

Instech offers a range of bulk tubing for laboratory animal infusion and microdialysis, including polyethylene, polyurethane, silicone, co-extruded PE/PVC and FEP tubing. Most tubing now comes on convenient spools of 30 meters.

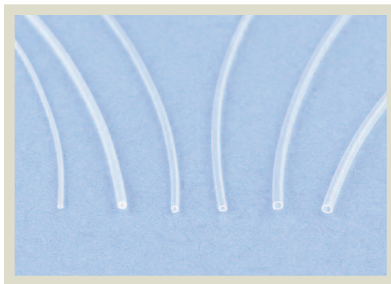


## TUBING MATERIAL COMPARISON

	Silicone	Polyurethane	Polyethylene	Polyvinyl-chloride
Hemocompatibility	Excellent	Excellent	Fair	Fair
Compound Compatibility	Possible reactivity	Possible reactivity	Inert	Possible reactivity
Stiffness	Soft	Soft	Stiff	Soft or stiff
Ease of Insertion	Difficult	Moderately easy	Easy	Moderately easy
Sizes Available	Many	Many	Many	Few
Ease of Bonding	Excellent	Fair	Poor	Fair
Memory	Excellent	Poor	Poor	Poor
Tear Strength	Poor	Excellent	Excellent	Excellent
Air Permeability	High	Moderate	Low	Low
Sterilization	EtO or steam	EtO	EtO	EtO

Tubing IDs and ODs typically vary by  $\pm 0.02$ in (.05mm) from the nominal specs noted here. When dead volume is critical measure it directly by comparing the weights of filled and empty segments.

### Polyethylene Tubing



Instech's PE tubing solves one of the biggest problems with PE: the price. The low density formulation and sizes are comparable to Intramedic™ tubing. To avoid kinking, consider co-extruded PE/PVC.

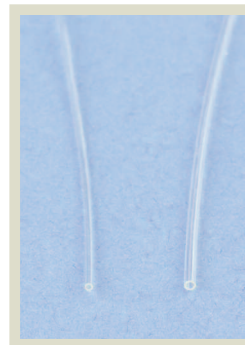
Part No.	Compare	Fits	OD	ID			
BTPE-10	PE 10		.024in	.60mm	.011in	.28mm	○
BTPE-20	PE 20		.043	1.09	.015	.38	●
BTPE-25		25ga	.036	.91	.018	.46	○
BTPE-50	PE 50	22ga	.038	.97	.023	.58	○
BTPE-60	PE 60	20ga	.048	1.22	.030	.76	○
BTPE-90	PE 90		.050	1.27	.034	.86	○

Spool of 30m (98ft), non-sterile. Do not autoclave.

Intramedic is a trademark of Becton Dickinson and Company.

[www.instechlabs.com/Infusion/tubing/polyethylene.php](http://www.instechlabs.com/Infusion/tubing/polyethylene.php)

### Polyurethane Intravascular Tubing



This is the most commonly used formulation of polyurethane for laboratory animal research. It is the same tubing we use to make our finished catheters. The 2 and 3Fr sizes have been specifically extruded to have ideal fits with PinPorts and Vascular Access Harnesses and Buttons: 2Fr fits 25ga, 3Fr fits 22ga. The 1Fr size is used in two-piece mouse catheters; the 32ga size is used in intrathecal catheters.

Part No.	Size	Fits	OD	ID			
BTPU-009	32ga	-	.009in	.2mm	.005in	.1mm	○
BTPU-014	1Fr	-	.014	.4	.007	.2	○
BTPU-027	2Fr	25ga	.027	.7	.017	.4	○
BTPU-040	3Fr	22ga	.040	1.0	.025	.6	○

2 and 3Fr on spools of 30m (98ft); 1Fr and 32ga on spools of 10m. Non-sterile. Do not autoclave.

