



Energy Division

RPIT
Raychem plug in termination system
up to 42 kV for gas insulated switchgear

RPIT

Features

- Separable inline connection for high current, gas insulated switchgears up to 42 kV
- Termination mates interfaces in accordance to EN50180 and EN50181 for inner cone connections
- The contact parts are designed for stranded circular aluminium or copper conductors in accordance to IEC-60228

Technical Information

The increasing popularity of gas insulated switchgear called for the development of appropriate connection systems to standardised bushings in accordance to EN50181.

Tyco Electronics Energy Division has developed two systems, one is related to the outer cone and the other one to the inner cone system. Later is used in power switchgear and power transformers.

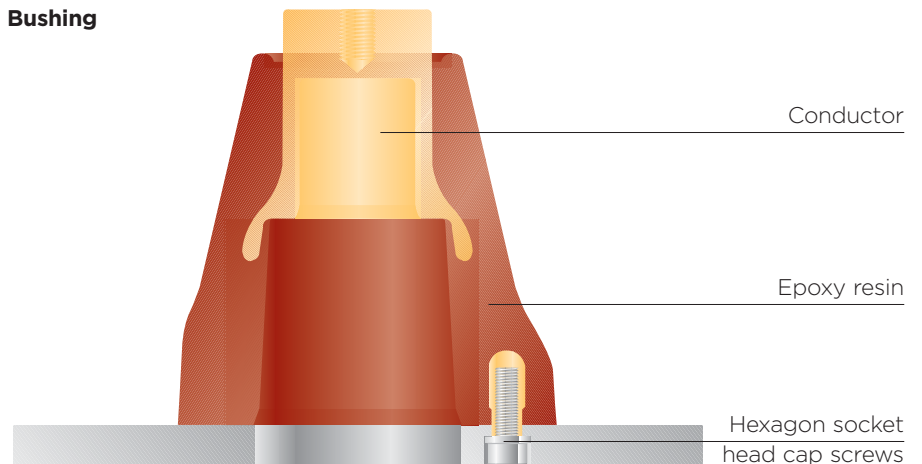
Tyco Electronics Energy Division has several decades of experience in the field of hermetically insulated termination systems for medium voltage applications. Thus the bushings designed for gas insulated switchgear meet the standard EN50181 for connection type size 2 (800 A) and size 3 (1250 A) at operating voltage 12 kV up to 36 (42) kV.

The basic construction of the mating termination follows well known design principles and incorporates a lamellate contact system which ensures reliable current transmission via a cone clamp to the conductor. The interface between silicone body of the termination and the bushing is kept permanently sealed via the pressure of a spring between the insulator and the flange of the termination cover.

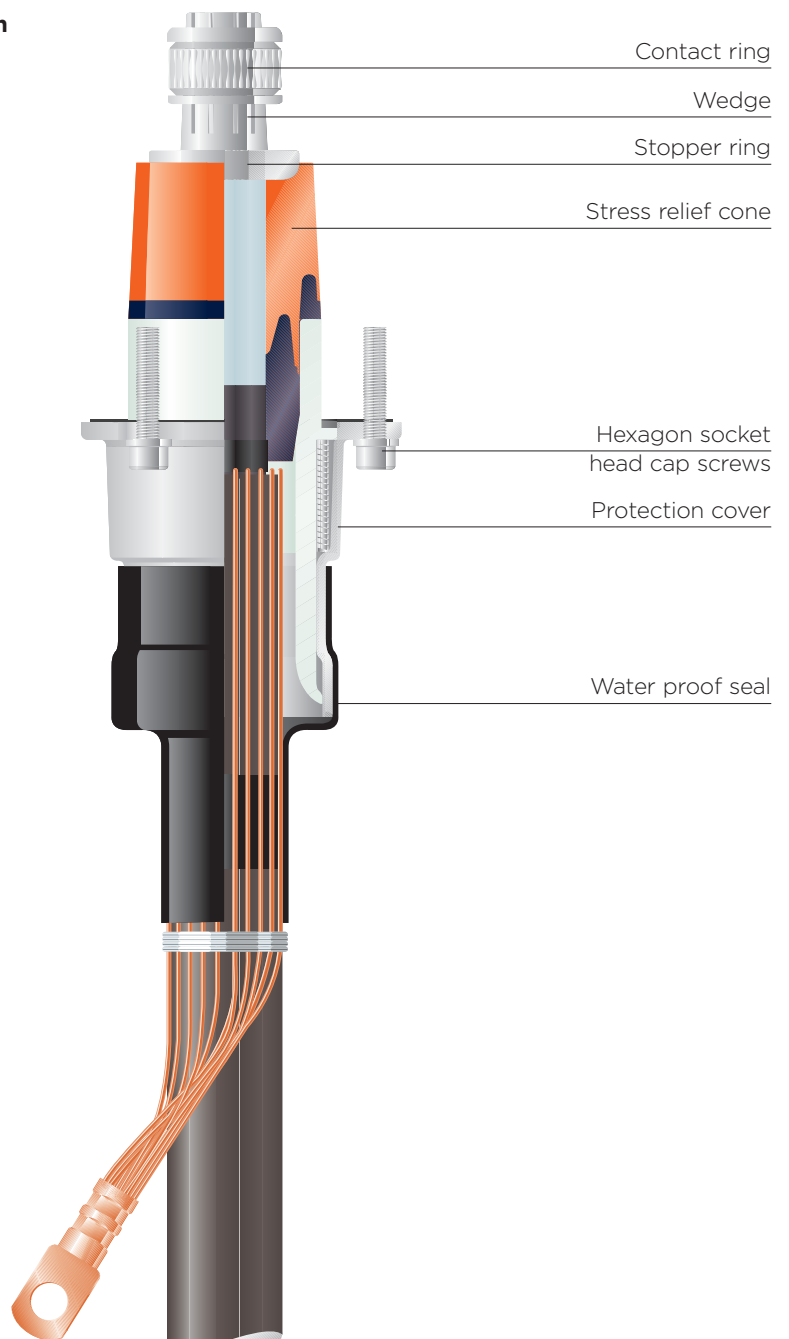
The termination cover is sealed at the flange area with well known sealing methods and at the cable side with heat-shrinkable tubing against ingress of moisture.

