

How to do traffic signage with HP Latex 700 and HP Latex 800 Printer Series

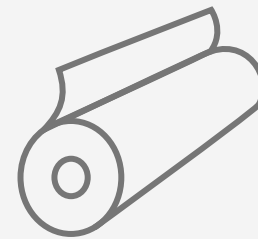
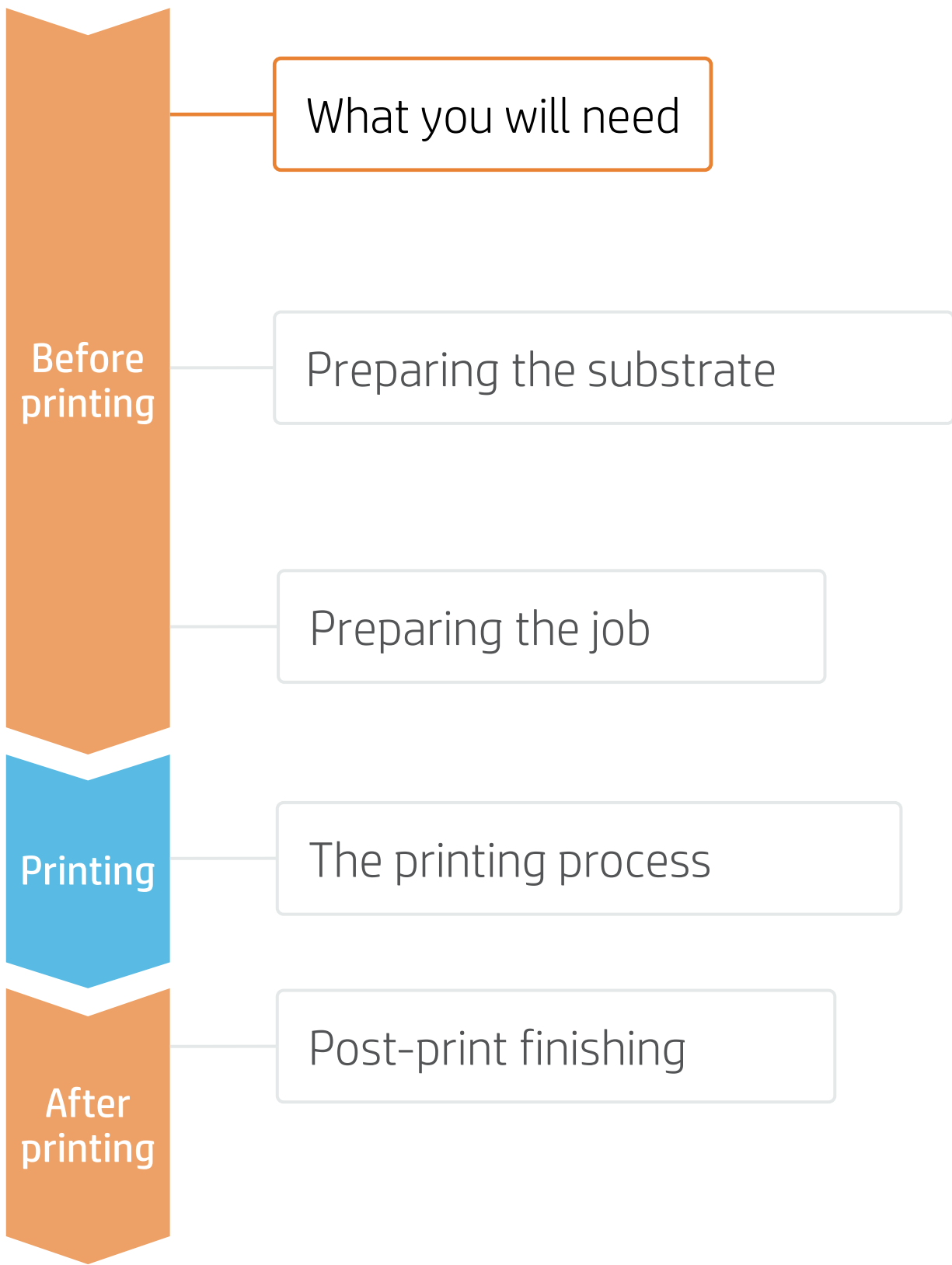
This document will explain the HP Traffic Signage solution using 3M™ reflective sheeting.

For more information, please access the [HP Large Format Knowledge Center](#)



How to do traffic signage

What you will need



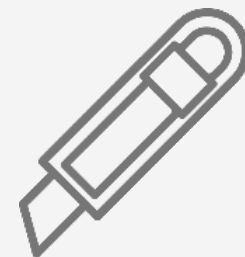
3M™ reflective sheeting



Design tools,
FlexiPRINT & CUT 3M
Authorized Traffic Edition



Printer



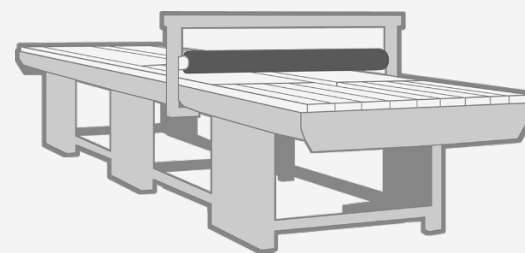
Cutting device



Film laminate



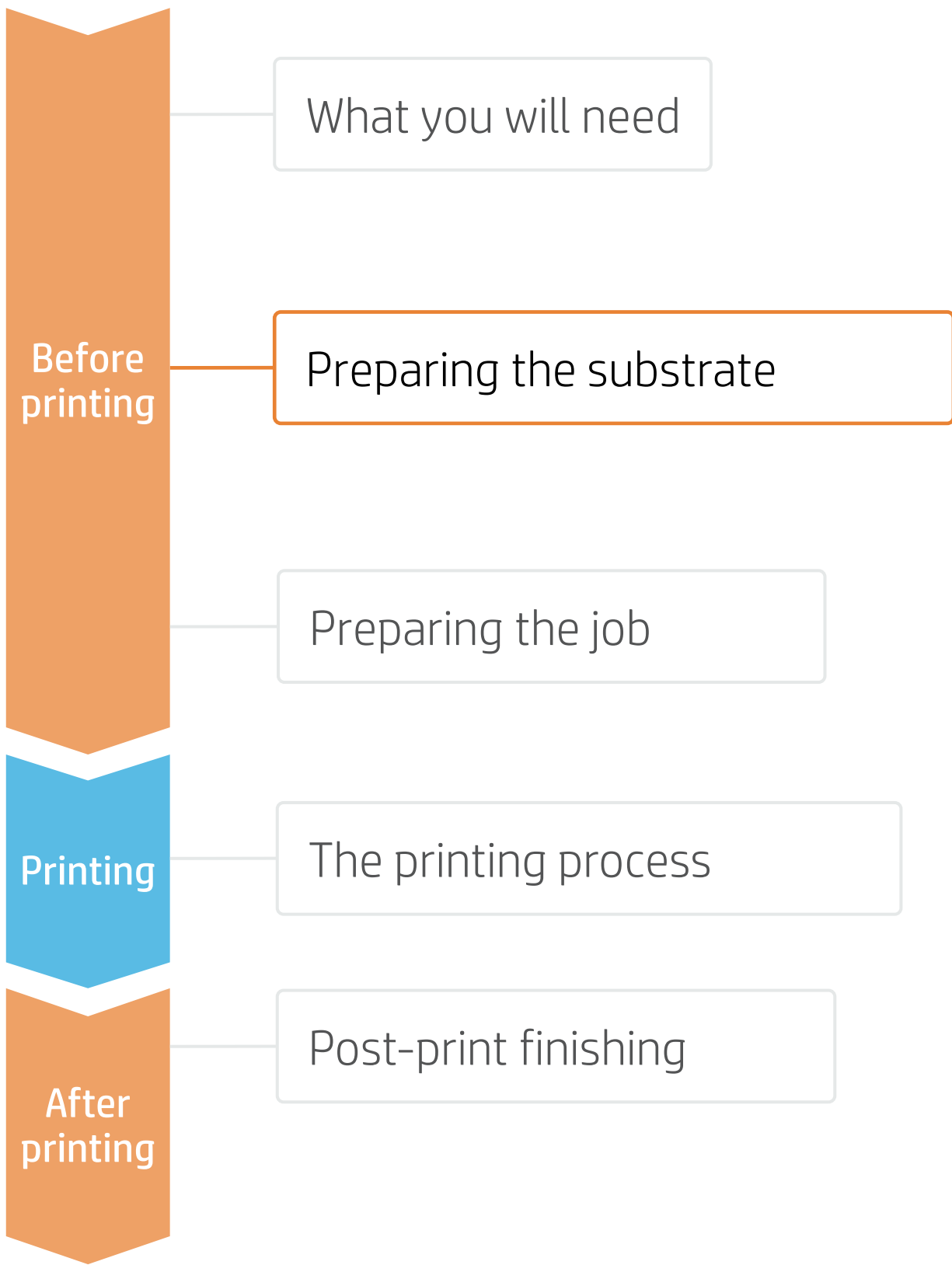
Film laminator



Flatbed applicator


How to do traffic signage

Preparing the substrate




1. Choose the right substrate

- Choose from the range of 3M™ reflective sheeting qualified for the Latex 700/800 Printer series.



Make your decision based on your needs



Substrate type	Diamond Grade	High-Intensity Prismatic	Engineer Grade
ASTM standards	Type IX Type XI	Type III Type IV	Type I
3M substrates	<ul style="list-style-type: none">3M™ Diamond Grade™ DG³ Reflective Sheeting Series 40003M™ Diamond Grade™ Fluorescent Work Zone Sheeting 3924S Fluorescent Orange (ASTM Type VIII)	<ul style="list-style-type: none">3M™ High-Intensity Prismatic Reflective Sheeting Series 3930	* Pending qualification
3M™ MCS™ Warranty for Traffic signs	✓	✓	✗

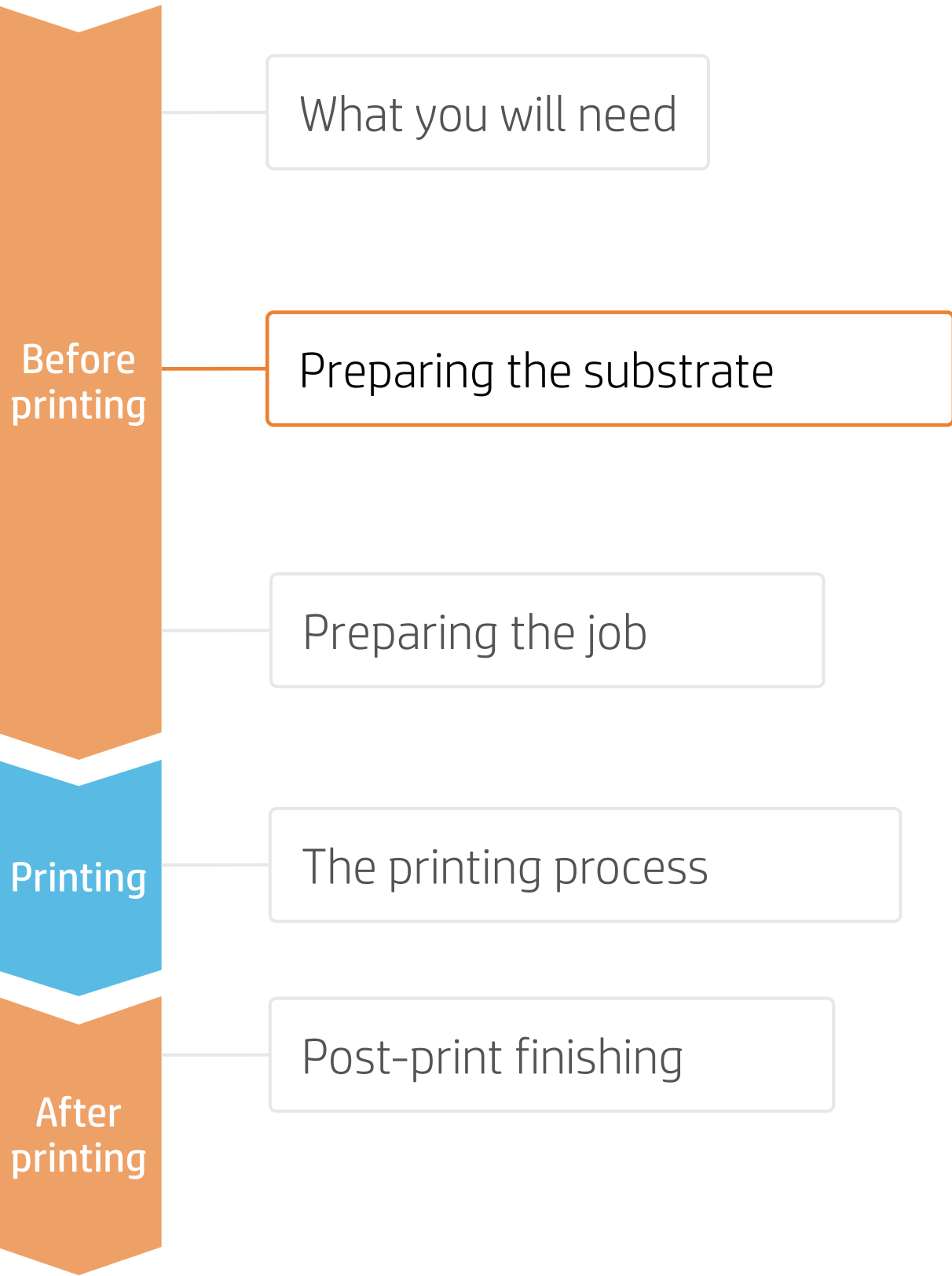
- 3M™ ElectroCut™ Film 1170C Clear Overlamine or 3M™ Premium Protective Overlay Film 1160i/1160iA are required to receive the 3M™ MCS™ Warranty and 3M™ MCS™ Warranty for Traffic.
- Produce traffic signs with warranties up to 12 years with the 3M™ MCS™ Warranty. For more information, visit www.3M.com/trafficsignprinting

⚠ IMPORTANT! Printer working conditions are the following: temperature of 15 to 30°C (59 to 86°F) and humidity 20–70%. The optimum print quality is only assured when temperature is 20 to 25°C (68 to 77°F) and relative humidity 40–60%.

