Cookbook –
HP Latex Print and Cut Solution

Good practices to ensure correct cutting accuracy

Table of contents

1. Job preparation

1.1 Bleed and contour-line offset

- Make sure the images that will be contour cut contain a bleed of at least 1-2 mm.

- Modify the **contour-line offset** from the **DesignCentral** window in HP Flexi Print and Cut Editor:
    1) A positive offset will contour-cut outside the image border, thereby leaving a white space.
    2) A negative offset will contour-cut inside the image border; no white space will be visible.

Contour line

Offset

1.2   Job size

Reduce job sizes, i.e. fewer rows of images, and print several copies of a job; in this manner, more horizontal bars and barcodes will be printed, and the OPOS sensor will be able to readjust the alignment.

*Rip and Print menu > check **Repeat Job** > select **no. of copies***
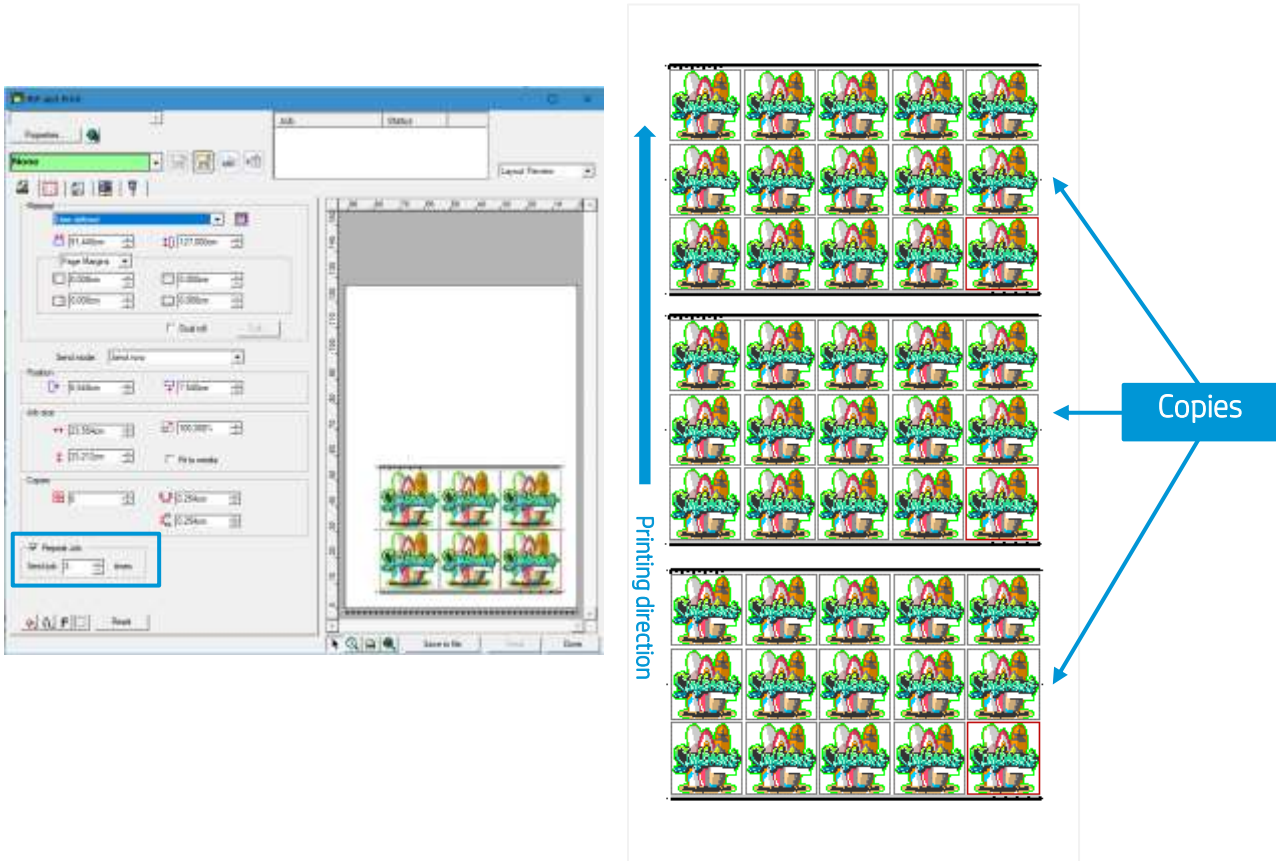
1.3   Top and bottom margins

