HP Latex 630 Printer Series
User Guide

SUMMARY

How to use your product.

About this edition

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1 Introduction

An introduction to your product.

Welcome to your printer

Your printer is a color inkjet printer designed for printing high-quality images on flexible substrates.

Some major features of the printer are shown below:

- Environmentally friendly, odorless, aqueous latex inks in six or seven colors plus optimizer and overcoat
- No special ventilation required, no hazardous waste
- Eight HP 832 Eco-Carton ink cartridges: black, cyan, magenta, yellow, light cyan, light magenta, optimizer, and overcoat

  Additionally, one HP 832 white Eco-Carton ink cartridge and one HP 832 Ink Mix Container for 630W printers
- Sharpest print quality, smooth transitions, and fine details with 1200 real dpi
- Consistent and repeatable print quality at every print speed
- Prints are completely dry and ready for finishing and delivery
- Print on a wide range of substrates—including most low-cost, uncoated, solvent-compatible substrates
- A range of HP recyclable substrates is available
- Consider un-laminated use with scratch resistance comparable to hard solvent inks on SAV and PVC banners
- Durable prints with outdoor display permanence up to three years unlaminated, five years laminated
- A wide range of ready-made substrate presets easily available
- Expand your offering with the glossiest white
  - Deliver the glossiest white on transparent and colored substrates, with high-opacity white HP Latex ink that resists yellowing over time.
  - No waste between white jobs, with removable HP Thermal Inkjet printheads stored in the offline rotating chamber.
  - White-ink automatic maintenance makes white like any other color, with automatic recirculation, automatic nozzle checks, and simple workflows.

To send print jobs to your printer, you will need Raster Image Processor (RIP) software, which should be run on a separate computer. RIP software is available from various different companies.

Printer models and accessories

The HP Latex 630 printer series consists of the HP Latex 630 Printer and the HP Latex 630W Printer; they are available with a range of accessories and consumables.

Supplied with the printer

- HP Latex User Maintenance Kit
- SAi Flexi RIP software

Each printer model can be bundled with the HP Latex 64 Plus Cutter and the HP Latex 630 Print and Cut Plus Solution or HP Latex 630 W Print and Cut Plus Solution.

Optional accessories

- HP Latex Media Feed Accessory
- HP Latex 630/700/800 Media Loading Accessory
- HP Latex 630/700/800 User Maintenance Kit
- HP Latex 630 Output Platen Protector Accessory

Optional accessories for Print and Cut

- HP Latex Standard Blade Kit
- HP Latex Specialty Blade Kit

Consumables

- HP 836 Latex Printheads
- HP 836 Optimizer Latex Printhead
- HP 836 White Latex Printhead (630W only)
- HP 832 Latex Eco-Carton Ink Cartridges
- HP 832 Ink Mix Container (630W only)
- HP Latex Maintenance Cartridge

Documentation

Full documentation is available for your product.

The following documents can be downloaded from http://www.hp.com/go/latex630/manuals/:

- Introductory information
- Site preparation guide
- Printer assembly instructions

- User guide (this document)
- Legal information
- Limited warranty

The Quick Response (QR) code images in some parts of this guide provide links to additional video explanations of particular topics. For example, you can find examples of such images in Customer Self-Repair parts on page 179.

Safety precautions

Before using your printer, read, understand, and follow these safety precautions, and your local Environmental, Health, and Safety regulations.

This equipment is not suitable for use in locations where children are likely to be present. For any maintenance or part replacement, follow the instructions provided in HP documentation to minimize safety risks and to avoid damaging the printer.

General safety guidelines

Please read these safety guidelines carefully.

There are no operator-serviceable parts inside the printer except those covered by HP's Customer Self Repair program: see http://www.hp.com/go/selfrepair. Refer servicing of other parts to qualified service personnel.

Turn off the printer and call your service representative in any of the following cases:

- A power cord or plug is damaged.
- The curing enclosures are damaged.
- The printer has been damaged by an impact.
- There is any mechanical or enclosure damage.
- Liquid has entered the printer.
- There is smoke or an unusual smell coming from the printer.
- The printer has been dropped or the curing module has been damaged.
- The printer is not operating normally.

Turn off the printer 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 of curing zones, curing driver and built-in power supply operate at hazardous voltages capable of causing death or serious personal injury.

The printer uses two power cords. Unplug both power cords before servicing the printer.

To avoid the risk of electric shock:

- The printer must be connected to earthed mains outlets only.
- Do not attempt to dismantle the curing modules.
- Do not remove or open any closed system covers or plugs.
- Do not insert objects through slots in the printer.

Heat hazard

The drying and curing subsystems of the printer operate at high temperatures and can cause burns if touched.

Printzone lights, 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.
- Take special care when accessing the substrate path.
- Take special care with zones marked with warning labels.
- Do not place objects covering Printzone lights, beam and enclosures.
- Do not attempt to modify Printzone lights, beam and enclosures;
- Remember to let the printer cool down before performing some maintenance operations.

Fire hazard

The curing subsystems of the printer operate at high temperatures.

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

- Check that the power supply meets the requirements specified in the site preparation guide.
- Connect the power cords to dedicated lines, each protected by a branch circuit breaker according to the rating of the wall socket. Do not use a power strip (relocatable power tap) to connect the power cords.
- Do not use aerosol products that contain flammable gases inside or around 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 insert objects through slots in the printer.
- Do not use the printer in an explosive atmosphere.
- Do not use a damaged power cord. Do not use the power cords with other products.
- Do not block or cover the openings of the printer.
- Ensure that the operating temperature of the substrate, as recommended by its 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). If this information is not available, printing must be supervised at all times. See note below.

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.

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:

- 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.
- Ensure that nobody else is close to the printer while loading substrate.
- Ensure that the carriage has stopped in the service station before you open the front window or the carriage door.

Light radiation hazard

Light radiation is emitted from the illumination of the print zone.

This illumination is 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 LEDs while they are on. Do not modify the module.

Chemical hazard

Safety data sheets are available.

See the safety data sheets available at http://www.hp.com/go/msds to identify the chemical ingredients of your consumables. Sufficient ventilation needs to 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 included in the site preparation guide, available at: http://www.hp.com/go/latex630/manuals.

Ventilation

Fresh air ventilation is needed to maintain comfort levels.

Ventilation should meet local environmental, health, and safety (EHS) guidelines and regulations. Follow the ventilation recommendations in the site preparation guide.

NOTE: The ventilation units should not blow air directly onto the printer.

Air conditioning

In addition to fresh air ventilation to avoid health hazards, consider also maintaining workplace ambient levels by ensuring the climatic operating conditions (specified in the user guide) to avoid operator discomfort and equipment malfunction. Air conditioning in the work area should take into account that the printer produces heat.

Typically, the printer's power dissipation is 1.8 kW (6.1 kBTU/h).

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

NOTE: The air-conditioning units should not blow air directly onto the equipment.

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.
- Consider using a forklift, pallet truck, or other handling equipment.
- When handling heavy substrate rolls, wear personal protective equipment including boots and gloves.
- Use the loading accessories (loading-table extension and lifter) when you load substrate rolls.

Ink handling

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

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 printer.

Warning labels

You will find labels with safety advice on various parts of your printer.

Table 1-1 Warning labels

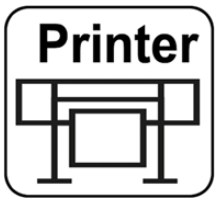
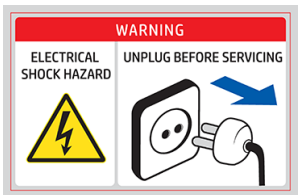
Label	Explanation
	Printer label. To identify the printer's power cord.
	Curing label. To identify the curing power cord.
	Electric shock hazard. Heating modules operate at hazardous voltages. Disconnect power source before servicing. CAUTION: Double pole. Neutral fusing. Equipment to be connected to earthed mains outlet only. Refer servicing to qualified service personnel. Disconnect all power cords before servicing. No operator serviceable parts inside the printer. Before starting, read and follow the operating and safety instructions. This label is located on the e-box.
	Risk of burns. Do not touch the curing zone or the output platen of the printer: they could be hot. This label is located on the front of the curing module and on the bottom part of the output platen.
	You are recommended to wear gloves when handling the maintenance cartridge, the platen, and the condensation system components. This label is located on the maintenance cartridge.
	Warning: Electric shock hazard. Disconnect all power sources before servicing. This label is located on the curing control PCA fan system and on the deflector on the curing perforated plate. For service personnel only.

Table 1-1 Warning labels (continued)

Label	Explanation
	Electric shock hazard. The printer has two input power cords. Power supplies operate at hazardous voltages. Disconnect all power cords before servicing. This label is located internally, close to the print-zone heating-coils enclosure between fans. For service personnel only.
	Hazardous moving parts. Rotating fan blades. Keep hands clear. These labels are located internally, close to the print-zone fan, and on each side of the curing fans cover. For service personnel only.
	Hazardous moving parts. Keep hands clear. This label is located on the front-window profile, visible with the window open.
	Crush hazard. Keep fingers away from moving or falling parts. This label is located on the substrate lifter.

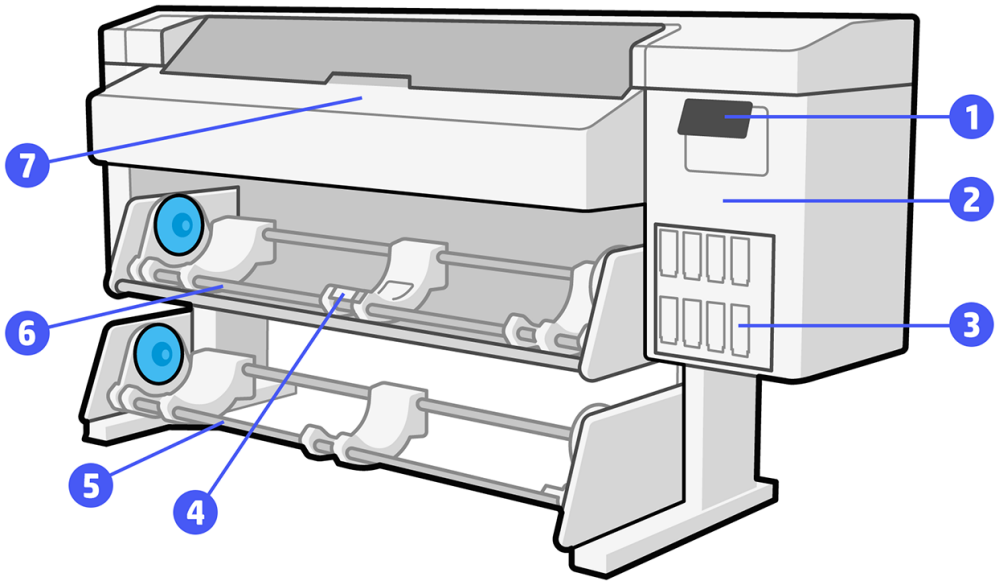
NOTE: The final position of the label and its size on the printer may vary slightly, but it should always be visible and close to the potential risk area.

Main printer components

These views of the printer illustrate its main components.

Front view (630)

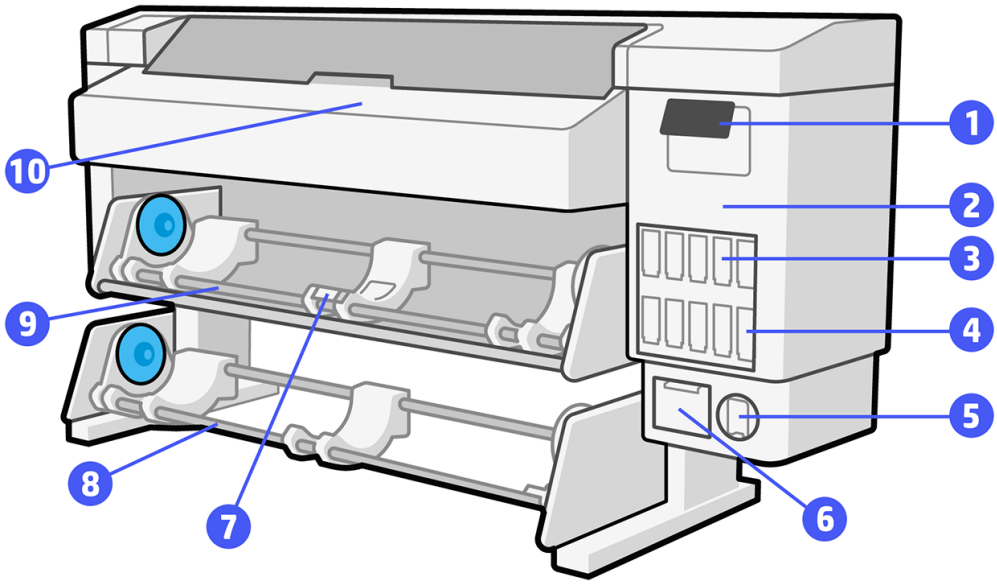
Parts of the printer visible from the front.



1. Control panel (upper right)
2. Maintenance cartridge door (middle right)
3. Eco-Carton ink cartridge (lower right)
4. Substrate lifting mechanism (middle center)
5. Take-up reel (lower center)
6. Loading table (middle center)
7. Curing module (upper center)

Front view (630W)

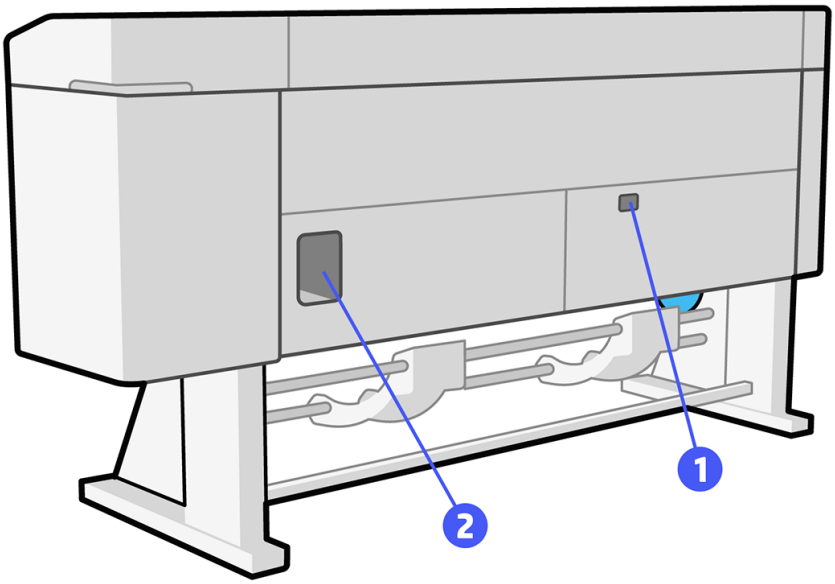
Parts of the printer visible from the front.



1. Control panel (upper right)
2. Maintenance cartridge door (middle right)
3. Eco-Carton ink cartridge (lower right)
4. Ink mix container (lower right)
5. White printhead storage system (lowest rightmost)
6. Water tank (lowest right)
7. Substrate lifting mechanism (middle center)
8. Take-up reel (lower center)
9. Loading table (middle center)
10. Curing module (upper center)

Rear view (630)

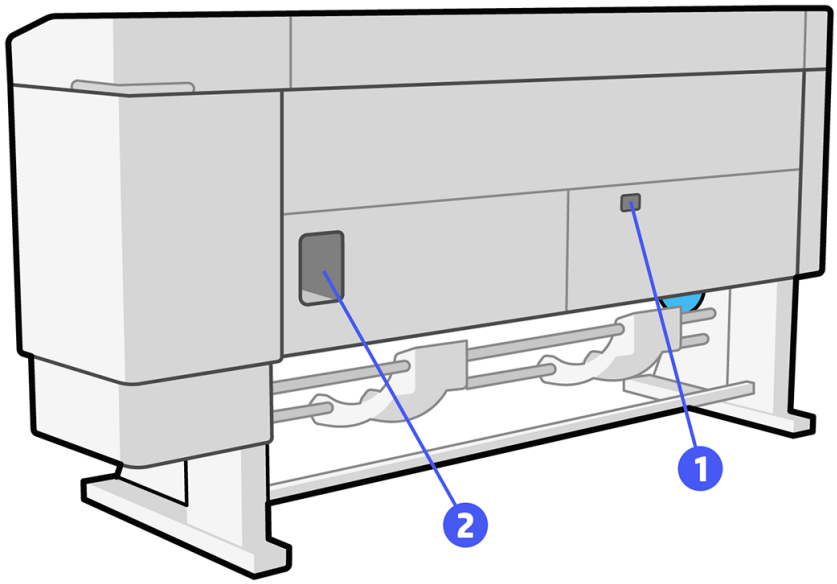
Parts of the printer visible from the rear.



1. Power switch and power sockets (lower right)
2. Sockets for communication cable, USB devices, and optional accessories (lower left)

Rear view (630W)

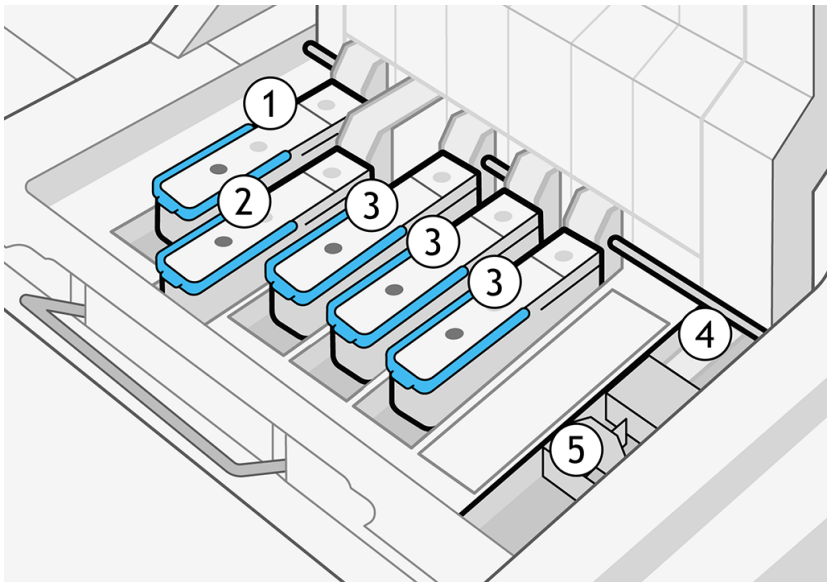
Parts of the printer visible from the rear.



1. Power switch and power sockets (lower right)
2. Sockets for communication cable, USB devices, and optional accessories (lower left)

Carriage view (630)

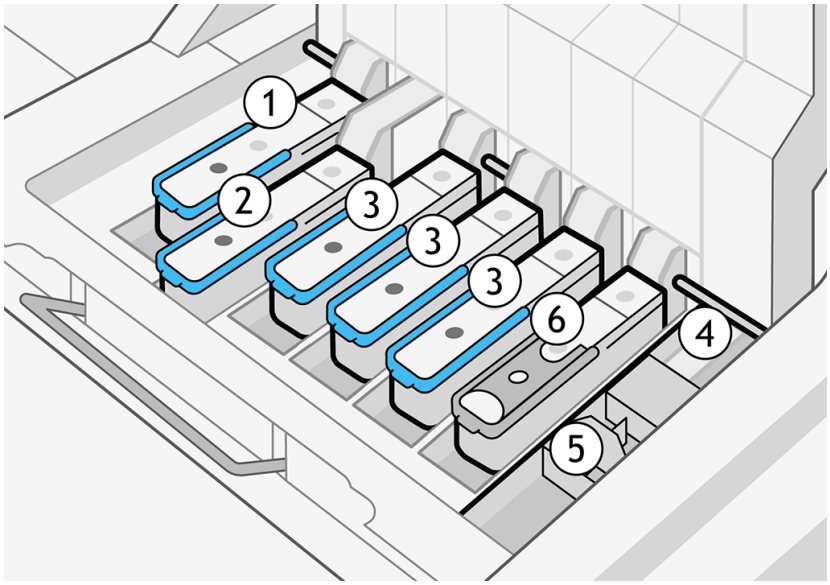
Parts of the printer visible inside the carriage.



1. Optimizer printhead (leftmost)
2. Overcoat printhead (left)
3. Color printheads (center)
4. Encoder sensor (rear right)
5. Line sensor (front right)

Carriage view (630W)

Parts of the printer visible inside the carriage.



1. Optimizer printhead (leftmost)
2. Overcoat printhead (left)
3. Color printheads (center)
4. Line sensor (right)
5. Encoder sensor (rear right)
6. White printhead (rear rightmost)

Control panel

The control panel is a touch-sensitive screen with a graphical user interface.

Introduction to the control panel

The control panel is located on the front right of the printer.

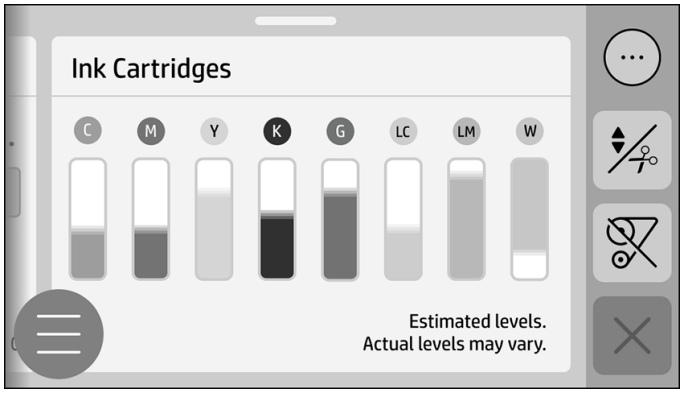
It gives you complete control of your printer: from the control panel, you can view information about the printer, change printer settings, perform calibrations and tests, and so on. The control panel also displays alerts (warning and error messages) when necessary.

When no substrate is loaded, the control panel displays a **Load** button. However, you can load substrate just by feeding it into the printer, without needing to tap the button.

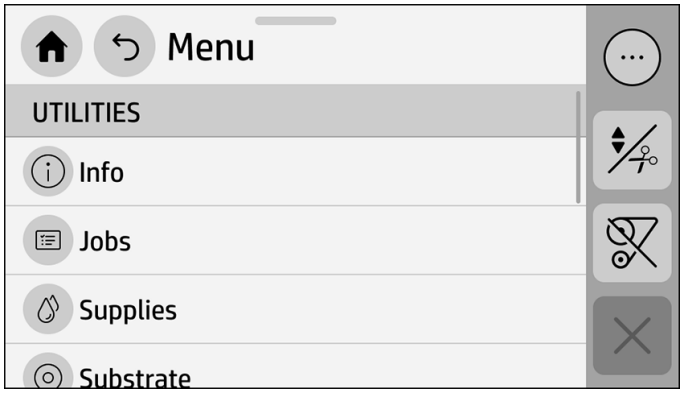
When substrate is loaded, the control panel displays information on the loaded substrate, and an **Unload** button.

When the printer is printing, the control panel displays details of the current job. If you tap the thumbnail or the job information, it displays the job queue.

You can see a summary of the status of the Eco-Carton ink cartridges by sliding your finger across the screen towards the left. You can reach the supplies menu by tapping this cartridge-status summary.



If you tap the menu icon , a menu of options is displayed.



Change the language of the control panel

You can change the language that is used for the control-panel menus and messages.

Go to the control panel and tap the menu icon , then **Settings** > **General** > **Display** > **Language**.

The language selection menu should now appear on the control panel.

Tap the name of your preferred language.

Change the sleep mode setting

If the printer is left turned on but unused for a certain period of time, it automatically goes into sleep mode to save power.

To change the time the printer waits before it goes into sleep mode, go to the control panel and tap the menu icon , then **Settings** > **General** > **Energy** > **Sleep** > **Sign in** > **Select time**. Enter the wait time that you want, from 5 to 60 minutes, then tap **OK**.

Change the loudspeaker volume

You can change the loudspeaker volume from the control panel.

To change the volume of the printer's loudspeaker, go to the control panel and tap the menu icon , then **Settings** > **General** > **Display** > **Volume**, and move the slider up or down.

Change the control-panel display brightness

You can change the brightness of the control-panel display.

To change the brightness of the display, tap the menu icon , then **Settings** > **General** > **Display brightness**, then select a value by moving the scroll bar. Tap **OK** to save the value.

Change the units of measurement

You can change the units of measurement displayed on the control panel.

Tap the menu icon , then **Settings** > **General** > **Units**, then select **English** or **Metric**.

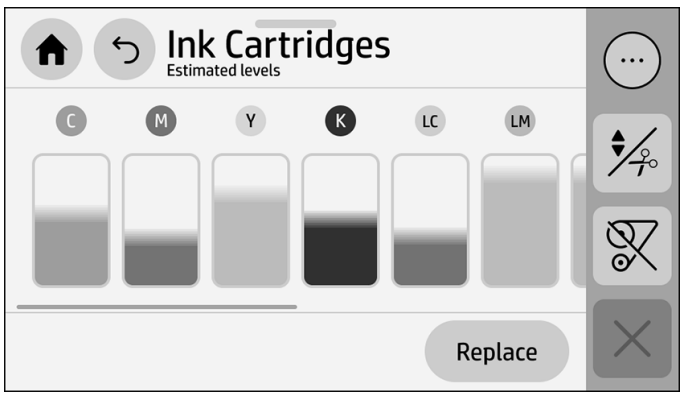
Check printer status

The control panel displays the status of the printer, the loaded substrate, and the ink system.

Check the status of the Eco-Carton ink cartridges

You can check the status of the ink cartridges from the control panel.

To see on the control panel the ink levels in your Eco-Carton ink cartridges, slide your finger leftwards across the home screen, or tap the menu icon , then **Supplies** > **Cartridges**.



For more details about any particular ink cartridge, tap the rectangle representing that cartridge. The following information is shown:

- Status
- Estimated ink level
- Warranty status
- Manufacturer
- Capacity
- Product name
- Product number
- Serial number
- Expiration date
- Supported ink cartridges

These are the possible ink cartridge status messages that you can see on the control panel:

- **At end of life** (white ink only): The ink mix container has reached the end of its useful life and should be replaced.
- **Depleted:** The cartridge is empty.
- **Expired:** The cartridge's expiration date has passed.
- **Incompatible:** The cartridge is not compatible with this printer. The message includes a list of compatible cartridges.
- **Low:** The ink level is low.
- **Missing:** There is no cartridge present, or it is not correctly connected to the printer.
- **Near end of life** (white ink only): The ink mix container is near the end of its useful life and will need to be replaced soon.

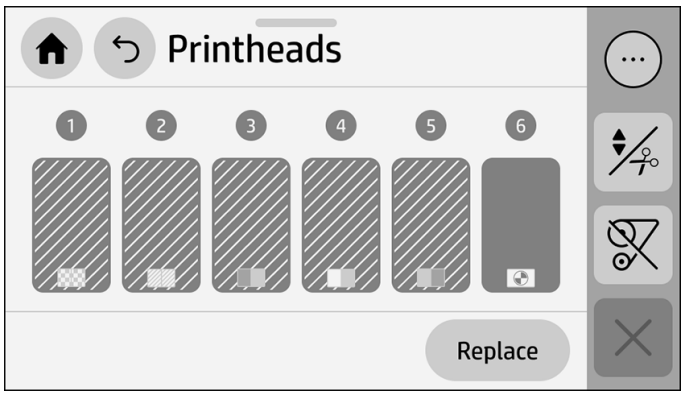
  You may want to have a replacement available to install when the ink mix container reaches the end of its useful life and needs to be replaced.
- **OK:** The cartridge is working normally, with no known problems.
- **Replace:** You are recommended to replace the cartridge with a new cartridge.
- **Reseat:** You are recommended to remove the cartridge, shake it, then reinsert it.
- **Used or counterfeit:** These cartridges are not Original HP cartridges. Using them may cause severe damage to your printer or printhead and slow down its performance. HP suggests canceling this process.
- **Very low:** The ink level is very low.
- **White ink in the ink mix container:** To transfer the ink, go to the **Supplies** menu and start the replacement process.

Check the status of a printhead

The printer automatically checks and services the printheads before and after each print.

Follow these steps to get more information on your printheads.

1. Go to the control panel and tap the menu icon , then **Supplies** > **Printheads**.



2. Select the printhead for which you want to see information.
3. The control panel shows the following information:
   - Status
   - Warranty status
   - Product name
   - Product number
   - Serial number
   - Ink fired
   - Install date

These are the possible printhead status messages that you can see on the control panel:

- **Incompatible:** The indicated printheads are not intended for use in this printer.
- **Missing:** There is no printhead present, or it is not correctly installed in the printer.
- **Non-HP ink:** Ink from a used, refilled, or counterfeit ink cartridge has passed through the printhead. See the limited warranty document provided with your printer for details of the warranty implications.
- **OK:** The printhead is working normally, with no known problems.
- **Remove:** The printhead is not a suitable type for use with your printer.
- **Replace:** The printhead is failing. Replace the printhead with a working printhead (see Replace a printhead on page 140).
- **Replacement incomplete:** The printhead replacement process has not completed successfully; restart the replacement process and let it finish completely.

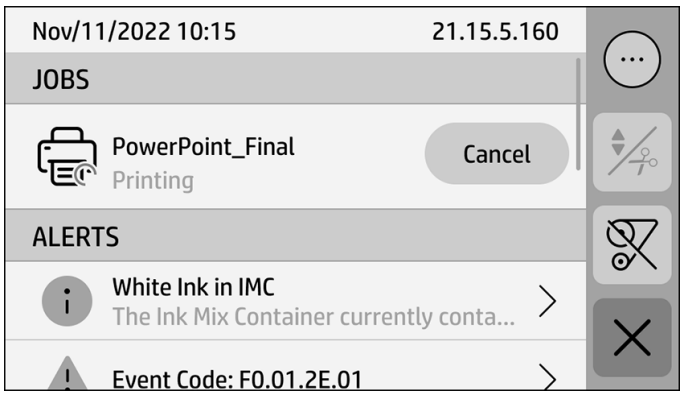
- **Reseat:** You are recommended to remove the printhead and then reinsert it. If that fails, clean the electrical connections (see Clean the electrical connections on a printhead on page 165). If that fails, replace the printhead with a new printhead (see Replace a printhead on page 140).

Printer alerts

The printer can communicate three types of alerts on the control panel: errors, warnings, and advice.

- **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.
- **Advice:** When a firmware update is available or the downloaded firmware is ready to be installed.

If you tap the notification bar, all the current printer alerts are shown. The list of alerts can be folded back by tapping or sliding up the bottom row of the list.



Clicking an alert opens the application that could help to resolve it. Firmware update advice is dismissed when entering the Printer application. Once dismissed, there will not be any reminder later on about the same advice (in the case of firmware updates, a new notification appears when there a new firmware release becomes available).

An alert may require you to perform a maintenance operation; see Printer maintenance on page 163.

The following alerts require a service engineer:

- **Belt & tensioner replacement**
- **Carriage bearings replacement**

- **Curing heater fans replacement**
- **Curing modules cleaning** (alternatively, this can be done by anyone who has obtained an appropriate certification)
- **Encoder strip replacement**
- **Flex cables replacement**
- **PH cleaning roll motor replacement**
- **Pinchwheel module replacement**
- **Recirculation cover replacement**
- **Rod slider replacement**
- **SAX cluster gear replacement**
- **SAX motor replacement**
- **Service station motor replacement**
- **Spit roller motor replacement**

Printer status

There are various kinds of printer status: Printer cluster status, Up next cluster status, On hold job status, and History job status.

Printer cluster status

This status can have the following values, shown in this order:

1. **Preparing to print**
2. **Printing** (including **Remaining time** in the status box)
3. **Curing**
4. **Drying**
5. **Paused**
6. **Canceling**

A status line in a job whose status is **Canceling** will appear in grey.

Up next cluster status

This status can have the following values, shown in this order:

1. **Waiting to process**
2. **Processing**
3. **Ready to print**

On hold job status

This status can have the following values, shown in chronological order, with the latest at the top:

- **On hold for substrate mismatch**
- **On hold for supplies mismatch**
- **On hold for recovery**
- **On hold for manual release**

History job status

This status can have the following values, shown in chronological order, with the latest at the top:

- **Completed**
- **Canceled**
- **Failed**

Check lifetime usage statistics

You can check the printer's usage statistics from the control panel.

Tap the menu icon , then **Tools** > **Reports** > **Ink usage**.

NOTE: The accuracy of the usage statistics is not guaranteed.

HP PrintOS

HP PrintOS is a Web-based operating system for your business—an open and secure cloud-based platform.

It drives productivity and inspires innovation with a unique suite of apps that deliver greater visibility while also simplifying production processes.

Signing up is the first step to enjoy the benefits of the completely new HP PrintOS, your cloud-based print-production operating system. If you need help to connect your printer to HP PrintOS, see this article.

PrintOS advantages

- **Get visibility over your fleet production**

  Stay on top of production even when you're away from your printer, and get data-driven insights for better decision-making and continuous improvements.

- **Easily configure your substrates remotely**

  Find and deploy substrate presets from your desktop. Substrate library backups are done automatically, allowing you to restore substrate configurations on demand.

- **Upskill your capabilities with learning resources**

Learn how to get the most out of your printer with short videos and digital training on topics such as printer tasks and troubleshooting, and guided application walkthroughs.

PrintOS solutions

- **Print Beat:** Remotely monitor your printer, receive alerts on production changes, access printer status and accounting information, and make effective data-driven decisions to keep improving your operations.
- **PrintOS mobile app:** Monitor your printer remotely anytime and anywhere directly from your mobile device.
- **Configuration Center:** Remotely configure your large-format printer from any location by managing, accessing, and deploying all of your printer's substrate configuration from a single place, to simplify and balance your print operations.
- **Learn:** Learn how to get the most out of your printer with training and short videos on tasks and troubleshooting, and step-by-step application walkthroughs.
- **Service Center:** Access all service activities directly from a single portal, providing you with quick, efficient, and reliable management of service cases.

PrintOS offers three additional premium solutions, available for Professional Print Service Plan (PPSP) Plus subscribers:

- **HP Print Beat – Live Production:** Always know where your jobs are thanks to visual representations of your printer status and job queues, so that you can understand the past, current, and future production that make up your daily workflow.
- **HP Print Beat – Jobs API:** Export your printer and production data to your preferred MIS and ERP solution.
- **HP Learn – Premium training catalogue:** Upskill and grow your business with advanced training content, such as in-depth application videos and recorded webinars, with subtitles available in 12 supported languages.

For more information on the Professional Print Service Plans, see https://www.hp.com/us-en/printers/large-format/professional-print-service-plans.html?jumpid=va_1c157ef8a5 .

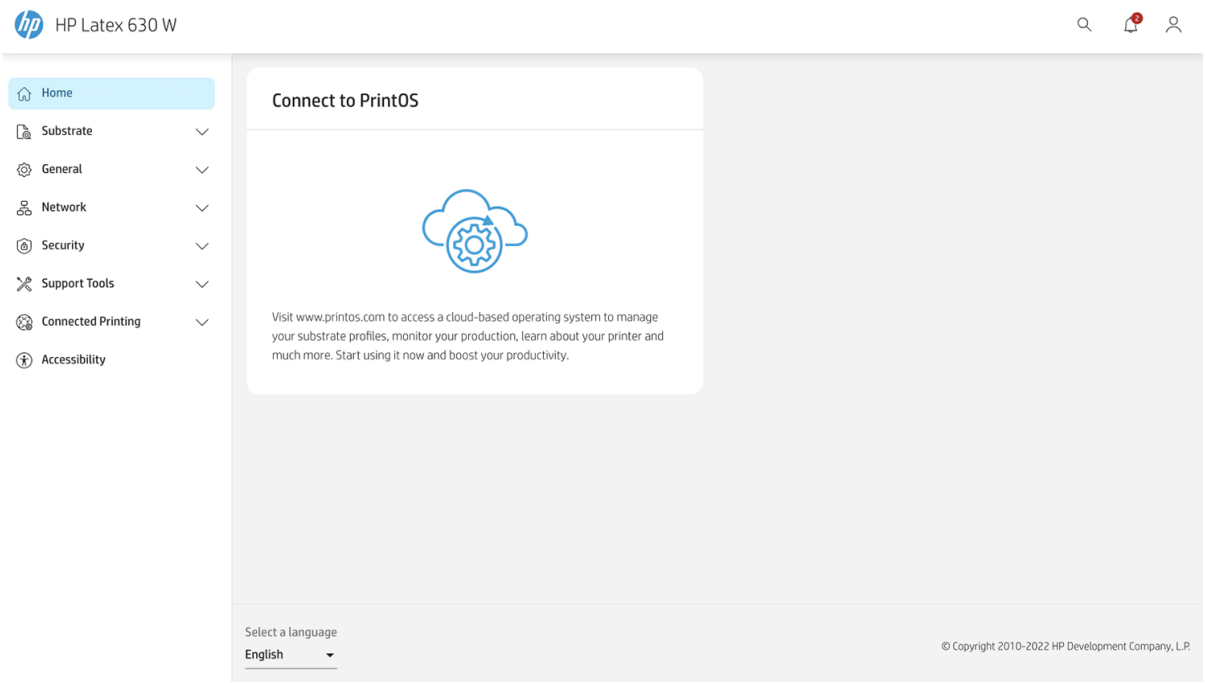
Embedded Web Server

The Embedded Web Server is a Web server running inside the printer.

Introduction to the Embedded Web Server

You can use it to obtain printer information, manage settings and presets, and upload new firmware. Service engineers can use it to retrieve internal information that helps to diagnose printer problems.

You can access the Embedded Web Server remotely by using an ordinary Web browser running on any computer.



Access the Embedded Web Server

To use the Embedded Web Server, open your Web browser and enter the printer's IP address in the browser's address bar.

You can find your printer's IP address in the printer's control panel: tap the menu icon , then **Info** > **Connectivity**.

NOTE: Your browser may display a security warning when you enter the IP address. If you have entered the correct address, it is safe to ignore the warning and continue to access the Embedded Web Server.

If you follow these instructions but fail to open the Embedded Web Server, see Cannot access the Embedded Web Server on page 190.

The following browsers are known to be compatible with the Embedded Web Server.

Table 1-2 Compatible Web browsers

Browser	Supported versions
Chrome	Latest
Firefox	Latest and Extended Support Release (ESR)
Edge	Two most recent major versions
Safari	Two most recent major versions
iOS	Two most recent major versions
Android	Two most recent major versions

Change the language of the Embedded Web Server

The Embedded Web Server can function in any of the following languages: English, Portuguese, Spanish, Catalan, French, Dutch, Italian, German, Swedish, Polish, Russian, Simplified Chinese, Traditional Chinese, Korean, and Japanese.

You can select the default language of the Embedded Web Server from the **General** > **Language** menu.

The default language options are:

- Use the device language.
- Use the browser language.
- Select a language from a list.

If the Embedded Web Server cannot support the selected language, it uses the language chosen in your printer. If it cannot support that language either, it uses English.

To change the language, change your browser's language setting. To complete the change, close and reopen your browser.

View or set the date and time

You can view or set the printer's date and time in the Embedded Web Server.

Click **General** > **Date and time**.

Embedded Web Server security settings

In the Embedded Web Server, you can change the administrator password that controls access to the Embedded Web Server and the printer's control panel.

To do this, click **Security** > **Password settings**.

The administrator can create new printer user accounts and assign them specific permissions depending on their role, by clicking **Security** > **Access control**.

Other security settings that apply to all users are available by clicking **General security** or **Printer features**.

Connectivity and software instructions

Information regarding network connection and configuration, internet connection, and installation of RIP software.

Connection method

Your printer can be connected in the following way.

Table 1-3 Connection method

Connection type	Speed	Maximum cable length	Other factors
Gigabit Ethernet	Fast; varies according to network traffic	Long (100 m=328 ft)	Requires extra equipment (switches)

NOTE: The speed of any network connection depends on all the components that are used in the network, which can include network interface cards, hubs, routers, switches, and cables. If any one of these components cannot operate at high speed, you will have a low-speed connection. To get the expected performance from your printer, you should use equipment that supports 1000TX Full Gigabit. The speed of your network connection can also be affected by the total amount of traffic from other devices on the network.

Connect the printer to your network

The printer can configure itself automatically for most networks, in a similar way to any computer in the same network.

The first time you connect it to a network, this process may take a few minutes. If necessary, see Advanced network configuration on page 25.

Once the printer has a working network configuration, you can check its network address from the control panel: tap the menu icon , then **Info** > **Connectivity**.

Network configuration

You can review or manually change the current network configuration.

For more details about the current network configuration, go to the control panel and tap the menu icon , then **Settings** > **Network** > **Ethernet**. From here it is possible, though not normally necessary, to change the settings manually. This can also be done remotely using the Embedded Web Server: click **Network** > **Primary Ethernet** > **IP config**.

TIP: You may find it helpful to print out the full printer network configuration on paper. This can be done from the Embedded Web Server: tap **Support tools** > **Reports and pages**, and choose a relevant page to print. Alternatively, consider making a note of the printer's IP address and network name.

If you accidentally misconfigure the printer's network settings, you can restore the network settings to their factory values from the control panel: tap the menu icon , then **Settings** > **Network** > **Restore network settings**. The printer's other settings remain unchanged.

Using IPv6

Your printer supports almost all network connectivity features using IPv6, just as it does using IPv4.

To make full use of IPv6, you may need to connect your printer to an IPv6 network in which there are IPv6 routers and servers.

In most IPv6 networks, the printer will configure itself automatically as follows, and no user configuration is necessary:

1. The printer assigns itself a link-local IPv6 address (which starts with "fe80::").

2. The printer assigns itself stateless IPv6 addresses as indicated to it by any IPv6 routers on the network.

3. If no stateless IPv6 addresses can be assigned, the printer will try to obtain IPv6 addresses using DHCPv6. It will also do so if the routers instruct it to do so.

The stateless and DHCPv6 IPv6 addresses can be used to access the printer, and in most IPv6 networks this will be appropriate.

The link-local IPv6 address works only in the local subnet. Although it is possible to access the printer using this address, it is not recommended.

It is possible to assign a manual IPv6 address to the printer, using the control panel or the Embedded Web Server. It is also possible to disable IPv6 completely in the printer.

NOTE: In typical IPv6 use, your printer will have multiple IPv6 addresses, although it has only one IPv4 address.

TIP: You are recommended to give a name to the printer. You can do this from the control panel or (more easily) from the Embedded Web Server.

TIP: You will generally find it easier to use IPv4 unless you have a specific need to use IPv6.

Microsoft Windows Vista, Microsoft Windows Server 2008, later versions of Windows, and the new HP Printing and Imaging devices have IPv6 enabled by default.

Connect the printer to the Internet

An Internet connection is needed for various printer functions described in this guide.

To troubleshoot Internet connectivity issues, use the Embedded Web Server: tap **Support tools** > **Report and pages** > **Web access test report**.

RIP software installation

Install the RIP software by following the instructions provided with the software.

RIP software uses the following ports for printer communication and job submission, so you must ensure that your RIP host system can connect to them: 80 and 9100.

Advanced network configuration

You will probably not need to read this section, but the information is provided as it may be useful in some cases.

The printer provides a single RJ-45 connector port for a network connection. In order to meet Class B limits, the use of shielded I/O cables is required.

The embedded Jetdirect print server supports connection to IEEE 802.3 10Base-T Ethernet, IEEE 802.3u 100Base-TX Fast Ethernet and 802.3ab 1000Base-T Gigabit Ethernet compliant networks. When connected and powered on, the printer auto-negotiates with your network to operate with a link speed of 10, 100, or 1000 Mbps, and to communicate using full- or half-duplex mode. However, you can manually configure the link using the printer's control panel, or through other configuration tools once network communication is established.

The printer can support multiple network protocols simultaneously, including TCP/IPv4 and TCP/IPv6. For security, it includes features to control IP traffic to and from the printer.

Verify correct operation

The procedure described will guide you through how to verify correct operation of the print server.

1. Print an IO Configuration page to check for status messages.
2. In the upper section of the IO Configuration page, look for the status message **I/O Card Ready**.
3. If **I/O Card Ready** appears, the print server is operating properly. Proceed to the next section.

   If a message other than **I/O Card Ready** appears, try the following:

   a. Turn the printer off and then on again to re-initialize the print server.

   b. Check that the status indicator lights (LEDs) are providing proper status.

   > NOTE: See Troubleshooting on page 26 for link configuration and troubleshooting information.

See the *HP Jetdirect Print Servers Administrator's Guide* for your print server model to interpret and troubleshoot other messages.

Preconfigure network settings if required

If your network requires that you configure network settings before you add the printer to your network systems, you can do so now.

However, in most cases, you can skip this section. Instead, you can proceed directly to the next section to install the printer on your network computer systems. The network installation software will allow you to configure basic network settings and add the printer to your system configuration.

Tools for preconfiguration

The tools listed here can be used to preconfigure your network settings.

- The control panel
- The Embedded Web Server
- You can use an advanced configuration method, such as BootP, DHCP, Telnet, or the arp and ping commands. For instructions, see the *HP Jetdirect Print Servers Administrator's Guide* for your print server model.

After the printer is configured with network settings, the configuration values are saved and maintained even after it is turned off and on again.

Troubleshooting

Information regarding I/O configuration page, LEDs, and link troubleshooting.

IO Configuration page

The IO Configuration page provides comprehensive print server status.

It is an important diagnostic tool, especially if network communications are not available. For a description of messages that may appear on the IO Configuration page, see the *HP Jetdirect Print Servers Administrator's Guide* for your print server model.

LEDs

The printer has status lights (LEDs) that indicate the link status and network activity.

- When the green light is on, the printer has successfully linked to the network.
- When the yellow light is blinking, there is network transmission activity.

Link troubleshooting

If the printer does not successfully connect to the network, you will see the following signifiers.

- Both LEDs will be off.
- **LAN Error - Loss of Carrier** will be indicated on the IO Configuration page.

If a link failure is indicated, try the following:

- Check cable connections.
- Print an IO Configuration page and check link settings.

Table 1-4 **Items**

Item	Description
Port Config	If the printer is properly linked, this item has one of the following values: • **10BASE-T HALF**: 10 Mbps, half-duplex • **10BASE-T FULL**: 10 Mbps, full-duplex • **100TX-HALF**: 100 Mbps, half-duplex • **100TX-FULL**: 100 Mbps, full-duplex • **1000TX FULL** If the printer is not properly linked, one of the following messages will appear: • **UNKNOWN**: The printer is in an initialization state. • **DISCONNECTED**: A network connection has not been detected. Check network cables. Reconfigure the link settings, or restart the printer.
Auto Negotiation	Indicates whether auto-negotiation for link configuration is on or off. • **ON** (default): The printer will attempt to automatically configure itself onto the network at the proper speed and communication mode. • **OFF**: You must manually configure the link speed and communication mode using the control panel. Your settings must match those of the network for proper operation.

Reset network parameters

Network parameters (for example, the IP address) can be reset to factory default values by a cold reset: turning the printer off and on again.

After a cold reset, print an IO Configuration page to confirm that factory-reset values have been assigned.

⚠ **CAUTION:** A factory-installed HP Jetdirect X.509 certificate will be saved over a cold reset to factory default values. However, a Certificate Authority (CA) certificate that has been installed by the user to validate a network authentication server will not be saved.

Menu items

This section provides a full reference of network menu items.

Table 1-5 Network menu items

Submenu	Tab	Card	Element	Value	Description
Network summary		Wired (802.3)	Status	Connected	
			IP address	15.83.5.39	
			IPv6 address	123e:324e:435a:657c::	
			Prefix length	64	
			Config by	Link-local/Router	
Network settings	Services	Print services	9100 printing	TOGGLE	The printer supports raw IP printing through TCP port 9100. This TCP/IP port on the printer is the default port for printing.
		Device discovery	SLP	TOGGLE	Service Location Protocol (SLP) is an Internet standard network protocol that provides a framework to allow networking applications to discover the existence, location, and configuration of networked services in enterprise networks. This protocol simplifies the discovery and use of network resources such as printers, Web servers, fax machines, video cameras, file systems, backup devices (tape drives), databases, directories, mail servers, and calendars.
		Name resolution	LLMNR	TOGGLE	Link-Local Multicast Name Resolution (LLMNR) is a protocol based on the Domain Name System (DNS) packet format that allows both IPv4 and IPv6 hosts to perform name resolution for hosts on the same local link.
	Identification	Network identification	Hostname	HPIF180DA	An alphanumeric string, up to 32 characters, used to identify the device. This name is listed on the Network Configuration page. The default host name is HPIxxxxxx, where xxxxxx is the last six digits of the LAN hardware (MAC) address.
			Domain name (IPv4/IPv6)	bcn.rd.hpicorp.net	
			Domain name (IPv6 only)		
	IP settings	Internet protocols	Protocols	Both IPv4 and IPv6/IPv4 only/IPv6 only	To operate properly on a TCP/IP network, the device must be configured with valid TCP/IP network configuration parameters, such as an Internet Protocol (IP) address that is valid for your network. The device supports two versions of this protocol: version 4 (IPv4) and version 6 (IPv6). IPv4 and IPv6 can be enabled individually or simultaneously.

Table 1-5 **Network menu items (continued)**

Submenu	Tab	Card	Element	Value	Description
Network security	Firewall		Enable	TOGGLE	
			Default route	Drop	
			Enable failsafe firewall		The **Enable failsafe firewall** option ensures that HTTPS remains accessible even if it is blocked by the firewall policy. This allows administrators to test the policy without inadvertently locking themselves out of the device. It is recommended that the failsafe option be disabled after the policy has been successfully tested.
			TABLE RULES		
	Secure communication	Cyphers	...	TOGGLE	
		SSL/TLS protocols	Minimum protocol version	SELECT	
			Maximum protocol version	SELECT	
			EC curve version	SELECT	
Proxy settings	Proxy settings	Web proxy	Proxy type	None/Manual/ Configuration script	Specifies the proxy server to be used by embedded applications in the device. A proxy server is typically used by network clients for Internet access. It caches Web pages, and provides a degree of Internet security, for those clients. NOTE: If your local network has a proxy server, check that you have configured it correctly in your HP Latex network settings at the printer's control panel.
			Proxy server	0/127	To specify a proxy server, enter its IPv4 address or fully-qualified domain name. The name can be up to 255 octets. For some networks, you may need to contact your Independent Service Provider (ISP) for the proxy server address.
			Proxy server port	1-65535	Enter the port number used by the proxy server for client support. The port number identifies the port reserved for proxy activity on your network, and can be a value from 0 to 65535.
			Proxy URL	0/127	
			Authentication	None/Auto/Basic/Digest/NTLM	
			Proxy server username	0/127	
			Proxy server password	0/127	
			Proxy server exception list	0/127	
			Auto-detect	BUTTON	
			APPLY	BUTTON	

Table 1-5 **Network menu items (continued)**

Submenu	Tab	Card	Element	Value	Description
Primary Ethernet	IP config	IPv4 configuration	IP configuration method	DHCP/Auto-IP/Manual	Specifies the method by which TCP/IPv4 parameters will be configured on the HP Jetdirect print server. • **DHCP** (default): Use DHCP (Dynamic Host Configuration Protocol) for automatic configuration from a DHCPv4 server. If selected and a DHCP lease exists, **DHCP release** and **DHCP renew** menus are available to set DHCP lease options. • **Auto-IP**: Use automatic link-local IPv4 addressing. An address in the form 169.254.x.x is assigned automatically. • **Manual**: Use the **Manual settings** menu to configure TCP/IPv4 parameters.
			IP address	TEXTBOX	The unique IP address of the printer (n.n.n.n).
			Subnet mask	TEXTBOX	The subnet mask for the printer (n.n.n.n).
			Default gateway	TEXTBOX	The IP address (n.n.n.n) of the gateway or router used for communications with other networks.
			DHCPv4 FQDN RFC 4702 Compliance		
			DNS configuration method	Automatic/manual	
			Preferred DNS	TEXTBOX	Enter the IP address (n.n.n.n) of a primary Domain Name System (DNS) server.
			Alternate DNS	TEXTBOX	Enter the IP address (n.n.n.n) of a secondary DNS server.
		IPv6 configuration	DHCPv6	TOGGLE	If enabled, the print server always attempts to obtain its configuration from a DHCPv6 server.
			Manual address	TOGGLE	Use to enable manual configuration of TCP/IPv6 address.
			IP address	TEXTBOX	Enter a 32 hexadecimal digit IPv6 node address that uses the colon hexadecimal syntax.
			DNS method	Automatic	
			Preferred DNS	TEXTBOX	Enter an IPv6 address for a primary DNS server that the print server should use.
			Alternate DNS	TEXTBOX	Enter an IPv6 address for a secondary DNS server that the print server should use.
	Advanced		Link speed	10 Mb Full/100 Mb Full/100 Mb Half/1000 Mb Full/Automatic	

Table 1-5 **Network menu items (continued)**

Submenu	Tab	Card	Element	Value	Description
	Syslog	Syslog settings	Syslog	TOGGLE	
			Server	514	
			Port		
			Protocol		
			Severity		
			Facility		
	Timeout settings	Timeout settings	I/O timeout (seconds)	300	If data for a print job are delayed (due to network problems, for example), determine how many seconds the printer waits for the data before it cancels the print job.

Embedded services

Key networking services embedded in the printer are listed below.

- Configuration and Management
  - AutoIP/DHCP (IPv4 only)
  - DHCPv6
  - Web Proxy (Automatic/Manual cURL)
  - LLMNR
  - SNMP (v1, v2c) agents
  - Embedded Web Server, HTTP (TCP port 80)
  - Embedded Web Server, HTTPS (TCP port 443)
- Printing
  - Raw IP printing (HP-proprietary TCP ports 9100, 9101, 9102)
- Security
  - SNMP v3
  - SSL/TLS
  - Firewall

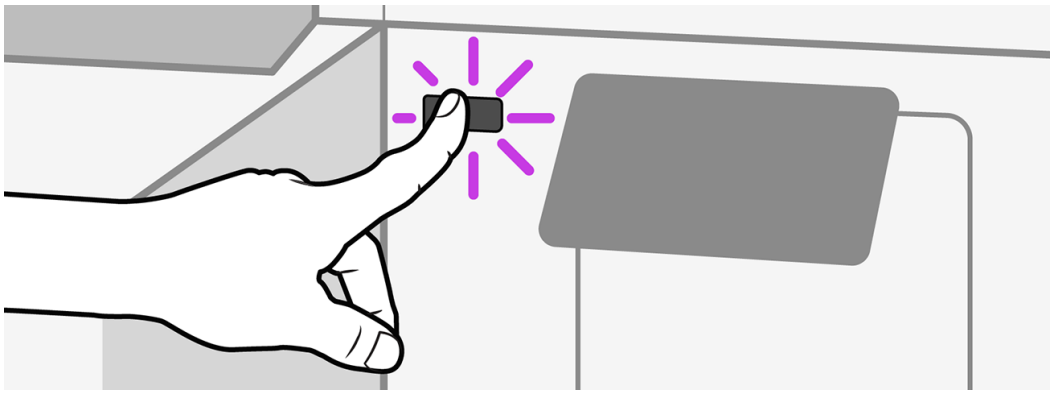
Turn the printer on and off

To turn on the printer, ensure that the power switch at the rear of the printer is turned on, then press the power button beside the control panel.

You can leave the printer on without wasting energy. Leaving it on improves response time. When the printer has not been used for a certain period of time, it saves power by going into sleep mode. Pressing

the power button or sending a print job from the RIP software returns it to active mode, and it can resume printing immediately.

To turn off the printer, the normal and recommended method is to press the power button, which is on the front of the printer, at the top right, to the left of the control panel.



When you turn off the printer in this way, the printheads are automatically stored with the maintenance cartridge, which prevents them from drying out.

IMPORTANT: The printer should never be turned off with the power switch at the rear.