📄 NOTE: For more information on 3M™ reflective sheeting products, visit www.3m.com/3M/en_US/road-safety-us/applications/traffic-signs/

How to do traffic signage

Preparing the substrate

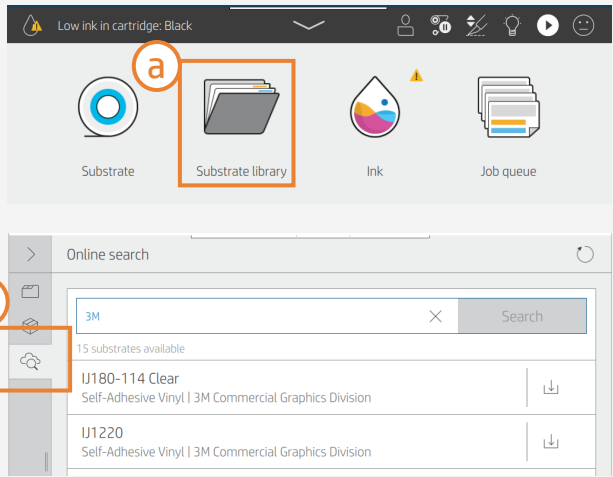


2. Application purposes

Application		Regulated colors ASTM D4956-09 ^{E1}	Substrates	MCS™ Warranty for Traffic	Overlay
Regulated and non-regulated permanent traffic signs		<ul style="list-style-type: none">• Green• Blue• Brown• Red• Purple• Black	<ul style="list-style-type: none">• 3M™ Diamond Grade™ DG³ Reflective Sheeting Series 4000• 3M™ High-Intensity Prismatic Reflective Sheeting Series 3930	10 years for HIP 12 years for DG ³	Required to receive MCS warranty
Regulated temporary signs		<ul style="list-style-type: none">• Black	<ul style="list-style-type: none">• 3M™ Diamond Grade™ Fluorescent Work Zone Sheeting 3924S Fluorescent Orange	N/A	(optional)
Custom signs		<ul style="list-style-type: none">• Any	<ul style="list-style-type: none">• 3M™ reflective sheeting qualified with Latex 700/800 Printer series	5 years for HIP and DG ³	Required to receive MCS warranty

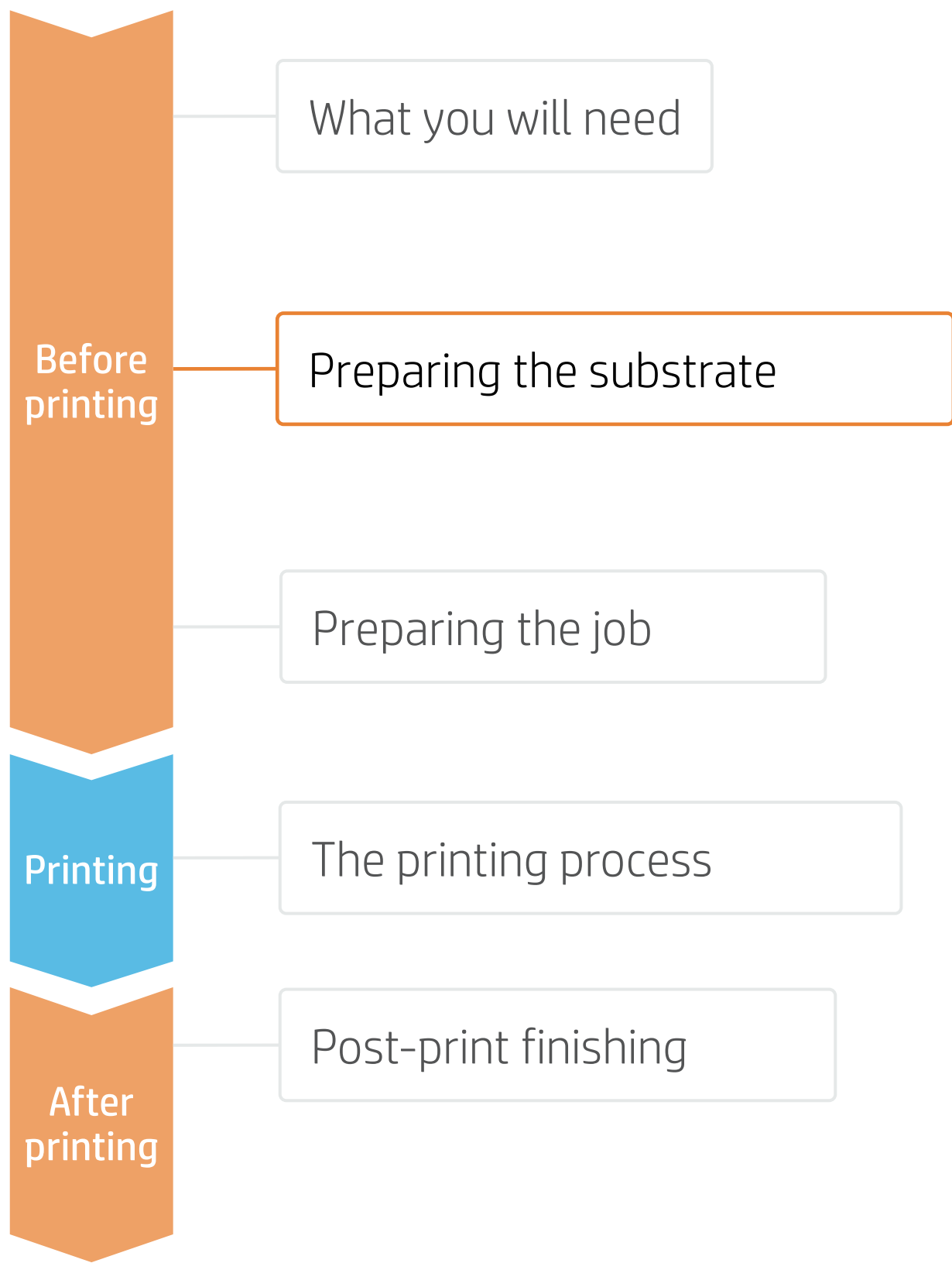
3. Substrate presets

- To get the 3M™ MCS™ Warranty for Traffic, it is mandatory to use the approved HP media profiles. The following list is where they are found:
 - a) HP PrintOS Media Locator: www.printos.com/ml/#/medialocator
 - b) On the printer's control panel Online search (b), in Substrate Library menu (a).
- Search filtering by:
 - Printer: Latex 700/700W/800/800W
 - Supplier: 3M Commercial Graphic
 - Application: Reflective signage
- Download and install.



How to do traffic signage

Preparing the substrate



4. Substrate color calibration

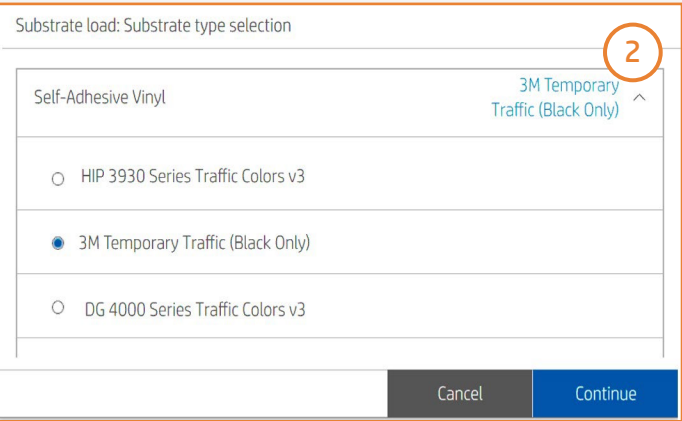
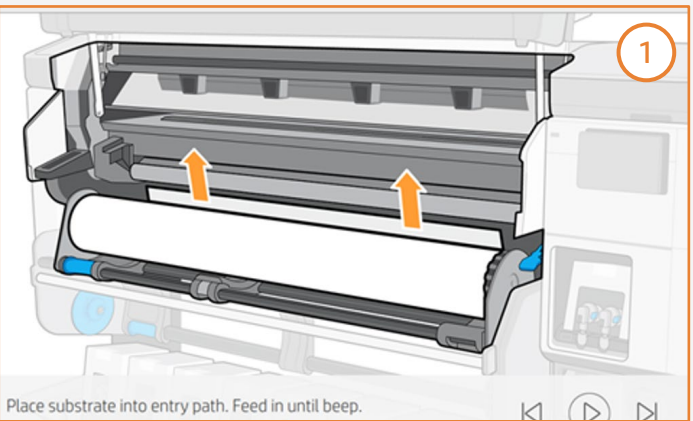
- Once the substrate preset is installed, **color calibration** needs to be done for this media preset.
- Color calibration cannot be done physically on the reflective sheeting, it needs to be performed on a white self-adhesive vinyl instead. In this case, 3M IJ180mC-10 is recommended.



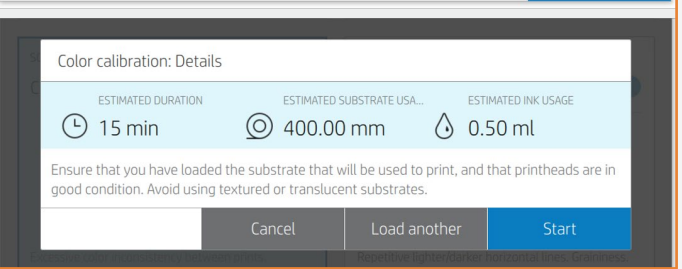
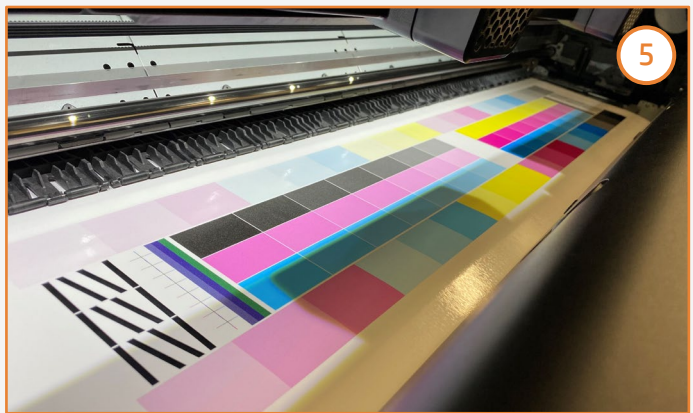
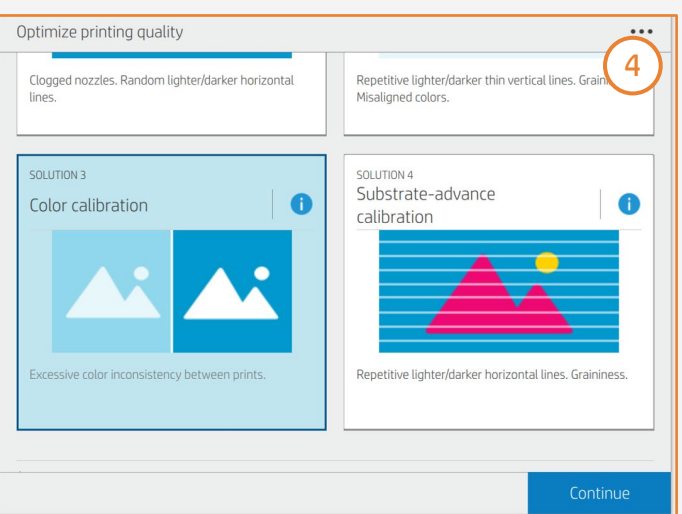
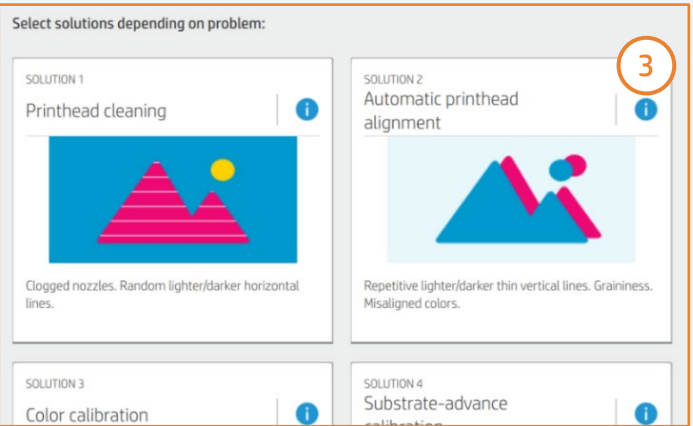
Make your decision based on your needs



1. Load 3M IJ180mC-10 automatically
2. IMPORTANT! Select the **reflective sheeting** you intend to use for your traffic sign jobs
Proceed with the loading process.

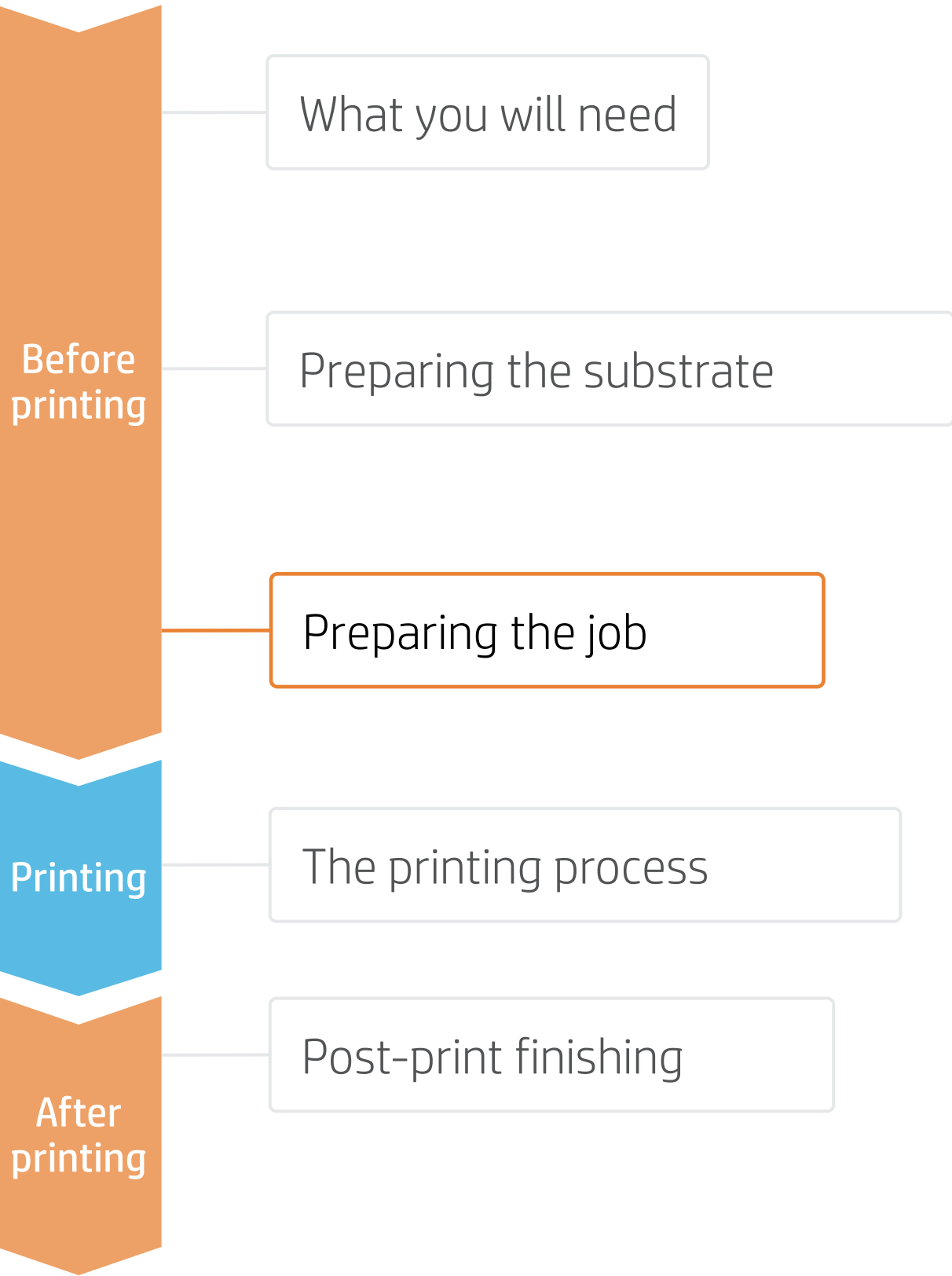


3. Check print image-quality status
From the **Optimize quality** menu, perform the printhead nozzle check and printhead alignment.
4. Launch color calibration
From the **Optimize quality** menu, tap on Color calibration.
Select **Start**.
5. Color calibration
 - a) Calibration target is printed
 - b) Patches are automatically measured



How to do traffic signage

Preparing the job



1. Software for designing and editing

Tools such as Adobe Illustrator, Photoshop, and InDesign help you design and edit jobs, and adapt them to your needs.

SAi Flexi provides a sign making edition tool with the 3M Traffic Color pallet pre-loaded. When using other design software, proceed to step 2 if Traffic Colors are needed.

The SAi Flexi tool provides a sign-making edition.

