

Cookbook - Print on washable textiles for decoration with HP Latex Printers



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1 Overview

Who can benefit from reading this document?

This document is intended for:

- Owners and operators of HP Latex printers, with a special focus on the HP Latex 5XX, HP Latex 1500, HP Latex 1XX, HP Latex 3XX and HP Latex 3X00.
- HP Latex customer support, marketing and sales organizations.

This document provides information about:

- Textile brands, references, types, classifications and their main applications within the scope of decoration.
- A list of textiles that have been tested to guarantee good/very good dry-rub and scratch-resistant performance compared to the materials we have tested so far.
- All the information and resources that we are offering for each material from the list.
 - Whether the substrate requires an ink collector or not.
 - The recommended media presets for each printer that the customer must use to get the best results with each material (speed, amount of ink and other additional settings).
 - The different options for customers for finding media presets and the previously mentioned information.
- The key customer requirements regarding the improved performance and/or durability as well as the regulations used to verify image resistance, the test results and the thresholds.
- Information about media vendor distribution.

2 An introduction to textiles

Why do we need more durable textiles/fabrics?

Today's residential spaces are full of exciting designs, and customized interior decoration is in demand. HP Latex Technology is ideally suited to the task and can help you enter easily into this fast-growing market. Expand your production into high-margin home decor applications and look for new design opportunities to differentiate your business.

HP Latex Technology is ideal for printing on fabrics used for interior decoration, primarily for indoor applications. With HP Latex Technology, there's no need to invest in a dedicated solution for printing on textiles—you can print on both polyester and natural fibers, such as cotton, on a unique device. This document provides tips and tricks for getting the best results from HP Latex printers when printing on textiles.



What are the main types of textiles for decoration?

For home decoration, we can divide textiles into two main groups:

- **Natural fiber textiles** – They are used for a variety of home decoration applications, such as cushions, drapes or upholstery. They provide a soft-touch and a premium look. The ones presented in this document are generally made from cotton or a mix of cotton and linen.
- **Polyester textiles** – Some polyesters can be used for home decoration as well as retail and contract decoration (provided they are fire retardant).

3 Recommended list of textiles

Classification

As of October 4th, the following table offers a list of substrates usable for decoration:

Media Vendor name	Material	Decoration	
		Home Decoration	Retail and Contract Decoration
Premex	5297 Newport	●	
	5196 Leenane	●	
	5014 Warp Satin	●	
	5428 Phoenix	●	
	5196B Leenane Blockout	●	
PONGS	Silencio 5	●	●
	Silencio 10	●	●

● Washable textile; ● Non-washable textile

Media Vendor Distribution

The following table offers a list of substrates classified according to the previous chapter:

WIDTH: 3.2 m (126")

Media Vendor name	Distribution			
	APJ	EMEA	Latin America	North America
PremEx DuraVibe				
PONGS	●	●	●	●

WIDTH: ≤1.6 m (64")

Media Vendor name	Distribution			
	APJ	EMEA	Latin America	North America
PremEx DuraVibe		●		●
PONGS	●	●	●	●

Tested and validated media presets

The following table offers the print modes recommended in order to get better results. Once the media preset is installed, there will normally be two different print modes—*production* and *quality*.

Media Vendor	Material	HP Latex 3X00	HP Latex 1500	HP Latex 5XX	HP Latex 1XX, 3XX
Premex DuraVibe	5297 Newport	10p6c130%	12p6c130%	12p6c130%	12p6c130%
	5196 Leenane	10p6c130%	12p6c130%	12p6c130%	12p6c130%
	5014 Warp Satin	10p6c130%	12p6c130%	12p6c130%	12p6c130%
	5428 Phoenix	10p6c130%	12p6c130%	12p6c130%	12p6c130%
	5196B Leenane Blockout	10p6c170% 14p6c260%	12p6c170% 14p6c260%	16p6c185% 20p6c200%	16p6c185% 20p6c200%
PONGS	Silencio 10	14p6c230% 20p6c230%	14p6c230% 18p6c230%	-	-
	Silencio 5	14p6c200% 20p6c200%	14p6c200% 18p6c200%	16p6c200% 20p6c230%	16p6c200% 20p6c230%

Key test to getting durable decoration textiles

One important property of printed textiles used in applications like home decoration is their “wet rub” performance as well as their resistance to washing. The standards used to measure the wet rub test and the resistance to washing are **ISO 105-X12** and **ISO 6330**, respectively.

1. Why is the wet rub test so important?

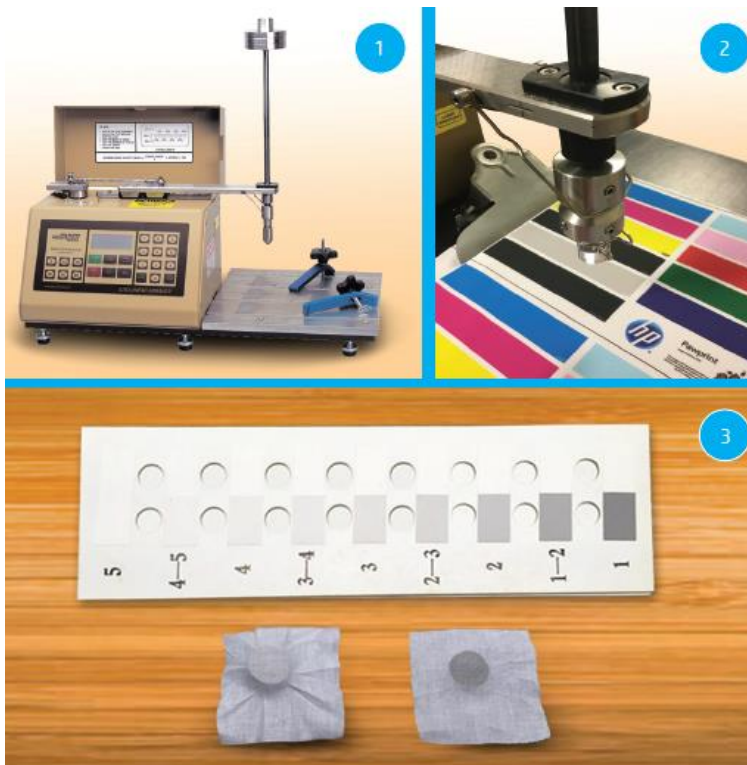
Home decor textiles with good wet rub test results are not only suitable for sewing, finishing and transporting without being damaged but also resist smudging in the case of contact with damp clothes. HP is constantly analyzing new materials to even further increase the range of textiles that are excellent for use with HP Latex Inks.

