FLUIDIC & OPTICAL PRODUCTS AND INFORMATION

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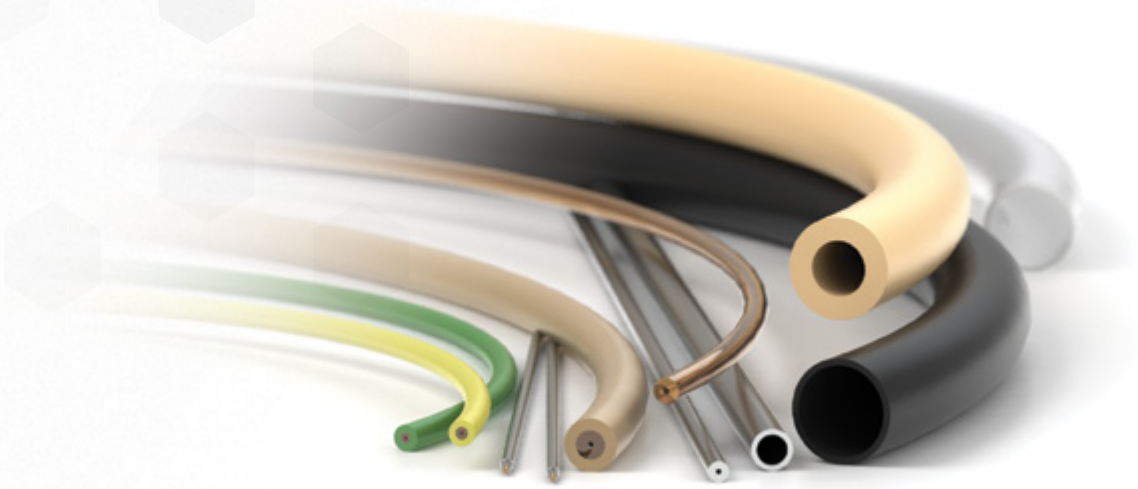
IDEX HEALTH & SCIENCE

Intelligent Solutions for Life™

Fluidics | Optics | Consumables | Assemblies



TUBING

Our high quality, versatile tubing is offered in a variety of materials and styles to meet your system requirements. Our high pressure tubing includes biocompatible PEEK selections and well as seamless, pre-cut stainless steel. Our flouropolymer tubing is constructed with genuine Teflon™ FEP and PFA resin, and our unique High Purity PFA. Many of our tubing options are color coded for easy detection and some are translucent making it easy to view the fluid pathway. Our tubing is manufactured to precise tight tolerances to ensure dependable product consistency.

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TUBING OVERVIEW & FUNCTIONS

HIGH PRESSURE TUBING

TUBING:	PEEK	Capillary PEEK	Fused Silica	Stainless Steel	PEEKsil™
Page	**16**	**16**	**16**	**19**	**22**
Description	Biocompatible, chemically inert to most commonly used solvents, PEEK tubing is flexible, offers a very smooth internal surface, and can be easily cut to desired lengths. • Great alternative for stainless steel tubing in high pressure applications • Many sizes available in color scheme to help identify ID	All the benefits of larger sized PEEK tubing, while serving as an excellent alternative to more traditional fused silica and stainless steel capillary tubing. Capillary PEEK tubing is available in a wide range of micro and nano-scale inner diameters. • Available in common capillary tubing sizes with tight tolerances on OD and ID • Tubing sleeves available for capillary tubing connections	Because of the tight tolerances of fused silica's inner diameters, this tubing is used for micro-scale analyses such as micro and nano-HPLC and capillary electrophoresis. • Most commonly used OD and ID sizes available • High quality, polyimide-clad fused silica • Offered in convenient, two meter lengths	Seamless, pre-cut 316 stainless steel tubing meets the exacting requirements of today's analyses. Thorough preparation guarantees that the tubing is truly ready-to-use, with flat-burr-free ends and a clean finish. • Wide selection of outside and inside diameters and lengths • Pre-cut to ensure burr-free, flat connections • Many sizes feature a color-coded band for easy ID identification	PEEKsil is mechanically strong and has ideal characteristics for sealing with metal or polymer fittings. • Comprised of high quality fused silica sheathed by PEEK tubing • Excellent chemical compatibility • Very tight manufacturing tolerances • Good replacement for stainless steel, PEEK, or standard fused silica
HIGH PRESSURE TUBING SPECIFICATIONS					
OD (outside diameter)	1/32" (785 µm), 1/16" (1.55 mm), 1/8" (3.2 mm)	0.0145" (360 µm), 1/32" (785 µm), 0.020" (0.5 mm)	0.0145" (360 µm)	1/32" (785 µm), 1/16" (1.55 mm), 1/8" (3.2 mm)	0.0145" (360 µm), 1/32" (785 µm), 1/16" (1.55 mm)
ID (inside diameter)	0.001" (25 µm)–0.080" (2.0 mm)	0.001" (25 µm)–0.020" (0.50 mm)	0.0008" (20 µm)–0.006" (150 µm)	0.004" (100 µm)–0.080" (2.0 mm)	0.001" (25 µm)–0.012" (300 µm)
Operating Temp	-51 to 100 °C	-51 to 100 °C	-51 to 100 °C	-51 to 289 °C	-51 to 100 °C
Pressure Rating	500–10,000 psi (34–690 bar)	2,000–5,000 psi (138–345 bar)	N/A*	N/A*	10,000 psi (690 bar)
Typical Tolerances	±0.001" (25 µm) for 1/16" OD tubing; ±0.003" (75 µm) for 1/8" OD tubing	±0.0005" (12.5 µm)	±0.0004" (10 µm)	±0.001" (25 µm) for 1/16" OD tubing; ±0.003" (75 µm) for 1/8" OD tubing	±0.0004" (10 µm)
Refractive Index (Clarity)	Opaque	Opaque	1.78	Opaque	Opaque
pH Range	0–14	0–14	0–10	1–14	0–10
Sterilization Techniques	Gamma irradiation; ethylene oxide; thermal	Gamma irradiation; ethylene oxide; thermal	Ethylene oxide; thermal	Gamma irradiation; ethylene oxide; thermal	Ethylene oxide; thermal
Autoclavable?	Y	Y	Y	Y	Y

**The manufacturer of this tubing or material does not publish this specification.*

TUBING OD SIZES

Please use this table as a reference tool to help quickly locate within this chapter the appropriate OD size tubing for your application.

1 mm OD	2 mm OD	3 mm OD
•	●	●
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FLUOROPOLYMER TUBING