[www.instechlabs.com/Infusion/tubing/polyurethaneIntra.php](http://www.instechlabs.com/Infusion/tubing/polyurethaneIntra.php)

# BULK TUBING

## Silicone (Silastic®) Intravascular Tubing



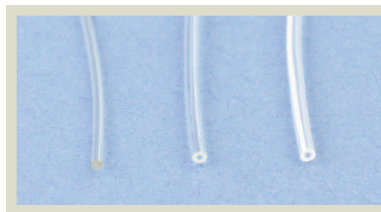
This tubing, made from Dow Corning Silastic®, is the same platinum-cure material that has been implanted in laboratory animals for years. Sterilize by EtO gas or steam/autoclave.

Part No.	Size	OD	ID			
BTSIL-025	2 Fr	.025in	.64mm	.012in	.31mm	○
BTSIL-037	3 Fr	.037	.94	.020	.51	○
BTSIL-047	3.5 Fr	.047	1.2	.025	.64	○
BTSIL-065	5 Fr	.065	1.7	.030	.76	○
BTSIL-085	7 Fr	.085	2.2	.040	1.0	○

Spool of 15m (50ft), non-sterile.

[www.instechlabs.com/Infusion/tubing/silastic.php](http://www.instechlabs.com/Infusion/tubing/silastic.php)

## Polyurethane External Infusion Tubing



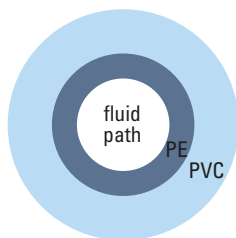
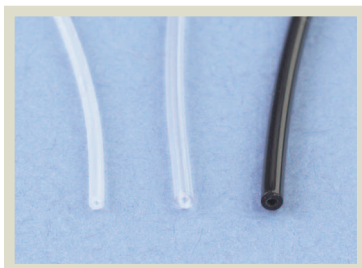
This PU tubing is designed for a reliable friction fit with 22 or 25 gauge swivels and couplers. The elasticity and thick wall minimizes the chance of accidental disconnection, kinking or perforation. Used in VAH and VAB tethers. The 22ga version is available with a white stripe to differentiate dual channel connections. Not intended for intravascular use.

Part No.	Fits	Stripe	OD	ID			
VAHBPU-T25	25ga	none	.037in	.9mm	.017in	.4mm	○
VAHBPU-T22	22ga	none	.055	1.4	.024	.6	○
VAHBPU-T22W	22ga	white	.055	1.4	.024	.6	○

Spool of 30m (98ft), non-sterile.

[www.instechlabs.com/Infusion/tubing/pu.php](http://www.instechlabs.com/Infusion/tubing/pu.php)

## Co-extruded PE/PVC Tubing



This tubing is co-extruded with polyethylene on the inside for compound compatibility and PVC on the outside to resist kinking and prevent evaporation.

It is designed for external infusion set connections and is not for intravascular use. Critical joints should be glued to prevent accidental disconnection as this type of tubing can take a set around the stainless steel tube.

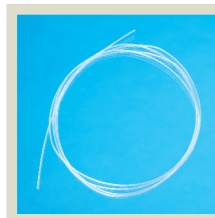
It is available in two sizes to mate with 22ga or 25ga swivels, PinPorts, couplers and luer stubs. A version with black PVC is available for protection of light sensitive compounds.

Part No.	Fits	Color	OD	ID			
BTCOEX-25	25ga	Clear	.051in	1.3mm	.017in	.4mm	○
BTCOEX-22	22ga	Clear	.064	1.6	.024	.6	○
BTCOEX-22B	22ga	Black	.072	1.8	.024	.6	○

Spool of 30m (98ft), except black which is spool of 15m (49ft), non-sterile.

[www.instechlabs.com/Infusion/tubing/coex.php](http://www.instechlabs.com/Infusion/tubing/coex.php)

## FEP Microdialysis Tubing

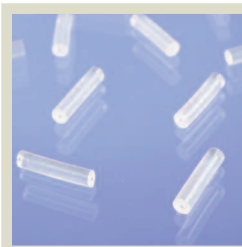


Designed to connect microdialysis probes to swivels, pumps and fraction collectors, this custom-extruded FEP tubing has the same inner and outer diameters as our 22ga quartz-lined swivels: 0.006x0.028in (0.15x0.71mm). Internal volume is approximately 0.18µL/cm. Use MC015/10 tubing connectors.