By default, the RIP adds 50 mm at the top and bottom margins, and 100 mm between jobs. **Add 100 mm of extra top margin (a) and extra bottom margin (b) to the job from the printer front panel**: *Menu > Settings > Substrate > Substrate handling options*
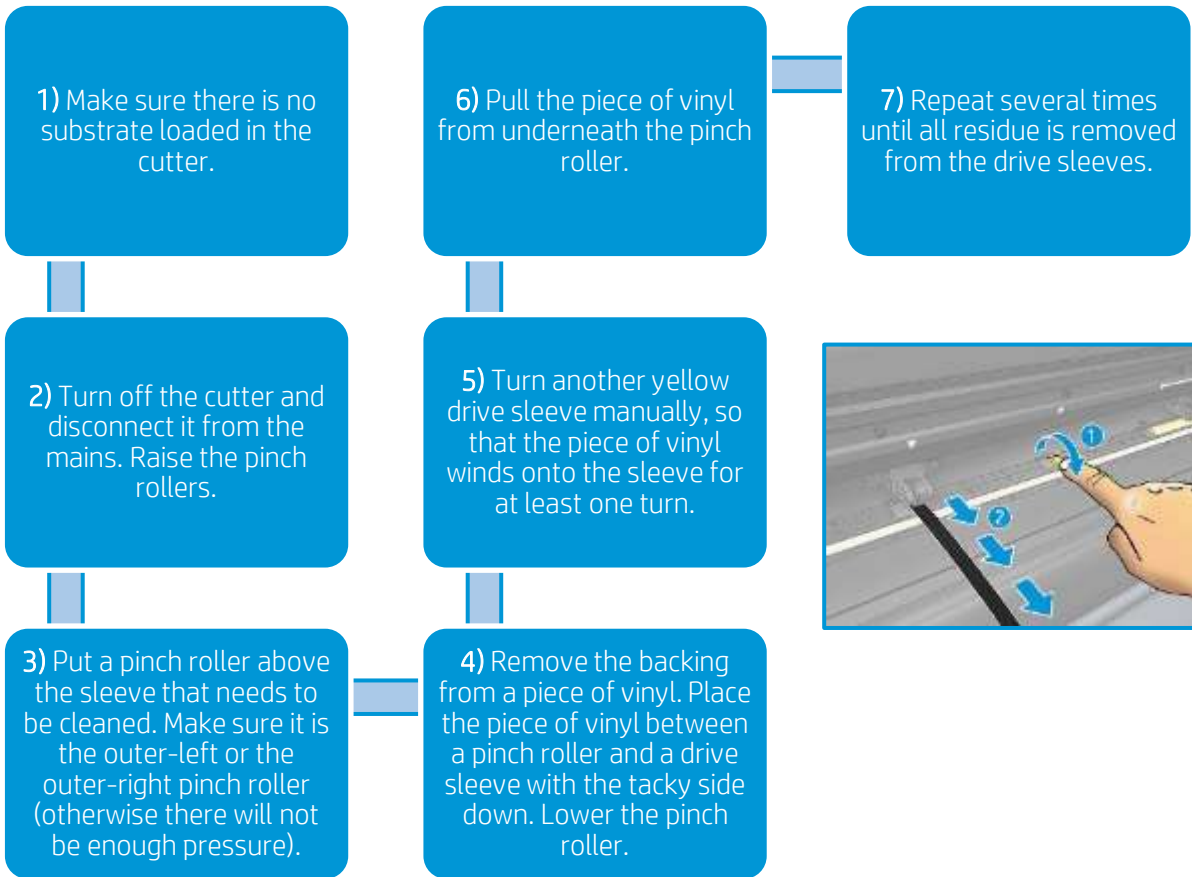
The top and bottom edges of the plot may become wavy; this makes it difficult for the OPOS sensor to read the HP barcode correctly and apply an accurate alignment if insufficient margins are used.

