# Cookbook - Durable Textiles

## for HP Latex Printers


April 2017

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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 the 3rd generation of ink, with special focus on 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, classification and their main applications within the Soft Signage scope.
- A list of textiles that have been tested to guarantee a good/very good dry rubbing and resistance to the scratches 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 ink collector or not.
  - 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 the customer to find the media presets and the previously mentioned information.
- The key customers' requirements regarding the improved performance or durability. Regulations used to verify the image resistance, the test results and thresholds.
- Information about the media vendors' distribution.

# 2 Introduction to the Textiles

## Why do we need more durable textiles/fabrics?

The demand for textiles for signage is growing and HP Latex Technology presents a good solution for capturing the textile signage opportunity, in particular.

- Textiles provide soft hand, great color pop and are considered more premium than a vinyl or a paper. Due to this fact, there is a higher value perceived by the end customer.
- Textiles are lighter, wrinkle-free, etc. they are easier to transport, mount and store, making all the process cheaper
- The environmental regulations are changing and impacting the PVC based substrates and the traditional textiles. The media vendors are moving toward non-PVC based materials and the traditional market is moving toward the digital printing.

HP Latex printers are compatible with a range of textiles such as polyesters and natural fibers blends. HP Latex prints are odorless and thanks to the flexibility of the ink, the feel of un-coated materials is maintained.

This document provides tips and tricks for getting the best results from the 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 knit**
  Textiles with a weight of 250 – 400 g/m2 (23 – 37 g/sqft). They are used as an alternative to PVC banner due to their soft hand and attractive finish. There is a very wide variety available, including both coated and uncoated types.

- **Soft knit**
  Textiles with a weight of 250 g/m2 (23 g/sqft) or less. They have a look and feel which is softer and more flowing than 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 banner or PET film.

- **Flag**
  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, have also a grammage lower than 120 g/m2 (11 g/sqft).

- **Stretch**
  They can be heavy or soft knit depending on the kind of yarn is used to manufacture the base of the material. The main application for this kind of textiles is SEG – Silicone Edge graphics. No matter the final application, frontlit or backlit.

# 3 Recommended list of textiles

## Classification

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

| Media Vendor name | Material | Soft Signage | | | |
|---|---|---|---|---|---|
| | | Frontlit | | | |
| | | Heavy knit | Soft knit | Stretch | Indoor Tear drops |
| Aurich Textilien (TVF in NA) | DigiPanorama 3172FRL | • | | | |
| | DigiFacination 6178FRL | | | | • |
| | DigiCompetition 2264EFRL | | • | | |
| | Supernova 3179FRL | • | | | |
| Endurafab | Frontlit | | • | | |
| | Frontlit FR | | • | | |
| | Frontlit Premier | • | | | |
| | Frontlit Stretch | | | • | |
| | Frontlit Stretch FR | | | • | |
| Berger | 4001-6 PES Tafetta 55 FR | | | | • |
| | 4915-26 XXL Spinnaker FR | | | | • |

## Media Vendors Distribution

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

**WIDTH - 3.2m (126”)**

| Media Vendor name | Distribution | | | |
|---|---|---|---|---|
| | APJ | EMEA | Latin America | North America |
| Aurich Textilien | | • | | • |
| Endurafab | | | | • |
| Berger | • | • | • | • |

**WIDTH - 1.6m (64”)**

| Media Vendor name | Distribution | | | |
|---|---|---|---|---|
| | APJ | EMEA | Latin America | North America |
| Aurich Textilien | | WIP | | • |
| Endurafab | | | | • |
| Berger | • | • | • | • |

## Media presets tested and validated

The following table offers the recommended printmodes to get the verified better results, once the media preset is installed, there will normally be two different printmodes – the production and the quality mode:

