Cookbook - Durable Textiles

for 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 Soft Signage.
- A list of textiles that have been tested to guarantee good/very good dry-rub and scratch compared to the materials we have tested so far.
- All the information and resources that we are offering for each material from the list.
 - o Whether the substrate requires an ink collector or not.
 - o The recommended media presets (per printer) that the customer must use in order 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.

3

- The key customer requirements regarding the improved performance and/or durability as well as the regulations used in order 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?

The demand for textiles for signage is growing and HP Latex Technology presents a practical solution for leveraging textile signage opportunities, in particular:

- Textiles provide soft touch finishes, great color vibrancy, and are considered to be more *premium* than vinyl or paper. Due to this fact, the end customer perceives a higher value.
- Textiles are lighter, wrinkle-free, etc., they are easier to transport, mount and store, making the whole process cheaper due to the fact that the shipment and the storage costs are reduced.
- The environmental regulations are changing and impacting PVC-based substrates and traditional textiles. Media vendors are moving toward non-PVC based materials and the traditional market is moving toward digital printing.

HP Latex Printers are compatible with a range of textiles such as polyesters and natural fiber blends. HP Latex prints are odorless and, thanks to the flexibility of the ink, the hand of an un-printed material is maintained.

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?

The terms 'textile' and 'fabric' are used interchangeably in the industry. Some of the common types of textiles are:

- **Heavy knits** Textiles with a weight of 250 400 g/m² (23 37 g/sq.ft or 7.37 11.80 oz/yd²). They are used as an alternative to PVC banners due to their soft touch and attractive finish. There is a very wide variety available, including both coated and uncoated types.
- Soft knits Textiles with a weight of 250 g/m² (23 g/sq.ft or 7.37 oz/yd²) or less. They have a look and feel which is softer and flows better than that of heavy knit materials and are commonly used indoors at retail/POP locations, exhibition stands and displays, and also for interior decoration.
- Backlit textiles Provide an attractive alternative to traditional lightboxes made from PVC banners
 or PET film. There are two different kind of backlit textiles—coated or treated:
 - Coated: It is normally a light woven textile with a polymer layer of coating (only on one side) that allows a better light diffusion. This coating modifies the touch and feel of the material, adding stiffness and a colder feeling.
 - o **Treated:** Most of them are knitted textiles and have a greater grammage, the treatment is a dip coating where the manufacturer applies the flame-retardant component, since most of the applications will be indoor. The dip coating allows the material to maintain its touch and feel but the fact that the material is more open causes the saturation to not be as good as that of a coated textile.
- Flags A thin and almost transparent textile, commonly associated with country and event 'flags' but also increasingly used for eye-catching signage and decoration applications. The indoor tear drops which are referred to in the following pages also have a weight lower than 120 g/m² (11 g/sq.ft or 3.54 oz/yd²).
- Stretch textiles They can be heavy or soft knit depending on the kind of yarn that is used to manufacture the base of the material. The main application for this kind of textiles is SEG—Silicone Edge Graphics. The final application, whether it is frontlit or backlit, does not matter.

3 Recommended list of textiles

Classification

As of September 25th, the following table offers a list of substrates classified according to the previous chapter:

	Soft Signage		e			
Media Vendor			Fro	ontlit		
name	Material	Heavy knit	Soft knit	Stretch	Indoor tear drops	Backlit
	DigiCompetition 2264EFRL		•			
	DigiFacination 6178FRL				•	
Aurich Textilien (TVF in NA)	DigiPanorama 3172FRL	•				
	DigiStretch 2157FRL			•	Indoor tear Backlit	
	Supernova 3179FRL	•				
	4001-6 PES Tafetta 55 FR				•	
Berger	4280-77 Universal Display 250FR WS		•			
	4915-26 XXL Spinnaker FR				•	
	Frontlit		•			
	Frontlit FR		•			
Endurafab	Frontlit Premier	•				
Elluulalab	Frontlit Premier FR	•				
	Frontlit Stretch			•		
	Frontlit Stretch FR			•		
Neschen	Solvotex PES Banner 240		•			
	DirectTex Spinnaker Economy				•	
	PrintTex Softimage 240	40				
PONGS	PrintTex Artist Mambo					•
	Silencio 10	•				
	Silencio 5	•				
PremEx DuraVibe	5196B Leenane Blockout	•				
Ultrafloy	Ultrapoplin Softimage D240		•			
Ultraflex	Vortex Stretch D229			•		
Verseidag	B4011 Seemee Corpus Blockout	•				

