

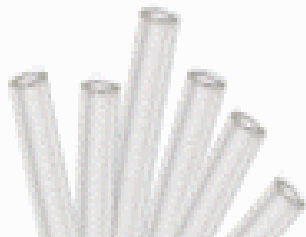
Chromatography Tubing

Polymeric

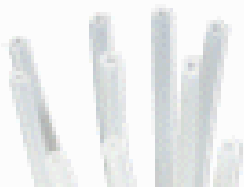
High Pressure Braided
Polyurethane/Nylon Tubing



High Pressure Braided
Polyurethane/Nylon Tubing



C-Flex® Tubing
Class VI

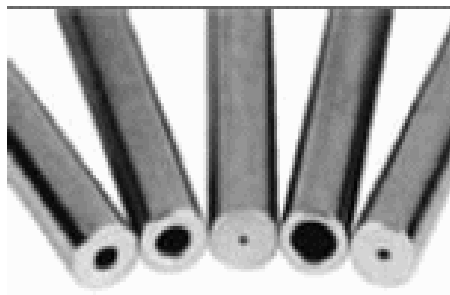


Platinum Cured Silicone Tubing
Class VI
Peroxide Cured Silicone Tubing
Class VI



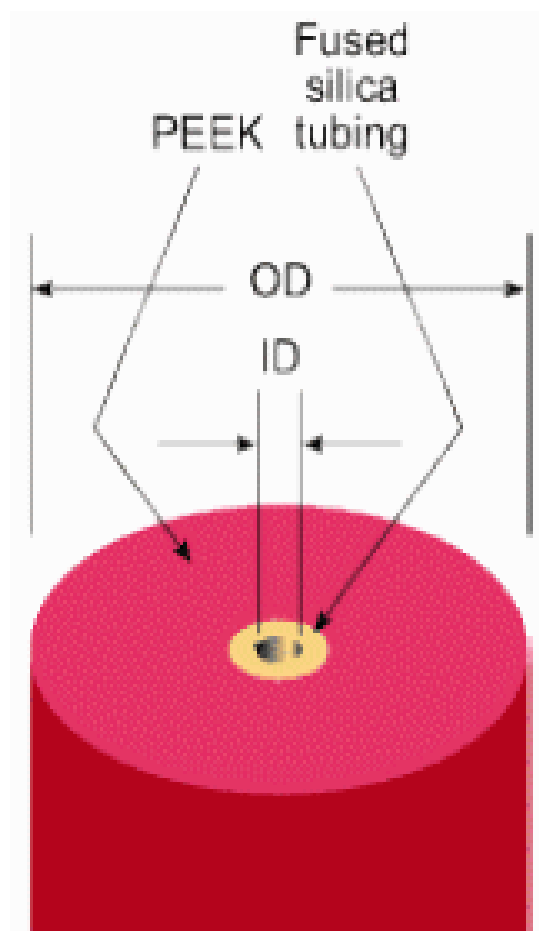
PEEK, PTFE, PFA, FEP, ETFE

Metal Tubing



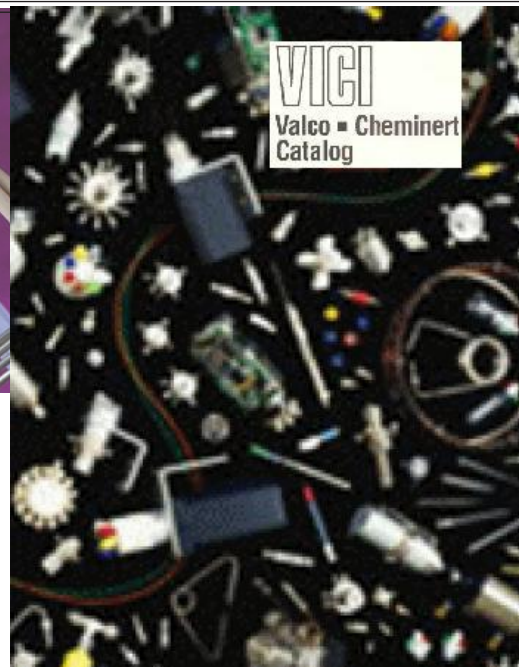
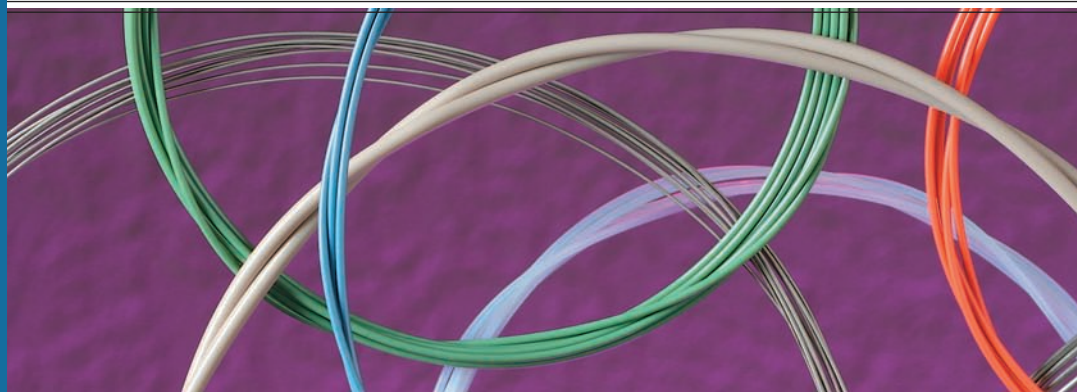
SS & Silcosteel

Fused Silica



GC Capillary
Columns





Tubing

We offer chromatography grade tubing in ODs of 360 μm , 1/32", 1/16", and 1/8". Tubing can be ordered in economical pre-cut standard lengths, or can be custom cut to meet your specific instrumentation requirements. All VICI metal tubing is chromatographic grade seamless drawn tubing of the highest available quality. Stainless tubing is 316 series.

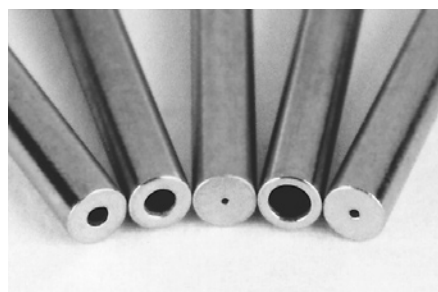
Cutting and Cleaning

The improper cutting and cleaning of metal tubing is the largest single cause of chromatographic problems and premature valve failure. The use of our precision cut and finished tubing with VICI fittings and valves maintains the flow uniformity and cleanliness that high performance systems require.

VICI's electrolytic cutting process yields polished tubing with flat ends, minimizing the potential for dead volumes or leaks caused by the uneven ends and burrs left by the tools common in the general laboratory environment – wire cutters, files, jewelers' saws, and most tubing

cutters. These non-precision cutters are likely to generate particulates and deform inner and outer diameters, which can introduce dead volume and flow anomalies.

Each piece of VICI pre-cut metal tubing is specially cleaned with micro-filtered steam from deionized water to remove both organic and inorganic contaminants, representing a major improvement over the common practice of using organic solvents to "clean" tubing. Our test reports have been confirmed by most of the major instrument suppliers: the VICI process provides analytically clean tubing.



Electrolytically cut and polished



File cut



Plier cut

TECH TIP

Forty years of Valco experience show that the particles left in poorly cut tubing are the number one cause of valve damage.

TECH TIP

For optimal zero dead volume connections, make sure your tubing meets the best industry standards—OD tolerance should be nominal dimension $\pm .002$ ".

Fractional dimension	Nominal dimension
1/32"	.031
1/16"	.062
1/8"	.125
1/4"	.250
3/8"	.375
1/2"	.500

CHROMalytic TECHnology Pty Ltd AUSTRALIAN Distributors e-mail: sales@chromtech.net.au Tel: 03 9762 2034

Electroformed Nickel Tubing



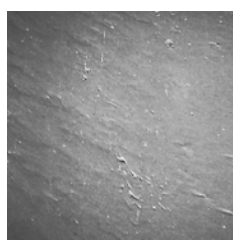
1/16" OD x .040" ID
1/32" OD x .004" ID
360 µm OD x .001" ID

Three sizes of electroformed nickel tubing

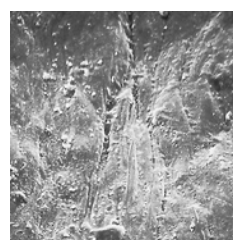
Our microbore EFNi tubing is made by electroplating nickel over a diamond-drawn mandrel in a continuous process. When the mandrel is removed, an internal surface with a mirror-like 1-2 microinch finish remains. The ductile nature of nickel allows the tubing to be easily manipulated. Unlike glass- or silica-lined stainless, EFNi can accept tight bends and cutting without heating, and does not release damaging glass fragments or silica particles.

A comparison of the interiors of commonly used tubing (below) shows the quality of the electroformed nickel tubing surface. (All photos are x500 magnification.) The rough interior surface of the mill-drawn Nickel 200 tubing has potential for carryover or cross contamination, and both the Nickel 200 and the stainless steel contain pits, voids, striations, and particles – problems which intensify as the ID decreases.

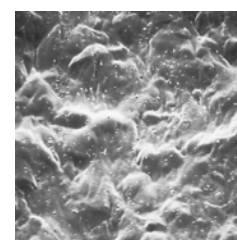
Custom IDs/ODs are available upon request.



Electroformed nickel (EFNi)



Nickel 200 alloy



Type 316 stainless steel

PRICING PER FOOT

For pricing purposes, the length is rounded up to the next foot. For example, a 5" piece is charged as one foot; an 18" piece as two feet. The price per foot is based on the length of each piece, not the total quantity ordered. Cutting and cleaning charges are included in the price per foot for EFNi tubing.

0.05 mm = .002"
0.10 mm = .004"
0.12 mm = .005"

0.25 mm = .010"
0.50 mm = .020"
0.75 mm = .030"

1.0 mm = .040"
1.5 mm = .060"
2.0 mm = .080"

4.6 mm = .180"
6.0 mm = .236"
6.4 mm = .253"

7.0 mm = .275"
10.0 mm = .400"

27.0 mm = 1.08"

1/32" = 0.8 mm
1/16" = 1.6 mm
1/8" = 3.2 mm

1/4" = 6.4 mm
3/8" = 9.5 mm
1/2" = 12.7 mm

360 µm OD EFNi tubing

Custom lengths

Prices are per foot. See pricing note in box at left.

Tubing ID	Prod No	Max length	1-9 feet	10-24 feet	25-50 feet
.001"	TEFNI.101	1 foot			
.002"	TEFNI.102	2 feet			
.004"	TEFNI.104	20 feet			
.005"	TEFNI.105	30 feet			
.007"	TEFNI.110	50 feet			

1/32" OD EFNi tubing

Custom lengths

Prices are per foot. See pricing note in box at left.

Tubing ID	Prod No	Max length	1-9 feet	10-24 feet	25-50 feet
.002"	TEFNI.502	2 feet			
.004"	TEFNI.504	20 feet			
.005"	TEFNI.505	30 feet			
.007"	TEFNI.507	50 feet			
.010"	TEFNI.510	50 feet			
.012"	TEFNI.512	50 feet			
.015"	TEFNI.515	50 feet			
.020"	TEFNI.520	50 feet			

1/16" OD EFNi tubing

Custom lengths

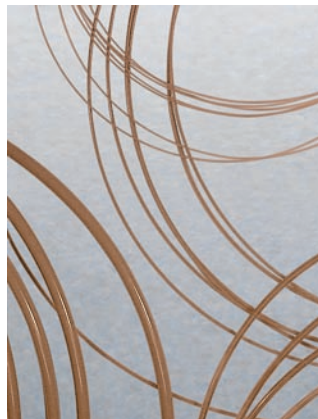
Prices are per foot. See pricing note in box at left.

Tubing ID	Prod No	Max length	1-9 feet	10-24 feet	25-50 feet
.020"	TEFNI120	50 feet			
.030"	TEFNI130	50 feet			
.040"	TEFNI140	50 feet			

PEEK Tubing – Natural

PEEK tubing has the strength required to withstand continuous use at HPLC pressure without swelling or bursting, and is not affected by halide salts, high strength buffers, or other aggressive mobile phases that corrode stainless steel. The polymer surface will not leach metal ions into the eluent or extract metal-sensitive components from the sample. Note however that dichloromethane, THF, and DMSO may cause swelling in PEEK, and concentrated nitric and sulphuric acid will attack PEEK.

OD and ID tolerances for our PEEK tubing are $\pm .0005''$ for 360 micron and 1/32" tubing; $\pm .0005''$ for 1/16" tubing with ID up to .010" and $\pm .001''$ for IDs above .010"; and $\pm .003''$ for 1/8".



360 µm PEEK tubing

Custom lengths

Custom-length 360 µm PEEK tubing is square-cut and ready to use. Specify the length required, in inches or feet. For pricing of custom length tubing, the length is rounded up to the next foot. For example, a 5" piece is charged as one foot; an 18" piece as two feet.

	.002" ID		.004" ID		.005" ID		.006" ID	
	Prod No	Price/ft	Prod No	Price/ft	Prod No	Price/ft	Prod No	Price/ft
Priced per foot	TPK.102		TPK.104		TPK.105		TPK.106	

1/32" OD PEEK tubing

Length	.0025" ID		.005" ID	.010" ID	.015" ID
	Prod No	Price	Prod No	Prod No	Prod No
10 feet	TPK.502-10FT		TPK.505-10FT	TPK.510-10FT	TPK.515-10FT
25 feet	TPK.502-25FT		TPK.505-25FT	TPK.510-25FT	TPK.515-25FT
100 feet	TPK.502-100FT		TPK.505-100FT	TPK.510-100FT	TPK.515-100FT

1/16" OD PEEK tubing

Length	.006" ID		.010" ID	.020" ID	.030" ID
	Prod No	Price	Prod No	Prod No	Prod No
10 feet	TPK106-10FT		TPK110-10FT	TPK120-10FT	TPK130-10FT
25 feet	TPK106-25FT		TPK110-25FT	TPK120-25FT	TPK130-25FT
100 feet	TPK106-100FT		TPK110-100FT	TPK120-100FT	TPK130-100FT

1/8" OD PEEK tubing

Length	.060" ID	
	Prod No	Price
10 feet	TPK260-10FT	
25 feet	TPK260-25FT	
100 feet	TPK260-100FT	

MORE INFORMATION

Polymeric tubing
 PTFE page 90
 FEP 90
 ETFE 90

CUSTOM PEEK TUBING

We offer PEEK tubing custom-manufactured to meet your specific OD, ID, and color requirements. The OD range is .014" (360 micron) to 1/8" with a minimum ID of .002" for tubing up to 1/16" OD. (Maximum ID varies according to the OD.) Color coding can be solid or striped.

