel from the **start** menu.
2. If you are using the Category View of the Control Panel, open the **Clock, Language, and Region** category.
3. Open the **Regional and Language Options**.
4. In the **Formats** tab, change the current format to correspond with the language you want.
5. Press the **OK** button.

The change takes effect when Windows is restarted.

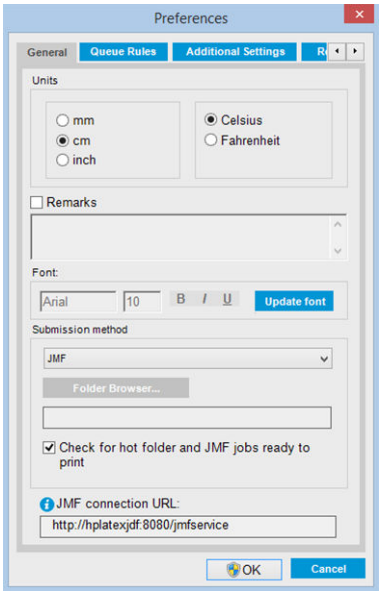
Change the units of measurement in the Internal Print Server

To change the units of measurement in the Internal Print Server, select the **Tools** > **Preferences** > **Units**. You can change the units of length and temperature.

Set the Internal Print Server preferences

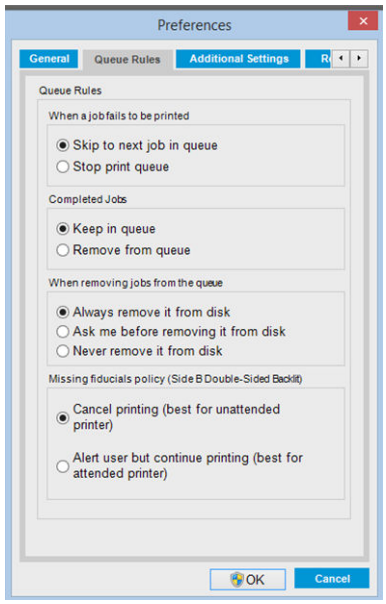
To change the Internal Print Server's preferences, select **Preferences** from the **Tools** menu. In the Preferences window, you will see four tabs.

General tab



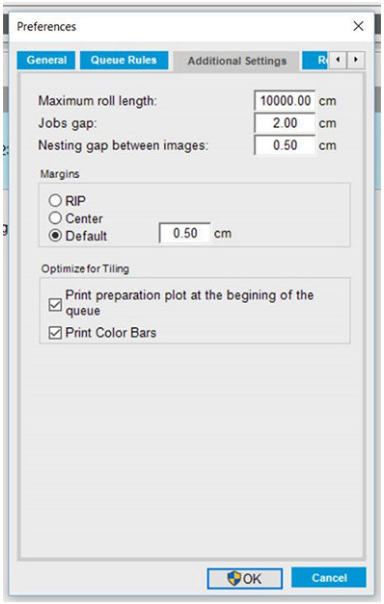
- Units of length and temperature
- Remarks (to add as a footer to the printed file)
- Font of footer text
- Hot folder
- JMF connection url

Queue Rules tab



- Action when job fails
- Action when job has been printed
- Action when job is removed from the queue
- Action when fiducials are missing

Additional Settings tab



- Maximum roll length
- Gap between jobs
- Nesting gap between images
- Margins:
  - RIP: Margins are set as defined in the RIP.
  - Center: The image is horizontally centered on the loaded substrate.
  - Default: The default margins are set to 5.0 mm (0.02 in). You can define the default left margin in the Job Properties window.
- Optimize for tiling:
  - Print preparation plot at the beginning of the queue.
  - Print color bars.

Remote Assistance tab

- Enable remote assistance
- Subscribe to services

Internal Print Server menus

The Internal Print Server provides the following menus.

The File menu

- Add New Job
- Add Existing Job
- Edit Job
- Delete Job
- Exit

The Information menu

- Alerts
- Supplies
- Service information

The Printer menu

- Printing adjustments
- Printhead alignment
- Printhead cleaning
- Replace printheads
- Replace cleaning roll kit
- Advance calibration
- Enable/Disable collector

The Substrate menu

- Load/Unload
- Settings
- Create
- Edit
- Clone
- Optimize for tiling
- Rename
- Remove
- Color calibration
- Presets management
- Search substrate online

The Tools menu

- Preferences
- HP Scitex Print Care
- HP Proactive Support
- Firmware update
- Restart
- Restart and print
- Wake up
- Shut down
- Reinitialize carriage

The Help menu

- About
- User's guide
- Contact HP
- HP Remote Support

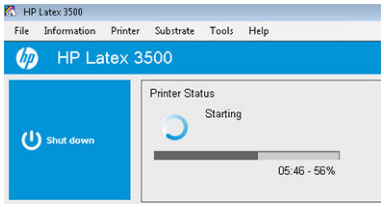
Printer status and alerts

The Internal Print Server displays the general status of the printer, the maintenance status, the loaded substrate, and the ink system.

The printer can communicate the following types of alerts:

Printer status

- **Errors:** When the printer is unable to print.
- **Warnings:** When the printer needs attention for an adjustment, such as a calibration, preventive maintenance or ink cartridge replacement.
- **The remaining boot time** will be displayed in the Internal Printer Server while the printer is starting.



A summary list of printer alerts appears in the main window of the Internal Print Server. To display a more complete and detailed list, select **Information** > **Alerts**.

For more information about a particular alert, see Printer messages on page 415.

Maintenance status

- Green light: No maintenance is needed.
- Yellow light: Maintenance procedure date is approaching. Press the yellow button to check Print Care for details. See HP Print Care on page 185.
- Orange light: Maintenance is required. Press the orange button to check Print Care for details.
- Red light: Maintenance is required urgently. Press the red button to check Print Care for details.
- Grayed out: Print Care is not running. Press the orange button.

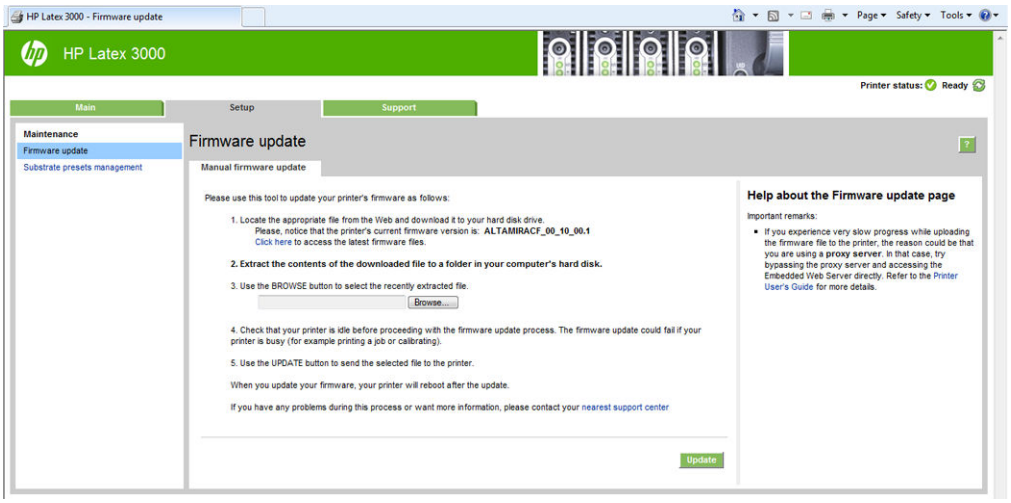
Update the firmware and the Internal Print Server

TIP: When updating the firmware and the Internal Print Server, first update the firmware and then the Internal Print Server.

Update the firmware

From time to time firmware updates will be available from HP that increase the printer's functionality and enhance its features.

Firmware updates can be downloaded from the Internet and installed in your printer using the Internal Print Server: select **Firmware update** from the **Tools** menu.



Follow the instructions on your screen to download the firmware file and store it on your hard disk. Then select the downloaded file and click **Update**.

The firmware includes a set of the most commonly used substrate presets. Extra substrate presets can be downloaded separately; see Substrate presets on page 102.

Update the Internal Print Server and HP IPS Services

IMPORTANT: It is mandatory to remove the HP Info Retriever, the HP IPS Services and the HP Internal Printer Server software from the built-in printer computer before installing the new IPS version.

1. Download the latest version IPS package available from the HP support web site onto the IPS PC hard disk (dedicated folder recommended, not on the desktop) and unzip all the files.
2. Remove the HP Info Retriever software via the Windows control panel in case it is listed in **Programs and Features** in the Windows control panel.

3. Remove the **HP IPS Services** and/or **ProxyService** software via the Windows control panel, click the **Uninstall** button.

4. Remove the **Internal Printer Server** software via the Windows control panel. Select the **HP Internal Printer Server** application and click the **Uninstall** button. This deletes any current job in the queue except ripped files.

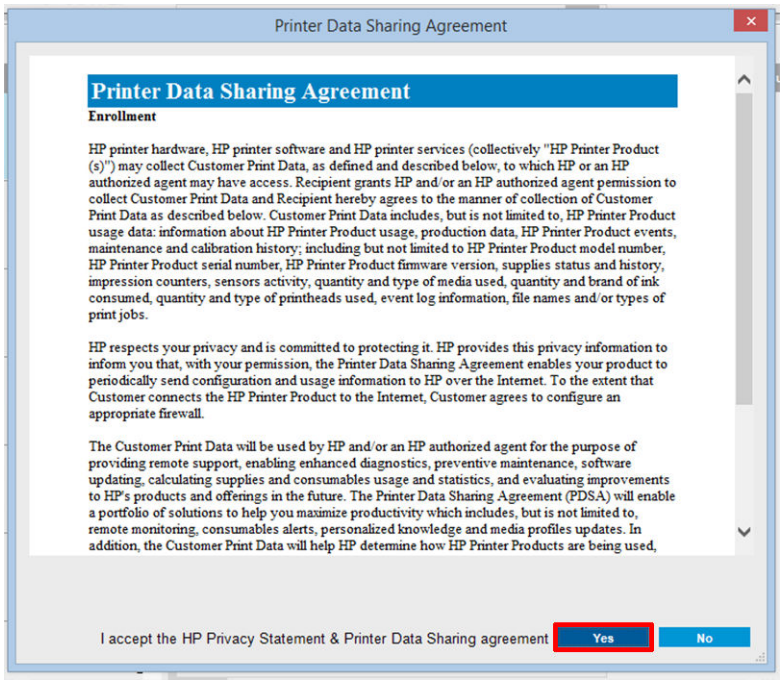
5. Install the **Internal Printer Server**.

   Run the **Setup.exe** file inside the **IPS** folder and follow the onscreen instructions until the new software is installed.

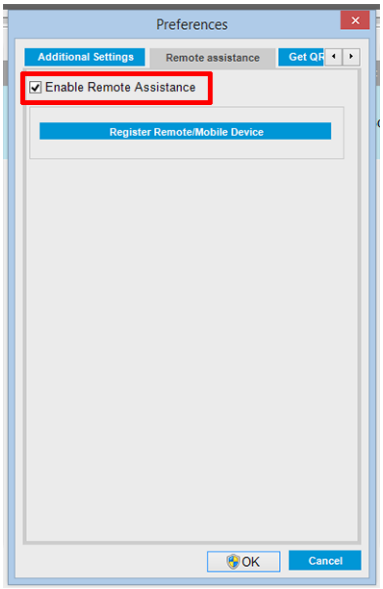
6. Install **IPS Services**.

   Run the **Setup.exe** file inside the **HP IPS Services** folder and follow the onscreen instructions until the new software is installed..

7. Once the IPS installation process has completed, open the **IPS** application. The first time it is opened the **Data Transfer Agreement** (PDSA) window will appear. HP strongly recommends you enable it in order to take advantage of information retriever functionality and for faster improved remote support.



8. In the **Remote assistance** tab, go to **Tools** > **Preferences** and check the **Enable Remote Assistance** check box.



Maintain the Internal Print Server

The Internal Print Server runs under Microsoft Windows on the computer supplied with the printer. In that operating environment, there are various things you can check in order to maintain optimum performance. You can make these checks after restarting the computer and before starting the Internal Print Server.

- The user account should be a Standard account and not an Administrator account.
- No software should be installed on the computer except the software initially provided by HP (which includes antivirus software).
- Free space on the hard disk should be at least 10 GB.
- In the Control Panel, **Hardware and Sound** > **Power Options**, the high-performance power plan should be selected and sleep mode disabled.
- Turn off User Account Control from the User Accounts icon in the Windows Control Panel.
- User a blank screen saver.
- Press the **start** button and right-click **Computer**. Select **Manage** > **Device Manager** > **Disk drives**. Right-click the hard disk, and select **Properties** > **Policies**. Ensure that **Optimize for performance**, **Enable write caching on the disk** and **Enable advanced performance** are all enabled.
- Ensure that scheduled defragmentation is enabled. Press the **start** button and right-click **Computer**. Select **Manage** > **Disk Management**. Right-click the hard disk, and select **Properties** > **Tools** > **Defragment Now**, and ensure that **Run on a schedule** is enabled.
- In the Control Panel, select **System** > **Advanced system settings** > **Advanced** > **Performance** > **Visual Effects** > **Custom**. Ensure that all effects are disabled except **Enable Desktop composition**, **Enable transparent glass**, **Smooth edges of screen fonts** and **Use visual styles on windows and buttons**.
- Open Internet Explorer and select **Tools** > **Internet options** > **Connections** > **LAN settings**. If a proxy server is used, ensure that **Bypass proxy server for local addresses** is enabled.
- Ensure that the computer is connected to the Internet and use Windows Update to ensure that all available updates (including Windows Service Packs) have been installed successfully.
- Start the Internal Print Server, and use **File** > **Delete job** to delete any jobs for which there is no further use.

3 Printing workflows integration

Introduction to JDF

What is JDF?

JDF is a software method by which devices from a variety of vendors and manufacturers can interoperate together. It uses a text-based language known as XML that is compliant with many devices and workflow controllers in varying vertical print markets.

JDF implementation is typically based upon an MIS system to be use for job scheduling, submission, accounting, and costing. An integrator typically interfaces an MIS system to the devices that are present in a workflow through JDF technology.

JMF is a communication protocol (based upon the JDF specification) that allows devices to communicate job status information and other real-time job metrics and parameters. It can be used to poll a device for status or to watch a device at regular intervals.

Benefits of working with JDF for file submission

JDF can be useful in providing an accurate MIS-driven way to know the job status of content as well as when a device has completed a job. Since the role of an MIS is to track, schedule and cost-account for a job, JDF/JMF allows for a simple way to interface devices to an MIS for this task.

JDF and JMF can be used to be able to analyze and later perform accounting principles upon work created in a JDF workflow. A detailed analysis can be performed after a day or series of jobs to see the profit margin of a job, the costs and materials consumed, as well as inventory control and stock consignment.

HP is a partner member of the CIP4 organization, and you can obtain many more details about JDF at the CIP4 www site at http://www.cip4.org.

Working with JDF

Creating JDF job tickets

JDF Implementations typically use an MIS system to control and monitor a JDF/JMF workflow. The MIS can then monitor a device's status, can track time and consumables and provide interfacing with counting and inventory control modules integrated into an MIS. An MIS is typically the origin of a JDF job and resultant ticket. JMF communication can be used to send that ticket information to production milestones.

What information is captured by the HP latex 3000 printer series and what can be communicated by JMF to an MIS?

The printer implements a subset of the JDF 1.5 specification, using JMF. This allows it to communicate printer-status, and notifications together with job status, job ink, and substrate consumption to external applications.

NOTE: It is important to consider the fact that the RIP is capable of combining several jobs into one for the purpose of substrate optimization, and finishing. In this example, the printer sees the print as one job. In this situation, the MIS should query the RIP for the status of each individual job on the nest.

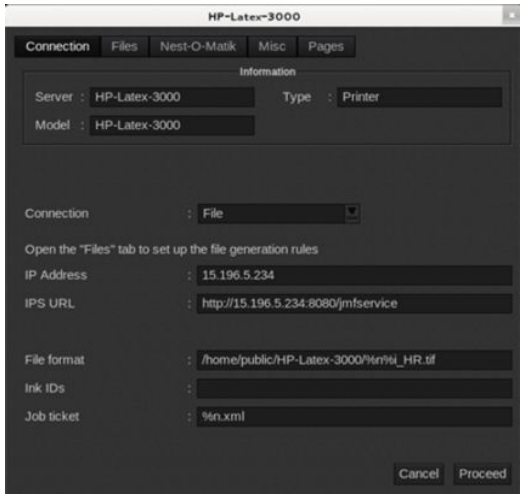
The RIP application can retrieve substrate and consumable tracking to report back to MIS.

Guidelines for Integration

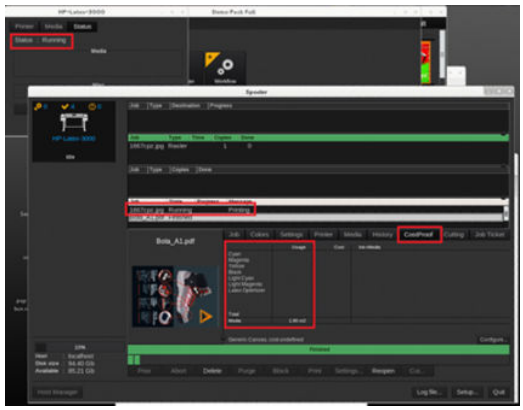
How to integrate the HP Latex 3000 printer series into CALDERA RIP

From CALDERA RIP 10.1, the RIP can take advantage of the JDF interface in the printer by selecting the option on the printer driver setup. Once the JDF interface is enabled, the RIP will display printer status and notifications together with job status, job ink and substrate consumption.

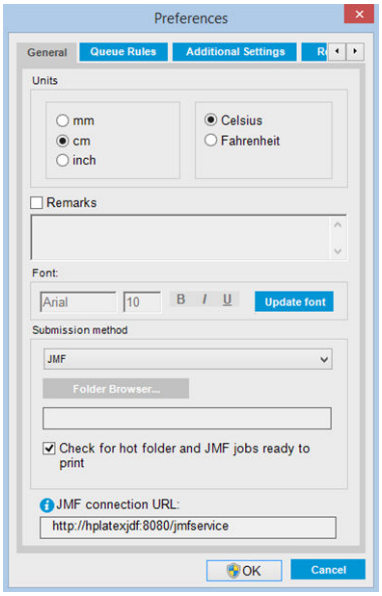
In order to activate this functionality in the CALDERA RIP, you need to type the printer's JMF url in the JDF area of the printer configuration dialog (IPS URL). Please, make sure you have the latest driver available from the CALDERA Website.



Once configured, you can display the printer status by opening the info window in the print client, and opening the spooler for the job status.



To obtain the JMF URL: Go to the **IPS PC**, on the Internal Print Server SW, and then **Tools**>**Preferences**>**General**.

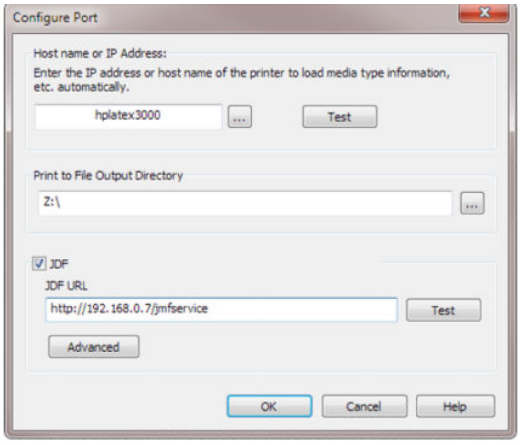


If there are problems using the printer's hostname, switch to the printer's IP using the HP Latex 3000 System Configuration Tool. For more details refer to the Service Manual or talk to your network administrator to solve hostname resolution.

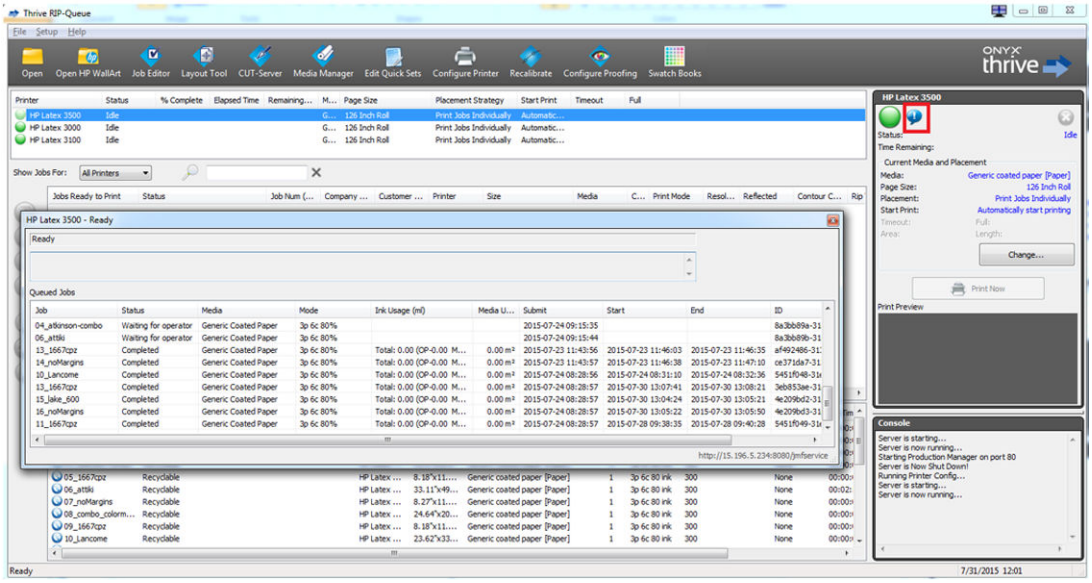
How to integrate the HP Latex 3000 printer series into ONYX RIP

ONYX RIP (version ONYX 10.1.2) can take advantage of the JDF interface in the printer by selecting the option on the printer driver setup. Once the JDF interface is enabled, the RIP will display printer status and notifications together with job status, job ink and substrate consumption.

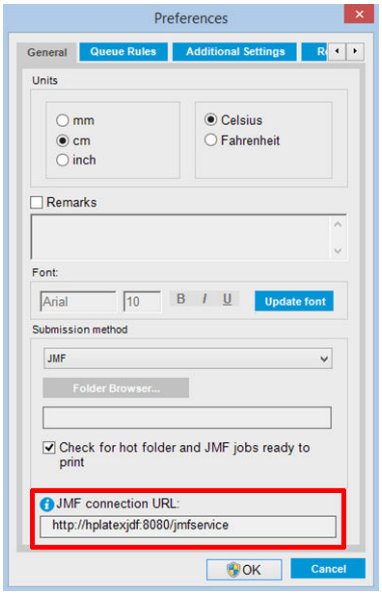
In order to activate this functionality in ONYX RIP, you need to type the printer's JMF url in the JDF area of the printer configuration dialog (JDF URL). Please, make sure you have the latest driver version from the ONYX Download manager.



Once configured, you can display the printer and job status opening the info window in the RIP queue.



To obtain the JMF URL: Go to the **IPS PC**, on the Internal Print Server SW, and then **Tools**>**Preferences**>**General**.

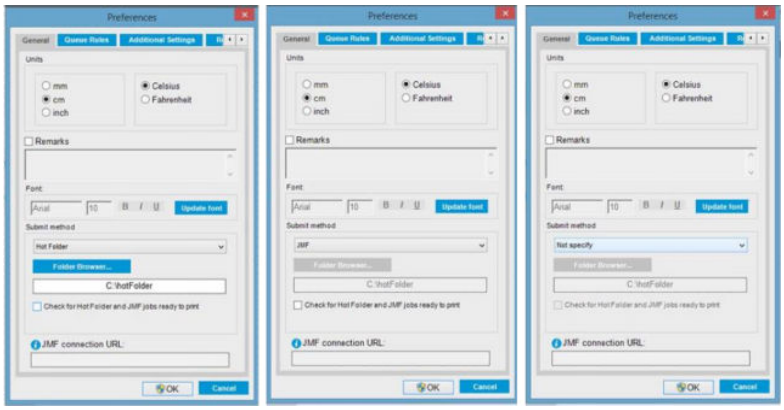


If there are problems using the printer's hostname, switch to the printer's IP using the HP Latex 3000 System Configuration Tool. For more details refer to the Service Manual or talk to your network administrator to solve hostname resolution.

Job submission methods

The HP Latex 3000 printer series supports two file submission methods (in addition to open a file directly in HP IPS UI):

Select the submission method within the Preference dialog in HP IPS **Tools**>**Preferences**>**General**, in the Submit method drop down list:



Hotfolder: Select a shared folder in the HP IPS PC and the RIP copies the output job there, the IPS automatically loads jobs into the queue.

NOTE: The shared folder should be the same as the one configured in the RIP.

JMF: The RIP sends the location of the job via a JMF command and the IPS automatically looks for the files there and loads them directly into the printer queue.

Not specify: Load the file manually in the IPS **File**>**Open**.

Removing a queued job from the RIP:

Remove a job from the IPS/printer queue directly via the RIP interface, but only if it was submitted using the JMF method.

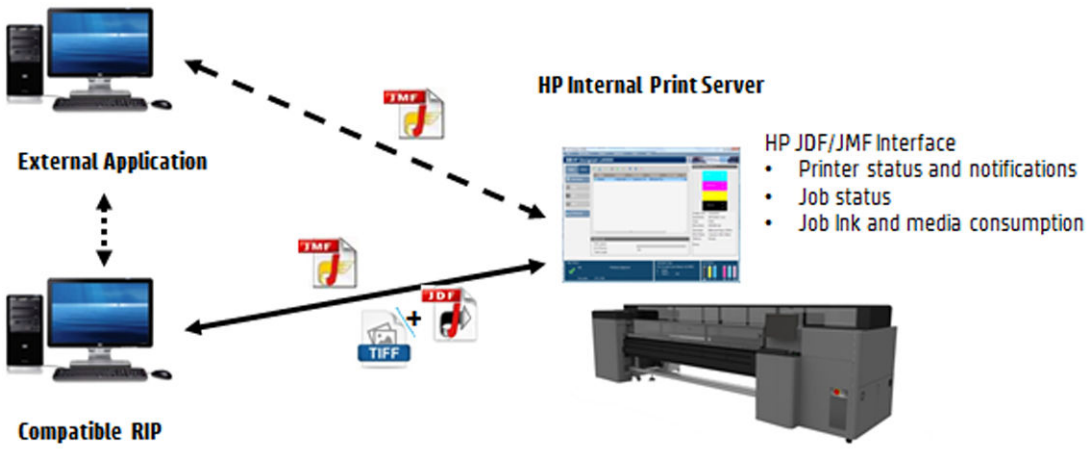
How to integrate the HP Latex 3000 printer series into an MIS system or production control software

Specific RIP/MIS implementations will require vendor specific configurations.

MIS or Production Control Software applications can retrieve printer status and notifications together with job status, job ink and substrate consumption, from the printer via the JDF/JMF interface.

As explained in the previous section, if the RIP combines several jobs into one before sending it to the printer, the recommendation is to connect the MIS or Production Control software to the RIP instead of the IPS in order to get the grouped jobs' individual job status.

Be sure to assign unique names to each job in order to identify them on the gathered information from the printer.



If you are using CALDERA 10.1 or higher versions of the software, then the MIS can communicate using the Caldera Nexio module. Caldera Nexio is a tool that connects the Caldera RIP and other third-party software using standard JDF/JMF protocols, making it possible to produce automatic sequences of actions that speed up production and advanced reports to improve operations. Please, contact CALDERA for further information.

ONYX customers wishing to integrate with MIS solutions can use the ONYX Connect module to communicate via JDF. ONYX Connect does not currently support JMF. Please contact ONYX for further information.

If you are using another RIP solution, please contact your specific RIP vendor for JDF/JMF configuration and interface guidelines.

MIS vendors or customers that would like to integrate the printer with a solution directly, can obtain the HP specifically supported JDF Software Development Kit from the HP Solutions Portal: https://developers.hp.com/lfp-enroll.

4 Handle the substrate

Supported substrate types

The following substrate types are compatible with your printer. For specific substrate settings and profiles, see the Online substrate manager on page 117.

NOTE: Porous substrates and substrates with porous liners are supported only when using the ink collector kit (see The ink collector kit on page 48).

Self-adhesive vinyl

- Cast self-adhesive vinyl
- Calendered self-adhesive vinyl
- Perforated self-adhesive vinyl
- Transparent self-adhesive vinyl
- Reflective self-adhesive vinyl

PVC banner

- Frontlit banner
- Backlit banner
- Scrim banner
- Scrimless banner
- Mesh banner with liner
- Blockout banner
- Truck curtain banner or tarpaulin

Paper

- Coated paper
- Uncoated paper
- Photo paper
- Photorealistic paper
- Blue-back paper
- Self-adhesive paper

PP and PE film and banner

- Polypropylene (PP) film
- Synthetic paper (such as Yupo)
- Tyvek
- Coated PE/HDPE (polyethylene) banner

PET film

- Polyester (PET) backlit film
- Polyester (PET) frontlit film
- Polyester (PET) grey-back film

Textile

Porous textiles may be used only with the ink collector. To check the porosity of your substrate, see Check the porosity of your substrate on page 36.

- Polyester textile and fabric
- Textile banner
- Backdrops
- Textile mesh with liner
- Frontlit textile with liner if porous
- Backlit textile with liner if porous
- Canvas
- Flag and voile with liner
- Cotton textile
- Self-adhesive textile

Wall covering

NOTE: This is an application example, not a selectable category.

- Paper wall covering or wallpaper
- PVC wall covering
- Pre-pasted wall covering
- Non-woven wall covering
- Textile wall covering
- Self-adhesive wall covering

Check the porosity of your substrate

1. If the printer has any substrate loaded, unload it.
2. Cut a piece of self-adhesive vinyl white gloss 15 × 50 mm (0.6 × 2 in) in size.

3. Stick it to the platen, covering the substrate-advance sensor.
4. Load the substrate that you want to check.
5. Open your RIP software.
6. Obtain the test file from the printer's built-in computer: **C:\Users\hplatex\Documents\HP IPS \InkTrespassingCheck\Ink_trespassing_check.pdf**.
7. Print the test file using the number of passes and substrate preset that you intend to use in future with this substrate (or a similar profile in terms of ink limit).
8. Unload the substrate.
9. Remove the strip of self-adhesive vinyl from the platen.
10. Look at the self-adhesive vinyl you have taken from the platen.
    - If the strip is completely white (has no ink on it), the tested substrate is non-porous and may be used for printing as described in this guide.
    - If the strip is non-white, the tested substrate is porous and may be used only with the ink collector installed.
11. Clean the print zone, see Clean the print zone on page 202.

Supported HP substrates

Category	Substrate	Color calib.	Applications
Self-adhesive vinyl	HP Air Release Adhesive Gloss Cast Vinyl Without liner: 50 microns (2 mil) • 100 g/m² • 45,7 m (150 ft) With liner: 241 microns (9.5 mil) • 260 g/m² • 45,7 m (150 ft)	Yes	Vehicle wraps, car/bus/ track fleets, signs
	HP Permanent Gloss Adhesive Vinyl Without liner: 121 microns (4.8 mil) • 150 g/m² • 45,7 m (150 ft)/ 91,4 m (300 ft) With liner: 248 microns (9.8 mil) • 270 g/m² • 45,7 m (150 ft)/ 91,4 m (300 ft)	Yes	
	HP Permanent Matte Adhesive Vinyl Without liner: 121 microns (4.8 mil) • 150 g/m² • 45,7 m (150 ft)/ 91,4 m (300 ft) With liner: 248 microns (9.8 mil) • 270 g/m² • 45,7 m (150 ft)/ 91,4 m (300 ft)	Yes	
	HP One-View Perforated Adhesive Window Vinyl Without liner: 165 microns (6.5 mil) • 155 g/m² • 50 m (164 ft) With liner: 406 microns (16 mil) • 288 g/m² • 50 m (164 ft)	No	
PVC banners	HP Durable Frontlit Scrim Banner 449 microns (17.7 mil) • 535 g/m² • 35 m (115 ft)	Yes	Banners, POP, flags, track covers, wall murals
Paper	HP PVC-Free Wall Paper 177 microns (7 mil) • 175 g/m² • 30,5 m (100 ft)	Yes	POP indoor and outdoor, windows, bus shelters, billboards, wall decorations
	HP White Satin Poster Paper 165 microns (6.5 mil) • 136 g/m² • 61 m (200 ft)		

Category	Substrate	Color calib.	Applications
	HP Photo-realistic Poster Paper 205 microns (8.1 mil) • 205 g/m² • 61 m (200 ft)	Yes	
	HP Blue Back Billboard Paper 165 microns (6.5 mil) • 123 g/m² • 80 m (262 ft)	Yes	
	New HP Universal Coated Paper, 3 in core 124 microns (4.9 mil) • 90 g/m² • 61 m (200 ft)	Yes	
	New HP Coated Paper, 3 in core 114 microns (4.5 mil) • 90 g/m² • 61 m (200 ft)	Yes	
	New HP Universal Heavyweight Coated Paper, 3 in core 165 microns (6.5 mil) • 125 g/m² • 61 m (200 ft)	Yes	
	New HP Heavyweight Coated Paper, 3 in core 167 microns (6.6 mil) • 130 g/m² • 61 m (200 ft)	Yes	
	New HP Super Heavyweight Plus Matte Paper, 3 in core 259 microns (10.2 mil) • 210 g/m² • 61 m (200 ft)	Yes	
	HP Professional Gloss Photo Paper 248 microns (9.8 mil) - 275 g/m2 - 30,5 m (100 ft)	Yes	
	HP Professional Satin Photo Paper 248 microns (9.8 mil) 275 g/m2 - 30,5 m (100 ft)	Yes	
	HP Everyday Satin Photo Paper 187 microns (7.4 mil) - 180 g/m2 - 30,5 m (100 ft)	Yes	
PP and PE film and banners	New HP HDPE Reinforced Banner 203 microns (8 mil) • 170 g/m² • 45,7 m (150 ft)	Yes	Banners, POP, flags, track covers, wall murals, large photographs, floor covering
	New HP Everyday Matte Polypropylene, 3 in core 203 microns (8 mil) • 120 g/m² • 61 m (200 ft)	Yes	
	New HP Everyday Adhesive Matte Polypropylene, 3 in core Without liner: 180 microns (7.1 mil) • 120 g/m² • 30,5 m (100 ft) With liner: 215 microns (8.5 mil) • 168 g/m² • 30,5 m (100 ft)	Yes	
	HP DuPont Tyvek Banner 304 microns (12 mil) • 135 g/m2 (4 oz) • 30,5 m (100 ft)	No	
PET film	HP Backlit Polyester Film 304 microns (12 mil) • 135 g/m² • 30,5 m (100 ft)	Yes	Bus shelters, airport ads, POP, street ads

Category	Substrate	Color calib.	Applications
Textile	HP Light Textile Display Banner 381 microns (15 mil) • 210 g/m² • 50 m (164 ft)	No	Indoor flags, wall murals, interior decoration, fine arts
	HP Heavy Textile Banner 381 microns (15 mil) • 210 g/m² • 50 m (164 ft)	No	
	HP Satin Canvas 419 microns (16.5 mil) • 370 g/m² • 14,9 m (49 ft)	No	
	HP Premium Satin Canvas 462 microns (18.2 mil) - 381 g/m2 - 22,9 m (75 ft)	No	
	HP Everyday Satin Canvas 444 microns (17.5 mil) - 340 g/m2 - 22,9 m (75 ft)	No	

- For third-party substrate solutions with ColorPRO technology, see http://ColorPROtechnology.com/.
- HP PVC-free Wall Paper imprimé avec les encres HP Latex est classé A+ selon l'arrêté du 19 avril 2011 «Émissions dans l'air intérieur», qui définit des seuils sur l'émission de polluants volatils posant des problèmes en cas d'inhalation – sur une échelle de A+ (émission très basses) à C (émission élevée).
- HP PVC-free Wall Paper printed with HP Latex Inks is rated A+ according to *Émissions dans l'air intérieur*, which provides a statement of the level of emission of volatile substances in indoor air posing health risks if inhaled—on a scale from A+ (very low emission) to C (high emission).

* HP PVC-Free Wall Paper printed with HP Latex Inks is GREENGUARD Children & Schools Certified. See http://www.greenguard.org/.

* HP PVC-Free Wall Paper printed with HP Latex Inks meets AgBB criteria for health-related evaluation of VOC emissions of indoor building products. See http://www.umweltbundesamt.de/produkte-e/bauprodukte/agbb.htm.

HP large-format substrate take-back program availability varies. Some recyclable HP substrates can be recycled through commonly available recycling programs. Recycling programs may not exist in your area. See http://www.hp.com/recycle/ for details.

Substrate tips

Maintain the substrates

Keep substrates in their sealed wrapping material while they are in storage, and store rolls vertically to avoid the migration of plasticizers in some materials.

Move substrates from the storage area to the print production area at least 24 hours before use, so that they can adapt to its temperature and humidity.

General tips

Handle unprinted and printed substrates with care, and preferably with cotton gloves, to avoid fingerprints. For heavy rolls, use a forklift, and two people wearing security shoes.

Before loading a roll:

- Check that temperature and humidity in the room are within the recommended ranges for the printer. See Environmental specifications on page 414.
- Check that neither the roll nor its core are bent or deformed, which may cause the substrate to jam in the printer.
- If the roll has been stored in a place not offering the recommended environmental conditions, allow some time for it to adapt to the temperature and humidity of the printer's environment.
- Check which is the correct side for printing, by reading the label inside the core or the note inserted into the package.
- Check that the substrate is correctly attached to the input core. Otherwise, the Internal Print Server will report an error.
- Check the substrate thickness.
  - Up to 0.4 mm (0.016 in): Print normally.
  - 0.4 to 2 mm (0.016 to 0.079 in): Raise the carriage beam to a custom position. Edge holders are not needed and should not be used.
  - More than 2 mm (0.079 in): Not supported.

While loading a roll, ensure that the leading edge is parallel and straight across the output core, and attached evenly (start taping the substrate to the core at the center, then move towards the edges).

Also ensure that the side edges of the input and output roll are properly aligned. An incorrectly loaded roll may cause waves or cockles in the substrate, leading to ink smearing and printhead crashes.

After you have loaded a roll:

- If you intend to use substrate edge holders, do not use edge holders from another printer, use only the edge holders that came with your printer.
- Check the correct carriage beam position for printing: customized position for thick substrates, printing position for others. See Set the carriage beam position on page 123.
- Check that you are using the correct substrate preset in the Internal Print Server and the correct ICC profile and other settings in the RIP.
- HP substrates are optimized to provide the best out-of-the-box printing experience with your printer.
- Use the Internal Print Server to check that any calibrations appropriate for your substrate have been done: printhead alignment, color calibration. See Printer calibration on page 172.
- Do not cut off pieces of substrate while the substrate is loaded into the printer. This may cause the remaining substrate to jam.

You can find further information on the Web:

- The specifications, finishing, processing, and warranty information for each individual HP substrate are available from http://www.globalBMG.com/hp/signagemedia and http://www.globalBMG.com/hp/HPMediaWarranties.
- HP Image Permanence information is available from http://www.globalBMG.com/hp/printpermanence.
- HP offers to recycle some substrates through the HP Take-Back Program, such as HP HDPE Reinforced Banner, HP Light Textile Display Banner, HP Heavy Textile Banner, HP Everyday Matte Polypropylene, 3-in Core, and HP DuPont Tyvek Banner. Recycling opportunities for these products may not exist in all areas. You should consult local recycling resources about recycling these products. For recycling in the USA, see the HP recycling services site, http://www.hp.com/go/recycleLFmedia/.

  HP offers to recycle some other substrates through the standard paper recycling process, such as HP White Satin Poster Paper, HP Photo-realistic Poster Paper, HP Coated Paper (3-in core), HP Universal Coated Paper (3-in core), HP Universal Heavyweight Coated Paper (3-in core), HP Heavyweight Coated Paper (3-in core), and HP Super Heavyweight Plus Matte Paper (3-in core).

Color consistency

Your printer has been designed to provide an excellent experience in terms of color consistency and repeatability. This allows large jobs such as fleet graphics and wall coverings to be printed in tiles or panels, with confidence that, when the finished panels are placed edge to edge, the colors will match at the joins.

The color variation within a printed job has been measured to be within this limit:

Maximum color difference (95% of colors) <= 2 dE 2000

NOTE: This is based on reflective measurements on a 943 color target under CIE standard illuminant D50, and according to the standard CIEDE 2000 as per CIE Draft Standard DS 014-6/E:2012. 5% of colors may experience variations above 2 dE 2000. Backlit substrates measured in transmission mode may yield different results.

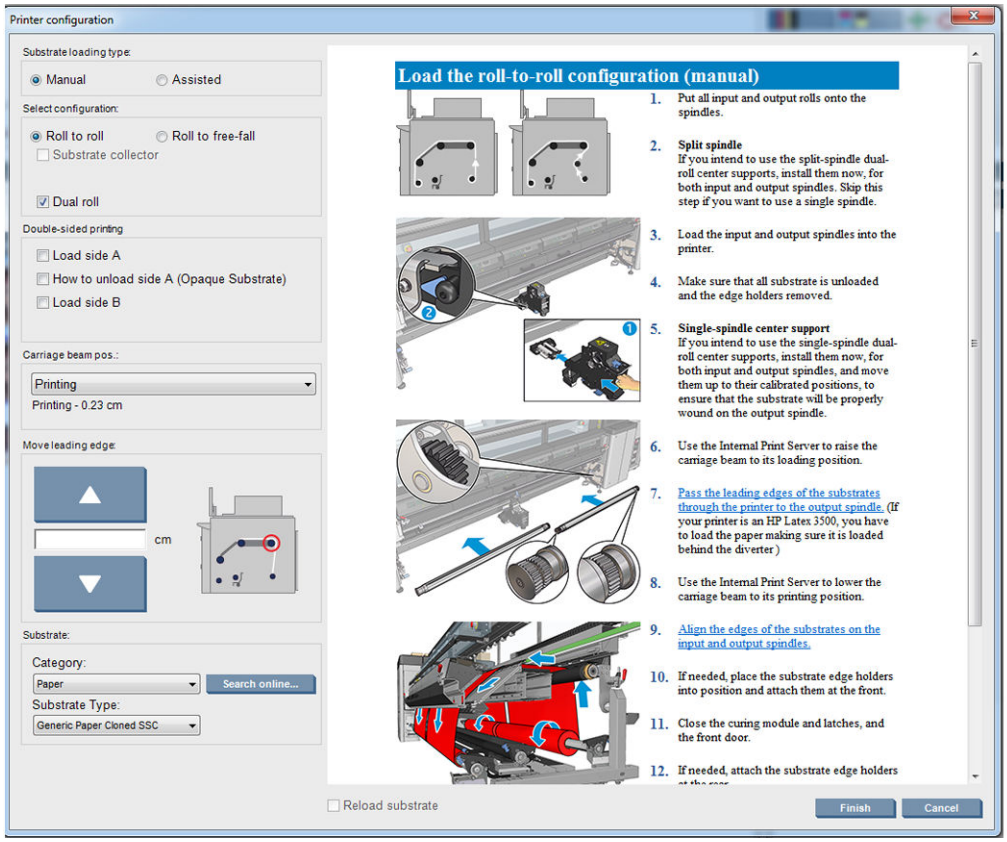
Color matching is dependent on many external factors. Take the following points into account to achieve this level of consistency:

- If a large job is being printed in panels, more than one roll may be required. All rolls should be from the same batch, and stored under correct conditions according to the manufacturer's specifications.
- Operating conditions (temperature and humidity) should be kept constant during the printing of the entire job. See step 5 in Edit a substrate preset on page 110.
- Ensure that a printhead check and clean routine has been run prior to starting the job. If any printhead changes are required during the job, printhead alignment and color calibration should be done.

See also Color calibration on page 178.

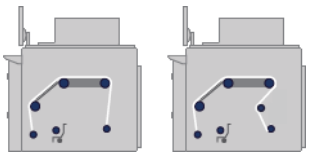
Substrate configurations

The substrate can be loaded in a variety of different configurations to suit your different needs. Before loading, you must go to the Internal Print Server and select **Substrate load/unload**, then select the configuration you intend to use.

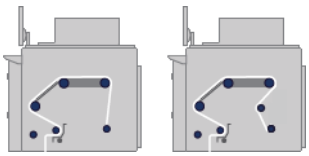


The basic configurations are illustrated below. These configurations can be used for single-roll or dual-roll printing.

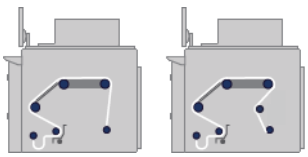
- The roll-to-roll configuration is suitable when you do not intend to cut and take away some prints or the output roll in the middle of a print job being done using a particular input roll. The substrate cannot be cut in mid-roll, except during double-sided printing, and then it must be reloaded afterwards.



- The roll-to-free-fall configuration is suitable when you want to cut and remove one or more prints as soon as they come out of the printer. The substrate is kept under tension between the input roll and the tension roller; but it can be cut after the tension roller because then it is no longer under tension.



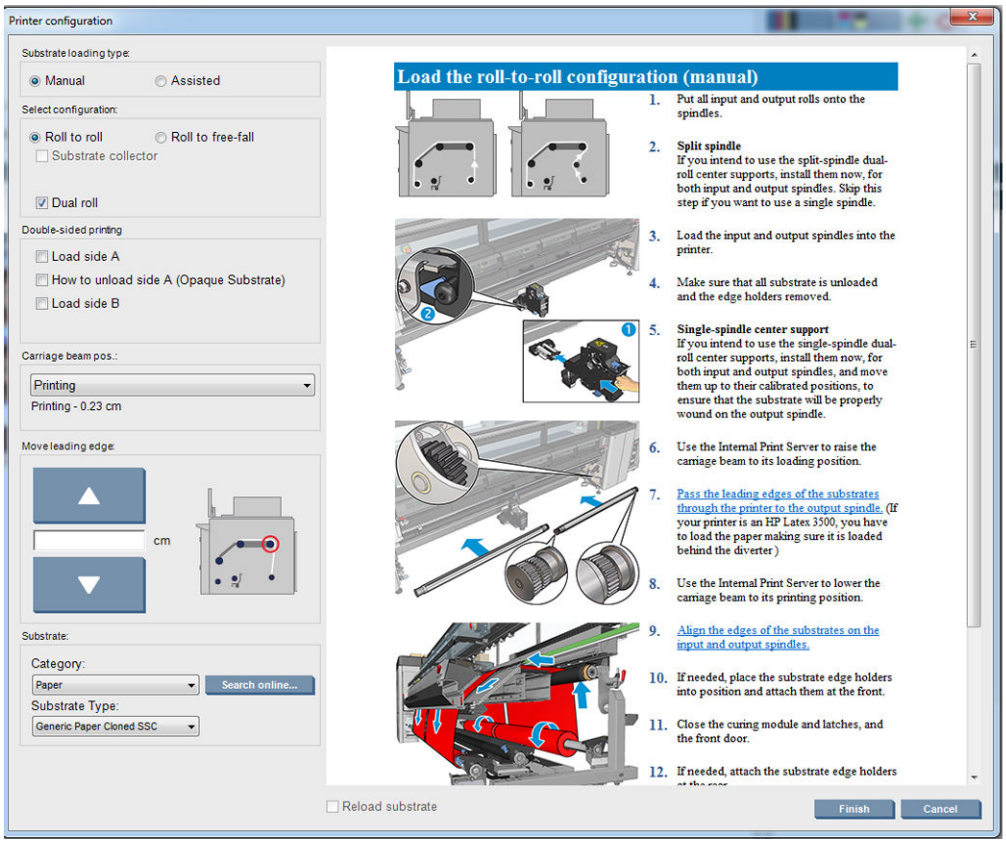
- The roll-to-collector configuration is suitable when you may want to cut the substrate and remove the output roll before finishing the print job being done using a particular input roll. The substrate is kept under tension between the input roll and the tension roller; but it can be cut after the tension roller because then it is no longer under tension.



Prepare to print

The following steps must be followed before the printer can print:

1. Go to the Internal Print Server and select **Substrate Load/Unload** to open the Printer Configuration window.
2. Select the printer configuration that you intend to use; the on-screen help will appear on the left.



NOTE: The **Reload substrate check** box should be checked only if the printer has just previously had the same configuration (i.e. the same substrate, same profile), and because of a severe system error, you had to restart the printer.

3. Load the substrate. Substrate loading instructions are displayed in the Internal Print Server window. For more detailed instructions, see Load a roll onto the spindle on page 59 and Load a roll into the printer on page 65.
4. Select the substrate type.
5. Press the **Finish** button in the Internal Print Server to start the substrate check, then enter the substrate type in the Loaded Substrate window.

TIP: If the printer has been idle overnight with substrate loaded, and exposed to high or low temperatures, advance the substrate 13 to 25 cm (5 to 10 in) before printing, to avoid printhead crashes or ink smears on the substrate.

The substrate edge holders

The purpose of the substrate edge holders is to prevent the substrate edges from lifting up and jamming while printing. If you experience this kind of problem while printing, you can try using the edge holders to overcome it.

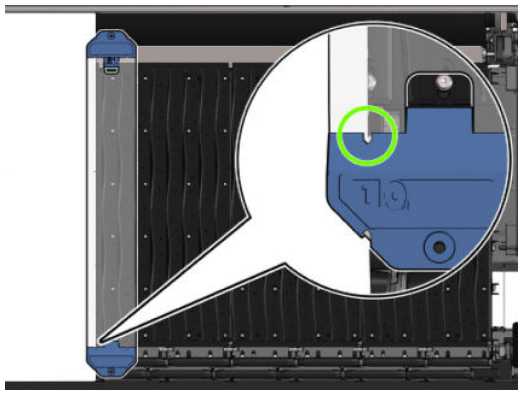
The edge holders are highly recommended when printing on textile substrates. When printing on porous substrates, use the edge holders included in the ink collector kit (see The ink collector kit on page 48).

NOTE: The edge holders are not recommended when printing on substrate that is more than 0.4 mm (0.016 in) thick.

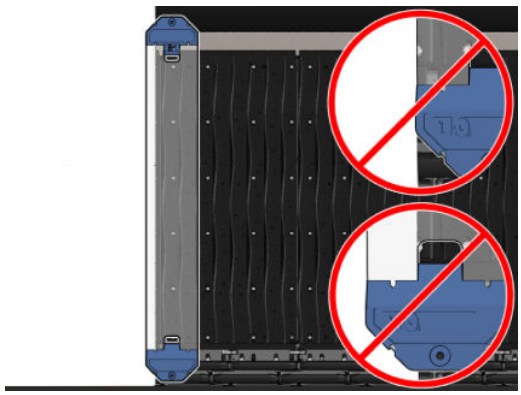
TIP: The edge holders may be easier to deploy if you raise the carriage beam (see Set the carriage beam position on page 123); however, they can be deployed without raising the carriage beam.

Substrate edge holders for HP Latex 3000, 3100 and 3500

The correct position is illustrated below. The substrate should be free to move, and should not touch the ends of the edge holder.



CAUTION: Wrongly positioned edge holders could severely damage the printheads and carriage.

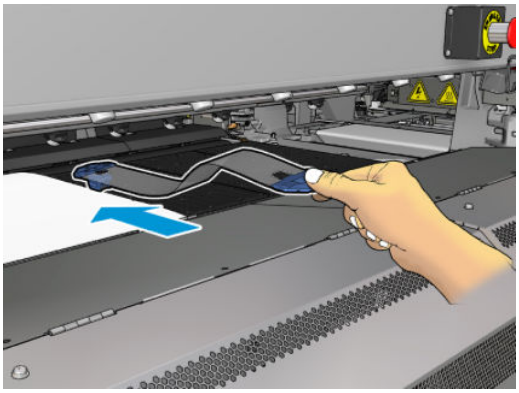


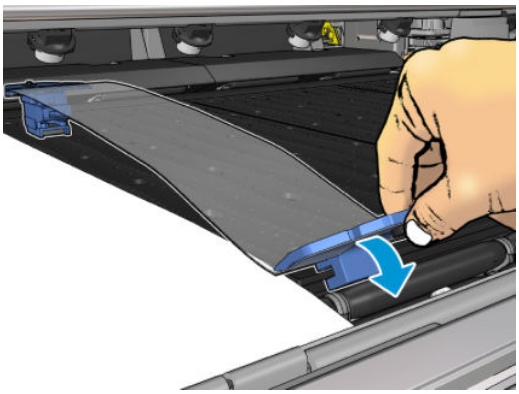
NOTE: If the substrate is loaded with the right edge outside the 161 cm position on the spindle ruler, or the left edge outside the –162 cm position, the edge holders cannot be used because there is not enough space for them.

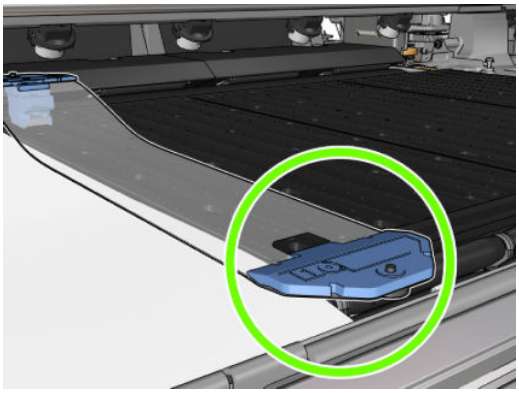
NOTE: When printing with the Double-sided Day Night Kit, specific edge holders are also needed.

Install an edge holder on the HP Latex 3000, 3100 and 3500

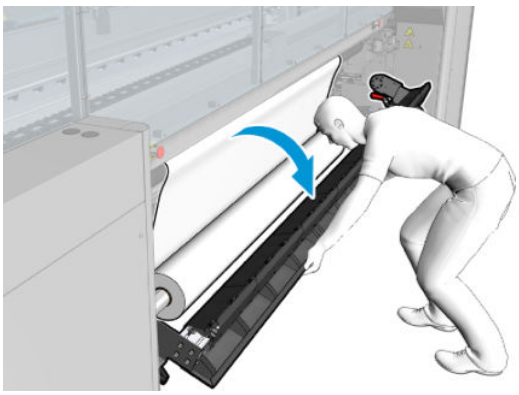
To install an edge holder, stand at the front of the printer and attach the front of the edge holder (marked with the number 1 on the blue part) to the front of the platen. Ensure that the substrate is aligned with the marks on the edge holder.

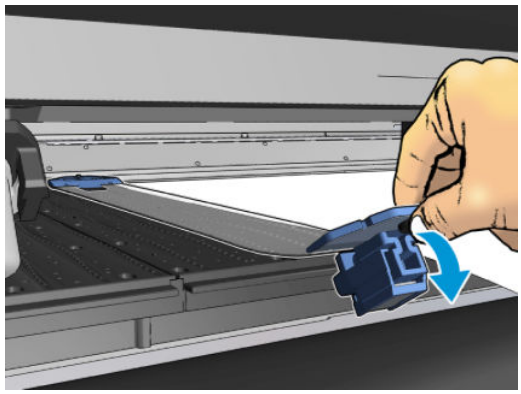






Then go to the rear of the printer, open the loading table, pull the rear of the edge holder towards you, and attach it to the rear of the platen. A built-in magnet helps to position the edge holder correctly on the platen. Ensure that the substrate is aligned with the marks on the edge holder.





If the rear of the edge holder cannot be placed due to a ramp, slide the ramp away to provide space for the edge holder. There are three ramps to help the substrate to load in assisted mode. The two ramps at the sides can slide; the center one is fixed. The edge holder cannot be placed in that position.

⚠ CAUTION: Place the edge holder carefully. It should remain perfectly straight, otherwise it could damage the printheads and carriage.

TIP: Once installed, an edge holder cannot be slid sideways. If you want to move it sideways, you must remove it and reinstall it in the new position.

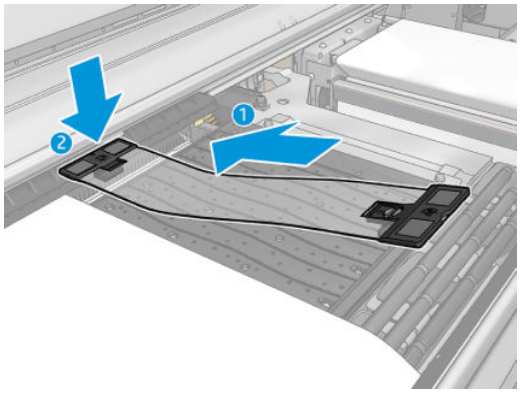
Replace an edge holder strip

Replacement edge holder strips come with the Cleaning Kit. Replace the strip if it is broken (for example, by an impact) or deteriorated (for example, by accumulated ink).

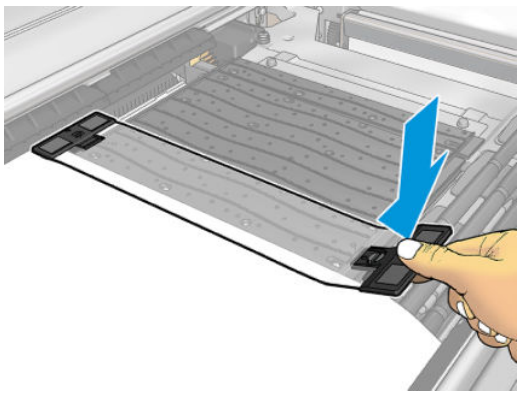
1. If it is installed in the printer, remove the edge holder from the platen, disengaging it from the back and then from the front.
2. Loosen but do not remove the screw at each end of the edge holder.
3. Remove the old strip, insert the new one, and tighten the screws.
4. Replace the edge holder on the platen, if you intend to use it.

Substrate edge holders for HP Latex 3200, 3600 and 3000/3100/3500 with Double-sided Day Night Kit

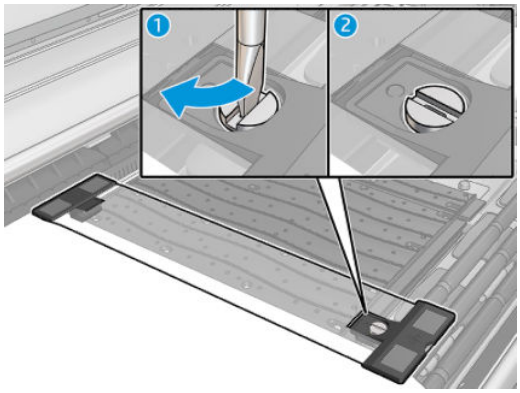
1. Standing in front of the printer, place the edge holder onto the far side of the platen and cover the edge of the substrate with it.



2. Attach other side of the edge holder in the space between the platen and diverter wheels, cover the edge of the substrate with it. Make sure that each edge holder is properly positioned and not bent as this could cause a carriage crash.



3. Turn the screw at the front part of the edge holder to fix it in place. If it interferes with the diverter wheels; move the edge holder slightly until a better position is found.



4. Ensure that the substrate is aligned with the edge holder.

CAUTION: Place the edge holder carefully. It should remain perfectly straight, otherwise it could damage the printheads and carriage.

NOTE: If the edge holder interferes with a diverter wheel holder, move the edge holder slightly into a better position.

TIP: Once installed, an edge holder cannot be slid sideways. If you want to move it sideways, you must remove it and reinstall it in the new position.

The ink collector kit

Before printing on porous substrates (textile mesh, flag, and voile), you must install the ink collector kit available as an accessory, to protect the printer from the ink that falls through the substrate. The kit should be removed before printing on non-porous substrates.

See Check the porosity of your substrate on page 36 if in doubt.

⚠ CAUTION: Ensure that the operating temperature of the substrate recommended by the manufacturer is not exceeded. If this information is not available, ask the manufacturer. Do not load substrates that cannot be used at an operating temperature above 125°C (257°F).

CAUTION: Proper maintenance and genuine HP consumables are required to ensure that the printer operates safely as designed. The use of non-HP consumables (foams, filters, printhead cleaner roll, or inks) may present a risk of fire.

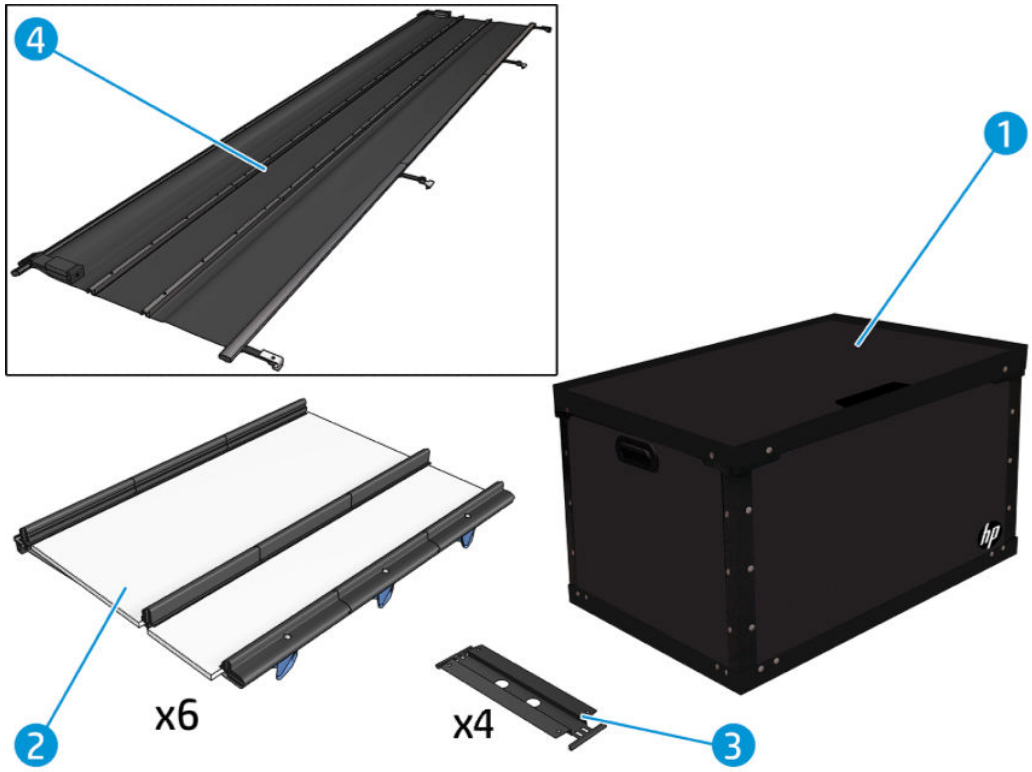
CAUTION: Do not load substrates with auto-ignition temperatures below 250°C (482°F). Ensure that no ignition sources are close to the substrate.

NOTE: Test method based on EN ISO 6942:2002: *Evaluation of materials and material assemblies when exposed to a source of radiant heat, method B*. The test conditions, to determine the temperature when the substrate starts ignition (either flame or glow) are: Heat flux density: 30 kW/m², copper calorimeter, K type thermocouple.

IMPORTANT: Do not use the Ink Collector Kit when in-line slitters are installed, as the cutting position can damage the protector of the Kit. It is recommended to uninstall the in-line slitters when working with the ink collector.

The above image is a QR code containing a link to a video; see Documentation on page 2.

Kit components



1. Ink-collector container
2. Six ink collectors with two replaceable foams
3. Four ink-collector substrate-edge holders
4. Protector

NOTE: Keep the ink-collector container and protector core to protect and store the ink-collector parts when not in use.

Install the kit

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

For more safety information, see Safety precautions on page 2

TIP: You are advised to wear gloves.

If any substrate is loaded, unload it. Then remove the edge holders from the substrate path.

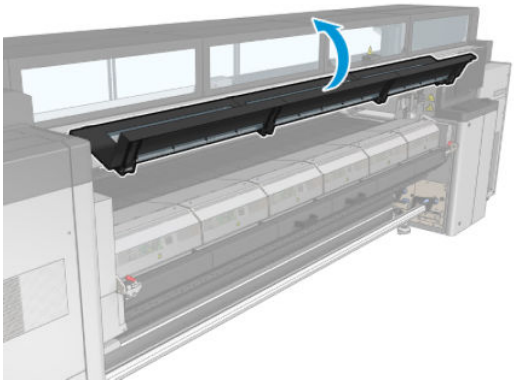
If necessary, clean the platen and the curing plates with a cloth dampened with an all-purpose cleaner.

Install the six ink-collector modules

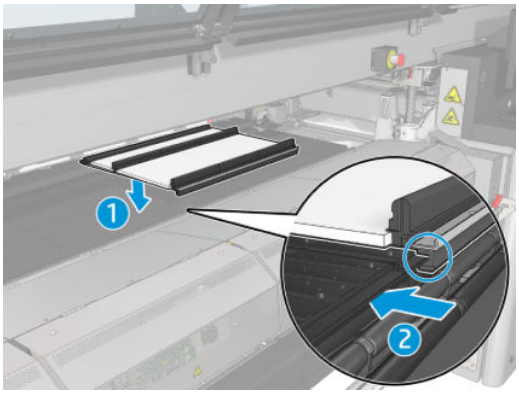
1. Ensure that the printer is not printing.
2. Ensure that all windows, covers, and doors are closed and remain in their original position.
3. Open the ink collector container and check that the ink collector foams are dry and clean enough to be used.
4. Go to the Internal Print Server and press the **Install ink collector** button in the main window.
5. Follow the instructions in the Internal Print Server to complete the installation. If you need further information, read the steps below.

⚠ CAUTION: If you install the kit incorrectly, some parts of the printer may be damaged.

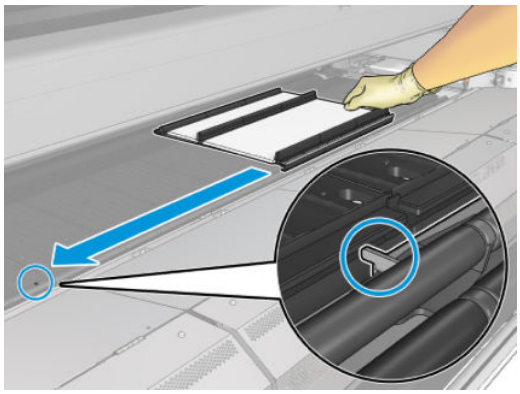
6. Ensure that the module latches are open (turned to the left).
7. To facilitate module installation, we recommend raising the carriage beam to the installation position.
8. Open the front door.



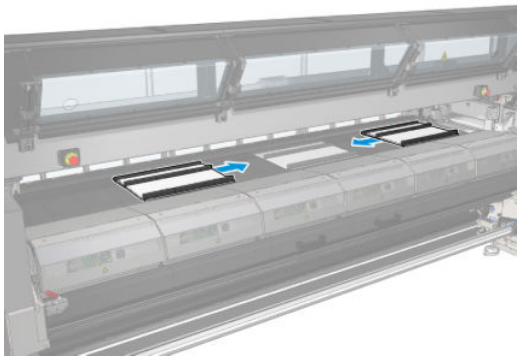
9. From the front on the right side, install the first module (1) and insert it into the guide (2).



10. Slide the module to the middle until it reaches the stop.

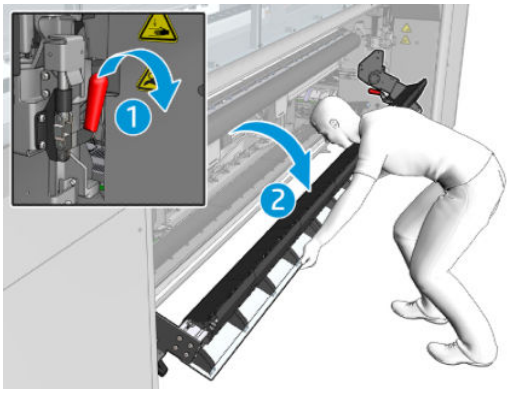


11. Insert all the ink collector modules on either side of the central one.

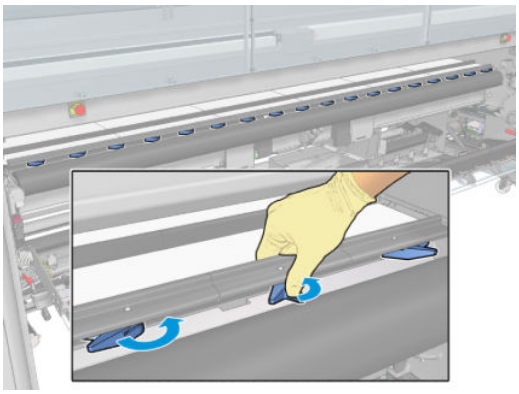


12. Attach each one that you insert to a module that is already in place.

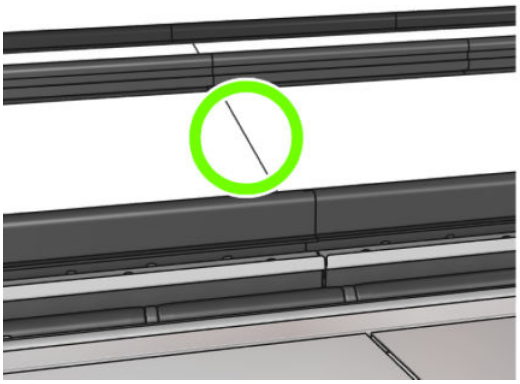
13. Go to the rear of the printer, lower the pinchwheel latches (1), and pull down the pinchwheel module to its lowest position.

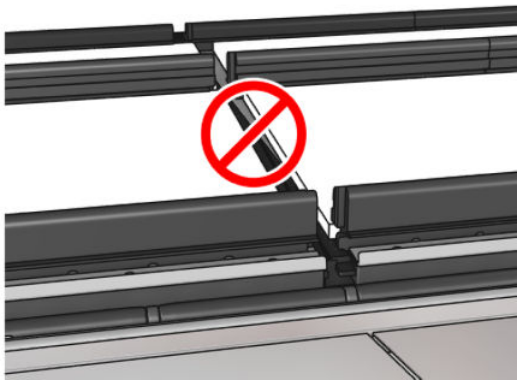


14. Close the latches of all modules (turn to the right).



15. Check that all the ink collector modules are aligned with each other and that there are no gaps between them.

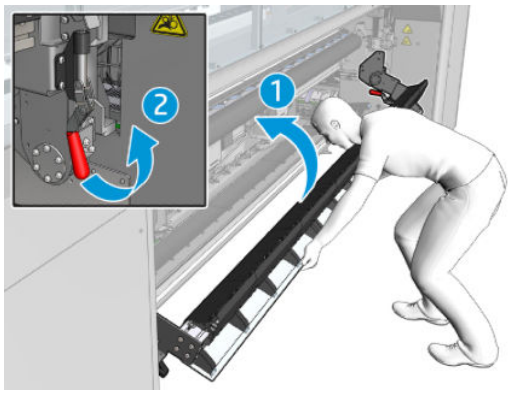




16. Check that the foams fit into the spaces provided for them. If they have expanded and no longer fit, replace them.

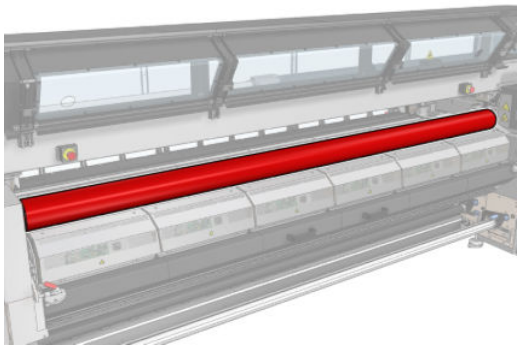
NOTE: Ensure that you dispose of the used foams correctly. Consult the guidelines from your local authority.

17. Lift the pinchwheel module (1) and the pinchwheel latches (2).

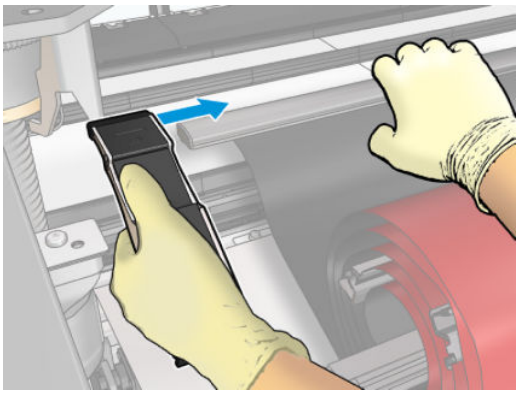


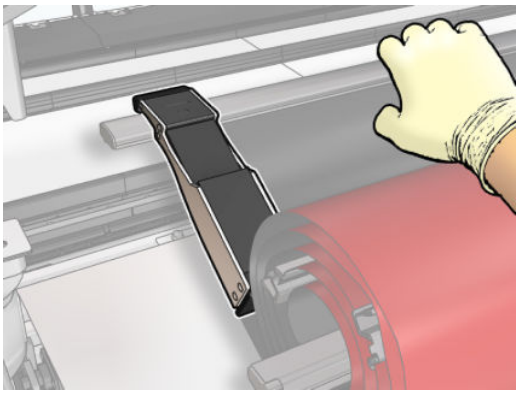
Install the protector

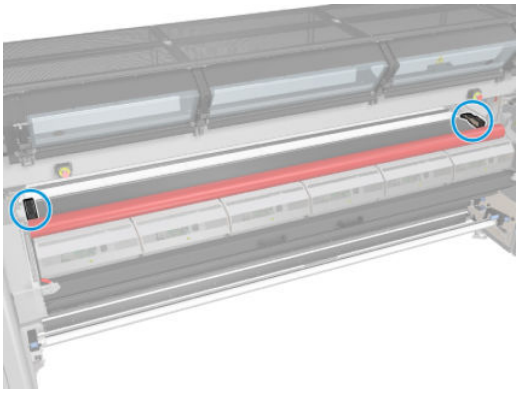
1. Take the rolled protector and ensure that it is completely clean and dry.
2. Place the rolled protector on the curing module. Do not open the curing module yet.



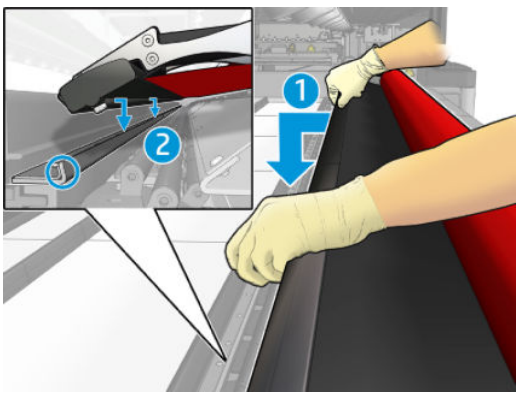
3. Slide or clip a barrier onto each end of the protector tab.



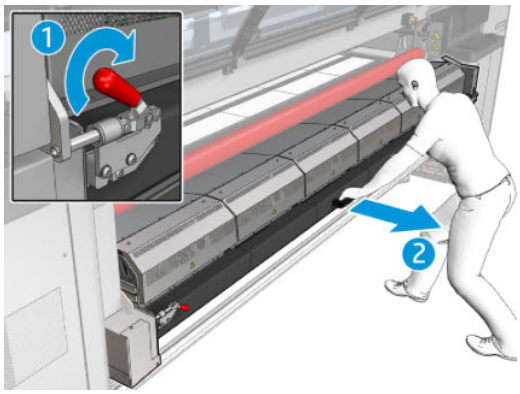




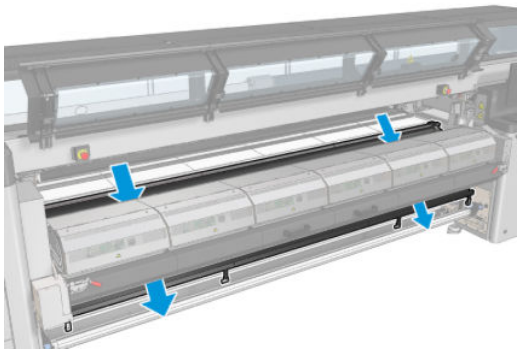
4. Place the tab of the protector (1) onto the slot (2). The black side should be face up.



5. Open the curing module latches (1) and the curing module (2).

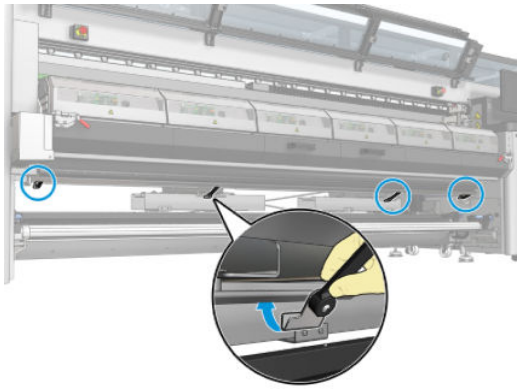


6. Drop the protector through the gap under the curing module.



7. Close the curing module and the latches.

8. Hook the clips from the protector to the bottom part of the printer.



9. Close the front door.

NOTE: If you plan to load substrates thicker than the value shown on the main screen, set the thickness value appropriately.

10. Press **Finish** to complete the ink collector installation. The carriage beam adjusts to the ink collector height.

Uninstall the kit

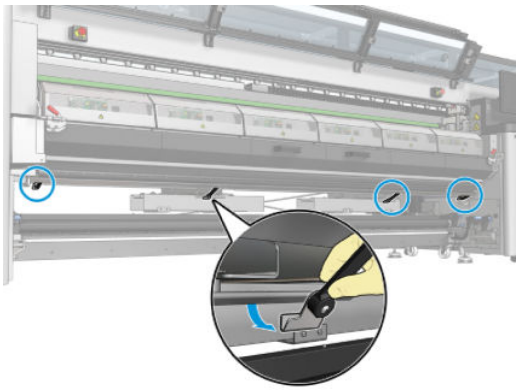
TIP: You are advised to wear gloves.

Unload the substrate (see Unload a roll on page 92) and remove the output spindle.

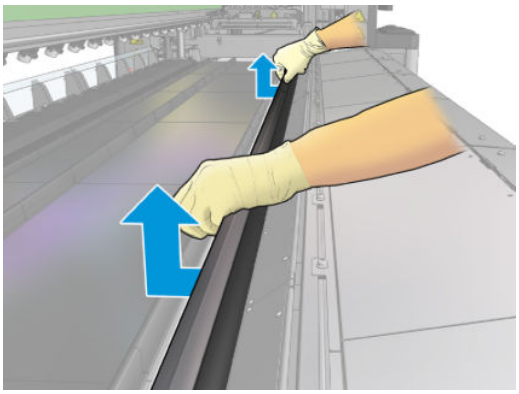
To facilitate module uninstallation, we recommend raising the carriage beam to the installation position, by pressing the **Raise carriage beam to install position** button.

Uninstall the protector

1. Go to the Internal Print Server and press **Uninstall ink collector**.
2. Unhook the four clips from the bottom.

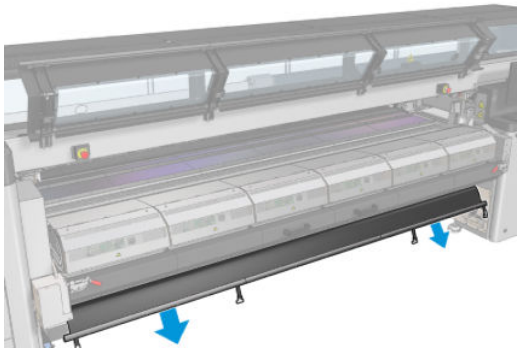


3. Extract the protector tab from the slot.

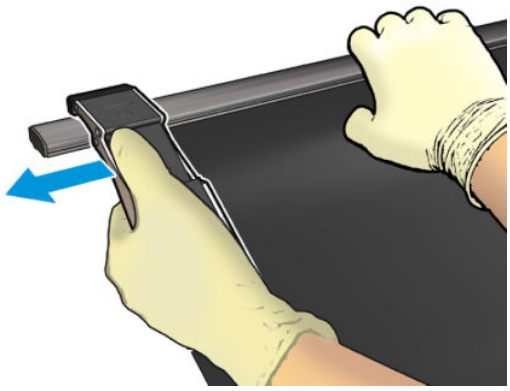


4. Open the curing module latches and curing module and leave the protector to slide down softly.

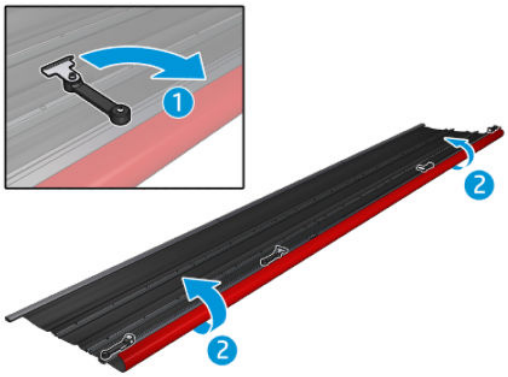
⚠ WARNING! Do not touch the internal enclosures of the printer's curing module: they can be hot enough to cause burns.



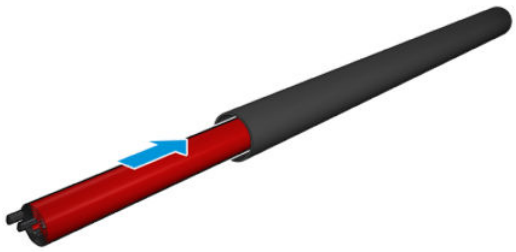
5. Remove the protector by the bottom part.
6. Remove the barriers, one on each side.



7. Check that nothing is dirty or broken. If dirty, clean with a lint-free cloth moistened with distilled water.
8. Roll up with the red side on the bottom and the black part on the top. Start rolling up on the side of the clips.

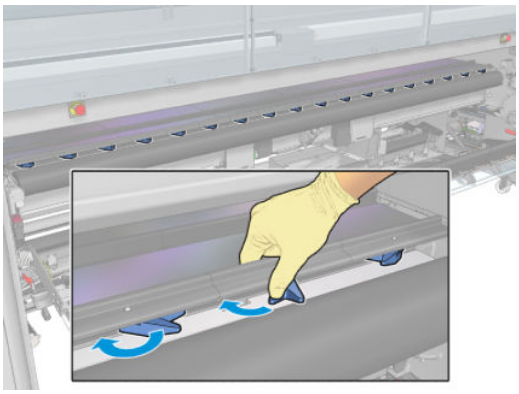


9. Place the protector in the packaging, and store it.

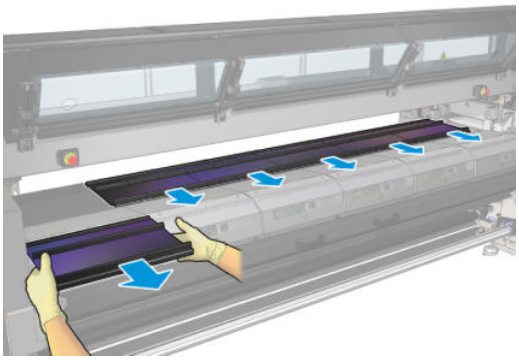


Uninstall the six ink-collector modules

1. Close the curing module and latches.
2. From the rear of the printer, open the three latches of each module.



3. From the front of the printer, remove each module. First, slowly lift the back part of the ink collector module, then, take out the guide from the platen, moving the ink collector module forward towards the front of the printer.



4. Press **Finish** to complete the removal process. The carriage beam moves down and the carriage moves along the platen for checking.
5. Check whether the foams need to be replaced; if so, replace them. Store them in the ink collector container, keeping the latches on top. You can also store the barriers and edge holders there.
6. Perform the maintenance operations recommended after uninstalling the kit: see Additional maintenance operations for porous substrates on page 201.

Load a roll onto the spindle

NOTE: Contact HP to know the recommended third party solutions for substrate lifter and core adaptors.

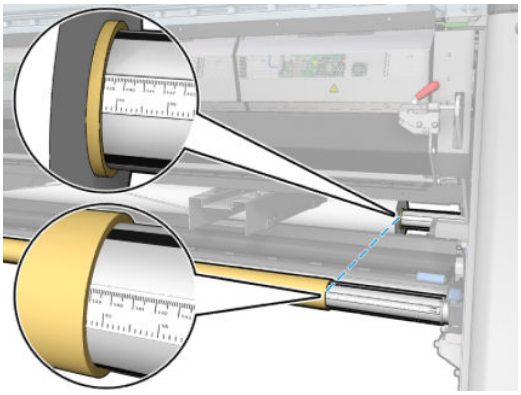
Single-roll printing

The spindle has a pneumatic connector at one end and a gear at the other.

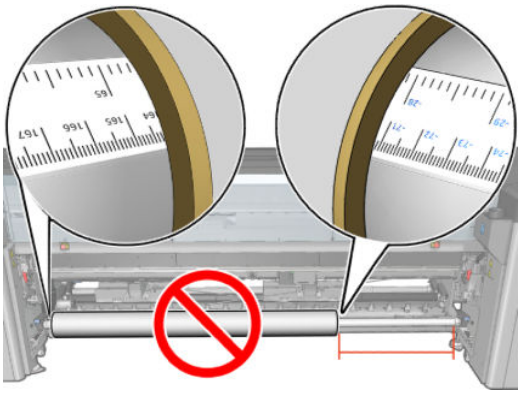
1. Check that the gear is on the correct side.
2. Insert the spindle into the roll taking into consideration the winding direction.

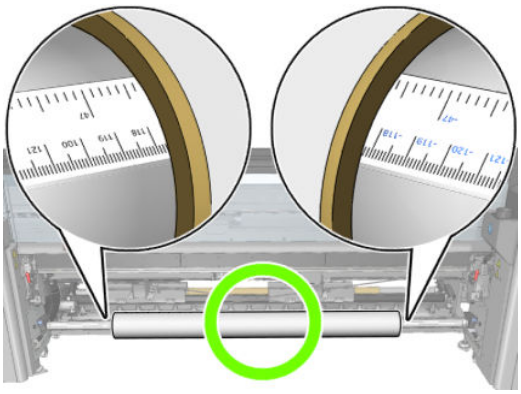
TIP: The spindle is quite heavy in order to ensure stiffness and so avoid skew and wrinkles, so two people are recommended for this operation.

3. Note the position of the end of the roll on the scale marked on both sides from the center of the spindle. The input and output rolls should be positioned identically on their respective spindles.



TIP: The rolls should be centered to reduce the risk of skew, wrinkles, and telescoping.





4. Connect the air gun to the pneumatic connector on the spindle, and inflate the spindle so that it cannot move inside the roll.

TIP: Before inflating, use the pneumatic gun to blow air around the valve area to remove any dirt.

WARNING! The air gun provided with the printer is only intended to inflate the spindle. When recommended to use for cleaning purposes, make sure to do so according to local regulations since additional safety provisions may apply.

TIP: If the substrate is telescoped on the input roll, there is a risk of substrate jams and damage to the printheads. Try to straighten the edges of the substrate to minimize telescoping on the input roll before loading it into the printer.

TIP: Check that the substrate is attached to the input core.

The roll is now ready to be loaded into the printer.

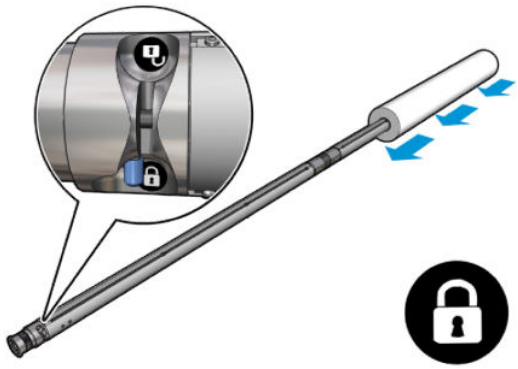
TIP: If you are a regular user of different substrate types, you can change rolls more quickly if you preload rolls of different substrate types on different spindles. Extra spindles are available for purchase.

HP Latex 3000/3100/3200 dual roll

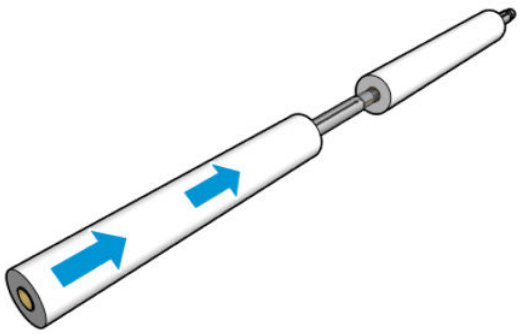
If your printer is an HP Latex 3000/3100/3200, you can print on two rolls at the same time by using the dual-roll spindle.

Loading the dual-roll spindle

1. Insert the first roll on the spindle.



2. Insert the second roll on the spindle.



3. Center both rolls, using the marks on both sides of the center of the spindle. The input and output rolls should be positioned identically on their respective parts of the spindle.
4. Inflate the valves at both ends.

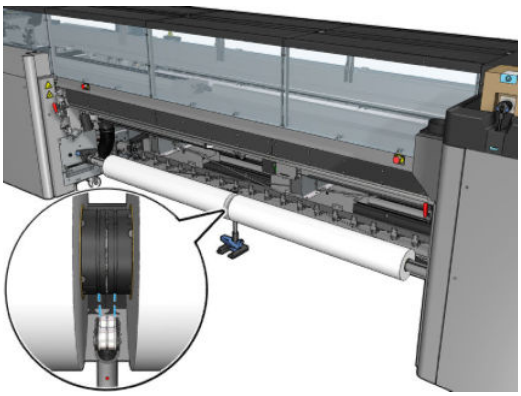
TIP: Before inflating, use the pneumatic gun to blow air around the valve area to remove any dirt.

⚠ WARNING! The air gun provided with the printer is only intended to inflate the spindle. When recommended to use for cleaning purposes, make sure to do so according to local regulations since additional safety provisions may apply.

5. Place the spindle with the roll in the substrate input.
6. Place the dual-roll spindle on the printer with the long lever up.

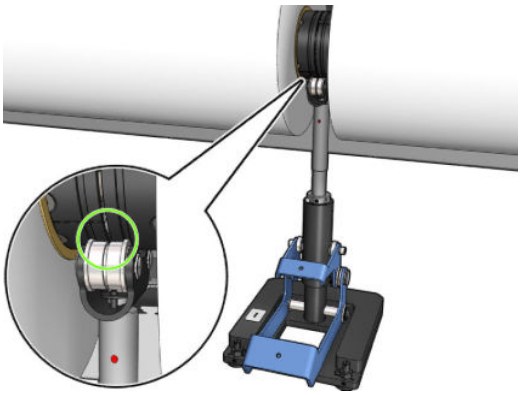
TIP: The spindle and two rolls of substrate are heavy. You are recommended to use a forklift to move it into position.

7. Position the dual-roll center support under the center of the dual-roll spindle.



8. Pull the long lever down.

   When engaging the support, make sure that the position of the support bearings corresponds to the grooves of the differential cover and that the two sets of bearings are approximately the same distance from the middle of the spindle to maximize their contact.



9. Repeat the procedure for the output dual-roll spindle.
10. You can now feed the substrates into the printer.
11. Once the substrate is aligned, automatic substrate-edge detection can be run. If this automatic process fails, or if you are using a roll width not within the dual-roll spindle specifications shown below, introduce the substrate edge values manually. Physically measure the position of the substrate edges on the dual-roll spindle ruler. The dual-roll spindle ruler, in inches and centimeters, uses positive (+) signs on one side and negative (–) signs on the other side.

Latex 3000/3100/3200 dual-roll spindle specifications	
Minimum roll width	635 mm (25 in)
Maximum roll width	2 × 1.60 m (2 × 63 in)

Latex 3000/3100/3200 dual-roll spindle specifications	
Minimum gap between rolls	40 mm (1.6 in)
Maximum roll diameter	300 mm (11.8 in)
Maximum total weight of both rolls	2 × 70 kg (2 × 154 lb)

If this is the first time you use the dual roll, it has to be installed and calibrated. See the Installation Guide for more information.

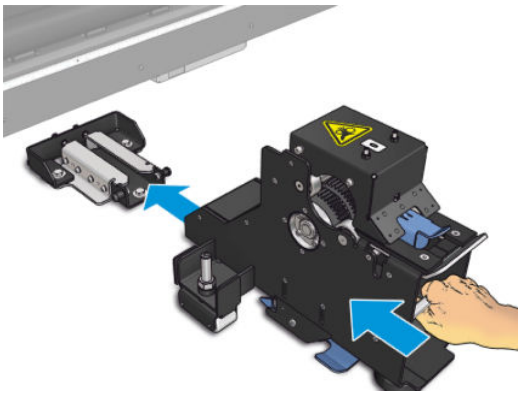
HP Latex 3500/3600 dual-roll split spindles center support

Risk of trapped fingers

If your printer is an HP Latex 3500/3600, you can print on two rolls at the same time by using the dual-roll split spindle. See the Installation Guide to check the installation of the center support split spindle assembly.

IMPORTANT: Two dual roll center supports are provided. The higher one corresponds to the input side of the printer and the other one to the output side. You have to follow the same process in order to install input and output side central supports to the corresponding base.

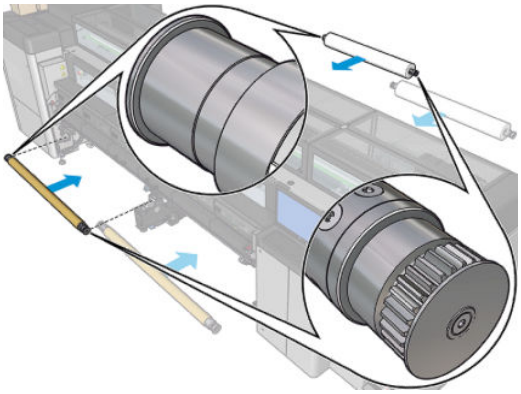
To assemble the center support split spindles to its base, insert the center support foot on the base guides and move it to the end by pushing the handle. Make sure that the base hook is fixed.

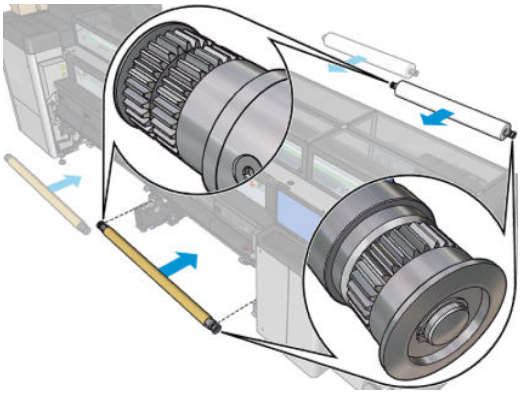


If you want to remove the center support, raise the blue lever with a hand, and firmly pull the center support to remove it from its base.

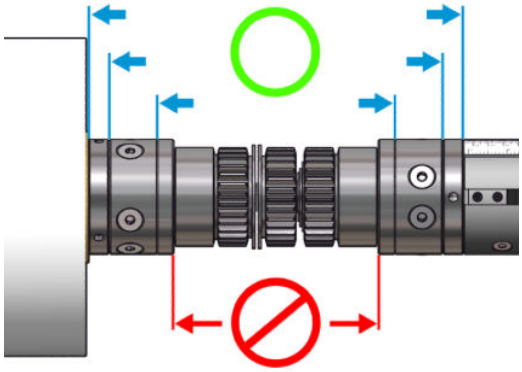
Loading the rolls on the split spindles

1. Insert the first roll on one of the split spindles.
2. Insert the second roll on the other split spindle.
3. Load the split spindles in the printer.





4. Move the rolls to the center of the printer. Accurately position each roll following one of the spindle marks. The input and output rolls should be positioned identically on their respective parts of the spindle.



5. Inflate the valves at both ends by connecting the air gun to the pneumatic connectors.

TIP: Before inflating, use the pneumatic gun to blow air around the valve area to remove any dirt.

WARNING! The air gun provided with the printer is only intended to inflate the spindle. When recommended to use for cleaning purposes, make sure to do so according to local regulations since additional safety provisions may apply.

Latex 3500/3600 dual-roll split spindles specifications	
Minimum roll width	635 mm (25 in)
Maximum roll width	2 × 1.55 m (2 × 61 in)
Minimum gap between rolls	134 mm (5.3 in)
Maximum roll diameter	400 mm (15.75 in)
Maximum total weight of both rolls	2 × 200 kg (2 × 440 lb)

Load a roll into the printer

The objective when loading substrate is to get a uniform tension across its width and length to minimize the risk of skew, wrinkles, and telescoping. There are four ways in which the substrate can pass through the printer:

- Roll-to-roll configuration

- Dual roll-to-roll configuration

- Roll-to-free-fall configuration

- Roll-to-collector configuration

For each configuration, there are two ways of loading the substrate:

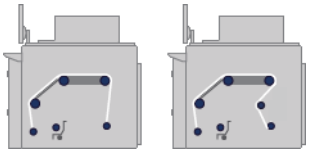
- Manual loading: this is recommended for rigid and narrow substrates
- Assisted loading: this can be used to make loading flexible or wide substrates easier

NOTE: Assisted loading is not recommended with dual rolls.

If your printer is an HP Latex 3500/3600, you have a diverter in the input side of the printer to help to homogenize the tension of the paper. We strongly recommend to print with it installed. Check the Installation Guide in case you need to uninstall it.

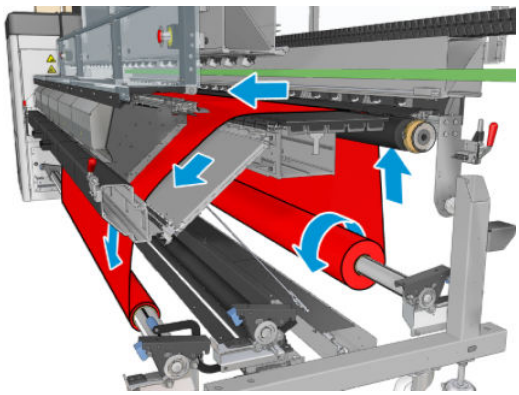
Load a roll (roll-to-roll configuration)

HP Latex 3000/3100/3200 and HP Latex 3500/3600 have different dual roll options. For HP Latex 3000/3100/3200 you can use a spindle with two rolls, but for HP Latex 3500/3600, a split spindle system can be used. See HP Latex 3500/3600 dual-roll split spindles center support on page 63/3600 for more information.

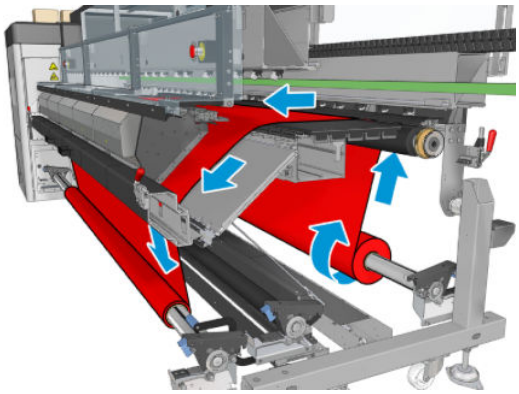


The substrate roll is mounted on the input spindle (single or dual) and will be collected on the output spindle. The substrate goes from the input spindle (1) over the main roller (2), over the platen (3), over the front diverters (4) and then to the output spindle (5).

If your printer is an HP Latex 3500/3600, between the input spindle and the main roller, you have to make use of the diverter.



The above illustration shows the substrate loaded with the printed face outwards on both input and output rolls. You can also load substrate with the printed face inwards on either or both rolls, in which case the spindle will turn in the opposite direction. The printer asks you for the winding direction if it cannot detect it automatically.



Each of the spindles has its own motor. The motors maintain tension on the substrate. Some vacuum is applied at the level of the platen to keep the substrate flat. The substrate is moved forwards by the drive roller motor, on which there is a pinch mechanism to prevent the substrate from slipping.

Before loading a roll into the printer, you must have a roll loaded onto a spindle (the input roll) and an empty core loaded onto another spindle (the output roll). See Load a roll onto the spindle on page 59.

NOTE: For the output roll, use a single empty core the same length as the input core. Do not place two or more shorter cores on the same spindle, which could cause substrate-advance problems.

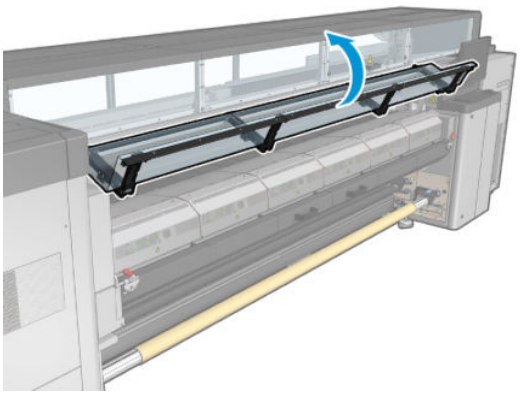
TIP: The spindle and a roll of substrate can be heavy. You are recommended to use a forklift or some other equipment to move it into position; otherwise, lift one end into the printer, and then the other end.

1. Go to the Internal Print Server and select **Substrate Load/Unload**, then select the correct configuration.
2. In the Internal Print Server, choose from the list of substrate types the type that you have loaded.
3. If they are installed, remove the substrate edge holders from the print platen so that they do not get in the way while loading the substrate.

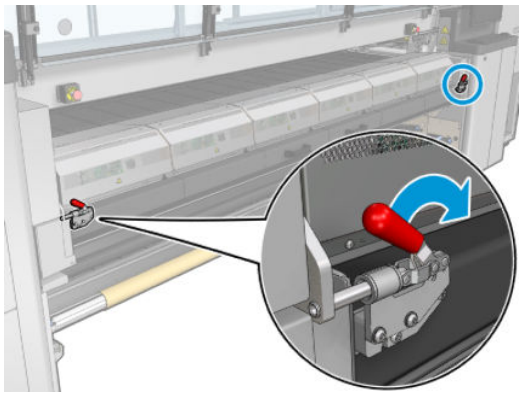
   CAUTION: Loading the substrate on top of the edge holders could severely damage the printheads and carriage.
4. Bring the new roll on its spindle to the rear of the printer, with the geared end of the spindle on the left.
5. Rest the ends of the spindle on the platforms provided at the rear of the printer; plastic pads are provided to absorb the impacts.
6. In the same way, load the spindle with the empty core into the front of the printer. In this case, the geared end of the spindle should be on the right.
7. All substrates can be loaded with the manual loading procedure (below). However, you may find it easier to use the assisted loading procedure if your substrate is flexible or wide.

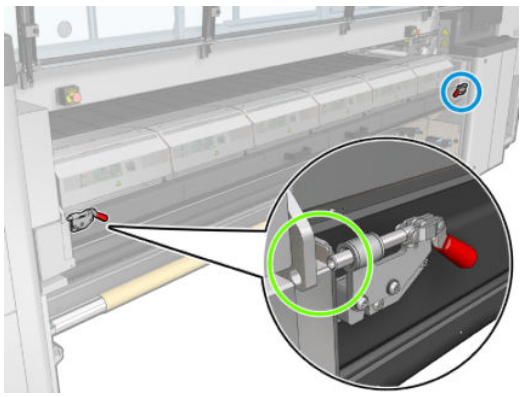
Assisted loading

1. Open the front door.

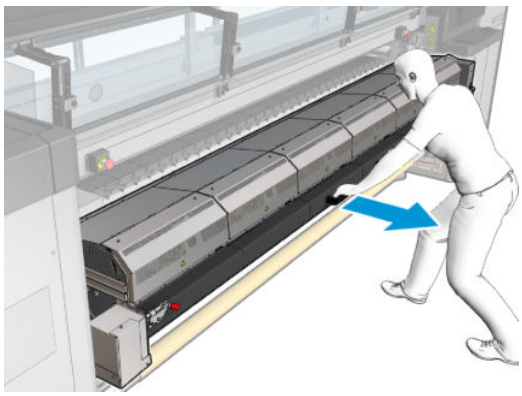


2. Open the curing module latches.

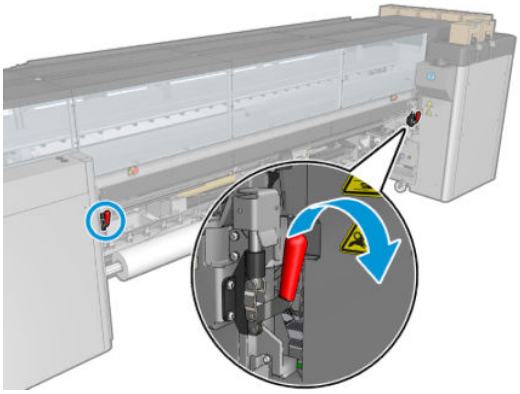


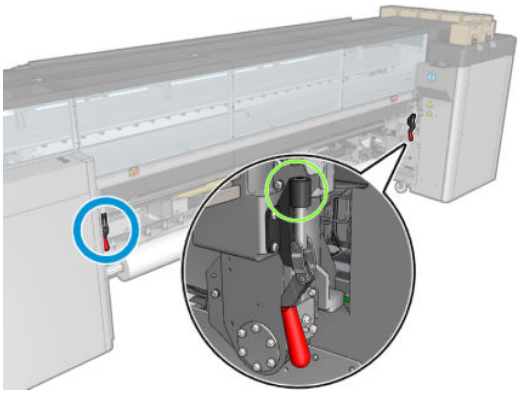


3. Open the curing module.

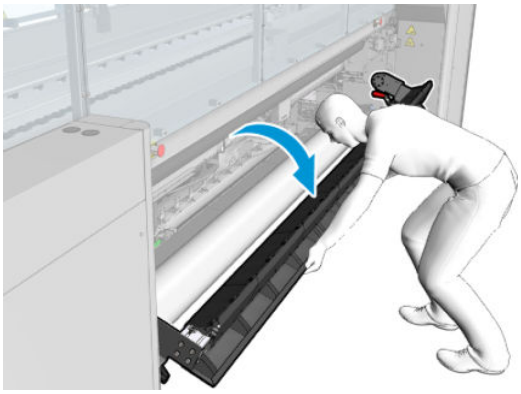


4. Open the loading table latches.

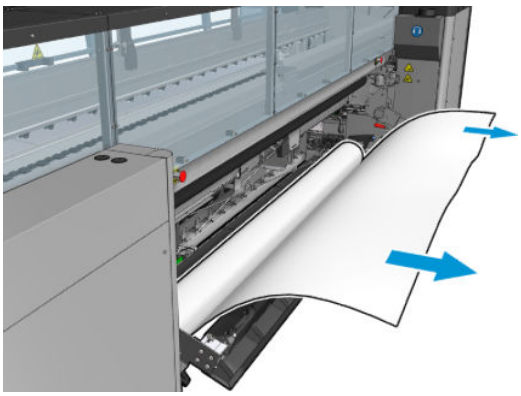




5. Open the loading table.

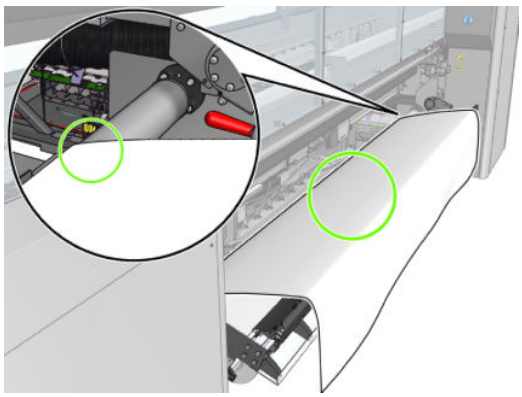


6. Unwind a length of substrate.

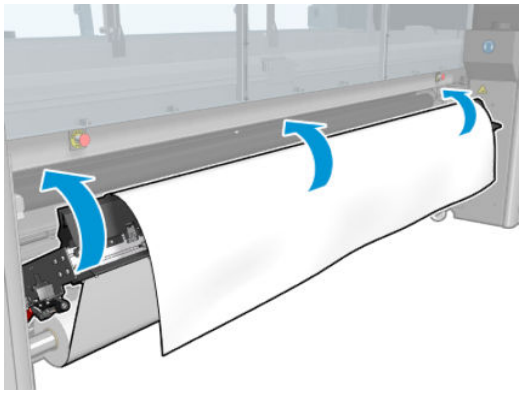


7. Place it on the loading table.

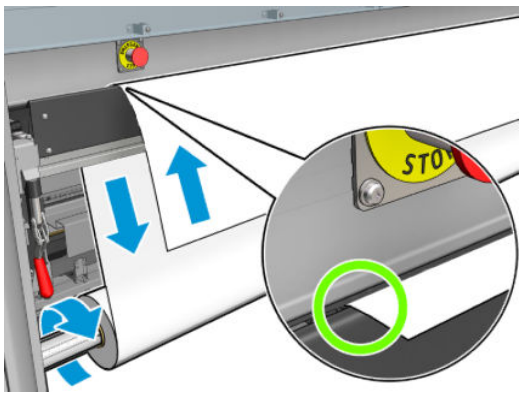
   If your printer is an HP Latex 3500/3600, you have to load the paper making sure it is loaded behind the diverter.



