

Raychem Heat-shrinkable Joint Sleeve
Rayfit for Medium Voltage Joints
up to 36 kV

Raychem
from TE Connectivity

Raychem Heat-shrinkable Joint Sleeve Rayfit for Medium Voltage Joints up to 36 kV

Raychem Rayfit represents the new generation of heat-shrinkable jointing technology. It is based on a triple-extruded heat-shrinkable elastomeric joint sleeve component. The system is suitable for paper and polymeric cable constructions and is designed to accommodate modern jointing requirements such as mechanical shear bolt connectors.

Main features

- Triple-extruded body provides a pre-engineered joint unit with fewer kit components
- Advanced shrink behaviour and profile-following are combined with a significant reduction in shrink time
- High recovery forces result in tight electrical interfaces and perfect sealing ability
- Optimised heat transfer due to reduced thermal capacity
- The reduced overall joint diameter provides a slimmer and space-saving profile
- As an alternative to crimp connectors, kits can be selected with mechanical shear bolt connectors for conductor and shield continuity
- Unlimited shelf-life simplifies material logistics and reduces cost
- Exceeds international performance standards including CENELEC HD 629 and IEC 60502 for joints and IEC 61238 for TE Connectivity BSM type mechanical connectors

Modern jointing

Today's jointing technology is required to be simpler and more economical yet provides higher levels of reliability and flexibility for operators who are under increasing pressure to improve network efficiency. Rayfit achieves these objectives and has additional valuable features including:

- **high recovery forces**
- **reduced installation time**
- **slim and space-saving design**

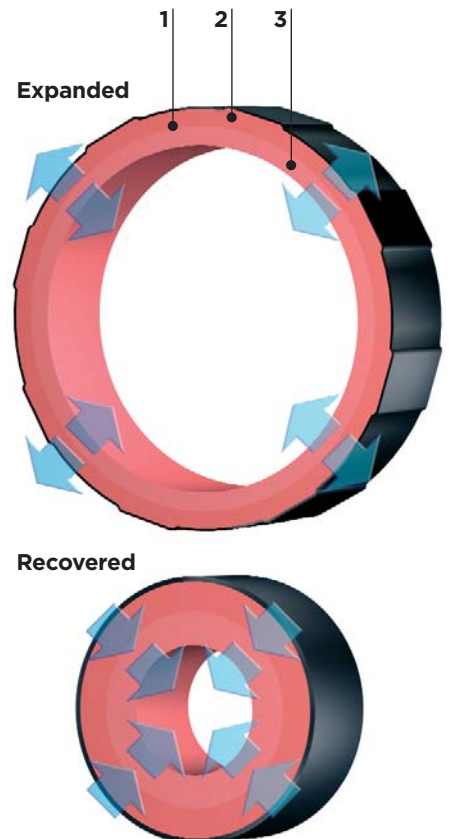
Kits are easy to select, will accommodate a variety of cable and conductor types and can include all components necessary to complete the joint. Important among the range of features is the option to include purpose-designed range-taking mechanical shear bolt connectors for conductor and shield wires.



Raychem Rayfit joint sleeve

The triple layer heat-shrinkable joint sleeve combines:

- 1 heat-shrinkable outer conductive layer**
- 2 heat-shrinkable insulation layer**
- 3 elastomeric insulation layer**



A triple-extruded hybrid component combining heat-shrink and elastomeric technology

ERIT	ERIC	ERIH
12 kV	24 kV	36 kV

Raychem Rayfit joint sleeve

The outer conductive layer and insulating middle layer provide the heat-shrinkable hold-out for the inner elastomeric layer of the joint sleeve. During the heat-shrink installation process, the stored recovery force of the elastomer is released and combines with the recovery force of the heat-shrinkable layers.