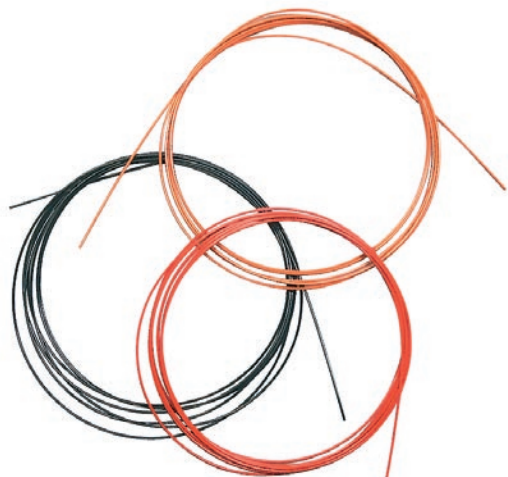
PEEK TUBING ELBOWS

Tubing elbows (90° and 180°) are ideal for routing 1/16" PEEK tubing through an LC system. These elbows are proportioned to bend PEEK tubing at the optimum radius for maximum chemical resistance and burst pressure. Installation is simple – just snap the tubing into the elbow.

Package of 5:	Prod No
90° elbow	JR-357090-5
180° elbow	JR-357180-5



PEEK Tubing – Color-coded



Color-coded tubing helps you identify the ID of your PEEK tubing – each ID is coded with a different color. Use this tubing where maximum chemical resistance and biocompatibility are required.

NEW 1/16" OD dual layer color-coded PEEK tubing *Custom lengths*

Our dual layer PEEK tubing eliminates any concern that a critical sample stream could be contaminated by pigments used to color code the tubing. It looks like any other color-coded tubing at first glance, but a closer look reveals that the pigmented layer* surrounds a separate but integrally-bonded inner layer of natural PEEK.

Tubing ID	Color	bar	psi	Prod No	Price per foot
.004"	Black	460	6700	JR-TD-5804	
.005"	Red	420	6100	JR-TD-6007	
.007"	Yellow	400	5800	JR-TD-6008	
.010"	Blue	386	5600	JR-TD-6009	
.020"	Orange	350	4500	JR-TD-6010	
.030"	Green	240	3500	JR-TD-6011	



1/16" OD striped color-coded PEEK tubing *Custom lengths*

A stripe* is added to the outside, so dye never contacts the fluid stream.

Specify the length required, in inches or feet. For pricing custom tubing, the length is rounded up to the next foot. For example, a 5" piece is charged as one foot; an 18" piece as two feet.

Tubing ID	Color	bar	psi	Prod No	Price per foot
.004"	Black	460	6700	JR-T-5804	
.005"	Red	420	6100	JR-T-5999	
.007"	Yellow	400	5800	JR-T-6000	
.010"	Blue	386	5600	JR-T-6001	
.020"	Orange	350	4500	JR-T-6002	
.030"	Green	240	3500	JR-T-6003	
.040"	Grey	165	2400	JR-T-60031	

10 ft = 3.05 m
25 ft = 7.62 m
100 ft = 30.48 m

50 µm = .002"
100 µm = .004"
125µm = .005"
150 µm = .006"
0.25 mm = .010"
0.50 mm = .020"
0.75 mm = .030"
1.0 mm = .040"
1.5 mm = .060"
2.0 mm = .080"
4.6 mm = .180"
6.0 mm = .236"
6.4 mm = .253"
7.0 mm = .275"
10.0 mm = .400"
27.0 mm = 1.08"
1/32" = 0.8 mm
1/16" = 1.6 mm
1/8" = 3.2 mm
1/4" = 6.4 mm
3/8" = 9.5 mm
1/2" = 12.7 mm

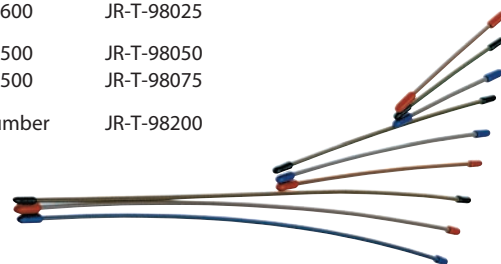
1/16" OD striped color-coded PEEK tubing *Pre-cut kits*

A stripe* is added to the outside, so dye never contacts the fluid stream.

Includes 15 pieces of tubing; 5 each of 5 cm, 10 cm, and 20 cm pre-cut lengths.

Tubing ID	Color	bar	psi	Prod No	Price
.005"	Red	420	6100	JR-T-98013	
.007"	Yellow	400	5800	JR-T-98017	
.010"	Blue	386	5600	JR-T-98025	
.020"	Orange	350	4500	JR-T-98050	
.030"	Green	240	3500	JR-T-98075	

Super kit, one of each above product number (75 pieces total) JR-T-98200



*All colorants used in the manufacture of this tubing are RoHS-compliant (Reduction of Hazardous Substances)

Polymeric Tubing

Polymeric tubing is square cut and ready to use. Each package of polymeric tubing contains one piece of the specified length.

See also PEEK tubing, pages 88-89.



1/16" OD polymeric tubing

	.006" ID		.010" ID		.015" ID		.020" ID		.030" ID	
	<i>Prod No</i>	<i>Price</i>	<i>Prod No</i>	<i>Price</i>	<i>Prod No</i>	<i>Price</i>	<i>Prod No</i>	<i>Price</i>	<i>Prod No</i>	<i>Price</i>
PTFE										
10 feet	TTF106-10FT		TTF110-10FT	\$15	TTF115-10FT		TTF120-10FT		TTF130-10FT	
25 feet	TTF106-25FT		TTF110-25FT	35	TTF115-25FT		TTF120-25FT		TTF130-25FT	
100 feet	TTF106-100FT		TTF110-100FT	130	TTF115-100FT		TTF120-100FT		TTF130-100FT	
FEP										
10 feet	-		TFEP110-10FT	16	-		TFEP120-10FT		TFEP130-10FT	
25 feet	-		TFEP110-25FT	39	-		TFEP120-25FT		TFEP130-25FT	
100 feet	-		TFEP110-100FT	156	-		TFEP120-100FT		TFEP130-100FT	
ETFE										
10 feet	-		TTZ110-10FT	25	-		TTZ120-10FT		TTZ130-10FT	
25 feet	-		TTZ110-25FT	57	-		TTZ120-25FT		TTZ130-25FT	
100 feet	-		TTZ110-100FT	210	-		TTZ120-100FT		TTZ130-100FT	

1/8" OD polymeric tubing

	.030" ID		.060" ID		.085" ID	
	<i>Prod No</i>	<i>Price</i>	<i>Prod No</i>	<i>Price</i>	<i>Prod No</i>	<i>Price</i>
PTFE						
10 feet	TTF230-10FT		TTF260-10FT		TTF285-10FT	
25 feet	TTF230-25FT		TTF260-25FT		TTF285-25FT	
100 feet	TTF230-100FT		TTF260-100FT		TTF285-100FT	
FEP						
10 feet	-		TFEP260-10FT		-	
25 feet	-		TFEP260-25FT		-	
100 feet	-		TFEP260-100FT		-	
ETFE						
10 feet	-		TTZ260-10FT		-	
25 feet	-		TTZ260-25FT		-	
100 feet	-		TTZ260-100FT		-	

- Not available

MORE INFORMATION

PEEK tubing
 Natural page 88
 Color-coded 89
 Striped 89

TUBING POLYMERS

PTFE Inert; very soft, easily cold flows. Produced as Teflon®

FEP Chemically resistant like PTFE, but lower creep and higher friction. More transparent than PTFE.

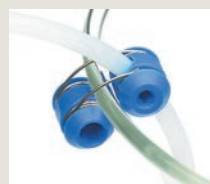
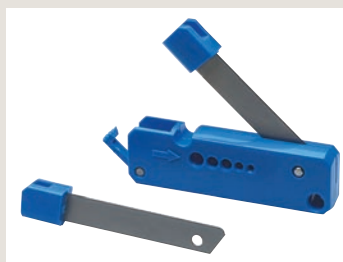
ETFE Resistant to most chemical attack; some chlorinated solvents will cause tubing to swell. Produced as Tefzel®

CLEAN-CUT POLYMER TUBING CUTTER

For leak-free tubing connections in an LC system, right angles and clean cuts are essential. The Clean-Cut makes burr-free perpendicular cuts on polymeric tubing without distorting the outside diameter or closing the inside diameter. The handy pocket-sized tool features a unique safety locking mechanism to secure the blade when not in use.

Prod No

Clean-Cut tubing cutter JR-797
 Replacement blade JR-798



TUBING CLIP – THE LC TUBING ORGANIZER

The tubing clip holds 1/16" and 1/8" polymer tubing precisely where you want them in your beakers, flasks, bottles, etc. up to 4 mm wall thickness. The stainless steel spring ensures a long lifetime.

Package of 5: *Prod No*
 Tubing clip JR-9001-5

10 ft = 3.05 m
 25 ft = 7.62 m
 100 ft = 30.48 m

Metal Tubing – Custom Lengths

Metal tubing is electrolytically cut and deburred, and steam cleaned. Specify the length required, in inches or feet. For pricing of custom length tubing, the length is rounded up to the next foot. For example, a 5" piece is charged as one foot; an 18" piece as two feet. Add \$2 cutting/cleaning charge for each length.

316 stainless

Custom lengths

Tubing ID	1/32" OD		1/16" OD		1/8" OD
	Prod No	Price/ft	Prod No	Price/ft	Prod No
.005"	TSS.505		TSS105		-
.007"	TSS.507		-		-
.010"	TSS.510		TSS110		-
.015"	-		TSS115		-
.020"	TSS.520		TSS120		-
.026"	-		TSS126		-
.030"	-		TSS130		TSS230
.040"	-		TSS140		TSS240
.060"	-		-		TSS260
.070"	-		-		TSS267
.085"	-		-		TSS285

Nickel 200

Custom lengths

Tubing ID	1/32" OD		1/16" OD		1/8" OD
	Prod No		Prod No		Prod No
.005"	-		TNI105		-
.010"	TNI.510		-		-
.020"	TNI.520		TNI120		-
.030"	-		TNI130		-
.040"	-		TNI140		-
.085"	-		-		TNI285

Hastelloy C

Custom lengths

Tubing ID	1/32" OD		1/16" OD		1/8" OD
	Prod No		Prod No		Prod No
.030"	-		THC130		-
.070"	-		-		THC270

Inconel 600

Custom lengths

Tubing ID	1/32" OD		1/16" OD		1/8" OD
	Prod No		Prod No		Prod No
.061"	-		-		TINCO261
.082"	-		-		TINCO282

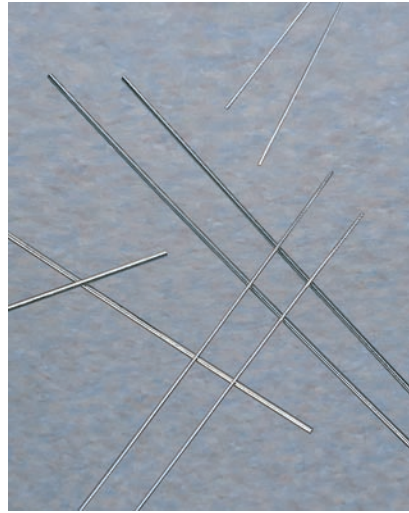
- Not normally available

- 50 µm = .002"
- 100 µm = .004"
- 125µm = .005"
- 150 µm = .006"
- 0.25 mm = .010"
- 0.50 mm = .020"
- 0.75 mm = .030"
- 1.0 mm = .040"
- 1.5 mm = .060"
- 2.0 mm = .080"
- 4.6 mm = .180"
- 6.0 mm = .236"
- 6.4 mm = .253"
- 7.0 mm = .275"
- 10.0 mm = .400"
- 27.0 mm = 1.08"
- 1/32" = 0.8 mm
- 1/16" = 1.6 mm
- 1/8" = 3.2 mm
- 1/4" = 6.4 mm
- 3/8" = 9.5 mm
- 1/2" = 12.7 mm

Stainless Steel Tubing – Pre-cut Lengths

These packages of pre-cut Type 316 stainless tubing provide an economical solution to the problems that are caused by “seat-of-the-pants” cutting in the lab or field. They are priced to give a savings over the \$2 per cut charge for custom-cut tubing.

All tubing is electrolytically cut and specially steam-cleaned with micro-filtered steam from deionized water, which removes both organic and inorganic contaminants.



1/32" OD stainless tubing

Pre-cut lengths

Length	.005" ID Prod No	.010" ID Prod No	.020" ID Prod No
<i>2 pieces per package</i>			
5 cm	T5N5D	T5N10D	T5N20D
10 cm	T10N5D	T10N10D	T10N20D
20 cm	T20N5D	T20N10D	T20N20D
30 cm	T30N5D	T30N10D	T30N20D
50 cm	T50N5D	T50N10D	T50N20D
100 cm	-	T100N10D	T100N20D
<i>10 pieces per package</i>			
5 cm	T5N5-10	T5N10-10	T5N20-10
10 cm	T10N5-10	T10N10-10	T10N20-10
20 cm	T20N5-10	T20N10-10	T20N20-10
30 cm	T30N5-10	T30N10-10	T30N20-10
50 cm	T50N5-10	T50N10-10	T50N20-10
100 cm	-	T100N10-10	T100N20-10
<i>50 pieces per package</i>			
5 cm	T5N5-50	T5N10-50	T5N20-50
10 cm	T10N5-50	T10N10-50	T10N20-50
20 cm	T20N5-50	T20N10-50	T20N20-50
30 cm	T30N5-50	T30N10-50	T30N20-50
50 cm	T50N5-50	T50N10-50	T50N20-50
100 cm	-	T100N10-50	T100N20-50
<i>100 pieces per package</i>			
5 cm	T5N5-100	T5N10-100	T5N20-100
10 cm	T10N5-100	T10N10-100	T10N20-100
20 cm	T20N5-100	T20N10-100	T20N20-100
30 cm	T30N5-100	T30N10-100	T30N20-100
50 cm	T50N5-100	T50N10-100	T50N20-100
100 cm	-	T100N10-100	T100N20-100

TECH TIP

Forty years of Valco experience show that the particles left in poorly cut tubing are the number one cause of valve damage.

