Cookbook
How to print colored traffic signage on HP Latex 1500 printer

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1. Overview

Supported printers, media and RIP

The recommendations in this document apply to the following printers:

- HP Latex 1500

The recommendations in this document apply to the following substrates:

- 3M™ Diamond Grade ™ DG3 Reflective Sheeting Series 4000

- 3M™ High Intensity Prismatic Reflective Sheeting Series 3930

- 3M Diamond Grade VIP Reflective Sheeting Series 3990

- 3M™ Diamond Grade ™ Fluorescent LDP 3924s

The only supported RIP for this application to be eligible for 3M MCS warranty is:

- SAi FlexiPRINT & CUT Authorized 3M Traffic Edition L1500

Application purpose

The recommendations of this document cover the following reflective application cases:

Description	Examples
Long term regulated traffic signs using the following colors as per **ASTM D4956 – 09^{E1} norm:** • **Green** • **Blue** • **Brown** • **Red** • **Purple** • **Black** • **Yellow** (3M DG 4000 substrate only) Printed on white media.	
Temporary and Permanent regulated traffic signs for work zones printed **with black color only with a colored background.** **The background color** comes from the color of the **film being used**.	
Non-regulated reflective signs printed on color or with black color only.	

This document **does not cover** printing the following types of signs:

Description	Examples	Recommended work-around
Long term regulated traffic signs using the following as per ASTM D4956 – 09^{E1} norm: • Orange Combined with other colors (aside from black)		Cut the desired shape(s) from colored reflective vinyl and apply to the digitally printed sign.

2. Before Printing

Download and install the media presets for the reflective substrate being used. Media presets can be downloaded either from the **media locator webpage** or by using the **Online Search** menu located on the printer front panel. For your convenience, a link to the media locator webpage is listed in the following section.

How to install media presets using the media locator

To download and install media presets from the media locator to a Latex 1500 printer, follow these steps:

1. **Open** a web browser **and visit the HP Media locator** page: https://www.printos.com/ml/#/medialocator/latex

2. **Search for the media preset**, filtering by:

   - Printer: Latex 1500
   - Supplier: 3M Commercial Graphic
   - Application: Reflective signage

3. **Locate the profiles** designed for your media:

   - DG 4000
   - 3930
   - 3990
   - 3924 Black Only Images

Classification	Manufacturer	Name
Certified for HP Latex Profiled	3M Commercial Graphics Division	DG 4000 Traffic Colors v3
Certified for HP Latex Profiled	3M Commercial Graphics Division	3930 Traffic Colors v3
Certified for HP Latex Profiled	3M Commercial Graphics Division	3990 Traffic Colors v3
Certified for HP Latex Profiled	3M Commercial Graphics Division	3430 Traffic Colors v3

4. Download the media presets **from media locator:**
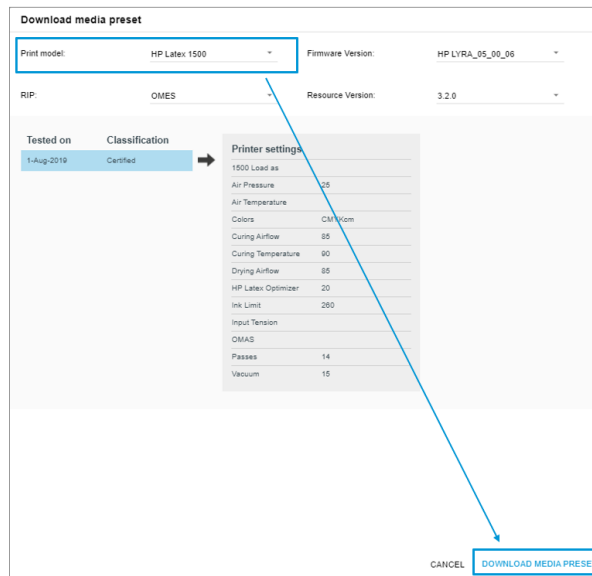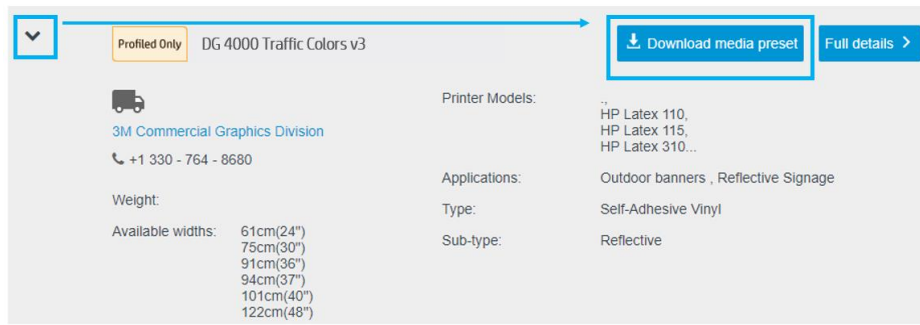
5. Save the media preset (oms file) in a folder.