With no margins   With margins
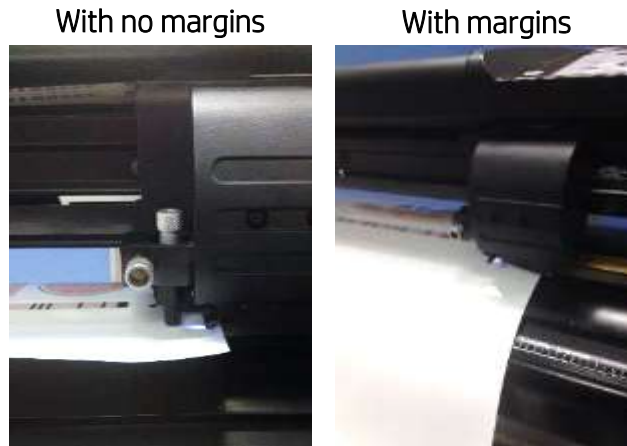
2. Cutter maintenance

2.1   Clean the drive system

Over time, the sleeves of the drive drum may become clogged with accumulated residue from the substrate liner. This may cause the substrate to slip between the pinch rollers and the drive sleeves, resulting in decreased traction.

1) Make sure there is no substrate loaded in the cutter.

2) Turn off the cutter and disconnect it from the mains. Raise the pinch rollers.

3) Put a pinch roller above the sleeve that needs to be cleaned. Make sure it is the outer-left or the outer-right pinch roller (otherwise there will not be enough pressure).

4) Remove the backing from a piece of vinyl. Place the piece of vinyl between a pinch roller and a drive sleeve with the tacky side down. Lower the pinch roller.

5) Turn another yellow drive sleeve manually, so that the piece of vinyl winds onto the sleeve for at least one turn.

6) Pull the piece of vinyl from underneath the pinch roller.

7) Repeat several times until all residue is removed from the drive sleeves.

2.2   Clean the substrate sensor

Over time, the substrate sensor may become dirty with accumulated residue from the substrate, this may cause the cutter to malfunction.

Clean the sensor by wiping it with a cotton swab.

2.3   Clean the Y-guide rail

There are two V-shaped areas on the Y-guide rail on which the tool carriage slides from left to right. These areas are situated at the top and bottom of the front part of the Y guide.

Although the shape of the Y-guide rail may differ from model to model, the V-shaped areas are located in the same place at the top and bottom of the guide.

The illustration below shows the top of the Y guide.

Over time, there may be some accumulated residue on these sliding surfaces and on the rollers of the tool carriage.

Clean the sliding surfaces:

1) Turn off the cutter.
2) Take a soft cloth, dampened with isopropyl alcohol or mild detergent.

NOTE: If you are in an area (such as California) that regulates VOC cleaning and maintenance fluids, instead of isopropyl alcohol use a VOC-certified cleaner such as a properly diluted Simple Green All-Purpose Cleaner.

3) Clean the surfaces using the cloth. If the tool carriage is in the way, push it gently to the left or right.

2.4   Pinch-roller lever arm position

Leaving the pinch rollers in the down position for a long time will create a flat spot on the pinch rollers, which will seriously degrade tracking performance and cutting quality.
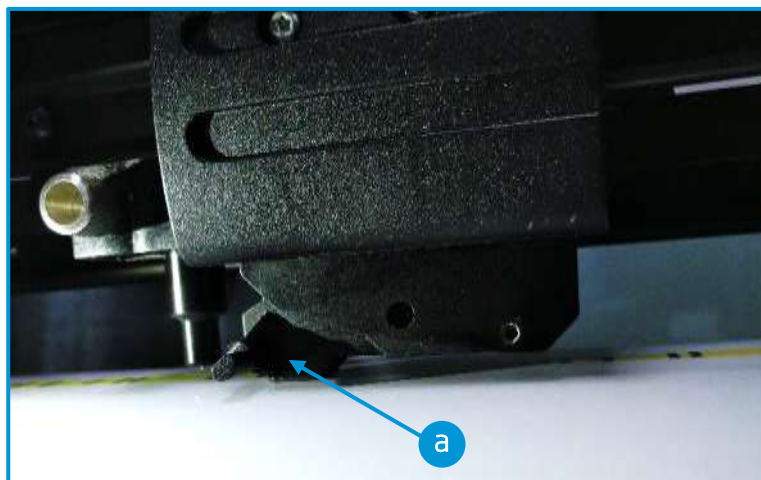

To avoid this, always leave **the pinch rollers in the up position** when the cutter is not in use.


