

## Exceeding the Speed Limit

One thousand pieces per minute. For years, manufacturers of feminine-hygiene products saw 1,000 sanitary napkins per minute as a goal. It was claimed, and even demonstrated, but it remained unattainable for most manufacturers due to a variety of factors. Within the past year, 1,000 sanitary napkins per minute has become simply one more milestone passed on the highway into the future.

Why? What change made this goal attainable? And what new challenges does this achievement bring?

The 'why' must be answered by the manufacturers of sanitary-napkin-production machines. These manufacturers have found it possible to increase the speeds of their machines while maintaining the level of productivity required by their customers. Increasing speed while maintaining line efficiency, minimizing scrap and retaining ease of operation is no small task. Machine manufacturers have taken a full-system approach to dealing with these issues with excellent results.

At the same time, these higher speeds have exposed issues concerning the applications of hot melt adhesives during the manufacturing process. Slot-coating heads, which operate in contact with the substrate, must be able to leave clean gaps between patterns and apply extremely short duration patterns uniformly. Spiral-spray heads must operate at higher fiber frequencies, yielding the desired number of patterns per unit of length. Small-fiber spray applicators must be capable of depositing precise patterns without overspray. And bead applicators are now required

to repeatedly place tiny dots in exact locations. Supporting all these types of applicators are melt units that are capable of quickly and accurately matching supply-pump output to changes in production-machine speed.

The entire hot melt system must be designed to meet the speed requirements of the production machine with technologies

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that provide the performance, productivity and efficiency needed to maintain a profitable operation.

In the past year, Nordson Corporation, through the Nordson® and Meltex® product lines, has introduced a completely new generation of adhesive-application technology to meet the high-speed requirements of sanitary-napkin producers.

These new technologies, detailed in the following pages, include the EP11/12 line of slot-coating nozzles, new high-frequency Controlled Fiberization™ (CF™) nozzles, improved dot applicators and the MX4400

line of melting and pumping units. There are also new pattern controllers available that will precisely place the adhesive at the proper location on the substrate throughout the entire speed range of the production machine, even during ramp-up and ramp-down.

Nordson has taken a full-system approach to dealing with these new opportunities, providing both the equipment and the expertise required to accomplish these applications in even the most challenging production environments.

We've seen the future, and we're moving faster than ever before. The technology is available to help you stay ahead today and to keep you from falling behind tomorrow.

After reviewing the following pages, contact your Nordson representative for information on the tools you need to exceed your own speed limit.

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## EP11:

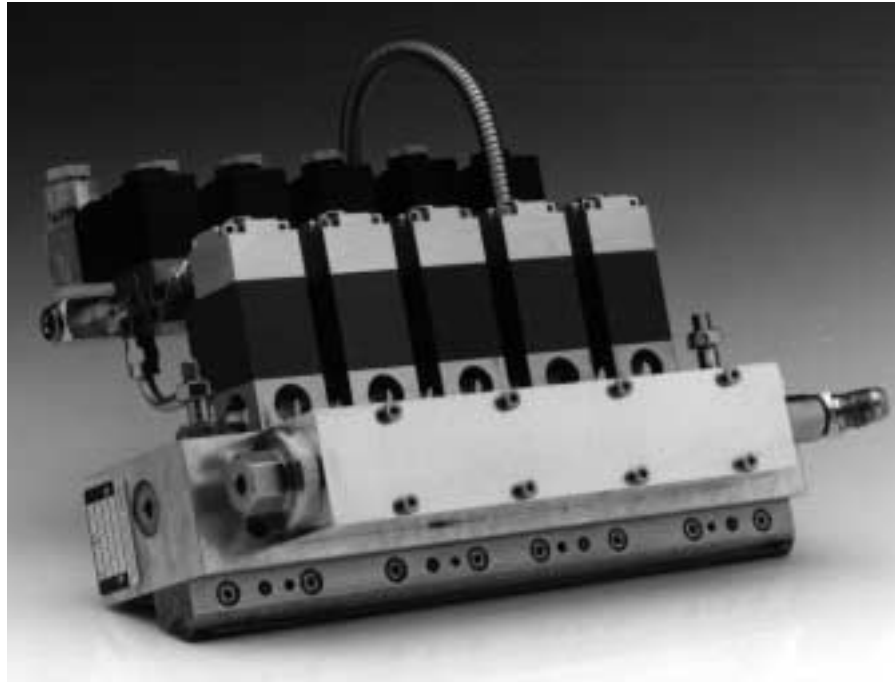
# High-Speed Intermittent Slot Gun Offers Excellent Cutoff

The EP11 is the latest design evolution in the Nordson / Meltex slot-gun product line. It is the result of ongoing application-development and continuous-improvement efforts. The key areas of improved performance are cutoff and setup ease.

