



HP Latex 850 & 820
HP SCITEX LX850 & LX820 Printers
User's guide

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1 Introduction

The printer's main features

Your printer is a color latex printer designed for printing high-quality images on flexible substrates from 914 mm (36 in) to 3.20 m (126 in) wide. Some major features of the printer are shown below:

- Printing speeds of up to 133 m²/h (1432 ft²/h) for outdoor-quality prints, or 45 m²/h (484 ft²/h) for indoor-quality prints
- Environmentally friendly, odorless, aqueous latex inks in six colors
- No hazardous waste
- Three-liter ink cartridges which can be changed while printing
- Print on a wide range of substrates—including most low-cost, uncoated, low-solvent-compatible substrates, and polyester fabrics including unlined flags (unlined flags only supported on LX850).
- Durable prints with outdoor display permanence up to three years unlaminated, five years laminated
- Accurate and consistent color reproduction with automatic color calibration (built-in spectrophotometer)
- The HP Internal Print Server, see [Start the HP Internal Print Server on page 15](#), provides an easy-to-use interface including:
 - Print job management
 - Full printer status information
 - Printer alerts
 - Printer calibrations and adjustments
 - Management and installation of substrate presets
 - Printer firmware upgrades
 - Access to the online HP Printing Knowledge Center

Documentation

The following documents are provided with your printer, and can also be downloaded from <http://www.hp.com/go/LX820/manuals/> or <http://www.hp.com/go/LX850/manuals/>.

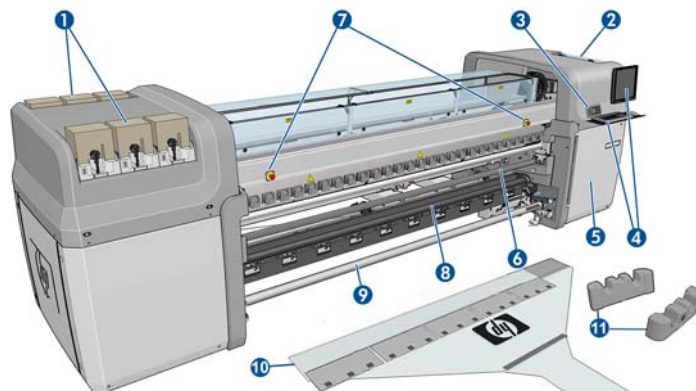
- *Site preparation guide*
- *User's guide*
- *Maintenance and troubleshooting guide*
- *Legal information*

See the Solutions Web site for information about new substrates, at <http://www.hp.com/go/LX820/solutions/> or <http://www.hp.com/go/LX850/solutions/>. A new Web-based Media Finder application is being developed to collect available substrate configurations for latex printers.

Main components

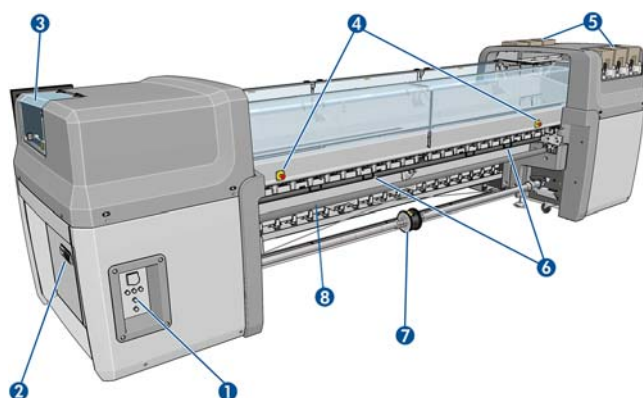
The following front and rear views of the printer illustrate the main components.

Front view



1. Ink cartridges
2. Printhead access door
3. Front panel
4. HP Internal Print Server display and keyboard
5. Front door to access computer and printhead cleaner roll
6. Front Diverter roller
7. Emergency stop buttons
8. **LX850 only:** Tension roller
9. Substrate output spindle
10. Substrate Loading Tool
11. Spindle Supports

Rear view



1. Power switches and lights
2. Circuit breakers: ACB-1, ACB-2, ACB-3, RCB-1
3. Printhead access door
4. Emergency stop buttons
5. Ink cartridges
6. Substrate pressure handles
7. **LX850 only:** Dual-roll spindle with differential hub (**LX820** is an accessory, part number Q6705A)
8. Rear Diverter Roller

Ink collector kit (LX850 only)



1. Ink collector container
2. 8 ink collectors with replaceable foams

Printer Configuration

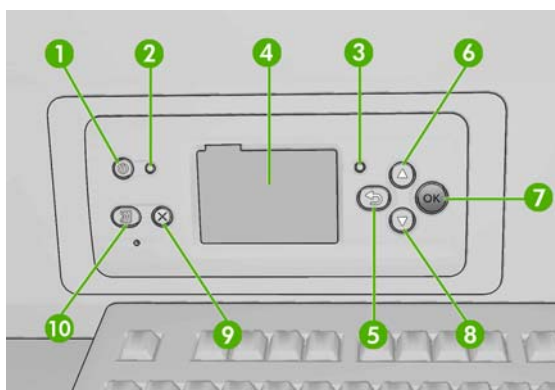
Shown below is a table describing the configuration of the HP Scitex family of printers.

	HP LX610 Inks *					HP LX600 Inks **				
Printer config.	LX850	LX820	LX800	LX600	L6550 0	LX850	LX820	LX800	LX600	L6550 0
Roll-to-Roll	√	√	√	√	√	√	√	√	√	√
Roll-to-Free-Fall	√	X	√	X	X	√	X	√	X	X
Roll-to-Collector	√	X	√	X	X	√	X	√	X	X
Ink Collector	√	X	√	X	X	√	X	√	X	X
Dual Roll	√	Accessory y	√	Accessory y	Accessory y	√	Accessory y	√	Accessory y	Accessory y
Other Features										
Substrate Loading Tool	√	√	X	X	X	√	√	X	X	X
Spindle Supports	√	√	X	X	X	√	√	X	X	X
Double-sided Printing	√	√	√	√	√	X	X	X	X	X
Productivity Improvements	√	√	√	√	√	X	X	X	X	X
Diverters	√	√	√	X	X	√	√	√	X	X
*Part numbers: CN673A/CN670A/CN671A/CN672A/CN674A & CN675A refer to How to order supplies on page 80						**Part numbers: CC582A/CC583A/CC584A/CC588A/CC589A & CC590A				

The front panel

Your printer's front panel is located at the front right of the printer. It has the following important functions:

- It assists you in troubleshooting issues.
- It is used when performing certain physical operations, such as raising the carriage beam, moving spindles and rollers, and maintaining the printer.
- It displays information in brief about the status of the printer (more information is available from the HP Internal Print Server).
- It displays warning and error messages, when appropriate, with audio alerts to call attention to a warning or message.



The front panel has the following components:

1. **Power** key - To turn the printer off. See [Turn the printer on and off on page 12](#).
2. **Power** light - Indicates the printer's power status. If the light is off, the printer is off. If it is solid green, the printer is on. If it is flashing green, the printer is in transition between on and off.
3. **Status** light - Indicates the printer's operational status. If the light is off, the printer is not ready. If it is solid green, the printer is ready and idle. If it is flashing green, the printer is busy: receiving data, processing or printing. If it is flashing amber, your intervention is required. If it is solid amber, a serious error has occurred.
4. **Front-panel display** - Displays error, warnings and information on using your printer.
5. **Back** key - To go to the previous step in a procedure or interaction. To go to the upper level, or leave the option in the menu, or when given an option.
6. **Up** key - To go up in a menu or option, or to increase a value.
7. **OK** key - To confirm an action while in a procedure or interaction. To enter in a submenu in the menu. To select a value when given an option.
8. **Down** key - To go down in a menu or option, or to decrease a value.
9. **Cancel** key - To cancel a procedure or interaction.
10. **Move substrate** key - To move the loaded substrate forwards or backwards, or rewind the whole roll.

To **highlight** an item in the front-panel display, press the **Up** or **Down** key until the item is highlighted.

To **select** an item in the front-panel display, first highlight it and then press the **OK** key.

When this guide shows a series of front-panel display items like this: **Item1** > **Item2** > **Item3**, it means that you should select **Item1**, then select **Item2**, then select **Item3**.

Information about specific uses of the front panel can be found throughout this guide.

Printer software

Your printer requires the following software:

- The HP Internal Print Server is provided with your printer and runs in a computer inside the printer. You can use it to perform the following tasks.
 - Load and unload substrate
 - Select a substrate load configuration (online help is provided)
 - Manage print jobs
 - Display printer status information
 - Display printer alerts
 - Perform printer calibrations and adjustments
 - Install and manage substrate presets
 - Upgrade the printer's firmware
 - Access the Solutions Web site for information about new substrates
- A Raster Image Processor (RIP) should be run on a separate computer; it cannot be installed on the same computer as the HP Internal Print Server.

Safety precautions

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

Users are expected to have appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed to in performing a task and to take appropriate measures to minimize the risks to that person or other persons.

General safety guidelines

- Refer to installation instructions before connecting the printer to the supply.
- There are no operator-serviceable parts inside the printer. Refer servicing to qualified service personnel.
- Turn off the printer, using both Branch Circuit Breakers located in the building's Power Distribution Unit (PDU), and call your service representative in any of the following cases:
 - The power cord is damaged.
 - Liquid has entered the printer.
 - There is smoke or an unusual smell coming from the printer.
 - The printer has been dropped or the drying or curing module damaged.
 - The printer's built-in Residual Current Circuit Breaker (Ground Fault Circuit Interrupter) has been repeatedly tripped.

- Fuses have blown.
- The printer is not operating normally.
- Turn off the printer using both Branch Circuit Breakers in either of the following cases:
 - During a thunderstorm
 - During a power failure

Electrical shock hazard

⚠ WARNING! The internal circuits and drying and curing modules operate at hazardous voltages capable of causing death or serious personal injury.

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

To avoid the risk of electric shock:

- Do not attempt to dismantle the drying and curing modules or the electrical control cabinet.
- Do not remove or open any other closed system covers or plugs.
- Do not insert objects through slots in the printer.
- Test the functionality of the Residual Circuit Breaker (RCCB) every year (refer to the procedure below).

📝 NOTE: A blown fuse may indicate malfunctioning electrical circuits within the system. Call your service representative, and do not attempt to replace the fuse yourself.

Checking the functionality of the Residual Circuit Breaker (RCCB)

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

1. Switch off the printer from the Front Panel (do not switch off the printer from the mains switch or the circuit breakers).
2. When the printer is switched off, test that the RCCB functions correctly by pressing the test button.
 - If the RCCB does not trip when the test button is pressed, this indicates that the component has failed. The device must be replaced for safety reasons, call HP Support to remove and replace the RCCB.
 - If the RCCB trips, this indicates it is working correctly, return the printer to the original status and switch the printer on.

Heat hazard

The drying and curing subsystems of the printer operate at high temperatures and can cause burns if touched. To avoid personal injury, 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.

Fire hazard

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

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

- Use the power supply voltage specified on the nameplate.
- Connect the power cords to dedicated lines, each protected by a branch circuit breaker according to the information detailed in the Site Preparations documentation.
- Do not insert objects through slots in the printer.
- Take care not to spill liquid on the printer.
- Do not use aerosol products that contain flammable gases inside or around the printer.
- Do not block or cover the openings of the printer.
- Do not attempt to dismantle the drying or curing module, or the electrical control cabinet.
- Ensure that the operating temperature of the substrate loaded recommended by the manufacturer is not exceeded. If this information is not available by the manufacturer, do not load substrates that cannot be used at an operating temperature under 125°C (257°F).
- Do not load substrates with auto-ignition temperatures below 250°C (482°F). 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.

Heavy substrate hazard

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

- Handling heavy substrate rolls always requires two people. Care must be taken to avoid back strain and/or injury.
- Always use a forklift, pallet truck or other handling equipment to lift substrates.
- Always wear personal protective equipment including boots and gloves.

Ink handling

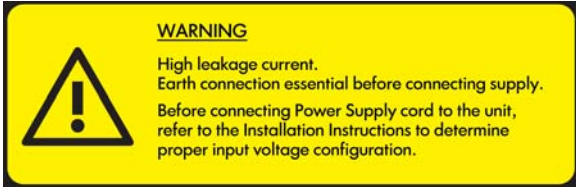
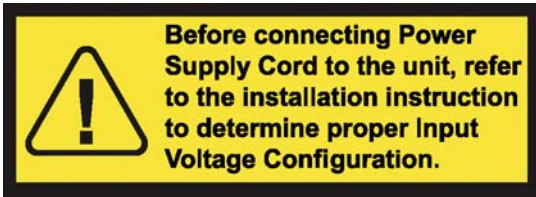

Your printer does not use solvent inks and does not have the traditional problems associated with them. However, HP recommends that you wear gloves when handling ink system components.

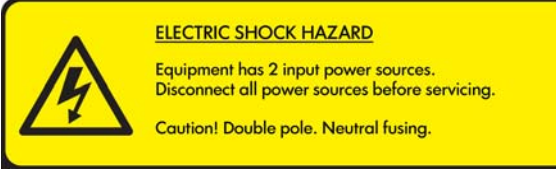



Warnings and cautions

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 product.

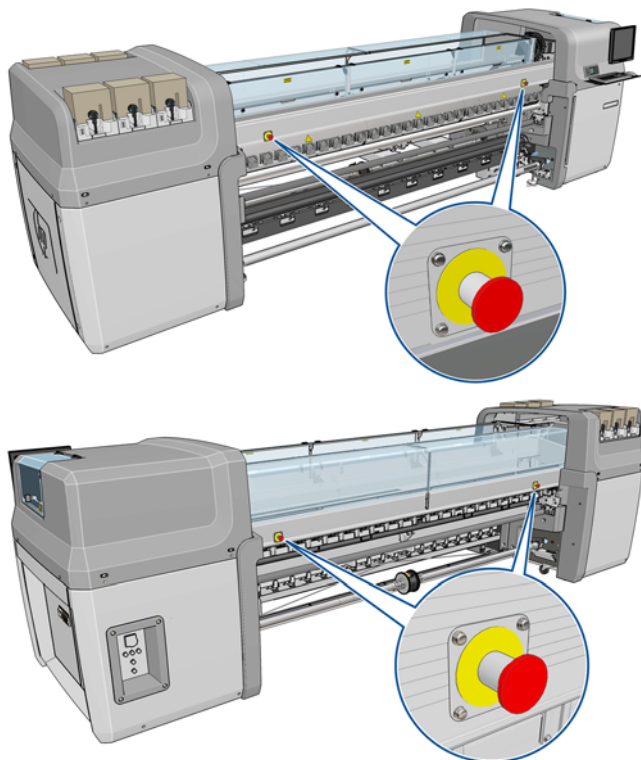
Warning labels

Label	Explanation
 <p>WARNING High leakage current. Earth connection essential before connecting supply. Before connecting Power Supply cord to the unit, refer to the Installation Instructions to determine proper input voltage configuration.</p>	Current leakage may exceed 3.5 mA.
 <p>Before connecting Power Supply Cord to the unit, refer to the installation instruction to determine proper Input Voltage Configuration.</p>	See installation instructions before connecting to the supply. Ensure that the input voltage is within the printer's rated voltage range. The printer requires two dedicated lines, each protected by a branch circuit breaker according to site Preparation Requirements. The printer must be connected to earthed mains outlets only.
	Identifies the Protective Earth (PE) terminal. It is located inside the electrical control cabinet.

Label	Explanation
 <p>ELECTRIC SHOCK HAZARD Equipment has 2 input power sources. Disconnect all power sources before servicing. Caution! Double pole. Neutral fusing.</p>	<p>Electric shock hazard. The printer has two mains supplies. There are no operator-serviceable parts inside the printer. In case of operation of the fuse, parts of the printer that remain energized may represent a hazard during servicing. Refer servicing to qualified service personnel. Turn off the printer using both Branch Circuit Breakers located in the building's Power Distribution Unit (PDU) before servicing. See installation instructions before connecting to the supply.</p>
 <p>CAUTION DOUBLE POLE NEUTRAL FUSING</p>	<p>Danger of electric shock. In case of operation of the fuse, parts of the printer that remain energized may represent a hazard during servicing. Therefore, ensure that the printer is completely turned off before servicing.</p>
	<p>Risk of burns. Do not touch the internal enclosures of the printer's drying and curing modules.</p>
	<p>You are recommended to wear gloves when handling ink cartridges, printhead cleaning cartridges and the printhead cleaning container.</p>
	<p>When substrate has been loaded, the carriage descends into its normal position, and could crush your hand or anything else left underneath it.</p>
	<p>Danger that your hands may become trapped between gearwheels</p>
 <p>WARNING MOVING PRINTHEADS CARRIAGE</p>	<p>When the printer is printing, the printhead carriage travels back and forth across the substrate.</p>
	<p>Beware of this moving part.</p>

Emergency stop buttons

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



2 Basic setup options

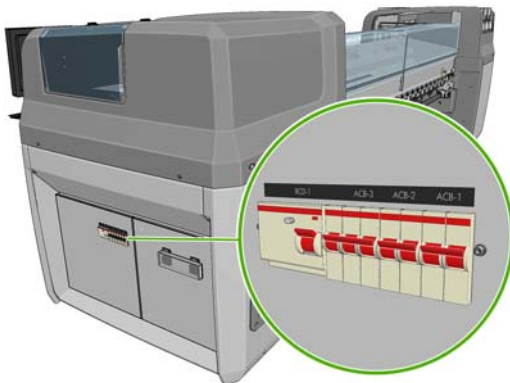
Turn the printer on and off

The printer has two levels of power consumption.

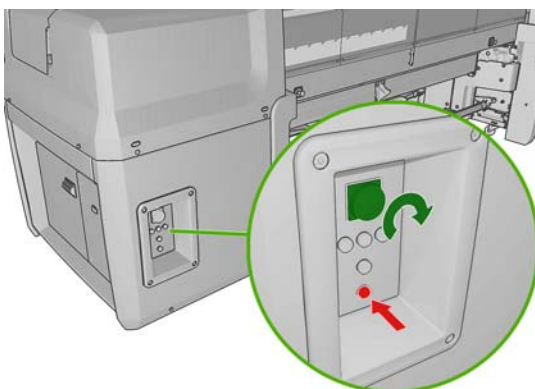
- Electronics on: The electronic components that use relatively little power are turned on.
- Everything on: All components are turned on, including the mechanical and drying components that use more power.

To turn on the printer:

1. Make sure that all the circuit breakers are in the up position (ACB1, ACB2, ACB3, RCB1).



2. Turn the big switch at the rear left of the printer to the on position.




3. Check that all four red lights are on (three for the three-phase line and one for the single-phase). In normal operation these lights should always be on. If any of them are off, check the front panel in case there is a system error, and consult the *Maintenance and troubleshooting guide* or check with your electrician.


4. Go to the front panel. In some circumstances, the front-panel display comes on automatically; if not, press the **Power** key on the front panel and hold it down for a few seconds to turn on the printer's electronics.
5. Wait for the front panel to display the message, "Printer waiting for rearm. Press the power button."
6. Press the **Power Enable** button at the rear left of the printer. This enables all of the printer's high-power subsystems.
7. Check that the orange light in the button comes on. In normal operation this light should always be on. If at any time you notice that this light is off, check the front panel in case there is a system error, and consult the *Maintenance and troubleshooting guide*.
8. Wait for the front panel to indicate that the printer is ready. This can take several minutes. The printer beeps if some problem is encountered. When initialization is complete, the front panel displays a Ready message. If a system error message is displayed, consult the *Maintenance and troubleshooting guide*.


To turn off the printer and the HP Internal Print Server computer:

1. Wait for the front panel to indicate that the printer is ready.


 **NOTE:** If the printer fails to reach the Ready state because of a fault, continue to the next step.


2. Turn off the HP Internal Print Server computer from the Windows **start** button, and wait until you see a black screen with the message **No input signal**.

 **CAUTION:** The computer may be damaged if it is turned off incorrectly.


 **NOTE:** If the HP Internal Print Server fails to display **No input signal** because of a fault, continue to the next step.

3. Press the **Power** key on the front panel and wait for the front-panel display to turn black; this usually takes about a minute. However, after some error conditions (such as after a substrate jam), you may need to wait up to four minutes.

 **NOTE:** After the printer electronics have been turned off at the front panel, the fans turn at maximum speed, for safety reasons. This is normal behavior and not a cause for concern.


 **NOTE:** If you have waited more than five minutes and the front-panel display has not turned black because of a fault, continue to the next step.

4. Turn the big switch at the rear left of the printer to the off position. The fans should stop.

 **TIP:** If you are not planning to use the printer for some days, you are recommended to disconnect all ink cartridge connectors.

To turn off the printer but not the HP Internal Print Server computer:

1. Wait for the front panel to indicate that the printer is ready.
2. Press the **Power** key on the front panel and wait for the front-panel display to turn black; this usually takes about a minute. However, after some error conditions (such as after a substrate jam), you may need to wait up to four minutes.

 **NOTE:** After the printer electronics have been turned off at the front panel, the fans turn at maximum speed, for safety reasons. This is normal behavior and not a cause for concern.


3. Turn circuit breakers ACB-1 (mono-phase) and ACB-3 (three-phase) to the down position. The fans should stop.

To turn off the HP Internal Print Server computer but not the printer, turn off the computer from the Windows **start** button, and wait until you see a black screen with the message **No input signal**. Then turn circuit breaker ACB-2 to the down position.

To stop the printer in emergency, hit one of the emergency stop buttons at the front or rear of the printer. A system error message is displayed on the front panel, and the fans turn at maximum speed. Ensure that all emergency stop buttons are released before restarting the printer.

Change the language of the front-panel display

There are two possible ways to change the language of the front-panel menus and messages.


- If you can understand the current front-panel display language, go to the main menu and select the Setup menu icon , then **Front panel options** > **Select language**.
- If you cannot understand the current front-panel display language, start with the printer powered off. At the front panel, press the **OK** key and hold it down. While holding the **OK** key down, press the **Power** key and hold it down. Continue to hold down both keys until the green light on the left side of the front-panel display starts flashing, and then release both keys. You can expect a delay of about one second. If the green light starts flashing without any delay, you may need to start again.

Whichever method you used, the language selection menu should now appear on the front-panel display. Highlight your preferred language with the **Up** and **Down** keys, then press the **OK** key.


When you have selected your preferred language, turn off the printer with the **Power** key and then turn it on again. The front panel will appear in the selected language.

Change the units of measurement

To change the units of measurement in the HP Internal Print Server, select the **Tools** menu, then **Preferences**, then the **General** tab. You can change the units of length and temperature.


To change the units of measurement in the front-panel display, select the Setup menu icon , then **Front panel options** > **Select units**, and select **English** or **Metric**. By default the units are set to metric.

Turn the buzzer on and off

To turn the printer's buzzer on or off, go to the front panel's main menu and select the Setup menu icon , then **Front panel options** > **Enable buzzer**, highlight on or off and press the **OK** key. The default buzzer is set to on.

 **NOTE:** For safety reasons, the buzzer always sounds when the carriage beam is raised or lowered.

Change the front-panel display contrast

To change the contrast of the front-panel display, select the Setup menu icon , then **Front panel options** > **Select display contrast**, and enter a value using the **Up** or **Down** key. Press the **OK** key to set the value. The default contrast is set to 50.

Start the HP Internal Print Server

You can start the HP Internal Print Server from the Windows **start** menu or by double-clicking its icon on the desktop.



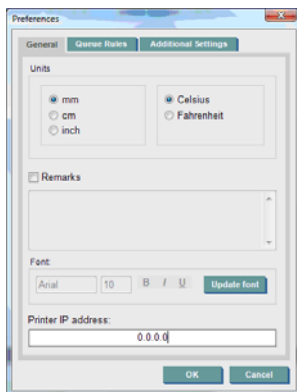
Change the language of the HP Internal Print Server

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

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

Set the HP Internal Print Server preferences

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



- Units of length and temperature
- Remarks (to add as a footer to the printed file)
- Font of footer text
- Printer's IP address



- Action when job fails
- Action when job is put on hold
- Action when job has been printed
- Action when job is removed from the queue



- Maximum roll length
- Gap between jobs
- Margins:
 - RIP: Margins are set as defined in the RIP.
 - Center: The image is horizontally centered on the loaded substrate.
 - Default: The default margins are set to 5.0 mm (0.02 in). You can define the default left margin in the Job Properties window.



The above fields are to be filled in by your service representative.

3 Handle the substrate

Overview

Applications

For each printing application, some substrate types are more appropriate than others.

POP applications

- **Banners:** Free-hanging, horizontally or vertically. Usually vinyl, but can be fabric.
- **Backlit:** Usually inside a light box, visible by day and night.
- **Posters:** Various sizes of flat pictures, usually framed or mounted on a rigid substrate.
- **Boards:** A rigid substrate with logo, name, directional sign, etc. Long- and short-term usage.
- **Windows:** Covering all or part of a window for messaging and advertising. Usually exposed to sunlight.
- **Floors:** Stuck to the floor for directional or promotional purposes. Exposed to extreme rub conditions.
- **3D:** Usually laminated.

Vehicle wrap applications

- **Cars:** Self-adhesive vinyl used to cover all or part of a vehicle. Has many uses from simple lettering and shapes to complex graphics. Can also be used for irregular shapes with vinyl cutting. Usually single cars, sometimes fleets.
- **Trucks:** Covering all or part of a truck for naming or advertising purposes. Can be applied to a rigid surface with self-adhesive vinyl or flexible curtains. Usually done for fleets.
- **Trains:** Covering single track or full train with self-adhesive vinyl. Window areas covered with perforated substrate to “see through”.
- **Buses/taxis:** Some are fully covered like cars; some fleets have side panels of either adhesive vinyl or framed image boards, made of rigid or flexible substrate.

Other applications

- **Airport light boxes:** Continuously lit from inside the box. Size varies from medium to very large images. Directional and advertising content.
- **Bus shelters:** Inside light box, visible by day and night. Changed very often (e.g. every week).
- **Street signs:** Various materials from blue back paper for billboards through light boxes and rigid boards. Some are fixed for medium periods and some changed very often.
- **Billboards:** Very large boards covered with tiles of images, long viewing distance and low picture resolution but vivid colors. Lately changing from tiles to banners of vinyl or polyethylene.
- **Interior decoration:** Walls covered with graphics to create a unique atmosphere. Usually printed on blue back paper and mounted directly on walls or rigid boards. May also be printed on vinyl or fabric.
- **Building wrap:** Part of a building covered with vinyl or mesh substrate, which is stretched and mounted on a frame. It is often necessary to weld or sew strips of substrate together.
- **Art:** Very high quality images printed on canvas or other flexible or rigid substrates.
- **Directional signs:** Short or long term signs, usually on rigid boards.
- **OEM:** Decals of names or graphics associated with the equipment. Used for home and garden equipment, appliances, vehicles, vending machines, ATM, light and heavy machinery, etc.
- **Flags:** Banners of fabric and textile that hang down or are mounted on poles. Used indoors and outdoors. Also used as balloons of different shapes.

Match applications to substrate types







The following table identifies the substrate types that are appropriate for each application.