TUBING:	PFA	High Purity PFA	360 µm High Purity PFA	FEP	ETFE
Page	**24**	**24**	**24**	**26**	**27**
Description	Offers excellent chemical compatibility, plus due to its inner surface smoothness, PFA tubing tends to be more translucent than PTFE tubing. • Offers higher purity and enhanced translucence when compared with other fluoropolymer tubes • Great for more critical, low pressure applications	This polymer tubing is manufactured from a premium grade of PFA — one of the most contaminant-free polymers on the market. • Offers chemical stability, mechanical strength, and purity for applications such as medical, diagnostic, pharmaceutical, biotechnology, and semiconductor • Excellent replacement for PTFE where gas permeability and surface texture are issues • Clarity of tubing makes PFA an excellent choice for monitoring fluid movement	This tubing offers excellent chemical compatibility, transparency, very low contaminant levels and is available in the most commonly-used outside diameter for capillary tubing applications. • Replacement for capillary tubing in low pressure applications where excellent chemical compatibility is required • Tubing sleeves available for capillary tubing connections	FEP tubing is a great alternative to traditional PTFE tubing, desirable for use because it is chemically inert to most solvents, easy to cut, and translucent for easy monitoring of solutions passing through. • Great for general, low pressure applications • Many sizes available in multiple colors for easy identification • Tight manufacturing tolerances to ensure product consistency	ETFE is chemically inert and more suitable for higher pressure applications (when using aqueous mobile phases) than PTFE, FEP, and PFA. Additionally, because ETFE is more rigid than PTFE, FEP, and PFA, this tubing better resists inner diameter collapse. • Excellent solvent resistance • More durable and less gas permeable than PTFE, FEP, and PFA • Operating temperatures up to 80 °C
FLUOROPOLYMER TUBING SPECIFICATIONS					
OD (outside diameter)	1/16" (1.55 mm), 1/8" (3.2 mm)	1/16" (1.55 mm), 1/8" (3.2 mm), 3/16" (4.8 mm), 1/4" (6.35 mm)	0.0145" (360 µm)	1/16" (1.55 mm), 0.080" (2.0 mm), 0.118"(3.0 mm), 1/8" (3.2 mm), 0.157"(4.0 mm), 3/16" (4.8 mm), 1/4" (6.35 mm), 5/16" (7.94 mm)	1/16" (1.6 mm), 1/8" (3.2 mm), 1/4" (6.35 mm)
ID (inside diameter)	0.020" (0.50 mm)–0.062" (1.55 mm)	0.020" (0.50 mm)–0.188" (4.80 mm)	0.002" (50 µm)–0.006" (150 µm)	0.003" (0.075 mm) – 0.250" (6.35 mm)	0.010" (0.25 mm)–0.188" (4.80 mm)
Operating Temp	-51 to 80 °C	-51 to 80 °C	-51 to 80 °C	-51 to 50 °C	-51 to 80 °C
Pressure Rating	500–2,000 psi (34–138 bar)	250–2,000 psi (17–138 bar)	1,750–3,500 psi (121–241 bar)	2,500–4,000 psi (172 - 276 bar)	250–4,000 psi (17–276 bar)
Typical Tolerances	±0.001" (25 µm) for 1/16" OD tubing; ±0.003" (75 µm) for 1/8" OD tubing	±0.001" (25 µm) or 1/16" OD tubing	±0.0005" (12.5 µm)	±0.001" (25 µm) for 1/16" OD tubing; ±0.003" (75 µm) for 1/8" OD tubing	±0.001" (25 µm) for 1/16" OD tubing; ±0.003" (75 µm) for 1/8" OD tubing
Refractive Index (Clarity)	1.34	1.34	1.34	1.338	1.4
pH Range	0–14	0–14	0–14	0–14	0–14
Sterilization Techniques	Ethylene oxide; thermal	Gamma irradiation; ethylene oxide; thermal	Gamma irradiation; ethylene oxide; thermal	Ethylene oxide; thermal	Ethylene oxide
Autoclavable?	Y	Y	Y	Y	Y

360 µm OD	1/32" OD	1/16" OD	1/8" OD	3/16" OD	1/4" OD	5/16" OD
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BUY NOW

PEEK Tubing

- 1/16" or 1/8" outside diameter available
- Biocompatible, inert, and easily cut
- Great for high pressure applications
- Maximum continuous use temperature: 100 °C

Our PEEK (polyetheretherketone) polymer tubing is biocompatible, chemically inert to most solvents, and can be used to replace stainless steel tubing in most liquid analytical systems. Unlike stainless steel tubing, PEEK tubing is flexible and can be easily cut to desired lengths.

PEEK tubing has a very smooth internal surface, which causes less turbulence than similarly sized metal tubing, contributing to improved resolution of sample bands. Of all our polymer tubing materials, PEEK is the least permeable to gas (see material properties on our website: www.idex-hs.com).

In addition, much of our 1/16" OD tubing is color-coded so different IDs are easily identified. Our proprietary extrusion process ensures color permanence in our tubing.

Our 5' length tubing is rough cut to approximately 5'1". A trim cut should be made before use, especially for smaller ID tubing. PEEK tubing can be cut easily with a razor blade. However for an improved cut, try our Tubing Cutters on page 28.

Capillary PEEK Tubing

- 360 µm or 1/32" outside diameter available
- IDs as small as 25 µm (0.001")

Capillary PEEK tubing offers all the benefits of larger sized PEEK tubing, while serving as an excellent alternative to more traditional fused silica and stainless steel capillary tubing (see Application Note, right). The capillary tubing can be coupled to many of the products in the Connectors chapter (starting on page 64) and to some of the valves in the Valves chapter (starting on page 116).

Fused Silica Tubing

- Five inner diameters with most common capillary outside diameter, 360 µm
- Cut in convenient lengths, up to 2 m

These products are manufactured from synthetic fused silica with a polyimide coating.

NOTE

Because the thru-hole of our 25 µm ID PEEK tubing is very small, it is possible for some fittings to cause the ID to become occluded. Please use caution, especially with wrench-tightened fittings. For more information, please contact IDEX Health & Science or your local Distributor directly.

APPLICATION NOTE

What Size PEEK Tubing Should I Use?

- It is usually safe to use 1/16" OD x 0.010" ID tubing throughout an analytical HPLC system. With a 0.010" ID, the pressure drop across most tubing lengths is negligible, and the ID is small enough to minimize band broadening.
- High pressure semi-prep LC systems will most likely use 1/8" OD tubing.
- Use our 1/32" OD tubing for the high pressure flow path of some microbore HPLC systems.
- Choose 360 µm OD tubing for most capillary systems.
- PEEK tubing is also available by the inch. Contact your local Distributor or IDEX Health & Science directly for pricing information.

APPLICATION NOTE

- An independent study conducted by a major pharmaceutical company indicated LC-MS chromatographic performance could be improved in some cases by switching the post-column transfer line from fused silica to PEEK polymer tubing. The switch dramatically reduced peak tailing and eliminated the degradation of peak symmetry as injection volume was reduced. For more information, please contact us or order the "Improved LC-MS Results Study" from the "Literature Request" section of our website at www.idex-hs.com.
- To straighten PEEK polymer tubing, first choose a piece of stainless steel tubing with an inner diameter slightly larger than the OD of your tubing and with an appropriate length for the PEEK tubing you wish to straighten. For instance, for 1/16" OD PEEK tubing with a length of 10", choose our U-825 tubing (stainless steel, 1/8" OD x 0.080" ID x 25 cm long, page 19. Slip your PEEK tubing into the stainless steel tubing. Place this "sleeved" tubing into an oven and bake at 425 °F (218 °C) for 30 minutes or 350 °F (177 °C) for 60 minutes. Allow the sleeved tubing to return to room temperature naturally (i.e., do not quench it with water). Once cooled, remove the PEEK tubing from the stainless steel sleeve and inspect it for straightness. If needed, repeat the process until the desired straightness is achieved.

SPECIFICATIONS & DETAILS

Tubing OD	Tubing ID	OD Tolerance	ID Tolerance
PEEK TUBING SPECIFICATIONS			
1/16"	25 µm	±0.001" (25 µm)	±0.0005" (12.5 µm)
1/8"	All	±0.003" (75 µm)	±0.003" (75 µm)
CAPILLARY PEEK TUBING SPECIFICATIONS			
360 µm	All	±0.0005" (12.5 µm)	±0.0005" (12.5 µm)
1/32"	All	±0.0005" (12.5 µm)	±0.0005" (12.5 µm)
FUSED SILICA TUBING, 360 µm OD			
360 µm	20 µm (0.0008")	±0.0004" (10 µm)	±0.00008" (2 µm)
360 µm	50 µm (0.002") and 75 µm (0.003")	±0.0004" (10 µm)	±0.00012" (3 µm)
360 µm	100 µm (0.004") and 150 µm (0.006")	±0.0004" (10 µm)	±0.00016" (4 µm)

PEEK Tubing (Cont.)

