

# ***Raychem***

*Your Heatshrink Partner*

***Low Voltage Cable Accessories Guide***

**CSL**

Cuthbert Stewart Limited

## CABLE DATA

### Comparison of Metric & Imperial Copper Conductor Sizes

| Nominal Cross<br>Sectional Area<br>(mm <sup>2</sup> ) | Number & Nominal<br>Diameter of Wires<br>(mm) | Metric                                   |  | Imperial                                      |                                                       |
|-------------------------------------------------------|-----------------------------------------------|------------------------------------------|--|-----------------------------------------------|-------------------------------------------------------|
|                                                       |                                               | Nominal Diameter<br>of Conductor<br>(mm) |  | Number & Nominal<br>Diameter of Wires<br>(in) | Nominal Cross<br>Sectional Area<br>(in <sup>2</sup> ) |
| 1.0                                                   | 1/1.13                                        | 1.13                                     |  | 1/0.44                                        | 0.0015                                                |
| -                                                     | -                                             | -                                        |  | 3/0.29                                        | 0.0019                                                |
| 1.5                                                   | 1/1.38                                        | 1.38                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 3/0.36                                        | 0.003                                                 |
| 2.5                                                   | 7/0.67                                        | 2.01                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 7/0.029                                       | 0.0045                                                |
| 4.0                                                   | 7/0.85                                        | 2.55                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 7/0.36                                        | 0.007                                                 |
| 6.0                                                   | 7/1.04                                        | 3.12                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 7/0.44                                        | 0.010                                                 |
| -                                                     | -                                             | -                                        |  | 7/0.52                                        | 0.0146                                                |
| 10.0                                                  | 7/1.35                                        | 4.05                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 7/0.64                                        | 0.0225                                                |
| 16.0                                                  | 7/1.70                                        | 5.10                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 19/0.44                                       | 0.03                                                  |
| 25.0                                                  | 7/2.14                                        | 6.42                                     |  | 19/0.52                                       | 0.04                                                  |
| 35.0                                                  | 19/1.53                                       | 7.65                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 19/0.64                                       | 0.06                                                  |
| 50.0                                                  | 19/1.78                                       | 8.90                                     |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 19/0.83                                       | 0.10                                                  |
| 70.0                                                  | 19/2.14                                       | 10.70                                    |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 37/0.64                                       | 0.12                                                  |
| 95.0                                                  | 19/2.52                                       | 12.60                                    |  | 37/0.72                                       | 0.15                                                  |
| 120.0                                                 | 37/2.03                                       | 14.21                                    |  | 37/0.83                                       | 0.20                                                  |
| 150.0                                                 | 37/2.25                                       | 15.75                                    |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 37/0.93                                       | 0.25                                                  |
| 185.0                                                 | 37/2.52                                       | 17.64                                    |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 37/1.03                                       | 0.30                                                  |
| 240.0                                                 | 61/2.25                                       | 20.25                                    |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 61/0.93                                       | 0.40                                                  |
| 300.0                                                 | 61/2.52                                       | 22.68                                    |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 61/1.03                                       | 0.50                                                  |
| -                                                     | -                                             | -                                        |  | 91/1.03                                       | 0.60                                                  |
| 400.0                                                 | 61/2.85                                       | 25.65                                    |  | -                                             | -                                                     |
| -                                                     | -                                             | -                                        |  | 91/1.03                                       | 0.75                                                  |
| 500.0                                                 | 61/3.20                                       | 28.8                                     |  | -                                             | -                                                     |
| 600.0                                                 | 127/2.52                                      | 32.76                                    |  | -                                             | -                                                     |

### Cable Dimensions

Note dimensions given are approximate and may vary from cable to cable. They are given as a guide for selection of Raychem materials.

#### Multicore Plastic Insulated Cables

| Cable Size<br>(mm <sup>2</sup> ) | 4 Core<br>RVC SWA PVC |                     | 3 Core<br>XLPE NS PVC |                     | 4 Core<br>XLPE NS PVC |                     |
|----------------------------------|-----------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|
|                                  | Core (mm)             | Jacket (mm)<br>O.D. | Core (mm)             | Jacket (mm)<br>O.D. | Core (mm)             | Jacket (mm)<br>O.D. |
| 10.0                             | -                     | -                   | 6.0                   | 22.0                | 6.0                   | 24.0                |
| 16.0                             | 6.0                   | 26.0                | 7.04                  | 24.0                | 7.0                   | 26.0                |
| 25.0                             | 7.0                   | 30.0                | 9.0                   | 28.0                | 9.0                   | 31.0                |
| 35.0                             | 9.0                   | 30.0                | 10.0                  | 28.0                | 10.0                  | 31.0                |
| 50.0                             | 10.0                  | 34.0                | 22.0                  | 31.0                | 11.0                  | 35.0                |
| 70.0                             | 12.0                  | 38.0                | 12.0                  | 36.0                | 12.0                  | 40.0                |
| 95.0                             | 14.0                  | 43.0                |                       |                     |                       |                     |
| 120.0                            | 15.0                  | 48.0                |                       |                     |                       |                     |
| 150.0                            | 17.0                  | 52.0                |                       |                     |                       |                     |
| 185.0                            | 22.0                  | 57.0                |                       |                     |                       |                     |
| 240.0                            | 24.0                  | 64.0                |                       |                     |                       |                     |
| 300.0                            | 26.0                  | 71.0                |                       |                     |                       |                     |

