

SPECIFICATIONS: TRI-MODE COATING

SWIRL COAT® DISPENSE HEAD* VERSATILE, TRI-MODE APPLICATION OF CONFORMAL COATINGS

The Swirl Coat dispense head is ideal for manufacturers who process a high mix of circuit boards or require wide variations in coating thickness. Capable of delivering film builds from 0.25 to over 20 mils in a single pass at transfer efficiencies of up to 100 percent, the Swirl Coat head applies a full range of solvent-based and 100-percent solids coatings with viscosities from 30 to 3,500 centipoise. Masking is eliminated in most cases.

The Swirl Coat head allows manufactures to apply conformal coatings to circuit boards in three distinct modes. By varying the volume, dispensing pressure and the use of shaping air jets, conformal coating is dispensed in a bead, monofilament or swirl pattern.

Programmable software allows coating modes to be changed *on the fly* in a single coating cycle without interrupting the coating sequence. Complex circuit boards requiring multiple pattern widths and film builds can be coated in seconds, maximizing throughput and productivity.



BEAD MODE

In bead mode, a stream of material is applied to the circuit board in areas where:

- Components are very close to non-coating or keep-out areas.
- Extra material is required for protection of high-impedance areas.
- Tall components require structural support.
- Material is required along the edge or under a component.

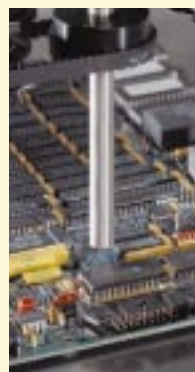
The bead may also be used as a spot command for coating of a single test point or component.



MONOFILAMENT MODE

The monofilament pattern is created by regulating the pressure and flow of the material passing through the nozzle. Air jets strike the material at a precise angle, causing it to spin on its axis and form a conical, looping pattern. A continuous, unbroken strand of material is applied to the circuit board in overlapping circles that flow together. Film builds are varied by adjusting fluid pressure and robot velocity.

Multiple pattern widths can be achieved by varying the air pressure, allowing faster cycle times for solder sides of the board and precision coating on highly populated component sides.



SWIRL MODE

The swirl pattern is achieved by increasing air pressure and flow settings. Angled jets impinge air upon the pressurized material exiting the nozzle creating a conical, swirling pattern. The swirling action helps maintain pattern shape resulting in excellent width control. Because the air jets cause slight atomization of the material, extremely thin film builds are possible.

This mode is ideal for applications where moderately selective coating and thin film builds are required.

FEATURES

- Dispenses in bead, monofilament and swirl modes with a single gun and nozzle.
- Applies pattern widths from 0.10 to 0.75 in. (2.54 to 19.05 mm) and film builds from 0.25 to over 20 mils.
- Up to 100% transfer efficiency, results in improved material utilization, less waste and reduced costs.
- Dispenses a wide range of solvent-based and solventless coatings with viscosities ranging from 30 to 3,500 centipoise.
- Easily integrates with Nordson Select Coat® and Century® conformal coating systems.

* Patent applied for.



