tyco Electronics

Raychem

- **Operating temperature range -67°C to +250°C**
- **Highly flame retarded**
- **Excellent chemical resistance**
- **Shrink ratio 1.8:1 TFE Shrink ratio 3.2:1 TFE-R**

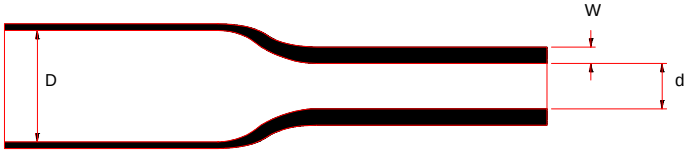
TFE/TFE-R

High temperature, chemically inert, heat-shrinkable tubing

Raychem TFE and TFE-R are heat-shrinkable tubings manufactured from a modified Teflon (Polytetrafluoro-ethylene), an excellent high temperature covering and insulation material with a milk-white translucence. TFE is the general purpose tubing for difficult chemical and thermal environments. TFE-R has the added advantages of thin wall, high shrink ratio, greater flexibility and transparency in application. TFE and TFE-R are highly flame retarded and exhibit outstanding chemical and solvent resistance with electrical characteristics which remain stable over a wide temperature range. The operating temperature ranges from -67°C to +250°C, and up to 400°C for short periods.

The major uses of these materials are for electrical insulation, protection of electronic components and the covering of hydraulic hose and couplings preventing contamination and corrosion. The high mechanical strength and extremely low coefficient of friction make it ideal for reducing damage to bearing shafts, etc.

Ordering information



Inside diameter				Wall thickness		Standard package			
D (min) Expanded as supplied		d (max) Recovered afterheating		W (nom) Recovered after heating		1.22m length quantity			
mm	mm	mm	mm	mm	mm	m	m	Ordering description	
TFE	TFE-R	TFE	TFE-R	TFE	TFE-R	TFE	TFE-R	TFE	TFE-R
0.8	2.0	0.38	0.6	0.23	0.23	60	60	TFE-30-X	TFE-R-5/64-X
0.9	3.2	0.46	1.0	0.23	0.25	60	60	TFE-28-X	TFE-R-1/8-X
1.1	6.4	0.56	1.6	0.25	0.30	60	30	TFE-26-X	TFE-R-1/4-X
1.2	9.5	0.68	2.4	0.25	0.30	60	30	TFE-24-X	TFE-R-3/8-X
1.4	12.7	0.81	3.7	0.30	0.38	60	30	TFE-22-X	TFE-R-1/2-X
1.5	15.9	0.99	4.5	0.30	0.38	60	30	TFE-20-X	TFE-R-5/8-X
1.9	19.0	1.24	5.7	0.30	0.38	60	30	TFE-18-X	TFE-R-3/4-X
2.3	25.4	1.55	7.1	0.30	0.38	60	30	TFE-16-X	TFE-R-1-X
3.0	32.0	1.83	8.8	0.30	0.38	60	12	TFE-14-X	TFE-R-1 1/4-X
3.8	-	2.26	-	0.30	-	60	-	TFE-12-X	-
4.8	-	2.84	-	0.30	-	60	-	TFE-10-X	-
6.1	-	3.58	-	0.38	-	30	-	TFE-8-X	-
7.6	-	4.52	-	0.38	-	30	-	TFE-6-X	-
9.4	-	5.69	-	0.38	-	30	-	TFE-4-X	-
10.9	-	7.06	-	0.38	-	30	-	TFE-2-X	-
11.9	-	8.81	-	0.38	-	30	-	TFE-0-X	-

The largest size which will recover snugly over the component to be covered should be ordered.

With TFE-R the maximum outside diameter of the device to be encapsulated should be less than 20% of the minimum expanded inside diameter of the tubing. The wall thickness of the tubing will be less than specified if recovery is restricted during shrinkage.

Other lengths and sizes are available subject to special order.

Standard colours

Colour	Clear
Code	X

TFE/TFE-R

Temperature rating

Operating temperature range:	-67°C to +250°C
Minimum full recovery temperature:	+340°C

Approvals

MIL-DTL-23053/12	Def Std 59-97 Type 5A (TFE)
AMS 3584, 3585	Def Std 59-97 Type 5B (TFE-R) BS 3G 198 Type 21A (TFE) BS 3G 198 Type 21B (TFE-R)

Performance

Test	Test method	Test requirement
Heat shock:	ASTM D2671 (4 h at 400°C)	No dripping, cracking or flowing
Heat ageing:	ISO 188 (168 h at 350°C)	Ultimate elongation: 150% (min)
Dielectric strength:	IEC 243	27.5 MV/m (min)
Fluid resistance:		Inert

For full product performance details consult Raychem Specification TFE RW 2055 TFE-R RW 2054.

Special installation instructions

For optimum performance TFE and TFE-R must be heated above their crystaline melting points, 327°C. As the tubing reaches this temperature, it turns from a milk-white translucence to a completely transparent material - at this point the heat source should be removed, as 20%-30% of shrinkage occurs as the tubing cools and returns to its original appearance.

Specifications

Raychem Specification TFE RW 2055 TFE-R RW 2054.

Material Safety Data Sheet available on request.

Installation instructions available on request.

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