



Energy Division

Raychem Cable Accessories Enhancing the reliability of cable networks

 **Tyco Electronics**
Our commitment. Your advantage.

Enhancing the reliability of cable networks

LV

MV

Under the well-established brand name Raychem, Tyco Electronics offers a comprehensive range of cable accessories for all cable types. The most innovative utilities and industries – including, mining, marine, offshore and nuclear – around the world use our power cable accessories. Designed to withstand environmental extremes and high pollution levels over long operating lifetimes, they help maintain service reliability in both overhead and underground installations. We have developed specially formulated insulation materials that resist tracking and degradation caused by erosion, ultraviolet light and other environmental stresses.

Customer Requirements

Advanced materials research and development and constant improvement programmes are helping us to increase our responsiveness to customer requirements and to meet the demands of modern cable networks:

- Fewer components
- Simplified cable preparation
- Fast installation
- Safe for installer and environment
- Consistent approach for all cable types and voltage classes
- High reliability
- Qualification to international specifications, such as IEC, CENELEC, IEEE, ANSI and GOST

Product Features

Basic design and material research have been systematically improved over more than three decades.

Thorough research in close cooperation with our customers has produced new materials for the electrical power industry. The result is a wide range of products with a unique combination of properties such as:

- Increased resistance to thermal ageing
- Insulation-thickness memory
- Shape memory
- Excellent resistance to surface electrical activity
- Improved UV performance
- Electrical stress control
- Void-free interfacial bonding
- Impermeability to cable oils
- Moisture blocking
- Improved flame resistance
- Elastomeric technology
- Mechanical connecting systems
- High radiation resistance



Low-voltage Joints

Raychem products offer excellent insulating and sealing performance with heat-shrinkable, gel and resin materials. These proven materials form the basis of straight and branch joints for voltages up to 1kV.

- Heat-shrink, resin, gel technologies
- Environmentally friendly sealants
- Quick and easy installation
- Re-instatement and energisation can follow immediately after installation
- Solutions for all cable constructions

Low-voltage Terminations

Consistent performance in harsh environments – such as extreme temperatures, atmospheric pollution, and ultraviolet light – has proved the reliability of Raychem terminations

- Heat-shrink technology
- Quick and easy installation
- Solutions for all cable constructions

Cable Feedthroughs

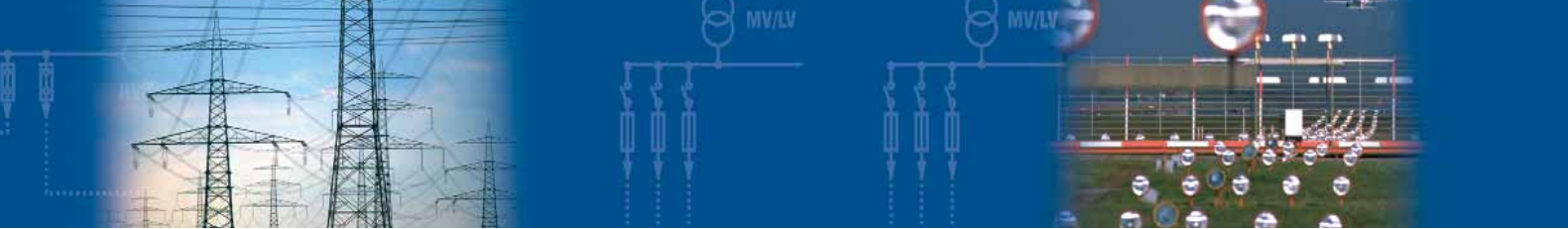
These proven sealing systems are designed for plastic, concrete or steel duct cable entries into buildings and manholes

- Heat-shrink and cold-applied technologies
- Performance tested
- Excellent heat dissipation
- Fast, easy and reliable sealing methods
- Easy removal for quick re-entry
- Environmentally friendly