6. Install the media preset. The installation process is:
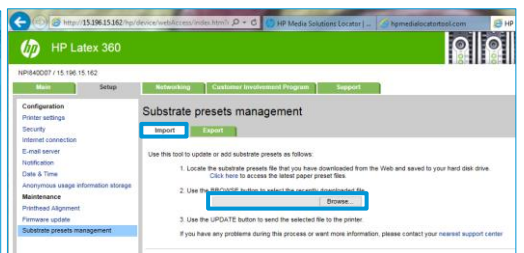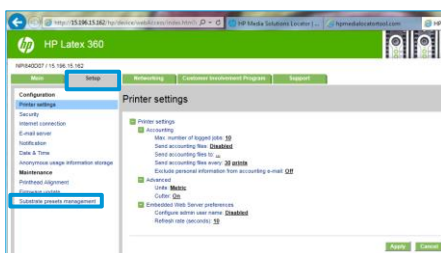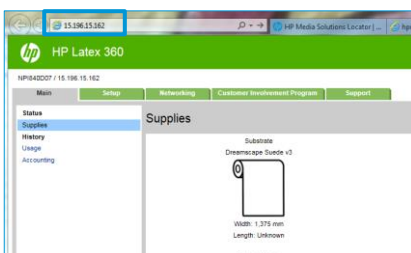
1. Enter the printer IP	2. Setup	3. Import and select media present
Open a web browser and **enter the IP address** of the printer where the profile will be installed.	On the top menu select the **Setup** tab. On the vertical menu, select **Substrate presets management**.	Select **Import** and, using the **browse button, navigate to and select the media preset** (an .oms file) that was previously downloaded from the media locator webpage.

How to install the SAi FlexiPRINT & CUT Authorized 3M Traffic Edition L1500 RIP

The SAi *FlexiPRINT & CUT Authorized 3M Traffic Edition L1500* comes with pre-installed presets for HP Latex printers, which include the right color formulations to match Traffic Signage standards on 3M sheeting.

Find below some general instructions to install and use this RIP. Check the following document for more detailed information:

https://hplatexknowledgecenter.com/blog/how-use-sai-flexi-print-cut-authorized-3m-traffic-edition-l1500-rip

1. Install the Software and connect to the printer

Locate the activation voucher provided by SAi. Create an account at www.saicloud.com and activate the license. You will access a webpage where you will be able to download and install the software. The first time Production Manager is launched, a setup window will ask to specify the correct printer folder and then request the printer IP address and permission to Read Media From The Printer.
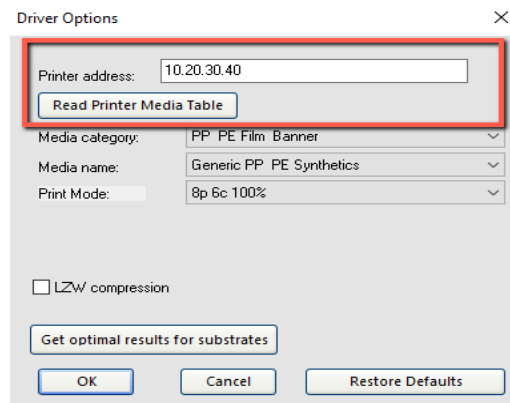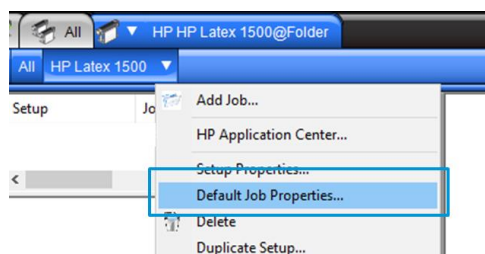

Find more detailed information at: https://youtu.be/izQ5SxtuiR8 (for the HP Latex 1500, the activation code is not included with the printer, but should be provided by SAi or your HP dealer).
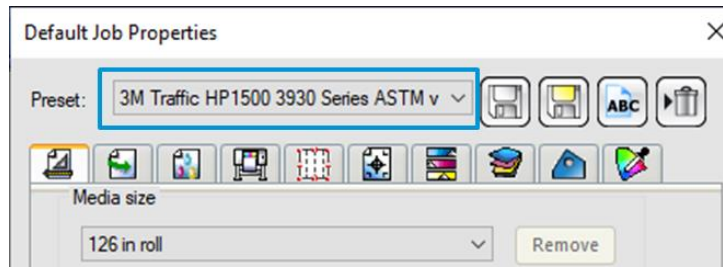
2. Create Duplicated Setups for each media

After adding the printer, make a setup for each approved 3M reflective sheeting:
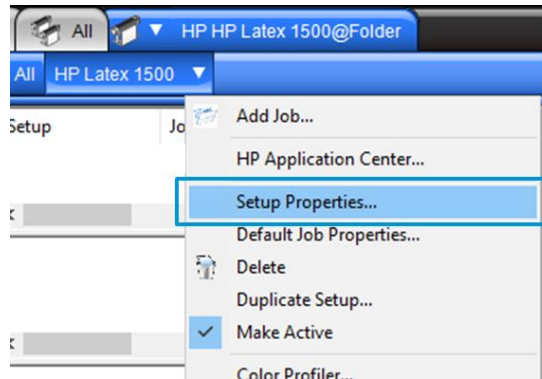
    a. Go to *Default Job Properties.*

b. **Select the preset** corresponding to your media and click *Apply* to make it default for this Setup.

c. Right click on the setup name and chose *Setup Properties*.