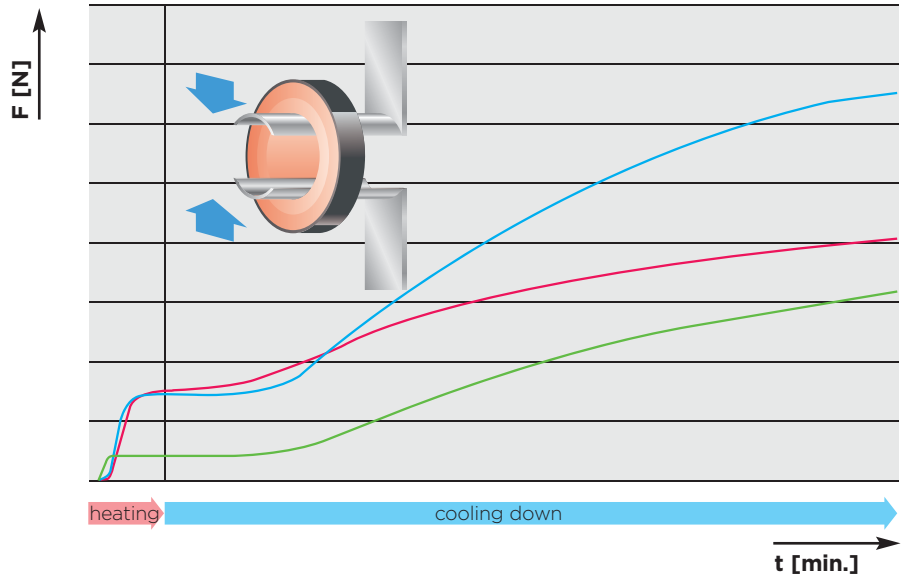
As a result, the electrical interfaces are reduced to the minimum and the joint sleeve provides a tight electrical interface.

The elastomeric characteristic of the materials, combined with the rigid outer heat-shrinkable (screen) layers enable the joint to follow the thermally induced dimensional changes of the cable insulation.



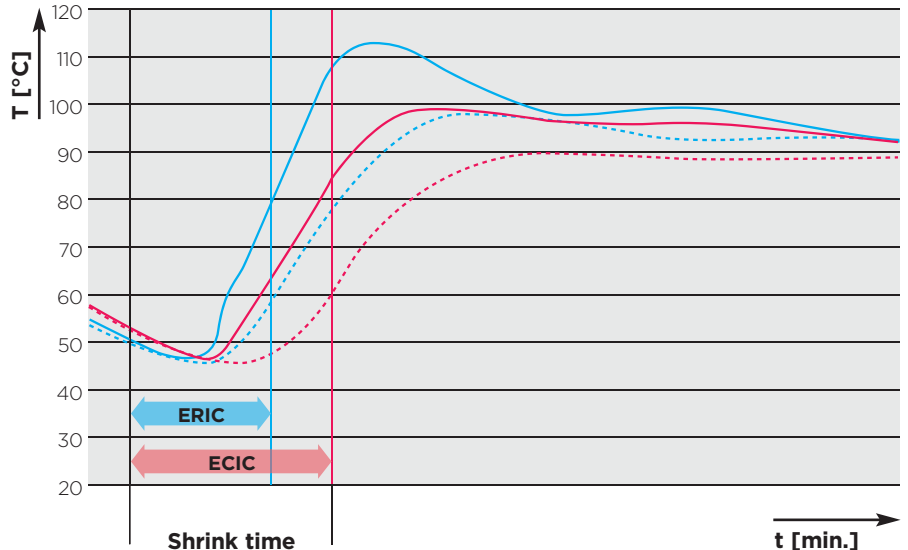
Joint sleeve recovery forces during installation

- New triple layer elastomeric ERIT
- Dual layer elastomeric ECIT
- Co-extruded heat-shrinkable sleeve CICM (non elastomeric)



Joint sleeve temperature distribution during installation

- New triple layer elastomeric ERIC
 - interface stress control to joint sleeve
 - - - interface stress control to cable dielectric
- Existing dual layer elastomeric ECIC
 - interface stress control to joint sleeve
 - - - interface stress control to cable dielectric



Other jointing elements

Mechanical shear-bolt connectors

Joint kits can be selected to include a TE Connectivity BSM type mechanical shear-bolt connector to ensure a reliable pre-engineered electrical connection for different conductor types and materials.