2. How to measure wet rubbing

One of the sections of ISO 105-X12 determines the full procedure to test this property. Applying a downward force of 9 ± 0.2 Newtons, at a rate of one cycle per second, the Taber Linear Abraser rubs 10 times back and forth in a straight line (5 times forward and 5 times backward) along a track on the dry sample, using a wet bleached cotton rubbing cloth, which is evaluated to determine how it has been stained.

3. How to read the wet rub test result

After completing the test, three parameters are evaluated: *image damage*, *gloss change* and the *staining of the cotton rubbing cloth*. Those textiles with good or excellent results are scored as a 3 or higher. Textiles for home decoration printed with HP Latex Technology and with a wet rubbing performance equal to or better than 3 are the perfect fit for your decoration applications.



1. *Taber Linear Abraser.*
2. *Testing a textile sample.*
3. *Color fastness to rubbing is categorized from 1 to 5. The higher the number, the better the fastness.*

4 How to achieve wash resistance

Only some of the media mentioned above can be categorized as washable.

Media Vendor	Material
Premex Duravibe	5297 Newport
	5196 Leenane
	5014 Warp Satin
	5428 Phoenix

It is recommended to use washable substrates for printing and creating home interior decoration applications such as cushions, curtains, bags, bean bags, promotional tea towels, lampshades, canvas, tabletops or tapestry.




Achieving wash resistance

The substrates listed above have a specific top-coating that is activated once exposed to a specific temperature for a specific amount of time in a heat press. Once those parameters are achieved, the substrates will have an increased resistance to washing.

What are the different washing parameters?

Washing parameters differ in terms of: water temperature, number of spins and time.

The substrates listed above have been proven to have good resistance to washing using the following parameters:

 Water temperature	Cold
 Number of spins	0
 Time	1 hour

The tests were realized in a domestic washing machine and were conducted throughout 5 wash cycles with the above-listed parameters.

Wash test

The picture below shows the results after 5 wash cycles. The left part has been heat-fixed.



Heat-fixation parameters

The heat-fixation process for substrates relies on two parameters: temperature and time. Both those parameters can be adjusted directly on the heat press by the end user.

In order for the substrates to achieve good resistance to washing, they need to be heat-fixed after printing using the following parameters:

Temperature	175°C ± 5°C (347°F ± 40°F)
Time	80 seconds

How to check if the temperature is correct

Often the temperature indicated by the heat press will vary from the actual temperature of the textiles. It is advised to ensure that the textile reaches the proper temperature by using a heat-sensitive label as seen in the picture below. This process does not need to be repeated for each fixation cycle but it is advised to check regularly that the difference between the temperature indicated by the heat press and the actual substrate temperature remains within a small range ($\pm 5^{\circ}\text{C}$).



Heat press types

There are several types of heat presses available on the market. Here are some examples of heat-fixation techniques that vary in the way they warm the substrates:

- Clamshell heat presses
- Hot air heat presses
- Infrared heat presses
- Heat-fixation units (electrically heated)
- Calender rotary heat presses

What happens if the substrates are not heat-fixed?

The process of heat fixation helps increase dry-rubbing as demonstrated by the table below:

Media Vendor	Material	Dry-rubbing prior to heat fixation	Dry-rubbing after heat fixation
Premex Duravibe	5297 Newport	3-4	4-5
	5196 Leenane	3-4	4
	5014 Warp Satin	3-4	4-5
	5428 Phoenix	WIP	WIP

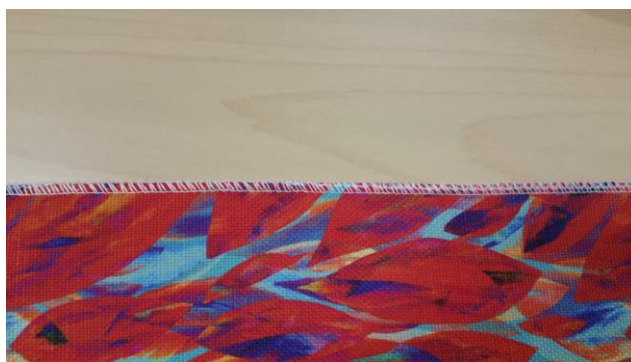
However, note that, without any heat fixation, the resistance to dry-rubbing is already acceptable.

Finishing the textile

Cutting

HP Latex prints are compatible with all standard techniques; however, some techniques are more suitable for different kinds of materials than others. As a general rule, the best options to cut polyester fabrics are ultrasound or pressure knife cutters.

On the other hand, textiles made from natural fibers tend to fray more than polyester: it is advised to hand cut them or use a pressure knife cutter and afterwards sew the edges as shown in the picture below.