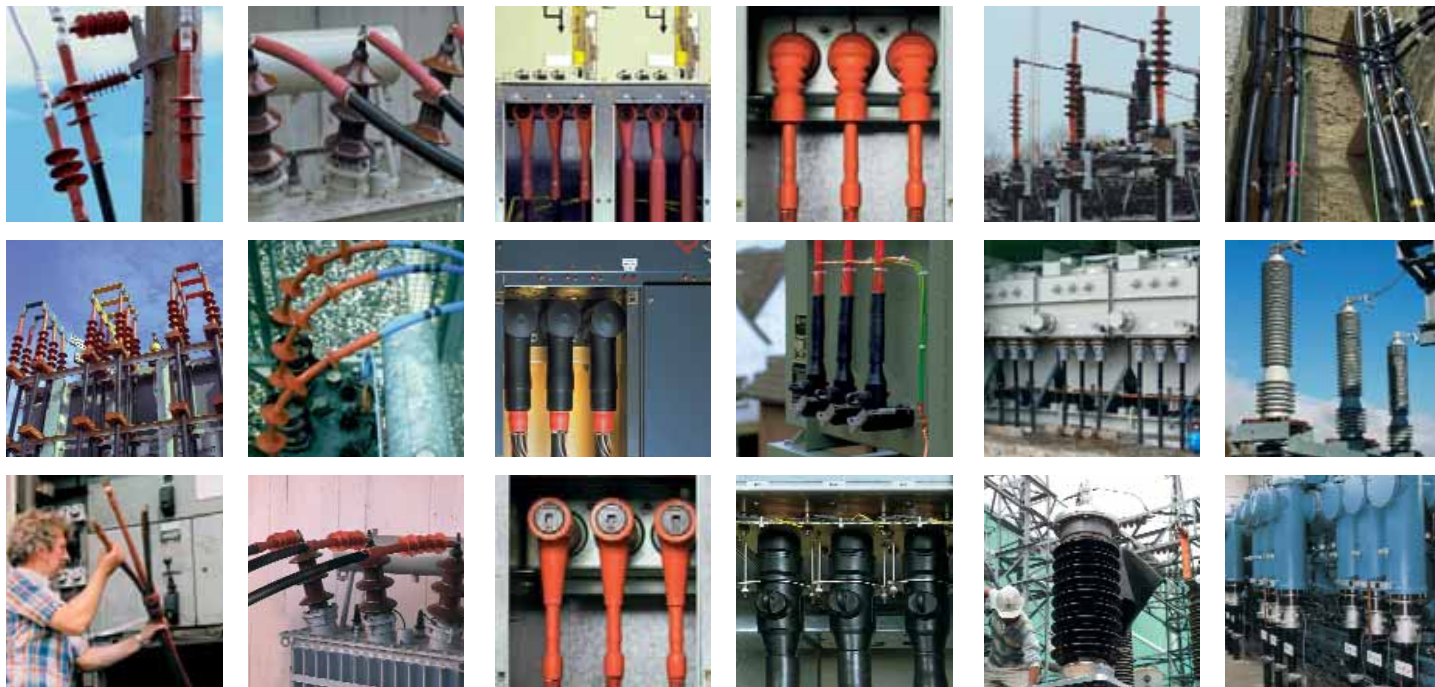
Medium-voltage Joints

Millions of medium voltage joints have been installed on paper and polymeric cables worldwide, in the most severe service conditions, and under high electrical, thermal, mechanical and environmental stress. The reliability of the technologies is proven.

- Heat-shrink and cold-applied technologies
- Prefabricated components
- Easy and highly reliable installation
- Applicability to different conductor and connecting techniques
- Accommodation of tolerances, range-taking
- Suitable for different conductor cross sections and cable constructions
- Solutions for all cable constructions



HV



Medium-voltage Terminations

Our medium-voltage terminations have been used by utilities and industrial organisations worldwide for more than three decades.

- Heat-shrink and elastomeric technologies
- Impedance stress-control system
- Ceramic stress-control system
- Proven anti-tracking, erosion- and UV-resistant insulating material for indoor and outdoor applications
- Easy and highly reliable installation
- Range-taking
- Suitable for crimp, soldered and mechanical lugs
- Resistant to breakage and vandalism
- Solutions for all cable constructions

Medium-voltage Switchgear Connection Systems

Heat-shrink and cold-applied systems for switchgear with standardized bushings for 250A and 400/630A have been installed by utilities and industrial organisations worldwide for more than 15 years.

