CARFIL QUALITY
YOUR SUPPLIER FOR ALL LABORATORY NEEDS

Customize your catheter

Selection of Available Modifications

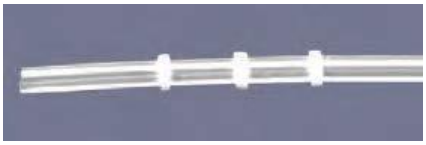
To meet your particular needs, custom catheters made with a variety of materials and sizes with a wide selection of modifications
are available. Some of the more common modifications requested are shown below. Whether you need a jugular, carotid,
or gastric catheter for any species, from rodents - to non human primates, our catheters will be perfect and consistent from
order to order. We offer expert advice to help you design the optimal catheter.

Distal Tip Options

Catheter Modifications

Retention Sleeve: to secure the catheter & port and act as a strain relief at the junction.

Suture Sleeve: secure the catheter within the vessel or organ



Dacron® Felt Cuff: to promote tissue ingrowth of the catheter.

Perfusion Holes: for perfusion of organs.

Suture Disk: to anchor the catheter in the intestines or bladder

Suture Flange: to anchor the catheter to the tissue.

Stainles Steel - Plugs & Connectors

Solid Plug for Occlusion.

Hollow Plug for Connection.

Catheter Insertion Aids

Peel-Away Introducer

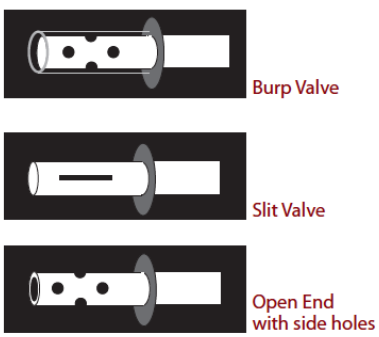
Vein Pick

Blunt Needles/Luer Stub Adaptors

LSA with Injection Cap.

LSA no cap.

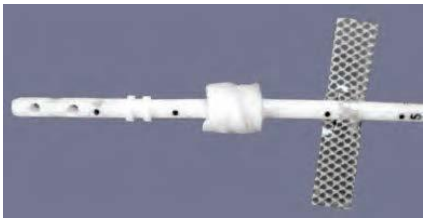
Gastro-Intestinal Catheter Modifications



Catheter Coating

Hydromer anti-thrombogenic coating on polyurethane catheters
Hydromer is a hydrogel material that forms a lubricious coating on our polyurethane catheters. It is biocompatible, anti-thrombogenic & has been shown to significantly reduce platelet aggregation & protein adhesion to the catheter as compared to uncoated catheters. The coating swells instantaneously upon contact with water-containing fluids, becoming very slippery. The best way to think of this is to compare it to a raincoat - the rain just slides off. This is what happens in the blood stream - the platelets slide off the catheter rather than stick to it. Hydromer coated polyurethane catheters exhibit significant anti-thrombogenic behavior in a vascular environment.

Considerations



Custom catheter DESIGN options

We can design you a brand new catheter, *call to discuss your needs*
We can reproduce your existing design, *send us a sample and we'll do the rest*
We can modify your existing design, *tell us what you need changed and we'll do the rest*

Proper catheter DESIGN considerations

Proper catheter design must be based on, *the study design as well as the catheter placement location*
Catheters for chronic implantation should,

- have an atraumatic rounded tip
- be of an appropriate material preferably silicone or polyurethane
- be of an appropriate French size to suit the vessel diameter
- have vessel retention beads to secure the catheter in the vessel
- have skin/subcutaneous retention beads to secure the catheter to the skin surface

Choosing the DESIGN considerations

- **Catheter Material,** *ideal material is soft & pliable, biocompatible, chemically resistant, with high tensile strength.*
- **Catheter Diameter,** use smallest French size catheter possible that will achieve the required flow to minimize flow disruptions
- **Catheter Tip Geometry,** a rounded tip catheter has been shown to minimize damage to the vessel endothelium - we offer silicone and polyurethane catheters with rounded tips.
- **Catheter Coating,** our lubricious Hydromer catheter coating, reduces the catheter surface coefficient of friction minimizing platelet aggregation and protein adhesion

- **Catheter Customization,** for a listing of modifications see elsewhere