IMPORTANT! Ensure to use the latest SAi software from build 3727

2. Color regulated signs

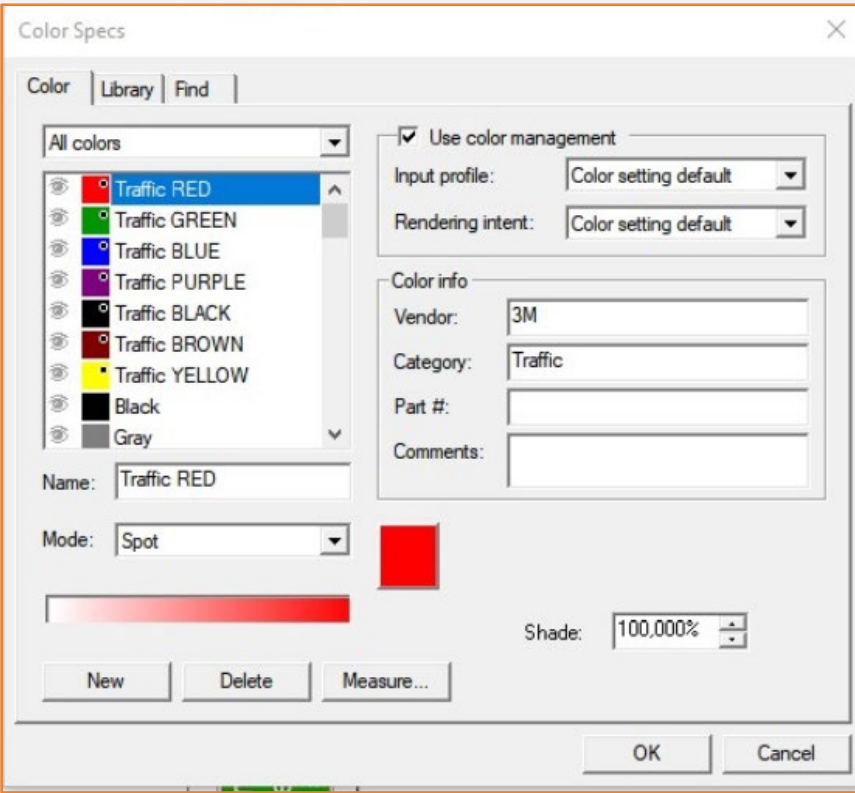
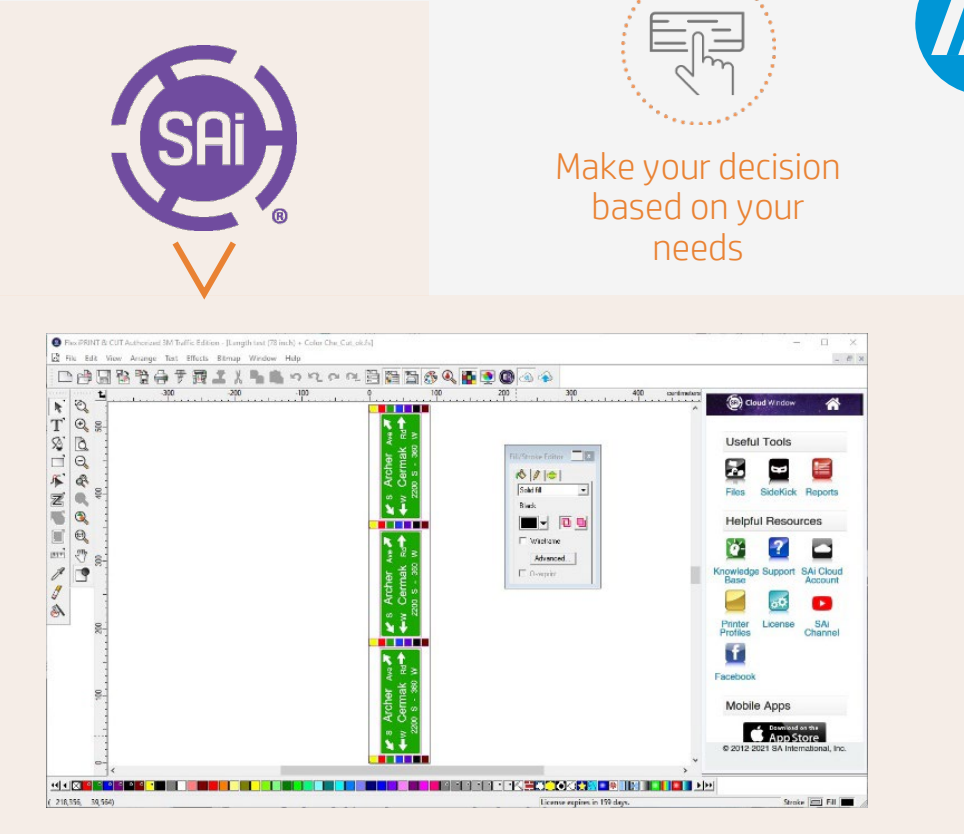
In your image editor, define the colors on the image as **spot colors**. The following naming conventions must be used for each color: **Caution!** The names are case-sensitive.

- Traffic RED
- Traffic GREEN
- Traffic BLUE
- Traffic PURPLE
- Traffic BLACK
- Traffic BROWN

If the images are created using **SAi FlexiPRINT & CUT 3M Authorized Traffic Edition 21**, these colors will already be defined in the color palette. The SAi Production Manager Authorized 3M Traffic Edition comes with pre-installed presets for the HP Latex printers, which include the correct color formulations to match Traffic Signage standards on 3M sheeting.

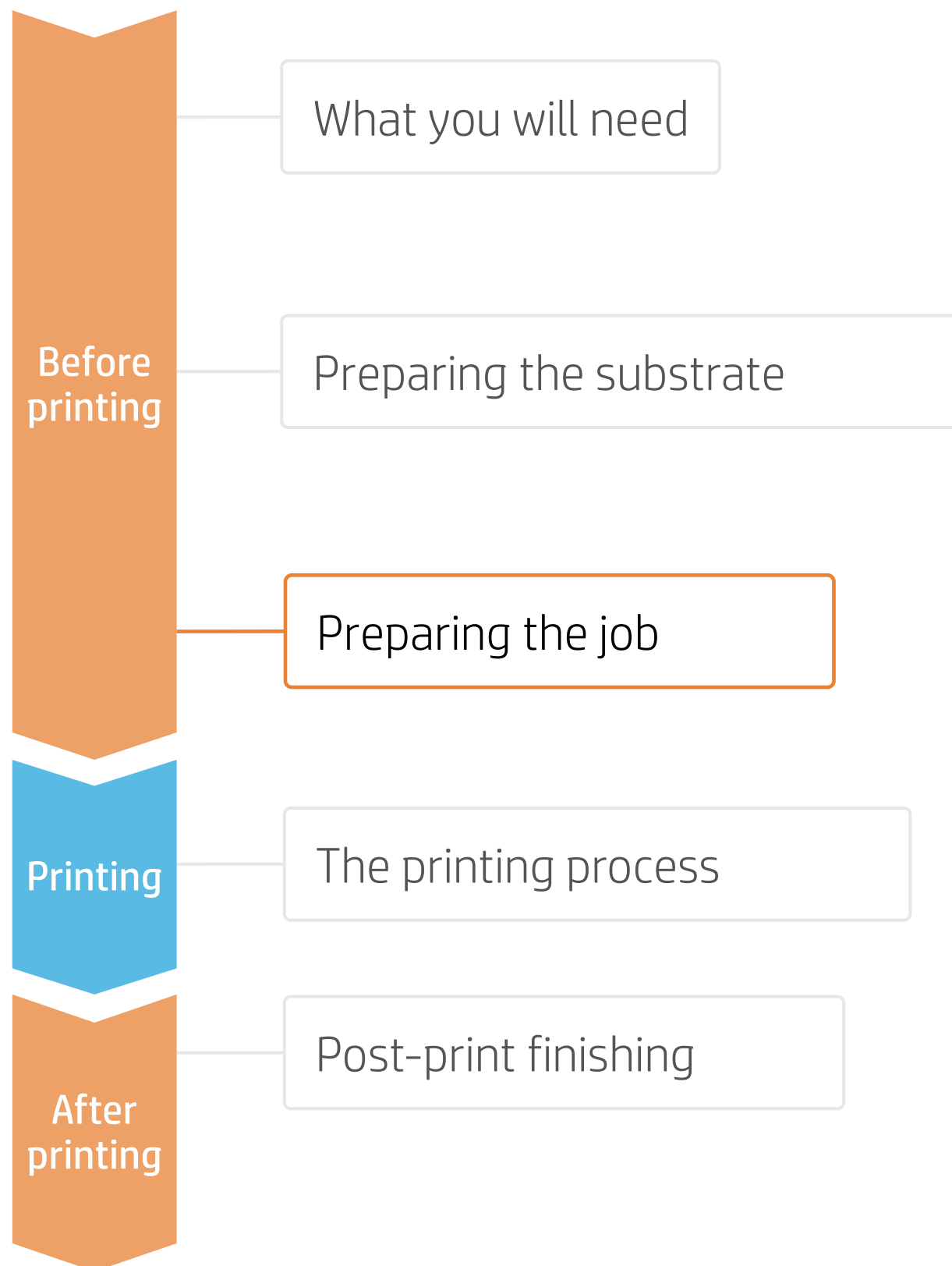
The RIP will later convert these spot colors to the correct CMYK values to comply with the ASTM D4956 – 09E1 norm.

NOTE: Traffic YELLOW will not be covered by 3M™ MCS™ Warranty for Traffic, but it is part of the 3M™ MCS™ Warranty for custom colors.




How to do traffic signage

Preparing the job



3. RIP processes

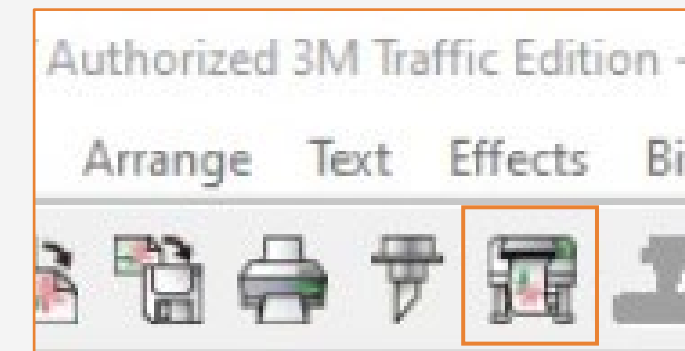
 **NOTE:** The substrate needs to be loaded on the printer. See the following section “The printing process” to learn how to load it.

The HP Traffic Signage solution using 3M™ reflective sheeting also includes the use of RIP software **FlexiPRINT & CUT 3M Authorized Traffic Edition 21**. In order to get the 3M™ MCS™ Warranty for Traffic, it is mandatory to use **SAI Production Manager** and approved HP media profiles.

3.1. Using the SAi FlexiPRINT editor

A. RIP and Print

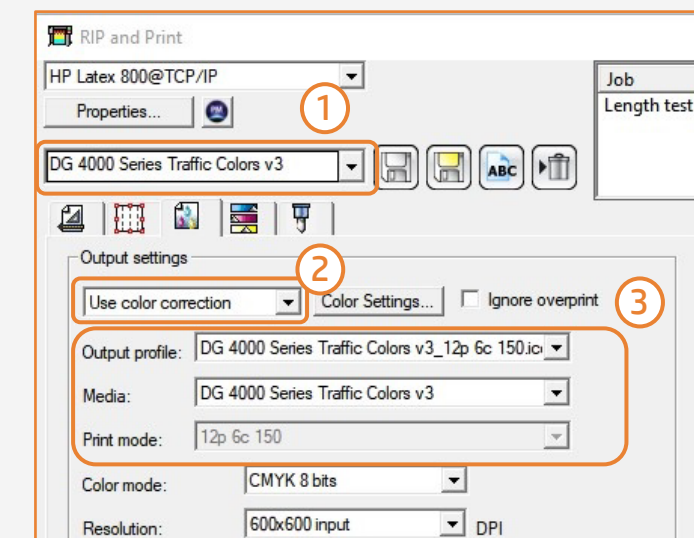
Click on RIP and Print to open the menu for printing options.



B. Substrate presets, media, and printmode selection

In the **advanced options** tab:

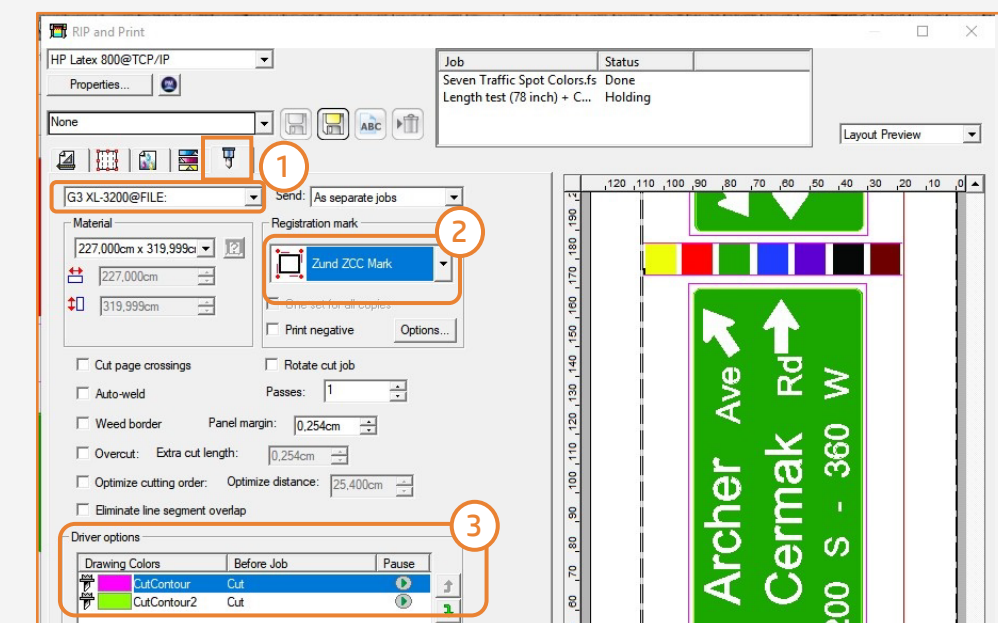
1. Select the correct **preset** that matches your substrate selection.
2. Enable “**Use Color Correction**”.
3. Select the output profile and media that match the 3M reflective sheeting substrate you have loaded on the printer.