5 cm	=	1.97"
10 cm	=	3.94"
20 cm	=	7.87"
30 cm	=	11.82"
50 cm	=	19.68"
100 cm	=	39.37"
0.12 mm	=	.005"
0.25 mm	=	.010"
0.50 mm	=	.020"
0.75 mm	=	.030"
1.0 mm	=	.040"
1.5 mm	=	.060"
2.0 mm	=	.080"
4.6 mm	=	.180"
6.0 mm	=	.236"
6.4 mm	=	.253"
7.0 mm	=	.275"
10.0 mm	=	.400"
27.0 mm	=	1.08"
1/32"	=	0.8 mm
1/16"	=	1.6 mm
1/8"	=	3.2 mm
1/4"	=	6.4 mm
3/8"	=	9.5 mm
1/2"	=	12.7 mm

Stainless Steel Tubing – Pre-Cut Lengths

1/16" OD stainless tubing

Pre-cut lengths

Length	.005" ID		.010" ID		.020" ID		.030" ID		.040" ID	
	Prod No	Prod No	Prod No	Prod No	Prod No	Prod No	Prod No	Prod No	Prod No	Prod No
<i>2 pieces per package</i>										
5 cm	T5C5D	T5C10D	T5C20D	T5C30D	T5C40D					
10 cm	T10C5D	T10C10D	T10C20D	T10C30D	T10C40D					
20 cm	T20C5D	T20C10D	T20C20D	T20C30D	T20C40D					
30 cm	T30C5D	T30C10D	T30C20D	T30C30D	T30C40D					
50 cm	T50C5D	T50C10D	T50C20D	T50C30D	T50C40D					
100 cm	–	T100C10D	T100C20D	T100C30D	T100C40D					
<i>10 pieces per package</i>										
5 cm	T5C5-10	T5C10-10	T5C20-10	T5C30-10	T5C40-10					
10 cm	T10C5-10	T10C10-10	T10C20-10	T10C30-10	T10C40-10					
20 cm	T20C5-10	T20C10-10	T20C20-10	T20C30-10	T20C40-10					
30 cm	T30C5-10	T30C10-10	T30C20-10	T30C30-10	T30C40-10					
50 cm	T50C5-10	T50C10-10	T50C20-10	T50C30-10	T50C40-10					
100 cm	–	T100C10-10	T100C20-10	T100C30-10	T100C40-10					
<i>50 pieces per package</i>										
5 cm	T5C5-50	T5C10-50	T5C20-50	T5C30-50	T5C40-50					
10 cm	T10C5-50	T10C10-50	T10C20-50	T10C30-50	T10C40-50					
20 cm	T20C5-50	T20C10-50	T20C20-50	T20C30-50	T20C40-50					
30 cm	T30C5-50	T30C10-50	T30C20-50	T30C30-50	T30C40-50					
50 cm	T50C5-50	T50C10-50	T50C20-50	T50C30-50	T50C40-50					
100 cm	–	T100C10-50	T100C20-50	T100C30-50	T100C40-50					
<i>100 pieces per package</i>										
5 cm	T5C5-100	T5C10-100	T5C20-100	T5C30-100	T5C40-100					
10 cm	T10C5-100	T10C10-100	T10C20-100	T10C30-100	T10C40-100					
20 cm	T20C5-100	T20C10-100	T20C20-100	T20C30-100	T20C40-100					
30 cm	T30C5-100	T30C10-100	T30C20-100	T30C30-100	T30C40-100					
50 cm	T50C5-100	T50C10-100	T50C20-100	T50C30-100	T50C40-100					
100 cm	–	T100C10-100	T100C20-100	T100C30-100	T100C40-100					

VOLUME CHART

Tubing ID	Volume		Tubing ID	Volume	
	µl/cm	µl/in		µl/cm	µl/in
.005"	0.13	0.32	.030"	4.56	11.58
.010"	0.51	1.29	.040"	8.11	20.59
.015"	1.14	2.90	.060"	18.24	46.33
.020"	2.03	5.15	.070"	24.83	63.06
.025"	3.17	8.04	.085"	36.61	92.99

Typical ID tolerances for our tubing are ±.001". This is much tighter than normal commercial grades of tubing; however, it is enough to result in noticeable error if exact volumes are not measured.



VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
- Stainless steel
- Polymeric

Low pressure fittings

Filters & mobile phase filters

Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

Accessories/miscellaneous

VICI Jour offers an assortment of chromatography grade tubing in 1/32", 1/16", 1/8", and 1/4" ODs, in PEEK, PEEK-clad fused silica, electroformed nickel, stainless, PTFE, and more. You'll also find unique tubing accessories and tools.



CUSTOMER SUPPORT

Tubing

PEEK tubing

PEEKclad-FST™

Premium grade stainless steel tubing

Premium grade stainless steel tubing, pre-cut

Stainless steel tubing

Electroformed nickel tubing

No-Ox tubing

PTFE, PFA, FEP, or ETFE tubing

Thermo-formed polymeric tubing

Knitted PTFE reaction coils

Tools and Accessories

PEEK tubing elbows

Tubing Clip – the LC tubing organizer

Clean Cut polymer tubing cutter

Guillotine polymer tubing cutter

Stainless steel tubing cutter

Stainless steel tubing pliers

Easy-Flange and Easy-Flange Combi Kits

Disclaimer

The maximum holding pressure for any type of connection involving tubing and a ferrule varies considerably with the tubing material, the ferrule material, the clearance between tubing OD and ferrule ID, and the shape of the fitting detail.

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VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

- Tubing for chromatography
- High pressure fittings
 - Nanovolume
 - Stainless steel
 - Polymeric
- Low pressure fittings
- Filters & mobile phase filters
- Mobile phase handling systems
- Frits
- PEEK columns & guard columns
- Sample loops
- Accessories/miscellaneous

CUSTOMER SUPPORT

Premium Grade Stainless Steel Tubing

- Premium grade SS316 – seamless
- Variety of sizes for HPLC and GC applications
- Smooth internal surface
- Soft annealed OD for easy ferrule connections



Tolerances: OD: ± 0.05 mm (.002"); ID: ± 0.025 mm (.001")

Pressure rating:

1/16" OD tubing: min 365 bar (5300 psi)

1/8" OD tubing: min 315 bar (4600 psi)

OD	ID (mm)	Qty/pkg	Product No.
1/32"	0.13	3 m	JR-TSS.505M3
		10 m	JR-TSS.505M10
	0.18	3 m	JR-TSS.507M3
		10 m	JR-TSS.507M10
	0.25	3 m	JR-TSS.510M3
		10 m	JR-TSS.510M10
0.50	3 m	JR-TSS.520M3	
	10 m	JR-TSS.520M10	
1/16"	0.13	3 m	JR-TSS105M3
		10 m	JR-TSS105M10
	0.25	3 m	JR-TSS110M3
		10 m	JR-TSS110M10
	0.38	3 m	JR-TSS115M3
		10 m	JR-TSS115M10

	0.50	3 m	JR-TSS120M3
		10 m	JR-TSS120M10
	0.75	3 m	JR-TSS130M3
		10 m	JR-TSS130M10
	1.00	3 m	JR-TSS140M3
		10 m	JR-TSS140M10
1/8"	0.75	3 m	JR-TSS230M3
		10 m	JR-TSS230M10
	1.00	3 m	JR-TSS240M3
		10 m	JR-TSS240M10
	1.52	3 m	JR-TSS260M3
		10 m	JR-TSS260M10
	1.78	3 m	JR-TSS267M3
		10 m	JR-TSS267M10
	2.16	3 m	JR-TSS285M3
		10 m	JR-TSS285M10

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VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
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Low pressure fittings

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Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

Accessories/miscellaneous

CUSTOMER SUPPORT

PTFE Tubing

- Low and mid pressure applications
- Biocompatible

PTFE tubing (PolyTetraFluoroEthylene) is chemically inert and suitable for lower pressure applications. Typically 1/16" OD tubing holds up to 62 bar (900 psi) and 1/8" up to 35 bar (500 psi).

For easy identification of the ID and to differentiate the transfer lines, PTFE tubing is available in a color-coded version. We also offer black PTFE tubing in a range of IDs for light-sensitive applications for which natural PTFE is too translucent. Such applications include light-sensitive enzymatic reactions, luminescent reactions, connections to the flow cell, and radioactive HPLC.

Product Numbers

Jump to product numbers for:

[Natural PTFE tubing](#)

[Color-coded PTFE tubing](#)

[Black PTFE tubing](#)

Further Reference

[Clean-Cut tubing cutter](#)

PTFE Tubing - Natural

Tolerances:

1/16" OD: ± 0.05 mm (.002"), OD and ID;

1/8" OD: ± 0.10 mm (.004") OD and ID

OD	ID (mm)	bar*	psi*	Qty/pkg	Product No.
1/16"	0.18	62	900	3 m	JR-T-6805-M3
				10 m	JR-T-6805-M10
				25 m	JR-T-6805-M25
	0.25	55	800	3 m	JR-T-4011-M3
				10 m	JR-T-4011-M10

1/4" (6.35 mm)	1.02 mm (0.040")	0.5 µm	8.37 µl	5	JR-.5FR4-5
		2 µm	11.26 µl	5	JR-2FR4-5
		10 µm	12.87 µl	5	JR-10FR4-5
3/8" (9.53 mm)	1.02 mm (0.040")	0.5 µm	18.82 µl	5	JR-.5FR6-5
		2 µm	25.34 µl	5	JR-2FR6-5
		10 µm	28.96 µl	5	JR-10FR6-5
1/2" (12.70 mm)	1.02 mm (0.040")	0.5 µm	33.46 µl	5	JR-.5FR8-5
		2 µm	45.05 µl	5	JR-2FR8-5
		10 µm	51.48 µl	5	JR-10FR8-5
1" (25.40 mm)	1.52 mm (0.060")	2 µm	270.28 µl	5	JR-2FR1K-5
		10 µm	308.89 µl	5	JR-10FR1K-5

Other dimensions and porosities are available on request. Minimum order 100 pieces.

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				25 m	JR-T-4011-M25	
	0.50	50	700	3 m	JR-T-4183-M3	
				10 m	JR-T-4183-M10	
				25 m	JR-T-4183-M25	
	0.75	37	550	3 m	JR-T-4036-M3	
				10 m	JR-T-4036-M10	
				25 m	JR-T-4036-M25	
	1.00	25	350	3 m	JR-T-6807-M3	
				10 m	JR-T-6807-M10	
				25 m	JR-T-6807-M25	
1/8"	1.59	35	500	3 m	JR-T-6800-M3	
					10 m	JR-T-6800-M10
					25 m	JR-T-6800-M25
	2.40	18	250	3 m	JR-T-4037-M3	
					10 m	JR-T-4037-M10
					25 m	JR-T-4037-M25
2.00 mm	1.70	10	150	3 m	JR-T-6801-M3	
					10 m	JR-T-6801-M10
					25 m	JR-T-6801-M25
4.00 mm	3.00	17	250	per m	JR-T-4039	
4.79 mm	3.76	14	200	per m	JR-T-4041	
1/4"	4.75	17	250	per m	JR-T-6810	

*Recommended maximum permanent working pressure.

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PTFE Tubing – Solid color-coded

Tolerances:

1/16" OD: ± 0.05 mm (.002"), OD and ID;

1/8" OD: ± 0.10 mm (.004") OD and ID

OD	ID (mm)	Color	bar*	psi*	Qty/pkg	Product No.
1/16"	0.25	Blue	55	800	3 m	JR-T-4011C-M3
					10 m	JR-T-4011C-M10
					25 m	JR-T-4011C-M25
	0.50	Orange	50	700	3 m	JR-T-4183C-M3
					10 m	JR-T-4183C-M10
					25 m	JR-T-4183C-M25
	0.75	Green	38	550	3 m	JR-T-4036C-M3
					10 m	JR-T-4036C-M10
					25 m	JR-T-4036C-M25

*Recommended maximum permanent working pressure.

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PTFE Tubing – Black

Tolerances:

1/16" OD: ± 0.05 mm (.002"), OD and ID;

1/8" OD: ± 0.10 mm (.004") OD and ID

OD	ID (mm)	bar*	psi*	Qty/pkg	Product No.
1/16"	0.25	55	800	3 m	JR-T-6808-M3
				10 m	JR-T-6808-M10
				25 m	JR-T-6808-M25
	0.50	50	700	3 m	JR-T-6811-M3
				10 m	JR-T-6811-M10
				25 m	JR-T-6811-M25

*Recommended maximum permanent working pressure.

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VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
- Stainless steel
- Polymeric

Low pressure fittings

Filters & mobile phase filters

Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

Accessories/miscellaneous

CUSTOMER SUPPORT

PEEK Tubing

- 1/32", 1/16", 1/8", and 1/4" ODs
- Available premium grade tubing with tighter tolerances
- Easy to cut
- Biocompatible



PEEK tubing has the strength required to withstand continuous use at HPLC pressure without swelling or bursting. The dense polymer structure of VICI Jour PEEK tubing eliminates the permeability to organic solvents that causes other polymer tubing, such as ETFE, to "sweat".

VICI Jour tubing is color coded for easy identification of the ID. We recommend "Striped Color-Coded" tubing. It is manufactured of virgin, natural PEEK and therefore ensures maximum chemical resistance and biocompatibility. The color dye is applied only to the outer surface and thus does not contact the fluid stream. "Solid Color-Coded" tubing, however, is made of pre-dyed raw material.

The new VICI Jour striped premium grade PEEK tubing is the best choice for chromatography applications in which exact flow rates or tube volume are important. The tighter tolerance of ± 0.025 mm ensures a more consistent internal volume of the transfer lines.

PEEK tubing is not affected by halide salts, high strength buffers, or other aggressive mobile phases that degrade stainless steel. The polymer surface will not leach metal ions into the eluent or extract metal sensitive components from the sample. By far the most outstanding property of PEEK tubing is its excellent burst pressure.

PEEK is compatible with almost any of the solvents commonly used in HPLC. However, dichloromethane, THF and DMSO may cause swelling in PEEK. Concentrated nitric and sulphuric acid will attack PEEK.

Product Numbers

Jump to product numbers for:

[Premium grade PEEK tubing – Dash-striped color-coded](#)

[PEEK tubing – Striped color-coded](#)

[PEEK tubing – Solid color-coded](#)

	0.18	Yellow	400	5800	3 m	JR-T-6000-M3
					10 m	JR-T-6000-M10
	0.25	Blue	386	5600	3 m	JR-T-6001-M3
					10 m	JR-T-6001-M10
	0.50	Orange	350	4500	3 m	JR-T-6002-M3
					10 m	JR-T-6002-M10
	0.75	Green	240	3500	3 m	JR-T-6003-M3
					10 m	JR-T-6003-M10
	1.00	Grey	165	2400	3 m	JR-T-60031-M3
					10 m	JR-T-60031-M10
	1.40	Black	52	750	3 m	JR-T-60032-M3
					10 m	JR-T-60032-M10

*Recommended maximum permanent working pressure (measured with ACN/Water 1:1 at room temperature)

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PEEK tubing – Solid color-coded

Max recommended working temp:

<100°C (continuous) for 1/16" OD tubing with ID up to 0.75 mm.

Tolerances: ±0.05 mm (.002"), OD and ID

OD	ID (mm)	Color	bar*	psi*	Qty/pkg	Product No.
1/16"	0.13	Red	420	6100	3 m	JR-T-6007-M3
					10 m	JR-T-6007-M10
	0.18	Yellow	400	5800	3 m	JR-T-6008-M3
					10 m	JR-T-6008-M10
	0.25	Blue	386	5600	3 m	JR-T-6009-M3
					10 m	JR-T-6009-M10
0.50	Orange	350	4500	3 m	JR-T-6010-M3	

Further Reference

- Clean-Cut tubing cutter
- PEEK tubing elbows
- PEEK fingertight fittings

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Premium grade PEEK tubing – Dash-striped color-coded

Max recommended working temp:

<100°C (continuous) for 1/16" OD tubing with ID up to 0.75 mm.