For the HP Latex 630W, automatic white-ink maintenance cannot occur when the printer is completely turned off; and the white-ink printheads cannot survive for more than 8 hours without maintenance.

If you need to power-off the printer, see Store the printer on page 186.

Restart the printer

In some circumstances you may be advised to restart the printer.

1. Turn off the printer by pressing the power button and then turning off the power switch at the rear of the printer.

   IMPORTANT: Then wait for at least 10 seconds. Otherwise, the control panel, power button, and speaker may not work correctly.

2. Turn on the power switch at the rear of the printer.
3. If the control panel does not activate, press the power button.

How to print (overview)

The three steps described here provide a simple overview of the printing process.

1. Load the substrate. See Load a roll into the printer on page 39.

   The printheads are automatically aligned.

2. Perform color calibration. See Color calibration on page 95.
3. Send a job to the printer using your RIP software. See the RIP documentation.

2 Useful links

Visit the HP Latex Knowledge Center, where you can find detailed information about HP Latex products and applications, and use the forum to discuss anything related to them.

Visit the HP Latex Knowledge Center at http://www.hp.com/communities/HPLatex.

Product documentation: http://www.hp.com/go/latex630/manuals/

Videos about how to use the printer: http:/www.hp.com/supportvideos/ or http://www.youtube.com/HPSupportAdvanced

Information about software RIPs, applications, solutions, inks, and substrates: http://www.hp.com/go/latex630/solutions/

Substrate presets: http://www.hp.com/go/mediasolutionslocator (see HP Media Locator on page 80)

HP Support: http://www.hp.com/go/latex630/support/

Embedded Web Server: Use the printer's IP address (see Access the Embedded Web Server on page 22)

When you need help

In most countries, support is provided by HP support partners (usually the company that sold you the printer). If this is not the case in your country, contact HP Support on the Web as shown above.

Help is also available to you by telephone. What to do before you call:

- Review the troubleshooting suggestions in this guide.
- Review your RIP's documentation, if relevant.
- Please have the following information available:
  - The printer you are using: the product and serial numbers

    NOTE: This information is available from the control panel: tap the information icon . You may also find it on a label at the rear of the printer.
  - If there is an error code on the control panel, note it down; see System error codes on page 193
  - The RIP you are using, and its version number
  - If you have a print-quality problem: the substrate reference, and the name and origin of the substrate preset used to print on it.
  - The service information report (see Service information on page 34)

Telephone number

Your HP Support telephone number is available on the Web.

See http://welcome.hp.com/country/us/en/wwcontact_us.html.

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.

To request this list, go to the Embedded Web Server (see Access the Embedded Web Server on page 22). Select the **Printer management** tab and then **Service** > **Service information**. This will generate a diagnostic package containing all the information pages.

If you need to send the list by email, 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 email**.

3 Handle the substrate

Correct handling of substrates is essential for effective, risk-free printing.

Overview

You can print on a wide variety of printing materials, all of which are referred to in this guide as substrates.

Substrate tips

Choosing the correct substrate for your needs is an essential step in ensuring good print quality.

Here are some tips about substrate usage:

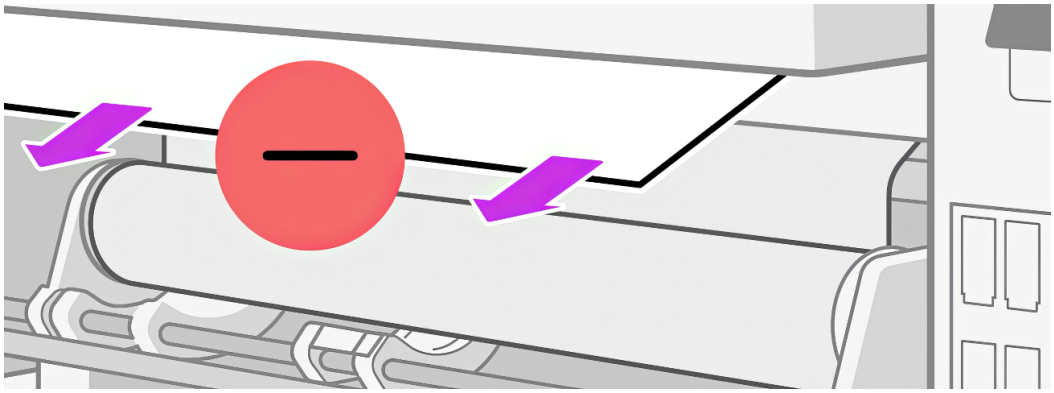
- Allow all substrates to adapt to room conditions, out of the packaging, for 24 hours before using them for printing.
- Handle film and photo substrates by the edges, or wear cotton gloves. Skin oils can be transferred to the substrate, leaving fingerprint marks.
- Keep the substrate tightly wound on the roll throughout the loading and unloading procedures. To make sure that the roll stays tightly wound, consider using tape to stick the leading edge of the roll to the core just before removing the roll from the printer. You can keep the roll taped during storage. If the roll starts to unwind, it can become difficult to handle.

NOTE: The use of tape to stick the leading edge of the roll to the core is especially important for heavy substrates, because the inherent stiffness of the substrate can cause it to loosen and unwind from the core.

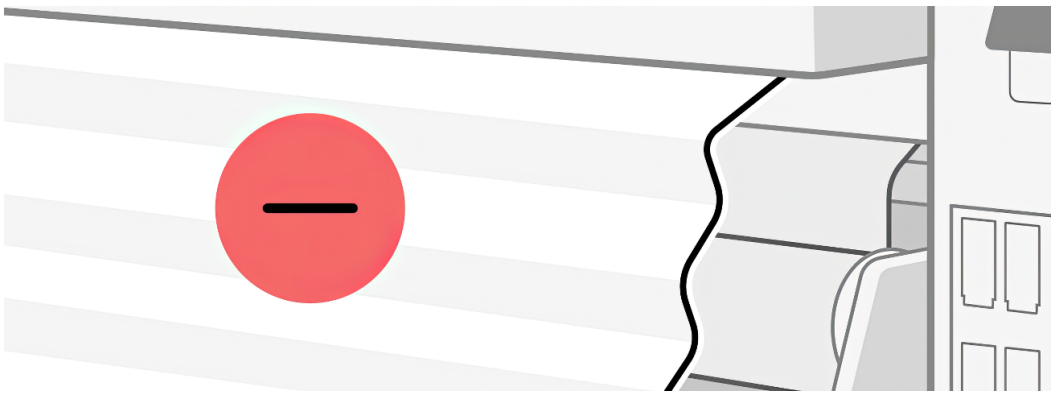
- Print quality could be impaired if you use a substrate that is unsuitable for your image.
- Make sure that the appropriate print-quality setting is selected in the RIP.
- Whenever you load a roll, the control panel prompts you to specify the substrate type that you are loading. For good print quality, it is essential to specify this correctly. Check that the substrate name is the same in the control panel and in the RIP.

  If the names are not the same, tap the substrate icon on the control panel, then **Substrate source**, then the ellipsis icon (···), then **Modify** > **Type**.

- Do not pull the printed substrate while the printer is printing: this can cause severe print-quality defects.



- When printing a series of jobs, do not let the printed substrate obstruct the output path: this can cause severe print-quality defects.



- HP recommends using the take-up reel for better control of the substrate, for all except very short jobs. See Take-up reel on page 64.
- For more substrate tips, see Load a roll into the printer on page 39 and Assisted manual load on page 53.

⚠ **CAUTION:** Removing the substrate from the printer manually without using the control panel could damage the printer. Do this only when necessary to clear a substrate jam.

Supported substrate categories

There are eight categories of substrate supported by your printer.

Table 3-1 Supported substrate categories

Substrate category	Generic substrate names
Self-adhesive vinyl	Generic Self-Adhesive Vinyl
	Generic Cast Self-Adhesive Vinyl
	Generic Backlit Self-Adhesive Vinyl
	Generic SAV Transparent

Table 3-1 Supported substrate categories (continued)

Substrate category	Generic substrate names
Banner	Generic Banner
	Generic Backlit Banner
	Generic PVC-Free Banner
Paper	Generic Uncoated Paper
	Generic Coated Paper
	Generic Backlit Paper
	Generic Blueback
Wallcovering	Generic Wallcovering Non-Woven Base
	Generic Wallcovering Woven Base
	Generic Wallcovering Paper Base
Film	Generic Polyester Film
	Generic Backlit Polyester Film
	Generic Polypropylene Film
	Generic Backlit Polypropylene Film
	Generic Polyester Film Transparent
Textile	Generic Non-Porous Textile
	Generic Backlit Textile
Canvas	Generic Canvas
Heat transfer	Generic Heat Transfer

Supported HP substrates

There are twelve categories of application for which HP substrates are the ideal solution.

Application categories

- Trade show and event displays
- Backlit displays
- Fleet graphics and vehicle wraps
- Signage
- Window graphics
- POP and retail displays
- Posters and photo enlargements
- Textiles (fabric printing)
- Billboards

- Art reproductions
- Banners
- Interior decorations

Notes

- For detailed information on the HP large-format printing materials portfolio, and to order, see http://HPLFMedia.com.
- For substrate solutions with ColorPRO technology, see http://ColorPROtechnology.com/.
- 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 and HP PVC-free Durable Smooth Wall Paper printed with HP Latex Inks are UL GREENGUARD GOLD Certified. See http://www.greenguard.org/.
- HP PVC-Free Wall Paper and HP PVC-free Durable Smooth Wall Paper printed with HP Latex Inks meet AgBB criteria for health-related evaluation of VOC emissions of indoor building products. See http://www.umweltbundesamt.de/produkte-e/bauprodukte/agbb.htm.
- Recycling: 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.

How to store and handle substrate

Following the tips described here will help ensure the most effective lifespan and usage of substrates.

Tips

- Always keep unused rolls wrapped in the plastic wrap to prevent discoloration and dust accumulation. Rewrap partially used rolls if they are not being used.
- Do not stack rolls.
- Allow all substrates to adapt to room conditions out of the packaging for 24 hours before printing.
- Handle film and glossy substrates by the edges or wear cotton gloves. Skin oils can be transferred to the substrate, leaving fingerprint marks.
- Keep the substrate tightly wound on the roll throughout the loading and unloading procedures. If the roll starts to unwind, it can become difficult to handle.

Load a roll into the printer

Follow these steps to load a substrate roll correctly into the printer.

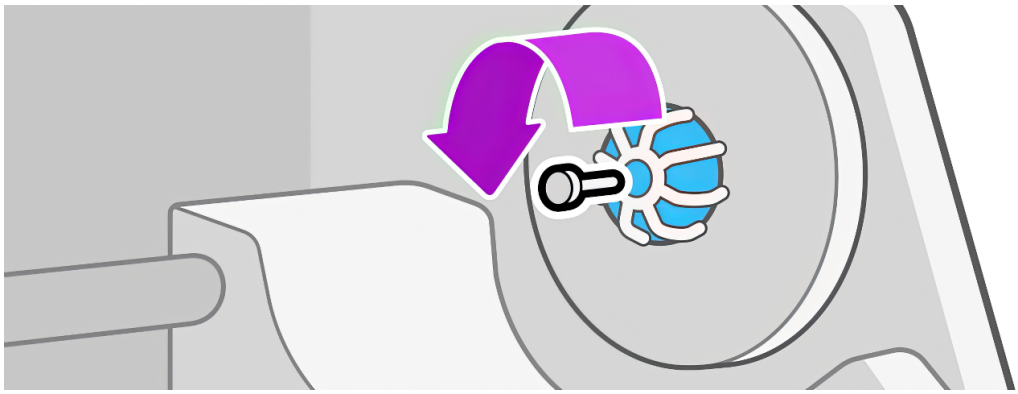
TIP: To load a roll of textile substrate, see Loading accessory on page 47.

TIP: When loading very thin or very thick substrates, or substrates with a tendency to curl, you should follow the manual loading procedure to reduce the risk of substrate jams and printhead crashes; see Assisted manual load on page 53.

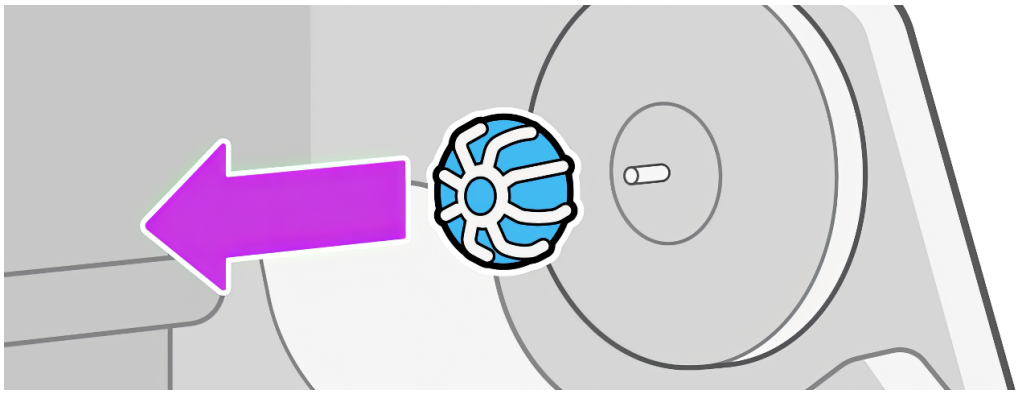
NOTE: In addition to loading rolls, you can load cut sheets of substrate. However, in this case print quality cannot be guaranteed, and you may experience skew, wrinkling, and substrate-advance problems, depending on the substrate and the loading conditions.

1. For rolls with a core diameter of 2 inches, install the 2 inch hub kit.

   a. Remove the central screw on both sides, using a flat screwdriver.



   b. Remove the right and left hub 3 inch assemblies.

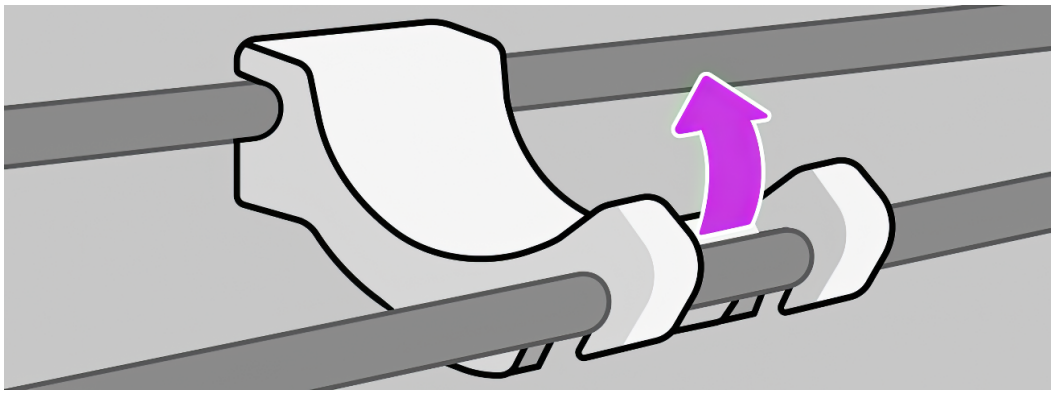


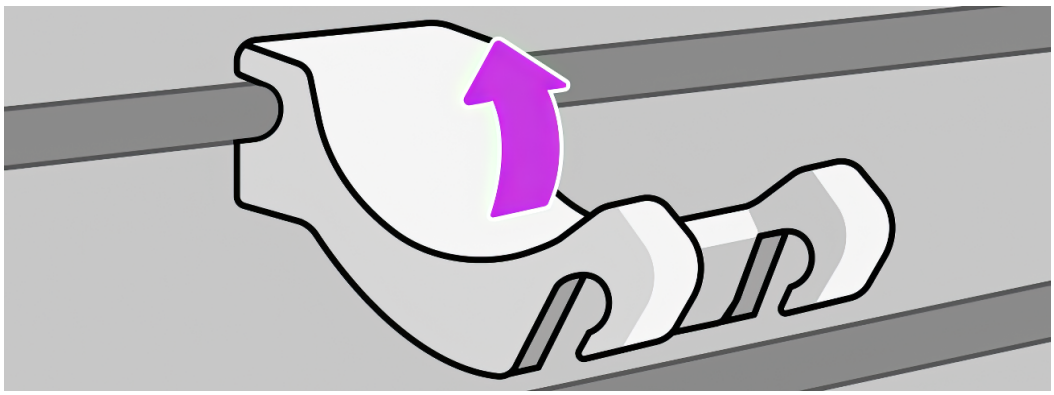
   c. Install the right and left hub 2 inch assemblies.

   d. Put back the central screw on both sides. First tighten by hand, then finish with a 20-degree clockwise turn with a flat screwdriver. Use a screwdriver with as large a tip as possible.

   e. HP recommends performing substrate-advance calibration after changing hubs: see Substrate-advance calibration plot on page 117.

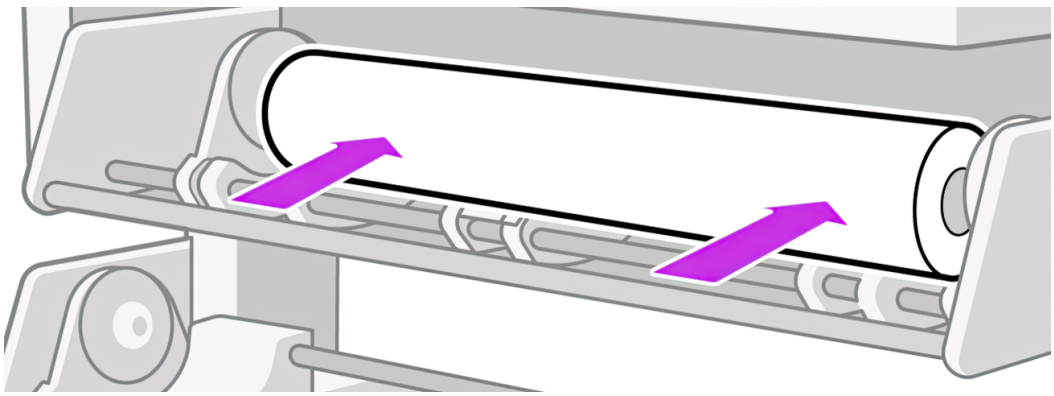
2. For rolls with a width of less than 650 mm (25.6 in), remove the intermediate roll support.





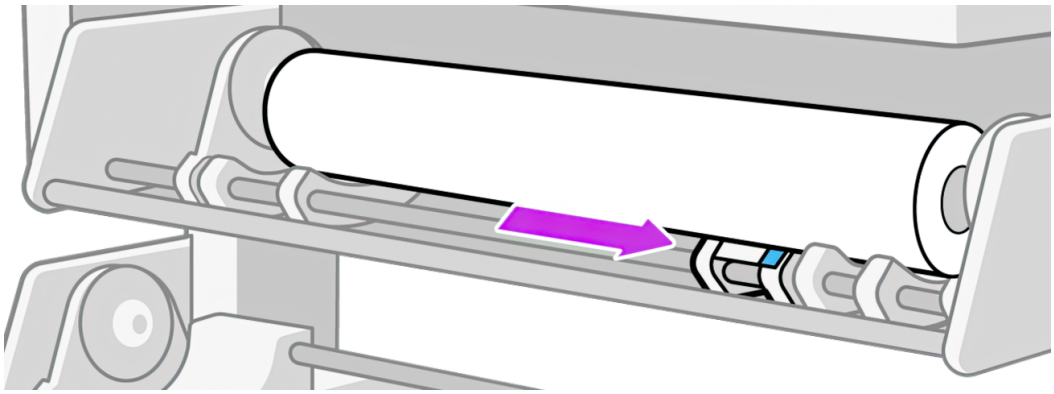
See Heavy substrate hazard on page 6.

3. Put the roll onto the table.

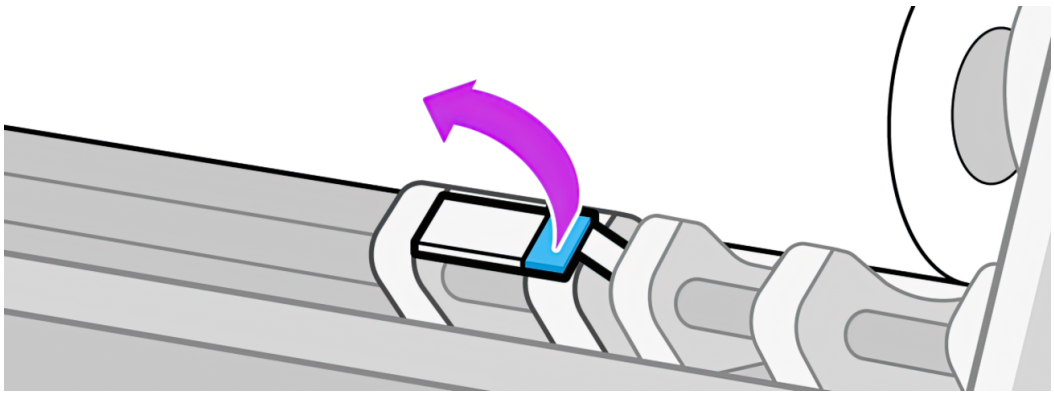


4. Insert the roll onto the right-hand hub.

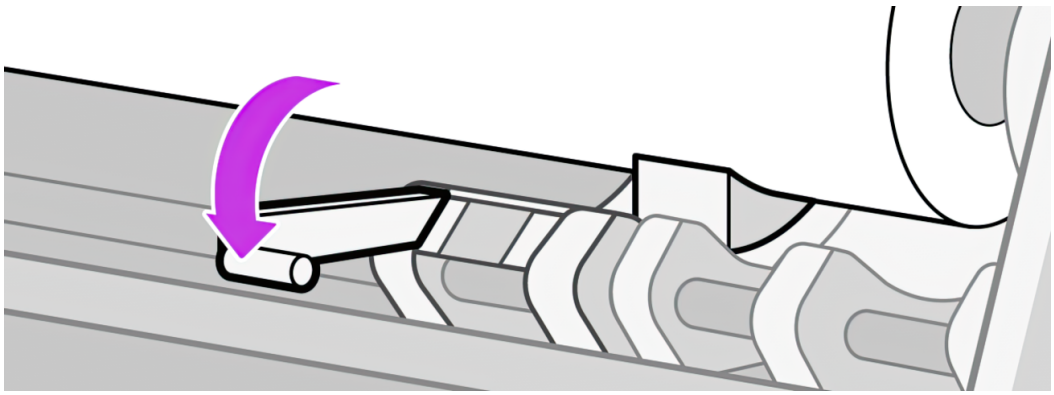
a. Move the roll lifter to the right side of the printer.



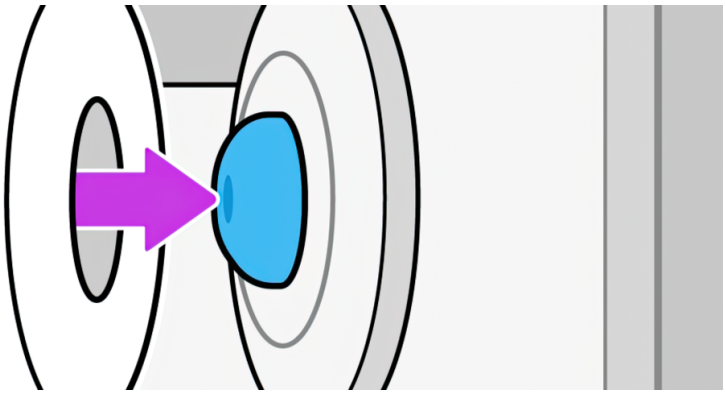
b. Open the handle completely, ensuring it is at 90°.



c. Push the handle down to lift the roll.



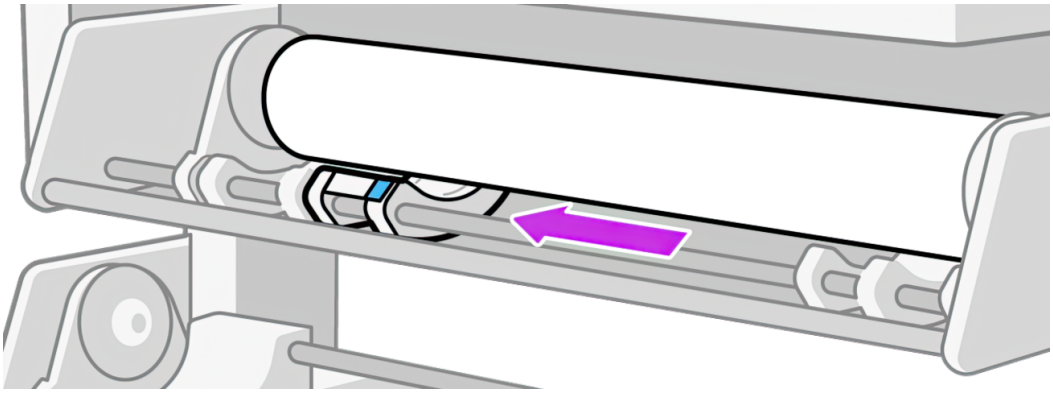
d. Push the roll from the opposite side and insert the core onto the right-hand hub. If you have two people, one can pull while the other pushes.



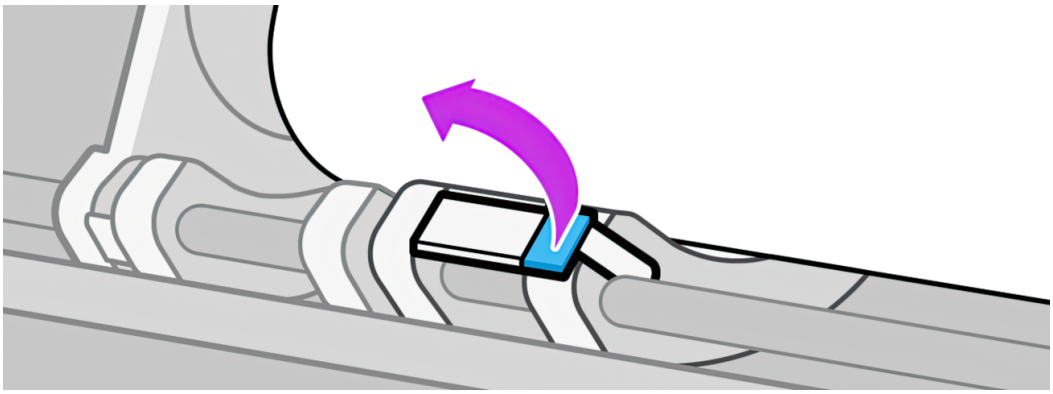
5. Lift the left-hand side of the roll and insert the left-hand hub.

a. Move the roll lifter to the left side of the printer. HP recommends leaving a gap of approximately 10 cm (4 in) between the end of the roll and the roll lifter, so that the left-hand hub can be moved.

⚠ CAUTION: Do not place the lifter in the center of the roll or the printer. This will cause you extra effort and will wear out the parts sooner.

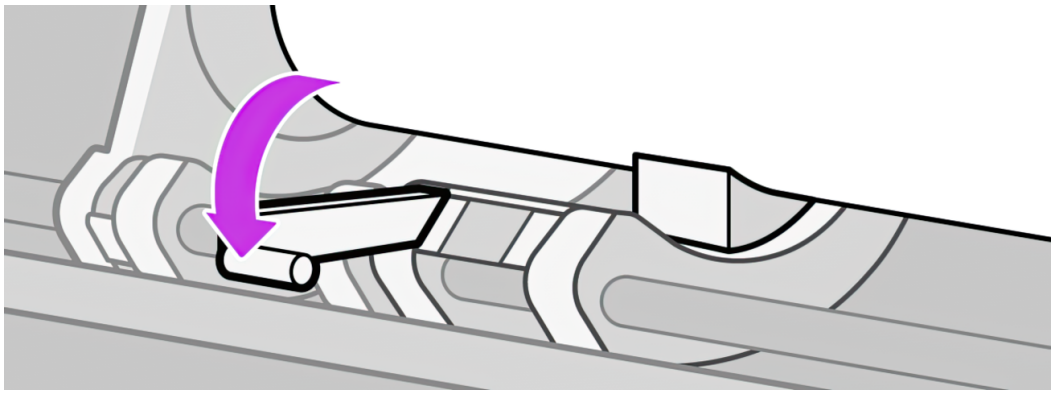


b. Open the handle completely, ensuring it is at 90°.

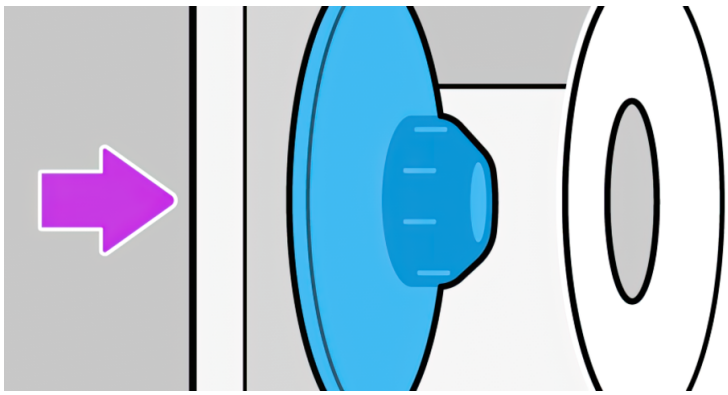


c. Push the handle down to lift the roll.

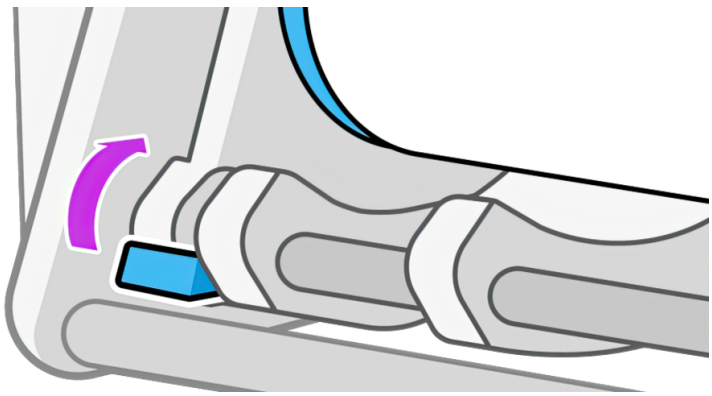
TIP: Try to push it perpendicular to the printer to maximize the effect of your effort.



d. Slide the left hub into the core.



e. Close the brake to make sure it is properly inserted.



6. At the printer's control panel, tap the substrate icon , then **Substrate source** > **Load**.

7. The load configuration screen appears.

- Loading options:

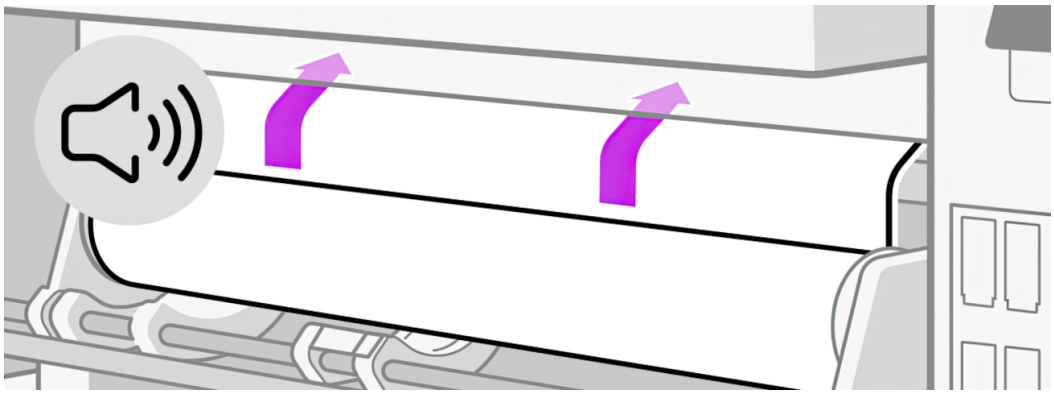
  - Skew acceptance: The available values are between 1 and 5, default 3. The printer automatically tries to correct the skew, then warns you if the skew is still over the limit you have set; but you can choose to continue loading.
  - Use edge holders: See Edge holders on page 55.
- Length tracking: If you check the box and give the length of your roll, the printer calculates the spare substrate when printing and reports the remaining length. See Substrate length tracking on page 70.
- Use loading accessory for textile, flimsy, or high-friction substrates: See Loading accessory on page 47.
- Assisted manual load for stiff or curly substrates: See Assisted manual load on page 53.

When you have made your choices, instructions are displayed.

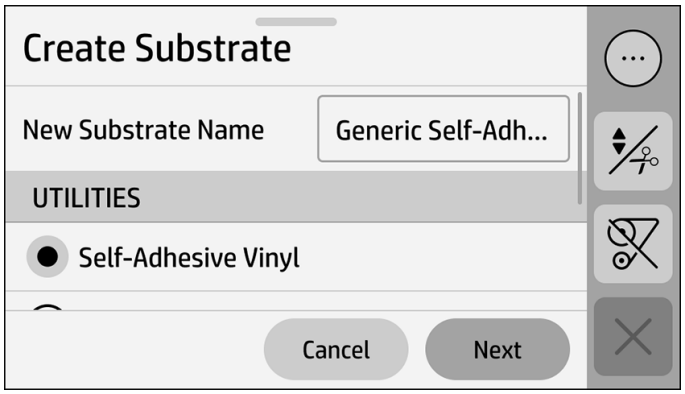
8. Insert the leading edge of the substrate into the printer's substrate path.

⚠ **WARNING!** Take care not to insert your fingers with the substrate.

The printer beeps when it detects and accepts the leading edge of the substrate.



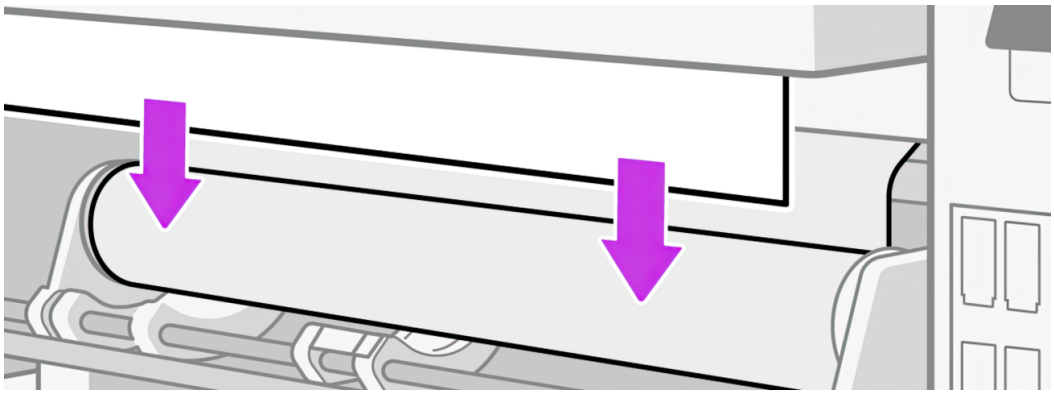
9. Select the category and name of the substrate you are loading.



NOTE: You should select the same substrate name that you are using in your RIP software.

10. The printer checks the substrate in various ways and may ask you to correct problems with skew or tension. In case of a problem during this process, lifting the front window will pause the load procedure and release the substrate so that you can correct its position manually.

11. Wait until the substrate emerges from the printer.



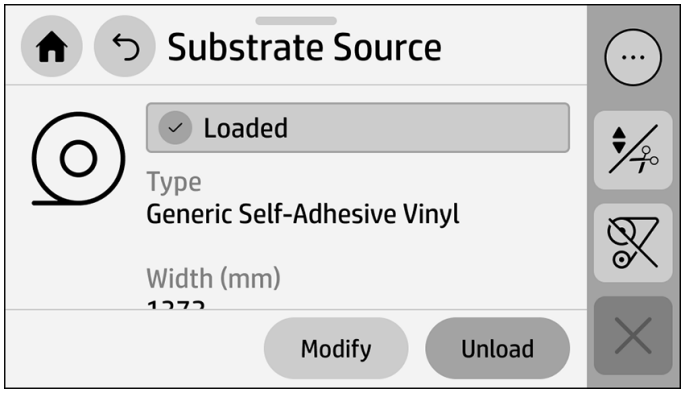
⚠ **WARNING!** Take care not to touch the curing zone or the platen, which may be hot.

Table 3-2 Warning

Risk of burns
For more safety information, see Safety precautions on page 3

NOTE: If you have an unexpected problem at any stage of the substrate loading procedure, see Substrate cannot be loaded successfully on page 106.

12. The printer calibrates the substrate advance.
13. The printer indicates that it is ready for printing.

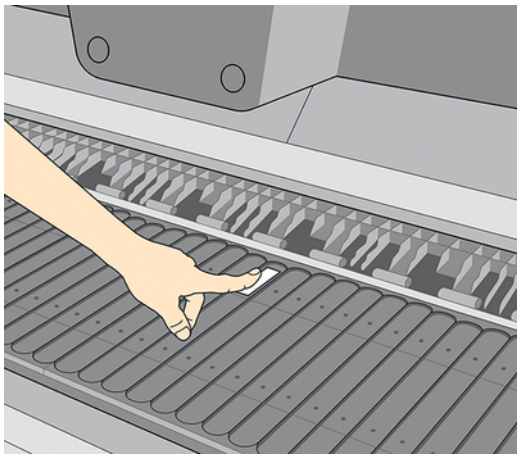


Porous substrates

Porous substrates should not be used with the printer.

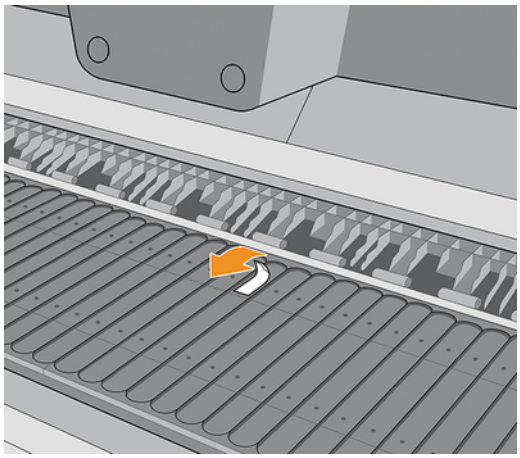
To check the porosity of your substrate, proceed as follows.

1. If the printer has any substrate loaded, unload it.
2. Cut a piece of self-adhesive vinyl white gloss 10 × 35 mm (0.4 × 1.4 in) in size.
3. Stick it to the platen as shown.



4. Load the substrate that you want to check.
5. Open your RIP software.
6. Download the test file from inside the printer: **http://***printerIP***/hp/device/webAccess/images/lnk_trespassing_check.pdf**, where *printerIP* is the IP address of your printer.
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).

   The image size is 40 × 5 cm. Make sure you print it in the area where you have placed the self-adhesive vinyl on the platen.
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 can be used with your printer.

- If there some ink on the strip, the tested substrate is porous and should not be used with your printer.

11. Clean the platen: see Clean the platen on page 172.

Loading accessory

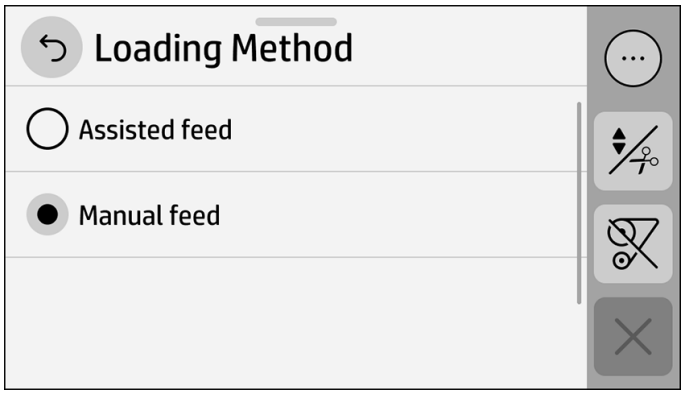
The loading accessory is designed to help in loading banner/textile/mesh substrates. It is recommended when loading such substrates, but not obligatory.

NOTE: The edge holders can be used whether or not you decide to use the loading accessory.

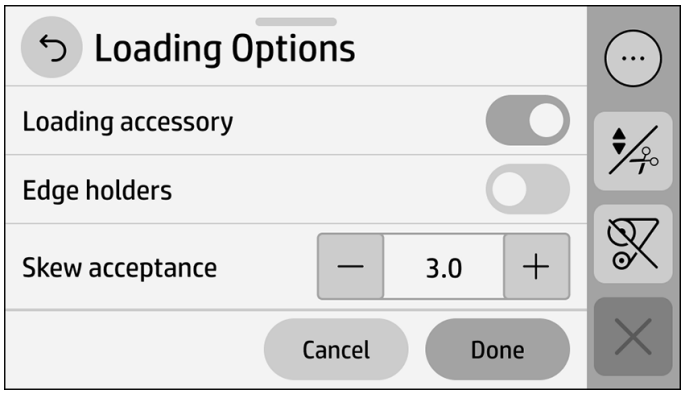
Loading substrate with the loading accessory

Follow this procedure to use the loading accessory with an appropriate substrate.

1. At the control panel, tap the substrate icon , then **Load**. In the Loading Method section, tap **Manual feed**.



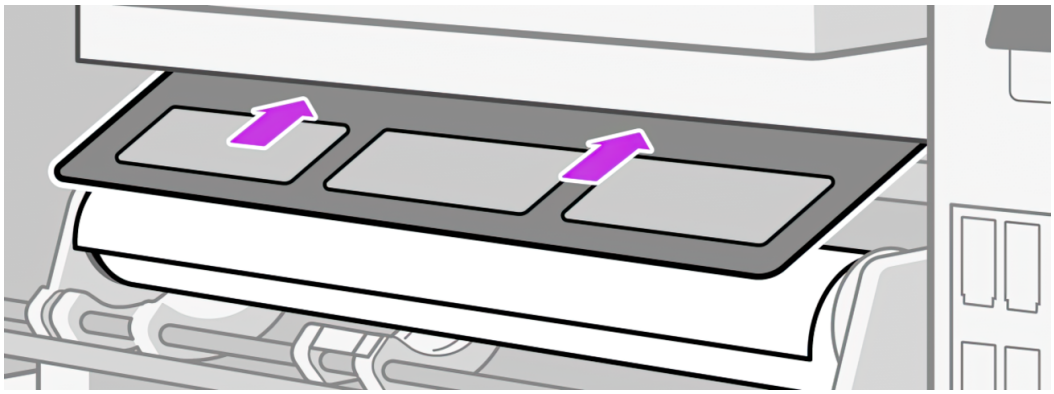
2. Scroll down to the Loading Options section and turn on **Loading accessory**.



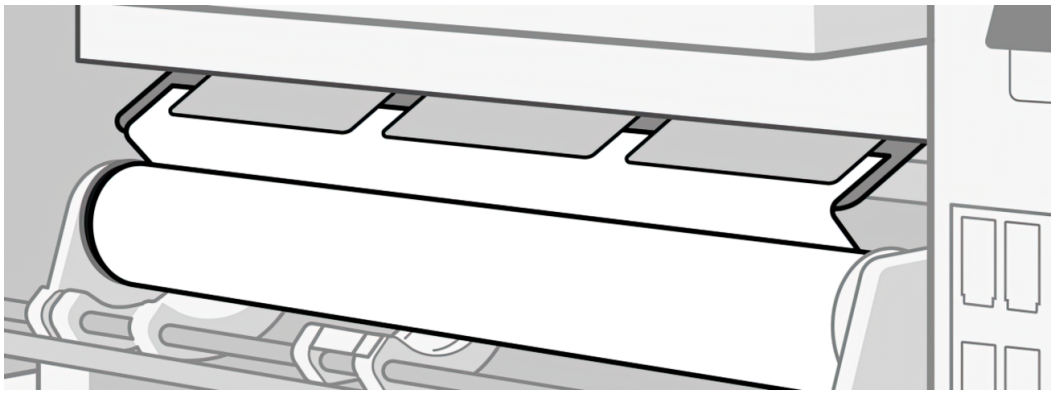
3. Select the category and name of the substrate that you intend to load.

NOTE: Select the same substrate name that you are using in your RIP software.

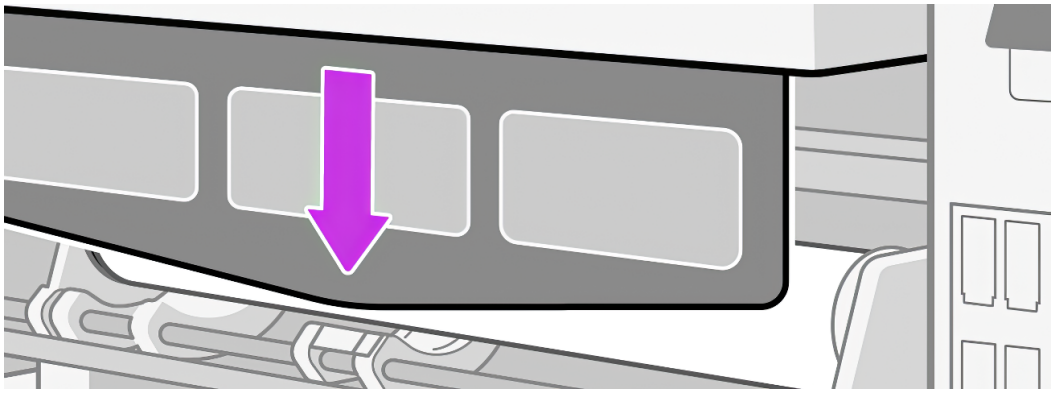
4. Insert the loading accessory up to the end of the platen.



5. Open the flaps, and insert the leading edge of the substrate under the flaps.
6. Lower the flaps to cover the leading edge of the substrate. The black patches are magnetic and grip the substrate.

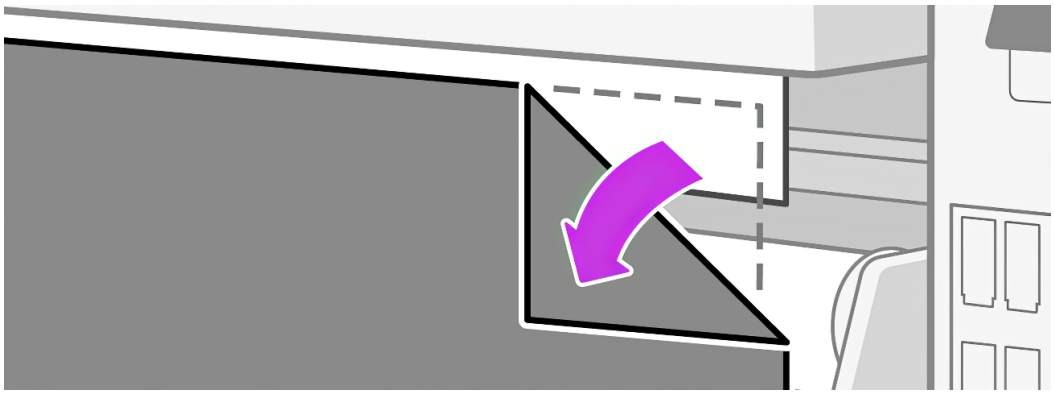


7. Use the control panel to advance the substrate until it falls from the curing module. The loading accessory passes through the printer's substrate path with the substrate.

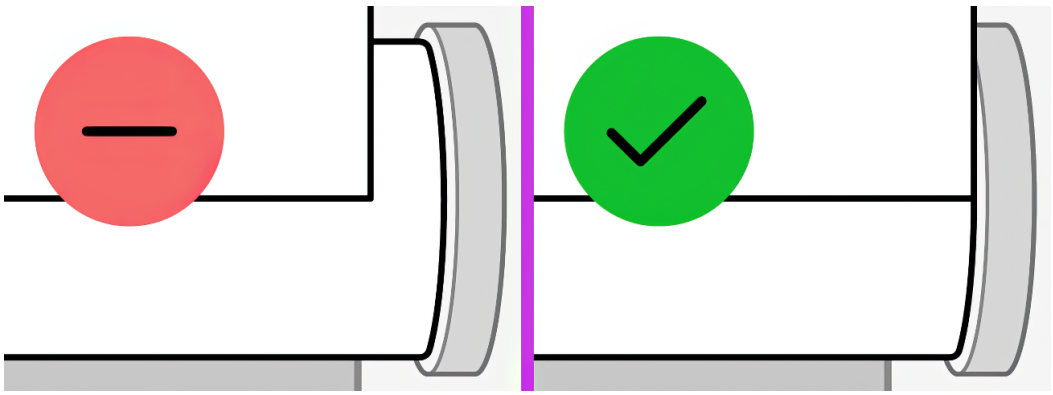


8. Follow control-panel instructions to align the leading edge with the cutter.

9. After passing through the printer, the loading accessory can be removed by hand.



10. Align the right edge of the substrate with the input roll.



11. The printer does not automatically check for skew when a porous or thin substrate is loaded with the loading accessory option checked. Follow the instructions in Load a roll onto the take-up reel on page 64 to minimize skew.

12. If you are loading transparent substrate without opaque borders, you are asked to enter the width of the substrate.

13. The printer calibrates the substrate advance.

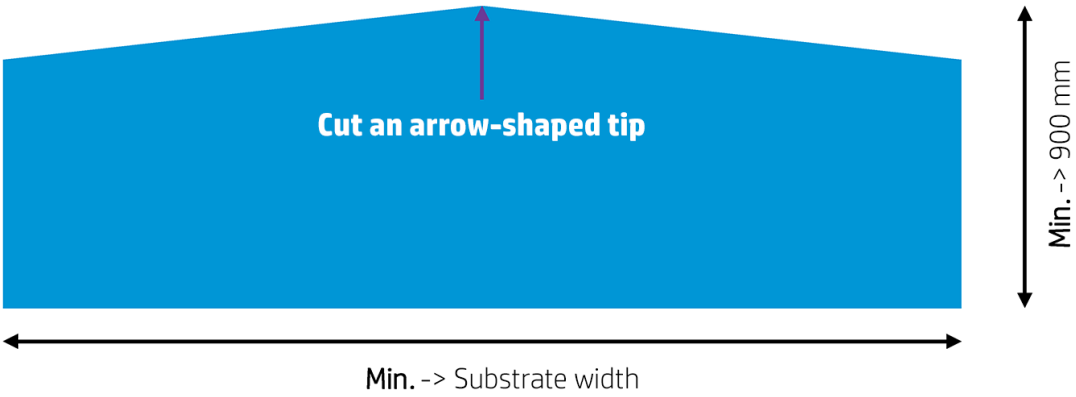
NOTE: You are recommended to use the take-up reel; however, it is not obligatory.

Do-it-yourself loading accessory

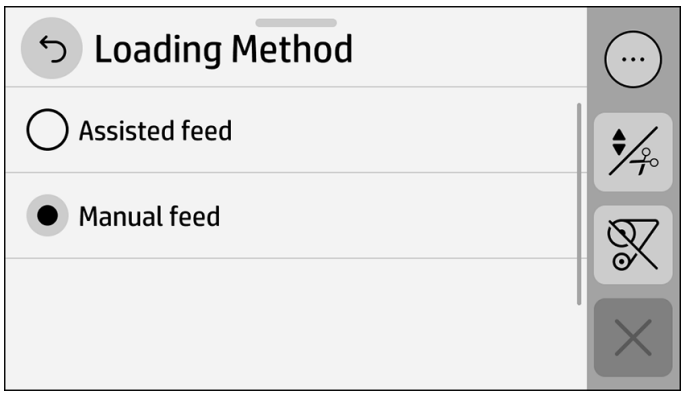
For occasional use only, you can make your own loading accessory as described here.

NOTE: For frequent use, HP recommends purchasing the standard loading accessory.

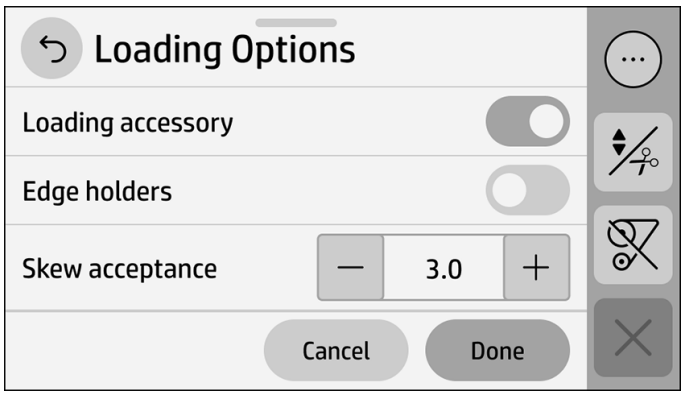
1. Take a self-adhesive vinyl substrate and cut it as shown below.



2. At the control panel, select **Manual feed**.

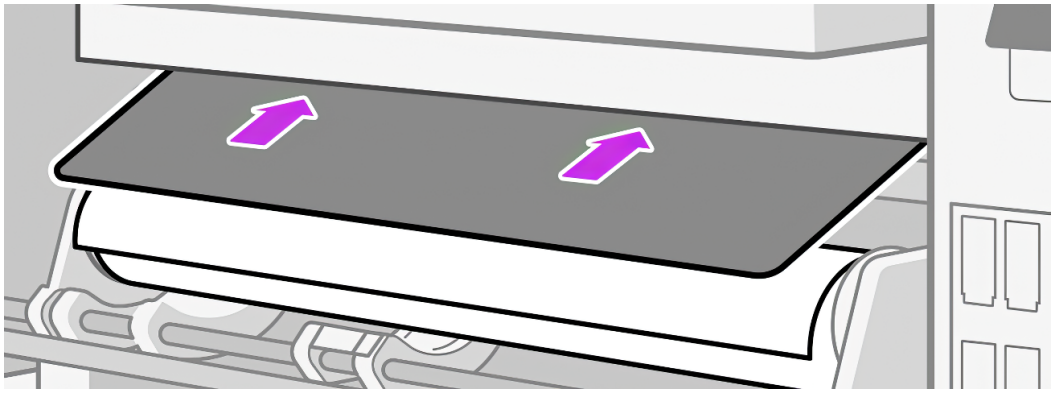


3. Turn on the loading accessory.

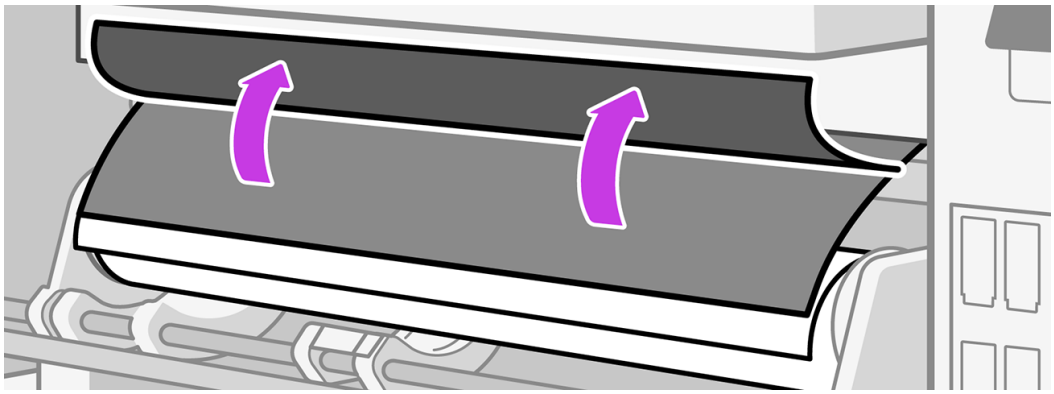


4. Load the accessory until the tip reaches the cutter rail, then tap **Continue**. This lowers the pinchwheels to hold the accessory in place.