- Heat-shrink and elastomeric technologies
- Right-angle insulated boots
- Straight insulated boots
- Separable screened adaptor systems for 250A and 400/630A
- Separable insulated adaptor systems
- Suitable for crimp and mechanical lugs
- Easy and highly reliable installation
- Solutions for all cable constructions

High-voltage Joints and Terminations

Using its knowledge and experience in the field of material design, Raychem has pioneered some of the most important technical advances in cable accessory technology. Heat-shrinkable accessories are well accepted for medium-voltage distribution by utilities, equipment manufacturers and industrial users throughout the world.

For fifteen years, accessories have also been available for 69kV, 72kV, and 84kV transmission-voltages.

For higher voltage classes we offer 145 to 170kV prefabricated joints and terminations for indoor and outdoor switchgear and transformers

- Heat-shrink and elastomeric technologies
- Cross-bonding, shield-break and external grounding facilities
- Link boxes for cross bonding
- Mechanical lugs and connectors
- Joints and terminations have been proven by extensive use in the field
- Testing to international standards under the supervision of independent test institutes
- Suitable for all polymeric cables



LV

LV Joints

- 1) Heat-shrink inline joint, polymeric
- 2) Heat-shrink branch joint, polymeric
- 3) Gel inline joint, polymeric
- 4) Gel branch joint, polymeric
- 5) Resin inline joint
- 6) Resin branch joint

LV Terminations

- 7) Heat-shrink termination

Sealing

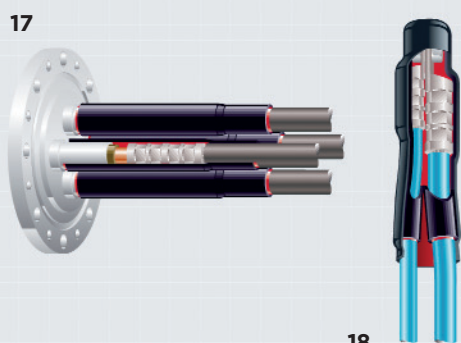
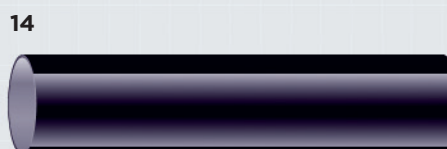
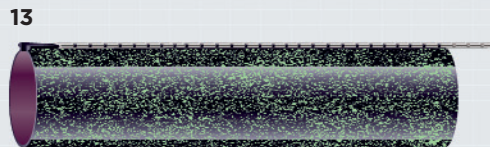
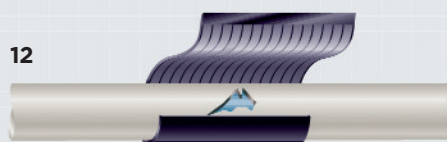
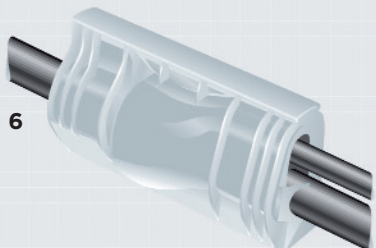
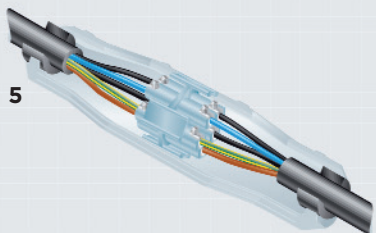
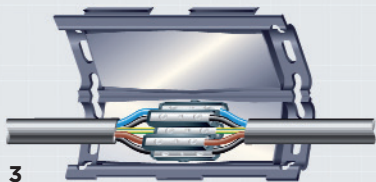
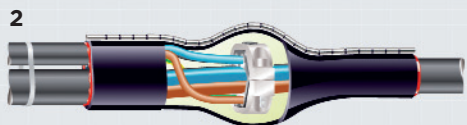
- 8) Cold-applied duct sealing
- 9) Heat-shrink wall feedthrough

Components

- 10) Heat-shrink breakout
- 11) Heat-shrink sealing cap
- 12) Heat-shrink repair sleeve
- 13) Heat-shrink wraparound
- 14) Heat-shrink tubing
- 15) Cold-applied insulating sleeve

LV Nuclear applications

- 16) Transition joint
- 17) Feedthrough/Penetration joint
- 18) Motor connection kit



