

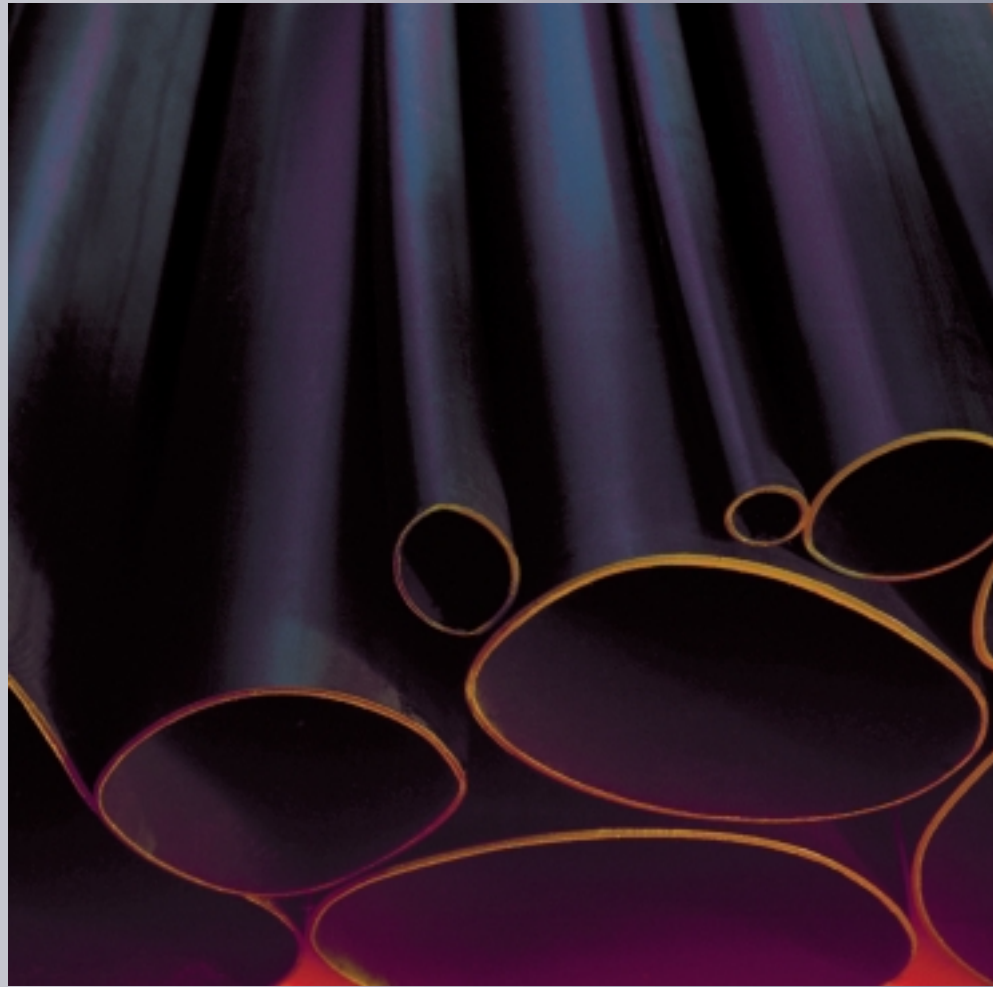
**tyco**

*Electronics*

***Energy Division***

**MWTM**

**Heat-shrinkable medium wall insulating tubing**



**Raychem**

Insulating and sealing systems for power cables have to perform to a range of exacting requirements; to be uneffected by years of weathering and ultra-violet light, to stand up to continuous temperature changes, to keep out moisture and corrosive liquids for a generation, to be immune to oils and solvents, and to combine lasting insulating properties with low weight, toughness, impact strength and flexibility.

The need for modern standards of efficiency and simplicity of installation is a further significant consideration.

To meet these demands, Raychem developed MWTM, a heat-shrinkable medium-wall tubing now in widespread use in terminations, joints and cable repairs throughout the world. Heating with a commonly available gas torch activates the tubing's "elastic memory" causing it to recover in diameter. The tubing's high shrink ratio enables it to shrink and tightly fit a wide range of cable sizes and accessories.

Appropriate to the particular application, MWTM tubing is available with an inner sealant wall, which melts and flows under the heat and shrinking action of installation. This makes it suitable for either cable oversheath replacement and sealing, or uncoated as an insulating material. The shelf-life restrictions usually associated with tapes and resins do not apply, and the completed installation may be taken into service at once.

MWTM tubing is fast and easily installed, and has proven its long term reliability in harsh climatic conditions and polluted environments. It is one result of Raychem's capability in materials science and electrical power engineering, gained through extensive experience as one of the world's largest cable accessory makers and a sustained research effort. Raychem makes a wide range of specially developed products and supports them with technical service and world-wide experience to meet the demands of the growing world of energy.