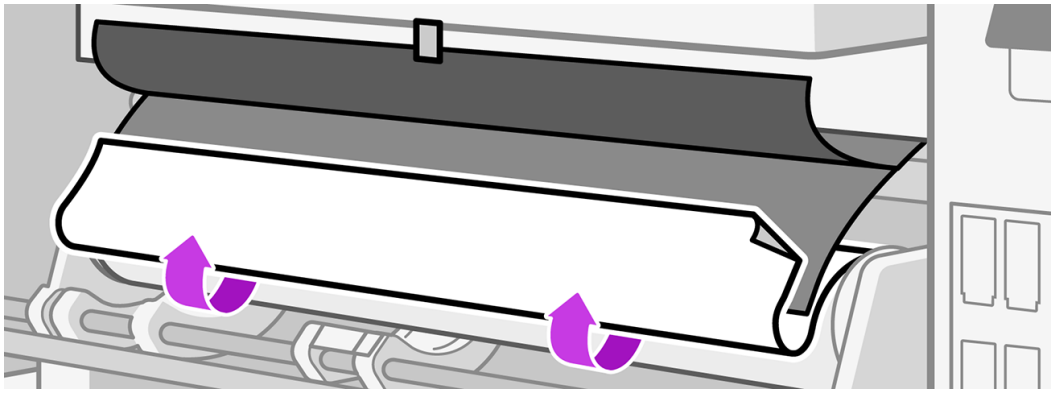
TIP: Load the self-adhesive vinyl with the liner down (as for a normal print), to simplify the attachment of the fabric.



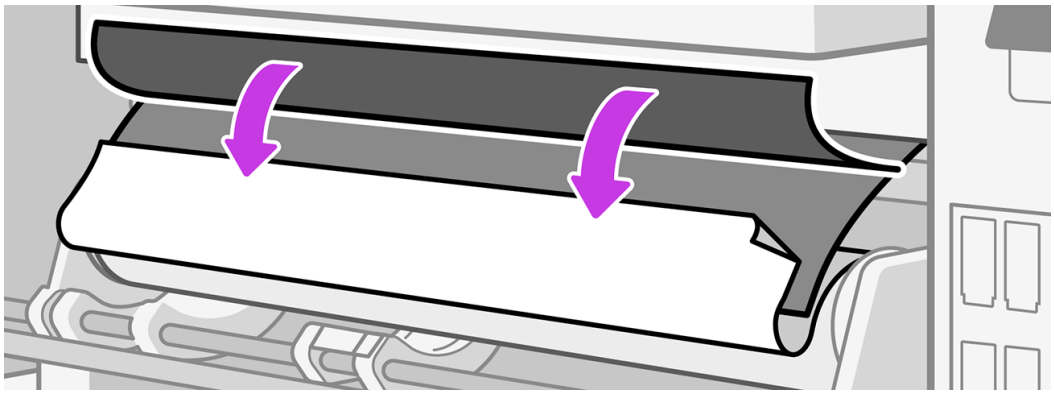
5. Remove the substrate's liner.



TIP: Stick it to the vacuum beam to simplify the attachment of the fabric.



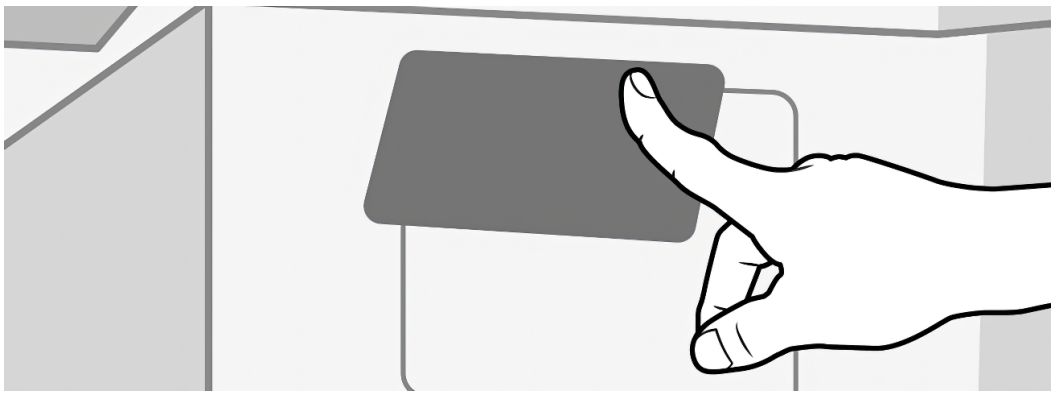
6. Attach the fabric to the vinyl.

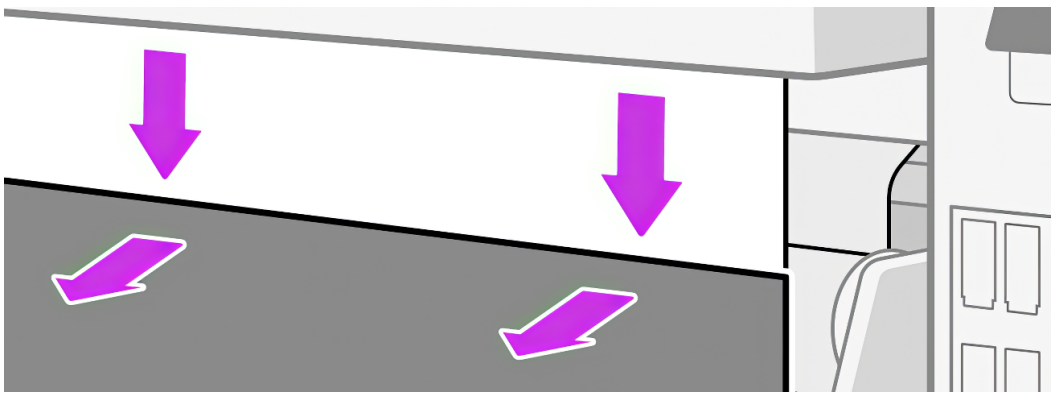


7. Continue the loading process, tapping the down arrow on the control panel to advance the substrate until the leading edge reaches the roll.

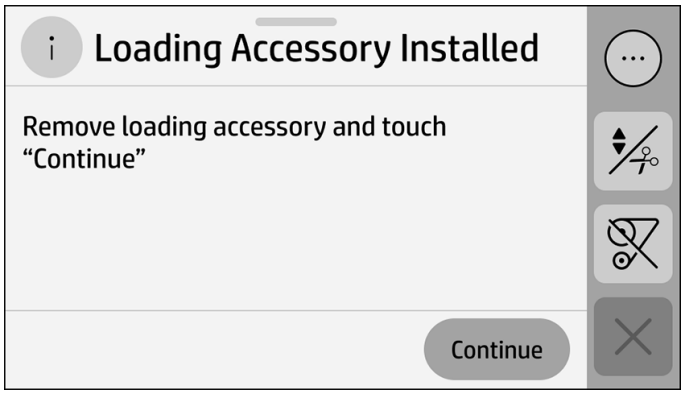
TIP: While advancing the substrate, manually unwind the input roll to prevent the fabric from detaching from the accessory.

TIP: Pull the tip of the accessory when it reaches the curing output stage, to help the fabric to advance.

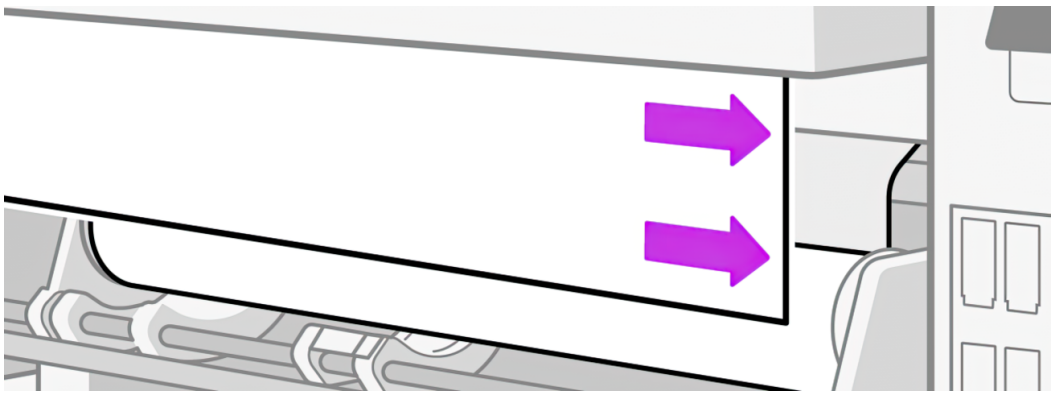




8. Remove the accessory.



9. Align the substrate.



Limitations

- Some fabrics have a low adhesion to the self-adhesive vinyl, requiring a loop in the input (unwind the input) before starting to load, so that you can pull the substrate and load it.
- Reuse of the loading accessory depends on the type of fabric:
  - Backlit: Good reuse (high adhesion)
  - Frontlit: Poor reuse (low adhesion)

Risks

- High adhesion with some very plastic substrates (such as some backlit substrates) could make it difficult to remove the loading accessory (low severity).
- Unloading the substrate with the loading accessory attached could damage the printer if the self-adhesive vinyl gets stuck at the drive roller (low probability).

Assisted manual load

The assisted manual load procedure should be used in the following cases.

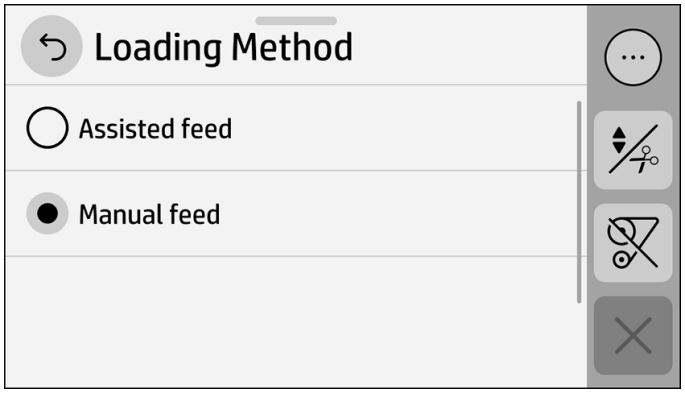
- The substrate is textile.

- The substrate is unusually thin or unusually thick.
- The substrate has ragged edges.
- The substrate tends to curl at the edges.
- The printing side of the substrate faces outwards.

In other cases, HP recommends using the normal loading procedure. See Load a roll into the printer on page 39.

To start the assisted manual load procedure, you need to have a substrate roll ready on the loading table. The minimum substrate width is 610 mm (24 inches).

1. Start the substrate loading procedure as usual (see Load a roll into the printer on page 39), and make sure to tap **Manual feed** on the loading-method screen.



   You can alternatively launch the manual load from the **Substrate** box in the control-panel screen that you can see by sliding your finger to the left.

2. Carefully insert the leading edge of the substrate above the input roller, making sure the substrate remains taut during the process. Avoid rewinding the substrate manually, unless the printer asks you to do so.
3. Feed in the substrate until it reaches the printing platen (open the front window to help pull the substrate through).
4. Follow the steps shown in the control-panel.

⚠ **WARNING!** Do not touch the printer's curing enclosure: the internal surfaces could be hot. Also beware of getting your fingers trapped in the substrate path.

IMPORTANT: Printer will ask you to align the leading edge with the cutter. This steps sets the leading edge position and is mandatory to avoid jams when printing with the leading edge.

Table 3-3 Warning

Risk of burns	Risk of trapped fingers

Table 3-3 Warning (continued)

Risk of burns	Risk of trapped fingers
For more safety information, see Safety precautions on page 3	

TIP: If the substrate you are using tends to curl, keep feeding the substrate until the edge is out of the printer. You are also recommended to use the take-up reel, or to disable the cutter from the control panel if not using the take-up reel Printing from the leading edge is not compatible in these cases.

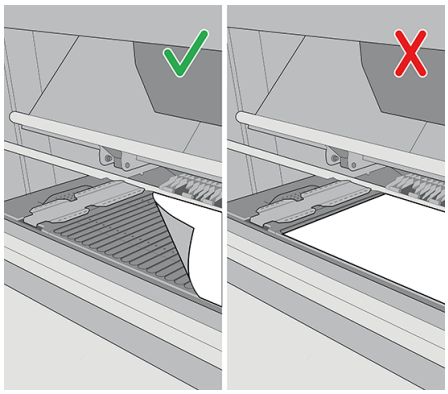
TIP: If the substrate gets stuck in the print zone, open the front window to help it pass through.

The rest of the assisted load procedure is the same as in the normal load procedure. See Load a roll into the printer on page 39.

Edge holders

The edge holders are designed to prevent the edges of the substrate from rising while printing is in progress.

They are recommended only when necessary: when the edges of the substrate tend to lift up and touch or damage the printheads. When not in use, they should be stored outside the printer.



NOTE: The edge holders extend 6 mm over the edge of the substrate. You should set a minimum left and right margin of 7 mm (0.3 in) in the RIP when using edge holders, otherwise the printer could try to print on the edge holders.

IMPORTANT: During the loading if you choose to use them, you should move them into parking position, to the left and right of the print zone, when prompted by the control panel; this prompt appears when the **Use edge holders** checkbox has been checked. Otherwise, the printer may detect the wrong roll width while loading the substrate, which may cause substrate jams.

The edge holders should be placed on the platen so that they overlap the left and right edges of the substrate. Align the dotted line on the edge holder with the lateral edge of the substrate.

WARNING! It is recommended to wear globes when manipulating the Edge Holders. They are fragile and may have sharp edges, handle with care.

When using edge holders, printing from the leading edge starts from the cutter line, and it is not possible to wind the material back to the pinchwheels.

If the sides of the substrate tend to lift, as well as using the edge holders, HP recommends advancing the substrate past the curing module or attaching it to the take-up reel before starting to print.

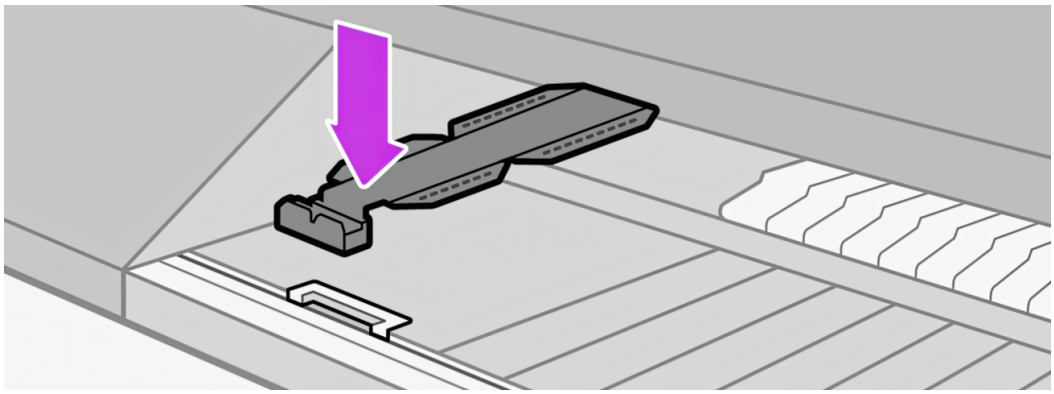
Table 3-4 Warning

Moving part	Fragile	Wear gloves
For more safety information, see Safety precautions on page 3.		

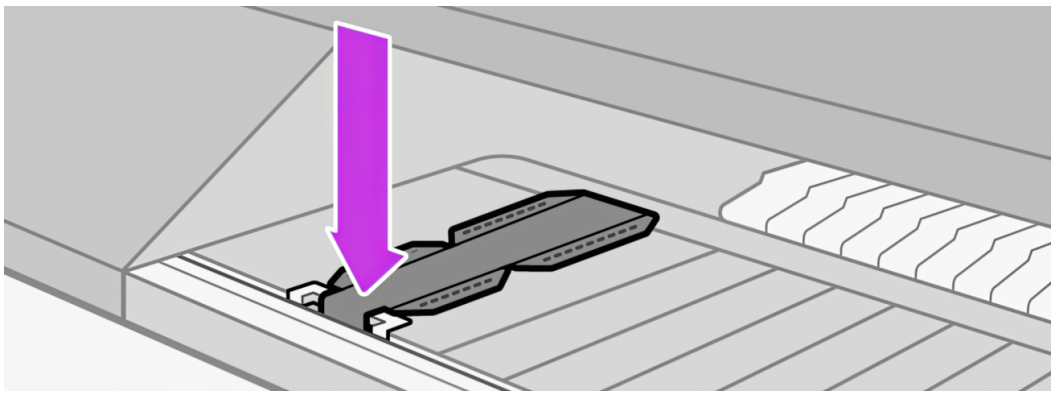
Place the edge holders

It is important to position the edge holders correctly.

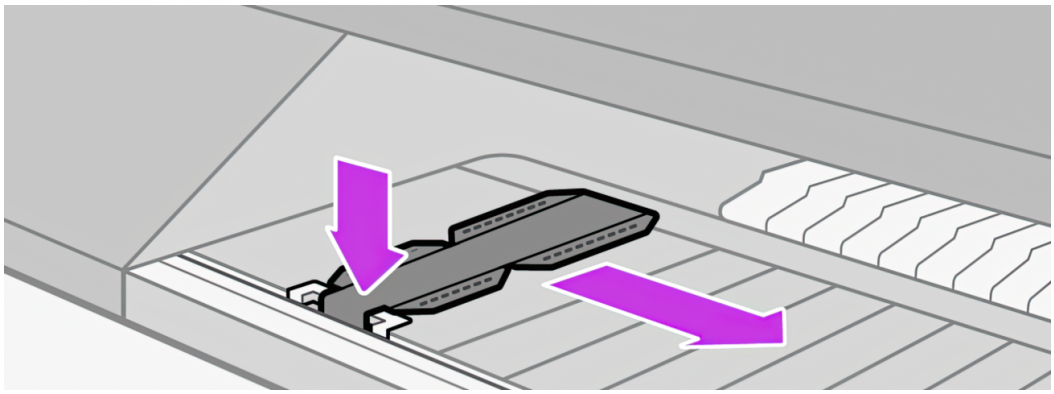
1. Place an edge holder into the small gap on the left of the platen module.

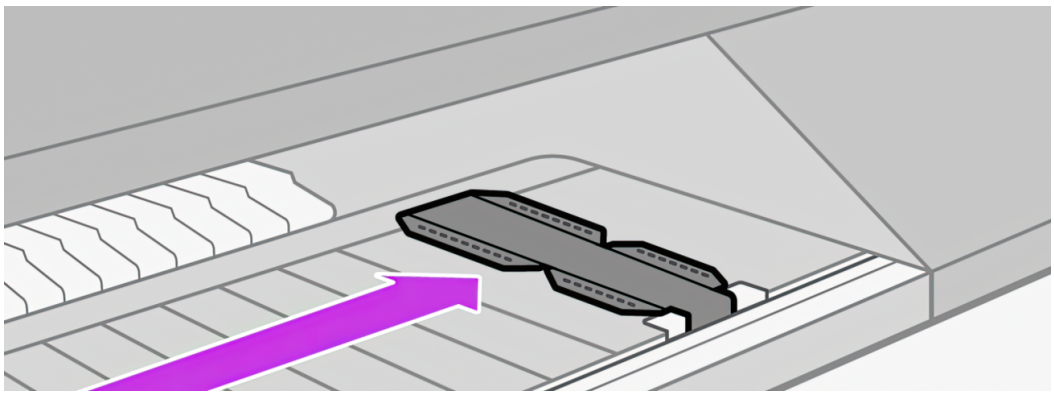


2. Press the front of the edge holder down into the gap until it fits onto the rail.

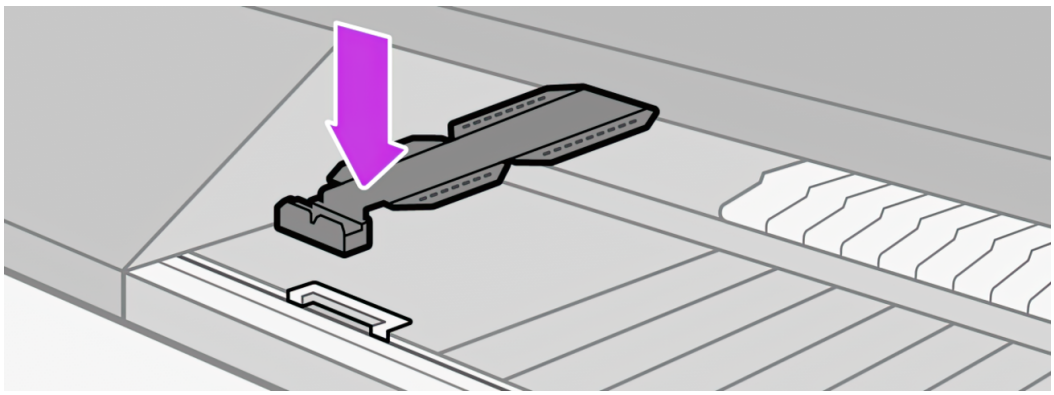


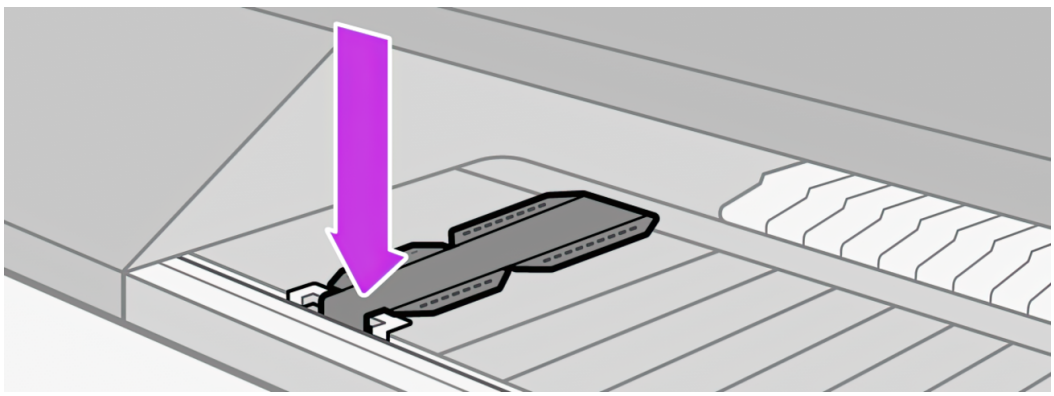
3. Slide the edge holder onto the platen module, from its left position, as far to the right as possible.





4. Insert the second edge holder on the left and leave it there.





5. Leave the edge holders in parking position at each end of the platen module (left and right).

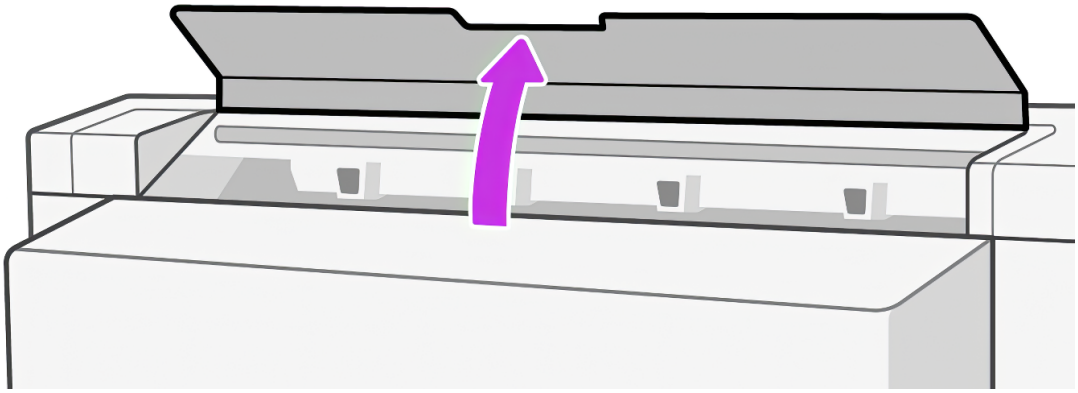
Align the edge holders

When the substrate has been loaded, align it with the dotted line on the edge holder. Misalignment could result in a substrate jam, or damage to the substrate or to the printheads.

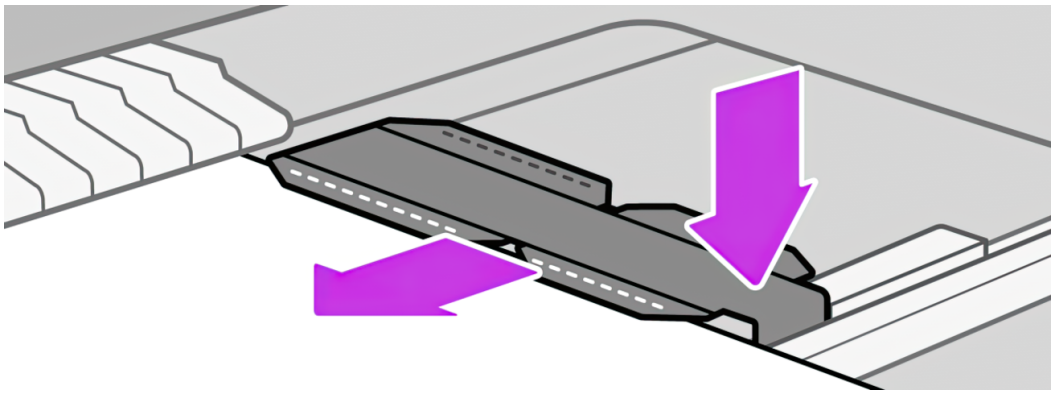
1. Load the substrate (see Load a roll into the printer on page 39).

IMPORTANT: Ensure that the loading process is successfully completed before proceeding to the next step.

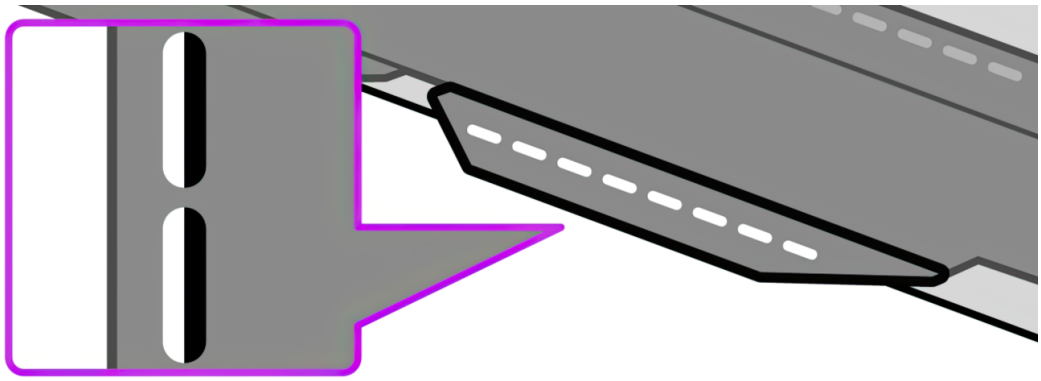
2. Open the front window.



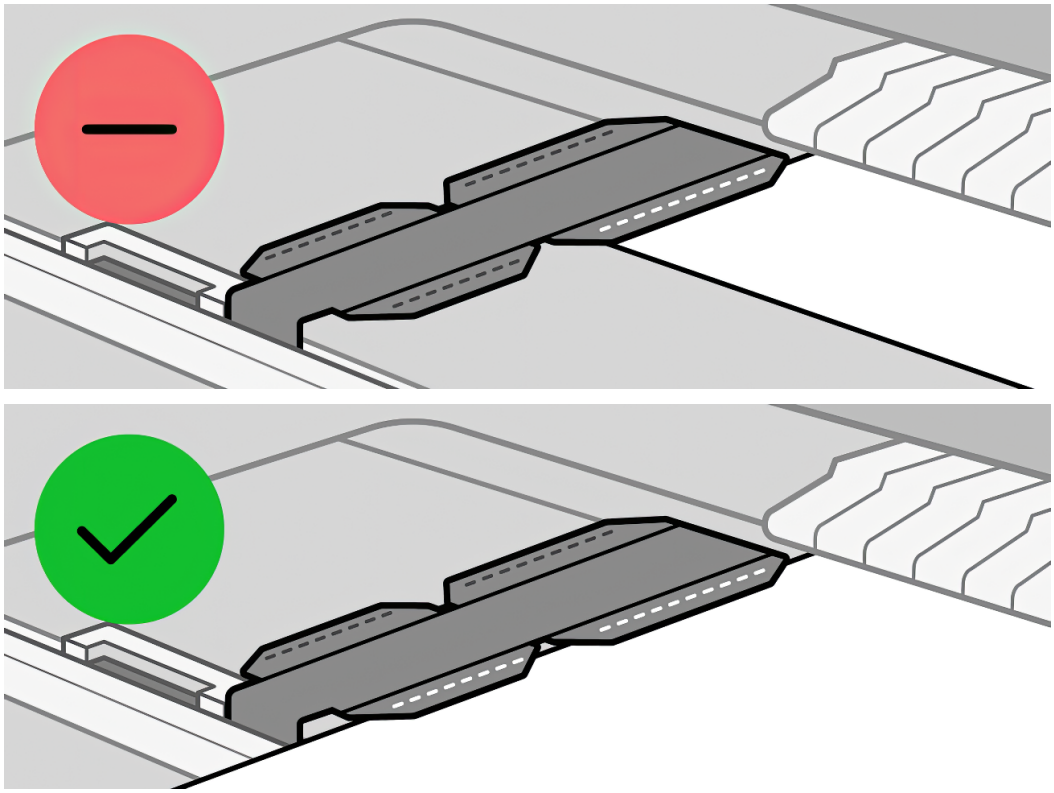
3. Move the edge holders to overlap the edges of the substrate.



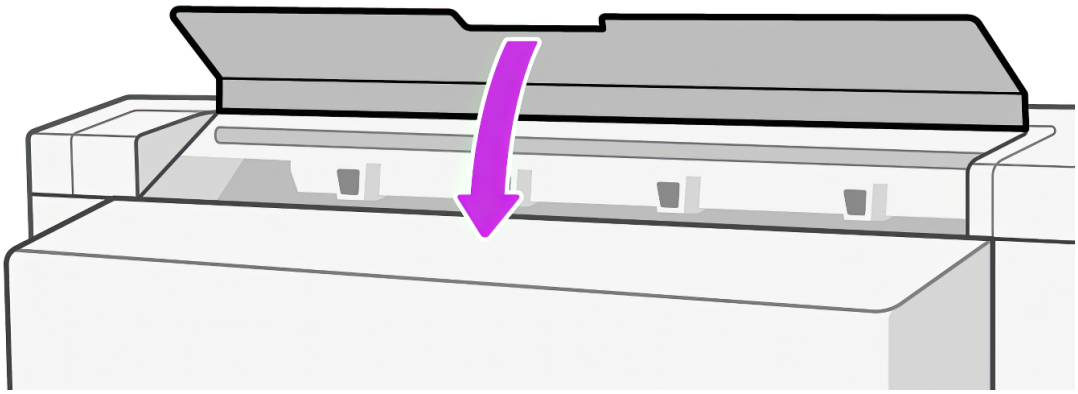
4. Align the groove in the middle of the edge holder with the edge of the substrate.



To avoid possible jams, HP recommends that the substrate's lateral edge is completely under the edge holder's surface.



5. Close the front window.



Uninstall the edge holders

Follow this procedure to remove the edge holders safely when they are not required.

1. Unload the substrate (see Unload a roll from the printer on page 61).
2. Place the edge holder in the left parking position.
3. Press the front of the edge holder forward until it pops off the rail.
4. Remove the edge holder.
5. Repeat the process with the other edge holder.

Set up and use the substrate feed accessory

The substrate feed accessory reduces substrate waste in substrates that cannot be printed from the leading edge.

This accessory is for use with substrates having a width of 1219 mm (48 in) or greater. It is not recommended for use with textiles, wallpapers, HP Everyday Matte substrate, nor for tiling applications.

See a video here:

https://lkc.hp.com/blog/hp-latex-substrate-feed-accessory/

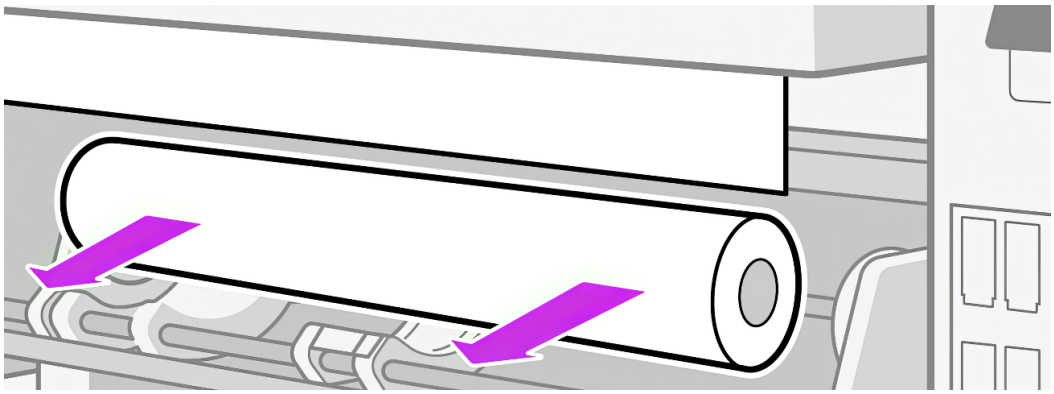
NOTE: This video applies to printers of the HP Latex 500, 630, 700, and 800 series.

Unload a roll from the printer

Follow these steps to unload a substrate roll from the printer.

TIP: HP recommends unloading the substrate when the printer will not be in use for an hour or more. Substrate left loaded may become deformed, causing problems such as printhead crashes.

1. If you used the take-up reel during printing, unload the printed roll from the take-up reel. See Unload the take-up reel on page 67.

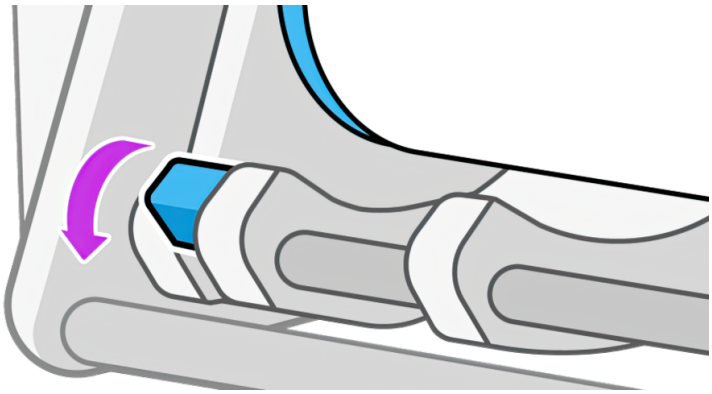


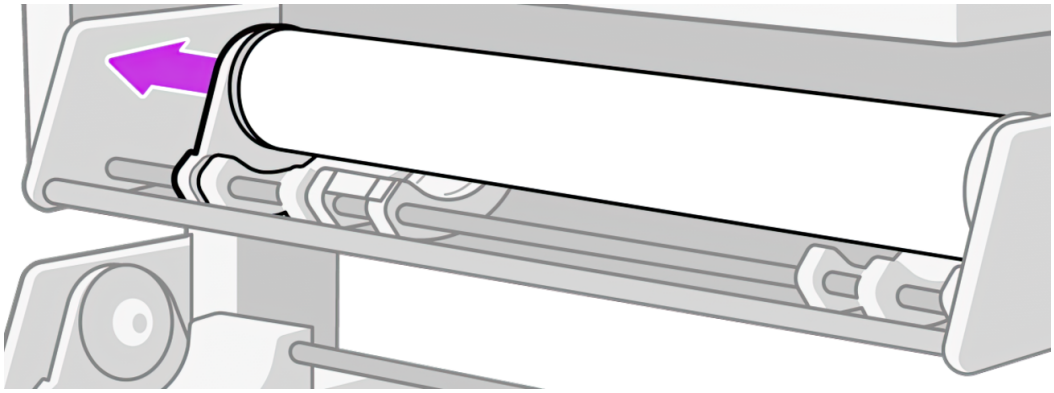
2. On the printer's control panel, tap the substrate icon , then **Unload**.

3. If the printer has been tracking the length of the substrate, the control panel displays the remaining length so that you can note it for future reference. See Substrate length tracking on page 70.

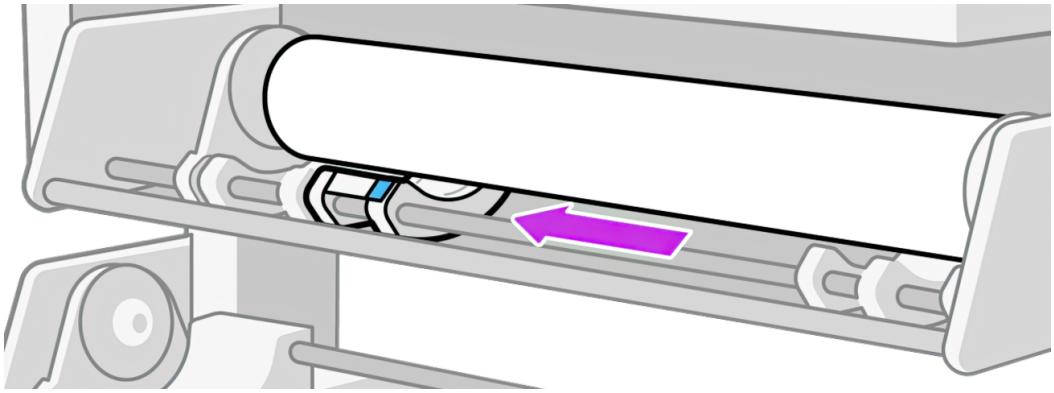
   Tap **OK** to continue.

4. When the printer has rewound the roll, remove the left hub from the roll.

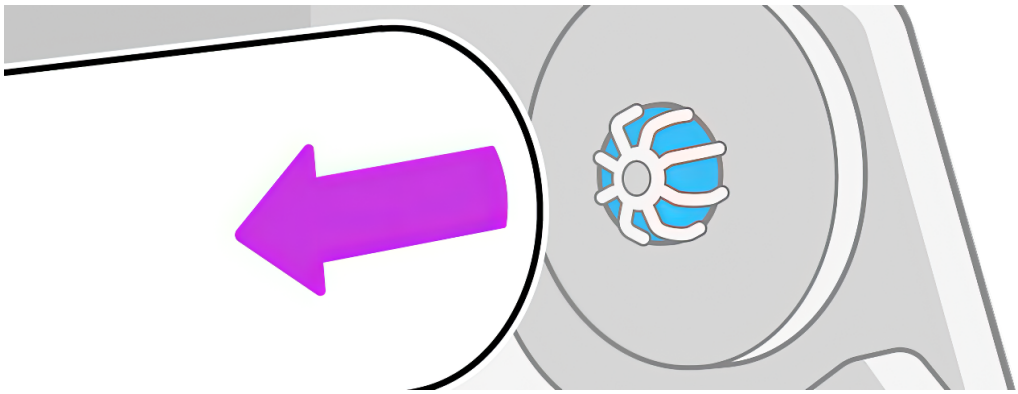




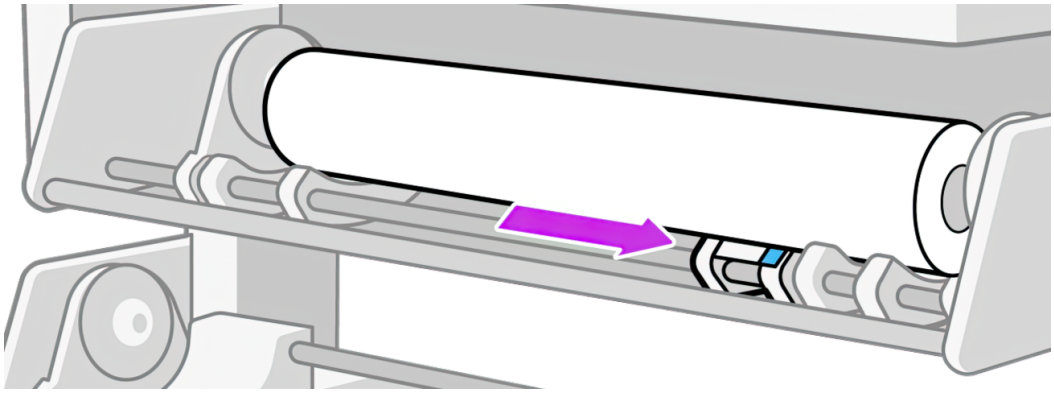
The roll lifter can be used to hold the roll while unloading it, by moving the lifter to the left-hand side.



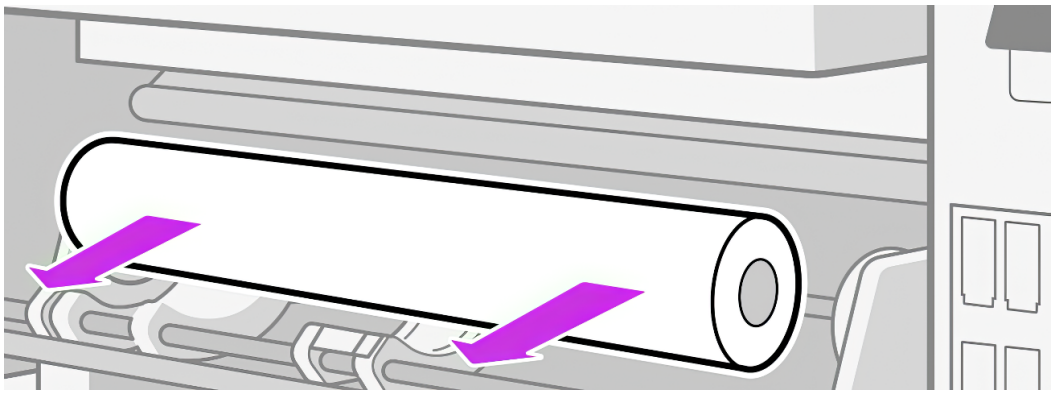
5. Remove the roll from the right hub.



The roll lifter can be used to hold the roll while unloading it, by moving the lifter to the right-hand side.



6. Remove the substrate from the loading table.



IMPORTANT: If you reach the end of the roll and the substrate becomes detached from the core:

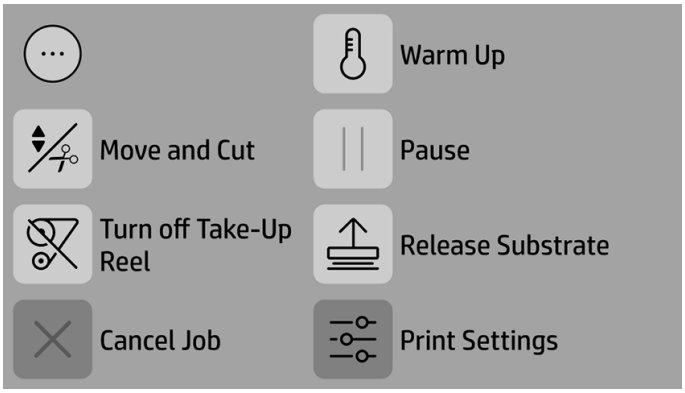
- Print-quality issues may occur on the last few centimeters of the substrate due to lack of tension.
- The tape or glue at the end of the substrate may stick to the curing mechanism.
- If the printer goes into sleep mode with the core detached, then when waking up it will be as if there is no substrate, and a printhead crash may occur.

When lifting the pinchwheels (see How to lift the pinchwheels on page 63) to unload the substrate, avoid pulling the substrate out through the print zone, which could leave the tape or glue at the end of the substrate stuck behind the pinchwheels.

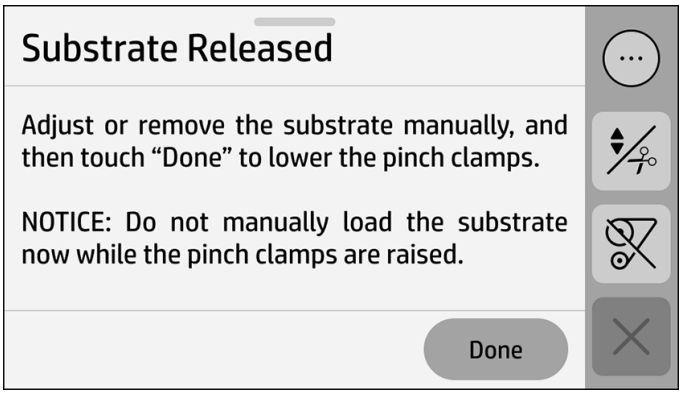
How to lift the pinchwheels

The pinchwheels must be lifted in order to perform a manual movement of the substrate.

When you need to lift the pinchwheels to release the substrate, go to the control panel and tap the ellipsis icon (···), then **Release substrate**.



Once the pinchwheels are released, move the substrate manually. When you finish the process, tap **Done**.



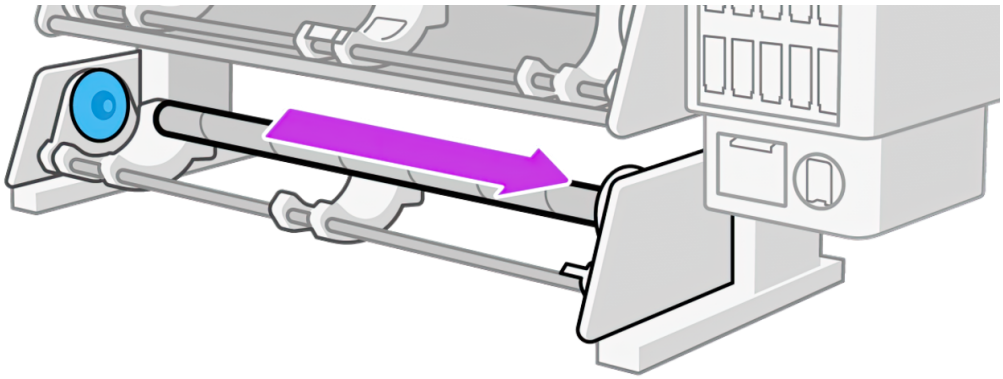
Take-up reel

The take-up reel collects the substrate as it emerges from the printer.

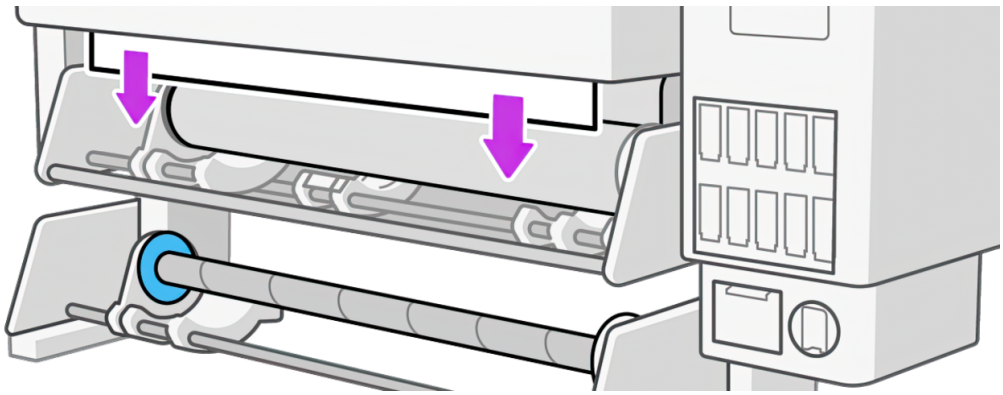
Load a roll onto the take-up reel

The take-up reel is enabled by turning the output roll one full turn in the desired direction of winding.

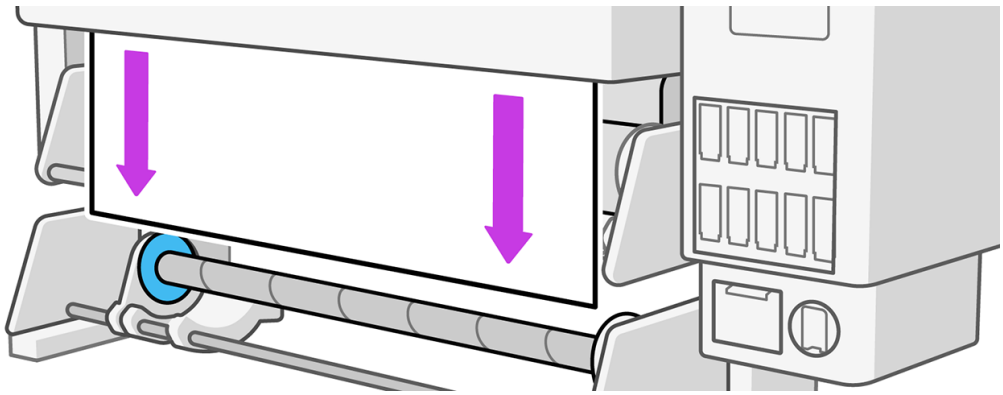
1. Load a roll core without substrate onto the take-up reel hubs. Insert it first onto the right hub.



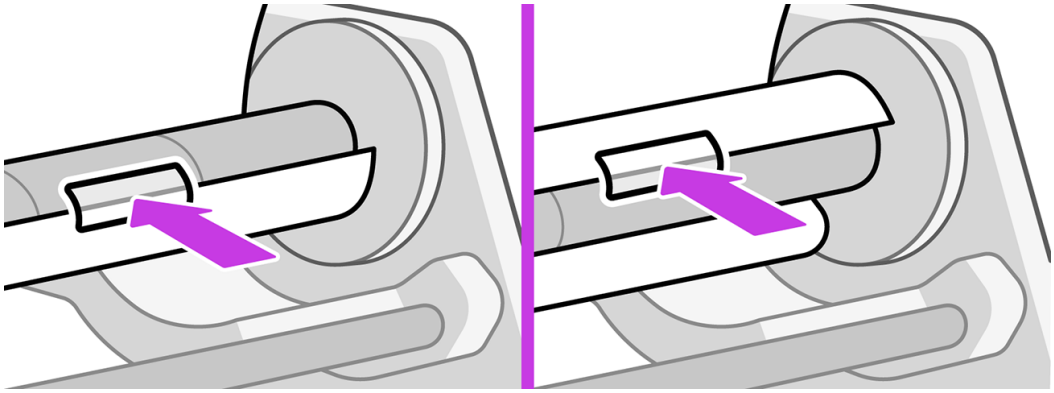
2. Advance the substrate until it reaches the take-up reel core.



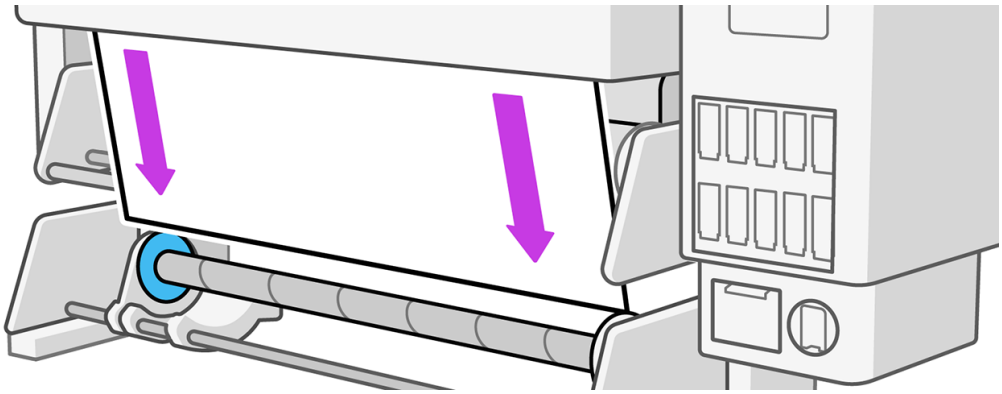
3. Pull down the center of the substrate's leading edge to straighten the substrate. Do not attempt to pull more substrate out of the printer.
4. Tape the leading edge of the substrate to the core using only one piece of tape in the center. Make sure that the substrate is straight.



NOTE: Depending on whether you want to print the images facing in or out, place the tape accordingly.

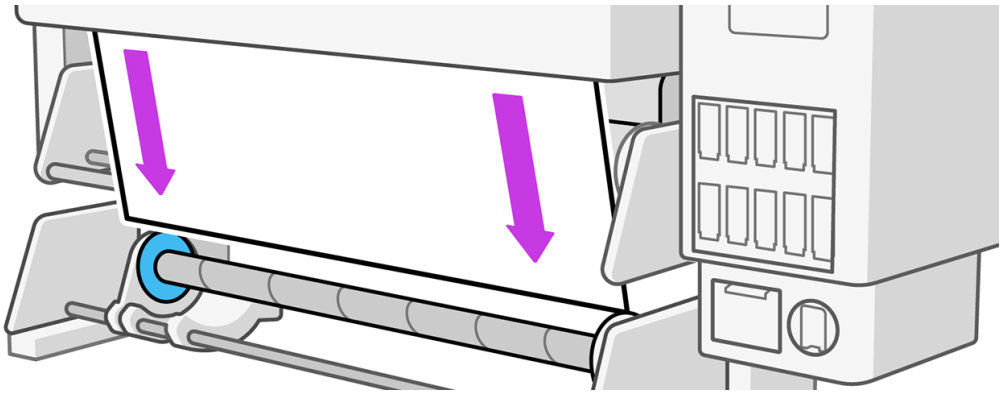


5. Tap the button on the control panel to advance the substrate, creating a loop.



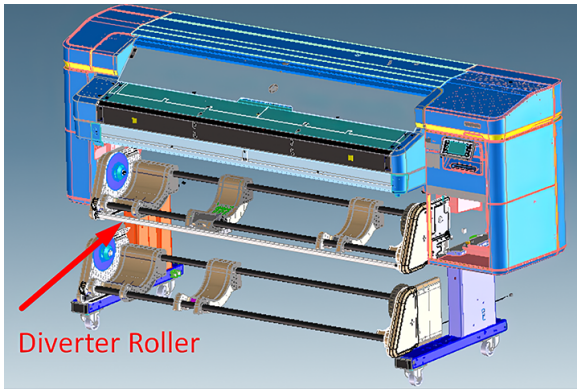
6. Turn the right hub disc through a quarter-revolution; then the printer will detect it. The printer memorizes the length of the substrate and synchronizes the substrate advance with the take-up reel.

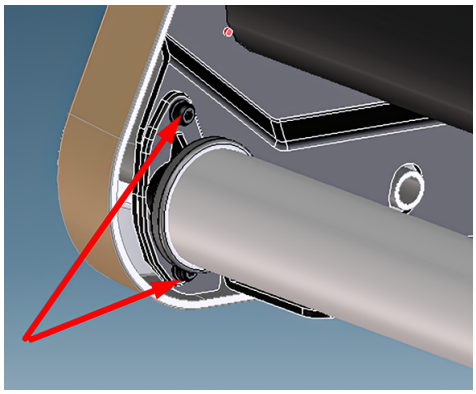
7. Tap the button on the control panel to advance the substrate again.



NOTE: The normal mode of operation of the take-up reel when printing is to collect the substrate and, once it is tensioned, release some substrate back to provide optimal advance accuracy.

TIP: If you are printing with the images facing out, you can disassemble the diverter roller to improve the substrate path in roll-to-free-fall or print-from-leading-edge modes.



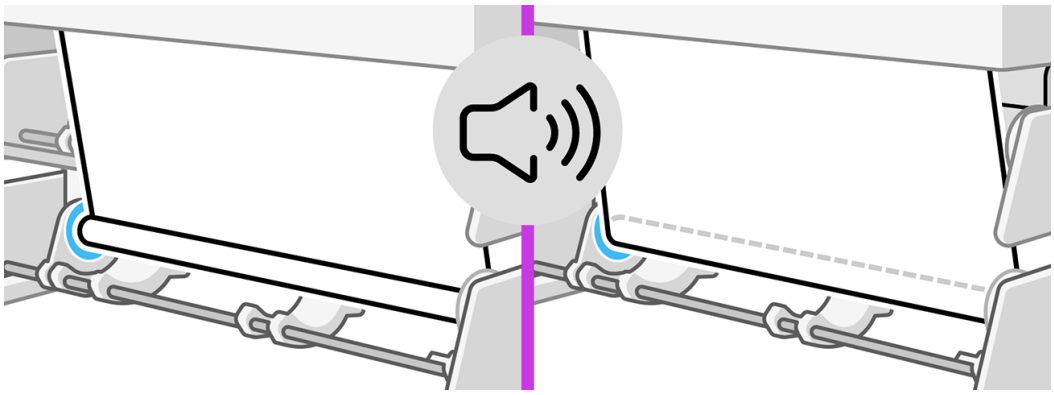


Unload the take-up reel

Before unloading the take-up reel, the substrate must be safely cut.