Sewing

To ensure that the prints are not damaged or scratched while they are sewed, it is recommended that the parts in contact with the prints be made of plastic (instead of metal) or covered with plastic protectors.

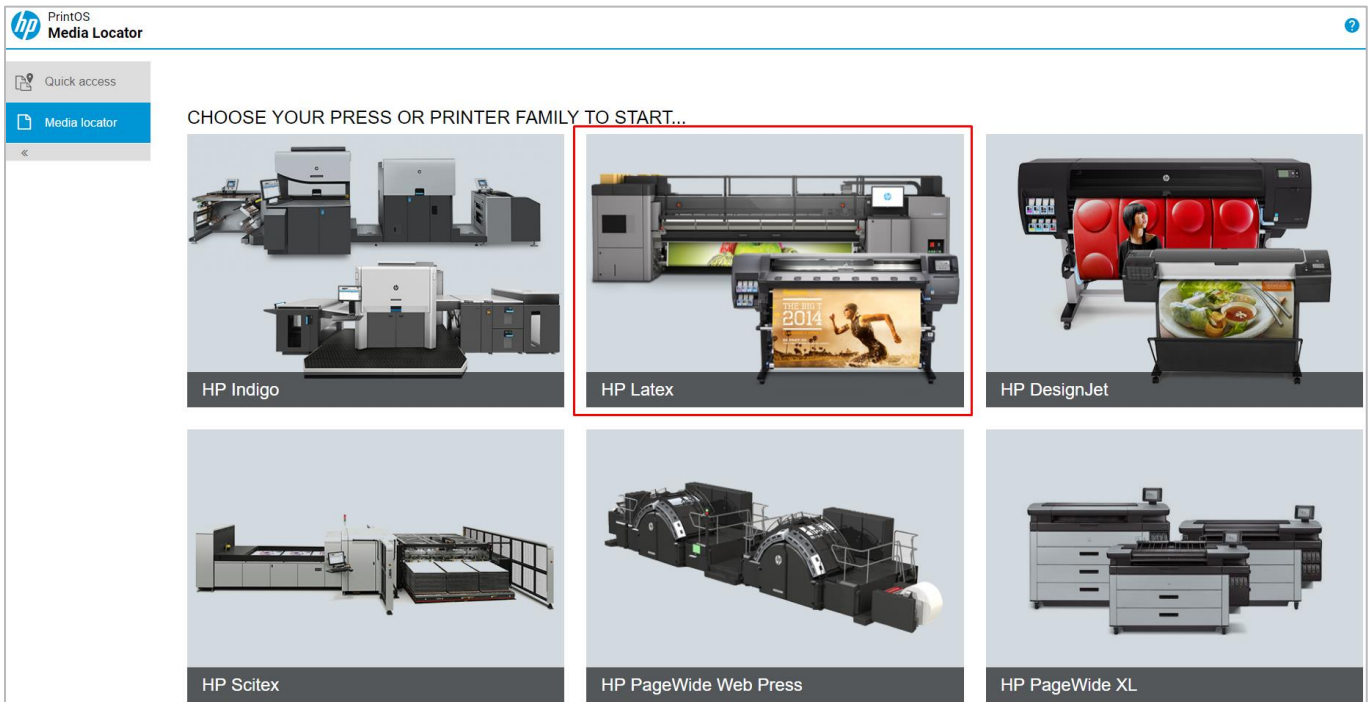
5 Where to find the media presets

There are different ways to search, find and install the media presets:

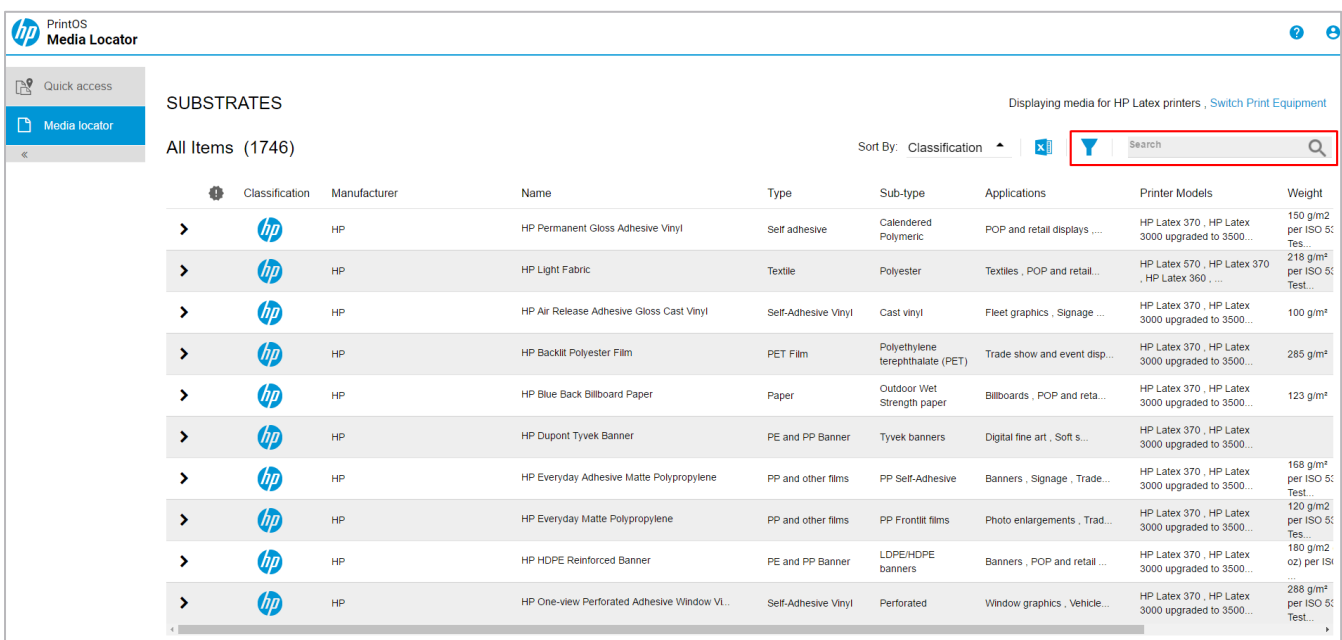
Using the Media Locator


All the profiles are available at the HP Media Solutions Locator, which is an application within PrintOS: <https://www.printos.com/ml/#/medialocator>.

