

## PTFE, FEP AND PFA TUBING & SLEEVING

**FLUOROPLASTIC TUBING** has many applications throughout industry. The unique properties of PTFE and the other fluoroplastics allow the tubing to solve problems possible with no other material.

### CHEMICAL

Virtually total chemical resistance at temperatures up to 260°C mean that tubing can handle the transport of all fluid chemicals and solvents, as small sizes such as in automatic laboratory analysis equipment to 1000mm diameter linings in process plant. Tubing can also be used to protect less resistant materials such as glass or stainless steel on stirrers, thermometer probes and vat heaters.

### MECHANICAL

The combination of low friction and temperature resistance allows fluoroplastic tubing to be used in applications such as sleeve bearings, push-pull cables, non-stick roller covering etc.

### ELECTRICAL

Due to the excellent dielectric and other properties combined, thin wall tubing finds many unique applications in electric and electronic engineering. Insulation of connections in hot environments such as toasters, soldering irons etc., in very high voltage sleeving, and in miniature components on PC boards where it is unaffected by the high soldering temperature.

### MEDICAL

Inert, non-toxic and bio-compatible properties are sought after by medical device manufacturers. Our tubing finds applications as intravenous catheters, catheter introducers, angiographic catheters etc. Medical tubing is made under GMP conditions and packed and sealed in clean-rooms.

#### Properties that make fluoroplastics unique

- + Virtual total chemical and solvent resistance.
- + Working temperature from -200° to +260°C.
- + Remains flexible at cryogenic temperatures.
- + Very low coefficient of friction.
- + Non-stick surface.
- + Extremely high electrical resistance.
- + Very low dielectric loss at high frequencies.
- + Total resistance to UV radiation.
- + Naturally non-inflammable.
- + Non-toxic.
- + Inert to body tissue (does not cause reaction).



### CUSTOM EXTRUDED TUBING

Fluoroplastic thin wall tubing is available in hundreds of standard sizes. However each customer has different demands and we are always pleased to produce a special tube to order. Small volume production runs are normal to us, and therefore the very large minimum order requirements common in the conventional plastics industry are not required.

**Close Tolerances.** We specialise in making tubing to very close tolerances for medical, electronic, and instrument applications.

**Coloured Tubing.** All tubing can be made in fourteen different colours, and also with coloured stripe.

**Special Sizes.** Virtually any size of tubing can be extruded from 0.1mm diameter to 150mm diameter. Sizes larger than this can also be made.

**Profiles.** We welcome enquires for extruded profiles no matter how complex, however tooling costs are normally charged to the customer.

### OTHER SERVICES

**UL (Underwriters Laboratories) Approval.** PTFE sleeving for electrical use can be supplied UL approved. Large volumes are made to order, but it is also available in our "Pin Packs" from stock as standard.

**Ready Cut.** Tubing can be supplied cut to any length in any quantity, and in particular we can supply cut straight lengths (i.e. no curvature).

**Coiling and Flanging.** All tubing and sleeving can supplied as preformed coils, and with flared ends.

**Preforming.** Most fluoroplastic tubes can be supplied preformed to complex shapes. This is particularly useful when plumbing into confined spaces in instrument cases etc. Where thin walled tubes may kink at small bend radii.

## THIN WALL SLEEVING IN PTFE, FEP AND PFA

This sleeving is made to internationally used AMS 3654, 3655 and 3653 specifications based on American Wire Gauge (AWG) sizes. The dimensions below are mm conversions from inch sizes.

This range of sleeving is made to specific AWG Series tolerances. Additional data sheet is available upon request

