



HP Latex 300, 500, 1500 and 3000 Printer Series

May 2017

Printing on polyester films with HP Latex printers

Polyester films (PET films) can be used to fulfill a great variety of Sign & Display applications such as roll-ups or light boxes.

This document provides tips and tricks for getting the best results when printing on PET film with your HP Latex 110, 300, 500, 1500 or 3000 printer series.



Some common types of PET films are:

- **Backlit PET films:** translucent materials to be used with rear illumination. They provide a high quality alternative for light boxes applications. High ink amounts are used to achieve excellent color saturation.
- **Frontlit PET films:** commonly used in Roll-up or Pop-up displays, they represent a more rigid alternative to PVC banners, papers or textiles. Many substrates include a colored back side to block light.
- **Transparent PET films:** similar to other PET films but without any whitening agent, they are used in applications such as window graphics.
- **Lightjet/Duratrans PET films:** designed for digital chromogenic printing (non-inkjet) for fine art photographic applications. High cost due to the composition of the material (including silver salts).
- **Polycarbonate films:** common in fields such as construction or food industry. They can have a similar look-and-feel to PET Films and are becoming a popular alternative in large format printing.

HP Media Solutions Locator

Visit the HP Media Solutions Locator (www.printos.com/ml/#/medialocator) to obtain ready-to-use profiles for a new substrate, or to discover new media compatible with your HP Latex printer. Learn how to make the most out of the HP Media Solutions Locator looking at the following [article](#).

You may also access and download the profiles directly from your printer (see the printer's User guide).

You may fine-tune the profile to your specific requirements and preferences, if necessary.

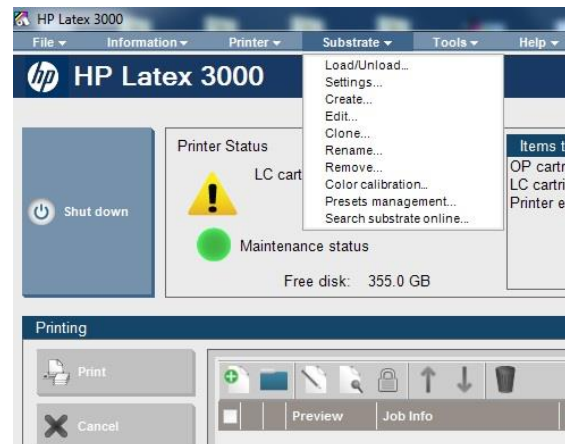
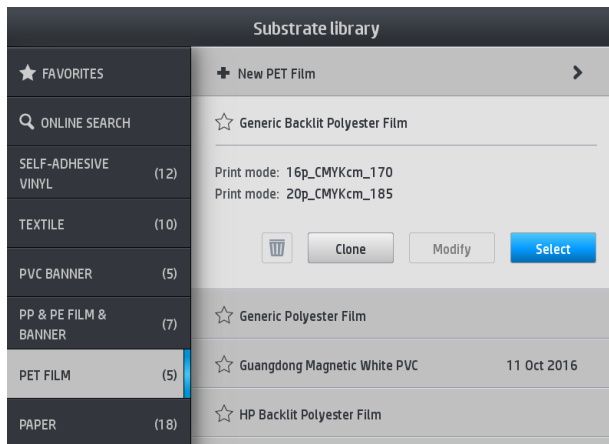
Recommended print modes

The generic print modes, available in the printer by default, provide an optimal balance between image quality and throughput. Nonetheless, the printer provides advanced operators with the flexibility to adjust and fine-tune settings, if necessary.

In this case, it is recommended to **maintain the ratio between speed and ink quantity**, as too fast and/or too saturated print modes can lead to lack of curing, media deformation and condensations on the printer.

Printer	Recommended print modes	
	Frontlit	Backlit
HP Latex 110	6-pass, 80% ink	16-pass, 170% ink
HP Latex 300 series	8-pass, 100% ink	20-pass, 185% ink
HP Latex 500 series	10-pass, 100% ink	
HP Latex 1500	6-pass, 100% ink 8-pass, 120% ink	12-pass, 230% ink 14-pass, 260% ink
HP Latex 3000 series	8-pass, 100% ink	14-pass, 200% ink 18-pass, 230% ink

To select a different print mode or edit the print settings, create a new media (or clone a generic profile) and perform the desired changes on the newly created substrate.