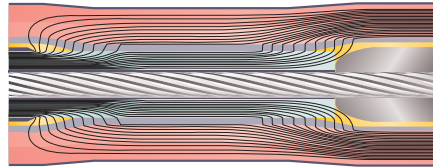
- range-taking sizes cover 25-400 mm² conductor cross-sections for aluminium and copper conductors
- pre-set shear torque provides safe and reliable installation
- removable half shell insert provide core centering
- tin-plated and greased contact surface for corrosion protection
- no need for compression tools or maintenance
- shorter length compared to compression connectors
- tested in accordance with IEC 61238
- excellent tensile performance due to special bolt tip design



Cordless impact wrench for simple and easy installation of mechanical connectors.

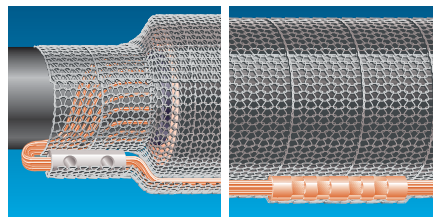
Electrical stress control

The stress control sleeves in combination with stress grading mastic at the screen cut provide a precisely defined impedance characteristic which smoothes the electrical field. For ease of installation, mechanical shear-bolt connectors are applied in combination with a stress control patch while joints with compression connectors use mastic tape for void filling and stress grading.



Shield continuity

With mechanical shear-bolt connectors as standard, typical shield wire cross sections up to 35mm² can easily be connected with the connector supplied in the kit. Positioned at the oversheath cut back, the connection provides a smooth profile and resists mechanical damage. There is no need for a crimping tool and its maintenance. Shear bolts provide the required contact force in order to ensure safe installation and reliable performance during load cycling in service as well as during short circuit conditions. An additional layer of copper mesh is applied around the joint to provide effective shielding and protection.



Joint kits for other connector technologies including deep indent and hexagonal compression are available.

Armouring

As some cable designs use a steel wire armour to provide a certain mechanical strength, joint designers have to provide the same performance. A steel wire armour wrap in combination with a heat-shrinkable sleeve or fibre reinforced wraparound are being used to fulfill the impact test requirements as requested e.g. in the CENELEC specification.

