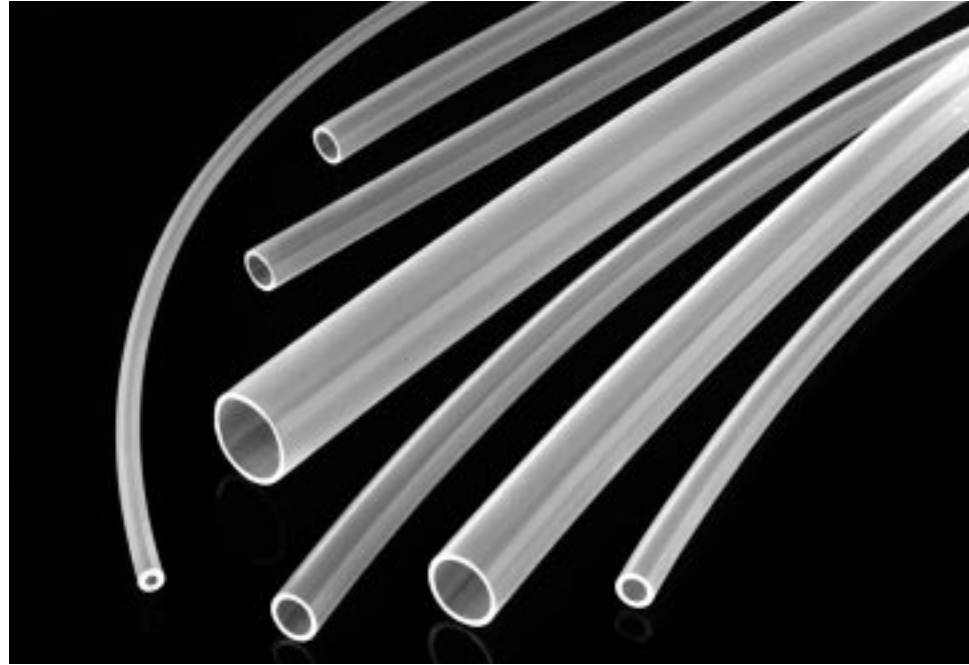


FEATURES/BENEFITS

- Superior insulating and highly stable electrical properties
- Non-toxic
- Inert to practically all chemicals, solvents and reagents
- Available as FEP, PFA, ETFE and others

FURON[®] EXTRUDED FLUOROPOLYMER TUBING



Furon[®] Fluoropolymer Tubing has excellent chemical and thermal properties to satisfy even the most demanding applications. The Fluoropolymer Tubing construction is virtually impervious to most chemicals. In addition, it has excellent thermal properties from cryogenic temperatures up to 500°F. Furon Fluoropolymer Tubing is the material to specify when the reliability and dependability of an application at environmental and chemical extremes are critical.

When your application requires the ultimate in purity, Saint-Gobain Performance Plastics has available industrial tubing made from high purity grade PFA resins to minimize contamination.

CUSTOM SERVICES AVAILABLE

- Tubing cut to specific lengths
- Special length coils
- Special diameters or wall thicknesses
- Custom packaging
- CLEAN PAK[™]