Part No.	Description	Unit
BFEP-T22Q	FEP tubing, .006x.028in, 1m lengths, sterile	pkg of 10

[www.instechlabs.com/Infusion/tubing/fep.php](http://www.instechlabs.com/Infusion/tubing/fep.php)

## Microdialysis Tubing Connectors



These silicone tubing segments are sized to connect FEP microdialysis tubing to swivels, probes, and syringes with no added dead volume. They do not need to be swelled by soaking in alcohol prior to installation, as do traditional "blue widgets," which in turn eliminates the possibility of damage to the swivel when removing tubing.

Part No.	Description	Unit
MC015/10	Microdialysis tubing connector, .015inIDx10mm	pkg of 100

[www.instechlabs.com/Infusion/tubing/mc.php](http://www.instechlabs.com/Infusion/tubing/mc.php)

# TUBING CONNECTORS

## Luer Stubs (Blunt Needles)



Female luer stubs have blunt tips to connect infusion tubing or catheters to syringes or other male luer connectors. The hubs are polypropylene; the tips are stainless steel. Available non-sterile or EtO sterilized.

Size	Color	Tube Length	Non-sterile		Sterile
			100 pcs	1000 pcs	250 pcs
14ga	dk. green	0.5in (13mm)	LS14	LS14K	LS14S
15ga	amber	0.5in (13mm)	LS15	LS15K	LS15S
16ga	violet	0.5in (13mm)	LS16	LS16K	LS16S
17ga	white	0.5in (13mm)	LS17	LS17K	LS17S
18ga	green	0.5in (13mm)	LS18	LS18K	LS18S
20ga	pink	0.5in (13mm)	LS20	LS20K	LS20S
21ga	purple	0.5in (13mm)	LS21	LS21K	LS21S
22ga	blue	0.5in (13mm)	LS22	LS22K	LS22S
22ga	blue	0.25in (6mm)	LS22/6	LS22/6K	LS22/6S
23ga	orange	0.5in (13mm)	LS23	LS23K	LS23S
25ga	red	0.5in (13mm)	LS25	LS25K	LS25S
27ga	gray	0.5in (13mm)	LS27	LS27K	LS27S

Sterile luer stubs packaged in 50 pouches of 5.

[www.instechlabs.com/Infusion/tubing/luer.php](http://www.instechlabs.com/Infusion/tubing/luer.php)



## Couplers & Plugs



Use couplers to connect catheters to external infusion tubing. Use a plug to seal off an externalized catheter before an infusion experiment begins.

These are made of medical grade stainless steel and deburred to prevent damage to tubing. Non-sterile; can be sterilized on request.

Part No.	Type	Size	Length	Unit
SC17/15	Coupler	17ga	15mm	pkg of 100
SC20/15	Coupler	20ga	15mm	pkg of 100
SC22/15	Coupler	22ga	15mm	pkg of 100
SC22/8	Coupler	22ga	8mm	pkg of 100
SC23/8	Coupler	23ga	8mm	pkg of 100
SC25/10	Coupler	25ga	10mm	pkg of 100
SC27/8	Coupler	27ga	8mm	pkg of 100
SP20/12	Plug	20ga	12mm	pkg of 100
SP22/12	Plug	22ga	12mm	pkg of 100
SP23/12	Plug	23ga	12mm	pkg of 100
SP25/12	Plug	25ga	12mm	pkg of 100

[www.instechlabs.com/Infusion/tubing/connectors.php](http://www.instechlabs.com/Infusion/tubing/connectors.php)

## Right Angle Coupler



These 22ga couplers are bent to a right angle; one side is approximately 11mm; the other 5mm. Provided with a sealed segment of tubing to close off one end.

