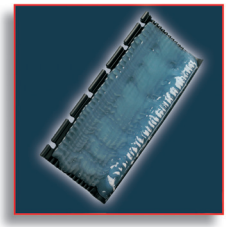
WRAP AROUND JOINTS



Joints – Wraparound

Page

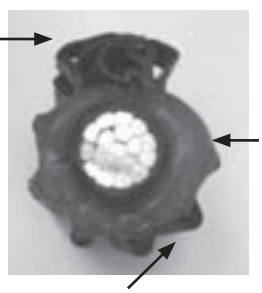
GelWrap
Wrap-around Splice Cover

Tyco Electronic's GelWrap sleeves quickly and conveniently insulate and seal buried electrical connections rated up to 600 volts. The robust, yet compact, design is engineered to handle the harsh environments of direct burial and manhole applications. GelWrap sleeves are equally well suited for insulation and jacket repair.

Fast and easy installation:
Installers will appreciate the simple wraparound design and dependable gel sealing performance. Simply wrap and snap the sleeve on any cable in the use range. The gel in the sleeve seals on contact. Installation is literally a snap. The GelWrap sleeve can be applied on all common compression connectors and low voltage cables.

PowerGel sealant:
PowerGel sealant was specifically developed for the electrical power industry. It consists of a chemically cross linked silicone elastomer swollen with a silicone oil. PowerGel sealant is hydrophobic and provides an excellent moisture seal over a wide operating temperature range (-40°C to 95°C).
It is compatible with solid dielectric cable insulations and connector deoxidizing greases and has excellent insulation properties.

Snap-lock made of impact resistant polypropylene provides secure installation. Latch is geometrically designed to provide easy installation, even when wearing insulated gloves.



Silicone gel is a high dielectric strength insulation that completely encapsulates the connection. The result is an excellent water seal. PowerGel sealant is specially formulated for high temperature environments.

Elastomer cover material combines outstanding tear strength, abrasion resistant, and chemical resistance with excellent flexibility and range-taking.

Single-core Gelwrap straight joints without connector

Nominal voltage U_o/U (kV)	Cross section (mm^2)	Application Range (mm)	Ordering description	Dimensions Max. connector (mm) L	D	Joint L x D (mm)
0.6	2.5 – 95	4 – 18	GELWRAP-18/4-100 (B6)	25	25	100 x 25
	2.5 – 95	4 – 18	GELWRAP-18/4-150 (B6)	75	25	150 x 25
	2.5 – 95	4 – 18	GELWRAP-18/4-200 (B6)	125	25	200 x 25
	2.5 – 95	4 – 18	GELWRAP-18/4-250 (B6)	175	25	250 x 25
0.6	35 – 240	10 – 33	GELWRAP-33/10-150 (B6)	50	40	150 x 40
	35 – 240	10 – 33	GELWRAP-33/10-200 (B6)	100	40	200 x 40
	35 – 240	10 – 33	GELWRAP-33/10-250 (B6)	150	40	250 x 40