d. Change the Setup name to reflect the media preset from previous step and click *OK*.
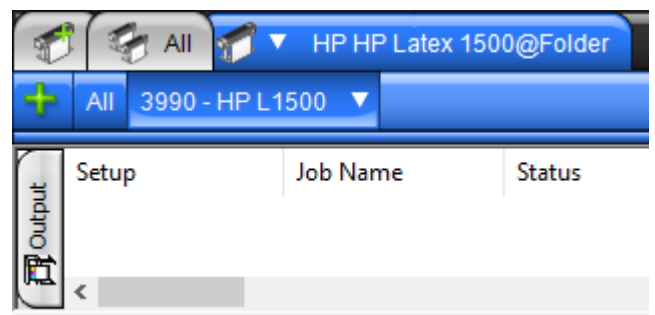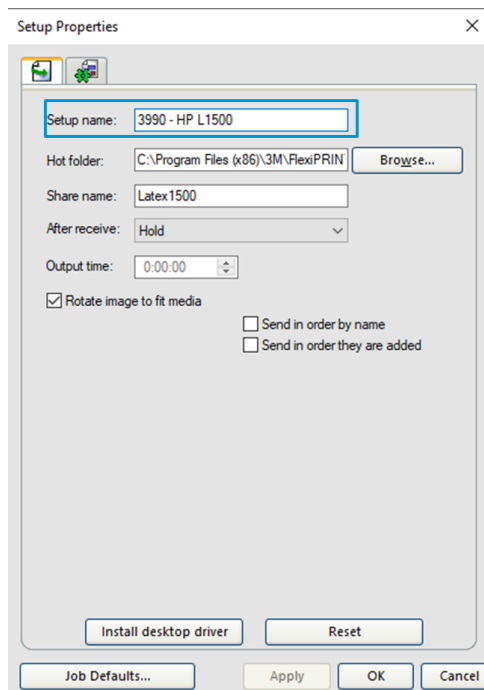
e. For additional 3M Traffic Signage media: duplicate this Setup (Right click on setup name and choose *Duplicate Setup*), name it after the new media, and select the corresponding preset.
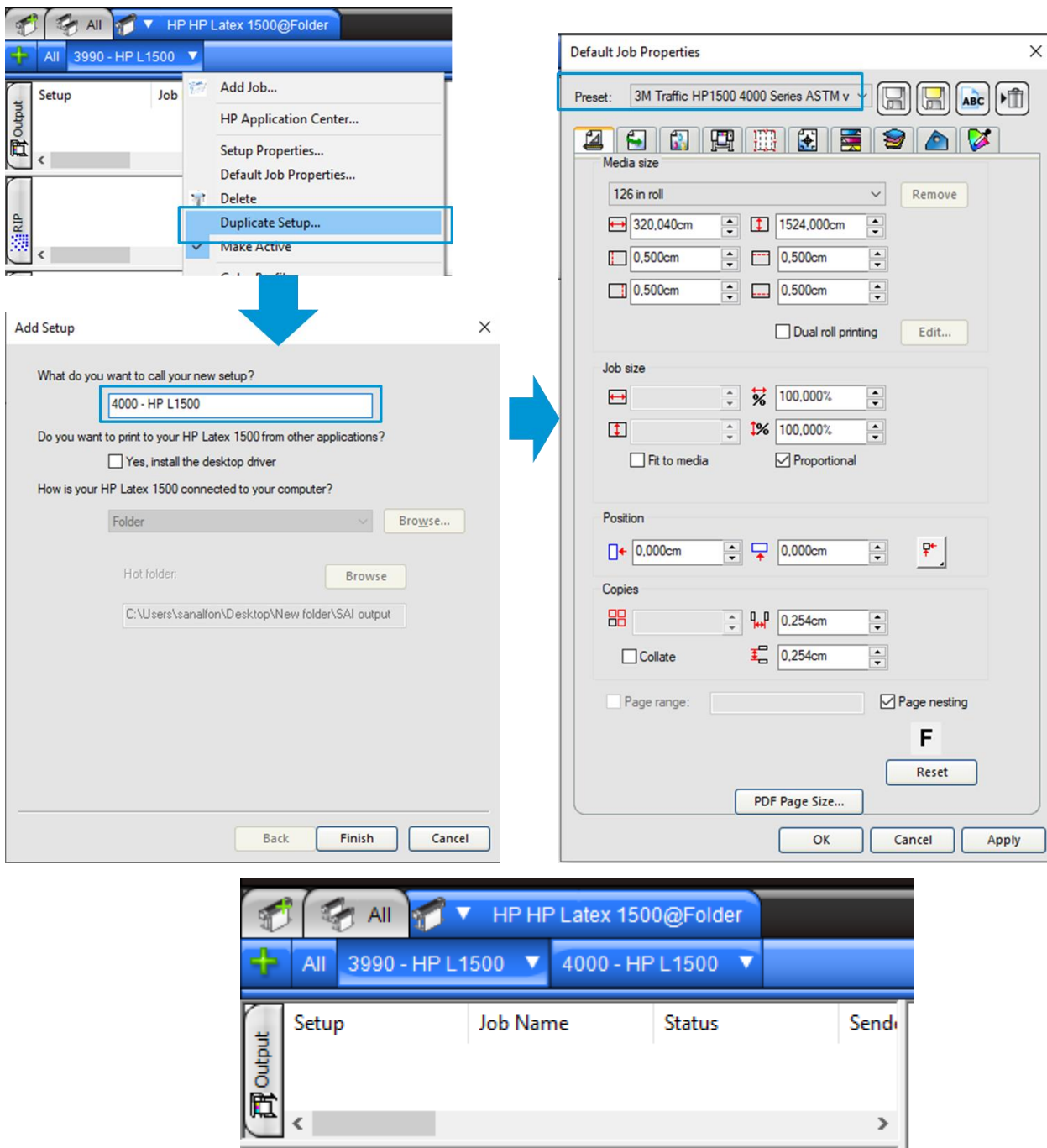
Media presets for 3M reflective substrates

Different media presets have been created to print signs on 3M reflective substrates. The following table helps in choosing the right media preset depending on the sign being printed.

Find more information about the 3M MCS warranties in the *Warranties* Section of this document.

