

Nordson MEDICAL Designs, Develops, and Validates Precision Extruded Tube in Just 8 Weeks



CUSTOMER SITUATION

A large, multinational medical device company with a broad product portfolio was redesigning its introducer sheath for a neurovascular microcatheter used to

deliver an implant to the brain.

The extruded sheath had to have:

- Tight tolerances to ensure dimensional stability
- Heavy walls for a strong, robust product
- Precise tip for consistent positioning
- Specific transparency criteria to visualize the implant

The customer chose to work with Nordson MEDICAL because of its complex extrusion experience, as well as its ability to develop the tube quickly and at a competitive cost. Nordson MEDICAL was initially only engaged to produce prototypes based on the customer's design requirements. But the customer was so impressed with Nordson MEDICAL's plans for development and production that it won the contract to produce the extruded tube and perform the secondary operations for a finished product.



NORDSON SOLUTION

Nordson MEDICAL collaborated closely with the customer to develop a detailed project plan and meet tight timelines. The team worked through many iterations

with different tip angles and geometries as well as tubing diameters to achieve the functional requirements. The customer also asked Nordson MEDICAL to modify the design of the proximal end, which had been square. Nordson MEDICAL's new design included a lead-in funnel to ease the transition. Nordson MEDICAL was able to build and ship prototypes for customer evaluation within 10 days.

The customer then presented Nordson MEDICAL with an additional challenge: to make the tube transparent so that the user could visualize the implant through the thick walls of the tube. Polyethylene extrusions generally have a matte surface. The team quickly iterated and developed a proprietary extrusion process to achieve the transparency goal. The team had to develop all-new tooling and conducted many trials to consistently achieve a smooth surface. Nordson MEDICAL also built a dedicated manufacturing cell within 6 weeks with all the tooling and equipment needed for one-piece flow and just-in-time manufacturing.

The Nordson MEDICAL team brought years of expertise in extrusion materials and processing, as well as in catheter tip forming and processing, tooling design, validation, and project planning and management.



OUTCOME

The Nordson MEDICAL team completed the project very quickly and costeffectively. It took only 8 weeks from start to finish, including design, development, and validation.

The customer successfully commercialized the redesigned introducer sheath, and Nordson MEDICAL has been successfully manufacturing this component for more than a year, meeting targets for unit price and overall project cost.

Nordson MEDICAL is continuing its collaboration with this customer. It has developed and is currently validating a product family extension: a larger introducer sheath for a different market.