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Fluoropolymer Tubing

NEWAGE INDUSTRIES

Notes

Almost totally inert, FLUOROPOLYMER tubing can be used with virtually all industrial solvents, chemicals, and corrosive materials, even at elevated temperatures. It does, however, react with fluorine, molten sodium hydroxide, and molten alkali metals.

FLUOROPOLYMER tubing can be steam or chemically sterilized in-line with any industrial cleaner, solvent, or sterilizing method.

FLUOROPOLYMER's non-stick property allows transport of viscous, sticky materials without line clogging. It also offers outstanding aging resistance.

PTFE's translucent white color will vary naturally from lot to lot, however the quality and physical properties do not change. FEP and PFA are clearer and can be heat sealed and heat bonded.

Permanent color striping, etching, and longer-than-listed lengths are available through minimum order. Polyethylene-jacketed, thin-wall fluoropolymer tubing, for low-cost purity, is also available through minimum order — call for details.

Physical Properties**

	PTFE	FEP	PFA
Hardness, Shore D	50-65	55	60
Tensile Strength, psi	3000-5000	3500	3500
Elongation at Break, %	200-400	300	300
Brittle Temperature, °F	<-400	<-400	<-329
Max. Continuous Operating Temp., °F	500	400	500

**Values listed are typical for the material used in manufacture, except where noted, and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for your application.

- Chemically inert; low permeability
- Manufactured from FDA-sanctioned ingredients for use with food contact surfaces
- Lowest coefficient of friction of any solid material
- Widest service temperature of any plastic tubing (-275°F to 500°F)
- Excellent electrical and weathering properties; non-flammable
- Made without plasticizer which can leach into critical streams
- Ultra-high-purity grades available for the semiconductor industry

What's the difference?

PTFE (Polytetrafluoroethylene) a fluorocarbon-based polymer, is a resin supplied in powdered form, which is mixed, preformed, and extruded into a paste, and then finally tubing. PTFE tubing can be used in a large variety of applications due to its high chemical resistance, high and low temperature capability, resistance to weathering, electrical and thermal insulation, and lowest coefficient of friction of any solid material. The tubing is translucent white in color.

FEP (Fluorinated Ethylene Propylene) resin is pelletized for its hot-melt extrusion process. FEP tubing is known for its gas and vapor permeability properties and excellent UV transmission ratings. While very similar in composition to PTFE, there are a few notable differences. FEP has a lower heat shrink temperature and is clearer and more flexible than PTFE.

PFA (Perfluoroalkoxy) resin, like FEP, belongs to a class of melt-processible fluoroplastics. PFA tubing is also known for its gas and vapor permeability properties and excellent UV transmission ratings. It is similar in composition to FEP but has better heat resistance and a smoother surface. It, too, is clearer and more flexible than PTFE.