Substrate	Media Profile Name	Information Signs (process colors)	Temporary Traffic Signs (Traffic BLACK only)*	Warning, Regulatory, and Guide Signs (Traffic colors)
3M 3924s	3M 3924 Black Only Images		✓	
3M 3930 Series	3M 3930	✓	✓	✓
3M 3990 Series	3M 3990	✓	✓	✓
3M 4000 Series	3M 4000	✓	✓	✓

(*) The background color of the sign comes from the color of the film being used

For Regulated Traffic signs, these are the supported regulated colors by media:

Substrate	Traffic BLACK	Traffic RED	Traffic GREEN	Traffic BLUE	Traffic BROWN	Traffic PURPLE	Traffic YELLOW
3M 3924s	✓						
3M 3930 Series	✓	✓	✓	✓	✓	✓	
3M 3990 Series	✓	✓	✓	✓	✓	✓	
3M 4000 Series	✓	✓	✓	✓	✓	✓	✓

3. Loading Media

When loading **a single** 3M reflective roll, Follow these recommendations:

- Center the roll on the spindle.
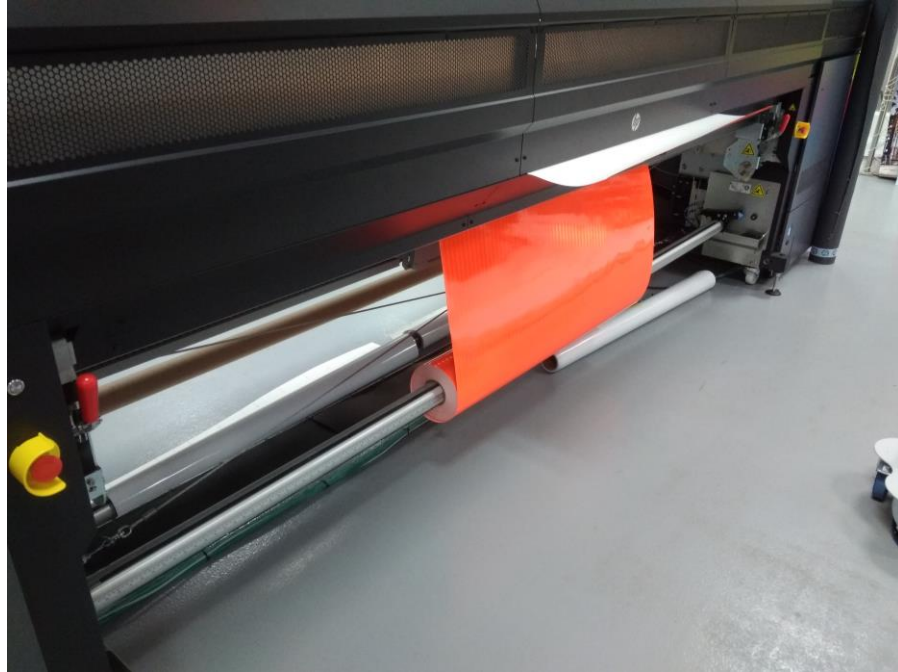
To reduce media use, you may use the substrate saver. Check this video for instructions on using the Substrate Saver: www.hp.com/go/latex1500/substrateloading
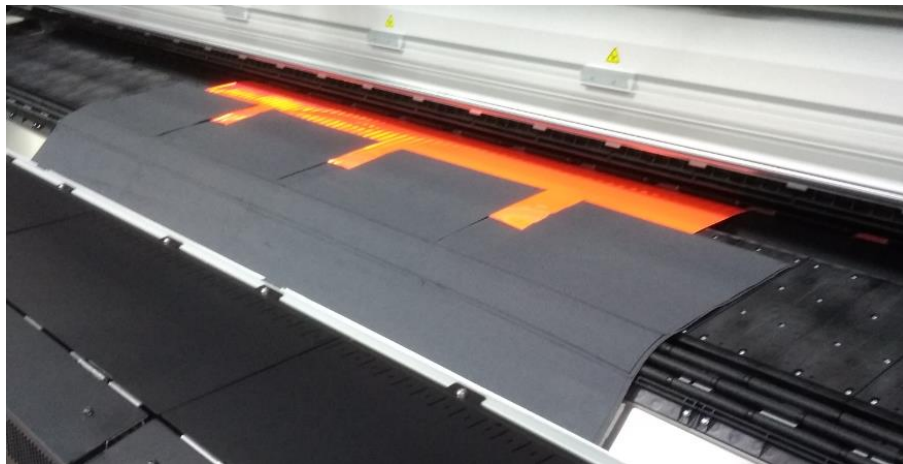
- Due to the stiffness of the substrate, it is mandatory to **use edge holders** to print on reflective substrates.

- **Select the correct media preset** from the substrate library menu. The media presets for 3M reflective signs will be found inside the **"Self-Adhesive Vinyl"** media folder.

- Set the **Carriage beam position to 0.30cm** or higher to prevent the carriage from touching the media

When loading <u>two</u> 3M reflective rolls, Follow these recommendations:

- Follow the loading process for dual rolls. See the process on the following video (same as on the latex 3X00 series): https://www.youtube.com/watch?v=QBnxYH16Rd4
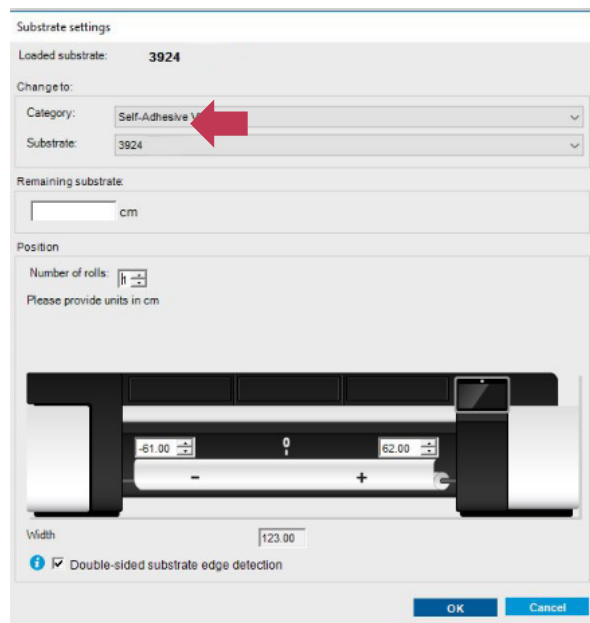
  To reduce media use, use the substrate saver. Check this video for instructions on using the Substrate Saver: www.hp.com/go/latex1500/substrateloading