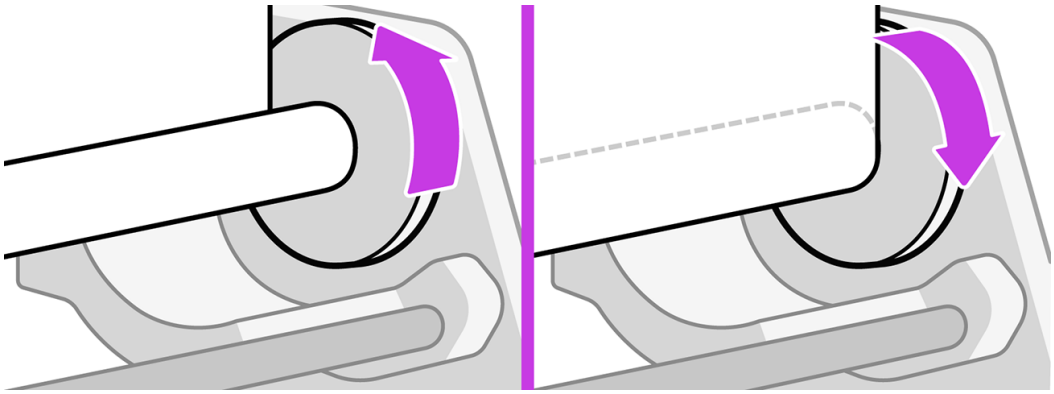
1. Tap the move and cut icon in the control panel's top bar.

   If the substrate cannot be cut by the automatic cutter, cut it with scissors as shown below; do not cut it on top of the cutter beam.

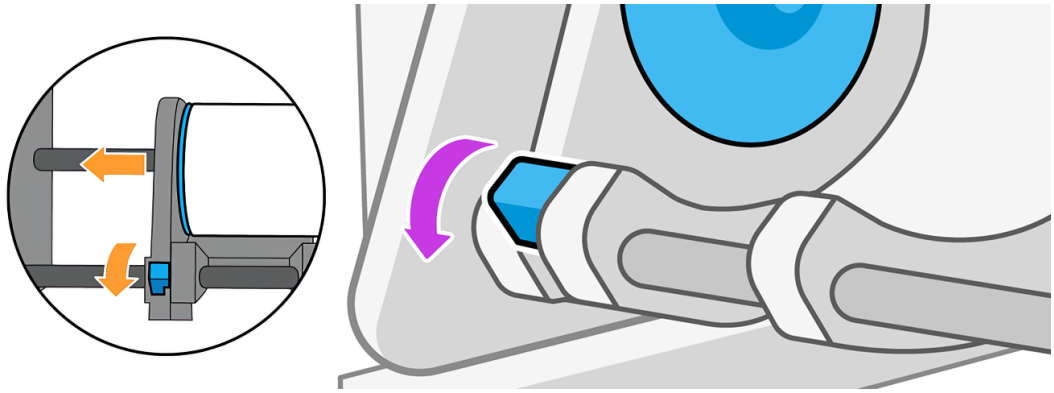


2. At the control panel, tap the substrate icon, then **Output option** > **Turn off take-up reel**. A popup announces **Take-up reel deactivated**.

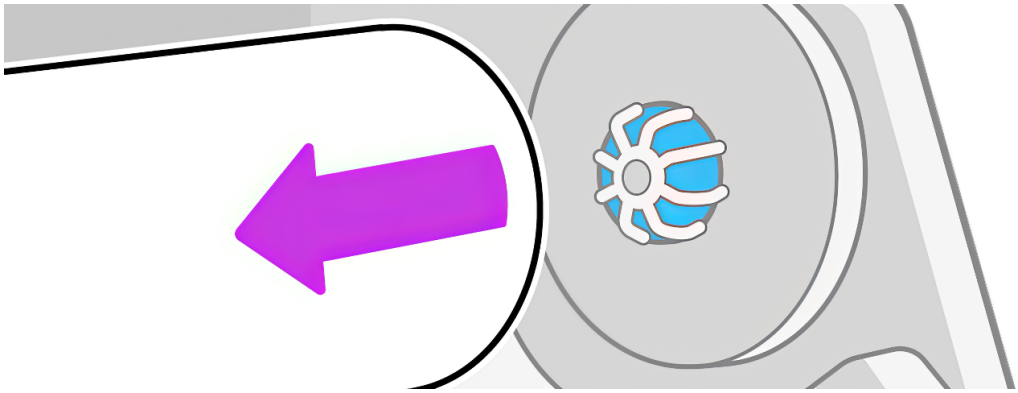
3. While holding the substrate, turn the right-hub disc on the take-up reel to wind the remainder of the substrate around the take-up reel.



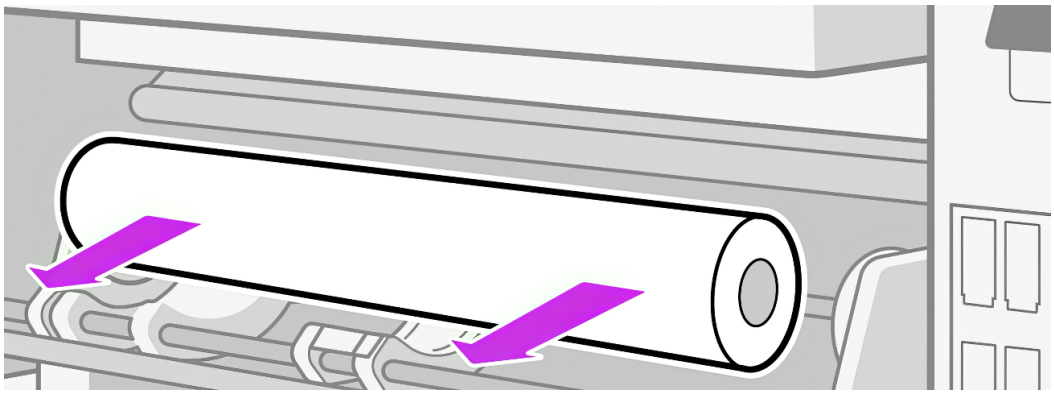
4. Lower the brake lever and remove the left hub from the roll.



5. Remove the roll from the right hub.



6. Remove the roll from the printer.



View information about the substrate

Substrate information can be accessed and viewed from the control panel.

On the control panel's home screen, tap the substrate icon . The following information appears on the control panel, if any substrate is loaded.

Substrate section

- The substrate type
- The substrate name
- The substrate width in millimeters (estimated by the printer)
- The remaining length of the substrate, if known, and whether length tracking is set to **Manual** in the loading configuration screen
- The color calibration status and a button to launch color calibration

Output Options section

- The printing zone

The **More actions** button allows you to launch the following actions:

- Take-up reel instructions

If no substrate is loaded, the message **Out of substrate** appears.

The same information appears on the Embedded Web Server's Supplies page.

Change substrate width and right edge position

If the substrate width is not correctly measured by the printer, it can be changed from the control panel.

Tap the substrate icon , then **Substrate source** > **Modify** > **Width**.

TIP: Bear in mind that automatic edge detection will not be attempted again until the next substrate load.

Substrate length tracking

The substrate length tracking feature enables you to keep track of how much substrate remains on the roll.

1. When the roll is first loaded onto the printer, you have the option (in the Load Configuration screen) to enter the length of substrate on the roll. The amount of substrate that is subsequently used is then tracked.
2. When the substrate is unloaded, the control panel displays the amount remaining so that you can note it for future reference.

Cut substrate

This option is available from the printer's control panel.

This is a high-performance cutter, which can cut most substrates, except textiles and some other particularly tough substrates.

After printing and cutting, remember to remove the cut print before printing the next job.

If you tap the move and cut icon , then the scissors icon, the printer normally advances the substrate 150 mm (5.9 in) and cuts it. Small strips of trimmed substrate can be left inside the printer after cutting.

CAUTION: Remember to remove the cut trims before printing next job. Open window to access the trim if necessary the cutter should be activated from the front panel. Do not cut the substrate manually.

In normal use, the cutter will last as long as the printer. However, cutter life is significantly reduced if you often cut relatively tough substrates. Cutting with scissors does not update the leading edge position and can create jams when printing from the leading edge. Use scissors only in the materials where the embedded cutter is not compatible (textiles).

Print from the leading edge

This printing mode reduces the waste of substrate that would otherwise occur when beginning the print from outside the curing module or from the take-up reel.

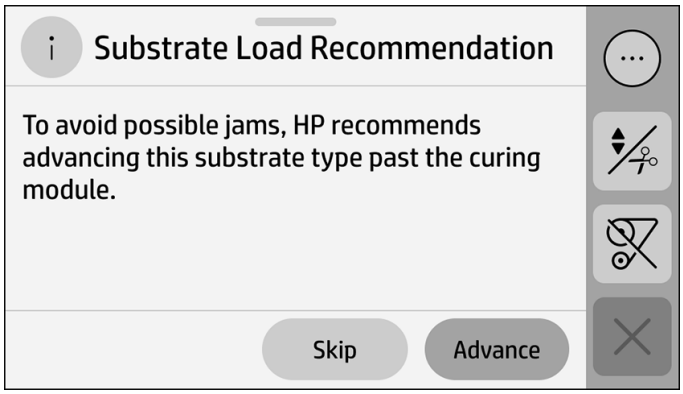
In general, self-adhesive vinyl, heat-transfer, and canvas substrates can usually be printed from the leading edge. In some cases, other categories such as films and papers may be successfully printed in this way. However, due to the specific nature of every substrate, HP recommends evaluating in each case whether it can be printed from the leading edge, or whether it needs to be advanced before printing.

Table 3-5 **Substrate compatibility**

Substrate category	Can be printed from the leading edge?
Self-adhesive vinyl	Yes
Canvas	
Heat transfer	
PET	Depends on particular substrate characteristics
Paper	
PP	
Wallpaper	Use the take-up reel
Textile	
Banner	Use the take-up reel, or print from outside the curing module
Magnetic	

Using the substrate edge holders causes an additional waste of 10 cm, as the substrate will be placed at the cutter line before cutting or loading. See Edge holders on page 55.

If the printer knows that your specific substrate cannot be printed from the leading edge, during the loading process it will ask you directly to advance the substrate to the recommended position.



Best practices for a successful experience printing from the pinchwheels:

- Printing from the leading edge is not an unattended mode. Stand by the printer until the leading edge is attached to the take-up-reel.
- Do not leave the substrate loaded in the printer when not in use, as this can cause the substrate to curl.
- Use the printer's built-in cutter whenever you need to cut the substrate. If you use scissors, the printer will lose track of the leading-edge position, causing a high risk of substrate jams. Also, you could damage the platen.
- Before loading, make sure all tapes are removed from the substrate.
- After loading, cut the first 8-10 inches of the substrate to avoid print defects from loading or storage.
- Cut 2 inches if the leading edge is visibly damaged before starting any print from the pinchwheels.

- Store substrate in the same conditions as the printer. If this is not feasible, leave the substrate in the same conditions as the printer for 24 hours before printing.
- Print in the best print-quality conditions; 20–25°C, 40–60% relative humidity.
- The diverter roller can be removed, if the take-up reel is not used to wind the material with the “printed side in” winding direction.
- HP recommends printing internal diagnostic plots from outside the curing module.
- Follow the control-panel recommendations to advance the substrate, Some medias will ask to advance the media out of the curing module or to attach to the take-up-reel. Avoid manually advancing few centimeters before starting to print from the leading edge. Safety margin is automatically applied by the printer and can be adjusted in print settings.

Tiling applications

In tiling applications, length accuracy and length repeatability are among the most important parameters to consider.

Length accuracy is measured by the average difference in length between the original image and the printed image, while length repeatability is measured by the average variation in length between one tile and another.

Length accuracy

Some substrates may shrink while others may expand during printing. If this happens, the dimensions of the print will not be correct.

As a general rule, you can expect the following changes in length:

- Banners: less than 0.3% shrinkage
- Self-adhesive vinyls: less than 0.2% shrinkage
- Papers: less than 0.3% expansion

The framing problem may be solved by printing a sample and adjusting the size of the image in the RIP.

You can reuse this value for all your future prints with the same substrate, although you should take special care when using banners, as the shrinkage may vary depending on the amount of ink used in the print.

HP recommends tiling together areas with similar amounts of ink. If this is not possible, print the areas with different amounts of ink as different jobs and modify the length of the job with less ink in the RIP to match its size with the job with high ink content.

Length repeatability

To achieve the best performance in tiling applications, it is important to tune the substrate settings and use the take-up reel.

1. Load the substrate with the following settings:

   Skew acceptance at 1 mm/m (**Load** > **Loading options** > **Skew acceptance** 1.0). If the skew check fails, you can decide to unload, continue, or retry after a manual skew adjustment.

Tiling optimization (**Load** > **Loading options** > **Tiling optimization**). Enabling this optimization ensures that the target temperature is reached at the print zone, disables the start-of-job substrate movements, and adds a top margin of 20 cm at the beginning of the first print. The time to print will vary according to the room temperature, which affects the time taken to reach the target temperature.

TIP: Tiling optimization can be selected or unselected if you need to switch from tiling to non-tiling applications within the same substrate preset. There is no need to reload the substrate.

TIP: When loading the input roll, take care that the exterior layers do not slide and cause telescoping. If this happens, correct it manually.

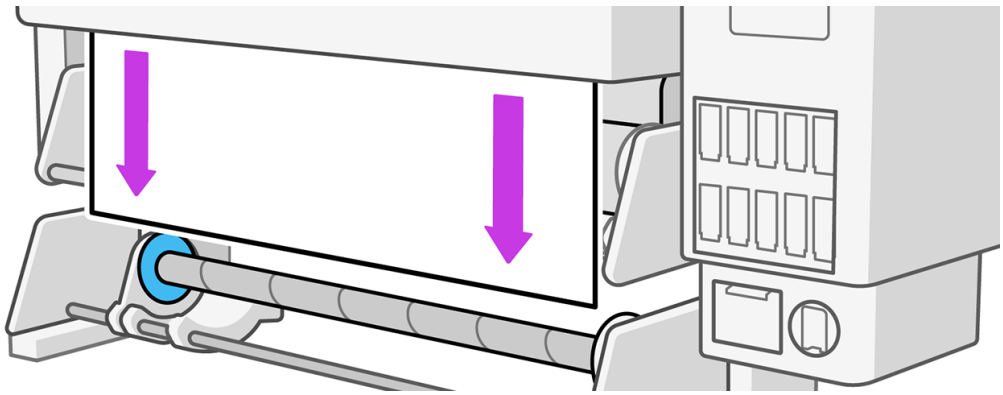
TIP: When printing on **wallpaper**, make sure your substrate preset has **Take-up reel tension mode** set to **Do not apply tension** for optimal tiling performance.

TIP: When printing on **vinyl**, make sure your substrate preset has **Take-up reel tension mode** set to **Only apply tension after advancing** for optimal tiling performance.

2. Load an empty core onto the take-up reel.

TIP: Do not forget to close the hub slider brake.

3. Advance the substrate until the leading edge is level with the take-up reel.



4. Tape the leading edge of the substrate to the core using only one piece of tape in the center. Make sure that the substrate is straight.

TIP: You can also make a V-shape on the leading edge and attach it to the core in the center.

TIP: Perform take-up-reel calibration from the control panel: tap the substrate icon , then **Output options** > **Calibrate**. This adjusts the substrate advance, taking into account the take-up reel's output tension for added accuracy.

TIP: After the first turn, make sure the attached leading edge is not bent. Such bending would cause a deformation of the roll that may cause uneven tension or add skew.

TIP: If tiling is not good enough in the first meter, especially in wallpapers, HP recommends tapping the warm-up button to reach thermal stabilization of the printer once the substrate is loaded. Wait for 5 minutes and start to print (the warm-up lasts up to 15 minutes).

TIP: If length repeatability is still not good enough, print a stabilization plot (1 m long) from the RIP. There is no need to print an image, it can be a blank print to simulate the print mode.

Print on textiles

There are several considerations to take into account when printing on textiles.

- HP strongly recommends using the output platen protector (171S2-67065) to avoid leaving ink marks on the output platen when printing on textiles. See How to install the output platen protector accessory on page 75.
- Textiles need to be loaded with the manual loading option. HP strongly recommends using the substrate loading accessory to load textiles. See Loading accessory on page 47.

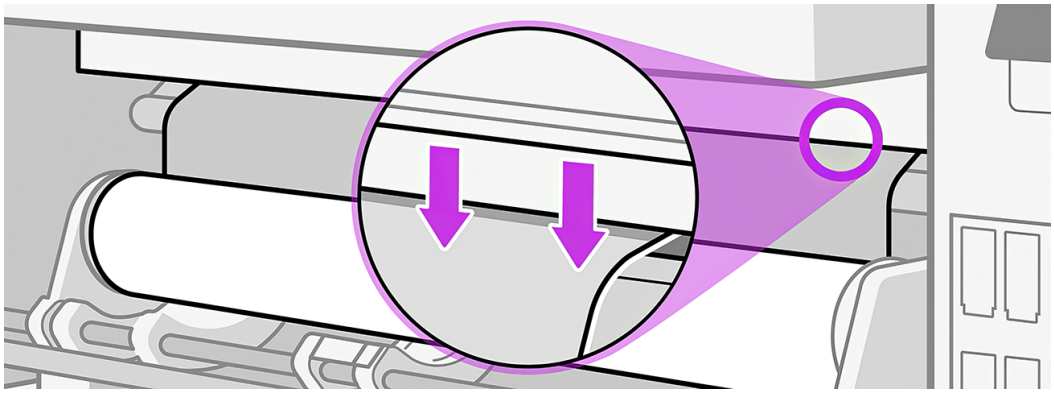
- Generic Output Tension is defined when printing with OPP. In case of printing without the strongly recommended Output Platen Protector, you might experience substrate-advance errors. If so, reduce the output tension.
- When printing on sticky backlit substrates you might experience wrinkles in print area. IF so, increase input tension and vacuum
- Always attach textiles to the take-up reel.

IMPORTANT: When using the take-up reel, attach the center of the substrate edge first. Attach the corners only if necessary.

Print on magnetic substrates

There are several considerations to take into account when printing on magnetic substrates.

- HP strongly recommends using the output platen protector (171S2-67065) to prevent the substrate from sticking to the metallic parts of the heating element in the substrate path. See How to install the output platen protector accessory on page 75.
- Use the manual loading option to avoid substrate jams during the skew check, when the leading edge is inside the curing module.
- Given the particular composition and performance of this type of substrate, HP recommends using the specific substrate preset, if it is available in the Media Locator.
- Check that the magnetic face of the substrate is not stuck to the metallic beams of the substrate input. Release it by hand if necessary.

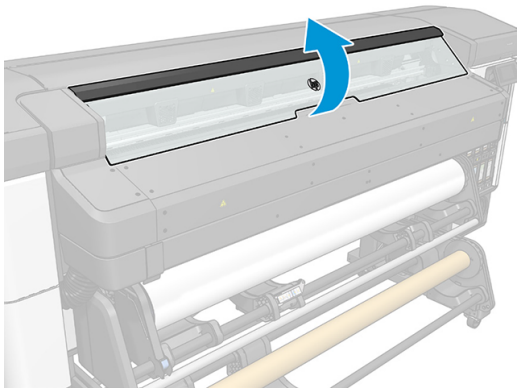


- Be aware that the output platen protector is not compatible with printing from pinchwheels. Always advance the substrate at least as far as the outside of the curing module before printing on this type of substrate.

How to install the output platen protector accessory

A visual guide.

1.



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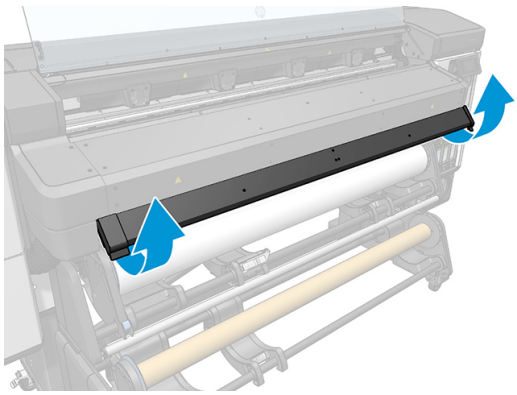
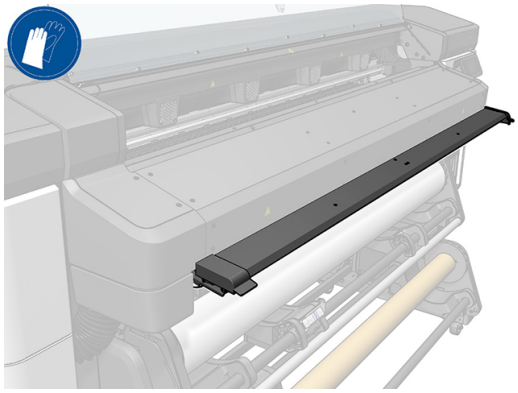
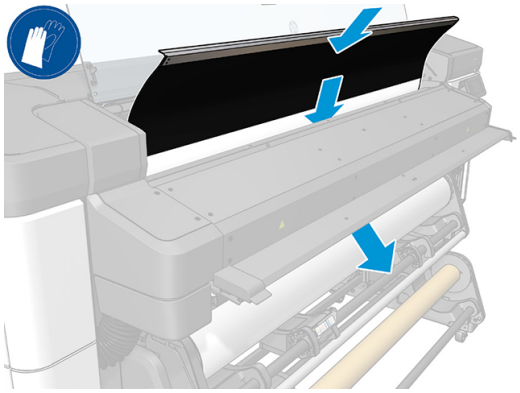


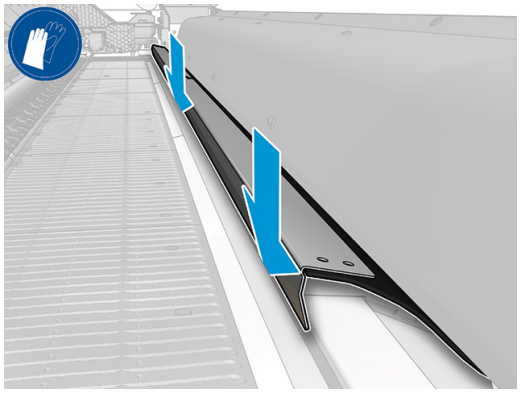
3.



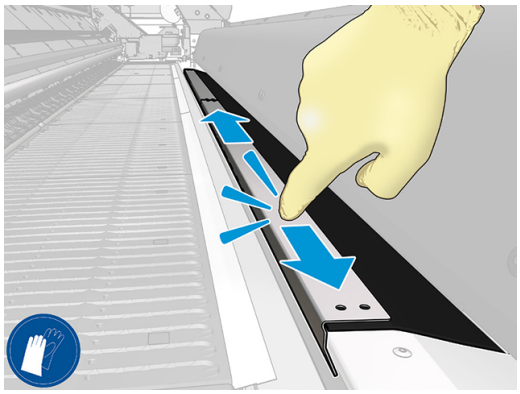
4.



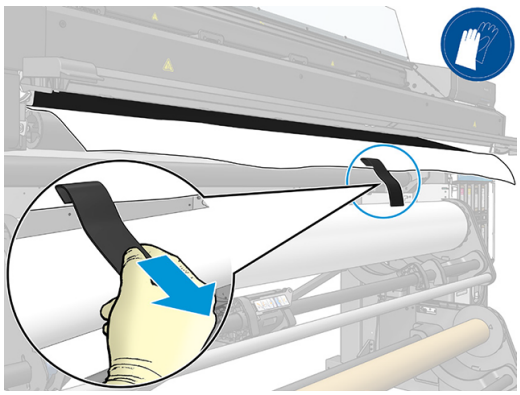
5.



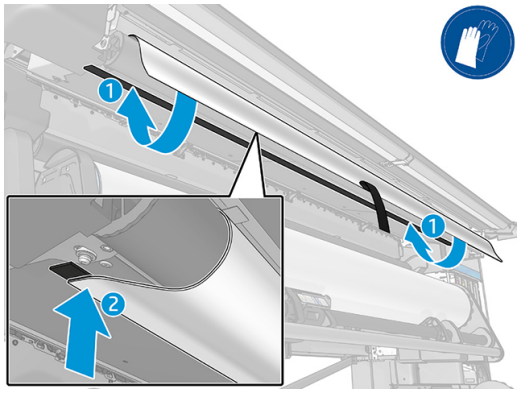
6.



7.

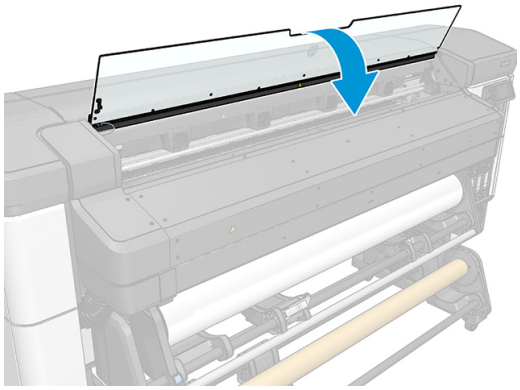


8.



NOTE: To uninstall the accessory follow the reverse instructions and be careful when pulling the hook and loop to detach it from the heating module.

9.



4 Substrate settings

Maintaining appropriate substrate settings is essential for effective printing.

Substrate presets

To obtain the best print quality, the printer has to adapt its printing parameters to each different substrate type.

Each substrate type has its own characteristics. For example, some may need more ink and some may require higher temperatures for curing. A specification of the correct printing parameters for a particular substrate type is called a substrate preset.

The substrate preset contains a color profile in International Color Consortium (ICC) format, which describes the color characteristics of the combination of printer, inks, and substrate. It also contains information about other parameters (such as curing temperature, vacuum pressure, and substrate-advance compensation) that are not directly related to color. Substrate presets (also known as Open Media System or OMES packages) are installed in the printer, and automatically copied to supported RIP software whenever it is connected to the printer.

The printer comes with substrate presets for the most commonly used generic substrates. Some presets may come preinstalled in your printer (such as HP Vinyl presets); use them only with the substrates for which they were created. For other substrates, presets named Generic are recommended over other preinstalled presets. However, the best performance can be achieved only with presets made specifically for your substrate. There are various ways to obtain more presets:

- From the Configuration Center you can check substrate presets from your own printers, from the HP Media Locator and from your reseller, all in one place, and deploy them to your printers.
- Download a preset from the RIP vendor's website, or from the substrate vendor's website.
- Use a generic preset designed for your substrate category, even though it is not fine-tuned for the specific substrate type. Bear in mind that generic substrate settings cannot be modified; instead, the preset can be cloned and then modified.
- Create a new preset, starting from another profile as a base, using the **Add new** button.

If you can find a ready-made preset for your specific substrate, you are recommended to use it.

Packages from PrintOS

Packages from PrintOS is part of PrintOS. It allows you to check substrate presets and deploy them to your printers.

1. Go to PrintOS (http://www.printos.com) and access the Configuration Center from the **Apps** menu in the top left corner.
2. Click **Substrate library** in the left menu.
3. Add the substrate presets that you want by clicking the **Add** button on the rightmost.

4. Once you are done, click **Deploy** and choose to which printers you want to send the selected presets.

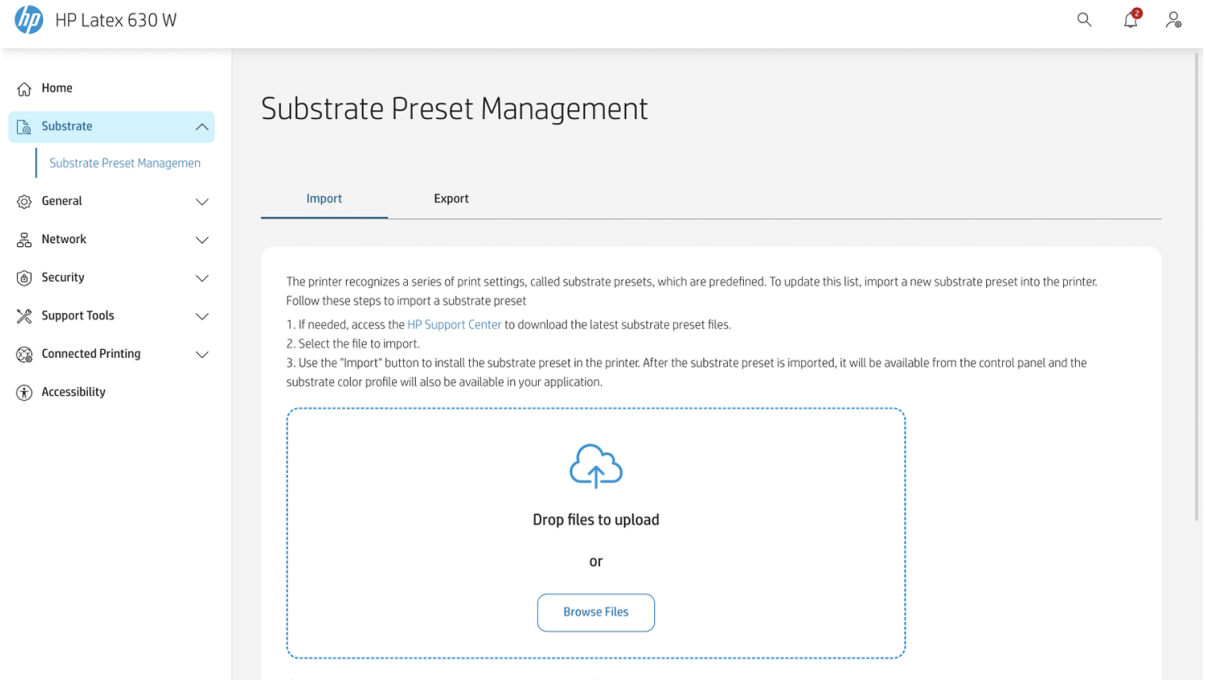
5. From the printer's control panel, go to **Substrate library** > **Packages from PrintOS** to download and install your presets.

HP Media Locator

The HP Media Locator database of substrate presets can also be accessed from a Web browser. This provides access to the database for different regions, printer models, applications, suppliers, substrate types, and so on.

Visit http://www.printos.com/ml.

When you have located the substrate preset of your choice, you can download it to your computer. To install the preset into the printer with which you want to use it, use the printer's Embedded Web Server. Navigate to the **Substrate** > **Substrate preset management** > **Import** screen.



Click **Browse** to browse to the substrate preset file that you have previously downloaded to your computer, then click **Update** to install the preset in your printer.

The Embedded Web Server also allows you to export one or more substrate presets from your printer for use with another printer of the same model. To export more than one substrate preset at a time, click the substrate presets you want to export while pressing the Ctrl key. All exported presets will be saved in the same **paperpresets.oms** file.

When importing a previously exported substrate preset, you may see a message warning you that the package is not signed (only packages downloaded from the HP Media Locator Internet database are digitally signed, as a form of authentication); you can either ignore the warning and continue with the installation, or abort the installation.

If you get an error message while exporting:

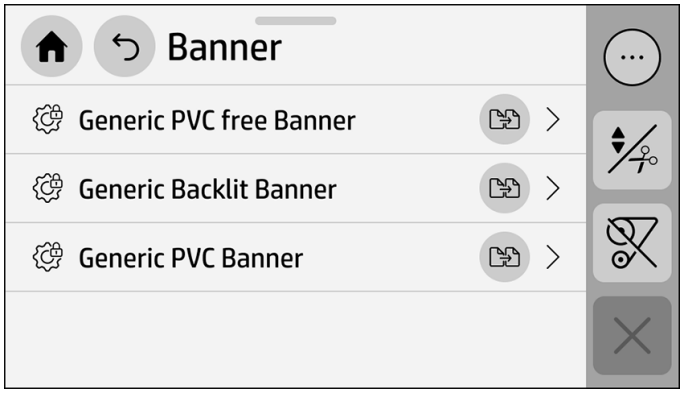
- Check that you have enough disk space available.
- Check whether importing multiple substrate presets will exceed the maximum permitted for the printer (10 presets).

Generic presets

A generic preset is designed to be approximately suitable for a substrate category as a whole, rather than for a particular substrate type.

Figure 4-1 Substrate categories

Figure 4-2 Examples of generic presets



A generic preset cannot be edited, erased, saved, or color-calibrated; but it can be cloned. Therefore, you must first clone a generic preset to be able to color-calibrate it, or to modify any other property.

The printer provides generic presets for the supported substrate categories: see Supported substrate categories on page 36.

Clone a substrate preset

To clone a substrate preset means to make a copy of it under a different name.

You may wish to clone and edit a preset for various reasons:

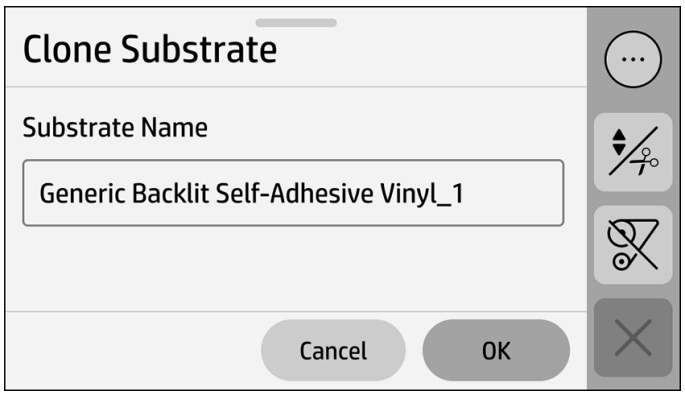
- To assign a name of your own choice to the preset
- To adjust the preset to the precise characteristics of your substrate

- To adjust the preset to your intended use of the substrate, which may range from highest-quality printing to fast production output.

To clone a substrate preset, follow these steps:

1. At the control panel, tap the menu icon, then **Substrate library** > **Installed substrates**, then select the substrate category, then tap **Clone**, rename it, and tap **OK**.
2. Inside the substrate category you can find all the generic subcategories and the installed substrates.

   Tap the clone icon and enter a name for the new preset.
3. Tap **Clone** to clone the preset, and enter a name for the new preset.

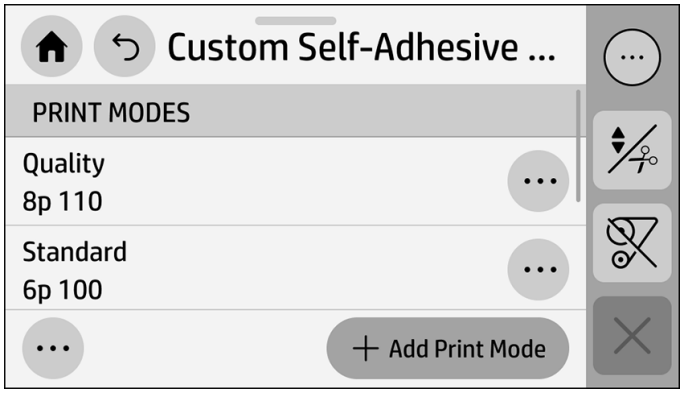


Your new preset will appear at the end of the generic preset list.

Modify a substrate preset

You can modify any non-generic preset.

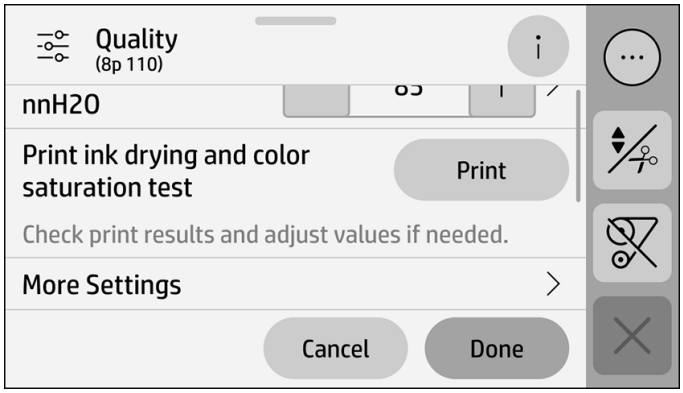
To modify a preset, tap the menu icon, then **Substrate library** > **Installed substrates**, select the one you want to modify, then tap **+ Add print mode**.



NOTE: You cannot change the number of passes or the ink density in an existing print mode. If you want to change the number of passes or the ink density, create a new print mode.

NOTE: You are not allowed to create two print modes with the same color mode, the same number of passes, or the same ink density.

To change the values, you must print a test plot. Check it and choose the number in the pull-down color-saturation menu that matches your preferences in terms of curing and drying. If none of the options are good enough, try changing the temperature and reprint. You can also change the substrate-advance settings.



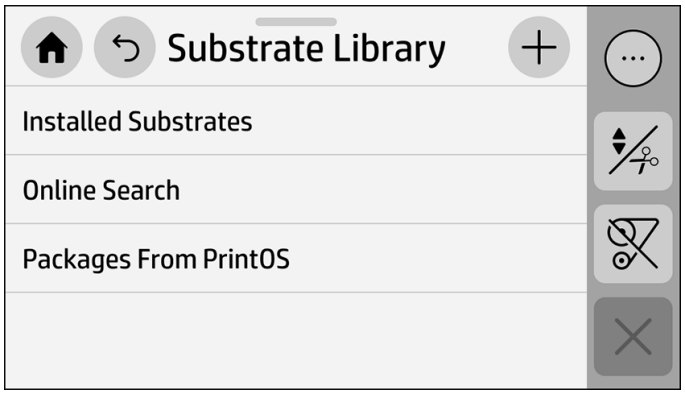
Add a new substrate preset

If you cannot find a ready-made preset for your substrate, and prefer not to use a generic preset or edit an existing preset, you can make your own preset from scratch.

The Add New Substrate wizard 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.

1. Ensure that the printer is in the Ready state, and that there is no job printing or in the queue.
2. To complete the full workflow and perform the print test, HP recommends loading the new substrate before creating the preset.

3. Tap the menu icon , then **Substrate library** > **+ Add new substrate**, select the substrate category and the base substrate to be added, name the new substrate, change its properties, make a test print (this is optional), then tap **Done**.



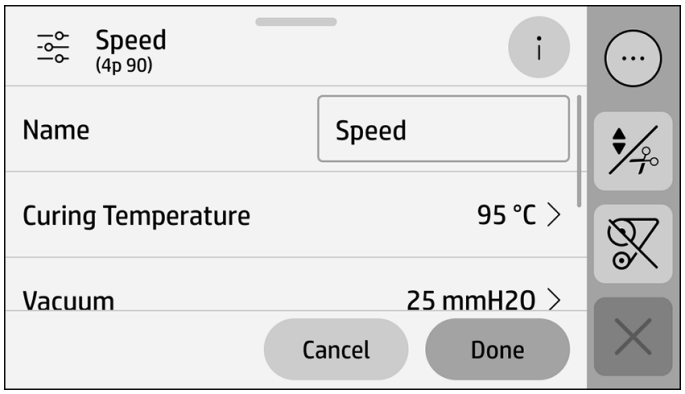
4. You can tap the **Print test** button to produce the ink drying and color saturation test print. Continue adjusting the settings and printing again until you are satisfied with the result.

NOTE: You can omit this step if you already know the settings that you want to use.

5. You can change the properties from **Basic settings**, **More settings**, or **Advanced settings**, which are intended for people who understand their implications.

   To go back to the previous screen, tap the back icon .

Basic settings



- **Curing temperature (from 70 to 105°C)**

  If the ink does not cure properly, increase the curing temperature. If the substrate deforms or smears, decrease the curing temperature.

  Recommendation: Start by changing ±2°C.

  Steps: ±2°C.

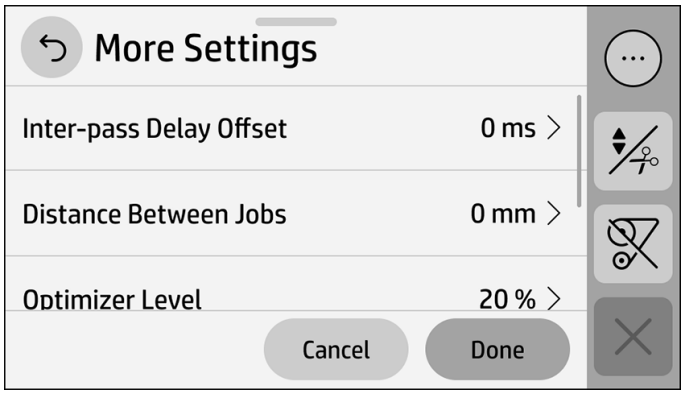
- **Vacuum (from 5 to 70 mmH_2O)**

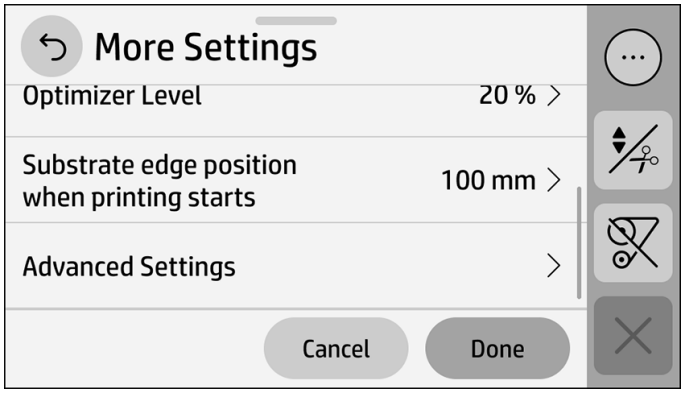
  If the substrate suffers from smears, or lifts from the print zone, increase the vacuum. If there is vertical banding or substrate fails to advance, decrease the vacuum.

Recommendation: Do not change more than ±5 or 10 mmH_2O from the default setting.

Steps: ±5 mmH_2O.

More settings





- **Inter-pass delay offset (from 0 to 1500 ms)**

  Recommended for heat-sensitive substrates. If the substrate deforms and/or smears, increase the delay. If the ink is not cured, increase the delay.

  Recommendation: Start by changing ±100 ms.

  Steps: ±50 ms.

- **Distance between jobs (from 0 to 300 mm)**

  Set to 0 for no margin between non-tailgated jobs.

  Increase value to add margin between non-tailgated jobs.

  HP recommends a margin of 100 to 300 for cellulose-based substrates, especially in conditions of high humidity.

NOTE: Some generic presets already have an extra margin between non-tailgated jobs to avoid crashes or smears at the start of the print.

  Steps: ±10 mm.

- **Optimizer level (from 0 to 50%)**

If there is grain or bleeding (ink spreading across different color areas), increase the optimizer level.

Recommendation: Start by increasing 3%.

Steps: ±1%.

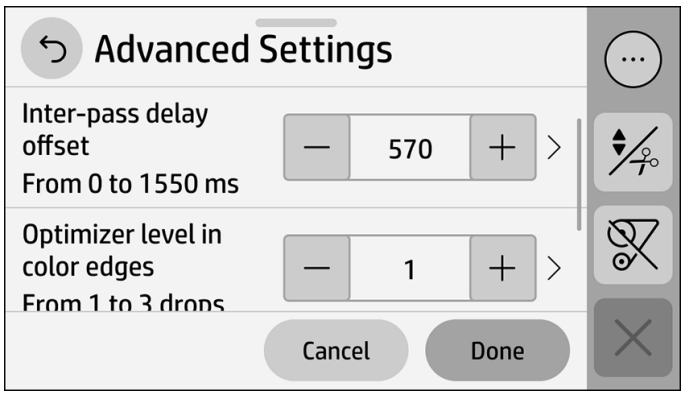
- **Substrate edge position when printing starts (from 0 to 1200 mm)**

  Set to 0 to disable the margin (not recommended).

  Set a safety margin of at least 100 mm between the print and the pinchwheels.

  Steps: ±100 mm.

Advanced settings



- **Overcoat (from 0 to 3 drops)**

  Set to 0 for jobs that will be laminated. Increase it to enhance image durability and scratch resistance. If color shade is affected, decrease it.

  Steps: ±0.25 drops per pixel.

- **Blooming level**

  Blooming helps to mitigate bleeding issues, especially in small text and details, at the borders between printed areas and non-printed areas. To improve jagged or bleeding edges in areas with contrasted ink densities, increase the blooming level. The system will automatically increase drops and pixels for color accordingly.

  You can increase the blooming level from 0 to 1, 2, or 3.

- **Substrate-advance sensor**

  Disable the sensor only if it causes substrate-advance issues, which may happen in rare cases of substrates with severe curling, wrinkling, or low vacuum levels.

- **Print-zone temperature (from 37 to 45°C)**

  If bleeding occurs (ink spreading across different color areas), or prints are not drying properly, increase the temperature. If high coalescence occurs (colors in the same areas are not uniform) or if the substrate deforms inside the printer, decrease the temperature.

  Recommendation: Start by changing ±2°C.

Steps: ±2°C.

- **Print-zone airflow (from X to Y cm/s)**

  If there is vertical banding, decrease the factor. If there is bleeding (ink spreading across different color areas), increase the factor.

  Recommendation: Start by changing ±100 cm/s.

  Steps: ±50 cm/s.

- **Take-up-reel tension mode**

  Dropdown with these options: **Always apply tension**, **Apply tension only after advancing**, **Do not apply tension**.

- **Input tension (from 4 to 20 N/m)**

  If there is an issue with substrate skew or length consistency in tiling jobs, increase the tension. If there is blurriness and/or the substrate is not advancing, decrease the tension.

  Recommendation: Start by changing ±5 N/m.

  Steps: ±1 N/m.

- **Output tension (from 4 to 20 N/m)**

  If horizontal wrinkles appear in the substrate, or it is not flat when leaving the print zone, increase the tension. If vertical wrinkles appear along the substrate, decrease the tension. Adjust only when the take-up reel applies tension.

  Recommendation: Start by changing ±5 N/m.

  Steps: ±1 N/m.

- **Backwards tension (from 4 to 20 N/m)**

  If the substrate does not rewind, increase the tension. If the substrate rewinds faster than the drive roller can, decrease the tension. (If the substrate rewinds too fast, it may unload, or printed jobs may remain after the pinchwheels.)

  Recommendation: Start by changing ±5 N/m.

  Steps: ±1 N/m.

- **Optimize tiling**

  After it is attached, the take-up reel automatically advances the position of the substrate edge 1 m (39.4 in) to improve repeatability of the tiling length.

- **Substrate movements**

  There are automatic movements during cool-down to avoid substrate overheating and deformations, especially for heat-sensitive substrates.

- **Advance factor (from –10 to +10 mm/m)**

  If white line banding is visible, decrease the factor. If dark line banding is visible, increase the factor.

  Recommendation: Start by changing ±2 mm/m.

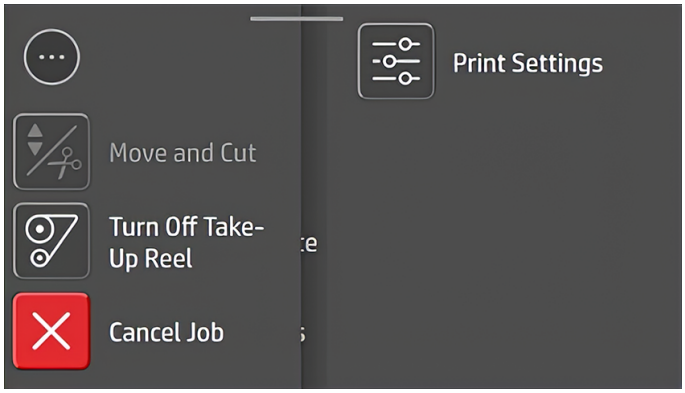
Steps: ±1 mm/m.

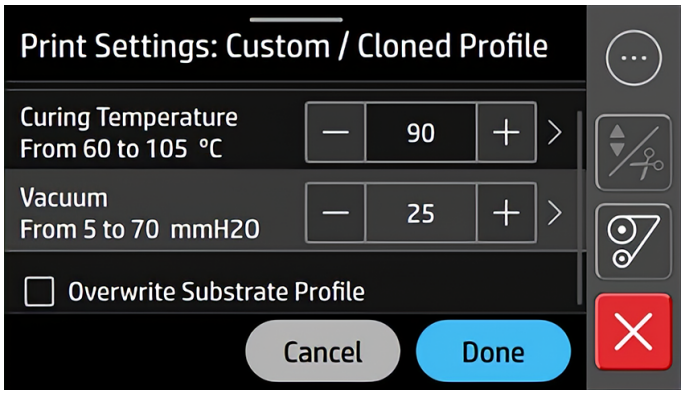
Change settings while printing

You can use the control panel to adjust vacuum or curing temperature while printing.

To change the settings while printing, tap **Print settings** in the control panel's print-job screen, and choose the setting that you want to adjust. The changes that you make take effect immediately. However, when changing the temperature, the effect on the print will appear only after some time.

Unless you are working with a generic preset, you can store the new settings in the current substrate preset and print mode by checking **Overwrite substrate profile**.





Tap **Done** to use the new settings; tap **Cancel** to return to the previous settings.

Temperature profile

Many of the main and advanced substrate settings are related to temperature control, since this is a critical area for correct printing results with latex inks on a wide variety of substrates.

NOTE: There is a delay between making a change and seeing the effect on your prints.

NOTE: If you selected English units of measurement, you may notice some discrepancies, as the printer works in Celsius and makes the conversion.

Select the number of passes

Increasing the number of passes will tend to improve the print quality but reduce the speed of printing.

Print modes explanation

For example, “Speed 4p 90” means:

- “Speed” is the name assigned to this print mode.
- It uses 4 passes.
- It has an ink density of 90%.

NOTE: The following table is for the normal ink limit unless otherwise indicated.

Table 4-1 Color print modes

Category	Substrate name	Print modes
Self-adhesive vinyl	Generic Self-Adhesive Vinyl	Speed 4p 90 Standard 6p 100 Quality 8p 110 High Saturation 12p 120 W60 SPOT 6p 110 W100 SPOT 12p 110 W60 UNDERFLOOD 22p 110 W100 UNDERFLOOD 45p 110
	Generic Cast Self-Adhesive Vinyl	Standard 8p 110 Quality 12p 120 W160 SPOT 16p 110 W160 UNDERFLOOD 54p 110
	Generic Backlit Self-Adhesive Vinyl	Standard 8p 120 Quality 14p 140
	Generic SAV Transparent	Speed 4p 90 Standard 6p 100 Quality 8p 110 W60 Spot 6p 110 W100 Spot 12p 110 W60 Underflood 22p 110 W100 Underflood 45p 110 W60 Overflood 15p 110 W100 Overflood 22p 110 W100 S3L 60p 110 W160 S3L 78p 110

Table 4-1 Color print modes (continued)

Category	Substrate name	Print modes
Banner	Generic Banner	Speed 4p 90 Standard 6p 110
	Generic Backlit Banner	Speed 8p 120 Standard 14p 140 Quality 16p 170
	Generic PVC-free Banner	Speed 4p 90 Quality 6p 110
Paper	Generic Uncoated Paper	Speed 4p 90 Quality 6p 110
	Generic Coated Paper	Speed 6p 80 Standard 8p 90 Quality 12p 110 W100 SPOT 12p 110 W100 UNDERFLOOD 45p 110
	Generic Backlit Paper	Standard 8p 120 Quality 14p 140
	Generic Blueback	Speed 4p 80 Standard 6p 90
Wallcovering	Generic Wallcovering Non-Woven Base	Speed 6p 90 Standard 8p 100 Quality 12p 100 W100 SPOT 12p 110 W100 UNDERFLOOD 45p 110
	Generic Wallcovering Woven Base	Speed 6p 90 Standard 8p 100 Quality 12p 100
	Generic Wallcovering Paper Base	Speed 6p 90 Standard 8p 100 Quality 12p 100

Table 4-1 Color print modes (continued)

Category	Substrate name	Print modes
Film	Generic Polyester Film	Standard 8p 120 Quality 12p 120
	Generic Backlit Polyester Film	Standard 12p 140 Quality 16p 150 W100 SPOT 12p 110 W100 UNDERFLOOD 45p 110
	Generic Polypropylene Film	Standard 6p 110 Quality 8p 120
	Generic Backlit Polypropylene Film	Standard 12p 130 Quality 14p 140
	Generic Polyester Film Transparent	Standard 8p 120 Quality 12p 120 W60 Spot 6p 110 W100 Spot 12p 110 W60 Underflood 22p 110 W100 Underflood 45p 110 W60 Overflood 15p 110 W100 Overflood 22p 110
Textile	Generic Non-Porous Textile	Speed 8p 120 Standard 14p 170 Quality 18p 200
	Generic Backlit Textile	Standard 14p 200 Quality 18p 260
Canvas	Generic Canvas	Standard 6p 110 Quality 8p 120 W160 SPOT 16p 100 W160 UNDERFLOOD 54p 100
Heat transfer	Generic Heat Transfer	Standard 8p 120 Quality 12p 120

NOTE: More specific settings for many substrates from different vendors are available at https://www.printos.com/ml/#/medialocator.

NOTE: After selecting the number of passes in the Add New Print Mode screen, make sure to reset your print mode to default category values for that print mode.

Tips

- For fast layout proofing on low-cost substrates, a low-ink 2-pass print mode has been enabled. It is recommended for paper-based substrates only, as curing may not work correctly for other substrate types in this mode.
- 1 to 2 passes provide lower print quality. Also, the color gamut will be slightly reduced, as total ink is limited to allow for curing.
- 1200 dpi print resolution is available in the 18-pass print mode only. If you intend to use it, ensure that you have a specific substrate preset for this print mode, because reusing others may not deliver the expected print quality.

Print modes solution space

Apart from the default print modes provided for each generic substrate, there are more combinations of print-mode passes and ink density available when adding a new substrate or cloning a generic substrate.

This is called the solution space; all the combinations are listed in the tables below.

The HP Latex 630 Printer provides color spaces of 4 colors (CMYK) and 6 colors (CMYKcm), and the HP Latex 630W Printer also provides the white color space (CMYKcmW).