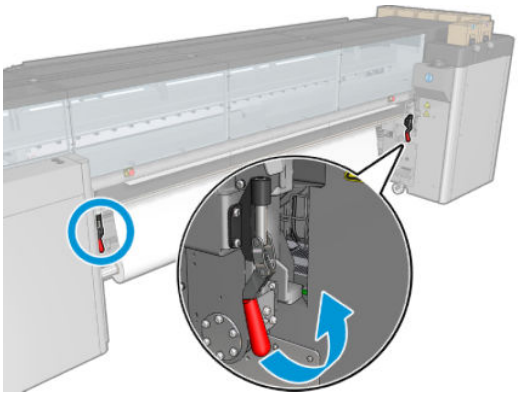
8. Close the loading table.



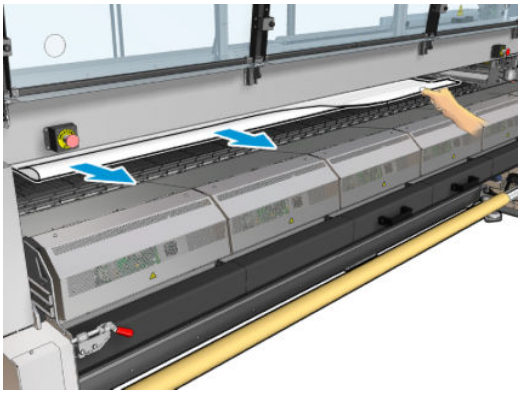
9. Rewind the substrate manually until the leading edge is close to the pinchwheels.

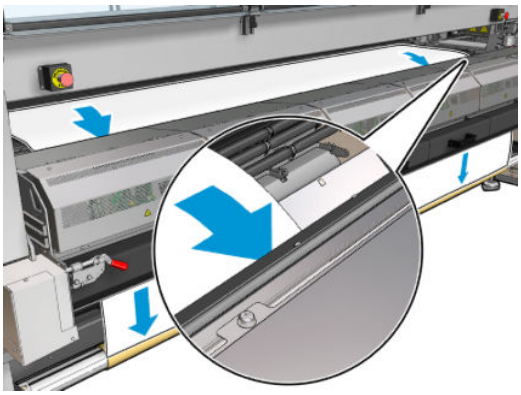


10. Close the loading table latches.



11. Go to the Internal Print Server and use the large blue button to advance the substrate until it reaches the output spindle. Ensure that the substrate advances smoothly and is not trapped by any obstruction. If necessary, help the substrate to advance and to pass through the curing module slot.

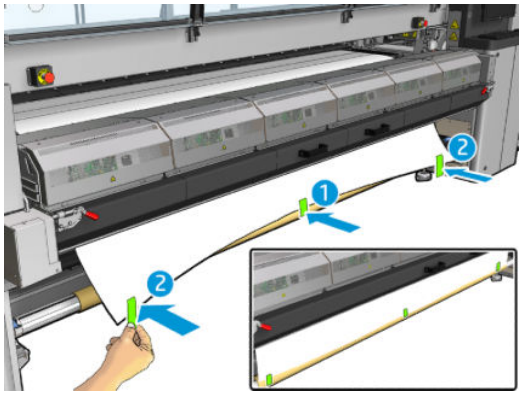




12. Open the loading table.

13. Align the substrate by checking that the substrate edge is in the same position on the input and output spindles. This can be done by using the rulers on the spindles or by measuring the distance between the right edge and the side plate.

14. When the substrate is evenly tensioned and flat (no wrinkles or bumps), attach it to the empty core with adhesive tape. Tape it first in the center, and then at the left and right sides, making sure not to pull the substrate excessively or leave it wrinkled.



15. If you are using them, place the substrate edge holders into position and attach them at the front.
16. Close the curing module and latches, then the front door.
17. If you are using them, attach the substrate edge holders at the rear.
18. Close the loading table and latches.
19. Go to the Internal Print Server and press the **Finish** button. The printer rotates both rolls to check their diameters, and it also checks the width of the roll, the winding direction, the vacuum, and the substrate advance calibration (this takes about a minute).

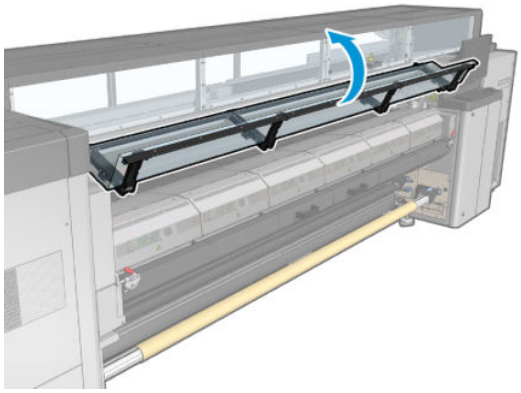
NOTE: The roll size appears at the bottom of the screen; to change it, click **Change substrate settings**.

NOTE: Some substrates (such as transparent substrates) cannot be measured by the printer in this way. In such cases, you will be asked to enter the Left Edge and Width fields yourself into the Internal Print Server. Use the ruler on the spindle to check these values.

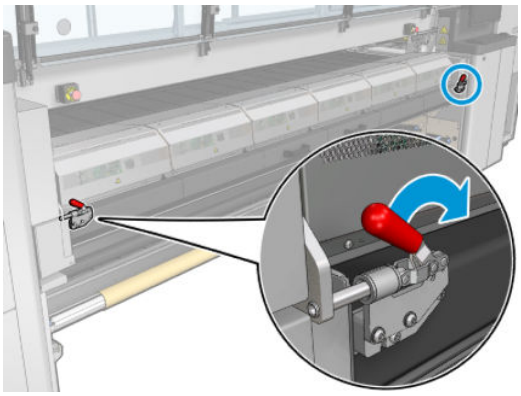
20. An alert about substrate-advance tracking may appear at this point. For more information on when you might want to turn off automatic tracking, see Substrate-advance compensation on page 181.
21. For more information on when you might want to change the carriage beam position, see Substrate tips on page 39.

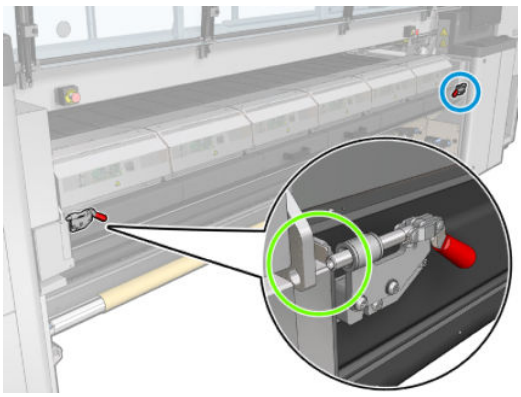
Manual loading

1. Use the Internal Print Server to raise the carriage beam to its loading position.
2. Open the front door.

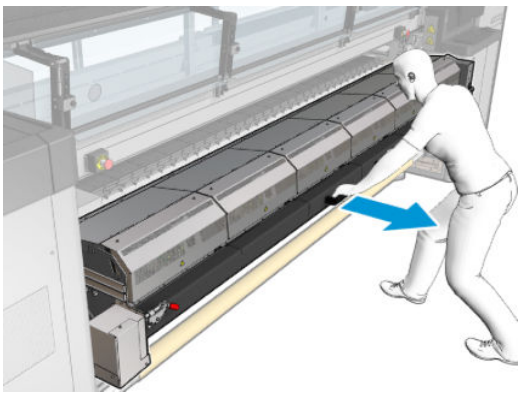


3. Open the curing module latches.

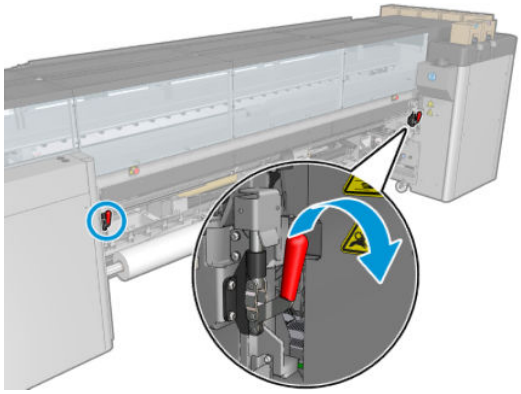


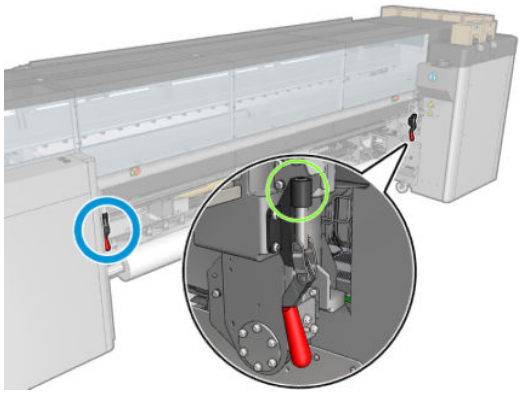


4. Open the curing module.

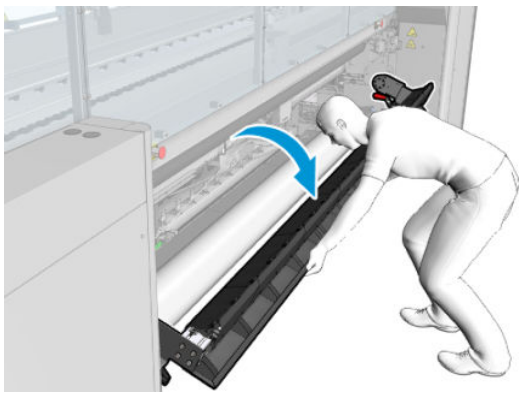


5. Open the loading table latches.



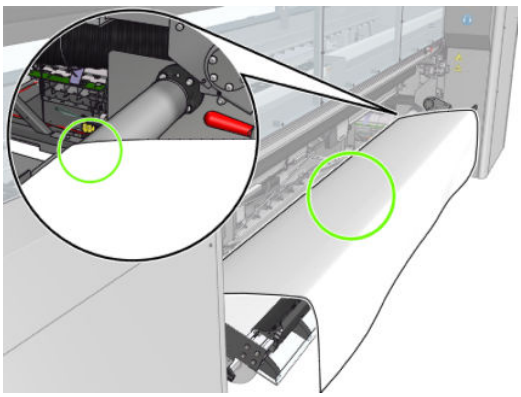


6. Open the loading table.

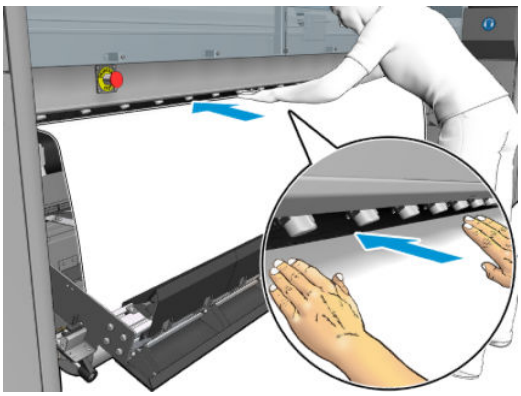


7. Unwind a length of substrate.

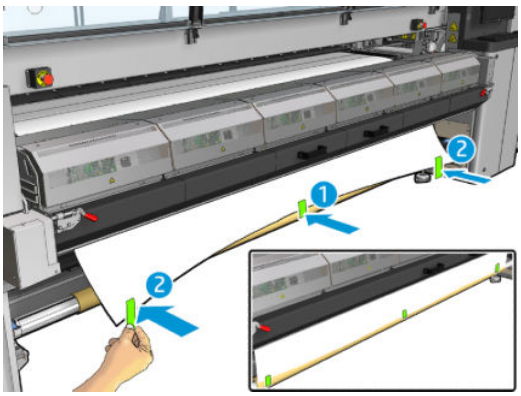
   If your printer is an HP Latex 3500/3600, you have to load the paper making sure it is loaded behind the diverter.



8. Place it in the print zone.



9. Push the substrate through the printer until it reaches the output spindle.
10. Align the substrate by checking that the substrate edge is in the same position on the input and output spindles. This can be done by using the rulers on the spindles or by measuring the distance between the right edge and the side plate.
11. When the substrate is evenly tensioned and flat (no wrinkles or bumps), attach it to the empty core with adhesive tape. Tape it first in the center, and then at the left and right sides, making sure not to pull the substrate excessively or leave it wrinkled.



12. If you are using them, place the substrate edge holders into position and attach them at the front.
13. Close the front door and the curing module.

14. If you are using them, attach the substrate edge holders at the rear.
15. Close the loading table.
16. Use the Internal Print Server to lower the carriage beam to its printing position.
17. Go to the Internal Print Server and press the **Finish** button. The printer rotates both rolls to check their diameters, and it also checks the width of the roll, the winding direction, the vacuum, and the substrate advance calibration (this takes about a minute).

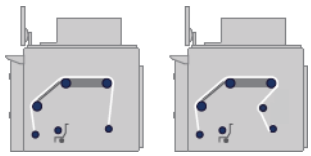
NOTE: Some substrates (such as transparent substrates) cannot be measured by the printer in this way. In such cases, you will be asked to enter the Left Edge and Width fields yourself into the Internal Print Server. Use the ruler on the spindle to check these values.

18. An alert about substrate-advance tracking may appear at this point. For more information on when you might want to turn off automatic tracking, see Substrate-advance compensation on page 181.

The printer is now ready to print.

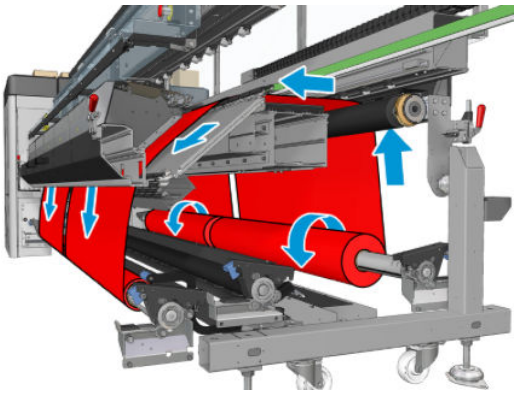
Load a roll (dual roll-to-roll configuration)

HP Latex 3000/3100/3200 and HP Latex 3500/3600 have different dual roll options. For the HP Latex 3000/3100/3200 you can use a spindle with two rolls, but for HP Latex 3500/3600, a split spindle system can be used. See HP Latex 3500/3600 dual-roll split spindles center support on page 63 more information.

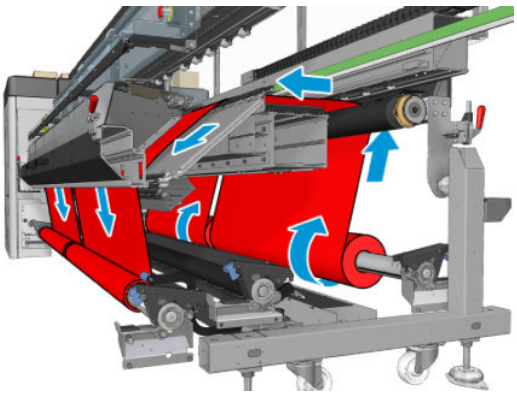


The two substrate rolls are mounted on the rear dual-roll spindle and will be collected on the front dual-roll spindle. The substrate goes from the input spindle over the main roller, over the platen, over the front diverters and then to the output spindle.

NOTE: When using dual rolls, you are recommended to use the roll-to-roll configuration for best performance.

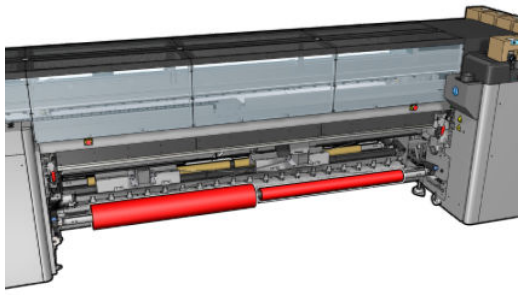


You can load substrate with the printed face inwards or outwards on the spindle, in which case the spindle will turn in the opposite direction. The printer asks you for the winding direction if it cannot detect it automatically.



Before loading two rolls into the printer, you must have both rolls loaded on the rear dual-roll spindle and two empty cores loaded on the front dual-roll spindle. See Load a roll onto the spindle on page 59.

If the rolls are of unequal lengths, the longer roll should be on the right as seen from the front of the printer; on the left as seen from the rear. That way, when the shorter rolls runs out, you can continue printing on the other roll.



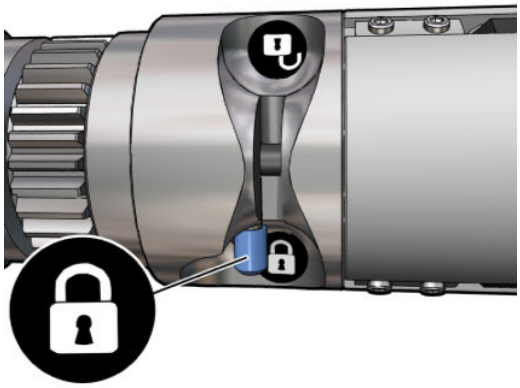
NOTE: When one roll runs out, you should lock the differential in the middle of the spindle, using the lever on the left-hand side.

HP Latex 3500/3600 only: In order to use the Dual Roll, it must be installed first.

1. Go to the Internal Print Server and select **Substrate Load/Unload**, then select the correct configuration.
2. In the Internal Print Server, choose from the list of substrate types the type that you have loaded.
3. If they are installed, remove the substrate edge holders from the print platen so that they do not get in the way while loading the substrate.

CAUTION: Loading the substrate on top of the edge holders could severely damage the printheads and carriage.

4. You may find it helpful to lock the differentials on the input and output spindles while loading.



5. Rest the ends of the spindle on the platforms provided at the rear of the printer; plastic pads are provided to absorb the impacts.
6. In the same way, load the spindle with the empty cores into the front of the printer. In this case, the geared end of the spindle should be on the right.
7. **HP Latex 3000/3100/3200 with a single spindle only:** If you intend to use the Dual Roll Center Supports, install them now, for both input and output spindles, and move them up to their calibrated positions to ensure that the substrate is later brought to the output spindle and properly wound. See Loading the dual-roll spindle on page 61 for more information.

CAUTION: The calibrated position should be set following the instructions provided with the accessory (see Calibrate the dual-roll center support on page 370). An incorrect position could cause the carriage to crash (see There are wrinkles and ink smears on the substrate on page 363).

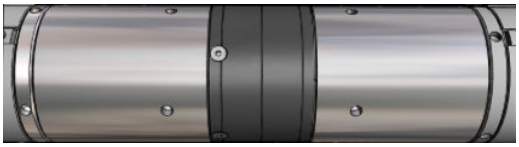
Manual loading

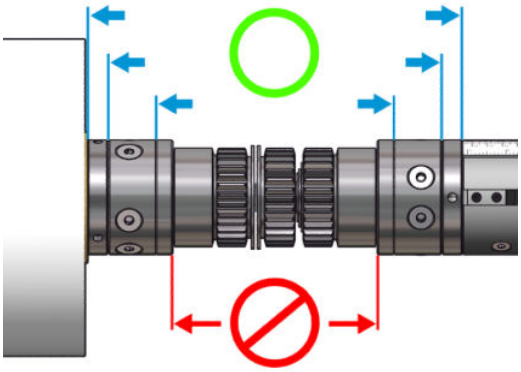
NOTE: Assisted loading is not recommended in a dual-roll configuration.

1. Use the Internal Print Server to raise the carriage beam to its loading position.
2. Open the front door and the curing module.
3. Open the loading table.
4. Unlock the differential in the input spindle.
5. Unwind a length of substrate from the first input roll and place it in the print zone.
6. **HP Latex 3500/3600 only:** take care with the diverter when loading the substrate.
7. Push the substrate from the first roll through the printer until it reaches the output spindle.
8. Unwind a length of substrate from the second input roll and place it in the print zone.
9. Push the substrate from the second roll through the printer until it reaches the output spindle.

10. Align the substrate by checking that the substrate edge is in the same position on the input and output spindles. This can be done by using the rulers on the spindles or by measuring the distance between the right edge and the side plate.

NOTE: You are recommended to align the edges of both rolls by the lines on both sides of the spindle's center mark.



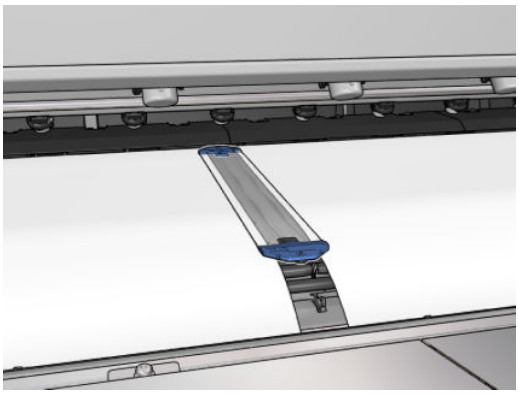


NOTE: The substrate-advance sensor must be covered by the substrate (from 252 to 310 cm on the ruler).

11. When the substrate is evenly tensioned and flat (no wrinkles or bumps), attach it to each empty core with adhesive tape. Tape it first in the center, and then at the left and right sides, making sure not to pull the substrate excessively or leave it wrinkled.

12. If you are using them, place the three or four substrate edge holders into position and attach them at the front.

TIP: **HP Latex 3000/3100/3200 only:** When aligning the roll edges with the marks on the dual-roll spindle, the center edge holder (if needed) is shared by both rolls. If you position the rolls differently, and you are using edge holders, take into account the distance required for the edge holders.

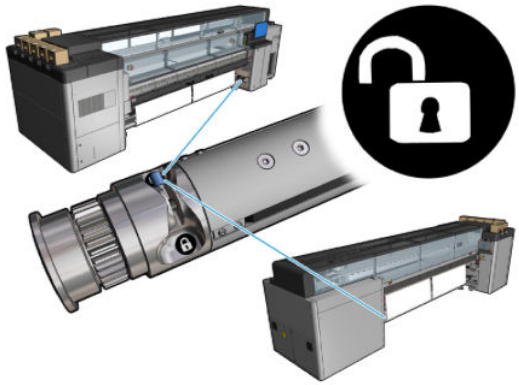


13. Close the front door and the curing module.

14. If you are using them, attach the substrate edge holders at the rear.

15. Close the loading table.

16. Ensure that the spindle differentials are unlocked.



17. Use the Internal Print Server to lower the carriage beam to its printing position.

18. Go to the Internal Print Server and press the **Finish** button. The printer rotates the rolls to check their diameters, and it also checks the width of the roll, the winding direction, the vacuum, and the substrate advance calibration (this takes about a minute).

NOTE: Some substrates (such as transparent substrates) cannot be measured by the printer in this way. In such cases, you will be asked to enter the Left Edge and Width fields yourself into the Internal Print Server. Use the ruler on the spindle to check these values.

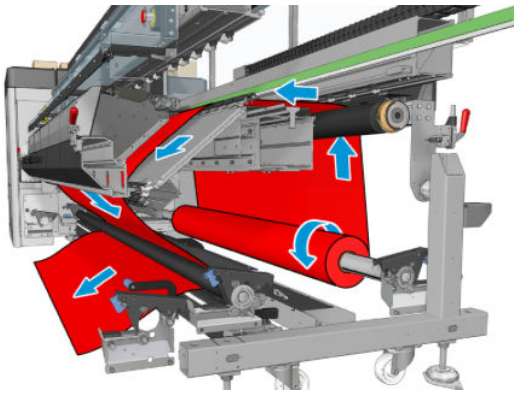
19. An alert about substrate-advance tracking may appear at this point. For more information on when you might want to turn off automatic tracking, see Substrate-advance compensation on page 181.

20. For more information on when you might want to change the carriage beam position, see Substrate tips on page 39.

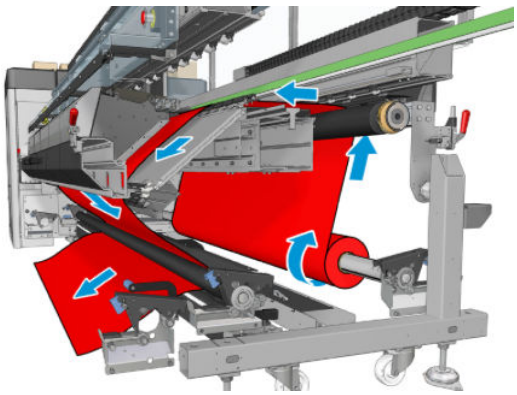
The printer is now ready to print.

Load a roll (roll-to-free-fall configuration)

The substrate roll is mounted on the input spindle; the printed substrate will be deposited on the floor in front of the printer. The substrate goes from the input spindle (1) over the main roller (3), over the platen, over the front diverters (5) and then to the tension roller (7), after which it continues to the floor.



You can load substrate with the printed face inwards or outwards on the spindle, in which case the spindle will turn in the opposite direction. The printer asks you for the winding direction if it cannot detect it automatically.

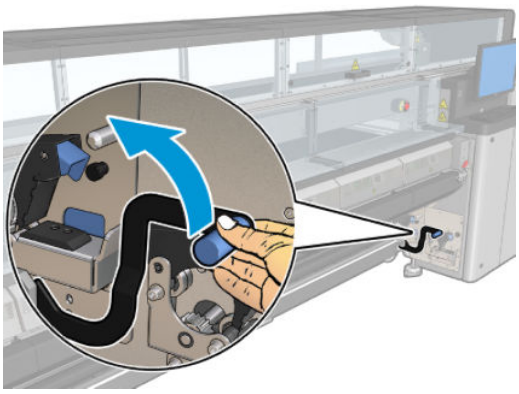


Before loading a roll into the printer, you must have a roll loaded onto the input spindle. See Load a roll onto the spindle on page 59.

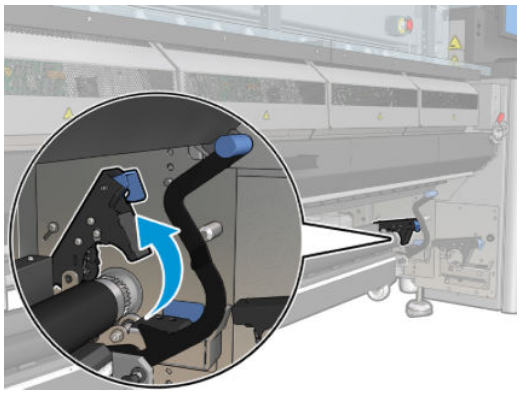
TIP: The spindle by itself is quite heavy, and a roll of substrate can be much heavier. You are recommended to use a forklift or some other equipment to move it into position; otherwise, lift one end into the printer, and then the other end.

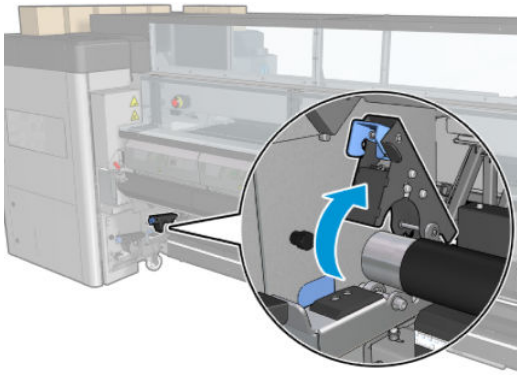
To load the substrate, follow the same procedure as in the roll-to-roll configuration, except that the output spindle is not needed.

1. Ensure that the tension roller lever is raised.

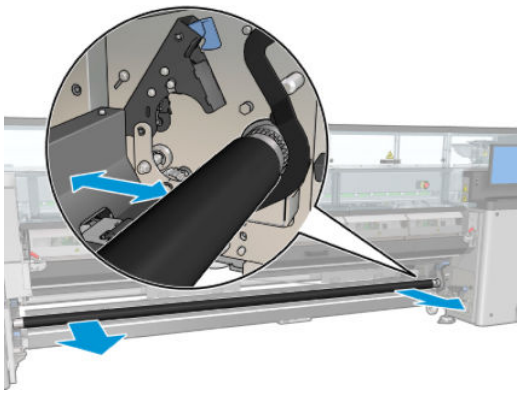


2. Unlatch the tension roller at both ends.



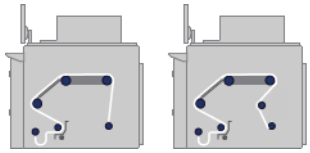


3. Move the roller to the front, so that you have more space to pass the substrate behind the roller.

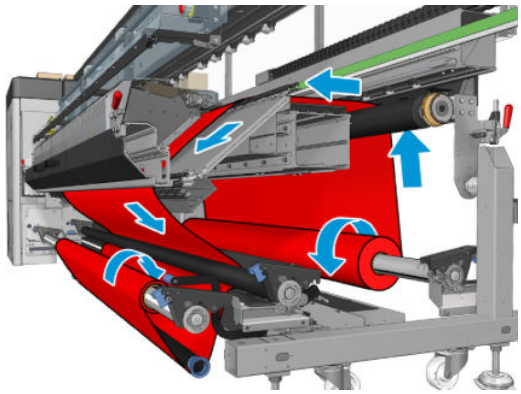


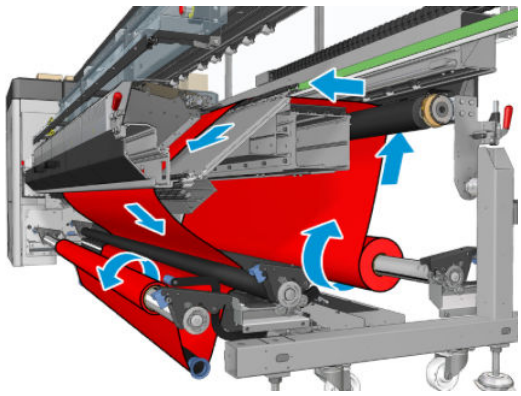
4. Pass the substrate through and push the roller backwards, taking care not to trap your fingers between the roller and the black substrate guide lying underneath and behind.
5. Close the latches at both sides.
6. Align the substrate by checking that the substrate edge is in the same position on the input spindle and tension roller. This can be done by using the rulers on the spindle and tension roller or by measuring the distance between the right edge and the side plate.
7. Ensure that the substrate is evenly tensioned and flat (no wrinkles or bumps), and close the tension roller lever.
8. Go to the Internal Print Server and press the **Finish** button as in the roll-to-roll configuration.

Load a roll (roll-to-collector configuration)



This configuration is similar to the roll-to-free-fall configuration, but with the addition of a collector roller and loop shaper.





TIP: Do not try to load or unload the collector while printing.

Before starting to load the substrate, select a loop shaper of the correct length to match the substrate width. The following tubes are supplied so that you can make up loop shapers of many different lengths.

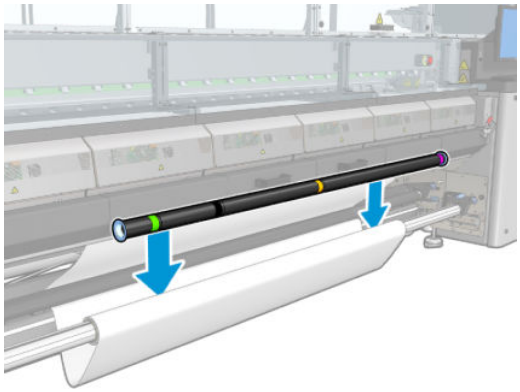
- One 152-mm (6-in) tube
- Two 203-mm (8-in) tubes
- One 305-mm (12-in) tube
- One 610-mm (24-in) tube
- Two 1067-mm (42-in) tubes
- Two end flanges, to be placed at each end to avoid lateral displacement of the loop shaper during printing

For example, you can make up the following loop shapers.

- 914 mm (36 in): 610-mm (24-in) and 305-mm (12-in) tubes
- 1016 mm (40 in): 610-mm (24-in) and two 203-mm (8-in) tubes
- 1270 mm (50 in): 1067-mm (42-in) and 203-mm (8-in) tubes
- 1372 mm (54 in): 1067-mm (42-in) and 305-mm (12-in) tubes

- 1524 mm (60 in): 1067-mm (42-in), 305-mm (12-in) and 152-mm (6-in) tubes
- 1829 mm (72 in): 1067-mm (42-in), 610-mm (24-in) and 152-mm (6-in) tubes
- 1981 mm (78 in): 1067-mm (42-in), 610-mm (24-in) and two 152-mm (6-in) tubes
- 2032 mm (80 in): 1067-mm (42-in), 610-mm (24-in), 203-mm (8-in) and 152-mm (6-in) tubes
- 2489 mm (98 in): two 1067-mm (42-in), 203-mm (8-in) and 152-mm (6-in) tubes
- 2642 mm (104 in): two 1067-mm (42-in), 305-mm (12-in) and 203-mm (8-in) tubes
- 3200 mm (126 in): two 1067-mm (42-in), 610-mm (24-in), 305-mm (12-in) and 152-mm (6-in) tubes

1. Follow the whole loading procedure for the roll-to-free-fall configuration.
2. Load an empty substrate core onto the output spindle. For dual-roll printing, load two cores of the same diameter onto a single spindle (it is not recommended to use a dual-roll spindle as the collector).
3. Use the buttons in the Internal Print Server to advance the substrate's leading edge until it reaches the core on the collector.
4. Tighten the substrate so that it is evenly tensioned, then attach the leading edge to the core with tape, first at the center and then at the sides. There should be no wrinkles or slackness across the substrate.
5. Use the buttons in the Internal Print Server again to advance the substrate so that a substrate loop is produced between the tension roller and the collector.
6. Place the loop shaper into the substrate loop.



NOTE: Loop detection is done in the center of the printer; so avoid putting your foot or any other object under the collector in the center.

7. Go to the Internal Print Server and press the **Enable collector** button.
8. Select the winding direction: **Outwards** is recommended, as it permits an output roll up to 300 mm (11.81 in) in diameter. If you select **Inwards**, the diameter of the output roll is limited to 200 mm (7.87 in): with a fatter roll, the loop shaper would start to touch the roll.

NOTE: The winding direction cannot be changed on the fly: the collector has to be deactivated and reactivated.

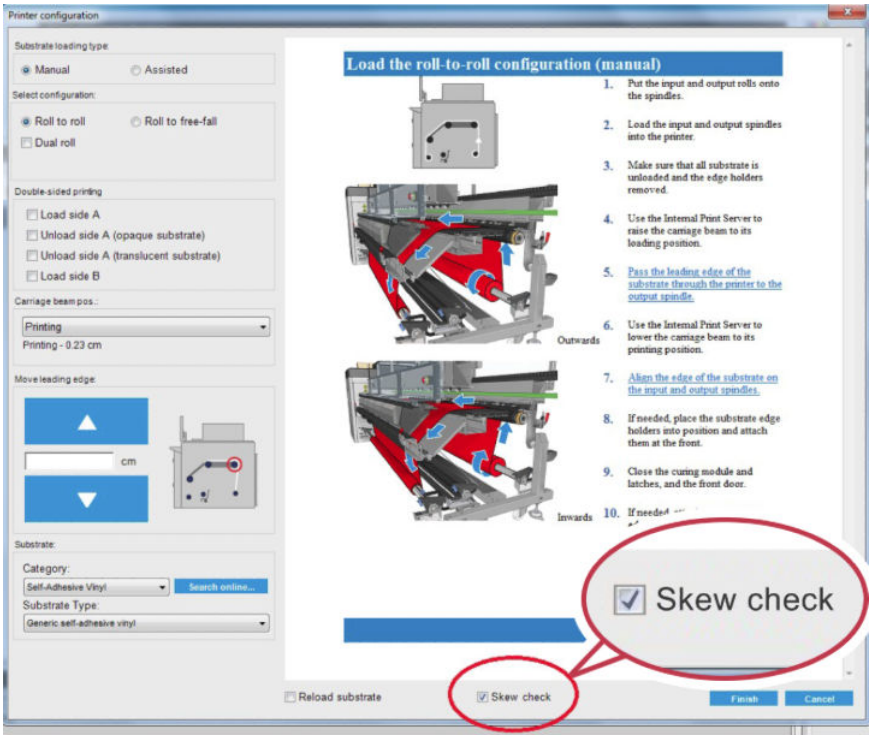
9. Press the **Finish** button.

The printer is now ready to print.

Skew check option

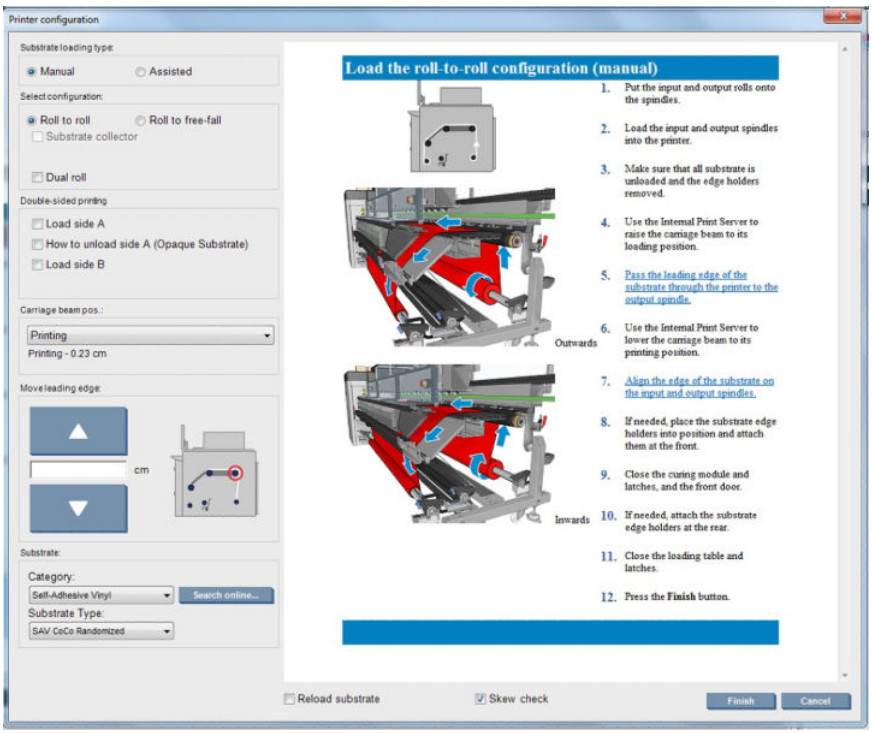
This option is selected via the **Printer Configuration** window during substrate load in all previous configurations.

This option does not indicate whether the substrate is properly loaded or not, but it does provide the amount of lateral movement during the load. You can set a threshold for each substrate type.

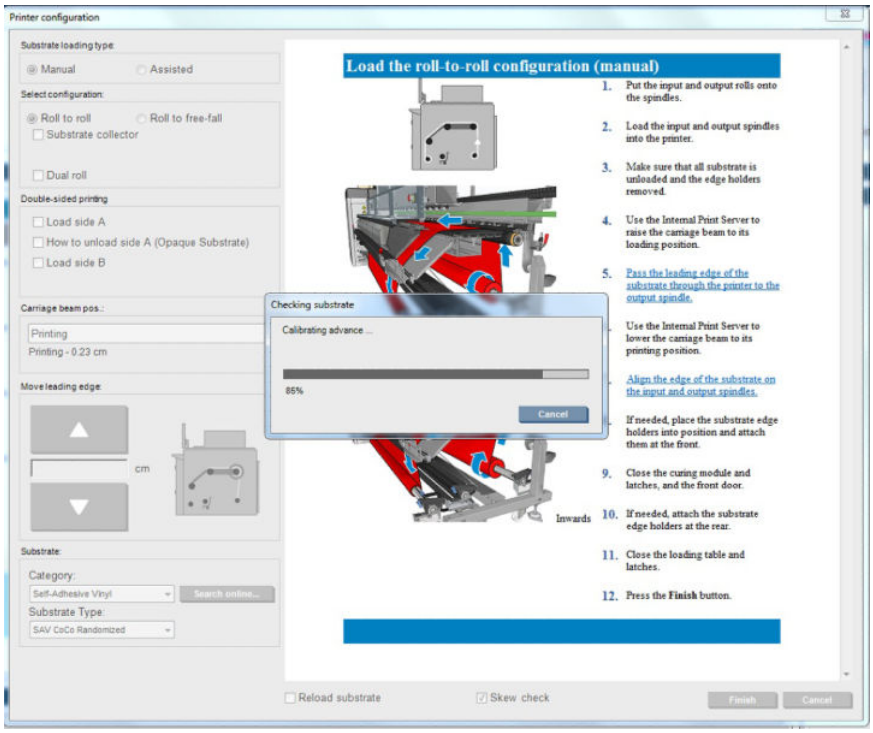


Additional notes

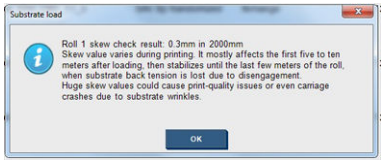
- When this option is selected, while loading, the printer moves the substrate backwards and forwards several times in order to measure the skew at different points.



- During this phase **Calibrating advance** appears.



- When finished, the substrate loads, and a window appears with the skew test result.



Double-sided printing

Selecting the double-sided printing option will provide you with guidance and help specific to double-sided printing during the load process.

The roll-to-roll configuration is recommended for double-sided printing. You cannot perform double-sided printing if the dual-roll spindle or the ink collector kit is in use.

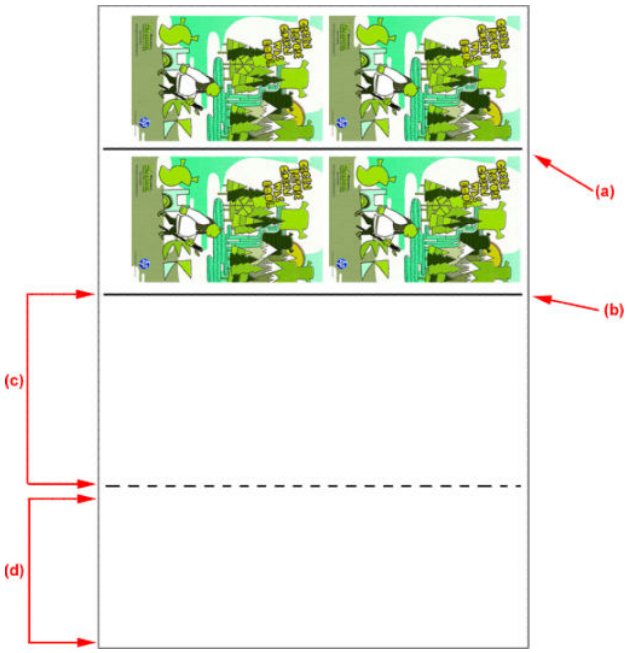
Double sided printing is designed for single jobs with multiple copies, it does not work properly with multiple jobs.

A double-sided job must be defined as a pair of images.

- Side A is the first image to be printed.
- Side B is the second image to be printed, on the reverse of Side A.

On Side A, after each row of images a black continuous line called a “registration line” is automatically printed: (a) and (b) below. These registration lines are used while printing Side B to minimize any registration errors in the direction of substrate movement.

When the whole of Side A has been printed, a space (c) is normally left blank for calibrations (the substrate is already warmed up), and a further space (d) is left blank so that the substrate can be loaded for printing Side B. However, these blank spaces are optional: you can turn them off.

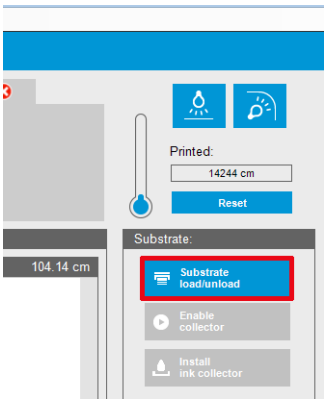


Side A: Load and print

1. Load the roll-to-roll configuration: see Load a roll (roll-to-roll configuration) on page 67.

NOTE: Neither the dual-roll spindle nor the ink collector kit can be used while printing double-sided jobs.

2. Define side A preferences (see Double-sided on page 135) and select the **Print** button.
3. Before unloading the substrate, select the **Substrate load/unload** button in the IPS, select **How to unload side A**, and follow the on-screen instructions.

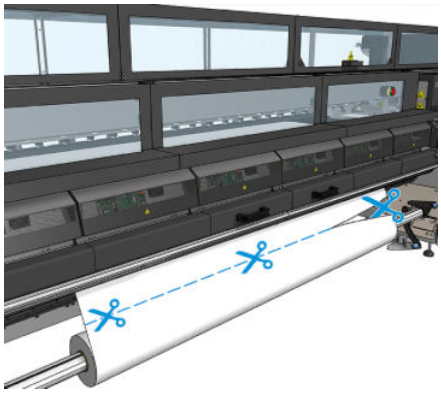


NOTE: Jobs must be defined for double-sided printing, side A and side B, this information is available while a job is printing in Print Properties.

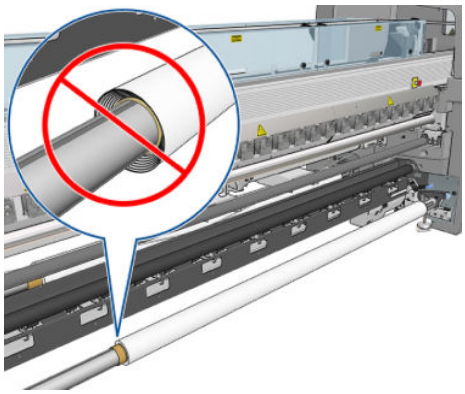
NOTE: Selecting the check boxes **Side B: loading space** and **Side B: Calibration space** is highly recommended, see Define double-sided job on page 135.

Side A: Unload

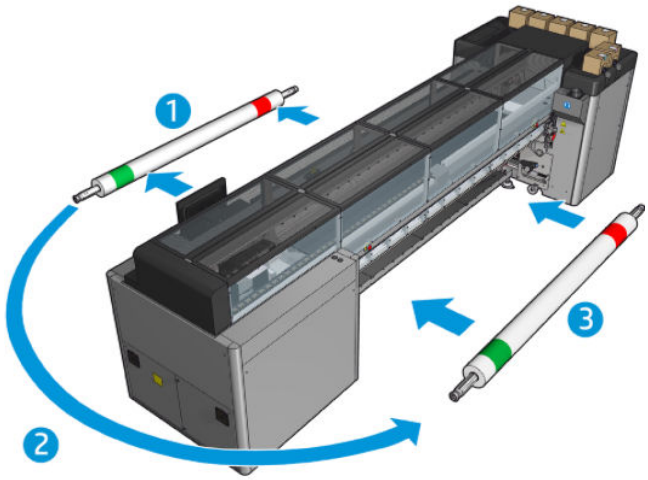
1. Cut the substrate close to the input roll.



2. Collect the substrate onto the output spindle. Check the substrate is collecting correctly on to the spindle to avoid telescoping.



3. Remove the input spindle.
4. Remove the output spindle (1), carry it around to the input side with the same orientation (2) and install it into the input position (3). **Maintain the same orientation:** Left edge always on the left, as indicated below with the colors blue and red.

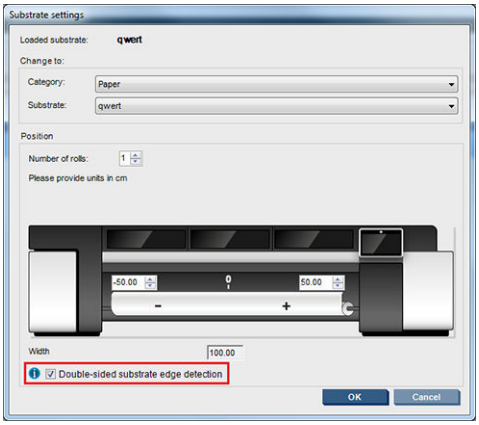


5. When completed, click **Done** in the IPS window to confirm.

Side B: Load and print

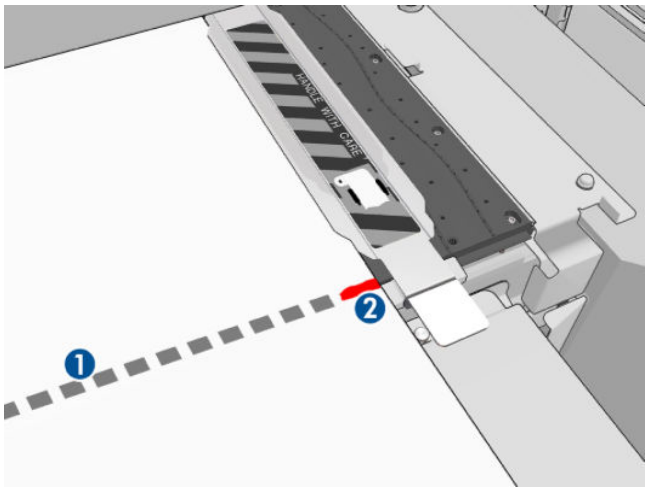
1. Load roll-to-roll configuration: see Load a roll (roll-to-roll configuration) on page 67.

NOTE: By default the left edge of the substrate is detected to minimize registration errors along the scan axis when printing double-sided. When printing on translucent substrates or types of substrate with irregular edges you can disable this option by clicking **Substrate Edge Detection**.

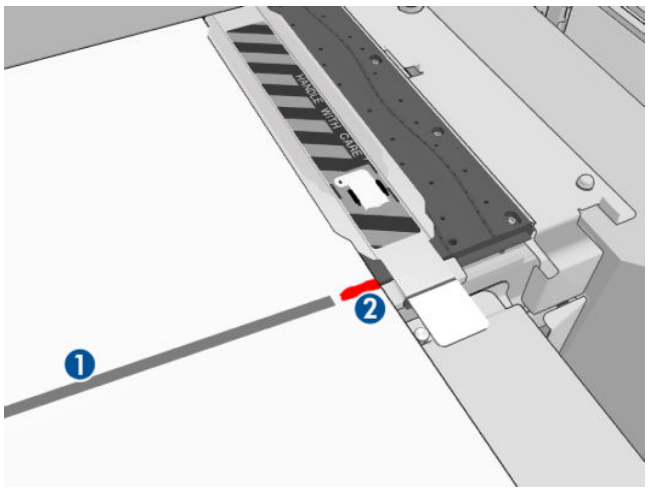


2. Align the registration line with the beginning of the platen.

- If Side B: Calibration space was selected, align the dotted line.



- Align the registration line (continuous line).



NOTE: To help make the alignment we recommend making a mark with a pen or pencil at the registration line (1), but on Side B (2). **Do not** make a mark by cutting with scissors as this can cause the substrate to come into contact with the printheads.

3. Define Side B (see Double-sided on page 135) and press the **Print** button.

NOTE: Before pressing **Print**, ensure that the correct side is selected.

The printer will automatically detect the registration line and the Side B image will be positioned to minimize registration errors. This detection occurs automatically after each row detected and an adjustment is made accordingly.

4. Unload the roll.

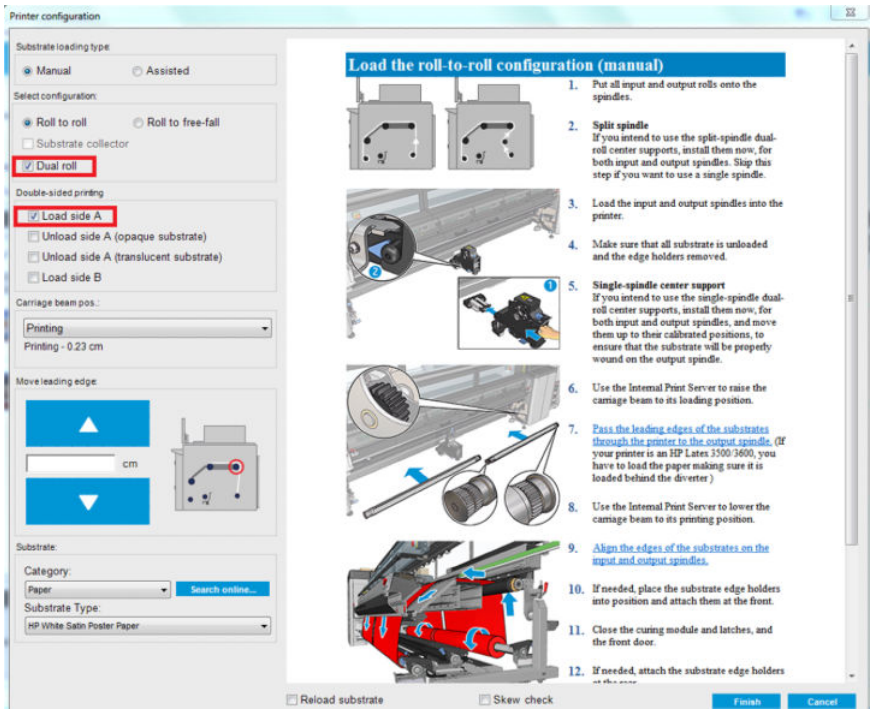
Print a double-sided job with dual-roll

You can also print side A of a double-sided job with dual rolls. To print side B, each roll has to be printed one at a time.

IMPORTANT: Rolls that weigh more than 200 kg (441 lb) on narrow rolls less than 178 cm (70 in) can cause dangerous spindle bow that can in turn lead to spindle deformation. See Substrate sizes on page 411 for information on appropriate dimensions of substrate rolls.

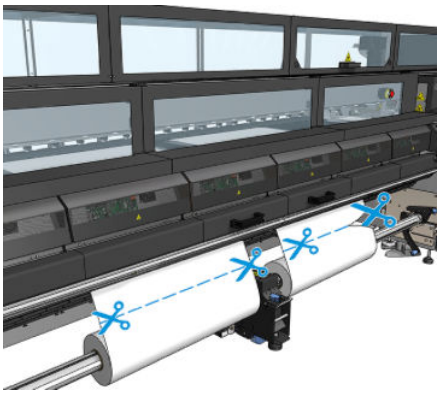
1. When you have printed all jobs on side A, make a small mark on the registration line so that it can be aligned later with the platen.

NOTE: When loading side A, check the **Dual roll** and **Load side A** boxes.

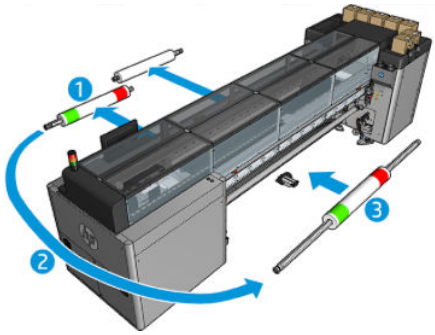


2. Cut the substrate on the output side, near the spindle.

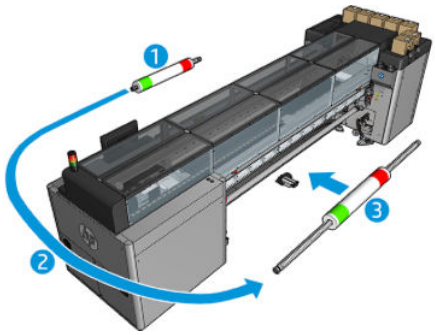
NOTE: Before unloading the substrate, select the **Substrate load/unload** button in the IPS, select **Unload side A** (opaque substrate).



3. Put one of the two already-printed rolls onto a single spindle and place it in the input position. It is important that substrate orientation remains the same.



4. Once side B is on the first roll, put the second roll onto the single spindle and print side B. Again, it is important that substrate orientation remains the same.



View information about the loaded substrate

Information about the loaded substrate is displayed at the bottom of the main screen of the Internal Print Server.

To see more information, select the **Substrate** menu and then **Settings**.

Unload a roll

NOTE: Contact HP to know the recommended third party solutions for substrate lifter and core adaptors.

1. Check that the printing is not printing.
2. Go to the Internal Print Server and select **Substrate Load/Unload**.
3. Lift the loading table latches at the rear of the printer.
4. If you need to raise the carriage beam, go to the Internal Print Server and select **Carriage beam position** > **Move to substrate load position**. The printer raises the carriage. This process takes about 2 minutes to complete.

TIP: This step is optional. It may be feasible to unload some substrates without raising the carriage beam.

5. When the carriage has been raised, cut the substrate

   For porous substrates only, when the ink collector kit (see The ink collector kit on page 48) is in use:

   a. Cut the substrate at the front.

   b. Go to the rear of the printer and pull the substrate over the loading table.

   c. Cut the substrate again.
6. Wind the substrate manually onto the output roll.
7. Open the two latches at each side of the spindles.

IMPORTANT: **HP Latex 3500/3600 only:** Be sure the latches are open before manipulating the roll ejector lever.

8. **HP Latex 3500/3600 only:** Press the roll ejector lever at both sides to unload the paper.
9. Remove the output roll from the printer.
10. Press the valve to deflate the spindle, and remove it from the roll.

IMPORTANT: When you press the spindle valve, make sure nobody else is touching the spindle/roll to minimize the risk of trapping a finger between any spindle component and the roll.

11. Rewind the substrate manually onto the input roll.
12. Open the two latches at each side of the spindles.

IMPORTANT: **HP Latex 3500/3600 only:** Be sure the latches are open before manipulating the roll ejector lever.

13. **HP Latex 3500/3600 only:** Press the roll ejector lever at both sides to unload the paper.
14. Remove the input roll from the printer.
15. Press the valve to deflate the spindle, and remove it from the roll.

IMPORTANT: When you press the spindle valve, make sure nobody else is touching the spindle/roll to minimize the risk of trapping a finger between any spindle component and the roll.

The printer is now ready for new input and output rolls to be loaded.

If you need more information about how to load/unload a roll, see Loading the dual-roll spindle on page 61 for dual-roll, and Loading the rolls on the split spindles on page 64 for dual roll split spindles.

HP Latex Double-sided Day and Night Kit

The HP Latex Double-sided Day and Night Kit is an accessory that allows to easily print on translucent substrate double-sided prints for outdoor advertising with better color appearance in any light—frontlit during the day or backlit at night.

NOTE: This video applies to HP Latex 1500 and HP Latex 3000 Series Printers.

Substrate saver

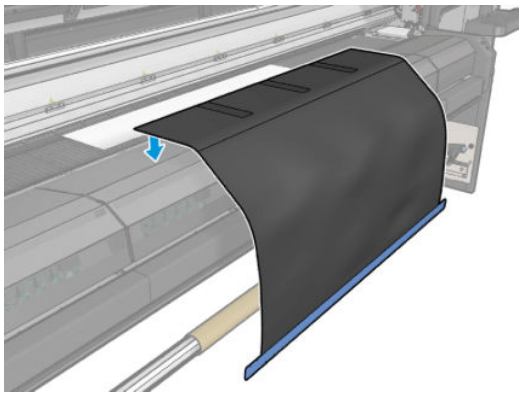
IMPORTANT: To use Substrate saver kit with HP Latex 3100 and 3500, an upgrade kit is needed (1HA07-67014), contact HP Support.

NOTE: This video applies to HP Latex 1500 and HP Latex 3000 Series Printers.

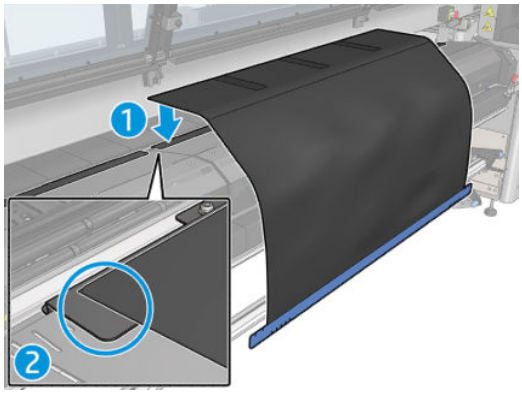
IMPORTANT: Before using the substrate saver; make sure the substrate is loaded, reaches the print zone, and that the loading table is closed.

NOTE: The standard model provided with the product supports substrates from 48 to 63 inches (1220mm to 1600mm)width. For smaller substrate widths, special solutions are available. Contact HP Support.

1. Place the substrate saver on the curing module (hold it with a single magnet in the center), and make sure it is fixed; use the 3 magnets under the accessory.

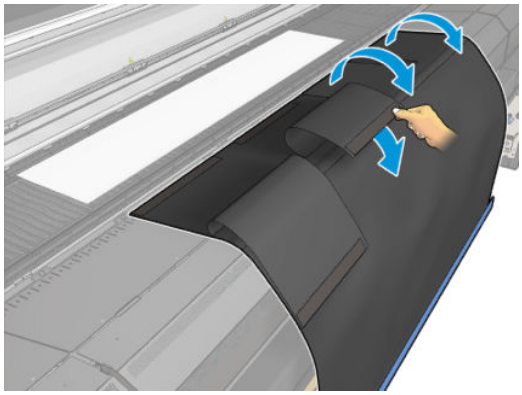


IMPORTANT: If your printer is an HP Latex 3000, 3100 or 3500, make sure you place the substrate saver on the installed metallic parts.

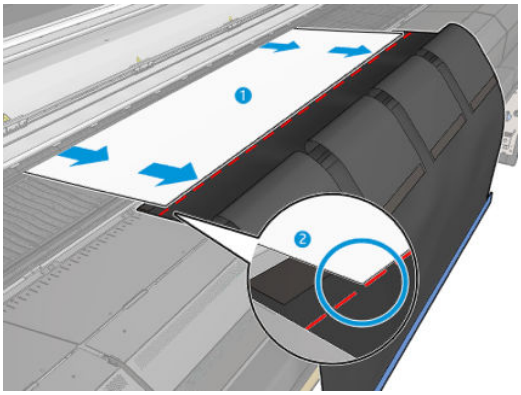


2. Use the curing top plate tool and the marks to ensure that the substrate is centered (no ruler, marks on the metallic part).

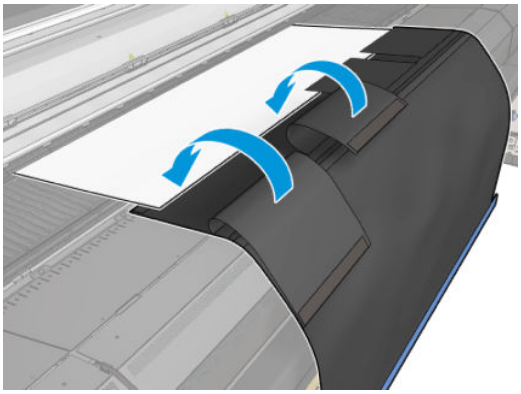
3. Open the substrate saver flaps.



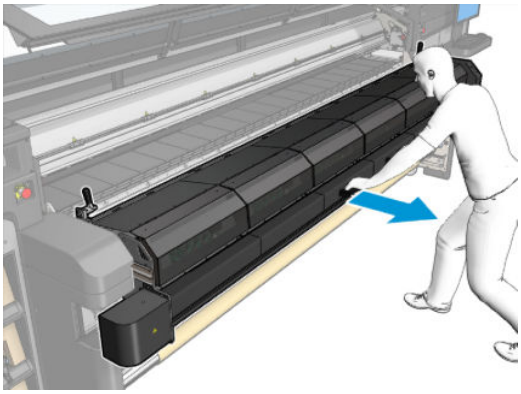
4. Advance the substrate manually or automatically but do not surpass the red line inside the flaps. Make sure to advance enough paper to reach the substrate saver.



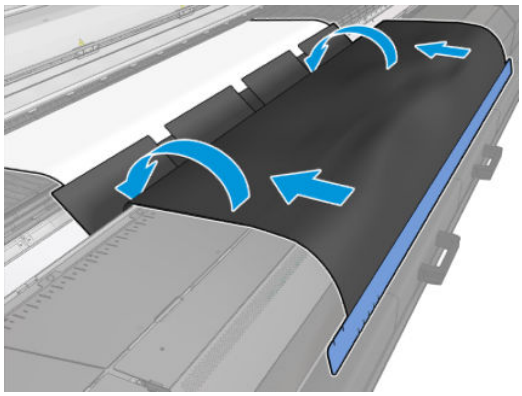
5. Grip the substrate with the substrate saver. Make sure there are no wrinkles in the substrate or the tool flaps.



6. Open the curing module.



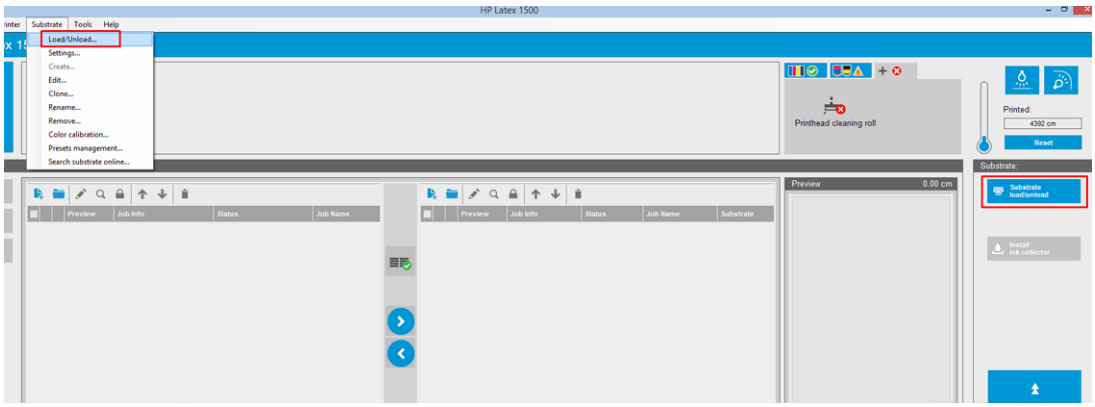
7. Push the substrate saver through the curing module.



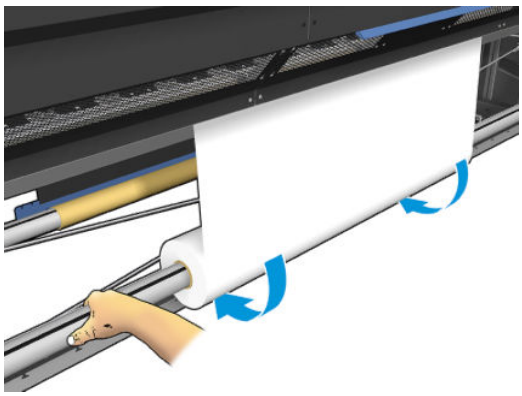
8. Go to the Internal Print Server to start the loading process. Use the move the substrate buttons manually or in the IPS to move the substrate backwards to detach the substrate saver magnets from the curing module and up to the platen.

IMPORTANT: To avoid damage; do not let the substrate saver reach the loading table.

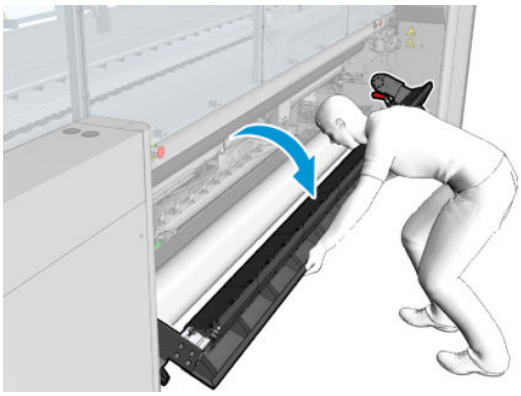
9. Rewind the substrate saver in order to position the lower side of the tool next to the core.



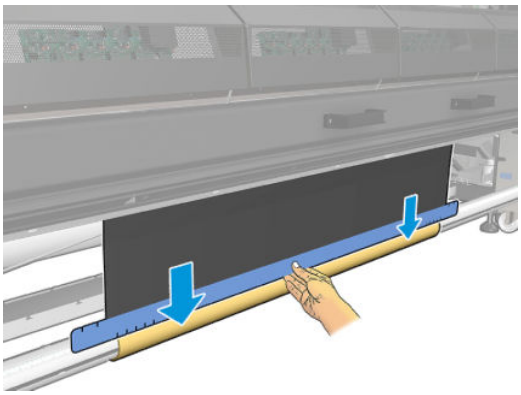
10. Turn the input spindle to tighten the substrate on the roll and avoid any sag.



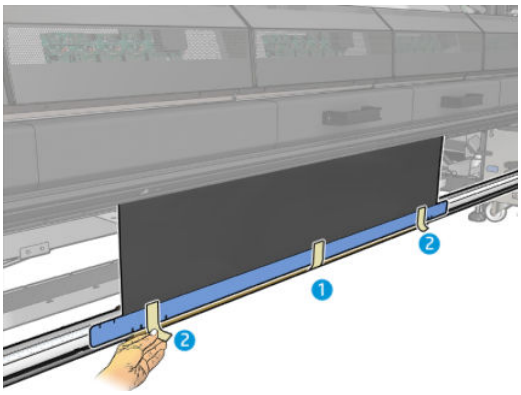
11. Open the loading table.



12. Pull the edge of the tool and center it on the core.

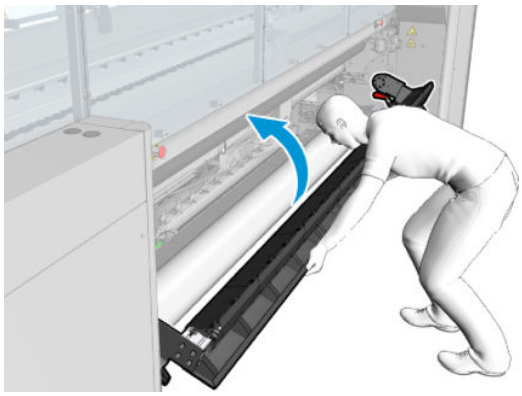


13. Attach the tool to the core with tape. Make sure to put the tape on the blue edge of the substrate saver.



14. Roll the tool on the core until the tool's upper edge lies beyond the platen.

15. Close the loading table and finish the loading process in the IPS.



NOTE: When processing a finished roll, see if the tool is inside by locating the blue edge of the saver on the core. If necessary, make use of the substrate-saver edge holders.

In-line slitters

WARNING! Do not touch the in-line slitters when printing.

WARNING! Handle in-line slitters with care and store them safely.

WARNING! Risk of cutting your fingers! Uninstall the in-line slitters when manipulating the curing module or accessing the substrate path.

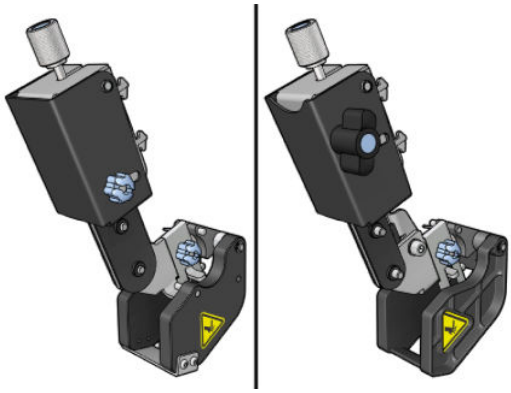
Risk of cutting your fingers.

Risk of trapped fingers

Risk of burns

For more safety information, see Safety precautions on page 2

If you have an HP Latex 3500/3600 you can install the in-line slitters provided with your printer.



In-line slitters are an optional accessory for the HP Latex 3100/3200 printer.

NOTE: Two in-line slitters co-exist, and the in-line slitters accesory can be slightly different from the one on the following images.

CAUTION: Do not use the Ink Collector Kit when in-line slitters are installed, as the cutting position can damage the protector of the Kit. It is recommended to uninstall the in-line slitters when working with the ink collector.

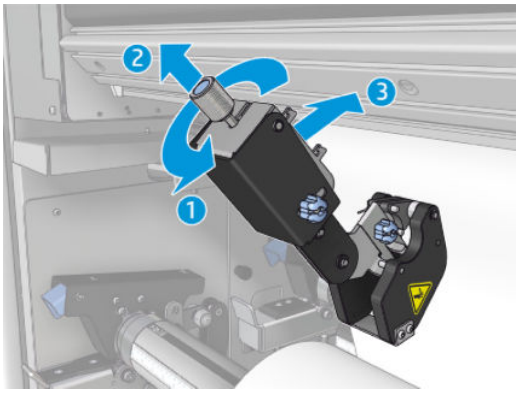
IMPORTANT: The in-line slitters can be used with a wide range of papers, but a successful cut with canvas, fabrics, and some banners is not guaranteed.

NOTE: The in-line slitters cannot be used when the ink collector is installed.

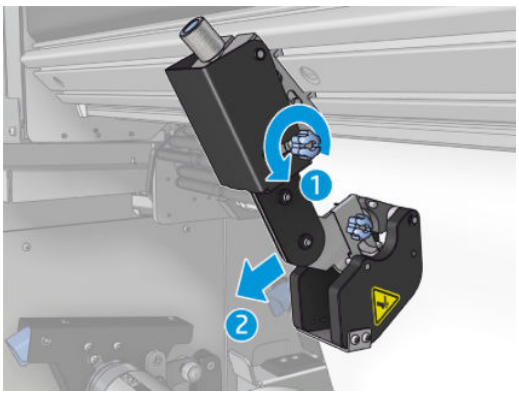
In-line slitters are vertical cutters that allow you to cut the substrate in the direction of the substrate advance, and they have to be installed, one by one, on the universal mounting beam; the position on it is decided and fixed by the user. They can be used all at the same time or individually, depending on your necessities.

IMPORTANT: The in-line slitters can be installed onto the mounting beam when needed, but have to be placed on the cutting position once the substrate is already loaded.

To install the in-line slitters on the mounting beam the hooks have to be inserted into the mounting beam guides. To move the hooks, untighten the top blue labeled thumb screw and pull it to help the hooks fit into the mounting beam guides.



Once the vertical cutter is placed onto the mounting beam, slide it to the desired position. Untighten the lateral thumb screw to be able to move the slitter without interfering with the substrate in case it is loaded.



Once installed, check the slitter can run through all of the universal mounting beam.

Once the slitter is in the desired position, tighten the top blue labeled screw to fix it.

To proceed with the cut, push the slitter until you cut the paper, then fix the position by tightening the lateral screws.

⚠ WARNING! With in-line slitters installed, special care must be taken when handling heavy substrates and when manipulating the curing module.

To uninstall the in-line slitters, reverse the process described above.

We recommend always storing the in-line slitters in the box provided if you don't wish to use them.

See how to rotate the blades when necessary or how to replace them in Slitter poor cutting quality on page 376.

LED proofing lights

Risk of burns

For more safety information, see Safety precautions on page 2

If your Printer is an HP Latex 3100/3200/3500/3600, you have a set of LED lights at the output side of the Printer.

The set of lights allows the visual inspection of the image printed on-press. It is comprised for 2 lights:

- Front light: Mounted underneath the New Universal Mounting Beam (UMB), illuminating the print output for frontal visual assessment.
- Back light: Two strips of LED illuminating from the rear of the substrate output, providing an on-printer light source for visually assessing backlit prints; no need to stop the printer to view in a light box.

The LED proofing lights can easily be managed and switched on and off from the IPS.

IMPORTANT: After 3 minutes of being on, the LED proofing lights will automatically switch off.

CAUTION: LED proofing lights can reach high temperatures, take caution when approaching and working close to LED strips.

CAUTION: You are recommended not to look directly at the LEDs while they are on.

Substrate presets

Each supported substrate type has its own characteristics. For optimum print quality, the printer changes the way it prints on each different substrate type. For example, some may need more ink and some may require higher temperatures for drying and curing. So the printer must be given a description of the requirements of each substrate type. This description is called a substrate preset. The printer is supplied with substrate presets for some specific substrate types, and also with presets for some generic types.

As it is inconvenient to scroll through a list of all substrate types available, your printer contains substrate presets for only the most commonly used substrate types.

You can check substrate availability from the Online substrate manager on page 117.

To install a new substrate preset without .oms, go to the Internal Print Server and select **Substrate** > **Search substrate online**, then search for your specific substrate file and click the **Down arrow** of the Status column.

To install a new substrate preset that you have downloaded, go to the Internal Print Server and select **Substrate** > **Presets management** > **Import label**, then search for your **.oms** file and click **Update**. You can also export substrate presets using **Export label**.

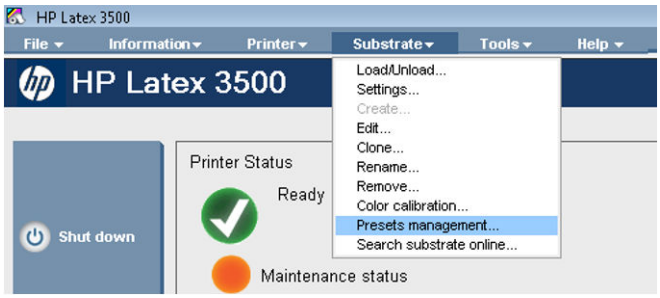
NOTE: The maximum number of substrate presets supported by the printer is 126.

Export multiple presets

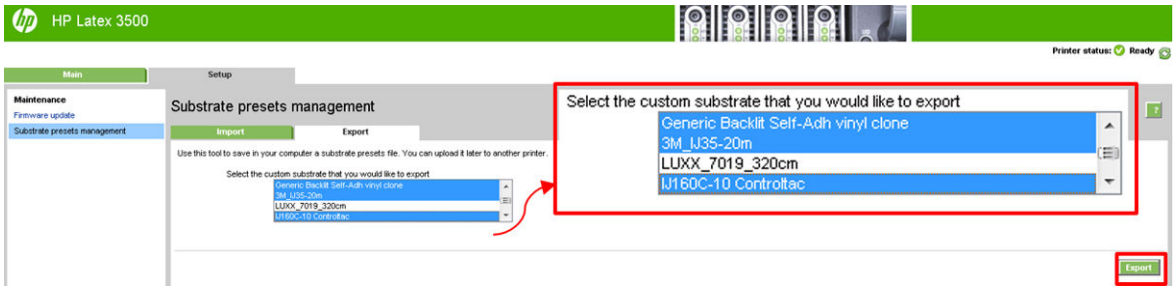
Multiple substrate presets can be exported together in a single .oms substrate file.

How to export multiple substrate presets

1. Via the IPS, select **Substrate** > **Preset management**.

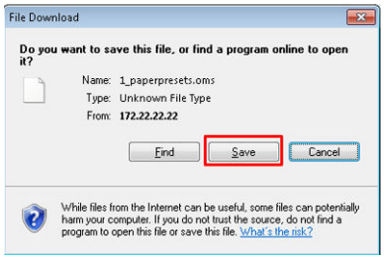


2. Go to the **Export** tab, select all the substrates to export, and click **Export**.



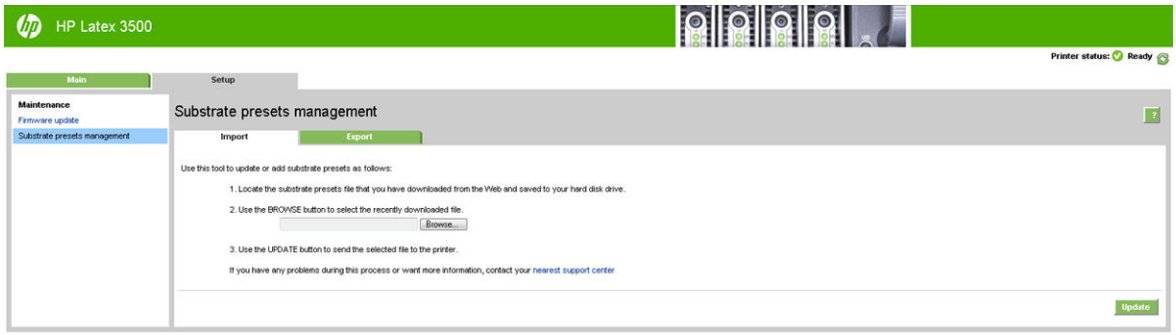
NOTE: This functionality allows up to 120 substrate presets to be exported at once.

3. A window pops up asking to save the generated .oms file. Click **Save** to continue.

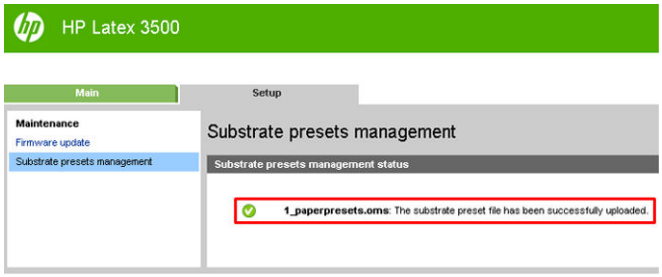


How to import the generated .oms file

1. Via the IPS, select **Substrate** > **Preset management** > **Import**.



2. Browse to select the **.oms** file (in this case '1_paperpresets.oms') and click **Update**.
3. When the **.oms** file has been imported, the following information is displayed:



Use a new substrate

Whenever you load a new substrate type into your printer, you must choose a substrate preset for it.

1. If no specific preset for that substrate appears in the list, check the Online substrate manager on page 117 in case a preset for your substrate is available there. Alternatively, get the specific preset from your substrate reseller or the substrate manufacturer.
2. If no specific preset is available, try using a generic preset in the same substrate category.
3. If you are not satisfied with the results, use the Add New Substrate wizard to create a new preset for your substrate. See Create a new substrate preset with the Add New Substrate wizard on page 108.
4. For full control of your preset, clone a generic preset (or the preset obtained from the Add New Substrate wizard) and adjust the settings manually. See Edit a substrate preset on page 110. This is recommended for advanced users only.
5. Tiling optimization for a new substrate. To optimize tiling performance, create a new substrate via the IPS (**Substrate** > **Optimize for tiling**).

Optimize for tiling

Optimize for tiling improves color consistency, specifically for tiling applications within a printer, within a single job, and within the same substrate roll, it also:

- Creates a new substrate structure, based on existing ones, with tiling specific optimizations.
- Reduces color variations during long printing to maximum color difference (95% of color) <=1 dE 2000 in Tiling mode.
- Has a workflow to create substrate optimized for tiling based on customer substrate.
- An automated introduction of preparation plot and color bars to plot stream to stabilize system during long runs.

It is/does not:

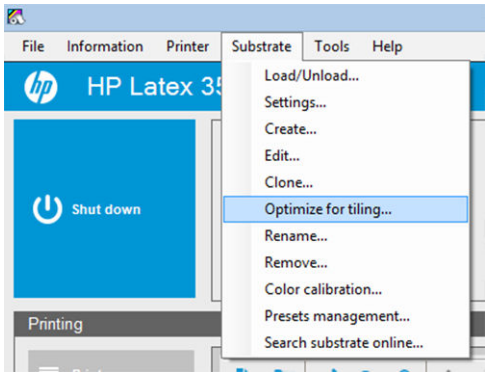
- A printer to printer color consistency solution.
- Does not modify existing print modes or substrate.

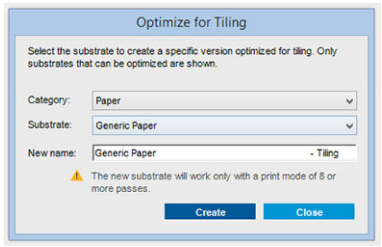
It only supports the following print modes:

- 8p 70% - 120%
- 10p 70% - 130%
- 14p 70% - 140%

1. Select **Substrate** > **Optimize for tiling**, then select the required substrate from the list.

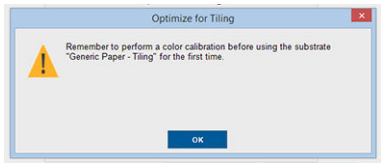
NOTE: Only substrates that can be optimized for tiling appear in the list. Supported types are: Front-lit Substrate, Vinyl, Wallpaper and PVC Banner. Substrates that have been converted as optimized for tiling will not appear.





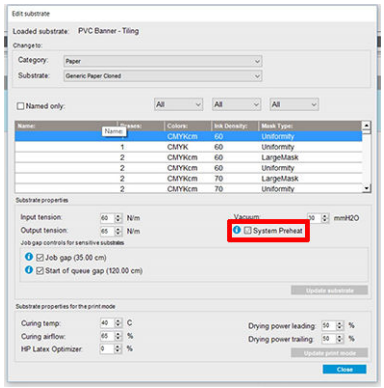
NOTE: A **Tiling** suffix is added to the name of the substrate, you edit the name, but you cannot erase the suffix.

2. A warning about the solution space change in the new substrate appears, click **OK**.



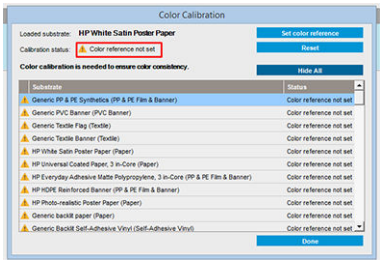
3. A window appears to recommend the CLC to select before the first time the substrate is used.

4. **System Preheat** is automatically checked for the selected tiling substrate, it is greyed out in the window, and cannot be unchecked. Only the recommended solution space, (number of passes and ink levels) appears in the tiling window.



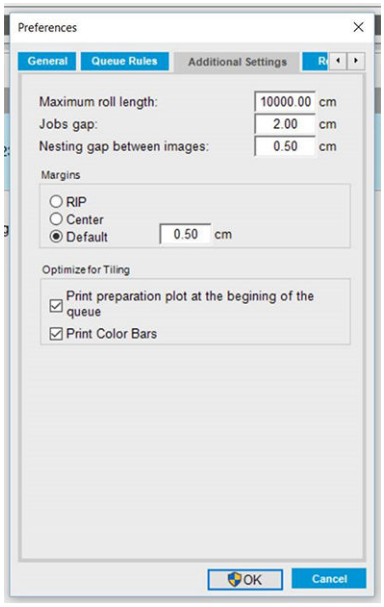
NOTE: If the paper mode from the original substrate is not within the recommended solution space, it is deleted from the list. If the existing paper modes have been deleted during creation, a recommended paper mode is automatically added.

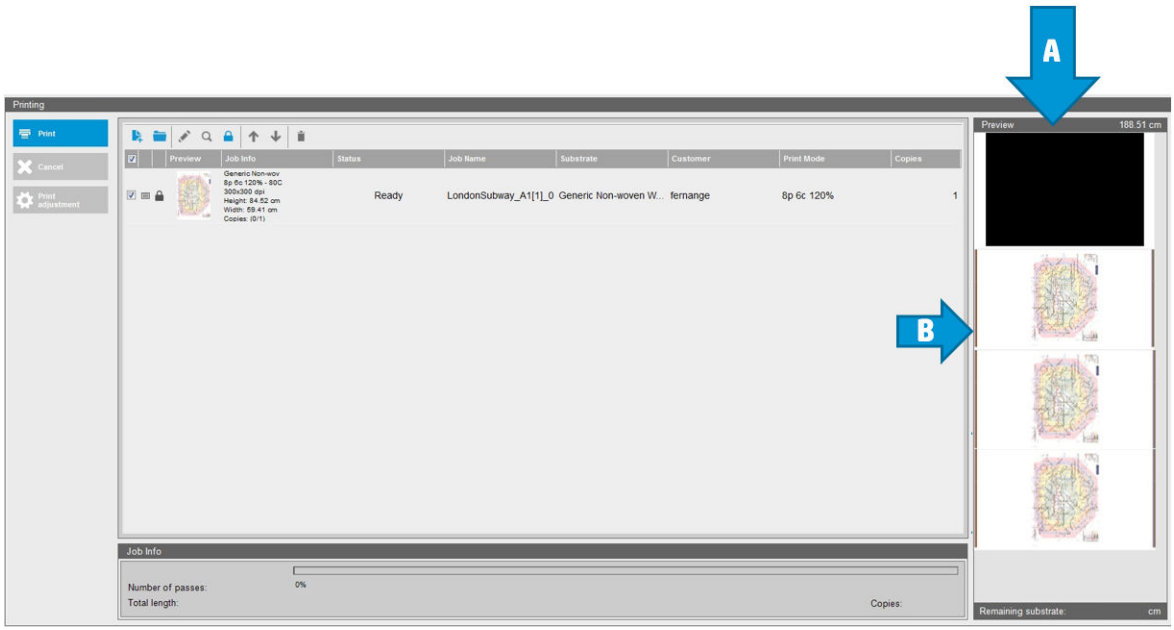
5. During creation, the CLC color reference is reset and the status appears as **Color reference not set** in the IPS.



NOTE: After creation, a CLC is required to create the reference for future color calibration. A warning window appears straight after substrate creation. You can create an ICC profile from the RIP and manage the substrate as normal from this point on.

6. A beginning of job preparation plot (A) and sideway color bars (B) are automatically added.





NOTE: When tiling optimized substrate is loaded, the specific workflow changes and beginning of job preparation plot and sideway color bars are automatically introduced. Workflow for non-optimized substrates is not affected.

7. Substrate can be exported from one printer to another.

IMPORTANT: Tiling substrates can only be imported with the latest firmware. See Update the firmware on page 26.

Prepare the printer for a new substrate

1. Whenever possible, try to ensure that your printer is in an optimum state before you create a new preset: run any pending maintenance task, in particular printhead checks and alignment.
2. Stop the print queue and wait for the printer to finish the current job. No jobs should be sent to the printer until the new substrate preset is complete.

3. Load your new substrate. The process of loading a substrate into the printer has been designed to be completely independent of the substrate type. When loading, follow the correct procedure and ensure that the roll width is specified, either automatically by the printer or by yourself. You may not experience the best possible results if there are significant differences between the specified and the actual roll width.

NOTE: You are recommended to use the roll-to-roll configuration when creating a new preset.

4. Choose a suitable carriage beam printing position: see Set the carriage beam position on page 123.

Create a new substrate preset with the Add New Substrate wizard

The Add New Substrate guides you to work out the best settings for your substrate. It first requests some information about the substrate and your intended use of it, then prints some test prints and asks you to evaluate them. From this information, it creates the new preset.

To use the wizard, first ensure that the new substrate is loaded in the roll-to-roll configuration, then go to the Internal Print Server, select the **Substrate** tab, and then **Create**.

Material

The first question from the wizard asks for the primary material of which your substrate is made.

- **Self-Adhesive Vinyl** includes cast self-adhesive vinyl, calendered self-adhesive vinyl, perforated self-adhesive vinyl, transparent self-adhesive vinyl, and reflective self-adhesive vinyl.
- **PVC Banner** includes frontlit banner, backlit banner, scrim banner, scrimless banner, mesh banner with liner, blockout banner, truck curtain banner, tarpaulin, and PVC wall covering.
- **Paper** includes coated paper, uncoated paper, photo paper, photorealistic paper, blue-back paper, paper wall covering or wallpaper, self-adhesive paper, and non-woven wall covering.
- **PP & PE Film & Banner** includes polypropylene (PP) film, synthetic paper (such as Yupo), Tyvek, and PE or HDPE (polyethylene) banner.
- **PET Film** includes polyester (PET) backlit film, polyester (PET) frontlit film, and polyester (PET) grey-back film.
- **Textile** includes polyester textile and fabric, textile banner, backdrops, textile mesh with liner, frontlit textile, backlit textile, canvas, flag and voile *, cotton textile, textile wall covering, self-adhesive textile, and woven wall covering.

Application

The next question asks how you intend to use your substrate.

- **Frontlit** means that the print will be viewed by light from in front of the substrate.
- **Backlit** means that the print will be viewed by light from behind the substrate.

Optimized for

The next question asks whether you want to give priority to speed, quality, or neither.

- **Print Quality:** You want the best possible print quality.
- **Print Speed:** You want fast printing.

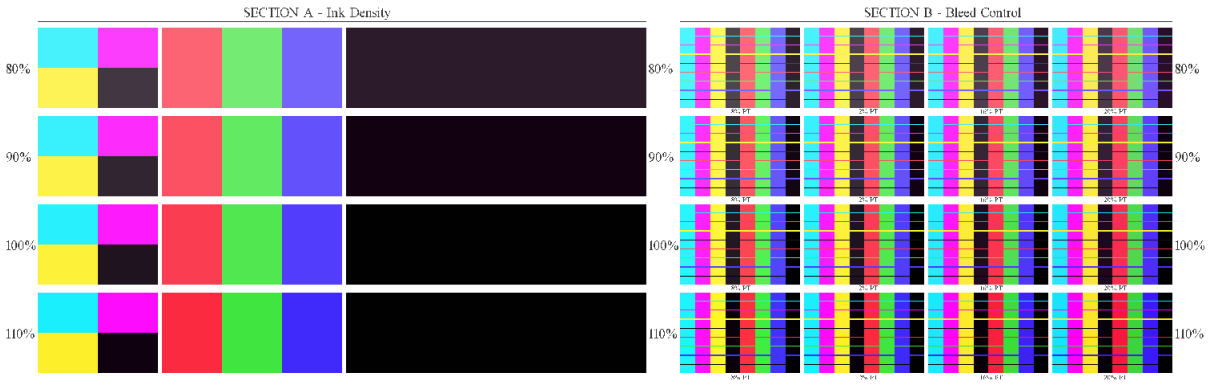
Test print

Next, the wizard shows you the proposed settings for the first test print. These settings are generated based on the information you have already given.

NOTE: If you are an advanced user and the suggested settings do not meet your expectations, you can select **Advanced settings** at any time and make manual changes. However, you are recommended to print the first test print as an indication of overall performance on your substrate.

NOTE: If you cancel the test print because you are experiencing substrate issues or print-quality issues such as banding, consider modifying the substrate preset, following the guidelines provided in Troubleshoot substrate issues on page 359 and Troubleshoot print-quality issues on page 378.

When the test print has been made, the wizard asks you some questions about it.



The print is organized into horizontal bands which are printed at a range of different ink densities. There are two different sections. The left part (Section A) is focused on color saturation and curing performance. The right part (Section B) is focused on the interaction of several ink densities with different levels of optimizer.

1. Start with Section A. Check whether any of the bands is completely cured. Use the black 4-color patch for this purpose. Do a smudge test if possible. Check whether any curing defects are visible. One possible curing defect appears as a pattern of small round spots on the print, from the perforated plate through which the curing air passes.

   If you have found an ink density that is perfectly cured, choose this or a lower ink density in the Ink Density drop-down menu. Never select a ink density with curing defects.

   If none of the ink density bands is completely cured, or the ink density you prefer for your application is not cured, select **NONE** in the Ink Density menu. The wizard then generates another test print with different settings.

2. When you have found a satisfactory ink density, you need to select the best amount of optimizer for this ink density.

   Within the ink density band you have selected, look at Section B of the print to determine the best amount of optimizer. Look at color-to-color bleed and smooth area fills. If you see several levels of optimizer performing equally well, you are recommended to choose the lowest amount without defects.

   If you cannot find any amount of optimizer giving satisfactory performance with the selected ink density, look at neighboring ink densities (usually lower, but could be higher in some rare cases). Consider changing the selected ink density if there is a combination without defects. If you do so, remember to change the ink density in the drop-down menu.

3. Once you have found a good combination of ink density and optimizer, click **Next** to add the substrate and the printing condition you just selected. You can rename both. In some cases, several printing conditions are offered at once. You can deselect the options you are not interested in.

4. You are recommended to perform color calibration immediately after completing the wizard, to ensure that the calibration process can cope with the selected ink density.

5. The new preset is now loaded into the Internal Print Server. You can print your own test prints or create an ICC profile with your RIP software.

TIP: If you need to provide different printing conditions or change those currently available in the new preset, you can select **Edit** from the **Substrate** menu.

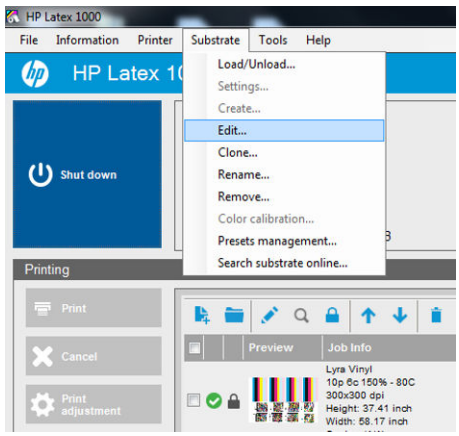
Edit a substrate preset

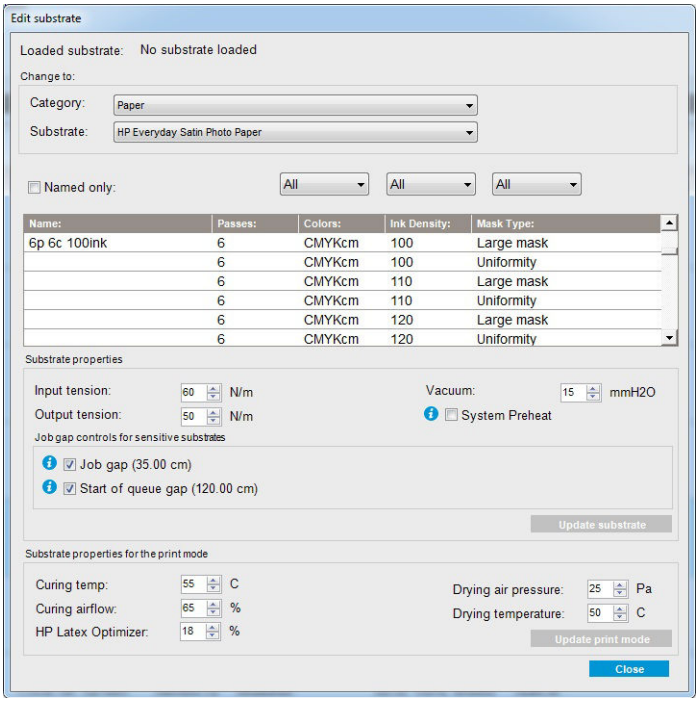
Editing a preset has several purposes.

- You can assign a name of your own choice to a particular substrate.
- You can adjust the preset to suit the precise characteristics of your substrate.
- You can adjust the preset to your intended use of the substrate, which may range from highest-quality printing to fast production output.

To edit the technical characteristics of a custom substrate type, go to the Internal Print Server and select **Substrate** > **Edit**. This allows you to change all the important settings in the substrate preset. It is recommended for advanced users only.

NOTE: You can change only the presets that you have created yourself. The presets supplied by HP cannot be changed.





1. In the upper part of the Edit Substrate window, select the substrate category and the name of the specific substrate preset that you want to edit.

NOTE: Generic presets cannot be edited.

2. In the central part of the window, select the number of passes, number of colors, and ink density; and name the combination to make it visible in the Print dialog.
3. Under the printmode table, change the substrate settings. Press **Update substrate** if you want to change it.
4. In the lower part of the window, change the settings for your named combination. Press **Update print mode** if you want to change an already-existing named combination.

TIP: The recommended print mode mask type is **Large mask** to obtain the best color balance.

TIP: The **Uniformity mask** is recommended to obtain better grain uniformity.

5. Enable **System Preheat** mode to achieve more stable color consistency over long runs. When enabled, the printer automatically runs a warm-up routine immediately prior to the real job in order to bring the print system up to a stable operating temperature. This procedure can take up to two minutes and is therefore only recommended for those jobs that require tight color matching over long runs. Do not use this option for single prints or short runs.

   System preheat is only applicable in the following print modes:

   - 6p 80% - 100%
   - 8p 80% - 120%
   - 10p 80% - 120%

In order to achieve a highly optimized preset for one specific purpose and substrate, you may need to adjust other settings to compensate. To achieve a balanced preset, you are recommended to use the Add New Substrate wizard or a generic preset.

Printing masks

The concept of **printing masks** refers to the relative positions of the ink drops on the substrate. The mask uses a randomization algorithm to avoid visual patterns, and the result is a visually smooth surface, with minimal graininess, and no banding.

Inaccurate alignment or substrate advance can interfere with the algorithm, causing different grain patterns along long jobs. On tiling applications, differences between panels can lead to visible seams.

The new **Uniformity mask** is more robust against this kind of phenomenon, delivering a uniformly textured look in long runs, and enabling seamless tiling applications even when using Dual-roll. This is why the **Uniformity mask** is recommended for applications such as wall-covering, or vehicle wrapping; while the **Large mask** is recommended for applications such as posters, roll-up banners, or backlit signs

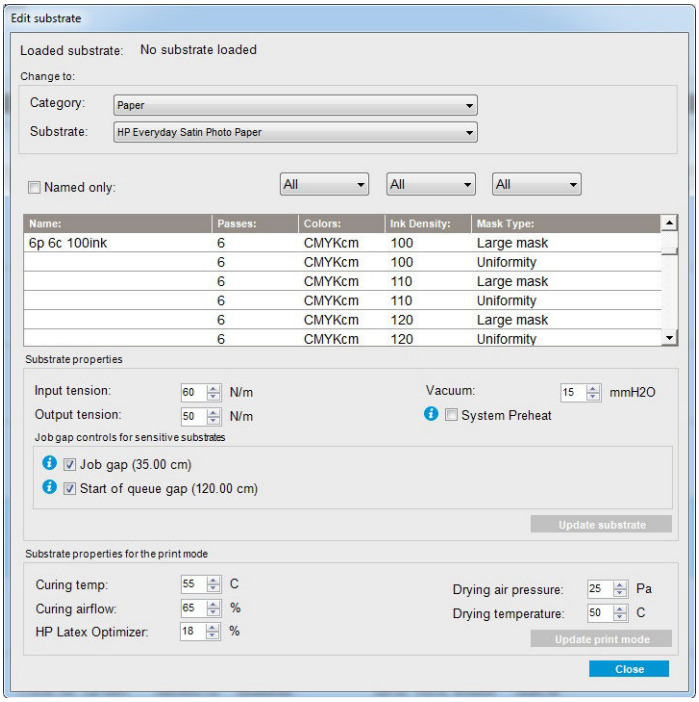
The following images show the performance of the two types of masks when the substrate does not advance uniformly.

Large mask

Uniformity mask

How to select mask type

1. You can select the desired mask by creating the corresponding print mode on the **Edit Substrate** menu. Remember that generic substrate presets must be cloned before being edited.
2. Provide a name to the print mode with **Uniformity mask** to make it accessible for printing.



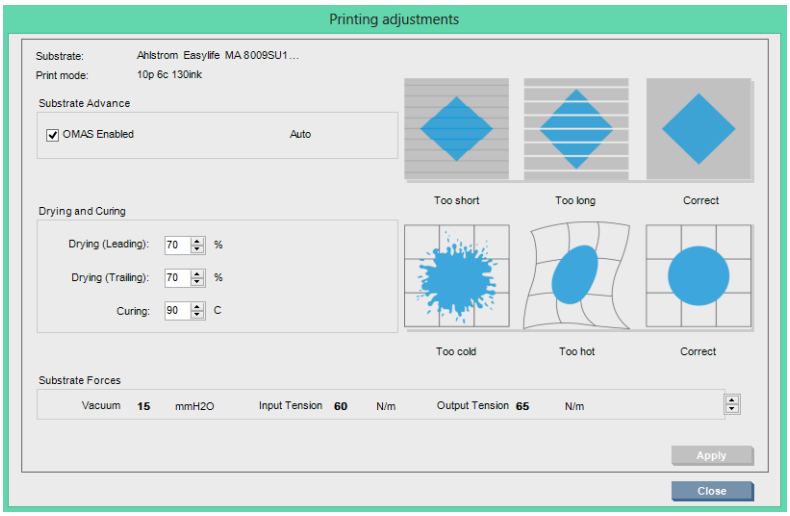
By default, all the generic print modes use the **Large mask**.

Consider the **Optimize for Tiling** option to get the best color consistency when printing tiles.

On-the-fly adjustments

You can modify the substrate settings while printing. In the Internal Print Server main window, press the **Print adjustment** button, and a dialog box opens.

The dialog box is divided into sections for the substrate advance (see Substrate-advance compensation on page 181), the curing and drying temperatures, and the substrate tension.



1. Adjust the drying power up or down.
2. Adjust the curing power up or down.
3. Illustrations of the possible effects of not enough, too much, and correct heating respectively.
4. Adjust the vacuum level up or down. The input and output tensions are adjusted automatically, depending on the vacuum level.
5. Illustrations of the possible effects of not enough, too much, and correct tension respectively.

To apply and save the values, press the **Apply** button in the dialog box before closing it. The new settings are saved for that particular substrate type for the current and future prints. They are not applied to all substrate types.

Optimize the preset for higher print speed

Action

Reduce the number of passes.

Possible risks and compensations

- **Risk:** Poor curing performance.
  - **Compensation 1:** Reduce the ink density by one or two levels for each level that the number of passes is reduced.

    Example: For most front-lit materials, 6-pass 100% ink > 4-pass 80% ink > 3-pass 60% ink.
  - **Compensation 2:** Slightly increase the curing airflow to eliminate minor curing artifacts.
  - **Compensation 3:** Increase the curing temperature if you choose not to compensate with the ink density.

    NOTE: This is feasible only with substrates that do not show thermal deformation defects at higher temperatures.
- **Risk:** When you reduce the number of passes, especially to 4 or fewer, some artifacts such as grain, bleed, and coalescence may become visible. It is possible to compensate to some extent with the following settings:
  - **Compensation 1:** Reduce the ink density as described above.
  - **Compensation 2:** Increase the optimizer ink level in 2% steps for each level that the number of passes is reduced.

    Example: 6-pass 12% optimizer > 4-pass 14% optimizer.
  - **Compensation 3:** Increase the drying lamp power in 10% steps for each level that the number of passes is reduced.

    Example: 6-pass 50% power > 4-pass 60% power.

Optimize for best print quality and/or widest gamut

Actions

- Use a 6-color ink set.
- Increase the number of passes.
- Increase the ink density.

Considerations

- A 6-color ink set enables smooth transitions; always use this option for best print quality.
- Use an 8-pass print mode for best print quality with frontlit substrates.

- Use a 14- or 18-pass print mode for best print quality with backlit substrates and textiles.
- When using a high number of passes, substrates can be saturated above 100% ink (example: 130% frontlit, 300% backlit). Higher ink densities may increase gamut and color saturation, and, in backlit materials, increase opacity of printed areas.

NOTE: This is highly substrate-dependent.

Optimize for ink consumption

Actions

- Reduce ink density.
- Use a 4-color ink set.

