TECHNICAL BULLETIN 5.4

Processing tips for Avery Dennison® DOL™ & SL Films

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Introduction

Overlaminating of printed images with transparent films is a necessary step to provide maximum performance of finished images: it provides the right finish, colour depth and protection.
Inkjet printed images require overlaminates for protection against UV radiation, abrasion and moisture.
Overlaminates also enhance the colours of the image and provide it with the required finish: e.g. a gloss finish for outdoor use and a matte or lustre (semi-gloss) finish to avoid unwanted light reflections when used indoors.

Lamination

Prior to laminating make sure that:
- the rollers of the laminator are clean and not damaged
- the rollers are parallel to each other
- the rollers are set at the correct temperature and pressure
- the material is laminated in the centre of the laminator.

To ensure flawless applications, it is always recommended to wait after printing before the graphics is being overlaminated. The ink needs to be fully cured/ dried before an overlaminate can be applied. In general a drying time of 24 hours or even 48 hours (when eco-/mild solvent inks are used) is recommended. When drying, material should not be tightly wound on a core, as the solvents are then unable to evaporate. The materials should be left drying loosely wound on a core, or stacked in racks as sheets.

After lamination it is further recommended to let the adhesion of the overlaminate build up sufficiently to avoid any issues during the application process. Final adhesion properties are typically reached within 24 hours.

To operate the laminator, the following settings are recommended:

Avery Dennison DOL films	Roll temperature[1] (°C)	Pressure (psi)	Speed (m/min)
DOL 1000/1400 Z/1400 MAX Series / SL 6560 / SP 1540	20	50 - 70	0 - 2,5
DOL 2000 Series DOL 3000 Series DOL 4000 / SL 4510[2] SL 4530 DOL 6000 / DOL 5900 DOL 6040	20 - 35	50 - 70	0 - 2,5
DOL 4400 UV[3]	35 preferred	50 - 70	0 - 2,5

[1] Roll closest to the laminate
[2] Both DOL 4000 and SL 4510 only in conjunction with Avery Dennison Perforated Window Films
[3] When applied on to images printed with UV Curable ink.

Always set the lamination tension of the overlaminate and the printed substrate in such a way that they are laminated flat but without stretching. Improper tension adjustment is THE major cause for wrinkles and possible delaminating. This is caused by the tension difference of the laminate and media.

Please note that increased roller temperatures in combination with higher winding tension could lead to unwanted elongation of the film and image. Winding tension therefore should be carefully monitored and kept at an appropriate level. This is specifically critical for highly conformable laminates DOL 1460 Z, DOL 1470 Z DOL 1480 Z, SL 6560 and SP 1540. UV ink can have minuscule structured surface. This is a result of the ink type that has been used and/or the amount of ink deployed, and is typical for these inks. This structure can become visible after overlamination, as a result of encapsulating air in the ink structure by the laminate. This effect is known as “silvering”. Using the right laminate and recommended settings reduces or eliminates this effect.

For specific settings on the laminator, please consult the technical manual which goes with the laminator from the original supplier notice.