Figure 4-3 Print modes without white

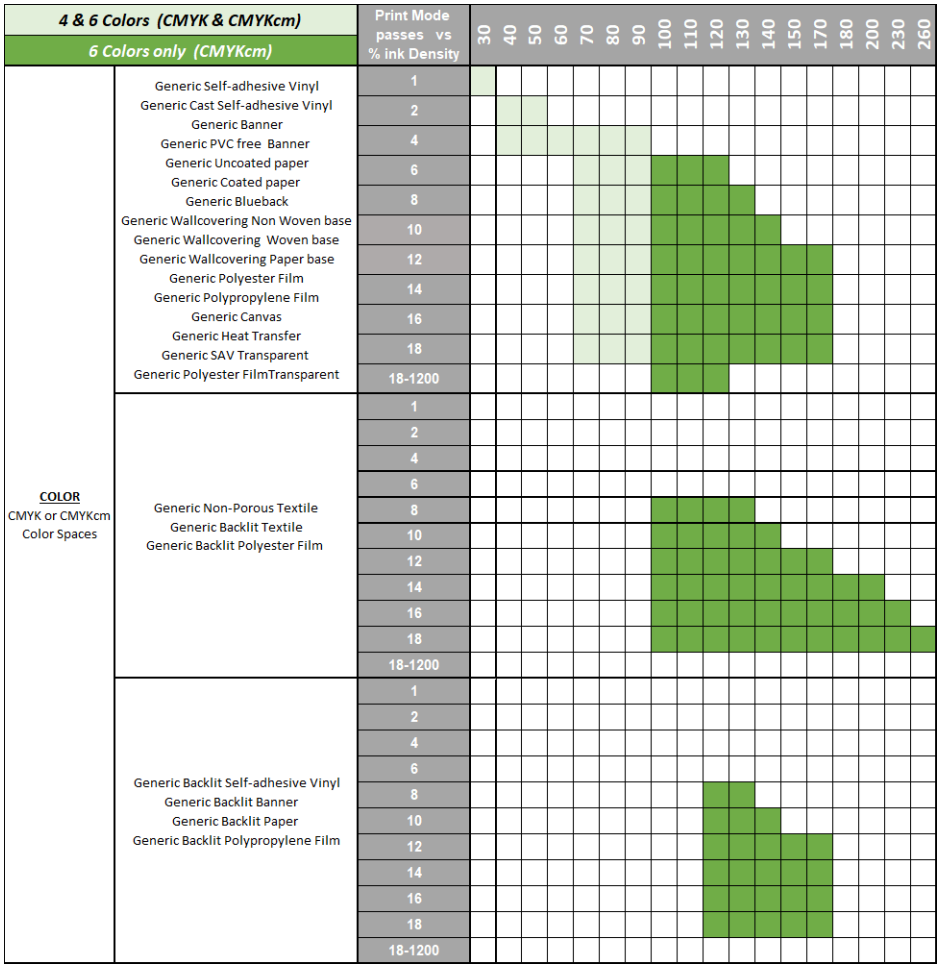
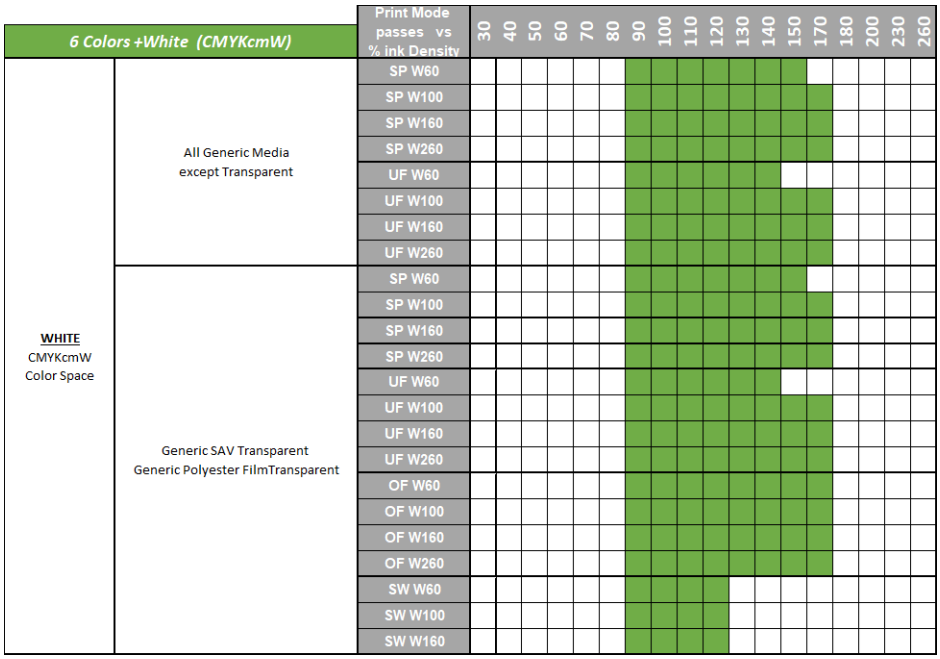


Figure 4-4 Print modes including white



Save your substrate presets in the cloud

If your printer is connected to PrintOS, you can have a secured copy of your substrate presets. Any update that you make to a substrate preset or any new one that you create will automatically be saved in Configuration Center.

Delete a substrate preset

You can delete substrate presets that you have added yourself, but not those that were supplied with the printer.

To do so, tap the name of the substrate preset, then tap the ellipsis icon ··· beside it, then tap **Delete**.

If you delete a preset, you will lose the reference to that substrate in the usage and accounting information. Instead of the name of the substrate, from that moment on you will see **Deleted substrate** in the usage and accounting information.

Printing-speed tips and tricks

The obvious way to increase speed is to reduce the number of print passes, although this will tend to reduce print quality.

Bear in mind the following considerations:

- With fewer than 6 passes, the printer is more sensitive to substrate-advance problems, and you may need to reduce the ink quantity to improve print quality.
- As you reduce the number of passes, the best curing temperature may be more difficult to find, and may be more sensitive to the ambient temperature and humidity.

Here are some other suggestions for increasing the speed of printing.

- Concatenating prints saves time, because one can be printed while another is being cured.
- Disable the cutter: Tap the menu icon ☰, then **Settings** > **Job settings** > **On hold for manual release**, and move the slider to the on position. With most substrates, this saves some time at the end of the printing process.

- Use the take-up reel

NOTE: Printing a single job for more than 2 hours can reduce the life of the printheads.

See also Printer seems slow on page 192.

Color calibration

The purpose of color calibration is to produce consistent colors with the specific printheads, inks, and substrate that you are using, and in your particular environmental conditions. After color calibration, you can expect to get very similar prints from your printer on different occasions.

Calibration should be done in any of the following circumstances:

- Whenever you load a new substrate type that has not yet been calibrated.
- If your substrate has already been calibrated at least once:
  - Whenever you notice excessive color differences between prints. Such color differences are mainly caused by aging and wear of the printheads, installing new printheads, and changes in substrate characteristics between one roll and another.
  - Whenever you replace a color printhead.
  - Whenever the color calibration status is **Obsolete**.

630W only: Color calibration adjusts the results you get with colored inks, but white ink does not need calibrating and is not calibrated. To calibrate non-white ink on a white-specific substrate (such as a transparent or black substrate), load instead an opaque, white, non-textured substrate and perform the calibration with that, selecting on the control panel the white-specific substrate that you want to calibrate. If you load a colored or non-opaque substrate and try to perform color calibration, the printer will display an error message.

Each substrate must be calibrated independently.

In some cases it is not possible to calibrate a specific substrate. In such cases, the **Calibrate** and **Reset** options are not available:

- The loaded substrate has a generic preset (generic presets are not editable).
- The loaded substrate has a preset that is not editable for some other reason.
- The loaded substrate is not suitable for color calibration, because the color sensor is unable to read the substrate properly. This may be the case for transparent, backlit, or textile substrates, for example.

NOTE: Color calibration may not work correctly with non-HP ink.

NOTE: Generic substrates cannot be color-calibrated, although such substrates may be suitable for color calibration. You can color-calibrate clones of most generic substrates.

Color calibration can be launched from the control panel by tapping the tools icon , then **Troubleshooting** > **Color calibration**; or when adding a new substrate. You can also launch color calibration from the substrate library.

In outline, the process consists of the following steps.

1. A calibration target is printed.
2. The colors on the calibration target are measured automatically.
3. The calibration target measurements are compared with the measurements from your first calibration (color references) to calculate the necessary calibration tables for consistent color printing on the substrate in use.

For a substrate without a reference, such as one created by cloning a generic preset, the current printing color is taken as a reference in its initial color calibration. This means that, after the first color calibration, the printed colors do not change, but are recorded as the reference for future calibrations. Subsequent color calibrations compare calibration target colors with the recorded reference, in order to calculate new calibration tables for consistent color printing on that particular substrate type.

From the control panel, you can delete the current calibration reference and table, as if that particular substrate had never been calibrated. So, the next time you calibrate it, a new color reference will be set.

Tap the tools icon , then **Settings** > **Reset calibrations** > **Reset color calibration**.

Color calibration as described above is not recommended for the following substrate types. It may be possible to calibrate some of these substrates by using an external color measurement device, driven by an external RIP.

- Non-opaque substrates such as clear film and backlit substrates.
- Substrates with an uneven surface, such as perforated vinyl and punched-window substrates.

Substrates suitable for color calibration include white even-surfaced adhesive vinyls (neither punched nor perforated), PVC banners, and papers.

Recommendations for optimal color calibration

The color calibration test chart is printed using a fixed print mode with a high number of passes and fixed curing and drying settings to ensure printing consistency.

- The first time the color calibration is launched (the reference is set), the printheads should be in nominal condition (as new as possible) to ensure the best color accuracy.
- Parameters affecting substrate advance should be fine-tuned, printheads should be aligned, and nozzle health should be checked, before starting color calibration for the first time.
- Perform color calibrations with the printer in its normal environment and in typical condition. For example, calibrate when the printer has been printing for some time, not at the beginning of the day or after an idle period.
- Advance the substrate about 75 cm (30 in) before printing the color target, to ensure that the substrate is fresh.

Color-calibration procedure

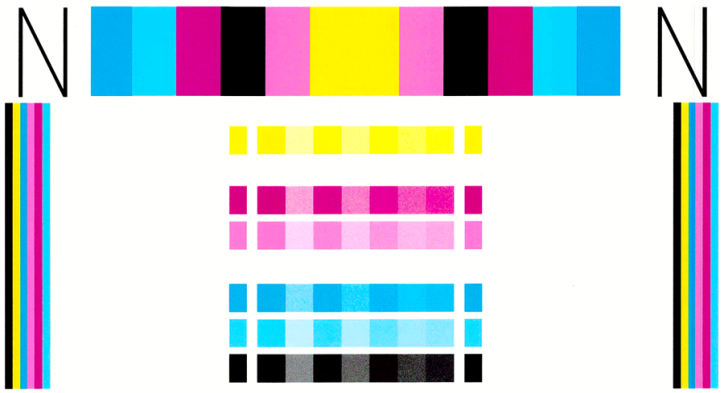
The calibration process is fully automatic and can be performed unattended after you have loaded substrate of the type you wish to calibrate.

To start color calibration of the loaded substrate from the control panel, tap the tools icon , then **Troubleshooting** > **Color calibration**. Color calibration can also be run while adding a new substrate (see Add a new substrate preset on page 83).

NOTE: Only substrates at least 51 cm (20 in) wide can be calibrated.

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 by the line sensor (densitometer). If the scan cannot be completed successfully, a message is displayed on the control panel; see System error codes on page 193.
3. From the measurements made by the line sensor, the printer calculates the necessary correction tables to apply to your print jobs, for consistent color printing on that substrate type.

You can check the color calibration status of your substrate by tapping the substrate icon on the control panel.

- **Pending** status indicates that this substrate has never been calibrated. In this case, the factory-default color tables will be applied to print jobs, as there is no reference state defined. After one or more color calibrations have been performed, tapping the **Reset** button returns the status to Recommended.
- **Valid (done)** status indicates that a color calibration has been performed successfully at least once on this substrate, and therefore a color reference state is defined.
- **Obsolete** status indicates that the last color calibration may be out of date. For instance, color calibration status is set to Obsolete whenever a printhead is replaced. The color reference state remains defined.
- **Not available (not supported)** indicates that this substrate cannot be color-calibrated.

NOTE: Generic substrates cannot be color-calibrated, although such substrates may be suitable for color calibration. You can color-calibrate clones of most generic substrates.

TIP: If color calibration fails, it is worth trying again.

TIP: If the first color calibration of a new substrate fails, tap the **Reset** button before trying again.

ICC 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, your print mode, and your substrate. An ICC profile is a description of a printer, ink, print mode, and substrate combination that contains all the information needed for these color conversions.

These color conversions may be performed by your Raster Image Processor (RIP), if it offers that possibility; they are not performed by the printer. For further information on the use of ICC profiles, see the documentation for your application software and for your RIP.

In addition to the ICC profiles used for printing, you may wish to calibrate and profile your monitor (display device), so that the colors you see on the screen relate more closely to those that you see on your prints.

Full calibration

Full calibration helps you to print colors consistently, reaching optimal printer performance without using working hours.

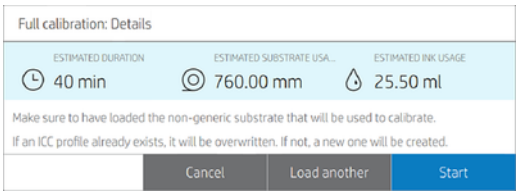
The sequence of operations is completely unattended and is recommended when you own multiple printers, in order to achieve printer-to-printer consistency with least effort; or if you need to print consistent jobs on the same substrates for days or weeks.

It is a combination of two calibrations:

- Automatic printhead alignment: see Automatic alignment on page 138.
- Color calibration: see Color calibration on page 95.

To run this sequence of calibrations:

1. Load the substrate and attach it to the take-up reel.
2. Select a cloned substrate in the control panel (see Clone a substrate preset on page 81).
3. Tap the tools icon on the control panel and scroll down to select **Advanced calibrations**.
4. Tap the **Full calibration** button, then **Continue**.
5. If all the preconditions are met, the sequence starts when you tap the **Start** button.



Note that

- Some substrate categories do not allow color calibration, in which case the sequence will stop at the beginning.

- Automatic printhead alignment is in common across substrates; color calibration is valid for a specific substrate and in common for all print modes.

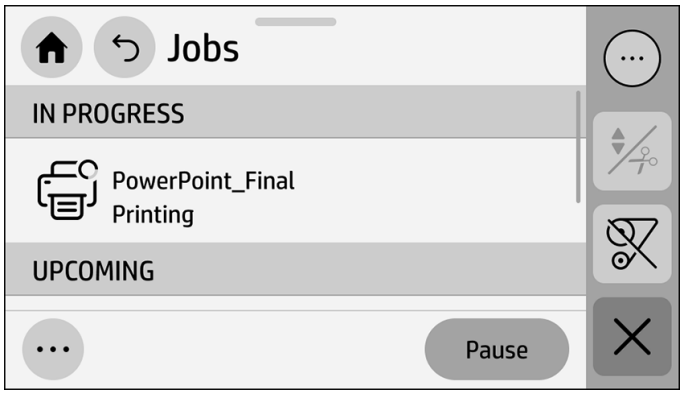
5 Job queue management

A well-managed job queue is essential for effective printing.

Job queue in the control panel

The print queue includes jobs that are being received, parsed, rendered, printed, already printed, and so on.

Tap the menu icon then the jobs icon to view the job queue on the control panel.



Tap the name of the job to see all the job details, including information about status, copies, total, and preview.

In the queue, the job being printed appears at the top, jobs to be printed in the middle, and jobs already printed at the bottom. You can scroll up and down. Once scrolled, the queue remains static and does not move automatically.

Jobs in the left pane are divided into three categories:

- In progress
- Upcoming
- History

Job queue settings

Some of the actions in the job queue are determined by the settings selected.

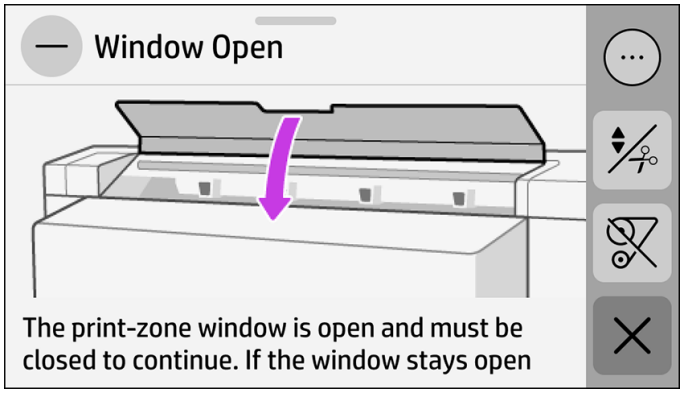
Some default settings may be worth changing, depending on your environment. To do so, tap the menu icon then the settings icon, then **Jobs**. Alternatively, in the Jobs app, tap the ellipsis icon at the bottom left, then **Settings**.

Pause the job queue

Sometimes it is necessary to interrupt printing, either between jobs or during one.

You can pause the job queue between jobs by tapping **Pause**, and resume by tapping **Resume**.

You can pause the job currently printing by opening the window.



If you pause a job while it is printing, you can resume or cancel it later.

NOTE: You may notice some print-quality defects after pausing a job.

Reprint

You can easily reprint any job that you have printed in the past.

In the History section, tap the job you want to reprint. On the details screen, tap the **Print** button. On the next screen, you can select the number of copies.

See job details

Tap the name of the job to show its details, including information about status, pages, copies, total, and preview. Scroll down as necessary to see all of the information.

By tapping the thumbnail, you can navigate over all layers of the job. You can also zoom in and out and see more information about each layer.

In an active queue, the job you are printing appears at the top of the queue, jobs to be printed in the middle, and jobs already printed at the bottom.

Job queue options

You can choose to hide deleted jobs in the job history, how to recover in-progress jobs (cancel or delete), and whether to delete jobs on hold after a specified time.

To change the job queue options, tap the menu icon , then the settings icon , then **Job**.

Job deletion

If the printer runs out of storage space for new jobs, the oldest printed jobs are automatically deleted from the queue.

To delete jobs on hold, the setting **Cancel jobs on hold** allows you to define the time after which these jobs will be removed (2–48 h).

To delete a job manually, select the job and tap **Delete** in the ellipsis menu . To delete all jobs, tap **Delete all jobs** in the ellipsis menu ; the whole job queue will be deleted.

The **Delete** option deletes the job from the queue, while the **Cancel** option cancels the job but leaves it in the queue, marked as **Canceled by the user** in the history category.

To cancel a job while printing, tap **Cancel job**.

Then you can decide whether you want to cancel printing only, or both printing and curing.

NOTE: If you cancel a job while printing, and also cancel curing, the partially printed job will emerge uncured and wet. Handle it appropriately.

To cancel a job from the **UP NEXT** category, tap the job name on the list and then tap **Cancel job** at the bottom right.

6 Retrieving printer status and accounting information

PrintOS Print Beat gives you all the information you need about how your printers are performing and provides detailed insights into your past production.

Get printer status information

The Daily tab inside Print Beat shows the status of your printers and the figures of today's production (printed volume and ink consumed).

Click a specific printer for additional information about that printer:

- Alerts log
- Details of the most recent job printed or being printed
- Loaded substrate data
- Status changes during the day
- Ink-cartridge levels
- Printhead usage
- Remaining capacity of other supplies
- Total usage counters (ink, substrate area, and substrate length)
- Printer model, product and serial numbers, and installed firmware version

Get printer accounting information

There are different ways of getting accounting information from your printer.

- To see total usage from the first start-up of the printer, select the **Daily** tab.
- To see printer usage statistics for the last year, select the **Historical reports** tab: see Check usage from PrintOS Print Beat on page 104.
- To see ink and substrate usage for each of your recent jobs, select the **Jobs** tab: see Check usage statistics for a job on page 105.
- To check cost calculations for a specific job, set a cost model and see details of costs in the **Jobs** tab: see Check cost assignment on page 105.

Check usage from PrintOS Print Beat

From PrintOS Print Beat, you can remotely monitor your print production, accessing and downloading data to take decisions with accurate and up-to-date information.

1. Ensure that your printer is registered with PrintOS (see HP PrintOS on page 20).
2. Access PrintOS at http://www.printos.com or by using the PrintOS mobile app.
3. Enter your credentials.
4. Enter the applications menu and select **Print Beat**.
5. Select **Historical reports** to access information on the following subjects:
   - Print production
   - Printer status
   - Printer availability
   - Substrate consumption
   - Ink consumption
6. If you want to download the data, adjust the time and resolution selectors, click **Export data**, and select the desired data format: PDF, JPEG, PNG, or CSV.

Check usage statistics for a job

If your printer is registered with PrintOS, you can check job usage statistics.

1. Ensure that your printer is registered with PrintOS (see HP PrintOS on page 20).
2. Access PrintOS at http://www.printos.com or by using the PrintOS mobile app.
3. Enter your credentials.
4. Select **Jobs** to access the job history and job details of all your printers.
5. Customize the time frame and deep-dive into the job details.
6. Download the information into a CSV file for easy sharing.

Check cost assignment

If your printer is registered with PrintOS, you can check cost assignment.

1. Ensure that your printer is registered with PrintOS (see HP PrintOS on page 20).
2. Access PrintOS at http://www.printos.com or by using the PrintOS mobile app.
3. Enter your credentials.
4. Select the **Settings** tab to set your costs.
5. Select **Jobs** to access the job history for all your printers. The costs you have set are automatically assigned to each job.
6. Download the information into a CSV file for easy sharing.

7 Troubleshoot substrate issues

Substrate issues could include various deformations of the substrate itself, as well as jams while printing and jamming of the take-up reel.

Substrate cannot be loaded successfully

Suggested actions when encountering substrate loading difficulties.

- Read the loading instructions, and make sure that you are following them. See Handle the substrate on page 35.
- When loading a textile substrate, always perform an assisted manual load. If you intend to use the loading accessory, select **Use loading accessory** in the configuration screen.
- If automatic loading is unsuccessful, try assisted manual loading instead.
- The substrate might be loaded at an angle (skewed or mislocated). Make sure that the right edge of the substrate is aligned with the roll on the input module.
- The substrate might be crumpled or warped, or have irregular edges. See Substrate is deformed or wrinkled on page 109.
- If the substrate jams in the substrate path to the platen, the leading edge of the substrate might not be straight or clean. Remove the initial 2 cm (1 in) of substrate from the roll and try again. This might be necessary even with a new roll of substrate.

Substrate is mispositioned

If the control panel indicates that the substrate is mispositioned, follow the procedure described here.

1. Tap the release substrate icon .
2. Feed the substrate until it hangs in front of the printer, and align the right edge with the input roll.
3. Tap **OK**.

NOTE: When you adjust the substrate manually, the printer may lose track of the position of the leading edge. Avoid printing from the leading edge unless you have first used the cutter or performed a successful loading operation.

Substrate has jammed

When a jam occurs, a message usually appears in the control panel, with one of several error codes.

See System error codes on page 193.

If you are trying to load a very thin or very thick substrate, or a textile, remember to follow the special procedure for loading such substrates. See Loading accessory on page 47.

TIP: HP recommends unloading the substrate whenever the printer will not be in use for an hour or more. Substrate left loaded may become deformed, causing problems such as printhead crashes.

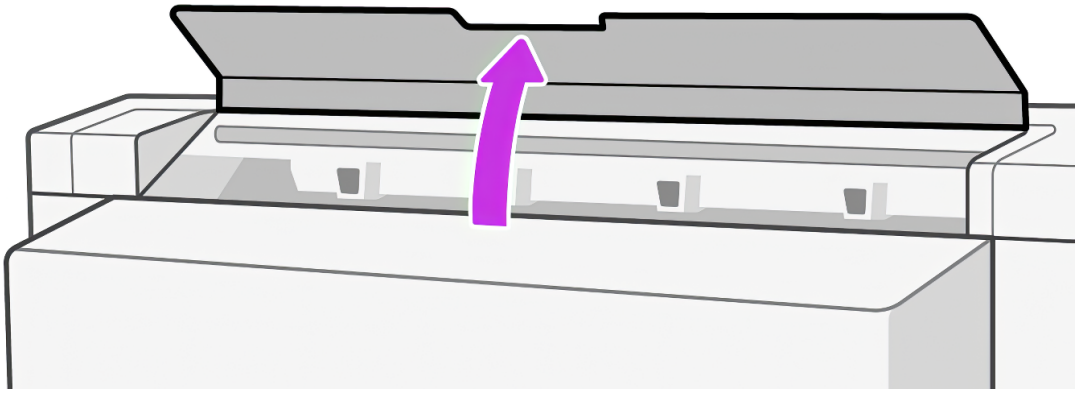
Check the substrate path

This problem can occur when a roll has finished and the end of the roll is stuck to the cardboard core.

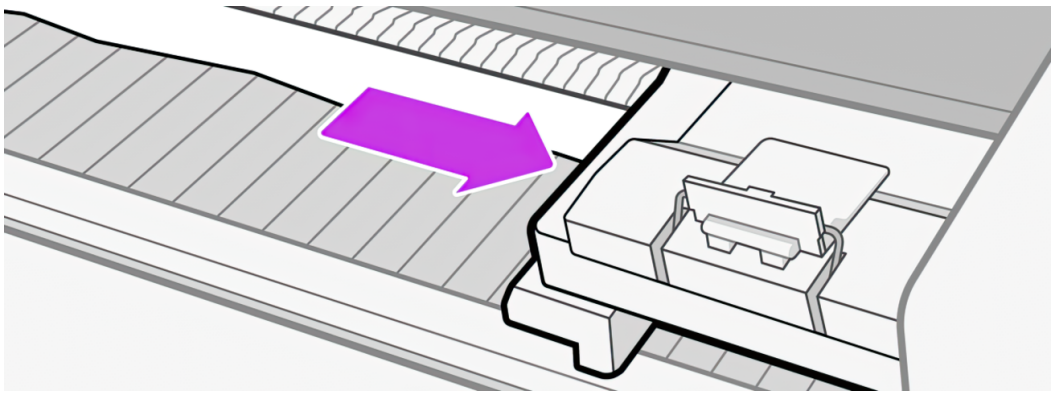
If this has happened, cut the end of the roll away from the core. Then feed the substrate through the printer, and load a new roll.

Otherwise:

1. Turn off the printer at the control panel, then also switch off the power switch at the rear.
2. Open the printer window.

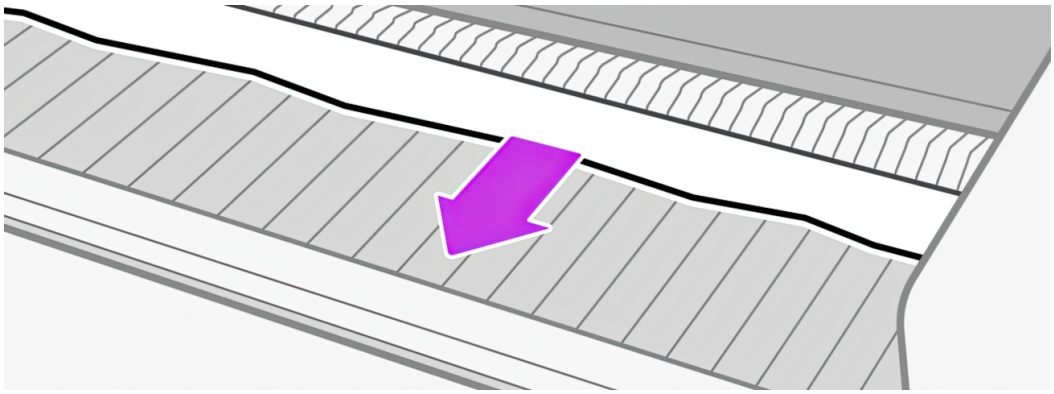


3. Cut the substrate where it enters the printer, and rewind the input roll.
4. Try to move the printhead carriage out of the way.



5. Carefully remove as much as possible of the jammed substrate from the top of the printer. Cut the substrate if necessary. The pinchwheels should have lifted to simplify clearing the jam. If this has

not happened, restart the printer with the window open to force the pinchwheel movement and the release of the substrate.



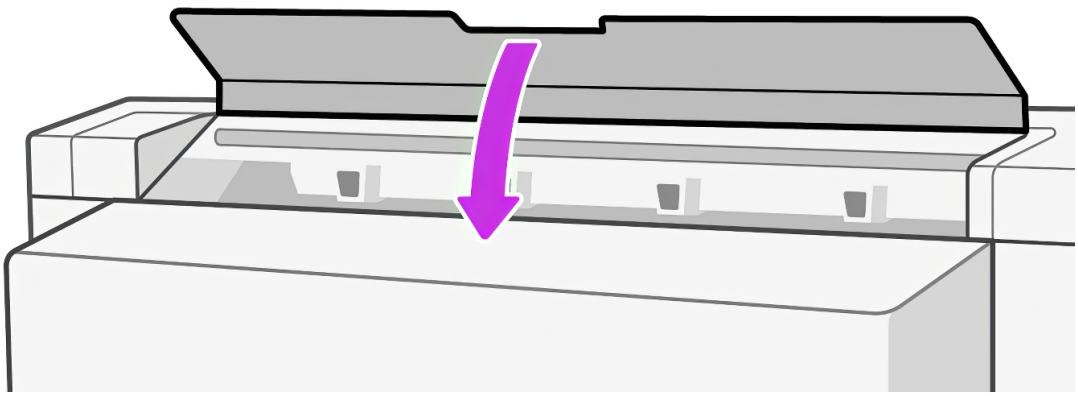
⚠ CAUTION: Try to avoid pulling the substrate out through the input path, because this reverses the normal direction of movement, and could damage printer parts.

⚠ WARNING! Do not touch the printer's curing enclosure, which could be hot.

Table 7-1 Warning

Risk of burns
For more safety information, see Safety precautions on page 3

6. Make sure that there are no pieces of substrate left in the printer. In particular, check in and under the curing module, and in the substrate path.
7. Close the front window.



8. Turn on the printer.
9. Reload the roll.
10. If some substrate continues to cause an obstruction within the printer, it can often be cleared by loading a rigid substrate type into the printer.

11. If you find that you have print-quality problems after a jam, try realigning the printheads. See Align the printheads on page 137.

TIP: After clearing a substrate jam, make sure no substrate is present in the printer before restarting it.

TIP: If you have cut the substrate with scissors while clearing a substrate jam, HP recommends cutting the substrate edge with the printer's build-in cutter after restarting the printer and reloading the substrate. This is especially important if you intend to print from the leading edge.

Avoiding substrate jams while printing

Substrate jams may be caused by loading the substrate with too much skew: do not ignore the warning message that appears during the loading procedure in this case.

They may also be caused by not enough vacuum suction in the printing zone. If you decide to increase the suction, do not exceed the following limits: 20 mmH_2O for banners and 50 mmH_2O for other substrate families.

If you experience jams only at the beginning of a print, try the following suggestions:

- Disable the automatic cutter.
- Increase the vacuum level in steps of 10 mmH_2O. Do not exceed the following limits: 20 mmH_2O for banners, 50 mmH_2O for vinyl and films, and 80 mmH_2O for other substrate families.
- Increase the number of passes.
- Make sure that the substrate is stored in the same room in which the printer is located.
- Try using the substrate edge holders if the sides of the substrate are lifting.
- Make sure the curing door is open while loading. See Load a roll into the printer on page 39.

  When starting to print, ensure that the curing door remains open until the substrate is out of the curing module or the take-up reel ed is connected, except When printing from the leading edge, ensure that the curing door opens to allow the substrate exit the curing module.

Some substrates cannot be printed from the leading edge. When using such a substrate, make sure to advance it past the curing module or attach it directly to the take-up reel, following the control-panel recommendations. For more information, see Print from the leading edge on page 70. Minimize printing with leading edge inside the curing module and always follow.

Substrate is deformed or wrinkled

If your substrate is deformed or wrinkled by the curing process, change the temperature settings before printing the next job.

Then advance the substrate, using the **Move substrate** option in the control panel's **Substrate** menu, so that the next job will be printed on undamaged substrate.

If you lower the temperature too much, your jobs may emerge uncured. In that case, add inter-swath delays to keep curing capacity, or increase the number of passes.

If the problem appears only at the beginning of the print, try the following suggestions:

- Disable the automatic cutter.
- Increase the vacuum level in steps of 10 mmH_2O. Do not exceed the following limits: 20 mmH_2O for banners, 50 mmH_2O for vinyl and films, and 80 mmH_2O for other substrate families.
- Increase the number of passes.
- Make sure that the substrate is stored in the same room in which the printer is located.

Automatic cutter does not work

There are certain circumstances in which the automatic cutter will not function.

The automatic cutter is turned off in either of the following cases:

- When it has been manually disabled from the RIP or from the control panel. To disable the cutter from the control panel, tap the settings icon, then **Output options** > **Cutter** > **Horizontal cutter**.
- When the take-up reel is enabled.

Take-up reel substrate jam

If the substrate is severely damaged on the take-up reel, do not use the printer's cutter to cut and remove the substrate. Instead, cut the substrate manually as close as possible to the curing output, then remove the roll.

Follow the instructions in Substrate has jammed on page 106.

If the problem remains after removing the substrate jam, unload the take-up reel from the control panel and load it again.

8 Troubleshoot print-quality issues

Print-quality issues could include graininess, banding, color variation or misalignment, and smearing or bleeding of ink, among others.

General printing advice

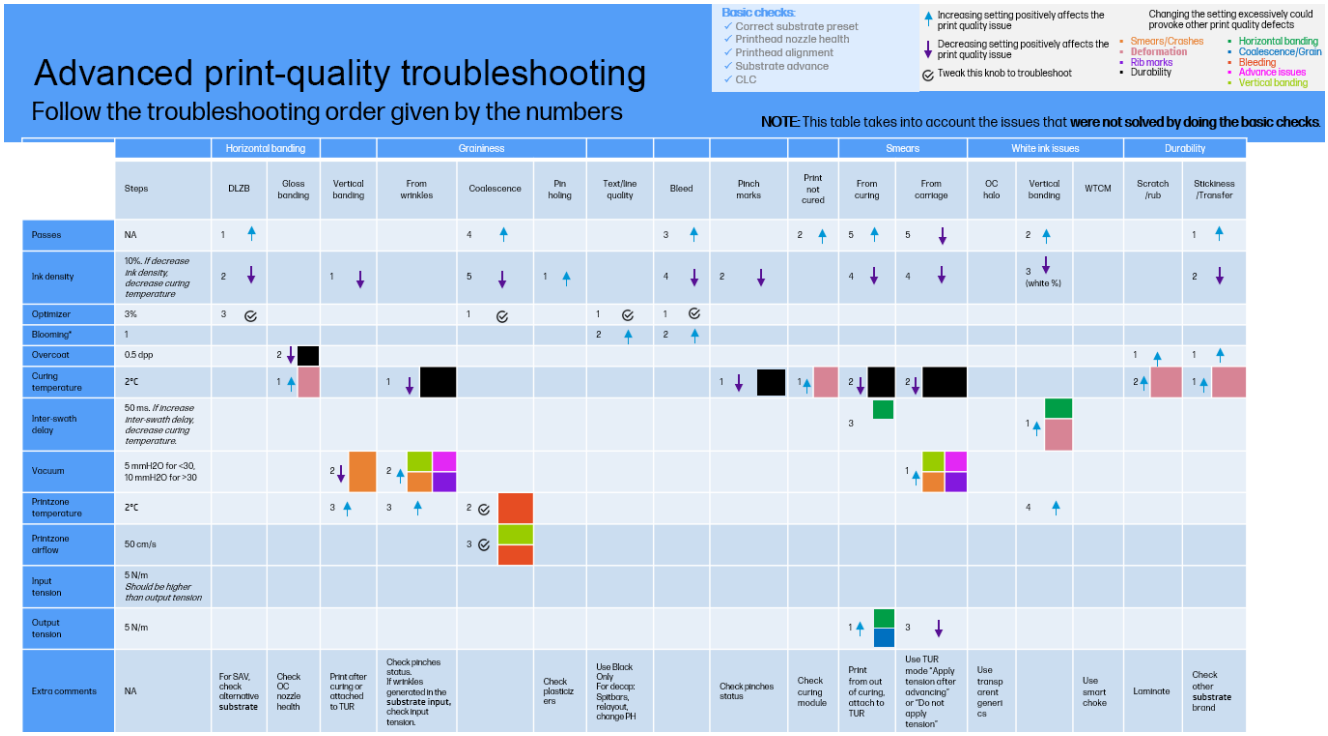
Use the approach described here when you have any print-quality problem.

- Ensure that the substrate type that you select on the control panel, and in your RIP software, is the same as the substrate type that is loaded in the printer. Make sure that the substrate type has been calibrated (including substrate-advance calibration, printhead alignment, and color calibration).

⚠ **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.

- Ensure that you are using the correct substrate preset for your substrate, with the correct ICC profile, or that you have followed the correct procedure to generate a new substrate preset (see Add a new substrate preset on page 83).
- Ensure that you are using appropriate print-quality settings in your RIP software.
- Ensure that your environmental conditions (temperature, humidity) are in the recommended range. See Environmental specifications on page 198.
- Ensure that you shake your ink cartridges before installing them. See Replace an Eco-Carton ink cartridge on page 134.
- Ensure that your ink cartridges have not passed their expiration dates. See Maintain the Eco-Carton ink cartridges on page 134.
- Avoid touching the substrate while printing is in progress.
- Printing jobs with a lot of ink in fast modes (commonly 6 passes or below) may result in not-completely-dry output and/or other print-quality problems. Consider using modes with higher passes when printing with a lot of ink, or increase the curing temperature. Note that increasing the curing temperature may deform your substrate (see Substrate is deformed or wrinkled on page 109).

If these basic checks do not solve your problem, there is more specific advice in the table below.



Optimize print quality

This application can help you to adjust the printer when it is not performing as expected.

You can start the application by tapping the tools icon on the control panel. It has various sections with different purposes:

- Generic solutions that readjust the printer. Each generic solution is a set of actions launched all in one.
- All available test plots that can be run.
- Maintenance routines for various printer assets.
- A list of possible actions that can help to solve the potential printing problem when the printer is wrongly adjusted.

The following calibrations are available:

- **Printhead cleaning** prevents or responds to small print-quality degradations. This option cleans all printheads: you cannot select specific printheads for cleaning.
- **Automatic printhead alignment** automatically fine-tunes the overlap between printhead printing areas. It is recommended for opaque substrates.
- **Color calibration** helps to maintain color consistency between different prints on the same substrate type.
- **Substrate-advance calibration** corrects repetitive lighter or darker bands on printed output.

- **Printhead hard cleaning** can put an end to severe print-quality degradations. You can select specific printheads for cleaning.

The following test plots are available:

- Print the **Printhead status plot** to check nozzle status.
- Print the **Alignment status plot** to identify defective lines.

⚠ CAUTION: HP strongly recommends advancing the substrate past the curing module before printing any calibration or test plot.

Improve print quality

You can follow a more hands-on print-quality troubleshooting procedure by printing, interpreting, and performing corrective actions.

Use these options if you still experience print-quality problems after following the procedures in Optimize print quality on page 112.

Recommended process for improving print quality

See the flowchart for full details of the recommended process.

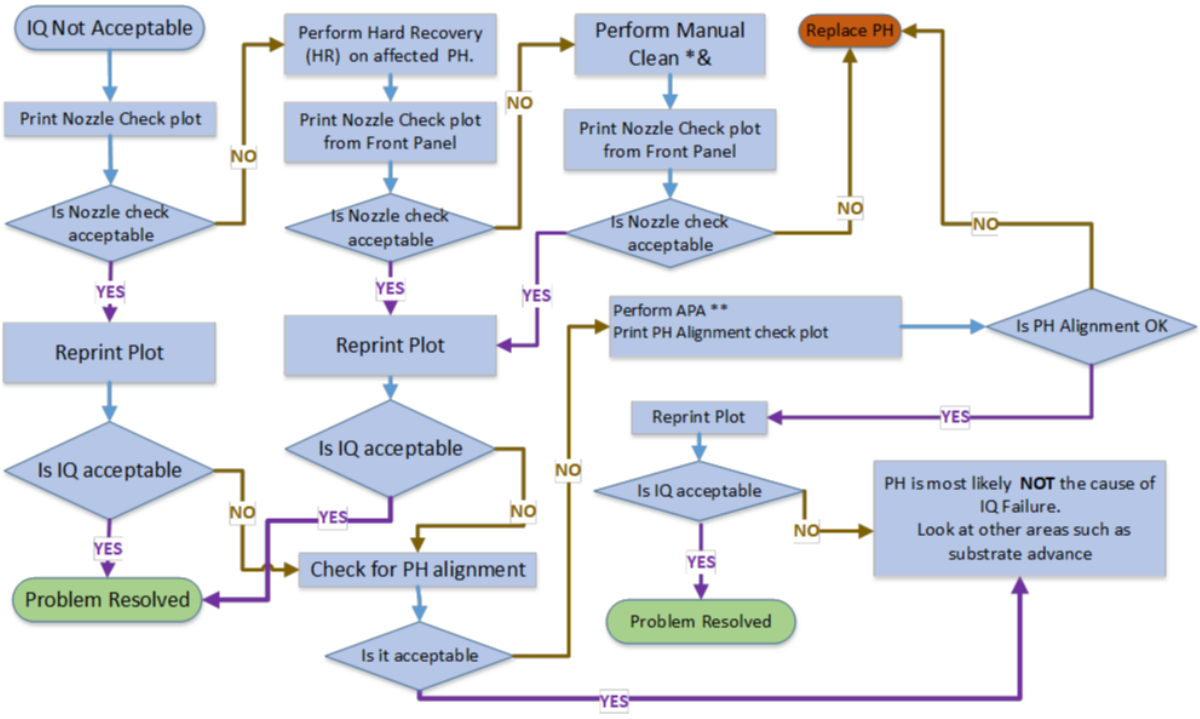
1. Print the printhead status plot: see Printhead status plot on page 115.
2. If nozzle health seems poor (defects in area fills, many nozzles not working), go to the control panel and tap the tools icon, then **Troubleshooting** > **Printhead cleaning** > **Printhead hard cleaning**, and select the printhead(s) to be cleaned. You can do this twice, but no more than twice.

   As a last resort, you can clean a printhead manually with a soft, fiber-free cloth dampened with de-ionized water. Clean gently, with minimal pressure.

   ⚠ CAUTION: Do not use the same cloth to wipe optimizer and non-optimizer printheads. This may lead to unrecoverable nozzle defects.
3. Reprint the printhead status plot. If nozzle health still seems poor, replace the faulty printhead(s).
4. If nozzle health now seems good, but your own prints still have quality defects, check the printhead alignment: see Alignment status plot on page 116.
5. Check the weight of your printheads. If a color printhead is below 54 g, or a white printhead is below 57 g, replace the printhead.

   NOTE: These weights are of the printhead as it is removed from the printer, without nozzle cap or needle plug.
6. If nozzle health and printhead alignment both seem good, and the printheads are not underweight, but your own prints still have quality defects, the problem is probably not caused by the printheads. Check the substrate advance: see Substrate-advance calibration plot on page 117.

The flowchart below shows the process in more detail.



*& As a last resort, you can clean a printhead manually with a soft, fiber-free cloth dampened with de-ionized water. Clean gently, with minimal pressure.

⚠ CAUTION: Do not use the same cloth to wipe optimizer and non-optimizer printheads. This may lead to unrecoverable nozzle defects.

** Manual alignment only if the substrate does not support automatic printhead alignment (APA).

Acceptable nozzle check

- This is not easily quantifiable. A printhead should perform properly with up to 6% of blocked nozzles. If the blocked nozzles are consecutive, print quality could be affected even if the 6% threshold is not reached.
- Check the area fills for banding lines.

HP Control Print

HP Control Print is a diagnostic plot with which you can perform general troubleshooting of print-quality issues.

It can be printed from the control panel: tap the menu icon ☰, then **Tools** > **Troubleshooting**, then the ellipsis icon ⋯, then **HP Control Print**.

For more information on how to use this plot, scan the following QR code:

Printhead status plot

The printhead status plot is designed to highlight printhead reliability issues by visually evaluating the nozzle health of each printhead.

The plot also will help you to visualize the effect on print quality of nozzle health issues. Note that you may obtain good print quality even if nozzle health is not perfect.

To print this plot, go to the control panel and tap the tools icon , then **Troubleshooting** > **More options** > **Print a printhead status plot**. Vinyl, preferably gloss and at least 610 mm (24 in) wide, is recommended for maximum visibility. Other substrate types may not show enough detail to see the optimizer dashes clearly.

The printhead status plot has two parts. First, a nozzle-health pattern for each printhead. Second, a block with different colors.

The nozzle-health pattern has two spit bars, one on each side, and a matrix with several lines or dashes. Each dash is printed by a single nozzle. Thus, missing lines indicate nozzles that are not printing.

You will find one pattern printed by each printhead or color.

The filled rectangles of different colors are used to check the effect on print quality of the nozzle health status.

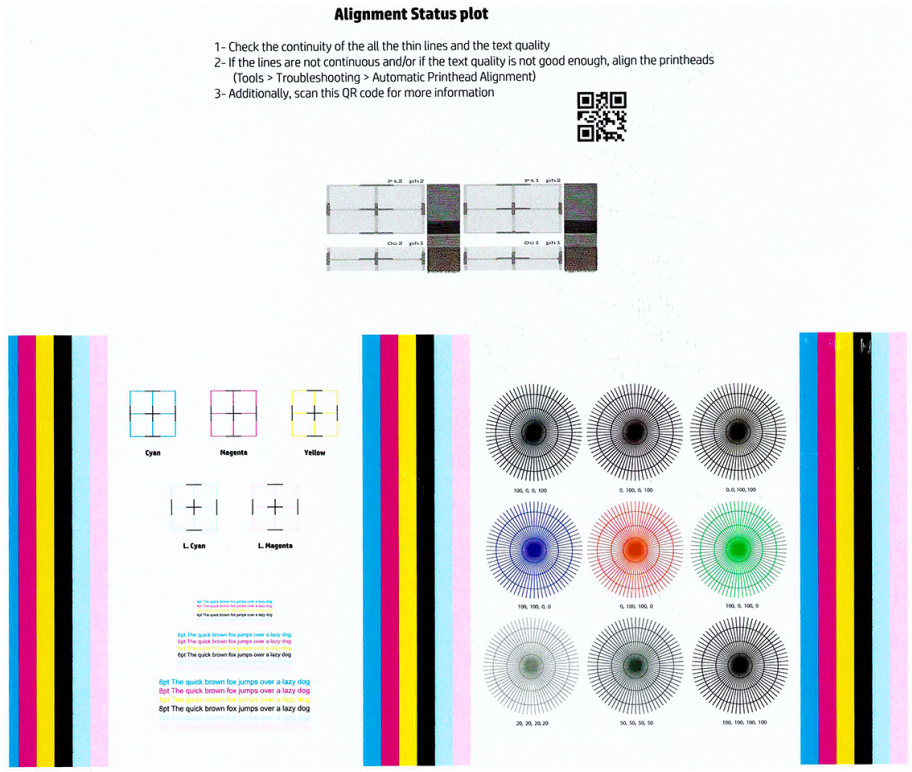
IMPORTANT: Nozzle health is not normally perfect, and does not need to be perfect: the printer is designed to perform well with some nozzles not functioning. However, if you observe more than 6% of nozzles not printing or consecutive non-printing nozzles, print quality may be affected, producing visible defects in the status plot's area fills and in your prints.

1. Clean any faulty printheads. See Clean the printheads on page 164. Then reprint the printhead status plot to see whether the problem has been solved.
2. If the problem persists, clean the printheads again, and reprint the printhead status plot to see whether the problem has been solved.
3. If the problem continues to persist, replace any persistently faulty printheads. See Replace a printhead on page 140.

Alignment status plot

Follow the procedure described to print the printhead alignment status plot.

1. Use the same substrate type that you were using when you detected a problem. Or consider using vinyl gloss substrate for better visibility of the optimizer in particular.
2. Go to the control panel and tap the tools icon, then **Troubleshooting** > **More options** > **Print an alignment status plot**.



Check the continuity of the thin diagnostic lines on the alignment status plot. In one section, colored lines are printed in line with black lines to test the alignment from one color to another. In another section, there is a block containing text to check the alignment between the reverse and forward pass of a primary color.

The optimizer fluid is transparent and cannot usually be seen directly. The fluid can be seen on some substrates (such as self-adhesive vinyl) when printed in conjunction with the colored inks. The cross pattern that is printed above the reference scale is printed in this way and can be used to evaluate the alignment of the optimizer on some substrates. In a well-aligned system, the light-colored cross at the center of the pattern will be aligned with the four black lines at the sides of the pattern.

If the printheads are misaligned or you feel unsure about them—for example, because a substrate crash occurred—then align the printheads. See Align the printheads on page 137.

Substrate-advance calibration plot

To fine-tune the quality of your print, you may need to adjust the rate at which the substrate advances.

The substrate advance determines the placement of dots on the substrate. If the substrate is not advanced correctly, light or dark bands appear in the printed image and the grain in the print may increase.

You can modify the substrate advance from the RIP or control panel with the substrate-advance parameter in the substrate preset.

To print the substrate-advance calibration plot:

1. Use the same substrate type that you were using when you detected a problem.
2. Check that the selected substrate type is the same as the substrate type that is loaded into the printer.

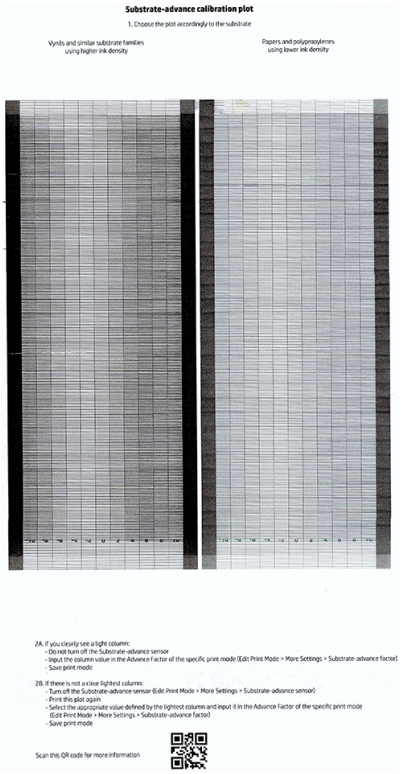
3. Go to the control panel and tap the tools icon .

4. Go to the print mode you want to calibrate, and tap **Edit print mode**, then scroll down and tap **More settings**, then scroll down and tap **Print substrate-advance status plot**.

NOTE: You cannot edit a generic substrate preset.

The substrate-advance calibration plot consists of several columns with a number at the bottom of each one. Locate the lightest of the columns and enter its number into the Substrate Advance parameter for each print mode of the current substrate preset.

Two plots are printed horizontally next to each other. The one on the right uses less ink and is optimized for substrate families such as papers and polypropylenes. The one on the left is optimized for vinyls and similar substrate families.



NOTE: Minor substrate-advance inaccuracies (±2 around the 0 value) are unlikely to result in any print-quality problem, especially with print modes of more than 8 passes.

Substrate-advance adjustment while printing

If you are using no more than six passes, you can fine-tune the substrate advance while printing.

Go to the control panel and tap the menu icon , then **Tools** > **Troubleshooting** > **Substrate advance calibration**. Select a value of change from –10 mm/m to +10 mm/m (or mils/inch). To correct light banding, decrease the value. To correct dark banding, increase the value.

If you are using eight passes or more, a wrong advance adjustment will not produce banding but graininess, which is harder to assess visually. Therefore, in this case you are recommended to use only the adjustment plot.

When you have chosen an adjustment, the rest of your job will be printed with that value and so will the consecutive jobs with the same print mode, but it will be reset to zero at the end of the job. Add your chosen adjustment to the Substrate Advance value in the preset to print all future jobs with the new setting.

What to do if problems persist

If you still experience print-quality problems after applying the advice in this chapter, here are some additional tips to consider.

- Try Full calibration on page 98.
- Try selecting a higher print-quality option in your RIP software, by increasing the number of passes.
- Check that your printer firmware is up to date. See Firmware update on page 184.
- Check that you have the correct settings in your software program.
- Call your service representative. See When you need help on page 33.

Most-common print-quality problems

The most common print-quality issues include graininess, horizontal or vertical banding, color variation or misalignment, hazy black areas, smearing or bleeding of ink, uneven area fills, tiling issues, and others.

Graininess

A print is said to be grainy when it contains perceptible grain, giving it a mottled appearance.

If you see this kind of problem:

- Check the nozzle health of all printheads, including those for transparent inks.
  - Print the printhead status plot. See Printhead status plot on page 115.
  - If necessary, clean the printheads. See Clean the printheads on page 164.

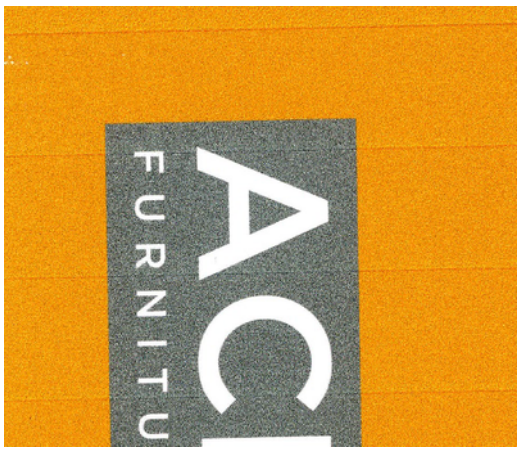
  - Sometimes a single cleaning action may not be enough. Reprint the status plot and consider cleaning again.

- The printheads may be misaligned. This is likely if you have not aligned the printheads for a long time, or if there has been a substrate jam. Align the printheads if necessary (see Align the printheads on page 137). You can check whether it is necessary by using the printhead alignment status plot (see Alignment status plot on page 116).
- Graininess may be attributable to substrate-advance problems. Try fine-tuning the substrate advance; see Substrate-advance calibration plot on page 117.
- In particular, if you are printing with eight or more passes, the substrate advance may need fine adjustment. See Substrate-advance calibration plot on page 117.
- If the problem persists, you can decrease the ink density, and modify the optimizer level in the advanced substrate settings.
- Some vinyl and banner rolls may have a defective coating (perhaps caused by age), which can cause uneven and grainy area fills, especially when printing with too few passes. Try the following solutions:
  - Go to your substrate library on the control panel or in your RIP. Select your print mode and increase the amount of optimizer in the the advanced settings. See Add a new substrate preset on page 83.
  - Clean the optimizer printhead.

  If these suggestions do not solve your problem, consider changing to another roll.

Horizontal banding

Try the following remedies if your printed image suffers from added horizontal lines as shown (the color may vary).



Try:

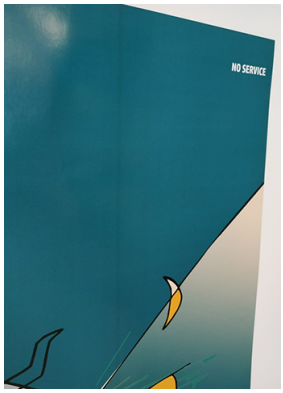
- If you are using a print mode with six or fewer passes, try increasing the number of passes. Some degree of banding can be expected with few passes.
- If bands affect all colors across the width of the printed image, the cause is probably a substrate-advance problem. Use the control panel to adjust the substrate advance on the fly (see Substrate-advance adjustment while printing on page 118). If you have dark bands, increase the substrate advance; if you have light bands, decrease it. When you find the right adjustment, store the value in the control panel for future prints on the same substrate.

  Another cause could be a fiber attached to one of the printheads. Turn off the printer, then remove the printheads one at a time and remove any fibers that you see attached to them.
- If bands affect only some colors, the cause could be a defective printhead.
  - Check the banding in area fills; if you can identify the defective printhead, clean it. See Clean the printheads on page 164.
  - Print the printhead status plot (see Printhead status plot on page 115). If necessary, clean the printheads. See Clean the printheads on page 164.
  - Sometimes a single cleaning action may not completely clean every nozzle. Print the status plot and consider cleaning again.
  - Align the printheads (see Align the printheads on page 137). If necessary, align them manually.
  - Print the printhead status plot again. Identify the printhead with the greatest number of blocked nozzles, and replace it.
- If bands affect most of the colors, the printheads could be misaligned. This is likely if you have not aligned the printheads for a long time, or if there has been a substrate jam. Align the printheads if necessary (see Align the printheads on page 137). You can check whether it is necessary by printing the printhead alignment status plot (see Alignment status plot on page 116).
- Due to the printhead servicing routines while printing, some fibers or small amounts of ink may be deposited on a nozzle, causing it to fail temporarily. This is very unlikely and may just cause a couple of isolated bands. It is also very unlikely for this to be repeated within the same or subsequent print jobs. However, if you notice it, try cleaning the printheads (see Clean the printheads on page 164).

If the problem persists, call your service representative (see When you need help on page 33).