The improved cutoff is a result of two design improvements.

The first is the incorporation of the new EP10 adhesive module. This module provides new Clean-Cut™ technology to help draw adhesive into the die set and away from the substrate when the module is closed.

The second improvement to the cutoff involves the enhanced mouthpiece design. By limiting the trailing edge of the mouthpiece, there is a smaller 'rolling dam' of adhesive outside the nozzle during extrusion. Also, the internal flow passages have been optimized, resulting in thinner shims and less material in the die set during non-extrusion periods.



The EP11 slot-coating head with integral filter includes a new, rounded mouthpiece assembly that makes it much easier to properly position the nozzle on the substrate. Exceptionally short duration gaps between patterns are achieved using the EP12 (not shown), which has a dual-module design.

The newly designed mouthpiece also eases the setup of this gun. The front edge is rounded instead of angled. This allows good application results even when coating on low-tension webs or on webs with poor routing paths. The rounded front surface also

allows a more forgiving setup. The web path is not as critical and, in fact, it can wrap the front edge of the gun when coating off-roll.

Each mouthpiece is custom designed for a specified application width, so size change is only a matter of changing a nozzle assembly. The overall gun is configurable, with standard coating widths ranging from 40 millimeters to 400 millimeters. Since it is configurable, the gun can be specified to interface with any Nordson or Meltex system and can accept any style of flexible hose.

To achieve maximum performance, all guns are filtered. If the application demands are even more exacting, these guns can be metered directly or remotely.

This new design means that sanitary-napkin manufacturers will be able to achieve their desired adhesive-pattern quality and performance even on new, high-speed production machines.

## The Wizard Returns:

# How EP10 Works

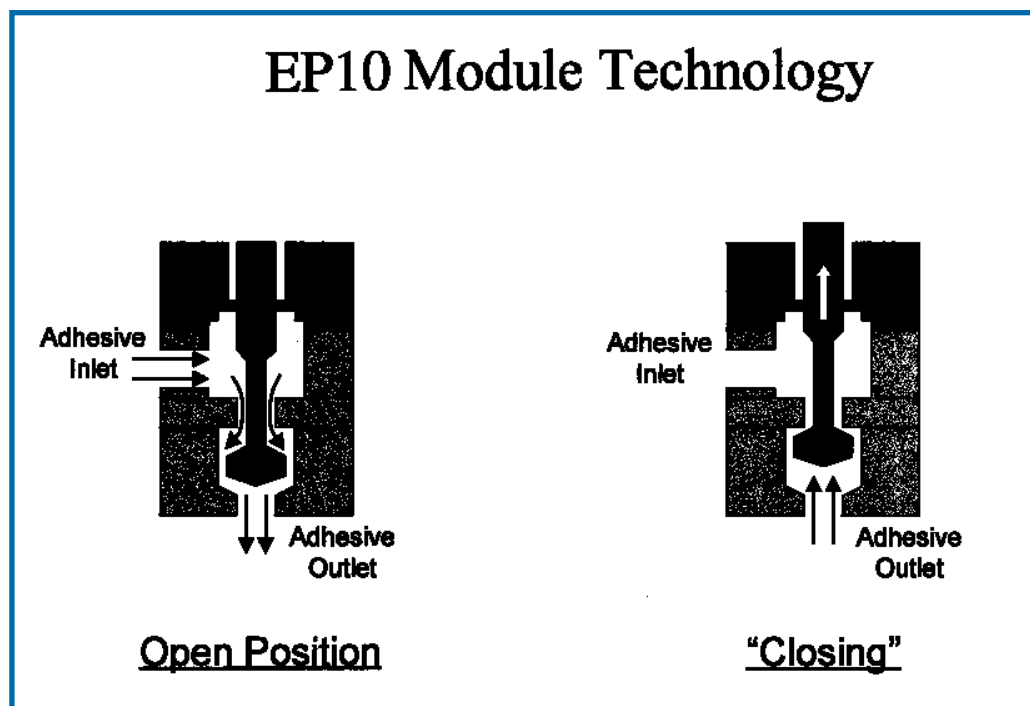
The new EP10 module is able to achieve unmatched cutoff performance, due in part to unique valve operation.