PEEK Tubing

Part No.	ID	Color	Max. Pressure	Qty.
PEEK TUBING, 1/16" OD				
1560	0.0025" (65 µm) ID x 5' (1.5 m)	Natural	7,000 psi (483 bar)	ea.
1560L	0.0025" (65 µm) ID x 50' (15 m)	Natural	7,000 psi (483 bar)	ea.
1560XL	0.0025" (65 µm) ID x 100' (30 m)	Natural	7,000 psi (483 bar)	ea.
1560M	0.0025" (65 µm) ID x 1,000' (304 m)	Natural	7,000 psi (483 bar)	ea.
1561	0.004" (0.10 mm) ID x 5' (1.5 m)	Black	7,000 psi (483 bar)	ea.
1561L	0.004" (0.10 mm) ID x 50' (15 m)	Black	7,000 psi (483 bar)	ea.
1561XL	0.004" (0.10 mm) ID x 100' (30 m)	Black	7,000 psi (483 bar)	ea.
1561M	0.004" (0.10 mm) ID x 1,000' (304 m)	Black	7,000 psi (483 bar)	ea.
1535	0.005" (0.125 mm) ID x 5' (1.5 m)	Red	7,000 psi (483 bar)	ea.
1535L	0.005" (0.125 mm) ID x 50' (15 m)	Red	7,000 psi (483 bar)	ea.
1535XL	0.005" (0.125 mm) ID x 100' (30 m)	Red	7,000 psi (483 bar)	ea.
1535M	0.005" (0.125 mm) ID x 1,000' (304 m)	Red	7,000 psi (483 bar)	ea.
1536	0.007" (0.175 mm) ID x 5' (1.5 m)	Yellow	7,000 psi (483 bar)	ea.
1536L	0.007" (0.175 mm) ID x 50' (15 m)	Yellow	7,000 psi (483 bar)	ea.
1536XL	0.007" (0.175 mm) ID x 100' (30 m)	Yellow	7,000 psi (483 bar)	ea.
1536M	0.007" (0.175 mm) ID x 1,000' (304 m)	Yellow	7,000 psi (483 bar)	ea.
1531	0.010" (0.25 mm) ID x 5' (1.5 m)	Natural	7,000 psi (483 bar)	ea.
1531L	0.010" (0.25 mm) ID x 50' (15 m)	Natural	7,000 psi (483 bar)	ea.
1531XL	0.010" (0.25 mm) ID x 100' (30 m)	Natural	7,000 psi (483 bar)	ea.
1531M	0.010" (0.25 mm) ID x ID x 1,000' (304 m)	Natural	7,000 psi (483 bar)	ea.
1531B	0.010" (0.25 mm) ID x 5' (1.5 m)	Blue	7,000 psi (483 bar)	ea.
1531BL	0.010" (0.25 mm) ID x 50' (15 m)	Blue	7,000 psi (483 bar)	ea.
1531BXL	0.010" (0.25 mm) ID x 100' (30 m)	Blue	7,000 psi (483 bar)	ea.
1531BM	0.010" (0.25 mm) ID x 1,000' (304 m)	Blue	7,000 psi (483 bar)	ea.
1532	0.020" (0.50 mm) ID x 5' (1.5 m)	Orange	6,000 psi (414 bar)	ea.
1532L	0.020" (0.50 mm) ID x 50' (15 m)	Orange	6,000 psi (414 bar)	ea.
1532XL	0.020" (0.50 mm) ID x 100' (30 m)	Orange	6,000 psi (414 bar)	ea.
1532M	0.020" (0.50 mm) ID x 1,000' (304 m)	Orange	6,000 psi (414 bar)	ea.
1533	0.030" (0.75 mm) ID x 5' (1.5 m)	Green	4,000 psi (276 bar)	ea.
1533L	0.030" (0.75 mm) ID x 50' (15 m)	Green	4,000 psi (276 bar)	ea.
1533XL	0.030" (0.75 mm) ID x 100' (30 m)	Green	4,000 psi (276 bar)	ea.
1533M	0.030" (0.75 mm) ID x 1,000' (304 m)	Green	4,000 psi (276 bar)	ea.
1538	0.040" (1.00 mm) ID x 5' (1.5 m)	Natural	3,000 psi (207 bar)	ea.
1538L	0.040" (1.00 mm) ID x 50' (15 m)	Natural	3,000 psi (207 bar)	ea.
1538XL	0.040" (1.00 mm) ID x 100' (30 m)	Natural	3,000 psi (207 bar)	ea.
1538M	0.040" (1.00 mm) ID x 1,000' (304 m)	Natural	3,000 psi (207 bar)	ea.
PEEK TUBING, 1/8" OD				
1534	0.062" (1.55 mm) ID x 5' (1.5 m)	Natural	4,000 psi (276 bar)	ea.
1544	0.080" (2.00 mm) ID x 5' (1.5 m)	Natural	3,000 psi (207 bar)	ea.
CAPILLARY PEEK TUBING, 360 µm OD				
1574	25 µm (0.001") ID x 5' (1.5 m)	Natural	5,000 psi (345 bar)	ea.
1570	50 µm (0.002") ID x 5' (1.5 m)	Natural	2,000 psi (138 bar)	ea.
1571	100 µm (0.004") ID x 5' (1.5 m)	Red	2,000 psi (138 bar)	ea.
1572	150 µm (0.006") ID x 5' (1.5 m)	Yellow	2,000 psi (138 bar)	ea.
CAPILLARY PEEK TUBING, 1/32" OD				
1576	0.005" (0.125 mm) ID x 5' (1.5 m)	Red	5,000 psi (345 bar)	ea.
1576L	0.005" (0.125 mm) ID x 50' (15 m)	Red	5,000 psi (345 bar)	ea.
1576XL	0.005" (0.125 mm) ID x 100' (30 m)	Red	5,000 psi (345 bar)	ea.
1576M	0.005" (0.125 mm) ID x 1,000' (304 m)	Red	5,000 psi (345 bar)	ea.
1577	0.007" (0.175 mm) ID x 5' (1.5 m)	Yellow	5,000 psi (345 bar)	ea.
1577L	0.007" (0.175 mm) ID x 50' (15 m)	Yellow	5,000 psi (345 bar)	ea.
1577XL	0.007" (0.175 mm) ID x 100' (30 m)	Yellow	5,000 psi (345 bar)	ea.
1577M	0.007" (0.175 mm) ID x 1,000' (304 m)	Yellow	5,000 psi (345 bar)	ea.
1581	0.010" (0.25 mm) ID x 5' (1.5 m)	Blue	5,000 psi (345 bar)	ea.
1581L	0.010" (0.25 mm) ID x 50' (15 m)	Blue	5,000 psi (345 bar)	ea.
1581XL	0.010" (0.25 mm) ID x 100' (30 m)	Blue	5,000 psi (345 bar)	ea.
1581M	0.010" (0.25 mm) ID x 1,000' (304 m)	Blue	5,000 psi (345 bar)	ea.
1568	0.015" (0.40 mm) ID x 5' (1.5 m)	Natural	4,000 psi (276 bar)	ea.
1568L	0.015" (0.40 mm) ID x 50' (15 m)	Natural	4,000 psi (276 bar)	ea.
1568XL	0.015" (0.40 mm) ID x 100' (30 m)	Natural	4,000 psi (276 bar)	ea.
1568M	0.015" (0.40 mm) ID x 1,000' (304 m)	Natural	4,000 psi (276 bar)	ea.
1569	0.020" (0.50 mm) ID x 5' (1.5 m)	Orange	3,000 psi (207 bar)	ea.
1569L	0.020" (0.50 mm) ID x 50' (15 m)	Orange	3,000 psi (207 bar)	ea.
1569XL	0.020" (0.50 mm) ID x 100' (30 m)	Orange	3,000 psi (207 bar)	ea.
1569M	0.020" (0.50 mm) ID x 1,000' (304 m)	Orange	3,000 psi (207 bar)	ea.
FUSED SILICA TUBING, 360 µm OD				
FS-120	20 µm (0.0008") ID x 6.4' (2 m)	Natural	10,000 psi (690 bar)	ea.
FS-150	50 µm (0.002") ID x 6.4' (2 m)	Natural	10,000 psi (690 bar)	ea.
FS-175	75 µm (0.003") ID x 6.4' (2 m)	Natural	10,000 psi (690 bar)	ea.
FS-110	100 µm (0.004") ID x 6.4' (2 m)	Natural	10,000 psi (690 bar)	ea.
FS-115	150 µm (0.006") ID x 6.4' (2 m)	Natural	10,000 psi (690 bar)	ea.

