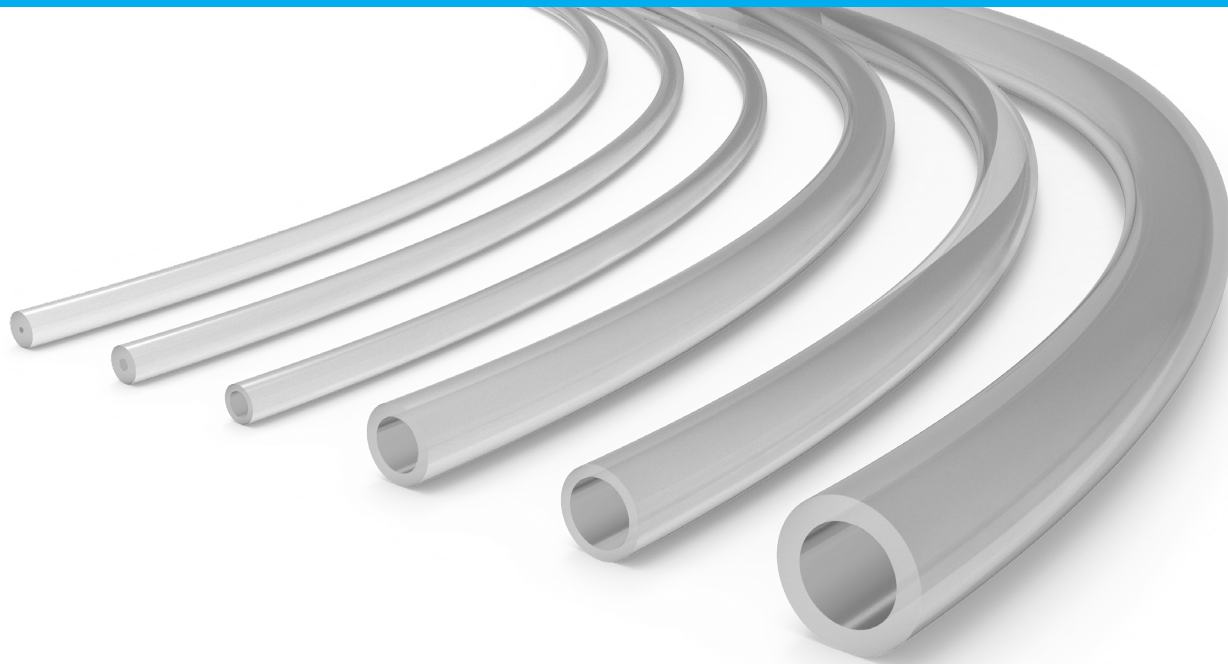


FLUOROPOLYMER TUBING



DESCRIPTION

Chemical Resistant – Comprised of a chemically inert composition, fluoropolymer tubing is not affected by corrosive materials that react with metal tubing. This biodegradable polymer will not leach metal ions into the eluent in chromatographic applications nor extract metal-sensitive components from the sample delivered by the tubing.

Low Coefficient of Friction – One of the benefits of fluoropolymer tubing is the material's extremely low coefficient of friction. This low coefficient of friction ensures less tube-induced drag and pressure loss of the liquid or gas. Particularly viscous or otherwise "sticky" samples flow smoothly through fluoropolymer tubing.

Transparent – FEP and PFA fluoropolymer tubing is very transparent, which allows the user to see the sample within the tubing easily. This characteristic makes fluoropolymer an excellent choice for colored samples or medical applications where the user needs to observe the transport of the fluid.

Convenient – In addition to having low chemical reactivity, coefficient of friction, and transparency, fluoropolymer tubing is convenient to install, uninstall, cut, and reshape. Only a sharp blade (such as the VICI Tubing Cutter) is needed to achieve a clean-cut. While tight corners and cramped lab spaces make traditional metal tubing difficult to position (along with higher costs for custom-formed shapes and bends), the fluoropolymer is even more flexible than PEEK, easy to adjust, and far more lab tech-friendly.

VICI METRONICS CUSTOMIZATION

VICI Metronics fluoropolymer tubing is highly customizable, offering a wider range of IDs that can reach down to a mere 0.005" (0.127 mm) (far smaller than can be attained by stainless steel tubing). VICI Metronics can match both standard and customized dimensions with fittings and competitors' tubing. This capability means lab techs, engineers, and scientists can rest assured that this precisely extruded fluoropolymer tubing will work with fittings for your specific application and need, without fear of leaks, flow obstacles, or pressure loss.