■ Note that sizes are listed first due to the variety of materials offered

FLUOROPOLYMER TUBING – Inch Sizes

ID (IN.)	**OD (IN.)**	WALL (IN.)	STANDARD LENGTH (FT.)†	PART NO. *PTFE*	WORKING PSI AT 70°F	BURST PSI AT 70°F	PART NO. *FEP*	WORKING PSI AT 70°F	BURST PSI AT 70°F	PART NO. *PFA*	WORKING PSI AT 70°F	BURST PSI AT 70°F
1/32	1/16	.015	100	300 0074*								
1/32	3/32	.030	100	300 0151	389	1962	310 0048	389	1962			
1/16	1/8	.030	50, 100	300 0228	295	1487	310 0090	295	1487	320 0176	369	1859
1/16	3/16	.063	50, 100	300 0305	393	1983	310 0167	393	1983			
3/32	5/32	.030	50, 100	300 0382	238	1197	310 0244	238	1197	320 0330	297	1497
1/8	3/16	.030	50, 100	300 0459	199	1002	310 0321	199	1002	320 0407	249	1253
1/8	1/4	.063	50, 100	300 0536	300	1511	310 0398	300	1511	320 0484	380	1899
3/16	1/4	.030	50, 100	300 0690	150	756	310 0552	150	756	320 0561	190	945
3/16	5/16	.063	50, 100	300 0767	242	1220	310 0629	242	1220			
1/4	5/16	.030	50, 100	300 0844	120	606	310 0706	120	606	320 0715	150	758
1/4	3/8	.063	25, 50, 100	300 0921	200	1024	310 0783	200	1024	320 0792	260	1280
5/16	3/8	.030	25, 50, 100	300 0998	100	506	310 0860	100	506	320 0869	125	633
5/16	7/16	.063	25, 50, 100	300 1075	175	882	310 0937*	175	882			
3/8	7/16	.030	25, 50, 100	300 1152	86	435	310 1014	86	435			
3/8	1/2	.063	25, 50, 100	300 1229	150	774	310 1091	150	774	320 1100	195	1968
7/16	1/2	.030	25, 50, 100	300 1306	75	381	310 1168	75	381			
7/16	9/16	.063	25, 50, 100	300 1383	137	690				320 1254	171	862
1/2	9/16	.030	25, 50, 100	300 1460	67	339	310 1322	67	339	320 1331	84	424
1/2	5/8	.063	25, 50, 100	300 1537	125	622	310 1399	125	622	320 1408	160	778
9/16	5/8	.030	25, 50, 100	300 1614	60	305				320 1485*	75	381
9/16	11/16	.063	25, 50, 100	300 1691*	112	567						
5/8	11/16	.030	25, 50, 100	300 1768	55	278						
5/8	3/4	.063	25, 50, 100	300 1845	100	520	310 1707	100	520	320 1716	132	650
11/16	3/4	.032	25, 50, 100	300 1922	50	255	310 1784	50	255			
3/4	.830	.040	5, 10 Straight	300 1999*	61	305	310 1938	61	305			
3/4	7/8	.063	5, 10 Straight				310 2015	90	447			
7/8	1	.063	5, 10 Straight				310 2169	80	392			
1	1.100	.050	5, 10†† Straight	300 2307	47	235	310 2246	47	235	320 2255	58	294
1	1 1/8	.063	5, 10 Straight				310 2323	69	349			
1-1/4	1 3/8	.063	5, 10 Straight				310 2477	57	286			
1-1/2	1- 5/8	.063	5, 10 Straight				310 2631*					
2	2-1/8	.063	5, 10 Straight				310 2708	37	186			

*Limited stock item; lead times and minimums apply — call for details.
†Sold by standard coil length only.
††10 ft. length available in FEP and PFA only.
Add length suffix to part number when ordering. Example: 50 ft. of 1/16" x I.D.1/8" O.D. PTFE is part number 300 0228-50.
NOTE: Orders for 50 ft. lengths of PTFE tubing may be filled with a maximum of two lengths of product totaling 50 ft. Orders for 100 ft. lengths of PTFE tubing may be filled with a maximum of three lengths of product totaling 100 ft. All FEP and PFA lengths are supplied in single-section packages.
BOLD indicates the critical dimension for fittings application.

FLUOROPOLYMER TUBING – Metric Sizes

ID (MM)	**OD (MM)**	WALL (MM)	STANDARD LENGTH (FT.)†	PART NO. *PTFE*	PART NO. *FEP*	PART NO. *PFA*
2	4	1	50, 100	301 0175	311 0177	
4	6	1	50, 100	301 0350	311 0352	321 0354
6	8	1	50, 100	301 0525	311 0527	321 0529
8	10	1	25, 50, 100	301 0700	311 0702	321 0704
10	12	1	25, 50, 100	301 0875*	311 0877	321 0879*
12	14	1	25, 50, 100	301 1050*	311 1052	
14	16	1	25, 50, 100	301 1225		

*Limited stock item; lead times and minimums apply — call for details.
†Sold by standard coil length only.
Add length suffix to part number when ordering. Example: 50 ft. of 2mm I.D. x 4mm O.D. PTFE is part number 301 0175-50.
NOTE: Orders for 50 ft. lengths of PTFE tubing may be filled with a maximum of two lengths of product totaling 50 ft. Orders for 100 ft. lengths of PTFE tubing may be filled with a maximum of three lengths of product totaling 100 ft. All FEP and PFA lengths are supplied in single-section packages.
BOLD indicates the critical dimension for fittings application.