

TFTI/TFTO

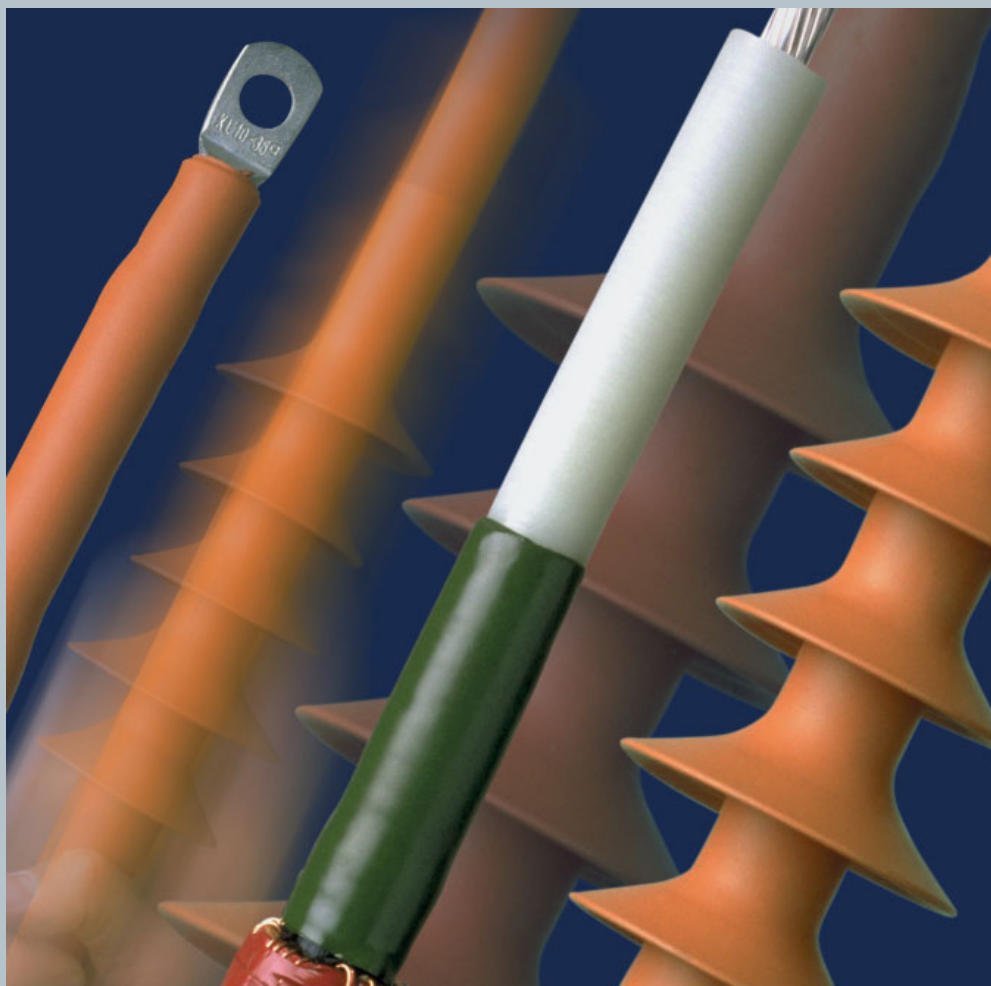
Push-On elastomeric medium voltage terminations for indoor and outdoor applications for single core polymeric cables up to 42 kV

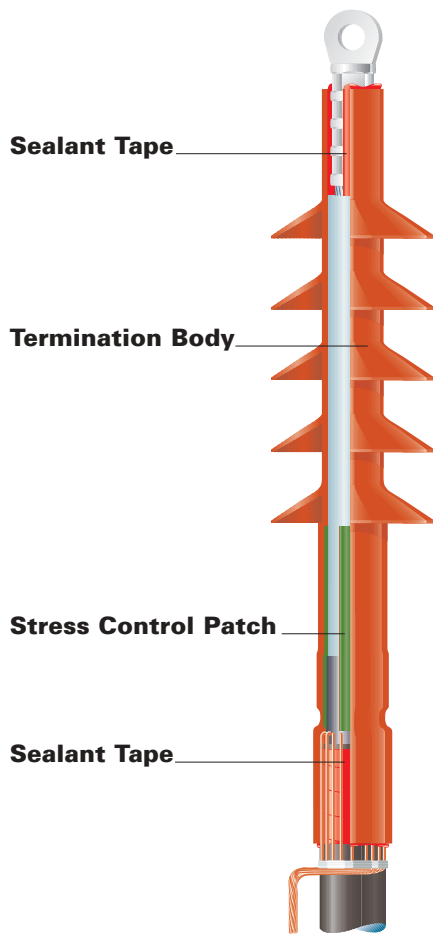
Features

- High performance termination material
- New stress control system
- Compact design

Benefits

- No shelf life, push on technology
- Simple installation
- Superior application ranges
- Less waste for disposal





24 kV outdoor termination

The materials are the difference

Key to the performance of Raychem products is the materials science and technology going into their development. Our products have displayed excellent performance in heat-shrinkable cable accessories up to 72 kV. The advantages of Raychem's heat-shrinkable terminations have a proven record of long-term stability, durability, and reliability over many years.