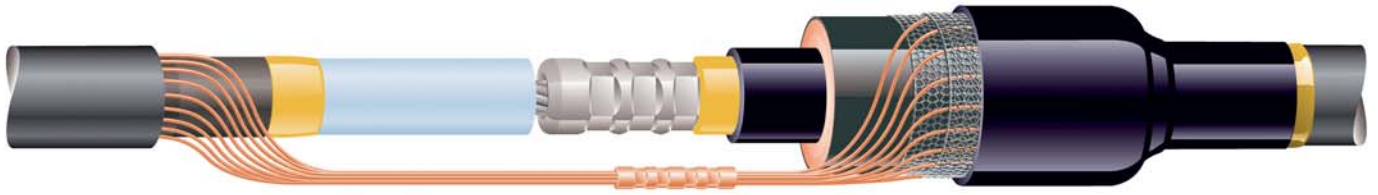
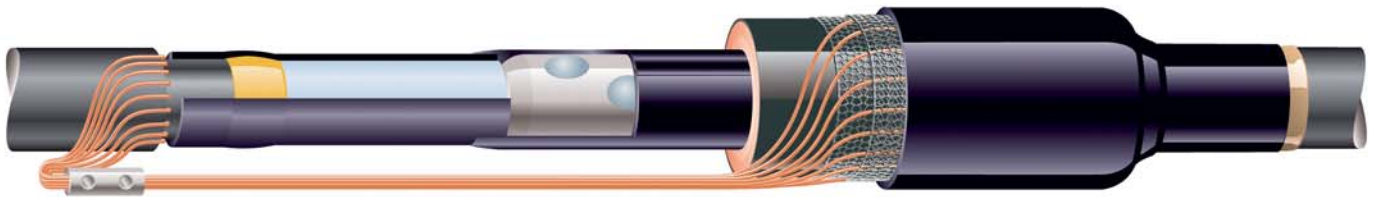
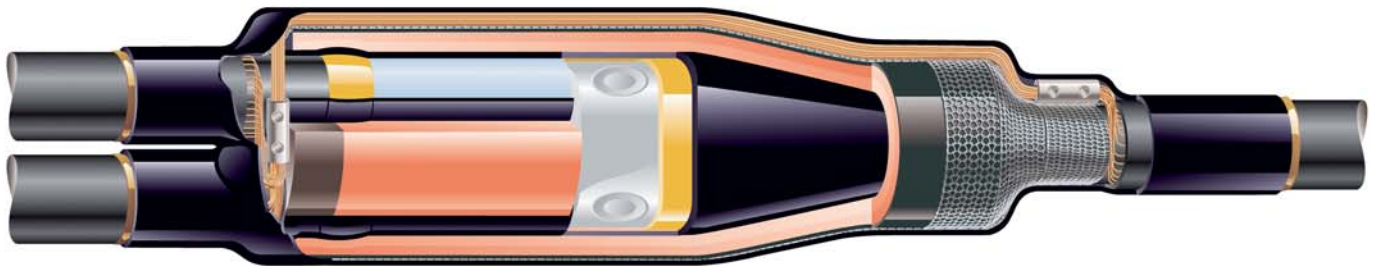
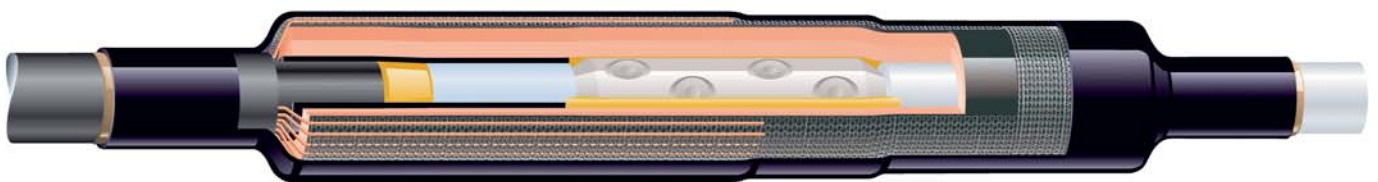
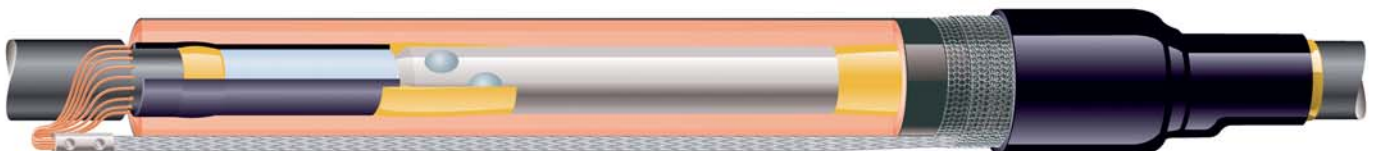