Stainless Steel Tubing

- Precut 316 stainless steel
- Available ODs include 1/32", 1/16", and 1/8"
- Color-coded banding for easy identification of the inner diameter

IDEX Health & Science seamless, precut stainless steel tubing is designed to meet the exacting requirements of today's analyses. We machine cut and polish each end, deburr the inside and outside edges, and passivate the tubing (please see the passivation information on this page). Finally, we flush reagent-grade isopropanol through each piece.

Our thorough preparation and cleaning procedure guarantees tubing that is truly ready-to-use, with flat, burr-free ends and a clean finish. This care is important in achieving zero-dead-volume connections and good chromatographic results.

We offer a variety of precut lengths as well as longer lengths (5' and 25') of some sizes. Cutting the tubing disturbs and roughens the tubing's end surface, so we recommend using our precut tubing whenever possible. If you need to cut tubing to custom lengths, we suggest you then passivate the tubing.

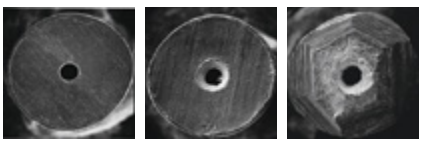
APPLICATION NOTE

- Our 1/32" OD tubing is designed for enhanced flexibility in high pressure applications.
- Standard 1/16" and 1/8" OD stainless steel tubing is suited for most analytical applications.

NOTE

PEEK polymer tubing can be used to replace stainless steel tubing in most liquid analytical systems. Unlike stainless steel tubing, PEEK tubing is biocompatible, flexible, and can easily be cut to desired lengths. See page 16. All Stainless Steel tubing longer than 1 m is coiled.

The Beauty of Precut Tubing



Precut tubing

Tubing cut by a commercially available tubing cutter

File cut tubing

Stainless Steel Tubing Passivation

Stainless steel is naturally self-passivating, forming an oxidized layer on newly created surfaces. IDEX Health & Science takes extra steps to ensure the chemical resistance of our stainless steel tubing by manually passivating before and after the tubing is cut into specified lengths (except in a few cases where size is prohibitive). In the precut stage, the internal wall is acid passivated and flushed. After the tubing is cut, deburred and polished, it is completely submerged in an acid passivation bath and again flushed clean. The table below summarizes the manual passivation steps performed for each size of our stainless steel tubing:

Tubing OD	Precut Passivation	Postcut Passivation
1/32"	All	All
1/16"	All	All, ex. 25' lengths
1/8"	None	All, ex. 3 & 5 m lengths

Stainless Steel Tubing (Cont.)

SPECIFICATIONS & DETAILS

- Maximum Recommended Operating Temperature: 750 °F (399 °C).
- Rockwell Hardness (B): Maximum of 95.
- Meets ASTM A269 and A213.

Tubing OD	OD Tolerance	Tubing ID	ID Tolerance
1/32"	+0.002"/-0.000" (+50 µm/-0 µm)	All, except 0.004" (0.10 mm)	+0.000"/-0.002" (+0 µm/-50 µm)
1/32"	+0.002"/-0.000" (+50 µm/-0 µm)	0.004" (0.10 mm)	+0.002"/-0.000" (+50 µm/-0 µm)
1/16"	+0.002"/-0.000" (+50 µm/-0 µm)	All	±0.001" (25 µm)
1/8"	±0.003" (75 µm)	All	±0.003" (75 µm)

RELATED PRODUCTS

- PEEK polymer tubing is available in all of these sizes, starting on page 16.

NOTE

Understanding the Maximum Pressure Value of Stainless Steel Tubing

Stainless steel is unique as a material. The Maximum Pressure value listed for each part number is the safe, continuous working pressure limit that IDEX Health & Science has assigned for the tubing. It reflects a safety margin before the tubing begins to "yield" — which is well below the tubing's "burst" pressure. For more information, contact IDEX Health & Science or your authorized Distributor.

Stainless Steel Tubing

Part No.	ID	Length	Color	Maximum Pressure	Qty.
STAINLESS STEEL, 1/32" OD					
U-1114	0.004" (0.10 mm)	2" (5 cm)	Red	19,300 psi (1,331 bar)	ea.
U-1115	0.004" (0.10 mm)	4" (10 cm)	Red	19,300 psi (1,331 bar)	ea.
U-1116	0.004" (0.10 mm)	8" (20 cm)	Red	19,300 psi (1,331 bar)	ea.
U-1117	0.004" (0.10 mm)	12" (30 cm)	Red	19,300 psi (1,331 bar)	ea.
U-1120	0.006" (0.15 mm)	2" (5 cm)	Yellow	19,300 psi (1,331 bar)	ea.
U-1122	0.006" (0.15 mm)	8" (20 cm)	Yellow	19,300 psi (1,331 bar)	ea.
U-1125	0.008" (0.20 mm)	2" (5 cm)	Clear	17,800 psi (1,227 bar)	ea.
U-1126	0.008" (0.20 mm)	4" (10 cm)	Clear	17,800 psi (1,227 bar)	ea.
U-1128	0.008" (0.20 mm)	12" (30 cm)	Clear	17,800 psi (1,227 bar)	ea.
U-1130	0.010" (0.25 mm)	2" (5 cm)	Blue	16,200 psi (1,117 bar)	ea.
U-1131	0.010" (0.25 mm)	4" (10 cm)	Blue	16,200 psi (1,117 bar)	ea.
U-1132	0.010" (0.25 mm)	8" (20 cm)	Blue	16,200 psi (1,117 bar)	ea.
U-1133	0.010" (0.25 mm)	12" (30 cm)	Blue	16,200 psi (1,117 bar)	ea.
U-1140	0.015" (0.40 mm)	2" (5 cm)	Green	12,300 psi (848 bar)	ea.
U-1141	0.015" (0.40 mm)	4" (10 cm)	Green	12,300 psi (848 bar)	ea.
U-1142	0.015" (0.40 mm)	8" (20 cm)	Green	12,300 psi (848 bar)	ea.
U-1143	0.015" (0.40 mm)	12" (30 cm)	Green	12,300 psi (848 bar)	ea.
U-1145	0.018" (0.45 mm)	2" (5 cm)	Black	10,000 psi (689 bar)	ea.
U-1146	0.018" (0.45 mm)	4" (10 cm)	Black	10,000 psi (689 bar)	ea.
U-1148	0.018" (0.45 mm)	12" (30 cm)	Black	10,000 psi (689 bar)	ea.

Stainless Steel Tubing (Cont.)