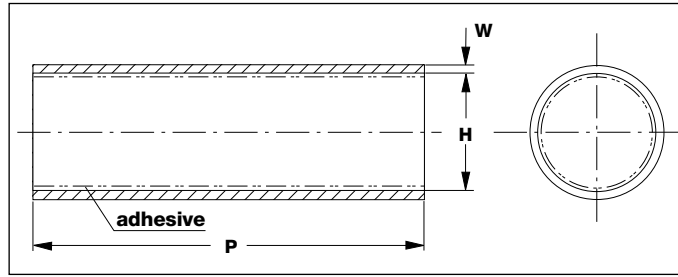
*An electrical system in Austria.  
MWTM protects and seals the cable cores and connectors as part of a Raychem termination, and seals the cable feedthrough into a building.*



<b>Material properties</b>		<b>Test method</b>	<b>Material requirements</b>
<b>Tensile strength</b>		ISO 37	14 MPa min.
<b>Ultimate elongation</b>		ISO 37	350% min.
<b>Density</b>		ISO 1138 Method A	1.0-1.2 g/cm <sup>3</sup>
<b>Hardness</b>		ISO 868	50-70 shore D
<b>Accelerated ageing</b>	7 days at 150°C ± 2°C	ISO 188	
	Tensile strength	ISO 37	14 MPa min.
	Ultimate elongation	ISO 37	300% min.
<b>Thermal endurance*</b>		IEC 60216	120°C
<b>Low temperature flexibility</b>	4 hrs at -40°C ± 3°C	ASTM D 2671 Procedure C	No cracking
<b>Dielectric strength</b>		IEC 60243	200 kV/cm
<b>Volume resistivity</b>		IEC 60093	1x10 <sup>12</sup> Ω cm
<b>Water absorption</b>		ISO 62 Method 1	0.25% max after 14 days at 23°C ± 2°C
<b>Resistance to liquids</b>	7 days in transformer oil VDE 0370 at 23°C ± 2°C	ISO 1817	
	Tensile strength	ISO 37	14 MPa min.
	Ultimate elongation	ISO 37	300% min.
<b>Weathering</b>	The material from which MWTM is manufactured contains carbon black to protect it from ultra-violet light.		
<b>Additional properties</b>	More detailed product specification data available on request.		

\* based on ultimate elongation

Dimensions



Notes:

- 1. Dimensions in millimeters  
a= as supplied  
b= after free recovery
- 2. Max. longitudinal change after free recovery:  
-15% up to 35/12  
-10% above 35/12

Raychem MWTM tubing is supplied complete with installation instructions

Product/ size	Application range (diameter)	H		W		P
		a min	b max	a min	b min	
MWTM 10/3	3.5 – 9.0	10	3	0.3	1.0	See standard lengths
MWTM 16/5	5.5 – 14.5	16	5	0.3	1.4	
MWTM 25/8	9.0 – 22.5	25	8	0.4	2.0	
MWTM 35/12	13.0 – 31.5	35	12	0.4	2.0	
MWTM 50/16	17.5 – 45.0	50	16	0.5	2.0	
MWTM 63/19	21.0 – 57.0	63	19	0.6	2.4	
MWTM 75/22	24.0 – 68.0	75	22	0.6	2.7	
MWTM 85/25	27.5 – 77.0	85	25	0.6	2.8	
MWTM 95/29	32.0 – 86.0	95	29	0.7	3.1	
MWTM 115/34	37.0 – 104.0	115	34	0.7	3.1	
MWTM 140/42	46.0 – 126.0	140	42	0.7	3.1	
MWTM 160/50	55.0 – 144.0	160	50	0.7	3.2	
MWTM 180/60	66.0 – 162.0	180	60	0.7	3.2	

Standard lengths and coatings

Lengths

All sizes and types of coatings are available in the standard lengths: 1000 mm and 1500 mm.

Spools and other lengths on request.  
All lengths subject to standard cutting tolerances.

Coatings

Adhesive type /S

MWTM tubing is available with or without an inner adhesive wall. The adhesive exhibits excellent bonding and sealing characteristics to all materials commonly used in the various cable insulation and sheath constructions, such as plastic, rubber, lead and aluminium.

Ordering example

Part number

MWTM 25/8-500/S

Product type \_\_\_\_\_

Size \_\_\_\_\_

Standard length \_\_\_\_\_

/S = adhesive \_\_\_\_\_

/U = without adhesive \_\_\_\_\_

All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale. ALR, AMP, B&H, Cevolit, Cevosil, Critchley, Dorman Smith, Dulmison, Hellstern, La Prairie, Morlynn, Raychem, and SIMEL are trademarks of Tyco International Ltd.



Electronics

Energy Division



**Argentina**  
Phone: ++54-11-4733 2277  
Fax: ++54-11-4733 2267

**Australia**  
Phone: ++61-2-4390 1111  
Fax: ++61-2-4353 2497

**Brazil**  
Phone: ++55-11-861 1311  
Fax: ++55-11-861 1862

**Canada**  
Phone: ++1-905-475 6222  
Fax: ++1-905-470-4453

**France**  
Phone: ++33-3-80583200  
Fax: ++33-3-80341015

**Mexico**  
Phone: ++52-5-729 0405  
Fax: ++52-5-361-8545

**Thailand**  
Phone: ++66-2-7394026 - 32  
Fax: ++66-2-3260563 - 64

**United States of America**  
Phone: ++1-800-327-6996  
Fax: ++1-800-527-8350

**United Kingdom**  
Phone: ++44-1772-325400  
Fax: ++44-1772-726276

**Tyco Electronics Raychem GmbH**  
Energy Division  
Haidgraben 6, 85521 Ottobrunn/Munich, Germany  
Phone: ++49-89-6089-0, Fax: ++49-89-6096345

<http://energy.tycoelectronics.com>