Robust outer sealing and protection

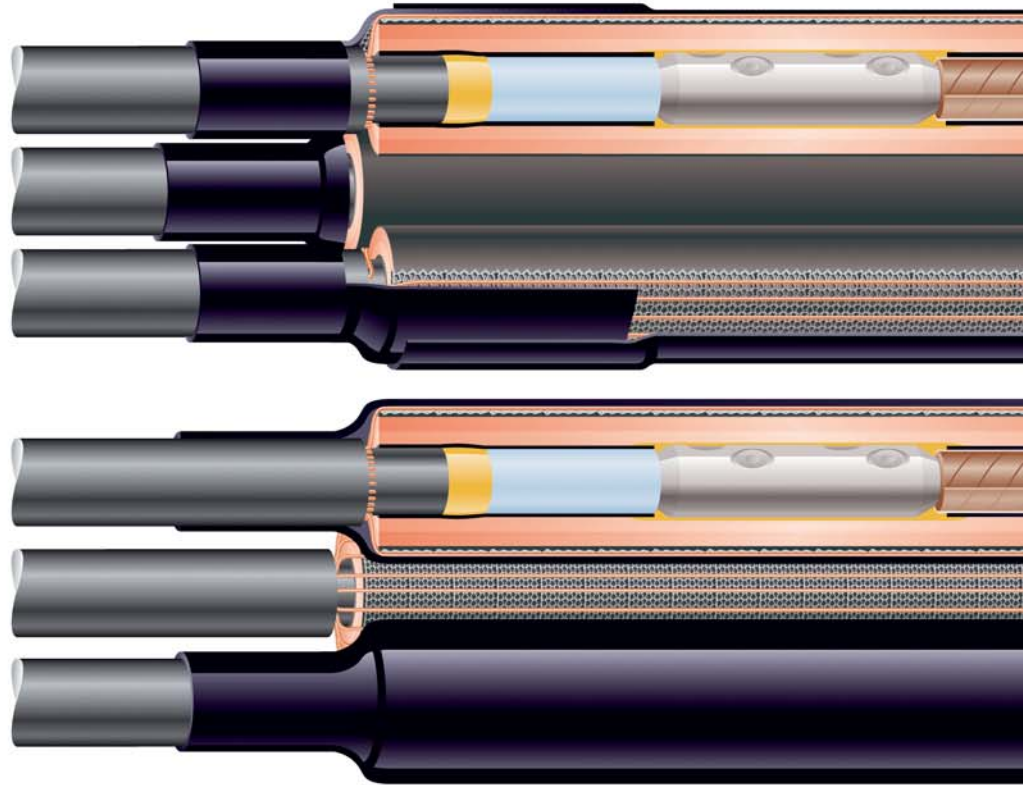
Modern cable laying techniques require a robust oversheath replacement capable of withstanding high mechanical stresses during conventional cable laying as well as mechanical impact occurring during the entire cable life. The thick-wall heat-shrinkable tubing is internally coated with a hot-melt adhesive to ensure an effective moisture seal and corrosion protection for the joint. When installed, the joints provide a level of protection and thickness equal to modern cables with PE oversheath. A space saving alternative using a fibre re-enforced wraparound sleeve coated with hot melt adhesive can be selected for installations in manholes and restricted joint bays.



Product families for polymeric insulated cables

Raychem medium voltage joints **SXSU** up to 36 kV using compression connectorsRaychem medium voltage joints **MXSU** up to 36 kV including mechanical connectorsRaychem medium voltage branch joints **MXSB** up to 24 kV including mechanical connectorsRaychem single core live end seals (stop end) **MXSE** up to 36 kVRaychem medium voltage repair joints **MXSU-L** up to 24 kV including mechanical connectors

Raychem transition joints MXSU up to 24 kV including TE Connectivity BSM type mechanical shear bolt connectors

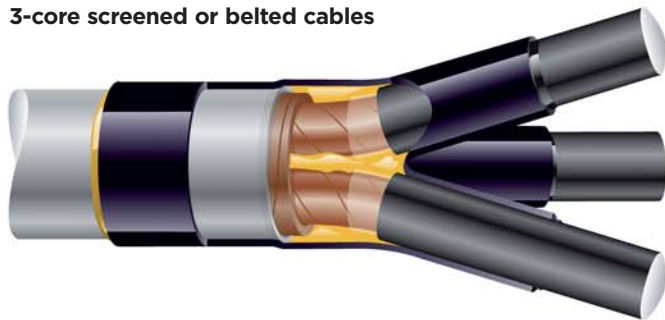


Raychem universal jointing system EPKJ-R to connect all common cable types using compression connectors