Standard Wall (TW) Series						Extra Thin Wall (STW) Series						Heavy Wall (HW) Series					
ADTECH ID	Wall	Product	Status			ADTECH ID	Wall	Product	Status			ADTECH ID	Wall	Product	Status		
Part No	mm	mm	PTFE	FEP	PFA	Part No	mm	mm	PTFE	FEP	PFA	Part No	mm	mm	PTFE	FEP	PFA
TW00	8.38	0.38	A	O	O	STW00	8.38	0.30	O	O	O	HW00	8.38	0.51	A	O	O
TW01	7.47	0.38	A	O	O	STW01	7.47	0.25	O	O	O	HW01	7.47	0.51	A	O	O
TW02	6.68	0.38	A	O	O	STW02	6.68	0.25	O	O	O	HW02	6.68	0.51	A	O	O
TW03	5.94	0.38	A	O	O	STW03	5.94	0.25	O	O	O	HW03	5.94	0.51	A	O	O
TW04	5.28	0.38	A	O	O	STW04	5.28	0.25	O	O	O	HW04	5.28	0.51	A	O	O
TW05	4.72	0.38	A	A	O	STW05	4.72	0.25	O	O	O	HW05	4.72	0.51	A	O	O
TW06	4.22	0.38	A	O	O	STW06	4.22	0.25	A	O	O	HW06	4.22	0.51	A	O	O
TW07	3.76	0.38	A	A	O	STW07	3.76	0.20	A	O	O	HW07	3.76	0.51	A	O	O
TW08	3.38	0.38	A	A	O	STW08	3.38	0.20	A	A	O	HW08	3.38	0.51	A	O	O
TW09	3.00	0.38	A	O	O	STW09	3.00	0.20	A	O	O	HW09	3.00	0.51	A	A	O
TW10	2.69	0.30	A	O	O	STW10	2.69	0.20	A	A	O	HW10	2.69	0.41	A	O	O
TW11	2.41	0.30	A	O	O	STW11	2.41	0.20	A	O	O	HW11	2.41	0.41	A	O	O
TW12	2.16	0.30	A	O	O	STW12	2.16	0.20	A	O	O	HW12	2.16	0.41	A	O	O
TW13	1.93	0.30	A	A	O	STW13	1.93	0.20	A	O	O	HW13	1.93	0.41	A	O	O
TW14	1.68	0.30	A	O	O	STW14	1.68	0.20	A	O	O	HW14	1.68	0.41	A	O	O
TW15	1.50	0.30	A	O	O	STW15	1.50	0.15	A	O	O	HW15	1.50	0.41	A	O	O
TW16	1.35	0.30	A	O	O	STW16	1.35	0.15	A	O	O	HW16	1.35	0.41	A	O	O
TW17	1.19	0.30	A	O	O	STW17	1.19	0.15	A	O	O	HW17	1.19	0.41	A	O	O
TW18	1.07	0.30	A	O	O	STW18	1.07	0.15	A	O	O	HW18	1.07	0.41	A	O	O
TW19	0.97	0.30	A	O	O	STW19	0.97	0.15	A	O	O	HW19	0.97	0.41	A	O	O
TW20	0.86	0.30	A	O	O	STW20	0.86	0.15	A	O	O	HW20	0.86	0.41	A	O	O
TW22	0.71	0.25	A	O	O	STW22	0.71	0.15	A	O	O	HW22	0.71	0.30	A	O	O
TW24	0.56	0.25	A	O	O	STW24	0.56	0.15	A	O	O	HW24	0.56	0.30	A	O	O
TW26	0.46	0.23	A	O	O	STW26	0.46	0.15	A	O	O						
TW28	0.38	0.23	A	O	O	STW28	0.38	0.15	A	O	O						
TW30	0.30	0.23	A	O	O	STW30	0.30	0.15	A	O	O						

Product Status: A Normally available ex-stock. O Made to Order

**Please ask if you do not see the size you require for your particular application**

## METRIC SIZE TUBING IN PTFE, FEP AND PFA

Metric 0.5mm Wall Series				
INSIDE DIA. mm	Product Status			
	PTFE	FEP	PFA	
1.0	A	A	*	
2.0	A	A	*	
3.0	A	A	*	
4.0	A	A	*	
5.0	*	*	*	
6.0	A	A	*	
7.0	*	A	*	
8.0	A	*	*	
9.0	*	A	*	
10.0	A	A	*	
11.0	*	A	*	
12.0	*	*	*	
13.0	*	A	*	
14.0	*	*	*	
15.0	*	*	*	
16.0	*	A	*	
18.0	*	*	*	
19.0	*	A	*	
20.0	*	*	*	
22.0	X	*	*	
23.0	X	A	*	
25.0	X	*	*	
27.0	X	A	*	
30.0	X	*	*	
32.0	X	A	*	

Metric 1.0mm Wall Series				
INSIDE DIA. Mm	Product Status			
	PTFE	FEP	PFA	
2.0	A	O	O	
3.0	O	O	O	
4.0	A	A	O	
5.0	A	O	O	
6.0	A	A	O	
7.0	O	O	O	
8.0	A	A	O	
10.0	A	A	A	
11.0	O	O	O	
12.0	A	O	O	
13.0	O	O	O	
14.0	A	O	O	
15.0	O	O	O	
16.0	O	O	O	
18.0	O	O	O	

