

# tyco

Electronics

Energy Division

## EPKJ

Inline joints for MI/MIND paper insulated cables up to 1 kV

Raychem heat-shrinkable materials have been widely used to insulate, seal and mechanically protect power cables since the 1960's. The reliability and simplicity of the heat-shrinkable technique led our engineers, in close collaboration with electrical utilities, to develop a series of cable joints based on these materials.

The Tyco Electronics Energy Division's system eliminates the heavy equipment, compound pouring and delays of traditional methods, and has proven to be a dependable, time-saving and easy-to-install answer to cable jointing problems.

### Ease of installation

By shrinking clear insulating tubing over the cores, the fitter is able to protect the cable from moisture and dirt right from the start of the jointing procedure.

To insulate the connectors, heavy-wall heat-shrinkable tubing is used. This automatically ensures the necessary wall thickness and allows the use of various conductor jointing techniques.

### Sealing

To keep cable impregnation in place and water out, the functions of the lead sheath are restored with an adhesive-lined heat-shrinkable sleeve. The heat and the shrinking action cause the adhesive to melt and flow, providing a high integrity durable seal on the ends of the cable sheath.

### Mechanical strength

A galvanized steel grid is used for impact protection. This is flexible enough to be easily wrapped round the joint, but rigid when clamped to the cable armour. The Raychem Armarap joint case has been developed and fully tested for earth fault carrying capacity.



### Performance

Raychem joints are designed and fully tested to meet Raychem specification PPS 3013, which encompasses the requirements of the major national standards and international norms. Each joint covers a range of cable sizes and is supplied in kit form complete with illustrated installation instructions.

As the leader of heat-shrinkable materials and one of the largest cable accessory makers, Tyco Electronics Energy Division makes a wide range of cable jointing, terminating, insulating and sealing systems, supporting them with customer training, service and technical assistance to meet the demands of the electricity supply industry.

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| Test Sequence                    |   | Result                        |
|----------------------------------|---|-------------------------------|
| <b>Insulation Resistance</b>     | between conductor and grounded water bath   | ≥ 1000 MΩ                     |
| <b>Impact</b>                    | 4 kg wedge dropped 6 times from 2 m   | no functional damage          |
| <b>A.C. Voltage Withstand</b>    | 4 kV for 15 min   | no breakdown and no flashover |
| <b>Impulse Voltage Withstand</b> | 10 positive and 10 negative, 1.2/50μs, 8 kV peak, between conductor and grounded water bath   | no breakdown and no flashover |
| <b>Insulation Resistance</b>     | repeat  | ≥ 1000 MΩ                     |
| <b>Load Cycling</b>              | 63 cycles<br>5h heating, 3h cooling<br>conductor temperature: 85°C  | pass                          |
| <b>Thermal Short Circuit</b>     | 1s symmetrical fault with conductor temperature as for cable specification<br><br>1s earth fault with sheath temperature as for cable specification | no visible signs of damage    |
| <b>Load Cycling</b>              | as above with cable in 1 m water, oversheath removed  | pass                          |
| <b>Insulation Resistance</b>     | repeat  | ≥ 1000 MΩ                     |
| <b>Impulse Voltage Withstand</b> | repeat  | no breakdown and no flashover |
| <b>D.C. Voltage Withstand</b>    | 15 kV for 5 min in water  | no breakdown and no flashover |
| <b>Notes:</b>                    | 1. All voltages are phase to ground.<br>2. Further details are given in Raychem specification PPS 3013.   |                               |

### Ordering information

| Cross-section             | <b>4 core paper cable with armour</b><br>Raychem kit number |
|---------------------------|---|
| 16 - 25 mm <sup>2</sup>   | EPKJ 0528   |
| 35 - 50 mm <sup>2</sup>   | EPKJ 0535   |
| 70 - 150 mm <sup>2</sup>  | EPKJ 0542   |
| 185 - 300 mm <sup>2</sup> | EPKJ 0549   |

Raychem joint kits are available for MI/MIND paper and plastic insulated cables for up to 1 kV, with 2 to 5 cores and with conductor cross-sections up to 300 mm<sup>2</sup>. Solderless earth connections and a full selection table are available on request.

Raychem joint kits are supplied complete with full installation and application information.

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

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.

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