Tolerances: ± 0.025 mm (.001"), OD and ID

OD	ID (mm)	Color	bar*	psi*	Qty/pkg	Product No.
1/16"	0.064	Pink	435	6300	3 m	JR-TP-5998-M3
					10 m	JR-TP-5998-M10
	0.13	Red	420	6100	3 m	JR-TP-5999-M3
					10 m	JR-TP-5999-M10
	0.18	Yellow	400	5800	3 m	JR-TP-6000-M3
					10 m	JR-TP-6000-M10
	0.25	Blue	386	5600	3 m	JR-TP-6001-M3
					10 m	JR-TP-6001-M10

*Recommended maximum permanent working pressure (measured with ACN/Water 1:1 at room temperature)

TOP ▲

PEEK tubing – Striped color-coded

Max recommended working temp:

<100°C (continuous) for 1/16" OD tubing with ID up to 0.75 mm.

Tolerances: ±0.05 mm (.002"), OD and ID

OD	ID (mm)	Color	bar*	psi*	Qty/pkg	Product No.
1/16"	0.13	Red	420	6100	3 m	JR-T-5999-M3
					10 m	JR-T-5999-M10

					10 m	JR-T-6010-M10
	0.75	Green	240	3500	3 m	JR-T-6011-M3
					10 m	JR-T-6011-M10

*Recommended maximum permanent working pressure (measured with ACN/Water 1:1 at room temperature)

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PEEK tubing – Natural

Max recommended working temp:

<100°C (continuous) for 1/16" OD tubing with ID up to 0.75 mm.

Tolerances:

1/16: ±0.05 mm (.002"), OD and ID 1/8: ±0.10 mm (.004"), OD and ID

OD	ID (mm)	bar*	psi*	Qty/pkg	Product No.
0.36 mm	0.13	358	5200	3 m	JR-T-6060-M3
				10 m	JR-T-6060-M10
1/32"	0.13	379	5500	3 m	JR-T-5993-M3
				10 m	JR-T-5993-M10
	0.18	351	5100	3 m	JR-T-5994-M3
				10 m	JR-T-5994-M10
	0.25	310	4500	3 m	JR-T-5995-M3
				10 m	JR-T-5995-M10
1/8"	0.75	345	5000	3 m	JR-T-60041-M3
				10 m	JR-T-60041-M10
	1.59	224	3250	3 m	JR-T-6004-M3
				10 m	JR-T-6004-M10
	2.00	165	2400	3 m	JR-T-60042-M3
				10 m	JR-T-60042-M10
1/4"	3.17	227	3300	per m	JR-T-6006

*Recommended maximum permanent working pressure (measured with ACN/Water 1:1 at room temperature)

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VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
- Stainless steel
- Polymeric

Low pressure fittings

Filters & mobile phase filters

Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

Accessories/miscellaneous

CUSTOMER SUPPORT

PEEKclad-FST™ – PEEK-Clad Fused Silica Tubing

- For zero dead volume connections
- Perfect for capillary LC
- Inert, smooth flow path
- 1/32" or 1/16" OD and 25-300 μm ID

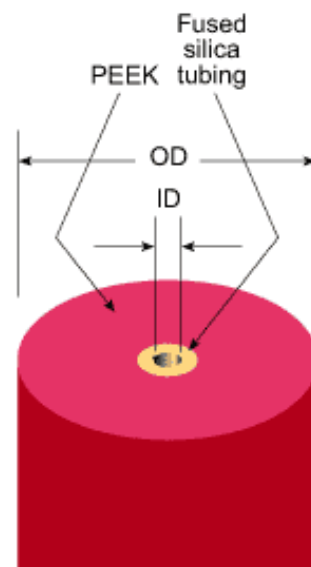
This product combines the inert, smooth inner surface and very precise IDs of fused silica with the flexibility and easy handling of PEEK. Due to its mechanical strength, it can be used with either polymeric or metal ferrules.

The ends are cut perfectly square with sophisticated equipment and polished for zero dead volume connections in capillary LC. In contrast to a polymer sleeve/fused silica connection, there is no possibility of liquid filling the gap between the sleeve and the tubing.

All this may result in a lower carry over or cross contamination between samples, which can lead to improved reproducibility. The smooth inner wall surface gives lower band broadening and therefore higher efficiency and resolution.

PEEKclad™ is compatible with most organic solvents and strong acids (pH 0–10), but not compatible with hydrofluoric acid. In fitting details the PEEK outer surface may be wetted; thus the chemical compatibility of PEEK has to be considered.

PEEK-coated fused silica tubing can be manufactured in different proprietary processes. Trade names are PEEKclad-FST™ by Valco Instruments Co. Inc. and VICI International, and PEEKsil™ by SGE International Pty, Ltd.



Product Numbers

Jump to product numbers for:

[1/32" OD tubing](#)

[1/16" OD tubing](#)

Further Reference

[Nanovolume fittings](#)

[PEEK fingertight fittings](#)

Tech Tip

To ensure zero dead volume connections, special cutting techniques and equipment are required. For this reason, PEEKclad-FST is available only in pre-cut lengths.

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1/32" OD PEEKclad-FST

Tolerances: ID ≤ 50µm: ± 3µm; ID 75-150µm: ± 5 µm

Pressure rating: 586 bar (8500 psi)

OD	ID (mm)	Color	Length (mm)	Qty/pkg	Product No.
1/32"	25 µm	Orange	50	2	JR-TS-3215
			100	2	JR-TS-32110
			150	2	JR-TS-32115
			250	2	JR-TS-32125
			500	2	JR-TS-32150
	50 µm	Natural	50	2	JR-TS-3225
			100	2	JR-TS-32210
			150	2	JR-TS-32215
			250	2	JR-TS-32225
			500	2	JR-TS-32250
	75 µm	Black	50	2	JR-TS-3235
			100	2	JR-TS-32310
			150	2	JR-TS-32315
			250	2	JR-TS-32325
			500	2	JR-TS-32350
	100 µm	Red	50	2	JR-TS-3245
			100	2	JR-TS-32410
			150	2	JR-TS-32415
			250	2	JR-TS-32425

			500	2	JR-TS-32450
	150 µm	purple	50	2	JR-TS-3265
			100	2	JR-TS-32610
			150	2	JR-TS-32615
			250	2	JR-TS-32625
			500	2	JR-TS-32650

Other IDs available. [Contact the factory.](#)

TOP ▲

1/16" OD PEEKclad-FST

Tolerances: ID ≤ 50µm: ± 3µm; ID 75-150µm: ± 5 µm

Pressure rating: 586 bar (8500 psi)

OD	ID (mm)	Color	Length (mm)	Qty/pkg	Product No.
1/16"	25 µm	Orange	50	5	JR-TS-3215
			100	5	JR-TS-16110
			150	5	JR-TS-16115
			250	5	JR-TS-16125
			500	2	JR-TS-16150
	50 µm	Natural	50	5	JR-TS-1625
			100	5	JR-TS-16210
			150	5	JR-TS-16215
			250	5	JR-TS-16225
			500	2	JR-TS-16250
	75 µm	Black	50	5	JR-TS-1635
			100	5	JR-TS-16310
			150	5	JR-TS-16315
			250	5	JR-TS-16325
			500	2	JR-TS-16350
	100 µm	Red	50	5	JR-TS-1645

			100	5	JR-TS-16410
			150	5	JR-TS-16415
			250	5	JR-TS-16425
			500	2	JR-TS-16450
	150 µm	purple	50	5	JR-TS-1665
			100	5	JR-TS-16610
			150	5	JR-TS-16615
			250	5	JR-TS-16625
			500	2	JR-TS-16650

Other IDs available. [Contact the factory.](#)

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VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

- Tubing for chromatography
- High pressure fittings
 - Nanovolume
 - Stainless steel
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- Low pressure fittings
- Filters & mobile phase filters
- Mobile phase handling systems
- Frits
- PEEK columns & guard columns
- Sample loops
- Accessories/miscellaneous

CUSTOMER SUPPORT

Pre-Cut Premium Grade Stainless Steel Tubing



- Premium grade seamless SS316L with polyethylene caps and color-coded sleeves
- For 1/16" zero dead volume connections
- Ready to use
- Cleaned
- Soft annealed OD for easy ferrule connections

VICI offers pre-cut stainless steel tubing in lengths most commonly required in HPLC systems. These tubes are cut to square, burr-free ends for zero dead volume connections. VICI pre-cut tubing is electrolytically cut and specially steam cleaned to remove both organic and inorganic contaminants. Softener-free polyethylene caps are used to prevent contamination of the tubing.

Tolerances: OD: ± 0.05 mm (.002"); ID: ± 0.025 mm (.001")

Pressure rating: min 365 bar (5300 psi)

JR-T-97075	JR-T-97080	JR-T-97085	JR-T-97090	JR-T-97095	JR-T-97100	JR-T-97105	JR-T-97110
50	100	200	300	50	100	200	300
Orange				Green			
0.50				0.75			

OD	ID (mm)	Color	Length (mm)	Product No.
1/16"	0.13	Red	50	JR-T-97005
			100	JR-T-97010
			200	JR-T-97015
			300	JR-T-97020
	0.18	Yellow	50	JR-T-97025
			100	JR-T-97030
			200	JR-T-97035
			300	JR-T-97040
	0.25	Blue	50	JR-T-97045
			100	JR-T-97050
			200	JR-T-97060
			300	JR-T-97065



VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

- Tubing for chromatography
- High pressure fittings
 - Nanovolume
 - Stainless steel
 - Polymeric
- Low pressure fittings
- Filters & mobile phase filters
- Mobile phase handling systems
- Frits
- PEEK columns & guard columns
- Sample loops
- Accessories/miscellaneous

Stainless Steel Tubing

- Variety of sizes for HPLC and GC applications
- Smooth internal surface
- Soft annealed OD for easy ferrule connections
- SS316 welded under inert gas



Tolerances: OD: ± 0.05 mm (.002"); ID: ± 0.05 mm (.002")

Pressure rating: min 315 bar (4600 psi)

OD	ID (mm)	Qty/pkg	Product No.
1/16"	0.13	3 m	JR-T-625-04-M3
		10 m	JR-T-625-04-M10
	0.18	3 m	JR-T-625-05-M3
		10 m	JR-T-625-05-M10
	0.25	3 m	JR-T-625-10-M3
		10 m	JR-T-625-10-M10
0.50	3 m	JR-T-625-20-M3	
	10 m	JR-T-625-20-M10	
0.75	3 m	JR-T-625-30-M3	
	10 m	JR-T-625-30-M10	
1.00	3 m	JR-T-625-40-M3	
	10 m	JR-T-625-40-M10	
1/8"	2.10	3 m	JR-T-626-00-M3

CUSTOMER SUPPORT

JR-T-626-00-M10	JR-T-628-00
10 m	per m
	4.65
	1/4"



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VICI JOUR PRODUCTS

- Tubing for chromatography
- High pressure fittings
 - Nanovolume
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- Low pressure fittings
- Filters & mobile phase filters
- Mobile phase handling systems
- Frits
- PEEK columns & guard columns
- Sample loops
- Accessories/miscellaneous

CUSTOMER SUPPORT

Electroformed nickel tubing

- Variety of sizes for HPLC and GC applications
- Extremely smooth internal surface
- Ideal for transfer lines, loops, and columns

This small bore tubing is made by electroplating nickel over a diamond drawn mandrel in a continuous process. When the mandrel is removed from the tubing, what's left is in an extremely inert and smooth interior surface – an incredible 1 - 2 microinch finish. The mirrorlike interior means that EFNI can be used instead of fused silica glass-lined tubing, or silica-lined tubing. The highly inactive, non-adsorptive surface makes EFNI tubing ideal for transfer lines, sample loops, or columns, or any application which requires minimum carryover potential.

The ID of commercial drawn tubing is typically $\pm 10\%$ of the nominal size. This variance added to the voids, pits, and striations in the wall leads to a large uncertainty in calculated volumes. Our EFNI tubing is held to ± 0.025 mm of the nominal size, and its microsmooth surface means that the absolute volume can be calculated very accurately.

Electroformed nickel tubing is electrolytically cut, electropolished, and steam cleaned, ready for use.

Tolerances: OD: ± 0.025 mm (.001"); ID: ± 0.025 mm (.001")
Pressure rating: min 365 bar (5300 psi)

JR-TEFNI.515-M10	JR-TEFNI.520-M3	JR-TEFNI.520-M10	JR-TEFNI130-M3	JR-TEFNI130-M10	JR-TEFNI140-M3	JR-TEFNI140-M10
10 m	3 m	10 m	3 m	10 m	3 m	10 m
	0.50		0.75		1.00	
			1/16"			

OD	ID (mm)	Qty/pkg	Product No.
1/32"	0.05	1 m	JR-TEFNI.502-M1
	0.10	1 m	JR-TEFNI.504-M1
	0.13	1 m	JR-TEFNI.505-M1
	0.25	3 m	JR-TEFNI.510-M3
		10 m	JR-TEFNI.510-M10
	0.38	3 m	JR-TEFNI.515-M3



VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
- Stainless steel
- Polymeric

Low pressure fittings

Filters & mobile phase filters

Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

Accessories/miscellaneous

PFA Tubing

- Less permeable than PTFE
- Excellent chemical stability and mechanical strength

PFA tubing (PerFluoroAlkoxy) has excellent chemical stability and mechanical strength. Always use PFA instead of PTFE if gas permeability is an issue. 1/16" OD high purity tubing has a maximum pressure rating of up to 100 bar (1450 psi), while 1/8" OD maximum 72 bar (1050 psi).

Further Reference

[Clean-Cut tubing cutter](#)

Tolerances:

1/16" OD: $\pm 0.05 \text{ mm}$ (.002"), OD and ID;

1/8" OD: $\pm 0.10 \text{ mm}$ (.004") OD and ID

OD	ID (mm)	bar*	psi*	Qty/pkg	Product No.
1/16"	0.50	100	1450	3 m	JR-T-4001-M3
				10 m	JR-T-4001-M10
				25 m	JR-T-4001-M25
	0.75	76	1100	3 m	JR-T-4002-M3
				10 m	JR-T-4002-M10
				25 m	JR-T-4002-M25
	1.00	55	800	3 m	JR-T-4007-M3
				10 m	JR-T-4007-M10
				25 m	JR-T-4007-M25
1/8"	1.59	72	1050	3 m	JR-T-4003-M3
				10 m	JR-T-4003-M10

JR-T-4003-M25

25 m

*Recommended maximum permanent working pressure.



VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
- Stainless steel
- Polymeric

Low pressure fittings

Filters & mobile phase filters

Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

Accessories/miscellaneous

FEP Tubing

- Recommended for ion chromatography
- Inert to most HPLC solvents

FEP (FluorinatedEthylenePropylene) is chemically inert to most HPLC solvents and is recommended for low pressure applications. Typically 1/16" OD holds up to 117 bar (1700 psi) and 1/8" holds up to 70 bar (1000 psi). We recommend FEP for ion chromatography applications. Max. operating temperature for FEP is 80°C.