- Due to the stiffness of the substrate, it is mandatory to **use edge holders** to print on reflective substrates.
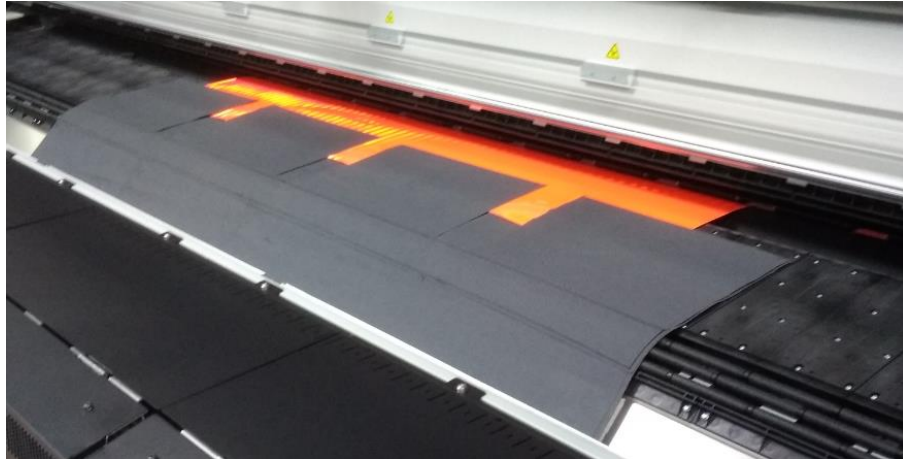

- **Select the correct media preset** from the substrate library menu. The media presets for 3M reflective signs will be found inside the **"Self-Adhesive Vinyl"** media folder.

- Set the **Carriage beam position to 0.30cm** or higher to prevent the carriage from touching the media
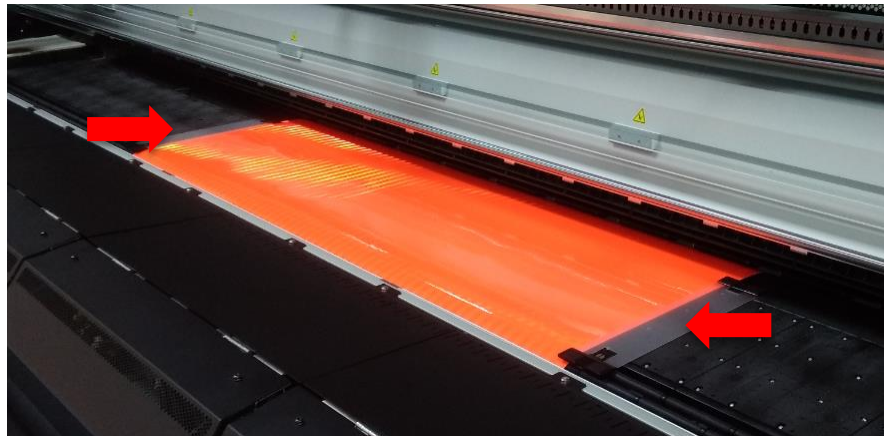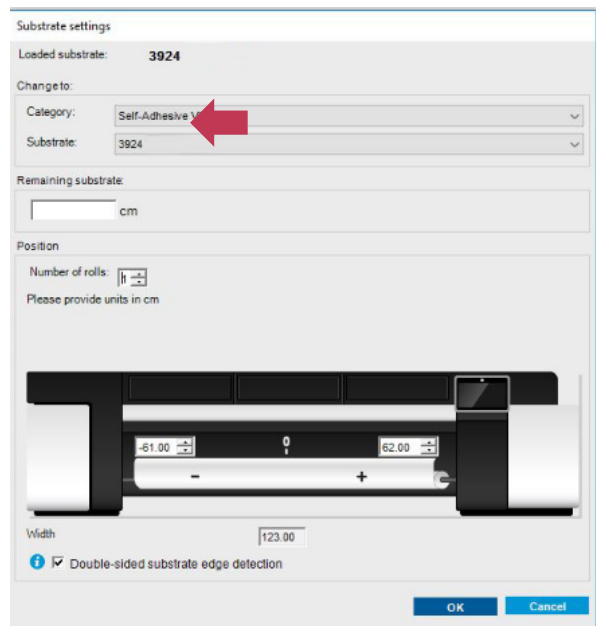
- **Do not load different substrates** as media settings have been developed for each specific substrate.

- We recommend using same roll widths.

Color Calibration

This step is not necessary for Non-regulated or Black-only signs.

Color calibration is essential to ensure that printed colors meet traffic regulations.

Perform **Color Calibration** the first time you load a new substrate or whenever you notice excessive color differences between prints. Such color differences are normally caused by aging and wear of the printheads, or when installing new printheads.

You can check the color calibration status of your substrates with the Internal Print Server: select **Substrate > Color calibration > Show all**.