Part No.	ID	Length	Color	Maximum Pressure	Qty.
STAINLESS STEEL, 1/16" OD					
U-152	0.005" (0.125 mm)	2" (5 cm)	Red	21,600 psi (1,489 bar)	ea.
U-153	0.005" (0.125 mm)	4" (10 cm)	Red	21,600 psi (1,489 bar)	ea.
U-154	0.005" (0.125 mm)	8" (20 cm)	Red	21,600 psi (1,489 bar)	ea.
U-155	0.005" (0.125 mm)	12" (30 cm)	Red	21,600 psi (1,489 bar)	ea.
U-156	0.005" (0.125 mm)	1.6' (0.5 m)	Red	21,600 psi (1,489 bar)	ea.
U-157	0.005" (0.125 mm)	3.2' (1 m)	Red	21,600 psi (1,489 bar)	ea.
U-158	0.005" (0.125 mm)	5' (1.5 m)	Red	21,600 psi (1,489 bar)	ea.
U-160	0.005" (0.125 mm)	25' (7.6 m)	Red	21,600 psi (1,489 bar)	ea.
U-126	0.007" (0.175 mm)	2" (5 cm)	Black	20,900 psi (1,441 bar)	ea.
U-127	0.007" (0.175 mm)	4" (10 cm)	Black	20,900 psi (1,441 bar)	ea.
U-128	0.007" (0.175 mm)	8" (20 cm)	Black	20,900 psi (1,441 bar)	ea.
U-129	0.007" (0.175 mm)	12" (30 cm)	Black	20,900 psi (1,441 bar)	ea.
U-130	0.007" (0.175 mm)	1.6' (0.5 m)	Black	20,900 psi (1,441 bar)	ea.
U-131	0.007" (0.175 mm)	3.2' (1 m)	Black	20,900 psi (1,441 bar)	ea.
U-108	0.007" (0.175 mm)	5' (1.5 m)	Black	20,900 psi (1,441 bar)	ea.
U-161	0.007" (0.175 mm)	25' (7.6 m)	Black	20,900 psi (1,441 bar)	ea.
U-111	0.010" (0.25 mm)	2" (5 cm)	Blue	19,700 psi (1,358 bar)	ea.
U-112	0.010" (0.25 mm)	4" (10 cm)	Blue	19,700 psi (1,358 bar)	ea.
U-113	0.010" (0.25 mm)	8" (20 cm)	Blue	19,700 psi (1,358 bar)	ea.
U-114	0.010" (0.25 mm)	12" (30 cm)	Blue	19,700 psi (1,358 bar)	ea.
U-132	0.010" (0.25 mm)	1.6' (0.5 m)	Blue	19,700 psi (1,358 bar)	ea.
U-133	0.010" (0.25 mm)	3.2' (1 m)	Blue	19,700 psi (1,358 bar)	ea.
U-106	0.010" (0.25 mm)	5' (1.5 m)	Blue	19,700 psi (1,358 bar)	ea.
U-162	0.010" (0.25 mm)	25' (7.6 m)	Blue	19,700 psi (1,358 bar)	ea.
U-101	0.020" (0.5 mm)	2" (5 cm)	Yellow	15,800 psi (1,089 bar)	ea.
U-102	0.020" (0.5 mm)	4" (10 cm)	Yellow	15,800 psi (1,089 bar)	ea.
U-103	0.020" (0.5 mm)	8" (20 cm)	Yellow	15,800 psi (1,089 bar)	ea.
U-104	0.020" (0.5 mm)	12" (30 cm)	Yellow	15,800 psi (1,089 bar)	ea.
U-134	0.020" (0.5 mm)	1.6' (0.5 m)	Yellow	15,800 psi (1,089 bar)	ea.
U-135	0.020" (0.5 mm)	3.2' (1 m)	Yellow	15,800 psi (1,089 bar)	ea.
U-105	0.020" (0.5 mm)	5' (1.5 m)	Yellow	15,800 psi (1,089 bar)	ea.
U-163	0.020" (0.5 mm)	25' (7.6 m)	Yellow	15,800 psi (1,089 bar)	ea.
U-115	0.030" (0.75 mm)	2" (5 cm)	White	12,000 psi (827 bar)	ea.
U-116	0.030" (0.75 mm)	4" (10 cm)	White	12,000 psi (827 bar)	ea.
U-117	0.030" (0.75 mm)	8" (20 cm)	White	12,000 psi (827 bar)	ea.
U-118	0.030" (0.75 mm)	12" (30 cm)	White	12,000 psi (827 bar)	ea.
U-136	0.030" (0.75 mm)	1.6' (0.5 m)	White	12,000 psi (827 bar)	ea.
U-137	0.030" (0.75 mm)	3.2' (1 m)	White	12,000 psi (827 bar)	ea.
U-107	0.030" (0.75 mm)	5' (1.5 m)	White	12,000 psi (827 bar)	ea.
U-164	0.030" (0.75 mm)	25' (7.6 m)	White	12,000 psi (827 bar)	ea.
U-138	0.040" (1.0 mm)	2" (5 cm)	N/A	8,100 psi (558 bar)	ea.
U-139	0.040" (1.0 mm)	4" (10 cm)	N/A	8,100 psi (558 bar)	ea.
U-140	0.040" (1.0 mm)	8" (20 cm)	N/A	8,100 psi (558 bar)	ea.
U-141	0.040" (1.0 mm)	12" (30 cm)	N/A	8,100 psi (558 bar)	ea.
U-142	0.040" (1.0 mm)	1.6' (0.5 m)	N/A	8,100 psi (558 bar)	ea.
U-143	0.040" (1.0 mm)	3.2' (1 m)	N/A	8,100 psi (558 bar)	ea.
U-144	0.040" (1.0 mm)	5' (1.5 m)	N/A	8,100 psi (558 bar)	ea.
U-165	0.040" (1.0 mm)	25' (7.6 m)	N/A	8,100 psi (558 bar)	ea.
U-145	0.046" (1.15 mm)	2" (5 cm)	N/A	5,800 psi (400 bar)	ea.
U-146	0.046" (1.15 mm)	4" (10 cm)	N/A	5,800 psi (400 bar)	ea.
U-147	0.046" (1.15 mm)	8" (20 cm)	N/A	5,800 psi (400 bar)	ea.
U-148	0.046" (1.15 mm)	12" (30 cm)	N/A	5,800 psi (400 bar)	ea.
U-149	0.046" (1.15 mm)	1.6' (0.5 m)	N/A	5,800 psi (400 bar)	ea.
U-150	0.046" (1.15 mm)	3.2' (1 m)	N/A	5,800 psi (400 bar)	ea.
U-151	0.046" (1.15 mm)	5' (1.5 m)	N/A	5,800 psi (400 bar)	ea.
STAINLESS STEEL, 1/8" OD					
U-825	0.080" (2.0 mm)	10" (25 cm)	N/A	7,600 psi (524 bar)	ea.
U-800	0.080" (2.0 mm)	3.2' (1 m)	N/A	7,600 psi (524 bar)	ea.
U-803	0.080" (2.0 mm)	9.8' (3 m)	N/A	7,600 psi (524 bar)	ea.
U-805	0.080" (2.0 mm)	16' (5 m)	N/A	7,600 psi (524 bar)	ea.

BUY NOW

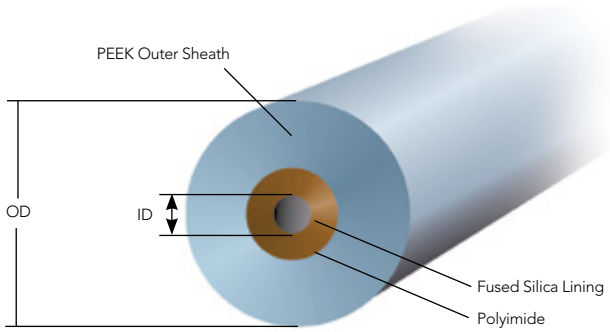
PEEKsil™ Tubing

- PEEK covered fused silica
- 1/32" and 1/16" outside diameters with a wide variety of inside diameters
- Precut to numerous standard lengths

PEEKsil's sheathing is mechanically strong and has ideal characteristics for sealing with many styles of fittings. The fused silica core provides a consistent and rigid fluid pathway with very tight tolerances and industry-accepted chemical properties. Together, this makes PEEKsil tubing ideal for numerous applications. In fact, PEEKsil can be used as a direct replacement for conventional stainless steel or PEEK tubing in many analytical systems.

Like traditional fused silica tubing, PEEKsil has excellent chemical compatibility and extremely low adsorption characteristics, especially when compared with stainless steel.

