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 (BaSO4)
  - Bismuth trioxide (Bi2O3)
  - Bismuth subcarbonate (BiCO3)

Finishing and Forming Operations
- Flaring
- Tipping
- Insert molding
- Custom hubs
Deflectable & Steerable Catheters

**Materials**

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

**Pull wires:**
- High Tensile Stainless steel
- Stranded cable

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

**Braided & Coil reinforced Catheters**
- Custom-Configured, Reinforced Shafts up to 35F
- 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.

<table>
<thead>
<tr>
<th>Braid</th>
<th>Coil</th>
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<tbody>
<tr>
<td>Torque Response</td>
<td>Excellent</td>
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<tr>
<td>Flexibility</td>
<td>Excellent</td>
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<tr>
<td>Kink Resistance</td>
<td>Excellent</td>
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**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