Further Reference

[Clean-Cut tubing cutter](#)

Tolerances:

1/16" OD: ± 0.05 mm (.002"), OD and ID;

1/8" OD: ± 0.10 mm (.004") OD and ID

OD	ID (mm)	bar*	psi*	Qty/pkg	Product No.
1/16"	0.25	117	1700	3 m	JR-T-6812-M3
				10 m	JR-T-6812-M10
				25 m	JR-T-6812-M25
	0.50	96	1400	3 m	JR-T-6802-M3
				10 m	JR-T-6802-M10
				25 m	JR-T-6802-M25
	0.75	76	1100	3 m	JR-T-6803-M3
				10 m	JR-T-6803-M10
				25 m	JR-T-6803-M25
	1.00	52	750	3 m	JR-T-6806-M3
				10 m	JR-T-6806-M10
				25 m	JR-T-6806-M25
1/8"	1.59	69	1000	3 m	JR-T-6804-M3

JR-T-6804-M10	JR-T-6804-M25	JR-T-6809
10 m	25 m	per m
		650
		45
		4.35
		1/4"

*Recommended maximum permanent working pressure.

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ETFE Tubing

- Ideal for applications with chloride salts
- Higher burst pressure than PTFE

ETFE (EthylTriFluoroEthylene) tubing has some outstanding properties which make it particularly suitable for HPLC. It has a higher burst pressure than PTFE; 0.25 mm ID x 1/16" OD tubing will withstand up to 186 bar (2700 psi) using water as mobile phase. However, when ETFE is used with organic solvents it may swell, reducing the max. pressure to 70 bar (1000 psi). It is the ideal polymer for applications with chloride salts, which typically corrode stainless steel.

Further Reference

[Clean-Cut tubing cutter](#)

Tolerances:

1/16" OD: ± 0.05 mm (.002"), OD and ID;

1/8" OD: ± 0.10 mm (.004") OD and ID

OD	ID (mm)	bar*	psi*	Qty/pkg	Product No.
1/32"	0.25	152	2200	3 m	JR-T-084-M3
				10 m	JR-T-084-M10
				25 m	JR-T-084-M25
1/16"	0.17	200	2900	3 m	JR-T-078-M3
				10 m	JR-T-078-M10
				25 m	JR-T-078-M25
	0.25	186	2700	3 m	JR-T-080-M3
				10 m	JR-T-080-M10
				25 m	JR-T-080-M25
	0.50	152	2200	3 m	JR-T-082-M3

				10 m	JR-T-082-M10
				25 m	JR-T-082-M25
	0.75	117	1700	3 m	JR-T-083-M3
				10 m	JR-T-083-M10
				25 m	JR-T-083-M25
	1.00	83	1200	3 m	JR-T-085-M3
				10 m	JR-T-085-M10
				25 m	JR-T-085-M25
	1/8"	1.59	110	1600	3 m
10 m					JR-T-086-M10
25 m					JR-T-086-M25

*Recommended maximum permanent working pressure.

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VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

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- Nanovolume
- Stainless steel
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CUSTOMER SUPPORT

No-Ox Tubing

- Low permeability prevents "re-gassing"
- Excellent chemical resistance

Most HPLC installations use PTFE tubing for internal low-pressure transfer lines, since PTFE is easy to use and extremely chemically inert. However, PTFE- and PTFE-like polymers have micro pores which allow gases to diffuse freely, to the extent that solvent degassers are often based on that property – gases dissolved in solvents are removed by diffusion when a vacuum is applied on the outside of the tubing. A contrary "re-gassing" effect occurs when degassed solvent passes through PTFE tubing with standard air pressure on the outside – gases diffuse through the PTFE tubing back into the newly (and expensively!) degassed solvent.



To solve this problem, we co-extrude FEP tubing and PVDF tubing to create No-Ox tubing, which is essentially FEP tubing coated on the outside with PVDF tubing. The FEP contributes excellent chemical resistance, while the very tight polymer structure of the PVDF ensures that the degassed solvent will stay degassed until it reaches the HPLC pump.

NOTE: PVDF is not very chemically resistant, but the PVDF layer can easily be stripped from the FEP with a VICI Jour [Clean-Cutter](#) or a razor blade so that only FEP contacts the solvent in the solvent reservoir. A special KEL-F tubing insert (P/N 6141) prevents solvent from contacting the PVDF layer at the tubing end in the valve port. The ferrule fits into the ID of the tubing and seals against the bottom of the port.

1/8" OD No-Ox Tubing

Tolerances: OD and ID: ± 0.05 mm (.002)

Description	Qty/pkg	Product No.
No-Ox tubing, 1/8" x 1.65 mm ID	3 m	JR-T-6130-M3

	10 m	JR-T-6130-M10
No-Ox fitting kit 2 <i>KEL-F</i> inserts 2 <i>PEEK</i> nuts 2 <i>ETFE</i> ferrules	1	JR-6140
Spare parts		
KEL-F insert for No-Ox fitting	10	JR-6141-10
Flangeless 1/4"-28 PPS 1/8" nut	10	JR-55071-10
Adapter, PP, fingertight sleeve, black	10	JR-55083-10
1/8" ETFE ferrule	10	JR-051-10

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VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
- Stainless steel
- Polymeric

Low pressure fittings

Filters & mobile phase filters

Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

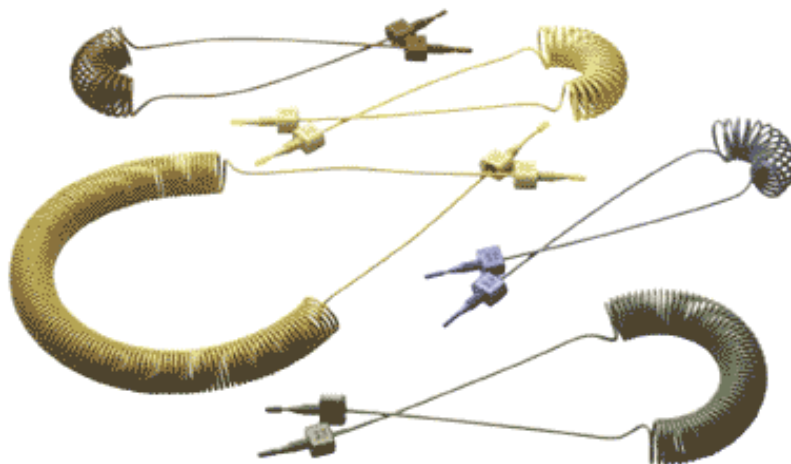
Accessories/miscellaneous

CUSTOMER SUPPORT

Thermo-Formed Polymeric Tubing

- A variety of polymers available
- Axial flexibility
- Telephone cables and customer-specific items

VICI offers thermoformed tubing in various of geometric shapes – straight tubing, spirals, or more complex forms. Just define the form and material on a drawing. Contact your [local distributor](#) or [VICI](#) for a quotation.



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CUSTOMER SUPPORT

Knitted PTFE Reaction Coils

- Tortuous flow path of optimal flow dynamic design
- Made of inert PTFE
- Minimized axial dispersion combined with efficient radial mixing
- 1/16" OD tubing in a variety of lengths and IDs

Preserved chromatographic peak shape

The Knitted PTFE Reaction coils (KRC) are made from tubing which has been knitted into a tortuous path to force the fast moving centre of the liquid stream to mix radially with the slower moving boundary liquid layer, thereby minimizing the axial dispersion. The shape of a chromatographic peak entering the reactor is thus preserved very efficiently. The KRC is usually the most optimal delay element for use in analytical flow systems. A coil is typically inserted in the flow path to create a delay line, so that a reaction or other event that requires a certain time can take place. Different delay or reaction times are accomplished by changing the inner diameter and length of the KRC, taking the flow rate through the KRC into consideration.

Note: To ensure a stable radial mixing within the KRC, a linear flow rate of 10 cm/sec or more is recommended.

Example application areas

KRC can be applied as a delay line in chromatographic separations. One example is the parallel coupling of a MS detector and a fraction collector in preparative separations (see [illustration](#)). The delay time induced by the KRC allows time for detection and therefore an intelligent decision between the fraction collection or waste without loss of chromatographic efficiency. The KRC reactors can also be used in post-column reaction detection in HPLC (see [illustration](#)). In this set-up the KRC also ensures thorough mixing between the column effluent and the added reagents.



1/16" Knitted PTFE Reaction Coils

Tolerances: ID and OD: ± 0.05 mm (.002")

Pressure rating: <55 bar (<800 psi)

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- PEEK columns & guard columns
- Sample loops
- Accessories/miscellaneous

PEEK Tubing Elbows

- Ideal for routing 1/16" OD PEEK tubing
- Optimum radius, prevents kinking
- 90° and 180° elbows



Description	Product No.
90° elbow	JR-357090
180° elbow	JR-357180

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CUSTOMER SUPPORT

Easy-Flange and Easy-Flange Combi Kits

- Handy tool for perfect flanges
- No heat or electricity required
- No contamination

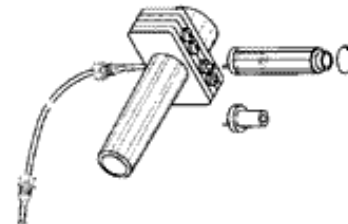
The Easy-Flange flange-rolling tool has been developed for flanging all PTFE and PTFE-like tubes with OD between 1/16" and 1/8" for fittings requiring a flange. The tool forms the flange just by applying a mechanical force and does not require electrical power. The quality of the flange is considerably improved since the flanges are formed without stressing the tubing by heat and because the specially designed negative conical profile of the flange forming part gives a shape ideal for maximum sealing properties. The Easy-Flange Combi Kit is an upgraded version of our standard Easy-Flange Kit, and comes complete with PTFE tubing, PPS nuts, and Polypropylene O-rings.



Product Numbers

Jump to product numbers for:

- [Basic Easy-Flange kit](#)
- [Easy-Flange Combi kit](#)
- [Easy-Flange spare parts and options](#)



Further Reference

- [PPS flanged fittings](#)
- [Polypropylene flanged fittings](#)
- [PTFE tubing](#)

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Easy-Flange Kit

Description	Qty	Product No.
Easy-Flange kit in plastic case	1	JR-201540

Includes the parts below:

Flanging disc with 0.5 mm SS pin for PEEK tubing	1	JR-202235
Flanging disc with 0.8 mm polymer pin	1	JR-201541
Flanging disc with 0.8 mm Titanium pin	1	JR-201554
Flanging disc with 1.3 mm polymer pin	1	JR-201536
Flanging disc with 1.3 mm Titanium pin	1	JR-201537
Clean-Cut tubing cutter	1	JR-797
PTFE tubing, 1/16" x 0.75 mm ID x 3 m	1	JR-T-4036-M3

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Easy-Flange Combi Kit

Description	Qty	Product No.
Easy-Flange Combi kit in plastic case	1	JR-201539
<i>Includes the parts below:</i>		
Flanging disc with 0.5 mm SS pin for PEEK tubing	1	JR-202235
Flanging disc with 0.8 mm polymer pin	1	JR-201541
Flanging disc with 0.8 mm Titanium pin	1	JR-201554
Flanging disc with 1.3 mm polymer pin	1	JR-201536
Flanging disc with 1.3 mm Titanium pin	1	JR-201537
Clean-Cut tubing cutter	1	JR-797
PPS flanged 1/4"-28 nut for 1/16" tubing, 10/pkg	1 pkg	JR-55060-10
PP ring for 1/16" flanged fitting, 10/pkg	1 pkg	JR-201926-10
PPS flanged 1/4"-28 nut for 1/8" tubing, 10/pkg	1 pkg	JR-55061-10
PP ring for 1/8" flanged fitting, 10/pkg	1 pkg	JR-201928-10
PP fingertight sleeve adapters, 2 ea color, 24/pkg	1 pkg	JR-5508X-24
PTFE tubing, 1/16" x 0.75 mm ID x 3 m	1	JR-T-4036-M3
PTFE tubing, 1/8" x 1/16" ID x 3 m	1	JR-T-6800-M3

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VICI JOUR - Tubing for Chromatography

VICI JOUR PRODUCTS

Tubing for chromatography

High pressure fittings

- Nanovolume
- Stainless steel
- Polymeric

Low pressure fittings

Filters & mobile phase filters

Mobile phase handling systems

Frits

PEEK columns & guard columns

Sample loops

Accessories/miscellaneous

CUSTOMER SUPPORT

Clean-Cut Polymer Tubing Cutter

- Cuts PEEK, PTFE, ETFE, and other polymeric tubing
- No distortion of OD or closing of ID
- Safety lock to secure the blade



It is difficult to obtain burr-free perpendicular cuts on polymeric tubing, but right angles and clean cuts are essential in LC to avoid leaks. The Clean-Cut is a tool for the most demanding LC applications, making clean, perpendicular cuts without distorting the outside diameter and/or closing the inside diameter of the tubing.

It is designed to cut PTFE, ETFE, and polymers in general, and PEEK capillary tubing in particular. The compact design fits in your pocket, and a unique safety locking mechanism secures the blade when not in use.

NOTE: The Clean-Cut tubing cutter is not for sale in Japan. Please see the [guillotine cutter](#) instead.

Description	Product No.
Clean-Cut tubing cutter	JR-797
Replacement blade	JR-798

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- Accessories/miscellaneous

Guillotine Polymer Tubing Cutter

- Cuts PEEK, PTFE, ETFE, and other polymeric tubing



Description	Product No.
Guillotine tubing cutter	JR-794
Replacement blade	JR-795

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ID (mm)	Length	Product No.
0.25	1 m	JR-T-3000-123
	2 m	JR-T-3000-223
	4 m	JR-T-3000-423
	10 m	JR-T-3000-133
	20 m	JR-T-3000-233
0.50	1 m	JR-T-3000-125
	2 m	JR-T-3000-225
	4 m	JR-T-3000-425
	10 m	JR-T-3000-135
	20 m	JR-T-3000-235
0.75	1 m	JR-T-3000-128
	2 m	JR-T-3000-228
	4 m	JR-T-3000-428
	10 m	JR-T-3000-138
	20 m	JR-T-3000-238

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Stainless Steel Tubing Cutter (for non-critical connections)

- For 1/16" and 1/8" SS tubing
- Makes a smooth, uniform cut
- Minimal deburring and/or reaming required
- Easily replaceable cutting wheel



This is the ideal tool for cutting 1/16" and 1/8" stainless steel tubing with an ID >0.5 mm for non-critical connections. The smooth, uniform cuts require little deburring or reaming . The easily replaced cutting wheel scores the tubing.

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Description	Product No.
Tubing cutter for metal tubing	JR-792
Replacement cutting wheel	JR-793

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- Sample loops
- Accessories/miscellaneous

CUSTOMER SUPPORT

Stainless Steel Tubing Pliers (for non-critical connections)

- For easy cutting 1/16" OD SS tubing off a coil
- Reaches "hard to get" places in an HPLC system



The plier type of cutter can be used for quick cuts for non-critical applications or at "hard to get" places. However, for scientific equipment the use of [Pre-Cut and cleaned tubing](#) is strongly recommended.

Description	Product No.
Tubing pliers metal tubing	JR-796

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Easy-Flange Spare Parts and Options

Description	Product No.
Flanging disc with 0.5 mm SS pin for PEEK tubing	JR-202235
Flanging disc with 0.8 mm polymer pin	JR-201541
Flanging disc with 0.8 mm Titanium pin	JR-201554
Flanging disc with 1.0 mm polymer pin	JR-201662
Flanging disc with 1.3 mm polymer pin	JR-201536
Flanging disc with 1.3 mm Titanium pin	JR-201537
Flanging disc with 1.5 mm polymer pin	JR-201663
Clean-Cut tubing cutter	JR-797
Flanging clamp pair	JR-201531

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Tubing Clip - the LC Tubing Organizer

- Attaches 1/16" or 1/8" tubing to beakers, flasks, or bottles
- Stainless spring for long lifetime



Here is a convenient small device to help you keep your solvent line in the solvent. The Tubing Clip holds 1/16" and 1/8" polymer tubing precisely where you want it in a beaker, flask, or bottle, etc., up to 4 mm wall thickness. The stainless steel spring keeps your Tubing Clip working for a long period of time.