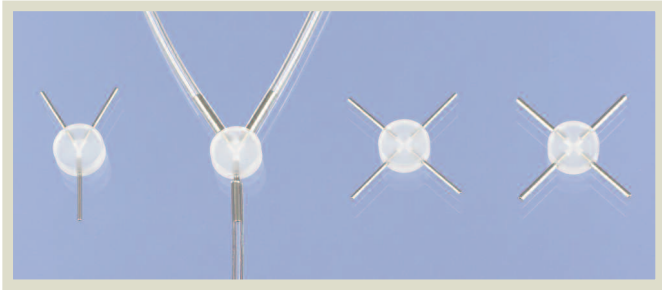
Part No.	Description	Unit
SC22/15RA	Right angle couplers, 22ga, sterile	ea

[www.instechlabs.com/Infusion/tubing/ra.php](http://www.instechlabs.com/Infusion/tubing/ra.php)

# TUBING CONNECTORS

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## 3-Way and 4-Way Connectors



Commonly used in glucose clamp studies, Instech's 3- and 4-way tubing connectors feature stainless steel tubes and a hub made of PCTFE, a chemically resistant plastic. Tubes extend approximately 6mm from the hub. Dead volume from one channel to the next is less than 3 $\mu$ l.

Part No.	Type	Tubing Size	Unit
SCY22	3-way	22ga	ea
SCY25	3-way	25ga	ea
SCX22	4-way	22ga	ea
SCX25	4-way	25ga	ea

Individually packaged and EtO sterilized

[www.instechlabs.com/Infusion/tubing/y.php](http://www.instechlabs.com/Infusion/tubing/y.php)

# TUBING REFERENCE CHART

## GAUGE

For swivels, needles, connectors, ports and cannulae

Gauge	OD (in)	OD (mm)	ID (in)	ID (mm)	Volume (µl/cm)
15TW	0.072	1.83	0.061	1.55	18.9
15	0.072	1.83	0.054	1.37	14.8
16TW	0.065	1.65	0.054	1.37	14.8
16	0.065	1.65	0.047	1.19	11.1
17TW	0.058	1.47	0.048	1.22	11.7
17	0.058	1.47	0.042	1.07	8.99
18TW	0.050	1.27	0.039	0.99	7.70
18	0.050	1.27	0.033	0.84	5.54
19TW	0.042	1.07	0.033	0.84	5.54
19	0.042	1.07	0.027	0.69	3.74
20TW	0.036	0.91	0.026	0.66	3.42
20	0.036	0.91	0.024	0.61	2.92
21TW	0.032	0.81	0.023	0.58	2.64
21	0.032	0.81	0.020	0.51	2.04
22TW	0.028	0.71	0.020	0.51	2.04
22	0.028	0.71	0.016	0.41	1.32
22Q	0.028	0.71	0.006	0.15	0.18
23TW	0.025	0.64	0.017	0.43	1.45
23	0.025	0.64	0.013	0.33	0.86
24TW	0.022	0.56	0.015	0.38	1.13
24	0.022	0.56	0.012	0.30	0.71
25TW	0.020	0.51	0.012	0.30	0.71
25	0.020	0.51	0.010	0.25	0.49
26	0.018	0.46	0.010	0.25	0.49
27	0.016	0.41	0.008	0.20	0.31
28	0.014	0.36	0.007	0.18	0.25
29	0.013	0.33	0.007	0.18	0.25
30	0.012	0.30	0.006	0.15	0.18
31	0.010	0.26	0.005	0.13	0.12
32	0.009	0.24	0.004	0.10	0.08

TW=thin wall, Q=quartz-lined swivel channel

## FRENCH

French scale defines catheter OD (3Fr = 1mm)

French	OD (in)	OD (mm)
1Fr	0.013	0.33
2Fr	0.026	0.67
3Fr	0.039	1.00
4Fr	0.053	1.33
5Fr	0.066	1.67
6Fr	0.079	2.00
7Fr	0.092	2.33