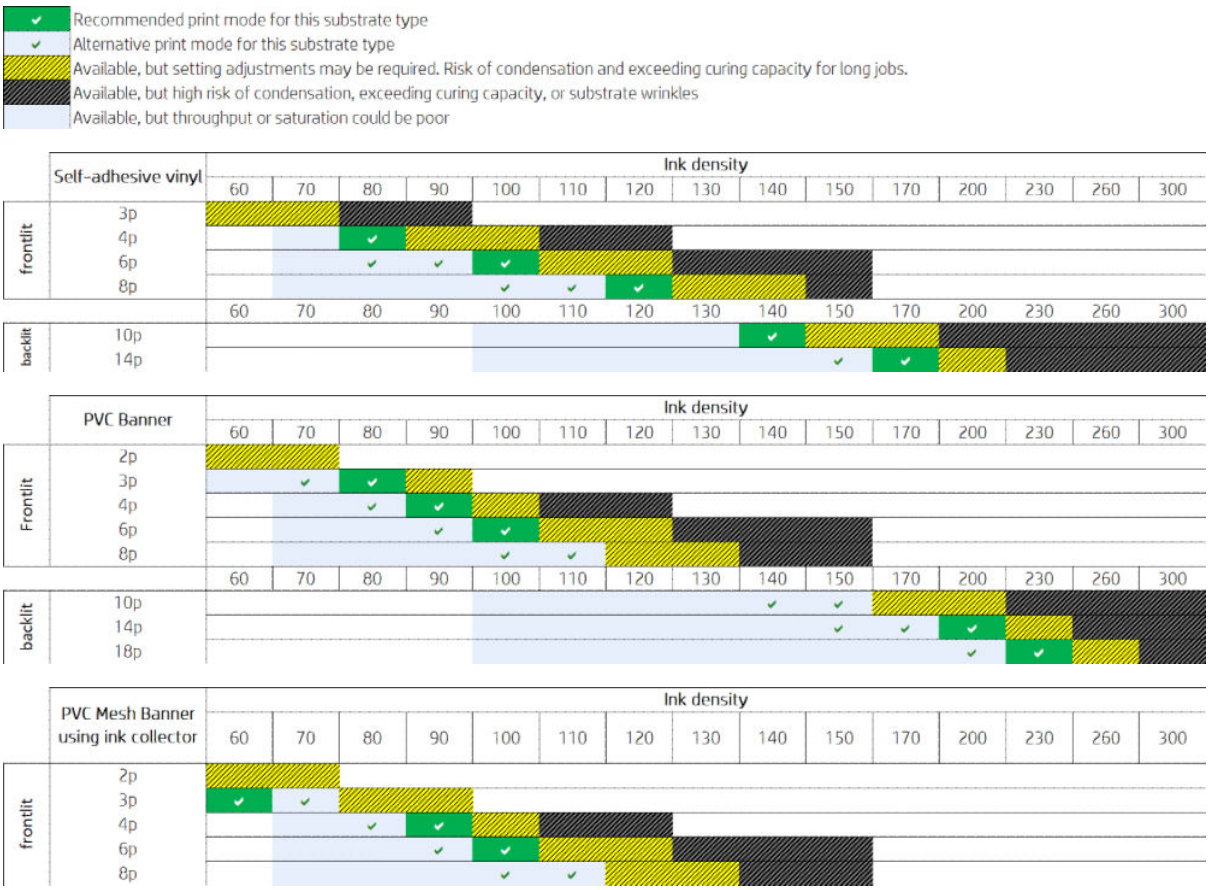
Considerations

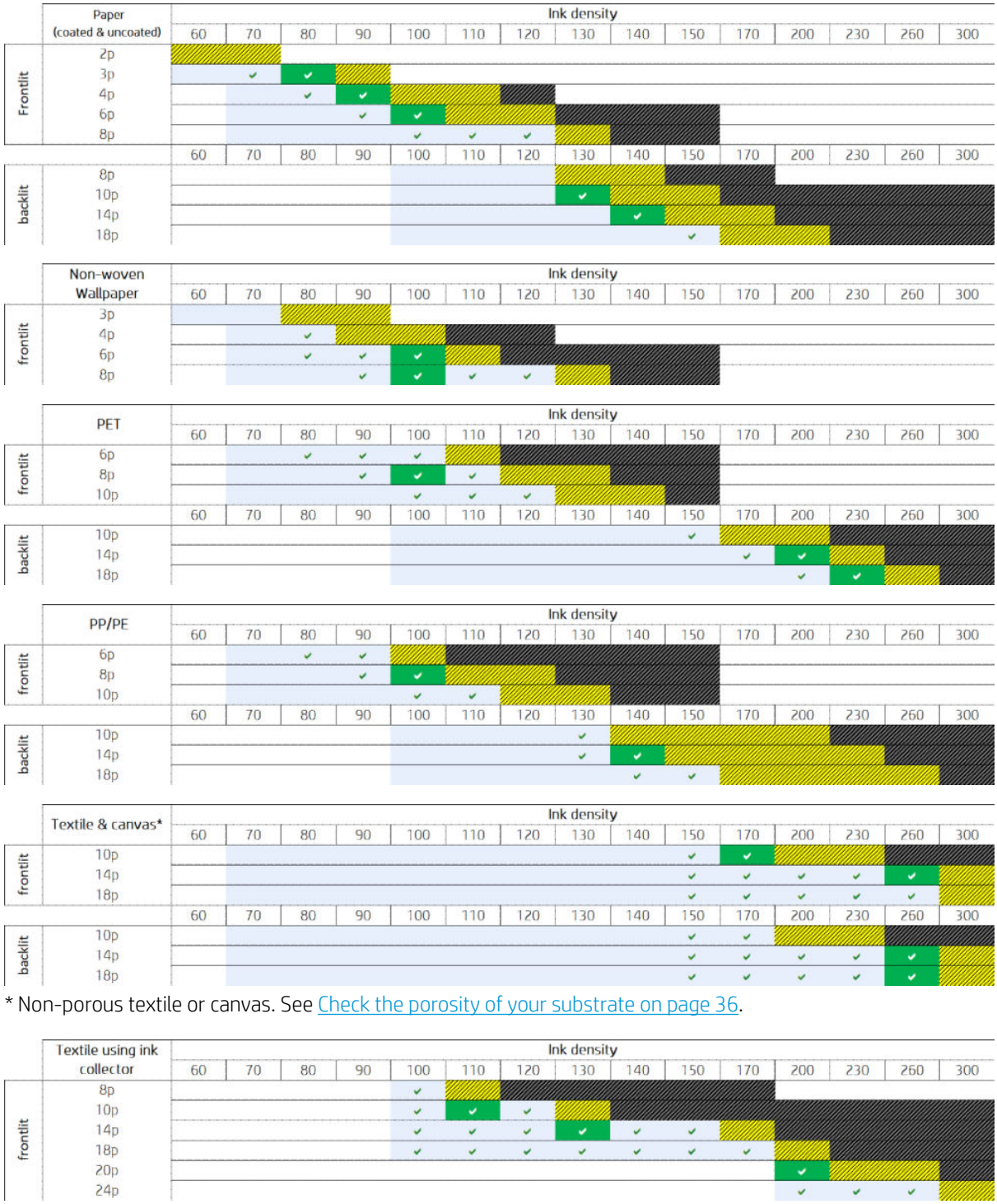
- Reducing the ink density usually reduces the gamut and color saturation.
- A lower ink density may permit a lower number of passes.
- A 4-color ink set may reduce overall ink consumption, as the light cyan and light magenta inks are not used in printing.

NOTE: Some ink is still used from each printhead to maintain the health of the printhead.

- A 4-color ink set is less resistant to some print-quality defects, such as contouring.

Recommended print modes for each substrate type





* Non-porous textile or canvas. See Check the porosity of your substrate on page 36.

Adjust the printing workflow for optimum color performance

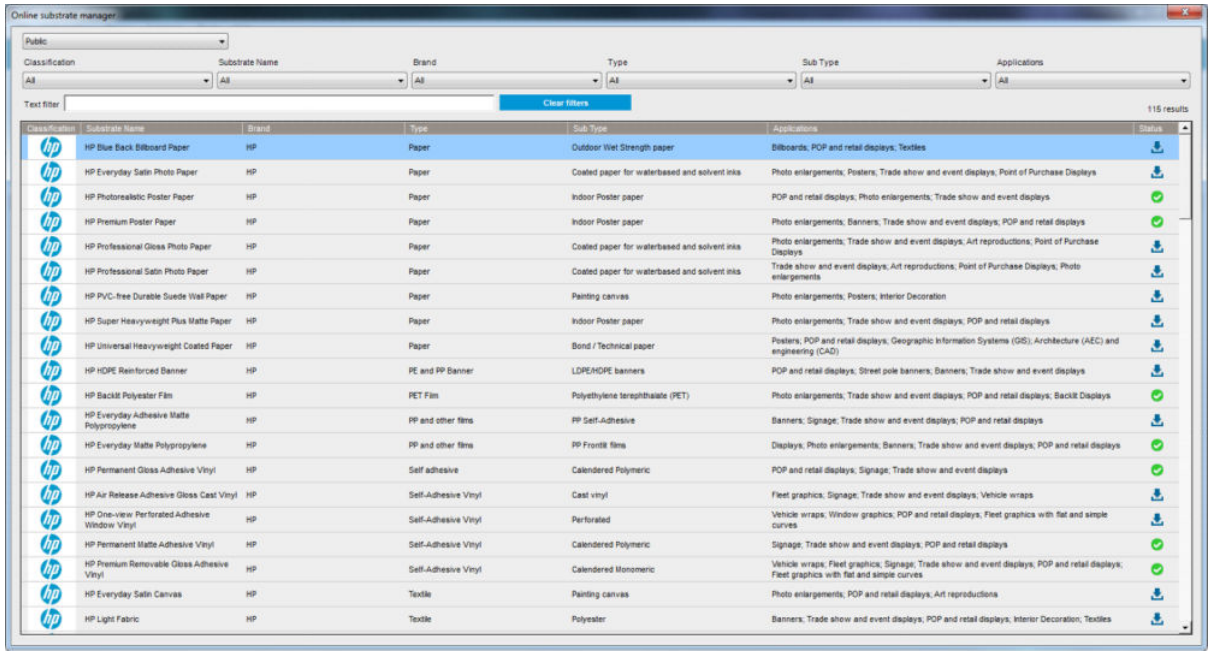
1. Check your substrate's color calibration status and calibrate it if recommended, by selecting **Substrate** > **Color calibration** in the Internal Print Server. See Printer calibration on page 172.
2. Create ICC profiles for your substrate; see your RIP documentation for instructions.

Remove a substrate preset

To remove a substrate preset from your printer, go to the Internal Print Server and select **Substrate** > **Remove**. Then select the category and type of the substrate you wish to remove from a list of removable substrates.

Online substrate manager

From the menu select **Substrate** > **Search substrate online**, or click the **Search online** button in the **Load printer configuration** dialog. This screen is shown:



Sorting

To sort, click on the column title or place the mouse cursor over the column title and click on the drop down arrow.

Structured Search

There are several structured search fields. You can use a single search field or a combination of fields.

- There are several search options:
  - Select a manufacturer to find specific manufacturer substrate.
  - Select a category and grade to find specific type substrate.
  - Select applications to find optimized and certified substrate.
- Application Remote Media searches automatically.
- Click Clear filters to display the full list.

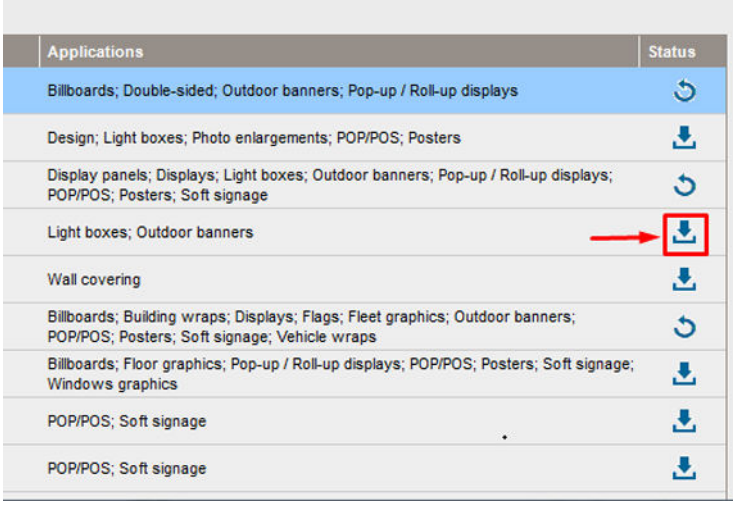
Free Text Search

The free text search locates substrate by checking the substrate name, supplier name, the comments and technical note, for the presence of the specified text string.

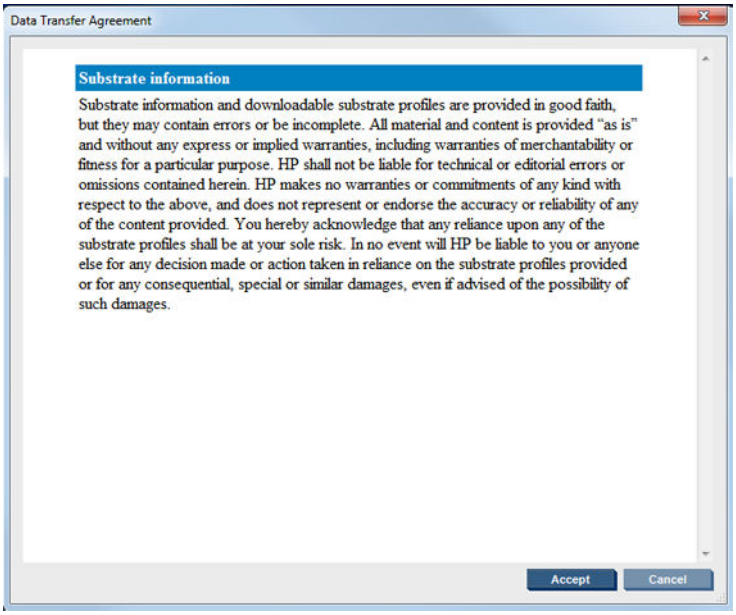
- Type a text string.
- Application Remote Media searches automatically if search text contains more than one character.
- Click Clear filters to display the full list.

Install new substrate

To install a new substrate preset, go to the Internal Print Server and select **Substrate** > **Search substrate online**, then search for the specific substrate file and click the. **Down arrow** in the status column.

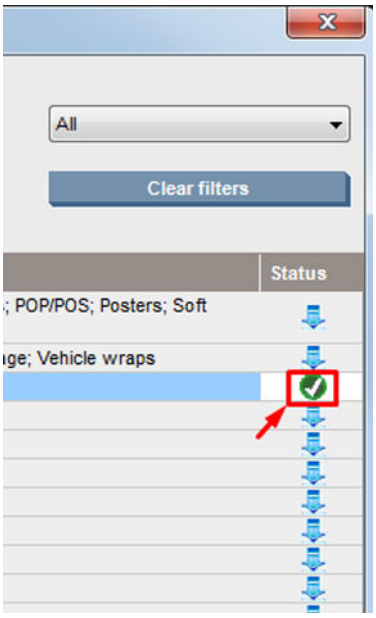


This agreement dialog is shown:



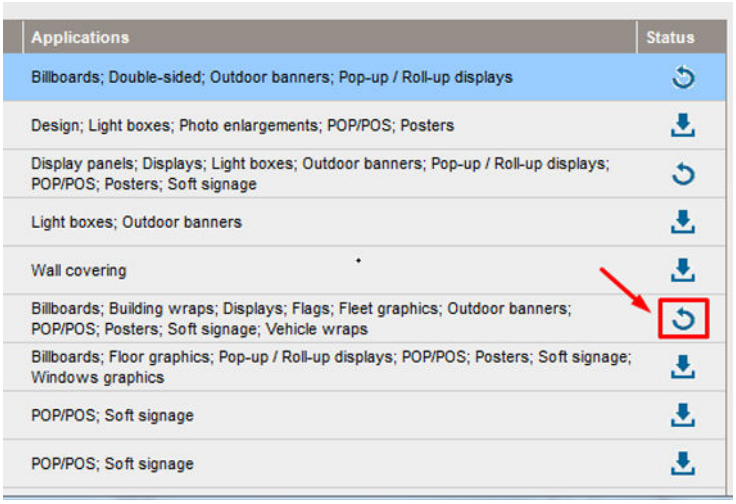
The agreement dialog must be accepted to continue with the installation.

If installation is successful a check icon is shown in the status column.



Update existing substrate

The substrate update option is shown when a new substrate version is available on the server. To update a substrate, go to Internal Print Server and select **Substrate** > **Search substrate online**, then click on the **substrate update** icon in the status column.



Substrate synchronization

Onyx and Caldera RIP drivers contain all the default substrate presets and ICC profiles the HP Latex 3000 printer series comes with.

If you carry out any substrate management action in the HP IPS, go to the RIP and synchronize the substrate list.

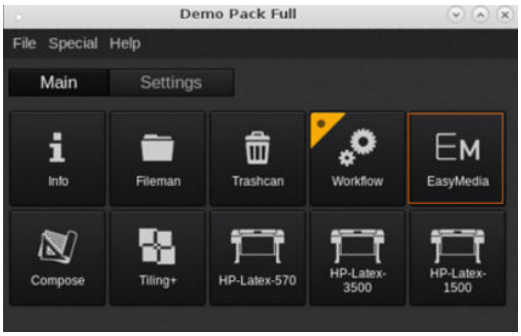
NOTE: Any new substrate created directly in the HP IPS does not contain an ICC profile. You should create the color profile from the RIP using an external spectrophotometer.

If you download and install a substrate preset from the **Online Substrate Search** via the HP IPS, or you import a substrate preset OMES downloaded from **HP Media Locator**, the presets already contain the ICC profiles.

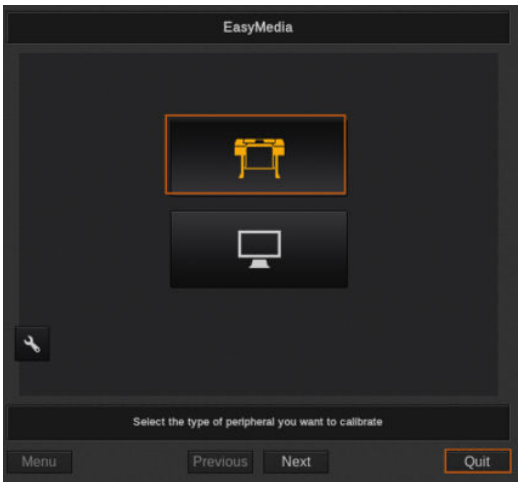
In order to make sure the RIP has the latest substrates available, follow these steps:

Synchronize substrates with the Caldera RIP

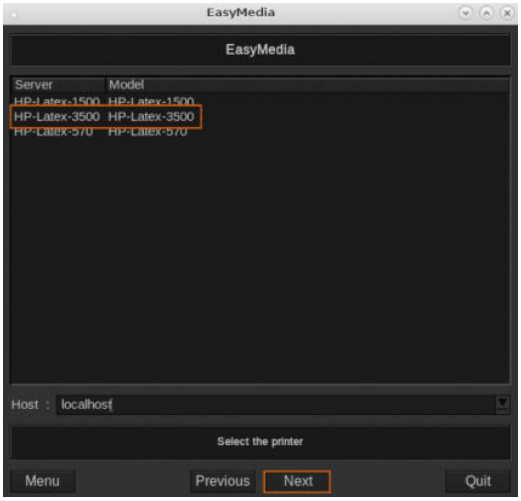
1. Go to the Caldera RIP software and click the **Easy Media** tool.



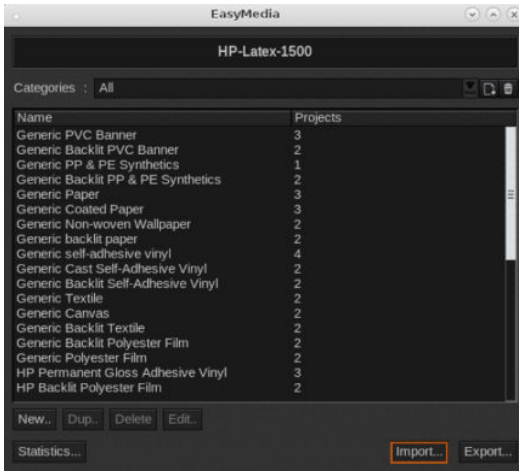
2. Click on the printer icon, then click **Next**.



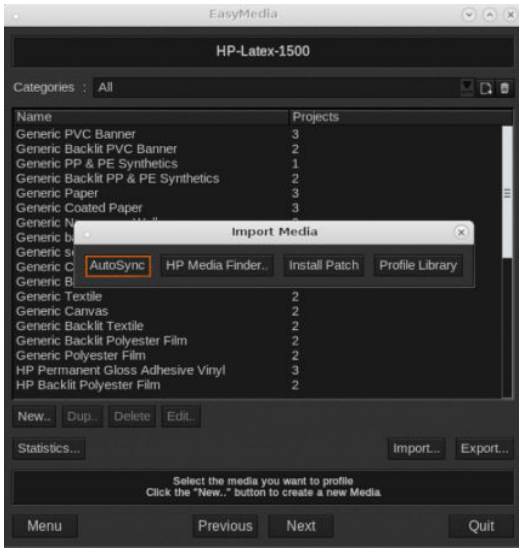
3. Select the printer to retrieve the substrate, then click **Next**.



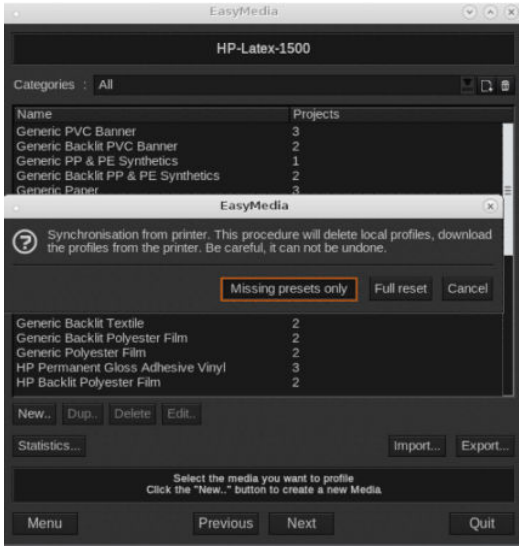
4. Click **Import**.



5. Click **Autosync**.



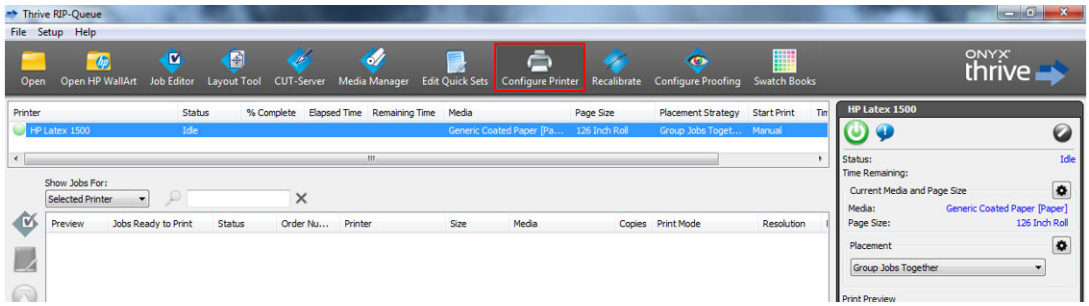
6. Click **Missing presets only**.



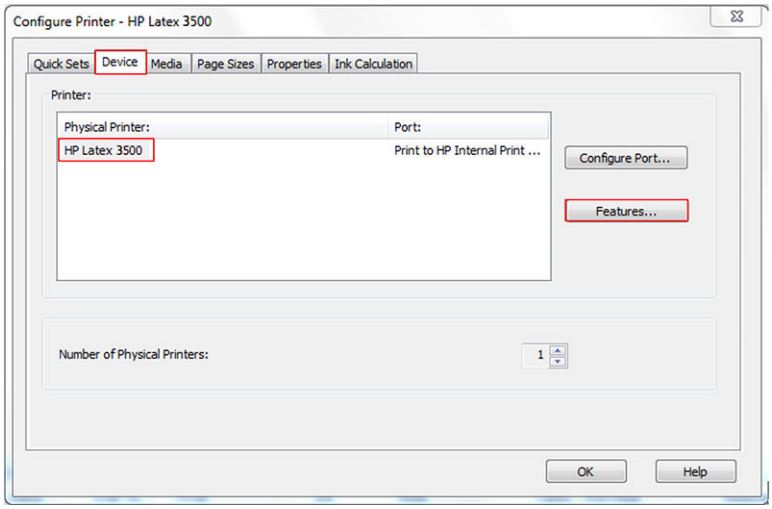
All your custom substrates from the machine are downloaded to the RIP and added to the end of the substrate list.

Synchronize substrates with the ONYX RIP

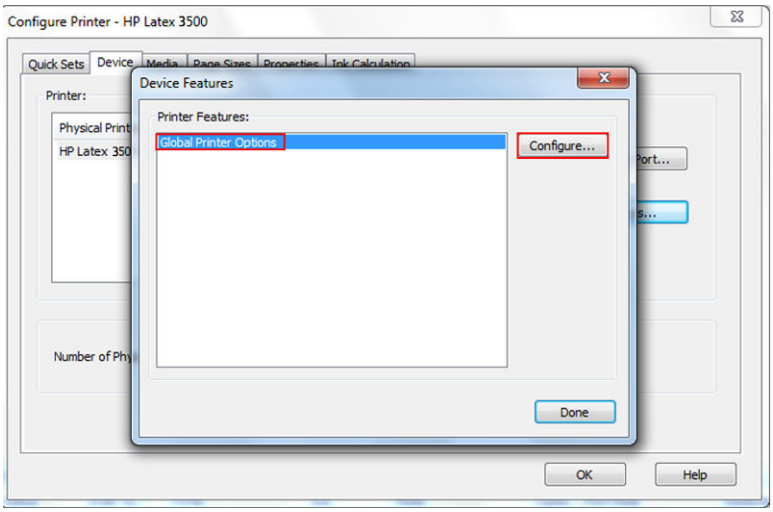
1. For retrieving your custom substrates from the machine, click on **Configure Printer**.



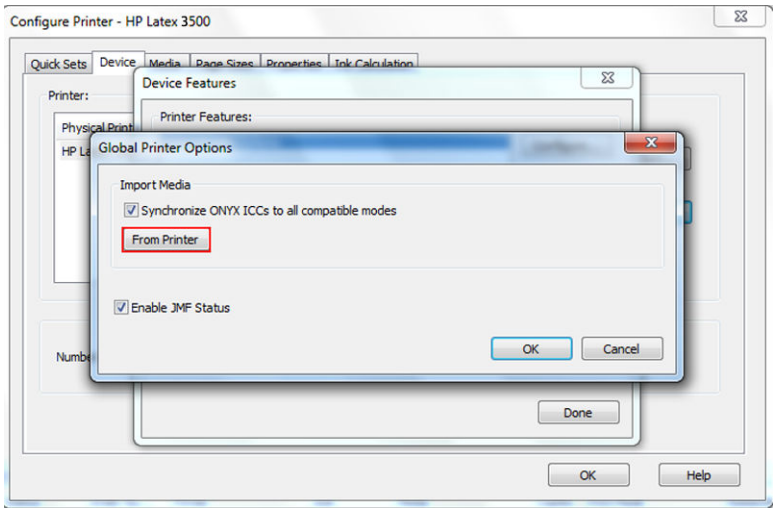
2. Click the **Device** tab, select the machine, then click **Features**.



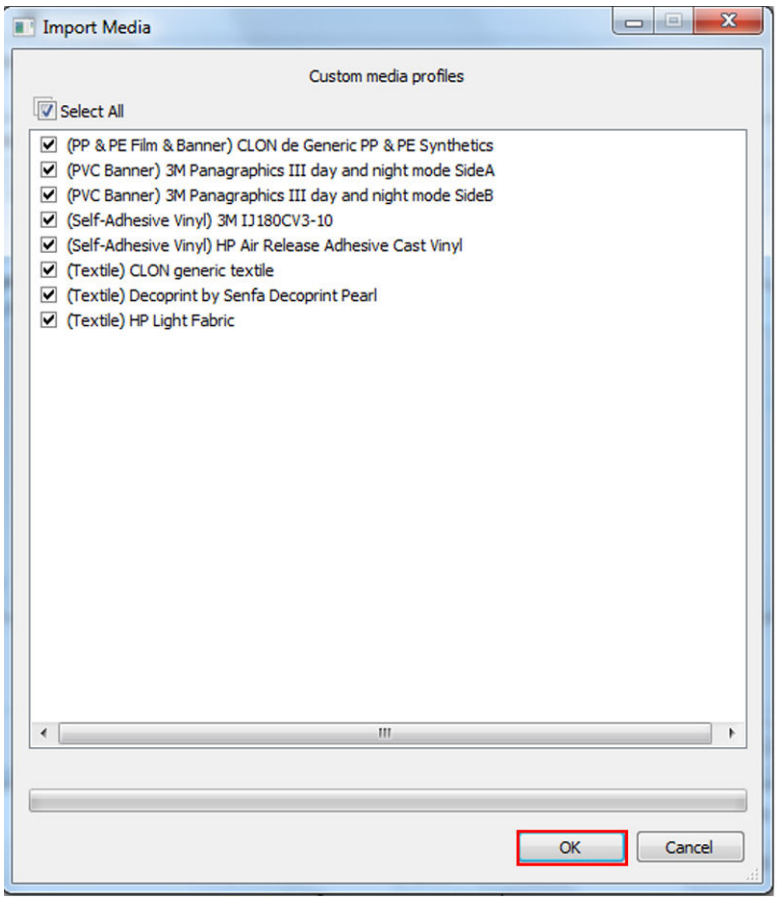
3. A new window appears, select **Global Printer Options**, then click **Configure**.



4. Another window appears, click **From Printer**.



5. A new window appears, select the custom substrates you want to import, and click **OK**.



The selected substrates are now added to the Media Manager library. Close all the open windows.

Set the carriage beam position

The carriage beam position determines the vertical distance between the printheads and the platen. If it is too great, print quality will be impaired. If it is too small, there is a risk that the printheads will come into contact with the substrate, causing smears or damage.

- The **substrate-load** position is not used for printing: it may be used for loading thick substrates or for maintenance tasks.
- The **printing** position is a fixed height suitable for unwrinkled substrates up to 0.4 mm (0.016 in) thick.
- A **custom** position is used for substrates thicker than 0.4 mm (0.016 in), or for substrates that wrinkle slightly due to heating. We recommend setting the custom position as follows:
  - The thickness of the substrate plus 1.9 mm for substrates that do not wrinkle.
  - The thickness of the substrate plus 2 to 3 mm for substrates that wrinkle.

  You cannot exceed the maximum height permitted by the Internal Print Server.

TIP: Try to avoid wrinkling by using substrates that do not wrinkle, or by using a slower print mode that will allow you to lower the drying and curing power.

- The **ink collector install** position is used only for installing the ink collector kit (see The ink collector kit on page 48); it is not used for printing.

To set the carriage beam position, go to the Internal Print Server and select the appropriate position from the drop-down list.

WARNING! Keep away from the printer's moving parts until the carriage beam has reached its new position.

CAUTION: Do not change the carriage beam position while the printhead cleaning roll is out of place.

5 Create and manage print jobs

Add a new print job

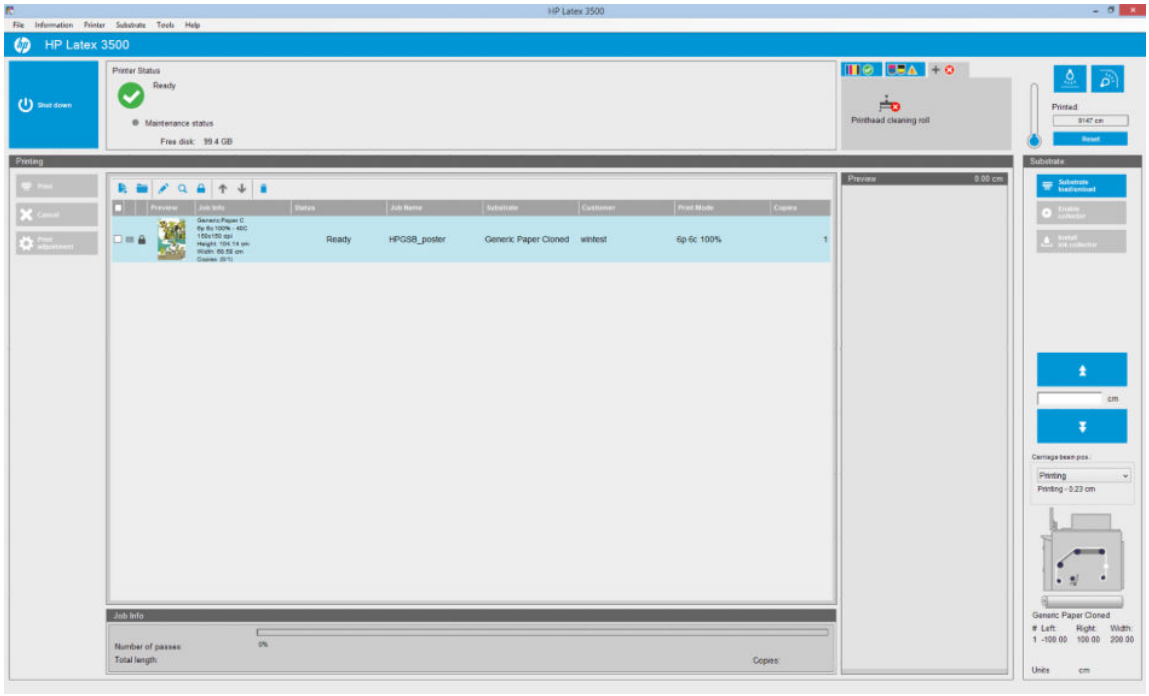
Each print job must be created in your Raster Image Processor (RIP) and then added to the Internal Print Server.

When the RIP has generated a print job, its output folder will contain at least three files:

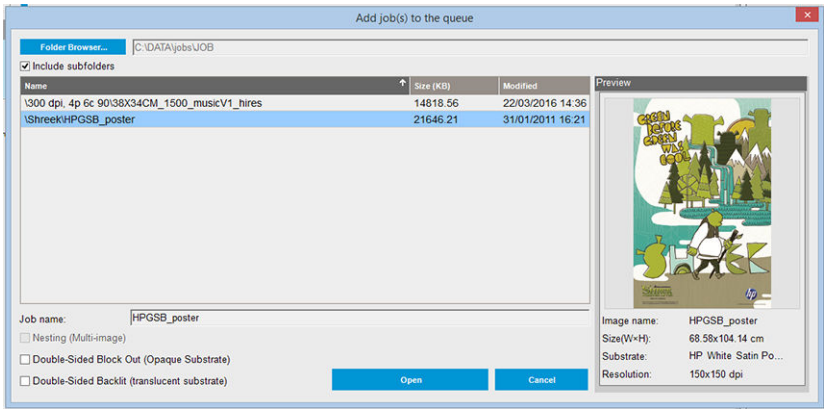
- An XML file containing job settings
- A low-resolution TIFF file for use in previews
- At least one high-resolution TIFF file containing the image to be printed

The output folder should be the shared folder on the Internal Print Server computer that was created during printer installation. The Internal Print Server cannot take files directly from the network because access would not be fast enough.

1. Go to the Internal Print Server.

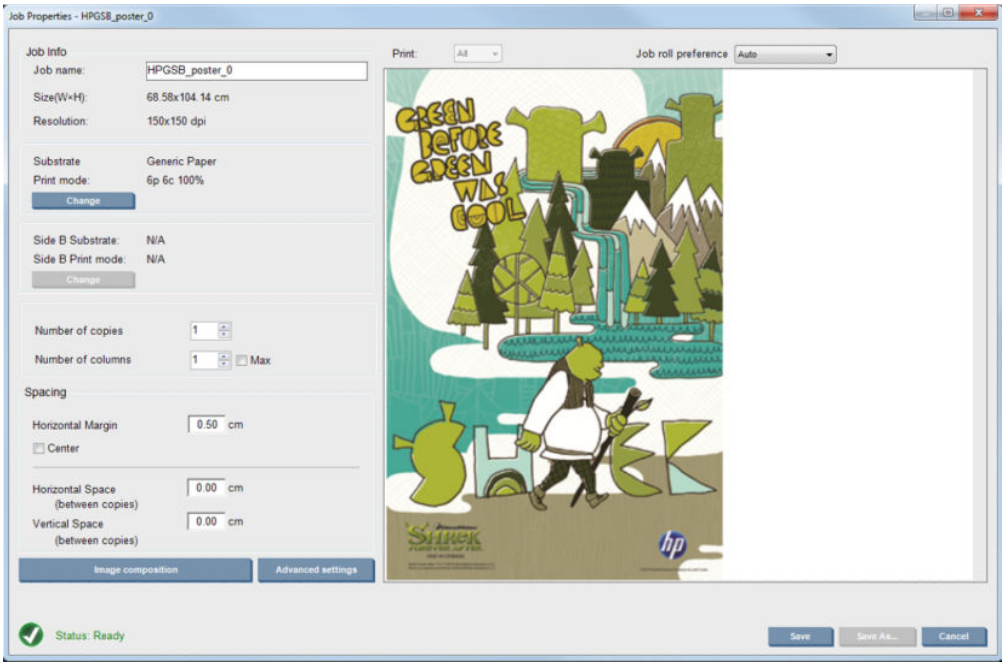


2. Select the Add New Job icon or **File** > **Add New Job**. Navigate to the folder containing the print job files, and click **Open** to import the job into the Internal Print Server.



TIP: You can sort the list by any column.

3. The next dialog box displays information about the job.



You can change the default job name the first time you open its properties window. Once you save the job name, it cannot be changed. Use the **Save As** button to create a copy of an existing job with a different name.

This dialog has the following options:

- **Number of copies:** the total number of copies to print
- **Number of columns:** the number of copies to print horizontally, across the width of the substrate
- **Max:** if this option is checked, the number of steps will be set to the maximum that will fit into the substrate width

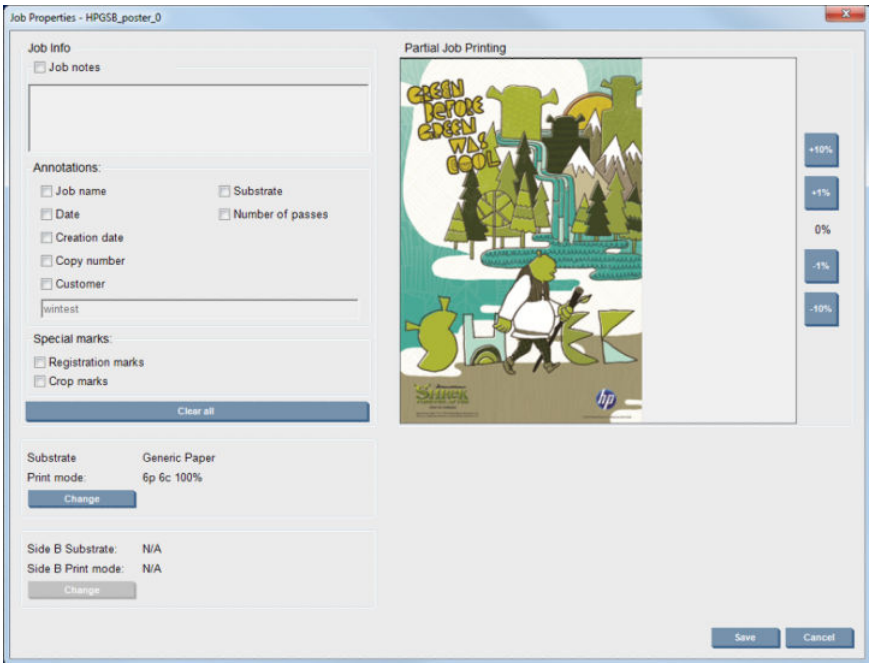
In the **Spacing** section, this dialog gives the opportunity to define a horizontal margin that will be left blank, or to center your jobs on the substrate so that there is an equal amount of white space on both sides. If the number of copies is more than one, then it will apply these properties:

- **Horizontal Space:** the horizontal gap between copies
- **Vertical Space:** the vertical gap between copies

Although the substrate and print mode can be changed from this dialog window using the change button, it is recommended not to do so because it may adversely affect print quality. It is better to make such changes from the RIP.

The drop-down list at the top of the preview field allows to choose all sections or just one of the sections to be printed, and with the other drop-down list, can select the roll preference where the job will be queued.

4. To see more job options, click the **Advanced settings** button in the Job Properties dialog.

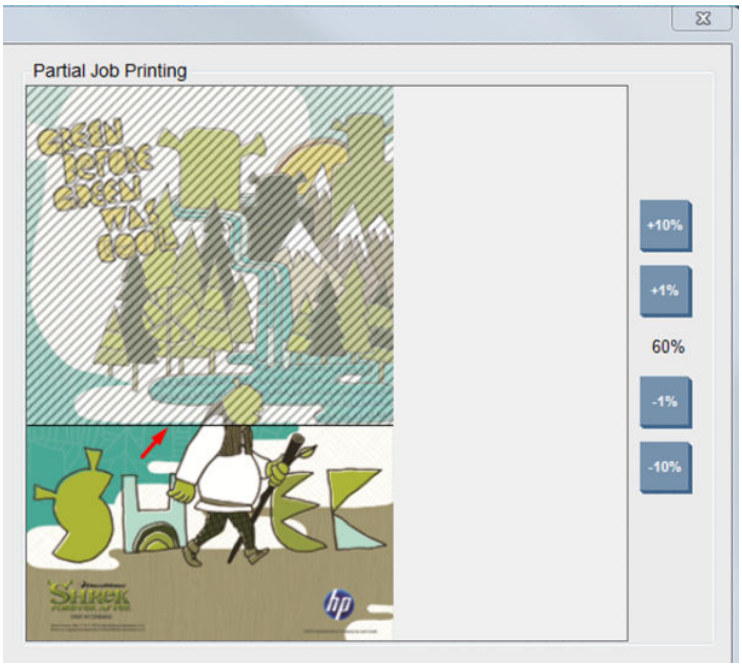


In this dialog, although the substrate and print mode can be changed from this window by using the Change button, it is recommended not to do so, because it may adversely affect print quality. It is better to make such changes from the RIP.

The **Job Info** paragraph can be used to select annotations and special marks to be printed alongside the image.

The **Partial Job Printing** section appears only when the number of copies is one, the job is not double sided, contains one whole image, and can be used to select the job printing offset. The hatched area will not print.

The **Easy Printing** resume can be useful to resume a job after an unexpected interruption.



Click the **Save** button to store the advanced settings, or **Cancel** to discard them and return to the previous main dialog.

5. Click the **Save** button to store the job in the Internal Print Server for further processing in the main job dialog.

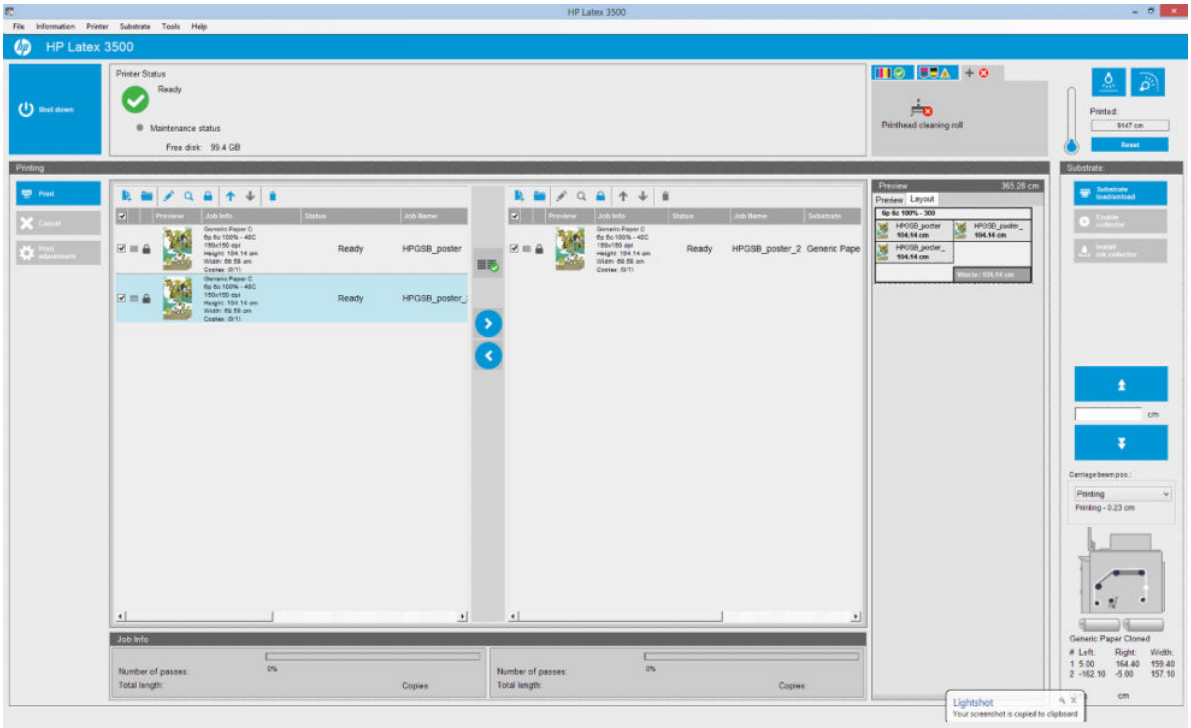
NOTE: The Internal Print Server gives you a warning if you select layout changes that are not compatible with your selections in the RIP software.

6. Click the **Save** button to store the job in the Internal Print Server for further processing.

NOTE: The Internal Print Server gives you a warning if you select layout changes that are not compatible with your selections in the RIP software.

Dual-roll printing

If two rolls have been loaded and the dual-roll checkbox has been checked when loading, the following window appears:



The main difference is that there are now two queues, one per roll. Jobs sent to roll 1 will be seen in the first queue, and jobs sent to roll 2 in the second queue.

When printing, jobs with the same resolution and print mode are printed at the same time (one on each roll). You can see in the preview how they will be processed.

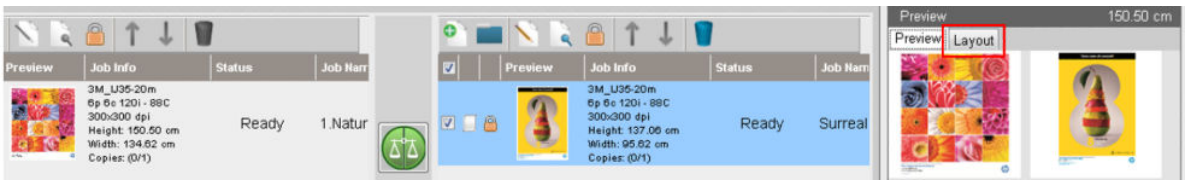
You can move from one queue to another by clicking the and icons.

If you click the icon, the jobs are automatically arranged to minimize substrate waste without altering the order.

The closed padlock icon indicates jobs that cannot be moved when you click the icon. The closed padlock appears when a manual update to the job has been made. To lock or unlock a job, just click the padlock.

Dual-roll layout preview

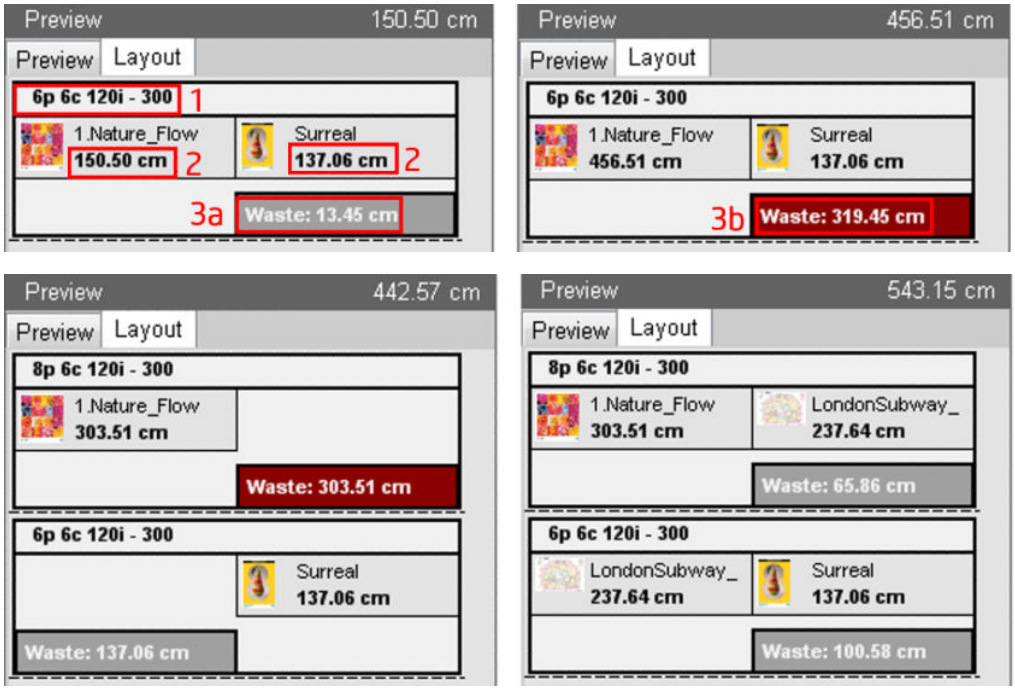
When printing in Dual-roll, a tab named **Layout** appears in the preview section of the IPS. Its purpose is to provide clear information on how the dual job has been set up via its simple interface, and thus facilitate substrate waste reduction.



The **Layout** tab provides information about:

1. The print mode used for each print.
2. The length of substrate to be printed from each roll.
3. A substrate waste warning for each roll. This warning has two statuses with thresholds set-up to 2 meters:
   a. **Background on grey:** substrate waste less than 2 meters.
   b. **Background on red:** substrate waste greater than 2 meters.

NOTE: The warning is located on the side where substrate waste is expected. If there is no risk of substrate loss (0.00 cm), the warning is located on the left side by default.

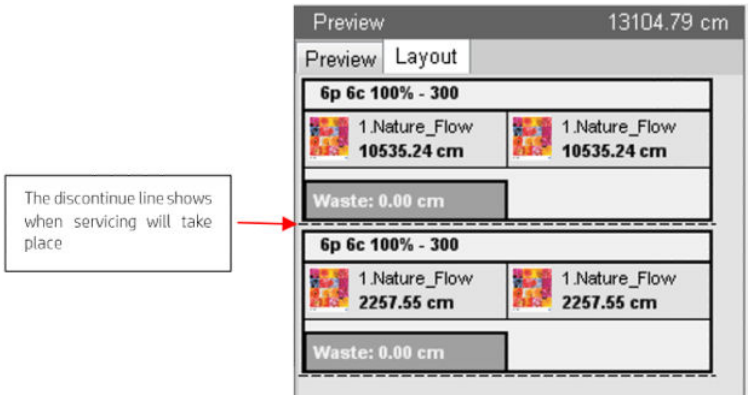


Substrate waste causes

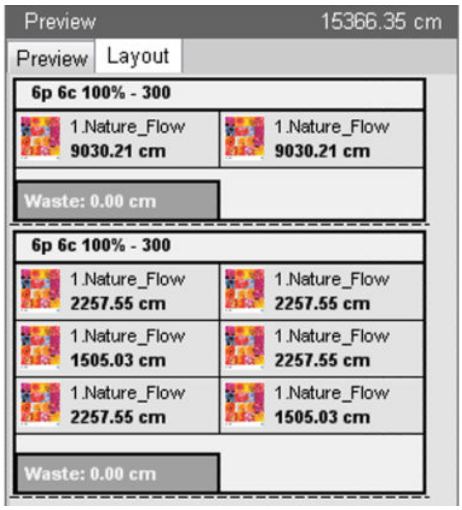
- Unbalanced queues or different print modes in both rolls (seen in the above image).
- Printhead service routines: In order to keep good image quality, the printer has to perform a service routine from time-to-time while printing. Service routines don't have a major influence when printing on a single roll, but there can have in dual-roll if the queues are not balanced enough. **Layout** preview indicates the service routines the printer needs to perform, it shows how the waste is distributed between the actual job set-up, and makes it easier the rearrange jobs in order to minimize waste in dual-roll configuration.

  Service routines while printing are carried out at the end of a job, when any of the following conditions are reached:

- Printer has printed more than 100 meters uninterrupted.

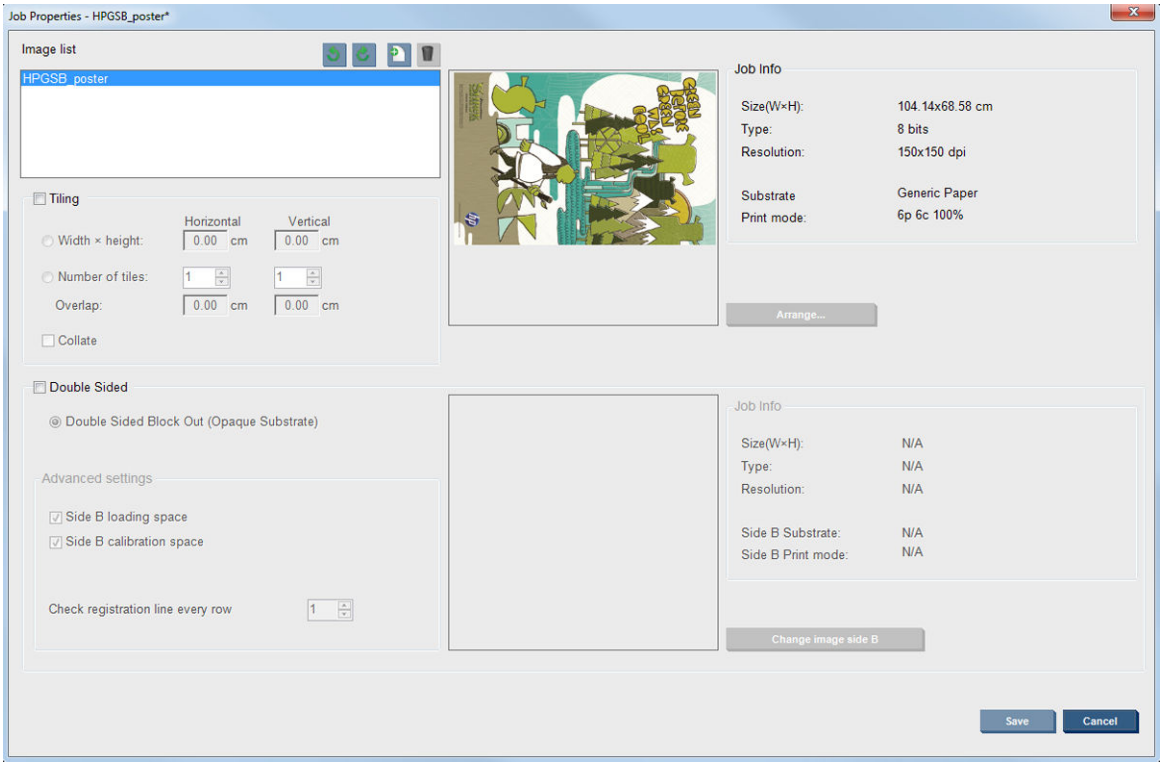


- Printer starts the next job, and when finished, it would have printed more than 100 meters uninterrupted.



Rotate a print job

A job can be rotated by 90 degrees in either direction by using the rotation icons at the top right of the Job Properties window of the dialog that appears when clicking the **Image composition** button.



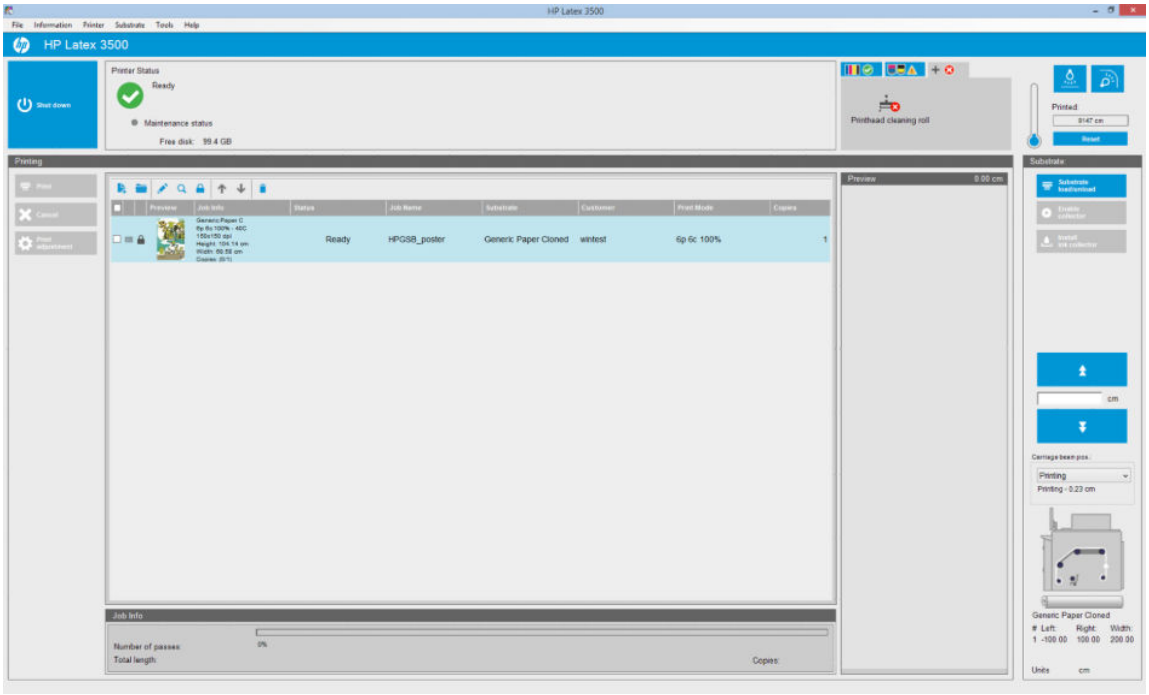
NOTE: Rotation is available only when the printer is not printing.

Press the **Save** button to store the current image rotation or **Cancel** to discard the changes and return to main dialog of the properties of the job.

The rotation effect is shown in the preview. After you press the **Save** or **Save As** button in the Job Properties window, the actual rotation of the job takes place. This could take a few minutes, depending on the image size and resolution, during which time the job can neither be printed nor edited, and the job status is shown as **Rotating**. When completed, the job is ready for printing.

Manage the print queue

The main screen of the Internal Print Server displays the queue of print jobs and various icons that can be used to manage the queue.



Above the print queue are the following icons:

- Add New Job : See Add a new print job on page 125.
- Add Existing Job : Return a job to the queue that has been printed already. Printed jobs remain available unless deleted manually.
- Edit Job : Edit the properties of a job in the queue.
- Proof : Proof a job in the queue (not available for nested jobs). This can be used to crop the image before printing.
- Up : Select the next job upwards in the queue.
- Down : Select the next job downwards in the queue.
- Remove : Delete the selected job from the queue.

You can check the boxes of the jobs you want to print, and press the **Print** button to print them.

You can cancel all jobs in the queue by pressing the **Cancel** button.

The **Print adjustment** button displays the substrate-advance compensation (which can be changed).

Delete a print job

This is the correct procedure to delete a job.

1. Remove the job from the queue by using the Remove icon or by ticking the job in the queue and selecting **Remove**. When deleting a job in this way, the files may or may not be left on the printer's hard disk, and the file may or may not still be available from the list in the Add Existing Job window, depending on the settings in **Tools** > **Preferences** > **Queue Rules**, in the section “When removing jobs from the queue”.
2. Remove the job with **File** > **Delete job**, select the job and press the **Delete** button. Now the file cannot be retrieved from the **Add existing job** window.

Image composition

The Job Properties window is displayed when you import a job into the Internal Print Server, or when you right-click the job queue in the Internal Print Server.

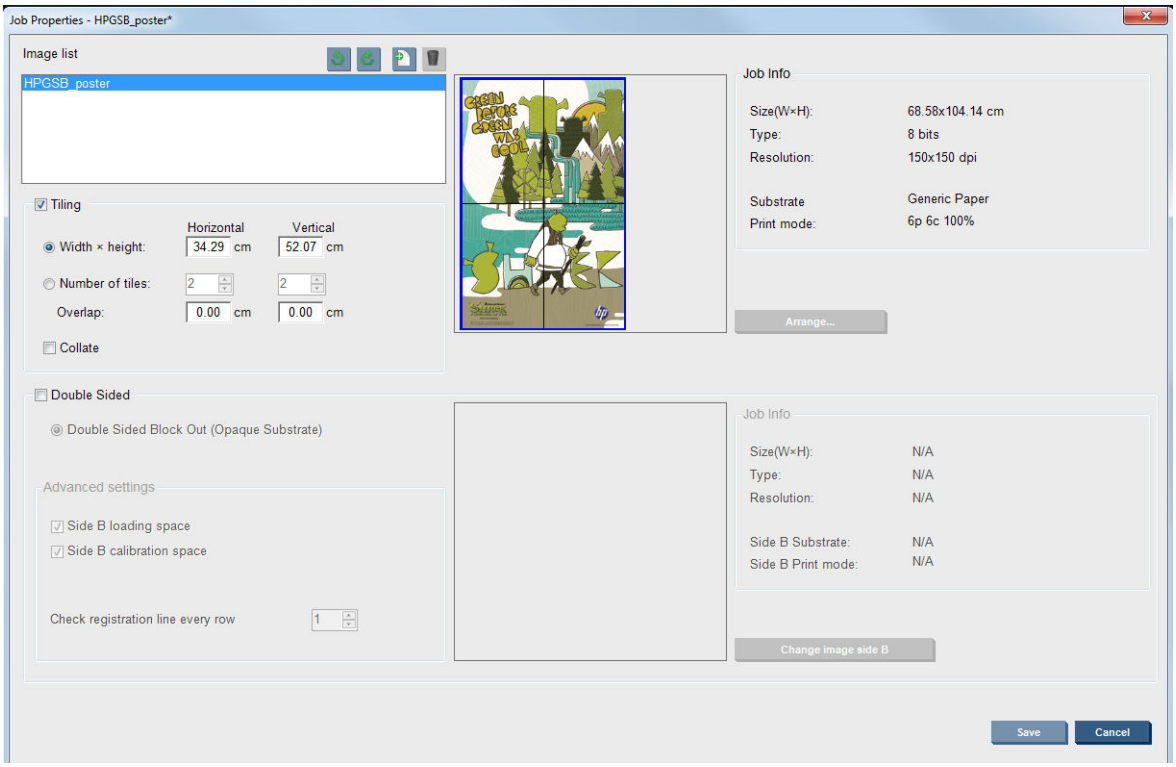
This window contains an **Image composition** button that allows you to choose among the following alternatives:

- **Tiling:** A single job is printed in sections, to be put together later. See Tiling on page 134.
- **Nesting (Multi-image):** The selected jobs are printed one after the other, across the width of the substrate if there is room. You can use the Advanced Nesting Arrangement window to alter the layout manually. See Introduction to JDF on page 29.
- **Double Sided**: Block Out.

All image compositions can be used with dual-roll printing, when so, the software will warn if the layout involves printing in the gap between rolls; but it will allow so it if the warning is disregarded.

Tiling

Tiling is a layout method that allows you to print a large image in sections, and then put the sections together later.



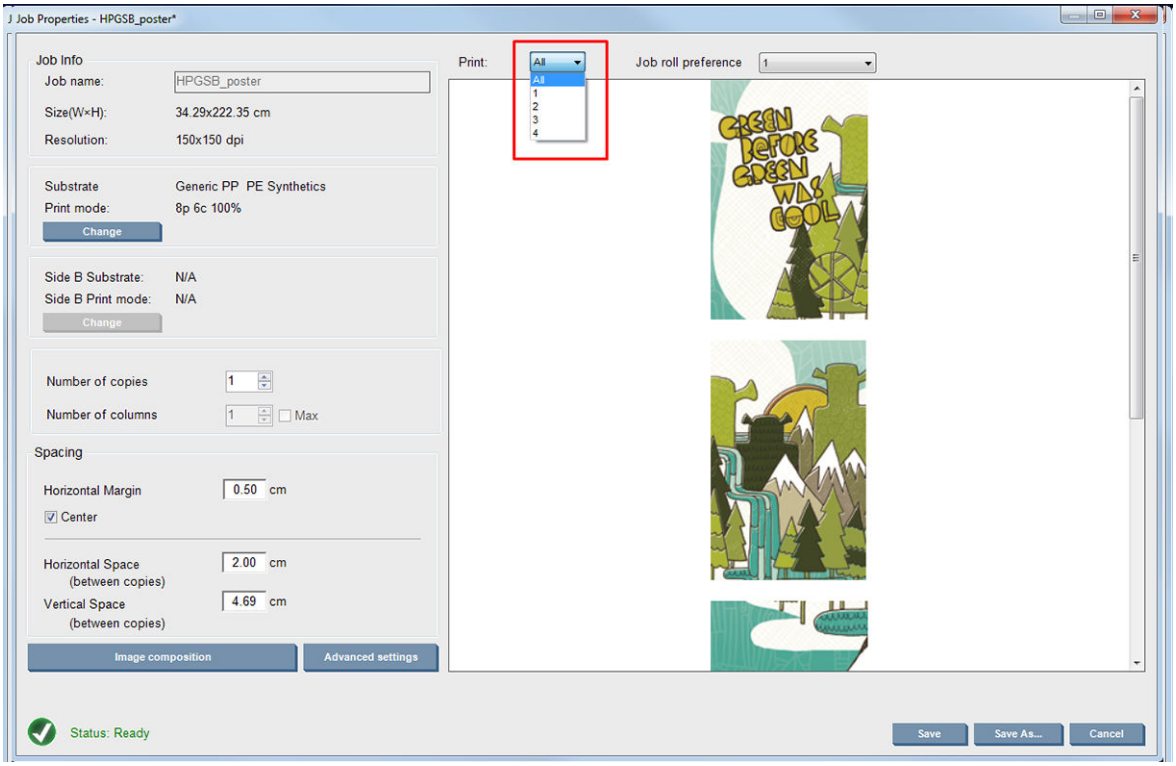
Click the Tiling Check and the Tiling section will be activated.

This composition will automatically cut your image into sections and print the sections separately. There are two alternative ways to select the size of the sections:

- Select the width and height of each section. The number of sections is then calculated automatically.
- Select the number of horizontal and vertical sections. The width and height of each section is then calculated automatically.

If you choose a non-zero overlap, the size of each section will be increased by that amount so that the printed sections will overlap when put together.

The drop-down list at the top of the preview in the main properties job dialog field allows to choose all sections or just one of the sections to be printed.



Double-sided

Double-sided printing helps you to print rows of images on both sides of the substrate.

- There is a process to guide you when printing a substrate on both sides.
- Double-sided printing can be used to print the same image or different images on each side.
- The process automatically compensates for any registration errors, of the position of the plot, along both axes (along the substrate width + substrate advance) to minimize any errors.
- The ink collector kit cannot be used when printing double-sided.
- The images of Side A and Side B must have approximately the same dimensions. The image that you select for each side must be the same image for the entire side.
- You can print side A of a double-sided job on dual-roll and then finish side B with a single roll.

Create a job

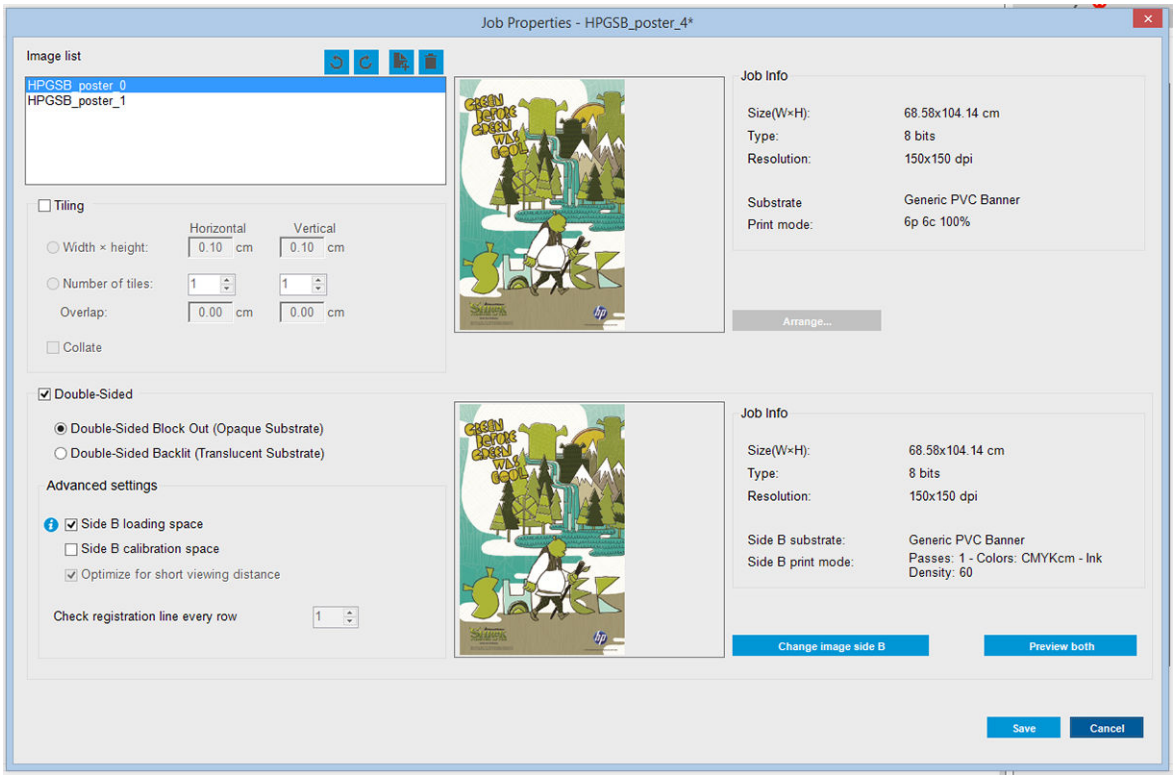
Any image created in the RIP can be printed in either side A or side B, without any special requirements. However, side A and side B must have the same dimensions when printed on the substrate.

NOTE: In order to minimize registration errors on some substrates, you are recommended to compensate for substrate contraction in the RIP when the image is generated.

Define double-sided job

From the Internal Print Server's main window, click the Add New Job icon to open the Choose Image File window. You will see the **Double sided** check box on the bottom left of the window. If you select more than two jobs, double sided is impossible and the box is grayed out.

This type of composition works for opaque substrates. Click the **Image composition** button from main job dialog and the following screen is displayed. Here you can define the Double Sided Block Out job properties.



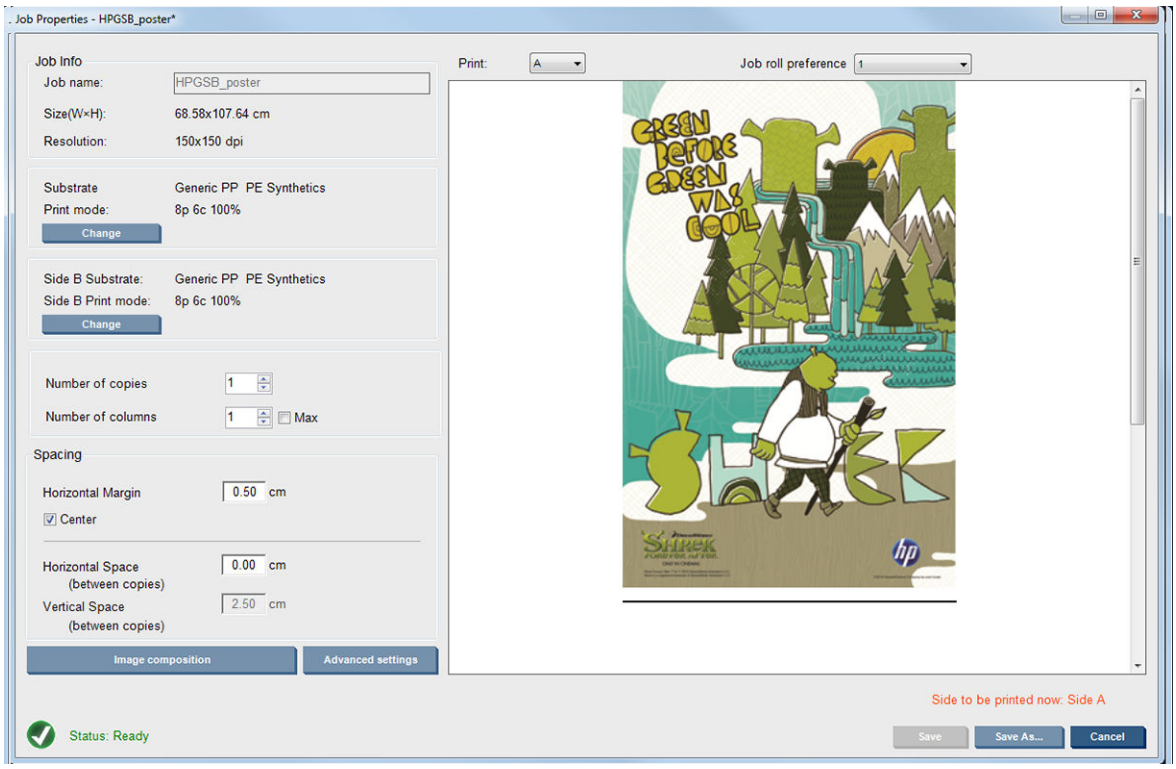
1. If Check Double Sided is not checked then click it.
2. Press the **Change image side B** button to select a filename containing the image to be printed on Side B if a different image than side A on side B is required.
3. In the Advanced settings section, the following options are recommended when printing double sided block out:
    - **Side B calibration space:** When selected, the printer leaves an area of substrate empty after the images have been printed (the substrate is warmed-up). This is to give space to perform substrate-advance compensation on side B, which is recommended. At the end of the empty space a dotted line is printed.
    - **Side B loading space:** When selected, the printer will advance the substrate so that there is sufficient substrate to load side B.

- **Check registration line every row:** This option enables you to choose which registration lines are scanned by the printer, if you select 1 (the default), the printer stops printing and checks every registration line, if you select a higher number, for example 2, the printer only scans every second registration line. This increases the speed of the job, but also slightly increases the chances of misregistration.

NOTE: This option is enabled when the second image is selected (from Side B).

4. From the Image list section, you can rotate the selected image 180°.
5. Press the **Save** button to store the current image composition or the **Cancel** button to discard the changes and return to the main job properties dialog.

   The following screen is displayed where the double-sided job properties can be defined:



6. From the drop-down menu, select the side with the properties you want to define or view.

NOTE: The side selected here is the side that will be printed. To print side B, select **B**.

- For both sides you can define the following properties:
  - **Number of copies:** The number of total copies to print
  - **Number of columns:** The number of copies to print horizontally, across the width of the substrate
  - **Max:** If this option is checked, the number of steps will be set to the maximum that will fit into the substrate width
- For side A you can define the following properties:
  - **Horizontal Margin:** Gives the opportunity to define a left margin that will be left blank
  - **Center**: To center your jobs on the substrate so that there is an equal amount of white space on both sides

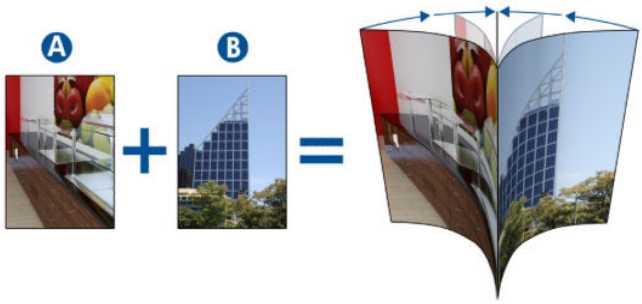
    NOTE: Centering the images is highly recommended to compensate for any possible registration errors that may occur.
  - **Horizontal Space:** Gives the opportunity to define the horizontal gap between copies

Preview (Image/Layout/Preview both)

There are three different previews:

1. Main dialog of the job properties and preview how the printer will print each side.

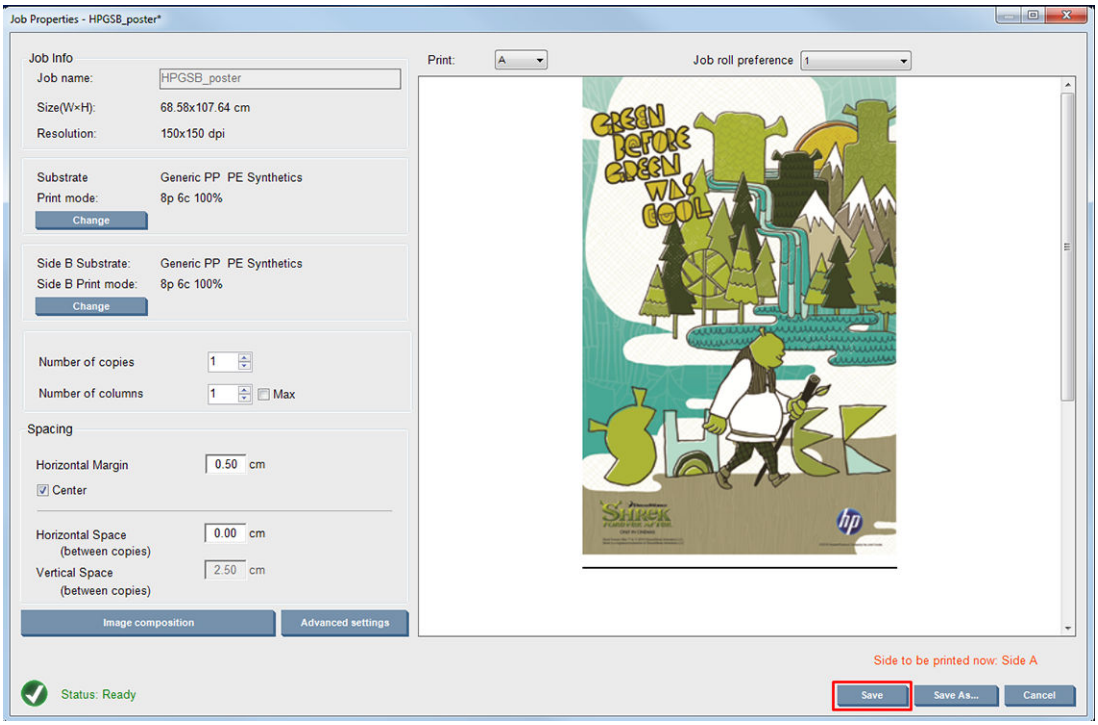
2. Click the **Image composition** button to see the image that contains the job on each side.
3. Click the **Preview both** button to see a simulation of how both images will print on side A and on side B. You can use this simulation preview to check that the orientation of the images relative to each other is how you expect the finished result to be.



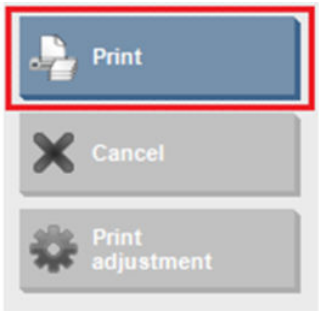
Print

1. Select **Side A** from the drop-down menu.

2. Select **Save** or **Save As**.

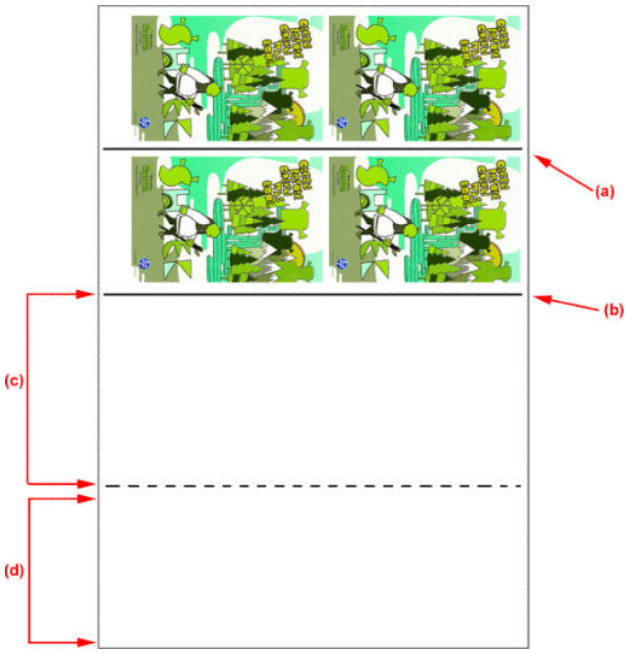


3. Select **Print Job** and print the selected images.



The number of copies are automatically distributed according to the parameters defined in Define double-sided job on page 135 (number of rows, column, centered)..

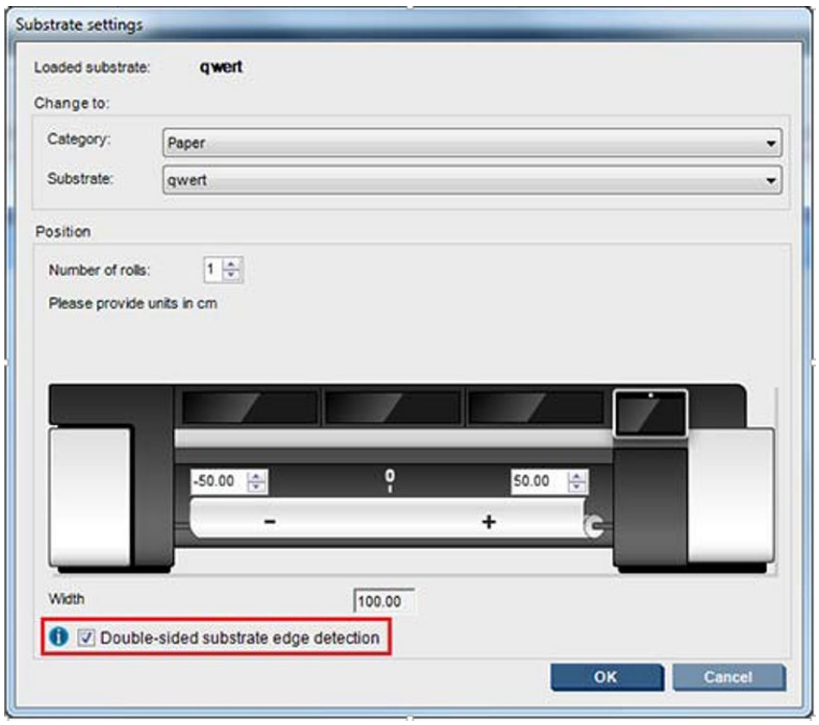
- At the end of each row a black registration line is printed automatically (a). This registration line is used while printing side B, to position the side B rows and minimize the registration errors.
- It is recommended to mark with a marker the back side of the last registration line (b) to position the substrate during the side B loading process.
- When side A has been printed, after the last continuous black registration line, the printer automatically provides an area in which to perform the side B calibration (c) and side B loading (d) area.



NOTE: The area dedicated to calibration, between the continuous registration line and the dotted line (c), must be advanced at the same speed as the printed area, and at the same temperature, to ensure an effective calibration.

4. When Side A has finished printing, unload side A. See Side A: Unload on page 89.
5. Check that the substrate-advance sensor is clean, and do not hesitate to clean it. See Clean the substrate-advance sensor on page 204.
6. Load Side B. See Side B: Load and print on page 90.

NOTE: For accurate printing we recommend that **Substrate Edge Detection** is selected.



7. When Side B is loaded, perform the following steps. For more details of these procedures, refer to Side B: Load and print on page 90:

a. Align the dotted line with the platen

b. Perform substrate-advance compensation.

c. Select **Side B** from the drop-down menu.

d. Ensure that the registration line is aligned with the platen and start printing side B.

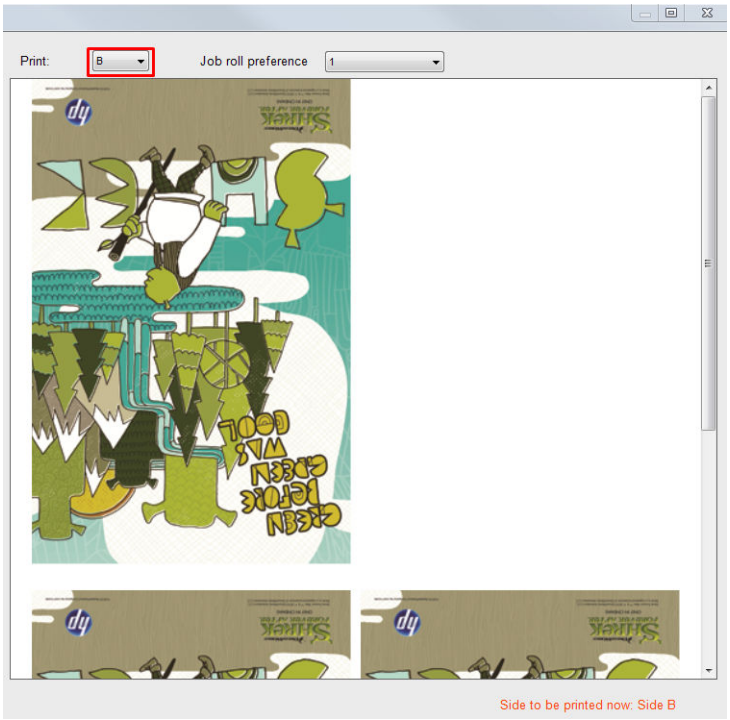
e. Configure **Rows to register**, see Define double-sided job on page 135.

f. Select **Save** or **Save as**.

g. Select **Print Job** and print the selected image.

While printing Side B the printer will automatically read each registration line and Side B will be positioned to minimize the registration errors.

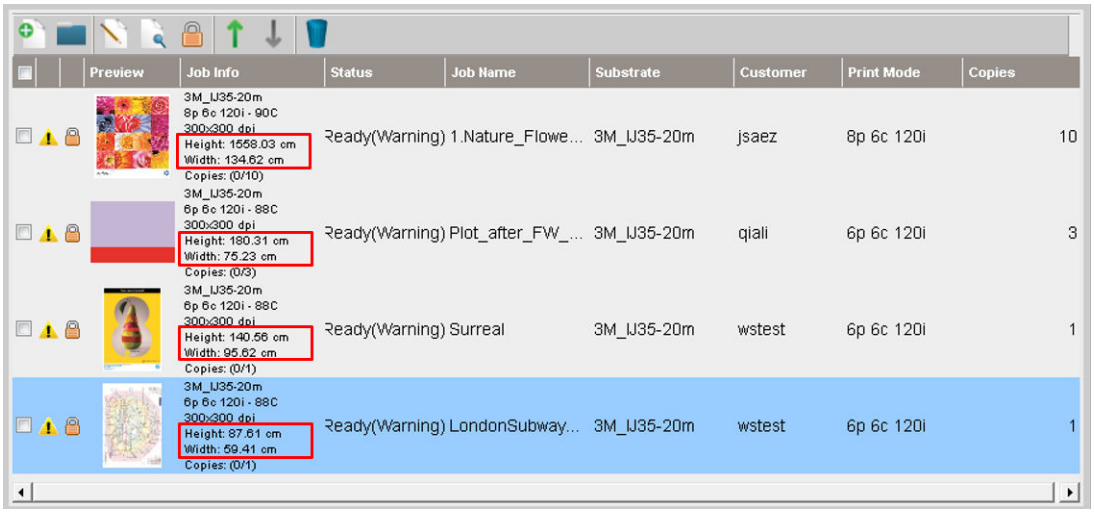
NOTE: To activate the side you want to print, always select it from the drop-down menu first, make any changes to the image, and select **Save**.



TIP: If a particular substrate is often used for double-sided printing, to avoid having to redo the substrate-advance compensation between side A and side B, a second specific substrate could be used based on the initial one. Apply the substrate-advance compensation of sie B, and select this new substrate preset each time side B is loaded (and select the previous one each time side A is used).

Multijobs on double side block out

Double side block out supports **Multijobs** functionality which allows to print differently dimensioned images in the same print (same side).

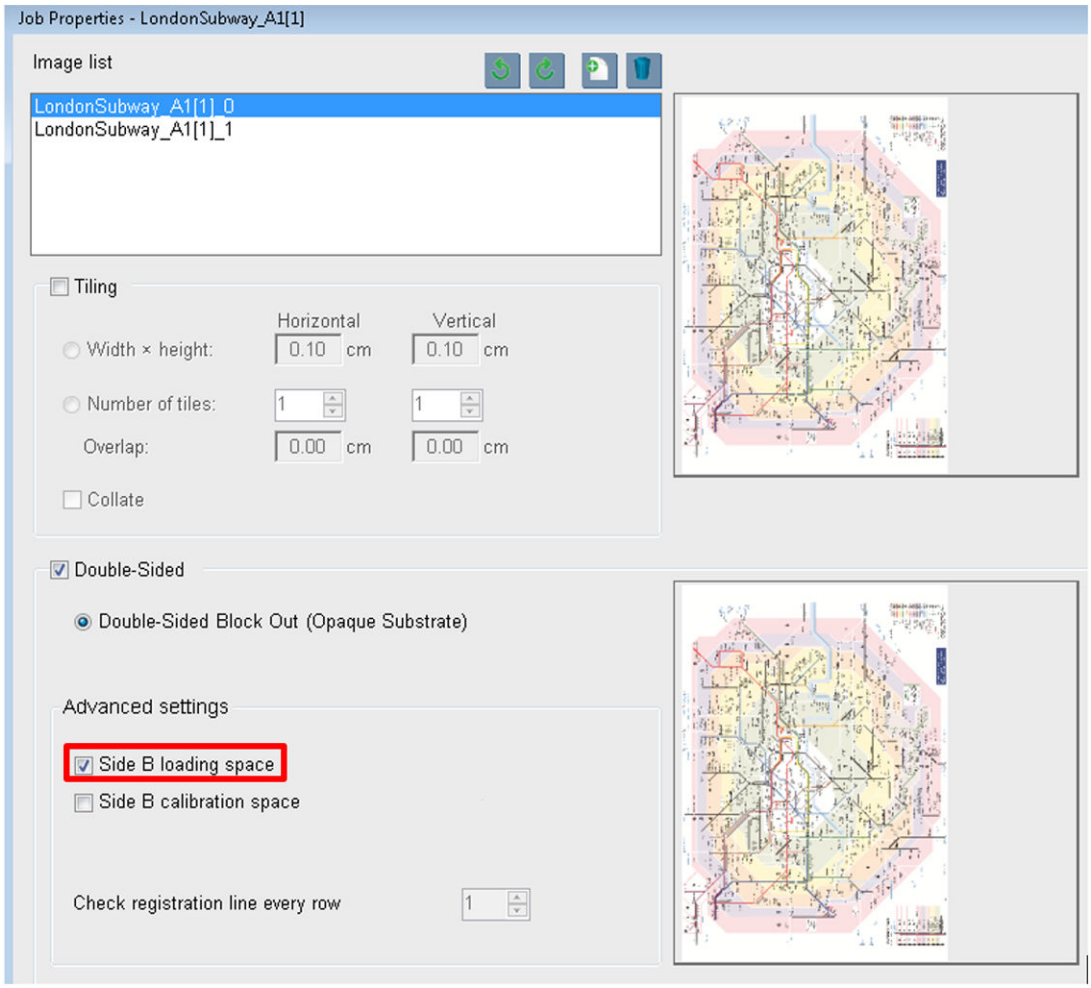


Some considerations need to be taken into account before using this functionality:

1. Whenever a new job is added to the print queue, **Advanced Settings**>**Side B loading space** is enabled by default.
2. When selected, at the end of each job, the printer advances the substrate about 1.5 meters in order to load side B.

3. The **Side B loading space** option is used to leave an empty area of substrate after the images have been printed. This is done to leave space to perform substrate advance compensation on side B. **It must be unchecked on each job in the print queue except the last one**, if not there will be about 1.5 meters of substrate waste after each job.

IMPORTANT: Only enable **Side B loading space** on the last job in the print queue:



Nesting

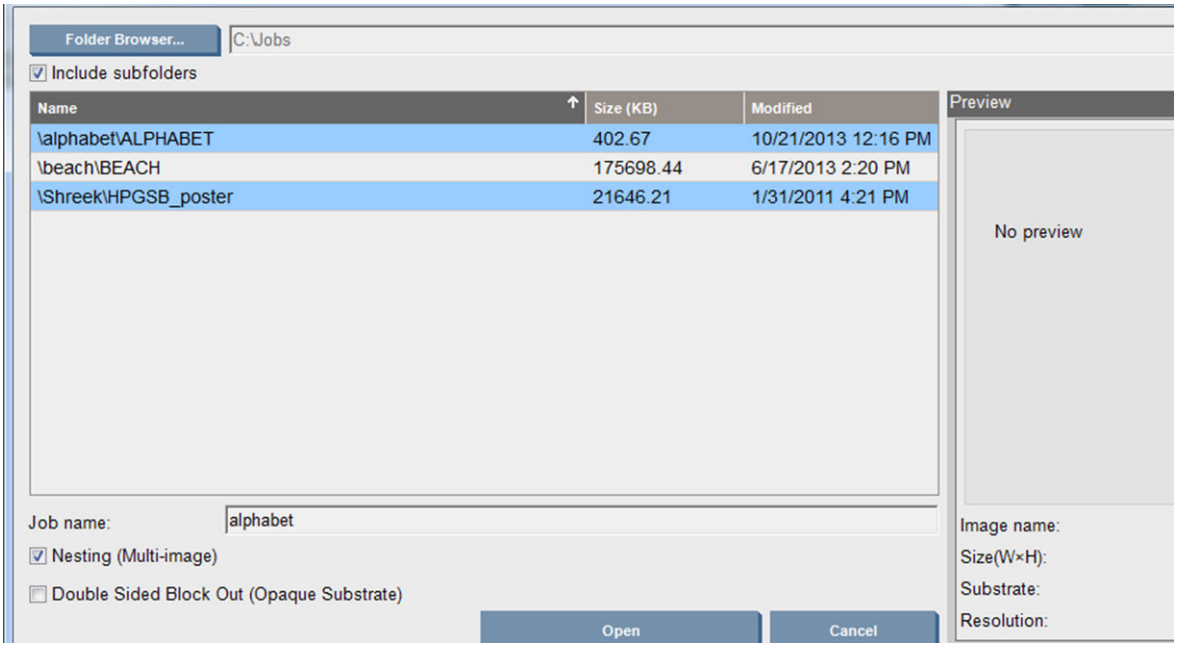
Nesting is a layout method that allows you to choose the layout of your printed jobs on the substrate, relative to one another, instead of simply printing them one after another as usual. Jobs can be printed side by side if there is room.

TIP: Printing jobs side by side on the substrate gives you faster throughput and uses less substrate.

You can use nesting in the Internal Print Server, from the Choose Image File window or the Job Properties window.

The Choose Image File window

From the Internal Print Server's main window, click the Add New Job icon to open the Choose Image File window. You will see the **Nesting** check box on the bottom left of the window. If you select only one job, nesting is impossible and the box is grayed out. If you select more than one job, you can click the box to enable nesting.

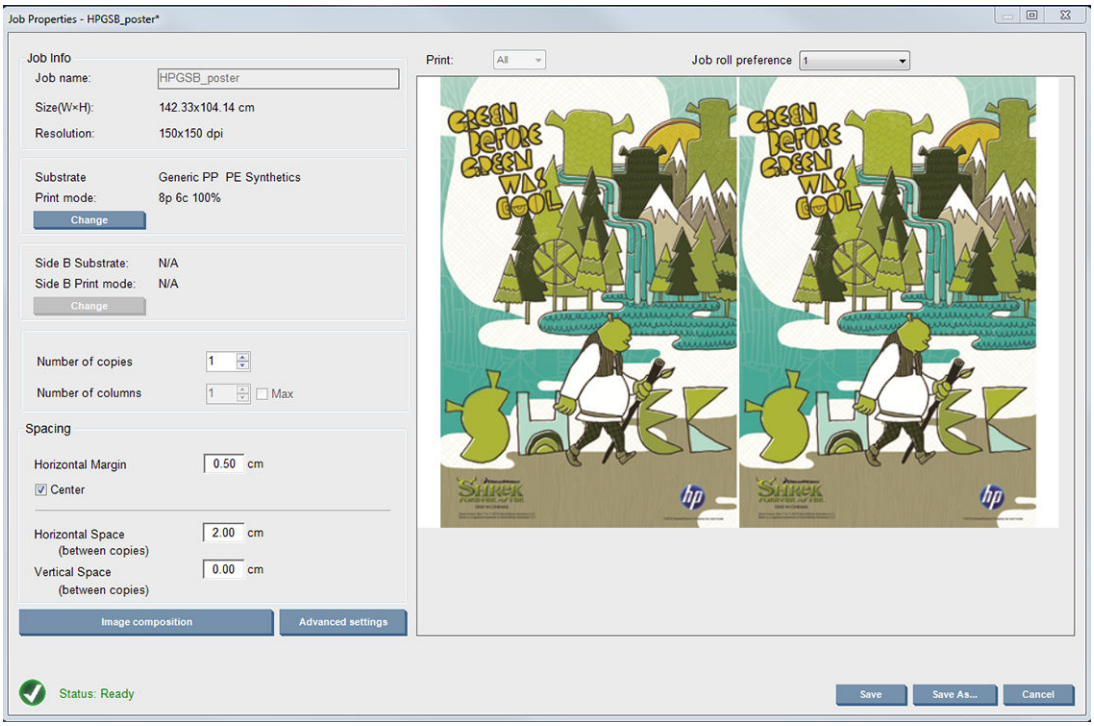


NOTE: To be nested together, jobs must be of the same resolution and printed on the same substrate. Any incompatible job is added to the queue as a separate, non-nested job, and an explanatory message is displayed.

When you press the **Open** button with nesting enabled, the Advanced Nesting Arrangement window opens (see The Advanced Nesting Arrangement window on page 146).

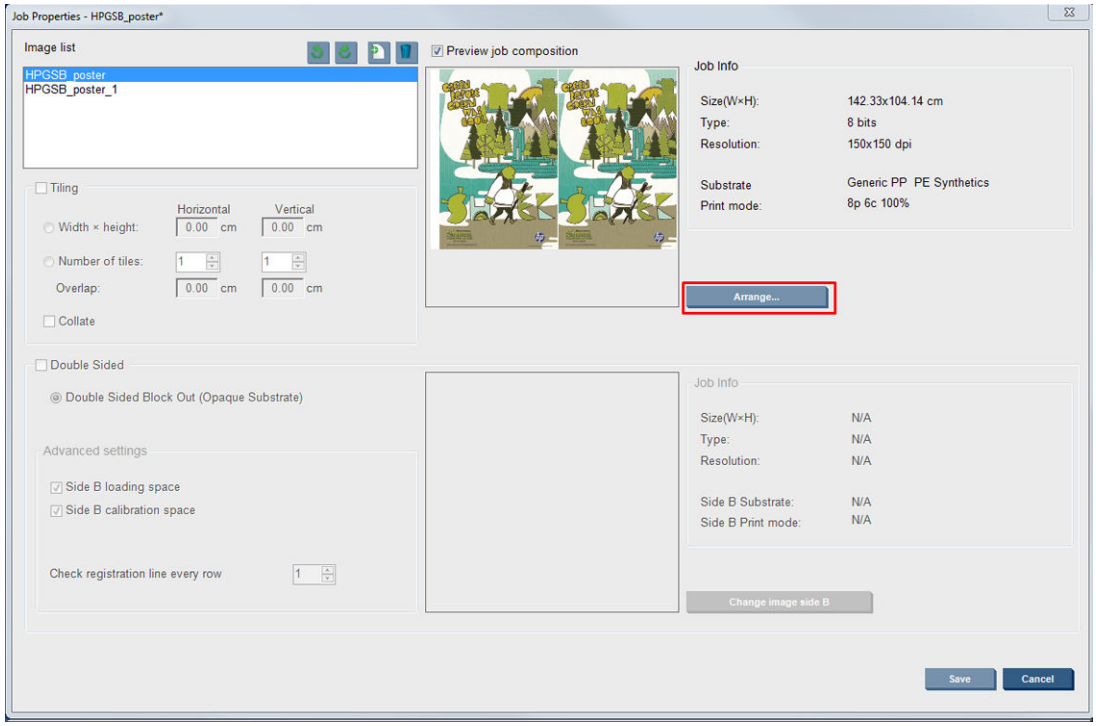
The Job Properties window

From the Internal Print Server's main window, right-click the print queue to open the Job Properties window. In this window, you can click the Add New Job icon to add more jobs, in which case you will see a Nesting section in the Layout pane.



Nested jobs must all be printed with the same number of passes. Therefore, the number of passes used for all jobs will be copied from the first job.

From the current dialog, press the **Image composition** button to access another dialog where the **Arrange** button can be selected.



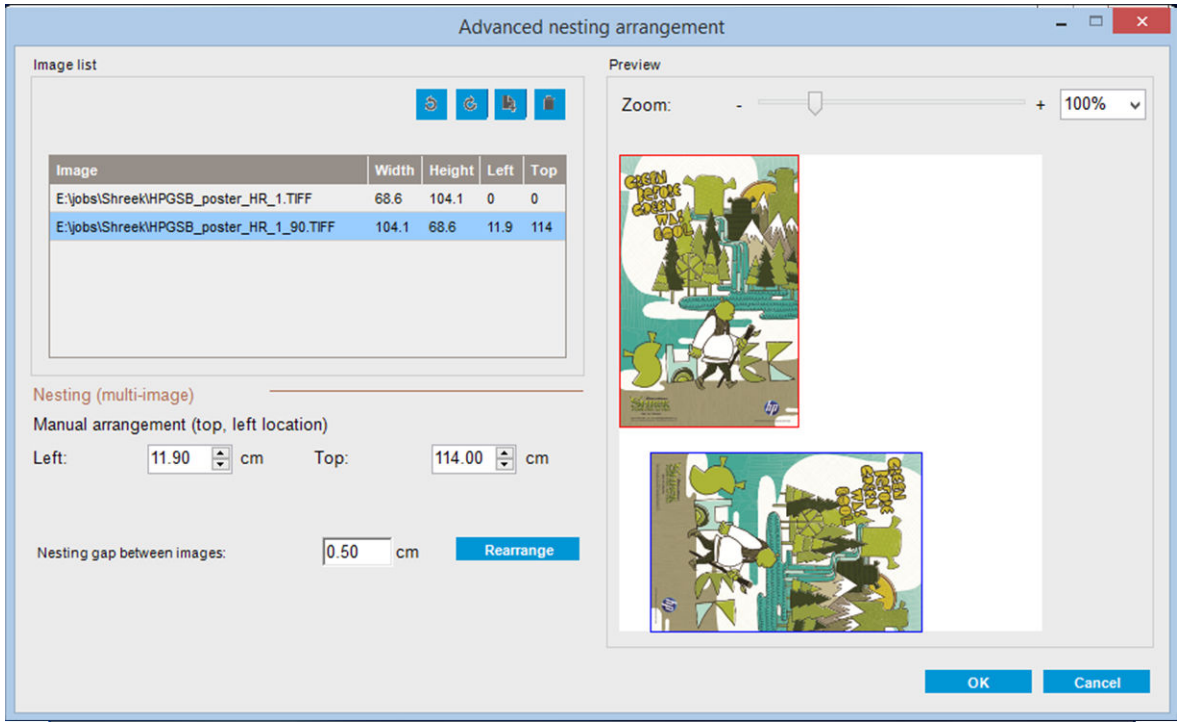
If you press the **Arrange** button in this section, the Advanced Nesting Arrangement window opens. If you use advanced nesting, the number of passes used for all jobs will be copied from the job with the highest number of passes specified.

The best location for the next added image is selected automatically.

The Advanced Nesting Arrangement window

The Advanced Nesting Arrangement window displays a preview of your jobs and their layout on the substrate.

- You can alter the layout by selecting a job in the preview and changing the Left and Top values, or by dragging with the mouse.
- You can zoom and scroll the preview.
- You can rotate images at any stage.
- You can rotate images at any stage.



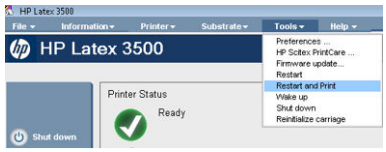
The **Rearrange** button automatically optimizes the positions of the images, keeping the established margin.

When you are satisfied with the layout, press the **OK** button.

Restart and Print

If the printer suddenly shut downs and the Internal Print Server goes offline, you can ready the printer to continue rapidly

To use this feature, via the Internal Print Server, go to **Tools**>**Restart and Print**.



By selecting this option:

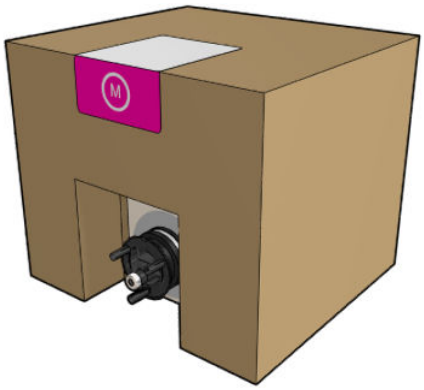
- The substrate will automatically load during boot up. All the print queue checked jobs, except the failed one, will automatically print.
- No operator interaction is required, just press the **re-arm** button.

6 Handle the ink system

Ink system components

Ink cartridges

Ink cartridges store the ink and are connected to the printheads, which deposit the ink on the substrate.



Each cartridge contains HP Latex ink, and consists of a bag within a recyclable cardboard box.

⚠ CAUTION: Observe precautions when handling ink cartridges because they are ESD-sensitive devices (see the Glossary on page 418). Avoid touching pins, leads, and circuitry.

If pressure is put on a cartridge while it is connected to the printer, the pressure is transmitted to the ink pressure sensor, which may break; in which case ink may leak from the cartridge. To avoid such ink leaks, avoid putting any pressure on cartridges while they are connected to the printer. In particular:

- Always disconnect cartridges from the printer before handling them.
- Never place anything heavy—more than 1 kg (2.2 lb)—on top of a cartridge.
- Take care not to drop a cartridge.
- Do not try to force the last of the ink out of an almost-empty cartridge by pressing the ink bag inside the cartridge.

Printheads

The printheads take ink from the ink cartridges and deposit it on the substrate.

CAUTION: Observe precautions when handling printheads because they are ESD-sensitive devices (see the Glossary on page 418). Avoid touching pins, leads and circuitry.

The printer's six-color writing system uses six dual-color printheads with a total of 63,360 nozzles, and an HP Latex Optimizer printhead with 10,560 nozzles.

WARNING! Printheads should be stored vertically: if boxed, with the box arrows pointing up; if out of the box, with the nozzle cap up.

Printhead cleaning roll

The printhead cleaning roll is a roll of absorbent material used in the normal operation of the printer to wipe the printheads periodically (at the beginning and end of printing, on printhead check and clean, and so on). This helps the printheads to deliver continuous ink and maintain print quality.

The roll should be replaced whenever it is used up, to avoid damaging the printheads. The frequency of replacement depends on your use of the printer. A single roll will last approximately 40 liters; this may take about 3.5 weeks at a usage level of 5,000 m²/month (50,000 ft²/month).

An alert is displayed when 75% of the roll has been used, and again when 95% of it has been used. You can choose to replace the roll at any time. The printer will not print when the roll has been 100% used.

If there is not enough of the roll to start a new job, the printer cancels the job.

To change the printhead cleaner roll, see Replace the printhead cleaning roll on page 167. The HP 881 Latex Cleaning Roll can be ordered in the normal way.

TIP: You should not touch the printhead cleaner roll except when you need to replace it. Any interference with the roll may prevent the printer from keeping track of roll usage, in which case you may see spurious error messages, and a printing job may be cancelled unnecessarily.

Aerosol filters and drying filters

The printheads produce many fine droplets of ink, most of which are placed accurately on the substrate. However, a small proportion of these droplets escape sideways; the two aerosol filters are placed on either side of the printhead carriage to intercept them.

The drying filters keep dust and aerosol off the drying lamps.

The filters should be changed every time the printhead cleaning roll is replaced. They are provided with the HP 881 Latex Cleaning Roll.

Left spittoon

The left spittoon is a rectangular piece of foam that allows the printhead nozzles to be refreshed at the left side, before printing a pass from left to right.

Change the left spittoon every time the cleaning roll is replaced. The foam is provided with the HP 881 Latex Cleaning Roll.

Condensation collector bottle

The printer has a system that collects most of the vapor generated while drying and curing the ink and condenses it in a bottle located at the left side of the printer. You should check the bottle from time to time and empty it when necessary. Consult your local authorities to determine the correct manner in which to dispose of wastes. The waste-profile datasheet contains the required information for correct disposal. This document is located here: https://hplatexknowledgecenter.com/applications/wasteprofiles/.

Ink deposits

The printer can check the firing capacity of each single nozzle. Doing so causes small amounts of ink to accumulate close to the drop detector. This ink gradually forms ink deposits that need to be cleaned; see Clean the drop-detector ink deposits on page 242.

How to work with ink system components

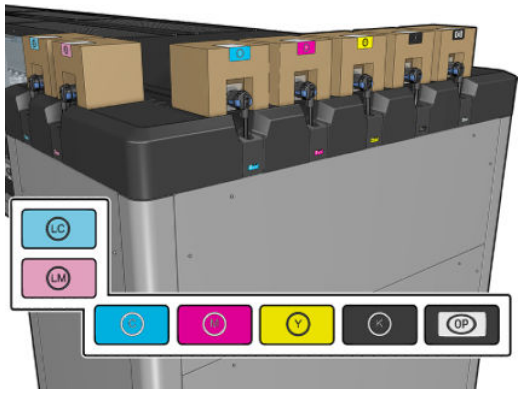
Ink cartridges

Remove an ink cartridge

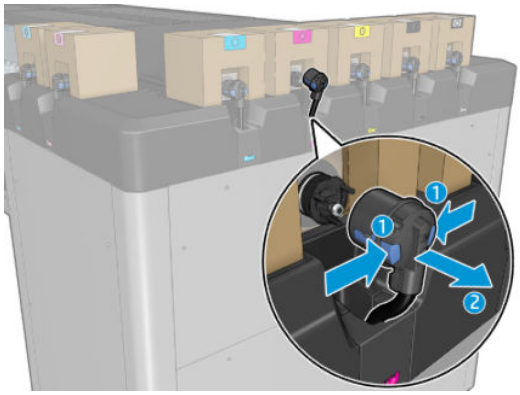
An ink cartridge should be removed and replaced when it is empty or past its expiry date. An empty cartridge is indicated in the Internal Print Server and by an orange blinking light beside the cartridge itself. You may also decide to remove a cartridge if it contains little ink and you want to provide for a long period of unattended printing.

The printer can continue printing without any ink cartridges for at least 10 minutes, depending on the print mode and the job being printed. Therefore, cartridges can be replaced while printing continues. A functional ink cartridge is required in order to start a new job.

1. Go to the cartridge that you intend to remove. The cartridges are arranged as shown below.



2. Disconnect the cartridge connector by pressing the tabs on each side of it and pulling it gently away from the cartridge.



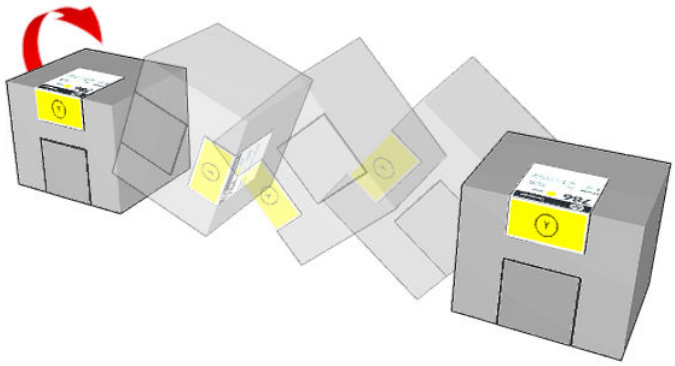
3. Remove the empty cartridge from the printer.

