



HOTMELT SPRAY LAMINATING



Klieverik
OLDENZAAL - HOLLAND



GENERAL

In these past years the familiar Hotmelt spray laminating process has won wide recognition both inside and outside of the printing and finishing industries.

The Hotmelt technique is especially used for the production of sports and leisure wear, winter wear, medical supplies and clothing, interior decor products etc.

Kierkerk adds a new technology to the existing laminating methods.

Spray laminating with a reactive pu-glu

A technique with features that were thought impossible up to now. A technique that received **Life** status, for innovative technology on a European level. And above all, a technique that causes truly minimal environmental pollution and received the **Danish environment award** because of that.

The Process

The principle is quite simple. A reactive polyurethane glue is heated until it becomes liquid. This requires a temperature of about 150°C. The liquid glue is pumped to a number of specially designed spray nozzles. These nozzles atomize the polyurethane glue uniformly over one of the two substrates to be laminated.

Immediately after the glue has been applied the second substrate is pressed onto the first one.

The polyurethane glue now cross-links by the moisture in the air. After about 8 hours the laminate is suitable for further processing, and after about 24 hours the maximum adhesion is obtained (this process is irreversible).

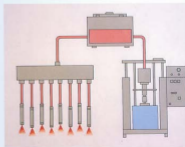
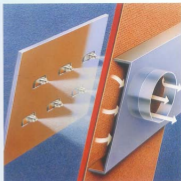
As the glue is finely distributed by the spray nozzles a very thin layer of glue can be applied. As little as 1.5 grams per square metre is possible! The process control in this spray technology is such that the extremely thin layer of glue is evenly distributed over the full surface, while the dosed amount can be set very accurately. Consequently, the results obtained with the Hotmelt technique are highly predictable.

About the glue

Performance studies of the liquid system have shown that the PU adhesive is the most suitable adhesive for most application areas. Because of the negative environmental aspects of the liquid system, which is no longer acceptable, the PUR Hotmelt system is the natural successor.

The system uses a reactive polyurethane glue, a kind of "super glue", which is first heated to allow it to be pumped through specially designed nozzles, from whence it is sprayed as a thin mist.

The cans of glue are heated inside the melting unit. This is done by lowering a heated stamp into the can, which will heat the glue. The heat will cause the glue to become liquid so that it can be pumped into a buffer. The use of such a buffer enables replacement of the cans of glue during operation; a production stop will not be necessary.





FEATURES

Flexible

The advanced start-stop mechanism enables production of short and even extremely short runs on an economic basis.

The set parameters, such as the desired glue delivery, are all coupled, so that the system will automatically follow in case of speed changes.

The most diverse substrates can be laminated with a single type of glue, which was specially designed for this system.

The web tension control equipment enables processing of materials which are highly diverse in nature.

Glue add-on is infinitely variable from 1.5 grams/m² to > 30 grams/m².

Contactless

Thanks to the specific glue application method also voluminous waddings and less stable substrates can be processed.

As only the glue is heated, the system is particularly suitable for processing heat-sensitive substrates.

Environment

No environmentally hostile emissions.

Environment award winner.

Low energy consumption, as only the glue needs to be heated.

As the glue connection gets its strength by the glue reacting with the moisture in the air, no additional energy-consuming drying process is required.

Quality

The combination of the PUR glue and the low add-on guarantees a perfect hand.

The glue that is distributed in atomized form has absolutely no effect on the air permeability or the breathing properties of the substrate.

- No substrate shrinkage.
- Strong mechanical adhesive strength, in an absolute sense, with less glue applied in comparison with conventional systems.
- Glue connection highly resistant to dry-cleaning.
- Extreme wash resistance, tolerating boiling water.
- Autoclave & steam resistance.
- Transparent adhesive.
- When products are bonded, the process cannot be reversed, neither by extreme heat nor by cold.

Profitable

Pay-back time less than two years!





Hotmelt

*Spray
laminating*

Flexible

Contactless

Environment

Quality

Profitable



All the information is shown permanently on a display by the **Viewstar** control system. Schematic drawings represent the machine line and inform the operator about the settings and the performance of the various line components. A menu structure gives access to any desired screen. Set values can easily be stored in the system database, so that the right values can be retrieved and set very fast in case of a repeat order.

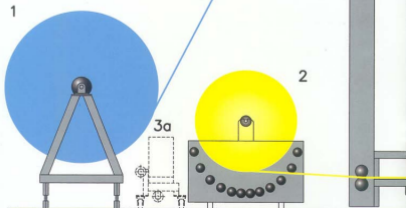
Viewstar



Spray unit



- 1 Upper substrate unwinding unit
- 2 Driven unroll unit for unwinding the lower substrate
- 3 Corona unit
- 3a Optional position of Corona unit
- 4 Automatic web tension control
- 5 Web guidance
- 6 Foil unwinding unit
- 7 Spray unit
- 8 Spray nozzles (adjustable for width)
- 9 Conveyor belt
- 10 Suction device with underpressure cabin
- 11 Pair of laminating rollers
- 12 End product winding unit



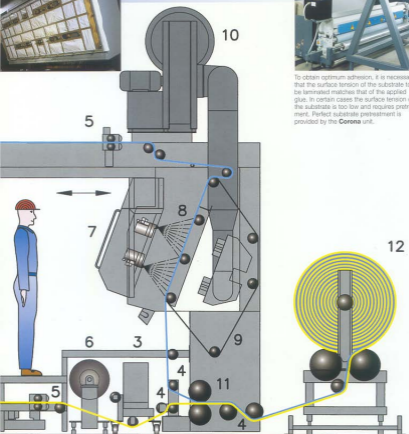
Spray nozzles (adjustable for width)



Corona unit



To obtain optimum adhesion, it is necessary that the surface tension of the substrate to be laminated matches that of the applied glue. In certain cases the surface tension of the substrate is too low and requires pretreatment. Perfect substrate pretreatment is provided by the **Corona** unit.





About Klieverik

Klieverik Heil, a limited company, allied with the Garvite Systems Group, has been active for over 40 years as a designer and manufacturer of innovative systems and stand-alone units that improve the efficiency of textile printing and finishing operations; the applications include:

- the preparation of thickeners and binders, straining under vacuum, cleaning of squeegees, screens, and containers from the smallest buckets to the largest vessels, mixing of pastes and dyes etc.

And (since a few years):

- thermoprocessing systems, such as transfer printing calendars and laminating calendars, and also other thermoprocessing systems for laminating and heatsetting of nonwovens.



A solid partner

Klieverik is a very solid partner. A partner our customers can rely on, and whose experts they can ask for advice to solve their problems. Solutions to problems that offer more possibilities as to production and that increase the performance and the flexibility of the production lines. Solutions to problems that also increase efficiency and profitability and that enable the users to comply with ever stricter environmental legislation. Klieverik offers a truly complete after-sales service. From the delivery of stand-alone machines to the design, construction and installation of complete production lines. Because of all these essential qualities Klieverik is not only a reliable supplier, but also a true partner in business; a solid partner. And above all, a partner one can rely on!

Klieverik

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