Nordson MEDICAL is the world’s leading contract manufacturer of cardiopulmonary vascular cannulae, catheters, and specialized medical tubing for a wide range of clinical applications. The key is our Avalon Laboratories’ polymer solution casting technology, which allows us to design and manufacture custom tubing with features not achievable by conventional extrusion, injection molding, or common layup techniques, and achieving feature-rich devices with single piece construction and seamless transitions.

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HOW DOES IT WORK? THE SCIENCE BEHIND POLYMER SOLUTION CASTING

The manufacturing process involves a mandrel, rigid structure, or inner diameter mold immersed in a tank of liquid plastic, or polymer solution, which forms a film of desired thickness on the mold. After the first layer cures, secondary features, such as braided or coiled reinforcements, radio opaque markers, malleable wires, or any variety of embedded features can be added. Additional layers of polymer solution can be added around the reinforcement to achieve desired strength and profiles. The materials can be varied between layers or along the length of the cannula to achieve the desired strength, lubricity, and flexibility. The wall thicknesses and diameters can be varied along the length of the device in a single-piece construction, while maintaining tight tolerances.

Polymer solution casting results in thin single piece construction, seamless transitions between diameters, high flow, and superior column strength for enhanced performance.