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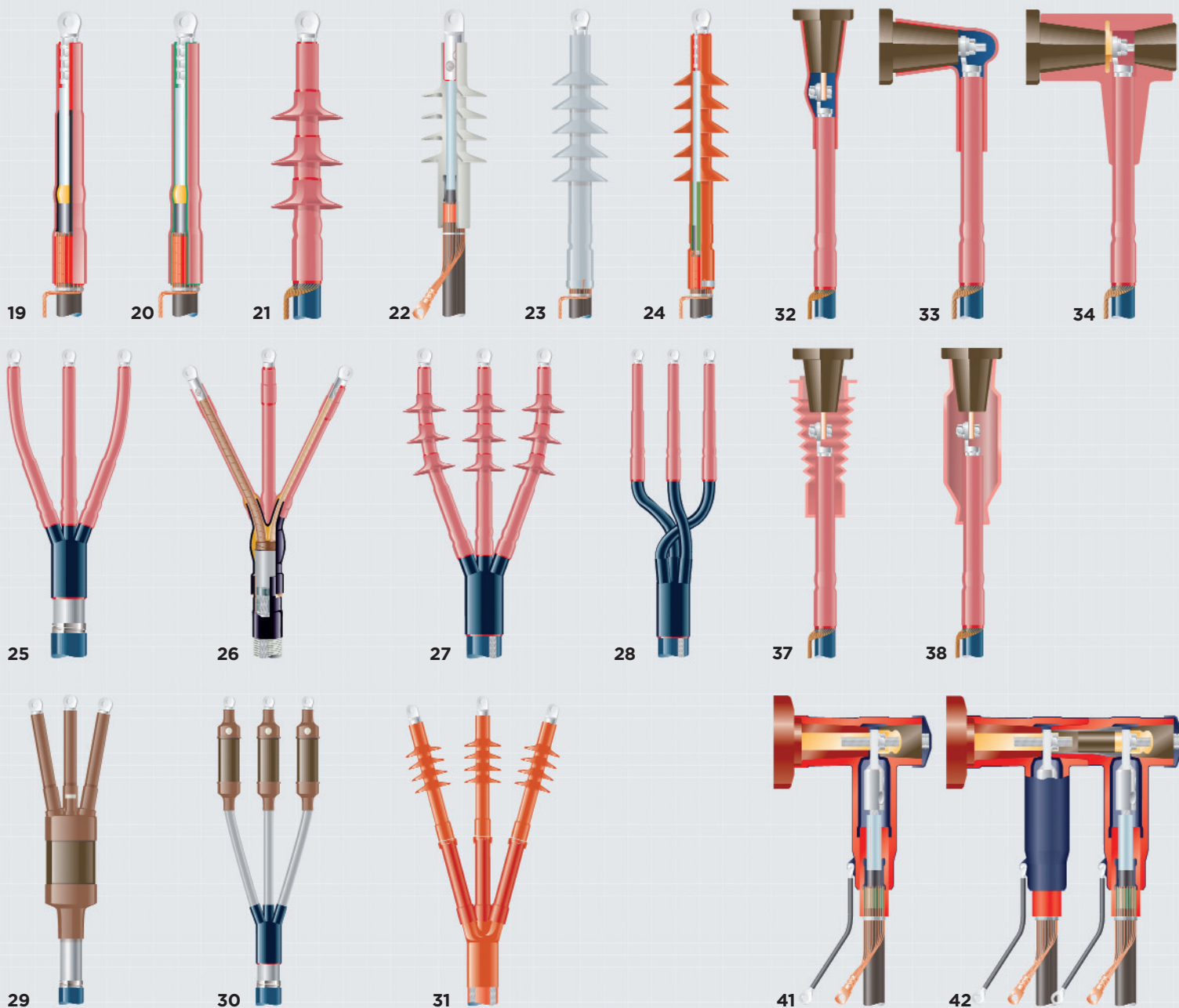
MV Terminations

- 19) Heat-shrink termination, 1c polymeric
- 20) Heat-shrink termination, 1c polymeric one-piece
- 21) Heat-shrink termination, 1c polymeric
- 22) Push-on termination, 1c polymeric
- 23) Cold-shrink / push-on termination 1c polymeric
- 24) Cold-shrink / push-on termination 1c polymeric

