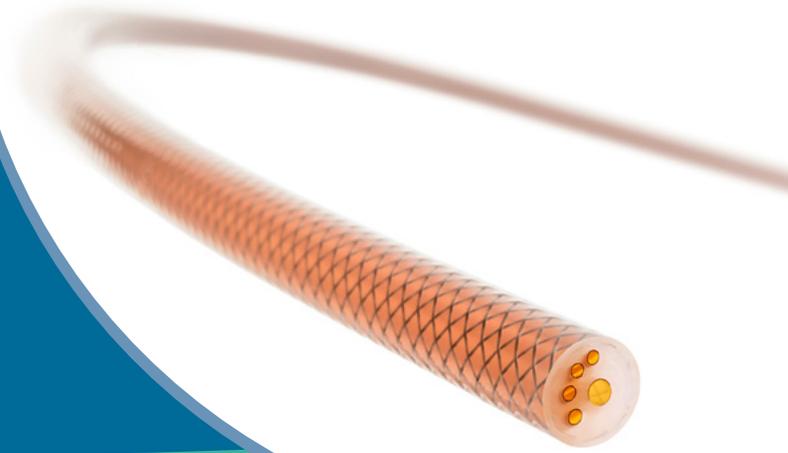


# Catheter Solutions

Whether micro, braided and coiled, or steerable and/or deflectable catheters, within the Spectrum Plastics Group, we have your solution.



## Manufacturing Capabilities

### Materials

- PEBAX®, Nylon, polyurethane, polyethylene, customer specified resins
- Catheter Liners: PTFE, FEP, Nylon, PEBAX®, Polyimide, customer specified liners
- Braid or coil reinforced composite shaft

### Braided Catheter Capabilities

- Patterns (standard, diamond, and half load)
- 16 and 24 carrier braiders
- 1, 2, or 3 wire ends/carrier
- Fully programmable variable braid density/PPI
- Longitudinal (tri-axial) wires in steel, nitinol, and high tensile, nonmetallic fibers, up to 8 longitudinal wires/shaft

### Braid wire options (stainless steel)

- Flat wire
  - 0.0005" x 0.0025" (0.013mm x 0.064mm)
  - 0.001 x 0.003" (0.025mm x 0.076mm)
  - 0.0007" x 0.003 (0.018mm x 0.076mm)
  - 0.001" x 0.005 (0.025mm x 0.127mm)
  - Custom configurations available upon request

- Round wire (available in 1 end, 2 end, or 3 end configurations)
  - 0.001 (0.025mm)
  - 0.002" (.051 mm)
  - 0.003" (.076 mm)
  - Custom configurations available upon request

### Radiopaque features

- Encapsulated marker bands: Gold, platinum, tungsten
- Extruded marker bands featuring Polymer with high loading of conventional radiopaque fillers
  - Tungsten (bilayer, trilayer) (W) (up to 80% by weight)
  - Barium sulfate (BaSO<sub>4</sub>)
  - Bismuth trioxide (Bi<sub>2</sub>O<sub>3</sub>)
  - Bismuth subcarbonate (BiCO<sub>3</sub>)

### Finishing and Forming Operations

- Flaring
- Tipping
- Insert molding
- Custom hubs

## Deflectable & Steerable Catheters

### Materials

Shaft materials:

- PEBA<sup>X</sup>®, Nylon, polyurethane, polyethylene, customer specified resins
- Catheter Liners: PTFE, FEP, Nylon, PEBA<sup>X</sup>®, Polyimide, customer specified liners
- Braid or coil reinforced composite shaft

Pull wires:

- High Tensile Stainless steel
- Stranded cable

### Dimensional Information

- Shaft diameters from 4F to 35Fr
- Lumen tolerance typically +/- .001"
- OD tolerance typically +/- .002"

## Braided & Coil reinforced Catheters

- Custom-Configured, Reinforced Shafts up to 35Fr
- Ultra-thin walls – industry leading capabilities and tolerances
- Braids with optional longitudinal wire reinforcement increase stability and pushability.

- Liner options achieve lubricity, clarity, and cost considerations
- Custom-configure the stiffness of the tip and shaft segments to match your application.
- Braid configurations and materials customizable for flexibility, kink resistance and pushability.

	Braid	Coil
Torque Response	Excellent	Poor
Flexibility	Excellent	Good
Kink Resistance	Excellent	Good

## Multi-lumen delivery systems

Our proprietary processes allow us to manufacture braid or coil reinforced multi-lumen catheters with greater precision and lower cost. Commonly used in structural heart therapies and electrophysiology catheters.

- Up to 20 separate lumens
- Individual lumens may be coil reinforced, PTFE lined, FEP lined, polyimide lined
- May be combined with deflectable catheter design