Media Vendor Distribution

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

WIDTH - 3.2m (126")

	Distribution				
Media Vendor name	APJ	EMEA	Latin America	North America	
Aurich Textilien	•	•	WIP	•	
Berger	•	•	•	•	
Endurafab				•	
Neschen		•			
PONGS	•	•		•	
PremEx DuraVibe					
Ultraflex	•	•	•	•	
Verseidag	•	•	•	•	

WIDTH - 1.6m (64")

	Distribution			
Media Vendor name	APJ	EMEA	Latin America	North America
Aurich Textilien	•	•	WIP	•
Berger	•	•	•	•
Endurafab				WIP
Neschen		•		
PONGS	•	•		•
PremEx DuraVibe	WIP	•		•
Ultraflex	•	•	•	•
Verseidag	•	•	•	•

Tested and validated media presets

The following table offers the print modes recommended in order to get the best 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
	DigiCompetition 2264EFRL	10p6c170%	12p6c170%	16p6c185%	16p6c185%
	Digital inpetition 220 121 N2	14p6c260% 10p6c170%	14p6c230% 12p6c170%	20p6c200% 16p6c170%	20p6c200%
	DigiFacination 6178FRL	14p6c200%	14p6c170% 14p6c200%	20p6c185%	-
Aurich	DiaiDanarama 2172FDI	10p6c170%	12p6c170%	16p6c185%	16p6c185%
Textilien	DigiPanorama 3172FRL	14p6c260%	14p6c260%	20p6c200%	20p6c200%
(TVF in NA)	DigiStretch 2157FRL	10p6c170% 14p6c200%	12p6c170% 14p6c200%	16p6c185% 20p6c200%	16p6c185% 20p6c200%
	Supernova 3179FRL	10p6c170%	12p6c170%	16p6c185%	16p6c185%
	·	14p6c260% 10p6c120%	14p6c230% 12p6c120%	20p6c200%	20060200%
	4001-6 PES Tafetta 55 FR	14p6c130%	14p6c130%	20p6c120%	-
D	4280-77 Universal Display 250FR	10p6c170%	12p6c170%	16p6c230%	16p6c200%
Berger	WS	14p6c200%	14p6c200%	20p6c260%	20p6c230%
	4915-26 XXL Spinnaker FR	10p6c130%	14р6с130%	16p6c110%	_
	4913-20 AAL Spiilliakei I K	14p6c150%	18p6c150%	Τοροείτον	_
	Frontlit	10p6c170%	12p6c170%	-	1XX, 3XX 16p6c185% 20p6c200% 0% 0% 0% 16p6c185% 20p6c200% 0% 16p6c185% 20p6c200% 0% 16p6c185% 20p6c200% 0% 0% 16p6c200% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
		14p6c200% 10p6c170%	14p6c200% 12p6c170%		
	Frontlit FR	14p6c200%	14p6c200%	-	
	Frantlit Oromiar	10p6c170%	12p6c170%		
Endurafab	Frontlit Premier	14p6c230%	14p6c230%	-	-
Litadiaiab	Frontlit Premier FR	10p6c170%	12p6c170%	-	-
	. Fortelle French French	14p6c230%	14p6c230%		
	Frontlit Stretch 14p6c170% 12p6c170% 20p6c200% 14p6c200%	-	-		
	Fugatit Chartel FD	14p6c170%	12p6c170%		
	Frontlit Stretch FR	20p6c200%	14p6c200%	-	-
Neschen	Solvotex PES Banner 240	10p6c170%	12p6c170%	16p6c230%	
7,050,101,	2017 Steph. 123 2011 11: 11: 12	14p6c200% 10p6c130%	14p6c200% 14p6c130%	20p6c260%	20p6c230%
	DirectTex Spinnaker Economy	14p6c150%	18p6c150%	16p6c110%	-
	DrintToy Cofting age 240	10p6c170%	12p6c170%	16p6c230%	16p6c200%
	PrintTex Softimage 240	14p6c200%	14p6c200%	20p6c260%	20p6c230%
PONGS	PrintTex Artist Mambo	14p6c200%	14p6c230%	16p6c200%	· ·
. 00	· · · · · · · · · · · · · · · · · · ·	18p6c230% 14p6c230%	18p6c260% 14p6c230%	20p6c230%	20p6c230%
	Silencio 10	20p6c230%	18p6c230%	-	-
	Ciloneia F	14p6c200%	14p6c200%	16p6c200%	16p6c200%
	Silencio 5	20p6c200%	18p6c200%	20p6c230%	
PremEx DuraVibe	5196B Leenane Blockout	10p6c170% 14p6c260%	12p6c170% 14p6c260%	16p6c185% 20p6c200%	WIP
	Ultrapoplin Softimage D240	10p6c170%	12р6с170%	16p6c200%	
Ultraflex	otti apoptiiri Sortiirilage DZ40	14p6c200%	14p6c200%	20p6c230%	20p6c230%
5 .t. G. 1671	Vortex Stretch D229	14p6c170%	12p6c170%	WIP	WIP
	D. 1.1. 5 -: :	18p6c200% 14p6c150%	14p6c200% 14p6c150%		=
Verseidag	B4011 Seemee Corpus Blockout	18p6c200%	18p6c200%	WIP	WIP