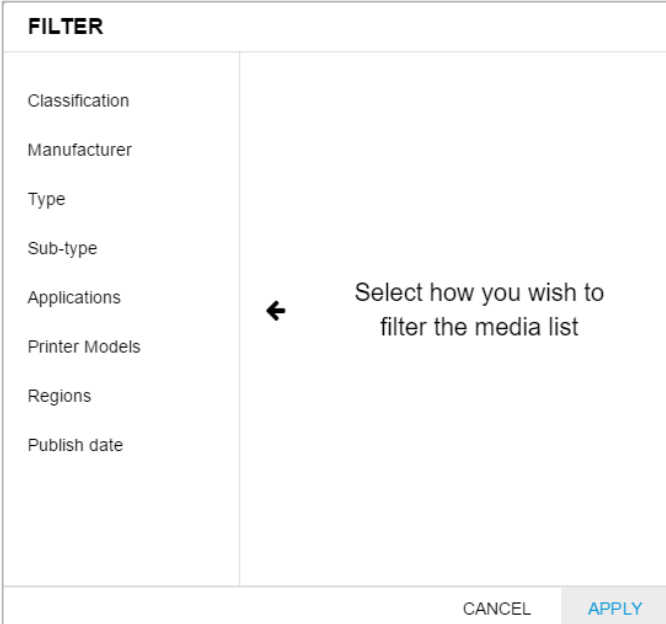
1. Click the HP Latex button.



2. The Filter button or the Search field can be used to find the textiles recommended on the previous list.



3. If the Filter button  is pressed, a drop-down list will be shown; it can be filtered by: classification, manufacturer, type, sub-type, application, printer model, etc.



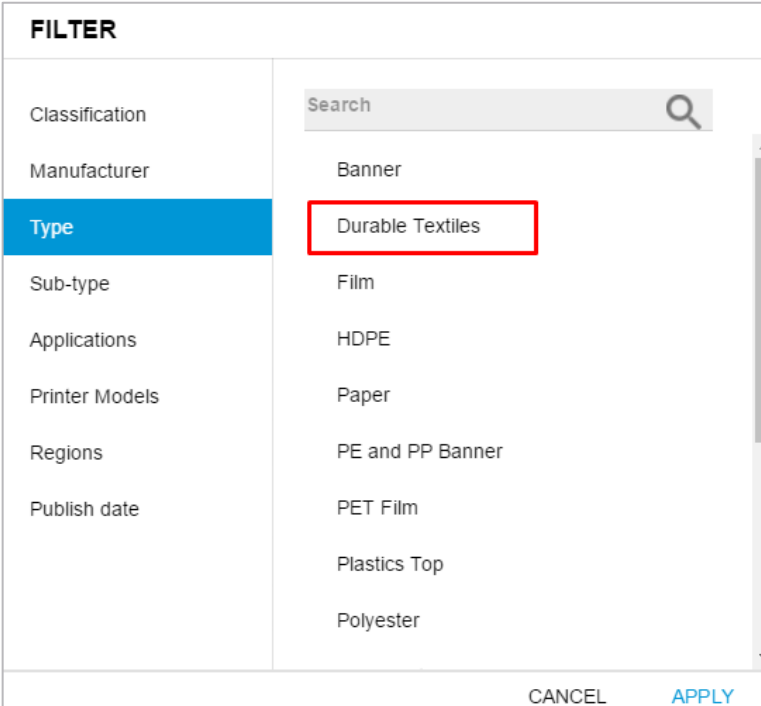
FILTER

Classification
Manufacturer
Type
Sub-type
Applications
Printer Models
Regions
Publish date

← Select how you wish to filter the media list

CANCEL APPLY

4. The materials from the list have their own media Type, called “Durable Textiles”.



FILTER

Classification
Manufacturer
Type
Sub-type
Applications
Printer Models
Regions
Publish date

Search

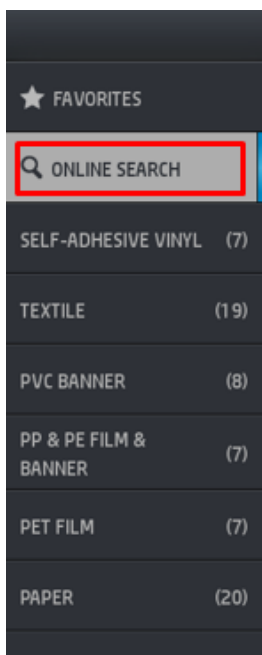
Banner
Durable Textiles
Film
HDPE
Paper
PE and PP Banner
PET Film
Plastics Top
Polyester