Application	Substrate (see key below)																					
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
POP posters	•	•	•	•	•	•		•		•	•			•	•	•	•	•	•	•	•	
Light boxes			•				•	•	•				•	•								
Vehicle graphics	•					•	•															
Wall murals	•			•	•	•	•	•	•	•				•				•				
Outdoor and event banners	•	•		•						•									•	•		
Double-sided banners		•								•	•					•						
Exhibition and event graphics	•			•	•			•	•	•	•			•								
Billboards												•			•				•	•		•
Textiles and carpets										•	•											
Photos and digital fine arts														•			•	•				
Building coverings																•						


Key to substrates		F. Vinyl Cast	L. BlueBack	R. Photo
A. Frontlit	G. Perforated Material	M. Backlit Paper	S. Uncoated Tyvek	
B. Opaque	H. Polyester	N. Offset	T. Surface Treated Tyvek	
C. Backlit	I. Polypropylene	O. Yupo	U. Static Cling	
D. Green	J. Woven Polyester	P. Mesh	V. Woven Polyethylene	
E. Vinyl Calendered	K. Knitted Polyester	Q. Canvas		

Supported substrate types

For information on new substrates, see <http://www.hp.com/go/LX820/solutions/> or <http://www.hp.com/go/LX850/solutions/>.

Category	Type	Color calib.	Applications
Banners	HP HDPE Reinforced Banner ¹ 	Yes	Banners, POP, flags, track covers, wall murals
	PVC Scrim Banner Frontlit – 100%, 150%, 250%	Yes	
	PVC Scrim Banner Backlit – 100%, 150%, 250%	No	
	Green Banner – 100%, 150%, 250%	Yes	
	HP Durable Frontlit Scrim Banner	Yes	
Self-adhesive	Vinyl – Calendered – 100%, 150%, 250%	Yes	Vehicle wraps, car/bus/track fleets, floors, signs
	Vinyl – Cast – 100%, 150%, 250%	Yes	
	Perforated Vinyl/Punch Window – 100%, 150%, 250%	No	
	HP Permanent Gloss Adhesive Vinyl	Yes	
	HP Permanent Matte Adhesive Vinyl	Yes	
	HP Air Release Adhesive Gloss Cast Vinyl	Yes	
	HP One-view Perforated Adhesive Window Vinyl	No	
Film	Polyester Film – 100%, 150%, 250%	No	Bus shelters, airport ads, POP, street ads
	HP Backlit Polyester Film ¹ 	Yes	
Fabric	Polyester Fabric – 100%, 150%, 250%	No	Indoor flags, wall murals, interior decoration
	HP Heavy Textile Banner (Oeko-Tex certified) ¹ 	No	
	HP Light Textile Display Banner – 150%, 250% (Oeko-Tex certified) ¹ 	No	
Paper	HP PVC-free Wall Paper (FSC certified) ^{2 3}	Yes	POP indoor and outdoor, windows, bus shelters, billboards, wall decorations
	Blue back – 100%, 150%, 250%	Yes	
	HP Blue Back Billboard Paper	Yes	
	HP Photo-realistic Poster Paper ¹ 	Yes	
	HP White Satin Poster Paper ¹ 	Yes	
Mesh	Scrim banner – 100%, 150%, 250%	No	Building wraps


Handle the substrate


Category	Type	Color calib.	Applications
Speciality	Canvas Polyester – 100%, 150%, 250%	Yes	Fine arts, large photographs, floor covering
	Tyvek – 100%, 150%, 250%	No	
	HP Satin Canvas	Yes	
	HP DuPont Tyvek Banner ¹ 	No	


- ¹ HP Large-format Media take-back program availability varies. Some recyclable HP papers can be recycled through commonly available recycling programs. Recycling programs may not exist in your area. See <http://www.hp.com/recycle/> for details.
- ² HP PVC-free Wall Paper printed with HP Latex Inks is GREENGUARD Children & Schools Certified. See <http://www.greenguard.org/>.
- ³ HP PVC-free Wall Paper printed with HP Latex Inks meets AgBB criteria for health-related evaluation of VOC emissions of indoor building products. See <http://www.umweltbundesamt.de/produkte-e/bauprodukte/agbb.htm>.



The Color Calib. column indicates for each substrate whether color calibration is recommended.

 **NOTE:** The printer does not support substrates narrower than 914 mm (36 in).

 **NOTE:** Porous substrates require the use of the ink collector kit.

 **NOTE:** The fabric specifications supported are the following: Grammage > 100 g/m²; Fabrics "mesh" style with Porosity/Open areas < 20%; "Mesh Substrates" with Porosity/Open areas < 20%; Elasticity < 5%. For best results, print textile applications on fabric that does not stretch. Performance may vary depending on the substrate. Please consult your substrate supplier for compatibility details.

Substrate tips

General tips

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

Before loading a roll:

- Check that temperature and humidity in the room are within the recommended ranges for the printer. See [Environmental specifications on page 104](#).
- Check that neither the roll nor its core are bent or deformed, which may cause the substrate to jam in the printer.
- If the roll has been stored in a place not offering the recommended environmental conditions, allow some time for it to adapt to the temperature and humidity of the printer's environment.

- Check which is the correct side for printing, by reading the label inside the core or the note inserted into the package (or see [Tips for specific substrates on page 23](#)).
- Check that the substrate is correctly attached to the input core. Otherwise, you will see poor print quality due to substrate advance errors.
- You may find it easier to load a roll if you first move the carriage beam to its highest position.

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

After you have loaded a roll:

- Make sure that the edge holders are set on both sides of the roll. Do not use any other Edge holder from another printer, only use the edge holders that came with the printer. An incorrectly loaded roll may cause waves or cockles in the substrate, leading to ink smearing and printhead crashes.
- Check the correct carriage beam position for printing: high for thick substrates, normal for others. See [Set the carriage beam position on page 25](#).
- Check that you are using the correct substrate preset in the HP Internal Print Server and the correct ICC profile and other settings in the RIP.
- HP substrates are optimized to provide the best out-of-the-box printing experience with your printer. However, you may want to modify the ink limits or the number of passes; in which case, temperature, vacuum or tensions may need to be adjusted. You can create a new substrate preset from the default preset you are using and make your changes.
- Use the HP Internal Print Server to check that any required calibrations have been done: color calibration, substrate-advance compensation, printhead alignment. See the *Maintenance and troubleshooting guide*.
- For the best print quality, the substrate should stay flat and unwrinkled in the printing zone, the substrate advance should be constant and the substrate should move straight.
- Do not cut off pieces of substrate while the substrate is loaded into the printer. This may cause the remaining substrate to jam.

After printing, try to allow 24 hours before stacking, folding or rolling printed substrates.



NOTE: Printing on porous substrates may result in visible vapor being generated from the water-based ink.

You can find further information on the Web:

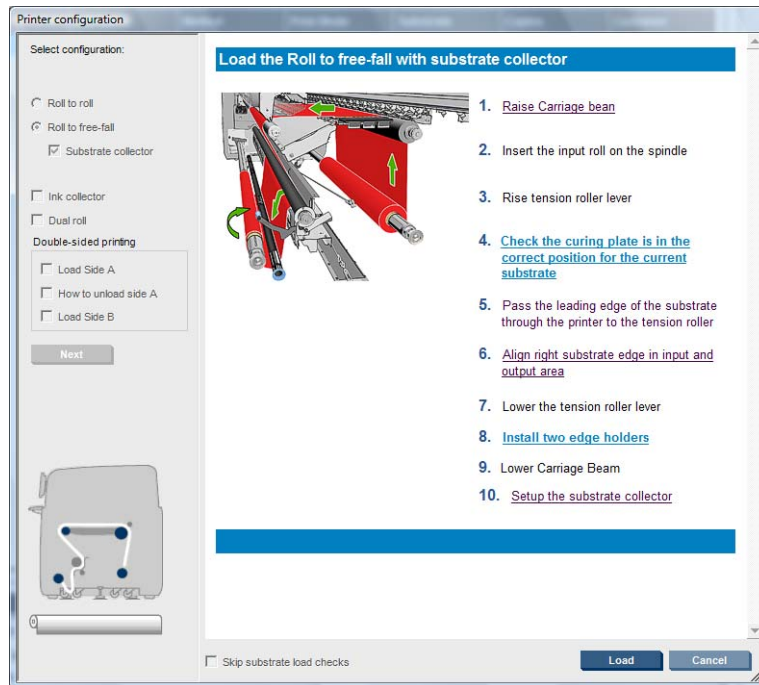
- The specifications, finishing, processing and warranty information for each individual HP substrate are available from <http://www.hp.com/go/designjet/supplies/latex/>.
- HP Image Permanence information is available from <http://www.hp.com/go/supplies/printpermanence/>.
- HP offers recyclable substrates such as HP HDPE Reinforced Banner, HP Wrinkle-free Flag with liner, HP Heavy Textile Banner, HP Photo-realistic Poster Paper and HP DuPont™ Tyvek® Banner. Recycling opportunities for these products may not exist in all areas. You should consult local recycling resources about recycling these products. For recycling in the USA, please go to the HP recycling services site, <http://www.hp.com/go/recycleLFmedia/>.

Tips for specific substrates

Substrate	Printing side	Printing tips
HP Durable Frontlit Scrim Banner	Inside (smooth side)	Use the right settings to avoid printing issues described in Table 3-1 Substrate preset settings on page 64 .
HP Outdoor Frontlit Scrim Banner	Inside (smooth side)	Use the right settings to avoid printing issues described in Table 3-1 Substrate preset settings on page 64 .
HP HDPE Reinforced Banner	Inside (matte side)	This substrate is sensitive to high temperatures. Printing and curing temperatures are set to minimize material deformation. If the ambient temperature is high and you see excessive deformation of the substrate, raise the carriage beam to its highest position. Recyclable (see above).
HP Permanent Gloss Adhesive Vinyl	Outside (glossy side)	Use the right settings to avoid printing issues described in Table 3-1 Substrate preset settings on page 64 .
HP Permanent Matte Adhesive Vinyl	Outside	Use the right settings to avoid printing issues described in Table 3-1 Substrate preset settings on page 64 .
HP Air Release Adhesive Gloss Cast Vinyl	Outside	
HP One View Perforated Adhesive Window Vinyl	Outside	
HP PVC-free Gloss Adhesive Film	Outside	
HP Wrinkle-free Flag with liner	Outside (fabric side)	Take care to load the substrate and select settings correctly to avoid liner delamination while printing. Recyclable (see above).
HP Heavy Textile Banner	Inside	Recyclable (see above).
HP Light Textile Display Banner	Both sides; inside recommended	You are recommended to clean the platen after printing 50 m (164 ft) of substrate.
HP Blue Black Billboard Paper	Outside (white side)	Use the right settings to avoid printing issues described in Table 3-1 Substrate preset settings on page 64 .
HP Photo-realistic Poster Paper	Both sides	This substrate is sensitive to high temperatures. Printing and curing temperatures are set to avoid material deformation. This substrate is recyclable: you can dispose of it together with cardboard.
HP White Satin Poster Paper	Outside	
HP PVC-free Wall Paper	Outside	
HP DuPont Tyvek Banner	Inside	This substrate is sensitive to high temperatures. Printing and curing temperatures are set to minimize material deformation. Recyclable (see above).
HP Satin Canvas	Outside (smooth side)	Use the right settings to avoid printing issues described in Table 3-1 Substrate preset settings on page 64 .

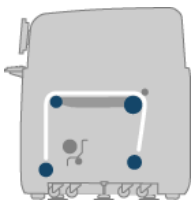
Substrate configurations

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

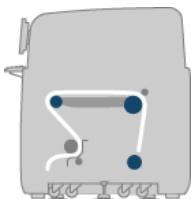


The basic configurations are illustrated below. These configurations can be used for single-roll or dual-roll printing, and for porous or non-porous substrates. Porous substrates require the use of the ink collector kit: see [The ink collector kit \(LX850 only\) on page 28](#).

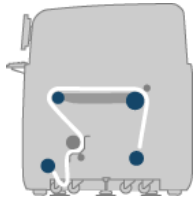
- **The roll-to-roll configuration** is suitable when you intend to print a whole roll without cutting it until the input roll is empty. The substrate cannot be cut in mid-roll unless printing double-sided, and then it must be reloaded afterwards.



- **The roll-to-free-fall configuration (LX850 only)** is suitable when you want to cut and remove each print as soon as it comes out of the printer. The substrate is kept under tension between the input roll and the tension roller; but it can be cut after the tension roller because then it is no longer under tension.




- **The roll-to-free-fall with collector configuration (LX850 only)** is suitable when you may want to cut the substrate and remove the output roll before the input roll is empty. The substrate is kept under tension between the input roll and the tension roller; but it can be cut after the tension roller because then it is no longer under tension.



Set the carriage beam position


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

To set the carriage beam position, go to the front panel and select the Substrate menu , then **Substrate management**, and press **OK**. Select **Carriage beam position**. You can choose the highest position, a custom position or the normal position.

Carriage beam position

- ▶ Move to highest position
- ▶ Move to printing (custom)
- ▶ Move to printing (normal)

- The highest position is not used for printing: it may be used for loading substrate or for maintenance tasks.
- A custom position is used for thick substrates, or for substrates that wrinkle slightly due to heating.

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

We recommend setting the custom position to the thickness of the substrate plus two or three millimeters. The current setting is indicated in the front panel by a ✓ mark.


Custom carriage beam position


✓ 4.9 mm

Press ▲ to raise
Press ▼ to lower

Press **OK** to move the carriage
beam or **↶** to cancel

- The normal position is suitable for unwrinkled substrates up to 0.7 mm (0.03 in) thick.

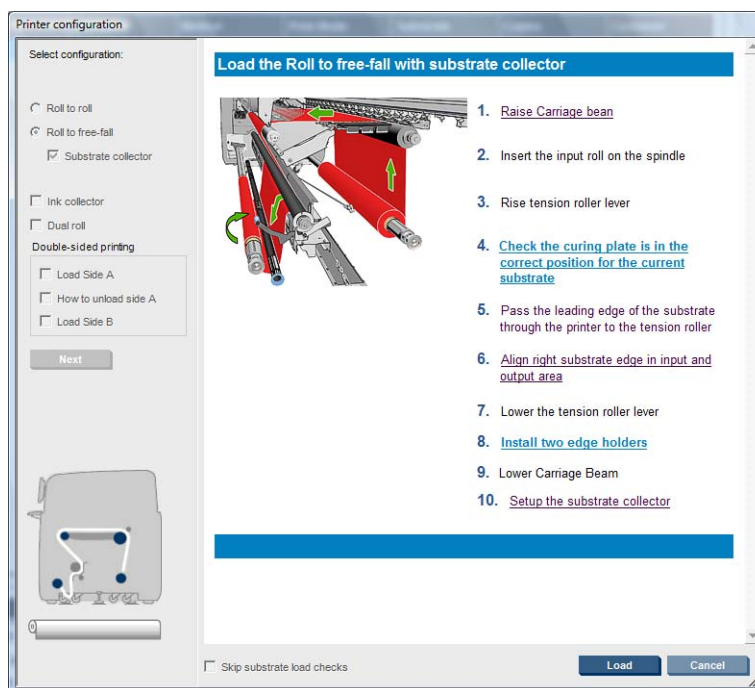
 **WARNING!** Keep away from the printer's moving parts until the carriage beam has reached its new position.


 **NOTE: LX850 only:** If you have installed the ink collector kit, the normal position and the lowest custom position are automatically adjusted to take account of that.

Prepare to print


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

1. Ensure that the ink collector kit is installed for porous substrates, and not installed for non-porous substrates. See [The ink collector kit \(LX850 only\) on page 28](#).
2. Start the printer. See [Turn the printer on and off on page 12](#).
3. Go to the HP Internal Print Server and select **Substrate** > **Load/Unload** to open the Printer Configuration window.
4. Select the printer configuration that you intend to use, and press **Next** to see the on-screen help.



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

5. Load the substrate. Substrate loading instructions are displayed in the HP Internal Print Server window. For more detailed instructions, see [Load a roll onto the spindle on page 33](#) and [Load a roll into the printer on page 38](#).
6. Press the **Load** button in the HP Internal Print Server to start the substrate check, then enter the substrate type in the Loaded Substrate window.

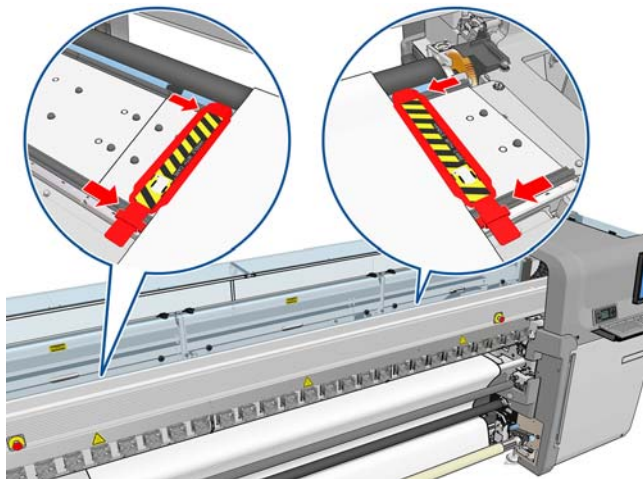
 **TIP:** If the printer has been idle overnight with substrate loaded, and exposed to high or low temperatures, advance the substrate 13 to 25 cm (5 to 10 in) before printing, to avoid printhead crashes or ink smears on the substrate.

The substrate edge holders

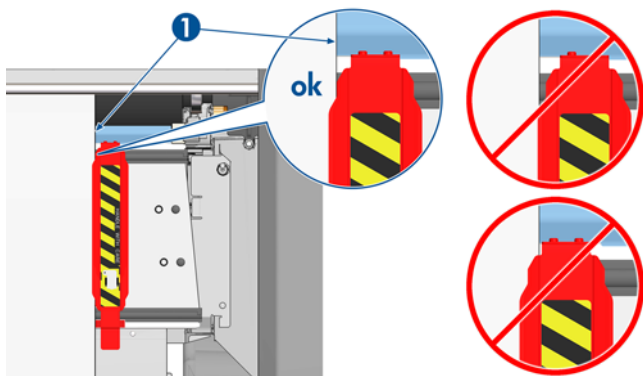
The purpose of the substrate edge holders is to prevent the substrate edges from lifting up and jamming while printing.

Standing in front of the printer, you should see the two edge holders on either side of the top surface of the substrate. Slide the edge holders to the edges of the substrate and make sure that they are properly positioned and not bent (which could cause a carriage crash).

 **TIP:** The edge holders are easy to deploy with the carriage beam at its highest position.



The correct position is illustrated below, where (1) indicates the edge of the substrate. The substrate should be free to move, and should not touch the ends of the edge holder.




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

Removal and replacement

When the printer is delivered, the edge holders are already installed on the print platen, and there is no need to remove them. When they are not being used they can be pushed to the side. However, the central edge holders used for dual-roll printing must be removed for single-roll printing and for the LX 850 when printing on textiles, as the ink collector kit must also be installed.

To install an edge holder, stand at the front of the printer and attach the rear of the edge holder to the rear of the platen, then pull the front of the edge holder towards you and attach it to the front of the platen.

 **CAUTION:** Do not bend the edge holder. It should remain perfectly straight, otherwise it could damage the printheads and carriage.

The ink collector kit (LX850 only)

Before printing on porous substrates, such as textile substrates, you must install the ink collector kit provided with your printer, to protect the printer from the ink that falls through the substrate. The kit must be removed before printing on non-porous substrates.

Kit components



1. Ink collector container
2. 8 ink collectors with replaceable foams

Install the kit

The ink collector kit must be installed before printing on porous substrates.

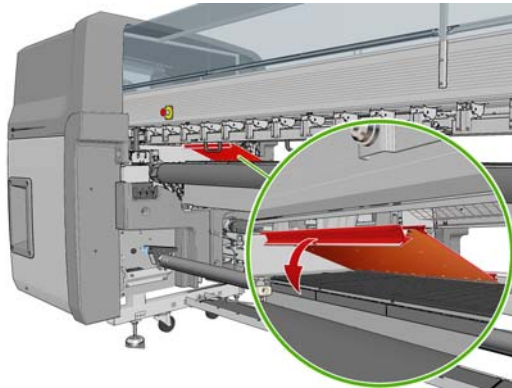
⚠ WARNING! Do not touch the internal enclosures of the printer's drying and curing modules while installing the ink collector kit: they can be hot enough to cause burns.

⚠ CAUTION: Do not install the ink collector kit without declaring the configuration to the HP Internal Print Server.

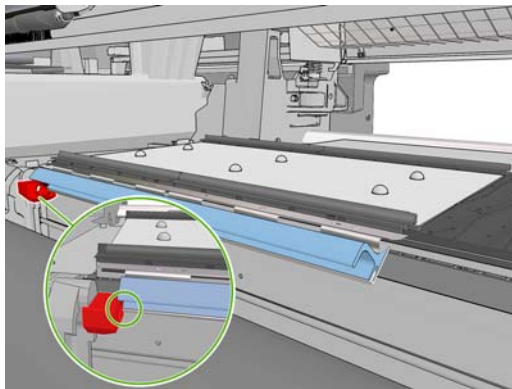
1. If any substrate is loaded, unload it.
2. Raise the carriage beam to its highest position.
3. Remove the edge holders from the substrate path.
4. If necessary, clean the platen and the curing plates with a cloth dampened with an all-purpose cleaner.
5. Open the ink collector container and check that the ink collector foams are dry.
6. Follow the instructions in the HP Internal Print Server to complete the installation. If you need further information, read the steps below.

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

7. When the carriage beam has stopped rising, go to the rear of the printer and check the configuration of the Ink Collector, you will have to remove cut-outs from the foam material of the Ink Collector so that the holes align correctly with the locators on the ink collector. Insert the first ink collector on the left.

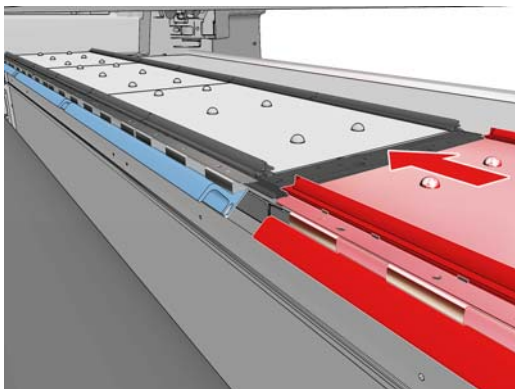


There is a stop that marks the position of the first ink collector.

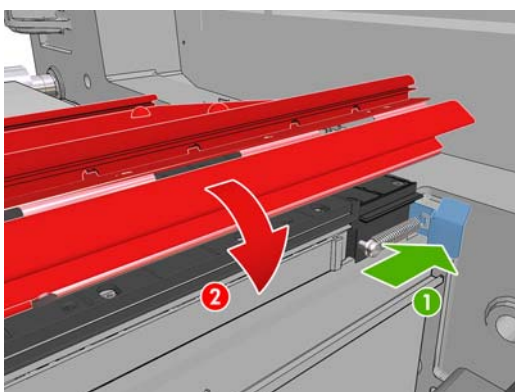


Handle the substrate

8. Moving gradually to the right, install the other ink collectors.



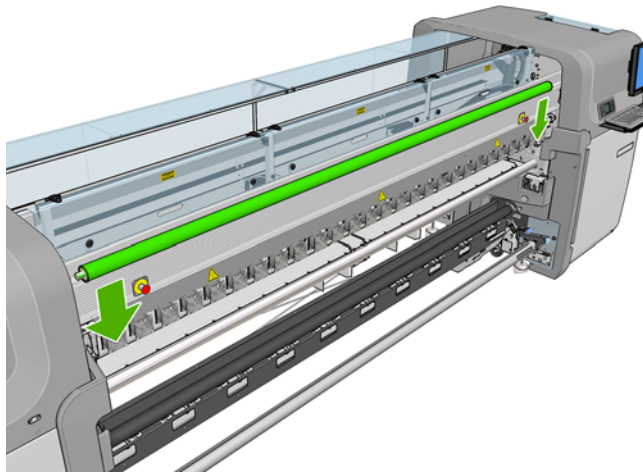
To install the last ink collector on the right, you have to move a blue spring-loaded clip.



9. Check that all the ink collectors are aligned with each other and that there are no gaps between them.



10. Check that there are no gaps between the foams.
11. Check that the foams fit into the spaces provided for them. If they have expanded and no longer fit, replace them.
12. Install the two diverter rollers.



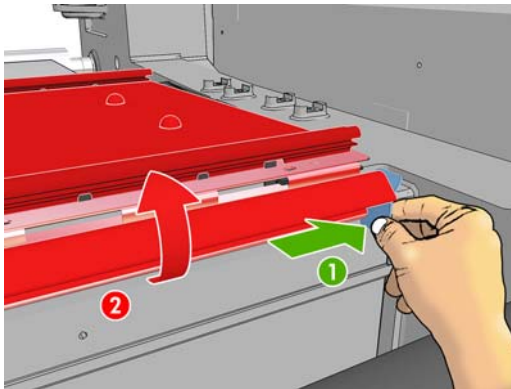
- In the roll-to-free-fall configuration, the output diverter is not needed.
 - In the roll-to-roll configuration, you are recommended to use both diverters, but in some cases you may be able to minimize wrinkles by changing the position of a diverter or even by removing one or both of them.
- 13.** Check that the curing plates are in the correct position for the substrate you are loading (see [The curing plates on page 32](#)).
 - 14.** Load the substrate, which should pass outside the input diverter and inside the output diverter.
 - 15.** Deploy the edge holders.
 - 16.** If you have not already done so, go to the HP Internal Print Server and select **Substrate > Load/Unload**. In the load configuration, ensure that the **Ink collector** box is checked.
 - 17.** Lower the carriage beam to the normal position.
 - 18.** You may need to enter the left edge position and the substrate width into the HP Internal Print Server, if the printer cannot detect them.

Uninstall the kit

The ink collector kit must be uninstalled before printing on non-porous substrates.

- 1.** Raise the carriage beam to its highest position.
- 2.** If any substrate is loaded, unload it. Take care that it does not touch the ink collector foams, which may be wet with ink.
- 3.** Remove the edge holders, and clean them if necessary.
- 4.** Remove the diverter rollers.

5. Remove the ink collectors by pressing on the grips that secure them to the printer. To remove the rightmost ink collector, first move aside the blue spring-loaded clip.



6. Store the ink collectors correctly in their box. If you stack them in a pile, they may warp.



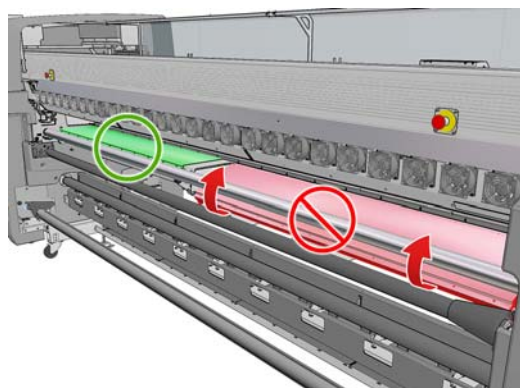
7. Before lowering the carriage beam to the normal position, go to the HP Internal Print Server and select **Substrate** > **Load/Unload**. In the load configuration, ensure that the **Ink collector** box is unchecked.

The curing plates

For efficient drying and curing, you are recommended to keep the curing plates up (horizontal) for textile and backlit substrates, and down (inclined downwards) for all other substrates.