#### 4 Core Paper Insulated Cable

| Cable Size<br>(mm <sup>2</sup> ) | Core O.D.<br>(mm) | Lead O.D.<br>(mm) | Cable O.D. (mm)   |                   |
|----------------------------------|-------------------|-------------------|-------------------|-------------------|
|                                  |                   |                   | Steel Tape Armour | Steel Wire Armour |
| 16                               | 7                 | 19                | 28                | 29                |
| 25                               | 9                 | 23                | 38                | 33                |
| 35                               | 10                | 23                | 32                | 33                |
| 50                               | 11                | 26                | 35                | 37                |
| 70                               | 13                | 30                | 38                | 40                |
| 95                               | 15                | 34                | 43                | 45                |
| 120                              | 18                | 37                | 45                | 48                |
| 150                              | 19                | 42                | 51                | 53                |
| 185                              | 21                | 45                | 55                | 57                |
| 240                              | 24                | 53                | 62                | 64                |
| 300                              | 27                | 57                | 67                | 68                |

#### Single Core XLPE/PVC

| Cable Size<br>(mm <sup>2</sup> ) | Cable O.D.<br>(mm) |
|----------------------------------|--------------------|
| 16                               | 10.2               |
| 25                               | 12.4               |
| 35                               | 13.3               |
| 50                               | 14.7               |
| 70                               | 16.8               |
| 95                               | 18.9               |
| 120                              | 20.9               |
| 150                              | 23.2               |
| 185                              | 25.5               |
| 240                              | 28.7               |
| 300                              | 31.06              |
| 400                              | 35.3               |
| 500                              | 39.2               |
| 630                              | 44.2               |

## PREFACE

Heat shrinkable cable accessories offer a special combination of advantages:

- Low weight
- Versatile
- Adaptable to indoor and outdoor equipment
- Unrestricted shelf life (-50°C to +50°C)
- Accommodates different cable sizes, types and constructions
- Lower installation cost
- Speed and ease of use
- Positive environmental sealing

The heat shrinkable design also provides:

- Guaranteed required wall thickness
- Elimination of skill sensitive taping
- Proven void filling and moisture sealing ability
- No requirement for pouring of joint compounds
- Accommodation of a range of cable sizes and constructions applicable to both paper and polymeric cables
- Light weight yet impact resistant
- Immediate service operation after installation is complete

## GENERAL INSTRUCTIONS

- Heating tools for installation  
For thin wall a suitable hot air gun is recommended  
For thick wall and moulded parts a propane or LPG gas torch is recommended
  - Adjust the torch to obtain a soft blue flame with a yellow tip, pencil-like blue flames should be avoided
  - Keep the flame moving continuously to avoid scorching the material
  - Keep the torch aimed in the shrink direction to preheat the material
- Raychem tubing mouldings and wraparounds are supplied in an expanded form. When heated to above 125°C they attempt to shrink back to their original dimensions conforming to the objects they cover. After installation tubing etc. should be smooth and wrinkle free with inner components clearly defined. When using products with an adhesive or sealant the cable jackets etc. should be prepared in the following manner.
  - Clean, degrease and abrade the substrate using cleaning tissues and abrasive papers
  - Preheat the substrate until warm
- Tubing should be cut smoothly with a clean cut (no jagged edges)

Raychem, Thermofit, Duraseal, Rayvolve, MWTM, WCSM, CRSM, RNF 100, ATUM, ShrinkMark, LVIT, FCSM are trademarks of Raychem Corporation.

All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. Raychem makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Raychem's only obligations are those in the Standard Terms and Conditions of Sale for this product, and in no case will Raychem be liable for any incidental, indirect or consequential damages arising from the sale, resale, use or misuse of the product.

## CONTENTS

|                                  |    |
|----------------------------------|----|
| RNF-100 .....                    | 4  |
| DWP/ATUM .....                   | 4  |
| WCSM .....                       | 4  |
| MWTM .....                       | 6  |
| CRSM .....                       | 6  |
| FCSM .....                       | 6  |
| Heatshrink End Caps .....        | 6  |
| Heatshrink Cable Breakouts ..... | 8  |
| Rayvolve RVS .....               | 8  |
| XAGA 530 .....                   | 8  |
| Duraseal .....                   | 10 |
| Heatshrink Feedthroughs .....    | 10 |
| Shrinkmark .....                 | 12 |
| Rayrim .....                     | 12 |
| Rayligator .....                 | 12 |
| LVBT .....                       | 14 |
| LVIT .....                       | 14 |
| Rayflate .....                   | 14 |
| Low Voltage Joints .....         | 16 |
| TPS Joints .....                 | 17 |
| 1kV Straight Joints .....        | 18 |
| Low Voltage Terminations .....   | 18 |

## NATIONAL DISTRIBUTORS



Cuthbert Stewart Limited

### AUCKLAND

PH: (09) 573 1360 FAX: (09) 573 1365

PO Box 62-085, Mt Wellington

### WELLINGTON

PH: (04) 568 6156 FAX: (04) 568 6056  
FREEFAX: 0800-808-851 (Orders only)  
EMAIL: csl@cuthbertstewart.co.nz

