

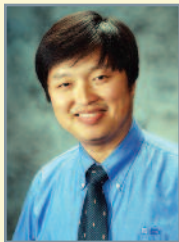
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## Nordson to Present the World's Broadest Range of Alternatives for Fluid Coating



A dramatically expanded range of fluid coating capabilities available from Nordson Corporation will make its first appearance at ICE Asia 2014. Nordson now provides the world's most diverse portfolio of fluid coating systems, backed by many decades of experience with slot die technologies and supported by a worldwide sales and technical service network. A representative array of these systems will be on display in **Stand C13** at ICE Asia.

For virtually any fluid—from inks to hot melts, from optical display coatings to adhesives for tape—there are often multiple equipment alternatives available from Nordson. The company's portfolio includes fluid delivery, slot-die application, and die positioning systems for applying PSAs, solvent- and water-based materials, inks, magnetic media, and many other materials. Viscosity capabilities range from 1 to 250,000 cps. Taken all together, these fluid coating systems have extensive application histories in markets as diverse as automotive, construction, electronics, energy, food packaging, tapes and labels, and textiles.

Nordson's fluid coating technologies include well-established slot die systems originally developed by Nordson itself and by EDI, Premier Dies Corporation, and Liberty Coating Equipment. EDI, acquired by Nordson in 2012 and now known as Nordson Extrusion Dies Industries, had previously acquired the Premier and Liberty businesses. Nordson has expanded the international sales and technical service available for these acquired systems through its network of directly operated facilities in 30 countries. The company now manufactures slot dies in the U.S., Europe, and Asia and maintains trial laboratories at seven locations in China, Germany, India, Japan, Korea, and the U.S.

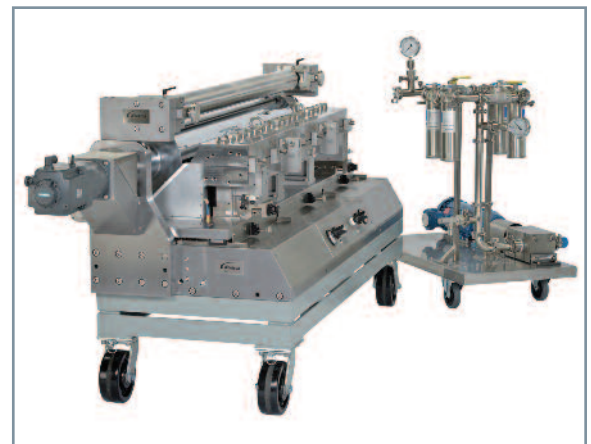
"Drawing on two hundred years of combined experience with high-precision coating systems and on our comprehensive global service capability, Nordson offers converters worldwide the opportunity to discover the many advantages of slot die technology over conventional fluid coating systems like roll coating," says Keith Wheeler, director of Nordson's fluid coating business. "As pre-metered systems, slot dies apply to the substrate all of the coating fluid fed into the die, and as closed systems they do so with consistency and without contamination or emission of volatiles. The greater accuracy and uniformity of slot die application makes possible increased line speeds and improved finished product yields per given quantity of coating fluid."

Slot die systems now available from Nordson include three types whose application mode is "contact / wipe," in which the die lip is used to wipe the coating material directly onto the substrate, and one "non-contact / draw" system, in which the die exit is a small distance from the substrate and the motion of the backup roll or tension web draws the coating into a thin layer.

- **Premier™ fixed-lip / shim system.** Key advantages of this non-contact / draw system include high precision, ease of use, and capability of applying very thin coatings. Because the lips are fixed, the die provides a high degree of precision and run-to-run repeatability with a minimum of operator intervention. Gap adjustment must be carried out by means of shims. The die can apply coatings with viscosities in the 1 to 175,000 cps range. Minimum wet coating thickness is 1 micron. Coat weight accuracy is held to +/- 1 to 2%.

- **UltraCoat™ adjustable-lip system.** Versatility is a key feature of this contact / wipe system, in which the coating gap and width can be adjusted without having to disassemble the die. Gap adjustment may be manual (UltraFlex™) or automated

*Continued on P. 2.*



**VERY THIN, HIGH-PRECISION COATING** is one advantage of the Premier™ fixed-lip slot die, shown here with fluid delivery system at right. Minimum wet coating thickness is 1 micron. Coat weight accuracy is held to +/- 1 to 2%.

## Inside....

- Advantages of slot die versus roll coating
- Options for trial runs: at Nordson labs or with on-site modular systems

# Multiple Options for Trial Runs: On-Site or at Nordson Laboratories

Outside laboratory facilities where converters can carry out fluid coating trial runs are scarce—with one exception. Nordson Corporation operates coating labs at several locations around the world. Besides using them for process improvements and innovations, Nordson makes these facilities available to converters, who otherwise would be forced to use their own full-scale production lines at a cost of lost output.

In addition, Nordson can supply modular coating systems (MCSs) that customers can lease or purchase for trials at their own facilities. For companies that currently use roll coating systems, the MCS enables them to eliminate hours of setup in switching from roll to slot die coating as they carry out product and process development with slot dies. MCS systems are equipped with either the Premier™ fixed-lip or the UltraCoat™ adjustable-lip slot die.

