Reliable solutions for electrified railway systems
Insulation Enhancement System

1. Raychem MVLC: (Medium Voltage Line Cover)
   Provides insulation for catenary, droppers and associated conductors against contact with trees, birds, wildlife or even vandalism. Simple, fast wraparound installation.

2. Raychem IBIC: ("I" Beam Insulation Cover)
   Prevents accidental bridging between "I" section steelwork and live catenary or associated equipment by wildlife. Installation is clip-on, tool-free and fast.

3. Raychem TCWC: (Twin Contact Wire Cover)
   Provides an insulating platform above Twin or Single contact wires. Used in tunnels, under bridges or in stations where there is reduced clearance. Attaches to contact wire with industrial standard clamps.

4. Raychem BISG: (Bus Insulation Squirrel Guard)
   Can be mounted horizontally or vertically on any MV insulator or bushing, to prevent wildlife bridging phase to ground. Designed to eliminate accidental flashover on trackside substations and all associated equipment.

HV Connectors

5. SIMEL Substation Connectors:
   A full range of HV connectors for substation applications is available, suitable for tubular and flexible conductors. Tee, Derivation and Termination available for aluminium, copper or bimetallic joins from 30kV to 330kV.

6. SIMEL Grounding Connectors:
   A range of copper compression connections is available for constitution of the earthing grid and connection of the grid to the frames.

Catenary Dropper System

7. & 8. SIMEL Catenary Dropper System:
   The catenary connection dropper provides mechanical and electrical binding between the carrier and the contact wire. An insulated version is also available for tunnel crossing. Custom designs are available on request. The examples shown are adjustable (number 7) and fixed-length (number 8).

HV Surge Arrester

9. Bowthorpe EMP Surge Arresters:
   Our DC & AC Traction Surge Arresters are suitable for installing on rolling stock or at the track-side. The HE60MC or HSR-R ranges have a rugged and compact design capable of withstanding mechanical forces experienced in such installations.

HV / MV Cable Accessories

10. Raychem Cable Joints:
    Suitable for all common polymeric cables – cross-bonding, shield break and external grounding arrangements are easily accommodated. Link boxes can be easily attached, adopting the network design specification. Short installation time reduces outages, whilst extensive field experience and rigorous testing have proven the reliability of the technology used.

11. Raychem 52kV and 72kV Terminations:
    The slim, compound-free Raychem 52/72kV terminations are suitable for indoor and outdoor use on almost all polymeric cables. For higher voltage classes we offer 145kV to 170kV prefabricated joints and terminations for indoor and outdoor switchgear and transformers.
Insulator System

12. Raychem Catenary Insulators:
Strut and tension applications using either porcelain, polymeric or hybrid technologies in catenary applications. Customers can specify required impact strength, handling, pollution resistance, cleaning and mechanical loading. The products range extends from 750V DC (mainly porcelain) up to 15/25kV AC (porcelain and polymeric) and also 50kV AC (hybrid).

13. Raychem Portal Insulators:
High-strength Porcelain (C120) and Polymeric (E-glass or acid-resistant E-glass) cores designed for low deflection and single insulator support. A range of core diameters is available, based on long-term loading requirements, with housing, creepage and dry-arc distance as key design criteria.

14. Raychem Substation Insulators:
Porcelain and Hybrid (porcelain core and polymeric housing) insulators for substation applications. Hybrids are generally specified where porcelain insulators have flashover issues or polymeric insulators have too much deflection under load in switching applications. Standard IEC or ANSI classifications are available.

Signalling and Telecom

15. Bowthorpe EMP Surge Protectors:
RTM Single Phase Surge Protectors are employed on the incoming power supplies or tail cables, providing protection for the 100V and 140V power supplies in the SSI equipment cases and rooms.

16. Bowthorpe EMP Surge Protectors:
The TLP range of Surge Protectors is employed on Telecommunication Equipment Transmission Lines, to reduce the likelihood of transmission-circuit damage as a result of power surges to STS Line Cards, Transmission Systems, STS Concept 32 Line Interface Cards and Pulse Code Modulation Line Regulators etc.

17. Bowthorpe EMP SPG: (Spark Gap Device):
Designed for use with traction circuits to provide protection against lightning over-voltage on signalling and cable circuits.

Connection Systems

18. SIMEL Bimetallic Connectors:
A crimp-type anchor sleeve for the protected wire, which provides a waterproof mechanical and electrical connection from the copper-protected carrier wire to the pole.

19. SIMEL Double Barrel Connectors:
A branch-crimped connector for copper, aluminium and bimetallic wires, which provides an electrical connection between the carrier wire and an intermediate cable.

20. SIMEL Spade Connectors: Spade-end crimped lug:
A copper, aluminium or bimetallic lug for an electrical connection from a copper or aluminium wire to an item of apparatus.

21. SIMEL TEE Connectors: Branch tee connector:
A copper or aluminium tee connector to make a mechanical and electrical connection between one end of a copper or aluminium conductor to a bare copper or aluminium bar.

22. SIMEL Crimping Tools:
Tools and tooling to crimp the catenary connectors. A wide range of hydraulic equipment is also available to crimp the connectors and droppers to the catenary.

Note: The above list of catenary connectors is only a basic list. Alternative and complementary connector designs can be provided on request.
Reliable solutions for electrified railway systems

Rolling Stock

23. Bowthorpe EMP Surge Arresters: DC & AC Traction Surge Arresters suitable for installation on rolling stock or at trackside. The HE60MC or HSR-R ranges have a rugged and compact design capable of withstanding the mechanical forces experienced in such installations.

24. Raychem Cable Assemblies for Rooflines and Downleads: Custom-designed cable assemblies employ compact, self-supporting polymeric terminations, bushings or screened T-connectors for rolling-stock power-distribution applications. Fully tested for over-voltage and partial discharge, flexible, insulated inter-car jumper leads are also available.

25. Raychem Polymeric Pantograph or Busbar Insulators: Lightweight, low-maintenance polymeric insulators for customised applications. The tough polymeric housing and robust construction offer improved pollution performance and high reliability.

LV Cable Accessories

26. Raychem LV Cable Accessories: We offer cable accessories for almost all cable types. Low-voltage joints are available in polymeric, gel and resin technologies, low-voltage terminations are available in heat-shrink technology. Sealing systems are offered in cold-applied technology for ducts and heat-shrink for feedthroughs. Breakouts, sealing caps, repair tape, wraparound, tubing in heat-shrink technology and insulating sleeves in cold-applied technology.

System Protection

27. Crompton Instruments System Protection Relay: An electronic protective device to monitor trackside signalling power feeders, with higher sensitivity and quicker response time than traditional fuses. Allows smaller cable diameters to be used over longer distances with substantial cost savings. Measures, displays and communicates the supply levels, and is fully programmable with up to 12 trip functions. Also measures events that can be time-stamped and date-stamped.
About TE Connectivity

TE Connectivity is a global, $12.1 billion company that designs and manufactures over 500,000 products that connect and protect the flow of power and data inside the products that touch every aspect of our lives. Our nearly 100,000 employees partner with customers in virtually every industry – from consumer electronics, energy and healthcare, to automotive, aerospace and communication networks – enabling smarter, faster, better technologies to connect products to possibilities.

TE Energy – innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, street lighting, power measurement and control.

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