VICI Metronics offers both customizable IDs and ODs. We understand that your lab may not need thousands of feet of tubing, and allow smaller volumes of both standard and custom tubing – we can go as low as 100 feet in customized tubing length!



FEATURES

Low chemical reactivity | Low coefficient of friction | Transparent | Convenient to install, uninstall, cut and reshape | Highly customizable – offering a wide range of IDs down to 0.005" (0.127 mm)



APPLICATIONS

While the most well-known applications for fluoropolymer tubing are for food-grade and medical applications, this tubing has a wide range of applications because of the material's general chemical inertness, low coefficient of friction, transparency, and superior flexibility. VICI Metronics fluoropolymer tubing takes this convenience one step further by manufacturing precisely customizable sizes to match your current fittings and specifications. Applications that our fluoropolymer tubing include:

- Medical sample transport
- Food-grade applications
- Liquid transport



BENEFITS

PFA – This transparent fluoropolymer tubing allows easy observation of the sample it transports. With superior chemical and temperature resistance, this material is ideal for applications that require transparency, a low coefficient of friction, and increased operating temperatures.

FEP – FEP is inherently chemically resistant and can be manufactured with extremely small inner diameters. These attributes combined with FEP's transparency and low coefficient of friction make this fluoropolymer tubing ideal for liquid transfer.

ETFE – ETFE has very high mechanical and tensile strength, which makes this tubing ideal for high pressure applications. As such, this tubing is often used in medical device applications, radiation applications, and aircraft applications.

PFA FLUOROPOLYMER TUBING

PFA stands for perfluoroalkoxy and is a fluoropolymer that combines the high operating temperature of PTFE with the chemical resistance of FEP. This specialized fluoropolymer tubing is unique and ideal for applications with high-temperature requirements ranging from food processing (FDA compliant) to fiber optics. It is chemical resistant, sterilizable and biocompatible to USP Class VI. High purity PFA is SEMI F-57 certified making it exceptional for critical fluid transport applications that require a very low level of traceables. It is also the perfect choice for aerospace and automotive applications as it is UL 94 V-0 compliant.

SPECIFICATIONS

Maximum Operating Temperature:

Use PFA fluoropolymer tubing at continuous operating temperatures up to 205°C (401°F) for 1/16" OD with ID up to 0.030" (0.75 mm).

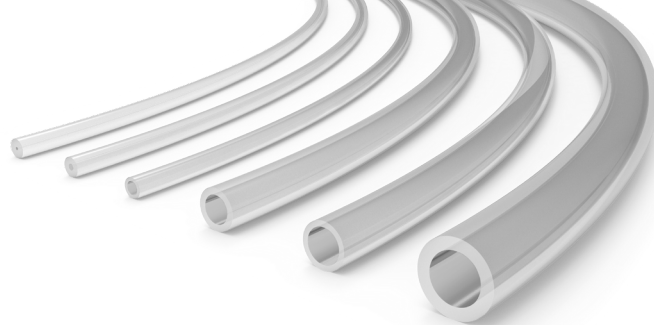
FEP FLUOROPOLYMER TUBING

FEP stands for fluorinated ethylene propylene and offers high chemical resistance. FEP tubing can be manufactured with very small IDs. FEP tubing is most often used for liquid transfer, as its transparency allows for easy observation of the sample it transports. It has high dielectric strength, optical clarity and is exceptionally chemical resistant. FEP tubing is Class VI biocompatible and can be used within the body as well as for applications such as aerospace and electrical.

SPECIFICATIONS

Maximum Operating Temperature:

Use FEP fluoropolymer tubing at continuous operating temperatures up to 200°C (392°F).

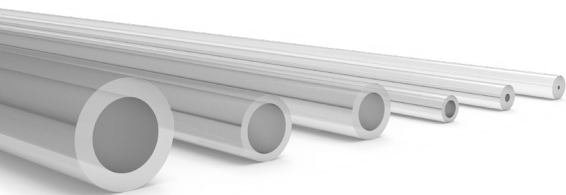


MAXIMUM OPERATING PRESSURE BY TUBING ID

TUBE ID INCH (MM)	MAX. OPERATING PRESSURE PSI (BAR)	PRODUCT #
1/16 (1.5875) OD		
0.020 (0.508)	1450 (100)	MT-P-62020
0.030 (0.75)	1100 (75.8)	MT-P-62030
0.040 (1.016)	800 (55.2)	MT-P-62040
1/8 (3.715) OD		
0.060 (1.524)	1400 (96.5)	MT-P-12560
0.062 (1.575)	1350 (93.1)	MT-P-12562

