Nordson® Porous Coat™ System

Apply breathable, random coating and laminating patterns of 100 percent hot melt adhesives to breathable materials, open-weave goods and other substrates.

The patented Porous Coat system allows converters to apply discrete, random and open patterns of hot melt adhesive to substrates in narrow- or wide-web applications.

Using innovative extrusion die technology, thin, breathable coatings of polyester/polyamide resins, PURs, PSAs, EVAs and reactive PURs can be applied to the surface of a wide variety of webs, including woven and knit fabrics, nonwovens, open-weave goods, scrims, foams, papers and films. This unique surface application provides excellent bonding as well as reduced adhesive use and cost. Coated webs demonstrate soft hand and drape properties.

Efficient Resin Processing

Conventional processes, using powders, pastes or films require ovens or other infrared heat sources to provide heating of the resin after application. These processes require the coordination of temperature and dwell time for curing, which slows production speeds. In addition, heated/melted resins can penetrate deep into or through the web, resulting in low bonding efficiency and higher product costs.

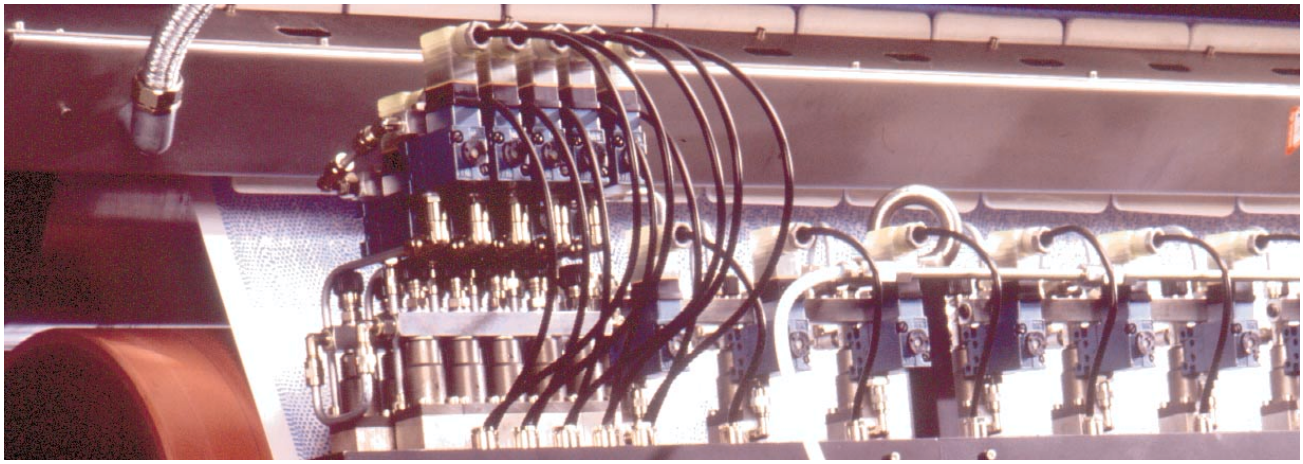
The Porous Coat system applies pre-melted resin directly from the die onto the web. The resin stays on the surface of the web and flows or wets onto the fibers.

Uniform and Adjustable Coating

The Porous Coat system uses an innovative extrusion die design that incorporates a series of hydraulic compartments, which are fed by dedicated positive displacement gear pumps. This arrangement allows the system to apply a wide variety of uniform, diffuse coatings over a broad range of coat weights and patterns.

On-the-fly adjustability allows pattern width and coating weight to be changed without stopping. Coating width can be altered easily by opening or closing the flow valves on either side of the die. Pump speeds are adjusted automatically to maintain consistent add-on rates. Dense or fine patterns can be selected. Add-on weight is adjustable from .8 gm/m^2 to over 30 gm/m^2 with a broad range of resins.

Nordson® Porous Coat™ System



Control module placement allows pattern width adjustability.

Coating Flexibility

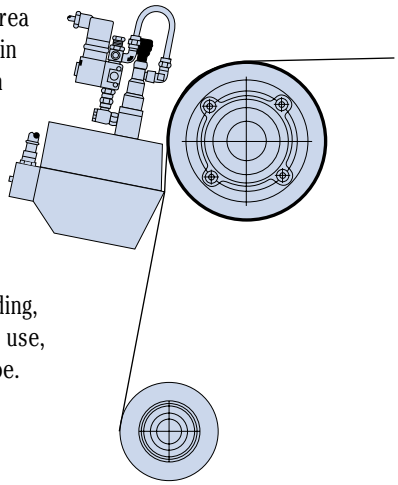
Traditional hot melt processes offer little flexibility or control. In most cases, the coating die can only by positioned against the coating roll. The distance between the coating head lips and the roll is a fixed value that cannot be adjusted to compensate for changes in web thickness. The force of the die against the coating roll can drive resin into the substrate. When resin is absorbed into the substrate, bond strength decreases and additional resin must be applied to achieve lamination. Application of more resin results in a stiff hand, a more costly product and strike-through in some open-weave and other porous products.

The Porous Coat system allows converters to easily control adhesive application and penetration by allowing the coating die to be mounted against or slightly below the coating roll.