Description	Product No.
Tubing clip	JR-9001

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did you **know?**

A smoother internal surface is less adsorptive.



Top: electropolished finish, surface roughness average number: 10-15.

Bottom: conventional finish, surface roughness average number: approx. 23-27.

An extra charge is applied for cutting Siltek®/Sulfinert® or Silcosteel®-CR tubing. The charge is calculated from the total number of pieces produced for each line item:

# of Pieces	Added Charge
5 to 15	\$50
16 to 30	\$100
31 to 75	\$150
76 to 99	\$200
100 to 200	\$250

Minimum Bend Radius for Coated Tubing

OD	Min. Bend Radius
≤ 1/16"	1" (2.5 cm)
1/8"	2" (5.1 cm)
1/4"	4" (10.2 cm)
3/8"	6" (15.2 cm)

did you **know?**

Other lengths and diameters of treated tubing are available on a custom basis.

Call for availability of lengths greater than 1,000 ft.

ordering **note**

Required length in meters x 3.2808 = length in feet.

Treated Seamless Electropolished 316L Grade Stainless Steel Tubing

Our highest performing tubing. Recommended for:

- demanding/corrosive environments.
- high temperatures.
- ultimate inertness.

Siltek®/Sulfinert Treated (Coiled)

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-99 ft.	100-299 ft.	> 300 ft.
1/8" (3.18mm)	0.085" (2.16mm)	0.020"	22538				
1/4" (6.35mm)	0.180" (4.57mm)	0.035"	22539				

Silcosteel®-CR Treated (Coiled)

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-99 ft.	100-299 ft.	> 300 ft.
1/8" (3.18mm)	0.085" (2.16mm)	0.020"	22536				
1/4" (6.35mm)	0.180" (4.57mm)	0.035"	22537				

1/8" OD: 5 ft. to 95 ft. in one continuous coil; 1/4" OD: 5 ft. to 300 ft. in one continuous coil. Longer lengths will be more than one coil.

Treated Welded/Drawn 304 Grade Stainless Steel Tubing

Our most popular grade of tubing. Recommended for:

- chromatography applications.
- gas delivery systems.
- lower pressures.
- inert applications.

Siltek®/Sulfinert® Treated (Coiled)

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-199 ft.	200-399 ft.	> 400 ft.
0.022" (0.56mm)	0.011" (0.28mm)		22500				
0.029" (0.74mm)	0.021" (0.53mm)		22501				
1/16" (1.59mm)	0.010" (0.25mm)		22502				
1/16" (1.59mm)	0.020" (0.51mm)		22503				
1/16" (1.59mm)	0.030" (0.76mm)		22504				
1/16" (1.59mm)	0.040" (1.02mm)		22505				
1/8" (3.18mm)	0.085" (2.16mm)	0.020"	22506				
1/4" (6.35mm)	0.210" (5.33mm)	0.020"	22507				

Treated Seamless 316L Grade Stainless Steel Tubing

High durability tubing. Recommended for:

- inert applications.
- high temperatures.
- high pressures.
- corrosive environments.
- zero bleed.

Siltek®/Sulfinert® Treated (Coiled)

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-199 ft.	200-399 ft.	> 400 ft.
1/8" (3.18mm)	0.055" (1.40mm)	0.035"	22508				
1/4" (6.35mm)	0.180" (4.57mm)	0.035"	22509				
3/8" (9.52mm)	0.277" (7.04mm)	0.049"	22914				

Silcosteel®-CR Treated (Coiled)

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-199 ft.	200-399 ft.	> 400 ft.
1/8" (3.18mm)	0.055" (1.40mm)	0.035"	22896				
1/4" (6.35mm)	0.180" (4.57mm)	0.035"	22897				
3/8" (9.52mm)	0.277" (7.04mm)	0.049"	22915				

Instrument-Grade Welded and Drawn 304 Grade Stainless Steel Tubing

Clean tubing is critical to ensure the delivery of pure gas to your instrument. Restek's stainless steel tubing is cleaned specifically for inertness using the procedure for processing Silcosteel® and Siltek®-treated products, because scrupulously clean parts are a prerequisite for a quality coating. This ensures you are getting quality tubing for your chromatography system.



Tubing Dimensions		Length (per-foot pricing on 26 feet or more)					
		25 Feet		26-100 Feet		> 100 Feet*	
ID (in.)	OD (in.)	cat.#	price	cat.#	price	cat.#	price
0.01"	1/16"	21500	\$67	21501		21502	
0.02"	1/16"	21503	\$67	21504		21505	
0.03"	1/16"	21506	\$67	21507		21508	
0.04"	1/16"	21509	\$67	21510		21511	
0.085"	1/8"	21512	\$60	21513		21514	
0.21"	1/4"	21515	\$72.50	21516		21517	

*The availability of long lengths (continuous lengths up to 500 feet) is subject to inventory constraints. Please inquire before ordering.

ordering note

Required length in meters x 3.2808 = length in feet.

Precleaned Copper Tubing

- Adheres to ASTM B-280.
- Precleaned and ready to use.
- Use for plumbing GC systems.

ID	OD	Wall	qty.	cat.#	price
0.065"	1/8"	0.030"	50 ft.	21590	
0.190"	1/4"	0.030"	50 ft.	21592	

An extra charge is applied for cutting and/or straightening stainless steel and/or copper tubing, calculated from the total number of pieces produced for each line item:

# of Pieces	Added Charge
5 to 15	0
16 to 30	
31 to 75	
76 to 99	
100 to 200	



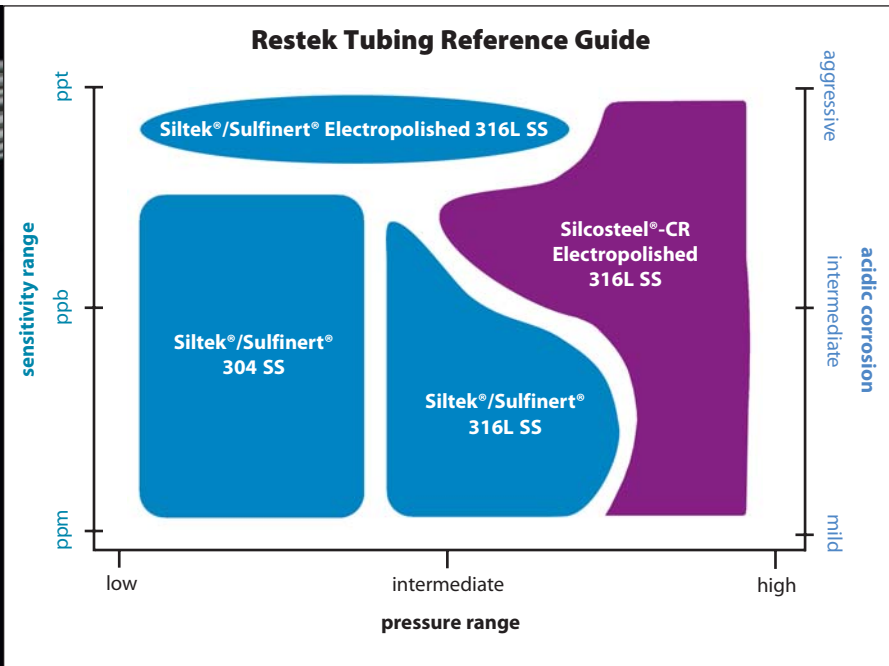
Plumbing a GC

It is essential to use clean chromatographic-grade tubing to plumb a GC. Standard-grade tubing contains residual hydrocarbon contaminants from the drawing process. These contaminants migrate into the carrier gas stream, elevating background noise and causing down time.

frequently asked question

Which treated tubing should I use?

This chart will help you determine the tubing best suited to your application with respect to pressure, sensitivity of your analysis, and acidic environment exposure. For more frequently asked questions on treated tubing, see previous page.





Tubing and Available Coatings

Restek sets the standard in tubing for analytical and process applications. Complete your system with precleaned or treated tubing and treated fittings and valves for an inert, corrosion-resistant pathway.

Available tubing coatings include:

- **Siltek®**—The ultimate passivation of treated surfaces, from glass to high nickel alloys of steel; ideal for sulfurs, automotive exhaust testing or stack gas sampling.
- **Silcosteel®-CR**—A corrosion resistant layer that increases the lifetime of system components in acidic environments containing hydrochloric acid, nitric acid, or seawater.
- **Sulfinert®**—A required treatment for metal components when analyzing for parts-per-billion levels of organo-sulfur compounds.

Frequently Asked Questions

1. Can treated tubing be bent?

Treated tubing can be bent into curves with a bend radius greater than 1 inch for 1/16-inch OD tubing, 2 inches for 1/8-inch OD tubing, or 4 inches for 1/4-inch OD tubing. The treatment layer will remain intact as long as the tubing isn't stretched dramatically. If tight bends are necessary, use a treated elbow union or bend untreated tubing and send it to Restek for custom treatment.

2. Can compression fittings be used without crushing the treatment layer?

Yes. The layer is thin and permeates the surface. It compresses with minimal damage.

3. Is welding possible after treatment?

Yes. The coating does not interfere with the welding of two coated components. The coating is lost at the weld and in the heat affected zones approximately 2 to 5 mm on either side of the weld.

4. Is any additional chemical deactivation necessary?

A Sulfinert® or Silcosteel® layer leaves few exposed active sites, so there usually is no need for additional treatment. Chemical deactivation is useful in chromatographic applications in which water will be vaporized on the Silcosteel® treated surface, but is not necessary for Sulfinert® treated surfaces. Parts used in high-temperature applications (>400 °C) cannot be chemically deactivated.

5. What are the temperature constraints of these surface treatments?

On stainless steel, a Silcosteel® layer is stable to 600 °C. Parts treated with a secondary polymeric layer are limited to temperatures of 400 °C in inert atmospheres and 250 °C when oxygen is present, the temperature maximums for the polymer. Temperatures above 600 °C can be used under certain conditions—please contact us for information.

6. Why use Sulfinert® or Silcosteel® treatment instead of Teflon® coating?

Three reasons: 1) Sulfinert® and Silcosteel® layers are nonpolymeric, so they do not exhibit the problems associated with gas permeability. 2) Teflon® coating often flakes off the surface, while the Sulfinert® or Silcosteel® layer is tightly integrated into the substrate lattice. 3) Teflon® coating is limited to 280 °C, while Silcosteel® treated stainless steel tubing and fittings can be used to 600 °C.

7. Why use Siltek®/Sulfinert® treated tubing for transfer lines?

Siltek®/Sulfinert® treated stainless steel tubing offers all of the advantages of glass or fused silica tubing for the transfer of active compounds (e.g., sulfurs), but is far more durable and flexible.

8. Is treated tubing similar to glass-lined tubing (GLT)?

No. Sulfinert® or Silcosteel® treated tubing is flexible and can be bent without heating. Also, the Sulfinert® or Silcosteel® layer is highly inert, unlike impure glass.

9. How can I clean the surface of a treated part after use?

Most often, a mild organic solvent (methylene chloride, methanol, hexane) or water is sufficient. Mild sonication may assist and accelerate the process. Do not use caustic, abrasive, or high pH (pH>8) cleaners, as they will damage or dissolve the layer. Steam cleaning in the presence of oxygen or air could create surface activity, and also should be avoided.

10. What materials should I avoid using with Silcosteel® treated parts?

The Silcosteel® coating is silicon-based and is prone to attack by hydrofluoric acid or by basic compounds. The surface should not be exposed to media with pH>8.

11. Siltek® and Sulfinert®: What's the Difference?

Siltek® is the name for the patented deposition process. When the Siltek® process was developed, the application that showed the greatest benefit was the storage and transfer of low ppb level active sulfur compounds, such as hydrogen sulfide and mercaptans. Because there was (and continues to be) demand for a reliable surface treatment for this application, the name Sulfinert® is used to describe Siltek® treated products created specifically for this purpose.

Treated Straight, 6-Foot Length Stainless Steel Tubing

Individual 6-foot ($\pm 1/2$ ") straight pieces.

In response to customer requests, we offer 6-foot straight lengths of $1/8$ -, $1/4$ -, and $3/8$ -inch treated tubing. This tubing can be cut to your exact requirements using a standard tubing cutter.

Siltek®/Sulfinert® Treated, 316L Grade

OD	ID	Wall Thickness	qty.	cat.#	price
$1/8$ " (3.18mm)	0.055" (1.40mm)	0.035"	ea.	22901	
$1/4$ " (6.35mm)	0.180" (4.57mm)	0.035"	ea.	22902	
$3/8$ " (9.52mm)	0.277" (7.04mm)	0.049"	ea.	22903	

Silcosteel®-CR Treated, 316L Grade

OD	ID	Wall Thickness	qty.	cat.#	price
$1/8$ " (3.18mm)	0.055" (1.40mm)	0.035"	ea.	22898	
$1/4$ " (6.35mm)	0.180" (4.57mm)	0.035"	ea.	22899	
$3/8$ " (9.52mm)	0.277" (7.04mm)	0.049"	ea.	22900	

Treated Hydroguard® Deactivated Stainless Steel Tubing

Hydroguard® deactivation creates a high-density surface that is not readily attacked by aggressive hydrolysis.