| Media Vendor | Material | HP Latex 3X00 | HP Latex 1500 | HP Latex 5XX |
|---|---|---|---|---|
| Aurich Textilien | DigiPanorama 3172FRL | 10p170%<br>14p260% | 12p170%<br>14p260% | 16p185%<br>20p200% |
| | DigiFacination 6178FRL | 10p170%<br>14p200% | 12p170%<br>14p200% | 16p170%<br>20p185% |
| | DigiCompetition 2264EFRL | 10p170%<br>14p260% | 12p170%<br>14p230% | 16p185%<br>20p200% |
| | Supernova 3179FRL | 10p170%<br>14p260% | 12p170%<br>14p260% | 16p185%<br>20p200% |
| Endurafab | Frontlit | 10p170%<br>14p200% | 12p170%<br>14p200% | - |
| | Frontlit FR | 10p170%<br>14p200% | 12p170%<br>14p200% | - |
| | Frontlit Premier | 10p170%<br>14p230% | 12p170%<br>14p230% | - |
| | Stretch | 14p170%<br>20p200% | 12p170%<br>14p200% | - |
| | Stretch FR | 14p170%<br>20p200% | 12p170%<br>14p200% | - |
| Berger | 4001-6 PES Tafetta 55 FR | 10p120%<br>14p130% | 12p120%<br>14p130% | 20p120% |
| | 4915-26 XXL Spinnaker FR | 10p130%<br>14p150% | 14p130%<br>18p150% | 16p110% |

## The Key test to have a Durable Textile for Soft Signage

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

### 1. Why is the Dry Rubbing test so important?

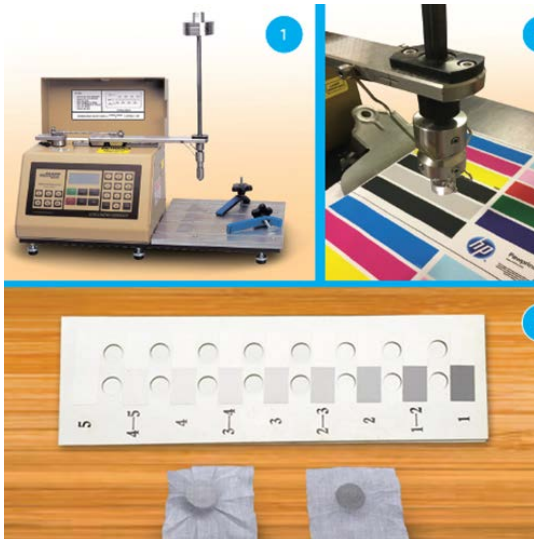
Textiles with a good Dry Rubbing test result are suitable for sewing, finishing and transporting and are easily installable without being damaged. HP is constantly analyzing new materials to increase even more the range of textiles that ar excellent for use with HP Latex Inks.

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

### 3. How to measure the Dry Rubbing?

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 4 and 5 respectively. Textiles printed with HP Latex Technology and with a dry rubbing performance equal to or better than 4 are the perfect fit for your soft signage applications.




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

# 4 Where to find the media presets

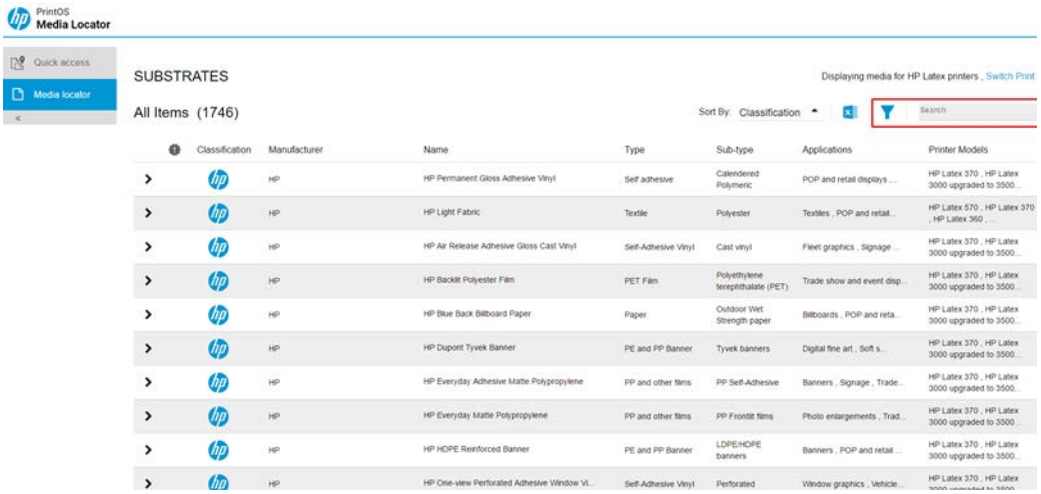
There are different ways to search, find and install the media presets:

## Media Locator

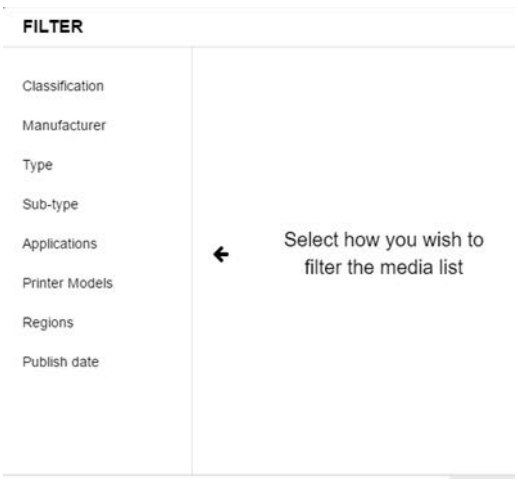
All the profiles are available at the HP Media Solutions Locator which is an application within the PrintOS: https://www.printos.com/ml/#/medialocator

1. Click on the HP Latex button.

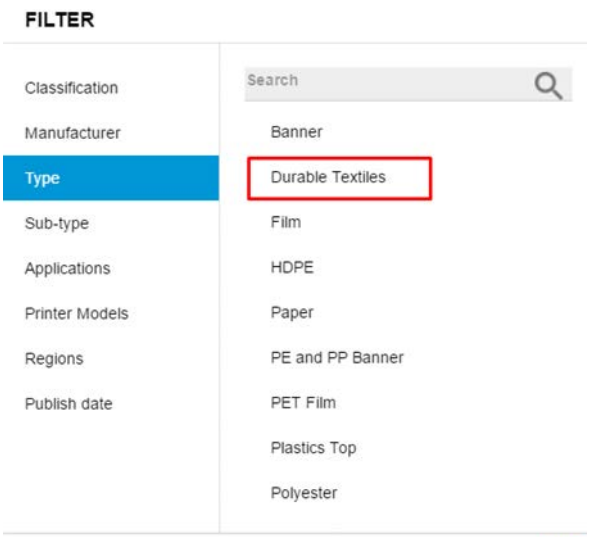

2. The Filter button or the Search field can be used to find the recommended textiles from the previous list:



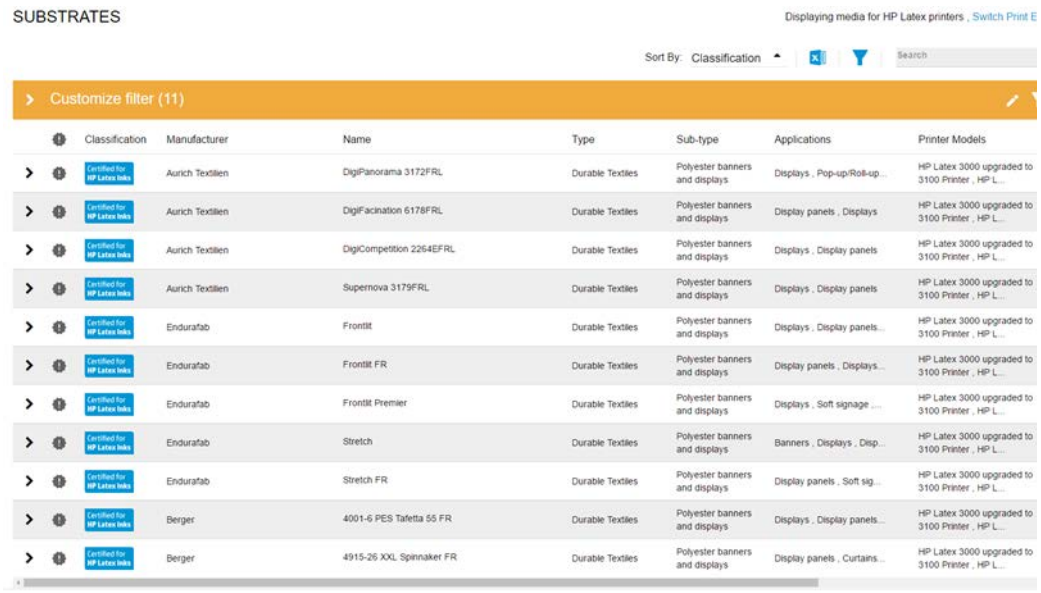

3. If the filter button is pressed, a dropdown list will be shown, the list can be filtered by: Classification, Manufacturer, Type, Sub-type, Applications, Printer Models ...