Raychem cable accessories have been used by utilities and industrial companies around the world for more than 30 years. This field experience has enabled us to be a leader in materials technology for high-voltage applications.

Our materials technology is at the core of the development of our new range of **TFT Elastomeric Terminations**.

Benefits

- No shelf life (push on version)
- Less waste for disposal
- Simple installation
- Re-positioning after installation possible
- Superior application ranges

Designed for both indoor and outdoor in all climate conditions, the TFT range covers applications on single core plastic cables up to 42 kV.

The TFT has been developed to complement Raychem's termination product line. The TFT includes an elastomeric body material in contrast to the semi-crystalline polymeric body of the heat-shrink terminations. Both types of bodies consist of cross-linked polymer networks and both types of terminations are easy to install over a range of cable sizes. Because the TFT bodies are rubbery at ambient temperatures, they are not "frozen" in an expanded state such as heat-shrinkable polymer bodies and can be installed without heat.

The TFT includes:

- a non-tracking, silicone-based elastomeric body
- a stress control patch
- self amalgamating sealant tape

These components combine to provide the same important functions as heat-shrink products: electrical performance, stress control, and moisture sealing. Because of the inherent physical property differences between semi-crystalline and rubbery polymers, the TFT stress control and

sealant materials are tailored to achieve optimum performance with an elastomeric system.

The proprietary materials used in Raychem cable accessories are subjected to a long period of optimisation with respect to product design and function, manufacturing and expected service environments.

We recognise that polymeric and elastomeric insulation materials are not generic and that extreme variations and differences can exist among base polymer grades and additives.

Formulations consist not only of polymer but of additives and fillers which greatly influence the material's properties. It is the entire formulation package in combination with compounding procedures, material processing, product design and assembly that all contribute to the overall product performance.

Insulation materials

The materials employed in TFT have similarly undergone many years of development yielding an elastomeric product with exceptional electrical and weathering performance properties.

The insulation material has been developed to maximize the inherent material hydrophobicity and thermal-stability characteristics of silicone and, through formulation expertise, to deliver excellent erosion resistance, weatherability and dielectric properties.

Stress control materials

A new patch for electrical stress control has been developed with physical and electrical properties providing superior performance when combined with the TFT termination.

We have formulated a superior new material which is included in the patch resulting in an outstanding impulse withstand performance of the TFT termination.

Sealant tapes to prevent moisture ingress

Sealant is applied at the top and the bottom of the prepared cable. The tape is self amalgamating, track and erosion resistant. When the TFT body is installed, its compressive force provides a water tight seal preventing moisture ingress.



TFTI installed with Raychem bushing boot (RCAB)



TFTI installed with Raychem insulated connection system (RICS)

Product range

The product line is designed for single core plastic cables up to 42 kV cables. This coverage is completed with a minimum number of designs. Pre-expanded versions are available.

The products are fully tested to CENELEC specification HD 629 and to IEEE Std.48-1996 which encompasses international standards such as IEC, British Standard (BS) and VDE.

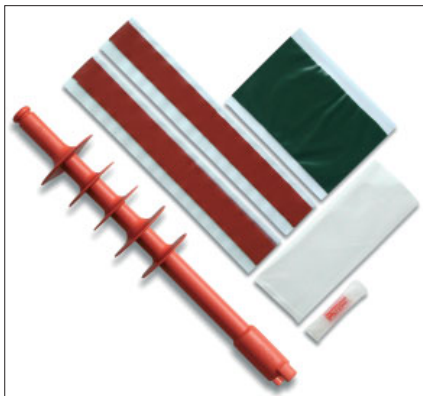
For cable box applications TFT can be combined with either Raychem’s bushing boot (RCAB) or Raychem’s insulated connection system (RICS) to fit most types of switchgear currently available in today’s market place.

For pole top applications we can supply TFT along with polymeric insulators (EPBI), Polygarde surge arresters and most fittings required for installation.

Under regular circumstances, all of the TFT components have full traceability back to the origin of manufacture and raw materials.

Kit content

Each TFT product will generally consist of the termination body unexpanded or expanded, a stress control patch, sealant tapes, silicone grease, a small PE bag as assembly tool and installation instructions. For special applications contact your local sales representative.



The right kit for your cable range can be selected with the help of the selection table.

Installation

Each kit contains an easy to follow installation instruction with excellent visual displays of the installation steps. Installation is both fast and simple.