PO Box 38-496  
Wellington Mail Centre

### CHRISTCHURCH

(McGibbon and Dunne)  
PH: (03) 366 8153 FAX: (03) 365 7872

PO Box 2353  
Christchurch

# Raychem

### AUCKLAND

4 Arthur Brown Place, Mt Wellington  
PH: (09) 573 0046 FAX: (09) 573 0050

PO Box 62 -211,  
Mt Wellington, Auckland

Available from Wholesalers throughout New Zealand

## Raychem Heatshrink Cable Breakouts (Boots/Gloves)

- Raychem low voltage breakouts are used to seal and waterproof plastic, paper and rubber insulated cables
- Inner adhesive wall
- UV resistant
- Voltage class: 1kV
- Temperature range: (-40°C to +120°C)
- Watertight

| Description |                                                                                   | Application Range<br>Size of Conductor<br>(mm <sup>2</sup> ) | Length of<br>Breakout<br>(mm) |
|-------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|
| 302K333     |  | 4 - 25                                                       | 90                            |
| 302K224     |                                                                                   | 35 - 150                                                     | 172                           |
| 302K466     |                                                                                   | 185 - 300                                                    | 200                           |
| 402W533     |  | 4 - 35                                                       | 103                           |
| 402W516     |                                                                                   | 50 - 150                                                     | 180                           |
| 402W526     |                                                                                   | 185 - 300                                                    | 200                           |
| 502K033     |  | 4 - 35                                                       | 96                            |
| 502K046     |                                                                                   | 35 - 70                                                      | 165                           |
| 502K016     |                                                                                   | 70 - 150                                                     | 217                           |
| 502K026     |  | 185 - 300                                                    | 223                           |
| 603W035-R03 |                                                                                   | 16 - 185                                                     | 182                           |

### Key Applications

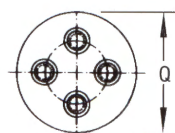
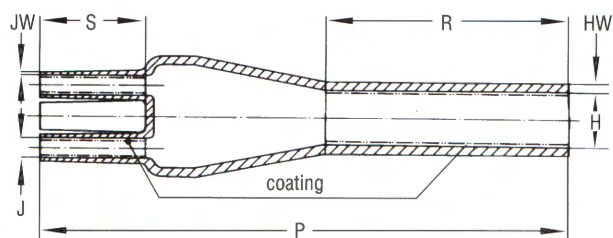
- Sealing and insulating of multiconductor cables
- Resistant to corrosion and decay

## Raychem (Rayvolve RVS) Tool Free Low Voltage Joint System

- Rayvolve low voltage joint kits are the easy way to insulate and seal cable joints and connections up to 600V
- Each Rayvolve kit contains all the components needed to make a long lasting low voltage joint
- The elastomeric sleeve rolls onto the cable with minimum effort, the cable can be energised immediately
- Rayvolve sleeves feature a double wall design with an entrapped lubricant making installation quick and easy
- U/V Resistant
- Voltage class: 600V
- Temperature range (-20°C - +90°C)
- Tool free installation
- Qualified for underground joints (water and dirt resistant seal)

## Raychem (XAGA 530) Telecommunication Cable Joint Closure

- XAGA 530 closures have an excellent split resistance during application
- Up to 4 cables at each end can be accommodated
- Offers superior resistance to mechanical abuse during and after installation
- An integrated moisture barrier completely reconstitutes the cable sheath construction in the closure



#### Notes

- Dimensions in millimetres  
a = as supplied  
b = after free recovery
- Material meets the requirements of PPS 3011/2  
Sealant /89 meets the requirements of PPS 3012/3  
Adhesive /42 meets the requirements of PPS 3012/15  
Sealant /155 meets the requirements of PPS 3012/16