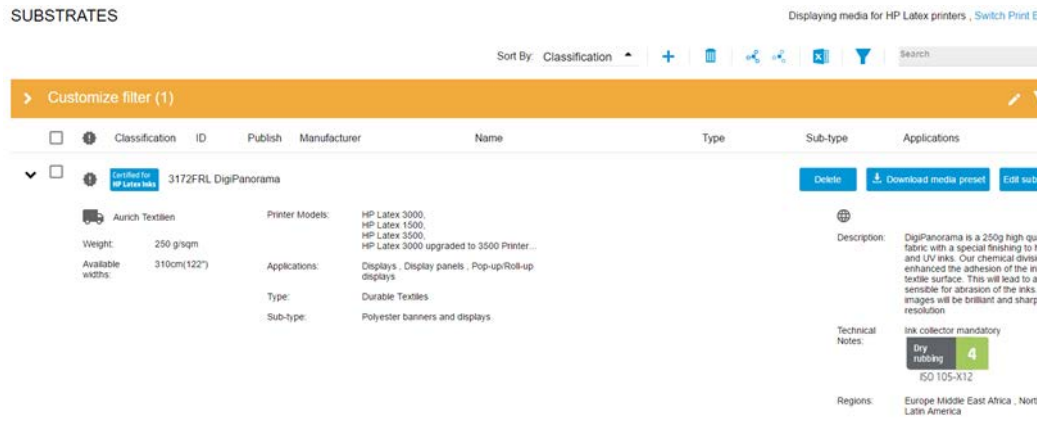
4. The materials from the list have their own Media Type called: Durable Textiles:




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



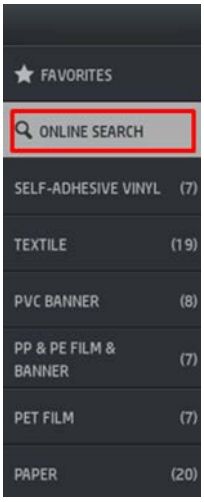

6. By clicking in the “Show details” button in the left side of the row, information about the ink collector need and the results of the ISO 105-X12 – Dry Rubbing test can be read in the technical notes:



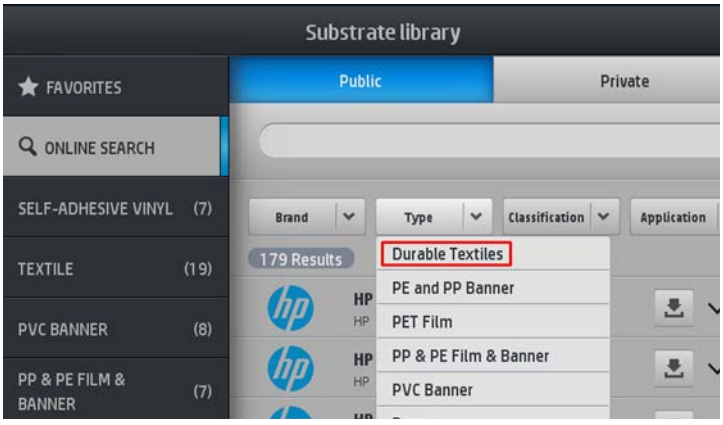
## HP Latex 3XX and 5XX printers' front panel

The media presets can be installed through the front panel of the printer:

1. Click on the Online Search button:




2. Filter by Type and select Durable Textiles from the dropdown list to see the recommended materials:

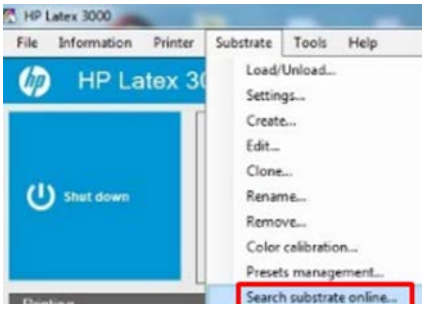



3. Click on the Download button to install the media preset:  . The printer will automatically synchronize with the RIP.

## HP Latex 3X00 and 1500 printers' IPS

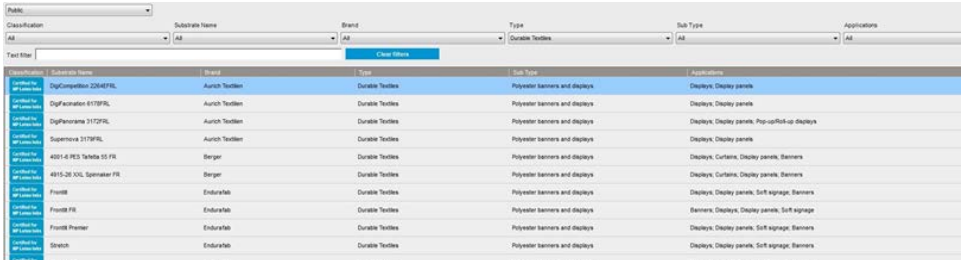
The media presets can be installed through the IPS (the computer's PC):

1. Click on Substrates and select the Search substrate online from the dropdown list:



2. Filter by Type and select Durable Textiles from the dropdown list to see the recommended materials:


3. Click on the Download button – it is placed on the right side of the window, column Status – and wait until the installation process is finished, once the icon changes to :



# 5 The Ink collector installation and usage recommendations

Before printing on porous textiles, you must install the ink collector kit available as an accessory, to protect the printerfrom the ink that falls through the substrate. The kit should be removed before printing on non-porous substrates.

In order to know 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 need per material

The recommendation per media and all the HP Latex printers can be found in the following table:

| Media Vendor | Material | Is the ink collector required? |
|---|---|---|
| Aurich Textilien (TVF in NA) | DigiPanorama 3172FRL | YES |
| | DigiFacination 6178FRL | YES |
| | DigiCompetition 2264EFRL | YES |
| | Supernova 3179FRL | NO |
| Endurafab | Frontlit | YES |
| | Frontlit FR | YES |
| | Frontlit Premier | NO |
| | Frontlit Stretch | YES |
| | Frontlit Stretch FR | YES |
| Berger | 4001-6 PES Tafetta 55 FR | YES |
| | 4915-26 XXL Spinnaker FR | YES |

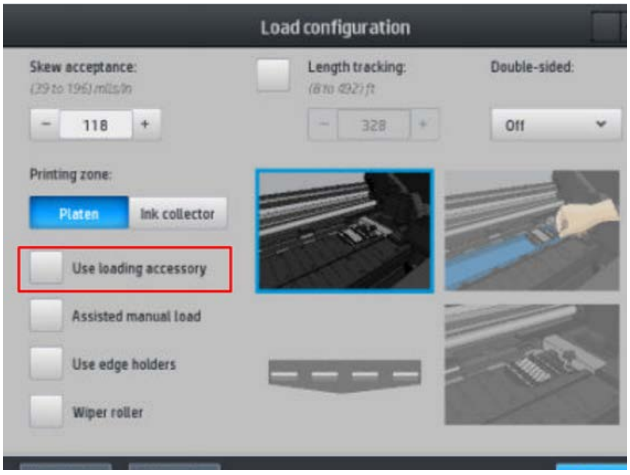
# 6 How to use the media loading accessory with the HP Latex 500 and 300 series

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

In order to know 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** – By clicking on Use loading accessory button on the front panel, this printer is able to change the pinch-wheels force in order to avoid wrinkles with 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 have, an improvement in terms of durability has been observed when applying an extra heat after printing:

| Media Vendor | Material | Is an extra heat needed? | Tested settings: Temperature and dwell time |
|---|---|---|---|
| Aurich Textilien (TVF in NA) | DigiPanorama 3172FRL | NO | - |
| | DigiFacination 6178FRL | NO | - |
| | DigiCompetition 2264EFRL | NO | - |
| | Supernova 3179FRL | NO | - |
| Endurafab | Frontlit | NO, but improves* | 200ºC / 392ºF 60 seconds |
| | Frontlit FR | NO, but improves* | 200ºC / 392ºF 60 seconds |
| | Frontlit Premier | NNO, but improves* | 200ºC / 392ºF 60 seconds |
| | Frontlit Stretch | NO, but improves* | 200ºC / 392ºF 60 seconds |
| | Frontlit Stretch FR | YNO, but improves* | 200ºC / 392ºF 60 seconds |
| Berger | 4001-6 PES Tafetta 55 FR | NO | - |
| | 4915-26 XXL Spinnaker FR | NO | - |

* The durability – for instance: dry rub, wet rub and the scratchability tests – of some materials from the list is improved after adding the recommended settings in the previous table. There are different kind of devices that can be used to achieve this temperature: Oil drum calender heat transfers, infra-red heating systems, clamshell heat presses, etc. the most important thing is to guarantee that the surface of the printed material arrives to the 200ºC (392ºF).