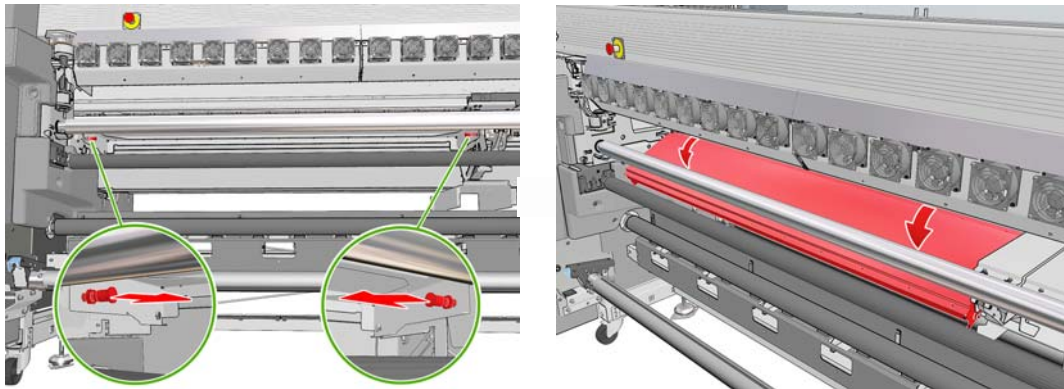
Textile and backlit substrates

To raise a curing plate into the horizontal position, just lift it; it clicks into place.



All other substrates

To lower a curing plate into the inclined position, you must pull the black knobs underneath the plate.



TIP: If you find that you cannot get sufficient curing for a particular substrate with the curing plates down, you could try raising them to the horizontal position.

Load a roll onto the spindle

Single-roll printing and double-sided printing

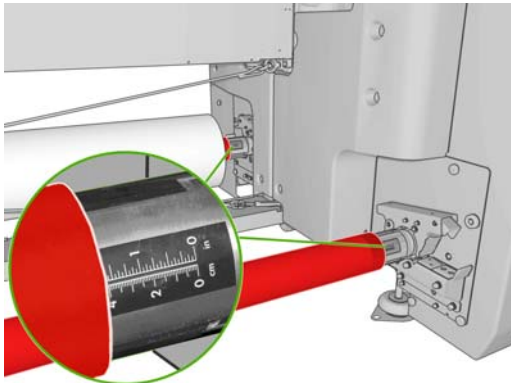
The spindle has a pneumatic connector at one end and a gear at the other.

1. Rest the roll securely on the Spindle Supports.
2. Check that the gear is on the correct side (which depends on the intended winding direction).
3. Insert the spindle into the roll.

TIP: The spindle is quite heavy in order to ensure stiffness and so avoid skew and wrinkles, so two people are recommended for this operation. With only one person, you are recommended to put the roll on the Spindle Supports, lift one end of the spindle and insert it into the roll, then lift the other end carefully so that the first end does not fall out, and push the spindle into the roll.

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

- Note the position of the end of the roll on the scale marked at the geared end of the spindle. Its position should be not less than 3.2 cm (1.25 in) on that scale, otherwise the substrate may go out of the print zone and start touching the printer covers. The input and output rolls should be positioned identically on their respective spindles.



TIP: When loading heavy rolls of inelastic substrates that are approximately half the spindle length, you may find it useful to load the substrate closer to the center of the spindle, to reduce the risk of skew, wrinkles and telescoping.

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

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

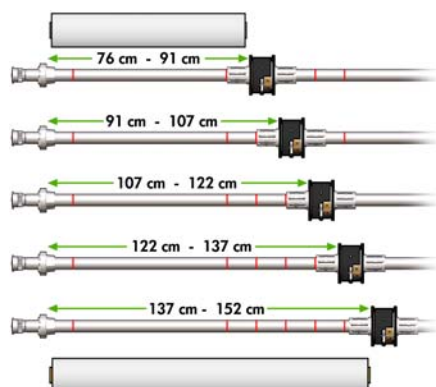
The roll is now ready to be loaded into the printer.

TIP: If you are a regular user of different substrate types, you can change rolls more quickly if you preload rolls of different substrate types on different spindles. Extra spindles are available for purchase, see [Accessories on page 99](#).

Dual-roll printing

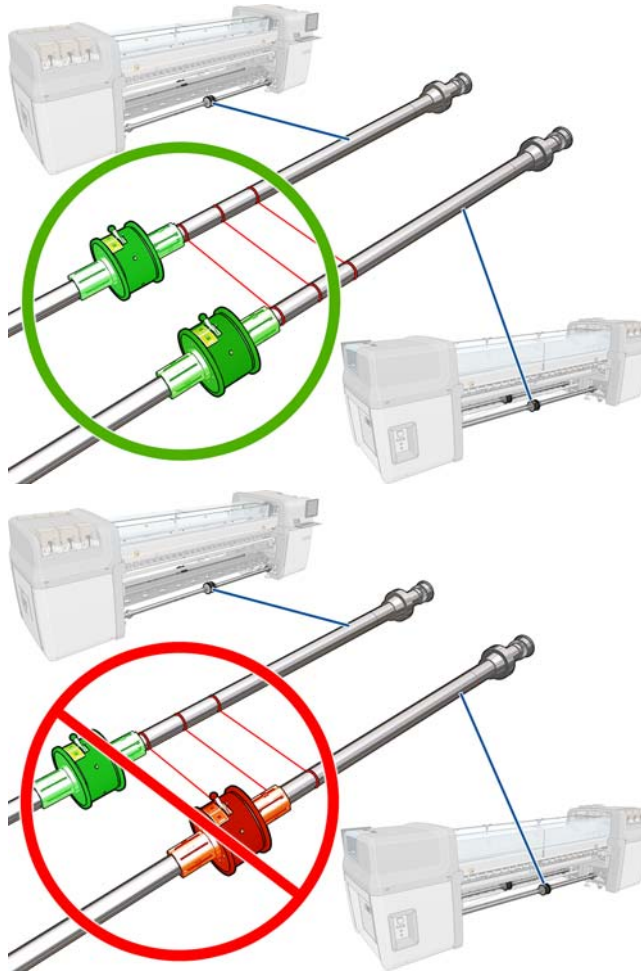
You can print on two rolls at the same time by using the dual-roll spindles provided with your LX850 printer or available as accessories for your LX820 printer.

The dual-roll spindle is marked to assist you in positioning the differential hub.

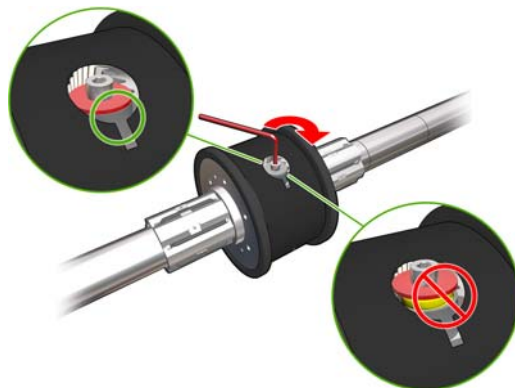


Loading the dual-roll spindles

1. With the spindles inserted into the Spindles Supports, Ensure that the differential hubs on the input and output spindles are aligned with each other.



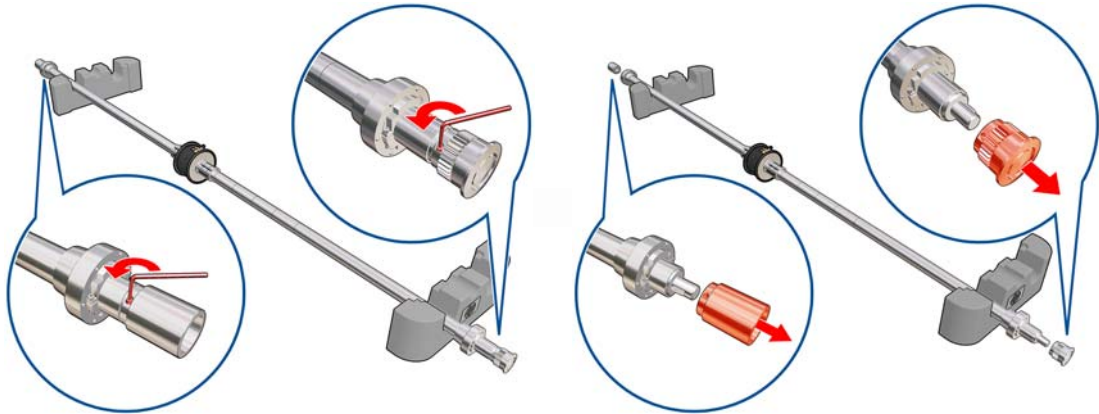
2. When both differential hubs are correctly positioned, use an Allen key 4 to tighten the screws and secure them in place. If a differential hub is loose, the substrate could become skewed during printing.



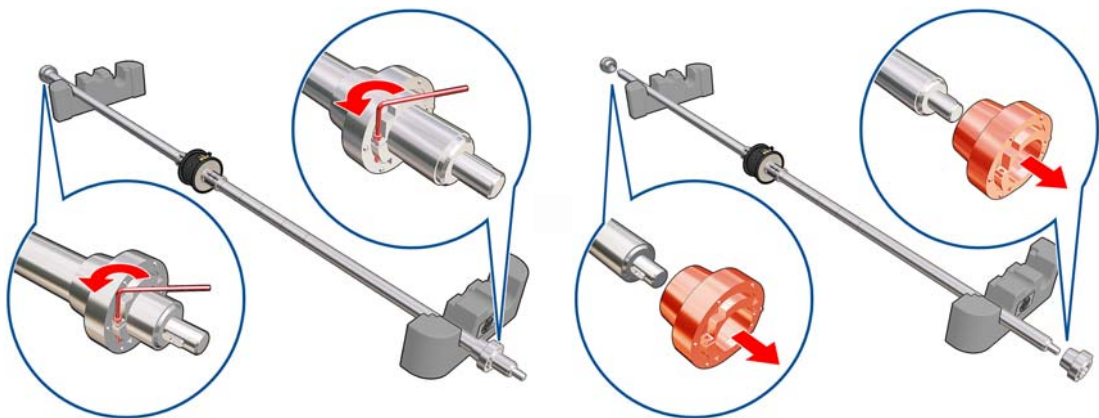
TIP: You should tighten the screw until the washer touches the bolt. If you can still see the yellow spring, tighten the screw further.

TIP: It will be easier to load the roll onto the spindle if you lock the differential.

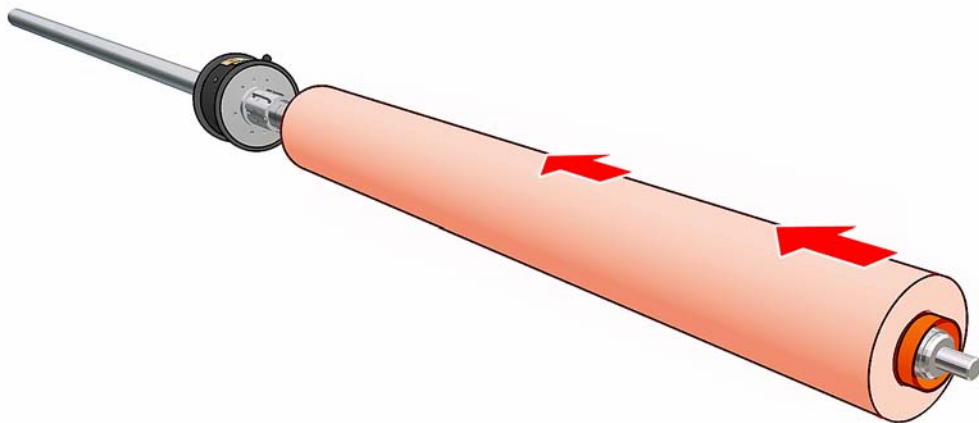
3. At each end of the spindle, unscrew and remove the outer parts of the hub, using an Allen key 4.



4. Unscrew and remove the inner part of each hub.

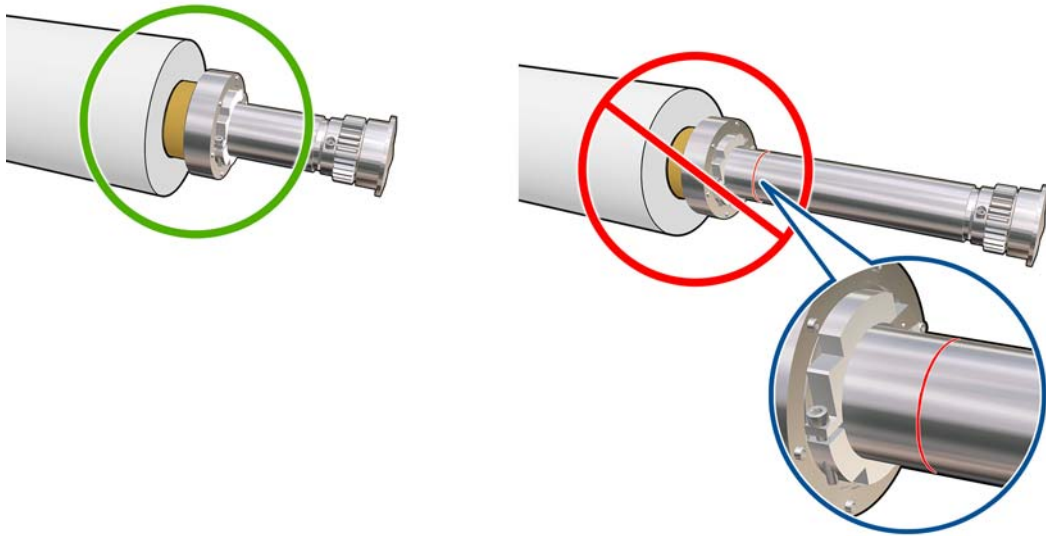


5. Insert the first roll on the spindle.



6. Replace the hub, and secure it with the Allen key.
7. Insert the second roll on the spindle.
8. Replace the hub, and secure it with the Allen key.

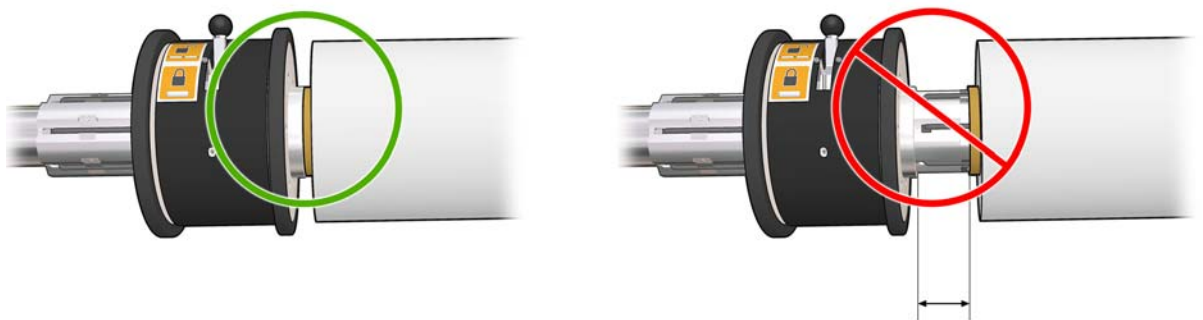
9. Ensure that the end of the right-hand roll is located within the maximum allowed distance from the right-hand end of the spindle: it should be between the gear and the dashed line.



10. Ensure that the roll core fits tightly on the hub.



11. Ensure that the roll core fits tightly on the differential hub.



12. Load the spindle at the rear of the printer, and secure the spindle latches.
13. Use the same process to load the output spindle at the front of the printer, but load the spindle with two empty cores to receive the printed substrate.

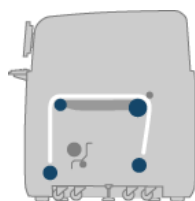
Load a roll into the printer

The objective when loading substrate is to get a uniform tension across its width and along the substrate path to minimize the risk of skew, wrinkles and telescoping. There are three configuration of loading the substrate into the printer:

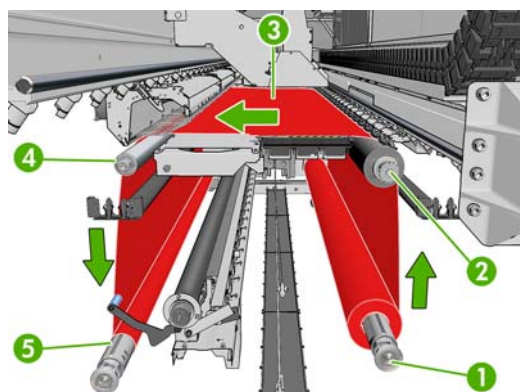
- Roll-to-Roll configuration
- Dual Roll-to-Roll configuration (**LX850 only, an accessory for the LX820**)
- Roll-to-Free-Fall configuration (**LX850 only**)

In each of these types of configuration there is a **Substrate Loading Tool** available that will help you to load the substrate quicker and easier, refer to [Load a roll with the 'Substrate Loading Tool' on page 56](#)

Load a roll (roll-to-roll configuration)




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




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


Each of the spindles has its own motor. The motors maintain tension on the substrate. Some vacuum is applied at the level of the platen to keep the substrate flat. The substrate is moved forwards by the drive roller motor, on which there is a pinch mechanism to stop the substrate from slipping. The pinches must be up when moving the carriage beam, and down when printing or checking the substrate, otherwise a message is displayed. The accuracy of the advance is controlled by the substrate-advance sensor, or, for substrates that the sensor cannot see, by tracking the main roller movement.

Before loading a roll into the printer, you must have a roll loaded onto a spindle (the input roll) and an empty core loaded onto another spindle (the output roll). See [Load a roll onto the spindle on page 33](#).

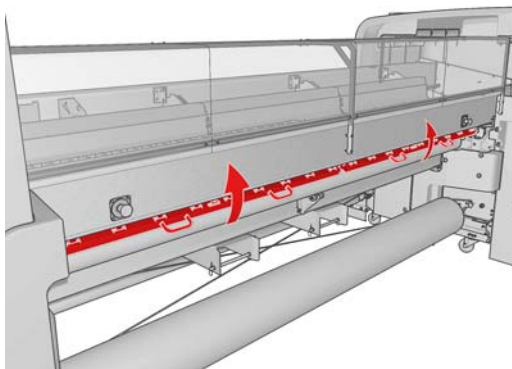
 **NOTE:** For the output roll, use a single empty core the same length as the input core. Do not place two or more shorter cores on the same spindle, which could cause substrate-advance problems.

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

1. Go to the HP Internal Print Server and select **Substrate > Load/Unload**, then select the correct configuration.
2. Remove the substrate edge holders in the print platen, or move them aside, so that they do not get in the way while loading the substrate.

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

3. Lift the substrate pressure handles at the rear of the printer.





4. Go to the front panel and select **Carriage beam position > Move to highest position**.

Carriage beam position

- ▶ Move to highest position
- ▶ Move to printing (custom)
- ▶ Move to printing (normal)

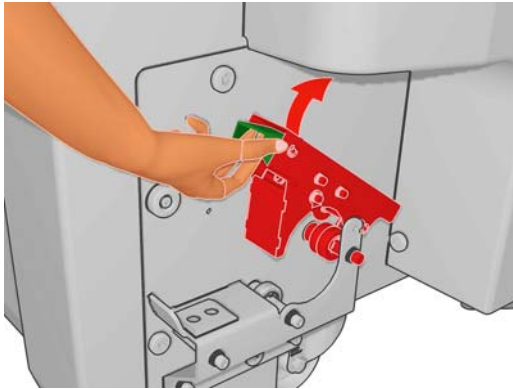
The printer raises the carriage beam, making it easy to insert the substrate. This process takes about two minutes to complete. During this period, you can load the input and output rolls.

 **NOTE:** While the carriage beam is rising, you can stop it by pressing the **Cancel** key.


 **TIP:** If you use the Substrate loading tool, you do not need to raise the Carriage beam.

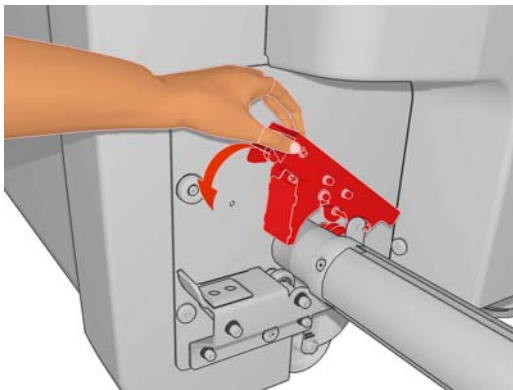
5. Bring the new roll on its spindle to the rear of the printer, with the geared end of the spindle on the left.
6. Rest the ends of the spindle on the platforms provided at the rear of the printer; plastic pads are provided to absorb the impacts.

7. Open the latches at both ends of the spindle (if they were closed) and push the roll on its spindle into the printer.



8. Close the latches to secure the spindle in place.


 **TIP:** If you cannot close the gear side latch, try sliding the spindle towards the side plate to make sure the end flange is not sitting on the bearings.

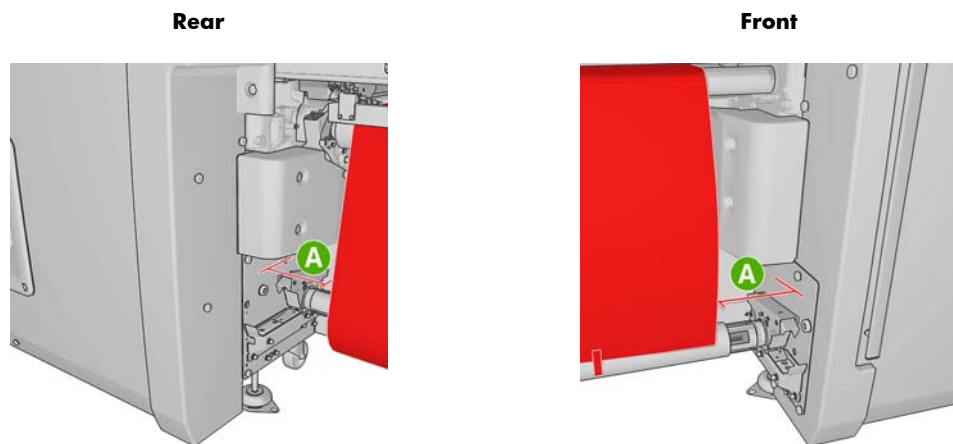



9. In the same way, load the spindle with the empty core into the front of the printer. In this case, the geared end of the spindle should be on the right.
10. Check that the printer has finished raising the carriage beam.
11. Check that the curing plates are in the correct position for the substrate you are loading (see [The curing plates on page 32](#)).
12. Pass the leading edge of the substrate through the printer to the output roll.



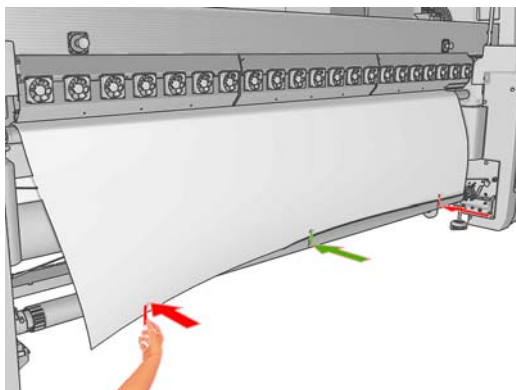
13. Once in front of the printer, if you find that you haven't unrolled enough substrate, select **Start main roller motion** from the front panel to unroll some more. The substrate unrolls only when you pull it.
14. If you are loading a vinyl substrate on an LX850 printer, you are recommended to use the output diverter from the ink collector kit, to minimize wrinkles.
15. At the rear of the printer, measure the distance between the printer's left side plate and the left edge of the substrate. This distance should be at least 145 mm (5.7 in), otherwise the edge of the substrate may go out of the print zone and start touching the printer covers.
16. At the front of the printer, the right edge of the substrate on the empty core should be at the same distance (A) from the right side plate as the distance measured on the input side.

 **NOTE:** When loading non-elastic substrates, a difference of 2-3 mm (0.01 in) between the measurements from the rear side plate and front side plate may be acceptable without problems of skew or wrinkles.





 **TIP:** It is important that tension is uniform across the width of the substrate. One way of achieving this is to take the front substrate edge by its center and shake it alternately to right and left several times while at the same time pulling the substrate until it reaches the core on the output spindle.

17. When the substrate is evenly tensioned, attach it to the empty core with adhesive tape. Tape it first in the center, and then at the left and right sides, making sure not to pull the substrate excessively or leave it wrinkled.

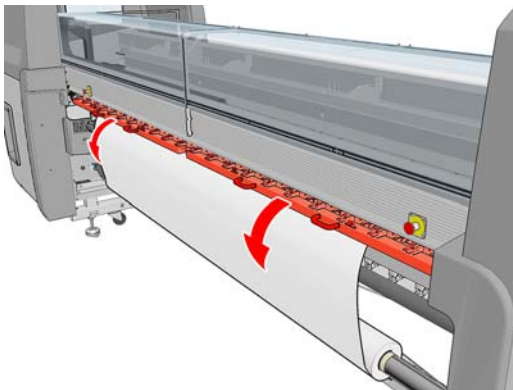


18. Go to the front panel and select **Carriage beam position > Move to printing (normal)** to lower the carriage beam into its normal position, close to the substrate. This process takes about two minutes to complete.


 **NOTE:** The **Move to printing (custom)** position allows you to set the printhead-to-substrate distance for thick substrates or substrates that may wrinkle in the print zone, to avoid ink smearing. Be aware that raising the printhead from the substrate may give poorer print quality.

 **WARNING!** Do not insert your hands or anything else into the printer while the carriage beam is descending.

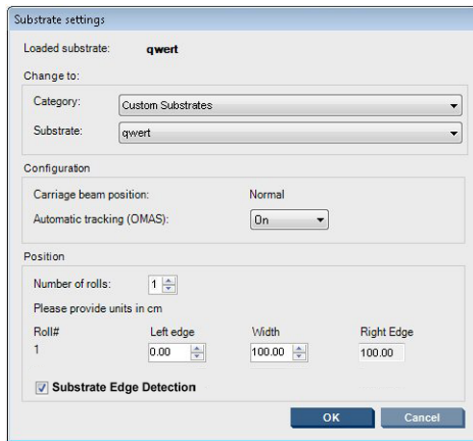
19. Lower the substrate pressure handles at the rear of the printer. If you forget to do this, an alert will remind you.



20. If you intend to use full bleed, do not use the substrate edge holders, but use **Move to printing (custom)** to raise the carriage. Do not remove the edge holders; just move them aside at each end of the platen.
21. If you do not intend to use full bleed, use the substrate edge holders to prevent the substrate edges from lifting up and jamming while printing. See [The substrate edge holders on page 27](#).
22. Go to the HP Internal Print Server and press the **Load** button. The printer rotates both rolls to check their diameters, and it also checks the width of the roll, the winding direction, the vacuum and the substrate advance calibration (this takes 1–2 min).

 **NOTE:** Some substrates (such as transparent substrates) cannot be measured by the printer in this way. In such cases, you will be asked to enter the required information manually. Use the scale on the curing module to see the value for the right-hand edge that must be entered manually in the HP Internal Print Server.