| Product Type | Size of Conductor (mm <sup>2</sup> ) | H     |       | J     |       | P   |       | R   |       | S   |       | Q   |       | HW  |       | JW  |       |
|--------------|--------------------------------------|-------|-------|-------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
|              |                                      | a min | b max | a min | b max | a ± | b 10% | a ± | b 10% | a ± | b 10% | a ± | b 10% | a ± | b 20% | a ± | b 20% |
| 302K333      | 4-25                                 | 28    | 9     | 15    | 4.1   | -   | 90    | -   | 40    | -   | 25    | -   | 20    | -   | 1.9   | -   | 2.0   |
| 302K224      | 35-150                               | 48    | 32    | 22    | 7.0   | -   | 172   | -   | -     | -   | 70    | -   | -     | -   | 2.0   | -   | 2.0   |
| 302K466      | 185-300                              | 86    | 42    | 40    | 16.0  | -   | 200   | -   | -     | -   | 75    | -   | -     | -   | 2.5   | -   | 2.5   |
| 402W533      | 4-35                                 | 38    | 13    | 16    | 4.2   | -   | 103   | -   | 45    | -   | 28    | -   | 22    | -   | 2.7   | -   | 1.5   |
| 402W516      | 50-150                               | 63    | 22    | 26    | 9.0   | -   | 180   | -   | 85    | -   | 40    | -   | 38    | -   | 3.5   | -   | 1.5   |
| 402W526      | 185-300                              | 82    | 28    | 36    | 13.0  | -   | 200   | -   | 90    | -   | 40    | -   | 51    | -   | 3.5   | -   | 2.5   |
| 402W248      | -                                    | 110   | 45    | 45    | 22.0  | -   | 240   | -   | 100   | -   | 60    | -   | 64    | -   | 4.0   | -   | 2.5   |
| 402W439      | -                                    | 138   | 60    | 60    | 30.0  | -   | 250   | -   | 89    | -   | 60    | -   | 85    | -   | 4.0   | -   | 2.5   |
| 502K033      | 4-35                                 | 36    | 16.5  | 14    | 3.4   | -   | 96    | -   | 48    | -   | 25    | -   | 24    | -   | 2.5   | -   | 1.9   |
| 502K046      | 35-70                                | 45    | 19    | 20    | 7.0   | -   | 165   | -   | 75    | -   | 40    | -   | 45    | -   | 3.5   | -   | 2.0   |
| 502K016      | 70-150                               | 60    | 25    | 25    | 9.0   | -   | 217   | -   | 100   | +   | 44    | -   | 50    | -   | 3.5   | -   | 2.2   |
| 502K026      | 185-300                              | 90    | 31    | 33    | 13.5  | -   | 223   | -   | 103   | -   | 51    | -   | 50    | -   | 3.5   | -   | 2.5   |
| 603W035-R03  | 16-185                               | 68    | 26    | 27    | 7     | -   | 182   | -   | 75    | -   | 40    | -   | 45    | -   | 3.2   | -   | 2.5   |

#### Key Applications

- Single core joints
- Outer environmental seal for unarmoured and neutral screened cables
- Resistant to corrosion and decay

#### Selection Chart for Low Voltage Single Core Plastic Insulated Cables:

| Cable Size (mm <sup>2</sup> ) | Maximum Connector Length (Dimensions in mm) | RVS Type |
|-------------------------------|---------------------------------------------|----------|
| 16 - 70                       | 114                                         | RVS11    |
| 95 - 150                      | 127                                         | RVS12    |
| 185 - 300                     | 178                                         | RVS13    |
| 400 - 630                     | 229                                         | RVS14    |

| Description | Application Range (Dimensions in mm) | Sleeve Length (mm) |
|-------------|--------------------------------------|--------------------|
| RVS-11S     | 17 - 7                               | 130                |
| RVS-11      | 17 - 7                               | 205                |
| RVS-12      | 25 - 12                              | 140                |
| RVS-12S     | 25 - 12                              | 241                |
| RVS-13S     | 38 - 18                              | 150                |
| RVS-13      | 38 - 18                              | 317                |
| RVS-14S     | 48 - 25                              | 180                |
| RVS-14      | 48 - 25                              | 356                |
| RVS-15S     | 58 - 35                              | 178                |

#### Key Applications

- XAGA 530 splice closures are the most advanced heat shrinkable closures for protection of cable joints in the non-pressurised network
- XAGA 530 splice closures are available in an extended size range and have a splice capacity up to 800 pair suitable for:
  - non-pressurised cables
  - aerial
  - buried or ducted
  - non-filled or grease filled
  - lead or polyethylene sheaths

#### Sizing Information

| Raychem Description | Maximum Joint Diameter (mm)<br>D | Minimum Cable Diameter (mm)<br>d | Maximum Joint Gap (mm)<br>L |
|---------------------|----------------------------------|----------------------------------|-----------------------------|
| XAGA 530-43/8-300   | 43                               | 8                                | 300                         |
| XAGA 530-75/15-300  | 75                               | 15                               | 300                         |
| XAGA 530-100/25-300 | 100                              | 25                               | 300                         |
| XAGA 530-100/25-450 | 100                              | 25                               | 450                         |

## Raychem (Duraseal) Crimp Terminals and Connectors

### Key Applications

- Provides strain relief
- Automotive wiring repair and maintenance
- Marine electronics
- Fleet maintenance
- Commercial wiring (pumps/pools/spas)

| Pin Terminals | Pin Diameter (inches) |       |     |            |
|---------------|-----------------------|-------|-----|------------|
|               | 22-18                 | 0.075 | Red | B-106-6201 |

| Bullet Terminals | Diameter (inches) |        |       |      |            |
|------------------|-------------------|--------|-------|------|------------|
|                  | 22-18             | Male   | 0.157 | Red  | B-106-7401 |
|                  | 16-14             | Male   | 0.197 | Blue | B-106-7502 |
|                  | 22-18             | Female | 0.157 | Red  | B-106-8401 |
|                  | 16-14             | Female | 0.197 | Blue | B-106-8502 |

- Determine type of terminal or splice required
- Determine wire size and stud size (for terminals)
- Heatshrink outer sleeving
- Install with non indenting crimp tool

## Raychem (Duraseal) Crimp Connectors

- Heatshrinkable - environmentally sealed
- Protects splices from water, condensation, salt and corrosion
- Completely insulates and protects electrical connections
- Protects against added vibration in rugged environments
- Has adhesive lining for protection that is more reliable than that of conventional splices
- Voltage class: 600V
- Temperature range: (-55°C to +105°C)
- Shrink ratio: 2:1