If the status is **Obsolete** for your specific Reflective substrate, we recommend performing a color calibration.
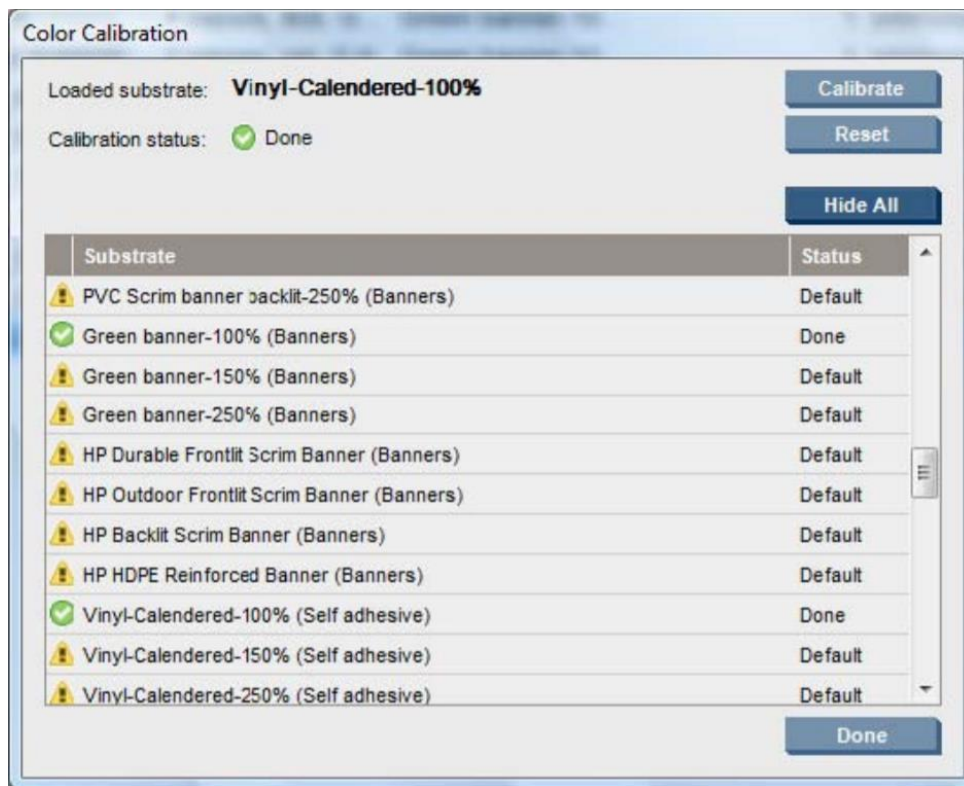
As the printer's internal calibration cannot be used on reflective material, an alternative process needs to be used:

1. **Load a roll** of **3M IJ180** Self-adhesive Vinyl on the printer, but select the Reflective substrate you want to calibrate.

2. To start color calibration from the Internal Print Server, select **Substrate** > **Color calibration**, then click the **Calibrate button**:

3. The calibration process is fully automatic and can be performed unattended after you have loaded the substrate you wish to calibrate. The process takes about 15 minutes.

4. Once the calibration process is finished, **load the reflective material** as specified in the previous chapter.

Important: Do not reset the color calibration.

If for any reason the color calibration is **"reset to factory"**, **delete that media profile**. Begin again by downloading and reinstalling it, as explained in previous chapters.

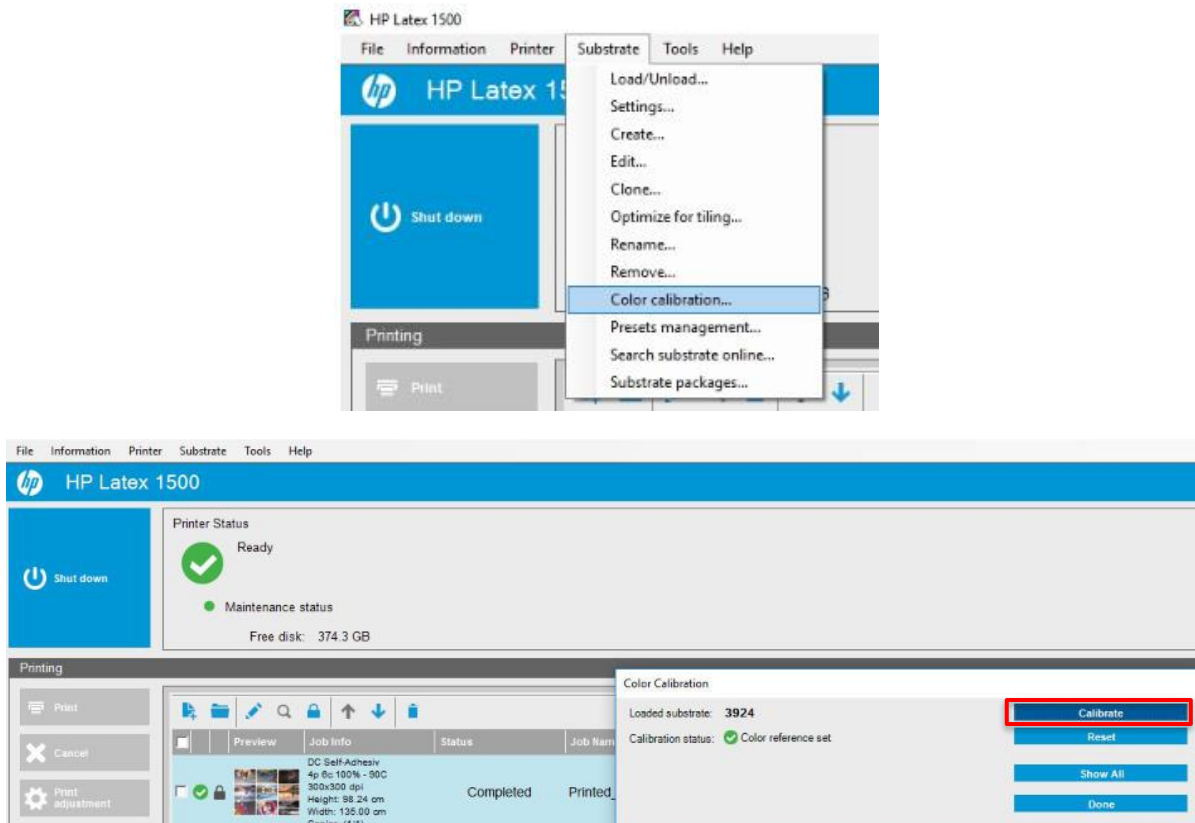# 4. Printing Color Regulated Signs

This step is not necessary for Non-regulated nor Black-only signs.