Silcosteel® Treated, 304 Grade

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-199 ft.	200-399 ft.	> 400 ft.
$1/16$ " (1.59mm)	0.010" (0.25mm)		22497				
$1/16$ " (1.59mm)	0.020" (0.51mm)		22496				
$1/16$ " (1.59mm)	0.030" (0.76mm)		22495				
$1/16$ " (1.59mm)	0.040" (1.02mm)		22494				
$1/8$ " (3.18mm)	0.085" (2.16mm)	0.020"	22493				
$1/4$ " (6.35mm)	0.210" (5.33mm)	0.020"	22492				

Silcosteel® Treated, Seamless 316L Grade

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-199 ft.	200-399 ft.	> 400 ft.
$1/8$ " (3.18mm)	0.055" (1.40mm)	0.035"	22491				
$1/4$ " (6.35mm)	0.180" (4.57mm)	0.035"	22490				

Silcosteel® Treated, Electropolished 316L Grade

OD	ID	Wall Thickness	cat.#	Price-per-foot			
				5-24 ft.	25-99 ft.	100-299 ft.	> 300 ft.
$1/8$ " (3.18mm)	0.085" (2.16mm)	0.020"	22489				
$1/4$ " (6.35mm)	0.180" (4.57mm)	0.035"	22488				

Siltek®/Sulfinert® treated tubing is recommended for purge & trap and headspace systems



An extra charge is applied for cutting Siltek®/Sulfinert®, Silcosteel®, or Silcosteel®-CR tubing. The charge is calculated from the total number of pieces produced for each line item:

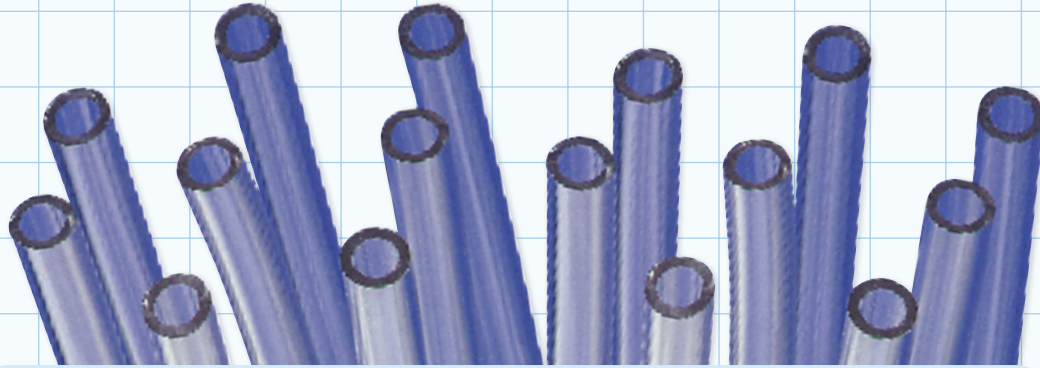
# of Pieces	Added Charge
5 to 15	
16 to 30	
31 to 75	
76 to 99	
100 to 200	



PVC Tubing

Class VI

PVC Tubing



68A Durometer PVC Tubing

Item #	I.D.	O.D.	Length	Item #	I.D.	O.D.	Length
T4001	0.063"	0.125"	500'	T4034	0.625"	0.938"	100'
T4002	0.094"	0.156"	500'	T4035	0.625"	1.000"	100'
T4004	0.125"	0.188"	500'	T4037	0.688"	1.000"	100'
T4005	0.125"	0.250"	100'	T4038	0.750"	0.875"	100'
T4007*	0.170"	0.250"	100'	T4039	0.750"	1.000"	100'
T4008	0.188"	0.250"	100'	T4040	0.750"	1.063"	100'
T4009	0.188"	0.313"	100'	T4041	0.750"	1.125"	100'
T4010	0.188"	0.375"	100'	T4042	0.750"	1.250"	100'
T4011	0.188"	0.438"	100'	T4043	0.875"	1.125"	100'
T4012	0.250"	0.375"	100'	T4045	1.000"	1.250"	100'
T4013	0.250"	0.438"	100'	T4046	1.000"	1.313"	100'
T4014	0.250"	0.500"	100'	T4047	1.000"	1.375"	100'
T4015	0.313"	0.438"	100'	T4048	1.000"	1.500"	100'
T4016	0.313"	0.500"	100'	T4049	1.250"	1.438"	50'
T4017	0.313"	0.563"	100'	T4050	1.250"	1.500"	100'
T4018	0.375"	0.500"	100'	T4051	1.250"	1.625"	50'
T4019	0.375"	0.563"	100'	T4052	1.250"	1.750"	50'
T4020	0.375"	0.625"	100'	T4053	1.375"	1.750"	50'
T4021	0.375"	0.750"	100'	T4054	1.500"	1.750"	50'
T4022	0.438"	0.563"	100'	T4055	1.500"	1.875"	100'
T4023	0.438"	0.688"	100'	T4056	1.500"	2.000"	50'
T4024	0.500"	0.625"	100'	T4057	1.750"	2.000"	50'
T4025	0.500"	0.688"	100'	T4058	1.750"	2.250"	50'
T4026	0.500"	0.750"	100'	T4059	2.000"	2.250"	50'
T4028	0.500"	1.000"	100'	T4060	2.000"	2.500"	50'
T4029	0.563"	0.750"	100'	T4061	2.250"	2.750"	50'
T4031	0.625"	0.750"	100'	T4062	2.500"	3.000"	50'
T4032	0.625"	0.813"	100'	T4063	3.000"	3.500"	50'
T4033	0.625"	0.875"	100'				

*80A Duron

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Precision Cut in your Specified Length

78A DEHP Free PVC Tubing is available in supersized coils of 5000 feet or precision cut in your specified length of any O.D.

80A Durometer Tygon™ Tubing

Item #	I.D.	O.D.	Length
T4101	0.01"	0.03"	500'
T4102	0.02"	0.06"	500'
T4103	0.03"	0.09"	500'
T4104	0.04"	0.07"	500'
T4105	0.05"	0.09"	500'

Multilayer Tubing

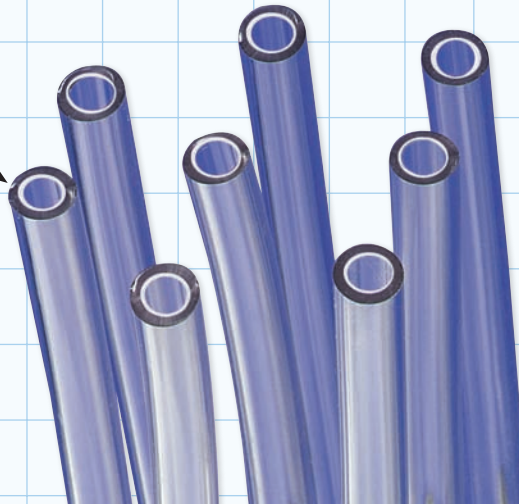
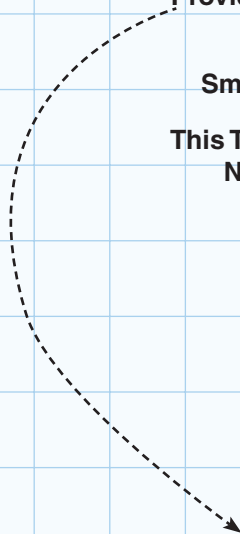
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This Medical Grade 78A Durometer Multilayer Tubing Provides an Inner Path of PVC-Free, Non-Reactive LDPE,

The PVC Outer Layer Provides a Convenient Smooth Bonding Surface for Adhesives or Solvents

This Tubing is 'Assembly Friendly', Made to be Flexible & Non-Kinking with Smooth Surfaces Inside & Out



78A Durometer Multilayer Tubing

Inner Layer is LDPE & Outer Layer is PVC

Item #	I.D.	O.D.	Length
T4200	0.020"	0.060"	5000'
T4201	0.042"	0.090"	5000'
T4202	0.050"	0.110"	2500'
T4203	0.060"	0.125"	2500'
T4204	0.096"	0.156"	2000'
T4205	0.120"	0.160"	2000'
T4206	0.125"	0.187"	1500'
T4207	0.156"	0.218"	1250'
T4208	0.125"	0.250"	1000'

Precision Cut in your Specified Length

Multi-Lumen, Light Sensitive & Custom Configurations on Request

Multilayer Tubi

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Peroxide Cured Silicone Tubing

Class VI



Peroxide Cured Silicone Tubing

50A Durometer Silicone Tubing

Item #	I.D.	O.D.	Length
T2001	0.012"	0.025"	50'
T2002	0.020"	0.037"	50'
T2003	0.025"	0.047"	50'
T2004	0.030"	0.065"	50'
T2005	0.031"	0.156"	50'
T2006	0.040"	0.085"	50'
T2007	0.058"	0.077"	50'
T2008	0.062"	0.095"	50'
T2009	0.062"	0.125"	50'
T2010	0.062"	0.188"	50'
T2011	0.078"	0.125"	50'
T2012	0.104"	0.192"	50'
T2013	0.125"	0.250"	50'
T2014	0.132"	0.183"	50'
T2015	0.188"	0.313"	50'
T2016	0.188"	0.375"	50'
T2017	0.250"	0.375"	50'
T2018	0.250"	0.438"	50'
T2019	0.250"	0.500"	50'
T2020	0.313"	0.438"	50'
T2021	0.313"	0.500"	50'
T2022	0.375"	0.500"	50'
T2023	0.375"	0.563"	50'
T2024	0.375"	0.625"	50'
T2025	0.500"	0.625"	25'
T2026	0.500"	0.688"	25'
T2027	0.500"	0.750"	25'
T2028	0.625"	0.875"	25'
T2029	0.750"	1.000"	25'

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Precision Cut in your Specified Length

Ask About Other Durometers

Platinum Cured Silicone Tubing



Class VI



50A Durometer Silicone Tubing

Item #	I.D.	O.D.	Length
T2100	0.031"	0.156"	25'
T2101	0.063"	0.188"	25'
T2102	0.125"	0.250"	50'
T2103	0.188"	0.313"	50'
T2104	0.250"	0.375"	50'
T2105	0.250"	0.438"	50'
T2106	0.250"	0.500"	50'
T2107	0.375"	0.563"	50'
T2108	0.375"	0.625"	50'
T2109	0.500"	0.750"	50'

Precision Cut in your Specified Length

Ask About Other Durometers

Platinum Cure

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High Pressure Braided Polyurethane/Nylon Tubing

High Pressure Braided Polyurethane/Nylon Tubing



Zoomed-In
to Show Braided Detail

High Pressure Braided Tubing

Item #	I.D.	O.D.	Length
T3012	0.071"	0.143"	12"
T3020	0.071"	0.143"	20"
T3030	0.071"	0.143"	30"
T3072	0.071"	0.143"	72"

See Insert Molded Extension Lines on Page 70-71

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ECH *nology* Pty Ltd

C-Flex® Tubing

Class VI



60A Durometer C-Flex® Tubing

Item #	I.D.	O.D.	Length
T2200	0.125"	0.250"	50'
T2201	0.188"	0.375"	50'
T2202	0.250"	0.375"	50'
T2203	0.313"	0.500"	50'
T2204	0.375"	0.563"	50'
T2205	0.500"	0.500"	50'
T2206	0.625"	0.875"	50'
T2207	0.875"	1.125"	15'
T2208	1.000"	1.375"	15'
T2209	1.000"	1.500"	15'

Precision Cut in your Specified Length

Multi-Lumen, Light Sensitive & Custom Configurations on Request

C-Flex® Tubing

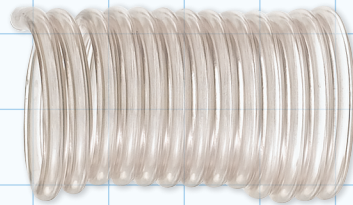
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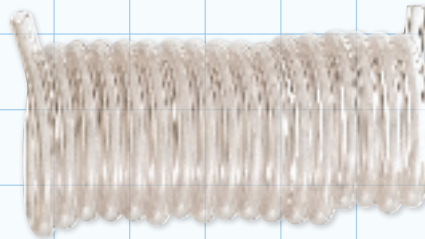
Coiled Tubing

PVC

Coiled Tubing



89315
36"
0.055" I.D. x 0.128" O.D.
Non-DEHP



89316
48"
0.055" I.D. x 0.128" O.D.
Non-DEHP

See Assemblies on Page 67

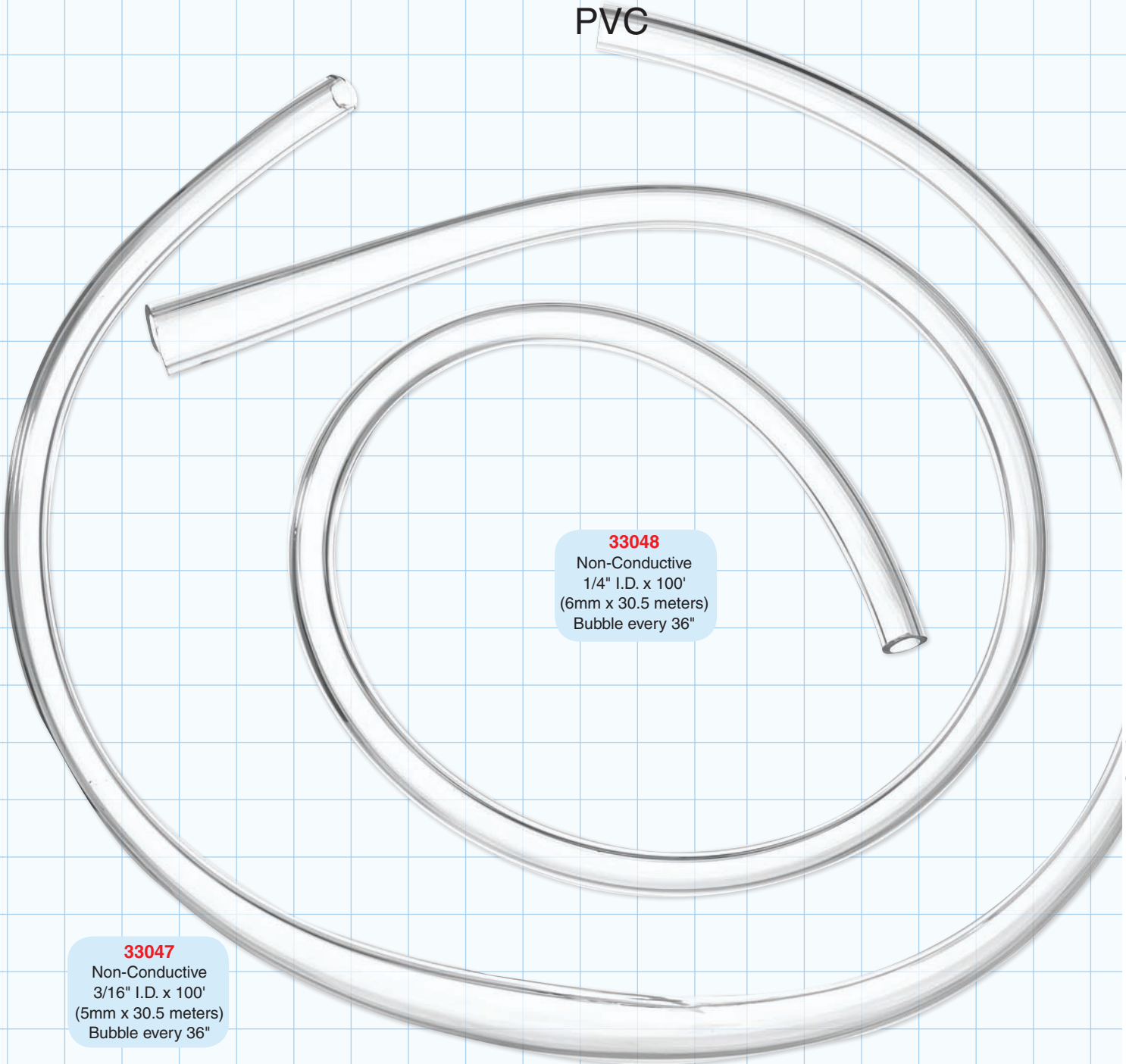
Need a Custom Assembly?
Let Us Help you Design a Solution

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Universal Bubble Tubing



PVC



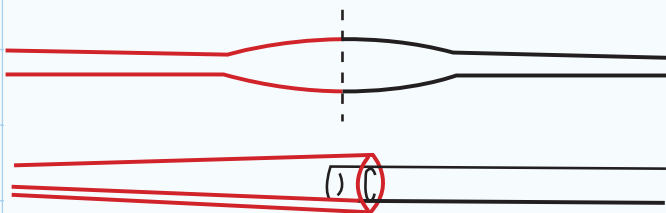
33048
Non-Conductive
1/4" I.D. x 100'
(6mm x 30.5 meters)
Bubble every 36"

33047
Non-Conductive
3/16" I.D. x 100'
(5mm x 30.5 meters)
Bubble every 36"

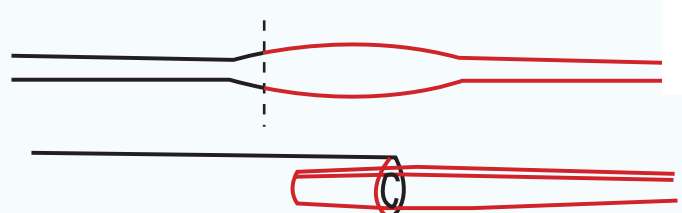
Universal Bub

HROM alytic +61(0)3 9762 2034
ECHnology Pty Ltd
Australian Distributors; Importers & Manufacturers

To form **female** connector end
CUT HERE



To form **male** connector end
CUT HERE



POLYVINYL CHLORIDE (PVC) TUBING**75 Durometer**

Our PVC tubing is a very cost effective product that can satisfy a broad array of end use applications. It is flexible in nature, optically clear, and easily sterilized.