CANCEL APPLY

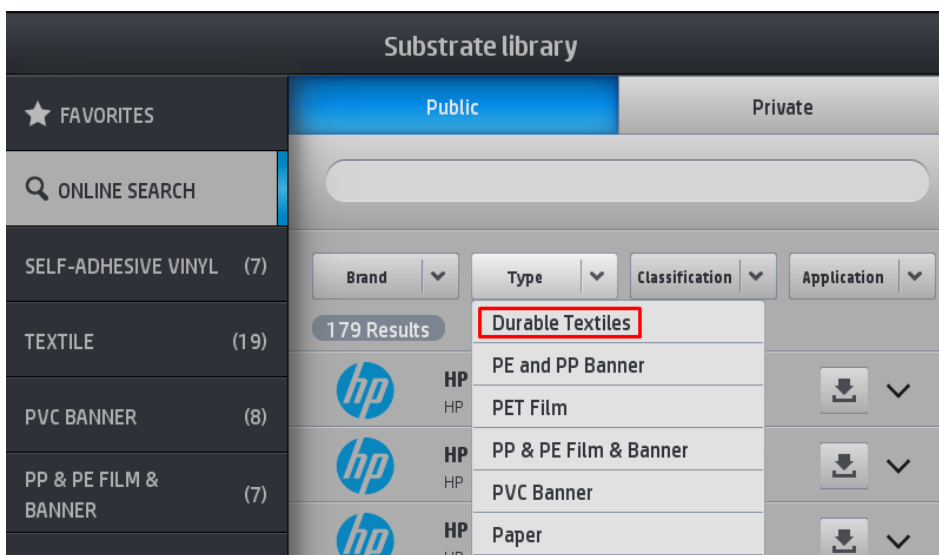
HP Latex 1XX, 3XX and 5XX printer front panels

The media presets can also be installed through the front panels of the printers:

1. Click the **Online Search** button.



2. Filter by type and select **Durable Textiles** from the drop-down list to see the recommended materials.

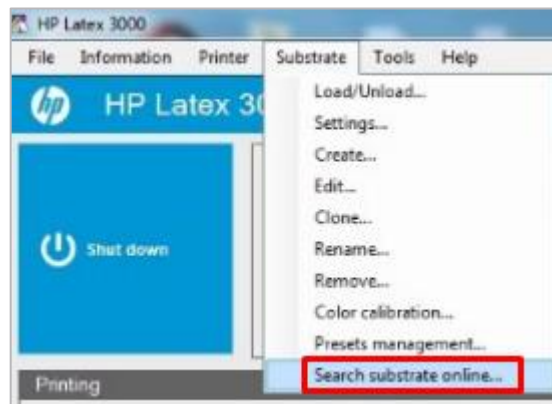


3. Click the **Download** button  to install the media preset; the RIP will automatically synchronize with the printer.

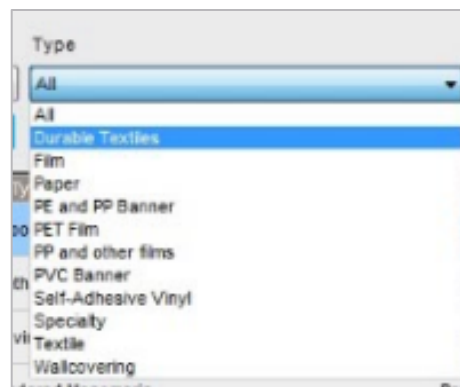
HP Latex 3X00 and 1500 printer IPSs



A media preset can also be installed through the IPS (the printer's PC):












1. Click **Substrate** and select **Search substrate online** from the drop-down list.



2. Filter by type and select **Durable Textiles** from the drop-down list to see the recommended materials.



3. Click the **Download** button  (it can be found on the right side of the window), then the **Status** column, and wait until the installation process is finished (the icon will change to ).

Classification	Substrate Name	Brand	Type	Sub Type	Applications	Status
Certified for HP Latex IPSs	DigCompetition 2264EFL	Aurich Textilien	Durable Textiles	Polyester banners and displays	Displays, Display panels	
Certified for HP Latex IPSs	DigFaciona 6178FRL	Aurich Textilien	Durable Textiles	Polyester banners and displays	Displays, Display panels	
Certified for HP Latex IPSs	DigPanorama 3172FRL	Aurich Textilien	Durable Textiles	Polyester banners and displays	Displays, Display panels, Pop-up/Roll-up displays	
Certified for HP Latex IPSs	Supernova 3179FRL	Aurich Textilien	Durable Textiles	Polyester banners and displays	Displays, Display panels	
Certified for HP Latex IPSs	4001-6 PES Tafetta 55 FR	Berger	Durable Textiles	Polyester banners and displays	Displays, Curtains, Display panels, Banners	
Certified for HP Latex IPSs	4915-26 XXL Spinnaker FR	Berger	Durable Textiles	Polyester banners and displays	Displays, Curtains, Display panels, Banners	
Certified for HP Latex IPSs	FrontIt	Endurafab	Durable Textiles	Polyester banners and displays	Displays, Display panels, Soft signage, Banners	
Certified for HP Latex IPSs	FrontIt FR	Endurafab	Durable Textiles	Polyester banners and displays	Banners, Displays, Display panels, Soft signage	
Certified for HP Latex IPSs	FrontIt Premier	Endurafab	Durable Textiles	Polyester banners and displays	Displays, Display panels, Soft signage, Banners	
Certified for HP Latex IPSs	Stretch	Endurafab	Durable Textiles	Polyester banners and displays	Displays, Display panels, Soft signage, Banners	
Certified for HP Latex IPSs	Stretch FR	Endurafab	Durable Textiles	Polyester banners and displays	Display panels, Soft signage, Banners, Displays	

6 Ink collector installation and usage recommendations

Before printing on porous textiles, the Ink Collector Kit should be installed. This is not available for the HP Latex 110, 115, 310, 315, 330 and 335; it is standard on the HP Latex 360, 365, 370, 375 and 3000; and it is an accessory for the HP Latex 1500. The kit protects the printer from the ink that permeates through a porous substrate. The kit should be removed before printing on non-porous substrates.