23. In the HP Internal Print Server, choose from the list of substrate types the type that you have loaded.



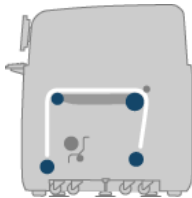
The contents of the Loaded Substrate window are determined automatically when the substrate is loaded and checked. However, if the printer is unable to detect the edges of the substrate (for instance, in the case of a transparent substrate), you will have to measure the distance of the left edge from the printer's side plate, and complete the Left Edge and Width fields yourself.

For more information on when you might want to change the carriage beam position, see [Substrate tips on page 21](#).

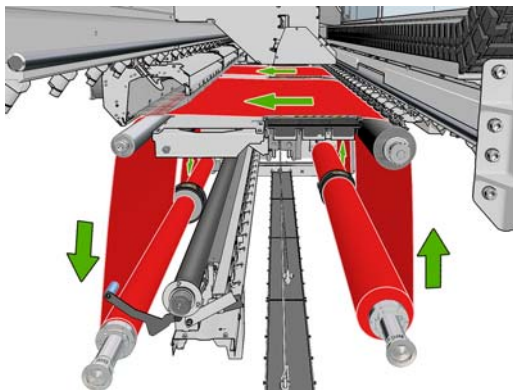
An alert regarding substrate advance tracking may appear at this point. For more information on when you might want to turn off automatic tracking, see [Fine-tune the settings in your new preset on page 67](#) and the *Maintenance and troubleshooting guide*.


The printer is now ready to print.

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




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



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

Before loading two rolls into the printer, you must have both rolls loaded on the rear dual-roll spindle and two empty cores loaded on the front dual-roll spindle. See [Load a roll onto the spindle on page 33](#).

1. Go to the HP Internal Print Server and select **Substrate > Load/Unload**, then select the correct configuration.
2. Remove the substrate edge holders in the print platen, or move them aside, so that they do not get in the way while loading the substrate.


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

3. Lift the substrate pressure handles at the rear of the printer.
4. If you need to raise the carriage beam, go to the front panel and select **Carriage beam position > Move to highest position**. This process takes about 2 minutes to complete.

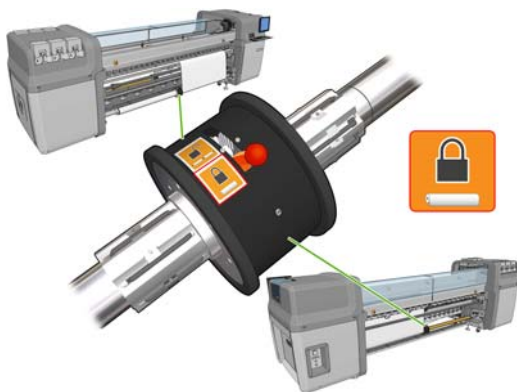
Carriage beam position

- ▶ Move to highest position
- ▶ Move to printing (custom)
- ▶ Move to printing (normal)

The printer raises the carriage beam, making it easy to insert the substrate. This process takes about 2 minutes to complete. During this period, you can load the input and output rolls.

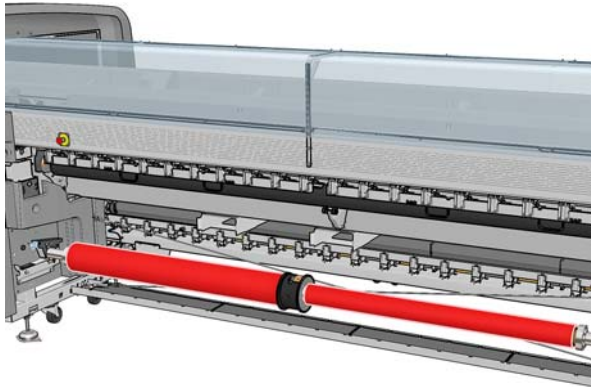
 **NOTE:** While the carriage beam is rising, you can stop it by pressing the [Cancel](#) key.

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

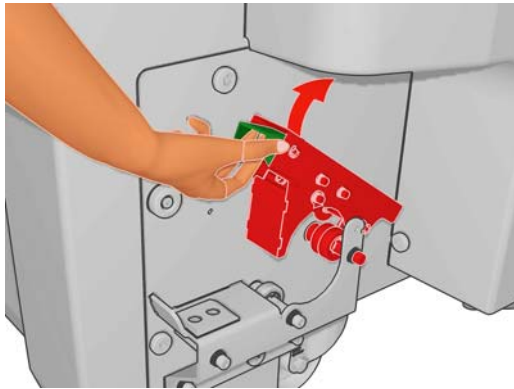


6. Bring the new rolls on their spindle to the rear of the printer, with the geared end of the spindle on the left.

7. If the two rolls are of unequal lengths, the longer roll should be on the right as seen from the front of the printer; on the left as seen from the rear.

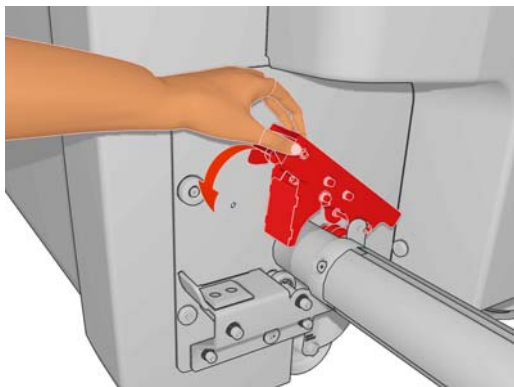


8. Rest the ends of the spindle on the platforms provided at the rear of the printer; plastic pads are provided to absorb the impacts.
9. Open the latches at both ends of the spindle (if they were closed) and push the roll on its spindle into the printer.




10. Close the latches to secure the spindle in place.

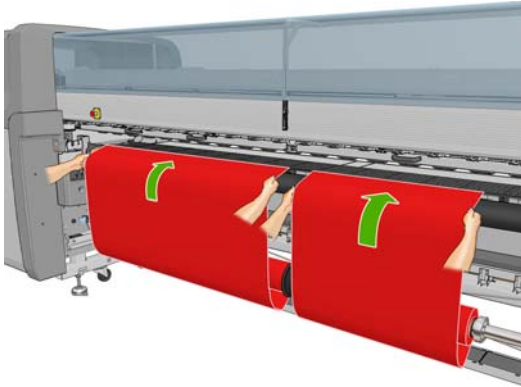
TIP: If you cannot close the gear side latch, try sliding the spindle towards the side plate to make sure the end flange is not sitting on the bearings.




11. In the same way, load the spindle with the empty cores into the front of the printer. In this case, the geared end of the spindle should be on the right.
12. Check that the printer has finished raising the carriage beam.

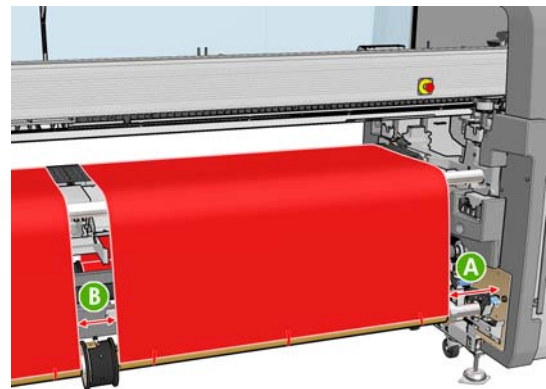
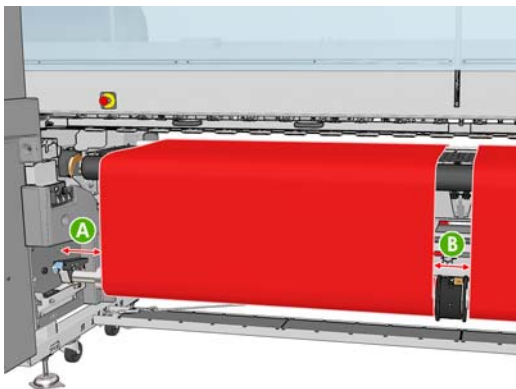
13. Pass the leading edges of both rolls through the printer to the output spindle.

 **TIP:** Two people are recommended for this operation (one per roll).

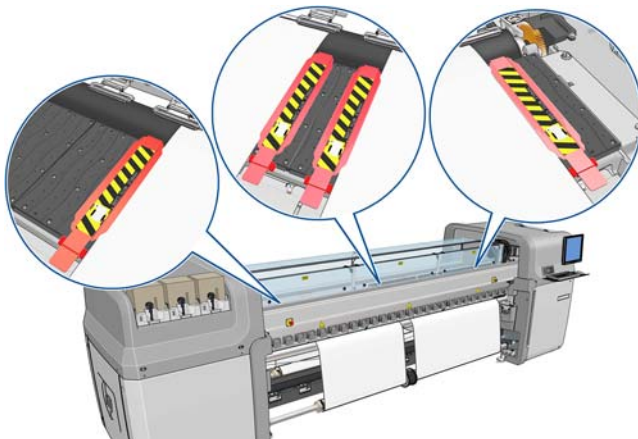


14. Once in front of the printer, if you find that you haven't unrolled enough substrate, select **Start main roller motion** from the front panel's Substrate menu  to unroll some more. The substrate unrolls only when you pull it.

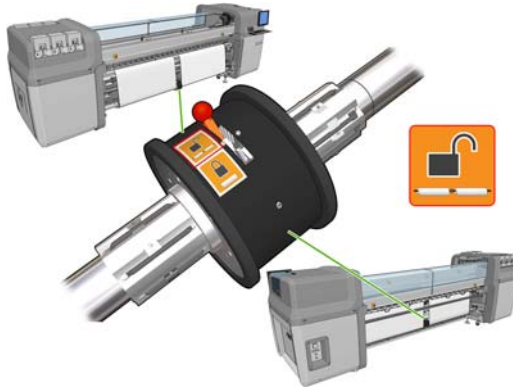
15. Before taping the leading edges of the two substrate rolls to the empty cores on the output spindle, check by measurement that they are in the same positions on the output spindle as on the input spindle.




16. Tape the leading edges of both rolls to the empty cores on the output spindle.
17. Install the four edge holders. See [The substrate edge holders on page 27](#).





18. Unlock the differentials on the input and output spindles.




19. Go to the front panel and select **Carriage beam position > Move to printing (normal)** to lower the carriage beam into its normal position, close to the substrate. This process takes about 2 minutes to complete.

 **NOTE:** The **Move to printing (custom)** position allows you to set the printhead-to-substrate distance for thick substrates or substrates that may wrinkle in the print zone, to avoid ink smearing. Be aware that raising the printhead from the substrate may give reduced print quality.

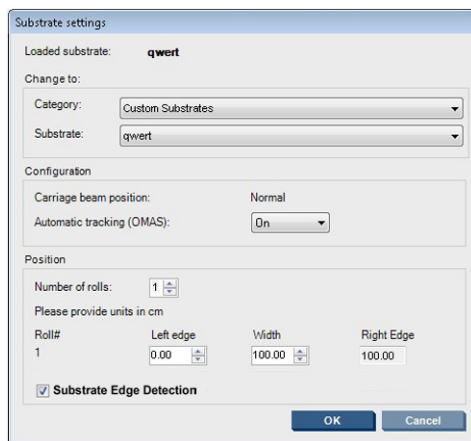
 **WARNING!** Do not insert your hands or anything else into the printer while the carriage beam is descending.

 **NOTE:** If you are printing on a heavy roll, such as Self Adhesive, in order to reduce the risk of substrate jam, we recommend adding an output diverter and increasing the vacuum level.

20. Go to the HP Internal Print Server and press the **Load** button. The printer rotates the rolls to check their diameters, and it also checks the width of the roll, the winding direction, the vacuum and the substrate advance calibration (this takes 1–2 min).

 **NOTE:** Some substrates (such as transparent substrates) cannot be measured by the printer in this way. In such cases, you will be asked to enter the required information manually. Use the scale on the curing module to see the value for the right-hand edge that must be entered manually in the HP Internal Print Server.

21. In the HP Internal Print Server, choose from the list of substrate types the type that you have loaded.



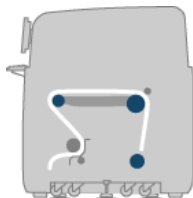
The contents of the Loaded Substrate window are determined automatically when the substrate is loaded and checked. However, if the printer is unable to detect the edges of the substrate (for instance, in the case of a transparent substrate), you will have to measure the distance of the left edge from the printer's side plate, and complete the Left Edge and Width fields yourself.

For more information on when you might want to change the carriage beam position, see [Substrate tips on page 21](#).

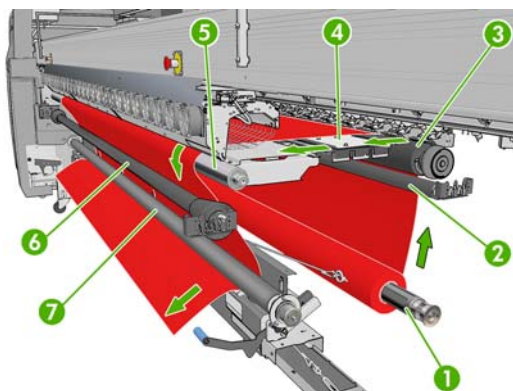
An alert regarding substrate advance tracking may appear at this point. For more information on when you might want to turn off automatic tracking, see [Fine-tune the settings in your new preset on page 67](#) and the *Maintenance and troubleshooting guide*.


The printer is now ready to print.

Load a roll (roll-to-free-fall configuration) (LX850 only)




The substrate roll is mounted on the rear spindle; the printed substrate will be deposited on the floor in front of the printer. The substrate goes from the rear spindle (1) over the main roller (3), over the platen, over the front roller (5) and then to the tension roller (7), after which it continues to the floor. The diverter rollers (2 and 6) and the ink collectors (4) are installed when printing on porous substrates.




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

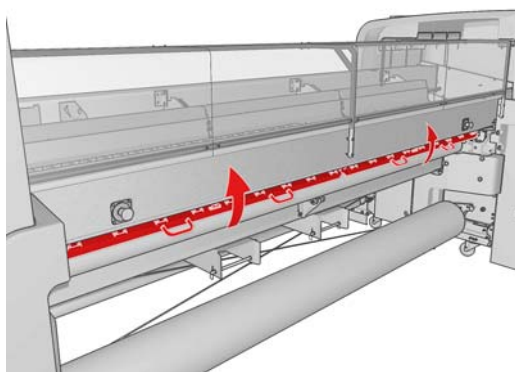
Before loading a roll into the printer, you must have a roll loaded onto the input spindle. See [Load a roll onto the spindle on page 33](#).

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

1. Go to the HP Internal Print Server and select **Substrate > Load/Unload**, then select the correct configuration.
2. Remove the substrate edge holders in the print platen, or move them aside, so that they do not get in the way while loading the substrate.

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

3. Lift the substrate pressure handles at the rear of the printer.




4. Go to the front panel and select **Carriage beam position > Move to highest position**.

Carriage beam position

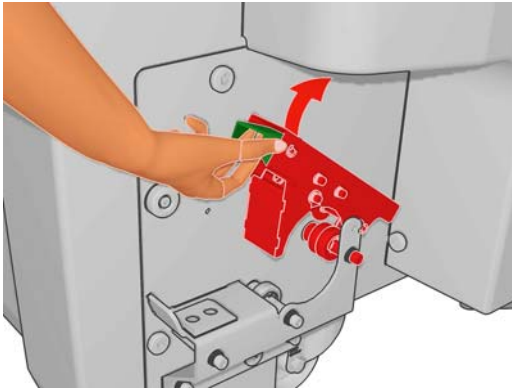
- ▶ Move to highest position
- ▶ Move to printing (custom)
- ▶ Move to printing (normal)

The printer raises the carriage beam, making it easy to insert the substrate. This process takes about 2 minutes to complete. During this period, you can load the input roll.


 **NOTE:** While the carriage beam is rising, you can stop it by pressing the **Cancel** key.

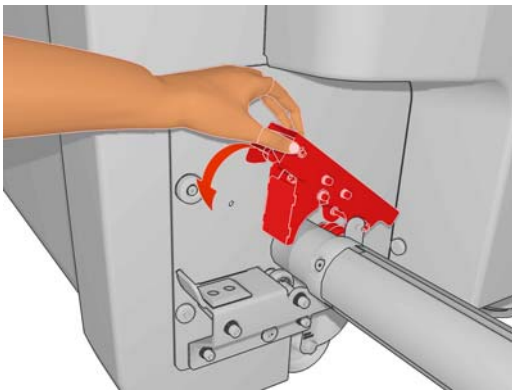
5. Bring the new roll on its spindle to the rear of the printer, with the geared end of the spindle on the left.
6. Rest the ends of the spindle on the platforms provided at the rear of the printer; plastic pads are provided to absorb the impacts.

7. Open the latches at both ends of the spindle (if they were closed) and push the roll on its spindle into the printer.

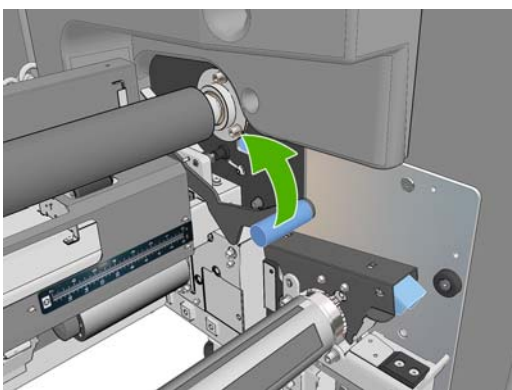


8. Close the latches to secure the spindle in place.

 **TIP:** If you cannot close the gear side latch, try sliding the spindle towards the side plate to make sure the end flange is not sitting on the bearings.

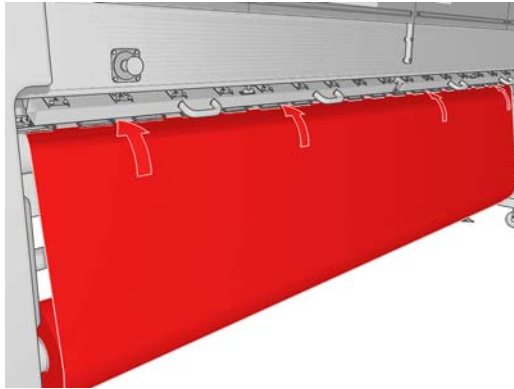


9. Check that the printer has finished raising the carriage beam.
10. Go to the rear of the printer and ensure that the tension roller lever is raised.




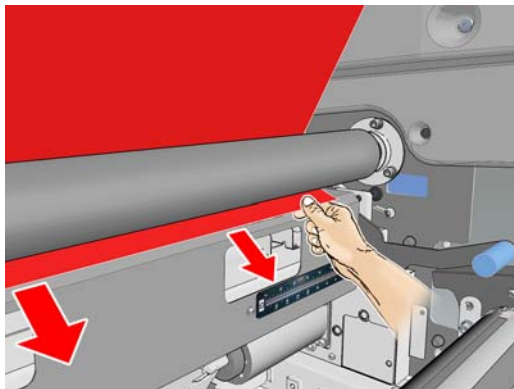
 **NOTE:** The tension roller lever should always be raised unless the tension roller is in use.

11. Pass the leading edge of the substrate through the printer, over the main roller and the front roller to the tension roller.





12. Once in front of the printer, if you find that you haven't unrolled enough substrate, select **Start main roller motion** to unroll some more. The substrate unrolls only when you pull it.

 **TIP:** When passing the substrate's leading edge behind the tension roller, it is important to have no excess substrate between the front roller and the tension roller, although you can leave excess substrate before the front roller at this stage. Once the leading edge has been passed behind the tension roller, you can roll a stiff substrate downwards at the front roller or pull a flexible substrate from under the tension roller through the holes provided in the substrate guide around the roller.

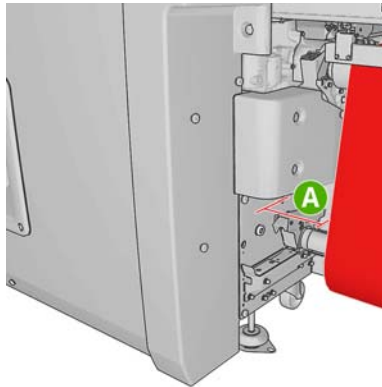


13. At the rear of the printer, measure the distance between the printer's left side plate and the left edge of the substrate. This distance should be at least 145 mm (5.7 in), otherwise the edge of the substrate may go out of the print zone and start touching the printer covers.
14. At the front of the printer, the right edge of the substrate on the tension roller should be at the same distance (A) from the right side plate as the distance measured on the input side.

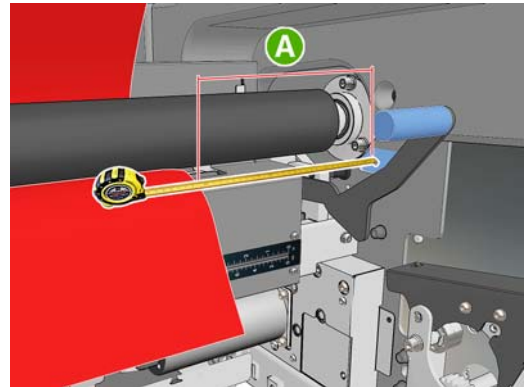
 **NOTE:** There is a square indentation in the right side plate in front of the tension roller. You should measure the distance between the substrate edge and the inside of this indentation.

 **NOTE:** When loading non-elastic substrates, a difference of 2-3 mm (0.01 in) between the measurements from the rear side plate and front side plate may be acceptable without problems of skew or wrinkles.

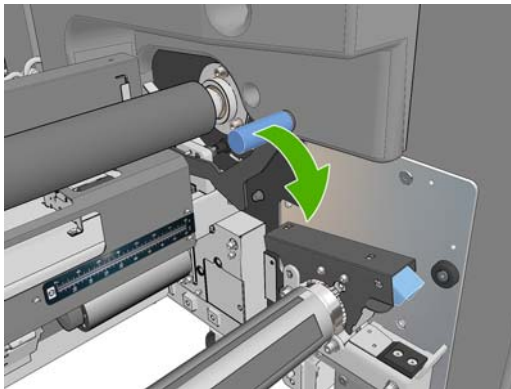
Rear




Front




15. When the substrate edge is correctly positioned and the substrate is evenly tensioned, lower the tension roller lever.

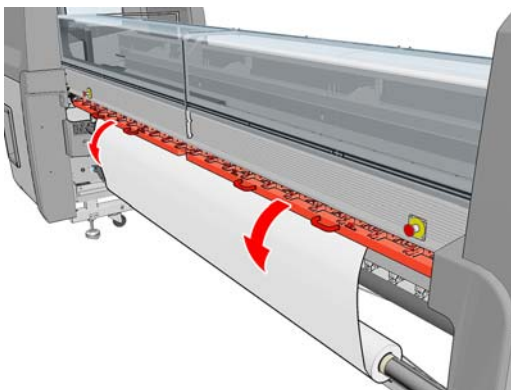


16. Go to the front panel and select **Carriage beam position > Move to printing (normal)** to lower the carriage beam into its normal position, close to the substrate. This process takes about 2 minutes to complete.


 **NOTE:** The **Move to printing (custom)** position allows you to set the printhead-to-substrate distance for thick substrates or substrates that may wrinkle in the print zone, to avoid ink smearing. Be aware that raising the printhead from the substrate may give poorer print quality.

 **WARNING!** Do not insert your hands or anything else into the printer while the carriage beam is descending.

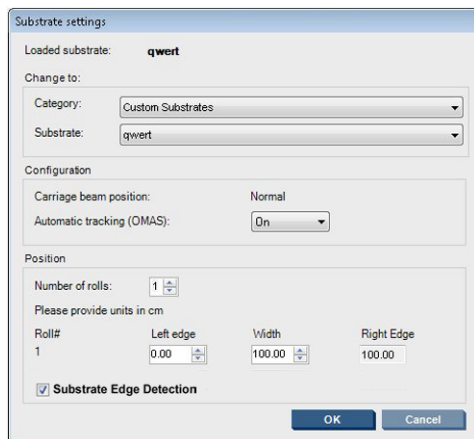
17. Lower the substrate pressure handles at the rear of the printer. If you forget to do this, an alert will remind you.



18. If you intend to use full bleed, do not use the substrate edge holders, but use **Move to printing (custom)** to raise the carriage. Do not remove the edge holders; just move them aside at each end of the platen.
19. If you do not intend to use full bleed, use the substrate edge holders to prevent the substrate edges from lifting up and jamming while printing. See [The substrate edge holders on page 27](#).
20. Go to the HP Internal Print Server and press the **Load** button. The printer rotates the input roll to check its diameter, and it also checks the width of the roll, the winding direction, the vacuum and the substrate advance calibration (this takes 1–2 min).

 **NOTE:** Some substrates (such as transparent substrates) cannot be measured by the printer in this way. In such cases, you will be asked to enter the required information manually. Use the scale on the curing module to see the value for the right-hand edge that must be entered manually in the HP Internal Print Server.

21. In the HP Internal Print Server, choose from the list of substrate types the type that you have loaded.



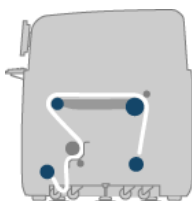
The contents of the Loaded Substrate window are determined automatically when the substrate is loaded and checked. However, if the printer is unable to detect the edges of the substrate (for instance, in the case of a transparent substrate), you will have to measure the distance of the left edge from the printer's side plate, and complete the Left Edge and Width fields yourself.

For more information on when you might want to change the carriage beam position, see [Substrate tips on page 21](#).

An alert regarding substrate advance tracking may appear at this point. For more information on when you might want to turn off automatic tracking, see [Fine-tune the settings in your new preset on page 67](#) and the *Maintenance and troubleshooting guide*.

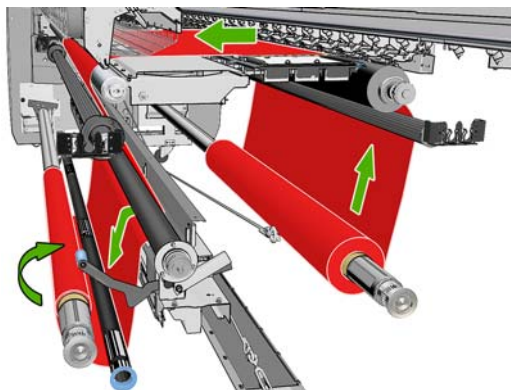
The printer is now ready to print.


Load a roll (roll-to-free-fall with collector configuration) (LX850 only)



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

The following illustration shows a completed configuration with a single roll of porous substrate, so the ink collector kit has been installed.



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

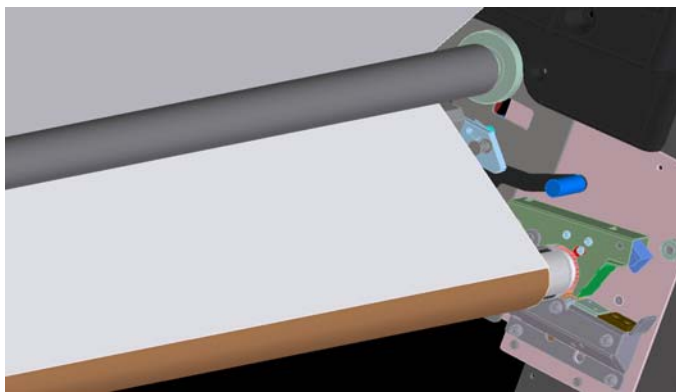
Before starting to load the substrate, select a loop shaper of the correct length to match the substrate width. The following tubes are supplied so that you can make up loop shapers of many different lengths.