NOTE: Some residual ink can be expected in the cartridge, ranging from 2% to 5% of the original content.

Insert an ink cartridge

NOTE: The ink cartridge is supplied in an insulating bag; do not open it until you are ready to use the cartridge.

1. Check that the new cartridge is of the correct color.
2. Place the cartridge on a flat surface and turn it four times (rotating it through 360 degrees) as indicated on the label, to ensure that the ink is well mixed before use.

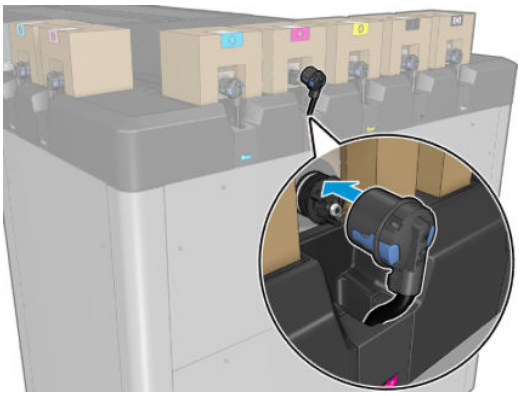


3. Tear off the square and fold it inside the handle as illustrated.
4. Put the new cartridge into its correct place on the printer.

TIP: Use both hands: the cartridge is quite heavy.

5. Check that the rubber part around the needle in the cartridge connector is clean. Clean gently if necessary.

6. Connect the cartridge connector to the cartridge.



NOTE: The cartridge connectors will refuse connection to the wrong type or color of cartridge. If you cannot connect the connector easily to the cartridge, check that you have the correct cartridge.

7. Ensure that the tabs on each side of the cartridge connector are opened but in place, showing successful connection. You will hear a click.

8. A few seconds after you have connected the cartridge, the green LED should be lit. If it is not lit after 10 seconds, reconnect the cartridge. The LED will turn red if the cartridge is expired or not valid; see the Internal Print Server for further details and corrective action.

Although it is possible to use non-HP ink cartridges, this choice has several serious disadvantages. It may not be possible to determine with enough accuracy the ink level or status of used, refilled, or counterfeit ink cartridges. Any service or repair required as a result is not covered under the warranty. System ink flushing, color calibration, and printhead alignment are recommended. If you experience print-quality problems, HP recommends changing to Original HP inks.

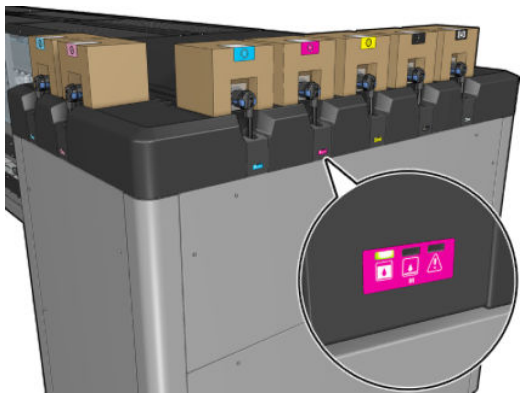
Maintain the ink cartridges

During the normal lifetime of a cartridge, no specific maintenance is required. However, in order to maintain the best print quality, replace a cartridge when it reaches its expiration date. An alert notifies you when any cartridge reaches its expiration date.

You can also check a cartridge's expiration date at any time: see Printer status and alerts on page 25.

Check the status of the ink cartridges

The Internal Print Server provides information about the status of the ink cartridges. Additional information can be obtained from the status lights in front of each ink cartridge (on the left side).



- Green steady light: no problems
- Green slowly blinking light: cartridge in use, do not touch
- Orange blinking light: cartridge is empty

- Red steady light: there is a problem, check the Internal Print Server for more information
- All lights off: no cartridge, cartridge not connected, or unknown problem

The level of ink remaining in each color is displayed at the top right of the Internal Print Server's main screen. You can see more details of ink cartridge and printhead status by selecting **Information** > **Supplies**.

NOTE: The ink level estimates are not guaranteed to be accurate.

NOTE: If the warranty status is **See warranty note**, this indicates that expired ink is being used. If the warranty status is **Out of warranty**, this indicates that non-HP ink is being used. See the limited warranty document provided with your printer for details of the warranty implications.

Misuse of ink cartridges

Consequences of using Expired ink:

- The ink delivery system of the color is marked as using expired ink.
- Affected printheads are immediately marked as using expired ink and lose their warranty. Warranty status becomes **See Warranty note**. As the printhead information is **write once only**, the status of the printhead cannot be reverted.
- Ink cartridge is marked as **Expired** and considered as used.

Recovery from expired ink usage

1. Remove the expired ink cartridge and replace it with a new one (non-expired).
2. Keep using the same printheads until 9 liters of non-expired ink are used for the ink color marked as expired. If you insert a new printhead, it will be marked as using expired ink because the ink delivery system is marked as having expired ink (the following IPS warning message will be displayed):

   “Using expired ink will invalidate the printhead warranty. Press YES to continue or NO to cancel inserting the new printhead and maintain the warranty of the printhead.”
3. After consuming 9 liters of non-expired ink, the ink delivery system of the respective color recovers and is marked as using valid HP ink. The user can now proceed with printhead replacement.

IMPORTANT: 9 liters of non-expired ink must be consumed in the affected color in order to completely recover from the expired ink state.

Consequences of using non-HP ink

The ink delivery system of the color is marked as using non-HP ink.

- The printhead is immediately marked as using non-HP ink and the printhead loses its warranty. Warranty status becomes **See Warranty note**. As the printhead information is **write once only**, the status of the printhead cannot be reverted.
- Ink supply marked as **Non-HP** and considered as used.
- The printer enters **Safe Mode** and the drying lamps are turned OFF with a direct impact on print quality.

Recovery from non-HP ink usage

1. Remove the non-HP ink cartridge and replace it with a new one (original HP cartridge).
2. Keep using the same printheads until 9 liters of original HP ink are used for the ink color marked as non-HP. If you insert a new printhead, it will be marked as using non-HP ink because the ink delivery system is marked as having non-HP ink (the following IPS warning message will be displayed):

   “Using non-HP ink will invalidate the printhead warranty. Press YES to continue or NO to cancel inserting the new printhead and maintain the warranty of the printhead.”
3. After consuming 9 liters of original HP ink, the ink delivery system of the respective color recovers and is marked as using original HP ink. The user can now proceed with printhead replacement.

IMPORTANT: 9 liters of original HP ink must be consumed in the affected color in order to completely recover from the non-HP ink usage state.

Printheads

Remove a printhead

WARNING! This operation is limited to trained personnel only!

NOTE: During the installation of the printer, the designated personnel received training for safe operation and maintenance of the printer. It is not allowed to use the printer without this training.

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Light radiation hazard

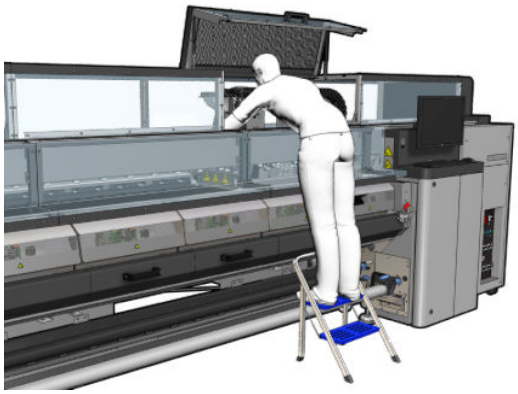
Electric shock hazard

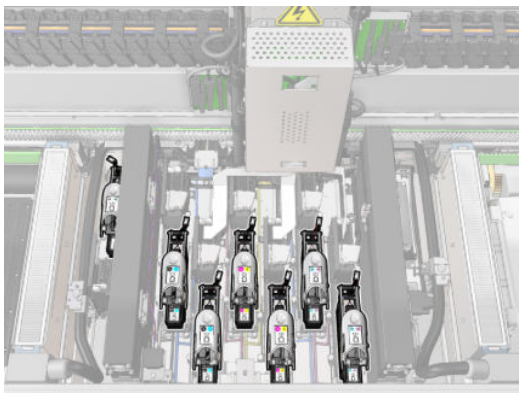
For more safety information, see Safety precautions on page 2

If a printhead develops an electrical fault or overheats, the Internal Print Server will indicate that it should be reseated or replaced. In addition, you may wish to replace a printhead if its warranty has expired or if you feel that its performance is not adequate.

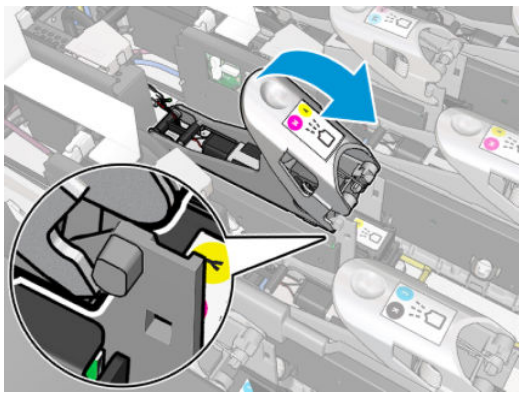
1. Ensure that the printer is not trying to print: stop the job queue.
2. In the Internal Print Server, select **Printer** > **Replace printheads**.
3. If the service position window is open, you are asked to close it.

4. The carriage moves automatically. Open the service position window to access it.

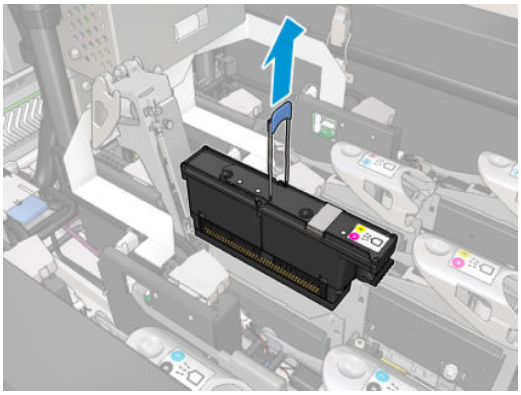




5. The Internal Print Server tells you which printhead to remove. Release the latch that secures the printhead, and lift it.



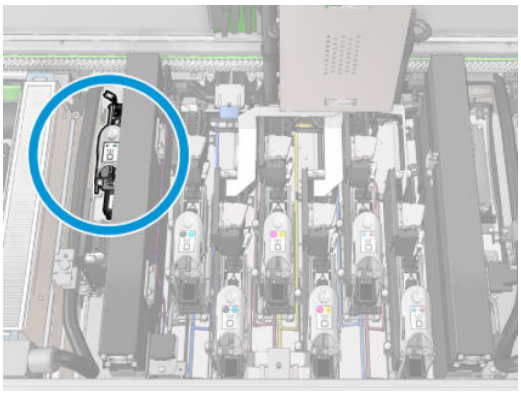
6. Lift the handle provided with the printhead, and pull the handle gently upwards to disconnect the printhead from the carriage.



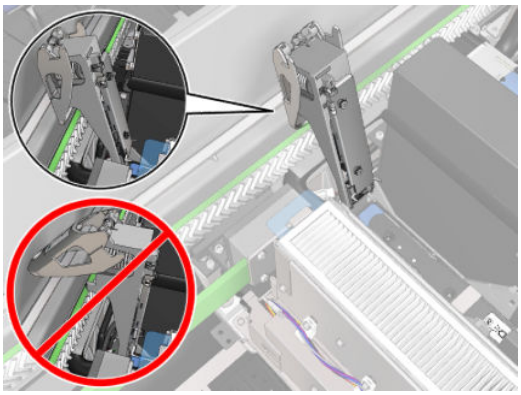
7. Remove the printhead from the printer. The original packaging materials can be used to discard the old printhead or in case there is a need to return it to HP.

When removing the optimizer printhead

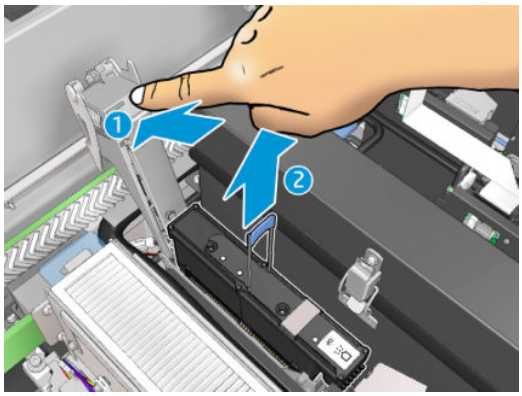
1. Locate the optimizer printhead.



2. Push the latch handle against the rear beam as much as possible.



3. Tilt the printhead a little before taking it completely out of its pocket.



4. If the printhead is to be reused, protect it using its orange sealing cap.

CAUTION: Make sure each printhead uses its own cap and not the cap for some other printhead. This is especially important with the optimizer printhead caps as there is a high risk of nozzle damage if they are mixed with the color printheads and vice versa. The optimizer caps are labeled as shown below.

NOTE: Remember which printhead came from which slot; the printer will report an error if you later replace a printhead in a different slot.

Insert a printhead

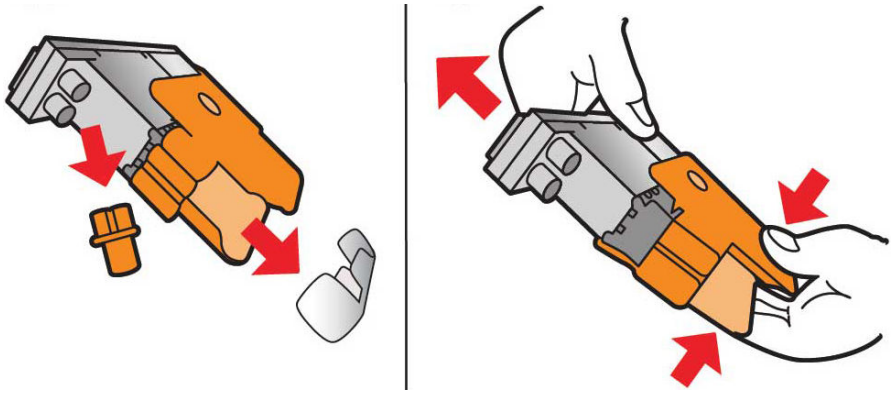
1. Check that the new printhead is of the correct colors.

NOTE: Each printhead has a unique shape and cannot be inserted into the wrong slot. Do not try to force it.

2. Shake the printhead according to the instructions on the packaging.

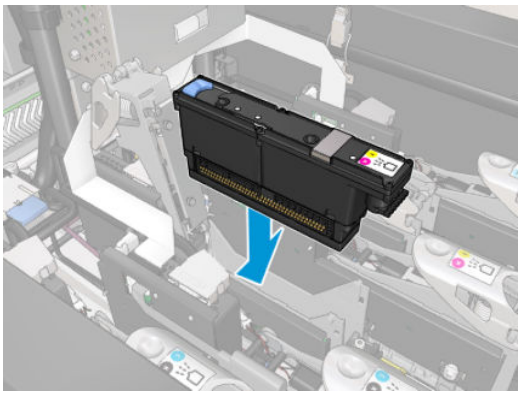
3. Remove its packaging and protective caps.

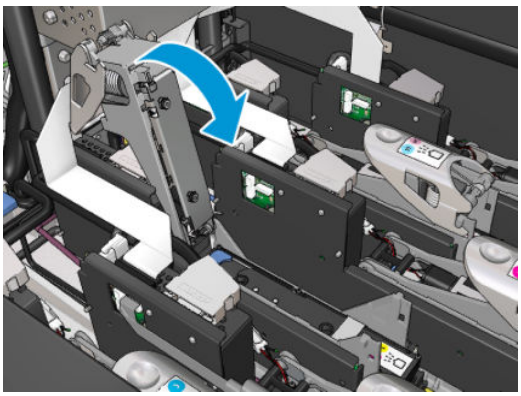
TIP: You may wish to keep the protective caps for later reuse, in case you ever want to remove a printhead from the printer.



4. Put the new printhead into its correct place in the printer, and lower its handle.

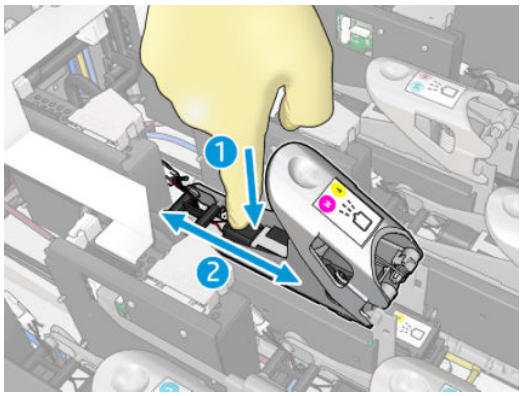
CAUTION: Insert the printhead slowly. It is recommended to insert it as vertically as possible without hitting any parts of the carriage or the sides of the slot. It may be damaged if inserted too fast, or if it hits something.



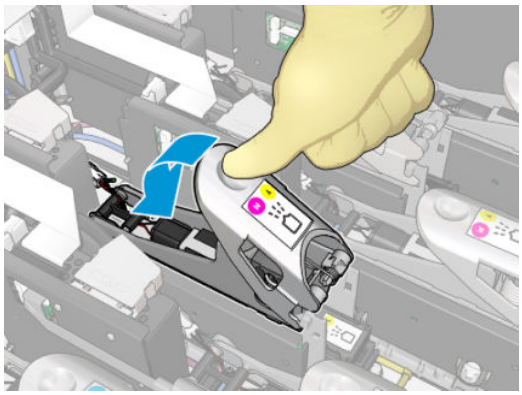


5. Lower the latch until it lies on the printhead but do not close it yet.

6. Press with two fingers on the primer to ensure the primer ports are well inserted.



7. Secure the latch.

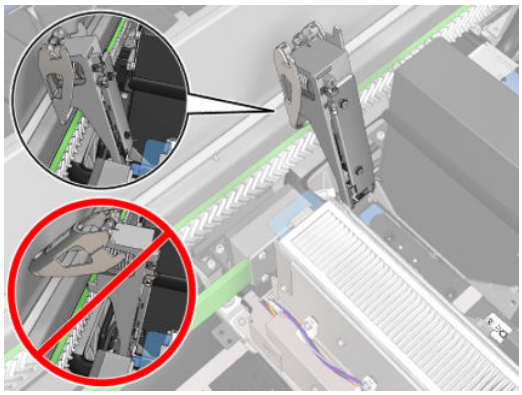


8. Close the service position window and press **OK**. The printer checks that the new printhead has been correctly inserted (the status is shown in the Internal Print Server), and recommends printhead alignment, which is optional.

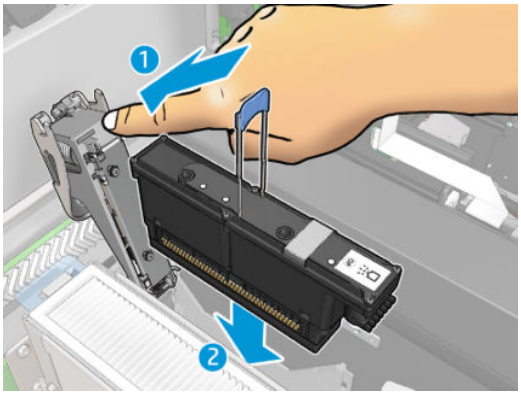
9. Restart the job queue.

When inserting the optimizer printhead

1. Push the latch handle against the rear beam as much as possible.



2. Insert the printhead at an angle and below the two little latches shown below. Rotate it until it is vertical and press it to insert.



3. Press on the primer with two fingers before securing the latch to ensure proper connection.

Maintain the printheads

You should perform an automatic printhead check and clean every morning, before starting to print. While the printer is idle, the components of the ink can precipitate inside the printhead and block the nozzles. The check and clean process pre-cleans the printheads, checks them with the drop detectors, and cleans them further if necessary. It takes between 10 and 30 minutes, depending on the condition of the printheads.

To maintain the best print quality, replace a printhead when it reaches its expiration date. An alert notifies you when any printhead reaches its expiration date.

You can also check a printhead's expiration date at any time: see Printer status and alerts on page 25.

Printheads should be aligned from time to time: see Align the printheads on page 172.

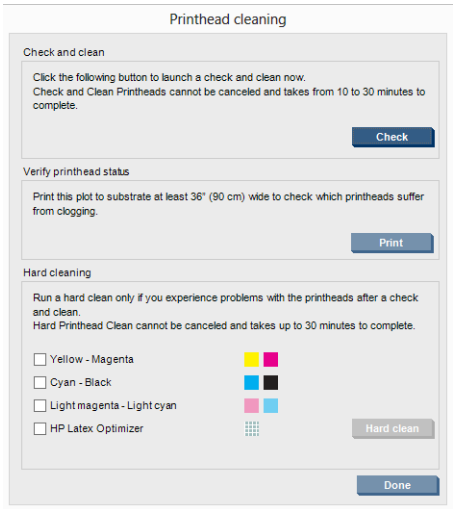
TIP: If you remove an unexpired printhead from the printer, planning to reuse it later, the best way to protect it is by replacing the protective caps that you removed before inserting it into the printer.

CAUTION: It is important to use the HP Latex Optimizer sealing cap for the HP Latex Optimizer printhead.

Check and clean the printheads

This procedure should be followed daily.

1. Go to the Internal Print Server and select **Printer** > **Printhead cleaning**.



2. Press the **Check** button to perform routine cleaning automatically.

Safe mode

Under certain conditions, including printer operation outside of environmental specifications, and when a used, refilled, or counterfeit ink cartridge has been detected, the printer will operate in 'safe' mode. HP is unable to warrant the performance of the printing system when operated outside of environmental specifications or when a used, refilled, or counterfeit ink cartridge is installed. Safe mode is designed to protect the printer and the printheads from damage due to unexpected conditions, and is in operation when the icon is displayed on the printer's computer. For optimal performance, use Original HP ink cartridges. HP Latex printing systems, including Original HP inks and printheads, are designed and engineered together to provide uncompromising print quality, consistency, performance, durability, and value—with every print.

Replace the printhead cleaning roll, filters, and spittoon

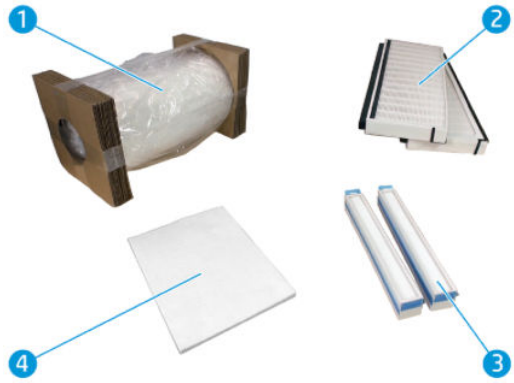
WARNING! This operation is limited to trained personnel only!

NOTE: During the installation of the printer, the designated personnel received training for safe operation and maintenance of the printer. It is not allowed to use the printer without this training.

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

When the cleaning roll reaches its end, it must be replaced, together with the aerosol filters, drying filters, and left spittoon. All these parts are supplied together with the HP 881 Latex Cleaning Roll.



1. Printhead cleaning roll
2. Aerosol filters
3. Drying filters
4. Left spittoon

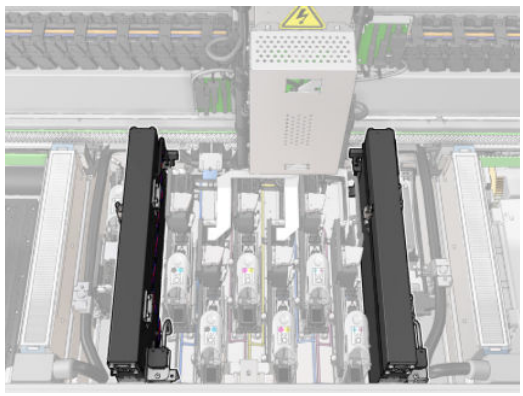
The Internal Print Server provides instructions for all replacements. Go to the Internal Print Server and select **Printer** > **Replace cleaner roll**. A wizard appears summarizing all the operations to be done:

- Replace the aerosol filters.
- Replace the drying filters.
- Replace the left spittoon.
- Replace the printhead cleaning roll.

TIP: You are recommended to wear gloves.

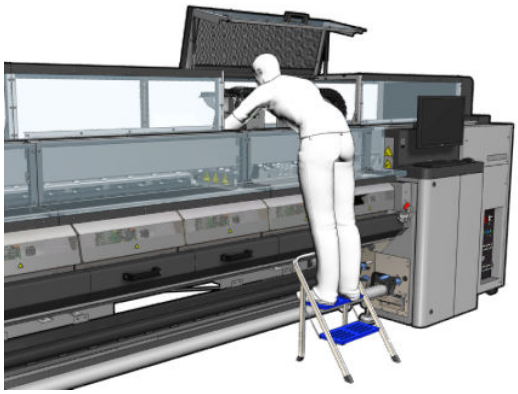
Click **Next** at the bottom of the wizard window to start the replacement of the aerosol filters.

Replace the aerosol filters

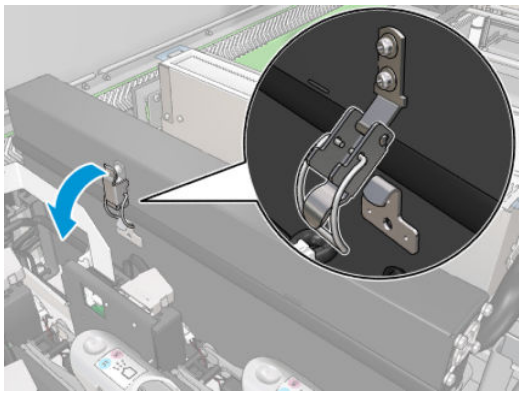


1. Ensure that the printer is not printing.
2. Ensure that all windows, covers, and doors are closed and remain in their original position.

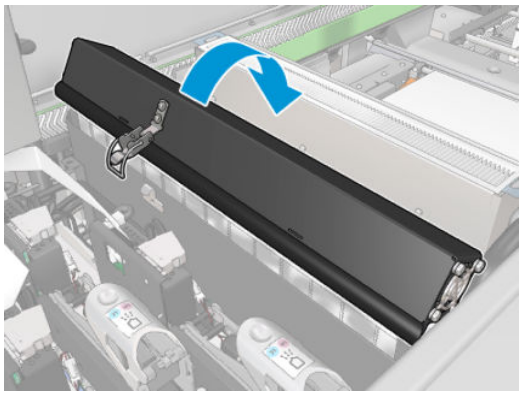
3. Open the service position window.



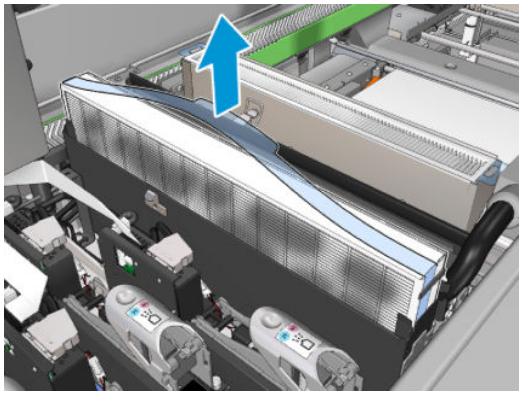
4. Open one latch on the left side of each aerosol filter module.



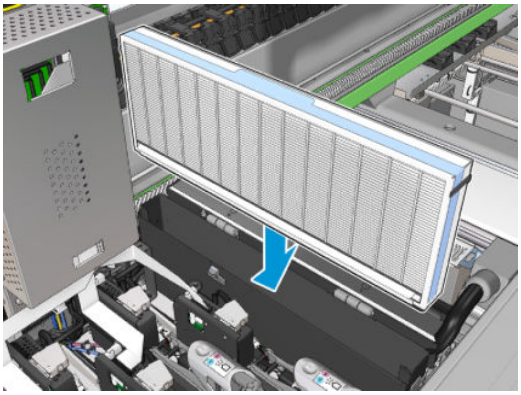
5. Open the lid of each filter.

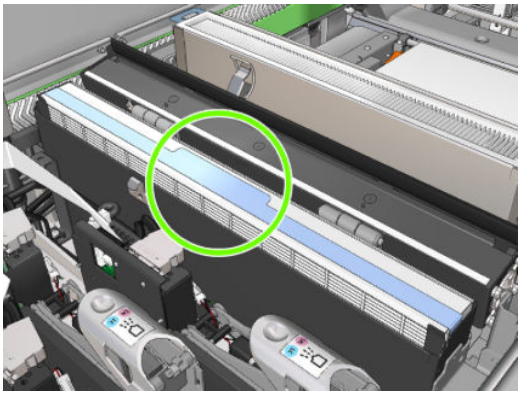


6. Remove both aerosol filters, using their handles.



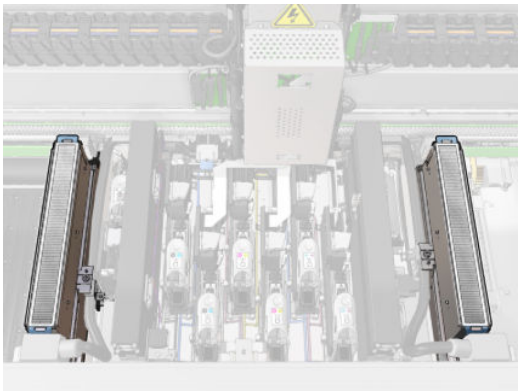
7. Insert the two new filters. There is only one way to insert them that works. If you feel resistance, try to insert the filter the other way round.



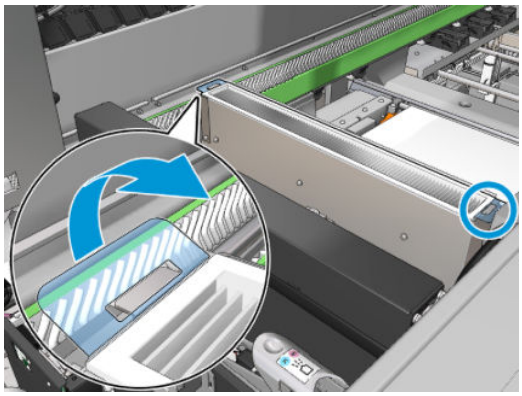


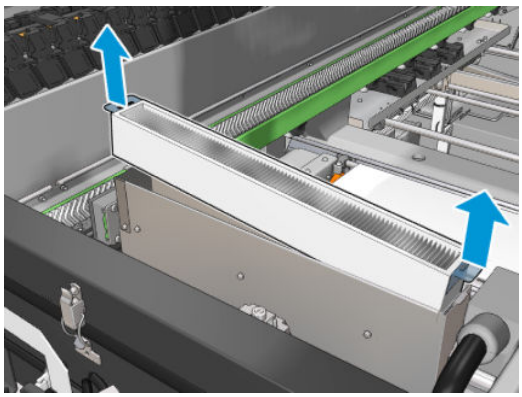
8. Close the lids.
9. Close the latches.
10. Click **Next** at the bottom of the wizard window to start the replacement of the drying filters.

Replace the drying filters

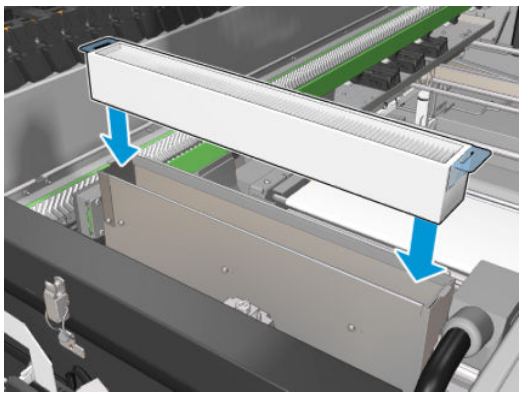


1. Handling them by the plastic flaps, remove the two drying filters from each side of the carriage.

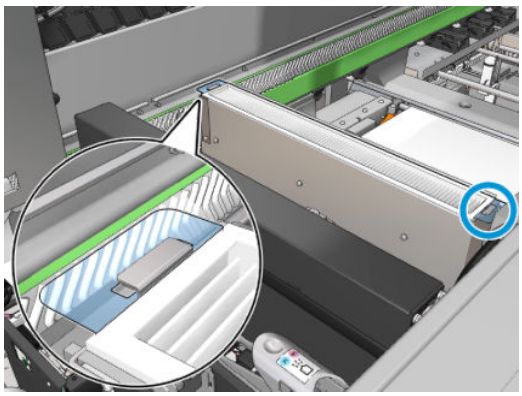




2. Insert the new filters.



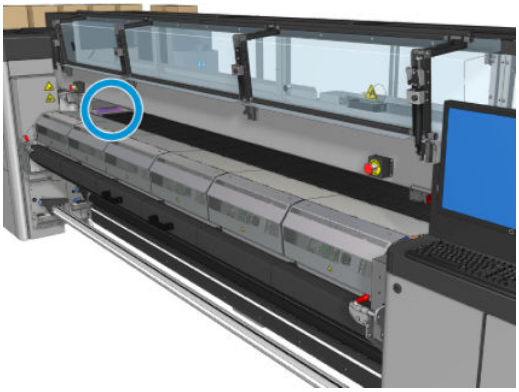
3. Attach the two plastic flaps to each filter.



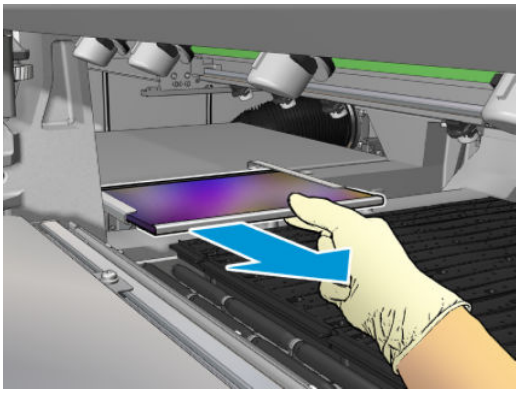
4. Close the service position window.
5. Click **Next** at the bottom of the wizard window to start the replacement of the left spittoon.

Replace the left spittoon

1. Open the front door.
2. Locate the left spittoon at the left side of the print area.



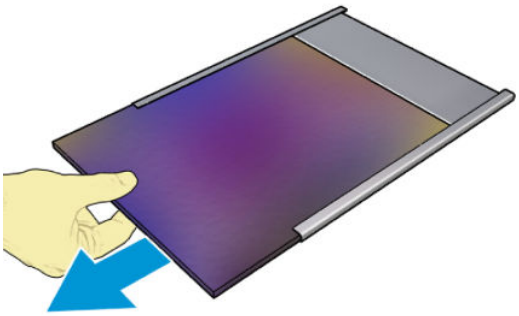
3. Slide out the left spittoon foam with its frame.



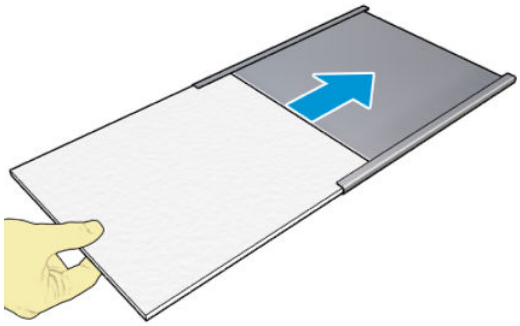
IMPORTANT: **HP Latex 3000/3600 Printers only:** Depending on the serial number of your printer, there is no need to put the foam on the spittoon frame because the housing has been designed to insert the foam directly inside.

Call your HP representative for more information.

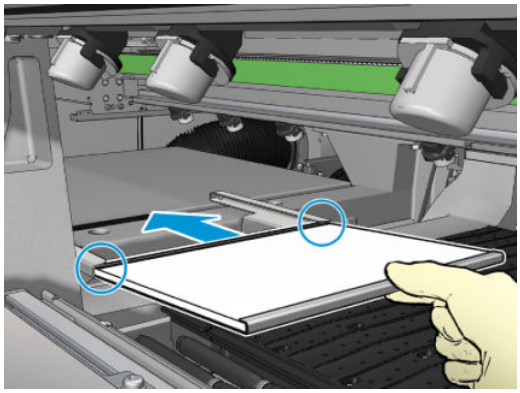
4. Remove the foam from the frame.

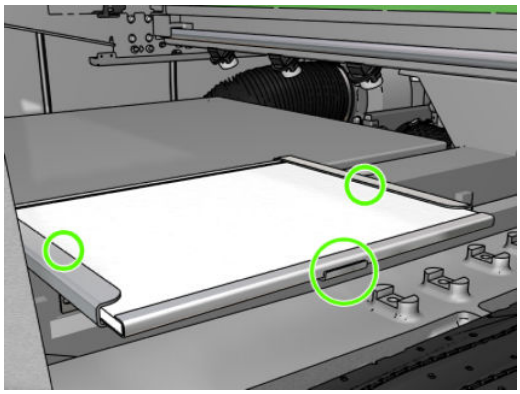


5. Insert the new foam into the frame, making sure it is flat, and without wrinkles.



6. Insert the frame into place in the left spittoon housing. Ensure that it is flat.



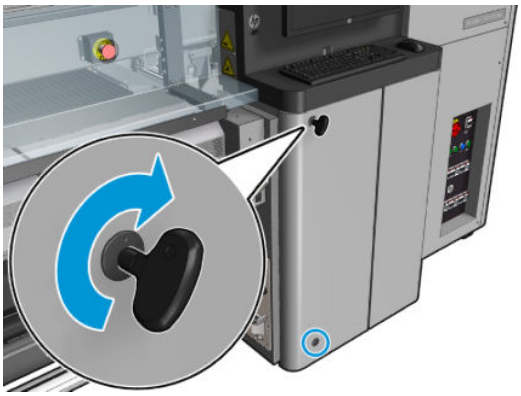


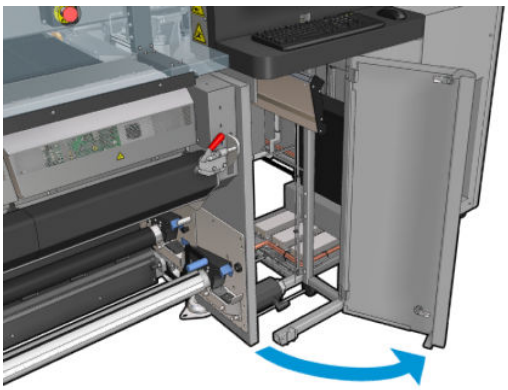
7. Click **Next** at the bottom of the wizard window to start the replacement of the printhead cleaning roll.

Replace the printhead cleaning roll

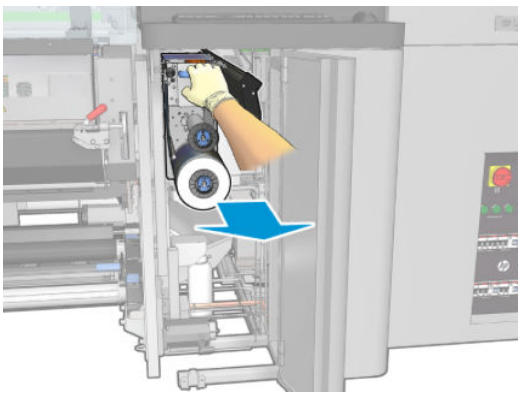
1. Any unused portion of the roll is wound on to the takeup roll at this time. You will be warned if the unused portion is more than 5% of the whole roll.

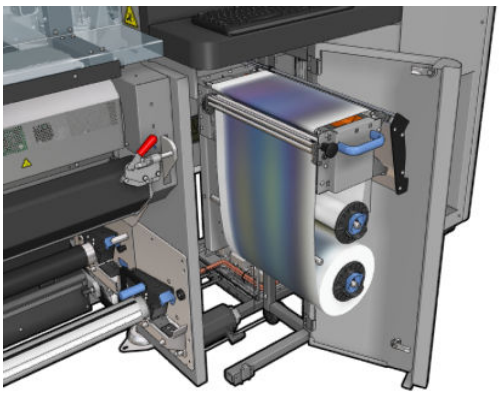
2. In order to replace the printhead cleaning roll, unlock and open the door on the front right of the printer.



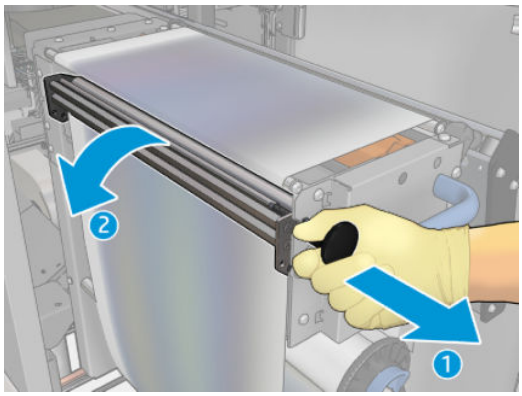


3. Grip the handle and pull the whole printhead cleaning roll assembly out through the door.

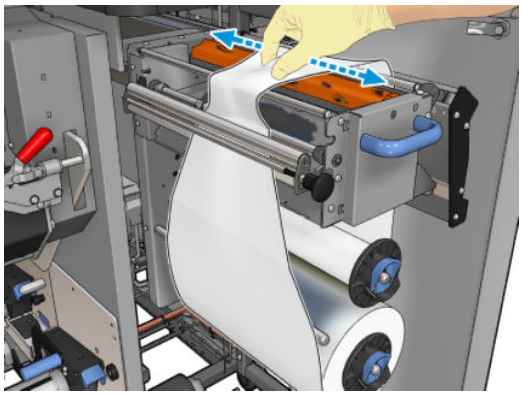




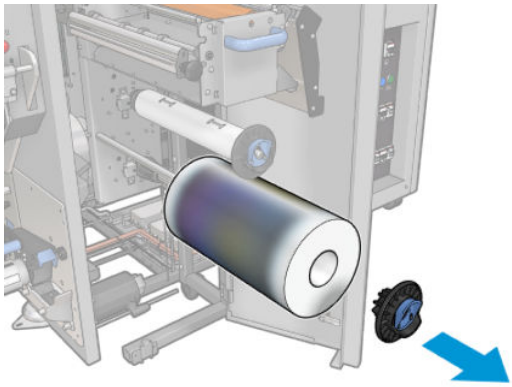
4. Pull the black knob on the upper left and move the pinch system aside.

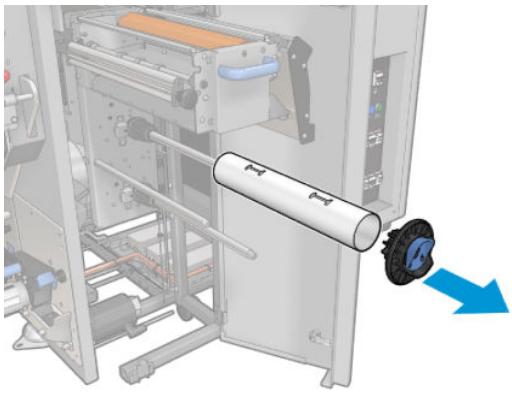


5. Clean the rubber blade with the end of the roll.

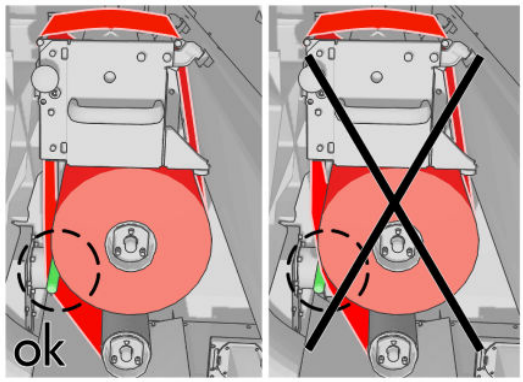


6. Slide both rolls off their axles and dispose of the roll with the used cleaning material according to the instructions provided with the new roll. Also consult your local authorities to determine the correct manner in which to dispose of wastes. Keep the empty core to use as a takeup core.

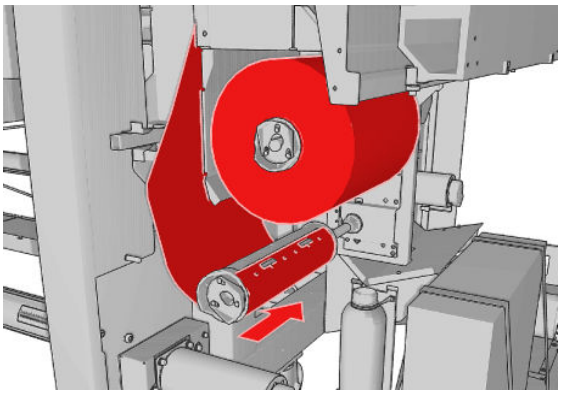




7. Slide the new roll onto the upper axle.
8. Insert the upper axle, placing the end cap on the side, and slide it all together until you hear a click.
9. Pass the leading edge of the roll over the upper rollers, and thread the cleaning material through the rollers on the left.



10. There is a strip of polyester film on the leading edge of the cleaning material. Insert it into the hole in the takeup core, which takes hold of it.
11. Slide the takeup core onto the lower axle.

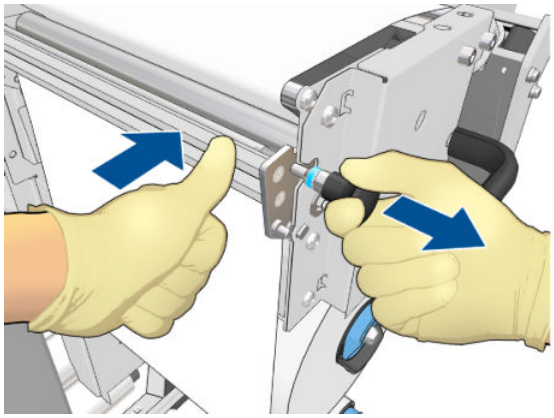


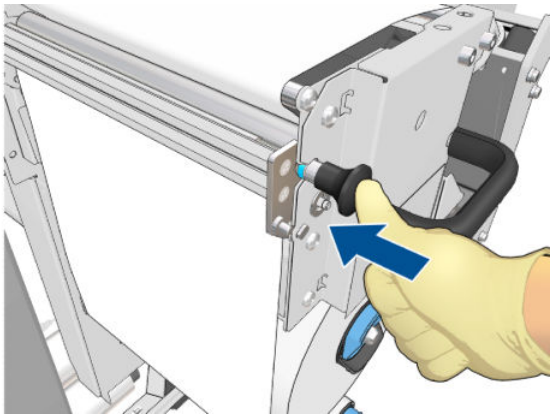
NOTE: If the cleaner roll has not been properly installed, you may see a message about clearing a printhead cleaning roll jam. Pull the whole assembly out, wind a little of the roll forward, then slide it back in again. The printer will check the roll again.

NOTE: Do not cut the cleaning material in order to reattach it to the lower roller. An unexpected roll radius can produce errors on the cleaning roll system.

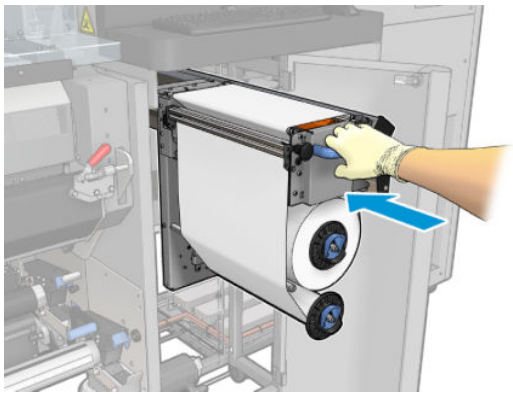
12. Restore the pinch system by moving the black knob back into place. If you feel resistance because the cleaning roll is too tight, turn the roll slightly counter-clockwise.

TIP: There is a green ring on the far side of the black knob, which should not be visible if the knob has been correctly placed. If it is visible, try again.





13. Grip the handle and push the whole printhead cleaning roll assembly back into the printer. Ensure that you push it as far as it will go.



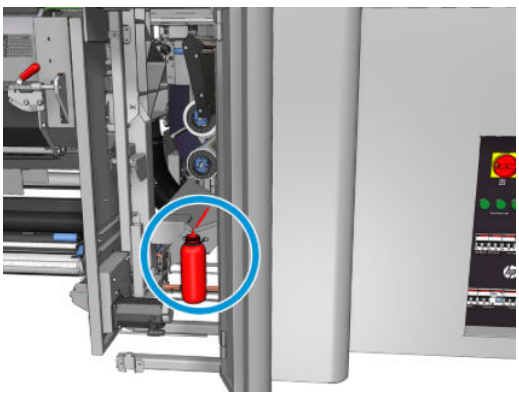
14. Close and lock the door.

15. Click **Finish** in the wizard window.

The printhead cleaning roll length tracking is now reset to zero.

NOTE: If you tamper with half-used rolls, the usage shown in the Internal Print Server will not be accurate.

Do not empty or remove the drain container: this is done by a service engineer during preventive maintenance.



7 Printer calibration

Align the printheads

Precise alignment between printheads is essential for color accuracy, smooth color transitions, and sharp edges in graphical elements.

NOTE: You are recommended to align the printheads only when using a single-roll-to-roll configuration. In particular, printhead alignment with dual rolls is not recommended.

Printhead alignment is recommended in these situations:

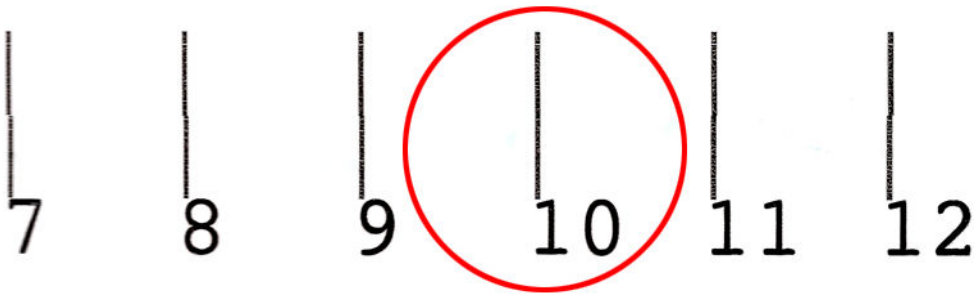
- After replacing or reseating a printhead.
- When a new substrate is loaded and the printhead-to-paper spacing changes significantly.
- When there are print-quality problems that could be caused by printhead misalignment.

To align the printheads, go to the Internal Print Server and select **Printer** > **Printhead alignment**.

Printhead alignment can be affected by wrinkles or other substrate deformations in the print zone. Therefore, if the printer has recently been printing, you should wait for some minutes while it cools down. Just in case, the printer advances the substrate before aligning the printheads.

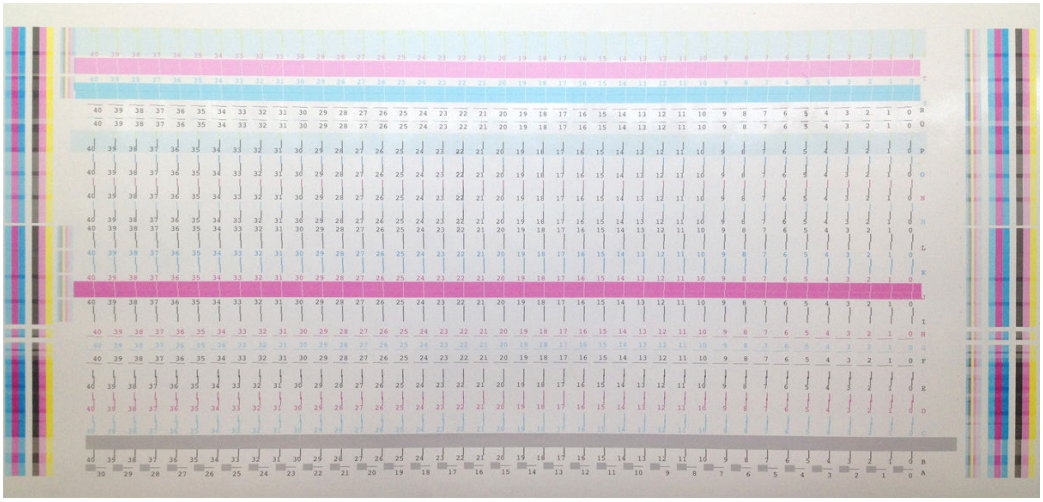
Alignment procedure

The printer prints 21 series of patterns, each one named with a letter (A–U). You must choose the best result from each of the series (for example, number 10 in the picture below).

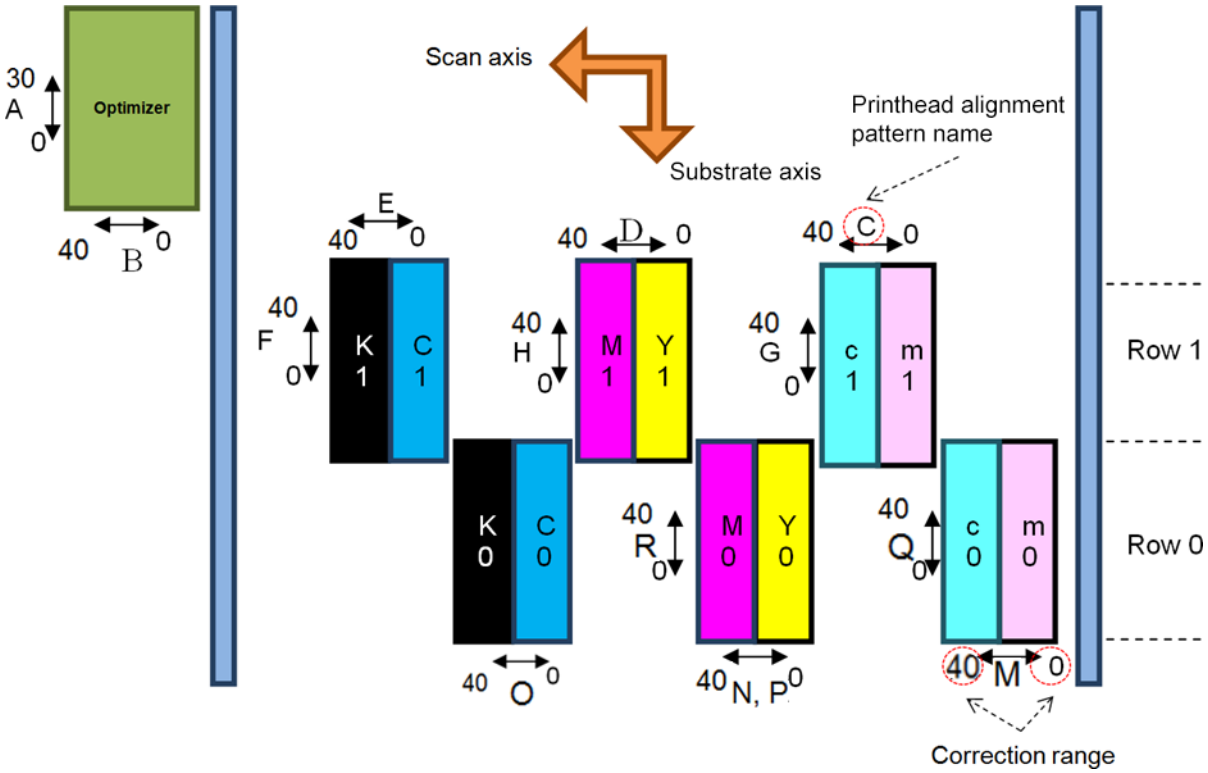


The alignment procedure includes both the colored printheads and the optimizer printhead, and takes about 10 minutes. It consumes printed substrate of 84 cm width x 37 cm height (33.1 × 14.6 in).

NOTE: Depending on the firmware version, this pattern could be slightly different.



The picture below shows the distribution of printheads in the carriage. It also shows the correspondence between printhead and patterns, with guidance on the direction of the corrections (0–40) applied.



The following table summarizes the correction type controlled by each pattern.

Pattern	Affected printheads	Correction type
A	Optimizer	Substrate axis
B	Optimizer	Scan axis
C	c1, m1	Scan axis
D	M1, Y1	Scan axis
E	K1, C1	Scan axis
F	K1, C1	Substrate axis
G	c1, m1	Substrate axis
H	M1, Y1	Substrate axis

Pattern	Affected printheads	Correction type
I	K	Scan axis, bidirectional
J	M	Scan axis, bidirectional
K	C	Scan axis, bidirectional
L	C, M, Y, K, c, m, opt	Scan axis, bidirectional, 1200 dpi
M	c0, m0	Scan axis
N	M0	Scan axis
O	C0	Scan axis
P	Y0	Scan axis
Q	c0, m0	Substrate axis
R	M0, Y0	Substrate axis
S	c	Scan axis, bidirectional
T	m	Scan axis, bidirectional
U	Y	Scan axis, bidirectional

Take this into account when trying to compensate for any misalignment observed in the printhead alignment diagnostics plot.

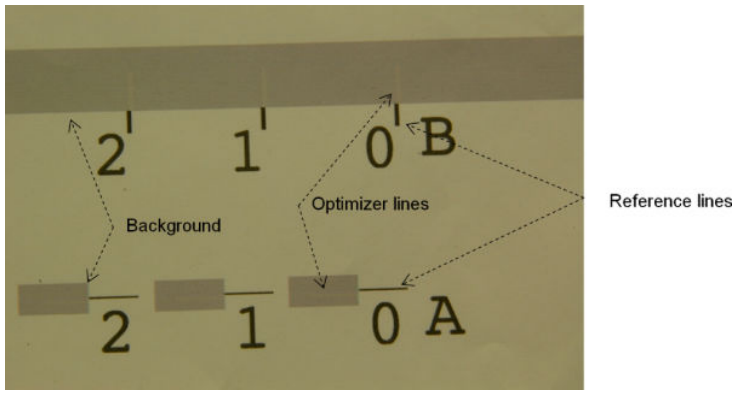
The central correction is 20 (15 for A), being the default value for each pattern in the Internal Print Server.

Aligning the optimizer printhead

The optimizer ink is transparent, so it is not easy to detect visually. To make it easier, a background of composite ink has been added on top of it. It highlights the optimizer, making it visible most of the time.

The patterns A and B are intended to align the optimizer printhead to the colored printheads in both directions (scan axis and substrate axis).

The image below shows the background with the optimizer lines on top of it.



Possible difficulties with printhead alignment

The optimizer ink is invisible or hardly visible

The composite background to highlight the optimizer ink works for most substrates, but occasionally, with some substrates, there is not enough contrast to highlight the optimizer ink. In these cases there are two possible solutions:

- Load a different substrate with more contrast to perform the alignment.
- Insert an intermediate correction (A=15, B=20), assuming the optimizer is well aligned. In this case, take a close look afterwards for associated defects, such as bleed, halo, or wicking (see Bleed, halo, wicking on page 392).

Another possibility is that the optimizer printhead or the colored printheads may have too many clogged nozzles, resulting in a poor background area fill, which makes it difficult to detect the optimizer bars. In this case, see Check and clean the printheads on page 160.

The optimizer printhead is still misaligned in the substrate axis after alignment

The optimizer printhead is staggered and there is a gap between it and the other printheads, so in the patterns A and B a substrate advance is needed to align it to the background and the reference black. If the substrate advance is inaccurate, the optimizer correction for the substrate axis (pattern A) may not be valid. You may detect some bleed in the boundaries between colors in the substrate axis direction, usually when passing from high ink density areas to lower ink density areas. In this case, ensure that the substrate advance is accurate (see Substrate-advance compensation on page 181) before performing alignment.

A pattern shows more than one good correction

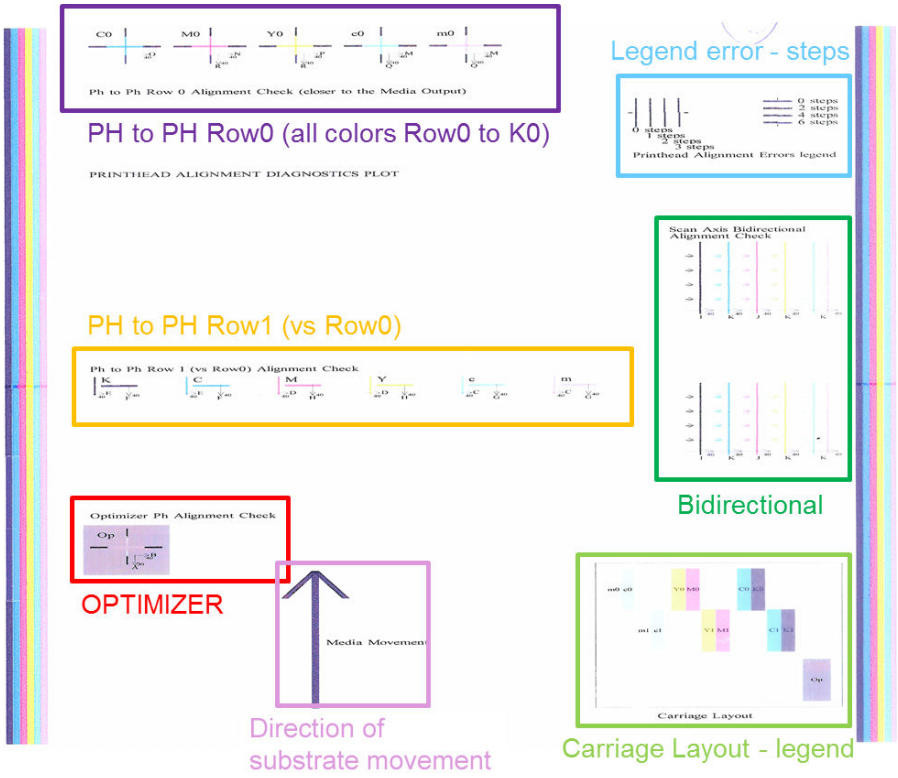
Occasionally you may find that a pattern has two or more possible good corrections, separated by two or more steps. This could be due to wrinkles on the substrate that change the printhead-to-paper spacing along the scan axis. To avoid this, ensure that the substrate is cold before starting the alignment, and advance it at least 70 cm to ensure that it is not deformed by the curing of the previous job.

Printhead alignment diagnostics plot

The printer offers a printhead alignment diagnostics plot, to assess the quality of the current printhead alignment. To print it, in the Internal Print Server select **Printer** > **Printhead alignment** > **Verify alignment** > **Print**.

NOTE: You can use the diagnostics plot to check printhead alignment, then fine-tune the values by following the instructions on the diagnostics plot. Also, if the substrate is similar to one that you already use, you can print only the diagnostic plot (much faster than printhead alignment) and fine-tune the values in the Internal Print Server.

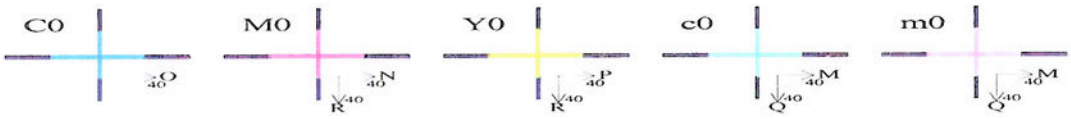
The next picture shows an example of the diagnostics plot. Each part is described following the terminology of the manual alignment. Row0 is the row of printheads closer to the substrate output, while Row1 is the row of printheads closer to the substrate input. In the same plot there is an area in which the carriage layout is described with the appropriate labels, just for reference.



Zone 1: Printhead Row0 alignment check (closer to the substrate output)

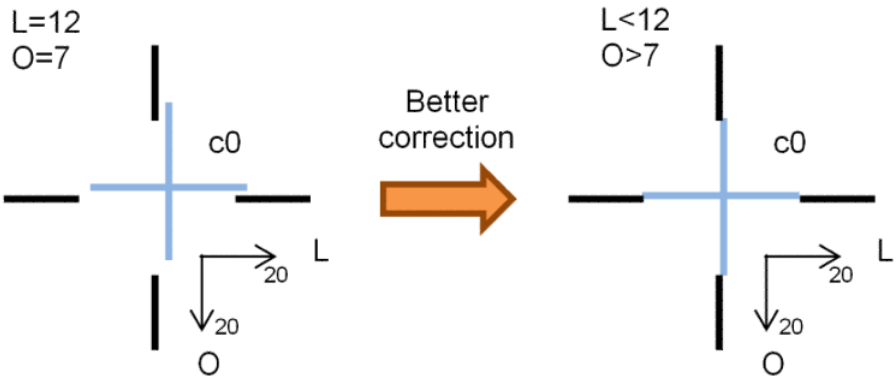
This area shows the printhead-to-printhead alignment for the first row of color printheads. Each printhead has crosses, where it is compared to a reference printhead. In this case the black printhead has been chosen as a reference.

The colors are labeled C0, M0, Y0, c0, m0, where the '0' specifies that it is the first row of printheads. In each case, the inner cross should be aligned with the outer cross.



Ph to Ph Row 0 Alignment Check (closer to the Media Output)

In case of misalignment the arrows indicate the pattern of the manual alignment that will correct the misalignment. Also, the '20' label indicates the direction towards where the line will be moved when a '20' value is applied. For example, imagine that in the manual alignment the chosen value for L is 12, and the chosen value for O is 7. Imagine also a misplacement in the c0:



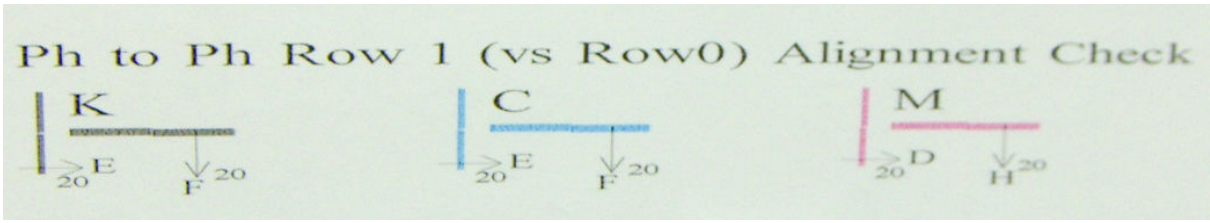
- **Scan axis misplacement:** The c0 line is displaced to the right. Since the '20' arrow points to the right, if you apply values bigger than your actual value it will be moved further to the right. But, since the vertical c0 line

is displaced to the right, you need to move it to the left. Therefore, a value lower than your actual selection (L=12) is needed.

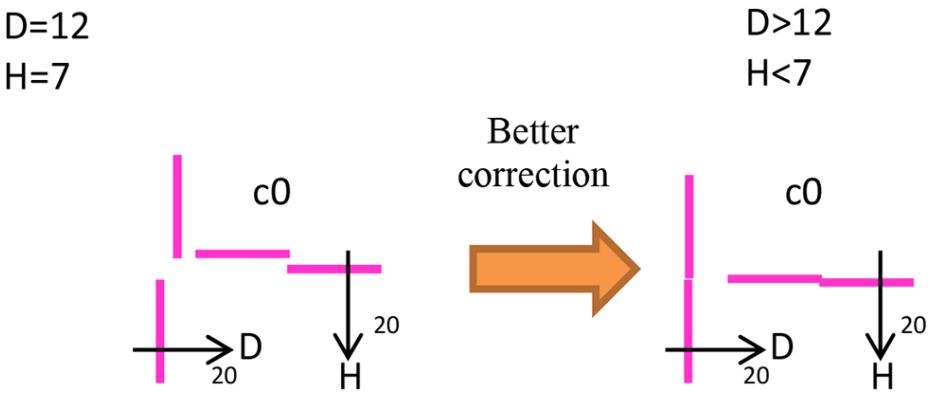
- **Substrate axis misplacement:** The c0 line is displaced to the top. Since the '20' arrow points to the bottom, if you apply values bigger than your actual value it will be moved to the bottom. This is just what you want, so a value higher than the actual selection (0=7) is needed.

Zone 2: Printhead to printhead Row1 (versus Row0) alignment check

This area shows the printhead-to-printhead alignment for the second row of color printheads. Each color is referenced to the same color in Row0. The alignment is correct if no discontinuity or step is detected in any direction.



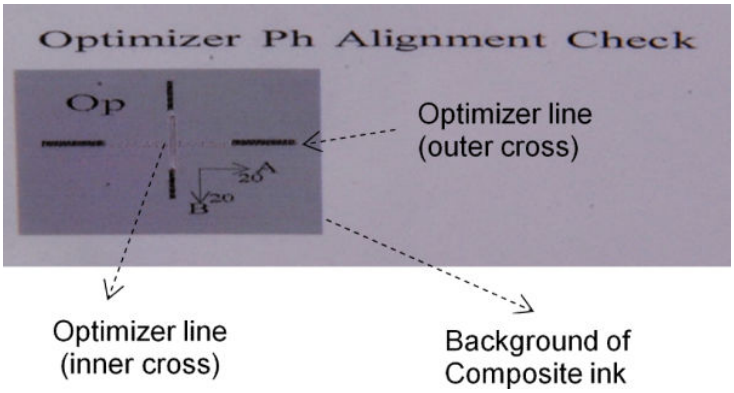
As in the description of the previous area, in case of misalignment the arrows indicate the pattern of the manual alignment that will correct the misalignment. Also, the '20' label indicates the direction in which the line will be moved if a '20' value is applied. For example, imagine that in the manual alignment the chosen value for D is 12, and the chosen value for H is 7. Imagine also a misplacement in the M:



As in the previous zone, increasing D and decreasing H will help to improve the results.

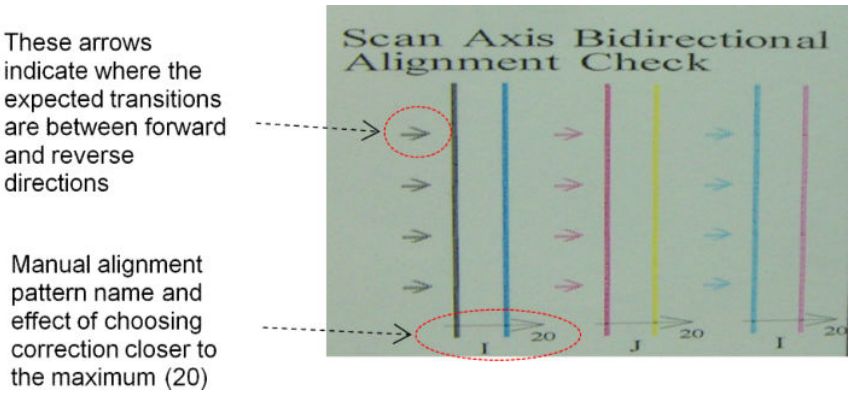
Zone 3: Optimizer printhead alignment check

This area shows the optimizer-to-color printhead alignment. The optimizer is referenced to the black ink. It works exactly the same as Zone 1. However, there is a background color that highlights the presence of the optimizer.

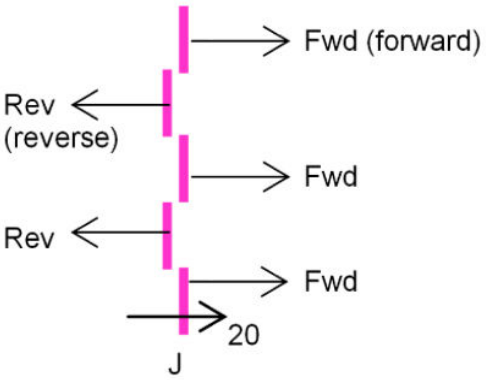


Zone 4: Scan-axis bidirectional alignment check

This area shows scan-axis bidirectional alignment between colors. As in the description of the previous areas, in case of misalignment the bottom arrows indicate the pattern of the manual alignment that will correct the misalignment (I, J patterns). Also, the '20' label indicates the direction in which the line will be moved if a '20' value is applied.

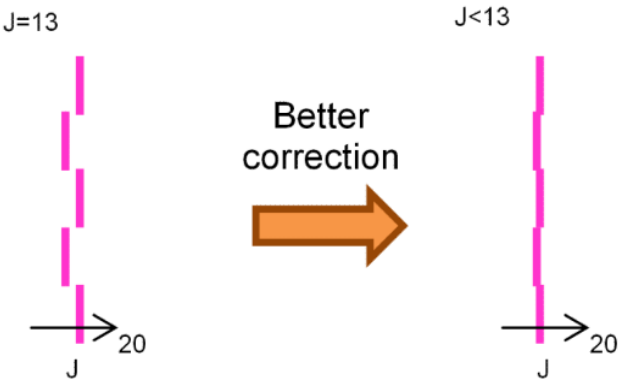


This pattern is formed by a series of vertical lines, printed unpaired as follows:



The correct bidirectional alignment has been found when the Fwd and Rev lines are perfectly aligned.

The following example shows a misalignment situation with an existing correction J=13, and how to correct it.



In this case, the diagram shows that we need to change the value corresponding to the J pattern. Also it indicates that the correction needs to be moved towards lower values, because the '20' value would move it in the wrong direction.

Color calibration

Color calibration enables your printer to produce consistent colors with a particular substrate type, even if printheads, ink cartridges, and environmental conditions change.

Color calibration sets the ink restriction and linearization, which varies with the drop weight of the printhead. This calibration has been designed to provide consistency as the printhead ages (drop-weight degradation) and from one printer to another. For example, to reach a maximum cyan density of 0.6, one printhead may require 3 drops while another one may require 3.5 drops (lower drop weight).

There are no factory-reference color-calibration values in the printer or within the presets: the first calibration for each substrate sets the color reference for future calibrations. The future calibrations will therefore try to match the colors of the first calibration. In this way you maintain consistency as the printhead ages.

Good nozzle health is important, and the printheads should also be as new as possible for best performance when you make the first calibration.

It is also important to have the printheads well aligned (see Align the printheads on page 172), and to make sure the substrate is advancing correctly (see Substrate-advance compensation on page 181), otherwise the color pattern may appear blurry or with slightly different colors.

To start color calibration from the Internal Print Server, select **Substrate** > **Color calibration**, then click the **Calibrate** button.

NOTE: Only non-porous substrates wider than 61 cm (24 in) can be calibrated. Porous substrates cannot be calibrated.

NOTE: Color calibration is not recommended when the carriage beam is in a higher position than normal.

The calibration process is fully automatic and can be performed unattended after you have loaded substrate of the type you wish to calibrate. The process takes about 15 minutes and consists of the following steps:

1. The color calibration test chart is printed, which contains patches of different densities of each ink used in your printer.

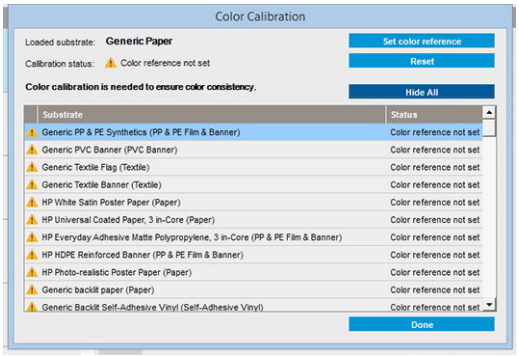
2. The test chart is scanned and color-measured using the embedded spectrophotometer. If the scan cannot be completed successfully, a message is displayed by the Internal Print Server; see Color calibration fails on page 407.

3. From the measurements made by the spectrophotometer, the printer calculates the necessary correction tables to apply to your print jobs for consistent color printing on that substrate type—except in the case of the first calibration, which sets the reference for later ones.

Calibration should be done in any of the following circumstances:

- Whenever a new substrate type is introduced that has not yet been calibrated: to set the reference.
- Whenever you notice excessive color differences between prints. Such color differences can be caused by aging and wear of the printheads, installing new printheads, changes in substrate characteristics between one roll and another, changing environmental conditions, and so on.

You can check the color calibration status of your substrates with the Internal Print Server: select **Substrate** > **Color calibration** > **Show all**.



- **Default:** Color reference not set.
- **Done:** Color reference set.
- **Obsolete:** Calibration obsolete.

Color calibration is based on the color measurement of printed color patches, using the embedded spectrophotometer. Some characteristics of substrates, such as surface roughness or transparency, may make reflective color measurement of some substrate types very inaccurate. Color calibration of these substrates may fail or produce unacceptable printing results.

TIP: If color calibration fails at the first attempt, it is worth trying again.

To delete the reference for a given substrate, so that you can create a new reference for that substrate, you must reset the color calibration. In the Internal Print Server, select **Substrate** > **Color calibration** > **Reset**.

You should calibrate a substrate type before creating its color profile; however, you can later recalibrate without needing to recreate the color profile.

Color consistency between different HP Latex 3000 printers

It is possible to print consistent colors on different HP Latex 3000 printers by exporting a calibrated substrate preset (see Substrate presets on page 102) from one calibrated printer to another. This process ensures that both printers use the same color references.

1. Create the reference for the first printer: do at least the first color calibration with the substrate in question.
2. Export the substrate preset from the first printer. The reference is also exported.
3. Import the substrate preset to the second printer.
4. Perform color calibration with the same substrate for the second printer, to make it consistent with the reference imported with the preset.

Now both printers have the same reference for the same substrate, and all the consecutive color calibrations will be trying to match this reference state.

Color profiles

Color calibration provides consistent colors, but consistent colors are not necessarily accurate. For instance, if your printer prints all colors as black, its colors may be consistent but they are not accurate.

In order to print accurate colors, it is necessary to convert the color values in your files to the color values that will produce the correct colors from your printer, your inks, and your substrate. An ICC color profile is a description of a printer, ink, and substrate combination that contains all the information needed for these color conversions.

These color conversions are performed by your Raster Image Processor (RIP), not by the printer. For further information on the use of ICC profiles, see the documentation for your application software and for your RIP.

Substrate-advance compensation

Accurate substrate advance is important to print quality because it is part of controlling the proper placement of dots on the substrate. If the substrate does not advance the proper distance between printhead passes, light or dark bands appear on the print, and there may be an increase in graininess.

The printer has a substrate-advance sensor and is calibrated to advance correctly with most of the substrates that appear in the Internal Print Server. When the substrate is loaded, the substrate-advance sensor checks the substrate and decides whether it can be adjusted automatically or not. If not, the automatic adjustment is disabled.

If the substrate cannot be adjusted automatically by the substrate-advance sensor and the substrate advance is not correct, you may wish to change the substrate-advance compensation manually. See Troubleshoot print-quality issues on page 378 for steps to determine whether substrate-advance compensation will help you. In general, substrate-advance calibration is recommended when you see print-quality problems related to substrate advance, or when you define a new substrate.

NOTE: Manual substrate-advance compensation is available only when the substrate-advance sensor is disabled—automatically, or manually through the Printing adjustments button in the Internal Print Server main window.

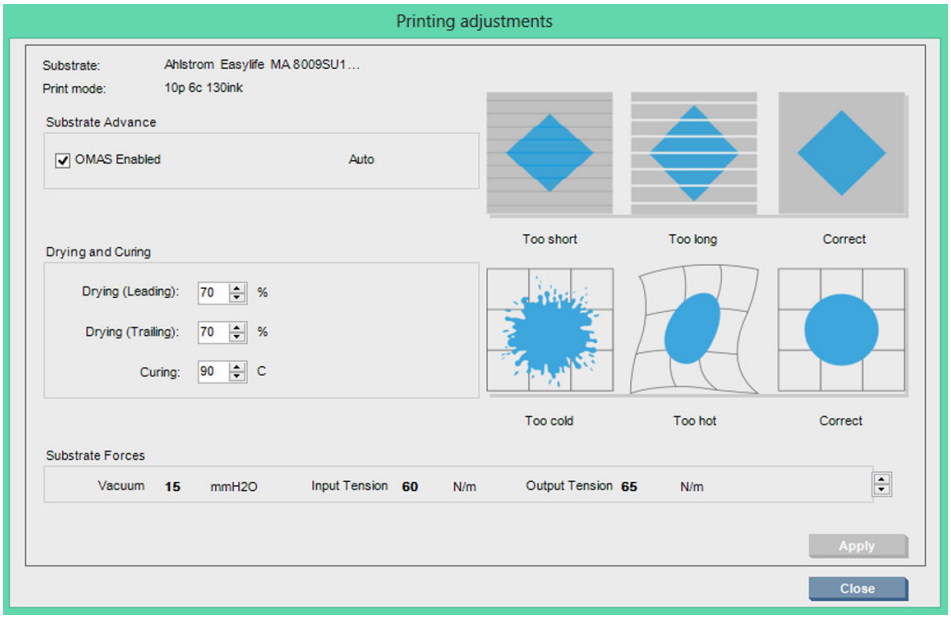
The substrate-advance sensor may not work correctly if it is dirty. See Clean the substrate-advance sensor on page 204.

If the sensor was dirty, after cleaning it the advance compensation already calculated may not be valid, so you are recommended to set the advance compensation for this substrate to zero and check that the advance is correct. If the advance is still not accurate, follow the advance compensation process, bearing in mind that the sensor is not dirty and probably your substrate type is not compatible with it.

Manual substrate-advance compensation

While printing, you can view and change the substrate-advance compensation of the currently loaded substrate at any time from the Internal Print Server by selecting the print job and then the **Printing Adj.** button, or by selecting **Printer** > **Printing adjustments**.

Alternatively, you can use the **Print adjustment** button in the Internal Print Server main window. This opens a dialog box with an advance compensation section, in which there are three main areas:



1. Check the box to enable the OMAS (substrate-advance sensor). If it is disabled automatically while loading, you cannot enable it. However, if you disable it yourself, you can re-enable it.
2. If the substrate-advance sensor is disabled, you can increase or decrease the substrate-advance compensation.
3. Three images of possible defects due to substrate-advance issues, to help to you decide whether the substrate-advance compensation should be increased or decreased.

In order to apply and save the values, press the **Apply** button in the dialog box before closing it. Then the substrate-advance compensation value is saved for that particular substrate. Other substrates are not affected.

If you are using a generic substrate preset, you are recommended to clone the preset (**Substrate** > **Clone**) and work with that before adjusting the substrate-advance compensation, as the print adjustment is not available for generic presets. See Edit a substrate preset on page 110.

Substrate-advance test print

The substrate-advance test print can help you to adjust the substrate advance more accurately. In the Internal Print Server, select **Printer** > **Advance calibration**. The printer prints several repetitions of a special numbered pattern that help you to apply the correct substrate-advance adjustment. Locate the pattern in the center of the substrate.

NOTE: Printheads must be correctly aligned before the test.

The following steps describe the process to determine the IPS **Printing adjustment** dialog advance compensation value.

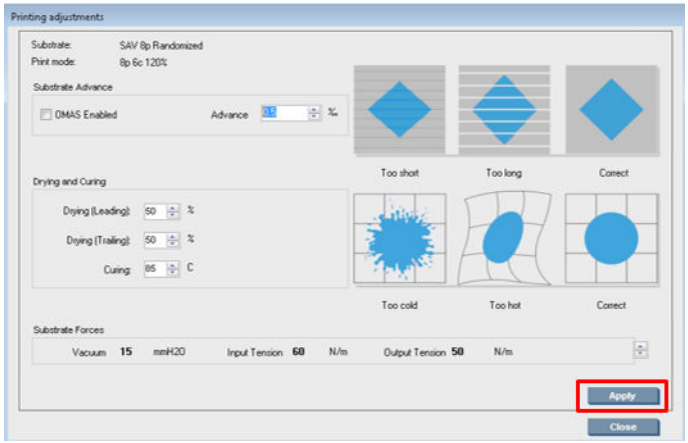
1. While the test is being printed, in the last 8–10 plots of the substrate central pattern (the sides might be affected by skew), locate the value that corresponds to the lightest column.

TIP: If the test shows two possible values (two continuous columns), the value selected is the average of both values. For example, if the test says the value could be +2.0/+3.0, then +2.5 is selected.

2. Via **IPS** > **Printer** > **Printing adjustments**, look for the current advance value set and add to this number the value chosen in step number 1. For example, if the value shown in the **Printing adjustment** dialog is -2.0 and the chosen value in the first step is +2.5, then the value chosen should be +0.5.

NOTE: The print adjustments dialog is only enabled when printing with non-generic substrate presets.

3. Insert the chosen advance compensation value, and select **Apply** to implement the change.



By applying the correct advance compensation value, the lightest columns should be located at value 0. This means the printer compensates for the substrate advance error, and provides good substrate feed.

NOTE: The manual substrate advance compensation obtained through this process is only usable for the loaded substrate. It is important to note that this value cannot be used on another printer. If you planned to use the same substrate on multiple printers you need go through the complete process on each printer.

TIP: The value used for the substrate advance depends directly on the thickness of the substrate, and needs to be changed only when you are suffering print-quality issues that are caused by the substrate advance, as explained in Substrate-advance sensor check on page 383. To obtain the right value faster and more accurately, see the following table:

Normal substrate advance value based on substrate thickness							
50 µm (2 mil)	150 µm (5.9 mil)	250 µm (9.8 mil)	400 µm (15.7 mil)	550 µm (21.7 mil)	700 µm (27.6 mil)	850 µm (33.5 mil)	1000 µm (39.4 mil)
+1.8 ‰	+0.9 ‰	0	−1.0 ‰	−1.8 ‰	−2.7 ‰	−4.5 ‰	−6.8 ‰

Calibrations specific to one substrate preset

Some calibrations that the printer performs are specific to the substrate preset in use at the time the calibration was performed and some are not. The calibrations that are specific to one substrate must be performed again if the substrate or preset is changed. Shown below are the calibrations showing which ones are specific to one preset and which ones are not:

- **Printhead Alignment**: This is applied to all presets and print modes. Usually, when switching from one substrate to another, there is no need to realign the printheads. However, if the printhead-to-paper spacing has changed significantly (different thickness, etc.), then the printheads should be realigned.
- **Substrate Advance Compensation**: This is specific to each substrate preset.
- **Color Calibration**: This is specific to each substrate preset.

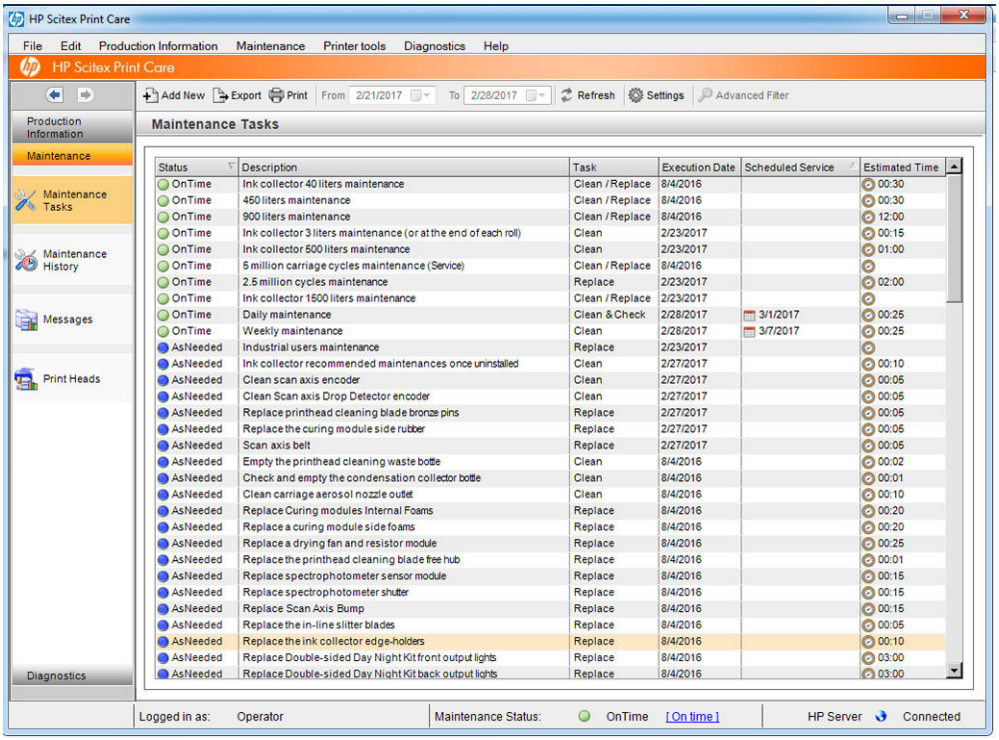
Recommended calibrations after particular events

	Printhead replacement	New substrate created	New substrate imported	New substrate loaded	Print mode changed	Poor print quality
Printhead alignment	Recommended	Not needed unless new substrate has different thickness	Not needed	Not needed unless carriage beam has moved	Not needed	Recommended if relevant
Color calibration	Recommended	Recommended	Recommended	Not needed, unless never done before	Not needed	Recommended if relevant
Substrate advance compensation	Not needed	Not needed, as long as the substrate-advance sensor is working	Not needed, as long as the substrate-advance sensor is working	Not needed, as long as the substrate-advance sensor is working	Not needed	Recommended if relevant

8 HP Print Care

Print Care is a program that helps you to maintain your printer in optimal condition and advises you how to solve any problems that occur. It can also give you full information about the current status and past history of the printer.

The program is already installed in the printer's built-in computer; you can run it by clicking its icon in the Windows Quick Launch toolbar, or by double-clicking some parts of the Internal Print Server (for instance, Print Care status).

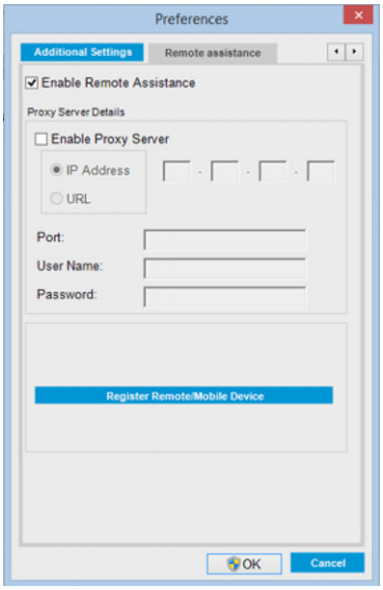


Its functions are divided into the following categories..

- **Production Information** displays information about printer status and printing history (paper usage, ink usage, jobs). The information can be displayed in graphical charts or text reports, all of which you can filter to select different subsets of information.
- **Maintenance** prompts you to perform maintenance tasks, and provides instructions on how to perform them. It can also list the maintenance tasks that have been performed in the past, and the printer messages that have been displayed in the past.
- **Diagnostics** can run functional tests on printer systems and components to check for failures and malfunctions. Each diagnostics run generates a report that provides detailed results and troubleshooting instructions. It can also list the tests that have been run in the past. See Print Care diagnostics on page 186 for more details.

NOTE: Individual tests are not selectable: the whole series of tests is run automatically.

- **Printer Tools** help you to perform maintenance operations without an Internet connection.



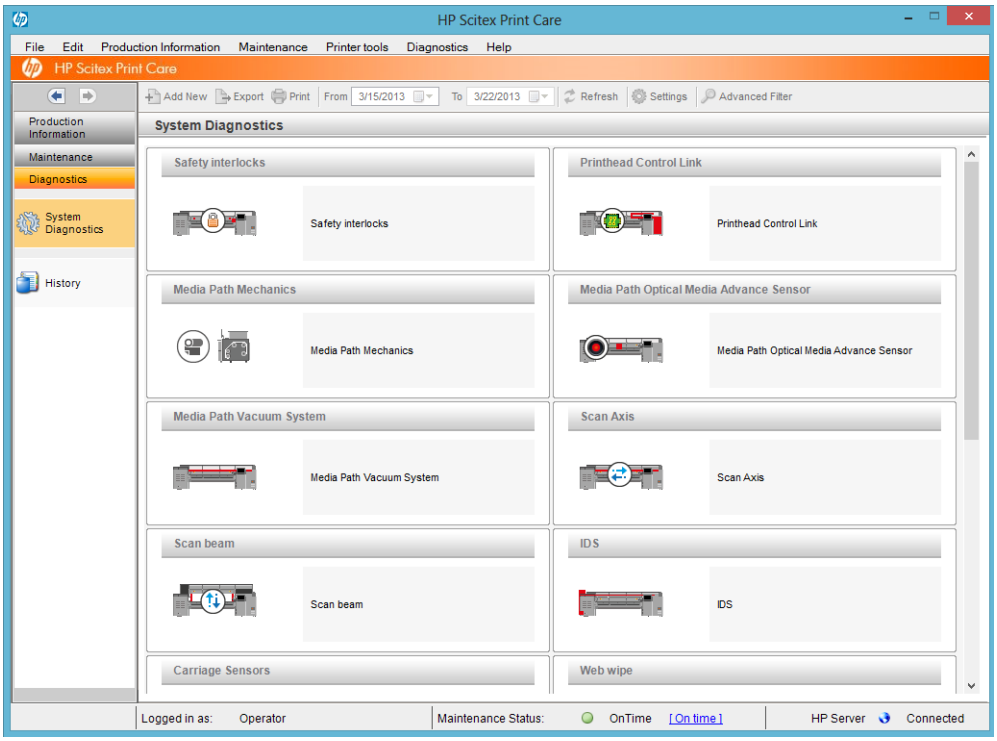
The Print Care program has online help that explains all its functions in detail.

To change the units of measurement in Print Care, select **Edit** > **Preferences** > **Units**.

Print Care uses the language selected in the Windows Regional and Language Options; to change the language, see Change the language of the Internal Print Server on page 21.

Print Care diagnostics

The Print Care diagnostics help you to minimize downtime. When you call your support representative to report an issue, pass on the results of any diagnostics that you ran.



Most of these diagnostics can be run with the printer started normally. However, if you experience a severe error in the start-up progress that prevents you from running the diagnostics, an extra start-up mode has been provided for this situation. To use it, go to Print Care and select **Printer Tools** > **Power options** > **Reboot in diagnostic mode**. Then the printer will start only a minimal set of components, so the progress bar in the Internal Print Server will stop at around 20% and display **Diagnostic mode**. You can then go to the Diagnostics section and run the diagnostic you need.

NOTE: Read the descriptions of the diagnostics and follow the instructions.

IMPORTANT: When the printer is started in diagnostic mode, it is unable to print.

When you have finished the diagnostics, select **Printer Tools** > **Power options** > **Reboot** to restart the printer normally.

When you get a message from the printer with a numerical code in the form XX.XX.XX.XX:XX, we recommend locating the first two digits in the following table to identify the correct diagnostic.

Number	Subsystem
01	E-box
10	E-cabinet
11	Printhead control link
15	Drying
16	Curing
21	Drop detector/Capping station
22	Ink distribution system
41	Substrate path mechanics
43	Substrate path vacuum system
46	Printhead primers
47	Printhead cleaning roll
48	Scan beam
49	Carriage aerosol
50	Substrate advance sensor
51	Safety interlocks
52	Drop detector
55	Carriage sensors
58	Carriage sensors
86	Scan axis

NOTE: Some of these subsystems may be available only to service engineers, because they require specific knowledge or for safety reasons.

NOTE: In any case we recommend running the Safety Interlocks diagnostic to ensure that printing is not disabled by a safety interlock.

Update the Print Care software

While the printer is connected to the Internet, Print Care checks periodically for updates. An alert will pop up if an update is available. When this happens, follow the instructions to update the software.

NOTE: This update applies only to the Print Care software engine. The maintenance wizards and other content are accessed directly in the cloud every time they are needed. Therefore, they are automatically updated as soon as the content in the cloud is updated.

Reinstall the Print Care software

If Print Care needs to be reinstalled, contact your service representative.

NOTE: Print Care needs to be reinstalled whenever the printer changes ownership.

9 Hardware maintenance

⚠ **WARNING!** Hardware maintenance may be performed by trained personnel only. During printer installation, the designated personnel received training for safe operation and maintenance of the printer. It is not allowed to use the printer without this training.

Safety precautions

Read and follow the safety precautions section to make sure you use the equipment safely: see Safety precautions on page 2.

You are expected to have the appropriate technical training and experience necessary to be aware of hazards to which you may be exposed in performing a task, and to take appropriate measures to minimize the risks to yourself and to others.

User maintenance kits

Maintenance resources			Cleaning kit	User maintenance kit	Service maintenance kit	Textile service maintenance kit	User up-time kit	Reseller up-time kit
When	Who	Inbox						
On demand clean	User	X	X					
Weekly maintenance	User	X	X					
125 liter maintenance	User	X	X					
500 liter maintenance	User		X	X				
1500 liter maintenance	User			X				
3000 liter maintenance	Contact your support rep.				X			
Dual side clean	User		X					
Ink collector daily maintenance	User							
Ink collector 40 liter maintenance	User							

Maintenance resources		Cleaning kit	User maintenance kit	Service maintenance kit	Textile service maintenance kit	User up-time kit	Reseller up-time kit
Ink collector 500 liter maintenance	User					X	
Ink collector 1500 liter maintenance	Contact your support rep.						
User repair	User					X	
Service repair	Contact your support rep.						X
Full printer inspection	Contact your support rep.						X

HP Latex 3x00 Printer Series maintenance kits and tools

Name	Part number	Purpose	How to order
HP Latex 3x00 Series Cleaning Kit	CZ056-67390	Weekly maintenance, and the 125 liter maintenance routines (about 12 times)*	Provided with your printer and included in the Printer Maintenance Kit
Carriage Rail Cleaning Tool		For the 125 liter maintenance routines*	Provided with your printer
HP Latex 3000 Series Printer Maintenance Kit	1HA07-67008 / 1VT19A	For the 1500 liter maintenance routines*	Through the usual channel
HP Latex 3x00 Series Standard Uptime Kit	D4J02A / CZ056-67421	Set of spare parts that can be replaced by customers and resolve the most common failures	Provided with your printer in most locations worldwide. If necessary, you can purchase the kit through the usual channel.
HP Latex 3x00 Expert Kit	1HA07-67041	Set of spare parts that can be replaced by expert/trained customers	Through the usual channel

NOTE: For the latest information on kits available for your printer, and their contents, see http://www.hp.com.

*Frequencies are approximate and will depend on print mode usage.

HP Latex 3x00 Printer Cleaning Kit contents

Part	Quantity	Use in maintenance
Flex cleaner and 12 flex sponges	1	Clean printhead contacts, printhead side (see The Internal Print Server recommends replacing or reseating a printhead on page 401)
Brush	1	Clean printhead contacts, carriage side (see The Internal Print Server recommends replacing or reseating a printhead on page 401)
Cotton swabs	100	Clean the substrate advance sensor (OMAS) (see Clean the substrate-advance sensor on page 204) and the line sensor (see Clean the bottom of the carriage, the drying glasses, and the line and crash sensors on page 238)
Carriage rail cleaning wicks	6 bags of 20	Cleaning (see Clean the carriage rails and replace the oiler foams on page 216)

Part	Quantity	Use in maintenance
Lubricant oil	3 bottles of 10 ml	Lubrication (see Clean the carriage rails and replace the oiler foams on page 216)
Oiler foams	6 bags of 2	Replacement (see Clean the carriage rails and replace the oiler foams on page 216)
Oiler wicks	12 sets	Replacement (see Clean the carriage rails and replace the oiler foams on page 216)
Grease syringe	3 ml	Grease small parts; but not for greasing carriage beam screws
Cleaning sponges	6	General cleaning
Plastic gloves	6 sets	General maintenance processes
E-cabinet and e-box filters	6 sets of 2	Fan filters replacement (see Replace the e-cabinet fan filters on page 256)

HP Latex 3x00 Printer Maintenance Kit contents

Content	Quantity
Cabinet Ebox filters assembly	2
Printhead cleaning rubber assembly	3
HP Latex 3x00 Cleaning Kit	1
Upgrade 5 printhead cleaning rubber blades	1
Machine Grease and Oil kit	1
Pads	1
Diverter wheels	2

NOTE: The contents of the kit may vary.

NOTE: Some keys are provided with the printer. See Safety precautions on page 2 to identify the one you may require for maintenance operations.

Use the keys only for accessing the intended doors and keep them always under your control. Store them in a safe and secure place.

Maintenance tools recommended but not provided

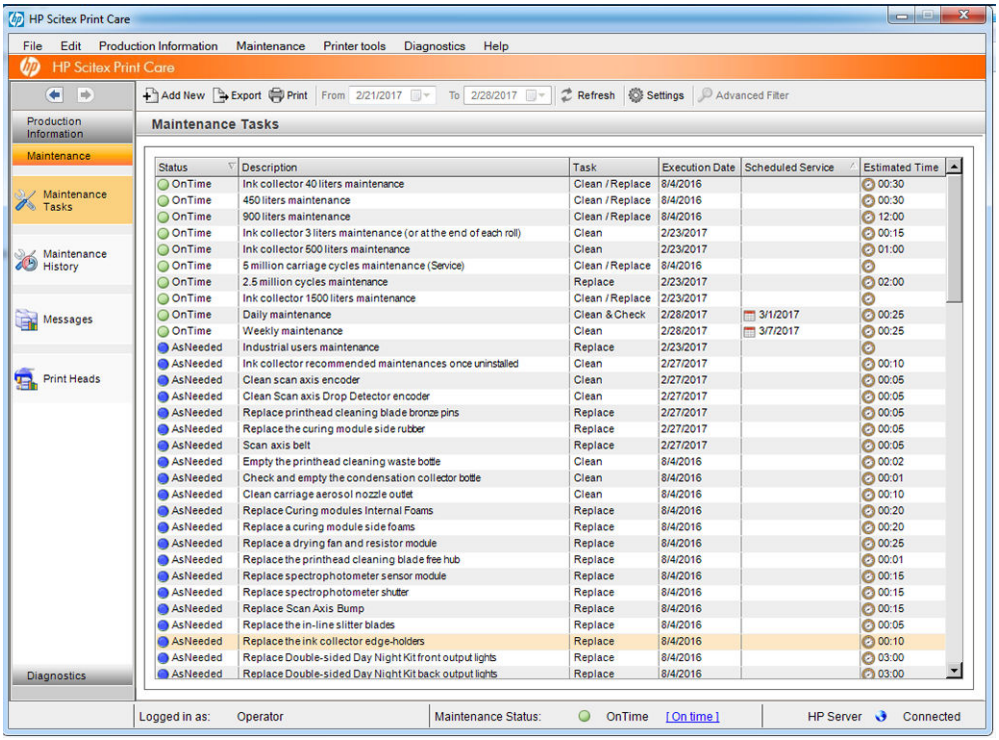
Spiral steel scourer, for Clean the bottom of the carriage, the drying glasses, and the line and crash sensors on page 238; Clean the drying module quartz glass and air outlet on page 305; and Clean the drop-detector ink deposits on page 242.	Absorbent all-purpose cloth, for cleaning covers.	Isopropyl alcohol, for cleaning **NOTE:** If you are in an area (such as California) that regulates VOC cleaning and maintenance fluids, instead of isopropyl alcohol use a VOC-certified cleaner such as a properly diluted Simple Green All-Purpose Cleaner.
Distilled water, for general cleaning	Vacuum cleaner, handy or normal, with nozzle accessories; for Clean the rear scan-axis beam on page 264.	Flashlight, for general use.
Folding steps, for general use.	A flat screwdriver.	Torx screwdriver set

How to perform maintenance operations

The Maintenance section of the Print Care program (see HP Print Care on page 185) reminds you when routine hardware maintenance should be done.

Perform maintenance with Print Care wizards

If your printer is connected to the Internet, Print Care provides guidance (wizards) to help you to perform the maintenance operations correctly. Click the maintenance operation and the wizard will appear; then follow its instructions.



IMPORTANT: Strictly follow all the recommended steps for safety reasons. For example, switching the printer off protects you from electric shock and hazardous moving parts, among other risks; it may also be required for other reasons.

IMPORTANT: Follow the wizard to the end so that the appropriate alert is reset automatically.

The wizard has the necessary buttons so that all printer actions, such as moving the carriage beam, can be done directly from the wizard when they are needed.

It also provides instructions to replace parts and resolve the most common failures.

Because this information is in the HP cloud, HP can update and improve it so that Print Care will always show the latest version.

Perform maintenance without Print Care wizards

IMPORTANT: If your printer is **not connected** to the Internet, you must perform maintenance operations manually with the help of this guide. Without a connection:

- **The alerts are never reset.** Both the Internal Print Server and Print Care always show a red alert for maintenance status.
- Tracking the maintenances must be done manually, according to the time and ink usage thresholds shown in the Summary of maintenance operations on page 198.
- This guide appears in the Print Care window, for reference, instead of the list of maintenances.

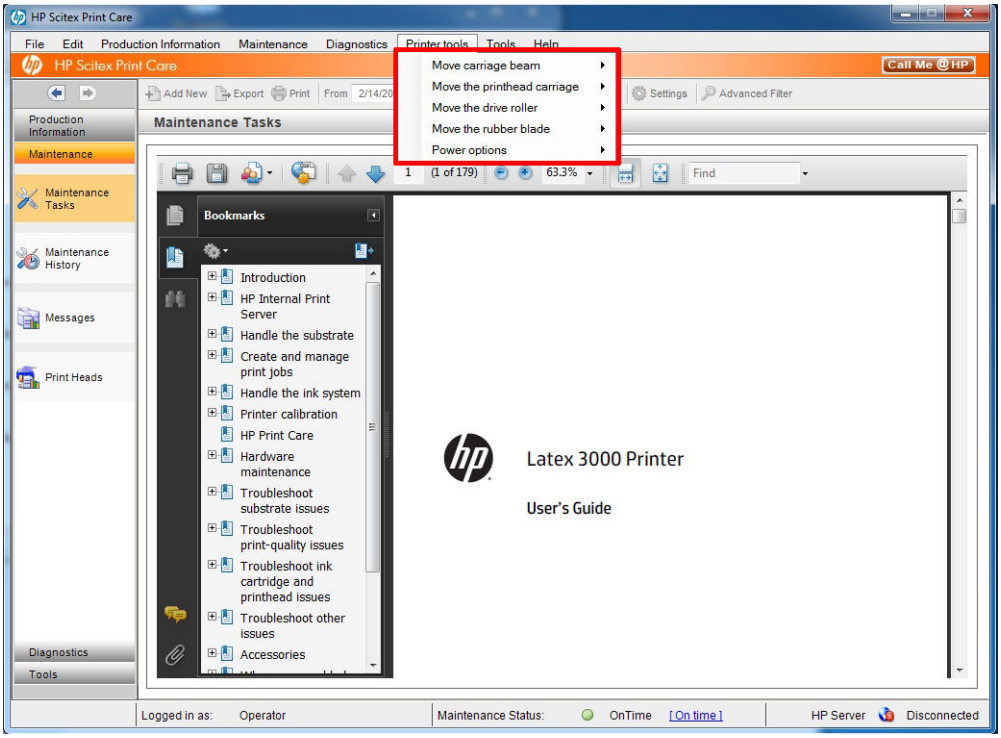
HP strongly recommends an Internet connection as it makes it much easier to deal with the maintenance tasks of the printer, in addition to providing auto-update of the maintenance procedure and automatic notification of firmware upgrades. Contact your service representative for more information.

IMPORTANT: Strictly follow all the recommended steps for safety reasons. For example, switching the printer off protects you from electric shock and hazardous moving parts, among other risks; it may also be required for other reasons.

The following printer-system movements and processes are required during maintenance operations. The **Printer tools** menu in Print Care can be used when the printer is not connected to the Internet. Remember to follow all the safety precautions.