- 25) Heat-shrink termination, 3c paper MIND
- 26) Heat-shrink termination, 3c paper MIND
- 27) Heat-shrink termination, 3c polymeric
- 28) Heat-shrink termination, 3c polymeric
- 29) Heat-shrink termination, 3c paper MI
- 30) Heat-shrink termination, 3c paper MI
- 31) Cold-shrink termination, 3c polymeric

MV Connection systems

- 32) Heat-shrink straight insulating bushing boot
- 33) Heat-shrink right-angle insulating bushing boot
- 34) Push-on insulating separable connector system 400/630A
- 35) Push-on insulating separable connector with surge arrester 400/630A
- 36) Push-on insulating separable connector on 3 c, polymeric 400/630A
- 37) Push-on right-angle and straight insulating bushing boot



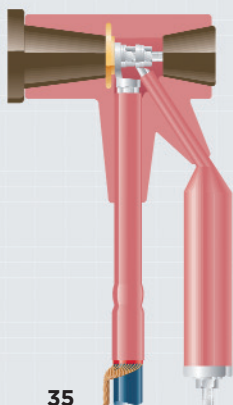


- 38) Push-on straight insulating bushing boot
- 39) Push-on screened straight adaptor 1c 250A
- 40) Push-on screened right-angle adaptor 1c 250A
- 41) Screened, separable connection system 1c 630A
- 42) Screened, separable, coupling connection system 1c 630A
- 43) Screened, separable connection system with surge arrester
- 44) Screened, separable connection system, large cross sections 1c 630A

MV Joints

- 45) Heat-shrink inline joint 1c polymeric
- 46) Heat-shrink repair joint 1c polymeric
- 47) Heat-shrink inline joint 1c polymeric with mechanical connector
- 48) Heat-shrink branch-off joint, polymeric
- 49) Heat-shrink end seal 1c, polymeric

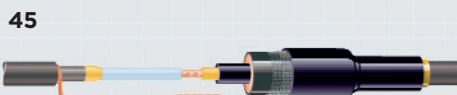
- 50) Heat-shrink transition joint paper to polymeric
- 51) Heat-shrink filled joint paper to paper
- 52) Cold-shrink joint 1c polymeric
- 53) Cold-shrink joint 3c polymeric



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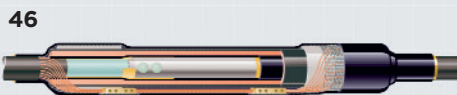
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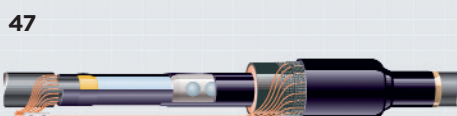
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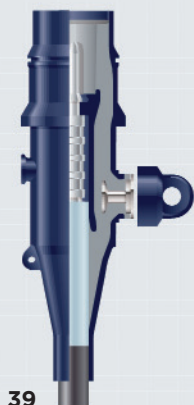
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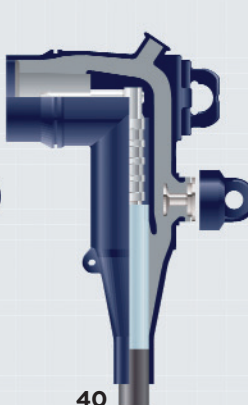
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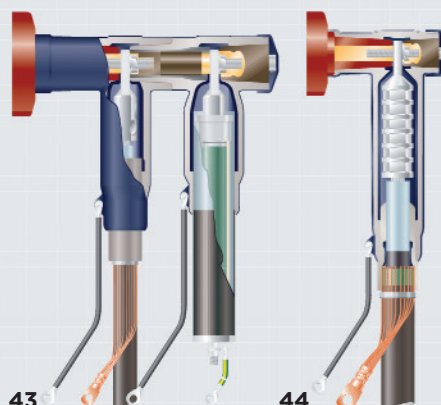
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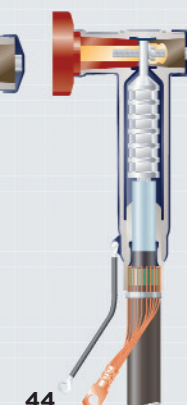
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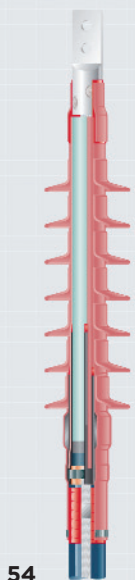


