# HP Latex 3000 Printer series
# Tips and Tricks

## How to get the best results using paper media on the HP Latex 3000 Printer series

Paper media is used for both indoor and outdoor signage as well as interior decoration, and represents an economical alternative to other media types, such as PVC Banners and PET films.

Although there is very good compatibility between HP Latex inks and almost all cellulose papers, there are certain factors that need to be taken into consideration in order to obtain optimal results. This document provides tips and tricks for getting the best results from the HP Latex 3000 Printer series when printing on paper.

Here listed are some of the most common types of papers:

- Indoor papers: used for indoor signage such as posters or roll-ups.
- Outdoor papers: reinforced with synthetic fiber to stand humidity and other weather conditions.
- Blue back papers: outdoor papers with blue-colored back to be used in billboard applications.
- Bond /technical papers: economic solution without any coating for digital printing.

## HP Media Solutions Locator

Visit HP´s Media Solutions Locator (www.hp.com/go/mediasolutionslocator) to access a database of media presets and ICC profiles available for the HP Latex 3000 Printer series. Use HP´s database to check for media resources before printing on a new substrate, or to discover new media possibilities suitable for the HP Latex 3000 Printer series. The HP Media Solutions Locator is continuously updated with new entries, so be sure to check it regularly.

Information about type, grade and regional availability is provided for each media reference. In addition, note the different C*lassification* levels:

- HP – Designed as an integrated system with Original HP inks and HP printers for optimized performance.
- ColorPro – Engineered with ColorPRO Technology to deliver color excellence in digital printing.
- Certified – certified compatibility with specified HP Latex printers and inks. HP Certified media has been tested following important criteria such as; print quality, printer-media interaction, image processing and image handling.
- Profiled only - Media with a printer profile available, but that is not HP certified

Note: When using media presets and/or ICC profiles from the HP Media Solutions Locator, it is recommended to always check the quality and throughput they deliver before printing final jobs. You can then adjust to your specific requirements and preferences, if necessary.

## Recommended solution space

When selecting a print mode to use, it is always recommended to start with one of the generic print modes offered by the printer. These generic modes have been tested on a range of media and provide an optimal balance between image quality and throughput. For reference, generic/default modes are shown in the table below.


Although generic print modes are recommended, the printer has been designed to provide flexibility to adjust and fine-tune settings, by advanced users if needed. In this case, use the preferred solution space shown below to select a working point from the range of throughput and ink density configuration.

# IQ and application tips and tricks

## Grain

Having a graininess surface is often a consequence of a defective placement of the ink drops on the media. The main contributors to this phenomenon are:

1. Print-head alignment

   Make sure the print-heads are correctly aligned on the selected media. Use the Print-head alignment plot to verify and fine-tune the alignment.

2. Media Advance

   A defective media advance may lead to an incorrect overlap between passes. This generates a noisy or grainy look of the printed images. Including the Media Advance Bars while printing is highly recommended to identify any advance errors.

   In order to ensure correct advancing of the loaded media, follow the process specified in the printer's user guide (chapter 6).

Also, note that the OMAS sensor does not support blue-back papers, so, it is recommended to do a manual compensation of any advance problem observed when printing on these type of papers.

### 3. Media expansion (and contraction)

When in contact with liquid, most papers tend to expand. Also they contract when the substrate is dried. In the case of HP printers, expansion takes place during the printing stage, while the media contracts in the curing area, where the high temperatures evaporate the moisture inside the media, even in unprinted areas. Uncoated papers tend to show more dimensional variations, for there is much more penetration of ink through the cellulose fiber.

Additionally, papers reinforced with synthetic fiber so they remain dimensionally stable in humid environments (most outdoor papers) tend to experience lower dimensional variation while printing.

On top of having a negative contribution to the advance stability, media expansion and contraction during printing leads to a defective dot placement in the horizontal axis. Thin vertical lines are also affected by dimensional changes, becoming fuzzy if there is media expansion while printing.

In order to reduce the graininess caused by media expansion, the humidity on the media while printing should be minimized. Therefore, it is recommended to use **lower ink quantities** and/or use **slower throughputs**. Also, **high power on the drying lamps** (around 70%), helps to dry the ink before the other carriage passes lay more ink on the media.

## Substrate Deformation

Aside from altering the ink placement, the expansion and contraction of the papers along the media path also affects their flatness. Depending on their inner structure, some papers expand-contract globally while others suffer multiple local dimensional changes.

The ones in the first group normally keep their flat shape despite the fact that their dimensions might change. However, for wide rolls (beyond 2m), this re-sizing usually generates wrinkles in the print-zone that cause ink smears and carriage jams.

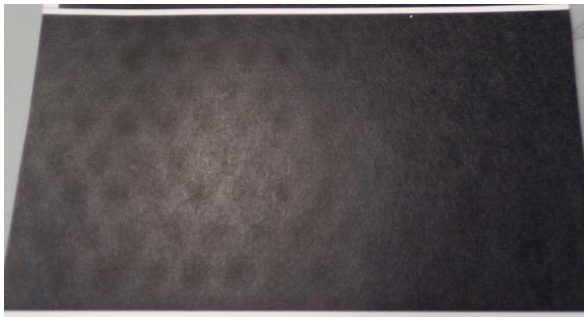
Papers that expand and contract locally usually suffer from creases that are visible after printing (see image below).

In order to reduce any of these kind of deformations it is recommended **to reduce the amount of ink and curing temperature**. Using **slower print-modes** is also recommended to reduce temperature without facing

smudge. In the case of having **wrinkles in the print-zone, higher values of vacuum and tension** also improve the overall performance.

## Impinging marks

When, due to a high degree of rigidity, a substrate gets too close to the curing module, the hot air flow can marks the media, generating difference gloss aspects that create a bee-panel like pattern.



In order to eliminate these marks, it is recommended to use **higher tension** to straighten the media in the curing stage and use the **second position of the curing module**. **Reducing curing temperature and curing airflow** (as long as their durability is not affected) also reduces impinging marks.

## Horizontal Banding

In addition to all the recommendations provided on the HP Latex user guide (Chapter 10), one factor that has great impact on the banding of papers, is the usage of black ink. By **delaying the entrance of K ink in the GCR** parameters of the ICC (use more composite), the horizontal banding can be reduced significantly.

## A note on coated & uncoated papers

Although Latex inks has good compatibility with all kind of papers (e.g. uncoated, coated for WB inks or coated for Solvent inks) the mechanical behavior of the paper in the printer can vary from one paper to another. When printing on uncoated papers, the ink penetrates the substrate's surface and rest among the cellulose fiber. This phenomenon has 4 main consequences:

1. **Curing the Latex is not required** to achieve good durability. Since the ink is already inside of the media there is no need to create a protective Latex layer that encapsulates the pigment; hence, the curing temperature can be greatly reduced (below 80ºC).

2. **HP Latex Optimizer is not required**. Just like with the curing process, by impregnating the cellulose fiber the ink drops are fixed instantly, hence, there is lower risk of facing bleed and coalescence.

As opposed to uncoated papers, a great amount of ink is retained on the coating surface, since only a part of the ink penetrates the media fiber. The consequences, in this case, are:

1. **Curing temperature needs to be applied**, in order to avoid smudge, normal temperature in these cases go around 85ºC.

2. **HP Latex Optimizer is required**. Otherwise, bleed and coalescence problems appear.