## Raychem Heatshrink Feedthroughs

- Raychem heatshrinkable feedthroughs provide an up to date solution to the problem of sealing bulkhead, equipment boxes and panel penetrations
- The unique design provides a level of environmental sealing and strain relief far superior that previously offered by conventional compression seals
- An elastomeric O-ring is supplied with each part to accommodate surface irregularities in the panel
- Each feedthrough is available with either the standard locking nut when access to only one side of the panel is possible or the 'both sides' accessible lock nut
- In addition each part may be supplied precoated with a Raychem adhesive to provide complete sealing between cable and feedthrough

## Ring and fork terminals

| 1.0 - 0.5 size mm (RED) |             |                                                                                   | 1.5 - 2.5 size mm (BLUE) |             |                                                                                    | 4.0 - 6.0 size mm (YELLOW) |             |                                                                                     |
|-------------------------|-------------|-----------------------------------------------------------------------------------|--------------------------|-------------|------------------------------------------------------------------------------------|----------------------------|-------------|-------------------------------------------------------------------------------------|
| Stud Size (mm)          | Part Number |                                                                                   | Stud Size (mm)           | Part Number |                                                                                    | Stud Size (mm)             | Part Number |                                                                                     |
| 4                       | B-106-1401  |  | 4                        | B-106-1402  |  | 4                          | B-106-1403  |  |
| 5                       | B-106-1501  |  | 5                        | B-106-1502  |  | 5                          | B-106-1503  |  |
| 6                       | B-106-1601  |  | 6                        | B-106-1602  |  | 6                          | B-106-1603  |  |
| 8                       | B-106-1801  |  | 8                        | B-106-1802  |  | 8                          | B-106-1803  |  |
| 10                      | B-106-1991  |  | 10                       | B-106-1992  |  | 10                         | B-106-1993  |  |
| 4                       | B-106-2401  |  | 4                        | B-106-2402  |  | 4                          | B-108-2403  |  |
|                         |             |                                                                                   | 5                        | B-106-2502  |  | 5                          | B-106-2503  |  |

## Push-ons (for .250 x .032 tabs)

| Wire Size | Part Number | Colour |                                                                                   |
|-----------|-------------|--------|-----------------------------------------------------------------------------------|
| 22-18     | B-106-3631  | Red    |  |
| 16-14     | B-106-3632  | Blue   |  |
| 22-18     | B-103-3281  | Red    |                                                                                   |

## Tabs (.032" thick)

| Wire Size | Part Number | Colour |                                                                                     |
|-----------|-------------|--------|-------------------------------------------------------------------------------------|
| 22-18     | B-106-4631  | Red    |  |
| 16-14     | B-106-4632  | Blue   |  |

|                                                                                     | Description | Colour Code | Cable Sizes (mm <sup>2</sup> ) | Length of Conductor Outer Sleeve (mm) |
|-------------------------------------------------------------------------------------|-------------|-------------|--------------------------------|---------------------------------------|
|  | D406-0001   | Red         | 1.0-0.5                        | 32                                    |
|  | D406-0002   | Blue        | 2.5-1.5                        | 32                                    |
|  | D406-0003   | Yellow      | 6.0-4.0                        | 38                                    |

| Part Number | Recommended Hole Size (mm) | Cable/Pipe Diameter Range (mm) |
|-------------|----------------------------|--------------------------------|
| 207W213     | 24                         | 4-10                           |
| 207W223     | 34                         | 7-18                           |
| 207W234     | 47                         | 12-28                          |
| 207W245     | 60.5                       | 18-42                          |
| 207W256     | 85                         | 30-64                          |

## Description

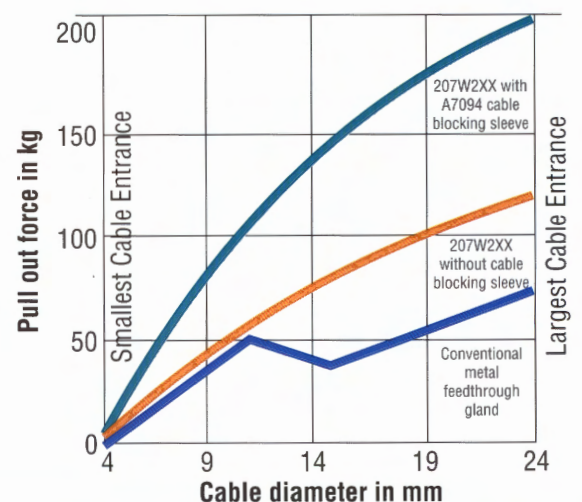
Two part feed through. Standard material is semi-rigid Polyolefin (-3) for the main body of the part. Locking nut is moulded in glass filled polyamide.