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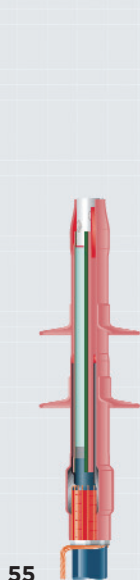
HV

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- 54) Heat-shrink termination up to 72kV indoor/outdoor polymeric
- 55) Heat-shrink filter cable termination 111kV/150kV polymeric
- 56) Link box
- 57) Dry compact switchgear (GIS) termination up to 145 kV
- 58) Oil-filled switchgear (GIS) termination up to 170 kV
- 59) Composite outdoor termination for polymeric cables up to 170kV
- 60) Dry polymeric outdoor termination up to 145 kV
- 61) Heat-shrink joint polymeric up to 72kV with optional cross bonding / shield break
- 62) Prefabricated inline joint up to 170kV with optional cross bonding / shield break



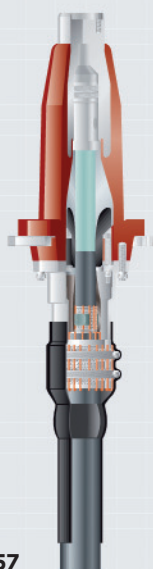
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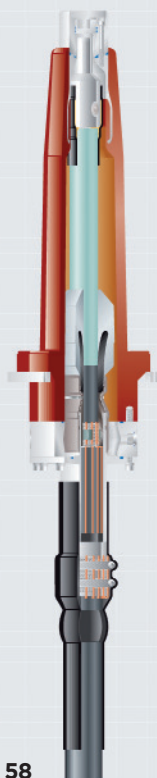
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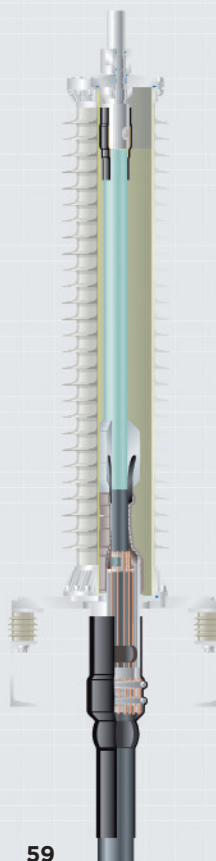
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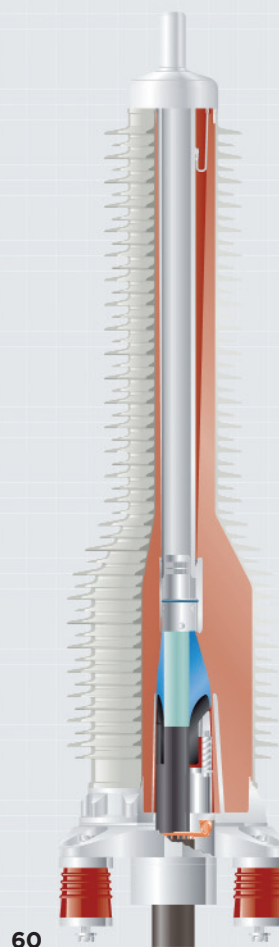
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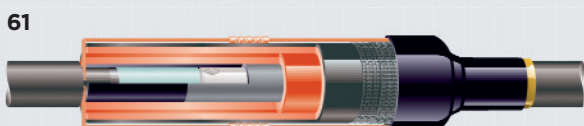
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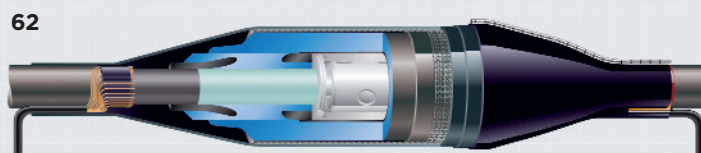
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Energy Division – economical solutions for the electrical power industry: cable accessories, connectors & fittings, electrical equipment, instruments, lighting controls, insulators & insulation enhancement and surge arresters.

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. Raychem, TE Logo and Tyco Electronics are trademarks.

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