Key test to getting durable Soft Signage textiles

One important property of printed textiles used in applications like retail PoP and exhibition graphics is their "dry rub" performance. The standard used to measure the dry rub test is **ISO 105-X12**.

1. Why is the dry rubbing test so important?

Textiles with good dry rub test results are suitable for sewing, finishing and transporting and are easily installable without being damaged. 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 dry rub

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 20 times back and forth in a straight line (10 times forward and 10 times backward) along a track on the dry sample, using a bleached cotton rubbing cloth, which is evaluated to determine how it has been stained.

3. How to read the dry 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 4 or 5, respectively. Textiles printed with HP Latex Technology and with a dry rubbing performance equal to or greater than 4 are a good fit for your Soft Signage 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.

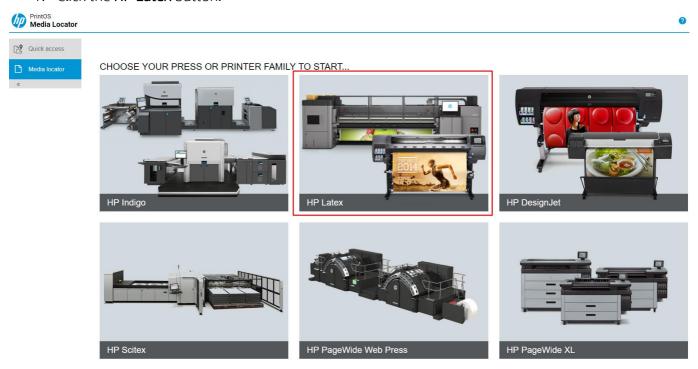
4 Where to find the media presets

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

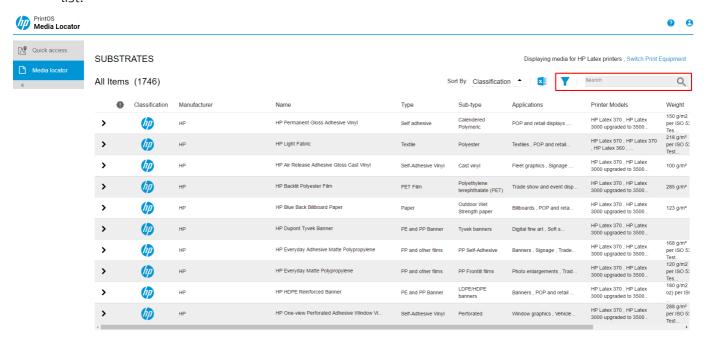
Using the Media Locator

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

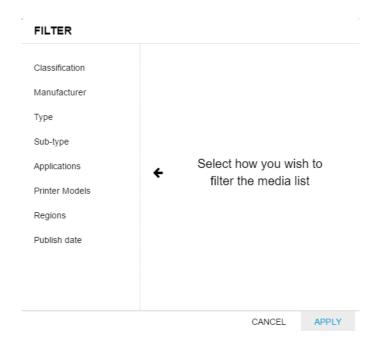
1. Click the **HP Latex** button.