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2



- To move the carriage beam, select **Printer tools** > **Move the carriage beam**.
  - **Move up**
  - **Move down**

- To move the printhead carriage, select **Printer tools** > **Move the printhead carriage**.
  - **Move to the service position**
  - **Move to the leftmost position**
  - **Move to the normal position**

- To move the drive roller, select **Printer tools** > **Move the drive roller**.
  - **Move (backwards)**
  - **Move (forwards)**
  - **Stop**

Other warnings

  - Keep your clothing and all parts of your body away from the printer's moving parts.
  - Avoid wearing necklaces, bracelets, and other hanging objects.
  - If your hair is long, try to secure it so that it will not fall into the printer.
  - Do not touch gears or moving rolls during printing.
- To move the rubber blade, select **Printer tools** > **Move the rubber blade**.
  - **Move to service position**
  - **Move to normal position**

How to turn the printer off and on for maintenance operations

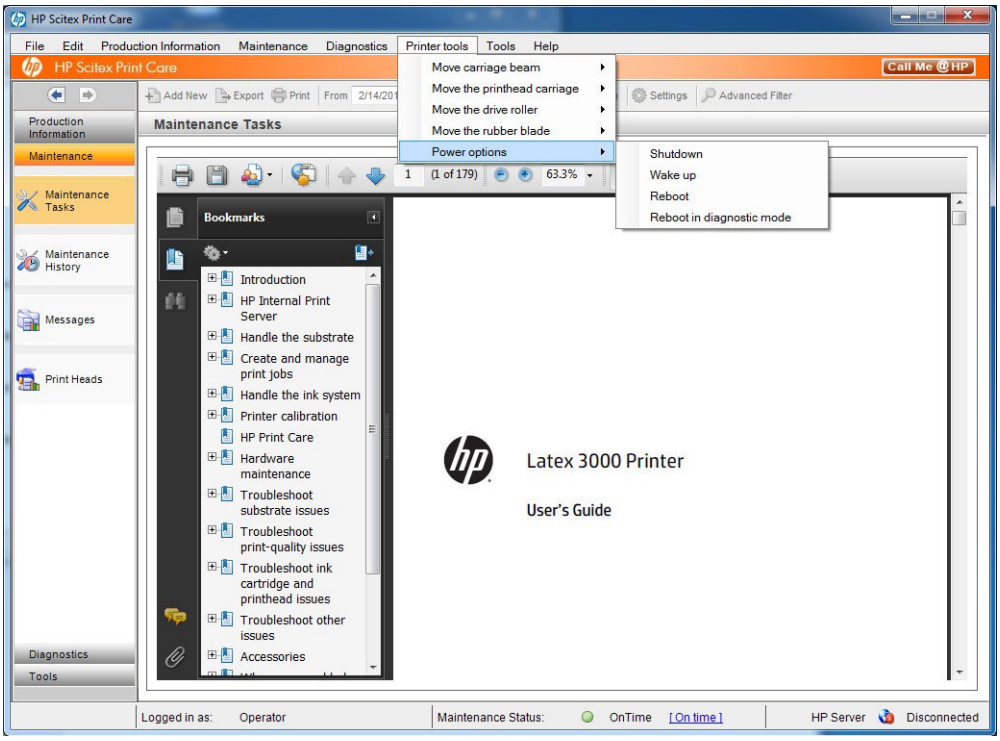
IMPORTANT: When performing maintenance operations, **always** turn the printer off and on as described below. Do not use the normal procedure.

IMPORTANT: Strictly follow all the recommended steps, for safety reasons.

NOTE: If your printer is connected to the Internet, you do not need to remember these instructions, because they are included in the maintenance wizards.

Turn the printer off

1. In Print Care, select **Printer tools** > **Power options** > **Shutdown**.



⚠ CAUTION: The shutdown process takes some time to complete. Wait until the green power light is off before proceeding.

2. Turn off the printer using the main switch at the front right of the printer.

⚠ CAUTION: With this procedure, the printhead carriage will not return to the normal position, and therefore the printheads will remain uncapped. Make sure the maintenance operation is done quickly to minimize the time in which the printheads are uncapped.

Turn the printer on

1. Turn on the printer using the main switch at the front right of the printer.

2. Pay attention to the Internal Print Server and rearm the printer when requested, as usual.

⚠ CAUTION: In some maintenance procedures, the carriage beam is up when you turn on the printer, and the carriage moves during initialization. Avoid putting any part of your body in the print area.

Summary of maintenance operations

Maintenance operations for all substrates

Frequency	Maintenance operation	Cross-reference	Part number and/or description
Weekly	Clean the print zone	Clean the print zone on page 202	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
	Clean the substrate-advance sensor	Clean the substrate-advance sensor on page 204	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
	Clean the aerosol filters	Clean the aerosol filters on page 206	Brush
	Clean the pinchwheels and drive roller	Clean the pinchwheels and drive roller on page 209	Clean lint-free cloth and distilled water
	Clean the output platen	Clean the output platen on page 211	Clean lint-free cloth
	Empty the condensation collector bottle	Empty the condensation collector bottle on page 213	
Every 125 liters of ink	Clean the carriage rails and replace the oiler foams	Clean the carriage rails and replace the oiler foams on page 216	HP Latex 3x00 Printer Cleaning Kit and Carriage Rail Cleaning Tool, provided with your printer
	Empty the oil collector caps	Empty the oil collector caps on page 229	
	Clean the bottom of the carriage, the drying glasses, and the line and crash sensors	Clean the bottom of the carriage, the drying glasses, and the line and crash sensors on page 238	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
	Clean the drop-detector ink deposits	Clean the drop-detector ink deposits on page 242	Scourer (not provided)
	Clean the e-cabinet fan filters	Clean the e-cabinet fan filters on page 245	HP Latex 3x00 Printer Cleaning Kit, included in your printer
	Clean the e-box fan filter	Clean the e-box fan filter on page 247	HP Latex 3x00 Printer Cleaning Kit, included in your printer
	Clean substrate input/output gears and spindle metal debris	Clean substrate input/output gears and spindle metal debris on page 250	Brush
Every 500 liters of ink	Replace the rubber blade	Replace the rubber blade on page 252	1HA07-67008 or 1VT19A: Printer Maintenance Kit Spare printhead cleaning blades provided with your printer.
Every 1500 liters of ink	Replace the e-cabinet fan filters	Replace the e-cabinet fan filters on page 256	HP Latex 3x00 Printer Cleaning Kit, included in your printer
	Replace e-box fan filter	Replace e-box fan filter on page 258	HP Latex 3x00 Printer Cleaning Kit, included in your printer
	Clean the impinging plate	Clean the impinging plate on page 261	Clean lint-free cloth and distilled water
	Clean the vapor removal external filter	Clean the vapor removal external filter on page 263	Brush and vacuum cleaner
	Clean the rear scan-axis beam	Clean the rear scan-axis beam on page 264	Vacuum cleaner and an absorbent all-purpose cloth (not provided)
	Clean and grease the substrate drive transmission gears and rods	Clean and grease the substrate drive transmission gears and rods on page 267	Grease and oil kit, included in the Printer Maintenance kit. Gloves (not provided)
	Grease the carriage beam screws	Grease the carriage beam screws on page 268	1HA07-67008 or 1VT19A: Printer Maintenance Kit

Maintenance operations for all substrates (continued)

Frequency	Maintenance operation	Cross-reference	Part number and/or description
	Clean and grease the service station transmission and rods	Clean and grease the service station transmission and rods on page 270	Grease and oil kit, included in the Printer Maintenance kit. Gloves (not provided)
	Empty the drop detector ink vessel	Empty the drop detector ink vessel on page 271	
	Replace the rubber blade	Replace the rubber blade on page 252	
	Clean the carriage rails and replace the oiler foams	Clean the carriage rails and replace the oiler foams on page 216	HP Latex 3x00 Printer Cleaning Kit and Carriage Rail Cleaning Tool, provided with your printer
	Grease the printhead primers	Grease the printhead primers on page 273	Grease and oil kit, included in the Printer Maintenance kit.
	Replace the rocker pads	Replace the rocker pads on page 337	
Every 1500 liters of ink: check and replace if required	Replace curing fan and resistors		
	Replace substrate output spindle lever		
	Replace bearings		
Every 3000 liters (approx. once every 5 years)	3000 liters can be reached by printing 480,000 m² with 4 passes, or 320,000 m² with 6 passes, or 190,000 m² with 8 passes	To be done by a service engineer. Call your service representative (see HP Customer Care Centers on page 409).	
When required	Check and clean printheads	Check and clean the printheads on page 160	
	Check the printer for dust and aerosol	Check the printer for dust and aerosol on page 277	Clean lint-free cloth and distilled water
	Check the print output areas for ink droplets or condensation	Check the printer for dust and aerosol on page 277	Clean lint-free cloth and distilled water
	Clean and check the substrate-advance sensor	Clean the substrate-advance sensor on page 204	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
	Replace a pinchwheel submodule	Replace a pinchwheel submodule on page 278	CZ056-67097: Pinch assembly, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace a primer	Replace a primer on page 280	CZ056-67396 for HP Latex 3000/3100/3500. 1HA07-67018 for HP Latex 3200/3600: Primer and latch, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace the aerosol module fans	Replace the aerosol fan module on page 286	CZ056-67246: Aerosol top case assembly, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace the drying fans array	Replace the drying fans array on page 290	CZ056-67023: Drying fan case right or CZ056-67024: Drying fan case left, both included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace the drying lamps	Replace the drying lamps on page 295	When required, use CZ056-67322: Drying NIR lamp, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)

Maintenance operations for all substrates (continued)

Frequency	Maintenance operation	Cross-reference	Part number and/or description
	Clean the drying module quartz glass and air outlet	Clean the drying module quartz glass and air outlet on page 305	Clean lint-free cloth and distilled water
	Replace the drying quartz glass	Replace the drying quartz glass on page 311	CZ056-67252: Drying quartz glass right or CZ056-67253: Drying quartz glass left, both included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace a curing fan and resistor module	Replace a curing fan and resistor module on page 315	CZ056-67054: Curing heater and fan module, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace a service station cap	Replace a service station cap on page 319	CZ056-67036: SVS Caps Kit, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace an intermediate tank	Replace an intermediate tank on page 322	CZ056-67073: ISM intermediate tank, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace an e-cabinet fuse	Replace an e-cabinet fuse on page 324	CZ056-67136: E-cabinet PCA Fuses Kit, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Clean the printhead contacts	Clean the printhead contacts on page 326	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
	Replace a spindle valve	Replace a spindle valve on page 331	Q6702-67025: Spindle air valve, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Clean the roll-to-free-fall roller and pinchwheels	Clean the roll-to-free-fall roller and pinchwheels on page 333	Clean lint-free cloth, and possibly isopropyl alcohol (for persistent dirt)
	Clean the carriage rails manually	Clean the carriage rails manually on page 334	Clean lint-free cloth and distilled water
	Grease the printhead primers	Grease the printhead primers on page 273	Grease and oil kit, included in the Printer Maintenance kit.
	Pinch clamp replacement	Pinch clamp replacement on page 336	
	Replace the rocker pad	Replace the rocker pads on page 337	
	Clean the scan axis encoder	Clean the scan axis encoder on page 338	Gloves. Clean lint-free cloth and distilled water
	Replace the curing module side rubber	Replace the curing module side rubber on page 339	
	Clean the service station caps	Clean the service station caps on page 340	
	Clean the vapor removal external filter	Clean the vapor removal external filter on page 263	Brush
	Clean the bottom of the carriage, the drying glasses, and the line sensor	Clean the bottom of the carriage, the drying glasses, and the line and crash sensors on page 238	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
	Empty the condensation collector bottle	Empty the condensation collector bottle on page 213	

Maintenance operations for all substrates (continued)

Frequency	Maintenance operation	Cross-reference	Part number and/or description
	Empty printhead cleaning waste bottle	Empty the printhead cleaning waste bottle on page 342	
	Clean the perforated plate	Clean the perforated plate on page 343	Clean lint-free cloth and distilled water

Additional maintenance operations for porous substrates

Frequency	Maintenance operation	Cross-reference	Part number and/or description
Ink collector 3 liter/daily maintenance	Clean the aerosol filters	Clean the aerosol filters on page 206	Dry aerosol and a brush
	Wipe the protector	Wipe the protector on page 347	Clean lint-free cloth and distilled water
	Wipe the ribs of the ink collector modules	Wipe the ribs of the ink collector modules on page 348	Clean lint-free cloth and distilled water
	Clean condensation from the output platen and output beams	Clean condensation from the output platen and output beams on page 213	Clean lint-free cloth
Ink collector: after uninstalling the ink collector kit maintenance	Clean the aerosol filters	Clean the aerosol filters on page 206	Dry aerosol and a brush
	Wipe the protector	Wipe the protector on page 349	Clean lint-free cloth
	Wipe the ink collector modules	Wipe the ink collector modules on page 349	Clean lint-free cloth
	Clean the curing module and airlet plates	Clean the curing module and airlet plates on page 350	Clean lint-free cloth dampened with isopropyl alcohol
	Clean the print zone	Clean the print zone on page 202	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
	Clean the substrate-advance sensor	Clean the substrate-advance sensor on page 204	HP Latex 3x00 Printer Cleaning Kit, provided with your printer
Ink collector 40 liter maintenance	Replace the ink collector foams	Replace the ink collector foams on page 353	
	Clean the curing module and airlet plates	Clean the curing module and airlet plates on page 350	Clean lint-free cloth dampened with isopropyl alcohol
	Clean condensation from the output platen and output beams	Clean condensation from the output platen and output beams on page 213	Clean lint-free cloth
Ink collector 500 liter maintenance	Clean the curing fan grid and internal foam	Clean the curing fan grid and internal foam on page 355	Clean lint-free cloth dampened with isopropyl alcohol
	Clean the curing module and airlet plates	Clean the curing module and airlet plates on page 350	Curing Heater and Fan Module Kit (CZ056-67054), included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)
	Replace a curing fan and resistor module	Replace a curing fan and resistor module on page 315	CZ056-67054: Curing heater and fan module, included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A)

Additional maintenance operations for porous substrates (continued)

Frequency	Maintenance operation	Cross-reference	Part number and/or description
	Replace the protector and textile substrate edge holder	Replace protector and textile substrate edge holder on page 358	
Ink collector 1500 liter maintenance	To be done by a service engineer. Call your service representative (see HP Customer Care Centers on page 409).		

Mandatory

You must perform an automatic printhead check and clean every morning. See Check and clean the printheads on page 160.

Weekly

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns | Crush hazard | Risk of trapped fingers | Hazardous moving part | Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

The following maintenance procedures are required weekly:

- Clean the print zone on page 202
- Clean the substrate-advance sensor on page 204
- Clean the aerosol filters on page 206
- Clean the pinchwheels and drive roller on page 209
- Clean the output platen on page 211
- Empty the condensation collector bottle on page 213

Clean the print zone

Risk of burns | Crush hazard | Risk of trapped fingers | Hazardous moving part | Electric shock hazard

For more safety information, see Safety precautions on page 2

The platen should be cleaned whenever it is visibly dirty, or when you notice marks on the back of the substrate. Before cleaning the platen, take notice of the substrate-advance sensor in the middle of the platen: clean it, but be careful to avoid scratching it.

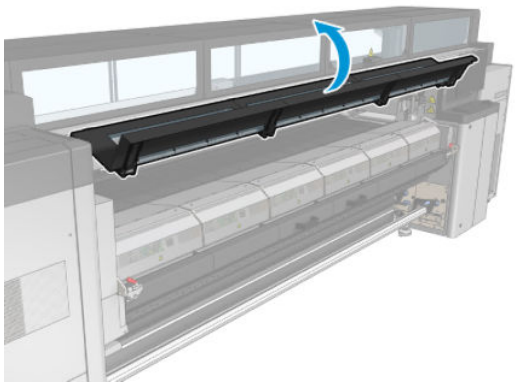
If you sometimes print with very small side margins and with substrate edge holders, ink may accumulate on the edge holders, which can cause smears on your prints and blocked nozzles in the printheads.

Check the substrate edge holder strips weekly for dried ink or any other defect. If necessary, replace the strip with a new one. See Replace an edge holder strip on page 46.

Prepare to clean the print zone

1. Ensure that you have the HP Latex 3x00 Printer Cleaning Kit, provided with your printer.
2. Ensure that the printer is not printing.
3. Unload the substrate.
4. Ensure that all windows, covers, and doors are closed and remain in their original positions.
5. Move the carriage beam to its highest position (this takes about 2 minutes).
6. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

7. Open the front door.

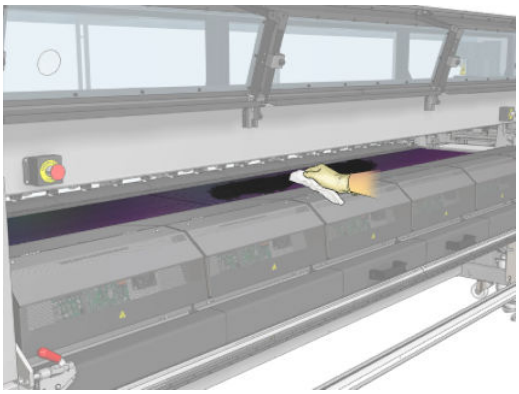


Remove the edge holders (if they are in use)

1. Remove the two substrate edge holders from the platen.
2. Replace the edge holder strips if necessary. See Replace an edge holder strip on page 46.

Clean the platen

- Clean the platen with a clean cloth dampened with distilled water, and make sure that the platen is dry before printing.



Clean the substrate-advance sensor

▲ See Clean the substrate-advance sensor on page 204.

Clean the substrate-advance sensor

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Light radiation hazard

Electric shock hazard

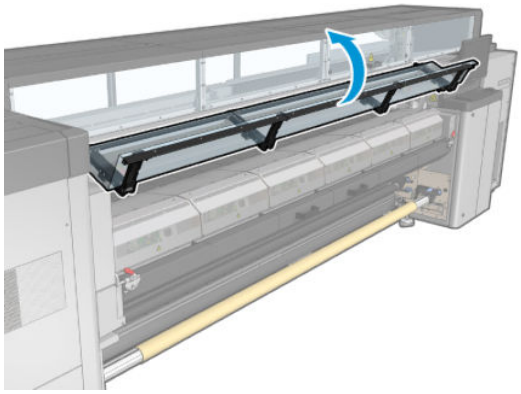
For more safety information, see Safety precautions on page 2

Remember that porous substrates, or substrates with porous liners, are not supported and should not be used with your printer. However, under normal printing conditions with non-porous substrates, some dirt, dust, and ink aerosol can reach the substrate-advance sensor window and impair the performance of the sensor.

Prepare to clean the substrate-advance sensor

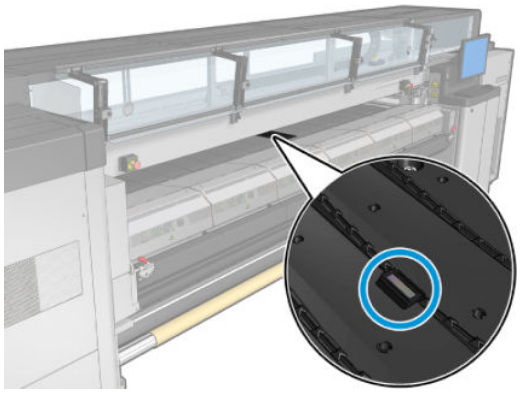
1. Ensure that you have the HP Latex 3x00 Printer Cleaning Kit, provided with your printer.
2. Ensure that the printer is not printing.
3. Unload the substrate.
4. Ensure that all windows, covers, and doors are closed and remain in their original position.
5. Move the carriage beam to its highest position (this takes about 2 minutes).

6. Open the front door.

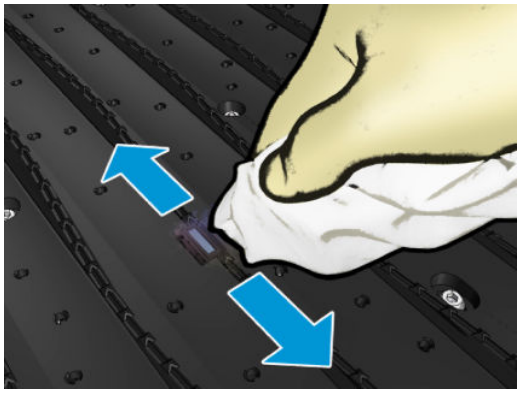


Clean the substrate-advance sensor

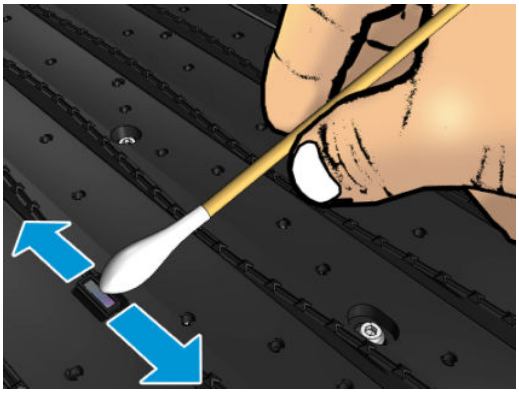
1. Find the sensor in the middle of the platen.



2. Clean the platen area around the sensor thoroughly with a clean cloth dampened with distilled water.



3. Wipe the sensor window with one of the cotton swabs provided in the Printer Cleaning Kit, slightly dampened (not soaked) with isopropyl alcohol, to remove dried ink. If the sensor window is heavily coated with dry ink, you may need to apply some pressure while wiping, helping the cotton to absorb the ink.



4. Continue cleaning with fresh swabs until the cotton stays clean and the sensor window looks clean.

TIP: When reflecting ambient light, a clean sensor window shows a blue-colored reflection that should extend uniformly across its whole surface. You can see this reflection by moving closer and slightly changing your angle of view.

Finish off cleaning the substrate-advance sensor

1. Wait 3 or 4 minutes, so that the alcohol can evaporate completely.
2. Close the front door.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage beam back to its normal position (this takes about 2 minutes).
5. Run a diagnostic test to check that the sensor is now working correctly.

Clean the aerosol filters

Risk of burns

Crush hazard

Risk of trapped fingers

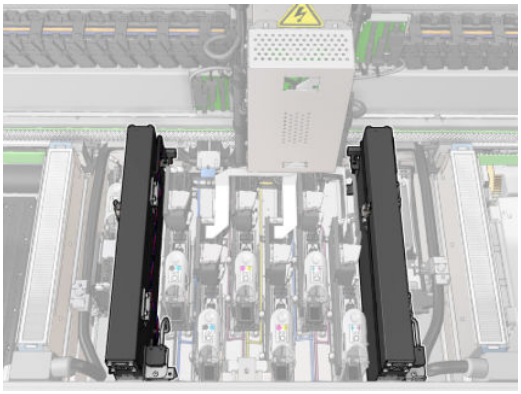
Hazardous moving part

Light radiation hazard

Electric shock hazard

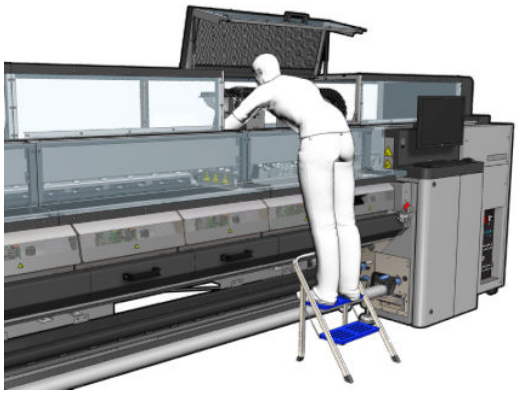
For more safety information, see Safety precautions on page 2

The aerosol filters should be kept clean for optimal performance and reliability.

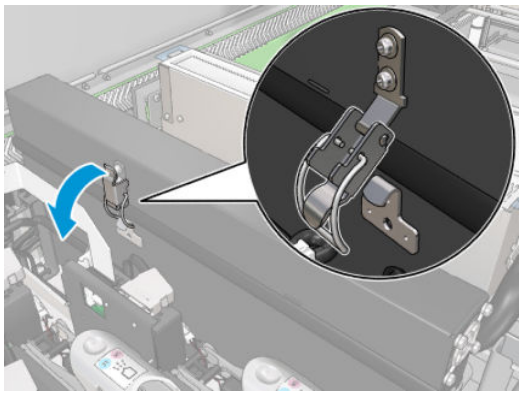


1. Ensure that the printer is not printing.
2. Ensure that all windows, covers, and doors are closed and remain in their original positions.

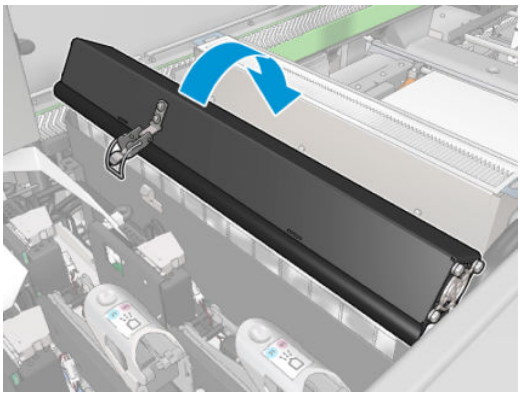
3. Open the service position window.



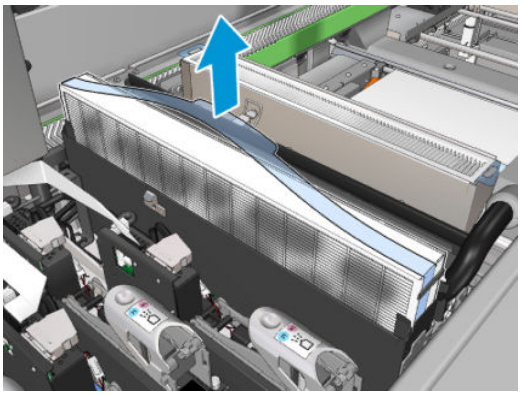
4. Open one latch on the left side of each aerosol filter module.



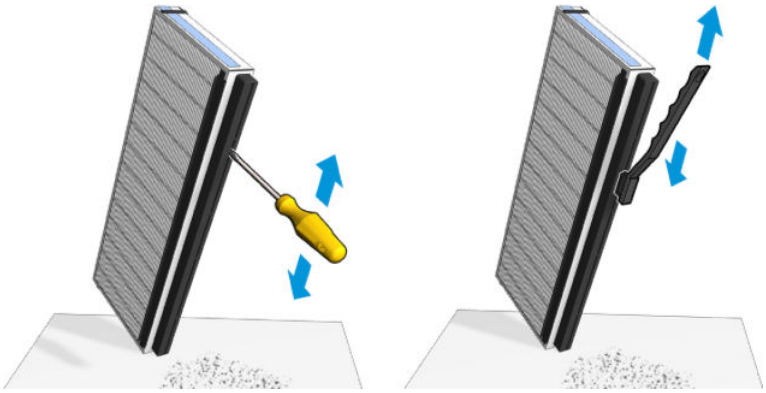
5. Open the lid of each filter.



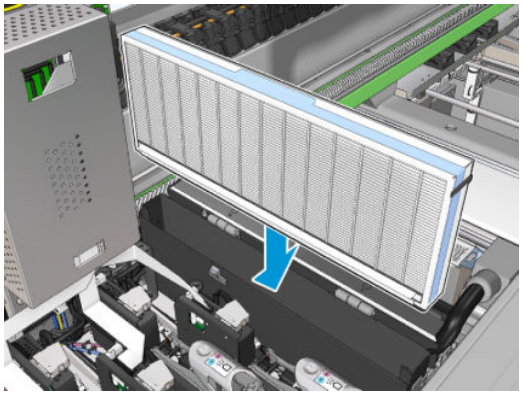
6. Remove both aerosol filters, using their handles.

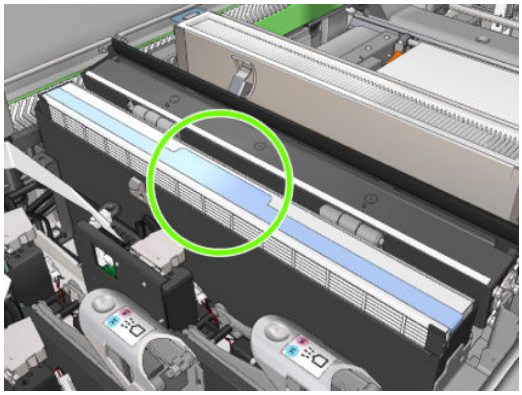


7. Use a flat screwdriver to remove the dry aerosol and then a brush to remove any remaining dirt. Try to avoid loose dirt falling into the filter.



8. Reinsert both filters. There is only one way to insert them that works. If you feel resistance, try to insert the filter the other way round.





9. Close the lids.
10. Close the latches.
11. Close the service position window.

Clean the pinchwheels and drive roller

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

For more safety information, see Safety precautions on page 2

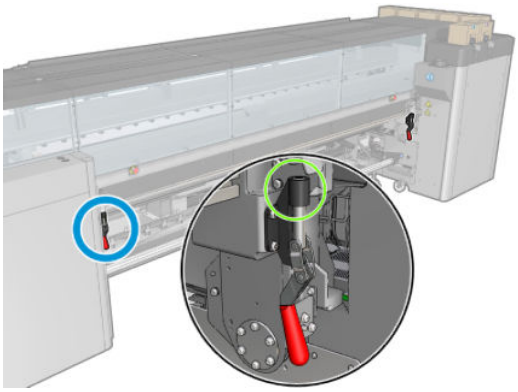
The drive roller should be cleaned whenever it is visibly dirty, or when you notice that substrate advance is no longer smooth and regular.

Prepare to clean the pinchwheels and drive roller

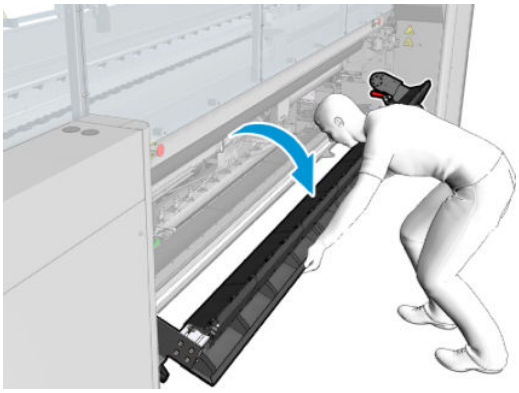
1. Ensure that the printer is not printing.
2. Unload the substrate.

Clean the pinchwheels

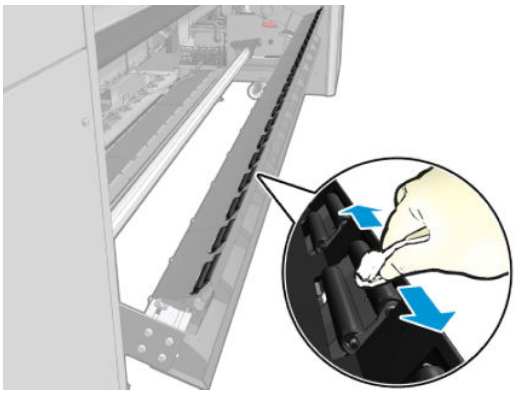
1. Open the latches.



2. Pull the pinchwheel module to its lowest position.



3. Clean the pinchwheels carefully with a cloth dampened with water; do not use petroleum-based cleaning liquids.

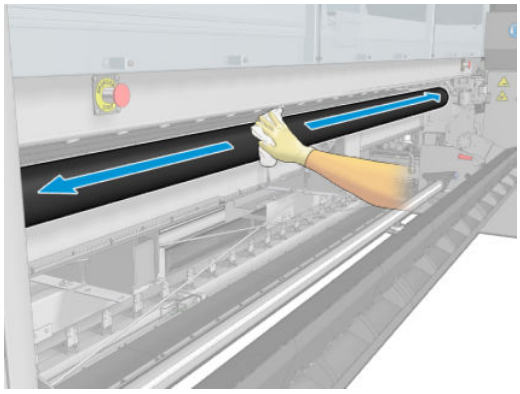


Clean the drive roller

1. Start the drive roller moving slowly backwards.

2. Clean the roller with a clean cloth dampened with distilled water; do not use petroleum-based cleaning liquids.

⚠ CAUTION: Take care not to allow the roller to trap your hands while cleaning (this is less likely if it is moving backwards).



3. Stop the drive roller.
4. Wait until the roller is dry.
5. Return the pinchwheel module to its original position and close the latches.

Clean the output platen

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

The output platen is made of plain sheet metal with two rows of plastic ramps.

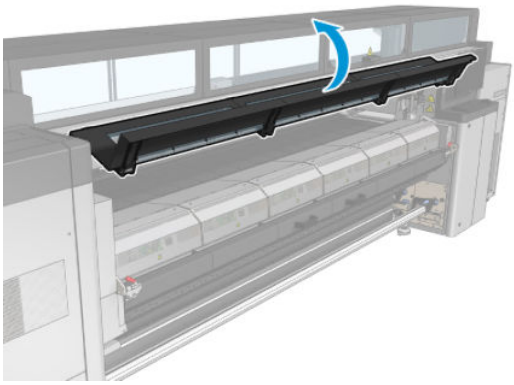
Prepare to clean the output platen

1. Ensure that the printer is not printing.
2. Unload the substrate.
3. Turn off the printer in the correct manner for maintenance operations: see Turn the printer off on page 195.

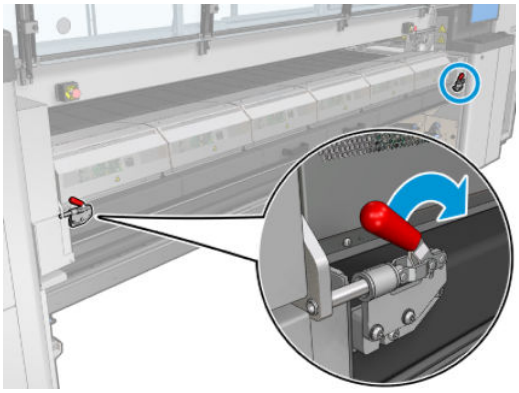
4. Wait for the curing modules to cool down (approx. 5min).

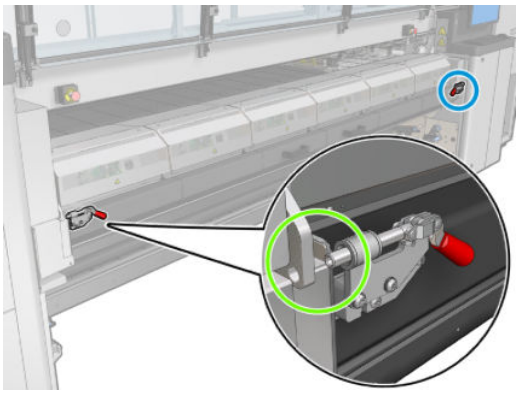
Pull out the curing assembly

1. Open the front door.

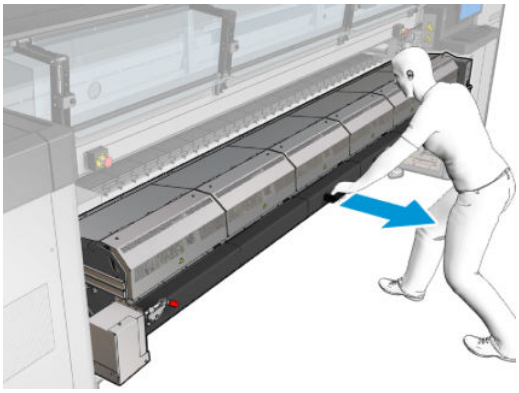


2. Open the curing module latches.





3. Pull out the curing assembly.

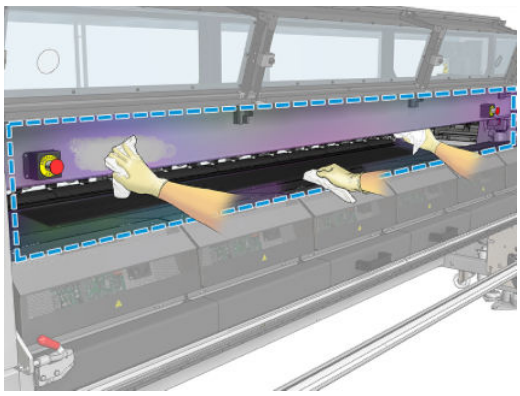


Clean the output platen

▲ In order to clean the output platen, access it from the top of the curing module.

Clean condensation from the output platen and output beams

1. If working with the ink collector, extra action is required to the clean condensation from the output platen and output beams when removing the ink collector. Make sure that no condensation is left on the output platen, the bottom plate sides, or the paper path.



2. Check that the window rubber is not broken.
3. Clean the underneath part of the printer. Sitting or lying on the floor, clean the printer with a lint-free cloth dampened with distilled water.
4. Make sure there is no condensation or dirt in the following parts:
   - Under the print zone and the structure beam sides
   - Roll-to-free fall and/or diverters
   - Drive roller
5. Open the printhead cleaning door and remove condensation or dirt from the substrate input drive motor.

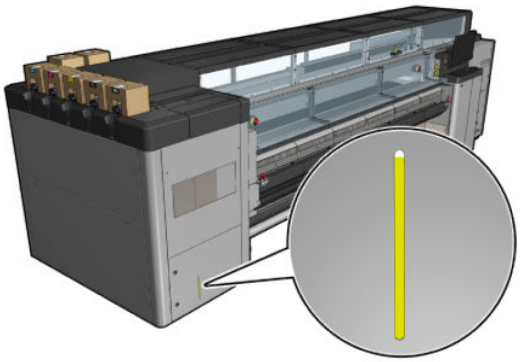
Finish off cleaning the output platen

1. Push the curing assembly back to its working position.
2. Close the curing latches.
3. Put the spindle back in position.
4. Ensure that the cleaned parts are completely dry and all vapor has completely evaporated.

Empty the condensation collector bottle

TIP: You are recommended to wear gloves for this operation.

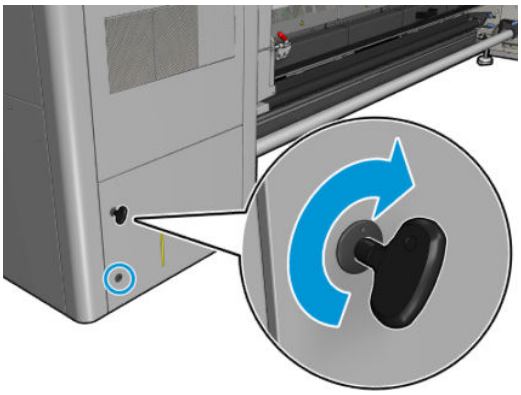
The condensation collector bottle is stored behind the left cover at the front of the printer. You can see the level of liquid in the bottle through a narrow window at the bottom of the cover.

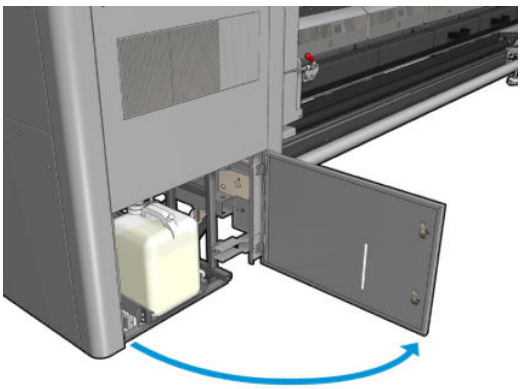


The bottle should be emptied before it is full, which will typically be after about 60–70 liters of ink have been used. You should check the bottle periodically, depending on your usage of the printer.

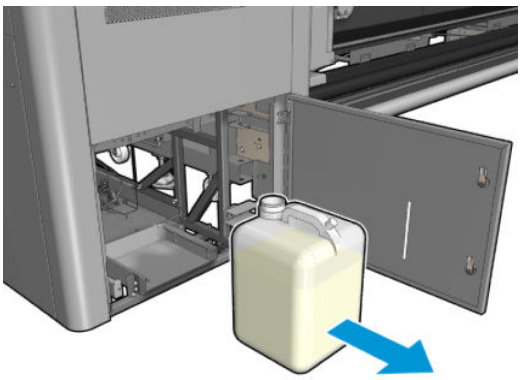
Empty the bottle

1. To remove the bottle, first open the two locks on the left, then open the cover; the hinges are on the right.

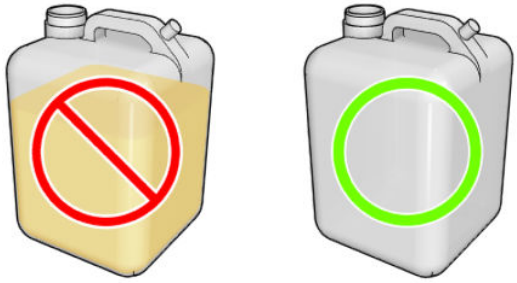




2. Remove the bottle.

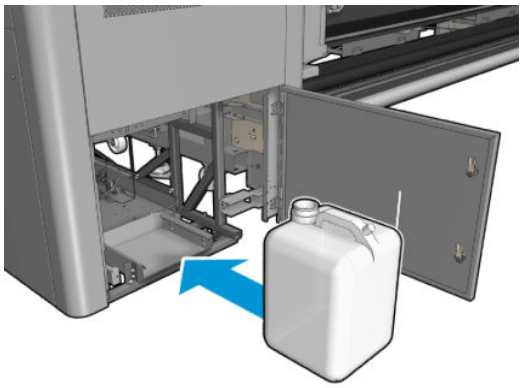


3. Empty the bottle.

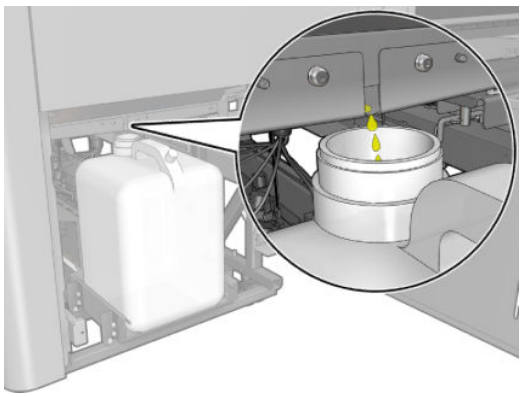


NOTE: The bottle collects a mixture of ink additives and water. Dispose of it according to local regulations. The waste-profile datasheet contains the required information for correct disposal. This document is located here: https://hplatexknowledgecenter.com/applications/wasteprofiles/.

4. Put back the empty bottle.



5. Take care that the mouth of the bottle is well positioned to receive the liquid falling from above.



6. Close the door.

Every 125 liters of ink

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

The following maintenance procedures are required every 125 liters of ink:

- Clean the carriage rails and replace the oiler foams on page 216
- Empty the oil collector caps on page 229
- Clean the bottom of the carriage, the drying glasses, and the line and crash sensors on page 238
- Clean the drop-detector ink deposits on page 242
- Clean the e-cabinet fan filters on page 245
- Clean the e-box fan filter on page 247
- Clean substrate input/output gears and spindle metal debris on page 250

Clean the carriage rails and replace the oiler foams

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Light radiation hazard

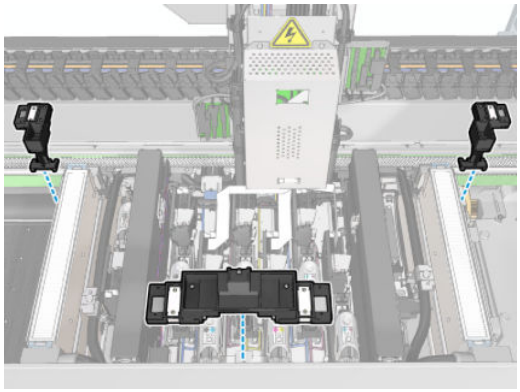
Electric shock hazard

For more safety information, see Safety precautions on page 2

For the latest information, see http://www.hp.com/go/latex3000/manuals/.

Prepare to clean the carriage rails

1. Ensure that you have the Carriage Rail Cleaning Tool provided with your printer.

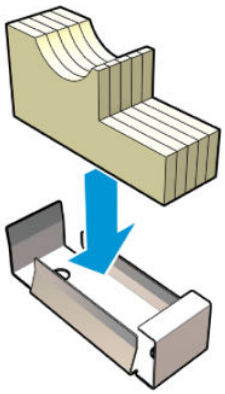


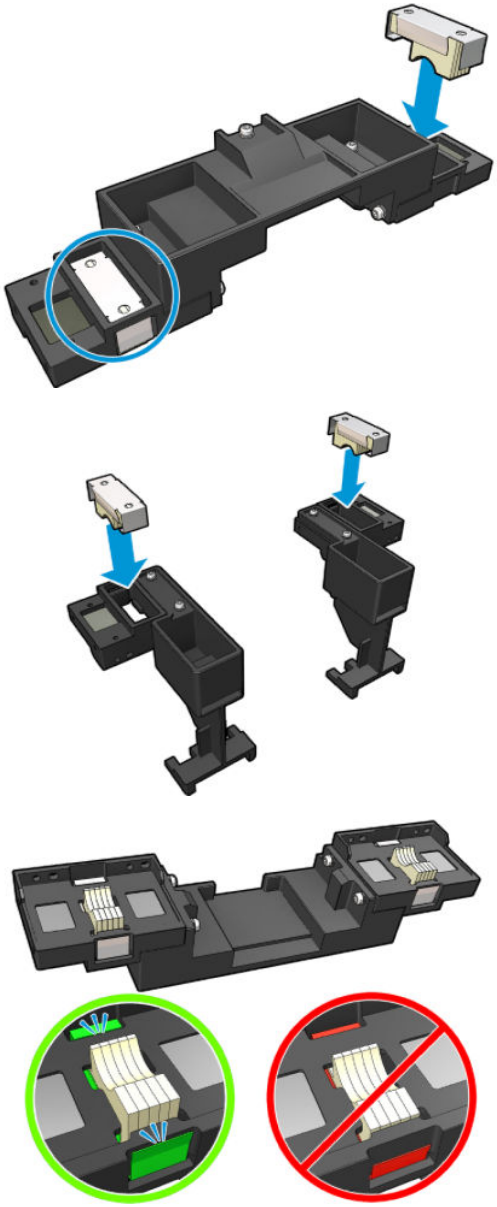
2. Ensure that you have the cleaning wicks (one bag of 20) and a 10 ml bottle of lubricant oil from the HP Latex 3x00 Printer Cleaning Kit, also provided with your printer.

3. Ensure that the printer is not printing.
4. You are recommended to wear gloves.
5. Ensure that all windows, covers, and doors are closed and remain in their original positions.

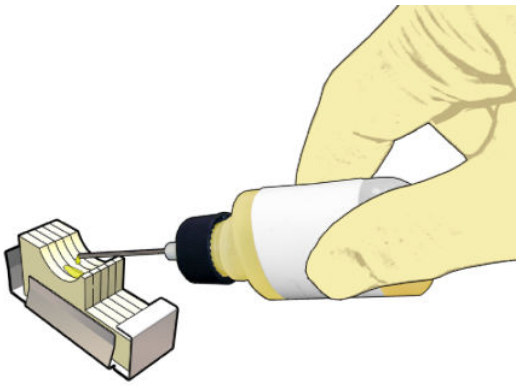
Clean the carriage rails

1. Insert the cleaning wicks into each of the sections of the Carriage Rail Cleaning Tool.
   - Front section: 5 wicks on each side (total 10)
   - Rear sections: 5 wicks in each section





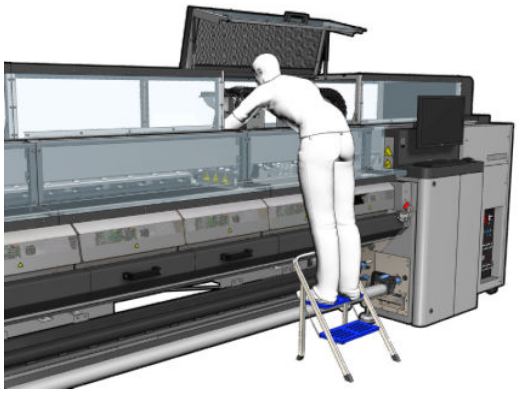
2. Moisten the surface of the wicks with the lubricant oil until it turns yellow. A fifth of the bottle should be enough for all 20 wicks.



3. Run the diagnostic test to clean the carriage rail.

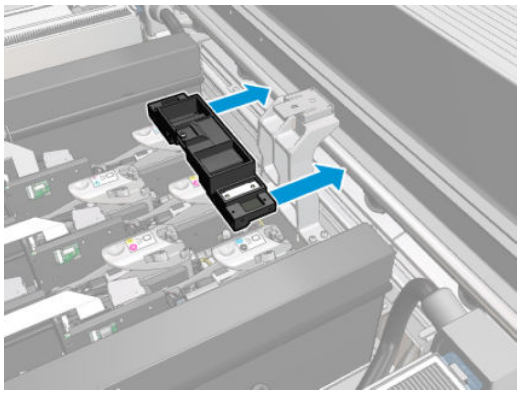
   The carriage will perform a series of movements and will stop at the service position.

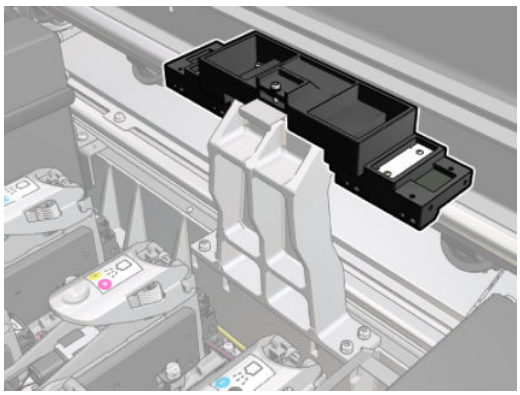
4. Open the service position window.



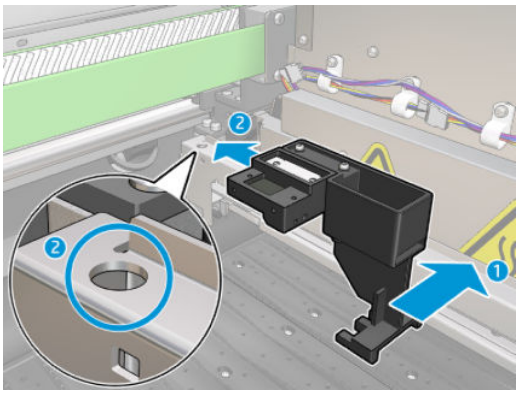
5. Insert the Carriage Rail Cleaning Tool front section.

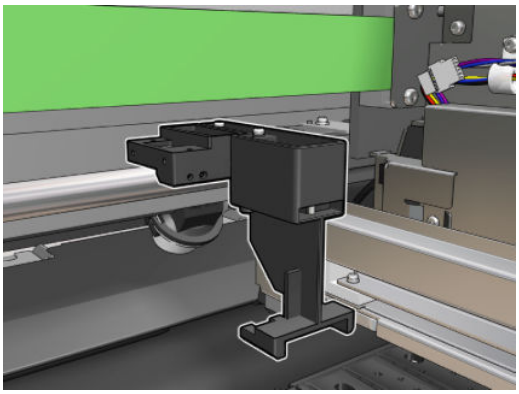
⚠ CAUTION: If you cancel the process before completion, remember to remove the tool from inside the printer.

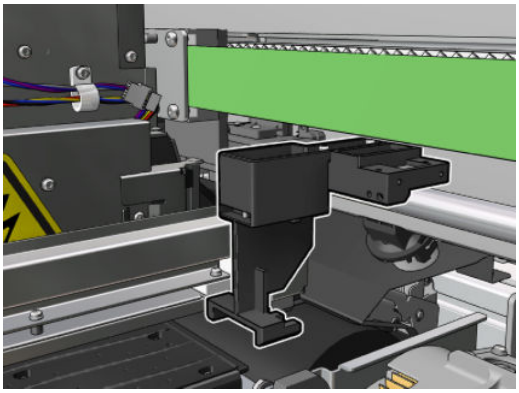




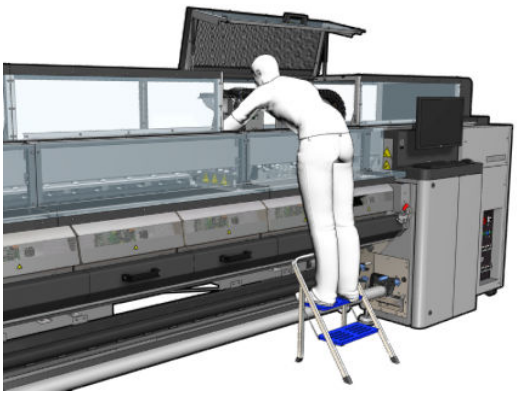
6. Insert the Carriage Rail Cleaning Tool rear sections.







7. Close the service position window and click **Continue**.
8. When prompted, open the service position window.



9. Remove the three Carriage Rail Cleaning Tool sections.

10. Close the service position window. The carriage returns to its normal position.
11. Remove the cleaning wicks from the Carriage Rail Cleaning Tool sections and dispose of them appropriately, according to local regulations.

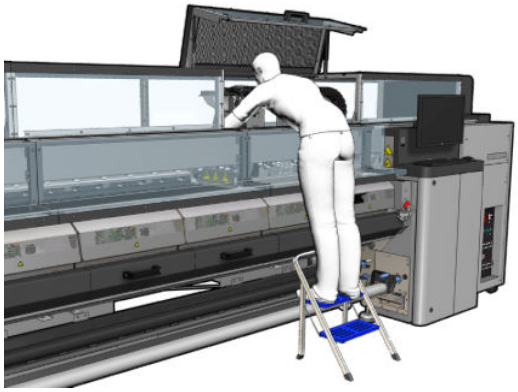
NOTE: If this carriage rail cleaning process fails, there is an alternative procedure: see Clean the carriage rails manually on page 334.

Prepare to replace the oiler foams

1. Ensure that you have the Oiler Foams Kit included in the HP Latex 3x00 Printer Cleaning Kit, provided with your printer.
2. Take the replacement oiler foams and wicks from the kit.

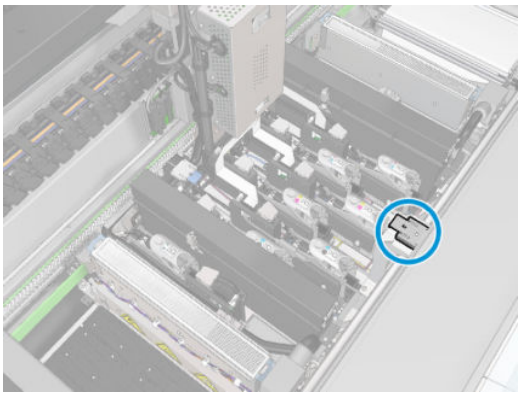
3. Move the carriage to the service position.
4. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

5. Open the service position window.

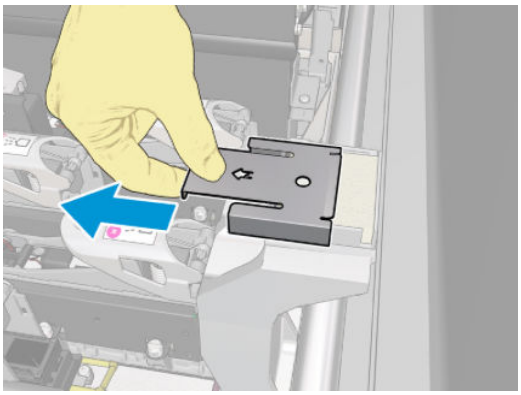


Replace the front oiler foam and wicks

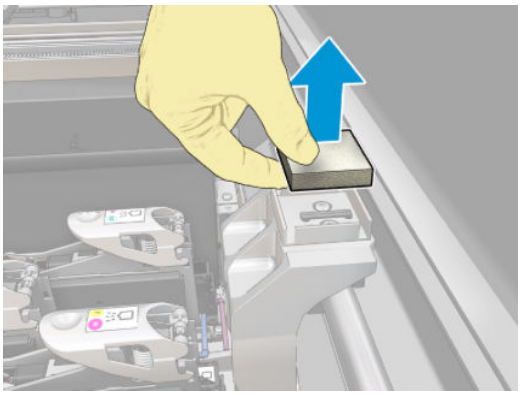
1. Locate the front oiler foam in the carriage.



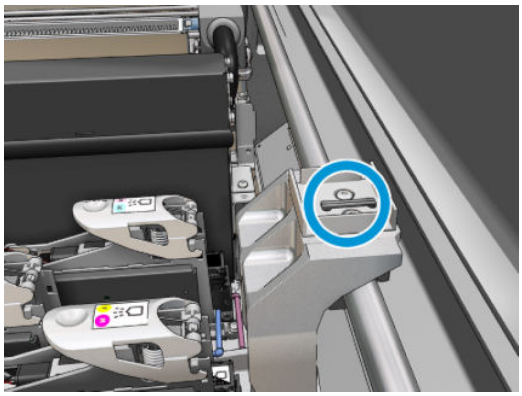
2. Slide off the cover of the front oiler foam.

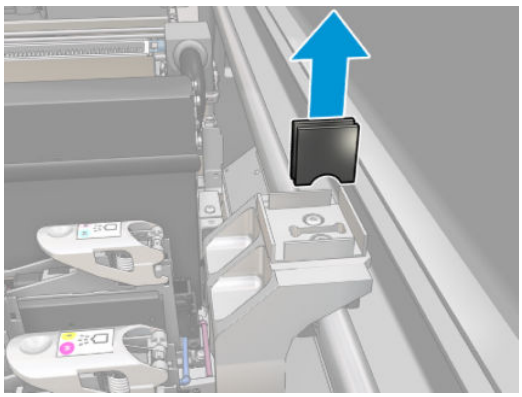


3. Remove the old foam.

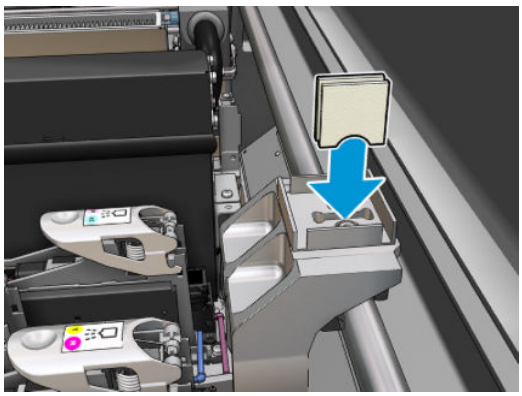


4. Remove the old wicks.

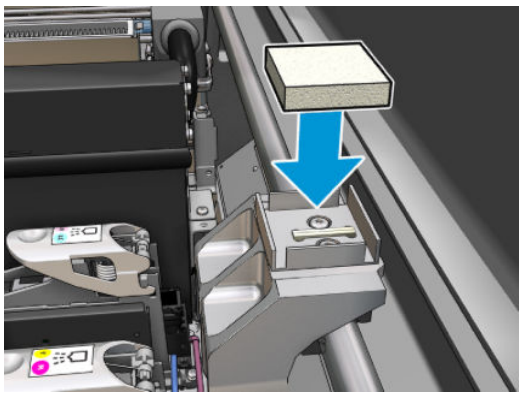




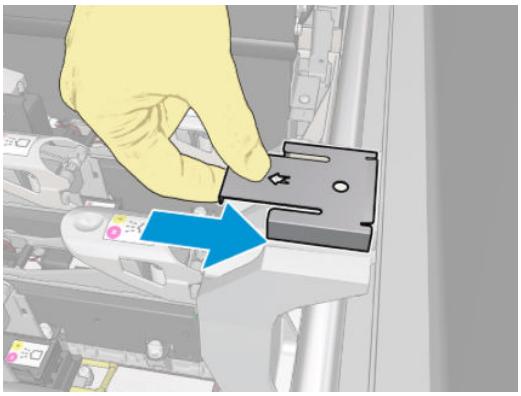
5. Insert the new wicks.



6. Insert the new foam.

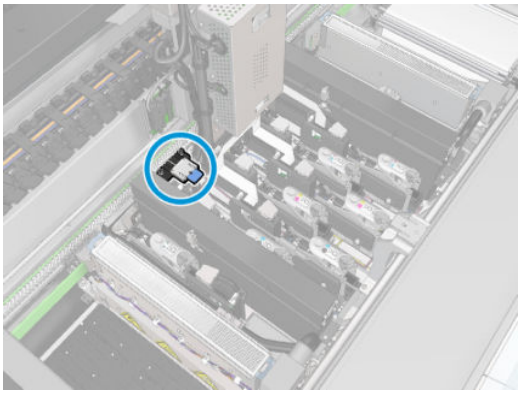


7. Put back the cover.

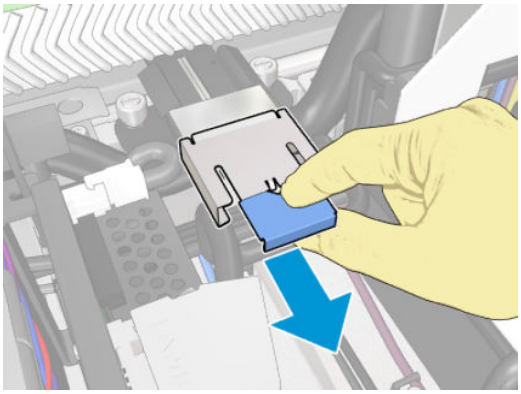


Replace the rear oiler foam and wicks

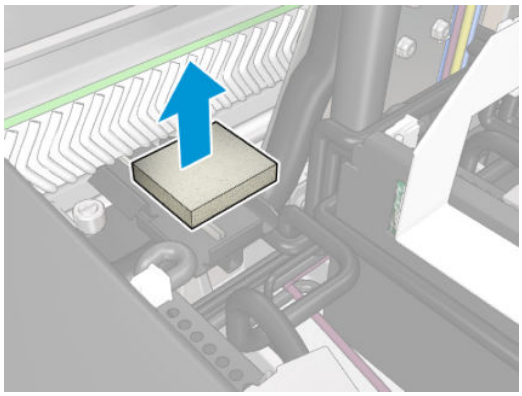
1. Locate the rear oiler foam in the carriage.



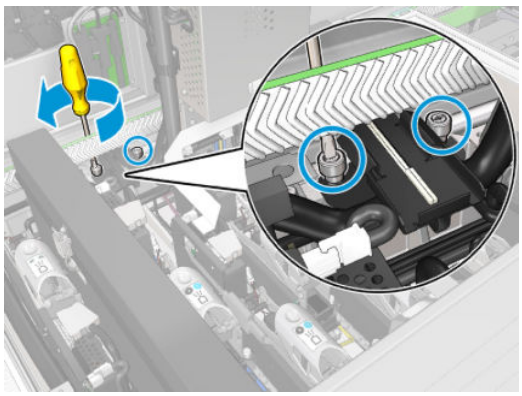
2. Slide off the cover of the rear oiler foam.

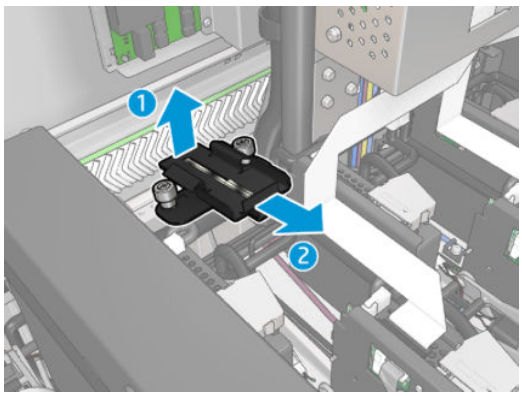


3. Remove the old foam.

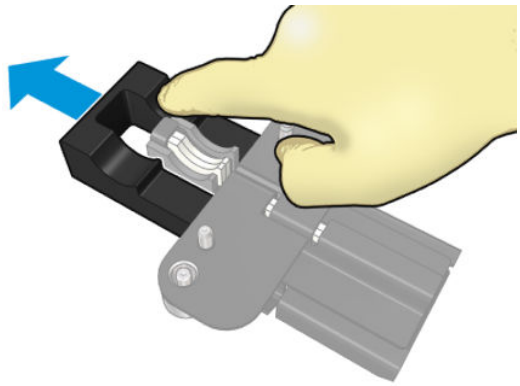


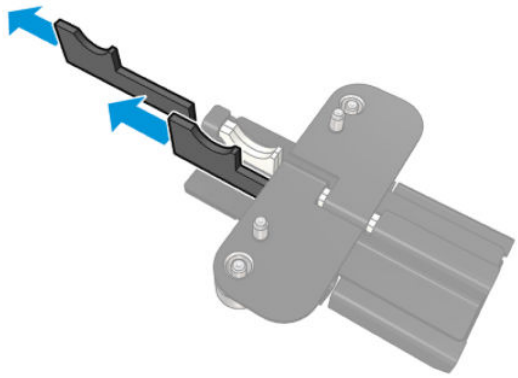
4. Loosen the two screws that attach the black oiler holder to the carriage, and pull the holder out of the carriage



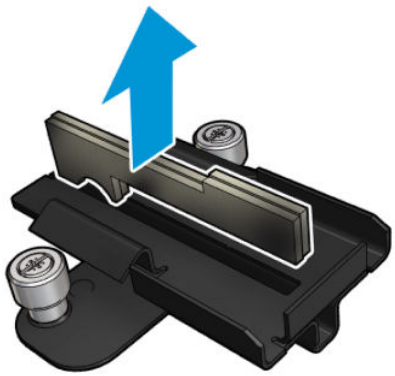


5. If the oiler also has a felt retainer fitted, remove it, and the 2 used felts. If not, skip this step.

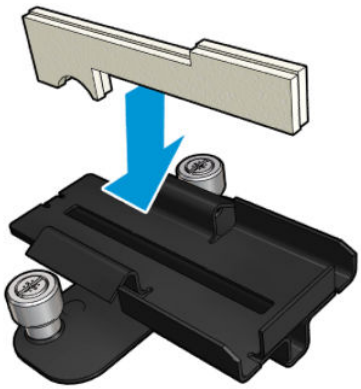




6. Remove the used wicks.

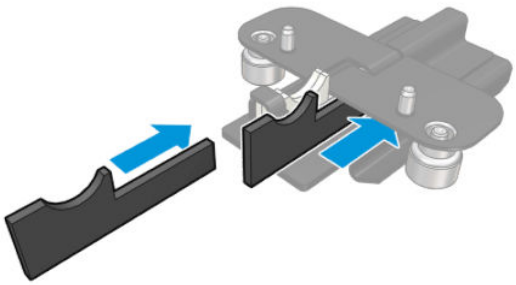


7. Insert the new wicks.

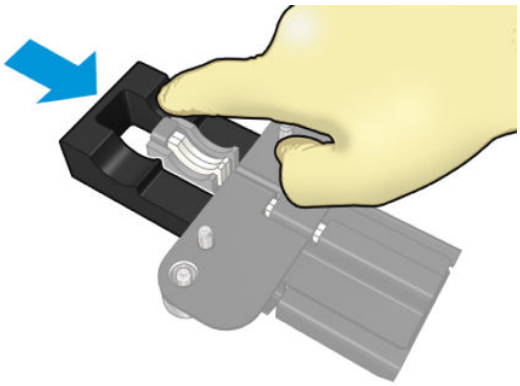


Check that the wicks are inserted correctly.

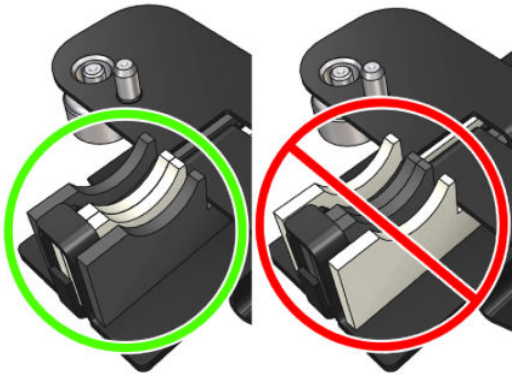
8. If the oiler had the felt retainer fitted, insert 2 new felts, one on each side. If not, go to step 10.



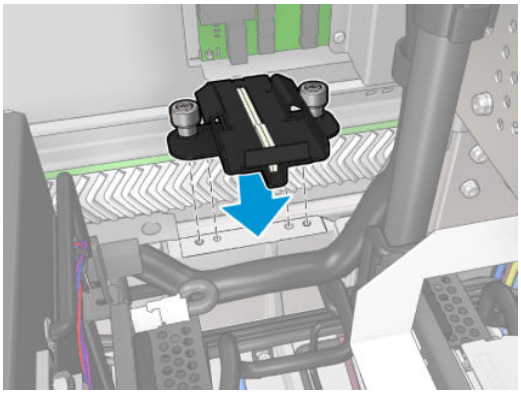
9. Insert the felt retainer.



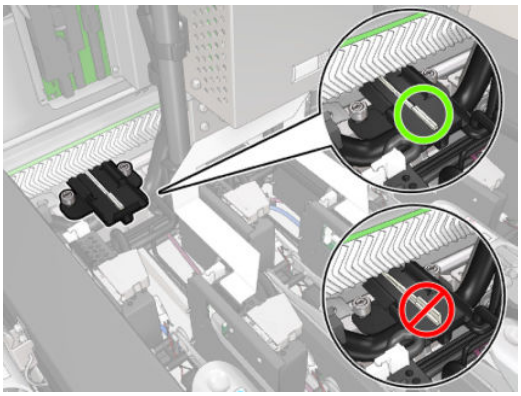
Check that the wicks and retainer are inserted and fitted correctly.



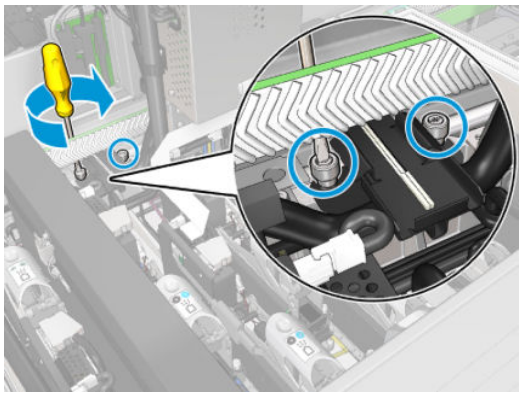
10. Put the black oiler holder back into position. The holder has two pins to locate it properly.



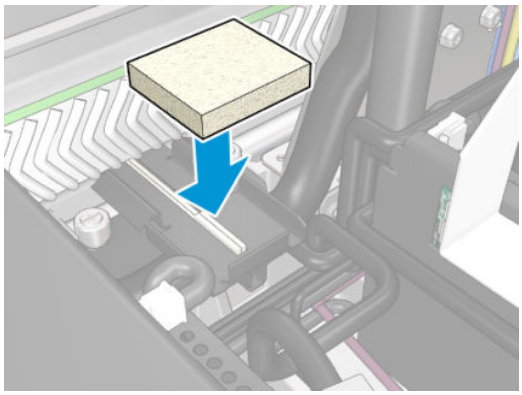
11. Check again that the new wicks are inserted correctly.



12. Tighten the screws.



13. Insert the new foam.



14. Slide in the cover.
15. Close the service position window.

Finish off replacing the oiler foams

1. Ensure that all windows, covers, and doors are closed and remain in their original position.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Empty the oil collector caps

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

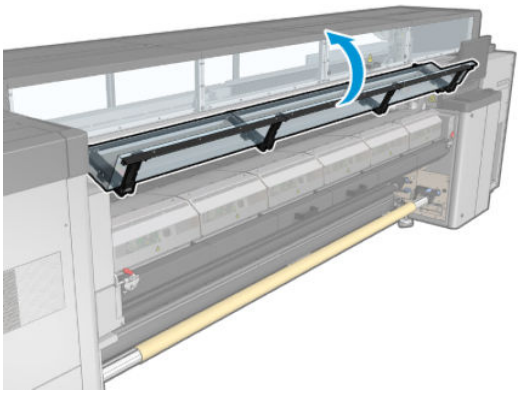
Prepare to empty the oil collector caps

1. Ensure that you have a flashlight (not provided) as recommended in the maintenance tool set.

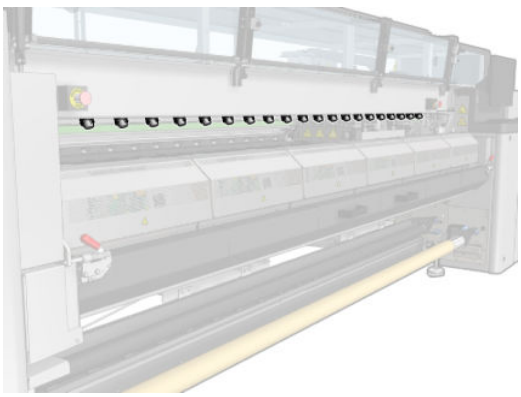
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to the service position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

Empty the oil collector caps

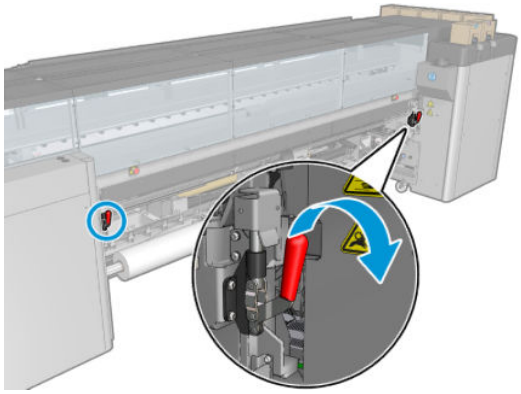
1. Open the front door.



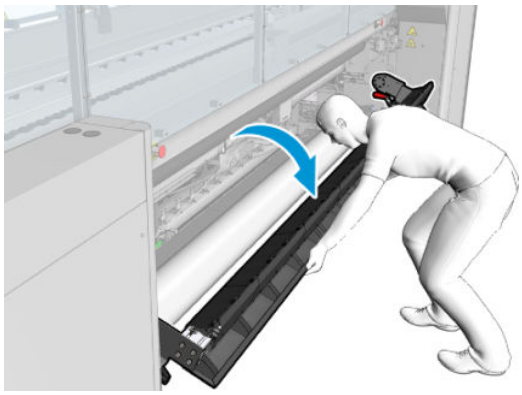
2. Check all of the front collectors at the center of the printer.



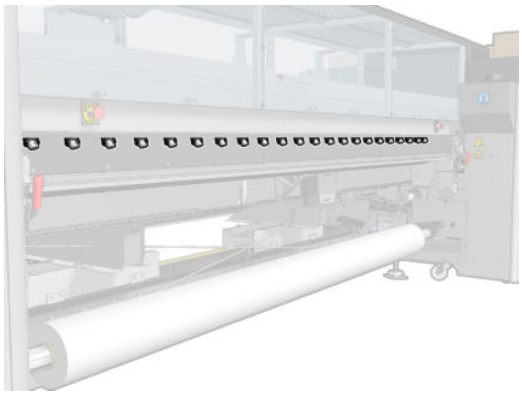
3. Open the loading table latches.



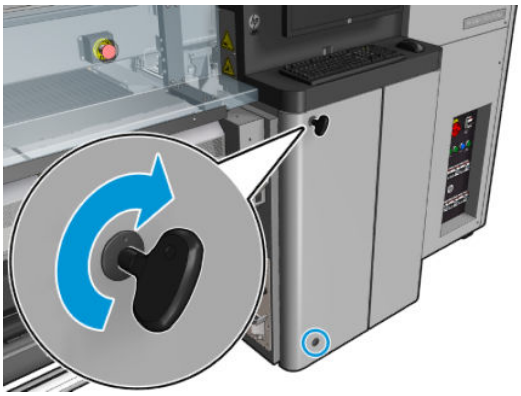
4. Open the loading table.

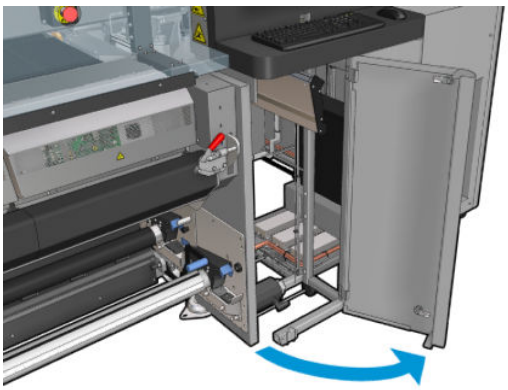


5. Check all of the back collectors at the center of the printer.

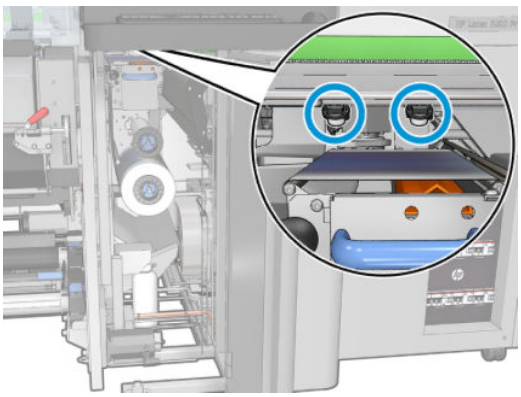


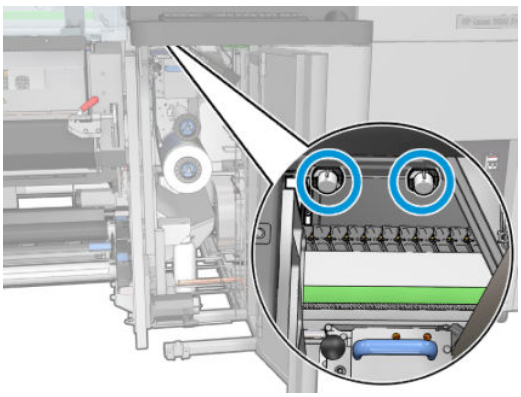
6. Open the printhead cleaning roll door at the front right of the printer.



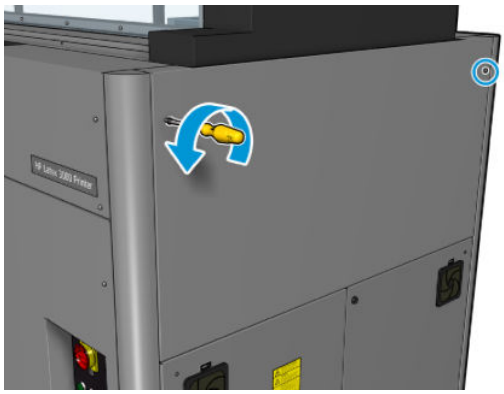


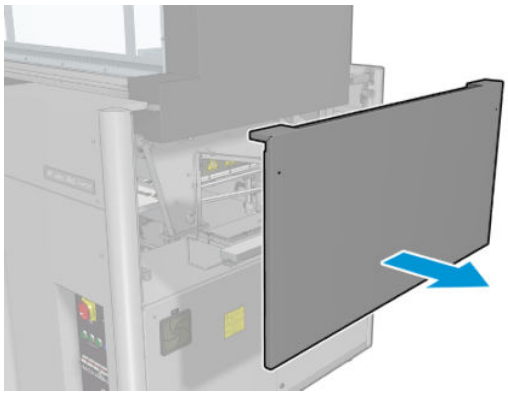
7. Check the front and back collectors visible from the door.



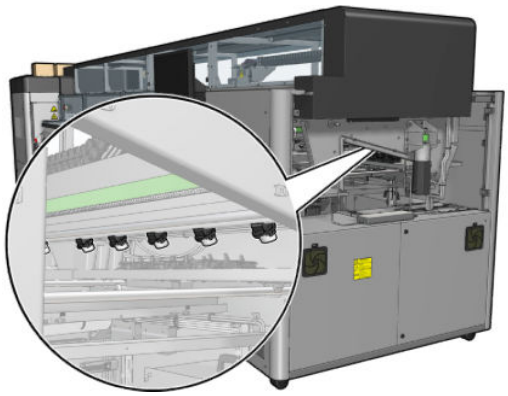


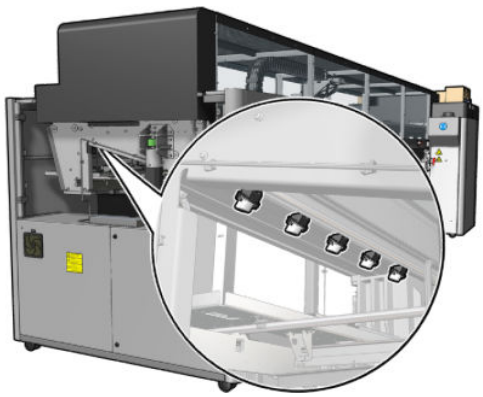
8. Unscrew and remove the cover to access the capping station.



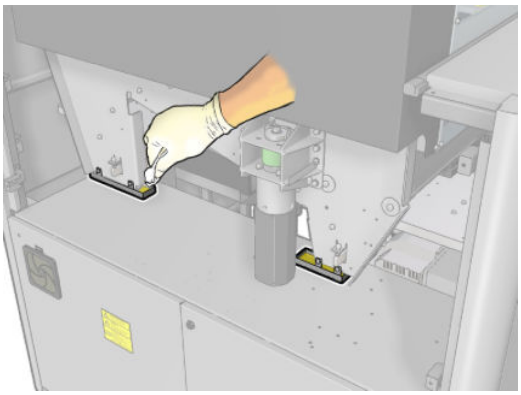


9. Check the front and back collectors visible from the opened cover.

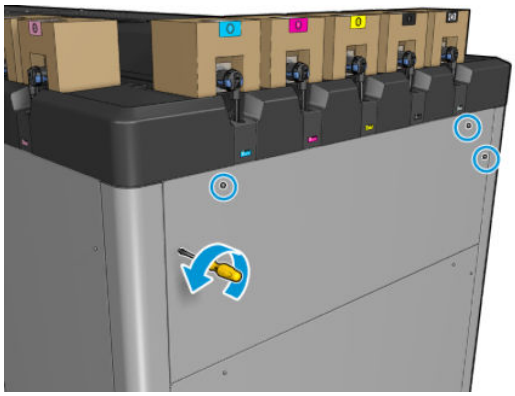


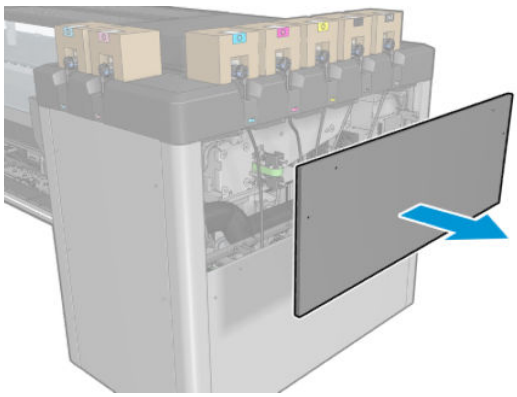


Also check the trays on the right; clean them if necessary by absorbing the oil with a cloth or other absorbent material.

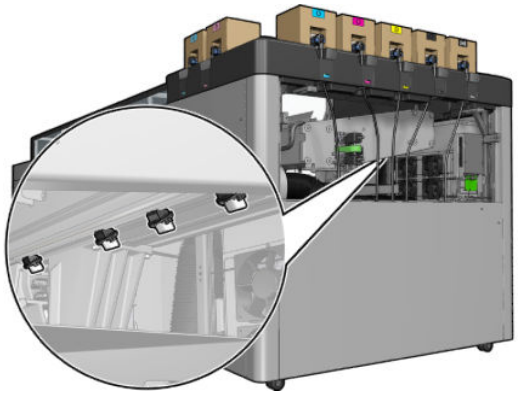


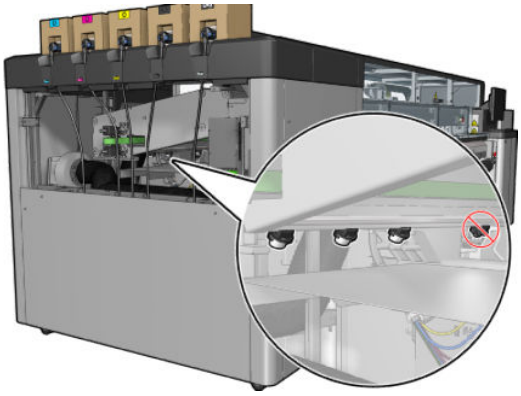
10. Unscrew the pointed screws and remove the left cover.



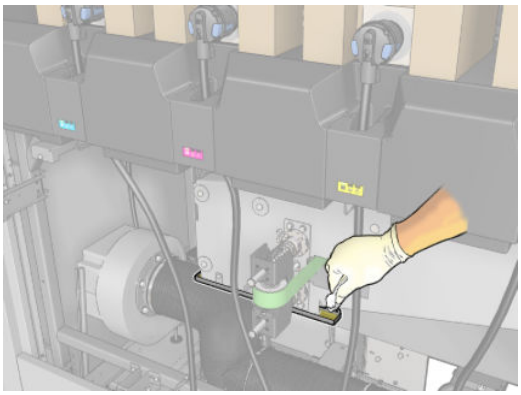


11. Check the front and back collectors visible from the opened cover. One of the back screws has no collector, as indicated below.



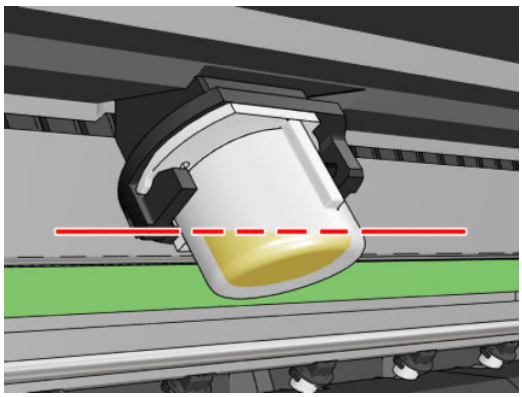


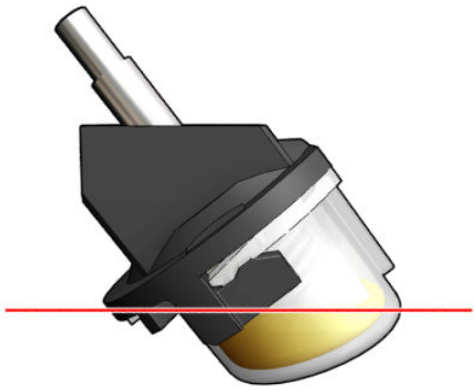
Also check the tray on the left; clean it if necessary by absorbing the oil with a cloth or other absorbent material.



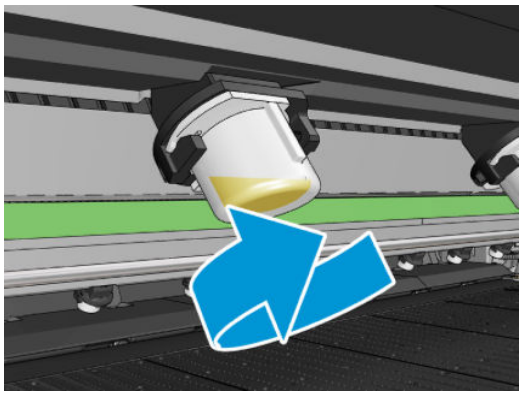
12. In each case, remove and empty the collectors that are full, as shown below, and dispose of the oil according to local regulations.

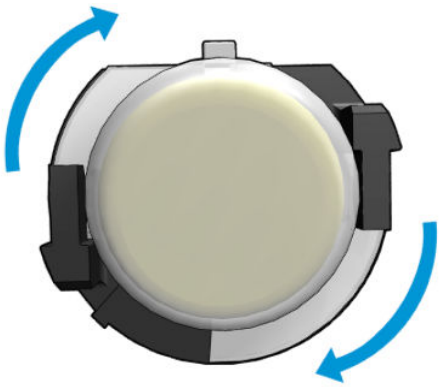
Maximum oil level





Remove collector





13. Put the emptied collectors back into place.

14. Recheck that all the emptied collectors in the each accessed area are back in place.

Finish off after emptying the oil collector caps

1. Close the loading table and secure the latches.
2. Close the front door.
3. Put back the covers and screw them into place.
4. Close the printhead cleaning roll door.
5. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Clean the bottom of the carriage, the drying glasses, and the line and crash sensors

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

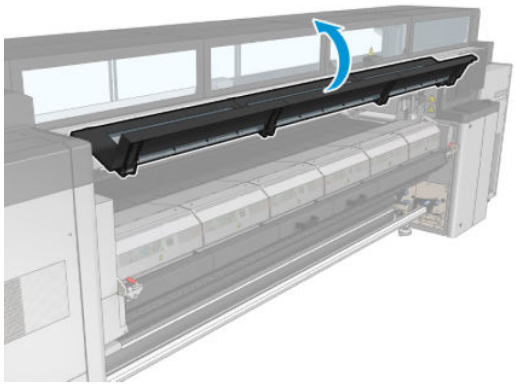
Prepare to clean the carriage bottom

1. Ensure that you have the HP Latex 3x00 Printer Cleaning Kit, provided with your printer.

NOTE: A steel scourer is not provided but will also be needed.

2. Ensure that the printer is not printing.
3. Unload the substrate.
4. Wait for the drying modules to cool down (about 10 min).
5. Ensure that all windows, covers, and doors are closed and remain in their original positions.
6. Move the printhead carriage to the service position.
7. Move the carriage beam to its highest position (this takes about 2 minutes).
8. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

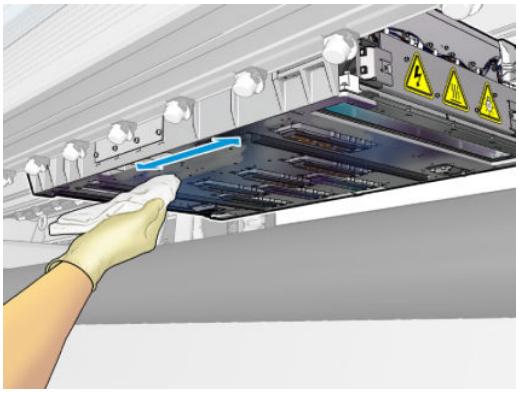
9. Open the front door.

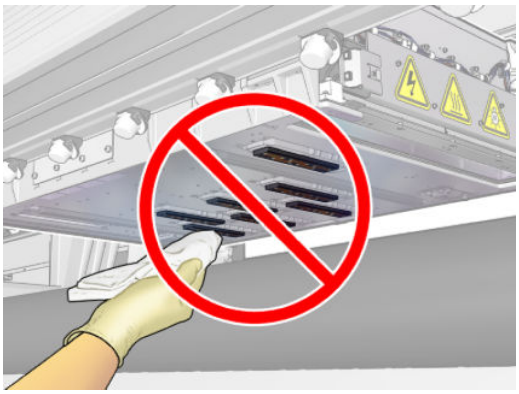


NOTE: For some operations, there is better access from the back of the printer. Open the loading table too if you find it useful.

Clean the carriage bottom

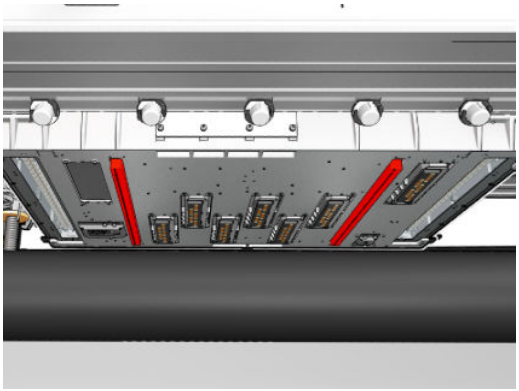
- Clean the carriage bottom with a lint-free cloth dampened with distilled water. **Be very careful not to touch the printheads.**

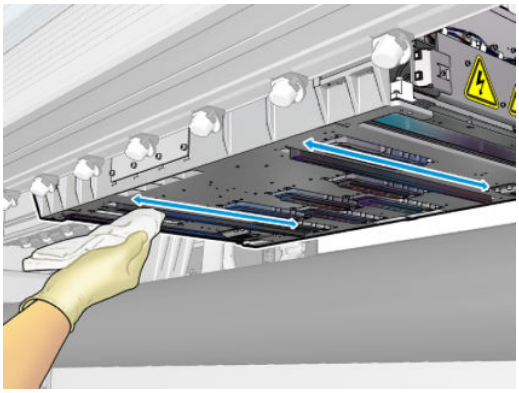




Clean the aerosol nozzles

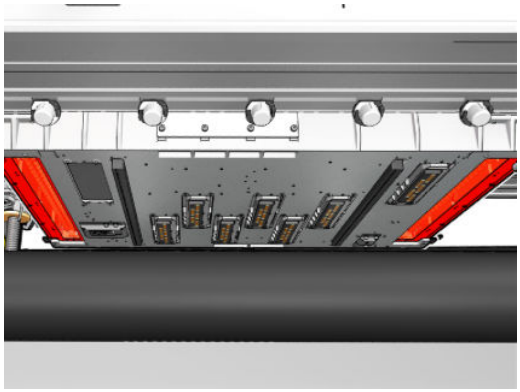
▲ Clean the aerosol nozzles with a dampened cloth.

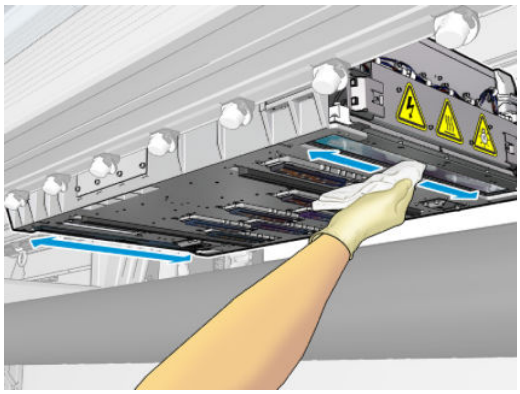




Clean the drying glasses

1. Clean the drying glasses with a dampened cloth.

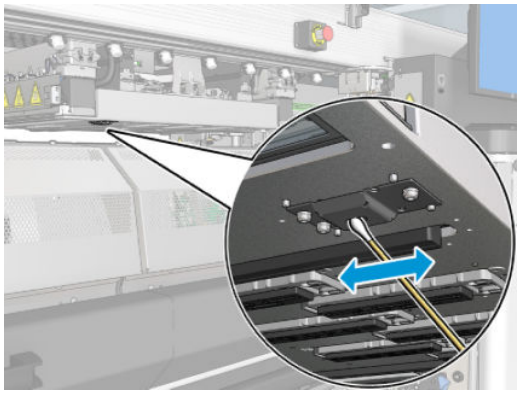




2. Clean the drying glasses with a steel scourer.
3. Continue cleaning the drying glasses with cloth and scourer until they are completely clean.

Clean the line and crash sensors

1. Wipe the line sensor and two crash sensors with one of the cotton swabs provided in the Printer Cleaning Kit, slightly dampened with distilled water.



2. Wipe the crash sensor emitter and receiver lenses located at both sides of the carriage with one of the cotton swabs (provided in the Printer Cleaning Kit) slightly dampened with water. Once cleaned, ensure the parts are completely dry.

Finish off cleaning the carriage bottom

1. Close the front door.
2. Ensure that the cleaned parts are completely dry and all vapor has completely evaporated.

3. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

4. Ensure that all windows, covers, and doors are closed and remain in their original positions.
5. Move the carriage beam back to its working position (this takes about 2 minutes).
6. Move the carriage back to its working position.

Clean the drop-detector ink deposits

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

For more safety information, see Safety precautions on page 2

NOTE: These ink deposits are dried and cured onto surfaces and may be difficult to remove.

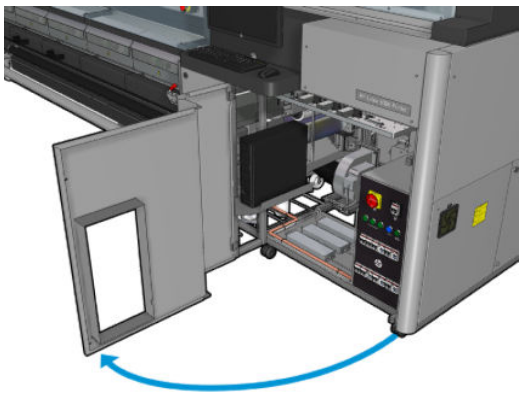
Prepare to clean the ink deposits

1. Ensure that you have a steel scourer (not provided).

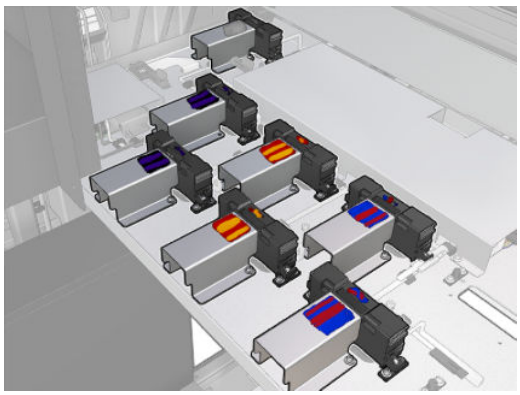
2. Ensure that the printer is not printing.
3. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

Clean the ink deposits

1. Unscrew and open the right front cover to access the capping station.

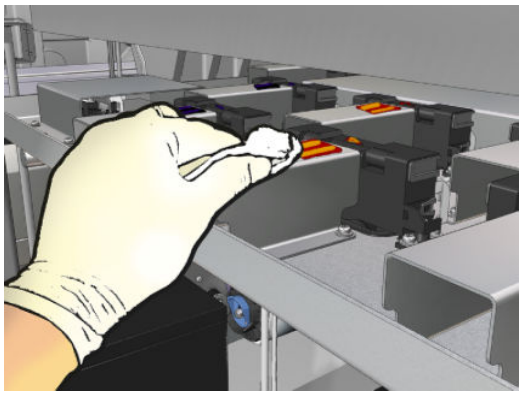


2. There are seven ink deposits to be cleaned.

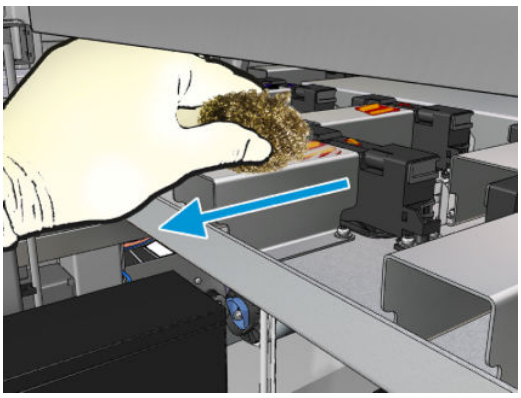


3. Dampen the surface of each ink deposit with a cloth dampened with isopropyl alcohol.

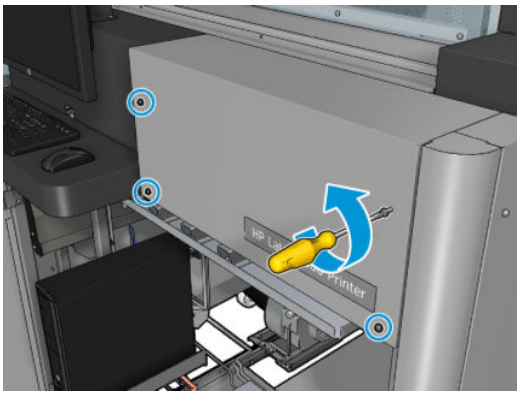
NOTE: If you are in an area (such as California) that regulates VOC cleaning and maintenance fluids, instead of isopropyl alcohol use a VOC-certified cleaner such as a properly diluted Simple Green All-Purpose Cleaner.

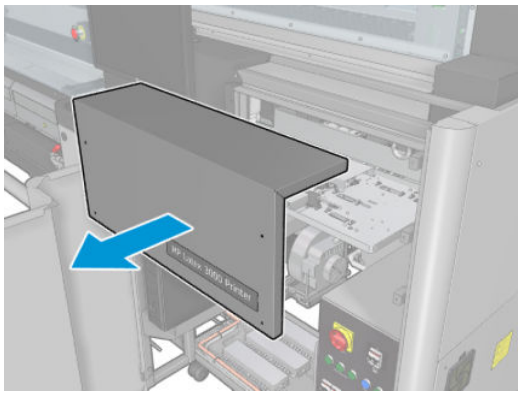


4. Scrub the surface of each ink deposit with the steel scourer, taking care to move it from the inside of the printer towards the outside, to avoid pushing dirt into the drop detector.

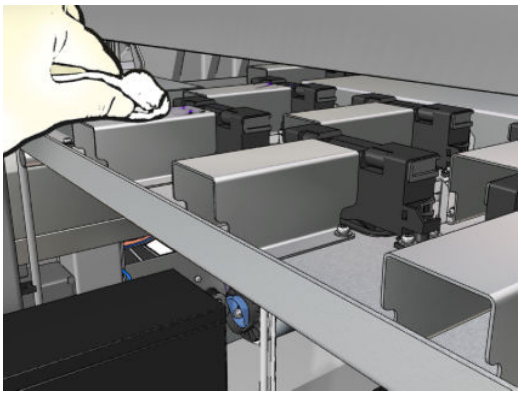


TIP: If access or visibility is not good enough, remove the upper section of the right front cover by unscrewing the screws shown below.





5. Clean the surface of each ink deposit with a cloth dampened with isopropyl alcohol.



Finish off after cleaning the ink deposits

1. If you removed it earlier, put back the upper section of the right front cover and screw it into place.
2. Close the right front cover and screw it into place.
3. Ensure that the cleaned parts are completely dry.
4. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

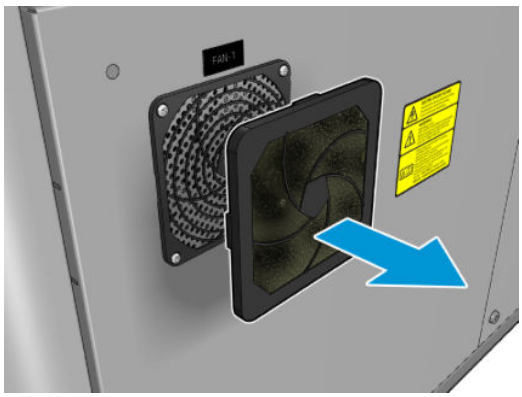
Clean the e-cabinet fan filters

Prepare to clean the e-cabinet fan filters

1. Ensure that the printer is not printing.
2. Locate the fan filters on the printer.

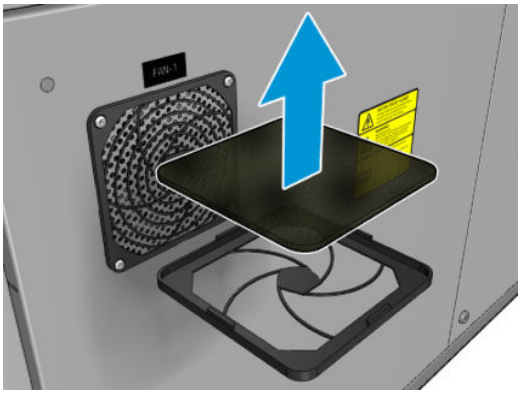
Clean the e-cabinet fan filters

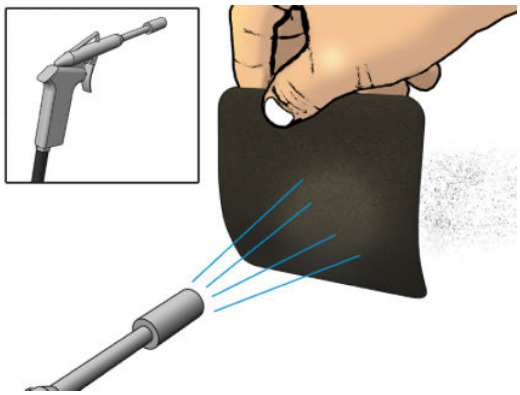
1. Pull off the plastic fan filter cover.



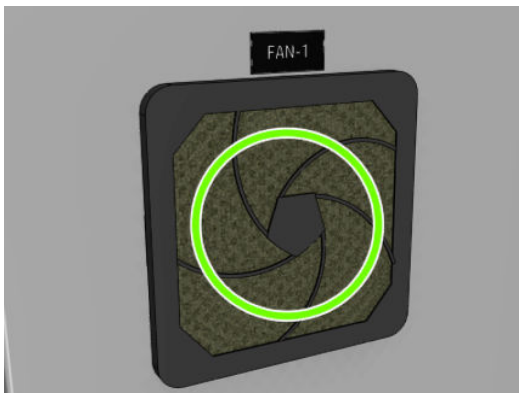
2. For each fan, take the fan filter and clean by blowing it with the air gun. Be careful to locate it back correctly: it must cover the fan's square surface.

⚠ WARNING! The air gun provided with the printer is only intended to inflate the spindle. When recommended to use for cleaning purposes, make sure to do so according to local regulations since additional safety provisions may apply.





3. Put back the fan cover.



Clean the e-box fan filter

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

Moving fan blades

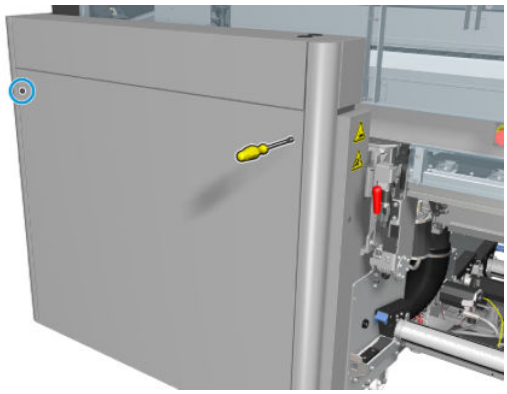
For more safety information, see Safety precautions on page 2

Prepare to clean the e-box fan filter

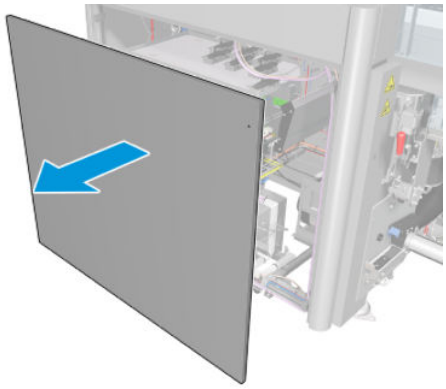
1. Turn off the printer and the power-enable switch.

2. Locate the rear right panel assembly.

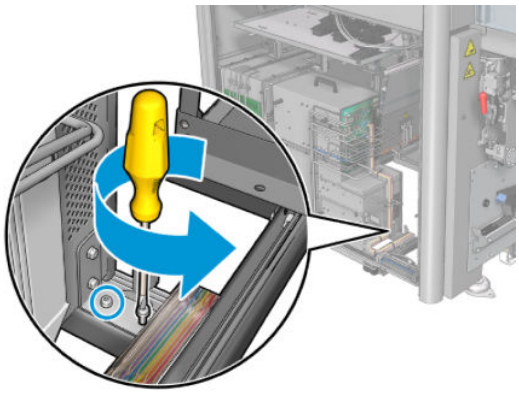
3. Remove the two pointed T-20 screws that attach the rear right panel assembly.

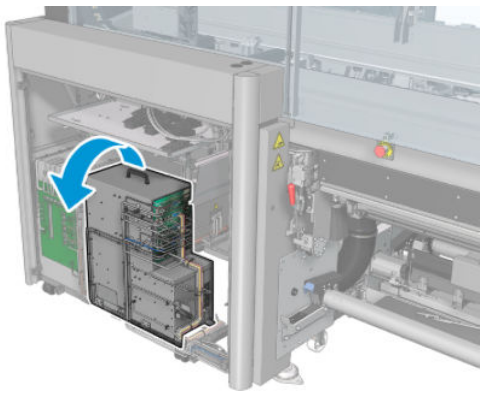


4. Remove the rear right panel assembly.



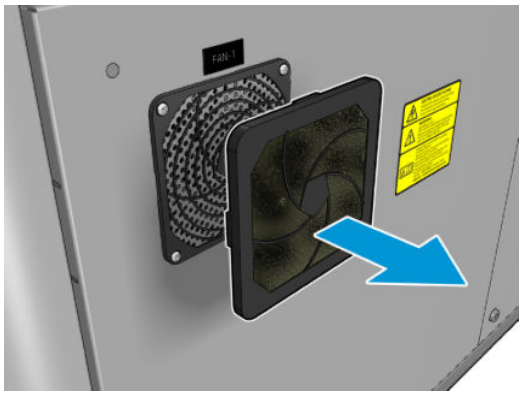
5. Remove the two T-20 screws from the e-box support and pull it out carefully.





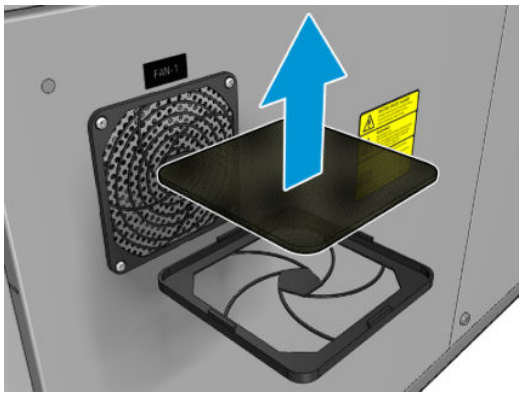
Clean the e-box fan filter

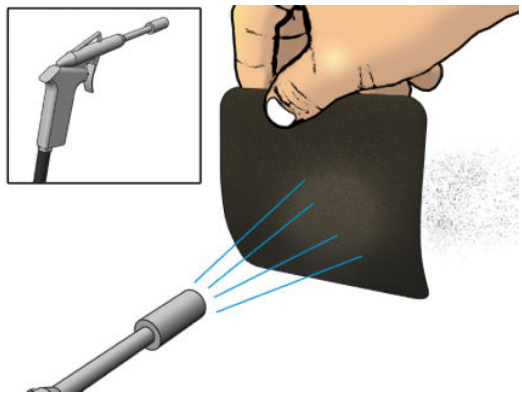
1. Pull off the plastic fan filter cover.



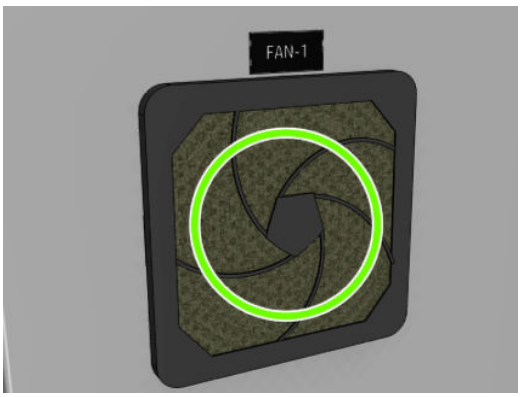
2. Take the fan filter and clean by blowing it with the air gun. Be careful to locate it back correctly: it must cover the fan's square surface.