C. Finishing: cutting marks and other factors

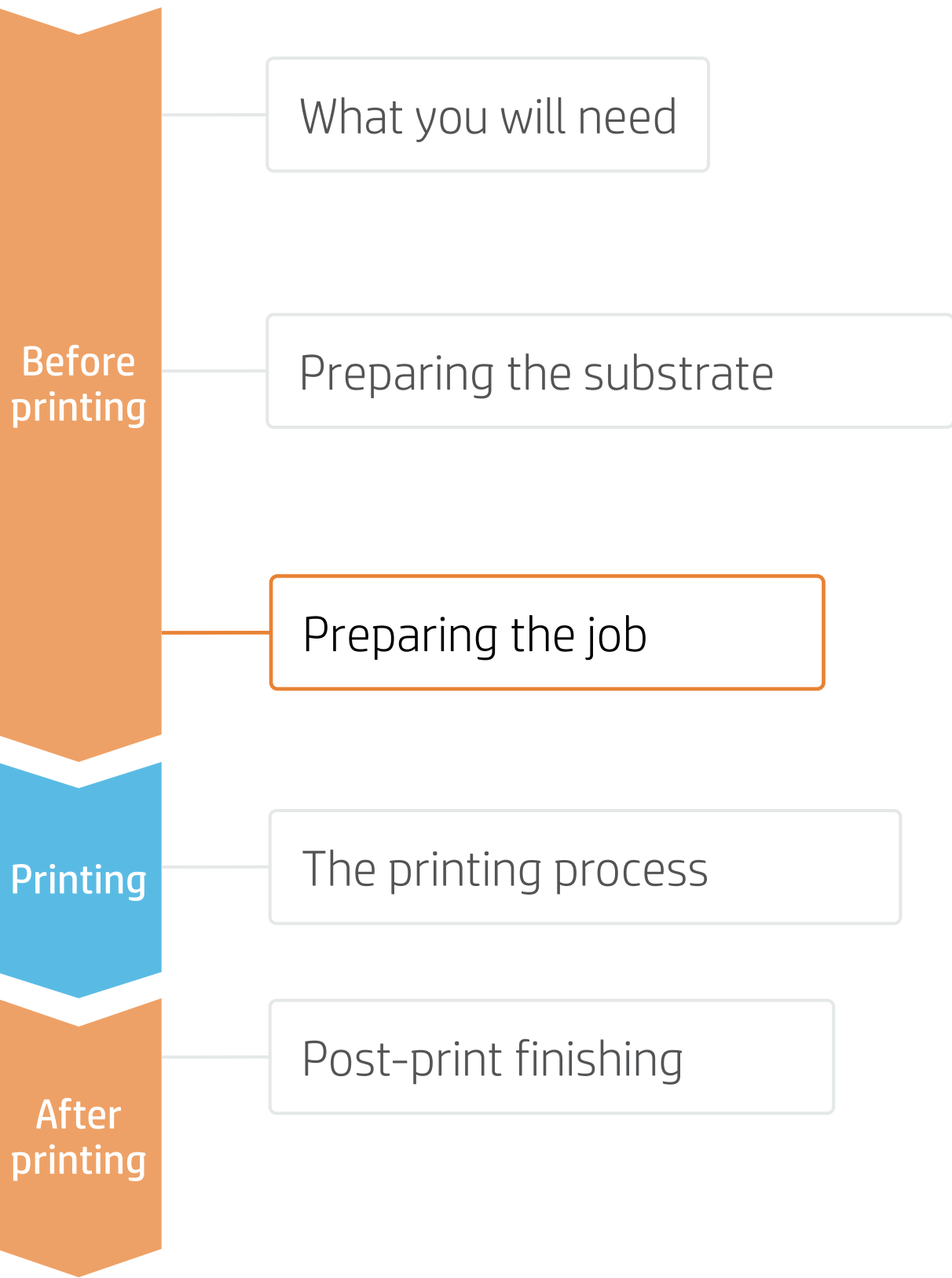
If your job contains cutting paths named for spot colors, the RIP will detect them:

1. In the **cutting menu**, select the automatic cutter you will use for cutting your jobs.
2. Select the corresponding registration marks.
3. Configure the cutting settings for each of the cutting paths.

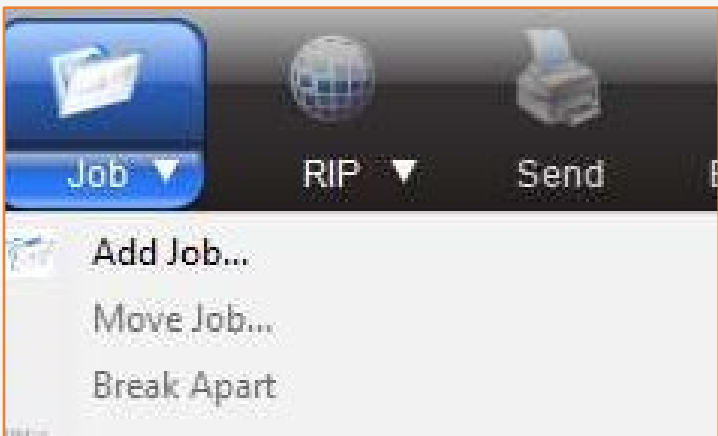


How to do traffic signage

Preparing the job

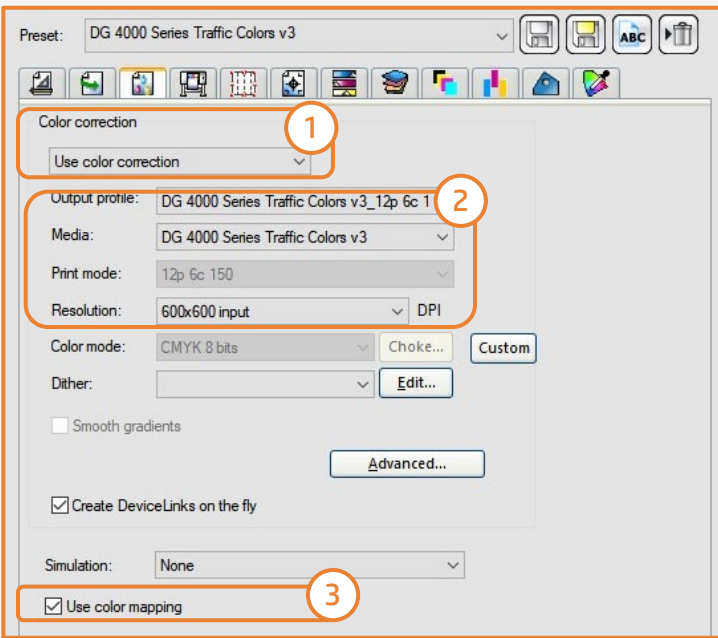


3.2. Working with jobs created on a different editor.



A. Use SAI **Production Manager** FlexiPRINT & CUT 3M Authorized Traffic Edition

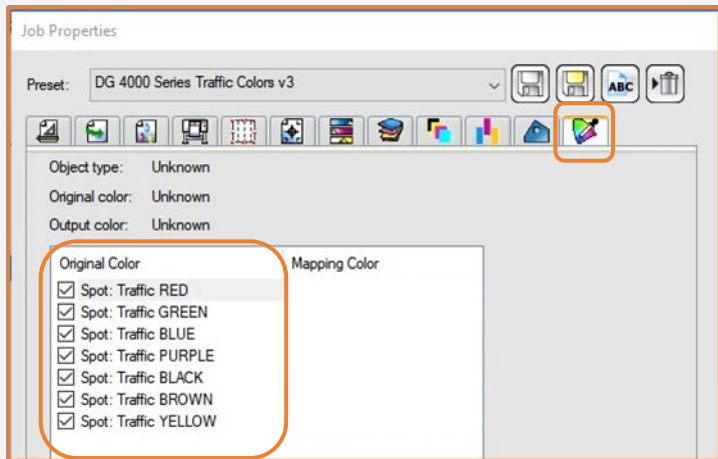
Add your file in the job queue.



B. Color management, Substrate presets, and Printmode selection

Open the **job properties** menu and go to **color management** tab

1. Enable “Use Color Correction”.
2. Select your substrate output profile and the media.
3. Enable “Use color mapping”.



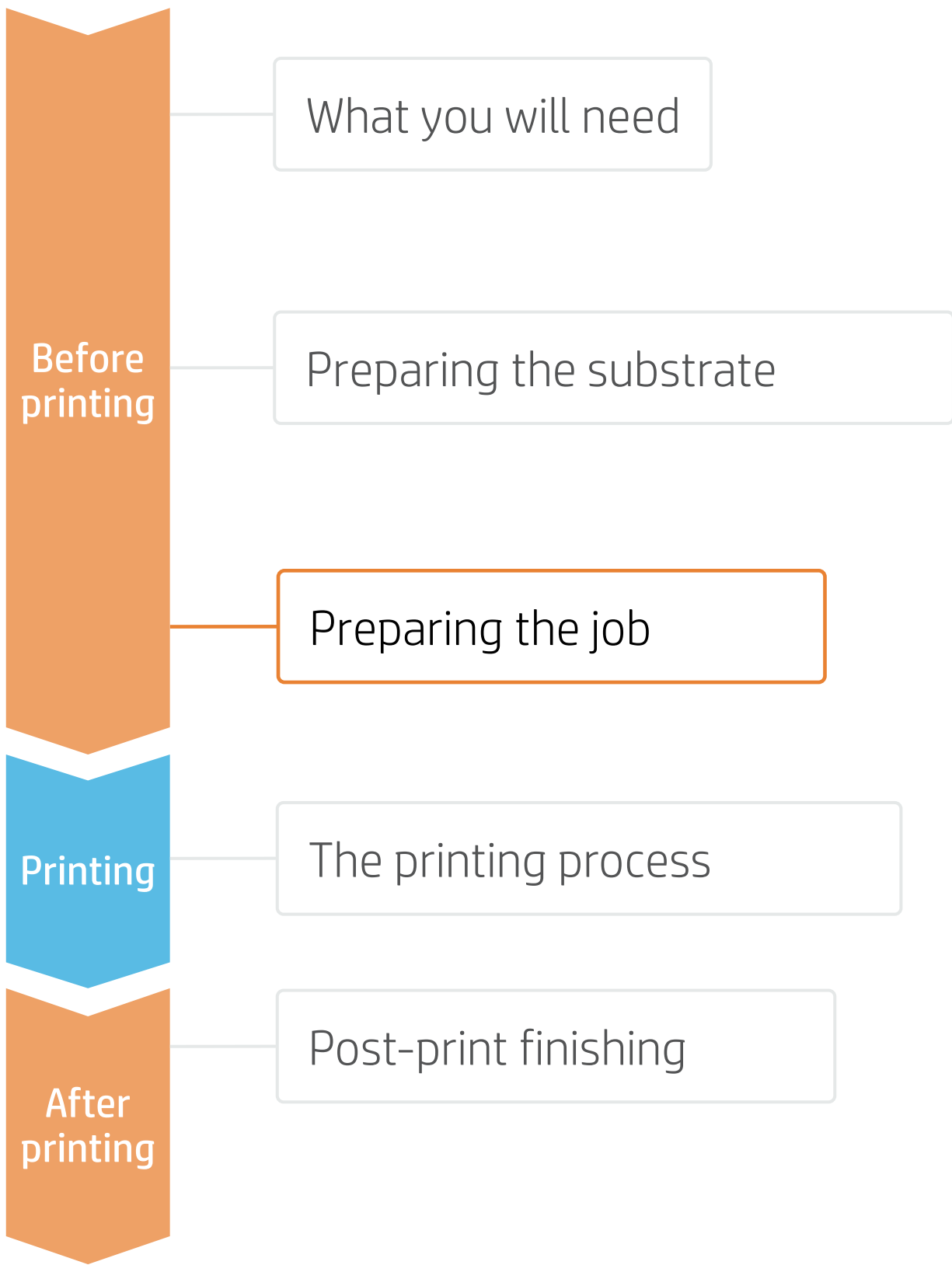
C. Color mapping

In the **color mapping** tab:

1. Enable the **spot colors** for each Traffic COLOR.

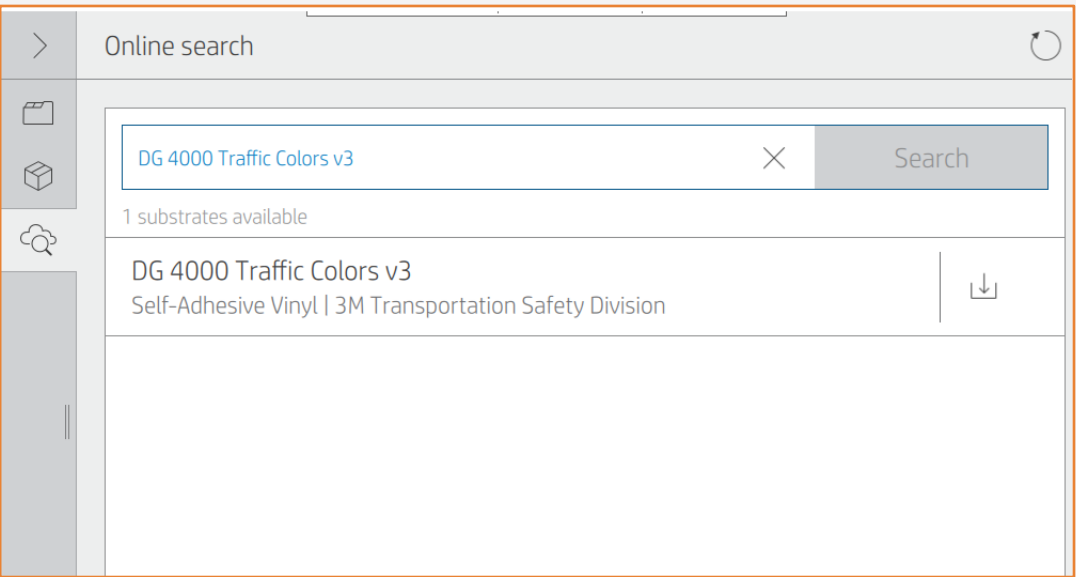
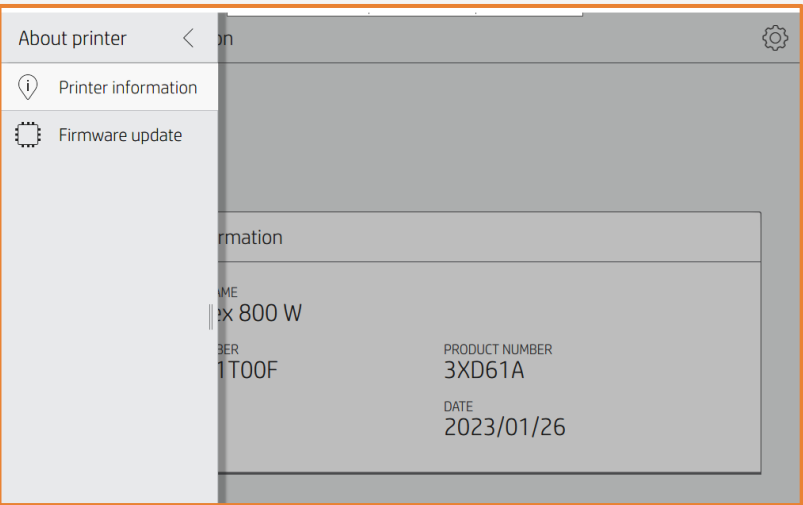
How to do traffic signage

Preparing the job



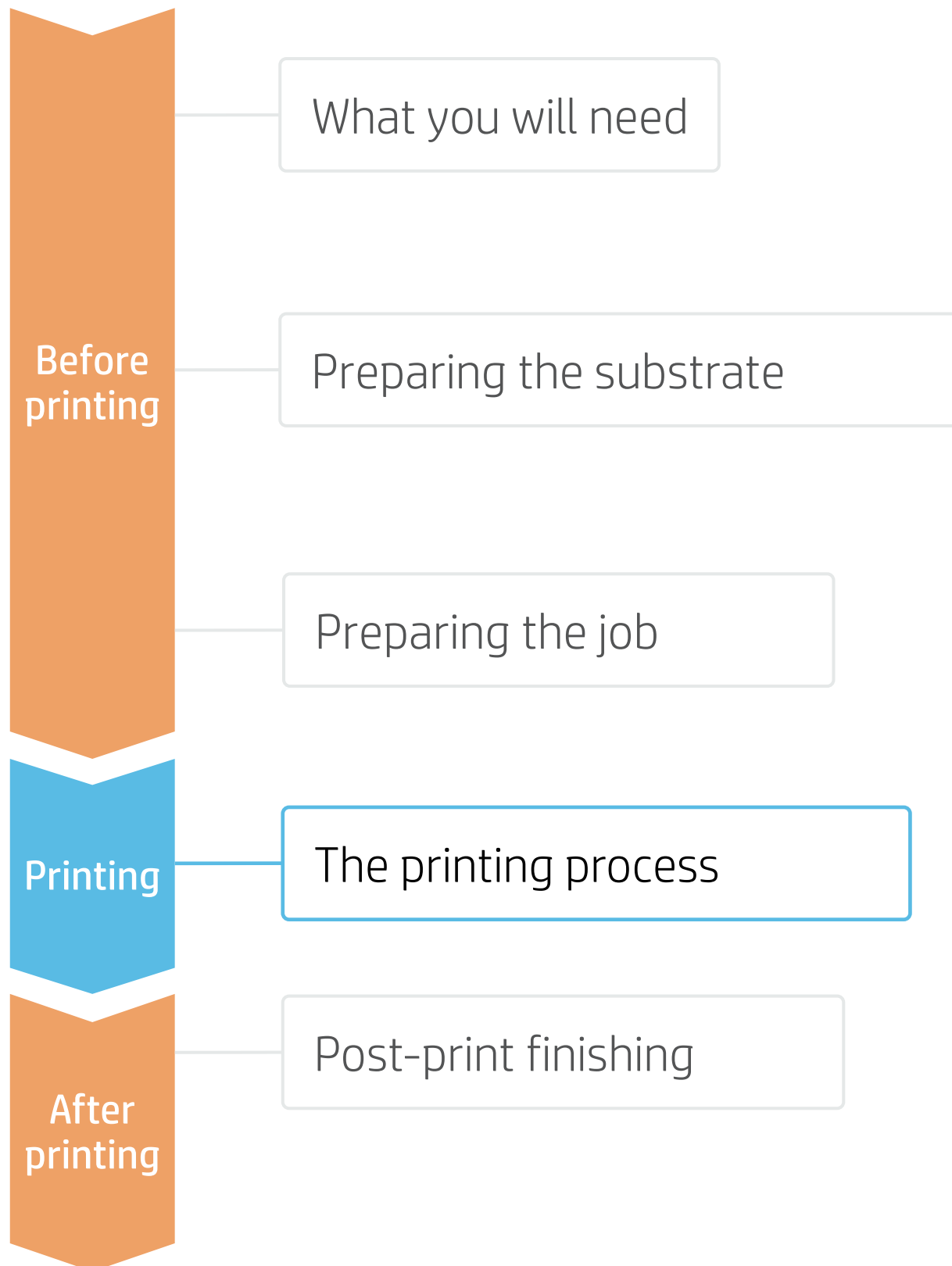
3.3 Printer firmware

- Upgrade printer's firmware to the PLS_50_23_39.1.
- **Delete** any previous substrate preset of 3M reflective sheeting and **download** them again via online search from the control panel or via the HP PrintOS Media Locator.



