



HEAT SHRINK TUBING FCSM

THICK-WALL LOW VOLTAGE FLAME-RETARDANT, INSULATION TUBING (UP TO 2000V)

KEY FEATURES

- High electrical characteristics and mechanical strength for low voltage applications
- Provides mechanical flexibility and abrasion resistance
- Thick-wall, cross-linked polyolefin. UV Stabilized against irradiation and weathering
- Flame-retardant in accordance with IEC 60332-1
- Sealant-coated or uncoated tubing
- Color black, $\geq 3:1$ shrink ratio
- Unlimited shelf-life

TE Connectivity's (TE) Raychem FCSM thick-wall, flame-retardant tubing is used for insulation purposes and as mechanical protection on low voltage cable accessories, including for jointing cables in mining, power plants, construction, transportation industries, railway and rolling stock applications and for many other operational purposes, where flame retardancy and flexibility are required.

TE's Raychem FCSM tubing is available with or without adhesive coating and provide a high mechanical strength and cut-through resistance equal to, or surpassing, the properties of low voltage cable jackets due to their material composition.

The FCSM tubing is produced from a material, combining flame-retardant characteristics with mechanical flexibility and abrasion resistance. This combination of features has led the FCSM tubing to be used in a wide range of demanding applications, in particular to insulate, to protect and to seal flexible cables and cable accessories.

The FCSM tubing is applicable on the most substrate materials, as standard poly or elastomeric insulated or jacketed cables or lead-jacketed cables, which may also include aluminium or steel armouring. The material of the FCSM tubing is stabilized against UV irradiation.

The FCSM tubing has an unlimited shelf-life when stored under normal conditions. The FCSM tubing is MSHA approved (No. 07-KA090013-MSHA).

Customers can count on consistent, high quality products, driven by TE's proven innovation and backed by our extraordinary customer support.

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MSHA approved.

TESTING		
Physical Characteristic	Test Method	Material Requirements
Tensile Strength	ISO 37	12 MPa min.
Ultimate Elongation	ISO 37	350 % min.
Hardness	ISO 868	≥ 40 shore D
Accelerated ageing 168 hrs at 150 °C ± 2 °C	ISO 188	
Tensile Strength	ISO 37	11 MPa min
Ultimate Elongation	ISO 37	200% min
Low Temperature Flexibility	ASTM D 2671	No cracking at 4 hours at -40 °C ± 3 °C
Thermal Endurance*	IEC 60216	130°C
Dielectric Strength	IEC 60243	130 kV/mm min.
Volume Resistivity	IEC 60093	1x10 ¹³ Ω cm min.
Comparative tracking index	VDE 0303/1	KA 1
Corrosion	ASTM D 2671 Proc. A	No corrosion after 16 h at 150 °C
Flammability	IECA-S-19-81	Self extinguishing 60 sec. max
Flame propagation	IEC 60332-1	Pass
Resistance to fungi	ASTM G 21	Pass rating 1
Water Absorption	ISO 62 proc. A	max. 0.5% after 4 days at 23 °C

* based on ultimate elongation.

PRODUCT SELECTION INFORMATION: DIMENSIONS IN MM							
Description		Application Range		Diameter		Wall Thickness	
In-Line Splice or Terminal Lug Seal (with Sealant) /S	Cable Rejacketing (Without Sealant) /U	From	To	Expanded min	Recovered max	Expanded nom*	Recovered min
FCSM-9/3	FCSM-9/3-A/U	3.5	8	9	3	0.6	2.0
FCSM-19/6	FCSM-19/6-A/U	6.5	17	19	6	0.7	2.4
FCSM-28/9	FCSM-28/9-A/U	10	25	28	9	0.8	3.2
FCSM-38/12-3	FCSM-38/12-A/U	13	34	38	12	1.0	4.1
FCSM-51/16-300-S	FCSM-51/16-A/U	17.5	46	51	16	1.0	4.1
FCSM-68/22-1200-S	FCSM-68/22-A/U	24	61	68	22	1.0	4.1
FCSM-90/30-1200-S	FCSM-90/30/U	33	81	90	30	1.0	4.1
FCSM-120/40-1200-S	FCSM-120/40/U	44	108	120	40	1.0	4.1
FCSM-177/63-600-S	FCSM-177/63/U	96	159	177	63	1.0	4.1

* at minimum supplied diameter.

Max. longitudinal change after free recovery: +5% to -15%.

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