Raychem plug in termination system up to 42 kV for gas insulated switchgear Nominal current up to 1250 A

Bushing



Termination



Testing methodes according to CENELEC HD629.1 S2

| | | | | |
|--|----------------------------------|--------------|------------|--|
| Product size | 2 | 2 | 3 | |
| Cross section (mm ²) | 300 | 185 | 630 | |
| Diameter over insulation (mm) | max. 36.6 | max. 36.6 | max. 50.0 | |
| | Testing values for rated voltage | | | Results |
| U ₀ / U | 12.7 / 22 | 19 / 33 | 20.8 / 36 | |
| U _m | 24 | 36 | 42 | |
| DC withstand voltage 15 min (kV) | 76 | 114 | 125 | no breakdown or flashover |
| AC withstand voltage 5 min (kV) | 57 | 85.5 | 93.5 | no breakdown or flashover |
| PD at ambient temperature (kV) | < 2 pC | < 2 pC | < 2 pC | max. 10 pC at 2 U ₀ |
| Impulse voltage at elevated temperature (kV) | 150 | 200 | 200 | 10 impulses of each polarity; No breakdown |
| Heating cycle voltage in air (kV) | 32 | 48 | 52 | 63 cycles at 2.5 U ₀ ; no breakdown |
| Heating cycle voltage in water (kV) | 32 | 48 | 52 | 63 cycles at 2.5 U ₀ ; no breakdown |
| Thermal short circuit (conductor) (kA) | 31.5 / 3 sec | 31.5 / 1 sec | 50 / 5 sec | 2 short circuits to raise conductor to 250°C; no breakdown |
| Dynamic short circuit (kA) | 125 | 125 | 125 | 1 short circuit at I _d ; no breakdown |
| Disconnection / Connection | 5 x pass | 5 x pass | 5 x pass | 5 complete operations; no visible damage to contact |
| Partial discharge at elevated and ambient temperature (kV) | < 2 pC | < 2 pC | < 2 pC | max. 10 pC at 2 U ₀ |
| Impulse voltage at ambient temperature (kV) | 150 | 200 | 200 | 10 impulses of each polarity; no breakdown |
| AC withstand voltage 15 min (kV) | 32 | 48 | 52 | no breakdown or flashover |

Cable terminations

| Type | Size | Nominal current (A) | System voltage (kV) | Cross section (mm ²) | Dia over conductor (mm) | Dia over insulation (mm) |
|-----------|------|---------------------|---------------------|----------------------------------|-------------------------|--------------------------|
| RPIT-321x | 2 | 800 | 12 | 95 - 300 | 11.0 - 21.6 | 19.3 - 30.4 |
| RPIT-521x | 2 | 800 | 24 | 50 - 300 | 7.7 - 21.6 | 20.2 - 34.6 |
| RPIT-621x | 2 | 630 | 36 | 50 - 185 | 7.7 - 16.8 | 25.2 - 35.1 |
| RPIT-331x | 3 | 1250 | 12 | 240 - 630 | 17.8 - 32.5 | 26.4 - 29.6 |
| RPIT-531x | 3 | 1250 | 24 | 150 - 630 | 13.9 - 32.5 | 26.5 - 45.6 |
| RPIT-631x | 3 | 1250 | 36 / 42 | 95 - 630 | 11.0 - 32.5 | 28.5 - 49.2 |

Note: Product is available with and without test point

Bushing Parts

| Size | Modification | Reference number |
|----------------|--------------------|------------------|
| Size 2 (800A) | without test point | RPIS-2-IS |
| Size 2 (800A) | with test point | RPIS-2-IS-VD |
| Size 3 (1250A) | without test point | RPIS-3-IS |
| Size 3 (1250A) | with test point | RPIS-3-IS-VD |

Insulating cap

| Size | Reference number |
|--------|------------------|
| Size 2 | RPIC-2 |
| Size 3 | RPIC-3 |



RPIT

Installation tools

Compression tool

Metal tool case including an easy to handle compression tool for wedge and contact ring and all necessary adaptation rings.

Reference number: IT-1000-025



Parts to be used for compression of contact elements



Parts to be used for removal of the contact elements



Insert lever and support chain

| Description | Reference number |
|---------------|------------------|
| Insert lever | IT-1000-026 |
| Support chain | IT-1000-027 |



Impact device

| Description | Reference number |
|-------------------|------------------|
| Device for size 2 | IT-1000-028 |
| Device for size 3 | IT-1000-029 |

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.

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

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