How to do traffic signage

The printing process

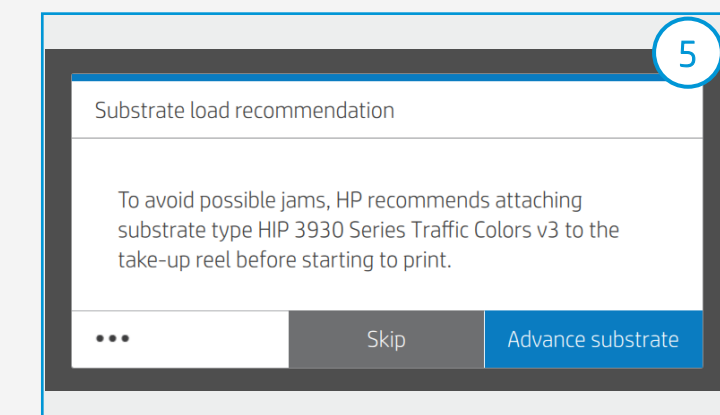
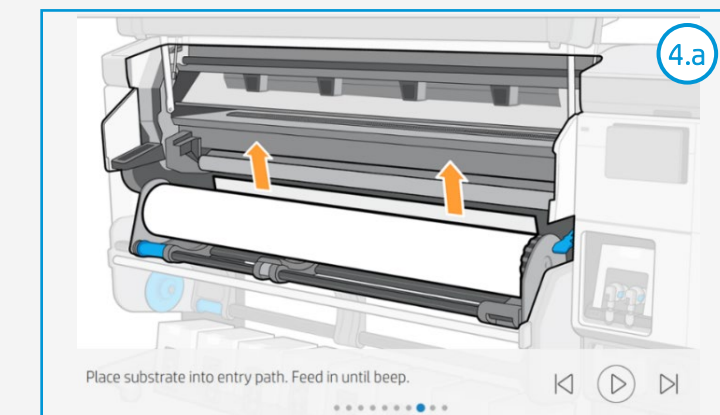
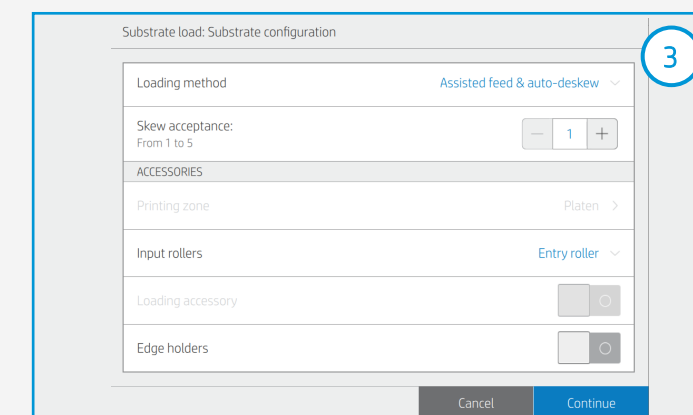
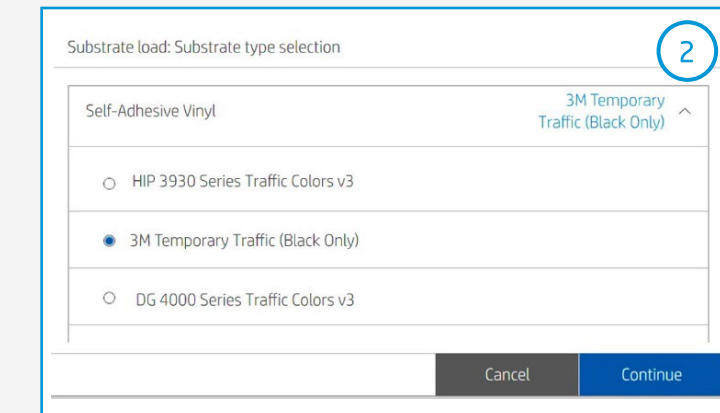
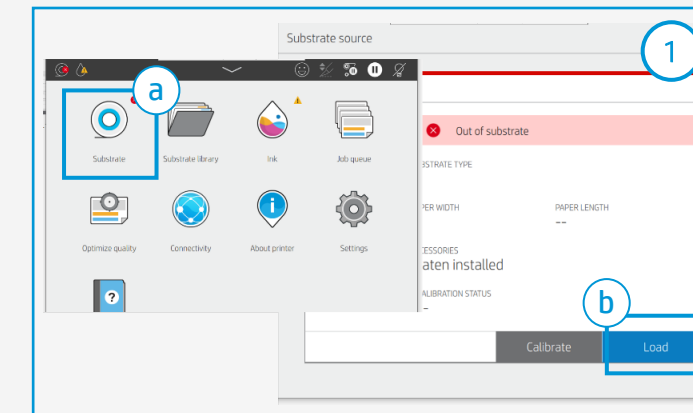


Loading substrate

IMPORTANT! Take-up reels (TUR) and edge holders are mandatory when using reflective sheeting.

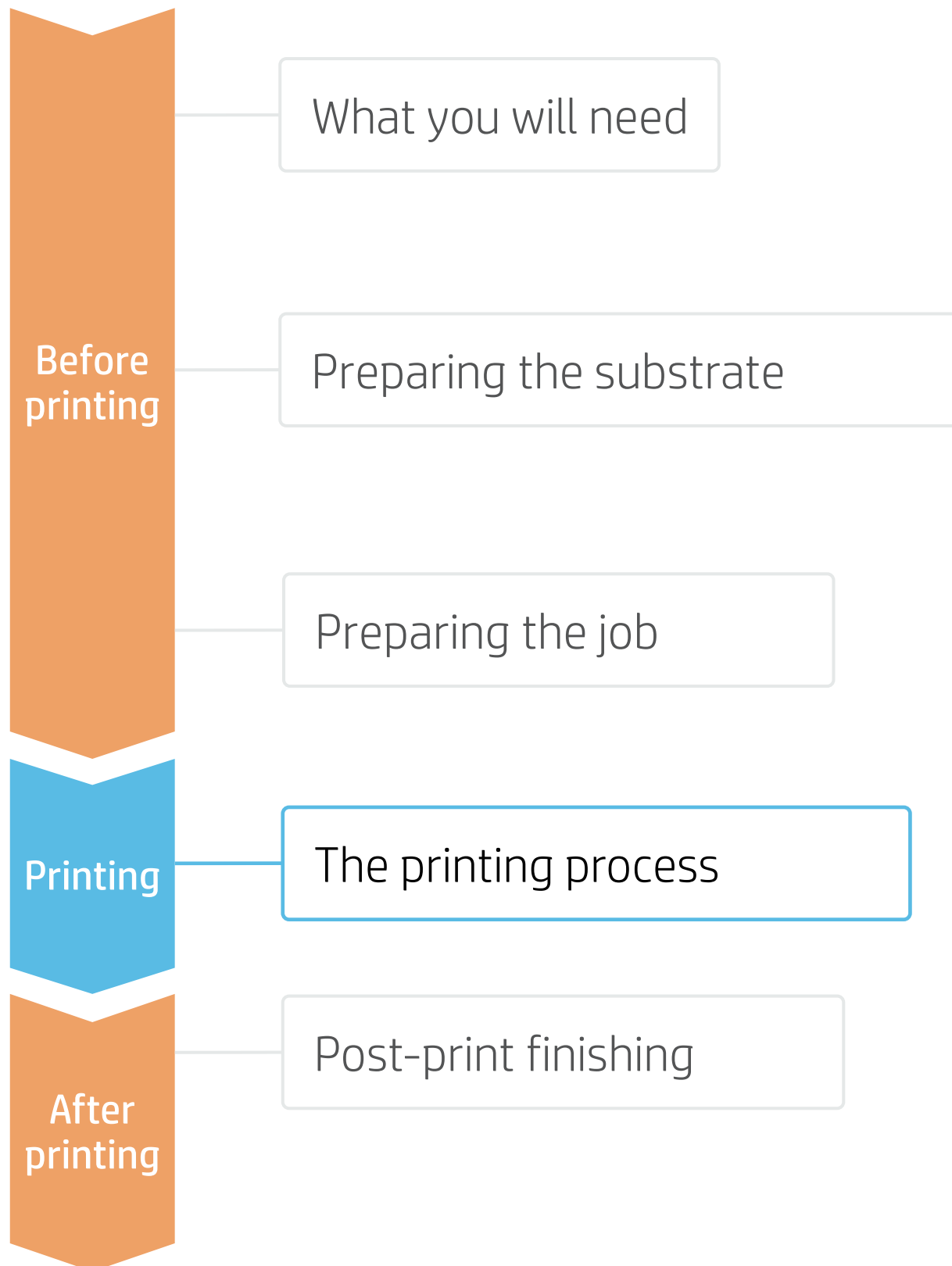
TIP: Media Feed accessory can be used to save substrate, before connecting it to the TUR. When tiling length repeatability is required, it is not recommended to use it. For further information on how to use the accessory, please see [HP Latex Substrate Feed Accessory guide](#).

- Load substrate from the Control Panel**
Tap on Substrate (a) and Load (b).
- Select the substrate**
Search for your 3M reflective sheeting on Self-adhesive vinyl or Recently used drop down list and tap Continue.
- Substrate load configuration**
 - Recommended to activate [Optimize for tiling](#)
 - Select [Assisted feed & auto-skew](#).
 - Ensure [skew](#) is set at 1.
 - Tap Continue.
- Load substrate on the printer**
Follow Control panel instructions (a).
NOTE: Place the **edge holders** (b) before lowering the curing chamber to finish the loading process.
- Attach substrate to take-up reel (TUR)**
A message will pop up from the control panel which will strongly recommend to advance substrate and **attach it to the TUR**.



How to do traffic signage

The printing process



Loading substrate

6. **Prepare the TUR**
When substrate loading is successful, attach an empty core on the TUR.
7. **Move substrate**
Advance until reaching the TUR.
8. **Attach the substrate to the TUR**
 - Cut it into a “V” shape as shown in the picture.
 - Attach the substrate so that the printed side faces **out**.
 - Attach the substrate from the center.



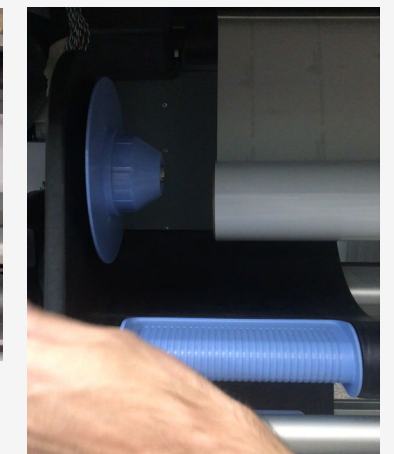
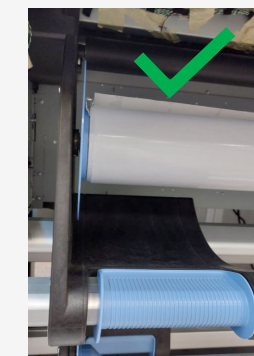
IMPORTANT! For L800 series, consider the following tips on how to set the left hub of the take-up reel



