

INTERNAL USE ONLY

Finishing Applications

General characteristics of each type of film are highlighted below:

Cold laminates:

- Normally made from PVC or 'soft' plastic in matt, semi-matt and lustre finish. Polyester is normally reserved for gloss finish only.
- Can also be referred to as 'Pressure sensitive'.
- Physical bond due to the adhesive always being 'sticky'. Can recognise these films by touching the very sticky adhesive side.
- Higher UV stability. Many films have UV inhibitors in the adhesive and more adhesive is present in cold films.
- Backed with a silicon release liner or more economically, Clay Coated release.
- Can laminate quicker after printing as no heat is needed during application of the film.
- Running temperature is from ambient room temperature to 45°C.
- All recommended wet transfer films are cold.
- Are relatively expensive compared to hot films.
- Have up to a 24-hour proofing time in order to reach full strength.
- There are many cold machines and therefore PS Films have a large percentage of the market.
- A high percentage of Ink Jet prints are cold laminated due to lower running temperatures giving less reactions.

Cold adhesives:

- Double-sided adhesive coated, normally with either a PVC or polyester 'carrier' running through the middle.
- Can also be referred to as 'Pressure sensitive'.
- Physical bond due to adhesive always being 'sticky'.
- Have double sided silicon release liner on one side. Can also have silicon release on two sides, but rarely.
- Can be solvent or non-solvent based glue.
- Running temperature is from ambient room temperature to 45°C.
- All recommended wet transfer adhesives are cold.
- Have up to a 24-hour proofing time in order to reach full strength.
- All adhesives used on roller laminators are cold (rare specialised hot adhesives are available).
- Can be used on the opposite side to hot and cold laminating films.
- Care should be taken when using adhesives direct onto the back of electrostatic prints. The use of a good solvent adhesive (Mactac PP2011) will reduce the likelihood of problems, or encapsulating first.
- PH neutral adhesives can assist to reduce discolouring of electrostatic prints.

Heat assist:

- Slightly sticky, but do not achieve their full adhesive strength until heat is applied.
- Running temperature is lower than other hot laminates, from 70°C onwards.
- Normally self wound i.e. no silicon release liner.

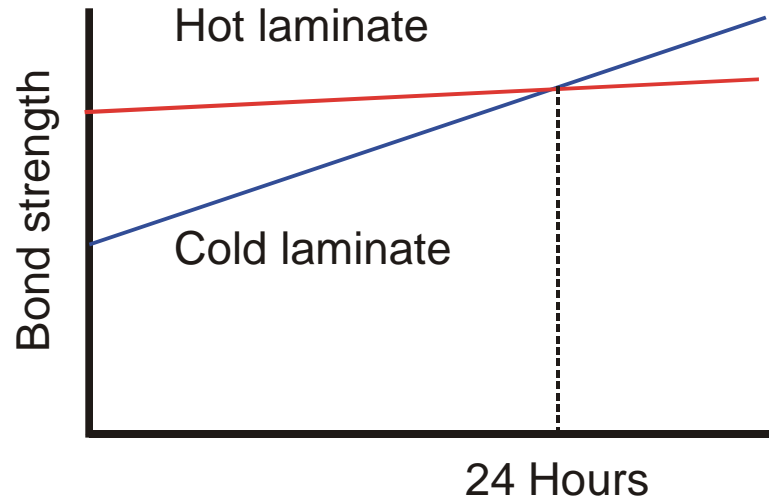
Hot laminates:

- Normally made from PVC or 'soft' plastic. Polyester is normally reserved for gloss finish only.
- Chemical bond that is activated at a specific temperature. Adhesive side is only slightly sticky to the touch.
- Lower UV stability. Many films have UV inhibitors in the adhesive and less adhesive is present in hot films.
- Backed with a silicon release liner.
- Running temperature is from 85°C to 95°C.
- Are relatively cheap compared to cold films.
- Better initial bond strength. They do have a proofing time, but are very strong initially.
- Can be used in combination with encapsulation films.
- Previously used in heat presses, and this history can be a factor in the operators choice of hot versus cold films.

Encapsulation films:

- Nearly always polyester, or a composite from polyester and other materials.
- Majority of usage is gloss for high impact graphics.
- Very high running temperatures 100°C +.
- Initial bond strong, but adverse effects can be seen due to very high running temperatures i.e. blistering, complete de-lamination, etc.
- Are self wound with a powdery adhesive coating that is only activated at a specific temperature.
- Little or no UV inhibitors added to give protection.
- Quality is dictated by having a higher percentage of polyester to adhesive. Normally dictated as a ratio i.e. 3:2 - 60% polyester, 40 % adhesive.
- The quickest and most economical form of print finishing.
- Can use same films or different thickness front and back.
- Choice normally made on thickness/rigidity desired, 42.5, 75, 125, 175 or 250 microns.
- Other specialised films available for specific applications i.e. Pop up light blocking backing, etc.
- Gloss films are very often used to give depth to the colours of electrostatic prints and stability to the backside. It is normal to encapsulate before mounting to make the product stable against humidity and give rigidity.

Estimated Bond strength over 24 hour proofing time



There are three main parameters that in combination give the correct quality level – TEMPERATURE, SPEED and PRESSURE. These settings will be stated in a range, to give a tolerance. Changes in speed can be compensated for by varying temperature, and vice versa. The pressure is more independent of these other settings.

A matched print substrate with over laminate is the recommended solution (i.e. If the printed substrate is vinyl then use a vinyl over laminate).