MAXIMUM OPERATING PRESSURE BY TUBING ID

TUBE ID INCH (MM)	MAX. OPERATING PRESSURE PSI (BAR)	PRODUCT #
1/16 (1.5875) OD		
0.005 (0.127)		MT-F-62005
0.010 (0.254)	2000 (138)	MT-F-62010
0.020 (0.508)	1400 (96.5)	MT-F-62020
0.030 (0.75)	1100 (75.8)	MT-F-62030
0.040 (1.016)	750 (51.7)	MT-F-62040
0.118 (2.997) OD		
0.079 (2.0)	750 (51.7)	MT-F-118079
1/8 (3.715) OD		
0.060 (1.524)	1180 (81.4)	MT-F-12560
0.062 (1.575)	1140 (78.6)	MT-F-12562
0.083 (2.1)	760 (52.4)	MT-F-125083
0.187 (4.750) OD		
0.125 (3.175)	750 (51.7)	MT-F-187125



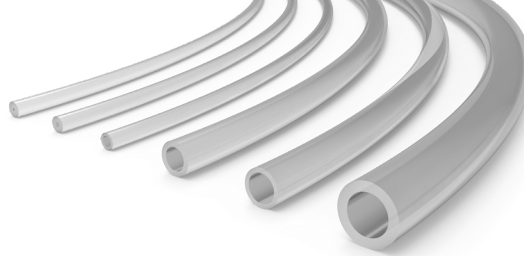
ETFE FLUOROPOLYMER TUBING

ETFE stands for ethylene tetrafluoroethylene and offers the highest mechanical (more than 300°F or 148°C) and tensile strength of the fluoropolymer tubing family at VICI Metronics. ETFE offers high energy radiation resistance, is UV-transparent, and has improved cut through and stress cracking resistance. Unlike other fluoropolymer tubing, ETFE is semi-opaque. This tubing is ideal for high-pressure applications and where there is a need for high chemical resistance.

SPECIFICATIONS

Maximum Operating Temperature:

Use ETFE fluoropolymer tubing at continuous operating temperatures up to 200°C (392°F).



MAXIMUM OPERATING PRESSURE BY TUBING ID

TUBE ID INCH (MM)	MAX. OPERATING PRESSURE PSI (BAR)	PRODUCT #
1/16 (1.5875) OD		
0.010 (0.254)	2800 (193)	MT-E-62010
0.020 (0.508)	2200 (151.7)	MT-E-62020
0.030 (0.75)	1700 (117)	MT-E-62030
0.040 (1.016)	1200 (82.7)	MT-E-62040
1/8 (3.715) OD		
0.060 (1.524)		MT-E-125060
0.062 (1.575)		MT-E-125062

DIMENSIONAL INTEGRITY

- Dimensional stability is assured with tight ID tolerances, as detailed below:
 - ID tolerance $\pm 0.001''$ (± 0.0254 mm) for IDs up to 0.040'' (1.016 mm)
 - ID tolerance $\pm 0.003''$ (± 0.0762 mm) for IDs larger than 0.040'' (1.016 mm)
- Customizable IDs and ODs available to fit your fittings' specifications
- Manufacturable to standard Valco fittings and ferrules
- With a 1/16'' OD, tubing ID can range between 0.005'' (0.127) and 0.040'' (1.016 mm)
 - Please note: as the ID increases the tubing wall inherently thins. As such, there is a relative limit to what ID can be customized with a specific OD.
- The standard product OD can reach up to 3/16''

STANDARD & CUSTOM SIZING LOW VOLUME ORDERS ACCEPTED

- Standardized fluoropolymer tubing is available in as low as the following lengths:
 - 5 feet, 10 feet, 25 feet, 50 feet, 100 feet
- Customized fluoropolymer tubing is available in as low as 100 feet for custom orders



GENERAL PRECAUTIONS

- Fluoropolymer tubing is permeable and is generally recommended for liquid samples.
- The mechanical, tensile strength and burst pressure limits for fluoropolymer tubing are lower than PEEK. These limits will be substantially reduced at elevated temperatures.
- Do not hold the tubing in sharp bends or corners tighter than the acceptable bend radii. This tubing will "kink" or "seal off" if held in too sharp a bend over time.