Please Note: ***Do not cut this tubing.*** *It should be used at its precut lengths because of permanent damage caused by conventional cutters.*



SPECIFICATIONS & DETAILS

Tubing OD	OD Tolerance	Tubing ID	ID Tolerance
		25 µm	±0.00004" (1 µm)
1/32"	±0.0008" (20 µm)	50–100 µm	±0.00012" (3 µm)
1/16"	±0.0012" (30 µm)	0.15–0.30 mm	±0.0002" (5 µm)

SPECIFICATIONS & DETAILS

Because PEEKsil tubing has fused silica tubing at its core, the pressure rating for this tubing is determined by the inner diameter of the tubing. The following chart highlights the Maximum Pressure values for this tubing, as determined by SGE International Pty., Ltd., the manufacturer of this tubing:

Tubing ID	Maximum Pressure
25 µm	25,000 psi (1,723 bar)
50 µm	20,000 psi (1,379 bar)
75–100 µm	15,000 psi (1,034 bar)
150–175 µm	8,500 psi (586 bar)
200–300 µm	6,000 psi (414 bar)

The pressure ratings provided are indicative of the performance capabilities of the tubing. The actual pressure limits achievable will depend upon the fittings used, the quality of the receiving port, and other factors. Contact IDEX Health & Science or your authorized Distributor for more information.

PEEKsil™ Tubing

4″ (10 cm)	ID	Length	Color	Qty.
PEEKSIL TUBING, 1/32″ OD				
3255	0.001″ (25 µm)	2″ (5 cm)	Orange	2-pk
32510	0.001″ (25 µm)	4″ (10 cm)	Orange	2-pk
32515	0.001″ (25 µm)	6″ (15 cm)	Orange	2-pk
32520	0.001″ (25 µm)	8″ (20 cm)	Orange	2-pk
32550	0.001″ (25 µm)	1.6′ (50 cm)	Orange	2-pk
3505	0.002″ (50 µm)	2″ (5 cm)	Natural	2-pk
35010	0.002″ (50 µm)	4″ (10 cm)	Natural	2-pk
35015	0.002″ (50 µm)	6″ (15 cm)	Natural	2-pk
35020	0.002″ (50 µm)	8″ (20 cm)	Natural	2-pk
PEEKSIL TUBING, 1/32″ OD				
35050	0.002″ (50 µm)	1.6′ (50 cm)	Natural	2-pk
3755	0.003″ (75 µm)	2″ (5 cm)	Black	2-pk
37510	0.003″ (75 µm)	4″ (10 cm)	Black	2-pk
37515	0.003″ (75 µm)	6″ (15 cm)	Black	2-pk
37520	0.003″ (75 µm)	8″ (20 cm)	Black	2-pk
37550	0.003″ (75 µm)	1.6′ (50 cm)	Black	2-pk
31005	0.004″ (100 µm)	2″ (5 cm)	Red	2-pk
310010	0.004″ (100 µm)	4″ (10 cm)	Red	2-pk
310015	0.004″ (100 µm)	6″ (15 cm)	Red	2-pk
310020	0.004″ (100 µm)	8″ (20 cm)	Red	2-pk
310050	0.004″ (100 µm)	1.6′ (50 cm)	Red	2-pk
31505	0.006″ (150 µm)	2″ (5 cm)	Purple	2-pk
315010	0.006″ (150 µm)	4″ (10 cm)	Purple	2-pk
315015	0.006″ (150 µm)	6″ (15 cm)	Purple	2-pk
315020	0.006″ (150 µm)	8″ (20 cm)	Purple	2-pk
315050	0.006″ (150 µm)	1.6′ (50 cm)	Purple	2-pk
PEEKSIL TUBING, 1/16″ OD				
6255	0.001″ (25 µm)	2″ (5 cm)	Orange	5-pk
62510	0.001″ (25 µm)	4″ (10 cm)	Orange	5-pk
62515	0.001″ (25 µm)	6″ (15 cm)	Orange	5-pk
62520	0.001″ (25 µm)	8″ (20 cm)	Orange	5-pk
62550	0.001″ (25 µm)	1.6′ (50 cm)	Orange	2-pk
6505	0.002″ (50 µm)	2″ (5 cm)	Natural	5-pk
65010	0.002″ (50 µm)	4″ (10 cm)	Natural	5-pk
65015	0.002″ (50 µm)	6″ (15 cm)	Natural	5-pk
65020	0.002″ (50 µm)	8″ (20 cm)	Natural	5-pk
65050	0.002″ (50 µm)	1.6′ (50 cm)	Natural	2-pk
6755	0.003″ (75 µm)	2″ (5 cm)	Black	5-pk
67510	0.003″ (75 µm)	4″ (10 cm)	Black	5-pk
67515	0.003″ (75 µm)	6″ (15 cm)	Black	5-pk
67520	0.003″ (75 µm)	8″ (20 cm)	Black	5-pk
67550	0.003″ (75 µm)	1.6′ (50 cm)	Black	2-pk
61005	0.004″ (100 µm)	2″ (5 cm)	Red	5-pk
610010	0.004″ (100 µm)	4″ (10 cm)	Red	5-pk
610015	0.004″ (100 µm)	6″ (15 cm)	Red	5-pk
610020	0.004″ (100 µm)	8″ (20 cm)	Red	5-pk
610050	0.004″ (100 µm)	1.6′ (50 cm)	Red	2-pk
61505	0.006″ (150 µm)	2″ (5 cm)	Purple	5-pk
615010	0.006″ (150 µm)	4″ (10 cm)	Purple	5-pk
615015	0.006″ (150 µm)	6″ (15 cm)	Purple	5-pk
615020	0.006″ (150 µm)	8″ (20 cm)	Purple	5-pk
615050	0.006″ (150 µm)	1.6′ (50 cm)	Purple	2-pk
617515	0.007″ (175 µm)	6″ (15 cm)	Yellow	5-pk
617520	0.007″ (175 µm)	8″ (20 cm)	Yellow	5-pk
617550	0.007″ (175 µm)	1.6′ (50 cm)	Yellow	2-pk
62005	0.008″ (200 µm)	2″ (5 cm)	Blue	5-pk
620015	0.008″ (200 µm)	6″ (15 cm)	Blue	5-pk
620020	0.008″ (200 µm)	8″ (20 cm)	Blue	5-pk
620050	0.008″ (200 µm)	1.6′ (50 cm)	Blue	2-pk
63005	0.012″ (300 µm)	2″ (5 cm)	Gray	5-pk
630010	0.012″ (300 µm)	4″ (10 cm)	Gray	5-pk
630015	0.012″ (300 µm)	6″ (15 cm)	Gray	5-pk
630020	0.012″ (300 µm)	8″ (20 cm)	Gray	5-pk
630050	0.012″ (300 µm)	1.6′ (50 cm)	Gray	2-pk

BUY NOW

PFA Tubing

PFA Tubing

- 1/16" and 1/8" ODs available
- Excellent solvent resistance and low gas permeability
- Constructed with genuine Teflon™ PFA resin

PFA (perfluoroalkoxyalkane) tubing offers excellent solvent resistance (virtually identical to FEP and PTFE) while adding several advantages. These include smoother surface texture, higher continuous service temperature and superior polymer purity. The recommended maximum operating temperature for our PFA tubing is 80 °C.

High Purity PFA Tubing

- 360 µm, 1/16", 1/8", 3/16", and 1/4" outside diameters available
- PFA HP and PFA HP Plus Grades available
- Virtually contaminant free
- Constructed with genuine Teflon™ High Purity PFA resin

PFA High Purity (HP) tubing offers all of the benefits of standard PFA tubing, with the additional benefit of being manufactured from a premium grade of PFA that is one of the most contaminant-free polymers available. In PFA HP, we offer tubing with the following outer diameters: 1/16", 1/8", 3/16", and 1/4".

PFA High Purity (HP) Plus tubing carries all of the benefits of PFA HP tubing, with the additional benefits of increased ability to withstand repeated flexing; improved resistance to stress cracking when exposed to aggressive fluorosurfactants; and smoother, clearer walls. In PFA HP Plus, we offer tubing with the following outer diameters: 360 µm, 1/16", and 1/8".

(Please Note: Due to the physical nature of the 360 µm OD tubing, we recommend using our A-350 Polymer Tubing Cutter from page 28 when cutting this tubing to length. Additionally, extra care should be taken to ensure fittings are not overtightened and to ensure the tubing is not stretched once secured in place, to ensure the dimensional stability of the tubing.)