Off-Roll Coating

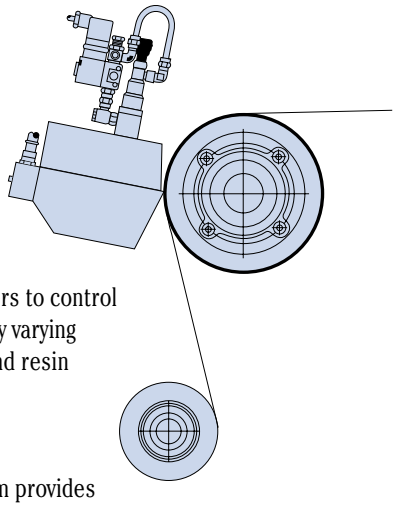
Surface coatings can be easily achieved using the Porous Coat system with the coating-head mounted in the off-roll position.

With off-roll coating there is no fixed gap between the die and the coating roll. Stable web tension at the coating area will keep the substrate in continuous contact with the die. Resin can be laid upon the surface of the web in discrete, random patterns. This surface application provides excellent bonding, with minimum adhesive use, and good hand and drape.



Against-the-Roll Coating

In applications where adhesive penetration is desired, for fiber-locking or to provide a non-skid coating, the Porous Coat coating die can be positioned against the coating roll. The system allows converters to control adhesive penetration by varying coating die pressure and resin temperature.



Pattern Quality

The Porous Coat system provides repeatable pattern quality by minimizing the number of variables requiring operator control. The system design unites three functional areas:

- Micro-adjust bracketry controls the die position relative to the roll. Once the die is properly aligned, the bracketry locks the die in place. No further adjustments are necessary.
- Positive-displacement, DC-drive gear pumps feature closed-loop motor controls to provide consistent output keyed to line speed.
- Internal hydraulic and die-land designs are fixed values, which maintain consistent pressure for distributing resin evenly across the full width of the web.

Design Features and Performance Benefits

- **Reduced adhesive costs –** cost effective hot melt materials can be applied to the surface of the web, reducing adhesive use up to 30 percent while providing excellent bonding.

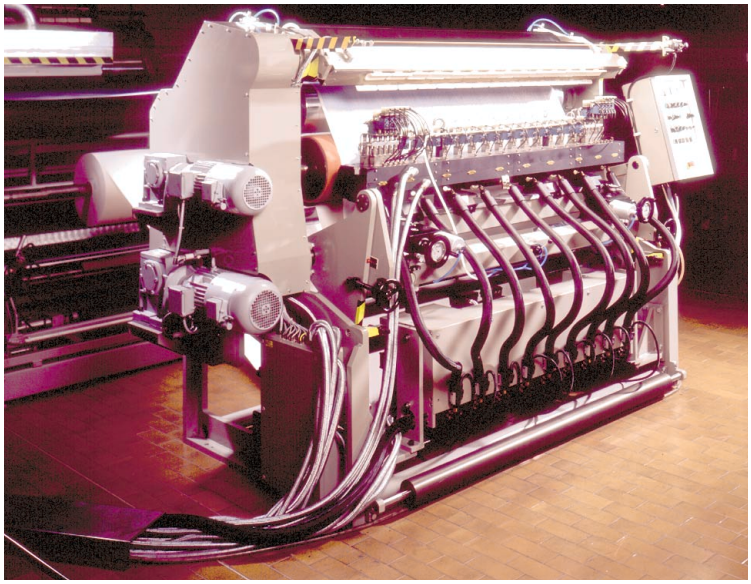
- **Consistent coating weights –** die design incorporates individually-fed sections for even adhesive flow and coating. Pump speeds automatically compensate for changes in widths and line speeds.

- **Increased productivity –** line speeds up to 425 feet (130 meters) per minute. Few operator adjustments result in consistent patterns and less downtime.

- **Off-roll or against-the-roll coating –** adhesive penetration, coating weights and patterns can be easily adjusted and controlled.

- **On-the-fly adjustability –** of pattern widths, from 5/8 in. (16 mm) up to 10 ft (3.05 m), in 5/8 in. (16mm) increments and coating weights of .8 gm/m^2 to over 30 gm/m^2. Pump speeds compensate automatically.

- **Discrete, random patterns –** on breathable and open-weave webs, provide excellent bonding with soft, round hand and drape.



Product Specifications

Operating Speed: 425 ft (130 meters) /min. maximum

Control Panel: 230 volts, single phase

Temperature Range: 75° to 450°F (29 to 232°C)

Coating Widths: Minimum: 5/8 in. (16 mm)
Maximum: 10 ft (3.05 m)

Coating Weights: Minimum: .8 g/m^2
Maximum: 30 g/m^2

Comparison of Textile Coating Systems

Method	Maximum Line Speeds	On-line Width Variation	On-line Variable Add-on	Add-on Range	Curing Required
Porous Coat System	425 fpm 130 m/min.	Yes	Yes	.8 to 30 g/m^2	No
Powder/Scatter Coating	130 fpm 40 m/min.	No	No	1 to 20 g/m^2 >20 g	Yes
Print/Gravure Systems	330 fpm 100 m/min.	Yes	No	3 to 30 g/m^2	Yes
Spray Systems	425 fpm 130 m/min.	Yes	Yes	3 to 30 g/m^2	No
Dry Lamination Systems	130 fpm 40 m/min.	Yes	Yes	12 g/m^2 50 g	Yes

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