IQ and Application Tips and Tricks

Print durability

Latex inks require PET films to be coated for inkjet printing in order to adhere to the substrate's surface. When using uncoated substrates, or with very thin coating, the prints are easily damaged by scratches. Also, there is a higher risk of ink transfer to the surfaces in contact with the print, such as the light box screen or the back-side of rolled substrates.

Latex inks have very good adhesion on water-based coated substrates, and on most solvent-based coated ones. UV-coated materials, on the other side, usually have thin coatings and are less recommended for Latex inks.

The durability of the print also depends highly on the resistance of the coating to external factors. Water-based coatings (and some thick solvent-based ones) are often easier to scratch than standard solvent-based coatings. Moreover, water-based coatings get damaged when in contact with water. So consider laminating these products after printing, especially when the prints will be placed outdoors.

Surface dryness

HP Latex inks should come out fully dry directly after printing. Nonetheless, when using excessive ink amounts with low temperatures and/or fast throughputs, saturated areas, such as dark colors in backlit prints, may show a greasy surface.

Solvent-coated or UV-coated media are more likely to show areas with greasy surfaces than water-based coatings, which, provided their high liquid absorption capacity, do not show this effect.

Placing a **tissue paper between samples** avoids this effect from appearing while protects the prints from potential damages during handling. It is also recommended to install the prints in the final location within 48 hours after printing.

Moreover, the following recommendations should be followed if a greasy surface is observed on the prints:

1. Ensure that you are operating the printer within the optimal print quality environmental specifications:
 - **Temperature:** 20°C to 25°C (68°F to 77°F).
 - **Relative humidity:** 30% to 60%.
 - **Temperature gradient:** 10°C/h (18°F/h) or less.
2. Increase the number of passes: a high number of passes is strongly recommended for most backlit PET prints (e.g. 18 passes in the HP Latex 3000 series).
3. Increase the drying power and curing temperature.
4. Reduce the ink density: no more than the maximum ink for the generic print mode is recommended.

You may use the Generic PET film settings (available in your HP Latex 3000 series printer) as a reference.

Substrate flatness

Some PET films tend to expand under high temperatures, generating waves that may be visible to the naked eye right after printing.

However, this kind of deformation is minimized when the printed images are installed vertically and viewed perpendicularly. Rear illumination and some tension (as the one the prints would experience in a light box) should make the prints look totally flat even if certain deformation might have been noticed while printing.

Moreover, in order to minimize the substrate's deformation, please follow these recommendations:

1. Ensure that you are operating the printer within the optimal print quality environmental specifications:
 - **Temperature:** 20°C to 25°C (68°F to 77°F).
 - **Relative humidity:** 30% to 60%.
 - **Temperature gradient:** 10°C/h (18°F/h) or less.
2. Reduce the curing temperature. 85°C is the recommended value for most PET backlit films, although lower values may also be used.
 - In order to ensure that the images are completely cured, you may need to decrease the ink saturation and increase the number of passes (e.g. 18 passes and 230% or less in the HP Latex 3000 series).
3. Reduce the tension and vacuum values. The recommended settings in case deformation is observed are:
 - **Input tension:** 30 N/m.
 - **Output tension:** 30 N/m (in the HP Latex 1500 and 3000 series).
 - **Vacuum:** 10 mm H₂O.

Recommended substrates

Among the backlit PET films tested by HP, the substrates that provide the best combination of durability, lack of greasy surface and deformation are the **Natura ES690** and the **CMA Perfect Trans**.

Other substrates available proven compatible are included in the HP Media Solutions locator, together with the corresponding recommended print settings.

Polycarbonate substrates

Polycarbonate films such as **Tekra JetView Latex White Matte/Gloss** are becoming a popular alternative to PET films. These products show very good compatibility with the Latex inks, providing a very good IQ (color saturation and white point), durability, low deformation levels and no greasy surfaces.

Although some gloss differences may be visible when viewing front lit images, these are not noticeable when using back lighting (e.g. in a lightbox).