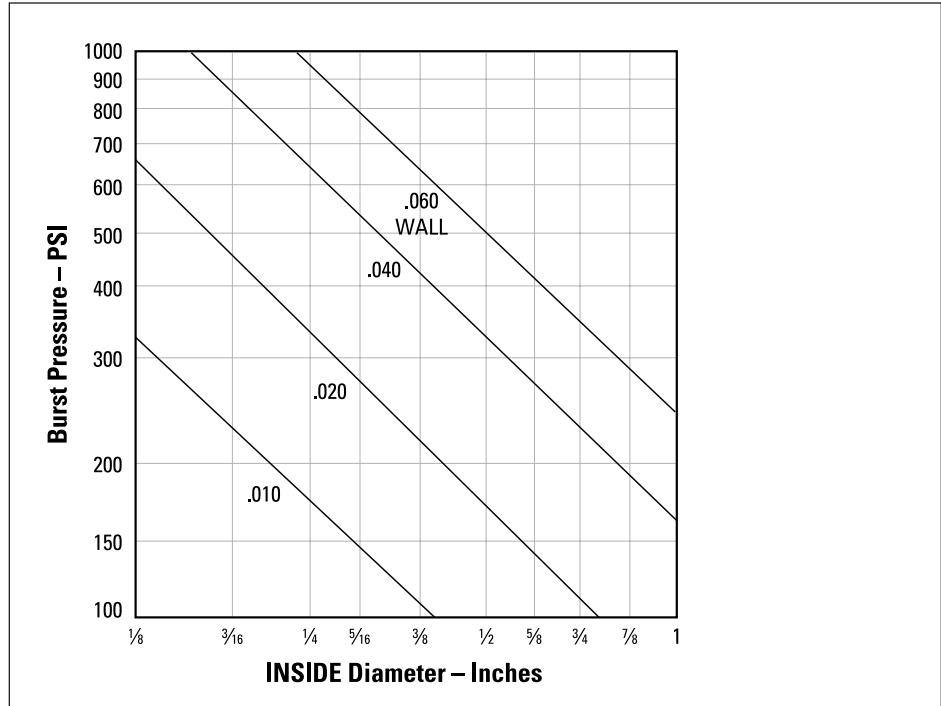
BEND DIAMETERS OF FEP

FEP, by its nature, requires generous bend diameters. Listed below are typical figures for selected diameters and wall thicknesses. Where smaller bend diameters are required, the tubing can be convoluted or corrugated. (Ask for a copy of our CT-Flex and/or CON-T brochures.)

Tubing O.D.	.030" Wall Thickness	.060" Wall Thickness
1/4 "	2 "	3/4 "
1/2 "	8 "	2 "
3/4 "	20 "	12 "
1 "	36 "	24 "

BURST PRESSURE

FEP tubing at room temperature (For ETFE use 2 times FEP)



	TEST METHOD	FEP	TEFZEL ETFE	PFA
Dielectric Strength				
Short Term - 125 Mils		500	400	500
Volts/Mil - 10 Mils	D 149	1400	>2000	2000
Dielectric constant				
10 ² to 10 ⁶ Hz	D 150	2.1	2.6	2.06
Tensile Strength psi	D 638	2000 min	6500 min	4000 min
Elongation Min	D 638	250	100	250
Continuous Use Temp. °F		-275 to 400	-150 to 302	-275 to 500
Flex Modulus - PSI X 10 ³	D 790	95	200	95
Coefficient of Friction Dynamic		.25	.40	.20
Hardness Shore D	D 785	50-55	75	60
Flammability	UL 94	V-0	V-0	V-0
Water Abs. %	D 570	<.01	<.01	.03
Clarity		Transparent	Translucent	Transparent
FDA Recognition				
GFR 21.121.2555		yes	no	no
Specific Gravity	D 792	2.12/2.17	1.7	2.13/2.16
Melt Point °F		487/500	520	575/590

INDUSTRIAL TUBING

Our industrial tubing is available in FEP and PFA. It differs from other extruded tubing in that it is sized to work with standard compression fittings. The wall thickness allows maximum flexibility while maintaining a smooth bore and at the same time gives added protection for more demanding industrial applications.

This product is designed to meet severe environmental conditions while offering the highest possible degree of purity and stability.

See front side of this bulletin for additional information and minimum bend diameters.