Features and benefits

Features

High-performance termination material

New stress control system

Separate stress control patch

Separate mastic tapes for moisture sealing, specially designed for cold-applied applications

Compact design with integrated sheds

Application range

Easy application

Leakage current collector only for 36 kV and 42 kV

Benefits

Outstanding UV properties
Exceptional track and erosion resistance
Highly hydrophobic
Excellent high voltage insulation material

Excellent high-impulse withstand performance

Ensures stress control system is correctly positioned

Ensures mastic tapes are correctly positioned
Excellent resistance to moisture ingress

Space saving

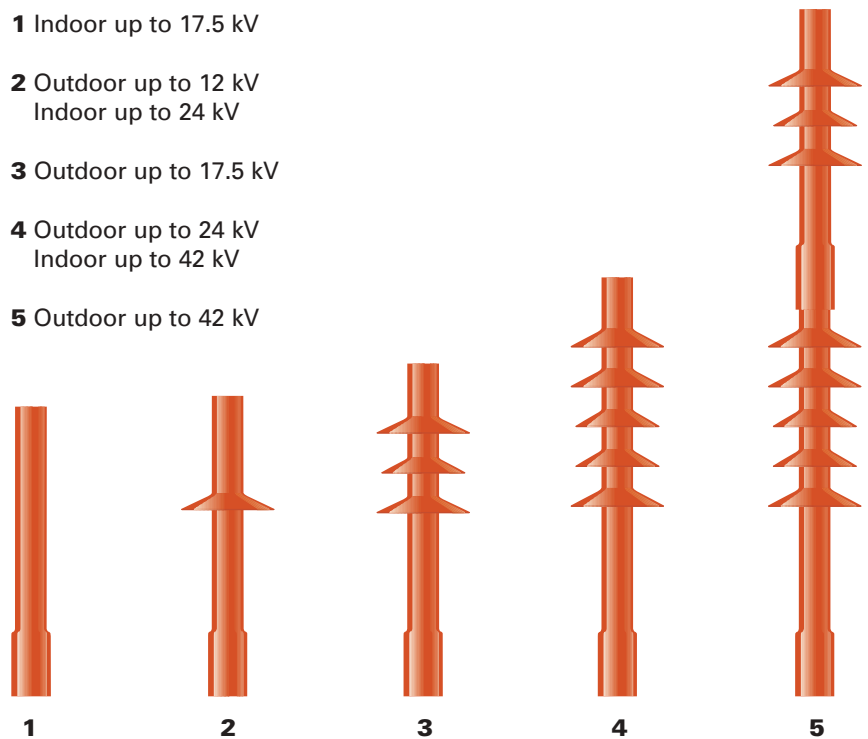
Three products cover the total cable range

Time saving and simple to install

Defines a clear earth electrode to drain the leakage current

TFTI/TFTO Termination Family

- 1** Indoor up to 17.5 kV
- 2** Outdoor up to 12 kV
Indoor up to 24 kV
- 3** Outdoor up to 17.5 kV
- 4** Outdoor up to 24 kV
Indoor up to 42 kV
- 5** Outdoor up to 42 kV



TFTI/TFTO Selection Table

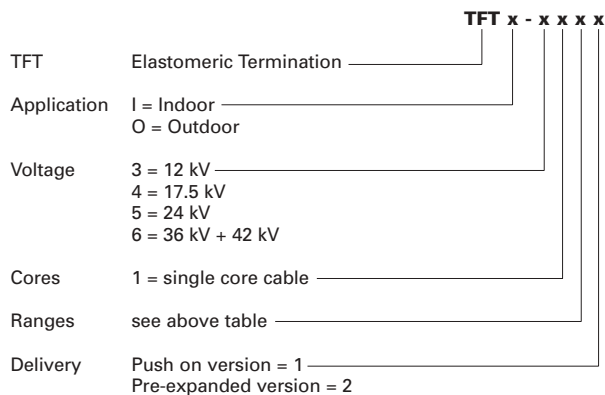
Application		Voltage in kV	[U _m]
I	Indoor	3	12
O	Outdoor	4	17.5
Cores		5	24
1	Single core polymeric cable	6	36 + 42

TFT Terminations – Push-On version Cross sections in mm²

	12 kV indoor/outdoor	17.5 kV indoor/outdoor	24 kV indoor/outdoor	36 kV indoor/outdoor	42 kV indoor/outdoor	Diameter over insulation in mm
1	25 – 70	–	–	–	–	12.5 – 20.0
2	50 – 185	25 – 95	25 – 95	–	–	16.0 – 27.0
3	150 – 400*	95 – 300	70 – 240	35 – 120	35 – 95	21.5 – 36.0
4	–	240 – 400	240 – 400	95 – 300*	95 – 185	27.0 – 45.0
5	–	500 – 630	500 – 630 ¹⁾	240 – 400*	240 – 400*	37.0 – 56.0

* Larger on request

¹⁾ Three shed housing



for example:

TFTI-5131
Indoor termination for single core polymeric cable 24 kV, 70 – 240 mm² (Push-On version)

TFTI-5132
Indoor termination for single core polymeric cable 24 kV, 95 – 240 mm² (Pre-Expanded version)

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. ALR, AMP, AXICOM, B&H, BOWTHORPE EMP, CROMPTON INSTRUMENTS, DORMAN SMITH, DULMISON, GURO, HELLSTERN, LA PRAIRIE, MORLYNN, RAYCHEM, and SIMEL are trademarks.



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For more information and your country contact person, please visit us at:
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