To find out how to install the Ink Collector Kit, please read the user guide:

- **HP Latex 1500** – Chapter 9 – Accessories.
- **HP Latex 3000 series** – Chapter 3 – Handle the substrate.
- **HP Latex 500 series** – Chapter 3 – Handle the substrate and troubleshoot substrate issues.
- **HP Latex 36X and 37X only** – Chapter 3 – Handle the substrate and troubleshoot substrate issues.

Ink collector usage required per material

The recommendation per media for all the HP Latex printers can be found in the following table.

Media Vendor	Material	Is the ink collector required?
Premex	5297 Newport	YES
	5196 Leenane	YES
	5014 Warp Satin	YES
	5428 Phoenix	YES
	5196B Leenane Blockout	NO
PONGS	Silencio 5	NO
	Silencio 10	NO

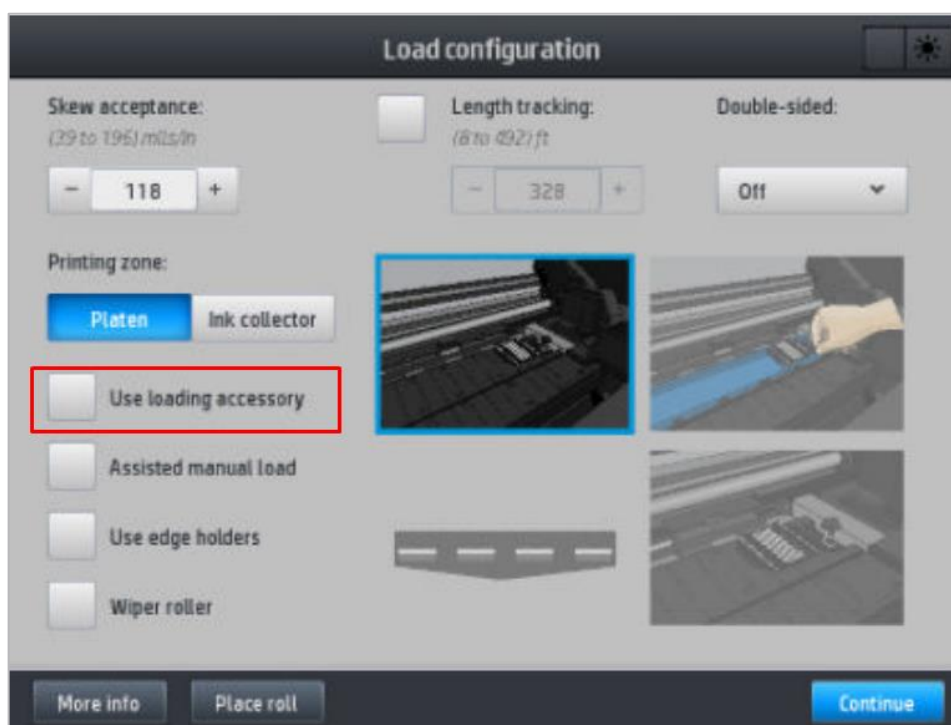
7 How to use the media loading accessory with the HP Latex 500 and 300 series

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

To find out how to use the media loading accessory, please read the user guide:

- **HP Latex 500 series** – Chapter 3 – Handle the substrate and troubleshoot substrate issues.

IMPORTANT: Click the **Use loading accessory** button on the front panel so that the printer is able to change the force of the pinchwheels in order to prevent wrinkles on flimsy materials.



- **HP Latex 36X and 37X only** – Chapter 3 – Handle the substrate and troubleshoot substrate issues.









8 Additional maintenance operations when printing on porous materials

HP Latex 3X00

The following is a part of the “Summary of maintenance operations” section that can be found in the user guide within **Chapter 8 – Hardware maintenance**, where typical maintenance operations are explained as follows:

- Weekly cleaning
- 125 liter maintenance
- 500 liter maintenance
- 1500 liter maintenance

When printing on textiles, since most of them are porous, they require print modes with a higher number of passes and more ink compared to other substrates that can be printed on with HP Latex inks. The following table describes the additional maintenance tasks* that the customer will need to perform.

Tasks		
3L	Clean collector, aerosol filter, protector, printer output and platen and carriage	  15 min
40L	Clean aerosol inlet, condensate Replace collector foams	  30 min
500L	Clean curing fans, dryers lamps glass, dryer fans Check protector and media edge holders	  60 min
1500L	Clean impinging plate Replace ink collector Replace SMK – Textile (Curing parts, Scan axis parts, carriage parts, drop detector, web wipe engage system, diverter wheels)	  2 days









* These maintenance tasks are scheduled within HP Print Care (also explained in chapter 7 of the user guide) together with other maintenance tasks.

HP Latex 1500

The following is a part of the “Summary of repair kits and maintenances” section that can be found in the user guide within **Chapter 10 – Hardware maintenance**, where the usual maintenance operations are explained as follows:

- Weekly cleaning
- 450 liter maintenance
- 900 liter maintenance
- 1500 liter maintenance
- 3000 liter maintenance

When printing on textiles, since most of them are porous, they require print modes with a higher number of passes and more ink compared to other substrates that can be printed on with HP Latex inks. The following table describes the additional maintenance tasks* that the customer will need to perform.