2.5   OPOS sensor position

In its working position, the OPOS sensor should touch the media. **Make sure that when the OPOS sensor is reading the OPOS marks, the sensor (a) is properly lowered.**
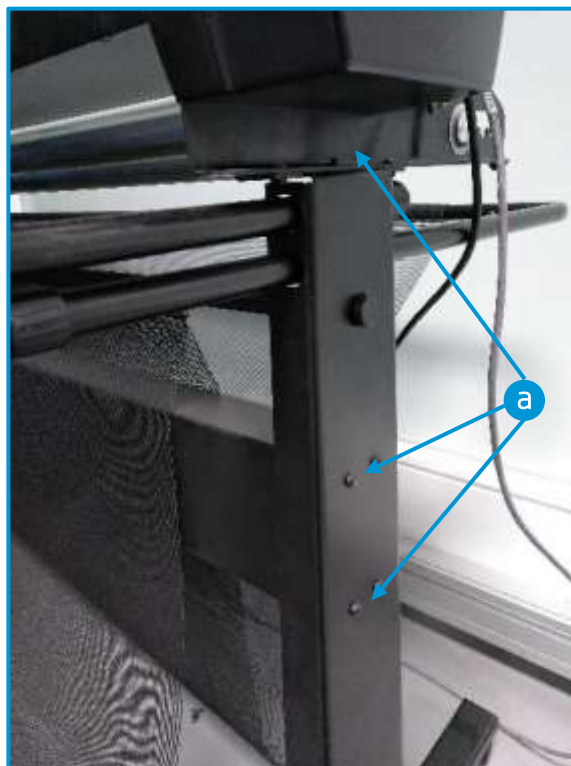
Also make sure the OPOS sensor has no lateral movement (double-check this as shown in the picture below). If the OPOS seems loose inside the bracket please tighten the two small set screws, then perform the **"Cal. OPOS"** calibrations.
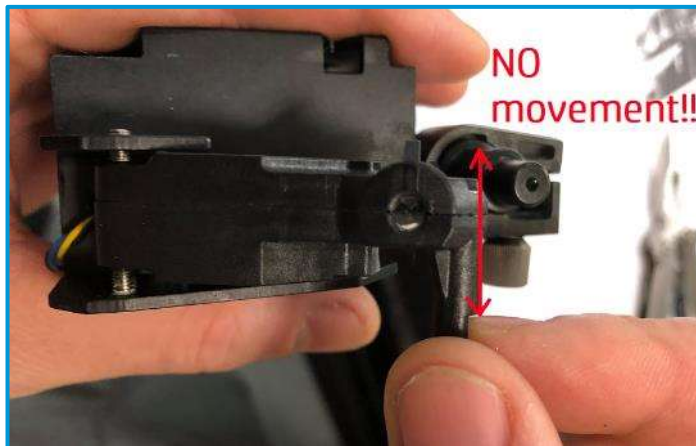
2.6   Stand stability

Make sure that the stand structure of the cutter is stable, and that no screws **(a)** or parts are loose.

3. Printing tips

3.1 Raw material

To avoid skew problems when printing and then cutting, please check that the roll of substrate you are going to use does not have any rewinding defects, such as telescoping.

3.2 Self-adhesive vinyl

According to their manufacturing processes and their chemistry, self-adhesive vinyls are classified as follows:

- Calendered monomeric
- Calendered polymeric
- Cast polymeric

Calendered types are more susceptible to deformations caused by high temperatures during the printing process. When this happens, the dimensions of the print will change, and this will affect cutting accuracy.

We recommend decreasing the curing temperature to 110°C for print modes **8p_6C_100%** and **10p_6C_110%**, especially for **calendered monomeric** and **calendered polymeric** self-adhesive vinyls.