Resin Grade & Technical Information:

This tubing is extruded from Unichem 7511 G-015 resin, which is in compliance with all US Food & Drug Administration regulations for food grade use under Title 21 CFR. It is also certified USP Class VI. It can be sterilized by gamma radiation or Ethylene Oxide (EtO) gas. This tubing is not autoclavable.

We recommend that you request free samples for testing in your particular applications.

DIMENSION (ID X OD X LGTH)	NUMBER
1/16" X 1/8" X 100'	PV00-1031C
1/16" X 1/8" X 1000'	PV00-1031M
3/32" X 3/16" X 100'	PV00-2047C
1/8" X 1/4" X 100'	PV00-3062C
1/8" X 1/4" X 1000'	PV00-3062M
3/16" X 5/16" X 100'	PV00-5062C
1/4" X 3/8" X 100'	PV00-6062C

POLYURETHANE TUBING**80 Durometer**

Our polyurethane tubing is extremely kink resistant. It is also highly resistant to abrasion and scuffing. It is widely accepted as a premium material for medical device use because of its flexible nature and easy sterilizability.

Resin Grade & Technical Information:

This tubing is extruded from Dow's compound Pellethane 2363-80AE, which has passed USP Class VI testing. It can be sterilized by gamma radiation or Ethylene Oxide (EtO) gas. Please do not autoclave this tubing, as it may alter the chemical nature of the resin.

DIMENSION (ID X OD X LGTH)	NUMBER
1/16" X 1/8" X 100'	UR00-1031C
1/16" X 1/8" X 1000'	UR00-1031M
3/32" X 3/16" X 100'	UR00-2047C
3/32" X 3/16" X 1000'	UR00-2047M
1/8" X 1/4" X 100'	UR00-3062C

LOW DENSITY POLYETHYLENE TUBING**92 Durometer**

Our polyethylene tubing has excellent mechanical and chemical resistance properties. However, please use caution if your application involves possible bending or kinking the tubing. It is a semi-rigid material and will be permanently deformed if kinked or bent too tight.

Resin Grade & Technical Information:

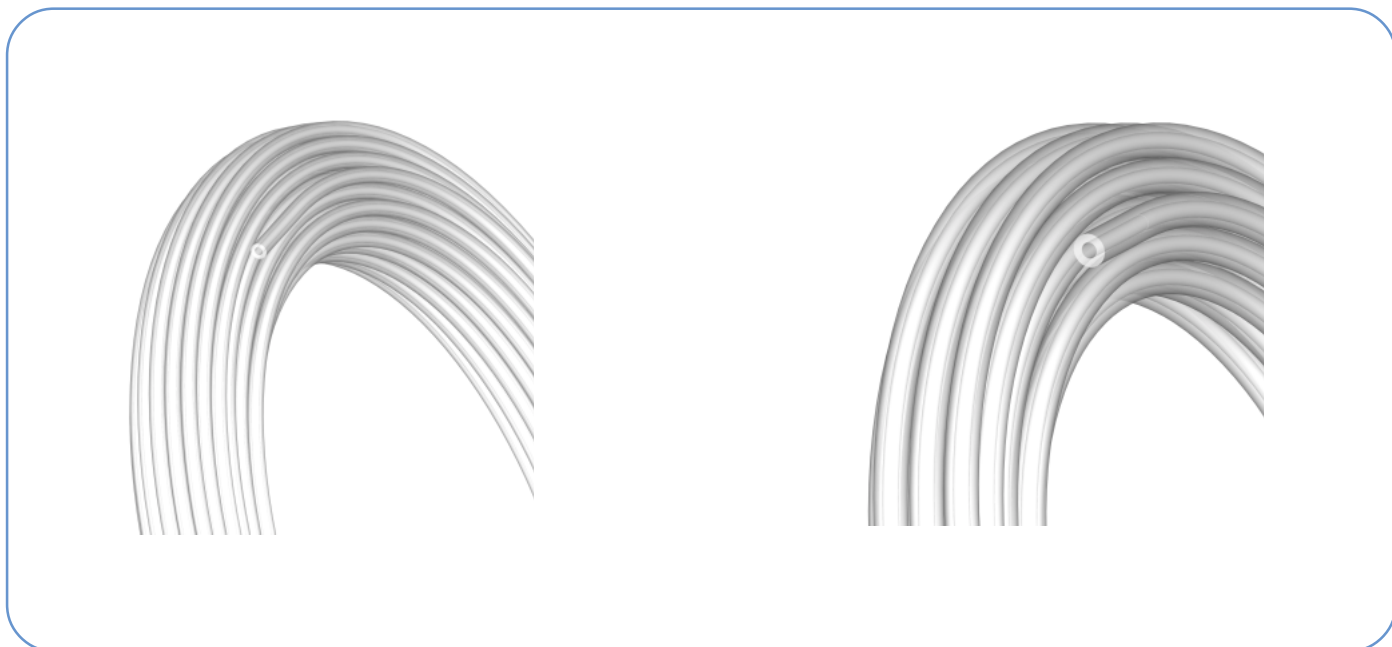
This tubing is extruded from DuPont 2020T, which is in compliance with all U.S. Food & Drug Administration regulations for food grade use under Title 21 CFR. It can be sterilized by gamma radiation or Ethylene Oxide (EtO) gas. Autoclaving is not recommended.

DIMENSION (ID X OD X LGTH)	NUMBER
1/16" X 1/10" X 100'	LDPE01-1019C
1/16" X 1/10" X 1000'	LDPE01-1019M
1/16" X 1/8" X 100'	LDPE01-1031C
1/16" X 1/8" X 1000'	LDPE01-1031M
3/32" X 5/32" X 100'	LDPE01-2031C
3/32" X 5/32" X 1000'	LDPE01-2031M
1/8" X 3/16" X 100'	LDPE01-3031C
1/8" X 3/16" X 1000'	LDPE01-3031M
5/32" X 7/32" X 100'	LDPE01-4031C
5/32" X 7/32" X 1000'	LDPE01-4031M



VALUE PLASTICS, INC.

CHROM *aiytic* +61(0)3 9762 2034 Australian Distributors:
ECH *nology* Pty Ltd Importers & Manufacturers



Chemically resistant softwall and hardwall tubing for demanding applications

- PTFE hardwall tubing in 1/8" (3.2mm) and 1/16" (1.6mm) O.D. sizes
- Silicone Select™ and Bio-Chem (C-Flex®) softwall tubing for use with Pinch Valves
- Cut to specified length in 50 foot increments (softwall) and 20 or 200m lengths (hardwall)
- Available assembled with fittings (see Tubing Sets spec sheet)

Hardwall PTFE

Almost totally inert, PTFE tubing can be used with virtually all chemicals, solvents and corrosive materials, even at elevated temperatures. It can be sterilised in line by steam, chemical methods, or autoclaving. PTFE tubing is ideal for use with all 'Omnifit Cap' connectors and valves and with Gripper, Omni-Lok™ or inverted cone fittings.

Softwall Silicone Select™

Bio-Chem Valve Silicone Select™ tubing is platinum cured silicone tubing designed for high-purity medical grade applications, complies with USP XXII, Class VI, FDA and USDA standards and is FDA master file listed. This tubing has been specially developed to withstand the rigors of usage with pinch valves and is recommended for most pinch valve applications.

Softwall Bio-Chem (C-Flex®)

Bio-Chem (C-Flex®) tubing is designed for high-purity medical grade applications, complies with USP XXII, Class VI, FDA and USDA standards and is FDA master file listed. This tubing has been specially developed to withstand the rigors of usage with pinch valves and is recommended for pinch valve applications where gas permeability is an issue.

Tubing Cutter

A handy cutter is available to ensure clean square cuts. Replacement blades are also available.

Ordering Information

Hardwall Omnifit PTFE Tubing

Part Number	Description	Length	Old Part Number
008T16-030-20	1.6mm (1/16") O.D. x 0.3mm (.012") I.D.	20m	3005
008T16-030-200	1.6mm (1/16") O.D. x 0.3mm (.012") I.D.	200m	3006
008T16-050-20	1.6mm (1/16") O.D. x 0.5mm (.02") I.D.	20m	3003
008T16-050-200	1.6mm (1/16") O.D. x 0.5mm (.02") I.D.	200m	3004
008T16-080-20	1.6mm (1/16") O.D. x 0.8mm (.031") I.D.	20m	3001
008T16-080-200	1.6mm (1/16") O.D. x 0.8mm (.031") I.D.	200m	3002
008T16-100-20	1.6mm (1/16") O.D. x 1.0mm (.039") I.D.	20m	3007
008T16-100-200	1.6mm (1/16") O.D. x 1.0mm (.039") I.D.	200m	3008
008T32-150-10	3.2mm (1/8") O.D. x 1.5mm (.059") I.D.	10m	3011
008T32-150-100	3.2mm (1/8") O.D. x 1.5mm (.059") I.D.	100m	3012

Tolerances:

Inside diameter: $\pm 0.08\text{mm}$ (0.00275")

Outside diameter: $\pm 0.08\text{mm}$ (0.00275")

Softwall Bio-Chem Valve Silicone Select™ Tubing

Part Number	Description	Length	Old Part Number
10025-10S	0.093" (2.36mm) O.D. x 0.010" (0.25mm) I.D.	50 feet	10025-010093S
10025-23S	0.093" (2.36mm) O.D. x 0.023" (0.58mm) I.D.	50 feet	10025-01-23S
10025-50S	0.134" (3.40mm) O.D. x 0.050" (1.27mm) I.D.	50 feet	10025-01-50S
10025-01S	3/32" (2.38mm) O.D. x 1/32" (0.79mm) I.D.	50 feet	-
10025-02S	1/8" (3.17mm) O.D. x 1/16" (1.59mm) I.D.	50 feet	-
10025-03S	3/16" (4.76mm) O.D. x 1/16" (1.59mm) I.D.	50 feet	-
10025-04S	1/4" (6.35mm) O.D. x 3/16" (4.76mm) I.D.	50 feet	-
10025-05S	1/4" (6.35mm) O.D. x 1/8" (3.17mm) I.D.	50 feet	-
10025-06S	3/8" (9.52mm) O.D. x 1/4" (6.35mm) I.D.	50 feet	-
10025-07S	7/16" (11.1mm) O.D. x 5/16" (7.94mm) I.D.	50 feet	-

Softwall Bio-Chem (C-Flex®) Tubing

Part Number	Description	Length	Old Part Number
10025-23B	0.093" (2.36mm) O.D. x 0.023" (0.58mm) I.D.	50 feet	10025-01-23B
10025-01B	3/32" (2.38mm) O.D. x 1/32" (0.79mm) I.D.	50 feet	-
10025-02B	1/8" (3.17mm) O.D. x 1/16" (1.59mm) I.D.	50 feet	-
10025-03B	3/16" (4.76mm) O.D. x 1/16" (1.59mm) I.D.	50 feet	-
10025-05B	1/4" (6.35mm) O.D. x 1/8" (3.17mm) I.D.	50 feet	-
10025-06B	3/8" (9.52mm) O.D. x 1/4" (6.35mm) I.D.	50 feet	-
10025-07B	7/16" (11.1mm) O.D. x 5/16" (7.94mm) I.D.	50 feet	-

Tubing Cutter

Part Number	Description
3062	tubing cutter
3063	replacement blades



Trademarks:

C-Flex® is a registered trademark of Consolidated Polymer Technologies

Omni-Lok™ is a trademark of Omnifit Ltd.

Silicone Select™ is a trademark of Bio-Chem Valve Inc.

Rev. 0205

Specialized Tubing

- Nickel-clad fused silica
- Nickel-clad polyimide-coated fused silica
- Nickel-clad PEEK®

Nickel-clad fused silica

- Inert, flexible transfer lines
- Improved heat transfer

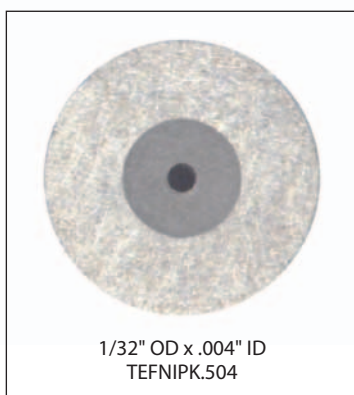
We take polyimide-coated fused silica (FS) and remove the polyimide layer. Then we electrochemically plate the FS with pure nickel. The resulting nickel-plated FS tube provides superior heat transfer to the FS lining, permitting use as a flexible transfer line with the best qualities of silica-lined stainless but with improved heat transfer and a shorter bend radius. The 1/32" OD tubing is available in IDs from .002" to .010". For high pressure applications, we recommend using our 1/32" 316SS ferrules.



Nickel-clad PEEK

- Permits use of PEEK tubing at 40,000 psi
- Direct connection with metal ferrules

Since we can manufacture virtually any size PEEK tubing from 360 micron OD/.002" ID on up, the possibilities are endless. In any size, the mechanical properties of nickel combined with the chemical properties of PEEK produce enhanced performance with robust metal ferrule connections. We currently offer 1/32" OD tubing with ID from .002" to .010", and 1/16" OD tubing from .0025" to .030".



Nickel-clad polyimide-coated fused silica

- Improved heat transfer for FS columns
- Permits resistive heating of columns and transfer lines
- Allows direct connection using metal ferrules
- Rated up to 20,000 psi (dependent on size and plating thickness)

Any polyimide-coated FS can be electroplated with pure nickel, resulting in a ruggedized traditional FS column (or transfer line with deactivated FS), which can be resistively heated, if desired. Best of all, it permits use of metal ferrules for improved leak-tight connections – perfect for temperature program applications.

1/32" OD tubing is available in IDs from .002" to .010". A thin-wall, low mass version optimized for resistive heat applications is available with OD of .017" (48 VDC) or .019" (24 VDC). We offer several options for tubing connections. Contact our tech support to discuss your application.