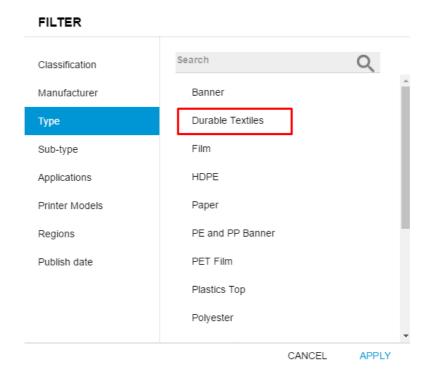
2. The filter button or the search field can be used to find the textiles recommended on the previous list.



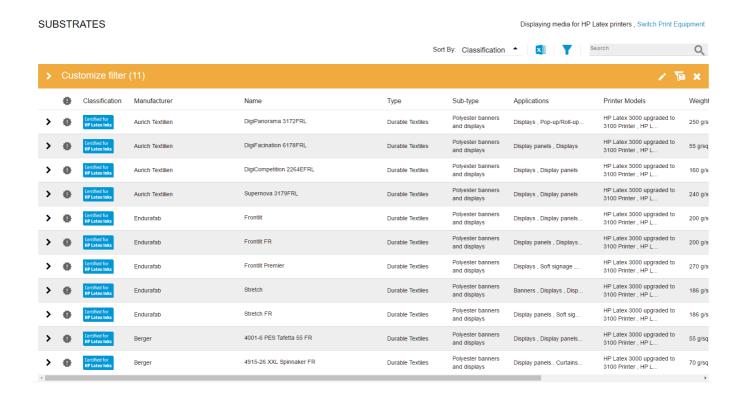
3. If the filter button is pressed, a drop-down list will be shown; it can be filtered by: classification, manufacturer, type, sub-type, application, printer model, etc.



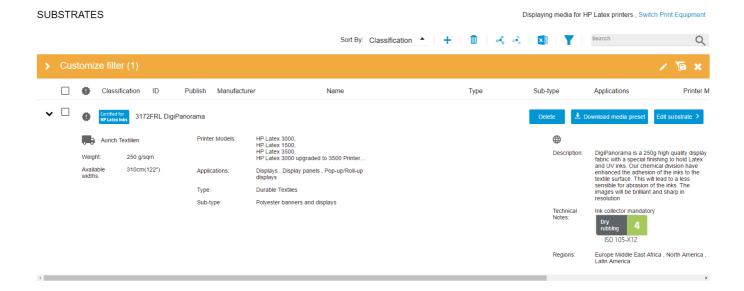
4. The materials from the list have their own Media Type, called 'Durable Textiles.'



5. The list with the materials that this document is referring to will be shown.



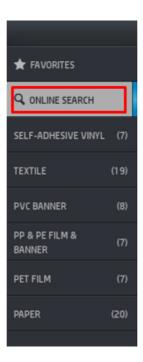
6. By clicking the "Show details" button on the left side of a row, information about the ink collector needed and the results of the ISO 105-X12 dry rubbing test can be seen in the technical notes area.



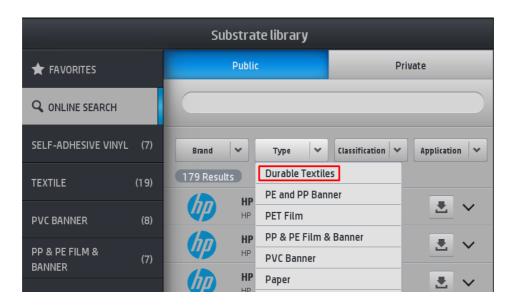
HP Latex 1XX, 3XX and 5XX printer front panels

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

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



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

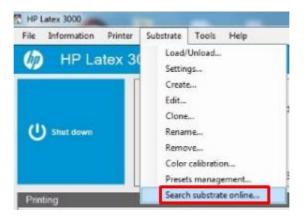


3. Click on the **Download** button to install the media preset; the RIP will automatically synchronize with the printer.

HP Latex 3X00 and 1500 printer IPSs

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

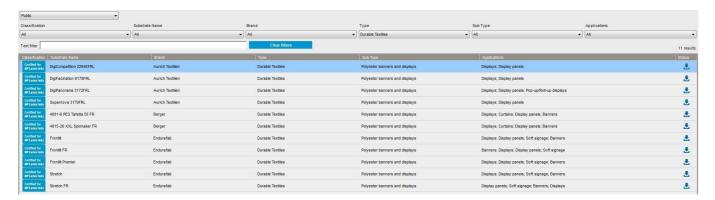
1. Click on **Substrates** and select **Search substrate online** from the drop-down list.