SPECIFICATIONS & DETAILS

Tubing OD	OD Tolerances	Tubing ID	ID Tolerance
PFA TUBING SPECIFICATIONS			
1/16"	±0.001" (25 µm)	All	±0.001" (25 µm)
1/8"	±0.003" (75 µm)	All	±0.003" (75 µm)
HIGH PURITY PFA TUBING SPECIFICATIONS			
1/16"	±0.001" (25 µm)	All	±0.001" (25 µm)
1/8"	±0.003" (75 µm)	All	±0.003" (75 µm)
3/16"	±0.003" (75 µm)	All	±0.003" (75 µm)
1/4"	±0.004" (100 µm)	All	±0.004" (100 µm)
360 µM OD PFA HP TUBING SPECIFICATIONS			
360 µm	±0.0005" (12.5 µm)	All	±0.0005" (12.5 µm)

PFA Tubing

Part No.	ID	Length	Color	Max. Pressure	Qty.
PFA TUBING, 1/16″ OD					
1500	0.020" (0.50 mm)	5' (1.5 m)	Natural	2,000 psi (138 bar)	ea.
1512L	0.020" (0.50 mm)	50' (15 m)	Natural	2,000 psi (138 bar)	ea.
1512M	0.020" (0.50 mm)	1,000' (304 m)	Natural	2,000 psi (138 bar)	ea.
1502	0.030" (0.75 mm)	5' (1.5 m)	Natural	1,000 psi (69 bar)	ea.
1514L	0.030" (0.75 mm)	50' (15 m)	Natural	1,000 psi (69 bar)	ea.
1514M	0.030" (0.75 mm)	1,000' (304 m)	Natural	1,000 psi (69 bar)	ea.
1503	0.040" (1.0 mm)	5' (1.5 m)	Natural	500 psi (34 bar)	ea.
1507L	0.040" (1.0 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1507M	0.040" (1.0 mm)	1,000' (304 m)	Natural	500 psi (34 bar)	ea.
PFA TUBING, 1/8″ OD					
1509-5	0.062" (1.55 mm)	5' (1.5 m)	Natural	500 psi (34 bar)	ea.
1509L	0.062" (1.55 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
PFA HP TUBING, 1/16″ OD					
1622-5	0.020" (0.50 mm)	5' (1.5 m)	Natural	2,000 psi (138 bar)	ea.
1622L	0.020" (0.50 mm)	50' (15 m)	Natural	2,000 psi (138 bar)	ea.
1622M	0.020" (0.50 mm)	1,000' (304 m)	Natural	2,000 psi (138 bar)	ea.
1632-5	0.030" (0.75 mm)	5' (1.5 m)	Natural	1,000 psi (69 bar)	ea.
1632L	0.030" (0.75 mm)	50' (15 m)	Natural	1,000 psi (69 bar)	ea.
1632M	0.030" (0.75 mm)	1,000' (304 m)	Natural	1,000 psi (69 bar)	ea.
PFA HP TUBING, 1/8″ OD					
1641-5	0.062" (1.55 mm)	5' (1.5 m)	Natural	500 psi (34 bar)	ea.
1641L	0.062" (1.55 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
PFA HP PLUS TUBING, 1/16″ OD					
1902-5	0.010 (0.25 mm)	5' (1.5 m)	Natural	3,000 psi (207 bar)	ea.
1902L	0.010 (0.25 mm)	50' (15 m)	Natural	3,000 psi (207 bar)	ea.
1902M	0.010 (0.25 mm)	1,000' (304 m)	Natural	3,000 psi (207 bar)	ea.
1907-5	0.020" (0.50 mm)	5' (1.5 m)	Natural	2,000 psi (138 bar)	ea.
1907L	0.020" (0.50 mm)	50' (15 m)	Natural	2,000 psi (138 bar)	ea.
1907M	0.020" (0.50 mm)	1,000' (304 m)	Natural	2,000 psi (138 bar)	ea.
1912-5	0.030" (0.75 mm)	5' (1.5 m)	Natural	1,000 psi (69 bar)	ea.
1912L	0.030" (0.75 mm)	50' (15 m)	Natural	1,000 psi (69 bar)	ea.
1912M	0.030" (0.75 mm)	1,000' (304 m)	Natural	1,000 psi (69 bar)	ea.
PFA HP PLUS TUBING, 1/8″ OD					
1921-5	0.062" (1.55 mm)	5' (1.5 m)	Natural	500 psi (34 bar)	ea.
1921L	0.062" (1.55 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.

BUY NOW

FEP Tubing

- Great for moderate-to-low pressure applicationse
- 1/16", 1/8", 3/16", 1/4", or 5/16" outside diameter available
- 1 mm, 2 mm, or 3 mm outside diameter available
- Maximum continuous use temperature: 50 °C
- Constructed with genuine Teflon™ FEP resin

With virtually identical chemical resistance to PFA at a lower price, FEP tubing is great for general, low pressure applications. Compared to PTFE, FEP (fluorinated ethylene propylene) tubing is held to tighter tolerances and has lower gas permeability (see material properties on our website: www.idex-hs.com).

Much of our FEP Tubing — even the color-tinted options — is translucent, making it possible to watch fluid flow. Using different colored tubing can help identify transfer lines in multisolvent systems. Color coding also allows easy identification of the tubing thru-hole size. Black FEP tubing is available for light-sensitive applications (such as enzymatic and chemi-luminescent reactions) and entering/exiting flow cells.

SPECIFICATIONS & DETAILS

Tubing Size	OD Tolerances	ID Tolerances
1/16" OD	±0.001" (25 µm)	±0.001" (25 µm)
1/8" OD	±0.003" (75 µm)	±0.003" (75 µm)
3/16" OD	±0.004" (0.10 mm)	±0.004" (0.10 mm)
5/16" OD	±0.004" (0.10 mm)	±0.004" (0.10 mm)
1 mm OD	±0.001" (25 µm)	±0.001" (25 µm)
2 mm OD	±0.003" (75 µm)	±0.003" (75 µm)
3 mm OD	±0.003" (75 µm)	±0.003" (75 µm)

Part No.	ID	Length	Color	Max. Pressure	Qty.
FEP TUBING, 1/16" OD					
1527-5	0.010" (0.25 mm)	5' (1.5 m)	Natural	3,000 psi (207 bar)	ea.
1527L	0.010" (0.25 mm)	50' (15 m)	Natural	3,000 psi (207 bar)	ea.
1527XL	0.010" (0.25 mm)	100' (30 m)	Natural	3,000 psi (207 bar)	ea.
1527M	0.010" (0.25 mm)	1,000' (304 m)	Natural	3,000 psi (207 bar)	ea.
1548-5	0.020" (0.50 mm)	5' (1.5 m)	Natural	2,000 psi (138 bar)	ea.
1548L	0.020" (0.50 mm)	50' (15 m)	Natural	2,000 psi (138 bar)	ea.
1548XL	0.020" (0.50 mm)	100' (30 m)	Natural	2,000 psi (138 bar)	ea.
1548M	0.020" (0.50 mm)	1,000' (304 m)	Natural	2,000 psi (138 bar)	ea.
1520-5	0.030" (0.75 mm)	5' (1.5 m)	Natural	1,000 psi (69 bar)	ea.
1520L	0.030" (0.75 mm)	50' (15 m)	Natural	1,000 psi (69 bar)	ea.
1520XL	0.030" (0.75 mm)	100' (30 m)	Natural	1,000 psi (69 bar)	ea.
1520M	0.030" (0.75 mm)	1,000' (304 m)	Natural	1,000 psi (69 bar)	ea.
FEP TUBING, 1/8" OD					
1521-5	0.062" (1.55 mm)	5' (1.5 m)	Natural	500 psi (34 bar)	ea.
1521L	0.062" (1.55 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1521XL	0.062" (1.55 mm)	100' (30 m)	Natural	500 psi (34 bar)	ea.
FEP TUBING, 3/16" OD					
1524L	0.125" (3.2 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1524XL	0.125" (3.2 mm)	100' (30 m)	Natural	500 psi (34 bar)	ea.
FEP TUBING, 1/4" OD					
1650L	0.188" (4.8 mm)	50' (15 m)	Natural	250 psi (17 bar)	ea.
1650XL	0.188" (4.8 mm)	100' (30 m)	Natural	250 psi (17 bar)	ea.
FEP TUBING, 1.0 MM OD					
1671L	0.020" (0.50 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1671XL	0.020" (0.50 mm)	100' (30 m)	Natural	500 psi (34 bar)	ea.
FEP TUBING, 2.0 MM OD					
1673L	0.40" (1.0 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1673XL	0.40" (1.0 mm)	100' (30 m)	Natural	500 psi (34 bar)	ea.
FEP TUBING, 3.0 MM OD					
1677L	0.080" (2.0 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1677XL	0.080" (2.0 mm)	100' (30 m)	Natural	500 psi (34 bar)	ea.

