

Application Guideline for Continuous Lamination

8725 / 8725 LL Silver Transfer Film

1. General Recommendations when using 3M™ Scotchlite™ Transfer Film

3M™ Scotchlite™ Reflective Material – 8725 Silver Transfer Film is in-tended for use on high visibility warning clothing, such as occupational workwear, consumer garments and accessories, which will be subject to homewash care procedures.

Before using Scotchlite™ Reflective Material – 8725 / LL Silver Transfer Film read the respective product bulletin and care guideline carefully.

Both, Scotchlite™ Reflective Material – 8725 Silver Transfer Film and Scotchlite™ Reflective Material – 8725 LL Silver Transfer Film can be laminated using the process conditions recommended below. Performance in-use is the same for both products. Converters are advised to determine which configuration best suits their lamination process.

Scotchlite™ Reflective Material – 8725 Silver Transfer Film works on a wide variety of fabrics. It is the responsibility of the converter to verify compatibility between Scotchlite™ Reflective Material – 8725 Silver Transfer Film and the respective background fabric.

Prior to production it is recommended to test the finished garments or accessories to verify suitability for respective substrate, intended use and care procedure.

2. Benefits of using continuous lamination equipment (conveyor fusing presses)

Scotchlite™ Reflective Material – 8725 Silver Transfer Film can be applied with various lamination techniques and equipment.

Laminating Scotchlite™ Reflective Material – 8725 Silver Transfer Film with conveyor fusing presses can significantly improved efficiency by:

- a faster throughput time for production turnaround
- a reduced number of operators for high volume
- minimizing costs for power usage and tape wastage

and significantly improved quality by:

- an improved appearance and aesthetics
- minimizing heat shock, distortion and shrinkage of substrates as the preheated load-on conveyor acclimatizes the fabric to the heating process
- providing a high level of control and adjustment of machine conditions as needed for various substrates.

3. Recommended Machine Types

The following is a list of the most used types of equipment used by bulk production manufacturing operations working with 3M™ Scotchlite™ Reflective Material – 8725 Silver Transfer Film:

- RELIANT Magnum AA
- RELIANT Excel 140
- RELIANT Coolstream

4. The process

Note: The following recommendations are general guidelines for continuous lamination. Proper lamination parameters must be tested for each substrate to assure adequate adhesion. Before conversion, the user shall determine the lamination temperature, time and pressure to obtain optimal adhesion to the substrate. Example: light substrates require shorter lamination times than heavier or coarser substrates. The lamination parameters as listed under chapter 6 can be used as a guideline.

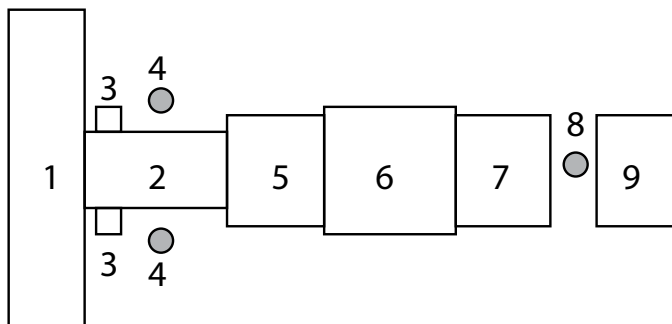
Before production starts, all required conditions for laminating should be pre-set on the machine.

The actual lamination process typically proceeds as follows:

- The pre-cut Scotchlite™ Reflective Material – 8725 Silver Transfer Film is spot-welded in place on the pre-cut garment panels. These are then placed on the load -on conveyor which takes the panel into the heating chamber. **Caution:** Do not overlay the tape outside the area of fabric. The adhesive will build up on the belt, making cleaning difficult and potentially damaging both the garment and the equipment.

- The garment panel travels through the heating chamber between two lightly pressurized conveyors, which cause the adhesive of the transfer film to melt and start to penetrate into the fabric.
- At the end of the heating process two silicone rubber pressure rollers exert a predetermined pressure to allow the adhesive to fully penetrate into the fabric, thus ensuring a good bond between the transfer film and the substrate.
- The garment panel is fed directly from the heating chamber conveyor onto the cooling conveyor which allows the fabric, with the transfer film applied, to cool and the adhesive to harden.
- If using the linerless version – Scotchlite™ Reflective Material – 8725 LL Silver Transfer Film, the process is completed.
- When the lined version – Scotchlite™ Reflective Material – 8725 Silver Transfer Film – is used, the paper liner is now removed, exposing the reflective surface of the transfer film.
- Make sure, the paper liner is completely cooled down before being re-moved, to avoid damage of the applied tape. Lift the liner from one corner and pull gently. Pull with a single motion, stripping the paper off as flat as possible, while holding the substrate flat.