2. Filter by type and select **Durable Textiles** from the drop-down list in order 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).



5 Ink collector installation and usage recommendations

Before printing on porous textiles, the Ink Collector Kit should be installed, which is not available for the HP Latex 110, 115, 310, 315, 330 and 335, yet standard on the HP Latex 360, 365, 370, 375 and 3000. it is an accessory for the HP Latex 1500 that protects the printer from the ink that falls through the 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 and for all the HP Latex printers can be found in the following table.

Media Vendor	Material	Is the ink collector required?
Aurich Textilien	DigiCompetition 2264EFRL	YES
(TVF in NA)	DigiFacination 6178FRL	YES
	DigiPanorama 3172FRL	YES
	DigiStretch 2157FRL	YES
	Supernova 3179FRL	NO
	4001-6 PES Tafetta 55 FR	YES
Berger	4280-77 Universal Display 250FR WS	NO
	4915-26 XXL Spinnaker FR	YES
	Frontlit	YES
	Frontlit FR	YES
Endurafab	Frontlit Premier	NO
Elluulalau	Frontlit Premier FR	NO YES YES YES
	Frontlit Stretch	
	Frontlit Stretch FR	YES
Neschen	PES Banner 240	NO
	DirectTex Spinnaker Economy	YES
	Printex Softimage 240	NO
PONGS	PrintTex Artist Mambo	NO
	Silencio 10	YES
	Silencio 5	YES
PremEx DuraVibe	PremEx DuraVibe 5196B Leenane Blockout	
Ultraflex	Ultrapoplin Softimage D240	YES YES YES NO YES NO YES YES NO YES YES NO NO YES YES NO NO YES YES NO YES NO YES NO YES NO YES NO YES
Uttianex	Vortex Stretch D229	YES
Verseidag	NO	

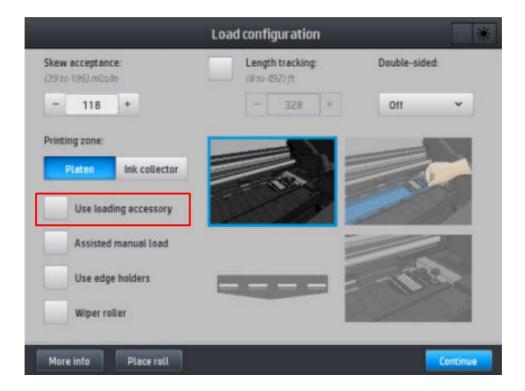
6 How to use the media loading accessory with the HP Latex 500 and 300 series

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 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.

7 Post processing

Depending on the finishing/coating that the materials display, an improvement in terms of durability has been observed when applying extra heat after printing:

Media Vendor	Material	ls extra heat needed?	Tested settings: Temperature and dwell time
	DigiCompetition 2264EFRL	NO	-
	DigiFacination 6178FRL	NO	Temperature
Aurich Textilien (TVF in NA)	DigiPanorama 3172FRL	NO	
(IVI IIIIVA)	DigiStretch 2157FRL	NO	
	Supernova 3179FRL	NO	
	4001-6 PES Tafetta 55 FR	NO	-
Berger	4280-77 Universal Display 250FR WS	NO	-
	4915-26 XXL Spinnaker FR	NO	Temperature and dwell time 200°C / 392°F 60 seconds
	Frontlit	NO, but improves*	Temperature and dwell time 200°C / 392°F 60 seconds
	Frontlit FR	NO, but improves*	
F., J.,	Frontlit Premier	NO, but improves*	
Endurafab	Frontlit Premier FR	NO, but improves*	1
	Frontlit Stretch	NO, but improves*	
	Frontlit Stretch FR	NO, but improves*	· ·
Neschen	PES Banner 240	NO	-
	DirectTex Spinnaker Economy	NO	-
	Printex Softimage 240	NO	-
PONGS	PrintTex Artist Mambo	NO	Temperature and dwell time 200°C / 392°F 60 seconds
	Silencio 10	NO	-
	Silencio 5	NO	-
PremEx DuraVibe	5196B Leenane Blockout (Cotton Linen)	NO	-
Ultraflex	Ultrapoplin Softimage D240	NO	-
Ottraffex	Vortex Stretch D229	NO	-
Verseidag	B4011 Seemee Corpus Blockout	NO	-

^{*} The durability (for instance: the dry rub, wet rub and scratchability tests) of some materials from the list is improved after adding the settings recommended in the previous table. There are different kinds of devices that can be used to achieve this temperature: oil drum calender heat transfers, infrared heating systems, clamshell heat presses, etc. The most important thing is to guarantee that the surface of the printed material heats up to 200°C (392°F).