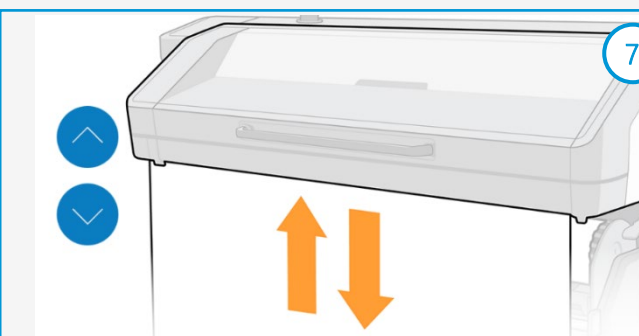
Bent too much



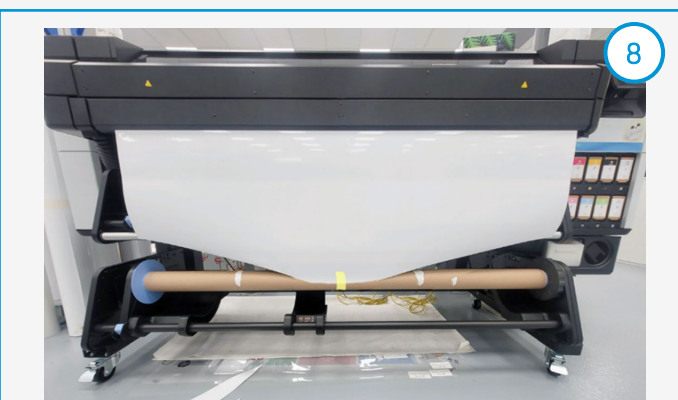
Over tightened



Video on how to adjust left hub



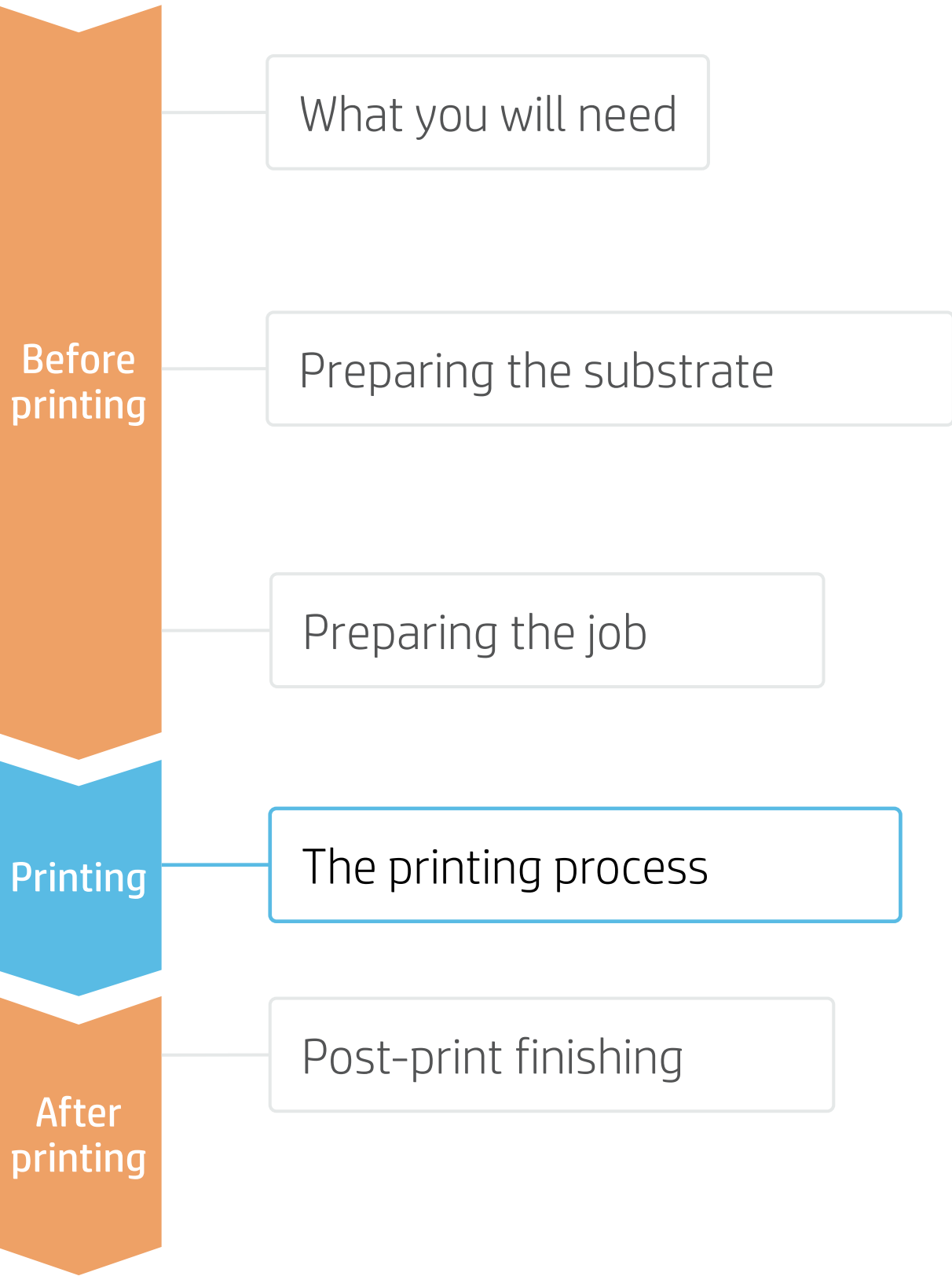
Press and hold "up" arrow to rewind and "down" arrow to advance substrate.



NOTE: Steps 8 to 10 are not necessary when media feed accessory is used and TUR is attached while printing.

How to do traffic signage

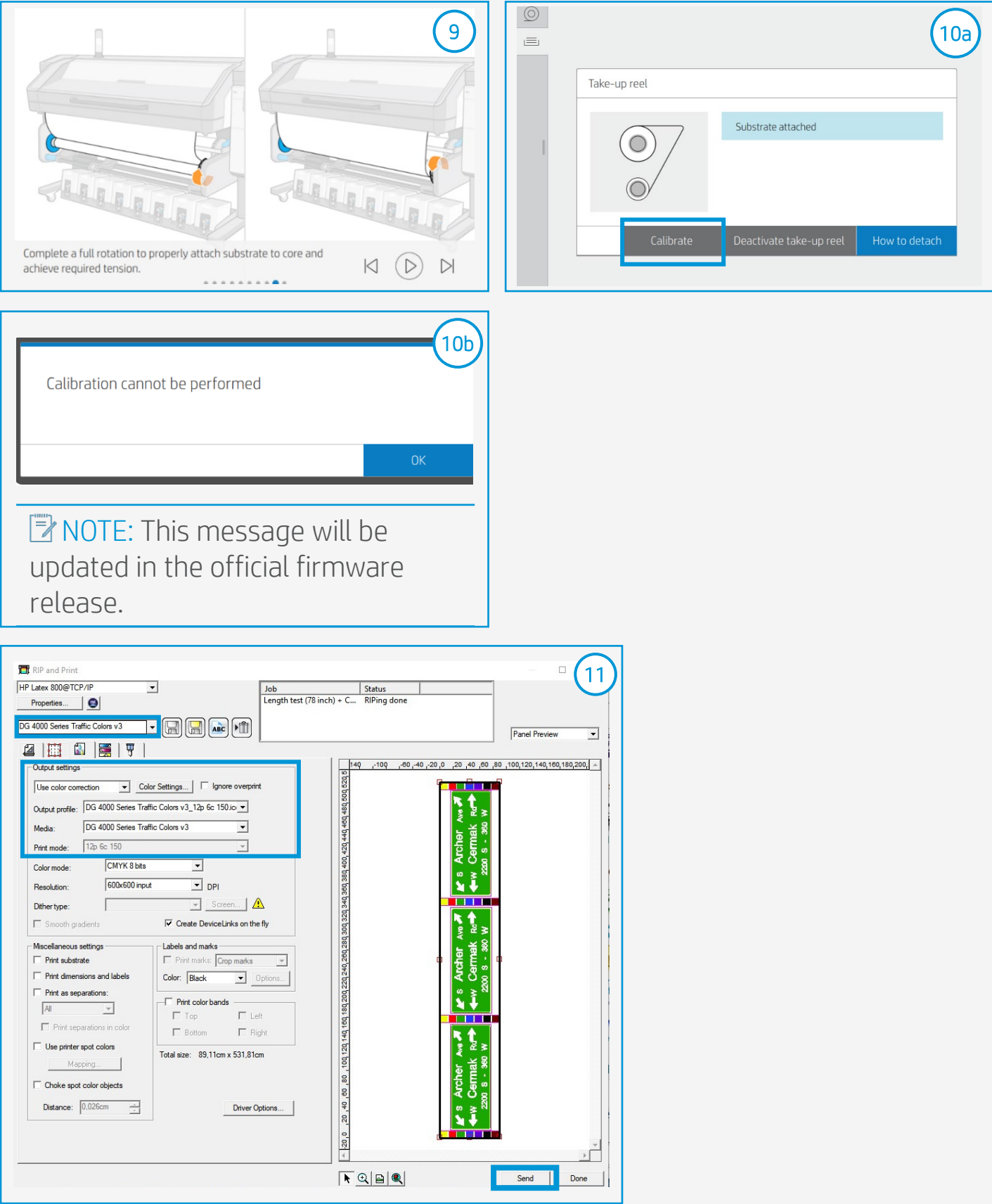
The printing process



Loading substrate

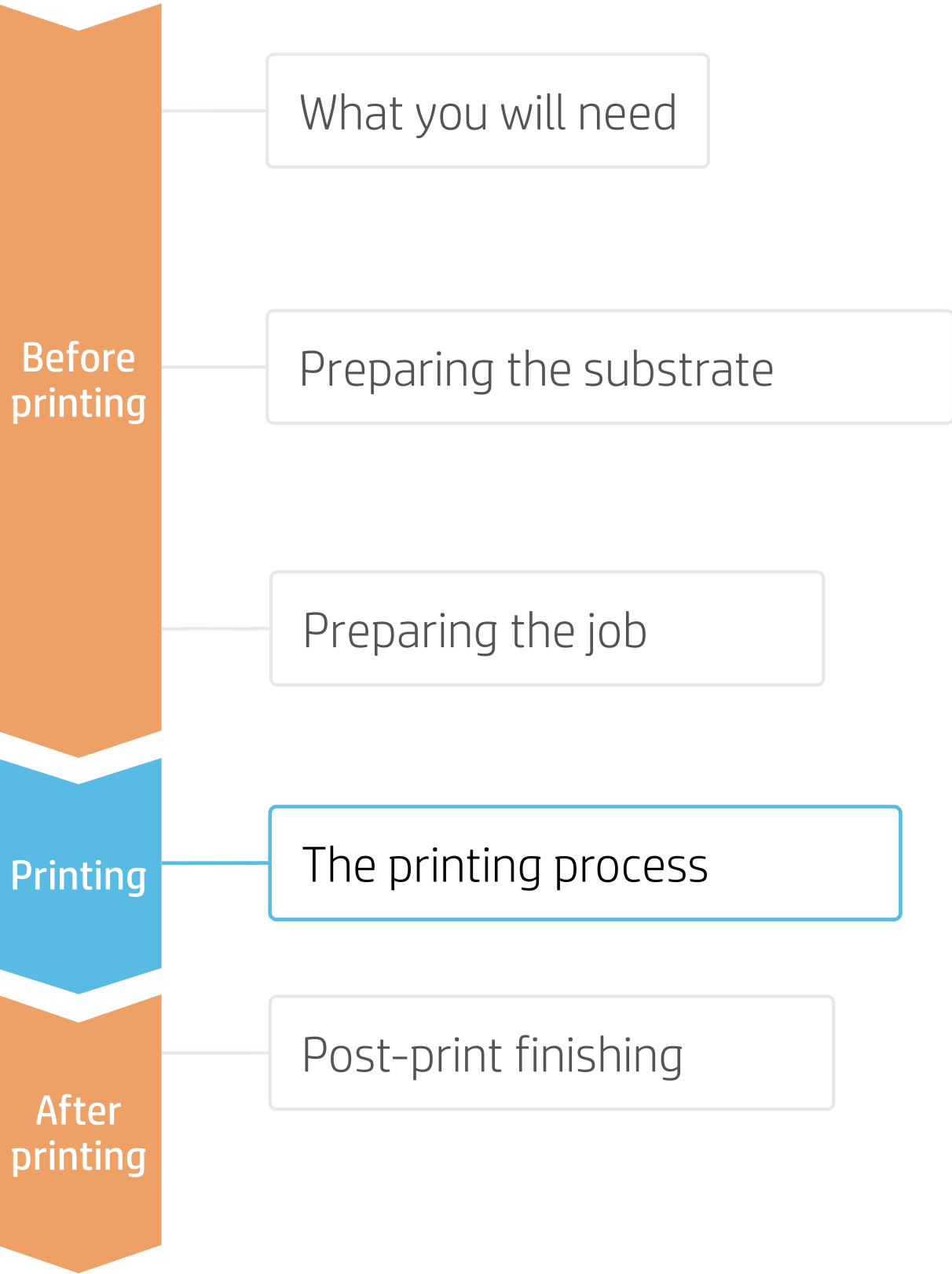
- 9. Activate the TUR**
 Advance enough substrate and activate the TUR by manually turning the TUR in the desired direction for 1 full rotation.
- 10. Calibrate the TUR**
IMPORTANT! Always perform this step.
 - Select **calibrate** on the control panel.
 - A message of calibration not performed will pop up on the control panel, but key calculations are done internally. Tab **OK**.
- 11. Send the job to print from the RIP**
 - Check the RIP has synchronized the loaded substrate with the printer.
 - Tab on “Color management” and select the correct print mode and any other settings (copies, placements, etc.)
 - Set up the proper color management settings as shown in section 3 of “Preparing the job” chapter.
 - Click **Send to print**.

NOTE: Steps 8 to 10 are skipped when media feed accessory is used and TUR is attached while printing.



How to do traffic signage

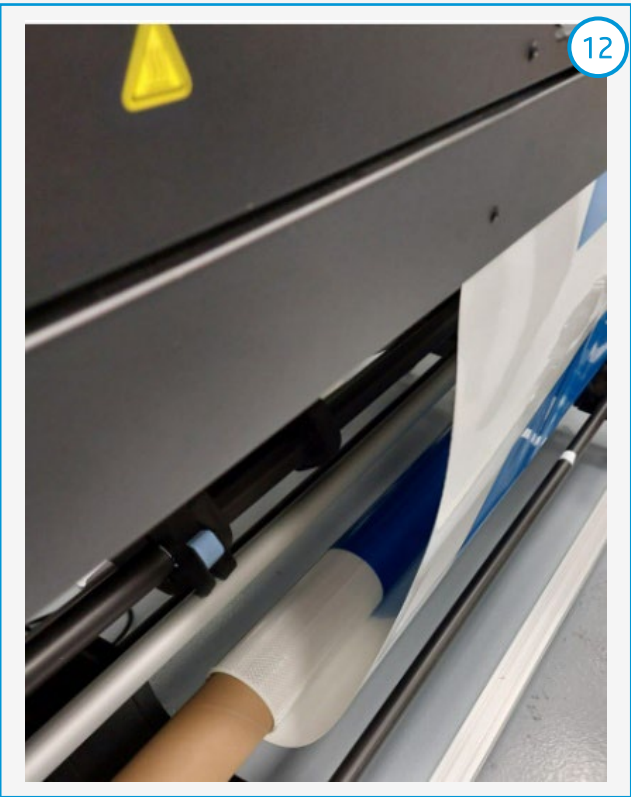
The printing process



Loading substrate

12. **Printing**
 The rewinding mode will leave a visible bag or substrate loose close to the rewinder.
 This mode is necessary for tiling performance.

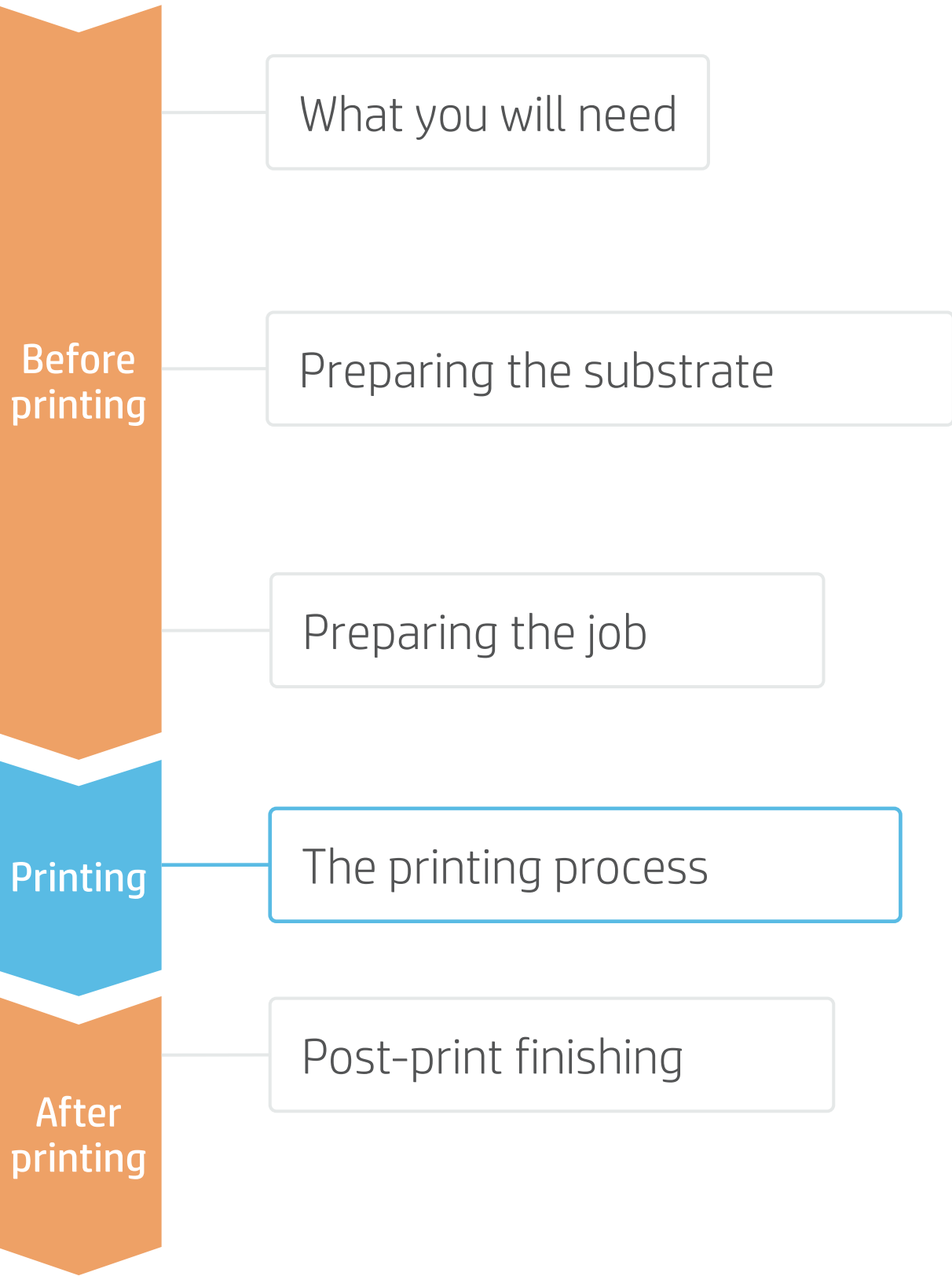
13. **Cut and retrieve the printed roll**
IMPORTANT! Cutter is disabled for this type of substrate, so it must be cut manually with a cutting device.