Installation Instructions

1. Center GelWrap sleeve over connector.

2. Wrap sleeve around connector and shut snap locks over entire length of sleeve.

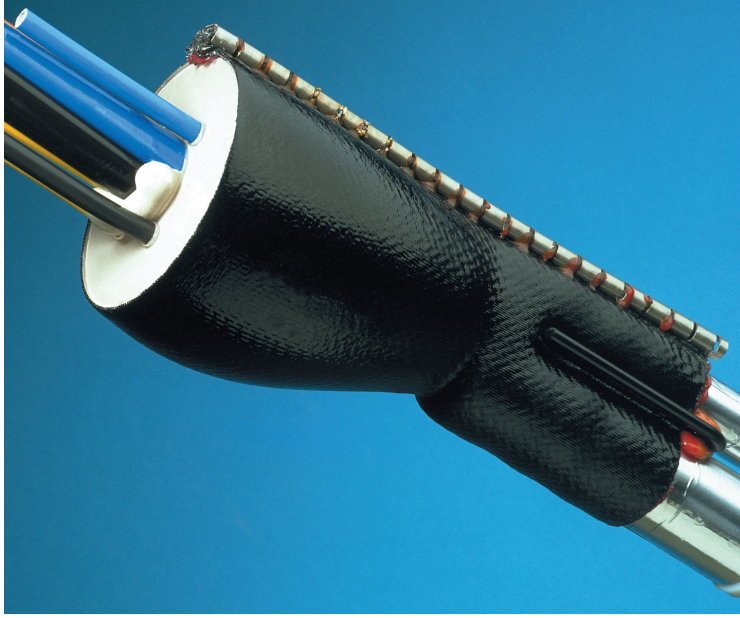
3. Install cable ties at outermost notches of snap lock. Splice is complete.

Product Performance

The Tyco Electronics GelWrap sleeve meets the following requirements:

Testing	Test Conditions
ANSI C119.1 – 1986	600V insulated underground
Chemical Resistance	Fluid immersion, 168 hours @ 23°C, 75% elongation retention minimum
	- 10W-40 motor oil
	- 10% hydrochloric acid
	- 15% sodium chloride
	- 20% sodium hydroxide
	- ETX 60280 antifreeze (1000 hours)
Accelerated Aging	1000 hours @ 135°C
	- 93% retention tensile strength
	- 82% retention elongation at break

Rayligator
Heat-shrinkable 1 kV branch joints for 4-core plastic cables without armour and for multi-core connectors



Rayligator filled branch joint for low voltage cables offers a modern alternative to two component filler systems.The Rayligator branch joint system uses a pressure resistant mastic to fill the entire joint area. The mastic ensures good sealing to the plastic insulation as well as to the metal connector.

Rayligator joints are tough.
The outer heat-shrinkable sleeve is reinforced with rugged fibres giving a tough joint. The mastic fills the joint area and prevents any ingress of water.

Rayligator joints are easy to install.
Simply apply the mastic around the joint area and cover it with the outer heat-shrinkable sleeve. Heat the sleeve with a suitable torch until the green indicator colour disappears. Heating is completed within a few minutes even in cold weather.

Selection Table - Ordering Information - Dimensions

Main Cable (mm²)	Branch Cable Cross Section (mm²)	Multi-Core Connector Cross Section (mm)	Part No. max. Diameter	Dimensions (approx.) Length (mm)	Diameter (mm)
16-185	6- 95	115	BMHM 1001-4B1*	500	135
95-185	6- 95	115	BMHM 1001-4C1	500	135
95-240	6-150	135	BMHM 1001-4D2	560	155

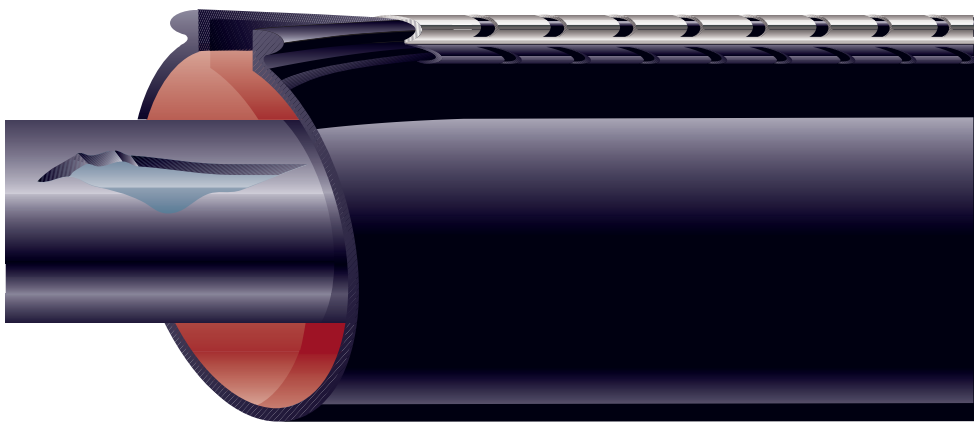
Installation Instruction: EPP 0380 or EPP 0385

Note: Rayligator Branch Joints for 3-core plastic insulated cables with concentric neutral as well as paper (main) and plastic (branch) insulated cables on request.