> ⚠ **WARNING!** The air gun provided with the printer is only intended to inflate the spindle. When recommended to use for cleaning purposes, make sure to do so according to local regulations since additional safety provisions may apply.





3. Put back the fan cover.



Clean substrate input/output gears and spindle metal debris

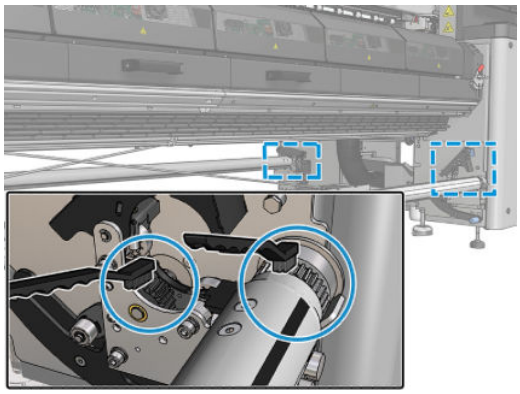
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

1. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

2. Remove the spindle.

3. Clean any metal debris from the bearings with a brush.



Every 500 liters of ink

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

The following maintenance procedures are required every 500 liters of ink:

- Replace the rubber blade on page 252

Replace the rubber blade

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

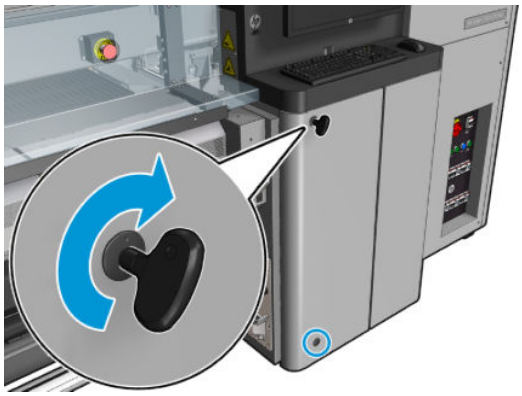
Electric shock hazard

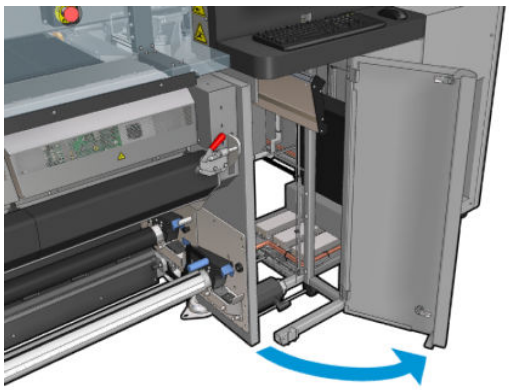
For more safety information, see Safety precautions on page 2

Prepare to replace the rubber blade

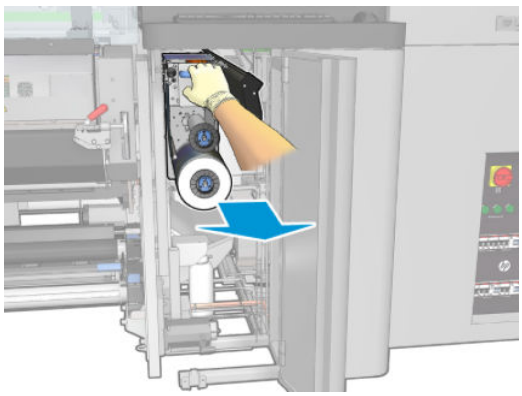
1. Ensure that you have the Printhead Cleaning Roll Rubber Blade Kit (CZ056-67046), which is included in the Printer Maintenance Kit (1HA07-67008 or 1VT19A) but can also be purchased separately.
2. Ensure that the printer is not printing.

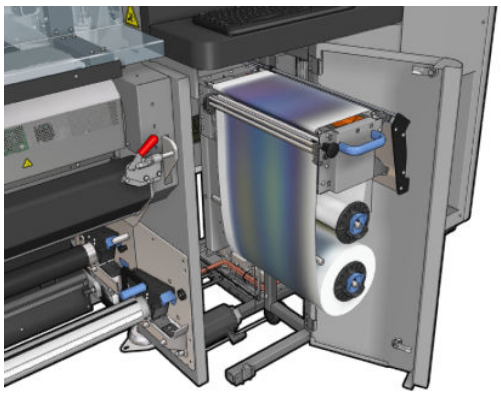
3. Unlock and open the printhead cleaning roll door.





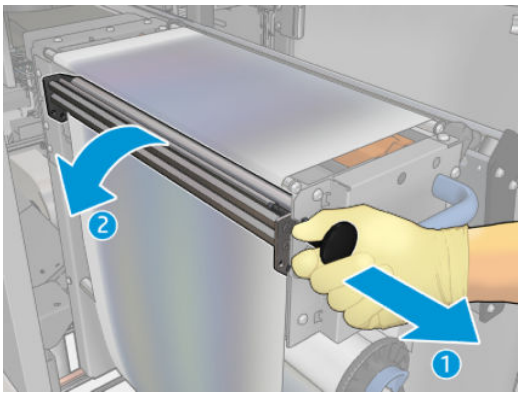
4. Pull out the printhead cleaning roll carriage.



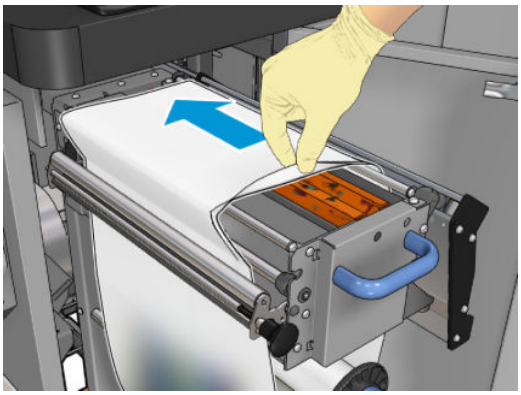


5. Put on gloves to protect your hands.

6. Open the pinchwheel (pull out and rotate the black plastic knob).

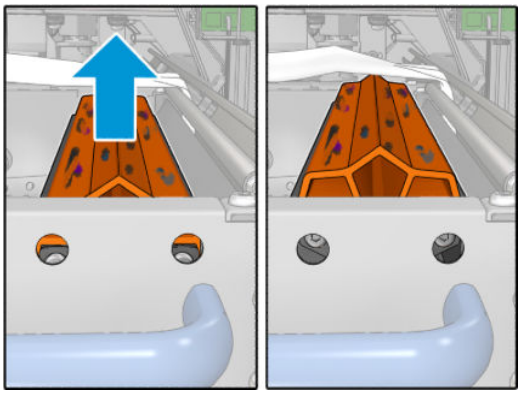


7. Move the printhead cleaning material aside in order to uncover the rubber blade.

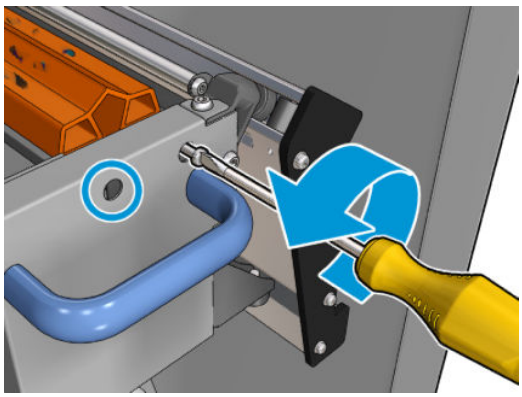


Replace the rubber blade

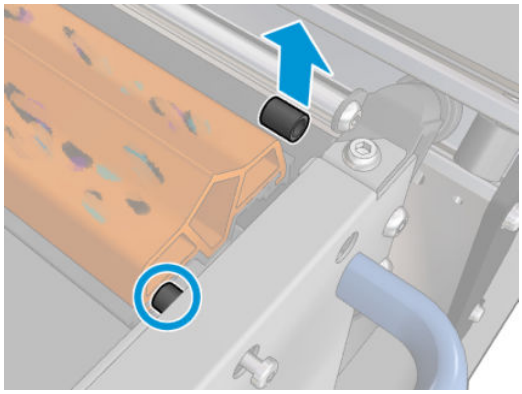
1. Move the rubber blade to the replacement position.



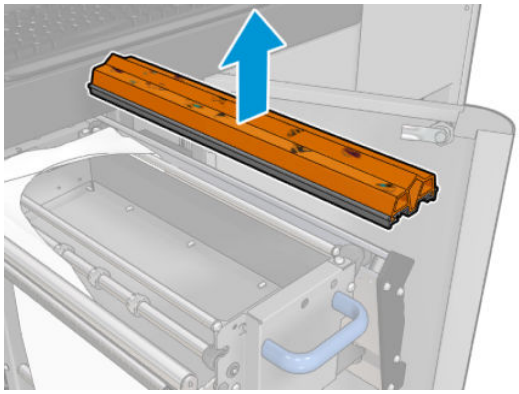
2. Use a torx 15 screwdriver to remove the two screws shown below. While you unscrew them, you must hold the two spacers shown on the right (otherwise, they will fall and might get lost).



3. Remove the spacers.



4. Remove the rubber blade and place the new one in position.



5. Replace the screws. Screw them in with one hand while holding the spacer in place.

Finish off after replacing the rubber blade

1. Push the printhead cleaning material back into place and close the pinchwheel (using the black plastic knob).
2. Carefully push the printhead cleaning roll carriage back into its working position.
3. Close and lock the door.

Every 1500 liters of ink

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

The following maintenance procedures are required every 1500 liters of ink:

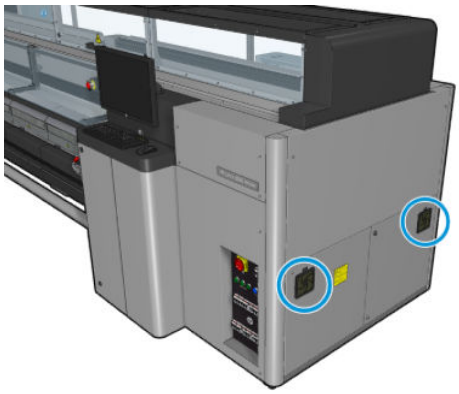
- Replace the e-cabinet fan filters on page 256
- Replace e-box fan filter on page 258
- Clean the impinging plate on page 261
- Clean the vapor removal external filter on page 263
- Clean the rear scan-axis beam on page 264
- Clean and grease the substrate drive transmission gears and rods on page 267
- Grease the carriage beam screws on page 268
- Clean and grease the service station transmission and rods on page 270
- Empty the drop detector ink vessel on page 271
- Replace the rubber blade on page 252
- Clean the carriage rails and replace the oiler foams on page 216
- Grease the printhead primers on page 273
- Replace the rocker pads on page 337

Replace the e-cabinet fan filters

Prepare to replace the e-cabinet fan filters

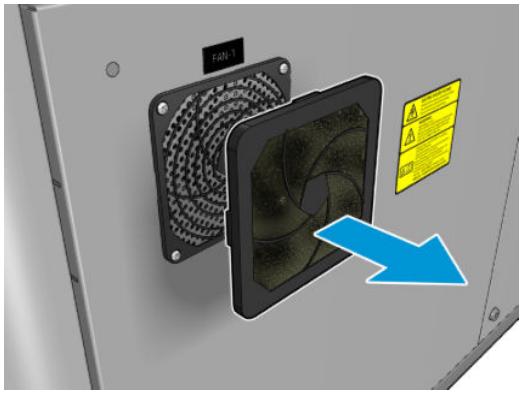
1. E-cabinet fan filters are provided with your printer in the HP Latex 3x00 Printer Cleaning Kit: the necessary sets of two filters are provided; only one set is needed for this operation.

2. Ensure that the printer is not printing.
3. Locate the fan filters on the printer.

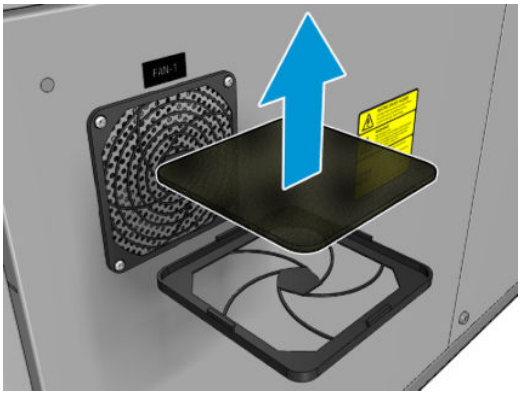


Replace the e-cabinet fan filters

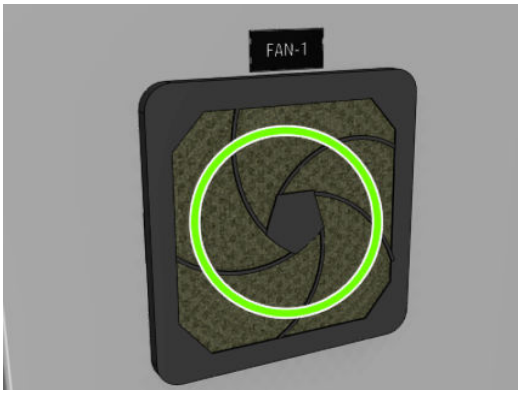
1. Pull off the plastic fan filter cover.



2. For each fan, change the fan filter for the new one provided. Be careful to locate it correctly: it must cover the fan's square surface.



3. Put back the fan cover.



Replace e-box fan filter

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

Moving fan blades

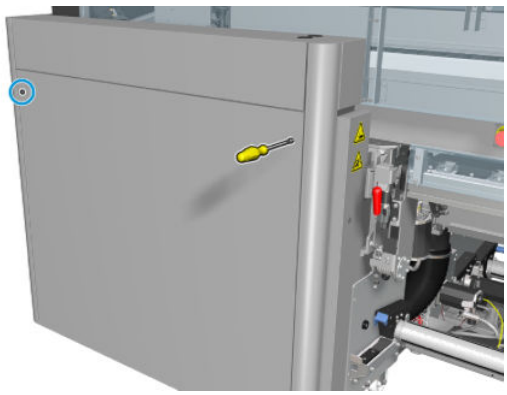
For more safety information, see Safety precautions on page 2

Prepare to replace the e-box fan filter

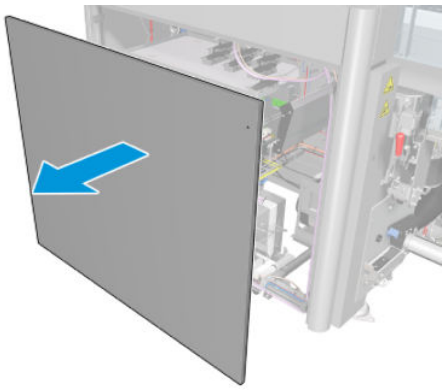
The e-box fan filter is provided with your printer in the HP Latex 3x00 Printer Cleaning Kit.

1. Turn off the printer and the power-enable switch.

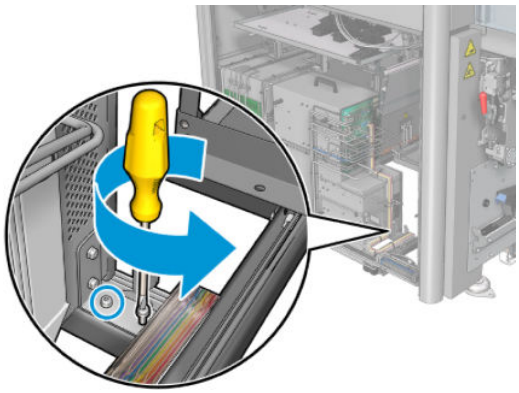
2. Locate the rear right panel assembly.
3. Remove the two pointed T-20 screws that attach the rear right panel assembly.

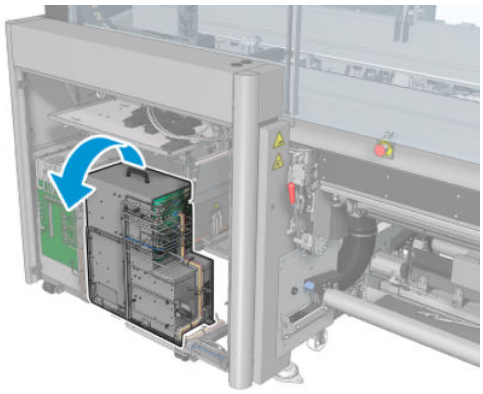


4. Remove the rear right panel assembly.



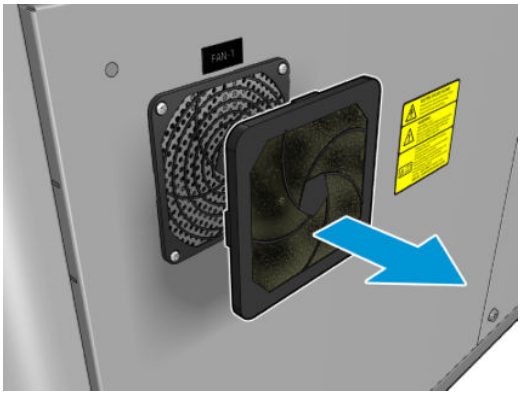
5. Remove the two T-20 screws from the e-box support and pull it out carefully.



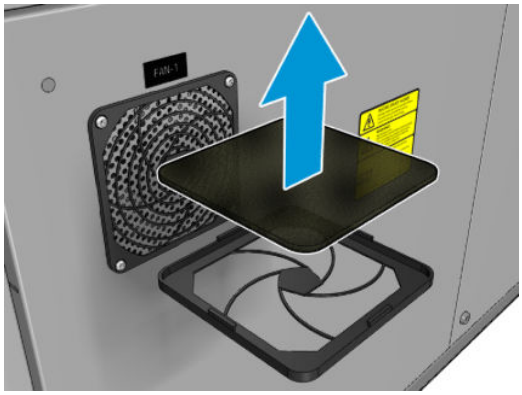


Replace the e-box fan filter

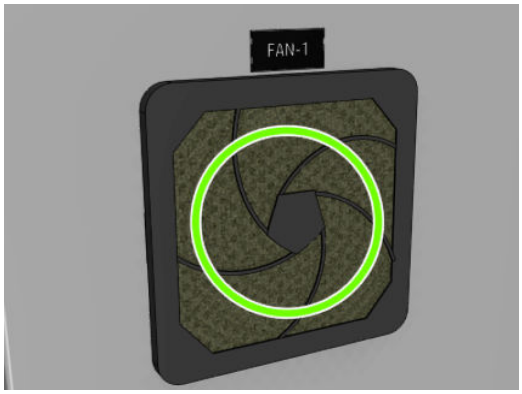
1. Pull off the plastic fan filter cover.



2. Change the fan filter for the new one provided. Be careful to locate it correctly: it must cover the fan's square surface.



3. Put back the fan cover.



Clean the impinging plate

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

The perforated plate is a drilled metallic sheet located in the curing assembly. Through its holes the curing fans blow hot air onto the substrate.

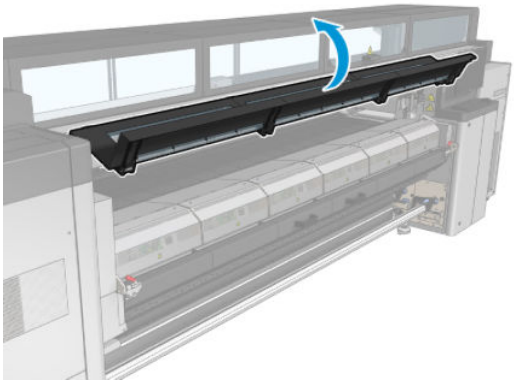
Prepare to clean the impinging plate

1. Ensure that the printer is not printing.
2. Unload the substrate.
3. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

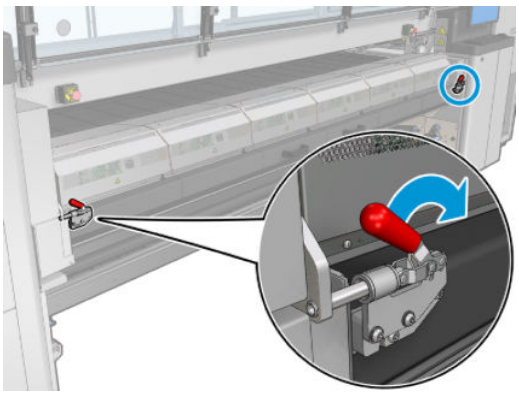
4. Wait for the curing modules to cool down (approx. 5 min).
5. Remove the spindle.

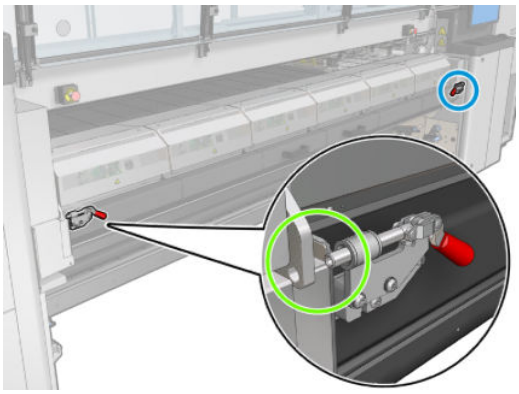
Pull out the curing assembly

1. Open the front door.

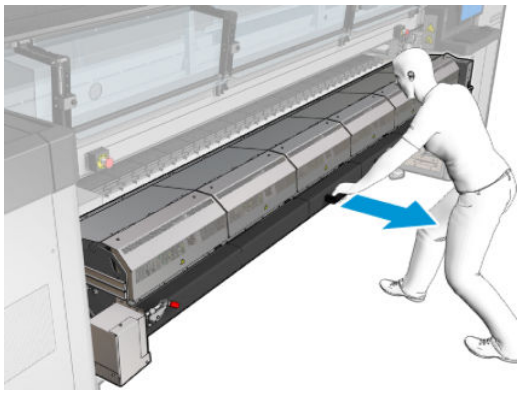


2. Open the curing module latches.



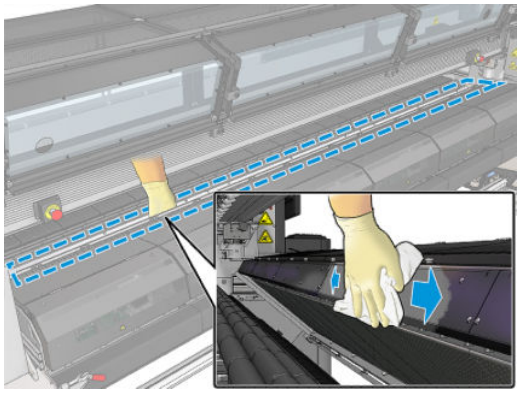


3. Pull out the curing assembly.



Clean the impinging plate

▲ Lying on the floor as shown in the picture, clean the perforated plate of the curing modules with a lint-free cloth dampened with distilled water.



Finish off cleaning the impinging plate

1. Push the curing assembly back to its working position.
2. Close the curing latches.
3. Put the spindle back in position.
4. Ensure that the cleaned parts are completely dry and all vapor has completely evaporated.
5. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

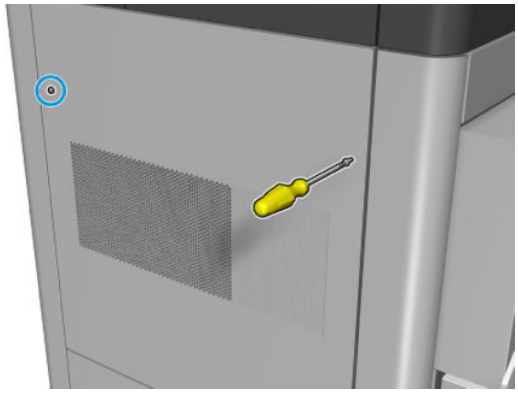
Clean the vapor removal external filter

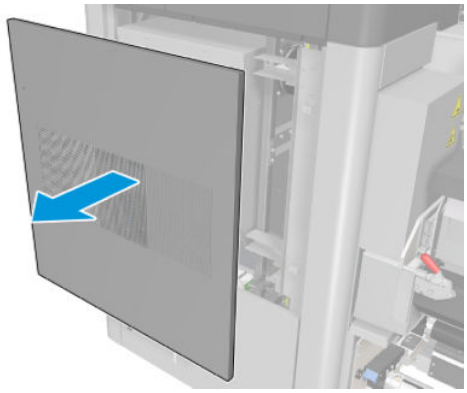
Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard	Moving fan blades

For more safety information, see Safety precautions on page 2

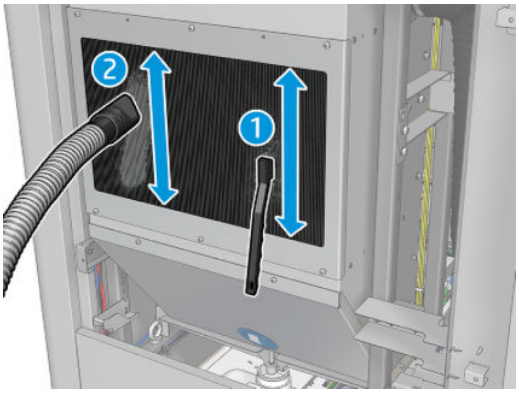
Process

1. Switch off the printer.
2. Unscrew and open the back cover.





3. Using a brush and vacuum cleaner, clean the metal filter.



4. While here, check the fans to see if they also need cleaning.
5. Reinstall the cover.
6. Switch on the printer.

Clean the rear scan-axis beam

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

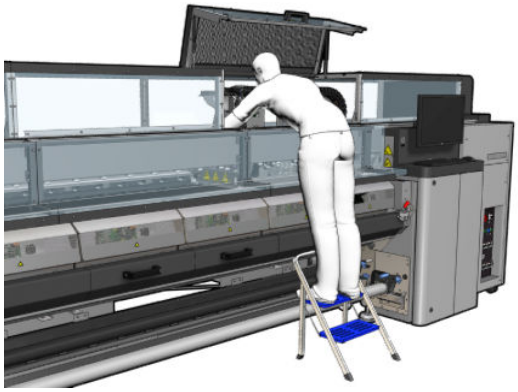
Prepare to clean the rear scan-axis beam

1. Ensure that you have a vacuum cleaner and an absorbent all-purpose cloth (not provided).

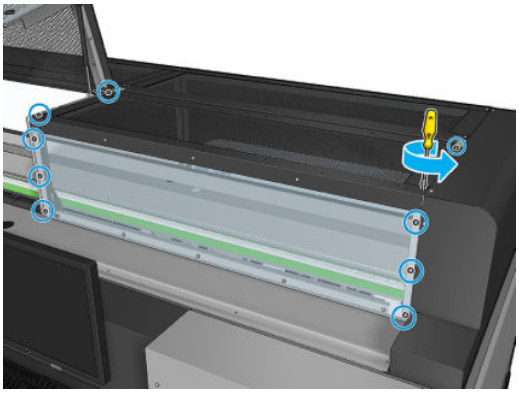
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to its leftmost position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

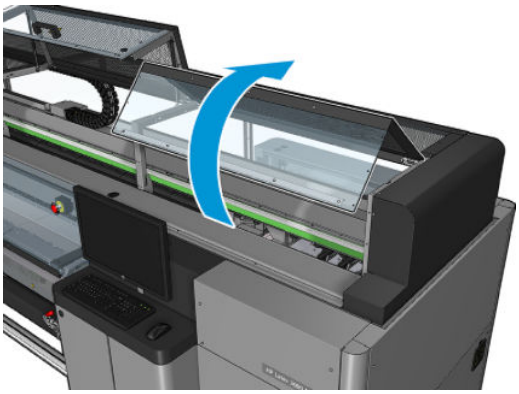
Clean the rear scan-axis beam

1. Open the service position window.

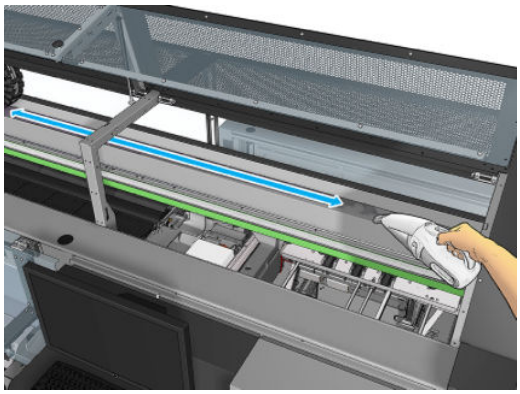


2. Remove the pointed screws indicated below and open the transparent cover at the right of the service position window.

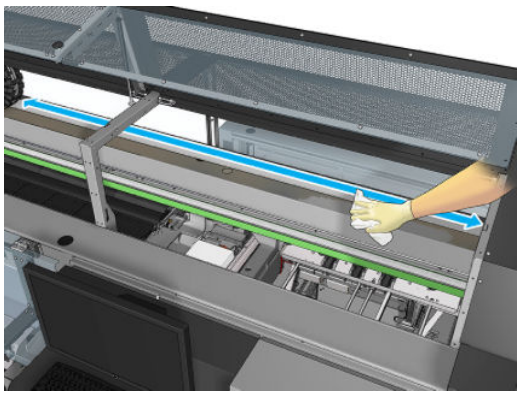




3. Clean the dust from the rear scan-axis beam, using a vacuum cleaner.



Alternatively, use an absorbent cloth, moistened with deionized water, to wipe off the dust. Ensure that the dust adheres to the cloth and does not fall into the printer.



4. Use the absorbent cloth, moistened with deionized water, to wipe off any other dirt stuck to the scan-axis beam.

Finish off after cleaning the rear scan-axis beam

1. Lower the transparent cover and screw it into place.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Clean and grease the substrate drive transmission gears and rods

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

NOTE: Use gloves when applying grease to the gears.

Clean and grease the substrate drive transmission gears

1. Ensure you have the machine grease and oil kit, included in the Printer Maintenance kit.
2. Unload the substrate.
3. Turn off the printer and the power-enable switch.

4. Open the pinch clamps.
5. Clean the exposed part of the substrate drive roller gear with a lint-free cloth dampened with isopropyl alcohol.
6. Using gloves put some grease on your finger.
7. Apply some grease to the exposed part of the substrate drive roller gear by moving your finger up and down the gear, filling the threads with grease.

WARNING! Do not remove the gear's plastic cover to grease it, as it would uncover the encoder disc too, allowing it to get dirty.

8. Hand spin drive roller motor coupling, applying grease to all the gear threads.

NOTE: Do not put grease on the outside of the threads or on the bottom or top of the screw.

Clean and oil the rods

1. Clean both rods with a lint-free cloth dampened with isopropyl alcohol.
2. Put a few oil drops along both the capping and the drop detector rods.

Finishing off greasing the substrate drive transmission gears

1. Remove any extra grease.
2. Make sure that no other parts of the printer have any grease that may prevent it from working correctly.
3. Turn on the printer.

Grease the carriage beam screws

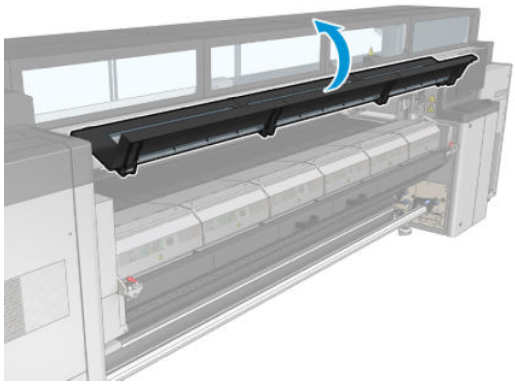
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to grease the carriage beam screws

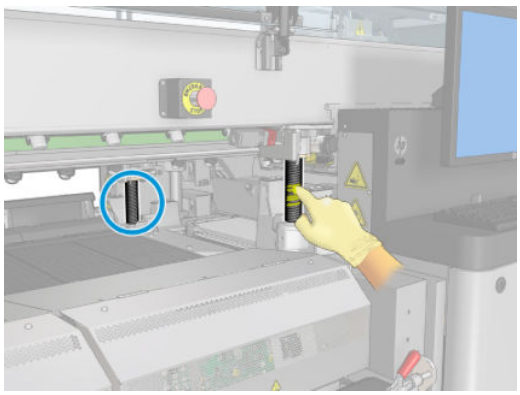
1. Ensure that you have the Machine Grease and Oil Kit (Q6702-60546), which is included in the Printer Maintenance Kit (1HA07-67008 or 1VT19A).
2. Ensure that the printer is not printing.

3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage beam to its highest position (this takes about 2 minutes).
5. Open the front door.



Grease the carriage beam screws

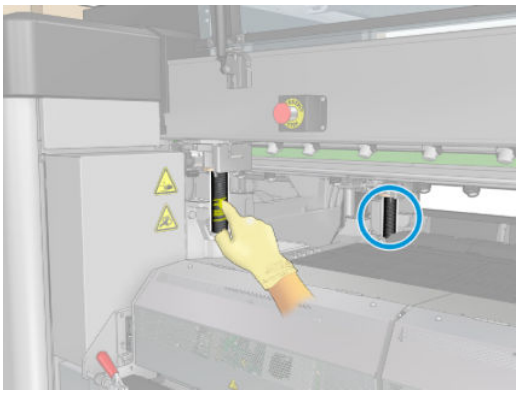
1. Put some grease on your finger.
2. Apply the grease to the exposed, middle part of the carriage beam screw by moving your finger up and down the screw, filling the threads with grease.



3. Continue applying the grease until the whole middle section of the screw, all the way around the screw, is greased.

NOTE: Do not put grease on the outside of the threads or on the bottom or top of the screw.

4. Repeat the above steps for each screw.



Spread the grease

1. Move the carriage beam back to its normal position so that the grease spreads along the screw (this takes about 2 minutes).

2. Move the carriage beam to its highest position (this takes about 2 minutes).
3. Repeat the above steps twice more to spread the grease fully.

Finish off greasing the carriage beam screws

1. Remove any extra grease.
2. Make sure that the platen and the carriage beam low switch does not have any grease that will prevent it from working correctly. If grease is interfering with the switch, remove the switch, and gently clean the grease from it.
3. Close the front door and ensure that all doors and covers are back in place.
4. Move the carriage beam back to its normal position (this takes about 2 minutes).

Clean and grease the service station transmission and rods

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

NOTE: Use gloves when applying grease to the gears.

Clean and grease the service station transmission

1. Ensure you have the machine grease and oil kit, included in the Printer Maintenance kit.
2. Move the carriage beam to its highest position (it takes around 2 minutes).

3. Move the carriage to service position.
4. Turn off the printer and the power-enable switch.

5. Remove the 2 screws holding the rear right panel.
6. Clean the helical gear with a lint-free cloth dampened with isopropyl alcohol.
7. Using gloves put some grease on your finger.
8. Apply some grease to the helical gear by moving your finger backward and forward.
9. Continue applying grease until the whole transmission is greased.
10. Repeat the process with the other helical gear.

Clean and oil the rods

1. Clean both rods with a lint-free cloth dampened with isopropyl alcohol.
2. Put a few oil drops along both the capping and the drop detector rods.

Finishing off greasing the service station transmission

1. Remove any extra grease.
2. Make sure that no other parts of the printer have any grease that may prevent it from working correctly.
3. Place the 2 screws holding the rear right panel.
4. Turn on the printer.

Empty the drop detector ink vessel

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

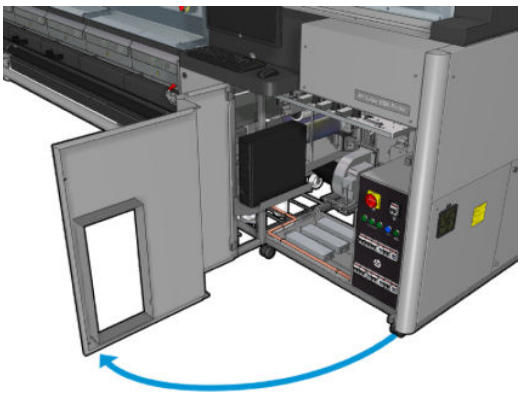
For more safety information, see Safety precautions on page 2

Prepare to clean the ink vessel

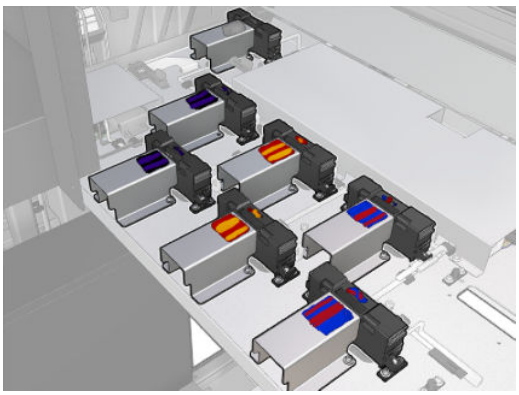
1. Ensure that the printer is not printing.
2. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

Clean the ink vessel

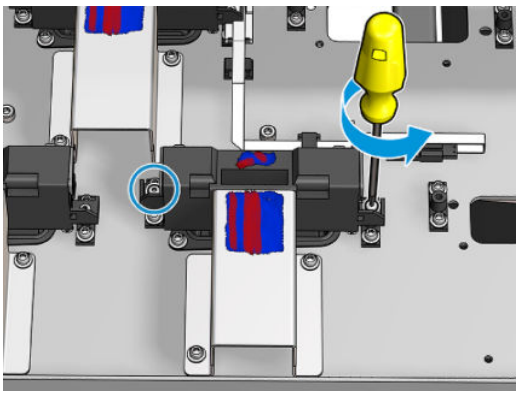
1. Unscrew and open the right front cover to access the capping station.



2. There are seven ink vessels to be cleaned.

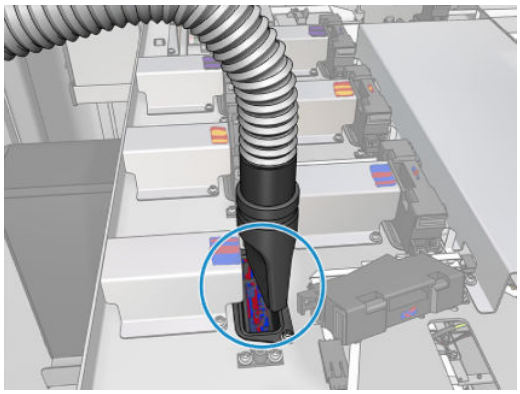


3. Remove the screws that fix the ink vessel.

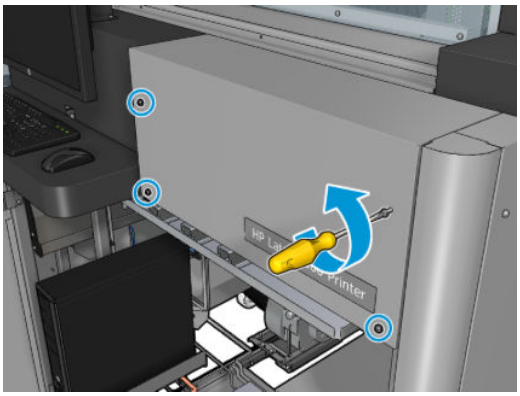


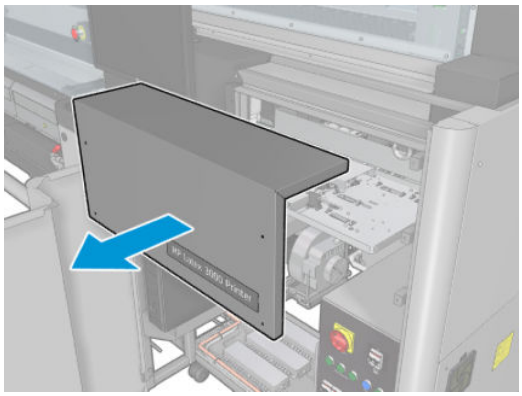
4. Move the ink vessel enough to clean the dry ink that is deposited underneath.

TIP: Use a vacuum cleaner to do so easily.



TIP: If access or visibility is not good enough, remove the upper section of the right front cover by unscrewing the screws shown below.





5. Reinstall the ink vessel.

Finish off after cleaning the ink vessels

1. If you removed it earlier, put back the upper section of the right front cover and screw it into place.
2. Close the right front cover and screw it into place.
3. Ensure that the cleaned parts are completely dry.
4. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Grease the printhead primers

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

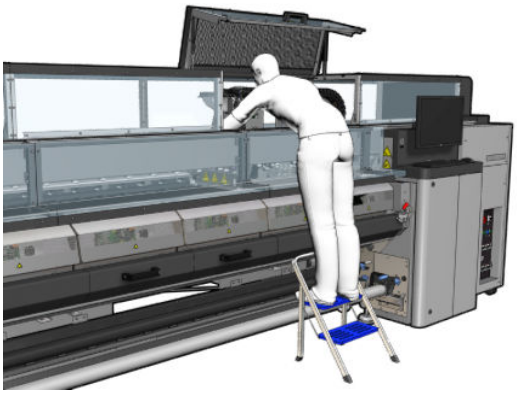
For more safety information, see Safety precautions on page 2

NOTE: Perform this procedure when the system error 46.02.0Y:06 appears.

Prepare to grease the printhead primers

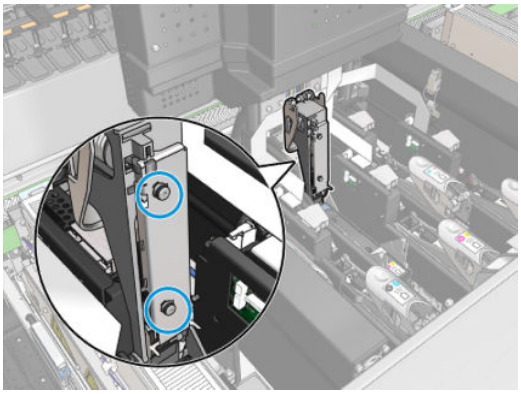
1. Ensure that the printer is not printing.
2. Ensure that all windows, covers, and doors are closed and remain in their original position.
3. Move the printhead carriage to the service position.
4. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

5. Stand on the folding steps and open the service position window.

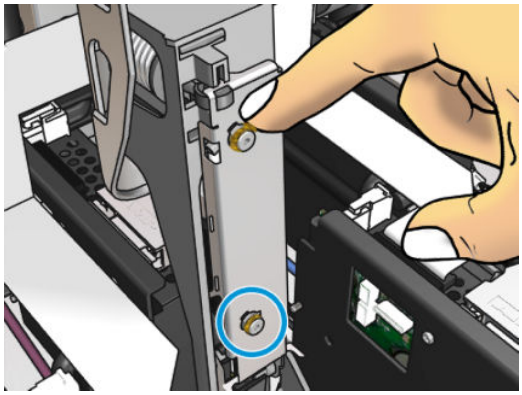


Grease the printhead primers

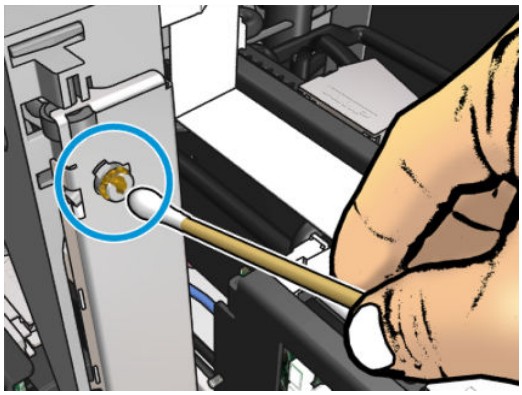
1. After lifting the printhead covers, two 'O' rings can be seen that seal the joints between the printhead cover and printhead.



2. With a finger, apply a little grease to the 'O' rings to improve their performance. A suitable grease is available in a syringe from the cleaning kit.



The grease should be applied to the black rubber part only. If grease gets into the central hole, remove it with a toothpick or similar tool.



3. Close the printhead cover, the carriage cover, and the printhead access door.

When required

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard
For more safety information, see Safety precautions on page 2				

Introduction

The following maintenance procedures are needed when required:

- Check and clean the printheads on page 160
- Check the printer for dust and aerosol on page 277
- Clean the substrate-advance sensor on page 204
- Replace a pinchwheel submodule on page 278
- Replace a primer on page 280
- Replace the aerosol fan module on page 286
- Replace the drying fans array on page 290
- Replace the drying lamps on page 295
- Clean the drying module quartz glass and air outlet on page 305
- Replace the drying quartz glass on page 311
- Replace a curing fan and resistor module on page 315
- Replace a service station cap on page 319
- Replace an intermediate tank on page 322
- Replace an e-cabinet fuse on page 324
- Clean the printhead contacts on page 326
- Replace a spindle valve on page 331
- Clean the roll-to-free-fall roller and pinchwheels on page 333
- Clean the carriage rails manually on page 334
- Grease the printhead primers on page 273
- Pinch clamp replacement on page 336
- Replace the rocker pads on page 337
- Clean the scan axis encoder on page 338

- Replace the curing module side rubber on page 339
- Clean the service station caps on page 340
- Clean the vapor removal external filter on page 263
- Clean the bottom of the carriage, the drying glasses, and the line and crash sensors on page 238
- Empty the condensation collector bottle on page 213
- Empty the printhead cleaning waste bottle on page 342
- Clean the perforated plate on page 343

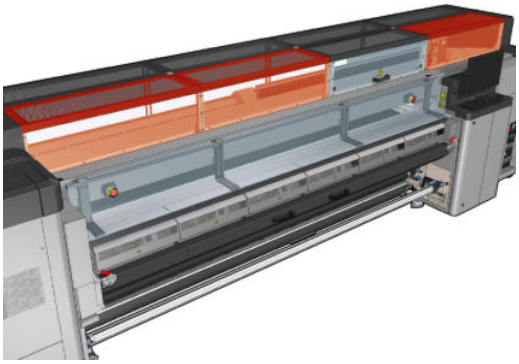
Check the printer for dust and aerosol

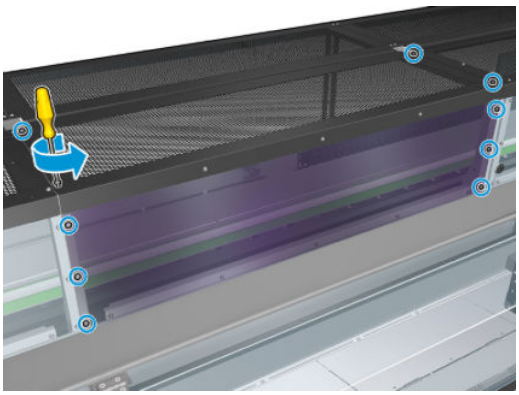
Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

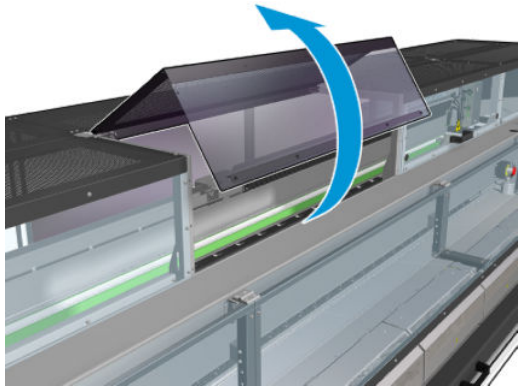
Risk of burns	Hazardous moving part	Electric shock hazard
For more safety information, see Safety precautions on page 2		

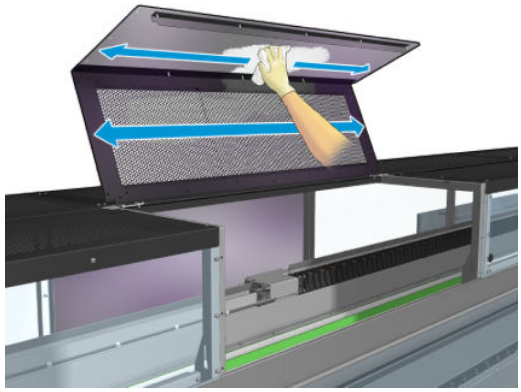
Check the printer for dust and aerosol on covers, windows, computer screen, and so on.

If you see condensation on the inside of the transparent cover over the middle of the printer, wipe it with a dry cloth. To reach the inside of the cover, unscrew the pointed screws and lift the cover.









Check the print output areas for ink droplets, aerosol, or condensation, especially the area around and below the diverter wheels and the tension roller.

If you find dust or ink, wipe it off with a lint-free cloth, moistened with distilled water.

Reinstall all removed covers and ensure all doors are closed before turning on the printer.

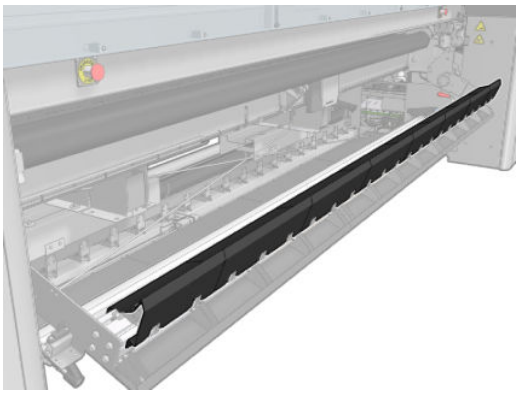
Replace a pinchwheel submodule

Prepare to replace a pinchwheel submodule

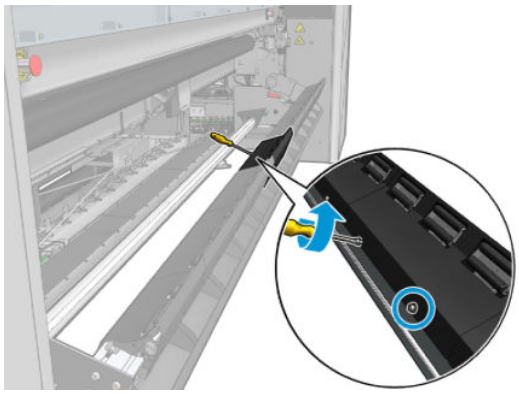
- Ensure that you have the Pinchwheel Assembly (CZ056-67097), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).

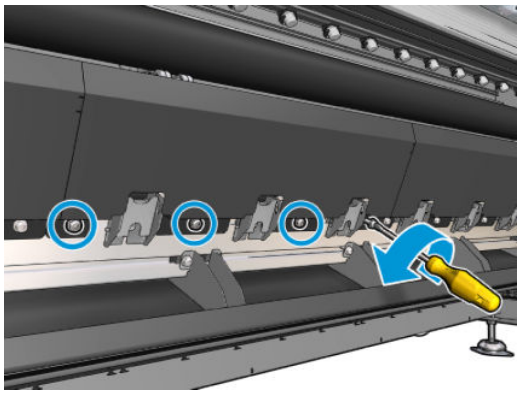
Replace a pinchwheel submodule

1. Open the loading table.
2. Locate the pinchwheeel submodule that needs replacement.

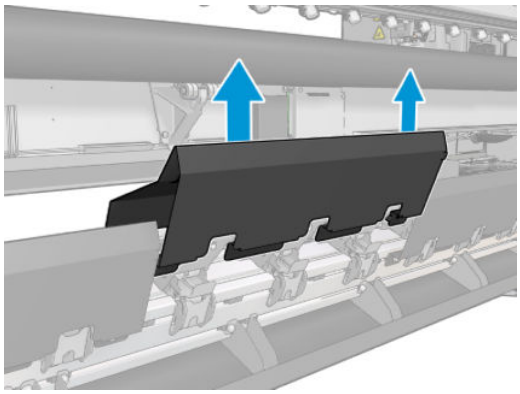


3. Remove the screws shown below.

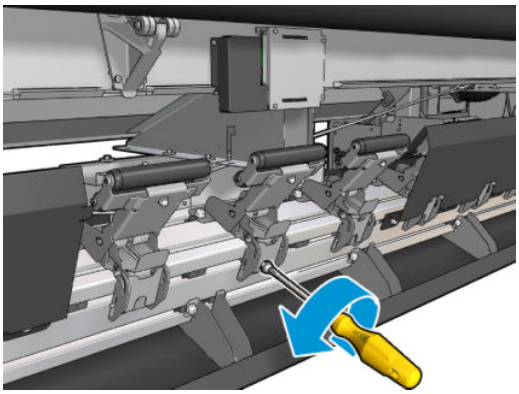


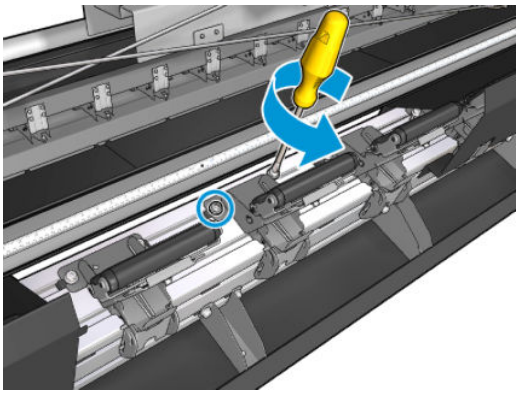


4. Remove the pinchwheel cover.

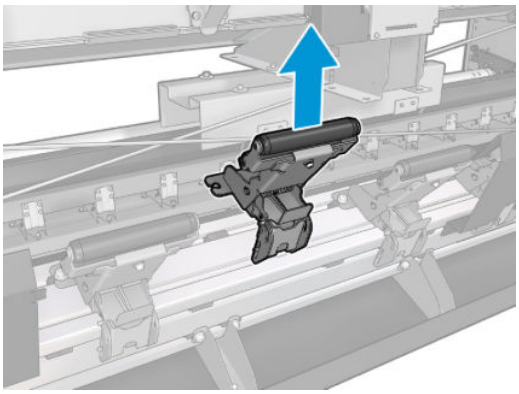


5. Remove the screws that attach the pinchwheel submodule.





6. Remove the broken submodule.



7. Place the new submodule and attach the screws.
8. Place the cover and insert the screws.
9. Close the loading table.

Replace a primer

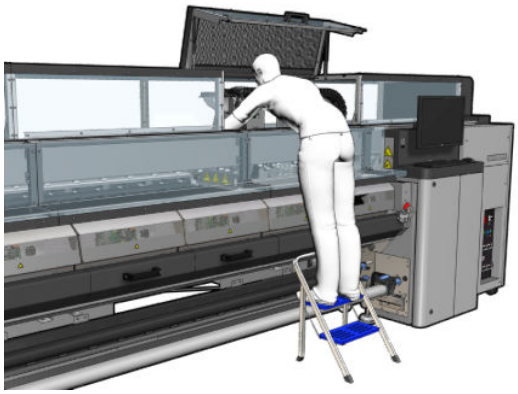
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to replace a primer

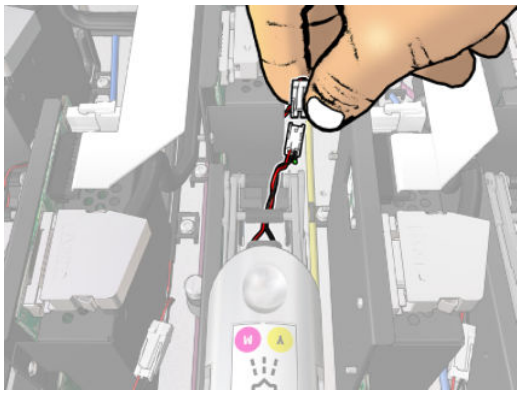
1. Ensure that you have the Primer and Latch Kit (CZ056-67396 for HP Latex 3000/3100/3500 or 1HA07-67018 for HP Latex 3200/3600), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to the service position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

6. Stand on the folding steps and open the service position window.



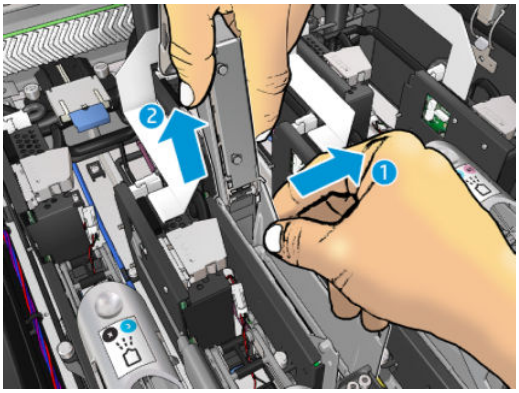
Replace a primer (HP Latex 3000, 3100, 3500 only)

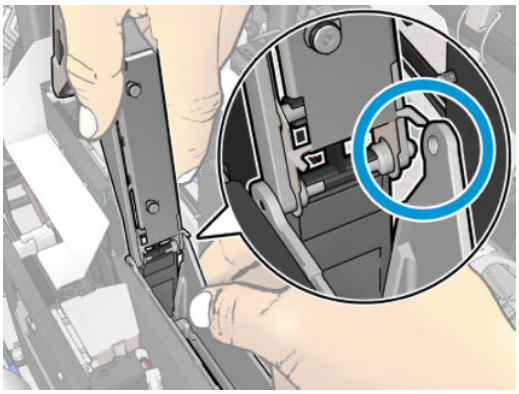
1. Disconnect the primer cable. You have to disconnect a white connector that you can find at the back of the printhead whose primer is to be replaced.

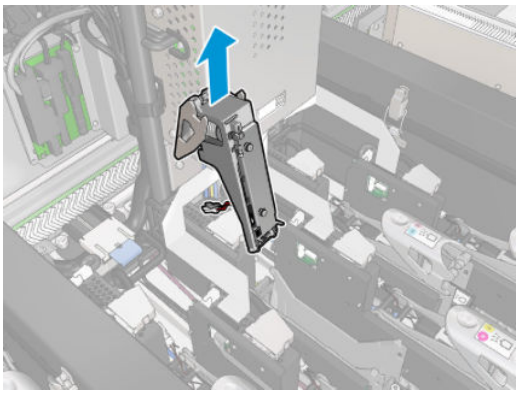


2. Open the latch. It is not usually necessary to remove the printhead.

3. Remove the latch of the printhead whose primer is to be replaced. To remove it, you have to push open the printhead pocket wall to the right while pulling the latch up.



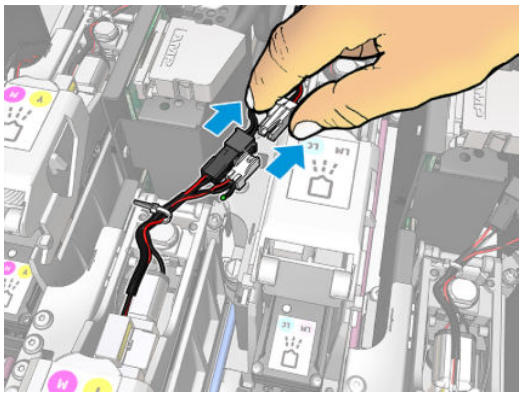




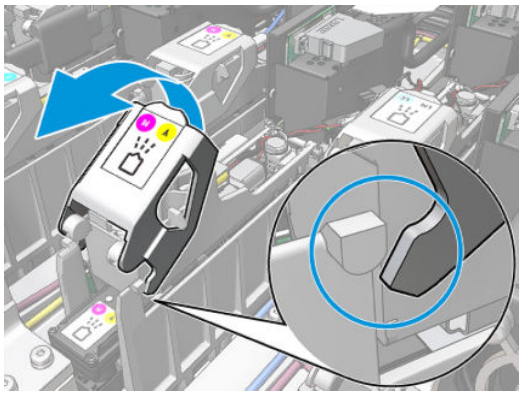
4. Stick the corresponding printhead color label on the latch. Be careful with the orientation.
5. Install the new latch with primer.
6. Replace the printhead, if it was removed, and close the latch.

Replace a primer (HP Latex 3200, 3600 only)

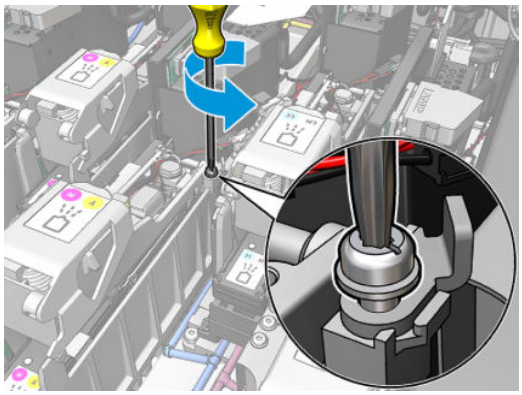
1. Disconnect the two primer cable connectors at the back of the printhead that needs the primer replaced.

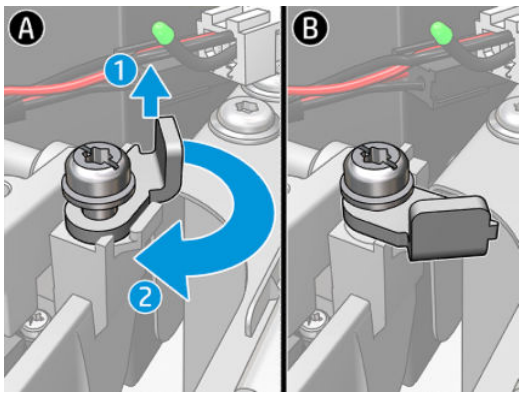


2. Release the handle. It is not usually necessary to remove the printhead.

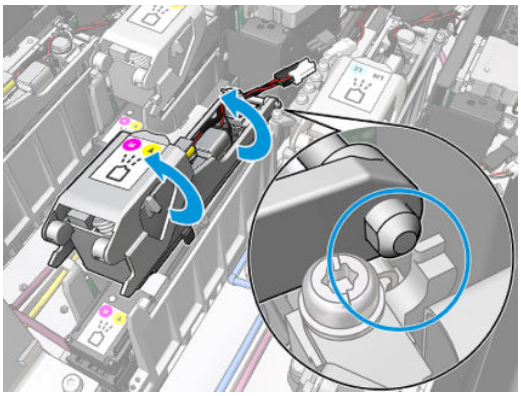


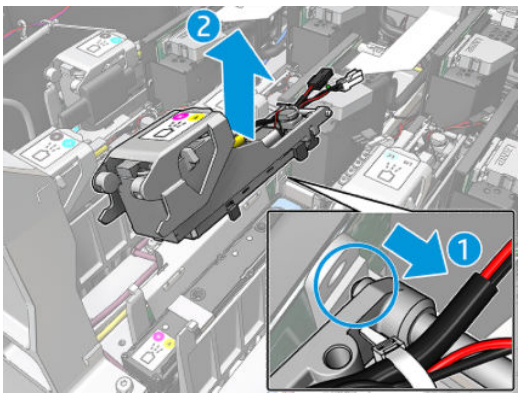
3. Loosen the T10 screw (do not remove the screw, just loosen it) and release the sheet metal tab.



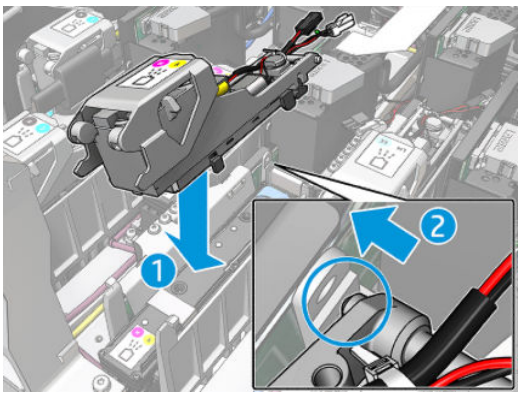


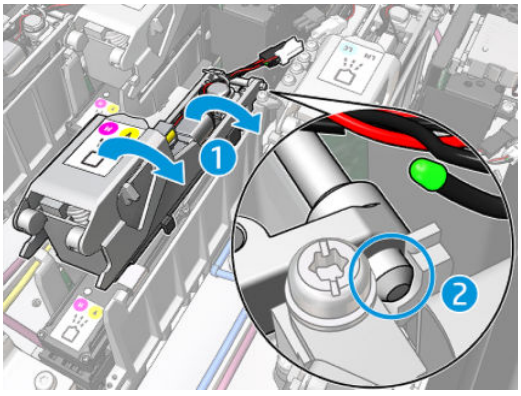
4. Remove the latch.



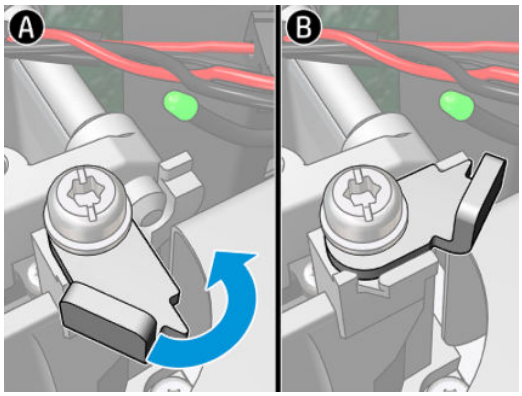


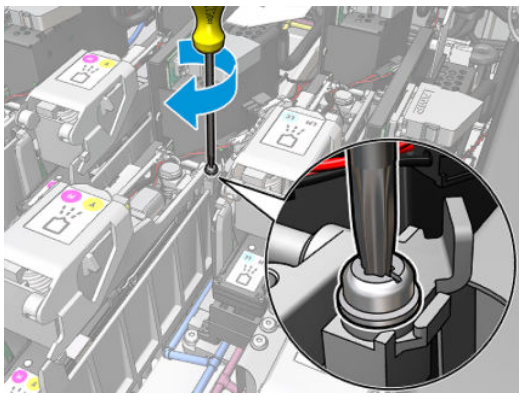
5. Stick the corresponding printhead color label on the latch. Be careful with the orientation.
6. Install the new latch with primer. Do not close the handle yet.



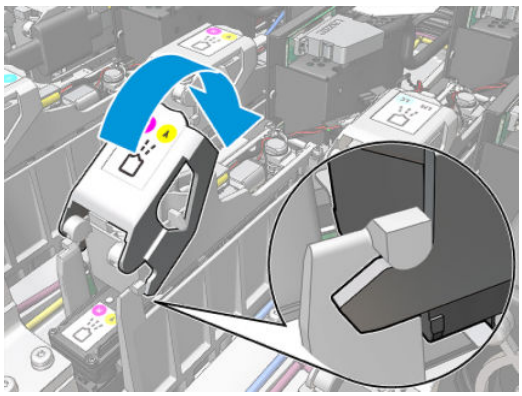


7. Close the sheet metal tab and tighten the T10 screw.

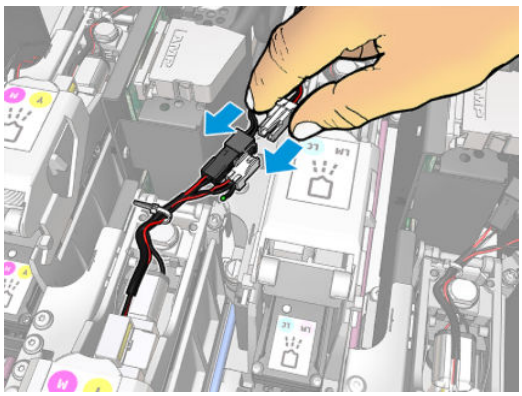




8. Close the handle.



9. Connect the two primer cable connectors.



Finish off replacing a primer

1. Close the service position window.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

3. Run a diagnostic test to check that the new primer is working correctly, and calibrate it.
4. Dispose of the old primer.

Replace the aerosol fan module

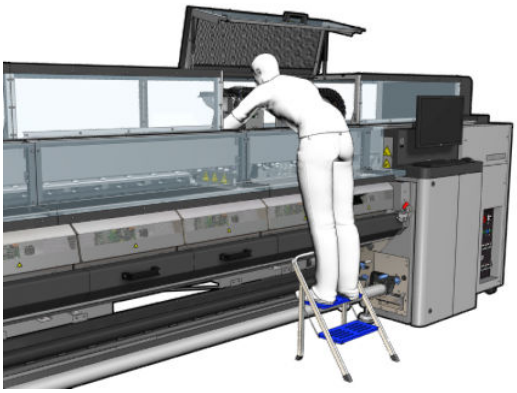
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to replace the aerosol fans module

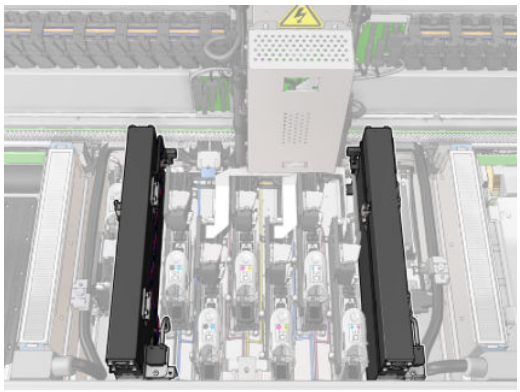
1. Ensure that you have the Aerosol Fan Module (CZ056-67246), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to the service position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

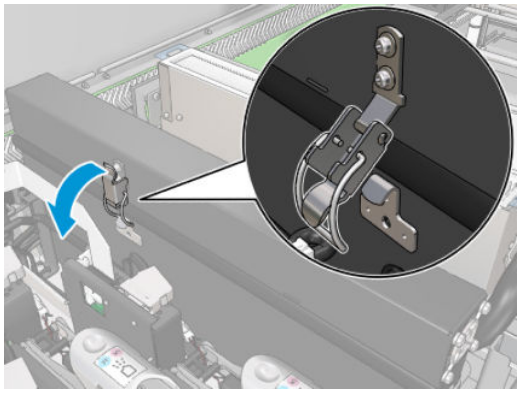
6. Stand on the folding steps and open the service position window.

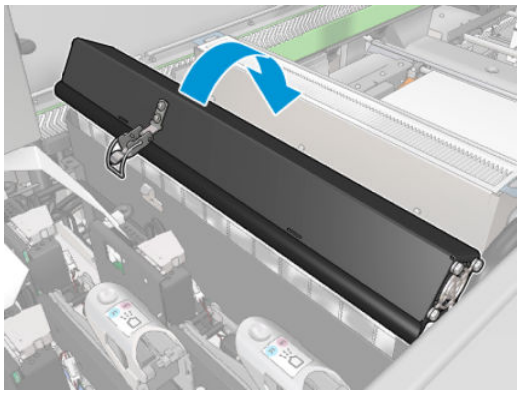


Replace the aerosol fan module

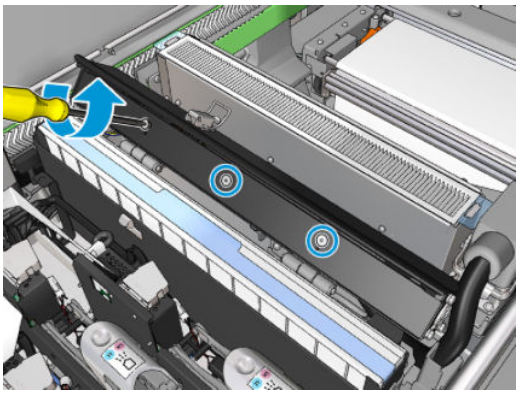
1. Open the aerosol fan cover, as if you were going to replace the filters.

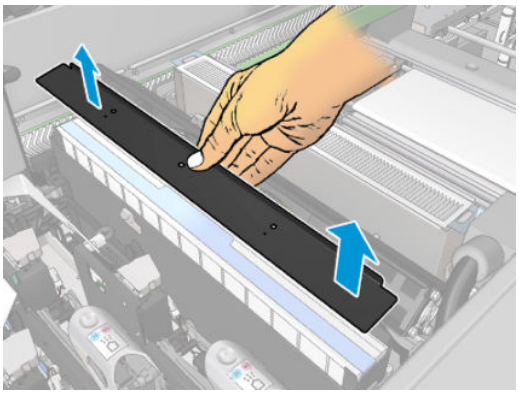




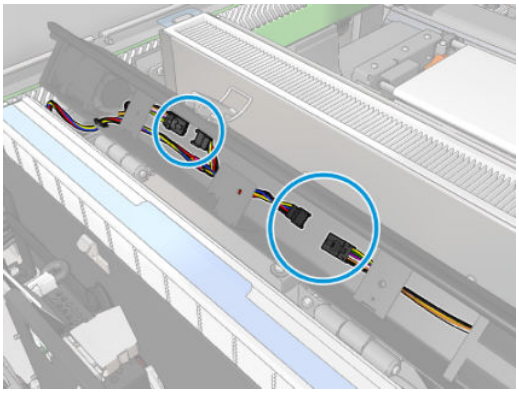


2. Remove the three screws that attach the cover, and remove the cover.

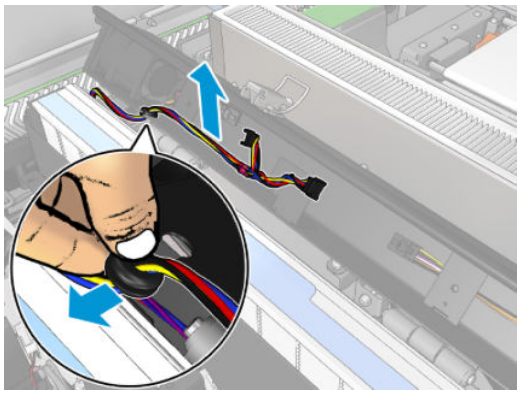




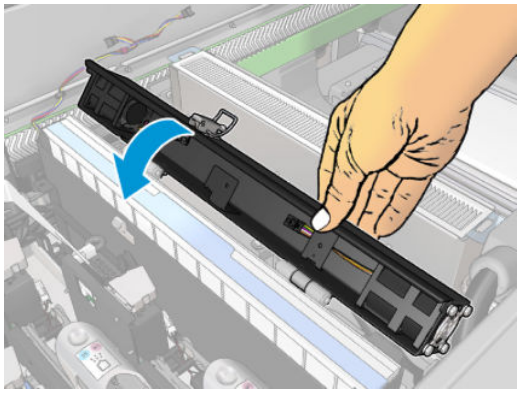
3. Disconnect the two aerosol fan cable connectors.



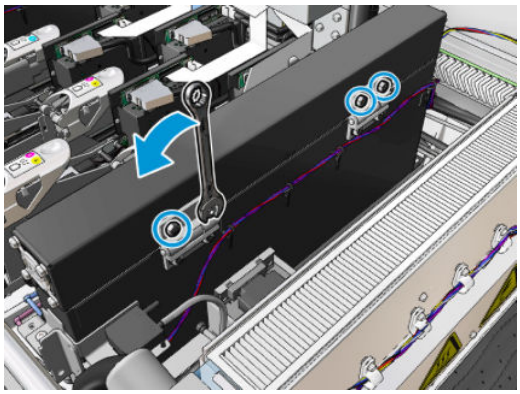
4. Remove the main cable harness from the cover slot.



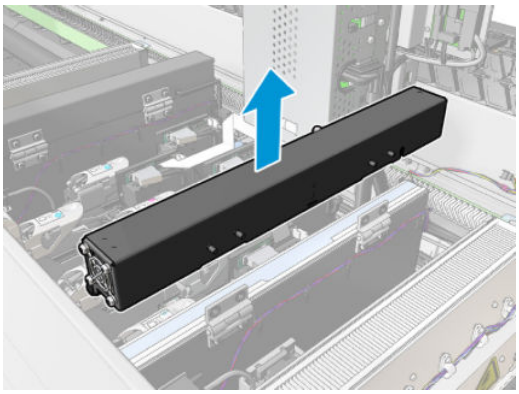
5. Close the cover.



6. Remove the nuts from the hinges. You must hold the nuts to prevent them from falling and get lost inside the carriage.



7. Remove the aerosol fan module and insert the new one.



8. Put the hinges back in place, put back the nuts and tighten them.
9. Open the new aerosol fan cover.
10. Remove the three screws that attach the new fan cover, and remove the cover.
11. Connect the two aerosol fan cable connectors.
12. Route the main cable harness and insert the grommet in the cover slot. Make sure the cables are not tight inside the cover.
13. Install the aerosol fan cover and attach the three screws.
14. Close the cover.

Finish off replacing the aerosol fan module

1. Close the service position window.

⚠ CAUTION: Do not leave anything in the way of the carriage.

2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

3. Run a diagnostic test to check that the aerosol fans are working correctly.
4. Dispose of the old aerosol module fans.

Replace the drying fans array

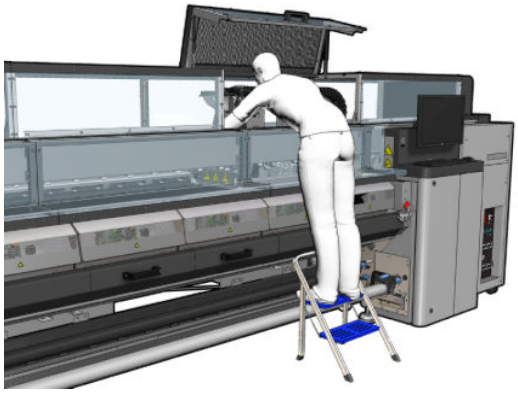
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to replace the drying fan array

1. Ensure that you have the necessary Drying Fans Array Kit: for the left drying module (CZ056-67024) or the right drying module (CZ056-67023). Both kits are included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to the service position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

6. Stand on the folding steps and open the service position window.



Drying lamps emitter—safety precautions

⚠ CAUTION: Disregard of the safety precautions or improper operation of the infrared emitter can lead to injuries and material damage.

CAUTION: The IR heating device must be operated only by specialists or trained personnel.

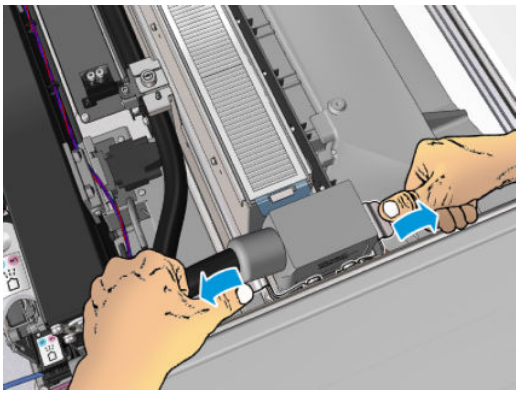
The operator of the system must compile specific operating instructions for the training of operating personnel.

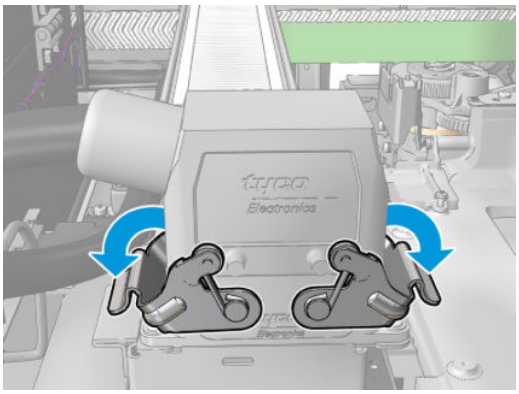
CAUTION: The safety and functional reliability of the IR heating device are guaranteed only in the event of use of original accessories and spare parts from Heraeus Noblelight.

⚠ WARNING! After an emitter break, a dangerous voltage may be exposed to contact by the heating spiral.

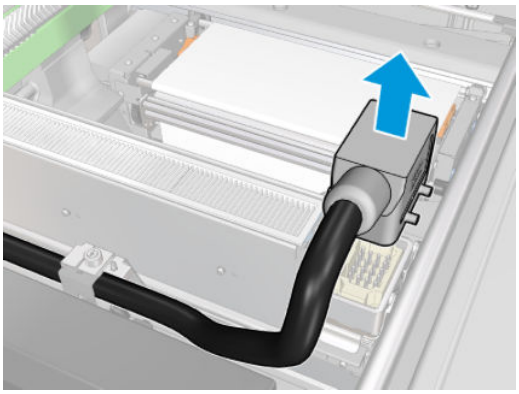
Remove the drying module

1. Remove the electrical connector latch.

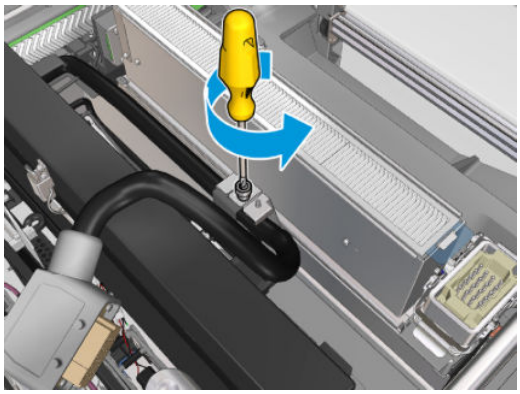


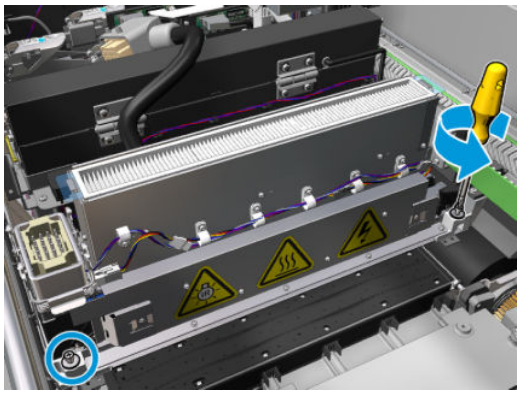


2. Unplug the connector.

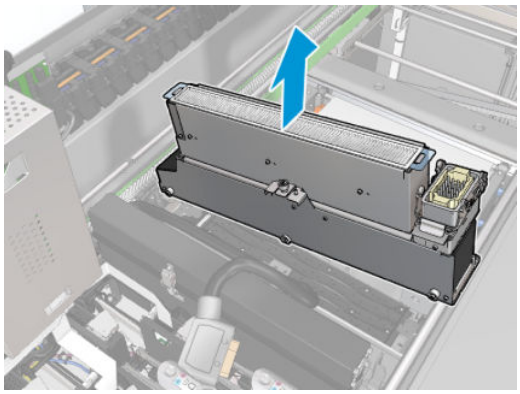


3. Unscrew the three screws shown below in order to remove the drying module (the left module is shown).





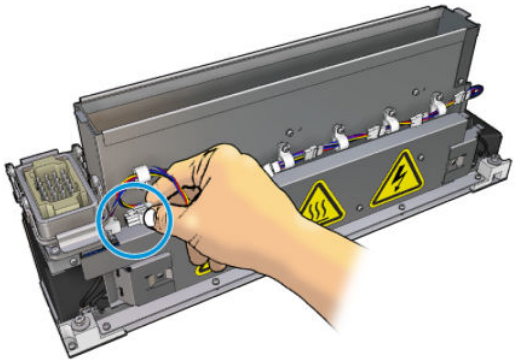
4. Pull the drying module carefully out of the carriage and lay it gently on a table.



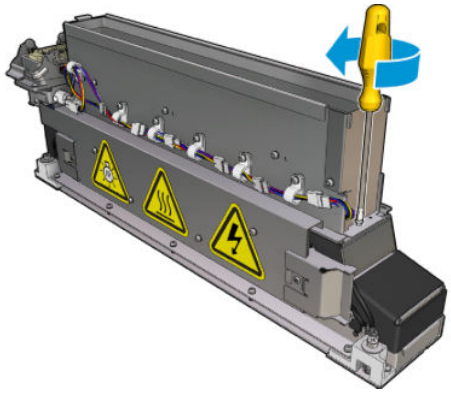
Replace the drying fans array

1. Remove the drying filter.

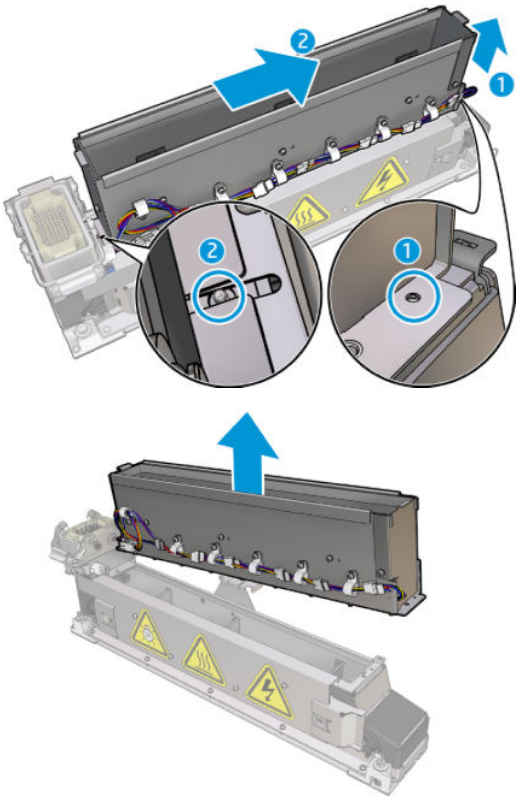
2. Disconnect the drying fans array connector.



3. Remove the screw attaching the drying fans array to the drying module.



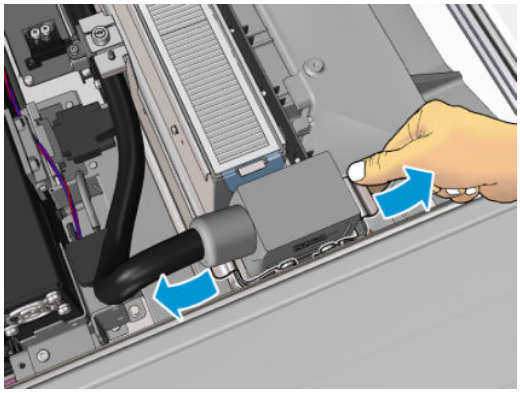
4. Remove the drying fans array and place the new array. There are two pins on each side of the drying module to ensure that it is placed in the correct position.

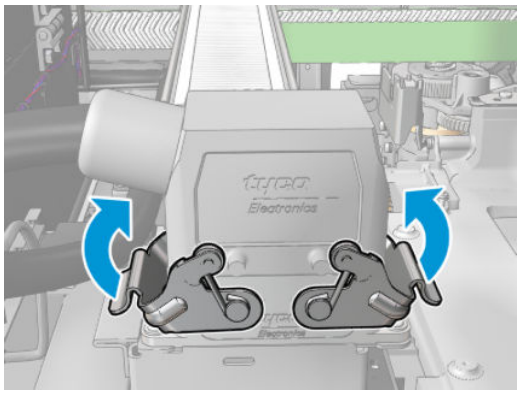


5. Put back the screw that you removed earlier.
6. Reconnect the drying fans array connector.
7. Reinstall the drying filter.

Reinstall the drying module

1. Reinstall the drying module into the carriage and tighten the three screws that attach it to the carriage.
2. Reconnect the electrical connector and close the latches.





Finish off replacing the drying fans array

1. Close the service position window.

⚠ CAUTION: Do not leave anything in the way of the carriage.

2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

3. Dispose of the old drying fans array according to local regulations.

Replace the drying lamps

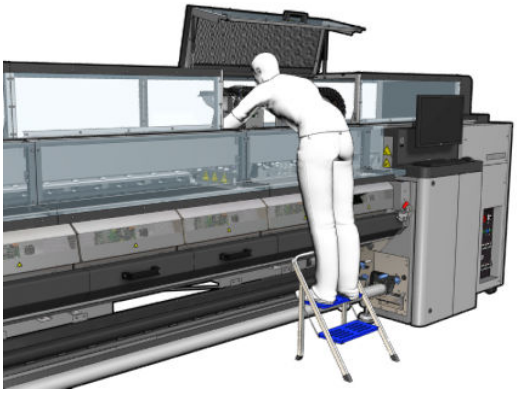
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to replace the drying lamps

1. Ensure that you have the Drying Filter Lamps Kit (CZ056-67322), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to the service position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

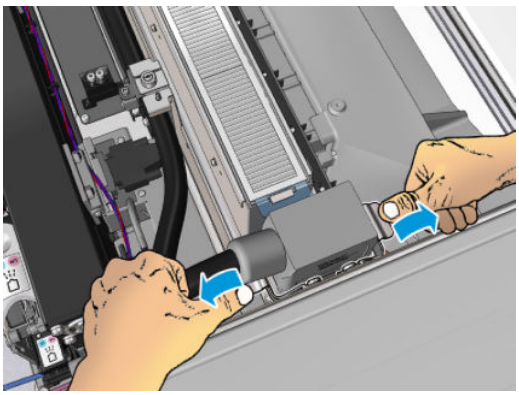
6. Stand on the folding steps and open the service position window.

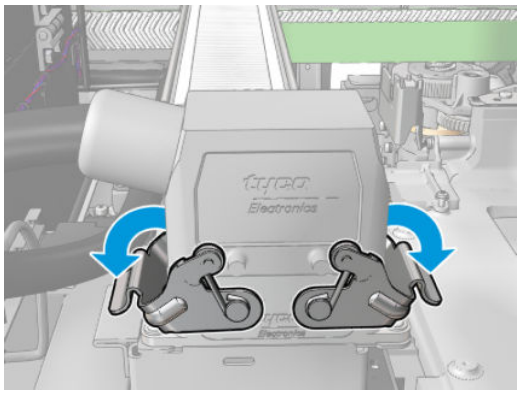


7. Perform the following processes for both drying modules (left and right).

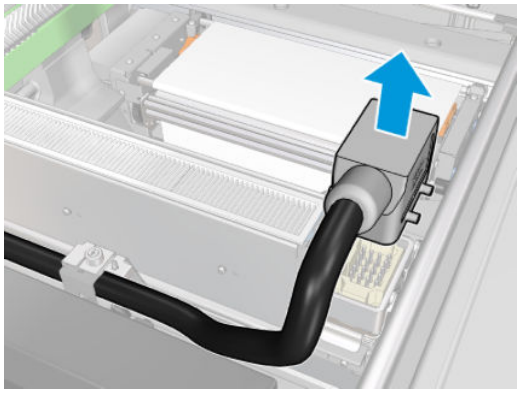
Remove the drying module

1. Remove the electrical connector latch.

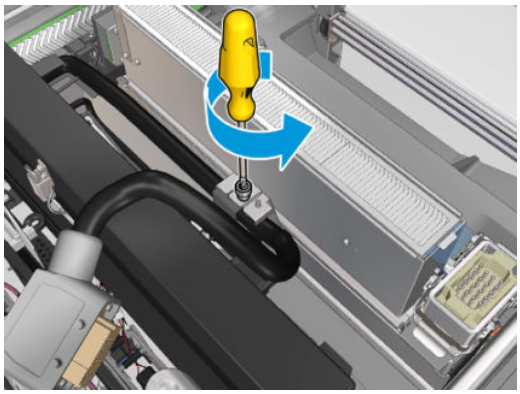


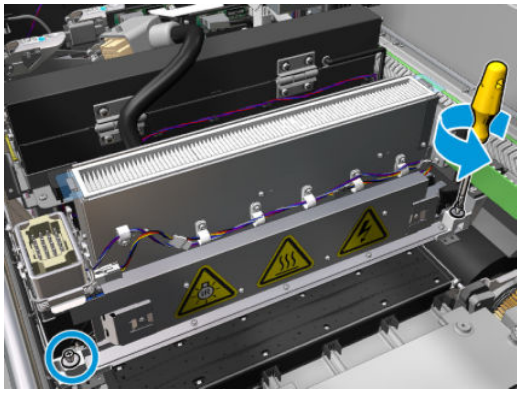


2. Unplug the connector.

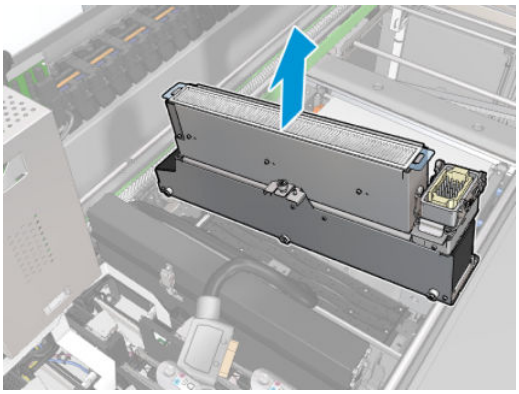


3. Unscrew the three screws shown below in order to remove the drying module (the left module is shown).





4. Pull the drying module carefully out of the carriage and lay it gently on a table.



Drying lamps emitter—safety precautions

⚠ CAUTION: Disregard of the safety precautions or improper operation of the infrared emitter can lead to injuries and material damage.

CAUTION: The IR heating device must be operated only by specialists or trained personnel.

The operator of the system must compile specific operating instructions for the training of operating personnel.

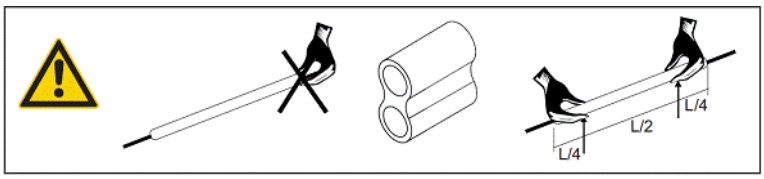
CAUTION: The safety and functional reliability of the IR heating device are guaranteed only in the event of use of original accessories and spare parts from Heraeus Noblelight.

⚠ WARNING! After an emitter break, a dangerous voltage may be exposed to contact by the heating spiral.

Transport and handling

Transport the IR emitter, in the packaging provided, to the place of installation.

⚠ CAUTION: If the IR emitter must be transported without its packaging, wear linen gloves. Fingerprints on the quartz tube will cause devitrification, which leads to radiation losses and mechanical failure.



Always carry the emitter with both hands. Carry it so that the cross section faces up, to avoid bending and breaking.

- Grip the emitter only by the glass tube, and not by the connection cable, pinches, or ceramics.
- Avoid any pressure on the flat base.

When installing IR emitters

⚠ CAUTION: We recommend that you wear protective goggles when installing or replacing emitters, to protect yourself from broken glass that you may come into contact with.

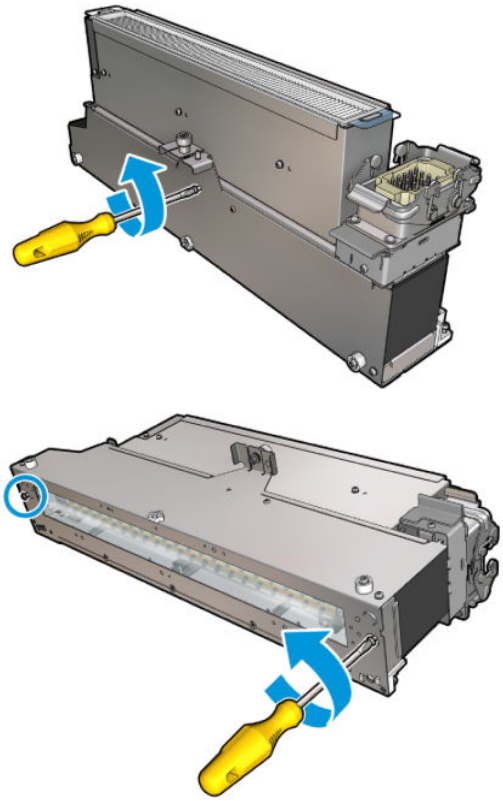
CAUTION: Pulling the connection cable must not cause any tension on the flat base. Bending radius of connection cable: > 30 mm.

After installation, the quartz glass tube of the IR emitter must be cleaned of any soiling or perspiration. For this purpose, use the cleaning cloth included in our delivery, or a clean linen cloth (without textile finishing agents) soaked in methylated spirit, to remove any impurities and soiling or fingerprints from the surface.

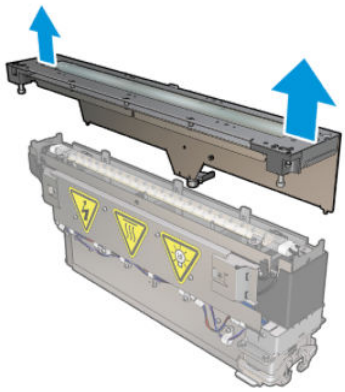
⚠ CAUTION: The reflector side must not be cleaned.

Replace the drying lamps

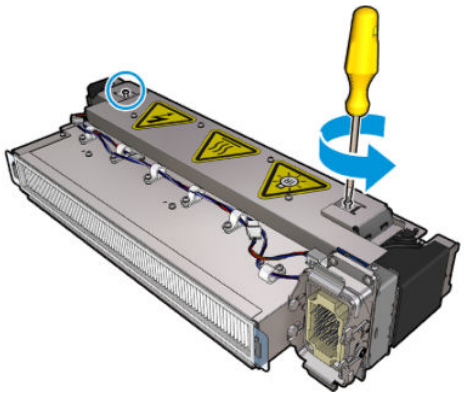
1. To separate the drying glass and air outlet from the rest of the module, remove the three screws shown below.



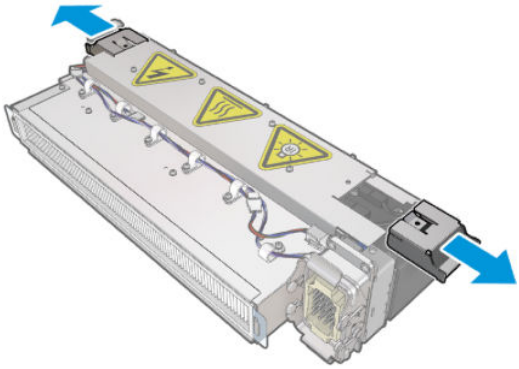
2. Take out the drying lamps section of the drying module.



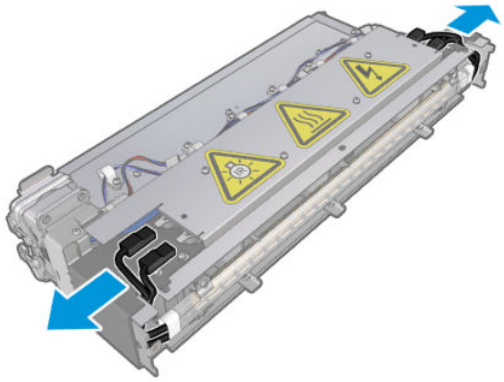
3. Remove the two screws shown below.



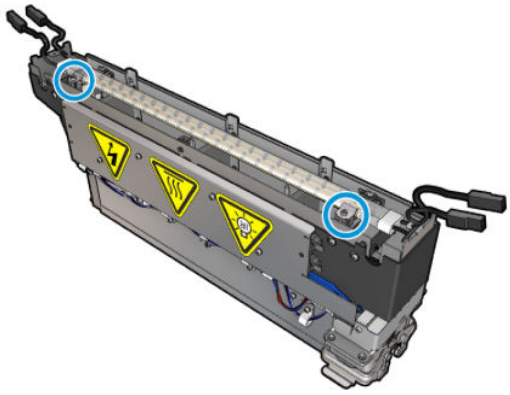
4. Pull out the two clamps.



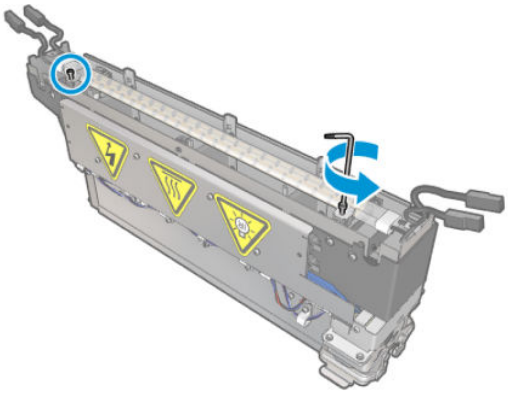
5. Disconnect the four dryer lamp cables.

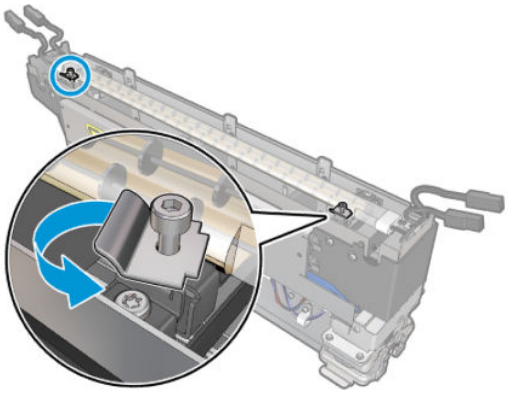


6. Locate the lamp latches.

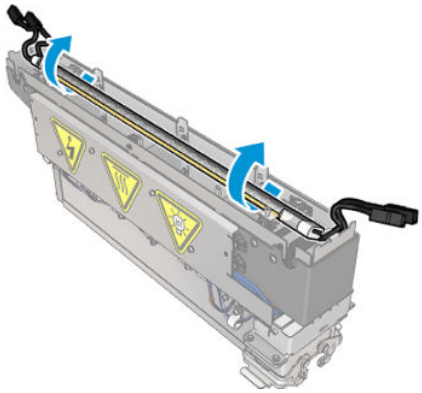


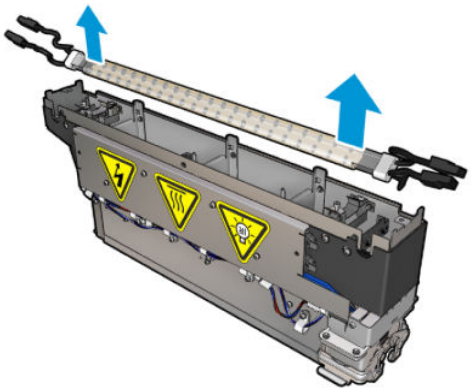
7. Release the screws that secure the lamp latches, and rotate the latches 180° to set the lamp free.



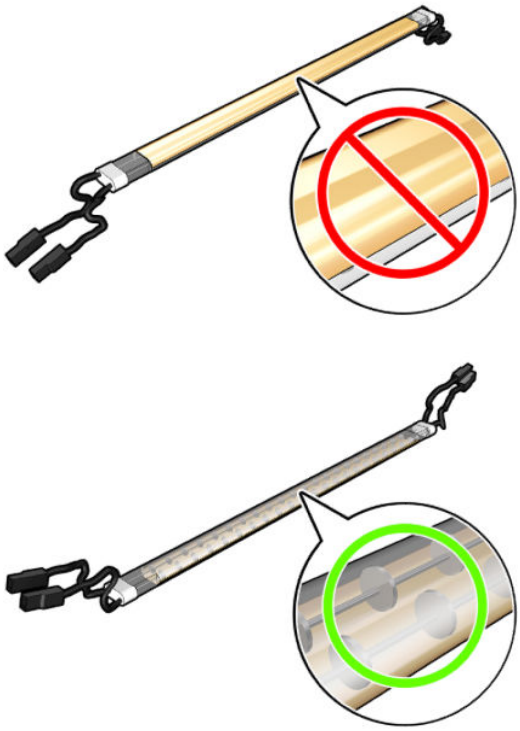


8. Rotate and pull out the old lamp.

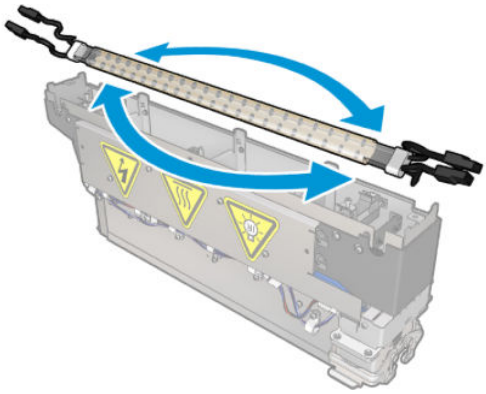




9. Carefully install the new lamp. Leave the golden side down towards the interior of the module; when correctly installed, the internal wires of the lamp are visible.



NOTE: The lamp is symmetrical lengthwise and both orientations are correct.

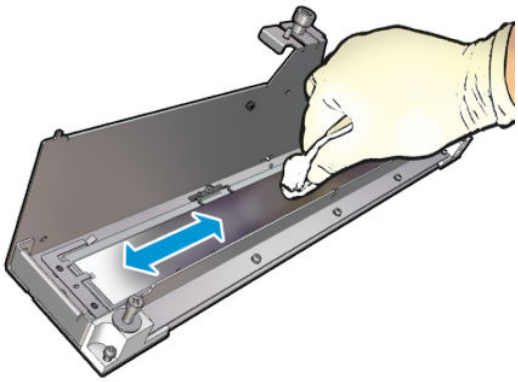


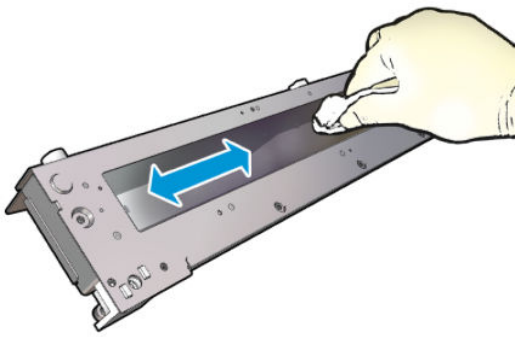
10. Rotate the latches back to the normal position and insert the screws.
11. Connect the cables of the new lamps. There is no mandatory orientation of the cables (top or bottom).
12. Ensure that the fast-on connectors are well assembled. Push them into the 'click' position for proper retention. Check that the plastic insulation covers the whole terminal after assembly.
13. Add and screw in both clamps.

Clean the drying quartz glass and the air outlet

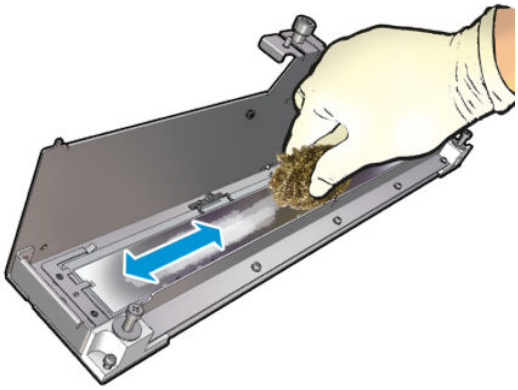
1. Take the drying quartz glass and air outlet, which you have already removed.

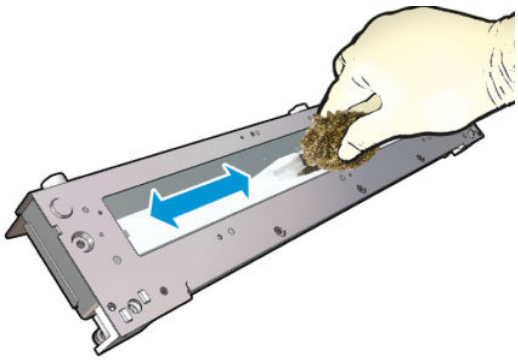
2. Moisten both sides of the glass with a lint-free cloth dampened with distilled water.





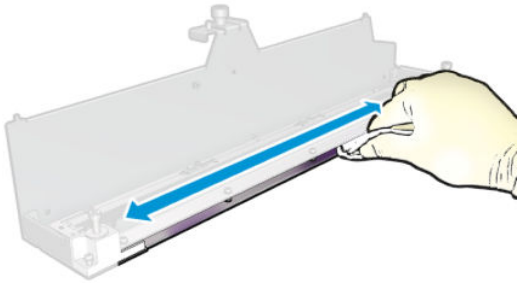
3. Scrub both sides of the glass with the steel scourer.





4. Repeat the above two steps as many times as needed to remove any visible ink stains on the glass.

5. Clean the air outlet using the same damp cloth.

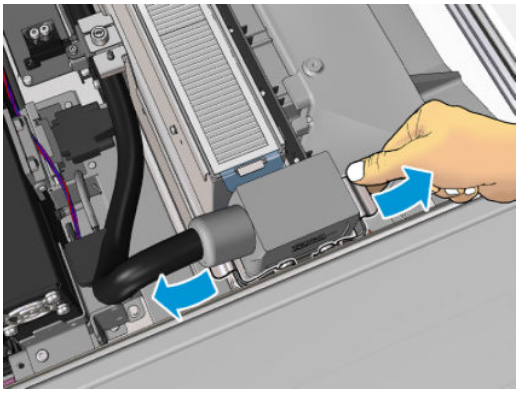


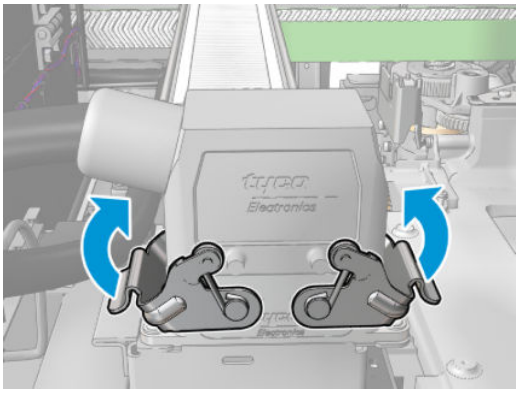
Reassemble the drying module

1. Reassemble the drying lamps with the drying quartz and air outlet. Check that the cables are properly routed inside the module before assembly.
2. Insert the three screws.
3. Ensure that the cleaned parts are completely dry and all vapor has completely evaporated before turning on the printer.

Reinstall the drying module

1. Install the drying module into the carriage and tighten the three screws that attach it to the carriage.
2. Reconnect the electrical connector and close the latches.