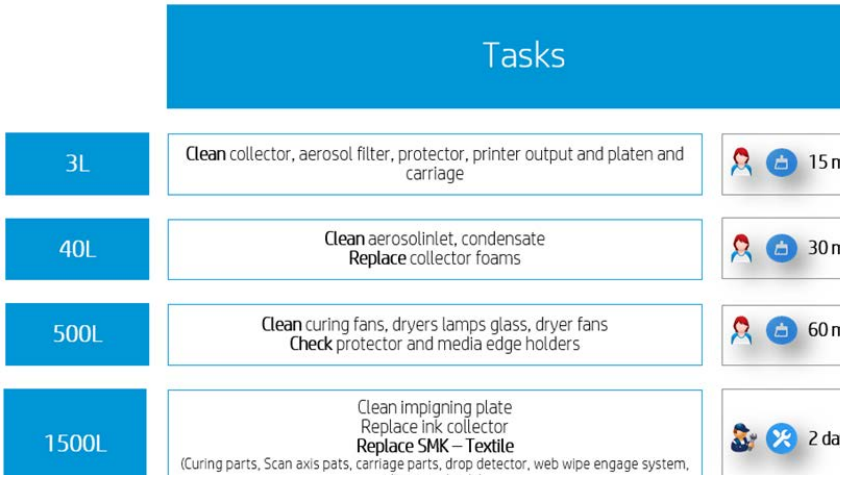
# 8 Additional maintenance operations when printing on porous materials

## HP Latex 3X00

A part of the Summary of maintenance operations section that can be found in the user guide within the **Chapter 8 – Hardware maintenance**, where the usual maintenance operations are explained as follows:

- Weekly clean
- 125 liters maintenance
- 500 liters maintenance
- 1.500 liters maintenance

Besides when printing on textiles, since most of them are porous, they require printmodes with more number of passes and more amount of ink, compared to other different substrates that can be printed with HP Latex inks. The following table describes the additional maintenances* that the customer will have to do:



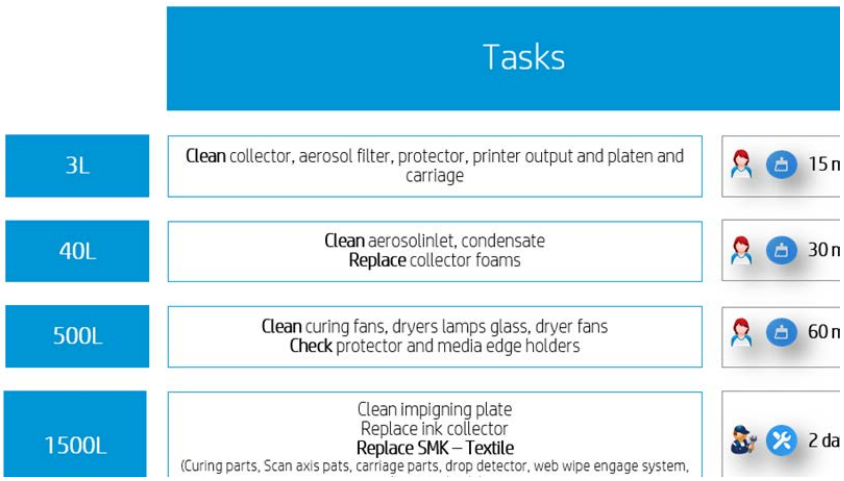

* These maintenances are scheduled within HP Print Care (also explained in the user guide: **Chapter 7 – HP Print Care)** together with other maintenance tasks.

## HP Latex 1500

A part of the Summary of repairs kits and maintenances section that can be found in the user guide within the **Chapter 10 – Hardware maintenance**, where the usual maintenance operations are explained as follows:

- Weekly clean
- 450 liters maintenance
- 900 liters maintenance
- 1.500 liters maintenance
- 3.000 liters maintenance

Besides when printing on textiles, since most of them are porous, they require printmodes with more number of passes and more amount of ink, compared to other different substrates that can be printed with HP Latex inks. The following table describes the *additional maintenances** that the customer will have to do:




* These maintenances are scheduled within HP Print Care (also explained in the user guide: **Chapter 8 – HP Print Care**) together with other maintenance tasks.other maintenance tasks.