Vertical banding

Different kinds of vertical bands may appear, for different reasons



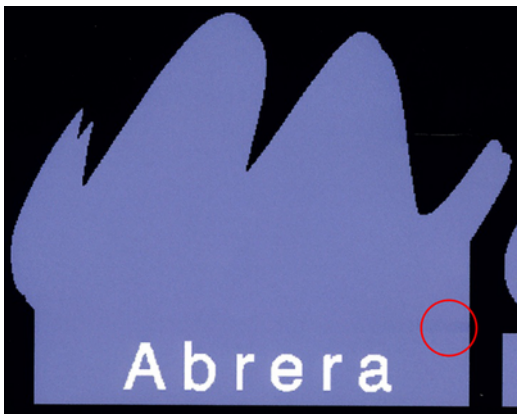
- Regular vertical bands matching the shape of the platen may be seen on paper-based substrates and in general on thin substrates in medium-density area fills such as grays or violets. Try the following suggestions to mitigate this problem:
  - Align the printheads. See Align the printheads on page 137.
  - Reduce the vacuum level in steps of 5 mmH_2O when printing on vinyl. Do not exceed the lower limit of 10 mmH_2O for vinyls or 25 mmH_2O for papers to avoid crashes and/or smears. Consider using the substrate edge holders to avoid lateral crashes. See Edge holders on page 55.
  - Consider using the take-up reel, for better control of the substrate.
  - This kind of banding is less visible when the printer is stable at high temperature (after more than half an hour of continuous printing). You can help to avoid visible banding by modifying the printing queue so that vulnerable or important prints are printed later; or by pre-warming the printer by using the option available in your RIP.
- Thin vertical dark bands, typically seen in the first 150–200 mm of the print in high-density area fills or in backlit applications:
  - Reduce the ink quantity if possible.
  - Disable the cutter and advance the substrate manually about 100–150 mm before the first print.
  - When using backlit and synthetic substrates, decrease the vacuum level to values around 5–15, depending on the substrate thickness. More vacuum is normally applied to thick substrates and less to thin substrates.
  - Increase the number of passes.
  - If applicable, use the RIP to group jobs together, so that printer temperatures remain more stable between jobs.
- Thick vertical bands not coinciding with the shape of the platen; can be seen on vinyl or backlit substrates with dense area fills such as green or orange:
  - In the advanced settings, change the print-zone airflow. If there is vertical banding, decrease the airflow. If there is bleeding (ink spreading across different-colored areas), increase the airflow. Start by changing it ±100 cm/s.
- Irregular or isolated vertical bands with abnormal levels of graininess:
  - Increase the vacuum level in steps of 5 mmH_2O. Do not exceed the following limits: 20 mmH_2O for banners and 50 mmH_2O for other substrate families.

- In backlit applications, increase the number of passes to 20, maintaining the vacuum level below 20 mmH_2O.
- If the banding appears only at the beginning of the print, disable the cutter and advance the substrate manually about 100–150 mm before the first print.
- If the problem persists, check that all platens are well installed, and that they are all level with each other.

Color variation and text-line correction

These print-quality issues are likely to be caused by the condition of ink in the printhead nozzles.

If some printhead nozzles are in use while others in the same printhead are not, water evaporates slowly from the ink in the unused nozzles, making the color more intense. Thus, in such cases you may notice variations in color intensity in areas where the color of the image should be constant.

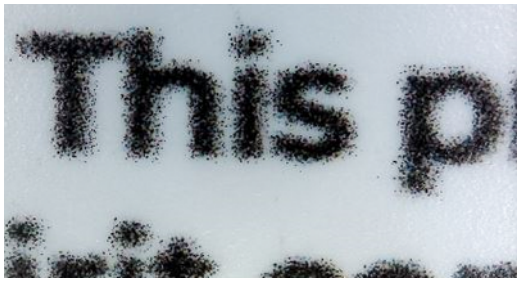


If you notice such a problem, there are various possible solutions.

1. If you notice the variation in intensity near one side of the print, try rotating the image by 90 or 180 degrees before printing. This may solve the problem in some cases, as all the nozzles are refreshed whenever they enter the service station between passes.
2. Use your RIP to add lateral color bars at the sides of the print. The color bars are designed to exercise all the printhead nozzles, to prevent the problem from occurring.

NOTE: Not all RIPs provide this option.

3. Add lateral color bars to the image, manually, before printing. In this case, you can either use the standard colors, or decide to include a particular color in which you have noticed the problem. The recommended width of each color bar is 3 mm.



If text, lines, or light solid areas are rough or blurred, try the following suggestions:

- Check the nozzle health of all printheads, including those for transparent inks.
  - Print the printhead status plot. See Printhead status plot on page 115.
  - If necessary, clean the printheads. See Clean the printheads on page 164.
  - Sometimes a single cleaning action may not be enough. Reprint the status plot and consider cleaning again.
- The printheads may be misaligned. This is likely if you have not aligned the printheads for a long time, or if there has been a substrate jam. Print the printhead alignment status plot (see Alignment status plot on page 116), and align the printheads if necessary (see Align the printheads on page 137).
- If the problem persists, you can modify the optimizer level in the advanced substrate settings.
- Water evaporates slowly from the ink in the unused nozzles, so the first drops of ink are ejected with lower velocity. This may happen, for example, in nozzles not used during a whole printed swath, causing the text or lines to be rough or blurred. You are recommended to go through steps 1 to 3 as described above.
- If a light area is close to the edge while printing on a thin substrate, ensure that the substrate is loaded with the substrate edge on a rib of the platen to avoid local blurring. Alternatively, try rotating the image by 90 or 180 degrees so that the affected area is not at the edge of the substrate.

Misaligned colors

If the colors are misaligned in any direction, the printheads may be misaligned.

The printheads may be misaligned if you have not aligned the printheads for a long time, or if there has been a substrate jam. Align the printheads if necessary (see Align the printheads on page 137). You can check whether it is necessary by printing the printhead alignment status plot (see Alignment status plot on page 116).

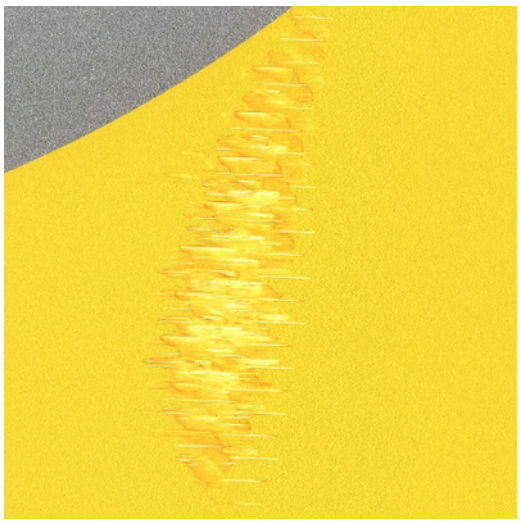
Black areas look hazy

If black areas look hazy or not sufficiently black, try these suggestions.

- Increase the number of passes.
- Laminate the print.
- Substrate presets are designed to achieve consistent and reliable print quality on a broad range of substrates. However, you may want to consider investing in the color management process, using external tools and/or experts, to get specific results.

Ink smears

Ink smears may be seen on the print for various reasons.



- The substrate is skewed. Do not ignore the warning message that appears during the loading procedure if there is significant skew.
- The substrate is not flat in the print zone. Try the following possible solutions:
  - Increase the vacuum level in steps of 5 mm H_2O.
  - Reduce the curing temperature. You will probably need to increase the number of passes in order to achieve adequate curing.
  - Check whether there are fibers on the printheads.

If the problem appears only at the sides of the print, because the edges are uneven or the substrate is curled upward at the sides, consider using the edge holders (see Edge holders on page 55).

If the problem appears only at the beginning of the print, try the following suggestions:

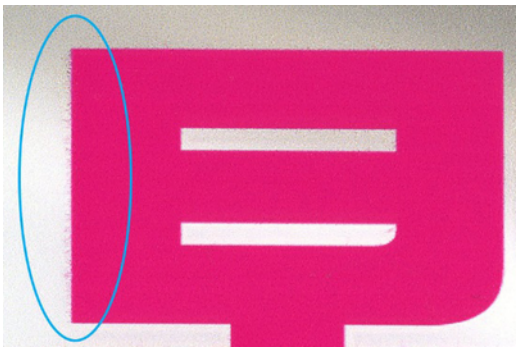
- Increase the vacuum level in steps of 5 mmH_2O. Do not exceed the following limits: 20 mm H_2O for banners, 45 mm H_2O for vinyl, and 60 mm H_2O for other substrates. If the vacuum level is too high, you may see an increase in graininess due to too much friction between the rear surface of the substrate and the platen while advancing the substrate during printing; you may also see vertical bands matching the contours of the print platen.
- Decrease the number of passes.

- Make sure that the substrate is stored in the same room in which the printer is located.

NOTE: Several substrates are sensitive to ambient conditions (temperature and humidity): if the ambient conditions are outside the recommended range, this may affect loading and printing.

Bleeding

A small color migration may be observed at the border between different colors. It can also happen at the border between a color and blank substrate (no ink), reducing the sharpness of the shape. On some substrates, a halo can be observed at the border between colors.



Try the following suggestions:

- Check the nozzle health of all printheads, including those for transparent inks.
  - Print the printhead status plot. See Printhead status plot on page 115.
  - If necessary, clean the printheads. See Clean the printheads on page 164.
  - Sometimes a single cleaning action may not be enough. Reprint the status plot and consider cleaning again.
- The printheads may be misaligned. This is likely if you have not aligned the printheads for a long time, or if there has been a substrate jam. Print the printhead alignment status plot (see Alignment status plot on page 116), and align the printheads if necessary (see Align the printheads on page 137).
- If the problem persists, you can decrease the ink density, modify the optimizer level, or increase the drying temperature in the advanced substrate settings.

NOTE: Increasing the drying temperature can affect coalescence and other defects.

Uneven appearance in area fill

Subtle color differences may be seen in high-density area fills on some substrates if they are stored partially covered after printing.

In the period immediately after printing, such substrates should be stored either totally covered or totally uncovered. It may be advisable to avoid prolonged face-to-face contact between two prints. This problem tends to disappear if the substrate is left uncovered for some time.

Alternatively, especially with vinyls and banners, some individual rolls may have a defective coating; for instance, the coating may have aged. This can cause uneven area fills in light areas. In this case, try a new roll.

Ink is oily or smudges when touched

There are various different circumstances in which these symptoms can be seen.

- When the symptoms can be seen only at the start of the first print after the printer has been idle for some time (especially when the start of the print uses a lot of ink)

  This may be just a temporary problem: try reprinting, and perhaps slightly reduce the ink limits. It may be worth adjusting the print queue so that the first job is not difficult to cure (uses a lot of ink).

- When the symptoms can be seen only in certain parts of the print that use a lot of ink

  Increase the curing temperature, decrease the overall ink quantity, increase the number of passes, and/or modify the inter-pass delay offset (in the RIP or control panel) to allow better drying on consecutive passes.

- When the symptoms appear after reducing the number of passes

  Increase the curing temperature, decrease the overall ink quantity, and/or modify the inter-pass delay offset (in the RIP or control panel) to allow better drying on consecutive passes.

- When the oily finish appears minutes or hours after printing

  Store the print face-up and uncovered; the effect normally disappears after a while.

NOTE: If you decrease the overall ink quantity, you may notice less color saturation.

TIP: To clean the prints, use only water and low-concentration mild soap solution. Do not use alcohol solvent-based cleaners. Wait 24 hours before cleaning.

You could try using a different substrate, which may have a higher resistance to this effect.

Tiling issues

The most common problems when printing tiles are described here.

- Color variation tile-to-tile

  In some cases, contiguous tiles with the same background solid color may show differences in color between the right side of the first tile and the left side of the second tile. This is a common issue of inkjet printers (both thermal inkjet and piezo inkjet), where there are slight color variations as the swath advances.

  To improve color consistency side-to-side and tile-to-tile, follow these recommendations:

  - Ensure that your environmental conditions are suitable for best print quality. See Environmental specifications on page 198.
  - Print on a substrate already attached to the take-up reel.
  - Use a 12-pass print mode.
  - Use a print mode with a low ink density: the lower the better.
  - Use the temperature icon on the control panel to increase the curing temperature.
  - Avoid printing with a cold printer: print 50 cm no more than 15 minutes before the tiling job. A nozzle health check is enough to warm up the printer.

Since the biggest color differences are between the left edge and the right edge, the effect may sometimes be seen when putting two tiles together. This issue can easily be overcome by inverting alternate tiles, which has the effect of placing the right side of the first tile next to the right side of the second tile and the left side of the second tile next to the left side of the third, so all contiguous areas have been printed in the same point of the swath and, hence, have the same color. This is a feature that all RIPs have available.

- Dimensional variations from tile to tile

  Some specific banner substrates may not have uniform dimensional stability when printing very long tiles. The result is that the length of the tile may be different between the left and the right side. While this is not noticeable with individual plots, it affects the alignment between panels in tiling applications. Substrate types that show this behavior tend to show it constantly along the roll. So, when present, this issue can easily be overcome by inverting alternate tiles as described above.

- Length accuracy

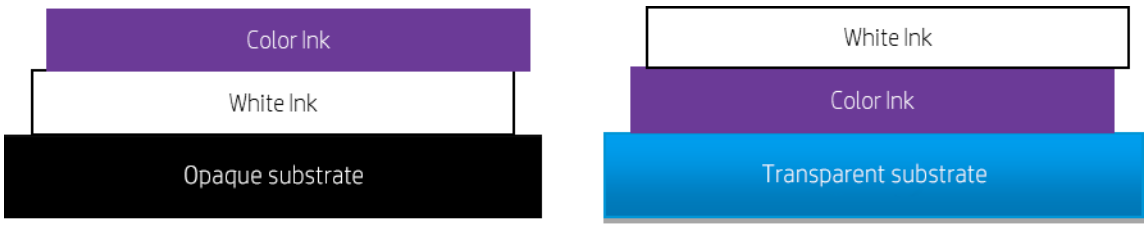
  Follow the recommendations in Length accuracy on page 72.

  In addition, you can experiment with the following settings:

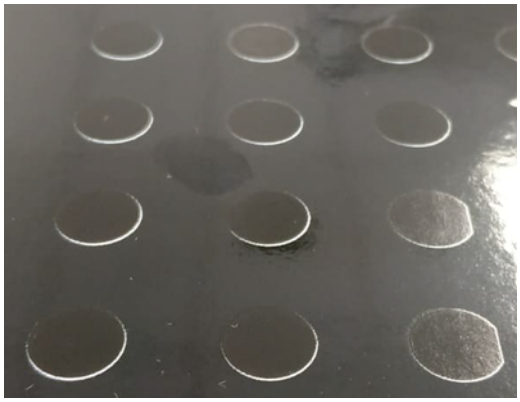
  - **Temperature**: The higher the temperature, the more the substrate tends to deform. If you observe substrate deformation after printing, lowering the temperature can help to reduce the deformation. However, this may have undesired side effects, affecting drying and curing capacity, colour change, and so on.
  - **Input tension**: Slightly increase input tension to reduce skew while printing. However, this may have undesired side effects, such as substrate slippage, incorrect substrate advance, and blurriness.

White-to-color misalignment

This problem is seen only when printing a white layer over or under the color layer.



The problem is that the white layer is not aligned with the color layer, and so some white is seen outside the color image.



Try the following suggestions:

- The printheads may be misaligned. This is likely if you have not aligned the printheads for a long time, or if there has been a substrate jam. Print the printhead alignment status plot (see Alignment status plot on page 116), and align the printheads if necessary (see Align the printheads on page 137).
- If the mismatch appears in the direction of substrate advance, the cause is probably a substrate-advance issue. Use the control panel to adjust the substrate advance on the fly (see Substrate-advance adjustment while printing on page 118). If you have dark bands, increase the substrate advance; if you have light bands, decrease it. When you find the right adjustment, store the value in the control panel for future prints on the same substrate.
- If the problem is caused by substrate deformation, try reducing the curing temperature for the most heat-sensitive substrates.
- If the problem persists, you can try various ways of shrinking the white layer:
  - Recommended: Use your RIP's smart choke option, and try setting it to 3 pixels.
  - Use your RIP's choke option.
  - Shrink the white layer in your image editor.

NOTE: Shrinking the white layer too much may cause other defects at the edges of the print.

9 Handle the ink system

Correct handling of the ink system is essential for effective printing.

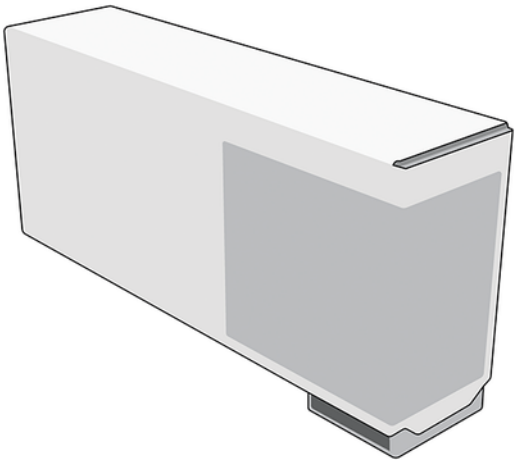
Ink system

The components of your printer's ink system.

Eco-Carton ink cartridges

The printer's eight Eco-Carton ink cartridges provide magenta, light magenta, black, yellow, light cyan, cyan, overcoat, and optimizer ink to the printheads. The 630W printer can also use white Eco-Carton ink cartridges.

Each cartridge has a capacity of 1 liter. They are kept on the right side of the printer.



Eco-Carton ink cartridges require no maintenance or cleaning, but must be shaken before installation. High-quality printing results continue throughout the lifespan of the cartridge.

HP Latex Optimizer enables high quality at high speed. HP Latex Optimizer consists of positively-charged (cationic) polymers suspended in a colorless, water-based ink vehicle. It reacts with the ink pigments, which are negatively-charged (anionic), to immobilize them rapidly on the print surface. This produces sharp text and image detail by suppressing feathering and color bleed especially at high productivity levels.

HP Latex Optimizer also enables the drying and curing process of the HP Latex inks to operate at lower temperatures and to be more energy-efficient, which has the additional benefits of allowing wide substrate support and reduced power consumption.

Durable and flexible water-based ink provides high adhesion and outstanding scratch resistance with the new HP Latex Overcoat fluid.

⚠ **CAUTION:** Observe precautions when handling Eco-Carton ink cartridges because they are ESD-sensitive devices. Avoid touching pins, leads, and circuitry.

⚠ **CAUTION:** Installing a unshaken cartridge may lead to print-quality issues, printhead failure, or ink delivery system malfunction.

NOTE: This printer is intended to work only with new or reused cartridges that have a new or reused HP chip, and it uses dynamic security measures to block cartridges using a non-HP chip. Periodic firmware updates will maintain the effectiveness of these measures. More at: http://www.hp.com/learn/ds.

NOTE: This printer is not designed to use continuous ink systems. To resume printing, remove any continuous ink system and install genuine HP (or compatible) Eco-Carton ink cartridges.

NOTE: This printer is designed for ink cartridges to be used until they are empty. Refilling cartridges prior to depletion could cause your printer to fail. If this happens, insert a new cartridge (either genuine HP or compatible) to continue printing.

Store cartridge usage data

The HP ink cartridge used with this printer contains a memory chip that assists in the operation of the printer.

In addition, this memory chip collects a limited set of information about the usage of the printer, which may include the date when the cartridge was first installed, the date when the cartridge was last used, the number of pages printed using the cartridge, the page coverage, the printing modes used, any printing errors that may have occurred, and the printer model. This information helps HP to design future products to meet our customers' printing needs.

The information collected by the memory chip does not include information that could be used to identify a customer or user of the cartridge or printer.

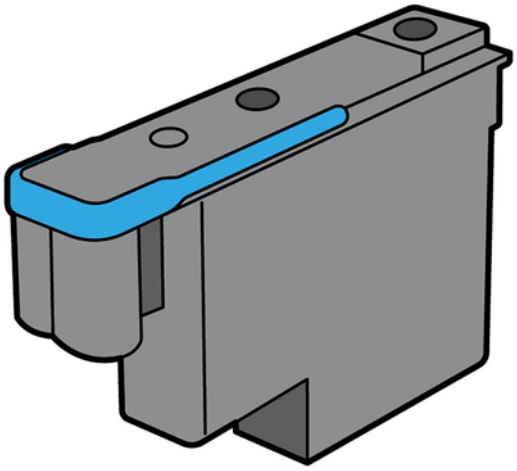
HP collects a sample of the memory chips from cartridges returned to HP's free return and recycling program (HP Planet Partners: http://www.hp.com/recycle). The memory chips from this sample are read and studied in order to improve future HP products. HP partners who assist in recycling cartridges may also have access to the memory chips.

Any third party possessing an ink cartridge may have access to the information on its memory chip. If you prefer not to allow access to this information, you can render the chip inoperable. However, if the chip is inoperable, it cannot be used in an HP printer.

If you are concerned about providing this cartridge usage information, you can tell the printer not to store the information in the memory chip. To do so, access the Embedded Web Server, and click **Security** > **Security settings**, then in the **Printer settings** section toggle to **Anonymous usage information**. This does not prevent the cartridge from working normally in other respects. However, if you change your mind later, you can restore the factory defaults to resume collecting cartridge usage information.

Printheads

The printheads deposit ink on the substrate.



There are three categories of printheads. When put into the printer for the first time, you can connect each printhead to a slot of the appropriate category:

- **Latex printheads**
- **Optimizer printheads** can be put into the optimizer slot only, and can never be swapped to other slots, whether new or used.
- **White-ink printheads** (630W printers only) can be put into the white slot only, and can never be swapped to other slots, whether new or used.

TIP: When you insert a printhead into a slot for the first time, HP recommends marking that printhead visibly to identify its position, as the printhead can be removed at any moment for various reasons, but it will only work again if put into the same slot as before.

The printheads are extremely durable and do **not** need to be replaced every time an ink cartridge is replaced.

To maintain optimum print quality, the printheads are automatically tested at regular intervals, and automatically serviced when necessary. This takes a little time and can occasionally delay printing.

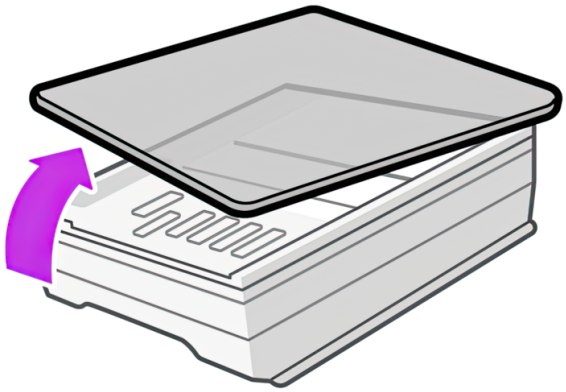
When a printhead eventually needs to be replaced, the control panel will display a message.

⚠ CAUTION: Avoid touching pins, leads, and circuitry when handling printheads because these elements are sensitive to electrostatic discharge. Such devices are called ESD-sensitive devices. Electrostatic discharges are one of the main hazards to electronics products. This type of damage can reduce the life expectancy of the device.

⚠ CAUTION: If you want to remove a printhead from the printer and preserve it for later use, wait at least an hour for it to cool down before removing it—unless the printer has already been idle for at least an hour. Then reinstall the cap and plug; but never install a clear optimizer cap or white plug on a non-optimizer printhead. Optimizer printheads have clear caps and white plugs, while the other printheads have orange caps and plugs. Installing the wrong cap and plug can cause irrecoverable printhead damage.

Maintenance cartridge

The maintenance cartridge cleans and maintains the printheads, and seals the printheads when they are not in use to prevent them from drying out. It is also used to store waste ink.



IMPORTANT: Keep the maintenance cartridge horizontal when removing it, to avoid spilling ink.

The maintenance cartridge is used to clean the printheads. You will be notified when it has to be replaced. Its lifespan will depend on the print mode(s) that you use. On average, a new maintenance cartridge lasts for about 1050 m² (11300 ft²) of printed area for color print modes and about 700 m² (7530 ft²) for white print modes.

NOTE: These figures can vary considerably depending on the print density, the print mode, and the ambient temperature. The cloth will be exhausted much faster with a high-density print, many passes, and a hot environment.

NOTE: The maintenance cartridge is checked to detect end of roll when the printer is turned on and at the end of each print job.

The printer will refuse to start a print job if it detects the end of the cleaning roll. You should then replace the maintenance cartridge with a new one.

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 warning-triangle icon ⚠ is displayed on the control panel. For optimal performance, use Original HP Eco-Carton 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.

NOTE: This printer is not designed to use continuous ink systems. To resume printing, remove the continuous ink system and install genuine HP (or compatible) Eco-Carton ink cartridges.

NOTE: The printer's Eco-Carton ink cartridges are designed to be used until they are empty. Refilling cartridges before they are empty could cause the printer to fail. If this happens, insert a new cartridge (genuine HP or compatible) to continue printing.

Ink system tips

For best results, always follow the guidelines described here.

- Follow the instructions on the control panel during installation.

- Shake the ink cartridges gently before installing them, or when the ink is depleted.

⚠ CAUTION: Installing an unshaken cartridge may lead to print-quality issues, printhead failure, or ink-delivery-system malfunction.

- Allow the printer and the maintenance cartridge to clean the printheads automatically.
- Avoid unnecessary removal of the ink cartridges and printheads.
- Make sure that you comply with all applicable laws and regulations when disposing of ink system consumables.

Maintain the Eco-Carton ink cartridges

During the normal lifetime of a cartridge, no specific maintenance is required. You should replace a cartridge when it has reached its expiration date. See the ink cartridge information on the control panel for the expiration date.

Replace an Eco-Carton ink cartridge

There are two possible reasons to replace an Eco-Carton ink cartridge.

- The ink cartridge is empty or faulty, and you must replace it to continue printing.
- The ink cartridge is very low and you want to replace it with a full cartridge for unattended printing. You can use the remaining ink in the first cartridge at a more convenient time.

⚠ CAUTION: The procedure to remove an ink cartridge must be initiated from the control panel. Do not remove an ink cartridge until the control panel prompts you. If you remove an ink cartridge incorrectly, the printer may subsequently reject that cartridge.

⚠ CAUTION: Remove an ink cartridge only if you are ready to insert another one.

⚠ CAUTION: Observe precautions when handling ink cartridges because they are ESD-sensitive devices. Avoid touching pins, leads, or circuitry.

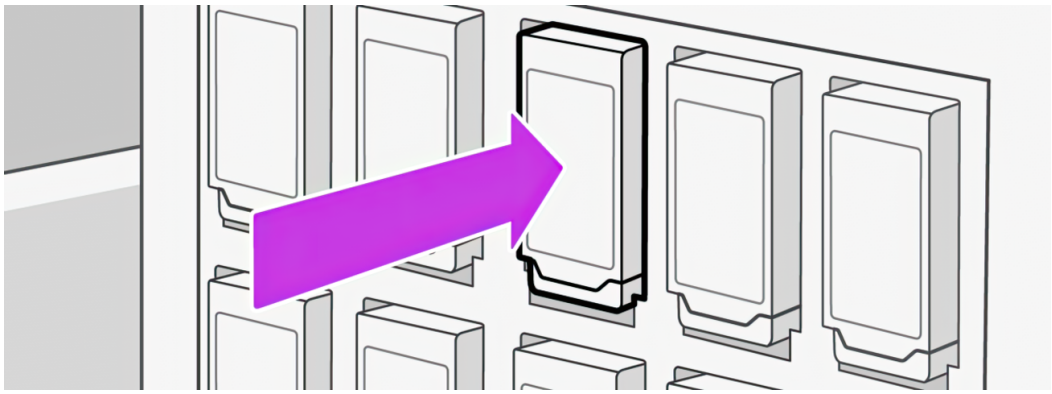
⚠ WARNING! Make sure that the printer wheels are locked (the lever is pressed down) to prevent the printer from moving.

Remove an Eco-Carton ink cartridge

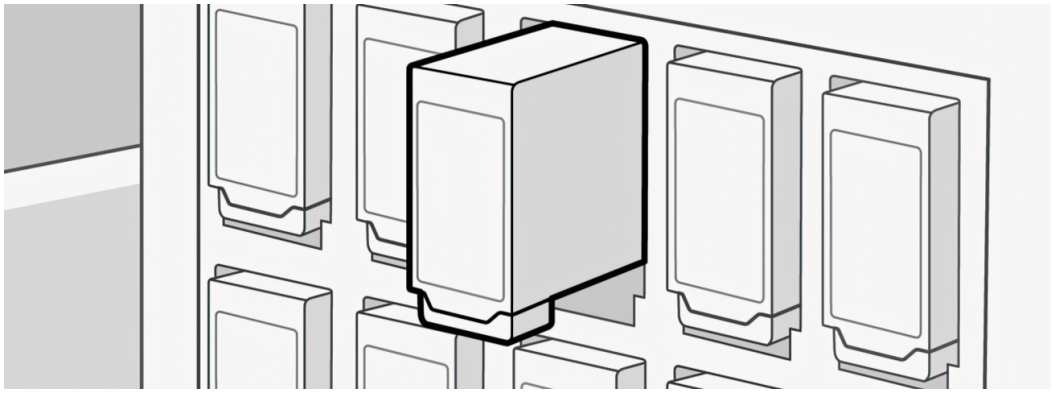
If you need to remove an Eco-carton ink cartridge, perform the following procedure.

1. On the printer's control panel, tap the **Supplies** icon, then **Cartridges** > **Replace**.

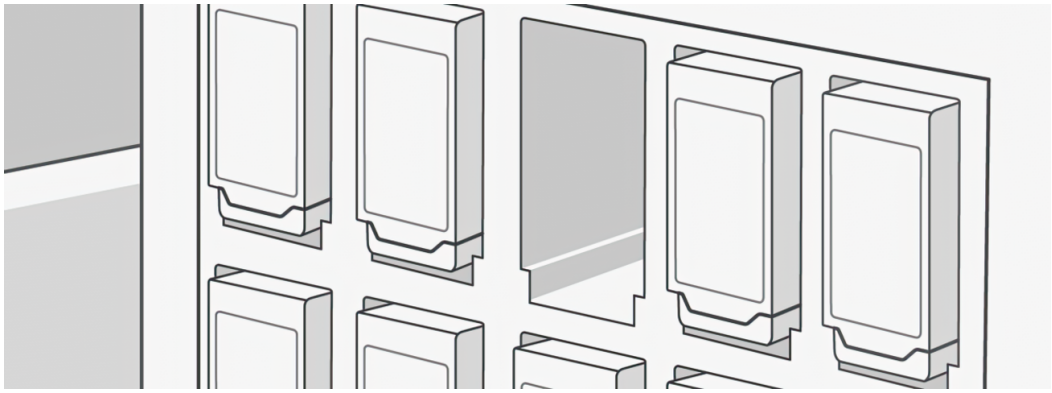
2. Push the lower part of the cartridge (indicated on the label with concentric circles) that you want to remove.



3. The cartridge comes out.



4. Remove the cartridge from the printer.



⚠ **CAUTION:** There is a humidor that seals the needle of the printer when the ink cartridge is removed. If you notice that the needle is not covered by the humidor, call your service representative to prevent problems with the ink system.

NOTE: Avoid touching the end of the cartridge that is inserted into the printer, because the connection might be coated with ink.

NOTE: If necessary, store a partially-used ink cartridge in the same position as if it were inserted in the printer.

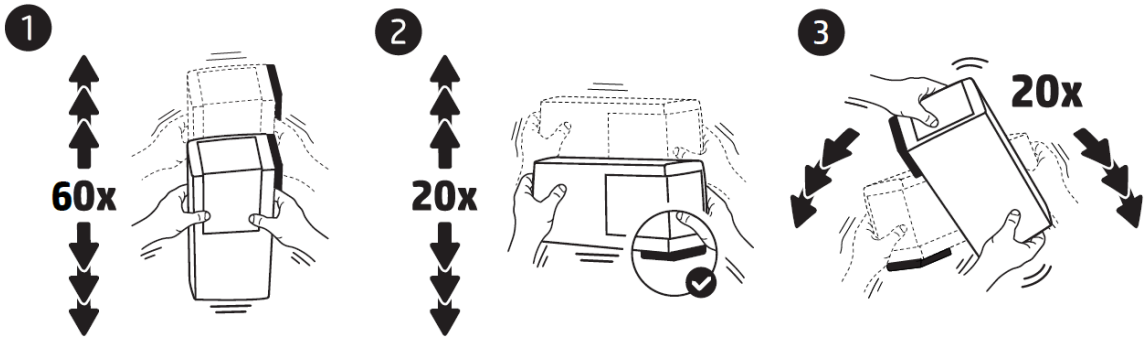
Insert an Eco-Carton ink cartridge

If you need to insert an Eco-carton ink cartridge, perform the following procedure.

IMPORTANT: If the white ink cartridge (upper row) is removed while there is still ink in the ink mix container (lower row), the control panel will ask you to reinsert the cartridge and wait while the ink is transferred to it. You cannot install a new cartridge until the ink mix container is empty.

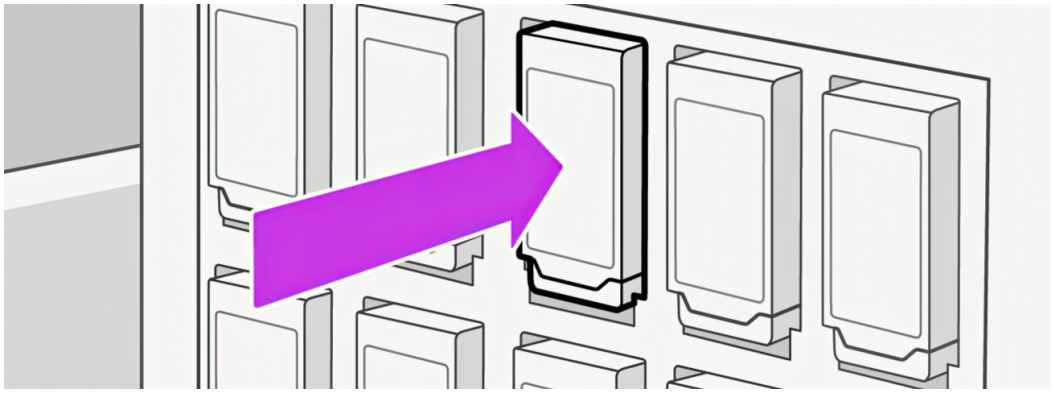
1. Pick up the new Eco-Carton ink cartridge and find the label that identifies the ink color. Hold the ink cartridge so that you can see the label at the left and front.
2. Check that the colored label above the empty slot in the printer matches the color of the label on the cartridge.
3. Shake the ink cartridges vigorously before installing them.

IMPORTANT: Before installing a white-ink cartridge, tilt it 100 times as shown below. This should take less than 2 minutes.



CAUTION: Installing an unshaken white-ink cartridge may lead to print-quality issues, printhead failure, or ink delivery system malfunction.

4. Insert the ink cartridge into the correct slot and push the lower part until it locks into position.



5. At the control panel, tap **Finish & check**.
6. The control-panel display confirms that the replacement has been successfully completed.
7. Tap **OK**.

Refilled and non-HP ink cartridges

HP recommends that you replace an empty cartridge with a new HP cartridge.

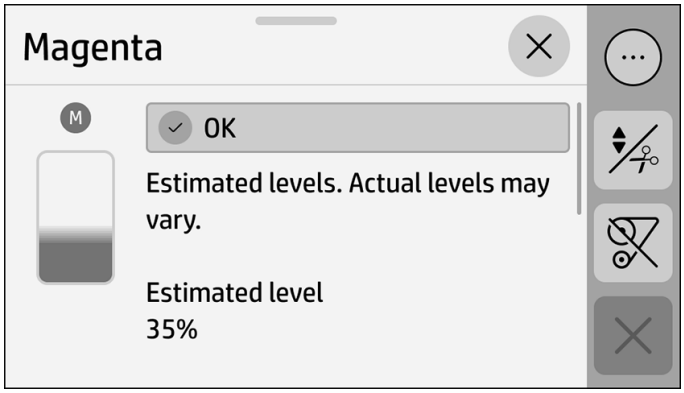
The use of refilled or non-HP ink cartridges has several disadvantages:

- If printer failure or damage is attributable to the use of a non-HP or refilled ink cartridge, HP will charge its standard time and materials charges to service the printer for the particular failure or damage, even if the printer is within its warranty period.
- If failure or damage to printheads, ink cartridges, or other ink supplies is attributable to the use of non-HP, expired, or refilled ink cartridges, HP is not responsible for the cost of replacement.
- Print quality may be impaired.
- The printer will be unable to estimate the ink level in the cartridge, and will report it as empty.

If you decide to use refilled or non-HP ink cartridges, you will need to follow these instructions to make the printer use a cartridge that it believes to be empty.

⚠ CAUTION: Running completely out of ink can damage the printheads. Damage attributable to printing with empty ink cartridges is not covered under the warranty. Forcing the printer to accept empty cartridges will empty the ink delivery system as well. Once emptied, ink must be used to refill the system and reprime the printhead when a new ink cartridge is installed.

1. Install the cartridge in the printer (see Insert an Eco-Carton ink cartridge on page 136).
2. The control panel indicates that the cartridge is empty.
3. You can see the ink levels in your ink cartridges by tapping the **Supplies** icon on the control panel's home screen, then **Cartridges**.
4. Tap any cartridge to see more detailed information.



5. The control panel displays a series of warning messages. In response to each message, tap **OK** to confirm that you wish to continue.
6. When you have tapped **OK** in response to all warning messages, the control panel gives the usual ink cartridge status display, but the cartridge is shown as empty with a warning sign.

Align the printheads

The printer performs printhead alignment whenever printheads are replaced. If no substrate is loaded when a printhead is replaced, the printer will perform the alignment the next time you load substrate.

You may also be recommended to align the printheads to solve a print-quality problem.

Automatic alignment

First make sure that you have a roll of opaque, white substrate loaded in the printer. Colored substrates, glossy canvas, coarse textiles, and transparent materials such as translucent bond, clear film, tracing substrate and vellum are not suitable for automatic printhead alignment.

For these substrates, you should align the printheads manually (see Manual alignment on page 139) or perform the automatic alignment on a supported substrate of similar thickness first, then change to the special substrate. Alignment settings are retained through substrate changes until a new printhead alignment is performed.

The HP Latex Optimizer can be aligned only on certain substrates such as self-adhesive vinyl. The pattern varies according to the substrate.

To request printhead alignment from the control panel (if the alignment is not performed automatically), tap the menu icon , then **Tools** > **Troubleshooting** > **Printhead alignment** > **Automatic printhead alignment**. Now choose which printheads you want to align:

- Color printheads: Tap **Start** > **Colors** > **Continue**.
- Color, optimizer, and overcoat printheads: Tap **Start** > **Colors + Optimizer + Overcoat** > **Continue**.
- Optimizer and overcoat printheads: Tap **Start** > **Optimizer + Overcoat** > **Continue**.
- White printhead (630W only): Tap **Start** > **White** > **Continue**.

The process takes about 11 minutes and starts immediately, unless an image is currently being printed. If a print job is in progress, the alignment will be done as soon as the current print job is finished.

Figure 9-1 Auto-alignment plot (colors)

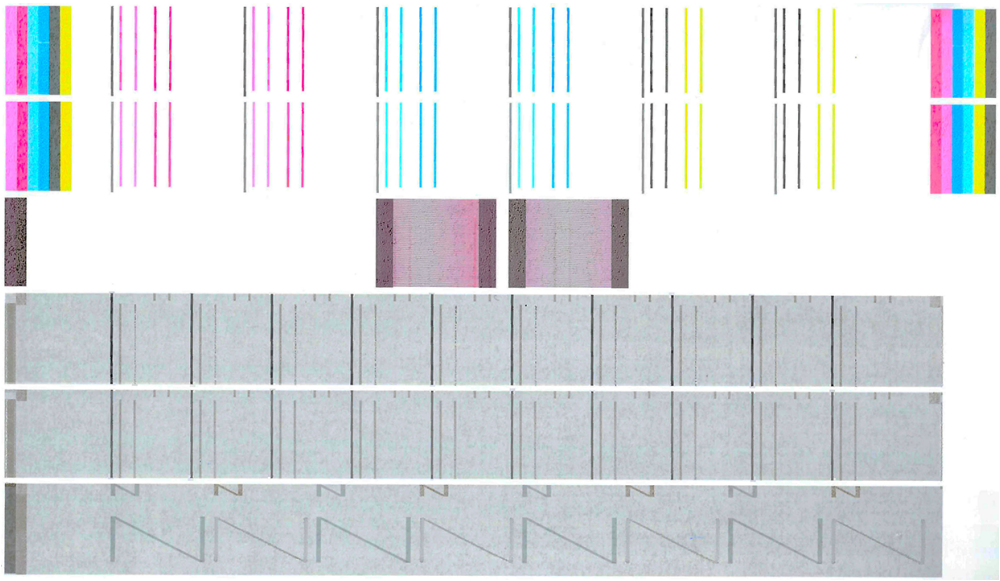
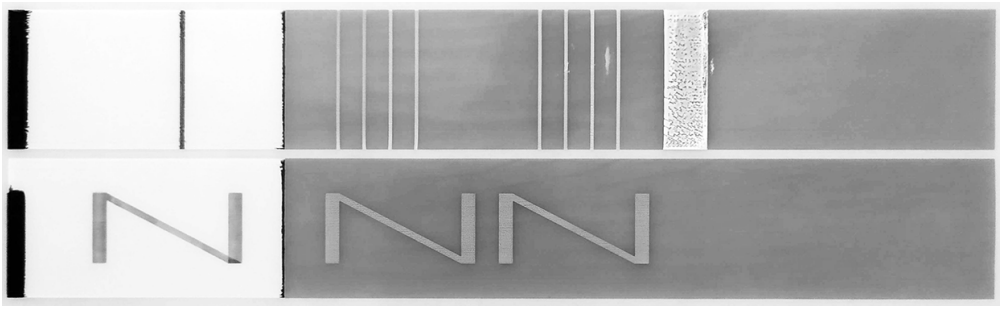


Figure 9-2 **Auto-alignment plot (white)**



Manual alignment

A manual printhead alignment can be requested from the control panel.

TIP: HP does not recommend attaching the substrate to the take-up reel when running any printer calibration.

1. Tap the menu icon, then **Tools** > **Troubleshooting** > **Printhead alignment** > **Manual printhead alignment**.
2. Choose which printheads you want to align:
   - Color, optimizer, and overcoat printheads: Tap **Start** > **Colors + Optimizer + Overcoat** > **Continue**.
   - White printhead (630W only): Tap **Start** > **White** > **Continue**.
3. The printer prints 28 rows labelled from A to AB. Inspect the print and write down the number of the straightest line in each row (for example, A:9).

   The first blocks of patterns printed on a grey background are used to align the HP Latex Optimizer and Overcoat. These will be visible only on certain substrates, such as self-adhesive vinyl. If the best alignment pattern cannot be determined, the default value of 10 should be used.

Figure 9-3 Manual alignment plot (colors, optimizer, overcoat)

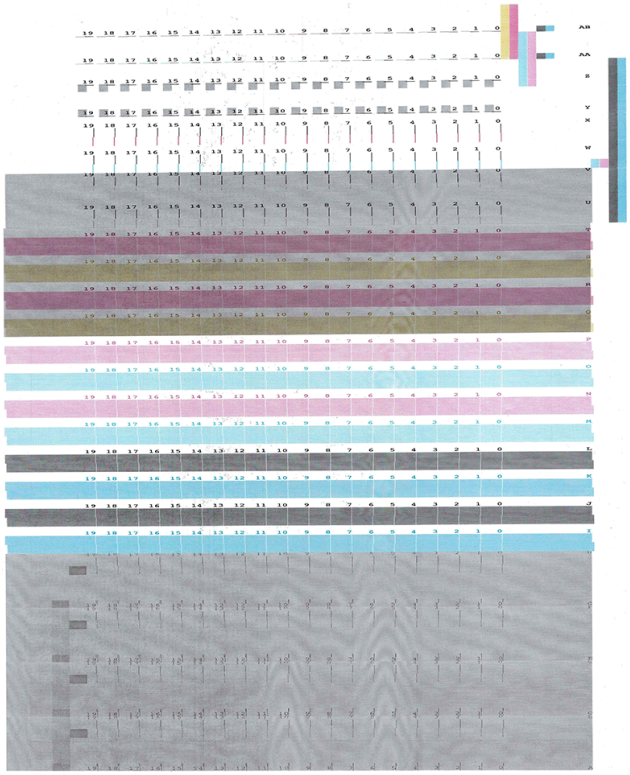
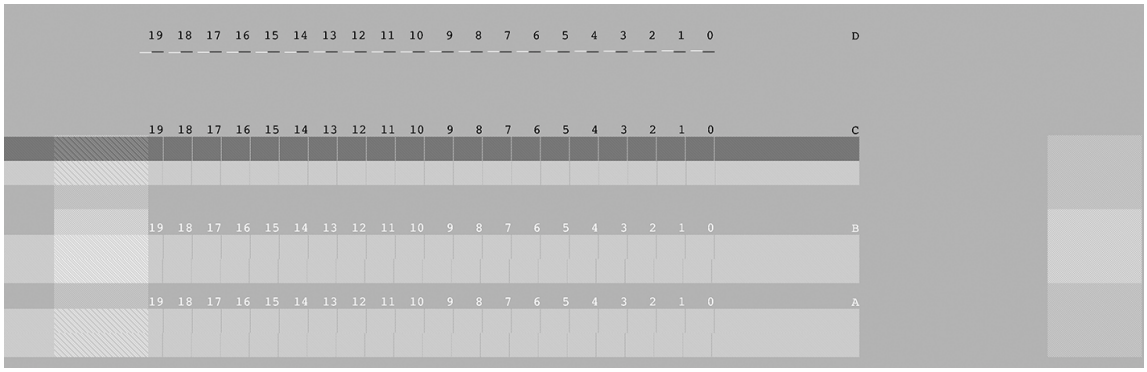


Figure 9-4 Manual alignment plot (white)



4. To enter the correction values at the control panel, tap the menu icon , then **Tools** > **Troubleshooting** > **Printhead alignment** > **Manual printhead alignment** > **Start** > **Colors + Optimizer + Overcoat** > **Continue**. Enter each value into the window labelled with the same letter as the corresponding pattern.

5. To enter the correction values for white ink (630W only), tap the menu icon , then **Tools** > **Troubleshooting** > **Printhead alignment** > **Manual printhead alignment** > **Start** > **White** > **Continue**. Enter each value into the window labelled with the same letter as the corresponding pattern.

Replace a printhead

How to remove and insert a printhead.

TIP: After inserting a new printhead, the printer will automatically perform a printhead alignment. HP strongly recommends advancing the substrate past the curing module before starting a printhead replacement, to avoid substrate jams.

Remove a printhead

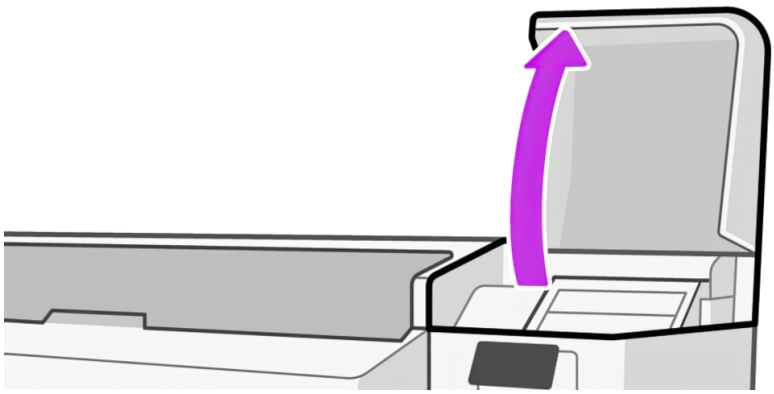
If you need to remove a printhead, perform the following procedure.

1. At the printer's control panel, tap the supplies icon , then **Printheads** > **Replace printheads**.
2. The carriage moves to the removal position.

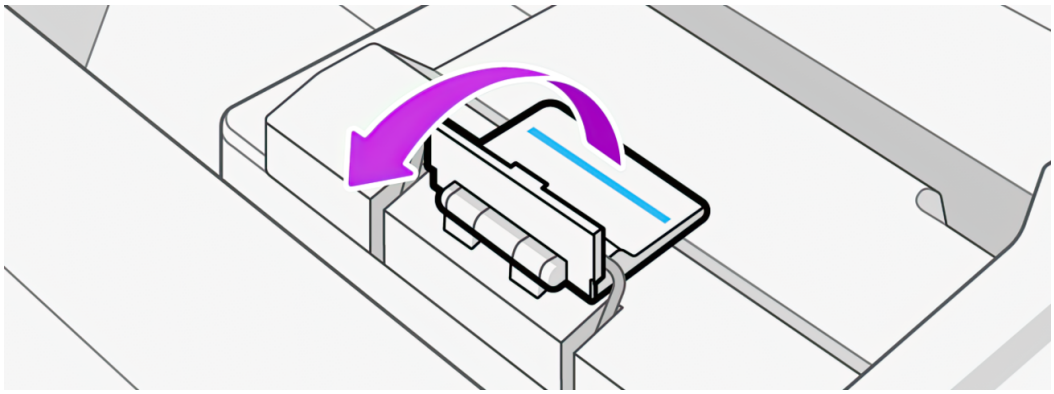
CAUTION: If the carriage remains in the removal position for more than 3 minutes without inserting or removing any printheads, it will attempt to return back to its home position to the right.

CAUTION: Observe precautions when handling printheads because they are ESD-sensitive devices. Avoid touching pins, leads, or circuitry.

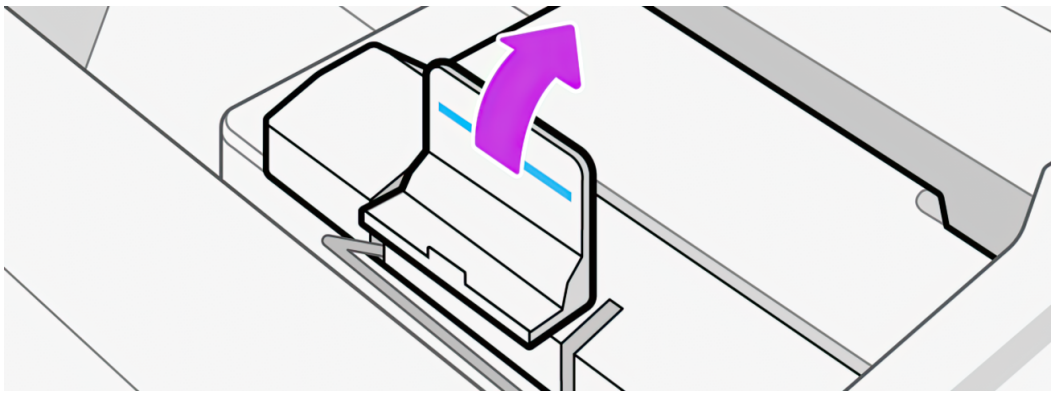
3. When the carriage has stopped moving, the control panel prompts you to open the carriage cover.



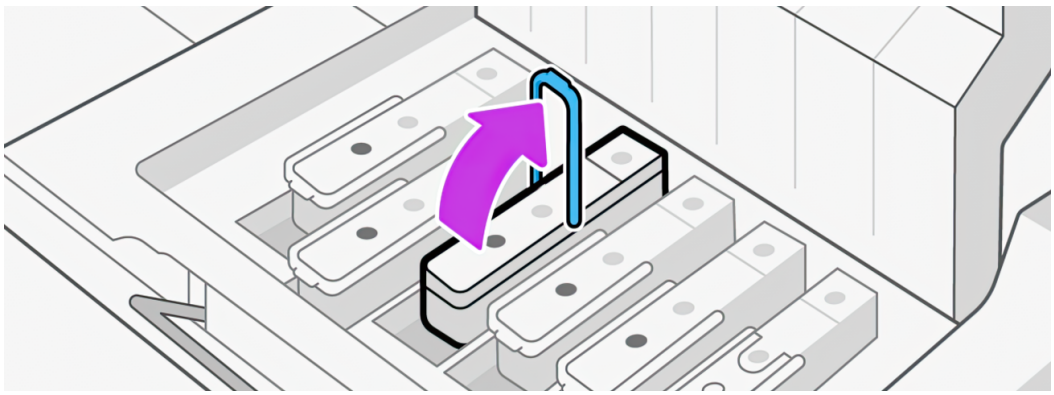
4. Pull up and release the latch on top of the carriage.



5. Lift up the cover over the printheads.



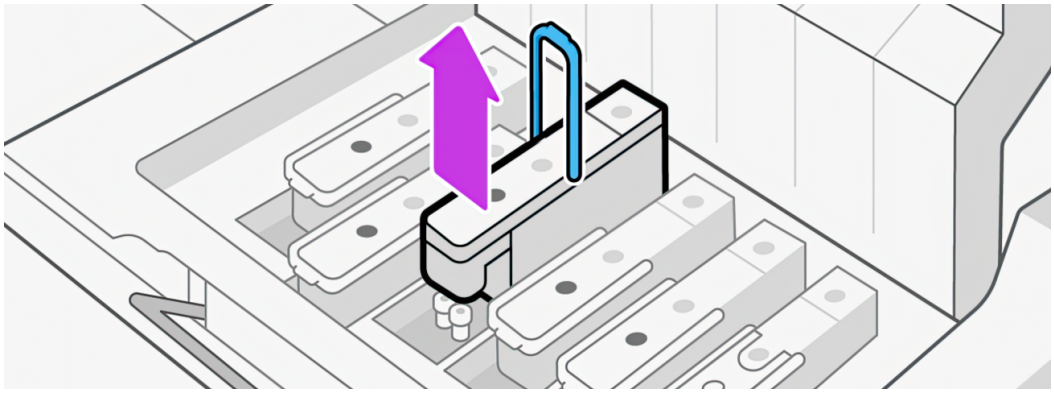
6. To remove a printhead, lift up the blue handle.



7. Using the blue handle, gently disengage the printhead, then gently pull it upwards until the printhead is released from the carriage.

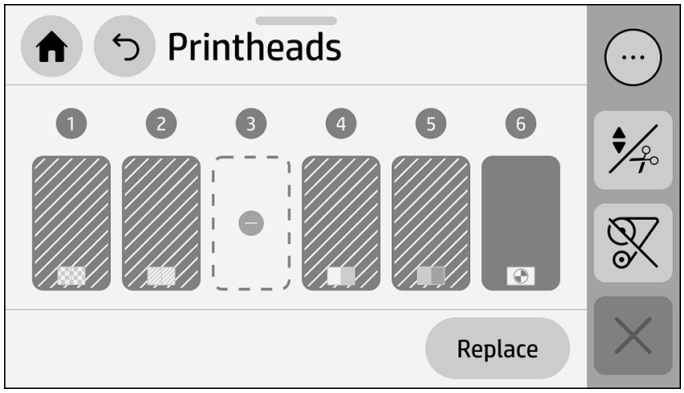
⚠ CAUTION: Place a cloth below the printhead to prevent ink droplets from falling on the carriage.

⚠ CAUTION: Do not pull abruptly, which could damage the printhead.