## POLYURETHANE (PU)

pages 54, 61, 62

	OD (in)	OD (mm)	ID (in)	ID (mm)	Volume (µl/cm)
BTPU-009 (32ga)	0.009	0.23	0.005	0.13	0.13
BTPU-014 (1Fr)	0.014	0.36	0.007	0.18	0.3
BTPU-027 (2Fr)	0.027	0.69	0.017	0.43	1.5
BTPU-040 (3Fr)	0.040	1.01	0.025	0.64	3.2
VAHBPU-T25	0.037	0.94	0.017	0.43	1.5
VAHBPU-T22	0.055	1.40	0.024	0.61	2.9

## SILICONE (SIL)

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	OD (in)	OD (mm)	ID (in)	ID (mm)	Volume (µl/cm)
BTSIL-025 (2Fr)	0.025	0.64	0.012	0.30	0.7
BTSIL-037 (3Fr)	0.037	0.94	0.020	0.51	2.0
BTSIL-047 (3.5Fr)	0.047	1.19	0.025	0.64	3.2
BTSIL-065 (5Fr)	0.065	1.65	0.030	0.76	4.5
BTSIL-085 (7Fr)	0.085	2.16	0.040	1.02	8.2

## POLYETHYLENE (PE)

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	OD (in)	OD (mm)	ID (in)	ID (mm)	Volume (µl/cm)
BTPE-10	0.024	0.61	0.011	0.28	0.6
BTPE-20	0.043	1.09	0.015	0.38	1.1
BTPE-25	0.036	0.91	0.018	0.46	1.7
BTPE-50	0.038	0.97	0.023	0.58	2.6
BTPE-60	0.048	1.22	0.030	0.76	4.5
BTPE-90	0.050	1.27	0.034	0.86	5.8

## CO-EXTRUDED PE/PVC

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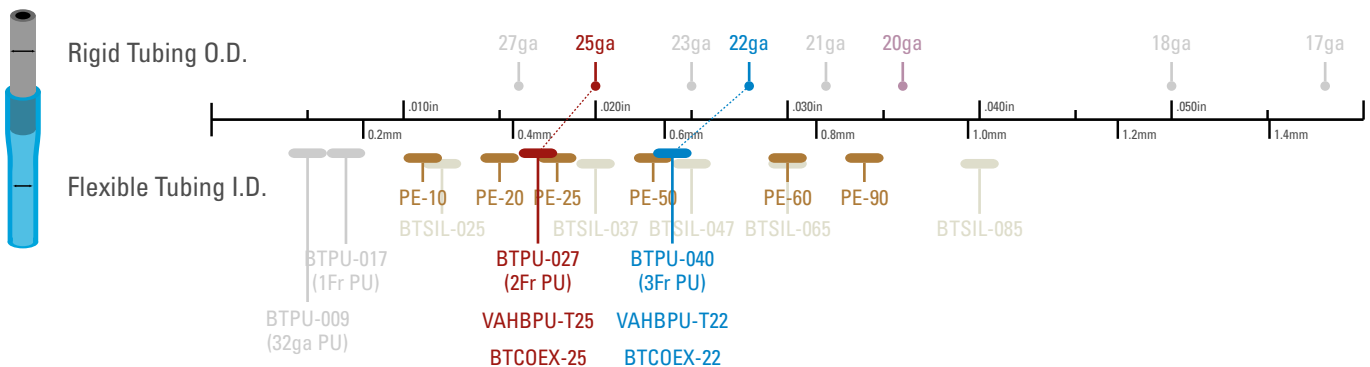
	OD (in)	OD (mm)	ID (in)	ID (mm)	Volume (µl/cm)
BTCOEX-25	0.051	1.30	0.017	0.43	1.5
BTCOEX-22	0.064	1.60	0.024	0.61	2.9

## FEP

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	OD (in)	OD (mm)	ID (in)	ID (mm)	Volume (µl/cm)
BFEP-T22Q	0.028	0.71	0.006	0.15	0.18

## GUIDE TO TUBING FIT



Values are approximate; in particular IDs and ODs of extruded tubing can vary by  $\pm 0.002$ in (.05mm) from nominal values. If dead volume is critical measure it directly by comparing weights of filled and empty samples.