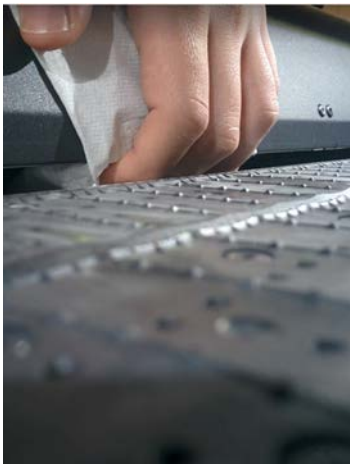
## HP Latex 3XX and HP Latex 5XX

Due to the porous nature of textile medias, the ink on the media tends to evaporate differently than in other materials. Evaporated components of the ink may condensate on cold surfaces of the printers leaving an oily finish.

- To prevent condensation under the printed material transferring into 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 condensation drops falling into subsequent jobs perform the following user maintenance after an intensive usage of textile (approximately after every roll)

**Clean the curing system internal cover internal lip**

1. Turn off the printer
2. Open the main window
3. With a soft cloth or paper remove any oily drop forming on the edge of the cover internal lip



**Clean the output platen**

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

Help yourself wrapping the cloth around a soft tool to reach the inner parts of the output platen.
From the Maintenance Cartridge door, you have access to the line sensor.

1. With a soft cloth or paper, clean the line sensor. Be careful not to touch the Print heads.
2. Close the window and Maintenance Cartridge door and turn on the printer.
3. Turn on the printer and finish the Maintenance Cartridge replacement.

**IMPORTANT;** It is not required that you do 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 risk of damaging the print heads.

## HP Latex 3XX only

Due to hardware differences, it is expected that the 3XX series printers are more susceptible than the 5XX series to the accumulation of condensation and aerosol when printing all medias, specially textiles. The above described procedures may need to be done more frequent or more intensively on the 3XX series.

In addition to the procedures described above, do the following two cleaning maintenances after an intensive use of textile.

**Clean the vapor removal**

With a soft cloth or paper clean any oily drop under the vapor removal array – the outer array of fans.

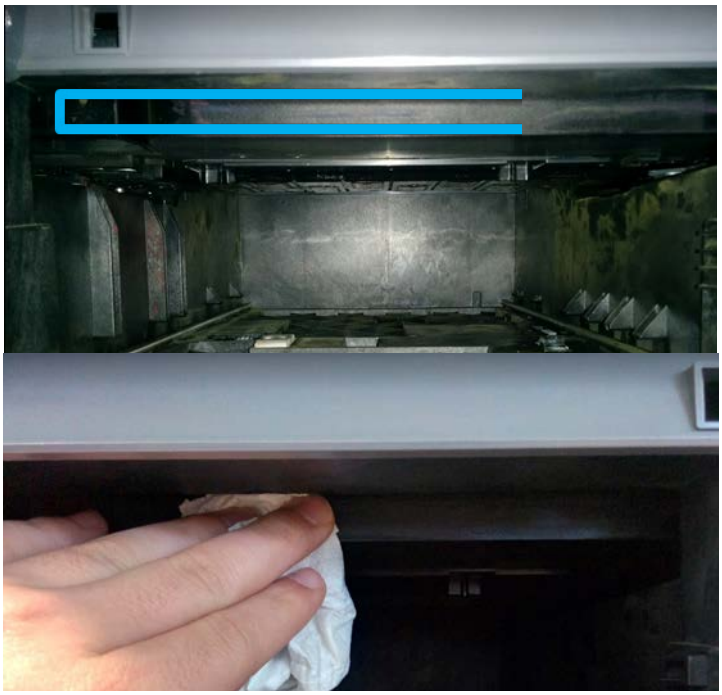
Pay special attention to the left and right corners.

**Clean the carriage front**

From the Front Panel, perform a maintenance cartridge replacement and remove the maintenance cartridge.

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

From the Maintenance Cartridge door, you have access to the carriage.



1. With a soft cloth or paper clean the exterior of the carriage.
2. Be aware not to touch the line sensor or the print heads.
3. Close the window and Maintenance Cartridge door and turn on the printer.
4. Turn on the printer and finish the Maintenance Cartridge replacement.

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