“The fluid coating labs operated by Nordson enable converters to carry out trial runs or application development without tying up their own production lines, and they can do so in the strictest confidence,” says Keith Wheeler, director of Nordson’s fluid coating business. “Typically, nondisclosure agreements are signed with every company that utilizes our labs.”

Users of Nordson’s modular coating systems also save precious production time, notes Mr. Wheeler. “With a standard slot die coating system assembled from individual components, it can take up to half a day, and even more for really large dies, to set up the system so that it is properly aligned, the rolls are level with respect to one another, and the die is properly positioned with respect to the backing roll. By contrast, the MCS rolls into place on nearly any commercial coating line.”

Included in a MCS are a slot die coating head, vacuum box system, fluid-delivery system, adjustable support for positioning the die lip with respect to the web, idler rolls, and precision backing roll.

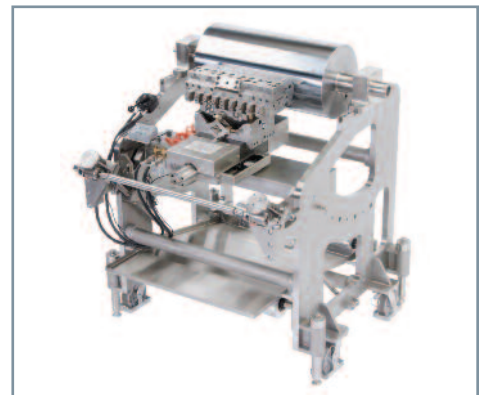
## Fluid Coating Trial Labs in 6 Countries

The fluid coating and laminating laboratories operated by Nordson are extensively equipped with production-line components, from fluid delivery to roll systems.

- **Chippewa Falls, WI, USA.** Housed in a clean, temperature-controlled room, the coating line has a maximum speed of 60 m/min. and a working width of 500 mm.
- **Johns Creek, GA, USA.** Capable of being equipped with four different hot melt applicators, the line has a maximum speed of 650 m/min. and maximum roll width of 380 mm.
- **Lüneberg, Germany.** Nordson operates four lab coaters that can be equipped with various hot melt slot dies for continuous and intermittent applications, including spray head. Maximum speeds range from 350 to 600 m/min. and maximum web widths from 300 mm to 1,800 mm.
- **Tokyo, Japan.** The three hot melt lab coating lines have maximum line speeds ranging from 300 to 500 m/min. and maximum web widths from 500 to 800 mm.
- **Shanghai, China.** The hot melt lab line accommodates five different applicators, including spray head; maximum web width is 400 mm; maximum line speed is 500 m/min.
- **Swongnam-si, Korea.** There are four lab coaters—two for slot coating and two for roll coating. The slot coaters have maximum speeds of 10 to 150 m/min. and maximum web widths of 250 to 1,300 mm. The other lines include a flat roll coater and a gravure roll coater.
- **Bangalore, India.** The line accommodates hot melt slot and spray applicators; maximum line speed is 100 m/min. and maximum coating width is 520 mm. ♦



**FULLY EQUIPPED—FROM FLUID DELIVERY TO ROLL SYSTEM.** Trial lab at Nordson Extrusion Dies Industries facility in Chippewa Falls, WI, U.S.A. is housed in a clean, temperature-controlled room. The coating line has a maximum speed of 60 m/min. and a working width of 500 mm.



**MODULAR COATING SYSTEM FOR LEASE OR PURCHASE** enables companies that currently use roll coating systems to eliminate hours of setup in switching from roll to slot die coating as they carry out product and process development with slot dies.

## Benefits of Slot Coating *continued from P. 4.*

- reduction in fluid scrap, and faster changeovers. Daily potential savings were estimated to be US\$ 1,354.
- **Electronics film.** Tighter tolerances and enhanced cross-web thickness control made possible a 75% reduction in thickness. Measured when dry, the thinner coating was 2.5 microns. Other improvements included elimination of bubbles and reduction in streaking and web breaks. Daily potential savings were estimated to be US\$ 3,465.
- **Label stock.** At equivalent coat weights, the slot die system ran at twice the line speed of the roll coater, in part because of tighter tolerances. It also proved capable of being applied over a wider range of products—thicknesses of 10 to 200 microns and viscosities of 20 to 3,000 cps. Other improvements included reductions in downtime and product defects. Daily potential savings were estimated to be US\$ 1,553.

Having supplied slot die systems for more than 30 years to multiple industries

and hundreds of different applications, Nordson is prepared to assist converters in making the transition from roll coating. The first step is typically to set up a trial to check on the adhesion, appearance, and other requirements of a particular application and determine the need for changes in solution formula. The next step is custom die manufacture—building a slot die unique to the converter’s application. Finally, the converter reaps the benefits of a system that provides a new dimension of control and quality assurance. ♦

**For More Information, Visit:  
[www.nordsonfluidcoating.com](http://www.nordsonfluidcoating.com)**

This special page serves as a gateway to the entire range of fluid coating systems available from Nordson, with links to information on Premier™, UltraCoat™, TrueCoat™, PoreCoat™, and other coating and laminating technologies.