Nordson Polymer Processing Systems

Extrusion Dies, Feedblocks, & Fluid Coating Systems
You require innovative solutions.

History of Innovation
Extrusion Dies Industries was founded in 1971 as a small machine shop of four people in the small midwest U.S. town of Chippewa Falls. The company introduced its first manual Ultraflex™ die the same year, providing customers with a new solution for their sheet processing needs.

Since 1971, Extrusion Dies Industries has created a standard of excellence in extrusion and fluid coating die systems. The company remains committed to the changing needs of customers, developing new products that have resulted in performance improvements and increased production opportunities. These products range from the introduction of the Ultracoat™ die for fluid coating applications to the first FastGap™ lip adjustment system for sheet processors to the highly innovative and game-changing design of the Contour® cast film die. Through engagement with customers, the company has also made numerous advancements in the areas of biaxially oriented film, coextrusion technology, and extrusion coating and laminating.

Nordson Corporation acquired Extrusion Dies Industries and Premier Dies Corporation in 2012 as part of the company’s new line of business dedicated to serving the needs of the plastics industry.

Value in Resources
Nordson’s Polymer Processing Systems product offering provides a uniquely broad range of technologies for melting, conditioning, dispensing, and giving shape to plastics. Nordson delivers a full range of precision melt stream products - from screws and barrels - to filtration systems, pumps, and valves - to the extrusion and fluid coating dies and pelletizing systems to meet the constantly evolving needs of the polymer industry.

The businesses that Nordson Corporation has acquired leverage the collective plastics industry experience to offer industry-leading technologies. Nordson excels in precision engineering and places a high value on supporting customers before and after the sale. Customers will benefit from the wide range of products, from global capabilities for manufacturing and localized service, and from the strategy of bringing together complementary technologies to optimize polymer processing.

Nordson Corporation has extensive resources that will benefit our customers. With operations in more than 30 countries, Nordson provides a global base for increasing localized access to sales and technical services. The company’s strong support of and investment in research and development provides a continuous flow of innovations in components for plastics processing, from new screw and barrel technologies to breakthroughs in filtration systems, pumps, pelletizers, and extrusion and coating dies.

Commitment to Excellence
With the backing of a strong global network, Nordson has renewed the pledge to provide extrusion and fluid coating die customers with dependable products, knowledgeable support, and trustworthy service.

We’re ready to meet the challenge.
Extrusion & Coextrusion Die Systems

Dies and feedblocks are critical components in the overall melt stream system. Each EDI® die system is custom designed to meet the specific needs and process parameters of each end user.

**Cast Film**

Achieve optimal product quality with a Nordson cast film die designed for your specific application requirements.
- Contour® Dies
- UniFlow™ Dies
- Multi-manifold Dies
- Coextrusion Feedblocks
- Optional features include automatic gauge control, deckling, & insulation packages

**Advanced**

Save material cost by minimizing the product width and reducing the size of the edge bead with a Nordson die for extrusion coating and laminating.
- EPC™ (Edge Profile Control) Dies
- Multi-manifold Dies
- Coextrusion Feedblocks
- Optional features include automatic gauge control, motorized deckle drive, & deckle maintenance cart to assist with routine cleanings

**Oriented Film**

Unsurpassed coextrusion uniformity and longer production runs of high quality film are made possible with Nordson die technology for the production of oriented film.
- Biaxially Oriented PA, PET, PP
- Oriented PS

Oriented film dies are designed to accommodate coextrusion structures with skin layers of less than 10% of the total configuration and for structures with melt differentials up to 28°C (50°F). A variety of features, including automatic gauge control, are available.

**Breakthrough**

Easily changeover products with a custom-designed Nordson die for sheet extrusion.
- Commodity Sheet Applications
- Specialty Sheet Applications
- Multi-manifold Dies
- Options include automatic gauge control, restrictor bars, FastGap™ and SmartGap™ adjustment systems, and deckling

**Ancillary Equipment**

Increase workplace safety and reduce downtime for routine maintenance with Nordson ancillary equipment for extrusion dies.
- Die Carts
- On-line Die Separating Devices
- Deckle Maintenance Carts
- Distribution Blocks and Adaptors
Slot Die Systems
Custom slot die coating systems designed to meet converters’ specific process requirements, no matter what their coating needs are.