FEP/PFA

INDUSTRIAL			HEAVY WALL		
I.D. NOMINAL	O.D. NOMINAL	WALL	I.D. REF.	O.D. NOMINAL	WALL
1/32 "	1/16 "	.015 ± .003	1/16 "	3/16 "	.062 ± .004
1/16 "	1/8 "	.030 ± .005	1/8 "	1/4 "	.062 ± .004
3/32 "	5/32 "	.030 ± .005	5/32 "	1/4 "	.047 ± .003
1/8 "	3/16 "	.030 ± .005	3/16 "	5/16 "	.062 ± .004
3/16 "	1/4 "	.030 ± .005	1/4 "	3/8 "	.062 ± .004
1/4 "	5/16 "	.030 ± .005	5/16 "	7/16 "	.062 ± .004
5/16 "	3/8 "	.030 ± .005	3/8 "	1/2 "	.062 ± .005
3/8 "	7/16 "	.030 ± .005	7/16 "	9/16 "	.062 ± .005
7/16 "	1/2 "	.030 ± .005	1/2 "	5/8 "	.062 ± .005
1/2 "	9/16 "	.030 ± .005	9/16 "	11/16 "	.062 ± .005
9/16 "	5/8 "	.030 ± .007	5/8 "	3/4 "	.062 ± .007
5/8 "	11/16 "	.030 ± .007	11/16 "	13/16 "	.062 ± .007
11/16 "	3/4 "	.030 ± .007	3/4 "	7/8 "	.062 ± .007
3/4 "	.830	.040 ± .007	7/8 "	1	.062 ± .007
7/8 "	.965	.045 ± .007	1	1 1/8 "	.062 ± .007
1	1.1	.050 ± .008	1 1/4 "	1 3/8 "	.062 ± .007
			1 1/2 "	1 5/8 "	.062 ± .007
			2	2 1/8 "	.062 ± .007

PROFILE EXTRUSIONS

Saint-Gobain Performance Plastics has the ability to extrude special profiles in FEP, PFA, and ETFE. These are extruded on a custom basis to meet the requirements presented by our customers. Some of these have become quite sophisticated and require secondary operations to achieve desired results. Please contact Saint-Gobain Performance Plastics to discuss your requirements with our technical service people who will give you expert advice based on their years of experience in the design of dies and special extrusion equipment.

TUBING OPTIONS — CLEAN-PAK

Our CLEAN PAK option is tubing with the inner diameter purged with Nitrogen prior to shipping. Also, both ends are capped with plastic caps and the tubing is heat sealed in polyethylene bags, insuring purity for applications where cleanliness is of utmost importance.

For more information about Furon Fluoropolymer Tubing or our other fine tubing products, call our Customer Support Department TOLL FREE 1-800-543-TUBE (8823).

FURON® EXTRUDED FLUOROPOLYMER TUBING

ETFE INDUSTRIAL TUBING

ETFE can best be described as a rugged thermoplastic with an outstanding balance of properties. Mechanically, it is tough, has medium stiffness, excellent flex life, impact and abrasion resistance.

Thermally, ETFE has a continuous temperature rating of 302°F (150°C). It can be used intermittently up to 392°F (200°C) depending on exposure time, load and environment.

ETFE is weather-resistant, inert to most solvents and chemicals, and hydrolytically stable. It has excellent resistance to high-energy radiation.

Electrically, ETFE is an excellent low-loss dielectric, with a uniformity of electrical properties not normally found with other thermoplastics.

ETFE can perform successfully in applications where other materials are either lacking in mechanical toughness or the ability to meet severe environmental conditions, or are limited by fabricating problems.

SIZE	O.D. MIN/MAX	WALL	I.D. NOMINAL
1/8 "	.120 / .130	.016 ± .004	.093
3/16	.182 / .192	.024 ± .004	.140
1/4	.245 / .255	.032 ± .005	.187
3/16	.306 / .318	.040 ± .006	.232
3/8	.367 / .380	.048 ± .006	.278
1/2	.490 / .505	.062 ± .008	.375

PROPERTY COMPARISON CHART

PROPERTY	PFA	ETFE	KEL-F CTFE	FEP	HALAR ECTFE
Tensile Strength @ BRK, RT, PSI	4500	6500	4000	3000	7000
Resistance to Heat (°F) (Continuous)	500	300 – 380	350	400	300 – 350
Deflection Temperature (°F) @ 66 PSI	166	160	258	158	240
Low Temperature Embrittlement (°F)	-320	-150	-423	-100	-105
Melting Point (°F)	580	520	394	530	465
UL 94 Flammability Classification	V-0	V-0	V-0	V-0	V-0
Coefficient of Friction*	2	4	5	3	4
Resin Specifications	ASTM D3307-86	ASTM D3159-83	LP-385C AMS-3645	ASTM D2116-83	ASTM D3275-89

*On a scale of 1 to 7

For all your technical needs, call Customer Service TOLL FREE 1-800-543-TUBE (8823) for a free copy of our other Product Bulletins: Heat Shrinkable, Corrugated, Convolute and Lined Tubing.

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