* The application range of this kit can also be covered with the kit BMHM-4C1 and a separately ordered black mastic EPPA 206-4-250 as a shim.

Raychem CRSM heat-shrinkable halogen-free wraparound system for plastic or metal sheathed cable repair

CRSM wraparounds are a fast and permanent cable repair and sealing system. The repair sleeve is quickly fitted in place by means of its rail and channel closure. A moisture-proof, insulating and tight-fitting repair is then obtained in one step by heating, which makes the sleeve diameter shrink and the sealant coating melt and flow into interstices. Because of its heat-shrinkability, each CRSM size will fit several different cable diameters. The sealant exhibits excellent bonding and sealing characteristics to all materials commonly used in the various cable and sheath constructions, such as plastic, rubber, lead and aluminium. CRSM wraparounds are made of an abrasion and corrosion resistant semi-rigid material, and are one result of our extensive capability in materials technology.



Labour-saving installation.
Fitting and sealing all in one step.
Abrasion and corrosion resistant.
Each size covers a range of cable sizes.

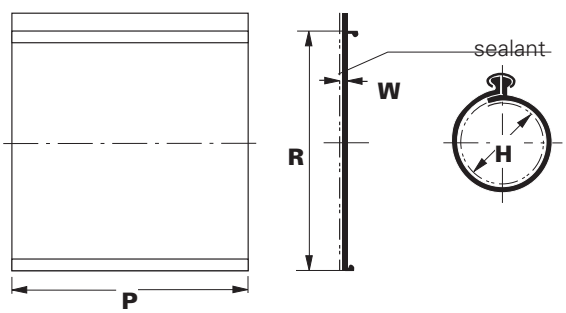
Raychem's distinctive closure system, which incorporates a stainless steel channel slid over rails on the sleeve, keeps the wraparound in place during installation but can be easily removed when the adhesive has set.

Material Properties		Test Method	Requirement	
Tensile Strength		ISO 37		17 MPa min.
Ultimate Elongation		ISO 37		350% min.
Density		ISO 1183	Method A	1.0 – 1.2 g/cm^3
Hardness		ISO 868		50 – 70 D
Accelerated Ageing	7 days at 150°C ±2°C	ISO 188		
	Tensile Strength	ISO 37		14 MPa min.
	Ultimate Elongation	ISO 37		300% min.
Thermal Endurance		IEC 60216		120°C
Low Temperature Flexibility	4 hours at –40°C ±3°C	ASTM D2671	Procedure C	No cracking
Dielectric Strength		IEC 60243		1 mm 180 kV/cm min. 3.5 mm 120 kV/cm min.
Volume Resistivity		IEC 60093		1 x 10^{12} Ω cm min.
Dielectric Constant		IEC 60250		5 max.

Material Properties		Test Method	Requirement	
Water Absorption	14 days at 23°C ±2°C	ISO 62	Method 1	0.5% max.
Resistance to Liquids	7 days in transformer oil at 23°C ±2°C (VDE 0370)	ISO 1817		
	Tensile Strength	ISO 37		14 MPa min.
	Ultimate Elongation	ISO 37		300% min.
Resistance to Fungi		ASTM G21		Pass Rating 1
Weathering	The material from which CRSM is manufactured, contains carbon black to protect it from ultra-violet radiation, and is halogen-free.			
Additional Properties	Sealant characteristics are detailed in Raychem specification PPS 3012/70. Further details are given in Raychem specification PPS 3010/9.			