In conventional valve design, the needle moves in the direction of the adhesive flow until it contacts the seat and seals off the flow. The EP10 valve shuts off by moving the needle in the opposite direction of the adhesive flow until it contacts the seat.

The movement of the needle in the opposite direction improves shutoff in two important ways.

One, it decreases the volume of the adhesive in the passage as a result of the needle retracting through the hydraulic seal into the upper valve body. This decrease in volume causes a suction effect at the nozzle outlet, thus pulling adhesive back into the gun.

Two, it eliminates the conventional needle's tendency to act like a piston upon shutoff. Under certain conditions, this piston effect can cause a surge of adhesive to be forced out of the adhesive passage, thus making a clean shutoff more difficult.



The function of the new EP10 module is illustrated above. By closing in the opposite direction of adhesive flow, a more precise cutoff is achieved.

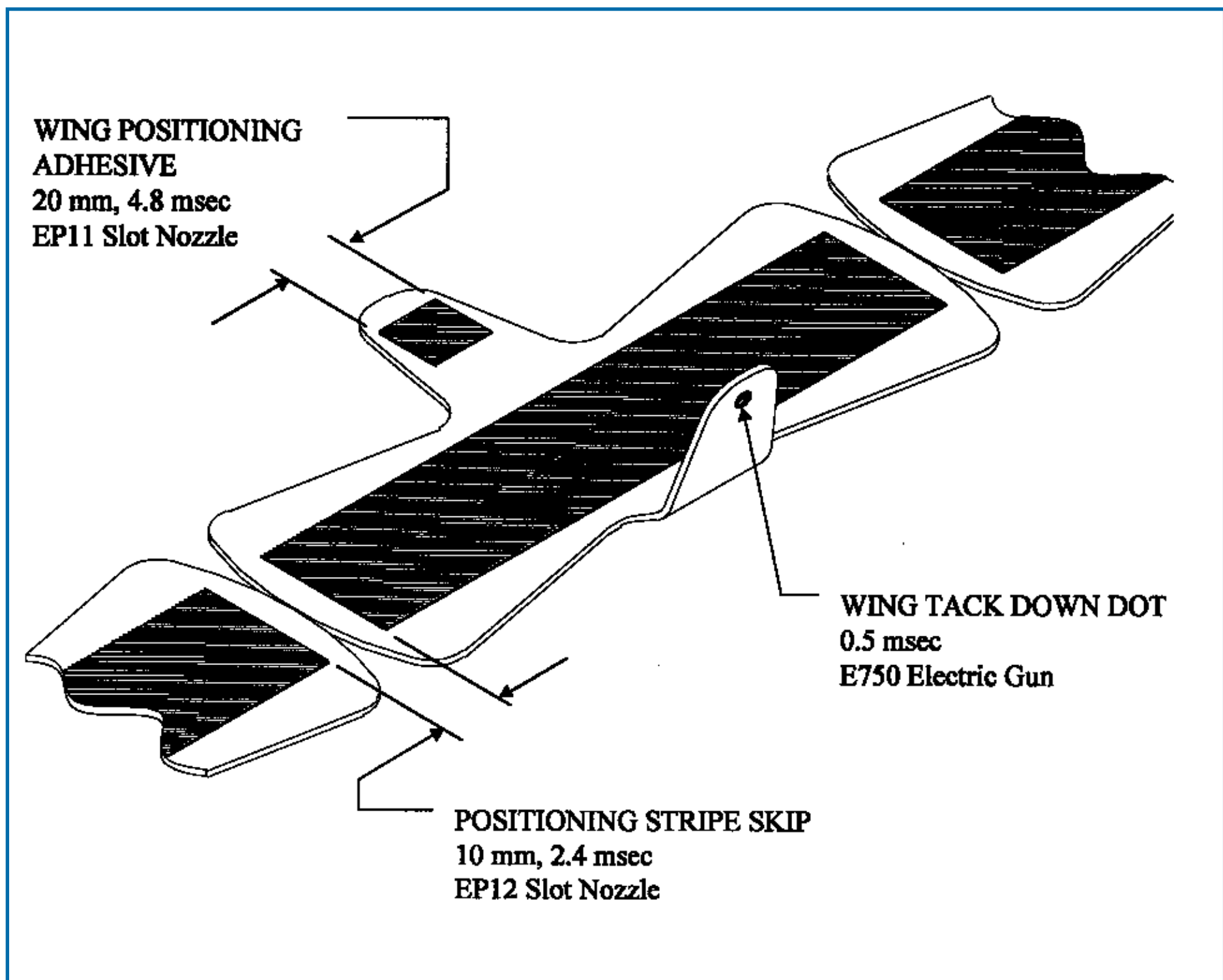
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## E750 Electric Gun and Series 700 Driver: System Concept Makes Wing Dots Repeatable