These instructions reference the RIP: *SAi FlexiPRINT & CUT Authorized 3M Traffic Edition L1500*.

First of all, verify the color calibration does not appear as **Obsolete** at:

Substrate > Color calibration > Show all.

If the status is **Obsolete**, follow the instructions in the **Color Calibration** chapter of this document.
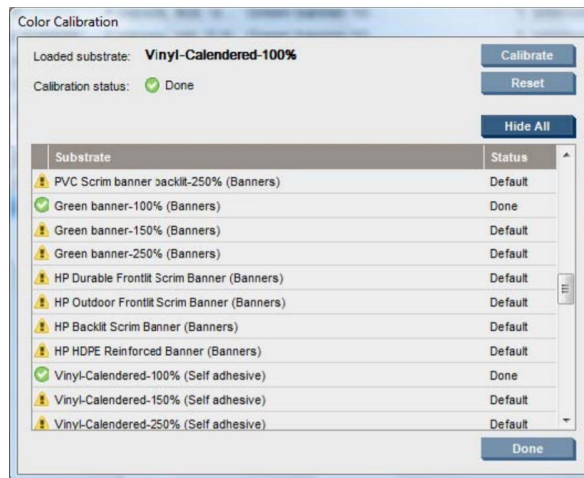
Important: In your image editor, define the colors on the image as **spot colors**. The following naming must be used for each color:

- Traffic RED
- Traffic GREEN
- Traffic BLUE
- Traffic PURPLE

- Traffic **BLACK**
- Traffic **BROWN**
- Traffic YELLOW

Caution: the spot color names are case-sensitive.

If the images are created using *SAi FlexiPRINT & CUT Authorized 3M Traffic Edition L1500*, these colors will already be defined in the color palette.

- The RIP will translate these colors to CMYK values to comply with the ASTM D4956 − 09[E1] norm.
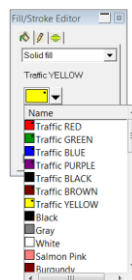
- You may send the job to the RIP directly from *SAi FlexiPRINT & CUT Authorized 3M Traffic Edition L1500*, by clicking on *RIP and Print*.

- When sending a job from the Rip and Print window, select the correct Setup name from the drop down menu. Correct preset, media profile, and color formulas will be applied automatically.
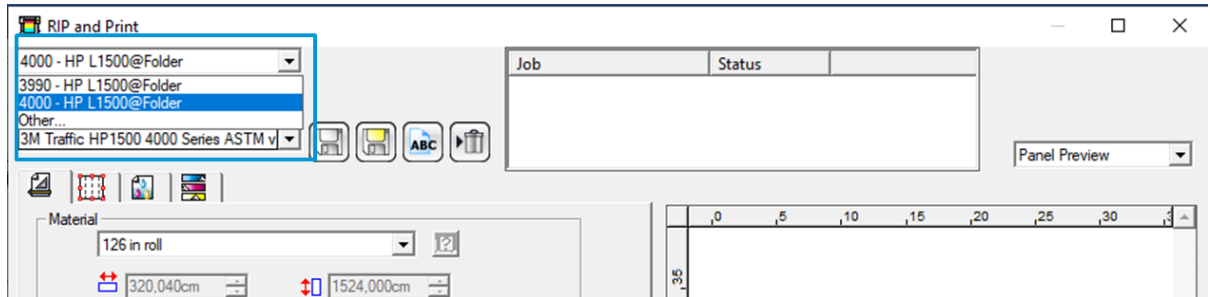
- If adding a job directly to Production Manager, just add the job to the correct Setup and all correct settings will be applied.
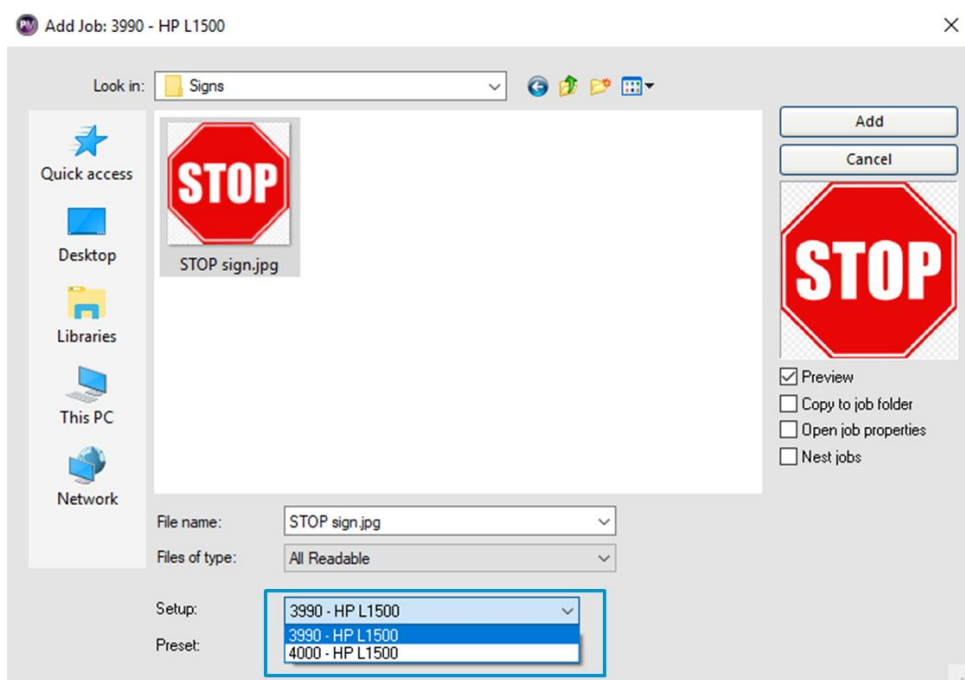
- Once all jobs are ready, click *Send* to **start printing**.