CRSM
Ordering Information

Dimensions



Product/Size	Application Range	H		R		W		P
		a min.	b max.	a min.	b max.	a min.*	b min.	
CRSM 34/10	11-21	35	9	110	35	0.3	2.4	
CRSM 53/13	17-32	54	15	170	49	0.3	2.0	all sizes are
CRSM 84/20	24-50	86	21	270	69	0.3	2.0	available
CRSM 107/29	31-65	108	27	340	90	0.3	2.0	in lengths of 250,
CRSM 143/36	33-86	144	28	455	119	0.3	1.8	500, 750, 1000
CRSM 198/55	56-120	203	50	640	172	0.3	2.1	and 1500 mm
CRSM 250/98	103-150	257	91	810	314	0.4	1.7	

Notes:

1. Dimensions in millimetres
a = as supplied
b = after free recovery
* = at minimum supplied width

2. Max. longitudinal change after free recovery: – 0 - +10%

Ordering example

Part number
CRSM 53-13-1500/239

Product Type
Size
Standard Length
239 = sealant

Raychem CRSM wraparounds are supplied complete with detailed installation instructions.

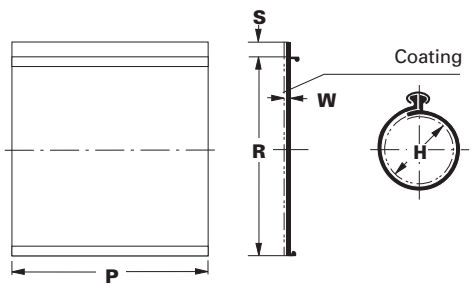
For further details on this product or any other Raychem products please contact your local sales representative.

MRSM
Heat-shrinkable wraparound system for rubber sheathed cable repair

Raychem MRSM wraparounds are a fast, versatile and permanent repair for damaged flexible cable oversheaths. Since they are heat-shrinkable, several cable sizes and types can be repaired by any one size of MRSM wraparound. This one-step installation method ensures a tight, moisture-proof and insulating seal which is reliable and repeatable. Each wraparound is supplied complete with precise instructions for use.

High abrasion resistance, flexibility and insulating properties are combined in the tough modified polyolefin material from which MRSM wraparounds are made. Quickly fitted in place by means of its rail and channel closure, heating above 125°C causes the repair sleeve to shrink in diameter to fit the cable. At the same time the adhesive liner melts and seals against fluids and dirt, thus completing the job.

Dimensions



MRSM Properties	Test Method		Typical Data
Tensile Strength	ISO 37		12 MPa min.
Ultimate Elongation	ISO 37		350 % min.
Density	ISO/R 1183	Method A	1.1 - 1.3 g/cm^3
Hardness	ISO 868		30 - 50 D
Thermal Endurance*	IEC 60216		105°C min.
Low Temperature Flexibility 4 hours at -40°C ±3°C	ASTM D2671	Procedure C	No cracking
Dielectric Strength	IEC 60243		130 kV/cm min.
Volume Resistivity	IEC 60093		1x10^{14} Ω cm min.
Flammability	ICEA-S-19-81		Self extinguishing after 60 sec max.
Water Absorption	ISO 62	Method 1	0.5% at 23°C ±2°C after 14 days max.
Weathering	The material from which MRSM is manufactured contains carbon black to protect it from ultra-violet light.		

*based on ultimate elongation

Product/Size	Application Range (diameter)	H a min	H b max	R a min	R b max	S a ±4	W a min	W b min	P ±15
MRSM 50/23	25 - 40	50	23	159	72	25	0.8	1.8	250/600
MRSM 73/38	40 - 58	73	38	230	119	25	0.5	1.8	300/600/750
MRSM100/51	58 - 89	100	51	320	161	25	0.5	1.8	250/600/750

Notes: 1. Dimensions in millimeters
a = as supplied
b = after free recovery

2. Max. longitudinal change after free recovery: ±10 %

3. Other lengths and sizes on request

Ordering Example

Part Number
MRSM 50/23-250/239

Product Type
Size
Standard Length
/239 - adhesive