Finish off replacing the drying lamps

1. Close the service position window.

⚠ CAUTION: Do not leave anything in the way of the carriage.

2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

3. Dispose of the old lamps according to local regulations.

Clean the drying module quartz glass and air outlet

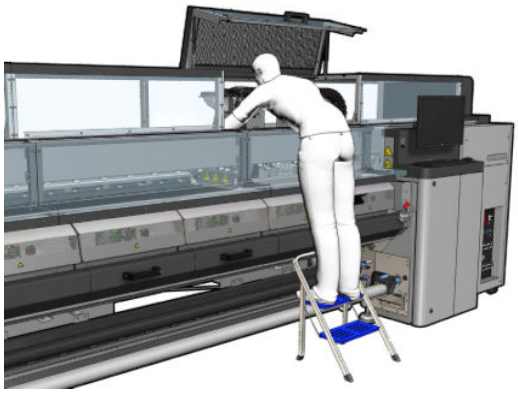
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to replace the drying lamps

1. Ensure that the printer is not printing.
2. Ensure that all windows, covers, and doors are closed and remain in their original position.
3. Move the carriage to the service position.
4. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

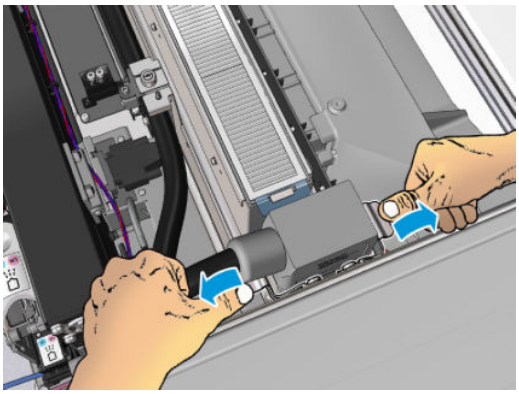
5. Stand on the folding steps and open the service position window.

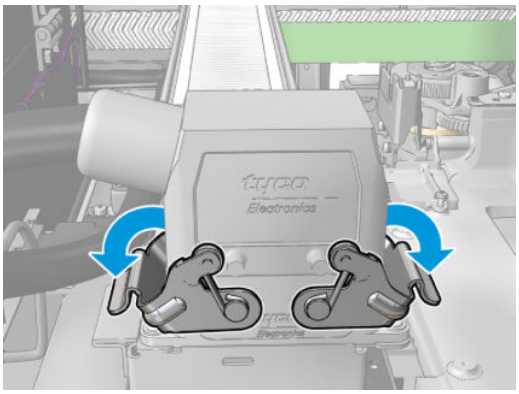


6. Perform the following processes for both drying modules (left and right).

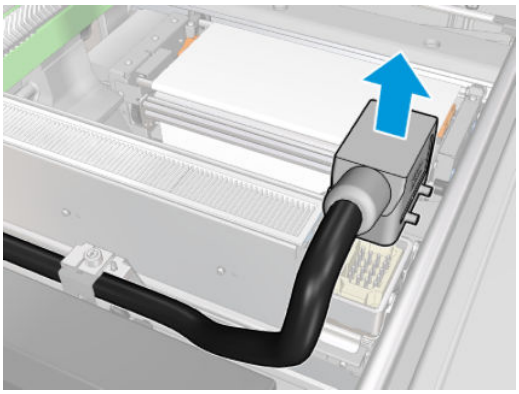
Remove the drying module

1. Remove the electrical connector latch.

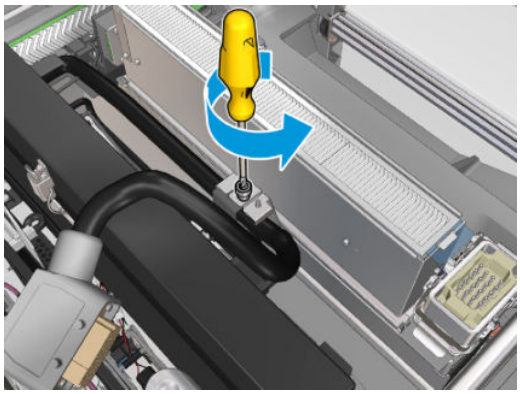


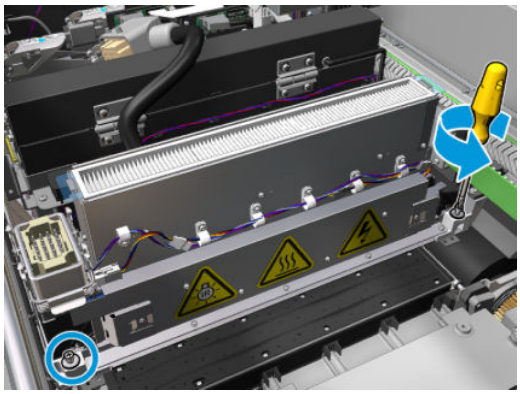


2. Unplug the connector.

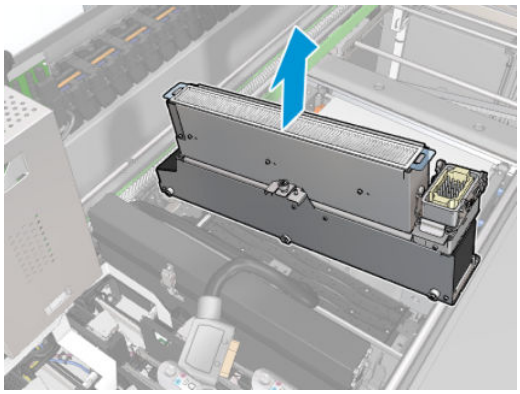


3. Unscrew the three screws shown below in order to remove the drying module (the left module is shown).





4. Pull the drying module carefully out of the carriage and lay it gently on a table.



Drying lamps emitter—safety precautions

⚠ CAUTION: Disregard of the safety precautions or improper operation of the infrared emitter can lead to injuries and material damage.

CAUTION: The IR heating device must be operated only by specialists or trained personnel.

The operator of the system must compile specific operating instructions for the training of operating personnel.

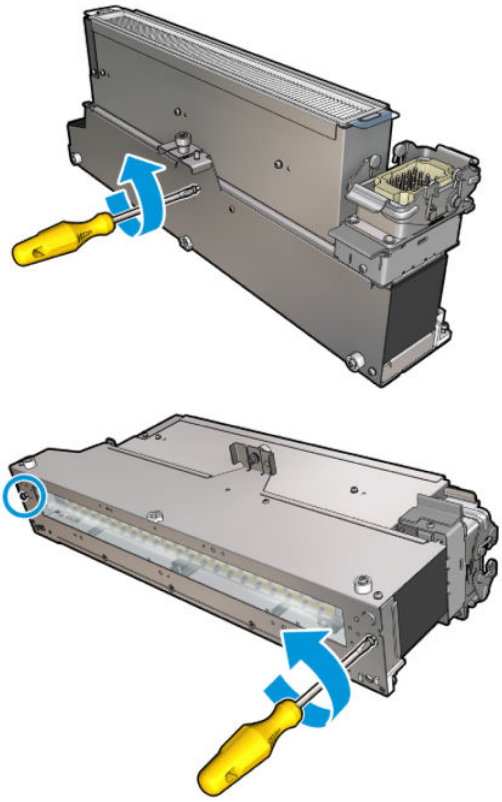
CAUTION: The safety and functional reliability of the IR heating device are guaranteed only in the event of use of original accessories and spare parts from Heraeus Noblelight.

⚠ WARNING! After an emitter break, a dangerous voltage may be exposed to contact by the heating spiral.

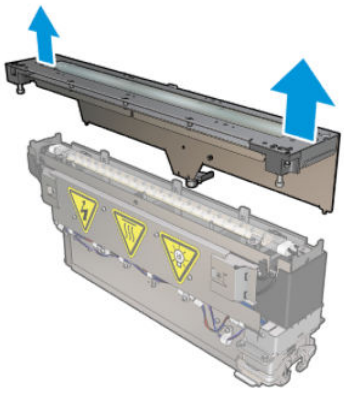
⚠ CAUTION: The reflector side must not be cleaned.

Remove the drying quartz

1. To separate the drying glass and air outlet from the rest of the module, remove the three screws shown below.



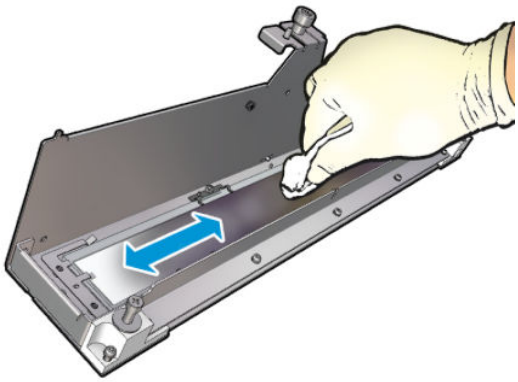
2. Take out the drying lamps section of the drying module.

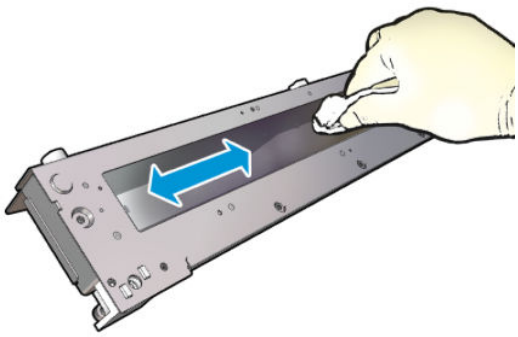


Clean the drying quartz glass and the air outlet

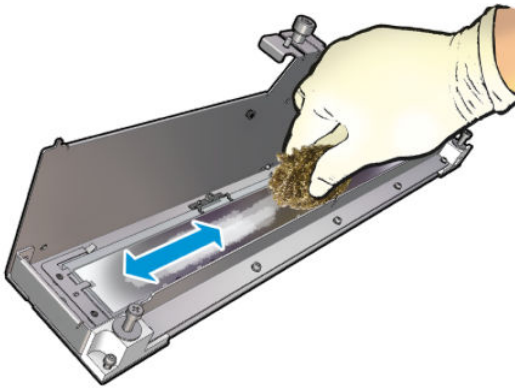
1. Take the drying quartz glass and air outlet, which you have already removed.

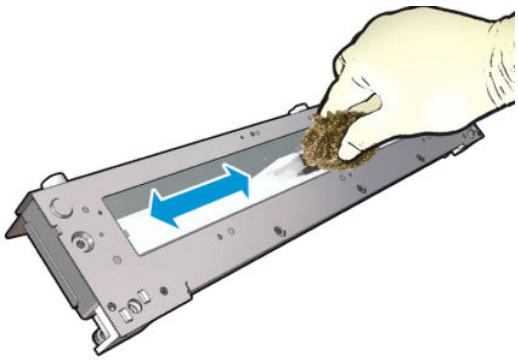
2. Moisten both sides of the glass with a lint-free cloth dampened with distilled water.





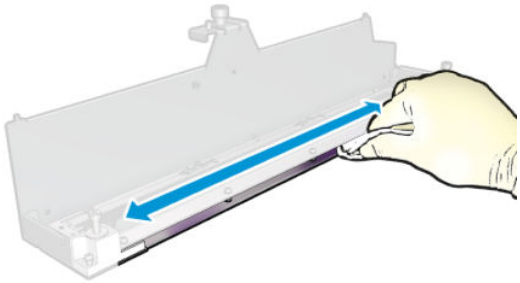
3. Scrub both sides of the glass with the steel scourer.





4. Repeat the above two steps as many times as needed to remove any visible ink stains on the glass.

5. Clean the air outlet using the same damp cloth.

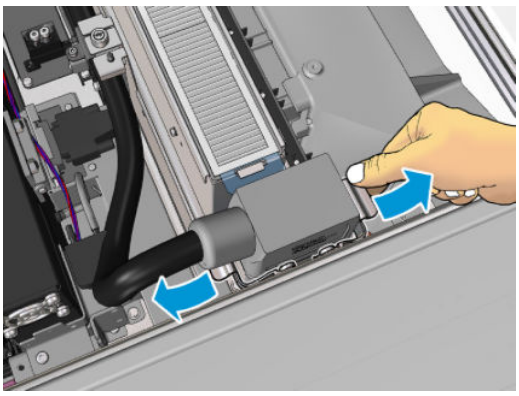


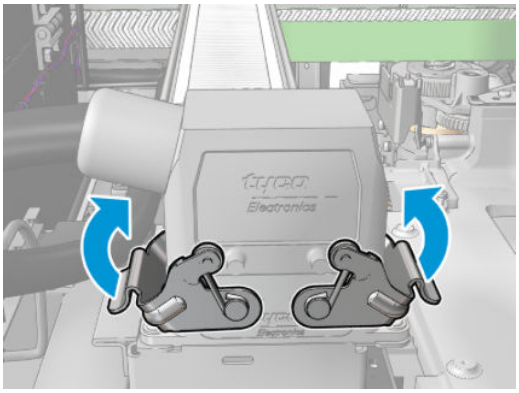
Reassemble the drying module

1. Reassemble the drying lamps with the drying quartz and air outlet. Check that the cables are properly routed inside the module before assembly.
2. Insert the three screws.
3. Ensure that the cleaned parts are completely dry and all vapor has completely evaporated before turning on the printer.

Reinstall the drying module

1. Install the drying module into the carriage and tighten the three screws that attach it to the carriage.
2. Reconnect the electrical connector and close the latches.





Finish off replacing the drying lamps

1. Close the service position window.

⚠ CAUTION: Do not leave anything in the way of the carriage.

2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Replace the drying quartz glass

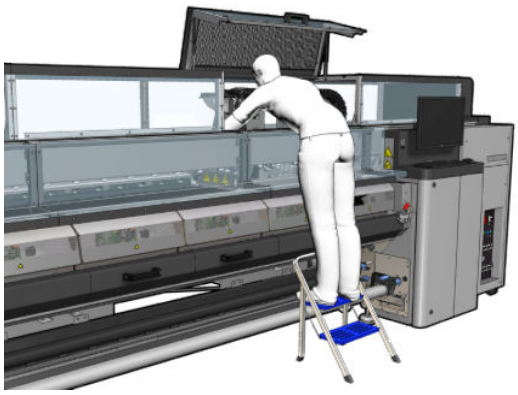
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to replace the drying quartz glass

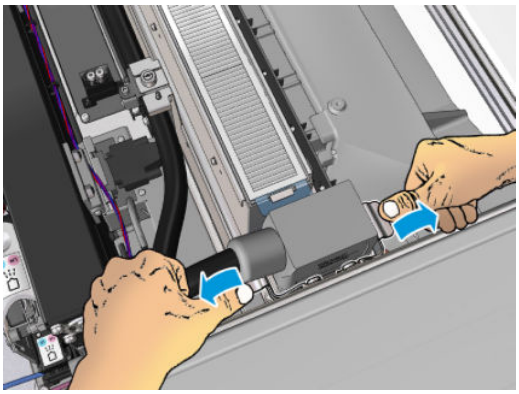
1. Ensure that you have the necessary Drying Quartz Glass Kit: for the left drying module (CZ056-67253) or the right drying module (CZ056-67252). Both kits are included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to the service position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

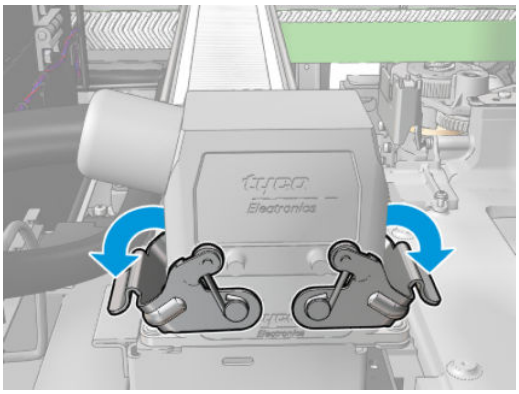
6. Stand on the folding steps and open the service position window.



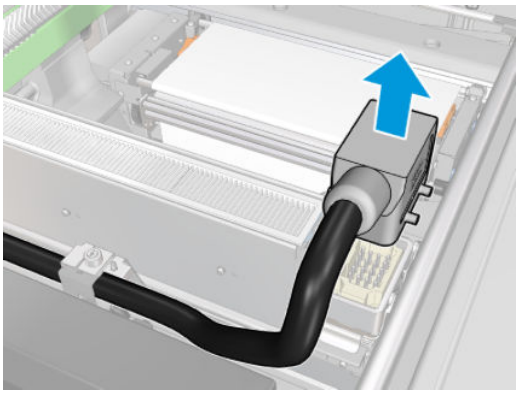
Remove the drying module

1. Remove the electrical connector latch.

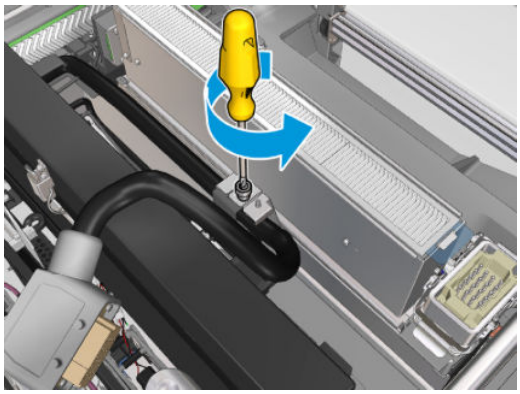


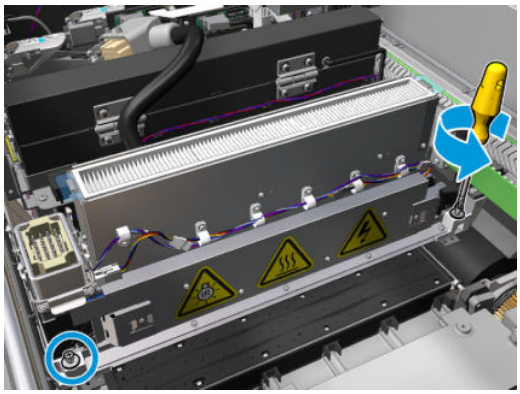


2. Unplug the connector.

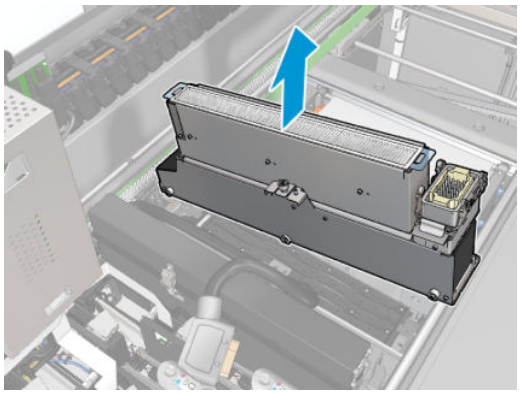


3. Unscrew the three screws shown below in order to remove the drying module (the left module is shown).



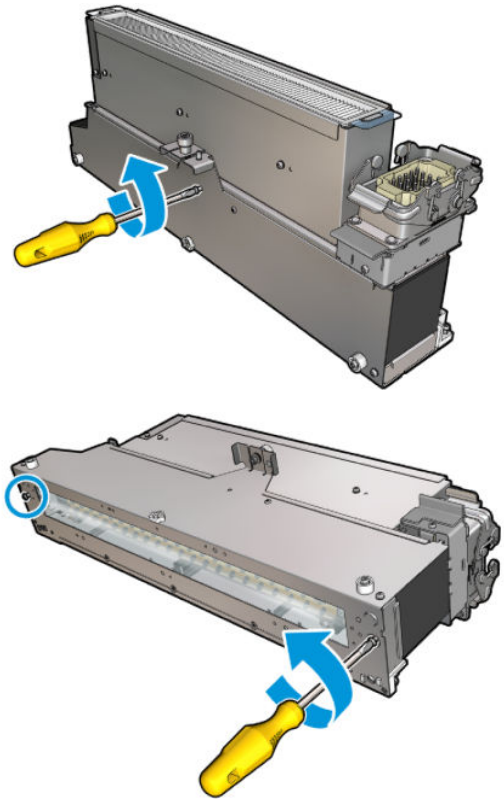


4. Pull the drying module carefully out of the carriage and lay it gently on a table.



Replace the drying quartz glass

1. To separate the drying glass and air outlet from the rest of the module, remove the three screws shown below.

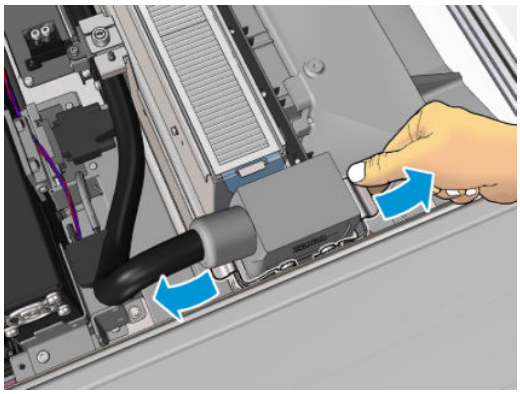


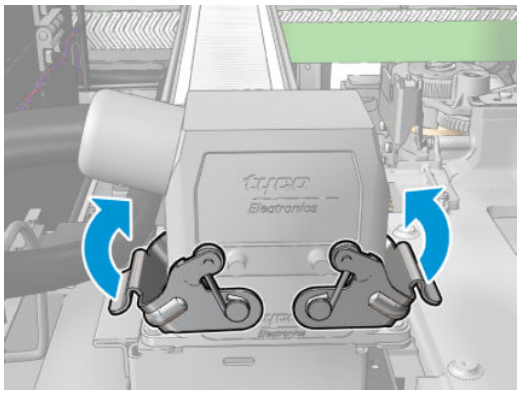
2. Assemble the drying lamps section and the new drying glass and air outlet.
3. Insert the three screws.

Reinstall the drying module

1. Reinstall the drying module into the carriage and tighten the three screws that attach it to the carriage.

2. Reconnect the electrical connector and close the latches.





Finish off replacing the drying quartz glass

1. Close the service position window.

⚠ CAUTION: Do not leave anything in the way of the carriage.

2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

3. Dispose of the old quartz glass according to local regulations.

Replace a curing fan and resistor module

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard	Moving fan blades

For more safety information, see Safety precautions on page 2

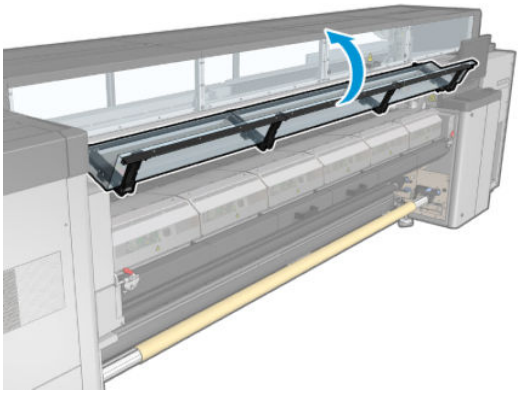
Prepare to replace a curing fan and resistor module

1. Ensure that you have the Curing Heater and Fan Module Kit (CZ056-67054), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

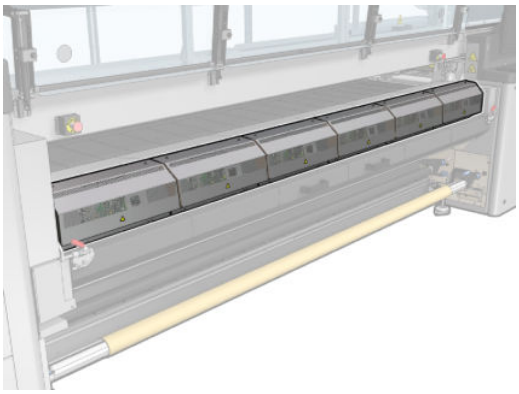
4. Wait for the curing modules to cool down.

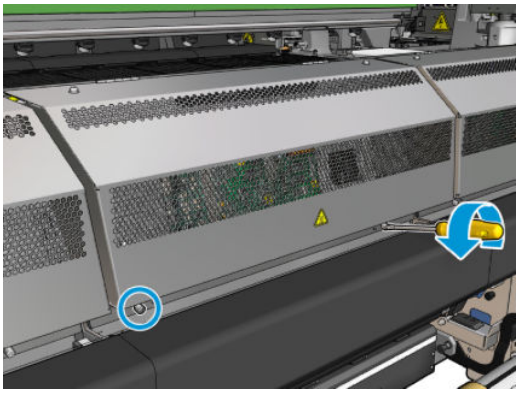
Replace a curing fan and resistor module

1. Open the front door.

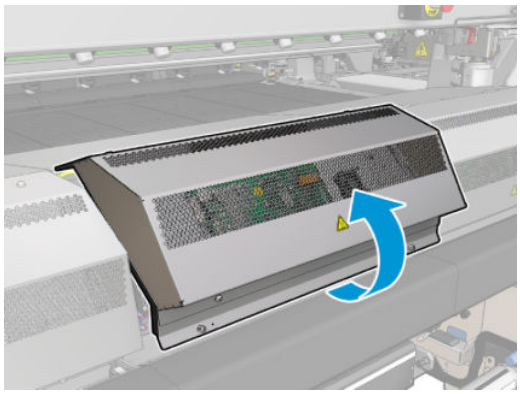


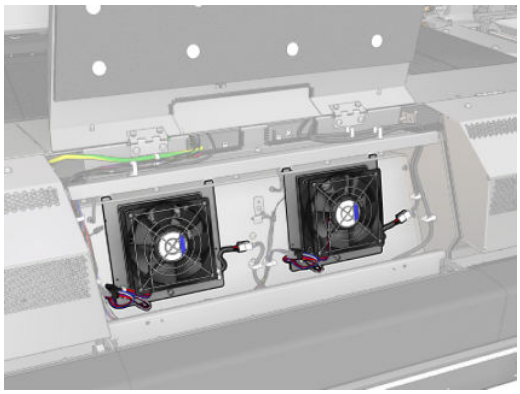
2. Use a flat screwdriver to remove the screws of the curing module.



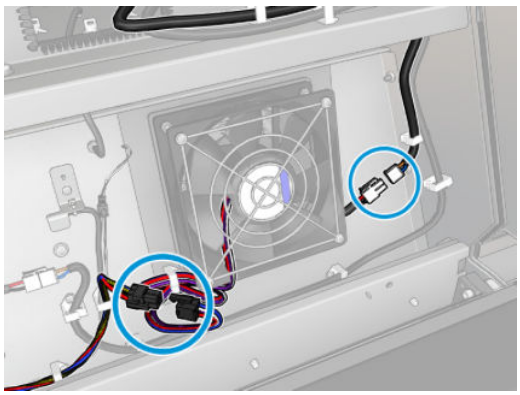


3. Raise the metal sheet in order to reach the interior of the module.

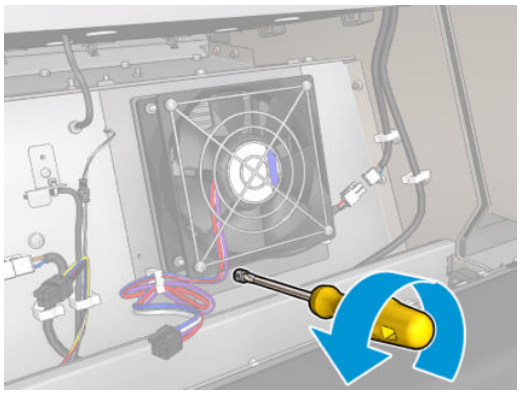




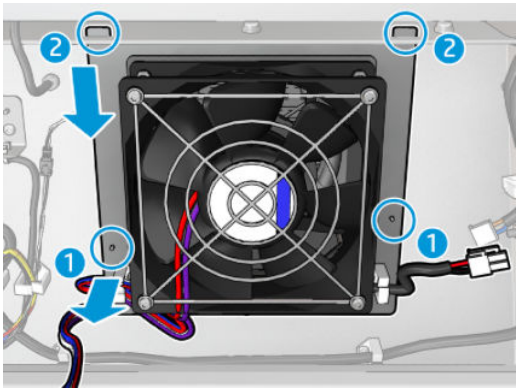
4. Disconnect the two cables shown in the picture. You have to press the retention clip on each of the two connectors, and gently pull the cable. The black one is for the DC fans supply and the white one is for AC power to the curing heaters.

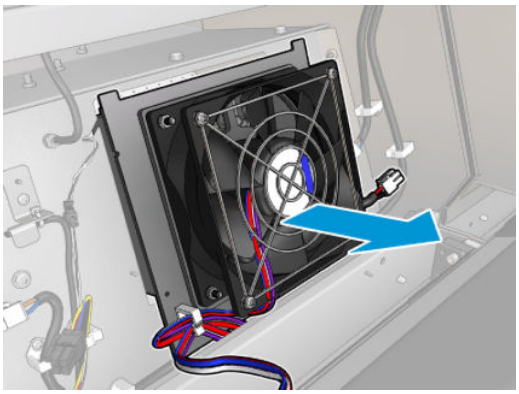


5. Use a flat screwdriver to remove the screws of the fan-resistor module.

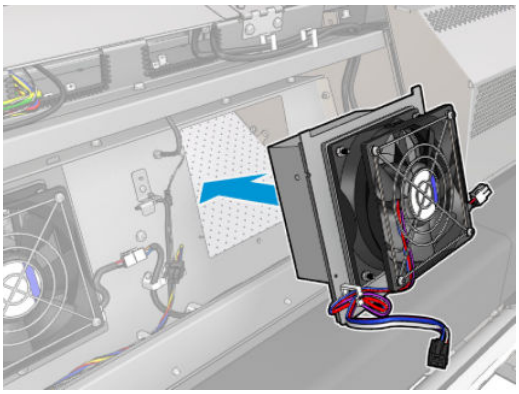


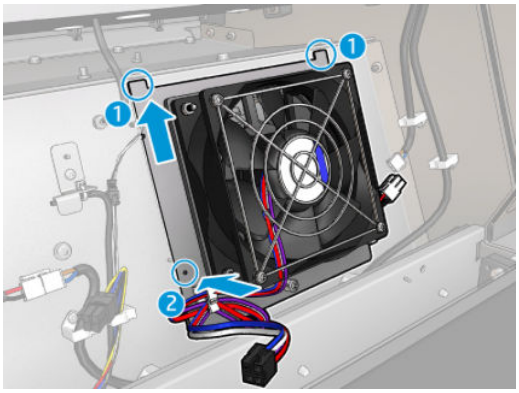
6. Remove the fan-resistor module.





7. Put the new fan-resistor module into position.





8. Screw in the screw and connect the two cables to each fan-resistor module.
9. Close the metal sheet and replace the screws to secure it.

Finish off after replacing a curing fan and resistor module

1. Close the front door.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Replace a service station cap

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

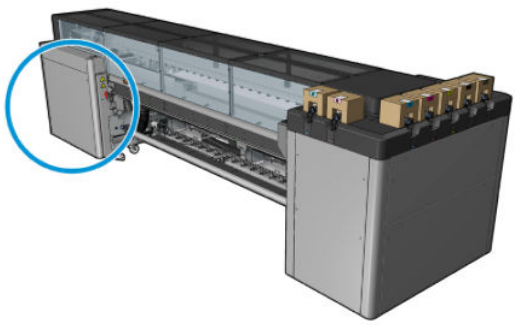
For more safety information, see Safety precautions on page 2

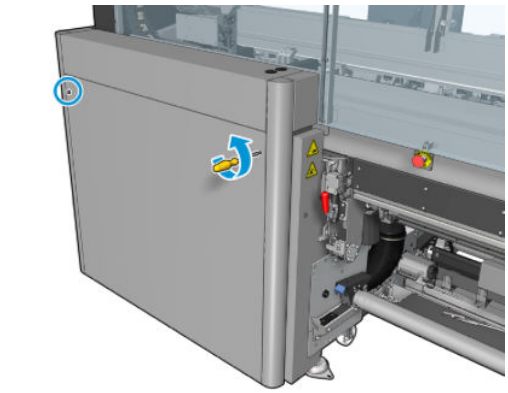
Prepare to replace a service station cap

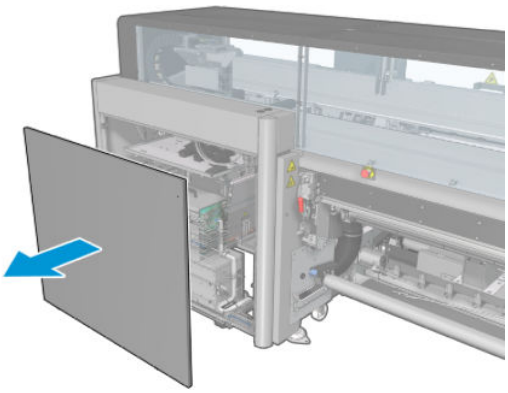
1. Ensure that you have the Service Station Caps Kit (CZ056-67036), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage to the service position.
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

Replace a service station cap

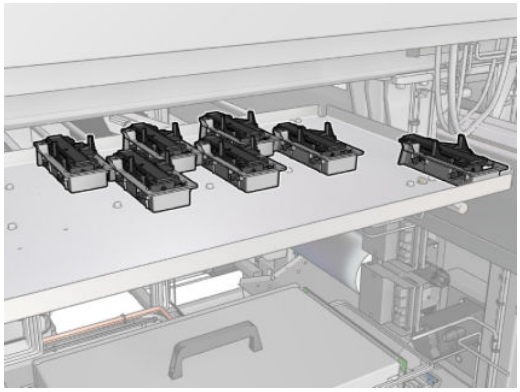
1. Unscrew and remove the cover as shown below, to access the capping station.

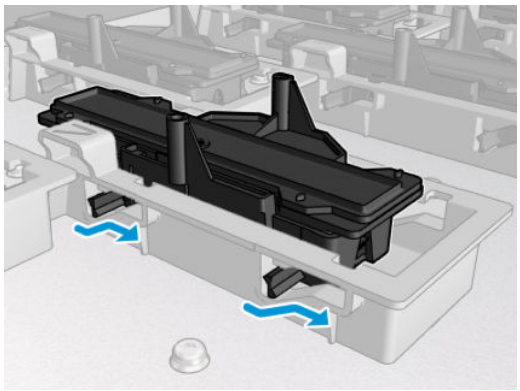


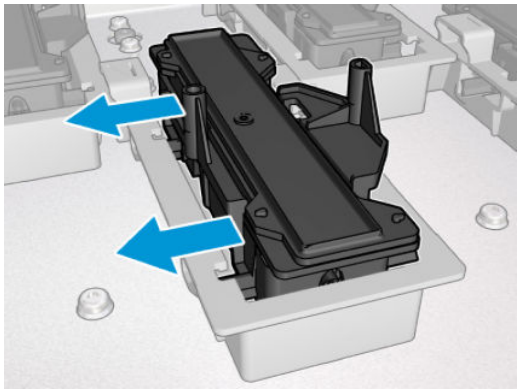


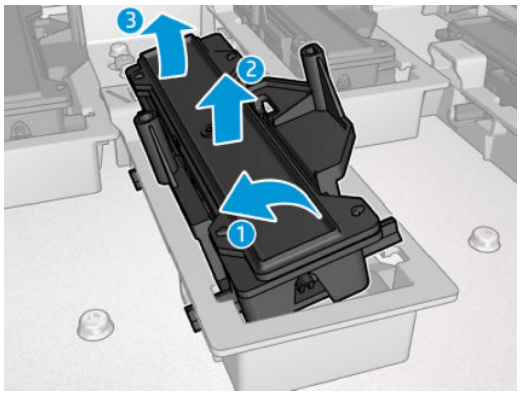


2. Remove the service station cap, using three movements as shown below.

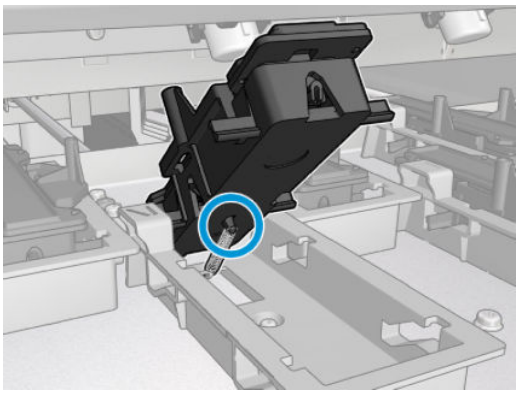








3. Remove the spring that holds the cap from below.



4. Attach the spring to the new service station cap and place it in position.

Finish off after replacing a service station cap

1. Put back the cover and screw it into place.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Replace an intermediate tank

Risk of burns

Risk of trapped fingers

Hazardous moving part

For more safety information, see Safety precautions on page 2

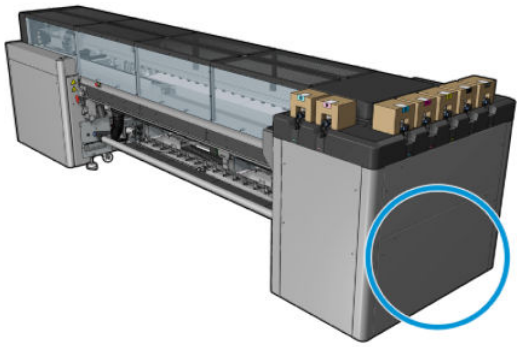
You will need to replace an intermediate tank if the bag breaks.

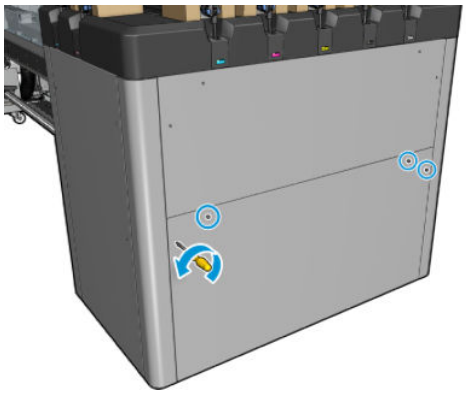
Prepare to replace an intermediate tank

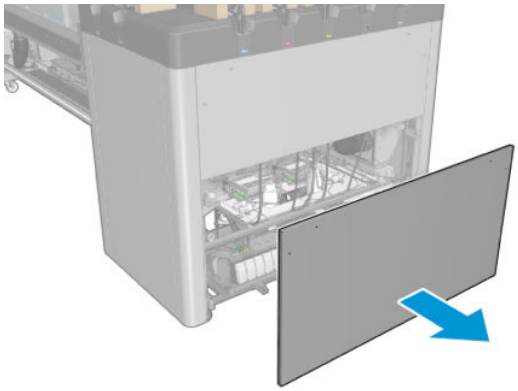
1. Ensure that you have the Intermediate Tank Kit (CZ056-67073), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

Replace an intermediate tank

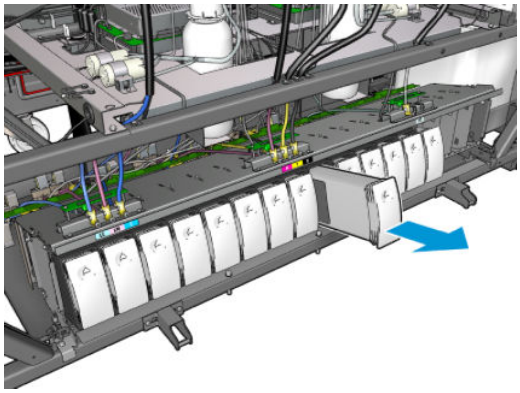
1. Unscrew the pointed screws and remove the cover to access the intermediate tanks.





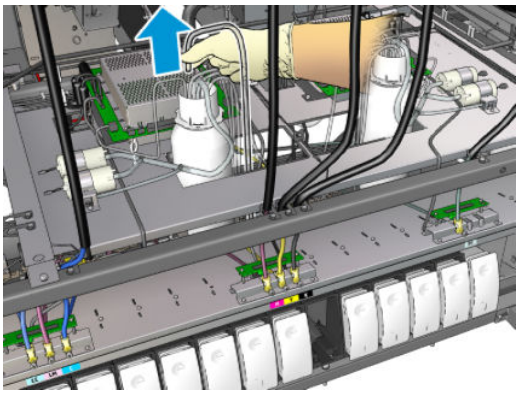


2. Remove the intermediate tank with the broken bag.



3. Put a piece of cloth in its place.

4. Unplug the air tube from each bottle shown below.



5. From the air tube, inject air (using the air pressure gun, for example) to clean the interior of the tube. The ink accumulated in the interior of the tube should be ejected onto the piece of cloth that you have put in place of the intermediate tank.
6. If air is not enough to clean it, use water, and then air again to remove the water and dry the tube.
7. Remove the cloth.
8. Plug in the air tubes.
9. Insert the new intermediate tank.
10. Put back the cover and screw in the screws.

Finish off after replacing an intermediate tank

1. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

2. Run a diagnostic test to refill the intermediate tank.

Replace an e-cabinet fuse

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

For more safety information, see Safety precautions on page 2

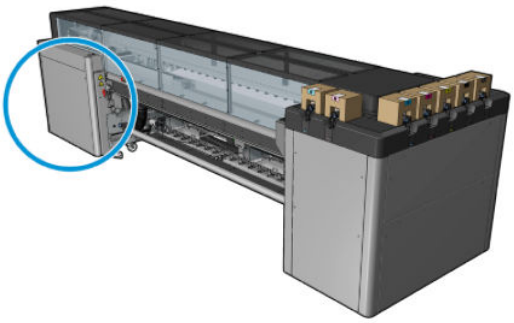
⚠ CAUTION: Do not attempt to replace fuses other than those in this specific area of the e-cabinet. These are the only ones you are allowed to replace. Call your service representative in all other cases.

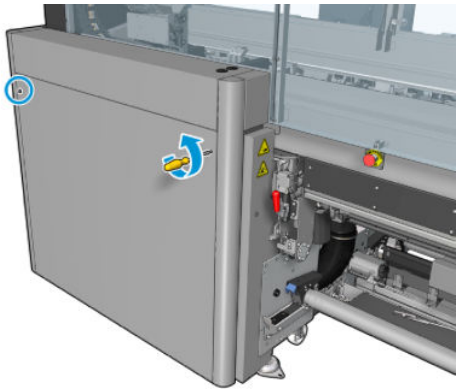
Prepare to replace an e-cabinet fuse

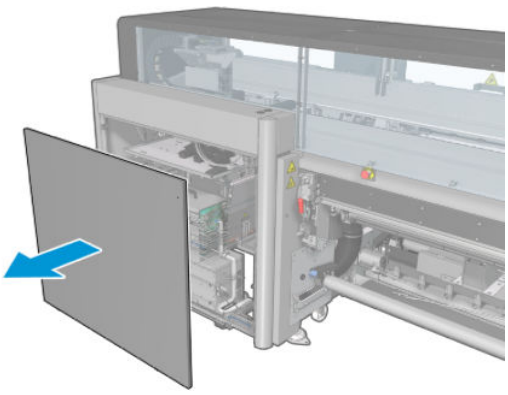
1. Ensure that you have the E-cabinet PCA Fuses Kit (CZ056-67136), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Check the Print Care error message log to find out which fuse needs to be replaced.
3. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

Replace an e-cabinet fuse

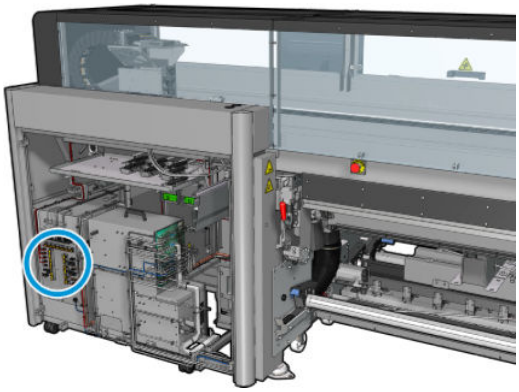
1. Ensure that the printer is not printing.
2. Remove the screws shown below, then remove the rear right cover.



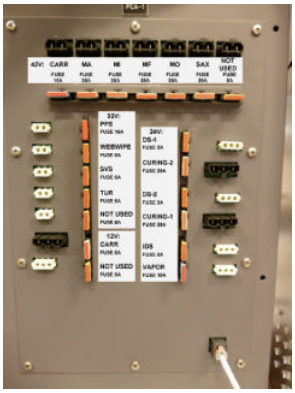




3. Locate the e-cabinet fuses.



4. Locate the failing fuse identified by the Print Care error message logs.



5. Pull out the fuse and insert a new one. Ensure that the new fuse matches the old one in size, rating, and color.

6. Run a diagnostic test to check that the new fuse is working correctly.

⚠ CAUTION: Fire risk! A blown fuse may indicate malfunctioning electrical circuits within the system. If a fuse trips repeatedly, call your service representative and do not attempt to replace the fuse with one with a higher current rating.

7. Dispose of the old fuse.

8. Put back the rear right cover and screw it into place.

9. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Clean the printhead contacts

⚠ WARNING! This operation is limited to trained personnel only!

NOTE: During the installation of the printer, the designated personnel received training for safe operation and maintenance of the printer. It is not allowed to use the printer without this training.

⚠ WARNING! Read and follow the safety precautions section to make sure you use the equipment safely: see Safety precautions on page 2. You are expected to have the appropriate technical training and experience necessary to be aware of hazards to which you may be exposed in performing a task, and to take appropriate measures to minimize the risks to yourself and to others.

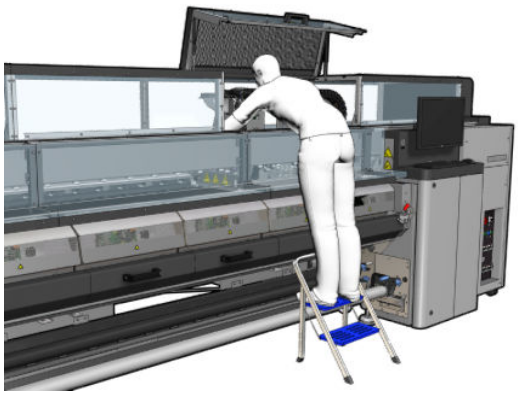
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

For more safety information, see Safety precautions on page 2

Prepare to clean the printhead contacts

1. Ensure that you have the HP Latex 3x00 Printer Cleaning Kit, which is provided with your printer.
2. Ensure that the printer is not printing.
3. Identify which printheads need cleaning, usually after the Internal Print Server recommends replacing or reseating them.
4. Ensure that all windows, covers, and doors are closed and remain in their original position.
5. Move the printhead carriage to the service position.
6. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

7. Stand on the folding steps and open the service position window.



Clean the printhead contacts (in the carriage slot)

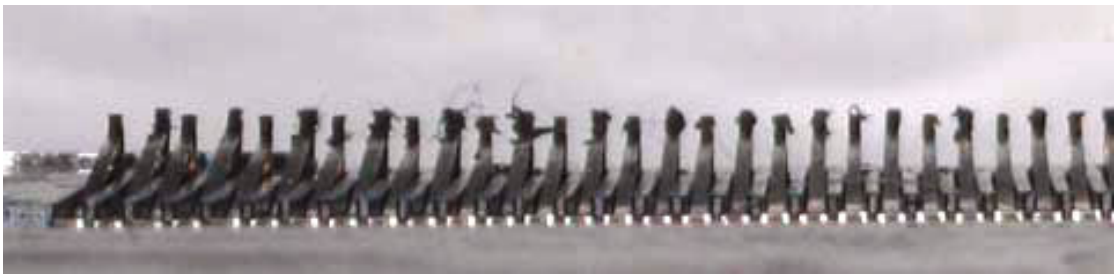
1. Carefully remove the printheads that may need cleaning from the carriage and protect them using their orange sealing caps.

⚠ CAUTION: **Ensure that each printhead uses its own color cap.** This is especially important with the Optimizer printhead caps as there is a high risk of nozzle damage if they are used with the color printheads and vice-versa. The optimizer caps are labeled as shown below.

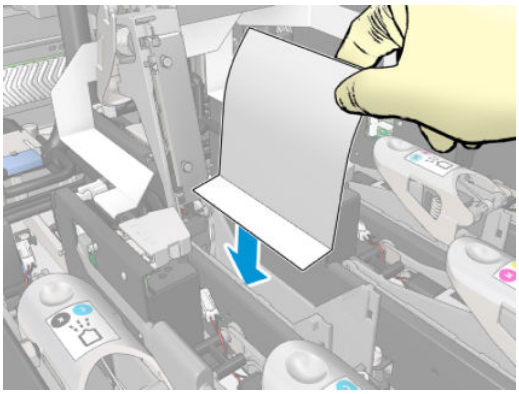
TIP: Remember which printhead came from which slot; the printer will report an error if you later replace a printhead in the wrong slot.

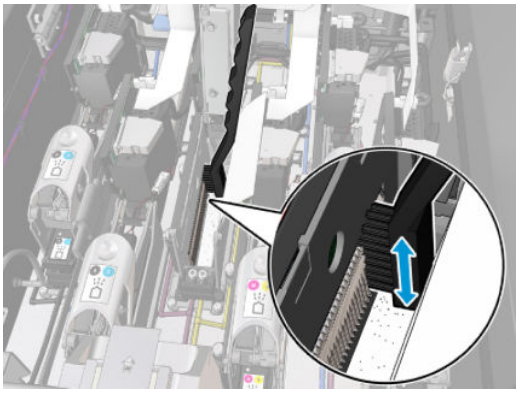
2. Illuminate the printhead slot in the carriage and check the electrical connections to the printhead for dirt.

TIP: Placing some white paper behind the electrical connections will improve contrast and may help you to check for dirt.

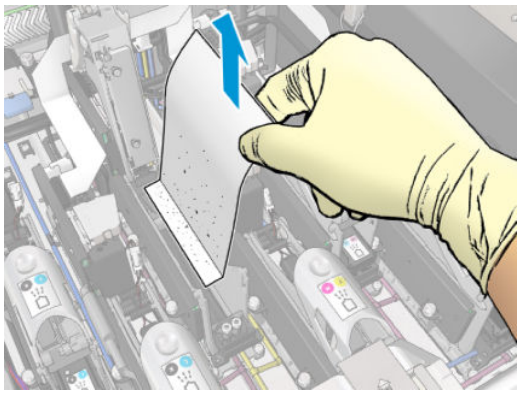


3. Clean the dirty connections gently but thoroughly using the brush provided in the HP Latex 3x00 Printer Cleaning Kit. A piece of paper or cloth can be used to collect the dirt.



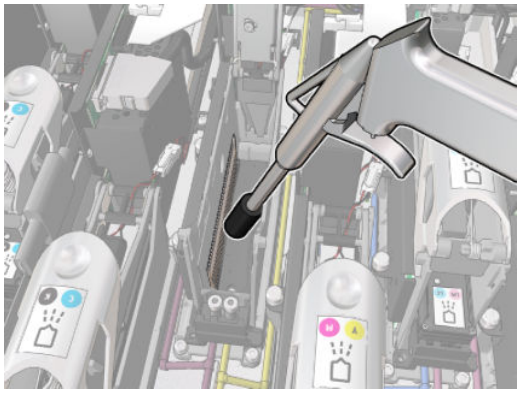


4. Remove the piece of paper or cloth to prevent the dirt from spreading.



5. Use the pneumatic air gun to dislodge any remaining dirt.

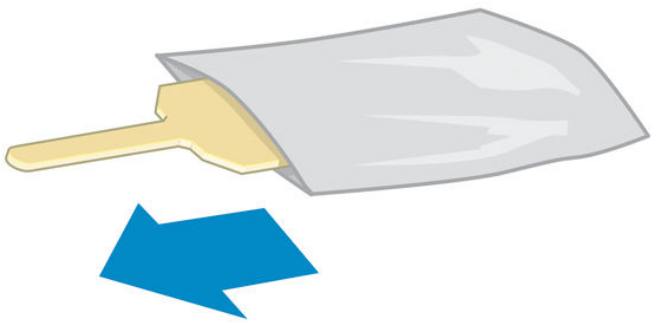
> ⚠ WARNING! The air gun provided with the printer is only intended to inflate the spindle. When recommended to use for cleaning purposes, make sure to do so according to local regulations since additional safety provisions may apply.



6. Illuminate the printhead slot again to check that the electrical connections are now clean and undamaged.

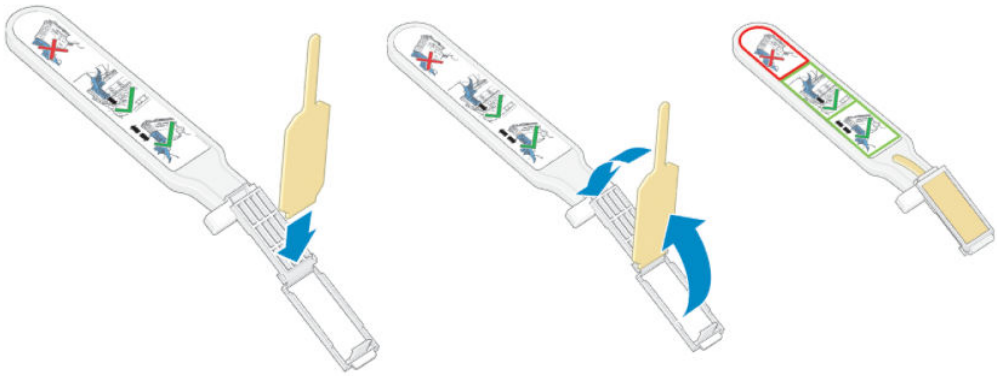
Clean the printhead contacts (on the printhead)

1. Take the printhead interconnect wiper provided in the HP Latex 3x00 Printer Cleaning Kit. Prepare the handle and one pre-moistened sponge in its pouch.
2. Take a sponge out of its pouch.



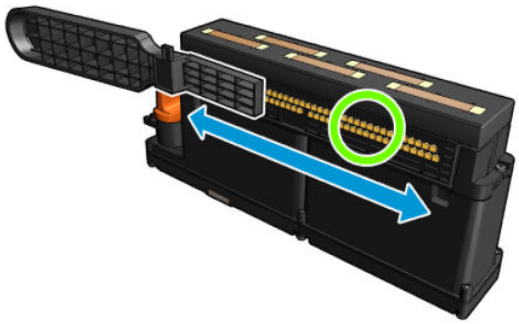
3. Open the handle.

4. Load the sponge and close the handle as shown below.

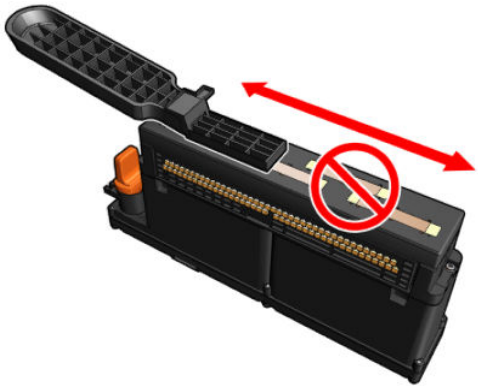


5. Remove the printhead cap and locate the contacts.

6. Clean the contacts.



⚠ CAUTION: Do **not** use the printhead interconnect wiper to clean the nozzles!



Finish off cleaning the printhead contacts

1. Wait until the contacts are dry.
2. Put back the printheads, each in the same slot from which it came.
3. Close the service position window.
4. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Replace a spindle valve

Risk of trapped fingers

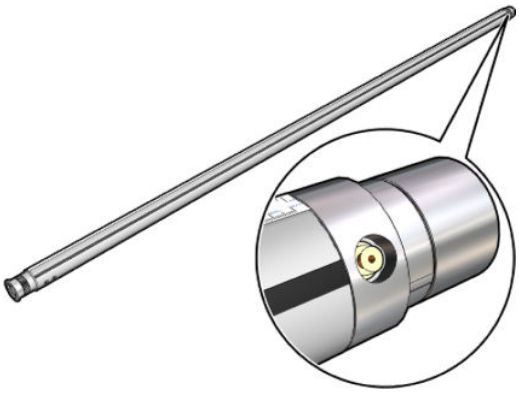
For more safety information, see Safety precautions on page 2

Prepare to replace a spindle valve

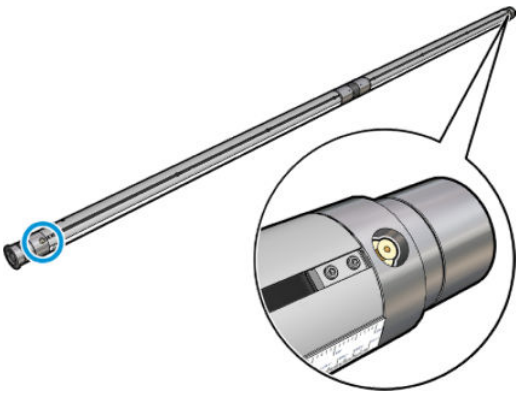
1. Ensure that you have the Spindle Air Valve (Q6702-67025), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that you have an 11 mm (7/16 inch) tube wrench key and the pneumatic gun.
3. Ensure that the printer is not printing.
4. Press the valve to deflate the spindle.

Replace a spindle valve

1. Remove the spindle valve with the tube wrench key.



NOTE: Remember that the dual-roll spindle has two valves; identify the one that needs replacement.



2. Insert the new valve and tighten it. The valve must be well seated in position and firm, but do not force it with the key.

Finish off replacing a spindle valve

- ▲ Test the new valve by inflating and deflating the spindle.

Clean the roll-to-free-fall roller and pinchwheels

Risk of burns

Crush hazard

Risk of trapped fingers

For more safety information, see Safety precautions on page 2

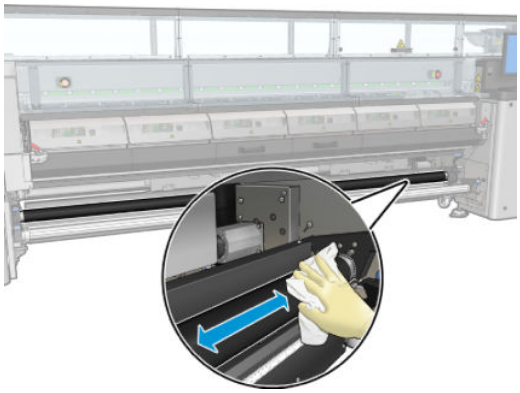
The roll-to-free-fall roller should be cleaned whenever it is visibly dirty (for instance, whenever ink has not cured properly when using the roller), or when you notice that substrate advance is no longer smooth and regular (for instance, if you notice that the roller often slips when trying to keep the substrate under tension).

Prepare to clean the roll-to-free-fall roller and pinchwheels

1. Check that the printer is not printing.
2. Unload the substrate.
3. Raise the pressure roller lever if it was previously lowered.

Clean the roll-to-free-fall roller

1. Clean the roller with a clean cloth dampened with water (for persistent dirt you may use isopropyl alcohol, but do not use petroleum-based cleaning liquids).



2. Turn the roller manually and keep cleaning to make sure the rubber surface of the roller is cleaned all around.

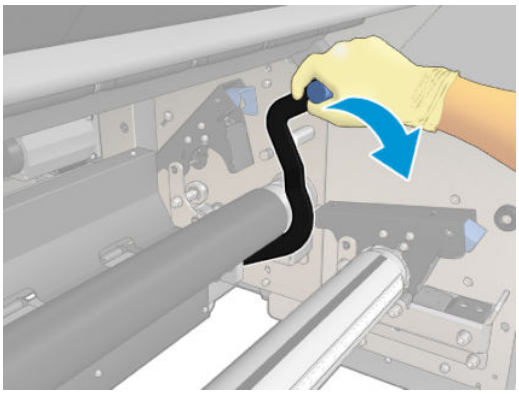
⚠ WARNING! Take care not to trap your finger when turning the roller.

3. Ensure that the cleaned parts are completely dry and the vapors have completely evaporated.

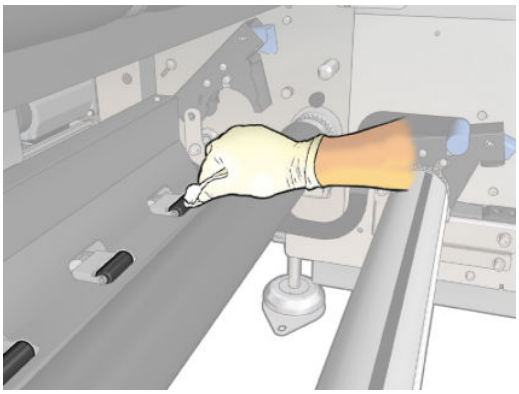
Clean the pinchwheels

1. Open the roller latches at both sides and move the roller to the front.

2. Lower the pressure roller lever so that the pinchwheels are accessible.



3. Clean the pinchwheels carefully with a cloth dampened with water (for persistent dirt you may use isopropyl alcohol, but do not use petroleum-based cleaning liquids).



4. Once the pinchwheels are clean, raise the pressure roller lever.
5. Roll the roller backwards by pushing it (not by grabbing it).

⚠ WARNING! Take special care when moving the roller backwards not to hit your fingers against the black substrate guide behind and under the roller.

6. Once the roller is in position, close the latches at both sides.
7. Ensure that the cleaned parts are completely dry and the vapors have completely evaporated.

Clean the carriage rails manually

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

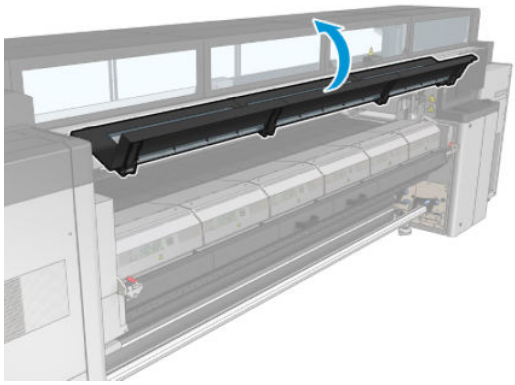
For more safety information, see Safety precautions on page 2

NOTE: Perform this procedure only if the automatic cleaning procedure fails.

Prepare to clean the carriage rails manually

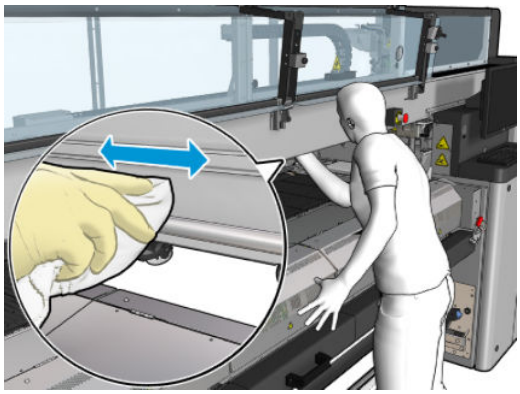
1. Ensure that the printer is not printing.
2. You are recommended to wear gloves.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage beam to its highest position (this takes about 2 minutes).
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

6. Open the front door.



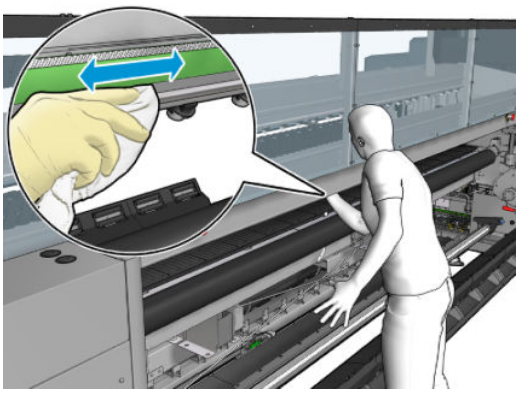
Clean the carriage rails manually

1. Standing at the front of the printer, clean the front rail using a lint-free cloth dampened with distilled water.



2. Close the front door.
3. Go to the rear of the printer and open the loading table.

4. Standing at the rear of the printer, clean the rear rail in the same way. You can access the rail from below, through the gap between the platen and the beam.



⚠ CAUTION: Be careful not to stain the encoder strip. Keep the cloth well away from the encoder housing.

5. Ensure that the cleaned parts are completely dry and all vapor has completely evaporated.
6. Close the loading table.

Finish off cleaning the carriage rails manually

1. Ensure that all windows, covers, and doors are closed and remain in their original position.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Pinch clamp replacement

Crush hazard	Risk of trapped fingers	Hazardous moving part	Risk of cutting fingers

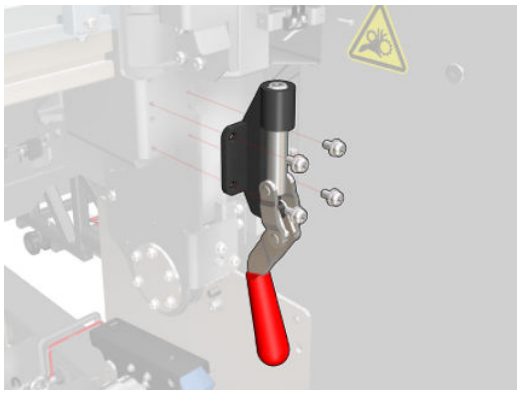
For more safety information, see Safety precautions on page 2

Removal

1. Ensure that the printer is not printing.
2. Turn off the printer and the power-enable switch.

3. Locate the pinch clamp to be replaced and open it.

4. Remove the four T-30 screws and the pinch clamp.



Installation

1. Install the new pinch clamp and attach it with the screws.
2. Perform the safety interlock diagnostic (51001).

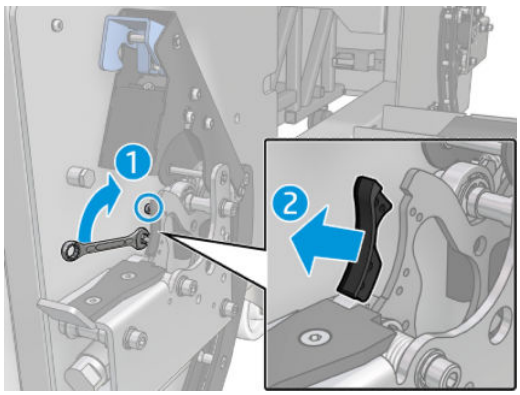
Replace the rocker pads

Risk of trapped fingers

For more safety information, see Safety precautions on page 2

Removal (same for all four sides)

1. Unload all the spindles from both sides of the printer.
2. Open the latch.
3. Unscrew the 2 hexagonal cap screws with a wrench and remove the rocker pad.



Installation

▲ Install the new rocker pad and replace the 2 screws.

Clean the scan axis encoder

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Light radiation hazard

Electric shock hazard

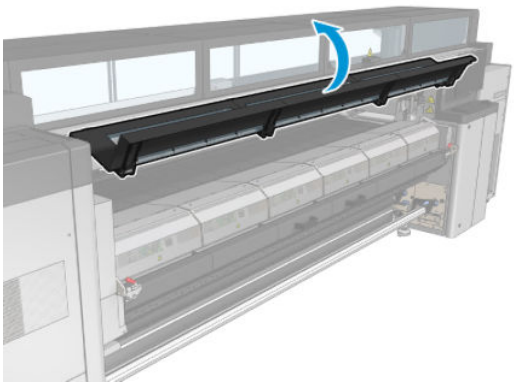
For more safety information, see Safety precautions on page 2

NOTE: Perform this procedure only if the automatic cleaning procedure fails.

Prepare to clean the scan axis encoder

1. Ensure that the printer is not printing.
2. You are recommended to wear gloves.
3. Ensure that all windows, covers, and doors are closed and remain in their original position.
4. Move the carriage beam to its highest position (this takes about 2 minutes).
5. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

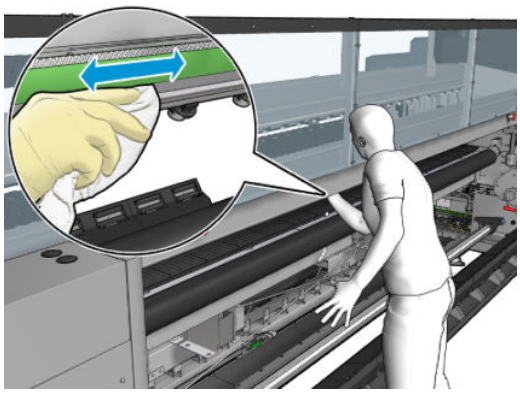
6. Open the front door.



Clean the scan axis encoder

1. Go to the rear of the printer and open the loading table.

2. Standing at the rear of the printer, clean the scan axis encoder with a lint-free cloth dampened with distilled water. You can access the encoder from below, through the gap between the platen and the beam.



3. Ensure that the cleaned parts are completely dry and all water has completely evaporated.
4. Close the loading table.

Finish off cleaning the scan axis encoder

1. Ensure that all windows, covers, and doors are closed and remain in their original position.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

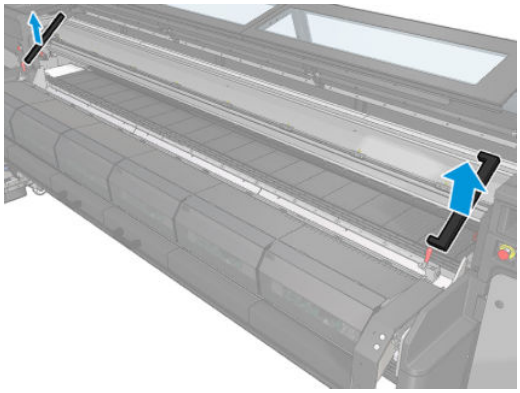
Replace the curing module side rubber

Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard	Moving fan blades

For more safety information, see Safety precautions on page 2

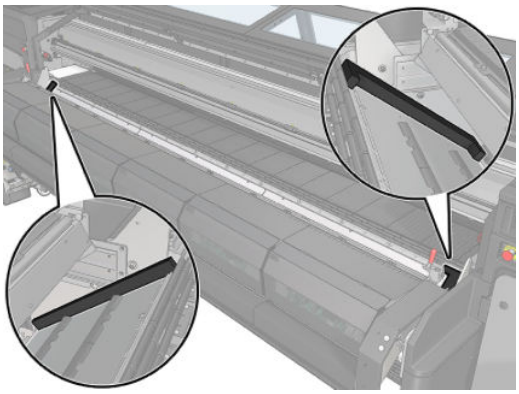
Removal

1. Open the latches and pull the curing module out.
2. Remove any remaining bits of foam from both sides.



Installation

1. Insert new foams. Tape them in to insure they are well sealed between the curing module and front bottom plate to avoid any vapor condensation leakage.



2. Push the curing module in and close the latches.

Clean the service station caps

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Light radiation hazard	Electric shock hazard

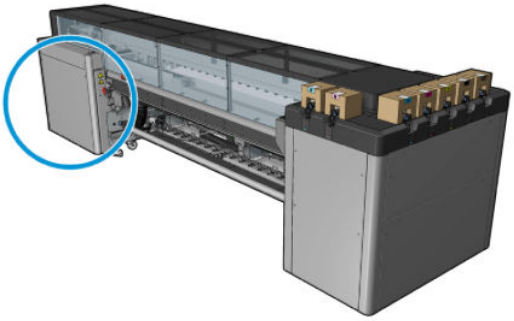
For more safety information, see Safety precautions on page 2

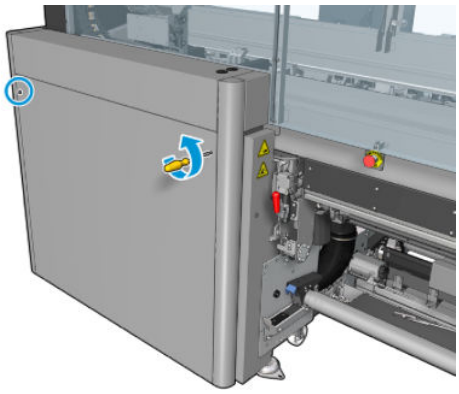
Prepare to clean the service station caps

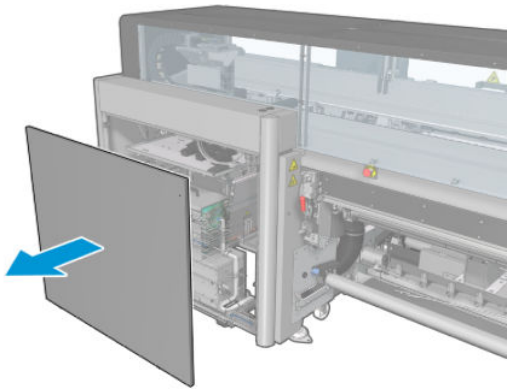
1. Ensure that the printer is not printing.
2. Ensure that all windows, covers, and doors are closed and remain in their original position.
3. Move the carriage to the service position.
4. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

Clean the service station caps

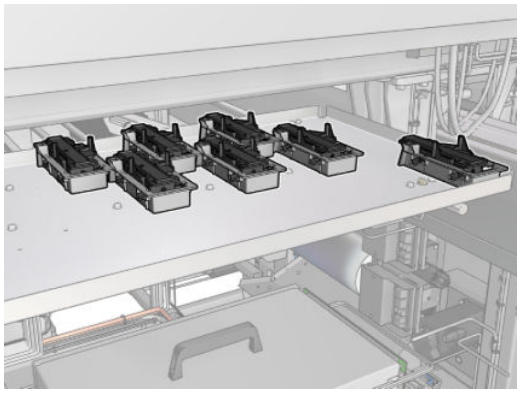
1. Unscrew and remove the cover as shown below, to access the capping station.







2. Clean the zone around the service station caps.



Finish off after cleaning a service station cap

1. Put back the cover and screw it into place.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

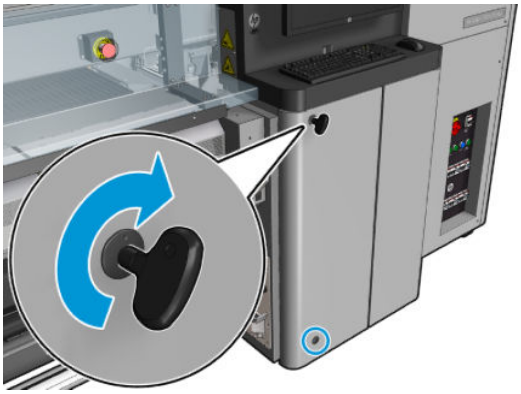
Empty the printhead cleaning waste bottle

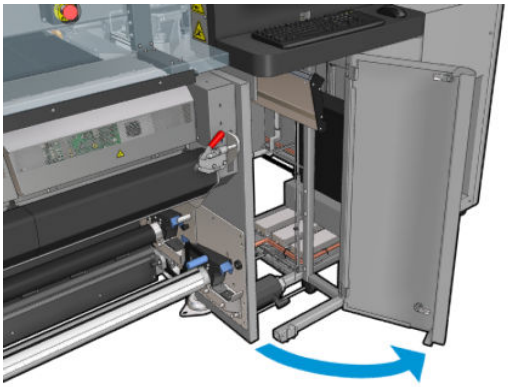
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

For more safety information, see Safety precautions on page 2

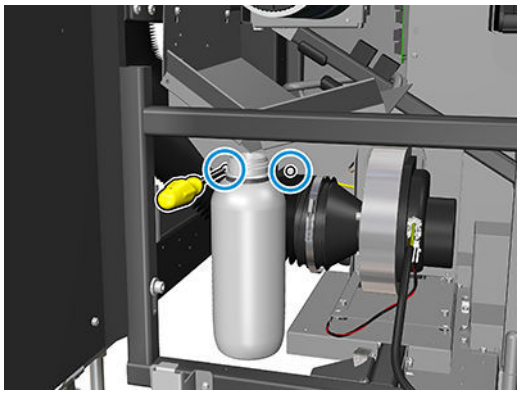
Removal

1. Turn off the printer and the power-enable switch.
2. Unlock and open the printhead cleaning roll door.





3. Remove two screws.



4. Remove the waste bottle.

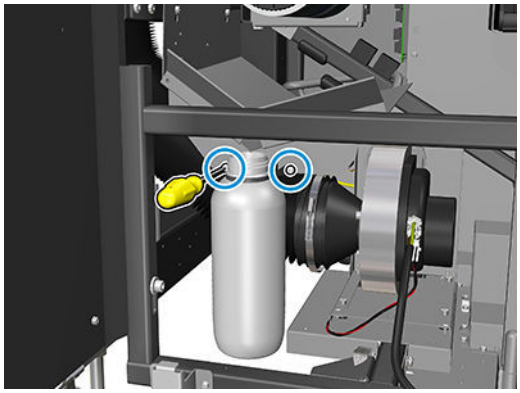
TIP: You are recommended to wear gloves for this operation.

5. Empty the bottle.

NOTE: The bottle contains a mixture of ink additives and water. Dispose of this mixture according to local regulations. You can find the Material Safety Data Sheets (MSDS) for the ink at http://www.hp.com/go/msds.

Installation

1. Put the empty bottle back in place.
2. Take care that the mouth of the bottle is well positioned to receive the liquid falling from above.
3. Insert and tighten the screws that fix the position of the bottle.



4. Close the printhead cleaning roll door.
5. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Clean the perforated plate

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

For more safety information, see Safety precautions on page 2

The perforated plate is a drilled metallic sheet located in the curing assembly. Through its holes the curing fans blow hot air onto the substrate.

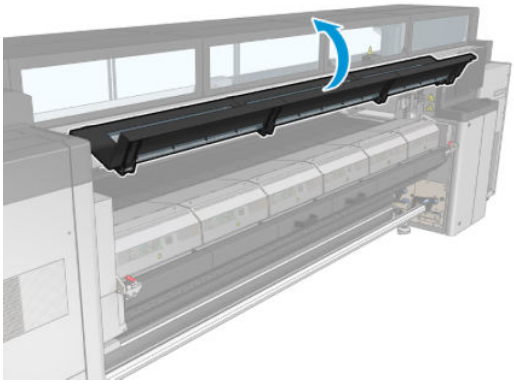
Prepare to clean the perforated plate

1. Ensure that the printer is not printing.
2. Unload the substrate.
3. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

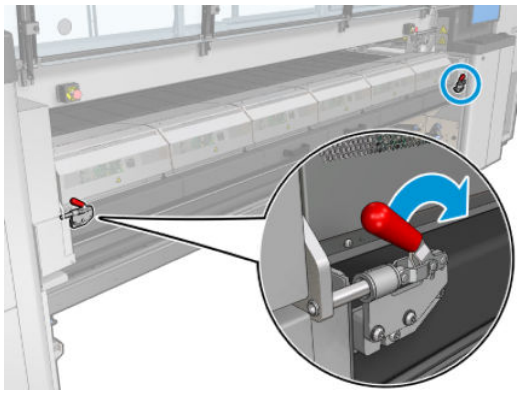
4. Wait for the curing modules to cool down (approx. 5 min).
5. Remove the spindle.

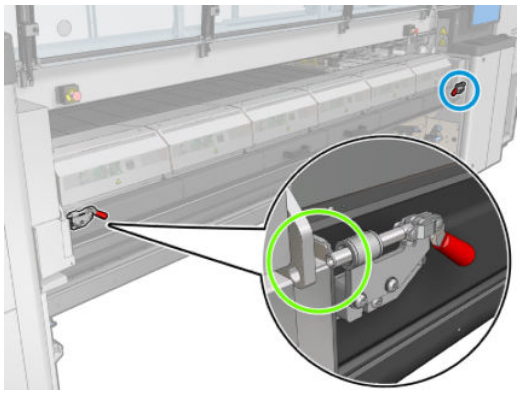
Pull out the curing assembly

1. Open the front door.

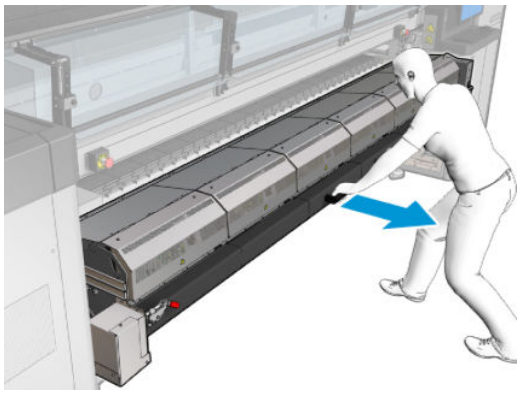


2. Open the curing module latches.



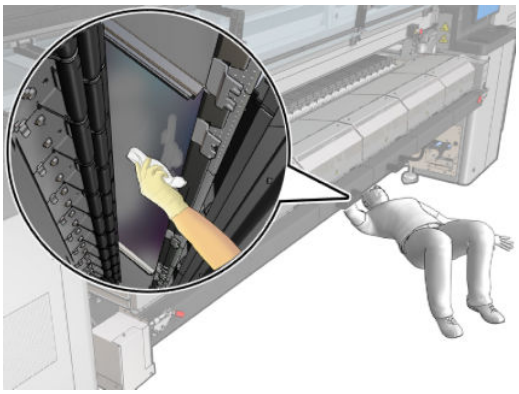


3. Pull out the curing assembly.



Clean the perforated plate

▲ Lying on the floor as shown in the picture, clean the perforated plate of the curing modules with a lint-free cloth dampened with distilled water.



Finish off cleaning the perforated plate

1. Push the curing assembly back to its working position.
2. Close the curing latches.
3. Put the spindle back in position.
4. Ensure that the cleaned parts are completely dry and all vapor has completely evaporated.
5. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Ink collector 3 liter/daily maintenance

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

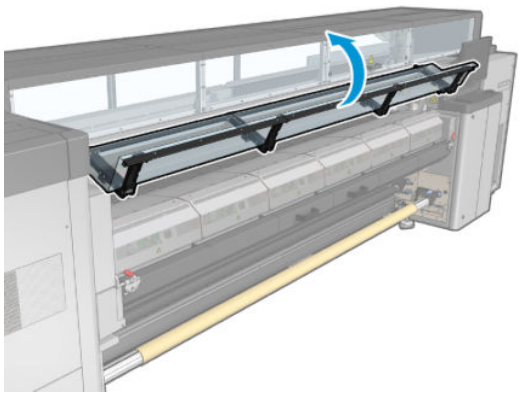
The following maintenance procedures are required every 3 liters/daily:

- Clean the aerosol filters on page 206
- Wipe the protector on page 347
- Wipe the ribs of the ink collector modules on page 348
- Clean condensation from the output platen and output beams on page 213

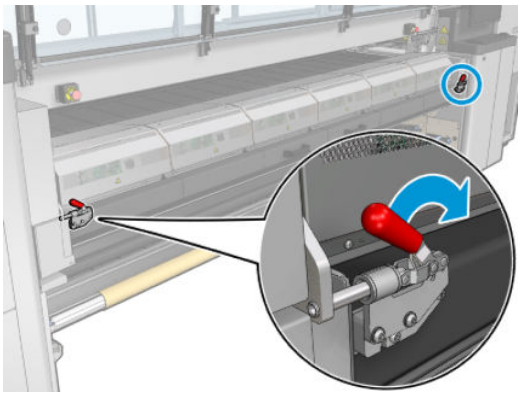
Wipe the protector

The protector should be kept clean for optimal performance and reliability.

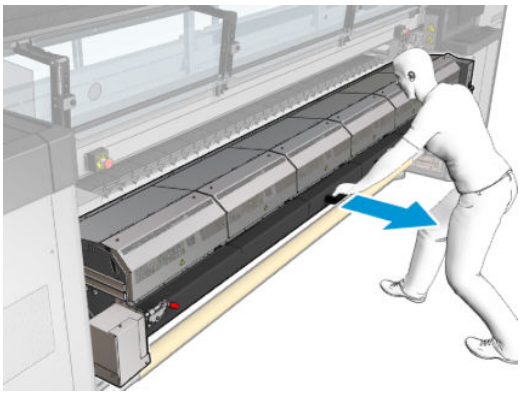
1. Ensure that the printer is not printing.
2. Unload the substrate.
3. Open the front door.



4. Open the curing module latches.

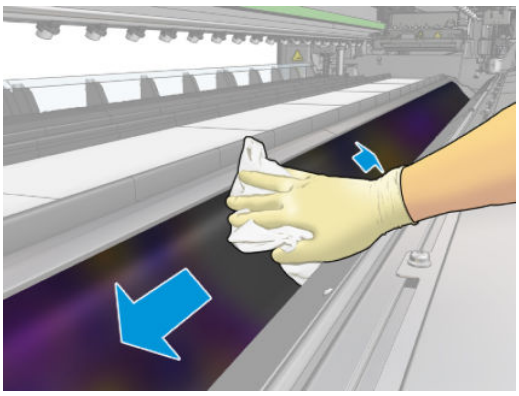


5. Open the curing module.



⚠ CAUTION: Wait for the curing modules to cool down.

6. Wipe both the visible part of the protector and the underneath with a lint-free cloth dampened with distilled water.



7. Close the curing module and latches.

Wipe the ribs of the ink collector modules

1. Wipe the ribs of the ink collector modules with a lint-free cloth dampened with distilled water.
2. Close the front door.

Ink collector: after uninstalling the ink collector kit maintenance

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

The following maintenance procedures are required after uninstalling the ink collector kit:

- Clean the aerosol filters on page 206
- Wipe the protector on page 349
- Wipe the ink collector modules on page 349
- Clean the curing module and airlet plates on page 350
- Clean the print zone on page 202
- Clean the substrate-advance sensor on page 204

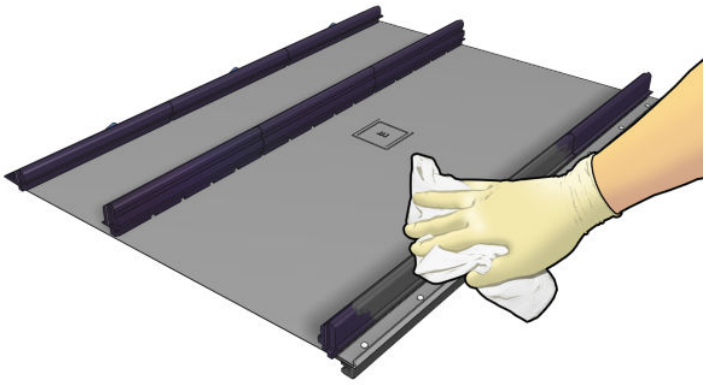
Wipe the protector

While you have the protector out of the printer, wipe all surfaces and check the ribs.

Wipe the ink collector modules

While you have the ink collector modules out of the printer, wipe all dirty surfaces. If necessary, replace the foams: see Replace the ink collector foams on page 353.

⚠ CAUTION: Proper maintenance and genuine HP consumables are required to ensure that the printer operates safely as designed. The use of non-HP consumables (foams, filters, printhead cleaner roll, or inks) may present a risk of fire.



Clean the curing module and airlet plates

First ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

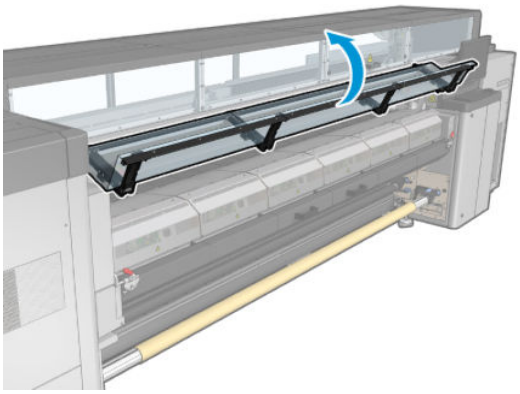
Risk of burns	Crush hazard	Risk of trapped fingers	Hazardous moving part	Electric shock hazard

For more safety information, see Safety precautions on page 2

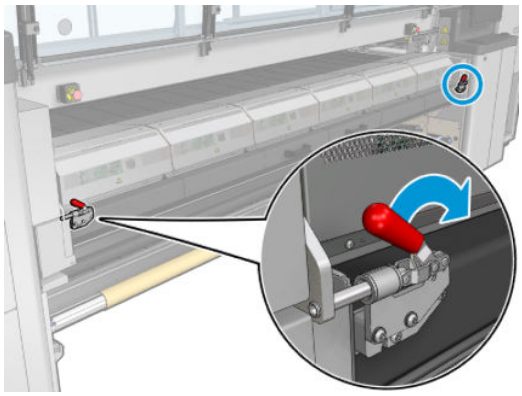
After using the ink collector kit, the following parts of the printer may be dirty. Check them as follows.

Curing lip

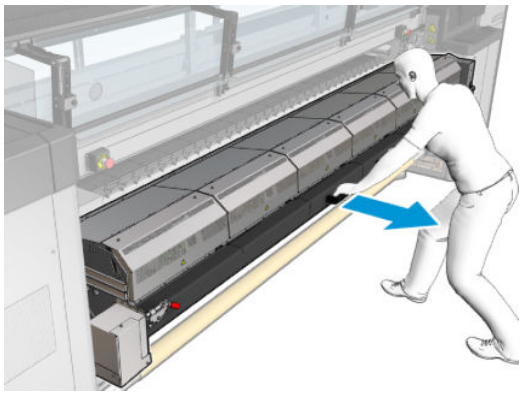
1. Open the front door.



2. Open the curing module latches.



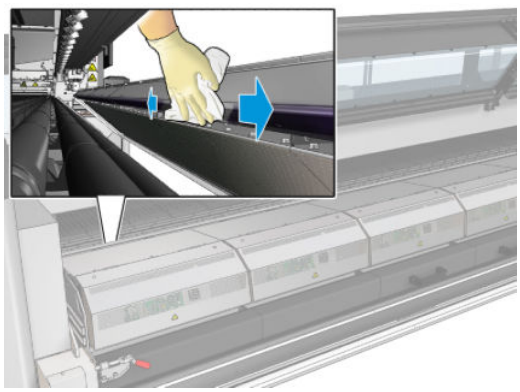
3. Open the curing module.



CAUTION: Wait for the curing modules to cool down.

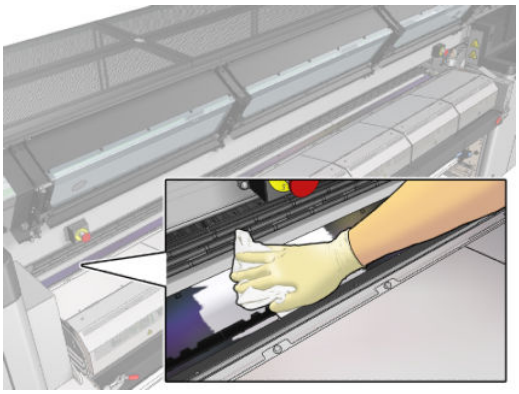
4. Wipe the curing lip with a lint-free cloth dampened with isopropyl alcohol, and make sure that the platen is dry before printing.

NOTE: If you are in an area (such as California) that regulates VOC cleaning and maintenance fluids, instead of isopropyl alcohol use a VOC-certified cleaner such as a properly diluted Simple Green All-Purpose Cleaner.



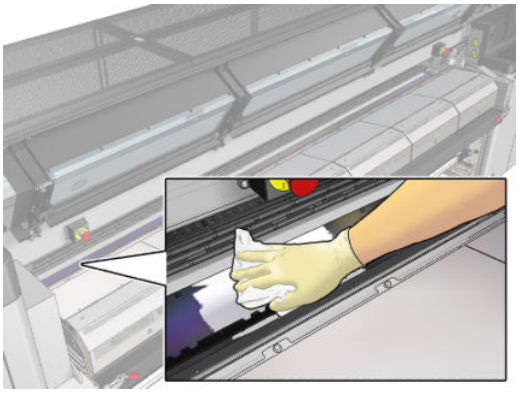
Bottom plate

- Wipe the bottom plate with a lint-free cloth dampened with distilled water, and make sure that the platen is dry before printing.



Diverter interwheels

1. Wipe the diverter interwheels with a lint-free cloth dampened with distilled water, and make sure that the platen is dry before printing.



2. Close the curing module and the front door.

Ink collector 40 liter maintenance

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

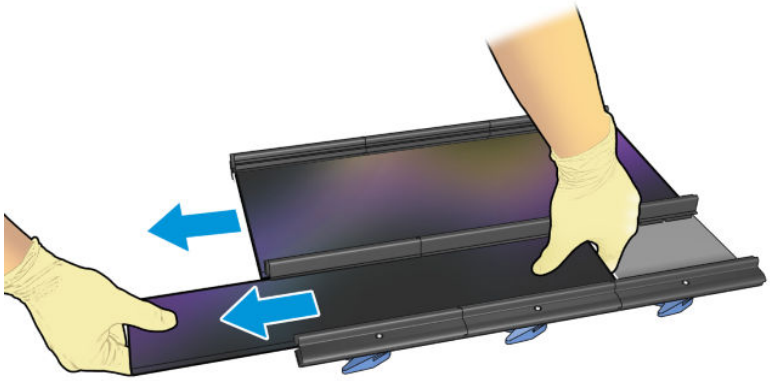
The following maintenance procedures are required every 40 liters:

- Replace the ink collector foams on page 353
- Clean the curing module and airlet plates on page 350
- Clean condensation from the output platen and output beams on page 213

Replace the ink collector foams

TIP: Do this away from the printer to avoid ink dripping on the printer.

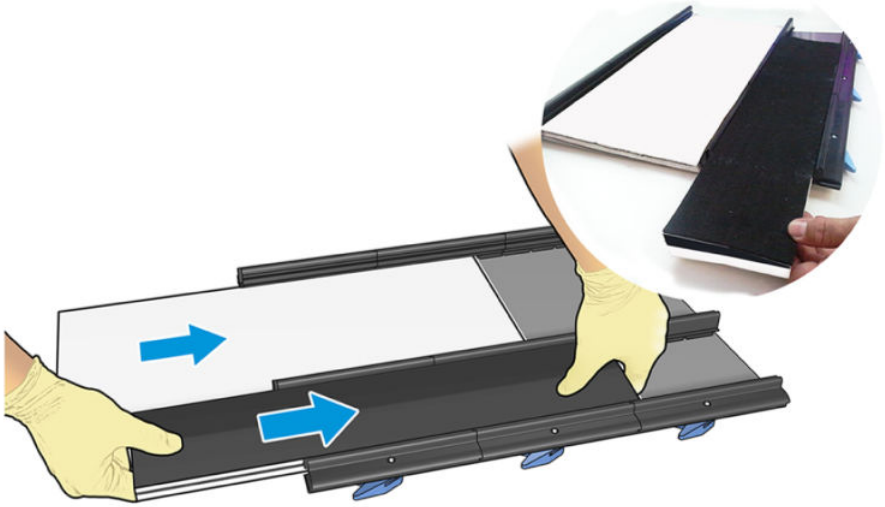
1. Slide out the dirty old foams.



NOTE: Consult your local authorities to determine the correct manner in which to dispose of them.

2. Slide in the new foams.

⚠ CAUTION: Proper maintenance and genuine HP consumables are required to ensure that the printer operates safely as designed. The use of non-HP consumables (foams, filters, printhead cleaner roll, or inks) may present a risk of fire.



Ink collector 500 liter maintenance

Before any cleaning maintenance, ensure that you have turned the printer off, and be careful to follow the appropriate safety precautions.

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Electric shock hazard

For more safety information, see Safety precautions on page 2

Introduction

The following maintenance procedures are required every 500 liters:

- Clean the curing fan grid and internal foam on page 355
- Clean the curing module and airlet plates on page 350
- Replace a curing fan and resistor module on page 315
- Replace protector and textile substrate edge holder on page 358

Clean the curing fan grid and internal foam

Risk of burns

Crush hazard

Risk of trapped fingers

Hazardous moving part

Light radiation hazard

Electric shock hazard

Moving fan blades

For more safety information, see Safety precautions on page 2

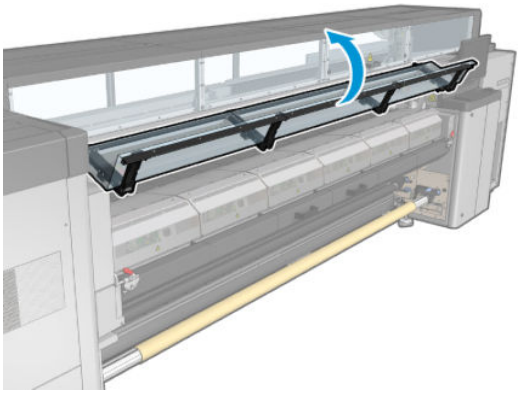
Prepare to replace the curing fan grid and internal foam

1. Ensure that you have the Curing Heater and Fan Module Kit (CZ056-67054), which is included in the HP Latex 3000 Series Standard Uptime Kit (D4J02A).
2. Ensure that the printer is not printing.
3. Turn off the printer in the correct way for maintenance operations: see Turn the printer off on page 195.

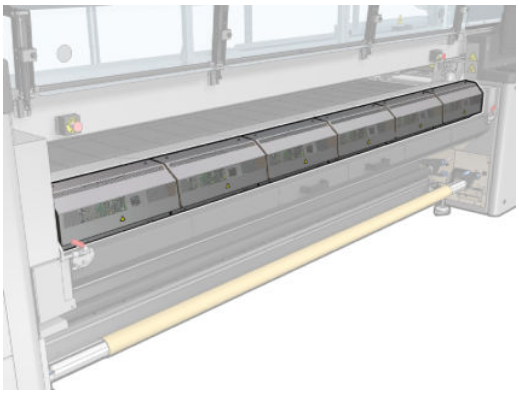
4. Wait for the curing modules to cool down.

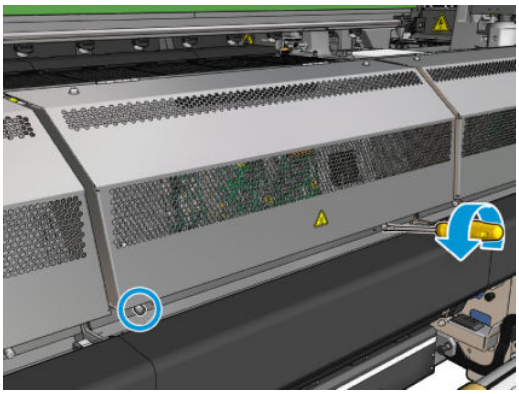
Clean the curing fan grid

1. Open the window.

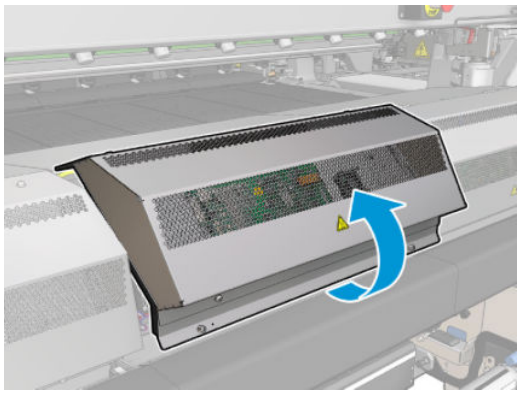


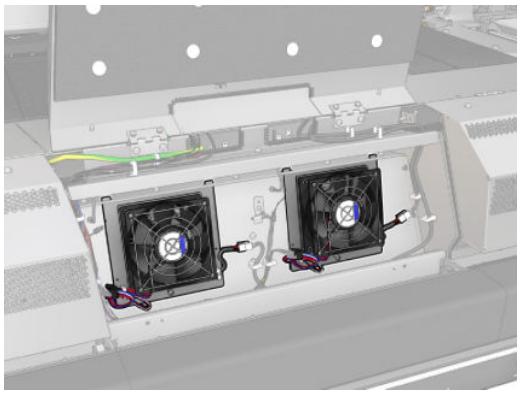
2. Use a flat screwdriver to remove the screws of the curing module.



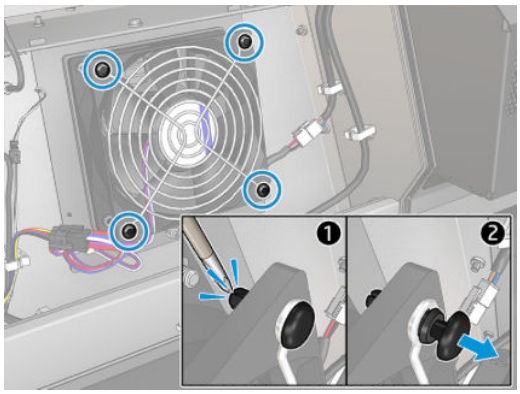


3. Raise the metal sheet in order to reach the interior of the module.

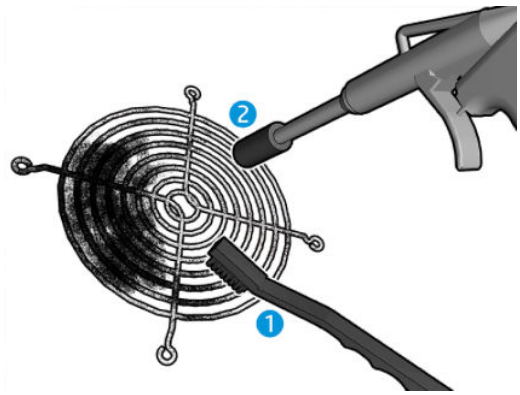




4. Remove the grid from the fan.

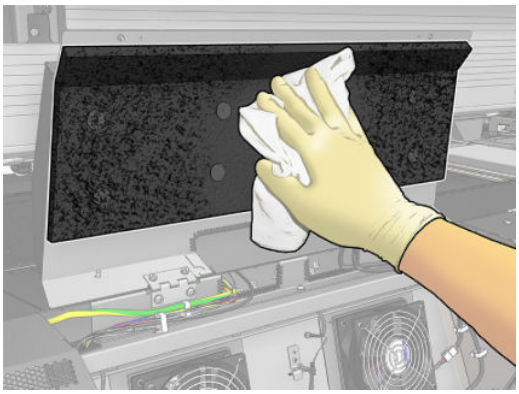


5. Clean the dirt with a brush or with the air supply gun.



6. Place the grid back into place and fix it with the four screws.

7. Clean the foams from the inner face of the metal sheet module cover.



8. Close the metal sheet and replace the four screws to secure it.

Finish off after cleaning the curing fan grid and internal foams

1. Close the front door.
2. Turn on the printer in the correct way for maintenance operations: see Turn the printer on on page 196.

Replace protector and textile substrate edge holder

After using 500 liters with the ink collector, you need to replace the protector and the edge holders if they are damaged.

10 Troubleshoot substrate issues

Loading issues

The substrate cannot be loaded successfully

- A substrate cannot be loaded unless all printer subsystems (e.g. the ink system) are ready.
- Check that the spindle is correctly inflated.
- Try using the Internal Print Server to advance the substrate at least 3 m (10 ft), then move it back and try to load it again. If it will not load, perhaps the substrate is not attached to the input core: try a different roll.
- If the Internal Print Server displays a message 'The carriage beam height is not suitable for loading substrate', call your service representative (see HP Customer Care Centers on page 409).

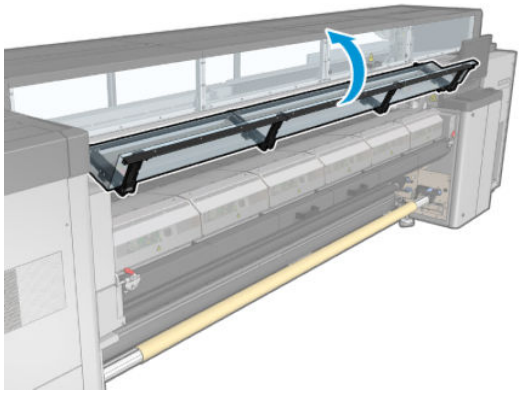
The substrate has jammed

If the printer reports a substrate jam, follow these steps.

1. Press an emergency stop button as quickly as possible to minimize damage to the printheads.

NOTE: The printer may shut itself down automatically.

2. Wait about 10 minutes for the printer to cool down.
3. Open the front door.



4. Remove all substrate and pieces of substrate from the printing zone and from any other parts of the printer into which they may have fallen. Check the curing zone in particular. Make sure that nothing remains on the substrate path. If you are unable to remove all obstructions, call your service representative (see HP Customer Care Centers on page 409).
5. Use Print Care to start the printer in service mode.
6. Use the Print Care diagnostic menu to raise the carriage beam, and check underneath for any pieces of substrate.

7. Use the same menu to lower the carriage beam to its normal position.
8. Before restarting the printer, check that all circuit breakers are on and all emergency stop buttons released.
9. Use Print Care to restart the printer in normal mode.
10. Reload the substrate.

The substrate is not attached to the core and/or spindle

If the printer detects a lack of tension during the substrate check after loading, it will ask you to confirm the winding direction.

If the roll is not firmly attached during printing, you may see banding on your prints, or hear metallic noises.

If you see an error message numbered 41.00.00.62 or 41.00.01.62 while printing, it means that the substrate may have become detached from the spindle, or the core is slipping on the spindle. This could mean that you have reached the end of the roll, or the spindle is not correctly inflated, or the dual-roll differential hub is locked. The substrate is automatically unloaded when this error occurs.

You should respond to this error in the following ways.

- Check whether you have reached the end of a roll.
- Check that the spindle is correctly inflated: one valve for the single-roll spindle, and both valves for the dual-roll spindle.

NOTE: If you are using only one half of the dual-roll spindle, only that half needs to be inflated.

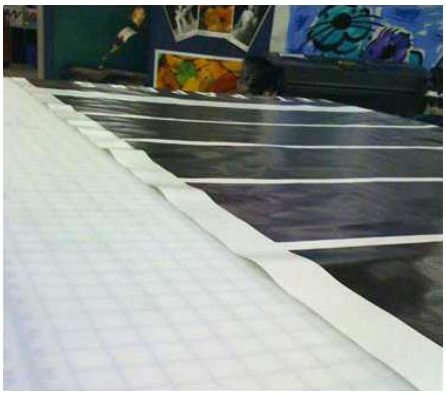
- For dual-roll printing, check that the differential hub is unlocked.
- Check that the inner diameter of each substrate core is not too large for the spindle.

If the roll is not firmly attached to the input core, proceed as follows.

1. Unload the roll from the input spindle and load it onto the output spindle. Take care to avoid telescoping.
2. Raise the pinches and, using the Internal Print Server, raise the carriage beam to its maximum height.
3. Unload substrate from the roll and pass it backwards through the printer towards the input spindle. Attach it to the empty core on the input spindle, securing it with adhesive tape. Wrap a couple of turns of substrate around the input core. Take care to align the substrate with the output roll.
4. Lower the pinchwheels.
5. Go to the Internal Print Server and select **Substrate Load/Unload**, then select the printer configuration and press **Load**.
6. Select the correct substrate in the Internal Print Server.
7. Press Move substrate in the Internal Print Server, then Back, and wait until all the roll has been wound onto the input spindle.
8. You may decide to cancel rewinding when the substrate is detached from the output roll. Then attach it to the output core to print immediately, or rewind it completely onto the input core if you want to remove the roll.

The substrate is not flat

If the substrate does not lie flat when it comes out of the printer, but has shallow waves in it, you are likely to see defects in the printed image, such as vertical stripes. This can happen when you use thin substrate that becomes saturated with ink; it can also be caused by the combination of heat and vacuum pressure that is applied to the substrate.



1. Check that the substrate type you have loaded corresponds to the substrate type selected in the Internal Print Server and in your software.
2. If you are using a paper-based substrate, try changing to a thicker substrate, or reduce the amount of ink.

Printing issues

A spindle latch suddenly opens during printer operation

If a spindle latch is not closed before starting the substrate load, or it is opened by someone after the spindle was already moving or while the substrate was under tension, the spindle can move out of place. Closing the latch in those conditions can cause an incomplete latch engagement, and then at some point the latch may spontaneously open completely.

The best solution is to eliminate substrate tension, avoid spindle movement, and then close the latch properly. To do this, return to the substrate load/unload menu, ensure that the spindle is properly in place (in case of doubt, extract it a bit and then push it back fully inside again), then close the latch (the blue part should now go down completely).

The substrate advances with a loud continuous sound of vibration

A loud continuous sound of vibration during the substrate advance can be caused in the following ways:

- The input spindle is not applying tension.
- Wrong tension or vacuum settings result in an incorrect balance of forces on the main roller.

If you hear this sound, here are some suggestions:

1. Check that the substrate you are using is the same as the one you have selected in the Internal Print Server.
2. Check that you are using the generic substrate presets for the category. The use of incorrect values may result in incorrect substrate behavior.

NOTE: Only substrates with high friction along the platen or substrates that easily wrinkle with temperature need high output tension values. Check that your output tension is recommended for your substrate.

3. Check that there is no telescoping of the input roll.
4. If you are using the roll-to-roll configuration with dual-roll spindles and you see smears, or the substrate is not adhering to the platen, mainly at the outer sides of both rolls, you are recommended to use the center support with both spindles.

   Once installed, you can try to move it up slightly from its calibrated position if you are suffering from wrinkles or the substrate is not adhering to the platen at the outer edges. This could mean that the support has been calibrated below the correct position.

Otherwise, you can try to move the support down a bit if you are suffering from wrinkles or the substrate is not adhering to the platen at the inner edges near the center of the printer. This could mean that the support has been calibrated above the correct position.

NOTE: Although the center support can be installed while printing, you are recommended to stop the job, unload the substrate, and reload completely, even unwinding the substrate from the output spindle. See Load a roll (dual roll-to-roll configuration) on page 77.