ETFE Tubing

- Excellent chemical resistance
- Constructed with genuine Tefzel™ resin
- Holds pressure up to 4,000 psi (276 bar)
- 1/16" or 1/8" outside diameter available
- Maximum continuous operating temperature: 80 °C

ETFE (ethylene-tetrafluoroethylene) tubing is an excellent fluoropolymer product that offers several benefits over tubing manufactured from PTFE, FEP, or PFA. These benefits include enhanced pressure holding capabilities, increased mechanical stability and lower gas permeability.

APPLICATION NOTE

ETFE tubing is an ideal choice for the fluid pathway between the vacuum degasser and the system's pump. Its low gas permeability will help ensure the mobile phase solvents do not regas while in transit.

RELATED PRODUCTS

Other tubing materials and dimensions may be available. Please contact IDEX Health & Science or your local representative directly.

SPECIFICATIONS & DETAILS

Tubing OD	Tubing ID	OD/ID Tolerances
1/16" OD	0.010" (0.25 mm), 0.020" (0.50 mm), 0.030" (0.75 mm)	±0.001" (25 µm)
1/16" OD	0.040" (1.0 mm)	±0.002" (50 µm)
1/8" OD	All	±0.003" (75 µm)

Part No.	ID	Length	Color	Max. Pressure	Qty.
ETFE TUBING, 1/16" OD					
1529	0.010 (0.25 mm)	5' (1.5 m)	Natural	4,000 psi (276 bar)	ea.
1529L	0.010 (0.25 mm)	50' (15 m)	Natural	4,000 psi (276 bar)	ea.
1529XL	0.010 (0.25 mm)	100' (30 m)	Natural	4,000 psi (276 bar)	ea.
1529M	0.010 (0.25 mm)	1,000' (304 m)	Natural	4,000 psi (276 bar)	ea.
1516	0.020"(0.50 mm)	5' (1.5 m)	Natural	3,000 psi (207 bar)	ea.
1516L	0.020"(0.50 mm)	50' (15 m)	Natural	3,000 psi (207 bar)	ea.
1516XL	0.020"(0.50 mm)	100' (30 m)	Natural	3,000 psi (207 bar)	ea.
1516M	0.020"(0.50 mm)	1,000' (304 m)	Natural	3,000 psi (207 bar)	ea.
1528	0.030" (0.75 mm)	5' (1.5 m)	Natural	2,000 psi (138 bar)	ea.
1528L	0.030" (0.75 mm)	50' (15 m)	Natural	2,000 psi (138 bar)	ea.
1528XL	0.030" (0.75 mm)	100' (30 m)	Natural	2,000 psi (138 bar)	ea.
1528M	0.030" (0.75 mm)	1,000' (304 m)	Natural	2,000 psi (138 bar)	ea.
1517	0.040" (1.0 mm)	5' (1.5 m)	Natural	500 psi (34 bar)	ea.
1517L	0.040" (1.0 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1517XL	0.040" (1.0 mm)	100' (30 m)	Natural	500 psi (34 bar)	ea.
1517M	0.040" (1.0 mm)	1,000' (304 m)	Natural	500 psi (34 bar)	ea.
ETFE TUBING, 1/8" OD					
1530	0.062" (1.55 mm)	5' (1.5 m)	Natural	1,000 psi (69 bar)	ea.
1530L	0.062" (1.55 mm)	50' (15 m)	Natural	1,000 psi (69 bar)	ea.
1530XL	0.062" (1.55 mm)	100' (30 m)	Natural	1,000 psi (69 bar)	ea.
1648	0.093" (2.4 mm)	5' (1.5 m)	Natural	500 psi (34 bar)	ea.
1648L	0.093" (2.4 mm)	50' (15 m)	Natural	500 psi (34 bar)	ea.
1648XL	0.093" (2.4 mm)	100' (30 m)	Natural	500 psi (34 bar)	ea.

Tools

Fused Silica Tubing Cutters

We offer a precision cutter for fused silica tubing — SGT's Shortix™ Cutter (FS-315). This cutter ensures clean, trouble-free cutting of fused silica tubing, providing better cuts than any other product on the market. It also includes a built-in magnifying glass to examine the cut tubing ends. Order the FS-315-02 Maintenance Kit, as needed, to replace a worn or damaged cutting wheel.

When using traditional fused silica tubing cutters, only a small part of the tubing wall is scratched, then the tubing is snapped or pulled in two, often resulting in a jagged, uneven cut. With a Shortix Cutter, a clean cut is made every time, regardless of skill or experience, as the cut is made by rotating a diamond blade around the entire circumference of the tubing.

Please Note: The FS-315 Fused Silica Tubing Cutters are designed to cut only tubing with ODs of 350 µm–780 µm and IDs of 100 µm–350 µm.

Polymer Tubing Cutters

- For 1/16", 1/8", 3/16", 1/4", and 5/16" OD tubing

A flat, 90˚, burr-free cut is difficult to obtain with most commercial polymer tubing cutters. Our experts have designed several tubing cutters specifically to cut polymer tubing. This line of tubing cutters includes a standard cutter for 1/16" and 1/8" OD tubing (A-327), and another for large bore tubing (A-329). Each has guide holes to ensure precise cutting. These cutters are durable, reliable, and easy to operate. Five replacement blades are included with each tool.

Capillary Polymer Tubing Cutters

Our A-350 Cutter is designed to cut capillary-sized polymer tubing. The cutter makes clean, perpendicular cuts without collapsing thin capillary walls. A set of ten tubing sleeves, required for cutting, are included with each cutter, along with five replacement blades. The included tubing sleeves are for cutting 360 µm OD polymer capillary tubing. Alternative sleeves are available for cutting 1/32" OD tubing. All tubing sleeves are 2" long and constructed with genuine Teflon™ FEP resin.

NOTE

- The A-350 Capillary Polymer Tubing Cutter can be used to cut tubing OD sizes other than 360 µm and 1/32". Simply use the proper NanoTight™ Tubing Sleeve found on page 54. Please note, however, that these sleeves are shorter than those listed on this page, and therefore will last through fewer cuts.
- Our tubing cutters are material specific: the A-327, A-329, and A-350 should only be used to cut polymer tubing, where as the FS-315 should only be used to cut fused silica tubing.

Part No.	Description	Qty.
FUSED SILICA TUBING CUTTERS		
FS-315	Shortix Fused Silica Tubing Cutter	ea.
CAPILLARY POLYMER TUBING CUTTER		
A-350	Capillary Polymer Tubing Cutter* for 360 µm–1/32" OD tubing Includes (1) F-262x 10-pack of sleeves and (1) M-438-03 wrench	ea.
F-262x	Replacement Sleeves for A-350, 0.0155" ID, Green, for cutting 360 µm OD tubing	10-pk
A-327	Standard Polymer Tubing Cutter* for 1/16" and 1/8" OD tubing	ea.
A-329	Large Bore Polymer Tubing Cutter* for 3/16"– 5/16" OD tubing	ea.
A-328	Replacement Blades for A-350, A-327, and A-329	5-pk
** Includes (1) A-328 5-pack of replacement blades.*		