TIP: Before cutting the printed job, advance the substrate so that you protect the printed roll when it is unloaded.

How to do traffic signage

The printing process



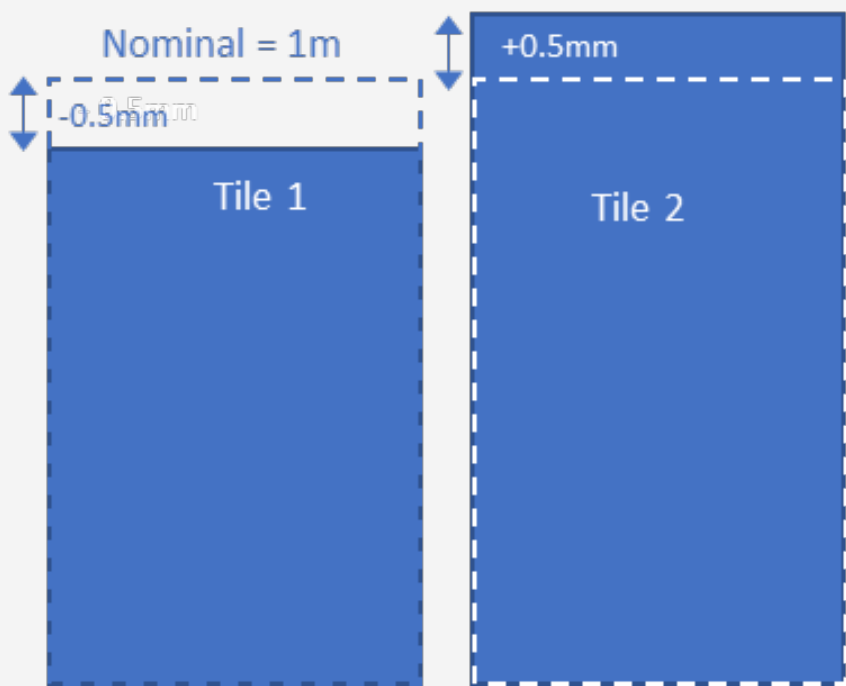
Tips for tiling application and length accuracy



Tiling length repeatability (TLR)

This refers to the difference in length between tiles.

NOTE: A maximum tiling length deviation from tile to tile of +/- 0.5mm/m is expected if the following tips are followed.

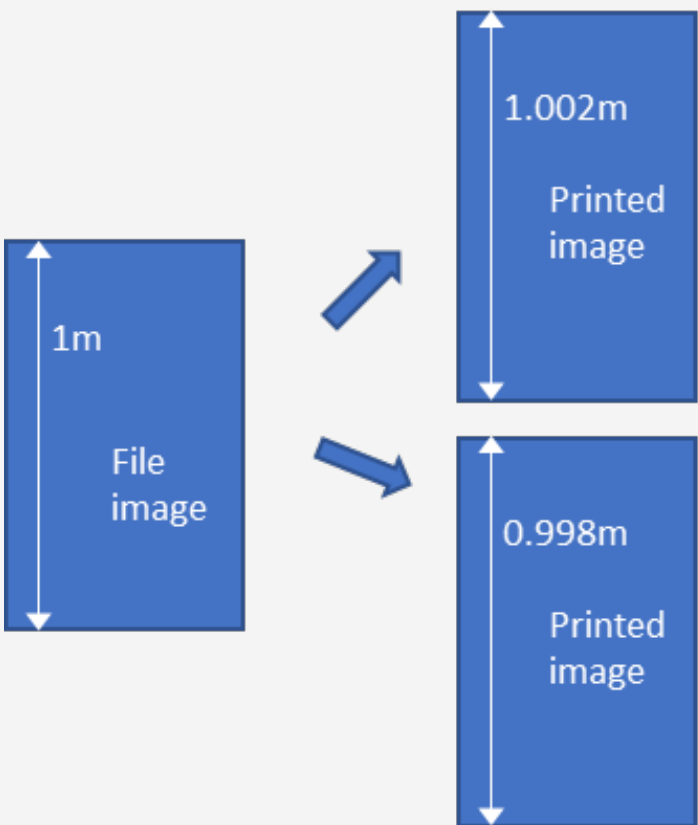


Length accuracy (TLA)

Difference between the printed length and the nominal length of the file image (length value in rip).

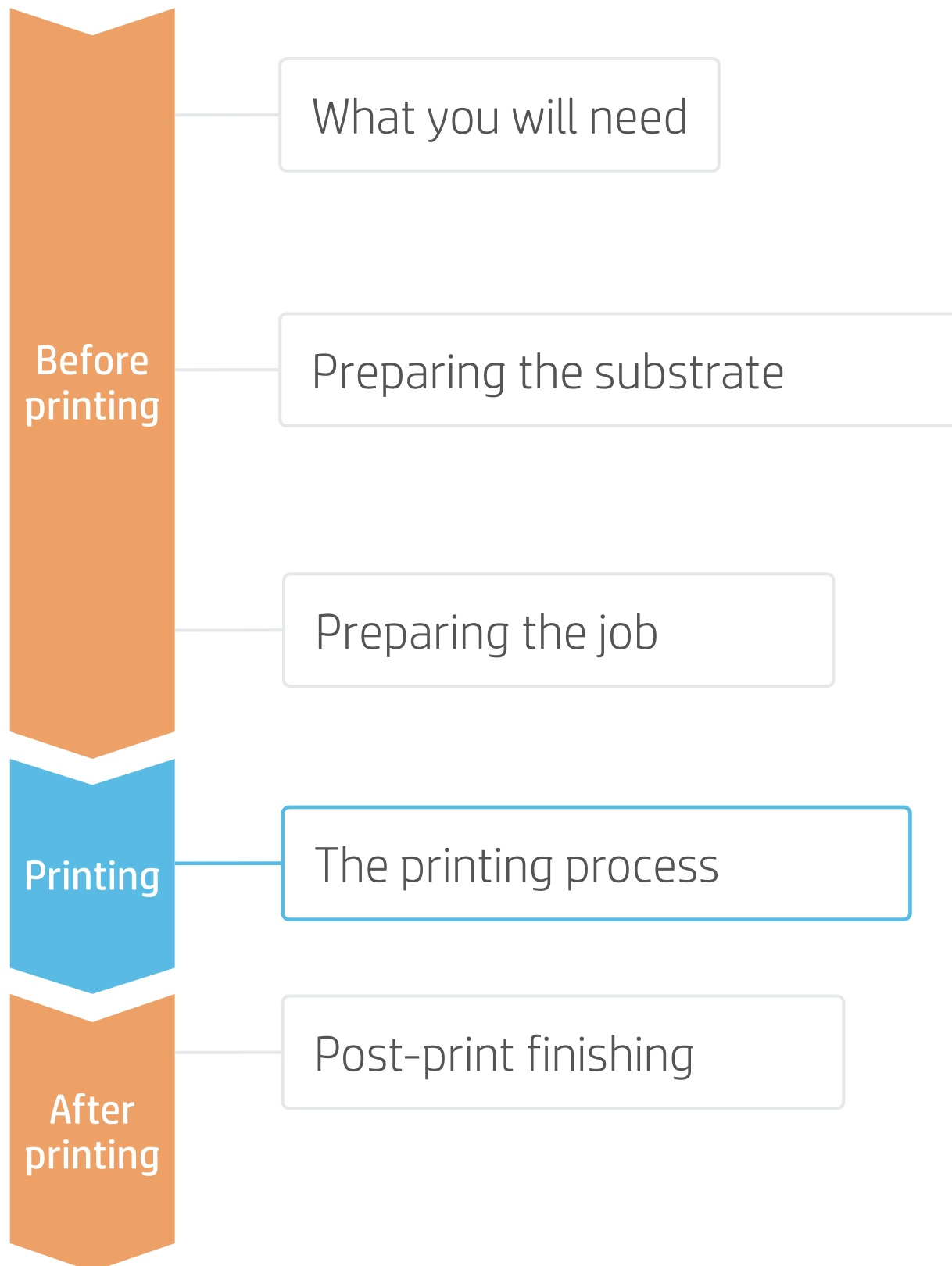
In case TLA is not in spec, it must be corrected by applying an **output size compensation factor** in RIP.

NOTE: The absolute length accuracy is 0.2%, if the following tips are followed.



How to do traffic signage

The printing process



Tips for tiling application and length accuracy

NOTE: A maximum tiling length deviation from tile to tile of $\pm 0,5\text{mm/m}$ is expected if the following tips are followed. The absolute length accuracy (printed length versus the nominal length) is 0.2%.


IMPORTANT! Do not use **Media Feed accessory** for tiling applications.

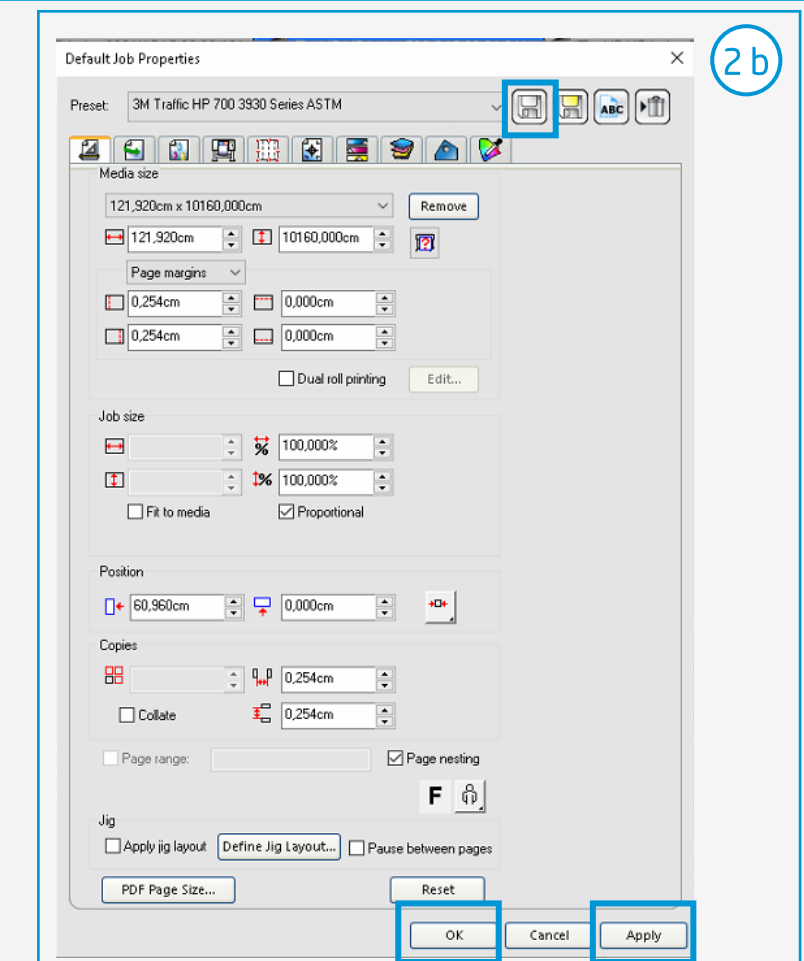
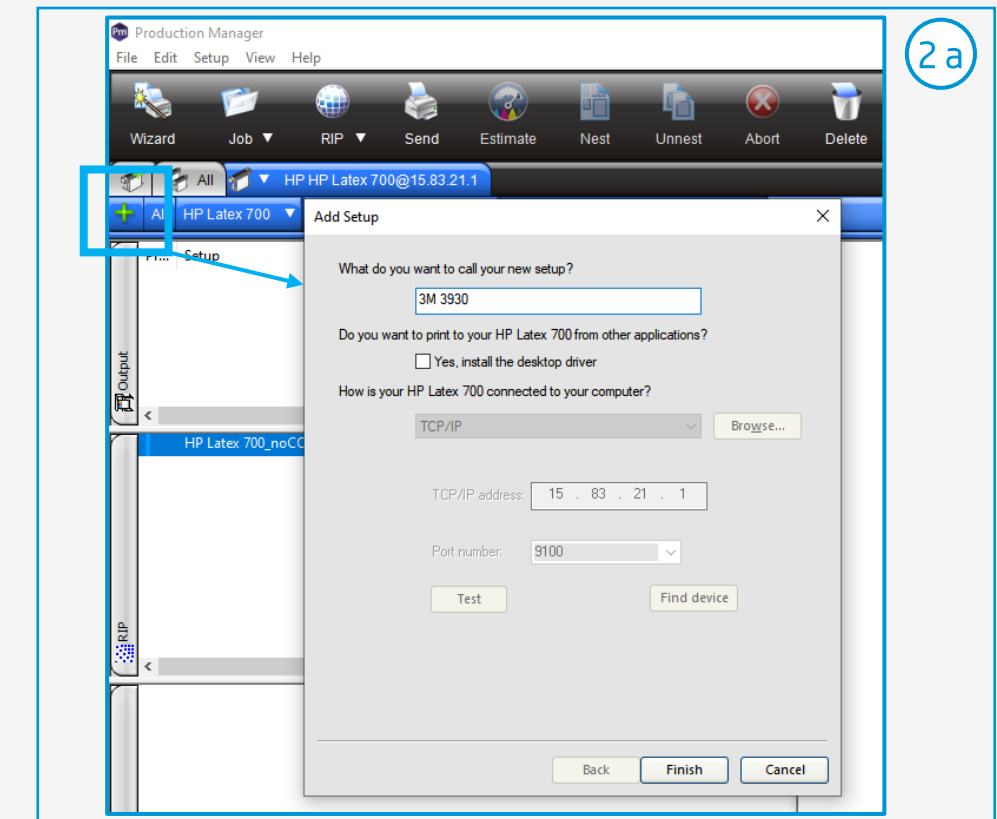
1. **Attach take-up reel (TUR)**
Substrate needs to be attached to TUR to print and set up the size compensation factor.
Follow the steps described in the previous section.

2. **Set up Output size compensation in RIP**
To achieve the absolute length accuracy TLA.

NOTE: Output size compensation should be done for each substrate and printer **on the first time of use**. Once found and saved in the RIP printer setup, the process does not need to be repeated, unless climatic conditions or printer hardware change.