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

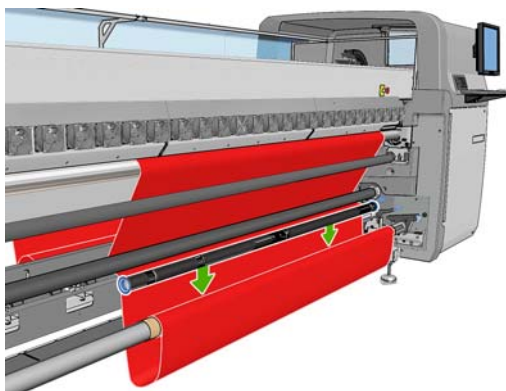
For example, you can make up the following loop shapers.


- 914 mm (36 in): 610-mm (24-in) and 305-mm (12-in) tubes
- 1016 mm (40 in): 610-mm (24-in) and two 203-mm (8-in) tubes
- 1270 mm (50 in): 1067-mm (42-in) and 203-mm (8-in) tubes
- 1372 mm (54 in): 1067-mm (42-in) and 305-mm (12-in) tubes
- 1524 mm (60 in): 1067-mm (42-in), 305-mm (12-in) and 152-mm (6-in) tubes
- 1829 mm (72 in): 1067-mm (42-in), 610-mm (24-in) and 152-mm (6-in) tubes
- 1981 mm (78 in): 1067-mm (42-in), 610-mm (24-in) and two 152-mm (6-in) tubes
- 2032 mm (80 in): 1067-mm (42-in), 610-mm (24-in), 203-mm (8-in) and 152-mm (6-in) tubes
- 2489 mm (98 in): two 1067-mm (42-in), 203-mm (8-in) and 152-mm (6-in) tubes

- 2642 mm (104 in): two 1067-mm (42-in), 305-mm (12-in) and 203-mm (8-in) tubes
 - 3200 mm (126 in): two 1067-mm (42-in), 610-mm (24-in), 305-mm (12-in) and 152-mm (6-in) tubes
1. Follow the whole loading procedure for the roll-to-free-fall configuration.
 2. Load an empty substrate core onto the collector spindle. For dual-roll printing, load two cores of the same diameter onto a single spindle (it is not recommended to use a dual-roll spindle as the collector).
 3. Use the buttons on the front panel to advance the substrate's leading edge until it reaches the core on the collector.
 4. Tighten the substrate so that it is evenly tensioned, then attach the leading edge to the core with tape, first at the center and then at the sides. There should be no wrinkles or slackness across the substrate.




5. Use the buttons on the front panel again to advance the substrate so that a substrate loop is produced between the tension roller and the collector.
6. Place the loop shaper into the substrate loop.



 **NOTE:** Loop detection is done on the right-hand side of the printer; so avoid putting your foot or any other object under the collector on the right-hand side.

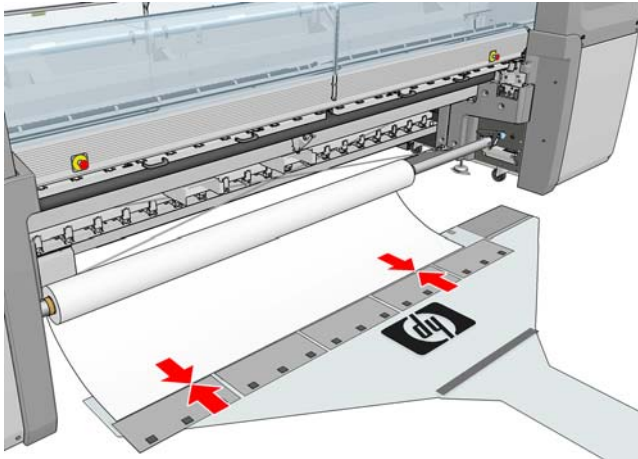
7. Go to the HP Internal Print Server and press the **Enable collector** button.
8. Select the winding direction: **Outwards** is recommended, as it permits an output roll up to 230 mm (9 in) in diameter. If you select **Inwards**, the diameter of the output roll is limited to 150 mm (5.9 in).

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

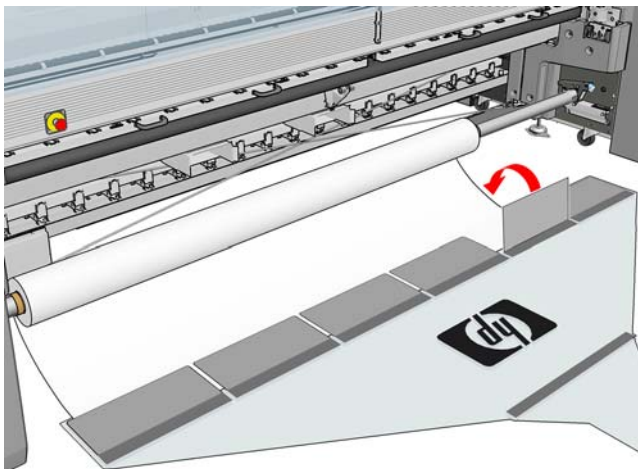
Load a roll with the 'Substrate Loading Tool'


The Substrate loading tool enables you to load a substrate into the printer quicker as the Carriage Beam does not need to be raised. In the example described here the substrate is loaded through the path, but the tool can also be used to load the substrate through the Roll-to-free-fall configuration.

1. Use the buttons on the front panel to advance the substrate's leading edge until it reaches the ground.
2. On the loading tool are substrate flaps held with magnets, open the flaps and insert the leading edge of the substrate into the flaps.

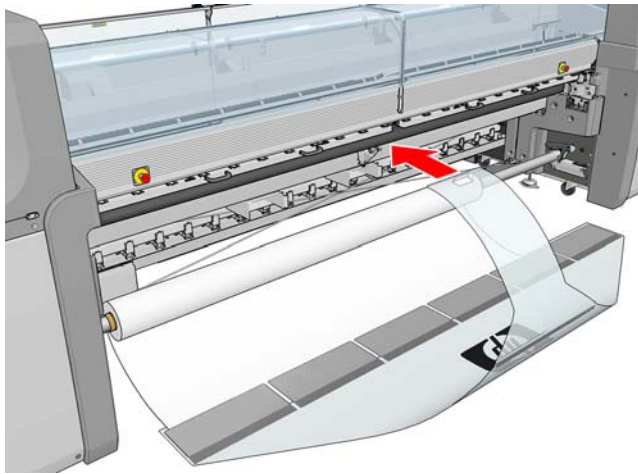


3. Close the flaps over the leading edge of the substrate.



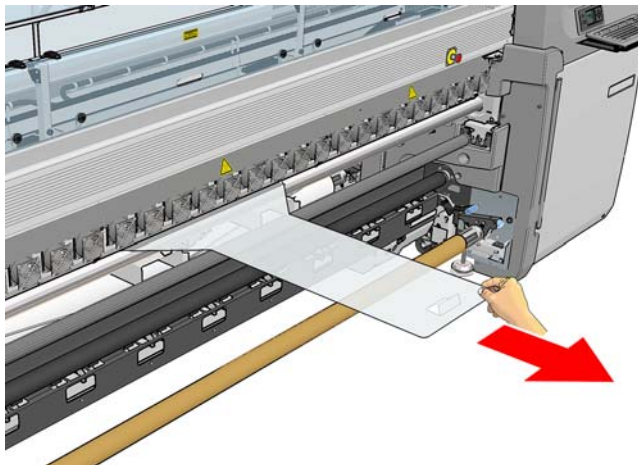
 **NOTE:** Ensure the Substrate Edge Holders are moved to the side before pushing the substrate through the substrate path.

4. Insert the tab of the Substrate Loading Tool into the substrate path and keep pushing it until it emerges on the other side. You can advance some more substrate using the [Move substrate](#) key or by turning the substrate input spindle manually.

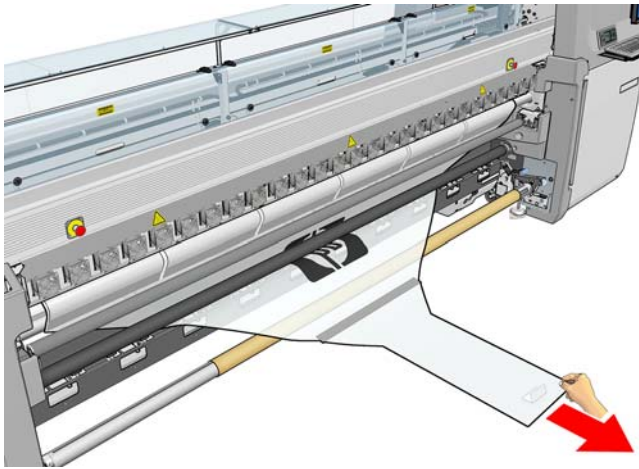


5. Pull the tab of the Substrate loading Tool through the substrate path, and the substrate will follow. If more substrate is required to pull it through using the [Move substrate](#) key to advance more substrate.

⚠ WARNING! Do not pull the tool using the hole in the tab, grasp the edges.



6. Pull the tab of the Substrate loading Tool through the substrate path. Once the substrate is fully pulled through the printer's substrate path, open the magnetic substrate flaps to release the substrate.



The Substrate Loading Tool can be stored under the printer.

Double-sided printing

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

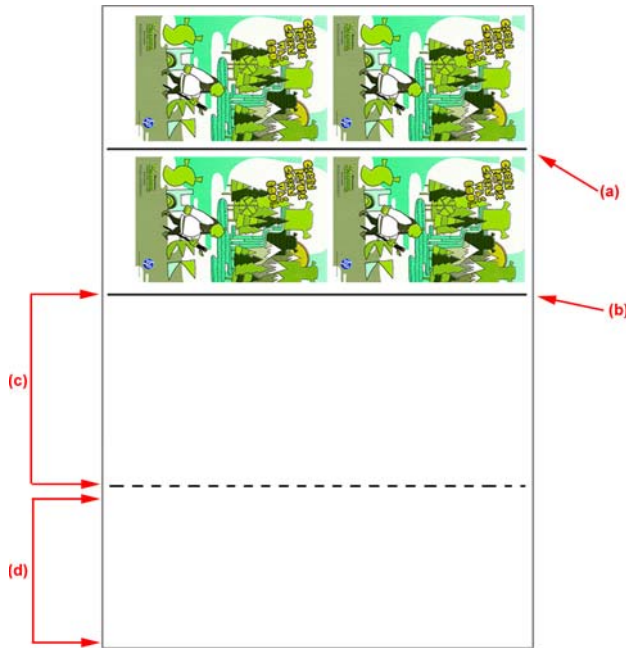
The roll-to-roll configuration is recommended for double-sided printing. You cannot perform double-sided printing if the dual-roll spindle or the ink collector kit is in use.

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

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

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

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



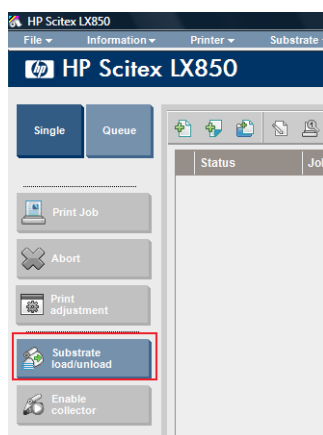
Side A: Load and print

1. Load the Roll-to-Roll configuration: see [Load a roll \(roll-to-roll configuration\) on page 38](#).



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

2. Before printing Side A we recommend performing the standard calibrations such as the Substrate Advance Calibration and the Dynamic Color Registration (refer to the *Maintenance and troubleshooting guide*).
3. Define side A preferences (see [Double-sided on page 89](#)) and select the **Print** button.
4. Before unloading the substrate, select the **Load/Unload** button in the IPS, select **How to unload side A** and follow the on-screen instructions.



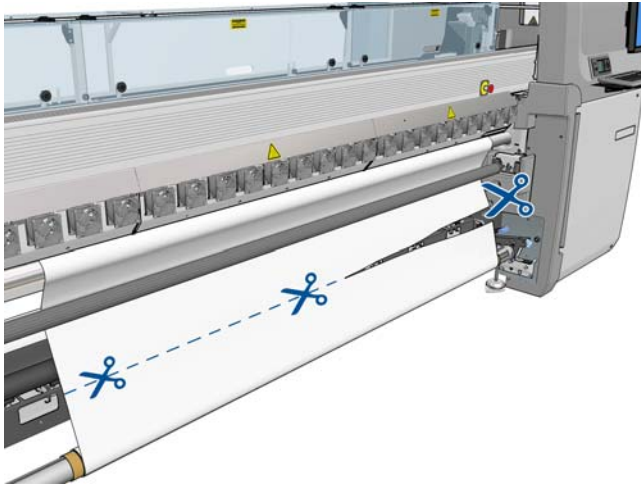
NOTE: Jobs must be defined for double-sided printing, side A and side B, this information is available while a job is printing in Print Properties.



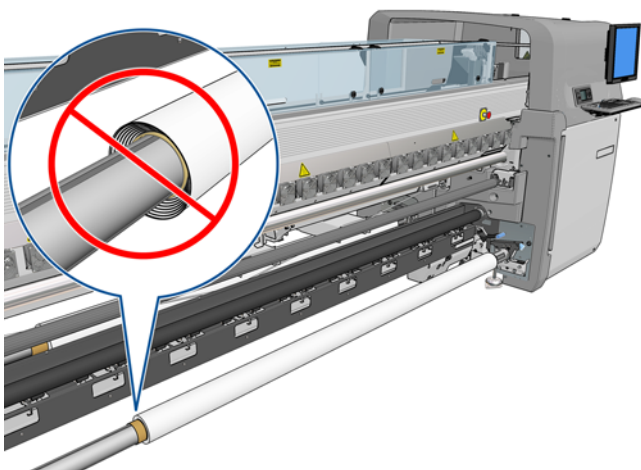
NOTE: Selecting the check boxes **Side B: loading space** and **Side B: Calibrations space** is highly recommended, refer to [Define double-sided job on page 90](#).

Side A: Unload

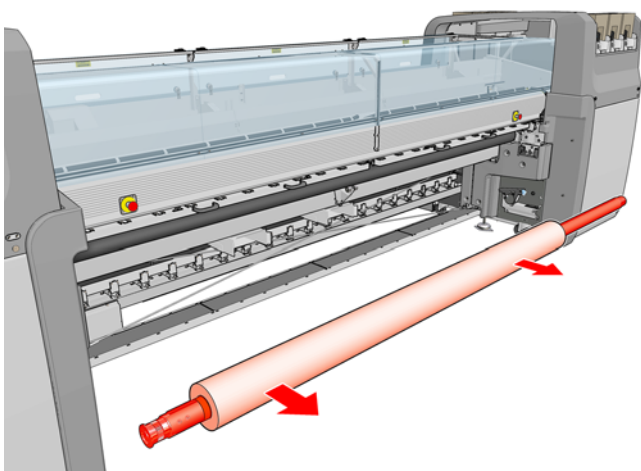
1. Cut the substrate close to the output roll.



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

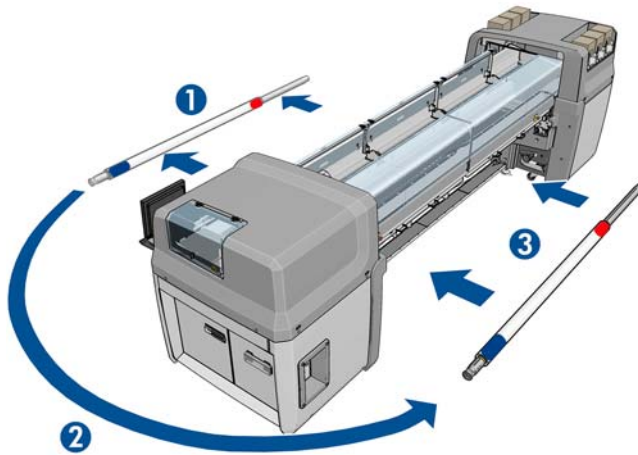


3. Remove the input spindle.



Handle the substrate

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

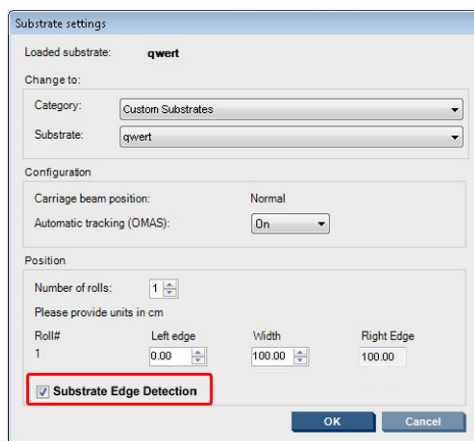


- When completed, click **Done** in the IPS window to confirm.

Side B: Load and print

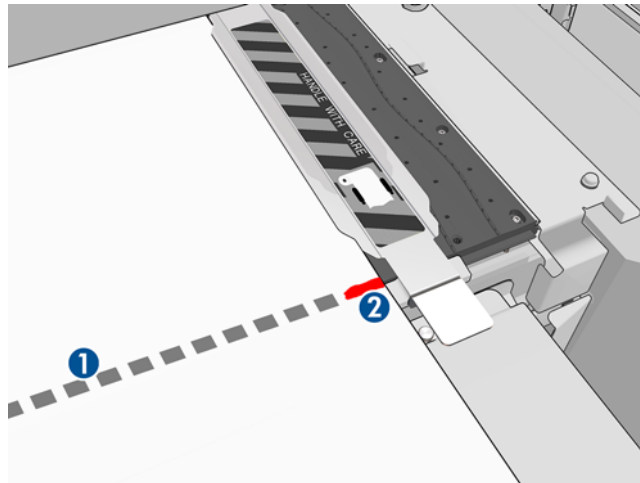
- Load Roll-to-Roll configuration [Load a roll \(roll-to-roll configuration\) on page 38](#).

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

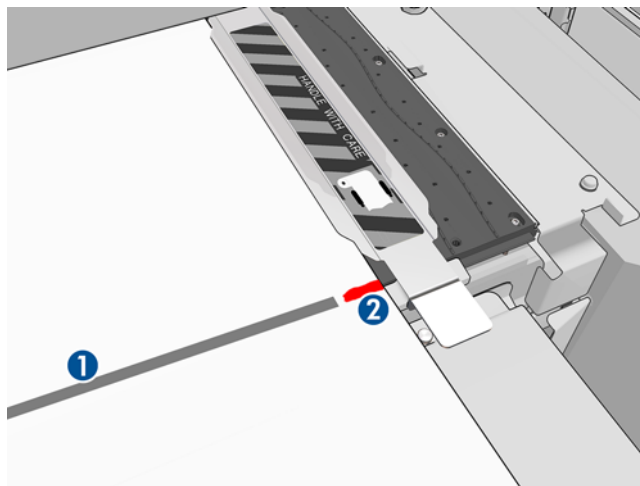


- Align the registration line with the beginning of the platen.
 - If Side B: Calibration space was selected:
 - Align the dotted line.

- Perform the calibrations: Dynamic Color Registration and Substrate Advance Compensation (Refer to the Maintenance and Troubleshooting Guide)



- Align the Image Registration Line (continuous line).



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

3. Define Side B (refer to [Double-sided on page 89](#)) and press the **Print** button.

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


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

4. Unload the roll (see next).

Unload a roll

1. Go to the HP Internal Print Server and select **Substrate** > **Load/Unload** > **Unload**.
2. Lift the substrate pressure handles at the rear of the printer.

3. If you need to raise the carriage beam, go to the front panel and select **Carriage beam position > Move to highest position**. The printer raises the carriage. This process takes about 2 minutes to complete.

 **TIP:** If you feel that the carriage beam is high enough, you can press the **Cancel** key at any time to stop the movement.

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

4. When the carriage has been raised, cut the substrate
5. At the front panel, select **Turn output spindle** to wind the substrate onto the output roll. Press the **Cancel** key to stop winding.
6. Open the front latches and remove the output roll from the printer.
7. Remove the spindle from the roll.
8. At the front panel, select **Turn input spindle** to rewind the substrate onto the input roll. Press the **Cancel** key to stop rewinding.
9. Open the rear latches and remove the input roll from the printer.
10. Remove the spindle from the roll.

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

View information about the substrate

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

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

Substrate presets

Each supported substrate type has its own characteristics. For optimum print quality, the printer changes the way it prints on each different substrate type. For example, some may need more ink and some may require higher temperatures for drying and curing. So the printer must be given a description of the requirements of each substrate type. This description is called a substrate preset. The printer is supplied with substrate presets for some specific substrate types, and also with presets for some generic types. Each generic preset comes in three variations: with 100%, 150%, and 250% ink density.

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

For your convenience, substrate settings from many substrate vendors have been collected at <http://www.hp.com/go/LX850/solutions/> and <http://www.hp.com/go/LX820/solutions/>. You can check substrate availability using the Media Finder application that you will find there.

To install a new substrate preset that you have downloaded, go to the HP Internal Print Server and select **Substrate > Presets management**.

Create a new substrate preset

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

1. If possible, select a preset for the specific substrate type that you intend to load.
2. If no specific preset is available, select a generic preset that corresponds to the specific type that you intend to load. You may be able to get better results by creating a specific preset for your substrate type.
3. If no specific nor generic preset matches your substrate, select whatever preset seems to resemble it most closely. You will probably get better results by creating a specific preset for your substrate type.

Creating a new preset has several purposes.

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



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

Before creating a new preset, it is useful to understand a little about how the printer works. Here are some of the available settings.

Table 3-1 Substrate preset settings

Setting	If too low	If too high
<p>Number of passes</p> <p>The number of passes specifies how many times the printheads will print over the same area of substrate.</p>	<p>The printer cannot deposit enough ink over a given area, so colors are muted. Because larger substrate advances are required and ink has to be placed faster on the substrate, the boundaries between passes are more visible and may be seen as horizontal lines across the image. However, printing speed is relatively high.</p>	<p>Colors are vivid, print quality is high, and printhead health is well maintained. However, printing speed is relatively low.</p>
<p>Curing temperature</p> <p>Curing is needed to coalesce the latex, creating a polymeric film which acts as a protective layer, while at the same time removing the remaining co-solvents from the print. Curing is vital to ensure the durability of the printed images.</p>	<p>The print may emerge not fully dry, so that the ink smears when rubbed with a finger. The print may appear dry immediately after printing and then become wet to touch some seconds later. If the curing temperature is very low, the latex film is not created, in which durability is drastically reduced.</p>	<p>The substrate may wrinkle on the platen, causing vertical banding or ink smears, with substrate jams in extreme cases. Fragile substrates may be damaged.</p>
<p>Drying temperature</p> <p>The heat applied in the printing zone removes water and fixes the image to the substrate.</p>	<p>Print quality defects such as bleeding and coalescence may occur. Boundaries between colors are not well defined. Single-color area fills are not uniform: ink is concentrated at the edges or in clusters within the area fill.</p>	<p>Thermal marks may be seen on the substrate; they may appear as vertical bands in some colors. The substrate may wrinkle on the platen, causing vertical banding or ink smears, with substrate jams in extreme cases.</p>

Table 3-1 Substrate preset settings (continued)

Setting	If too low	If too high
<p>Substrate tension</p> <p>Tension is applied at the input and the output side. It needs to be evenly distributed along the whole width of the substrate, thus substrate load is a critical operation.</p> <p>TIP: Input tension should be higher than output tension.</p> <p>TIP: Output tension should be increased whenever vacuum pressure is increased.</p>	<p>The substrate may be poorly wound onto the output roll, with sagging and skew, in which case it is likely to become increasingly wrinkled in the printing zone. Also, substrate advance could be irregular, resulting in horizontal bands.</p>	<p>The substrate may be permanently deformed or damaged.</p>
<p>Airflow power</p> <p>The airflow generated by the fans in the curing module is split into two air layers, one reaching the print zone and the other at the end of the curing zone. This is needed to help remove the moisture and co-solvents while the substrate is being heated by the drying and curing modules.</p>	<p>The printer will be less able to dry the ink. In certain printing conditions (fast print modes with fewer than 5 passes and ink densities below 150%), there could be print-quality defects such as bleeding and coalescence and/or incomplete drying of the prints.</p>	<p>With certain substrates and printing conditions, an excessive airflow in the print zone could cause print-quality defects such as vertical banding. Also, with some substrates, too high an airflow could prevent the printer from reaching the drying and/or curing target temperatures, causing potential system power errors.</p>
<p>Vacuum pressure</p> <p>The vacuum applied to the substrate in the printing zone helps to hold the substrate down on the print platen, keeping the distance to the printheads constant.</p>	<p>The substrate can lift up off the platen and touch the printheads. This can smear the printed image, cause a substrate jam or even damage the printheads.</p>	<p>Vertical bands can appear in some colors. Also, for sticky substrates, friction could be too high and substrate advance irregular, resulting in horizontal bands.</p>
<p>Ink restrictions</p> <p>A way of specifying the maximum amount of each color of ink that can be laid down on the substrate.</p>	<p>Some colors may be too pale.</p>	<p>The print may suffer from coalescence, wrinkles and insufficient curing, depending on the substrate and the other settings.</p>
<p>Carriage beam position</p> <p>The distance between the printing heads and the substrate is a critical determinant of print quality. It can be adjusted by modifying the height of the carriage beam above the platen.</p>	<p>The substrate may touch the printheads. This can smear the printed image, cause a substrate jam or even damage the printheads.</p>	<p>Print quality defects such as graininess, shadows and worm-shaped dark areas may occur.</p>

Prepare the printer for a new substrate

1. Whenever possible, try to ensure that your printer is in an optimum state before you create a new preset: run any pending maintenance task, in particular printhead checks and alignment.
2. Stop the print queue and wait for the printer to finish the current job. No jobs should be sent to the printer until the new substrate preset is complete.
3. Load your new substrate. The process of loading a substrate into the printer has been designed to be completely independent of the substrate type. When loading, follow the correct procedure and ensure that the roll width is specified, either automatically by the printer or by yourself. You may

not experience the best possible results if there are significant differences between the specified and the actual roll width.

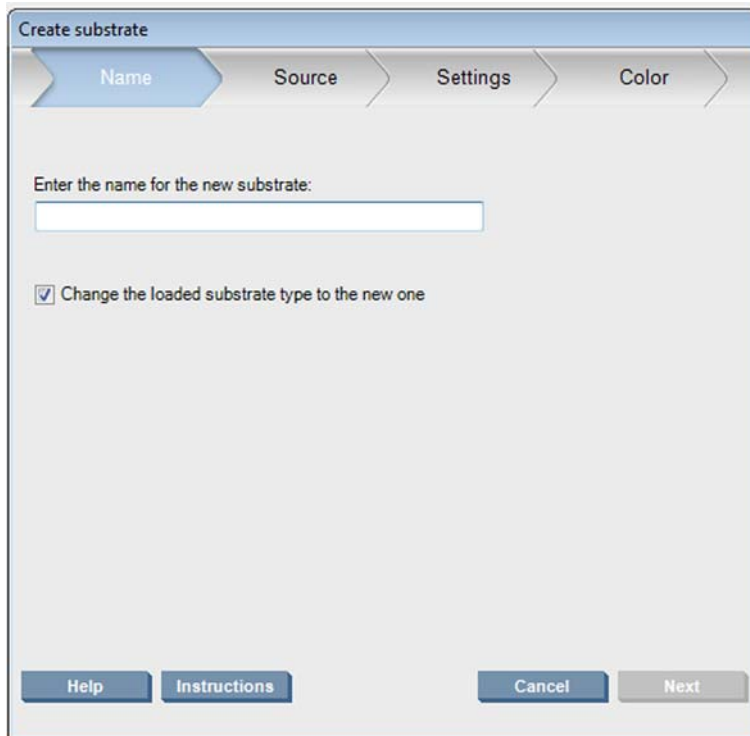
 **NOTE:** You are recommended to use the roll-to-roll configuration when creating a new preset.