- At the Printer, make sure you use the correct print-mode and settings as shown below:

5. Post processing

Protection

To achieve the maximum sign durability, it is recommended to laminate the prints with a matching over laminate. 3M ElectroCut ™ Film Series 1170 has been specifically designed to protect 3M reflective substrates and has been tested on Latex 360/365 printed signs.

For more information on protection, refer to the 3M bulletins for each product:

- http://multimedia.3m.com/mws/media/3499140/pb-4000-3m-diamond-grade-dg3-reflective-sheeting.pdf?fn=PB4000.pdf

- http://multimedia.3m.com/mws/media/2540310/high-intensity-grade-reflective-products.pdf

- http://multimedia.3m.com/mws/media/3466410/pb-3924s-3mtm-fl-orange-prismatic-work-zone-sheeting.pdf

- Bulletin 3990?

Application method

All sheets incorporate a pressure sensitive adhesive and should be applied using a **roll laminator**, either **mechanical** or **hand driven**.

Note: Hand application may show visual irregularities.

6. Warranties

The products below, printed on the HP Latex 1500, are covered by the 3M warranty in certain countries:

- 3M™ Diamond Grade ™ DG3 Reflective Sheeting Series 4000
- 3M™ High Intensity Prismatic Reflective Sheeting Series 3930

The warranty requires the samples to be laminated with an appropriate over laminate (3M ElectroCut ™ Film Series 1170).

Warranties vary by country. Contact your local 3M representative for details.

For more information on the warranty conditions, visit: 3M.com/trafficsignprinting

7. Troubleshooting and Tips & Tricks

Length Consistency: the print does not match the expected dimensions

There should not be significant size differences even when doing tiling jobs. If the size doesn't match the expected one, or if it varies between jobs:

- Make sure the image size is correctly defined in your image editor.

- Make sure you are using the latest version of the Media Profiles available in the **Media solutions locator** (see Chapter 2, Step 3). Uninstall and download the new profiles if necessary.

- Check that **OMAS is disabled** at **Printer > Printing adjustments**.
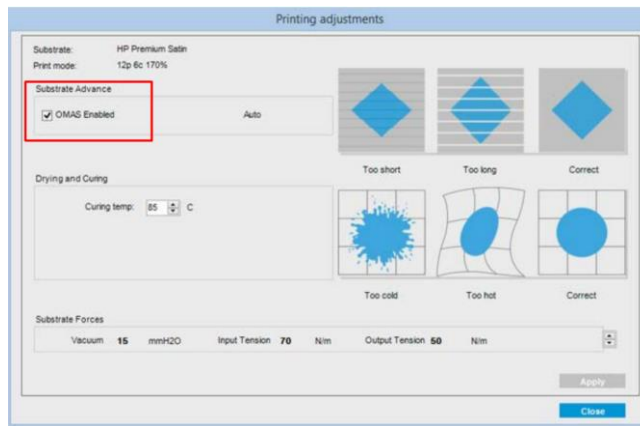
If size differences persist:

- Reduce Tension Settings at **Substrate > Edit**.
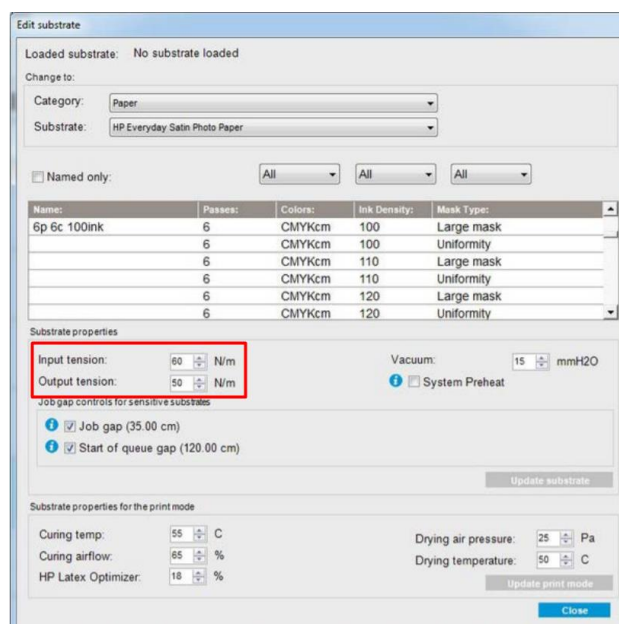
Curing: If the printed image is not curing properly

Samples should be completely cured inside the printer. If samples are not properly cured:

- **Control the temperature and humidity conditions** in the printer's room. Ideally, the best conditions to print are close to **25ºC** (77ºF) and **50% RH**.

- **Slightly increase the curing** temperature by **5 degree** increments until the prints are completely cured at **Substrate > Edit**.

  Note: Increasing temperature may cause media deformations.

- **Move to a slower print mode**. Keep the same ink Density.

Rewetting: The image seems properly cured but after some time, an oily finish appears on the surface

Rewetting is the result of an **improperly cured print**. Follow the same recommendations in the previous section.

Head crashes: Damaged prints while printing

Reflective substrates are very stiff and sensitive to heat. Conforming to the following recommendations will help prevent ruining the output while printing:

- Use the **recommended media presets** when possible.

- Always **use edge holders** when printing reflective substrates.

- Set the **Carriage beam position to 0.30cm** or higher.

- Load the roll without the Substrate Saver.