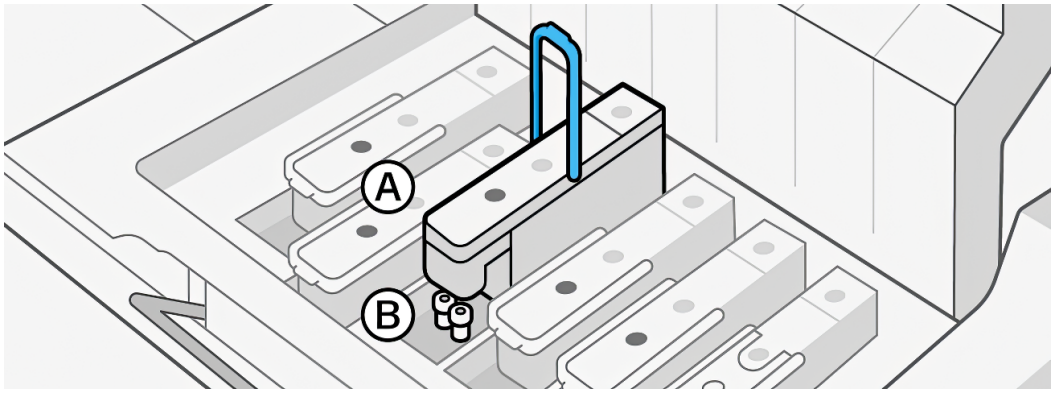
⚠ **CAUTION:** If you want to preserve the old printhead for later use, reinstall the cap and plug, but never install a clear optimizer cap or white plug on a non-optimizer printhead, or an orange cap or plug on an optimizer printhead. Optimizer printheads have clear caps and white plugs, while the other printheads have orange caps and plugs. Installing the wrong cap and plug can cause irrecoverable printhead damage.

8. The control-panel display identifies the missing printhead.



9. Check whether the fluid interconnect tower has ink on it. If so, clean it with a lint-free cloth before inserting a new printhead.

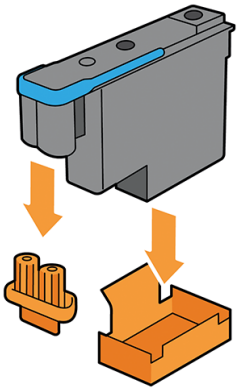
   The fluid interconnect tower (B) is the structure into which the printhead (A) is inserted, and through which the ink arrives at the printhead.



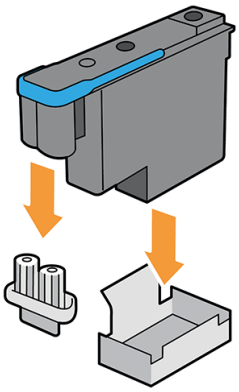
Insert a printhead

If you need to insert a printhead, perform the following procedure.

1. Remove the orange protective caps by pulling them down.



NOTE: The optimizer protective caps are white or transparent.

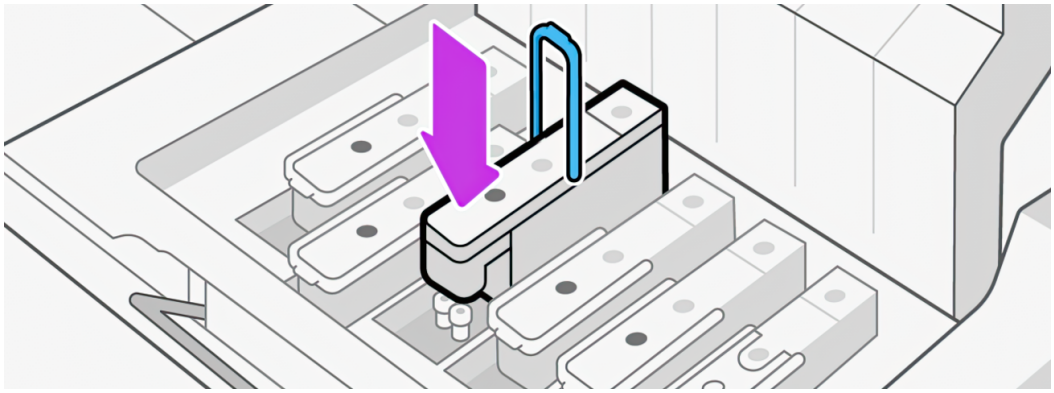


2. The printhead is designed to prevent you from accidentally inserting it into the wrong slot. Check that the colored label on the printhead matches the colored label of the carriage slot into which the printhead is to be inserted.

3. Insert the new printhead into its correct slot in the carriage.

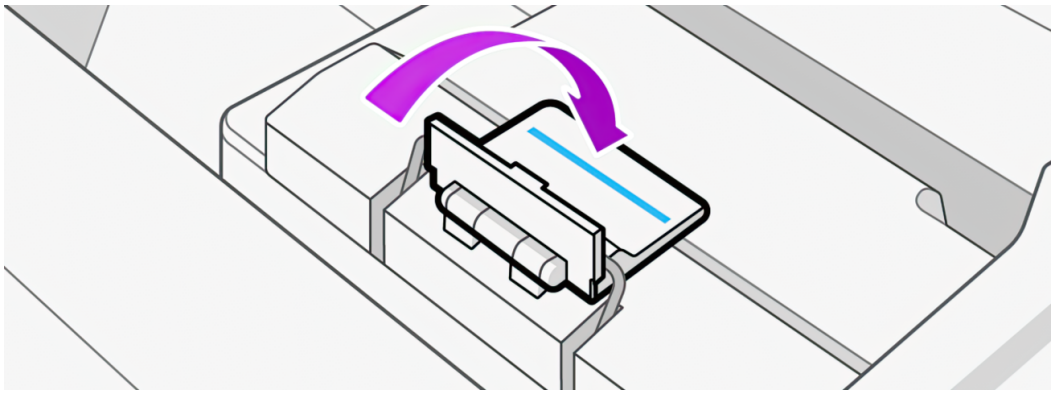
CAUTION: Insert the printhead slowly and vertically, straight down. It can be damaged if you insert it too quickly, or at an angle, or if you rotate it as you insert it.

You may feel some resistance when inserting the printhead, so you need to press it down firmly but smoothly. You should hear a beep and see confirmation on the control-panel display that the printhead has been inserted.



4. Insert all of the other printheads that need to be installed, ensure that the printheads are completely inserted, and close the printhead cover.

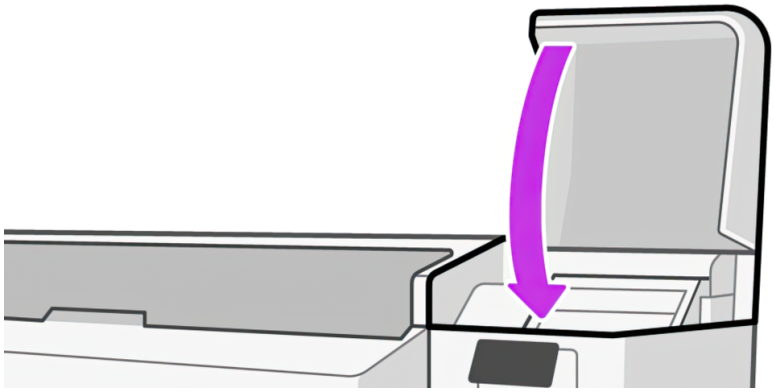
5. Lower the latch to rest on the printhead cover.



When all of the printheads have been inserted correctly and the printer has accepted them, the printer beeps.

NOTE: If the printer does not beep when you insert the printhead and the **Replace** message appears on the control-panel display, you may need to reinsert the printhead.

6. Close the carriage cover.



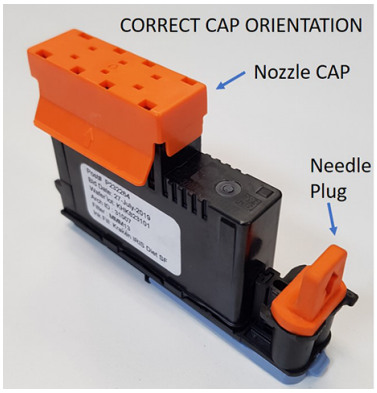
7. The control-panel display confirms that all of the printheads are correctly inserted. The printer starts checking and preparing the printheads. The default process, when all printheads are changed, normally takes up to 35 minutes without white, or 45 minutes including the white printhead (630W only). If the printer identifies a problem when preparing the printheads, the process takes longer, up to 60 minutes. For a single printhead insertion, the time varies between 10 and 15 minutes. After all printheads are checked and prepared, the printhead realignment procedure runs automatically if substrate is loaded.

How to store and transport printheads

If you ever need to remove the color printheads from the printer to store or transport them, take the following precautions.

IMPORTANT: This section does not apply to white printheads (630W only).

- Ensure that the orange nozzle cap is correctly placed on the printhead.

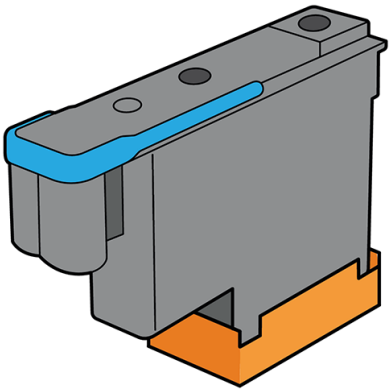


IMPORTANT: Ensure that the correct nozzle cap and needle plug are used for each printhead.

  - The optimizer printhead has a white nozzle cap and needle plug.
  - All other color printheads have an orange nozzle cap and needle plug.

- **Do not** interchange colors, which can permanently damage nozzles. HP recommends storing the packaging material of each printhead (box, kit, nozzle cap, and needle plug) safely in case of need.

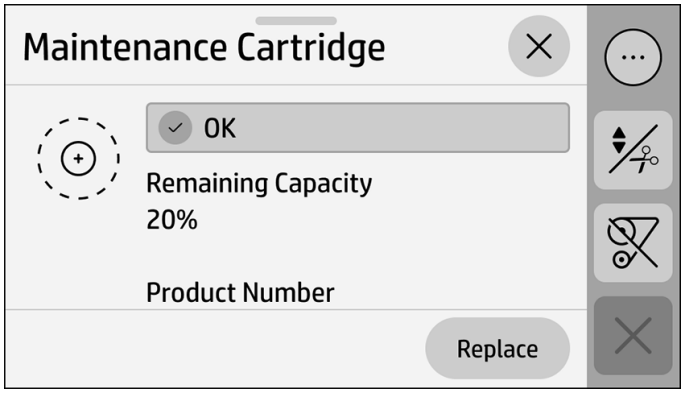
- Store each printhead with nozzles facing down: that is, resting on the nozzle cap. Do not store printheads with nozzles facing up.



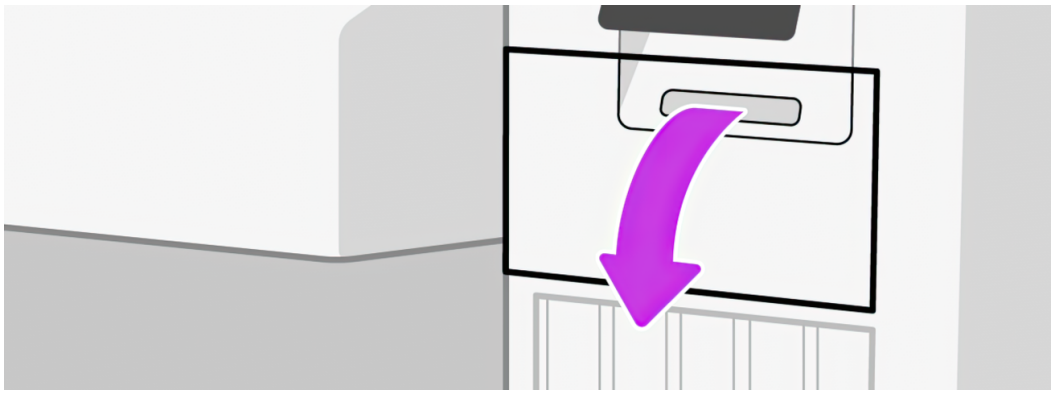
Replace the maintenance cartridge

You should replace the maintenance cartridge when prompted to do so by the control panel.

1. At the printer's control panel, scroll down and tap the supplies icon , then **Other supplies**.
2. In the Maintenance Cartridge section, tap **Replace** > **Start**.



3. The maintenance cartridge is located in a slot below the control panel, at the front of the printer. Open the door.



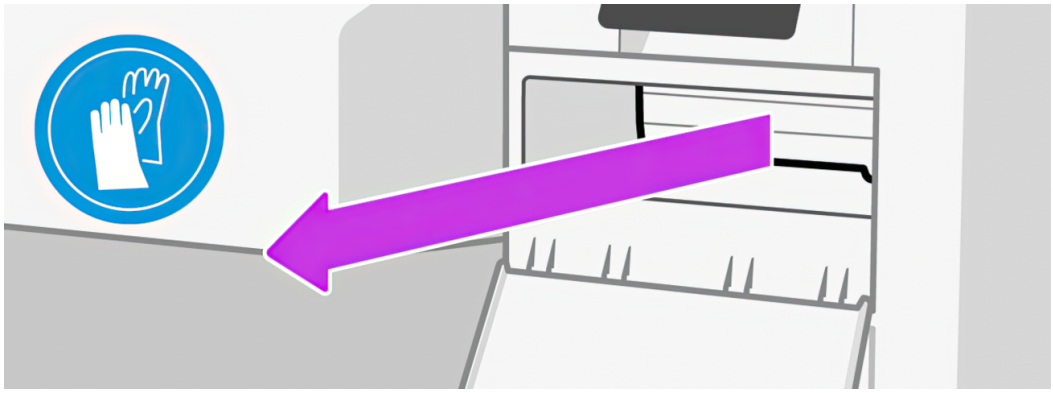
IMPORTANT: When removing a maintenance cartridge, remember that it is full of ink. Therefore:

- Wear gloves.

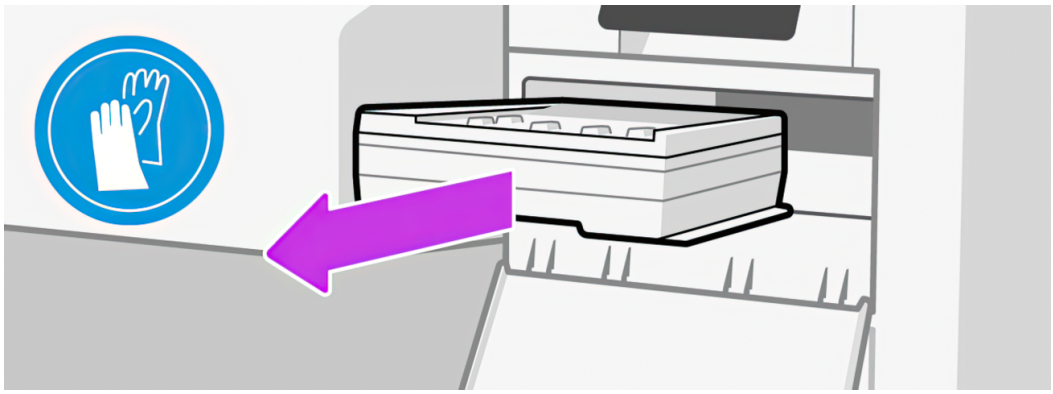
- Remove it carefully and horizontally to avoid splashing.
- Always handle and store the replaced maintenance cartridge upright, facing up.

⚠ WARNING! Make sure that the printer wheels are locked (the brake lever is pressed down) to prevent the printer from moving.

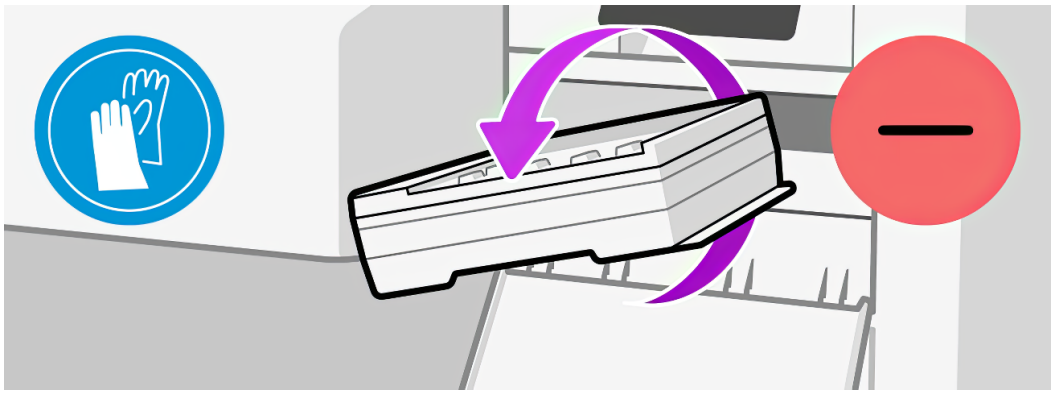
4. The maintenance cartridge has a handle on the front. To remove the cartridge, just slide it out.



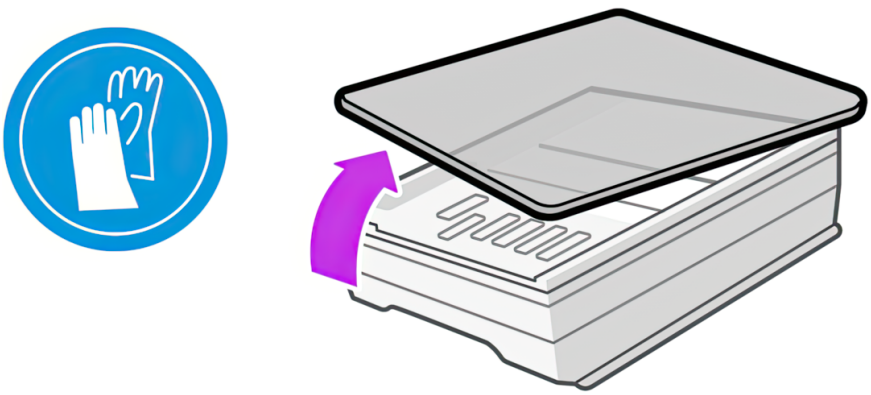
5. When you have slid it out partway, hold it on each side with both hands: it is heavy.



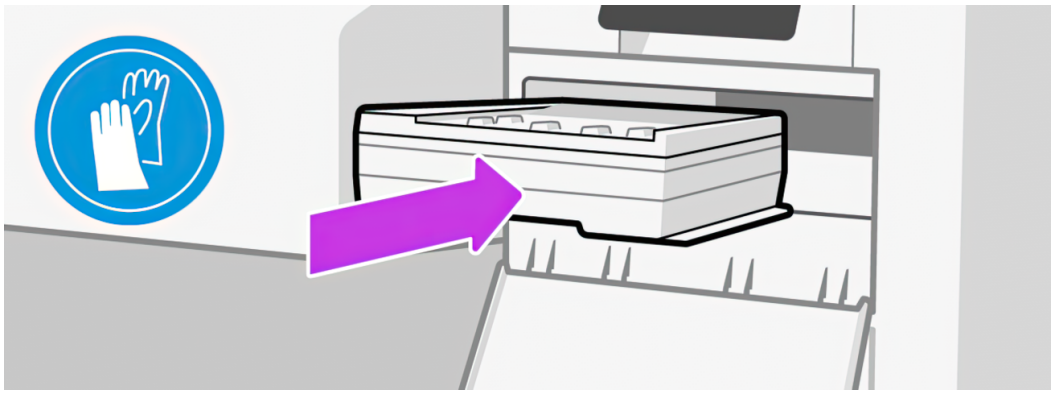
IMPORTANT: Slide it out horizontally to avoid spills, as it is full of ink.



6. Store the old maintenance cartridge.
7. Remove the plastic cover from the new maintenance cartridge.



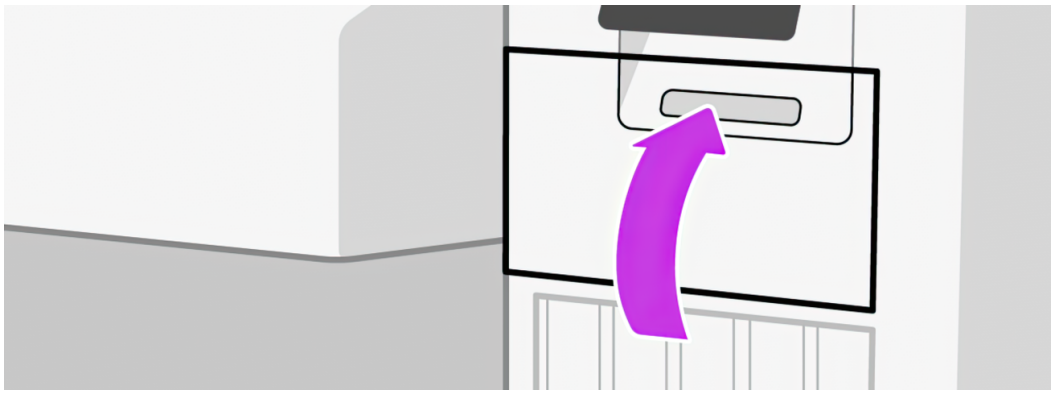
8. Insert the maintenance cartridge into the slot, in the direction indicated by the arrow.



9. Push the maintenance cartridge in until it does not protrude from the slot. You will notice that the printer takes it; do not use excessive force.

NOTE: The control panel will not show the new maintenance cartridge until the door is closed.

10. When you have inserted the maintenance cartridge into the printer, close the door.



11. Clean the encoder strip: see Clean the encoder strip on page 171.

NOTE: Before it can resume printing, the printer needs all the ink cartridges, printheads, and maintenance cartridge to be installed, and the front window and maintenance cartridge door to be closed.

Printing with white ink (630W only)

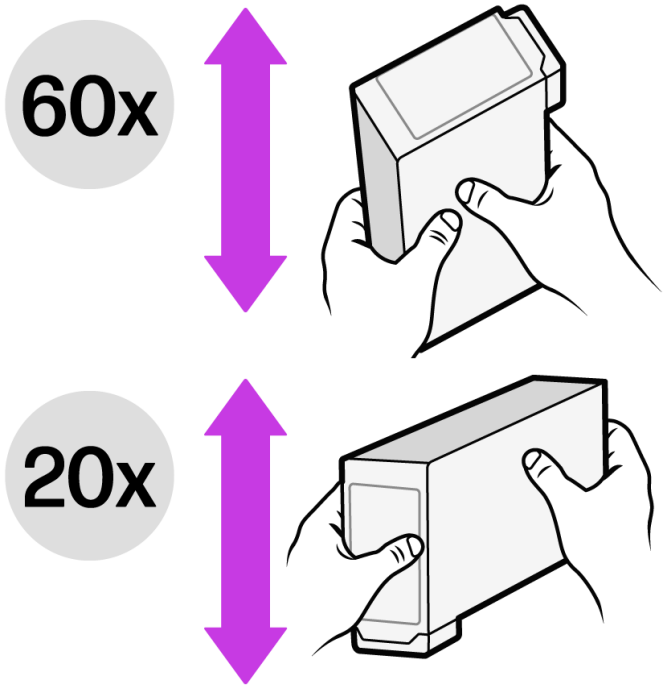
Printing with white ink is useful mainly when printing on non-white substrates, such as dark, colored, metallic, or transparent substrates.

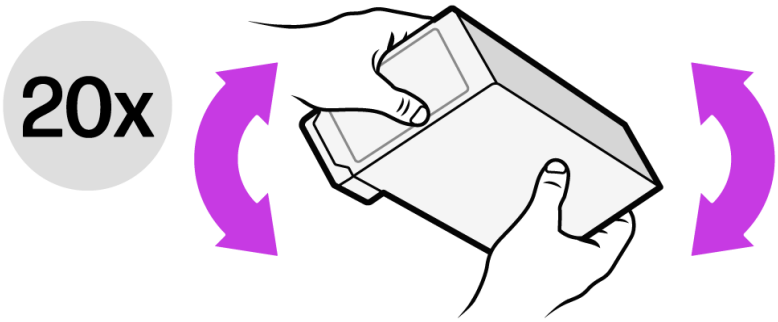
The following basic design techniques may be used:

- **Underflood:** A solid rectangle (or irregular shape) of white ink is printed as the first layer, then a colored image is printed as the second layer, on top of it. When used on a non-white or reflective surface, this can provide better color saturation or allow colors that are similar to the substrate color to be visible.
- **Overflood:** A colored image is printed as the first layer, then a solid rectangle (or irregular shape) of white ink is printed as the second layer, on top of it. This is most often done with transparent substrates to create a sign that is viewed on a light box (for example, a shopping mall map, airport advertisement, or bus stop signage). When viewed from the opposite side of the substrate on which it was printed, the image must be reversed (mirrored) in the RIP or application software before printing.
- **Spot color:** Any white shape (including text) that is cured with and in the same plane as the rest of the artwork, rather than in a separate plane or layer. In conventional (analog) offset or screen printing, this might be called a *knockout*, because none of the colors are overprinted.
- **Sandwich mode:** A white layer is embedded between two different images, allowing each image to be seen from one side of the substrate.

There are two independent ink supplies: the top one is the white ink cartridge and the bottom one is the ink mix container. Take care not to swap the ink cartridge and the ink mix container. The ink cartridge is replaced when it is empty; the ink mix container remains in the printer until the printer advises you to replace it. At this time, the printer transfers any ink in the ink mix container to the cartridge, and you cannot install a new cartridge until the ink mix container is empty.

Before inserting a new white cartridge, shake it vigorously 100 times, as illustrated below. This should take less than 2 minutes.





White printheads need manual cleaning periodically, in addition to the automatic servicing that all printheads receive.

IMPORTANT: White ink cartridges, and either white printheads or auxiliary white printheads, should remain permanently installed to avoid printhead damage, even if you are not currently using white ink in your jobs. The white recirculation requires a minimum level of ink in the cartridge to maintain the white system.

NOTE: When printing a CMYK or CMYKcm image without a white under-fill on non-white substrate, color saturation may be reduced, depending on the color of the substrate.

NOTE: White ink has a maximum shelf life of 12 months from the date of manufacture, or 6 months from the date of installation.

NOTE: White ink has a tendency to settle over time.

Ink efficiency and productivity optimization

You can use these suggestions to reduce your ink consumption and increase your throughput.

- Use the print mode with the minimum number of passes that satisfies your print-quality requirements.
- Use the full width of the printer, if feasible, for every job and nesting composition. You can save printing time and ink this way, because it will minimize the number of passes necessary to complete the print.
- Use the warm-up button as recommended (available in the RIP software).

Take care of your Eco-Carton ink cartridges

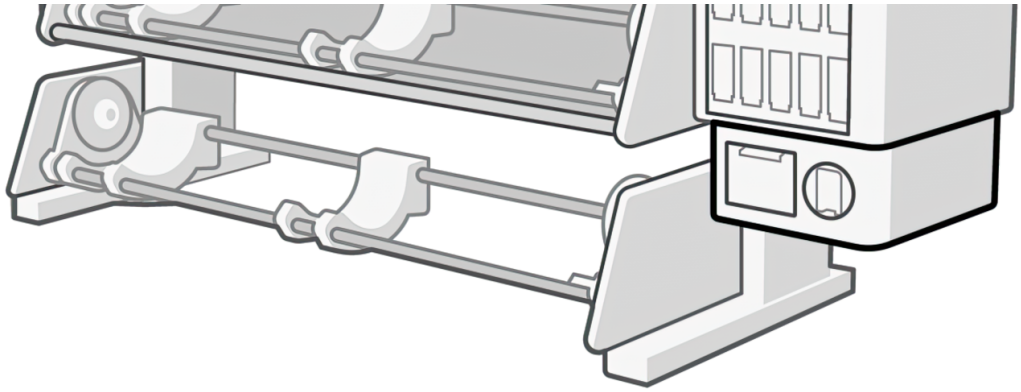
Follow these recommendations to keep your white-ink cartridges in good condition.

- Do not use expired ink.
- Before inserting any new ink cartridge, always shake it 100 times according to the instructions.
- Never try to remove an ink cartridge while the printer is performing self-maintenance.

White-printhead storage system

The white-printhead storage system allows you to extend the life of white printheads when they are not being used.

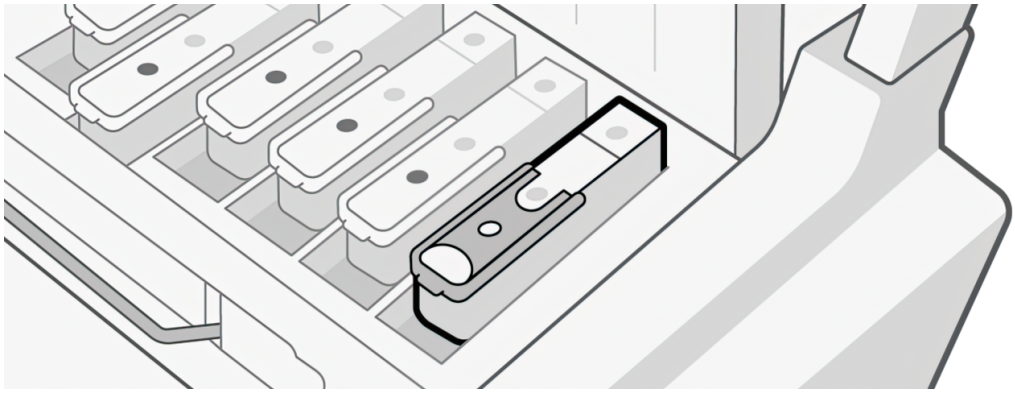
IMPORTANT: When a white-ink printhead is installed, the printer performs automatic maintenance routines periodically to ensure that it functions correctly.



IMPORTANT: If you do not intend to use white ink, you should remove the white printhead and store it in the storage system. Otherwise some white ink will be wasted during routine maintenance.

1. Ensure that the printer is not trying to print: stop the print queue.
2. At the control panel, tap the **Supplies** icon, then **Printheads** > **Replace**.
3. Remove the white printhead from the carriage.

CAUTION: Place a cloth below the printhead to prevent ink droplets from falling on the carriage.



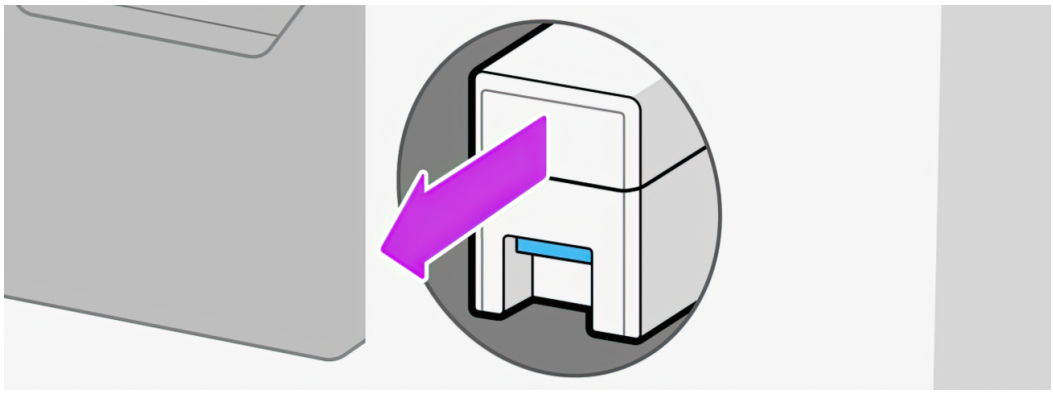
4. Check the bottom of the white printhead. If you see some ink (which can happen because of the automatic recirculation), clean it gently with a soft, fiber-free cloth and de-ionized or distilled water.

CAUTION: Do not use the same cloth to wipe optimizer and non-optimizer printheads. This may lead to unrecoverable nozzle defects.

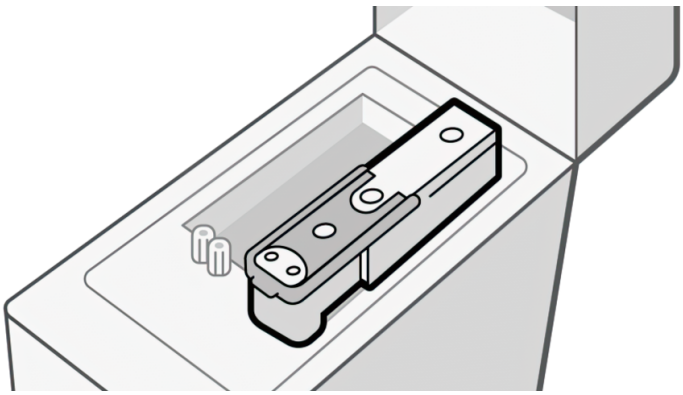
NOTE: To provide the best possible printhead reliability, the white printhead may need to be cooled down. HP recommends following the cool-down process whenever the printer requests it, first removing the white printhead from the carriage.

Check whether the fluid interconnect tower has ink on it. If so, clean it with a lint-free cloth before inserting the printhead. See Remove a printhead on page 141 for more details.

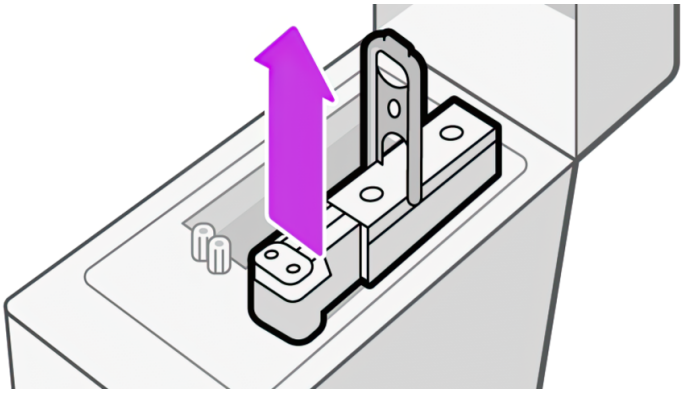
5. Remove the printhead storage box from the storage system.



6. Open the storage box.



7. Remove the auxiliary printhead from the box.



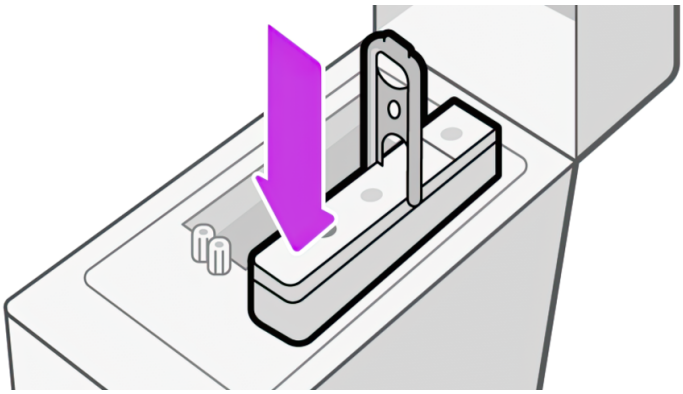
8. Check the bottom plate of the white printhead. If there is some ink on it (which can happen because of the automatic recirculation), clean it gently with a soft, fiber-free cloth dampened with de-ionized or distilled water.

⚠ CAUTION: Do not use the same cloth to wipe optimizer and non-optimizer printheads. This may lead to unrecoverable nozzle defects.

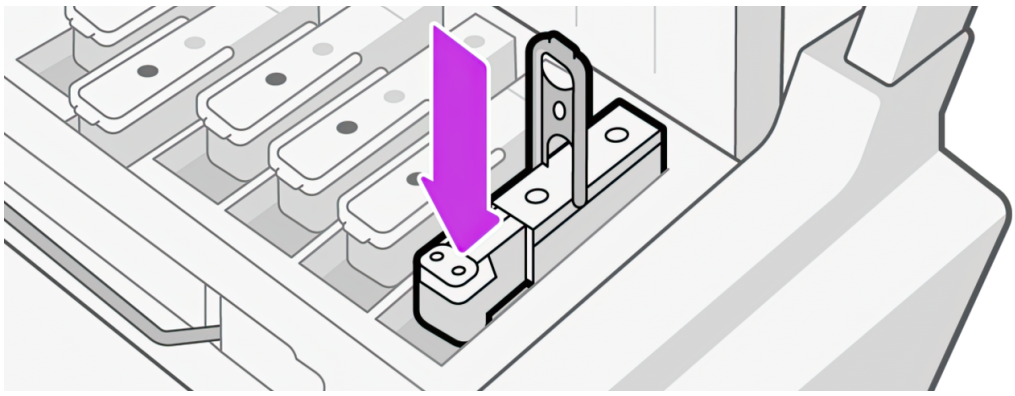
9. Regularly check the plastic needles in the storage box, which protect the printhead. If necessary, clean them with distilled water, then dry them before installing the printhead.

⚠ CAUTION: The white printhead should be kept either in the carriage slot or in the storage system, otherwise nozzles and needles may become clogged.

10. Put the white printhead into the storage box, then put the storage box back into the storage system.



11. Insert the auxiliary white printhead into the carriage in place of the white printhead.



IMPORTANT: Do not try to print without a full set of printheads installed in the carriage.

IMPORTANT: If any component of the white module is broken, or if a white cartridge is empty, the recirculation process could be affected. You are recommended to replace these components promptly when necessary.

You can leave the white printhead in the storage system for as long as you like.

To use it again, reverse the above procedure.

IMPORTANT: The printer should never be turned off: use sleep mode instead.

Automatic white-ink maintenance cannot occur when the printer is completely turned off; and the white-ink printhead cannot survive for more than 8 hours without maintenance.

Preparing a white job in your design software

Prepare the job using layers. Before sending it to the RIP, you should ensure that the part of the image to be printed in white is on a separate layer named **spot**: a name that the printer will recognize.

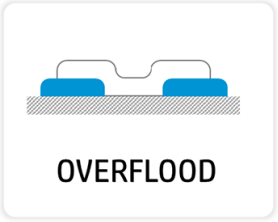
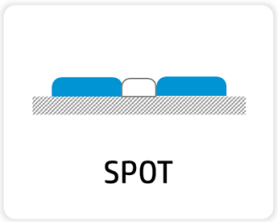
When the image is ready, send it to the RIP.

If your file does not have a layer named **spot**, you can add a white layer from the RIP.

Preparing the job in the RIP

In the RIP, choose the desired print mode. This selection places the white layer defined in the application into its desired position: Over, Under, or Spot (at the same level as the color layers). Assigning a print mode with white ink to a job with no white layer will cover the whole printing area with white. When ready, send the job to the printer.

Table 9-1 Selectable options and their effects

Option	Effect
	**Overflood:** White ink is printed on the substrate, enabling you to print color on top of a non-white or translucent substrate.
	Underflood: The white layer is printed on top of the color layer, enabling you to create new colors by playing with white ink translucency. This is used to print on transparent substrates such as acrylic, transparent film, or glass.
	**Spot:** White ink is printed in the same way as any other color.
	Sandwich: A white layer is embedded between two different images, allowing a different image to be seen on each side of the shape.

Water tank

Before printing with white ink, make sure that the water tank is full of distilled water.

To refill the water tank:

1. Pull out the tank.

2. Remove the cap and refill the tank with distilled water up to the line.
3. Put back the cap and close the tank.
4. Put the tank back into place.

Ink mix container

The ink mix container should be replaced every 2 years, or sooner. The control panel indicates when replacement is needed.

IMPORTANT: The white-ink cartridge should be replaced at the same time.

Printhead maintenance

The tips here will maximize printhead performance. Always follow maintenance guidelines.

- Group all the white jobs of the day in one run.
- Extract the white printhead no more than once per day and only after cooling down.
- Always follow the printhead replacement procedure in the printer. Failure to do so will affect printhead life and may void the printhead warranty.
- Keep maintenance tasks up to date. The white printhead is the most sensitive of the printhead types, so it will be the first to suffer if the printer is not properly maintained.
- Leave the white printhead in the wheel at night and when it is not going to be used.

  When the white printhead is going to be stored in the rotating chamber, follow these recommendations:

  - Remove the printhead from the carriage carefully, placing a cloth below the needle to prevent ink droplets from falling on top of the carriage.
  - Check the bottom plate of the white printhead. If there is any ink on it (which can happen because of the automatic recirculation), clean it gently with a soft, fiber-free cloth dampened with distilled water. Be especially careful when cleaning the nozzle area.
  - Whenever you remove the printhead, check whether the FI tower has a lot of ink on it. If so, clean it with a lint-free cloth before inserting a new printhead.
  - Clean the plastic needles of the rotating chamber if they have dried ink on them.
  - Always store your printhead in the same rotating chamber slot.
- Install the auxiliary printhead into the carriage when the white printhead is in the wheel. When the white printhead is in the carriage, the auxiliary printhead should be stored in the wheel.
- The auxiliary printhead should be kept in the wheel, so it is capped, when not in the printer. If damaged, ink recirculation may be impacted, creating print-quality and/or reliability issues.

Table 9-2 **Printhead maintenance**

Use of white ink	Recommendation	Maximum white-ink waste per week	Maximum time per week
Up to 2 days per week	Maintain the white printhead in the rotating chamber.	**Always take out** • 1 day: 5 ml • 2 days: 6.6 ml total **Take out after 2 days** • 2 days: 6.8 ml total	**Always take out** • 1 day: 5 min • 2 days: 10 min **Take out after 2 days** • 5 min
More than 2 days per week	Extract the printheads: • When the printer will not be used in the next 24 hours • When printing a full roll or more of only color jobs	**Take out once per week** • 5 days 1 shift: 17.1 ml total **Take out every day** • 5 days 1 shift: 16.5 ml total	**Take out once per week** • 5 days 1 shift: 5 min **Take out every day** • 5 days 1 shift: 25 min

NOTE: If you often use white ink, keeping the printhead in the carriage will keep it maintained, but ink waste will start to increase. Any time a job is printed with the printhead inside the carriage, the beginning of the job will cause 3.6 ml to be wasted.

Before storing the printhead in the rotating chamber

The considerations listed here should be followed whenever the printhead is to be stored in the rotating chamber.

- Always allow the white printhead removal maintenance routine to complete before removing the printhead from the carriage.
- Remove the printhead from the carriage carefully, placing a cloth below the needle to prevent ink droplets from falling onto the carriage.
- Check the bottom of the white printhead. If you see any ink, clean it gently with a soft, fiber-free cloth and de-ionized or distilled water.

⚠ CAUTION: Do not use the same cloth to wipe other printheads. This may lead to unrecoverable nozzle defects.

- Clean the printhead sides and connector area with a cloth to prevent ink accumulation.
- Check whether the fluid interconnect tower has ink on it. If so, clean it with a lint-free cloth.
- Clean the plastic needles of the rotating chamber if there is dried ink on them.
- Place the printhead in the same slot in the rotating chamber.

NOTE: The auxiliary printhead should be kept in the rotating chamber when not in the printer. If it is damaged, ink recirculation could be affected, resulting in print-quality or reliability issues.

10 Troubleshoot ink-system issues

Ink-system issues include inability to insert an ink cartridge, installing an unshaken cartridge, sudden change of opacity, reseating a printhead, and system errors relating to recirculation timeouts, printhead and auxiliary-printhead blockages, and wrong PIP calibration.

Cannot insert an ink cartridge

The following steps provide the complete procedure for this topic.

1. Check that you have the correct type of cartridge (model number).
2. Check that the colored label on the cartridge is the same color as the label on the slot.
3. Check that the cartridge is correctly oriented, the arrow on its front should face upwards.

TIP: 630W only: If you remove the ink mix container or the 1 liter white cartridge when internal ink recirculation has not finished, the printer will not allow you to insert any new cartridge. Reinsert whatever you removed and wait for the recirculation to finish, then try again.

CAUTION: Never clean inside the ink cartridge slots.

Installation of an unshaken cartridge

Installing a white-ink cartridge not properly shaken may impact print quality, damage the white printhead, and degrade the performance of the white-ink delivery system.

You may face the following issues if an unshaken white cartridge is installed.

Sudden change of opacity

If you encounter this situation, perform the actions described here.

1. Remove the white-ink cartridge, shake it, and reinstall it.
2. Perform hard printhead cleaning (see Improve print quality on page 113) six times to remove the ink from the printhead and ink delivery system.
3. If the problem persists, contact your service representative.

Reseat printhead

If you need to reseat the printhead, perform the actions described here.

1. Remove the white-ink cartridge, shake it, and reinstall it.
2. Reinstall the printheads.
3. If the problem persists, clean with distilled water.
4. If the problem persists, replace the printheads.
5. If the problem persists, contact your service representative.

Recirculation timeouts: System errors 0022-0010-0090, 0022-0010-0097, 0022-0010-0098, 0022-0010-0099

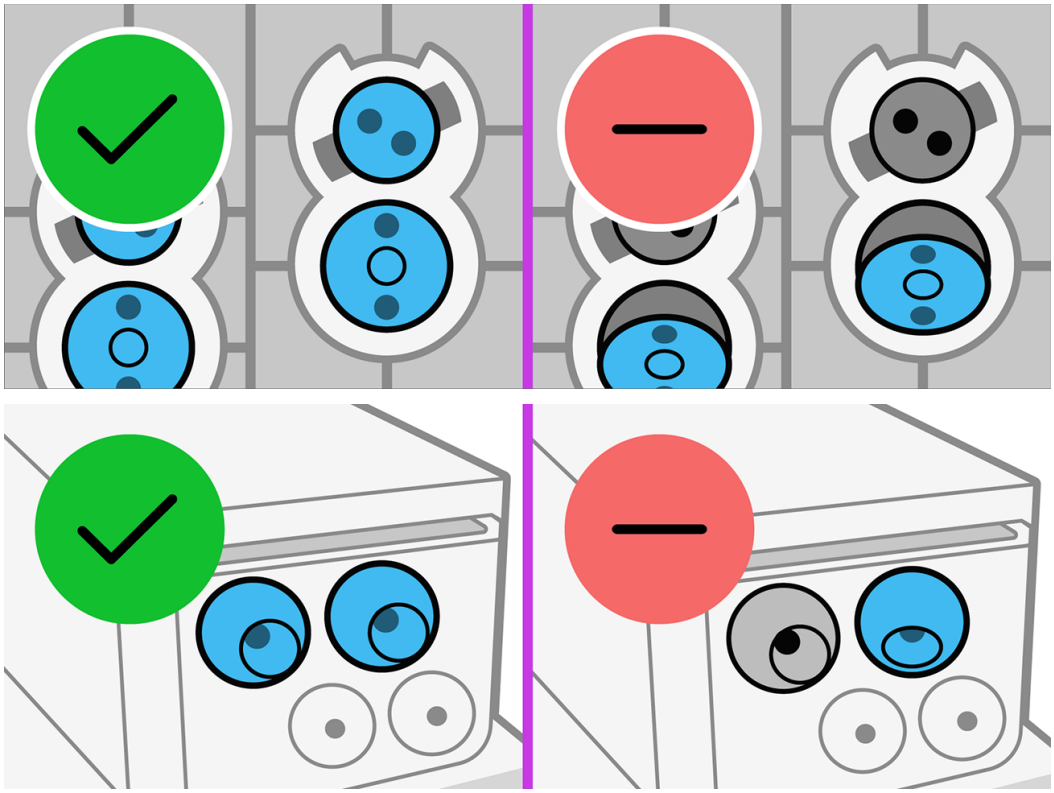
If you encounter one of these system errors, perform the actions described here.

1. Remove the white-ink cartridge, shake it, and reinstall it.
2. If the problem persists, contact your service representative.

Printhead blockage: System error 0022-0010-0092

If you encounter this system error, perform the actions described here.

1. Remove the white-ink cartridge, shake it, and reinstall it.
2. Open the latch, check that the primer rubbers are in place (structure and latch), then close the latch.



3. If the problem persists, replace the printheads.
4. If the problem persists, contact your service representative.

Auxiliary-printhead blockage: System error 0027-0002-0045

If you encounter this system error, perform the actions described here.

1. Remove the white-ink cartridge, shake it, and reinstall it.
2. Shake the auxiliary printhead and reinstall it.
3. If the problem persists, replace the auxiliary printhead.

4. If the problem persists, contact your service representative.

PIP wrong calibration: System error 0022-0010-0046

If you encounter this system error, perform the actions described here.

1. Remove the white-ink cartridge, shake it, and reinstall it.
2. If the problem persists, contact your service representative.

Control panel recommends reseating or replacing a printhead

If you encounter this situation, perform the actions described here.

1. Remove the printhead and check that it is free from physical damage and from ink stains on the electrical connections.
2. If necessary, clean the electrical connections between the printhead and the carriage. See Clean the electrical connections on a printhead on page 165.
3. Reinsert the printhead into the carriage and check the control-panel message.
4. If the problem persists, restart the printer.
5. If the problem persists, insert a new printhead.
6. If the problem persists, there may be a problem with the printer, rather than with the printhead.

Cannot insert a printhead

If you encounter this situation, perform the actions described here.

1. Check that you have the correct type of printhead (model number).
2. Check that you have removed the orange protective caps from the printhead.

NOTE: Optimizer printhead caps are white or transparent.

3. Check that the colored label on the printhead is the same color as the label on the slot.
4. Check that the printhead is correctly oriented (compare with the others).
5. Clean the electrical connections in the printhead slot. See Clean the electrical connections on a printhead on page 165.
6. Check that you have closed and latched the printhead cover.

Cannot insert the maintenance cartridge

There are various reasons why you may not be able to insert the maintenance cartridge.

- It is the wrong type of cartridge (check the model number).
- It is not correctly oriented.
- It is a reused cartridge.

- It is dirty.
- It has broken parts.

11 Printer maintenance

For the tasks in this chapter, you may need the user maintenance kit that was provided with your printer.

General cleaning instructions

The information provided here details the best practices regarding general cleaning of the printer.

- For general cleaning, a lint-free cloth dampened with distilled water is recommended. Let the cleaned part dry or use a cloth to dry it completely.

  Do not spray fluids directly onto the product. Spray the fluid onto the cloth used for cleaning.

- To remove stubborn dirt or stains, moisten a soft, fiber-free cloth with water and a neutral detergent, or general-purpose industrial cleaner (such as Simple Green industrial cleaner). Remove any remaining soap foam with a dry cloth.

- For glass surfaces, use a soft, lint-free cloth lightly moistened with a non-abrasive glass cleaner or with general-purpose glass cleaner (such as Simple Green glass cleaner). Remove any remaining soap foam with a lint-free cloth dampened with distilled water, and dry it with a dry cloth to prevent spotting.

  ⚠ CAUTION: Do not use abrasives, acetone, benzene, sodium hydroxide, or carbon tetrachloride on the glass; they can damage it. Do not place or spray liquid directly onto the glass: the liquid could seep under the glass and damage the product.

- HP recommends using a canister of compressed air to remove dust from electronic and electrical parts.

  ⚠ CAUTION: Do not use water-based cleaning liquids on parts with electrical contacts, which could cause damage.

⚠ CAUTION: Do not use wax, alcohol, benzene, thinner, ammonia-based cleaners, or other chemical detergents, to prevent damage to the product and to the environment.

NOTE: In some locations the use of cleaning products is regulated. Ensure that your cleaner follows federal, state, and local regulations.

Maintenance tools recommended but not provided

The information provided here details the recommended tools the user should provide for maintenance of the printer.

Table 11-1 Maintenance tools recommended but not provided (I)

Folding steps, for general use	Vacuum cleaner, handy or normal, with nozzle accessories	Flashlight, for general use

Table 11-2 Maintenance tools recommended but not provided (II)

Distilled water for general cleaning	A flat screwdriver	Allen keys

Clean the printheads

Periodic printhead cleaning is performed automatically, as long as the printer is kept turned on. However, you should clean the printheads if you are experiencing poor print quality and cannot resolve the issues by other methods. This ensures that there is fresh ink in the nozzles and helps to prevents nozzle clogs.

If you have printed the printhead status plot (see Printhead status plot on page 115), you know which colors are failing. Clean any printhead that is not performing adequately. If you are not sure which printheads to clean, clean all of the printheads.

NOTE: A small number of blocked nozzles are unlikely to have any visible effect on your prints, as the printer has been designed to compensate for this problem during multi-pass printing.

To clean the printheads (which often enables them to recover from problems), go to the printer's control panel and tap the tools icon, then **Troubleshooting** > **Printhead cleaning** > **Hard cleaning**, and select which printheads you want to clean. You can clean all of the printheads (from **Standard cleaning**) or only some of them (from **Hard cleaning**). From **Hard cleaning**, you can select from the following options:

- Print test plot
- Clean all
- Clean LM-LC
- Clean K-C

- Clean M-Y
- Clean OP

Cleaning all printheads takes about 5 minutes. Cleaning any two printheads takes about 3 minutes.

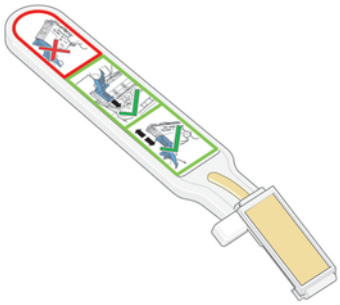
NOTE: Cleaning all printheads uses more ink than cleaning a single pair.

Clean the electrical connections on a printhead

It is possible that the printer will not recognize a printhead after it has been installed. This can happen when ink builds up on the electrical connections between the printhead and the printhead carriage.

Under these circumstances, HP recommends that you clean the electrical connections on the printhead. However, routine cleaning of the connections when no problems are apparent is **not** recommended.

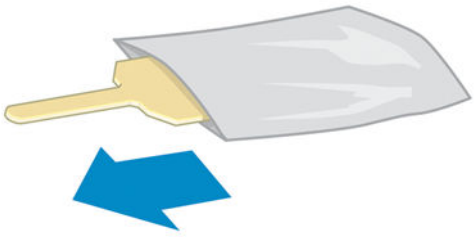
A carriage interconnect wiper is included with your printer in the user maintenance kit.



Use this to clean the electrical interconnects on both the printhead carriage and the printhead if the **Reseat** or **Replace** message persists next to the printhead on the control-panel display.

TIP: You are recommended to wear gloves.

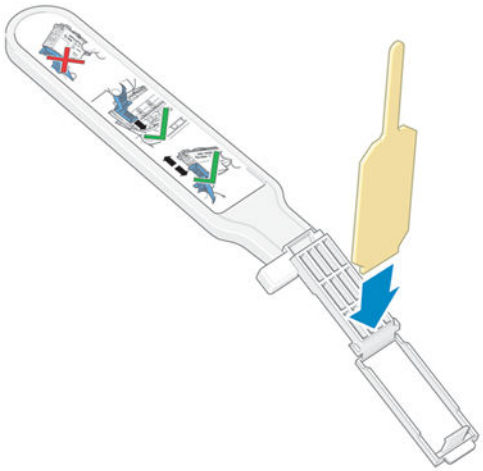
1. Remove a new pre-moistened replacement sponge from its pouch.



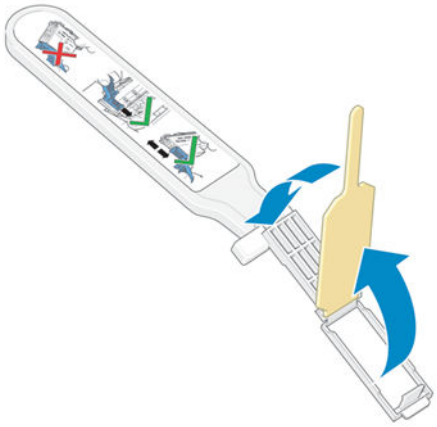
A supply of sponges is included in the box with the wiper. If all sponges have been used, more can be obtained by calling your service representative.

2. Open the carriage interconnect wiper.

3. Load the sponge by positioning the sponge on the face of the carriage interconnect wiper with the shorter tab in the locating slot.