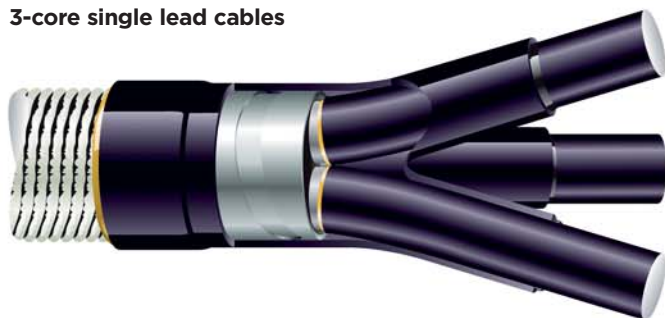
System technology

Few heat-shrinkable components like oil barrier sleeves, conductive breakouts etc. transfer paper cables into quasi polymeric type allowing the use of the same jointing sleeves.

3-core screened or belted cables

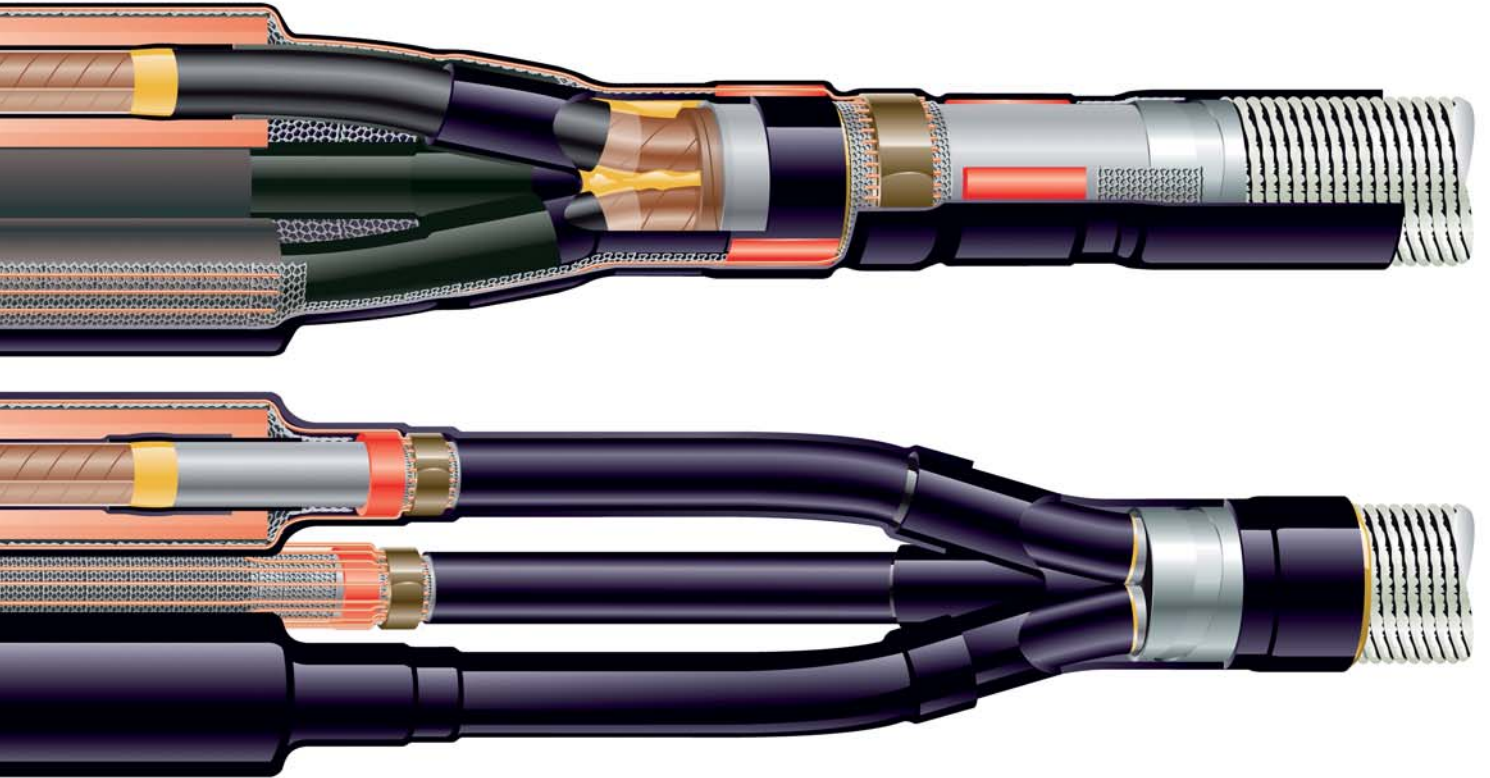


3-core single lead cables

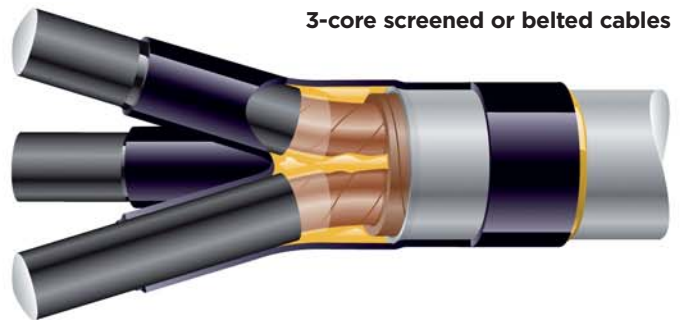


1-core lead sheathed cables





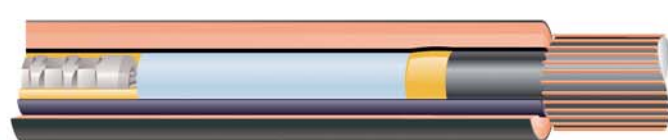
3-core screened or belted cables



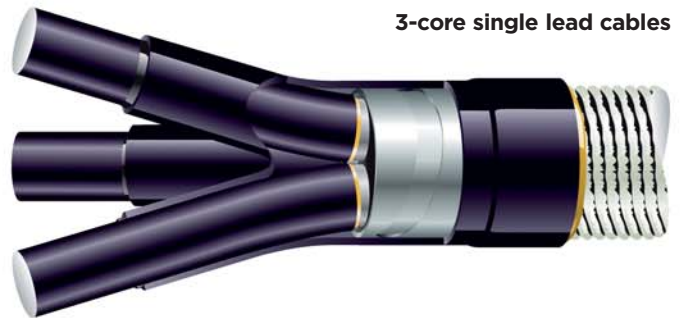
1-core lead sheathed cables



1-core polymeric cables



3-core single lead cables



3-core polymeric cables



Committed to Quality



All TE Energy products are subjected to extensive testing from the time they enter our plants as raw material until they leave as finished products. Requalification testing is carried out on a regular basis with installed components. Customers can thus have full confidence in the products, services and data supplied. In many cases, this saves the cost and inconvenience of any further downstream verification. All our electrical power products meet international specifications, such as IEC, CENELEC, IEEE, and virtually all national standards.



While TE Connectivity (TE) has made every reasonable effort to ensure the accuracy of the information in this catalog, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this catalog are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications. Raychem, TE Connectivity and TE connectivity (logo) are trademarks.

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.

Tyco Electronics Raychem GmbH
a TE Connectivity Ltd. Company
TE Energy
Finsinger Feld 1
85521 Ottobrunn/Munich, Germany

Phone: +49-89-6089-0
Fax: +49-89-6096345

energy.te.com