Tasks		
3L	Clean collector, aerosol filter, protector, printer output and platen and carriage	  15 min
40L	Clean aerosol inlet, condensate Replace collector foams	  30 min
500L	Clean curing fans, dryers lamps glass, dryer fans Check protector and media edge holders	  60 min
1500L	Clean impinging plate Replace ink collector Replace SMK – Textile (Curing parts, Scan axis parts, carriage parts, drop detector, web wipe engage system, diverter wheels)	  2 days

* These maintenance tasks are scheduled within HP Print Care (also explained in chapter 8 of the user guide) together with other maintenance tasks.

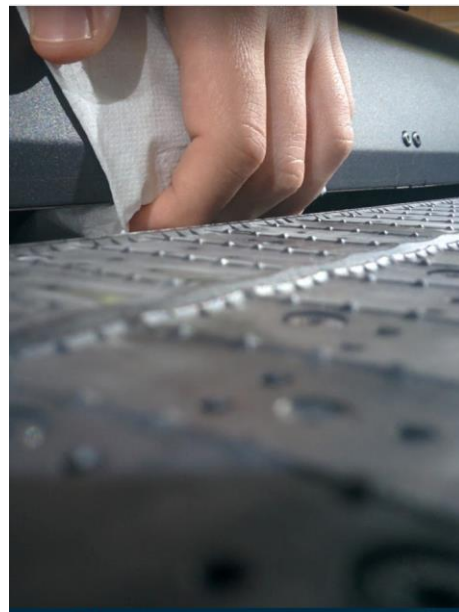
HP Latex 1XX, 3XX and HP Latex 5XX

Due to the porous nature of textile media, the ink on the media tends to evaporate differently than with other materials. Evaporated components of the ink may condense on cold surfaces of the printer, leaving an oily finish.

- To prevent condensate under the printed material from transferring onto the printed job, always use the output platen protector accessory as described in **Chapter 3 – Handle the substrate and troubleshoot substrate issues** of the user guide.
- To prevent drops of condensate from falling onto subsequent jobs, perform the following user maintenance after any intensive usage of textiles (approximately after every roll):

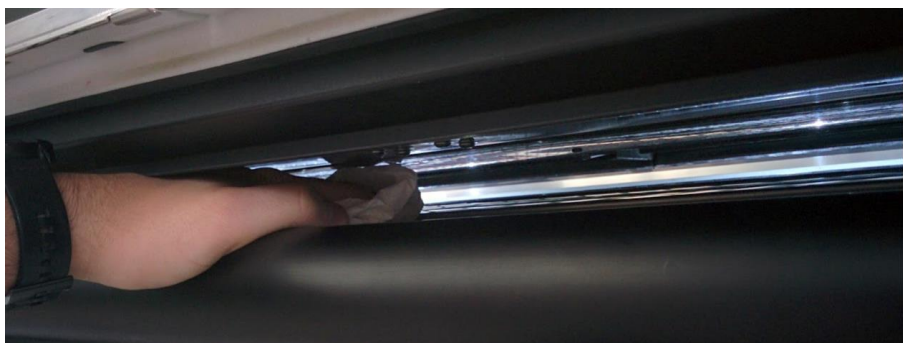
Clean the curing system internal cover lip

1. Turn off the printer.
2. Open the main window.
3. With a soft cloth or piece of paper, remove any oily drops that have formed on the edge of the cover's internal lip.



Clean the output platen

1. Turn off the printer.
2. Remove the output platen protector accessory.
3. With a soft cloth or piece of paper, clean any oily drops that may have condensed under the accessory.
4. Make sure to properly clean all the steps, screws and features of the platen.



Help yourself by wrapping the cloth around a soft tool to reach the inner parts of the output platen.

With certain textile materials, due to rougher media edges, an increased distance to the material and particular aerodynamic effects, it is more likely that the line sensor gets dirty and loses sensitivity. If the line sensor is dirty, you may notice that:

- An opaque media cannot be found or its width cannot be detected: The printer uses the line sensor to “find” the media’s edges. If the sensor is dirty it may not be able to discriminate between the print platen and the media itself.
- The printer is unable to determine the level of usage of the maintenance cartridge: The printer uses the line sensor to read a special pattern on the maintenance cartridge to determine its usage. If the sensor is dirty it may not be able to read the pattern.

If the problems above start to occur frequently, you may need to clean the line sensor in order to regain the full functionality of the printer.

Cleaning the line sensor

From the front panel, perform a maintenance cartridge replacement and remove the maintenance cartridge.



1. Turn off the printer.
2. With the printer off, open the window and manually move the carriage to the side.



You will have access to the line sensor from the maintenance cartridge door.



3. With a soft cloth or piece of paper, clean the line sensor. Be careful not to touch the printheads.
4. Close the window and the maintenance cartridge door and turn on the printer.
5. Finish replacing the maintenance cartridge.

IMPORTANT: It is not required to perform any maintenance on the line sensor if you do not see the problems described above. An excessive cleaning of the sensor may lead to undesired issues and the risk of damaging the printheads.

HP Latex 1XX and 3XX only

Due to hardware differences, the 3XX series printers are more susceptible than the 5XX series ones to the accumulation of condensation and aerosol when printing on all media, especially textiles. The procedures described above may need to be performed more frequently or more intensively on the 3XX series.

In addition to the procedures described above, perform the following two maintenance cleaning tasks after an intensive use of textiles:

Clean the vapor removal array

With a soft cloth or piece of paper, clean any oily drops under the vapor removal array (the outer array of fans).