4. Choose a suitable carriage beam printing position: see [Set the carriage beam position on page 25](#).

Create and name the new preset

To create a new preset, you must copy an existing preset, then rename and modify it.

1. Select **Substrate** > **Create** in the HP Internal Print Server.
2. Choose a name for your substrate.



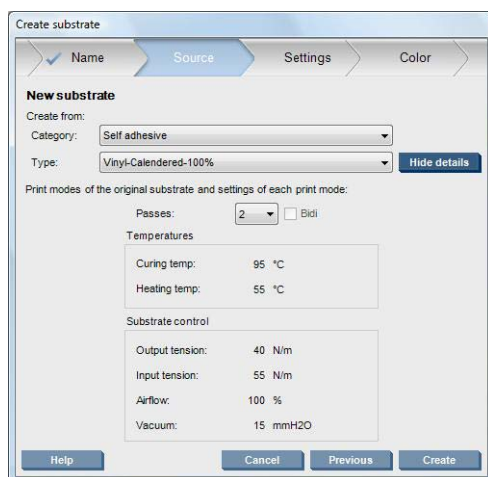
 **TIP:** To avoid confusing other users, it is a good idea to use the substrate's commercial name.

TIP: If you plan to use more than one ink density with this substrate, or more than one number of print passes, include the ink density and/or number of passes in the name.

3. Select the parent substrate. **Show details** can help you to choose one that's similar to the new substrate. If you choose a generic substrate, select the ink density according to the expected behaviour and applications for your substrate.

TIP: Use 100% ink density for substrates such as PVC Scrim Banner Frontlit, Green Banner, Vinyl-Calendared, Vinyl-Cast, Blue back and Scrim banner.

TIP: Use 150 or 250% ink density for substrates such as PVC Scrim Banner Backlit, Perforated Vinyl, Polyester Film, Polyester Fabric, Canvas Polyester and Tyvek.



4. You can now press the **Create** button to create a new entry in the substrates list, in the **Custom substrates** category, with all its characteristics inherited from the parent substrate. Press **Finish** if you do not plan to modify any substrate setting for now.

Consider how you plan to use your new substrate. If you require high-quality printing, you will need more passes; if you require fast printing, you will need fewer passes. Make a list of the print modes you are most likely to use.

Fine-tune the settings in your new preset

In the **Settings** pane you can modify various settings used in the printing process.

NOTE: The changes in the **Settings** pane apply only to the highlighted print mode, so you must adjust each print mode independently. Any setting you have changed is indicated by an asterisk (*).

1. Select the number of print passes that you want to use. Color calibration uses six passes with 100% ink density, eight passes with 150% ink density, or fourteen passes with 250% ink density. You are recommended to create a preset suitable for color calibration; for normal printing, you may want to create other presets with different numbers of passes.

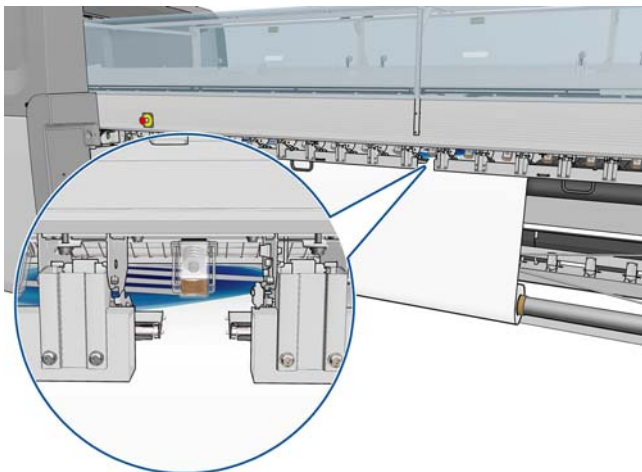
The recommended print modes for normal printing are as follows.

Maximum ink density	Print quality	Passes
250%	High quality plus	18
	High quality	14
	Production plus	10

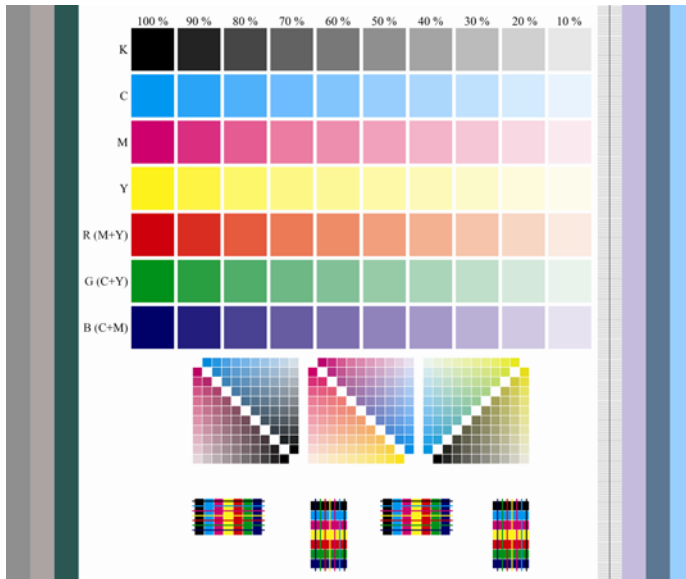
Maximum ink density	Print quality	Passes
150%	High quality plus	10
	High quality	8
	Production plus	6
100%	High quality plus	8
	High quality	6
	Production plus	5
85%	Production	4
70%	Billboard plus	3
	Billboard	2
50%	Draft	1

- Press the **Print test** button with the printer adjustments inherited from the parent substrate. Look for any potential problems during printing, such as:
 - Potential head crashes or ink smears between the carriage and the substrate. Cancel the job and/or turn off the printer if necessary to avoid damaging the printheads or any other sensitive printer components.
 - Potential substrate deformation and/or wrinkles caused by too much heat.

TIP: In order to see better what is happening in the printing area, stand behind the printer, and look towards the print platen through the pinch wheels: you will find it easy to see wrinkles, risk of ink smearing or substrate deformation.

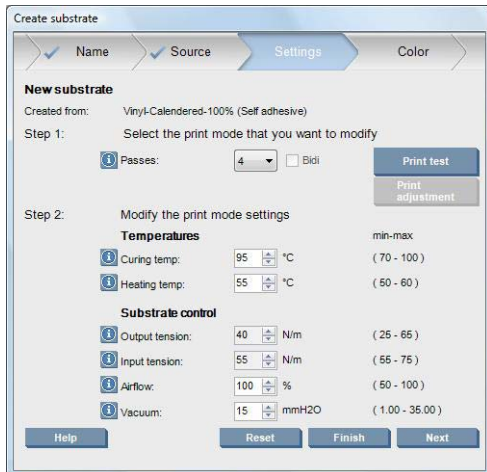


- Wait five minutes after the last part of the sample emerges from the printer.
- Evaluate the sample, directly from the output area:




- Brush your fingertip over the full squares in the upper part of the sample to check that the ink is dry and firmly bonded to the substrate.
- Look for coalescence problems in the middle part of the sample (see the *Maintenance and troubleshooting guide*).
- Look for ink bleeding problems in the lower part of the sample (see the *Maintenance and troubleshooting guide*).

You are recommended to check the sample for problems and make adjustments to the settings in the following sequence. After making any adjustment, reprint the sample to see the current situation.



1. If an alert tells you that the substrate advance cannot be tracked automatically with the current substrate, select **Substrate > Settings** and set the Automatic tracking (OMAS) field to **Off**. You will need to adjust the substrate advance manually (see the *Maintenance and troubleshooting guide*).

 **NOTE:** This alert may appear if the substrate-advance sensor is dirty. See the *Maintenance and troubleshooting guide*.

2. If you experience printhead crashes, ink smears, substrate deformation, wrinkles or cockle, try these adjustments in this order:
 - a. Check that the substrate is correctly loaded.
 - b. **LX850 only:** If there are wrinkles on self-adhesive vinyl substrates, install the Output Diverter Roller.
 - c. Decrease the curing and drying temperatures. Use the following table as a guide.

Curing (°C)	80	80	85	85	90	90	95	95	100	100
Drying (°C)	55	60	55	60	55	60	55	60	55	60

- d. Increase the **Vacuum** and/or the **Tension** settings.

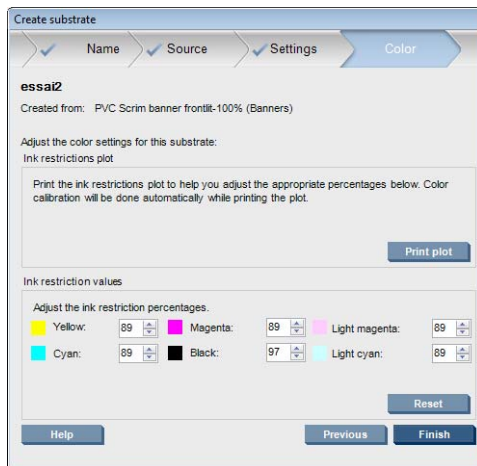
If you increase the vacuum pressure, also increase the tension. The input tension should be the output tension + 15 N/m.

- i. Try increasing the **Vacuum** setting by 10 mmH₂O.
 - ii. Try increasing the **Tension** settings by 10 N/m.
 - iii. Try increasing the **Tension** settings by another 10 N/m.
 - iv. Try increasing the **Vacuum** setting by another 5 mmH₂O.
 - e. Set the carriage beam to its highest position.
3. If the sample is damp or easily scratched, try these adjustments in this order:
 - a. Check that the ambient temperature is within the optimal range. See [Environmental specifications on page 104](#).
 - b. Increase the curing and drying temperatures, unless you have already decreased them in a previous step. Use the following table as a guide.

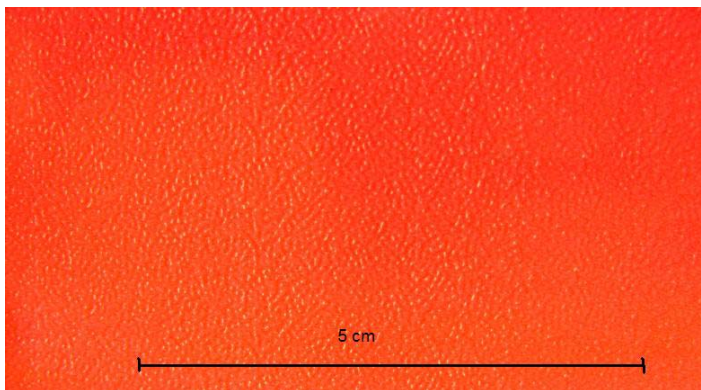
Curing (°C)	80	80	85	85	90	90	95	95	100	100
Drying (°C)	55	60	55	60	55	60	55	60	55	60

- c. Decrease the airflow in increments of 20%. If the edges of the substrate are still not fully cured, turn off the curing fans using the switch at the side of the fans.
- d. If your current ink density is 150% or above, decrease airflow in steps of 20%.

- e. If all test sample blocks are damp in the 100% to 80% columns, adjust the total ink limit in the RIP, or use the ink restrictions in the **Color** pane.

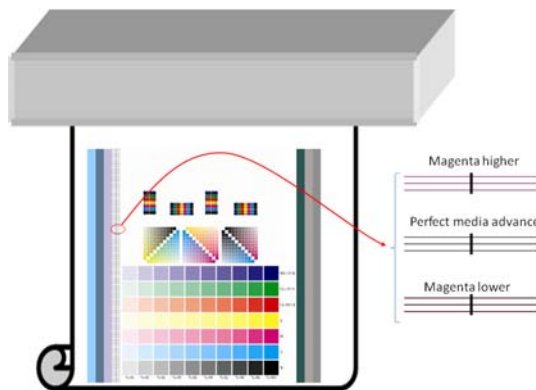


- f. If any test sample block is damp in the 70% to 10% columns, increase the number of passes.
 - g. Decrease the ink density by adjusting the total ink limit in the RIP, or using the ink restrictions in the **Color** pane.
4. If you see ink bleeding or coalescence, such as the coalescence shown below, try these adjustments in this order:



- a. Check that the ambient temperature is within the optimal range. See [Environmental specifications on page 104](#).
- b. Check that the curing temperature has not been wrongly set.
- c. If the curing fans were turned off at the switch by the side, turn them on now. If the airflow is not already at 100%, increase the airflow in increments of 20% and check the status of the curing after each increment.
- d. Increase the drying temperature in steps of 5 degrees, unless you have already decreased it in a previous step.
- e. If your current ink density is 100%, increase airflow in steps of 20%.
- f. Increase the number of passes.
- g. Decrease the ink density by adjusting the total ink limit in the RIP, or using the ink restrictions in the **Color** pane.

5. If you see vertical banding, try these adjustments in this order:
 - a. Decrease the **Vacuum** setting in steps of 5 mmH₂O, unless you have already increased it in a previous step.
 - b. Decrease the drying temperature, unless you have already increased it in a previous step.
 - c. Decrease airflow in steps of 20%, unless you have already decreased it in a previous step.
6. If you see horizontal banding, check the substrate advance pattern in the test sample (the fine horizontal lines).



- If you see magenta above the black lines, press the **Print adjustment** button in the Create Substrate window and increase the substrate-advance setting.
 - If you see magenta below the black lines, press the **Print adjustment** button in the Create Substrate window and decrease the substrate-advance setting.
 - If the lines are simply black, proceed to the next step.
7. If you see irregular horizontal banding, try these adjustments in this order:
 - a. Decrease the **Vacuum** setting in steps of 5 mmH₂O, unless you have already increased it in a previous step.
 - b. Adjust substrate tension according to the following recommendations:
 - The input tension should be the output tension + 15 N/m.
 - First increase tensions by 20 N/m. If results are unsatisfactory, decrease tensions in steps of 10 N/m.
 - c. Increase the number of passes.
 8. If colors are misaligned, try realigning the printheads manually. See the *Maintenance and troubleshooting guide*.

When you have adjusted the settings for one print mode, you can proceed to other print modes. However, it's not necessary to deal with them all at once: you can edit the substrate preset at any time by selecting **Substrate > Edit** in the HP Internal Print Server.

TIP: Note the settings that you used with the first print mode. You can probably use the same settings for other modes.

There is also a possibility to change the different settings while printing (in case the substrate preset selected is a custom one). This can be done while printing, click the **Print Adjustment** button, and then the different settings can be fine-tuned. Note that some changes might take some time to have an impact (for example: increases or decreases in temperature).

Adjust the printing workflow for optimum color performance

1. Check your substrate's color calibration status and calibrate it if recommended, by selecting **Substrate > Color calibration** in the HP Internal Print Server. See the 'Printer calibration' chapter in the *Maintenance and troubleshooting guide* for more information.
2. Create ICC profiles for your substrate; see your RIP documentation for instructions. Normally, the procedure includes setting the total ink limit as well as creating the profiles. When setting the total ink limit in the RIP, bear in mind the basic problems to be avoided: ink bleeding and coalescence, and damp prints caused by incomplete curing.

Export your new preset and profiles

Your substrate has been fully characterized from both the printer and the RIP points of view: a substrate preset is present in the printer, and one or more ICC profiles are present in the computer hosting your RIP. To export the ICC profiles, see your RIP documentation. To export your substrate preset, go to the HP Internal Print Server and follow these steps:


1. Select **Substrate preset management**.
2. Select the **Export** tab. A file with the extension **oms** will be saved, which can be imported by another printer.

To import your substrate preset into another printer:

1. Select **Substrate preset management**.
2. Select the **Import** tab, then select the correct file with the extension **oms**.

Edit a substrate preset

To edit the technical characteristics of a custom substrate type, go to the HP Internal Print Server and select **Substrate > Edit**. This allows you to change the settings in the substrate preset, exactly as when creating a new preset. See [Fine-tune the settings in your new preset on page 67](#).

 **NOTE:** Only custom substrates can be edited.

Remove a substrate preset

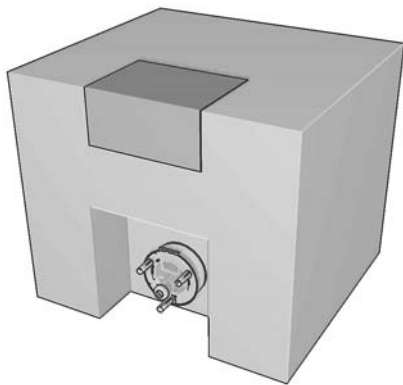
To remove a substrate preset from your printer, go to the HP Internal Print Server and select **Substrate > Remove**. Then select the category and type of the substrate you wish to remove from a list of removable substrates.

4 Handle the ink system

Ink system components

Ink cartridges

Ink cartridges store the ink and are connected to the printheads, which deposit the ink on the substrate. You can purchase ink cartridges for your printer, see [How to order supplies on page 80](#).

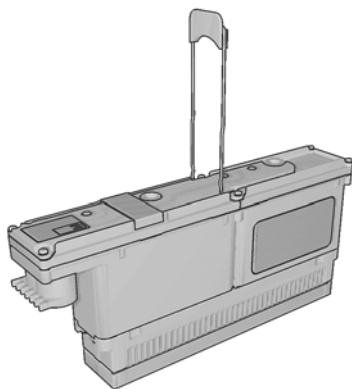


⚠ CAUTION: Observe precautions when handling ink cartridges because they are ESD-sensitive devices (see the [Glossary on page 106](#)). Avoid touching pins, leads and circuitry.

Each cartridge contains 3 liters of HP Latex Ink, which requires no special ventilation and creates no hazardous waste. The cartridge consists of a bag contained in a recyclable cardboard box.

Printheads

The printheads take ink from the ink cartridges and deposit it on the substrate. You can purchase printheads for your printer, see [How to order supplies on page 80](#).



⚠ CAUTION: Observe precautions when handling printheads because they are ESD-sensitive devices (see the [Glossary on page 106](#)). Avoid touching pins, leads and circuitry.

The printer's six-color writing system uses three dual-color printheads with a total of 31,680 nozzles (5,280 per color).

Printhead cleaner roll

The printhead cleaner roll is a roll of absorbent material used to clean surplus ink from the printheads after each pass over the substrate.

To change the printhead cleaner roll when necessary, see the *Maintenance and troubleshooting guide*. A new roll is provided in the Maintenance Kit (see [How to order supplies on page 80](#)).

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

Aerosol filters

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

To change the filters when necessary, see the *Maintenance and troubleshooting guide*. New filters are provided in the Maintenance Kit (see [How to order supplies on page 80](#)).

Ink deposits

In order to check the status of the printhead nozzles, the printer expels a few drops of ink from each nozzle of each printhead into the ink deposits. This is done at the start of each print job, whenever a printhead is replaced, and whenever you request a printhead check from the HP Internal Print Server.

To clean the ink deposits when necessary, see the *Maintenance and troubleshooting guide*.

How to work with ink system components

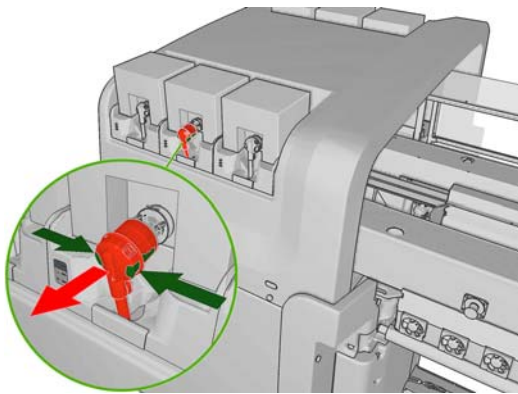
Remove an ink cartridge

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

The printer can continue printing without any ink cartridges for at least 20 minutes, depending on the print mode and the job being printed. Therefore, cartridges can be replaced while printing continues. A functional ink cartridge is required in order to start a new job.

1. Go to the cartridge that you intend to remove. The black, yellow and cyan cartridges sit at the front of the printer; the magenta, light magenta and light cyan cartridges are at the rear.

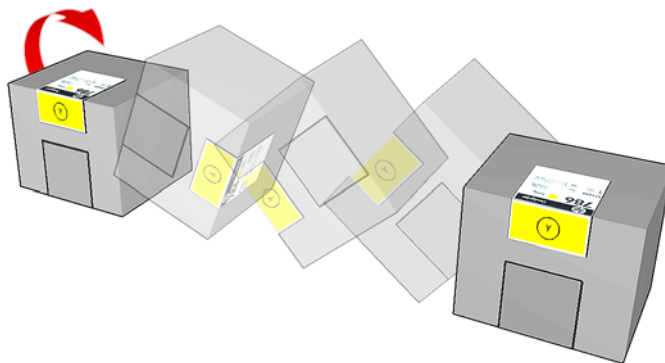
2. Disconnect the cartridge connector by pressing the tabs on each side of it and pulling it gently away from the cartridge.



3. Remove the empty cartridge from the printer.
4. If the cartridge does not seem to be empty, please refer to the *Maintenance and troubleshooting guide*. Some stranded ink can be expected, ranging from 2% to 5% of the original content.

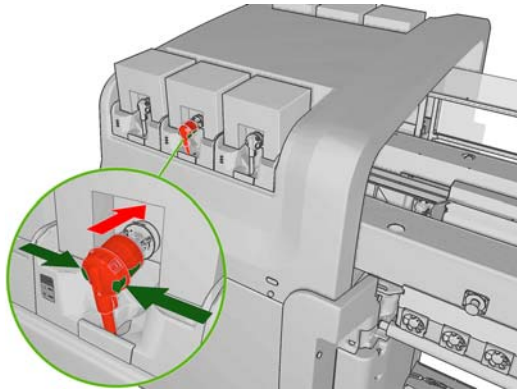
Insert an ink cartridge

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



3. Tear off the colored label, then remove the packaging and the red protective cap.
4. Put the new cartridge into its correct place on the printer. The black, yellow and cyan cartridges sit at the front of the printer; the magenta, light magenta and light cyan cartridges are at the rear.
5. Check that the rubber part around the needle in the cartridge connector is clean. Clean gently if necessary.

6. Connect the cartridge connector to the cartridge.




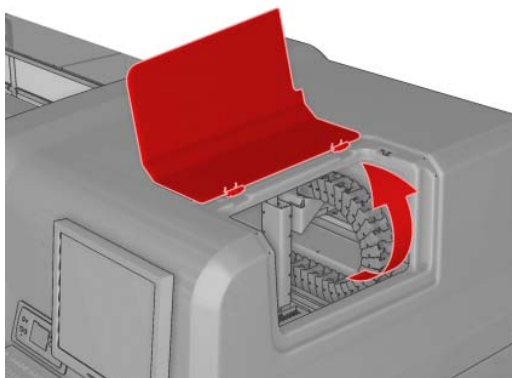
NOTE: The cartridge connectors will refuse connection to the wrong type or color of cartridge. If you cannot connect the connector easily to the cartridge, please check that you have the correct cartridge.

7. Ensure that the side buttons on the cartridge connector are in the 'out' position, showing successful connection.
8. A few seconds after you have connected the cartridge, the green LED should be lit. If it is not lit after 10 seconds, please reconnect the cartridge. The LED will turn red if the supply is expired or not valid; please refer to the HP Internal Print Server or to the front panel for further details and corrective action.

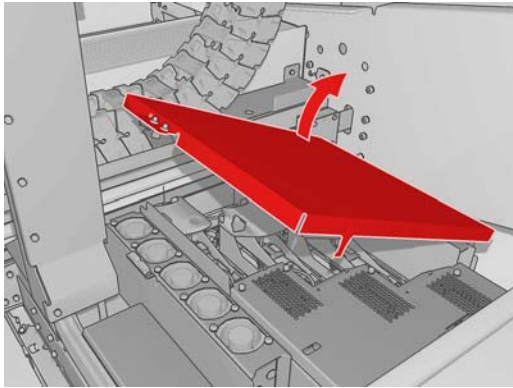
Remove a printhead

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

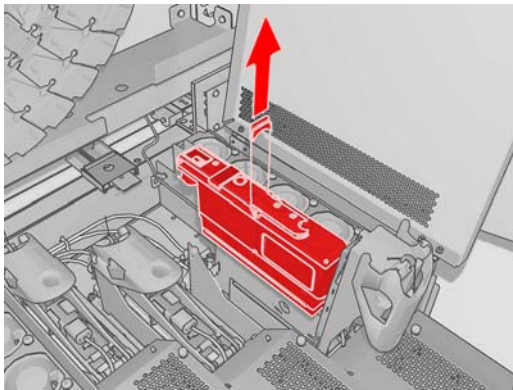
1. Ensure that the printer is not trying to print: stop the job queue.
2. At the front panel, select the Ink System icon  and then **Replace printheads**.
3. Open the printhead access door in the side of the printer.




4. Lift the carriage cover.



5. Lift the cover of the printhead that you intend to remove. It should be indicated by a flashing red light.
6. Lift the handle provided with the printhead, and pull the handle gently upwards to disconnect the printhead from the carriage, as shown in the illustration below.




 **NOTE:** The yellow/magenta printhead is more difficult to remove, because it is located partly underneath the carriage structure. Remove it carefully.

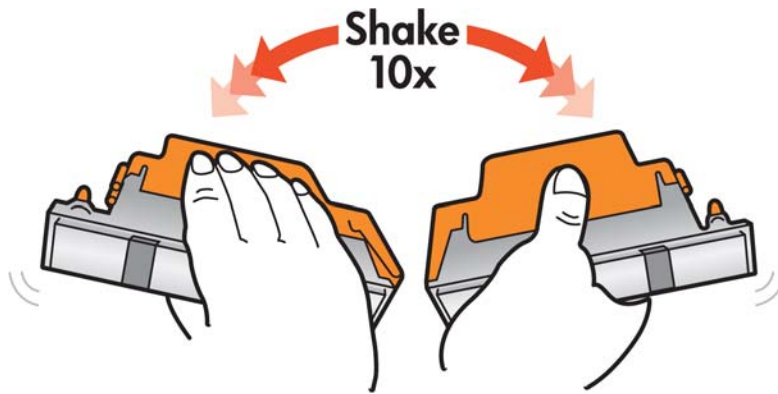
7. Remove the printhead from the printer. The original packaging materials can be used to discard the old printhead or in case there is a need to return it to HP.