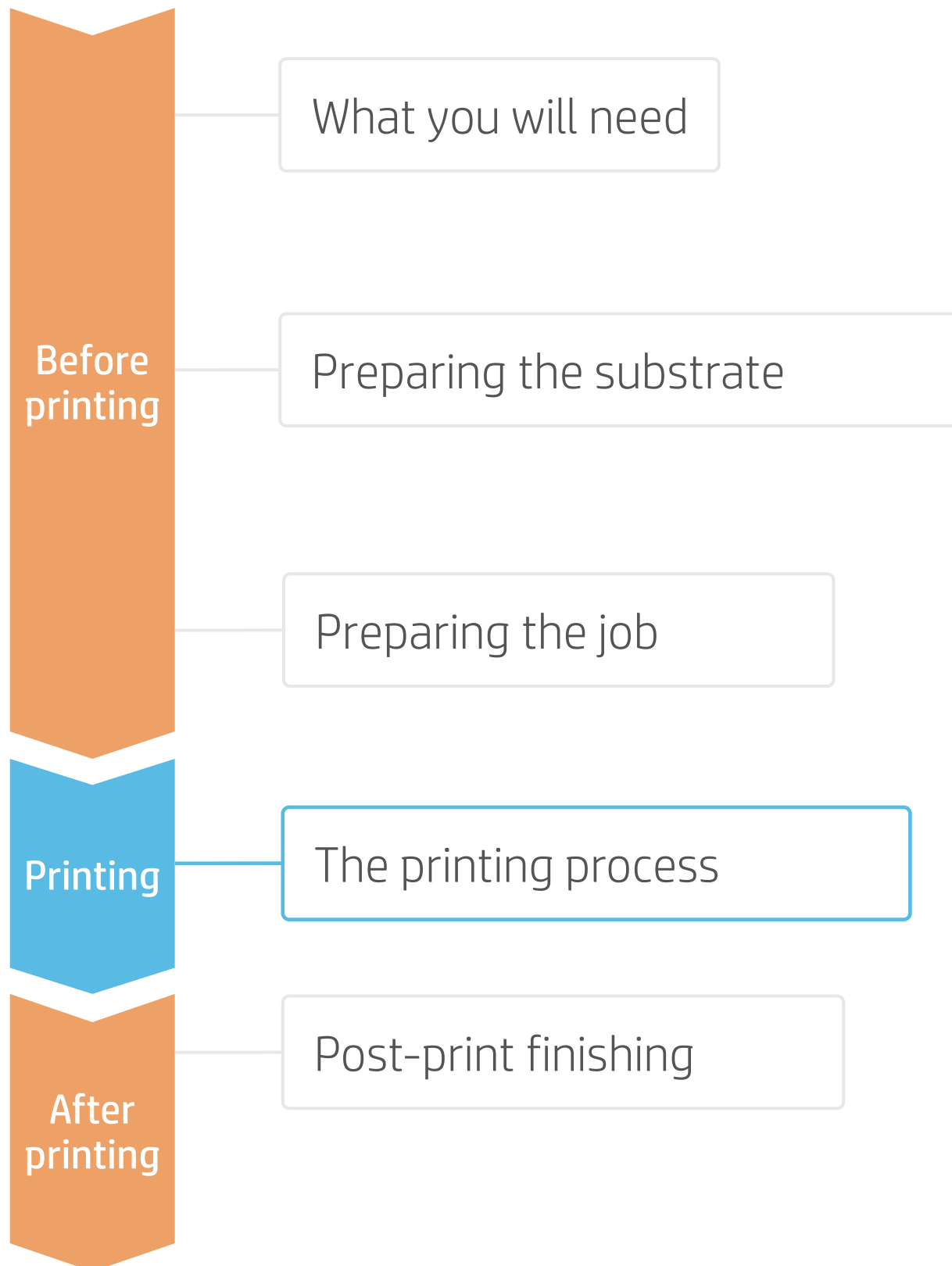
In SAI Production Manager;

- a) Create a **new printer setup** and name it as your printer and substrate in use.
- b) Edit the **default job properties** as desired.
 - Select the corresponding **3M substrate preset**, **Media** and **Output profile**.
 - Click on **Apply**.
 - **Save** the preset 
 - Click **Ok**.



How to do traffic signage

The printing process

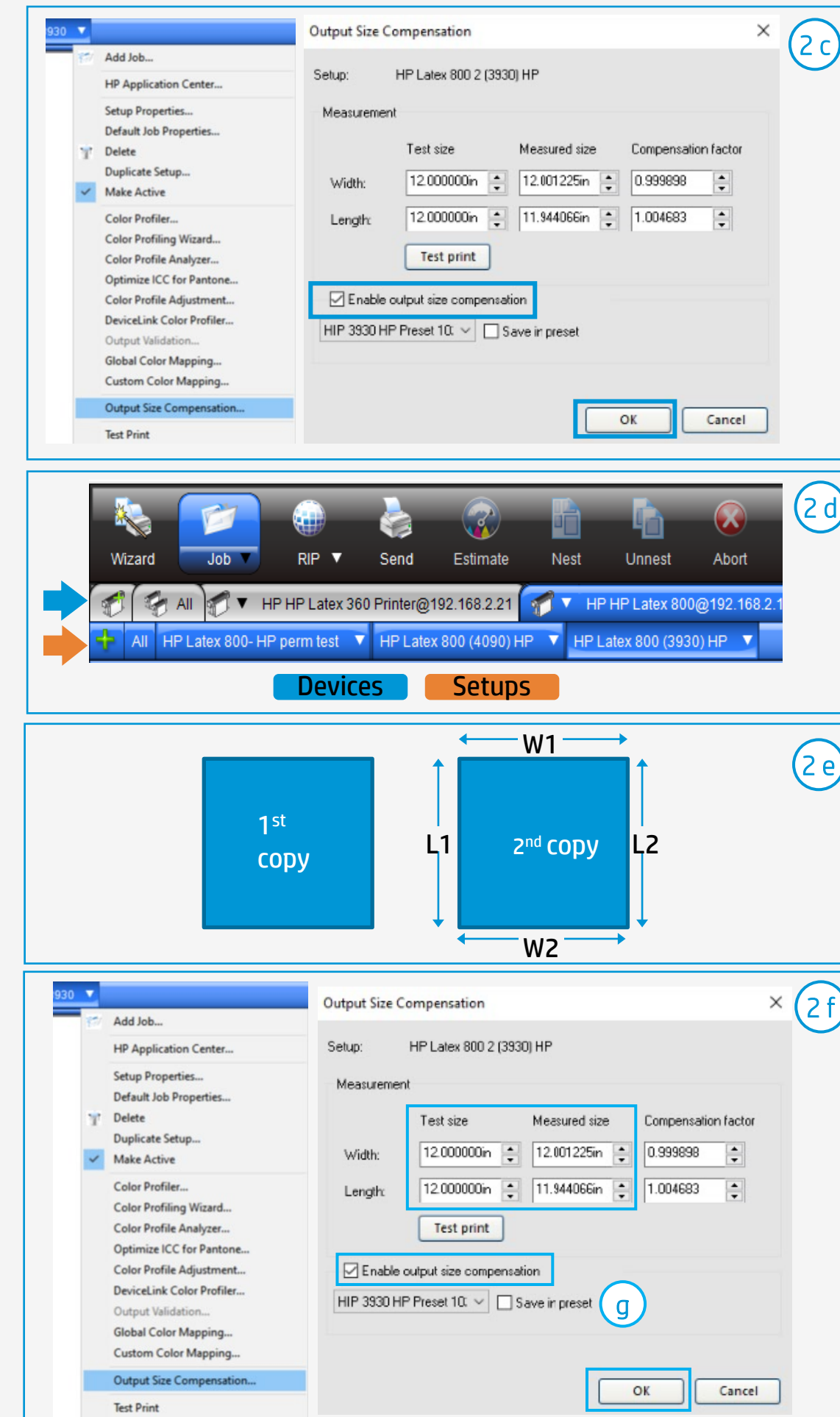


Tips for tiling application and length accuracy

- c) Right click on the **printer setup** and ensure **disabling** the output size compensation. Click Ok.
- d) With the **selected printer setup** and media preset, **print 2 copies** of a square image of known dimensions, recommended 1x1m.
- e) Once dried, **measure** each side of the second copy; calculate the average for the width (W) and the length (L) dimensions.
- f) In the RIP, right click on the printer setup, select **Output Size Compensation** and input the values for the Test size and the Measured Size (averages). Tick on “**Enable output size compensation**” and click on OK.
- g) Ensure “Save in preset” is always **unticked**.

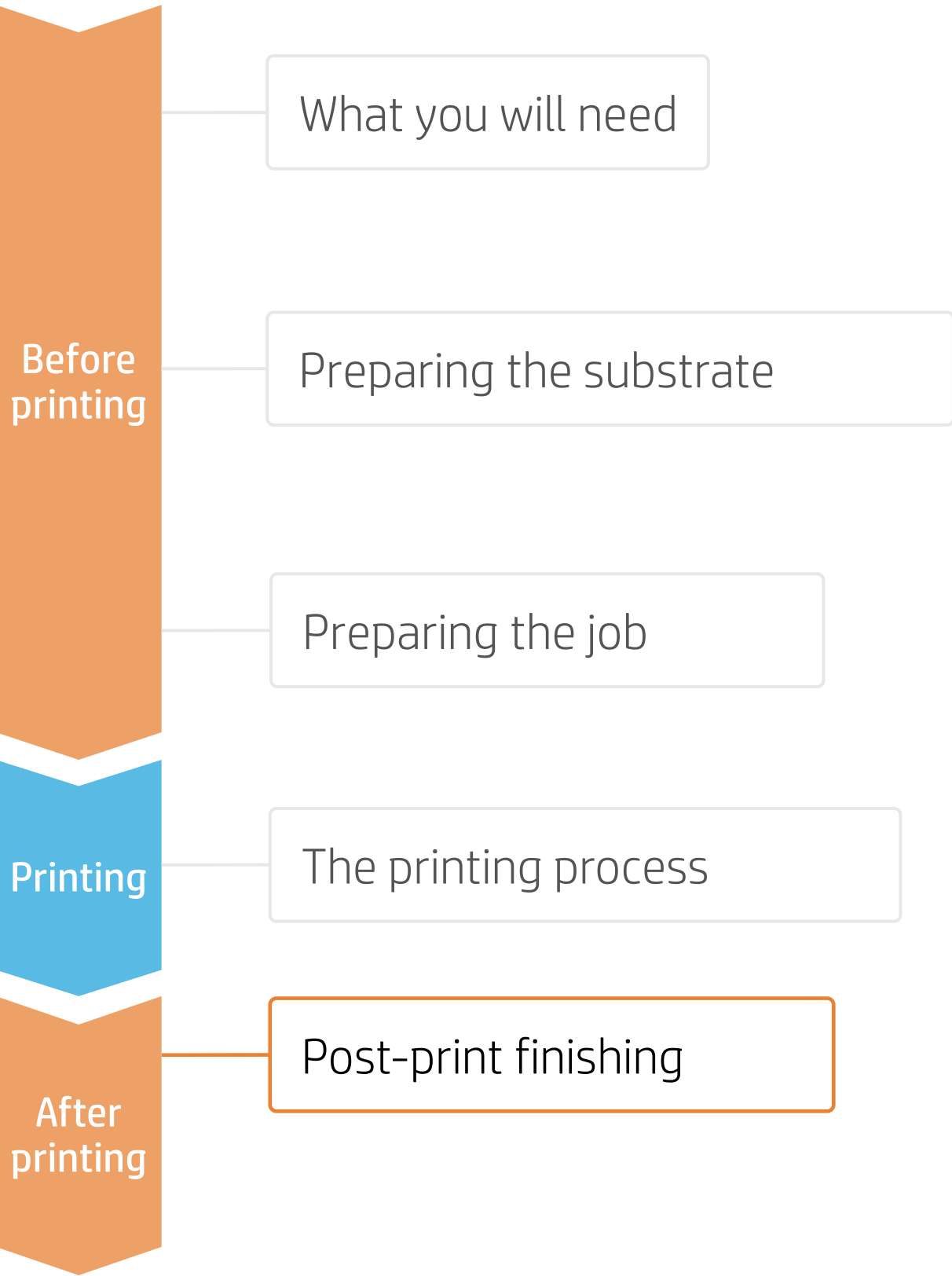
3. Use the new printer setup created in the step above to Load and Send new jobs.

! IMPORTANT! The output size compensation **will not be applied** to those jobs already in the rip job queue. It is necessary to reload the file.



How to do traffic signage

Post-print finishing



1. Lamination

To achieve the maximum sign durability, it is recommended to laminate the prints with a matching overlamine.

Use the film laminate recommended by the self-adhesive vinyl manufacturer.

Follow the lamination settings (speed, pressure, and temperature) specific for the reflective sheeting + laminate combination.

⚠️ IMPORTANT!: 3M™ ElectroCut™ Film 1170C Clear Overlamine or 3M™ Premium Protective Overlay Film Series 1160i is required to receive the 3M™ MCS™ Warranty for Traffic and the 3M™ MCS™ Warranty.

📄 NOTE: HP Latex approved profiles for 3M reflective sheeting have **Overcoat** setting at 0dpp for optimal laminate adhesion. **If laminating is not done** (e.g. TTC temporary traffic), set Overcoat at 0.5dpp to get a level of durability.



2. Cut

To cut the graphics automatically, use flat-bed contour cutters or vinyl cutters. Use the cutting presets specific for this type of substrates, e.g. diamond grade, high intensity prismatic and engineer grade.

📄 NOTE: Some vinyl cutters may not be able to cut reflective sheeting. Check that your cutter specifications, such as pressure and speed, match with your substrate characteristics.



How to do traffic signage

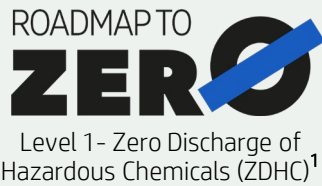
Remarks

- Benefit from HP Latex versatility - produce bright, durable traffic signs.
- Choose from a range of 3M™ reflective sheeting compatible with HP Latex Inks for digital printing of traffic signs.
- Produce traffic signs with warranties up to 12 years with the 3M™ MCS™ Warranty.

Learn more at:

- [HP LKC](#)
- [Learn with HP](#)
- <http://www.3m.com/trafficsignprinting>

Certifications:



Inks meet stringent health and environmental criteria²



Unrestricted, full room. No-wait installation or lamination³



¹Zero Discharge of Hazardous Chemicals. Applicable to HP Latex Inks. The ZDHC Roadmap to Zero Level 1 demonstrates that an ink conforms to or meets the standards of the ZDHC Manufacturing Restricted Substances List (ZDHC MRSL) 1.1, a list of chemical substances banned from intentional use during production. ZDHC is an organization dedicated to eliminating hazardous chemicals and implementing sustainable chemicals in the leather, textile, and synthetics sectors. The Roadmap to Zero Program is a multi-stakeholder organization which includes brands, value chain affiliates, and associates, that work collaboratively to implement responsible chemical management practices. See roadmaptozero.com.

²Applicable to R Series and 700/800 Printer series HP Latex Inks. UL ECOLOGO® Certification to UL 2801 demonstrates that an ink meets a range of multi-attribute, lifecycle-based stringent criteria related to human health and environmental considerations (see ul.com/EL). HP is the only printing company with UL ECOLOGO® Certified inks in the “Printing Inks and Graphics Film” product category, see spot.ul.com/main-app/products/catalog/.

³Applicable to HP Latex Inks. UL GREENGUARD Gold Certification to UL 2818 demonstrates that products are certified to UL’s GREENGUARD standards for low chemical emissions into indoor air during product usage. Unrestricted room size—full decorated room, 33.4 m² (360 ft²) in an office environment, 94.6 m² (1,018 ft²) in a classroom environment. For more information, visit ul.com/gg or greenguard.org.

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