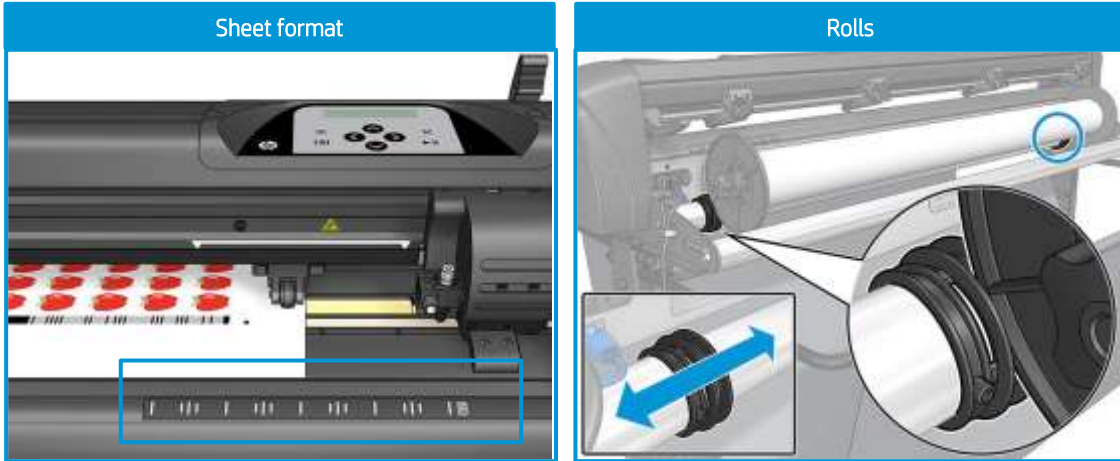**If a lower curing temperature is required**, the following actions will ensure a proper curing:

A) Reduce the **ink density** if your image allows you to.
B) Increase curing time by adding **Inter-pass delay offset:** *Modify substrate > Advanced settings > Inter-pass delay offset*
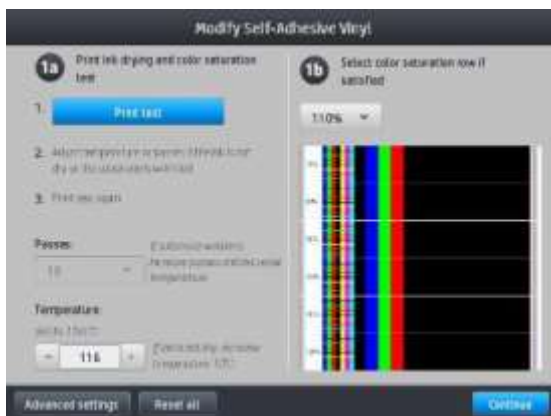
4. Cutter setup

4.1 Loading substrate

Load the substrate correctly:

Sheet format	Rolls

- Load from the front or the rear.
- Use "ruler" alignment marks, or

- Load from the rear.
- Use media flanges for better media advance.

## 4.2 Use the correct knife type

HP recommends using the correct knife for each type of substrate.

Please follow the indications below, based on the substrate thickness:

Material thickness (mm)	36° Drag Blade Standard	60° Drag Blade Specialty	55° Drag Blade Sandblast
Max. Kiss Cut	0.25	0.60	0.80
Max. Cut Through	0.50	0.60	0.80

Knife depth

Knife depth must be increased when using thicker types of vinyl and decreased when using thinner types of vinyl. In any case, only the knife tip should stick out beyond the knife holder, as shown in the following picture.
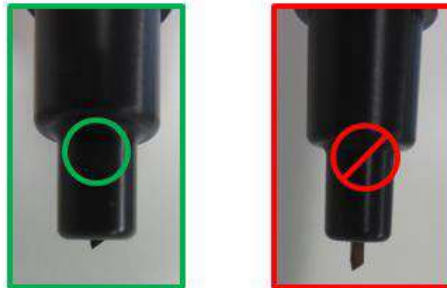
4.3   Calibrate the cutter

The **OPOS sensor** has been calibrated at the factory, but HP recommends doing a test to determine how well the factory-set parameters work with the material you are using. If the accuracy obtained is not satisfactory, then you should perform an OPOS calibration.

From the cutter's front panel, select: *Menu > System setup > Calibrations*

- **OPOS calibration**

Cal. OPOS: Calibrates the distance between the knife and the sensor.
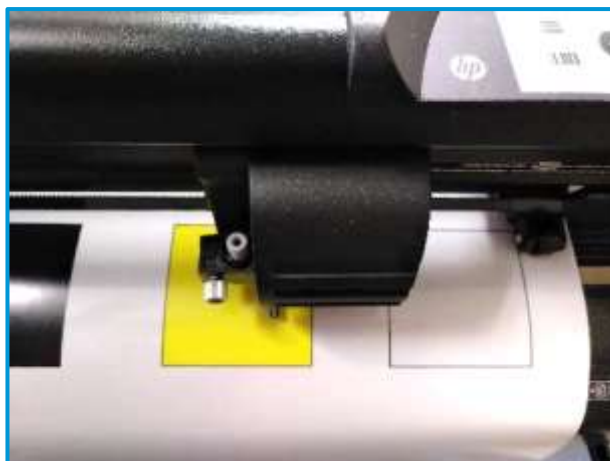
Perform this calibration whenever you install a new knife. **A black vinyl or a black printed area is required to do this**.