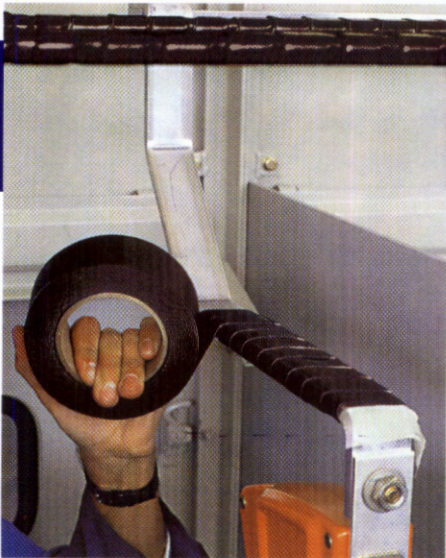
Min. recovery temp: +120°C

Continuous operating temperature: -55°C to +135°C and up to +175°C for short periods

Coating: This part may be supplied coated with thermoplastic adhesive (/42).

Graph show typical pull-out forces of Raychem 207W feed through versus conventional metal glands.



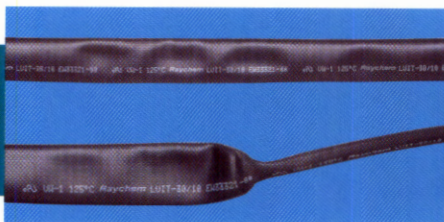


## Raychem (LVBT) General Purpose Low Voltage Insulating Tape

- LVBT is a general purpose, flexible heatshrinkable insulating tape
- Voltages up to 1000V
- The tape is a cross-linked polymeric material of high dielectric strength
- The tape is adhesive coated and when heated will shrink and seal to itself
- 50% shrink ratio
- UV resistant
- Temperature range (-40°C to +120°C)

### Key Applications

- It is designed for areas of restricted access where tubing cannot be easily used



## Raychem (LVIT) Low Voltage Insulation Tubing, Flame retardant, Flexible

- Shrink ratio 3:1
- U/V Resistant
- Voltage Class: Up to 3.3kV
- Temperature Range (-40°C - +105°C)
- Flexible
- Flame retardant
- Colour: black
- Standard length: 10m

### Key Applications

- Electrical insulation
- Indoor or outdoor busbar insulation
- Corrosion protection

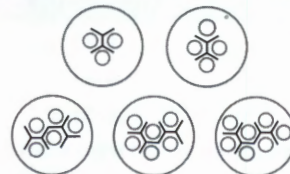


## Raychem (Rayplate) Duct Sealing System For Power Cables (RDSS)

- Use on power cables to provide a watertight seal when used with plastic, concrete or steel ducting systems
- Eliminates the need to pump manholes dry, avoids ingress of mud into ducts and withstands severely polluted environments
- Each Rayplate seal covers a large range of cable and duct diameters
- Rayplate seals can be installed when water is still flowing out of the duct - thus saving valuable installation time
- Use not only for new cable installations but also for existing applications
- Rayplate seals can be quickly and easily removed from a duct or pipe by deflation

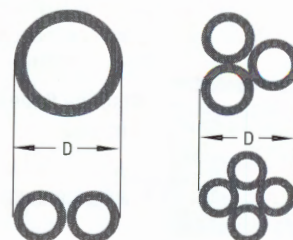
When three or more cables have to be sealed, an RDSS sealing clip is used in combination with the RDSS inflatable duct seal.

One RDSS-Clip seals up to 4 cables. If more cables are to be sealed, use one extra clip per three additional cables as shown in the following examples for different multi-cable configurations:



For each clip used, subtract 5mm from the maximum cable diameter shown in the table to determine the maximum cable bundle diameter.

Cable or cable bundle diameters



All RDSS sizes are packed in boxes of 10 pieces with 1 lubricant dispenser and 1 installation instruction.

RDSS clips are packed in boxes of 5 pieces.

RDSS clips must be ordered as a separate item

Each RDSS seals empty ducts (except for size 150) and ducts containing up to 2 cables. The table opposite shows the minimum and maximum diameter of the cable or of the sum of 2 cables depending on the duct size. All dimensions in mm.

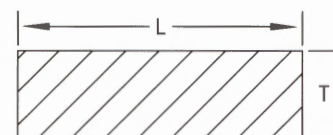
| Catalogue Number | Width (mm) | Roll Length (m) |
|------------------|------------|-----------------|
| LVBT-1-R         | 25         | 7.5             |
| LVBT-2-R         | 50         | 7.5             |
| LVBT-4-R         | 100        | 7.5             |

#### Product Selection

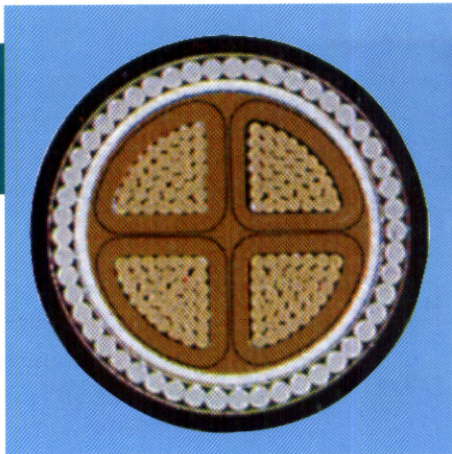
Rectangular busbars maximum thickness 15mm