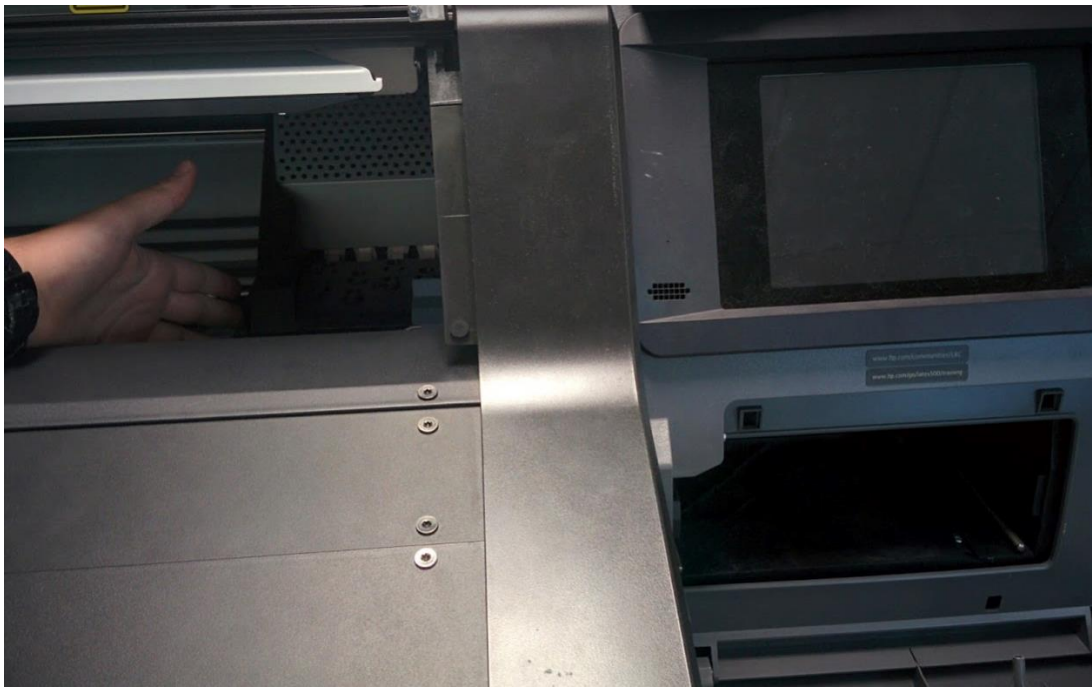
Pay special attention to the left and right corners.

Clean the front of the carriage

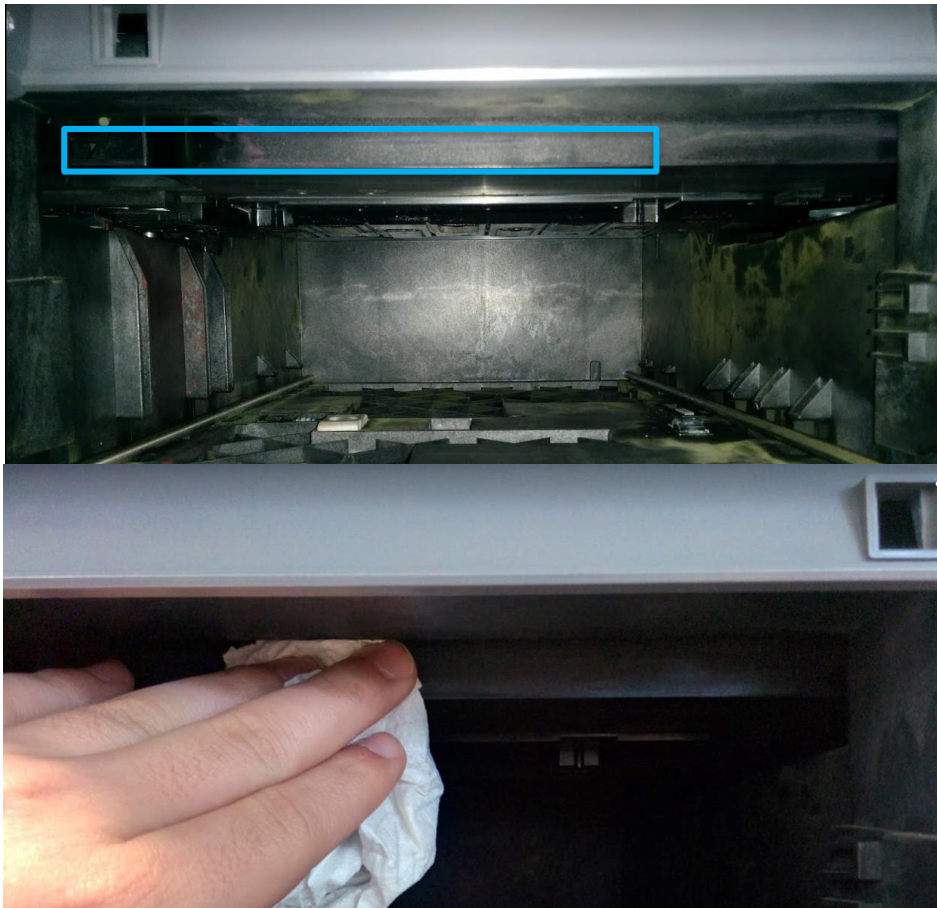
From the front panel, perform a maintenance cartridge replacement and remove the maintenance cartridge.



1. Turn off the printer.
2. With the printer off, open the window and manually move the carriage to the side.



You will have access to the carriage from the maintenance cartridge door.



3. With a soft cloth or piece of paper, clean the exterior of the carriage.
4. Be careful not to touch the line sensor or the printheads.
5. Close the window and the maintenance cartridge door and turn on the printer.
6. Finish replacing the maintenance cartridge.