- **Substrate calibration**

Cal. Media: Calibrates the reflection levels of the marker color and the substrate color.

Perform this calibration when using colored, translucent, high-gloss or reflective substrates.

IMPORTANT: Prior to performing the calibration with the cutter, a set of calibration patches need to be printed on the **same material as the cutting job**.

- **Length calibration**

Cal. Length: Allows the length of the cut lines to be adjusted within specifications.

Perform this calibration when using multiple vinyls that require match-up between them.

4.4   Cutting settings for your material

The cutting presets are given for a limited number of media categories that may not include your specific substrate. The amount of wear on the knife can also affect the cutting result.

For these reasons, **HP strongly recommends that you ensure the cutting settings are correct** before sending a print-and-cut job.

For Kiss cuts (contour cuts)
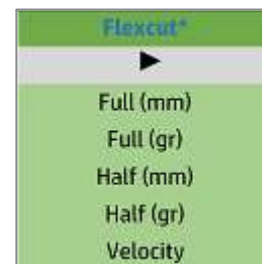
Menu > Knife Pressure > Test

Test current pressure and adjust. SAV layer needs to be cut through completely and the liner layer visibly scratched but not cut.
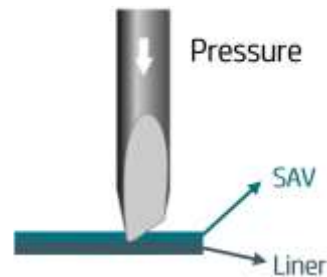
For Cut-throughs (FlexCut)

Menu > Knife Pressure > Test

Adjust the FlexCut settings and test.

NOTE: The FlexCut option is only reliable with simple shapes, like **circles**, **rectangles** and **ovals**.
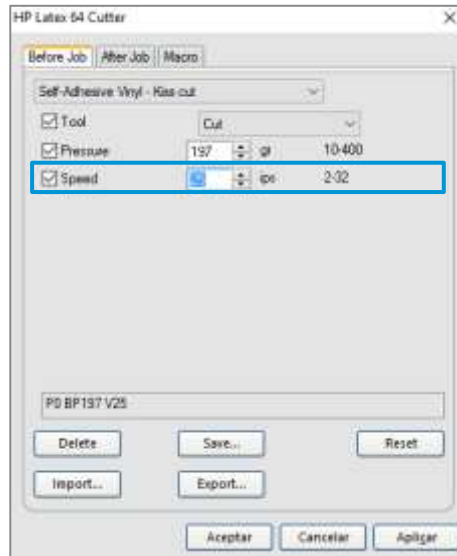
4.5   Velocity

- **Reduce the parameter Velocity**

From the cutter's front panel, select: *Menu > System setup > Settings > Velocity*

Reduce in steps down to 100 mm/s; this is the speed at which the cutter will read the OPOS marks

Apart from that, **Cutting speed** can be selected from the cut menu in the **HP Flexi Print and Cut Editor** or the **Production Manager HP Edition**.

4.6   OPOS settings

- If possible, always **use the OPOS mark HP barcode.**

- Set OPOS panels ON, from the cutter's front panel: *Menu > System setup > Configuration > OPOS parameters > Panels*

When ON, this option allows the markers to be read in panels; the OPOS sensor reads markers according to panel size, instead of loading them all. When set to ON, the sensor will load only two markers in the X direction when loading OPOS. Other markers will be read when unrolling the substrate.

5. Useful links

Product documentation:

- http://www.hp.com/go/latex115printandcut/
- http://www.hp.com/go/latex315printandcut/
- http://www.hp.com/go/latex335printandcut/

User manuals:

- http://www.hp.com/go/latex300/manuals/
- HP Latex cutter

Print and Cut training:

- https://hplatexknowledgecenter.com/printers/hp-latex-115-pc/blog/hp-latex-cutter-series-training

Print and Cut videos:

- Print and Cut Solution
- Customizable clothing
- Floor graphics
- Window graphics

Further information:

- http://www.hp.com/supportvideos
- http://www.youtube.com/HPSupportAdvanced