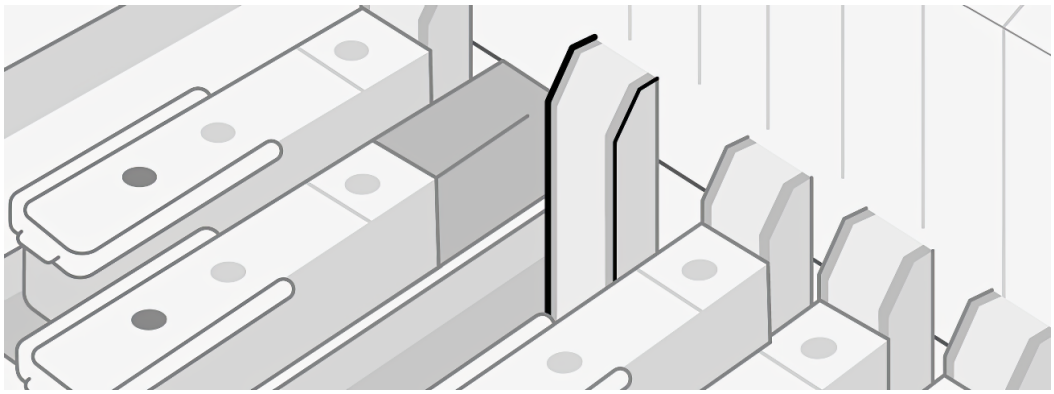


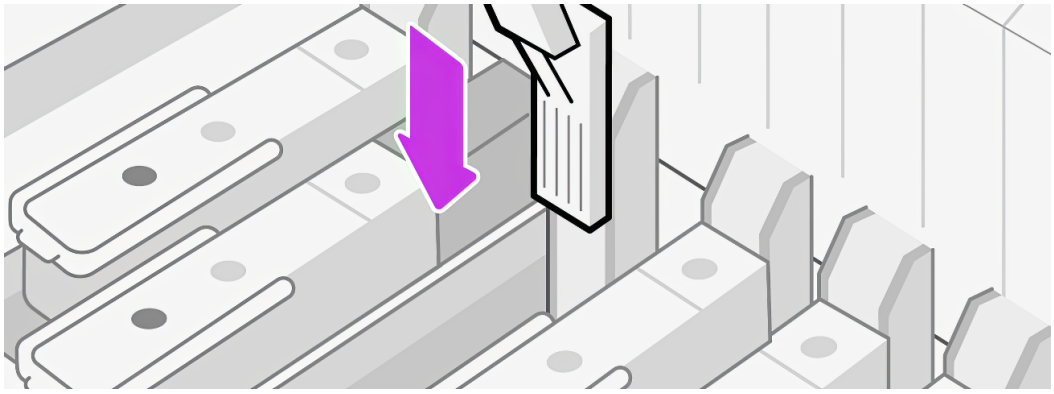
4. Close the carriage interconnect wiper, trapping the sponge in place.



5. Open the printhead carriage latch and extract the printhead that is causing the problem, as indicated on the control panel. See Replace a printhead on page 140.

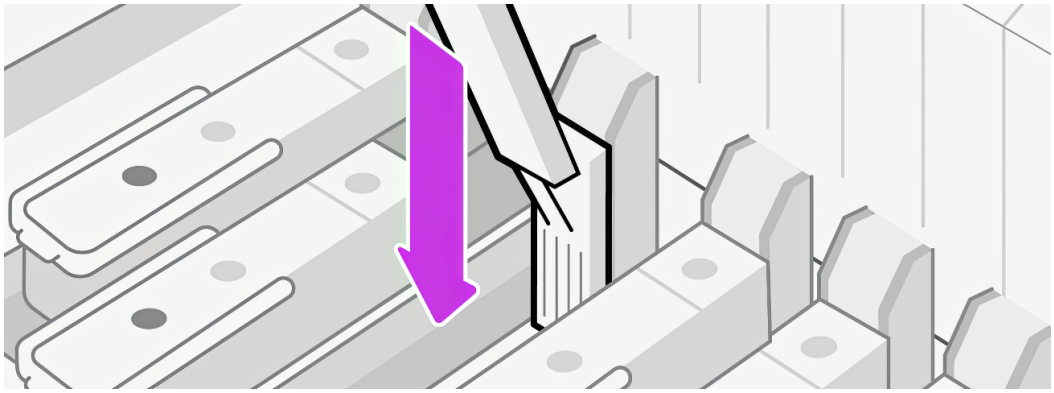
6. Insert the carriage interconnect wiper into the printhead slot at the back.



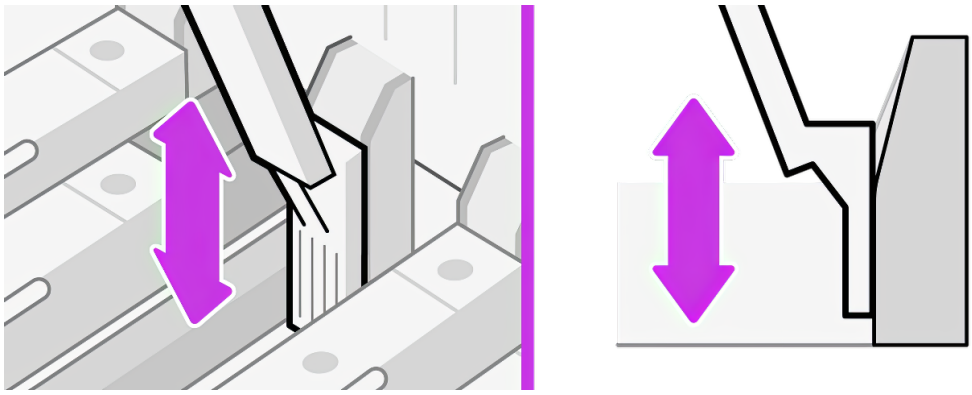


7. Wipe the electrical contacts by inserting the tool between the electrical connections at the back of the slot and the steel spring, with the sponge facing away from you and towards the electrical contacts. Try to avoid picking up any ink deposit that may have accumulated on the bottom surface of the slot.

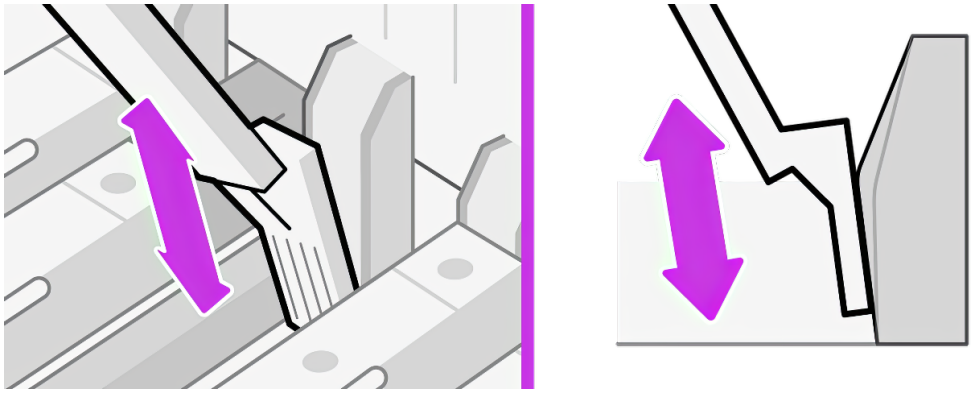
⚠ **CAUTION:** If the carriage remains in the central part of the printer for more than 7 minutes, it attempts to return to its home position to the right.



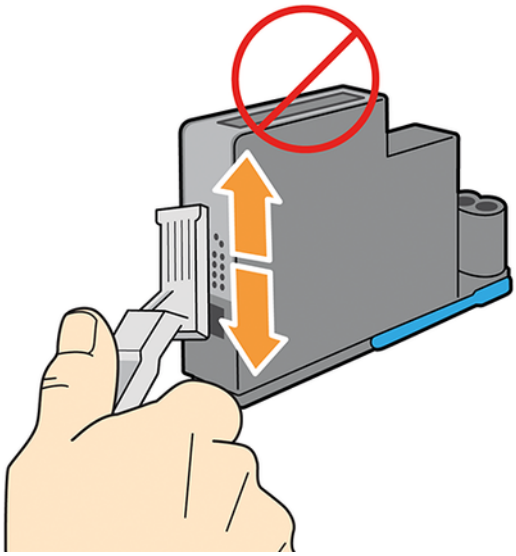
8. Rub the sponge against the contacts with a **light** force along the entire depth of the flex connector, inserting the wiper as far as allowed by the mechanical stop on the tool.



9. Take special care to clean all contacts thoroughly, including the ones at the lowest point of the connector.



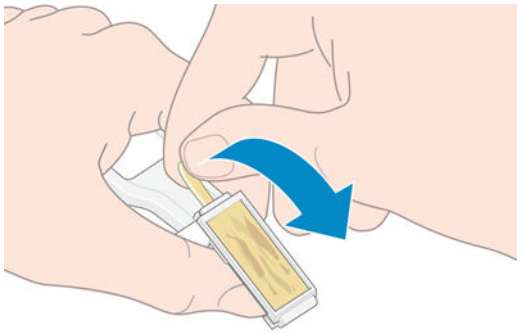
10. Using the same sponge, clean the lower strip of electrical contacts on the printhead (unless the printhead is new). Avoid touching the upper set of electrical contacts.



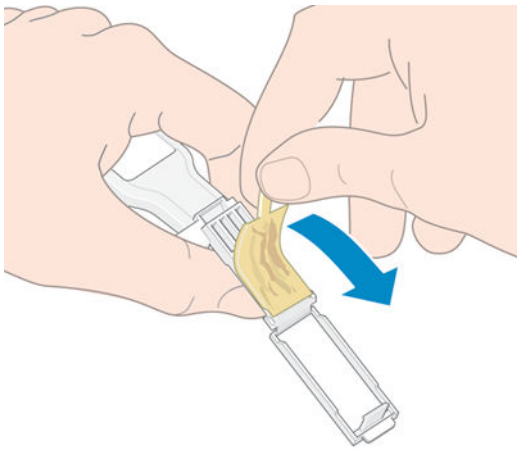
⚠ **CAUTION:** Do not touch the surface of the printhead that contains the nozzles, because the nozzles are easily damaged.

11. After waiting a few moments to allow both connectors to dry, replace the printhead into the printhead carriage. See Replace a printhead on page 140.

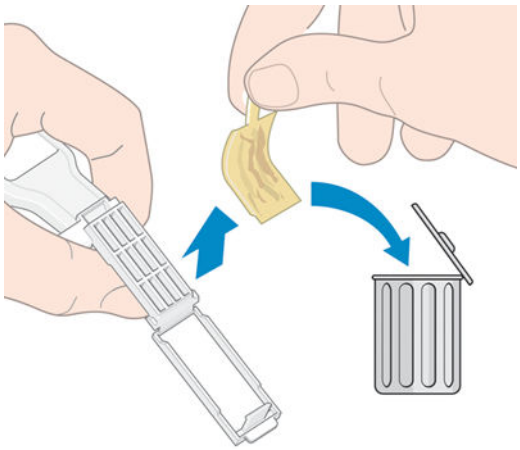
12. After completing the cleaning process, open the carriage interconnect wiper by pulling on the sponge tab.



13. Remove the soiled sponge from the carriage interconnect wiper.



14. Dispose of the soiled sponge in a safe place to prevent the transfer of ink onto hands and clothing.



If the control panel continues to show the **Reseat** or **Replace** message, replace the printhead or call your service representative.

Clean and lubricate the carriage rod

Perform this maintenance operation if the control panel reports the error 0086-0003-0059 several consecutive times.

NOTE: In some circumstances, such as in ambient temperatures above the printer's operational specification (see Environmental specifications on page 198), or if there is a significant amount of dust in the air, the lubrication of the slider rods may be impaired, which can affect the performance of the printer.

CAUTION: The printheads may be damaged if left uncapped for a long period. Therefore, HP recommends completing this process and restarting the printer within 10 minutes.

1. Unload all substrate from the printer. See Unload a roll from the printer on page 61.

2. At the control panel, tap the menu icon , then **Tools** > **Maintenance** > **User maintenance** > **Clean and lubricate carriage rod**.

   The control panel displays instructions to perform the maintenance. Prepare a clean cloth dampened with alcohol to clean the carriage rod.

   Also take the bottle of oil from the user maintenance kit that is supplied with your printer. A replacement kit can be ordered if necessary: part number 2RM82-67041.

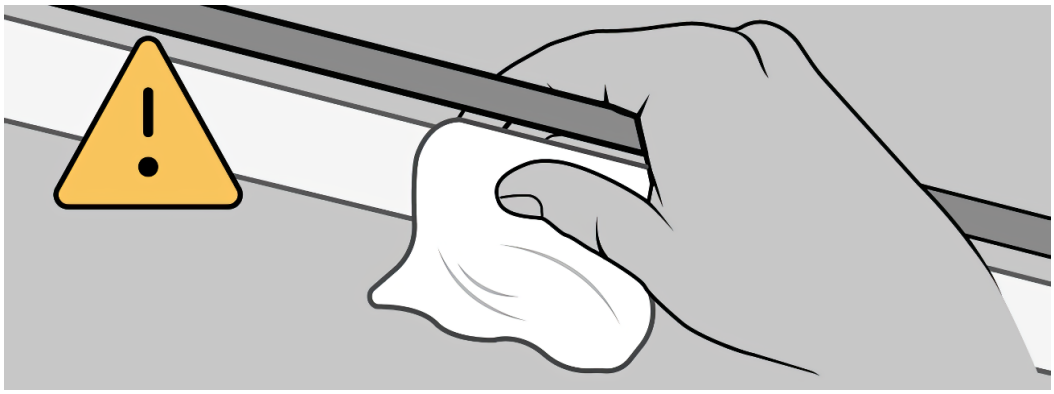
⚠ **CAUTION:** Do not use commercial cleaners or abrasive cleaners.

⚠ **WARNING!** Avoid moving parts. You are recommended to wear gloves.

Table 11-3 Warning

Moving parts	Wear gloves
For more safety information, see Safety precautions on page 3	

⚠ **CAUTION:** While cleaning, be careful not to damage the plastic encoder strip located on top of the rod.



3. Clean the encoder strip in case any oil has fallen on it. See Clean the encoder strip on page 171.

Clean the encoder strip

Cleaning the encoder strip is a vital part of the printer's maintenance and can clear a variety of system errors.

- 0086-0003-0008, 0086-0003-0059, or 0086-0010-0084 system errors and related mispositioning of the carriage assembly errors, such as the carriage bumping into the side of the printer.
- 0086-0003-0061 system errors, related to failures starting and homing the carriage on the scan axis.

- There are occasions when a dirty encoder strip can cause substrate loading issues, as the carriage cannot correctly detect the position of the substrate.

The encoder strip should be cleaned when requested by the printer. The control panel displays a message when cleaning is required: **For optimal printer performance follow the Clean the encoder strip process as described in the user guide.**

IMPORTANT: You should also clean the encoder strip after replacing the maintenance cartridge.

1. Unload all substrate from the printer. See Unload a roll from the printer on page 61.
2. At the control panel, tap the menu icon , then **Tools** > **Maintenance** > **User maintenance** > **Clean encoder strip**.
3. Prepare a lint-free cloth dampened with distilled water.
4. The control panel displays instructions to perform the maintenance.

Clean the platen

You should clean your print platen after every 40 liters of ink used (the control panel will remind you with an alert), and additionally when you notice any of the following symptoms.

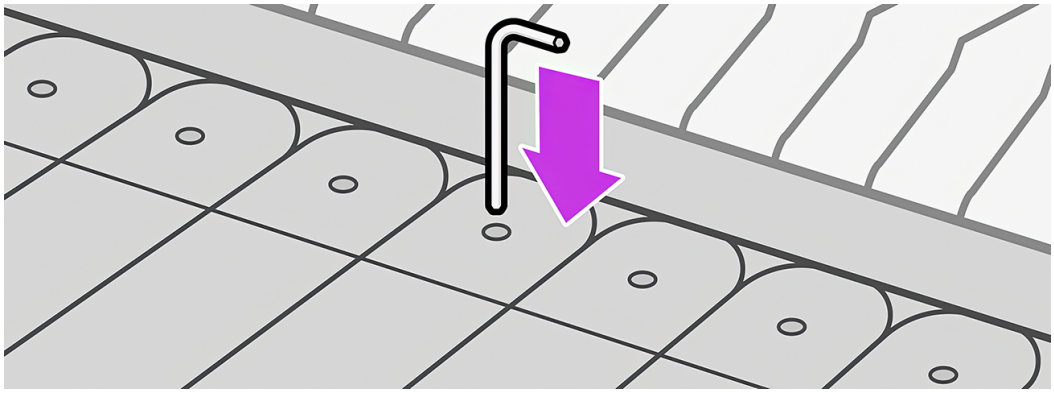
- Ink smearing when printing with presets that used to work well (vacuum loss)
- More frequent substrate jams
- Ink stains and marks on the back of your prints

NOTE: If you print on wide substrate after having printed on narrower substrate, you may find that the left side of the platen has become dirty. If this contaminated section of the platen is not cleaned, it could leave marks on the back of the substrate.

TIP: You are recommended to wear gloves.

1. Unload all substrate from the printer. See Unload a roll from the printer on page 61.
2. At the control panel, tap the menu icon , then **Tools** > **Maintenance** > **User maintenance** > **Clean the platen**.
3. The control panel displays the steps to perform the maintenance. Use a 1.5 mm or smaller Allen key (not provided) to unclog every hole in the print platen. Make sure to push the Allen key all the way through. Remains of ink and substrate fibers tend to accumulate in the holes and diminish the vacuum effect.

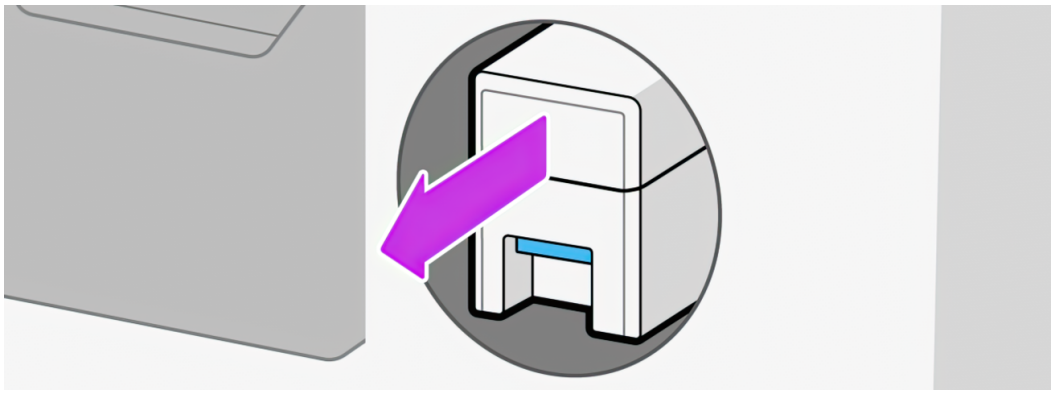
   There are occasions where the carriage position could be wrongly detected if the encoder strip is dirty. This could lead to loading issues as the carriage would not detect media edges or cutter could be enabled within a printing travel.



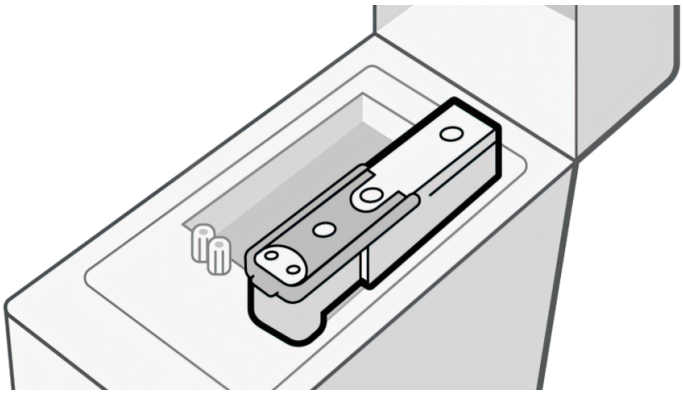
Check and clean the plastic needles in the printhead slot

HP recommends cleaning the plastic needles once a month.

1. Remove the storage box from the storage system.

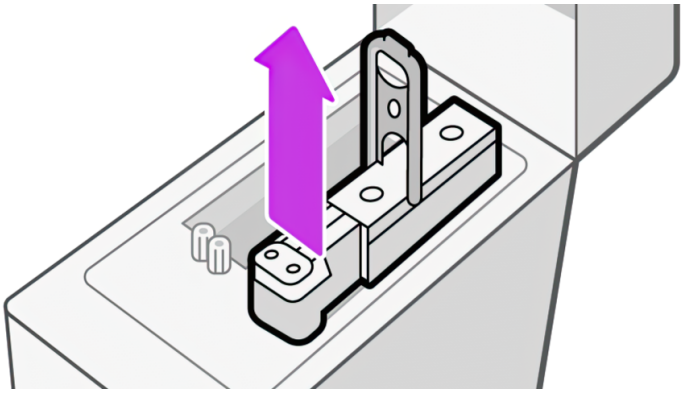


2. Open the storage box.

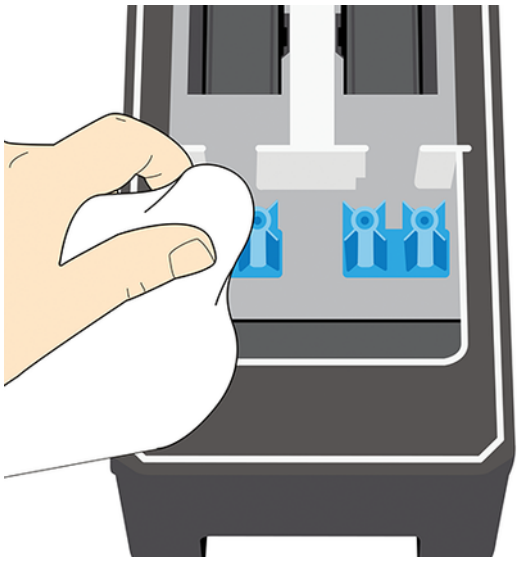


3. Remove the auxiliary or white printhead from the box.

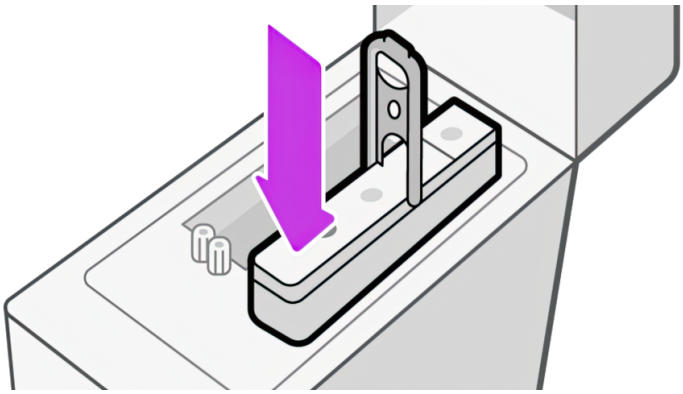
⚠ CAUTION: HP recommends performing these operations without pausing, otherwise needles are left exposed to the air and the ink may dry out. It is best to do the maintenance when the printheads are installed on the carriage.



4. Check the plastic needles and clean off any ink remaining on them with a soft, fiber-free cloth dampened with distilled water.



5. With a dry cloth, dry the remaining water on the plastic needles.
6. Put the printhead into the storage box.



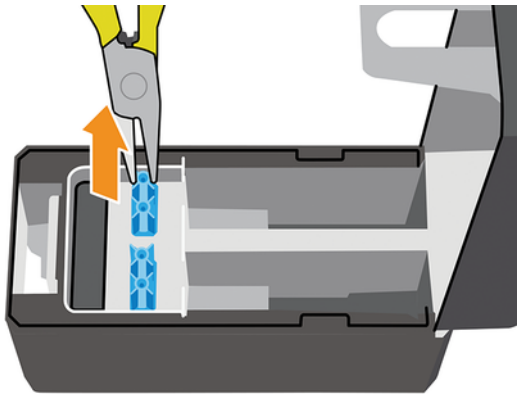
7. Put the storage box back into the storage system.

Replace the plastic needles in the printhead slot

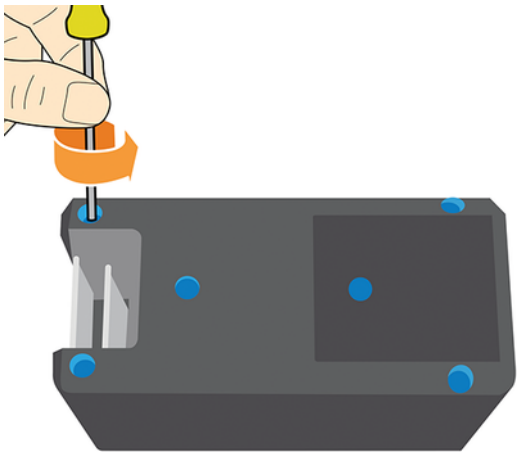
Needles should be replaced only when damaged.

⚠ CAUTION: The screws should not be reinstalled more than three times.

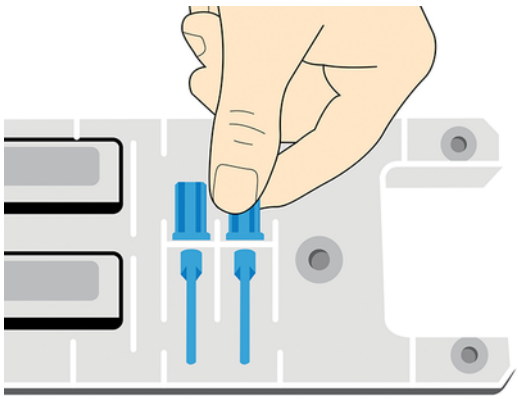
1. Remove the damaged plastic needle by pulling it from the top with pliers.



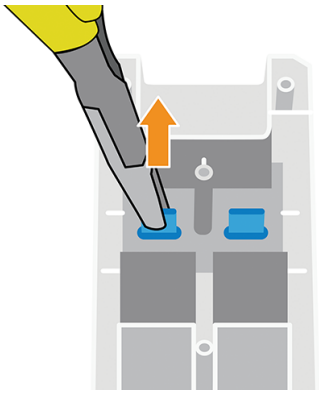
2. Remove the six screws from the bottom part.



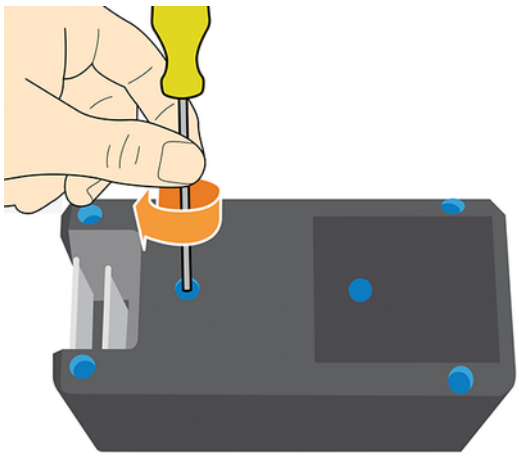
3. Take a new plastic needle from inside the plastic part or from the user maintenance kit.



4. Insert the new plastic needle from the top, and pull it from below with pliers.



5. Assemble the plastic part and reinstall the six screws.



Replace the ink mix container

The ink mix container should be replaced every 2 years, if not sooner. The control panel indicates when replacement is needed.

IMPORTANT: Whenever you replace the ink mix container, you should also replace the white ink cartridge.

To replace the ink mix container, go to the control panel and start the ink mix container replacement task in the **Maintenance** menu.

Clean the exterior of the printer

Use a damp sponge or a soft cloth and a mild household cleaner such as non-abrasive liquid soap to clean the outside of the printer and all other parts of the printer that you regularly touch as part of normal operation.

There may be some dampness from condensation under the fans of the curing module, which should be wiped with a dry cloth.

⚠ **WARNING!** To avoid an electric shock, make sure that the printer is turned off and unplugged before you clean it. Do not let water get inside the printer.

⚠ **CAUTION:** Do not use abrasive cleaners on the printer.

Service maintenance

During the life of your printer, components that are used constantly can wear out.

Regular maintenance is critical to avoid these components degrading to the point that the printer breaks down. The printer keeps track of various parameters such as the line-sensor degradation, the number of cycles that the carriage makes across the axis of the printer, and the total quantity of ink used.

The printer uses these numbers to track the need for service maintenance, and displays one of the following messages on the control panel:

- **Rod oiler and felt replacement**
- **Clean curing modules**
- **Clean ISS septums**
- **Scan-axis motor replacement**
- **Carriage bushings and rod slider replacement**
- **Curing heater fans replacement**
- **Recirculation cover replacement**
- **Belt and pulley replacement**
- **Tensioner replacement**
- **SRK replacement**
- **Spit roller motor replacement**
- **Service station motor replacement**
- **PH cleaning roll motor replacement**
- **OPT replacement**
- **Encoder strip replacement**
- **Flex cables replacement**
- **Fan and blowers drying replacement**
- **Substrate advance motor replacement**
- **Drive roller replacement**
- **Pinchwheel module replacement**

- **Rewinder motor replacement**
- **Take-up reel motor replacement**
- **Power board PCA replacement**

These messages mean that some components are nearing the end of their lives. You may be able to continue printing for a period of time, depending on your use of the printer. However, HP strongly recommends that you call your service representative and arrange for a service maintenance visit. The service engineer can then replace the worn parts on-site, which will prolong the life of the printer and enable continued, safe and optimized operation. Under some circumstances, if some of these maintenances are not performed, the printer may stop printing and you will not be able to send new jobs from the RIP. At that point, you will need to contact your service representative.

All these parts will be replaced preventively by your service representative if the printer is within warranty or under a specific support contract. During a service maintenance visit, the service engineer replaces several parts at once, avoiding the need for repeat visits.

NOTE: In order to be able to replace the different parts before they reach their end of life, the printer must be connected to the Internet and the PDSA must be accepted.

12 Customer Self-Repair parts

HP's Customer Self-Repair program offers our customers the fastest service under either warranty or contract. It enables HP to ship replacement parts directly to you (the end user) so that you can replace them. Using this program, you can replace parts at your own convenience.

Convenient, easy to use

- An HP Support Specialist will diagnose and assess whether a replacement part is required to address a defective hardware component.
- Replacement parts are express-shipped; most in-stock parts are shipped the very same day you contact HP.
- Available for most HP products currently under warranty or contract.
- Available in most countries.

For more information about Customer Self-Repair, see http://www.hp.com/go/selfrepair/.

This chapter lists the Customer Self-Repair operations. For more information, use each QR code provided.

- Printhead cover

- White printhead pocket

- Output platen protector

- Removable loading table

- Service station door

- Line sensor

- Deflector fan unit

- Cutter module

- Carriage cover

- Diverter roller (64 inch)

- Ink mix container

- Substrate loading assembly

- 3 inch spindleless hub

- 2 inch spindleless hub

- Substrate feed accessory

- Edge holders (ten)

- Entry roller

13 Firmware update

The printer's various functions are controlled by software that resides in the printer, also known as firmware.

From time to time, firmware updates become available from HP. These updates increase the printer's functionality and enhance its features.

Firmware update using a USB flash drive

When installing the printer for the first time you may be asked to update the firmware.

For this purpose, you need a USB flash drive with the following specifications:

- USB 2.0-compatible
- 4 GB capacity
- FAT32 preformatted
- No hardware encryption

1. Download the firmware update from http://www.hp.com/go/latex630/support/ and store it on the USB flash drive.

IMPORTANT: The USB flash drive should contain only one firmware file (.bdl) in the drive's root folder, and no other files.

2. Turn off the printer.
3. Connect the USB flash drive to the USB connector at the rear of the printer.
4. Turn on the printer.
5. At the control panel, tap the menu icon, then **Tools** > **Maintenance** > **Firmware** > **Update from USB** > **Sign in** > **Select USB** > **Select firmware to install**.

Subsequent firmware updates can be installed in your printer in the same way, or by using the printer's Embedded Web Server.

Firmware update using the Embedded Web Server

The Embedded Web Server can be used by any computer to perform a manual firmware update.

1. To access the Embedded Web Server from any computer, see Access the Embedded Web Server on page 22.
2. In the Embedded Web Server, click **About printer** > **Manual firmware update**.

3. Follow the on-screen instructions to download the firmware file from http://www.hp.com/go/latex630/support/, and store it on your hard disk. Then select the downloaded **.fmw** file and click **Update**.

   If you experience very slow progress while uploading the firmware file to the printer, the reason could be that you are using a proxy server. In that case, try bypassing the proxy server and accessing the Embedded Web Server directly.

   - In Internet Explorer for Windows, go to **Tools** > **Internet Options** > **Connections** > **LAN Settings**, and select the **Bypass proxy server for local addresses** check box. Alternatively, for more precise control, click the **Advanced** button and add the printer's IP address to the list of exceptions, for which the proxy server is not used.
   - In Firefox for Windows, go to **Tools** > **Options** > **Network** > **Connection** > **Settings**, and select the **Direct connection to the Internet** check box. Alternatively, when the **Manual proxy configuration** check box is selected, add the printer's IP address to the list of exceptions, for which the proxy server is not used.
   - In Firefox for Linux, go to **Edit** > **Preferences** > **Network** > **Connection** > **Settings**, and select the **Direct connection to the Internet** check box. Alternatively, when the **Manual proxy configuration** check box is selected, add the printer's IP address to the list of exceptions, for which the proxy server is not used.

Automatic firmware updates

Automatic firmware updates are a convenience that is possible with Web-connected printers. Your printer can automatically download the latest firmware release and install it for you.

Important notes

- Your printer must be connected to the Internet.
- To configure automatic firmware updates, you can use the control panel or the Embedded Web Server (**About printer** > **Firmware update** , then tap the settings icon).
- If an administrator password has been set, it will be required to change these settings.
- A firmware update package can be large; you may want to consider whether there are any implications for your network or Internet connection.
- A firmware update is downloaded in the background: the printer can be printing at the same time. However, it cannot be installed in the background: printing must stop.
- To activate or to disable the automatic check or download, go to the control panel and tap the menu icon , then **Settings** > **Printer update** > **Allow upgrades** > **Auto-update**.

14 Move or store the printer

If it becomes necessary to relocate the printer to a new point of operation or for storage purposes, care must be taken to ensure future functionality is not compromised.

Move the printer

If you need to move your printer, prepare it correctly to avoid possible damage.

1. Use the control to unload the substrate, and remove it from the printer.
2. Remove all ink cartridges (see Remove an Eco-Carton ink cartridge on page 134) and the maintenance cartridge from the printer.
3. Remove the printheads from the carriage and store them with their caps on.
4. 630W only: Remove the rotating chamber.
5. Make sure that the printhead carriage is located at the right of the print zone, and blocked with the orange lock saved from the printer installation.
6. 630W only: Remove the water from the water tank.
7. Make sure that the **Ready** message appears on the control panel.
8. Turn off the power by using the power button on the control panel.
9. Also switch off the power switch at the rear of the printer.
10. Disconnect any cables that connect the printer to a network, a computer, or a scanner.
11. For correct environmental storage conditions, see Environmental specifications on page 198.

NOTE: If the printer or ink cartridges are moved from a cold location to a warm and humid location, water from the atmosphere can condense on the printer parts and cartridges and can result in ink leaks and printer errors. In this case, HP recommends that you wait at least 3 hours before turning on the printer or installing the ink cartridges, to allow the condensation to evaporate.

Store the printer

If you need to store your printer for an extended period of time, prepare it correctly to avoid possible damage:

IMPORTANT: 630W only: The printer should never be turned off: use sleep mode instead.

Automatic white-ink maintenance cannot occur when the printer is completely turned off; and the white-ink printheads cannot survive for more than 8 hours without maintenance.

1. Do not remove the color printheads or the maintenance cartridge. The color printheads should be in capping.

2. Make sure that the printhead carriage is located in the service station (at the right end of the printer).
3. 630W only: Store the white printhead in the rotating chamber.
4. Remove all ink cartridges and unload all substrate.
5. Make sure that the **Ready** message appears on the control panel.
6. Not for 630W: Turn off the power by using the power button on the control panel. Also switch off the power switch at the rear of the printer, and disconnect any cables that connect the printer to a network, a computer, or a scanner.
7. For correct environmental storage conditions, see Environmental specifications on page 198.

If the printer or ink cartridges are moved from a cold location to a warm and humid location, water from the atmosphere can condense on the printer parts and cartridges and can result in ink leaks and printer errors. In this case, HP recommends that you wait at least 3 hours before turning on the printer or installing the ink cartridges, to allow the condensation to evaporate.

NOTE: When restarting the printer after a storage period, you may need to clean the printheads.

Storage outside environmental specifications

If you need to store the printer in conditions outside the environmental specifications contact your service representative..

See Environmental specifications on page 198.

15 Supplies and accessories

There are two alternative ways to order supplies or accessories.

- Visit http://www.hp.com/go/latex630/accessories/ on the Web. There you will also see the latest list of supplies and accessories for your printer.
- Contact HP Support (see When you need help on page 33), and check that what you want is available in your area.

The rest of this chapter lists the available supplies and accessories, and their part numbers, at the time of writing.

Order ink supplies

You can order the following ink supplies for your printer.

Table 15-1 Eco-Carton ink cartridges

Ink cartridge
HP 832 1 L Black Latex Eco-Carton Ink Cartridge
HP 832 1 L Cyan Latex Eco-Carton Ink Cartridge
HP 832 1 L Magenta Latex Eco-Carton Ink Cartridge
HP 832 1 L Yellow Latex Eco-Carton Ink Cartridge
HP 832 1 L Light Cyan Latex Eco-Carton Ink Cartridge
HP 832 1 L Light Magenta Latex Eco-Carton Ink Cartridge
HP 832 1 L Optimizer Latex Eco-Carton Ink Cartridge
HP 832 1 L Overcoat Latex Eco-Carton Ink Cartridge
HP 832 1 L White Latex Eco-Carton Ink Cartridge (630W only)
HP 832 Ink Mix Container (630W only)

Table 15-2 Printheads

Printhead
HP 836 White Latex Printhead
HP 836 Optimizer Latex Printhead
HP 836 Latex Printhead

Table 15-3 Other supplies

Item
HP Latex Maintenance Cartridge

Disposal instructions

HP provides many free and convenient ways to recycle your used original HP ink supplies. Additionally, HP provides a free program for business customers to return signage printed using selected eligible and recyclable HP large-format substrates.

For more information about these HP programs, see http://www.hp.com/recycle.

For your printer, the following items can be recycled through the HP Planet Partners program:

- HP 832 Series 1-liter Latex Ink Cartridges

  Please remove the carton box before returning the cartridge. Only the ink bag should be returned.

- HP 836 Series Latex Printheads
- HP large-format substrates eligible for return through the HP Large Format Media take-back program

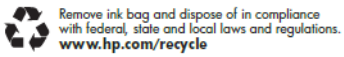
NOTE: Visit http://www.hp.com/recycle/ for details of the HP Planet Partners program: features, availability, and how to participate. The program may not be available in your area. Where this program is not available, consult the Material Safety Data Sheet (MSDS) available at http://www.hp.com/go/ecodata/ to determine the appropriate method of disposal.

NOTE: Recyclable HP substrates can be recycled through commonly available recycling programs, or according to region-specific practices. Some HP substrates are eligible for return through the HP Large Format Media take-back program, which may or may not exist in your area. See http://www.HPLFMedia.com/hp/ecosolutions/ for details.

Dispose of the following supplies and accessories in compliance with federal, state, and local regulations:

- HP Latex User Maintenance Kit
- HP Latex Textile Kit
- HP Latex Media Loading Accessory

HP recommends that you wear gloves when handling the maintenance cartridge, the platen, and the condensation system components.



16 Troubleshoot other issues

This chapter offers advice about potential issues not covered in previous chapters.

Printer cannot get an IP address

If your network has no DHCP server, the printer cannot automatically retrieve an IP address.

In this case, you must set the printer's IP address manually, in the following way.

1. From the control panel, tap the menu icon, then **Settings** > **Network** > **Ethernet** > **IPV4 settings** > **IPV4 configuration method** > **Manual** > **Manual**.
2. Enter the IP address that you wish to use.
3. Tap **OK** > **Apply**.

Cannot access the Embedded Web Server

You have several options in the event that the Embedded Web Serves cannot be accessed.

If you have not done so already, read the instructions in Access the Embedded Web Server on page 22.

1. Go to the control panel and tap the menu icon, then **Settings** > **Security** > **Enable EWS**.
2. Tap the menu icon, then **Settings** > **Network** > **Ethernet** > **Configuration summary**.
3. The information should read: **IPv4 enabled**. If it does not, you may need to use a different connection.

If you still cannot access the Embedded Web Server, turn the printer off with the power button on the control panel and then turn it on again.

If you experience very slow progress while trying to access the Embedded Web Server, the problem could be that you are using a proxy server. Try bypassing the proxy server and accessing the Embedded Web Server directly.

- In Microsoft Edge 97 for Windows, go to **Settings** > **System** > **Open your computer's proxy settings**, and select the **Don't use the proxy server for local (intranet) addresses** check box. Alternatively, for more precise control, add the printer's IP address to the list of exceptions, for which the proxy server is not used.
- In Firefox 91 for Windows, go to **Settings** > **General** > **Network settings**, and select the **No proxy** check box. Alternatively, when the **Manual proxy configuration** check box is selected, add the printer's IP address to the list of exceptions, for which the proxy server is not used.

Printer is not printing

If a file you have sent from your computer is not printing when expected, the possible reasons include the following.

- Check that the curing module, top window, and maintenance cartridge doors are closed.
- There may be a problem with the electrical power. If the printer is not performing and the control panel does not respond, check that the power switch at the rear is on, the power cable is correctly connected, and the electrical socket is providing power.
- The network cable is disconnected, or you have problems with your communications setup. See Communication failures between computer and printer on page 192, or contact your IT department or communications system provider.
- Check all the alerts on the control panel—there may be more than one, hidden under the first—by dragging down the top bar of the home screen. The alerts may explain why printing has stopped, such as:
  - An ink supply is empty.
  - A printhead is missing or damaged.
  - The substrate is mispositioned.
- Check that the job in your RIP software is configured to be printed on the same substrate that you have selected in the control panel (the details of this operation may vary depending on your RIP software). Check that the loaded substrate is wide enough for your image plus the required margins.
- The roll has a length tracking option activated. Check that the remaining length of your roll is enough for your job. This information can be found from the substrate icon in the control panel or in your RIP software (the location of the menu may vary depending on your RIP software).
- The printer and your RIP software have a special feature to predict the ink consumption of your job and estimate whether there is enough ink in your supplies to print the job. Check in your RIP software whether the ink estimation option is activated, and the estimation status for your job (the details of this operation may vary depending on your RIP software).
- In some very unlikely scenarios, the substrate preset you are using may be corrupted due to transfer synchronization issues. Try printing with a generic preset; if this prints well, you can fix the problem by deleting the troublesome preset from the substrate library in the control panel and the RIP software. Then reinstall the substrate, either manually or from the Configuration Center.
- Unusual electromagnetic phenomena may exist, such as strong electromagnetic fields or severe electrical disturbances. Such occurrences can cause the printer to behave strangely, or even stop working. Turn off the printer by using the power button on the control panel, wait until the electromagnetic environment has returned to normal, then turn the printer on again. If the problems persist, call your service representative.

Program slows down or stalls while generating the print job

Check that your computer meets the RIP software minimum system requirements.

Large quantities of data are required to generate a high-quality large-format print job, which can cause your software to slow down significantly or stall. Lowering the print resolution may help to avoid this problem; however, lowering the print resolution reduces print quality.

Printer seems slow

Here are some possible explanations for slow printer performance.

- If you request the highest possible print quality in the RIP, printing will be relatively slow compared with draft-quality printing.
- Check that the substrate loaded in the printer belongs to the substrate category that appears on the control panel.
- Is your printer connected to a network? Check that all components used in the network (network interface cards, hubs, routers, switches, and cables) are capable of Gigabit Ethernet operation. Is there a lot of traffic from other devices on the network? Is the proxy server configured correctly in your printer? Are the printer's required ports accessible from your RIP host?
- Are the printheads in good condition? Printing time tends to increase when a printhead needs cleaning. Check the printhead status on the control panel or through the Embedded Web Server. Clean or replace printheads if necessary.
- Does your image contain high-density black fills? That may increase printing time.

See also Printer status on page 19.

Communication failures between computer and printer

Symptoms and solutions for communication failures between the computer and printer.

Some symptoms are:

- The control-panel display does not show the **Receiving** message when you have sent an image to the printer.
- The printer displays an error message while printing, such as error 0090-0007-0089 or 0090-0007-0096. See System error codes on page 193.
- Your RIP stalls when transferring data.

To solve a communication problem:

- Make sure that you have selected the correct printer in your RIP.
- Check that your printer network settings are correctly configured: run the connectivity wizard from the printer's control panel. See Connect the printer to the Internet on page 25.
- Check that the printer's required ports are accessible from your RIP host.
- Remember that large images usually require more time to receive, process, and print.
- If the printer is connected to your RIP through any other intermediate devices, such as switch boxes, buffer boxes, cable adapters, or cable converters, remove the intermediate device and try connecting the printer directly to your computer.
- Try changing the I/O timeout, which specifies the time that an idle connection is allowed to remain open when the printer is waiting for a remote computer. The default value is 270 seconds. To change the I/O timeout, go to the Embedded Web Server and select the **Networking** tab, then the **Advanced** tab.

If these suggestions do not solve your problem, try connecting your RIP host system directly to the printer, with a point-to-point connection. Use the DHCP network configuration in the printer.

Cannot connect to services such as firmware update or the Customer Involvement Program

If your printer has difficulty in connecting to the Internet, HP recommends using the Embedded Web Server to print the Web access test report.

Click **Support tools** > **Reports and pages** > **Web access test report**.

System error codes

The control panel may occasionally display a system error, consisting of an alphanumerical code followed by the recommended action that you should take.

In most cases you will be asked to restart the printer. When the printer starts, it can diagnose the issue better and may be able to fix it automatically. If the problem persists after restarting, contact your service representative and be ready to give the numerical code from the error message. If the error message contains some other recommended action, follow the instructions.

Reading a system error code

System error codes explain what action should be taken to resolve the problem.

System error codes have been defined in two different formats: D0XX-nnYY-mmZZ, which explains which component or system is failing, and xx.xx.xx.xx. Both formats explain what action should be taken.

The first format is explained in the table below.

The second format (xx.xx.xx.xx) occurs in response to internal firmware failures. In this case, you should restart the printer, then ensure that you have the latest firmware version: updating it may solve the problem. If the problem persists, contact your service representative.

Table 16-1 Values of D (device)

Value	Device
0	Printer
1	Accessories
8	Internal printer firmware error
9	Internal host software error

Table 16-2 Values of XX for device 0 (printer)

Value	Device
01	E-box
10	Power management
11	Pipeline and trailing cable
16	Curing and drying

Table 16-2 Values of XX for device 0 (printer) (continued)

Value	Device
21	Service station
22	Ink delivery system
27	Printheads
30	Vapor removal
43	Substrate vacuum
45	BIOS and formatter
46	Printer ID
47	Printhead cleaning roll
55	Carriage line sensor
65	Substrate path
80	User interface
86	Scan-axis system and carriage
88	Printhead primers
90	Internal firmware
99	System

0027-0001-XX84

This error indicates printhead voltage issues.

Replace the printhead. If the problem disappears, the printhead was damaged. Otherwise, the problem is in the printer hardware; contact your service representative.

0027-0001-XX99

This error indicates printhead voltage issues.

Replace the printhead. If the problem disappears, the printhead was damaged. Otherwise, the problem is in the printer hardware; contact your service representative.

8XXX-XXXX-0000

All system errors with the format 8XXX-XXXX-0000 are firmware assertion failures, which are usually fatal: the system stops working.

They occur very rarely, because they are unanticipated error conditions. After one of these has been reported to HP and analyzed, it is no longer entirely unanticipated, so it is less likely to occur again.

After restarting the printer, your first step should be to make sure you have the latest firmware version: update it if necessary, which may solve the problem. If the problem persists, please contact your HP service representative.

Printer logs

You can choose to display in the Embedded Web Server a log of recent system errors, warnings, and printhead and ink cartridge events.

Click **General** > **Event log**.

17 Printer specifications

Here you can find the functional, physical, memory, power, ecological, environmental, and acoustic specifications of your printer.

Functional specifications

Details of the ink cartridges, printheads, substrate sizes, printing speeds, maximum print resolution, and printing margins of the printer.

Table 17-1 Ink supplies

Devices	Specifications
Printheads	Cyan/black, yellow/magenta, light magenta/light cyan, overcoat, and optimizer White (630W only)
Ink cartridges	Yellow, black, magenta, light magenta, cyan, light cyan, overcoat, and optimizer White (630W only) Each cartridge contains 1 liter of ink
Maintenance cartridge	Non-color-specific

Table 17-2 Substrate sizes

Characteristic	Minimum	Maximum
Width	610 mm (24 in) 457 mm (18 in) (substrate calibrations not compatible)	1626 mm (64 in)
Length	1.5 m (59 in)	Roll with maximum external diameter of 250 mm (9.8 in)
Weight		42 kg (93 lb)

The printer supports a substrate core diameter of 76.2 mm (3 in); it requires an accessory to support 50.8 mm (2 in) cores.

Table 17-3 Printing speeds

Passes	Approximate printing speed (m^2/h)
1 : Maximum speed	65
2 : Draft	34
4 : High speed	19
6 : Production	14
8 : Quality	11

Table 17-3 Printing speeds (continued)

Passes	Approximate printing speed (m²/h)
12 : High saturation	8
14 : Quality backlit or textile	7
16 : High-saturation backlit	6
18 : High-saturation textile	5

NOTE: Environmental conditions, job length, and ink density influence the maximum speed you can achieve with a particular print mode.

The maximum print resolution of the printer is 1200 × 1200 dpi. See your RIP documentation to find the resolutions supported by your RIP.

Table 17-4 Margins

Margin	Size
Side margins	5 mm (0.2 in), or 10 mm (0.4 in) with edge holders
Top margin (leading edge)	5 mm (0.2 in) for most applications
	Safety margin of 100 mm (3.9 in) when printing from pinchwheels (user-modifiable)
	175 mm (6.9 in) for generic uncoated papers
	150 mm (5.9 in) for generic backlit papers
	100 mm (3.9 in) for generic coated papers
	50 mm (2.0 in) for generic blueback papers
Bottom margin (trailing edge)	5 mm (0.2 in)

Physical specifications

Details of the length, width, height, and weight of the printer, with and without packaging.

Table 17-5 Physical specifications with packaging

Printer model	Length	Width	Height	Weight
630	2800 mm (110.2 in)	1130 mm (44.5 in)	1271 mm (50.0 in)	347 kg (765 lb)
630W	2800 mm (110.2 in)	1130 mm (44.5 in)	1271 mm (50.0 in)	353 kg (778 lb)

Table 17-6 Physical specifications without packaging

Printer model	Length	Width	Height	Weight
630	2603 mm (102.5 in)	844 mm (33.2 in)	1405 mm (55.3 in)	230 kg (507 lb)
630W	2603 mm (102.5 in)	844 mm (33.2 in)	1405 mm (55.3 in)	236 kg (520 lb)

Memory specifications

Details of the physical memory and hard disk capacity of the printer.

Table 17-7 Memory specifications

Memory	Specifications
Physical memory (DRAM)	4 GB
Hard disk	32 GB

Power specifications

Details of the single-phase line specifications of the printer.

Table 17-8 Single-phase line specifications

Characteristic	Specifications
Number of power cords	2
Input voltage	200–240 V (two wires and protective earth)
Input frequency	50/60 Hz
Maximum load current (per power cord)	Printer: 5 A Curing: 12 A
Printing power consumption[1]	0.9–2.0 kW (2.9 kW peak)
Power consumption in ready mode	60 W

[1] Final printing power consumption may be affected by room and printing temperature, input voltage, and other factors.

Ecological specifications

For the up-to-date ecological specifications of your printer, see the HP website.

http://www.hp.com/go/ecolabels

Environmental specifications

Details regarding the humidity, temperature, and altitude thresholds for correct operation of the printer.

Table 17-9 Printer environmental specifications

Type	Value
Relative humidity range for best print quality	40–60%, depending on substrate type
Relative humidity range for printing	20–80%, depending on substrate type
Temperature range for best print quality	20 to 25°C (68 to 77°F), depending on substrate type
Temperature range for printing	15 to 30°C (59 to 86°F), depending on substrate type
Temperature range when not in operation	–15 to +55°C (+5 to +131°F)

Table 17-9 Printer environmental specifications (continued)

Type	Value
Temperature gradient	no more than 10°C/h (18°F/h)
Maximum altitude when printing	3000 m (10000 ft)

NOTE: The printer must be kept indoors.

NOTE: If the printer or ink cartridges are moved from a cold location to a warm and humid location, water from the atmosphere can condense on the printer parts and cartridges and can result in ink leaks and printer errors. In this case, HP recommends that you wait at least 3 hours before turning on the printer or installing the ink cartridges, to allow the condensation to evaporate.

Acoustic specifications

Declared noise emission levels for your printer.

Sound pressure levels at bystander position and sound power levels measured according to ISO 7779.

Table 17-10 Printer acoustic specifications

Type	Status	Value
Sound pressure	Printing	55 dB (A)
	Ready (standby)	38 dB (A)
	Asleep	< 20 dB (A)
Sound power	Printing	7.5 B (A)
	Ready (standby)	5.5 B (A)
	Asleep	< 4 B (A)

A Summary of common printing problems

This is a table of common problems and the parameters that can be changed in order to solve the problem. Some possible side-effects are also shown. For a more detailed treatment of any particular problem, see the relevant chapter in this guide.

Table A-1 Common printing problems

Problem	Parameter	Change	Possible side-effects
Durability problems, ink smudges, or oily finish	Curing temperature	Increase	Substrate jam, substrate damage, ink smears
	Number of passes	Increase	Slower printing
	Inter-pass delay offset	Increase	Slower printing
Substrate jam, substrate damage, ink smears	Curing temperature	Decrease	Less durability (smudges), oily finish
	Vacuum	Increase	Substrate skew, vertical banding if increased too much
	Top and/or bottom margins	Increase	Waste of substrate
	Edge holders	Use	The minimum side margins increase slightly, reducing the maximum width of the printed image
Vertical banding	Vacuum level	Decrease	Substrate jam
	Take-up reel	Use	
Horizontal banding	Clean printheads		
	Number of passes	Increase	Slower printing
	Clean substrate-advance sensor		
	Inter-pass delay offset	Increase	Slower printing
Coalescence graininess in low-to-medium area fills	Align printheads		
	Number of passes	Increase	Slower printing
	Optimizer level	Increase	Reduced gloss in dark area fills. With some substrates, may have no effect on coalescence. Consider using the advanced optimizer check plot to select the best optimizer level.
	Efficiency mode	Disable	More ink consumption
	Dirty roll or defective coating	Consider trying a new roll. Some substrates deteriorate during long periods of storage.	

Table A-1 Common printing problems (continued)

Problem	Parameter	Change	Possible side-effects
Graininess, color misregistration or lack of sharpness	Align printheads		
	Clean substrate-advance sensor		
	Disable the substrate-advance sensor and calibrate the substrate advance manually	NOTE: Some substrates (porous/translucent/ transparent) are not compatible with the substrate-advance sensor, which should be disabled before printing on these substrates.	
Black areas look hazy or image gloss is not uniform	Modify color separations and dark color generation		
	Number of passes	Increase	Slower printing
	Curing temperature	Decrease	Less durability (smudges), oily finish
Bleeding between inks or wicking into white areas	Align printheads		
	Align optimizer manually	If necessary, load a self-adhesive vinyl to achieve good alignment	
	Ink limits	Decrease	Reduced color gamut
	Optimizer level	Increase	Reduced gloss in dark area fills. With some substrates, may have no effect on bleeding or wicking.
	Clean optimizer printhead		
Lack of sharpness in text or solid areas	Align printheads		
	Align optimizer manually	If necessary, load a self-adhesive vinyl to achieve good alignment.	
	Color bars	Add, manually or in RIP	Some waste of substrate and ink
Subtle color variations in solid areas	Color bars	Add, manually or in RIP	Some waste of substrate and ink
	Color-variation and text-line correction	Apply	White areas may appear slightly different.

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