For high-speed, short on-time adhesive applications, such as the wing dots on feminine-hygiene products, the E750 electric-gun system is ideal. This system applies adhesives at speeds up to 3,000 cycles per minute. With no dynamic seals and only two moving parts, the E750 is designed for extended service and minimal maintenance.

The specially designed driver complements the gun. It provides the necessary initial burst of power to open the gun quickly for consistent and accurate pattern placement. Then, once the gun is open, the driver reduces the power to a level sufficient to hold the gun open, thus protecting the coil from potential overheating.

The small add-on weight requirements of this application permit the use of simple piston or gear-pump melters in combination with the gun and driver. Shouldn't you use this system to take control of your sanitary napkin wing-dot applications?

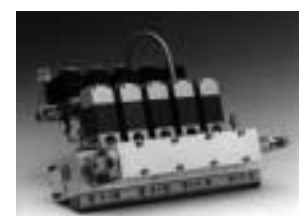


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# Samples!

To receive samples of adhesive patterns produced with the new EP11 slot nozzle, simply mark the appropriate space on the reply card included with this issue of trends.

Also, if you would like to schedule an application test, please fax your request to **Carl Cucuzza** in the **Nordson Nonwovens Systems Group** in Atlanta. The fax number is **(770) 798-8200**. Your test request will then be routed to the appropriate Nordson regional-demonstration laboratory.



## MX4400 Melter:

# Value, Performance

The Meltex series MX4400 melters make an excellent choice for the many adhesive applications found in the sanitary-napkin industry.

The new series melters were released in 1995, and they were quickly accepted for new OEM machines. They were also acceptable replacements for old melters on existing applications.

The MX4400 melters employ microprocessor-based PID temperature controls to maintain temperatures within +/- 0.5°C (1°F).

Some standard features that make this melter so attractive to the sanitary-napkin industry are listed below. Optional features, which are available to enhance production efficiencies, are also listed.

### STANDARD MX4400 FEATURES

- Multiple melter sizes -- 12-, 24-, 60-, 110- and 160-liter capacities -- meet adhesive melt-rate and holding-capacity requirements.
- Multiple pump and drive sizes provide application flexibility.
- Small output pumps are available for low add-on applications.
- Easy pump-change capability is a plus when application requirements change.
- Key-to-line capability provides consistent application patterns across machine speeds.
- A protective antistick-, antioxidation-coated tank minimizes char.
- Large-capacity filters for each pump remove contaminants, reducing nozzle clogging and associated downtime.
- Digital RPM readout for each pump provides easy adjustment and application monitoring.

*The MX4400 melter provides the holding capacity and flexibility required for today's high-speed, sanitary-napkin-production machines.*

### OPTIONAL MX4400 FEATURES

- Pump shutoff device allows for pump removal without draining adhesive.
- Digital readout of individual pump pressures provides quick visual application access and control.
- Extended hoppers increase melter capacity.
- Color-band display allows for easy monitoring of all temperature channels.

## High Speed is Hot Topic at ENA '97

Disposable-products producers and industry suppliers from all over the world came to Osaka, Japan, in May for the Expo Nonwovens Asia (ENA) exposition. ENA is part of the three-year cycle of nonwovens-industry shows that also includes IDEA (in the United States) and INDEX (in Switzerland). Attendance at the three-day show exceeded all expectations.

The Nordson booth, near the show entrance, included active demonstrations of high-speed EP11 slot-nozzle applications, a CF201 spiral-spray head with a high-frequency nozzle, and a Control Coat® small-fiber applicator. These applications were supplied and controlled by an MX4400 melter and ES90 pattern controller. In addition to the active demonstrations, there were also static displays of a ProLink™ Adhesive System and several types of applicators.

We hope to see you in Baltimore, Maryland, next April for the IDEA '98 show!



*The Nordson exhibit at the ENA '97 exposition in Japan included active demonstrations of the high-speed technologies described in this issue of trends. Nordson representatives from Europe, the Americas and Asia were available for discussions with customers during the show.*



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