| Catalogue Number | Busbar Width (mm) | Bus Length (m)<br>Insulated per Roll |
|------------------|-------------------|--------------------------------------|
| LVBT-1-R         | 25                | 1.2                                  |
| LVBT-2-R         | 50                | 1.5                                  |
| LVBT-2-R         | 75                | 1.1                                  |
| LVBT-2-R         | 100               | 0.8                                  |
| LVBT-2-R         | 150               | 0.6                                  |
| LVBT-4-R         | 200               | 0.9                                  |

| Description | Application<br>Range (mm) | Sizing for Rectangular Busbars<br>L=Width T=Thickness<br>Applicaton Range (L+T added) (mm) |
|-------------|---------------------------|--------------------------------------------------------------------------------------------|
| LVIT30/10   | 28 - 12                   | 40 - 18                                                                                    |
| LVIT75/25   | 70 - 28                   | 100 - 43                                                                                   |
| LVIT150/50  | 145 - 55                  | 200 - 86                                                                                   |



| Duct<br>Inside Dia. | Product Description   |                       |                       |                        |                        |                        |
|---------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|
|                     | RDSS-45<br>Table Dia. | RDSS-60<br>Cable Dia. | RDSS-75<br>Cable Dia. | RDSS-100<br>Cable Dia. | RDSS-125<br>Cable Dia. | RDSS-150<br>Cable Dia. |
| 32.5                | 0 - 14                |                       |                       |                        |                        |                        |
| 35                  | 0 - 18                |                       |                       |                        |                        |                        |
| 40                  | 0 - 27                |                       |                       |                        |                        |                        |
| 45                  | 0 - 32                | 0 - 18                |                       |                        |                        |                        |
| 50                  |                       | 0 - 30                |                       |                        |                        |                        |
| 55                  |                       | 0 - 38                | 0 - 28                |                        |                        |                        |
| 60                  |                       | 0 - 45                | 0 - 30                |                        |                        |                        |
| 65                  |                       |                       | 0 - 40                |                        |                        |                        |
| 70                  |                       |                       | 0 - 46                |                        |                        |                        |
| 75                  |                       |                       | 0 - 56                | 0 - 45                 |                        |                        |
| 80                  |                       |                       |                       | 0 - 52                 |                        |                        |
| 85                  |                       |                       |                       | 0 - 60                 |                        |                        |
| 90                  |                       |                       |                       | 0 - 66                 |                        |                        |
| 95                  |                       |                       |                       | 0 - 74                 |                        |                        |
| 100                 |                       |                       |                       | 0 - 80                 | 0 - 65                 |                        |
| 105                 |                       |                       |                       | 0 - 85                 | 0 - 75                 |                        |
| 110                 |                       |                       |                       | 0 - 90                 | 0 - 83                 |                        |
| 115                 |                       |                       |                       |                        | 0 - 91                 |                        |
| 120                 |                       |                       |                       |                        | 0 - 95                 |                        |
| 125                 |                       |                       |                       |                        | 0 - 103                | 60 - 100               |
| 130                 |                       |                       |                       |                        |                        | 60 - 107               |
| 135                 |                       |                       |                       |                        |                        | 60 - 112               |
| 140                 |                       |                       |                       |                        |                        | 60 - 118               |
| 145                 |                       |                       |                       |                        |                        | 60 - 123               |
| 150                 |                       |                       |                       |                        |                        | 60 - 129               |
| Clip Selection      | RDSS-Clip-45          | RDSS-Clip-75          | RDSS-Clip-75          | RDSS-Clip-100          | RDSS-Clip-125          | RDSS-Clip-150          |



## Raychem (1kV Straight Joints) For Paper Cables

- UV resistant
- Voltage class: 1KV
- Temperature range: (-40°C to +150°C)
- Suitable for direct burial

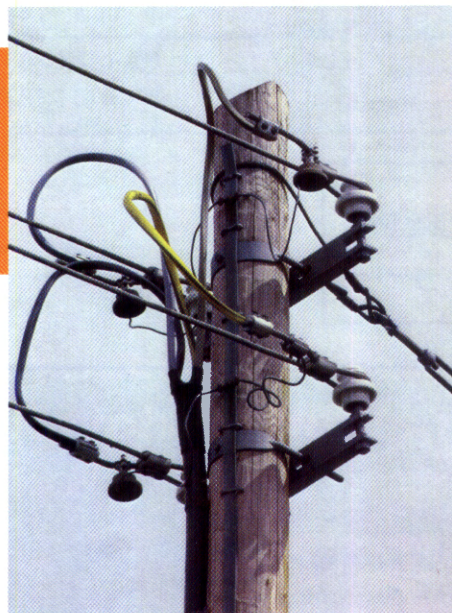
### Key Applications

- Straight joints

## Raychem (1kV Straight Joints) For Paper to Polymeric Cables

### Key Applications

- A range of joints for connecting paper insulated armoured cables and transitions between paper and polymeric insulated cables