5. Typical production set-up



- 1 = stacking table for cut panels
- 2 = positioning table for laying up
- 3 = spot-welding units
- 4/8 = operator positions
- 5 = load-on conveyor of fusing press
- 6 = heating tunnel and pressure system
- 7 = off-load cooling conveyor
- 9 = stacking/paper-stripping table

3. Recommended process parameters

The following recommendations are general guidelines for lamination with RELIANT MAGNUM AA only:

Substrate	Conveyor belt speed (m/min)	Temp. in Zone 1 (°C)	Temp. in Zone 2 (°C)	Temp. in Zone 3 (°C)	Pressure (PSI)/(BAR)
Polyester	12	140	150	160	80 / 5.5
Dartex	9	115	120	135	80 / 5.5
Titex	9	90	110	120	80 / 5.5
PU coated Polyester	9	140	150	160	80 / 5.5
Flexothane	7	110	120	135	80 / 5.5
Goretex	8	140	150	160	80 / 5.5

Parameters for other specific machines or substrates, please contact your 3M representative.

For future references carefully record all application parameters for each substrate and application.

Following these parameters is essential to avoid variations in quality due to changing machine set-up.

7. Important Recommendations

The following recommendations shall be considered in order to achieve optimum transfer quality:

- In general 3M™ Scotchlite™ Reflective Material – 8725 Silver Transfer Film is not recommended for polyamid fabrics. The adhesion on poly-amides such as Nylon is often unsatisfactory.
- Variations in type and amount of substrate finishes such as silicone, paraffin, fluorocarbon resin, flame retardant coating strongly influence the level of adhesion to the substrate and also the lamination conditions.
- Whenever two or more pieces of reflective transfer film are used together on a single surface or as a set, they should be matched to assure uniform daytime color appearance.
- Good records should be kept of all application conditions for each dif-ferent substrate; parameters may vary depending on the substrate and lot.
- Do not randomly change application conditions, as the results may be different.
- Tape should not extend beyond the substrate, because the equipment can be damaged and tape is wasted.

- The operators should be well trained, both on the process and the cleaning routine for the press. The latter is essential to avoid manufacturing dirty garments or ruining the equipment.
- Scotchlite™ Reflective Material – 8725 Silver Transfer Film should always be stored in dry conditions avoiding temperatures above 30 °C to maintain optimum performance and application.

8. Quality Control

The converter is responsible for testing compatibility of the Scotchlite™ Reflective Material – 8725 Silver Transfer Film and substrate for each application.

The following procedures reflect the experience gained from various applications using Scotchlite™ Reflective Material – 8725 Silver Transfer Film:

- To check initial adhesion, lamination tests should be carried out at parameters intended to be used for production.
- Performance tests should be carried out per instructions on the care label for the finished garment.
- A reasonable number of cycles for washing or dry cleaning should be determined with the customer.
- Testing single samples might not give representative results, as lot to lot variations in fabric or transfer film may occur.
- For bulk production, regular batch testing is recommended.
- Thorough documentation on lamination parameters is recommended for future reference.

Note: Please contact your local 3M representative, if you need any assistance with performance testing.

9. Machine Cleaning and Maintenance

- Main variables determining the necessity for cleaning the equipment are:
 - type of fabric
 - throughput volume
 - type of transfer film
- In order to ensure optimum product quality. Machine cleaning and maintenance should be done regularly per the manufacturer's instructions by a qualified person.

Important Notice to Purchaser / Converter / Wearer:

All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed. We shall not be liable and no warranty shall apply for products not applied according to our published information folder. Before using/converting, the user/converter must determine the suitability of the product for its intended use/converting, and the user/converter assumes all risk and liability whatsoever in connection therewith. All questions of warranty and liability relating to this product are governed by the terms of the sale subject where applicable to the prevailing law. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of us.



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