5. Reload the substrate and try to minimize skew while loading. Check that you using the correct loading procedure.

6. Increase the input tension in steps of +5 N/m from the recommended setting for each category until you eliminate the issue.

There is skew or telescoping on the output spindle

Extreme skew (approximately 10 mm peak to peak) and telescoping in the output spindle while it winds can be caused in three main ways:

- The substrate has not been correctly loaded and aligned during the loading procedure.
- The roll loaded on the input spindle is skewed, and this skew is transferred to the output spindle.
- The roll loaded on the input spindle has been wound with different tensions at its two ends.

  Printing on rolls that are not wound accurately during manufacturing may lead to wrinkles and skew problems and, generally, this problem can be identified easily because you can see a loss of tension at one side of the substrate between the input roll and the main roller. In that case, see the relevant information provided in the section There are wrinkles and ink smears on the substrate on page 363.

- If printing with dual roll split spindle see Check center support alignment to solve this issue on page 369.

NOTE: When printing with dual rolls, you are more likely to notice skew on the output spindle. However, it is not necessarily a problem. If it becomes a problem, proceed in the same way as for a single-roll configuration and consider the use of the recommended center support for dual-roll spindle in both input and output.

NOTE: When printing with dual roll split spindles, you are more likely to notice skew on the output spindle. If it becomes a problem, see HP Latex 3500/3600 dual-roll split spindles center support on page 63.

TIP: If you notice that one of the substrate edges is not as well tensioned as the other between the platen and the main roller, showing a wave-like shape as it enters the platen, then you are likely to have skew, and you should consider the use of the center support for dual-roll spindle in both input and output.

TIP: When suffering from extreme skew that tends to increase (normally with highly temperature-sensitive substrates), try to use a thicker core that is not deformed by the rubber traction grooves on the spindle when inflated. Then follow the guidelines below for reducing skew.

Generally, the main contributor to skew is an imprecise substrate load, and the effects of that are worse with wide rolls. However, if you have some skew or telescoping but this does not affect your print quality, and does not generate wrinkles in the substrate (see There are wrinkles and ink smears on the substrate on page 363), there is no need to take any action. However, you are recommended to reload the substrate in order to eliminate any potential problem.

Some substrate rolls already come with skew; in that case the recommendations are as follows:

1. Try to load the substrate following the correct procedure, taking as a reference of the roll's width the average between peaks of skew.

2. Start with the recommended configuration and increase vacuum and tensions step by step (i to iv), following the table below.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**
i	20 80 85	10 50 40	15 60 65	15 65 70	30 65 70	15 65 60	15 65 55	15 65 55	5 50 45
ii	25 80 85	15 60 55	15 65 70	20 65 70	30 70 75	15 70 65	15 70 60	15 70 60	10 60 50
iii	25 90 95	20 75 80	25 70 75	25 70 75	30 80 80	25 70 75	25 70 70	25 70 70	15 65 60
iv	25 100 100	25 80 85	30 75 80	30 75 80	35 85 85	30 75 80	30 75 80	30 75 80	25 70 75
v	30 100 100	30 100 100	35 85 85	35 85 85	- - -	35 85 85	35 85 85	35 85 85	35 85 85

Vacuum **Input Tension** **Output Tension**

There are wrinkles and ink smears on the substrate

Wrinkles in the substrate indicate that the substrate settings that control the substrate shape are not optimized. This can cause various printing defects.

- Colored bands in area fills in the vicinity of the wrinkles
- Ink smears if the printhead touches the substrate
- Cockle
- A substrate crash if the printhead's movement over the substrate is impeded

There are various reasons why wrinkles and other consequent effects could appear while printing:

- Incorrect loading of the substrate
- Incorrect routing of the substrate through the printer
- Incorrectly positioned edge holders
- Drying and curing temperatures too high for the substrate
- Differential expansion of the substrate due to variations in temperature
- Insufficient tension settings
- Non-uniform tension across the substrate when loading
- The roll loaded on the input spindle has been wound with different tensions at its two ends.
- Wrong alignment of the center support split spindles (HP Latex 3500/3600 only).

NOTE: When printing with rolls that have not been precisely wound with the same tension along their width during manufacturing, you may notice that, while printing, one of the sides of the substrate between the input spindle and the main roller loses all tension. This may cause wrinkles on the platen or telescoping on the output spindle.

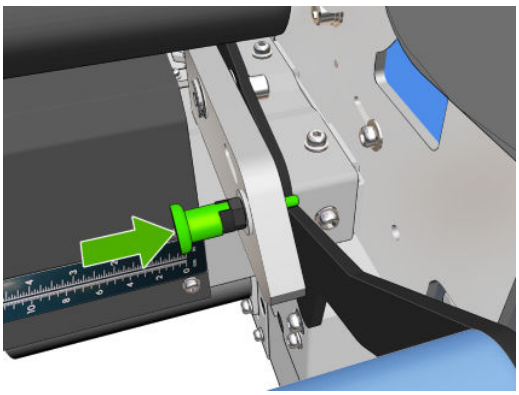
TIP: If you notice that you are suffering wrinkles on the platen and that the substrate between the input spindle and the main roller has lost all tension at one side, try printing in the roll-to-floor configuration, and using the substrate collector if required. If you still see some problems, try to increase tension by following the recommendations below.

TIP: When suffering from wrinkles and extreme skew with a self-adhesive vinyl, calendered materials are typically more sensitiive to temperature. Try to use a thicker core to reduce the effects of the spindle's rubber traction grooves, and increase tension as recommended below, using configuration iii, iv, or v in the table.

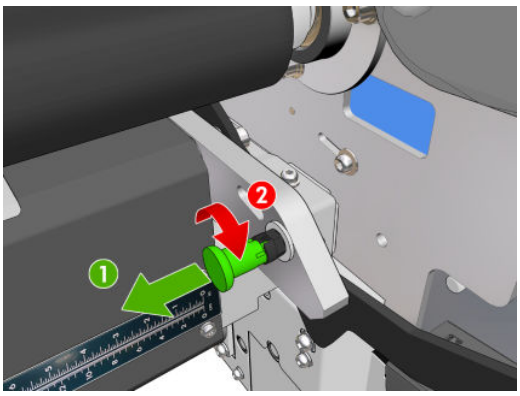
If your prints suffer from any of the defects caused by wrinkles, here are some suggestions.

1. Check that the substrate you are using is the same type as the one you have selected in the Internal Print Server.
2. Check that you are using the generic substrate preset for the substrate category. The use of incorrect values may cause incorrect substrate behavior.
3. Check that there is no telescoping of the input roll.
4. If you are using the roll-to-free-fall configuration, check that the knob is released to ensure substrate tension.

   When printing in the roll-to-free-fall configuration and you see diagonal smears of ink, the substrate may have been badly loaded; or the tension roller may be causing wrinkles in the substrate. In the latter case, you can try using the tension roller knob to reduce the pressure that the roller exerts on the substrate, as shown below:

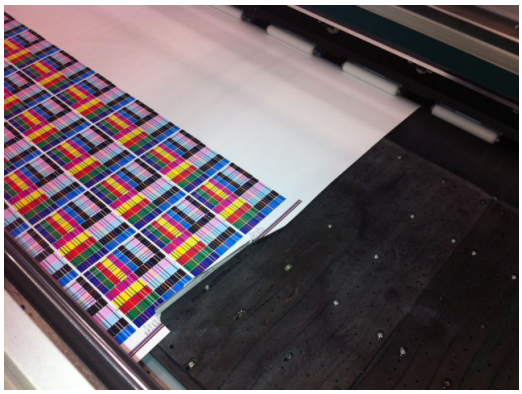


   To restore the tension roller pressure to normal, pull the knob and turn it as shown below.



5. Reload the substrate and try to minimize skew while loading. Check that you are loading the substrate using the correct procedure.

6. If you have experienced a substrate crash because the lateral edge of the substrate in the print zone is not flat enough, and is raised or even partially cut because you are not using edge holders, then you are recommended to use them.



NOTE: If you are already using edge holders, check that they are correctly positioned (see The substrate edge holders on page 43).

7. Try reducing the drying power and curing temperature.

8. Start with the recommended configuration and increase vacuum and tensions step by step (i to iv), following the table below.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
recommended	20 80 80	10 40 30	15 60 60	15 60 65	30 60 65	15 60 50	15 60 50	15 60 50	0 50 40
i	20 80 85	10 50 40	15 60 65	15 65 70	30 65 70	15 65 60	15 65 55	15 65 55	5 50 45
ii	25 80 85	15 60 55	15 65 70	20 65 70	30 70 75	15 70 65	15 70 60	15 70 60	10 60 50
iii	25 90 95	20 75 80	25 70 75	25 70 75	30 80 80	25 70 75	25 70 70	25 70 70	15 65 60
iv	25 100 100	25 80 85	30 75 80	30 75 80	35 85 85	30 75 80	30 75 80	30 75 80	25 70 75
v	30 100 100	30 100 100	35 85 85	35 85 85	- - -	35 85 85	35 85 85	35 85 85	35 85 85

Vacuum Input Tension Output Tension

TIP: If you have suffered a substrate crash, try starting with step iv and moving backwards up the table until you find settings that work.

9. Try reducing the curing temperature and ink quantity, and raise the curing airflow to help in reducing the substrate's thermal contraction.

10. Consider changing the printer configuration. Use the roll-to-free-fall configuration as it is least prone to wrinkles.
11. If you cannot get rid of the wrinkles, try raising the carriage beam slightly, so that the printhead is not so close to the substrate.

For information on how to adjust printer settings, see Edit a substrate preset on page 110.

There are ink marks on the substrate

This problem can occur if any component in contact with the substrate is dirty. Check the pinchwheels, diverters, print platen, curing module plates, and roller, and clean them if necessary.

If the ink marks occur at the sides of the substrate and not in the center, and you are using the substrate edge holders, check that they are correctly placed and clean.

The substrate sticks to the platen

When the substrate sticks to the platen, the most likely causes are excessive heat applied by the drying system, excessive vacuum, or a dirty platen, which increases friction and can impede the substrate advance. In the latter case, the substrate may rise up in a bubble or wave before reaching the platen.

Here are some suggested ways to correct the problem:

1. Check that the substrate you are using is the same type as the one you have selected in the Internal Print Server.
2. Check that you are printing on the correct side of the substrate.
3. Check that you are using the generic substrate preset for the substrate category. The use of incorrect values could cause incorrect substrate behavior.
4. Reload the substrate and try to minimize skew while loading. Check that you are loading the substrate using the correct procedure.

5. Increase vacuum and tensions step by step (i to v) following the table below, until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
recommended	20 80 80	10 40 30	15 60 60	15 60 65	30 60 65	15 60 50	15 60 50	15 60 50	0 50 40
i	20 80 85	10 50 40	15 60 65	15 65 70	30 65 70	15 65 60	15 65 55	15 65 55	5 50 45
ii	25 80 85	15 60 55	15 65 70	20 65 70	30 70 75	15 70 65	15 70 60	15 70 60	10 60 50
iii	25 90 95	20 75 80	25 70 75	25 70 75	30 80 80	25 70 75	25 70 70	25 70 70	15 65 60
iv	25 100 100	25 80 85	30 75 80	30 75 80	35 85 85	30 75 80	30 75 80	30 75 80	25 70 75
v	30 100 100	30 100 100	35 85 85	35 85 85	- - - -	35 85 85	35 85 85	35 85 85	35 85 85

Vacuum Input Tension
Output Tension

There are physical marks on the substrate

This only can occur when substrates sensitive to permanent deformation are used. These marks are usually seen in isolated areas and mainly caused by high curing temperature or substrate tensions.

Here are some suggested ways to correct the problem:

1. Check that the substrate you are using is the same type as the one you have selected in the Internal Print Server.
2. Check that you are using the generic substrate preset for the substrate category. The use of incorrect values could cause incorrect substrate behavior.
3. Reload the substrate and try to minimize skew while loading. Check that you are loading the substrate using the correct procedure.
4. Try to reduce curing temperature and ink quantity if possible, and raise the curing airflow to help in reducing the substrate deformation.

5. Reduce tensions and modify vacuum settings, following the table below step by step (a to c), until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

Vacuum Input Tension
Output Tension

There are drops of ink on the substrate

NOTE: In the above example, the distance between the drops is about 1 cm (0.4 in).

1. If you are using the substrate edge holders, clean them.
2. Clean the sides of the printheads and the sides of the printhead slots.
3. Clean the electrical connections to the printheads. See The Internal Print Server recommends replacing or reseating a printhead on page 401.

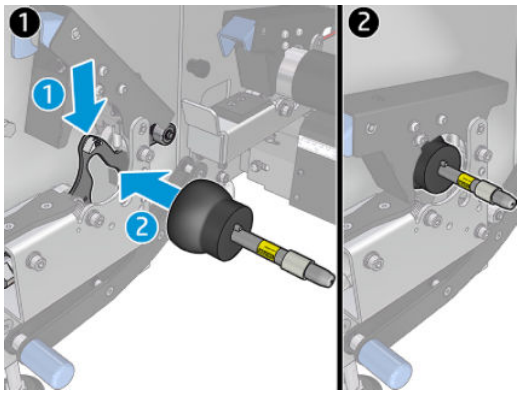
Dual roll printing issues

When printing with an HP Latex 3500/3600 and its dual roll center support, the following issues could appear if misalignment of the center support Split spindles occurs:

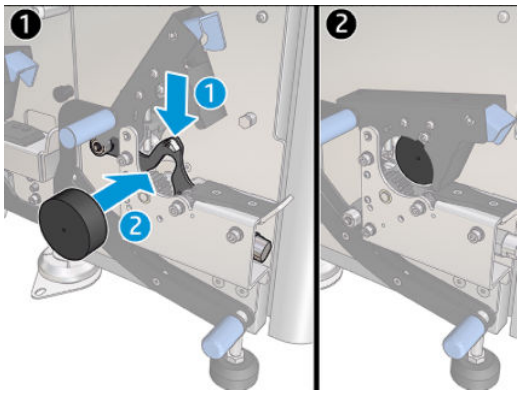
- Wrinkles
- Ink smears
- Uneven performance between the two rolls
- Telescoping due to Skew convergence

Check center support alignment to solve this issue

1. Install laser pointer onto the latch laser support provided, and place it on the ISM latch support.

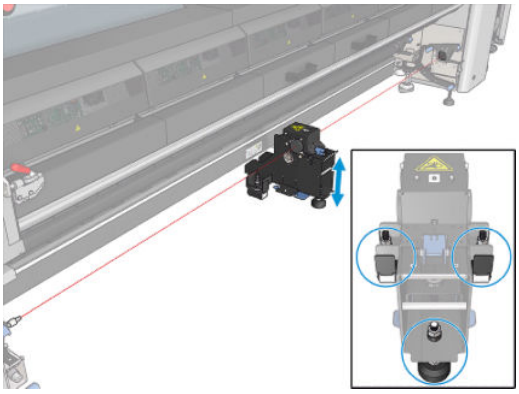


2. Place the target on the latch at the IPS side of the printer.



3. Use the laser pointer to reach the target at the IPS side of the printer.
4. Take the center support and place it in the middle of the printer.
5. Install targets on the center support.

6. Regulate the height of the center support in order that the laser beam crosses the center support targets and reaches the target installed on the IPS side of printer. Once the desired height is reached, fix it.



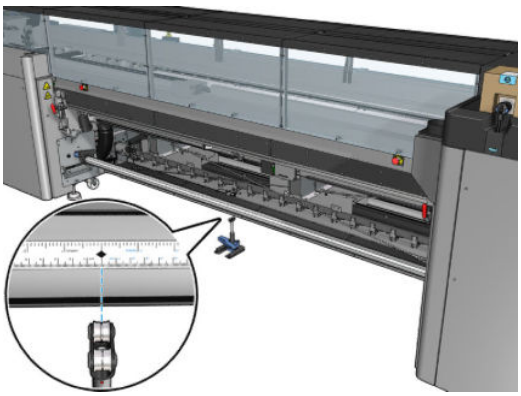
IMPORTANT: If you can't realign the center support with the adjustment done using the screws located in the rear side of the center support base, the misalignment has to be fixed following the installation process. Contact your support representative.

Calibrate the dual-roll center support

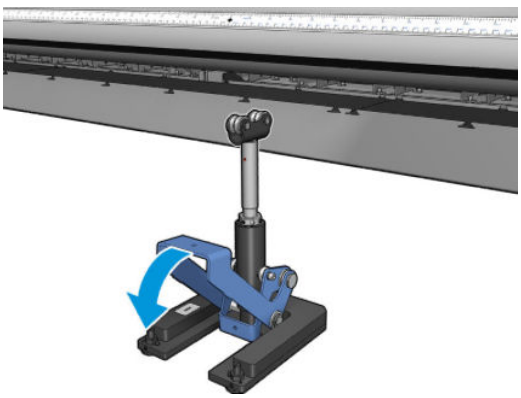
1. Load a single-roll spindle into the printer.

TIP: Use a single-roll spindle to calibrate the height of the dual-roll center support accurately. Do not use the dual-roll spindle, as it is heavier and it may not be level along its length.

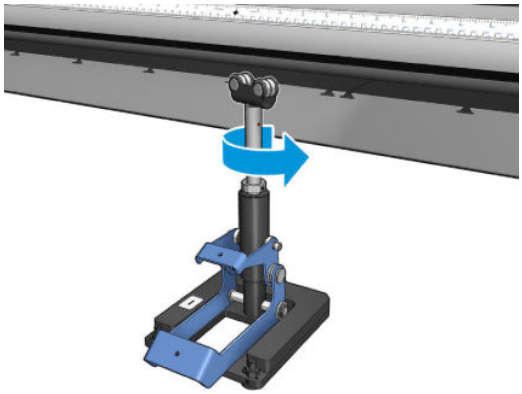
2. Place the dual-roll center support under the center of the spindle.



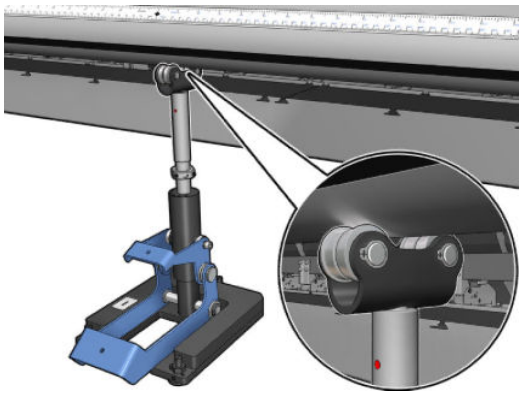
3. Pull the lever down.



4. Adjust the height of the support by turning it counterclockwise. The bearings at the top of the dual-roll center support must touch the spindle.

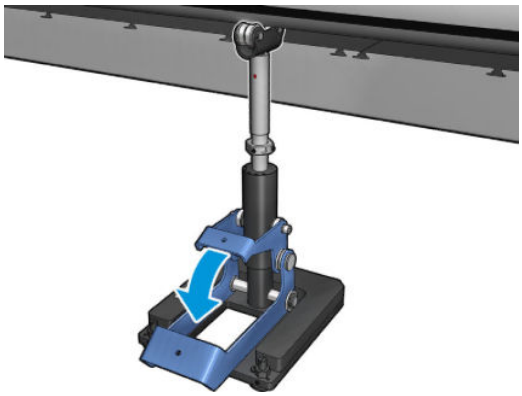


5. Manually turn the spindle 360 degrees. Make sure there is full contact between the bearings on the support and the face of the spindle except along the ruler groove and pneumatic groove. Turn the bearings on the support. If you cannot turn them, lower the height of the support.

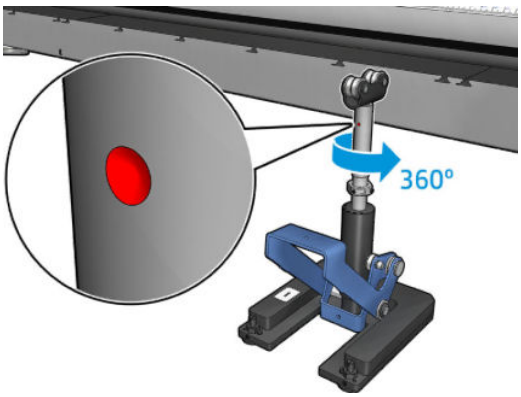


NOTE: If a red groove is visible in the thread of the support shaft, it has reached its maximum limit. Do not turn. Adjust the height using the three height screws under the support base. Tighten the three hexagonal nuts on the top of the support base to lock the three height screws.

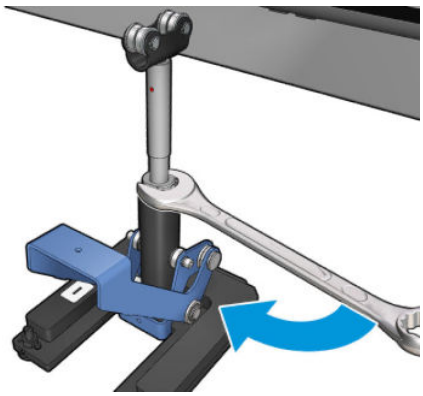
6. Pull the small lever down.



7. Lift the base nut one extra turn by rotating counterclockwise. There are two red dots in the central shaft for your reference.

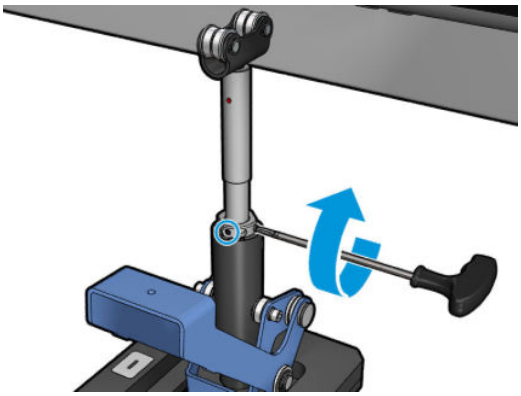


8. Tighten the base nut.

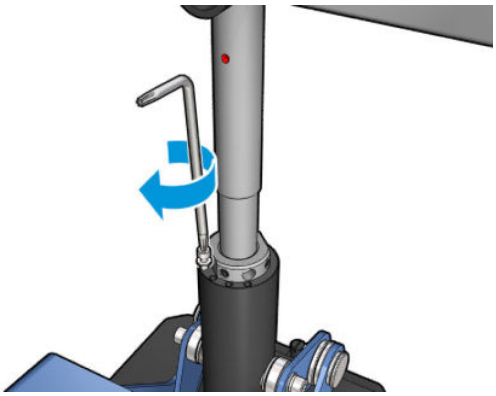


9. Tighten the two screws to fix the final position of the dual-roll center support.

NOTE: Hold the support shaft firmly in position when tightening the screws.



10. Insert the screw into the support base.



11. Remove the single-roll spindle.

12. Repeat the process for calibration of the front dual-roll spindle.

IMPORTANT: If you can't realign the center support with the adjustment done using the screws located in the rear side of the center support base, the misalignment has to be fixed following the installation process. Contact HP.

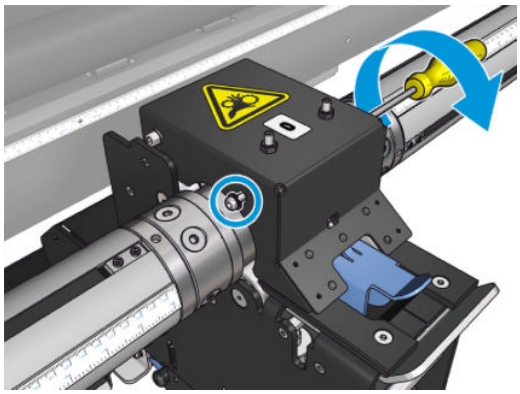
Periodic noise on the center support latch when the substrate is moving

To solve this problem, readjust the center support latch on the spindle. To do this it is important to check the following requirements:

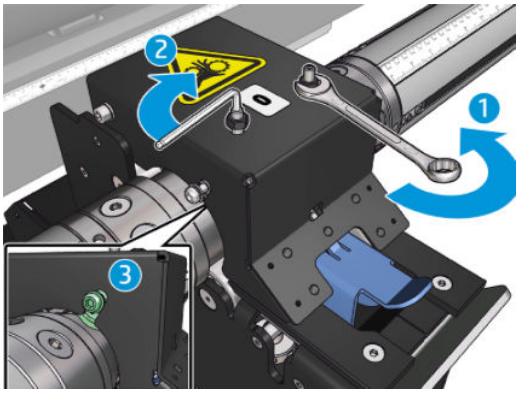
- Center supports installed
- Spindles loaded
- Central support latch closed

To adjust the central support latch on the spindles:

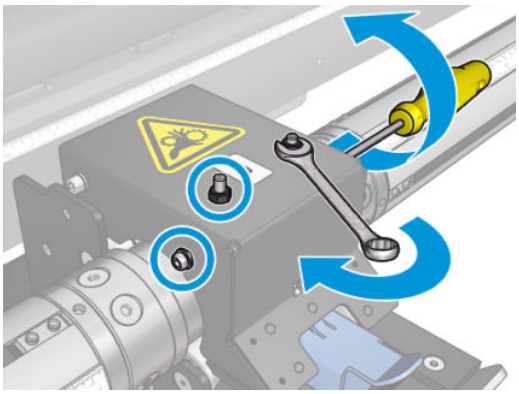
1. Loosen the two lateral central support latch screws.



2. Loosen the 2 top nuts (if needed), then proceed to screw the top set screws with an Allen key until both bearings of the latch are in contact with the spindle surface.



3. Tighten the top nut and the lateral screws to fix the position.



NOTE: Screwing the set screws is easy until the spindle is reached. Do not over tighten the set screws; when the spindle is reached, please proceed to tighten the top nuts instead.

Print length issues

The print is shorter than expected

Some substrates naturally contract when they are printed on and cured, this can mean the total length of the print is shorter than expected. If this is the case, you can expand the length of the print from the RIP, which will compensate for the contraction of the substrate. Alternatively, change to a less thermal-dependent substrate to reduce the contraction.

How to achieve better consistency between jobs of the same length

The printer has been designed to maximize consistency in the length of the printed substrate. However, there are external variables that can contribute to variability: substrate variations and enviromental conditions.

1. Select a substrate which is less susceptible to expansion when being printed on. Most paper-based substrates have a tendency to expand.

    - If you need to print on a substrate susceptible to expansion:

- Ensure that the density of ink is similar between each tile (if not, the tile with less ink might be shorter).
- If possible, decrease the heating temperature.
- Reduce the ink restrictions as much as possible.

- Make sure that the roll is left within the room where the printer is located for at least 24 hours, this is to ensure the complete roll has the same temperature as the printer.

2. **Do not touch** the print adjustments (no change of substrate advance compensation) between tiles.
3. Print all the tiles at once.

   - Do not split the jobs at different times (1 tile one day, and the 2nd tile the 2nd day)
   - Do **not** change the print mode or the substrate width between tiles.

   To print the tiles all at once, we recommend the following:

   a. Create the tiles from the Internal Print Server.

   b. If you are creating the tiles from the RIP, ensure that you send all the tiles within the same jobs sent to the printer/Internal Print Server.

   The objective is to make sure that there is no pause between the tiles. When using the Queue mode in the Internal Print Server, there is still a small time between jobs, which could add more variability between the lengths of the tiles.

4. In order to make sure that even the first tile has less difference in length compared with the other ones, add a top margin of 50 cm.

   In case you have to reprint one tile, in order to ensure the length will be as close as the previous jobs:

   - Make sure that the substrate and also the ambient temperature of the printer are the same as when the previous job was printed.
   - Add a top margin of 50 cm.

   But in any case, when having to reprint a tile later, there is a higher probability that the length will be different from the other tile length. The total length repeatability depends on the substrate, the changes in environmental conditions, and the contents of each job (mainly when the substrate is reacting differently depending on the ink density).

Collector issues

The collector stops winding

The collector has a safety timer that will stop rewinding substrate if it is not fully collected after 30 seconds, and will stop unwinding substrate after 5 seconds if the substrate loop is not detected by the collector sensor. If you have a lot of substrate to be collected lying on the floor, you will have to restart the collector by clicking the corresponding icon.

- If the collector keeps stopping, and collector movement causes the substrate to be tight between pressure roller and collector when winding, there could be an object blocking the collector sensor path, or the winding direction may not have been selected correctly when restarting the collector.
- If the collector keeps stopping, and collector movement makes substrate loops accumulate on the ground when unwinding, it is possible that the winding direction has not been selected correctly when restarting the collector, or that the collector sensor or electronics are broken and should be replaced.

The collector occasionally fails to work correctly

The collector may fail to work correctly if its optical sensor is dirty or blocked by some obstacle.

The collector winds in the wrong direction

1. Check that the winding direction is set correctly in the Internal Print Server.
2. Check that there is no obstacle blocking the collector's optical sensor.

The substrate is detached or winds around the collector in the wrong direction

Here are some possible explanations.

- The winding direction has been set wrongly.
- The collector has been loaded wrongly.

There is skew or telescoping on the collector

This may happen if the substrate was not properly aligned when attaching it to the collector core. You are recommended to follow the loading instructions; in particular, align the substrate well.

TIP: If you have a lot of substrate lying on the ground after printing in roll-to-free-fall mode, and you want to attach it to the core, you are recommended to choose a core that is the same width as the substrate, so that a good length of substrate can be aligned around the core before you attach it.

If you cannot resolve the problem satisfactorily, you are recommended to use the roll-to-roll configuration instead, which has better winding performance.

The substrate has jammed on the collector

Here are some possible explanations.

- Too much substrate on the collector. The maximum diameter of the output roll is 300 mm (11.8 in) for the recommended outwards winding, or 200 mm (7.9 in) for inwards winding.
- The substrate is misaligned.
- The loop shaper is the wrong length.

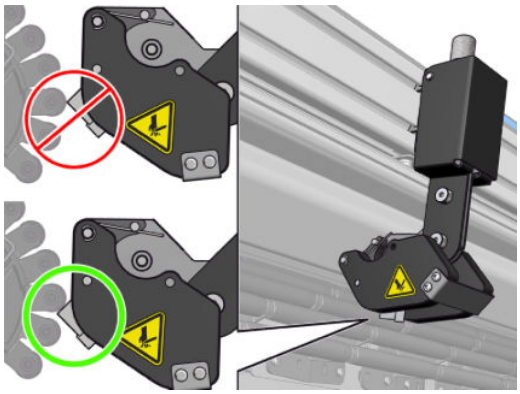
Slitter poor cutting quality

If the in-line slitters do not cut the substrate properly, the main reasons could be:

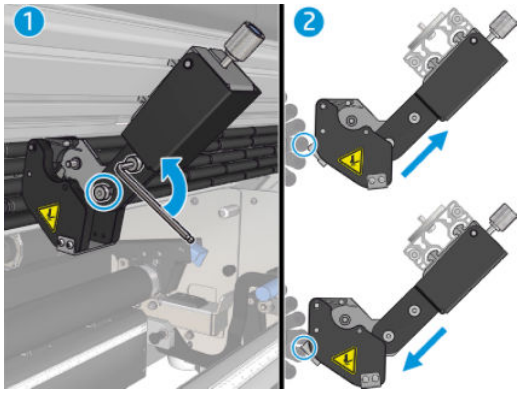
- Unsupported substrate: look for a compatible blade if using unsupported substrates.
- Blade worn out: use the other side of the cutter blade or replace it by removing the lateral blue screw that fixes it.

For use with the in-line-slitters, provided with the printer are standard slotted 2.25 inch (57mm) x 0.75 inch (19mm) blades, with a thickness of up to 0.025 inches (0.6mm). Different blade coating or finishing can affect cut performance and blade life duration. Based on the specific application; please take this into account when replacing blades.

- The slitter is not properly adjusted: check if the slitter is properly installed, that it is in contact with the diverter wheels, and that the blade reaches the paper. Check on the images below for the correct position, and adjust the blade's position accordingly if necessary.



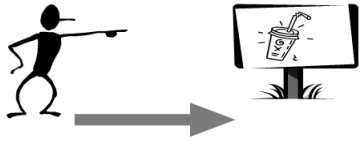
To adjust the cutter blade positions, untighten the two lateral screws with an Allen key, then adjust the position as shown in the image. To fix the correct position; tighten the screws.



11 Troubleshoot print-quality issues

General advice

The HP Latex 3000 printer series has been designed and qualified to the highest standards to provide the optimal compromise between print quality and productivity. Prints for outdoor use can accommodate more visible defects as they are viewed from a long distance. For shorter distances, as in indoor advertising, defects need to be less visible. To decide whether a defect is considered acceptable, as a rule of thumb, the table below shows the appropriate viewing distances.

Print mode	m²/h	ft²/h	To view output at...
4 pass (outdoor)	98	1050	> 3 m
6 pass (indoor)	77	828	 1–3 m

You are recommended to review the acceptability of a defect according to this table before proceeding to diagnose it to make sure the selected print mode is the most appropriate for the purpose of the job. Increasing the number of passes to 8 or more enables higher ink quantities if needed and/or the use of difficult printing materials thanks to the longer drying and curing times. Print modes with more passes are more resistant to banding. In general, follow these recommendations:

- Avoid touching the substrate while printing is in progress.
- Judge the print quality after the print has completely emerged from the printer. In some cases, defects seen while printing disappear after the image is completely cured.
- Check that the environmental conditions (room temperature and humidity) are in the recommended range. See Environmental specifications on page 414.

Before troubleshooting, check the following points:

- To achieve the best performance from your printer, use only genuine HP supplies and accessories, whose reliability and performance have been thoroughly tested to give trouble-free performance and best-quality prints.
- Check that the substrate type selected in the Internal Print Server is the same as the substrate type loaded into the printer.

  ⚠ CAUTION: If you have the wrong substrate type selected, you could experience poor print quality and incorrect colors, and perhaps even damage to the printheads.

- Check that you are printing on the right side of the substrate.
- Check that you are using in the RIP software the correct substrate preset, which includes the ICC profile for your substrate and print mode.
- Check whether there are any outstanding printer alerts in the Internal Print Server. React to the alert as instructed in this guide.

In particular:

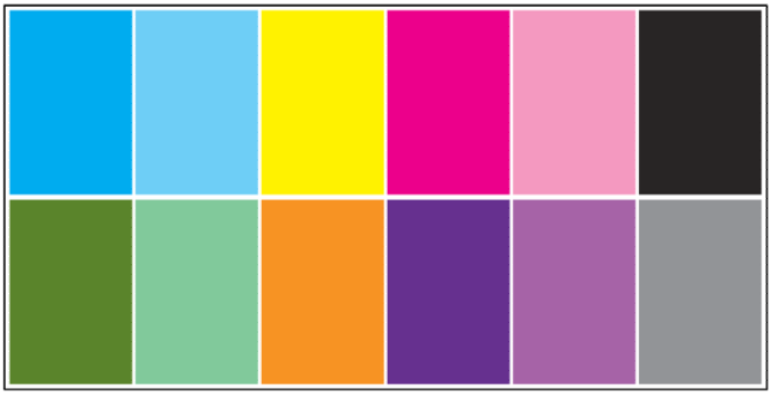
- Make sure the substrate is flat and has no wrinkles. See Troubleshoot substrate issues on page 359.
- Check that the substrate has no skew or telescoping. Check that you are loading the substrate using the correct process. See Load a roll into the printer on page 65.
- For color consistency issues, check that the color calibration was performed when the substrate was added to the Internal Print Server. See Use a new substrate on page 103.
- Make sure it has also been performed in the current conditions, especially considering substrate batch and printheads. See Color calibration on page 178.

Image quality inspection plot

The Image Quality Inspection Tool is designed to provide a guided troubleshooting process for users facing banding issues, especially horizontal banding. The tool consists of two parts: an image to print, and a guide for the troubleshooting process.

The image consists of 12 solid area fills of 7.62 cm x 22.86 cm (3 x 9 in). The six rectangles in the top row are printed by a single ink each, and the six rectangles in the bottom row are secondary or tertiary colors printed using more than one ink. Note that colors in this image may differ from the ones expected. This is a desired behavior, since this image is not used to verify color accuracy.

This plot can be printed from the **Internal Print Server** in the **Printer** menu.



When facing banding issues, print the Image Quality Inspection Plot from the **Printer** menu: go to **Printer** > **IQ Inspection** > **Add New Job**. This will add a job to the print queue. To print it, edit the details of the job to select the substrate and print mode you want to check. Once the plot has printed, start the troubleshooting process. See the **Image Quality Troubleshooting Process** image at the end of this section for a summary diagram of the troubleshooting process.

1. Determine if the banding in the image is caused by aeroworms. Aeroworms are thin bands with higher density than the surrounding area that appear randomly and are not continuous across the substrate.

   To correct this kind of non-uniformity:

   - Increase the number of passes
   - Reduce the ink density
   - Check the carriage beam position
   - Check the aerosol filters

2. If the banding is not caused by aeroworms, continue with the following procedure:

   a. Horizontal banding

i. Banding present in all colors:

▲ Check the Substrate-Advance Compensation and calibrate if necessary. (**Printer menu** > **Advance calibration** ...)

ii. Banding in one or more colors of the top row:

a. Execute a check and clean routine, print the printhead status plot and check the number of blocked nozzles.

b. If the number of blocked nozzles is roughly greater than 300 in any printhead, perform a hard cleaning routine, selecting the colors affected.

c. After executing the cleaning routines, reprint the printhead status plot, the image quality troubleshooting plot, and check the current state of the printheads (expect to see less nozzles clogged) and of the banding. If banding is still visible, increase the number of passes.

d. If none of the above work, replace the printhead that caused the banding (the one with most nozzles clogged).

e. If the problem persists after replacing the printhead, consider it may be a substrate compatibility issue.

iii. Banding in one or more colors of any row:

a. Execute printhead alignment and recheck uniformity with the Image Quality Troubleshooting Plot.

b. Execute check and clean, print the Printhead Status Plot, and check the number of blocked nozzles. If the number of blocked nozzles is greater than 300 in any printhead, perform a hard cleaning routine, selecting the colors affected.

c. Check the Substrate-Advance Compensation and calibrate if necessary.

d. Change the type of mask and/or increase the number of passes.

e. Reduce the ink density.

f. If the problem persists after all the corrective actions, consider it may be a substrate compatibility issue.

b. Vertical Banding

i. Wide bands:

a. Execute printhead alignment.

b. Check carriage beam position.

c. Decrease curing temperature to reduce deformation.

d. Change from 4 to 6 colors to reduce grain.

e. Check substrate settings (vacuum and tension).

ii. Microbanding (vertical high-frequency lines, less than 2mm [0.08 in] wide):

▲ Print the Printhead Alignment Plot to see the printhead responsible, and replace it.

3. After finishing the troubleshooting process, delete the image quality inspection job from the queue, and keep the files on the disk.

NOTE: For more information on print quality troubleshooting, see the Advanced print-quality troubleshooting on page 384.

Image Quality Troubleshooting Process

After finishing the troubleshooting process, delete the image quality inspection job, and keep the files on disk.

Basic and advanced troubleshooting

The print-quality troubleshooting process is divided here, for convenience, into two levels: basic and advanced.

- Basic troubleshooting will help to resolve the majority of the typical print-quality issues related to banding, graininess, and printhead alignment.
- Advanced troubleshooting helps to resolve the above issues when the basic steps did not work, but it also covers other possible print-quality defects, diagnosis, and resolution.

Basic print-quality troubleshooting

1. Identify the defect. This basic procedure applies to the following defects:

- Horizontal banding
- Graininess
- Color misalignment
  - Blurred lines, edges, and text, horizontally and vertically
  - Halo of a different color around color lines and at the edges of color areas or text
  - Ink bleeding or wicking or different gloss at the edges of color areas

2. Perform the actions described in the following table.

Defect	Image quality inspection plot procedure	Substrate-advance sensor check	Printhead alignment	Possible causes (for reference only)
Banding	X			• Blocked nozzles • Substrate advance accuracy • Intra-color alignment
Isolated bands (usually of different texture or grain)		X		• Substrate-advance accuracy and navigability
Graininess		X	X	• Substrate advance accuracy • Color alignment
Blurry edges or text lines, horizontally		X	X	• Substrate advance accuracy • Color alignment
Blurry edges or text lines, vertically			X	• Color alignment
Color halo on objects (e.g., magenta shows up under a blue line)			X	• Color alignment
Ink bleeding, wicking, or different gloss at the edges of color areas			X	• Optimizer alignment

Printhead check and clean

See Check and clean the printheads on page 160. The check and clean process will check the printheads, recover the ones with blocked nozzles, and replace the nozzles that are not recovered with healthy ones for printing.

Substrate-advance sensor check

Run the OMAS Diagnostic Test from the HP Print Care window.

NOTE: OMAS stands for Optical Media Advance Sensor, usually known as the substrate-advance sensor in this guide.

The test will tell you whether the substrate-advance sensor is working correctly or not (either dirty or damaged).

If the substrate-advance sensor is dirty, clean the sensor. See Clean the substrate-advance sensor on page 204.

Even if the sensor is working correctly, the substrate may not be navigable, meaning that the substrate-advance sensor cannot see it properly (as in the case of transparent substrates or substrates with very smooth back side). In this case, the substrate-advance sensor disables itself automatically. You are then recommended to adjust the substrate-advance compensation: see Substrate-advance compensation on page 181.

For best results, cleaning the substrate-advance sensor is included in the printer's weekly maintenance.

Printhead alignment

Perform a manual printhead alignment. See Alignment procedure on page 172.

The result of the alignment can be verified with the printhead alignment diagnostics plot. See Printhead alignment diagnostics plot on page 175.

Advanced print-quality troubleshooting

If the basic print-quality troubleshooting does not solve the problem, here are some further procedures that you can try.

One of the most important parts of print-quality troubleshooting is to ensure that the printheads are healthy. See Printhead health troubleshooting on page 403.

Print-quality artifacts troubleshooting

Horizontal banding

Horizontal banding means that your print suffers from added horizontal lines or bands, in a regular pattern. They can look different depending on the cause.

Thin dark lines

These are thin dark lines across the entire image with certain frequency, more easily seen in solid area fills. There are two likely causes:

- **Printhead alignment.** This is a clear contributor to banding. If printheads are not correctly aligned, the misplaced dots could correlate directly with the severity of the banding, by putting more ink in the same place and thus creating darker lines.

  To check printhead alignment, print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175). As a general rule, the biggest contributors to thin-dark-line banding caused by printhead alignment are (in this order):

  – Intra-color alignment (alignment between the two printheads of the same color)

  – Inter-color alignment (alignment between different colors)

  Here are some tips for solving this problem:

  – If the printhead alignment was done with a different substrate of different thickness, probably a new printhead alignment is needed.

  – Fine-tune the alignment by identifiying the offenders in the printhead alignment diagnostics plot. See Alignment procedure on page 172.

- **Substrate advance.** Before trying to adjust any parameter, make the following checks:

  – Check that no substrate-advance factor was set earlier that could prevent the substrate-advance sensor from working correctly.

  – Run the diagnostics to check that that the substrate-advance sensor is not dirty.

If the substrate advance is not well adjusted, particularly if it is under-advancing, a dark line can appear between passes.

A clear symptom of this is when the dark lines appear across all colors, because the cause is common to all of them. To confirm it, in the Internal Print Server, select **Printer** > **Advance Calibration** to check the substrate advance. See Substrate-advance test print on page 182.

You can usually correct this problem by adjusting the substrate advance compensation (see Substrate-advance compensation on page 181). However, you are recommended to run the OMAS Diagnostic Tests from the Print Care window as soon as the substrate is unloaded, to avoid having the same problem with other substrates. See Clean the substrate-advance sensor on page 204.

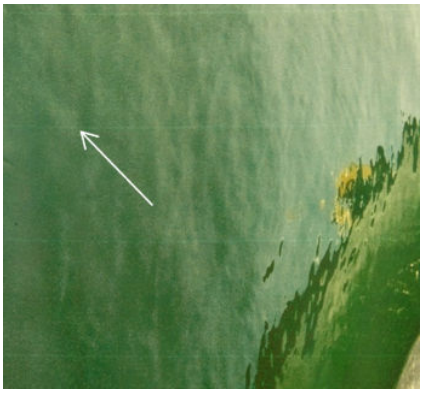
If the problem persists, try adjusting tension and vacuum settings according to the table below, step by step (a to c), until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

Vacuum Input Tension
Output Tension

Thin white lines

These are thin white/light lines across the entire image at regular intervals, more easily seen in solid area fills.



There are three likely causes:

- **Nozzle clogging.** A printhead nozzle can be sealed temporarily, by some fibers or dirt in the ink bore. Then not all the ink is fired and a lighter horizontal band appears. Sometimes a bigger drop with all the

accumulated ink appears at the end of this light thin line, meaning that the bore is clear then. See Printhead health troubleshooting on page 403.

- **Printhead alignment.** This is a clear contributor to banding. If printheads are not correctly aligned, the misplaced dots could correlate directly with the severity of the banding, by leaving lighter bands where the ink should have been placed.

  To check printhead alignment, print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175). As a general rule, the biggest contributors to thin-white-line banding caused by printhead alignment are (in this order):

  – Intra-color alignment (alignment between the two printheads of the same color)

  – Inter-color alignment (alignment between different colors)

  Here are some tips for solving this problem:

  – If the printhead alignment was done with a different substrate of different thickness, probably a new printhead alignment is needed.

  – Fine-tune the alignment by identifiying the offenders in the printhead alignment diagnostics plot. See Alignment procedure on page 172.

- **Substrate advance.** Before trying to adjust any parameter, make the following checks:

  – Check that no substrate-advance factor was set earlier that could prevent the substrate-advance sensor from working correctly.

  – Run the diagnostics to check that that the substrate-advance sensor is not dirty.

  If the substrate advance is not well adjusted, particularly if it is over-advancing, a white line can appear between passes.

  A clear symptom of this is when the white lines appear across all colors, because the cause is common to all of them. To confirm it, in the Internal Print Server, select **Printer** > **Advance Calibration** to check the substrate advance. See Substrate-advance test print on page 182.

  You can usually correct this problem by adjusting the substrate advance compensation (see Substrate-advance compensation on page 181). However, you are recommended to run the OMAS Diagnostic Tests from the Print Care window as soon as the substrate is unloaded, to avoid having the same problem with other substrates. See Clean the substrate-advance sensor on page 204.

  If the problem persists, try adjusting tension and vacuum settings according to the table below, step by step (a to c), until you find settings that work.

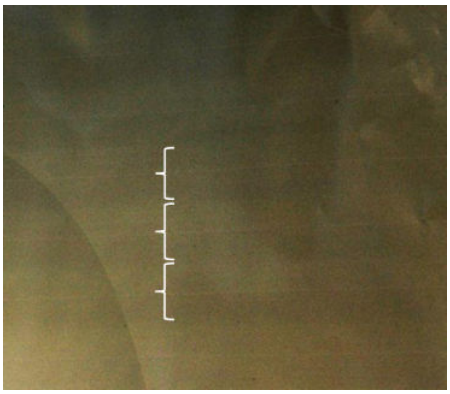
	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

Vacuum Input Tension

Output Tension

Bands of light and dark zones

These are periodic horizontal bands formed of a lighter band and a consecutive darker band. This pattern is mostly seen in solid color area fills (such as light purple or gray).



There are three likely causes:

- **Coalescence.** This is due to an excessive amount of ink, and the ink being misplaced as it is deposited on the substrate, generating bands with more ink than other alternate bands. It can also be caused by firing too much ink in a short time. Coalescence is most likely to be seen in areas of high ink density.

  Here are some tips for solving this problem:

  – Use lower ink density.

  – Increase the number of passes.

  – Change the type of mask (Large mask / Uniformity).

- **Printhead alignment.** This is a clear contributor to banding. If printheads are not correctly aligned, the misplaced dots could correlate directly to the severity of the banding.

  To check printhead alignment, print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175). As a general rule, the biggest contributors to light-and-dark banding caused by printhead alignment are (in this order):

- Bidirectional alignment
- Intra-color alignment (alignment between the two printheads of the same color)
- Inter-color alignment (alignment between different colors)

Here are some tips for solving this problem:

- If the printhead alignment was done with a different substrate of different thickness, probably a new printhead alignment is needed.
- Fine-tune the alignment by identifiying the offenders in the printhead alignment diagnostics plot. See Alignment procedure on page 172.

- **Substrate advance.** Before trying to adjust any parameter, make the following checks:
  - Check that no substrate-advance factor was set earlier that could prevent the substrate-advance sensor from working correctly.
  - Run the diagnostics to check that that the substrate-advance sensor is not dirty.

  When the substrate advance is incorrect, some light and dark horizontal bands can appear from the misplacement of the ink.

  To confirm it, in the Internal Print Server, select **Printer** > **Advance Calibration** to check the substrate advance. See Substrate-advance test print on page 182.

  You can usually correct this problem by adjusting the substrate advance compensation (see Substrate-advance compensation on page 181). However, you are recommended to run the OMAS Diagnostic Tests from the Print Care window as soon as the substrate is unloaded, to avoid having the same problem with other substrates. See Clean the substrate-advance sensor on page 204.

  If the problem persists, try adjusting tension and vacuum settings according to the table below, step by step (a to c), until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

Vacuum Input Tension Output Tension

Gloss banding

This appears in dark, high-density areas as horizontal gloss or matte bands about 1 cm wide. It can happen when the curing system settings are not correct for the substrate.

If the bands are more apparent when tilting the print or changing your viewing position, then it is likely to be gloss banding.

To solve the problem, check your curing settings (airflow, curing temperature). You could also try using a different print mode.

Aeroworms

Aeroworms consist of thin bands with higher density than the surrounding area. They are about 6 cm long and have a horizontal tendency, but they tend to curve like worms. They are not continuous across the substrate, and seem to appear at random.

When the ink is being fired, there are airflow turbulences under the carriage that can affect the positioning of the drops. Therefore, some waves of ink can be formed and deposited on the substrate to create this effect.

Here are some tips for solving this problem:

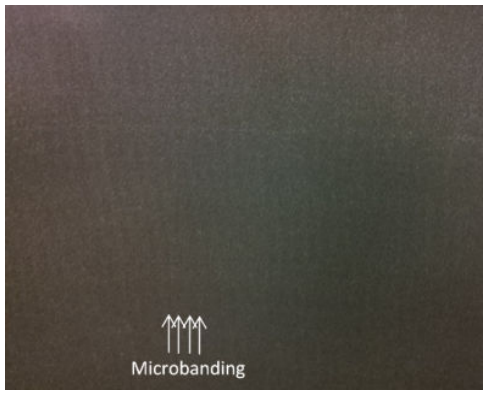
- Increase the number of passes.
- Reduce the ink density.
- Check the printhead-to-ribs spacing in the Internal Print Server. If it is higher than normal, try reducing it.
- Check that the aerosol filters are not saturated or broken (see Replace the aerosol filters on page 162).

Vertical banding

Vertical banding means that your print suffers from added vertical lines or bands, in a regular pattern.

Microbanding

This consists of vertical lines less than 2 mm (0.08 in) wide, of very high frequency, that appear in some area fills. Often they are hardly visible.



Microbanding is probably caused by a faulty printhead. Print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175) to find which printhead is responsible, and replace the printhead.

Wide bands 2 cm apart

If the bands are about 2 cm (0.8 in) apart, it means that the substrate is well controlled in the print zone and is in contact with all the ribs in the platen as intended. However, if the suction is too high, a difference in grain can be seen, and bands appear 2 cm apart.

Here are some tips for solving this problem:

- Align the printheads.
- Check the scan-beam height in the Internal Print Server. If it is higher than normal, try lowering it.
- Decrease the curing temperature to reduce deformation.
- Change from 4 to 6 colors to reduce grain.
- Decrease vacuum and tension settings according to the table below, step by step (a to c), until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

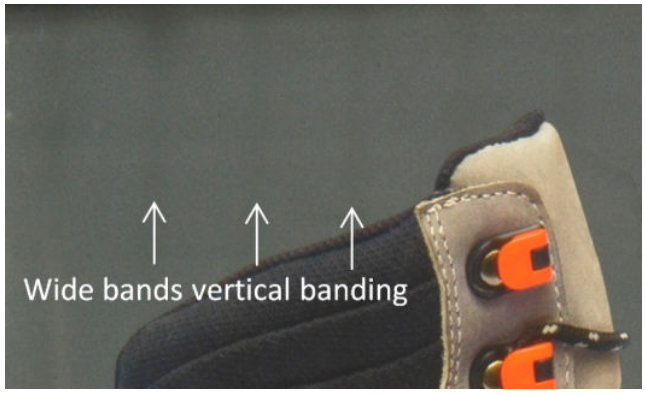
Vacuum Input Tension

Output Tension

Wide bands at least 4 cm apart

A small amount of vertical banding (like waves) can be seen, with a frequency from about 4 cm (1.6 in) to 10 cm (3.9 in), when printing large area fills of the same color.

The substrate is not in contact with all the ribs in the platen, which means that it is not fully controlled, so wide wrinkles appear on the print zone. As the height of the printhead above the substrate varies, there are local differences in grain that can be seen as lighter or darker wide bands (see picture). To solve this, it is important to improve substrate control in this zone and reduce the wrinkles.



Here are some tips for solving this problem:

- Check the scan-beam height in the Internal Print Server. If it is higher than normal, try lowering it.
- Align the printheads.
- Decrease the curing temperature to reduce deformation.
- Change from 4 to 6 colors to reduce grain.
- Increase vacuum and tension settings according to the table below, step by step (i to iv), until you find settings that work (by improving control in the print zone).

	Generic Vinyl		Generic Cast Vinyl		PVC Banner		Coated Paper & Wallpaper		Offset Paper		PET film		PP PE film and banner		Canvas		Generic Textile	
recommended	**20**	**80**	**10**	**40**	**15**	**60**	**15**	**60**	**30**	**60**	**15**	**60**	**15**	**60**	**15**	**60**	**0**	**50**
	80		**30**		**60**		**65**		**65**		**50**		**50**		**50**		**40**	
i	20	80	10	50	15	60	15	65	30	65	15	65	15	65	15	65	5	50
		85		40		65		70		70		60		55		55		45
ii	25	80	15	60	15	65	20	65	30	70	15	70	15	70	15	70	10	60
		85		55		70		70		75		65		60		60		50
iii	25	90	20	75	25	70	25	70	30	80	25	70	25	70	25	70	15	65
		95		80		75		75		80		75		70		70		60
iv	25	100	25	80	30	75	30	75	35	85	30	75	30	75	30	75	25	70
		100		85		80		80		85		80		80		80		75
v	30	100	30	100	35	85	35	85	-	-	35	85	35	85	35	85	35	85
		100		100		85		85	-	-		85		85		85		85

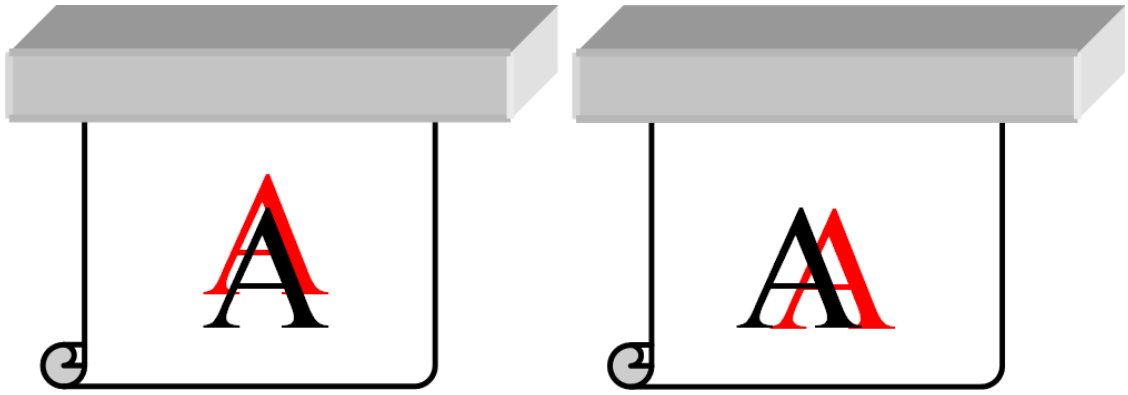
Vacuum Input Tension

Output Tension

Color misalignment

Colors appear misaligned. Typically, lines and text are most affected by this issue.

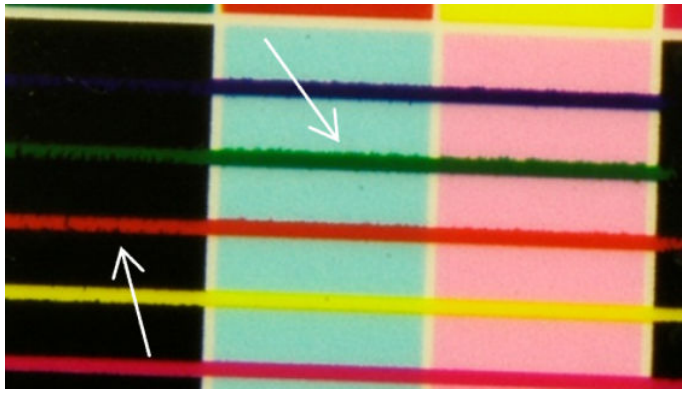
It can happen in both axes: the substrate axis and the scan axis.



Color misalignment is most likely to be caused by printhead misalignment. To check printhead alignment, print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175).

Bleed, halo, wicking

Sometimes a small color migration may be observed at the border between different colors (bleed). It may also happen at the border between a color and blank substrate (no ink), reducing the sharpness of the shape. On some substrates, a gloss halo can be observed at the border between colors.



There are three likely causes:

- **Optimizer misalignment:** There may be misalignment between the optimizer printhead and the other printheads. To check the printhead alignment, print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175). If necessary, perform a manual alignment, then reprint the printhead alignment diagnostics plot.

  If the problem is in the substrate axis direction, it may also be caused by incorrect substrate advance. See Substrate-advance test print on page 182 and Substrate-advance compensation on page 181.

- **Optimizer level**, which may be too low for this substrate and ink density. Other associated defects may also appear, such as coalescence or grain in the area fills due to low wetting of the ink on the substrate. You can correct this problem by increasing the optimizer percentage in the substrate preset.

- **Drying power**, which may be too low for this substrate and ink density. Other associated defects may also appear, such as coalescence or grain in the area fills due to low wetting of the ink on the substrate. You can correct this problem by increasing the drying power leading/trailing percentages in the substrate preset.

Low gloss, haze

On glossy substrates, the print may have lower gloss than expected, which is probably due to the optimizer level. To investigate and correct this problem, try increasing and decreasing the optimizer percentage in the substrate preset.

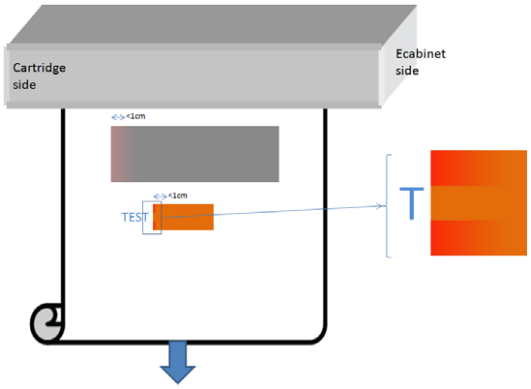
Color accuracy

Ideally, the colors that you see on the screen should match the colors in the print. In practice, you may find that the colors are not sufficiently accurate. There are three possible causes:

- **Color calibration** provides consistent colors, but consistent colors are not necessarily accurate. However, if the combination of substrate and printheads has not been calibrated recently (or ever), that is a possible source of color inaccuracy. You can eliminate the possibility by performing a color calibration (see Color calibration on page 178).
- **ICC profile.** If you are using the wrong profile, your colors are likely to be inaccurate. Check which profile you are using. If necessary, you can make your own ICC profile for the printer, printheads, print mode, and substrate that you are using.
- **Ink density**, which affects color saturation. If the color saturation of your print seems wrong, try changing the ink density in the substrate preset; you may need to change the number of passes at the same time.

Local color variations

In some cases, at the edges of area fills, a small number of ink drops may be missing or slightly darker, producing a local color variation.



These defects are due to the printheads travelling from side to side without printing.

- In each pass, the first 1 or 2 drops of a color are missing or smaller.
- In each pass, the first 1 or 2 drops of a color are darker because they are more concentrated with pigment.

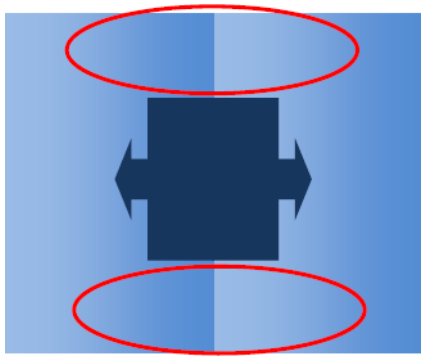
To resolve these defects, add color bars at each side of the image, to make sure nozzles are refreshed before printing each pass. If possible, you could also rotate the image to avoid situations such as shown in the example.

Color variations when tiling

When tiling, it is important that all tiles have the same length and that the colors of the mating edges match. This section focuses on color variations; for recommendations about length consistency, see How to achieve better consistency between jobs of the same length on page 374.

To achieve better color consistency it is recommended to optimize tiling performance via the IPS (**Substrate** > **Tiling optimization**). See Optimize for tiling on page 104.

Also check step 5 of Edit a substrate preset on page 110.



Possible causes

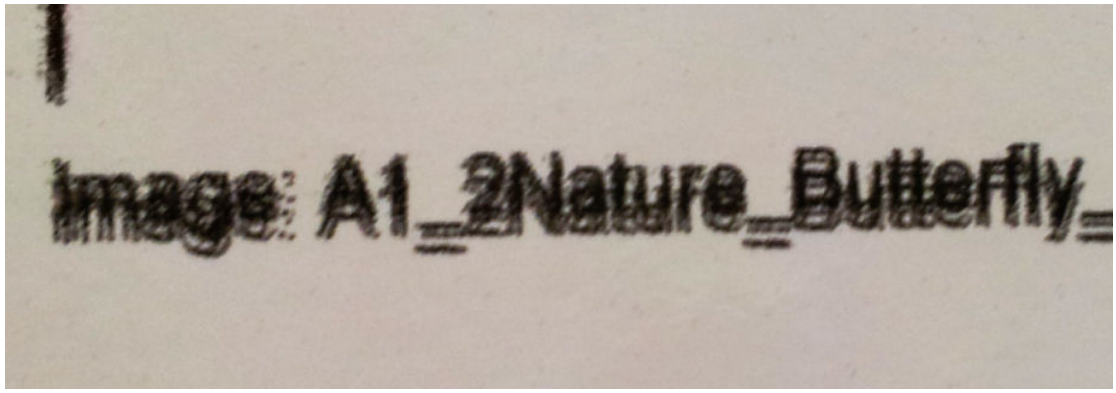
- **Uniform variations from tile to tile.** When color changes uniformly it must be within the color consistency specification; see Color consistency on page 41 for more details. Usually grays are much more sensitive: differences of much less than 2 dE 2000 may be visible, although other colors would not show a difference.
- **Small color variation left to right.** The tile itself looks uniform, but when putting it beside the adjacent tile the differences become visible.
- **Local color variations.** See Local color variations on page 393. Sometimes these defects become visible only when printing tiles, showing in one of the tiles but not in the adjacent. They are also more visible when printing grays.

Possible solutions

- Try to ensure uniform printing of all tiles, and all tiles printed in the same run.
- Rotate every other tile, to compensate for left to right differences.
- Adding color bars at both sides of the image helps overall, especially when there are local color variations.

Edge roughness, text quality

The edges of objects may appear rough or blurred; this is especially noticeable in text.



There are five possible causes:

- **Bleed:** see Bleed, halo, wicking on page 392.
- **Printhead alignment.** As each ink is deposited by two printheads of the same color, it is important that the two printheads are correctly aligned. When a color is formed by a combination of inks, which is often the case, it is also important that printheads of different colors are correctly aligned.

  To check printhead alignment, print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175), and fine-tune the alignment by identifiying the offenders in the plot.
- **Substrate advance.** Before trying to adjust any parameter, make the following checks:

– Check that no substrate-advance factor was set earlier that could prevent the substrate-advance sensor from working correctly.

– Run the diagnostics to check that that the substrate-advance sensor is not dirty.

If the substrate advance is incorrectly adjusted, particularly if it is under-advancing, a dark line can appear between passes. When the problem of line roughness or text quality applies to all colors and appears in the substrate axis direction, it is likely to be related to incorrect substrate advance. Another clue that could point to substrate advance as a cause is to observe that the defect is not constant, appearing and disappearing along the print in the substrate axis.

To confirm it, go to the Internal Print Server and select **Printer** > **Advance Calibration** to check the substrate advance. See Substrate-advance test print on page 182.

To correct the substrate advance, see Substrate-advance compensation on page 181. In most cases, this will solve the problem. However, you are recommended to run the OMAS Diagnostic Tests from the Print Care window as soon as the substrate is unloaded, to avoid having the same problem with other substrates. See Clean the substrate-advance sensor on page 204.

If the problem persists, try adjusting tension and vacuum settings according to the table below, step by step (a to c), until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

Vacuum Input Tension Output Tension

- **Printhead-to-ribs spacing.** Check the printhead-to-ribs spacing in the Internal Print Server. If it is higher than normal, try reducing it.

- **Vacuum.** In some thin substrates, if the vacuum is too high, the substrate follows the shape of the platen ribs, modifying the printhead-to-substrate spacing and causing vertical line roughness. In this case, as the substrate advances, vertical lines get wider after each pass, while horizontal lines are not affected.

  To correct this problem, try adjusting tension and vacuum settings according to the table below, step by step (a to c), until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

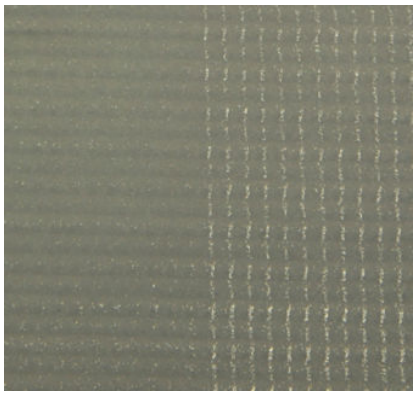
Vacuum Input Tension
Output Tension

Graininess

The print shows a higher level of grain than expected, either throughout the print or in some specific areas. The example below shows more grain in the lower half than in the upper half.

This can occur for various different reasons.

- **Coalescence.** Some substrates, in some particular conditions, can produce a type of grain due to wetting issues. For example, in high humidity or low temperature environments, the ink may not dry fast enough in fast print modes, producing a grainy effect on the print. The example below shows worse coalescence on the right-hand side.



It is difficult to decide whether this kind of problem is due to wetting or to dot placement error (described below). The type of grain could be a clue: in the case of wetting issues, dots tend to aggregate into bigger dots, with empty spaces in between. A magnifying glass can be useful to examine the print in more detail.

Here are some tips for solving this problem:

- Increase the optimizer level.
- Increase the drying power.
- Increase the number of passes.
- Change from 6 to 4 colors (less ink on the substrate).

- **Printhead alignment.** This is a clear contributor to grain. If printheads are not correctly aligned, the misplaced dots could correlate directly with the severity of the graininess.

  To check printhead alignment, print the printhead alignment diagnostics plot (see Printhead alignment diagnostics plot on page 175). As a general rule, the biggest contributors to grain caused by printhead alignment are (in this order):

  - Bidirectional alignment
  - Intra-color alignment (alignment between the two printheads of the same color)
  - Inter-color alignment (alignment between different colors)

  Here are some tips for solving this problem:

  - If the printhead alignment was done with a different substrate of different thickness, probably a new printhead alignment is needed.
  - Fine-tune the alignment by identifiying the offenders in the printhead alignment diagnostics plot. See Alignment procedure on page 172.

- **Substrate advance.** Before trying to adjust any parameter, make the following checks:

  - Check that no substrate-advance factor was set earlier that could prevent the substrate-advance sensor from working correctly.
  - Run the diagnostics to check that that the substrate-advance sensor is not dirty.

  Grain in a print can be increased by incorrect substrate advance, due to mispositioning of the dots.

  To check the substrate advance, go to the Internal Print Server and select **Printer** > **Advance Calibration**. See Substrate-advance test print on page 182.

  To correct the substrate advance, see Substrate-advance compensation on page 181. In most cases, this will solve the problem. However, you are recommended to run the OMAS Diagnostic Tests from the Print Care window as soon as the substrate is unloaded, to avoid having the same problem with other substrates. See Clean the substrate-advance sensor on page 204.

If the problem persists, try adjusting tension and vacuum settings according to the table below, step by step (a to c), until you find settings that work.

	Generic Vinyl	Generic Cast Vinyl	PVC Banner	Coated Paper & Wallpaper	Offset Paper	PET film	PP PE film and banner	Canvas	Generic Textile
c	5 50 35	- - -	5 40 30	- - -	15 50 45	5 40 30	5 40 30	5 40 30	0 35 30
b	10 60 50	- - -	10 50 40	15 50 45	20 60 50	10 50 40	10 50 40	10 50 40	0 40 30
a	15 70 60	5 40 30	10 60 50	15 60 55	25 60 60	10 60 50	10 60 50	10 60 50	0 45 35
recommended	**20 80 80**	**10 40 30**	**15 60 60**	**15 60 65**	**30 60 65**	**15 60 50**	**15 60 50**	**15 60 50**	**0 50 40**

Vacuum Input Tension

Output Tension

- **Substrate wrinkles.** If you see patches of high grain in some local areas of the print, this could be caused by wrinkles in the substrate. See There are wrinkles and ink smears on the substrate on page 363.
- **Color usage.** In general, 4-color printing produces more grain than 6-color printing.
- **Dual-roll printing.** If you see a different level of grain in dual-roll printing, a uniformity mask is recommended to equalize the grain. See Edit a substrate preset on page 110.

Physical deformation marks

You may occasionally see physical deformation of the substrate. This issue is not a mispositioning of the dots, but a physical deformation of the substrate that usually occurs after the dots have been printed. There are various kinds of deformation that may occur:

- **Diverter horizontal marks:** Deformations of the substrate in the shape of straight lines (about 6 cm long) towards the printed side of the substrate. They are separated about 2 cm vertically and 1 cm horizontally.
- **Diverter vertical marks:** These physical marks have the appearance of a braid. They consist of small wrinkles just below the curing module, forming a vertical line of small deformations.

Both kinds of deformations can be the result of an excessive curing temperature. See There are physical marks on the substrate on page 367.

Poor curing

When the heat applied to the printed substrate is not enough for the quantity of ink laid down, the print may appear wet or with some gloss marks. The heat needed to cure is directly dependent to the combination of: ink density, time under the curing module (printmode), curing temperature, airflow, and drying power. These are the defects you may see:

- **Perforated plate gloss marks:** The print suffers from an added matte pattern over the areas with more ink density. You can see small circles scattered over the picture with different levels of gloss.

- **Wet print:** The ink comes out of the curing module not perfectly dry, and in severe cases the ink can be smudged by touching it.

Here are some tips for solving both problems:

- Increase the curing temperature.
- Increase the curing airflow.
- Increase the curing temperature and airflow.
- Decrease the ink density.
- Reduce throughput.
- Repeat the Add New Substrate procedure in case you had wrong settings in the substrate preset.

12 Troubleshoot ink cartridge and printhead issues

Ink cartridges

Cannot insert an ink cartridge

1. Check that the cartridge (type and capacity) is the correct one for the printer. See http://www.hp.com for the latest information on printer supplies.
2. Use the correct procedure to change ink cartridges, through the Internal Print Server. See Remove an ink cartridge on page 150.
3. Check that there is no obstruction in the ink cartridge connector.
4. Check that the ink cartridge is of the correct color. A connector will refuse to connect to a cartridge of the wrong color.
5. Check that the ink cartridge is correctly oriented (compare with the others).

The Internal Print Server does not recognize an ink cartridge

1. Ensure that you have inserted the cartridge correctly and fully. You should hear a click.
2. Ensure that the tabs on each side of the cartridge connector are opened but in place, showing a successful connection.
3. If the problem persists, check the ink cartridge connector (see Bent ink cartridge connector on page 400).
4. If the problem still persists, call your service representative (see HP Customer Care Centers on page 409).

The Internal Print Server recommends replacing or reseating an ink cartridge

1. Disconnect the ink cartridge.
2. Reconnect the ink cartridge and check the Internal Print Server message.
3. If the problem persists, check the ink cartridge connector (see Bent ink cartridge connector on page 400).
4. If the problem persists, insert a new ink cartridge.
5. If the problem still persists, call your service representative (see HP Customer Care Centers on page 409).

Bent ink cartridge connector

You may find that the ink cartridge connectors have become bent while the cartridge was disconnected (see Remove an ink cartridge on page 150). This means that they cannot connect properly, and you will see a reseat message.

To correct this problem, use pliers to straighten the connectors so that they will fit into their slots.

Printheads

Cannot insert a printhead

1. Check that you are inserting the printhead into the correct slot.
2. Use the correct procedure to change printheads, through the Internal Print Server. See Remove a printhead on page 154 and Insert a printhead on page 157, bearing in mind the special tips for the optimizer printhead.
3. Check that there is no obstruction in the printhead slot.
4. Check that the printhead is correctly oriented (compare with the others).

The Internal Print Server recommends replacing or reseating a printhead

General recommendations

1. Remove the printhead.
2. Reinsert the printhead into the carriage and check the Internal Print Server message.
3. If the problem persists, exchange the printhead with the printhead of the same color in the other row.
4. If the problem persists, check the printhead contacts for dirt or aerosol and clean them if necessary. See Clean the printhead contacts on page 326.
5. Find more troubleshooting information in the following sections, Problem due to overheating on page 401 and Problem due to the primer system on page 401.
6. If the problem persists, insert a new printhead.
7. If no printhead works in that slot, call your service representative (see HP Customer Care Centers on page 409).

Problem due to overheating

A printhead may overheat for several reasons:

- The room temperature may be too high.
- The printhead may be suffering from blocked nozzles. You may be able to cure this problem by cleaning the printheads (see Check and clean the printheads on page 160).
- The printhead may be faulty, in which case it should be replaced.

Problem due to the primer system

Primers are important to the printheads' nozzle health. When there is a problem with a primer, the Internal Print Server displays the following messages.

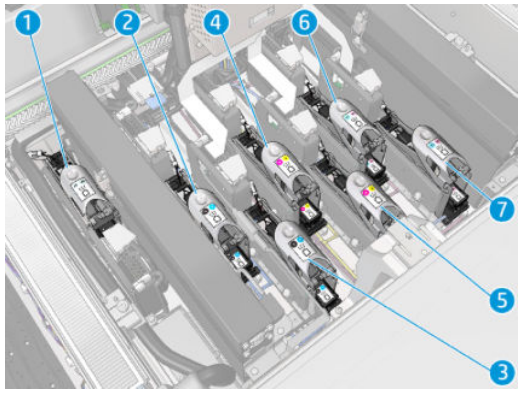
During a printhead replacement

- A reseat message for a particular printhead
- A printhead replacement incomplete message
- A numerical error code starting with 46 (46.0X.0Y:ZZ)

During a printhead servicing routine

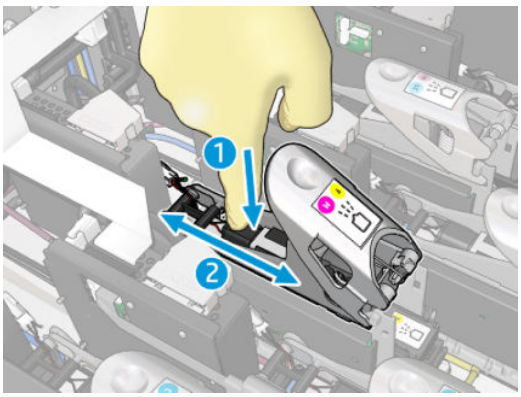
- A reseat message for a particular printhead
- A numerical error code starting with 46 (46.0X.0Y:ZZ)

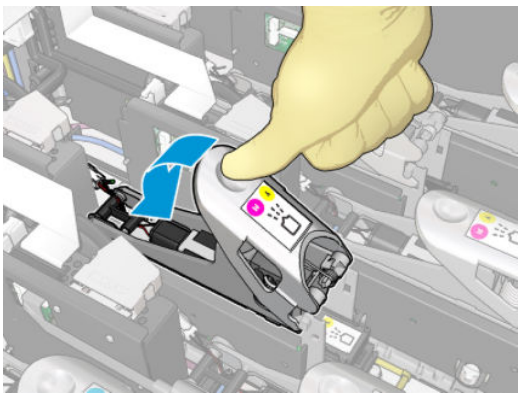
The message **46.02.0Y:06 – Primer 0Y leakage detected** indicates that one of the primer systems leaks. The number 0Y, where Y ranges from 1 to 7, indicates which primer is leaking.



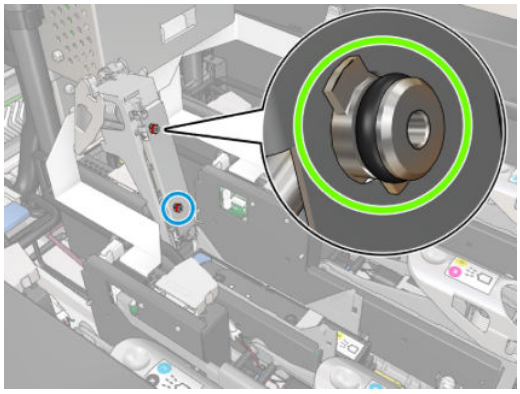
You are recommended to:

- Run the primer diagnostic test from the Print Care window to confirm the cause of the error.
- Reseat the printhead. Make sure to push the primer into position before securing the latch. While running the test, you will already have done it at least once.





- Check that the O-rings in the primer ports are not broken or damaged. Replace the primer if any O-ring is missing or dented.



- Replace the primer. See Replace a primer on page 280.
- Grease the printhead primers. See Grease the printhead primers on page 273.

If none of these actions resolve the problem, call your service representative.

If you see the message **46.01.0Y:01 – Primer 0Y signal fail**, run the primer diagnostic test from the Print Care window to confirm the cause of the error.

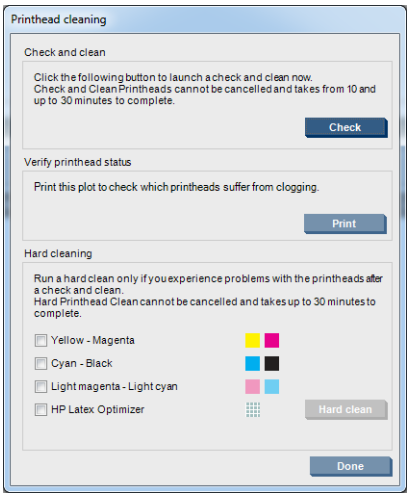
If the test instructs you to replace the primer, replace it. See Replace a primer on page 280. Otherwise, call your service representative with the test results at hand.

Printhead health troubleshooting

There are two diagnostics to check the status of the printheads: the printhead status plot and the drop detector diagnostics in Print Care. Always use both, as they provide complementary information.

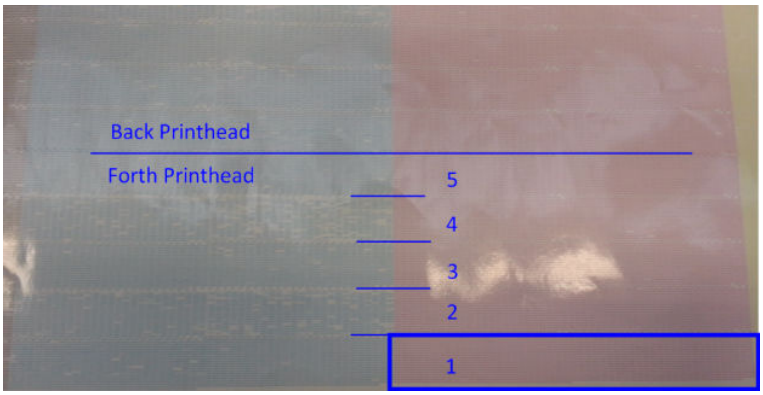
Printhead status plot

To print the printhead status plot, go to the Internal Print Server, select **Printer** > **Printhead cleaning** and press the **Print** button.



The following image is printed.

▲ The image below shows plainly which nozzles in each printhead are printing and not printing.



For reference, each one of the 5 areas (square in the picture and 1 to 5) of each color corresponds to approximately 1000 nozzles.

Drop detector diagnostics

Execute the Drop Detector diagnostics from the Print Care window. This will identify blocked nozzles in each printhead.

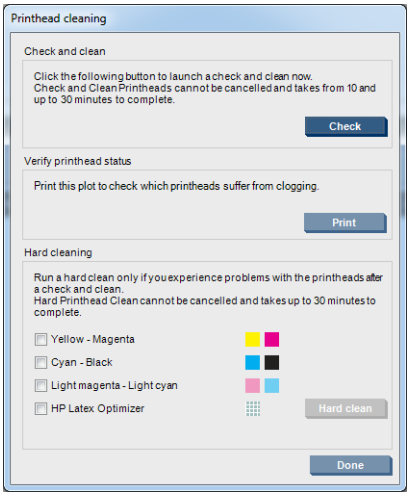
Decision table

The following table summarizes the data that can be seen in each diagnostic, the possible causes, and the decisions.

Mid-tones (section 1)	Nozzle health (sectiion 2)	Drop detector	Possible cause	Action
No banding	< 300 blocked (all colors)	< 300 blocked (all colors)	Other	Continue banding troubleshooting.
Banding in all colors	< 300 blocked (all colors)	< 300 blocked (all colors)	Substrate advance, or other	Check the substrate-advance sensor. Continue banding troubleshooting.
Banding in one color	< 300 blocked (that color)	< 300 blocked (that color)	Other	Continue banding troubleshooting.
	> 300 blocked	> 300 blocked	Printhead failure	Hard-clean the printhead, twice if necessary. Replace the printhead.
N/A	< 300 blocked (at least one color)	> 300 blocked (at least one color)	Drop detection failure	Call your service representative.

Hard clean

To perform a hard cleaning routine, go to the Internal Print Server, select **Printer** > **Printhead cleaning**, select the printhead(s) to clean and press the **Hard clean** button.



Sometimes, when the printhead is quite damaged, running the hard-clean routine twice helps to recover its performance.

New printhead is rejected

If the printer will not accept a new printhead, try the following steps in sequence:

1. Ensure that the printhead was correctly stored in its orange cap.
2. Ensure that the electrical contacts are clean.
3. Run the primer system diagnostic.
4. Exchange the printhead with the printhead of the same color in the other row.
5. Assume that the printhead is faulty, and try another one.
6. If no printhead works in that slot, call your service representative.

Printhead cleaning roll errors

You should not touch the printhead cleaner roll except when you need to replace it.

When the printhead cleaning roll reaches its end, it should be replaced. Always do this by following the Internal Print Server wizard. See Replace the printhead cleaning roll, filters, and spittoon on page 161.

Any handling of the roll may prevent the printer from keeping track of roll usage, in which case you may see spurious error messages, and a printing job may be cancelled unnecessarily.

13 Troubleshoot other issues

The printer does not start

1. Check that the power supply to the printer is working.
2. Check that the main power switch and PC switch are both on.
3. Check that the main power lights are on and the circuit breakers are all up.
4. Check that the IPS is working with no alerts showing.
5. Try turning the main switch off (not the PC switch) and turning it on again after 10 seconds.
6. If any of the circuit breakers trip (from up to down) while the printer is operating, switch off the printer and call your service representative (see HP Customer Care Centers on page 409).

The printer does not print

If all is in order (substrate loaded, all ink components installed, and no file errors), there are still reasons why a file you have sent from your computer may not start printing when expected:

- You may have an electrical power problem. If there is no activity at all from the printer, nor from its built-in computer, check that the power cables are connected correctly and that there is power available at the source.
- You may be experiencing unusual electromagnetic phenomena, such as strong electromagnetic fields or severe electrical disturbances, which can cause the printer to behave strangely or even stop working. In this case, turn off the printer, wait until the electromagnetic environment has returned to normal, then turn it on again. If you still experience problems, call your service representative (see HP Customer Care Centers on page 409).

The printer cannot be restarted from the Internal Print Server

In rare cases, the printer may be unresponsive to the **Shutdown** and **Wake up** buttons. If this happens, turn off the main switch, then turn it on again after 10 seconds and restart the built-in computer.

The printer seems slow

You may experience a temporary delay while the printer's drying and curing modules are warming up.

In some circumstances, the printer will deliberately print more slowly than usual to prevent the printheads from overheating. There are several possible reasons why a printhead may start to overheat:

- The room temperature is too high.
- The printhead is suffering from blocked nozzles (see Check and clean the printheads on page 160).
- The printhead is faulty and should be replaced.

Request to reinitialize the carriage

In some cases you may be asked to reinitialize the carriage. This operation restarts some mechanical subsystems, avoiding the need to restart the whole printer.

The Internal Print Server cannot detect the printer

If the Internal Print Server cannot establish communication with the printer, without apparent reason of after modifying Windows properties, follow these steps:

1. Use the **Wake up** button in the **Tools** menu to try to reactivate the printer.
2. Turn off the printer's main switch, then turn it on again after 10 seconds and restart the built-in computer.
3. Check the cable connecting the built-in computer to the printer.
4. Check that the Internal Print Server is correctly set up.
5. Contact your service representative.

Print Care spontaneously restarts

The Print Care software may restart itself when it detects that the printer's firmware or the Internal Print Server or some of their components have been updated, so this can happen from time to time.

Color calibration fails

Automatic color calibration may fail occasionally. You may see the alert **Color calibration cancelled because of scanning errors**, which can be caused by various different problems.

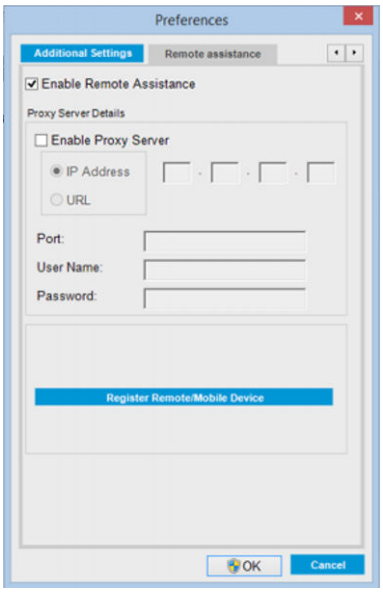
- Reflective color measurements of the printed target cannot be performed reliably on the current substrate. Reflective color measurement can be unreliable or impossible on substrates that are non-white, transparent or translucent, very glossy, or have a very rough or punched surface. For these substrates, automated color calibration using the embedded spectrophotometer may not be possible.
- Some of the color measurements of the color calibration test chart are defective due to:
  - Stains or printhead crash marks on the substrate, that can be easily seen by visual inspection of the printed chart. Make sure the substrate has no stains before running color calibration. Printhead crash marks may occur when the substrate is wrinkled. See There are wrinkles and ink smears on the substrate on page 363.
  - Wrinkles or bubbles in the substrate, even when there has been no printhead crash.
  - Generally poor print quality (such as banding). See Troubleshoot print-quality issues on page 378.
- Either the embedded spectrophotometer or the line sensor is not working properly. If the problem persists, call your service representative (see HP Customer Care Centers on page 409).

14 When you need help

HP Support is available from the IPS Help Menu. There are two options to contact support:

- **Help** > **HP Remote Support**: use this option to launch the HP Customer support portal, there are two options:
  - Chat: the fastest way to contact HP remote support agents.
  - Create a case: submit and manage support cases for your printer.
- **Help** > **Remote Control**: use this option to allow HP support to take control of your Computer. Call your remote support assistant and follow his instructions. Enter the 6 digit code when provided by the operator to allow remote connection: Webcam streaming is now possible. The call can include chat, remote desktop access, and the sharing of files, images, and video.

NOTE: Remote support may not be available if you are not directly supported by HP or if you have not accepted the Data Transfer Agreement. To enable HP Support, go to the Internal Print Server, select **Tools** > **Preferences** > **Remote assistance**, and ensure that the Enable Remote Assistance checkbox is ticked.



HP Proactive Support

HP Proactive Support helps reduce costly printer downtime by preemptively identifying, diagnosing and resolving printer issues before they become problems for you. HP's Proactive Support tool is designed to help businesses of all sizes reduce support costs and maximize productivity—all with the click of a mouse.

A component of the HP Imaging and Printing suite of services, Proactive Support helps you gain control of your printing environment—with a clear focus on maximizing the value of your investment, increasing printer uptime and reducing printer management costs.

HP recommends that you enable Proactive Support right away to save you time and prevent problems before they occur, reducing costly downtime. Proactive Support runs diagnostics and checks for software and firmware updates.

You can enable Proactive Support in the Internal Print Server by selecting **Tools** > **Proactive Support**, where you can specify the frequency of connections between your computer and HP's Web server, and the frequency of diagnostic checks. You can also choose to run the diagnostic checks at any time.

If Proactive Support finds any potential problem, it notifies you with an alert, which will explain the problem and recommend a solution. In some cases, the solution may be applied automatically; in other cases, you may be asked to perform some procedure to solve the problem.

HP Customer Care

HP Customer Care offers award-winning support to ensure you get the most from your printer, providing comprehensive, proven support expertise and new technologies to give you unique end-to-end support. Services include setup and installation, troubleshooting tools, warranty upgrades, repair and exchange services, phone and Web support, software updates and self-maintenance services. To find out more about HP Customer Care, visit us at:

http://www.hp.com/go/graphic-arts/

or call us on the telephone (see HP Customer Care Centers on page 409). To register your warranty:

http://register.hp.com/

HP Customer Care Centers

Help is available to you by telephone. For the right telephone numbers in your location, see http://www.hp.com/go/LatexCareCenters.

What to do before you call

- Review the troubleshooting suggestions in this guide.
- Review your RIP's documentation, if relevant.
- Ensure that you have the following information available:
  - The printer you are using: the product number and the serial number, found on the label on the door of the electrical compartment
  - If there is an error code in the Internal Print Server window, note it down; see Printer messages on page 415
  - The printer's Service ID
  - The RIP you are using, and its version number
  - The software application you are using, and its version number
  - If you have a problem directly related to an ink supply component (printhead, ink cartridge), take note of the product part number and warranty end date.
  - The text displayed by the Internal Print Server when you select **Help** > **About**

Service information

The printer can produce on request a list of many aspects of its current status, some of which may be useful to a service engineer trying to fix a problem. There are two different ways to request this list:

- In the Internal Print Server, select **Information** > **Service information**.
- From any computer with Internet access, enter the URL of your printer into a Web browser, followed by `/hp/device/webAccess/allServicePlot.htm`. For instance, if the URL of your printer is **http://123.123.123.123**, enter `http://123.123.123.123/hp/device/webAccess/allServicePlot.htm`.

You can request the whole list, which takes a significant time to generate; or you can request specific parts of it. If in doubt, you are recommended to request the whole list (select **All pages**).

If you need to send the list by e-mail, you can save the page as a file from your Web browser, and later send the file. Alternatively, from Internet Explorer you can send the page directly: select **File** > **Send** > **Page by E-mail**.

15 Printer specifications

Functional specifications HP Latex 3100/3200/3500/3600

Ink supplies

Printheads	Cyan and black, light magenta and light cyan, yellow and magenta, HP Latex Optimizer
Ink cartridges	Cyan, magenta, yellow, black, light cyan, light magenta, HP Latex Optimizer

Substrate sizes

	Minimum	Maximum (HP Latex 3000/3100/3200 Printer only)	Maximum (HP Latex 3500/3600 Printer only)
Roll width	635 mm (25 in)	3.20 m (126 in)	3.20 m (126 in)
Dual roll width	635 mm (25 in)	2 × 1.60 m (2 × 63 in)	2 × 1.55 (2 × 61 in)
Roll diameter	80 mm (3.15 in) (core diameter)	300 mm (11.8 in)	400 mm (15.7 in)
Roll weight		160 kg (350 lb)	300 kg (656 lb)*
Dual roll weight		2 × 70 kg (2 × 154 lb)	2 × 200 (2 × 440 lb)

(*) It is advised not to overload the single spindle in the HP Latex 3500/3600 according to the following weight vs width table:

Max weight VS substrate width recommendations for HP Latex 3500/3600

Substrate width (inches)	Max weight (kg)	Comments
126	300	Single roll spindle in HP Latex 3500/3600
110	270	
100	250	
90	240	
80	230	
70	220	
63	200	
61 or less	200	Recommended to use Dual Roll spindle

NOTE: Narrow substrates can be damaged during printing if they are very weak.

Passes, resolutions, and speeds

		Resolution (ppi)		Printing speed (m²/h)	Printing speed (ft²/h)
Passes	Ink density	Rendering	Printing	3.2 m roll	3.2 m roll
1	≤ 40%	300 × 300	600 × 1200	315	3391
2	≤ 60%	300 × 300	600 × 1200	180	1938
3	≤ 80%	300 × 300	600 × 1200	120	1292
4	≤ 100%	300 × 300	600 × 1200	98	1055
6	≤ 150%	600 × 600	600 × 1200	77	829
8	≤ 170%	600 × 600	600 × 1200	59	635
10	≤ 300%	600 × 600	600 × 1200	44	474
14	≤ 300%	600 × 600	600 × 1200	35	377
18	131–300%	600 × 600	600 × 1200	27	291
18	≤ 130%	600 × 600	1200 × 1200	22	237

Standard print modes

Print mode name	Viewing distance	Print mode	Printing speed (m²/h)	Printing speed (ft²/h)
High-saturation backlit	1–3 m	18p 6c 230%	27	290
Backlit and textile	1–3 m	14p 6c 200%	35	375
Textile and canvas	1–3 m	10p 6c 170%	44	470
Canvas and wall covering	1–3 m	8p 6c 120%	60	630
Indoor high-quality	1–3 m	6p 6c 100%	77	830
Outdoor plus	3–5 m	4p 6c 90%	98	1050
Outdoor	3–5 m	3p 6c 80%	120	1290
Billboard	> 5 m	2p 4c 70%	180	1950

NOTE: Printing speed is measured using rolls 3.2 m (126 in) wide.

Physical specifications

Printer physical specifications

	HP Latex 3000	HP Latex 3100/3200/3500/3600
Weight	1500 kg (3307 lb) without crate	1740 kg (3836 lb)/1870 kg (4122 lb) without crate
Width	5.98 m (235 in)	5.98 m (235 in)
Depth	1.72 m (68 in)	1.72 m (68 in)
Height	1.67 m (66 in)	1.87 m (74 in)

Memory specifications

Memory specifications for the Internal Print Server computer

Memory (DRAM) supplied	8 GB
Hard disk	500 GB
SSD (HP latex 3100/3200/3500/3600 only)	500 GB

Power specifications

The drying and curing components are powered with a three-phase line that requires a power distribution unit (PDU).

Power specifications for drying and curing components

	HP Latex 3000	HP Latex 3100/3200/3500/3600
Mains power, input rated current		
3-phase (line-to-line voltage)	200–240 V AC, 50/60 Hz, 48 A max	200–240 V AC, 50/60 Hz, 56 A max
3-phase (line-to-line voltage)	380–415 V AC, 50/60Hz, 30 A max	380–415 V AC, 50/60Hz, 35 A max
High-current 1-phase	240 V AC, 50/60Hz, 63 A max	240 V AC, 50/60Hz, 72 A max
PC power (optional), input rated current		
1-phase	100–127 V AC, 50/60Hz, 6 A max	100–127 V AC, 50/60Hz, 10 A max
1-phase	200–240 V AC, 50/60Hz, 6 A max	200–240 V AC, 50/60Hz, 10 A max

Air supply requirements (pneumatic spindle)

Air pressure supply

The pneumatic spindle requires an air compressor or a pressurized air line, not supplied with the printer.

TIP: You are recommended to use a pressure gauge that indicates the pressure in bars.

Air supply specifications

Air pressure	5.5 bar (80 psi)
Minimum airflow	Recommendation: 30 l/min
Lubricator	Not recommended
Air filter (recommended)	Recommendation: 5 µm, auto-drain, 99.97% coalescing efficiency
Regulator (required)	Regulator with pressure gauge

Pneumatic connector

The printer comes with an air gun that you must attach to your air supply. In order to connect your air supply to the air gun, you must meet the following requirements:

- 9.84-mm (0.25-in) female connector, BSP or NPT thread
- Tape to secure the connection and prevent air leaks

Ecological specifications

For the up-to-date ecological specifications of your printer, go to http://www.hp.com/ and search for “ecological specifications”.

Environmental specifications

Printer environmental specifications

	Temperature range	Humidity range	Temperature gradient
Operating for optimal print quality	20 to 25°C (68 to 77°F)	30 to 60% relative humidity	10°C/h (18°F/h) or less
Operating for standard printing	15 to 30°C (59 to 86°F)	20 to 70% relative humidity	10°C/h (18°F/h) or less
Not operating, in transport or storage, ink in tubes	5 to 55°C (41 to 131°F)	90% relative humidity at 55°C (131°F)	10°C/h (18°F/h) or less
Not operating, in transport or storage, no ink in tubes *	–25 to 55°C (–13 to 131°F)	90% relative humidity at 55°C (131°F)	10°C/h (18°F/h) or less

* If the printer is going to be kept at a temperature of less than 5°C, call your service representative to empty the ink from the tubes.

Maximum operating altitude: 3000 m (10000 ft)

The printer should not be exposed to direct sunlight or any other strong light source, and it should not be used in a dusty environment.

Acoustic specifications

Printer acoustic specifications (declared according to ISO 9296).

Printer acoustic specifications

Idle sound power level	8.8 B (A)
Operating sound power level	8.2 B (A)
Idle sound pressure at bystander position	< 60 dB (A)
Operating sound pressure at bystander position	< 67 dB (A) < 75 db (A) during cool-down

A Printer messages

Occasionally you may see messages such as the following in the Internal Print Server window.

There are two types: text messages, which are more informative, and messages containing numerical codes, which mean that the printer has detected a problem or malfunction.

When one of these messages appears, follow any instructions provided by the printer, and consult the tables below. If you feel in doubt about the correct response, or if you have followed the recommendation but the problem persists, call your service representative. See HP Customer Care Centers on page 409.

Text messages

Message	Recommendation
{Color} cartridge has expired	You are advised to replace the ink cartridge. See Remove an ink cartridge on page 150.
{Color} cartridge is altered	You are advised to replace the ink cartridge. See Remove an ink cartridge on page 150.
{Color} cartridge is low on ink	Be ready to replace the ink cartridge soon.
{Color} cartridge is missing	Install the correct ink cartridge. See Insert an ink cartridge on page 151.
{Color} cartridge is non-HP ink	You are recommended to install an HP ink cartridge for best performance.
{Color} cartridge is out of ink	Replace the ink cartridge. See Remove an ink cartridge on page 150.
{Color} printhead is missing	Install the correct printhead. See Insert a printhead on page 157.
{Color} printhead out of warranty	The printhead's warranty has ended, because of the length of time it has been in operation, because of the volume of ink used, or because non-HP ink has been used in the system. See the limited warranty document.
An error has occurred in printhead detection	Remove the printhead, clean any ink from the electrical connectors on the printhead (do not try to clean the nozzles), and reinsert the printhead. See The Internal Print Server recommends replacing or reseating a printhead on page 401.
Checking file system	After a dirty power off, the printer performs a file system check, which will take some minutes.
Checking printer	The printer is completing checks and cool-down cycle after finishing a job.
Clean drop detector spittoon	You are advised to clean the ink deposits. See Clean the drop-detector ink deposits on page 242.
Cleaner roll jam.	Go to the Internal Print Server and select the Ink System menu, then **Check cleaner roll**. Pull out the printhead cleaning roll assembly, raise the pinchwheels, wind the roll forward manually, then lower the pinchwheels and push the assembly back into the printer.

Text messages (continued)

Message	Recommendation
Color calibration cancelled because of scanning errors	The color calibration chart could not be scanned successfully with the current substrate. See Color calibration fails on page 407.
FW upgrade post actions	The firmware update is being performed.
Initializing	The Internal Print Server is connecting to the printer.
Initializing, please wait	The Internal Print Server is starting the printer.
Ink drying	The printer is drying the last passes of a job after printing it.
Ink system not ready to print	Wait a while. If the printer does not recover, restart it.
Job canceled due to lack of data received from the IPS	If the problem persists, check the configuration of the Internal Print Server computer.
Line sensor calib. error: substrate too small	Load a larger substrate.
Low cleaner roll	Be ready to replace the printhead cleaning roll soon.
Lower lever	Lower the substrate pressure handles.
Maintenance #N advised. Please contact HP	You are advised to contact your service representative. See HP Customer Care Centers on page 409.
No substrate loaded	Load substrate.
Offline	The printer is shut down or not detected.
Please close safety sensor	An open safety circuit has been detected, and should be closed in order to continue working.
Please turn emergency stop buttons to release them.	An emergency button has been pressed, and must be released to continue working.
Preparing to print	The printer is performing checks and warm-up prior to printing.
Printer cannot carry on printing	Check that the three-phase power supply is working and that the ambient temperature is within the normal range. This problem can also be caused by holes in the substrate, by reflective or transparent substrates, or by a dirty or faulty temperature sensor.
Printer cannot cool down	If the ambient temperature is within the normal range, this problem may be caused by removing the substrate too quickly after printing. Try leaving the substrate in the printer until temperatures settle down after printing.
Printer cannot warm up	Check that the three-phase power supply is working. This problem can also be caused by holes in the substrate, by reflective or transparent substrates, or by a dirty or faulty temperature sensor.
Printheads not aligned	Align the printheads. See Align the printheads on page 172.
Printhead replacement incomplete	The printhead replacement process was unsuccessful. See The Internal Print Server recommends replacing or reseating a printhead on page 401.
Printing	The printer is printing.
Ready	The printer is ready to receive and print a job.
Remove {color} printhead	Remove the printhead. See Remove a printhead on page 154.
Replace {color} cartridge	Replace the ink cartridge. See The Internal Print Server recommends replacing or reseating an ink cartridge on page 400.
Replace {color} printhead	Replace the printhead. See The Internal Print Server recommends replacing or reseating a printhead on page 401.

Text messages (continued)

Message	Recommendation
Replace aerosol filter	You are advised to replace both aerosol filters. See Replace the aerosol filters on page 162.
Reseat {color} cartridge	Reseat the ink cartridge. See The Internal Print Server recommends replacing or reseating an ink cartridge on page 400.
Reseat {color} printhead	Reseat the printhead. See The Internal Print Server recommends replacing or reseating a printhead on page 401.
Select substrate name in the IPS	Select the name of the loaded substrate in the Internal Print Server.
Starting up	The printer is being detected while starting up.
Substrate jam: remove substrate	See The substrate has jammed on page 359.
Substrate may be detached from the rear spindle or slippage detected. Substrate will be unloaded.	See The substrate is not attached to the core and/or spindle on page 360.
System error	The printer has a system error. In the alert window, you should see the numerical code of the system error.
System in sleep mode	The printer is in sleep mode.
Very low cleaner roll	Be ready to replace the printhead cleaning roll very soon.
Visually check printer for readiness, then press the blinking rearm button to provide full power.	Press the blue, blinking button to finish the printer's start-up procedure.

Numerical error codes

Error code	Recommendation
10.04.XX:YY	Problem with e-cabinet fuses. You may need to run a subsystem diagnostic to confirm that fuse replacement is required.
10.06.09:40	The emergency stops and/or safety relay have been activated. Check that the emergency stops are not activated. If the problem persists, run a diagnostic to identify the issue.
51.01.00:92	The main window is open. Close the window to continue printing. If the problem persists, run a diagnostic to identify the issue.
51.02.00:92	The front cover is open. Close the front cover to continue printing. If the problem persists, run a diagnostic to identify the issue.
51.03.00:92	The loading table is not closed. Close the loading table to continue printing. If the problem persists, run a diagnostic to identify the issue.
51.04.00:92	The emergency stops and/or safety relay have been activated. Check that the emergency stops are not activated. If the problem persists, run a diagnostic to identify the issue.
86.01.00:01	Carriage movement failure. Ensure that maintenance routines are up to date, then perform **Reinitialize carriage** from the Internal Print Server. Also perform the carriage-rail cleaning process (see Clean the carriage rails and replace the oiler foams on page 216).
86.04.XX:08	Possible scan-axis jam detected. Check that servicing and substrate paths are completely clean and clear of obstacles, then perform **Reinitialize carriage** from the Internal Print Server. If the problem persists, run subsystem diagnostics and call your service representative.

NOTE: The above table includes the most significant numerical codes. If you receive an error code that is not in the table, follow the instructions in the message.

Glossary

Aerosol filter
The printheads produce many fine droplets of ink, most of which are placed accurately on the substrate. However, a small proportion of these droplets escape sideways; the two aerosol filters are placed on either side of the printhead carriage to intercept them.

Bleeding
A print-quality defect that occurs when the ink spreads on the substrate across areas of different colors.

Carriage beam
The beam supporting the printhead carriage as it moves back and forth across the printer.

Coalescence
A print-quality defect that looks like a higher level of whiter grain.

Cockle
A substrate condition in which it is not lying perfectly flat, but rises and falls slightly in shallow waves.

Color accuracy
The ability to print colors that match the original image as closely as possible, bearing in mind that all devices have a limited color gamut and may not be physically capable of matching certain colors precisely.

Color consistency
The ability to print the same colors from a particular print job from print to print and from printer to printer.

Color model
A system of representing colors by numbers, such as RGB or CMYK.

Color space
A color model in which each color is represented by a specific set of numbers. Many different color spaces can use the same color model: for instance, monitors generally use the RGB color model, but they have different color spaces, because a particular set of RGB numbers results in different colors on different monitors.

Curing
Curing is needed to coalesce the latex, creating a polymeric film which acts as a protective layer, while at the same time removing the remaining co-solvents from the print. Curing is vital to ensure the durability of the printed images.

Drying
The heat applied in the printing zone removes water and fixes the image to the substrate.

ESD
ElectroStatic Discharge. Static electricity is common in daily life. It is the spark when touching the car door, or the cling of clothing. Although controlled static electricity has some useful applications, uncontrolled electrostatic discharges are one of the main hazards to the electronics products. Therefore, to prevent damage some precautions are needed when setting up the product, or handling ESD sensitive devices. This type of damage may reduce the life expectancy of the device or render it unusable. One way to minimize uncontrolled ESDs, and therefore reduce this type of damage is by touching any exposed grounded part of the product (mainly metal parts) before handling ESD sensitive devices (such as the printheads or ink cartridges). Additionally, to reduce the generation of electrostatic charge in your body try to avoid working in a carpeted area, and keep your body movements to a minimum when handling ESD sensitive devices. Also, avoid working in low humidity environments.

Ethernet
A popular computer networking technology for local area networks.

Firmware
Software that controls your printer's functionality and is stored semi-permanently in the printer (it can be updated).

Gamut
The range of colors and density values reproducible on an output device, such as a printer or monitor.

I/O
Input/Output: this term describes the passing of data between one device and another.

ICC
The International Color Consortium, a group of companies that have agreed on a common standard for color profiles.

Ink cartridge
A removable printer component that stores ink of a particular color and provides it to the printhead.

Ink density
The relative amount of ink that is deposited on the substrate per unit of area.

Ink deposit
The printheads sometimes expel a small amount of ink into the ink deposits in order to check the status of each nozzle.

Ink limits
A means of specifying the maximum amount of ink of all colors in total that can be laid down onto a given substrate.

Ink restrictions
A means of specifying the maximum amount of each color of ink that can be laid down onto a given substrate.

IP address
A unique identifier that identifies a particular node on a TCP/IP network. It consists of four integers separated by dots.

LED
Light-Emitting Diode: a semiconductor device that emits light when electrically stimulated.

Nozzle
One of many tiny holes in a printhead through which ink is deposited onto the substrate.

Passes
The number of passes specifies how many times the printheads will print over the same area of substrate.

Platen
The flat surface within the printer over which the substrate passes while it is being printed on.

Printhead
A removable printer component that takes ink of a particular color or colors from the corresponding ink cartridge(s) and deposits it on the substrate, through a cluster of nozzles.

Printhead cleaner roll
A roll of absorbent material used to clean surplus ink from the printheads after each pass over the substrate.

Spindle
A rod that supports a roll of substrate while it is being used for printing.

Substrate
A thin, flat material made to be printed on.

TCP/IP
Transmission Control Protocol/Internet Protocol: the communications protocols on which the Internet is based.

Tension
Tension is applied at the input and the output side of the printer. It needs to be evenly distributed along the whole width of the substrate, thus substrate loading is a critical operation.

Vacuum pressure

The vacuum applied to the substrate in the printing zone helps to hold the substrate down on the print platen, keeping the distance to the printheads constant.

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