Premier™ fixed lip slot dies are designed to be extremely precise, while still easy to use.
- Single Layer Slot Dies
- Multi-layer Slot Dies (Dual or Triple Layer)
- Optional features include a hand-operated die opener for single layer slot dies, cored holes for liquid temperature control, and die cavity plugs to increase flexibility of the die without sacrificing performance

Ultracoat™ flexible lip slot dies provide flexibility to adjust for variation in web thickness and process parameters.
- Single Layer Slot Dies
- Multi-layer Slot Dies (Dual or Triple Layer)
- Optional features include automatic gauge control, cored holes, and replaceable lip inserts

Increase production rates by uniformly coating one or more layers on a substrate at higher speeds.
- Single Layer Dies
- Multi-layer Dies (2-10+ Layers)
- Optional features include a single or multiple layer end plate with edge guide adaptor and cored holes for liquid temperature control

Nordson positioners and stations ensure precise, uniform, and repeatable substrate coatings.
- Premier™ positioners designed for on-roll or off-roll (tension) coating
- Ultracoat™ stations feature pneumatic actuation via air cylinders and optional vacuum box and regenerative blowers
- Options include table mounted, cart/platform mounted, or floor mounted systems

Nordson fluid delivery systems (FDS) offer a simple, yet customized, approach to fluid delivery.
- Lab/Small Production FDS
- Medium Production FDS
- Large Production FDS
- Optional features include in-line flow meters, fluid tank agitation, temperature control, explosion proof rating, and fully automated systems
Engineering & Technology

Designing a die or feedblock requires extensive knowledge of the application and process requirements. The Nordson engineering team uses the latest technology to ensure that die systems are built to the specifications necessary to provide the expected performance.

Rheology Testing

- A dual capability rheometer allows for efficient rheological testing with an emphasis on application of the Bagley Correction, as well as other rheological testing methods.
- With the ability to test for extensional/elongational viscosity, the unique flow behavior materials with similar shear viscosities can be accounted for in the design of the die.
- The inclusion of advanced analysis software allows for a detailed review of the rheological data, which ensures the accuracy of results while allowing for common corrections and fitting equations to be applied.
- With each application, material is tested and rheology data is used to ensure a proper mechanical design.

Die System Design

- With a significant history of computerized die system design, we have created a large library of 3D models, from standard to complex designs.
- During the design process, Flow EFD is used to analyze flow characteristics such as shear rates, flow velocity, residence time, flow direction, and flow profile across the flow channel exists.
- Internal die pressure can be directly imported into the 3D model and die deflection can be calculated.
- Flow EFD software is used to balance shear stress where two materials are joining in a coextrusion die system.
- Internal die pressure results are used in engineering software to create deflected flow channel dimensions, simulating actual performance with die deflection, allowing the flow channel to be modified to create better distribution of the fluid or polymer.

Research & Development

Nordson has been at the forefront of product innovation for the fluid coating and polymer processing industries, largely due to an investment to capital equipment and personnel dedicated to conducting research and development testing and trials.

Nordson operates an extrusion die technology center, offering customers an economical alternative to using their commercial scale equipment for product and process testing, thereby reducing the amount of raw material cost and lost output from machine downtime.

The technology center also allows for continued technological advancements, as it’s used to support the creation, development, and refinement of new and existing extrusion and coextrusion die systems.

In addition to the extrusion die technology center, a slot die lab line is available for customers looking to test a new slot die system or refine their existing fluid coating process.

For converters considering a change from traditional roll coating methods to the expanded capabilities offered by slot coating, Nordson’s dedicated team of fluid coating experts are available to conduct trials and training in-house or at the customer’s facility.

Whatever the extrusion or fluid coating application, Nordson is ready to help our customers optimize their process and increase their profitability.

...Innovation for Tomorrow
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