Insert a printhead


1. Check that the new printhead is of the correct colors.

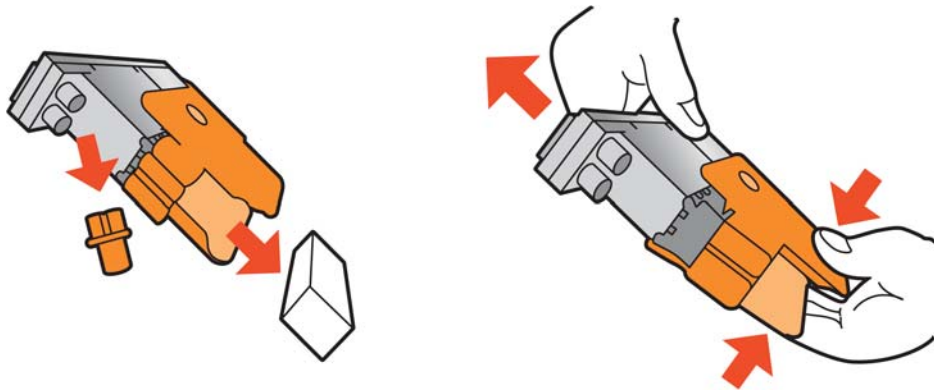
 **NOTE:** Each printhead has a unique shape and cannot be inserted into the wrong slot.

2. Shake the printhead according to the instructions on the packaging.




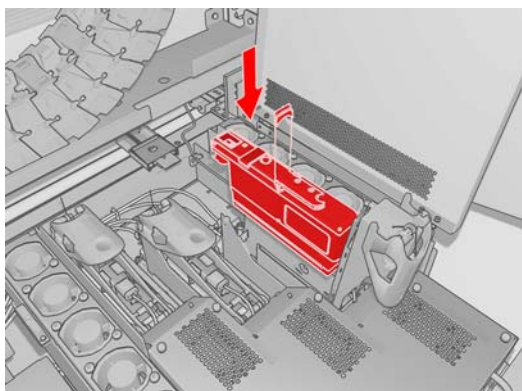
3. Remove its packaging and protective caps.

 **TIP:** You may wish to keep the protective caps for later reuse, in case you ever want to remove a printhead from the printer.



4. Put the new printhead into its correct place in the printer, and lower its handle.

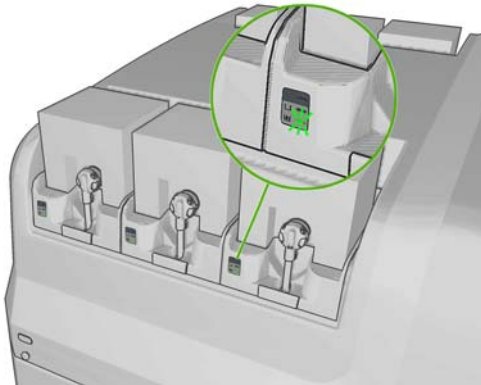
 **CAUTION:** Insert the printhead slowly and vertically, straight down. It may be damaged if you insert it too fast, or at an angle, or if you rotate it as you insert it.



5. Close the cover of the new printhead.
6. Close the carriage cover.
7. Close the printhead access door. The printer checks that the new printhead has been correctly inserted, and recommends printhead alignment (this is optional).
8. Restart the job queue.


Check the status of the ink system


The status lights in front of each ink cartridge (on the left side) give a quick indication of its status.



- Green steady light: no problems
- Green slowly blinking light: cartridge in use, do not touch
- Orange blinking light: cartridge is empty
- Red steady light: there is a problem, check the HP Internal Print Server for more information
- All lights off: no cartridge, cartridge not connected, or unknown problem

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

The level of ink remaining in each color can be displayed on the front panel by selecting the Ink System icon . This screen is usually displayed by default.

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

How to order supplies

There are several alternative ways to order supplies for your printer.

- Visit http://www.hp.com/go/scitexlx_order/.
- Call your service representative (see the *Maintenance and troubleshooting guide*) or visit your local reseller.
- Customers in some countries can use HP Direct.

The following ink supplies can be ordered for your printer.

Table 4-1 Ink cartridges

Cartridge	Part number
HP LX610 3-liter Black Latex Scitex Ink Cartridge	CN673A
HP LX610 3-liter Cyan Latex Scitex Ink Cartridge	CN670A
HP LX610 3-liter Magenta Latex Scitex Ink Cartridge	CN671A

Table 4-1 Ink cartridges (continued)

Cartridge	Part number
HP LX610 3-liter Yellow Latex Scitex Ink Cartridge	CN672A
HP LX610 3-liter Light Cyan Latex Scitex Ink Cartridge	CN674A
HP LX610 3-liter Light Magenta Latex Scitex Ink Cartridge	CN675A

Table 4-2 Printheads

Printhead	Part number
HP LX610 Yellow/Magenta Scitex Printhead	CN667A
HP LX610 Cyan/Black Scitex Printhead	CN668A
HP LX610 Lt Magenta/Lt Cyan Scitex Printhead	CN669A

Table 4-3 Cleaning and maintenance kits

Name	Product number
HP Scitex LX Printer Cleaning Kit	CK832A
HP LX600 Maintenance Kit	CC591A

For more information about cleaning and maintenance kits, see the *Maintenance and troubleshooting guide*.

How to recycle supplies

For information on recycling used printer supplies, please visit <http://www.hp.com/recycle/>.

5 Printing options

HP Internal Print Server menus

The HP Internal Print Server provides the following menus.

The File menu

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

The Information menu

- **Alerts**
- **Supplies**
- **Service Information**
- **Maintenance**
- **Accounting**

The Printer menu

- **Printing adjustments**
- **Printhead alignment**
- **Printhead cleaning**
- **Advance calibration**
- **Dynamic color registration**
- **Enable/Disable collector**

The Substrate menu

- **Load/Unload**
- **Rename**
- **Find new presets**
- **Properties**
- **Create**
- **Edit**
- **Remove**
- **Color calibration**
- **Presets management**
- **Settings**

The Tools menu

- **Preferences**
- **Proactive Support**
- **Firmware update**
- **CallMe@HP**

The Help menu

- **About**

Manage print jobs

Add a job from the RIP

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

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

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

1. Go to the HP Internal Print Server.

Status	Job Name	Method	Print Mode	Substrate	Copies	Customer
Ready	HPGSB_poster	Simple	3 passes, uni, ...	Vinyl-Calende...	1	wintest

Image name: HPGSB_poster_HR_1
Size(WxH): 69.08x104.64 cm
Type: 8 bits
Resolution: 150x150 dpi
Substrate: Vinyl-Calendered-100%
Print mode: 3 passes, uni, E.D.
Method: Simple

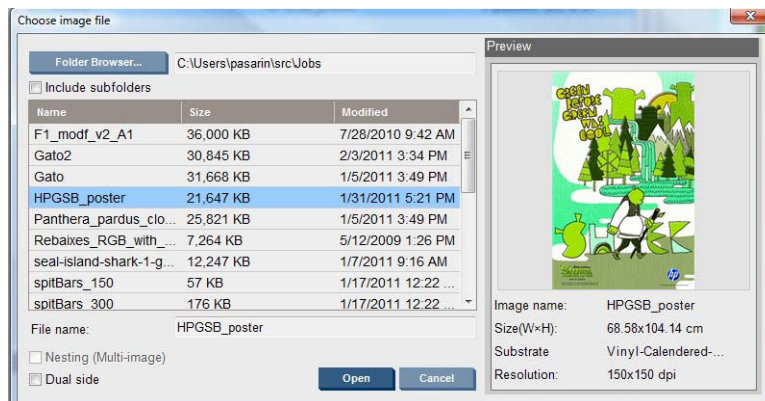
Status: Ready
Free disk: 78.2 GB

Substrate	
# Left	Width
1	2.00
	150.00

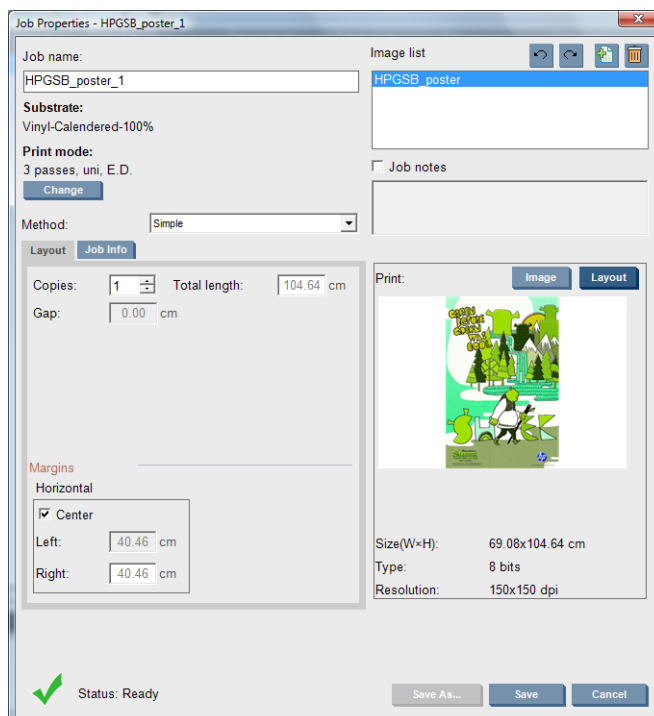
cm

Ink: MK Y C M LM LC

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



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



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

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

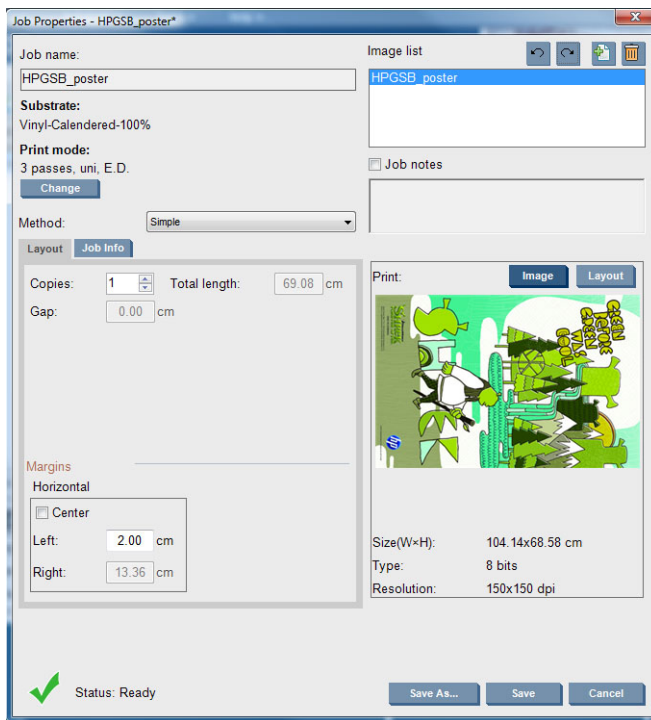
The **Job Info** tab can be used to select annotations and special marks to be printed alongside the image.


The Job Notes field can be used to add some text to be printed in the bottom of each copy with the annotations, if any.

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

Rotate a job

A job can be rotated by 90 degrees in either direction by using the rotation icons at the top right of the Job Properties window.

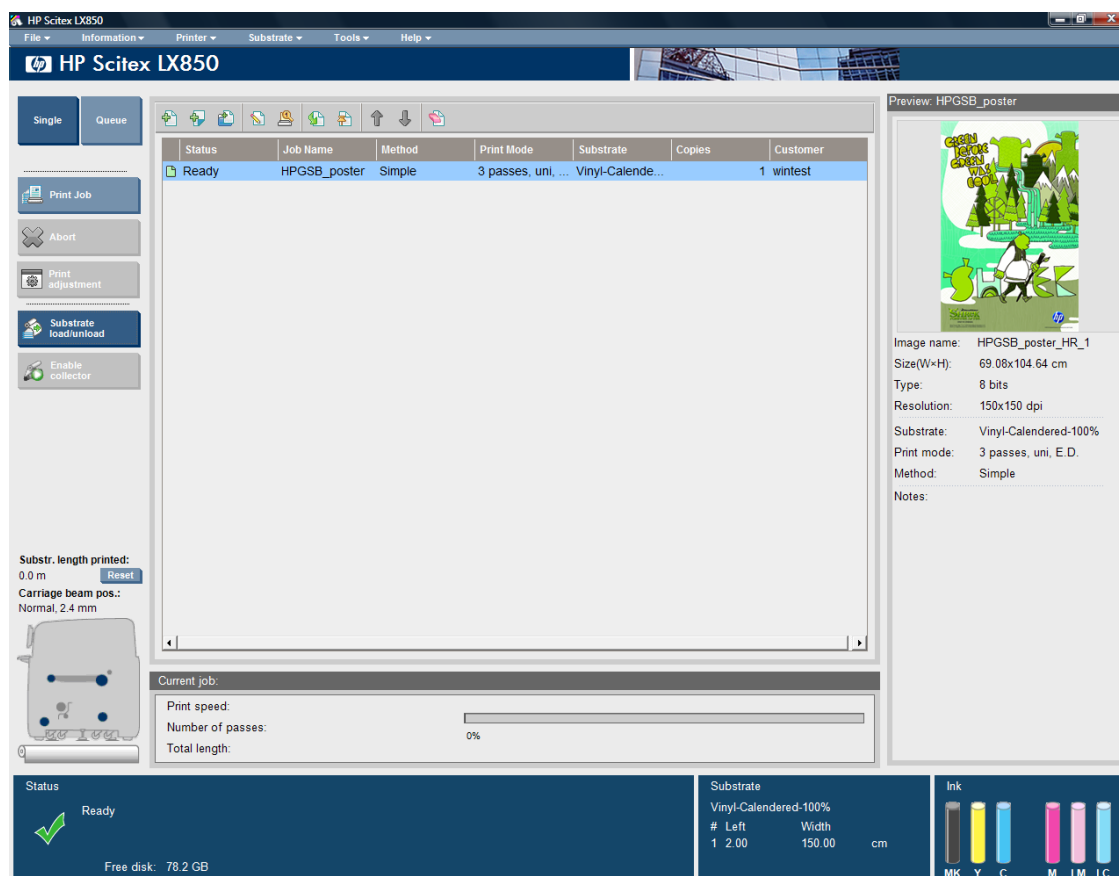


 **NOTE:** Rotation is available only when the printer is not printing.










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

Manage the print queue

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




Above the print queue are the following icons:

- Add New Job : See [Add a job from the RIP on page 83](#).
- Add Existing Job : Return a job to the queue that has been printed already. Printed jobs remain available unless deleted manually.
- Edit Job : Edit the properties of a job in the queue.
- Proof : Proof a job in the queue (not available for nested jobs). This can be used to crop the image before printing.
- Activate : Activate a job in the queue.
- Hold : Hold a job in the queue.
- Up : Select the next job upwards in the queue.
- Down : Select the next job downwards in the queue.
- Remove : Delete the selected job from the queue.

To the left of the print queue are the following buttons:


- **Single**: If this is pressed, you can select and print only one job at a time. You can request multiple copies of it.
- **Queue**: If this is pressed, all listed jobs are queued for printing.
- **Print Job/Print Queue**: Prints a single job (if **Single** has been pressed) or the whole queue (if **Queue** has been pressed).

- **Abort:** Stop printing the current job immediately. The job status changes to **Finishing**, and the printer will dry the partially-printed job before continuing with the next job in the queue.
If you press **Abort** again, the drying process also stops, and the queue is halted.
- **Print adjustment:** Display the substrate-advance compensation (which can be changed).
- **Settings:** Display information on the loaded substrate.
- **Rows to Register:** This option enables you to choose which registration lines are scanned by the printer. If you select 1 (the default), the printer stops printing and checks every registration line. If you select 2 (for example), the printer scans every second registration line, which increases the printing speed, but also slightly increases the chances of misregistration. If you select 0 (zero), the printer does not scan the registration lines.

 **TIP:** You may need to select 0 if the substrate advance sensor cannot detect the registration lines, in which case a system error 78.7:01 is displayed.

Delete a job

This is the correct procedure to delete a job.

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

Layout method

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

This window contains a Method list that allows you to choose among the following alternatives:

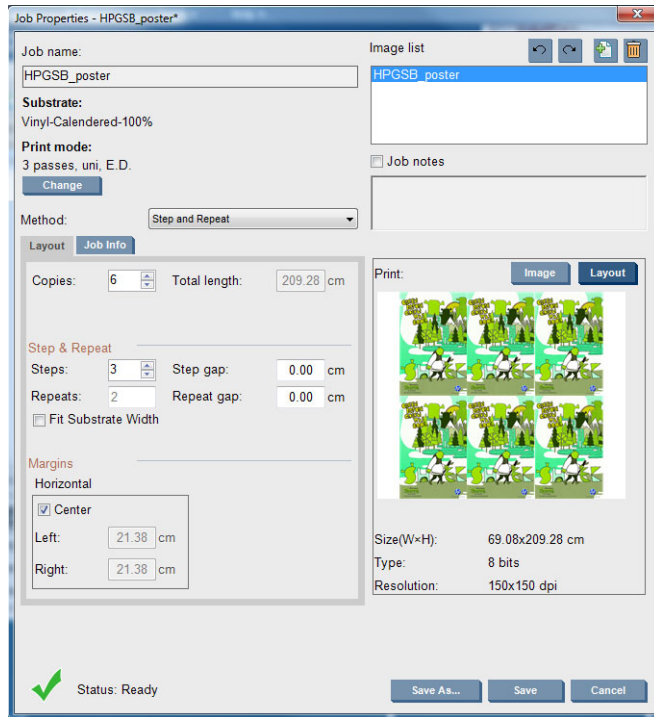
- **Simple:** one or more copies of a single job are printed on the substrate one after the other, each copy below the previous one. You can specify the vertical gap between successive copies of the same job.
- **Step and Repeat:** multiple copies of a single job are printed one after the other, across the width of the substrate if there is room. See [Step and Repeat on page 88](#).
- **Tiling:** a single job is printed in sections, to be put together later. See [Tiling on page 88](#).
- **Nesting (Multi-image):** the selected jobs are printed one after the other, across the width of the substrate if there is room. You can use the Advanced Nesting Arrangement window to alter the layout manually. See [Nesting on page 96](#).

All layout methods give you the opportunity to define a left margin that will be left blank, or to center your jobs on the substrate so that there is an equal amount of white space on both sides.

All layout methods can be used with dual-roll printing. In this case, the software will warn you if your layout involves printing in the gap between rolls; but it will allow you to do it if you disregard the warning.

Step and Repeat

Step and Repeat is a layout method that allows you to print multiple copies of a job side by side across the width of the substrate, if there is room.



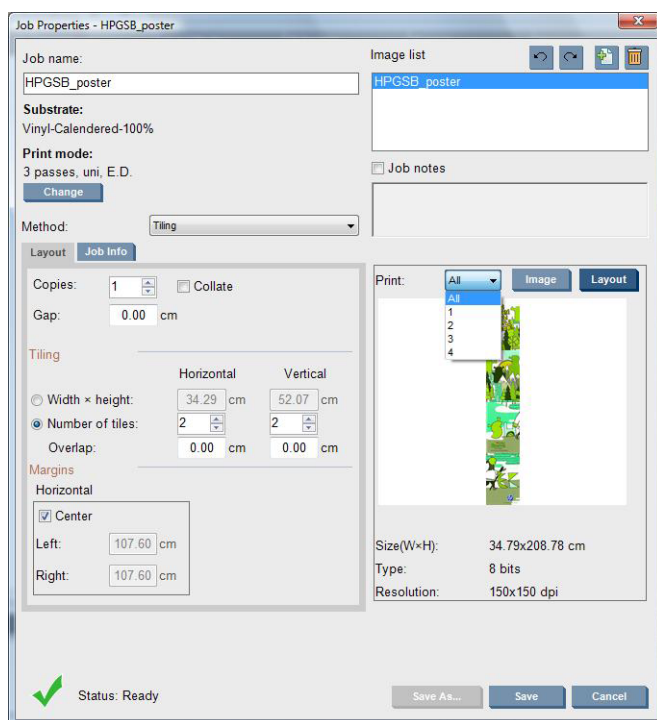
This method has the following options:

- Steps: the number of copies to print horizontally, across the width of the substrate.
- Step gap: the horizontal gap between copies.
- Repeat gap: the vertical gap between copies.
- Fit Substrate Width: if this option is checked, the number of steps will be set to the maximum that will fit into the substrate width.

The Repeats field (the number of rows of copies to be printed) is calculated automatically and cannot be altered directly.

Tiling

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



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

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

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


If you have requested multiple copies, you can specify the vertical gap between copies.

The drop-down list at the top of the preview field allows you to preview all sections or just one of the sections to be printed.


Double-sided

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

- Double-sided printing functionality is a process to guide you when printing a substrate in both sides.
- Double-sided printing can be used to print the same image or different images in each side.
- The functionality automatically compensates for any registration errors, of the position of the plot, along both axes (along the substrate width + substrate advance) to minimize any errors.
- Select double-sided printing when printing a single roll of a non-porous substrate, using LX610 inks only.


 **NOTE:** Neither the dual-roll spindle nor the ink collector kit can be used with this option.

- Even though double-sided printing uses the same substrate, each side must be considered as printing on different substrates due to the different mechanical properties. This is the main reason why calibrating each side of the substrate is highly recommended; and it can be done easily.

 **NOTE:** The images of Side A and Side B must have approximately the same dimensions. The image that you select for each side must be the same image for the entire side.

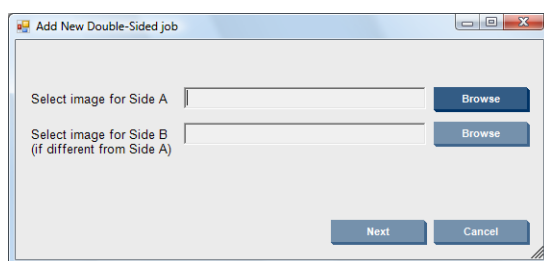
Create a job

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

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

Select images to print

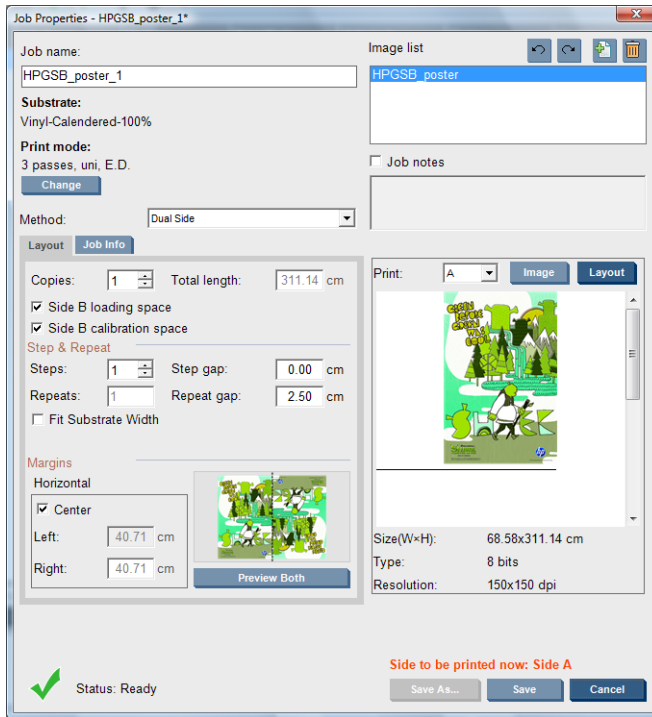
1. Select **Create a double-sided job** in the Internal Print Server.
2. In the 'Add a double-sided job' window, press the upper **Browse** button to select a filename containing the image to be printed on Side A (the first side to be printed).



3. Press the lower **Browse** button to select a filename containing the image to be printed on Side B (the second side to be printed).
4. Press the **Next** button.

Define double-sided job

The following screen is displayed. This is where you can define the properties of the double-sided job.



1. Select from the drop-down menu the side whose properties you want to define or view.

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



- For side A you can define the following properties:
 - Copies: One or more copies of a single job are printed on the substrate one after the other, each copy below the previous one
 - Repeats: The Repeats field (the number of rows of copies to be printed) is calculated automatically and cannot be altered directly.
 - Steps: the number of copies to print horizontally, across the width of the substrate.
 - Step gap: the horizontal gap between copies.
 - Repeat gap: the vertical gap between copies.
 - Center: All layout methods give you the opportunity to define a left margin that will be left blank, or to center your jobs on the substrate so that there is an equal amount of white space on both sides.

NOTE: To compensate for any possible registration errors that may occur, centering the images is highly recommended.

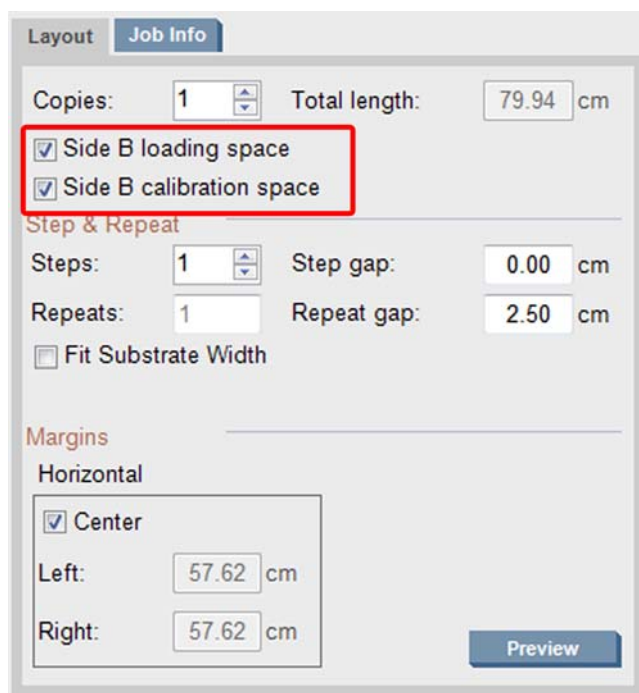
- For side B you can define the following and also review all of the above properties:
 - Rows to Register: This option enables you to choose which Image Registration Lines are scanned by the printer, if you select 1 (the default), the printer stops printing and checks

every Image Registration Line, if you select a higher number, for example 2, the printer only scans every second Image Registration Line. This increases the speed of the job, but also slightly increases the chances of misregistration.

- Rotate: This option enables you to rotate the image 180°.

2. In the Layout tab are the following options, we recommend using these options when printing double-sided:

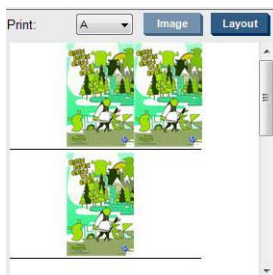
- **Side B calibration space:** When this check box is selected the printer leaves an area of substrate empty after the images have been printed (the substrate is warmed-up), this is to give space to perform certain calibrations on side B that are recommended, such as the Dynamic Color Registration and the Substrate Advance Compensation. At the end of the empty space a dotted line is printed.
- **Side B loading space:** When this check box is selected the printer will advance the substrate so that there is sufficient substrate to load side B.



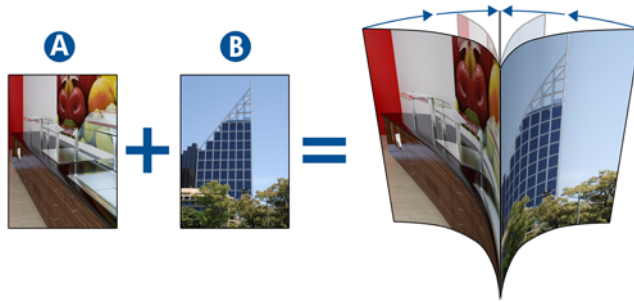
Preview (Image/Layout/Preview both)

There are three different previews:

1. Click the **Image** button and preview the selected images.
2. Click the **Layout** button and preview how the printer will print each side.