Metric 1.5mm Wall Series				
INSIDE DIA. Mm	Product Status			
	PTFE	FEP	PFA	
10.0	O	O	O	
12.0	O	O	O	
14.0	O	O	O	
15.0	O	O	O	
16.0	A	O	O	
18.0	O	O	O	
19.0	O	A	O	
23.0	O	A	O	
25.0	O	O	O	
28.0	O	A	O	
30.0	O	O	O	
32.0	X	A	O	
47.0	X	A	O	
66.0	X	A	O	

ULTRA-THIN METRIC TUBING (UT Tubing)									
Inside Dia.mm	Wall mm	Product Status			Inside Dia. mm	Wall mm	Product Status		
		PTFE	FEP	PFA			PTFE	FEP	PFA
0.2	0.1	A	O	O	0.6	0.1	A	O	O
0.3	0.1	A	O	O	0.7	0.1	A	O	O
0.4	0.1	A	O	O	0.8	0.1	A	O	O
0.5	0.1	A	O	O	0.9	0.1	A	O	O
0.6	0.1	A	O	O	1.0	0.1	A	O	O

Please ask if you do not see the size you require for your particular application.

Product Status:

- A Normally available ex-stock
- O Made to Order
- X Size not available

Standard tolerances apply on all sizes, close tolerances to order, see over for details

## IMPERIAL (INCH) SIZE TUBING IN PTFE, FEP AND PFA

Thin (0.031") Wall Series						
Inside Dia.		Outside Dia.		Product Status		
Inch	mm	Inch	mm	PTFE	FEP	PFA
1/32	0.8	3/32	2.4	A	O	O
1/16	1.6	1/8	3.2	A	A	A
3/32	2.4	5/32	4.0	A	O	O
1/8	3.2	3/16	4.8	A	A	O
3/16	4.8	1/4	6.3	A	A	A
1/4	6.3	5/16	8.0	A	A	O
5/16	8.0	3/8	9.6	A	O	O
3/8	9.6	7/16	11.1	O	O	O
1/2	12.7	9/16	14.3	O	O	O
3/4	19.0	13/16	20.6	O	O	O

Thick (0.0625") Wall Series						
Inside Dia.		Outside Dia.		Product Status		
Inch	mm	Inch	mm	PTFE	FEP	PFA
1/8	3.2	1/4	6.3	A	A	A
3/16	4.8	5/16	8.0	A	O	O
1/4	6.3	3/8	9.6	A	A	A
5/16	8.0	7/16	11.1	O	O	O
3/8	9.6	1/2	12.7	A	A	A
1/2	12.7	5/8	15.9	A	A	A
5/8	15.9	3/4	19.0	A	O	A
3/4	19.0	7/8	22.2	O	O	O
7/8	22.2	1	25.4	O	O	O
1	25.4	1 1/8	28.6	O	O	O

### STANDARD TOLERANCES

The following minimum tolerances apply to our metric tubing. Tighter tolerances can be met on request.

ID mm	Tolerances mm	Wall mm	Tolerances mm
0.2-1.0	+/- 0.05	0.10-0.15	+/- 0.03
1.1-2.0	+/- 0.10	0.16-0.30	+/- 0.05
2.1-4.0	+/- 0.15	0.31-0.60	+/- 0.07
4.1-8.0	+/- 0.20	0.61-0.90	+/- 0.10
8.1-12.5	+/- 0.30	0.91-2.00	+/- 0.20
12.6-25.0	+/- 0.50		

Product Status:

A Normally available ex-stock    O Made to Order

**Please ask if you do not see the size of material you require for your application.**

Standard tolerances apply on all metric sizes.  
Close tolerance tubing available on request.

### Special fractional (inch) size tubes

Inside Dia.		Outside Dia.		Product Status		
Inch	mm	Inch	mm	PTFE	FEP	PFA
1/64	0.4	1/16	1.6	A	A	O
1/32	0.8	1/16	1.6	A	A	A
3/32	2.4	1/8	3.2	A	A	O
5/16	4.0	1/4	6.3	A		A

### PIN PACK TUBING

All smaller common sizes of PTFE sleeving are now available in plastic pin packs. Smaller lengths are blister packed and these are ideal for developers, or laboratories needing to experiment with different sizes of sleeving. This sleeving as standard comes with UL approval, essential for those manufacturers exporting electrical products to the USA



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