SWIRL COAT SPECIFICATIONS

	Bead Mode	Monofilament Mode	Swirl Mode
Silicone Materials			
Typical Fluid Dispense Pressure	25-60 psi 172-413 kPa	25-60 psi 172-413 kPa	10-25 psi 69-172 kPa
Film Pattern Width	0.10 to 0.25 in. 2.54 to 6.35 mm	0.25 to 0.75 in. 6.35 to 19.05 mm	0.25 to 0.50 6.35 to 12.7 mm
Masking Required	No	No	No
Material Viscosity	30-3500+ cPs	30-3500+ cPs	30-3500+ cPs
Application Thickness (mils)	5 to 20	4 to 12	0.50 to 3
Edge Tolerance	± .025 in ± .635 mm	± .030 in ± .635 mm	± .060 in. ± 1.5mm
Transfer Efficiency	100%	Up to 100%	95-99%
Coating Velocity	10 to 20 in./sec 25.4 to 50.8 cm/sec	5 to 10 in./sec 12.7 to 25.4 cm/sec	5 to 15 in./sec 12.7 to 38.1 cm/sec
Organic Materials			
Typical Fluid Dispense Pressure	25-60 psi 172-413 kPa	25-60 psi 172-413 kPa	10-25 psi 69-172 kPa
Film Pattern Width	0.10 to 0.20 in 2.54 to 5.08 mm	0.25 to 0.75 6.35 to 19.05 mm	0.25 to 0.50 6.35 to 12.7 mm
Masking Required	No	No	No
Material Viscosity	30-3500+ cPs	30-3500+ cPs	30-3500+ cPs
Application Thickness (mils)	5 to 20	4 to 10	0.25 to 3
Edge Tolerance	± .025 in ± .635 mm	± .030 in. ± .635 mm	± .060 in. ± 1.5mm
Transfer Efficiency	100%	Up to 100%	95-99%
Coating Velocity	10 to 20 in./sec 25.4 to 50.8 cm/sec	5 to 10 in./sec 12.7 to 25.4 cm/sec	5 to 15 in./sec 12.7 to 38.1 cm/sec

This chart is for comparison purposes. Application requirements and material properties may affect results.

Nordson Corporation is pleased to offer world-wide sales and service support through an integrated network of regional offices. Please contact these locations for the name of your local representative.

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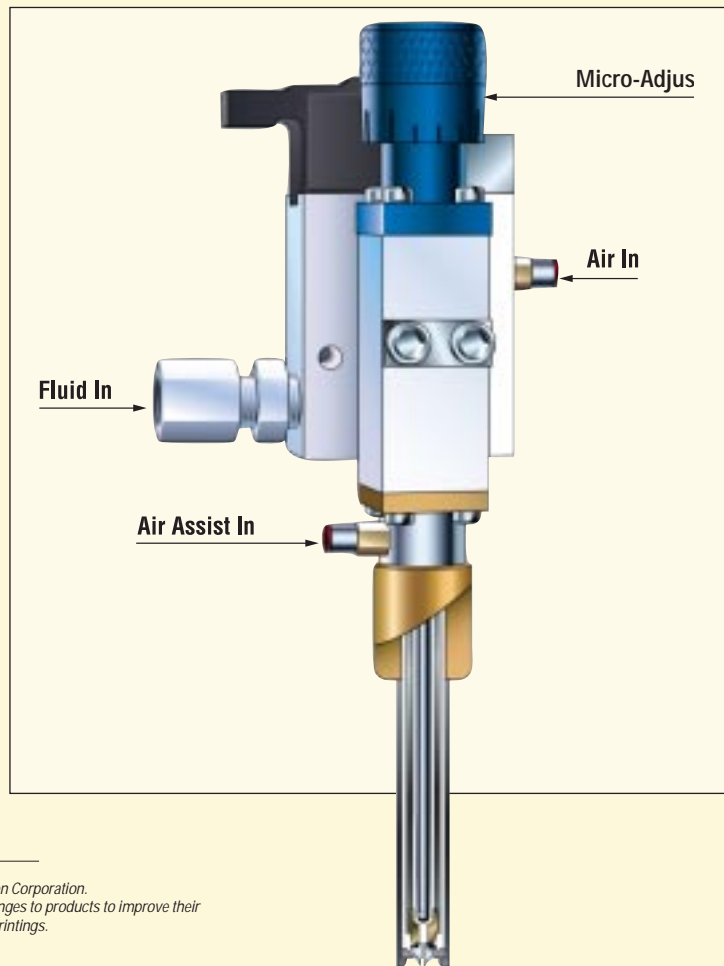
BEAD
High Fluid / No Air



MONOFILAMENT
High Fluid / Low Air



SWIRL
Low Fluid / High Air



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 5/99

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