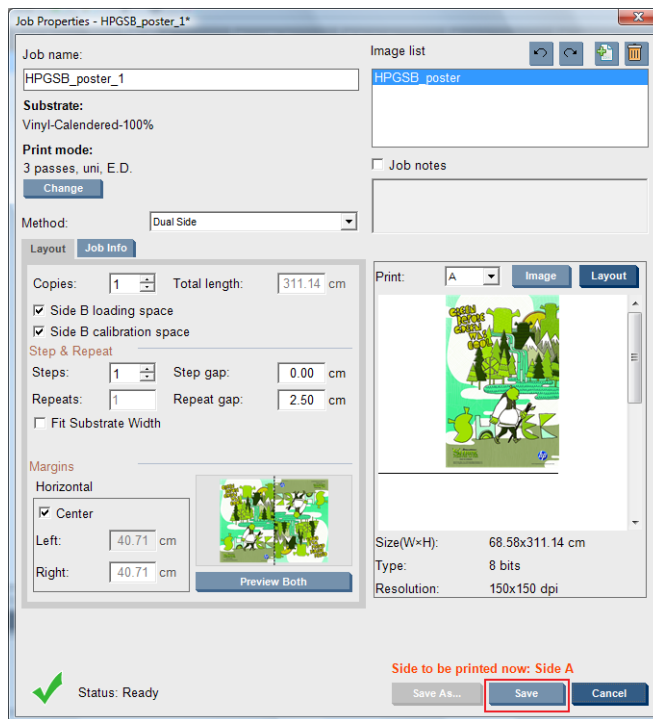


3. Click the **Preview both** button to see a simulation of how both images will print on side A and on side B. You can use this simulation preview to check that the orientation of the images relative to each other is how you expect the finished result to be.

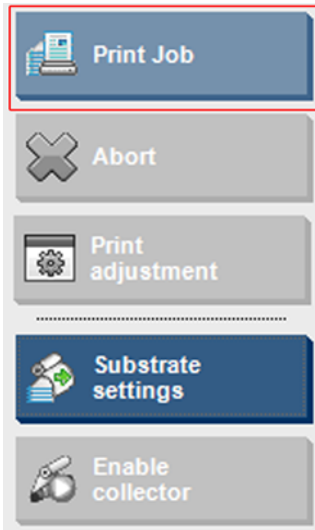


Print

1. Select Side A from the drop down menu
2. Select Save or Save As.

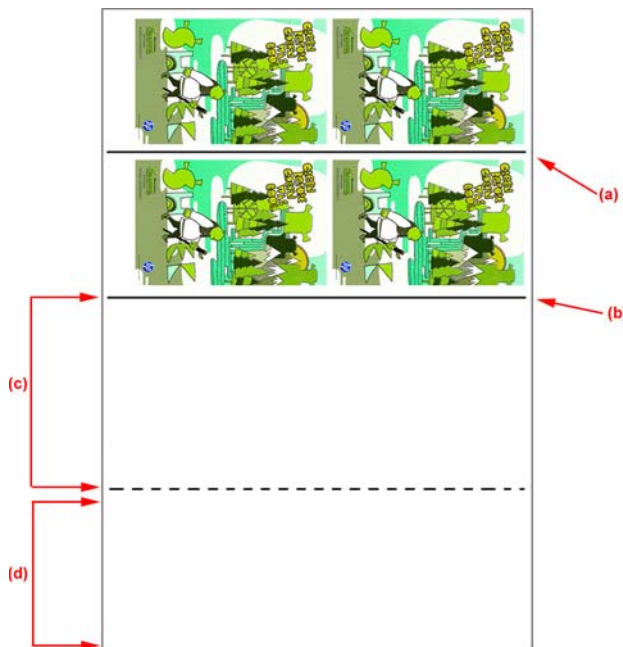



3. Select **Print Job** and print the selected images.



The number of copies will be automatically distributed according the parameters defined in the step [Define double-sided job on page 90](#) (number of rows, column, centered). .


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

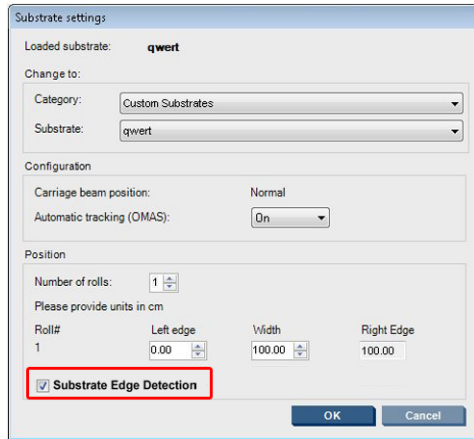


 **NOTE:** The area dedicated to calibrations, between the continuous registration line and the dotted line (c), must be advanced at the same speed as the printed area, and at the same temperature, to ensure an effective calibration.

4. When Side A has finished printing, unload side A, refer to [Side A: Unload on page 60](#).


5. Check that the optical advance sensor is clean, do not hesitate to clean it, refer to the Maintenance & Troubleshooting Guide -> Hardware Maintenance -> Clean the substrate-advance sensor.
6. Load Side B refer to [Side B: Load and print on page 61](#)

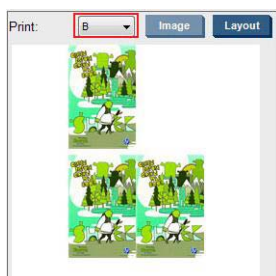
 **NOTE:** For accurate printing we recommend that **Substrate Edge Detection** is selected.




7. When Side B is loaded perform the following, for more details of these procedures refer to [Side B: Load and print on page 61](#):
 - a. Align the dotted line with the platen
 - b. Perform the calibrations (advance calibrations and dynamic color registration, refer to the Maintenance & Troubleshooting Guide).
 - c. Select Side B from the drop menu.
 - d. Ensure that the Image Registration Line is aligned with the platen and start printing side B.
 - e. Configure **Rows to register**, refer to [Define double-sided job on page 90](#).
 - f. Select save or save as.
 - g. Select **Print Job** and print the selected image.

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

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



 **NOTE:** If you select **Print Job** and the printer cannot detect the Image Registration Line, refer to the Maintenance and Troubleshooting Guide.

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


Nesting

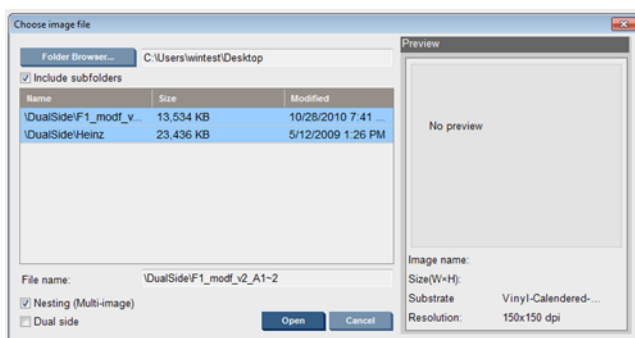
Nesting is a layout method that allows you to choose the layout of your printed jobs on the substrate, relative to one another, instead of simply printing them one after another as usual. Jobs can be printed side by side if there is room.

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

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

The Choose Image File window


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

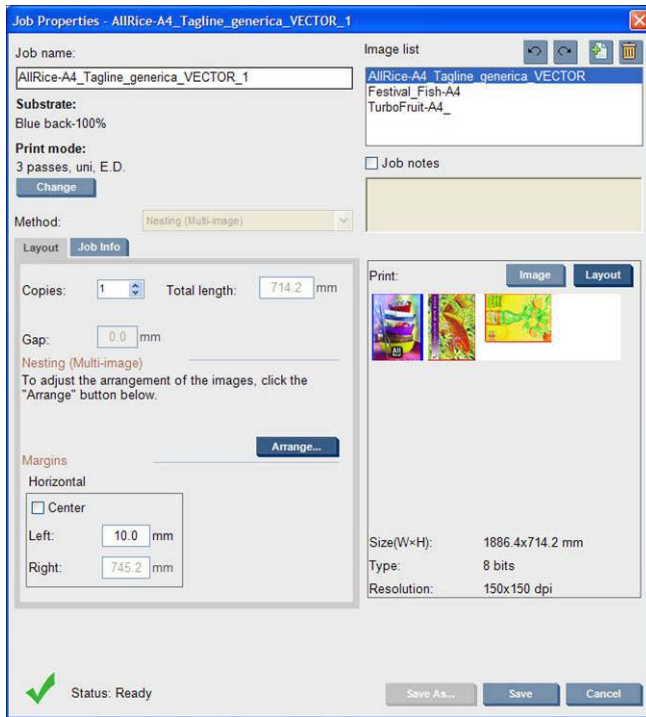


NOTE: To be nested together, jobs must be of the same resolution and printed on the same substrate. Any incompatible job is added to the queue as a separate, non-nested job, and an explanatory message is displayed.

When you press the **Open** button with nesting enabled, the Advanced Nesting Arrangement window opens (see [The Advanced Nesting Arrangement window on page 97](#)).

The Job Properties window

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



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

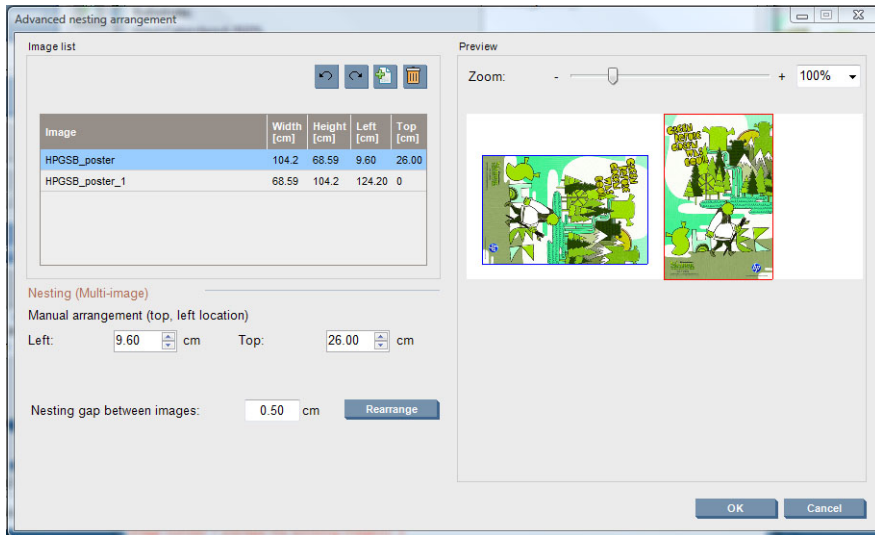
If you press the **Arrange** button in this section, the Advanced Nesting Arrangement window opens. If you use advanced nesting, the number of passes used for all jobs will be copied from the job with the highest number of passes specified.

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

The Advanced Nesting Arrangement window

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

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



If you want to return to the default layout, press the **Reset** button.

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

CallMe@HP

This option allows you to call HP for remote support. For more information, please contact your support representative.

6 Accessories

How to order accessories

There are several alternative ways to order accessories for your printer:

- Visit http://www.hp.com/go/scitexlx_order/.
- Call your service representative (see the *Maintenance and troubleshooting guide*) or visit your local reseller.
- Customers in some countries can use HP Direct.

The following accessories can be ordered for your printer.

Name	Product number
HP 126-in Spindle	CQ657A
HP Scitex Dual Roll Kit	CX062A
HP Scitex Onyx RIP Software	CQ756A
HP Scitex Caldera RIP Software	CQ755A

7 Printer specifications

Functional specifications

Table 7-1 Ink supplies

Printheads	Cyan and black, light magenta and light cyan, yellow and magenta
Ink cartridges	Cartridges containing 3 liters of ink: cyan, magenta, yellow, black, light cyan, light magenta

Table 7-2 Substrate sizes

	Minimum	Maximum
Roll width	914 mm (36 in)	3.20 m (126 in)
Dual roll width	914 mm (36 in)	2 × 1.52 m (2 × 60 in)
Roll diameter	80 mm (3.15 in) (core diameter)	250 mm (9.8 in)
Roll weight		130 kg (286 lb)
Dual roll weight		2 × 60 kg (2 × 132 lb)

Table 7-3 Basic Modes: Printing resolutions and speeds

Maximum ink density	Print quality	Passes	Resolution (ppi)		Printing speed (m ² /h)			
					104in (2642mm)		126in (3200mm)	
			Rendering	Printing	Uni	Bidi	Uni	Bidi
250% (High Saturated Lightboxes & Fabrics)	High quality	14	600 × 600	600 × 1200	11	–	12	–
	Production plus	10	600 × 600	600 × 1200	–	23	–	27


Table 7-3 Basic Modes: Printing resolutions and speeds (continued)

Maximum ink density	Print quality	Passes	Resolution (ppi)		Printing speed (m ² /h)			
					104in (2642mm)		126in (3200mm)	
			Rendering	Printing	Uni	Bidi	Uni	Bidi
150% (Lightboxes & Fabrics) / 100% (Quality & Mainstream)	High quality plus	10	600 × 600	600 × 1200	16	–	18	–
	Production plus	6	600 × 600	600 × 1200	–	39	–	45
70% (Outdoor Signage Long Distance)	Billboard	2	300 × 300	600 × 1200	79	–	88	–

Table 7-4 Extended Modes: Printing resolutions and speeds

Maximum ink density	Print quality	Passes	Resolution (ppi)		Printing speed (m ² /h)			
					104in (2642mm)		126in (3200mm)	
			Rendering	Printing	Uni	Bidi	Uni	Bidi
250% (High Saturated Lightboxes & Fabrics)	High quality plus	18	600 × 600	600 × 1200	9	13	10	15
	High quality	14	600 × 600	600 × 1200	11	17	12	19
	Production plus	10	600 × 600	600 × 1200	16	23	18	27
150% (Lightboxes & Fabrics)	High quality plus	10	600 × 600	600 × 1200	16	23	18	27
	High quality	8	600 × 600	600 × 1200	21	29	22	33
	Production plus	6	600 × 600	600 × 1200	29	39	31	45
100% (Quality & Mainstream)	High quality plus	8	600 × 600	1200 × 1200 ¹	21	29	22	33
				600 × 1200 ²				
	High quality	6	600 × 600	600 × 1200	29	39	31	45
	Production plus	5	600 × 600	600 × 1200	34	–	35	–
85% (Quality & Mainstream)	Production	4	600 × 600	600 × 1200	43	–	44	–
70% (Outdoor Signage Long Distance)	Billboard plus	3	300 × 300	600 × 1200	55	–	59	–
	Billboard	2	300 × 300	600 × 1200	79	–	88	–
50%	Draft	1	300 × 300	600 × 1200	157	–	177	–

¹ Unidirectional² Bidirectional

 **NOTE:** The printing speeds estimated above are from the first to the last drop of ink printed, on a full-width substrate.

Physical specifications

Table 7-5 Printer physical specifications

	Doors closed	Doors open
Weight	981 kg (2163 lb) without substrate	981 kg (2163 lb) without substrate
Width	5.74 m (226.07 in)	6.26 m (246.53 in)
Depth	1.66 m (65.34 in)	1.80 m (71.18 in)
Height	1.65 m (65.08 in)	2.03 m (80.08 in)

Memory specifications

Table 7-6 Memory specifications for the HP Internal Print Server computer

Memory (DRAM) supplied	4GB
Hard disk	160GB

Power specifications

The drying and curing components are powered with a three-phase line that requires a power distribution unit (PDU).

Table 7-7 Three-phase line specifications

	High-voltage systems	Low-voltage systems
Input voltage (line to line)	3 × 380–415 V~ (-10%+6%)	3 × 200–220 V~ (±10%)
Input frequency	50 Hz	60 Hz ¹
Power consumption	15 kW	15 kW
Maximum load current (per phase)	30 A	50 A

¹ Japan may have input frequencies of 50 Hz or 60 Hz

The electronic control components and HP Internal Print Server are powered with a single-phase line that can be used with an Uninterrupted Power Supply (UPS). You are highly recommended to use a UPS.

Table 7-8 Printer's single-phase line specifications

	High-voltage systems	Low-voltage systems
Input voltage (line to neutral)	200–240 V~ (-10%+6%)	115–127 V~ (±10%) (Japan 200 V~)
Input frequency	50 Hz	60 Hz ¹
Power consumption	1 kW	1 kW

Table 7-8 Printer's single-phase line specifications (continued)

	High-voltage systems	Low-voltage systems
Maximum load current (per phase)	10 A	10 A

¹ Japan may have input frequencies of 50 Hz or 60 Hz

In Japan only, a bi-phase power supply is required, operating at 200 V ac.

The printer requires two branch circuit breakers: one for the single-phase line and one for the three-phase line.

Table 7-9 Three-phase circuit breaker specifications

	High-voltage systems	Low-voltage systems
Input voltage (line to line)	3 × 380–415 V~ (-10%+6%)	3 × 200–220 V~ (±10%)
Input frequency	50 Hz	60 Hz
Three-phase branch circuit breaker	3 poles, 40 A	3 poles, 63 A

Table 7-10 Single-phase circuit breaker specifications

	High-voltage systems	Low-voltage systems
Input voltage (line to line)	200–240 V~ (-10%+6%)	115–127 V~ (±10%) (Japan 200 V~)
Input frequency	50 Hz	60 Hz
Single-phase branch circuit breaker	2 poles, 20 A	2 poles, 20 A

Air supply requirements (pneumatic spindle)

Air pressure supply

The pneumatic spindle requires an air compressor or a pressurized air line, not supplied with the printer.


 **TIP:** You are recommended to use a pressure gauge that indicates the pressure in bars.

Table 7-11 Air supply specifications

Air pressure	5.5 bar (80 psi)
Minimum airflow	Recommendation: 30 l/min
Lubricator	Not recommended
Air filter (recommended)	Recommendation: 5 μm, auto-drain, 99.97% coalescing efficiency
Regulator (required)	Regulator with pressure gauge

Pneumatic connector

The printer comes with an air gun that you must attach to your air supply. In order to connect your air supply to the air gun, you must meet the following requirements:

- 9.84-mm (0.25-in) female connector, BSP or NPT thread
- PTFE tape to secure the connection and prevent air leaks

Ecological specifications

For the up-to-date ecological specifications of your printer, please go to <http://www.hp.com/> and search for “ecological specifications”.

Environmental specifications

Table 7-12 Printer environmental specifications

	Temperature range	Humidity range	Temperature gradient
Operating for optimal print quality	20 to 25°C (68 to 77°F)	40 to 60% Relative Humidity	10°C/h (50°F/h) or less
Operating for standard printing	15 to 30°C (59 to 86°F)	20 to 70% Relative Humidity	10°C/h (50°F/h) or less
Not operating (in transport or storage), ink in tubes	5 to 55°C (41 to 131°F)	90% Relative Humidity at 55°C (131°F)	10°C/h (50°F/h) or less
Not operating (in transport or storage), no ink in tubes	-25 to 55°C (-13 to 131°F)	90% Relative Humidity at 55°C (131°F)	10°C/h (50°F/h) or less

Maximum operating altitude: 3000 m (10000 ft)

The printer should not be exposed to direct sunlight or any other strong light source, and it should not be used in a dusty environment.

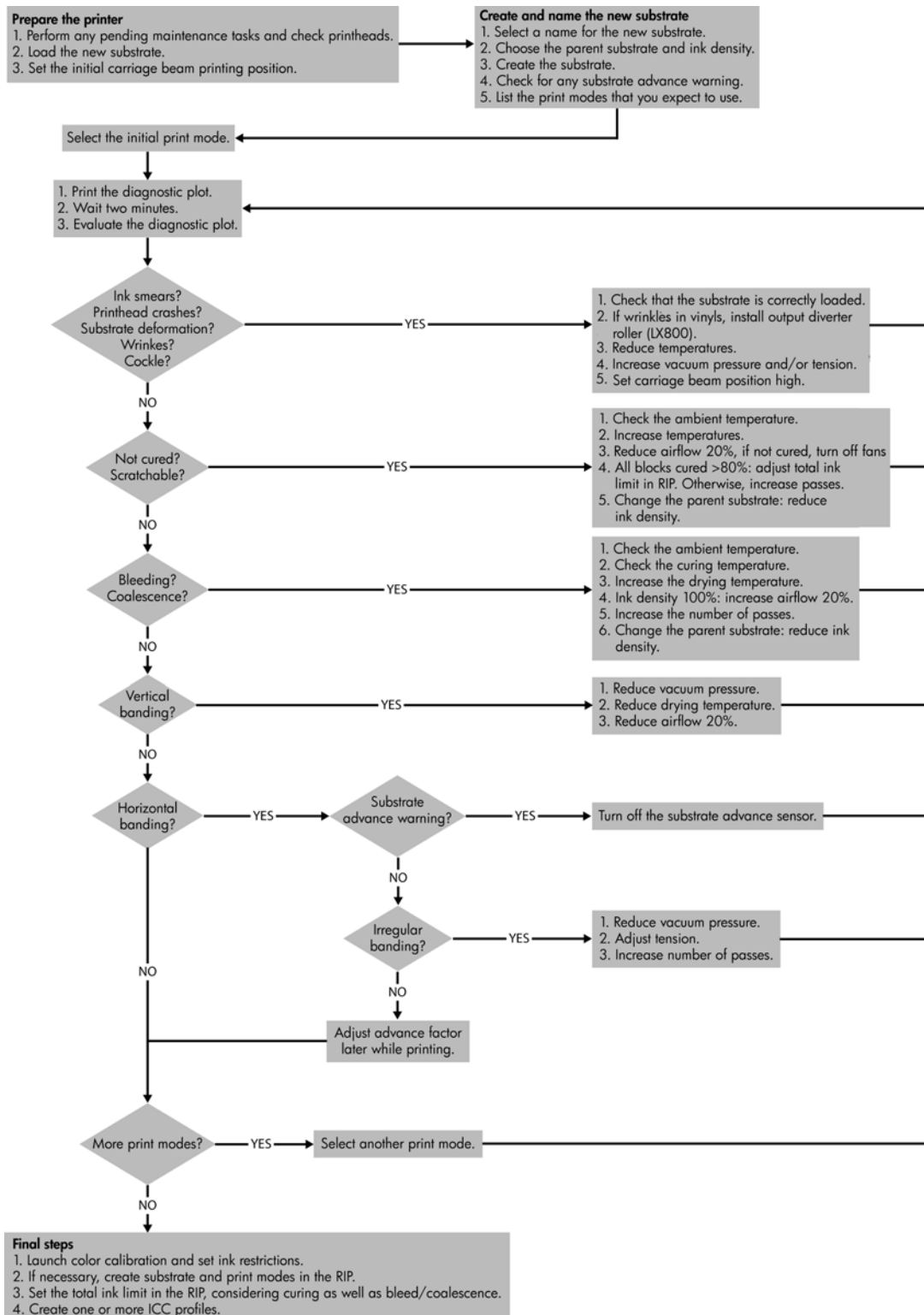
Acoustic specifications

Printer acoustic specifications (declared according to ISO 9296).

Table 7-13 Printer acoustic specifications

Idle sound power level	5.7 B (A)
Operating sound power level	7.3 B (A)
Idle sound pressure at bystander position	44 dB (A)
Operating sound pressure at bystander position	60 dB (A)

A Preset creation flowchart



Glossary

Aerosol filter

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

Bleeding

A print quality defect that occurs when the ink spreads on the substrate across areas of different colors.

Carriage beam

The beam supporting the printhead carriage as it moves back and forth across the printer.

Coalescence

A print quality defect that looks like a higher level of whiter grain.

Cockle

A substrate condition in which it is not lying perfectly flat, but rises and falls slightly in shallow waves.

Color accuracy

The ability to print colors that match the original image as closely as possible, bearing in mind that all devices have a limited color gamut and may not be physically capable of matching certain colors precisely.

Color consistency

The ability to print the same colors from a particular print job from print to print and from printer to printer.

Color model

A system of representing colors by numbers, such as RGB or CMYK.

Color space

A color model in which each color is represented by a specific set of numbers. Many different color spaces can use the same color model: for instance, monitors generally use the RGB color model, but they have different color spaces, because a particular set of RGB numbers results in different colors on different monitors.

Curing

Curing is needed to coalesce the latex, creating a polymeric film which acts as a protective layer, while at the same time removing the remaining co-solvents from the print. Curing is vital to ensure the durability of the printed images.

Drying

The heat applied in the printing zone removes water and fixes the image to the substrate.

ESD

ElectroStatic Discharge. Static electricity is common in daily life. It is the spark when touching the car door, or the cling of clothing. Although controlled static electricity has some useful applications, uncontrolled electrostatic discharges are one of the main hazards to the electronics products. Therefore, to prevent damage some precautions are needed when setting up the product, or handling ESD sensitive devices. This type of damage may reduce the life expectancy of the device or render it unusable. One way to minimize uncontrolled ESDs, and therefore reduce this type of damage is by touching any exposed grounded part of the product (mainly metal parts) before handling ESD sensitive devices (such as the printheads or ink cartridges). Additionally, to reduce the generation of electrostatic charge in your body try to avoid working in a carpeted area, and keep your body

movements to a minimum when handling ESD sensitive devices. Also, avoid working in low humidity environments.

Ethernet

A popular computer networking technology for local area networks.

Firmware

Software that controls your printer's functionality and is stored semi-permanently in the printer (it can be updated).

Gamut

The range of colors and density values reproducible on an output device, such as a printer or monitor.

I/O

Input/Output: this term describes the passing of data between one device and another.

ICC

The International Color Consortium, a group of companies that have agreed on a common standard for color profiles.

Ink cartridge

A removable printer component that stores ink of a particular color and provides it to the printhead.

Ink density

The relative amount of ink that is deposited on the substrate per unit of area.

Ink deposit

The printheads sometimes expel a small amount of ink into the ink deposits in order to check the status of each nozzle.

Ink limits

A means of specifying the maximum amount of ink of all colors in total that can be laid down onto a given substrate.

Ink restrictions

A means of specifying the maximum amount of each color of ink that can be laid down onto a given substrate.

IP address

A unique identifier that identifies a particular node on a TCP/IP network. It consists of four integers separated by dots.

LED

Light-Emitting Diode: a semiconductor device that emits light when electrically stimulated.

Nozzle

One of many tiny holes in a printhead through which ink is deposited onto the substrate.

Passes

The number of passes specifies how many times the printheads will print over the same area of substrate.

Platen

The flat surface within the printer over which the substrate passes while it is being printed on.

Printhead

A removable printer component that takes ink of a particular color or colors from the corresponding ink cartridge(s) and deposits it on the substrate, through a cluster of nozzles.

Printhead cleaner roll

A roll of absorbent material used to clean surplus ink from the printheads after each pass over the substrate.

Spindle

A rod that supports a roll of substrate while it is being used for printing.

Substrate

A thin, flat material made to be printed on.

TCP/IP

Transmission Control Protocol/Internet Protocol: the communications protocols on which the Internet is based.

Tension

Tension is applied at the input and the output side of the printer. It needs to be evenly distributed along the whole width of the substrate, thus substrate loading is a critical operation.

Vacuum pressure

The vacuum applied to the substrate in the printing zone helps to hold the substrate down on the print platen, keeping the distance to the printheads constant.

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