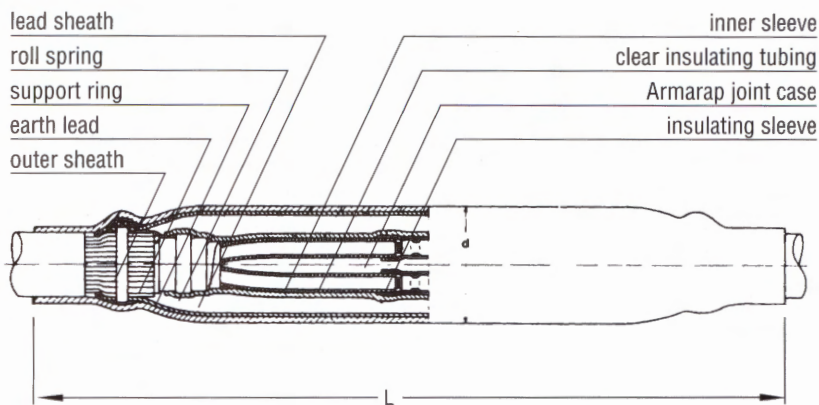
## Raychem Heatshrink (Low Voltage Terminations) For Paper Insulated Cables

- U/V resistant
- Voltage class: 1KV
- Temperature range: (-40°C - +150°C)
- Indoor or outdoor use

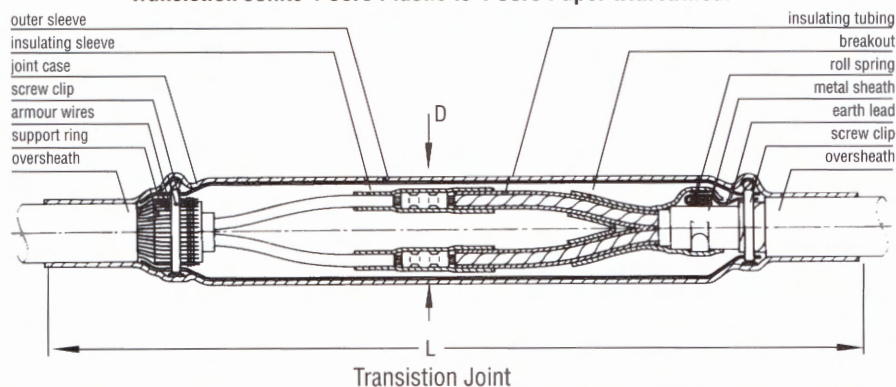
Selection Table

| Conductor (mm <sup>2</sup> ) | No. of Cores | Tail Length |           |           |           |
|------------------------------|--------------|-------------|-----------|-----------|-----------|
|                              |              | 250mm       | 500mm     | 750mm     | 1000mm    |
| 16-35                        | 4            | EPKT 0633   | EPKT 0634 | EPKT 0635 | EPKT 0637 |
| 50-95                        | 4            | EPKT 0639   | EPKT 0640 | EPKT 0641 | EPKT 0643 |
| 120-150                      | 4            | EPKT 0645   | EPKT0646  | EPKT 0647 | EPKT 0649 |
| 185-300                      | 4            | EPKT 0651   | EPKT 0652 | EPKT 0653 | EPKT 0655 |

| Conductor Size (mm <sup>2</sup> ) | Kit Number |
|-----------------------------------|------------|
| 16-35                             | EPKJ PLA 3 |
| 35-50                             | EPKJ PLA 4 |
| 70-150                            | EPKJ PLA 5 |
| 185-300                           | EPKJ PLA 6 |



#### Transistion Joints 4 Core Plastic to 4 Core Paper with Armour

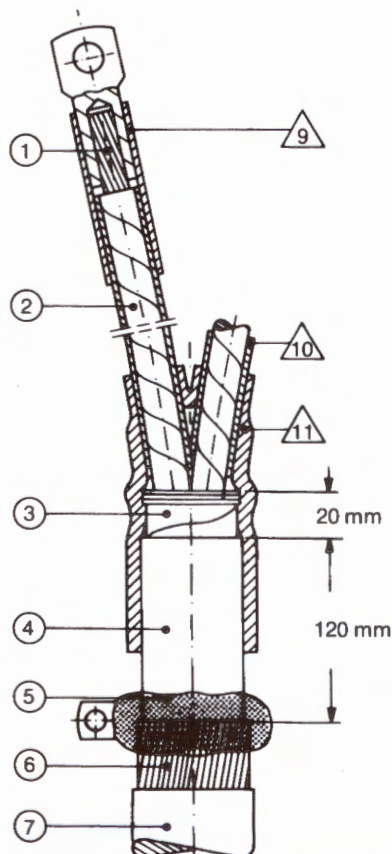


| Conductor Size (mm <sup>2</sup> ) | Kit Number |
|-----------------------------------|------------|
| 16-35                             | EPKJ 0828  |
| 35-50                             | EPKJ 0835  |
| 70-150                            | EPKJ 0842  |
| 185-300                           | EPKJ 0856  |

For Terminatons on Plastic Cables refer to Cable Breakouts for Cable Sealing and appropriate Tubing for Core Protection (FCSM) and Lug Sealing (WCSM or MWTM).

- ① conductor
- ② insulation papers
- ③ belt papers
- ④ metal sheath
- ⑤ plumb
- ⑥ armour
- ⑦ oversheath
- ⑧ earth lead

- △9 sealing sleeve
- △10 insulating tubing
- △11 breakout



# Raychem

*Your Heatshrink Partner*



Cuthbert Stewart Limited