



Catheter Shafts / Catheter Assembly

Braid-reinforced Shafts

Applications:

Interventional Vascular, Neurovascular, Electrophysiology, Endosurgery, Structural Heart, Diagnostic and other minimally invasive applications.

Lubrizol Life Science Health's (LLS Health) team of experienced extrusion and catheter engineers will closely collaborate with your design team to develop a braided shaft that meets your application - specific requirements.

Function:

Braiding improves the functionality of a catheter shaft by improving kink and pressure resistance and increasing the mechanical properties of a tube all while maximizing the working area of a tube. Braided reflow shafts can be designed to provide a combination of different performance characteristics. Properties that can be tailored and varied over the length of the catheter shaft include:

- Flexibility
- Torque transmission
- Kink resistance
- Burst Strength
- Pushability
- Column Strength

Description:

The Contract Manufacturing Division of LLS Health uses dedicated extrusion, braiding and reflow equipment to manufacture its braided shafts. Shafts can have a single or multiple durometer along the shaft or the braid pattern can be varied to change the stiffness of the shaft along the length. Customers typically employ braided construction where the application requires high pressure resistance or requires navigation thru small and tortuous anatomies, such as small blood vessels in the heart or brain. LLS Health's braiding capabilities include:

- OD ranges from 0.030" - 0.320"
- Round wire, flat wire and fibers
- Constant or Variable Pick Pattern
- Single or Variable Durometer
- PTFE Lined
- Braid to Coil Transition
- Cut to Length or Spooled

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Post Extrusion Secondary Operations



Tip Forming

- Custom tipping on wide range of tubing sizes. Tips can be open or closed at the end with or without radius
- Tubing OD Size Range: 4 Fr (0.050") to 30 Fr. (0.390")
- Tip Length up to 2.0"
- Materials: Most thermoplastic, including high temp materials such as PEEK



Tube Flaring

- Custom tube end flaring with various different flare angles
- Tubing OD Size Range: 4 Fr (0.050") to 30 Fr. (0.390")
- Materials: Most thermoplastic, including high temp materials such as PEEK



Pad Printing

- Pad printing capabilities to print distance markers, orientation markers, band or other information on thermoplastic tubing
- Printing on single side or 360 degrees
- Corona Treating available to improve ink adhesion for certain materials



Hole Punching/Drilling

- CNC controlled hole punching and drilling
- Holes sizes as small as 0.006" in diameter
- Various hole patterns including around the circumference, spiral and on single axis
- Off axis, skiving and unique geometries are also available
- Tubing OD as large as 30 Fr. (0.390")

Precision Cutting

- Tubing OD range 0.010" - 0.250"
- Tubing Cut length: 0.040" - 6.00" (Longer lengths available on case by case basis)
- Tolerance as tight as +/- 0.005"
- Materials: Thermoplastics (durometer and wall thickness dependent)



Other Services Included

- Precision Thermoplastic Extrusion
- Polyolefin Heat Shrink Tubing
- Marker Band Swaging
- Annealing
- Bonding
- Reflow/Lamination
- RF Welding
- Coiling
- Hub + Luer Attachmen

About Lubrizol Life Science Health - The Health business team partners with customers to speed their innovative medical devices and differentiated pharmaceutical products to market. Our dedicated team provides best-in-class polymers and excipients, along with state-of-the-art product design, development, and manufacturing services, with the ultimate goal of creating solutions that improve patient outcomes.

For more information visit www.lubrizolmeddevicecm.com.

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