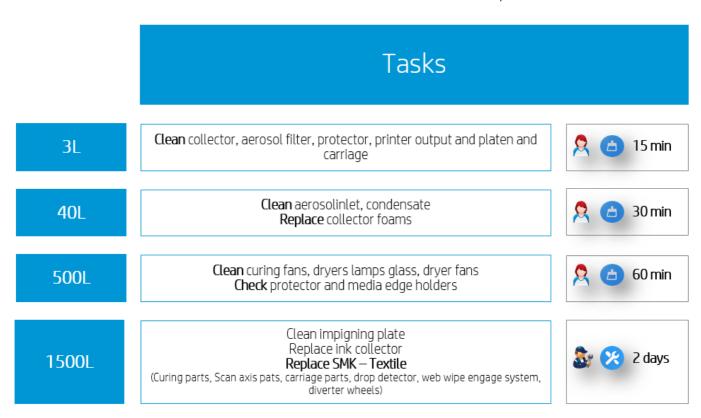
8 Additional maintenance operations when printing on porous materials

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
- 1,500 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 maintenances*that the customer will need to perform.



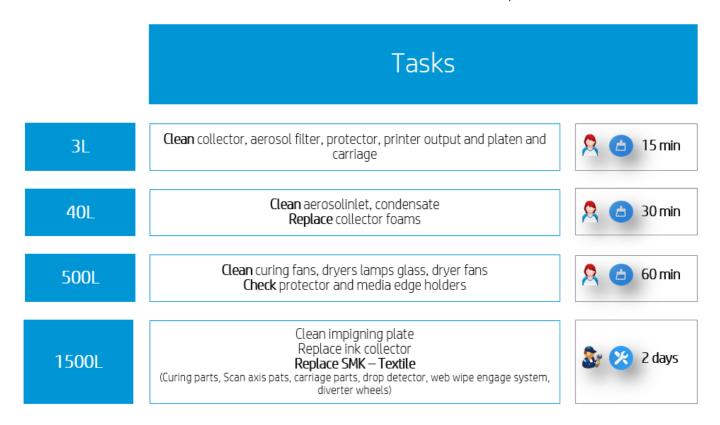
^{*} These maintenances are scheduled within HP Print Care (also explained in chapter 7 of the user guide) together with other maintenance tasks.

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
- 1,500 liter maintenance
- 3,000 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 maintenances*that the customer will need to perform.



^{*} These maintenances 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

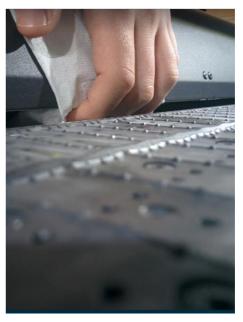
Due to the porous nature of textile media, the ink on the media tends to evaporate differently than with other materials. Evaporated components of the ink may condense on cold surfaces of the printer, leaving an oily finish.

- 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 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 cleanings 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

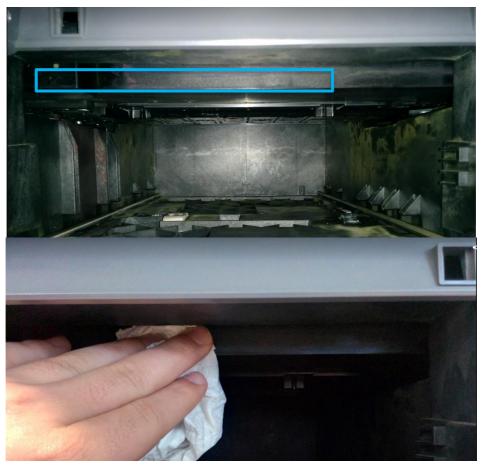
From the front panel, perform a maintenance cartridge replacement and remove the maintenance cartridge.



- 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.